

FCC 47 CFR Parts 1 & 2 Published RF Exposure KDB Procedures IEEE Std 1528-2003 and IEEE 1528a-2005

SAR EVALUATION REPORT

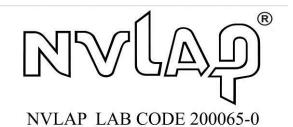
For SIM™ pod 2.4GHz Body-Worn Transceiver

Model: 6010 FCC ID: XF6-RS9110N1122

Report Number: 13U16058-1A Issue Date: 1/16/2014

> Prepared for Redpine Signals. 2107 N. First Street, Suite 680, San Jose CA 95131 – 2019, USA,

Prepared by UL VERIFICATION SERVICES, INC. 47173 BENICIA STREET FREMONT, CA 94538, U.S.A. TEL: (510) 771-1000 FAX: (510) 661-0888



Revision History

Rev.	Issue Date	Revisions	Revised By
	1/16/2014	Initial Issue	
А	2/5/2014	Corrected applicant name and address	Dave Weaver

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1. Attestation of Test Results

Applicant	Redpine Signals						
DUT description	2.4GHz Body-Worn Transceive	2.4GHz Body-Worn Transceiver					
Model	6010						
Test device is	An identical prototype						
Device category	Portable						
Exposure category	General Population/Uncontrolle	ed Exposure					
Date tested	01/03/2014						
The highest	RF exposure condition	Licensed	DTS	UNII			
reported SAR values	Body	N/A W/kg	<mark>0.142</mark> W/kg (2.4GHz)	N/A W/kg			
	Simultaneous Transmission	N/A W/kg	N/A W/kg	N/A W/kg			
Applicable	FCC 47 CFR Parts 1 & 2						
Standards	Published RF Exposure KDB Procedures, and TCB workshop updates						
	IEEE Std 1528-2003 and IEE	E Std 1528a-2005					
Test Results	Pass						

UL Verification Services Inc. 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 Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. 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 By:

Dave Weaver WiSE Operations Manager UL Verification Services Inc. Prepared By:

Lance Fleischer WiSE Laboratory Technician UL Verification Services Inc.

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2. Test Methodology

The tests documented in this report were performed in accordance with FCC 47 CFR Parts 1 & 2, IEEE STD 1528-2003, IEEE Std 1528a-2005, the following FCC Published RF exposure KDB procedures and TCB workshop updates:

- o KDB 447498 D01 General RF Exposure Guidance v05r01
- o KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r01
- KDB 865664 D02 SAR Reporting v01r01
- KDB 690783 D01 SAR Listings on Grants v01r03
- o KDB 248227 D01 SAR meas for 802 11abg v01r02

3. Facilities and Accreditation

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

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <u>http://www.ccsemc.com.</u>

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4. Calibration and Uncertainty

4.1. Measuring Instrument Calibration

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

Tissue Dielectric Properties

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Agilent	8753ES	MY40000980	2/20/2014
Dielectronic Probe kit	SPEAG	DAK-3.5	1103	2/5/2014
Thermometer	Control Company	4242	122529163	9/19/2014

System Performance Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Synthesized Signal Generator	HP	8665B	3744A01084	5/7/2014
Power Meter	HP	437B	3125U12345	7/29/2014
Power Sensor	HP	8481A	1926A27048	7/29/2014
Amplifier	MITEQ	AMF-4D-00400600-50-30P	1620606	N/A
Directional coupler	Werlatone	C8060-102	2141	N/A
DC Power Supply	AMETEK	XHR60-18	1318A00530	N/A
Thermometer	EXTECH	445703	T35480662	3/19/2014
E-Field Probe	SPEAG	EX3DV4	3902	7/12/2014
Data Acquisition Electronics	SPEAG	DAE4	1377	7/15/2014
System Validation Dipole	SPEAG	D2450V2	748	2/11/2014

Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Power Meter	Agilent	N1912A	MY53040016	4/4/2014
Power Sensor	Agilent	N1921A	MY52020011	5/13/2014
DC Power Supply	HP	6296A	1140A01869	N/A

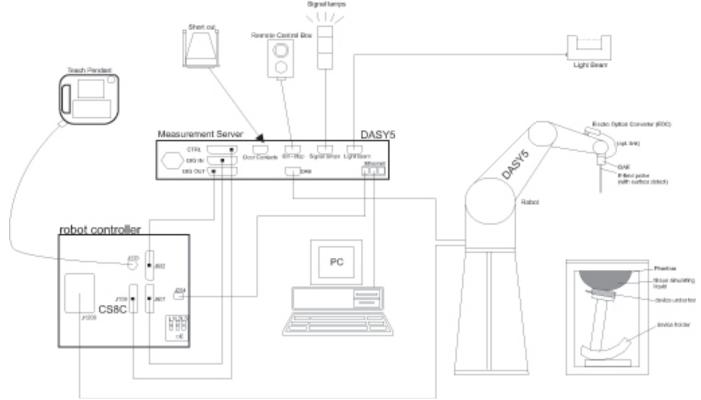
4.2. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r01 Section 2.8.1., when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2003 is not required in SAR reports submitted for equipment approval.

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5. Measurement System Description and Setup

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



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

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6. SAR Measurement Procedure

6.1. Normal SAR Measurement Procedure

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.

Area Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r01

	\leq 3 GHz	> 3 GHz	
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	$5 \pm 1 \text{ mm}$	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5 \text{ mm}$	
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^{\circ} \pm 1^{\circ}$	$20^\circ\pm1^\circ$	
	\leq 2 GHz: \leq 15 mm 2 - 3 GHz: \leq 12 mm	$\begin{array}{l} 3-4 \ \mathrm{GHz:} \leq 12 \ \mathrm{mm} \\ 4-6 \ \mathrm{GHz:} \leq 10 \ \mathrm{mm} \end{array}$	
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be \leq the corresponding x or y dimension of the test device with at least one measurement point on the test device.		

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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 points (refer to table below) 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.

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r01

		\leq 3 GHz	> 3 GHz	
Maximum zoom scan spatial resolution: Δx_{Zoom} , Δy_{Zoom}			$3 - 4 \text{ GHz:} \le 5 \text{ mm}^*$ $4 - 6 \text{ GHz:} \le 4 \text{ mm}^*$	
uniform grid: $\Delta z_{\text{Zoom}}(n)$		\leq 5 mm	$3 - 4 \text{ GHz:} \le 4 \text{ mm}$ $4 - 5 \text{ GHz:} \le 3 \text{ mm}$ $5 - 6 \text{ GHz:} \le 2 \text{ mm}$	
graded	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	\leq 4 mm	$3 - 4$ GHz: ≤ 3 mm $4 - 5$ GHz: ≤ 2.5 mm $5 - 6$ GHz: ≤ 2 mm	
grid $\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$			
Minimum zoom scan volume x, y, z		\geq 30 mm	$3-4$ GHz: ≥ 28 mm $4-5$ GHz: ≥ 25 mm $5-6$ GHz: ≥ 22 mm	
	uniform graded grid	uniform grid: $\Delta z_{Zoom}(n)$ graded $\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface $\Delta z_{Zoom}(n>1)$: between subsequent points	spatial resolution: Δx_{Zoom} , Δy_{Zoom} $\leq 2 \text{ GHz: } \leq 8 \text{ mm}$ uniform grid: $\Delta z_{Zoom}(n)$ $\leq 5 \text{ mm}^*$ graded $\Delta z_{Zoom}(1)$: between 1 st two points closest $\leq 4 \text{ mm}$ $\Delta z_{Zoom}(n>1)$: $\leq 4 \text{ mm}$ $\Delta z_{Zoom}(n>1)$: $\leq 1.5 \cdot \Delta z$ $\Delta z_{Dom}(n>1)$: $\leq 1.5 \cdot \Delta z$	

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft stand P1528-2011 for details.

When zoom scan is required and the *reported* SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

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 (FCC only)

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 Zdirection.

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6.2. Volume Scan Procedures

Step 1: Repeat Step 1-4 in Section 6.1

Step 2: Volume Scan

Volume Scans are used to assess peak SAR and averaged SAR measurements in largely extended 3-dimensional volumes within any phantom. This measurement does not need any previous area scan. The grid can be anchored to a user specific point or to the current probe location.

Step 3: 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.

7. Device Under Test

7.1. General Information

Model 6010 is a 2.4GHz body-worn transceiver						
RF Exposure Condition(s) Body Worn						
Device dimension Overall (Length x Width): 48.5mm x 68.5mm						
Overall Diagonal: 74mm						
Battery Options Internal battery (not user accessible)						

7.2. Wireless Technologies

Wireless Technology and	WiFi 802.11b/g/n HT20
Frequency Bands	
Mode	WiFi 802.11b/g/n HT20
Duty Cycle	100%

7.3. Simultaneous Transmission Condition

The DUT does not support simultaneous transmission.

7.4. SAR test rationale

The DUT is intended to be body worn using a purpose built clip attached to a diaper. The DUT can only be installed into the clip attached to the diaper with the rear facing the user. Testing was therefore restricted to the rear only.

Although the diaper provides some separation between the user and the DUT testing was performed at 0mm separation distance.

The DUT was incapable of transmitting at full power for more than a few minutes before the battery was depleted. Battery power was supplemented with an external power supply. The wire providing the power was no closer than 40mm to the antenna inside the DUT. Externally the wire was routed to minimize any effect on the SAR measurement.

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8. RF Output Power Measurement

Target Power

The absolute maximum target power is 19dBm

Measured Results

Band (GHz)	No. of Transmitters	Mode	Mode	Ch #	Freq. (MHz)	Avg Pwr (dBm)	SAR Test (Yes/No)					
				1	2412	17.8						
	1 Tx	802.11b	1 Mbps	6	2437	17.8	Yes					
				11	2462	17.7]					
		802.11g	1g 6 Mbps	1	2412	15.6						
2.4	1 Tx			6 Mbps	6 Mbps	6	2437	15.8	No			
										11	2462	15.8
				1	2412	15.9						
	1 Tx	802.11n (HT20)	MCS0	6	2437	16.0 No	No					
		x -7		11	2462	15.9						

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9. Exposure Conditions

9.1. Standalone SAR Test Exclusion Considerations

The DUT is intended for body worn use only. It will be mounted into a clip attached to a diaper. The clip attached to a diaper is designed so that the DUT can only be installed with the rear facing the user.

9.1.1. Required Test Configurations

Test Configurations	QPSK
Rear	Yes
Front	No
Edge 1	No
Edge 2	No
Edge 3	No
Edge 4	No

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10. Tissue Dielectric Properties

IEEE Std 1528-2003 Table 2

Target Frequency (MHz)	Head				
	ε _r	σ (S/m)			
300	45.3	0.87			
450	43.5	0.87			
835	41.5	0.90			
900	41.5	0.97			
1450	40.5	1.20			
1800 – 2000	40.0	1.40			
2450	39.2	1.80			
2600	39.0	1.96			
3000	38.5	2.40			

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r01

Target Frequency (MHz)	Н	ead	Во	dy
raiget requeitcy (Mirz)	ε _r	σ (S/m)	ε _r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

10.1. Composition of Ingredients for the Tissue Material Used in the SAR Tests

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		Frequency (MHz)								
(% by weight)	45	50	83	35	915		19	00	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 M Ω + 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

10.2. Tissue Dielectric Parameter Check Results

The temperature of the tissue-equivalent medium used during measurement must also be within 18° C to 25° C and within $\pm 2^{\circ}$ C of the temperature when the tissue parameters are characterized.

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 - 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

LAB 3

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
	Body 2450		51.6100	Relative Permittivity (ε_r):	51.61	52.70	-2.07	5
	B00y 2430	e"	14.6700	Conductivity (σ):	2.00	1.95	2.49	5
1/2/2014	1/3/2014 Body 2410	e'	51.7800	Relative Permittivity (ε_r):	51.78	52.76	-1.86	5
1/3/2014		e"	14.5100	Conductivity (σ):	1.94	1.91	1.94	5
	Body 2475	e'	51.5400	Relative Permittivity (ε_r):	51.54	52.67	-2.14	5
Body 2475	e"	14.7700	Conductivity (σ):	2.03	1.99	2.39	5	

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11. System Performance Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are remeasured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

11.1. System Performance Check Measurement Conditions

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm ± 0.5 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm ± 0.5 cm for measurements > 3 GHz.
- The DASY system with an E-Field Probe 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 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the 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.

11.2. System Performance Check Measurement Conditions

The reference SAR values can be obtained from the calibration certificate of system validation dipoles

Svetem Dinele	Serial No.	Cal. Date	I. Date Freq. (MHz)		get SAR Values	s (mW/g)
System Dipole	Senai No.	Cal. Dale		1g/10g	Head	Body
	D0450\/0 740 0/44/0040		2450	1g	52.9	49.9
D2450V2	748	2/11/2013	2450	10g	24.6	23.2

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11.3. System Performance Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within 10% of the manufacturer calibrated dipole SAR target.

LAB 3

	System	Dipole	T.S. Liquid		те		то		то		то		Measured Results		Target	Delta	Est./Zoom	Plot
Date Tested	Туре	Serial #			Area Scan	Zoom Scan	Normalize to 1 W	(Ref. Value)	±10 %	Ratio ±3 %	No.							
1/3/2014	D2450V2	748	Body	1g	5.15	5.26	52.6	49.90	5.41	-2.14	1,2							
1/3/2014	D2430VZ	740	DOUY	10g	2.170	2.450	24.5	23.20	5.60		1,2							

12. SAR Test Results

12.1. 802.11b

			Freq.	Power (dBm)		1-g SAR (W/kg)		Plot	
Test Position	Mode	Ch #.	(MHz)	Tune-up limit	Meas.	Meas.	Scaled	No.	Note
		1	2412	19.0	17.8	0.064	0.084		
Rear	802.11b	6	2437	19.0	17.8	0.108	0.142	1	
		11	2462	19.0	17.7	0.075	0.101		

Note(s):

1. Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

 \cdot ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz

• ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz

• ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

13. SAR Measurement Variability

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz v01. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is \geq 0.80 W/kg, repeat that measurement once.
- Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

13.1. The Highest Measured SAR Configuration in Each Frequency Band

Frequency Band (MHz)	Air Interface	Body
2400	802.11b	<mark><0.108</mark> W/kg

13.2. Repeated Measurement Results

Not Applicable. Highest measured SAR is < 0.80 W/kg.

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14. Appendixes

Refer to separated files for the following appendixes.

- 14.1. System Performance Check Plots
- 14.2. Highest SAR Test Plot
- 14.3. Calibration Certificate for E-Field Probe EX3DV4 SN 3902
- 14.4. Calibration Certificate for D2450V2 SN 748

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15. External Photos

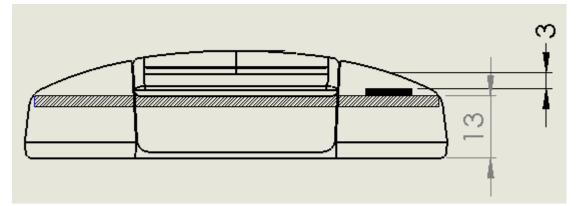
Front View

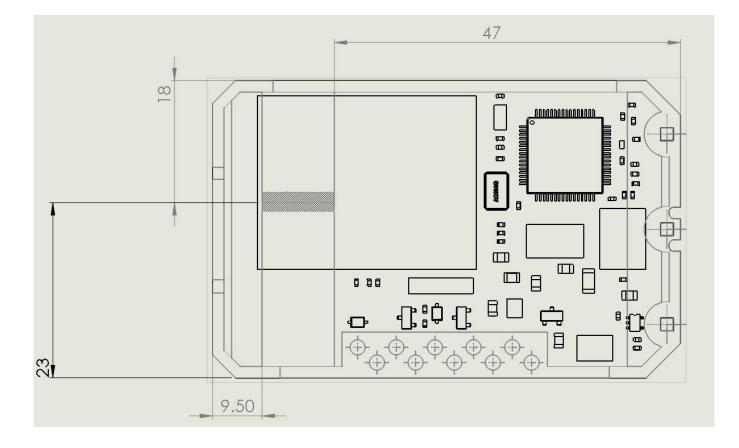


Top View with Diaper Attached



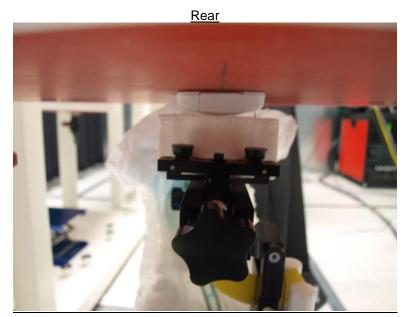
16. Antenna Dimensions & Separation Distances

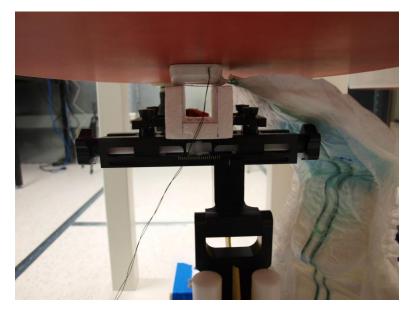




Dimensions in mm

17. Setup Photos





END OF REPORT

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