

Technical Service Bulletin

91 HD radio technology overview for troubleshooting concerns

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Model(s)	Year	VIN Range	Vehicle-Specific Equipment
All	2010 - 2020	All	With HD radio

Condition

REVISION HISTORY		
Revision	Date	Purpose
6	-	Revised header data (Added models and model years) Revised <i>Condition</i> (Added Note) Revised <i>Service</i> (Updated website)
5	11/11/2015	Revised header data (Added model years) Revised <i>Technical Background</i> (Added information about radio text information)
4	07/10/2012	Revised header data (Added model year 2013)

This Technical Bulletin provides an overview of HD Radio technology and terminology. The following questions are addressed:

- What is HD radio?
- What is HD radio “multicasting” (HD2, HD3, and etc.)?
- What is the technology behind the digital HD radio signal?
- Can HD radio be turned off?
- What is “blending”?
- What is audio level “alignment” and “misalignment”?
- What can affect HD radio reception?
- Why does the radio text information not show at times?



Note:

This TSB only applies if the vehicle has HD radio.



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Technical Background

HD radio technology was developed by *iBiquity Digital Corporation*. They hold the HD radio patent and are responsible for providing licenses to radio stations nationwide to allow the stations to broadcast with HD radio technology.

What is HD radio?

HD radio is a digital rebroadcast of the same analog signal content coming from the source radio station and applies to HD 1 only. HD radio signals can be found on both AM and FM bands.

- AM stations broadcasting with HD radio technology will have the same or similar sound quality as an analog FM broadcast.
- FM stations broadcasting in HD radio technology will have the same or similar sound quality as a retail-purchased CD (burned CD sound quality can vary).

What is HD radio “multicasting” (HD2, HD3, etc.)?

Multicasting is when a radio station provides a digital only sub-station on HD2, HD3, and etc. (Figure 1).

- There is no duplicate analog station for these multicast stations.
- FM station providers are able to offer this additional content because the digital conversion of the normal analog signal opens up a larger amount of available bandwidth.



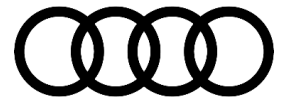
Figure 1. Display of HD Radio station using multicasting.

What is the technology behind the digital HD radio signal?

- A digital HD radio signal is transmitted along with the analog signal, but is broadcasted at reduced signal strength. The two signals are overlaid with each other and sent at the same time.
- A digital HD radio signal area of coverage is approximately 90% of the area of coverage for the analog signal. The area of coverage can be affected by the environmental conditions and it is not a uniform area of coverage.

Can HD radio be turned off?

- The user can control whether or not the HD radio stations are shown in the MMI by turning the feature on or off in the Radio Settings or in the Setup menu of the MMI.
- Refer to TSB 2026657: *HD radio presets* for additional information regarding the effect of stored HD radio presets on this setting.



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What is “blending”?

Blending is the switching back and forth of the analog and HD radio digital signals and is considered a normal condition. Blending will occur more frequently when the vehicle is driven in and around the fringe area of reception for the digital signal.

- Blending only takes place when the vehicle is driven in and out of the HD radio digital signal coverage area.
- Blending produces a change in sound, tone, and quality that can lead to customer concerns.
- Blending only occurs on the main HD1 station.
- Blending does not occur on the multicast sub-stations of HD2, HD3, etc. because there is no analog back-up for this programming. Instead, the audio will be muted when outside the area of coverage.

What are audio level “alignment” and “misalignment”?

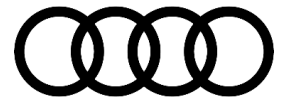
- Audio level alignment is the syncing of the digital HD radio signal and analog signal. It is designed to make the blending process smooth.
- Misalignment is when the digital and analog signals are out of sync:
 - Echoing (which sounds like a time delay between the two signals) can occur during misalignment.
 - The volume level can change up or down when misalignment occurs. This happens during the switch between analog and digital signals. The radio station broadcasting the content is responsible for the alignment of the digital HD radio signal and analog signal audio levels.
 - Concerns caused by misalignment are not a vehicle issue and replacing parts will not resolve the concern. Report any of the above alignment conditions to the respective local radio station.

What can affect HD radio reception?

The reception of a digital HD radio can be interrupted when the vehicle is driven near high terrain, high buildings, bridges, tunnels, and etc.

Why does the radio text information not show at times?

- The radio text information is digitally encoded in the digital broadcast. Occasionally, due to low signal strength, the radio text information may not be available in the “Now Playing” or main radio screen.
- The radio text information is controlled by the radio broadcast station, and it is possible that the broadcaster is not sending data or is sending invalid data.
- The radio text is automatically updated when new information is received. This may create a customer concern of the radio text being incorrect because the radio will retain the older radio text information until new data is received.
- HD radio text information is not updated in the “Presets” menu. However, radio text can be seen in the “Presets” menu if the data was previously updated in the main radio menu because the data shown is the data that was last available in the main radio menu. To update the radio text information, the customer must navigate back to the main radio menu and allow the radio text to update before going back to the “Presets” menu. The “Presets” menu was not designed to be the main view for operating the radio.



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Production Solution

Not applicable.

Service

- See the attached troubleshooting guide to aid in diagnosis.
- Contact the Technical Assistance Center if the troubleshooting guide does not help resolve issues with HD radio.
- To learn more about HD radio, visit <http://www.hdradio.com/>.
- Report station issues at: <https://hdradio.com/stations/feedback>.

Warranty

This TSB is informational only and not applicable to any Audi Warranty.

Additional Information

The following Technical Service Bulletin(s) may be necessary to complete this procedure:

- TSB 2026657, *HD radio presets*.

All parts and service references provided in this TSB (2026657) are subject to change and/or removal. Always check with your Parts Department and/or ETKA for the latest information and parts bulletins. Please check the Repair Manual for fasteners, bolts, nuts, and screws that require replacement during the repair.

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