

Novatel MC1000

Note: Other exhibits (EMC output power, manuals, internal photos, other technical data etc) submitted for this filing, which are current unavailable until a certification is filed, will need to be considered in conjunction with the preliminary comments for this SAR report.

- 1) Antenna info and internal photo are necessary to review SAR plots. Identify any diversity antenna functions associated with this device.
- 2) (FYI) Some information in the SAR report relating to the SAR system and general test setup may need update. The test lab is already aware of these through other test reports we reviewed. Please check with the test lab to update these in the final report before submitting for equipment certification.
- 3) Table 10.1: The target dielectric parameters are inconsistent with those required. There are some minor discrepancies.
- 4) Page 18 – Device test condition: 13 mm gap is inconsistent with the test conditions identified in other part of the report.
- 5) Page 18, 22, 27 & 31 – for GSM/GPRS, SAR was conducted in GPRS mode. The measured output power is about 1 dB higher in GSM mode. The configuration “4 down and 1 up” is unclear. The multi-class slot mode for GPRS has not been identified. It should be clarified why GPRS mode was used in the SAR measurements or provide the appropriate test results in the final report.
- 6) Page 18: Confirm if EDGE is applicable for this device.
- 7) Page 18 & 19: Identify the β_{hs} , β_{ec} , B_{ed} , AG Index, E-TFCI, Δ_{ack} , Δ_{nack} , Δ_{CQI} used in the HSDPA & HSUPA sub-test configurations and include the sub-test numbers in the table. The measured output power for HSDPA and HSUPA do not indicate any power reduction for the sub-test configurations where MPR are identified. Please explain how MPR is implemented for this device, according to 3GPP recommendations, and clarify any discrepancies.
- 8) IEEE 1528 protocols require mid-band channel be measured and such results be used to determine if high and low channels should also be measured. It appears the highest output channel, instead of mid-band channel, has been chosen for the CDMA 2000 measurements. When non-conventional procedures, that are more conservative than required, are used in the measurement configurations; they should be clearly identified and explained in the test report with proper justifications.
- 9) (FYI): Please review the FCC 3G SAR procedures. Depending on the output power, SAR may not be necessary for HSPA mode. However, the response to MPR (above) should be taken into account in the determination. You may choose to include all existing SAR measurements in the test report; all numbers will be cross-checked for consistency during review.
- 10) Please identify the connector and tail end of the device on selected SAR plots to associate the SAR distributions with device orientation and antenna locations etc. The DUT location appears to be shifted for some plots. The locations of the hot spots in some plots appear to indicate the DUT might have changed setup direction (head vs. tail). Please clarify. Since the entire length of the DUT is not covered by the area scan (which is the normal procedure), it is unclear if these are intentional shifts or due to graphical errors etc.

11) The SAR probe was calibrated at 835 MHz with tissue conductivity exceeding the required parameter tolerance (5%); calibration data indicated +/- 10%; actual tolerance was 8%. We are not requesting for additional tests for this device with a properly calibrated probe; however, please ensure probes are calibrated according to protocol for all future measurements. (Note: test lab is already aware of this.)

Required Warning and Labeling Requirements (pending final results & changes etc)

The following Caution Notice is required on the outside of the dongle. The font should be legible and visible to the user. A copy of the label and its location on the device should be fully identified in the certification filing. Due to the larger test distance and higher SAR reported for this device, the specific labeling is required. These same labeling, pamphlet and instruction requirements have been applied to other devices with similar reported SAR and test distances.

Caution: See manual for RF Exposure compliance requirements.

This simplified device label (due to space on typical USB devices) also requires a pamphlet insert in the product package. The following information should be included in both the pamphlet and manual instructions; with more detailed descriptions and explanations in the manual.

Identify in manual instructions and the RF Exposure Caution Pamphlet that this USB modem is approved for use in normal size laptop computers only (typically with 12" or larger display screens). To comply with FCC RF exposure requirements, this modem should not be used in configurations that cannot maintain at least 12mm (approximately 0.47 inch) from users and bystanders; for example, in certain laptop and tablet computers and configurations where the USB connectors on the host computer are unable to provide or ensure the necessary separation between the modem and its users or bystanders to satisfy RF exposure compliance requirements. For the pamphlet, the users should be advised to see details in the instruction manual. A copy of the Pamphlet should be included in the filing. The manual instructions should clearly explain the proper operating requirements for the USB dongle to maintain RF exposure compliance.

Note: These recommended labeling and instruction requirements are applicable based on the preliminary test results (before uploaded to the EAS). If there are any noticeable changes in the final test results, please let us know to determine if adjustments are necessary.

Unless there are issues in addressing the above concerns, further preliminary review is not necessary. All of the above items should be clearly explained and resolved in the final test report submitted for equipment certification.