FCC OET BULLETIN 65 SUPPLEMENT C 01-01
IEEE 1528:2003
RSS-102 Issue 4, March 2010,

Class II Permissive Change

SAR EVALUATION REPORT

For

Gobi3000 PCI Express Mini Card
Tested inside of Fujitsu Tablet Slate PC (Q550)

MODEL: Gobi3000 (MC_8355)
FCC ID: N7NMC8355
IC: 2417C-MC8355

REPORT NUMBER: 11U13746-1C1
ISSUE DATE: August 9, 2011

Prepared for

Fujitsu Australia Ltd.
570 St Kilda Road
Melbourne, Victoria 3004, Australia

Prepared by

COMPLIANCE CERTIFICATION SERVICES (UL CCS)
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	July 19, 2011	Initial Issue	--
A	July 22, 2011	Revised to include the description of G-Sensor	Sunny Shih
B	July 31, 2011	Increase G-Sensor power reduction trigger angle from +/-25 degree to +/-45 degree and revise sections based upon response from FCC via KDB 154585 inquire	Sunny Shih
C	August 7, 2011	Revised based upon FCC response on August 04	Sunny Shih
C1	August 9, 2011	Final Revision	Sunny Shih

Table of Contents

1. Attestation of Test Results

Tested for:	Fujitsu Australia Ltd. 570 St Kilda Road Melbourne, Victoria 3004, Australia		
EUT description:	Gobi3000 PCI Express Mini Card Tested inside of Fujitsu Tablet Slate PC (Q550)		
Model number:	Gobi3000		
Device category:	Portable		
Exposure category:	General Population/Uncontrolled Exposure		
Date tested:	June 30 – July 31, 2011		
FCC / IC Rule Parts	Freq. Range [MHz]	Highest 1-g SAR	Limit (mW/g)
22H / RSS-132	824 - 849	0.718 mW/g (GSM850) Position: Base/Lap Held	1.6
24E / RSS-133	1850 - 1910	1.11 mW/g (CDMA2000 1900) Position: Base/Lap Held	
27 / RSS-139 (AWS)	1710 - 1755	1.09 mW/g (UMTS band IV) Position: Base/Lap Held	
Applicable Standards			Test Results
FCC OET Bulletin 65 Supplement C 01-01, IEEE STD 1528:2003 RSS-102 Issue 4, March 2010			Pass

Compliance Certification Services, Inc. (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government (NIST Handbook 150, Annex A). This report is written to support regulatory compliance of the applicable standards stated above.

Approved & Released For UL CCS By:

Sunny Shih
Engineering Team Leader
Compliance Certification Services (UL CCS)

Tested By:

Devin Chang
EMC Engineer
Compliance Certification Services (UL CCS)

2. Test Methodology

The tests documented in this report were performed in accordance with FCC OET Bulletin 65 Supplement C 01-01, IEEE STD 1528-2003, RSS-102 Issue 4, March 2010 and the following KDB procedures.

- 941225 D01 SAR test for 3G devices v02
- 941225 D03 SAR Test Reduction GSM/GPRS/EDGE vo1
- 447498 D01 Mobile Portable RF Exposure v04
- Power Reduction by sensing (April 2011 TCBC workshop SAR Updates)
- KDB inquire 154585 Discussion with FCC on test configuration

3. Facilities and Accreditation

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. Calibration and Uncertainly

4.1. Measuring Instrument Calibration

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due date		
				MM	DD	Year
Robot - Six Axes	Stäubli	TX90 XL	N/A	N/A		
Robot Remote Control	Stäubli	CS8C	N/A	N/A		
DASY5 Measurement Server	SPEAG	SEUMS014AA	1064	N/A		
Probe Alignment Unit	SPEAG	LB5 / 80	N/A	N/A		
Oval Flat Phantom (ELI v5.0 (A))	SPEAG	QD OVA001 BB	1117	N/A		
Oval Flat Phantom (ELI v5.0 (B))	SPEAG	QD OVA001 BB	1121	N/A		
Dielectric Probe Kit	HP	85070C	N/A	N/A		
S-Parameter Network Analyzer	Agilent	8753ES-6	8753ES-6	11	22	2011
Signal Generator	Agilent	8753ES-6	8753ES-6	11	22	2011
E-Field Probe	SPEAG	EX3DV4	3772	5	3	2012
Thermometer	ERTCO	639-1S	1718	7	19	2011
Data Acquisition Electronics	SPEAG	DAE4	1257	5	3	2012
System Validation Dipole	SPEAG	D835V2	4d117	4	15	2012
System Validation Dipole	SPEAG	D1750V2	1050	4	19	2012
System Validation Dipole	SPEAG	D1900V2	5d140	4	18	2012
Amplifier	Mini-Circuits	ZVE-8G	90606	N/A		
Amplifier	Mini-Circuits	ZHL-42W	D072701-5	N/A		
Simulating Liquid	SPEAG	M1900	N/A	Within 24 hrs of first test		
Simulating Liquid	SPEAG	M1800	N/A	Within 24 hrs of first test		
Simulating Liquid	SPEAG	M835	N/A	Within 24 hrs of first test		

4.2. Measurement Uncertainty

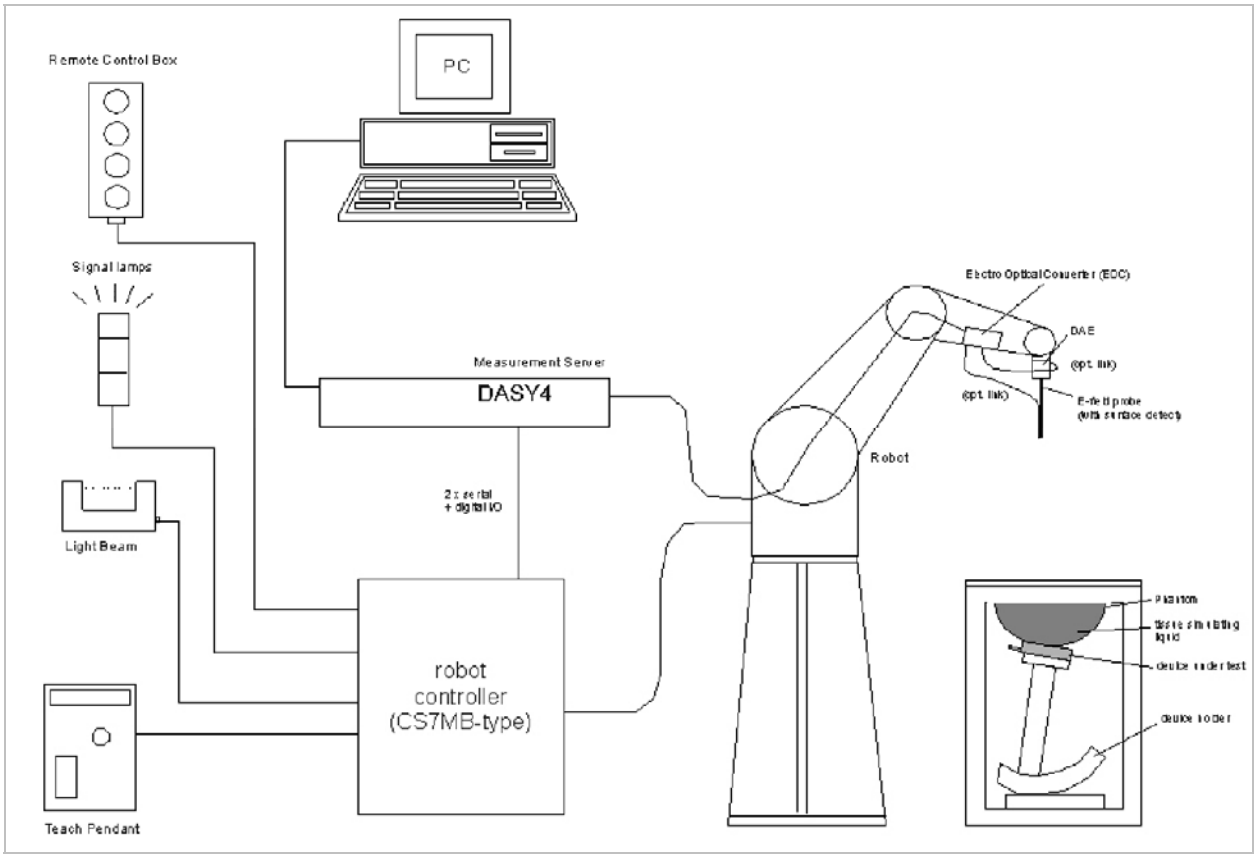
Measurement uncertainty for 300 MHz to 3 GHz averaged over 1 gram					
Component	error, %	Probe Distribution	Divisor	Sensitivity	U (Xi), %
Measurement System					
Probe Calibration (k=1)	5.50	Normal	1	1	5.50
Axial Isotropy	1.15	Rectangular	1.732	0.7071	0.47
Hemispherical Isotropy	2.30	Rectangular	1.732	0.7071	0.94
Boundary Effect	0.90	Rectangular	1.732	1	0.52
Probe Linearity	3.45	Rectangular	1.732	1	1.99
System Detection Limits	1.00	Rectangular	1.732	1	0.58
Readout Electronics	0.30	Normal	1	1	0.30
Response Time	0.80	Rectangular	1.732	1	0.46
Integration Time	2.60	Rectangular	1.732	1	1.50
RF Ambient Conditions - Noise	3.00	Rectangular	1.732	1	1.73
RF Ambient Conditions - Reflections	3.00	Rectangular	1.732	1	1.73
Probe Positioner Mechanical Tolerance	0.40	Rectangular	1.732	1	0.23
Probe Positioning with respect to Phantom	2.90	Rectangular	1.732	1	1.67
Extrapolation, Interpolation and Integration	1.00	Rectangular	1.732	1	0.58
Test Sample Related					
Test Sample Positioning	2.90	Normal	1	1	2.90
Device Holder Uncertainty	3.60	Normal	1	1	3.60
Output Power Variation - SAR Drift	5.00	Rectangular	1.732	1	2.89
Phantom and Tissue Parameters					
Phantom Uncertainty (shape and thickness)	4.00	Rectangular	1.732	1	2.31
Liquid Conductivity - deviation from target	5.00	Rectangular	1.732	0.64	1.85
Liquid Conductivity - measurement (Body 1900 MHz)	4.26	Normal	1	0.64	2.73
Liquid Permittivity - deviation from target	5.00	Rectangular	1.732	0.6	1.73
Liquid Permittivity - measurement uncertainty (Body 850 MHz)	-3.38	Normal	1	0.6	-2.03
Combined Standard Uncertainty Uc(y) =					10.03
Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence =				20.07	%
Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence =				1.59	dB

Measurement uncertainty for 300 MHz to 3 GHz averaged over 10 gram					
Component	error, %	Probe Distribution	Divisor	Sensitivity	U (Xi), %
Measurement System					
Probe Calibration (k=1)	5.50	Normal	1	1	5.50
Axial Isotropy	1.15	Rectangular	1.732	0.7071	0.47
Hemispherical Isotropy	2.30	Rectangular	1.732	0.7071	0.94
Boundary Effect	0.90	Rectangular	1.732	1	0.52
Probe Linearity	3.45	Rectangular	1.732	1	1.99
System Detection Limits	1.00	Rectangular	1.732	1	0.58
Readout Electronics	0.30	Normal	1	1	0.30
Response Time	0.80	Rectangular	1.732	1	0.46
Integration Time	2.60	Rectangular	1.732	1	1.50
RF Ambient Conditions - Noise	3.00	Rectangular	1.732	1	1.73
RF Ambient Conditions - Reflections	3.00	Rectangular	1.732	1	1.73
Probe Positioner Mechanical Tolerance	0.40	Rectangular	1.732	1	0.23
Probe Positioning with respect to Phantom	2.90	Rectangular	1.732	1	1.67
Extrapolation, Interpolation and Integration	1.00	Rectangular	1.732	1	0.58
Test Sample Related					
Test Sample Positioning	2.90	Normal	1	1	2.90
Device Holder Uncertainty	3.60	Normal	1	1	3.60
Output Power Variation - SAR Drift	5.00	Rectangular	1.732	1	2.89
Phantom and Tissue Parameters					
Phantom Uncertainty (shape and thickness)	4.00	Rectangular	1.732	1	2.31
Liquid Conductivity - deviation from target	5.00	Rectangular	1.732	0.43	1.24
Liquid Conductivity - measurement (Body 1900 MHz)	4.26	Normal	1	0.43	1.83
Liquid Permittivity - deviation from target	5.00	Rectangular	1.732	0.49	1.41
Liquid Permittivity - measurement uncertainty (Body 850 MHz)	-3.38	Normal	1	0.49	-1.66
Combined Standard Uncertainty Uc(y), % =					9.61
Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence =				19.22	%
Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence =				1.53	dB

5. Equipment Under Test

Gobi3000 PCI Express Mini Card installed into Fujitsu Tablet Slate PC (Q550) Model Number: Gobi3000 Manufacturer: Sierra Wireless UMTS bands : Band II, IV, V GSM / EDGE bands: 850 / 1900 MHz (GPRS Multi-slot class: Class 10) 1xEv-Do bands: BC0 850 MHz / BC1 1900 MHz WWAN Module FCC ID: N7NMC8355 WLAN Module FCC ID: EJE-WL0025 Bluetooth Module FCC ID: QDS-BRCM1043	
Normal operation:	Bottom face (Lap Held), and Edges - Multiple display orientations supporting both portrait and landscape configurations
Simultaneous transmission:	WWAN can transmit simultaneously with Wi-Fi & Bluetooth
Assessment for SAR evaluation for Simultaneous transmission:	Refer to Sec. 18 for details of KDB 447498 Simultaneous Transmission SAR Evaluations.
Antenna-to-antenna/user separation distances:	Refer to Sec. 20 for details of antenna locations and separation distances.
Touch Panel Variances	Slate PC will be equipped with either “N-trig" or "TPK" touch panel. The Touch panel can affect the radio characteristics of the WWAN antenna and SAR readings. • N-trig Touch panel supports both dedicated Pen and finger touch. • TPK Touch panel supports only finger touch. The Overall Worst-case configuration of GPRS providing the most conservative SAR value for the TPK-TP variant was use to evaluate the N-trig in the middle channel. The difference in the variant is the type of screen used. They maintain the same modules, antenna, housing and dimensions
Power Reduction Trigger Angle by G-Sensor	+/- 45 degree in referencing when the slate PC is positioned horizontally.

6. System Specifications



The DASY5 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Stäubli RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- 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 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.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 2000 or Windows XP.
- DASY software.
- Remote controls with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing validating the proper functioning of the system.

7. Composition of Ingredients for Tissue Simulating Liquids

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.

Ingredients (% by weight)	Frequency (MHz)									
	450		835		915		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.8	52.5
Conductivity (S/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.88	1.78

Salt: 99+% Pure Sodium Chloride Sugar: 98+% Pure Sucrose
Water: De-ionized, 16 MΩ+ resistivity HEC: Hydroxyethyl Cellulose
DGBE: 99+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]
Triton X-100 (ultra pure): Polyethylene glycol mono [4-(1,1, 3, 3-tetramethylbutyl)phenyl]ether

MSL/HSL750 (Body and Head liquids for 700 – 800 MHz)

Item	Head Tissue Simulation Liquids HSL750 Muscle (body) Tissue Simulation Liquids HSL750
Type No	SL AAH 075
Manufacturer	SPEAG
The item is composed of the following ingredients:	
H^2O	Water, 35 – 58%
Sucrese	Sugar, white, refined, 40-60%
NaCl	Sodium Chloride, 0-6%
Hydroxyethel-cellulsoe	Medium Viscosity (CAS# 9004-62-0), <0.3%
Preventol-D7	Preservative: aqueous preparation, (CAS# 55965-84-9), containing 5-chloro-2-methyl-3(2H)-isothiazolone and 2-methyyl-3(2H)-isothiazolone, 0.1-0.7%

MSL/HSL1750 (Body and Head liquids for 1700 – 1800 MHz)

Item	Head Tissue Simulation Liquids HSL1750 Muscle (body) Tissue Simulation Liquids HSL1750
Type No	SL AAM 175
Manufacturer	SPEAG
The item is composed of the following ingredients:	
H^2O	Water, 52 – 75%
C8H18O3	Diethylene glycol monobutyl ether (DGBE), 25-48%
NaCl	Sodium Chloride, <1.0%

8. Simulating Liquid Parameters

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine of the dielectric parameters are within the tolerances of the specified target values. For frequencies in 300 MHz to just under 2 GHz, the measured conductivity and relative permittivity should be within ± 5% of the target values. For frequencies in the range of 2–3 GHz and above the measured conductivity should be within ± 5% of the target values. The measured relative permittivity tolerance can be relaxed to no more than ± 10%.

Reference Values of Tissue Dielectric Parameters for Head and Body Phantom

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in IEEE Standard 1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations and extrapolated according to the head parameters specified in IEEE Standard 1528.

Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.8
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
750	41.96	0.89	55.6	0.96
835	41.5	0.9	55.2	0.97
900	41.5	0.97	55	1.05
915	41.5	0.98	55	1.06
1450	40.5	1.2	54	1.3
1610	40.3	1.29	53.8	1.4
1750	40.08	1.37	53.44	1.49
1800 – 2000	40	1.4	53.3	1.52
2450	39.2	1.8	52.7	1.95
3000	38.5	2.4	52	2.73

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

8.1. Simulating Liquid Check Results

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
6/30/2011	Body 1900	e'	52.6769	Relative Permittivity (ϵ_r):	52.68	53.30	-1.17	5
		e"	15.0006	Conductivity (σ):	1.58	1.52	4.26	5
7/1/2011	Body 850	e'	53.3128	Relative Permittivity (ϵ_r):	53.31	55.16	-3.34	5
		e"	20.5027	Conductivity (σ):	0.97	0.99	-1.84	5
7/4/2011	Body 1750	e'	52.3764	Relative Permittivity (ϵ_r):	52.38	53.44	-1.99	5
		e"	15.6773	Conductivity (σ):	1.53	1.49	2.65	5
7/5/2011	Body 1900	e'	52.0683	Relative Permittivity (ϵ_r):	52.07	53.30	-2.31	5
		e"	14.7708	Conductivity (σ):	1.56	1.52	2.66	5
7/6/2011	Body 850	e'	54.1750	Relative Permittivity (ϵ_r):	54.18	55.16	-1.78	5
		e"	20.9754	Conductivity (σ):	0.99	0.99	0.43	5
7/29/2011	Body 850	e'	54.1109	Relative Permittivity (ϵ_r):	54.11	55.16	-1.90	5
		e"	20.9564	Conductivity (σ):	0.99	0.99	0.34	5
7/31/2011	Body 1750	e'	52.7225	Relative Permittivity (ϵ_r):	52.72	53.44	-1.34	5
		e"	15.4988	Conductivity (σ):	1.51	1.49	1.48	5
7/31/2011	Body 1900	e'	53.2375	Relative Permittivity (ϵ_r):	53.24	53.30	-0.12	5
		e"	14.1512	Conductivity (σ):	1.50	1.52	-1.64	5

9. System Verification

The system performance check is performed prior to any usage of the system in order to verify SAR system measurement accuracy. The system performance check verifies that the system operates within its specifications of ±10%.

System Performance Check Measurement Conditions

- The measurements were performed in the flat section of the SAM twin phantom filled with Head or Body simulating liquid of the following parameters.
- The DASY5 system with an Isotropic E-Field Probe EX3DV4 SN3772 was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
  For 5 GHz band – The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 fine cube was chosen for cube
- Distance between probe sensors and phantom surface was set to 3 mm.
  For 5 GHz band – Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was 100 Mw
- The results are normalized to 1 W input power.

Reference SAR Values for HEAD & BODY-tissue from calibration certificate of SPEAG.

System validation dipole	Cal. certificate #	Cal. date	Cal. Freq. (GHz)	SAR Avg (mW/g)		
				Tissue:	Head	Body
D835V2	D835V2-4d117	4/15/11	0.835	1g SAR:	9.64	10.1
				10g SAR:	6.28	6.6
D1750V2	D1750V2-1050	4/19/11	1.75	1g SAR:	36.8	36.4
				10g SAR:	19.6	19.4
D1900V2	D1900V2-5d140	4/18/11	1.9	1g SAR:	41.6	41.2
				10g SAR:	21.5	21.6

9.1. System Check Results

System validation dipole	Date Tested	Measured (Normalized to 1 W)		Target	Delta (%)	Tolerance (%)
		Tissue:	Body			
D1900V2	06/30/11	1g SAR:	39.4	41.2	-4.37	±10
		10g SAR:	20.1	21.6	-6.94	
D835V2	07/01/11	1g SAR:	9.38	10.1	-7.13	±10
		10g SAR:	6.17	6.6	-6.52	
D1750V2	07/04/11	1g SAR:	37.5	36.4	3.02	±10
		10g SAR:	19.9	19.4	2.58	
D1900V2	07/05/11	1g SAR:	41.2	41.2	0.00	±10
		10g SAR:	21.0	21.6	-2.78	
D835V2	07/06/11	1g SAR:	9.65	10.1	-4.46	±10
		10g SAR:	6.36	6.6	-3.64	
D835V2	07/29/11	1g SAR:	10.20	10.1	0.99	±10
		10g SAR:	6.71	6.6	1.67	
D1750V2	07/31/11	1g SAR:	36.4	36.4	0.00	±10
		10g SAR:	20.4	19.4	5.15	
D1900V2	07/31/11	1g SAR:	42.0	41.2	1.94	±10
		10g SAR:	22.7	21.6	5.09	

10. SAR Measurement Procedures

Step 1: 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. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the Distance of sensor calibration points to probe tip as defined in the probe properties (for example, 1.2 mm for an EX3DV3 probe type).

Step 2: 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 DASY5 software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528, EN 50361 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.

Step 3: Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures ≥ 5 x 5 x 7 points within a cube whose 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 g and 10 g and displays these values next to the job's label.

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

Step 5: Z-Scan

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation, the extrapolated distance should not be larger than the step size in Z-direction.

11. RF Output Power Measurement

11.1. GPRS & EGPRS

GPRS (GMSK) - Coding Scheme: CS1

Band	Ch No.	f (MHz)	Avg burst Pwr Power Reduction Disabled				Avg burst Pwr Power Reduction Enabled			
			1 slot	Frame Avg Pwr	2 slot	Frame Avg Pwr	1 slot	Frame Avg Pwr	2 slot	Frame Avg Pwr
GSM850	128	824.2	32.5	23.5	32.4	**26.4**	24.2	15.2	24.1	**18.1**
	190	836.6	32.6	23.6	32.5	**26.5**	24.4	15.4	24.4	**18.4**
	251	848.8	32.6	23.6	32.5	**26.5**	24.4	15.4	24.4	**18.4**
GSM1900	512	1850.2	29.9	20.9	29.5	**23.5**	20.9	11.9	20.9	**14.9**
	661	1880.0	29.7	20.7	29.2	**23.2**	20.7	11.7	20.8	**14.8**
	810	1909.8	29.7	20.7	29.6	**23.6**	20.4	11.4	20.3	**14.3**

EGPRS (8PSK) - Coding Scheme: MCS5

Band	Ch No.	f (MHz)	Avg burst Pwr Power reduction disabled				Avg burst Pwr Power Reduction enabled			
			1 slot	Frame Avg Pwr	2 slot	Frame Avg Pwr	1 slot	Frame Avg Pwr	2 slot	Frame Avg Pwr
GSM850	128	824.2	27.0	18.0	27.0	21.0	18.7	9.7	18.7	12.7
	190	836.6	27.1	18.1	27.0	21.0	18.7	9.7	18.7	12.7
	251	848.8	27.0	18.0	27.0	21.0	18.7	9.7	18.7	12.7
GSM1900	512	1850.2	25.7	16.7	25.8	19.8	17.1	8.1	17.1	11.1
	661	1880.0	25.1	16.1	25.9	19.9	17.5	8.5	17.4	11.4
	810	1909.8	25.4	16.4	25.4	19.4	17.1	8.1	17.1	11.1

Note: According to KDB 941225 D03 SAR Test Reduction GSM/GPRS/EDGE vo1, noted in the following sections indicated below may be considered to determine SAR test reduction requirements for devices operating in GSM/GPRS/EDGE modes to demonstrate RF exposure compliance.

1. Since the source-based time-averaged output power for EGPRS mode is lower than that in the GPRS mode, therefore Body SAR test reduction is applicable for this device.
2. Based on output power above and time slots, the following worst-case configurations were chosen for Body SAR testing.
    a. GPRS850 2 time slots
    b. GPRS1900 2 time slots
3. Detail description of loss on RF switching circuit and power reduction implementation can be found in the operation description (confidential information)

11.2. UMTS

RELEASE 99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

	Mode	Rel99
	Subtest	-
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

Results

Rel 99 (12.2kbps RMC)

Band	Mode	UL Ch No.	f (MHz)	Avg Pwr (dBm) Power Reduction Disabled	Avg Pwr (dBm) Power Reduction Enabled
UMTS band V	Rel 99 12.2kbps RMC	4132	826.4	23.9	15.3
		4182	836.0	24.1	15.8
		4233	846.6	24.1	14.9
UMTS band IV	Rel 99 12.2kps RMC	1312	1712.4	24.0	14.3
		1427	1735.4	24.0	14.1
		1513	1754.0	23.9	14.1
UMTS band II	Rel 99 12.2kbps RMC	9262	1852.4	23.4	13.8
		9400	1880.0	23.3	14.5
		9538	1907.6	23.1	14.6

Note: Detail description of loss on RF switching circuit and power reduction implementation can be found in the operation description (confidential information)

HSDPA

The following 4 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	Rel6 HSDPA	Rel6 HSDPA	Rel6 HSDPA	Rel6 HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs =βhs/βc	30/15			

Results

Rel 6 HSDPA

Band	Mode	UL Ch No.	f (MHz)	Avg Pwr (dBm) Power Reduction Disabled	Avg Pwr (dBm) Power Reduction Disabled
UMTS band V	Subtest 1	4132	826.4	23.9	15.3
		4182	836.0	24.0	15.6
		4233	846.6	23.9	15.8
	Subtest 2	4132	826.4	23.9	12.3
		4182	836.0	24.0	12.7
		4233	846.6	23.9	12.4
	Subtest 3	4132	826.4	23.4	11.3
		4182	836.0	23.5	11.9
		4233	846.6	23.3	11.3
	Subtest 4	4132	826.4	23.3	11.0
		4182	836.0	23.4	11.6
		4233	846.6	23.2	11.0
UMTS band IV	Subtest 1	4132	826.4	23.9	14.6
		4182	836.4	24.0	14.5
		4233	846.6	23.9	14.5
	Subtest 2	4132	826.4	23.9	11.9
		4182	836.4	24.0	11.7
		4233	846.6	23.9	11.7
	Subtest 3	4132	826.4	23.4	10.9
		4182	836.4	23.5	10.6
		4233	846.6	23.3	10.6
	Subtest 4	4132	826.4	23.3	10.6
		4182	836.4	23.4	10.4
		4233	846.6	23.2	10.4
UMTS band II	Subtest 1	9262	1852.4	23.4	14.0
		9400	1880.0	23.5	14.0
		9538	1907.6	23.0	14.2
	Subtest 2	9262	1852.4	23.1	11.1
		9400	1880.0	23.5	11.7
		9538	1907.6	22.6	11.8
	Subtest 3	9262	1852.4	22.9	10.1
		9400	1880.0	23.0	10.7
		9538	1907.6	23.5	10.9
	Subtest 4	9262	1852.4	22.9	10.2
		9400	1880.0	23.0	10.5
		9538	1907.6	22.5	10.6

Note: KDB 941225 D01 – Body SAR is not required for HSDPA when the maximum average output of each RF channel with HSDPA active is less than ¼ dB higher than that measured without HSDPA using 12.2 kbps RMC or the maximum SAR for 12.2 kbps RMC is < 75% (1.2 W/kg) of the SAR limit.

Detail description of loss on RF switching circuit and power reduction implementation can be found in the operation description (confidential information)

HSPA (HSDPA & HSUPA)

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	Rel6 HSPA	Rel6 HSPA	Rel6 HSPA	Rel6 HSPA	Rel6 HSPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	15/15
	βec	209/225	12/15	30/15	2/15	24/15
	βc/βd	11/15	6/15	15/9	2/15	15/15
	βhs	22/15	12/15	30/15	4/15	30/15
	βed	1309/225	94/75	47/15 47/15	56/75	134/15
	CM (dB)	1.0	3.0	2.0	3.0	1.0
	MPR (dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27	

Rel 6 HSDPA/HSUPA

Band	Mode	UL Ch No.	f (MHz)	Avg Pwr (dBm) Power Reduction Disabled	Avg Pwr (dBm) Power Reduction Enabled
UMTS band V	Subtest 1	4132	826.4	23.7	15.2
		4182	836.0	23.8	15.6
		4233	846.6	23.5	15.7
	Subtest 2	4132	826.4	21.9	12.2
		4182	836.0	22.0	12.6
		4233	846.6	21.7	12.3
	Subtest 3	4132	826.4	22.9	11.2
		4182	836.0	23.0	11.9
		4233	846.6	22.7	11.3
	Subtest 4	4132	826.4	22.0	10.9
		4182	836.0	22.1	11.5
		4233	846.6	21.8	10.9
	Subtest 5	4132	826.4	23.5	15.2
		4182	836.0	23.6	15.4
		4233	846.6	23.7	15.4
UMTS band IV	Subtest 1	1312	1712.4	24.0	14.5
		1412	1732.4	24.0	14.4
		1513	1754.0	23.9	14.4
	Subtest 2	1312	1712.4	22.7	11.8
		1412	1732.4	22.8	11.6
		1513	1754.0	22.6	11.6
	Subtest 3	1312	1712.4	23.0	10.8
		1412	1732.4	23.1	10.5
		1513	1754.0	23.0	10.5
	Subtest 4	1312	1712.4	22.7	10.5
		1412	1732.4	22.4	10.3
		1513	1754.0	22.5	10.4
	Subtest 5	1312	1712.4	23.6	14.3
		1412	1732.4	23.6	14.4
		1513	1754.0	23.7	14.4
UMTS band II	Subtest 1	9262	1852.4	23.4	13.9
		9400	1880.0	23.4	13.9
		9538	1907.6	23.2	14.1
	Subtest 2	9262	1852.4	21.7	11.0
		9400	1880.0	21.6	11.7
		9538	1907.6	21.4	11.7
	Subtest 3	9262	1852.4	22.6	10.0
		9400	1880.0	22.5	10.6
		9538	1907.6	22.4	10.8
	Subtest 4	9262	1852.4	21.8	10.0
		9400	1880.0	21.7	10.4
		9538	1907.6	21.5	10.5
	Subtest 5	9262	1852.4	23.4	13.8
		9400	1880.0	23.3	13.7
		9538	1907.6	23.2	13.8

Note: KDB 941225 D01, Body SAR is not required for device with HSPA capabilities when the maximum average output of each RF channel with HSUPA/HSDPA active is less than ¼ dB higher than that measured without HSUPA/HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2kbps RMC is ≤ 75% of the SAR limit.

Detail description of loss on RF switching circuit and power reduction implementation can be found in the operation description (confidential information)

11.3. CDMA2000

1xRTT

Cellular Band

Radio Configuration (RC)	Service Option (SO)	Avg Pwr (dBm)		
		Ch.1013 824.7MHz	Ch.384 836.52 MHz	Ch.777 848.31 MHz
Power Reduction Disabled				
RC1	55 (Loopback)	23.8	24.0	23.9
RC3	55 (Loopback)	23.9	24.0	23.8
	32 (+ F-SCH)	23.8	24.0	23.8
Power Reduction Enabled				
RC1	55 (Loopback)	15.0	15.5	15.0
RC3	55 (Loopback)	15.1	15.5	15.2
	32 (+ F-SCH)	15.1	15.5	15.1

PCS Band

Radio Configuration (RC)	Service Option (SO)	Avg Pwr (dBm)		
		Ch.25 1851.25 MHz	Ch.600 1880 MHz	Ch.1175 1908.75 MHz
Power Reduction Disabled				
RC1	55 (Loopback)	24.0	24.1	23.7
RC3	55 (Loopback)	24.1	24.1	23.8
	32 (+ F-SCH)	24.1	24.1	23.8
Power Reduction Enabled				
RC1	55 (Loopback)	13.9	14.1	14.3
RC3	55 (Loopback)	14.0	14.2	14.3
	32 (+ F-SCH)	14.0	14.1	14.2

1xEv-Do Release 0 (Rel. 0)

Band	FTAP Rate	RTAP Rate	Channel	f (MHz)	Avg Pwr (dBm) Power Reduction Disabled	Avg Pwr (dBm) Power Reduction Enabled
Cellular	307.2 kbps (2 slot, QPSK)	153.6 kbps	1013	824.70	23.6	14.9
			384	836.52	23.7	15.5
			777	848.31	23.6	15.1
PCS	307.2 kbps (2 slot, QPSK)	153.6 kbps	25	1851.25	23.9	13.8
			600	1880.00	24.1	14.2
			1175	1908.75	23.7	14.3

1xEv-Do Revision A (Rev. A)

Band	FTAP Rate	RTAP Rate	Channel	f (MHz)	Avg Pwr (dBm) Power Reduction Disabled	Avg Pwr (dBm) Power Reduction Enabled
Cellular	307.2k, QPSK/ ACK channel is	4096	1013	824.70	23.5	14.8
			384	836.52	23.7	15.3
			777	848.31	23.5	15.0
PCS	307.2k, QPSK/ ACK channel is	4096	25	1851.25	23.9	13.9
			600	1880.00	24.0	14.1
			1175	1908.75	23.7	14.1

Note: Detail description of loss on RF switching circuit and power reduction implementation can be found in the operation description (confidential information)

12. G-Sensor /Automatic Rotation utility (accelerometer)

To address RF exposure compliance when the Q550 is positioned at slate position (lap held mode), power reduction is permanently introduced in the antenna circuit resulting reduction of the WWAN power. Based upon preliminary SAR evaluation, attenuation required between WWAN module antenna connector to the antenna port was determined.

This attenuation value required for RF exposure compliance is shown in operation description exhibit. Power reduction is only applied to WWAN 850/1900 MHz band; there is no power reduction for WLAN.

Location of G-sensor and WWAN-to-edge/surface distance, power reduction table is documented in the operational description (confidential information).

The Q550 slate PC when held within +/- 45 degree from the horizontal flat position – Power Reduction is enabled.

When held more than +/- 45 degree from horizontal flat position, power reduction is disabled

Definition:

"Power reduction enabled or with power reduction" means additional attenuator is switched "ON" in the antenna circuitry. (Values shown in the table under Operation description) Total power reduction is "Attenuator + Antenna Circuit loss"

"Power reduction disabled or no power reduction" means WWAN is transmitting at full power with just the loss of the antenna circuitry. Attenuator is switched OFF. The loss of the antenna circuitry is shown in the table under Operational description)

Power reduction is applied based on

1. Docked condition

Power reduction is disabled in docked condition as this is not a body worn mode.

2. Screen orientation. The Automatic Rotation Utility (ARU) establishes this condition.

The Secondary landscape orientation of the screen means the Antenna edge of the tablet is held close to the torso. During this screen orientation, the power reduction is applied permanently regardless of the angle in which the tablet is held.

3. The angle position of the tablet held. This is detected by the G-sensor.

When the tablet is flat (horizontal) lap held position (< +/-45 degrees), the power reduction is applied permanently regardless of the screen orientation of the tablet.

Whereas Power reduction is conditional when the tablet is held in an angle (provided it is not in docked mode and the screen orientation is not Secondary landscape).

Slate within +/- 45 degrees from horizontal position = Power reduction is enabled.

Slate in > +/- 45 degrees from horizontal position = Power reduction not applied

13. SAR Test Configurations

Slate Tablet Mode (direct contact to flat phantom with 0 mm separation distance)

#1 Secondary Landscape

Slate positioned horizontally, with Power Reduction on Cellular. Wi-Fi is transmitting at maximum power.

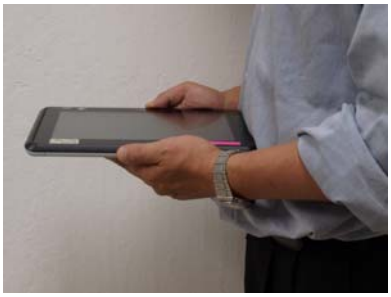
#2 Secondary Portrait

Slate positioned horizontally, with Power Reduction on Cellular. Wi-Fi is transmitting at maximum power.

#3 Primary Landscape

Slate positioned horizontally, with Power Reduction on Cellular. Wi-Fi is transmitting at maximum power.

#4 Primary Portrait



Slate positioned horizontally, with Power Reduction on Cellular. Wi-Fi is transmitting at maximum power

#5 Back Surface/Lap held

Slate positioned horizontally, with Power Reduction on Cellular. Wi-Fi is transmitting at maximum power.

14. G Sensor and Power Reduction implementation criteria

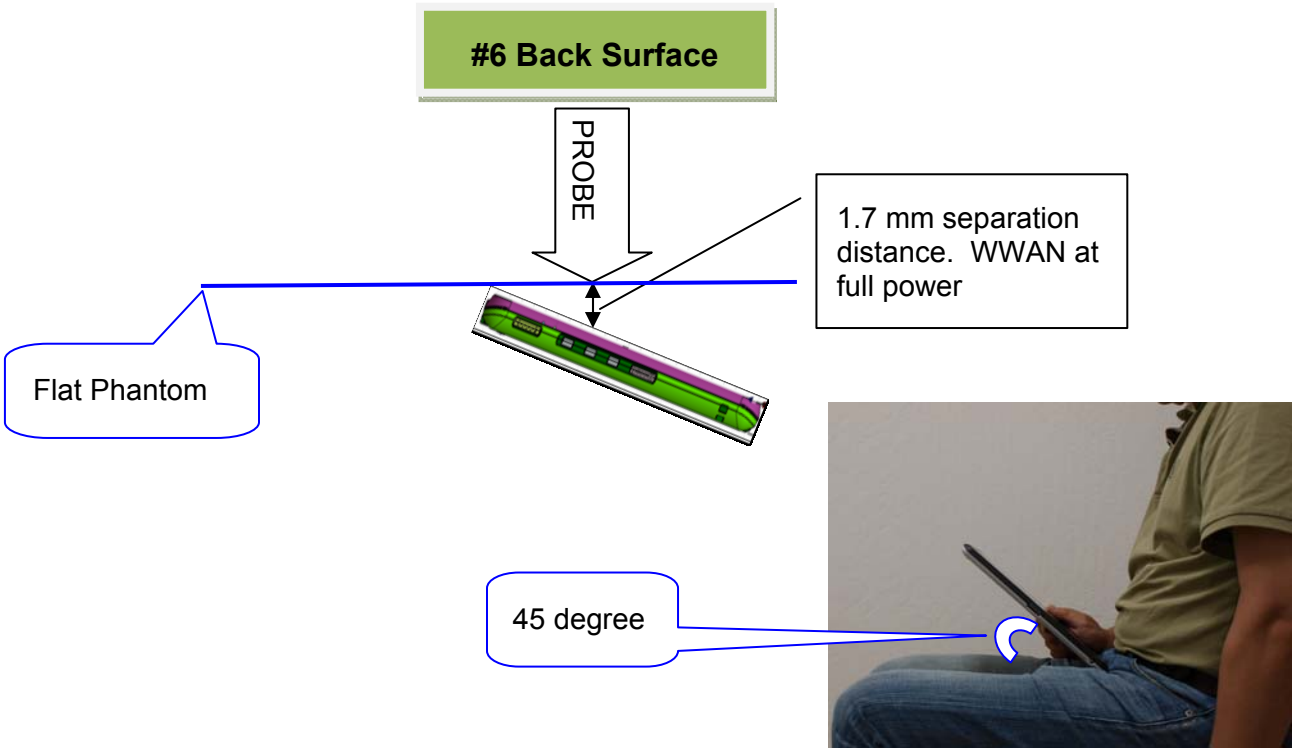
a. In order to simulate G-sensor with power reduction and without power reduction, two different samples were tested.

   i. Sample with no attenuator: This sample is used for test configuration # 6 when the slate PC is tilted at 45 degree angle. This sample is used to simulate G-sensor without power reduction.

   ii. Sample with attenuator: This sample is used for test configuration # 1-5 when the slate PC is positioned horizontally with edge directly contacted to flat phantom. With attenuator sample is used to simulate G-sensor with power reduction.

b. At the secondary landscape mode, power reduction will be activated regardless the titling angle of slate PC.

c. When slate PC is tilted at 45 degree angle for each edge, the most conservative (smallest) distance created among the three edges when can operate at full power is 1.7 cm . Test configuration #6 is positioned at primary portrait mode with one edge touched flat phantom, slate PC is tilted at 45 degree with 1.7 cm distance between WWAN main antenna to the flat phantom.



15. Summary of Test Configurations

Configuration per Sec. 13 Figures	WWAN Tx Antenna-to-Edge/Surface distance	SAR Require	Comments
(1) Secondary Landscape	9.0 mm	Yes	SAR evaluation was performed with the EUT edge in direct contact with oval phantom flat section (0 mm separation). **Tested with power reduction enabled sample.**
(2) Secondary Portrait	193.8 mm	No	SAR evaluation was not performed for this configuration as this was not the most conservative edge. Testing was as per KDB 447498 4) b) ii) (2)
(3) Primary Landscape	118 mm	No	SAR evaluation was not performed for this configuration as this was not the most conservative edge. Testing was as per KDB 447498 4) b) ii) (2)
(4) Primary Portrait	29.7 mm	Yes	SAR evaluation performed with the EUT edge in direct contact with oval phantom flat section (0 mm separation). **Tested with power reduction enabled sample.**
(5) Base (Back Surface/Lap Held)	9.0 mm	Yes	SAR evaluation was performed with the EUT surface in direct contact with oval phantom flat section (0 mm separation). **Tested with power reduction enabled sample.**
(6) Base (Back Surface/Lap Held at 45 degree angle)	20 mm	Yes	SAR evaluation was performed with nearest edge touched oval phantom flat section and tilted slate PC with 45 degree angle in term creates WWAN-to-Phantom 1.7 cm separation distance. **Full Power. Tested with power reduction disabled sample.**
Note	Slate PC will be equipped with either “N-trig" or "TPK" touch panel. The Touch panel can affect the radio characteristics of the WWAN antenna and SAR readings. • N-trig Touch panel supports both dedicated Pen and finger touch. • TPK Touch panel supports only finger touch. The Overall Worst-case configuration of GPRS providing the most conservative SAR value for the TPK-TP variant was use to evaluate the N-trig in the middle channel. The difference in the variant is the type of screen used. They maintain the same modules, antenna, housing and dimensions Both LCD types were evaluated for SAR and worst case result are presented in this report. Both LCD types comply with RF exposure limits.		

16. Stand-alone SAR Test Results

16.1. GPRS850

EUT: TPK Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	GPRS 2 slots	1. Secondary Landscape	190	836.6	0.221	0.111	1, 2
2	GPRS 2 slots	4. Primary Portrait	190	836.6	0.096	0.055	1, 2
3	GPRS 2 slots	5. Base/ Lap held	190	836.6	0.613	0.322	1, 2
4	EGPRS 2 slots	5. Base / Lap held	190	836.6	0.164	0.082	1, 2
5	GPRS 2 slots	6. Base titled 45 degree / Lap held	190	836.6	0.503	0.302	1, 3

EUT: N-Trig Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	GPRS 2 slots	5. Base / Lap Held	190	836.6	**0.718**	0.371	1,2,4
2	GPRS 2 slots	6. Base titled 45 degree / Lap Held	190	836.6	0.494	0.296	1,3,4

Notes:

1. SAR test was performed in the middle channel only as the measured level was < 50% of the SAR limit as stated in FCC “Public Notice DA 02-1438” by the SCC-34/SC-2. Testing in the low and high channel are optional.
2. Tested with power reduction enabled sample.
3. Power Reduction Disable/Full Power; The shortest distance/1.7 cm created by 45 degrees viewing angle when EUT transmits at maximum output power. Tested with power reduction disabled sample.
4. The Overall Worst-case configuration of GPRS providing the most conservative SAR value for the TPK-TP variant was use to evaluate the N-trig in the middle channel. The difference in the varient is the type of screen used. They maintain the same modules, antenna, housing and diamensions.

16.2. GPRS1900

EUT: TPK Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	GPRS 2 slots	1. Secondary Landscape	661	1880.0	0.172	0.092	1, 2
2	GPRS 2 slots	4. Primary Portrait	661	1880.0	0.083	0.043	1, 2
3	GPRS 2 slots	5. Base / Lap Held	512	1850.2	**1.020**	0.476	1, 2
4	GPRS 2 slots	5. Base Lap Held	661	1880.0	0.900	0.416	1, 2
5	GPRS 2 slots	5. Base / Lap Held	810	1909.8	0.766	0.351	1, 2
6	EGPRS 2 slots	5. Base / Lap Held	512	1850.2	0.456	0.215	1, 2
7	GPRS 2 slots	6. Base titled 45 degree / Lap held	661	1880.0	0.434	0.258	1, 3
8	GPRS 2 slots	7. Front titled 45 degree / Hand held	661	1880	0.349	0.199	1.3

EUT: N-Trig Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	GPRS 2 slots	5. Base / Lap Held	512	1850.2	0.738	0.335	2, 4
2	GPRS 2 slots	6. Base titled 45 degree/ Lap held	661	1880	0.258	0.156	1,3

Notes:

1. SAR test was performed in the middle channel only as the measured level was < 50% of the SAR limit as stated in FCC “Public Notice DA 02-1438” by the SCC-34/SC-2. Testing in the low and high channel are optional.
2. Tested with power reduction enabled sample
3. Power Reduction Disable; The shortest distance/1.7 cm created by 45 degrees viewing angle when EUT transmits at maximum output power. Tested power reduction disabled sample.
4. The Overall Worst-case configuration of GPRS providing the most conservative SAR value for the TPK-TP variant was use to evaluate the N-trig in the middle channel. The difference in the varient is the type of screen used. They maintain the same modules, antenna, housing and diamensions.

16.3. UMTS FDD V

EUT: TPK Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	RMC 12.2kbps	1. Secondary Landscape	4183	836.6	0.130	0.067	1, 2
2	RMC 12.2kbps	4. Primary Portrait	4183	836.6	0.069	0.039	1, 2
3	RMC 12.2kbps	5. Base / Lap Held	4183	836.6	0.392	0.207	1, 2
4	RMC 12.2kbps	6. Base tilted 45 degree / lapt held	4183	836.6	0.352	0.217	1, 3

EUT: N-Trig Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	RMC 12.2kbps	5. Base / Lap Held	4183	836.6	**0.466**	0.238	2, 4
4	RMC 12.2kbps	6. Base titled 45 degree / lap held	4183	836.6	0.261	0.156	3, 4

Notes:

1. SAR test was performed in the middle channel only as the measured level was < 50% of the SAR limit as stated in FCC “Public Notice DA 02-1438” by the SCC-34/SC-2. Testing in the low and high channel are optional.
2. Tested with power reduction enabled sample
3. Power Reduction Disable; The shortest distance (1.7 cm) created by 45 degrees viewing angle when EUT transmits at maximum output power. Tested with power reduction disabled sample.
4. The Overall Worst-case configuration of UMTS FDD V providing the most conservative SAR value for the TPK-TP variant was use to evaluate the N-trig in the middle channel. The difference in the varient is the type of screen used. They maintain the same modules, antenna, housing and diamensions.

16.4. UMTS FDD IV

EUT: TPK Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	RMC 12.2kbps	1. Secondary Landscape	1427	1735.4	0.194	0.102	1, 2
2	RMC 12.2kbps	4. Primary Portrait	1427	1735.4	0.057	0.030	1, 2
3	RMC 12.2kbps	5. Base / Lap Held	1312	1712.4	0.816	0.393	1, 2
4	RMC 12.2kbps	5. Base / Lap Held	1427	1735.4	0.987	0.471	1, 2
5	RMC 12.2kbps	5. Base / Lap Held	1513	1754.0	**1.090**	0.519	1, 2
6	RMC 12.2kbps	6. Base tilted 45 degree / Lap Held	1427	1735.4	0.247	0.147	1, 3

EUT: N-Trig Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	RMC 12.2kbps	5. Base / Lap Held	1427	1735.4	0.691	0.321	2, 5
2	RMC 12.2kbps	6. Base tilted 45 degree / Lap held	1427	1735.4	0.087	0.048	3, 4

Notes:

1. SAR test was performed in the middle channel only as the measured level was < 50% of the SAR limit as stated in FCC “Public Notice DA 02-1438” by the SCC-34/SC-2. Testing in the low and high channel are optional.
2. Tested with power reduction enabled sample
3. Power Reduction Disable; The shortest distance (1.7 cm) created by 45 degrees viewing angle when EUT transmits at maximum output power. Tested with power reduction disabled sample.
4. The Overall Worst-case configuration of UMTS FDD II providing the most conservative SAR value for the TPK-TP variant was use to evaluate the N-trig in the middle channel. The difference in the varient is the type of screen used. They maintain the same modules, antenna, housing and diamensions.

16.5. UMTS FDD II

EUT: TPK Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	RMC 12.2kbps	1. Secondary Landscape	9400	1880.0	0.201	0.106	1, 2
2	RMC 12.2kbps	4. Primary Portrait	9400	1880.0	0.098	0.050	1, 2
3	RMC 12.2kbps	5. Base / Lap Held	9262	1852.4	**1.100**	0.510	1, 2
4	RMC 12.2kbps	5. Base / Lap Held	9400	1880.0	1.090	0.505	1, 2
5	RMC 12.2kbps	5. Base / Lap Held	9538	1907.6	0.943	0.439	1, 2
6	RMC 12.2kbps	6. Base titled 45 degree / Lap Held	9400	1880.0	0.373	0.221	1, 3

EUT: N-Trig Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	RMC 12.2kbps	5. Base / Lap Held	9262	1852.4	0.877	0.412	2, 4
2	RMC 12.2kbps	5. Base / Lap Held	9400	1880.0	0.804	0.375	2, 4
3	RMC 12.2kbps	5. Base / Lap Held	9538	1907.6	0.746	0.343	2, 4
4	RMC 12.2kbps	6. Base titled 45 degree / Lap held	9400	1880	0.27	0.163	1,3,4

Notes:

1. SAR test was performed in the middle channel only as the measured level was < 50% of the SAR limit as stated in FCC “Public Notice DA 02-1438” by the SCC-34/SC-2. Testing in the low and high channel are optional.
2. Tested with power reduction enabled sample
3. Power Reduction Disable; The shortest distance (1.7 cm) created by 45 degrees viewing angle when EUT transmits at maximum output power. Tested with power reduction disabled sample.
4. The Overall Worst-case configuration of UMTS FDD II providing the most conservative SAR value for the TPK-TP variant was use to evaluate the N-trig in the middle channel. The difference in the varient is the type of screen used. They maintain the same modules, antenna, housing and diamensions.

16.6. CDMA2000 (850)

EUT: TPK Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	1xEv-Do Rel. 0	1. Secondary Landscape	384	836.5	0.125	0.0634	1, 2
2	1xEv-Do Rel. 0	4. Primary Portrait	384	836.5	0.057	0.032	1, 2
3	1xEv-Do Rel. 0	5. Base / Lap Held	384	836.5	0.355	0.186	1, 2
4	1xEv-Do Rel. 0	6. Base tilted 45 degree / Lap Held	384	836.5	0.370	0.225	1, 3

EUT: N-Trig Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	1xEv-Do Rel. 0	5. Base / Lap Held	384	836.5	**0.419**	0.218	2, 4
2	1xEv-Do Rel. 0	6. Base titled 45 degree / Lap Held	384	836.5	0.285	0.171	3,4

Notes:

1. SAR test was performed in the middle channel only as the measured level was < 50% of the SAR limit as stated in FCC “Public Notice DA 02-1438” by the SCC-34/SC-2. Testing in the low and high channel are optional.
2. Tested with power reduction enabled sample
3. Power Reduction Disable; The shortest distance (1.7 cm) created by 45 degrees viewing angle when EUT transmits at maximum output power. Tested with power reduction disabled sample.
4. The Overall Worst-case configuration of CDMA2000 (850) providing the most conservative SAR value for the TPK-TP variant was use to evaluate the N-trig in the middle channel. The difference in the varient is the type of screen used. They maintain the same modules, antenna, housing and diamensions.

16.7. CDMA2000 (1900)

EUT: TPK Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	1xEv-Do Rel. 0	1. Secondary Landscape	600	1880.0	0.134	0.065	1, 2
2	1xEv-Do Rel. 0	4. Primary Portrait	600	1880.0	0.064	0.030	1, 2
3	1xEv-Do Rel. 0	5. Base / Lap Held	600	1880.0	0.778	0.356	1, 2
4	1xEv-Do Rel. 0	6. Base titled 45 degree / Lap Held	600	1880.0	0.410	0.243	1, 3

EUT: N-Trig Touch Panel

Plot No.	Mode	Test config.	Ch	Freq. (MHz)	SAR (mW/g)		Note
					1-g	10-g	
1	1xEv-Do Rel. 0	5. Base / Lap Held	25	1851.25	**1.110**	0.512	2, 4
2	1xEv-Do Rel. 0	5. Base / Lap Held	600	1880.0	1.040	0.480	2, 4
3	1xEv-Do Rel. 0	5. Base / Lap Held	1175	1908.75	0.924	0.423	2, 4
4	1xEv-Do Rel. 0	6.Base titled 45 degree / lap held	600	1880	0.285	0.17	1,3,4

Notes:

1. SAR test was performed in the middle channel only as the measured level was < 50% of the SAR limit as stated in FCC “Public Notice DA 02-1438” by the SCC-34/SC-2. Testing in the low and high channel are optional.
2. Tested with power reduction enabled sample
3. Power Reduction Disable; The shortest distance(1.7 cm) created by 45 degrees viewing angle when EUT transmits at maximum output power. Tested with power reduction disabled sample.
4. The Overall Worst-case configuration of CDMA2000 (1900) providing the most conservative SAR value for the TPK-TP variant was use to evaluate the N-trig in the middle channel. The difference in the varient is the type of screen used. They maintain the same modules, antenna, housing and diamensions.

17. Worst-case SAR Test Plots

Worst-case SAR Plot for Part 22

Date: 7/6/2011

Test Laboratory: UL CCS SAR Lab C

1_GSM Band

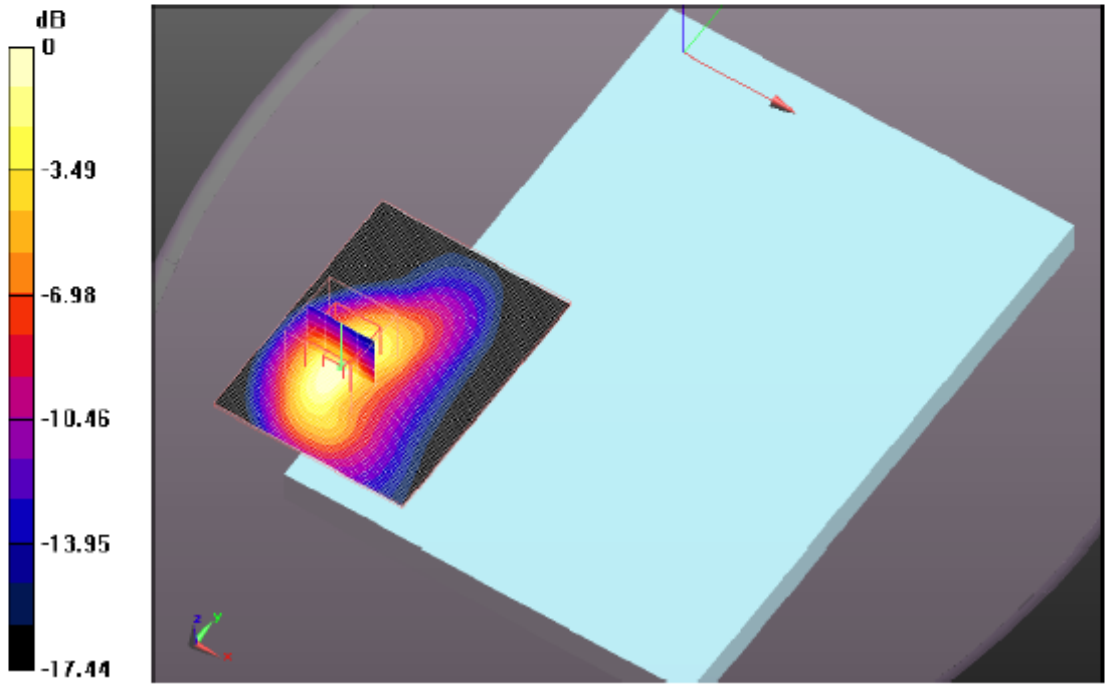
Communication System: GPRS-FDD (TDMA, GMSK, 2 slot); Frequency: 836.6 MHz;Duty Cycle: 1:4.00037
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.978 mho/m; ε_r = 54.288; ρ = 1000 kg/m^3
Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY5 Configuration:
- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3772; ConvF(8.57, 8.57, 8.57); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1257; Calibrated: 5/3/2011
- Phantom: ELI v5.0 (B); Type: QDOVA001BB; Serial: 1121
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

Base, N-Trig, ATT=6dB, GPRS 2 slot/M ch/Area Scan (61x81x1): Measurement grid:
dx=15mm, dy=15mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.026 mW/g

Base, N-Trig, ATT=6dB, GPRS 2 slot/M ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid:
dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.332 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.454 W/kg
SAR(1 g) = 0.718 mW/g; SAR(10 g) = 0.371 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.034 mW/g



0 dB = 1.030mW/g

Worst-case SAR Plot for Part 22 – Z plot

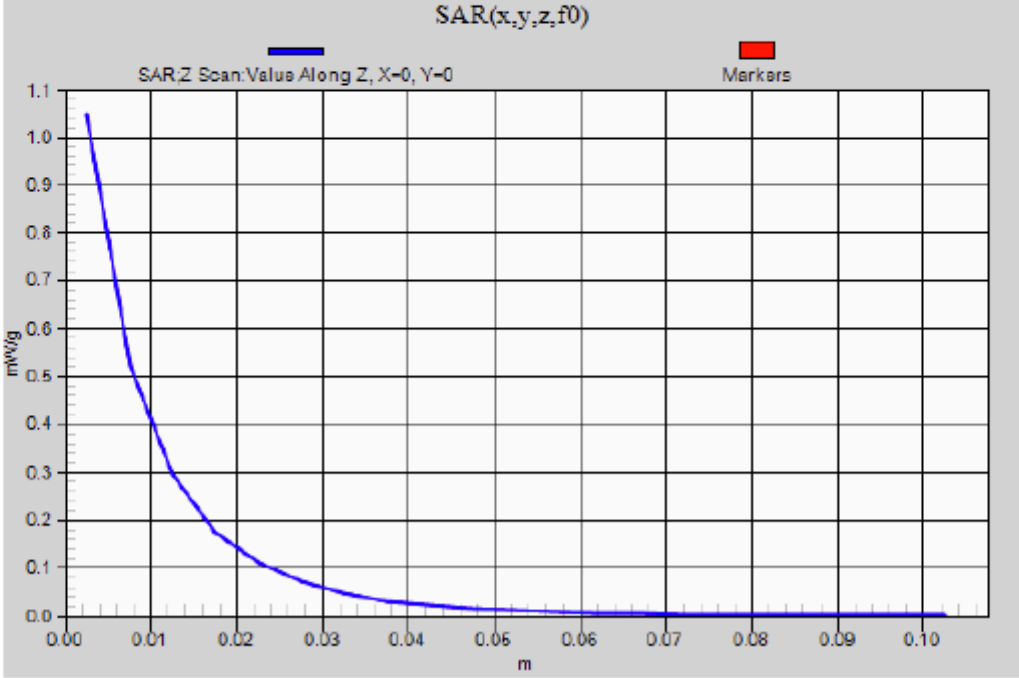
Date: 7/6/2011

Test Laboratory: UL CCS SAR Lab C

1_GSM Band

Communication System: GPRS-FDD (TDMA, GMSK, 2 slot); Frequency: 836.6 MHz;Duty Cycle: 1:4.00037

Base, N-Trig, ATT=6dB, GPRS 2 slot/M ch/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.047 mW/g



Worst-case SAR Plot for Part 24

Date: 7/5/2011

Test Laboratory: UL CCS SAR Lab C

7_CDMA2000 1900

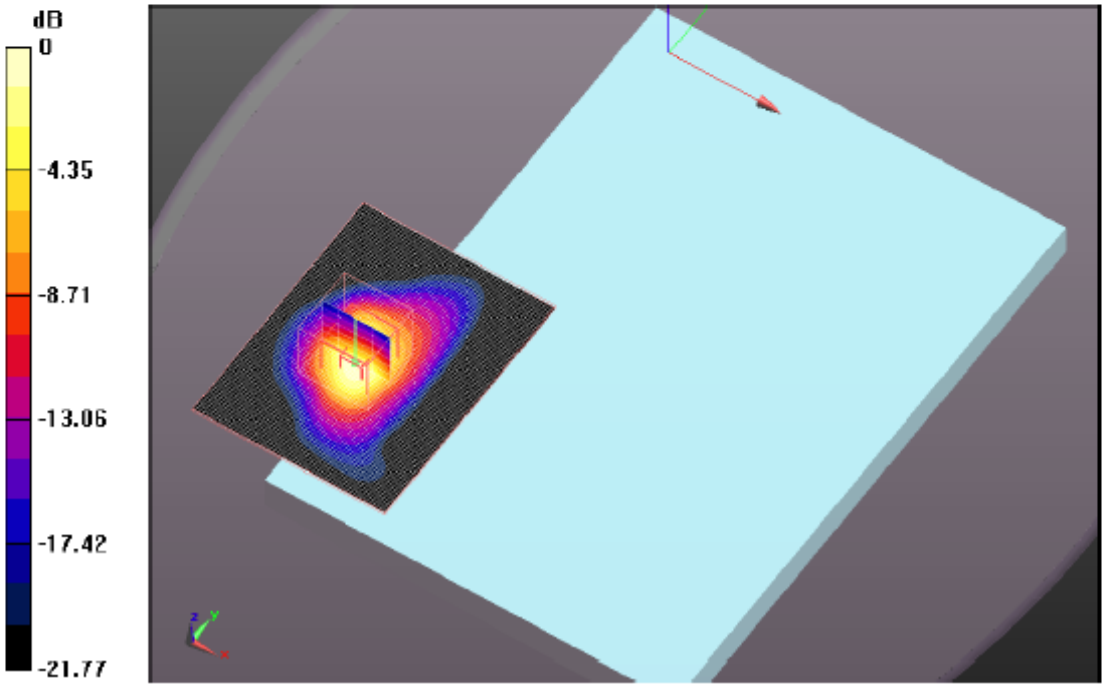
Communication System: CDMA2000; Frequency: 1851.25 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1851.25 MHz; σ = 1.516 mho/m; ε_r = 52.228; ρ = 1000 kg/m^3
Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY5 Configuration:
- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3772; ConvF(6.76, 6.76, 6.76); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1257; Calibrated: 5/3/2011
- Phantom: ELI v5.0 (A); Type: QDOVA001BB; Serial: 1117
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

Base, N-Trig, ATT=6dB, 1xEVDO/L ch/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.674 mW/g

Base, N-Trig, ATT=6dB, 1xEVDO/L ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.886 V/m; Power Drift = 0.0076 dB
Peak SAR (extrapolated) = 2.376 W/kg
SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.512 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.639 mW/g



0 dB = 1.640mW/g

Worst-case SAR Plot for Part 24 - Z plot

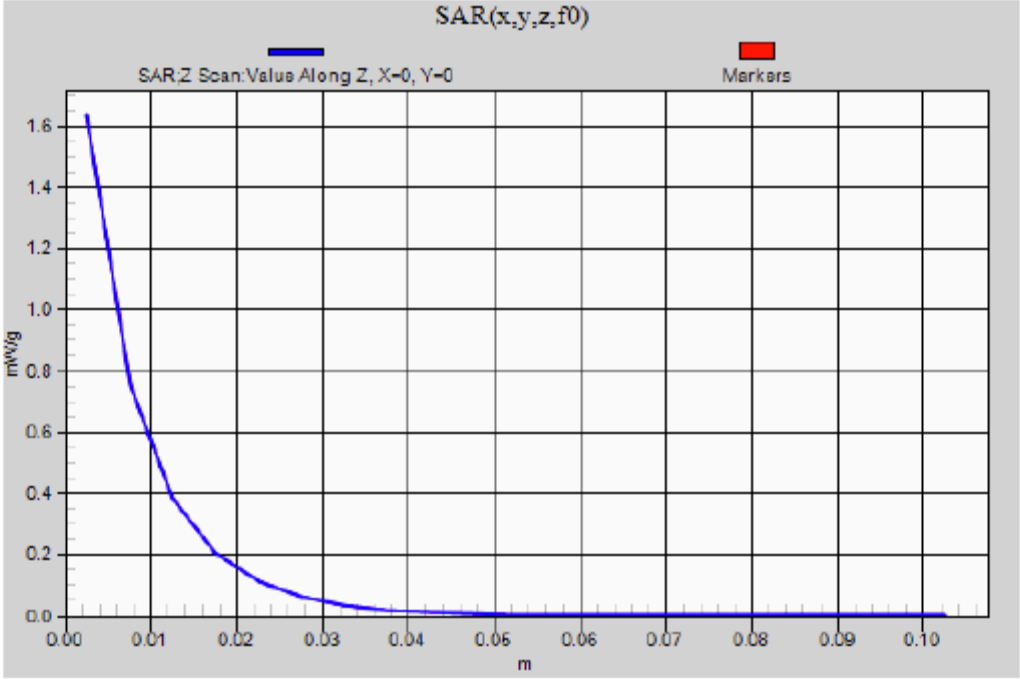
Date: 7/5/2011

Test Laboratory: UL CCS SAR Lab C

7_CDMA2000 1900

Communication System: CDMA2000; Frequency: 1851.25 MHz;Duty Cycle: 1:1

Base, N-Trig, ATT=6dB, 1xEVDO/L ch/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.635 mW/g



Worst-case SAR Plot for Part 27

Date: 7/4/2011

Test Laboratory: UL CCS SAR Lab C

4_UMTS Band IV

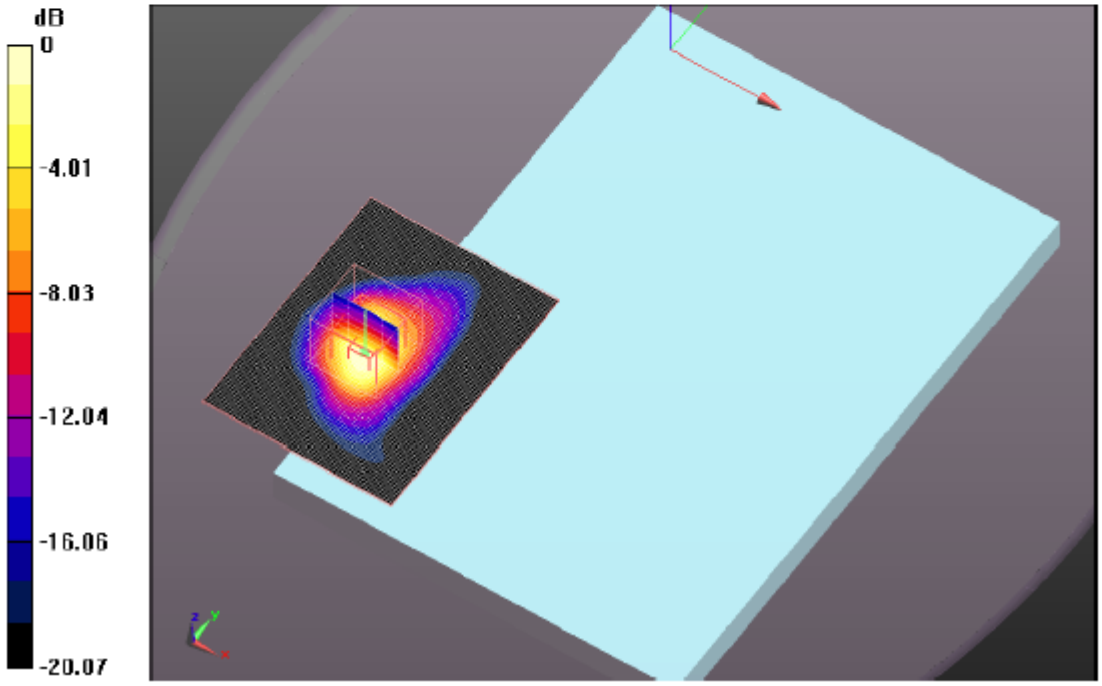
Communication System: UMTS-FDD (WCDMA); Frequency: 1752.6 MHz;Duty Cycle: 1:2.18776
Medium parameters used (interpolated): f = 1752.6 MHz; σ = 1.529 mho/m; ε_r = 52.368; ρ = 1000 kg/m^3
Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY5 Configuration:
- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3772; ConvF(7.15, 7.15, 7.15); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1257; Calibrated: 5/3/2011
- Phantom: ELI v5.0 (A); Type: QDOVA001BB; Serial: 1117
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

Base, TPK, ATT=6dB/H ch/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.655 mW/g

Base, TPK, ATT=6dB/H ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.579 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 2.247 W/kg
SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.519 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.572 mW/g



0 dB = 1.570mW/g

Worst-case SAR Plot for Part 27 - Z plot

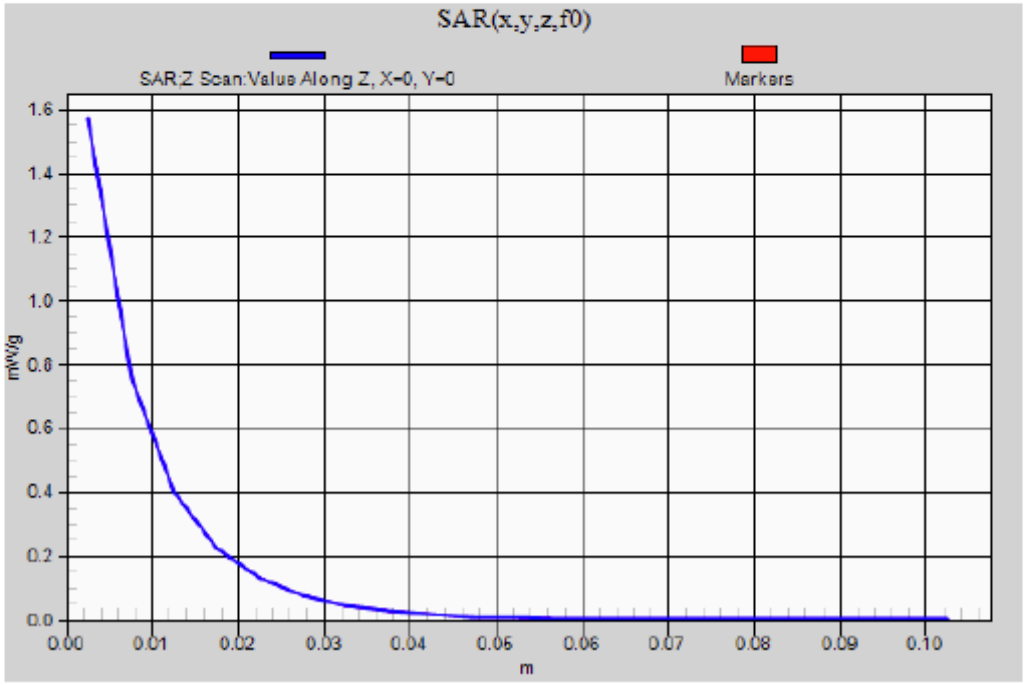
Date: 7/4/2011

Test Laboratory: UL CCS SAR Lab C

4_UMTS Band IV

Communication System: UMTS-FDD (WCDMA); Frequency: 1752.6 MHz;Duty Cycle: 1:2.18776

Base, TPK, ATT=6dB/H ch/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.571 mW/g



18. Simultaneous Transmission SAR Analysis (KDB 447498)

Summary of SAR Evaluation for a Device with Multiple Transmitters

Individual Transmitter	Stand-alone SAR
WWAN	Yes
WiFi	Yes
Bluetooth*	Not required (average output is < $60/f_{(GHz)}$ mW)

Simultaneous Transmission

- WWAN can transmit simultaneously with WiFi
- WWAN can transmit simultaneously with Bluetooth
- WiFi can transmit simultaneously with Bluetooth
-

Notes:

1. *: Bluetooth – Broadcom, FCC ID: QDS-BRCM1043 (Max. output power: 2.67mW)
2. **: Please refer to the following Wi-Fi SAR reports tested by EMC Technologies, submitted under respective FCC ID: EJE-WL0025
    - M110325_FCC_WLU5110-D50(ROHS)_SAR_2.4
    - M110325_FCC_WLU5110-D50(ROHS)_SAR_5.6

18.1. Simultaneous Transmission SAR Analysis: WWAN + WiFi 2.4 GHz

Test Position	EUT	Band	Cellular	Wi-Fi 2.4 GHz	∑ 1g SAR (W/kg)
1. Secondary Landscape	TPK	GSM850 GPRS 2 slot	0.221	0.870	1.091
4. Primary Portrait	TPK		0.096	0	0.096
5. Base	TPK		0.613	0.864	1.477
5. Base	N-Trig		0.718	0.864	1.582
1. Secondary Landscape	TPK	UMTS Band V	0.130	0.870	1.000
4. Primary Portrait	TPK		0.069	0	0.069
5. Base	TPK		0.392	0.864	1.256
5. Base	N-Trig		0.466	0.864	1.330
1. Secondary Landscape	TPK	CDMA2000 Cell 1x EV-DO (Release 0)	0.125	0.870	0.995
4. Primary Portrait	TPK		0.057	0	0.057
5. Base	TPK		0.355	0.864	1.219
5. Base	N-Trig		0.419	0.864	1.283
1. Secondary Landscape	TPK	UMTS band IV	0.194	0.870	1.064
4. Primary Portrait	TPK		0.057	0	0.057
5. Base	TPK		1.090	0.864	**1.954**
5. Base	N-Trig		0.691	0.864	1.555
1. Secondary Landscape	TPK	GSM1900 GPRS 2 slot	0.172	0.870	1.042
4. Primary Portrait	TPK		0.083	0	0.083
5. Base	TPK		1.020	0.864	**1.884**
5. Base	N-Trig		0.738	0.864	**1.602**
1. Secondary Landscape	TPK	UMTS band II	0.201	0.870	1.071
4. Primary Portrait	TPK		0.098	0	0.098
5. Base	TPK		1.100	0.864	**1.964**
5. Base	N-Trig		0.877	0.864	**1.741**
1. Secondary Landscape	TPK	CDMA2000 PCS 1x EV-DO (Release 0)	0.134	0.870	1.004
4. Primary Portrait	TPK		0.064	0	0.064
5. Base	TPK		0.778	0.864	**1.642**
5. Base	N-Trig		1.110	0.864	**1.974**

Based upon KDB 447498, when the sum of individual SAR pair is > 1.6 W/kg; in order to exclude simultaneous volume scan requirement, the peak SAR location separation distance ratio has to less than 0.3. Below table shows the 3 D peak SAR location distance and the distance ratio.

∑ 1-g SAR (W/kg)	Antenna Pair SAR to Peak Location Separation (cm)	Antenna Pair SAR to Peak Location Separation Ratio
1.954	8.45	0.231
1.884	8.48	0.222
1.602	8.69	0.184
1.964	8.60	0.228
1.741	8.48	0.205
1.642	8.53	0.192
1.974	8.60	0.230

Notes:

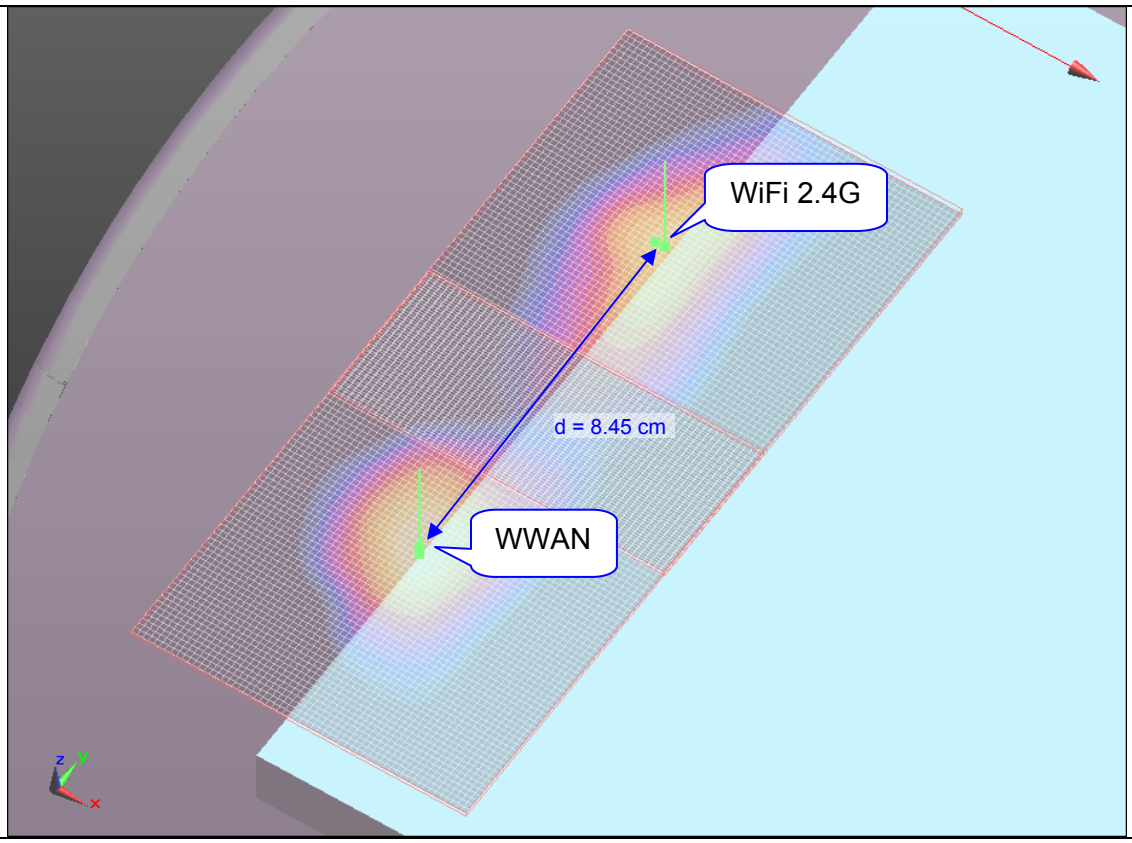
1. This table indicates the actual measured distance between peak SAR locations. Refer to the following pages for 3D distances.

2. The Peak SAR 3D distance measurement for WiFi and WWAN was tested at UL CCS.

Conclusion: The peak SAR location separation distance ratio is less than 0.3, simultaneous SAR evaluation is not required.

UMTS band IV

Peaks SAR separation distance from cellular-to-WiFi 2.4 GHz bands

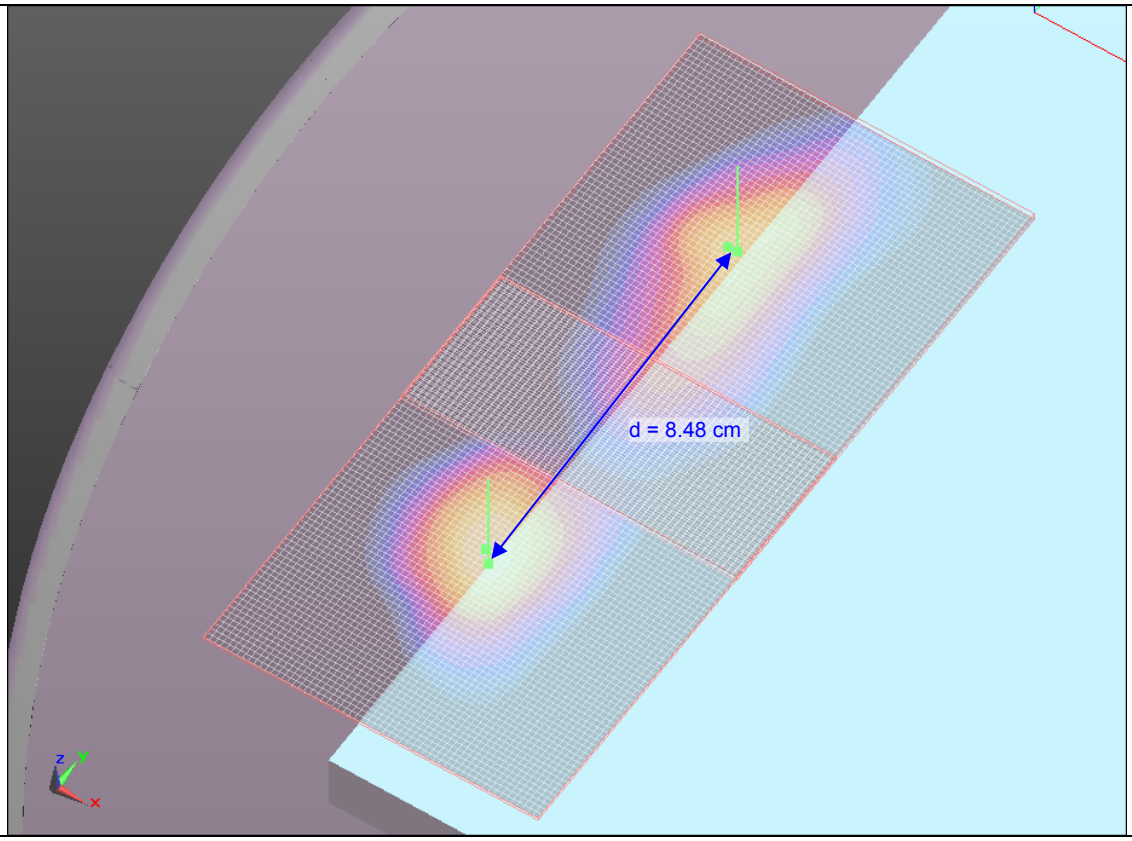


	Value of SAR	X	Y	Z
	mW/g	m	m	m
UMTS Band IV	1.57	-0.0895	-0.0845	-0.178
WiFi 2.4GHz	1.98	-0.0765	-0.001	-0.18

	m	cm	
Separation distance (d) =	0.0845	**8.45**	
	SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)		

GSM1900 GPRS 2 slot (TPK)

Peaks SAR separation distance from cellular -to-WiFi 2.4 GHz bands

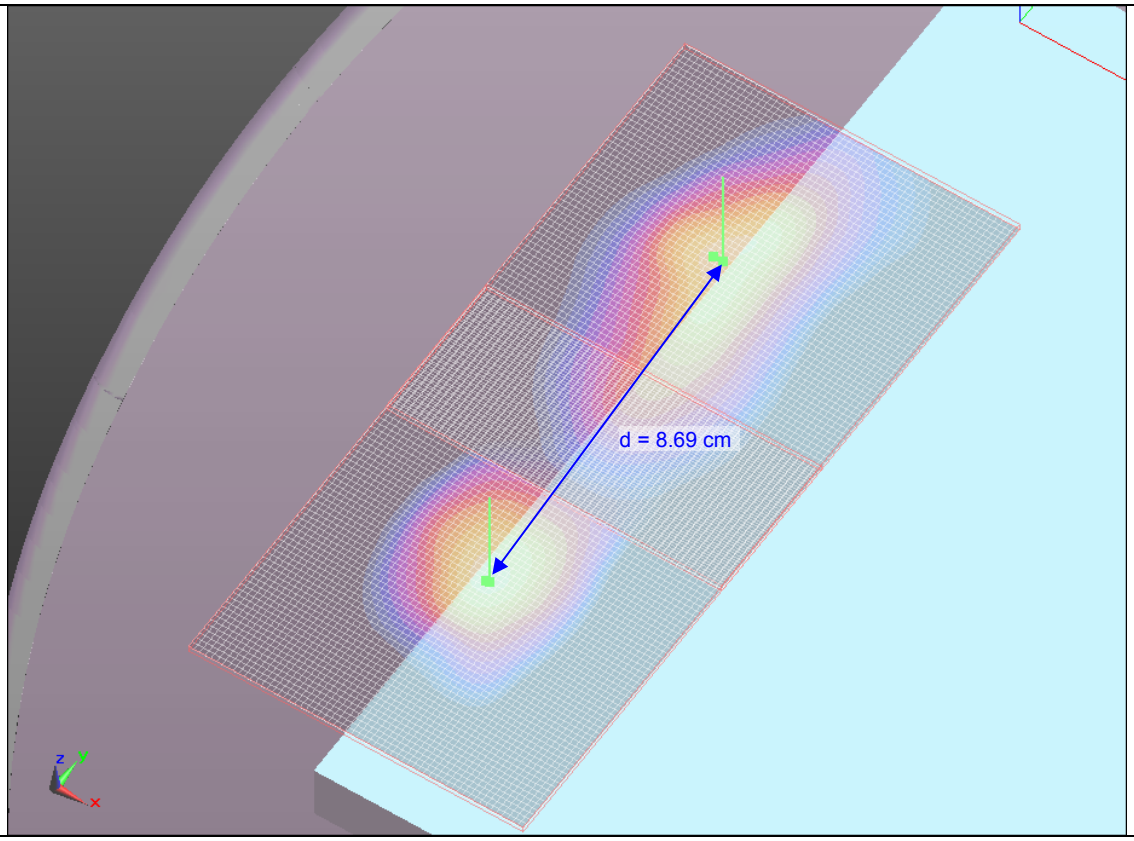


	Value of SAR	X	Y	Z
	mW/g	m	m	m
GSM 1900 GPRS 2 slot	1.45	-0.091	-0.0845	-0.178
WiFi 2.4GHz	1.98	-0.0765	-0.001	-0.18

	m	cm	
Separation distance (d) =	0.0848	**8.48**	
	SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)		

GSM1900 GPRS 2 slot (N-trig)

Peaks SAR separation distance from cellular-to-WiFi 2.4 GHz bands

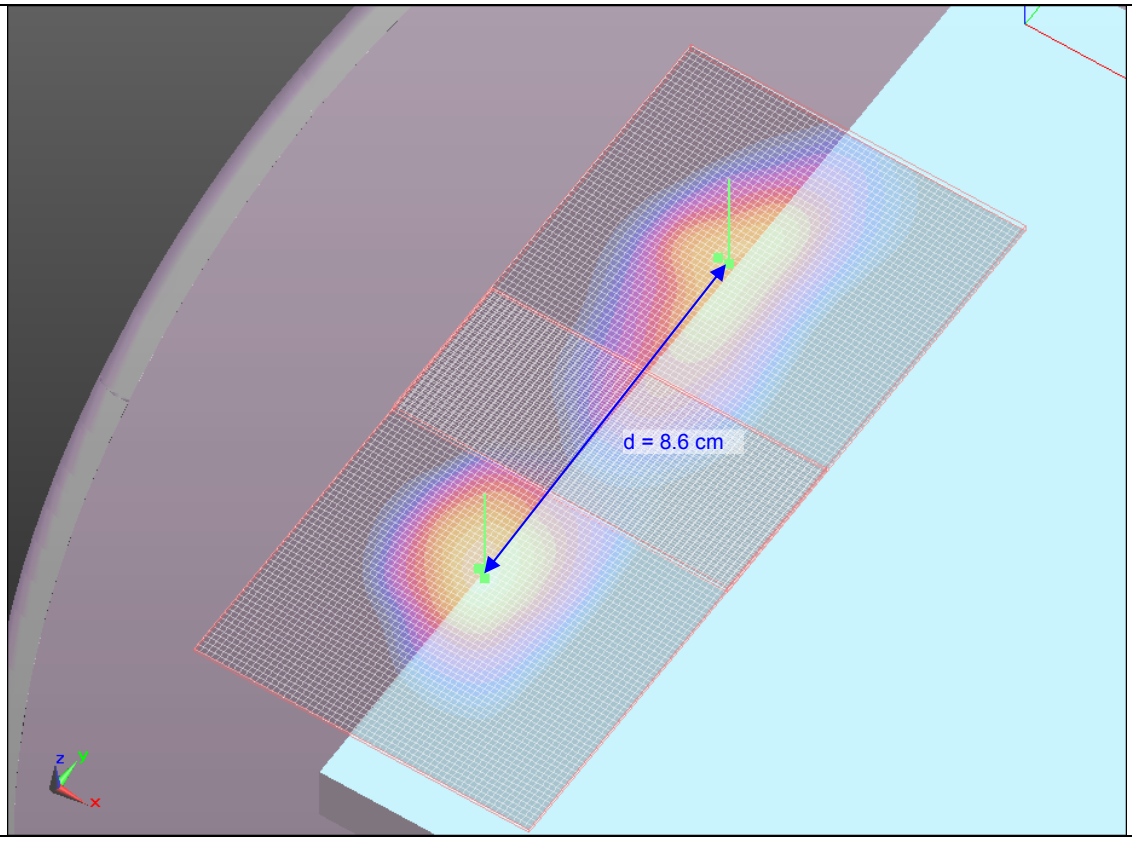


	Value of SAR	X	Y	Z
	mW/g	m	m	m
GSM 1900 GPRS 2 slot	1.1	-0.085	-0.0875	-0.178
WiFi 2.4GHz	1.98	-0.0765	-0.001	-0.18

	m	cm	
Separation distance (d) =	0.0869	**8.69**	
	SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)		

UMTS band II (TPK)

Peaks SAR separation distance from cellular-to-WiFi 2.4 GHz bands

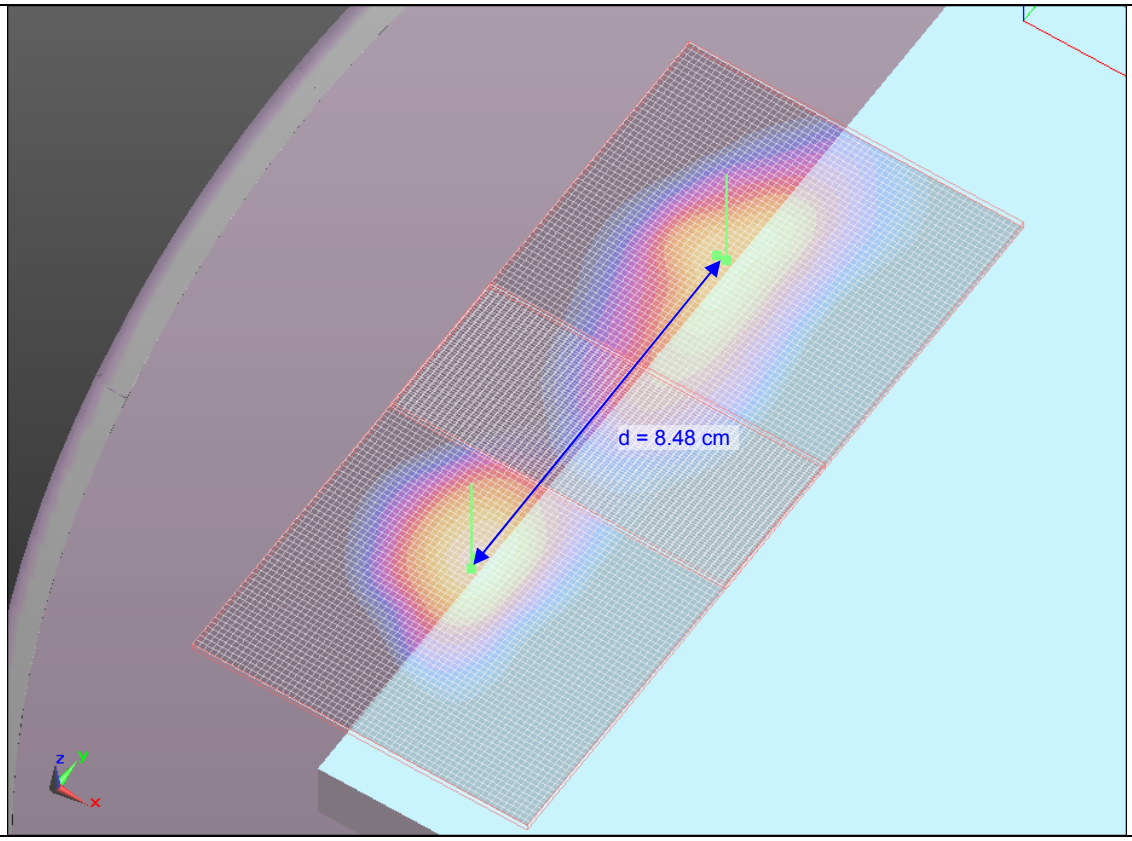


	Value of SAR	X	Y	Z
	mW/g	m	m	m
UMTS Band II	1.61	-0.0895	-0.086	-0.178
WiFi 2.4GHz	1.98	-0.0765	-0.001	-0.18

	m	cm	
Separation distance (d) =	0.0860	**8.60**	
	SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)		

UMTS band II (Ntrig)

Peaks SAR separation distance from cellular-to-WiFi 2.4 GHz bands

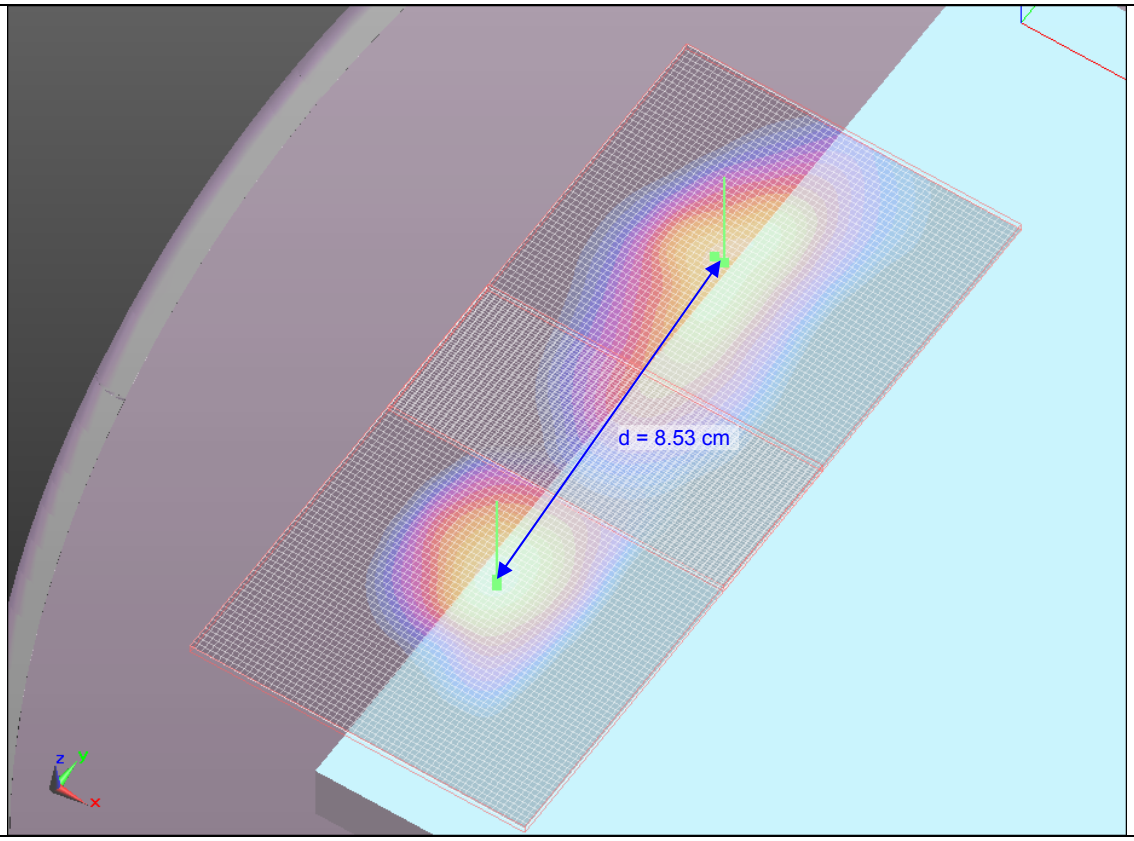


	Value of SAR	X	Y	Z
	mW/g	m	m	m
UMTS Band II	1.26	-0.091	-0.0845	-0.178
WiFi 2.4GHz	1.98	-0.0765	-0.001	-0.18

	m	cm	
Separation distance (d) =	0.0848	**8.48**	
	SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)		

CDMA2000 PCS 1xEv-Do (TPK)

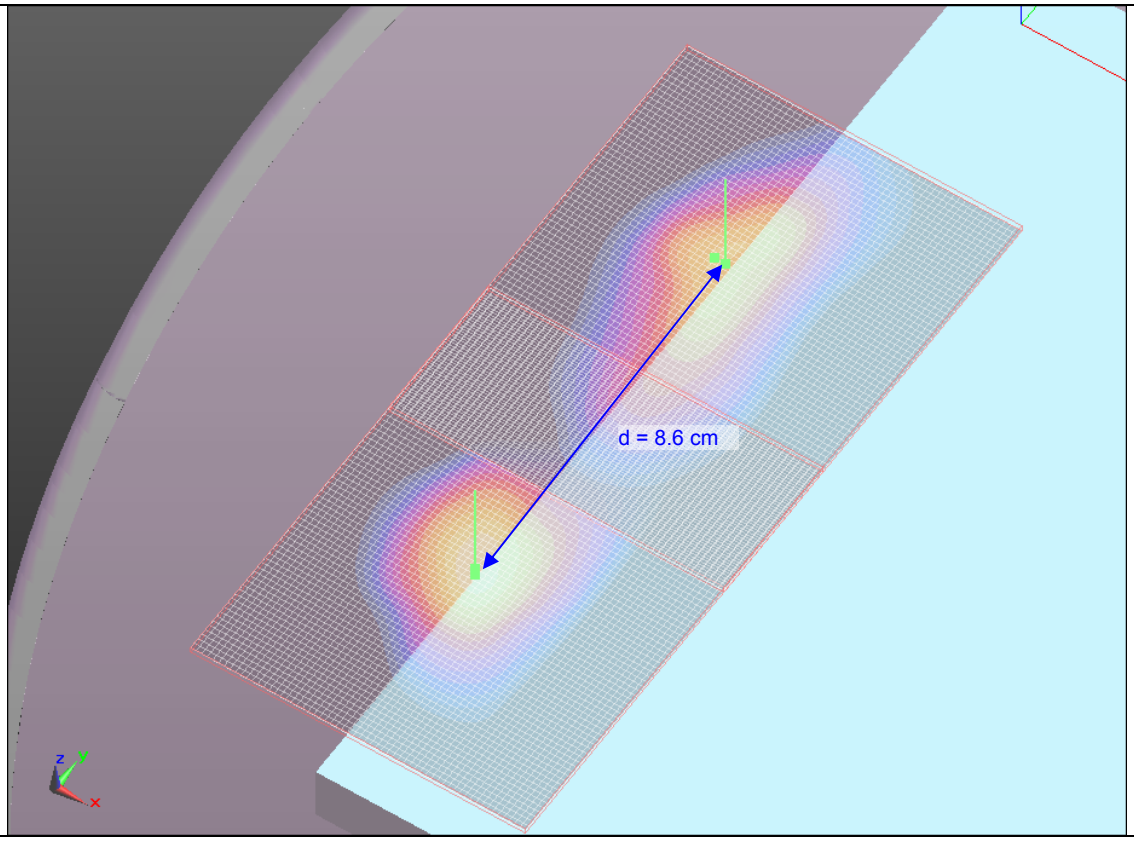
Peaks SAR separation distance from cellular-to-WiFi 2.4 GHz bands



	Value of SAR	X	Y	Z
	mW/g	m	m	m
CDMA2000 PCS	1.17	-0.0835	-0.086	-0.179
WiFi 2.4GHz	1.98	-0.0765	-0.001	-0.18
m	cm			
Separation distance (d) =	0.0853	**8.53**		
	SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)			

CDMA2000 PCS 1xEv-Do (N-trig)

Peaks SAR separation distance from cellular-to-WiFi 2.4 GHz bands



	Value of SAR	X	Y	Z
	mW/g	m	m	m
CDMA2000 PCS	1.64	-0.0895	-0.086	-0.179
WiFi 2.4GHz	1.98	-0.0765	-0.001	-0.18
m	cm			

Separation distance (d) =	0.0860	**8.60**	
	SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)		

18.1. Simultaneous Transmission – WWAN + WiFi 5 GHz

Test Position	EUT	Band	Cellular	Wi-Fi 5 GHz	∑ 1g SAR (W/kg)
1. Secondary Landscape	TPK	GSM850 GPRS 2 slot	0.221	1.120	1.341
4. Primary Portrait	TPK		0.096	0	0.096
5. Base / Lap Held	TPK		0.613	0.402	1.015
5. Base / Lap Held	N-Trig		0.718	0.402	1.120
1. Secondary Landscape	TPK	UMTS Band V	0.130	1.120	1.250
4. Primary Portrait	TPK		0.069	0	0.069
5. Base / Lap Held	TPK		0.392	0.402	0.794
5. Base / Lap Held	N-Trig		0.466	0.402	0.868
1. Secondary Landscape	TPK	CDMA2000 Cell 1x EV-DO (Release 0)	0.125	1.120	1.245
4. Primary Portrait	TPK		0.057	0	0.057
5. Base / Lap Held	TPK		0.355	0.402	0.757
5. Base / Lap Held	N-Trig		0.419	0.402	0.821
1. Secondary Landscape	TPK	UMTS band IV	0.194	1.120	1.314
4. Primary Portrait	TPK		0.057	0	0.057
5. Base / Lap Held	TPK		1.090	0.402	1.492
5. Base / Lap Held	N-Trig		0.691	0.402	1.093
1. Secondary Landscape	TPK	GSM1900 GPRS 2 slot	0.172	1.120	1.292
4. Primary Portrait	TPK		0.083	0	0.083
5. Base / Lap Held	TPK		1.020	0.402	1.422
5. Base / Lap Held	N-Trig		0.738	0.402	1.140
1. Secondary Landscape	TPK	UMTS band II	0.201	1.120	1.321
4. Primary Portrait	TPK		0.098	0	0.098
5. Base / Lap Held	TPK		1.100	0.402	1.502
5. Base / Lap Held	N-Trig		0.877	0.402	1.279
1. Secondary Landscape	TPK	CDMA2000 PCS 1x EV-DO (Release 0)	0.134	1.120	1.254
4. Primary Portrait	TPK		0.064	0	0.064
5. Base / Lap Held	TPK		0.778	0.402	1.180
5. Base / Lap Held	N-Trig		1.110	0.402	**1.512**

Conclusion: ∑ 1g SAR (W/kg) is less than 1.6 W/kg, simultaneous SAR evaluation is not required.

Appendix

No.	Contents	No. of page (s)
1	System Check Plots	10
2-1	SAR Test Plots for GSM850	7
2-2	SAR Test Plots for GSM1900	9
2-3	SAR Test Plots for UMTS BAND V	6
2-4	SAR Test Plots for UMTS BAND IV	8
2-5	SAR Test Plots for UMTS BAND II	12
2-6	SAR Test Plots for CDMA2000 850	7
2-7	SAR Test Plots for CDMA2000 1900	9
3	Certificate of E-Field Probe - EX3DV4 SN 3772	11
4	Calibration Certificate - Validation Dipole D835V2 - SN 4d117	9
5	Calibration Certificate - Validation Dipole D1750V2 - SN 1050	9
6	Calibration Certificate - Validation Dipole D1900V2 - SN 5d140	9
7	Original certified output power Vs Power Reduction comparison	1