Technical Service Bulletin

91 MMI3G+ GPS navigation location inaccurate or navigation takes a very long time to acquire location (Q7/Q3)

91 15 11 2041608/1 August 25, 2015.

Model(s)	Year	VIN Range	Vehicle-Specific Equipment
Q3	2015	All	MMI3G+
Q7	2014 - 2015	All	MMI3G+

Condition

- The vehicle is a Q7 or Q3.

- When the vehicle is started, the GPS location or vehicle direction indicated on the MMI navigation map does not match the vehicle's actual location or direction of travel for a long period of time (often as long as 10 minutes):

  - The issue occurs in open sky, with no large buildings obstructing the sky view.

  - The issue is intermittent, but it can occur for long periods of time during a single day. The issue may or may not resolve itself.

  - When the issue occurs, the GPS navigation system satellite reception shows 0 satellites. Due to the infrequency of the issue, this might not be verifiable. (To view the number of satellites being received, go to *Nav >> Route >> Select Current Position* (first item in list) and scroll up (Figure 1)).

- A DTC related to the GPS antenna or MMI system may be or may not be present
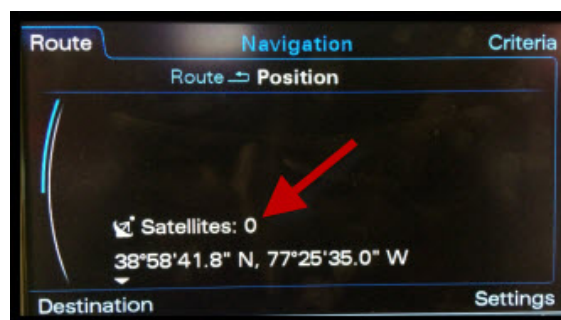

Figure 1. *No satellite reception.*

![i] **Tip:** If the sky view is blocked because the vehicle is in a parking structure, below ground, or next to large buildings, it is normal for the GPS location or vehicle direction indicated on the MMI navigation map to not match the vehicle's actual location or direction of travel. The blocked sky view prevents the vehicle from receiving satellites, and the system may be temporarily lost (for example, the system may show the wrong location on the map screen) until four satellites can be received. This behavior can last for several minutes even in clear sky view when the vehicle exiting a parking structure or underground structure. The MMI can take up to 5-10 minutes to sufficiently get a 3D-GPS fix once the vehicle has clear view of the sky. This is a normal condition, and is not related to the condition described above. Replacing the MMI main unit, replacing the GPS antenna, or updating the MMI software will not change this behavior.

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Technical Background

A potential antenna hardware failure can affect some model year 2014 - 2015 vehicles.

Production Solution

New GPS antenna hardware was introduced in production starting with calendar week 45 of 2014 (mid-model year 2015).

Service

If the vehicle arrives with a static condition of "0" satellite reception:

1. Move the vehicle outside to a clear view of the sky.

2. Allow the car to sit with the ignition on for at least five minutes, then use the table below to check Measured Value Blocks 97, 107, and 192 in the information electronics control module 1, J794 (address word 5F).

   The "Good Values *(Bad Values)*" column shows the known good values with the known bad values in parentheses. The GPS Status, GPS 3D Fix, and number of Received/Used Satellites will be the most helpful in determining if the MMI is receiving GPS information from the satellites.

Measured Value Block	Name	Good Values *(Bad Values)*
MVB 97.1	Received Satellites	4-16 *(0)*
MVB 97.2	Used Satellites	4-16 *(0)*
MVB 97.3	Code-locked satellites	4-16 *(0)*
MVB 97.4	Phase-locked satellites	4-16 *(0)*
MVB 107.1	GPS Status	Valid *(Not Valid)*
MVB 107.3	GPS 3D Fix	4 = 3D Fix *(0 or 1 = No GPS data; 2 = No Fix; 3 = 2D Fix, 255 = Not connected)*
MVB 192.1	0 Satellite Condition Start Date	This will show the date when the "0" satellite condition started.
MVB 192.2	0 Satellite Condition Start Time of Day	This will show the time of day when the "0" satellite condition started.

3. If it is determined that the antenna is potentially faulty, obtain a known good GPS antenna and coaxial cable to verify that they will fix the issue. Attach the antenna coaxial directly to the back of the MMI main unit using a service repair coaxial cable (see ETKA using P/N 000 098 650). There are varying lengths that can be purchased. For instance, P/N 000 098 650 = 300mm/1ft & P/N 00 098 658 = 7000mm/23ft). Then connect the other end of the coaxial to the test antenna (new service part).

4. Check the MMI to see how many satellites are received with the new antenna. To view the number of satellites being received, go to *Nav* >> *Route* >> *Select Current Position* (first item in list) and scroll up. If needed, recheck the Measured Value Blocks and verify the values change to good values.

5.
   - If it is determined the antenna is faulty, replace the GPS antenna. If the coaxial cable is replaced, order the correct cable adapter with the 90 degree bend in the connector (See ETKA).
   - If the antenna is not determined to be the causal part, continue to diagnose the issue.

Warranty

Claim Type:	Use applicable claim type. If vehicle is outside any warranty, this Technical Service Bulletin is informational only.		
Service Number:	9113		
Damage Code:	0040		
Labor Operation:	ECM information display control head remove+reinstall	9196 1900	See Elsa
	GPS Antenna check	9113 9999	50 TU
	GPS Antenna paint new part	9113 6100	50 TU
	GPS Antenna remove+reinstall	9113 1900	See Elsa
Diagnostic Time:	GFF	0150 0000	Time stated on diagnostic protocol (Max 60 TU)
	Road test prior to service procedure	0121 0002	10 TU
	Road test after service procedure	0121 0004	10 TU
	Technical diagnosis at dealer's discretion (Refer to Section 2.2.1.2 and Audi Warranty Online for DADP allowance details)		
Claim Comment:	As per TSB #2041608/1		

All warranty claims submitted for payment must be in accordance with the *Audi Warranty Policies and Procedures Manual*. Claims are subject to review or audit by Audi Warranty.

Required Parts and Tools

Part Number	Part Description	Quantity
000 098 65X (See ETKA)	Test Coax Cable (Varying lengths)	1
4L0 035 503 N GRU	Roof combination antenna (Q7)	1
4G0 035 503 J GRU	Roof combination antenna (Q3)	1

Additional Information

All parts and service references provided in this TSB (2040406) are subject to change and/or removal. Always check with your Parts Department and service manuals for the latest information.