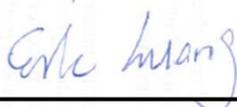


FCC SAR Test Report

APPLICANT : Hewlett-Packard Company
EQUIPMENT : Tablet PC
BRAND NAME : HP
MODEL NAME : HSTNN-I22C
FCC ID : B94HNI22CHW736
STANDARD : FCC 47 CFR Part 2 (2.1093)
ANSI/IEEE C95.1-1992
IEEE 1528-2003

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and had been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: Eric Huang / Deputy Manager



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



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Appendix B. Plots of High SAR Measurement

Appendix C. DASYS Calibration Certificate

Appendix D. Test Setup Photos



Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA482025	Rev. 01	Initial issue of report	Nov. 14, 2014
FA482025	Rev. 02	Corrected the KDB 941225 typo of the report	Nov. 17, 2014



1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Hewlett-Packard Company, Tablet PC, HSTNN-I22C**, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary	
		Body 1g SAR (W/kg)	Simultaneous Transmission 1g SAR (W/kg)
PCB	GSM850	1.40	1.59
	GSM1900	1.38	
	WCDMA Band V	1.13	
	WCDMA Band IV	1.27	
	WCDMA Band II	1.44	
Date of Testing:		09/29/2014 ~ 09/30/2014	

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2003.

2. Administration Data

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	Hewlett-Packard Company
Address	11445 Compaq Center Drive W Houston, TX 77070

Manufacturer	
Company Name	Inventec Corporation
Address	Inventec Building, No.66 Hou-Kang Street Shilin District, Taipei 11170, Taiwan



3. Guidance Standard

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2003
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03
- FCC KDB 865664 D02 SAR Reporting v01r01
- FCC KDB 447498 D01 General RF Exposure Guidance v05r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r01
- FCC KDB 941225 D01 3G SAR Procedures v03

4. Equipment Under Test (EUT)

4.1 General Information

Product Feature & Specification	
Equipment Name	Tablet PC
Brand Name	HP
Model Name	HSTNN-I22C
FCC ID	B94HNI22CHW736
Integrated Module	Brand Name: Huawei Model Name: MU736
IMEI Code	355870050013231
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Mode	<ul style="list-style-type: none"> • GPRS/EGPRS • RMC 12.2Kbps • HSDPA • HSUPA
EUT Stage	Identical Prototype
Remark:	
<ol style="list-style-type: none"> 1. This device has a keyboard and it can separation or combination with this host becomes a notebook PC or Tablet PC. 2. The below table WLAN module are also integrated into this host and the 2.4GHz WLAN and Bluetooth SAR testing results are also used perform transmission simultaneous analysis. 	

Module Information				
Integrated Module 1	Brand Name	Intel		
	Model Name	Intel® Dual Band Wireless-AC 7265 (Model 7265NGW, 7265NGW AN, 7265NGW BN, 7265NGW NB)		
	FCC ID	PD97265NG		
	Report No	SAR.20141005		
	Mode	<ul style="list-style-type: none"> • 802.11 a/b/g/n/ac • Bluetooth 		
Battery 1	Brand Name	hp	Model Name	HSTNN-DB5Z
	Power Rating	7.4Vdc, 4250mAh	Type	Li-ion

4.2 Maximum Tune-up Limit

Burst average power (dBm)				
Mode	GSM 850		GSM 1900	
Output Power Status	Full power mode	Reduced Power mode	Full power mode	Reduced Power mode
GPRS/EDGE (GMSK, 1 Tx slot)	33.50	30.50	30.50	27.50
GPRS/EDGE (GMSK, 2 Tx slots)	31.00	28.00	28.00	24.50
EDGE (8PSK, 1 Tx slot)	28.00	28.00	27.00	27.00
EDGE (8PSK, 2 Tx slots)	25.50	25.50	24.50	23.50
EDGE (8PSK, 3 Tx slot)	24.00	24.00	23.00	22.00
EDGE (8PSK, 4 Tx slots)	22.50	22.50	21.50	20.50

Burst average power (dBm)						
Mode	WCDMA Band V		WCDMA Band II		WCDMA Band IV	
Output Power Status	Full power mode	Reduced Power mode	Full power mode	Reduced Power mode	Full power mode	Reduced Power mode
RMC 12.2Kbps	24.50	21.00	24.50	17.50	24.50	18.50
HSDPA Subtest-1	24.50	21.00	24.50	17.50	24.50	18.50
HSUPA Subtest-5	24.50	21.00	24.50	17.50	24.50	18.50

5. Proximity Sensor Triggering Test

Proximity sensor power reduction

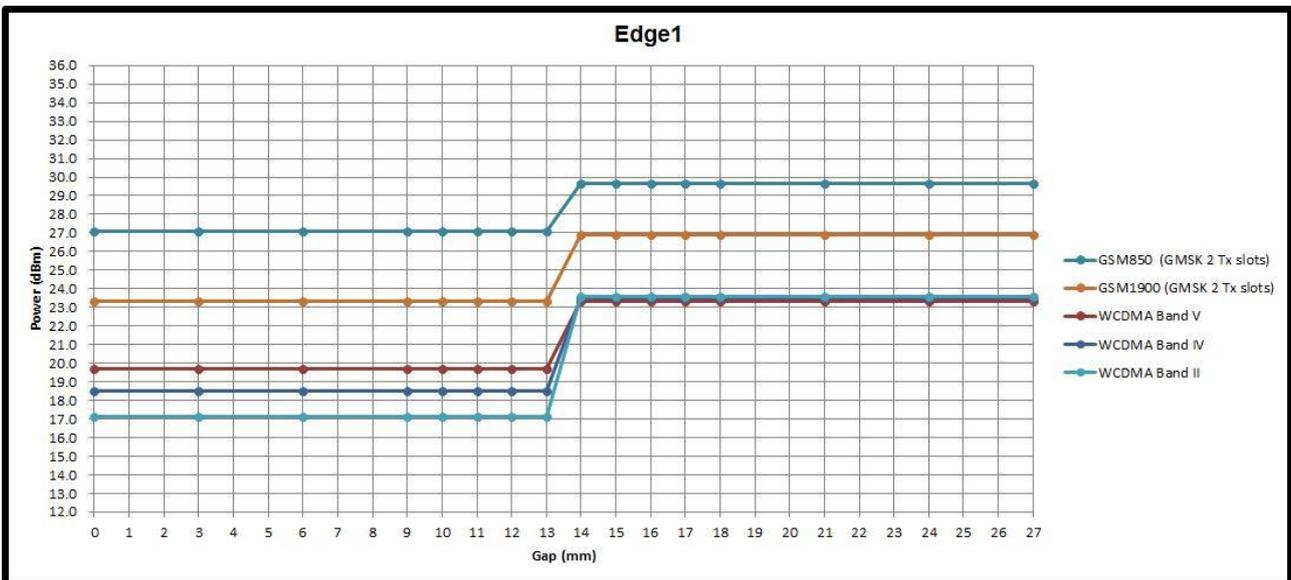
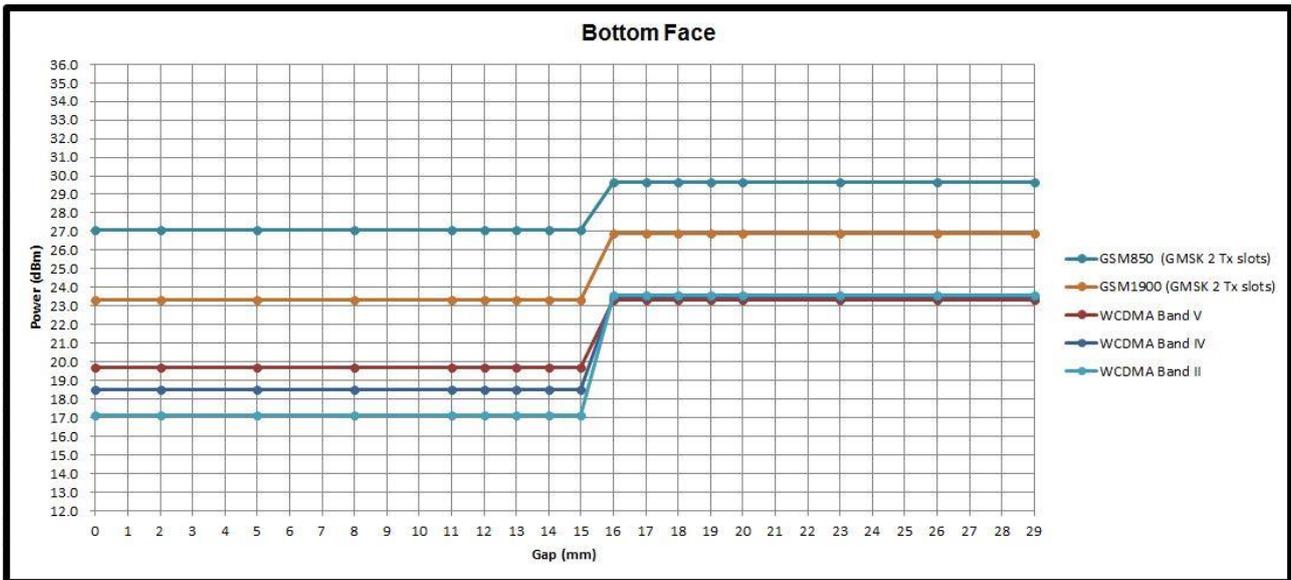
Exposure Position / wireless mode	Bottom Face ⁽¹⁾	Edge 1 ⁽¹⁾	Curved surface of Edge1 ⁽¹⁾	Edge 2	Edge 3	Edge 4
GSM850 GPRS (GMSK 1 Tx slot) - CS1	3.0 dB	3.0 dB	3.0 dB	0 dB	0 dB	0 dB
GSM850 GPRS (GMSK 2 Tx slot) - CS1	3.0 dB	3.0 dB	3.0 dB			
GSM850 EDGE (8PSK 1 Tx slot) - MCS5	0.0 dB	0.0 dB	0.0 dB			
GSM850 EDGE (8PSK 2 Tx slot) - MCS5	0.0 dB	0.0 dB	0.0 dB			
GSM850 EDGE (8PSK 3 Tx slot) - MCS5	0.0 dB	0.0 dB	0.0 dB			
GSM850 EDGE (8PSK 4 Tx slot) - MCS5	0.0 dB	0.0 dB	0.0 dB			
GSM1900 GPRS (GMSK 1 Tx slot) - CS1	3.0 dB	3.0 dB	3.0 dB			
GSM1900 GPRS (GMSK 2 Tx slot) - CS1	3.5 dB	3.5 dB	3.5 dB			
GSM1900 EDGE (8PSK 1 Tx slot) - MCS5	0.0 dB	0.0 dB	0.0 dB			
GSM1900 EDGE (8PSK 2 Tx slot) - MCS5	1.0 dB	1.0 dB	1.0 dB			
GSM1900 EDGE (8PSK 3 Tx slot) - MCS5	1.0 dB	1.0 dB	1.0 dB			
GSM1900 EDGE (8PSK 4 Tx slot) - MCS5	1.0 dB	1.0 dB	1.0 dB			
WCDMA Band V	3.5 dB	3.5 dB	3.5 dB			
WCDMA Band II	7.0 dB	7.0 dB	7.0 dB			
WCDMA Band IV	6.0 dB	6.0 dB	6.0 dB			

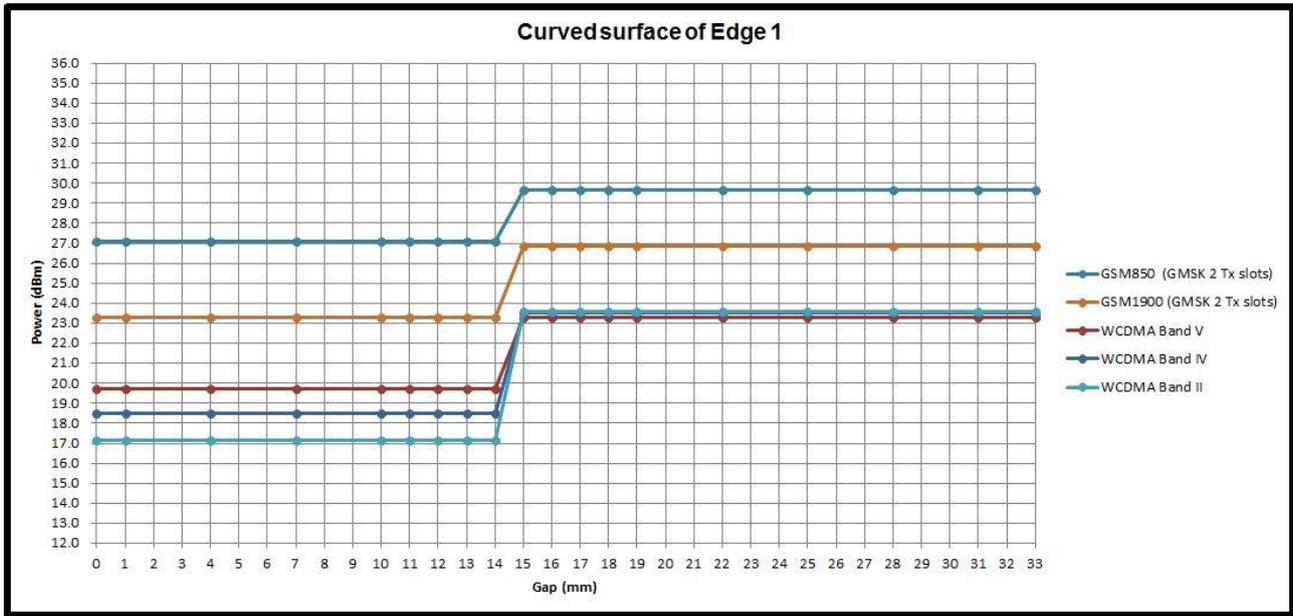
Remark:

- ⁽¹⁾: Reduced maximum limit applied by activation of proximity sensor.
- Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown and described in exhibit "P-Sensor operational description"
- For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
 - Bottom Face: [12 mm](#)
 - Edge1: [12 mm](#)
 - Curved surface of Edge1: [12 mm](#)

Power Measurement during Sensor Trigger distance testing

Band/Mode	Ch #	Measured power reduction (dBm)		Reduction Levels (dB)
		w/o power back-off	w/ power back-off	
GSM850 GPRS (GMSK 2 Tx slot)	251	29.67	27.07	2.60
GSM1900 GPRS (GMSK 2 Tx slot)	512	26.87	23.31	3.56
WCDMA Band V (RMC 12.2Kbps)	4132	23.31	19.70	3.61
WCDMA Band IV (RMC 12.2Kbps)	1312	23.52	18.49	5.03
WCDMA Band II (RMC 12.2Kbps)	9400	23.57	17.12	6.45







6. RF Exposure Limits

6.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

6.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

7. Specific Absorption Rate (SAR)

7.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

7.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt} \left(\frac{dW}{dm} \right) = \frac{d}{dt} \left(\frac{dW}{\rho dv} \right)$$

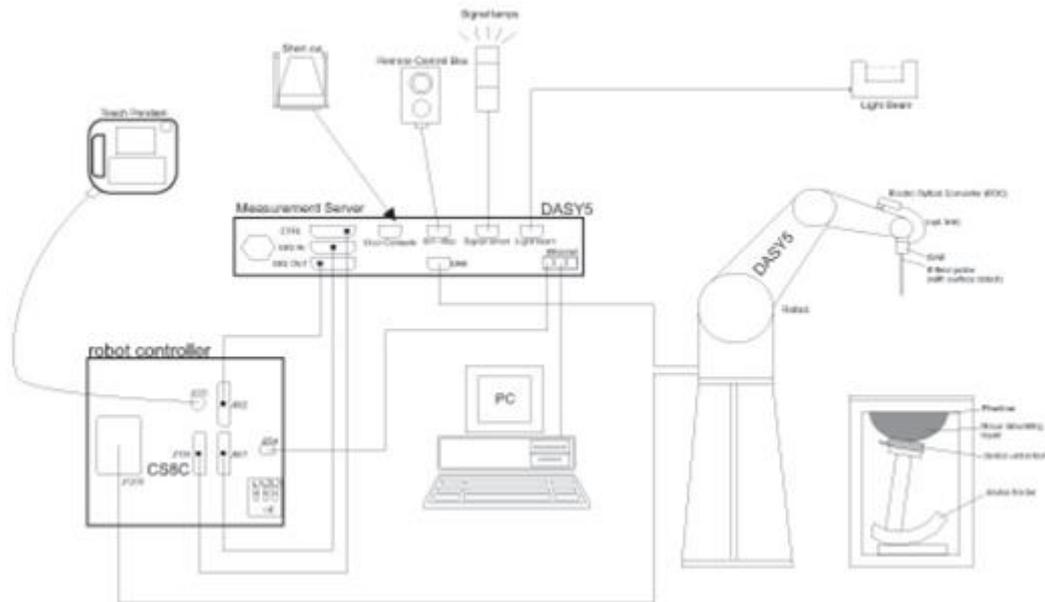
SAR is expressed in units of Watts per kilogram (W/kg)

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

8. System Description and Setup

The DASY system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

- (a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- (b) Read the WWAN RF power level from the base station simulator.
- (c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
- (d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix D demonstrates.
- (c) Set scan area, grid size and other setting on the DASY software.
- (d) Measure SAR results for the highest power channel on each testing position.
- (e) Find out the largest SAR result on these testing positions of each band
- (f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- (a) Power reference measurement
- (b) Area scan
- (c) Zoom scan
- (d) Power drift measurement

9.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

9.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

9.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r03 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: $\Delta x_{Area}, \Delta y_{Area}$	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

9.4 Zoom Scan

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r03 SAR measurement 100 MHz to 6 GHz.

		≤ 3 GHz	> 3 GHz	
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm	
	graded grid	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

9.5 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

9.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASYS measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.



10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	835MHz System Validation Kit	D835V2	499	Mar. 24, 2014	Mar. 23, 2015
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 27, 2013	Nov. 26, 2014
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Mar. 21, 2014	Mar. 20, 2015
SPEAG	Data Acquisition Electronics	DAE4	1399	Nov. 07, 2013	Nov. 06, 2014
SPEAG	Dosimetric E-Field Probe	EX3DV4	3955	Nov. 12, 2013	Nov. 11, 2014
H.M.IRIS	Thermometer	TH-08	TM658	Oct. 22, 2013	Oct. 21, 2014
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 27, 2014	May. 26, 2015
SPEAG	Device Holder	N/A	N/A	NCR	NCR
Agilent	Signal Generator	N5181A	MY50145381	Jan. 04, 2014	Jan. 03, 2015
SPEAG	Dielectric Probe Kit	DAKS-3.5	0004	Mar. 04, 2014	Mar. 03, 2015
Agilent	ENA Network Analyzer	E5071C	MY46101588	May. 31, 2014	May. 30, 2015
Anritsu	Power Meter	ML2495A	1036004	Aug. 09, 2014	Aug. 08, 2015
Anritsu	Power Sensor	MA2411B	1027253	Aug. 11, 2014	Aug. 10, 2015
R&S	Spectrum Analyzer	FSP 7	101131	Jul. 10, 2014	Jul. 09, 2015
Agilent	Dual Directional Coupler	778D	50422	Note1	
Woken	Attenuator 1	WK0602-XX	N/A	Note1	
PE	Attenuator 2	PE7005-10	N/A	Note1	
PE	Attenuator 3	PE7005- 3	N/A	Note1	
AR	Power Amplifier	5S1G4M2	0328767	Note1	
Mini-Circuits	Power Amplifier	ZVE-3W	162601250	Note1	
Mini-Circuits	Power Amplifier	ZHL-42W+	13440021344	Note1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.



11. System Verification

11.1 Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ϵ_r)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
835	MSL	22.6	0.954	52.813	0.97	55.20	-1.65	-4.32	±5	2014/9/30
1750	MSL	22.3	1.526	52.021	1.49	53.40	2.42	-2.58	±5	2014/9/29
1900	MSL	22.3	1.532	52.328	1.52	53.30	0.79	-1.82	±5	2014/9/29
1900	MSL	22.4	1.523	54.798	1.52	53.30	0.20	2.81	±5	2014/9/30

11.2 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2014/9/30	835	MSL	250	D835V2-499	EX3DV4 - SN3955	DAE4 Sn1399	2.45	9.46	9.8	3.59
2014/9/29	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3955	DAE4 Sn1399	9.04	37.50	36.16	-3.57
2014/9/29	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3955	DAE4 Sn1399	10.20	41.00	40.8	-0.49
2014/9/30	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3955	DAE4 Sn1399	9.84	41.00	39.36	-4.00

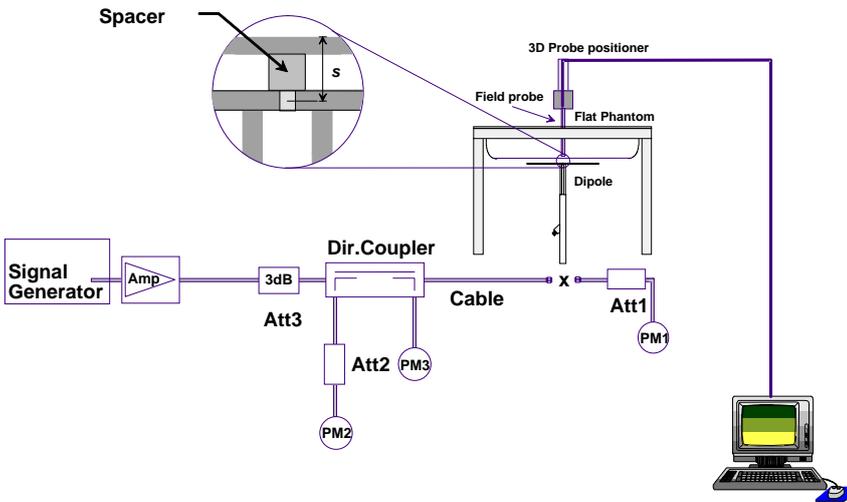


Fig 8.3.1 System Performance Check Setup



Fig 8.3.2 Setup Photo

12. RF Exposure Positions

12.1 SAR Testing for Tablet

This device can be used also in full sized tablet exposure conditions, due to its size. Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR exclusion threshold in KDB 447498 D01v05r02 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.



13. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

General Note:

- Per KDB 447498 D01v05r02, the maximum output power channel is used for SAR testing and for further SAR test reduction.
- Per KDB 941225 D01v03, for Body SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance, for modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested, therefore, the GPRS 2Tx slots modes was selected when EUT operating without power back-off, the GPRS 2Tx slots modes was selected when EUT operating with power back-off, according to the highest source-based time-averaged output power.

Full Power mode (Proximity Sensor Inactive)

Band GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	TX Channel	128	189		251	128	189	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GPRS (GMSK, 1 Tx slot)	31.86	31.87	31.98	33.50	22.86	22.87	22.98	24.50
GPRS (GMSK, 2 Tx slots)	29.57	29.57	29.67	31.00	23.57	23.57	23.67	25.00
EDGE (8PSK, 1 Tx slot)	26.15	26.16	26.26	28.00	17.15	17.16	17.26	19.00
EDGE (8PSK, 2 Tx slots)	23.87	23.88	23.99	25.50	17.87	17.88	17.99	19.50
EDGE (8PSK, 3 Tx slots)	22.44	22.45	22.55	24.00	18.18	18.19	18.29	19.74
EDGE (8PSK, 4 Tx slots)	20.99	20.99	21.10	22.50	17.99	17.99	18.10	19.50

TX Channel	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GPRS (GMSK, 1 Tx slot)	29.38	29.27	28.93	30.50	20.38	20.27	19.93	21.50
GPRS (GMSK, 2 Tx slots)	26.87	26.75	26.43	28.00	20.87	20.75	20.43	22.00
EDGE (8PSK, 1 Tx slot)	25.73	25.59	25.27	27.00	16.73	16.59	16.27	18.00
EDGE (8PSK, 2 Tx slots)	23.47	23.32	22.98	24.50	17.47	17.32	16.98	18.50
EDGE (8PSK, 3 Tx slots)	21.96	21.82	21.49	23.00	17.70	17.56	17.23	18.74
EDGE (8PSK, 4 Tx slots)	20.47	20.33	20.00	21.50	17.47	17.33	17.00	18.50

Reduced Power Mode (Proximity Sensor active)

Band GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	TX Channel	128	189		251	128	189	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GPRS (GMSK, 1 Tx slot)	29.89	29.90	30.00	30.50	20.89	20.90	21.00	21.50
GPRS (GMSK, 2 Tx slots)	26.94	26.95	27.07	28.00	20.94	20.95	21.07	22.00
EDGE (8PSK, 1 Tx slot)	26.15	26.16	26.26	28.00	17.15	17.16	17.26	19.00
EDGE (8PSK, 2 Tx slots)	23.87	23.88	23.99	25.50	17.87	17.88	17.99	19.50
EDGE (8PSK, 3 Tx slots)	22.44	22.45	22.55	24.00	18.18	18.19	18.29	19.74
EDGE (8PSK, 4 Tx slots)	20.99	20.99	21.10	22.50	17.99	17.99	18.10	19.50

Band GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	TX Channel	512	661		810	512	661	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GPRS (GMSK, 1 Tx slot)	26.21	26.16	25.89	27.50	17.21	17.16	16.89	18.50
GPRS (GMSK, 2 Tx slots)	23.31	23.23	22.94	24.50	17.31	17.23	16.94	18.50
EDGE (8PSK, 1 Tx slot)	25.69	25.56	25.33	27.00	16.69	16.56	16.33	18.00
EDGE (8PSK, 2 Tx slots)	22.81	22.69	22.30	23.50	16.81	16.69	16.30	17.50
EDGE (8PSK, 3 Tx slots)	20.78	20.70	20.41	22.00	16.52	16.44	16.15	17.74
EDGE (8PSK, 4 Tx slots)	19.79	19.66	19.59	20.50	16.79	16.66	16.59	17.50

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
 - i. Set Gain Factors (β_c and β_d) and parameters were set according to each
 - ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
 - iii. Set RMC 12.2Kbps + HSDPA mode.
 - iv. Set Cell Power = -86 dBm
 - v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
 - vi. Select HSDPA Uplink Parameters
 - vii. Set Delta ACK, Delta NACK and Delta CQI = 8
 - viii. Set Ack-Nack Repetition Factor to 3
 - ix. Set CQI Feedback Cycle (k) to 4 ms
 - x. Set CQI Repetition Factor to 2
 - xi. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{HS} = 24/15 * \beta_c$.

Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. For all other combinations of DPDCCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

Setup Configuration

HSUPA Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting * :
 - i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
 - ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
 - iii. Set Cell Power = -86 dBm
 - iv. Set Channel Type = 12.2k + HSPA
 - v. Set UE Target Power
 - vi. Power Ctrl Mode= Alternating bits
 - vii. Set and observe the E-TFCl
 - viii. Confirm that E-TFCl is equal to the target E-TFCl of 75 for sub-test 1, and other subtest's E-TFCl
- d. The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCl
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}: 47/15$ $\beta_{ed2}: 47/15$	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15, \beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.

Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 6: β_{ed} can not be set directly, it is set by Absolute Grant Value.

Setup Configuration



<WCDMA Conducted Power>

General Note:

- Per KDB 941225 D01v03, RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA.

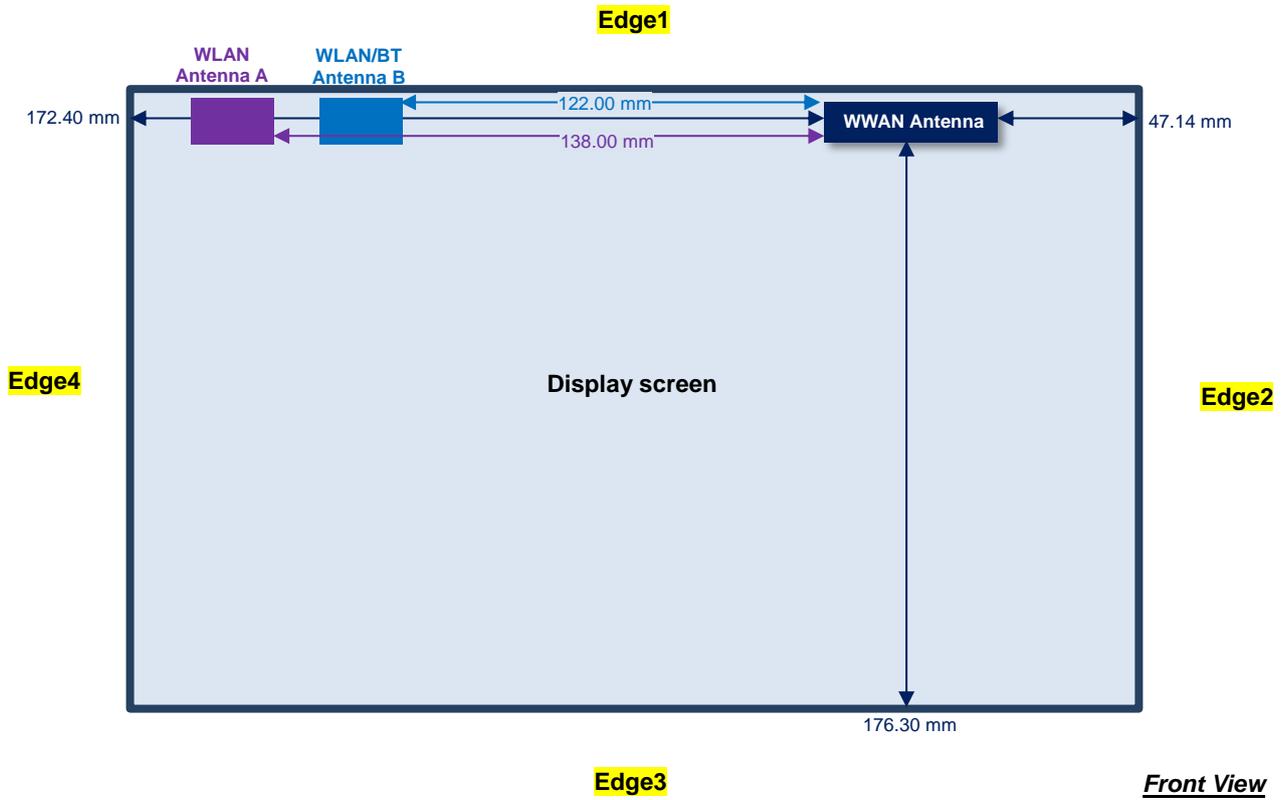
Full Power mode (Proximity Sensor Inactive)

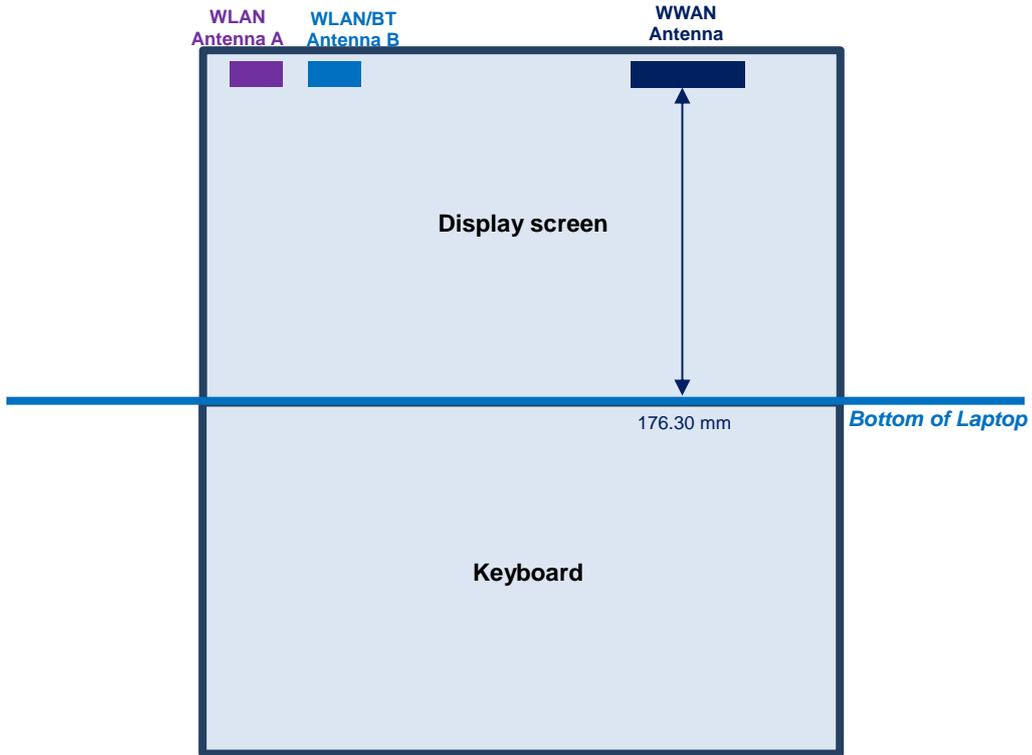
Band		WCDMA V			WCDMA II			WCDMA IV		
TX Channel		4132	4182	4233	9262	9400	9538	1312	1413	1513
Frequency (MHz)		826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
3GPP Rel 99	RMC 12.2Kbps	23.31	23.00	22.91	23.49	23.57	22.71	23.52	23.16	23.11
3GPP Rel 6	HSDPA Subtest-1	23.00	22.73	22.68	22.84	23.06	22.21	22.87	22.53	22.54
3GPP Rel 6	HSDPA Subtest-2	21.97	21.75	21.70	21.86	22.12	21.24	21.84	21.60	21.57
3GPP Rel 6	HSDPA Subtest-3	21.78	21.71	21.76	21.62	21.80	21.11	21.60	21.38	21.30
3GPP Rel 6	HSDPA Subtest-4	21.57	21.49	21.47	21.40	21.63	20.92	21.43	21.15	21.11
3GPP Rel 6	HSUPA Subtest-1	21.91	21.59	21.53	22.04	22.14	21.52	22.23	21.96	21.83
3GPP Rel 6	HSUPA Subtest-2	19.88	19.68	19.62	20.11	20.26	19.65	20.21	19.98	19.85
3GPP Rel 6	HSUPA Subtest-3	20.75	20.44	20.40	20.90	20.92	20.15	20.91	20.69	20.58
3GPP Rel 6	HSUPA Subtest-4	20.26	19.99	19.94	20.46	20.56	20.03	20.62	20.31	20.19
3GPP Rel 6	HSUPA Subtest-5	22.02	21.73	21.61	21.99	22.32	21.49	22.29	21.97	21.89

Reduced Power Mode (Proximity Sensor active)

Band		WCDMA V			WCDMA II			WCDMA IV		
TX Channel		4132	4182	4233	9262	9400	9538	1312	1413	1513
Frequency (MHz)		826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
3GPP Rel 99	RMC 12.2Kbps	19.70	19.47	19.40	17.01	17.12	16.44	18.49	18.22	18.28
3GPP Rel 6	HSDPA Subtest-1	19.60	19.35	19.27	16.74	16.89	16.28	18.48	18.18	18.10
3GPP Rel 6	HSDPA Subtest-2	19.58	19.34	19.24	16.80	16.85	16.29	18.48	18.22	18.10
3GPP Rel 6	HSDPA Subtest-3	19.53	19.18	19.20	16.67	16.88	16.27	18.32	18.16	18.11
3GPP Rel 6	HSDPA Subtest-4	19.59	19.35	19.24	16.79	16.83	16.26	18.36	18.19	18.05
3GPP Rel 6	HSUPA Subtest-1	19.04	18.89	18.75	16.21	16.46	15.98	17.81	17.63	17.57
3GPP Rel 6	HSUPA Subtest-2	18.39	18.19	18.29	15.76	15.76	15.38	17.11	16.97	17.01
3GPP Rel 6	HSUPA Subtest-3	18.17	17.79	18.22	15.75	16.08	15.40	17.46	17.18	17.13
3GPP Rel 6	HSUPA Subtest-4	18.58	18.41	18.35	16.00	16.06	15.59	17.47	17.19	17.15
3GPP Rel 6	HSUPA Subtest-5	19.50	19.40	19.35	16.84	16.88	16.46	18.45	18.18	18.19

14. Antenna Location





<SAR test exclusion table>

General Note:

1. The below table, when the distance is < 50 mm exclusion threshold is "Ratio", when the distance is > 50 mm exclusion threshold is "mW"
2. Maximum power is the source-based time-average power and represents the maximum RF output power among production units
3. Per KDB 447498 D01v05r02, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
4. Per KDB 447498 D01v05r02, standalone SAR test exclusion threshold is applied; If the test separation distance is < 5mm, 5mm is used to determine SAR exclusion threshold.
5. Per KDB 447498 D01v05r02, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:
 - $[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] \cdot [\sqrt{f(GHz)}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
 - f(GHz) is the RF channel transmit frequency in GHz
 - Power and distance are rounded to the nearest mW and mm before calculation
 - The result is rounded to one decimal place for comparison
6. Per KDB 447498 D01v05r02, at 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following
 - a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz
 - b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

Exposure Position	Wireless Interface	GPRS 850 Class 10	GPRS 1900 Class 10	WCDMA Band V	WCDMA Band IV	WCDMA Band II
	Calculated Frequency	848MHz	1909MHz	846MHz	1750MHz	1907MHz
Maximum power (dBm)	25	22	24.5	24.5	24.5	
Maximum rated power(mW)	316	158	282	282	282	
Bottom Face	Separation distance(mm)	5				
	exclusion threshold	58	44	52	75	78
	Testing required?	Yes	Yes	Yes	Yes	Yes
Edge 1	Separation distance(mm)	5				
	exclusion threshold	58	44	52	75	78
	Testing required?	Yes	Yes	Yes	Yes	Yes
Edge 2	Separation distance(mm)	47.14				
	exclusion threshold	6	5	6	8	8
	Testing required?	Yes	Yes	Yes	Yes	Yes
Edge 3	Separation distance(mm)	176.30				
	exclusion threshold	877	1372	875	1376	1372
	Testing required?	No	No	No	No	No
Edge 4	Separation distance(mm)	172.40				
	exclusion threshold	855	1333	853	1337	1333
	Testing required?	No	No	No	No	No
Bottom of Laptop	Separation distance(mm)	176.30				
	exclusion threshold	877	1372	875	1376	1372
	Testing required?	No	No	No	No	No



15. SAR Test Results

General Note:

1. Per KDB 447498 D01v05r02, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
2. Per KDB 447498 D01v05r02, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. For the exposure positions that proximity sensor power reduction is applied for SAR compliance, additional SAR testing with EUT transmitting full power in normal mode was performed; 1.2cm for bottom face, 1.2cm for edge1, 1.2cm for curved surface of edge1.
4. When the minimum distance between antenna and device edge along the curve is less than bottom face and surface edge, the curved SAR is necessary, more detail information which can be referred to setup photo.
5. For SAR testing of the curved region of the device, the device was placed directly against the phantom at the point where the distance between the antenna and device exterior is a minimum.

15.1 Body SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1	GSM850	GPRS (2 Tx slots)	Bottom Face	0cm	ON	251	848.8	27.07	28.00	1.239	-0.06	1.030	1.276
	GSM850	GPRS (2 Tx slots)	Bottom Face	0cm	ON	128	824.2	26.94	28.00	1.276	-0.14	1.100	1.404
	GSM850	GPRS (2 Tx slots)	Bottom Face	0cm	ON	189	836.4	26.95	28.00	1.274	-0.05	1.100	1.401
	GSM850	GPRS (2 Tx slots)	Edge 1	0cm	ON	251	848.8	27.07	28.00	1.239	-0.01	0.657	0.814
	GSM850	GPRS (2 Tx slots)	Edge 1	0cm	ON	128	824.2	26.94	28.00	1.276	-0.06	0.640	0.817
	GSM850	GPRS (2 Tx slots)	Edge 1	0cm	ON	189	836.4	26.95	28.00	1.274	-0.06	0.694	0.884
	GSM850	GPRS (2 Tx slots)	Curved surface of Edge1	0cm	ON	251	848.8	27.07	28.00	1.239	-0.01	0.881	1.091
	GSM850	GPRS (2 Tx slots)	Curved surface of Edge1	0cm	ON	128	824.2	26.94	28.00	1.276	-0.08	0.837	1.068
	GSM850	GPRS (2 Tx slots)	Curved surface of Edge1	0cm	ON	189	836.4	26.95	28.00	1.274	-0.04	0.834	1.062
	GSM850	GPRS (2 Tx slots)	Bottom Face	1.2cm	OFF	251	848.8	29.67	31.00	1.358	-0.07	0.391	0.531
	GSM850	GPRS (2 Tx slots)	Edge 1	1.2cm	OFF	251	848.8	29.67	31.00	1.358	-0.1	0.181	0.246
	GSM850	GPRS (2 Tx slots)	Curved surface of Edge1	1.2cm	OFF	251	848.8	29.67	31.00	1.358	-0.08	0.338	0.459
GSM850	GPRS (2 Tx slots)	Edge 2	0cm	OFF	251	848.8	29.67	31.00	1.358	-0.08	0.144	0.196	
2	GSM1900	GPRS (2 Tx slots)	Bottom Face	0cm	ON	512	1850.2	23.31	24.50	1.315	-0.07	1.050	1.381
	GSM1900	GPRS (2 Tx slots)	Bottom Face	0cm	ON	661	1880	23.23	24.50	1.340	-0.07	1.030	1.380
	GSM1900	GPRS (2 Tx slots)	Bottom Face	0cm	ON	810	1909.8	22.94	24.50	1.432	0	0.928	1.329
	GSM1900	GPRS (2 Tx slots)	Edge 1	0cm	ON	512	1850.2	23.31	24.50	1.315	-0.04	0.587	0.772
	GSM1900	GPRS (2 Tx slots)	Curved surface of Edge1	0cm	ON	512	1850.2	23.31	24.50	1.315	-0.04	0.626	0.823
	GSM1900	GPRS (2 Tx slots)	Curved surface of Edge1	0cm	ON	661	1880	23.23	24.50	1.340	-0.17	0.548	0.734
	GSM1900	GPRS (2 Tx slots)	Curved surface of Edge1	0cm	ON	810	1909.8	22.94	24.50	1.432	-0.15	0.512	0.733
	GSM1900	GPRS (2 Tx slots)	Bottom Face	1.2cm	OFF	512	1850.2	26.87	28.00	1.297	-0.07	0.212	0.275
	GSM1900	GPRS (2 Tx slots)	Edge 1	1.2cm	OFF	512	1850.2	26.87	28.00	1.297	-0.06	0.342	0.444
	GSM1900	GPRS (2 Tx slots)	Curved surface of Edge1	1.2cm	OFF	512	1850.2	26.87	28.00	1.297	-0.07	0.334	0.433
GSM1900	GPRS (2 Tx slots)	Edge 2	0cm	OFF	512	1850.2	26.87	28.00	1.297	0.14	0.035	0.045	



<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V	RMC 12.2Kbps	Bottom Face	0cm	ON	4132	826.4	19.70	21.00	1.349	-0.04	0.823	1.110
	WCDMA V	RMC 12.2Kbps	Bottom Face	0cm	ON	4182	836.4	19.47	21.00	1.422	-0.06	0.717	1.020
3	WCDMA V	RMC 12.2Kbps	Bottom Face	0cm	ON	4233	846.6	19.40	21.00	1.445	-0.05	0.778	1.125
	WCDMA V	RMC 12.2Kbps	Edge 1	0cm	ON	4132	826.4	19.70	21.00	1.349	-0.03	0.649	0.875
	WCDMA V	RMC 12.2Kbps	Edge 1	0cm	ON	4182	836.4	19.47	21.00	1.422	-0.08	0.548	0.779
	WCDMA V	RMC 12.2Kbps	Edge 1	0cm	ON	4233	846.6	19.40	21.00	1.445	-0.12	0.495	0.715
	WCDMA V	RMC12.2Kbps	Curved surface of Edge1	0cm	ON	4132	826.4	19.70	21.00	1.349	-0.08	0.793	1.070
	WCDMA V	RMC12.2Kbps	Curved surface of Edge1	0cm	ON	4182	836.4	19.47	21.00	1.422	-0.08	0.697	0.991
	WCDMA V	RMC12.2Kbps	Curved surface of Edge1	0cm	ON	4233	846.6	19.40	21.00	1.445	-0.08	0.700	1.012
	WCDMA V	RMC 12.2Kbps	Bottom Face	1.2cm	OFF	4132	826.4	23.31	24.50	1.315	0.03	0.439	0.577
	WCDMA V	RMC 12.2Kbps	Edge 1	1.2cm	OFF	4132	826.4	23.31	24.50	1.315	0.02	0.238	0.313
	WCDMA V	RMC12.2Kbps	Curved surface of Edge1	1.2cm	OFF	4132	826.4	23.31	24.50	1.315	-0.01	0.331	0.435
	WCDMA V	RMC 12.2Kbps	Edge 2	0cm	OFF	4132	826.4	23.31	24.50	1.315	-0.06	0.171	0.225
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0cm	ON	1312	1712.4	18.49	18.50	1.002	-0.11	1.060	1.062
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0cm	ON	1413	1732.6	18.22	18.50	1.067	0.15	1.160	1.237
4	WCDMA IV	RMC 12.2Kbps	Bottom Face	0cm	ON	1513	1752.6	18.28	18.50	1.052	-0.08	1.210	1.273
	WCDMA IV	RMC12.2Kbps	Edge 1	0cm	ON	1312	1712.4	18.49	18.50	1.002	-0.06	0.921	0.923
	WCDMA IV	RMC12.2Kbps	Edge 1	0cm	ON	1413	1732.6	18.22	18.50	1.067	-0.13	0.800	0.853
	WCDMA IV	RMC12.2Kbps	Edge 1	0cm	ON	1513	1752.6	18.28	18.50	1.052	-0.01	0.806	0.848
	WCDMA IV	RMC12.2Kbps	Curved surface of Edge1	0cm	ON	1312	1712.4	18.49	18.50	1.002	-0.07	1.060	1.062
	WCDMA IV	RMC12.2Kbps	Curved surface of Edge1	0cm	ON	1413	1732.6	18.22	18.50	1.067	-0.17	0.961	1.025
	WCDMA IV	RMC12.2Kbps	Curved surface of Edge1	0cm	ON	1513	1752.6	18.28	18.50	1.052	-0.17	0.961	1.011
	WCDMA IV	RMC 12.2Kbps	Bottom Face	1.2cm	OFF	1312	1712.4	23.52	24.50	1.253	-0.13	0.533	0.668
	WCDMA IV	RMC12.2Kbps	Edge 1	1.2cm	OFF	1312	1712.4	23.52	24.50	1.253	-0.05	0.889	1.114
	WCDMA IV	RMC12.2Kbps	Edge 1	1.2cm	OFF	1413	1732.6	23.16	24.50	1.361	-0.05	0.908	1.236
	WCDMA IV	RMC12.2Kbps	Edge 1	1.2cm	OFF	1513	1752.6	23.11	24.50	1.377	-0.02	0.773	1.065
	WCDMA IV	RMC12.2Kbps	Curved surface of Edge1	1.2cm	OFF	1312	1712.4	23.52	24.50	1.253	-0.11	0.898	1.125
	WCDMA IV	RMC12.2Kbps	Curved surface of Edge1	1.2cm	OFF	1413	1732.6	23.16	24.50	1.361	-0.07	0.883	1.202
	WCDMA IV	RMC12.2Kbps	Curved surface of Edge1	1.2cm	OFF	1513	1752.6	23.11	24.50	1.377	-0.07	0.739	1.018
	WCDMA IV	RMC 12.2Kbps	Edge 2	0cm	OFF	1312	1712.4	23.52	24.50	1.253	0.12	0.034	0.043
	WCDMA II	RMC 12.2Kbps	Bottom Face	0cm	ON	9400	1880	17.12	17.50	1.091	-0.1	1.280	1.397
	WCDMA II	RMC 12.2Kbps	Bottom Face	0cm	ON	9262	1852.4	17.01	17.50	1.119	-0.1	1.220	1.366
	WCDMA II	RMC 12.2Kbps	Bottom Face	0cm	ON	9538	1907.6	16.44	17.50	1.276	-0.07	1.090	1.391
	WCDMA II	RMC12.2Kbps	Edge 1	0cm	ON	9400	1880	17.12	17.50	1.091	-0.16	0.715	0.780
	WCDMA II	RMC12.2Kbps	Curved surface of Edge1	0cm	ON	9400	1880	17.12	17.50	1.091	-0.05	0.687	0.750
	WCDMA II	RMC 12.2Kbps	Bottom Face	1.2cm	OFF	9400	1880	23.57	24.50	1.239	-0.06	0.670	0.830
	WCDMA II	RMC 12.2Kbps	Bottom Face	1.2cm	OFF	9262	1852.4	23.49	24.50	1.262	-0.08	0.539	0.680
	WCDMA II	RMC 12.2Kbps	Bottom Face	1.2cm	OFF	9538	1907.6	22.71	24.50	1.510	-0.16	0.482	0.728
5	WCDMA II	RMC 12.2Kbps	Edge 1	1.2cm	OFF	9400	1880	23.57	24.50	1.239	0.07	1.160	1.437
	WCDMA II	RMC 12.2Kbps	Edge 1	1.2cm	OFF	9262	1852.4	23.49	24.50	1.262	-0.04	0.950	1.199
	WCDMA II	RMC 12.2Kbps	Edge 1	1.2cm	OFF	9538	1907.6	22.71	24.50	1.510	-0.03	0.773	1.167
	WCDMA II	RMC12.2Kbps	Curved surface of Edge1	1.2cm	OFF	9400	1880	23.57	24.50	1.239	-0.06	1.090	1.350
	WCDMA II	RMC12.2Kbps	Curved surface of Edge1	1.2cm	OFF	9262	1852.4	23.49	24.50	1.262	-0.1	0.850	1.073
	WCDMA II	RMC12.2Kbps	Curved surface of Edge1	1.2cm	OFF	9538	1907.6	22.71	24.50	1.510	-0.07	0.737	1.113
	WCDMA II	RMC 12.2Kbps	Edge 2	0cm	OFF	9400	1880	23.57	24.50	1.239	-0.14	0.137	0.170

15.2 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	GSM850	GPRS (2 Tx slots)	Bottom Face	0cm	ON	128	824.2	26.94	28.00	1.276	-0.14	1.100	-	1.404
2nd	GSM850	GPRS (2 Tx slots)	Bottom Face	0cm	ON	128	824.2	26.94	28.00	1.276	-0.06	0.995	1.11	1.270
1st	WCDMA IV	RMC 12.2Kbps	Bottom Face	0cm	ON	1513	1752.6	18.28	18.50	1.052	-0.08	1.210	-	1.273
2nd	WCDMA IV	RMC 12.2Kbps	Bottom Face	0cm	ON	1513	1752.6	18.28	18.50	1.052	-0.02	1.210	1.00	1.273
1st	WCDMA II	RMC 12.2Kbps	Bottom Face	0cm	ON	9400	1880	17.12	17.50	1.091	-0.1	1.280	-	1.397
2nd	WCDMA II	RMC 12.2Kbps	Bottom Face	0cm	ON	9400	1880	17.12	17.50	1.091	-0.16	1.280	1.00	1.397

General Note:

1. Per KDB 865664 D01v01r03, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg
2. Per KDB 865664 D01v01r03, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR < 1.45 W/kg, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

16. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Tablet	Note
		Body	
1.	GPRS/EDGE(Data) + WLAN2.4GHz(data)	Yes	Hotspot / WiFi Direct
2.	WCDMA(Data) + WLAN2.4GHz(data)	Yes	Hotspot / WiFi Direct
3.	GPRS/EDGE(Data) + Bluetooth(data)	Yes	
4.	WCDMA(Data) + Bluetooth(data)	Yes	
5.	GPRS/EDGE(Data) + WLAN5GHz (data)	No	
6.	WCDMA(Data) + WLAN5GHz (data)	No	

General Note:

1. The below table WLAN module is also integrated into this host and the 2.4GHz WLAN and Bluetooth SAR testing results are also used perform transmission simultaneous analysis.
2. The worst case 2.4 GHz WLAN and Bluetooth SAR for each configuration in below each WLAN report was used for SAR summation; therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN and Bluetooth.
3. The worst case WLAN and Bluetooth reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN and Bluetooth.
4. For simultaneous transmission analysis for exposure position of edge1 1.2cm, Curved surface of Edge1 1.2cm and bottom face 1.2cm, WLAN SAR tested at 0mm separation is worse and the test data is used for conservative SAR summation.
5. The Scaled SAR summation is calculated based on the same configuration and test position.
6. Per KDB 447498 D01v05r02, simultaneous transmission SAR is compliant if,
 - i) Scalar SAR summation < 1.6W/kg.
 - ii) $SPLSR = (SAR1 + SAR2)^{1.5} / (\min. \text{separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - iii) If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.
 - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
 - v) The SPLSR calculated results please refer to section 16.2.

Module Information		
Integrated Module 1	Brand Name	Intel
	Model Name	Intel® Dual Band Wireless-AC 7265 (Model 7265NGW, 7265NGW AN, 7265NGW BN, 7265NGW NB)
	FCC ID	PD97265NG
	Report No	SAR.20141005
	Mode	<ul style="list-style-type: none"> • 802.11 a/b/g/n/ac • Bluetooth



16.1 Body Exposure Conditions

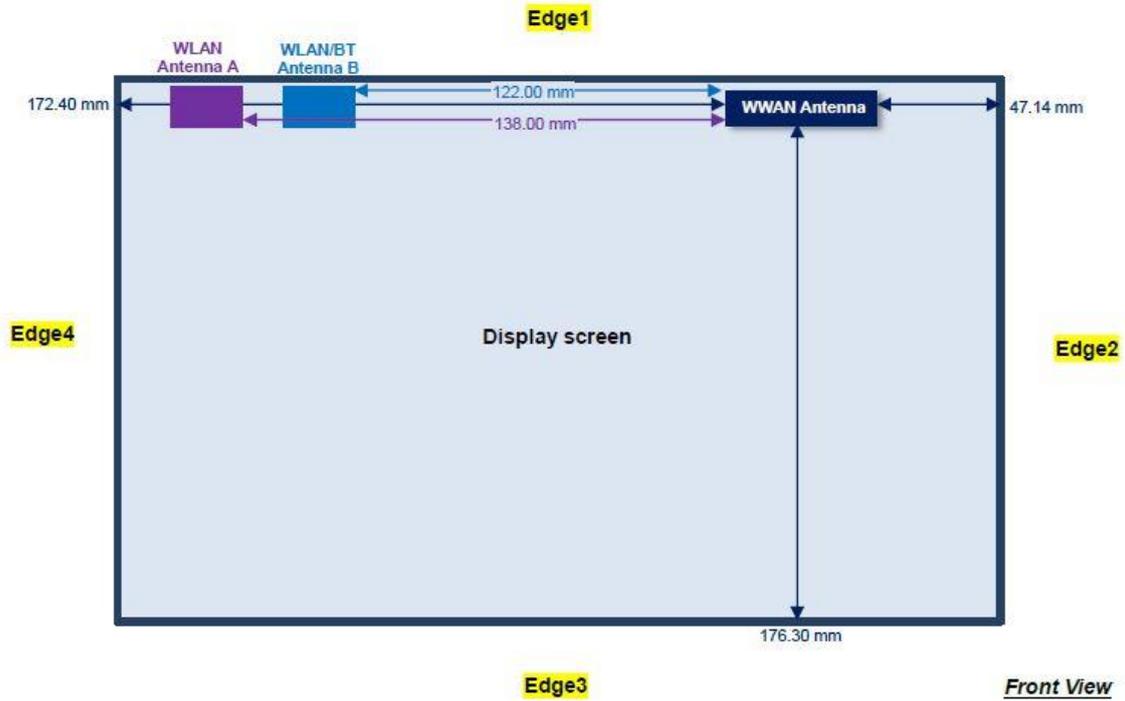
WWAN Band	Exposure Position	1	2	1+2 Summed SAR (W/kg)	SPLSR Result	Case No		
		WWAN	2.4GHz WLAN Antenna A					
		SAR (W/kg)	SAR (W/kg)					
GSM	GSM850	Bottom Face at 0cm	1.404	1.310	2.71	0.03	Case 1	
		Edge1 at 0cm	0.884	0.410	1.29			
		Curved surface of Edge 1 at 0cm	1.091	0.410	1.50			
		Bottom Face at 1.2 cm	0.531	1.310	1.84	0.02	Case 2	
		Edge1 at 1.2 cm	0.246	0.410	0.66			
		Curved surface of Edge 1 at 1.2cm	0.459	0.410	0.87			
	GSM1900	Bottom Face at 0cm	1.381	1.310	2.69	0.03	Case 3	
		Edge1 at 0cm	0.772	0.410	1.18			
		Curved surface of Edge 1 at 0cm	0.823	0.410	1.23			
		Bottom Face at 1.2 cm	0.275	1.310	1.59			
		Edge1 at 1.2 cm	0.444	0.410	0.85			
		Curved surface of Edge 1 at 1.2cm	0.433	0.410	0.84			
	WCDMA	Band V	Bottom Face at 0cm	1.125	1.310	2.44	0.03	Case 4
			Edge1 at 0cm	0.875	0.410	1.29		
Curved surface of Edge 1 at 0cm			1.070	0.410	1.48			
Bottom Face at 1.2 cm			0.577	1.310	1.89	0.02	Case 5	
Edge1 at 1.2 cm			0.313	0.410	0.72			
Curved surface of Edge 1 at 1.2cm			0.435	0.410	0.85			
Band IV		Bottom Face at 0cm	1.273	1.310	2.58	0.03	Case 6	
		Edge1 at 0cm	0.923	0.410	1.33			
		Curved surface of Edge 1 at 0cm	1.062	0.410	1.47			
		Bottom Face at 1.2 cm	0.668	1.310	1.98	0.02	Case 7	
		Edge1 at 1.2 cm	1.236	0.410	1.65	0.02	Case 8	
		Curved surface of Edge 1 at 1.2cm	1.202	0.410	1.61	0.01	Case 9	
Band II		Bottom Face at 0cm	1.397	1.310	2.71	0.03	Case 10	
		Edge1 at 0cm	0.780	0.410	1.19			
		Curved surface of Edge 1 at 0cm	0.750	0.410	1.16			
		Bottom Face at 1.2 cm	0.830	1.310	2.14	0.02	Case 10	
		Edge1 at 1.2 cm	1.437	0.410	1.85	0.02	Case 11	
		Curved surface of Edge 1 at 1.2cm	1.350	0.410	1.76	0.02	Case 12	
	Edge2 at 0cm	0.170		0.17				

WWAN Band		Exposure Position	1	3	1+3 Summed SAR (W/kg)	SPLSR Result	Case No
			WWAN SAR (W/kg)	2.4GHz WLAN Antenna B SAR (W/kg)			
GSM	GSM850	Bottom Face at 0cm	1.404	0.750	2.15	0.03	Case 13
		Edge1 at 0cm	0.884	0.140	1.02		
		Curved surface of Edge 1 at 0cm	1.091	0.140	1.23		
		Bottom Face at 1.2 cm	0.531	0.750	1.28		
		Edge1 at 1.2 cm	0.246	0.140	0.39		
		Curved surface of Edge 1 at 1.2cm	0.459	0.140	0.60		
		Edge2 at 0cm	0.196		0.20		
	GSM1900	Bottom Face at 0cm	1.381	0.750	2.13	0.03	Case 14
		Edge1 at 0cm	0.772	0.140	0.91		
		Curved surface of Edge 1 at 0cm	0.823	0.140	0.96		
		Bottom Face at 1.2 cm	0.275	0.750	1.03		
		Edge1 at 1.2 cm	0.444	0.140	0.58		
		Curved surface of Edge 1 at 1.2cm	0.433	0.140	0.57		
		Edge2 at 0cm	0.045		0.05		
WCDMA	Band V	Bottom Face at 0cm	1.125	0.750	1.88	0.02	Case 15
		Edge1 at 0cm	0.875	0.140	1.02		
		Curved surface of Edge 1 at 0cm	1.070	0.140	1.21		
		Bottom Face at 1.2 cm	0.577	0.750	1.33		
		Edge1 at 1.2 cm	0.313	0.140	0.45		
		Curved surface of Edge 1 at 1.2cm	0.435	0.140	0.58		
		Edge2 at 0cm	0.225		0.23		
	Band IV	Bottom Face at 0cm	1.273	0.750	2.02	0.02	Case 16
		Edge1 at 0cm	0.923	0.140	1.06		
		Curved surface of Edge 1 at 0cm	1.062	0.140	1.20		
		Bottom Face at 1.2 cm	0.668	0.750	1.42		
		Edge1 at 1.2 cm	1.236	0.140	1.38		
		Curved surface of Edge 1 at 1.2cm	1.202	0.140	1.34		
		Edge2 at 0cm	0.043		0.04		
	Band II	Bottom Face at 0cm	1.397	0.750	2.15	0.03	Case 17
		Edge1 at 0cm	0.780	0.140	0.92		
		Curved surface of Edge 1 at 0cm	0.750	0.140	0.89		
		Bottom Face at 1.2 cm	0.830	0.750	1.58		
		Edge1 at 1.2 cm	1.437	0.140	1.58		
		Curved surface of Edge 1 at 1.2cm	1.350	0.140	1.49		
		Edge2 at 0cm	0.170		0.17		



WWAN Band		Exposure Position	1	4	1+4 Summed SAR (W/kg)	SPLSR Result	Case No
			WWAN	2.4GHz Bluetooth Antenna B			
			SAR (W/kg)	SAR (W/kg)			
GSM	GSM850	Bottom Face at 0cm	1.404	0.010	1.41		
		Edge1 at 0cm	0.884	0.010	0.89		
		Curved surface of Edge 1 at 0cm	1.091	0.010	1.10		
		Bottom Face at 1.2 cm	0.531	0.010	0.54		
		Edge1 at 1.2 cm	0.246	0.010	0.26		
		Curved surface of Edge 1 at 1.2cm	0.459	0.010	0.47		
		Edge2 at 0cm	0.196		0.20		
	GSM1900	Bottom Face at 0cm	1.381	0.010	1.39		
		Edge1 at 0cm	0.772	0.010	0.78		
		Curved surface of Edge 1 at 0cm	0.823	0.010	0.83		
		Bottom Face at 1.2 cm	0.275	0.010	0.29		
		Edge1 at 1.2 cm	0.444	0.010	0.45		
		Curved surface of Edge 1 at 1.2cm	0.433	0.010	0.44		
		Edge2 at 0cm	0.045		0.05		
WCDMA	Band V	Bottom Face at 0cm	1.125	0.010	1.14		
		Edge1 at 0cm	0.875	0.010	0.89		
		Curved surface of Edge 1 at 0cm	1.070	0.010	1.08		
		Bottom Face at 1.2 cm	0.577	0.010	0.59		
		Edge1 at 1.2 cm	0.313	0.010	0.32		
		Curved surface of Edge 1 at 1.2cm	0.435	0.010	0.45		
		Edge2 at 0cm	0.225		0.23		
	Band IV	Bottom Face at 0cm	1.273	0.010	1.28		
		Edge1 at 0cm	0.923	0.010	0.93		
		Curved surface of Edge 1 at 0cm	1.062	0.010	1.07		
		Bottom Face at 1.2 cm	0.668	0.010	0.68		
		Edge1 at 1.2 cm	1.236	0.010	1.25		
		Curved surface of Edge 1 at 1.2cm	1.202	0.010	1.21		
		Edge2 at 0cm	0.043		0.04		
	Band II	Bottom Face at 0cm	1.397	0.010	1.41		
		Edge1 at 0cm	0.780	0.010	0.79		
		Curved surface of Edge 1 at 0cm	0.750	0.010	0.76		
		Bottom Face at 1.2 cm	0.830	0.010	0.84		
		Edge1 at 1.2 cm	1.437	0.010	1.45		
		Curved surface of Edge 1 at 1.2cm	1.350	0.010	1.36		
		Edge2 at 0cm	0.170		0.17		

16.2 SPLSR Evaluation and Analysis



General Note:

1. The WLAN/Bluetooth module of FCC ID: PD97265NG would be integrated into this host, and the identical WLAN antenna is used for the WLAN/BT module integration.
2. According the antenna location, for SPLSR analysis of colocation with PD97265NG, the minimum distances between each antenna pair was used for conservative SPLSR calculation.
3. $SPLSR = (SAR_1 + SAR_2)^{1.5} / (min. \text{ separation distance, mm})$. If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary

Case 1	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Bottom Face at 0cm	1.404	0				
2.4GHz Ant A	1.310		0					

Case 2	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Bottom Face at 1.2 cm	0.531	1.2				
2.4GHz Ant A	1.310		0					

Case 3	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM1900	Bottom Face at 0cm	1.381	0				
2.4GHz Ant A	1.310		0					

Case 4	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA V	Bottom Face at 0cm	1.125	0				
2.4GHz Ant A	1.310		0					



Case 5	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA V	Bottom Face at 1.2 cm	0.577	1.2				
2.4GHz Ant A	1.310		0					

Case 6	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA IV	Bottom Face at 0cm	1.273	0				
2.4GHz Ant A	1.310		0					

Case 7	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA IV	Bottom Face at 1.2 cm	0.668	1.2				
2.4GHz Ant A	1.310		0					

Case 8	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA IV	Edge1 at 1.2 cm	1.236	1.2				
2.4GHz Ant A	0.410		0					

Case 9	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA IV	Curved surface of Edge 1 at 1.2cm	1.202	1.2				
2.4GHz Ant A	0.410		0					

Case 10	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Bottom Face at 0cm	1.397	0				
2.4GHz Ant A	1.310		0					

Case 10	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Bottom Face at 1.2 cm	0.830	1.2				
2.4GHz Ant A	1.310		0					

Case 11	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Edge1 at 1.2 cm	1.437	1.2				
2.4GHz Ant A	0.410		0					

Case 12	Band	Position	SAR (W/kg)	Gap (cm)	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Curved surface of Edge 1 at 1.2cm	1.350	1.2				
2.4GHz Ant A	0.410		0					



Case 13	Band	Position	SAR (W/kg)	Gap	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
	GSM850	Bottom Face at 0cm	1.404	0	122.0	2.15	0.03	Not required
	2.4GHz Ant B		0.750	0				

Case 14	Band	Position	SAR (W/kg)	Gap	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
	GSM1900	Bottom Face at 0cm	1.381	0	122.0	2.13	0.03	Not required
	2.4GHz Ant B		0.750	0				

Case 15	Band	Position	SAR (W/kg)	Gap	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
	WCDMA V	Bottom Face at 0cm	1.125	0	122.0	1.88	0.02	Not required
	2.4GHz Ant B		0.750	0				

Case 16	Band	Position	SAR (W/kg)	Gap	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
	WCDMA IV	Bottom Face at 0cm	1.273	0	122.0	2.02	0.02	Not required
	2.4GHz Ant B		0.750	0				

Case 17	Band	Position	SAR (W/kg)	Gap	Minimum Distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(cm)				
	WCDMA II	Bottom Face at 0cm	1.397	0	122.0	2.15	0.03	Not required
	2.4GHz Ant B		0.750	0				

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17. Uncertainty Assessment

The component of uncertainty may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainty by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture’s specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor ^(a)	1/k ^(b)	1/√3	1/√6	1/√2

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) κ is the coverage factor

Table 16.1. Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual “root-sum-squares” (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.



Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
Measurement System							
Probe Calibration	6.0	Normal	1	1	1	± 6.0 %	± 6.0 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.4	Rectangular	√3	1	1	± 0.2 %	± 0.2 %
Probe Positioning	2.9	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Max. SAR Eval.	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	0.43	± 1.6 %	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	0.49	± 1.5 %	± 1.2 %
Combined Standard Uncertainty						± 11.0 %	± 10.8 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						± 22.0 %	± 21.5 %

Table 16.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz



18. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
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- [5] FCC KDB 447498 D01 v05r02, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Feb 2014
- [6] FCC KDB 941225 D01 v03, "3G SAR MEAUREMENT PROCEDURES", Oct 2014
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- [8] FCC KDB 865664 D01 v01r03, "SAR Measurement Requirements for 100 MHz to 6 GHz", Feb 2014.
- [9] FCC KDB 865664 D02 v01r01, "RF Exposure Compliance Reporting and Documentation Considerations" May 2013.