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SAR EVALUATION PROCEDURES FOR UMPC MINI-TABLET DEVICES

This document describes the SAR test requirements for certain small hand-held tablets and devices of similar form factors that are designed primarily for interactive hand-held use next to or near the body of users. This type of mini-tablets is normally optimized for mobile web access and multimedia use. The test procedures are applicable to devices with a display and overall diagonal dimension ≤ 20 cm (~ 7.9 "¹). These devices are typically operated like a mini-tablet and are usually designed with certain UMPC features and operating characteristics; therefore, the term "UMPC Mini-Tablet" is used to identify the SAR test requirements for this category of devices. A composite test separation distance of 5 mm is applied to test UMPC mini-tablet transmitters and to maintain RF exposure conservativeness for the interactive operations associated with this type of devices. The same approach and concepts used for wireless routers (also known as hotspot mode) are applied to UMPC mini-tablet devices.¹ Other than a smaller test separation distance of 5 mm, the same device test setup is used for UMPC mini-tablet devices and wireless routers. Combinations of voice, data, video, gaming and hotspot mode transmissions can be supported in various wireless modes, technologies and frequency bands for hand-held and near-body use conditions by this type of devices. Voice communication for UMPC mini-tablet devices, however, should be limited to speaker mode only. When next to the ear voice operations are supported, the handset and phablet procedures in KDB Publication 648474 D04 must be applied.

UMPC mini-tablet devices must be tested for 1-g SAR on all surfaces and side edges with a transmitting antenna located at ≤ 25 mm from that surface or edge, at 5 mm separation from a flat phantom, for the data modes, wireless technologies and frequency bands supported by the device to determine SAR compliance. When 1-g SAR is tested at 5 mm, 10-g SAR is not required. When voice mode applies (speaker mode only) and the exposure conditions are not adequately covered by the data mode SAR results, additional SAR tests for voice mode may be required; for example, when the maximum average output power levels are different for 1x RTT and EvDo or GSM and GPRS. When the maximum output power levels of transmitters used in hotspot mode are not higher than those tested using UMPC mini-tablet procedures the more conservative UMPC mini-tablet SAR results can be used to support hotspot mode. For simultaneous transmission conditions, the procedures described in KDB Publication 447498 D01 are used to determine 1-g SAR test exclusion and SAR test requirements. The simultaneous transmission configurations must be clearly described in the SAR report to support the test exclusion analysis and results.

Depending on the device form factor, antenna locations, operating configurations and exposure conditions, a test separation distance up to 10 mm may be considered for some devices; for example, certain game controllers and dual display smart phones. Under such circumstances, 10-g extremity SAR must also be measured at zero test separation for all measured 1-g (10 mm) SAR configurations to address hand exposure. A KDB inquiry is required to determine 10 mm is acceptable for measuring 1-g SAR.

¹ See "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities" in KDB Publication 941225 D06.

Some UMPC mini-table devices may incorporated proximity sensing and power reduction mechanisms to address RF exposure and simultaneous transmission concerns. The proximity sensor triggering distance and coverage tests described in KDB Publication 616217 D04 for full size tablets should be applied to determine the non-reduced full power SAR *test separation distance* required for UMPC mini-tablets.

For larger tablets with a display or overall diagonal dimension > 20 cm, the SAR procedures in KDB Publication 616217 D04 are required. The use conditions for tablets with larger form factors or overall dimensions are different and often have additional features to control or restrict transmissions to support interactive use; therefore, the test considerations for UMPC mini-tablet devices may not fully apply to the full size tablets. As different tablet designs and use conditions continue to emerge, the SAR test requirements may need adjustments. A KDB inquiry is recommended to ensure the test configurations used are acceptable for evolving products.

Change Notice

5/28/2013: 941225 D07 UMPC Mini Tablet v01r01 replaces 941225 D07 UMPC Mini Tablet Devices v01: Relevant comments for 04/05/2013 draft have been taken into consideration.

10/23/2015: 941225 D07 UMPC Mini Tablet v01r02 replaces 941225 D07 UMPC Mini Tablet Devices v01r01: Included editorial and format changes; also updated footnote 1.