SIRIUS XM RADIO INC.

(Exact name of company as specified in its charter)

ANNUAL REPORT

For the Fiscal Year Ended December 31, 2022

Explanatory Note

Sirius XM Radio Inc. ("Sirius XM") is furnishing this Annual Report for the fiscal year ended December 31, 2022 (the "Annual Report") in order to comply with the reporting obligations in the indentures governing its 3.125% Senior Notes due 2026, 5.00% Senior Notes due 2027, 4.00% Senior Notes due 2028, 5.50% Senior Notes due 2029, 4.125% Senior Notes due 2030 and 3.875% Senior Notes due 2031 (collectively, the "Notes").

Before making any investment decisions in Sirius XM or Sirius XM Holdings Inc. ("Holdings"), investors should read the following consolidated financial statements and Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") of Sirius XM in conjunction with Holdings' Annual Report on Form 10-K for the fiscal year ended December 31, 2022 and Holdings' other reports available through the Securities and Exchange Commission website at www.sec.gov and our website at www.siriusxm.com, and with Sirius XM's other reports available through our website. Holdings' Annual Report on Form 10-K for the fiscal year ended December 31, 2022 is hereby incorporated by reference except for Section 9A and Exhibits 31.1, 31.2, 32.1 and 32.2 contained therein. Sirius XM is a wholly-owned subsidiary of Holdings and Holdings has no operations independent of Sirius XM. Refer to Note 1 to the consolidated financial statements included within this Annual Report for an explanation of differences between Sirius XM and Holdings' consolidated financial statements.

The terms "Sirius XM," "we," "us," "our," and the "Company," as used herein and unless otherwise stated or indicated by context, refer to Sirius XM Radio Inc. and its subsidiaries. "Pandora" refers to Sirius XM's wholly owned subsidiary Pandora Media, LLC (the successor to Pandora Media, Inc.) and its subsidiaries.

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MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

All amounts referenced in this discussion and analysis are in millions, except subscriber amounts are in thousands and per subscriber and per installation amounts are in ones, unless otherwise stated.

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our audited consolidated financial statements and related notes included elsewhere in this Annual Report and with Holdings' Annual Report on Form 10-K for the year ended December 31, 2022.

Executive Summary

We operate two complementary audio entertainment businesses - one of which we refer to as “SiriusXM” and the second of which we refer to as “Pandora and Off-platform”.

Sirius XM

Our Sirius XM business features music, sports, entertainment, comedy, talk, news, traffic and weather channels and other content, as well as podcasts and infotainment services, in the United States on a subscription fee basis. Sirius XM's packages include live, curated and certain exclusive and on demand programming. The Sirius XM service is distributed through our two proprietary satellite radio systems and streamed via applications for mobile devices, home devices and other consumer electronic equipment. Satellite radios are primarily distributed through automakers, retailers and our website. Our Sirius XM service is also available through our in-car user interface, which we call “360L,” that combines our satellite and streaming services into a single, cohesive in-vehicle entertainment experience.

The primary source of revenue from our Sirius XM business is subscription fees, with most of our customers subscribing to monthly, quarterly, semi-annual or annual plans. We also derive revenue from advertising on select non-music channels, which is sold under the SXM Media brand, direct sales of our satellite radios and accessories, and other ancillary services. As of December 31, 2022, our Sirius XM business had approximately 34.3 million subscribers.

In addition to our audio entertainment businesses, we provide connected vehicle services to several automakers. These services are designed to enhance the safety, security and driving experience of consumers. We also offer a suite of data services that includes graphical weather, fuel prices, sports schedules and scores and movie listings, a traffic information service that includes information as to road closings, traffic flow and incident data to consumers with compatible in-vehicle navigation systems, and real-time weather services in vehicles, boats and planes.

Sirius XM also holds a 70% equity interest and 33% voting interest in Sirius XM Canada Holdings Inc. (“Sirius XM Canada”). Sirius XM Canada's subscribers are not included in our subscriber count or subscriber-based operating metrics.

Pandora and Off-platform

Pandora operates a music and podcast streaming discovery platform, offering a personalized experience for each listener wherever and whenever they want to listen, whether through computers, tablets, mobile devices, vehicle speakers or connected devices. Pandora enables listeners to create personalized stations and playlists, discover new content, hear artist- and expert-curated playlists, podcasts and select Sirius XM content as well as search and play songs and albums on-demand. Pandora is available as (1) an ad-supported radio service, (2) a radio subscription service (Pandora Plus) and (3) an on-demand subscription service (Pandora Premium). As of December 31, 2022, Pandora had approximately 6.2 million subscribers.

The majority of revenue from Pandora is generated from advertising on our Pandora ad-supported radio service which is sold under the SXM Media brand. We also derive subscription revenue from our Pandora Plus and Pandora Premium subscribers.

We also sell advertising on other audio platforms and in widely distributed podcasts, which we consider to be off-platform services. We have an arrangement with SoundCloud Holdings, LLC ("SoundCloud") to be its exclusive ad sales representative in the US and certain European countries and offer advertisers the ability to execute campaigns across the Pandora and SoundCloud platforms. We also have arrangements to serve as the ad sales representative for certain podcasts. In addition, through AdsWizz Inc., we provide a comprehensive digital audio and programmatic advertising technology platform, which connects audio publishers and advertisers with a variety of ad insertion, campaign trafficking, yield optimization, programmatic buying, marketplace and podcast monetization solutions.

Liberty Media

As of December 31, 2022, Liberty Media beneficially owned, directly and indirectly, approximately 82% of the outstanding shares of Holdings' common stock. As a result, Holdings is a “controlled company” for the purposes of the NASDAQ corporate governance requirements.

Results of Operations

Set forth below are our results of operations for the year ended December 31, 2022 compared with the year ended December 31, 2021. Refer to our Annual Report for the year ended December 31, 2021 available on our website at https://investor.siriusxm.com/financial-information/bondholder-information for our results of operations for the year ended December 31, 2021 compared with the year ended December 31, 2020. The results of operations are presented for each of our reporting segments for revenue and cost of services and on a consolidated basis for all other items.

	For the Years Ended December 31,		2022 vs 2021 Change	
	2022	2021	Amount	%
Revenue				
Sirius XM:				
Subscriber revenue	$ 6,370	$ 6,084	$ 286	5 %
Advertising revenue	196	188	8	4 %
Equipment revenue	189	201	(12)	(6)%
Other revenue	150	151	(1)	(1)%
Total Sirius XM revenue	6,905	6,624	281	4 %
Pandora and Off-platform:				
Subscriber revenue	522	530	(8)	(2)%
Advertising revenue	1,576	1,542	34	2 %
Total Pandora and Off-platform revenue	2,098	2,072	26	1 %
Total consolidated revenue	9,003	8,696	307	4 %
Cost of services				
Sirius XM:				
Revenue share and royalties	1,552	1,532	20	1 %
Programming and content	546	511	35	7 %
Customer service and billing	415	415	—	— %
Transmission	158	159	(1)	(1)%
Cost of equipment	13	18	(5)	(28)%
Total Sirius XM cost of services	2,684	2,635	49	2 %
Pandora and Off-platform:				
Revenue share and royalties	1,250	1,140	110	10 %
Programming and content	58	48	10	21 %
Customer service and billing	82	86	(4)	(5)%
Transmission	56	59	(3)	(5)%
Total Pandora and Off-platform cost of services	1,446	1,333	113	8 %
Total consolidated cost of services	4,130	3,968	162	4 %
Subscriber acquisition costs	352	325	27	8 %
Sales and marketing	1,075	1,056	19	2 %
Engineering, design and development	285	265	20	8 %
General and administrative	525	514	11	2 %
Depreciation and amortization	536	533	3	1 %
Impairment, restructuring and acquisition costs	64	20	44	nm
Total operating expenses	6,967	6,681	286	4 %
Income from operations	2,036	2,015	21	1 %
Other (expense) income:				
Interest expense	(420)	(407)	(13)	(3)%
Loss on extinguishment of debt	—	(83)	83	nm
Other income	14	4	10	250 %
Total other expense	(406)	(486)	80	16 %
Income before income taxes	1,630	1,529	101	7 %
Income tax expense	(399)	(212)	(187)	(88)%
Net income	$ 1,231	$ 1,317	$ (86)	(7)%

nm - not meaningful

Sirius XM Revenue

Sirius XM Subscriber Revenue includes fees charged for self-pay and paid promotional subscriptions, U.S. Music Royalty Fees and other ancillary fees.

For the years ended December 31, 2022 and 2021, subscriber revenue was $6,370 and $6,084, respectively, an increase of 5%, or $286. The increase was primarily driven by growth in our ARPU of 6% and in our self-pay subscriber base of 1% driving higher self-pay revenue and U.S. Music Royalty Fees, partially offset by lower revenue generated from automakers offering paid promotional subscriptions.

We expect subscriber revenues to increase based on increases in the average price of our subscriptions.

Sirius XM Advertising Revenue includes the sale of advertising on Sirius XM's non-music channels.

For the years ended December 31, 2022 and 2021, advertising revenue was $196 and $188, respectively, an increase of 4%, or $8. The increase was due to a greater number of spots sold and aired primarily on sports and news channels.

We expect our Sirius XM advertising revenue to grow as we improve monetization opportunities through SXM Media, our advertising sales group.

Sirius XM Equipment Revenue includes revenue and royalties from the sale of satellite radios, components and accessories.

For the years ended December 31, 2022 and 2021, equipment revenue was $189 and $201, respectively, a decrease of 6%, or $12. The decrease was driven by lower royalties due to supplier cost increases related to the semiconductor supply shortages as well as lower radio sales; partially offset by higher chipset production driven by an increase in OEM demand.

We expect equipment revenue to decrease due to the semiconductor supply shortages driving higher chipset costs.

Sirius XM Other Revenue includes service and advisory revenue from Sirius XM Canada, revenue from our connected vehicle services, and ancillary revenues.

For the years ended December 31, 2022 and 2021, other revenue was $150 and $151, respectively, a decrease of 1%, or $1. The decrease was primarily driven by lower revenue generated from our connected vehicle services, partially offset by higher revenue generated by Sirius XM Canada.

We expect other revenue to decline as revenue generated by Sirius XM Canada and from our connected vehicle services decrease.

Pandora and Off-platform Revenue

Pandora and Off-platform Subscriber Revenue includes fees charged for Pandora Plus, Pandora Premium, Stitcher and Simplecast subscriptions.

For the years ended December 31, 2022 and 2021, Pandora and Off-platform subscriber revenue was $522 and $530, respectively, a decrease of 2%, or $8. The decrease was primarily driven by the decline in Pandora's subscriber base.

We expect Pandora and Off-platform subscriber revenues to decline slightly.

Pandora and Off-platform Advertising Revenue is generated primarily from audio, display and video advertising from on-platform and off-platform advertising.

For the years ended December 31, 2022 and 2021, Pandora and Off-platform advertising revenue was $1,576 and $1,542, respectively, an increase of 2%, or $34. The increase was primarily driven by additional revenue generated by our Off-platform and podcast businesses, partially offset by a decline in on-platform revenue.

We expect Pandora and Off-platform advertising revenue to remain relatively flat given macroeconomic trends as growth in our Off-platform and podcast businesses is offset by a decline in on-platform revenue.

Total Consolidated Revenue

Total Consolidated Revenue for the years ended December 31, 2022 and 2021, was $9,003 and $8,696, respectively, an increase of 4%, or $307.

Sirius XM Cost of Services

Sirius XM Cost of Services includes revenue share and royalties, programming and content, customer service and billing and transmission expenses.

Sirius XM Revenue Share and Royalties include royalties for transmitting content, including streaming royalties, as well as automaker, content provider and advertising revenue share.

For the years ended December 31, 2022 and 2021, revenue share and royalties were $1,552 and $1,532, respectively, an increase of 1%, or $20, but decreased as a percentage of total Sirius XM revenue. The increase was driven by overall greater revenues subject to revenue share.

We expect our Sirius XM revenue share and royalty costs to increase as our revenues grow.

Sirius XM Programming and Content includes costs to acquire, create, promote and produce content. We have entered into various agreements with third parties for music and non-music programming that require us to pay license fees and other amounts.

For the years ended December 31, 2022 and 2021, programming and content expenses were $546 and $511, respectively, an increase of 7%, or $35, and increased as a percentage of total Sirius XM revenue. The increase was driven by higher content licensing costs.

We expect our Sirius XM programming and content expenses to increase as we offer additional programming and renew or replace expiring agreements.

Sirius XM Customer Service and Billing includes costs associated with the operation and management of internal and third party customer service centers, and our subscriber management systems as well as billing and collection costs, bad debt expense, and transaction fees.

For both the years ended December 31, 2022 and 2021, customer service and billing expenses were $415 and decreased as a percentage of total Sirius XM revenue. Higher transaction costs and bad debt expense resulting from a higher self-pay subscriber base were offset by lower call center costs.

We expect our Sirius XM customer service and billing expenses to remain relatively flat.

Sirius XM Transmission consists of costs associated with the operation and maintenance of our terrestrial repeater networks; satellites; satellite telemetry, tracking and control systems; satellite uplink facilities; studios; and delivery of our Internet and 360L streaming and connected vehicle services.

For the years ended December 31, 2022 and 2021, transmission expenses were $158 and $159, respectively, a decrease of 1%, or $1, and decreased as a percentage of total Sirius XM revenue. The decrease was primarily driven by lower wireless costs, partially offset by costs associated with consumers using our 360L platform.

We expect our Sirius XM transmission expenses to increase as costs associated with consumers using our 360L platform rise and investments in streaming grow.

Sirius XM Cost of Equipment includes costs from the sale of satellite radios, components and accessories and provisions for inventory allowance attributable to products purchased for resale in our direct to consumer distribution channels.

For the years ended December 31, 2022 and 2021, cost of equipment was $13 and $18, respectively, a decrease of 28%, or $5, and decreased as a percentage of equipment revenue. The decrease was driven by lower component and accessories sales.

We expect our Sirius XM cost of equipment to remain relatively flat.

Pandora and Off-platform Cost of Services

Pandora and Off-platform Cost of Services includes revenue share and royalties, programming and content, customer service and billing, and transmission expenses.

Pandora and Off-platform Revenue Share and Royalties includes licensing fees paid for streaming music or other content to our subscribers and listeners as well as revenue share paid to third party ad servers. We make payments to third party ad servers for the period the advertising impressions are delivered or click-through actions occur, and accordingly, we record this as a cost of service in the related period.

For the years ended December 31, 2022 and 2021, revenue share and royalties were $1,250 and $1,140, respectively, an increase of 10%, or $110, and increased as a percentage of total Pandora revenue. The increase was primarily due to costs related to the acquisition of rights to sell advertising in certain podcasts.

We expect our Pandora and Off-platform revenue share and royalties to increase based on a variety of music-related factors, including higher royalty rates under the statutory webcasting license, and additional costs associated with our podcast distribution agreements.

Pandora and Off-platform Programming and Content includes costs to produce live listener events and promote content.

For the years ended December 31, 2022 and 2021, programming and content expenses were $58 and $48, respectively, an increase of 21%, or $10, and increased as a percentage of total Pandora revenue. The increase was primarily attributable to higher personnel-related costs.

We expect our Pandora and Off-platform programming and content costs to increase as we offer additional programming and produce live listener events and promotions.

Pandora and Off-platform Customer Service and Billing includes transaction fees on subscription purchases through mobile app stores and bad debt expense.

For the years ended December 31, 2022 and 2021, customer service and billing expenses were $82 and $86, respectively, a decrease of 5%, or $4, and decreased as a percentage of total Pandora revenue. The decrease was primarily driven by lower transaction fees.

We expect our Pandora and Off-platform customer service and billing costs to decrease with declines in our subscriber base.

Pandora and Off-platform Transmission includes costs associated with content streaming, maintaining our streaming radio and on-demand subscription services and creating and serving advertisements through third-party ad servers.

For the years ended December 31, 2022 and 2021, transmission expenses were $56 and $59, respectively, a decrease of 5%, or $3, and decreased as a percentage of total Pandora revenue. The decrease was primarily driven by lower personnel-related costs.

We expect our Pandora and Off-platform transmission costs to decrease as a result of lower listener hours.

Operating Costs

Subscriber Acquisition Costs are costs associated with our satellite radio service and include hardware subsidies paid to radio manufacturers, distributors and automakers; subsidies paid for chipsets and certain other components used in manufacturing radios; device royalties for certain radios and chipsets; product warranty obligations; and freight. The majority of subscriber acquisition costs are incurred and expensed in advance of acquiring a subscriber. Subscriber acquisition costs do not include advertising costs, marketing, loyalty payments to distributors and dealers of satellite radios or revenue share payments to automakers and retailers of satellite radios.

For the years ended December 31, 2022 and 2021, subscriber acquisition costs were $352 and $325, respectively, an increase of 8%, or $27, and increased as a percentage of total revenue. The increase was driven by OEM installations which grew 10%, compared to the prior year.

We expect subscriber acquisition costs to fluctuate with OEM installations. We intend to continue to offer subsidies and other incentives to induce OEMs to include our technology in their vehicles.

Sales and Marketing includes costs for marketing, advertising, media and production, including promotional events and sponsorships; cooperative and artist marketing; and personnel related costs including salaries, commissions, and sales support. Marketing costs include expenses related to direct mail, outbound telemarketing, email communications, social media, television and performance media.

For the years ended December 31, 2022 and 2021, sales and marketing expenses were $1,075 and $1,056, respectively, an increase of 2%, or $19, but decreased as a percentage of total revenue. The increase was primarily due to additional investments in advertising and marketing to support our brands and streaming marketing expenditures.

We anticipate that sales and marketing expenses will decline slightly based on current levels of direct marketing, performance media, and brand marketing spend associated with acquiring and retaining listeners and subscribers.

Engineering, Design and Development consists primarily of compensation and related costs to develop chipsets and new products and services, including streaming and connected vehicle services, research and development for broadcast information systems and the design and development costs to incorporate Sirius XM radios into new vehicles manufactured by automakers.

For the years ended December 31, 2022 and 2021, engineering, design and development expenses were $285 and $265, respectively, an increase of 8%, or $20, and increased as a percentage of total revenue. The increase was driven primarily by higher cloud hosting costs as well as higher personnel-related costs.

We expect engineering, design and development expenses to increase in future periods as we continue to develop our infrastructure, products and services.

General and Administrative primarily consists of compensation and related costs for personnel and facilities, and include costs related to our finance, legal, human resources and information technologies departments.

For the years ended December 31, 2022 and 2021, general and administrative expenses were $525 and $514, respectively, an increase of 2%, or $11, and decreased as a percentage of total revenue. The increase was primarily driven by higher legal, data center, and consulting costs, partially offset by lower personnel-related costs.

We expect our general and administrative expenses to remain relatively flat.

Depreciation and Amortization represents the recognition in earnings of the cost of assets used in operations, including our satellite constellations, property, equipment and intangible assets, over their estimated service lives.

For the years ended December 31, 2022 and 2021, depreciation and amortization expense was $536 and $533, respectively, an increase of 1%, or $3, and decreased as a percentage of total revenue. The increase was driven by the addition of software that was developed and placed in service.

Impairment, Restructuring and Acquisition Costs represents impairment charges, net of insurance recoveries, associated with the carrying amount of an asset exceeding the asset's fair value, restructuring expenses associated with the abandonment of certain leased office spaces and acquisition costs.

For the years ended December 31, 2022 and 2021, impairment, restructuring, and acquisition costs were $64 and $20, respectively. During 2022, we recorded an impairment of $43 associated with terminated software projects, $16 related to certain vacated office spaces, $5 in connection with furniture and equipment located at the impaired office spaces, and $6 related to personnel severance as well as acquisition related costs of $2; partially offset by $8 from the gain on sale of real estate. During 2021, we recorded restructuring costs of $25 resulting from the termination of leased office space and $12 related to acquisition costs, partially offset by the reversal of a liability related to the Stitcher acquisition.

Other Income (Expense)

Interest Expense includes interest on outstanding debt.

For the years ended December 31, 2022 and 2021, interest expense was $420 and $407, respectively, an increase of 3%, or $13. The increase was primarily driven by a higher average outstanding debt balance as well as lower capitalized interest, partially offset by lower interest rates.

Loss on Extinguishment of Debt includes losses incurred as a result of the redemption of certain debt.

For the years ended December 31, 2022 and 2021, loss on extinguishment of debt was $0 and $83, respectively. The loss on extinguishment of debt recorded in 2021 was due to the redemption of $1,000 principal amount of Sirius XM's

3.875% Senior Notes due 2022, $1,500 principal amount of Sirius XM's 4.625% Senior Notes due 2024, and $1,000 principal amount of Sirius XM's 5.375% Senior Notes due 2026.

Other (Expense) Income primarily includes realized and unrealized gains and losses from our Deferred Compensation Plan and other investments, interest and dividend income, our share of the income or loss from equity investments in Sirius XM Canada and SoundCloud, and transaction costs related to non-operating investments.

For the years ended December 31, 2022 and 2021, other income was $14 and $4, respectively. Other income for the year ended December 31, 2022, was primarily driven by a gain on the fair value of Pandora's 2023 Notes of $23, partially offset by trading losses associated with the investments held for our Deferred Compensation Plan. Other income for the year ended December 31, 2021, was primarily driven by interest earned on our loan to Sirius XM Canada, partially offset by a loss on the fair value of Pandora's 2023 Notes of $5.

Income Taxes

Income Tax Expense includes the change in our deferred tax assets, current federal and state tax expenses, and foreign withholding taxes.

For the years ended December 31, 2022 and 2021, income tax expense was $399 and $212, respectively, and our effective tax rate was 24.5% and 13.9%, respectively.

Our effective tax rate of 24.5% for the year ended December 31, 2022 was primarily impacted by federal and state income tax expense as well as changes in state valuation allowance, partially offset by a benefit related to research and development and certain other credits. Our effective tax rate of 13.9% for the year ended December 31, 2021 was primarily impacted by federal and state income tax expense, partially offset by settlements with various states as well as a benefit related to research and development and certain other credits.

Key Financial and Operating Performance Metrics

In this section, we present certain financial performance measures, some of which are presented as Non-GAAP items, which include free cash flow and adjusted EBITDA. We also present certain operating performance measures. Our adjusted EBITDA excludes the impact of share-based payment expense. Additionally, when applicable, our adjusted EBITDA metric excludes the effect of significant items that do not relate to the on-going performance of our business. We use these Non-GAAP financial and operating performance measures to manage our business, to set operational goals and as a basis for determining performance-based compensation for our employees. See the accompanying Glossary for more details and for the reconciliation to the most directly comparable GAAP measure (where applicable).

We believe these Non-GAAP financial and operating performance measures provide useful information to investors regarding our financial condition and results of operations. We believe these Non-GAAP financial and operating performance measures may be useful to investors in evaluating our core trends because they provide a more direct view of our underlying costs. We believe investors may use our adjusted EBITDA to estimate our current enterprise value and to make investment decisions. We believe free cash flow provides useful supplemental information to investors regarding our cash available for future subscriber acquisitions and capital expenditures, to repurchase or retire debt, to acquire other companies and our ability to return capital to stockholders. By providing these Non-GAAP financial and operating performance measures, together with the reconciliations to the most directly comparable GAAP measure (where applicable), we believe we are enhancing investors' understanding of our business and our results of operations.

Our Non-GAAP financial measures should be viewed in addition to, and not as an alternative for or superior to, our reported results prepared in accordance with GAAP. In addition, our Non-GAAP financial measures may not be comparable to similarly-titled measures by other companies. Please refer to the Glossary for a further discussion of such Non-GAAP financial and operating performance measures and reconciliations to the most directly comparable GAAP measure (where applicable). Subscribers and subscription related revenues and expenses associated with our connected vehicle services and Sirius XM Canada are not included in Sirius XM's subscriber count or subscriber-based operating metrics.

Set forth below are our subscriber balances as of December 31, 2022 compared to December 31, 2021. Refer to our Annual Report for the year ended December 31, 2021 available on our website at https://investor.siriusxm.com/financial-information/bondholder-information for our subscriber balances as of December 31, 2021 compared to December 31, 2020.

	As of December 31,		2022 vs 2021 Change	
(subscribers in thousands)	**2022**	**2021**	**Amount**	**%**
Sirius XM				
Self-pay subscribers	32,387	32,039	348	1 %
Paid promotional subscribers	1,918	1,994	(76)	(4)%
Ending subscribers	34,305	34,033	272	1 %
Sirius XM Canada subscribers	2,567	2,517	50	2 %
Pandora and Off-platform				
Monthly active users - all services	47,638	52,275	(4,637)	(9)%
Self-pay subscribers	6,215	6,324	(109)	(2)%
Paid promotional subscribers	—	69	(69)	(100)%
Ending subscribers	6,215	6,393	(178)	(3)%

The following table contains our Non-GAAP financial and operating performance measures which are based on our adjusted results of operations for the years ended December 31, 2022 and 2021. Refer to our Annual Report for the year ended December 31, 2021 available on our website at https://investor.siriusxm.com/financial-information/bondholder-information for our Non-GAAP financial and operating performance measures for the year ended December 31, 2021 compared with the year ended December 31, 2020.

	For the Years Ended December 31,		2022 vs 2021 Change	
(subscribers in thousands)	**2022**	**2021**	**Amount**	**%**
Sirius XM				
Self-pay subscribers	348	1,152	(804)	(70)%
Paid promotional subscribers	(76)	(1,833)	1,757	96 %
Net additions	272	(681)	953	140 %
Weighted average number of subscribers	34,039	34,345	(306)	(1)%
Average self-pay monthly churn	1.5 %	1.6 %	(0.1)%	(6)%
ARPU [(1)]	$ 15.63	$ 14.76	$ 0.87	6 %
SAC, per installation	$ 14.32	$ 12.58	$ 1.74	14 %
Pandora and Off-platform				
Self-pay subscribers	(109)	45	(154)	(342)%
Paid promotional subscribers	(69)	7	(76)	nm
Net additions	(178)	52	(230)	(442)%
Weighted average number of subscribers	6,308	6,487	(179)	(3)%
Ad supported listener hours (in billions)	10.88	11.55	(0.67)	(6)%
Advertising revenue per thousand listener hours (RPM)	$ 101.19	$ 102.74	$ (1.55)	(2)%
Total Company				
Adjusted EBITDA	$ 2,833	$ 2,770	$ 63	2 %
Free cash flow	$ 1,551	$ 1,831	$ (280)	(15)%

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(1) ARPU for Sirius XM excludes subscriber revenue from our connected vehicle services of $182 and $190 for the years ended December 31, 2022 and 2021, respectively.

Sirius XM

Subscribers. At December 31, 2022, we had approximately 34,305 subscribers, an increase of approximately 272 subscribers, or 1%, from the approximately 34,033 subscribers as of December 31, 2021. The increase was due to growth in our self-pay subscriber base, partially offset by the decline in paid promotional subscribers generated by automakers driven by a shift to shorter paid trials and unpaid trials.

For the years ended December 31, 2022 and 2021, net subscriber additions were 272 and (681), respectively, an increase of 140%, or 953. The increase was driven by paid promotional net additions, which remained negative, but increased compared to the prior year due to certain developments experienced during the first half of 2021, including the impact of the semiconductor supply shortage as well as a shift to free trials at certain automakers. Self-pay net additions decreased driven by a lower trial funnel and lower vehicle conversion rates, partially offset by lower voluntary churn as well as growth in streaming net additions.

Sirius XM Canada Subscribers. At December 31, 2022, Sirius XM Canada had approximately 2,567 subscribers, an increase of 50, or 2%, from the approximately 2,517 Sirius XM Canada subscribers as of December 31, 2021.

Average Self-pay Monthly Churn is derived by dividing the monthly average of self-pay deactivations for the period by the average number of self-pay subscribers for the period. (See accompanying Glossary for more details.)

For the years ended December 31, 2022 and 2021, our average self-pay monthly churn rate was 1.5% and 1.6%, respectively. The decrease was driven by lower voluntary and vehicle related churn.

ARPU is derived from total earned subscriber revenue (excluding revenue derived from our connected vehicle services) and net advertising revenue, divided by the number of months in the period, divided by the daily weighted average number of subscribers for the period. (See the accompanying Glossary for more details.)

For the years ended December 31, 2022 and 2021, ARPU was $15.63 and $14.76, respectively. The increase was driven by increases in certain subscription rates, partially offset by the impact of the mix of promotional plans.

SAC, Per Installation, is derived from subscriber acquisition costs less margins from the sale of radios, components and accessories (excluding connected vehicle services), divided by the number of satellite radio installations in new vehicles and shipments of aftermarket radios for the period. (See the accompanying Glossary for more details.)

For the years ended December 31, 2022 and 2021, SAC, per installation, was $14.32 and $12.58, respectively. The increase was driven by higher OEM hardware subsidy rates combined with a change in the mix of OEMs and higher chipset costs due to the semiconductor supply shortages.

Pandora and Off-platform

Monthly Active Users. At December 31, 2022, Pandora had approximately 47,638 monthly active users, a decrease of 4,637 monthly active users, or 9%, from the 52,275 monthly active users as of December 31, 2021. The decrease in monthly active users was driven by an increase in ad-supported listener churn and a decrease in the number of new users.

Subscribers. At December 31, 2022, Pandora had approximately 6,215 subscribers, a decrease of 178, or 3%, from the approximately 6,393 subscribers as of December 31, 2021.

For the years ended December 31, 2022 and 2021, net subscriber additions were (178) and 52, respectively, a decrease of 442%, or 230. Net additions decreased as a result of a decline in trial starts.

Ad supported listener hours are a key indicator of our Pandora business and the engagement of our Pandora listeners. We include ad supported listener hours related to Pandora's non-radio content offerings in the definition of listener hours.

For the years ended December 31, 2022 and 2021, ad supported listener hours was 10.88 billion and 11.55 billion, respectively. The decrease in ad supported listener hours was primarily driven by the decline in monthly active users, partially offset by higher hours per active user.

RPM is a key indicator of our ability to monetize advertising inventory created by our listener hours on the Pandora services. Ad RPM is calculated by dividing advertising revenue by the number of thousands of listener hours to our Pandora advertising-based service.

For the years ended December 31, 2022 and 2021, RPM was $101.19 and $102.74, respectively. The decrease was a result of a decline in sell-through.

Total Company

Adjusted EBITDA. EBITDA is defined as net income before interest expense, income tax expense and depreciation and amortization. Adjusted EBITDA excludes or adjusts for the impact of other expense (income), loss on extinguishment of debt, impairment, restructuring and acquisition costs, other non-cash charges such as share-based payment expense, and legal settlements and reserves (if applicable). (See the accompanying Glossary for a reconciliation to GAAP and for more details.)

For the years ended December 31, 2022 and 2021, adjusted EBITDA was $2,833 and $2,770, respectively, an increase of 2%, or $63. The increase was due to higher subscriber and advertising revenue, partially offset by higher revenue share and royalties, programming, and subscriber acquisition costs.

Free Cash Flow includes cash provided by operations plus insurance recoveries on our satellites, net of additions to property and equipment, and restricted and other investment activity. (See the accompanying Glossary for a reconciliation to GAAP and for more details.)

For the years ended December 31, 2022 and 2021, free cash flow was $1,551 and $1,831, respectively, a decrease of $280, or 15%. The decrease was driven by satellite insurance recoveries in 2021 and higher income tax payments; partially offset by cash received from customers.

Liquidity and Capital Resources

The following table presents a summary of our cash flow activity for the year ended December 31, 2022 compared with the year ended December 31, 2021. Refer to our Annual Report for the year ended December 31, 2021 available on our website at https://investor.siriusxm.com/financial-information/bondholder-information for our cash flows for the year ended December 31, 2021 compared with the year ended December 31, 2020.

	For the Years Ended December 31,		
	2022	2021	2022 vs 2021
Net cash provided by operating activities	$ 1,873	$ 1,913	$ (40)
Net cash used in investing activities	(548)	(200)	(348)
Net cash used in financing activities	(1,459)	(1,597)	138
Net (decrease) increase in cash, cash equivalents and restricted cash	(134)	116	(250)
Cash, cash equivalents and restricted cash at beginning of period	199	83	116
Cash, cash equivalents and restricted cash at end of period	$ 65	$ 199	$ (134)

Cash Flows Provided by Operating Activities

Cash flows provided by operating activities decreased by $40 to $1,873 for the year ended December 31, 2022 from $1,913 for the year ended December 31, 2021.

Our largest source of cash provided by operating activities is cash generated by subscription and subscription-related revenues. We also generate cash from the sale of advertising through our Pandora business, advertising on certain non-music channels on Sirius XM and the sale of satellite radios, components and accessories. Our primary uses of cash from operating activities include revenue share and royalty payments to distributors, programming and content providers, and payments to radio manufacturers, distributors and automakers. In addition, uses of cash from operating activities include payments to vendors to service, maintain and acquire listeners and subscribers, general corporate expenditures, and compensation and related costs.

Cash Flows Used in Investing Activities

Cash flows used in investing activities in the year ended December 31, 2022 were primarily due to spending for capitalized software and hardware, to construct satellites, and acquisitions for total cash consideration of $136. Cash flows used in investing activities in the year ended December 31, 2021 were primarily due to spending primarily for capitalized software and hardware, and to construct a replacement satellite, partially offset by proceeds collected from satellite insurance policies associated with SXM-7. We spent $247 and $238 on capitalized software and hardware as well as $122 and $93 to construct satellites during the years ended December 31, 2022 and 2021, respectively.

Cash Flows Used in Financing Activities

Cash flows used in financing activities consists of the issuance and repayment of long-term debt, the purchase of common stock under Holdings' share repurchase program and the payment of cash dividends. Proceeds from long-term debt have been used to fund our operations, construct and launch new satellites, fund acquisitions, invest in other infrastructure improvements and purchase shares of Holdings' common stock.

Cash flows used in financing activities in the year ended December 31, 2022 were primarily due to intercompany financing activities of $1,993 primarily driven by the payment of cash dividends on Holdings' common stock and the purchase and retirement of shares of Holdings' common stock under Holdings' repurchase program; partially offset by net borrowings under our Credit Facility of $80 and an amendment to our Credit Facility to incorporate an Incremental Term Loan borrowing of $500 ($499 net of costs) which matures on April 11, 2024. Cash flows used in financing activities in the year ended December 31, 2021 were primarily due to the redemptions of our 3.875% Senior Notes due 2022 for $1,019, 4.625% Senior Notes due 2024 for $1,541 and 5.375% Senior Notes due 2026 for $1,034, the purchase and retirement of shares of Holdings' common stock under Holdings' repurchase program for $1,523, the payment of cash dividends of $268 on Holdings' common stock, and the repayment of borrowings under our Credit Facility of $653; partially offset by the issuance of $2,000 in aggregate principal amount of the 4.00% Senior Notes due 2028, $1,000 in aggregate principal amount of the 3.125% Senior Notes due 2026, and $1,500 in aggregate principal amount of the 3.875% Senior Notes due 2031.

Future Liquidity and Capital Resource Requirements

Based upon our current business plans, we expect to fund operating expenses, capital expenditures, including the construction of replacement satellites, working capital requirements, interest payments, taxes and scheduled maturities of our debt with existing cash, cash flow from operations and borrowings under our Credit Facility. As of December 31, 2022, $80 was outstanding under our Credit Facility and $1,670 was available for future borrowing under our Credit Facility. We believe that we have sufficient cash and cash equivalents, as well as debt capacity, to cover our estimated short-term and long-term funding needs, including amounts to construct, launch and insure replacement satellites, as well as fund Holdings' future stock repurchases, future dividend payments on Holdings' common stock and to pursue strategic opportunities.

Our ability to meet our debt and other obligations depends on our future operating performance and on economic, financial, competitive and other factors.

We regularly evaluate our business plans and strategy. These evaluations often result in changes to our business plans and strategy, some of which may be material and significantly change our cash requirements. These changes in our business plans or strategy may include: the acquisition of unique or compelling programming; the development and introduction of new features or services; significant new or enhanced distribution arrangements; investments in infrastructure, such as satellites, equipment or radio spectrum; and acquisitions and investments, including acquisitions and investments that are not directly related to our existing business.

We may from time to time purchase our outstanding debt through open market purchases, privately negotiated transactions or otherwise. Purchases or retirement of debt, if any, will depend on prevailing market conditions, liquidity requirements, contractual restrictions and other factors. The amounts involved may be material.

Holdings' Capital Return Program

As of December 31, 2022, Holdings' board of directors had authorized for repurchase an aggregate of $18,000 of Holdings' common stock. As of December 31, 2022, Holdings' cumulative repurchases since December 2012 under Holdings' stock repurchase program totaled $16,558, and $1,442 remained available for additional repurchases under Holdings' existing stock repurchase program authorization.

Shares of common stock may be purchased from time to time on the open market and in privately negotiated transactions, including in accelerated stock repurchase transactions and transactions with Liberty Media and its affiliates. We intend to fund the additional repurchases through a combination of cash on hand, cash generated by operations and future borrowings. The size and timing of any purchases will be based on a number of factors, including price and business and market conditions.

On January 25, 2023, Holdings' board of directors declared a quarterly dividend on Holdings' common stock in the amount of $0.0242 per share of Holdings' common stock payable on February 24, 2023 to Holdings' stockholders of record as of the close of business on February 9, 2023.

Debt Covenants

The indentures governing our senior notes and Pandora's convertible notes and the agreement governing the Credit Facility include restrictive covenants. As of December 31, 2022, we were in compliance with such covenants. For a discussion of our "Debt Covenants," refer to Note 12 to our consolidated financial statements in this Annual Report.

Off-Balance Sheet Arrangements

We do not have any significant off-balance sheet arrangements other than those disclosed in Note 15 to our consolidated financial statements in this Annual Report that are reasonably likely to have a material effect on our financial condition, results of operations, liquidity, capital expenditures or capital resources.

Contractual Cash Commitments

For a discussion of our "Contractual Cash Commitments," refer to Note 15 to our consolidated financial statements in this Annual Report.

Related Party Transactions

For a discussion of "Related Party Transactions," refer to Note 11 to our consolidated financial statements in this Annual Report.

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared in accordance with GAAP, which requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the periods. Accounting estimates require the use of significant management assumptions and judgments as to future events, and the effect of those events cannot be predicted with certainty. The accounting estimates will change as new events occur, more experience is acquired and more information is obtained. We evaluate and update our assumptions and estimates on an ongoing basis and use outside experts to assist in that evaluation when we deem necessary. We have identified all significant accounting policies in Note 2 to our consolidated financial statements in this Annual Report.

Non-Financial Instrument Valuations. Our non-financial instrument valuations are primarily comprised of our determination of the estimated fair value allocation of net tangible and identifiable intangible assets acquired in business combinations, our annual assessment of the recoverability of our goodwill and other nonamortizable intangibles, such as trademarks, and our evaluation of the recoverability of our other long-lived assets upon certain triggering events. If the carrying value of our long-lived assets exceeds their estimated fair value, we are required to write the carrying value down to fair value. Any such writedown is included in Impairment, restructuring and acquisition costs in our consolidated statement of operations. Judgment is required to estimate the fair value of our long-lived assets. We may use quoted market prices, prices for similar assets, present value techniques and other valuation techniques to prepare these estimates. We may need to make estimates of future cash flows and discount rates as well as other assumptions in order to implement these valuation techniques. Due to the degree of judgment involved in our estimation techniques, any value ultimately derived from our long-lived assets may differ from our estimate of fair value. As each of our operating segments has long-lived assets, this critical accounting policy affects the financial position and results of operations of each segment.

As of December 31, 2022, the intangible assets not subject to amortization for each of our consolidated reportable segments were as follows (amounts in millions):

	Goodwill	FCC Licenses	Trademarks	Total
Sirius XM	$ 2,290	$ 2,084	$ 250	$ 4,624
Pandora and Off-platform	944	—	312	1,256
Consolidated	$ 3,234	$ 2,084	$ 562	$ 5,880

We perform our annual assessment of the recoverability of our goodwill and other nonamortizable intangible assets in the fourth quarter each year, or more frequently if events and circumstances indicate impairment may have occurred. The accounting guidance permits entities to first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform the quantitative goodwill impairment test. The accounting guidance also allows entities the option to bypass the qualitative assessment for any reporting unit in any period and proceed directly to the quantitative impairment test. The entity may resume performing the qualitative assessment in any subsequent period. In evaluating goodwill on a qualitative basis, the Company reviews the business performance of each reporting unit and evaluates other relevant factors as identified in the relevant accounting guidance to determine whether it is more likely than not that an indicated impairment exists for any of our reporting units. The Company considers whether there are any negative macroeconomic conditions, industry specific conditions, market changes, increased competition, increased costs in doing business, management challenges, the legal environments and how these factors might impact company specific performance in future periods. As part of the analysis, the Company also considers fair value determinations for certain reporting units that have been made at various points throughout the current and prior year for other purposes. If based on the qualitative analysis it is more likely than not that an impairment exists, the Company performs the quantitative impairment test.

Useful Life of Broadcast/Transmission System. Our satellite system includes the costs of our satellite construction, launch vehicles, launch insurance, capitalized interest, spare satellites, terrestrial repeater network and satellite uplink facilities. We monitor our satellites for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset is not recoverable.

We operate two in-orbit Sirius satellites, FM-5 and FM-6, which launched in 2009 and 2013, respectively, and estimate they will operate effectively through the end of their depreciable lives in 2024 and 2028, respectively.

We currently operate four in-orbit XM satellites, XM-3, XM-4, XM-5 and SXM-8. Our XM-3 satellite launched in 2005 and our XM-4 satellite launched in 2006 are used as in-orbit spares and reached the end of their depreciable lives in 2020 and 2021, respectively. Our XM-5 satellite was launched in 2010 and is expected to reach the end of its depreciable life in 2025. SXM-7 was launched into a geostationary orbit in December 2020 and in-orbit testing of SXM-7 began on January 4, 2021. During in-orbit testing of SXM-7 events occurred which caused failures of certain SXM-7 payload units. The evaluation of SXM-7 concluded that the satellite would not function as intended and the asset was fully impaired in 2021. The SXM-8 satellite was successfully launched into a geostationary orbit on June 6, 2021 and was placed into service on September 8, 2021 following the completion of in-orbit testing. The SXM-8 satellite replaced our XM-3 satellite. We have entered into agreements for the design and construction of four additional satellites, SXM-9, SXM-10, SXM-11 and SXM-12. We have also entered into agreements to launch two of these satellites.

Our satellites have been designed to last fifteen-years. Our in-orbit satellites may experience component failures which could adversely affect their useful lives. We monitor the operating condition of our in-orbit satellites and if events or circumstances indicate that the depreciable lives of our in-orbit satellites have changed, we will modify the depreciable life accordingly. If we were to revise our estimates, our depreciation expense would change.

Income Taxes. Deferred income taxes are recognized for the tax consequences related to temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for tax purposes, based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income.

We assess the recoverability of deferred tax assets at each reporting date and, where applicable, a valuation allowance is recognized when, based on the weight of all available evidence, it is considered more likely than not that all, or some portion, of the deferred tax assets will not be realized. Our assessment includes an analysis of whether deferred tax assets will be realized in the ordinary course of operations based on the available positive and negative evidence, including the scheduling of deferred tax liabilities and forecasted income from operations. The underlying assumptions we use in forecasting future taxable income require significant judgment. In the event that actual income from operations differs from forecasted amounts, or if we change our estimates of forecasted income from operations, we could record additional charges or reduce allowances in order to adjust the carrying value of deferred tax assets to their realizable amount. Such adjustments could be material to our consolidated financial statements.

As of December 31, 2022, we had a valuation allowance of $113 relating to deferred tax assets that are not more likely than not to be realized due to the timing of certain state net operating loss limitations and acquired net operating losses that were not likely to be utilized.

ASC 740, *Income Taxes*, requires a company to first determine whether it is more likely than not that a tax position will be sustained based on its technical merits as of the reporting date, assuming that taxing authorities will examine the position and have full knowledge of all relevant information. A tax position that meets this more likely than not threshold is then measured and recognized at the largest amount of benefit that is greater than fifty percent likely to be realized upon effective settlement with a taxing authority. If the tax position is not more likely than not to be sustained, the gross amount of the unrecognized tax position will not be recorded in the financial statements but will be shown in tabular format within the uncertain income tax positions. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs due to the following conditions: (1) the tax position is “more likely than not” to be sustained, (2) the tax position, amount, and/or timing is ultimately settled through negotiation or litigation, or (3) the statute of limitations for the tax position has expired. A number of years may elapse before an uncertain tax position is effectively settled or until there is a lapse in the applicable statute of limitations. We record interest and penalties related to uncertain tax positions in Income tax expense in our consolidated statements of comprehensive income. As of December 31, 2022, the gross liability for income taxes associated with uncertain tax positions was $198.

Glossary

Monthly active users - the number of distinct registered users on the Pandora services, including subscribers, which have consumed content within the trailing 30 days to the end of the final calendar month of the period. The number of monthly active users on the Pandora services may overstate the number of unique individuals who actively use our Pandora service, as one individual may use multiple accounts. To become a registered user on the Pandora services, a person must sign-up using an email address or access our service using a device with a unique identifier, which we use to create an account for our service.

Average self-pay monthly churn - for satellite-enabled subscriptions, the Sirius XM monthly average of self-pay deactivations for the period divided by the average number of self-pay subscribers for the period.

Adjusted EBITDA - EBITDA is defined as net income before interest expense, income tax expense and depreciation and amortization. Adjusted EBITDA is a Non-GAAP financial measure that excludes or adjusts for the impact of other expense (income), loss on extinguishment of debt, impairment, restructuring and acquisition costs, other non-cash charges such as share-based payment expense, and legal settlements and reserves (if applicable). We believe adjusted EBITDA is a useful measure of the underlying trend of our operating performance, which provides useful information about our business apart from the costs associated with our capital structure and purchase price accounting. We believe investors find this Non-GAAP financial measure useful when analyzing our past operating performance with our current performance and comparing our operating performance to the performance of other communications, entertainment and media companies. We believe investors use adjusted EBITDA to estimate our current enterprise value and to make investment decisions. As a result of large capital investments in our satellite radio system, our results of operations reflect significant charges for depreciation expense. We believe the exclusion of share-based payment expense is useful as it is not directly related to the operational conditions of our business. We also believe the exclusion of the legal settlements and reserves, impairment, restructuring and acquisition related costs, and loss on extinguishment of debt, to the extent they occur during the period, is useful as they are significant expenses not incurred as part of our normal operations for the period.

Adjusted EBITDA has certain limitations in that it does not take into account the impact to our consolidated statements of comprehensive income of certain expenses, including share-based payment expense. We endeavor to compensate for the limitations of the Non-GAAP measure presented by also providing the comparable GAAP measure with equal or greater prominence and descriptions of the reconciling items, including quantifying such items, to derive the Non-GAAP measure. Investors that wish to compare and evaluate our operating results after giving effect for these costs should refer to net income as disclosed in our consolidated statements of comprehensive income. Since adjusted EBITDA is a Non-GAAP financial performance measure, our calculation of adjusted EBITDA may be susceptible to varying calculations; may not be comparable to other similarly titled measures of other companies; and should not be considered in isolation, as a substitute for, or superior to measures of financial performance prepared in accordance with GAAP. The reconciliation of net income to the adjusted EBITDA is calculated as follows:

	For the Years Ended December 31,	
	2022	2021
Net income:	$ 1,231	$ 1,317
Add back items excluded from Adjusted EBITDA:		
Impairment, restructuring and acquisition costs	64	20
Share-based payment expense (1)	197	202
Depreciation and amortization	536	533
Interest expense	420	407
Loss on extinguishment of debt	—	83
Other income	(14)	(4)
Income tax expense	399	212
Adjusted EBITDA	$ 2,833	$ 2,770

(1) Allocation of share-based payment expense:

	For the Years Ended December 31,	
	2022	2021
Programming and content	$ 34	$ 33
Customer service and billing	6	6
Transmission	6	6
Sales and marketing	52	58
Engineering, design and development	39	36
General and administrative	60	63
Total share-based payment expense	$ 197	$ 202

Free cash flow - is derived from cash flow provided by operating activities plus insurance recoveries on our satellites, net of additions to property and equipment and purchases of other investments. Free cash flow is a metric that our management and board of directors use to evaluate the cash generated by our operations, net of capital expenditures and other investment activity. In a capital intensive business, with significant investments in satellites, we look at our operating cash flow, net of these investing cash outflows, to determine cash available for future subscriber acquisition and capital expenditures, to repurchase or retire debt, to acquire other companies and to evaluate our ability to return capital to stockholders. We exclude from free cash flow certain items that do not relate to the on-going performance of our business, such as cash flows related to acquisitions, strategic and short-term investments, net loan activity with related parties and other equity investees, and proceeds from the sale of real estate. We believe free cash flow is an indicator of the long-term financial stability of our business. Free cash flow, which is reconciled to "Net cash provided by operating activities," is a Non-GAAP financial measure. This measure can be calculated by deducting amounts under the captions "Additions to property and equipment" and deducting or adding Restricted and other investment activity from "Net cash provided by operating activities" from the consolidated statements of cash flows. Free cash flow should be used in conjunction with other GAAP financial performance measures and may not be comparable to free cash flow measures presented by other companies. Free cash flow should be viewed as a supplemental measure rather than an alternative measure of cash flows from operating activities, as determined in accordance with GAAP. Free cash flow is limited and does not represent remaining cash flows available for discretionary expenditures due to the fact that the measure does not deduct the payments required for debt maturities. We believe free cash flow provides useful supplemental information to investors regarding our current cash flow, along with other GAAP measures (such as cash flows from operating and investing activities), to determine our financial condition, and to compare our operating performance to other communications, entertainment and media companies. Free cash flow is calculated as follows:

	For the Years Ended December 31,	
	2022	2021
Cash Flow information		
Net cash provided by operating activities	$ 1,873	$ 1,913
Net cash used in investing activities	(548)	(200)
Net cash used in financing activities	(1,459)	(1,597)
Free Cash Flow		
Net cash provided by operating activities	1,873	1,913
Equity-related transactions for Holdings [(a)]	103	85
Additions to property and equipment	(426)	(388)
Sale (purchases) of other investments	1	(4)
Satellite insurance recoveries	—	225
Free cash flow	$ 1,551	$ 1,831

(a) Subsequent to our corporate reorganization in November 2013, certain equity-related transactions are reported as related party transactions within our consolidated statements of cash flows. For the year ended December 31, 2022, this included $114 for taxes paid in lieu of shares issued for stock-based compensation, $7 for the change in treasury shares, and proceeds of $4 from the exercise of stock options. For the year ended December 31, 2021, this included payments of $103 for taxes paid in lieu of shares issued for stock-based compensation, $11 for the change in treasury shares, proceeds of $10 from the exercise of stock options, and deferred equity consideration related to a small acquisition of $(3). These equity-related transactions are classified as Cash flows used in financing activities within Holdings' consolidated statements of cash flows, and therefore, are adjusted to reflect free cash flow at Sirius XM.

ARPU - Sirius XM ARPU is derived from total earned subscriber revenue (excluding revenue associated with our connected vehicle services) and advertising revenue, divided by the number of months in the period, divided by the daily weighted average number of subscribers for the period.

Subscriber acquisition cost, per installation - or SAC, per installation, is derived from subscriber acquisition costs less margins from the sale of radios and accessories (excluding connected vehicle services), divided by the number of satellite radio installations in new vehicles and shipments of aftermarket radios for the period. SAC, per installation, is calculated as follows:

	For the Years Ended December 31,	
	2022	2021
Subscriber acquisition costs, excluding connected vehicle services	$ 352	$ 325
Less: margin from sales of radios and accessories, excluding connected vehicle services	(176)	(183)
	$ 176	$ 142
Installations (in thousands)	12,270	11,174
SAC, per installation [(a)]	$ 14.32	$ 12.58

(a) Amounts may not recalculate due to rounding.

Ad supported listener hours - is based on the total bytes served over our Pandora advertising supported platforms for each track that is requested and served from our Pandora servers, as measured by our internal analytics systems, whether or not a listener listens to the entire track. For non-music content such as podcasts, episodes are divided into approximately track-length parts, which are treated as tracks. To the extent that third-party measurements of advertising hours are not calculated using a similar server-based approach, the third-party measurements may differ from our measurements.

RPM - is calculated by dividing advertising revenue, excluding AdsWizz and other off-platform revenue, by the number of thousands of listener hours on our Pandora advertising-based service.

Report of Independent Registered Public Accounting Firm

To the Board of Directors
Sirius XM Radio Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Sirius XM Radio Inc. and subsidiaries (the Company) as of December 31, 2022 and 2021, the related consolidated statements of comprehensive income, stockholder equity, and cash flows for each of the years in the three-year period ended December 31, 2022, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2022, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Sufficiency of audit evidence over certain subscriber and advertising revenues

As discussed in Notes 2 and 17 to the consolidated financial statements, and disclosed in the consolidated statements of comprehensive income, the Company generated $9,003 million of revenues, of which $6,370 million was Sirius XM subscriber revenue and $1,576 million was Pandora (Pandora Media, LLC and subsidiaries, the successor to Pandora Media, Inc. and subsidiaries) advertising revenue, for the year ended December 31, 2022. The Company's accounting for these subscriber and advertising revenues involved multiple information technology (IT) systems.

We identified the evaluation of the sufficiency of audit evidence related to Sirius XM subscriber revenue and Pandora advertising revenue as a critical audit matter. Evaluating the sufficiency of audit evidence obtained required auditor judgment due to the number of IT applications used by the Company that involved IT professionals with specialized skills and knowledge.

The following are the primary procedures we performed to address this critical audit matter. We applied auditor judgment to determine the nature and extent of procedures to be performed over Sirius XM subscriber and Pandora advertising revenues. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Sirius XM subscriber and Pandora advertising revenue recognition processes. We involved IT professionals with specialized skills and knowledge, who assisted in testing certain IT application controls and general IT controls used by the Company in its revenue recognition processes and testing the interface of relevant revenue data between different IT systems used in the revenue recognition processes. For Sirius XM subscriber revenue, we assessed the recorded revenue by comparing the total cash received during the year, adjusted for reconciling items, to the revenue recorded in the general ledger. For a sample of Pandora advertising revenues, we traced the recorded amounts to underlying source documents and system reports. We evaluated the sufficiency of audit evidence obtained by assessing the results of procedures performed, including the appropriateness of the nature and extent of such evidence.

Fair values of the Pandora and Off-Platform reporting unit and the Pandora trademark

As discussed in Note 7 to the consolidated financial statements, the Company’s goodwill balance for the Pandora and Off-Platform reporting unit was $944 million as of December 31, 2022. Additionally, as discussed in Note 8 to the consolidated financial statements, the trademarks balance due to acquisitions recorded to the Pandora and Off-Platform reporting unit was $312 million as of December 31, 2022, a portion of which related to the Pandora trademark. The Company performs goodwill and indefinite-lived assets impairment testing on an annual basis during the fourth quarter of each fiscal year, and whenever events and changes in circumstances indicate that the carrying value of a reporting unit or a trademark more likely than not exceeds its fair value.

We identified the assessment of the fair values of the Pandora and Off-Platform reporting unit and the Pandora trademark as a critical audit matter. A high degree of subjective auditor judgment was required to evaluate certain assumptions used by the Company to estimate these fair values. Specifically, the revenue growth rates, long-term growth rate, and the discount rates involved a higher degree of subjectivity. In addition, these key assumptions were challenging to test due to the sensitivity of the fair value to changes in these assumptions.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company’s goodwill and trademark impairment assessment process, including controls related to the key assumptions noted above. We performed sensitivity analyses to assess the impact of possible changes to the revenue growth rates, long-term growth rate and discount rates assumptions on the fair value of the Pandora and Off-Platform reporting unit and the Pandora trademark. We compared the Company’s historical revenue forecasts to actual results to assess the Company’s ability to accurately forecast revenues. We compared the Company’s forecasted revenue growth rate assumptions to historical revenue growth rates, to projected revenue growth rates for comparable companies, and to other publicly available data, including third party market studies. In addition, we involved valuation professionals with specialized skills and knowledge, who assisted in:

- evaluating the Company’s long-term growth rate by comparing it to long-term growth rate estimates that were independently developed using publicly available market data for the Company’s industry as well as U.S. economic growth rates
- evaluating the Company’s discount rates by comparing them to discount rates that were independently developed using publicly available market data for comparable companies.

/s/ KPMG LLP

We have served as the Company’s auditor since 2008.

New York, New York
February 2, 2023

SIRIUS XM RADIO INC. AND SUBSIDIARIES
(a wholly-owned subsidiary of Sirius XM Holdings Inc.)
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	For the Years Ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Revenue:			
Subscriber revenue	$ 6,892	$ 6,614	$ 6,372
Advertising revenue	1,772	1,730	1,340
Equipment revenue	189	201	173
Other revenue	150	151	155
Total revenue	9,003	8,696	8,040
Operating expenses:			
Cost of services:			
Revenue share and royalties	2,802	2,672	2,421
Programming and content	604	559	481
Customer service and billing	497	501	481
Transmission	214	218	177
Cost of equipment	13	18	19
Subscriber acquisition costs	352	325	362
Sales and marketing	1,075	1,056	957
Engineering, design and development	285	265	263
General and administrative	525	514	511
Depreciation and amortization	536	533	506
Impairment, restructuring and acquisition costs	64	20	1,004
Total operating expenses	6,967	6,681	7,182
Income from operations	2,036	2,015	858
Other (expense) income:			
Interest expense	(420)	(407)	(387)
Loss on extinguishment of debt	—	(83)	(40)
Other income	14	4	29
Total other expense	(406)	(486)	(398)
Income before income taxes	1,630	1,529	460
Income tax expense	(399)	(212)	(301)
Net income attributable to Sirius XM Radio Inc.'s sole stockholder	$ 1,231	$ 1,317	$ 159
Foreign currency translation adjustment, net of tax	(19)	—	7
Total comprehensive income attributable to Sirius XM Radio Inc.'s sole stockholder	$ 1,212	$ 1,317	$ 166

See accompanying notes to the consolidated financial statements.

SIRIUS XM RADIO INC. AND SUBSIDIARIES
(a wholly-owned subsidiary of Sirius XM Holdings Inc.)
CONSOLIDATED BALANCE SHEETS

(in millions, except per share data)	December 31, 2022	December 31, 2021
ASSETS		
Current assets:		
Cash and cash equivalents	$ 57	$ 191
Receivables, net	655	722
Related party current assets	42	21
Prepaid expenses and other current assets	284	246
Total current assets	1,038	1,180
Property and equipment, net	1,499	1,450
Intangible assets, net	3,050	3,186
Goodwill	3,234	3,136
Related party long-term assets	7,153	5,317
Deferred tax assets	151	211
Operating lease right-of-use assets	315	358
Other long-term assets	236	223
Total assets	$ 16,676	$ 15,061
LIABILITIES AND STOCKHOLDER EQUITY		
Current liabilities:		
Accounts payable and accrued expenses	$ 1,248	$ 1,299
Accrued interest	165	173
Current portion of deferred revenue	1,322	1,454
Current maturities of debt	200	—
Operating lease current liabilities	50	49
Related party current liabilities	—	5
Total current liabilities	2,985	2,980
Long-term deferred revenue	81	97
Long-term debt	9,256	8,875
Deferred tax liabilities	568	478
Operating lease liabilities	320	362
Other long-term liabilities	170	150
Total liabilities	13,380	12,942
Commitments and contingencies (Note 15)		
Stockholder equity:		
Common stock, par value $0.001 per share; 9,000 shares authorized; 0.001 shares issued and outstanding at December 31, 2022 and December 31, 2021, respectively	—	—
Accumulated other comprehensive (loss) income, net of tax	(4)	15
Additional paid-in capital	2,180	2,180
Retained earnings (accumulated deficit)	1,120	(76)
Total stockholder equity	3,296	2,119
Total liabilities and stockholder equity	$ 16,676	$ 15,061

See accompanying notes to the consolidated financial statements.

SIRIUS XM RADIO INC. AND SUBSIDIARIES
(a wholly-owned subsidiary of Sirius XM Holdings Inc.)
CONSOLIDATED STATEMENTS OF STOCKHOLDER EQUITY

(in millions)	Common Stock		Accumulated Other Comprehensive Income (Loss)	Additional Paid-in Capital	(Accumulated Deficit) Retained Earnings	Total Stockholder Equity
	Shares	Amount				
Balance at January 1, 2020	—	$ —	$ 8	$ 8,680	$ (1,552)	$ 7,136
Comprehensive income, net of tax	—	$ —	7	—	159	166
Balance at December 31, 2020	—	—	$ 15	$ 8,680	$ (1,393)	$ 7,302
Comprehensive income, net of tax	—	—	—	—	1,317	1,317
Equity distribution	—	—	—	(6,500)	—	(6,500)
Balance at December 31, 2021	—	$ —	$ 15	$ 2,180	$ (76)	$ 2,119
Capital contribution related to Tax Sharing Agreement with Liberty Media	—	—	—	—	(35)	(35)
Comprehensive (loss) income, net of tax	—	—	(19)	—	1,231	1,212
Balance at December 31, 2022	—	$ —	$ (4)	$ 2,180	$ 1,120	$ 3,296

See accompanying notes to the consolidated financial statements.

SIRIUS XM RADIO INC. AND SUBSIDIARIES
(a wholly-owned subsidiary of Sirius XM Holdings Inc.)
CONSOLIDATED STATEMENTS OF CASH FLOWS)

(in millions)	For the Years Ended December 31, 2022	2021	2020
Cash flows from operating activities:			
Net income	$ 1,231	$ 1,317	$ 159
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	536	533	506
Impairment and restructuring costs, net	61	24	1,000
Non-cash interest expense, net of amortization of premium	13	13	12
Change in fair value of contingent consideration	—	(17)	—
Provision for doubtful accounts	59	53	60
Amortization of deferred income related to equity method investment	—	—	(3)
Loss on extinguishment of debt	—	83	40
Loss on unconsolidated entity investments, net	5	18	16
(Gain) loss on fair value instrument	(23)	5	(23)
Dividend received from unconsolidated entity investment	8	2	2
Loss (gain) on other investments	10	(5)	(3)
Share-based payment expense	197	202	223
Deferred income tax expense	209	131	241
Amortization of right-of-use assets	49	50	56
Changes in operating assets and liabilities:			
Receivables	10	(108)	(36)
Related party, net	(129)	(78)	(133)
Prepaid expenses and other current assets	(38)	(47)	12
Other long-term assets	(1)	(8)	(61)
Accounts payable and accrued expenses	(71)	104	42
Accrued interest	(8)	(1)	13
Deferred revenue	(148)	(287)	(223)
Operating lease liabilities	(63)	(55)	(53)
Other long-term liabilities	(34)	(16)	38
Net cash provided by operating activities	1,873	1,913	1,885
Cash flows from investing activities:			
Additions to property and equipment	(426)	(388)	(350)
Proceeds from insurance recoveries	—	225	—
Sale (purchases) of other investments	1	(4)	(8)
Acquisition of business, net of cash acquired	(136)	(14)	(300)
Proceeds from sale of real estate	15	—	—
Investments in related parties and other equity investees	(2)	(21)	(94)
Repayment from related party	—	2	11
Net cash used in investing activities	(548)	(200)	(741)
Cash flows from financing activities:			
Intercompany financing activities	(1,993)	(1,799)	(1,773)
Revolving credit facility, net	80	(653)	649
Proceeds from long-term borrowings, net of costs	499	4,442	1,481
Principal payments of long-term borrowings	(6)	(3,503)	(1,507)
Payment of premiums on redemption of debt	—	(62)	(31)
Payment of contingent consideration for business acquisition	(3)	(22)	—
Distribution to parent related to Tax Sharing Agreement	(36)	—	—
Net cash used in financing activities	(1,459)	(1,597)	(1,181)
Net (decrease) increase in cash, cash equivalents and restricted cash	(134)	116	(37)
Cash, cash equivalents and restricted cash at beginning of period[1]	199	83	120
Cash, cash equivalents and restricted cash at end of period[1]	$ 65	$ 199	$ 83

See accompanying notes to the consolidated financial statements.

SIRIUS XM RADIO INC. AND SUBSIDIARIES
(a wholly-owned subsidiary of Sirius XM Holdings Inc.)
CONSOLIDATED STATEMENTS OF CASH FLOWS - Continued

	For the Years Ended December 31,		
(in millions)	2022	2021	2020
Supplemental Disclosure of Cash and Non-Cash Flow Information			
Cash paid during the period for:			
Interest, net of amounts capitalized	$ 411	$ 393	$ 358
Income taxes paid	$ 275	$ 82	$ 38
Non-cash investing and financing activities:			
Capital lease obligations incurred to acquire assets	$ 14	$ —	$ —
Accumulated other comprehensive (loss) income, net of tax	$ (19)	$ —	$ 7

(1) The following table reconciles cash, cash equivalents and restricted cash per the statement of cash flows to the balance sheet. The restricted cash balances are primarily due to letters of credit which have been issued to the landlords of leased office space. The terms of the letters of credit primarily extend beyond one year.

(in millions)	December 31, 2022	December 31, 2021	December 31, 2020	December 31, 2019
Cash and cash equivalents	$ 57	$ 191	$ 71	$ 106
Restricted cash included in Other long-term assets	8	8	12	14
Total cash, cash equivalents and restricted cash at end of period	$ 65	$ 199	$ 83	$ 120

See accompanying notes to the consolidated financial statements.

SIRIUS XM RADIO INC. AND SUBSIDIARIES
(a wholly-owned subsidiary of Sirius XM Holdings Inc.)
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Dollars and shares in millions, except per share amounts)

(1) Business & Basis of Presentation

Business

We operate two complementary audio entertainment businesses - one of which we refer to as “Sirius XM” and the second of which we refer to as “Pandora and Off-platform”. We are the leading audio entertainment company in North America with a portfolio of audio businesses including our flagship subscription entertainment service, Sirius XM; the ad-supported and premium music streaming services of Pandora; a podcast network; an advertising sales group, SXM Media; and a suite of advertising technology solutions.

Sirius XM

Our Sirius XM business features music, sports, entertainment, comedy, talk, news, traffic and weather channels and other content, as well as podcasts and infotainment services, in the United States on a subscription fee basis. Sirius XM packages include live, curated and certain exclusive and on demand programming. The Sirius XM service is distributed through our two proprietary satellite radio systems and streamed via applications for mobile devices, home devices and other consumer electronic equipment. Satellite radios are primarily distributed through automakers, retailers and our website. Our Sirius XM service is also available through our in-car user interface, which we call “360L,” that combines our satellite and streaming services into a single, cohesive in-vehicle entertainment experience.

The primary source of revenue from our Sirius XM business is subscription fees, with most of our customers subscribing to monthly, quarterly, semi-annual or annual plans. We also derive revenue from advertising on select non-music channels, which is sold under the SXM Media brand, direct sales of our satellite radios and accessories, and other ancillary services. As of December 31, 2022, our Sirius XM business had approximately 34.3 million subscribers.

In addition to our audio entertainment businesses, we provide connected vehicle services to several automakers. These services are designed to enhance the safety, security and driving experience of consumers. We also offer a suite of data services that includes graphical weather, fuel prices, sports schedules and scores and movie listings, a traffic information service that includes information as to road closings, traffic flow and incident data to consumers with compatible in-vehicle navigation systems, and real-time weather services in vehicles, boats and planes.

Sirius XM also holds a 70% equity interest and 33% voting interest in Sirius XM Canada Holdings Inc. (“Sirius XM Canada”). Sirius XM Canada's subscribers are not included in our subscriber count or subscriber-based operating metrics.

Pandora and Off-platform

Our Pandora and Off-platform business operates a music and podcast streaming discovery platform, offering a personalized experience for each listener wherever and whenever they want to listen, whether through computers, tablets, mobile devices, vehicle speakers or connected devices. Pandora enables listeners to create personalized stations and playlists, discover new content, hear artist- and expert-curated playlists, podcasts and select Sirius XM content as well as search and play songs and albums on-demand. Pandora is available as (1) an ad-supported radio service, (2) a radio subscription service (Pandora Plus) and (3) an on-demand subscription service (Pandora Premium). As of December 31, 2022, Pandora had approximately 6.2 million subscribers.

The majority of revenue from Pandora is generated from advertising on our Pandora ad-supported radio service which is sold under the SXM Media brand. We also derive subscription revenue from our Pandora Plus and Pandora Premium subscribers.

We also sell advertising on other audio platforms and in widely distributed podcasts, which we consider to be off-platform services. We have an arrangement with SoundCloud Holdings, LLC (“SoundCloud”) to be its exclusive ad sales representative in the US and certain European countries and offer advertisers the ability to execute campaigns across the Pandora and SoundCloud platforms. We also have arrangements to serve as the ad sales representative for certain podcasts. In addition, through AdsWizz Inc., we provide a comprehensive digital audio and programmatic advertising technology platform, which connects audio publishers and advertisers with a variety of ad insertion, campaign trafficking, yield optimization, programmatic buying, marketplace and podcast monetization solutions.

Liberty Media

As of December 31, 2022, Liberty Media Corporation ("Liberty Media") beneficially owned, directly and indirectly, approximately 82% of the outstanding shares of Holdings' common stock. As a result, Holdings is a "controlled company" for the purposes of the NASDAQ corporate governance requirements. Refer to Note 11 for more information regarding related parties.

Basis of Presentation

The accompanying consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP"). All significant intercompany transactions have been eliminated in consolidation. Certain numbers in our prior period consolidated financial statements and footnotes have been reclassified or consolidated to conform to our current period presentation.

The consolidated financial statements for Sirius XM for the fiscal year ended December 31, 2022 are essentially identical to the consolidated financial statements included in Holdings' Form 10-K for the fiscal year ended December 31, 2022, filed with the SEC on February 2, 2023, with the following exceptions:

- As a result of our corporate reorganization effective November 15, 2013, all of the outstanding shares of Sirius XM's common stock were converted, on a share for share basis, into identical shares of common stock of Holdings and all equity-related transactions, including repurchases of Holdings' common stock, dividend payments on shares of Holdings' common stock and the issuance of equity related to stock-based compensation to Sirius XM employees, Holdings' directors and third parties have been reported as related party transactions within Sirius XM's consolidated financial statements. Refer to Note 11 for additional information related to related party transactions.

- As a result of the Pandora Acquisition effective February 1, 2019, we assumed Pandora's 1.75% Convertible Senior Notes due 2023 (the "Pandora 2023 Notes"). Upon the occurrence of certain events, the Pandora 2023 Notes can be convertible into shares of Holdings' common stock. As a result of adopting Accounting Standards Update ("ASU") 2020-06 as of January 1, 2022, Holdings reports the Pandora 2023 Notes at its par value. We have elected to measure the Pandora 2023 Notes at fair value with changes in fair value recorded within Sirius XM's consolidated statements of operations. Refer to Note 12 for more information regarding the Pandora 2023 Notes.

This Annual Report should be read together with Holdings' Annual Report on Form 10-K for the year ended December 31, 2022, which was filed with the SEC on February 2, 2023.

Public companies, including our parent Holdings, are required to disclose certain information about their reportable operating segments. Operating segments are defined as significant components of an enterprise for which separate financial information is available and is evaluated on a regular basis by the chief operating decision maker in deciding how to allocate resources to an individual segment and in assessing performance of the segment. We have determined that we have two reportable segments as our chief operating decision maker, our Chief Executive Officer, assesses performance and allocates resources based on the financial results of these segments. Refer to Note 17 for information related to our segments.

We have evaluated events subsequent to the balance sheet date and prior to the furnishing of this Annual Report for the year ended December 31, 2022 and have determined that no events have occurred that would require adjustment to our consolidated financial statements. For a discussion of subsequent events that do not require adjustment to our consolidated financial statements refer to Note 18.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and footnotes. Estimates, by their nature, are based on judgment and available information. Actual results could differ materially from those estimates. Significant estimates inherent in the preparation of the accompanying consolidated financial statements include asset impairment, depreciable lives of our satellites, share-based payment expense and income taxes.

(Dollars and shares in millions, except per share amounts)

(2) Summary of Significant Accounting Policies

In addition to the significant accounting policies discussed in this Note 2, the following table includes our significant accounting policies that are described in other notes to our consolidated financial statements, including the number and page of the note:

Significant Accounting Policy	Note #	Page #
Acquisition	3	F-13
Fair Value Measurements	4	F-14
Goodwill	7	F-15
Intangible Assets	8	F-17
Property and Equipment	9	F-19
Equity Method Investments	11	F-22
Share-Based Compensation	14	F-26
Legal Reserves	15	F-30
Income Taxes	16	F-33

Cash and Cash Equivalents

Our cash and cash equivalents consist of cash on hand, money market funds, certificates of deposit, in-transit credit card receipts and highly liquid investments purchased with an original maturity of three months or less.

Revenue Recognition

Revenue is measured according to Accounting Standards Codification ("ASC") 606, *Revenue - Revenue from Contracts with Customers*, and is recognized based on consideration specified in a contract with a customer, and excludes any sales incentives and amounts collected on behalf of third parties. We recognize revenue when we satisfy a performance obligation by transferring control over a service or product to a customer. We report revenues net of any tax assessed by a governmental authority that is both imposed on, and concurrent with, a specific revenue-producing transaction between a seller and a customer in our consolidated statements of comprehensive income. Collected taxes are recorded within Other current liabilities until remitted to the relevant taxing authority. For equipment sales, we are responsible for arranging for shipping and handling. Shipping and handling costs billed to customers are recorded as revenue and are reported as a component of Cost of equipment.

The following is a description of the principal activities from which we generate our revenue, including from self-pay and paid promotional subscribers, advertising, and sales of equipment.

Subscriber revenue consists primarily of subscription fees and other ancillary subscription based revenues. Revenue is recognized on a straight line basis when the performance obligations to provide each service for the period are satisfied, which is over time as our subscription services are continuously transmitted and can be consumed by customers at any time. Consumers purchasing or leasing a vehicle with a factory-installed satellite radio may receive between a three and twelve month subscription to our service. In certain cases, the subscription fees for these consumers are prepaid by the applicable automaker. Prepaid subscription fees received from automakers or directly from consumers are recorded as deferred revenue and amortized to revenue ratably over the service period which commences upon sale. Activation fees are recognized over one month as the activation fees are non-refundable and do not provide for a material right to the customer. There is no revenue recognized for unpaid trial subscriptions. In some cases we pay a loyalty fee to the automakers when we receive a certain amount of payments from self-pay customers acquired from that automaker. These fees are considered incremental costs to obtain a contract and are, therefore, recognized as an asset and amortized to Subscriber acquisition costs over an average subscriber life. Revenue share and loyalty fees paid to an automaker offering a paid trial are accounted for as a reduction of revenue as the payment does not provide a distinct good or service.

Music royalty fee primarily consists of U.S. music royalty fees ("MRF") collected from subscribers. The related costs we incur for the right to broadcast music and other programming are recorded as Revenue share and royalties expense. Fees received from subscribers for the MRF are recorded as deferred revenue and amortized to Subscriber revenue ratably over the service period.

We recognize revenue from the sale of advertising as performance obligations are satisfied, which generally occurs as ads are delivered. For our satellite radio service, ads are delivered when they are aired. For our streaming services, ads are delivered primarily based on impressions. Agency fees are calculated based on a stated percentage applied to gross billing revenue for our advertising inventory and are reported as a reduction of advertising revenue. Additionally, we pay certain third parties a percentage of advertising revenue. Advertising revenue is recorded gross of such revenue share payments as we control the advertising service, including the ability to establish pricing, and we are primarily responsible for providing the service. Advertising revenue share payments are recorded to Revenue share and royalties during the period in which the advertising is transmitted.

Equipment revenue and royalties from the sale of satellite radios, components and accessories are recognized upon shipment, net of discounts and rebates. Shipping and handling costs billed to customers are recorded as revenue. Shipping and handling costs associated with shipping goods to customers are reported as a component of Cost of equipment. Other revenue primarily includes revenue recognized from royalties received from Sirius XM Canada.

Customers pay for the services in advance of the performance obligation and therefore these prepayments are recorded as deferred revenue. The deferred revenue is recognized as revenue in our consolidated statement of comprehensive income as the services are provided. Changes in the deferred revenue balance during the year ended December 31, 2022 were not materially impacted by other factors.

As the majority of our contracts are one year or less, we have utilized the optional exemption under ASC 606-10-50-14 and do not disclose information about the remaining performance obligations for contracts which have original expected durations of one year or less. As of December 31, 2022, less than six percent of our total deferred revenue balance related to contracts that extend beyond one year. These contracts primarily include prepaid data trials which are typically provided for three to five years as well as for self-pay customers who prepay for their audio subscriptions for up to three years in advance. These amounts are recognized on a straight-line basis as our services are provided.

Revenue Share

We share a portion of our subscription revenues earned from self-pay subscribers with certain automakers. The terms of the revenue share agreements vary with each automaker, but are typically based upon the earned audio revenue as reported or gross billed audio revenue. Revenue share on self-pay revenue is recognized as an expense and recorded in Revenue share and royalties in our consolidated statements of comprehensive income. We also pay revenue share to certain talent on non-music stations on our satellite radio service and to podcast talent based on advertising revenue for the related channel or podcast. Revenue share on non-music channels and podcasts is recognized in Revenue share and royalties in our consolidated statements of comprehensive income when it is earned. In some cases, we pay minimum guarantees for revenue share to podcast owners which is recorded in Prepaid and other current assets in our consolidated balance sheets. The minimum guarantee is recognized in Revenue share and royalties primarily on a straight line basis over the contractual term. The prepaid balance is regularly reviewed for recoverability and any amount not deemed to be recoverable is recognized as an expense in the period.

Royalties

In connection with our businesses, we must enter into royalty arrangements with two sets of rights holders: holders of musical compositions copyrights (that is, the music and lyrics) and holders of sound recordings copyrights (that is, the actual recording of a work). Our Sirius XM and Pandora businesses use both statutory and direct music licenses as part of their businesses. We license varying rights - such as performance and mechanical rights - for use in our Sirius XM and Pandora businesses based on the various radio and interactive services they offer. The music rights licensing arrangements for our Sirius XM and Pandora businesses are complex.

Musical Composition Copyrights

We pay performance royalties for our Sirius XM and Pandora businesses to holders and rights administrators of musical compositions copyrights, including performing rights organizations and other copyright owners. These performance royalties are based on agreements with performing rights organizations which represent the holders of these performance rights. Our Sirius XM and Pandora businesses have arrangements with these performance rights organizations. Arrangements with Sirius XM generally include fixed payments during the term of the agreement and arrangements with Pandora for its ad-supported radio service have variable payments based on usage and ownership of a royalty pool.

Pandora must also license reproduction rights, which are also referred to as mechanical rights, to offer the interactive features of the Pandora services. For our Pandora subscription services, copyright holders receive payments for these rights at the rates determined in accordance with the statutory license set forth in Section 115 of the United States Copyright Act. These mechanical royalties are calculated as the greater of a percentage of our revenue or a percentage of our payments to record labels.

Sound Recording Copyrights

For our non-interactive satellite radio or streaming services we may license sound recordings under direct licenses with the owners of sound recordings or based on the royalty rate established by the CRB. For our Sirius XM business, the royalty rate for sound recordings has been set by the CRB. The revenue subject to royalty includes subscription revenue from our U.S. satellite digital audio radio subscribers, and advertising revenue from channels other than those channels that make only incidental performances of sound recordings. The rates and terms permit us to reduce the payment due each month for those sound recording directly licensed from copyright owners and exclude from our revenue certain other items, such as royalties paid to us for intellectual property, sales and use taxes, bad debt expense and generally revenue attributable to areas of our business that do not involve the use of copyrighted sound recordings.

For our Pandora business, we have entered into direct license agreements with major and independent music labels and distributors for a significant majority of the sound recordings that stream on the Pandora ad-supported service, Pandora Plus and Pandora Premium. For sound recordings that we stream and for which we have not entered into a direct license agreement with the sound recording rights holders, the sound recordings are streamed pursuant to the statutory royalty rates set by the CRB. Pandora pays royalties to owners of sound recordings on either a per-performance fee based on the number of sound recordings transmitted or a percentage of revenue associated with the applicable service. Certain of these agreements also require Pandora to pay a per subscriber minimum amount.

Programming Costs

Programming costs which are for a specified number of events are amortized on an event-by-event basis; programming costs which are for a specified season or include programming through a dedicated channel are amortized over the season or period on a straight-line basis. We allocate a portion of certain programming costs which are related to sponsorship and marketing activities to Sales and marketing expense on a straight-line basis over the term of the agreement.

Advertising Costs

Media is expensed when aired and advertising production costs are expensed as incurred. Advertising production costs include expenses related to marketing and retention activities, including expenses related to direct mail, outbound telemarketing and email communications. We also incur advertising production costs related to cooperative marketing and promotional events and sponsorships. During the years ended December 31, 2022, 2021 and 2020, we recorded advertising costs of $513, $515 and $443, respectively. These costs are reflected in Sales and marketing expense in our consolidated statements of comprehensive income.

Subscriber Acquisition Costs

Subscriber acquisition costs consist of costs incurred to acquire new subscribers which include hardware subsidies paid to radio manufacturers, distributors and automakers, including subsidies paid to automakers who include a satellite radio and a prepaid subscription to our service in the sale or lease price of a new vehicle; subsidies paid for chipsets and certain other components used in manufacturing radios; device royalties for certain radios and chipsets; commissions paid to retailers and automakers as incentives to purchase, install and activate radios; product warranty obligations; freight; and provisions for inventory allowance attributable to inventory consumed in our automotive and retail distribution channels. Subscriber acquisition costs do not include advertising costs, loyalty payments to distributors and dealers of radios and revenue share payments to automakers and retailers of radios.

Subsidies paid to radio manufacturers and automakers are expensed upon installation, shipment, receipt of product or activation and are included in Subscriber acquisition costs because we are responsible for providing the service to the customers. Commissions paid to retailers and automakers are expensed upon either the sale or activation of radios. Chipsets that are shipped to radio manufacturers and held on consignment are recorded as inventory and expensed as Subscriber acquisition costs when placed into production by radio manufacturers. Costs for chipsets are expensed as Subscriber acquisition costs when the automaker confirms receipt.

Research & Development Costs

Research and development costs are expensed as incurred and primarily include the cost of new product development, chipset design, software development and engineering. During the years ended December 31, 2022, 2021 and 2020, we recorded research and development costs of $246, $229 and $220, respectively. These costs are reported as a component of Engineering, design and development expense in our consolidated statements of comprehensive income.

Accumulated Other Comprehensive (Loss) Income, net of tax

Accumulated other comprehensive (loss) of $(4) was primarily comprised of the cumulative foreign currency translation adjustments related to Sirius XM Canada (refer to Note 11 for additional information). During the year ended December 31, 2022, we recorded a net foreign currency translation adjustment of $(19), net of tax. During the years ended December 31, 2021 and 2020, we recorded a foreign currency translation adjustment of less than $1 and $7, respectively, net of tax.

(3) Acquisitions

Other acquisitions

On May 20, 2022, we completed an acquisition for total cash consideration of $93. We recognized goodwill of $69, indefinite-lived intangible assets of $1 and other long-term assets of $23. The other assets represent acquired content which will be amortized over its estimated useful life to Programming and content in our consolidated statements of comprehensive income.

On January 12, 2022, we completed an acquisition for total cash consideration of $43. We recognized goodwill of $29, other definite-lived intangible assets of $19 and liabilities of $4.

On April 23, 2021, we completed an acquisition for total consideration of $27 which included $20 in cash, a $3 deferred cash payment and $4 in restricted stock units. We recognized goodwill of $23 and other assets of $5.

Stitcher

On October 16, 2020, we acquired the assets of Stitcher from The E.W. Scripps Company and certain of its subsidiaries (“Scripps”) for total consideration of $302, which included $266 in cash and $36 related to contingent consideration. During the year ended December 31, 2021, we recognized a $17 benefit related to the change in fair value of the 2021 portion of the contingent consideration related to the Stitcher transaction in Impairment, restructuring and acquisition costs in our consolidated statements of comprehensive income. The fair value of the contingent consideration was determined using a probability-weighted cash flow model. Stitcher is included in our Pandora and Off-platform reporting unit.

The Stitcher acquisition was accounted for using the acquisition method of accounting and was financed through borrowings under Sirius XM's Credit Facility.

(Dollars and shares in millions, except per share amounts)

Simplecast

On June 16, 2020, Sirius XM acquired Simplecast for $28 in cash. Simplecast is a podcast management and analytics platform. Simplecast complements AdsWizz's advertising technology platform, allowing the company to offer podcasters a comprehensive solution for publishing, analytics, distribution and advertising sales, and is included in the Pandora and Off-platform reporting unit. The Simplecast acquisition was accounted for using the acquisition method of accounting. We recognized goodwill of $17, amortizable intangible assets of $12, other assets of less than $1 and deferred tax liabilities of $1.

Acquisition related costs for the years ended December 31, 2022, 2021 and 2020, were $2, $12 and $4, respectively.

(4) Fair Value Measurements

The fair value of a financial instrument is the amount at which the instrument could be exchanged in an orderly transaction between market participants. As of December 31, 2022 and 2021, the carrying amounts of cash and cash equivalents, receivables, and accounts payable approximated fair value due to the short-term nature of these instruments. ASC 820, *Fair Value Measurements and Disclosures*, establishes a fair value hierarchy for input into valuation techniques as follows:

i. Level 1 input: unadjusted quoted prices in active markets for identical instrument;

ii. Level 2 input: observable market data for the same or similar instrument but not Level 1, including quoted prices for identical or similar assets or liabilities in markets that are not active or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and

iii. Level 3 input: unobservable inputs developed using management's assumptions about the inputs used for pricing the asset or liability.

Investments are periodically reviewed for impairment and an impairment is recorded whenever declines in fair value below carrying value are determined to be other than temporary. In making this determination, we consider, among other factors, the severity and duration of the decline as well as the likelihood of a recovery within a reasonable timeframe.

Our assets and liabilities measured at fair value were as follows:

	December 31, 2022				December 31, 2021			
	Level 1	Level 2	Level 3	Total Fair Value	Level 1	Level 2	Level 3	Total Fair Value
Liabilities:								
Debt [(a)]	—	$ 8,362	—	$ 8,362	—	$ 9,052	—	$ 9,052

(a) The fair value for non-publicly traded instruments is based upon estimates from a market maker and brokerage firm. Refer to Note 12 for information related to the carrying value of our debt as of December 31, 2022 and 2021.

(5) Restructuring Costs

During the year ended December 31, 2022, we evaluated our office space needs, and, as a result of such analysis, we vacated certain office spaces. We assessed the recoverability of the carrying value of the operating lease right of use assets related to these locations. We determined that the carrying values of the assets were not recoverable, and we recorded an impairment of $16 to reduce the carrying value of the assets to their fair values. Additionally, we wrote off fixed assets of $5 in connection with furniture and equipment located at the impaired office spaces. Separately, we performed an analysis surrounding initiatives that we are no longer pursuing and recorded an impairment of $43 associated with terminated software projects and an impairment of $6 related to personnel severance. The total restructuring and impairment charge of $70 was recorded to Impairment, restructuring and acquisition costs in our consolidated statements of comprehensive income for the year ended December 31, 2022.

(Dollars and shares in millions, except per share amounts)

During the year ended December 31, 2021, we evaluated our office space needs and, as a result of such analysis, surrendered certain office leases. We assessed the recoverability of the carrying value of the operating lease right of use assets related to these locations. Based on that assessment, the carrying values of the assets were not recoverable, and we recorded an impairment of $18 to reduce the carrying value of the assets to their fair values. Additionally, we accrued expenses of $6 for which we will not recognize any future economic benefits and wrote off leasehold improvements of $1. The fair values of the assets were determined using a discounted cash flow model based on management's assumptions regarding the ability to sublease the locations and the remaining term of the leases. The total charge of $25 was recorded to Impairment, restructuring and acquisition costs in our consolidated statements of comprehensive income for the year ended December 31, 2021.

During the year ended December 31, 2020, we recorded $24 of restructuring expenses primarily related to the write down of property and equipment, definite lived intangible assets and certain other assets related to the termination of the Automatic service in Impairment, restructuring and acquisition costs in our consolidated statements of comprehensive income. The termination of the Automatic service did not meet the requirements to be reported as a discontinued operation in our consolidated statements of comprehensive income because the termination of the service does not represent a strategic shift that will have a major effect on our operations and financial results.

(6) Receivables, net

Receivables, net, includes customer accounts receivable, receivables from distributors and other receivables. We do not have any customer receivables that individually represent more than ten percent of our receivables.

Customer accounts receivable, net, includes receivables from our subscribers and advertising customers, including advertising agencies and other customers, and is stated at amounts due, net of an allowance for doubtful accounts. Our allowance for doubtful accounts is based upon our assessment of various factors. We consider historical experience, the age of the receivable balances, current economic conditions, industry experience and other factors that may affect the counterparty's ability to pay. Bad debt expense is included in Customer service and billing expense in our consolidated statements of comprehensive income.

Receivables from distributors primarily include billed and unbilled amounts due from automakers for services included in the sale or lease price of vehicles, as well as billed amounts due from wholesale distributors of our satellite radios. Other receivables primarily include amounts due from manufacturers of our radios, modules and chipsets where we are entitled to subsidies and royalties based on the number of units produced. We have not established an allowance for doubtful accounts for our receivables from distributors or other receivables as we have historically not experienced any significant collection issues with automakers or other third parties and do not expect issues in the foreseeable future.

Receivables, net, consists of the following:

	December 31, 2022	December 31, 2021
Gross customer accounts receivable	$ 585	$ 636
Allowance for doubtful accounts	(11)	(10)
Customer accounts receivable, net	$ 574	$ 626
Receivables from distributors	53	62
Other receivables	28	34
Total receivables, net	$ 655	$ 722

(7) Goodwill

Goodwill represents the excess of the purchase price over the estimated fair value of the net tangible and identifiable intangible assets acquired in business combinations. Our annual impairment assessment of our two reporting units is performed as of the fourth quarter of each year, and an assessment is performed at other times if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. ASC 350, *Intangibles - Goodwill and Other*, states that an entity should perform its annual or interim goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount and recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value.

(Dollars and shares in millions, except per share amounts)

As of December 31, 2022, there were no indicators of impairment, and no impairment losses were recorded for goodwill during the years ended December 31, 2022 and 2021. During the year ended December 31, 2022, we elected to perform a quantitative goodwill assessment of our Pandora and Off-platform reporting unit and determined the fair value of the reporting unit using a combination of an income approach, employing a discounted cash flow model, and a market approach. The results of our 2022 goodwill impairment test indicated that the estimated fair value of our Pandora and Off-platform reporting unit exceeded its carrying amount.

During the year ended December 31, 2020, we performed a quantitative goodwill assessment and determined the fair value of our reporting units using a combination of an income approach, employing a discounted cash flow model, and a market approach. The discounted cash flow model relied on assumptions, such as the extent of the economic downturn related to the COVID-19 pandemic, the expected timing of recovery, expected growth in profitability and discount rate, which we believed were appropriate. Additionally, assumptions related to guideline company financial multiples used in the market approach decreased based on market observations. The results of our 2020 goodwill impairment test indicated that the estimated fair value of the Sirius XM reporting unit exceeded its carrying amount. The carrying amount of the Pandora and Off-platform reporting unit exceeded its estimated fair value primarily due to a reduction in the long-term forecast to reflect increased costs related to royalty rates for streaming and increased uncertainty surrounding the projected demand for advertising and decrease of listening hours. As a result, we recorded a goodwill impairment charge of $956 during the year ended December 31, 2020 to write down the carrying amount of the Pandora and Off-platform goodwill in the Impairment, restructuring and acquisition costs line item in our consolidated statements of comprehensive income.

As of December 31, 2022, the cumulative balance of goodwill impairments recorded was $5,722, of which $4,766 was recognized during the year ended December 31, 2008 and is included in the carrying amount of the goodwill allocated to our Sirius XM reporting unit and $956 was recognized during the year ended December 31, 2020 and is included in the carrying amount of the goodwill allocated to our Pandora and Off-platform reporting unit.

As of December 31, 2022, the carrying amount of goodwill for our Sirius XM and Pandora and Off-platform reporting units was $2,290 and $944, respectively. During the year ended December 31, 2022, we recorded $98 of goodwill related to acquisitions associated with our Pandora and Off-platform reporting unit. Refer to Note 3 for information regarding these acquisitions.

Refer to the table below for our goodwill activity for the years ended December 31, 2022 and 2021:

	Sirius XM	Pandora and Off-platform	Total
Balance at January 1, 2021	$ 2,290	$ 817	$ 3,107
Acquisition	—	29	29
Balance at December 31, 2021	2,290	846	3,136
Acquisition	—	98	98
Balance at December 31, 2022	$ 2,290	$ 944	$ 3,234

(Dollars and shares in millions, except per share amounts)

(8) Intangible Assets

Our intangible assets include the following:

		December 31, 2022			December 31, 2021		
	Weighted Average Useful Lives	Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
Indefinite life intangible assets:							
FCC licenses	Indefinite	$ 2,084	$ —	$ 2,084	$ 2,084	$ —	$ 2,084
Trademarks	Indefinite	250	—	250	250	—	250
Definite life intangible assets:							
OEM relationships	15 years	220	(135)	85	220	(120)	100
Licensing agreements	12 years	45	(45)	—	45	(45)	—
Software and technology	7 years	31	(21)	10	31	(19)	12
Due to Acquisitions recorded to Pandora and Off-platform Reporting Unit:							
Indefinite life intangible assets:							
Trademarks	Indefinite	312	—	312	311	—	311
Definite life intangible assets:							
Customer relationships	8 years	442	(225)	217	441	(164)	277
Software and technology	5 years	391	(299)	92	373	(221)	152
Total intangible assets		$ 3,775	$ (725)	$ 3,050	$ 3,755	$ (569)	$ 3,186

Indefinite Life Intangible Assets

We have identified our FCC licenses and XM and Pandora trademarks as indefinite life intangible assets after considering the expected use of the assets, the regulatory and economic environment within which they are used and the effects of obsolescence on their use.

We hold FCC licenses to operate our satellite digital audio radio service and provide ancillary services. Each of the FCC licenses authorizes us to use radio spectrum, a reusable resource that does not deplete or exhaust over time.

ASC 350-30-35, *Intangibles - Goodwill and Other*, provides for an option to first perform a qualitative assessment to determine whether it is more likely than not that an asset is impaired. If the qualitative assessment supports that it is more likely than not that the fair value of the asset exceeds its carrying value, a quantitative impairment test is not required. If the qualitative assessment does not support the fair value of the asset, then a quantitative assessment is performed. Our annual impairment assessment of our identifiable indefinite lived intangible assets is performed as of the fourth quarter of each year. An assessment is performed at other times if an event occurs or circumstances change that would more likely than not reduce the fair value of the asset below its carrying value. If the carrying value of the intangible assets exceeds its fair value, an impairment loss is recognized in an amount equal to that excess.

We completed a quantitative assessment of our FCC licenses and Pandora trademarks during the fourth quarter of 2022. As of the date of our annual assessment for 2022, our impairment assessment of the fair value of our indefinite intangible assets indicated that the estimated fair value of our FCC licenses and Pandora trademarks exceeded their carrying values and therefore no impairment exists.

We completed our qualitative assessments of our FCC licenses and XM and Pandora trademarks during the fourth quarter of 2021. As of the date of our annual assessment, our qualitative impairment assessment of the fair value of our indefinite intangible assets indicated that the fair value of such assets exceeded their carrying value and therefore were not at risk of impairment.

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We completed a quantitative assessment of our FCC licenses and XM and Pandora trademarks during the fourth quarter of 2020. As of the date of our annual assessment for 2020, our impairment assessment of the fair value of our indefinite intangible assets indicated that the carrying value of our Pandora trademark exceeded the fair value of the asset by $20. The excess carrying value was written off and recognized in the Impairment, restructuring and acquisition costs line item in our consolidated statements of comprehensive income. The impairment assessment for our FCC licenses and XM trademark indicate that the fair value of such assets substantially exceeded their carrying value and therefore were not at risk of impairment. During the year ended December 31, 2020, we also recognized an impairment loss of less than $1 for intangible assets with indefinite lives related to the termination of the Automatic service.

Definite Life Intangible Assets

Definite-lived intangible assets are amortized over their respective estimated useful lives to their estimated residual values, in a pattern that reflects when the economic benefits will be consumed, and are reviewed for impairment under the provisions of ASC 360-10-35, *Property, Plant and Equipment/Overall/Subsequent Measurement*. We review intangible assets subject to amortization for impairment whenever events or circumstances indicate that the carrying amount of an asset may not be recoverable. If the sum of the expected cash flows, undiscounted and without interest, is less than the carrying amount of the asset, an impairment loss is recognized in an amount by which the carrying amount of the asset exceeds its fair value. No impairment loss was recognized for intangible assets with definite lives during the years ended December 31, 2022, 2021 and 2020.

Amortization expense for all definite life intangible assets was $156, $154 and $152 for the years ended December 31, 2022, 2021 and 2020, respectively. There were no retirements of definite lived intangible assets during the years ended December 31, 2022 and 2021. There were retirements of definite lived intangible assets of $17, which included a loss of $4, due to the termination of the Automatic service, during the year ended December 31, 2020.

The expected amortization expense for each of the fiscal years 2023 through 2027 and for periods thereafter is as follows:

Years ending December 31,	Amount
2023	$ 144
2024	77
2025	72
2026	71
2027	25
Thereafter	15
Total definite life intangible assets, net	$ 404

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(9) Property and Equipment

Property and equipment, including satellites, are stated at cost, less accumulated depreciation. Equipment under capital leases is stated at the present value of minimum lease payments. Depreciation is calculated using the straight-line method over the following estimated useful life of the asset:

Satellite system	15 years
Terrestrial repeater network	5 - 15 years
Broadcast studio equipment	3 - 15 years
Capitalized software and hardware	2 - 7 years
Satellite telemetry, tracking and control facilities	3 - 15 years
Furniture, fixtures, equipment and other	2 - 7 years
Building	20 or 30 years
Leasehold improvements	Lesser of useful life or remaining lease term

We review long-lived assets, such as property and equipment, for impairment whenever events or changes in circumstances indicate the carrying amount may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds the estimated future cash flows, an impairment charge is recognized in an amount by which the carrying amount exceeds the fair value of the asset. During the year ended December 31, 2022, we recorded impairment charges of $48 related to the write off of terminated software projects and fixed assets in connection with furniture and equipment located at impaired office spaces. Refer to the Note 5 for more information.

During the year ended December 31, 2021, we recorded an impairment charge of $220 related to our SXM-7 satellite which was offset by insurance recoveries. Refer to the discussion below for more information. We did not record any impairment charges during the year ended 2020.

Property and equipment, net, consists of the following:

	December 31, 2022	December 31, 2021
Satellite system	$ 1,841	$ 1,841
Terrestrial repeater network	118	116
Leasehold improvements	100	109
Broadcast studio equipment	133	119
Capitalized software and hardware	1,821	1,591
Satellite telemetry, tracking and control facilities	76	67
Furniture, fixtures, equipment and other	89	92
Land	32	38
Building	70	81
Construction in progress	313	156
Total property and equipment	4,593	4,210
Accumulated depreciation	(3,094)	(2,760)
Property and equipment, net	$ 1,499	$ 1,450

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Construction in progress consists of the following:

	December 31, 2022	December 31, 2021
Satellite system	$ 212	$ 64
Terrestrial repeater network	10	1
Capitalized software and hardware	56	78
Other	35	13
Construction in progress	$ 313	$ 156

Depreciation and amortization expense on property and equipment was $380, $379 and $354 for the years ended December 31, 2022, 2021 and 2020, respectively. During the year ended December 31, 2022, we wrote off furniture and equipment in connection with impaired office space leases and we disposed of assets associated with software development initiatives that we are no longer pursuing. In addition to the property and equipment impaired above, we sold real estate during the year ended December 31, 2022 for net proceeds of $15 resulting in a gain of $8 which has been recorded to Impairment, restructuring and acquisition costs line item in our consolidated statements of comprehensive income. We retired property and equipment of $65 during the year ended December 31, 2021 and $94 during the year ended December 31, 2020, which included a loss of $13 related to the termination of the Automatic service.

We capitalize a portion of the interest on funds borrowed to finance the construction and launch of our satellites. Capitalized interest is recorded as part of the asset's cost and depreciated over the satellite's useful life. Capitalized interest costs were $5, $7 and $19 for the years ended December 31, 2022, 2021 and 2020, respectively, which related to the construction of our SXM-7, SXM-8, SXM-9 and SXM-10 satellites. We also capitalize a portion of share-based compensation related to employee time for capitalized software projects. Capitalized share-based compensation costs were $16, $13 and $17 for the years ended December 31, 2022, 2021 and 2020, respectively.

Satellites

As of December 31, 2022, we operated a fleet of six satellites. Each satellite requires an FCC license, and prior to the expiration of each license, we are required to apply for a renewal of the FCC satellite license. The renewal and extension of our licenses is reasonably certain at minimal cost, which is expensed as incurred. The chart below provides certain information on our satellites as of December 31, 2022:

Satellite Description	Year Delivered	Estimated End of Depreciable Life	FCC License Expiration Year
SIRIUS FM-5	2009	2024	2025
SIRIUS FM-6	2013	2028	2030
XM-3	2005	2020	2026
XM-4	2006	2021	2023
XM-5	2010	2025	2026
SXM-8	2021	2036	2029

During the year ended December 30, 2021, we recorded an impairment charge of $220 to Impairment, restructuring and acquisition costs in our consolidated statements of comprehensive income related to the total loss of the SXM-7 satellite. We procured insurance for SXM-7 to cover the risks associated with the satellite's launch and first year of in-orbit operation. The aggregate coverage under the insurance policies with respect to SXM-7 was $225. During the year ended December 30, 2021, we collected $225 of insurance recoveries. Of this amount, $220 was recorded as a reduction to Impairment, restructuring and acquisition costs during year ended December 30, 2021. The remaining $5 was recorded in Other income during the year ended December 30, 2021. SXM-7 remains in-orbit at its assigned orbital location, but is not being used to provide satellite radio service.

Our SXM-8 satellite was successfully launched into a geostationary orbit on June 6, 2021 and was placed into service on September 8, 2021 following the completion of in-orbit testing. Our SXM-8 satellite replaced our XM-3 satellite. During the year ended December 31, 2022, we replaced our XM-4 satellite with our XM-5 satellite. As of December 31, 2022, our XM-3 and XM-4 satellites remain available as in-orbit spares.

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(10) Leases

We have operating and finance leases for offices, terrestrial repeaters, data centers and certain equipment. Our leases have remaining lease terms of less than 1 year to 21 years, some of which may include options to extend the leases for up to 5 years, and some of which may include options to terminate the leases within 1 year. We elected the practical expedient to account for the lease and non-lease components as a single component. Additionally, we elected the practical expedient to not recognize right-of-use assets or lease liabilities for short-term leases, which are those leases with a term of twelve months or less at the lease commencement date.

During the years ended December 31, 2022 and 2021, we ceased using certain leased locations and recorded an impairment charge of $16 and $18, respectively, to write down the carrying value of the right-of-use assets for these locations to their estimated fair values. Refer to Note 5 for additional information.

The components of lease expense were as follows:

	For the Years Ended December 31,	
	2022	2021
Operating lease cost	$ 76	$ 76
Finance lease cost	1	1
Sublease income	(3)	(4)
Total lease cost	$ 74	$ 73

Supplemental cash flow information related to leases was as follows:

	For the Years Ended December 31,	
	2022	2021
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating leases	$ 81	$ 82
Financing cash flows from finance leases	$ 1	$ 1
Right-of-use assets obtained in exchange for lease obligations:		
Operating leases	$ 28	$ 3

Supplemental balance sheet information related to leases was as follows:

	December 31, 2022	December 31, 2021
Operating Leases		
Operating lease right-of-use assets	$ 315	$ 358
Operating lease current liabilities	50	49
Operating lease liabilities	320	362
Total operating lease liabilities	$ 370	$ 411

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	December 31, 2022	December 31, 2021
Finance Leases		
Property and equipment, gross	$ 22	$ 9
Accumulated depreciation	(8)	(8)
Property and equipment, net	$ 14	$ 1
Current maturities of debt	$ 3	$ —
Long-term debt	9	—
Total finance lease liabilities	$ 12	$ —

	December 31, 2022	December 31, 2021
Weighted Average Remaining Lease Term		
Operating leases	8 years	8 years
Finance leases	4 years	0 years

	December 31, 2022	December 31, 2021
Weighted Average Discount Rate		
Operating leases	5.2 %	5.3 %
Finance leases	2.3 %	— %

Maturities of lease liabilities were as follows:

	Operating Leases	Finance Leases
Year ending December 31,		
2023	$ 68	$ 3
2024	62	3
2025	61	4
2026	58	2
2027	52	—
Thereafter	149	—
Total future minimum lease payments	450	12
Less imputed interest	(80)	—
Total	$ 370	$ 12

(11) Related Party Transactions

In the normal course of business, we enter into transactions with related parties such as Sirius XM Canada and SoundCloud.

Liberty Media

As of December 31, 2022, Liberty Media beneficially owned, directly and indirectly, approximately 82% of the outstanding shares of Holdings' common stock. Liberty Media has three of its executives and one of its directors on our board of directors. Gregory B. Maffei, the President and Chief Executive Officer of Liberty Media, is the Chairman of our board of directors.

On February 1, 2021, Holdings entered into a tax sharing agreement with Liberty Media governing the allocation of consolidated U.S. income tax liabilities and setting forth agreements with respect to other tax matters. The tax sharing agreement was negotiated and approved by a special committee of Holdings' board of directors, all of whom are independent of Liberty Media. Refer to Note 16 for more information regarding the tax sharing agreement.

Sirius XM Holdings

Sirius XM is a wholly-owned subsidiary of Holdings. Holdings has no operations independent of Sirius XM. All equity-related transactions, including repurchases of Holdings' common stock, dividend payments on shares of Holdings' common stock, the issuance of equity related to share-based compensation for Sirius XM employees, Holdings' directors and third parties and the issuance of Holdings' common stock related to the recapitalization of Sirius XM Canada and the Pandora Acquisition have been reported as related party transactions within our consolidated financial statements. The share-based compensation for Sirius XM employees, Holdings' directors and third parties has been recorded in our consolidated financial statements. The Related party long-term assets balance as of December 31, 2022 and December 31, 2021 of Sirius XM includes $6,665 and $4,790 respectively, primarily for net amounts due from Holdings in connection with these equity-related transactions. During the year ended December 31, 2021, we completed a $6,500 equity distribution to Holdings to settle certain intercompany balances. The equity distribution was recognized as a reduction to Additional paid in capital.

During the year ended December 31, 2022, we used $1,993 of our cash for the purchase and retirement of shares of Holdings' common stock under Holdings' repurchase program and payment of a cash dividend on Holdings' common stock. This amount is included in our Related party long-term asset balance as a receivable due from Holdings.

Sirius XM Canada

We hold a 70% equity interest and 33% voting interest in Sirius XM Canada, a privately held corporation. We own 591 shares of preferred stock of Sirius XM Canada, which has a liquidation preference of one Canadian dollar per share.

Sirius XM Canada is accounted for as an equity method investment, and its results are not consolidated in our consolidated financial statements. Sirius XM Canada does not meet the requirements for consolidation as we do not have the ability to direct the most significant activities that impact Sirius XM Canada's economic performance.

On March 15, 2022, we entered into an amended and restated services and distribution agreement with Sirius XM Canada. The amended and restated services and distribution agreement modified the existing Services Agreement and terminated the existing Advisory Agreement, each dated as of May 25, 2017, between us and Sirius XM Canada. Pursuant to the amended and restated services and distribution agreement, the fee payable by Sirius XM Canada to us was modified from a fixed percentage of revenue to a variable fee, based on a target operating profit for Sirius XM Canada. Such variable fee is expected to be evaluated annually based on comparable companies. In accordance with the amended and restated services and distribution agreement, the fee is payable on a monthly basis, in arrears, beginning January 1, 2022.

In May 2017, we extended a loan to Sirius XM Canada in the principal amount of $131. Prior to the March 2022 amendment, cumulative note repayments by Sirius XM Canada were $10. In connection with the execution of the amended and restated services and distribution agreement, we forgave $113 in principal amount of such loan to Sirius XM Canada, leaving an outstanding principal amount of $8 on such loan. The principal amount that was forgiven by us was considered satisfied and as contributed capital from us.

Our related party long-term assets as of December 31, 2022 and December 31, 2021 included the carrying value of our investment balance in Sirius XM Canada of $412 and $334, respectively, and, as of December 31, 2022 and December 31, 2021, also included $8 and $120, respectively, for the long-term value of the outstanding loan to Sirius XM Canada.

Sirius XM Canada paid gross dividends to us of $9, $2 and $2 during the years ended December 31, 2022, 2021 and 2020, respectively. Dividends are first recorded as a reduction to our investment balance in Sirius XM Canada to the extent a balance exists and then as Other (expense) income for any remaining portion.

We recorded revenue from Sirius XM Canada as Other revenue in our consolidated statements of comprehensive income of $111, $101 and $97 during the years ended December 31, 2022, 2021 and 2020, respectively.

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SoundCloud

We have an investment in SoundCloud which is accounted for as an equity method investment and recorded in Related party long-term assets in our consolidated balance sheets. Sirius XM has appointed two individuals to serve on SoundCloud's nine-member board of managers. Our share of SoundCloud's net loss was $6, $2 and $1 for the years ended December 31, 2022, 2021 and 2020, respectively, which was recorded in Other (expense) income in our consolidated statements of comprehensive income.

In addition to our investment in SoundCloud, Pandora has an agreement with SoundCloud to be its exclusive ad sales representative in the US and certain European countries. Through this arrangement, Pandora offers advertisers the ability to execute campaigns across the Pandora and SoundCloud platforms. We recorded revenue share expense related to this agreement of $55, $60 and $55 for the years ended December 31, 2022, 2021 and 2020, respectively. We also had related party liabilities of $19 and $24 as of December 31, 2022 and 2021, respectively, related to this agreement.

(12) Debt

Our debt as of December 31, 2022 and December 31, 2021 consisted of the following:

					Principal Amount at	Carrying value[a] at	
Issuer / Borrower	Issued	Debt	Maturity Date	Interest Payable	December 31, 2022	December 31, 2022	December 31, 2021
Pandora (c) (d)	June 2018	1.75% Convertible Senior Notes	December 1, 2023	semi-annually on June 1 and December 1	$ 193	$ 197	$ 220
Sirius XM (b) (f)	April 2022	Incremental Term Loan	April 11, 2024	variable fee paid monthly	500	500	—
Sirius XM (b)	August 2021	3.125% Senior Notes	September 1, 2026	semi-annually on March 1 and September 1	1,000	992	990
Sirius XM (b)	July 2017	5.00% Senior Notes	August 1, 2027	semi-annually on February 1 and August 1	1,500	1,492	1,491
Sirius XM (b)	June 2021	4.00% Senior Notes	July 15, 2028	semi-annually on January 15 and July 15	2,000	1,982	1,979
Sirius XM (b)	June 2019	5.500% Senior Notes	July 1, 2029	semi-annually on January 1 and July 1	1,250	1,240	1,239
Sirius XM (b)	June 2020	4.125% Senior Notes	July 1, 2030	semi-annually on January 1 and July 1	1,500	1,487	1,485
Sirius XM (b)	August 2021	3.875% Senior Notes	September 1, 2031	semi-annually on March 1 and September 1	1,500	1,485	1,484
Sirius XM (e)	December 2012	Senior Secured Revolving Credit Facility (the "Credit Facility")	August 31, 2026	variable fee paid quarterly	80	80	—
Sirius XM	Various	Finance leases	Various	n/a	n/a	12	—
Total Debt						9,467	8,888
Less: total current maturities						200	—
Less: total deferred financing costs						11	13
Total long-term debt						$ 9,256	$ 8,875

(a) The carrying value of the obligations is net of any remaining unamortized original issue discount.

(b) All material domestic subsidiaries, including Pandora and its subsidiaries, that guarantee the Credit Facility have guaranteed the incremental term loan and these notes.

(c) Holdings has unconditionally guaranteed all of the payment obligations of Pandora under these notes.

(d) We acquired $193 in principal amount of the 1.75% Convertible Senior Notes due 2023 as part of the acquisition of Pandora Media, Inc. in 2019. We elected to record the 1.75% Convertible Senior Notes due 2023 at fair value which will be remeasured each reporting period. The changes in fair value will be recorded in our consolidated statements of comprehensive income. The 1.75% Convertible Senior Notes due 2023 were not convertible into Holdings' common stock and were not redeemable as of December 31, 2022.

(e) In August 2021, we entered into an amendment to extend the maturity of the $1,750 Credit Facility to August 31, 2026. Our obligations under the Credit Facility are guaranteed by certain of our material domestic subsidiaries, including Pandora and its subsidiaries, and are secured by a lien on substantially all of our assets and the assets of our material domestic subsidiaries. Interest on borrowings is payable on a monthly basis and accrues at a rate based on LIBOR plus an applicable rate. We are also required to pay a variable fee on the average daily unused portion of the Credit Facility which is payable on a quarterly basis. The variable rate for the unused portion of the Credit Facility was 0.25% per annum as of December 31, 2022. Our outstanding borrowings under the Credit Facility are classified as Long-term debt within our consolidated balance sheets due to the long-term maturity of this debt.

(f) In April 2022, we entered into an amendment to the Credit Facility to incorporate an Incremental Term Loan borrowing of $500 which matures on April 11, 2024. Interest on the Incremental Term Loan borrowing is based on the Adjusted Term Secured Overnight Financing Rate plus an applicable rate.

Retired Debt

On August 2, 2021, we redeemed $1,000 in outstanding principal amount of the 3.875% Senior Notes due 2022 for an aggregate purchase price, including interest, of $1,019. On August 16, 2021, we redeemed $1,500 in outstanding principal amount of the 4.625% Senior Notes due 2024 for an aggregate purchase price, including premium and interest, of $1,541. On September 2, 2021, we redeemed $1,000 in outstanding principal amount of the 5.375% Senior Notes due 2026 for an aggregate purchase price, including premium and interest, of $1,034. During the year ended December 31, 2021, we recognized $83 to Loss on extinguishment of debt, consisting primarily of redemption premiums of $62, unamortized discount and unamortized deferred financing fees, as a result of these redemptions.

On July 9, 2020, we redeemed $500 of its then outstanding 4.625% Senior Notes due 2023 for an aggregate redemption price, including premium and interest, of $507. On July 9, 2020, we also redeemed $1,000 of its then outstanding 5.375% Senior Notes due 2025 for an aggregate redemption price, including premium and interest, of $1,039. During the year ended December 31, 2020, we recognized $40 to Loss on extinguishment of debt, consisting primarily of redemption premiums, unamortized discount and deferred financing fees, as a result of these redemptions.

Covenants and Restrictions

Under the Credit Facility, we must comply with a debt maintenance covenant that it cannot exceed a total leverage ratio, calculated as consolidated total debt to consolidated operating cash flow, of 5.0 to 1.0. The Credit Facility generally requires compliance with certain covenants that restrict our ability to, among other things, (i) incur additional indebtedness, (ii) incur liens, (iii) pay dividends or make certain other restricted payments, investments or acquisitions, (iv) enter into certain transactions with affiliates, (v) merge or consolidate with another person, (vi) sell, assign, lease or otherwise dispose of all or substantially all of our assets, and (vii) make voluntary prepayments of certain debt, in each case subject to exceptions.

The indentures governing our notes restrict our non-guarantor subsidiaries' ability to create, assume, incur or guarantee additional indebtedness without such non-guarantor subsidiary guaranteeing each such series of notes on a pari passu basis. The indentures governing the notes also contain covenants that, among other things, limit our ability and the ability of our subsidiaries to create certain liens; enter into sale/leaseback transactions; and merge or consolidate.

Under our debt agreements, the following generally constitute an event of default: (i) a default in the payment of interest; (ii) a default in the payment of principal; (iii) failure to comply with covenants; (iv) failure to pay other indebtedness after final maturity or acceleration of other indebtedness exceeding a specified amount; (v) certain events of bankruptcy; (vi) a judgment for payment of money exceeding a specified aggregate amount; and (vii) voidance of subsidiary guarantees, subject to grace periods where applicable. If an event of default occurs and is continuing, our debt could become immediately due and payable.

The indenture governing the Pandora 2023 Notes (as defined below) contains covenants that limit Pandora's ability to merge or consolidate and provides for customary events of default, which include nonpayment of principal or interest, breach of covenants, payment defaults or acceleration of other indebtedness and certain events of bankruptcy.

At December 31, 2022 and December 31, 2021, we were in compliance with our debt covenants.

Pandora Convertible Notes

Pandora's 1.75% Convertible Senior Notes due 2023 (the "Pandora 2023 Notes") are unsecured, senior obligations of Pandora. Holdings has guaranteed the payment and performance obligations of Pandora under the Pandora 2023 Notes and the indenture governing the Pandora 2023 Notes.

The Pandora 2023 Notes will mature on December 1, 2023, unless earlier repurchased or redeemed by Pandora or converted in accordance with their terms. As of December 31, 2022, the conversion rate applicable to the Pandora 2023 Notes was 162.7373 shares of Holdings' common stock per one thousand principal amount of the Pandora 2023 Notes.

(13) Stockholder Equity

Common Stock, par value $0.001 per share

We are authorized to issue up to 9,000 shares of common stock. There were 0.001 shares of common stock of Sirius XM issued and outstanding on December 31, 2022 and December 31, 2021, which were owned by Holdings.

Preferred Stock, par value $0.001 per share

We are authorized to issue up to 50 shares of undesignated preferred stock with a liquidation preference of $0.001 per share. There were no shares of preferred stock issued or outstanding as of December 31, 2022 and December 31, 2021.

(14) Benefit Plans

We recognized share-based payment expense of $197, $202 and $223 for the years ended December 31, 2022, 2021 and 2020, respectively.

We account for equity instruments granted in accordance with ASC 718, *Compensation - Stock Compensation*. ASC 718 requires all share-based compensation payments to be recognized in the financial statements based on fair value. We use the Black-Scholes-Merton option-pricing model to value stock option awards and have elected to treat awards with graded vesting as a single award. Share-based compensation expense is recognized ratably over the requisite service period, which is generally the vesting period. We measure restricted stock unit awards using the fair market value of the restricted shares of common stock on the day the award is granted. We measure the value of restricted units that will vest depending a relative total stockholder return metric – that is, the performance of our common stock as compared other companies included in the S&P 500 Index – using a special option-based valuation method, known as a Monte Carlo simulation. Since the results of such awards depend on future results, which are not known on the grant date, the Monte Carlo simulation attempts to take into consideration the terms of the awards, potential future returns, payout rates, and other factors to estimate a fair value of the award. The Monte Carlo simulation method uses factual data for the company and employs various assumptions. Stock-based awards granted to employees, non-employees and members of our board of directors include stock options and restricted stock units.

Fair value as determined using the Black-Scholes-Merton model varies based on assumptions used for the expected life, expected stock price volatility, expected dividend yield and risk-free interest rates. For the years ended December 31, 2022, 2021 and 2020, we estimated the fair value of awards granted using the hybrid approach for volatility, which weights observable historical volatility and implied volatility of qualifying actively traded options on Holdings' common stock. The expected life assumption represents the weighted-average period stock-based awards are expected to remain outstanding. These expected life assumptions are established through a review of historical exercise behavior of stock-based award grants with similar vesting periods. Where historical patterns do not exist for non-employees, contractual terms are used. Dividend yield is based on the current expected annual dividend per share and our stock price. The risk-free interest rate represents the daily treasury yield curve rate at the grant date based on the closing market bid yields on actively traded U.S. treasury securities in the over-the-counter market for the expected term. Our assumptions may change in future periods.

2015 Long-Term Stock Incentive Plan

In May 2015, Holdings' stockholders approved the Sirius XM Holdings Inc. 2015 Long-Term Stock Incentive Plan (the "2015 Plan"). Employees, consultants and members of Holdings' board of directors are eligible to receive awards under the

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2015 Plan. The 2015 Plan provides for the grant of stock options, restricted stock awards, restricted stock units and other stock-based awards that the Compensation Committee of Holdings' Board of Directors deems appropriate. Stock-based awards granted under the 2015 Plan are generally subject to a graded vesting requirement, which is generally three to four years from the grant date. Stock options generally expire ten years from the date of grant. Restricted stock units include performance-based restricted stock units ("PRSUs"), the vesting of which are subject to the achievement of performance goals and the employee's continued employment and generally cliff vest on the third anniversary of the grant date. Each restricted stock unit entitles the holder to receive one share of common stock upon vesting. As of December 31, 2022, 122 shares of common stock were available for future grants under the 2015 Plan.

The Compensation Committee intends to award equity-based compensation to our senior management in the form of: 25% stock options, which awards will vest in equal installments on the first three anniversaries of the date of grant; 25% restricted stock units, which awards will vest in equal installments on the first three anniversaries of the date of grant; 25% PRSUs, which will cliff vest on the third anniversary of the date of grant after a two-year performance period if the free cash flow target established by the Compensation Committee is achieved; and 25% PRSUs, which will cliff vest after a three-year performance period based on the performance of our common stock relative to the companies included in the S&P 500 Index. We refer to this performance measure as a relative "TSR" or "total stockholder return" metric. PRSUs based on the relative total stockholder return metric will only vest if our performance achieves at least the 25th percentile, with a target payout requiring performance at the 50th percentile. The settlement of PRSUs earned in respect of the applicable three-year performance period will be generally subject to the executive's continued employment with us through the date the total stockholder return performance is certified by the Compensation Committee.

Other Plans

We maintain six share-based benefit plans in addition to the 2015 Plan — the Sirius XM Radio Inc. 2009 Long-Term Stock Incentive Plan, the Amended and Restated Sirius Satellite Radio 2003 Long-Term Stock Incentive Plan, the 2014 Stock Incentive Plan of AdsWizz Inc., the Pandora Media, Inc. 2011 Equity Incentive Plan, the Pandora Media, Inc. 2004 Stock Plan and the TheSavageBeast.com, Inc. 2000 Stock Incentive Plan. Excluding dividend equivalent units granted as a result of a declared dividend, no further awards may be made under these plans.

The following table summarizes the weighted-average assumptions used to compute the fair value of options granted to employees, members of our board of directors and non-employees:

	For the Years Ended December 31,		
	2022	2021	2020
Risk-free interest rate	2.0%	0.6%	1.0%
Expected life of options — years	3.40	6.06	3.91
Expected stock price volatility	31%	33%	28%
Expected dividend yield	1.3%	1.0%	0.8%

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The following table summarizes stock option activity under our share-based plans for the years ended December 31, 2022, 2021 and 2020:

	Options	Weighted-Average Exercise Price Per Share (1)	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value
Outstanding at the beginning of January 1, 2020	208	$ 4.46		
Granted	11	$ 6.87		
Exercised	(33)	$ 3.66		
Forfeited, cancelled or expired	(2)	$ 6.28		
Outstanding as of December 31, 2020	184	$ 4.73		
Granted	54	$ 6.14		
Exercised	(72)	$ 3.98		
Forfeited, cancelled or expired	(5)	$ 6.73		
Outstanding as of December 31, 2021	161	$ 5.47		
Granted	11	$ 6.46		
Exercised	(35)	$ 4.31		
Forfeited, cancelled or expired	(3)	$ 6.52		
Outstanding as of December 31, 2022	134	$ 5.55	5.44	$ 69
Exercisable as of December 31, 2022	78	$ 5.18	4.58	$ 69

(1) On February 25, 2022, we paid a special dividend which resulted in a $0.25 reduction to the exercise price of all options outstanding as of February 11, 2022. The table above reflects the exercise price reduction for all stock option activity during the year ended December 31, 2022 and for the outstanding and exercisable balances as of December 31, 2022. Stock option activity and balances prior to January 1, 2022 were not adjusted in the table above.

The weighted average grant date fair value per stock option granted during the years ended December 31, 2022, 2021 and 2020 was $1.48, $1.77 and $1.46, respectively. The total intrinsic value of stock options exercised during the years ended December 31, 2022, 2021 and 2020 was $77, $170 and $94, respectively.

We recognized share-based payment expense associated with stock options of $35, $42 and $45 for the years ended December 31, 2022, 2021 and 2020, respectively.

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The following table summarizes the restricted stock unit, including PRSU, activity under our share-based plans for the years ended December 31, 2022, 2021 and 2020:

	Shares	Grant Date Fair Value Per Share
Nonvested at the beginning of January 1, 2020	75	$ 5.95
Granted	37	$ 6.14
Vested	(32)	$ 5.89
Forfeited	(5)	$ 6.00
Nonvested as of December 31, 2020	75	$ 6.06
Granted	40	$ 6.35
Vested	(26)	$ 6.02
Forfeited	(9)	$ 6.11
Nonvested as of December 31, 2021	80	$ 6.22
Granted	46	$ 6.55
Vested	(32)	$ 6.18
Forfeited	(9)	$ 6.36
Nonvested as of December 31, 2022	85	$ 6.38

The total intrinsic value of restricted stock units, including PRSUs, vesting during the years ended December 31, 2022, 2021 and 2020 was $207, $166 and $196, respectively. During the years ended December 31, 2022, 2021 and 2020, we granted 6, 7 and 4 PRSUs, respectively, to certain employees. We believe it is probable that the performance target applicable to these PRSUs will be achieved.

In connection with the cash dividends paid during each of the years ended December 31, 2022, 2021 and 2020, we granted 4, 1 and 1 restricted stock units, including PRSUs, in accordance with the terms of existing award agreements, respectively. These grants did not result in any additional incremental share-based payment expense being recognized during the years ended December 31, 2022, 2021 and 2020.

We recognized share-based payment expense associated with restricted stock units, including PRSUs, of $162, $160 and $178 for the years ended December 31, 2022, 2021 and 2020, respectively.

Total unrecognized compensation costs related to unvested share-based payment awards for stock options and restricted stock units, including PRSUs, granted to employees, members of our board of directors and third parties at December 31, 2022 and December 31, 2021 was $472 and $455, respectively. The total unrecognized compensation costs at December 31, 2022 are expected to be recognized over a weighted-average period of 2.5 years.

401(k) Savings Plans

We sponsor the Sirius XM Radio Inc. 401(k) Savings Plan (the “Sirius XM Plan”) for eligible employees. The Sirius XM Plan allows eligible employees to voluntarily contribute from 1% to 50% of their pre-tax eligible earnings, subject to certain defined limits. We match 50% of an employee’s voluntary contributions per pay period on the first 6% of an employee’s pre-tax salary up to a maximum of 3% of eligible compensation. We may also make additional discretionary matching, true-up matching and non-elective contributions to the Sirius XM Plan. Employer matching contributions under the Sirius XM Plan vest at a rate of 33.33% for each year of employment and are fully vested after three years of employment for all current and future contributions. Our cash employer matching contributions are not used to purchase shares of Holdings' common stock on the open market, unless the employee elects Holdings' common stock as their investment option for this contribution.

We recognized expenses of $19, $21 and $16 for the years ended December 31, 2022, 2021 and 2020, respectively, in connection with the Sirius XM Plan.

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Sirius XM Holdings Inc. Deferred Compensation Plan

The Sirius XM Holdings Inc. Deferred Compensation Plan (the "DCP") allows members of Holdings' board of directors and certain eligible employees to defer all or a portion of their base salary, cash incentive compensation and/or board of directors' cash compensation, as applicable. Pursuant to the terms of the DCP, Holdings or any of its subsidiaries may elect to make additional contributions beyond amounts deferred by participants, but is under no obligation to do so. Holdings has established a grantor (or "rabbi") trust to facilitate the payment of its obligations under the DCP.

Contributions to the DCP, net of withdrawals, for the years ended December 31, 2022, 2021 and 2020 were $(1), $4 and $8, respectively. As of December 31, 2022 and December 31, 2021, the fair value of the investments held in the trust were $47 and $56, respectively, which is included in Other long-term assets in our consolidated balance sheets and classified as trading securities. Trading gains and losses associated with these investments are recorded in Other (expense) income within our consolidated statements of comprehensive income. The associated liability is recorded within Other long-term liabilities in our consolidated balance sheets, and any increase or decrease in the liability is recorded in General and administrative expense within our consolidated statements of comprehensive income. We recorded (losses) gains on investments held in the trust of $(10), $5 and $3 for the years ended December 31, 2022, 2021 and 2020, respectively.

(15) Commitments and Contingencies

The following table summarizes our expected contractual cash commitments as of December 31, 2022:

	2023	2024	2025	2026	2027	Thereafter	Total
Debt obligations	$ 196	$ 503	$ 4	$ 1,082	$ 1,500	$ 6,250	$ 9,535
Cash interest payments	417	392	384	381	344	636	2,554
Satellite and transmission	282	232	124	60	2	10	710
Programming and content	392	284	218	125	61	110	1,190
Sales and marketing	65	72	63	16	5	—	221
Satellite incentive payments	7	8	7	4	3	15	44
Operating lease obligations	64	50	46	43	38	67	308
Royalties, minimum guarantees and other	346	241	56	38	1	1	683
Total (1)	$ 1,769	$ 1,782	$ 902	$ 1,749	$ 1,954	$ 7,089	$ 15,245

(1) The table does not include our reserve for uncertain tax positions, which at December 31, 2022 totaled $81.

Debt obligations. Debt obligations include principal payments on outstanding debt and finance lease obligations.

Cash interest payments. Cash interest payments include interest due on outstanding debt and capital lease payments through maturity.

Satellite and transmission. We have entered into agreements for the design and construction of four additional satellites, SXM-9, SXM-10, SXM-11 and SXM-12. We have also entered into agreements to launch two of those satellites. We also have entered into agreements with third parties to operate and maintain satellite telemetry, tracking and control facilities and certain components of our terrestrial repeater networks.

Programming and content. We have entered into various programming and content agreements. Under the terms of these agreements, our obligations include fixed payments, advertising commitments and revenue sharing arrangements. In certain of these agreements, the future revenue sharing costs are dependent upon many factors and are difficult to estimate; therefore, they are not included in our minimum contractual cash commitments.

Sales and marketing. We have entered into various marketing, sponsorship and distribution agreements to promote our brands and are obligated to make payments to sponsors, retailers, automakers, radio manufacturers and other third parties under these agreements. Certain programming and content agreements also require us to purchase advertising on properties owned or controlled by the licensors.

Satellite incentive payments. Maxar Technologies (formerly Space Systems/Loral), the manufacturer of certain of our in-orbit satellites, may be entitled to future in-orbit performance payments upon XM-5, SIRIUS FM-5, SIRIUS FM-6, and SXM-8 meeting their fifteen-year design life, which we expect to occur.

Operating lease obligations. We have entered into both cancelable and non-cancelable operating leases for office space, terrestrial repeaters, data centers and equipment. These leases provide for minimum lease payments, additional operating expense charges, leasehold improvements and rent escalations that have initial terms ranging from one to fifteen years, and certain leases have options to renew. Total rent recognized in connection with leases for the years ended December 31, 2022, 2021 and 2020 was $68, $69 and $73, respectively.

Royalties, Minimum Guarantees and Other. We have entered into music royalty arrangements that include fixed payments. In addition, certain of our podcast agreements also contain minimum guarantees. As of December 31, 2022, we had future fixed commitments related to music royalty and podcast agreements of $484, of which $217 will be paid in 2023 and the remainder will be paid thereafter. On a quarterly basis, we record the greater of the cumulative actual content costs incurred or the cumulative minimum guarantee based on forecasted usage for the minimum guarantee period. The minimum guarantee period is the period of time that the minimum guarantee relates to, as specified in each agreement, which may be annual or a longer period. The cumulative minimum guarantee, based on forecasted usage, considers factors such as listening hours, downloads, revenue, subscribers and other terms of each agreement that impact our expected attainment or recoupment of the minimum guarantees based on the relative attribution method.

Several of our content agreements also include provisions related to the royalty payments and structures of those agreements relative to other content licensing arrangements, which, if triggered, cause our payments under those agreements to escalate. In addition, record labels, publishers and performing rights organizations with whom we have entered into direct license agreements have the right to audit our content payments, and such audits often result in disputes over whether we have paid the proper content costs.

We have also entered into various agreements with third parties for general operating purposes. The cost of Holdings' common stock acquired in Holdings' capital return program but not paid for as of December 31, 2022 was also included in this category.

In addition to the minimum contractual cash commitments described above, we have entered into other variable cost arrangements. These future costs are dependent upon many factors and are difficult to anticipate; however, these costs may be substantial. We may enter into additional programming, distribution, marketing and other agreements that contain similar variable cost provisions. We do not have any other significant off-balance sheet financing arrangements that are reasonably likely to have a material effect on our financial condition, results of operations, liquidity, capital expenditures or capital resources.

Legal Proceedings

In the ordinary course of business, we are a defendant or party to various claims and lawsuits, including those discussed below.

We record a liability when we believe that it is both probable that a liability will be incurred, and the amount of loss can be reasonably estimated. We evaluate developments in legal matters that could affect the amount of liability that has been previously accrued and make adjustments as appropriate. Significant judgment is required to determine both probability and the estimated amount of a loss or potential loss. We may be unable to reasonably estimate the reasonably possible loss or range of loss for a particular legal contingency for various reasons, including, among others, because: (i) the damages sought are indeterminate; (ii) the proceedings are in the relative early stages; (iii) there is uncertainty as to the outcome of pending proceedings (including motions and appeals); (iv) there is uncertainty as to the likelihood of settlement and the outcome of any negotiations with respect thereto; (v) there remain significant factual issues to be determined or resolved; (vi) the relevant law is unsettled; or (vii) the proceedings involve novel or untested legal theories. In such instances, there may be considerable uncertainty regarding the ultimate resolution of such matters, including the likelihood or magnitude of a possible eventual loss, if any.

Pre-1972 Sound Recording Litigation. On October 2, 2014, Flo & Eddie Inc. filed a class action suit against Pandora in the federal district court for the Central District of California. The complaint alleges a violation of California Civil Code Section 980, unfair competition, misappropriation and conversion in connection with the public performance of sound recordings recorded prior to February 15, 1972 (which we refer to as, "pre-1972 recordings"). On December 19, 2014, Pandora filed a motion to strike the complaint pursuant to California's Anti-Strategic Lawsuit Against Public Participation ("Anti-SLAPP") statute, which following denial of Pandora's motion was appealed to the Ninth Circuit Court of Appeals. In March 2017, the Ninth Circuit requested certification to the California Supreme Court on the substantive legal questions. The California Supreme Court accepted certification. In May 2019, the California Supreme Court issued an order dismissing consideration of the certified questions on the basis that, following the enactment of the Orrin G. Hatch-Bob Goodlatte Music Modernization Act, Pub. L. No. 115-264, 132 Stat. 3676 (2018) (the "MMA"), resolution of the questions posed by the Ninth Circuit Court of Appeals was no longer "necessary to . . . settle an important question of law."

The MMA grants a potential federal preemption defense to the claims asserted in the aforementioned lawsuits. In July 2019, Pandora took steps to avail itself of this preemption defense, including making the required payments under the MMA for certain of its uses of pre-1972 recordings. Based on the federal preemption contained in the MMA (along with other considerations), Pandora asked the Ninth Circuit to order the dismissal of the *Flo & Eddie, Inc. v. Pandora Media, Inc.* case. On October 17, 2019, the Ninth Circuit Court of Appeals issued a memorandum disposition concluding that the question of whether the MMA preempts Flo and Eddie's claims challenging Pandora's performance of pre-1972 recordings "depends on various unanswered factual questions" and remanded the case to the District Court for further proceedings.

In October 2020, the District Court denied Pandora's renewed motion to dismiss the case under California's anti-SLAPP statute, finding the case no longer qualified for anti-SLAPP due to intervening changes in the law, and denied Pandora's renewed attempt to end the case. Alternatively, the District Court ruled that the preemption defense likely did not apply to Flo & Eddie's claims, in part because the District Court believed that the MMA did not apply retroactively. Pandora promptly appealed the District Court's decision to the Ninth Circuit, and moved to stay appellate briefing pending the appeal of a related case against Sirius XM. On January 13, 2021, the Ninth Circuit issued an order granting the stay of appellate proceedings pending the resolution of a related case against Sirius XM.

On August 23, 2021, the United States Court of Appeals for the Ninth Circuit issued an Opinion in a related case, *Flo & Eddie Inc. v. Sirius XM Radio Inc.* The related case also concerned a class action suit brought by Flo & Eddie Inc. regarding the public performance of pre-1972 recordings under California law. Relying on California's copyright statute, Flo & Eddie argued that California law gave it the "exclusive ownership" of its pre-1972 songs, including the right of public performance. The Ninth Circuit reversed the District Court's grant of partial summary judgment to Flo & Eddie Inc. The Ninth Circuit held that the District Court in this related case erred in concluding that "exclusive ownership" under California's copyright statute included the right of public performance. The Ninth Circuit remanded the case for entry of judgment consistent with the terms of the parties' contingent settlement agreement, and on October 6, 2021, the parties to the related case stipulated to its dismissal with prejudice. The *Flo & Eddie Inc. v. Sirius XM Radio Inc.* decision is precedential in the Ninth Circuit, and therefore we believe substantially narrows the claims that Flo & Eddie may continue to assert against Pandora.

Following issuance of the *Flo & Eddie Inc. v. Sirius XM Radio Inc.* opinion, on September 3, 2021, the Ninth Circuit lifted the stay of appellate proceedings in *Flo & Eddie, Inc. v. Pandora Media, LLC*. Pandora promptly filed an appeal of the District Court's order denying the renewed motion to dismiss the case under California's anti-SLAAP statute.

On June 2, 2022, the Ninth Circuit upheld the District Court's order denying dismissal of the case under California's anti-SLAPP statute, finding that Pandora had failed to demonstrate that Flo & Eddie's claims arise from Pandora's protected conduct. As part of the decision, the Ninth Circuit noted that Pandora had forcefully argued that the Court's decision in *Flo & Eddie Inc. v. Sirius XM Radio Inc.,* and other decisions under New York, Florida and Georgia law, foreclosed Flo & Eddie's claims as a matter of law. Because the case has been pending for over seven years, the Ninth Circuit remanded the case to the District Court and directed "the district court to consider expedited motions practice on the legal validity of Flo & Eddie's claims in light of the intervening precedent."

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On September 29, 2022, Flo & Eddie filed an Amended Complaint, and on October 13, 2022, Pandora filed an Answer to the Amended Complaint. In accordance with the directive of the Ninth Circuit, the parties have agreed to a schedule for a Motion for Summary Judgment. In November 2022, Pandora filed a Motion for Summary Judgment and briefing on this Motion is expected to be completed in February 2023.

Other Matters. In the ordinary course of business, we are a defendant in various other lawsuits and arbitration proceedings, including derivative actions; actions filed by subscribers, both on behalf of themselves and on a class action basis; former employees; parties to contracts or leases; and owners of patents, trademarks, copyrights or other intellectual property. None of these other matters, in our opinion, is likely to have a material adverse effect on our business, financial condition or results of operations.

(16) Income Taxes

Current federal income tax expense or benefit represents the amounts expected to be reported on our income tax return, and deferred income tax expense or benefits represents the change in net deferred tax assets and liabilities. Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities as measured by the enacted income tax rates that will be in effect when these differences reverse. The current state income tax provision is primarily related to taxable income in certain states that have suspended or limited the ability to use net operating loss carryforwards or where net operating losses have been fully utilized. Income tax expense is the sum of current income tax plus the change in deferred tax assets and liabilities.

We have historically filed a consolidated federal income tax return for all of our wholly owned subsidiaries, including Sirius XM and Pandora. On February 1, 2021, we entered into a tax sharing agreement with Liberty Media governing the allocation of consolidated U.S. income tax liabilities and setting forth agreements with respect to other tax matters. The tax sharing agreement contains provisions that we believe are customary for tax sharing agreements between members of a consolidated group. On November 3, 2021, Liberty Media informed us that it beneficially owned over 80% of the outstanding shares of our common stock, resulting in our inclusion in the 2021 consolidated tax return of Liberty Media. The tax sharing agreement and our inclusion in Liberty Media's consolidated tax group is not expected to have any material adverse effect on us. We have calculated the provision for income taxes by using a separate return method.

Our current tax expense is the amount of tax payable on the basis of a hypothetical, current-year separate return. We provided deferred taxes on temporary differences and on any carryforwards that we could claim on our hypothetical return and assess the need for a valuation allowance on the basis of our projected separate return results. Any difference between the tax expense (or benefit) allocated to us under the separate return method and payments to be made for (or received from) Liberty Media for tax expense are treated as either dividends or capital contributions.

Income tax expense consisted of the following:

	For the Years Ended December 31,		
	2022	2021	2020
Current taxes:			
Federal	$ (140)	$ (31)	$ —
State	(50)	(50)	(61)
Total current taxes	(190)	(81)	(61)
Deferred taxes:			
Federal	(169)	(210)	(220)
State	(40)	79	(20)
Total deferred taxes	(209)	(131)	(240)
Total income tax expense	$ (399)	$ (212)	$ (301)

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The following table presents a reconciliation of the U.S. federal statutory tax rate and our effective tax rate:

	For the Years Ended December 31,		
	2022	2021	2020
Federal tax expense, at statutory rate	21.0 %	21.0 %	21.0 %
State income tax expense, net of federal benefit	4.1 %	4.1 %	4.2 %
Change in valuation allowance	2.1 %	1.5 %	0.7 %
Tax credits	(1.5)%	(4.7)%	(9.7)%
Share-based compensation	(0.8)%	(1.0)%	(3.5)%
Impact of nondeductible compensation	0.8 %	0.6 %	2.6 %
Automatic worthless stock deduction	— %	— %	(3.5)%
Goodwill impairment	— %	— %	50.4 %
Uncertain tax positions	(0.7)%	(0.1)%	4.4 %
Audit Settlements	— %	(7.6)%	— %
Other, net	(0.5)%	0.1 %	(1.2)%
Effective tax rate	24.5 %	13.9 %	65.4 %

Our effective tax rate of 24.5% for the year ended December 31, 2022 was primarily impacted by federal and state income tax expense as well as changes in state valuation allowance, partially offset by a benefit related to research and development and certain other credits. Our effective tax rate of 13.9% for the year ended December 31, 2021 was primarily impacted by federal and state income tax expense, partially offset by settlements with various states as well as a benefit related to research and development and certain other credits. Our effective tax rate of 65.4% for the year ended December 31, 2020 was primarily impacted by the nondeductible Pandora goodwill impairment charge, partially offset by the recognition of excess tax benefits related to share-based compensation, a benefit related to state and federal research and development and certain other credits and a worthless stock deduction associated with the termination of the Automatic service.

Deferred income taxes are recognized for the tax consequences related to temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for tax purposes at each year-end, based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences can be carried forward under tax law. Our evaluation of the realizability of deferred tax assets considers both positive and negative evidence, including historical financial performance, scheduled reversal of deferred tax assets and liabilities, projected taxable income and tax planning strategies. The weight given to the potential effects of positive and negative evidence is based on the extent to which it can be objectively verified. A valuation allowance is recognized when, based on the weight of all available evidence, it is considered more likely than not that all, or some portion, of the deferred tax assets will not be realized.

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The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities, shown before jurisdictional netting, are presented below:

	For the Years Ended December 31,	
	2022	2021
Deferred tax assets:		
Net operating loss carryforwards and tax credits	$ 405	$ 681
Deferred revenue	45	52
Accrued bonus	28	35
Expensed costs capitalized for tax	66	9
Investments	23	20
Stock based compensation	54	57
Operating lease liability	94	104
Other	18	26
Total deferred tax assets	733	984
Deferred tax liabilities:		
Depreciation of property and equipment	(206)	(286)
FCC license	(520)	(522)
Other intangible assets	(234)	(263)
Right of use asset	(77)	(89)
Other	—	(8)
Total deferred tax liabilities	(1,037)	(1,168)
Net deferred tax assets before valuation allowance	(304)	(184)
Valuation allowance	(113)	(83)
Total net deferred tax (liability) asset	$ (417)	$ (267)

Net operating loss carryforwards and tax credits decreased as a result of the utilization of net operating losses related to current year taxable income. For the years ended December 31, 2022 and 2021, we recorded $25 and $71 for state and federal tax credits, respectively. As of December 31, 2022, our gross federal net operating loss carryforwards were approximately $423 which are subject to Section 382 limitations.

As of December 31, 2022 and 2021, we had a valuation allowance related to deferred tax assets of $113 and $83, respectively, that were not likely to be realized due to the timing of certain federal and state net operating loss limitations. During the year ended December 31, 2022, our valuation allowance increased primarily as a result of the impact of decrease in forecasted earnings, resulting in lower projected utilization of state and local net operating losses. This was partially offset by a write off of a valuation allowance that was recorded on net operating losses that expired during the current year. As a portion of these net operating losses are not anticipated to be realizable, we increased our valuation allowance for those expected to expire un-utilized based on taxable income projections.

ASC 740, *Income Taxes*, requires a company to first determine whether it is more likely than not that a tax position will be sustained based on its technical merits as of the reporting date, assuming that taxing authorities will examine the position and have full knowledge of all relevant information. A tax position that meets this more likely than not threshold is then measured and recognized at the largest amount of benefit that is greater than fifty percent likely to be realized upon effective settlement with a taxing authority. If the tax position is not more likely than not to be sustained, the gross amount of the unrecognized tax position will not be recorded in the financial statements but will be shown in tabular format within the uncertain income tax positions. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs due to the following conditions: (1) the tax position is “more likely than not” to be sustained, (2) the tax position, amount, and/or timing is ultimately settled through negotiation or litigation, or (3) the statute of limitations for the tax position has expired. A number of years may elapse before an uncertain tax position is effectively settled or until there is a lapse in the applicable statute of limitations. We record interest and penalties related to uncertain tax positions in Income tax expense in our consolidated statements of comprehensive income.

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As of December 31, 2022 and 2021, we had unrecognized tax benefits and uncertain tax positions of $198 and $179, respectively. If recognized, $198 of unrecognized tax benefits would affect our effective tax rate. Uncertain tax positions are recognized in Other long-term liabilities which, as of December 31, 2022 and 2021, were $81 and $35, respectively, including accrued interest.

We have state income tax audits pending. We do not expect the ultimate outcome of these audits to have a material adverse effect on our financial position or results of operations. We also do not currently anticipate that our existing reserves related to uncertain tax positions as of December 31, 2022 will significantly increase or decrease during the year ending December 31, 2023. Various events could cause our current expectations to change. Should our position with respect to the majority of these uncertain tax positions be upheld, the effect would be recorded in our consolidated statements of comprehensive income as part of the income tax provision. We recorded interest expense of $(3) and $1 for the years ended December 31, 2022 and 2021, respectively, related to unrecognized tax benefits.

Changes in our unrecognized tax benefits and uncertain tax positions from January 1 through December 31 are set forth below:

	2022	2021
Balance, beginning of year	$ 179	$ 433
Increases in tax positions for prior years	3	9
Increases in tax positions for current year	31	13
Decreases in tax positions for prior years	(15)	(24)
Decreases related to settlement with taxing authorities	—	(252)
Balance, end of year	$ 198	$ 179

On August 16, 2022, the Inflation Reduction Act of 2022, or IRA, was signed into law. Among other things, the IRA imposes a 15% corporate alternative minimum tax for tax years beginning after December 31, 2022, levies a 1% excise tax on net stock repurchases after December 31, 2022, and provides tax incentives to promote clean energy. Beginning in 2023, our net stock repurchases will be subject to the excise tax. Based on the historical net repurchase activity, the excise tax and the other provisions of the IRA are not expected to have a material impact on our results of operations or financial position.

(17) Segments and Geographic Information

In accordance with FASB ASC Topic 280, *Segment Reporting*, we disaggregate our operations into two reportable segments: Sirius XM and Pandora and Off-platform. The financial results of these segments are utilized by the chief operating decision maker, who is our Chief Executive Officer, for evaluating segment performance and allocating resources. We report our segment information based on the "management" approach. The management approach designates the internal reporting used by management for making decisions and assessing performance as the source of our reportable segments. For additional information on our segments refer to Note 1.

Segment results include the revenues and cost of services which are directly attributable to each segment. There are no indirect revenues or costs incurred that are allocated to the segments. There are planned intersegment advertising campaigns which will be eliminated. We had less than $1 of intersegment advertising revenue during the years ended December 31, 2022 and 2021.

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Segment revenue and gross profit were as follows during the periods presented:

	For the Year Ended December 31, 2022		
	Sirius XM	Pandora and Off-platform	Total
Revenue			
Subscriber revenue	$ 6,370	$ 522	$ 6,892
Advertising revenue	196	1,576	1,772
Equipment revenue	189	—	189
Other revenue	150	—	150
Total revenue	6,905	2,098	9,003
Cost of services [(a)]	(2,641)	(1,443)	(4,084)
Segment gross profit	$ 4,264	$ 655	$ 4,919

The reconciliation between reportable segment gross profit to consolidated income before income tax is as follows:

	For the Year Ended December 31, 2022
Segment Gross Profit	$ 4,919
Subscriber acquisition costs	(352)
Sales and marketing [(a)]	(1,023)
Engineering, design and development [(a)]	(246)
General and administrative [(a)]	(465)
Depreciation and amortization	(536)
Share-based payment expense	(197)
Impairment, restructuring and acquisition costs	(64)
Total other (expense) income	(406)
Consolidated income before income taxes	$ 1,630

(a) Share-based payment expense of $46 related to cost of services, $52 related to sales and marketing, $39 related to engineering, design and development and $60 related to general and administrative has been excluded for the year ended December 31, 2022.

	For the Year Ended December 31, 2021		
	Sirius XM	Pandora and Off-platform	Total
Revenue			
Subscriber revenue	$ 6,084	$ 530	$ 6,614
Advertising revenue	188	1,542	1,730
Equipment revenue	201	—	201
Other revenue	151	—	151
Total revenue	6,624	2,072	8,696
Cost of services [(b)]	(2,594)	(1,329)	(3,923)
Segment gross profit	$ 4,030	$ 743	$ 4,773

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The reconciliation between reportable segment gross profit to consolidated income before income tax is as follows:

	For the Year Ended December 31, 2021
Segment Gross Profit	$ 4,773
Subscriber acquisition costs	(325)
Sales and marketing [(b)]	(998)
Engineering, design and development [(b)]	(229)
General and administrative [(b)]	(451)
Depreciation and amortization	(533)
Share-based payment expense	(202)
Impairment, restructuring and acquisition costs	(20)
Total other (expense) income	(486)
Consolidated income before income taxes	$ 1,529

(b) Share-based payment expense of $45 related to cost of services, $58 related to sales and marketing, $36 related to engineering, design and development and $63 related to general and administrative has been excluded for the year ended December 31, 2021.

	For the Year Ended December 31, 2020		
	Sirius XM	Pandora and Off-platform	Total
Revenue			
Subscriber revenue	$ 5,857	$ 515	$ 6,372
Advertising revenue	157	1,183	1,340
Equipment revenue	173	—	173
Other revenue	155	—	155
Total revenue	6,342	1,698	8,040
Cost of services [(c)]	(2,430)	(1,105)	(3,535)
Segment gross profit	$ 3,912	$ 593	$ 4,505

The reconciliation between reportable segment gross profit to consolidated income before income tax is as follows:

	For the Year Ended December 31, 2020
Segment Gross Profit	$ 4,505
Subscriber acquisition costs	(362)
Sales and marketing [(c)]	(889)
Engineering, design and development [(c)]	(220)
General and administrative [(c)]	(443)
Depreciation and amortization	(506)
Share-based payment expense	(223)
Impairment, restructuring and acquisition costs	(1,004)
Total other (expense) income	(398)
Consolidated income before income taxes	$ 460

(c) Share-based payment expense of $44 related to cost of services, $68 related to sales and marketing, $43 related to engineering, design and development and $68 related to general and administrative has been excluded for the year ended December 31, 2020.

A measure of segment assets is not currently provided to the Chief Executive Officer and has therefore not been provided.

As of December 31, 2022, long-lived assets were predominantly located in the United States. No individual foreign country represented a material portion of our consolidated revenue during the year ended December 31, 2022.

(18) Subsequent Events

Holdings' Capital Return Program

On January 25, 2023, Holdings' board of directors declared a quarterly dividend on Holdings' common stock in the amount of $0.0242 per share of Holdings' common stock payable on February 24, 2023 to Holdings' stockholders of record as of the close of business on February 9, 2023.