FCC OET BULLETIN 65 SUPPLEMENT C 01-01
IEEE STD 1528:2003
CLASS II PERMISSIVE CHANGE

SAR EVALUATION REPORT

(WiFi Portion)

For

Intel® Centrino® Advanced-N + WiMAX 6250
(Tested inside of Lenovo TP00019A)

MODEL: 622ANXHMW
FCC ID: PD9622ANXHU
REPORT NUMBER: 10U13597-1, Revision A

ISSUE DATE: March 16, 2011

Prepared for

INTEL CORPORATION
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Prepared by

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	March 3, 2011	Initial Issue	--
A	March 16, 2011	Correct host model	S. Shih

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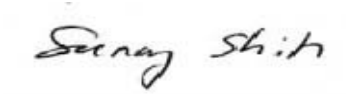
1. ATTESTATION OF TEST RESULTS

Company name:	INTEL CORPORATION 2111 N.E. 25TH AVENUE HILLSBORO, OR 97124, USA		
EUT Description:	Intel® Centrino® Advanced-N + WiMAX 6250 (Tested inside of Lenovo TP00019A)		
Model number:	622ANXHMW		
Device Category:	Portable		
Exposure category:	General Population/Uncontrolled Exposure		
Date of tested:	February 14 - 23, 2011		
FCC Rule Parts	Freq. Range [MHz]	The Highest 1g SAR	Limit (mW/g)
15.247	2400 – 2483.5	0.791 mW/g (Secondary landscape)	1.6
	5725 – 5850	1.170 mW/g (Secondary landscape)	
15.407	5150 – 5250	1.100 mW/g (Secondary landscape)	
	5250 – 5350	0.862 mW/g (Secondary landscape)	
	5470 – 5725	1.110 mW/g (Secondary landscape)	
Applicable Standards			Test Results
OET Bulletin 65 Supplement C 01-01, IEEE STD 1528: 2003 and the following specific test procedures: - KDB 248227 SAR Measurement Procedures for 802.11a/b/g Transmitters - KDB 447498 D01 Mobile Portable RF Exposure v04, Suppl to KDB 616217 D03			Pass

Compliance Certification Services (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.

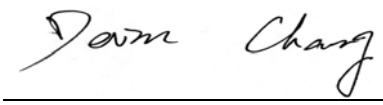
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this 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 1528: 2003 and the following specific FCC test procedures:

- KDB 248227 D01 SAR meas for 802 11 a b g v01r02
- KDB 447498 D01 Mobile Portable RF Exposure v04,
- KDB 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
E-Field Probe	SPEAG	EX3DV4	3686	1	24	2012
Data Acquisition Electronics	SPEAG	DAE4	1239	11	11	2011
System Validation Dipole	SPEAG	D2450V2	706	4	19	2012
System Validation Dipole	SPEAG	*D5GHzV2	1075	9	3	2011
Simulating Liquid	SPEAG	NLS2450	N/A	Within 24 hrs of first test		
Simulating Liquid	SPAEG	MLS5800	N/A	Within 24 hrs of first test		
ESA Series Network Analyzer	Agilent	E5071B	MY42100131	8	2	2011
Dielectric Probe Kits	Agilent	85070E	2569	N/A		
Synthesized Signal Generator	HP	83732B	US34490599	7	14	2012
Thermometer	ERTCO	639-1S	1718	7	19	2011
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		

Note: Per KDB 450824 D02 requirements for dipole calibration, UL CCS has adopted two years calibration intervals. On annual basis, each measurement dipole has been evaluated and is in compliance with the following criteria:

1. There is no physical damage on the dipole
2. System validation with specific dipole is within 10% of calibrated value.
3. Return-loss is within 20% of calibrated measurement (test data on file in UL CCS)
4. Impedance is within 5Ω of calibrated measurement (test data on file in UL CCS)

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 2450 MHz)	-0.79	Normal	1	0.64	-0.51
Liquid Permittivity - deviation from target	5.00	Rectangular	1.732	0.6	1.73
Liquid Permittivity - measurement uncertainty (Body 1900 MHz)	-1.66	Normal	1	0.6	-1.00
				Combined Standard Uncertainty Uc(y) =	9.51
				Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence = 19.01	%
				Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence = 1.51	dB

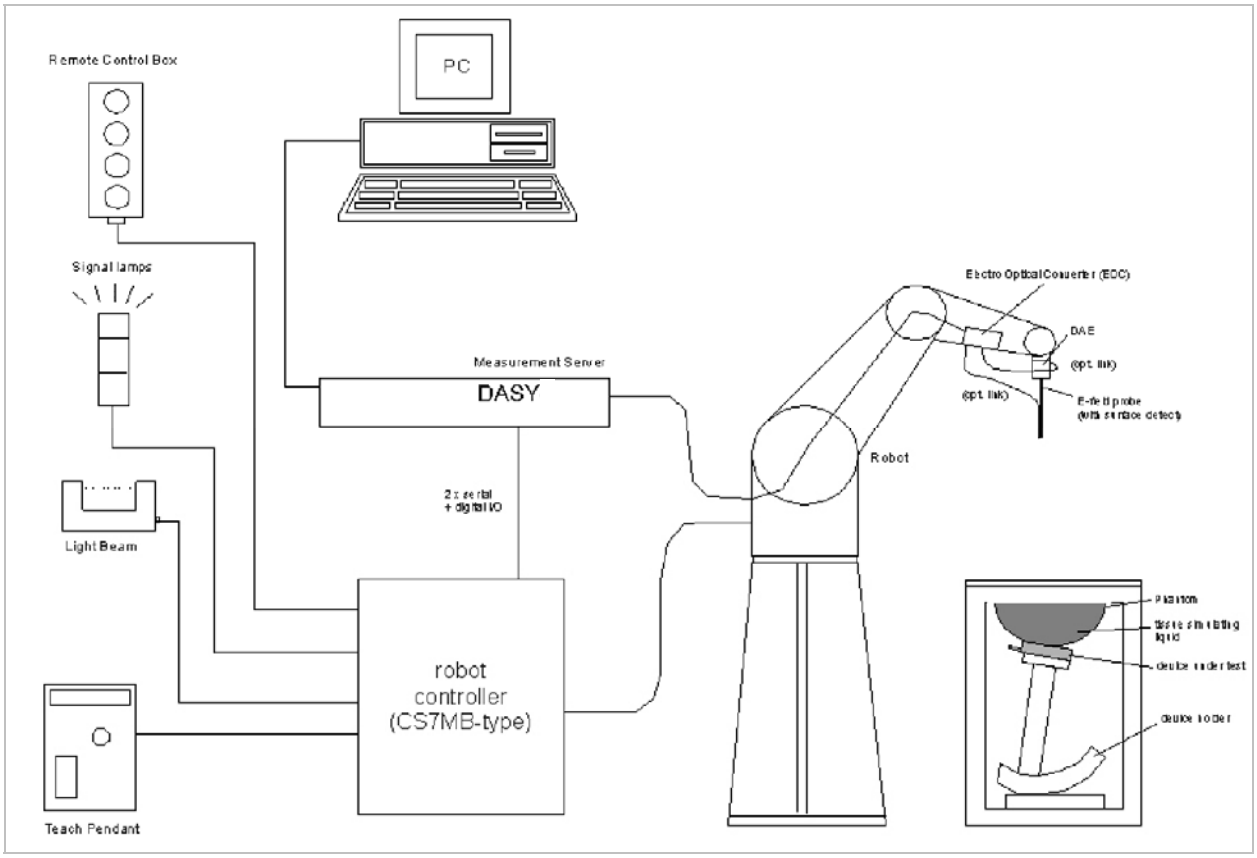
3 to 6 GHz averaged over 1 gram

Component	error, %	Distribution	Divisor	Sensitivity	U (Xi), %
Measurement System					
Probe Calibration (k=1) @ 5GHz	6.55	Normal	1	1	6.55
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	1.00	Normal	1	1	1.00
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	3.90	Rectangular	1.732	1	2.25
Test Sample Related					
Test Sample Positioning	1.10	Normal	1	1	1.10
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	0.39	Normal	1	0.64	0.25
Liquid Permittivity - deviation from target	10.00	Rectangular	1.732	0.6	3.46
Liquid Permittivity - measurement uncertainty	1.46	Normal	1	0.6	0.88
				Combined Standard Uncertainty Uc(y), %:	10.49
				Expanded Uncertainty U, Coverage Factor = 1.96, > 95 % Confidence = 20.56	%
				Expanded Uncertainty U, Coverage Factor = 1.96, > 95 % Confidence = 1.62	dB

5. EQUIPMENT UNDER TEST

Intel® Centrino® Advanced-N + WiMAX 6250 Model number 622ANXHMW (Tested inside of Lenovo TP00019A)	
Normal operation:	○ Laptop mode (with display open at 90° to the keyboard) ○ bottom face, and ○ edges: - Multiple display orientations supporting both portrait and landscape configurations
Antenna tested:	Manufactured: Yageo Part number: Main (A) Antenna: 25.90A1E.011 Aux (B) Antenna: 25.90A1F.011
Antenna-to-antenna/user separation distances:	Refer to Sec. 14 for details of antenna locations and separation distances.
Assessment for SAR evaluation for Simultaneous transmission:	WiFi can transmit simultaneously with Bluetooth. Due to Bluetooth's (FCC ID: QDS-BRCM1046) maximum output is 3.06 mW [<60/f(GHz) mW] and stand alone SAR is not required, thus WiFi and Bluetooth are not considered as co-located transmitters each other WWAN co-located RF exposure assessment will be addressed in a separate FCC application filed under WWAN application.

6. SYSTEM SPECIFICATIONS



The DASY4 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

Simulating Liquids for 5 GHz, Manufactured by SPEAG

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

8. TISSUE DIELECTRIC 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 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 Body (for 300 – 3000 MHz and 5800 MHz)
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)	Body (Supplement C 01-01)	
	ε_r	σ (S/m)
300	58.20	0.92
450	56.70	0.94
835	55.20	0.97
900	55.00	1.05
915	55.00	1.06
1450	54.00	1.30
1610	53.80	1.40
1800 – 2000	53.30	1.52
2450	52.70	1.95
3000	52.00	2.73
5800	48.20	6.00

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

Reference Values of Tissue Dielectric Parameters for Body (for 3000 MHz – 5800 MHz)

In the current guidelines and draft standards for compliance testing of mobile phones (i.e., IEEE P1528, OET 65 Supplement C), the dielectric parameters suggested for head and body tissue simulating liquid are given only at 3.0 GHz and 5.8 GHz. As an intermediate solution, dielectric parameters for the frequencies between 5 to 5.8 GHz were obtained using linear interpolation (see table below).

SPEAG has developed suitable head and body tissue simulating liquids consisting of the following ingredients: de-ionized water, salt and a special composition including mineral oil and an emulgators. Dielectric parameters of these liquids were measured suing a HP 8570C Dielectric Probe Kit in conjunction with HP 8753ES Network Analyzer (30 kHz – 6G Hz). The differences with respect to the interpolated values were well within the desired ±5% for the whole 5 to 5.8 GHz range.

f (MHz)	Body Tissue		Reference
	rel. permitivity	conductivity	
3000	52.0	2.73	Standard
5100	49.1	5.18	Interpolated
5200	49.0	5.30	Interpolated
5300	48.9	5.42	Interpolated
5400	48.7	5.53	Interpolated
5500	48.6	5.65	Interpolated
5600	48.5	5.77	Interpolated
5700	48.3	5.88	Interpolated
5800	48.2	6.00	Standard

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

8.1. TISSUE PARAMETERS CHECK RESULTS

Simulating Liquid Dielectric Parameter Check Result @ Body 2450 MHz Measured by: David Lee

f (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit (%)
2450	e'	51.83	Relative Permittivity (ϵ_r):	51.827	52.7	-1.66	± 5
	e"	14.19	Conductivity (σ):	1.935	1.95	-0.79	± 5

Liquid Check
Ambient temperature: 24 deg. C; Liquid temperature: 23 deg. C; Relative humidity = 41%
February 14, 2011 09:56 AM

Frequency	e'	e''
2400000000.	51.9665	13.9993
2405000000.	51.9536	14.0207
2410000000.	51.9417	14.0392
2415000000.	51.9264	14.0549
2420000000.	51.9104	14.0714
2425000000.	51.8990	14.0914
2430000000.	51.8847	14.1114
2435000000.	51.8695	14.1342
2440000000.	51.8565	14.1532
2445000000.	51.8412	14.1738
2450000000.	**51.8267**	**14.1943**
2455000000.	51.8119	14.2140
2460000000.	51.7966	14.2327
2465000000.	51.7808	14.2491
2470000000.	51.7676	14.2708
2475000000.	51.7490	14.2974
2480000000.	51.7356	14.3184
2485000000.	51.7199	14.3395
2490000000.	51.7022	14.3627
2495000000.	51.6847	14.3854
2500000000.	51.6698	14.4064

The conductivity (σ) can be given as:

$\sigma = \omega\varepsilon_0 e'' = 2\pi f \varepsilon_0 e''$

where f = target f * 10^6

$\varepsilon_0 = 8.854 * 10^{-12}$

Simulating Liquid Dielectric Parameter Check Result @ Body 5 GHz Measured by: David Lee

f (MHz)	Muscle Liquid Parameters			Measured	Target	Delta (%)	Limit (%)
5200	e'	47.696	Relative Permittivity (ε_r):	47.6960	49.0	-2.66	± 10
	e"	17.6330	Conductivity (σ):	5.10092	5.30	-3.76	± 5
5500	e'	47.1822	Relative Permittivity (ε_r):	47.1822	48.6	-2.92	± 10
	e"	17.9880	Conductivity (σ):	5.50382	5.65	-2.59	± 5
5800	e'	46.7134	Relative Permittivity (ε_r):	46.7134	48.2	-3.08	± 10
	e"	18.6674	Conductivity (σ):	6.02325	6.00	0.39	± 5

Liquid Check
Ambient temperature: 25 deg. C; Liquid temperature: 24 deg. C; Relative humidity = 40%
February 16, 2011 16, 2010 08:37 AM

frequency	e'	e''
4800000000.0000	48.2757	16.7099
4850000000.0000	48.3012	16.8682
4900000000.0000	48.1653	16.9121
4950000000.0000	48.1269	17.1614
5000000000.0000	47.9537	17.1507
5050000000.0000	48.0015	17.2823
5100000000.0000	47.8024	17.3631
5150000000.0000	47.8174	17.4598
5200000000.0000	**47.6960**	**17.6330**
5250000000.0000	47.5263	17.5787
5300000000.0000	47.3916	17.7378
5350000000.0000	47.4020	17.8013
5400000000.0000	47.2299	18.0262
5450000000.0000	47.1833	18.0219
5500000000.0000	**47.1822**	**17.9880**
5550000000.0000	47.0785	18.0813
5600000000.0000	47.1181	18.2986
5650000000.0000	46.9851	18.2559
5700000000.0000	46.9433	18.4920
5750000000.0000	46.8986	18.6358
5800000000.0000	**46.7134**	**18.6674**
5850000000.0000	46.7325	18.8297
5900000000.0000	46.5602	18.8953
5950000000.0000	46.3562	19.0365
6000000000.0000	46.4286	19.1562

The conductivity (σ) can be given as:

$$\sigma = \omega \varepsilon_0 e'' = 2 \pi f \varepsilon_0 e''$$

where f = target f * 10^6

$\varepsilon_0 = 8.854 * 10^{-12}$

Simulating Liquid Dielectric Parameter Check Result @ Body 5 GHz Measured by: David Lee

f (MHz)	Muscle Liquid Parameters			Measured	Target	Delta (%)	Limit (%)
5200	e'	49.7156	Relative Permittivity (ε_r):	49.7156	49.0	1.46	± 10
	e"	17.7357	Conductivity (σ):	5.13063	5.30	-3.20	± 5
5500	e'	49.088	Relative Permittivity (ε_r):	49.0880	48.6	1.00	± 10
	e"	18.0154	Conductivity (σ):	5.51221	5.65	-2.44	± 5
5800	e'	48.6649	Relative Permittivity (ε_r):	48.6649	48.2	0.96	± 10
	e"	18.4453	Conductivity (σ):	5.95159	6.00	-0.81	± 5

Liquid Check
Ambient temperature: 25 deg. C; Liquid temperature: 24 deg. C; Relative humidity = 40%
February 21, 2011 3:52 AM

Frequency	e'	e''
4600000000.	50.8996	16.7554
4650000000.	51.1438	17.3636
4700000000.	50.6725	16.8716
4750000000.	50.7332	17.5110
4800000000.	50.4826	17.0164
4850000000.	50.3641	17.6332
4900000000.	50.3065	17.1968
4950000000.	49.9118	17.6733
5000000000.	50.1070	17.3333
5050000000.	49.8355	17.6749
5100000000.	50.0433	17.5530
5150000000.	49.8386	18.0240
5200000000.	**49.7156**	**17.7357**
5250000000.	49.3712	18.2803
5300000000.	49.3872	17.8029
5350000000.	49.0856	18.4136
5400000000.	49.1989	17.8760
5450000000.	48.8891	18.5224
5500000000.	**49.0880**	**18.0154**
5550000000.	48.6968	18.6213
5600000000.	48.9713	18.1703
5650000000.	48.4759	18.7063
5700000000.	48.8386	18.3135
5750000000.	48.2947	18.8137
5800000000.	**48.6649**	**18.4453**
5850000000.	48.1491	19.0164
5900000000.	48.5230	18.5786
5950000000.	47.9020	19.1640
6000000000.	48.3668	18.7196

The conductivity (σ) can be given as:

$$\sigma = \omega \varepsilon_0 e'' = 2 \pi f \varepsilon_0 e''$$

where f = target f * 10^6

$\varepsilon_0 = 8.854 * 10^{-12}$

Simulating Liquid Dielectric Parameter Check Result @ Body 5 GHz Measured by: David Lee

f (MHz)	Muscle Liquid Parameters			Measured	Target	Delta (%)	Limit (%)
5200	e'	47.9788	Relative Permittivity (ε_r):	47.9788	49.0	-2.08	± 10
	e"	17.8550	Conductivity (σ):	5.16514	5.30	-2.54	± 5
5500	e'	47.3965	Relative Permittivity (ε_r):	47.3965	48.6	-2.48	± 10
	e"	18.2158	Conductivity (σ):	5.57353	5.65	-1.35	± 5
5800	e'	46.8601	Relative Permittivity (ε_r):	46.8601	48.2	-2.78	± 10
	e"	18.6041	Conductivity (σ):	6.00282	6.00	0.05	± 5

Liquid Check
Ambient temperature: 25 deg. C; Liquid temperature: 24 deg. C; Relative humidity = 40%
February 23, 2011 07:12 PM

Frequency	e'	e"
4600000000.	49.1547	16.8207
4650000000.	49.1556	16.9392
4700000000.	48.9971	17.0108
4750000000.	48.9795	17.1182
4800000000.	48.8401	17.1897
4850000000.	48.7257	17.2615
4900000000.	48.6398	17.3830
4950000000.	48.5514	17.4177
5000000000.	48.4546	17.5727
5050000000.	48.3863	17.5979
5100000000.	48.2032	17.7297
5150000000.	48.1669	17.7520
5200000000.	**47.9788**	**17.8550**
5250000000.	48.0041	17.9003
5300000000.	47.7862	17.9741
5350000000.	47.7900	18.0525
5400000000.	47.6011	18.1039
5450000000.	47.5613	18.1942
5500000000.	**47.3965**	**18.2158**
5550000000.	47.3084	18.3153
5600000000.	47.2143	18.3354
5650000000.	47.0976	18.4290
5700000000.	47.0384	18.4610
5750000000.	46.8955	18.5369
5800000000.	**46.8601**	**18.6041**
5850000000.	46.7133	18.6390
5900000000.	46.6737	18.7475
5950000000.	46.5499	18.7558
6000000000.	46.4747	18.8982

The conductivity (σ) can be given as:

$$\sigma = \omega \varepsilon_0 e'' = 2 \pi f \varepsilon_0 e''$$

where f = target f * 10^6

$\varepsilon_0 = 8.854 * 10^{-12}$

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%.

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 DASY4 system with an Isotropic E-Field Probe EX3DV4 SN3686 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
D2450V2 SN 706	D2450V2-706_Apr10	4/19/10	2.4	SAR_{1g}:	51.6	52.4
				SAR_{10g}:	24.4	24.5
D5GHzV2	D5GHzV2-1075_Sep09	9/3/09	5.2	SAR_{1g}:		79.0
				SAR_{10g}:		22.0
			5.5	SAR_{1g}:		85.4
				SAR_{10g}:		23.5
			5.8	SAR_{1g}:		73.2
				SAR_{10g}:		20.1

9.1. SYSTEM CHECK RESULTS

System validation dipole	Date Tested	Measured (Normalized to 1 W)		Target	Delta (%)	Tolerance (%)
		Tissue:	Body			
D2450V2 SN: 706	2/14/11	SAR_{1g}:	53.9	52.4	2.86	±10
		SAR_{10g}:	24.7	24.5	0.82	
System validation dipole	Date Tested	Measured (Normalized to 1 W)		Target	Delta (%)	Tolerance (%)
		Tissue:	Body			
D5GHzV2 SN 1075 5.2 GHz	02/16/11	SAR_{1g}:	74.6	79.0	-5.57	±10
		SAR_{10g}:	21.1	22.0	-4.09	
D5GHzV2 SN 1075 5.2 GHz	02/21/11	SAR_{1g}:	79.1	79.0	0.13	±10
		SAR_{10g}:	22.2	22.0	0.91	
D5GHzV2 SN 1075 5.5 GHz	02/21/11	SAR_{1g}:	85.9	85.4	0.59	±10
		SAR_{10g}:	23.7	23.5	0.85	
D5GHzV2 SN 1075 5.8 GHz	02/21/11	SAR_{1g}:	76.6	73.2	4.64	±10
		SAR_{10g}:	21.0	20.1	4.48	
D5GHzV2 SN 1075 5.2 GHz	02/22/11	SAR_{1g}:	79.2	79.0	0.25	±10
		SAR_{10g}:	22.3	22.0	1.36	
D5GHzV2 SN 1075 5.5 GHz	02/22/11	SAR_{1g}:	82.5	85.4	-3.40	±10
		SAR_{10g}:	22.9	23.5	-2.55	
D5GHzV2 SN 1075 5.2 GHz	02/23/11	SAR_{1g}:	77.2	79.0	-2.28	±10
		SAR_{10g}:	22.1	22.0	0.45	
D5GHzV2 SN 1075 5.8 GHz	02/23/11	SAR_{1g}:	73.5	73.2	0.41	±10
		SAR_{10g}:	20.7	20.1	2.99	

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 DASY4 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 ≥ 7 x 7 x 9 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 VERIFICATION

The following procedures had been used to prepare the EUT for the SAR test.
The client provided a special driver and program, CRTU v5.20.1.0, which enable a user to control the frequency and output power of the module.

Results

802.11b

Mode	Antenna	Ch #	f (MHz)	Avg Output Power (dBm)
802.11b	A	1	2412	17.00
		6	2437	17.10
		11	2462	16.80
	B	1	2412	17.10
		6	2437	17.10
		11	2462	16.80

802.11a

Mode	Antenna	Ch. #	f (MHz)	Avg Output Power (dBm)
802.11a (5.2GHz)	A	36	5180	16.9
		40	5200	17.2
		48	5240	16.9
	B	36	5180	16.7
		40	5200	16.9
		48	5240	16.8
802.11a (5.3GHz)	A	52	5260	17.2
		60	5300	17.3
		64	5320	17.2
	B	52	5260	16.9
		60	5300	17.3
		64	5320	17.0
802.11a (5.6GHz)	A	100	5500	17.1
		120	5600	17.2
		140	5700	16.8
	B	100	5500	17.0
		120	5600	17.0
		140	5700	16.8
802.11a (5.8GHz)	A	149	5745	17.2
		157	5785	17.1
		165	5825	16.9
	B	149	5745	17.2
		157	5785	17.2
		165	5825	16.9

Note: The modes with highest output power channel were chosen for the conducted output power measurement. Please refer to original report for Average Power information as documented in 10/01/2009 original filing.

12. SUMMARY OF SAR TEST RESULTS

Configuration	Antenna-to-User distance	SAR Require	Comment
Laptop mode: Lap-held	231.3 mm	No	This configuration does not require SAR assessment as the antenna-to-user separation distance is greater then 20 cm which meets the exemption requirement as indicated in FCC OET Bulletin 65 Supplement C: 2001-01.
Laptop mode: By Stander (nearby person)	-	No	This configuration does not require SAR assessment as the closest antenna-to-user configuration was covered by Edge Secondary Landscape' and is within 2.5 cm from By Stander.
Bottom Face	23.6 mm	Yes	SAR evaluation
Edge - Primary Landscape	211.18 mm	No	This is not the most conservative antenna-to-user distance at edge mode. According to KDB 447498 4) b) ii) (2), SAR is required only for the edge with the most conservative exposure conditions.
Edge - Secondary Landscape	2.0 mm	Yes	SAR evaluation This is the most conservative antenna-to-user distance at edge mode
Edge - Primary Portrait	180 mm from Main antenna to edge. 95 mm from Aux antenna to edge	No	This is not the most conservative antenna-to-user distance at edge mode. According to KDB 447498 4) b) ii) (2), SAR is required only for the edge with the most conservative exposure conditions.
Edge - Secondary Portrait	95 mm from Main antenna to edge. 180 mm from Aux antenna to edge	No	This is not the most conservative antenna-to-user distance at edge mode. According to KDB 447498 4) b) ii) (2), SAR is required only for the edge with the most conservative exposure conditions.

12.1. 2.4 GHZ BAND

Bottom Face

Mode	Channel	f (MHz)	Antenna	Results (mW/g)	
				1g-SAR	10g-SAR
802.11b	1	2412	A		
	6	2437	A	0.018	0.00879
	11	2462	A		
	1	2412	B		
	6	2437	B	0.010	0.00463
	11	2462	B		

Edge - Secondary Landscape

Mode	Channel	f (MHz)	Antenna	Results (mW/g)	
				1g-SAR	10g-SAR
802.11b	1	2412	A		
	6	2437	A	**0.791**	**0.298**
	11	2462	A		
	1	2412	B		
	6	2437	B	0.404	0.161
	11	2462	B		

12.2. 5 GHZ BANDS

Bottom Face

Band	Mode	Channel	f (MHz)	Antenna	Results (mW/g)	
					1g-SAR	10g-SAR
5.2 GHz	802.11a Legacy	36	5180	A		
		40	5200	A	0.021	0.008
		48	5240	A		
		36	5180	B		
		40	5200	B	0.017	0.0035
		48	5240	B		
5.3 GHz	802.11a Legacy	52	5260	A		
		60	5300	A	0.0022	0.0003
		64	5320	A		
		52	5260	B		
		60	5300	B	0.030	0.011
		64	5320	B		
5.5 GHz	802.11a Legacy	100	5500	A		
		120	5600	A	0.029	0.009
		140	5700	A		
		100	5500	B		
		120	5600	B	0.057	0.024
		140	5700	B		
5.8 GHz	802.11a Legacy	149	5745	A		
		157	5785	A	0.019	0.008
		165	5825	A		
		149	5745	B		
		157	5785	B	0.015	0.0036
		165	5825	B		

Bottom Face

Band	Mode	Channel	f (MHz)	Antenna	Results (mW/g)	
					1g-SAR	10g-SAR
5.2 GHz	802.11a Legacy	36	5180	A		
		40	5200	A	0.630	0.243
		48	5240	A		
		36	5180	B	0.934	0.275
		40	5200	B	1.030	0.307
		48	5240	B	**1.100**	**0.308**
5.3 GHz	802.11a Legacy	52	5260	A		
		60	5300	A	0.596	0.177
		64	5320	A		
		52	5260	B	0.802	0.281
		60	5300	B	**0.862**	**0.255**
		64	5320	B	0.767	0.236
5.5 GHz	802.11a Legacy	100	5500	A	1.050	0.320
		120	5600	A	**1.110**	**0.405**
		140	5700	A	0.701	0.239
		100	5500	B	0.909	0.320
		120	5600	B	0.906	0.370
		140	5700	B	0.739	0.319
5.8 GHz	802.11a Legacy	149	5745	A	**1.170**	**0.430**
		157	5785	A	0.859	0.337
		165	5825	A	0.900	0.358
		149	5745	B		
		157	5785	B	0.692	0.302
		165	5825	B		

WORST-CASE SAR TEST PLOTS

WORST-CASE SAR PLOT FOR 2.4 GHZ

Date/Time: 2/14/2011 5:59:29 PM

Test Laboratory: UL CCS

Secondary Landscape

DUT: Lenovo; Type: Comet Tablet; Serial: R9-8V2Y 10/11

Communication System: 802.11b/g 2.4GHz; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.917 mho/m; ε_r = 51.864; ρ = 1000 kg/m^3
Phantom section: Flat Section

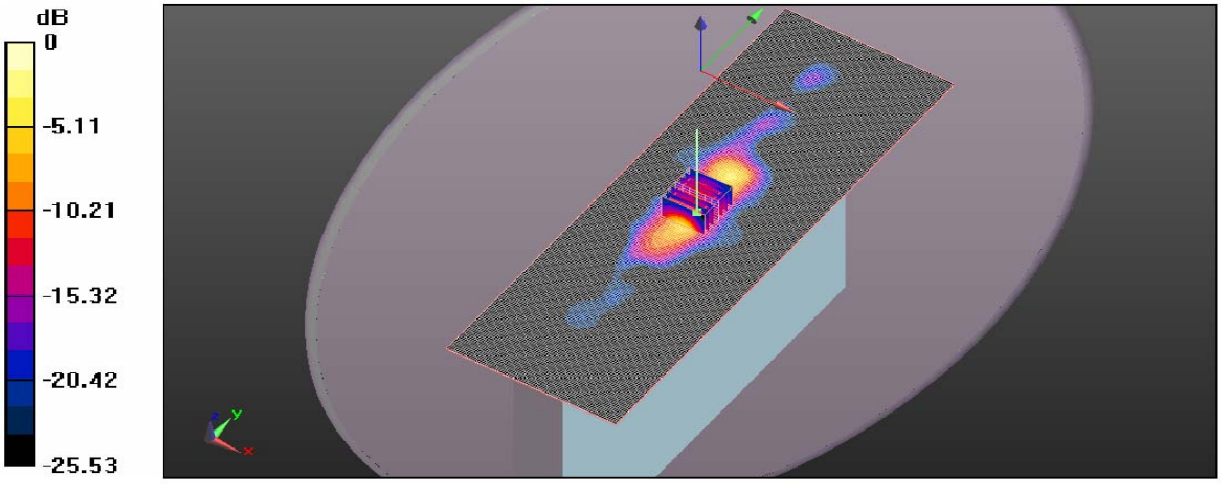
Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

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(6.86, 6.86, 6.86); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1239; Calibrated: 11/17/2010
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1099
- Measurement SW: DASY52, Version 52.6 (1);SEMCAD X Version 14.4.2 (2595)

802.11b Antenna A/ch_6/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.295 mW/g

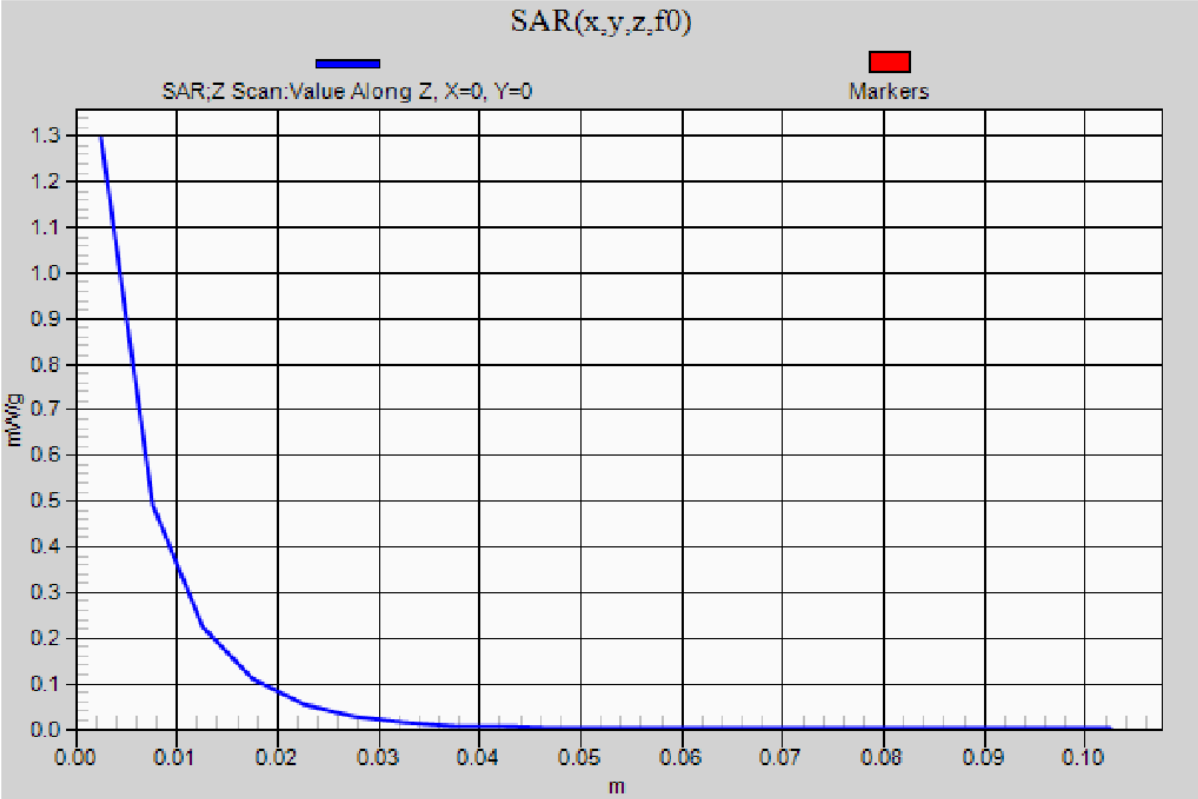
802.11b Antenna A/ch_6/Area Scan (81x241x1): Measurement grid: dx=15mm, dy=15mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.918 mW/g

802.11b Antenna A/ch_6/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 19.442 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 2.205 W/kg
SAR(1 g) = 0.791 mW/g; SAR(10 g) = 0.298 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.318 mW/g



0 dB = 1.320mW/g

2.4 GHZ – Z plot



WORST-CASE SAR PLOT FOR 5.2 GHZ

Date/Time: 2/16/2011 5:07:02 AM

Test Laboratory: UL CCS

5 GHz_Secondary Landscape

DUT: Lenovo; Type: Comet Tablet; Serial: R9-8V2Y 10/11

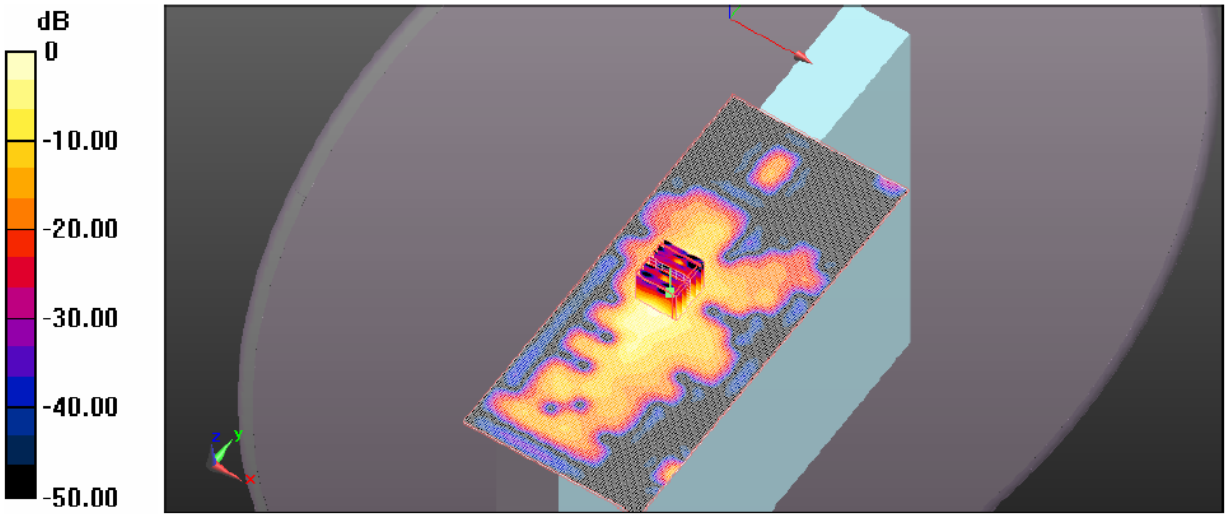
Communication System: IEEE 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5240 MHz; σ = 5.127 mho/m; ε_r = 47.56; ρ = 1000 kg/m^3
Phantom section: Flat Section

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 - SN3686; ConvF(3.98, 3.98, 3.98); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1239; Calibrated: 11/17/2010
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1099
- Measurement SW: DASY52, Version 52.6 (1);SEMCAD X Version 14.4.2 (2595)

802.11a_5.2G_Ant B/ch_48/Area Scan (101x231x1): Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 2.191 mW/g

802.11a_5.2G_Ant B/ch_48/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 21.487 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 4.370 W/kg
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.308 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.299 mW/g



0 dB = 2.300mW/g

5.2 GHZ – Z plot

Date/Time: 2/16/2011 5:24:59 AM

Test Laboratory: UL CCS

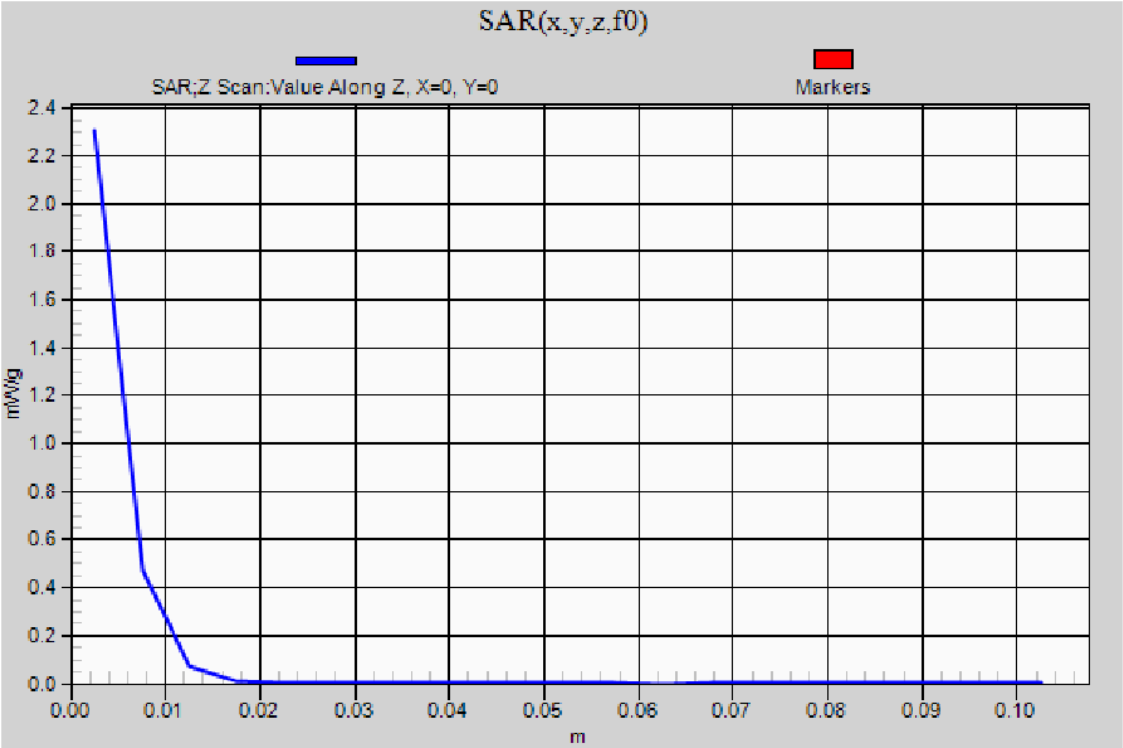
5 GHz_Secondary Landscape

DUT: Lenovo; Type: Comet Tablet; Serial: R9-8V2Y 10/11

Communication System: IEEE 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1

802.11a_5.2G_Ant B/ch_48/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.307 mW/g



WORST-CASE SAR PLOT FOR 5.3 GHZ

Date/Time: 2/17/2011 1:58:31 AM, Date/Time: 2/17/2011 2:55:46 AM

Test Laboratory: UL CCS

5 GHz_Secondary Landscape

DUT: Lenovo; Type: Comet Tablet; Serial: R9-8V2Y 10/11

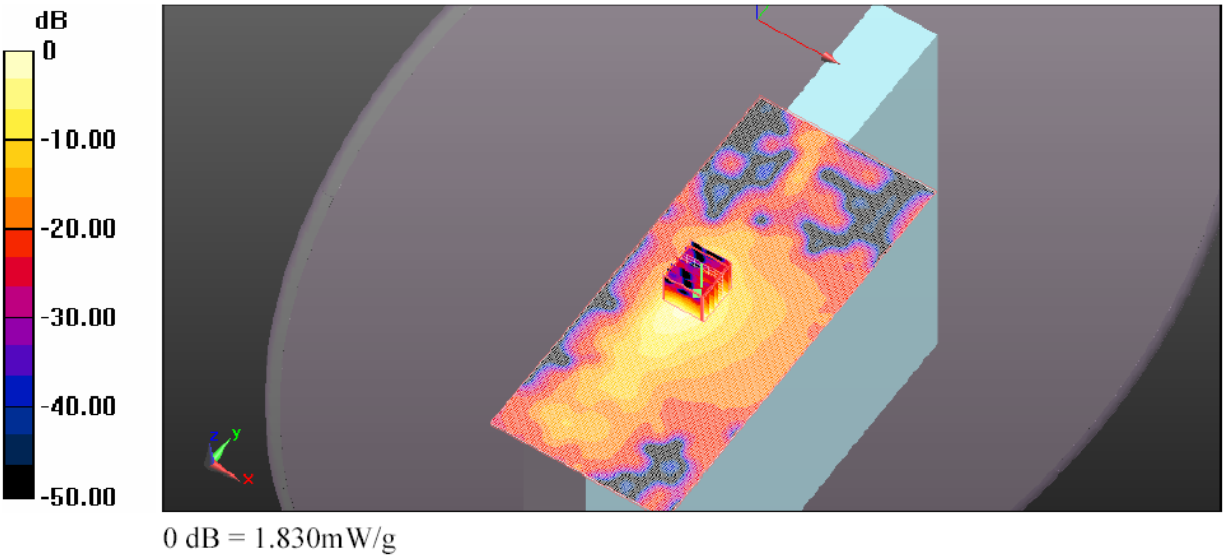
Communication System: 802.11a 5.2-5.3GHz; Frequency: 5300 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5300 MHz; σ = 5.23 mho/m; ε_r = 47.392; ρ = 1000 kg/m^3
Phantom section: Flat Section

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 - SN3686; ConvF(3.7, 3.7, 3.7); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1239; Calibrated: 11/17/2010
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1099
- Measurement SW: DASY52, Version 52.6 (1);SEMCAD X Version 14.4.2 (2595)

802.11a 5.3G_Ant B/Ch 60/Area Scan (101x231x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.889 mW/g

802.11a 5.3G_Ant B/Ch 60/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 20.132 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 4.089 W/kg
SAR(1 g) = 0.862 mW/g; SAR(10 g) = 0.255 mW/g
Maximum value of SAR (measured) = 1.825 mW/g



0 dB = 1.830mW/g

5.3 GHZ – Z plot

Date/Time: 2/17/2011 3:14:28 AM

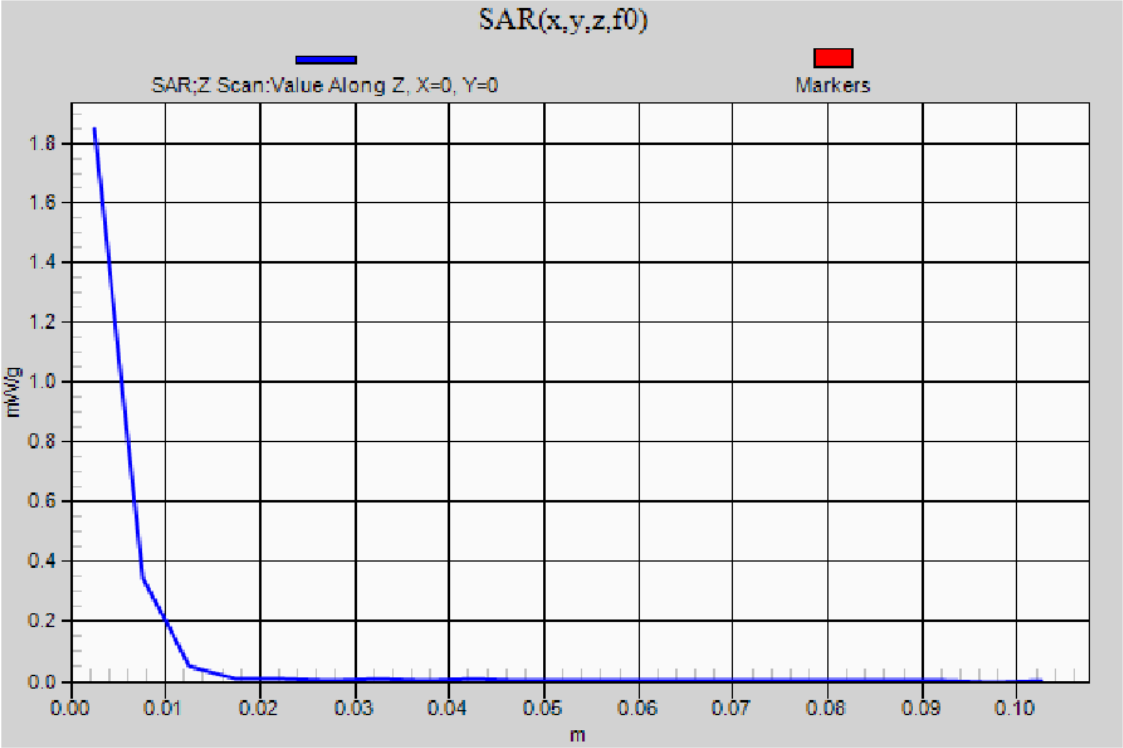
Test Laboratory: UL CCS

5 GHz_Secondary Landscape

DUT: Lenovo; Type: Comet Tablet; Serial: R9-8V2Y 10/11

Communication System: 802.11a 5.2-5.3GHz; Frequency: 5300 MHz;Duty Cycle: 1:1

802.11a 5.3G_Ant B/Ch 60/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 1.849 mW/g



WORST-CASE SAR PLOT FOR 5.6 GHZ

Date/Time: 2/22/2011 2:49:55 PM

Test Laboratory: UL CCS

5 GHz Secondary Landscape

DUT: Lenovo; Type: Comet Tablet; Serial: R9-8V2Y 10/11

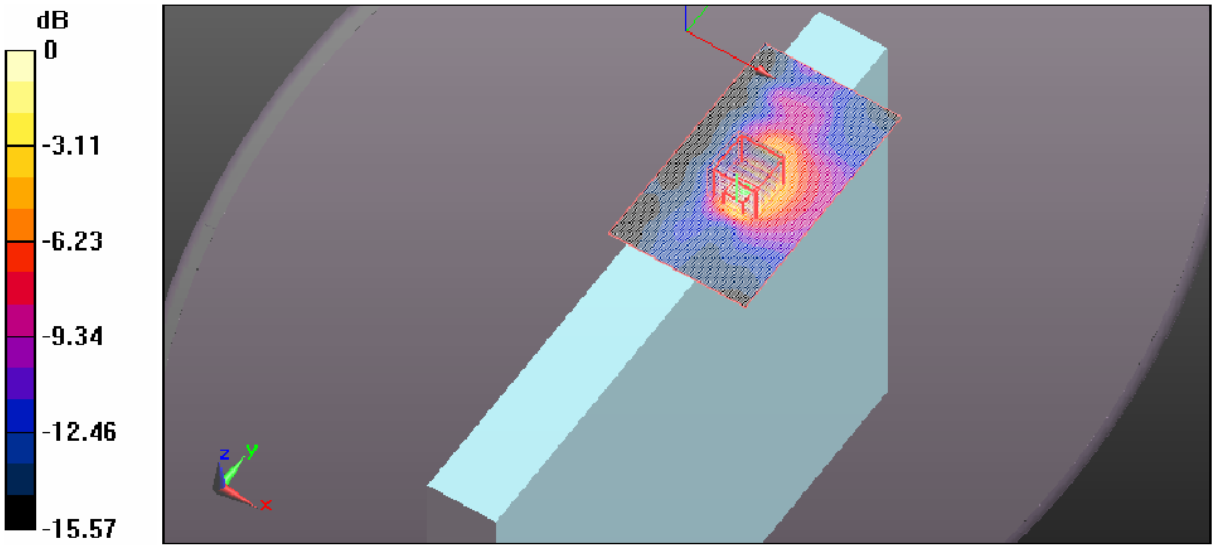
Communication System: 802.11a 5.5GHz; Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 5.661 mho/m; ε_r = 48.971; ρ = 1000 kg/m^3
Phantom section: Flat Section

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 - SN3686; ConvF(3.29, 3.29, 3.29); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1239; Calibrated: 11/17/2010
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1099
- Measurement SW: DASY52, Version 52.6 (1);SEMCAD X Version 14.4.2 (2595)

5.5G Ant A/Ch 120/Area Scan (71x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.622 mW/g

5.5G Ant A/Ch 120/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 17.395 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 4.457 W/kg
SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.405 mW/g
Maximum value of SAR (measured) = 2.103 mW/g



0 dB = 2.100mW/g

5.6 GHZ – Z plot

Date/Time: 2/22/2011 3:07:49 PM

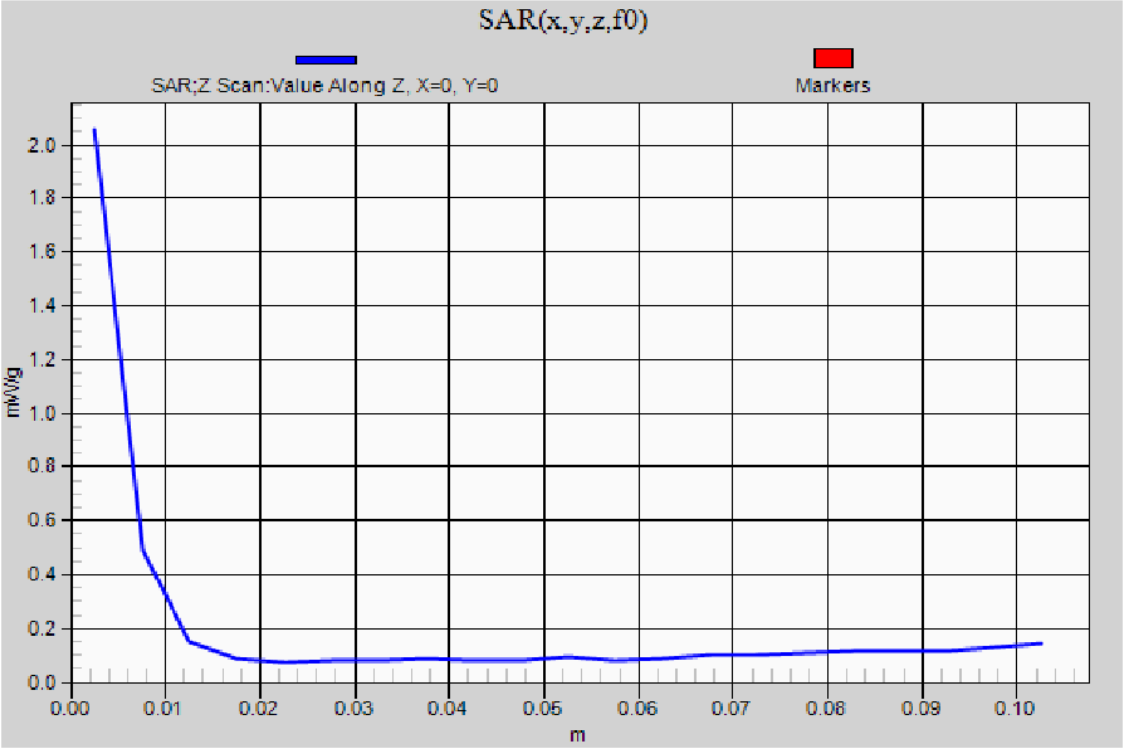
Test Laboratory: UL CCS

5.GHz_Secondary Landscape

DUT: Lenovo; Type: Comet Tablet; Serial: R9-8V2Y 10/11

Communication System: 802.11a 5.5GHz; Frequency: 5600 MHz;Duty Cycle: 1:1

5.5G Ant A/Ch 120/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 2.058 mW/g



WORST-CASE SAR PLOT FOR 5.8 GHZ

Date/Time: 2/22/2011 1:28:58 PM

Test Laboratory: UL CCS

5.GHz_Secondary Landscape

DUT: Lenovo; Type: Comet Tablet; Serial: R9-8V2Y 10/11

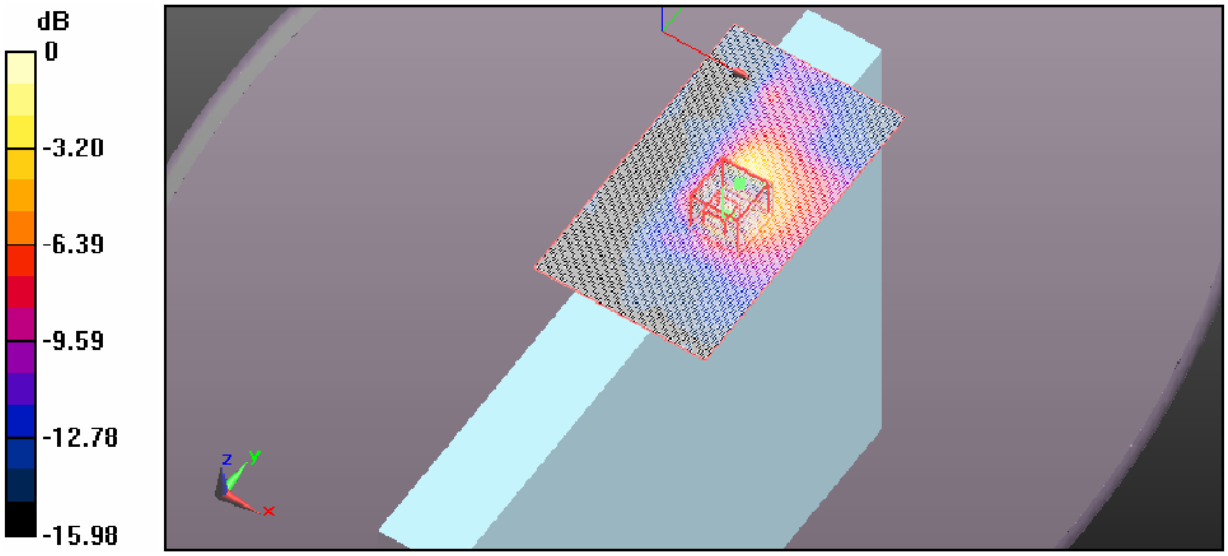
Communication System: 802.11a 5.8GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.997 mho/m; ε_r = 48.349; ρ = 1000 kg/m^3
Phantom section: Flat Section

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 - SN3686; ConvF(3.7, 3.7, 3.7); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), Sensor-Surface: 2.5mm (Fix Surface)
- Electronics: DAE4 Sn1239; Calibrated: 11/17/2010
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1099
- Measurement SW: DASY52, Version 52.6 (1);SEMCAD X Version 14.4.2 (2595)

5.8G Ant A/Ch 149/Area Scan (81x141x1): Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.964 mW/g

5.8G Ant A/Ch 149/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 17.120 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 6.205 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.430 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.017 mW/g



0 dB = 2.020mW/g

5.8 GHZ – Z plot

Date/Time: 2/22/2011 1:46:49 PM

Test Laboratory: UL CCS

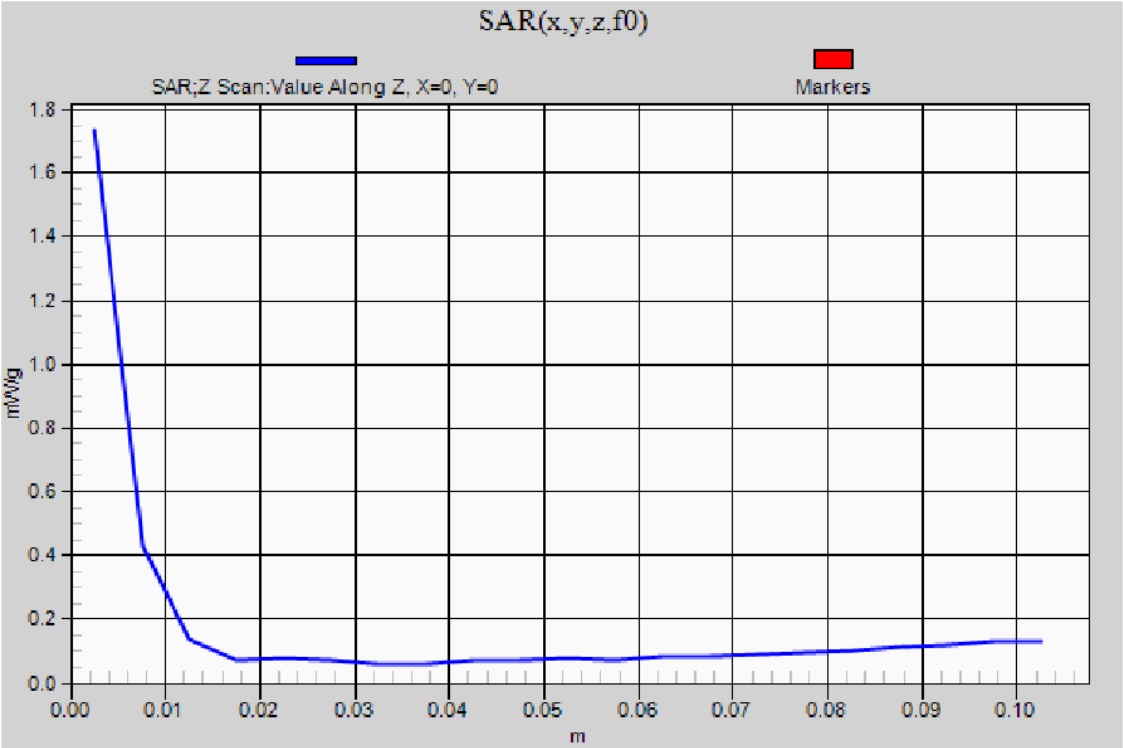
5.GHz_Secondary Landscape

DUT: Lenovo; Type: Comet Tablet; Serial: R9-8V2Y 10/11

Communication System: 802.11a 5.8GHz; Frequency: 5745 MHz;Duty Cycle: 1:1

5.8G Ant A/Ch 149/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.734 mW/g



13. ATTACHMENTS

No.	Contents	No. of page (s)
1-1	SAR Test Plots for 2.4 GHz	8
1-2	SAR Test Plots for 5 GHz Bands	32
2-1	System Check Plots for D2450V2 SN 706	2
2-2	System Check Plots for D5GHzV2 SN 1075	
3	Certificate of E-Field Probe - EX3DV3 SN 3531	11
4	Certificate of System Validation Dipole - D2450 SN:706	9
5	Certificate of System Validation Dipole D5GHzV2 SN 1075	11

14. ANTENNA LOCATIONS AND SEPARATION DISTANCES

Laptop Mode

(with display open at 90° to the keyboard)