

**DEVICE TEMPERATURE INCREASES WHEN USING WIRELESS CHARGER**

This Service Information Bulletin (Revision 1) replaces TRI B84 09 17 **dated November 2017**.

- This bulletin is information only, no claim information intended

**What's New** (Specific text highlighted):

- This Service Bulletin B84 09 17 replaces TRI B84 09 17. There is no content change.

**MODEL**

F44 (2 Series Gran Coupe)	F90 (M5 Sedan)	F91 (M8 Convertible)	F92 (M8 Coupe)
F93 (M8 Gran Coupe)	F95 (X5 M Sports Activity Vehicle (SAV))	F96 (X6 M Sports Activity Coupe (SAC))	F97 (X3 M SAV)
F98 (X4 M SAC)	G01 (X3 SAV)	G02 (X4 SAC)	G05 (X5 SAV)
G06 (X6 SAC)	G07 (X7 SAV)	G12 (7 Series Sedan)	G14 (8 Series Convertible)
G15 (8 Series Coupe)	G16 (8 Series Gran Coupe)	G20 (3 Series Sedan)	G22 (4 Series Coupe)
G23 (4 Series Convertible)	G26 (4 Series Gran Coupe)	G29 (Z4 Roadster)	G30 (5 Series Sedan)
G42 (2 Series Coupe)	G80 (M3 Sedan)	G82 (M4 Coupe)	G83 (M4 Convertible)

**Vehicles equipped with option code:**

6NW – Wireless charger

**SITUATION**

While using the wireless charger, one or both of the following may occur:

- 1) The BMW display key or mobile phone becomes hot to the touch.
- 2) The device switches off due to over temperature (built-in device protection).

**INFORMATION**

Inductive charging of electronic devices is a process largely controlled by software on the electronic device which conforms to the standard for wireless energy transmission Qi (pronounced tschi) specified by the "Wireless Power Consortium".

The level and duration of the charge current is regulated by the device placed in the wireless charger.

A charging power of up to 5 watts is transmitted to the device. Charging power transmission loss results in heat build-up. The greater the distance between the device and the wireless charger, the greater the charging power loss will be. This results in a higher temperature in the device (possible overheating) and the wireless charger.

Do not place non-wireless charging capable objects such as coins or keys etc. in the wireless charging station.

**Charging Termination**

This process is terminated in one of two ways – charging cut-off or temperature cut-off.

Charging cut-off is controlled by the charged device and is initiated when the battery is fully charged or ambient conditions prevent further charging of the battery. This process usually involves a gradual decline of the charging current to zero Watts power transfer.

Temperature cut-off can be initiated by either the charged device or the charging station. In either case, the temperature within the initiating device has reached a threshold which the device has been programmed not to exceed to prevent damage to itself.

## Device Temperature

As electronic devices are inductively charged, their internal temperatures are elevated above the ambient temperature of the charging environment. Additionally, electronic devices performing multiple tasks at the same time (e.g. active telephone call and Spotify along with other Apps open in the background) may see their internal temperatures rise.

Combinations of elevated ambient temperature in the environment (vehicle interior) in which they are being charged and/or intensive use, may raise the internal temperature of the device above the threshold for safe operation. This causes a protective shutdown of the device.

This situation most commonly occurs in devices being charged on the BMW wireless charging station when the interior vehicle temperature is high and/or when engaging in extended-length Bluetooth communications or using multiple applications like Spotify. The charging station may also implement a cut-off, but this is at a temperature usually higher than when the device will have already shut off.

The following table lists some representative temperatures known to cause device shutoff and transfer of temperature-related shutoff message to the charging station.

Device	Charging current reduction	Charging cut-off	Device shut-off
BMW Display Key	--	131°F (55°C)	140°F (60°C)
Apple iPhone	97°F (36°C)	--	118°F (48°C)
Samsung smartphones (vary widely)	Some as high as 140°F (60°C)	Some as low as 104°F (40°C) e.g. Samsung S8	--
Wireless Charger			Surface temp. 108°F (42°C)

The table below provides the LED status description for the wireless charger

Blue	Device charging
Orange	Charger shut down due to device high temperature or coins etc.
Red	Wireless Charger internal fault
Dark (unlit)	Charger not used / Off

## HINTS

For conditions that are similar to the situation described, go through the following steps to ensure the proper identification of the source of the problem:

1. Check the charging arrangement for any of the following inefficiencies which lead to added heat generation from not minimizing the distance between the device and the charger:
  - Electronic device is not centered on the charger
  - Extraneous items are preventing the electronic device from lying flat on the charger – coins, keys, etc.

### Were any of these positional errors noted?

**YES-** Allow the device to cool, correct these errors and attempt to duplicate error condition before continuing diagnosis.

**NO-** go to next step.

2. Educate the customer about the parameters of device-induced temperature cut-off (including contribution of ambient temperature of vehicle interior and intensive application use). No further repairs for this condition are necessary.

### **QUESTIONS REGARDING THIS BULLETIN**

Technical inquiries	Submit feedback at the top of this bulletin
Warranty inquiries	Submit an IDS ticket to the Warranty Department or use the chat available in the Warranty Documentation Portal
Parts inquiries	Submit an IDS ticket to the Parts Department