Intelsat S.A.
Consolidated Financial Statements

For the year ended December 31, 2019
(With the report of the Réviseur d'Entreprises agréé thereon)

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Intelsat S.A.
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To the Shareholders of
Intelsat S.A.
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Luxembourg

REPORT OF THE REVISEUR D'ENTREPRISES AGREE

Report on the audit of the consolidated financial statements

Opinion

We have audited the consolidated financial statements of Intelsat S.A. and its subsidiaries (the "Group"), which comprise the consolidated balance sheet as at 31 December 2019, and the consolidated statements of operations, comprehensive income (loss), changes in Shareholders' deficit and cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements give a true and fair view of the consolidated financial position of the Group as at 31 December 2019 and of its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with U.S. generally accepted accounting principles.

Basis for opinion

We conducted our audit in accordance with the Law of 23 July 2016 on the audit profession ("Law of 23 July 2016") and with International Standards on Auditing ("ISAs") as adopted for Luxembourg by the "Commission de Surveillance du Secteur Financier" ("CSSF"). Our responsibilities under the Law of 23 July 2016 and ISAs are further described in the « Responsibilities of "Réviseur d'Entreprises agréé" for the audit of the consolidated financial statements » section of our report. We are also independent of the Group in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants ("IESBA Code") as adopted for Luxembourg by the CSSF together with the ethical requirements that are relevant to our audit of the consolidated financial statements, and have fulfilled our other ethical responsibilities under those ethical requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key audit matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of the audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Evaluation of the sufficiency of audit evidence over income taxes	
Why the matter was considered to be one of the most significant in our audit of the annual accounts of the current period	**How the matter was addressed in our audit**
As discussed in Notes 1(k) and 14 to the consolidated financial statements, the Company is subject to income taxes in Luxembourg, as well as the United States and a number of other foreign jurisdictions. The Company's net deferred tax liabilities as of 31 December 2019 were $33.8 million, consisting of deferred tax assets of $4,144.6 million, deferred tax liabilities of $141.8 million and a valuation allowance of $4,036.6 million. The Company's benefit from income taxes was $7.4 million for the year ended 31 December 2019. We identified the evaluation of the sufficiency of audit evidence over income taxes as a critical audit matter. The Company's global tax structure adds complexity, which required subjective auditor judgment to evaluate the sufficiency of audit evidence obtained. This judgment required the involvement of tax professionals with specialized skills and knowledge, in order to assess the nature and extent of procedures performed over certain taxable jurisdictions in relation to the amounts recorded and disclosed in the consolidated financial statements.	Our audit procedures over the evaluation of the sufficiency of audit evidence over income taxes included, but were not limited to: • Applying auditor judgment to determine the nature and extent of procedures to be performed over the income tax accounts and disclosures; • Testing design and implementation and effectiveness of key internal controls over the Company's income tax process, including controls over the amounts recorded and disclosed.; • Selecting key tax jurisdictions and evaluating the Company's related provision for income taxes, income taxes payable or receivable, and deferred tax amounts; • Assessing the disclosures included in the consolidated financial statements as per applicable GAAP requirements; • Involving our own tax professionals with specialized skills and knowledge, who evaluated the Company's interpretation and application of certain tax rules and regulations; • In addition, evaluating the overall sufficiency of audit evidence obtained over income taxes.

Other information

The Board of Directors is responsible for the other information. The other information comprises the information stated in the consolidated annual report including the consolidated management report but does not include the consolidated financial statements and our report of "Réviseur d'Entreprises agréé" thereon.

Our opinion on the consolidated financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report this fact. We have nothing to report in this regard.

Responsibilities of the Board of Directors and Those Charged with Governance for the consolidated financial statements

The Board of Directors is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with U.S. generally accepted accounting principles, and for such internal control as the Board of Directors determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the Board of Directors is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Board of Directors either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Responsibilities of the Réviseur d'Entreprises agréé for the audit of the consolidated financial statements

The objectives of our audit are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue a report of "Réviseur d'Entreprises agréé" that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Law of 23 July 2016 and with ISAs as adopted for Luxembourg by the CSSF will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with the Law of 23 July 2016 and with ISAs as adopted for Luxembourg by the CSSF, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

— Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

— Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.

— Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Board of Directors.

— Conclude on the appropriateness of the Board of Directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our report of the "Réviseur d'Entreprises agréé" to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our report of the "Réviseur d'Entreprises agréé". However, future events or conditions may cause the Group to cease to continue as a going concern.

— Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

— Obtain sufficient appropriate audit evidence regarding the financial information of the entities and business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Report on other legal and regulatory requirements

The consolidated management report is consistent with the consolidated financial statements and has been prepared in accordance with applicable legal requirements.

Luxembourg, 18 March 2020

KPMG Luxembourg
Société coopérative
Cabinet de révision agréé

Fabien Hedouin

Intelsat S.A.
Management report – Business Review

For the year ended December 31, 2019

Background

Intelsat S.A. (the "Company", "we", "us" or "our") provides satellite communications services worldwide through a global communications network of satellites and ground facilities related to the satellite operations and control, and teleport services.

Business overview

As of December 31, 2019, our contracted backlog, which is our expected future revenue under existing customer contracts, was approximately $7.0 billion, roughly three and a half times our 2019 annual revenue. For the year ended December 31, 2019, we generated revenue of $2.1 billion and net loss attributable to Intelsat S.A. of $913.6 million. Our Adjusted EBITDA, which consists of EBITDA as adjusted to exclude or include certain unusual items, certain other operating expense items and certain other adjustments, was $1.5 billion, or 72% of revenue, for the year ended December 31, 2019.

In 2019, our financial results reflected the loss of our Intelsat 29e satellite in April 2019, as well as lower volume of services due to non-renewals of certain contracts. The effect of lower prices in 2019 was muted as compared to prior years. Overall, we believe we benefit from a number of characteristics that allow us to effectively manage our business despite these competitive and geo-economic pressures:

- Significant long-term contracted backlog, providing a foundation for predictable revenue streams;
- Entry into service of our next generation Intelsat Epic platform that was designed to support new services representing $4.4 billion of potential incremental growth by 2024 from expanded enterprise, wireless infrastructure, mobility, Internet of Things and government applications;
- High operating leverage, which has allowed us to generate an average Adjusted EBITDA margin of 76% in the past three years; and
- A stable, efficient and sustainable tax profile for our global business.

Financial outlook

We expect full-year 2020 revenue in a range of $1.930 billion to $1.980 billion.

Intelsat forecasts Adjusted EBITDA performance for the full-year 2020 to be in a range of $1.340 billion to $1.390 billion. This reflects trends relating to the lower revenue and increased direct costs of revenue, staff and marketing costs outlined above.

Intelsat issued its 2020 capital expenditure guidance for the three calendar years 2020-2022 (the "Guidance Period"). Over the next several years we are in a cycle of lower required investment, due to timing of replacement satellites and increased capital efficiency of satellites being built.

We expect the following capital expenditure ranges:

- 2020: $200 million to $250 million;
- 2021: $225 million to $300 million; and
- 2022: $225 million to $325 million.

Our capital expenditure guidance includes capitalized interest. Capitalized interest is expected to average approximately $20 million annually during the Guidance Period.

Intelsat currently has five satellites covered by our 2020 to 2022 capital expenditure plan, two of which are in the design and manufacturing phase. For the remaining three satellites, no manufacturing contracts have yet been signed. During the Guidance Period, we plan for an increased proportion of our capital expenditures to be invested in ground infrastructure and tools needed to enhance our delivery of managed services.

Our capital expenditure plan excludes satellites which we may be required to build should certain aspects of our C-band proposal to the US Federal Communications Commission be adopted.

By the conclusion of the Guidance Period at the end of 2022, the net number of transponder equivalents is expected to increase by a compound annual growth rate of approximately 1 percent, reflecting the net activity of satellites entering and leaving service during the Guidance Period. Capital expenditure incurrence is subject to the timing of achievement of contract, satellite manufacturing, launch and other milestones.

Results of Operations

Years Ended December 31, 2018 and 2019

Revenue

The following table sets forth our revenue by service type for the years ended December 31, 2018 and 2019 (in thousands):

	Year Ended December 31, 2018	Year Ended December 31, 2019	Increase (Decrease)	Percentage Change
On-Network Revenues				
Transponder services	$ 1,570,278	$ 1,468,791	$ (101,487)	(6)%
Managed services	393,264	374,026	(19,238)	(5)%
Channel	4,250	2,400	(1,850)	(44)%
Total on-network revenues	1,967,792	1,845,217	(122,575)	(6)%
Off-Network and Other Revenues				
Transponder, MSS and other off-network	150,186	175,602	25,416	17 %
Satellite-related services	43,212	40,646	(2,566)	(6)%
Total off-network and other revenues	193,398	216,248	22,850	12 %
Total	$ 2,161,190	$ 2,061,465	$ (99,725)	(5)%

Income from Operations

In 2019 our income from operations was $0.4 billion, a $0.5 billion decrease compared to 2018, which primarily comes from the recognition of an impairment charge of $381.6 million for the year ended December 31, 2019 relating to the failure of Intelsat 29e (see Note 8—Satellites and Other Property and Equipment). The impairment charge consisted of approximately $377.9 million related to the write-off of the carrying value of the satellite and associated deferred satellite performance incentive obligations and approximately $3.7 million related to prepaid regulatory fees.

Interest Expense, Net

Interest expense, net consists of gross interest expense incurred together with gains and losses on the interest rate cap contracts we hold (which reflect the changes in their fair values), offset by interest income earned and interest capitalized related to assets under construction. As of December 31, 2019, we held interest rate cap contracts with an aggregate notional amount of $2.4 billion to mitigate the risk of interest rate increases on the floating-rate term loans under our senior secured credit facilities. The interest rate cap contracts have not been designated as hedges for accounting purposes.

For the year ended December 31, 2019, interest expense, net was $1.3 billion as compared to $1.2 billion for the year ended December 31, 2018.

Loss on Early Extinguishment of Debt

No gain or loss on early extinguishment was recognized for the year ended December 31, 2019, as compared to a loss of $199.7 million for the year ended December 31, 2018 related to certain debt transactions that occurred in 2018.

Key performance indicators

EBITDA

EBITDA consists of earnings before net interest, loss (gain) on early extinguishment of debt, taxes and depreciation and amortization. Given our high level of leverage, refinancing activities are a frequent part of our efforts to manage our costs of borrowing. Accordingly, we consider loss (gain) on early extinguishment of debt an element of interest expense. EBITDA is a measure commonly used in the fixed satellite services sector, and we present EBITDA to enhance the understanding of our operating performance. We use EBITDA as one criterion for evaluating our performance relative to that of our peers. We believe that EBITDA is an operating performance measure, and not a liquidity measure, that provides investors and analysts with a measure of operating results unaffected by differences in capital structures, capital investment cycles and ages of related assets among otherwise comparable companies. However, EBITDA is not a measure of financial performance under U.S. generally accepted accounting principles ("U.S. GAAP"), and our EBITDA may not be comparable to similarly titled measures of other companies. EBITDA should not be considered as an alternative to operating income (loss) or net income (loss) determined in accordance with U.S. GAAP, as an indicator of our operating performance, or as an alternative to cash flows from operating activities determined in accordance with U.S. GAAP, as an indicator of cash flows, or as a measure of liquidity.

A reconciliation of net income (loss) to EBITDA for the periods shown is as follows (in thousands):

	Year Ended December 31, 2018	Year Ended December 31, 2019
Net loss	$ (595,690)	$ (911,210)
Add:		
Interest expense, net	1,212,374	1,273,112
Loss on early extinguishment of debt	199,658	—
Provision for (benefit from) income taxes	130,069	(7,384)
Depreciation and amortization	687,589	658,233
EBITDA	$ 1,634,000	$ 1,012,751

Adjusted EBITDA

In addition to EBITDA, we calculate a measure called Adjusted EBITDA to assess the operating performance of Intelsat S.A. Adjusted EBITDA consists of EBITDA of Intelsat S.A. as adjusted to exclude or include certain unusual items, certain other operating expense items and certain other adjustments as described in the table and related footnotes below. Our management believes that the presentation of Adjusted EBITDA provides useful information to investors, lenders and financial analysts regarding our financial condition and results of operations because it permits clearer comparability of our operating performance between periods. By excluding the potential volatility related to the timing and extent of non-operating activities, such as impairments of asset value and other non-recurring items, our management believes that Adjusted EBITDA provides a useful means of evaluating the success of our operating activities. We also use Adjusted EBITDA, together with other appropriate metrics, to set goals for and measure the operating performance of our business, and it is one of the principal measures we use to evaluate our management's performance in determining compensation under our incentive compensation plans. Adjusted EBITDA measures have been used historically by investors, lenders and financial analysts to estimate the value of a company, to make informed investment decisions and to evaluate performance. Our management believes that the inclusion of Adjusted EBITDA facilitates comparison of our results with those of companies having different capital structures.

Adjusted EBITDA is not a measure of financial performance under U.S. GAAP and may not be comparable to similarly titled measures of other companies. Adjusted EBITDA should not be considered as an alternative to operating income (loss) or net income (loss) determined in accordance with U.S. GAAP, as an indicator of our operating performance, as an alternative to cash flows from operating activities determined in accordance with U.S. GAAP, as an indicator of cash flows, or as a measure of liquidity.

A reconciliation of net loss to EBITDA and EBITDA to Adjusted EBITDA is as follows (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2018	Year Ended December 31, 2019
Net loss	$ (174,814)	$ (595,690)	$ (911,210)
Add:			
Interest expense, net	1,020,770	1,212,374	1,273,112
Loss on early extinguishment of debt	4,109	199,658	—
Provision for (benefit from) income taxes	71,130	130,069	(7,384)
Depreciation and amortization	707,824	687,589	658,233
EBITDA	1,629,019	1,634,000	1,012,751
Add:			
Compensation and benefits [(1)]	15,995	6,824	13,189
Non-recurring and other non-cash items [(2)]	19,589	27,646	58,625
Satellite impairment loss [(3)]	—	—	381,565
Proportionate share from unconsolidated joint venture[(4)]:			
Interest expense, net	—	—	5,014
Depreciation and amortization	—	—	10,320
Adjusted EBITDA[(5)(6)]	$ 1,664,603	$ 1,668,470	$ 1,481,464

(1) Reflects non-cash expenses incurred relating to our equity compensation plans.

Contracted Backlog

We benefit from strong visibility of our future revenues. Our contracted backlog is our expected future revenue under existing customer contracts and includes both cancelable and non-cancelable contracts. As of December 31, 2019, our contracted backlog was approximately $7.0 billion. Approximately 88% of this backlog related to contracts that were non-cancelable and approximately 11% related to contracts that were cancelable subject to substantial termination fees. The remaining 1% of backlog related to contracts with little or no termination fees, and represented the difference between our contracted backlog and remaining performance obligations. As of December 31, 2019, the weighted average remaining customer contract life was approximately 4.2 years. We expect to deliver services associated with approximately $1.6 billion, or approximately 23%, of our December 31, 2019 contracted backlog during the year ending December 31, 2020. The amount included in backlog represents the full service charge for the duration of the contract and does not include termination fees. The amount of the termination fees, which is not included in the backlog amount, is generally calculated as a percentage of the remaining backlog associated with the contract. In certain cases of breach for non-payment or customer financial distress or bankruptcy, we may not be able to recover the full value of certain contracts or termination fees. Our contracted backlog includes 100% of the backlog of our consolidated ownership interests, which is consistent with the accounting for our ownership interest in these entities.

Our contracted backlog as of December 31, 2019 was as follows (in millions):

Period	Contracted Backlog
2020	$ 1,611
2021	1,137
2022	870
2023	681
2024	550
2025 and thereafter	2,108
Total	$ 6,957

Our contracted backlog by service type as of December 31, 2019 was as follows (in millions, except percentages):

Service Type	Contracted Backlog	Percent
Transponder services	$ 5,663	81 %
Managed services	1,010	15 %
Off-Network and Other	281	4 %
Channel	3	— %
Total	$ 6,957	

We believe this backlog and the resulting predictable cash flows in the FSS sector make our net cash provided by operating activities less volatile than that of typical companies outside our industry.

Other indicators

Research and development

During the year ended December 31, 2019, the Company did not incur expenses for development activities.

Own shares

The Company does not have any of its own shares.

Financial instruments

We are exposed to the market risk associated with unfavorable movements in interest rates and foreign currencies. The risk inherent in our market risk sensitive instruments and positions is the potential loss arising from adverse changes in those factors. We do not currently use material foreign currency derivatives to hedge our foreign currency exposures nor we purchase or hold any derivative financial instruments for speculative purposes.

Employees

Intelsat fully complies with the laws and regulations relating to its employees, provides training and supports career development.

Environmental Matters

Intelsat aims to provide leadership in the identification and promotion of sustainable practices and services that reduce the Company’s environmental impact, educate and engage staff and create a more environmentally sustainable organization. Our operations are subject to various laws and regulations relating to the protection of the environment, including those governing the management, storage and disposal of hazardous materials and the cleanup of contamination should it arise. As an owner or operator of property and in connection with current and historical operations at some of our sites, we could incur significant costs, including cleanup costs, fines, sanctions and third-party claims, as a result of violations of or liabilities under environmental laws and regulations. For instance, some of our operations require continuous power supply, and, as a result, current and past operations at our teleports and other technical facilities include fuel storage and batteries for back-up power generators. We believe, however, that our operations are in substantial compliance with applicable environmental laws and regulations. Moreover, Intelsat’s properties generally operate pursuant to a Conditional Use Permit. In order to obtain such a permit, Intelsat must demonstrate compliance with all applicable environmental laws and must maintain programs to prevent or minimize damage to public health, safety and the environment, from, for example, a release or threatened release of hazardous materials, including but not limited to ground water, air, offsets and storage. Intelsat also complies with community right-to-know laws and has undertaken compliance with International Organization for Standardization (ISO) 45001:2018, which specifies requirements for an occupational health and safety management system, and is seeking certification at this time.

Principal risks and uncertainties

Business risks

We are subject to significant competition from within the FSS sector, from alternative satellite service providers and from other providers of communications capacity, such as fiber optic cable capacity. Competition from other telecommunications providers could have a material adverse effect on our business and could prevent us from implementing our business strategy and expanding our operations as planned.

The market for FSS may not grow or may shrink and therefore we may not be able to attract new customers, retain our existing customers or implement our strategies to grow our business. In addition, pricing pressures may have an adverse impact on FSS sector revenue.

We have a substantial amount of indebtedness, which may adversely affect our cash flow and our ability to operate our business, remain in compliance with debt covenants and make payments on our indebtedness.

To service our third-party indebtedness, we will require a significant amount of cash. Our ability to generate cash depends on many factors beyond our control, and any failure to meet our third-party debt service obligations could harm our business, financial condition and results of operations.

The terms of our Senior Secured Credit Agreement, the indentures governing our existing notes and the terms of our other indebtedness may restrict our current and future operations, particularly our ability to respond to changes in our business or to take certain actions.

Our business is capital intensive and requires us to make long-term capital expenditure decisions, and we may not be able to raise adequate capital to finance our business strategies, or we may be able to do so only on terms that significantly restrict our ability to operate our business.

Our financial condition could be materially and adversely affected if we were to suffer a satellite loss that is not adequately covered by insurance.

We may become subject to unanticipated tax liabilities that may have a material adverse effect on our results of operations.

We are subject to political, economic, regulatory and other risks due to the international nature of our operations.

We have several large customers and the loss of, or default by, these customers could materially reduce our revenue and materially adversely affect our business.

The loss of the services of key personnel could have a material adverse effect on our business.

Industry risks

We may experience in-orbit satellite failures or degradations in performance that could impair the commercial performance of our satellites, which could lead to lost revenue, an increase in our cash operating expenses, lower operating income or lost backlog.

We may experience a launch failure or other satellite damage or destruction during launch, which could result in a total or partial satellite loss. A new satellite could also fail to achieve its designated orbital location after launch. Any such loss of a satellite could negatively impact our business plans and could reduce our revenue.

Regulatory risks

We are subject to orbital slot and spectrum access requirements of the International Telecommunication Union and regulatory and licensing requirements in each of the countries in which we provide services, operate facilities, or license terminals, and our business is sensitive to regulatory changes internationally and in those countries.

If we do not maintain regulatory authorizations for our existing satellites and associated ground facilities and terminals, services we provide, or obtain authorizations for our future satellites, associated ground facilities and terminals, and services we provide, we may not be able to operate our existing satellites or expand our operations.

If we do not occupy unused orbital locations or use certain frequencies by specified deadlines, or do not maintain satellites in orbital locations we currently use, our rights and/or priority to use these orbital locations and associated frequencies may lapse or become available for other satellite operators to use.

Coordination results may adversely affect our ability to use a satellite at a given orbital location for our proposed service or coverage area.

We can provide no assurance as to our ability to obtain value for making spectrum available for terrestrial mobile services in the United States in connection with the U.S. Federal Communications Comission's C-band proceeding. Furthermore, there are a number of technical challenges to making C-band spectrum available.

If we do not maintain required security clearances from, and comply with our agreements with, the U.S. Department of Defense, or if we do not comply with U.S. law, we may not be able to continue to perform our obligations under U.S. government contracts.

Additional risks not currently known by us, or that are currently believed to be immaterial, also may materially adversely affect our business, financial condition or results of operations in the future.

Stephen Spengler
Chief Executive Officer

David McGlade
Chairman

INTELSAT S.A.

CONSOLIDATED BALANCE SHEETS
(in thousands, except per share amounts)

	December 31, 2018	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 485,120	$ 810,626
Restricted cash	22,037	20,238
Receivables, net of allowances of $28,542 in 2018 and $40,028 in 2019	271,393	255,722
Contract assets	45,034	47,721
Prepaid expenses and other current assets	24,075	39,230
Total current assets	847,659	1,173,537
Satellites and other property and equipment, net	5,511,702	4,702,063
Goodwill	2,620,627	2,620,627
Non-amortizable intangible assets	2,452,900	2,452,900
Amortizable intangible assets, net	311,103	276,752
Contract assets, net of current portion	96,108	74,109
Other assets	401,414	504,394
Total assets	$ 12,241,513	$ 11,804,382
LIABILITIES AND SHAREHOLDERS' DEFICIT		
Current liabilities:		
Accounts payable and accrued liabilities	$ 108,101	$ 88,107
Taxes payable	5,679	6,402
Employee related liabilities	29,696	44,648
Accrued interest payable	284,649	308,657
Contract liabilities	137,746	137,706
Deferred satellite performance incentives	35,261	42,835
Other current liabilities	59,080	62,446
Total current liabilities	660,212	690,801
Long-term debt, net of current portion	14,028,352	14,465,483
Contract liabilities, net of current portion	1,131,319	1,113,450
Deferred satellite performance incentives, net of current portion	210,346	175,837
Deferred income taxes	82,488	55,171
Accrued retirement benefits	133,735	125,511
Other long-term liabilities	77,670	166,977
Shareholders' deficit:		
Common shares; nominal value $0.01 per share	1,380	1,411
Paid-in capital	2,551,471	2,565,696
Accumulated deficit	(6,606,426)	(7,503,830)
Accumulated other comprehensive loss	(43,430)	(63,135)
Total Intelsat S.A. shareholders' deficit	(4,097,005)	(4,999,858)
Non-controlling interest	14,396	11,010
Total liabilities and shareholders' deficit	$ 12,241,513	$ 11,804,382

See accompanying notes to consolidated financial statements.

INTELSAT S.A.

CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share amounts)

	Year Ended December 31, 2017	Year Ended December 31, 2018	Year Ended December 31, 2019
Revenue	$ 2,148,612	$ 2,161,190	$ 2,061,465
Operating expenses:			
Direct costs of revenue (excluding depreciation and amortization)	324,232	330,874	406,153
Selling, general and administrative	205,475	200,857	226,918
Depreciation and amortization	707,824	687,589	658,233
Satellite impairment loss	—	—	381,565
Total operating expenses	1,237,531	1,219,320	1,672,869
Income from operations	911,081	941,870	388,596
Interest expense, net	1,020,770	1,212,374	1,273,112
Loss on early extinguishment of debt	(4,109)	(199,658)	—
Other income (expense), net	10,114	4,541	(34,078)
Loss before income taxes	(103,684)	(465,621)	(918,594)
Provision for (benefit from) income taxes	71,130	130,069	(7,384)
Net loss	(174,814)	(595,690)	(911,210)
Net income attributable to non-controlling interest	(3,914)	(3,915)	(2,385)
Net loss attributable to Intelsat S.A.	$ (178,728)	$ (599,605)	$ (913,595)
Net loss per common share attributable to Intelsat S.A.:			
Basic	$ (1.50)	$ (4.63)	$ (6.51)
Diluted	$ (1.50)	$ (4.63)	$ (6.51)

See accompanying notes to consolidated financial statements.

INTELSAT S.A.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	Year Ended December 31, 2017	Year Ended December 31, 2018	Year Ended December 31, 2019
Net loss	$ (174,814)	$ (595,690)	$ (911,210)
Other comprehensive income (loss), net of tax:			
Defined benefit retirement plans:			
Reclassification adjustment for amortization of unrecognized prior service credits, net of tax included in other income (expense), net	21	(839)	(2,502)
Reclassification adjustment for amortization of unrecognized actuarial loss, net of tax included in other income (expense), net	2,074	4,064	2,943
Actuarial gain (loss) arising during the year, net of tax	(13,896)	2,960	(3,955)
Benefit plan amendment, net of tax of $0.7 million	—	38,510	—
Adoption of ASU 2018-02 (see Note 14—Income Taxes)	—	—	(16,191)
Marketable securities:			
Unrealized gains on investments, net of tax	567	—	—
Reclassification adjustment for realized gain on investments, net of tax	(235)	—	—
Reclassification adjustment for pension assets' gains, net of tax included in other income (expense), net	—	(351)	—
Other comprehensive income (loss)	(11,469)	44,344	(19,705)
Comprehensive loss	(186,283)	(551,346)	(930,915)
Comprehensive income attributable to non-controlling interest	(3,914)	(3,915)	(2,385)
Comprehensive loss attributable to Intelsat S.A.	$ (190,197)	$ (555,261)	$ (933,300)

See accompanying notes to consolidated financial statements.

INTELSAT S.A.

CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' DEFICIT
(in thousands, except where otherwise noted)

	Common		Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Intelsat S.A. Shareholders' Deficit	Non-controlling Interest
	Shares (in millions)	Amount					
Balance at December 31, 2016	118.0	$ 1,180	$ 2,156,911	$ (5,715,931)	$ (76,305)	$ (3,634,145)	$ 24,147
Net income (loss)	—	—	—	(178,728)	—	(178,728)	3,914
Dividends paid to non-controlling interests	—	—	—	—	—	—	(8,755)
Share-based compensation	1.6	16	16,456	—	—	16,472	—
Postretirement/pension liability adjustment, net of tax of ($3.1) million	—	—	—	—	(11,801)	(11,801)	—
Other comprehensive income, net of tax of $0.2 million	—	—	—	—	332	332	—
Balance at December 31, 2017	119.6	$ 1,196	$ 2,173,367	$ (5,894,659)	$ (87,774)	$ (3,807,870)	$ 19,306
Net income (loss)	—	—	—	(599,605)	—	(599,605)	3,915
Dividends paid to non-controlling interests	—	—	—	—	—	—	(8,825)
Share-based compensation	2.9	29	10,006	—	—	10,035	—
Equity offering and 2025 Convertible Notes offering	15.5	155	368,098	—	—	368,253	—
Postretirement/pension liability adjustment, net of tax of $0.6 million	—	—	—	—	6,185	6,185	—
Benefit plan amendment, net of tax of $0.7 million	—	—	—	—	38,510	38,510	—
Other comprehensive income, net of tax of ($0.2) million	—	—	—	—	(351)	(351)	—
Adoption of ASU 2014-09	—	—	—	(281,741)	—	(281,741)	—
Adoption of ASU 2016-16	—	—	—	169,579	—	169,579	—
Balance at December 31, 2018	138.0	$ 1,380	$ 2,551,471	$ (6,606,426)	$ (43,430)	$ (4,097,005)	$ 14,396
Net income (loss)	—	—	—	(913,595)	—	(913,595)	2,385
Dividends paid to non-controlling interests	—	—	—	—	—	—	(5,771)
Share-based compensation	3.1	31	14,225	—	—	14,256	—
Postretirement/pension liability adjustment	—	—	—	—	(3,514)	(3,514)	—
Adoption of ASU 2018-02 (see Note 14—Income Taxes)	—	—	—	16,191	(16,191)	—	—
Balance at December 31, 2019	141.1	$ 1,411	$ 2,565,696	$ (7,503,830)	$ (63,135)	$ (4,999,858)	$ 11,010

See accompanying notes to consolidated financial statements.

INTELSAT S.A.

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)	Year Ended December 31, 2017	Year Ended December 31, 2018	Year Ended December 31, 2019
Cash flows from operating activities:			
Net loss	$ (174,814)	$ (595,690)	$ (911,210)
Adjustments to reconcile net loss to net cash provided by operating activities:			
Depreciation and amortization	707,824	687,589	658,233
Provision for (benefit from) doubtful accounts	(4,094)	(836)	17,190
Foreign currency transaction (gain) loss	(876)	6,736	2,128
Loss on disposal of assets	45	46	402
Satellite impairment loss	—	—	381,565
Share-based compensation	15,995	6,824	13,189
Deferred income taxes	43,931	79,160	(27,707)
Amortization of discount, premium, issuance costs and related costs	48,696	48,495	41,943
Loss on early extinguishment of debt	4,109	199,658	—
Amortization of actuarial loss and prior service credits for retirement benefits	3,287	3,823	(3,572)
Unrealized (gains) losses on derivative financial instruments	275	(15,093)	27,018
Unrealized net losses on investments and loans held-for-investment	—	408	39,695
Sales-type lease	—	—	7,064
Other non-cash items	(287)	1,178	(205)
Changes in operating assets and liabilities:			
Receivables	(14,333)	(63,814)	(1,307)
Prepaid expenses, contract and other assets	(24,760)	3,708	15,664
Accounts payable and accrued liabilities	(42,337)	7,291	10,908
Accrued interest payable	58,367	21,442	24,008
Deferred revenue and contract liabilities	(134,577)	(39,763)	(18,368)
Accrued retirement benefits	(13,422)	(15,902)	(8,224)
Other long-term liabilities	(8,783)	8,913	(12,875)
Net cash provided by operating activities	464,246	344,173	255,539
Cash flows from investing activities:			
Payments for satellites and other property and equipment (including capitalized interest)	(461,627)	(255,696)	(229,818)
Purchase of investments and origination of loans held-for-investment	(25,744)	(19,000)	(70,751)
Capital contributions to unconsolidated affiliate (including capitalized interest)	(30,714)	(48,097)	(5,289)
Proceeds from insurance settlements	49,788	20,409	—
Other proceeds from satellites	—	18,750	13,125
Net cash used in investing activities	(468,297)	(283,634)	(292,733)
Cash flows from financing activities:			
Proceeds from issuance of long-term debt	1,500,000	4,585,875	400,000
Repayments of long-term debt	(1,500,000)	(4,782,451)	—
Debt issuance costs	(41,237)	(49,436)	(4,650)
Debt modification fees	—	(3,954)	—
Proceeds from stock issuance, net of issuance costs	—	224,250	—
Payment of premium on early extinguishment of debt	—	(33,890)	—
Payments on tender, debt exchange and consent	(14)	—	—
Other payments for satellites	(35,396)	—	—
Principal payments on deferred satellite performance incentives	(37,186)	(25,488)	(28,034)
Dividends paid to non-controlling interest	(8,755)	(8,825)	(5,771)
Proceeds from exercise of employee stock options	476	3,211	1,067
Other financing activities	414	385	298
Net cash provided by (used in) financing activities	(121,698)	(90,323)	362,910
Effect of exchange rate changes on cash, cash equivalents and restricted cash	1,116	(4,450)	(2,009)
Net change in cash, cash equivalents and restricted cash	(124,633)	(34,234)	323,707
Cash, cash equivalents, and restricted cash, beginning of period	666,024	541,391	507,157
Cash, cash equivalents, and restricted cash, end of period	$ 541,391	$ 507,157	$ 830,864

Supplemental cash flow information:			
Interest paid, net of amounts capitalized	$ 915,627	$ 1,052,885	$ 1,099,874
Income taxes paid, net of refunds	33,731	57,085	33,584
Supplemental disclosure of non-cash investing activities:			
Accrued capital expenditures	$ 38,450	$ 28,203	$ 8,123
Capitalization of deferred satellite performance incentives	44,445	28,161	29,382

See accompanying notes to consolidated financial statements.

INTELSAT S.A.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Note 1 Background and Summary of Significant Accounting Policies

Intelsat S.A. and its subsidiaries (“Intelsat S.A.,” “we,” “us,” “our” or the “Company”) provides satellite communications services worldwide through a global communications network of 53 satellites and ground facilities related to the satellite operations and control, and teleport services.

(a) Principles of Consolidation

The consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America (“U.S. GAAP”), in accordance with a derogation pursuant to Article 27 of the amended law of 19 December 2002 obtained from the Ministry of Justice. A reconciliation of shareholders’ equity and result for the period with International Financial Reporting Standards as adopted by the European Union (“IFRS”) is included in Note 19—Reconciliation with IFRS.

The accompanying consolidated financial statements include the accounts of Intelsat S.A., its wholly-owned subsidiaries, and variable interest entities (“VIE”) of which we are the primary beneficiary, and are prepared in conformity with accounting principles generally accepted in the United States of America (“U.S. GAAP”). References to U.S. GAAP issued by the Financial Accounting Standards Board (“FASB”) in these footnotes are to the FASB Accounting Standards Codification (“ASC”). We are the primary beneficiary of one VIE, as more fully described in Note 9—Investments, and accordingly, we include in our consolidated financial statements the assets and liabilities and results of operations of the entity, even though we may not own a majority voting interest. We use the equity method to account for our investments in entities where we exercise significant influence over operating and financial policies but do not retain control under either the voting interest model (generally 20% to 50% ownership interest) or the variable interest model. In 2015, we entered into a joint venture agreement as further described in Note 9—Investments, and the investment is accounted for using the equity method. We have eliminated all significant intercompany accounts and transactions.

(b) Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities as of the date of the financial statements, the reported amounts of revenues and expenses during the reporting periods, and the disclosures of contingent liabilities. Accordingly, ultimate results could differ from those estimates.

(c) Revenue Recognition

We earn revenue primarily by providing services over satellite transponder capacity to our customers. Our customers generally obtain satellite services from us by placing an order pursuant to one of several master customer service agreements and related service orders. See Note 3—Revenue for further discussion regarding revenue recognition policies.

We adopted ASC 606, *Revenue from Contracts with Customers* ("ASC 606"), effective January 1, 2018, using the modified retrospective method. We recognized the cumulative effect of initially applying the new standard as an adjustment to the opening balance of accumulated deficit. The comparative information as of and for the year ended December 31, 2017 has not been restated and continues to be reported under the accounting standards in effect for that year.

(d) Fair Value Measurements

We estimate the fair value of our financial instruments using available market information and valuation methodologies. The carrying amounts of cash and cash equivalents, receivables, accounts payable and accrued liabilities approximate their fair values because of the short maturity of these financial instruments.

ASC 820, *Fair Value Measurements and Disclosure* (“ASC 820”) defines fair value as the price that would be received in the sale of an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. ASC 820 requires disclosure of the extent to which fair value is used to measure financial assets and liabilities, the inputs utilized in calculating valuation measurements, and the effect of the measurement of significant unobservable inputs on earnings, or changes in net assets, as of the measurement date. ASC 820 establishes a three-level valuation hierarchy based upon the transparency of inputs utilized in the measurement and valuation of financial assets or liabilities as of the measurement date. We apply fair value accounting for all financial assets and liabilities and non-financial assets and liabilities that are recognized or disclosed at fair value in the financial statements on a recurring basis.

The fair value hierarchy prioritizes the inputs used in valuation techniques into three levels as follows:

- Level 1—unadjusted quoted prices for identical assets or liabilities in active markets;
- Level 2—quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, and inputs other than quoted market prices that are observable or that can be corroborated by observable market data by correlation; and
- Level 3—unobservable inputs based upon the reporting entity's internally developed assumptions which market participants would use in pricing the asset or liability.

(e) Cash and Cash Equivalents and Restricted Cash

Cash and cash equivalents consist of cash on hand and highly liquid investments with original maturities of three months or less, which are generally time deposits with banks and money market funds. The carrying amount of these investments approximates fair value. Restricted cash represents legally restricted amounts being held as a compensating balance for certain outstanding letters of credit.

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within our consolidated balance sheets to the total sum of these amounts reported in our consolidated statements of cash flows (in thousands):

	As of December 31, 2018	As of December 31, 2019
Cash and cash equivalents	$ 485,120	$ 810,626
Restricted cash	22,037	20,238
Cash, cash equivalents and restricted cash	$ 507,157	$ 830,864

(f) Receivables and Allowances for Doubtful Accounts

We provide satellite services and extend credit to numerous customers in the satellite communication, telecommunications and video markets. We monitor our exposure to credit losses and maintain allowances for doubtful accounts and anticipated losses. We believe we have adequate customer collateral and reserves to cover our exposure.

(g) Satellites and Other Property and Equipment

Satellites and other property and equipment are stated at historical cost, except for satellites that have been impaired. Satellites and other property and equipment acquired as part of an acquisition are stated based on their fair value at the date of acquisition. Capitalized costs consist primarily of the costs of satellite construction and launch, including launch insurance and insurance during the period of in-orbit testing, the net present value of performance incentives expected to be payable to the satellite manufacturers (dependent on the continued satisfactory performance of the satellites), costs directly associated with the monitoring and support of satellite construction, and interest costs incurred during the period of satellite construction.

We depreciate satellites and other property and equipment on a straight-line basis over the following estimated useful lives:

	Years
Buildings and improvements	10 - 40
Satellites and related costs	10 - 17
Ground segment equipment and software	4 - 15
Furniture and fixtures and computer hardware	4 - 12
Leasehold improvements[1]	2 - 12

(1) Leasehold improvements are depreciated over the shorter of the useful life of the improvement or the remaining lease term.

(h) Other Assets

Other assets primarily consist of investments in certain equity securities, equity method investments, loan receivables, right-of-use ("ROU") assets, long-term deposits and other miscellaneous deferred charges and long-term assets. See Note 9—Investments for additional discussion regarding equity securities, equity method investments and loan receivable accounting policies. See Note 13—Leases and Recently Adopted Accounting Pronouncements for additional discussion regarding ROU asset accounting policies.

(i) Goodwill and Other Intangible Assets

We account for goodwill and other intangible assets in accordance with ASC 350, *Intangibles—Goodwill and Other* ("ASC 350"). Goodwill represents the excess of the consideration transferred plus the fair value of any non-controlling interest in the acquiree at the acquisition date over the fair values of identifiable net assets of businesses acquired. Goodwill and certain other intangible assets deemed to have indefinite lives are not amortized but are tested on an annual basis for impairment during the fourth quarter, or whenever events or changes in circumstances indicate that the carrying amount may not be fully recoverable. See Note 10—Goodwill and Other Intangible Assets.

Intangible assets arising from business combinations are initially recorded at fair value. We record other intangible assets at cost. We amortize intangible assets with determinable lives (consisting of backlog and customer relationships) based on the expected pattern of consumption. We review these intangible assets for impairment whenever facts and circumstances indicate that the carrying amounts may not be recoverable. See Note 10—Goodwill and Other Intangible Assets.

(j) Impairment of Long-Lived Assets

We review long-lived assets, including property and equipment and acquired intangible assets with estimable useful lives, for impairment whenever events or changes in circumstances indicate that the carrying amount of such an asset may not be recoverable. These indicators of impairment can include, but are not limited to, the following:

- satellite anomalies, such as a partial or full loss of power;
- under-performance of an asset compared to expectations; and
- shortened useful lives due to changes in the way an asset is used or expected to be used.

The recoverability of an asset to be held and used is determined by comparing the carrying amount to the estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of the asset exceeds its estimated undiscounted future cash flows, we record an impairment charge in the amount by which the carrying amount of the asset exceeds its fair value, which we determine by either a quoted market price, if any, or a value determined by utilizing discounted cash flow techniques.

(k) Income Taxes

We account for income taxes in accordance with ASC 740, *Income Taxes*. We are subject to income taxes in Luxembourg, as well as the United States and a number of other foreign jurisdictions. Significant judgment is required in the calculation of our tax provision and the resulting tax liabilities and in the recoverability of our deferred tax assets that arise from temporary differences between the tax and financial statement recognition of revenue and expense and net operating loss and credit carryforwards.

We regularly assess the likelihood that our deferred tax assets can be recovered. A valuation allowance is required when it is more likely than not that all or a portion of the deferred tax asset will not be realized. We evaluate the recoverability of our deferred tax assets based in part on the existence of deferred tax liabilities that can be used to realize the deferred tax assets.

During the ordinary course of business, there are transactions and calculations for which the ultimate tax determination is uncertain. We evaluate our tax positions to determine if it is more likely than not that a tax position is sustainable, based solely on its technical merits and presuming the taxing authorities have full knowledge of the position and access to all relevant facts and information. When a tax position does not meet the more likely than not standard, we record a liability or contra asset for the entire amount of the unrecognized tax impact. Additionally, for those tax positions that are determined more likely than not to be sustainable, we measure the tax position at the largest amount of benefit more likely than not (determined by cumulative probability) to be realized upon settlement with the taxing authority.

(l) Foreign Currency Translation

Our functional currency is the U.S. dollar, since substantially all customer contracts, capital expenditure contracts and operating expense obligations are denominated in U.S. dollars. Transactions not denominated in U.S. dollars have been translated using the spot rates of exchange at the dates of the transactions. We recognize differences on exchange arising on the settlement of the transactions denominated in currencies other than the U.S. dollar in the consolidated statement of operations.

(m) Comprehensive Loss

Comprehensive loss consists of net loss and other gains and losses affecting shareholders' deficit that, under U.S. GAAP, are excluded from net loss. Such items consist primarily of the change in the market value of pension liability adjustments.

(n) Share-Based Compensation

We account for share-based compensation expense in accordance with ASC 718, *Compensation—Stock Compensation*, which requires us to measure and recognize compensation expense in our financial statements based on the fair value at the date of grant for our share-based awards, which include restricted share units ("RSUs") and stock options granted to certain employees and RSUs granted to certain eligible directors. We recognize compensation expense for these equity-classified awards over their requisite service period and adjust for forfeitures as they occur. See Note 5—Share-Based and Other Compensation Plans for a further discussion of the accounting for our share-based compensation plans.

(o) Deferred Satellite Performance Incentives

The cost of satellite construction may include an element of deferred consideration that we are obligated to pay to satellite manufacturers over the lives of the satellites, provided the satellites continue to operate in accordance with contractual specifications. Historically, the satellite manufacturers have earned substantially all of these payments. Therefore, we account for these payments as deferred financing. We capitalize the present value of these payments as part of the cost of the satellites and record a corresponding liability to the satellite manufacturers. Interest expense is recognized on the deferred financing and the liability is reduced as the payments are made.

(p) Derivative Instruments

We enter into derivative transactions primarily to manage our exposure to fluctuations in foreign exchange rates and interest rates. We employ risk management strategies, which may include the use of foreign currency swaps, interest rate swaps and interest rate caps. We measure all derivatives at fair value and recognize them as either assets or liabilities on our consolidated balance sheets. Changes in the fair value of derivative instruments not qualifying as hedges are recognized in earnings in the current period.

(q) Recently Adopted Accounting Pronouncements

In February 2016, the FASB issued Accounting Standards Update ("ASU") 2016-02, *Leases (Topic 842)* ("ASC 842"), which supersedes the lease accounting requirements in ASC 840, *Leases* ("ASC 840"). The guidance in ASC 842 increases transparency and comparability by recognizing substantially all leases on the balance sheet and disclosing key information about leasing arrangements. Under the new standard, a lessee recognizes on its balance sheet a ROU asset and a lease liability for leases. The FASB issued several amendments to the standard, clarifying aspects of the guidance for both lessees and lessors and providing an alternative transition method (the "effective date method").

In March 2019, the FASB issued ASU 2019-01, *Leases (Topic 842)—Codification Improvements,* to increase stakeholders' awareness of the amendments the FASB made related to ASC 842 and to expedite these improvements. The amendments clarify the FASB's original intent regarding transition disclosures related to ASC 250, *Accounting Changes and Error Corrections*, by explicitly providing an exception to the paragraph 250-10-50-3 interim disclosure requirements in the ASC 842 transition disclosure requirements. The amendments should be applied as of the date ASC 842 is first applied, using the same transition methodology elected. We adopted ASU 2019-01 on January 1, 2019 along with the adoption of ASC 842.

We describe below our accounting policy changes related to leases as a result of adopting ASC 842. Our accounting policies and reported amounts with respect to the year ended December 31, 2018 and prior were not affected by the adoption of ASC 842 and continue to be in accordance with ASC 840.

We adopted ASC 842 effective January 1, 2019 using the effective date method and applied the package of practical expedients included therein. Under the package of practical expedients, we did not reassess (a) whether expired or existing contracts contain a lease under the new definition of a lease, (b) lease classification for expired or existing leases, and (c) whether previously capitalized initial direct costs would qualify for capitalization under ASC 842. We also applied the practical expedients for lessees and lessors to exempt short-term leases and to combine lease and non-lease components of a contract.

We determine if a contract is or contains a lease at inception or modification of a contract. A contract is or contains a lease if the contract conveys the right to control the use of an identified asset for a period in exchange for consideration. Control over the use of the identified asset means the lessee has both (a) the right to obtain substantially all of the economic benefits from the use of the asset and (b) the right to direct the use of the asset.

Operating and finance lease ROU assets and lease liabilities are recognized based on the present value of future minimum lease payments over the expected lease term, at the commencement date. For leases in which the implicit rate is not readily determinable, we use our incremental borrowing rate based on the information available at commencement date in determining the present value of future payments. The expected lease terms include options to extend or terminate the lease when it is reasonably certain the Company will exercise such option. ROU assets include unpaid lease payments and exclude lease incentives and initial direct costs incurred. For our operating leases, we recognize lease expense for minimum lease payments on a straight-line basis over the lease term, and for our finance leases, we recognize interest expense on the lease liability using the effective interest method and amortization of the ROU assets on a straight-line basis over the lease term.

We have lease agreements with lease and non-lease components, which are generally combined, consistent with our election of the practical expedient. For lease agreements entered into or reassessed after the adoption of ASC 842 in which the Company is the lessee, the Company accounts for the lease components (e.g. fixed payments including rent, real estate taxes and insurance costs) and non-lease components (e.g. common-area maintenance costs and managed service contracts) as a single lease component for all classes of underlying assets. Leases in which the Company is the lessor are also evaluated for lease and non-lease components. In the event a sales-type lease is identified, this component is accounted for separately from lease and non-lease components that meet the practical expedient to be combined. Judgment is required in determining the allocation between lease components and also between the lease and non-lease components, as the non-lease components are the predominant components of the combined components. ASC 606 is applied to the combined lease and non-lease components. Leases with an expected term of 12 months or less are not accounted for on the balance sheet and the related lease expense is recognized on a straight-line basis over the expected lease term.

The adoption of ASC 842 and related amendments resulted in the recording of ROU assets, current lease liabilities and long-term lease liabilities of approximately $88.7 million, $11.4 million and $103.0 million, respectively, as of January 1, 2019, which are included in other assets, other current liabilities and other long-term liabilities, respectively, on our consolidated balance sheets. The difference between the additional ROU assets and lease liabilities, net of the deferred tax impact, was related to unamortized lease incentives received and accrued lease payments outstanding as of January 1, 2019. Adoption of the standard did not have a material impact on our consolidated statements of operations or statements of cash flows.

Refer to Note 13—Leases, for the required disclosures related to leases.

We adopted ASU 2018-02, *Income Statement—Reporting Comprehensive Income (Topic 220)—Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*, in the first quarter of 2019. See Note 14—Income Taxes.

(r) Recently Issued Accounting Pronouncements

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, which changes how companies measure and recognize credit impairment for any financial assets. The standard requires companies to immediately recognize an estimate of credit losses expected to occur over the remaining life of the financial assets that are within the scope of the standard. The scope of Subtopic 326-20, *Financial Instruments—Credit Losses—Measured at Amortized Cost*, includes financial assets measured at amortized cost basis, including net investments in leases arising from sales-type and direct financing leases. The scope does not specifically address receivables arising from operating leases. In November 2018, the FASB issued ASU 2018-19, *Codification Improvements to Topic 326, Financial Instruments—Credit Losses* to clarify that receivables arising from operating leases are not within the scope of Subtopic 326-20. Instead, impairment of receivables arising from operating leases should be accounted for in accordance with ASC 842. In April 2019, the FASB issued ASU 2019-04, *Codification Improvements to Topic 326, Financial Instruments—Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments* to clarify certain aspects of the accounting for credit losses, hedging activities and financial instruments. In May 2019, the FASB issued ASU 2019-05, *Financial Instruments—Credit Losses (Topic 326)—Targeted Transition Relief,* which allows companies to irrevocably elect, upon adoption of ASU 2016-13, the fair value option for existing financial assets on an instrument-by-instrument basis that (1) were previously recorded at amortized cost, (2) are within the scope of the credit losses guidance in Subtopic 326-20, (3) are eligible for the fair value option under ASC 825, *Financial Instruments* and (4) are not held-to-maturity debt securities. In November 2019, the FASB issued ASU 2019-10, *Financial Instruments—Credit Losses (Topic 326), Derivatives and Hedging (Topic 815), and Leases (Topic 842): Effective Dates,* which clarifies the effective dates of adoption for various entities. In November 2019, the FASB issued ASU 2019-11, *Codification Improvements to Topic 326, Financial Instruments—Credit Losses,* which addresses specific issues related to expected recoveries, troubled debt restructurings, accrued interest receivables and financial assets secured by collateral. In February 2020, the FASB issued ASU 2020-02, *Financial Instruments—Credit Losses (Topic 326) and Leases (Topic 842)—Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 119 and Update to SEC Section on Effective Date Related to Accounting Standards Update No. 2016-02, Leases (Topic 842),* which amends the language in Subtopic 326-20 and addresses questions primarily regarding documentation and company policies. ASU 2016-13 and its

amendments will be effective for the Company for interim and annual periods in fiscal years beginning after December 15, 2019, on a modified retrospective basis. The adoption of ASU 2016-13 and its amendments is not expected to have a significant impact on our consolidated financial statements and associated disclosures.

In January 2017, the FASB issued ASU 2017-04, *Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment,* which is intended to simplify the subsequent measurement of goodwill. The amendments in ASU 2017-04 modify the concept of impairment from the condition that exists when the carrying amount of goodwill exceeds its fair value to the condition that exists when the carrying amount of a reporting unit exceeds its fair value. An entity will no longer determine goodwill impairment by calculating the implied fair value of goodwill by assigning the fair value of a reporting unit to all of its assets and liabilities, as if that reporting unit had been acquired in a business combination. ASU 2017-04 will be effective for the Company for interim and annual periods in fiscal years beginning after December 15, 2019, on a prospective basis. When adopted, we will measure impairment using the difference between the carrying amount and the fair value of the reporting unit, if required.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820)—Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement,* as part of its disclosure framework project to improve the effectiveness of disclosures in the notes to financial statements. ASU 2018-13 modifies disclosure requirements on fair value measurements in ASC 820, *Fair Value Measurement*, and will be effective for the Company for interim and annual periods in fiscal years beginning after December 15, 2019. The amendments on changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements, and the narrative description of measurement uncertainty should be applied prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. All other amendments should be applied retrospectively to all periods presented upon their effective date. Early adoption is allowed for any removed or modified disclosures upon issuance of ASU 2018-13 and delayed adoption for the additional disclosures until their effective date.

In August 2018, the FASB issued ASU 2018-14, *Compensation—Retirement Benefits—Defined Benefit Plans—General (Subtopic 715-20)—Disclosure Framework—Changes to the Disclosure Requirements for Defined Benefit Plans,* as part of its disclosure framework project to improve the effectiveness of disclosures in the notes to financial statements. ASU 2018-14 modifies and clarifies disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans. The amendments remove certain disclosure requirements and require additional disclosures including the weighted-average interest crediting rates for cash balance plans and other plans with promised interest crediting rates, an explanation of the reasons for significant gains and losses related to changes in the benefit obligation for the period, the projected benefit obligation ("PBO") and fair value of plan assets for plans with PBOs in excess of plan assets, and the accumulated benefit obligation ("ABO") and fair value of plan assets for plans with ABOs in excess of plan assets. ASU 2018-14 will be effective for the Company for annual periods in fiscal years ending after December 15, 2020, on a retrospective basis to all periods presented, with early adoption allowed. We are in the process of evaluating the impact that ASU 2018-14 will have on our consolidated financial statements and associated disclosures.

In August 2018, the FASB issued ASU 2018-15, *Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*, to improve current U.S. GAAP by clarifying the accounting for implementation costs of a hosting arrangement that is a service contract. The amendments align the requirements for capitalizing implementation costs incurred in a cloud computing arrangement (hosting arrangement) that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The amendments require costs for implementation activities in the application development stage to be capitalized depending on the nature of the costs, and costs incurred during the preliminary project and post-implementation stages to be expensed as the activities are performed. ASU 2018-15 also requires the entity (customer) to expense capitalized implementation costs of a hosting arrangement that is a service contract over the term of the hosting arrangement, and the entity (customer) to present the expense related to the capitalized implementation costs in the same line item in the statement of income as the fees associated with the hosting element (service) of the arrangement, as well as to classify payments for capitalized implementation costs in the statement of cash flows in the same manner as payments made for fees associated with the hosting element. ASU 2018-15 will be effective for the Company for interim and annual periods in fiscal years beginning after December 15, 2019. ASU 2018-15 can be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption, with early adoption allowed. The adoption of ASU 2018-15 is not expected to have a significant impact on our consolidated financial statements and associated disclosures.

In November 2018, the FASB issued ASU 2018-18, *Collaborative Arrangements (Topic 808)—Clarifying the Interaction between Topic 808 and Topic 606*, to clarify the interaction between ASC 808, *Collaborative Arrangements* ("ASC 808") and ASC 606. ASU 2018-18 will be effective for the Company for interim and annual periods in fiscal years beginning after December 15, 2019, with early adoption allowed. ASU 2018-18 can be applied retrospectively to the date of initial application of ASC 606, with cumulative effect of initially applying the amendments in this update adjusted to the opening balance of retained earnings of the later of the earliest annual period presented and the annual period that includes

the date of the entity's initial application of ASC 606. The amendments in ASU 2018-18 can be applied to all contracts or only to contracts that are not completed at the date of initial application of ASC 606. The adoption of ASU 2018-18 is not expected to have a significant impact on our consolidated financial statements and associated disclosures.

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740)—Simplifying the Accounting for Income Taxes*, which is intended to simplify the accounting for income taxes by removing certain exceptions to the general principles in ASC 740. The amendments also improve consistent application of and simplify U.S. GAAP for other areas of ASC 740 by clarifying and amending existing guidance. ASU 2019-12 will be effective for the Company for interim and annual periods in fiscal years beginning after December 15, 2020, with early adoption allowed. We are in the process of evaluating the impact that ASU 2019-12 will have on our consolidated financial statements and associated disclosures.

In January 2020, the FASB issued ASU 2020-01, *Investments—Equity Securities (Topic 321), Investments—Equity Method and Joint Ventures (Topic 323), and Derivatives and Hedging (Topic 815): Clarifying the Interactions between Topic 321, Topic 323, and Topic 815,* which could change how an entity accounts for an equity security under the measurement alternative or a forward contract or purchased option to purchase securities that, upon settlement of the forward contract or exercise of the purchased option, would be accounted for under the equity method of accounting or the fair value option in accordance with ASC 825, *Financial Instruments*. These amendments improve current U.S. GAAP by reducing diversity in practice and increasing comparability of the accounting for these interactions. ASU 2020-01 will be effective for the Company for interim and annual periods in fiscal years beginning after December 15, 2020, with early adoption allowed. We are in the process of evaluating the impact that ASU 2020-01 will have on our consolidated financial statements and associated disclosures.

Note 2 Share Capital

Under our Articles of Incorporation, we have an authorized share capital of $10.0 million, represented by 1.0 billion shares of any class with a nominal value of $0.01 per share. At December 31, 2019, there were 141.1 million common shares issued and outstanding.

Note 3 Revenue

(a) Revenue Recognition

We earn revenue primarily by providing services to our customers using our satellite transponder capacity. Our customers generally obtain satellite capacity from us by placing an order pursuant to one of several master customer service agreements. On-network services are comprised primarily of services delivered on our owned network infrastructure, as well as commitments for third-party capacity, generally long-term in nature, that we integrate and market as part of our owned infrastructure. In the case of third-party services in support of government applications, the commitments for third-party capacity are shorter and matched to the government contracting period, and thus remain classified as off-network services. Off-network services can include transponder services and other satellite-based transmission services, such as mobile satellite services ("MSS"), which are sourced from other operators, often in frequencies not available on our network. Under the category Off-Network and Other Revenues, we also include revenues from consulting and other services.

For each service type, the price per unit in our contracts is generally fixed for each defined time period. While the number of units or price per unit in our multi-year contracts may be different by year or another time period, the number of units and price per unit are fixed for each defined time period and the total contract price is fixed. To determine the proper revenue recognition method for contracts, we evaluate whether two or more services should be combined and accounted for as a single performance obligation. Our specific revenue recognition policies are as follows:

Satellite Utilization Charges. The Company's contracts for satellite utilization services often contain multiple service orders for the provision of capacity on or over different beams, satellites, frequencies, geographies or time periods. Under each separate service order, the Company's satellite services, comprised of transponder services, managed services, channel services, and occasional use managed services, are delivered in a series of time periods that are distinct from each other and have the same pattern of transfer to the customer. In each period, the Company's obligation is to make those services available to the customer. Throughout each service period, the Company provides services that are able to be used continuously, and the customer simultaneously receives and consumes the benefits provided by the Company. We believe that, given that our services are stand-ready obligations that are available continuously, the passage of time most faithfully reflects our satisfaction of the performance obligation. We also have certain obligations, including providing spare or substitute capacity if available, in the event of satellite service failure under certain long-term agreements. While we are generally not obligated to refund satellite utilization payments previously made, credits may be granted for sustained service outages in certain limited circumstances.

Similar to satellite utilization charges, we have determined that the customer simultaneously receives and consumes benefits provided by the Company for satellite related consulting and technical services, tracking, telemetry and

commanding services ("TT&C") and in-orbit backup services, as detailed below. Therefore, we believe that the passage of time most faithfully reflects our satisfaction of the performance obligation for these services:

Satellite-Related Consulting and Technical Services. We recognize revenue from the provision of consulting services as those services are performed. We recognize revenue for consulting services with specific performance obligations, such as transfer orbit support services or training programs over the service period.

TT&C. We earn TT&C services revenue from providing operational services to other satellite owners and from certain customers on our satellites. TT&C agreements entered into in connection with our satellite utilization contracts are typically for the period of the related service agreement. We recognize this revenue over the term of the service agreement.

In-Orbit Backup Services. We provide back-up transponder capacity that is held on reserve for certain customers on agreed-upon terms. We recognize revenues for in-orbit protection services over the term of the related agreement.

Revenue Share Arrangements. We recognize revenues under revenue share agreements for satellite-related services either on a gross or net basis in accordance with principal versus agent considerations.

We occasionally sell products or services individually or in some combination to our customers. When products or services are sold together, we allocate revenue for each performance obligation based on each obligation's relative selling price. In these arrangements, revenue for products is recognized when the transfer of control passes to the customer, while service revenue is recognized over the service term.

Contract Assets

Contract assets include unbilled amounts typically resulting from sales under our long-term contracts when the total contract value is recognized on a straight-line basis and the revenue recognized exceeds the amount billed to the customer.

Contract Liabilities

Contract liabilities consist of advance payments and collections in excess of revenue recognized and deferred revenue. Our contracts at times contain prepayment terms that range from one month to one year in advance of providing the service. As a practical expedient, we do not need to adjust the promised amount of consideration for the effects of a significant financing component if we expect, at contract inception, that the period of time between when the Company transfers a promised good or service to a customer and when the customer pays for that good or service will be one year or less. For a small subset of contracts with advance payments that contain prepayment terms greater than one year and up to fifteen years, we assess whether a significant financing component exists by considering the difference between the amount of promised consideration and the cash selling price of the promised services. The prepayment amount is generally based on a standard methodology that discounts the total of the standard monthly charges over the service term to determine the prepayment amount, resulting in a difference between the amount of promised consideration and the cash selling price of the promised services. The Company considers the timing difference between payment and the promised transfer of services, combined with the Company's incremental borrowing rates, to determine whether a significant financing component exists. When a significant financing component exists, the amount of revenue recognized exceeds the amount of cash received from the customer. After receiving cash from the customer but prior to the Company providing services, the Company records additional contract liabilities as well as offsetting interest expense to reflect the upfront financing the Company is effectively receiving from the customer. Once the Company begins providing services, additional interest expense is recorded each period using the effective interest method, as well as corresponding additional revenue, which is recognized ratably over the service period.

For the years ended December 31, 2018 and 2019, we recognized revenue of $247.0 million and $249.5 million, respectively, that were included in the contract liability balances as of January 1, 2018 and 2019, respectively. In addition, the total amount of consideration included in contract assets as of January 1, 2018 and 2019 that became unconditional for the years ended December 31, 2018 and 2019 was $11.0 million and $9.1 million, respectively.

Assets Recognized from the Costs to Obtain a Customer Contract

We recognize an asset for the incremental costs of obtaining a contract with a customer if we expect the benefit of those costs to be longer than one year. We have determined that our sales incentive program meets the requirements to be capitalized due to the incremental nature of the costs and the expectation that the Company will recover such costs. The assets recognized from the costs to obtain a customer contract are amortized over a period that is consistent with the transfer to the customer of the services to which the asset relates. We capitalized $6.6 million and $7.9 million for our sales incentive program and amortized $6.5 million and $5.9 million for the years ended December 31, 2018 and 2019, respectively. As of December 31, 2018 and 2019, capitalized costs relating to our sales incentive program amounted to $7.4 million and $9.4 million, respectively, and were included within other assets in our consolidated balance sheets.

Contract Modifications

Contracts are often modified to account for changes in contract specifications or requirements. We consider contract modifications to exist when the modification either creates new rights or obligations or changes the existing enforceable rights and obligations of either party. Most of our contract modifications are for goods and services that are distinct from the existing contract, as they consist of additional months of service priced at the Company's standalone selling prices of the additional services and are therefore treated as separate contracts. For contract modifications that do not result in additional distinct goods or services, the effect of a contract modification on the transaction price and our measure of progress for the performance obligation to which it relates, is recognized as an adjustment to revenue.

Significant Judgments

We occasionally enter into certain contracts in which the customer makes payments in advance of services to be delivered, which may be years in the future. The reasons for the prepayments in these contracts vary, but generally can be either for the customer's benefit or for the Company's benefit (such as the ability to use the cash received from the customer to pay for the construction of a satellite asset). The determination of whether contracts with a prepayment provision contain a significant financing component requires judgment. The Company makes this determination based on various factors, including the differences between the amount of promised consideration and cash selling prices, the length of time between payment and the transfer of services and prevailing interest rates in the market.

While most satellite utilization contracts contain multiple performance obligations for each transponder service on different satellites, the service period for the different satellite utilization performance obligations is generally the same time period. In the event that the time period for multiple performance obligations is not the same, we allocate the total transaction price to each performance obligation in an amount based on the estimated relative standalone selling price of the promised good or service underlying such performance obligation. Judgment is required to determine the standalone selling price for each distinct performance obligation. In order to estimate standalone selling prices, we use an adjusted market assessment approach which involves an evaluation of the market and an estimate of the price that our customers are willing to pay, or an expected cost plus a margin approach.

When more than one party is involved in providing goods or services to a customer, we generally recognize the transaction on a gross basis due to the level of control that we have prior to the transfer of the good or service. These arrangements include instances where we procure equipment from vendors and sell to third-party customers, when we enter into revenue sharing arrangements with other parties and when we purchase capacity for voice, data and video services provided by third-party commercial satellite operators for which the desired frequency type or geographic coverage is not available on our network. Our third-party capacity arrangements (off-network) are more significant and, in determining whether we are the principal or the agent in these arrangements, we consider whether or not we control the service before it is transferred to the customer. In this determination, we consider the definition of control as set forth in ASC 606-10-25-25. When we purchase satellite transponder capacity from a third party, we have the ability to direct the use of and obtain substantially all of the remaining benefits from the purchased capacity. We obtain the right to the service to be performed by the third party, which gives the Company the ability to direct that party to provide the service to the customer on the Company's behalf. No other third party can direct the use of or obtain any benefits from the capacity.

We also considered the factors in ASC 606-10-55-39 in the Company's determination of control. In the vast majority of cases, when we resell capacity to third party customers, we are primarily responsible for the fulfillment of the services and acceptability of the service. Additionally, the Company has full discretion in establishing the pricing for transponder services with the customer and assumes the credit risk associated with capacity purchased from the third party. In the event the service is not acceptable to the customer, we are required to identify an alternative solution. Based on these considerations, we have concluded that we are the principal in the transaction for these arrangements. When these factors are not met, the Company recognizes revenue for third-party capacity arrangements on a net basis.

Judgment is required in determining whether we are the principal or the agent in transactions involving third parties.

Remaining Performance Obligations

Our remaining performance obligation is our expected future revenue under existing customer contracts and includes both cancelable and non-cancelable contracts. Our remaining performance obligation was approximately $6.9 billion as of December 31, 2019, approximately 89% of which related to contracts that were non-cancelable and approximately 11% of which related to contracts that were cancelable subject to substantial termination fees. We assess the contract term of our cancelable contracts as the full stated term of the contract assuming each contract is not canceled since the termination penalty upon cancellation is substantive. As of December 31, 2019, the weighted average remaining customer contract life was approximately 4.2 years. Approximately 40%, 22%, and 38% of our total remaining performance obligation as of December 31, 2019 is expected to be recognized as revenue during 2020 and 2021, 2022 and 2023, and 2024 and thereafter, respectively. The amount included in the remaining performance obligation represents the full-service charge for the duration of the contract and does not include termination fees. The amount of the termination fees, which is not

included in the remaining performance obligation amount, is generally calculated as a percentage of the remaining performance obligation associated with the contract. In certain cases of breach for non-payment or customer financial distress or bankruptcy, we may not be able to recover the full value of certain contracts or termination fees. Our remaining performance obligation includes 100% of the remaining performance obligation of our consolidated ownership interests, which is consistent with the accounting for our ownership interest in these entities.

(b) Business and Geographic Segment Information

We operate in a single industry segment in which we provide satellite services to our communications customers around the world. Our revenues are disaggregated by billing region, service type and customer set. Revenue by region is based on the locations of customers to which services are billed. Our satellites are in geosynchronous orbit, and consequently are not attributable to any geographic location. Of our remaining assets, substantially all are located in the United States.

The following table disaggregates revenue by billing region (in thousands, except percentages):

	Year Ended December 31, 2017		Year Ended December 31, 2018		Year Ended December 31, 2019	
North America	$ 1,080,736	50%	$ 1,112,774	51%	$ 1,078,100	52%
Europe	272,039	13%	257,747	12%	243,967	12%
Latin America and Caribbean	304,379	14%	284,948	13%	239,856	12%
Africa and Middle East	292,505	14%	274,853	13%	250,935	12%
Asia-Pacific	198,953	9%	230,868	11%	248,607	12%
Total	$ 2,148,612		$ 2,161,190		$ 2,061,465	

The following table disaggregates revenue by type of service (in thousands, except percentages):

	Year Ended December 31, 2017		Year Ended December 31, 2018		Year Ended December 31, 2019	
On-Network Revenues						
Transponder services	$ 1,543,384	72%	$ 1,570,278	73%	$ 1,468,791	71%
Managed services	412,147	19%	393,264	18%	374,026	18%
Channel	5,405	—%	4,250	—%	2,400	—%
Total on-network revenues	1,960,936	91%	1,967,792	91%	1,845,217	89%
Off-Network and Other Revenues						
Transponder, MSS and other off-network services	141,845	7%	150,186	7%	175,602	9%
Satellite-related services	45,831	2%	43,212	2%	40,646	2%
Total off-network and other revenues	187,676	9%	193,398	9%	216,248	11%
Total	$ 2,148,612		$ 2,161,190		$ 2,061,465	

By customer application, our revenues from network services, media, government and satellite-related services were $851.6 million, $910.1 million, $352.6 million and $34.3 million, respectively, for the year ended December 31, 2017; $798.1 million, $937.7 million, $392.0 million and $33.4 million, respectively, for the year ended December 31, 2018; and $770.4 million, $883.0 million, $378.3 million and $29.8 million, respectively, for the year ended December 31, 2019.

Our largest customer accounted for approximately 9%, 11% and 14% of our revenue for the years ended December 31, 2017, 2018 and 2019, respectively. Our ten largest customers accounted for approximately 34%, 37% and 41% of our revenue for the years ended December 31, 2017, 2018 and 2019, respectively.

Note 4 Net Loss per Share

Basic net loss per common share attributable to Intelsat S.A. ("EPS") is computed by dividing net loss attributable to Intelsat S.A.'s common shareholders by the weighted average number of common shares outstanding during the periods. Diluted EPS assumes the issuance of common shares pursuant to share-based compensation plans and conversion of the Intelsat S.A. 4.5% Convertible Senior Notes due 2025 (the "2025 Convertible Notes"), unless the effect of such issuances would be anti-dilutive.

The following table sets forth the computation of basic and diluted EPS:

	(in thousands, except per share data or where otherwise noted)		
	Year Ended December 31, 2017	Year Ended December 31, 2018	Year Ended December 31, 2019
Numerator:			
Net loss attributable to Intelsat S.A.	$ (178,728)	$ (599,605)	$ (913,595)
Denominator:			
Basic weighted average shares outstanding (in millions)	118.9	129.6	140.4
Diluted weighted average shares outstanding (in millions):	118.9	129.6	140.4
Basic EPS	$ (1.50)	$ (4.63)	$ (6.51)
Diluted EPS	$ (1.50)	$ (4.63)	$ (6.51)

In June 2018, Intelsat S.A. completed an offering of $402.5 million aggregate principal amount of its 2025 Convertible Notes. We do not expect to settle the principal amount of the 2025 Convertible Notes in cash, and therefore use the if-converted method for calculating any potential dilutive effect of the conversion on diluted EPS, if applicable. The 2025 Convertible Notes are eligible for conversion depending upon the trading price of our common shares and under other conditions set forth in the indenture governing the 2025 Convertible Notes (the "2025 Indenture") until December 15, 2024, and thereafter without regard to any conditions. See Note 11—Long-Term Debt for additional information on the conversion conditions.

Due to a net loss in the years ended December 31, 2017, 2018 and 2019, there were no dilutive securities, and therefore, basic and diluted EPS were the same. The weighted average number of shares that could potentially dilute basic EPS in the future was 3.5 million, 12.5 million and 26.0 million for the years ended December 31, 2017, 2018 and 2019, respectively.

Note 5 Share-Based and Other Compensation Plans

In April 2013, our board of directors adopted the amended and restated Intelsat Global, Ltd. 2008 Share Incentive Plan (as amended, the "2008 Equity Plan"). Also in April 2013, our board of directors adopted the Intelsat S.A. 2013 Equity Incentive Plan (the "2013 Equity Plan"). No new awards may be granted under the 2008 Equity Plan.

The 2013 Equity Plan provides for a variety of equity-based awards, including incentive stock options (within the meaning of Section 422 of the United States Internal Revenue Service Tax Code), restricted shares, RSUs, and other share-based awards and performance compensation awards. Effective June 16, 2016, we increased the aggregate number of common shares authorized for issuance under the 2013 Equity Plan to 20.0 million common shares. The total aggregate number of shares available for future grants under the 2013 Equity Plan was 5.9 million as of December 31, 2019.

For all share-based awards, we recognize the compensation costs over the vesting period that service is provided in exchange for the award. For the years ended December 31, 2017, 2018 and 2019, we recorded compensation expense of $16.0 million, $6.8 million and $13.2 million, respectively. The income tax benefit related to share-based compensation expense was $0.4 million and $14.4 million for the years ended December 31, 2018 and 2019, respectively. We did not recognize any income tax benefit related to share-based compensation expense for the year ended December 31, 2017.

Stock Options

Stock options generally expire 10 years from the date of grant. In some cases, options have been granted which expire 15 years from the date of grant. The options vest monthly over service periods ranging from six months to five years. Stock option activity during 2019 was as follows:

	Number of stock options (in thousands)	Weighted average exercise price	Weighted average remaining contractual term (in years)	Aggregate intrinsic value (in millions)
Outstanding at January 1, 2019	1,109	$ 3.71		
Granted	3	19.03		
Exercised	(309)	3.45		
Expired	(1)	19.50		
Outstanding and exercisable at December 31, 2019	802	3.86	4.2	$ 2.6

The total intrinsic value of stock options exercised for the years ended December 31, 2017, 2018 and 2019 was $0.2 million, $7.9 million and $5.2 million, respectively. As of December 31, 2019, there was no remaining unrecognized compensation cost related to unvested options.

For the years ended December 31, 2017, 2018 and 2019, we recorded compensation expense of $1.4 million, $0.2 million and $0.1 million, respectively. For the years ended December 31, 2017, 2018 and 2019, we received cash of $0.5 million, $3.2 million and $1.1 million, respectively, from the exercise of stock options.

Anti-Dilution Options

In connection with our initial public offering of common shares in April 2013 (the "IPO") and upon consummation of the IPO, options were granted to certain individuals in accordance with the existing terms of their side letters to a management shareholders agreement to which we were a party, which, when taken together with the common shares received in connection with the reclassification of our outstanding former Class B Shares at the time of our IPO, preserved their ownership interests represented by their outstanding former Class B Shares immediately prior to the reclassification.

These options generally expire 10 years from the date of the grant.

	Number of stock options (in thousands)	Weighted average exercise price	Weighted average remaining contractual term (in years)	Aggregate intrinsic value (in millions)
Outstanding at January 1, 2019	1,610	$ 11.98		
Outstanding and exercisable at December 31, 2019	1,610	11.98	3.1	$ 2.0

There were no anti-dilution options granted or exercised for the years ended December 31, 2017, 2018 and 2019. No compensation expense was recorded for anti-dilution options for the years ended December 31, 2017, 2018 and 2019.

Time-based RSUs

Time based RSUs vest over periods from one to three years from the date of grant.

Time-based RSU activity during 2019 was as follows:

	Number of RSUs (in thousands)	Weighted average grant date fair value	Weighted average remaining contractual term (in years)	Aggregate intrinsic value (in millions)
Outstanding at January 1, 2019	2,602	$ 5.93		
Granted	897	21.28		
Vested	(1,296)	5.59		
Forfeited	(147)	6.88		
Outstanding at December 31, 2019	2,056	12.77	0.8	$ 14.5

The fair value of time-based RSUs is deemed to be the market price of common shares on the date of grant. The weighted average grant date fair value of time-based RSUs granted for the years ended December 31, 2017, 2018, and 2019 was $4.36, $7.99, and $21.28, respectively. The total intrinsic value of time-based RSUs vested for the years ended December 31, 2017, 2018 and 2019 was $6.0 million, $9.2 million, and $29.5 million, respectively. As of December 31, 2019, there was $18.0 million of total unrecognized compensation cost related to unvested time-based RSUs, which is expected to be recognized over a weighted average period of 0.8 years.

For the years ended December 31, 2017, 2018, and 2019, we recorded compensation expense associated with these time-based RSUs of $13.7 million, $5.7 million, and $10.8 million, respectively.

Performance-based RSUs

Performance-based RSUs vest after three years from the date of grant upon achievement of certain performance metrics. These grants are subject to vesting upon achievement of an adjusted EBITDA target or achievement of a relative shareholder return (“RSR”), which is based on the Company's relative shareholder return percentile ranking versus the S&P 900 Index as defined in the grant agreement.

Performance-based RSU activity during 2019 was as follows:

	Number of RSUs (in thousands)	Weighted average grant date fair value	Weighted average remaining contractual term (in years)	Aggregate intrinsic value (in millions)
Outstanding at January 1, 2019	2,624	$ 2.69		
Granted	347	25.40		
Vested	(1,004)	0.56		
Forfeited	(169)	3.87		
Outstanding at December 31, 2019 (1)	1,798	7.94	1.0	$ 12.6

(1) These amounts are based on the number of performance-based RSUs expected to vest at target levels. The actual number of shares issued upon vesting may vary from 0 to 200% depending on the achievement of the relevant performance and market conditions.

We measure the fair value of the portion of performance-based RSUs that vest based on the achievement of the adjusted EBITDA target at the date of grant using the market price of our common shares.

We measure the fair value of the portion of performance-based RSUs that vest based on the achievement of a RSR using a path-dependent model that incorporates expected RSR into the estimate. The model uses three-year historical volatilities and correlations for Intelsat and companies within the S&P 900 Index to simulate RSR as of the end of the performance period. For each simulation, Intelsat’s RSR associated with the simulated share price at the end of the performance period results in a value per share for the award portfolio. The average of these simulations represents the estimated fair value of each RSU. For performance-based RSUs granted in 2019, the model used a risk-free interest rate of 2.5 percent, which reflects the yield on three-year U.S. Treasury bonds as of the grant date, and an expected volatility of 85 percent based on Intelsat's historical volatility over three years using daily share prices.

The weighted average grant date fair value of performance-based RSUs granted for the years ended December 31, 2017, 2018, and 2019 was $2.79, $4.53, and $25.40, respectively. The total intrinsic value of performance-based RSUs vested for the year ended December 31, 2019 was $35.2 million. No performance-based RSUs vested during the years ended December 31, 2017 and 2018. As of December 31, 2019, there was $4.4 million of total unrecognized compensation cost related to unvested performance-based RSUs, which is expected to be recognized over a weighted average period of 1.0 year.

Achievement of the adjusted EBITDA target for awards granted in 2017, 2018, and 2019 is not currently considered probable. No compensation cost associated with these awards (based on the adjusted EBITDA condition) was recognized for the years ended December 31, 2017, 2018, and 2019. We recorded compensation expense associated with the RSR portion of performance-based RSUs of $1.0 million, $0.9 million, and $2.4 million for the years ended December 31, 2017, 2018 and 2019, respectively.

Note 6 Fair Value Measurements

Recurring Fair Value Measurements

The tables below present assets measured and recorded at fair value in our consolidated balance sheets on a recurring basis and their corresponding level within the fair value hierarchy (in thousands). No transfers between Level 1, Level 2 and Level 3 fair value measurements occurred for the years ended December 31, 2018 and 2019.

Description	As of December 31, 2018	Fair Value Measurements at December 31, 2018		
		(Level 1)	(Level 2)	(Level 3)
Assets				
Marketable securities[1]	$ 4,700	$ 4,700	$ —	$ —
Undesignated interest rate cap contracts[2]	33,086	—	33,086	—
Preferred stock warrant[3]	4,100	—	—	4,100
Total assets	$ 41,886	$ 4,700	$ 33,086	$ 4,100

Description	As of December 31, 2019	Fair Value Measurements at December 31, 2019		
		(Level 1)	(Level 2)	(Level 3)
Assets				
Marketable securities[1]	$ 5,145	$ 5,145	$ —	$ —
Undesignated interest rate cap contracts[2]	372	—	372	—
Common stock warrant[3]	3,239	—	—	3,239
Total assets	$ 8,756	$ 5,145	$ 372	$ 3,239

(1) The valuation measurement inputs of these marketable securities represent unadjusted quoted prices in active markets and, accordingly, we have classified such investments within Level 1 of the fair value hierarchy. The cost basis of our marketable securities was $4.6 million and $4.3 million as of December 31, 2018 and 2019, respectively. We sold marketable securities with a cost basis of $0.7 million for each of the years ended December 31, 2018 and 2019, and recorded a nominal gain on the sale for the years ended December 31, 2018 and 2019, respectively, which is included within other income (expense), net in our consolidated statements of operations.

(2) The valuation of our interest rate derivative instruments reflects the fair value of premiums paid, taking into account observable inputs including current interest rates, the market expectation for future interest rate volatility and current creditworthiness of the counterparties. As a result, we have determined that the valuation in its entirety is classified as Level 2 within the fair value hierarchy.

(3) We valued the stock warrants using a valuation technique that reflects the risk-free interest rate, time to maturity and volatility of comparable companies. We identified the inputs used to calculate the fair value as Level 3 inputs and concluded that the valuation in its entirety is classified as Level 3 within the fair value hierarchy.

The following table presents a reconciliation of the preferred and common stock warrants which are measured and recorded at fair value on a recurring basis using Level 3 inputs (in thousands):

	Year Ended December 31, 2018	Year Ended December 31, 2019
Balance as of beginning of period	$ 4,100	$ 4,100
Purchase of investments	—	3,239
Unrealized loss included in other income (expense), net	—	(4,100)
Balance as of end of period	$ 4,100	$ 3,239

Non-recurring Fair Value Measurements

The carrying values of certain assets may be adjusted to fair value in subsequent periods on a non-recurring basis if an event occurs or circumstances change that indicate that the asset is impaired or, for investments in equity securities without readily determinable fair values, observable transactions for identical or similar investments of the same issuer support a change in the investment fair value. During the year ended December 31, 2019, we recorded net impairment charges on certain investments in equity securities without readily determinable fair values. See Note 9—Investments for additional information related to these fair value measurements.

Other Fair Value Disclosures

See Note 9—Investments and Note 11—Long-Term Debt for fair value disclosures related to our loan receivables and long-term debt, respectively. The carrying amounts of the Company's other financial instruments are reasonable estimates of their related fair values due to their short-term nature.

Note 7 Retirement Plans and Other Retiree Benefits

(a) Pension and Other Postretirement Benefits

We maintain a noncontributory defined benefit retirement plan covering substantially all of our employees hired prior to July 19, 2001. The cost of providing benefits to eligible participants under the defined benefit retirement plan is calculated using the plan's benefit formulas, which take into account the participants' remuneration, dates of hire, years of eligible service, and certain actuarial assumptions. In addition, as part of the overall medical plan, we provide postretirement medical benefits to certain current retirees who meet the criteria under the medical plan for postretirement benefit eligibility. In 2015, we amended the defined benefit retirement plan to end the accrual of additional benefits for the remaining active participants.

The defined benefit retirement plan is subject to the provisions of the Employee Retirement Income Security Act of 1974, as amended. We expect that our future contributions to the defined benefit retirement plan will be based on the minimum funding requirements of the Internal Revenue Code and on the plan's funded status. Any significant decline in the fair value of our defined benefit retirement plan assets or other adverse changes to the significant assumptions used to determine the plan's funded status would negatively impact its funded status and could result in increased funding in future years. The impact on the funded status is determined based upon market conditions in effect when we completed our annual valuation. We anticipate that our contributions to the defined benefit retirement plan in 2020 will be approximately $4.0 million. We fund the postretirement medical benefits throughout the year based on benefits paid. We anticipate that our contributions to fund postretirement medical benefits in 2020 will be approximately $2.9 million.

Prior service credits and actuarial losses are reclassified from accumulated other comprehensive loss to net periodic pension benefit costs, which are included in other income (expense), net on our consolidated statements of operations. All amounts recorded in accumulated other comprehensive loss are being recognized as net periodic benefit cost or benefit over the average remaining life expectancy of plan participants.

Reconciliation of Funded Status and Accumulated Benefit Obligation. Intelsat uses December 31 as the measurement date for its defined benefit retirement plan. The following table summarizes the projected benefit obligations, plan assets and funded status of the defined benefit retirement plan, as well as the projected benefit obligations of the postretirement medical benefits provided under our medical plan (in thousands, except percentages):

	Year Ended December 31, 2018		Year Ended December 31, 2019	
	Pension Benefits	Other Post-retirement Benefits	Pension Benefits	Other Post-retirement Benefits
Change in benefit obligation				
Benefit obligation at beginning of year	$ 447,222	$ 82,587	$ 394,082	$ 40,526
Interest cost	14,428	2,314	15,390	1,532
Employee contributions	—	390	—	181
Plan amendments	—	(33,907)	—	—
Benefits paid	(30,741)	(3,600)	(24,875)	(1,787)
Actuarial net (gain) loss	(36,827)	(7,258)	38,939	(577)
Benefit obligation at end of year	$ 394,082	$ 40,526	$ 423,536	$ 39,875
Change in plan assets				
Plan assets at beginning of year	$ 334,582	$ —	$ 297,631	$ —
Employer contributions	5,115	3,210	4,232	1,606
Employee contributions	—	390	—	181
Actual return on plan assets	(11,325)	—	57,833	—
Benefits paid	(30,741)	(3,600)	(24,875)	(1,787)
Plan assets at fair value at end of year	$ 297,631	$ —	$ 334,821	$ —
Accrued benefit costs and funded status of the plans	$ (96,451)	$ (40,526)	$ (88,715)	$ (39,875)
Accumulated benefit obligation	$ 394,082		$ 423,536	
Weighted average assumptions used to determine accumulated benefit obligation and accrued benefit costs				
Discount rate	4.35%	4.27%	3.29%	3.19%
Weighted average assumptions used to determine net periodic benefit costs				
Discount rate	3.67%	3.64%/4.18%	4.35%	4.27%
Expected rate of return on plan assets	7.60%	—	7.60%	—
Amounts in accumulated other comprehensive loss recognized in net periodic benefit cost				
Actuarial net (gain) loss, net of tax	$ 4,640	$ (576)	$ 4,151	$ (1,208)
Prior service credits, net of tax	(854)	15	—	(2,502)
Total	$ 3,786	$ (561)	$ 4,151	$ (3,710)
Amounts in accumulated other comprehensive loss not yet recognized in net periodic benefit cost				
Actuarial net (gain) loss, net of tax	$ 93,509	$ (15,377)	$ 111,637	$ (16,646)
Prior service credits, net of tax	(343)	(32,514)	—	(30,011)
Total	$ 93,166	$ (47,891)	$ 111,637	$ (46,657)
Amounts in accumulated other comprehensive loss expected to be recognized in net periodic benefit cost in the subsequent year				
Actuarial net (gain) loss	$ 4,222	$ (1,229)	$ 6,399	$ (1,219)
Prior service credits	—	(2,544)	—	(2,545)
Total	$ 4,222	$ (3,773)	$ 6,399	$ (3,764)

Our benefit obligations are determined by discounting each future year's expected benefit cash flow using the corresponding spot rates along a yield curve that is derived from the monthly bid-price data of bonds that are rated high grade by either Moody’s Investor Service or Standard and Poor’s Rating Services. The bond types included are noncallable bonds, private placement bonds that are traded among qualified institutional buyers and are at least two years from date of issuance, bonds with a make-whole provision, and bonds issued by foreign corporations that are denominated in U.S. dollars. Excluded are bonds that are callable, sinkable and puttable as well as those for which the quoted yield-to-maturity is zero. Using the bonds from this universe that have a yield higher than the regression mean yield curve for the full universe, regression analysis is used to determine the best-fitting curve, which gives a good fit to the data at both long and short maturities. The resulting regressed coupon yield curve is smoothed continuously along its entire length and represents an unbiased average of the observed market data.

Interest rates used in these valuations are key assumptions, including discount rates used in determining the present value of future benefit payments and expected return on plan assets, which are reviewed and updated on an annual basis. The discount rates reflect market rates for high-quality corporate bonds. We consider current market conditions, including changes in interest rates, in making assumptions. The Society of Actuaries published new mortality tables for private retirement plans ("Pri-2012") and a new mortality improvement scale ("MP-2019") in 2019. Our December 31, 2019 valuation is based on Pri-2012 and MP-2019, adjusted to reflect (1) an ultimate rate of mortality improvement consistent

with both historical experience and U.S. Social Security long-term projections, and (2) a shorter transition period to reach the ultimate rate, which is consistent with historical patterns.

In establishing the expected return on assets assumption, we review the asset allocations considering plan maturity and develop return assumptions based on different asset classes. The return assumptions are established after reviewing historical returns of broader market indexes, as well as historical performance of the investments in the plan. Our pension plan assets are managed in accordance with an investment policy, as discussed below.

Plan Assets. The investment policy of the plan includes target allocation percentages of approximately 49% for investments in equity securities (29% U.S. equities and 20% non-U.S. equities), 36% for investments in fixed income securities and 15% for investments in other securities, which is broken down further into 5% for investments in hedge fund of funds and 10% for investments in real estate fund of funds. Plan assets include investments in both U.S. and non-U.S. equity funds. Fixed income investments include a long duration bond fund, a high yield bond fund and an emerging markets debt fund. The funds in which the plan's assets are invested are institutionally managed and have diversified exposures into multiple asset classes implemented with over 63 investment managers. The guidelines and objectives of the funds are congruent with the Intelsat investment policy statement.

The target and actual asset allocation of our pension plan assets were as follows:

	As of December 31, 2018		As of December 31, 2019	
	Target Allocation	Actual Allocation	Target Allocation	Actual Allocation
Asset Category				
Equity securities	49%	45%	49%	48%
Debt securities	36%	36%	36%	34%
Other securities	15%	19%	15%	18%
Total	100%	100%	100%	100%

The fair values of our pension plan assets by asset category were as follows (in thousands):

	Fair Value Measurements at December 31, 2018	Level 1	Level 2	Level 3
Asset Category				
Equity Securities				
U.S. Large-Cap (1)	$ 62,243	$ 62,243	$ —	$ —
U.S. Small/Mid-Cap (2)	15,739	15,739	—	—
World Equity Ex-U.S. (3)	54,994	54,994	—	—
Fixed Income Securities				
Long Duration Bonds (4)	91,278	91,278	—	—
High Yield Bonds (5)	8,440	8,440	—	—
Emerging Market Fixed Income (Non-U.S.) (6)	8,923	8,923	—	—
Other Securities		$ 241,617	$ —	$ —
Hedge Funds (7)	18,062			
Core Property Fund (8)	37,559			
Income earned but not yet received	393			
Total	$ 297,631			

	Fair Value Measurements at December 31, 2019	Level 1	Level 2	Level 3
Asset Category				
Equity Securities				
U.S. Large-Cap (1)	$ 75,380	$ 75,380	$ —	$ —
U.S. Small/Mid-Cap (2)	19,566	19,566	—	—
World Equity Ex-U.S. (3)	65,882	65,882	—	—
Fixed Income Securities				
Long Duration Bonds (4)	95,327	95,327	—	—
High Yield Bonds (5)	9,610	9,610	—	—
Emerging Market Fixed Income (Non-U.S.) (6)	9,720	9,720	—	—
Other Securities		$ 275,485	$ —	$ —
Hedge Funds (7)	18,803			
Core Property Fund (8)	40,205			
Cash and income earned but not yet received	328			
Total	$ 334,821			

(1) U.S. Large-Cap Equity includes investments in funds that invest primarily in a portfolio of common stocks included in the S&P 500 Index, as well as other equity securities and derivative instruments whose value is derived from the performance of the S&P 500.
(2) U.S. Small/Mid-Cap includes investments in funds that (1) invest primarily in U.S. small- and mid-cap stocks with market capitalization ranges similar to those found in the FTSE Russell 2500 Index, or (2) aim to produce investment results that correspond to the performance of the FTSE/Russell Small Cap Completeness Index.
(3) World Equity Ex-U.S. includes an investment in a fund that invests primarily in common stocks and other equity securities whose issuers comprise a broad range of capitalizations and that are located outside of the U.S. The fund invests primarily in developed countries but may also invest in emerging markets.
(4) Long Duration Bonds includes an investment in a fund that invests primarily in long-duration government and corporate fixed income securities and uses derivative instruments (including interest rate swaps and U.S. Treasury futures contracts) for the purpose of managing the overall duration and yield curve exposure of the fund's portfolio.
(5) High Yield Bonds includes an investment in a fund that seeks to maximize return by investing primarily in a diversified portfolio of higher yielding, lower rated fixed income securities. The fund will invest primarily in securities rated below investment grade, including corporate bonds, convertible and preferred securities and zero coupon obligations.
(6) Emerging Markets Fixed Income (Non-U.S.) includes an investment in a fund that seeks to maximize return by investing in fixed income securities of emerging markets issuers. The fund will invest primarily in U.S. dollar denominated debt securities of government, government-related and corporate issuers in emerging market countries, as well as entities organized to restructure the outstanding debt of such issuers.
(7) Hedge Funds includes an investment in a collective trust fund that seeks to provide returns that are different from (less correlated with) investments in more traditional asset classes. The fund will pursue its investment objective by investing substantially all of its assets in various hedge funds. The fund has semi-annual redemptions in June and December with a pre-notification period of 95 days, and a two year lock-up on all purchases which have expired.
(8) The Core Property Fund is a collective trust fund that invests in direct commercial property funds primarily in the U.S. The fund is meant to provide current income-oriented returns, diversification, and modest inflation protection to an overall investment portfolio. Total returns are expected to be somewhere between stocks and bonds, with moderate volatility and low correlation to public markets. The fund has quarterly redemptions with a pre-notification period of 95 days, and no lock-up period.

Our plan assets are measured at fair value. ASC 820 prioritizes the inputs used in valuation techniques including Level 1, Level 2 and Level 3 (see Note 1 (d)—Background and Summary of Significant Accounting Policies—Fair Value Measurements).

The majority of our plan assets are valued using measurement inputs which include unadjusted prices in active markets and we have therefore classified these assets within Level 1 of the fair value hierarchy. Our other securities include Hedge Funds and Core Property Funds, which are measured at fair value using the net asset value per share practical expedient, and are not classified in the fair value hierarchy.

Net periodic pension income included the following components (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2018	Year Ended December 31, 2019
Interest cost	$ 14,778	$ 14,428	$ 15,390
Expected return on plan assets	(24,410)	(24,482)	(23,490)
Amortization of unrecognized net loss	3,751	5,307	4,221
Total income	$ (5,881)	$ (4,747)	$ (3,879)

We had accrued benefit costs at December 31, 2018 and 2019 of $96.4 million and $88.7 million, respectively, related to the pension benefits, of which $0.6 million was recorded within other current liabilities for both years ended December 31, 2018 and 2019, and $95.8 million and $88.1 million were recorded in other long-term liabilities, respectively.

Net periodic other postretirement benefit costs (income) included the following components (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2018	Year Ended December 31, 2019
Interest cost	$ 2,869	$ 2,314	$ 1,532
Amortization of prior service credit	(8)	(854)	(2,544)
Amortization of unrecognized net gain	(455)	(630)	(1,229)
Total costs (income)	$ 2,406	$ 830	$ (2,241)

We had accrued benefit costs at December 31, 2018 and 2019 related to the other postretirement benefits of $40.5 million and $39.9 million, respectively, of which $3.1 million and $2.9 million were recorded in other current liabilities, respectively, and $37.4 million and $37.0 million were recorded in other long-term liabilities, respectively.

Depending on our actual future health care claims, our actual costs may vary significantly from those projected above. As of December 31, 2018 and 2019, the assumed health care cost trend rates for retirees who are not eligible for Medicare were 6.3% and 6.0%, respectively. These rates are expected to decrease annually to an ultimate rate of 4.5% by December 31, 2038. Increasing the assumed health care cost trend rate by 1% each year would increase the other postretirement benefits obligation as of December 31, 2019 by $3.5 million. Decreasing this trend rate by 1% each year would reduce the other postretirement benefits obligation as of December 31, 2019 by $3.0 million. A 1% increase in the assumed health care cost trend rate would have increased the net periodic other postretirement benefits cost by $0.1 million and a 1% decrease would have decreased the cost by $0.1 million for 2019.

Effective January 1, 2019, Medicare eligible retirees and dependents receive an annual stipend in the form of a contribution to a Health Reimbursement Account ("HRA") to be used as a reimbursement for qualified health care costs. Therefore, the value of the benefits provided to these participants is not affected by the assumed health care cost trend rate. While the terms of the plan do not guarantee increases to the stipend, the Company intends to evaluate the stipend annually. When valuing the benefit obligation as of December 31, 2019, we assumed no increase to the subsidy in fiscal year 2020 and 3.0% annual increases beginning in fiscal year 2021. When valuing the benefit obligation as of December 31, 2018, we assumed no increase to the subsidy in fiscal year 2019 and 3.0% annual increases beginning in fiscal year 2020.

The benefits expected to be paid in each of the next five years and in the aggregate for the five years thereafter are as follows (in thousands):

	Pension Benefits	Other Post-retirement Benefits
2020	$ 41,114	$ 2,884
2021	28,167	2,901
2022	27,458	2,892
2023	27,473	2,852
2024	26,454	2,785
2025 to 2029	124,270	12,809
Total	$ 274,936	$ 27,123

(b) Other Retirement Plans

We maintain a defined contribution retirement plan, qualified under the provisions of Section 401(k) of the Internal Revenue Code, for our employees in the United States. We recognized compensation expense for this plan of $7.8 million, $7.9 million and $8.1 million for the years ended December 31, 2017, 2018 and 2019, respectively. We also maintain other defined contribution retirement plans in several non-U.S. jurisdictions, but such plans are not material to our financial position or results of operations.

Note 8 Satellites and Other Property and Equipment

(a) Satellites and Other Property and Equipment, net

Satellites and other property and equipment, net were comprised of the following (in thousands):

	As of December 31, 2018	As of December 31, 2019
Satellites and launch vehicles	$ 10,786,802	$ 10,407,690
Information systems and ground segment	894,796	968,482
Buildings and other	273,155	280,109
Total cost	11,954,753	11,656,281
Less: accumulated depreciation	(6,443,051)	(6,954,218)
Total	$ 5,511,702	$ 4,702,063

Satellites and other property and equipment, net as of December 31, 2018 and 2019 included construction-in-progress of $371.3 million and $191.5 million, respectively. These amounts relate primarily to satellites under construction and related launch services. Interest costs of $30.2 million and $31.5 million were capitalized for the years ended December 31, 2018 and 2019, respectively. Additionally, we recorded depreciation expense of $665.6 million, $649.1 million and $623.3 million for the years ended December 31, 2017, 2018 and 2019, respectively.

We have entered into launch contracts for the launch of both specified and unspecified future satellites. Each of these launch contracts may be terminated at our option, subject to payment of a termination fee that increases as the applicable launch date approaches. In addition, in the event of a failure of any launch, we may exercise our right to obtain a replacement launch within a specified period following our request for re-launch.

(b) Satellite Launches

Horizons 3e, a satellite owned by a joint venture between the Company and JSAT International, Inc. ("JSAT"), was successfully launched on September 25, 2018 and completed the Intelsat Epic constellation. Horizons 3e brings high-throughput satellite solutions in both the C- and Ku-bands to broadband, mobility and government customers in the Asia-Pacific Ocean region from its orbital slot at 169ºE. Horizons 3e is the first Intelsat Epic satellite to feature a multiport amplifier that enables power portability across all Ku-band spot beams. This enhanced, advanced digital payload features full beam interconnectivity in three commercial bands and significant upgrades to power, efficiency and coverage flexibility. Horizons 3e entered into service in January 2019.

Intelsat 38, a customized Ku-band payload positioned on a third-party satellite, was successfully launched on September 25, 2018. Intelsat 38 replaced Intelsat 12 at the 45ºE location and hosts direct-to-home platforms for Central and Eastern Europe as well as the Asia-Pacific region. The satellite also provides connectivity for corporate networks and government applications in Africa. Intelsat 38 entered into service in January 2019.

Intelsat 39 was successfully launched on August 6, 2019. Intelsat 39 replaced Intelsat 902 at the 62ºE location and delivers connectivity services in both the C- and Ku-bands to mobile network operators, enterprises and government customers, as well as aeronautical and maritime mobility service providers operating in the Europe, Africa, Middle East and Asia-Pacific regions. Intelsat 39 entered into service in October 2019.

(c) Significant Anomalies

In April 2019, the Intelsat 29e satellite (in service since 2016) experienced an anomaly that resulted in a total loss of the satellite. In accordance with our existing satellite anomaly contingency plans, we restored service for most Intelsat 29e customers on other satellites in our network, as well as on third-party satellites. We recorded a non-cash impairment charge of $381.6 million in the second quarter of 2019, of which $377.9 million related to the write off of the carrying value of the satellite and associated deferred performance incentive obligations and $3.7 million related to prepaid regulatory fees.

A Failure Review Board comprised of the satellite's manufacturer, Boeing Satellite Systems, Inc., the Company and external independent experts was convened to complete a comprehensive analysis of the cause of the anomaly. The board concluded that the anomaly was either caused by a harness flaw in conjunction with an electrostatic discharge event related to solar weather activity, or the impact of a micrometeoroid.

(d) Satellite Health

Our satellite fleet is diversified by manufacturer and satellite type, and as a result, our fleet is generally healthy. We have experienced some technical problems with our current fleet but have been able to minimize the impact of these problems on our customers, our operations and our business in recent years. Many of these problems have been component failures and anomalies that have had little long-term impact to date on the overall transponder availability in our satellite fleet. All of our satellites have been designed to accommodate an anticipated rate of equipment failures with adequate redundancy to meet or exceed their orbital design lives, and to date, this redundancy design scheme has proven effective. After each anomaly we have generally restored services for our customers on the affected satellite, provided alternative capacity on other satellites in our fleet, or provided capacity that we purchased from other satellite operators.

Note 9 Investments

We have an ownership interest in two entities that meet the criteria of a variable interest entity ("VIE"): Horizons Satellite Holdings LLC ("Horizons Holdings") and Horizons-3 Satellite LLC ("Horizons 3"), which are discussed in further detail below, including our analyses of the primary beneficiary determination as required under ASC 810, *Consolidation* ("ASC 810"). We also own non-controlling investments in equity securities and loan receivables as discussed further below.

(a) Horizons Holdings

Horizons Holdings is a joint venture with JSAT that consists of two investments: Horizons-1 Satellite LLC and Horizons-2 Satellite LLC. Horizons Holdings borrowed from JSAT a portion of the funds necessary to finance the construction of the Horizons 2 satellite pursuant to a loan agreement. The borrowing was subsequently repaid. We provide certain services to the joint venture and in return utilize capacity from the joint venture.

We have determined that this joint venture meets the criteria of a VIE under ASC 810, and we have concluded that we are the primary beneficiary because decisions relating to any future relocation of the Horizons 2 satellite, the most significant asset of the joint venture, are effectively controlled by us. In accordance with ASC 810, as the primary beneficiary, we consolidate Horizons Holdings within our consolidated financial statements. Total assets of Horizons Holdings were $28.8 million and $22.2 million as of December 31, 2018 and 2019, respectively. Total liabilities were nominal as of December 31, 2018 and 2019.

We have a revenue sharing agreement with JSAT related to services sold on the Horizons 1 and Horizons 2 satellites. We are responsible for billing and collection for such services, and we remit 50% of the revenue, less applicable fees and commissions, to JSAT. Amounts payable to JSAT related to the revenue sharing agreement, net of applicable fees and commissions, from the Horizons 1 and Horizons 2 satellites were $5.5 million and $1.6 million as of December 31, 2018 and 2019, respectively.

(b) Horizons-3 Satellite LLC

On November 4, 2015, we entered into an additional joint venture agreement with JSAT. The joint venture, Horizons 3, was formed for the purpose of developing, launching, managing, operating and owning a high-performance satellite located at the 169ºE orbital location.

Horizons 3, which is 50% owned by each of Intelsat and JSAT, was set up with a joint share of management authority and equal rights to profits and revenues from the joint venture. Similar to Horizons Holdings, we have a revenue sharing agreement with JSAT related to services sold on the Horizons 3e satellite. In addition, we are responsible for billing and collection for such services, and we remit 50% of the revenue, less applicable fees and commissions, to JSAT. Amounts payable to JSAT related to the revenue sharing agreement, net of applicable fees and commissions, from the Horizons 3e satellite were $3.3 million as of December 31, 2019 with no comparable amounts as of December 31, 2018.

We have determined that this joint venture meets the criteria of a VIE under ASC 810, however we have concluded that we are not the primary beneficiary and therefore do not consolidate Horizons 3. The assessment considered both quantitative and qualitative factors, including an analysis of voting power and other means of control of the joint venture as well as each owner's exposure to risk of loss or gain. Because we and JSAT equally share control over the operations of the joint venture and also equally share exposure to risk of losses or gains, we concluded that we are not the primary beneficiary of Horizons 3. Our investment, included within other assets in our consolidated balance sheets, is accounted for

using the equity method of accounting. The investment balance, which is equivalent to our maximum exposure to loss, was $109.9 million and $110.2 million as of December 31, 2018 and 2019, respectively. The investment balance exceeded our equity in the net assets of Horizons 3 by $11.9 million and $11.6 million as of December 31, 2018 and 2019, respectively. This basis difference represents the capitalized interest that we incurred in relation to financing our investment and we recognize it as a reduction of our equity in earnings of Horizons 3 on a straight-line basis over the life of the satellite. We recognized a nominal amount of equity in earnings of Horizons 3 in other income (expense), net for each of the years ended December 31, 2018 and 2019.

In connection with our investment in Horizons 3, we entered into a capital contribution and subscription agreement which requires us to fund our 50% share of the amounts due in order to maintain our respective 50% interest in the joint venture. Pursuant to this agreement, we made contributions of $41.2 million and $5.0 million for the years ended December 31, 2018 and 2019, respectively. We received distributions of $5.0 million for the year ended December 31, 2019, with no comparative amounts in 2018. In addition, our indirect subsidiary that holds our investment in Horizons 3 has entered into a security and pledge agreement with Horizons 3, pursuant to which it has granted a security interest in its membership interests in Horizons 3. Further, our indirect subsidiary has granted a security interest to Horizons 3 in its customer capacity contracts and its ownership interest in its wholly-owned subsidiary that will hold the U.S. Federal Communications Commission license required for the joint venture's operations.

The Horizons 3e satellite entered into service in January 2019. The Company purchases satellite capacity and related services from the Horizons 3 joint venture, and then sells that capacity to its customers. We incurred direct costs of revenue related to these purchases of $19.9 million for the year ended December 31, 2019. The Company also sells managed ground network services to the Horizons 3 joint venture and provides program management services for a fee. We recorded an offset to direct costs of revenue of $5.6 million related to the provision of these services for the year ended December 31, 2019. On the consolidated balance sheet as of December 31, 2019, $0.5 million due from Horizons 3 was included in receivables and $1.7 million due to Horizons 3 was included in accounts payable and accrued liabilities.

(c) Investments in Equity Securities

The Company holds non-controlling equity investments in six separate privately held companies, including investments in equity securities without readily determinable fair values and common stock warrants.

In accordance with ASC 321, *Investments—Equity Securities,* we use the measurement alternative to measure the fair value of our investments in equity securities without readily determinable fair values. Accordingly, these investments are measured at cost, less any impairment, and are adjusted for changes in fair value resulting from observable transactions for identical or similar investments of the same issuer. These investments are recorded in other assets in our consolidated balance sheets and had a total carrying value of $59.6 million and $27.2 million as of December 31, 2018 and 2019, respectively. We recognized impairment losses related to these investments of $36.8 million for the year ended December 31, 2019, with no comparative amounts in 2018. We recognized an increase in fair value relating to investments of $1.7 million for the year ended December 31, 2019, with no comparative amounts in 2018. These changes, which are recognized in other income (expense), net in our consolidated statements of operations, were determined using Level 3 inputs including third-party valuations, private transactions and internal projections of future profitability.

We measure our stock warrants at fair value (See Note 6—Fair Value Measurements and Note 12—Derivative Instruments and Hedging Activities for additional information). The warrants are recorded in other assets in our consolidated balance sheets and had a cumulative fair value of $4.1 million and $3.2 million as of December 31, 2018 and 2019, respectively.

(d) Loan Receivables

The Company has loan receivables from four privately held companies that it is holding for long-term investment. These loan receivables are reported at outstanding principal, adjusted for the allowance for loan losses, unamortized discounts, and deferred transaction costs. The Company recognizes interest income on loan receivables using the effective-interest method applied on a loan-by-loan basis. Direct costs associated with originating loans are offset against any related fees received and the balance, along with any premium or discount, is deferred and amortized as an adjustment to interest income over the term of the related loan receivable using the effective interest method.

Loan receivables are recorded in other assets in our consolidated balance sheets and had a total carrying value of $10.0 million and $70.4 million as of December 31, 2018 and 2019, respectively. The carrying value of loans at December 31, 2019 was net of an allowance for loan losses of $4.6 million, unamortized discount of $3.0 million, and $1.0 million of unamortized deferred transaction costs. As of December 31, 2019, $1.5 million of accrued interest related to our loan receivables was recorded in prepaid expenses and other current assets in our consolidated balance sheet. We recognized interest income related to our loan receivables of $1.5 million for the year ended December 31, 2019, with no comparative amounts in 2018.

A loan is determined to be impaired and placed on non-accrual status when, in management's judgment based on current information and events, it is probable that the Company will be unable to collect all amounts due according to the contractual terms of the loan agreement. We recognized an allowance for losses related to loan receivables of $4.6 million for the year ended December 31, 2019, with no comparative amounts in 2018.

The fair value of loan receivables is evaluated on a loan-by-loan basis, and is determined based on assessments of discounted cash flows that are considered probable of collection. We consider these inputs to be Level 3 on the fair value hierarchy. The cumulative fair value of our loan receivables as of December 31, 2018 and 2019 was $10.0 million and $69.3 million, respectively.

Note 10 Goodwill and Other Intangible Assets

We account for goodwill and other non-amortizable intangible assets in accordance with ASC 350 and have deemed these assets to have indefinite lives. Therefore, these assets are not amortized but are instead tested on an annual basis for impairment during the fourth quarter, or when events or changes in circumstances indicate that the carrying amount may not be fully recoverable.

(a) Goodwill

The carrying amounts of goodwill consisted of the following (in thousands):

	As of December 31, 2018	As of December 31, 2019
Goodwill	$ 6,780,827	$ 6,780,827
Accumulated impairment losses	(4,160,200)	(4,160,200)
Net carrying amount	$ 2,620,627	$ 2,620,627

We perform our annual goodwill impairment assessment using a qualitative approach to identify and consider the significance of relevant key factors, events, and circumstances that affect the fair value of our reporting unit. We make our qualitative evaluation considering, among other things, general macroeconomic conditions, industry and market considerations, cost factors, overall financial performance and other relevant entity-specific events.

We are required to identify reporting units at a level that is not above the Company's identified operating segments for impairment analysis. We have identified only one reporting unit for the goodwill impairment test.

Based on our examination of the qualitative factors at December 31, 2018 and 2019, we concluded that there was not a likelihood of more than 50% that the fair value of our reporting unit was less than its carrying value; therefore, no further testing of goodwill was required.

(b) Orbital Locations, Trade Name and other Intangible Assets

The carrying amounts of acquired intangible assets not subject to amortization consisted of the following (in thousands):

	As of December 31, 2018	As of December 31, 2019
Orbital locations	$ 2,387,700	$ 2,387,700
Trade name	65,200	65,200
Total non-amortizable intangible assets	$ 2,452,900	$ 2,452,900

Intelsat is authorized by governments to operate satellites at certain orbital locations—i.e., longitudinal coordinates along the Clarke Belt. The Clarke Belt is the part of space approximately 35,800 kilometers above the plane of the equator where geostationary orbit may be achieved. Various governments acquire rights to these orbital locations through filings made with the International Telecommunication Union, a sub-organization of the United Nations. We will continue to have rights to operate satellites at our orbital locations so long as we maintain our authorizations to do so.

Our rights to operate at orbital locations can be used and sold individually; however, since satellites and customers can be and are moved from one orbital location to another, our rights are used in conjunction with each other as a network that can be adapted to meet the changing needs of our customers and market demands. Due to the interchangeable nature of orbital locations, the aggregate value of all of the orbital locations is used to measure the extent of impairment, if any.

At each of December 31, 2018 and 2019, we determined, based on an examination of qualitative factors, that there was no impairment of our orbital locations and trade name.

The carrying amount and accumulated amortization of acquired intangible assets subject to amortization consisted of the following (in thousands):

	As of December 31, 2018			As of December 31, 2019		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Backlog and other	$ 743,760	$ (701,445)	$ 42,315	$ 743,760	$ (713,205)	$ 30,555
Customer relationships	534,030	(265,242)	268,788	534,030	(287,833)	246,197
Total	$ 1,277,790	$ (966,687)	$ 311,103	$ 1,277,790	$ (1,001,038)	$ 276,752

Intangible assets are amortized based on the expected pattern of consumption. Amortization expense was $42.3 million, $38.5 million and $34.4 million for the years ended December 31, 2017, 2018 and 2019, respectively.

Scheduled amortization charges for intangible assets over the next five years are as follows (in thousands):

Year	Amount
2020	$ 31,103
2021	28,635
2022	25,479
2023	21,353
2024	18,760

Our policy is to expense all costs incurred to renew or extend the terms of our intangible assets.

Note 11 Long-Term Debt

The carrying values and fair values of our notes payable and long-term debt were as follows (in thousands):

	As of December 31, 2018		As of December 31, 2019	
	Carrying Value	Fair Value	Carrying Value	Fair Value
Intelsat S.A.:				
4.5% Convertible Senior Notes due June 2025	$ 402,500	$ 590,427	$ 402,500	$ 265,231
Unamortized prepaid debt issuance costs and discount on 4.5% Convertible Senior Notes	(149,083)	—	(133,310)	—
Total Intelsat S.A. obligations	253,417	590,427	269,190	265,231
Intelsat Luxembourg:				
7.75% Senior Notes due June 2021	421,219	381,203	421,219	336,975
Unamortized prepaid debt issuance costs on 7.75% Senior Notes	(2,062)	—	(1,257)	—
8.125% Senior Notes due June 2023	1,000,000	765,000	1,000,000	590,000
Unamortized prepaid debt issuance costs on 8.125% Senior Notes	(7,256)	—	(5,838)	—
12.5% Senior Notes due November 2024	403,350	376,807	403,350	277,152
Unamortized prepaid debt issuance costs and discount on 12.5% Senior Notes	(198,620)	—	(184,344)	—
Total Intelsat Luxembourg obligations	1,616,631	1,523,010	1,633,130	1,204,127
Intelsat Connect Finance:				
9.5% Senior Notes due February 2023	1,250,000	1,062,500	1,250,000	865,625
Unamortized prepaid debt issuance costs and discount on 9.5% Senior Notes	(34,904)	—	(27,741)	—
Total Intelsat Connect Finance obligations	1,215,096	1,062,500	1,222,259	865,625
Intelsat Jackson:				
9.5% Senior Secured Notes due September 2022	490,000	556,150	490,000	562,275
Unamortized prepaid debt issuance costs and discount on 9.5% Senior Secured Notes	(14,545)	—	(11,204)	—
8% Senior Secured Notes due February 2024	1,349,678	1,390,168	1,349,678	1,380,046
Unamortized prepaid debt issuance costs and premium on 8% Senior Secured Notes	(4,671)	—	(3,903)	—
5.5% Senior Notes due August 2023	1,985,000	1,717,025	1,985,000	1,687,250
Unamortized prepaid debt issuance costs on 5.5% Senior Notes	(10,859)	—	(8,723)	—
9.75% Senior Notes due July 2025	1,485,000	1,488,713	1,885,000	1,729,488
Unamortized prepaid debt issuance costs on 9.75% Senior Notes	(18,230)	—	(20,487)	—
8.5% Senior Notes due October 2024	2,950,000	2,832,000	2,950,000	2,669,750
Unamortized prepaid debt issuance costs and premium on 8.5% Senior Notes	(15,310)	—	(12,916)	—
Senior Secured Credit Facilities due November 2023	2,000,000	1,940,000	2,000,000	1,985,000
Unamortized prepaid debt issuance costs and discount on Senior Secured Credit Facilities	(26,965)	—	(22,149)	—
Senior Secured Credit Facilities due January 2024	395,000	395,988	395,000	398,950
Unamortized prepaid debt issuance costs and discount on Senior Secured Credit Facilities	(1,933)	—	(1,600)	—
6.625% Senior Secured Credit Facilities due January 2024	700,000	694,750	700,000	712,250
Unamortized prepaid debt issuance costs and discount on Senior Secured Credit Facilities	(3,427)	—	(2,832)	—
Total Intelsat Jackson obligations	11,258,738	11,014,794	11,670,864	11,125,009
Eliminations:				
8.125% Senior Notes of Intelsat Luxembourg due June 2023 owned by Intelsat Jackson	(111,663)	(85,422)	(111,663)	(65,881)
Unamortized prepaid debt issuance costs on 8.125% Senior Notes	810	—	652	—
12.5% Senior Notes of Intelsat Luxembourg due November 2024 owned by Intelsat Connect Finance, Intelsat Jackson and Intelsat Envision	(403,245)	(376,708)	(403,245)	(277,080)
Unamortized prepaid debt issuance costs and discount on 12.5% Senior Notes	198,568	—	184,296	—
Total eliminations:	(315,530)	(462,130)	(329,960)	(342,961)
Total Intelsat S.A. long-term debt	$ 14,028,352	$ 13,728,601	$ 14,465,483	$ 13,117,031

The fair value for publicly traded instruments is determined using quoted market prices, and the fair value for non-publicly traded instruments is based upon composite pricing from a variety of sources, including market leading data providers, market makers and leading brokerage firms. Substantially all of the inputs used to determine the fair value of our debt are classified as Level 1 inputs within the fair value hierarchy from ASC 820, except our senior secured credit facilities and our 2025 Convertible Notes, the inputs for which are classified as Level 2.

Required principal repayments of long-term debt over the next five years and thereafter as of December 31, 2019 were as follows (in thousands):

Year		Amount
2020	$	—
2021		421,219
2022		490,000
2023		6,123,337
2024		5,394,783
2025 and thereafter		2,287,500
Total principal repayments		14,716,839
Unamortized discounts, premiums and prepaid issuance costs		(251,356)
Total Intelsat S.A. long-term debt	$	14,465,483

2019 Debt Transaction

June 2019 Intelsat Jackson Senior Notes Add-On Offering

In June 2019, Intelsat Jackson completed an add-on offering of $400.0 million aggregate principal amount of its 9.75% Senior Notes due 2025 ("2025 Jackson Notes"). The notes are guaranteed by all of Intelsat Jackson's subsidiaries that guarantee its obligations under the Intelsat Jackson Secured Credit Agreement and senior notes, as well as by certain of Intelsat Jackson's parent entities.

2018 Debt and Other Capital Markets Transactions

March 2018/May 2018 ICF Tender Offer for Intelsat Luxembourg Notes and Redemption

In March 2018, ICF commenced a cash tender offer to purchase any and all of the outstanding aggregate principal amount of the 6.75% Senior Notes due 2018 (the “2018 Luxembourg Notes”). ICF purchased a total of $31.2 million aggregate principal amount of the 2018 Luxembourg Notes at par value in March 2018 and April 2018. In May 2018, pursuant to a previously issued notice of redemption, Intelsat Luxembourg redeemed $46.0 million aggregate principal amount of the 2018 Luxembourg Notes at par value together with accrued and unpaid interest thereon.

June 2018 Intelsat S.A. Senior Convertible Notes Offering and Common Shares Offering

In June 2018, we completed an offering of 15,498,652 Intelsat S.A. common shares, nominal value $0.01 per share (the “Common Shares”), at a public offering price of $14.84 per common share, and we completed an offering of $402.5 million aggregate principal amount of the 2025 Convertible Notes. These notes are guaranteed by a direct subsidiary of Intelsat Luxembourg, Intelsat Envision. The net proceeds from the Common Shares offering and 2025 Convertible Notes offering were used to repurchase approximately $600 million aggregate principal amount of Intelsat Luxembourg’s 7.75% Senior Notes due 2021 (the “2021 Luxembourg Notes”) in privately negotiated transactions with individual holders in June 2018. In connection with the repurchase of the 2021 Luxembourg Notes, we recognized a net gain on early extinguishment of debt of $22.1 million consisting of the difference between the carrying value of debt repurchased and the total cash amount paid (including related fees and expenses), together with a write-off of unamortized debt issuance costs. We used the remaining net proceeds of the Common Shares offering and 2025 Convertible Notes offering for further repurchases of 2021 Luxembourg Notes and for other general corporate purposes, including repurchases of other tranches of debt of Intelsat S.A.’s subsidiaries.

The 2025 Convertible Notes mature on June 15, 2025 unless earlier repurchased, converted or redeemed, as set forth in the 2025 Indenture. Holders may elect to convert their notes depending upon the trading price of our common shares and under other conditions set forth in the 2025 Indenture until December 15, 2024, and thereafter without regard to any conditions. The initial conversion rate is 55.0085 common shares per $1,000 principal amount of notes, which is equivalent to an initial conversion price of approximately $18.18 per common share, subject to customary adjustments, and will be increased upon the occurrence of specified events set forth in the 2025 Indenture. We may redeem the 2025 Convertible Notes at our option, on or after June 15, 2022, and prior to the forty-second scheduled trading day preceding the maturity date, in whole or in part, depending upon the trading price of our common shares as set forth in the optional redemption

provisions in the 2025 Indenture or in the event of certain developments affecting taxation with respect to the 2025 Convertible Notes. Based on the closing price of our common shares of $7.03 on December 31, 2019, the if-converted value of the 2025 Convertible Notes did not exceed the aggregate principal amount.

In accounting for the transaction, the 2025 Convertible Notes were separated into liability and equity components. The carrying amount of the liability component was calculated by measuring the fair value of a similar debt instrument that does not have an associated convertible feature. The carrying amount of the equity component is $149.4 million, which is also recognized as a discount on the 2025 Convertible Notes and represents the value assigned to the conversion option which was determined by deducting the fair value of the liability component from the par value of the 2025 Convertible Notes. The $149.4 million equity component was included in additional paid-in capital on our consolidated balance sheets as of both December 31, 2018 and 2019, and will not be remeasured as long as it continues to meet the conditions for equity classification. The excess of the principal amount of the liability component over its carrying amount was recorded as a discount on the 2025 Convertible Notes and will be amortized to interest expense over the contractual term of the 2025 Convertible Notes at an effective interest rate of 13.0%.

We incurred debt issuance costs of $12.7 million related to the 2025 Convertible Notes, which were allocated to the liability and equity components based on their relative values. Issuance costs attributable to the liability component were $7.3 million and will be amortized to interest expense using the effective interest method over the contractual term of the 2025 Convertible Notes. Issuance costs attributable to the equity component were netted against the equity component in additional paid-in capital.

Interest expense related to the 2025 Convertible Notes was as follows (in thousands):

	Year Ended December 31, 2018	Year Ended December 31, 2019
Coupon interest	$ 9,710	$ 18,113
Amortization of discount and prepaid debt issuance costs	7,654	15,774
Total interest expense	$ 17,364	$ 33,887

August 2018 Intelsat Connect Senior Notes Refinancing and Exchange of Intelsat Luxembourg Senior Notes

In August 2018, Intelsat Connect completed an offering of $1.25 billion aggregate principal amount of 9.5% Senior Notes due 2023 (the "2023 ICF Notes"). These notes are guaranteed by Intelsat Envision and Intelsat Luxembourg. Intelsat Connect used the net proceeds from the offering to repurchase or redeem all $731.9 million outstanding aggregate principal amount of its 12.5% Senior Notes due 2022 (the "2022 ICF Notes"). The remaining net proceeds from the offering were used to repurchase approximately $448.9 million of aggregate principal amount of Intelsat Jackson's 7.25% Senior Notes due 2020 (the "2020 Jackson Notes") and $30.0 million aggregate principal amount of other unsecured notes of Intelsat Jackson. Also in August 2018, Intelsat Connect and Intelsat Envision completed debt exchanges receiving new notes issued by Intelsat Luxembourg, which mature in August 2026 and have an interest rate of 13.5% in exchange for $1.58 billion aggregate principal amount of 2021 Luxembourg Notes that were previously held by Intelsat Connect and Intelsat Envision. In connection with these transactions, we recognized a loss on extinguishment of debt of $188.2 million, consisting of the difference between the carrying value of the debt and the total cash amount paid (including related fees and expenses), together with a write-off of unamortized debt issuance costs and unamortized discount or premium, if applicable.

September 2018 Intelsat Jackson Senior Notes Offering and Tender Offer

In September 2018, Intelsat Jackson completed an offering of $2.25 billion aggregate principal amount of 8.5% Senior Notes due 2024 (the "2024 Jackson Senior Unsecured Notes"). The notes are guaranteed by all of Intelsat Jackson's subsidiaries that guarantee its obligations under the Intelsat Jackson Secured Credit Agreement, as well as by certain of Intelsat Jackson's parent entities. Intelsat Jackson used the net proceeds from the offering to repurchase through a tender offer and redeem all remaining outstanding 2020 Jackson Notes. The remaining net proceeds from the 2024 Jackson Senior Unsecured Notes offering were used to repurchase and redeem $195.3 million aggregate principal amount of Intelsat Jackson's 7.5% Senior Notes due 2021 (the "2021 Jackson Notes") as of September 30, 2018, $246.0 million additional aggregate principal amount of 2021 Jackson Notes in October 2018, and to pay related fees and expenses. In connection with the repurchase and redemption, we recognized a loss on extinguishment of debt of $15.9 million, consisting of the difference between the carrying value of the debt and the total cash amount paid (including related fees and expenses), together with a write-off of unamortized debt issuance costs and unamortized premium, if applicable.

October 2018 Intelsat Jackson Senior Notes Add-On Offering and Redemption of 2021 Jackson Notes

In October 2018, Intelsat Jackson completed an add-on offering of $700.0 million aggregate principal amount of its 2024 Jackson Senior Unsecured Notes. The net proceeds from the add-on offering, together with cash on hand, were used to repurchase and redeem all of the remaining approximately $708.7 million aggregate principal amount of outstanding

2021 Jackson Notes in October 2018 that were not earlier repurchased or redeemed, and to pay related fees and expenses. In connection with the repurchase, we recognized a loss on extinguishment of debt of $17.8 million, consisting of the difference between the carrying value of the debt and the total cash amount paid (including related fees and expenses), together with a write-off of unamortized debt issuance costs.

Description of Indebtedness

(a) Intelsat S.A.

4 ½% Convertible Senior Notes due 2025

In June 2018, we completed an offering of $402.5 million aggregate principal amount of the 2025 Convertible Notes. See—*2018 Debt and Other Capital Markets Transactions—June 2018 Intelsat S.A. Senior Convertible Notes Offering and Common Shares Offering*, above.

(b) Intelsat Luxembourg

7 ¾% Senior Notes due 2021

Intelsat Luxembourg had $421.2 million in aggregate principal amount of the 2021 Luxembourg Notes outstanding at December 31, 2019. The 2021 Luxembourg Notes bear interest at 7 ¾% annually and mature in June 2021. The 2021 Luxembourg Notes are guaranteed by Intelsat S.A., Intelsat Investment Holdings S.à r.l., Intelsat Holdings S.A. and Intelsat Investments S.A. (the “Parent Guarantors”).

Interest is payable on the 2021 Luxembourg Notes semi-annually on June 1 and December 1. Intelsat Luxembourg may redeem some or all of the notes at the applicable redemption prices set forth in the notes.

The 2021 Luxembourg Notes are senior unsecured obligations of Intelsat Luxembourg and rank equally with Intelsat Luxembourg’s other senior unsecured indebtedness.

8 ⅛% Senior Notes due 2023

Intelsat Luxembourg had $1.0 billion in aggregate principal amount of the 2023 Luxembourg Notes outstanding at December 31, 2019. $111.7 million principal amount was held by Intelsat Jackson. The 2023 Luxembourg Notes bear interest at 8 ⅛% annually and mature in June 2023. The 2023 Luxembourg Notes are guaranteed by the Parent Guarantors.

Interest is payable on the 2023 Luxembourg Notes semi-annually on June 1 and December 1. Intelsat Luxembourg may redeem some or all of the notes at the applicable redemption prices set forth in the notes.

The 2023 Luxembourg Notes are senior unsecured obligations of Intelsat Luxembourg and rank equally with Intelsat Luxembourg’s other senior unsecured indebtedness.

12 ½% Senior Notes due 2024

Intelsat Luxembourg had $403.4 million in aggregate principal amount of its unsecured 12 ½% Senior Notes due 2024 (the "2024 Luxembourg Notes") outstanding at December 31, 2019. $182.0 million principal amount was held by ICF, $220.6 million was held by Intelsat Jackson and $0.7 million was held by Intelsat Envision. The 2024 Luxembourg Notes bear interest at 12 ½% annually and mature in November 2024.

Interest is payable on the 2024 Luxembourg Notes semi-annually on May 15 and November 15.

The 2024 Luxembourg Notes are senior unsecured obligations of Intelsat Luxembourg and rank equally with Intelsat Luxembourg’s other senior unsecured indebtedness.

(c) Intelsat Connect Finance

9 ½% Senior Notes due 2023

ICF had $1.3 billion in aggregate principal amount of 2023 ICF Notes outstanding at December 31, 2019. The 2023 ICF Notes bear interest at 9 ½% annually and mature in February 2023. These notes are guaranteed by Intelsat Envision and Intelsat Luxembourg.

Interest is payable on the 2023 ICF Notes semi-annually on June 15 and December 15. ICF may redeem the 2023 ICF Notes, in whole or in part, prior to August 15, 2020, at a price equal to 100% of the principal amount plus the

applicable premium described in the notes. Thereafter, ICF may redeem some or all of the notes at the applicable redemption prices set forth in the notes.

(d) Intelsat Jackson

9 ½% Senior Secured Notes due 2022

Intelsat Jackson had $490.0 million in aggregate principal amount of 2022 Jackson Secured Notes outstanding at December 31, 2019. The 2022 Jackson Secured Notes bear interest at 9 ½% annually and mature in September 2022. These notes are guaranteed by ICF and certain of Intelsat Jackson's subsidiaries.

Interest is payable on the 2022 Jackson Secured Notes semi-annually on March 30 and September 30. Intelsat Jackson may redeem some or all of the notes at the applicable redemption prices set forth in the notes.

The 2022 Jackson Secured Notes are senior secured obligations of Intelsat Jackson.

8% Senior Secured Notes due 2024

Intelsat Jackson had $1.3 billion in aggregate principal amount of 2024 Jackson Secured Notes outstanding at December 31, 2019. The 2024 Jackson Secured Notes bear interest at 8% annually and mature in February 2024. These notes are guaranteed by ICF and certain of Intelsat Jackson's subsidiaries.

Interest is payable on the 2024 Jackson Secured Notes semi-annually on February 15 and August 15. Intelsat Jackson may redeem some or all of the notes at the applicable redemption prices set forth in the notes.

The 2024 Jackson Secured Notes are senior secured obligations of Intelsat Jackson.

5 ½% Senior Notes due 2023

Intelsat Jackson had $2.0 billion in aggregate principal amount of the 2023 Jackson Notes outstanding at December 31, 2019. The 2023 Jackson Notes bear interest at 5 ½% annually and mature in August 2023. These notes are guaranteed by the Parent Guarantors, Intelsat Luxembourg, ICF and certain of Intelsat Jackson's subsidiaries.

Interest is payable on the 2023 Jackson Notes semi-annually on February 1 and August 1. Intelsat Jackson may redeem some or all of the 2023 Jackson Notes at the applicable redemption prices set forth in the notes.

The 2023 Jackson Notes are senior unsecured obligations of Intelsat Jackson and rank equally with Intelsat Jackson's other senior unsecured indebtedness.

9 ¾% Senior Notes due 2025

Intelsat Jackson had $1.9 billion in aggregate principal amount of the 2025 Jackson Notes outstanding at December 31, 2019. The 2025 Jackson Notes bear interest at 9 ¾% annually and mature in July 2025. These notes are guaranteed by the Parent Guarantors, Intelsat Luxembourg, ICF and certain of Intelsat Jackson's subsidiaries.

Interest is payable on the 2025 Jackson Notes semi-annually on January 15 and July 15. Intelsat Jackson may redeem some or all of the 2025 Jackson Notes at any time prior to July 15, 2021 at a price equal to 100% of the principal amount thereof plus the applicable premium described in the notes. Thereafter, Intelsat Jackson may redeem some or all of the notes at the applicable redemption prices set forth in the notes.

The 2025 Jackson Notes are senior unsecured obligations of Intelsat Jackson and rank equally with Intelsat Jackson's other senior unsecured indebtedness.

8 ½% Senior Unsecured Notes due 2024

Intelsat Jackson had $3.0 billion in aggregate principal amount of the 2024 Jackson Senior Unsecured Notes outstanding at December 31, 2019. The 2024 Jackson Senior Unsecured Notes bear interest at 8 ½% annually and mature in October 2024. These notes are guaranteed by the Parent Guarantors, Intelsat Luxembourg, ICF and certain of Intelsat Jackson's subsidiaries.

Interest is payable on the 2024 Jackson Senior Unsecured Notes semi-annually on April 15 and October 15. Intelsat Jackson may redeem some or all of the 2024 Jackson Senior Unsecured Notes at any time prior to October 15, 2020 at a price equal to 100% of the principal amount thereof plus the applicable premium described in the notes. Thereafter, Intelsat Jackson may redeem some or all of the 2024 Jackson Senior Unsecured Notes at the applicable redemption prices set forth in the notes.

The 2024 Jackson Senior Unsecured Notes are senior unsecured obligations of Intelsat Jackson and rank equally with Intelsat Jackson's other senior unsecured indebtedness.

Intelsat Jackson Senior Secured Credit Agreement

On January 12, 2011, Intelsat Jackson entered into a secured credit agreement (the "Intelsat Jackson Secured Credit Agreement"), which included a $3.25 billion term loan facility and a $500.0 million revolving credit facility, and borrowed the full $3.25 billion under the term loan facility. The term loan facility required regularly scheduled quarterly payments of principal equal to 0.25% of the original principal amount of the term loan beginning six months after January 12, 2011, with the remaining unpaid amount due and payable at maturity.

On October 3, 2012, Intelsat Jackson entered into an Amendment and Joinder Agreement (the "Jackson Credit Agreement Amendment"), which amended the Intelsat Jackson Secured Credit Agreement. As a result of the Jackson Credit Agreement Amendment, interest rates for borrowings under the term loan facility and the revolving credit facility were reduced. In April 2013, our corporate family rating was upgraded by Moody's, and as a result, the interest rate for the borrowing under the term loan facility and revolving credit facility were further reduced to LIBOR plus 3.00% or the Above Bank Rate ("ABR") plus 2.00%.

On November 27, 2013, Intelsat Jackson entered into a Second Amendment and Joinder Agreement (the "Second Jackson Credit Agreement Amendment"), which further amended the Intelsat Jackson Secured Credit Agreement. The Second Jackson Credit Agreement Amendment reduced interest rates for borrowings under the term loan facility and extended the maturity of the term loan facility. In addition, it reduced the interest rate applicable to $450 million of the $500 million total revolving credit facility and extended the maturity of such portion. As a result of the Second Jackson Credit Agreement Amendment, interest rates for borrowings under the term loan facility and the new tranche of the revolving credit facility were (i) LIBOR plus 2.75%, or (ii) the ABR plus 1.75%. The LIBOR and the ABR, plus applicable margins, related to the term loan facility and the new tranche of the revolving credit facility were determined as specified in the Intelsat Jackson Secured Credit Agreement, as amended by the Second Jackson Credit Agreement Amendment, and the LIBOR was not to be less than 1.00% per annum. The maturity date of the term loan facility was extended from April 2, 2018 to June 30, 2019 and the maturity of the new $450 million tranche of the revolving credit facility was extended from January 12, 2016 to July 12, 2017. The interest rates and maturity date applicable to the $50 million tranche of the revolving credit facility that was not amended did not change. The Second Jackson Credit Agreement Amendment further removed the requirement for regularly scheduled quarterly principal payments under the term loan facility.

In June 2017, Intelsat Jackson terminated all remaining commitments under its revolving credit facility.

On November 27, 2017, Intelsat Jackson entered into a Third Amendment and Joinder Agreement (the "Third Jackson Credit Agreement Amendment"), which further amended the Intelsat Jackson Secured Credit Agreement. The Third Jackson Credit Agreement Amendment extended the maturity date of $2.0 billion of the existing floating rate B-2 Tranche of term loans (the "B-3 Tranche Term Loans"), to November 27, 2023, subject to springing maturity in the event that certain series of Intelsat Jackson's senior notes are not refinanced prior to the dates specified in the Third Jackson Credit Agreement Amendment. The B-3 Tranche Term Loans have an applicable interest rate margin of 3.75% for LIBOR loans and 2.75% for base rate loans (at Intelsat Jackson's election as applicable).

The B-3 Tranche Term Loans were subject to a prepayment premium of 1.00% of the principal amount for any voluntary prepayment of, or amendment or modification in respect of, the B-3 Tranche Term Loans prior to November 27, 2018 in connection with prepayments, amendments or modifications that have the effect of reducing the applicable interest rate margin on the B-3 Tranche Term Loans, subject to certain exceptions. The Third Jackson Credit Agreement Amendment also (i) added a provision requiring that, beginning with the fiscal year ending December 31, 2018, Intelsat Jackson apply a certain percentage of its Excess Cash Flow (as defined in the Third Jackson Credit Agreement Amendment), if any, after operational needs for each fiscal year towards the repayment of outstanding term loans, subject to certain deductions, (ii) amended the most-favored nation provision with respect to the incurrence of certain indebtedness by Intelsat Jackson and its restricted subsidiaries, and (iii) amended the covenant limiting the ability of Intelsat Jackson to make certain dividends, distributions and other restricted payments to its shareholders based on its leverage level at that time.

On December 12, 2017, Intelsat Jackson further amended the Intelsat Jackson Secured Credit Agreement by entering into a Fourth Amendment and Joinder Agreement (the "Fourth Jackson Credit Agreement Amendment"), which, among other things, (i) permitted Intelsat Jackson to establish one or more series of additional incremental term loan tranches if the proceeds thereof are used to refinance an existing tranche of term loans, and (ii) added a most-favored nation provision applicable to the B-3 Tranche Term Loans for further extensions of the existing floating rate B-2 Tranche Term Loans under certain circumstances.

On January 2, 2018, Intelsat Jackson entered into a Fifth Amendment and Joinder Agreement (the "Fifth Jackson Credit Agreement Amendment"), which further amended the Intelsat Jackson Secured Credit Agreement. The Fifth Jackson Credit Agreement Amendment refinanced the remaining $1.095 billion B-2 Tranche Term Loans, through the creation of (i) a new incremental floating rate tranche of term loans with a principal amount of $395.0 million (the "B-4 Tranche Term Loans"), and (ii) a new incremental fixed rate tranche of term loans with a principal amount of $700.0 million (the "B-5 Tranche Term Loans"). The maturity date of both the B-4 Tranche Term Loans and the B-5 Tranche Term Loans is January 2, 2024, subject to springing maturity in the event that certain series of Intelsat Jackson's senior notes are not refinanced or repaid prior to the dates specified in the Fifth Jackson Credit Agreement Amendment. The B-4 Tranche Term Loans have an applicable interest rate margin of 4.50% per annum for LIBOR loans and 3.50% per annum for base rate loans (at Intelsat Jackson's election as applicable).

We entered into interest rate cap contracts in December 2017 and amended them in May 2018 to mitigate the risk of interest rate increases on the B-3 and B-4 Tranche Term Loans. The B-5 Tranche Term Loans have an interest rate of 6.625% per annum. The Fifth Jackson Credit Agreement Amendment also specified make-whole and prepayment premiums applicable to the B-4 Tranche Term Loans and the B-5 Tranche Term Loans at various dates.

Intelsat Jackson's obligations under the Intelsat Jackson Secured Credit Agreement are guaranteed by ICF and certain of Intelsat Jackson's subsidiaries. Intelsat Jackson's obligations under the Intelsat Jackson Secured Credit Agreement are secured by a first priority security interest in substantially all of the assets of Intelsat Jackson and the guarantors party thereto, to the extent legally permissible and subject to certain agreed exceptions, and by a pledge of the equity interests of the subsidiary guarantors and the direct subsidiaries of each guarantor, subject to certain exceptions, including exceptions for equity interests in certain non-U.S. subsidiaries, existing contractual prohibitions and prohibitions under other legal requirements.

The Intelsat Jackson Secured Credit Agreement following a further amendment in November 2018 includes one financial covenant: Intelsat Jackson must maintain a consolidated secured debt to consolidated EBITDA ratio equal to or less than 3.50 to 1.00 at the end of each fiscal quarter, measured based on the trailing 12 months, as such financial measure is defined in the Intelsat Jackson Secured Credit Agreement. Intelsat Jackson was in compliance with this financial maintenance covenant ratio with a consolidated secured debt to consolidated EBITDA ratio of 3.20 to 1.00 as of December 31, 2019.

Note 12 Derivative Instruments and Hedging Activities

Interest Rate Cap Contracts

As of December 31, 2018 and 2019, we held interest rate cap contracts with an aggregate notional value of $2.4 billion that mature in February 2021. These interest rate cap contracts, which were entered into in 2017 and amended in 2018, are designed to mitigate our risk of interest rate increases on the floating rate portion of our senior secured credit facilities (see Note 11—Long-Term Debt). The contracts have not been designated for hedge accounting treatment in accordance with ASC 815, *Derivatives and Hedging* ("ASC 815"), and the changes in fair value of these instruments, net of payments received, are recognized in the consolidated statements of operations during the period of change. We received $3.7 million and $9.8 million in settlement payments related to the interest rate cap contracts for the years ended December 31, 2018 and 2019, respectively.

Preferred Stock Warrant and Common Stock Warrant

During 2017, we were issued a warrant to purchase preferred shares of one of our investments. We concluded that the warrant is a free standing derivative in accordance with ASC 815. During 2019, we were issued a warrant to purchase common shares of a separate investment. We concluded that the warrant is a free standing derivative in accordance with ASC 815.

The following table sets forth the fair value of our derivatives by category (in thousands):

Derivatives not designated as hedging instruments	Classification	As of December 31, 2018	As of December 31, 2019
Interest rate cap contracts	Other assets	$ 33,086	$ 372
Preferred stock warrant	Other assets	4,100	—
Common stock warrant	Other assets	—	3,239
Total derivatives		$ 37,186	$ 3,611

The following table sets forth the effect of the derivative instruments in our consolidated statements of operations (in thousands):

Derivatives not designated as hedging instruments	Classification	Year Ended December 31, 2017	Year Ended December 31, 2018	Year Ended December 31, 2019
Interest rate cap contracts	(Loss) gain included in interest expense, net	$ (1,006)	$ 14,435	$ (22,918)
Preferred stock warrant	Loss included in other income (expense), net	—	—	(4,100)
Total (loss) gain on derivative financial instruments		$ (1,006)	$ 14,435	$ (27,018)

Note 13 Leases

Lessee

We lease corporate and branch offices, various facilities, land and equipment, specifically third-party teleport and circuit/dark fiber. Certain leases include one or more options to renew, with renewal terms that can extend the lease term from one year to fifteen years. The exercise of lease renewal options is at our sole discretion. Considering the nature of our business and ongoing technology upgrades relating to the services we provide, we determined that the likelihood of exercising a renewal on any leased property and equipment is uncertain. Therefore, we do not generally include the renewal period in the expected lease terms. Some of our leases may include options to terminate the leases within six months of inception. Our lease agreements generally do not include options to purchase the leased property. The depreciable life of leasehold improvements is limited by the expected lease term in the absence of a transfer of title or purchase option reasonably certain of exercise.

Certain of our lease agreements include rental payments with escalation provisions as defined in the contracts. These escalation provisions are included in the calculation of the present value of the lease payments for purposes of determining the value of the respective ROU asset and lease liability. Our lease agreements do not contain any material residual value guarantees or materially restrictive covenants. We rent, license or sublease certain office space and land to third parties. Our sublease portfolio consists mainly of property operating leases for office space within our McLean, Virginia U.S. administrative headquarters office building.

The following table sets forth supplemental balance sheet information related to ROU assets and lease liabilities (in thousands):

	Classification	As of December 31, 2019
Assets		
Operating	Other assets	$ 86,780
Finance	Other assets[(1)]	10,084
Total leased assets		$ 96,864
Liabilities		
Current		
Operating	Other current liabilities	$ 12,744
Finance	Other current liabilities	2,215
Long-term		
Operating	Other long-term liabilities	99,072
Finance	Other long-term liabilities	16,137
Total lease liabilities		$ 130,168

(1) Net of accumulated amortization of $542.

The following table sets forth supplemental information related to the components of lease expense (in thousands):

	Classification	Year Ended December 31, 2019
Operating lease cost	Direct costs of revenue	$ 14,210
Operating lease cost	Selling, general and administrative expenses	6,159
Finance lease cost		
Amortization of leased assets	Depreciation and amortization	542
Interest on lease liabilities	Interest expense, net	813
Sublease income	Other income (expense), net	(1,206)
Net lease cost		$ 20,518

The following table sets forth future minimum lease payments together with the present value of lease liabilities under leases as of December 31, 2019 for the next five years and thereafter (in thousands):

	Operating Leases	Finance Leases	Total
2020	$ 20,136	$ 3,423	$ 23,559
2021	16,329	3,629	19,958
2022	15,508	3,489	18,997
2023	15,122	3,419	18,541
2024	15,006	1,813	16,819
2025 and thereafter	71,633	8,242	79,875
Total lease payments	$ 153,734	$ 24,015	$ 177,749
Less: Imputed interest(1)	41,918	5,663	47,581
Present value of lease liabilities	$ 111,816	$ 18,352	$ 130,168

(1) Calculated using the incremental borrowing rate assessed for each lease.

As of December 31, 2019, we had additional operating leases for in-orbit, satellite servicing vehicles, which had not yet commenced, totaling approximately $144.0 million. These leases are expected to commence between 2020 and 2021 and have lease terms of 5 years.

The following table sets forth the contractual commitments under leases as of December 31, 2018 for 2019 through 2024 and thereafter (in thousands):

	Operating Leases	Sublease Rental Income	Total
2019	$ 20,065	$ (826)	$ 19,239
2020	18,730	(745)	17,985
2021	14,832	(535)	14,297
2022	13,979	(372)	13,607
2023	13,600	(78)	13,522
2024 and thereafter	80,216	(150)	80,066
Total contractual commitments	$ 161,422	$ (2,706)	$ 158,716

The following table sets forth supplemental cash flow information related to leases (in thousands):

	Year Ended December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities	
Operating cash flows from operating leases	$ 20,919
Leased assets obtained in exchange for new operating lease liabilities	98,621
Leased assets obtained in exchange for new finance lease liabilities	10,626

The following table sets forth the weighted average remaining lease term and weighted average discount rate under leases:

	As of December 31, 2019
Weighted average remaining lease term (in years)	
Operating leases	8.9
Finance leases	8.0
Weighted average discount rate[(1)]	
Operating leases	7.4%
Finance leases	7.0%

(1) Discount rate is the incremental borrowing rate assessed for each lease.

Lessor

We have two sales-type leases related to managed service contracts.

One sales-type lease commenced in 2019 and has an expiration date of March 31, 2030, with an option to extend the term provided the extension is reasonably feasible from a regulatory and technical standpoint. We evaluated the lease and determined that it contains lease and non-lease components. The sales-type lease component is accounted for separately from the other lease and non-lease components that meet the practical expedient criteria to be combined. Judgment is required in determining the allocation between the lease and non-lease components. ASC 606 is applied to the combined lease and non-lease components. There is no residual value of the leased assets and no interest income to be recognized under the lease. For the year ended December 31, 2019, the Company recorded revenue and direct costs of revenue of $14.7 million and $16.2 million, respectively, resulting in a net loss at commencement of the sales-type lease of approximately $1.5 million.

The second sales-type lease commenced in 2018 and has an expiration date of December 31, 2022, with automatic renewals on an annual basis unless either party terminates the lease by providing written notice at least one year prior to the renewal date. The sales-type lease also contains non-lease components that were separated and accounted for as service arrangements. The lessee has an option to purchase the underlying equipment during or after the contract term. Upon such purchase, the lessee will have option to either terminate the underlying service or continue to receive service from the Company until the end of the service term. No residual value is assumed given the term and estimated useful life of the underlying equipment. The Company recognizes an insignificant amount of interest income annually under the lease terms. For the year ended December 31, 2018, the Company recorded revenue and direct costs of revenue of $3.1 million and $2.4 million, respectively, resulting in a net profit at commencement of the sales-type lease of approximately $0.7 million.

The Company recorded a cumulative net investment in sales-type leases of approximately $15.9 million as of December 31, 2019, of which $2.0 million was included within prepaid and other current assets and $13.9 million was included within other assets in the consolidated balance sheets. The carrying value of the lease receivables approximates the net investments in the leases. As of December 31, 2019, the Company expects to receive approximately $16.3 million of lease payments over the remaining term of the service agreements, of which $2.2 million, $2.2 million, $2.2 million, $1.3 million, $1.3 million, and $7.1 million are expected to be received in 2020, 2021, 2022, 2023, 2024 and 2025 and thereafter, respectively.

Note 14 Income Taxes

In February 2018, the FASB issued ASU 2018-02, *Income Statement—Reporting Comprehensive Income (Topic 220)—Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income,* which allows for an optional reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the U.S. Tax Cuts and Jobs Act (the "Act"), which was signed into law on December 22, 2017. Consequently, the amendments eliminated the stranded tax effects resulting from the Act for those entities that elect the optional reclassification. ASU 2018-02 is effective for all entities for interim and annual periods beginning after December 15, 2018. We adopted ASU 2018-02 in the first quarter of 2019, which resulted in a reclassification of stranded tax effects of $16.2 million from accumulated other comprehensive loss to accumulated deficit.

The Act includes a number of provisions, including the lowering of the U.S. corporate tax rate from 35 percent to 21 percent, effective January 1, 2018. The Act limits our U.S. interest expense deductions to approximately 30 percent of EBITDA through December 31, 2021 and approximately 30 percent of earnings before net interest and taxes thereafter. The Act also introduced a new minimum tax, the Base Erosion Anti-Abuse Tax (“BEAT”). We are treating the BEAT as a period cost.

Effective January 1, 2019, the Luxembourg corporate tax rate decreased from 26.01% to 24.94%. This resulted in a decrease in deferred tax assets and corresponding valuation allowance.

The Company recognized the income tax effects of the Act in its 2017 financial statements in accordance with Staff Accounting Bulletin No. 118, which provides SEC staff guidance for the application of ASC 740 in the reporting period in which the Act was signed into law.

The Company measures deferred tax assets and liabilities using enacted tax rates that will apply in the years in which the temporary differences are expected to be recovered or paid. Accordingly, the Company's U.S. deferred tax assets and liabilities were remeasured to reflect the reduction in the U.S. corporate income tax rate from 35 percent to 21 percent, resulting in a $28.0 million decrease in net deferred tax liabilities as of December 31, 2017.

On July 2, 2018, we implemented a series of internal transactions and related steps that reorganized the ownership of certain assets among our subsidiaries (the "2018 Internal Reorganization"). The 2018 Internal Reorganization resulted in the majority of our operations being owned by a U.S.-based partnership, with certain of our wholly-owned Luxembourg and U.S. subsidiaries as partners.

The following table summarizes our total income (loss) before income taxes (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2018	Year Ended December 31, 2019
Domestic income (loss) before income taxes	$ (18,149)	$ (424,590)	$ (869,247)
Foreign income (loss) before income taxes	(85,535)	(41,031)	(49,347)
Total income (loss) before income taxes	$ (103,684)	$ (465,621)	$ (918,594)

The primary reason for the variance in domestic income before income tax from 2018 to 2019 was related to the satellite impairment loss our Luxembourg entities recorded in 2019. Loss before income tax increased from 2017 to 2018 due to a loss on early extinguishment of debt in 2018 and a significant increase in interest expense, primarily related to ASC 606.

The provision for (benefit from) income taxes consisted of the following (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2018	Year Ended December 31, 2019
Current income tax provision (benefit)			
Domestic	$ (125)	$ 792	$ —
Foreign	27,309	50,117	20,323
Total	27,184	50,909	20,323
Deferred income tax provision (benefit):			
Domestic	72	—	—
Foreign	43,874	79,160	(27,707)
Total	43,946	79,160	(27,707)
Total income tax provision (benefit):	$ 71,130	$ 130,069	$ (7,384)

The income tax provision (benefit) was different from the amount computed using the Luxembourg statutory income tax rate of 24.94% for 2019, 26.01% for 2018 and 27.08% for 2017, for the reasons set forth in the following table (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2018	Year Ended December 31, 2019
Expected tax provision (benefit) at Luxembourg statutory income tax rate	$ (28,078)	$ (121,108)	$ (229,097)
Foreign income tax differential	66,242	2,216	(23,603)
Lux Financing Activities	30,232	51,250	(5,930)
Change in tax rate	(28,250)	(684)	163,831
Changes in unrecognized tax benefits	(79)	(2,205)	(4,178)
Changes in valuation allowance	40,853	746,905	(166,683)
Tax effect of 2011 Intercompany Sale	(6,073)	1,655	1,269
Foreign tax credits	(3,107)	138	—
Research and development tax credits	(2,786)	—	—
2018 Internal Reorganization	—	(549,382)	257,921
Other	2,176	1,284	(914)
Total income tax provision (benefit)	$ 71,130	$ 130,069	$ (7,384)

The majority of our operations are located in taxable jurisdictions, including Luxembourg, the U.S. and the United Kingdom ("UK"). Due to our cumulative losses in recent years, and the inherent uncertainty associated with the realization of taxable income in the foreseeable future, we recorded a full valuation allowance against the cumulative net operating losses generated in Luxembourg. The difference between tax expense (benefit) reported in the consolidated statements of operations and tax computed at statutory rates is attributable to the valuation allowance on losses generated in Luxembourg, the provision for foreign taxes, which were principally in the U.S. as a result of the final BEAT regulations and the UK, as well as withholding taxes on revenue earned in some of the foreign markets in which we operate.

The following table details the composition of the net deferred tax balances on our consolidated balance sheets as of December 31, 2018 and 2019 (in thousands):

	As of December 31, 2018	As of December 31, 2019
Long-term deferred taxes, net	$ (82,488)	$ (55,171)
Other assets	20,969	21,417
Net deferred taxes	$ (61,519)	$ (33,754)

The components of the net deferred tax liability were as follows (in thousands):

	As of December 31, 2018	As of December 31, 2019
Deferred tax assets:		
Accruals and advances	$ 6,001	$ 5,812
Amortizable intangible assets	1,133,702	788,134
Non-Amortizable intangible assets	42,265	40,527
Customer deposits	3,404	3,489
Bad debt reserve	1,350	4,468
Disallowed interest expense carryforward	74,825	109,229
Net operating loss carryforward	2,964,634	3,077,101
Tax credits	12,235	13,135
Tax basis differences in investments and affiliates	78,950	99,396
Other	2,346	3,287
Total deferred tax assets	4,319,712	4,144,578
Deferred tax liabilities:		
Satellites and other property and equipment	(80,376)	(51,392)
Amortizable intangible assets	(8,948)	(7,299)
Non-amortizable intangible assets	(31,359)	(31,407)
Tax basis differences in investments and affiliates	(51,645)	(51,314)
Other	(5,654)	(354)
Total deferred tax liabilities	(177,982)	(141,766)
Valuation allowance	(4,203,249)	(4,036,566)
Total net deferred tax liabilities	$ (61,519)	$ (33,754)

As of December 31, 2018 and 2019, our consolidated balance sheets included a deferred tax asset in the amount of $3.0 billion and $3.1 billion, respectively, attributable to the future benefit from the utilization of certain net operating loss carryforwards. In addition, our balance sheets as of December 31, 2018 and 2019 included $12.2 million and $13.1 million of deferred tax assets, respectively, attributable to the future benefit from the utilization of tax credit carryforwards. As of December 31, 2019, we had tax-effected U.S. federal, state and other foreign tax net operating loss carryforwards of $90.1 million expiring, for the most part, between 2024 and 2038. Of this amount, $8.5 million has an indefinite life. In addition, as of December 31, 2019, we had Luxembourg tax-effected net operating loss carryforwards of $3.0 billion and of this amount $617.1 million expires, for the most part, in 2035. These Luxembourg net operating loss carryforwards were caused primarily by our interest expense, satellite depreciation and amortization and impairment charges related to investments in subsidiaries, goodwill and other intangible assets. Our research and development credit of $1 million may be carried forward to 2037. Our foreign tax credit of $12.1 million may be carried forward to 2026.

Our valuation allowance as of December 31, 2018 and 2019 was $4.2 billion and $4.0 billion, respectively. Almost all of the valuation allowance relates to Luxembourg net operating loss carryforwards and deferred tax assets created by differences between the U.S. GAAP and the Luxembourg tax basis in our assets. Certain operations of our subsidiaries are controlled by various intercompany agreements which provide these subsidiaries with predictable operating profits. Other subsidiaries, principally Luxembourg and U.S. subsidiaries, are subject to the risks of our overall business conditions which make their earnings less predictable. Our valuation allowance as of December 31, 2019 also relates to certain deferred tax assets in our U.S. subsidiaries, including foreign tax credit carryforward and disallowed interest expense carryforward.

The following table summarizes the activity related to our unrecognized tax benefits (in thousands):

	2018	2019
Balance at January 1	$ 31,380	$ 29,144
Increases related to current year tax positions	928	70
Increases related to prior year tax positions	234	226
Decreases related to prior year tax positions	(81)	(432)
Expiration of statute of limitations for the assessment of taxes	(3,317)	(4,054)
Balance at December 31	$ 29,144	$ 24,954

As of December 31, 2018 and 2019, our gross unrecognized tax benefits were $29.1 million and $25.0 million, respectively (including interest and penalties), of which $25.6 million and $21.5 million, respectively, if recognized, would affect our effective tax rate. As of both December 31, 2018 and 2019, we had recorded reserves for interest and penalties in the amount of $0.6 million. We continue to recognize interest and, to the extent applicable, penalties with respect to the unrecognized tax benefits as income tax expense. Since December 31, 2018, the change in the balance of unrecognized tax benefits consisted of an increase of $0.1 million related to current tax positions, a decrease of $0.2 million related to prior tax positions, and a decrease of $4.1 million due to the expiration of statutes of limitations for the assessment of taxes.

We operate in various taxable jurisdictions throughout the world and our tax returns are subject to audit and review from time to time. We consider Luxembourg, the United States, the United Kingdom and Brazil to be our significant tax jurisdictions. Our Luxembourg, U.S., United Kingdom and Brazilian subsidiaries are subject to income tax examination for periods after December 31, 2013. Within the next twelve months, we believe that there are no jurisdictions in which the outcome of unresolved tax issues or claims is likely to be material to our results of operations, financial position or cash flows.

During 2019, the Company made payments to the government of India in the amount of $7.0 million with respect to ongoing administrative proceedings. We believe it is more likely than not that the positions which we have presented in these matters will result in a favorable outcome for the Company. As a result, the payments have been recorded in taxes receivable.

On March 29, 2017, the UK Government gave formal notice of its intention to leave the European Union (“EU”). After the balance sheet date of December 31, 2019, the UK formally exited the EU, effective January 31, 2020. As a result of the withdrawal, existing tax reliefs and exemptions on intra-European transactions will likely cease to apply to transactions between UK entities and EU entities. In addition, transactions with non-EU countries, such as the U.S., may also be affected. As of December 31, 2019, all relevant tax laws and treaties remained unchanged and the tax consequences were unknown. Therefore, we have not recognized any impacts of the withdrawal in the income tax provision as of December 31, 2019. We will recognize any impacts to the tax provision when changes in tax laws or treaties between the UK and the EU or individual EU member states are enacted.

On December 2, 2019, the U.S. Department of Treasury and the U.S. Internal Revenue Service released final regulations with respect to BEAT as enacted by the 2017 Tax Reform Act. These regulations represent the final version of proposed regulations which were released in December 2018. The BEAT is a minimum tax established by the Act that

subjects certain payments made by U.S. corporations or subsidiaries to foreign related parties to a secondary federal income tax regime in the U.S. The final regulations clarify which taxpayers are subject to the BEAT and how the BEAT rules apply to certain payments and transactions. We have adopted the final BEAT regulations as of the release date. These regulations are effective for the Company as of its tax year ended December 31, 2018. The Company has included the impact of BEAT tax expense for the final regulations related to both 2018 and 2019 tax years in its 2019 tax expense.

Note 15 Contractual Commitments

In the further development and operation of our commercial global communications satellite system, significant additional expenditures are anticipated. In connection with these and other expenditures, we have a significant amount of long-term debt, as described in Note 11—Long-Term Debt. In addition to these debt and related interest obligations, we have expenditures represented by other contractual commitments. The additional expenditures as of December 31, 2019 and the expected year of payment are as follows (in thousands):

	Satellite Construction and Launch Obligations	Satellite Performance Incentive Obligations	Horizons-3 Satellite LLC Contribution and Purchase Obligations[1]	Customer and Vendor Contracts	Sublease Rental Income	Total
2020	$ 137,370	$ 65,301	$ 28,586	$ 138,885	$ (775)	$ 369,367
2021	163,325	51,685	32,358	58,208	(492)	305,084
2022	122,621	36,816	33,600	51,866	(236)	244,667
2023	9,442	25,366	33,723	47,498	(120)	115,909
2024	7,832	24,726	34,314	38,573	(56)	105,389
2025 and thereafter	20,956	104,084	192,618	81,362	(138)	398,882
Total contractual commitments	$ 461,546	$ 307,978	$ 355,199	$ 416,392	$ (1,817)	$ 1,539,298

(1) This amount includes commitments to make capital contributions to and purchase satellite capacity from Horizons 3. See Note 9(b)—Investments—Horizons-3 Satellite LLC.

(a) Satellite Construction and Launch Obligations

As of December 31, 2019, we had approximately $461.5 million of expenditures remaining under our existing satellite construction and launch contracts, including expected orbital performance incentive payments for satellites currently in the construction phase.

These contracts typically require that we make progress payments during the period of the satellites' construction and contain provisions that allow us to cancel the contracts for or without cause. If cancelled without cause, we could be subject to substantial termination penalties, including the forfeiture of progress payments made to-date and additional penalty payments. If cancelled for cause, we are entitled to recover progress payments made to-date and liquidated damages as specified in the contracts.

(b) Satellite Performance Incentive Obligations

Satellite construction contracts also typically require that we make orbital incentive payments (plus interest as defined in each agreement with the satellite manufacturer) over the orbital life of the satellite. The incentive obligations may be subject to reduction or refund if the satellite fails to meet specific technical operating standards. As of December 31, 2019, we had $308.0 million of satellite performance incentive obligations, including future interest payments, for satellites currently in orbit.

(c) Customer and Vendor Contracts

We have contracts with certain customers that require us to provide equipment, services and other support during the term of the related contracts. We also have long-term contractual obligations with service providers primarily for the operation of certain of our satellites. As of December 31, 2019, we had commitments under these customer and vendor contracts which totaled approximately $416.4 million related to the provision of equipment, services and other support.

(d) Rental Income and Expense

Rental income and sublease income are included in other expense, net in the accompanying consolidated statements of operations. Total rent expense for the years ended December 31, 2017 and 2018, was $14.8 million and $14.0 million, respectively, under ASC 840. We adopted ASC 842 effective January 1, 2019. Please refer to Note 13—Leases for

operating lease expense for 2019 and Note 1—Background and Summary of Significant Accounting Policies for transition guidance.

Note 16 Contingencies

We are subject to litigation in the ordinary course of business. Management does not believe that the resolution of any pending proceedings would have a material adverse effect on our financial position or results of operations.

Note 17 Related Party Transactions

(a) Shareholders' Agreements

Certain shareholders of Intelsat Global S.A. entered into shareholders' agreements on February 4, 2008. The shareholders' agreements were assigned to Intelsat S.A. by amendments effective as of March 30, 2012 in connection with our IPO in April 2013, and then terminated in December 2018 and replaced by a new agreement. The new shareholders agreement provides, among other things, specific rights to and limitations upon the holders of Intelsat S.A.'s share capital with respect to shares held by such holders.

(b) Governance Agreement

Prior to the consummation of the IPO, we entered into a governance agreement with our shareholder affiliated with BC Partners (the "BC Shareholder"), our shareholder affiliated with Silver Lake (the "Silver Lake Shareholder") and David McGlade, our Non-Executive Chairman. This agreement was terminated in December 2018 and replaced with a new agreement between the BC Shareholder and the Company, containing provisions relating to the composition of our board of directors and certain other matters.

(c) Indemnification Agreements

We have entered into agreements with our executive officers and directors to provide contractual indemnification in addition to the indemnification provided for in our articles of incorporation.

(d) Horizons Holdings

We have a 50% ownership interest in Horizons Holdings, a limited liability company organized under the laws of Delaware, as a result of a joint venture with JSAT (see Note 9(a)—Investments—Horizons Holdings).

(e) Horizons-3 Satellite LLC

We have a 50% ownership interest in Horizons 3, a limited liability company organized under the laws of Delaware, as a result of a joint venture with JSAT (see Note 9(b)—Investments—Horizons-3 Satellite LLC).

(f) Additional BC Shareholder Share Purchase in June 2018

In connection with an offering of common shares by the Company completed in June 2018, the BC Shareholder purchased an additional 2,021,563 common shares of Intelsat S.A. at the public offering price of $14.84 per share for approximately $30.0 million in the aggregate.

Note 18 Quarterly Results of Operations (in thousands, except per share amounts; unaudited)

	Quarter Ended			
2018	**March 31**	**June 30**	**September 30**	**December 31**
Revenue[1]	$ 543,782	$ 537,714	$ 536,922	$ 542,771
Income from operations[1]	234,472	237,755	237,269	232,374
Net loss	(65,849)	(45,840) [3]	(373,642) [3]	(110,359) [3]
Net loss attributable to Intelsat S.A.	(66,801)	(46,828) [3]	(374,631) [3]	(111,346) [3]
Net loss per share attributable to Intelsat S.A.:				
Basic[2]	$ (0.56)	$ (0.38)	$ (2.74)	$ (0.81)
Diluted[2]	(0.56)	(0.38)	(2.74)	(0.81)

	Quarter Ended			
2019	**March 31**	**June 30**	**September 30**	**December 31**
Revenue[1]	$ 528,449	$ 509,407	$ 506,658	$ 516,951
Income (loss) from operations[1]	200,292	(187,268) [4]	179,629	195,943
Net loss	(120,042)	(529,112) [4]	(147,698)	(114,358)
Net loss attributable to Intelsat S.A.	(120,622)	(529,722) [4]	(148,292)	(114,959)
Net loss per share attributable to Intelsat S.A.:				
Basic[2]	$ (0.87)	$ (3.76)	$ (1.05)	$ (0.81)
Diluted[2]	(0.87)	(3.76)	(1.05)	(0.81)

(1) Our quarterly revenue and operating income (loss) are generally not impacted by seasonality, as customer contracts for satellite utilization are generally long-term.

(2) Basic and diluted earnings per share are computed independently for each of the quarters presented. Therefore, the sum of quarterly basic and diluted per share information may not equal annual basic and diluted earnings per share.

(3) The quarter ended June 30, 2018 included a $22.1 million gain on early extinguishment of debt related to the repurchase of the 2021 Luxembourg Notes. The quarter ended September 30, 2018 included a $204.1 million loss on early extinguishment of debt related to the 2023 ICF Notes and the 2024 Jackson Senior Unsecured Notes. The quarter ended December 31, 2018 included a $17.8 million loss on early extinguishment of debt related to the repurchase of the 2024 Jackson Senior Unsecured Notes and the redemption of 2021 Jackson Notes (see Note 11—Long-Term Debt).

(4) The quarter ended June 30, 2019 included an impairment charge of $381.6 million relating to the loss of Intelsat 29e (see Note 8—Satellites and Other Property and Equipment).

Note 19 Reconciliation with International Financial Reporting Standards (referred hereafter as "IFRS")

The reconciliation of the shareholders' equity under US GAAP to the shareholders' equity under IFRS as at 31 December was as follows:

	2018 USD in thousands	2019 USD in thousands
Shareholders' equity under US GAAP	$ (4,097,005)	$ (4,999,858)
Reversal of asset impairment	104,099	104,099
Income tax provision	(13,912)	(11,440)
Depreciation of impaired assets	(84,261)	(94,174)
Pension accumulated other comprehensive income adjustment	(22,960)	12,440
Pension related expenses	22,960	(12,440)
Shareholders' equity under IFRS	**$ (4,091,079)**	**$ (5,001,373)**

The reconciliation of the result for the period under US GAAP to the result for the period under IFRS as at 31 December was as follows:

	2018 USD in thousands	2019 USD in thousands
Result for the period under US GAAP	$ (599,605)	$ (913,595)
Income tax provision	2,578	2,472
Depreciation of impaired assets	(9,913)	(9,913)
Pension related expenses	22,960	(12,440)
Share-based compensation	(1,083)	(3,022)
Result for the period under IFRS	$ **(585,063)**	$ **(936,498)**

Impairment of long-lived assets (IAS 36)

Under IFRS, an impairment loss recognized in prior periods for an asset other than goodwill is reversed if, and only if, there has been a change in the estimates used to determine the asset's recoverable amount since the last impairment loss was recognized. In 2010, the Company's G-15 satellite was initially impaired. As of December 31, 2010, the Company recovered control of the satellite and it was determined that the carrying amount of the asset, as described in International Accounting Standards ("IAS") 36.117, was fully recovered and therefore the Company has increased to its recoverable amount by the full amount of the initial impairment. Under US GAAP, an impairment loss may not be reversed if the fair value of the impaired asset or asset group increases subsequently.

Pension related expenses (IAS 19)

In 2011, the International Accounting Standards Board issued revisions to IAS 19, the IFRS accounting standard for retirement plans, bringing several key differences. Except for gains and losses recognized under other comprehensive income instead of income statement as it happens in US GAAP, there is no more material difference.

Share-based payment (IFRS 2)

IFRS 2 Share-based payment requires the Company to measure share-based compensation related to share purchase options and RSUs at the fair value of the option or RSU on the date of the grant, and recognize the fair value as expense over the vesting period of the award. IFRS 2 also requires that an award with graded vesting be considered separate grants with different vesting dates and fair values. Under US GAAP awards with graded vesting are recognized as expense on a straight-line basis over the entire vesting period.

Note 20 Employees

During the year 2019, on average we had 1,191 full-time regular employees, as follows:

- 610 employees in engineering, operations and related information systems;
- 193 employees in finance, legal and other administrative functions;
- 302 employees in sales, marketing and strategy; and
- 86 employees in support of government sales and marketing.

Total employee expenses represented USD 210.1 million for the year ended December 31, 2019.

Note 21 Auditor fees

Fees billed to the Company and its subsidiaries by KPMG Luxembourg, Société coopérative, and other member firms of the KPMG network during the year ended December 31 were as follows:

(USD in thousands, VAT excluded)

	2018	2019
Audit fees annual accounts and consolidated accounts	$ 4,929	$ 3,183
Tax fees	11	11
Other fees	150	-

Note 22 Key management compensation

During the year ended December 31, 2019, key management received compensation as follows:

(USD in millions)

Remuneration including bonuses	$ 6,9
Share-based compensation plans	12,5
Other benefits	0,9

No pension benefits, advances or loans were granted to the key management of the Company during the year ended December 31, 2019.

Note 23 List of consolidated subsidiaries

The list of our subsidiaries consolidated in full in the accounts of Intelsat S.A. as of December 31, 2019 is set forth below. Unless otherwise stated, the subsidiaries listed below are directly or indirectly owned 100% by Intelsat S.A.

1. Intelsat Investment Holdings S.à r.l., a company organized under the laws of Luxembourg
2. Intelsat Holdings S.A., a company organized under the laws of Luxembourg.
3. Intelsat Investments S.A., a company organized under the laws of Luxembourg.
4. Intelsat (Luxembourg) S.A., a company organized under the laws of Luxembourg.
5. Intelsat Envision Holdings LLC, a limited liability company organized under the laws of Delaware.
6. Intelsat Connect Finance S.A., a company organized under the laws of Luxembourg.
7. Intelsat Jackson Holdings S.A., a company organized under the laws of Luxembourg.
8. Intelsat Align S.a.r.l., a company organized under the laws of Luxembourg.
9. Intelsat Subsidiary (Gibraltar) Limited, a company organized under the laws of Gibraltar.
10. Intelsat Finance Bermuda Ltd., a company organized under the laws of Bermuda.
11. Intelsat Genesis Inc., a corporation organized under the laws of Delaware.
12. Intelsat Genesis GP LLC, a limited liability company organized under the laws of Delaware.
13. PanAmSat Europe Corporation, a corporation organized under the laws of Delaware.
14. PanAmSat Satellite Europe Limited, a company organized under the laws of England and Wales.
15. Europe*Star Gesellschaft Fur Satellitenkommunication GmbH, owned 51%, a company organized under the laws of Germany.
16. Intelsat Alliance LP, a limited partnership organized under the laws of Delaware.
17. Intelsat Ventures S.à r.l, a company organized under the laws of Luxembourg.
18. Intelsat Cosmos OOO, a company organized under the laws of Russia.
19. Intelsat Singapore Pte. Ltd., a company organized under the laws of Singapore.
20. Intelsat Africa (Pty.) Ltd., a company organized under the laws of South Africa.
21. Intelsat Senegal S.à r.l., a company organized under the laws of Senegal.
22. Intelsat Kommunikations GmbH, a company organized under the laws of Germany.
23. Intelsat Global Sales & Marketing Ltd., a company organized under the laws of England and Wales.
24. Intelsat UK Financial Services Ltd., a company organized under the laws of England and Wales.
25. Intelsat France SAS, a company organized under the laws of France.
26. Intelsat Israel Ltd., a company organized under the laws of Israel.
27. Intelsat Satellite Communications Limited, a company organized under the laws of Kenya.
28. Intelsat Holdings LLC, a company organized under the laws of Delaware.
29. Intelsat Satellite LLC, a limited liability company organized under the laws of Delaware.
30. Intelsat License Holdings LLC, a limited liability company organized under the laws of Delaware.
31. Intelsat License LLC, a limited liability company organized under the laws of Delaware.
32. Intelsat US Finance LLC, a limited liability company organized under the laws of Delaware.
33. Intelsat US LLC, a limited liability company organized under the laws of Delaware.
34. Intelsat Brasil Ltda., a company organized under the laws of Brazil.
35. Intelsat Brasil Servicos de Telecomunicacao Ltda., a company organized under the laws of Brazil.

36. Intelsat Clearinghouse LLC, a limited liability company organized under the laws of Delaware.
37. PanAmSat International Holdings LLC, a limited liability company organized under the laws of Delaware.
38. Intelsat International Systems LLC, a limited liability company organized under the laws of Delaware.
39. Mountainside Teleport LLC, a limited liability company organized under the laws of Delaware.
40. Intelsat General Communications LLC, a limited liability company organized under the laws of Delaware.
41. Intelsat Horizons-3 LLC, a limited liability company organized under the laws of Delaware.
42. Horizons-3 License LLC, a limited liability company organized under the laws of Delaware.
43. Intelsat Canada ULC, a company organized under the laws of British Columbia.
44. Horizons Satellite Holdings LLC, owned 50%, a limited liability company organized under the laws of Delaware.
45. Horizons-1 Satellite LLC, owned 50%, a limited liability company organized under the laws of Delaware.
46. Horizons-2 Satellite LLC, owned 50%, a limited liability company organized under the laws of Delaware.
47. PanAmSat Sistemas de Comunicacao DTH do Brasil Ltda., owned 99.9%, a company organized under the laws of Brazil.
48. Intelsat Asia Carrier Services, LLC, a limited liability company organized under the laws of Delaware.
49. PanAmSat International Sales, LLC, a limited liability company organized under the laws of Delaware.
50. WP Com S de RL de CV, a company organized under the laws of Mexico.
51. PanAmSat de Mexico S de RL de CV, a company organized under the laws of Mexico.
52. Intelsat International Employment LLC, a limited liability company organized under the laws of Delaware.
53. Southern Satellite LLC, a limited liability company organized under the laws of Delaware.
54. Intelsat Asia Pty. Ltd., a company organized under the laws of Australia.
55. PanAmSat India LLC, a limited liability company organized under the laws of Delaware.
56. PanAmSat India Marketing, L.L.C., a limited liability company organized under the laws of Delaware.
57. Intelsat India Private Limited, a company organized under the laws of India.
58. Intelsat Asia (Hong Kong) Limited, a company organized under the laws of Hong Kong.
59. Intelsat Service and Equipment LLC, a limited liability company organized under the laws of Delaware.
60. Southern Satellite License LLC, a limited liability company organized under the laws of Delaware.

Note 24 Subsequent events

(a) C-band:

On February 28, 2020, the U.S. Federal Communications Commission approved the final order in the C-band proceeding. The order set forth acceleration incentive payments to certain C-band satellite operators of $9.7 billion, of which Intelsat would receive $4.9 billion, payable in two tranches which end on December 5, 2021 and December 5, 2023, respectively. The final order also outlines a cost reimbursement framework that would apply to the various stakeholders in the proceeding, as well as technical specifications and other elements.

The Company continue to analyze the details of the final order, including timing, technical parameters and responsibilities of the various stakeholders, in addition to acceleration incentives, the proportionate share of acceleration payments to be provided in the two phases and clearing cost reimbursements. As we do so, all options are preserved to ensure the Company is treated fairly and to protect our spectrum rights.

(b) : COVID-19:

Starting January 2020, the novel coronavirus ("COVID-19") outbreak originating in Wuhan, China has significantly disrupted and impacted businesses and economies around the world. We are in the process of evaluating the impact of COVID-19, and it is possible that the outbreak may have an adverse impact on our business, operating results and financial condition in the future. Swings in the global financial markets that include illiquidity, market volatility, changes in interest rates and currency exchange fluctuations can be difficult to predict and may negatively affect the ability of certain customers to make payments when due. Such swings may also adversely affect us due to the potential insolvency of certain customers, the inability of customers to obtain financing for their operations, decreased customer demand, delays in supplier performance and contract terminations.