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FCC Correspondence Ref No. 26187

FCC ID: EJE-WL0004

Date: 12th January 2004

EMC Reference: M030949

Subject: Response to FCC Queries

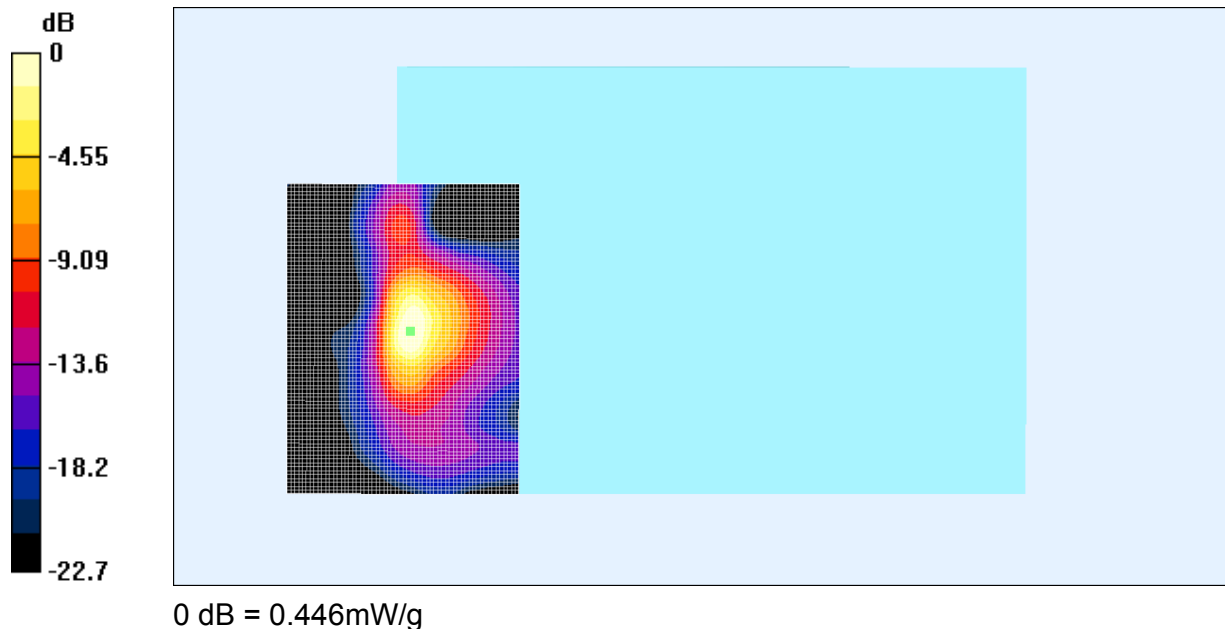
Q1. Please submit updated SAR contour plots for the worst-case point for each category of measurement. Please provide one clear plot of Area scan only. Please provide one plot with a single zoom scan slice in plane of maximum SAR point. Please show the point of maximum local SAR.

Please see below: SAR contour plots for the worst-case point for each category of measurement.

1. Plot 5 – CH#11 (2462MHz) – Lap Arm Held Position – DSSS mode
2. Plot 13 – CH#11 (2462MHz) – Lap Arm Held Position – OFDM mode
3. Plot 18 – CH#36 (5180MHz) – Lap Arm Held Position – OFDM mode
4. Plot 27 – CH#27 (5745MHz) – Lap Arm Held Position – OFDM mode

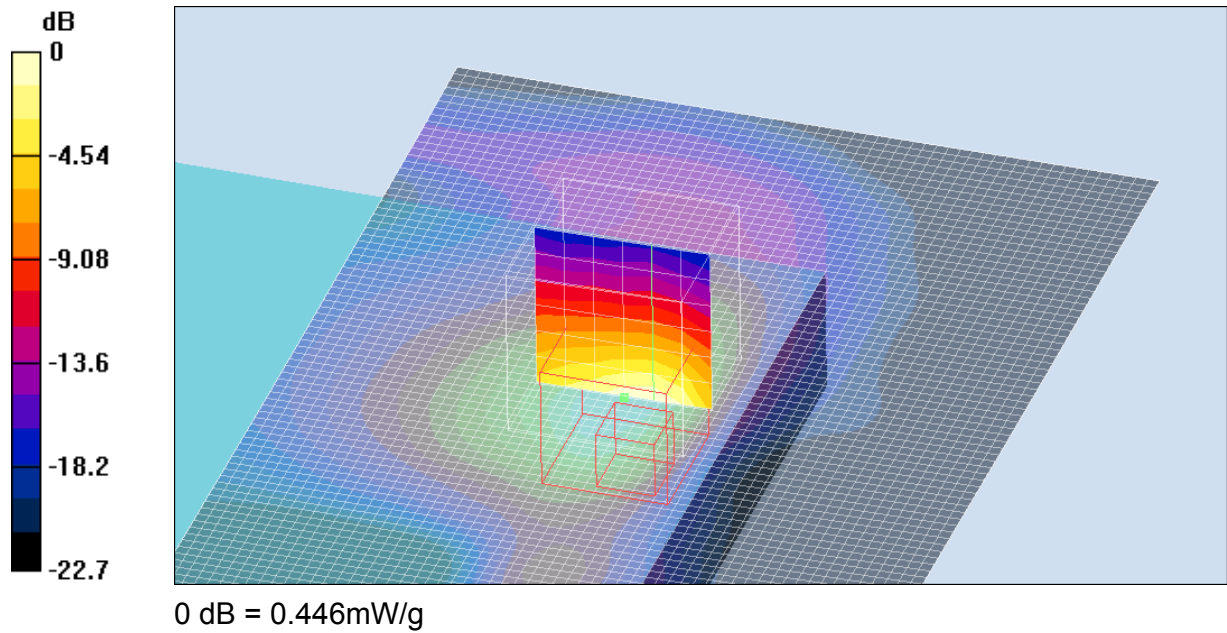
1. Plot 5 – CH#11 (2462MHz) – Lap Arm Held Position – DSSS mode

Area Scan



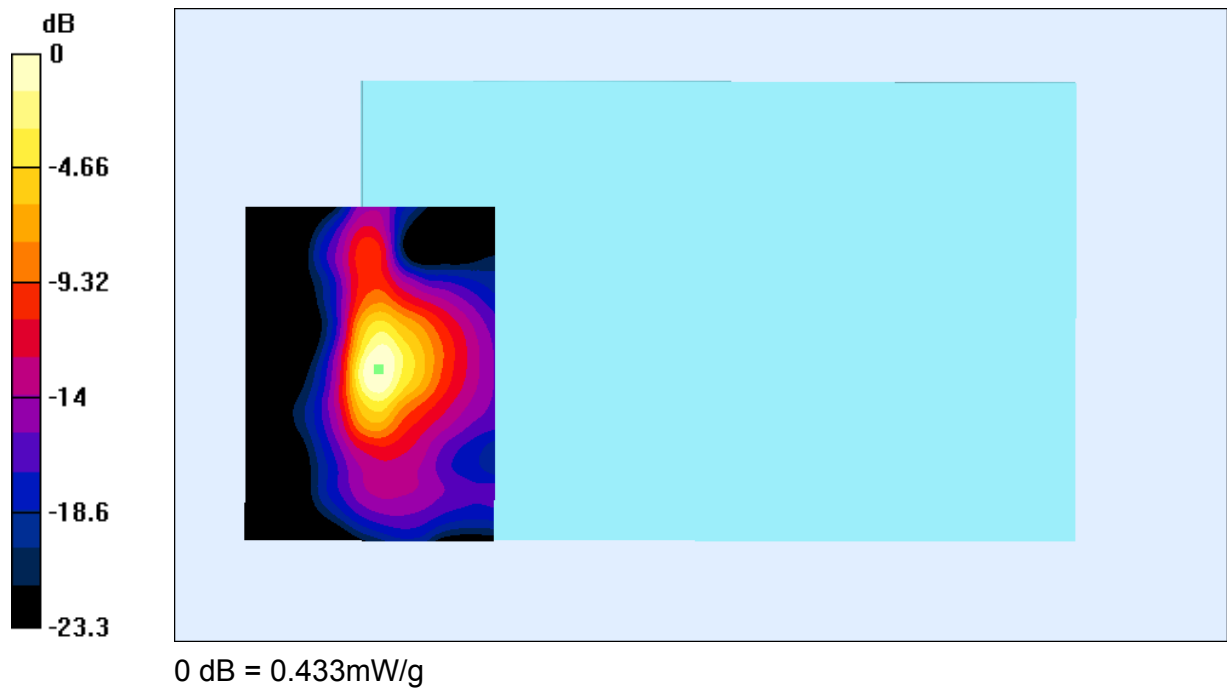
SAR 1g = 0.951mW/g

Zoom Scan slice in plane of maximum SAR



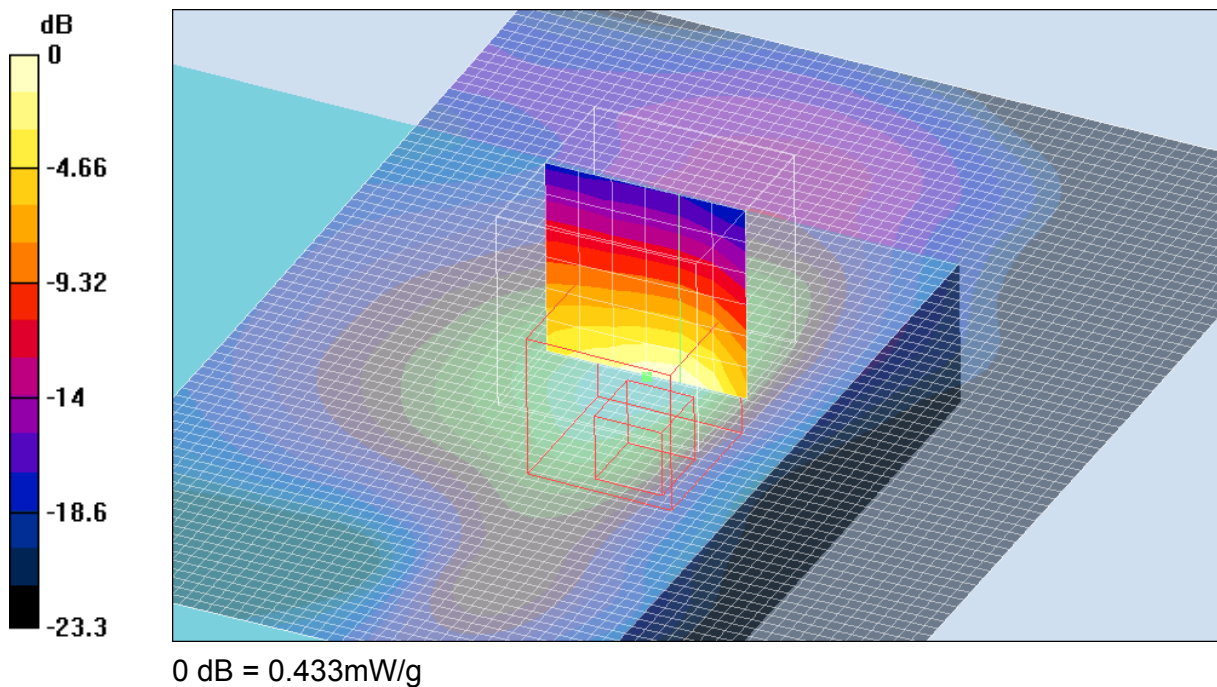
2. Plot 13 – CH#11 (2462MHz) – Lap Arm Held Position – OFDM mode

Area Scan



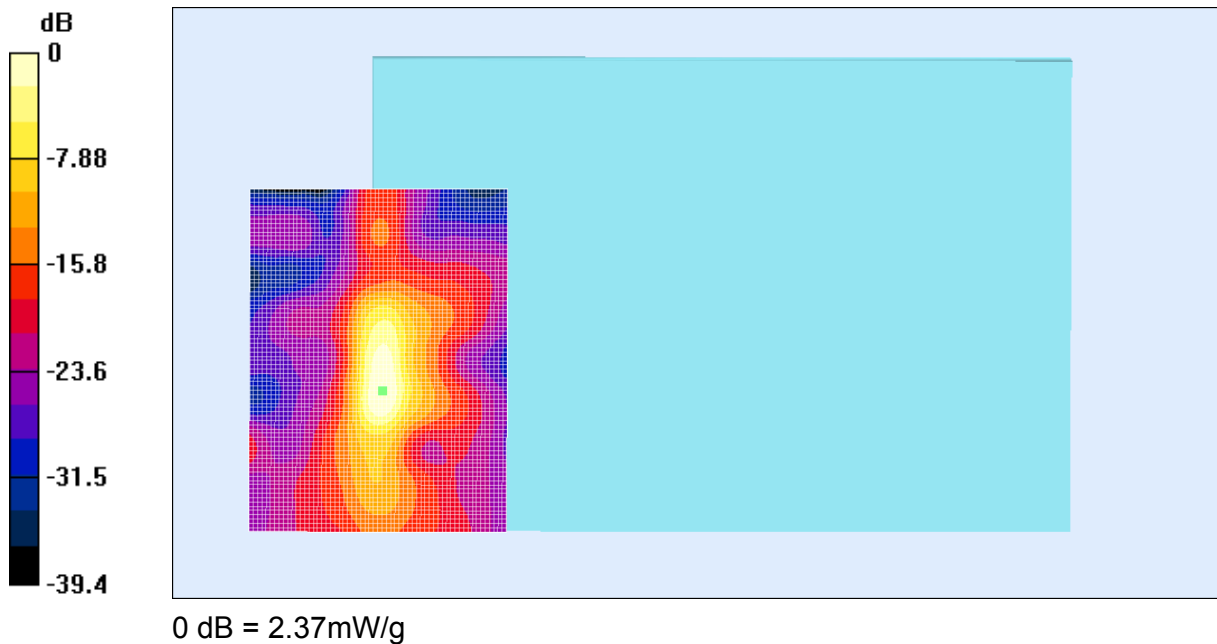
SAR 1g = 1.030 mW/g

Zoom Scan slice in plane of maximum SAR



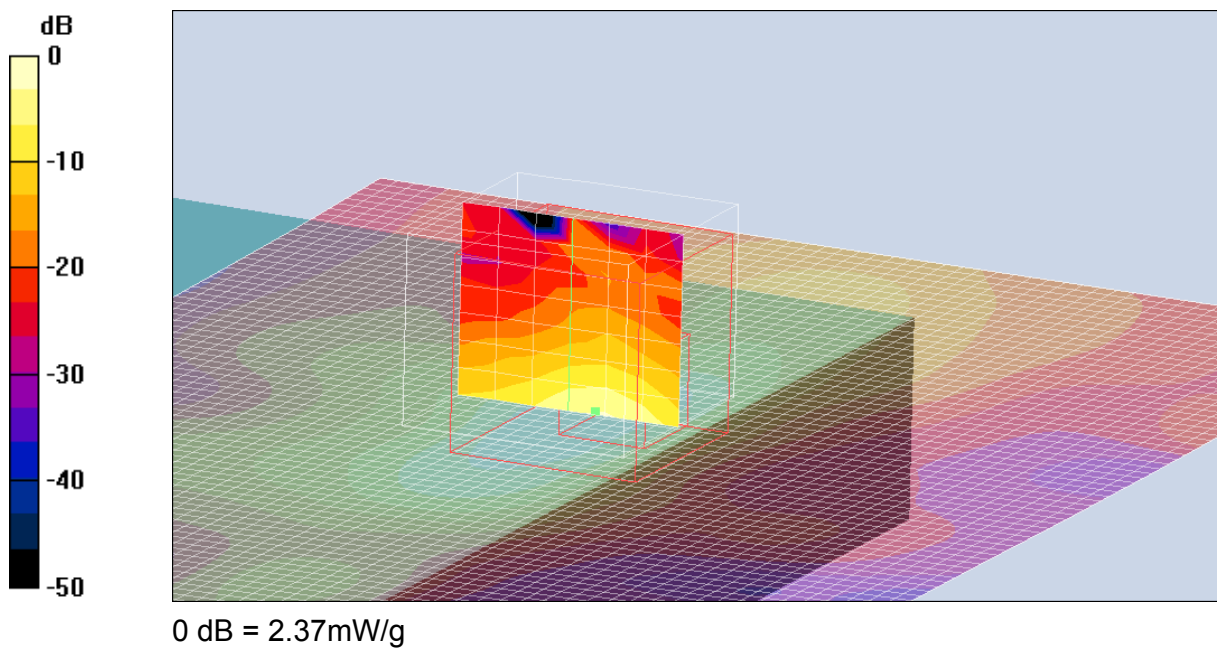
3. Plot 18 – CH#36 (5180MHz) – Lap Arm Held Position – OFDM mode

Area Scan



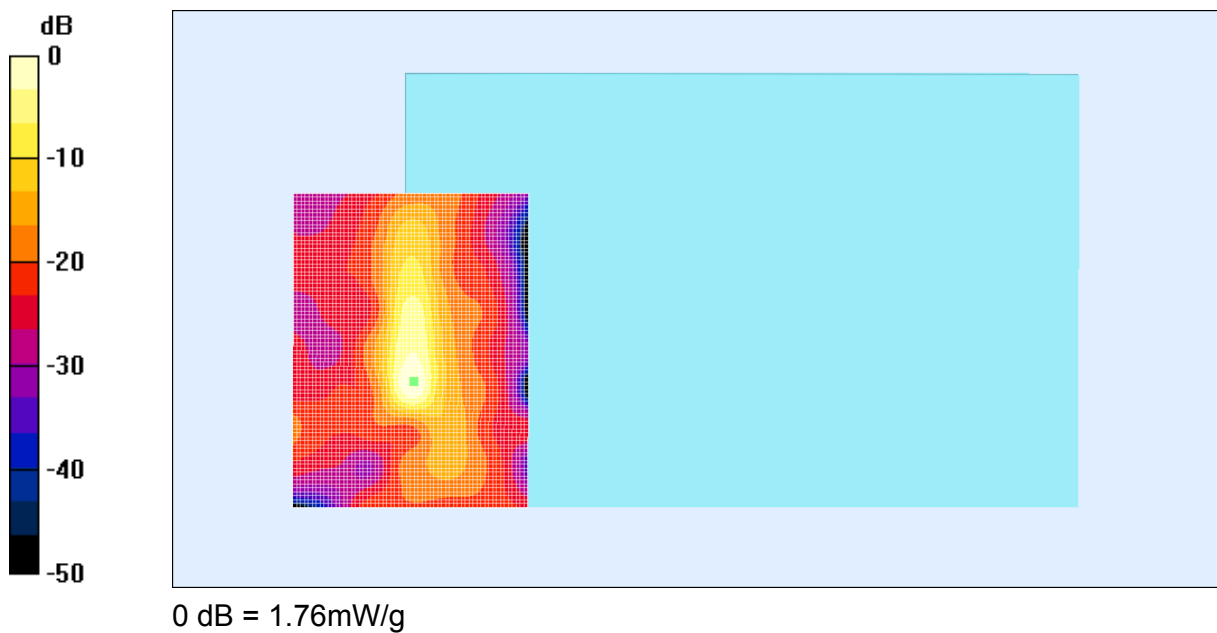
SAR 1g = 1.29mW/g

Zoom Scan slice in plane of maximum SAR



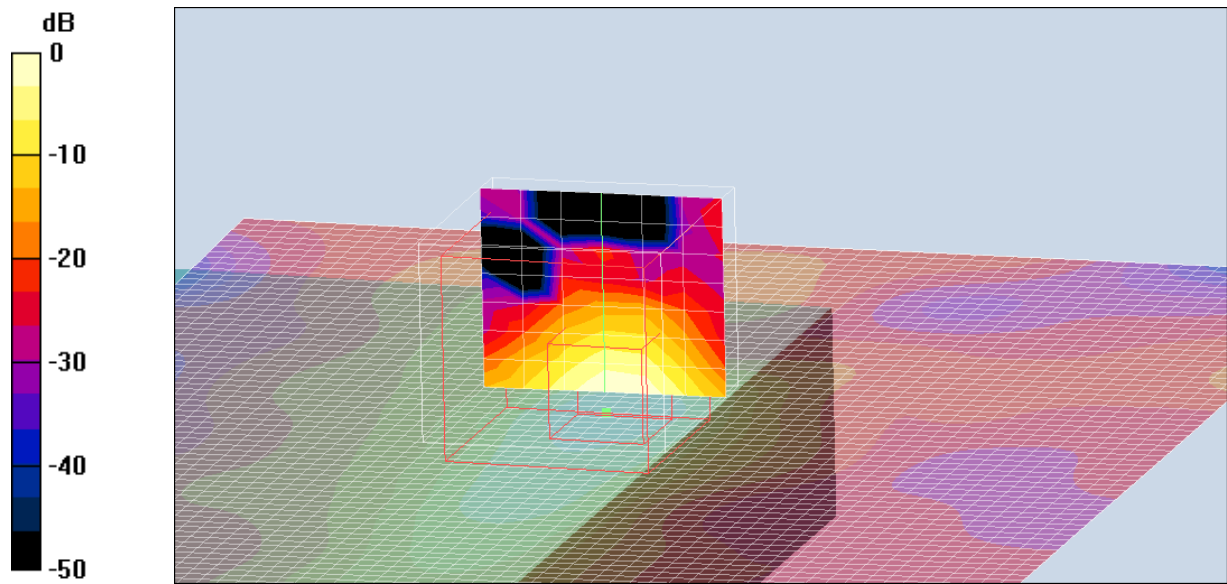
4. Plot 27 – CH#27 (5745MHz) – Lap Arm Held Position – OFDM mode

Area Scan



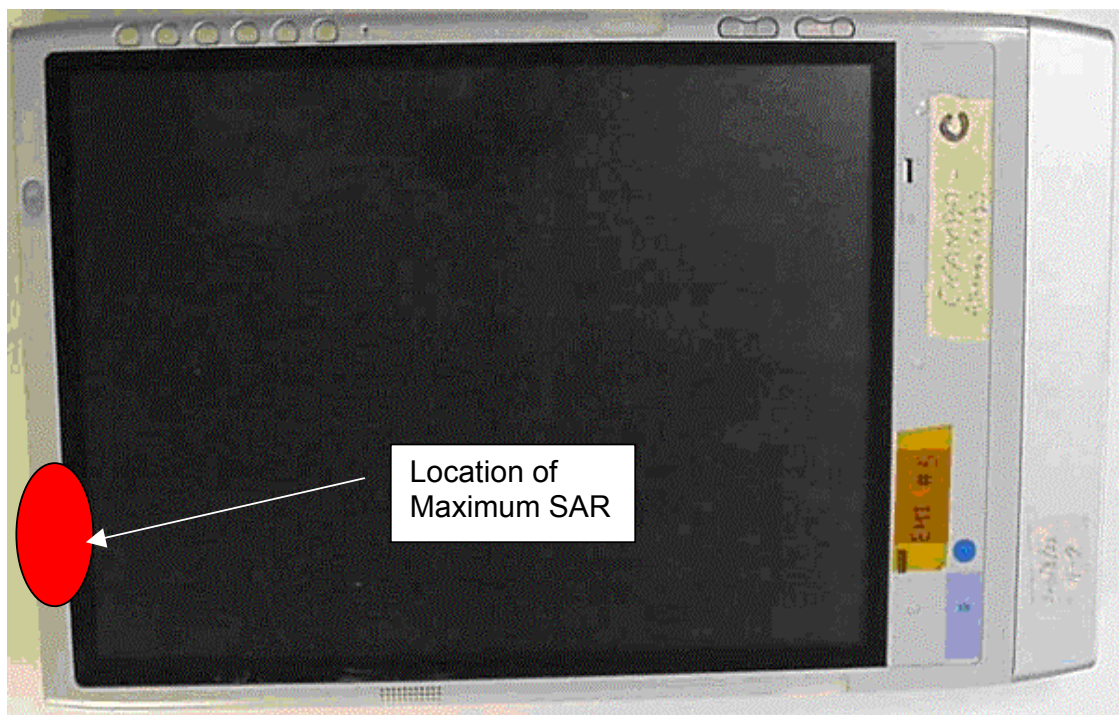
SAR 1g = 0.990mW/g

Zoom Scan slice in plane of maximum SAR



0 dB = 1.76mW/g

Location of maximum SAR on Laptop



Q2. Area plots show numerous secondary peaks. Please confirm that all secondary peaks were measured in accordance with Supplement C.

Secondary peaks were measured in the "Tablet" position only. Examples of this can be viewed in plots 6 and 14 of the report "M030949_ATHEROS_SAR". The SAR levels recorded in this position were within the noise floor of the SAR measurement system and this is the reason why a specific 'hot-spot' was not found and consequently additional peaks were identified. This phenomenon can be ignored for compliance purposes due to the very low SAR values involved.

Results from the "Arm-Held" position consistently show a clear and defined hot-spot with no additional peaks.

Q3. Please address details of the test signal used for the QAM modes. What was done to assure that maximum power was used? What I/Q signalling states were used during the testing?

The WLAN modules can be configured in a number of different data rates.

The data rates determine the modulation type.

-802.11a

BPSK - 6Mbps,9Mbps,
QPSK - 12Mbps,18Mbps
16QAM - 24Mbps,36Mbps
64QAM - 48Mbps,54Mbps

-802.11g

BPSK - 6Mbps,9Mbps,
QPSK - 12Mbps,18Mbps
16QAM - 24Mbps,36Mbps
64QAM - 48Mbps,54Mbps

-802.11b

DBPSK - 1Mbps
DQPSK - 2Mbps
CCK - 5.5Mbps,11Mbps

Each data rate was configured with maximum power setting and tested. It was found that the highest source based time averaged power was measured when using the lowest data rates available in each mode. This lowest data rate corresponds to 6Mbps in OFDM mode and 1Mbps in DSSS mode. Table 7 of "M030949_ATHEROS_SAR" shows the data rates used in the SAR tests.

Q4. The SAR exhibit titled "SAR Report 3 of 5" contains what appears to be output from a dielectric parameter measurement in the last page. The values are not understood. For example at 2.4 GHz a value of 4 and 0.03 are listed. Please explain.

The dielectric parameters listed are those measured for the AndreT flat phantom material. The purpose of this information is to show that the phantom complies with the FCC requirements. Refer to section 3.5 of "M030949_ATHEROS_SAR" for reference.

Q5. Please explain if one or both antennas can transmit. Has data been provided for all transmitting antennas?

Both Antennas can transmit and both antennas have been tested, the worst-case antenna test data has been provided in the SAR report.

Q6. Table 7 states power of 15.6, 15.2 and 13 for 5.1, 5.2 and 5.8 GHz respectively while Table 2 gives rated power as 14, 16 and 16 respectively. Please explain the differences. Was the testing performed at maximum power?

The test was performed at maximum power in all circumstances. Table 2 lists the rated output power as stated by the manufacturer but does not take into account cable losses. Table 7 lists the actual conducted output power measured at the antenna port.

Q7. Form 731 line item shows output power 0.033 watts and page 19 of the test report show peak output power 18.09dBm or 0.064 watts. Please clarify.

Initially, the Form 731 was completed to include both the DTS and NII components of the application. The output power of 0.033 was actually listed for the 5 GHz NII application. Output power for the DTS on Form 731 should read 0.064 as per page 19 of test report.

After your request to separate the DTS information from the NII information, (request reference no. 26100) the amended Form 731 was uploaded as a pdf file (Cover letter – Revised form 731) on 18th December and correctly listed the value of 0.064.

Final Output Power:

DTS: 0.064 watts
NII: 0.056 watts (5150-5350 MHz)
0.033 watts (5725-5825 MHz)