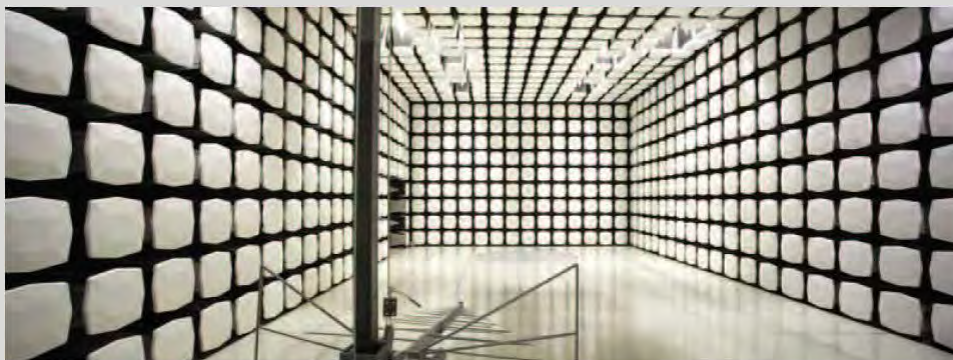




**Intel Corporation**  
**WSBUB-SDS**

**SAR Evaluation Report #: INTE5434**  
**WLAN Radio Evaluated to the following SAR Specification:**  
**FCC 2.1093:2014**



Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – [www.nwemc.com](http://www.nwemc.com)

California – Minnesota – Oregon – New York – Washington

# CERTIFICATE OF TEST

**Last Date of Test: April 11, 2014**

**Intel Corporation**

**Model: WSBUB-SDS**

**WLAN Radio**

## Applicable Standard

| Test Description | Specification                      | Test Method                              | Pass/Fail |
|------------------|------------------------------------|------------------------------------------|-----------|
| SAR Evaluation   | FCC 2.1093:2014<br>FCC 15.247:2014 | IEEE Std 1528:2003                       | Pass      |
|                  |                                    | FCC KDB 447498 D01 v05r02                |           |
|                  |                                    | FCC KDB 248227 D01 v01r02                |           |
|                  |                                    | FCC KDB 616217 D04 v01r01                |           |
|                  |                                    | FCC KDB 865664 D01 v01r03 and D02 v01r01 |           |

## Highest SAR Values:

| Frequency Bands<br>(GHz) | Body<br>(W/kg)<br>1g | Limit<br>(W/kg)<br>1g | Exposure Environment |
|--------------------------|----------------------|-----------------------|----------------------|
| 2.4                      | 1.28                 | 1.6                   | General Population   |
| 5.0                      | 1.49                 | 1.6                   |                      |

## Deviations From Test Standards

None

**Approved By:**



Don Facteau, IS Manager



NVLAP Lab Code: 200630-0

*This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.*

*Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.*

# REVISION HISTORY

| Revision Number | Description | Date | Page Number |
|-----------------|-------------|------|-------------|
| 00              | None        |      |             |

## Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

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## United States

**FCC** - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

**A2LA** - Accredited by A2LA to ISO / IEC Guide 65 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

**NVLAP** - Each laboratory is accredited by NVLAP to ISO 17025

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## Canada

**IC** - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

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## European Union

**European Commission** – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

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## Australia/New Zealand

**ACMA** - Recognized by ACMA as a CAB for the acceptance of test data.

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## Korea

**KCC / RRA** - Recognized by KCC's RRA as a CAB for the acceptance of test data.

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## Japan

**VCCI** - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

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## Taiwan

**BSMI** – Recognized by BSMI as a CAB for the acceptance of test data.

**NCC** - Recognized by NCC as a CAB for the acceptance of test data.

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## Singapore

**IDA** – Recognized by IDA as a CAB for the acceptance of test data.

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## Hong Kong

**OFTA** – Recognized by OFTA as a CAB for the acceptance of test data.

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## Vietnam

**MIC** – Recognized by MIC as a CAB for the acceptance of test data.

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## Russia

**GOST** – Accredited by Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC to perform EMC and Hygienic testing for Information Technology products to GOST standards.

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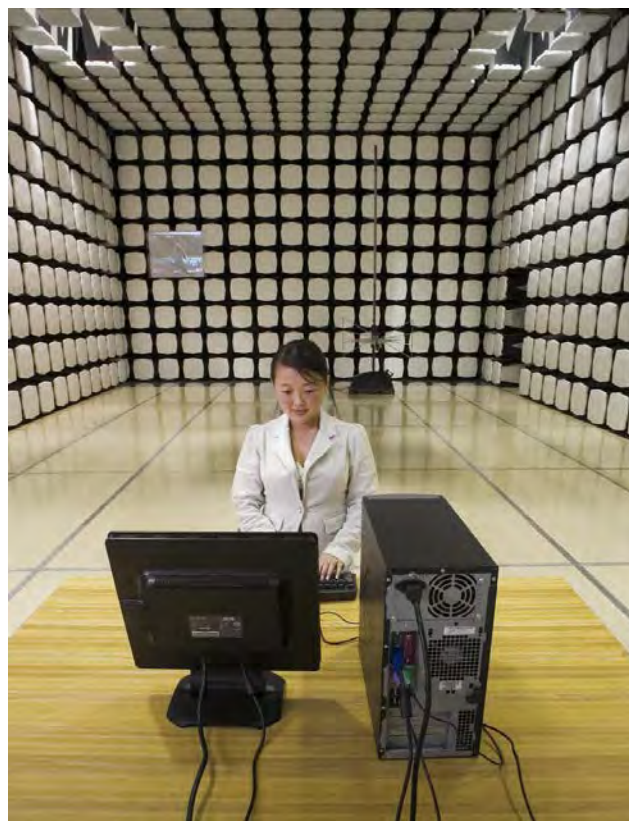
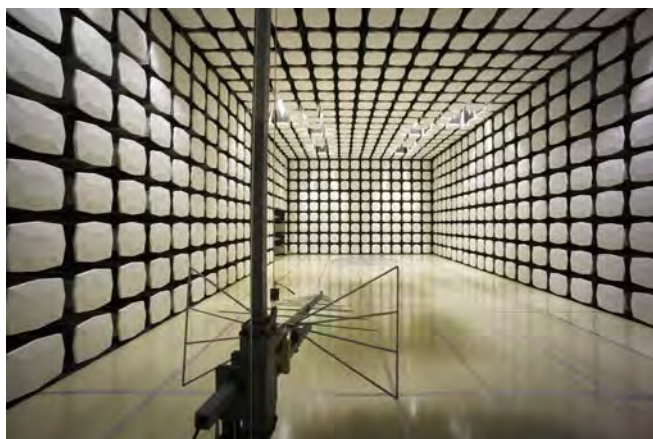
## SCOPE

For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/accreditations/>



|                                                                                                   |                                                                                     |                                                                                            |                                                                                                       |                                                                                                                         |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Oregon</b><br>Labs EV01-12<br>22975 NW Evergreen Pkwy<br>Hillsboro, OR 97124<br>(503) 844-4066 | <b>California</b><br>Labs OC01-13<br>41 Tesla<br>Irvine, CA 92618<br>(949) 861-8918 | <b>New York</b><br>Labs WA01-04<br>4939 Jordan Rd.<br>Elbridge, NY 13060<br>(315) 685-0796 | <b>Minnesota</b><br>Labs MN01-08<br>9349 W Broadway Ave.<br>Brooklyn Park, MN 55445<br>(763) 425-2281 | <b>Washington</b><br>Labs NC01-05, SU02, SU07<br>19201 120 <sup>th</sup> Ave. NE<br>Bothell, WA 98011<br>(425) 984-6600 |
| <b>VCCI</b>                                                                                       |                                                                                     |                                                                                            |                                                                                                       |                                                                                                                         |
| A-0108                                                                                            | A-0029                                                                              |                                                                                            | A-0109                                                                                                | A-0110                                                                                                                  |
| <b>Industry Canada</b>                                                                            |                                                                                     |                                                                                            |                                                                                                       |                                                                                                                         |
| 2834D-1, 2834D-2                                                                                  | 2834B-1, 2834B-2, 2834B-3                                                           |                                                                                            | 2834E-1                                                                                               | 2834C-1                                                                                                                 |





## Client and Equipment Under Test (EUT) Information

|                                 |                         |
|---------------------------------|-------------------------|
| <b>Company Name:</b>            | Intel Corporation       |
| <b>Address:</b>                 | 5200 NE Elam Young Pkwy |
| <b>City, State, Zip:</b>        | Hillsboro, OR 97124     |
| <b>Test Requested By:</b>       | Mike Lowe/Bill Jones    |
| <b>Model:</b>                   | WSBUB-SDS               |
| <b>First Date of Test:</b>      | March 29, 2014          |
| <b>Last Date of Test:</b>       | April 11, 2014          |
| <b>Receipt Date of Samples:</b> | March 29, 2014          |
| <b>Equipment Design Stage:</b>  | Production              |
| <b>Equipment Condition:</b>     | No Damage               |

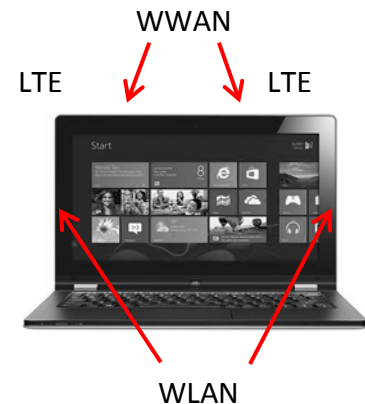
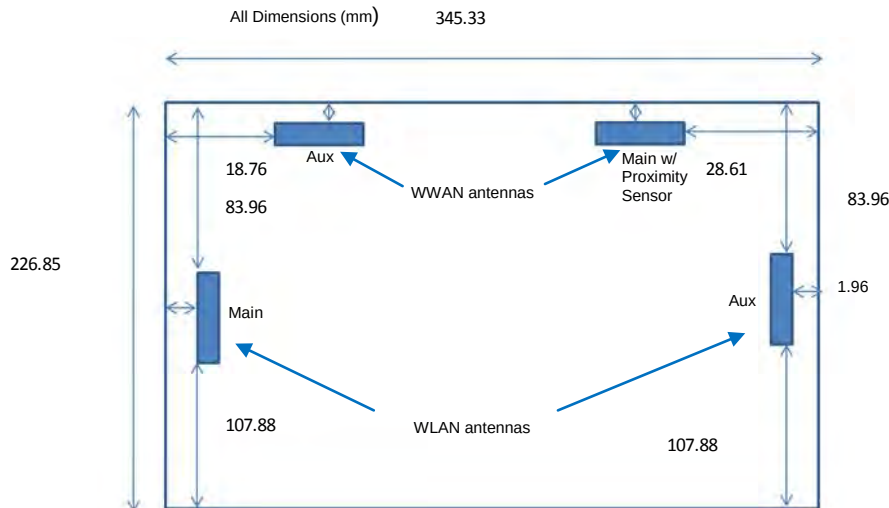
## Information Provided by the Party Requesting the Test

### Functional Description of the EUT (Equipment Under Test):

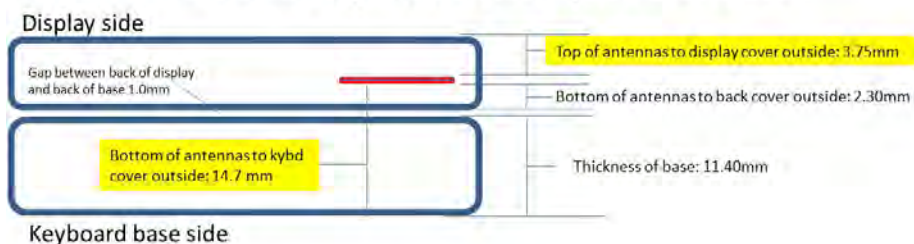
The EUT is the Model WSBUB-SDS laptop / tablet convertible computer containing a NFC radio. Previously certified WWAN (FCC ID: RYQ-NF2) and WLAN / Bluetooth (FCC ID: PD97265NG) modular radios are installed. The WLAN radio is the subject of this SAR evaluation.

The WLAN radio is an 802.11abgnac 2x2 MIMO. The 2.4 and 5 GHz band use 20 & 40 MHz channel bandwidths for Chain A or B, and A+B combinations. The 5 GHz bands also support 802.11 ac for 20, 40, and 80 MHz channel bandwidths for Chain A or B, and A+B combinations.

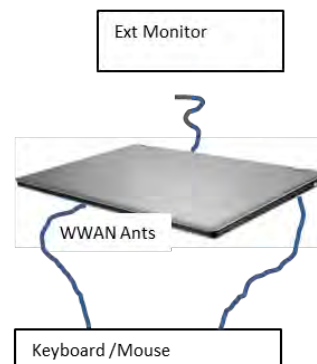
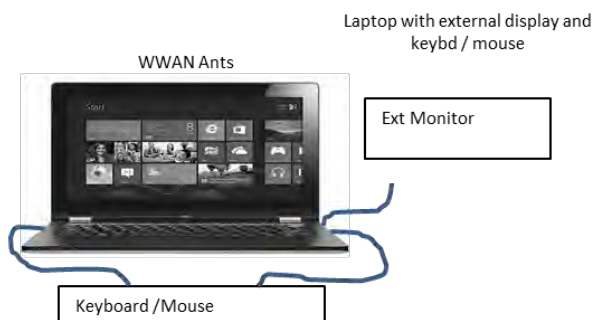
The WLAN antennas are monopole antennas that are integral to the computer. The main antenna has a peak gain of 1.5 dBi in the 2.4 GHz band and 4.2 dBi in the 5 GHz band. The auxiliary antenna has a peak gain of 1.3 dBi in the 2.4 GHz band and 1.8 dBi in the 5 GHz band.



## WSB Tablet Mode Z stack up antenna placement



### Usage Scenarios



After a review of the usage scenarios displayed above, the following positions were tested for the WLAN radio: right edge, left edge, and back side adjacent to the antennas. Each of these positions was tested with the keyboard folded under the display ("tablet mode") or extended away from the display ("tent mode").

The diagonal screen size is greater than 20cm (7.9) inches therefore KDB 941225 is not applicable; instead, KDB 616217 is applicable.

There is no usage model for operation near the head. There are no authorized accessories to wear the device on the body. When used in "tablet mode", only the tablet configurations anticipated by KDB 616217 are applicable. Testing was done with a 0 cm spacing to the phantom.

## Testing Objective:

To demonstrate compliance with the SAR requirements of FCC 2.1093.

## Test Locations

KDB 447498 D01 General RF Exposure Guidance v05r02 is the FCC's starting point for RF exposure policy. Section 4.3.1, Item #1 provides the SAR test exclusion thresholds for test separation distances  $\leq 50$  mm:

$$\left[ \frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right]^* \sqrt{f(\text{GHz})} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

Using the formula above, sides or edges with greater than 72 mm (2.8 inches) separation from the antenna are excluded from stand-alone SAR testing.

| Conducted Output Power on FCC Grant (mW) | Duty Cycle | Exclusion Threshold | Transmit Frequency Band (GHz) | Minimum Test Separation (mm) | Minimum Test Separation (inches) |
|------------------------------------------|------------|---------------------|-------------------------------|------------------------------|----------------------------------|
| 104                                      | 1          | 3                   | 2.45                          | 54                           | 2.14                             |
| 44                                       | 1          | 3                   | 5.2                           | 33                           | 1.32                             |
| 92                                       | 1          | 3                   | 5.3                           | 71                           | 2.78                             |
| 91                                       | 1          | 3                   | 5.6                           | 72                           | 2.83                             |
| 89                                       | 1          | 3                   | 5.8                           | 71                           | 2.81                             |

The WLAN MAIN antenna is closest to the left side of the display. The WLAN AUX antenna is closest to the right side of the display. The back side of the display can be used next to the torso. Since they are all closer than 72 mm to the antennas, the left and right edges as well as the back side adjacent to the antennas were tested. Each of these positions was tested with the keyboard folded under the display ("tablet mode") or extended away from the display ("tent mode"). Please see the discussion above regarding usage scenarios.

The bottom edge has greater than 72 mm separation from the antenna and is excluded from SAR testing. The front surface of the tablet is excluded from SAR testing per Section 4.3 of KDB 616217 D04 v01r01.

The highest output power of the Bluetooth radio is equal to 3 mW. Using the formula above, the exclusion threshold is 0.9; therefore it is excluded from stand-alone SAR testing.

## Simultaneous Transmission

MIMO measurements for the WLAN are contained in this SAR report. A discussion of the simultaneous transmission of the other co-located radios is found in the SAR report for the WWAN radio.



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## **MIMO Evaluation**

The FCC's Guidance for SAR testing of 802.11 a/b/g device is found in KDB 248227. It states:

“SAR for MIMO is measured with all antennas transmitting simultaneously.

For many low-power devices, when the peak SAR locations are more than 5 cm apart, the 1-g SAR can usually be treated independently with little or no noticeable impact. Therefore spatial summing could be optional”

MIMO SAR evaluations were conducted in the 2.4 and 5 GHz bands to show that with a 30 cm antenna spacing, there were no overlapping SAR regions. The zoom scans of each hot spot were centered on the individual antennas.

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## **Scope**

The stand-alone SAR evaluation documented in this report is for the 802.11abgnac portion of the EUT.

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## Configuration INTE5434- 1

| Software/Firmware Running during test     |           |
|-------------------------------------------|-----------|
| Description                               | Version   |
| Diagnostic and Regulatory Testing Utility | 1.7.3-859 |

| EUT                                |                   |                   |               |
|------------------------------------|-------------------|-------------------|---------------|
| Description                        | Manufacturer      | Model/Part Number | Serial Number |
| Laptop/Tablet Convertible Computer | Intel Corporation | WSBUB-SDS         | 010           |

| Peripherals in test setup boundary |                         |                   |               |
|------------------------------------|-------------------------|-------------------|---------------|
| Description                        | Manufacturer            | Model/Part Number | Serial Number |
| AC Adapter                         | Delta Electronics, Inc. | ADP-45BE AA       | None          |

| Cables                                                                                                 |        |            |         |                 |              |
|--------------------------------------------------------------------------------------------------------|--------|------------|---------|-----------------|--------------|
| Cable Type                                                                                             | Shield | Length (m) | Ferrite | Connection 1    | Connection 2 |
| DC Power                                                                                               | No     | 1.5        | PA      | Tablet Computer | AC Adapter   |
| AC Power                                                                                               | No     | 0.65       | No      | AC Adapter      | AC Mains     |
| PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown. |        |            |         |                 |              |

## Equipment Modifications

| Item | Date      | Test           | Modification                         | Note                                                                | Disposition of EUT                               |
|------|-----------|----------------|--------------------------------------|---------------------------------------------------------------------|--------------------------------------------------|
| 1    | 3/29/2014 | SAR Evaluation | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Northwest EMC following the test |
| 2    | 4/11/2014 | SAR Evaluation | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | Scheduled testing was completed.                 |

## Characterization of tissue-equivalent liquid dielectric properties

Per IEEE 1528: 2003, Section 5.2.2, the permittivity and conductivity of the tissue material should be measured at least within 24 hours of any full-compliance test. The measured values must be within +/- 5% of the target values. The temperature variation in the liquid during SAR measurements must be within +/- 2 degrees C of that recorded when the dielectric properties were measured.

The dielectric parameters of the tissue-equivalent liquids were measured within 24 hours of the start of testing using the HP85070E dielectric probe kit. The dielectric measurements were made across the frequency range of the liquid. The attached data sheets show that the dielectric parameters of the liquid were within the required 5% tolerances.

## Target values of dielectric parameters

Per KDB 865664 D01 v01r03, Appendix A.1:

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

| Target Frequency | Head         |                | Body         |                |
|------------------|--------------|----------------|--------------|----------------|
| (MHz)            | $\epsilon_r$ | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (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           |
| 5800             | 35.3         | 5.27           | 48.2         | 6.00           |

( $\epsilon_r$  = relative permittivity,  $\sigma$  = conductivity and  $\rho = 1000 \text{ kg/m}^3$ )

## Composition of Ingredients for Liquid Tissue Phantoms

Northwest EMC uses tissue-equivalent liquids prepared by SPEAG and confirmed by them to be within +/- 5% from the target values. Their recipes are based upon the following formulations as found in IEEE 1528: 2003, Annex C:

“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<br>(% 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<sup>+</sup>% Pure Sodium Chloride

Sugar: 98<sup>+</sup>% Pure Sucrose

Water: De-ionized, 16 MΩ<sup>+</sup> resistivity

HEC: Hydroxyethyl Cellulose

DGBE: 99<sup>+</sup>% 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



|                   |                   |                     |            |
|-------------------|-------------------|---------------------|------------|
| Tissue:           | Body              | Work Order:         | INTE5434   |
| Equipment ID:     | SAM               | Date:               | 03/28/2014 |
| Customer:         | Intel Corporation | Temperature:        | 22.4°C     |
| Customer Project: | None              | Liquid Temperature: | 22°C       |
| Tested By:        | Ethan Schoonover  | Relative Humidity:  | 45.4%      |
| Job Site:         | EV08              | Bar. Pressure:      | 1010 mb    |

## TEST SPECIFICATIONS

|                 |                                                                |
|-----------------|----------------------------------------------------------------|
| Specification:  | Method:                                                        |
| FCC 2.1093:2014 | IEEE Std 1528:2003<br>FCC KDB 865664 D01 v01r03 and D02 v01r01 |

## RESULTS

| Frequency<br>(MHz) | Actual Values         |              | Target Values         |              | Deviation (%)         |              |
|--------------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|
|                    | Relative Permittivity | Conductivity | Relative Permittivity | Conductivity | Relative Permittivity | Conductivity |
| 2450               | 51.3                  | 1.97         | 52.7                  | 1.95         | 2.66                  | -1.03        |

| Frequency<br>(MHz) | Relative Permittivity | Conductivity |
|--------------------|-----------------------|--------------|
| 1900               | 61.9                  | 4.895        |
| 1925               | 56.6                  | 1.124        |
| 1950               | 56.6                  | 0.987        |
| 1975               | 56.5                  | 0.983        |
| 2000               | 56.4                  | 1.018        |
| 2025               | 56.1                  | 1.062        |
| 2050               | 56                    | 1.119        |
| 2100               | 55.5                  | 1.231        |
| 2125               | 55.1                  | 1.281        |
| 2150               | 54.9                  | 1.351        |
| 2175               | 54.6                  | 1.405        |
| 2200               | 54.3                  | 1.461        |
| 2225               | 54.1                  | 1.525        |
| 2250               | 53.7                  | 1.577        |
| 2300               | 53                    | 1.677        |
| 2325               | 52.8                  | 1.725        |
| 2350               | 52.4                  | 1.764        |
| 2375               | 52.2                  | 1.816        |
| 2400               | 51.9                  | 1.87         |
| 2425               | 51.6                  | 1.918        |
| 2450               | 51.3                  | 1.97         |
| 2500               | 50.7                  | 2.062        |
| 2525               | 50.4                  | 2.106        |
| 2550               | 50.1                  | 2.152        |
| 2575               | 49.7                  | 2.197        |
| 2600               | 49.4                  | 2.239        |
| 2625               | 49.1                  | 2.283        |
| 2675               | 48.4                  | 2.355        |
| 2700               | 48.1                  | 2.384        |

|                   |                   |                     |            |
|-------------------|-------------------|---------------------|------------|
| Tissue:           | Body              | Work Order:         | INTE5434   |
| Equipment ID:     | SAV               | Date:               | 03/31/2014 |
| Customer:         | Intel Corporation | Temperature:        | 23.1°C     |
| Customer Project: | None              | Liquid Temperature: | 22°C       |
| Tested By:        | Ethan Schoonover  | Relative Humidity:  | 37.2%      |
| Job Site:         | EV08              | Bar. Pressure:      | 1010 mb    |

## TEST SPECIFICATIONS

|                 |                                                                |
|-----------------|----------------------------------------------------------------|
| Specification:  | Method:                                                        |
| FCC 2.1093:2014 | IEEE Std 1528:2003<br>FCC KDB 865664 D01 v01r03 and D02 v01r01 |

## RESULTS

| Frequency<br>(MHz) | Actual Values         |              | Target Values         |              | Deviation (%)         |              |
|--------------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|
|                    | Relative Permittivity | Conductivity | Relative Permittivity | Conductivity | Relative Permittivity | Conductivity |
| 5800               | 46.6                  | 6.228        | 48.2                  | 6            | 3.32                  | -3.8         |

| Frequency<br>(MHz) | Relative Permittivity | Conductivity |
|--------------------|-----------------------|--------------|
| 3400               | 56.8                  | 5.321        |
| 3450               | 56.9                  | 2.405        |
| 3550               | 56.5                  | 2.445        |
| 3650               | 55.9                  | 2.605        |
| 3750               | 55.3                  | 2.787        |
| 3850               | 54.9                  | 2.976        |
| 3900               | 54.6                  | 3.061        |
| 4000               | 54.1                  | 3.237        |
| 4100               | 53.7                  | 3.421        |
| 4200               | 53.2                  | 3.593        |
| 4300               | 52.7                  | 3.77         |
| 4350               | 52.5                  | 3.847        |
| 4450               | 52.1                  | 4.022        |
| 4550               | 51.7                  | 4.202        |
| 4650               | 51.2                  | 4.374        |
| 4750               | 50.8                  | 4.555        |
| 4850               | 50.3                  | 4.729        |
| 4900               | 50.1                  | 4.813        |
| 5000               | 49.6                  | 4.961        |
| 5100               | 49.2                  | 5.106        |
| 5200               | 48.8                  | 5.258        |
| 5300               | 48.5                  | 5.406        |
| 5350               | 48.3                  | 5.484        |
| 5450               | 48                    | 5.652        |
| 5550               | 47.6                  | 5.821        |
| 5650               | 47.2                  | 5.99         |
| 5750               | 46.8                  | 6.151        |
| 5800               | 46.6                  | 6.228        |
| 5850               | 46.4                  | 6.312        |
| 5900               | 46.2                  | 6.391        |

|                   |                   |                     |            |
|-------------------|-------------------|---------------------|------------|
| Tissue:           | Body              | Work Order:         | INTE5434   |
| Equipment ID:     | SAV               | Date:               | 04/04/2014 |
| Customer:         | Intel Corporation | Temperature:        | 23.1°C     |
| Customer Project: | None              | Liquid Temperature: | 21.7°C     |
| Tested By:        | Ethan Schoonover  | Relative Humidity:  | 37.2       |
| Job Site:         | EV08              | Bar. Pressure:      | 1015       |

## TEST SPECIFICATIONS

|                 |                                                                |
|-----------------|----------------------------------------------------------------|
| Specification:  | Method:                                                        |
| FCC 2.1093:2014 | IEEE Std 1528:2003<br>FCC KDB 865664 D01 v01r03 and D02 v01r01 |

## RESULTS

| Frequency<br>(MHz) | Actual Values         |              | Target Values         |              | Deviation (%)         |              |
|--------------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|
|                    | Relative Permittivity | Conductivity | Relative Permittivity | Conductivity | Relative Permittivity | Conductivity |
| 5800               | 46.7                  | 6.176        | 48.2                  | 6            | 3.11                  | -2.93        |

| Frequency<br>(MHz) | Relative Permittivity | Conductivity |
|--------------------|-----------------------|--------------|
| 3400               | 23.8                  | 0.205        |
| 3450               | 57.2                  | 2.36         |
| 3550               | 56.2                  | 2.419        |
| 3650               | 55.7                  | 2.619        |
| 3750               | 55.3                  | 2.782        |
| 3850               | 54.8                  | 2.952        |
| 3900               | 54.6                  | 3.032        |
| 4000               | 54.1                  | 3.197        |
| 4100               | 53.6                  | 3.371        |
| 4200               | 53.2                  | 3.548        |
| 4300               | 52.8                  | 3.713        |
| 4350               | 52.5                  | 3.806        |
| 4450               | 52.2                  | 3.987        |
| 4550               | 51.8                  | 4.181        |
| 4650               | 51.4                  | 4.366        |
| 4750               | 50.8                  | 4.531        |
| 4850               | 50.3                  | 4.689        |
| 4900               | 50.1                  | 4.766        |
| 5000               | 49.6                  | 4.893        |
| 5100               | 49.2                  | 5.041        |
| 5200               | 49                    | 5.205        |
| 5300               | 48.7                  | 5.337        |
| 5350               | 48.5                  | 5.418        |
| 5450               | 48.1                  | 5.588        |
| 5550               | 47.7                  | 5.762        |
| 5650               | 47.3                  | 5.927        |
| 5750               | 46.9                  | 6.076        |
| 5800               | 46.7                  | 6.176        |
| 5850               | 46.5                  | 6.25         |
| 5900               | 46.4                  | 6.319        |

|                   |                   |                     |            |
|-------------------|-------------------|---------------------|------------|
| Tissue:           | Body              | Work Order:         | INTE5434   |
| Equipment ID:     | SAV               | Date:               | 04/07/2014 |
| Customer:         | Intel Corporation | Temperature:        | 23.1°C     |
| Customer Project: | None              | Liquid Temperature: | 21.6°C     |
| Tested By:        | Ethan Schoonover  | Relative Humidity:  | 37.5       |
| Job Site:         | EV08              | Bar. Pressure:      | 1025       |

## TEST SPECIFICATIONS

|                 |                                                                |
|-----------------|----------------------------------------------------------------|
| Specification:  | Method:                                                        |
| FCC 2.1093:2014 | IEEE Std 1528:2003<br>FCC KDB 865664 D01 v01r03 and D02 v01r01 |

## RESULTS

| Frequency<br>(MHz) | Actual Values         |              | Target Values         |              | Deviation (%)         |              |
|--------------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|
|                    | Relative Permittivity | Conductivity | Relative Permittivity | Conductivity | Relative Permittivity | Conductivity |
| 5800               | 46.7                  | 6.215        | 48.2                  | 6            | 3.11                  | -3.58        |

| Frequency<br>(MHz) | Relative Permittivity | Conductivity |
|--------------------|-----------------------|--------------|
| 3400               | 18.2                  | -1.919       |
| 3450               | 57.3                  | 2.323        |
| 3550               | 56.2                  | 2.405        |
| 3650               | 55.7                  | 2.621        |
| 3750               | 55.4                  | 2.785        |
| 3850               | 54.9                  | 2.953        |
| 3900               | 54.7                  | 3.035        |
| 4000               | 54.2                  | 3.207        |
| 4100               | 53.6                  | 3.389        |
| 4200               | 53.1                  | 3.57         |
| 4300               | 52.7                  | 3.734        |
| 4350               | 52.5                  | 3.826        |
| 4450               | 52.2                  | 3.993        |
| 4550               | 51.8                  | 4.167        |
| 4650               | 51.4                  | 4.343        |
| 4750               | 50.9                  | 4.519        |
| 4850               | 50.4                  | 4.694        |
| 4900               | 50.2                  | 4.778        |
| 5000               | 49.7                  | 4.911        |
| 5100               | 49.2                  | 5.066        |
| 5200               | 49                    | 5.234        |
| 5300               | 48.7                  | 5.36         |
| 5350               | 48.5                  | 5.438        |
| 5450               | 48.1                  | 5.603        |
| 5550               | 47.7                  | 5.772        |
| 5650               | 47.3                  | 5.944        |
| 5750               | 46.9                  | 6.103        |
| 5800               | 46.7                  | 6.215        |
| 5850               | 46.5                  | 6.285        |
| 5900               | 46.4                  | 6.366        |

# TISSUE – EQUIVALENT LIQUID

|                   |                   |                     |            |
|-------------------|-------------------|---------------------|------------|
| Tissue:           | Body              | Work Order:         | INTE5434   |
| Equipment ID:     | SAV               | Date:               | 04/11/2014 |
| Customer:         | Intel Corporation | Temperature:        | 22.7°C     |
| Customer Project: | None              | Liquid Temperature: | 22.1°C     |
| Tested By:        | Ethan Schoonover  | Relative Humidity:  | 33.2       |
| Job Site:         | EV08              | Bar. Pressure:      | 1024       |

## TEST SPECIFICATIONS

|                 |                                                                |
|-----------------|----------------------------------------------------------------|
| Specification:  | Method:                                                        |
| FCC 2.1093:2014 | IEEE Std 1528:2003<br>FCC KDB 865664 D01 v01r03 and D02 v01r01 |

## RESULTS

| Frequency<br>(MHz) | Actual Values         |              | Target Values         |              | Deviation (%)         |              |
|--------------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|
|                    | Relative Permittivity | Conductivity | Relative Permittivity | Conductivity | Relative Permittivity | Conductivity |
| 5800               | 47.4                  | 6.223        | 48.2                  | 6            | 1.66                  | -3.72        |

| Frequency<br>(MHz) | Relative Permittivity | Conductivity |
|--------------------|-----------------------|--------------|
| 3400               | 44.4                  | 3.512        |
| 3450               | 58.2                  | 2.382        |
| 3550               | 57.5                  | 2.457        |
| 3650               | 56.9                  | 2.656        |
| 3750               | 56.4                  | 2.832        |
| 3850               | 55.9                  | 3.01         |
| 3900               | 55.6                  | 3.092        |
| 4000               | 55                    | 3.27         |
| 4100               | 54.5                  | 3.453        |
| 4200               | 54                    | 3.638        |
| 4300               | 53.5                  | 3.8          |
| 4350               | 53.3                  | 3.878        |
| 4450               | 53                    | 4.05         |
| 4550               | 52.5                  | 4.218        |
| 4650               | 52                    | 4.389        |
| 4750               | 51.5                  | 4.562        |
| 4850               | 51.1                  | 4.737        |
| 4900               | 50.9                  | 4.823        |
| 5000               | 50.4                  | 4.972        |
| 5100               | 50                    | 5.109        |
| 5200               | 49.7                  | 5.253        |
| 5300               | 49.3                  | 5.381        |
| 5350               | 49.1                  | 5.458        |
| 5450               | 48.7                  | 5.629        |
| 5550               | 48.3                  | 5.819        |
| 5650               | 48                    | 5.999        |
| 5750               | 47.7                  | 6.15         |
| 5800               | 47.4                  | 6.223        |
| 5850               | 47.2                  | 6.289        |
| 5900               | 47                    | 6.353        |

# TISSUE – EQUIVALENT LIQUID

|                   |                   |                     |            |
|-------------------|-------------------|---------------------|------------|
| Tissue:           | Body              | Work Order:         | INTE5434   |
| Equipment ID:     | SAM               | Date:               | 04/11/2014 |
| Customer:         | Intel Corporation | Temperature:        | 22.7°C     |
| Customer Project: | None              | Liquid Temperature: | 22.1°C     |
| Tested By:        | Ethan Schoonover  | Relative Humidity:  | 33.2       |
| Job Site:         | EV08              | Bar. Pressure:      | 1024       |

## TEST SPECIFICATIONS

|                 |                                                                |
|-----------------|----------------------------------------------------------------|
| Specification:  | Method:                                                        |
| FCC 2.1093:2014 | IEEE Std 1528:2003<br>FCC KDB 865664 D01 v01r03 and D02 v01r01 |

## RESULTS

| Frequency<br>(MHz) | Actual Values         |              | Target Values         |              | Deviation (%)         |              |
|--------------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|
|                    | Relative Permittivity | Conductivity | Relative Permittivity | Conductivity | Relative Permittivity | Conductivity |
| 2450               | 50.5                  | 1.961        | 52.7                  | 1.95         | 4.17                  | -0.56        |

| Frequency<br>(MHz) | Relative Permittivity | Conductivity |
|--------------------|-----------------------|--------------|
| 1900               | 53.5                  | 5.527        |
| 1925               | 56.2                  | 1.154        |
| 1950               | 56.1                  | 0.999        |
| 1975               | 56                    | 1.002        |
| 2000               | 55.8                  | 1.027        |
| 2025               | 55.6                  | 1.072        |
| 2050               | 55.4                  | 1.122        |
| 2100               | 54.8                  | 1.234        |
| 2125               | 54.6                  | 1.292        |
| 2150               | 54.3                  | 1.347        |
| 2175               | 54                    | 1.405        |
| 2200               | 53.7                  | 1.455        |
| 2225               | 53.3                  | 1.512        |
| 2250               | 53.1                  | 1.561        |
| 2300               | 52.5                  | 1.666        |
| 2325               | 52.2                  | 1.719        |
| 2350               | 51.9                  | 1.77         |
| 2375               | 51.5                  | 1.823        |
| 2400               | 51.2                  | 1.877        |
| 2425               | 50.8                  | 1.92         |
| 2450               | 50.5                  | 1.961        |
| 2500               | 49.9                  | 2.047        |
| 2525               | 49.6                  | 2.089        |
| 2550               | 49.3                  | 2.13         |
| 2575               | 49                    | 2.175        |
| 2600               | 48.6                  | 2.219        |
| 2625               | 48.3                  | 2.259        |
| 2675               | 47.6                  | 2.33         |
| 2700               | 47.3                  | 2.363        |



## REQUIREMENT

Per IEEE 1528, Section 8.2.1, "System checks are performed prior to compliance tests and the results must always be within  $\pm 10\%$  of the target value corresponding to the test frequency, liquid, and the source used. The target values are 1 g or 10 g averaged SAR values measured on systems having current system validation and calibration status, and using the system check setup as shown in Figure 14. These target values should be determined using a standard source."

## TEST DESCRIPTION

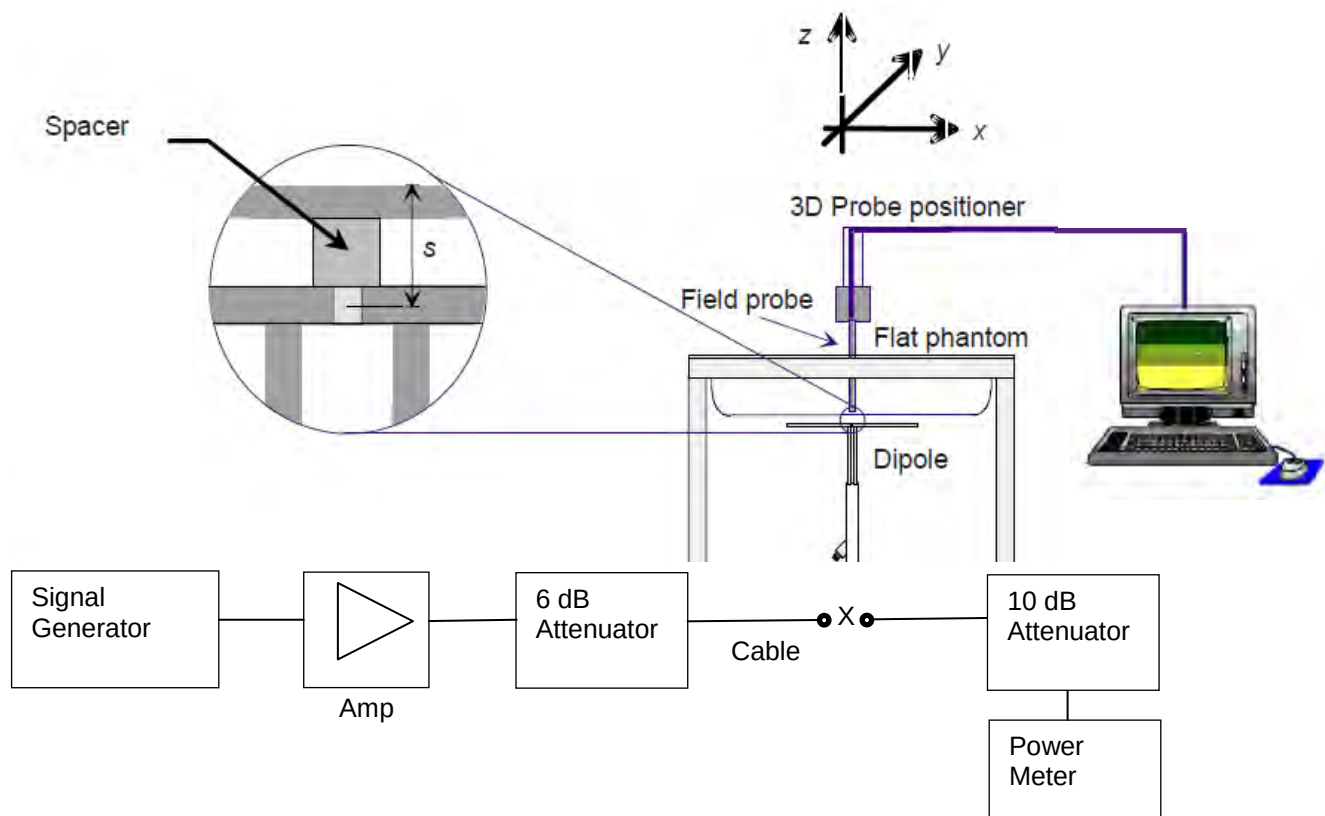
Within 24 hours of a measurement, then every 72 hours thereafter, Northwest EMC used the system validation kit (calibrated reference dipole) to test whether the system was operating within its specifications. The validation was performed in the indicated bands by making SAR measurements of the reference dipole with the phantom filled with the tissue-equivalent liquid. First, a signal generator and power amplifier were used to produce a 100mW level as measured with a power meter at the antenna terminals of the dipole (X). Then, the reference dipole was positioned below the bottom of the phantom and centered with its axis parallel to the longest side of the phantom. A low loss and low relative permittivity spacer was used to establish the correct distance between the center axis of the reference dipole and the liquid.

For the reference dipoles, the spacing distance  $s$  is given by:

$s = 15\text{mm}$ ,  $\pm 0.2\text{mm}$  for  $300\text{MHz} \leq f \leq 1000\text{ MHz}$ :

$s = 10\text{mm}$ ,  $\pm 0.2\text{mm}$  for  $1000\text{MHz} \leq f \leq 6000\text{MHz}$

The measured 1 g and 10 g spatial average SAR values were normalized to a 1W dipole input power for comparison to the calibration data. The results are summarized in the attached table. The deviation is less than 10% in all cases, indicating that the system performance check was within tolerance.



## TEST SPECIFICATIONS

|                 |                                                                |
|-----------------|----------------------------------------------------------------|
| Specification:  | Method:                                                        |
| FCC 2.1093:2014 | IEEE Std 1528:2003<br>FCC KDB 865664 D01 v01r03 and D02 v01r01 |

## RESULTS

| Date      | Liquid part number and frequency | Conducted Power into the Dipole (dBm) | Correction Factor | Measured |      | Normalized to 1W |       | Target<br>(Normalized to 1W)<br>Get from Dipole Calibration Certificate |       | % Difference |      |
|-----------|----------------------------------|---------------------------------------|-------------------|----------|------|------------------|-------|-------------------------------------------------------------------------|-------|--------------|------|
|           |                                  |                                       |                   | 1g       | 10g  | 1g               | 10g   | 1g                                                                      | 10g   | 1g           | 10g  |
| 3/28/2014 | MSL 2450 (2450 MHz)              | 20.35                                 | 9.23              | 5.91     | 2.72 | 54.55            | 25.11 | 50.40                                                                   | 23.70 | 8.23         | 5.95 |
| 3/30/2014 | MSL 501 (5200 MHz)               | 19.63                                 | 10.89             | 7.40     | 2.12 | 80.59            | 23.09 | 75.30                                                                   | 21.00 | 7.03         | 9.95 |
| 3/30/2014 | MSL 501 (5500 MHz)               | 19.02                                 | 12.53             | 6.88     | 1.93 | 86.21            | 24.18 | 80.70                                                                   | 22.30 | 6.83         | 8.43 |
| 3/30/2014 | MSL 501 (5800 MHz)               | 17.84                                 | 16.44             | 4.73     | 1.33 | 77.76            | 21.87 | 75.60                                                                   | 20.80 | 2.86         | 5.14 |

|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 22.4 |
| Date:          | 3/28/2014        | Liquid Temperature (°C): | 22   |
| Configuration: | Body             | Humidity (%RH):          | 45.7 |
|                |                  | Bar. Pressure (mb):      | 1010 |

## MSL2450 System Check 3-28-14b

**DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:855**

Communication System: UID 10000, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.934$  S/m;  $\epsilon_r = 51.624$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**System Check/System Check/Area Scan (51x61x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 6.23 W/kg

**System Check/System Check/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Maximum value of Total (measured) = 66.13 V/m

**System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.211 V/m; Power Drift = 0.04 dB

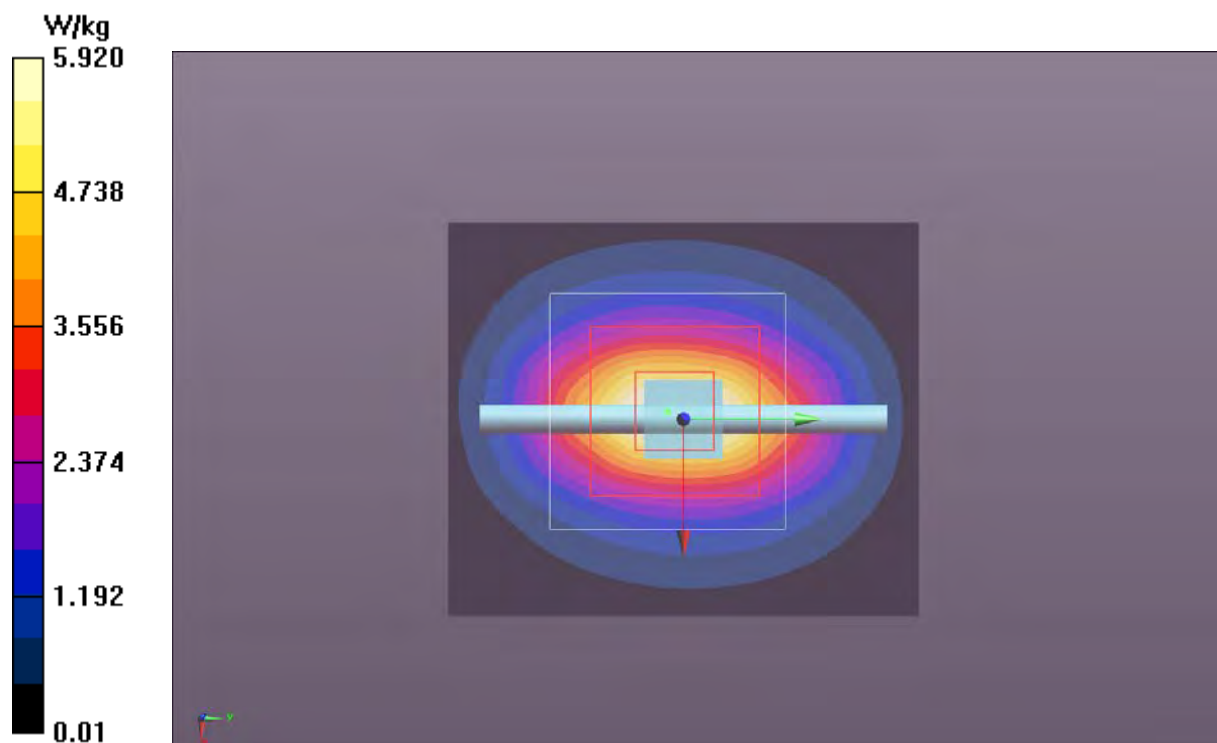
Peak SAR (extrapolated) = 12.2 W/kg

**SAR(1 g) = 5.91 W/kg; SAR(10 g) = 2.72 W/kg**

Maximum value of SAR (measured) = 5.92 W/kg

   
Approved By

## MSL2450 System Check 3-28-14b



|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 23.1 |
| Date:          | 3/31/2014        | Liquid Temperature (°C): | 22.0 |
| Configuration: | Body             | Humidity (%RH):          | 35.6 |
|                |                  | Bar. Pressure (mb):      | 1010 |

## MSL501 5200MHz System Check, 3-31-14

**DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1066**

Communication System: UID 10000, CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);

Frequency: 5200 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used:  $f = 5200 \text{ MHz}$ ;  $\sigma = 5.258 \text{ S/m}$ ;  $\epsilon_r = 48.843$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:  $\sigma = 0 \text{ S/m}$ ,  $\epsilon_r = 1$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

### System Check/System Check - Low Channel/Zoom Scan (7x9x7) (9x9x9)/Cube 0: Measurement grid:

$dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=2.5\text{mm}$

Reference Value = 57.146 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 28.1 W/kg

**SAR(1 g) = 7.4 W/kg; SAR(10 g) = 2.12 W/kg**

Maximum value of SAR (measured) = 15.3 W/kg

### System Check/System Check - Low Channel/Area Scan (51x61x1): Interpolated grid: $dx=1.000 \text{ mm}$ , $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 16.4 W/kg

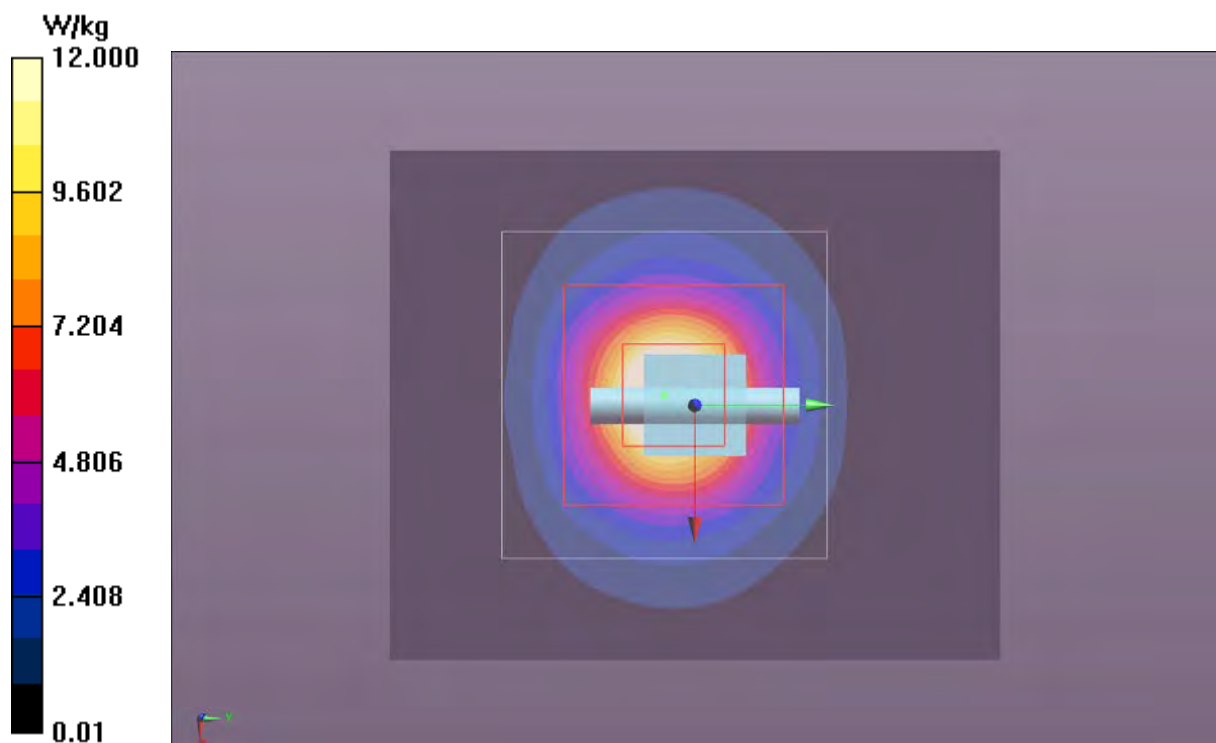
### System Check/System Check - Low Channel/Z Scan (1x1x21): Measurement grid: $dx=20\text{mm}$ , $dy=20\text{mm}$ , $dz=5\text{mm}$

Maximum value of Total (measured) = 25.96 V/m

Maximum value of SAR (measured) = 3.54 W/kg

   
Approved By

MSL501 5200MHz System Check, 3-31-14



|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 23.1 |
| Date:          | 3/31/2014        | Liquid Temperature (°C): | 22.0 |
| Configuration: | Body             | Humidity (%RH):          | 35.6 |
|                |                  | Bar. Pressure (mb):      | 1010 |

## MSL501 5500MHz System Check, 3-31-14

**DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1066**

Communication System: UID 10000, CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);

Frequency: 5500 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used:  $f = 5500$  MHz;  $\sigma = 5.733$  S/m;  $\epsilon_r = 47.794$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**System Check/System Check - Mid Channel/Area Scan (51x61x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 15.0 W/kg

**System Check/System Check - Mid Channel/Zoom Scan (7x9x7) (9x9x9)/Cube 0:** Measurement grid:

dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 53.933 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 28.0 W/kg

**SAR(1 g) = 6.88 W/kg; SAR(10 g) = 1.93 W/kg**

Maximum value of SAR (measured) = 14.5 W/kg

**System Check/System Check - Mid Channel/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

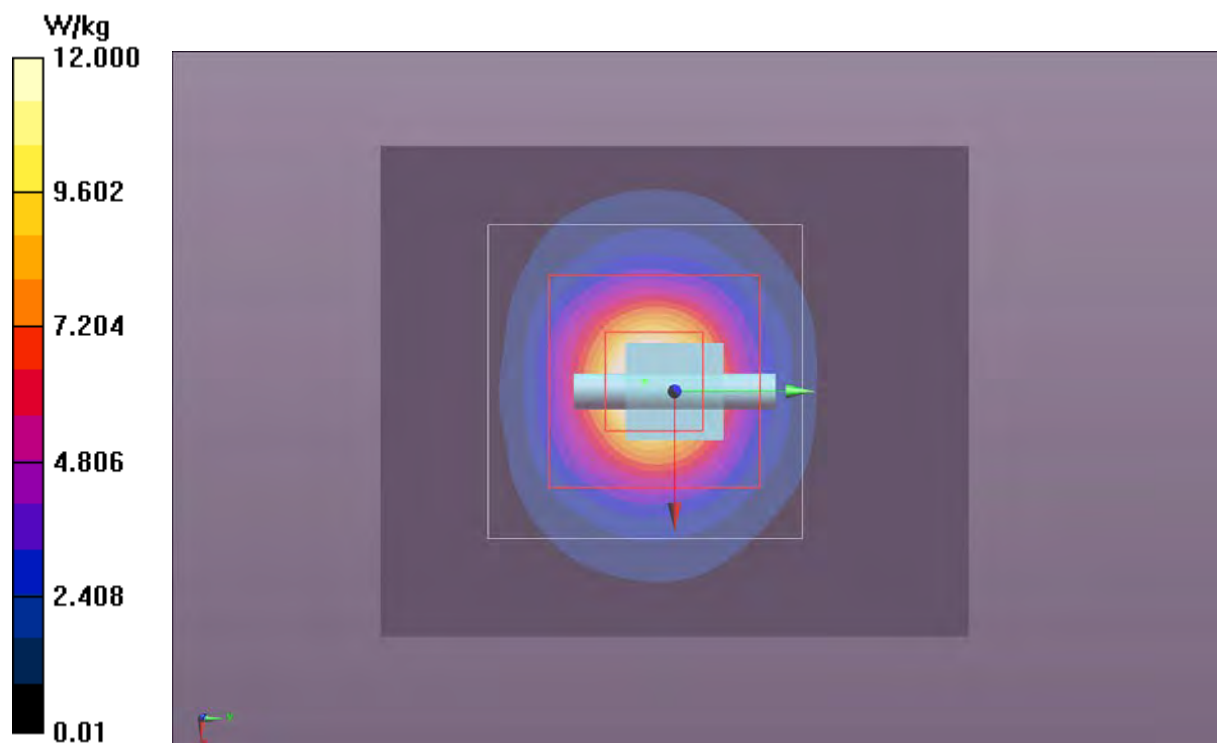
Maximum value of Total (measured) = 22.78 V/m

Maximum value of SAR (measured) = 2.97 W/kg

   
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MSL501 5500MHz System Check, 3-31-14



|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 23.1 |
| Date:          | 3/31/2014        | Liquid Temperature (°C): | 22.0 |
| Configuration: | Body             | Humidity (%RH):          | 35.6 |
|                |                  | Bar. Pressure (mb):      | 1010 |

## MSL501 5800MHz System Check, 3-31-14

**DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1066**

Communication System: UID 10000, CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);

Frequency: 5800 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used:  $f = 5800 \text{ MHz}$ ;  $\sigma = 6.228 \text{ S/m}$ ;  $\epsilon_r = 46.597$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:  $\sigma = 0 \text{ S/m}$ ,  $\epsilon_r = 1$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**System Check/System Check - High Channel/Area Scan (51x61x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 10.4 W/kg

**System Check/System Check - High Channel/Z Scan (1x1x21):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$ ,  $dz=5\text{mm}$

Maximum value of Total (measured) = 14.10 V/m

**System Check/System Check - High Channel/Zoom Scan (7x9x7) (8x8x9)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=2.5\text{mm}$

Reference Value = 34.455 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 20.7 W/kg

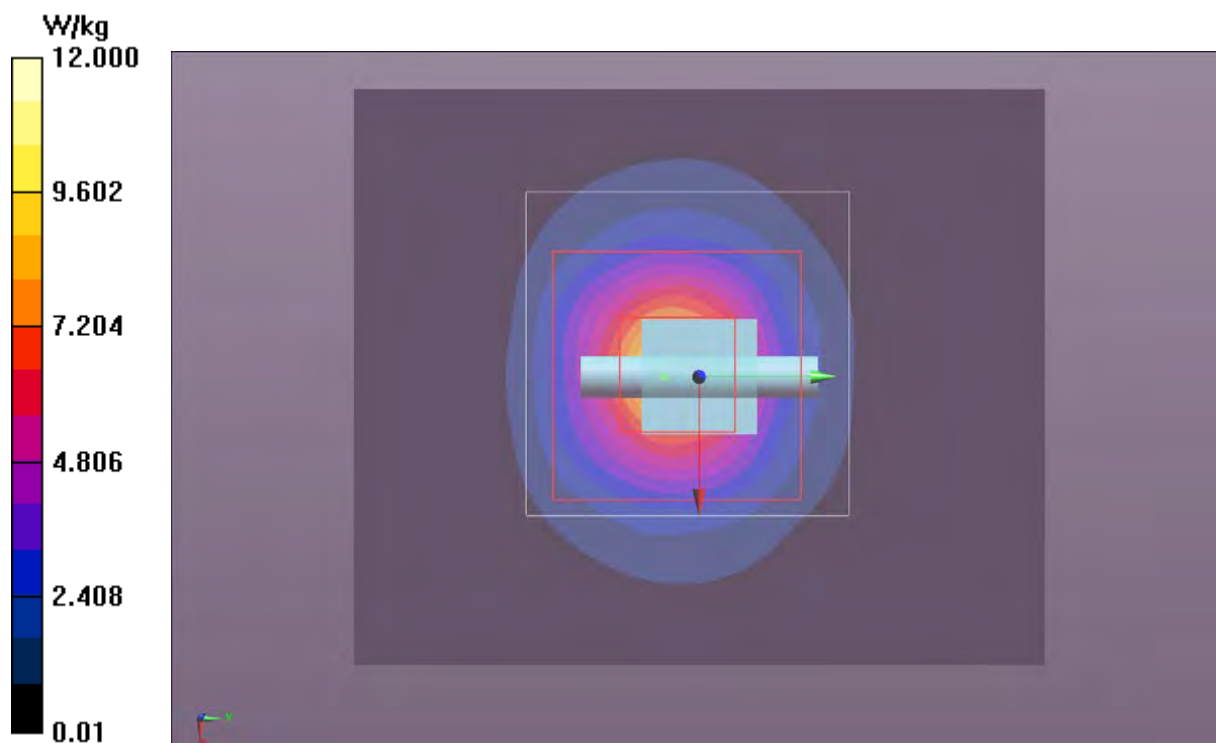
**SAR(1 g) = 4.73 W/kg; SAR(10 g) = 1.33 W/kg**

Maximum value of SAR (measured) = 10.1 W/kg

Maximum value of SAR (measured) = 1.24 W/kg

   
Approved By

MSL501 5800MHz System Check, 3-31-14



## 2.4 AND 5 GHz Bands

Per FCC KDB 248227, the conducted output power was measured at the “default test channels” and at the “required test channels” in each band. Measurements were made while the EUT transmitted at the lowest, middle and the highest data rates for each channel.

Per FCC KDB 248227, among the channels required for normal testing, SAR must be measured on the highest output channel (highlighted). When the SAR measured on the highest output channel is  $>0.8$  W/kg, SAR evaluation for the other required test channels is necessary.

Output power measurements are on the following pages.

|                   |                      |                    |            |
|-------------------|----------------------|--------------------|------------|
| EUT:              | WSBUB-SDS            | Work Order:        | INTE5343   |
| Serial Number:    | 10                   | Date:              | 3/28/14    |
| Customer:         | Intel Corporation    | Temperature:       | 21.1°C     |
| Attendees:        | Mike Low, Bill Jones | Relative Humidity: | 39.4%      |
| Customer Project: | None                 | Bar. Pressure:     | 1002.3 mb  |
| Tested By:        | Brandon Hobbs        | Job Site:          | EV06       |
| Power:            | Default              | Configuration:     | INTE5343-1 |

## TEST SPECIFICATIONS

|                 |                                                 |
|-----------------|-------------------------------------------------|
| Specification:  | Method:                                         |
| FCC 2.1093:2014 | IEEE Std 1528:2003<br>FCC KDB 248227 D01 v01r02 |

## COMMENTS

Conducted output power. Radio was operated by customer.

## DEVIATIONS FROM TEST STANDARD

None

## RESULTS (20MHz Bandwidth)

| Channel | Frequency<br>(MHz) | Radio<br>Mode | Data Rate<br>(Mbps) | Modulation | Conducted Power (Average) |        |                          |        | Software<br>Level |
|---------|--------------------|---------------|---------------------|------------|---------------------------|--------|--------------------------|--------|-------------------|
|         |                    |               |                     |            | Antenna<br>Port 1<br>dBm  | W      | Antenna<br>Port 2<br>dBm | W      |                   |
| 1       | 2412               | 802.11n       | MCS0                | BPSK       | 11.0                      | 12.474 | 10.0                     | 9.931  | 15                |
|         |                    |               | MCS7                | 64-QAM     | 9.9                       | 9.727  | 9.8                      | 9.572  | 15                |
|         |                    |               | MCS8                | BPSK       | 7.6                       | 5.741  | 7.7                      | 5.929  | 15                |
|         |                    |               | MCS15               | 64-QAM     | 7.7                       | 5.902  | 7.3                      | 5.383  | 15                |
| 6       | 2437               | 802.11n       | MCS0                | OFDM       | 11.8                      | 15.031 | 10.3                     | 10.789 | 15                |
|         |                    |               | MCS7                | OFDM       | 10.6                      | 11.561 | 9.8                      | 9.550  | 15                |
|         |                    |               | MCS8                | OFDM       | 7.8                       | 6.026  | 7.5                      | 5.585  | 15                |
|         |                    |               | MCS15               | OFDM       | 7.5                       | 5.559  | 7.5                      | 5.623  | 15                |
| 11      | 2462               | 802.11n       | MCS0                | OFDM       | 13.4                      | 21.627 | 12.4                     | 17.219 | 15                |
|         |                    |               | MCS7                | OFDM       | 10.8                      | 12.134 | 10.8                     | 11.885 | 15                |
|         |                    |               | MCS8                | OFDM       | 10.0                      | 10.000 | 9.8                      | 9.550  | 15                |
|         |                    |               | MCS15               | OFDM       | 9.8                       | 9.550  | 9.3                      | 8.570  | 15                |

## RESULTS (40MHz Bandwidth)

| Channel | Frequency<br>(MHz) | Radio<br>Mode | Data Rate<br>(Mbps) | Modulation | Antenna<br>Port 1<br>dBm | W      | Antenna<br>Port 2<br>dBm | W      |
|---------|--------------------|---------------|---------------------|------------|--------------------------|--------|--------------------------|--------|
| 1/5     | 2422               | 802.11n       | MCS0                | BPSK       | 11.0                     | 12.474 | 10.0                     | 9.931  |
|         |                    |               | MCS7                | 64-QAM     | 9.9                      | 9.727  | 9.8                      | 9.572  |
|         |                    |               | MCS8                | BPSK       | 7.6                      | 5.741  | 7.7                      | 5.929  |
|         |                    |               | MCS15               | 64-QAM     | 7.7                      | 5.902  | 7.3                      | 5.383  |
| 4/8     | 2437               | 802.11n       | MCS0                | OFDM       | 11.8                     | 15.031 | 10.3                     | 10.789 |
|         |                    |               | MCS7                | OFDM       | 10.6                     | 11.561 | 9.8                      | 9.550  |
|         |                    |               | MCS8                | OFDM       | 7.8                      | 6.026  | 7.5                      | 5.585  |
|         |                    |               | MCS15               | OFDM       | 7.5                      | 5.559  | 7.5                      | 5.623  |
| 7/11    | 2452               | 802.11n       | MCS0                | OFDM       | 13.4                     | 21.627 | 12.4                     | 17.219 |
|         |                    |               | MCS7                | OFDM       | 10.8                     | 12.134 | 10.8                     | 11.885 |
|         |                    |               | MCS8                | OFDM       | 10.0                     | 10.000 | 9.8                      | 9.550  |
|         |                    |               | MCS15               | OFDM       | 9.8                      | 9.550  | 9.3                      | 8.570  |



Tested By

|                   |                      |                    |            |
|-------------------|----------------------|--------------------|------------|
| EUT:              | WSBUB-SDS            | Work Order:        | INTE5343   |
| Serial Number:    | 10                   | Date:              | 3/28/14    |
| Customer:         | Intel Corporation    | Temperature:       | 21.1°C     |
| Attendees:        | Mike Low, Bill Jones | Relative Humidity: | 39.4%      |
| Customer Project: | None                 | Bar. Pressure:     | 1002.3 mb  |
| Tested By:        | Brandon Hobbs        | Job Site:          | EV06       |
| Power:            | Default              | Configuration:     | INTE5343-1 |

## TEST SPECIFICATIONS

|                 |                           |
|-----------------|---------------------------|
| Specification:  | Method:                   |
| FCC 2.1093:2014 | IEEE Std 1528:2003        |
|                 | FCC KDB 248227 D01 v01r02 |

## COMMENTS

Conducted output power. Radio was operated by customer.

## DEVIATIONS FROM TEST STANDARD

None

## RESULTS (20MHz Bandwidth)

| Channel | Frequency<br><br>(MHz) | Radio<br><br>Mode  | Data Rate<br><br>(Mbps) | Modulation | Conducted Power (Average) |        |                |        |                   |
|---------|------------------------|--------------------|-------------------------|------------|---------------------------|--------|----------------|--------|-------------------|
|         |                        |                    |                         |            | Antenna Port A            |        | Antenna Port B |        | Software<br>Level |
|         |                        |                    |                         |            | dBm                       | W      | dBm            | W      |                   |
| 36      | 5180                   | 802.11a            | 6                       | BPSK       | 9.1                       | 8.185  | 10.3           | 10.641 | 15                |
|         |                        |                    | 54                      | 64-QAM     | 9.8                       | 9.441  | 9.9            | 9.863  | 15                |
|         |                        | 802.11n            | MCS7                    | 64-QAM     | 9.6                       | 9.183  | 10.2           | 10.423 | 15                |
|         |                        |                    | MCS15                   | 64-QAM     | 6.2                       | 4.198  | 9.8            | 9.572  | 15                |
|         |                        | 802.11ac<br>(SISO) | MCS0                    | 64-QAM     | 10.3                      | 10.715 | 10.6           | 11.402 | 15                |
|         |                        |                    | MCS08                   | 256-QAM    | 8.6                       | 7.194  | 8.7            | 7.379  | 15                |
|         |                        | 802.11ac<br>(MIMO) | MCS0                    | 64-QAM     | 6.4                       | 4.345  | 7.7            | 5.929  | 15                |
|         |                        |                    | MCS08                   | 256-QAM    | 6.4                       | 4.365  | 6.2            | 4.207  | 15                |
| 40      | 5200                   | 802.11a            | 6                       | BPSK       | 12.6                      | 18.239 | 13.0           | 19.770 | 15                |
|         |                        |                    | 54                      | 64-QAM     | 10.9                      | 12.359 | 11.3           | 13.490 | 15                |
|         |                        | 802.11n            | MCS7                    | 64-QAM     | 10.5                      | 11.194 | 10.7           | 11.776 | 15                |
|         |                        |                    | MCS15                   | 64-QAM     | 8.3                       | 6.792  | 8.6            | 7.194  | 15                |
|         |                        | 802.11ac<br>(SISO) | MCS0                    | 64-QAM     | 12.5                      | 17.620 | 13.2           | 20.845 | 15                |
|         |                        |                    | MCS08                   | 256-QAM    | 8.3                       | 6.745  | 9.2            | 8.260  | 15                |
|         |                        | 802.11ac<br>(MIMO) | MCS0                    | 64-QAM     | 8.7                       | 7.328  | 8.0            | 6.310  | 15                |
|         |                        |                    | MCS08                   | 256-QAM    | 7.8                       | 6.039  | 9.0            | 7.962  | 15                |



|    |      |                 |       |         |      |        |      |        |    |
|----|------|-----------------|-------|---------|------|--------|------|--------|----|
| 44 | 5220 | 802.11a         | 6     | BPSK    | 12.8 | 18.880 | 13.5 | 22.387 | 15 |
|    |      |                 | 6     | BPSK    |      |        | 12.4 | 17.378 | 14 |
|    |      |                 | 54    | 64-QAM  | 10.7 | 11.614 | 11.4 | 13.709 | 15 |
|    |      | 802.11n         | MCS7  | 64-QAM  | 10.1 | 10.116 | 10.8 | 11.995 | 15 |
|    |      |                 | MCS15 | 64-QAM  | 8.0  | 6.310  | 8.8  | 7.603  | 15 |
|    |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 13.0 | 19.724 | 13.0 | 20.045 | 15 |
|    |      |                 | MCS08 | 256-QAM | 9.1  | 8.035  | 9.7  | 9.290  | 15 |
|    |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 8.7  | 7.328  | 9.2  | 8.318  | 15 |
|    |      |                 | MCS08 | 256-QAM | 8.3  | 6.699  | 8.1  | 6.516  | 15 |
| 48 | 5240 | 802.11a         | 6     | BPSK    | 13.3 | 21.135 | 13.1 | 20.277 | 15 |
|    |      |                 | 6     | BPSK    | 11.5 | 14.125 | 12.5 | 17.783 | 14 |
|    |      |                 | 54    | 64-QAM  | 11.1 | 12.735 | 11.4 | 13.772 | 15 |
|    |      | 802.11n         | MCS7  | 64-QAM  | 10.7 | 11.614 | 10.8 | 12.134 | 15 |
|    |      |                 | MCS15 | 64-QAM  | 8.6  | 7.161  | 9.0  | 7.980  | 15 |
|    |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 13.0 | 19.907 | 13.4 | 21.727 | 15 |
|    |      |                 | MCS08 | 256-QAM | 9.5  | 8.954  | 9.3  | 8.472  | 15 |
|    |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 8.9  | 7.762  | 9.1  | 8.147  | 15 |
|    |      |                 | MCS08 | 256-QAM | 8.4  | 6.950  | 8.6  | 7.261  | 15 |
| 52 | 5260 | 802.11a         | 6     | BPSK    | 13.0 | 19.815 | 13.4 | 21.827 | 15 |
|    |      |                 | 6     | BPSK    |      |        | 12.2 | 16.558 | 14 |
|    |      |                 | 54    | 64-QAM  | 10.9 | 12.162 | 11.3 | 13.366 | 15 |
|    |      | 802.11n         | MCS7  | 64-QAM  | 10.3 | 10.715 | 10.8 | 11.885 | 15 |
|    |      |                 | MCS15 | 64-QAM  | 8.1  | 6.427  | 9.1  | 8.035  | 15 |
|    |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 13.1 | 20.184 | 13.3 | 21.135 | 15 |
|    |      |                 | MCS08 | 256-QAM | 9.8  | 9.441  | 9.3  | 8.433  | 15 |
|    |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 8.5  | 7.145  | 8.6  | 7.178  | 15 |
|    |      |                 | MCS08 | 256-QAM | 8.1  | 6.427  | 8.6  | 7.228  | 15 |
| 56 | 5280 | 802.11a         | 6     | BPSK    | 13.0 | 20.091 | 13.3 | 21.232 | 15 |
|    |      |                 | 54    | 64-QAM  | 11.4 | 13.646 | 11.2 | 13.122 | 15 |
|    |      | 802.11n         | MCS7  | 64-QAM  | 10.9 | 12.388 | 10.6 | 11.561 | 15 |
|    |      |                 | MCS15 | 64-QAM  | 8.9  | 7.834  | 8.6  | 7.261  | 15 |
|    |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 13.0 | 19.724 | 13.1 | 20.512 | 15 |
|    |      |                 | MCS08 | 256-QAM | 9.4  | 8.610  | 9.2  | 8.260  | 15 |
|    |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 9.1  | 8.204  | 9.1  | 8.147  | 15 |
|    |      |                 | MCS08 | 256-QAM | 8.8  | 7.499  | 8.9  | 7.780  | 15 |

|     |      |                 |       |         |      |        |      |        |    |
|-----|------|-----------------|-------|---------|------|--------|------|--------|----|
| 60  | 5300 | 802.11a         | 6     | BPSK    | 13.3 | 21.135 | 13.1 | 20.230 | 15 |
|     |      |                 | 6     | BPSK    | 12.5 | 17.701 |      |        | 14 |
|     |      |                 | 54    | 64-QAM  | 11.1 | 12.972 | 11.0 | 12.647 | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 10.6 | 11.561 | 9.5  | 8.954  | 15 |
|     |      |                 | MCS15 | 64-QAM  | 8.7  | 7.328  | 8.3  | 6.808  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 12.7 | 18.408 | 12.2 | 16.558 | 15 |
|     |      |                 | MCS08 | 256-QAM | 9.2  | 8.222  | 9.1  | 8.185  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 8.9  | 7.834  | 9.0  | 7.980  | 15 |
|     |      |                 | MCS08 | 256-QAM | 9.0  | 7.943  | 8.5  | 7.031  | 15 |
| 64  | 5320 | 802.11a         | 6     | BPSK    | 11.1 | 12.735 | 9.9  | 9.705  | 15 |
|     |      |                 | 54    | 64-QAM  | 10.9 | 12.162 | 9.6  | 9.204  | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 10.2 | 10.495 | 9.5  | 8.933  | 15 |
|     |      |                 | MCS15 | 64-QAM  | 6.9  | 4.887  | 6.2  | 4.121  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 10.5 | 11.092 | 10.3 | 10.593 | 15 |
|     |      |                 | MCS08 | 256-QAM | 9.7  | 9.333  | 8.9  | 7.727  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 6.8  | 4.831  | 6.5  | 4.498  | 15 |
|     |      |                 | MCS08 | 256-QAM | 6.8  | 4.732  | 7.0  | 4.955  | 15 |
| 100 | 5500 | 802.11a         | 6     | BPSK    | 9.7  | 9.226  | 10.9 | 12.331 | 15 |
|     |      |                 | 54    | 64-QAM  | 9.4  | 8.690  | 9.8  | 9.506  | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 9.3  | 8.511  | 9.7  | 9.268  | 15 |
|     |      |                 | MCS15 | 64-QAM  | 4.8  | 3.048  | 5.6  | 3.631  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 9.6  | 9.036  | 10.8 | 11.940 | 15 |
|     |      |                 | MCS08 | 256-QAM | 9.2  | 8.299  | 10.0 | 9.977  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 5.2  | 3.342  | 6.1  | 4.093  | 15 |
|     |      |                 | MCS08 | 256-QAM | 4.7  | 2.958  | 6.5  | 4.487  | 15 |
| 104 | 5520 | 802.11a         | 6     | BPSK    | 12.5 | 17.579 | 13.5 | 22.284 | 15 |
|     |      |                 | 6     | BPSK    | 10.3 | 10.715 |      |        | 12 |
|     |      |                 | 6     | BPSK    |      |        | 12.7 | 18.621 | 13 |
|     |      |                 | 54    | 64-QAM  | 11.3 | 13.490 | 11.9 | 15.488 | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 10.2 | 10.520 | 10.4 | 10.889 | 15 |
|     |      |                 | MCS15 | 64-QAM  | 8.2  | 6.668  | 8.4  | 6.950  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 12.4 | 17.298 | 13.3 | 21.380 | 15 |
|     |      |                 | MCS08 | 256-QAM | 9.3  | 8.453  | 9.8  | 9.462  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 8.1  | 6.486  | 9.1  | 8.110  | 15 |
|     |      |                 | MCS08 | 256-QAM | 7.6  | 5.702  | 9.0  | 7.998  | 15 |

|     |      |                 |       |         |      |        |      |        |    |
|-----|------|-----------------|-------|---------|------|--------|------|--------|----|
| 108 | 5540 | 802.11a         | 6     | BPSK    | 12.1 | 16.255 | 13.2 | 20.989 | 15 |
|     |      |                 | 54    | 64-QAM  | 11.4 | 13.804 | 12.1 | 16.106 | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 10.4 | 10.839 | 10.6 | 11.455 | 15 |
|     |      |                 | MCS15 | 64-QAM  | 8.3  | 6.699  | 8.6  | 7.178  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 12.8 | 19.011 | 12.9 | 19.679 | 15 |
|     |      |                 | MCS08 | 256-QAM | 9.7  | 9.268  | 9.5  | 8.872  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 8.1  | 6.412  | 8.9  | 7.745  | 15 |
|     |      |                 | MCS08 | 256-QAM | 7.6  | 5.754  | 9.3  | 8.472  | 15 |
| 112 | 5560 | 802.11a         | 6     | BPSK    | 12.8 | 19.099 | 13.0 | 19.724 | 15 |
|     |      |                 | 54    | 64-QAM  | 13.0 | 19.861 | 11.3 | 13.490 | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 10.3 | 10.666 | 10.3 | 10.617 | 15 |
|     |      |                 | MCS15 | 64-QAM  | 8.4  | 6.934  | 8.2  | 6.653  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 12.8 | 19.231 | 12.3 | 16.904 | 15 |
|     |      |                 | MCS08 | 256-QAM | 9.3  | 8.551  | 9.2  | 8.375  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 8.7  | 7.430  | 8.5  | 6.998  | 15 |
|     |      |                 | MCS08 | 256-QAM | 8.6  | 7.161  | 8.9  | 7.780  | 15 |
| 116 | 5580 | 802.11a         | 6     | BPSK    | 13.0 | 19.724 | 13.0 | 19.724 | 15 |
|     |      |                 | 6     | BPSK    |      |        | 11.1 | 12.942 | 14 |
|     |      |                 | 54    | 64-QAM  | 10.8 | 11.885 | 11.8 | 15.066 | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 10.1 | 10.139 | 10.0 | 9.931  | 15 |
|     |      |                 | MCS15 | 64-QAM  | 8.0  | 6.368  | 7.9  | 6.109  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 12.1 | 16.032 | 12.9 | 19.409 | 15 |
|     |      |                 | MCS08 | 256-QAM | 9.0  | 7.852  | 9.2  | 8.356  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 8.1  | 6.516  | 8.6  | 7.261  | 15 |
|     |      |                 | MCS08 | 256-QAM | 9.1  | 8.091  | 8.7  | 7.345  | 15 |
| 132 | 5660 | 802.11a         | 6     | BPSK    | 12.2 | 16.406 | 12.1 | 16.255 | 15 |
|     |      |                 | 54    | 64-QAM  | 11.0 | 12.618 | 10.5 | 11.092 | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 9.1  | 8.166  | 9.5  | 8.831  | 15 |
|     |      |                 | MCS15 | 64-QAM  | 7.0  | 5.058  | 7.5  | 5.559  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 12.1 | 16.069 | 11.3 | 13.583 | 15 |
|     |      |                 | MCS08 | 256-QAM | 8.6  | 7.244  | 8.4  | 6.855  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 7.3  | 5.346  | 7.7  | 5.861  | 15 |
|     |      |                 | MCS08 | 256-QAM | 6.8  | 4.786  | 7.2  | 5.248  | 15 |

|     |      |                 |       |         |      |        |      |        |    |
|-----|------|-----------------|-------|---------|------|--------|------|--------|----|
| 136 | 5680 | 802.11a         | 6     | BPSK    | 11.9 | 15.311 | 12.0 | 15.885 | 15 |
|     |      |                 | 6     | BPSK    |      |        | 11.6 | 14.454 | 14 |
|     |      |                 | 54    | 64-QAM  | 10.8 | 11.940 | 10.9 | 12.162 | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 9.3  | 8.570  | 9.9  | 9.772  | 15 |
|     |      |                 | MCS15 | 64-QAM  | 6.8  | 4.808  | 7.7  | 5.916  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 11.0 | 12.445 | 12.0 | 15.704 | 15 |
|     |      |                 | MCS08 | 256-QAM | 7.8  | 6.053  | 8.8  | 7.621  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 7.1  | 5.176  | 8.1  | 6.412  | 15 |
|     |      |                 | MCS08 | 256-QAM | 8.1  | 6.516  | 7.6  | 5.741  | 15 |
| 140 | 5700 | 802.11a         | 6     | BPSK    | 9.0  | 7.943  | 8.8  | 7.586  | 15 |
|     |      |                 | 54    | 64-QAM  | 8.1  | 6.427  | 8.6  | 7.228  | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 8.0  | 6.295  | 8.1  | 6.471  | 15 |
|     |      |                 | MCS15 | 64-QAM  | 4.4  | 2.780  | 4.8  | 3.048  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 8.3  | 6.683  | 8.8  | 7.516  | 15 |
|     |      |                 | MCS08 | 256-QAM | 7.9  | 6.124  | 8.4  | 6.950  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 4.8  | 3.048  | 5.0  | 3.192  | 15 |
|     |      |                 | MCS08 | 256-QAM | 4.3  | 2.716  | 5.4  | 3.467  | 15 |
| 149 | 5745 | 802.11a         | 6     | BPSK    | 11.9 | 15.382 | 12.8 | 18.880 | 15 |
|     |      |                 | 54    | 64-QAM  | 10.6 | 11.535 | 11.2 | 13.062 | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 9.2  | 8.279  | 9.7  | 9.397  | 15 |
|     |      |                 | MCS15 | 64-QAM  | 7.1  | 5.176  | 8.5  | 7.031  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 11.3 | 13.335 | 13.1 | 20.559 | 15 |
|     |      |                 | MCS08 | 256-QAM | 8.3  | 6.699  | 8.7  | 7.379  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 7.3  | 5.420  | 8.4  | 6.855  | 15 |
|     |      |                 | MCS08 | 256-QAM | 6.4  | 4.375  | 8.4  | 6.871  | 15 |
| 153 | 5765 | 802.11a         | 6     | BPSK    | 12.4 | 17.418 | 13.1 | 20.277 | 15 |
|     |      |                 | 54    | 64-QAM  | 10.7 | 11.668 | 11.8 | 15.136 | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 9.2  | 8.375  | 9.9  | 9.661  | 15 |
|     |      |                 | MCS15 | 64-QAM  | 7.5  | 5.675  | 8.0  | 6.368  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 12.3 | 16.788 | 12.9 | 19.364 | 15 |
|     |      |                 | MCS08 | 256-QAM | 8.3  | 6.808  | 8.8  | 7.621  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 7.6  | 5.808  | 8.9  | 7.780  | 15 |
|     |      |                 | MCS08 | 256-QAM | 6.5  | 4.498  | 8.2  | 6.531  | 15 |

|     |      |                 |       |         |      |        |      |        |    |
|-----|------|-----------------|-------|---------|------|--------|------|--------|----|
| 157 | 5785 | 802.11a         | 6     | BPSK    | 12.5 | 17.579 | 13.1 | 20.277 | 15 |
|     |      |                 | 54    | 64-QAM  | 10.7 | 11.803 | 11.5 | 13.996 | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 9.3  | 8.511  | 10.0 | 9.931  | 15 |
|     |      |                 | MCS15 | 64-QAM  | 7.5  | 5.559  | 8.3  | 6.699  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 11.4 | 13.646 | 13.4 | 21.627 | 15 |
|     |      |                 | MCS08 | 256-QAM | 8.4  | 6.839  | 9.4  | 8.630  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 8.0  | 6.310  | 9.6  | 9.120  | 15 |
|     |      |                 | MCS08 | 256-QAM | 7.6  | 5.689  | 8.7  | 7.345  | 15 |
| 161 | 5805 | 802.11a         | 6     | BPSK    | 12.6 | 17.989 | 12.8 | 19.099 | 15 |
|     |      |                 | 54    | 64-QAM  | 11.4 | 13.646 | 11.5 | 14.223 | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 9.4  | 8.750  | 10.0 | 10.069 | 15 |
|     |      |                 | MCS15 | 64-QAM  | 7.3  | 5.420  | 8.5  | 7.079  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 11.5 | 14.125 | 13.0 | 19.815 | 15 |
|     |      |                 | MCS08 | 256-QAM | 7.9  | 6.194  | 9.5  | 8.810  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 7.6  | 5.808  | 9.1  | 8.147  | 15 |
|     |      |                 | MCS08 | 256-QAM | 7.5  | 5.649  | 8.2  | 6.668  | 15 |
| 165 | 5825 | 802.11a         | 6     | BPSK    | 13.1 | 20.184 | 13.0 | 19.953 | 15 |
|     |      |                 | 54    | 64-QAM  | 11.4 | 13.836 | 11.4 | 13.804 | 15 |
|     |      | 802.11n         | MCS7  | 64-QAM  | 9.6  | 9.016  | 9.9  | 9.817  | 15 |
|     |      |                 | MCS15 | 64-QAM  | 7.9  | 6.109  | 8.4  | 6.918  | 15 |
|     |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 12.1 | 16.368 | 12.9 | 19.320 | 15 |
|     |      |                 | MCS08 | 256-QAM | 8.9  | 7.674  | 9.4  | 8.690  | 15 |
|     |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 8.5  | 7.079  | 8.5  | 7.145  | 15 |
|     |      |                 | MCS08 | 256-QAM | 7.6  | 5.728  | 8.6  | 7.244  | 15 |

## KEY

|  |                                                      |
|--|------------------------------------------------------|
|  | Highest channel/modulation (SISO) from antenna A     |
|  | Highest channel/modulation (SISO) from antenna B     |
|  | Highest channel/modulation (MIMO) from antenna A & B |
|  | Reduced power used in report                         |

Tested By

|                   |                      |                    |            |
|-------------------|----------------------|--------------------|------------|
| EUT:              | WSBUB-SDS            | Work Order:        | INTE5343   |
| Serial Number:    | 10                   | Date:              | 3/28/14    |
| Customer:         | Intel Corporation    | Temperature:       | 21.1°C     |
| Attendees:        | Mike Low, Bill Jones | Relative Humidity: | 39.4%      |
| Customer Project: | None                 | Bar. Pressure:     | 1002.3 mb  |
| Tested By:        | Brandon Hobbs        | Job Site:          | EV06       |
| Power:            | Default              | Configuration:     | INTE5343-1 |

## TEST SPECIFICATIONS

|                 |                                                 |
|-----------------|-------------------------------------------------|
| Specification:  | Method:                                         |
| FCC 2.1093:2014 | IEEE Std 1528:2003<br>FCC KDB 248227 D01 v01r02 |

## COMMENTS

Conducted output power. Radio was operated by customer.

## DEVIATIONS FROM TEST STANDARD

None

## RESULTS (40 MHz Bandwidth)

| Channels | Frequency<br>(MHz) | Radio<br>Mode      | Data Rate<br>(Mbps) | Modulation | Conducted Power (Average) |        |                          |        | Software<br>Level |
|----------|--------------------|--------------------|---------------------|------------|---------------------------|--------|--------------------------|--------|-------------------|
|          |                    |                    |                     |            | Antenna<br>Port 1<br>dBm  | W      | Antenna<br>Port 2<br>dBm | W      |                   |
| 36/40    | 5190               | 802.11n            | MCS7                | 64-QAM     | 6.7                       | 4.677  | 7.4                      | 5.483  | 15                |
|          |                    |                    | MCS15               | 64-QAM     | 4.3                       | 2.667  | 3.9                      | 2.438  | 15                |
|          |                    | 802.11ac<br>(SISO) | MCS0                | 64-QAM     | 7.7                       | 5.834  | 7.6                      | 5.794  | 15                |
|          |                    |                    | MCS09               | 256-QAM    | 6.5                       | 4.498  | 6.5                      | 4.508  | 15                |
|          |                    | 802.11ac<br>(MIMO) | MCS0                | 64-QAM     | 4.3                       | 2.716  | 8.2                      | 6.653  | 15                |
|          |                    |                    | MCS09               | 256-QAM    | 4.5                       | 2.825  | 6.6                      | 4.519  | 15                |
| 44/48    | 5230               | 802.11n            | MCS7                | 64-QAM     | 9.7                       | 9.290  | 10.2                     | 10.568 | 15                |
|          |                    |                    | MCS15               | 64-QAM     | 7.6                       | 5.808  | 8.1                      | 6.516  | 15                |
|          |                    | 802.11ac<br>(SISO) | MCS0                | 64-QAM     | 11.9                      | 15.488 | 12.5                     | 17.579 | 15                |
|          |                    |                    | MCS0                | 64-QAM     | 11.2                      | 13.183 | 12.5                     | 17.579 | 14                |
|          |                    | 802.11ac<br>(MIMO) | MCS09               | 256-QAM    | 6.7                       | 4.624  | 9.7                      | 9.268  | 15                |
|          |                    |                    | MCS0                | 64-QAM     | 8.6                       | 7.228  | 8.6                      | 7.311  | 15                |
|          |                    |                    | MCS09               | 256-QAM    | 5.6                       | 3.589  | 6.5                      | 4.467  | 15                |
|          |                    |                    | MCS0                | 64-QAM     | 8.4                       | 6.966  | 8.7                      | 7.430  | 15                |
| 52/56    | 5270               | 802.11n            | MCS7                | 64-QAM     | 10.9                      | 12.303 | 10.3                     | 10.715 | 15                |
|          |                    |                    | MCS15               | 64-QAM     | 7.9                       | 6.223  | 8.5                      | 7.047  | 15                |
|          |                    | 802.11ac<br>(SISO) | MCS0                | 64-QAM     | 12.3                      | 16.788 | 12.8                     | 18.836 | 15                |
|          |                    |                    | MCS0                | 64-QAM     | 12.0                      | 15.959 |                          |        | 14                |
|          |                    | 802.11ac<br>(MIMO) | MCS09               | 256-QAM    | 7.2                       | 5.188  | 7.1                      | 5.129  | 15                |
|          |                    |                    | MCS0                | 64-QAM     | 8.4                       | 6.966  | 8.7                      | 7.430  | 15                |
|          |                    |                    | MCS09               | 256-QAM    | 5.8                       | 3.811  | 5.6                      | 3.614  | 15                |
|          |                    |                    | MCS0                | 64-QAM     | 8.4                       | 6.966  | 8.7                      | 7.430  | 15                |

|         |      |                 |       |         |      |        |      |        |      |
|---------|------|-----------------|-------|---------|------|--------|------|--------|------|
| 60/64   | 5310 | 802.11n         | MCS7  | 64-QAM  | 9.8  | 9.441  | 9.8  | 9.441  | 15   |
|         |      |                 | MCS15 | 64-QAM  | 6.0  | 3.945  | 6.1  | 4.093  | 15   |
|         |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 9.9  | 9.661  | 9.9  | 9.661  | 15   |
|         |      |                 | MCS09 | 256-QAM | 7.0  | 4.955  | 6.1  | 4.111  | 15   |
|         |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 6.7  | 4.721  | 6.6  | 4.529  | 15   |
|         |      |                 | MCS09 | 256-QAM | 6.4  | 4.315  | 5.1  | 3.266  | 15   |
| 100/104 | 5510 | 802.11n         | MCS7  | 64-QAM  | 8.9  | 7.762  | 10.2 | 10.351 | 15   |
|         |      |                 | MCS15 | 64-QAM  | 5.2  | 3.311  | 10.8 | 12.078 | 15   |
|         |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 9.1  | 8.035  | 10.9 | 12.303 | 15   |
|         |      |                 | MCS0  | 64-QAM  |      |        | 9.5  | 8.913  | 11.5 |
|         |      |                 | MCS09 | 256-QAM | 6.0  | 3.990  | 8.4  | 6.855  | 15   |
|         |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 5.7  | 3.690  | 7.1  | 5.176  | 15   |
|         |      |                 | MCS09 | 256-QAM | 4.8  | 3.048  | 6.8  | 4.742  | 15   |
| 108/112 | 5550 | 802.11n         | MCS7  | 64-QAM  | 10.6 | 11.350 | 10.8 | 12.134 | 15   |
|         |      |                 | MCS15 | 64-QAM  | 8.5  | 7.145  | 8.4  | 6.918  | 15   |
|         |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 11.3 | 13.614 | 12.7 | 18.750 | 15   |
|         |      |                 | MCS0  | 64-QAM  | 11.2 | 13.183 |      |        | 14   |
|         |      |                 | MCS0  | 64-QAM  |      |        | 10.2 | 10.495 | 13   |
|         |      |                 | MCS09 | 256-QAM | 6.5  | 4.436  | 8.0  | 6.237  | 15   |
|         |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 8.3  | 6.823  | 9.0  | 7.943  | 15   |
|         |      |                 | MCS09 | 256-QAM | 5.7  | 3.741  | 7.0  | 5.058  | 15   |
| 132/136 | 5670 | 802.11n         | MCS7  | 64-QAM  | 9.2  | 8.337  | 9.9  | 9.661  | 15   |
|         |      |                 | MCS15 | 64-QAM  | 6.7  | 4.721  | 7.0  | 5.012  | 15   |
|         |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 10.6 | 11.508 | 10.4 | 10.839 | 15   |
|         |      |                 | MCS0  | 64-QAM  | 9.2  | 8.318  |      |        | 13   |
|         |      |                 | MCS0  | 64-QAM  |      |        | 10.0 | 10.093 | 13   |
|         |      |                 | MCS09 | 256-QAM | 5.8  | 3.828  | 6.6  | 4.581  | 15   |
|         |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 6.9  | 4.898  | 7.9  | 6.223  | 15   |
|         |      |                 | MCS09 | 256-QAM | 5.0  | 3.126  | 5.6  | 3.664  | 15   |
| 149/153 | 5755 | 802.11n         | MCS7  | 64-QAM  | 9.2  | 8.279  | 10.0 | 9.886  | 15   |
|         |      |                 | MCS15 | 64-QAM  | 6.9  | 4.909  | 8.2  | 6.668  | 15   |
|         |      | 802.11ac (SISO) | MCS0  | 64-QAM  | 11.5 | 13.996 | 12.7 | 18.408 | 15   |
|         |      |                 | MCS0  | 64-QAM  | 10.9 | 12.303 |      |        | 14   |
|         |      |                 | MCS09 | 256-QAM | 6.0  | 3.954  | 7.0  | 5.000  | 15   |
|         |      | 802.11ac (MIMO) | MCS0  | 64-QAM  | 7.2  | 5.188  | 8.7  | 7.413  | 15   |
|         |      |                 | MCS09 | 256-QAM | 4.1  | 2.582  | 5.5  | 3.581  | 15   |

|         |      |                    |       |         |      |        |      |        |    |
|---------|------|--------------------|-------|---------|------|--------|------|--------|----|
| 157/161 | 5795 | 802.11n            | MCS7  | 64-QAM  | 9.4  | 8.690  | 9.7  | 9.226  | 15 |
|         |      |                    | MCS15 | 64-QAM  | 7.0  | 4.966  | 8.2  | 6.607  | 15 |
|         |      | 802.11ac<br>(SISO) | MCS0  | 64-QAM  | 11.3 | 13.335 | 11.8 | 14.997 | 15 |
|         |      |                    | MCS0  | 64-QAM  | 11.2 | 13.032 |      |        | 14 |
|         |      |                    | MCS09 | 256-QAM | 5.6  | 3.589  | 5.9  | 3.899  | 15 |
|         |      | 802.11ac<br>(MIMO) | MCS0  | 64-QAM  | 7.3  | 5.395  | 9.0  | 8.017  | 15 |
|         |      |                    | MCS09 | 256-QAM | 5.3  | 3.350  | 5.7  | 3.715  | 15 |

## KEY

|  |                                                      |
|--|------------------------------------------------------|
|  | Highest channel/modulation (SISO) from antenna A     |
|  | Highest channel/modulation (SISO) from antenna B     |
|  | Highest channel/modulation (MIMO) from antenna A & B |
|  | Reduced power used in report                         |



Tested By



|                   |                      |                    |            |
|-------------------|----------------------|--------------------|------------|
| EUT:              | WSBUB-SDS            | Work Order:        | INTE5343   |
| Serial Number:    | 10                   | Date:              | 3/28/14    |
| Customer:         | Intel Corporation    | Temperature:       | 21.1°C     |
| Attendees:        | Mike Low, Bill Jones | Relative Humidity: | 39.4%      |
| Customer Project: | None                 | Bar. Pressure:     | 1002.3 mb  |
| Tested By:        | Brandon Hobbs        | Job Site:          | EV06       |
| Power:            | Default              | Configuration:     | INTE5343-1 |

## TEST SPECIFICATIONS

|                 |                                                 |
|-----------------|-------------------------------------------------|
| Specification:  | Method:                                         |
| FCC 2.1093:2014 | IEEE Std 1528:2003<br>FCC KDB 248227 D01 v01r02 |

## COMMENTS

Conducted output power. Radio was operated by customer.

## DEVIATIONS FROM TEST STANDARD

None

## RESULTS (80MHz bandwidth)

| Channels | Frequency<br>(MHz) | Radio<br>Mode   | Data Rate<br>(Mbps) | Modulation | Conducted Power (Average) |        | Antenna Port 2 |        | Software Level |
|----------|--------------------|-----------------|---------------------|------------|---------------------------|--------|----------------|--------|----------------|
|          |                    |                 |                     |            | Antenna Port 1<br>dBm     | W      | dBm            | W      |                |
| 42       | 5210               | 802.11ac (SISO) | MCS0                | 64-QAM     | 8.4                       | 6.918  | 9.2            | 8.241  | 15             |
|          |                    |                 | MCS9                | 256-QAM    | 4.2                       | 2.630  | 5.6            | 3.589  | 15             |
| 42       | 5210               | 802.11ac (MIMO) | MCS0                | 64-QAM     | 5.0                       | 3.192  | 5.3            | 3.396  | 15             |
|          |                    |                 | MCS9                | 256-QAM    | 3.7                       | 2.360  | 4.0            | 2.535  | 15             |
| 58       | 5290               | 802.11ac (SISO) | MCS0                | 64-QAM     | 11.1                      | 12.735 | 10.5           | 11.092 | 15             |
|          |                    |                 | MCS9                | 256-QAM    | 6.0                       | 3.954  | 6.4            | 4.315  | 15             |
| 58       | 5290               | 802.11ac (MIMO) | MCS0                | 64-QAM     | 6.9                       | 4.898  | 6.4            | 4.395  | 15             |
|          |                    |                 | MCS9                | 256-QAM    | 3.9                       | 2.477  | 4.8            | 3.048  | 15             |
| 106      | 5530               | 802.11ac (SISO) | MCS0                | 64-QAM     | 9.4                       | 8.710  | 9.3            | 8.511  | 15             |
|          |                    |                 | MCS9                | 256-QAM    | 5.3                       | 3.350  | 6.4            | 4.315  | 15             |
| 106      | 5530               | 802.11ac (MIMO) | MCS0                | 64-QAM     | 5.3                       | 3.396  | 5.4            | 3.499  | 15             |
|          |                    |                 | MCS9                | 256-QAM    | 3.8                       | 2.371  | 4.8            | 2.992  | 15             |
| 155      | 5775               | 802.11ac (SISO) | MCS0                | 64-QAM     | 12.6                      | 17.989 | 11.7           | 14.791 | 15             |
|          |                    |                 | MCS0                | 64-QAM     | 10.7                      | 11.749 |                |        | 13.5           |
|          |                    |                 | MCS9                | 256-QAM    | 4.7                       | 2.917  | 5.8            | 3.758  | 15             |
| 155      | 5775               | 802.11ac (MIMO) | MCS0                | 64-QAM     | 6.4                       | 4.406  | 8.4            | 6.982  | 15             |
|          |                    |                 | MCS9                | 256-QAM    | 4.1                       | 2.541  | 5.4            | 3.428  | 15             |

## KEY

|  |                                                      |
|--|------------------------------------------------------|
|  | Highest channel/modulation (SISO) from antenna A     |
|  | Highest channel/modulation (SISO)from antenna B      |
|  | Highest channel/modulation (MIMO) from antenna A & B |
|  | Reduced power used in report                         |



Tested By

## Test Configurations

### Test Locations

Per FCC KDB 447498, section 4.3.1, Item #1, the left and right edges as well as the back side adjacent to the antennas were tested. Each of these positions was tested with the keyboard folded under the display ("tablet mode") or extended away from the display ("tent mode"). Testing was done with a 0 cm spacing to the phantom.

The bottom edge has greater than 72 mm separation from the antenna and is excluded from stand-alone SAR testing. The front surface of the tablet is excluded from SAR testing per Section 4.3 of KDB 616217.

The highest output power of the Bluetooth radio is equal to 3 mW. Using the formula from KDB 447498, section 4.3.1, Item #1, it is below the exclusion threshold limit of 3; therefore it is excluded from stand-alone SAR testing.

### Simultaneous Transmission

MIMO measurements for the WLAN are contained in this SAR report. A discussion of the simultaneous transmission of the other co-located radios is found in the SAR report for the WWAN radio.

### MIMO Evaluation

The FCC's Guidance for SAR testing of 802.11 a/b/g device is found in KDB 248227. It states:

"SAR for MIMO is measured with all antennas transmitting simultaneously.

For many low-power devices, when the peak SAR locations are more than 5 cm apart, the 1-g SAR can usually be treated independently with little or no noticeable impact. Therefore spatial summing could be optional"

MIMO SAR evaluations were conducted in the 2.4 and 5 GHz bands to show that with a 30 cm antenna spacing, there were no overlapping SAR regions. The zoom scans of each hot spot were centered on the individual antennas.

### Operating Mode

All testing was performed with the EUT configured in a worst – case configuration and operating mode to produce the highest SAR levels. The EUT used client provided test software that permitted the selection of transmit channel, modulation type, and data rate. The radio module operated continuously at nearly 100% duty cycle at the maximum rated power.

## Summary

The following tables summarize the measured SAR values.

Per FCC KDB 248227, among the channels required for normal testing, SAR must be measured on the channel with the highest conducted output power. When the SAR measured on the highest output channel is  $>0.8$  W/kg, SAR evaluation for the other required test channels is necessary.

Also, when the measured SAR is  $>0.8$  W/kg, SAR measurement variability is assessed per FCC KDB 865664 D01 v01r03, Section 2.8.1.

|            |                       |                   |          |
|------------|-----------------------|-------------------|----------|
| EUT:       | WSBUB-SDS             | Work Order:       | INTE5434 |
| Customer:  | Intel Corporation     | Job Site:         | EV08     |
| Attendees: | Mike Lowe, Bill Jones | Customer Project: | None     |

## TEST SPECIFICATIONS

| Specification:                     | Method:                                                                                                                                           |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| FCC 2.1093:2014<br>FCC 15.247:2014 | IEEE Std 1528:2003<br>FCC KDB 447498 D01 v05r02<br>FCC KDB 248227 D01 v01r02<br>FCC KDB 616217 D04 v01r01<br>FCC 865664 D01 v01r03 and D02 v01r01 |

## COMMENTS

None

## DEVIATIONS FROM TEST STANDARD

None

## RESULTS

| Test Configuration | Frequency Band | Transmit Frequency (MHz) | Transmit Channel | Data Rate (Mbps) | Channel Bandwidth (MHz) | Antenna Port | Mode   | EUT Position | Power Drift During Test (dB) | Measured 1g SAR Level (mW/g) | Measured 10g SAR Level (mW/g) | Test # |
|--------------------|----------------|--------------------------|------------------|------------------|-------------------------|--------------|--------|--------------|------------------------------|------------------------------|-------------------------------|--------|
| Body               | 2.4            | 2462                     | 11               | 1 Mbit           | 20                      | A            | Tablet | Right Side   | -0.36                        | 0.21                         | 0.08                          | 1a     |
| Body               | 2.4            | 2462                     | 11               | 1 Mbit           | 20                      | A            | Tablet | Back         | N/A                          | 0.06                         | 0.06                          | 2      |
| Body               | 2.4            | 2462                     | 11               | 1 Mbit           | 20                      | A            | Tent   | Right Side   | -0.11                        | 0.30                         | 0.12                          | 3a     |
| Body               | 2.4            | 2462                     | 11               | 1 Mbit           | 20                      | A            | Tent   | Back         | 0.21                         | 1.28                         | 0.54                          | 4      |
| Body               | 2.4            | 2412                     | 1                | 1 Mbit           | 20                      | A            | Tent   | Back         | 0.05                         | 0.89                         | 0.38                          | 4a     |
| Body               | 2.4            | 2437                     | 6                | 1 Mbit           | 20                      | A            | Tent   | Back         | -0.03                        | 1.00                         | 0.42                          | 4b     |
| Body               | 2.4            | 2462                     | 11               | 1 Mbit           | 20                      | B            | Tablet | Left Side    | 0.03                         | 0.34                         | 0.13                          | 5      |
| Body               | 2.4            | 2462                     | 11               | 1 Mbit           | 20                      | B            | Tablet | Back         | 0.56                         | 1.04                         | 0.45                          | 6a     |
| Body               | 2.4            | 2412                     | 1                | 1 Mbit           | 20                      | B            | Tablet | Back         | -0.28                        | 0.43                         | 0.18                          | 6b     |
| Body               | 2.4            | 2437                     | 6                | 1 Mbit           | 20                      | B            | Tablet | Back         | 0.02                         | 0.78                         | 0.32                          | 6c     |
| Body               | 2.4            | 2462                     | 11               | 1 Mbit           | 20                      | B            | Tent   | Left Side    | 0.00                         | 0.22                         | 0.10                          | 7      |
| Body               | 2.4            | 2462                     | 11               | 1 Mbit           | 20                      | B            | Tent   | Back         | -0.03                        | 0.50                         | 0.22                          | 8      |
| Body               | 2.4            | 2452                     | 7/11             | MCS0             | 40                      | A            | Tablet | Right Side   | -0.28                        | 0.27                         | 0.11                          | 9      |
| Body               | 2.4            | 2452                     | 7/11             | MCS0             | 40                      | A            | Tablet | Back         | 0.20                         | 0.07                         | 0.05                          | 10     |
| Body               | 2.4            | 2452                     | 7/11             | MCS0             | 40                      | A            | Tent   | Right Side   | -0.07                        | 0.33                         | 0.14                          | 11     |
| Body               | 2.4            | 2452                     | 7/11             | MCS0             | 40                      | A            | Tent   | Back         | -0.13                        | 0.70                         | 0.30                          | 12     |
| Body               | 2.4            | 2452                     | 7/11             | MCS0             | 40                      | B            | Tablet | Left Side    | -0.14                        | 0.20                         | 0.08                          | 13     |
| Body               | 2.4            | 2452                     | 7/11             | MCS0             | 40                      | B            | Tablet | Back         | 0.03                         | 0.76                         | 0.33                          | 14a    |
| Body               | 2.4            | 2452                     | 7/11             | MCS0             | 40                      | B            | Tent   | Left Side    | -0.04                        | 0.23                         | 0.10                          | 15     |
| Body               | 2.4            | 2452                     | 7/11             | MCS0             | 40                      | B            | Tent   | Back         | 0.26                         | 0.55                         | 0.25                          | 16     |

|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 22.8 |
| Date:          | 3/29/2014        | Liquid Temperature (°C): | 21.7 |
| Serial Number: | 010              | Humidity (%RH):          | 39.9 |
| Configuration: | INTE5434-1       | Bar. Pressure (mb):      | 1008 |
| Comments:      | None             |                          |      |

## Test 1a

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (9x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.288 V/m; Power Drift = -0.36 dB

Peak SAR (extrapolated) = 0.576 W/kg

**SAR(1 g) = 0.206 W/kg; SAR(10 g) = 0.085 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.299 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.289 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 7.171 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

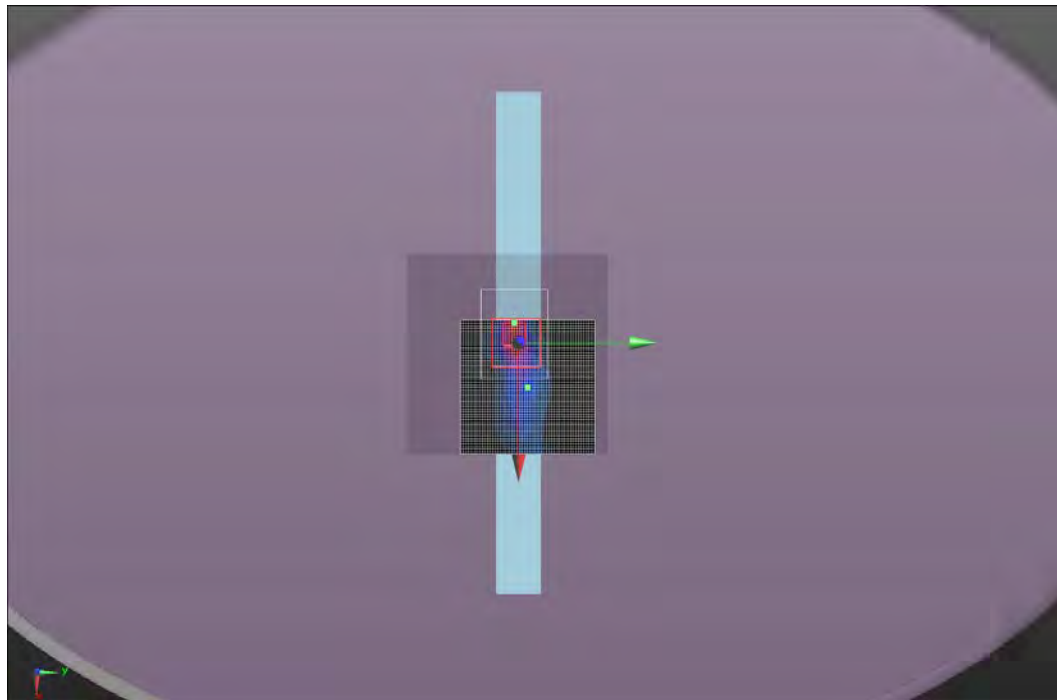
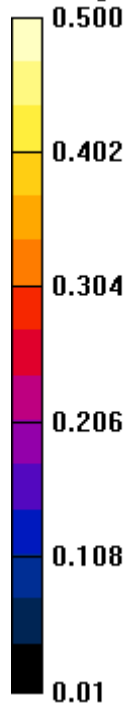
Maximum value of SAR (interpolated) = 0.0860 W/kg




Approved By

Test 1a

W/kg



|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 22.8 |
| Date:          | 3/29/2014        | Liquid Temperature (°C): | 21.7 |
| Serial Number: | 010              | Humidity (%RH):          | 39.9 |
| Configuration: | INTE5434-1       | Bar. Pressure (mb):      | 1008 |
| Comments:      | None             |                          |      |

## Test 2

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.0631 W/kg

**Body/Body/Reference scan (81x121x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.0494 W/kg

   
**Approved By**





|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 22.8 |
| Date:          | 3/29/2014        | Liquid Temperature (°C): | 21.7 |
| Serial Number: | 010              | Humidity (%RH):          | 39.9 |
| Configuration: | INTE5434-1       | Bar. Pressure (mb):      | 1008 |
| Comments:      | None             |                          |      |

## Test 3a

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.879 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.789 W/kg

**SAR(1 g) = 0.302 W/kg; SAR(10 g) = 0.122 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.427 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.448 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 9.471 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

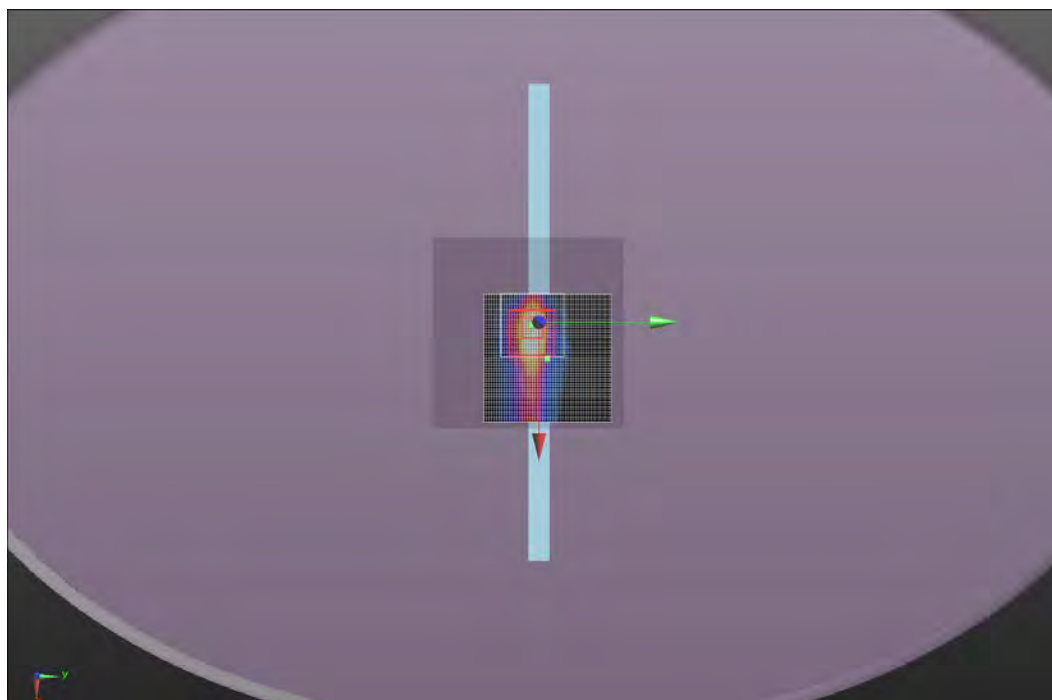
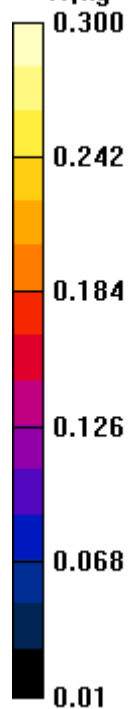
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.0440 W/kg

   
Approved By

Test 3a

W/kg



|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 23   |
| Date:          | 3/29/2014        | Liquid Temperature (°C): | 21.9 |
| Serial Number: | 010              | Humidity (%RH):          | 38.7 |
| Configuration: | INTE5434-1       | Bar. Pressure (mb):      | 1008 |
| Comments:      | None             |                          |      |

## Test 4

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 28.566 V/m; Power Drift = 0.21 dB

Peak SAR (extrapolated) = 3.18 W/kg

**SAR(1 g) = 1.28 W/kg; SAR(10 g) = 0.542 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.69 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.97 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 19.12 V/m

**Body/Body/Reference scan (81x121x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.410 W/kg

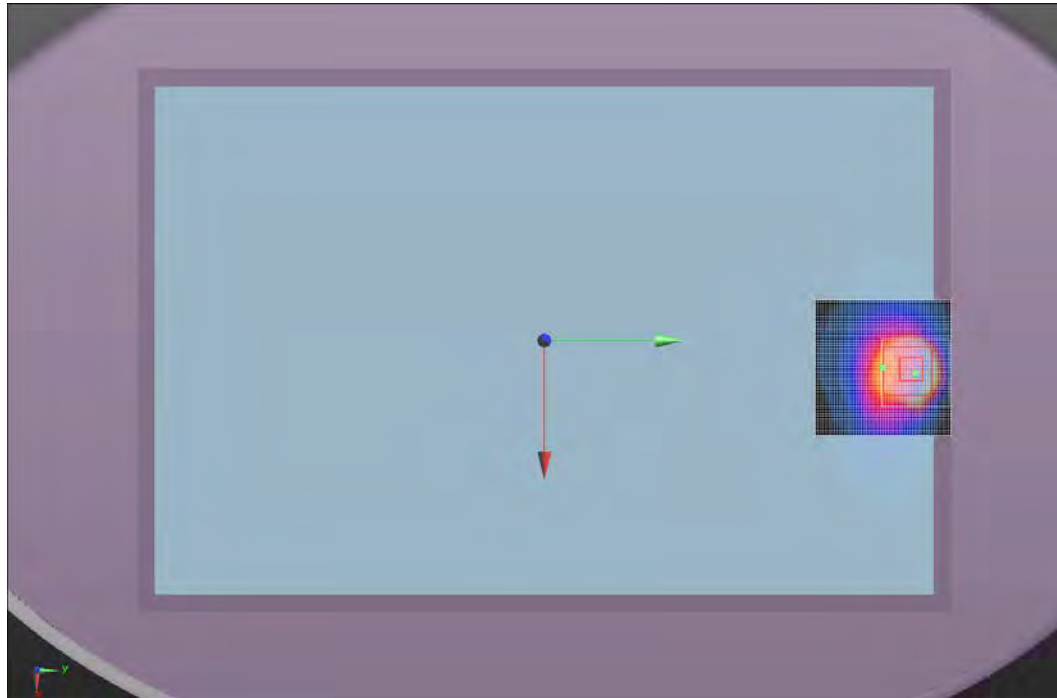
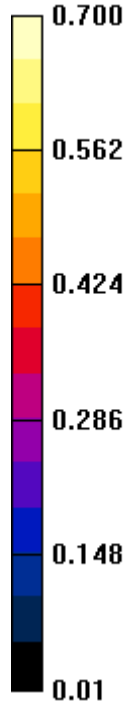
Maximum value of SAR (measured) = 0.727 W/kg




Approved By

Test 4

W/kg



|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 23   |
| Date:          | 3/29/2014        | Liquid Temperature (°C): | 21.9 |
| Serial Number: | 010              | Humidity (%RH):          | 38.7 |
| Configuration: | INTE5434-1       | Bar. Pressure (mb):      | 1008 |
| Comments:      | None             |                          |      |

## Test 4a

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2412 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2412$  MHz;  $\sigma = 1.893$  S/m;  $\epsilon_r = 51.755$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.586 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 2.16 W/kg

**SAR(1 g) = 0.889 W/kg; SAR(10 g) = 0.384 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.16 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.55 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 16.84 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

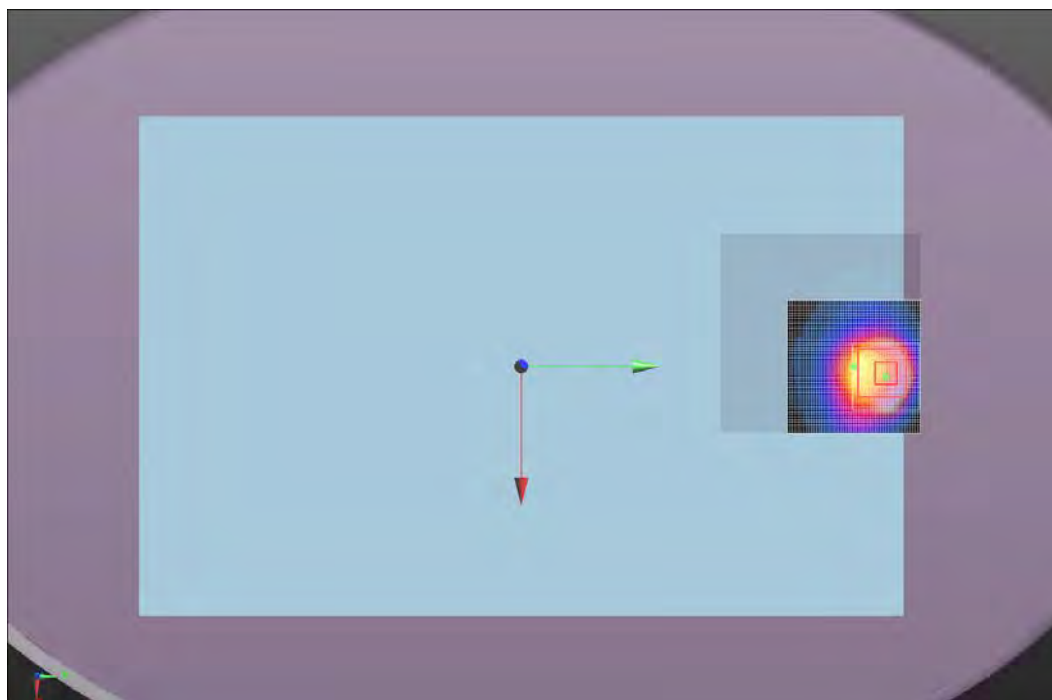
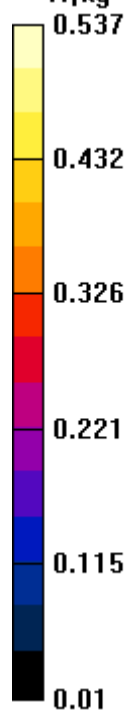
Maximum value of SAR (interpolated) = 0.464 W/kg

Maximum value of SAR (measured) = 0.537 W/kg

   
Approved By

Test 4a

W/kg



|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 23   |
| Date:          | 3/29/2014        | Liquid Temperature (°C): | 21.9 |
| Serial Number: | 010              | Humidity (%RH):          | 38.7 |
| Configuration: | INTE5434-1       | Bar. Pressure (mb):      | 1008 |
| Comments:      | None             |                          |      |

## Test 4b

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 1.943$  S/m;  $\epsilon_r = 51.483$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.413 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 2.43 W/kg

**SAR(1 g) = 0.997 W/kg; SAR(10 g) = 0.425 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.34 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.58 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 17.63 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.425 W/kg

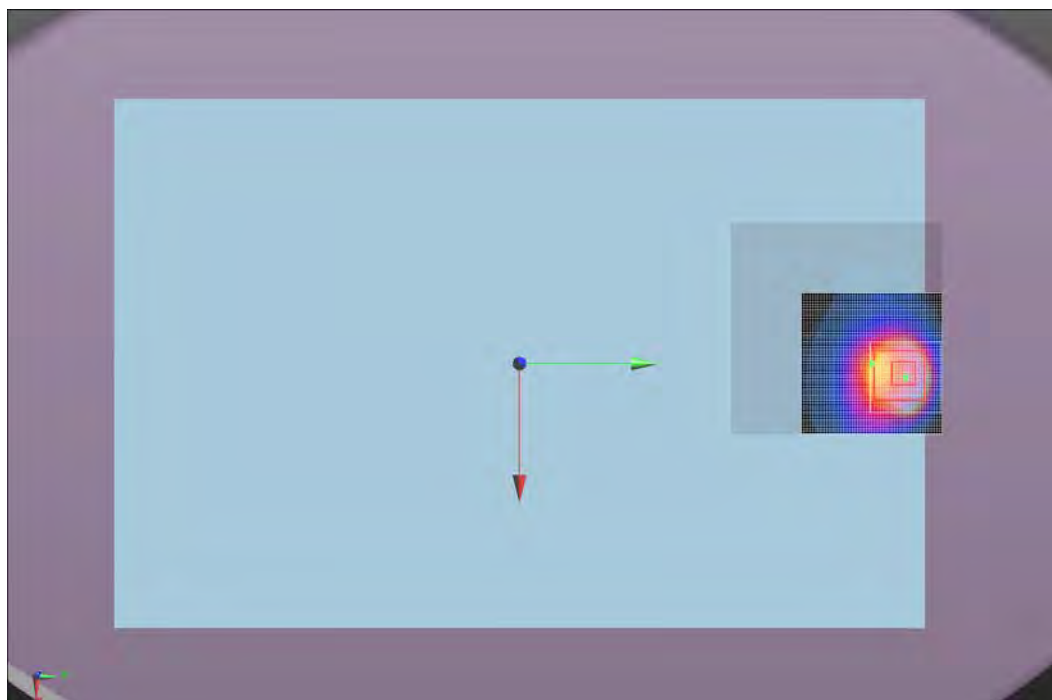
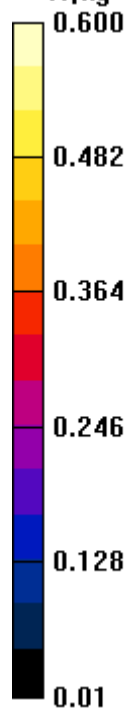
Maximum value of SAR (measured) = 0.604 W/kg




Approved By

Test 4b

W/kg





|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 22.5 |
| Date:          | 3/29/2014        | Liquid Temperature (°C): | 21.4 |
| Serial Number: | 010              | Humidity (%RH):          | 43.7 |
| Configuration: | INTE5434-1       | Bar. Pressure (mb):      | 1008 |
| Comments:      | None             |                          |      |

## Test 5

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.917 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.04 W/kg

**SAR(1 g) = 0.338 W/kg; SAR(10 g) = 0.132 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.507 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.541 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 9.577 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

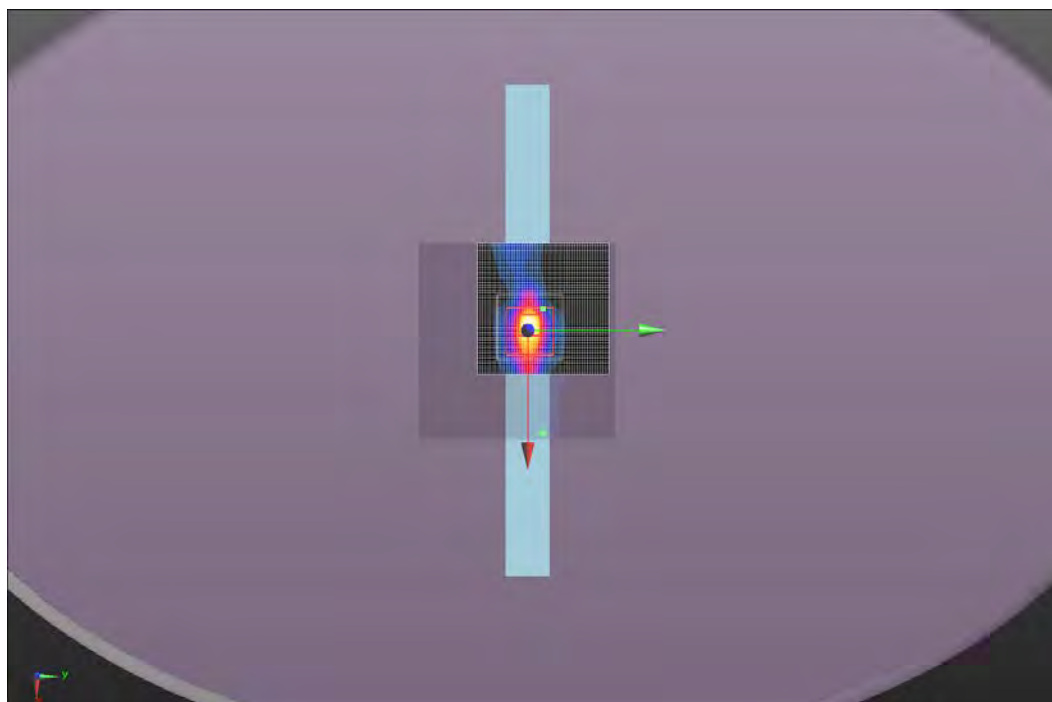
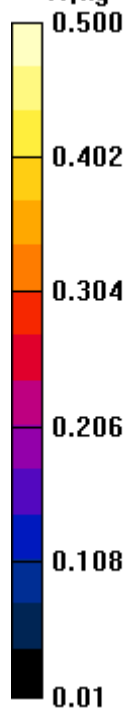
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.106 W/kg

   
Approved By

Test 5

W/kg



|                |              |                          |      |
|----------------|--------------|--------------------------|------|
| Tested By:     | Carl Engholm | Room Temperature (°C):   | 23.4 |
| Date:          | 3/30/2014    | Liquid Temperature (°C): | 21.6 |
| Serial Number: | 010          | Humidity (%RH):          | 43.7 |
| Configuration: | INTE5434-1   | Bar. Pressure (mb):      | 1016 |
| Comments:      | None         |                          |      |

## Test 6a

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.709 V/m; Power Drift = 0.56 dB

Peak SAR (extrapolated) = 2.36 W/kg

**SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.452 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.39 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.35 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 17.84 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.551 W/kg

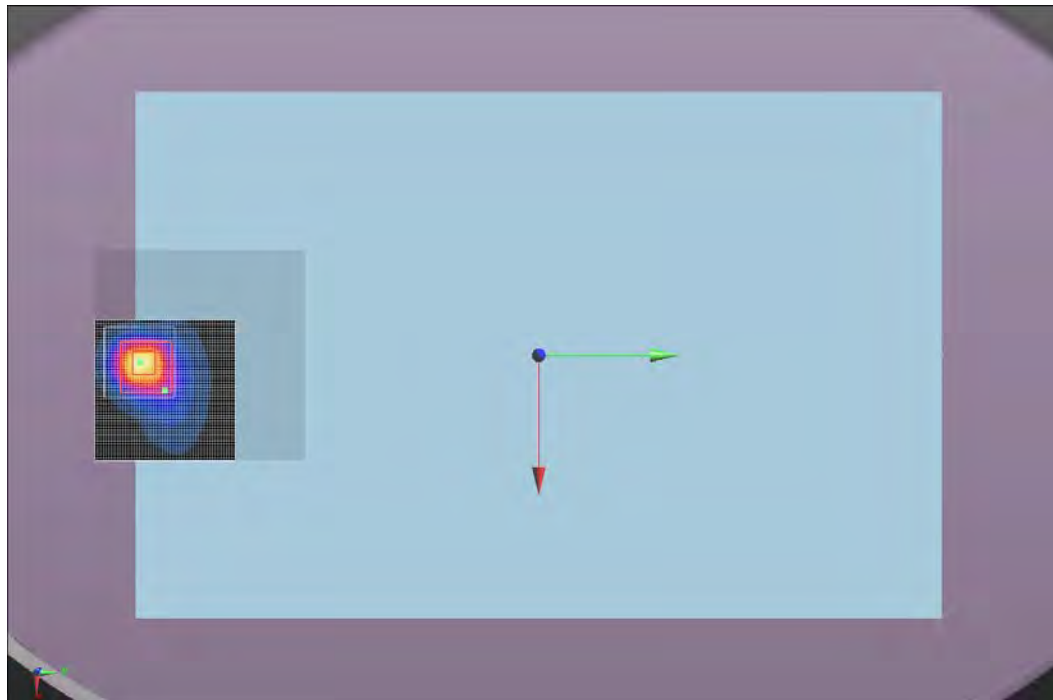
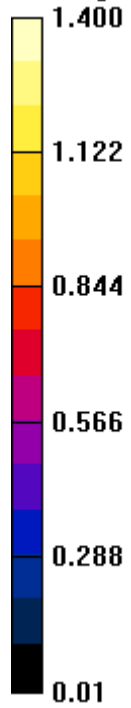
Maximum value of SAR (measured) = 0.634 W/kg



Approved By

Test 6a

W/kg



|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 22.9 |
| Date:          | 4/11/2014        | Liquid Temperature (°C): | 22.2 |
| Serial Number: | 010              | Humidity (%RH):          | 32.3 |
| Configuration: | INTE5434-1       | Bar. Pressure (mb):      | 1020 |
| Comments:      | None             |                          |      |

## Test 6b

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2412 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2412$  MHz;  $\sigma = 1.898$  S/m;  $\epsilon_r = 50.98$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.100 V/m; Power Drift = -0.28 dB

Peak SAR (extrapolated) = 0.961 W/kg

**SAR(1 g) = 0.432 W/kg; SAR(10 g) = 0.182 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.588 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.601 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 12.02 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

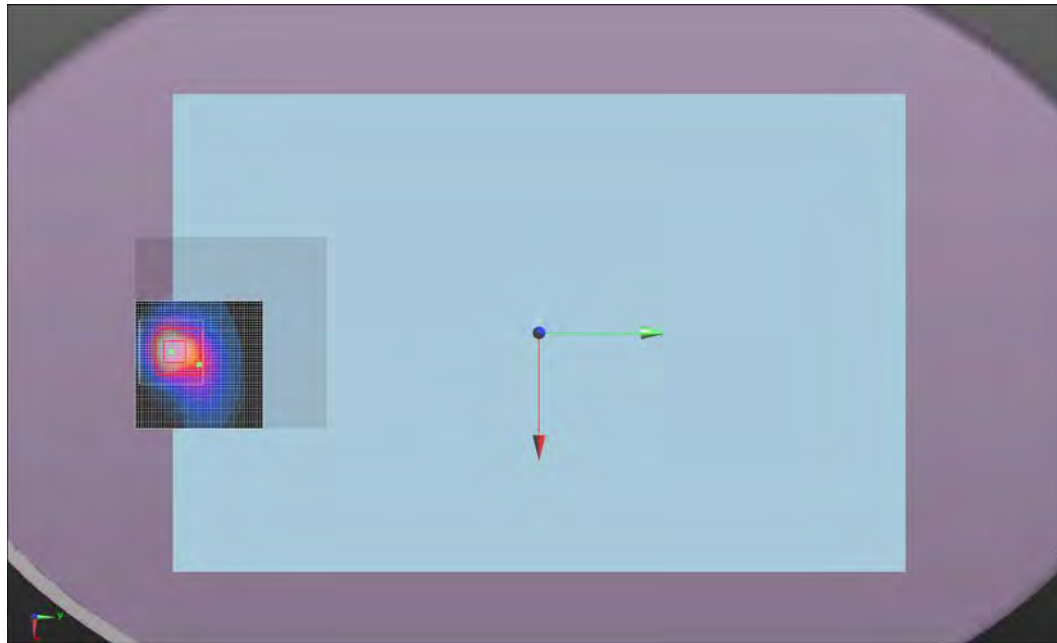
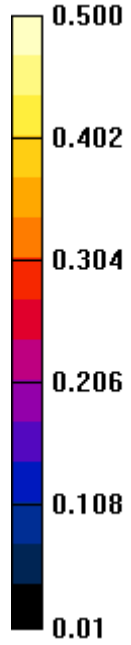
Maximum value of SAR (interpolated) = 0.282 W/kg

Maximum value of SAR (measured) = 0.274 W/kg

   
Approved By

Test 6b

W/kg



|                |                  |                          |      |
|----------------|------------------|--------------------------|------|
| Tested By:     | Ethan Schoonover | Room Temperature (°C):   | 22.9 |
| Date:          | 4/11/2014        | Liquid Temperature (°C): | 22.2 |
| Serial Number: | 010              | Humidity (%RH):          | 32.3 |
| Configuration: | INTE5434-1       | Bar. Pressure (mb):      | 1020 |
| Comments:      | None             |                          |      |

## Test 6c

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 1.94$  S/m;  $\epsilon_r = 50.63$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.682 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.75 W/kg

**SAR(1 g) = 0.778 W/kg; SAR(10 g) = 0.325 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.07 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.00 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 16.16 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.492 W/kg

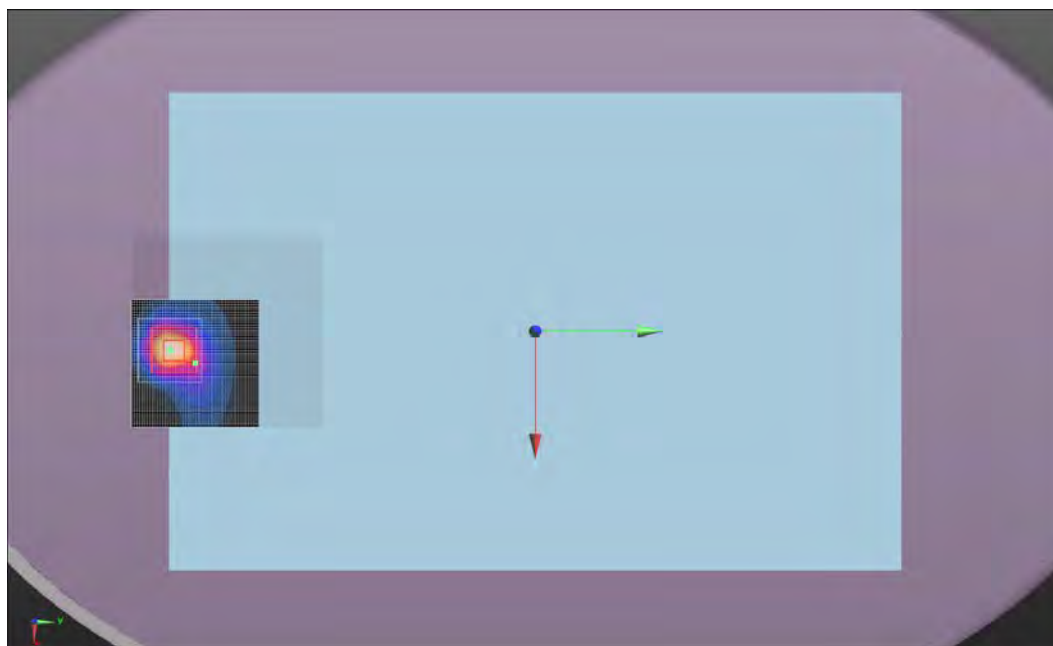
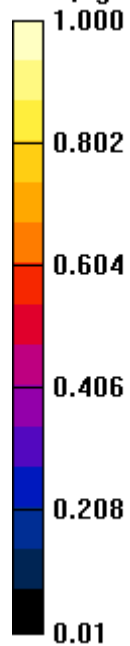
Maximum value of SAR (measured) = 0.506 W/kg




Approved By

Test 6c

W/kg





|                |               |                          |      |
|----------------|---------------|--------------------------|------|
| Tested By:     | Cole Ghizzone | Room Temperature (°C):   | 23.6 |
| Date:          | 3/29/2014     | Liquid Temperature (°C): | 20.6 |
| Serial Number: | 010           | Humidity (%RH):          | 40.2 |
| Configuration: | INTE5434-1    | Bar. Pressure (mb):      | 1008 |
| Comments:      | None          |                          |      |

## Test 7

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.578 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.575 W/kg

**SAR(1 g) = 0.225 W/kg; SAR(10 g) = 0.095 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.307 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.343 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 8.109 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

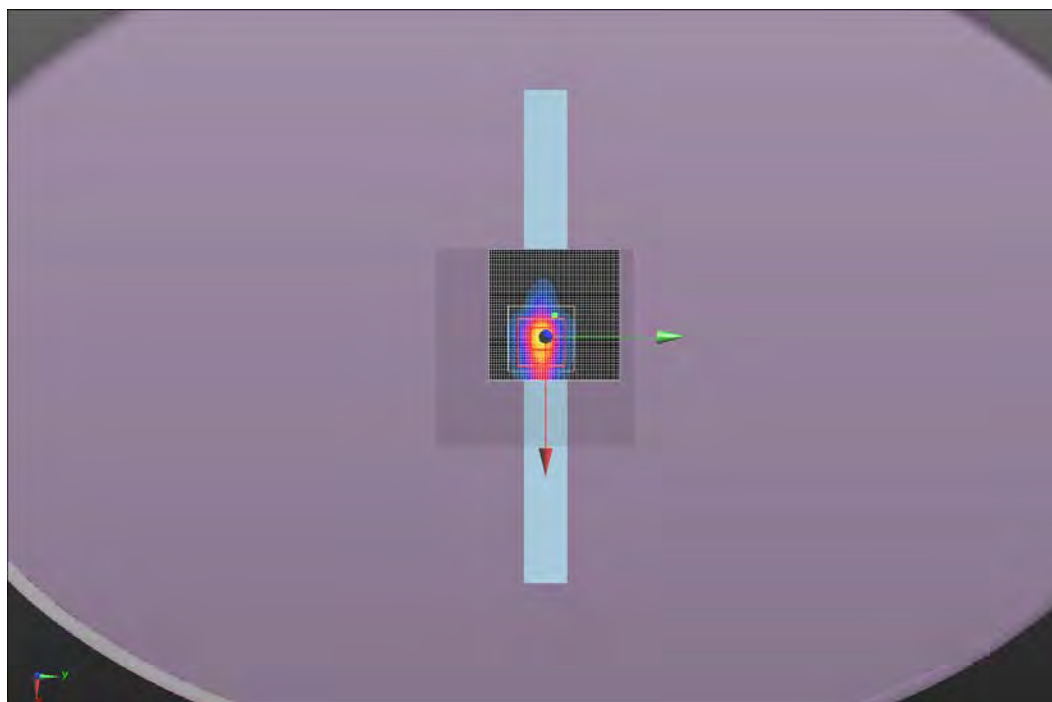
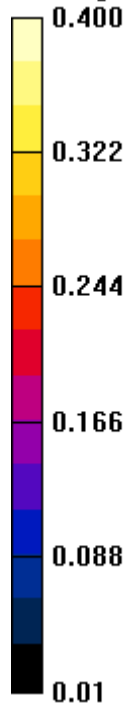
Maximum value of SAR (interpolated) = 0.0588 W/kg

Maximum value of SAR (measured) = 0.131 W/kg

   
Approved By

Test 7

W/kg



|                |               |                          |      |
|----------------|---------------|--------------------------|------|
| Tested By:     | Cole Ghizzone | Room Temperature (°C):   | 23.6 |
| Date:          | 3/29/2014     | Liquid Temperature (°C): | 20.6 |
| Serial Number: | 010           | Humidity (%RH):          | 40.2 |
| Configuration: | INTE5434-1    | Bar. Pressure (mb):      | 1008 |
| Comments:      | None          |                          |      |

## Test 8

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x8x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.567 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.20 W/kg

**SAR(1 g) = 0.499 W/kg; SAR(10 g) = 0.225 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.664 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.623 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 12.18 V/m

**Body/Body/Reference scan (81x121x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.220 W/kg

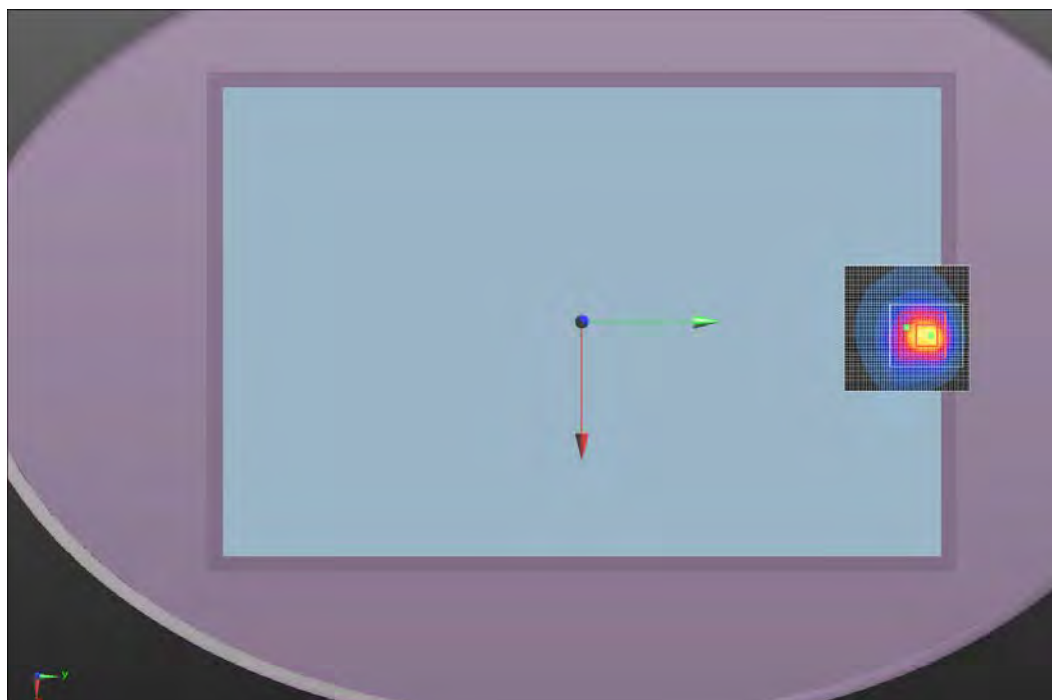
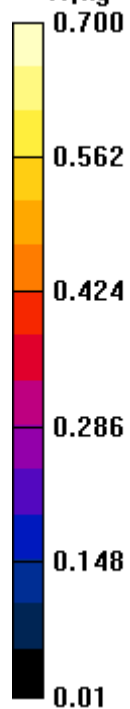
Maximum value of SAR (measured) = 0.295 W/kg




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Test 8

W/kg



|                |               |                          |      |
|----------------|---------------|--------------------------|------|
| Tested By:     | Cole Ghizzone | Room Temperature (°C):   | 23.6 |
| Date:          | 3/29/2014     | Liquid Temperature (°C): | 20.6 |
| Serial Number: | 010           | Humidity (%RH):          | 40.2 |
| Configuration: | INTE5434-1    | Bar. Pressure (mb):      | 1008 |
| Comments:      | None          |                          |      |

## Test 9

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (9x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.988 V/m; Power Drift = -0.28 dB

Peak SAR (extrapolated) = 0.770 W/kg

**SAR(1 g) = 0.273 W/kg; SAR(10 g) = 0.113 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.374 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.396 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 8.810 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

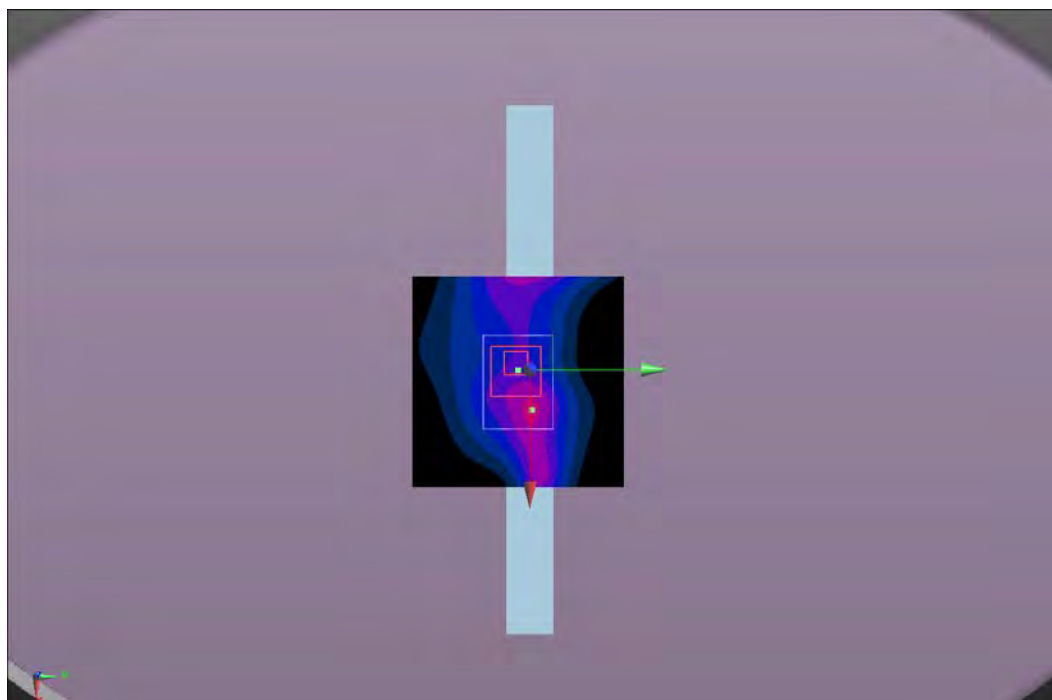
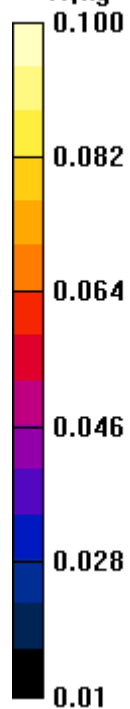
Maximum value of SAR (interpolated) = 0.0482 W/kg

Maximum value of SAR (measured) = 0.154 W/kg

   
Approved By

Test 9

W/kg



|                |               |                          |      |
|----------------|---------------|--------------------------|------|
| Tested By:     | Cole Ghizzone | Room Temperature (°C):   | 23.6 |
| Date:          | 3/29/2014     | Liquid Temperature (°C): | 20.6 |
| Serial Number: | 010           | Humidity (%RH):          | 39.7 |
| Configuration: | INTE5434-1    | Bar. Pressure (mb):      | 1008 |
| Comments:      | None          |                          |      |

## Test 10

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.248 V/m; Power Drift = 0.20 dB

Peak SAR (extrapolated) = 0.135 W/kg

**SAR(1 g) = 0.074 W/kg; SAR(10 g) = 0.047 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.0900 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.0875 W/kg

**Body/Body/Reference scan (81x121x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.0452 W/kg

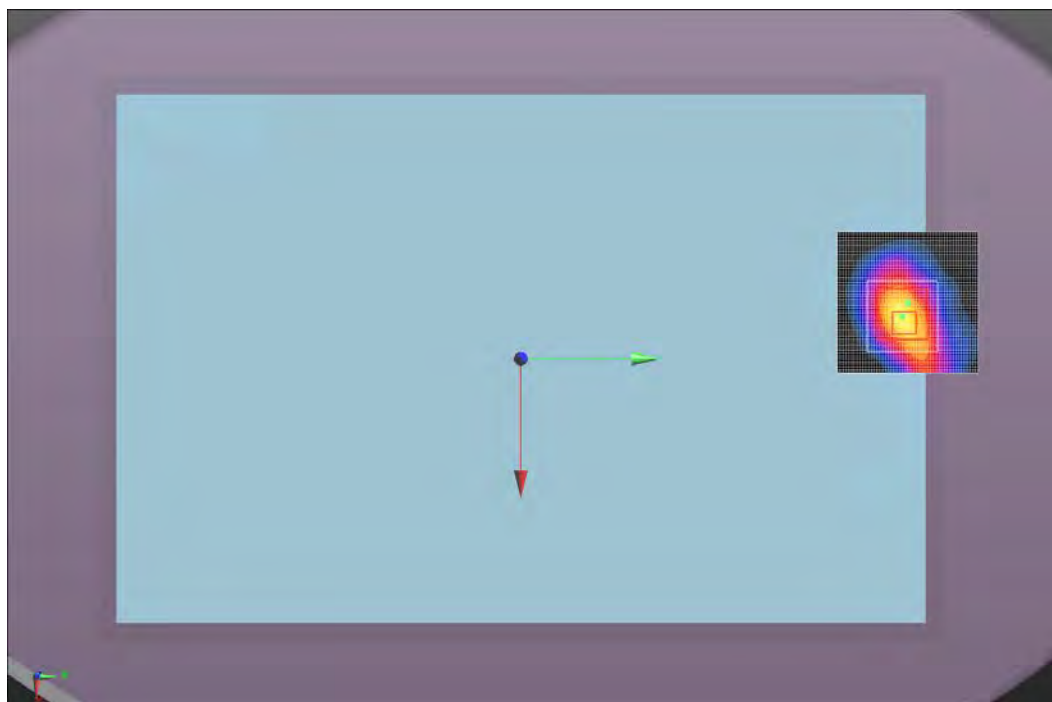
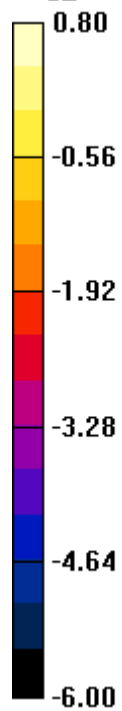
**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.248 V/m; Power Drift = 0.20 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

   
Approved By

Test 10  
dB





|                |               |                          |        |
|----------------|---------------|--------------------------|--------|
| Tested By:     | Cole Ghizzone | Room Temperature (°C):   | 23.6   |
| Date:          | 3/29/2014     | Liquid Temperature (°C): | 20.6   |
| Serial Number: | 010           | Humidity (%RH):          | 44.3   |
| Configuration: | INTE5434-1    | Bar. Pressure (mb):      | 1010.6 |
| Comments:      | None          |                          |        |

## Test 11

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.053 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.839 W/kg

**SAR(1 g) = 0.327 W/kg; SAR(10 g) = 0.136 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.441 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.460 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 9.739 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.0558 W/kg

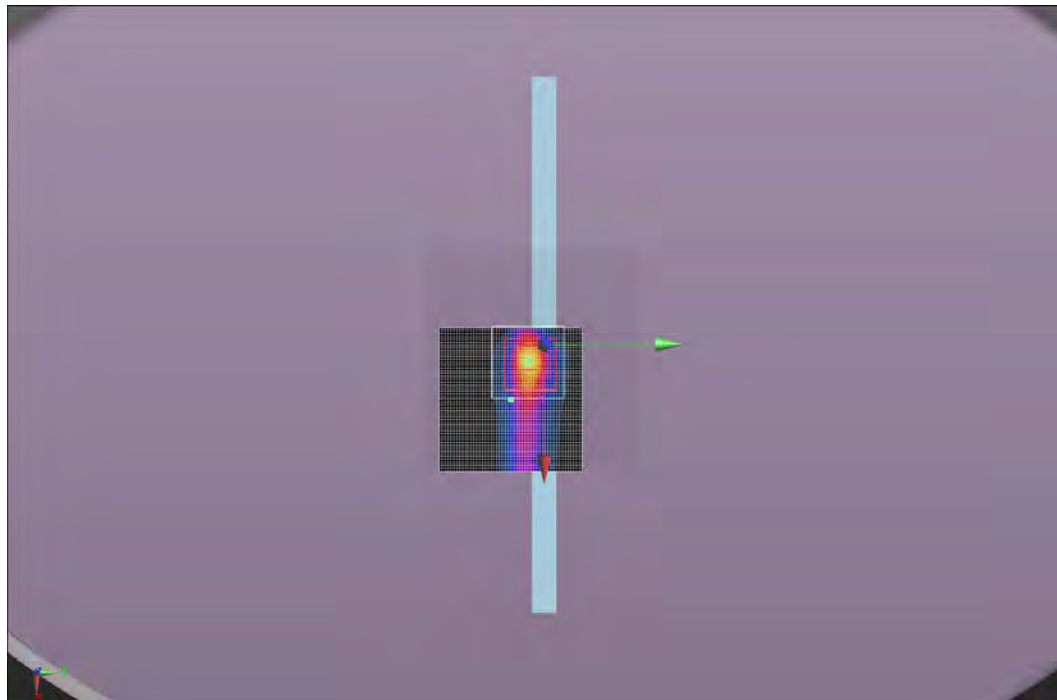
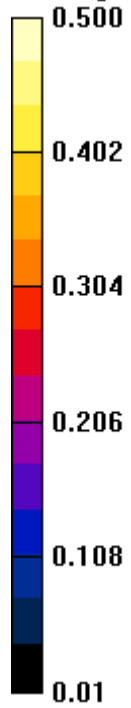
Maximum value of SAR (measured) = 0.189 W/kg




Approved By

Test 11

W/kg



|                |               |                          |        |
|----------------|---------------|--------------------------|--------|
| Tested By:     | Cole Ghizzone | Room Temperature (°C):   | 23     |
| Date:          | 3/29/2014     | Liquid Temperature (°C): | 21.1   |
| Serial Number: | 010           | Humidity (%RH):          | 43.2   |
| Configuration: | INTE5434-1    | Bar. Pressure (mb):      | 1010.6 |
| Comments:      | None          |                          |        |

## Test 12

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.111 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 1.77 W/kg

**SAR(1 g) = 0.697 W/kg; SAR(10 g) = 0.301 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.968 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.07 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 14.06 V/m

**Body/Body/Reference scan (81x121x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

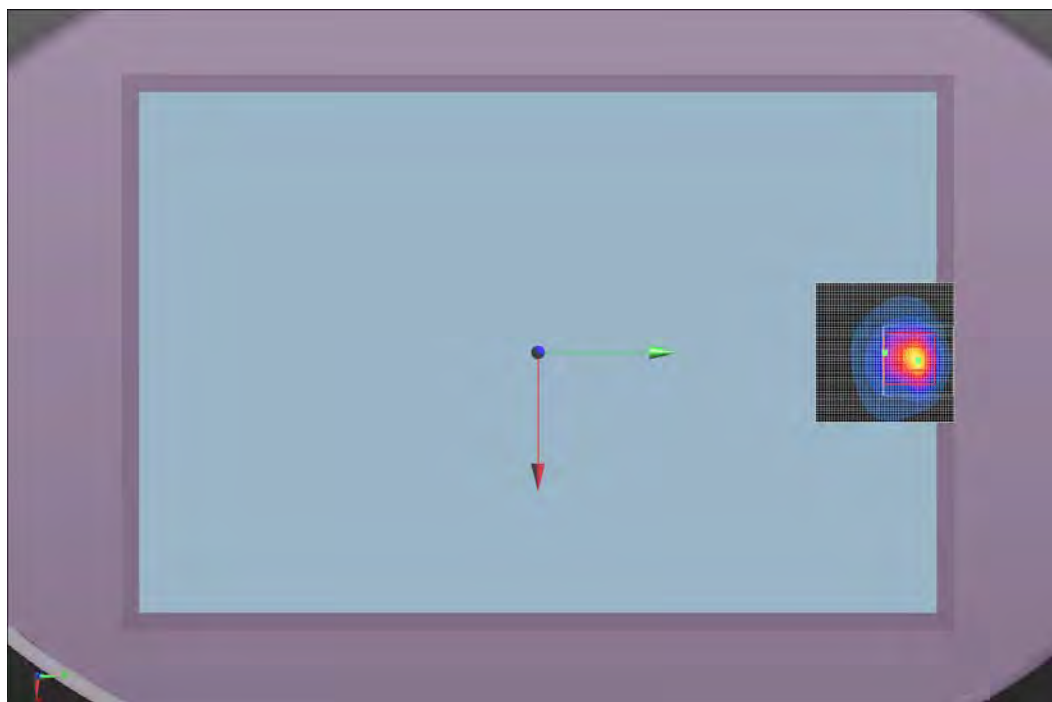
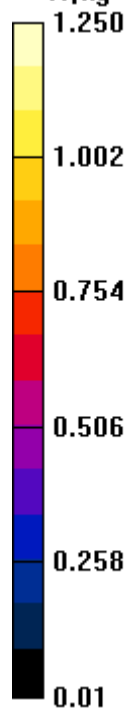
Maximum value of SAR (interpolated) = 0.446 W/kg

Maximum value of SAR (measured) = 0.394 W/kg

   
Approved By

Test 12

W/kg



|                |               |                          |      |
|----------------|---------------|--------------------------|------|
| Tested By:     | Cole Ghizzone | Room Temperature (°C):   | 22.9 |
| Date:          | 3/29/2014     | Liquid Temperature (°C): | 20.8 |
| Serial Number: | 010           | Humidity (%RH):          | 42.8 |
| Configuration: | INTE5434-1    | Bar. Pressure (mb):      | 1010 |
| Comments:      | None          |                          |      |

## Test 13

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.945 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.583 W/kg

**SAR(1 g) = 0.205 W/kg; SAR(10 g) = 0.083 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.299 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.285 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 7.448 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.0681 W/kg

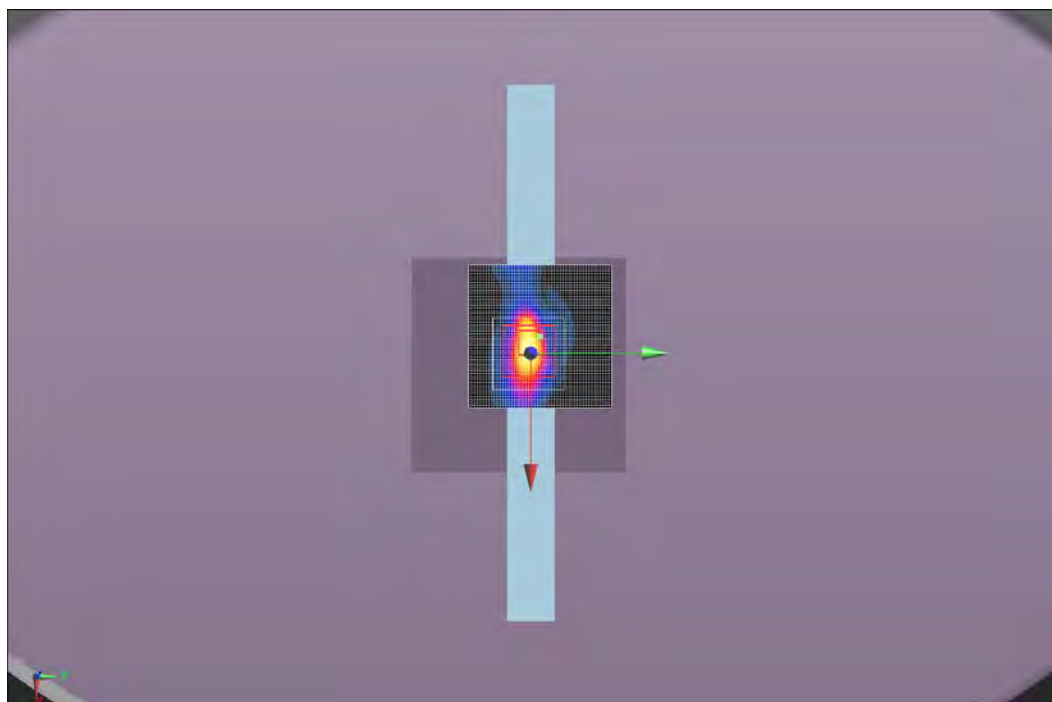
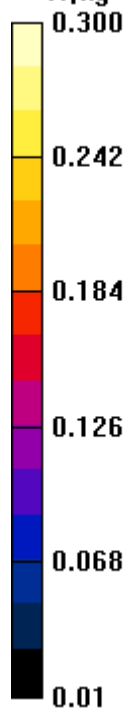
Maximum value of SAR (measured) = 0.110 W/kg




Approved By

Test 13

W/kg



|                |              |                          |      |
|----------------|--------------|--------------------------|------|
| Tested By:     | Carl Engholm | Room Temperature (°C):   | 23.4 |
| Date:          | 3/30/2014    | Liquid Temperature (°C): | 21.6 |
| Serial Number: | 010          | Humidity (%RH):          | 31   |
| Configuration: | INTE5434-1   | Bar. Pressure (mb):      | 1016 |
| Comments:      | None         |                          |      |

**Test 14a**

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.415 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.70 W/kg

**SAR(1 g) = 0.757 W/kg; SAR(10 g) = 0.330 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.04 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.04 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 14.55 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

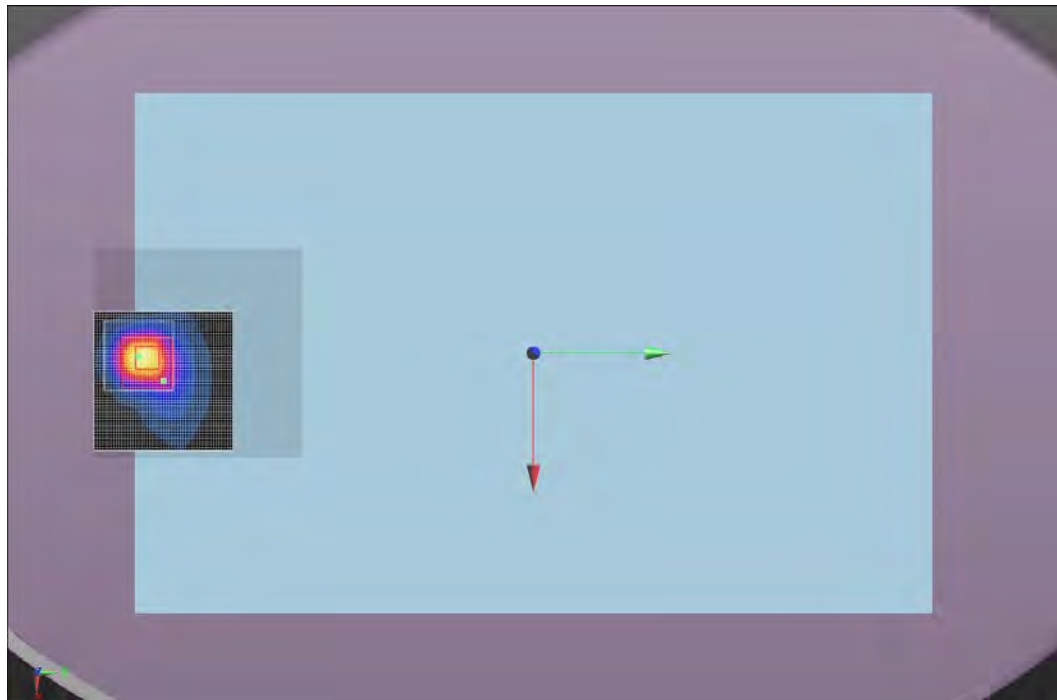
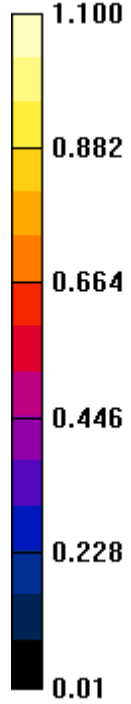
Maximum value of SAR (interpolated) = 0.394 W/kg

Maximum value of SAR (measured) = 0.422 W/kg



**Approved By**

Test 14a  
W/kg





|                |               |                          |      |
|----------------|---------------|--------------------------|------|
| Tested By:     | Cole Ghizzone | Room Temperature (°C):   | 23.6 |
| Date:          | 3/29/2014     | Liquid Temperature (°C): | 20.5 |
| Serial Number: | 010           | Humidity (%RH):          | 38.8 |
| Configuration: | INTE5434-1    | Bar. Pressure (mb):      | 1010 |
| Comments:      | None          |                          |      |

## Test 15

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.611 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.638 W/kg

**SAR(1 g) = 0.230 W/kg; SAR(10 g) = 0.098 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.318 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.326 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 7.886 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.0710 W/kg

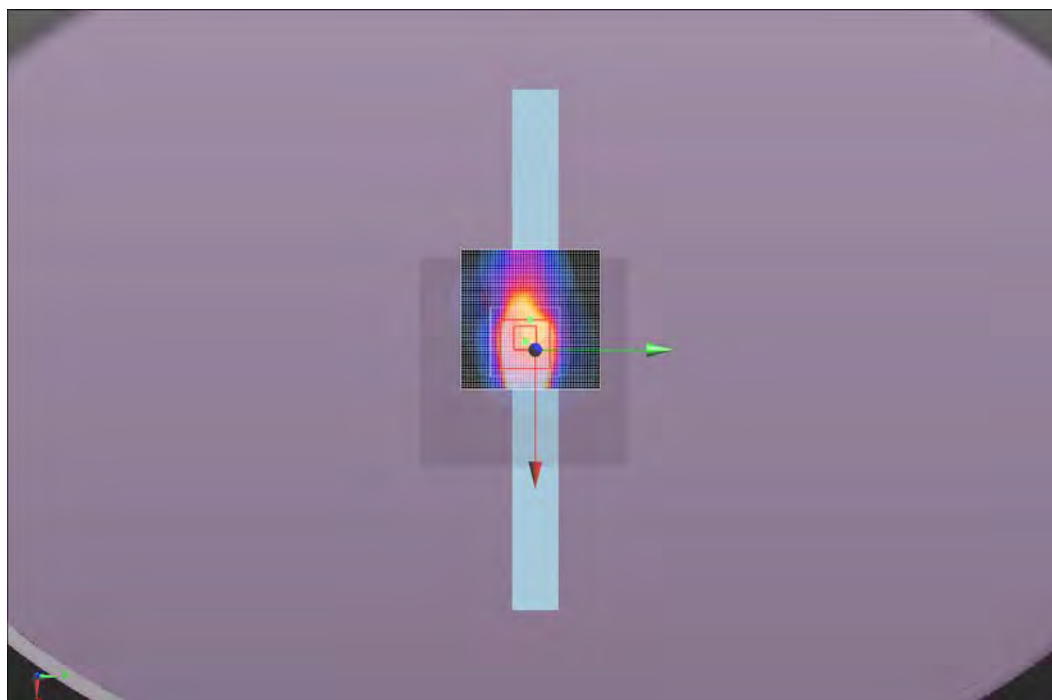
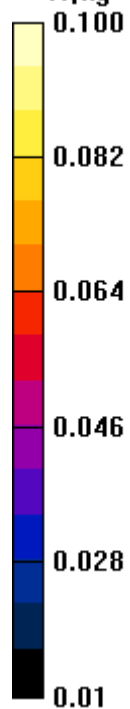
Maximum value of SAR (measured) = 0.124 W/kg




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Test 15

W/kg



|                |               |                          |      |
|----------------|---------------|--------------------------|------|
| Tested By:     | Cole Ghizzone | Room Temperature (°C):   | 23.6 |
| Date:          | 3/29/2014     | Liquid Temperature (°C): | 20.5 |
| Serial Number: | 010           | Humidity (%RH):          | 38.8 |
| Configuration: | INTE5434-1    | Bar. Pressure (mb):      | 1010 |
| Comments:      | None          |                          |      |

## Test 16

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 51.196$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.874 V/m; Power Drift = 0.26 dB

Peak SAR (extrapolated) = 1.25 W/kg

**SAR(1 g) = 0.551 W/kg; SAR(10 g) = 0.246 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.720 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.778 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 13.65 V/m

**Body/Body/Reference scan (81x121x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

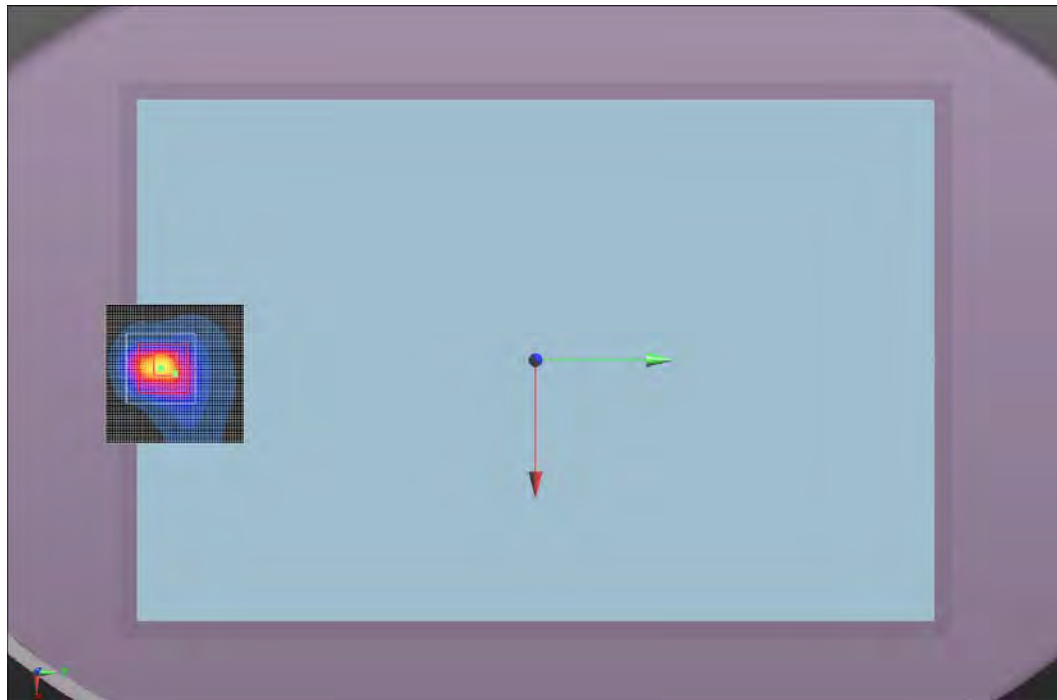
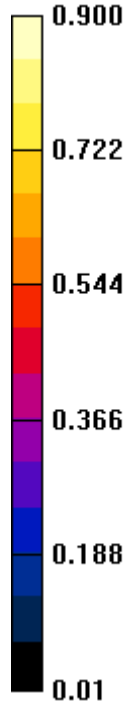
Maximum value of SAR (interpolated) = 0.331 W/kg

Maximum value of SAR (measured) = 0.371 W/kg

   
Approved By

Test 16

W/kg



|            |                       |                   |          |
|------------|-----------------------|-------------------|----------|
| EUT:       | WSBUB-SDS             | Work Order:       | INTE5434 |
| Customer:  | Intel Corporation     | Job Site:         | EV08     |
| Attendees: | Mike Lowe, Bill Jones | Customer Project: | None     |

## TEST SPECIFICATIONS

| Specification:                     | Method:                                                                                                                                           |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| FCC 2.1093:2014<br>FCC 15.247:2014 | IEEE Std 1528:2003<br>FCC KDB 447498 D01 v05r02<br>FCC KDB 248227 D01 v01r02<br>FCC KDB 616217 D04 v01r01<br>FCC 865664 D01 v01r03 and D02 v01r01 |

## COMMENTS

None

## DEVIATIONS FROM TEST STANDARD

None

## RESULTS

| Test Configuration | Frequency Band | Transmit Frequency (MHz) | Transmit Channel | Data Rate (Mbps) | Channel Bandwidth (MHz) | Antenna Port | Mode | EUT Position | Power Drift During Test (dB) | Measured 1g SAR Level (mW/g) | Measured 10g SAR Level (mW/g) | Test # |
|--------------------|----------------|--------------------------|------------------|------------------|-------------------------|--------------|------|--------------|------------------------------|------------------------------|-------------------------------|--------|
| Body               | 2.4            | 2437                     | 6                | MCS8             | 20                      | A&B          | None | Back         | -0.23                        | 0.30                         | 0.14                          | 18     |
| Body               | 2.4            | 2437                     | 6                | MCS8             | 20                      | A&B          | None | Back         | -0.02                        | 0.36                         | 0.16                          | 19     |
| Body               | 2.4            | 2437                     | 6                | MCS8             | 40                      | A&B          | None | Back         | -0.30                        | 0.32                         | 0.15                          | 20     |
| Body               | 2.4            | 2437                     | 6                | MCS8             | 40                      | A&B          | None | Back         | 0.02                         | 0.34                         | 0.16                          | 21     |

|                |               |                          |        |
|----------------|---------------|--------------------------|--------|
| Tested By:     | Cole Ghizzone | Room Temperature (°C):   | 24.5   |
| Date:          | 3/29/2014     | Liquid Temperature (°C): | 21.6   |
| Serial Number: | 010           | Humidity (%RH):          | 37.7   |
| Configuration: | INTE5434-1    | Bar. Pressure (mb):      | 1010.6 |
| Comments:      | Antenna A     |                          |        |

## Test 18

**DUT: Tablet Computer; Type: WSBUB-SUS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 1.943$  S/m;  $\epsilon_r = 51.483$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.880 V/m; Power Drift = -0.23 dB

Peak SAR (extrapolated) = 0.716 W/kg

**SAR(1 g) = 0.303 W/kg; SAR(10 g) = 0.137 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.412 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.467 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 9.598 V/m

**Body/Body/Reference scan (81x61x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

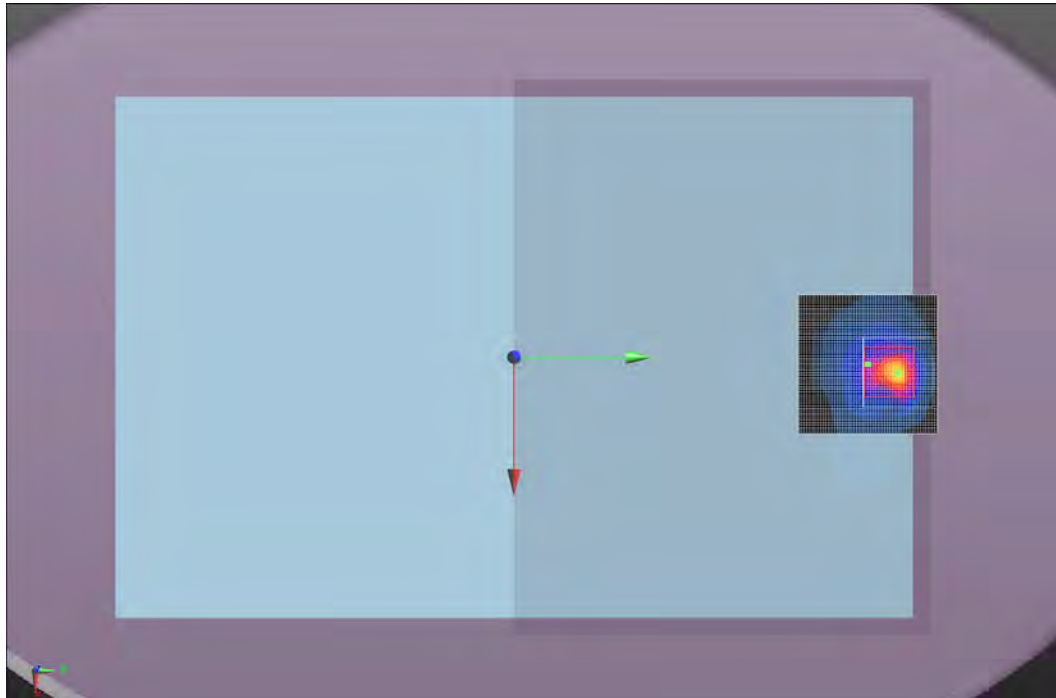
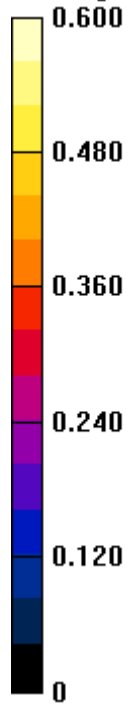
Maximum value of SAR (interpolated) = 0.163 W/kg

Maximum value of SAR (measured) = 0.179 W/kg

Approved By

Test 18

W/kg



|                |               |                          |        |
|----------------|---------------|--------------------------|--------|
| Tested By:     | Cole Ghizzone | Room Temperature (°C):   | 24.5   |
| Date:          | 3/29/2014     | Liquid Temperature (°C): | 21.6   |
| Serial Number: | 010           | Humidity (%RH):          | 37.7   |
| Configuration: | INTE5434-1    | Bar. Pressure (mb):      | 1010.6 |
| Comments:      | Antenna B     |                          |        |

## Test 19

**DUT: Tablet Computer; Type: WSBUB-SUS; Serial: 010**

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 1.943$  S/m;  $\epsilon_r = 51.483$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.992 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.806 W/kg

**SAR(1 g) = 0.361 W/kg; SAR(10 g) = 0.161 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.490 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.520 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 11.32 V/m

**Body/Body/Reference scan (81x61x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.204 W/kg

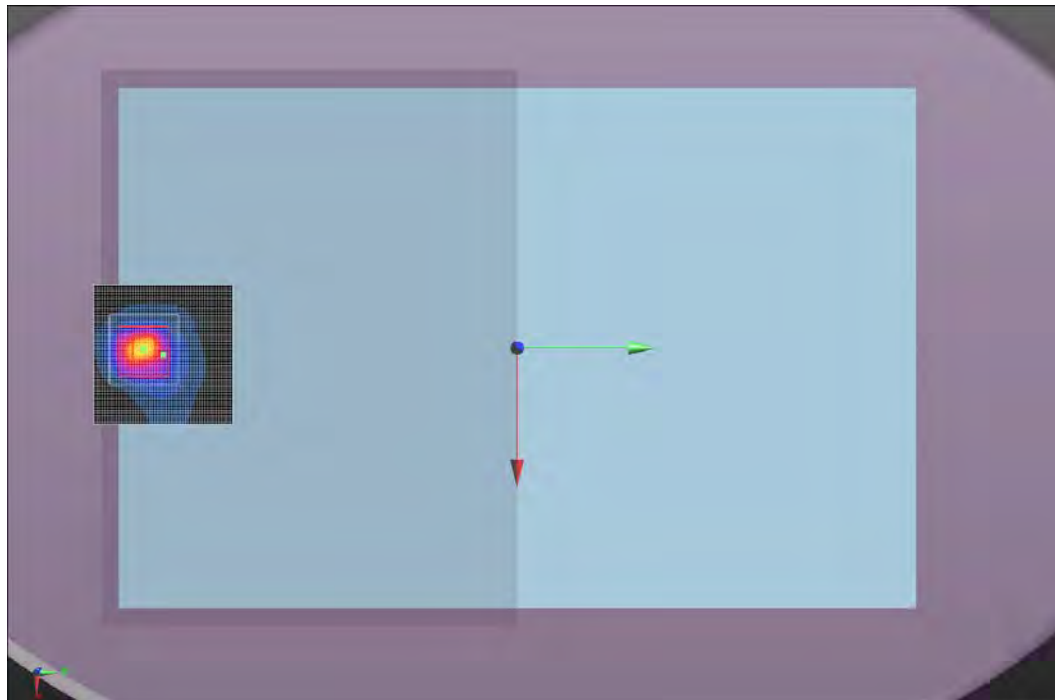
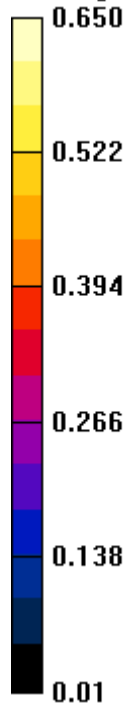
Maximum value of SAR (measured) = 0.249 W/kg

   
Approved By



Test 19

W/kg



|                |              |                          |      |
|----------------|--------------|--------------------------|------|
| Tested By:     | Carl Engholm | Room Temperature (°C):   | 22.5 |
| Date:          | 3/30/2014    | Liquid Temperature (°C): | 21.7 |
| Serial Number: | 010          | Humidity (%RH):          | 34   |
| Configuration: | INTE5434-1   | Bar. Pressure (mb):      | 1016 |
| Comments:      | Antenna A    |                          |      |

## Test 20

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 1.943$  S/m;  $\epsilon_r = 51.483$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.455 V/m; Power Drift = -0.30 dB

Peak SAR (extrapolated) = 0.767 W/kg

**SAR(1 g) = 0.322 W/kg; SAR(10 g) = 0.147 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.428 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.516 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 10.28 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.241 W/kg

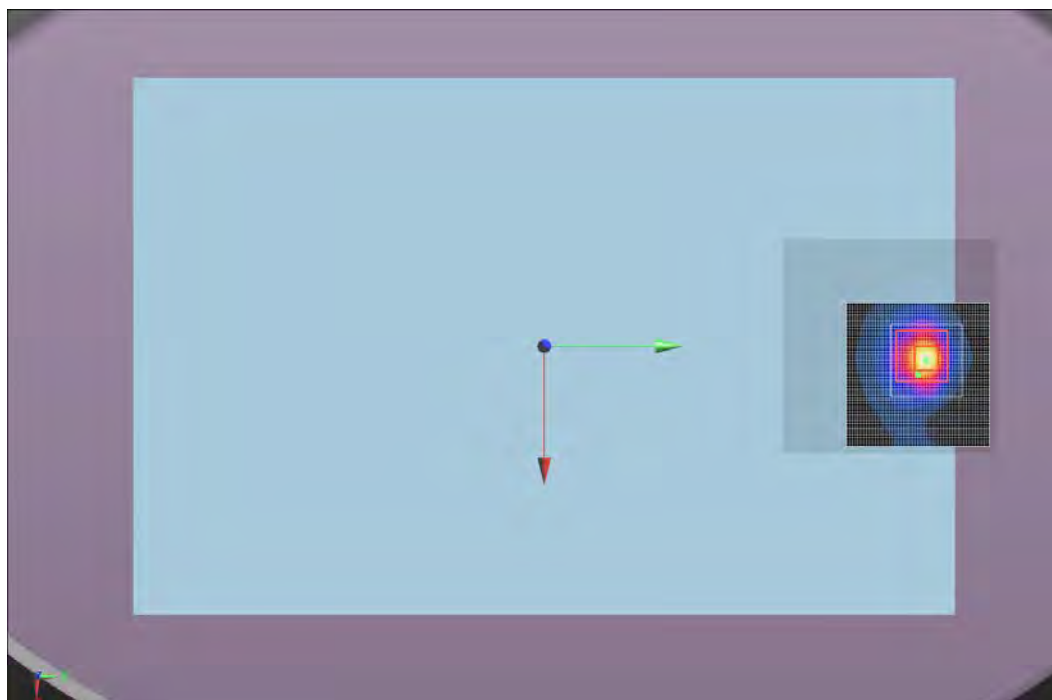
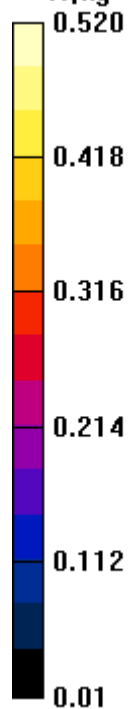
Maximum value of SAR (measured) = 0.205 W/kg



Approved By

Test 20

W/kg



|                |              |                          |      |
|----------------|--------------|--------------------------|------|
| Tested By:     | Carl Engholm | Room Temperature (°C):   | 22.8 |
| Date:          | 3/30/2014    | Liquid Temperature (°C): | 21.6 |
| Serial Number: | 010          | Humidity (%RH):          | 32   |
| Configuration: | INTE5434-1   | Bar. Pressure (mb):      | 1016 |
| Comments:      | Antenna B    |                          |      |

## Test 21

**DUT: Tablet Computer; Type: WSBUB-SDS; Serial: 010**

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 1.943$  S/m;  $\epsilon_r = 51.483$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

**Body/Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.566 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.765 W/kg

**SAR(1 g) = 0.343 W/kg; SAR(10 g) = 0.155 W/kg**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.459 W/kg

**Body/Body/Area scan (51x51x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.462 W/kg

**Body/Body/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of Total (measured) = 11.17 V/m

**Body/Body/Reference scan (31x31x1):** Interpolated grid: dx=3.000 mm, dy=3.000 mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.224 W/kg

Maximum value of SAR (measured) = 0.242 W/kg



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Test 21

W/kg

