



Answers to FCC questions for the Sierra Wireless AirCard 750:

FCC ID: N7NAC 750

Request # 22318

A) Please provide a table summarizing the mode of operation (GSM or GPRS) used, and method for device control for each test made in the EMC and SAR reports. A 14 March telephone discussion with Mr. Lothar Schmidt suggested that different configurations were used. Please provide any supporting details that are not contained in the test report.

Please note: SAR tests were repeated at a different lab (CCS). Please refer to these later results. The rationale for switching SAR labs is mentioned later in this document.

<u>Power Measurement</u>	<u>Mode of Operation</u>	<u>Method of Device Control</u>
EMC Peak Power	GSM	CMD55 base station simulator
EMC Avg. Power	GPRS(4 time slots)	continuous Tx (AT commands)
SAR Avg. Power	GPRS(4 time slots)	continuous Tx (AT commands)

All FCC part 24 tests were conducted in **GSM mode**, except the average output power measurements that were done in **GPRS mode**. In **GSM mode**, the R&S CMD55 base station simulator controlled the mobile.

The average output power measurements were all done in **GPRS mode** so that a comparison could be made between the EMC and SAR power measurements. **GPRS mode** required the use of customer AT commands to enable the mobile to transmit continuously at maximum power in 4 time slots. This mode of operation was necessary since base station simulators do not support multi-slot operation at this time. The AirCard 750 is a Class 12 GPRS multi-slot mobile, which can transmit on a maximum of 4 time slots. Operating in 4 time slots ensured that the SAR measurements were done at the highest power level possible.

B) Regarding your answer to question 2 and the above reference phone call, it was stated that a sweep time of 5 ms was used for the 30-1000 MHZ plots on pages 14-27 of the test report. Please provide new data with at least 2 second sweep times while using a peak hold mode. Please perform this test with the rotating table moving at no more than 10 degrees in two seconds.

The requested results have been uploaded. The slight difference in output spectrum compared to previous results is entirely due to the change in host laptop used, not the mobile itself.

C) Regarding your answer to SAR question 2. Please provide a modified users manual statement. The statement "The intended use of this device is within typical laptop computers " can be easily misunderstood. Please use a more direct statement such as. This device as been tested for compliance with FCC RF exposure limits in a typical laptop computer such as the one reported in the grant application. This device is only authorized to be used in such a typical laptop computer."

A new version of the Install Guide has been uploaded. (See page iv for User Warnings and page 27 for regulatory information). Please note this Install Guide replaces all previous User Manuals

and is a common guide for both the AirCard 750 (triband) and the AirCard 710 (single band – PCS). The AirCard 710 has already received FCC approval.

SAR

D) Regarding your answer to SAR question 6, please provide more comprehensive analysis justifying use of the chosen probe calibration. Please provide details of the "additional info from the SPIAG" referenced in your answer. The FCC's understanding of the SPEAG system does not support the estimations made. Please provide an updated uncertainty budget accounting for any extra uncertainty associated with this probe conversion factor. Additionally, if possible please provide a print out of the liquid's dielectric properties as measured by your equipment for frequencies from 1800 to 1900 MHz.

Please see the answer to E below.

E) Regarding your answer to question 9. In order to validate your hypothesis please provide new SAR data at the worst case setup and frequency using both paper and foam as a stand.

Questions D and E forced a review of SAR testing carried out by ITS in November. The following was noted:

- 1) The body conversion factor used by ITS was incorrect.
- 2) The probe used in November was damaged and could not be reused.
- 3) The original liquids' dielectric properties were close to FCC limits.
- 4) Repeating an informal test with a foam stand instead of paper resulted in reduced SAR values. Overall, the original SAR values could not be repeated. The new informal values (not recorded) appeared to be about half of the SAR values measured in November.

For this reason, the customer, Sierra Wireless, decided to repeat the entire SAR test at CCS in Morgan Hill, CA. A Sierra Wireless representative was present for this SAR test to ensure test conditions were tightly controlled and the problems mentioned above were not repeated. The CCS results confirmed that the SAR values are well within acceptable limits. Also the CCS results broadly agree with the later (but informal) SAR readings observed at ITS.

Note:

The testing was done with the antenna parallel to the phantom. This is the worst-case separation distance of antenna to body. The Sierra Wireless Install Guide mentions that the antenna only be used in a vertically oriented position (see page iv) and page 2 for a diagram (Figure 1-1).

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