FCC OET BULLETIN 65 SUPPLEMENT C 01-01
IEEE STD 1528:2003

SAR EVALUATION REPORT
(WWAN Portion)

For

3G/4G Module Consists of Cellular CDMA, PCS CDMA, EVDO Rel 0, Rev. A and WiMax
(Tested inside of Lenovo Notebook PC Lenovo Ideapad S205s, model: 2090 and 20127)

MODEL NUMBER: M600A
FCC ID: XHG-M600A

REPORT NUMBER: 11U13741-2A1
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Prepared for

FRANKLIN TECHNOLOGY INC.
1505 DIGITAL TOWER ASTON,
505-15 GASAN-DONG,
GUMCHEON-GU, SEOUL, KOREA

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
--	September 26, 2011	Initial Issue	--
A	September 27, 2011	Update info on Section 8	Sunny Shih
A1	September 27, 2011	Update report based on reviewer's comments. 1. Section 5 (page 8): Updated "Assessment of SAR evaluation for Simultaneous transmission" 2. Page 16: Added section "13. Simultaneous Transmission SAR Analysis"	Sunny Shih

Tablet of Contents

1. Attestation of Test Results

Applicant name:	Franklin Technology Inc.		
EUT description:	3G/4G Module Consists of Cellular CDMA, PCS CDMA, EVDO Rel 0, Rev. A and WiMax Tested inside of Lenovo Notebook PC Lenovo Ideapad S205s, model: 2090 and 20127		
Model number:	M600A		
Device category:	Portable		
Exposure category:	General Population/Uncontrolled Exposure		
Date tested:	August 4, 2011		
FCC Rule Parts	Freq. Range[MHz]	The Highest 1g SAR mW/g	Limit (mW/g)
22H	824 - 849	0.012 mW/g	1.6
24E	1850 - 1910	0.014 mW/g	
Applicable Standards			Test Results
FCC OET Bulletin 65 Supplement C 01-01 IEEE STD 1528: 2003			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 CCS By:	Tested By:
Sunny Shih	Chakrit Thammanavarat
Engineering Team Leader	SAR Engineer
Compliance Certification Services (UL CCS)	Compliance Certification Services (UL CCS)

2. Test Methodology

FCC OET Bulletin 65 Supplement C 01-01, IEEE STD 1528: 2003 and the following KDB test procedures:

- 941225 D01 SAR test for 3G devices
- 616217 D03 SAR Supp Note and Netbook Laptop v01

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 Uncertainty

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	RX90BL	N/A	N/A		
Robot Remote Control	Stäubli	CS7MB	S-0396	N/A		
DASY4 Measurement Server	SPEAG	SEUMS001BA	1246	N/A		
Probe Alignment Unit	SPEAG	LB5/ 80	SE UKS 030 AA	N/A		
SAM Twin Phantom	SPEAG	QDOOOP40CD	1629	N/A		
Oval Flat Phantom (ELI 5.0) A	SPEAG	QDOVA001BB	1120	N/A		
Oval Flat Phantom (ELI 5.0) B	SPEAG	QDOVA001BB	1118	N/A		
Dielectric Probe kit	HP	85070C	N/A	N/A		
ESA Series Network Analyzer	Agilent	E5071B	MY42100131	8	2	2012
Synthesized Signal Generator	HP	83732B	US34490599	7	14	2012
E-Field Probe	SPEAG	EX3DV4	3686	1	24	2012
Thermometer	ERTCO	639-1S	1718	8	19	2012
Data Acquisition Electronics	SPEAG	DAE4	1239	12	9	2011
System Validation Dipole	SPEAG	D835V2	4d117	4	15	2012
System Validation Dipole	SPEAG	D1900V2	5d140	4	18	2012
Power Meter	Giga-tronics	8651A	8651404	3	13	2012
Power Sensor	Giga-tronics	80701A	1834588	3	13	2012
Amplifier	Mini-Circuits	ZVE-8G	90606	N/A		
Amplifier	Mini-Circuits	ZHL-42W	D072701-5	N/A		
Simulating Liquid	SPEAG	MSL900	N/A	Within 24 hrs of first te		
Simulating Liquid	SPEAG	MSL1900	N/A	Within 24 hrs of first te		

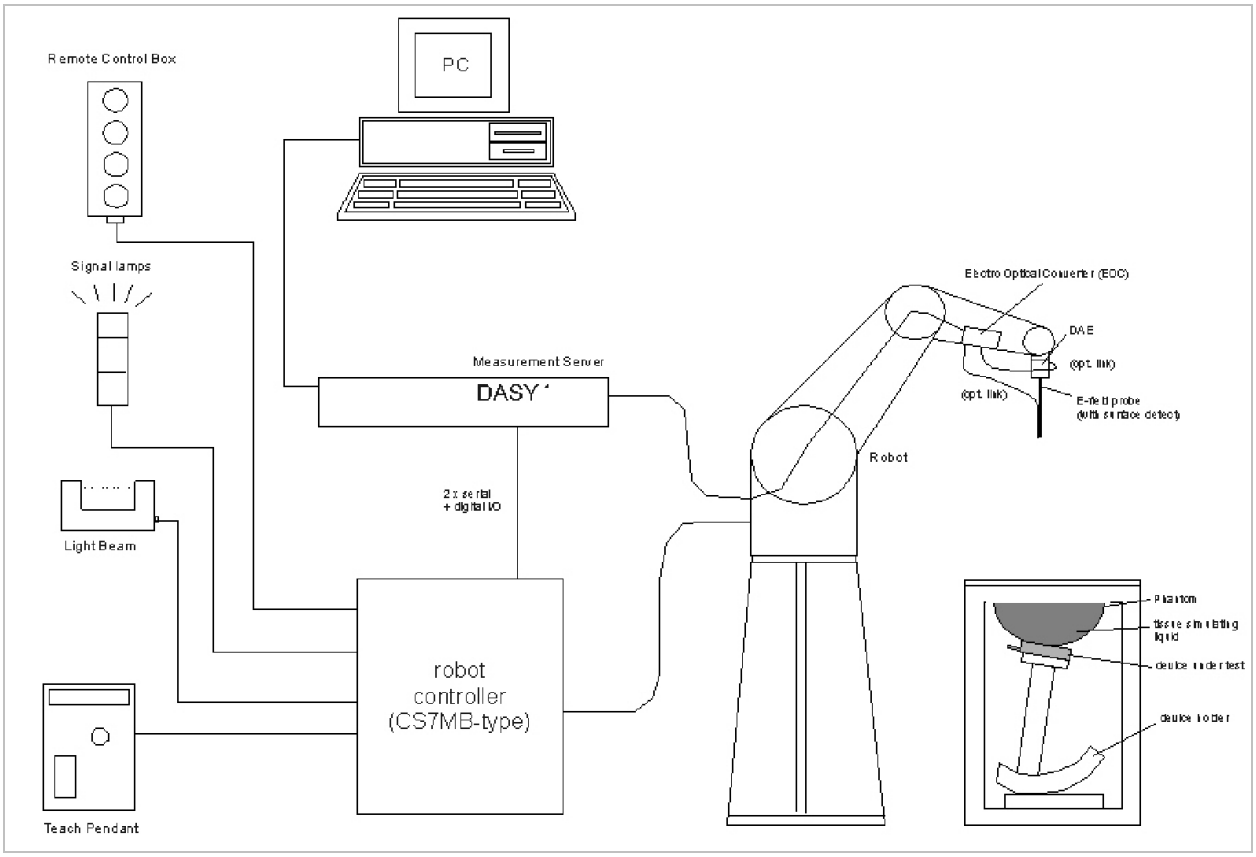
4.2. Measurement Uncertainty

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	4.61	Normal	1	0.64	2.95
Liquid Permittivity - deviation from target	5.00	Rectangular	1.732	0.6	1.73
Liquid Permittivity - measurement uncertainty	-1.67	Normal	1	0.6	-1.00
				Combined Standard Uncertainty Uc(y) =	9.94
				Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence = 19.88	%
				Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence = 1.58	dB

5. Equipment Under Test

3G/4G Module Consists of Cellular CDMA, PCS CDMA, EVDO Rel 0, Rev. A and WiMax (Tested inside of Lenovo Notebook PC Lenovo Idea pad S205s, model: 2090 and 20127)	
Normal operation:	Laptop mode (display open at 90° to the keyboard)
Antenna tested:	Manufacturer: ACON Part number: Tx1: APP8P-700261
Antenna-to-antenna/user separation distances:	See Section 16 for details of antenna locations and separation distances
Assessment for SAR evaluation for Simultaneous transmission:	**WWAN & WiMax** The WWAN and 802.16e WiMAX radio will not transmit simultaneously. **WWAN – WiFi** The WWAN and 802.11b/g/n WiFi radio can transmit simultaneously. ***Note:*** *Simultaneous transmission is not required due to Sum of the 1g SAR < SAR limit. See section 13 for details.* **WWAN – Bluetooth** Simultaneous Bluetooth SAR evaluation is not necessary due to the BT power < 60/f (GHz) mW. **WiMax & WiFi** The WMAx and WiFi radio can transmit simultaneously. ***Note:*** *Simultaneous transmission is not required due to Sum of the 1g SAR < SAR limit. See section 13 for details.*

6. System Specifications



The DASY 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		900		1800 - 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

Simulating Liquids for 5 GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	78
Mineral oil	11
Emulsifiers	9
Additives and Salt	2

8. Simulating Liquid Parameters

The simulating liquids are checked at the beginning of a series of SAR measurements to determine if 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 were within ± 5% of the target values. For frequencies above 2 GHz the measured conductivity was within ± 5% of the target values. The measured relative permittivity tolerance was within ± 10% of the target value.

Reference Values of Tissue Dielectric Parameters for Head & Body Phantom

The 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
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
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
5800	35.3	5.27	48.2	6

(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 ±(%)
8/4/2011	Body 835	e'	55.2512	Relative Permittivity (ε_r):	55.25	55.20	0.09	5
		e''	21.2332	Conductivity (σ):	0.99	0.97	1.63	5
8/4/2011	Body 1900	e'	55.5002	Relative Permittivity (ε_r):	52.41	53.30	-1.67	5
		e''	21.2443	Conductivity (σ):	1.59	1.52	4.61	5

9. System Verification

The system performance check is performed prior to any usage of the system in order to verify SAR system 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 Body simulating liquid of the following parameters.
- The DASY system with an Isotropic E-Field Probe EX3DV4-SN: 3686 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 5x5x7 (2.4 GHz) fine cube was chosen for cube integration and Special 8x8x10 (5 GHz) fine cube was chosen for cube integration
- 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 powers (forward power) were 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	SAR Avg (mW/g)		
			Tissue:	Head	Body
D835V2 SN: 4d117	D835V2-4d117_Apr11	4/15/11	1g SAR:	9.64	10.1
			10g SAR:	6.28	6.6
D1900V2 SN: 5d140	D1900V2-5d140_Apr11	4/18/11	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			
D835V2 SN: 4d002	08/04/11	1g SAR:	10.2	10.1	0.99	±10
		10g SAR:	6.7	6.6	1.52	
D1900V2 SN: 5d043	08/04/11	1g SAR:	44.5	41.2	8.01	±10
		10g SAR:	23.3	21.6	7.87	

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.

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 DASY 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 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 ≥ 7x7x9 (above 4.5 GHz) or 5x5x7 (below 3 GHz) 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. Output Power Verification

RF Power Output for EV-DO Rel 0

Band	FTAP Rate	RTAP Rate	Channel	f (MHz)	Conducted power (dBm)	
					Average	Peak
Cellular	307.2 kbps (2 slot, QPSK)	153.6 kbps	1013	824.70	23.80	
			384	836.52	24.00	
			777	848.31	24.00	
PCS	307.2 kbps (2 slot, QPSK)	153.6 kbps	25	1851.25	23.90	
			600	1880.00	23.80	
			1175	1908.75	23.80	

RF Power Output for EV-DO Rev A

Band	FETAP Traffic Format	RETAP Data Payload Size	Channel	f (MHz)	Conducted power (dBm)	
					Average	Peak
Cellular	307.2k, QPSK/ ACK channel is transmitted at all the slots	4096	1013	824.70	24.00	
			384	836.52	23.90	
			777	848.31	23.80	
PCS	307.2k, QPSK/ ACK channel is transmitted at all the slots	4096	25	1851.25	23.50	
			600	1880.00	23.60	
			1175	1908.75	23.70	

12. SAR Test Results

Lap-Held Position (display open at 90° to the keyboard)

Band	Mode	Ch No.	f (MHz)	Avg Output Power (dBm)	SAR (mW/g)	
					1-g	10-g
Cellular	1xEVDO Rel.0	1013	824.70	23.80		
		384	836.52	24.00	0.012	0.0083
		777	848.31	24.00		
PCS	1xEVDO Rel.0	25	1851.25	23.90		
		600	1880.00	23.80	0.014	0.0097
		1175	1908.75	23.80		

13. Simultaneous Transmission SAR Analysis

Test configuration	(1) CDMA850 1xEVDO	(2) CDMA1900 1xEVDO	(3)* WiFi	(4)** WiMax	Sum of 1g SAR (mW/g)
Lap-held	0.012		0.004		0.016
		0.014	0.004		0.018
			0.004	0.011	0.015

Note(s)

1. *: WiFi max. 1g SAR from SAR report "11U13741-1B FCC WiFi SAR report" submitted under FCC ID: VQF-RT3090-1T1R (Ralink Technology Corporation)
2. **: WiMax max. 1g SAR from SAR report "11U13741-3 WiMax SAR report" submitted under FCC ID: XHG-M600A (Franklin Technology Inc.)

Conclusions:

☒ Simultaneous transmission SAR is not required for CDMA 1xRTT (voice), CDMA 1xEVDO (data) & WiFi because the sum of the 1-g SAR is < 1.6 W/kg

☐ Simultaneous transmission SAR is not required for WiFi & WWAN because the SAR to peak location separation ratios is < 0.3 for WiFi and WWAN antenna pairs.

14. SAR Test Plots

SAR Test Plots for Cell Band

Date: 8/4/2011

Test Laboratory: UL CCS SAR Lab A

2-1_CDMA2000 EVDO Lap Held Cell Band

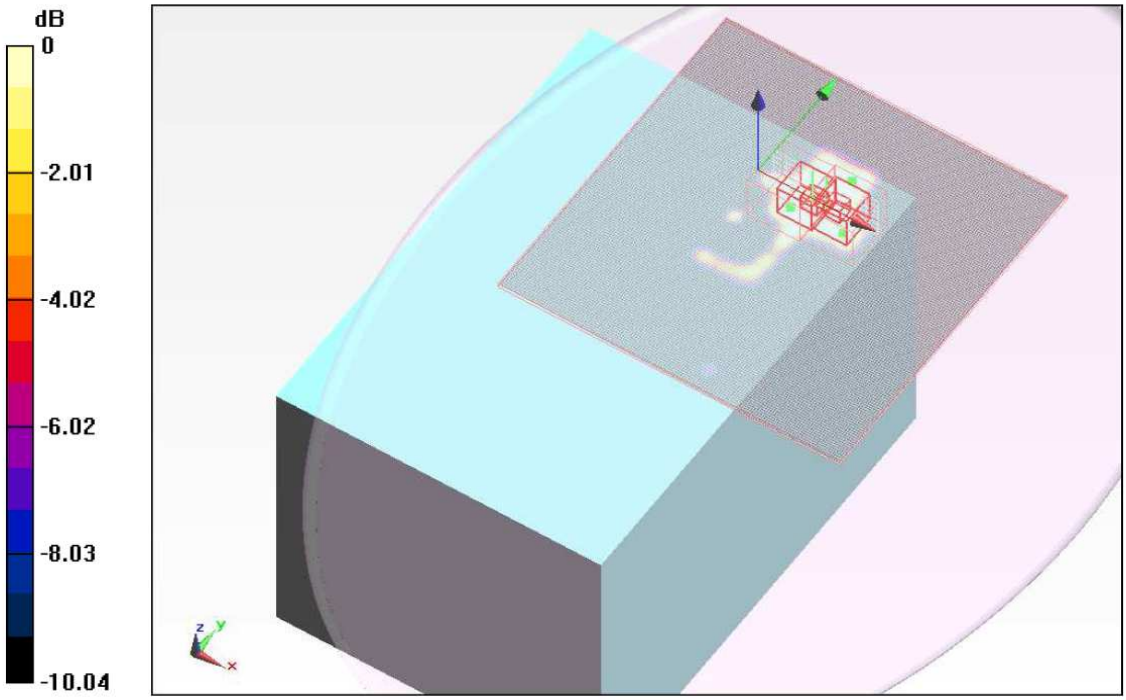
Communication System: CDMA2000 (1xEV-DO, 153.6kbps); Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.991 mho/m; ε_r = 55.345; ρ = 1000 kg/m^3
Phantom section: Flat Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 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 - SN3686; ConvF(8.78, 8.78, 8.78); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1239; Calibrated: 11/17/2010
- Phantom: ELI v5.0 (A); Type: QDOVA001BB; Serial: 1119
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

1xEVDO Rel.0/M-Ch/Area Scan (141x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.025 mW/g

1xEVDO Rel.0/M-Ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.440 V/m; Power Drift = 0.51 dB
Peak SAR (extrapolated) = 0.016 W/kg
SAR(1 g) = 0.011 mW/g; SAR(10 g) = 0.00731 mW/g
Maximum value of SAR (measured) = 0.013 mW/g

1xEVDO Rel.0/M-Ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.440 V/m; Power Drift = 0.51 dB
Peak SAR (extrapolated) = 0.018 W/kg
SAR(1 g) = 0.012 mW/g; SAR(10 g) = 0.00833 mW/g
Maximum value of SAR (measured) = 0.014 mW/g



0 dB = 0.010mW/g

SAR Test Plots for PCS Band

Date: 8/4/2011

Test Laboratory: UL CCS SAR Lab A

2-2_CDMA2000 1xEVDO Lap Held PCS Band

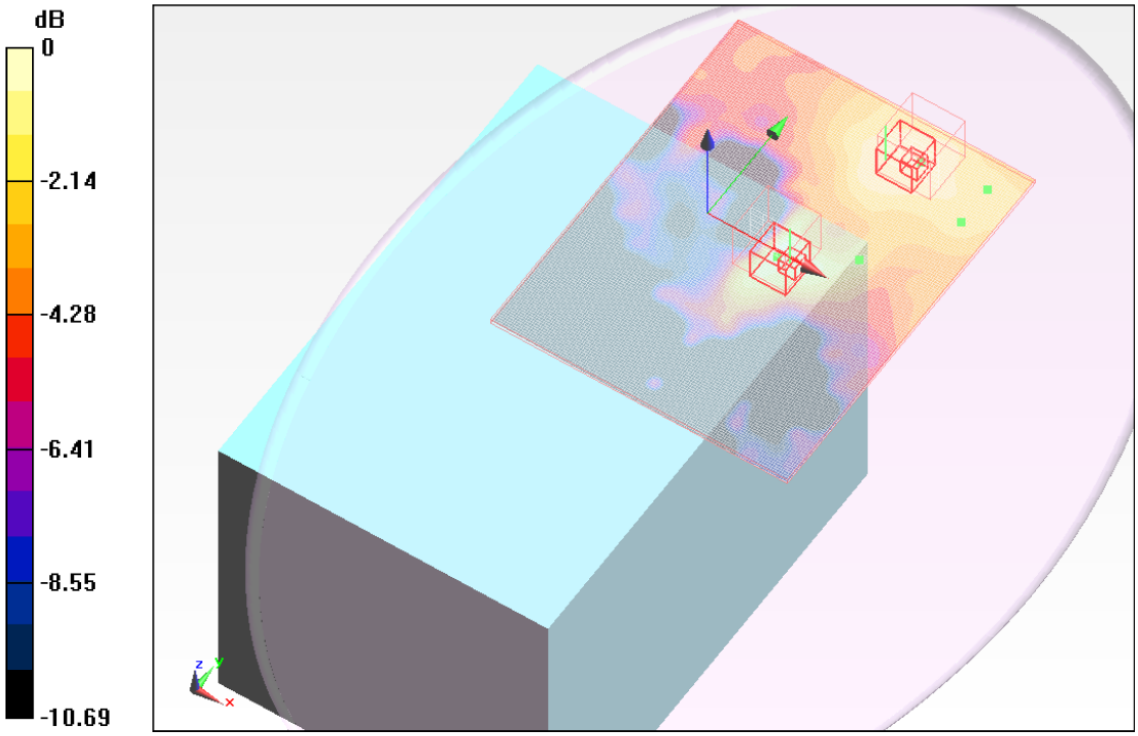
Communication System: CDMA2000 (1xEV-DO, 153.6kbps); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.579 mho/m; ε_r = 52.246; ρ = 1000 kg/m^3
Phantom section: Flat Section
Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

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 - SN3686; ConvF(6.99, 6.99, 6.99); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1239; Calibrated: 11/17/2010
- Phantom: ELI v5.0 (B); Type: QDOVA001BB; Serial: 1099
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

1xEVDO Rel.0/M-Ch/Area Scan (121x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.018 mW/g

1xEVDO Rel.0/M-Ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.765 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.026 W/kg
SAR(1 g) = 0.014 mW/g; SAR(10 g) = 0.00828 mW/g
Maximum value of SAR (measured) = 0.018 mW/g

1xEVDO Rel.0/M-Ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.765 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.024 W/kg
SAR(1 g) = 0.014 mW/g; SAR(10 g) = 0.00972 mW/g



0 dB = 0.020mW/g

SAR Test Plots for PCS Band – Z

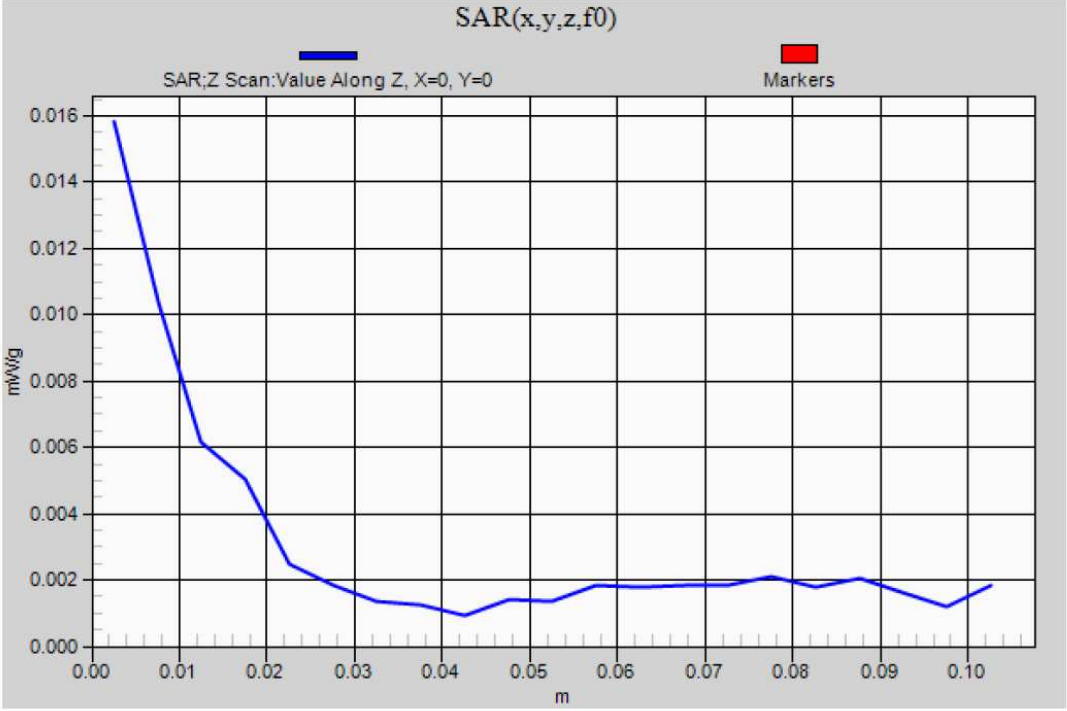
Date: 8/4/2011

Test Laboratory: UL CCS SAR Lab A

2-2_CDMA2000 1xEVDO Lap Held PCS Band

Communication System: CDMA2000 (1xEV-DO, 153.6kbps); Frequency: 1880 MHz; Duty Cycle: 1:1

1xEVDO Rel.0/M-Ch/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 0.016 mW/g



15. Appendixes

Refer to separated files for the following appendixes.

15.1. Appendix A: System Check Plots

15.2. Appendix B: Certificate of E-Field Probe - EX3DV4 SN 3686

15.3. Appendix C: Calibration Certificate - Validation Dipole D835V2 - SN 4d117

15.4. Appendix D: Calibration Certificate - Validation Dipole D1900V2 - SN 5d140