FCC OET BULLETIN 65 SUPPLEMENT C
IC RSS-102 ISSUE 3

SAR EVALUATION REPORT

For

iPad
(With 802.11abgn and Bluetooth Radios)

MODEL: A1219
Serial Number: YM003010ELM

FCC ID: BCG-E2381A
IC: 579C-E2381A

REPORT NUMBER: 10U13035-1C2

ISSUE DATE: April 7, 2010

Prepared for

APPLE INC
1 INFINITE LOOP, MS-26A
CUPERTINO, CA 95014

Prepared by

COMPLIANCE CERTIFICATION SERVICES
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	February 12, 2010	Initial Issue	--
A	February 16, 2010	Updated antenna separation distances	Sunny Shih
B	February 19, 2010	Corrected FCC ID and IC number	Sunny Shih
C1	March 2, 2010	- Added 5.5 GHz band - Corrected some typos	Sunny Shih
C2	April 7, 2010	- Added note Per KDB 450824 D02 requirements for dipole calibration in section 4.1 - Updated uncertainty table in section 4.2 - Updated KDB # from 616217 to 447498 in section 5 - Added Recipe for Simulating liquid for 5 GHz in section 7	Sunny Shih

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	APPLE INC 1 INFINITE LOOP, MS-26A CUPERTINO, CA 95014
EUT DESCRIPTION:	iPad with 802.11abgn and Bluetooth Radios
MODEL NUMBER:	A1219
DEVICE CATEGORY:	Portable
EXPOSURE CATEGORY:	General Population/Uncontrolled Exposure
DATE TESTED:	January 29 - 31, 2010

THE HIGHEST SAR VALUES:

FCC / IC Rule Parts	Frequency Range [MHz]	1-g SAR (mW/g)	Limit (mW/g)
15.247 / RSS-102	2400 – 2483.5	0.791 (Bottom face/WiFi2)	1.6
	5725 – 5850	0.63 (Primary Portrait/WiFi1)	
15.407 / RSS-102	5150 – 5250	1.08 (Bottom face/WiFi2)	
	5250 – 5350	1.10 (Bottom face/WiFi2)	
	5500 – 5700	1.14 (Primary Portrait/WiFi1)	

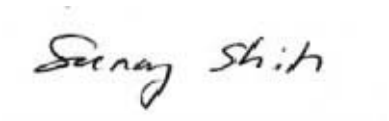
APPLICABLE STANDARDS AND TEST PROCEDURES:

STANDARD	TEST RESULTS
FCC OET BULLETIN 65 SUPPLEMENT C and the following Test Procedures: o KDB 248227 SAR measurement procedures for 802.11a/b/g transmitters o KDB 447498 D01 Mobile Portable RF Exposure v04, suppl. to KDB 616217 D03	Pass
RSS-102 ISSUE 3	Pass

Compliance Certification Services, Inc. (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 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.

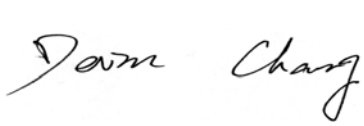
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by CCS and all revisions are duly noted in the revisions section. Any alteration of this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



SUNNY SHIH
ENGINEERING SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:



DEVIN CHANG
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC OET Bulletin 65 Supplement C, Specific FCC Procedure KDB 248227 SAR Measurement Procedure for 802.11abg Transmitters, KDB 447498 D01 Mobile Portable RF Exposure v04, supplemental to KDB 616217 D03 and IC RSS 102 Issue 3.

3. FACILITIES AND ACCREDITATION

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

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	3403-91535	N/A		
DASY4 Measurement Server	SPEAG	SEUMS001BA	1041	N/A		
Probe Alignment Unit	SPEAG	LB (V2)	261	N/A		
SAM Phantom (SAM1)	SPEAG	QD000P40CA	1185	N/A		
SAM Phantom (SAM2)	SPEAG	QD000P40CA	1050	N/A		
Oval Flat Phantom (ELI 4.0)	SPEAG	QD OVA001 B	1003	N/A		
Electronic Probe kit	HP	85070C	N/A	N/A		
S-Parameter Network Analyzer	Agilent	8753ES-6	MY40001647	11	22	2010
Signal Generator	Agilent	8753ES-6	MY40001647	11	22	2010
E-Field Probe	SPEAG	EX3DV4	3686	3	23	2010
Data Acquisition Electronics	SPEAG	DAE3 V1	500	9	15	2010
System Validation Dipole	SPEAG	D2450V2	748	4	14	2010
System Validation Dipole	SPEAG	D5GHzV2	1075	9	3	2011
ESG Vector Signal Generator	Agilent	E4438C	US44271090	9	17	2010
Amplifier	Mini-Circuits	ZVE-8G	90606	N/A		
Amplifier	Mini-Circuits	ZHL-42W	D072701-5	N/A		
Simulating Liquid	SPAEG	H2450	N/A	Within 24 hrs of first test		
Simulating Liquid	SPAEG	M2450	N/A	Within 24 hrs of first test		
Simulating Liquid	SPAEG	H5800 (5-5.8GHz)	N/A	Within 24 hrs of first test		
Simulating Liquid	SPAEG	M5800 (5-5.8GHz)	N/A	Within 24 hrs of first test		

Note: Per KDB 450824 D02 requirements for dipole calibration, CCS has adopted three 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 CCS)
4. Impedance is within 5Ω of calibrated measurement (test data on file in 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) @ 2450 MHz	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	0.39	Normal	1	0.64	0.25
Liquid Permittivity - deviation from target	5.00	Rectangular	1.732	0.6	1.73
Liquid Permittivity - measurement uncertainty	2.47	Normal	1	0.6	1.48
				Combined Standard Uncertainty Uc(y) =	9.56
				Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence = 19.12	%
				Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence = 1.52	dB

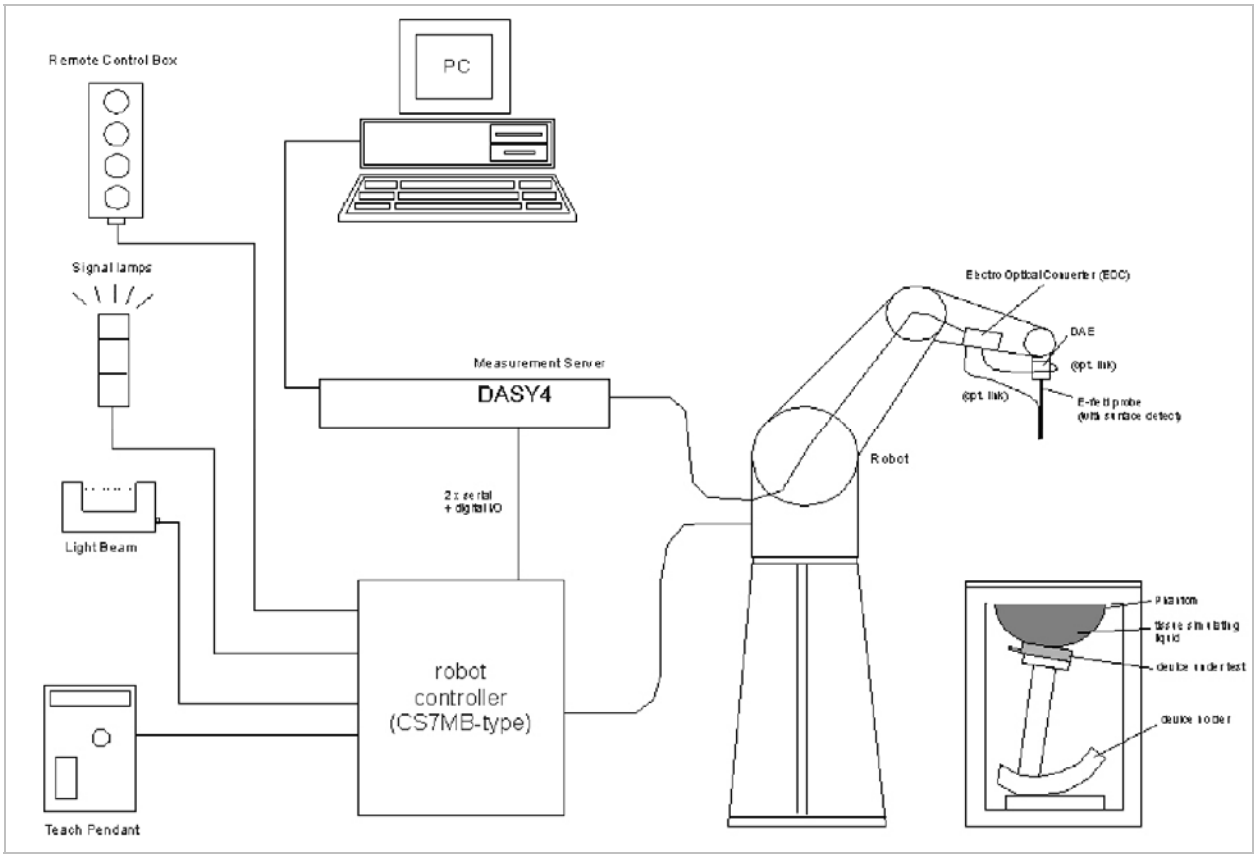
3 to 6 GHz averaged over 1 gram

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	7.55	Normal	1	0.64	4.83
Liquid Permittivity - deviation from target	10.00	Rectangular	1.732	0.6	3.46
Liquid Permittivity - measurement uncertainty	4.53	Normal	1	0.6	2.72
				Combined Standard Uncertainty Uc(y), %:	11.83
				Expanded Uncertainty U, Coverage Factor = 1.96, > 95 % Confidence = 23.19	%
				Expanded Uncertainty U, Coverage Factor = 1.96, > 95 % Confidence = 1.81	dB

5. EQUIPMENT UNDER TEST

iPad with 802.11abgn and Bluetooth radios	
Normal operation:	Tablet bottom face, and Tablet edges - Multiple display orientations supporting both portrait and landscape configurations
Antenna tested:	Antenna — Apple part number WiFi 1 (Port 0) — 631-0921 (shared with BT) WiFi 2 (Port 1) — 631-0920 (WiFi 1 & WiFi 2 are fed with different power levels)
Antenna-to-user separation distances:	According to KDB 447498 4) b) ii) (2).- SAR is required only for the edge with the most conservative exposure conditions. Tablet – Bottom face ● Lap-held: 0.9 cm from WiFi 1/BT antenna-to-user 0.0 cm (touch) from WiFi 2 antenna-to-user Table – Edges with the following configurations ● Primary landscape: 3.0 cm from WiFi 1/BT antenna-to-user 8.0 cm from WiFi 2 antenna-to-user (No SAR) ● Secondary landscape: 12.7 cm from WiFi 1/BT antenna-to-user (No SAR) 8.0 cm from WiFi 2 antenna-to-user (No SAR) ● Primary Portrait: 0.6 cm from WiFi 1/BT antenna-to-user 11.0 cm from WiFi 2 antenna-to-user (No SAR) ● Secondary Portrait: 23.0 cm from WiFi 1/BT antenna-to-user (No SAR) 10.0 cm from WiFi 2 antenna-to-user (No SAR)
Antenna-to-antenna separation distances:	• 0.0 cm from WiFi 1-to-Bluetooth antenna (WiFi 1 antenna-to-Bluetooth are sharing a common antenna) • > 8.0 cm from WiFi 2-to-WFi 1/BT antenna
Simultaneous transmission:	WiFi 1 can transmit simultaneously with Bluetooth
Assessment for SAR evaluation for Simultaneous transmission:	WiFi and BT KDB 447498 - The Bluetooth's output power is ≤ 60/f(GHz) mW, which stand-alone SAR evaluation is not required. Thus, simultaneous transmission SAR evaluation is not required for WiFi 1 and Bluetooth antenna pair.

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.
- DASY4 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 to validate 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. LIQUID PARAMETERS CHECK

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 (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	
	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 Head and Body Phantom (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. LIQUID CHECK RESULTS FOR 2450 MHZ

Simulating Liquid Dielectric Parameters for Body 2450 MHz
Room Ambient Temperature = 24°C; Relative humidity = 40% Measured by: Devin Chang

f (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit (%)
2450	e'	52.49	Relative Permittivity (ϵ_r):	52.493	52.7	-0.39	± 5
	e"	13.95	Conductivity (σ):	1.902	1.95	-2.47	± 5

Liquid Check
Ambient temperature: 24 deg. C; Liquid temperature: 23 deg. C
January 31, 2010 02:12 PM

Frequency	e'	e"
2400000000.	53.7697	14.3293
2405000000.	53.7978	14.2832
2410000000.	53.7681	14.2348
2415000000.	53.6993	14.1717
2420000000.	53.5870	14.0963
2425000000.	53.4356	14.0266
2430000000.	53.2427	13.9665
2435000000.	53.0528	13.9344
2440000000.	52.8505	13.9276
2445000000.	52.6693	13.9477
2450000000.	**52.4934**	**13.9539**
2455000000.	52.3521	14.0034
2460000000.	52.2572	14.0765
2465000000.	52.2034	14.1574
2470000000.	52.2017	14.2546
2475000000.	52.2245	14.3584
2480000000.	52.3203	14.4589
2485000000.	52.4515	14.5708
2490000000.	52.6059	14.6757
2495000000.	52.7736	14.7630
2500000000.	52.9501	14.8465

The conductivity (σ) can be given as:

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

where f = target f * 10^6

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

8.2. LIQUID CHECK RESULTS FOR 5GHZ

Simulating Liquid Dielectric Parameters for Body 5 GHz
Room Ambient Temperature = 25°C; Relative humidity = 38% Measured by: Sunny Shih

f (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit (%)
5200	e'	45.5114	Relative Permittivity (ε_r):	45.5114	49.0	-7.12	± 10
	e"	18.6670	Conductivity (σ):	5.40004	5.30	1.89	± 5
5500	e'	45.8131	Relative Permittivity (ε_r):	45.8131	48.6	-5.73	± 10
	e"	18.2651	Conductivity (σ):	5.58861	5.65	-1.09	± 5
5800	e'	44.5622	Relative Permittivity (ε_r):	44.5622	48.2	-7.55	± 10
	e"	19.2623	Conductivity (σ):	6.21520	6.00	3.59	± 5

Liquid temperature: 24 deg. C
January 29, 2010 09:17 AM

Frequency	e'	e"
4600000000.	46.7482	17.4540
4650000000.	48.0836	17.7717
4700000000.	46.6288	17.1374
4750000000.	47.4145	18.2903
4800000000.	47.1381	17.2232
4850000000.	46.5351	18.2169
4900000000.	47.4922	17.7469
4950000000.	45.8686	17.8918
5000000000.	47.1765	18.3846
5050000000.	45.8521	17.7159
5100000000.	46.2938	18.6978
5150000000.	46.2804	17.8022
5200000000.	**45.5114**	**18.6670**
5250000000.	46.6213	18.2938
5300000000.	45.1986	18.4564
5350000000.	46.3522	18.8583
5400000000.	45.3502	18.2016
5450000000.	45.6237	19.1327
5500000000.	**45.8131**	**18.2651**
5550000000.	44.9302	19.0674
5600000000.	45.7853	18.7884
5650000000.	44.5953	18.8033
5700000000.	45.5040	19.2299
5750000000.	44.9698	18.7352
5800000000.	**44.5622**	**19.2623**
5850000000.	45.0236	19.1138
5900000000.	44.2716	19.0396
5950000000.	44.3248	19.1664
6000000000.	44.3060	19.4185

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 Parameters for Body 5 GHz
Room Ambient Temperature = 25°C; Relative humidity = 38% Measured by: Sunny Shih

f (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit (%)
5200	e'	48.4244	Relative Permittivity (ε_r):	48.4244	49.0	-1.17	± 10
	e"	18.6205	Conductivity (σ):	5.38659	5.30	1.63	± 5
5500	e'	47.7985	Relative Permittivity (ε_r):	47.7985	48.6	-1.65	± 10
	e"	19.0633	Conductivity (σ):	5.83284	5.65	3.24	± 5
5800	e'	47.222	Relative Permittivity (ε_r):	47.2220	48.2	-2.03	± 10
	e"	19.4386	Conductivity (σ):	6.27209	6.00	4.53	± 5

Liquid temperature: 24 deg. C
January 30, 2010 11:18 AM

Frequency	e'	e"
4600000000.	49.5985	17.6599
4650000000.	49.5167	17.7416
4700000000.	49.4272	17.8477
4750000000.	49.3230	17.9129
4800000000.	49.2355	18.0108
4850000000.	49.1475	18.0907
4900000000.	49.0488	18.1814
4950000000.	48.8978	18.2693
5000000000.	48.8376	18.3262
5050000000.	48.7416	18.4276
5100000000.	48.6569	18.4907
5150000000.	48.5249	18.5805
5200000000.	**48.4244**	**18.6205**
5250000000.	48.3225	18.7207
5300000000.	48.2104	18.7792
5350000000.	48.1234	18.8617
5400000000.	48.0236	18.9074
5450000000.	47.9296	18.9840
5500000000.	**47.7985**	**19.0633**
5550000000.	47.7062	19.1054
5600000000.	47.6193	19.1790
5650000000.	47.5467	19.2478
5700000000.	47.4240	19.3035
5750000000.	47.3183	19.3591
5800000000.	**47.2220**	**19.4386**
5850000000.	47.1484	19.5021
5900000000.	47.0453	19.5658
5950000000.	46.9455	19.6467
6000000000.	46.8303	19.7002

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 PERFORMANCE

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 DASY4 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 7x7x7 (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 BODY-tissue from calibration certificate of SPEAG.
Certificate no: D2450V2-748_April 14, 2008, Cal Due on April 2010.

f (MHz)	Head Tissue		Body Tissue	
	SAR_{1g}	SAR_{10g}	SAR_{1g}	SAR_{10g}
2450			50.8	23.7

Reference SAR Values for BODY-tissue from calibration certificate of SPEAG. Certificate no: D5GHzV2-1075_Sep09, Cal Due on Sept 2011.

f (MHz)	Head Tissue		Body Tissue	
	SAR_{1g}	SAR_{10g}	SAR_{1g}	SAR_{10g}
5200			79.0	22.0
5500			85.4	23.5
5800			73.2	20.1

9.1. SYSTEM CHECK RESULTS FOR D2450V2

System Validation Dipole: D2450V2 SN: 748

Date: January 31, 2010

Ambient Temperature = 24°C; Relative humidity = 40% Measured by: Devin Chang

Medium	CW Signal (MHz)	Forward Pwr (mW)	Measured (Normalized to 1 W)		Target	Delta (%)	Tolerance (%)
Body	2450	100	1g SAR:	48.5	50.8	-4.53	±10
			10g SAR:	22.4	23.7	-5.49	

9.2. SYSTEM CHECK RESULTS FOR D5GHzV2

System Validation Dipole: D5GHzV2 SN: 1075

Date: January 29, 2010

Ambient Temperature = 25°C; Relative humidity = 40% Measured by: Sunny Shih

Medium	CW Signal (MHz)	Forward Pwr (mW)	Measured (Normalized to 1 W)		Target	Delta (%)	Tolerance (%)
Body	5200	100	1g SAR:	73.6	79.0	-6.84	±10
			10g SAR:	20.8	22.0	-5.45	

Date: January 30, 2010

Ambient Temperature = 25°C; Relative humidity = 40% Measured by: Sunny Shih

Medium	CW Signal (MHz)	Forward Pwr (mW)	Measured (Normalized to 1 W)		Target	Delta (%)	Tolerance (%)
Body	5500	100	1g SAR:	78.7	85.4	-7.85	±10
			10g SAR:	22.2	23.5	-5.53	
Body	5800	100	1g SAR:	71.0	73.2	-3.01	±10
			10g SAR:	20.3	20.1	1.00	

10. 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, wl_tools, which enable engineer to control the frequency and output power of the module. This test tool is not available for general public.

Power Drift: Per the requirement stated in IEEE1528 section 6.3.3., power drift shall be recorded the absolute value between step 1 and step 4. However, with repeat testing, it is not possible to obtain meaningful absolute value. In order to determine if device output has been stable during a SAR measurement, conducted power were measured before and after based upon the length of time of each SAR test to verify if the output changes are within the 5% drift (< 0.25 dB).

802.11b/g/H20 mode (2.4 GHz band)

Mode	Channel	Freq. (MHz)	Avg Pwr (dBm)				Delta (%)	
			Before		After SAR test			
			WiFi 1	WiFi 2	WiFi 1	WiFi 2	WiFi 1	WiFi 2
802.11b	1	2412	16.68	14.07	16.70	14.02	0.12	-0.36
	6	2437	16.67	14.11	16.73	14.23	0.36	0.84
	11	2462	16.53	14.02	16.51	14.16	-0.12	0.99

Mode	Channel	Freq. (MHz)	Avg Pwr (dBm)	
			Antenna	
			WiFi 1	WiFi 2
802.11g	1	2412	13.04	13.02
	6	2437	16.50	14.05
	11	2462	12.90	12.80
802.11n (HT20)	1	2412	13.04	13.00
	6	2437	15.50	14.00
	11	2462	12.80	12.80

Note: KDB 248227 - SAR is not required for 802.11g /HT20 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.

802.11a mode

Mode	Channel	Freq. (MHz)	Avg Pwr (dBm)				Delta (%)	
			Before		After SAR test			
			WiFi 1	WiFi 2	WiFi 1	WiFi 2	WiFi 1	WiFi 2
802.11a	36	5180	15.14	10.05	15.26	10.11	0.79	0.59
	40	5200	15.05	10.11	15.15	10.25	0.66	1.37
	48	5240	15.09	10.14	15.01	10.21	-0.53	0.69
802.11a	52	5260	15.17	10.07	15.21	10.15	0.26	0.79
	60	5300	15.02	10.13	15.10	10.05	0.53	-0.80
	64	5320	15.11	10.05	15.01	10.09	-0.67	0.40
802.11a	100	5500	14.92	10.01	14.85	10.16	-0.47	1.48
	120	5600	15.02	10.11	15.09	10.05	0.46	-0.60
	140	5700	15.13	10.08	15.01	9.99	-0.80	-0.90
802.11a	149	5745	15.18	10.11	15.25	9.97	0.46	-1.40
	157	5785	15.21	10.21	15.14	10.12	-0.46	-0.89
	165	5825	15.04	10.16	14.99	10.03	-0.33	-1.30

802.11n HT20

Band	Mode	Channel	Freq. (MHz)	Avg Pwr (dBm)	
				Antenna	
				WiFi 1	WiFi 2
5.2 GHz	802.11n HT20	36	5180	14.03	10.03
		40	5200	14.02	10.01
		48	5240	14.02	10.04
5.3 GHz	802.11n HT20	52	5260	15.06	10.05
		60	5300	15.02	10.03
		64	5320	14.02	10.04
5.6 GHz	802.11n HT20	100	5500	14.01	10.02
		120	5600	15.01	10.07
		140	5700	15.03	10.06
5.8 GHz	802.11n HT20	149	5745	15.02	10.01
		157	5785	15.01	10.05
		165	5825	15.04	10.02

Note: KDB 248227 - SAR is not required for 802.11a /HT20 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11a channels

11. SUMMARY OF TEST RESULTS FOR 2.4 GHZ BAND

KDB 248227 - SAR is not required for 802.11g /HT20 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.

KDB 447498 4) b) ii) (2).SAR is required only for the edge with the most conservative exposure conditions.

1. Tablet – Bottom face

☒ 0.9 cm from WiFi 1 antenna-to-user; ☒ 0.0 cm (touch) from WiFi 2 antenna-to-user

Mode	Channel	f (MHz)	Antenna	Avg Pwr	Results (mW/g)	
				(dBm	1g-SAR	10g-SAR
802.11b	1	2412	WiFi 1			
	6	2437	WiFi 1	16.7	0.027	0.014
	11	2462	WiFi 1			
	1	2412	WiFi 2			
	6	2437	WiFi 2	14.1	**0.791**	**0.269**
	11	2462	WiFi 2			

2. Table – Edges with the following configurations

2.1 Edge - Primary Landscape

☒ 3.0 cm from WiFi 1 antenna-to-user; ☐ 8.0 cm from WiFi 2 antenna-to-user

Mode	Channel	f (MHz)	Antenna	Avg Pwr	Results (mW/g)	
				(dBm)	1g-SAR	10g-SAR
802.11b	1	2412	WiFi 1			
	6	2437	WiFi 1	16.7	0.083	0.037
	11	2462	WiFi 1			

2.2 Edge - Secondary Landscape

☐ 12.7 cm from WiFi 1 antenna-to-user; ☐ 8.0 cm from WiFi 2 antenna-to-user

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.

2.3 Edge - Primary Portrait

☒ 0.6 cm from WiFi 1 antenna-to-user; ☐ 11.0 cm from WiFi 2 antenna-to-user

Mode	Channel	f (MHz)	Antenna	Avg Pwr	Results (mW/g)	
				(dBm)	1g-SAR	10g-SAR
802.11b	1	2412	WiFi 1			
	6	2437	WiFi 1	16.7	0.736	0.287
	11	2462	WiFi 1			

2.4 Edge - Secondary Portrait

☐ 23.0 cm from WiFi 1 antenna-to-user; ☐ 10.0 cm from WiFi 2 antenna-to-user

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. SUMMARY OF TEST RESULTS FOR 5 GHZ BANDS

According to KDB 447498 4) b) ii) (2). SAR is required only for the edge with the most conservative exposure conditions.

1. Tablet – Bottom face

☒ 0.9 cm from WiFi 1 antenna-to-user; ☒ 0.0 cm (touch) from WiFi 2 antenna-to-user

band	Channel	f (MHz)	Antenna	Avg Pwr	Results (mW/g)	
				(dBm)	1g-SAR	10g-SAR
5.2GHz	36	5180	WiFi 1	15.14		
	40	5200	WiFi 1	15.05	0.034	0.015
	48	5240	WiFi 1	15.09		
	36	5180	WiFi 2	10.05	1.070	0.238
	40	5200	WiFi 2	10.11	1.070	0.230
	48	5240	WiFi 2	10.14	**1.080**	**0.264**
5.3GHz	52	5260	WiFi 1	15.17		
	60	5300	WiFi 1	15.02	0.020	0.009
	64	5320	WiFi 1	15.11		
	52	5260	WiFi 2	10.07	0.952	0.203
	60	5300	WiFi 2	10.13	1.030	0.241
	64	5320	WiFi 2	10.05	**1.100**	**0.259**
5.6GHz	100	5500	WiFi 1	14.92		
	120	5600	WiFi 1	15.02	0.005	0.001
	140	5700	WiFi 1	15.13		
	100	5500	WiFi 2	10.01		
	120	5600	WiFi 2	10.11	0.756	0.198
	140	5700	WiFi 2	10.11		
5.8GHz	149	5745	WiFi 1	15.18		
	157	5785	WiFi 1	15.21	0.032	0.015
	165	5825	WiFi 1	15.04		
	149	5745	WiFi 2	10.11		
	157	5785	WiFi 2	10.21	0.521	0.154
	165	5825	WiFi 2	10.16		

2. Table – Edges with the following configurations

2.1 Edge - Primary Landscape

☒ 3.0 cm from WiFi 1 antenna-to-user; ☐ 8.0 cm from WiFi 2 antenna-to-user

band (GHz)	Channel	f (MHz)	Antenna	Avg Pwr	Results (mW/g)	
				(dBm)	1g-SAR	10g-SAR
5.2	40	5200	WiFi 1	15.05	0.140	0.051
5.3	60	5300	WiFi 1	15.02	0.128	0.041
5.6	120	5600	WiFi 1	15.02	0.081	0.013
5.8	157	5785	WiFi 1	15.21	0.078	0.021

2.2 Edge - Secondary Landscape

☐ 12.7 cm from WiFi 1 antenna-to-user; ☐ 8.0 cm from WiFi 2 antenna-to-user

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.

2.3 Edge - Primary Portrait

☒ 0.6 cm from WiFi 1 antenna-to-user; ☐ 11.0 cm from WiFi 2 antenna-to-user

band	Channel	f (MHz)	Antenna	Avg Pwr	Results (mW/g)	
				(dBm)	1g-SAR	10g-SAR
5.2GHz	36	5180	WiFi 1	15.14	0.877	0.282
	40	5200	WiFi 1	15.05	1.060	0.346
	48	5240	WiFi 1	15.09	0.927	0.300
5.3GHz	52	5260	WiFi 1	15.17		
	60	5300	WiFi 1	15.02	0.602	0.194
	64	5320	WiFi 1	15.11		
5.6GHz	100	5500	WiFi 1	14.92	**1.140**	**0.330**
	120	5600	WiFi 1	15.02	1.040	0.295
	140	5700	WiFi 1	15.13	0.729	0.217
5.8GHz	149	5745	WiFi 1	15.18		
	157	5785	WiFi 1	15.21	**0.630**	**0.182**
	165	5825	WiFi 1	15.04		

2.4 Edge - Secondary Portrait

☐ 23.0 cm from WiFi 1 antenna-to-user; ☐ 10 cm from WiFi 2 antenna-to-user

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.

13. SAR TEST PLOTS

Worst-Case SAR Plot - 2.4GHz

Date/Time: 1/31/2010 3:32:08 PM

Test Laboratory: Compliance Certification Services

11b_WiFi 2_Bottom face

DUT: Apple; Type: NA; Serial: NA

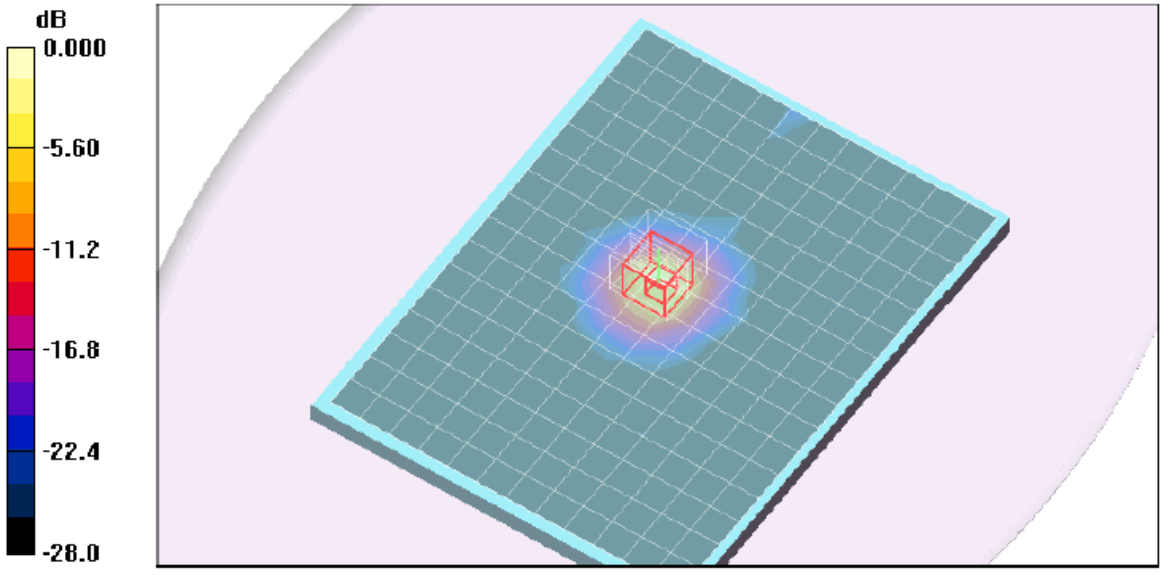
Communication System: 802.11bgn; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.89 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

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

DASY4 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(6.48, 6.48, 6.48); Calibrated: 3/23/2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 9/15/2009
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

802.11b M-ch Main Ant/Area Scan (13x17x1): Measurement grid: dx=15mm, dy=15mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.654 mW/g

802.11b M-ch Main Ant/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Peak SAR (extrapolated) = 2.48 W/kg
SAR(1 g) = 0.791 mW/g; SAR(10 g) = 0.269 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.24 mW/g



0 dB = 1.24mW/g

Worst-Case SAR Plot – 5.2GHz

Date/Time: 1/29/2010 4:35:19 PM

Test Laboratory: Compliance Certification Services

5.2GHz band_WiFi 2_Bottom face

DUT: Apple; Type: NA; Serial: NA

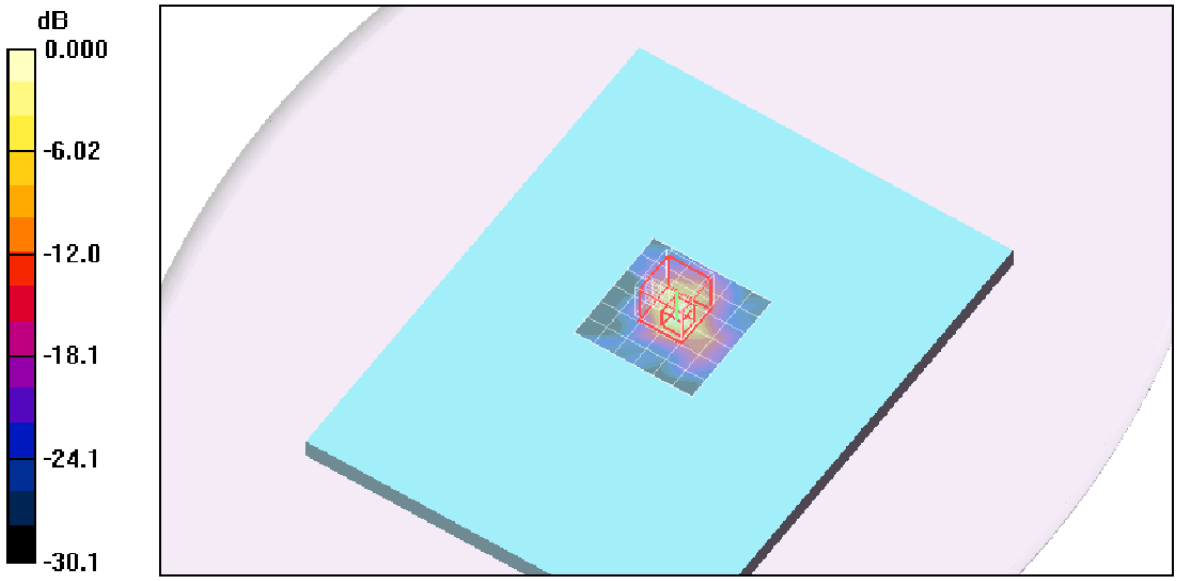
Communication System: 802.11abgn; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5240 MHz; σ = 5.35 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

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

DASY4 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(4.08, 4.08, 4.08); Calibrated: 3/23/2009
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 9/15/2009
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

802.11a_WiFi 2_Ch 48/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.73 mW/g

802.11a_WiFi 2_Ch 48/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Peak SAR (extrapolated) = 4.02 W/kg
SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.264 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.21 mW/g



0 dB = 2.21mW/g

Worst-Case SAR Plot – 5.3GHz

Date/Time: 1/29/2010 8:20:02 PM

Test Laboratory: Compliance Certification Services

5.3GHz band_WiFi 2_Bottom face

DUT: Apple; Type: NA; Serial: NA

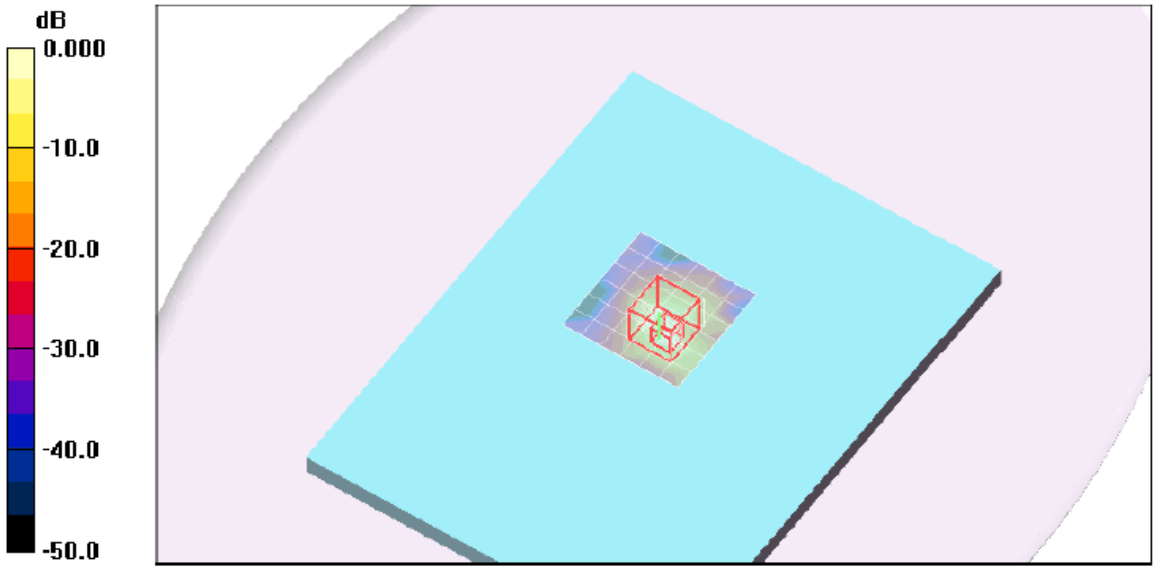
Communication System: 802.11abgn; Frequency: 5320 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5320 MHz; σ = 5.51 mho/m; ε_r = 45.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

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

DASY4 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(3.81, 3.81, 3.81); Calibrated: 3/23/2009
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 9/15/2009
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

802.11a_WiFi 2_Ch 64/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.30 mW/g

802.11a_WiFi 2_Ch 64/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Peak SAR (extrapolated) = 4.19 W/kg
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.259 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.14 mW/g



0 dB = 2.14mW/g

Worst-Case SAR Plot – 5.6GHz

Date/Time: 1/30/2010 10:11:26 PM

Test Laboratory: Compliance Certification Services

5.6GHz_Primary portrait_WiFi 1

DUT: Apple; Type: NA; Serial: NA

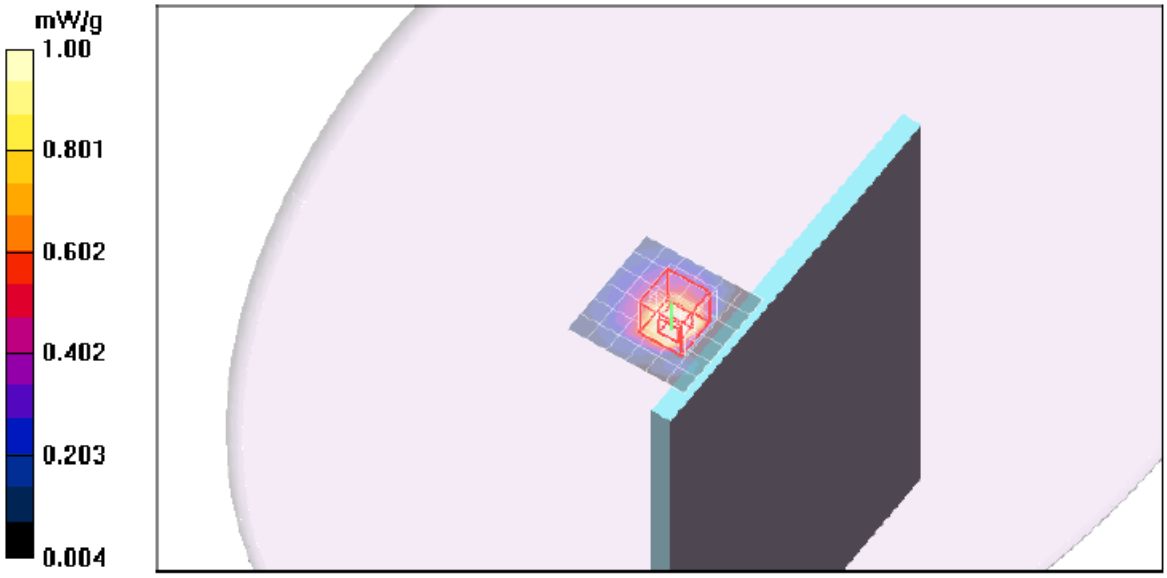
Communication System: 802.11abgn; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.83 mho/m; ε_r = 47.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

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

DASY4 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(3.76, 3.76, 3.76); Calibrated: 3/23/2009
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 9/15/2009
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

802.11a_WiFi 1_ch 100/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.63 mW/g

802.11a_WiFi 1_ch 100/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Peak SAR (extrapolated) = 4.10 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.330 mW/g
Maximum value of SAR (measured) = 2.10 mW/g



Worst-Case SAR Plot – 5.8GHz

Date/Time: 1/31/2010 2:44:55 AM

Test Laboratory: Compliance Certification Services

5.8GHz_Primary portrait_WiFi 1

DUT: Apple; Type: NA; Serial: NA

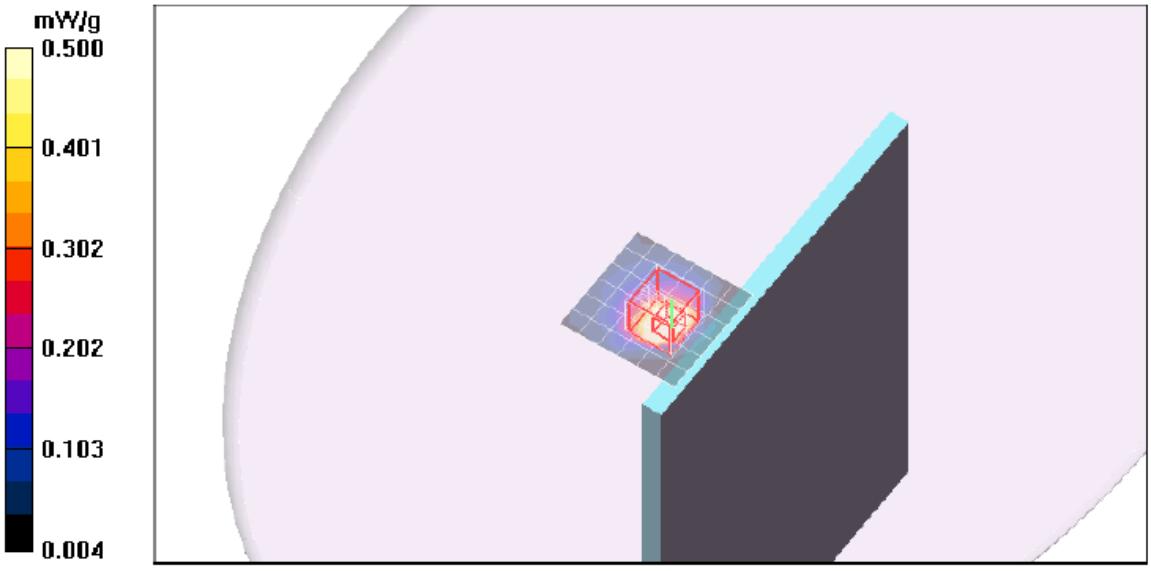
Communication System: 802.11abgn; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5785 MHz; σ = 6.25 mho/m; ε_r = 47.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

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

DASY4 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(3.84, 3.84, 3.84); Calibrated: 3/23/2009
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 9/15/2009
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

802.11a_WiFi 1_ch 157/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.953 mW/g

802.11a_WiFi 1_ch 157/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Peak SAR (extrapolated) = 2.40 W/kg
SAR(1 g) = 0.630 mW/g; SAR(10 g) = 0.182 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.23 mW/g



14. ATTACHMENTS

No.	Contents	No. of page (s)
1	System Validation Plots	6
2	SAR Test Plots - 2.4GHz	4
3	SAR Test Plots - 5GHz	24
4	Certificate of E-Field Probe - EX3DV4 SN 3686	10
5	Certificate of System Validation Dipole - D2450V2 SN:748	6
6	Certificate of System Validation Dipole - D5GHzV2 SN: 1075	9