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China L2/L2+ Smart Car Audio Market Report, 2022

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Car audio research: ranking of L2+ smart car audio suppliers by market share

The National Development and Reform Commission has upgraded the development of intelligent vehicles to a national strategy as early as 2018. Recently, intelligent vehicles have fit into several national policies as key development goals. Strong market demand and favorable policies have enabled mass production of smart cars equipped with L2 driving assistance functions.

In China, L2/L2+ (OTA-enabled) smart cars embrace all mainstream models on offer, such as Tesla Model S/Y, BYD Han/Tang/Song, Li ONE, Xpeng P9 and NIO ES6/EC6. The audio configuration of these models not only leads the market in hardware but also in software. This report highlights audio system configurations and features of L2/L2+ (OTA-enabled) smart cars in China, and aims to analyze the intelligent development trends of car audio.

TOP 100 Smart Cars (L2+ + OTA) by Sales in China, 2021

Ranking	Model	Ranking	Model	Ranking	Model	Ranking	Model	Ranking	Model
1	Model Y	21	Roewe i5	41	Haval First Love	61	Emgrand	81	Aion S
2	Model 3	22	Teana	42	Cadillac CT5	62	Encore	82	Weltmeister EX5
3	Han	23	ID.4 CROZZ	43	Qashqai	63	Yixuan MAX	83	Trumpchi GS8
4	Li ONE	24	Lynk & Co 05	44	LaCrosse	64	Binyue	84	Venucia V-Online
5	**Haval H6**	**25**	**Cadillac XT6**	**45**	**Aion Y**	**65**	**SERES SF5**	**85**	**Xingyue**
6	Haval Big Dog	26	Enclave	46	WEY VV5	66	Roewe iMAX8	86	Denza X
7	Xpeng P7	27	Changan UNI-K	47	NETA U	67	BEIJING-X7	87	Mondeo
8	TANK 300	28	Qin PLUS	48	EMPOW 55	68	Haval F7	88	Roewe i6
9	Buick GL8	29	Corsair	49	Leapmotor T03	69	Geely Icon	89	Roewe MARVEL X
10	**Tang**	**30**	**Changan CS75**	**50**	**JETOUR X70**	**70**	**Bestune B70**	**90**	**Xpeng P5**
11	Geely Preface	31	Sportage R	51	Song PLUS	71	Equator	91	Roewe RX5
12	NIO ES6	32	NIO ES8	52	Aviator	72	MG 6	92	Hongqi HS7
13	ORA Good Cat	33	Envision	53	Arrizo 5	73	Taurus	93	HiPhi 1
14	Boyue	34	BMW 5 series	54	Cadillac CT6	74	Voyah FREE	94	Lanyue
15	**NIO EC6**	**35**	**Highlander**	**55**	**Focus**	**75**	**Geometry A**	**95**	**ARCFOX αT**
16	Song	36	Haval Chitu	56	Mocha	76	WEY VV7	96	EXEED TXL
17	Xingyue L	37	WEY VV6	57	Crown Kluger	77	Haval Shenshou	97	Verano
18	Explorer	38	Xpeng G3	58	Trumpchi GS4	78	ZEEKR 001	98	Leapmotor C11
19	Changan UNI-T	39	X-Trail	59	Edge	79	Versailles C5X	99	Wildlander Hybrid E+
20	**Hongqi H9**	**40**	**Haoyue**	**60**	**Haval H9**	**80**	**Haval F7x**	**100**	**Yixuan**

Note: see detailed sales data in the report.
Source: ResearchInChina

Ranking of L2/L2+ (OTA-enabled) Smart Car Audio Suppliers in China

From 2019 to 2022, the rising sales of smart cars (L2+ with OTA) in China are accompanied by the growing smart car audio installations. In 2021, the smart car audio sales hit 2.13 million sets, soaring by 131% on the previous year, a figure projected to surge to 7.55 million in 2025.

World-renowned audio brands take lion's share in China's L2/L2+ (OTA-enabled) smart car audio market. From 2021 to April 2022, the top three players were MartinLogan, Bose and Infinity, with a combined market share of over 50%; among the top ten brands, there was only one Chinese brand, Suzhou Sonavox Electronics.

L2/L2+ (OTA-enabled) Smart Car Audio Sales in China, 2019-2025E

Source: ResearchInChina

Ranking of L2/L2+ (OTA-enabled) Smart Car Audio Suppliers in China by Market Share, 2021

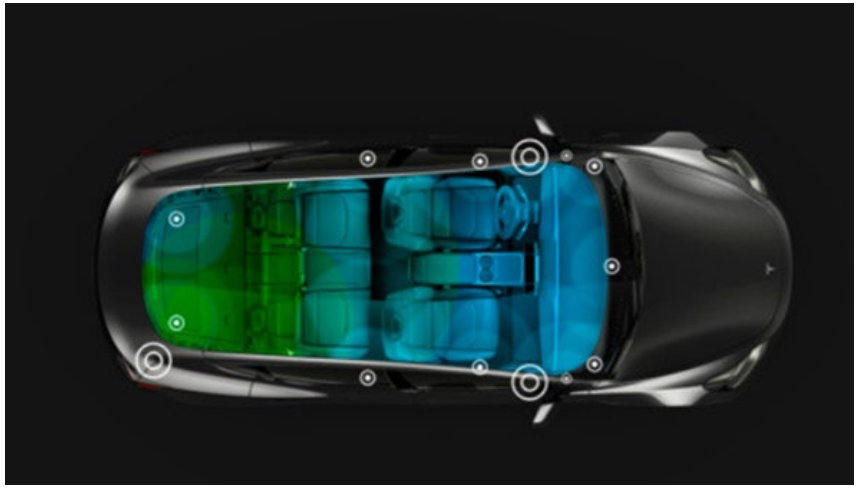
Ranking	Audio Brand	Market Share
1	MartinLogan	15.4%
2	BOSE	14.2%
3	Harman Infinity	12.3%
4	Dirac	6.3%
5	TEAC	4.4%
6	Sonavox	4.3%
7	Dynaudio	3.9%
8	Harman Kardon	1.8%
9	SONY	1.6%
10	Bang & Olufsen	1.6%

Note: the above ranking is carried out by ResearchInChina according to sales data of smart cars (L2/L2+, OTA-enabled) with car audio.

Source: ResearchInChina

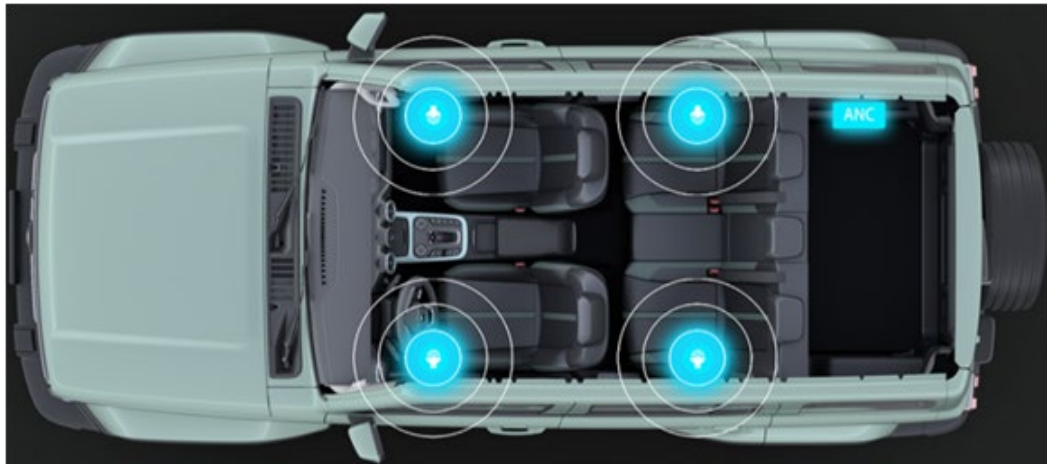
OEMs: the integration of software and hardware promote audio intelligence

As intelligent connected vehicles become widespread, conventional car audio systems have fell short of consumers' needs for intelligent, high-quality, scenario-based, personalized driving and rising experience. The rise of smart cars, especially new energy vehicles, gives a boost to a number of established car audio companies. Their most advanced hardware and software technologies become available to smart cars, letting consumers enjoy high-quality car audio systems that were once reserved for conventional high-end models.



Tesla

Tesla has partnered with MartinLogan, a giant American electrostatic speaker manufacturer. Model 3 packs MartinLogan's high-end audio systems, including 14 speakers and two amplifiers. In terms of hardware, Tesla Model 3 installs the 14 speakers in different positions inside to create surround sound effects. With its speaker patents and technology in zero distortion, MartinLogan further helps create studio-level dynamic sound effects for Model 3. As concerns software, Model 3 allows OTA updates on immersive sound and other sound effects via, and can also use the sound equalizer to adjust sound quality parameters according to user preferences.



Great Wall Motor

Great Wall Motor cooperates with Infinity, a subsidiary of Harman. TANK 300 is equipped with Harman Quantumlogic surround sound system, as well as 9 Infinity speakers and exterior independent power amplifiers, which ensures the best sound field in the car. As for software, Harman Quantumlogic can convert ordinary stereo or multi-channel sound sources into 7.1-channel surround sound effects, and also adopts the active noise-cancelling (ANC) technology to deliver cinema-level in-car sound quality and effects.

OEMs: the integration of software and hardware promote audio intelligence

BYD

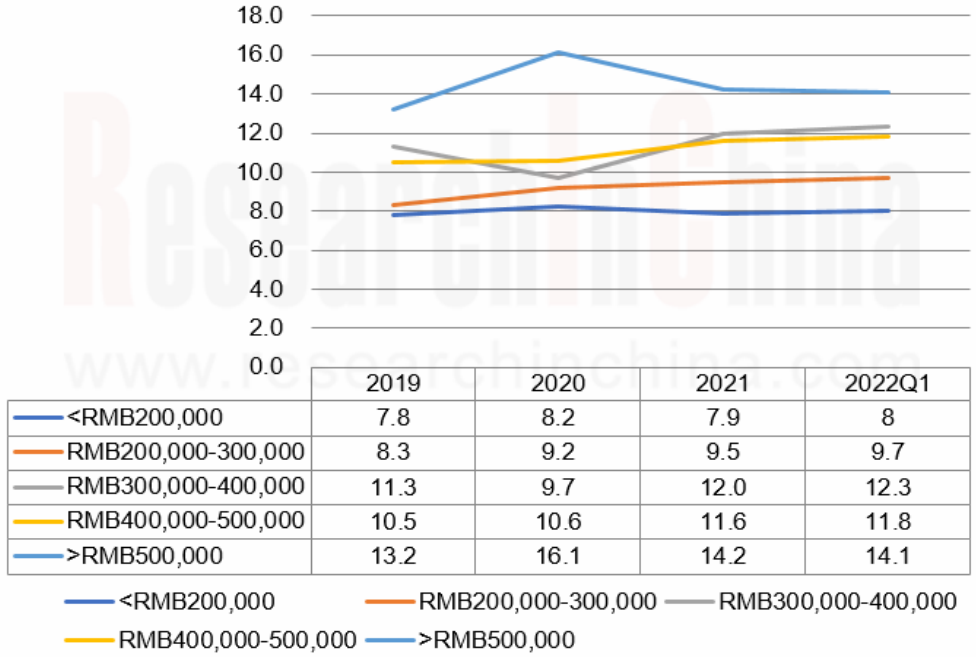
BYD Han EV is equipped with a new audio system tailored by Dynaudio. The whole car carries 12 Dynaudio speakers and independent amplifiers. With regard to hardware, 12 Dynaudio's own Magnesium Silicate Polymer diaphragm material (MSP) cones ensure full coverage of the sound field of the car. And the car also uses Dynaudio's 75mm dual voice coil speaker, coupled with the 10-inch dual voice coil woofer speaker on the right rear side, can meet the needs of users who prefer bass. Dynaudio's soft dome tweeter that features a unique coating can reduce the nonlinear distortion of the speaker, and also help the speaker to dissipate heat, so that the system can work stably for a long time.

In terms of software, BYD Han EV provides 4 featured sound modes for users to choose. Users can freely optimize the sound field at the driver's seat, copilot seat or rear seats, enabling each occupant to enjoy the optimal sound field. Dynaudio's unique speed-dependent volume control (SDVC) technology, combining real-time vehicle speed and noise data, dynamically adjusts the frequency response of each speaker, ensuring minimal impact of noise on musical expression.

Hardware driver: build a car mobile concert hall

It is easier for users to feel the hardware upgrade of car audio system from the number of speakers installed. In the case of fuel-powered cars, the popular model Toyota Corolla bears 4 to 6 speakers; the high-end model Mercedes-Benz S-Class packs 15 speakers and offers an optional configuration of 31 speakers (the optional price is RMB76,700). Smart cars generally carry 8 to 12 speakers, and some models (e.g., Tesla Model X and NIO ET7/ET5) are fitted with more than 20 speakers.

Average Number of Speakers in Smart Cars by Vehicle Price Range, 2019-2022Q1



	2019	2020	2021	2022Q1
<RMB200,000	7.8	8.2	7.9	8
RMB200,000-300,000	8.3	9.2	9.5	9.7
RMB300,000-400,000	11.3	9.7	12.0	12.3
RMB400,000-500,000	10.5	10.6	11.6	11.8
>RMB500,000	13.2	16.1	14.2	14.1

Source: ResearchInChina

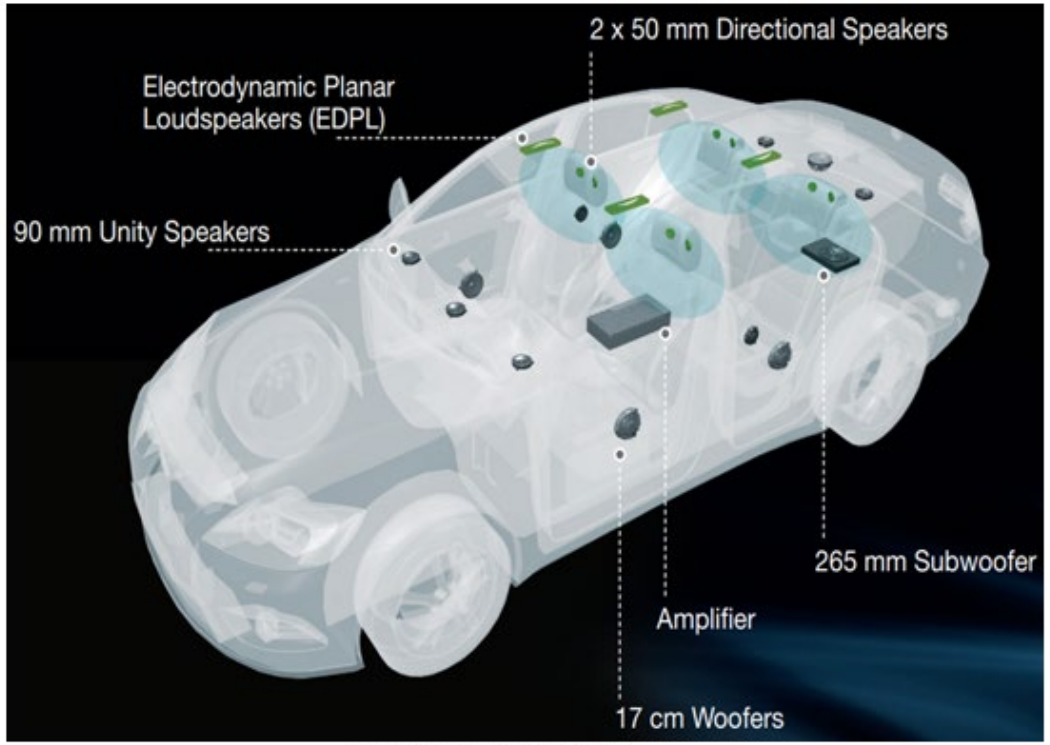
The more speakers, the better sound effects in cars. Yet the number of speakers is not the only factor, and quality plays a bigger part.

With vanishingly low inertial distortion, MartinLogan electrostatic diaphragm precisely tracks the input signal, engages the air, and flawlessly transmits the audio signal to human ear in a very small space.

Dynaudio's Hexis built-in dome technology reproduces real sound in cars. Hexis is a small inner dome that sits inside the tweeter's diaphragm. The dimpled inner dome of Hexis eliminates unwanted standing waves. Hexis delivers greater control over resonances in the cavity behind the diaphragm than the felt ring, while smoothing out undesired reflections in the dome.

Software driver: tailor audio experience for different people

Harman Individual Sound Zones (ISZ) is an integrated audio entertainment solution that introduces virtual, simultaneous, in-car entertainment systems. Harman's ISZ is intended to create individual listening zones for each passenger, enabling passengers to personalize their own audio experience without interference from other vehicle occupants.



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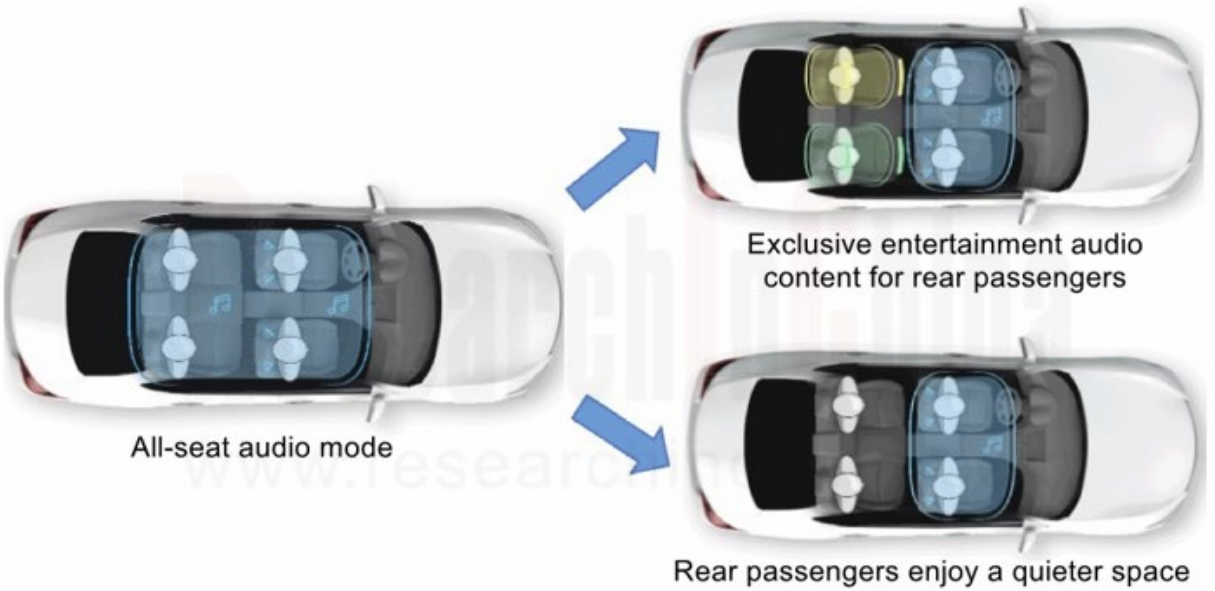
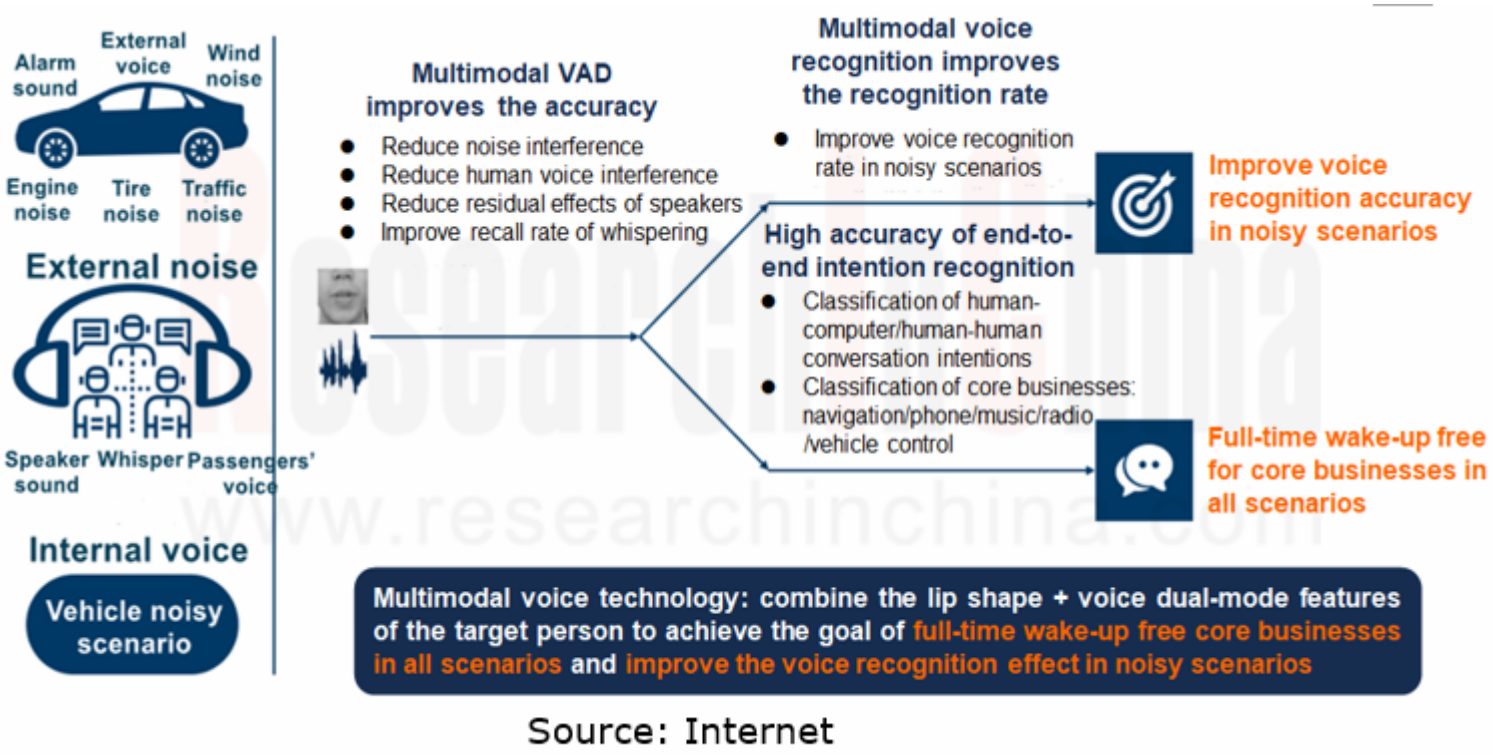


Source: Internet

Bose SeatCentric Call Placement technology is similar to Harman's ISZ. Using headrest-mounted Ultra Nearfield speakers, the solution allows drivers to receive phone calls from whichever virtual location they prefer, improving privacy and intelligibility.

iFLYTEK's Feiyu intelligent audio management system

iFLYTEK's Feiyu intelligent audio management system uses AI technology as the underlying operation logic, and connects hardware systems, making itself a software and hardware integrated vehicle intelligent audio management system. This system enables independent sound field partition, active road noise reduction, in-vehicle AC compensation and other technologies, and also creates a high-quality sound field for each car combining virtual surround technology.



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