

Technical Service Bulletin



91 Satellite radio (SDARS) reception fades or drops out; satellite radio message appears in display

91 15 78 2011500/4 March 10, 2015. Supersedes Technical Service Bulletin Group 91 number 08-129 dated November 12, 2008 for reasons listed below.

Model(s)	Year	VIN Range	Vehicle-Specific Equipment
All	2004 - 2017	All	Satellite radio

Condition

REVISION HISTORY		
Revision	Date	Purpose
4	-	Revised title Revised header data (Added model years) Revised <i>Technical Background</i> (Clarified information) Revised <i>Service</i> (Added MVB information)
3	11/12/2008	Revised title to include Repair Group

- Customer states that the reception of satellite radio occasionally fades or drops out.
- The information display may show a message related to the satellite radio, such as “Linking”, “Updating”, “Acquiring Signal”, “Loading”, “No Signal”, or “No Sat”.

Technical Background

Reception for satellite radio may vary depending on the location of the vehicle relative to physical obstacles that block the signal path to the antenna. SiriusXM uses terrestrial repeaters, largely in metropolitan areas, where the satellite signal path can be persistently blocked. The satellite radio tuner also has memory buffers that compensate for short term signal blockages lasting a few seconds.

Long term blockages caused by trees, buildings, tunnels, parking structures, or large vehicles can result in temporary loss of the signal, which will be reported by the customer as a “drop out” and different error messages could appear in the information display due to technical or system design.

The error messages that may appear are:

Sirius Message:	XM Message:	Cause:
Linking	Updating	<ul style="list-style-type: none"> • Normally appears during a complete signal drop. • May also appear when the provider updates the channel list, which will only happen once or twice per year and only last for a few minutes. • Additionally, this message may appear if the customer has changed the subscription options.
Acquiring Signal	Loading	<ul style="list-style-type: none"> • Appears when the signal is seen but is too weak to produce full audio output. This typically lasts less than one minute.
No Signal*	No Signal*	<ul style="list-style-type: none"> • Appears when there is no usable signal available for the specific location of the vehicle and the specific time.
No Sat*	No Sat*	<ul style="list-style-type: none"> • Appears when the car does not recognize that a tuner is installed. If this message is displayed, the tuner may not be correctly installed or functioning properly.

* Not applicable to MMI3G/3G+/MIB

Satellite Constellation Configuration (Figure 1)

Sirius has three satellites that fly in figure eight orbits over the US and Canada. There are always two satellites directly over the US. When one satellite is moving into the broadcast region over the US, the other satellite is moving out of the broadcast region. During this rotation, there is a half-hour window each morning when the signal can regularly drop on the east coast with obstructions where the signal tends to drop out on a regular basis.

XM has two geostationary satellites positioned directly over the equator. This static satellite configuration creates very consistent signal loss patterns.

Terrestrial Repeaters: To counter dropped signals that result from satellite orbit patterns and building obstructions, both XM and Sirius have terrestrial repeaters that re-broadcast satellite signals. Terrestrial repeaters increase reception in tunnels and other areas where normal satellite reception would not be possible.

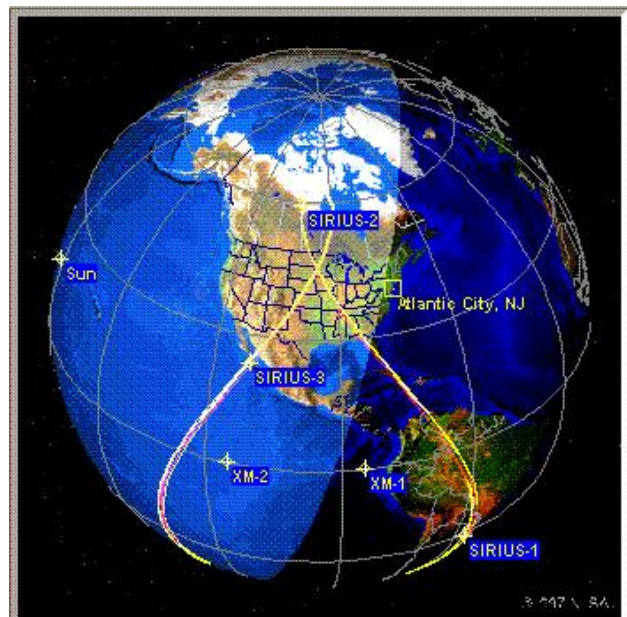


Figure 1. Two geocentric XM satellites located above the equator and the orbital paths of the three Sirius satellites.



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Production Solution

Not applicable.

Service

1. To confirm that the complaint is an issue with a dropped signal, gather the following information about the signal loss event(s):
 - Can the dropped signal be repeated day after day?
 - Does the dropped signal occur in the same location and at the same time of day?
 - What geographical features (buildings, dense foliage, canyon, etc.) are in the area?
 - What error message is displayed in the radio screen/MMI?
2. Check the vehicle system for the following conditions.

For all vehicles: Ensure that no DTCs are present in the satellite tuner and that no satellite-related faults are present in the radio.

For model year 2006 A3, model year 2005 A6, model year 2004 A8, and model year 2007 Q7: Use the following MVB description to check the signal status to observe the signal strength in order to confirm a dropped signal.

(The following MVB description does not apply to vehicles without a gateway (J533), including A4 and A4 cabriolet up to model year 2007, TT up to model year 2006, and all allroad vehicles.)

- **Diagnostic Address 0F for MMI2G/Symphony 1/Concert 1/RNS-E**
 - MWB 05 Signal Status for Sirius and XM
 - MWB 06 Service Status for Sirius
 - MWB 07 Service Status for XM
 - MWB 08 Antenna Diagnostics
 - Diagnostic Address 56 for Symphony II/Concert II CAN radios
 - MWB 09, Line 3 for Antenna current
 - MWB 30, Line 1 for Sirius Audio ESN
 - MWB 31, Line 1 for Sirius Traffic ESN
 - MWB 32, Lines 1-4 for Sirius Signal Status, Satellite vs Terrestrial reception, etc.
 - MWB 33, Lines 1-4 for Sirius Audio Subscription status
 - MWB 34, Lines 1-4 for Sirius Traffic Subscription status
 - MWB 35-39 contain additional Sirius information for troubleshooting (antenna diagnostics)
 - Diagnostic Address 56 for MMI3G & MMI3G+ Radio Unit
 - Diag SDARS MWB SDAR Electronic code 1 (Audio)

- Diag SDARS MWB SDAR Electronic code 2 (Data/Traffic)
- Diag SDARS MWB Signal status SDAR
- Diag SDARS MWB Service Status Sirius Audio
- Diag SDARS MWB Service Status Sirius Data (Traffic)
- Diag SDARS MWB Advisory & Antenna

For model year 2015 A3 and model year 2016 TT, A6, and A7 with MIB MMI systems: The following MVBs can be used to diagnose SiriusXM.

- **MVB IDE02452, “SDARS_tuner_status”:** Contains the signal strength, quality information, and antenna status.
 - **MVB IDE05608, “SDARS_Data_Information”:** Contains the ESN and subscription information for SIRIUS Traffic. (Not applicable to TT, A6, and A7 because these vehicles use Inrix Online Traffic via Audi Connect.)
 - **MVB IDE02064, “SDARS_Audio_Information”:** Contains the ESN and subscription information for SIRIUS Audio.
3. If the system is operating as designed, explain system operation to the customer. No repair is necessary. If the signal is consistently dropped in certain locations, advise the customer to report the specific time, location, and duration of drop to SiriusXM, as they may consider installation of terrestrial repeaters in affected areas.

Warranty

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

Additional Information

Refer to the following Technical Service Bulletins for further information:

- 2011760: *TPMS Warning Light On and/or No Satellite Radio (R146) with Audi Navigation Plus*
- 2011641: *Radio is Inoperative in Satellite Mode, Vehicles without J533 (Gateway)*
- 2011913: *Radio is Inoperative in Satellite Mode, Vehicles with J533 (Gateway)*
- 2012017: *Satellite Radio (SDARS) Activation Information*

All parts and service references provided in this TSB (2011500) are subject to change and/or removal. Always check with your Parts Department and service manuals for the latest information.