



RF EXPOSURE LAB, LLC

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CERTIFICATE OF COMPLIANCE SAR EVALUATION

Novatel Wireless
9645 Scranton Road, Suite 205
San Diego, CA 92121

Dates of Test: December 3 - 8, 2008
Test Report Number: SAR.20081201

FCC ID:	NBZNRMUNDP-1D
IC Certificate:	3229A-UNDP1D
Model(s):	UNDP-1 in Dell Latitude 4200
Intel WLAN Module:	Model: 533AN_HMW FCCID: E2K533ANH Model: 512AN_HMW FCCID: E2K512ANHMW
Broadcom WLAN Modules:	Model: BCM94312HMG FCCID: QDS-BRCM1030 Model: BCM94332HMBL FCCID: QDS-BCRM1031
Test Sample:	Engineering Unit Same as Production
Serial No.:	275
Equipment Type:	Wireless Computer
Classification:	Portable Transmitter Next to Body
TX Frequency Range:	2412 – 2462 MHz, 5180 – 5240 MHz, 5260 – 5320 MHz, 5745 – 5805 MHz, 824.2 – 848.8 MHz, 1850.2 – 1909.8 MHz
Frequency Tolerance:	± 25 ppm
Maximum RF Output:	835 MHz(CDMA) – 24.9 dBm, 835 MHz(WCDMA) – 24.4 dBm, 835 MHz(GSM) – 32.99 dBm, 1900 MHz(CDMA) – 24.8 dBm, 1900 MHz(WCDMA) – 24.5 dBm, 1900 MHz(GSM) – 29.5 dBm, 2450 MHz (b) – 22.3 dBm, 2450 MHz (g) – 23.8 dBm, 2450 (n20) – 23.9 dBm, 2450 MHz (n40) – 23.0 dBm, 5200 MHz (a) – 18.1 dBm, 5200 MHz (n20) – 17.6 dBm, 5200 MHz (n40) – 16.7 dBm, 5600 MHz (a) – 17.8 dBm, 5600 MHz (n20) – 17.5 dBm, 5600 MHz (n40) – 17.8 dBm, 5800 MHz (a) – 24.5 dBm, 5800 MHz (n20) – 24.7 dBm, 5800 MHz (n40) – 24.9 dBm Conducted
Signal Modulation:	DSSS, OFDM, CDMA, WCDMA, GMSK, 8PSK
Antenna Type (Length):	WWAN – Internal Right Side LCD 9.935 cm from User WLAN – Internal Right (Main) Left (Aux) Side LCD 6.575 cm from User
Battery:	Laptop Supplied
Application Type:	Class II Permissive Change
FCC Rule Parts:	Part 15, 22, 24
Industrv Canada:	RSS-102

This wireless mobile and/or portable device has been shown to be compliant for localized specific absorption rate (SAR) for uncontrolled environment/general exposure limits specified in ANSI/IEEE Std. C95.1-1999 and had been tested in accordance with the measurement procedures specified in IEEE 1528-2003, OET Bulletin 65 Supp. C, RSS-102 and Safety Code 6 (See test report).

I attest to the accuracy of the data. All measurements were performed by myself or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

RF Exposure Lab, LLC certifies that no party to this application has been denied FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 853(a).

Jay M. Moulton
Vice President



Certificate # 2387.01

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1. Introduction

This measurement report shows compliance of the Novatel Wireless Model UNDP-1 in Dell Latitude 4200 FCC ID: NBZNRMUNDP-1D with FCC Part 2, 1093, ET Docket 93-62 Rules for mobile and portable devices and IC Certificate: 3229A-UNDP1D with RSS102 & Safety Code 6. The FCC have adopted the guidelines for evaluating the environmental effects of radio frequency radiation in ET Docket 93-62 on August 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC regulated portable devices. [1], [6]

The test procedures, as described in ANSI C95.1 – 1999 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [2], ANSI C95.3 – 2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields [3], FCC OET Bulletin 65 Supp. C – 2001 [4], IEEE Std.1528 – 2003 Recommended Practice [5], and Industry Canada Safety Code 6 Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3kHz to 300 GHz were employed.

SAR Definition [5]

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ).

$$SAR = \frac{d}{dt} \left(\frac{dW}{dm} \right) = \frac{d}{dt} \left(\frac{dW}{\rho dV} \right)$$

SAR is expressed in units of watts per kilogram (W/kg). SAR can be related to the electric field at a point by

$$SAR = \frac{\sigma |E|^2}{\rho}$$

where:

σ = conductivity of the tissue (S/m)

ρ = mass density of the tissue (kg/m³)

E = rms electric field strength (V/m)

2. SAR Measurement Setup

Robotic System

The measurements are conducted utilizing the ALSAS-10-U automated dosimetric assessment system. The ALSAS-10-U is designed and manufactured by Aprel Laboratories in Nepean, Ontario, Canada. The system utilizes a Robcomm 3 robot manufactured by ThermoCRS located in Michigan USA.

System Hardware

The system consists of a six axis articulated arm, controller for precise probe positioning (0.05 mm repeatability), a power supply, a teach pendant for teaching area scans, near field probe, an IBM Pentium 4™ 2.66 GHz PC with Windows XP Pro™, and custom software developed to enable communications between the robot controller software and the host operating system.

An amplifier is located on the articulated arm, which is isolated from the custom designed end effector and robot arm. The end effector provides the mechanical touch detection functionality and probe connection interface. The amplifier is functionally validated within the manufacturer's site and calibrated at NCL Calibration Laboratories. A Data Acquisition Card (DAC) is used to collect the signal as detected by the isotropic e-field probe. The DAC manufacturer calibrates the DAC to NIST standards. A formal validation is executed using all mechanical and electronic components to prove conformity of the measurement platform as a whole.

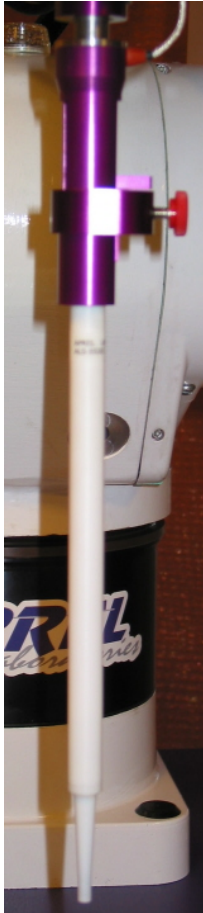
System Description

The ALSAS-10-U has been designed to measure devices within the compliance environment to meet all recognized standards. The system also conforms to standards, which are currently being developed by the scientific and manufacturing community.

The course scan resolution is defined by the operator and reflects the requirements of the standard to which the device is being tested. Precise measurements are made within the predefined course scan area and the values are logged.

The user predefines the sample rate for which the measurements are made so as to ensure that the full duty-cycle of a pulse modulation device is covered during the sample. The following algorithm is an example of the function used by the system for linearization of the output for the probe.

$$V_i = U_i + U_i^2 \bullet \frac{cf}{dcp_i}$$



The April E-Field probe is evaluated to establish the diode compression point.

A complex algorithm is then used to calculate the values within the measured points down to a resolution of 1mm. The data from this process is then used to provide the co-ordinates from which the cube scan is created for the determination of the 1 g and 10 g averages.

Cube scan averaging consists of a number of complex algorithms, which are used to calculate the one, and ten gram averages. The basis for the cube scan process is centered on the location where the maximum measured SAR value was found. When a secondary peak value is found which is within 60% of the initial peak value, the system will report this back to the operator who can then assess the need for further analysis of both the peak values prior to the one and ten-gram cube scan averaging process. The algorithm consists of 3D cubic Spline, and Lagrange extrapolation to the surface, which form the matrix for calculating the measurement output for the one and ten gram average values. The resolution for the physical scan integral is user defined with a final calculated resolution down to 1mm.

In-depth analysis for the differential of the physical scanning resolution for the cube scan analysis has been carried out, to identify the optimum setting for the probe positioning steps, and this has been determined at 8mm increments on the X, & Y planes. The reduction of the physical step increment increased the time taken for analysis but did not provide a better uncertainty or return on measured values.

The final output from the system provides data for the area scan measurements, physical and splined (1mm resolution) cube scan with physical and calculated values (1mm resolution).

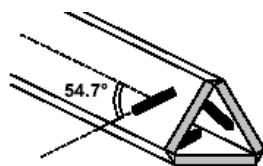
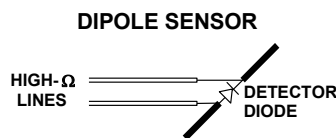
The overall uncertainty for the methodology and algorithms the ALSAS-10-U used during the SAR calculation was evaluated using the data from IEEE 1528 f3 algorithm:

$$f_3(x, y, z) = A \frac{a^2}{\frac{a^2}{4} + x'^2 + y'^2} \left(e^{-\frac{2z}{a}} + \frac{a^2}{2(a + 2z)^2} \right)$$

The probe used during the measurement process has been assessed to provide values for diode compression. These values are calculated during the probe calibration exercise and are used in the mathematical calculations for the assessment of SAR.

E-Field Probe

The E-field probe used by RF Exposure Lab, LLC, has been fully calibrated and assessed for isotropic, and boundary effect. The probe utilizes a triangular sensor arrangement as detailed in the diagram below right.


Δ-BEAM


The SAR is assessed with the probe which moves at a default height of 5mm from the center of the diode, which is mounted to the sensor, to the phantom surface (Z height). The diagram above right shows how the center of the sensor is defined with the location of the diode placed at the center of the dipole. The 5mm default in the Z axis is the optimum height for assessing SAR where the boundary effect is at its least, with the probe located closest to the phantom surface (boundary).

The manufacturer specified precision of the robot is ± 0.05 mm and the precision of the APREL bottom detection device is ± 0.1 mm. These precisions are calibrated and tested in the manufacturing process of the bottom detection device. A constant distance is maintained because the surface of the phantom is dynamically detected for each point. The surface detection algorithm corrects the position of the robot so that the probe rests on the surface of the phantom. The probe is then moved to the measurement location 2.44 mm above the phantom surface resulting in the probe center location to be at 4.0 mm above the phantom surface. Therefore, the probe sensor will be at 4.0 mm above the phantom surface ± 0.1 mm for each SAR location for frequencies below 3 GHz. The probe is moved to the measurement location 1.44 mm above the phantom surface resulting in the probe center location to be at 2.0 mm above the phantom surface. Therefore, the probe sensor will be at 2.0 mm above the phantom surface ± 0.1 mm for each SAR location for frequencies above 3 GHz.

The probe boundary effect compensation cannot be disabled in the ALSAS-10U testing system. The probe tip will always be at least half a probe tip diameter from the phantom surface. For frequencies up to 3 GHz, the probe diameter is 5 mm. With the sensor offset set at 1.54 mm (default setting), the sensor to phantom gap will be 4.0 mm which is greater than half the probe tip diameter. For frequencies greater than 3 GHz, the probe diameter is 3 mm. With the sensor offset set at 0.56 mm (default setting), the sensor to phantom gap will be 3.0 mm which is greater than half the probe tip diameter.

The separation of the first 2 measurement points in the zoom scan is specified in the test setup software. For frequencies below 3 GHz, the user must specify a zoom scan resolution of less than 6 mm in the z-axis to have the first two measurements within 1 cm of the surface. The z-axis is set to 4 mm as shown on each of the data sheets in Appendix B. For frequencies above 3 GHz, the user must specify a zoom scan resolution of less than 3 mm in the z-axis to have the first two measurements within 5 mm of the surface. The z-axis is set to 2 mm as shown on each of the data sheets in Appendix B.

The zoom scan volume for devices ≤ 3 GHz with a cube scan of 5x5x8 yields a volume of 32x32x28 mm³. For devices >3 GHz and <4.5 GHz, the cube scan of 9x9x9 yields a volume of 32x32x24 mm³. For devices ≥ 4.5 GHz, the cube scan of 7x7x12 yields a volume of 24x24x22 mm³.

3. Robot Specifications

Specifications

Positioner: ThermoCRS, Robot Model: Robocomm 3
Repeatability: 0.05 mm
No. of axis: 6

Data Acquisition Card (DAC) System

Cell Controller

Processor: Pentium 4™
Clock Speed: 2.66 GHz
Operating System: Windows XP Pro™

Data Converter

Features: Signal Amplifier, End Effector, DAC
Software: ALSAS 10-U Software

E-Field Probe

Model: Various See Probe Calibration Sheet
Serial Number: Various See Probe Calibration Sheet
Construction: Triangular Core Touch Detection System
Frequency: 10MHz to 6GHz

Phantom

Phantom: Uniphantom, Right Phantom, Left Phantom



4. Probe and Dipole Calibration

See Appendix D and E.

5. Phantom & Simulating Tissue Specifications

SAM Phantom



The Aprel system utilizes three separate phantoms. Each phantom for SAR assessment testing is a low loss dielectric shell, with shape and dimensions derived from the anthropomorphic data of the 90th percentile adult male head dimensions as tabulated by the US Army. The SAM phantom shell is bisected along the mid sagittal plane into right and left halves. The perimeter sidewalls of each phantom half is extended to allow filling with liquid to a depth of 15 cm that is sufficient to minimize reflections from the upper surface [5]. See photos in Appendix C.

Brain & Muscle Simulating Mixture Characterization

The brain and muscle mixtures consist of a glycol based chemical and saline solution. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the desired tissue. The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 have been incorporated in the following tables. Other head and body tissue parameters that have not been specified in P1528 are derived from the issue dielectric parameters computed from the 4-Cole-Cole equations.

Table 5.1 Typical Composition of Ingredients for Tissue

Ingredients		Simulating Tissue				
		835 MHz Muscle	1900 MHz Muscle	2450 MHz Muscle	5200 MHz Muscle	5800 MHz Muscle
Mixing Percentage						
Water		52.40	69.91	73.20	70.00	76.50
Sugar		0.00	29.96	0.00	0.00	0.00
Salt		45.00	0.00	0.04	1.50	1.50
HEC		1.40	0.13	0.00	0.00	0.00
Bactericide		0.10	0.00	0.00	0.00	0.00
DGBE		1.00	0.00	26.70	28.50	22.00
Dielectric Constant	Target	55.20	53.30	52.70	48.96	48.25
Conductivity (S/m)	Target	0.97	1.52	1.95	5.35	5.96

Device Holder



In combination with the SAM phantom, the mounting device enables the rotation of the mounted transmitter in spherical coordinates whereby the rotation point is the ear opening. The devices can easily, accurately, and repeatably be positioned according to the FCC specifications. The device holder can be locked at different phantom locations (left head, right head, and uni-phantom).

6. Definition of Reference Points

Ear Reference Point

Figure 6.2 shows the front, back and side views of the SAM Phantom. The point “M” is the reference point for the center of the mouth, “LE” is the left ear reference point (ERP), and “RE” is the right ERP. The ERPs are 15mm posterior to the entrance to the ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 6.1. The plane passing through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck-Front) is perpendicular to the reference plane and passing through the RE (or LE) is called the Reference Pivoting Line (see Figure 6.1). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning [5].

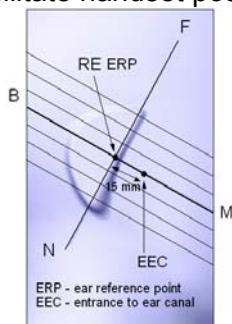


Figure 6.1 Close-up side view of ERP's



Figure 6.2 Front, back and side view of SAM

Device Reference Points

Two imaginary lines on the device need to be established: the vertical centerline and the horizontal line. The test device is placed in a normal operating position with the “test device reference point” located along the “vertical centerline” on the front of the device aligned to the “ear reference point” (See Fig. 6.3). The “test device reference point” is then located at the same level as the center of the ear reference point. The test device is positioned so that the “vertical centerline” is bisecting the front surface of the device at it’s top and bottom edges, positioning the “ear reference point” on the outer surface of both the left and right head phantoms on the ear reference point [5].

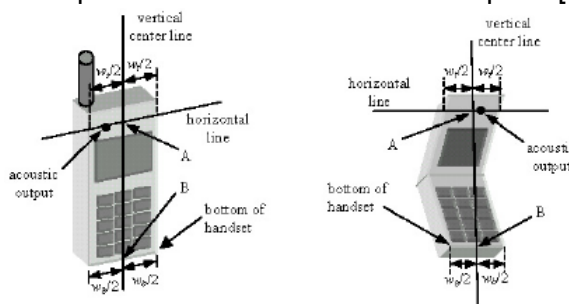


Figure 6.3 Handset Vertical Center & Horizontal Line Reference Points

7. Test Configuration Positions

Positioning for Cheek/Touch [5]

1. Position the device close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 7.1), such that the plane defined by the vertical center line and the horizontal line of the device is approximately parallel to the sagittal plane of the phantom.

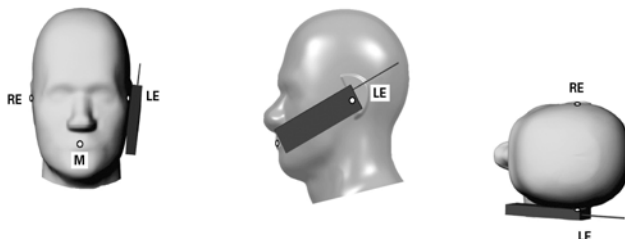


Figure 7.1 Front, Side and Top View of Cheek/Touch Position

2. Translate the device towards the phantom along the line passing through RE and LE until the device touches the ear.
3. While maintaining the device in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to MB-NF including the line MB (called the reference plane).
4. Rotate the device around the vertical centerline until the device (horizontal line) is symmetrical with respect to the line NF.
5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE and maintaining the device contact with the ear, rotate the device about the line NF until any point on the device is in contact with a phantom point below the ear (cheek). See Figure 7.2.

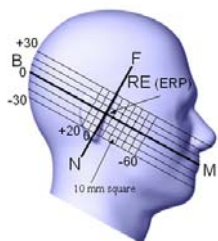


Figure 7.2 Side view w/ relevant markings

Positioning for Ear / 15° Tilt [5]

With the test device aligned in the Cheek/Touch Position”:

1. While maintaining the orientation of the device, retracted the device parallel to the reference plane far enough to enable a rotation of the device by 15 degrees.
2. Rotate the device around the horizontal line by 15 degrees.
3. While maintaining the orientation of the device, move the device parallel to the reference plane until any part of the device touches the head. (In this position, point A is located on the line RE-LE). The tilted position is obtained when the contact is on the pinna. If the contact is at any location other than the pinna, the angle of the device shall be reduced. The tilted position is obtained when any part of the device is in contact with the ear as well as a second part of the device is in contact with the head (see Figure 7.3).

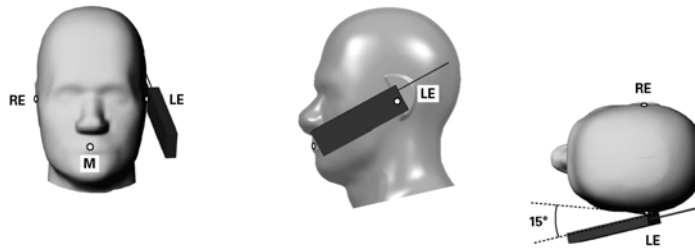


Figure 7.3 Front, Side and Top View of Ear/15° Tilt Position

Body Worn Configurations

Body-worn operating configurations are tested with the accessories attached to the device and positioned against a flat phantom in a normal use configuration. A device with a headset output is tested with a headset connected to the device. Body dielectric parameters are used.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then, when multiple accessories that contain metallic components are supplied with the device, the device is tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration where a separation distance between the back of the device and the flat phantom is used. All test position spacings are documented.

Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessory(ies), including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

In all cases SAR measurements are performed to investigate the worst-case positioning. Worst-case positioning is then documented and used to perform Body SAR testing.

In order for users to be aware of the body-worn operating requirements for meeting RF exposure compliance, operating instructions and cautions statements are included in the user's manual.

8. ANSI/IEEE C95.1 – 1999 RF Exposure Limits [2]

Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Table 8.1 Human Exposure Limits

	UNCONTROLLED ENVIRONMENT General Population (W/kg) or (mW/g)	CONTROLLED ENVIROMENT Professional Population (W/kg) or (mW/g)
SPATIAL PEAK SAR ¹ Brain	1.60	8.00
SPATIAL AVERAGE SAR ² Whole Body	0.08	0.40
SPATIAL PEAK SAR ³ Hands, Feet, Ankles, Wrists	4.00	20.00

¹ The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

² The Spatial Average value of the SAR averaged over the whole body.

³ The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

9. Measurement Uncertainty

Exposure Assessment Measurement Uncertainty

Source of Uncertainty	Tolerance Value	Probability Distribution	Divisor	c_i^{-1} (1-g)	c_i^{-1} (10-g)	Standard Uncertainty (1-g) %	Standard Uncertainty (10-g) %
Measurement System							
Probe Calibration	3.5	normal	1	1	1	3.5	3.5
Axial Isotropy	3.7	rectangular	•3	$(1-cp)^{1/2}$	$(1-cp)^{1/2}$	1.5	1.5
Hemispherical Isotropy	10.9	rectangular	•3	•cp	•cp	4.4	4.4
Boundary Effect	1.0	rectangular	•3	1	1	0.6	0.6
Linearity	4.7	rectangular	•3	1	1	2.7	2.7
Detection Limit	1.0	rectangular	•3	1	1	0.6	0.6
Readout Electronics	1.0	normal	1	1	1	1.0	1.0
Response Time	0.8	rectangular	•3	1	1	0.5	0.5
Integration Time	1.7	rectangular	•3	1	1	1.0	1.0
RF Ambient Condition	3.0	rectangular	•3	1	1	1.7	1.7
Probe Positioner Mech.	0.4	rectangular	•3	1	1	0.2	0.2
Restriction							
Probe Positioning with respect to Phantom Shell	2.9	rectangular	•3	1	1	1.7	1.7
Extrapolation and Integration	3.7	rectangular	•3	1	1	2.1	2.1
Test Sample Positioning	4.0	normal	1	1	1	4.0	4.0
Device Holder Uncertainty	2.0	normal	1	1	1	2.0	2.0
Drift of Output Power	4.2	rectangular	•3	1	1	2.4	2.4
Phantom and Setup							
Phantom Uncertainty(shape & thickness tolerance)	3.4	rectangular	•3	1	1	2.0	2.0
Liquid Conductivity(target)	5.0	rectangular	•3	0.7	0.5	2.0	1.4
Liquid Conductivity(meas.)	0.5	normal	1	0.7	0.5	0.4	0.3
Liquid Permittivity(target)	5.0	rectangular	•3	0.6	0.5	1.7	1.4
Liquid Permittivity(meas.)	1.0	normal	1	0.6	0.5	0.6	0.5
Combined Uncertainty		RSS				9.6	9.4
Combined Uncertainty (coverage factor=2)		Normal (k=2)				19.1	18.8

10. System Validation

Tissue Verification

Table 10.1 Measured Tissue Parameters

		835 MHz Body		1900 MHz Body		2450 MHz Body	
Date(s)		Dec. 3, 2008		Dec. 3, 2008		Dec. 3, 2008	
Liquid Temperature (°C)	20.0	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ϵ		55.20	54.92	53.30	53.04	52.70	53.36
Conductivity: σ		0.96	0.98	1.52	1.54	1.95	1.96
		5250 MHz Body		5600 MHz Body		5785 MHz Body	
Date(s)		Dec. 8, 2008		Dec. 6, 2008		Dec. 7, 2008	
Liquid Temperature (°C)	20.0	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ϵ		48.95	47.40	48.47	48.57	48.22	49.31
Conductivity: σ		5.36	5.23	5.77	5.91	5.98	5.89

See Appendix A for data printout.

Test System Verification

Prior to assessment, the system is verified to the $\pm 10\%$ of the specifications at the test frequency by using the system kit. Power is extrapolated to 1 watt. (Graphic Plots Attached)

Table 10.2 System Dipole Validation Target & Measured

	Test Frequency	Targeted SAR _{1g} (W/kg)	Measure SAR _{1g} (W/kg)	Deviation (%)
03-Dec-2008	835 MHz	9.75	9.80	+ 0.51
03-Dec-2008	1900 MHz	40.99	40.30	- 1.68
03-Dec-2008	2450MHz	53.55	54.40	+ 1.59
08-Dec-2008	5250 MHz	62.98	60.51	- 3.92
06-Dec-2008	5600 MHz	59.92	61.23	+ 2.19
07-Dec-2008	5785 MHz	58.92	57.07	- 3.14

See Appendix A for data plots.

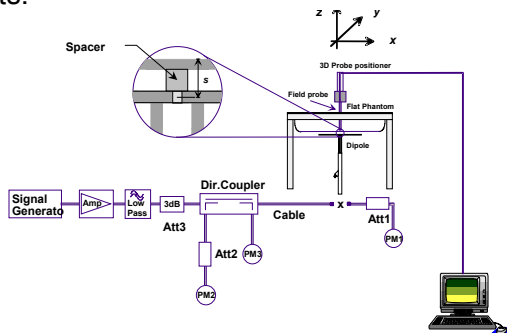


Figure 10.1 Dipole Validation Test Setup

11. SAR Test Data Summary

See Measurement Result Data Pages

See Appendix B for SAR Test Data Plots.
See Appendix C for SAR Test Setup Photos.

Procedures Used To Establish Test Signal

The device was placed into simulated transmit mode using the manufacturer's test codes. Such test signals offer a consistent means for testing SAR and are recommended for evaluating SAR. When test modes are not available or inappropriate for testing a device, the actual transmission is activated through a base station simulator or similar equipment. See data pages for actual procedure used in measurement.

Device Test Condition

The device is battery operated. Each SAR measurement was taken with a fully charged battery. In order to verify that the device was tested at full power, conducted output power measurements were performed before and after each SAR measurement to confirm the output power unless otherwise noted. If a conducted power deviation of more than 5% occurred, the test was repeated.

The testing was conducted in the normal use position. The main and auxiliary antennas for WLAN were both 6.575 cm from the user. Using the calculation in KDB 616217, the antennas must be at least 7 cm from the user to reduce the testing. Therefore, both antennas were measured in this report. The antenna to user distance of the WWAN is 9.935 cm. Due to the power of the WWAN, the distance required to reduce testing per KDB 616217 is 7 cm for 835 MHz and 10 cm for 1900 MHz. Therefore, only the 1900 MHz band would require testing. However, the WWAN and main WLAN antenna are 8.6 mm apart. The two antennas require simultaneous transmission which required the testing of the all bands in WWAN. The SAR for the simultaneous transmission was determined by added the highest SAR in WWAN with the highest SAR in WLAN. The total was below the limit to meet SAR requirements; therefore, the device was considered to pass.

This device is capable of operating in 850/1900 GSM/GPRS/EDGE frequency bands. In GSM/GPRS mode, the device is in Class 4 for 850 MHz and Class 1 for 1900 MHz. In EDGE mode, the device is in Class E2 for 850/1900 MHz. The GSM/GPRS testing was conducted in the GPRS mode. The GPRS mode has 2-slot and 4-slot configurations. The power measured is peak power. The average power in GSM is 1 to 1½ dB lower than the average power in GPRS 2-slot which is 1½ to 2 dB higher than 4-slot. The EDGE mode is 3 dB lower than its equivalent slot configuration for GPRS. Therefore, the device was only tested the highest power configuration which was 2-slot GPRS.

The WCDMA testing was conducted using 12.2 kbps RMC configured in Test Loop Mode 1. The HSPA testing was conducted with HS-DPCCH, E-DPCCH and E-DPDCH

all enabled and a 12.2 kbps RMC. FRC was configured according to HS-DPCCH Sub-Test 1 using H-set 1 and QPSK.

The 1xRTT testing was conducted in RC3 with the device configured using TDSO/SO32 with FCH transmitting at full rate. The power control was set to "All Bits Up." Multiple code channels were not tested due to the conducted power measured was less than $\frac{1}{4}$ dB higher than with FCH only.

The Rev. 0 and Rev. A Subtype 0/1 testing was conducted with the Reverse Data Channel rate of 153.6 kbps. The Forward Traffic Channel data rate is set to the 2-slot version of 307.2 kbps with the ACK Channel transmitting in all slots. The power control was set to "All Bits Up." Other rates were not tested due to the conducted power measured was less than $\frac{1}{4}$ dB higher than 153.6 kbps.

The Rev. A Subtype 2 testing was conducted with the Reverse Data Channel payload size of 4096 bits and Termination Target of 16 slots. The Forward Traffic Channel data rate is set to the 2-slot version of 307.2 kbps with the ACK Channel transmitting in all slots. The power control was set to "All Bits Up." Other rates were not tested due to the conducted power measured was less than $\frac{1}{4}$ dB higher than 4096 bits.

12. Conducted Power Measurement Procedures

Power measurements were performed using a base station simulator under average power.

12.1 Procedures Used to Establish RF Signal for SAR

The device was placed into a simulated call using a base station simulator in a screen room. Such test signals offer a consistent means for testing SAR and are recommended for evaluating SAR. SAR measurements were taken with a fully charged battery. The SAR measurement software calculates a reference point at the start and end of the test to check for power drifts. If conducted power deviations of more than 5% occurred, the tests were repeated.

12.2 SAR Measurement Conditions for CDMA2000, 1xEV-DO

12.2.1 Output Power Verification 1xRTT

Use CDMA2000 Rev 6 protocol in the call box.

- 1) Test for Reverse/Forward TCH RC1, Reverse/Forward TCH RC2, and RC3 Reverse FCH and demodulation of RC 3, 4 and 5.
 - a. Set up a call using Fundamental Channel Test Mode 1 (RC1, SO 2) with 9600 bps data rate only.
 - b. As per C.S0011 or TIA/EIA-98-F Table 4.4.5.2-1, set the test parameters.
 - c. Send continuously '0' power control bits to the UNDP-1.
 - d. Measure the output power at UNDP-1 antenna connector as recorded on the power meter with values corrected for cables losses.
 - e. Repeat step b through d for Fundamental Channel Test Mode:
 - i. RC1, SO55
 - ii. RC2, SO9
 - iii. RC2, SO55
 - iv. RC3, SO55
- 2) Test for RC 3 Reverse FCH, RC3 Reverse SCH0 and demodulation of RC 3, 4 and 5.
 - a. Set up a call using Supplemental Channel Test Mode 3 (RC 3, SO 32) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate.
 - b. As per C.S0011 or TIA/EIA-98-F Table 4.4.5.2-2, set the test parameters.
 - c. Send alternating '0' and '1' power control bit to the UNDP-1
 - d. Determine the active channel configuration. If the desired channel configuration is not the active channel configuration, increase $\hat{\rho}$ by 1 dB and repeat the verification. Repeat this step until the desired channel configuration becomes active.
 - e. Measure the output power at the UNDP-1 antenna connector.
 - f. Decrease $\hat{\rho}$ by 0.5 dB.
 - g. Determine the active channel configuration. If the active channel configuration is the desired channel configuration, measure the output power at the UNDP-1 antenna connector.
 - h. Repeat step f and g until the output power no longer increases or the desired channel configuration is no longer active. Record the highest output power achieved with the desired channel configuration active.
 - i. Repeat step a through h ten times and average the result.

12.2.2 Output Power Verification 1xRTT

- 1) Use 1xEV-DO Rel 0 protocol in the call box 8960.
 - a. FTAP
 - Select Test Application Protocol to FTAP
 - Set FTAP Rate to 307.2 kbps (2 Slot, QPSK)
 - Generator Info -> Termination Parameters -> Max Forward Packet Duration -> 16 Slots
 - Set \hat{I} or to -60 dBm/1.23 MHz
 - Send continuously '0' power control bits
 - Measure the power at UNDP-1 antenna connector
 - b. RTAP
 - Select Test Application Protocol to RTAP
 - Set RTAP Rate to 9.6 kbps
 - Generator Info -> Termination Parameters -> Max Forward Packet Duration -> 16 Slots
 - Set \hat{I} or to -60 dBm/1.23 MHz
 - Send continuously '0' power control bits
 - Measure the power at UNDP-1 antenna connector
 - Repeat above steps for RTAP Rate = 19.2 kbps, 38.4 kbps, 76.8 kbps and 153.6 kbps respectively
- 2) Use 1xEV-DO Rev A protocol in the call box 8960
 - a. FETAP
 - Select Test Application Protocol to FETAP
 - Set FETAP Rate to 307.2 kbps (2 Slot, QPSK)
 - Generator Info -> Termination Parameters -> Max Forward Packet Duration -> 16 Slots
 - Set \hat{I} or to -60 dBm/1.23 MHz
 - Send continuously '0' power control bits
 - Measure the power at UNDP-1 antenna connector
 - b. RETAP
 - Select Test Application Protocol to RETAP
 - F-Traffic Format -> 4 (1024, 2, 128) Canonical (307.2k, QPSK) • Set R-Data Pkt Size to 128
 - Protocol Subtype Config -> Release A Physical Layer Subtype -> Subtype 2 -> PL Subtype 2 Access Channel MAC Subtype -> Default (Subtype 0)
 - Generator Info -> Termination Parameters -> Max Forward Packet Duration -> 16 Slots ->ACK R-Data After -> Subpacket 0 (All ACK)
 - Set \hat{I} or to -60 dBm/1.23 MHz
 - Send continuously '0' power control bits
 - Measure the power at UNDP-1 antenna connector
 - Repeat above steps for R-Data Pkt Size = 256, 512, 768, 1024, 1536, 2048, 3072, 4096, 6144, 8192, 12288 respectively.

12.3 SAR Measurement Conditions for WCDMA/HSDPA/HSUPA

Configure the call box 8960 to support all WCDMA tests in respect to the 3GPP 34.121 (listed in Table below). Measure the power at Ch4132, 4182 and 4233 for US cell; Ch9262, 9400 and 9538 for US PCS band.

For Rel99

- Set a Test Mode 1 loop back with a 12.2kbps Reference Measurement Channel (RMC).
- Set and send continuously Up power control commands to the UNDP-1

- Measure the power at the UNDP-1 antenna connector using the power meter with average detector.

For HSDPA Rel 6

- Establish a Test Mode 1 loop back with both 1 12.2kbps RMC channel and a H-Set1 Fixed Reference Channel (FRC). With the 8820 this is accomplished by setting the signal Channel Coding to “Fixed Reference Channel” and configuring for HSET-1 QKSP.
- Set beta values and HSDPA settings for HSDPA Subtest1 according to Table below.
- Send continuously Up power control commands to the UNDP-1
- Measure the power at the UNDP-1 antenna connector using the power meter with modulated average detector.
- Repeat the measurement for the HSDPA Subtest2, 3 and 4 as given in Table below.

For HSUPA Rel 6

- Use UL RMC 12.2kbps and FRC H-Set1 QPSK, Test Mode 1 loop back. With the 8960 this is accomplished by setting the signal Channel Coding to “E-DCH Test Channel” and configuring the equipment category to Cat5_10ms.
- Set the Absolute Grant for HSUPA Subtest1 according to Table below.
- Set the UNDP power to be at least 5dB lower than the Maximum output power
- Send power control bits to give one TPC_cmd = +1 command to the UNDP. If UNDP doesn't send any E-DPCH data with decreased E-TFCI within 500ms, then repeat this process until the decreased E-TFCI is reported.
- Confirm that the E-TFCI transmitted by the UNDP is equal to the target E-TFCI in Table below. If the E-TFCI transmitted by the UNDP is not equal to the target E-TFCI, then send power control bits to give one TPC_cmd = -1 command to the UE. If UE sends any E-DPCH data with decreased E-TFCI within 500 ms, send new power control bits to give one TPC_cmd = -1 command to the UE. Then confirm that the E-TFCI transmitted by the UE is equal to the target E-TFCI in Table below.
- Measure the power using the power meter with modulated average detector.
- Repeat the measurement for the HSUPA Subtest2, 3, 4 and 5 as given in Table below.

12.4 SAR Measurement Conditions for GSM/GPRS/EDGE

Configure the 8960 box to support GMSK and 8PSK call respectively, and set one timeslot transmission for GMSK GSM/GPRS and 8PSK EDGE. Measure and record power outputs for both modulations.

1xRTT Power Measurements

IS-2000	Channel	SO2 [dBm]	SO55 [dBm]	SO9 [dBm]	SO55 [dBm]	SO55 [dBm]	SO32 [dBm]
	F-RC	RC1	RC1	RC2	RC2	RC3	RC3
Band	Vocoder Rate	Full	Full	Full	Full	Full	Full
Cellular	1013	24.79	24.82	24.73	24.91	24.91	23.25
	384	24.83	24.84	24.86	24.82	24.85	23.35
	777	24.71	24.79	24.69	24.75	24.75	23.41
PCS	25	24.52	24.78	24.61	24.60	24.53	23.12
	600	24.46	24.52	24.51	24.59	24.49	23.19
	1175	24.19	24.31	24.30	24.41	24.23	23.16

EvDo Rev 0 Power Measurements

1x EvDo Rev. 0 [dBm] - FTAP rate = 2 Slot Version 307.2 kbps						
	RTAP Rate	9.6 kbps	19.2 kbps	38.4 kbps	76.8 kbps	153.6 kbps
Band	Channel					
Cellular	1013	24.72	24.70	24.75	24.76	24.97
	384	24.79	24.85	24.68	24.75	24.92
	777	24.68	24.53	24.63	24.62	24.76
PCS	25	24.19	24.21	24.25	24.20	24.58
	600	24.23	24.28	24.23	24.25	24.49
	1175	23.91	23.81	23.98	23.84	24.06

EvDo Rev A Power Measurements

1x EvDo Rev. A Type 2 [dBm] - FTAP rate = 2 Slot Version 307.2 kbps, ACK On all slots													
	RETAP Payload	128 bits	256 bits	512 bits	768 bits	1024 bits	1536 bits	2048 bits	3072 bits	4096 bits	6144 bits	8192 bits	12288 bits
Band	Channel												
Cellular	1013	24.91	24.70	24.86	24.86	24.86	24.79	24.87	24.92	24.70	24.87	24.73	24.83
	384	24.93	24.85	24.93	24.79	24.90	24.81	24.83	24.86	24.81	24.85	24.85	24.89
	777	24.76	24.72	24.80	24.74	24.70	24.60	24.67	24.69	24.76	24.67	24.80	24.71
PCS	25	24.52	24.53	24.49	24.43	24.51	24.52	24.49	24.51	24.53	24.53	24.49	24.38
	600	24.51	24.36	24.43	24.56	24.52	24.59	24.37	24.58	24.35	24.34	24.47	24.40
	1175	24.16	24.08	24.10	24.19	24.16	24.08	23.98	24.18	24.06	24.01	24.13	24.12

Power Control was set in "All Bits Up" for all measurements.

3GPP Release Version	Mode	Cellular Band [dBm]			Sub-Test (See Table Below)	MPR
		4132	5183	4233		
99	WCDMA	24.20	24.43	24.21	-	-
6	HSDPA	24.26	24.27	24.12	1	0
6		24.19	24.38	24.05	2	0
6		23.80	23.70	23.52	3	0.5
6		23.73	23.61	23.59	4	0.5
6	HSUPA	23.89	24.15	23.84	1	0
6		21.94	21.98	21.96	2	2
6		22.76	22.97	22.47	3	1
6		21.90	21.82	21.83	4	2
6		24.01	23.97	24.01	5	0

3GPP Release Version	Mode	PCS Band [dBm]			Sub-Test (See Table Below)	MPR
		9262	9400	9538		
99	WCDMA	24.53	24.23	24.03	-	-
6	HSDPA	24.27	24.21	23.89	1	0
6		24.35	24.11	23.81	2	0
6		24.31	24.03	23.92	3	0.5
6		23.76	23.64	23.46	4	0.5
6	HSUPA	24.41	23.91	24.00	1	0
6		22.57	21.87	21.94	2	2
6		23.46	22.83	22.86	3	1
6		22.79	22.02	21.87	4	2
6		24.54	24.16	24.03	5	0

Sub-Test Setup for Release 6 HSDPA

Sub-Test	β_c	β_d	B_c / β_d	β_{hs}
1	2/15	15/15	2/15	4/15
2	12/15	15/15	15/15	24/15
3	15/15	8/15	15/8	30/15
4	15/15	4/15	15/4	30/15

$\Delta_{ack}, \Delta_{nack}$ and $\Delta_{cqi} = 8$

Sub-Test Setup for Release 6 HSUPA

Sub-Test	β_c	β_d	B_c / β_d	β_{hs}	B_{ec}	B_{ed}	MPR	AG Index	E-TFCI
1	11/15	15/15	11/15	22/15	209/225	1039/225	0.0	20	75
2	6/15	15/15	6/15	12/15	12/15	94/75	2.0	12	67
3	15/15	9/15	15/9	30/15	30/15	47/15	1.0	15	92
4	2/15	15/15	2/15	4/15	2/15	56/15	2.0	17	71
5	15/15	15/15	15/15	30/15	24/15	134/15	0.0	21	81

$\Delta_{ack}, \Delta_{nack}$ and $\Delta_{cqi} = 8$

GSM		
Band	Channel	Power
Cellular	128	32.90
	190	32.94
	251	32.91
PCS	512	29.34
	661	29.48
	810	29.38

GPRS/1-Slot		
Band	Channel	Power
Cellular	128	32.99
	190	32.74
	251	32.69
PCS	512	29.38
	661	29.47
	810	29.36

GPRS/2-Slot		
Band	Channel	Power
Cellular	128	30.86
	190	30.71
	251	30.65
PCS	512	27.26
	661	27.43
	810	27.31

EDGE/1-Slot		
Band	Channel	Power
Cellular	128	27.59
	190	27.85
	251	27.73
PCS	512	26.62
	661	26.86
	810	26.54

EDGE/2-Slot		
Band	Channel	Power
Cellular	128	25.51
	190	25.83
	251	25.70
PCS	512	24.60
	661	24.84
	810	24.50

802.11b				
Freq	Channel	Data Rate	Antenna	Power
2412	1	1	Main	22.32
2437	6	1	Main	22.26
2462	11	1	Main	22.18
2412	1	1	Aux	22.30
2437	6	1	Aux	22.23
2462	11	1	Aux	22.14
802.11g				
Freq	Channel	Data Rate	Antenna	Power
2417	2	6	Main	23.01
2437	6	6	Main	23.09
2457	10	6	Main	23.06
2417	2	6	Aux	22.98
2437	6	6	Aux	23.04
2457	10	6	Aux	23.01

Broadcom 1030 Conduct Power Measurements

802.11b					802.11a 5.2 GHz				
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
2412	1	1	Main	22.05	5.18	36	6	Main	14.56
2437	6	1	Main	21.97	5.20	40	6	Main	14.76
2462	11	1	Main	21.64	5.22	44	6	Main	14.59
2412	1	1	Aux	22.01	5.24	48	6	Main	14.38
2437	6	1	Aux	21.95	5.26	52	6	Main	17.76
2462	11	1	Aux	21.60	5.28	56	6	Main	17.89
					5.30	60	6	Main	18.09
					5.32	64	6	Main	16.30
802.11g									
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
2412	1	1	Main	18.97	5.18	36	6	Aux	14.53
2437	6	1	Main	18.86	5.20	40	6	Aux	14.70
2462	11	1	Main	16.84	5.22	44	6	Aux	14.52
2412	1	1	Aux	18.92	5.24	48	6	Aux	14.30
2437	6	1	Aux	18.85	5.26	52	6	Aux	17.71
2462	11	1	Aux	16.81	5.28	56	6	Aux	17.85
					5.30	60	6	Aux	18.05
					5.32	64	6	Aux	16.29
802.11n 2.4 GHz 20 MHz Wide					802.11n 5.2 GHz 20 MHz Wide				
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
2412	1	1	Main	14.23	5.18	36	6	Main	8.71
2437	6	1	Main	18.97	5.20	40	6	Main	8.69
2462	11	1	Main	13.95	5.22	44	6	Main	8.73
2412	1	1	Aux	13.86	5.24	48	6	Main	8.87
2437	6	1	Aux	18.62	5.26	52	6	Main	15.86
2462	11	1	Aux	13.35	5.28	56	6	Main	15.79
					5.30	60	6	Main	15.82
802.11n 2.4 GHz 40 MHz Wide									
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
2437	6	1	Main	13.65	5.32	64	6	Main	13.85
2437	6	1	Aux	13.98	5.18	36	6	Aux	8.65
					5.20	40	6	Aux	8.66
					5.22	44	6	Aux	8.70
802.11 a 5.8 GHz									
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
5.745	149	6	Main	16.68	5.24	48	6	Aux	8.76
5.765	153	6	Main	16.69	5.26	52	6	Aux	15.80
5.785	157	6	Main	16.71	5.28	56	6	Aux	15.76
5.805	161	6	Main	16.73	5.30	60	6	Aux	15.79
5.825	165	6	Main	16.75	5.32	64	6	Aux	13.86
					802.11n 5.2 GHz 40 MHz Wide				
5.745	149	6	Aux	16.65	Freq	Channel	Data Rate	Antenna	Power
5.765	153	6	Aux	16.67	5.21	42	6	Main	10.82
5.785	157	6	Aux	16.69	5.25	50	6	Main	16.70
5.805	161	6	Aux	16.70	5.29	58	6	Main	13.71
5.825	165	6	Aux	16.72	5.21	42	6	Aux	10.80
					5.25	50	6	Aux	16.65
					5.29	58	6	Aux	13.70

Broadcom 1031 Conduct Power Measurements

802.11a 5.6 GHz					802.11n 5.6 GHz 20 MHz Wide				
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
5.50	100	6	Main	17.68	5.50	100	6	Main	5.26
5.52	104	6	Main	17.66	5.52	104	6	Main	5.36
5.54	108	6	Main	17.61	5.54	108	6	Main	5.42
5.56	112	6	Main	17.63	5.56	112	6	Main	5.61
5.58	116	6	Main	17.62	5.58	116	6	Main	5.83
5.60	120	6	Main	17.65	5.60	120	6	Main	5.99
5.62	124	6	Main	17.67	5.62	124	6	Main	5.86
5.64	128	6	Main	17.69	5.64	128	6	Main	5.81
5.66	132	6	Main	17.70	5.66	132	6	Main	5.78
5.68	136	6	Main	17.66	5.68	136	6	Main	5.72
5.70	140	6	Main	17.71	5.70	140	6	Main	5.72
5.50	100	6	Aux	17.60	5.50	100	6	Aux	5.11
5.52	104	6	Aux	17.59	5.52	104	6	Aux	5.16
5.54	108	6	Aux	17.62	5.54	108	6	Aux	5.20
5.56	112	6	Aux	17.64	5.56	112	6	Aux	5.29
5.58	116	6	Aux	17.57	5.58	116	6	Aux	5.34
5.60	120	6	Aux	17.59	5.60	120	6	Aux	5.42
5.62	124	6	Aux	17.62	5.62	124	6	Aux	5.39
5.64	128	6	Aux	17.66	5.64	128	6	Aux	5.31
5.66	132	6	Aux	17.63	5.66	132	6	Aux	5.28
5.68	136	6	Aux	17.64	5.68	136	6	Aux	5.26
5.70	140	6	Aux	17.62	5.70	140	6	Aux	5.22
802.11n 5.6 GHz 40 MHz Wide					802.11n 5.8 GHz 20 MHz Wide				
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
5.53	106	6	Main	16.15	5.745	149	6	Main	16.85
5.57	114	6	Main	16.59	5.765	153	6	Main	16.79
5.61	122	6	Main	17.79	5.785	157	6	Main	16.12
5.63	130	6	Main	17.16	5.805	161	6	Main	16.32
5.69	138	6	Main	16.52	5.825	165	6	Main	16.46
5.53	106	6	Aux	16.10	5.745	149	6	Aux	16.87
5.57	114	6	Aux	16.49	5.765	153	6	Aux	16.84
5.61	122	6	Aux	17.71	5.785	157	6	Aux	16.89
5.63	130	6	Aux	17.09	5.805	161	6	Aux	16.81
5.69	138	6	Aux	16.50	5.825	165	6	Aux	16.77
					802.11n 5.8 GHz 40 MHz Wide				
					Freq	Channel	Data Rate	Antenna	Power
					5.76	152	6	Main	16.71
					5.80	160	6	Main	16.50
					5.76	152	6	Aux	17.23
					5.80	160	6	Aux	16.97

Broadcom 1031 Conduct Power Measurements

802.11b					802.11a 5.2 GHz				
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
2412	1	1	Main	19.72	5.18	36	6	Main	16.09
2437	6	1	Main	19.18	5.20	40	6	Main	16.35
2462	11	1	Main	19.26	5.22	44	6	Main	16.32
2412	1	1	Aux	19.62	5.24	48	6	Main	16.31
2437	6	1	Aux	19.53	5.26	52	6	Main	16.39
2462	11	1	Aux	19.38	5.28	56	6	Main	16.42
					5.30	60	6	Main	16.45
					5.32	64	6	Main	16.48
802.11g									
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
2412	1	1	Main	21.49	5.18	36	6	Aux	16.38
2437	6	1	Main	23.81	5.20	40	6	Aux	16.24
2462	11	1	Main	21.39	5.22	44	6	Aux	16.38
2412	1	1	Aux	21.28	5.24	48	6	Aux	16.49
2437	6	1	Aux	23.82	5.26	52	6	Aux	16.35
2462	11	1	Aux	21.16	5.28	56	6	Aux	16.30
					5.30	60	6	Aux	16.42
					5.32	64	6	Aux	16.58
802.11n 2.4 GHz 20 MHz Wide					802.11n 5.2 GHz 20 MHz Wide				
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
2412	1	1	Main	21.09	5.18	36	6	Main	16.09
2437	6	1	Main	23.91	5.20	40	6	Main	16.31
2462	11	1	Main	20.99	5.22	44	6	Main	16.29
2412	1	1	Aux	20.97	5.24	48	6	Main	16.26
2437	6	1	Aux	23.62	5.26	52	6	Main	16.36
2462	11	1	Aux	21.09	5.28	56	6	Main	16.25
					5.30	60	6	Main	16.15
802.11n 2.4 GHz 40 MHz Wide									
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
2437	6	1	Main	22.69	5.32	64	6	Main	16.08
2437	6	1	Aux	22.97	5.18	36	6	Aux	16.09
					5.20	40	6	Aux	16.46
					5.22	44	6	Aux	16.32
802.11 a 5.8 GHz									
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
5.745	149	6	Main	24.08	5.24	48	6	Aux	16.20
5.765	153	6	Main	24.10	5.26	52	6	Aux	16.58
5.785	157	6	Main	24.11	5.28	56	6	Aux	16.47
5.805	161	6	Main	24.05	5.30	60	6	Aux	16.41
5.825	165	6	Main	23.97	5.32	64	6	Aux	16.36
802.11n 5.2 GHz 40 MHz Wide					Freq	Channel	Data Rate	Antenna	Power
5.745	149	6	Aux	24.38	5.21	42	6	Main	16.62
5.765	153	6	Aux	24.36	5.25	50	6	Main	16.66
5.785	157	6	Aux	24.40	5.29	58	6	Main	16.39
5.805	161	6	Aux	24.46	5.21	42	6	Aux	16.68
5.825	165	6	Aux	24.51	5.25	50	6	Aux	16.52
					5.29	58	6	Aux	16.68

Intel 533 Conduct Power Measurements

802.11a 5.6 GHz					802.11n 5.6 GHz 20 MHz Wide				
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
5.50	100	6	Main	16.11	5.50	100	6	Main	16.12
5.52	104	6	Main	16.18	5.52	104	6	Main	16.15
5.54	108	6	Main	16.24	5.54	108	6	Main	16.18
5.56	112	6	Main	16.29	5.56	112	6	Main	16.21
5.58	116	6	Main	16.35	5.58	116	6	Main	16.22
5.60	120	6	Main	16.38	5.60	120	6	Main	16.23
5.62	124	6	Main	16.31	5.62	124	6	Main	16.28
5.64	128	6	Main	16.26	5.64	128	6	Main	16.31
5.66	132	6	Main	16.19	5.66	132	6	Main	16.35
5.68	136	6	Main	16.12	5.68	136	6	Main	16.38
5.70	140	6	Main	16.07	5.70	140	6	Main	16.45
5.50	100	6	Aux	16.42	5.50	100	6	Aux	16.09
5.52	104	6	Aux	16.45	5.52	104	6	Aux	16.12
5.54	108	6	Aux	16.48	5.54	108	6	Aux	16.17
5.56	112	6	Aux	16.42	5.56	112	6	Aux	16.20
5.58	116	6	Aux	16.49	5.58	116	6	Aux	16.24
5.60	120	6	Aux	16.51	5.60	120	6	Aux	16.28
5.62	124	6	Aux	16.48	5.62	124	6	Aux	16.27
5.64	128	6	Aux	16.42	5.64	128	6	Aux	16.25
5.66	132	6	Aux	16.46	5.66	132	6	Aux	16.23
5.68	136	6	Aux	16.45	5.68	136	6	Aux	16.20
5.70	140	6	Aux	16.44	5.70	140	6	Aux	16.19
802.11n 5.6 GHz 40 MHz Wide					802.11n 5.8 GHz 20 MHz Wide				
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
5.53	106	6	Main	16.68	5.745	149	6	Main	23.98
5.57	114	6	Main	16.65	5.765	153	6	Main	24.01
5.61	122	6	Main	16.61	5.785	157	6	Main	24.05
5.63	130	6	Main	16.49	5.805	161	6	Main	24.02
5.69	138	6	Main	16.37	5.825	165	6	Main	23.99
5.53	106	6	Aux	16.35	5.745	149	6	Aux	24.57
5.57	114	6	Aux	16.47	5.765	153	6	Aux	24.61
5.61	122	6	Aux	16.65	5.785	157	6	Aux	24.66
5.63	130	6	Aux	16.61	5.805	161	6	Aux	24.57
5.69	138	6	Aux	16.58	5.825	165	6	Aux	24.48
					802.11n 5.8 GHz 40 MHz Wide				
					Freq	Channel	Data Rate	Antenna	Power
					5.76	152	6	Main	24.16
					5.80	160	6	Main	24.23
					5.76	152	6	Aux	24.85
					5.80	160	6	Aux	24.71

Intel 533 Conduct Power Measurements

802.11b					802.11a 5.2 GHz				
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
2412	1	1	Main	16.43	5.18	36	6	Main	14.72
2437	6	1	Main	18.25	5.20	40	6	Main	17.53
2462	11	1	Main	16.53	5.22	44	6	Main	17.51
2412	1	1	Aux	16.40	5.24	48	6	Main	17.48
2437	6	1	Aux	18.26	5.26	52	6	Main	17.05
2462	11	1	Aux	16.59	5.28	56	6	Main	17.32
					5.30	60	6	Main	17.29
					5.32	64	6	Main	14.69
802.11g									
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
2412	1	1	Main	13.87	5.18	36	6	Aux	14.76
2437	6	1	Main	17.76	5.20	40	6	Aux	17.59
2462	11	1	Main	15.42	5.22	44	6	Aux	17.53
2412	1	1	Aux	19.91	5.24	48	6	Aux	14.50
2437	6	1	Aux	17.85	5.26	52	6	Aux	17.06
2462	11	1	Aux	15.39	5.28	56	6	Aux	17.35
					5.30	60	6	Aux	17.31
					5.32	64	6	Aux	14.72
802.11n 2.4 GHz 20 MHz Wide					802.11n 5.2 GHz 20 MHz Wide				
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
2412	1	1	Main	14.05	5.18	36	6	Main	14.57
2437	6	1	Main	16.53	5.20	40	6	Main	17.56
2462	11	1	Main	14.38	5.22	44	6	Main	17.51
2412	1	1	Aux	14.10	5.24	48	6	Main	17.45
2437	6	1	Aux	16.61	5.26	52	6	Main	16.53
2462	11	1	Aux	14.42	5.28	56	6	Main	17.52
					5.30	60	6	Main	17.48
802.11n 2.4 GHz 40 MHz Wide									
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
2437	6	1	Main	16.56	5.32	64	6	Main	14.56
2437	6	1	Aux	16.49	5.18	36	6	Aux	14.52
					5.20	40	6	Aux	14.53
					5.22	44	6	Aux	17.47
802.11 a 5.8 GHz									
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
5.745	149	6	Main	17.56	5.24	48	6	Aux	17.42
5.765	153	6	Main	17.76	5.26	52	6	Aux	16.50
5.785	157	6	Main	17.85	5.28	56	6	Aux	17.48
5.805	161	6	Main	17.52	5.30	60	6	Aux	17.43
5.825	165	6	Main	17.32	5.32	64	6	Aux	14.51
					802.11n 5.2 GHz 40 MHz Wide				
5.745	149	6	Aux	17.51	Freq	Channel	Data Rate	Antenna	Power
5.765	153	6	Aux	17.79	5.21	42	6	Main	11.83
5.785	157	6	Aux	17.86	5.25	50	6	Main	16.42
5.805	161	6	Aux	17.53	5.29	58	6	Main	16.50
5.825	165	6	Aux	17.35	5.21	42	6	Aux	11.91
					5.25	50	6	Aux	16.46
					5.29	58	6	Aux	16.52

Intel 512 Conduct Power Measurements

802.11a 5.6 GHz					802.11n 5.6 GHz 20 MHz Wide				
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
5.50	100	6	Main	17.56	5.50	100	6	Main	17.51
5.52	104	6	Main	17.53	5.52	104	6	Main	17.38
5.54	108	6	Main	17.59	5.54	108	6	Main	17.26
5.56	112	6	Main	17.67	5.56	112	6	Main	17.19
5.58	116	6	Main	17.71	5.58	116	6	Main	17.02
5.60	120	6	Main	17.82	5.60	120	6	Main	16.57
5.62	124	6	Main	17.80	5.62	124	6	Main	16.48
5.64	128	6	Main	17.73	5.64	128	6	Main	16.53
5.66	132	6	Main	17.68	5.66	132	6	Main	16.47
5.68	136	6	Main	17.60	5.68	136	6	Main	16.52
5.70	140	6	Main	17.26	5.70	140	6	Main	16.49
5.50	100	6	Aux	17.52	5.50	100	6	Aux	17.46
5.52	104	6	Aux	17.49	5.52	104	6	Aux	17.30
5.54	108	6	Aux	17.54	5.54	108	6	Aux	17.21
5.56	112	6	Aux	17.62	5.56	112	6	Aux	17.13
5.58	116	6	Aux	17.67	5.58	116	6	Aux	16.98
5.60	120	6	Aux	17.76	5.60	120	6	Aux	16.57
5.62	124	6	Aux	17.77	5.62	124	6	Aux	16.49
5.64	128	6	Aux	17.70	5.64	128	6	Aux	16.57
5.66	132	6	Aux	17.63	5.66	132	6	Aux	16.52
5.68	136	6	Aux	17.58	5.68	136	6	Aux	16.53
5.70	140	6	Aux	17.21	5.70	140	6	Aux	16.55
802.11n 5.6 GHz 40 MHz Wide					802.11n 5.8 GHz 20 MHz Wide				
Freq	Channel	Data Rate	Antenna	Power	Freq	Channel	Data Rate	Antenna	Power
5.53	106	6	Main	15.49	5.745	149	6	Main	16.53
5.57	114	6	Main	16.52	5.765	153	6	Main	16.52
5.61	122	6	Main	16.57	5.785	157	6	Main	16.57
5.63	130	6	Main	16.54	5.805	161	6	Main	16.54
5.69	138	6	Main	16.52	5.825	165	6	Main	16.51
5.53	106	6	Aux	15.47	5.745	149	6	Aux	16.51
5.57	114	6	Aux	16.50	5.765	153	6	Aux	16.56
5.61	122	6	Aux	16.52	5.785	157	6	Aux	16.58
5.63	130	6	Aux	16.55	5.805	161	6	Aux	16.53
5.69	138	6	Aux	16.49	5.825	165	6	Aux	16.54
					802.11n 5.8 GHz 40 MHz Wide				
					Freq	Channel	Data Rate	Antenna	Power
					5.76	152	6	Main	16.54
					5.80	160	6	Main	16.59
					5.76	152	6	Aux	16.57
					5.80	160	6	Aux	16.55

Intel 512 Conduct Power Measurements

SAR Data Summary – 835 MHz Body

MEASUREMENT RESULTS								
Position	Mode	Frequency		Modulation	End Power (dBm)	Rev Ch/ Tx Level/RMC	Fwd Ch/Multi Slot/Test Set Up	SAR (W/kg)
		MHz	Ch.					
Touch	EV-DO Rev 0	836.6	384	CDMA	24.92	153.6 kbps	2 Slot 307.2 kbps	0.570
	GPRS	836.6	190	GMSK	30.71	0	2-Slot	0.469
	3G	836.6	4183	WCDMA	24.43	12.2 kbps	Test Loop 1	0.574

Muscle
1.6 W/kg (mW/g)
averaged over 1 gram

1. Battery is fully charged for all tests.
 Power Measured Conducted ERP EIRP
2. SAR Measurement
 Phantom Configuration Left Head Uniphantom Right Head
 SAR Configuration Head Body
3. Test Signal Call Mode Test Code Base Station Simulator
4. Test Configuration With Belt Clip Without Belt Clip N/A



 Jay M. Moulton
 Vice President

SAR Data Summary – 1900 MHz Body

MEASUREMENT RESULTS								
Position	Mode	Frequency		Modulation	End Power (dBm)	Rev Ch/ Tx Level/RMC	Fwd Ch/Multi Slot/Test Set Up	SAR (W/kg)
		MHz	Ch.					
Touch	EV-DO Rev 0	1851.25	25	CDMA	24.58	153.6 kbps	2 Slot 307.2 kbps	1.075
		1880.00	600		24.49	153.6 kbps	2 Slot 307.2 kbps	1.090
		1908.75	1175		24.06	153.6 kbps	2 Slot 307.2 kbps	1.064
	GPRS	1850.2	512	GMSK	27.26	0	2-Slot	0.768
		1880.0	661		27.43	0	2-Slot	0.755
		1909.8	810		27.31	0	2-Slot	0.760
	3G	1851.25	9262	WCDMA	24.53	12.2 kbps	Test Loop 1	1.092
		1880.00	9400		24.23	12.2 kbps	Test Loop 1	1.070
		1908.75	9538		24.03	12.2 kbps	Test Loop 1	1.073

Muscle
1.6 W/kg (mW/g)
averaged over 1 gram

1. Battery is fully charged for all tests.
 Power Measured Conducted ERP EIRP
2. SAR Measurement
 Phantom Configuration Left Head Uniphantom Right Head
 SAR Configuration Head Body
3. Test Signal Call Mode Test Code Base Station Simulator
4. Test Configuration With Belt Clip Without Belt Clip N/A



Jay M. Moulton
Vice President

SAR Data Summary – 2450 MHz Body

MEASUREMENT RESULTS										
Position	Module	Band	Antenna	Frequency		Modulation	End Power	Battery	SAR (W/kg)	
				MHz	Ch.		(dBm)			
Touch	1030	g	Main	2437	6	OFDM	23.09	Standard	0.272	
			Aux	2437	6	OFDM	23.04	Standard	0.289	
	1031	b	Main	2412	1	DSSS	22.05	Standard	0.261	
			Aux	2412	1	DSSS	18.97	Standard	0.275	
		n20	Main	2437	6	OFDM	18.97	Standard	0.265	
			Aux	2437	6	OFDM	18.62	Standard	0.268	
		n40	Main	2437	6	OFDM	13.65	Standard	0.273	
			Aux	2437	6	OFDM	13.98	Standard	0.271	
	533	g	Main	2437	6	OFDM	23.81	Standard	0.262	
			Aux	2437	6	OFDM	23.82	Standard	0.276	
			Ant 3	2437	6	OFDM	23.80	Standard	0.320	
		n20	Main	2412	1	OFDM	23.91	Standard	0.272	
			Aux	2412	1	OFDM	23.62	Standard	0.267	
			Ant 3	2412	1	OFDM	23.70	Standard	0.318	
		n40	Main	2437	6	OFDM	22.69	Standard	0.268	
			Aux	2437	6	OFDM	22.97	Standard	0.271	
			Ant 3	2437	6	OFDM	22.85	Standard	0.296	
		512	b	Main	2437	6	DSSS	18.25	Standard	0.274
				Aux	2437	6	DSSS	18.26	Standard	0.268
			n20	Main	2437	6	OFDM	16.53	Standard	0.266
	Aux			2437	6	OFDM	16.61	Standard	0.276	
	n40		Main	2437	6	OFDM	16.56	Standard	0.277	
			Aux	2437	6	OFDM	16.49	Standard	0.278	

Muscle
1.6 W/kg (mW/g)
 averaged over 1 gram

1. Battery is fully charged for all tests.

Power Measured

Conducted

ERP

EIRP

2. SAR Measurement

Phantom Configuration

Left Head

Uniphantom

Right Head

SAR Configuration

Head

Body

3. Test Signal Call Mode

Test Code

Base Station Simulator

4. Test Configuration

With Belt Clip

Without Belt Clip N/A



Jay M. Moulton
 Vice President

SAR Data Summary – 5200 MHz Body
MEASUREMENT RESULTS

Position	Module	Band	Antenna	Frequency		Modulation	End Power	Battery	SAR (W/kg)	
				MHz	Ch.		(dBm)			
Touch	1031	a1	Main	5200	40	OFDM	14.76	Standard	0.196	
			Aux	5200	40	OFDM	14.70	Standard	0.204	
		a2	Main	5300	60	OFDM	18.09	Standard	0.196	
			Aux	5300	60	OFDM	18.05	Standard	0.201	
		n20	Main	5260	52	OFDM	15.86	Standard	0.197	
			Aux	5260	52	OFDM	15.80	Standard	0.199	
		n40	Main	5250	50	OFDM	16.70	Standard	0.190	
			Aux	5250	50	OFDM	16.65	Standard	0.199	
		533	a1	Main	5200	40	OFDM	16.35	Standard	0.187
				Aux	5240	48	OFDM	16.49	Standard	0.198
				Ant 3	5240	48	OFDM	16.38	Standard	0.268
			a2	Main	5320	64	OFDM	16.48	Standard	0.193
	Aux			5320	64	OFDM	16.58	Standard	0.200	
	Ant 3			5320	64	OFDM	16.57	Standard	0.276	
	n20		Main	5260	52	OFDM	16.36	Standard	0.200	
			Aux	5260	52	OFDM	16.58	Standard	0.198	
			Ant 3	5260	52	OFDM	16.46	Standard	0.265	
	n40		Main	5250	50	OFDM	16.66	Standard	0.198	
			Aux	5210	42	OFDM	16.68	Standard	0.200	
			Ant 3	5250	50	OFDM	16.67	Standard	0.259	
	512		a1	Main	5200	40	OFDM	17.53	Standard	0.203
				Aux	5280	56	OFDM	17.59	Standard	0.199
			a2	Main	5200	40	OFDM	17.32	Standard	0.200
				Aux	5280	56	OFDM	17.35	Standard	0.203
			n20	Main	5200	40	OFDM	17.56	Standard	0.199
				Aux	5280	56	OFDM	17.48	Standard	0.202
		n40	Main	5290	58	OFDM	16.50	Standard	0.203	
			Aux	5290	58	OFDM	16.52	Standard	0.195	

Muscle
1.6 W/kg (mW/g)
averaged over 1 gram

1. Battery is fully charged for all tests.
 Power Measured Conducted ERP EIRP
2. SAR Measurement
 Phantom Configuration Left Head Uniphantom Right Head
 SAR Configuration Head Body
3. Test Signal Call Mode Test Code Base Station Simulator
4. Test Configuration With Belt Clip Without Belt Clip N/A



 Jay M. Moulton
 Vice President

SAR Data Summary – 5600 MHz Body

MEASUREMENT RESULTS									
Position	Module	Band	Antenna	Frequency		Modulation	End Power	Battery	SAR (W/kg)
				MHz	Ch.		(dBm)		
Touch	1031	a6	Main	5700	140	OFDM	17.71	Standard	0.195
			Aux	5640	128	OFDM	17.66	Standard	0.208
		n20	Main	5600	120	OFDM	5.99	Standard	0.195
			Aux	5600	120	OFDM	5.42	Standard	0.201
		n40	Main	5610	122	OFDM	17.79	Standard	0.227
			Aux	5610	122	OFDM	17.71	Standard	0.202
	533	a6	Main	5600	120	OFDM	16.38	Standard	0.234
			Aux	5600	120	OFDM	16.51	Standard	0.205
			Ant 3	5600	120	OFDM	16.49	Standard	0.310
		n20	Main	5700	140	OFDM	16.45	Standard	0.233
			Aux	5600	120	OFDM	16.28	Standard	0.216
			Ant 3	5600	120	OFDM	16.38	Standard	0.314
		n40	Main	5530	106	OFDM	16.68	Standard	0.223
			Aux	5610	122	OFDM	16.66	Standard	0.217
			Ant 3	5610	122	OFDM	16.69	Standard	0.310
	512	a6	Main	5600	120	OFDM	17.82	Standard	0.231
			Aux	5600	120	OFDM	17.76	Standard	0.215
		n20	Main	5500	100	OFDM	17.51	Standard	0.223
			Aux	5500	100	OFDM	17.46	Standard	0.234
		n40	Main	5610	122	OFDM	16.57	Standard	0.219
			Aux	5630	130	OFDM	16.55	Standard	0.226

Muscle
1.6 W/kg (mW/g)
 averaged over 1 gram

- Battery is fully charged for all tests.
 Power Measured Conducted ERP EIRP
- SAR Measurement
 Phantom Configuration Left Head Uniphantom Right Head
 SAR Configuration Head Body
- Test Signal Call Mode Test Code Base Station Simulator
- Test Configuration With Belt Clip Without Belt Clip N/A



Jay M. Moulton
 Vice President

SAR Data Summary – 5800 MHz Body

MEASUREMENT RESULTS									
Position	Module	Band	Antenna	Frequency		Modulation	End Power	Battery	SAR (W/kg)
				MHz	Ch.		(dBm)		
Touch	1031	a8	Main	5825	165	OFDM	16.75	Standard	0.296
			Aux	5825	165	OFDM	16.72	Standard	0.280
		n20	Main	5745	149	OFDM	16.85	Standard	0.301
			Aux	5785	157	OFDM	16.89	Standard	0.288
		n40	Main	5760	152	OFDM	16.71	Standard	0.296
			Aux	5760	152	OFDM	17.23	Standard	0.296
	533	a8	Main	5785	157	OFDM	24.11	Standard	0.304
			Aux	5825	165	OFDM	24.51	Standard	0.292
			Ant 3	5825	165	OFDM	24.32	Standard	0.359
		n20	Main	2785	157	OFDM	24.05	Standard	0.319
			Aux	5785	157	OFDM	24.66	Standard	0.299
			Ant 3	5785	157	OFDM	24.53	Standard	0.369
		n40	Main	5800	160	OFDM	24.23	Standard	0.309
			Aux	5760	152	OFDM	24.85	Standard	0.292
			Ant 3	5800	160	OFDM	24.52	Standard	0.357
	512	a8	Main	5785	157	OFDM	17.85	Standard	0.295
			Aux	5785	157	OFDM	17.86	Standard	0.294
		n20	Main	5785	157	OFDM	16.57	Standard	0.301
			Aux	5785	157	OFDM	16.58	Standard	0.291
		n40	Main	5800	160	OFDM	16.59	Standard	0.291
			Aux	5760	152	OFDM	16.57	Standard	0.295

Muscle
1.6 W/kg (mW/g)
 averaged over 1 gram

- Battery is fully charged for all tests.
 Power Measured Conducted ERP EIRP
- SAR Measurement
 Phantom Configuration Left Head Uniphantom Right Head
 SAR Configuration Head Body
- Test Signal Call Mode Test Code Base Station Simulator
- Test Configuration With Belt Clip Without Belt Clip N/A



Jay M. Moulton
 Vice President

SAR Data Summary – Simultaneous Transmission

MEASUREMENT RESULTS										
WWAN	Frequency		Modulation	WLAN Module	Frequency		Modulation	WWAN SAR	WLAN SAR	Total SAR (W/kg)
	MHz	Ch			MHz	Ch				
835	836.6	384	WCDMA	512 n40	2437	6	OFDM	0.574	0.277	0.851
	836.6	384	WCDMA	512 n40	5290	58	OFDM	0.574	0.203	0.777
	836.6	384	WCDMA	533 a6	5600	120	OFDM	0.574	0.234	0.808
	836.6	384	WCDMA	533 n20	5785	157	OFDM	0.574	0.319	0.893
1900	1851.25	25	WCDMA	512 n40	2437	6	OFDM	1.092	0.277	1.369
	1851.25	25	WCDMA	512 n40	5290	58	OFDM	1.092	0.203	1.295
	1851.25	25	WCDMA	533 a6	5600	120	OFDM	1.092	0.234	1.263
	1851.25	25	WCDMA	533 n20	5785	157	OFDM	1.092	0.319	1.411

Muscle
1.6 W/kg (mW/g)
averaged over 1 gram

1. Battery is fully charged for all tests.
 Power Measured Conducted ERP EIRP
2. SAR Measurement
 Phantom Configuration Left Head Uniphantom Right Head
 SAR Configuration Head Body
3. Test Signal Call Mode Test Code Base Station Simulator
4. Test Configuration With Belt Clip Without Belt Clip N/A



Jay M. Moulton
Vice President

12.1 Test Equipment List

Table 12.1 Equipment Specifications

Type	Calibration Due Date	Serial Number
ThermoCRS Robot	N/A	RAF0338198
ThermoCRS Controller	N/A	RCF0338224
ThermoCRS Teach Pendant (Joystick)	N/A	STP0334405
IBM Computer, 2.66 MHz P4	N/A	8189D8U KCPR08N
Apriel E-Field Probe ALS-E020	12/03/2008	RFE-217
Apriel E-Field Probe ALS-E030	04/30/2008	AL-E3P1
Apriel Dummy Probe	N/A	023
Apriel Left Phantom	N/A	RFE-267
Apriel Right Phantom	N/A	RFE-268
Apriel UniPhantom	N/A	RFE-273
Apriel Validation Dipole ALS-D-450-S-2	04/30/2009	RFE-362
Apriel Validation Dipole ALS-D-835-S-2	02/22/2010	RFE-274
Apriel Validation Dipole ALS-D-1900-S-2	02/21/2010	RFE-277
Apriel Validation Dipole ALS-D-2450-S-2	02/20/2010	RFE-278
Apriel Validation Dipole ALS-D-BB-S-2	05/23/2009	5258-235-00801
Agilent (HP) 437B Power Meter	12/03/2008	3125U08837
Agilent (HP) 8481B Power Sensor	12/03/2008	3318A05384
Advantest R3261A Spectrum Analyzer	12/03/2008	31720068
Agilent (HP) 8350B Signal Generator	01/28/2009	2749A10226
Agilent (HP) 83525A RF Plug-In	01/28/2009	2647A01172
Agilent (HP) 8753C Vector Network Analyzer	01/28/2009	3135A01724
Agilent (HP) 85047A S-Parameter Test Set	01/28/2009	2904A00595
Agilent (HP) E55125C Base Station Sim.	10/30/2010	MY4860364
Apriel Dielectric Probe Assembly	N/A	0011
Brain Equivalent Matter (450 MHz)	N/A	N/A
Brain Equivalent Matter (835 MHz)	N/A	N/A
Brain Equivalent Matter (1900 MHz)	N/A	N/A
Brain Equivalent Matter (2450 MHz)	N/A	N/A
Muscle Equivalent Matter (450 MHz)	N/A	N/A
Muscle Equivalent Matter (835 MHz)	N/A	N/A
Muscle Equivalent Matter (1900 MHz)	N/A	N/A
Muscle Equivalent Matter (2450 MHz)	N/A	N/A
Muscle Equivalent Matter (5200 MHz)	N/A	N/A
Muscle Equivalent Matter (5800 MHz)	N/A	N/A

13.1 Conclusion

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the FCC. These measurements are taken to simulate the RF effects exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The tested device complies with the requirements in respect to all parameters subject to the test. The test results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body is a very complex phenomena that depends on the mass, shape, and size of the body; the orientation of the body with respect to the field vectors; and, the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because innumerable factors may interact to determine the specific biological outcome of an exposure to electromagnetic fields, any protection guide shall consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

14.1 References

- [1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radio Frequency Radiation, August 1996
- [2] ANSI/IEEE C95.1 – 1999, American National Standard Safety Levels with respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300kHz to 100GHz, New York: IEEE, 1992.
- [3] ANSI/IEEE C95.3 – 2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave, New York: IEEE, 1992.
- [4] Federal Communications Commission, OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01), Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields, July 2001.
- [5] IEEE Standard 1528 – 2003, IEEE Recommended Practice for Determining the Peak-Spatial Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communication Devices: Measurement Techniques, October 2003.
- [6] Industry Canada, RSS – 102e, Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands), November 2005.
- [7] Industry Canada, Safety Code 6, Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3kHz to 300 GHz, 1999.

Appendix A – System Validation Plots and Data

Test Result for UIM Dielectric Parameter

Wed 03/Dec/2008 09:57:43

Freq Frequency(GHz)

FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon

FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma

FCC_eB FCC Limits for Body Epsilon

FCC_sB FCC Limits for Body Sigma

Test_e Epsilon of UIM

Test_s Sigma of UIM

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.8050	55.32	0.97	55.21	0.93
0.8150	55.28	0.97	55.15	0.95
0.8250	55.24	0.97	55.03	0.96
0.8350	55.20	0.97	54.92	0.98
0.8450	55.17	0.98	54.83	0.99
0.8550	55.14	0.99	54.76	1.01
0.8650	55.11	1.01	54.62	1.02

Test Result for UIM Dielectric Parameter

Wed 03/Dec/2008 06:47:10

Freq Frequency(GHz)

FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon

FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma

FCC_eB FCC Limits for Body Epsilon

FCC_sB FCC Limits for Body Sigma

Test_e Epsilon of UIM

Test_s Sigma of UIM

Freq	FCC_eB	FCC_sB	Test_e	Test_s
1.8700	53.30	1.52	52.82	1.59
1.8800	53.30	1.52	52.94	1.57
1.8900	53.30	1.52	53.01	1.56
1.9000	53.30	1.52	53.04	1.54
1.9100	53.30	1.52	53.12	1.53
1.9200	53.30	1.52	53.20	1.51
1.9300	53.30	1.52	53.32	1.50

Test Result for UIM Dielectric Parameter

Wed 03/Dec/2008 12:02:27

Freq Frequency(GHz)

FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon

FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma

FCC_eB FCC Limits for Body Epsilon

FCC_sB FCC Limits for Body Sigma

Test_e Epsilon of UIM

Test_s Sigma of UIM

Freq	FCC_eB	FCC_sB	Test_e	Test_s
2.4200	52.74	1.92	53.42	1.91
2.4300	52.73	1.93	53.42	1.94
2.4400	52.71	1.94	53.38	1.95
2.4500	52.70	1.95	53.36	1.96
2.4600	52.69	1.96	53.28	1.98
2.4700	52.67	1.98	53.27	1.99
2.4800	52.66	1.99	53.19	2.00

Test Result for UIM Dielectric Parameter

Mon 08/Dec/2008 07:00:42

Freq Frequency(GHz)

FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon

FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma

FCC_eB FCC Limits for Body Epsilon

FCC_sB FCC Limits for Body Sigma

Test_e Epsilon of UIM

Test_s Sigma of UIM

Freq	FCC_eB	FCC_sB	Test_e	Test_s
5.2200	48.99	5.32	47.53	5.19
5.2300	48.97	5.33	47.49	5.20
5.2400	48.96	5.35	47.48	5.22
5.2500	48.95	5.36	47.40	5.23
5.2600	48.93	5.37	47.39	5.24
5.2700	48.92	5.38	47.33	5.26
5.2800	48.91	5.39	47.24	5.29

Test Result for UIM Dielectric Parameter

Sat 06/Dec/2008 07:02:41

Freq Frequency(GHz)

FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon

FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma

FCC_eB FCC Limits for Body Epsilon

FCC_sB FCC Limits for Body Sigma

Test_e Epsilon of UIM

Test_s Sigma of UIM

Freq	FCC_eB	FCC_sB	Test_e	Test_s
5.5700	48.51	5.73	48.64	5.87
5.5800	48.50	5.74	48.60	5.88
5.5900	48.48	5.75	48.48	5.90
5.6000	48.47	5.77	48.57	5.91
5.6100	48.46	5.78	48.57	5.93
5.6200	48.44	5.79	48.54	5.95
5.6300	48.43	5.80	48.49	5.96

Test Result for UIM Dielectric Parameter

Sun 07/Dec/2008 06:54:39

Freq Frequency(GHz)

FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon

FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma

FCC_eB FCC Limits for Body Epsilon

FCC_sB FCC Limits for Body Sigma

Test_e Epsilon of UIM

Test_s Sigma of UIM

Freq	FCC_eB	FCC_sB	Test_e	Test_s
5.7550	48.26	5.95	49.42	5.81
5.7650	48.25	5.96	49.38	5.85
5.7750	48.23	5.97	49.35	5.86
5.7850	48.22	5.98	49.31	5.89
5.7950	48.21	5.99	49.29	5.91
5.8050	48.19	6.01	49.28	5.92
5.8150	48.18	6.02	49.25	5.94

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 10:39:59 AM
End Time : 03-Dec-2008 10:55:01 AM
Scanning Time : 902 secs

Product Data

Device Name : Validation
Serial No. : 835
Type : Dipole
Model : ALS-D-835-S-2
Frequency : 835.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 161 mm
Width : 3.6 mm
Depth : 89.8 mm
Antenna Type : Internal
Orientation : Touch
Power Drift-Start : 1.099 W/kg
Power Drift-Finish: 1.066 W/kg
Power Drift (%) : -2.944

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 835
Frequency : 835.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 24.00 °C
Humidity : 40.00 RH%
Epsilon : 54.92 F/m
Sigma : 0.98 S/m
Density : 1000.00 kg/cu. m

Probe Data

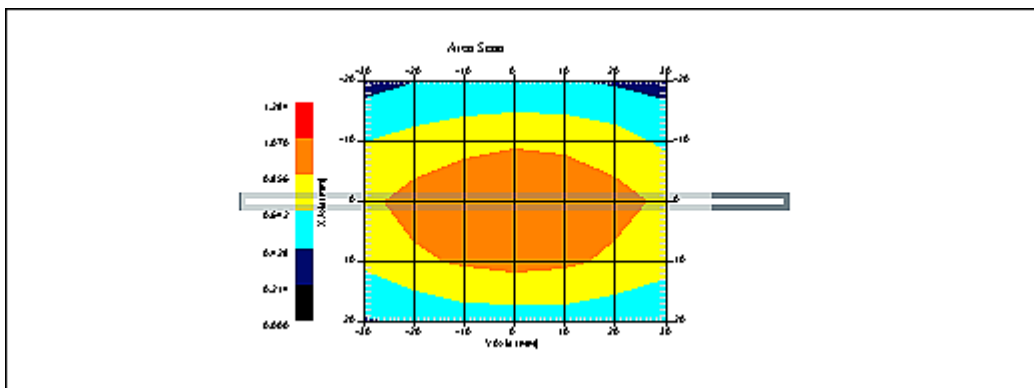
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 835.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.3
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 24.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 9:21:48 AM
Area Scan : 5x7x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

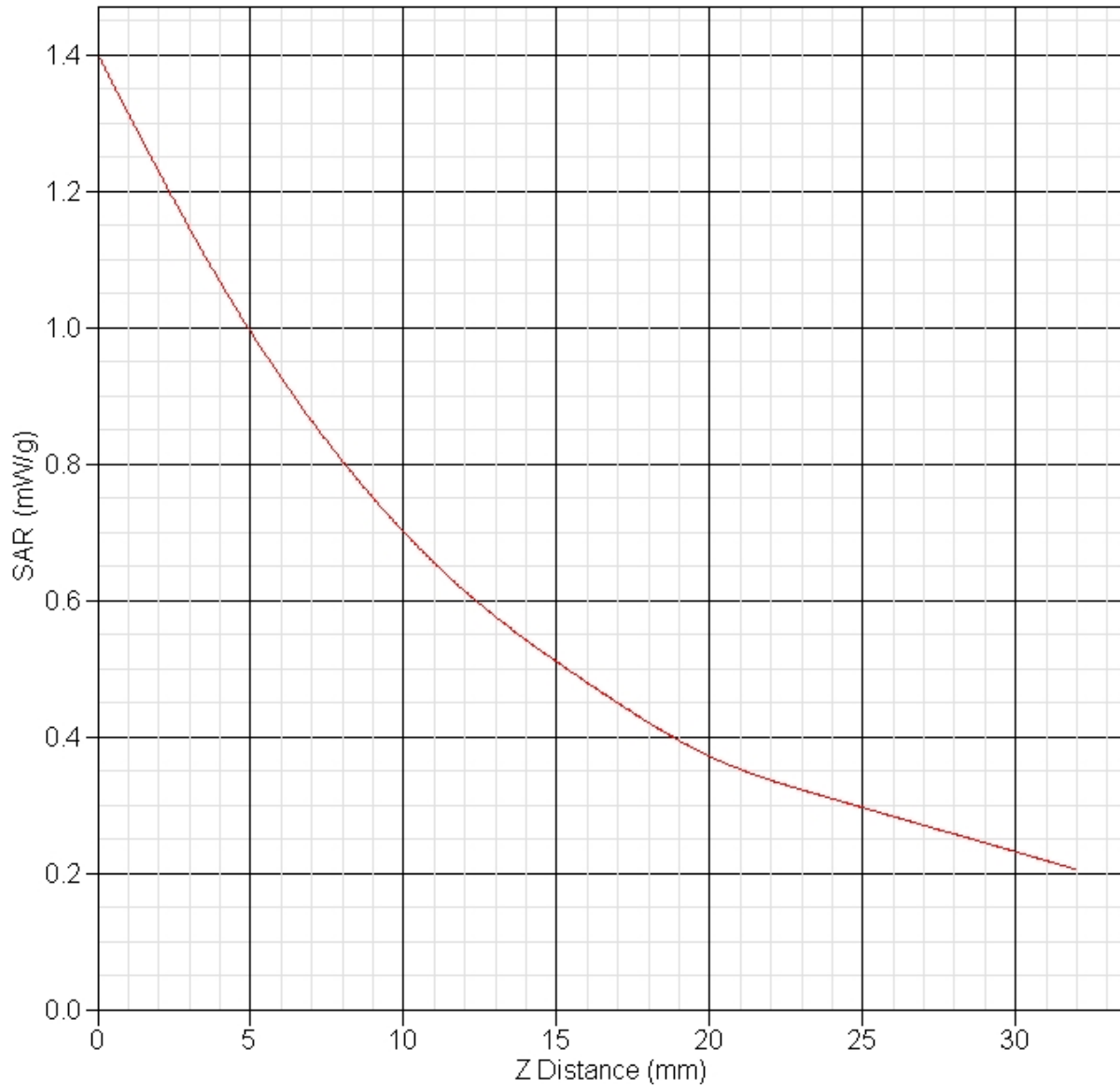
Other Data

DUT Position : Touch
Separation : 15 mm
Channel : Mid



1 gram SAR value : 0.980 W/kg
10 gram SAR value : 0.664 W/kg
Area Scan Peak SAR : 1.071 W/kg
Zoom Scan Peak SAR : 1.401 W/kg

SAR-Z Axis at Hotspot x:0.05 y:-0.14



SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 06:54:48 AM
End Time : 03-Dec-2008 07:07:31 AM
Scanning Time : 763 secs

Product Data

Device Name : Validation
Serial No. : 1900
Type : Dipole
Model : ALS-D-1900-S-2
Frequency : 1900.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 68 mm
Width : 3.6 mm
Depth : 39.5 mm
Antenna Type : Internal
Orientation : Touch
Power Drift-Start : 4.748 W/kg
Power Drift-Finish: 4.655 W/kg
Power Drift (%) : -1.952

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 1900
Frequency : 1900.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 43.00 RH%
Epsilon : 53.04 F/m
Sigma : 1.54 S/m
Density : 1000.00 kg/cu. m

Probe Data

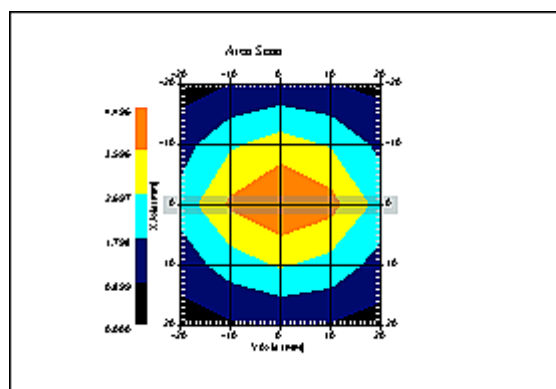
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 1900.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 8:21:16 AM
Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

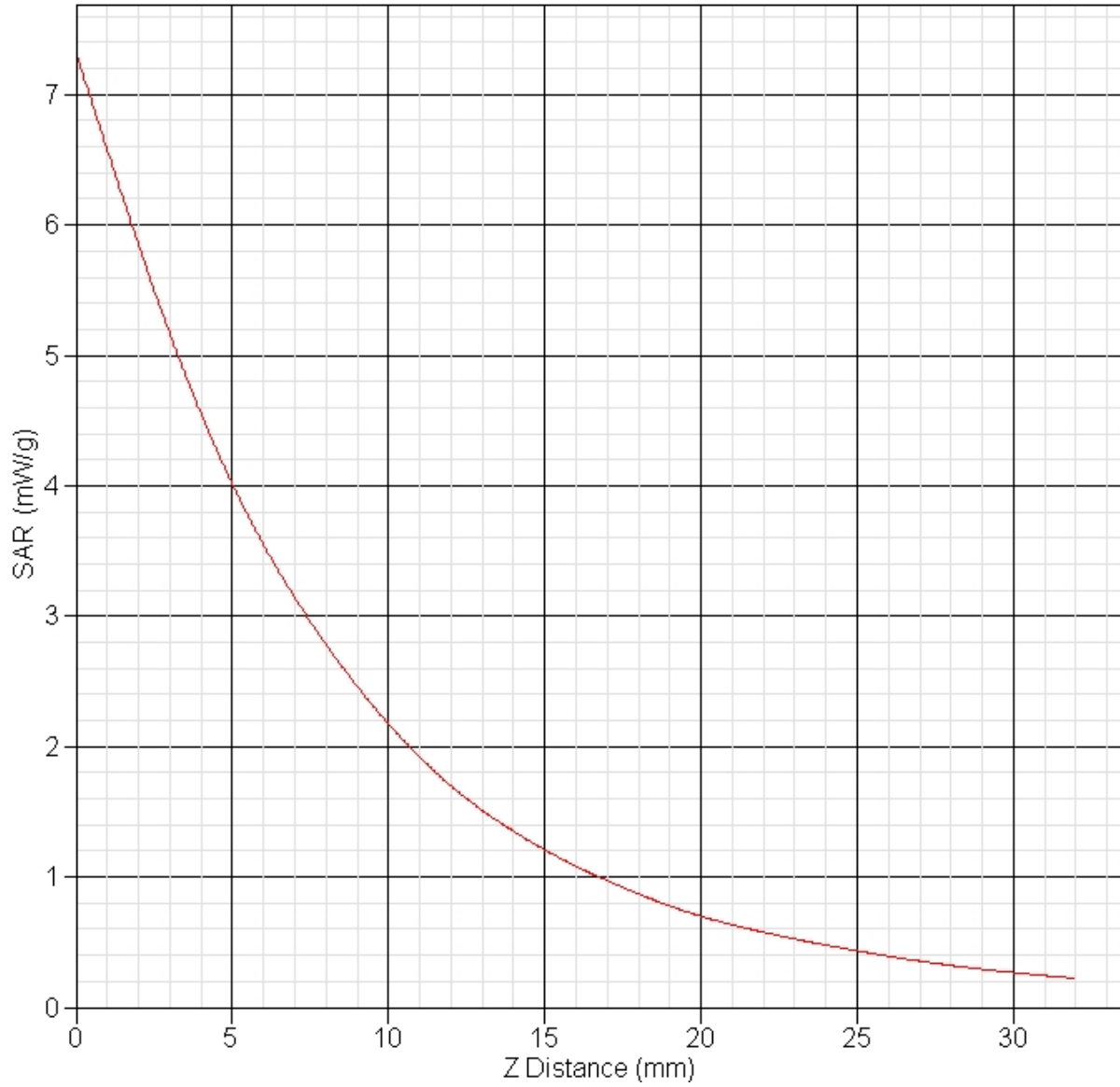
Other Data

DUT Position : Touch
Separation : 10 mm
Channel : Mid



1 gram SAR value : 4.030 W/kg
10 gram SAR value : 2.075 W/kg
Area Scan Peak SAR : 4.496 W/kg
Zoom Scan Peak SAR : 7.326 W/kg

SAR-Z Axis at Hotspot x:0.01 y:-0.13



SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 12:42:56 PM
End Time : 03-Dec-2008 12:56:02 PM
Scanning Time : 786 secs

Product Data

Device Name : Validation
Serial No. : 2450
Type : Dipole
Model : ALS-D-2450-S-2
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 51.5 mm
Width : 3.6 mm
Depth : 30.4 mm
Antenna Type : Internal
Orientation : Touch
Power Drift-Start : 6.381 W/kg
Power Drift-Finish: 6.404 W/kg
Power Drift (%) : 0.355

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 45.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

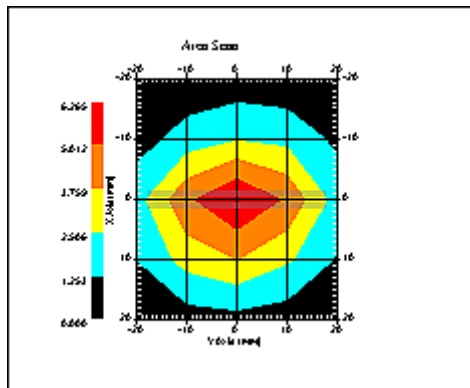
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:40:13 AM
Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

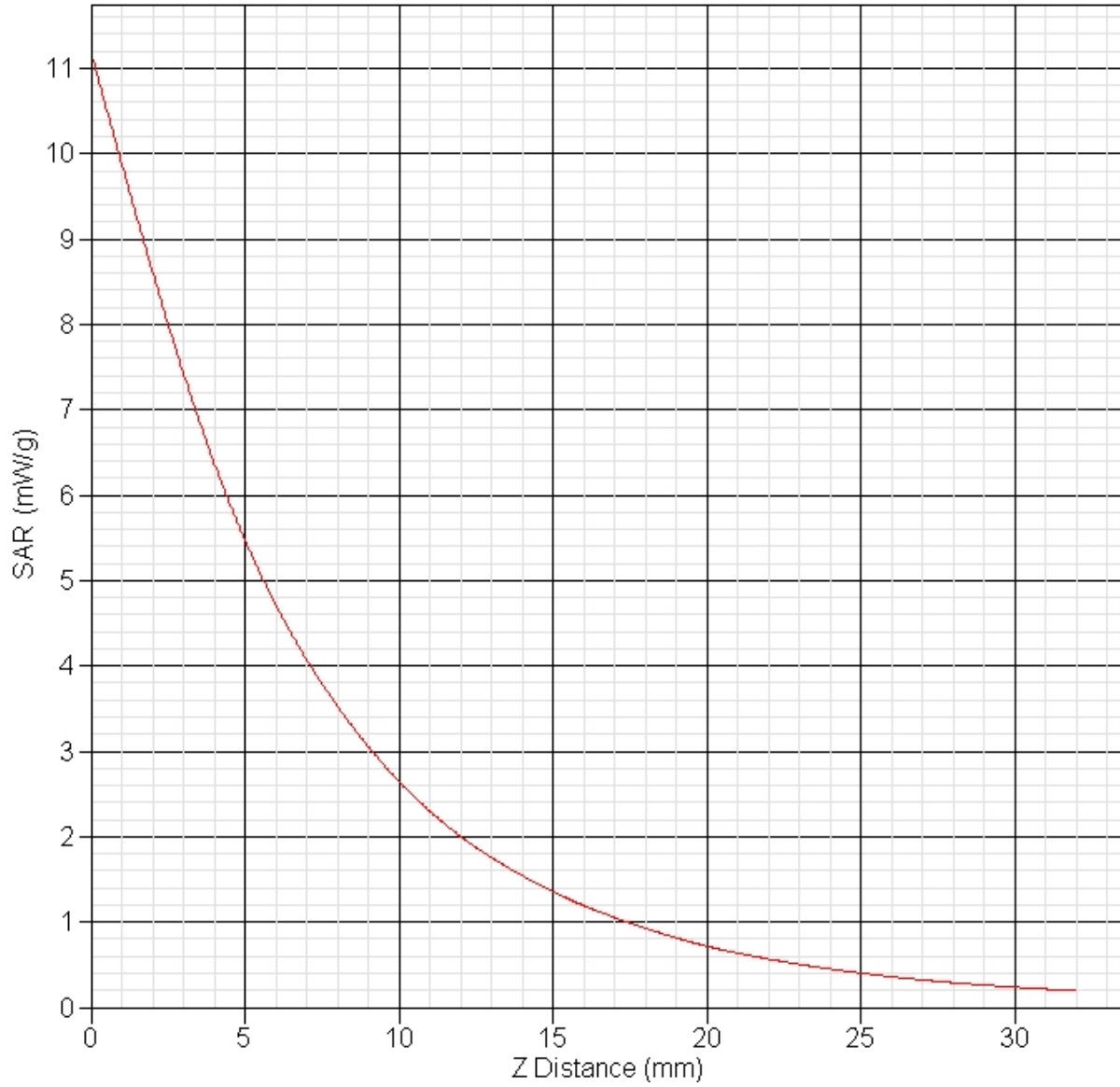
Other Data

DUT Position : Touch
Separation : 10 mm
Channel : Mid



1 gram SAR value : 5.440 W/kg
10 gram SAR value : 2.476 W/kg
Area Scan Peak SAR : 6.265 W/kg
Zoom Scan Peak SAR : 11.190 W/kg

SAR-Z Axis at Hotspot x:0.24 y:-0.18



SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 07:04:38 AM
End Time : 08-Dec-2008 07:27:51 AM
Scanning Time : 1393 secs

Product Data

Device Name : Validation
Serial No. : 5200
Type : Dipole
Model : ALS-D-BB-S-2
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 23.1 mm
Width : 3.6 mm
Depth : 20.7 mm
Antenna Type : Internal
Orientation : Touch
Power Drift-Start : 8.608 W/kg
Power Drift-Finish: 8.639 W/kg
Power Drift (%) : 0.358

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

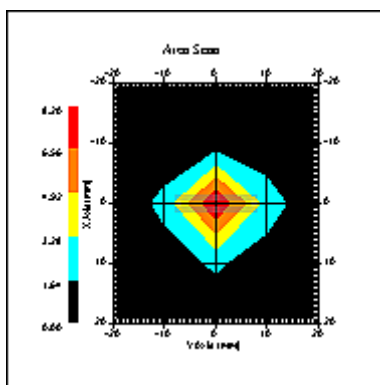
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 9:00:47 AM
Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

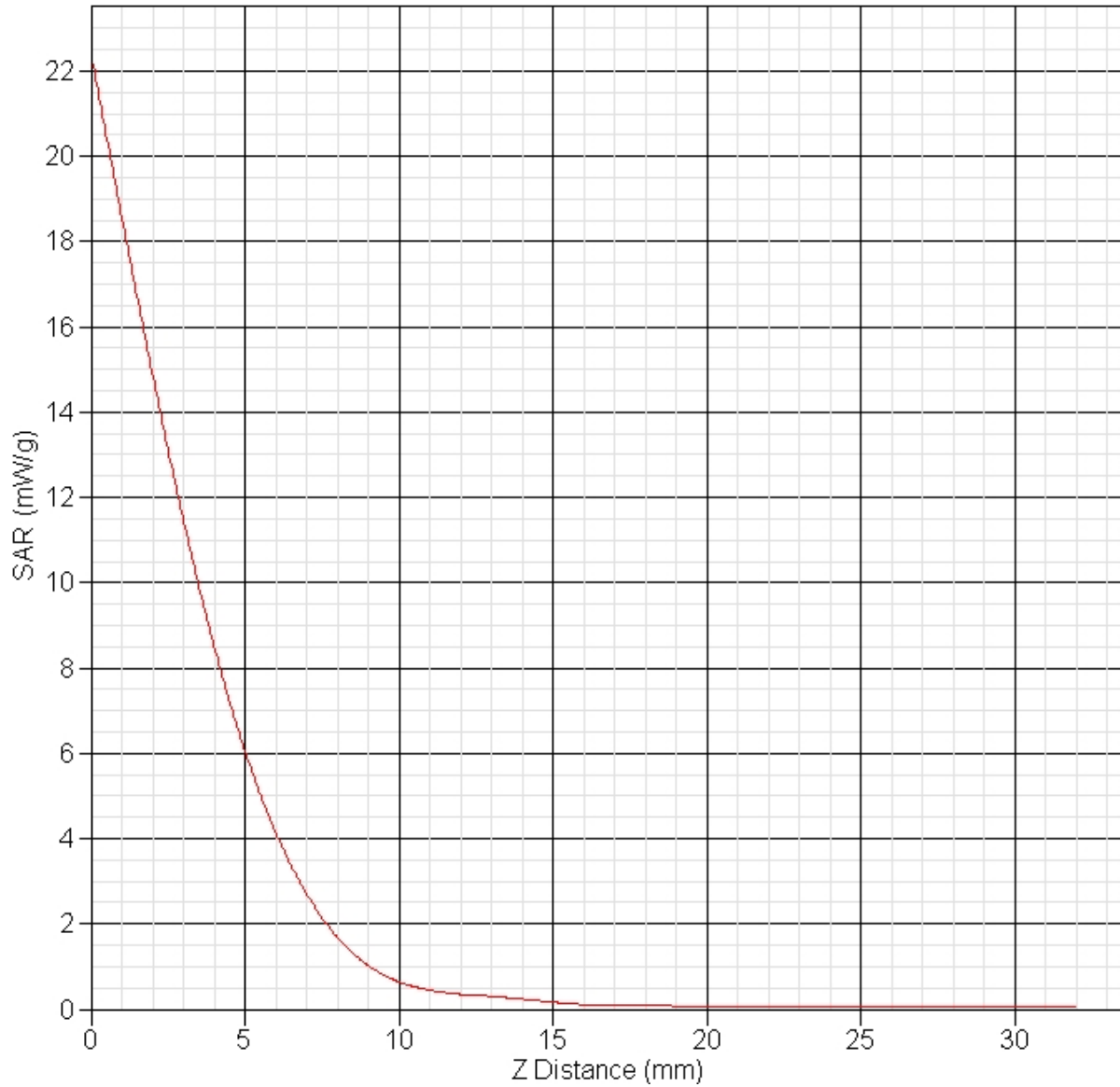
Other Data

DUT Position : Touch
Separation : 10 mm
Channel : Mid



1 gram SAR value : 6.051 W/kg
10 gram SAR value : 1.549 W/kg
Area Scan Peak SAR : 8.199 W/kg
Zoom Scan Peak SAR : 22.418 W/kg

SAR-Z Axis at Hotspot x:0.31 y:-0.19



SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 07:04:08 AM
End Time : 06-Dec-2008 07:26:58 AM
Scanning Time : 1370 secs

Product Data

Device Name : Validation
Serial No. : 5600
Type : Dipole
Model : ALS-D-BB-S-2
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 23.1 mm
Width : 3.6 mm
Depth : 20.7 mm
Antenna Type : Internal
Orientation : Touch
Power Drift-Start : 8.335 W/kg
Power Drift-Finish: 8.312 W/kg
Power Drift (%) : -0.271

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

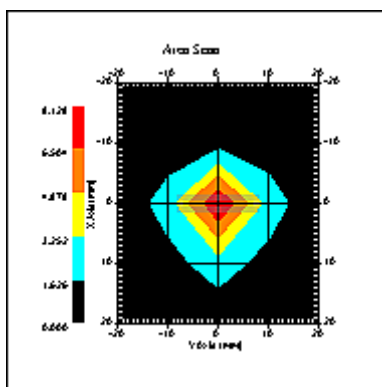
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:54:57 AM
Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

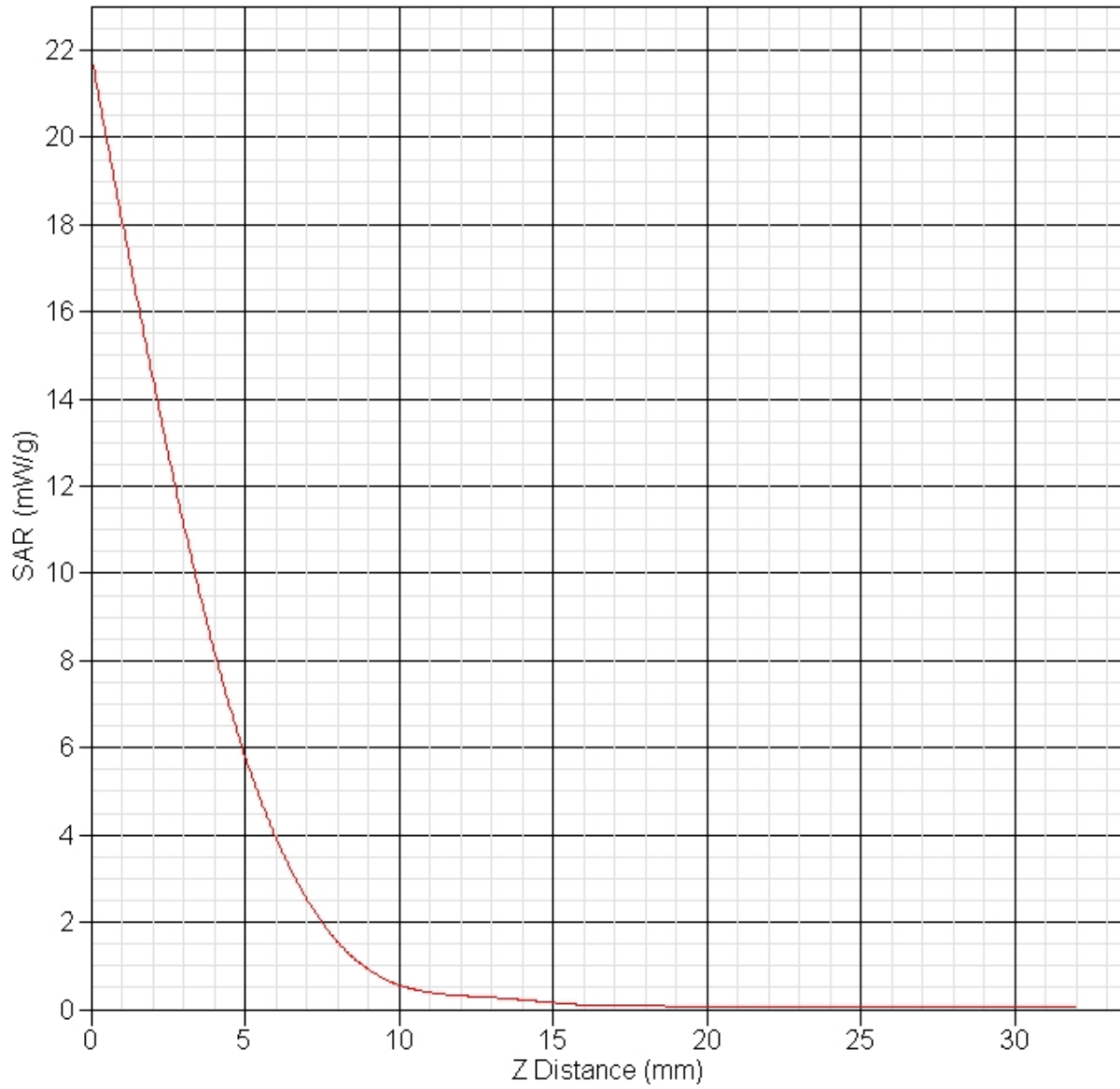
Other Data

DUT Position : Touch
Separation : 10
Channel : Mid



1 gram SAR value : 6.123 W/kg
10 gram SAR value : 1.681 W/kg
Area Scan Peak SAR : 8.128 W/kg
Zoom Scan Peak SAR : 21.917 W/kg

SAR-Z Axis at Hotspot x:0.30 y:-0.16



SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 06:57:01 AM
End Time : 07-Dec-2008 07:09:54 AM
Scanning Time : 1373 secs

Product Data

Device Name : Validation
Serial No. : 5800
Type : Dipole
Model : ALS-D-BB-S-2
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 23.1 mm
Width : 3.6 mm
Depth : 20.7 mm
Antenna Type : Internal
Orientation : Touch
Power Drift-Start : 7.557 W/kg
Power Drift-Finish: 7.615 W/kg
Power Drift (%) : 0.763

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

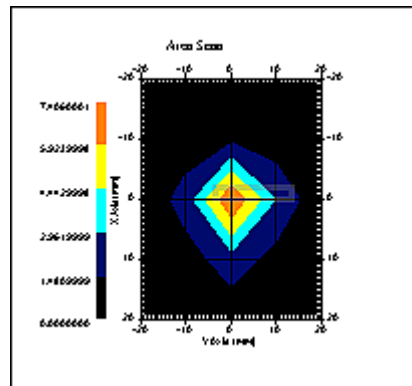
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 4:10:18 PM
Area Scan : 5x5x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

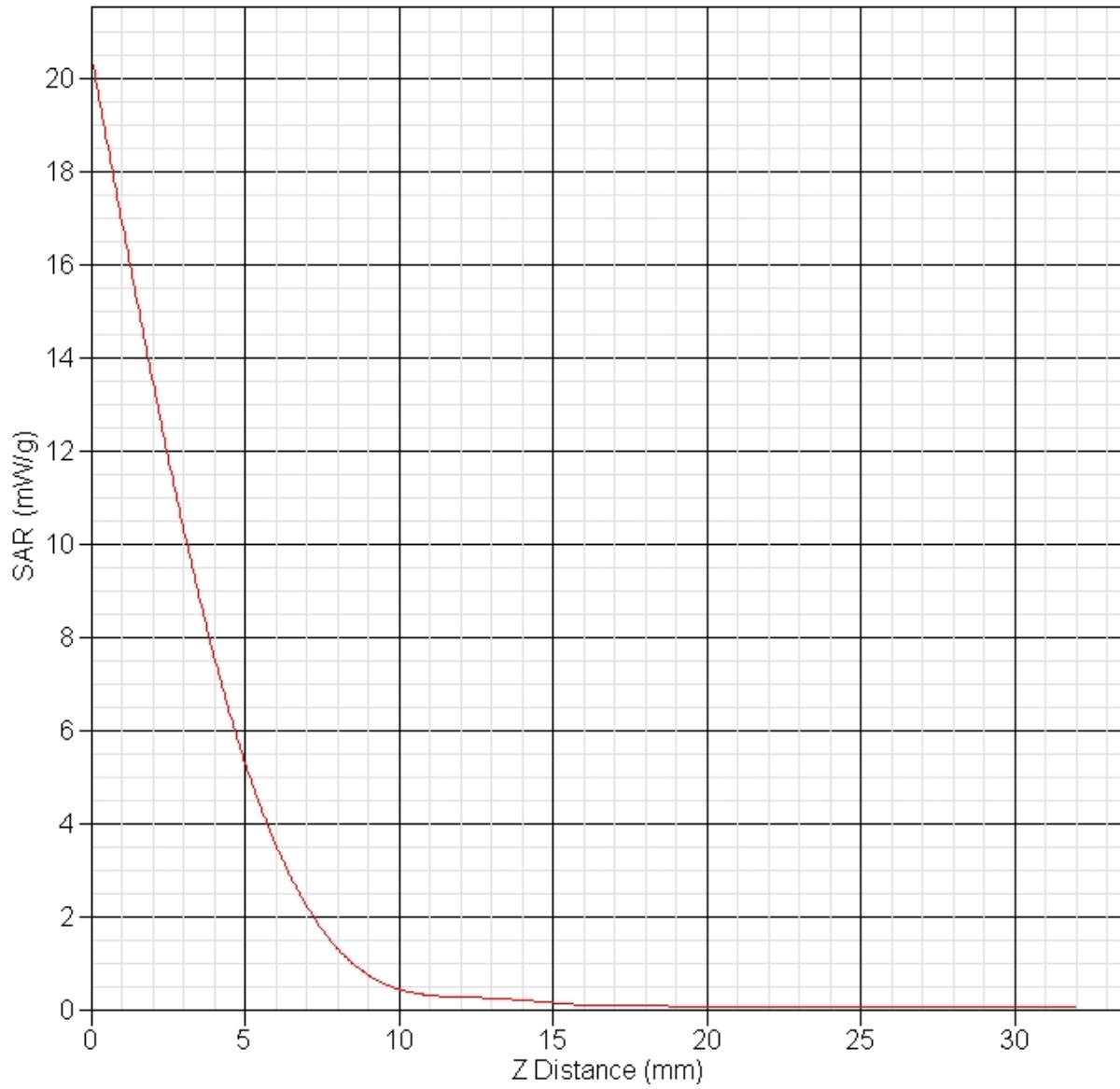
Other Data

DUT Position : Touch
Separation : 10
Channel : Mid



1 gram SAR value : 5.707 W/kg
10 gram SAR value : 1.575 W/kg
Area Scan Peak SAR : 7.406 W/kg
Zoom Scan Peak SAR : 20.516 W/kg

SAR-Z Axis at Hotspot x:0.28 y:-0.16



Appendix B – SAR Test Data Plots

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 11:08:42 AM
End Time : 03-Dec-2008 11:23:54 AM
Scanning Time : 912 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : EvDo Rev. 0
Model : Minicooper
Frequency : 835.00 MHz
Max. Transmit Pwr : 0.28 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WWAN
Orientation : Touch
Power Drift-Start : 0.692 W/kg
Power Drift-Finish: 0.693 W/kg
Power Drift (%) : 0.191

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 835
Frequency : 835.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 24.00 °C
Humidity : 40.00 RH%
Epsilon : 54.92 F/m
Sigma : 0.98 S/m
Density : 1000.00 kg/cu. m

Probe Data

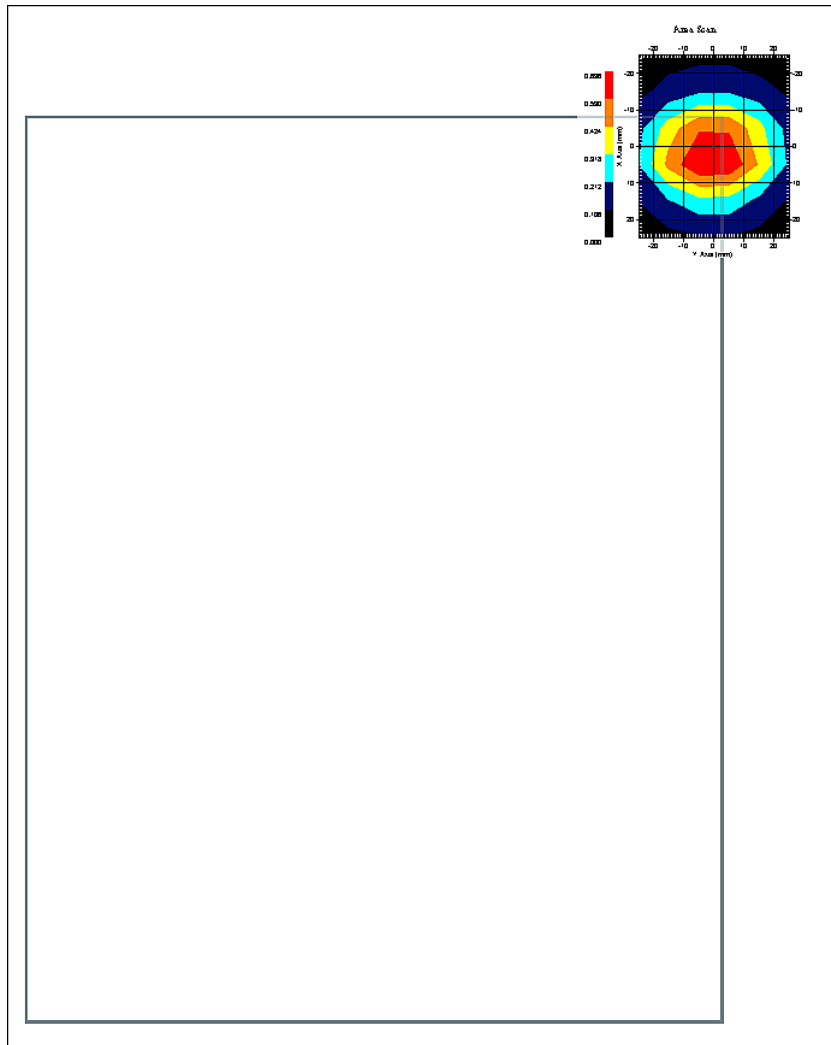
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 835.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.3
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 24.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 5:42:07 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.570 W/kg
10 gram SAR value : 0.297 W/kg
Area Scan Peak SAR : 0.636 W/kg
Zoom Scan Peak SAR : 1.030 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 11:53:12 AM
End Time : 03-Dec-2008 12:08:33 PM
Scanning Time : 921 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : GPRS
Model : Minicooper
Frequency : 835.00 MHz
Max. Transmit Pwr : 0.28 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WWAN
Orientation : Touch
Power Drift-Start : 0.584 W/kg
Power Drift-Finish: 0.575 W/kg
Power Drift (%) : -1.535

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 835
Frequency : 835.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 24.00 °C
Humidity : 40.00 RH%
Epsilon : 54.92 F/m
Sigma : 0.98 S/m
Density : 1000.00 kg/cu. m

Probe Data

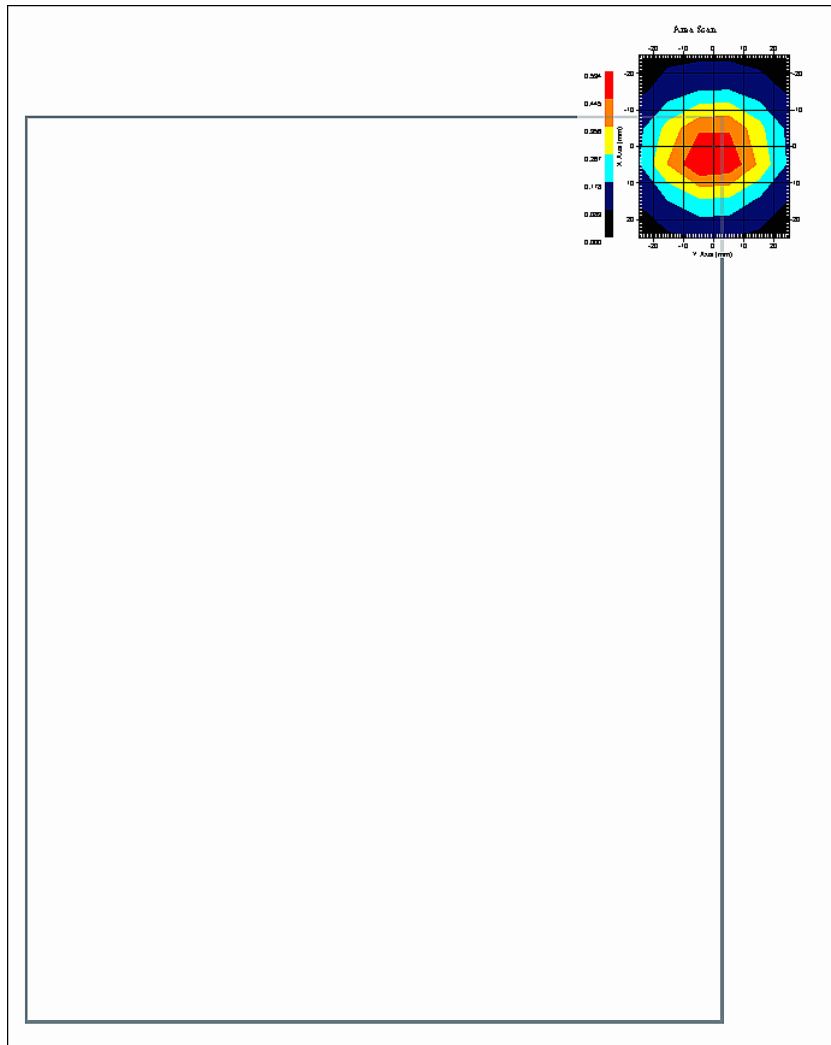
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 835.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.3
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 24.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 5:42:07 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.469 W/kg
10 gram SAR value : 0.252 W/kg
Area Scan Peak SAR : 0.532 W/kg
Zoom Scan Peak SAR : 0.830 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 11:29:47 AM
End Time : 03-Dec-2008 11:45:01 AM
Scanning Time : 914 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : WCDMA
Model : Minicooper
Frequency : 835.00 MHz
Max. Transmit Pwr : 0.28 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : Internal
Orientation : WWAN
Power Drift-Start : 0.740 W/kg
Power Drift-Finish: 0.720 W/kg
Power Drift (%) : -2.739

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 835
Frequency : 835.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 24.00 °C
Humidity : 40.00 RH%
Epsilon : 54.92 F/m
Sigma : 0.98 S/m
Density : 1000.00 kg/cu. m

Probe Data

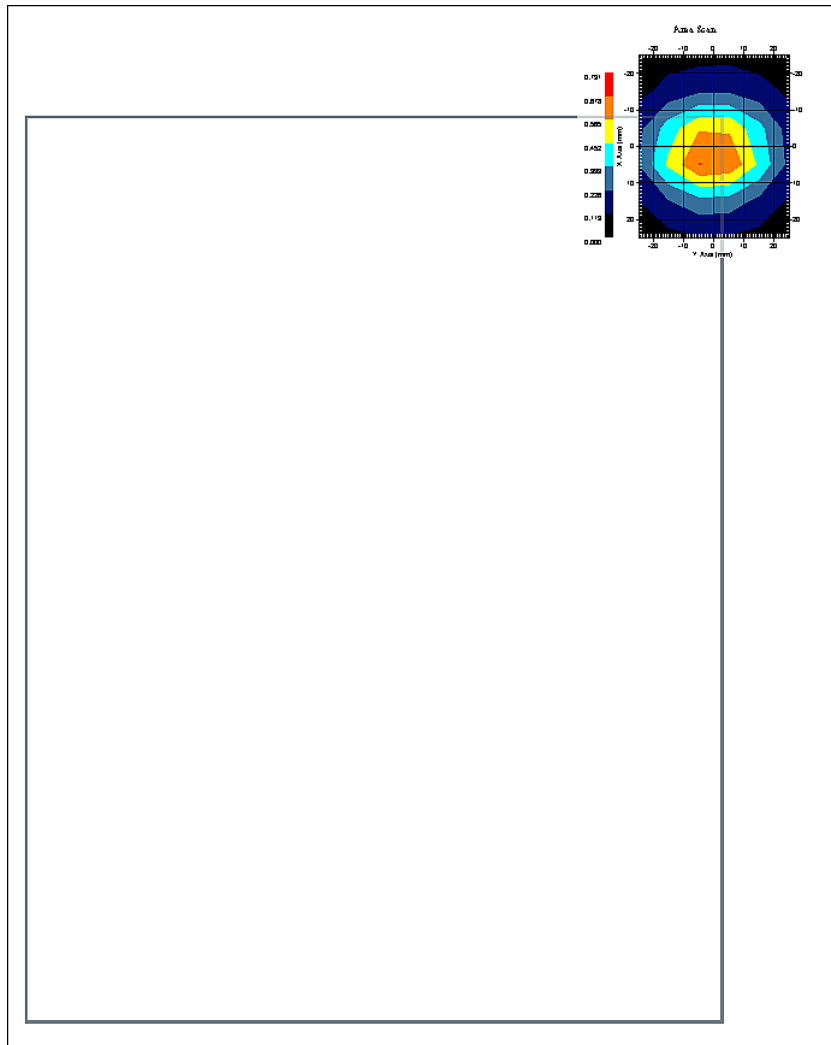
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 835.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.3
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 24.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 5:42:07 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

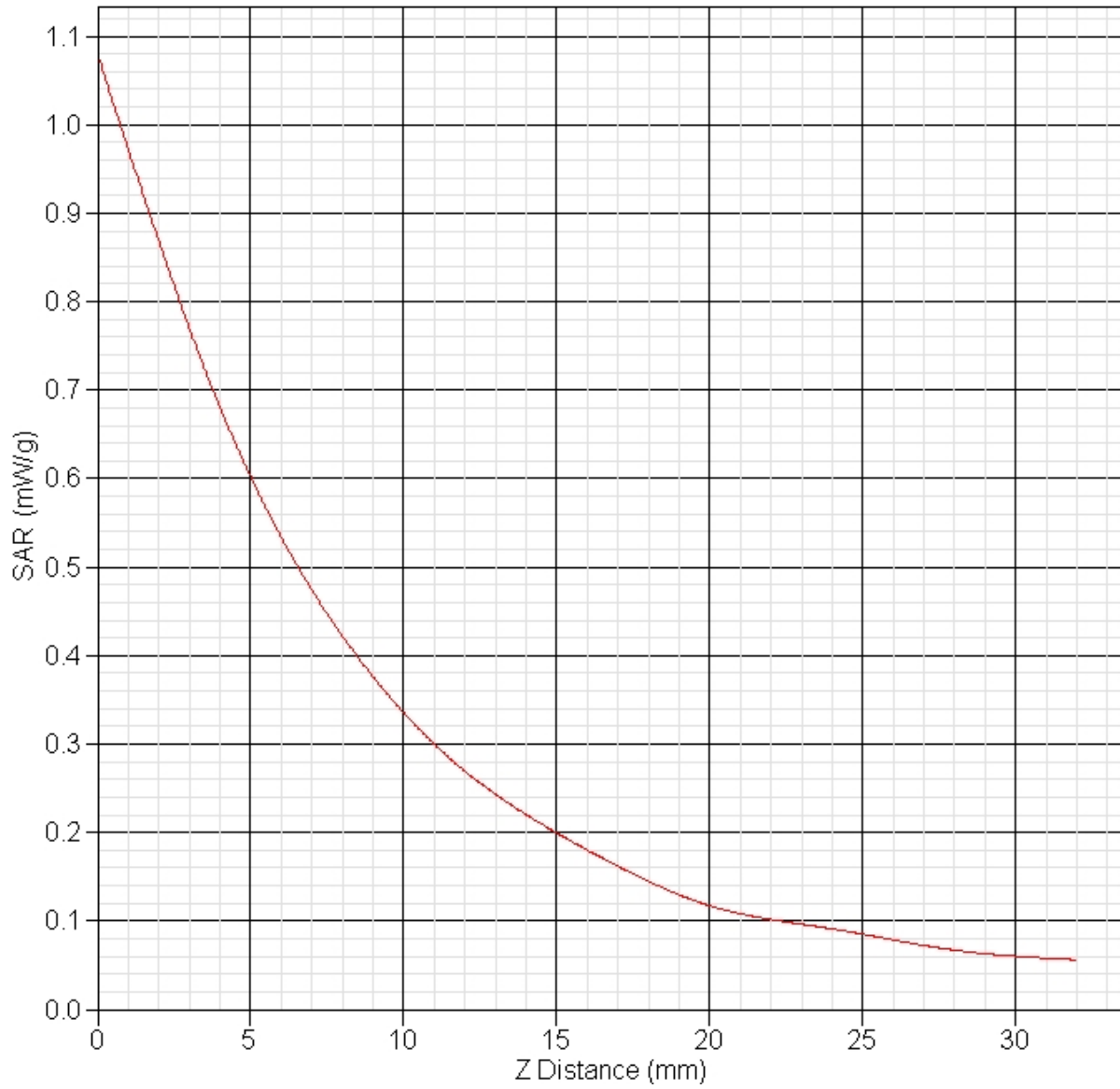
Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.574 W/kg
10 gram SAR value : 0.296 W/kg
Area Scan Peak SAR : 0.680 W/kg
Zoom Scan Peak SAR : 1.080 W/kg

SAR-Z Axis at Hotspot x:5.06 y:2.86



SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 07:32:53 AM
End Time : 03-Dec-2008 07:48:10 AM
Scanning Time : 917 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : EvDo Rev. 0
Model : Minicooper
Frequency : 1900.00 MHz
Max. Transmit Pwr : 0.28 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WWAN
Orientation : Touch
Power Drift-Start : 1.149 W/kg
Power Drift-Finish: 1.147 W/kg
Power Drift (%) : -0.176

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 1900
Frequency : 1900.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 43.00 RH%
Epsilon : 53.04 F/m
Sigma : 1.54 S/m
Density : 1000.00 kg/cu. m

Probe Data

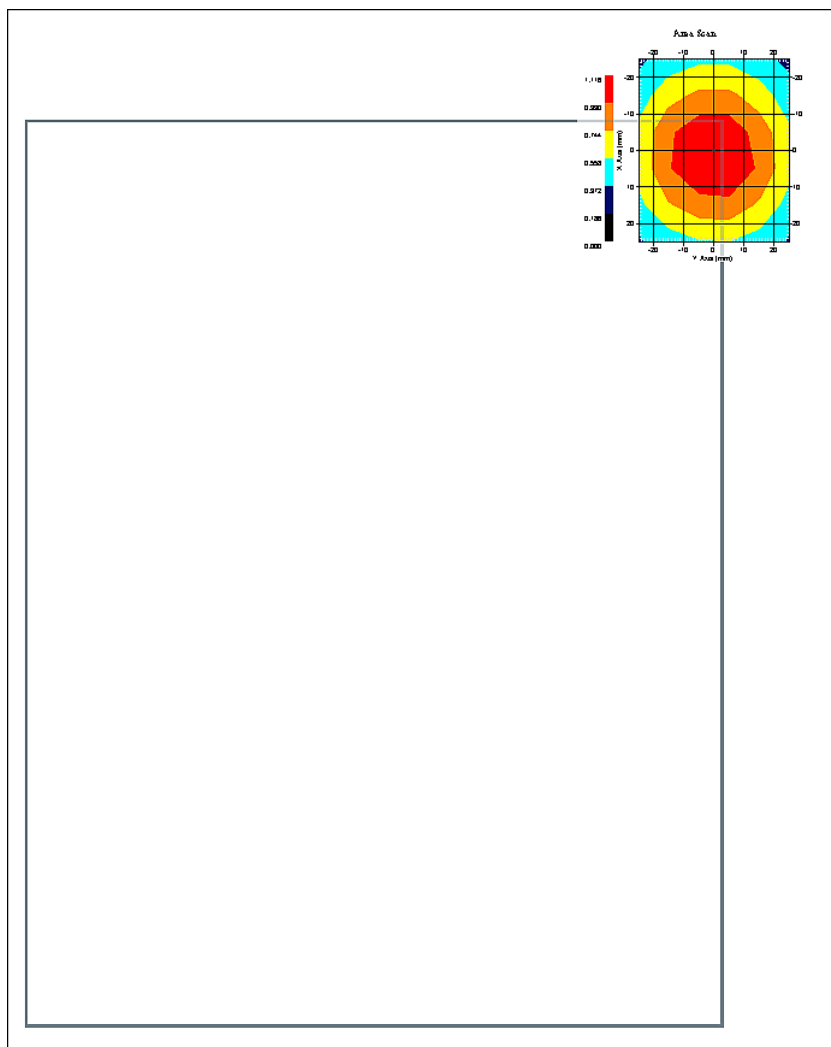
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 1900.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:54:19 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Low



1 gram SAR value : 1.075 W/kg
10 gram SAR value : 0.641 W/kg
Area Scan Peak SAR : 1.113 W/kg
Zoom Scan Peak SAR : 1.721 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 07:14:50 AM
End Time : 03-Dec-2008 07:30:03 AM
Scanning Time : 913 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : EvDo Rev. 0
Model : Minicooper
Frequency : 1900.00 MHz
Max. Transmit Pwr : 0.28 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WWAN
Orientation : Touch
Power Drift-Start : 1.144 W/kg
Power Drift-Finish: 1.155 W/kg
Power Drift (%) : 0.963

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 1900
Frequency : 1900.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 43.00 RH%
Epsilon : 53.04 F/m
Sigma : 1.54 S/m
Density : 1000.00 kg/cu. m

Probe Data

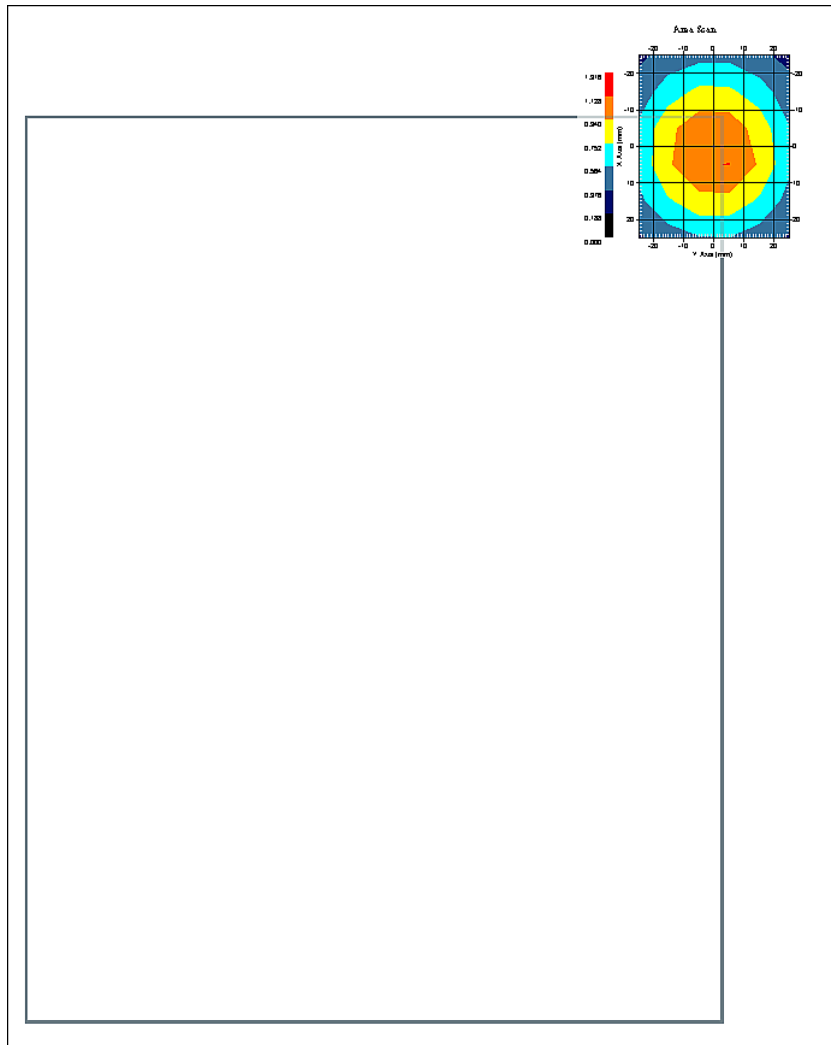
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 1900.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:54:19 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 1.090 W/kg
10 gram SAR value : 0.648 W/kg
Area Scan Peak SAR : 1.130 W/kg
Zoom Scan Peak SAR : 1.771 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 07:51:51 AM
End Time : 03-Dec-2008 08:07:10 AM
Scanning Time : 919 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : EvDo Rev. 0
Model : Minicooper
Frequency : 1900.00 MHz
Max. Transmit Pwr : 0.28 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WWAN
Orientation : Touch
Power Drift-Start : 1.145 W/kg
Power Drift-Finish: 1.151 W/kg
Power Drift (%) : 0.500

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 1900
Frequency : 1900.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 43.00 RH%
Epsilon : 53.04 F/m
Sigma : 1.54 S/m
Density : 1000.00 kg/cu. m

Probe Data

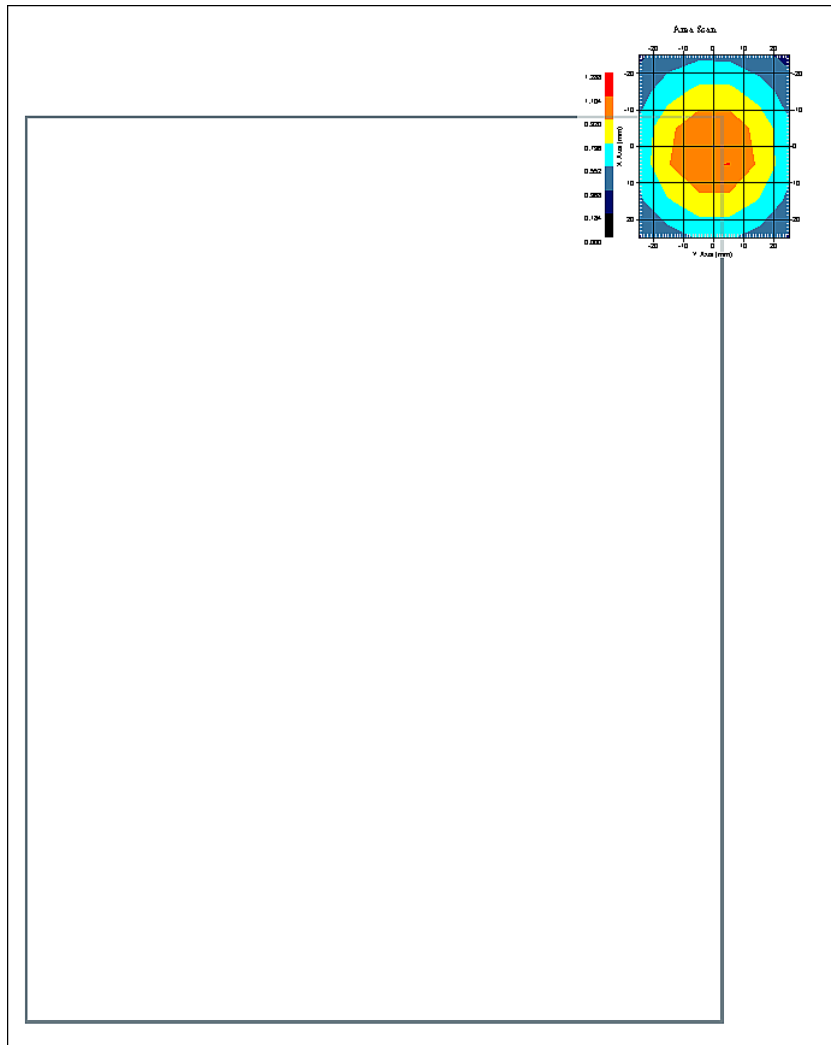
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 1900.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:54:19 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : High



1 gram SAR value : 1.064 W/kg
10 gram SAR value : 0.636 W/kg
Area Scan Peak SAR : 1.105 W/kg
Zoom Scan Peak SAR : 1.691 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 09:35:34 AM
End Time : 03-Dec-2008 09:50:48 AM
Scanning Time : 914 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : GPRS
Model : Minicooper
Frequency : 1900.00 MHz
Max. Transmit Pwr : 0.28 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WWAN
Orientation : Touch
Power Drift-Start : 0.807 W/kg
Power Drift-Finish: 0.820 W/kg
Power Drift (%) : 1.581

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 1900
Frequency : 1900.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 43.00 RH%
Epsilon : 53.04 F/m
Sigma : 1.54 S/m
Density : 1000.00 kg/cu. m

Probe Data

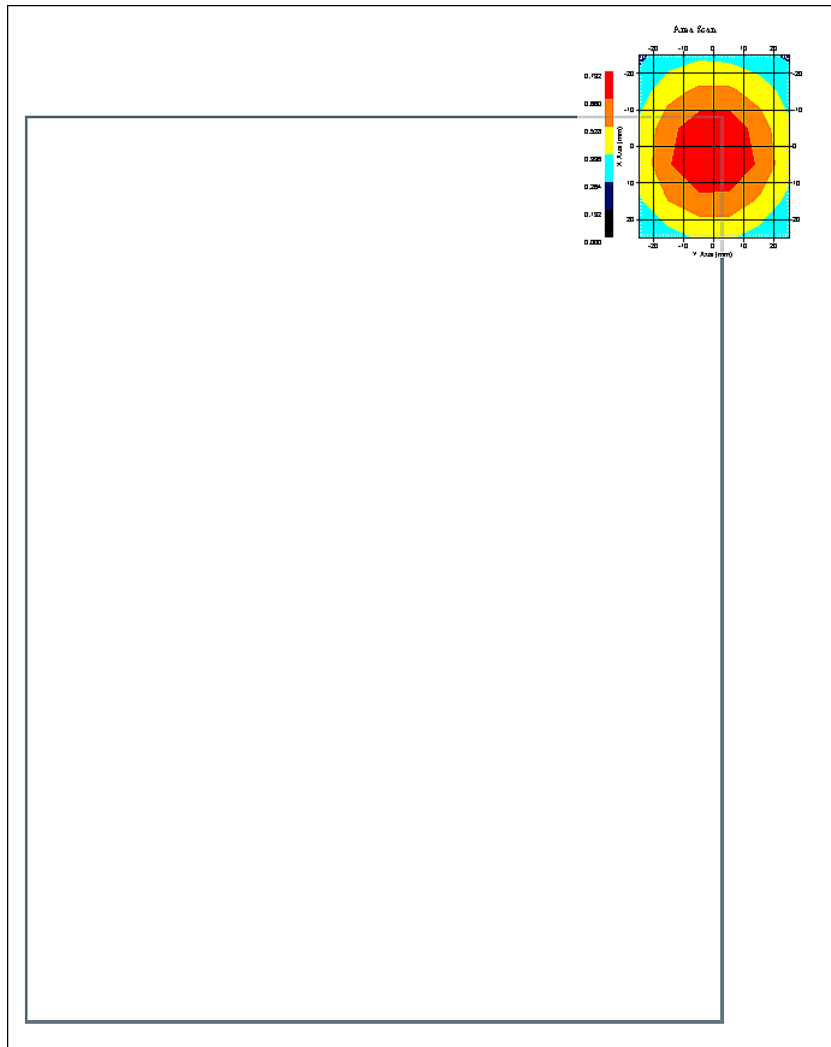
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 1900.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:54:19 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Low



1 gram SAR value : 0.768 W/kg
10 gram SAR value : 0.457 W/kg
Area Scan Peak SAR : 0.790 W/kg
Zoom Scan Peak SAR : 1.231 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 09:18:29 AM
End Time : 03-Dec-2008 09:33:34 AM
Scanning Time : 905 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : GPRS
Model : Minicooper
Frequency : 1900.00 MHz
Max. Transmit Pwr : 0.28 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WWAN
Orientation : Touch
Power Drift-Start : 0.798 W/kg
Power Drift-Finish: 0.802 W/kg
Power Drift (%) : 0.569

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 1900
Frequency : 1900.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 43.00 RH%
Epsilon : 53.04 F/m
Sigma : 1.54 S/m
Density : 1000.00 kg/cu. m

Probe Data

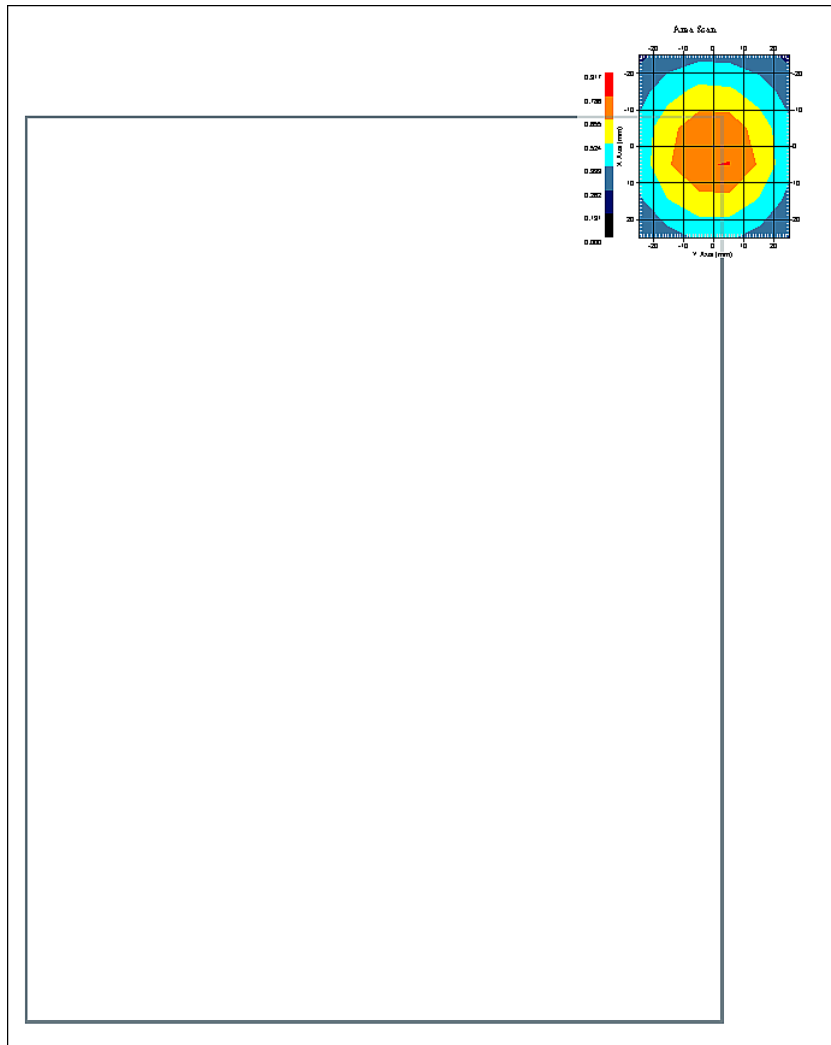
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 1900.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:54:19 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.755 W/kg
10 gram SAR value : 0.455 W/kg
Area Scan Peak SAR : 0.789 W/kg
Zoom Scan Peak SAR : 1.231 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 09:54:19 AM
End Time : 03-Dec-2008 10:09:34 AM
Scanning Time : 915 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : GPRS
Model : Minicooper
Frequency : 1900.00 MHz
Max. Transmit Pwr : 0.28 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WWAN
Orientation : Touch
Power Drift-Start : 0.806 W/kg
Power Drift-Finish: 0.817 W/kg
Power Drift (%) : 1.462

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 1900
Frequency : 1900.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 43.00 RH%
Epsilon : 53.04 F/m
Sigma : 1.54 S/m
Density : 1000.00 kg/cu. m

Probe Data

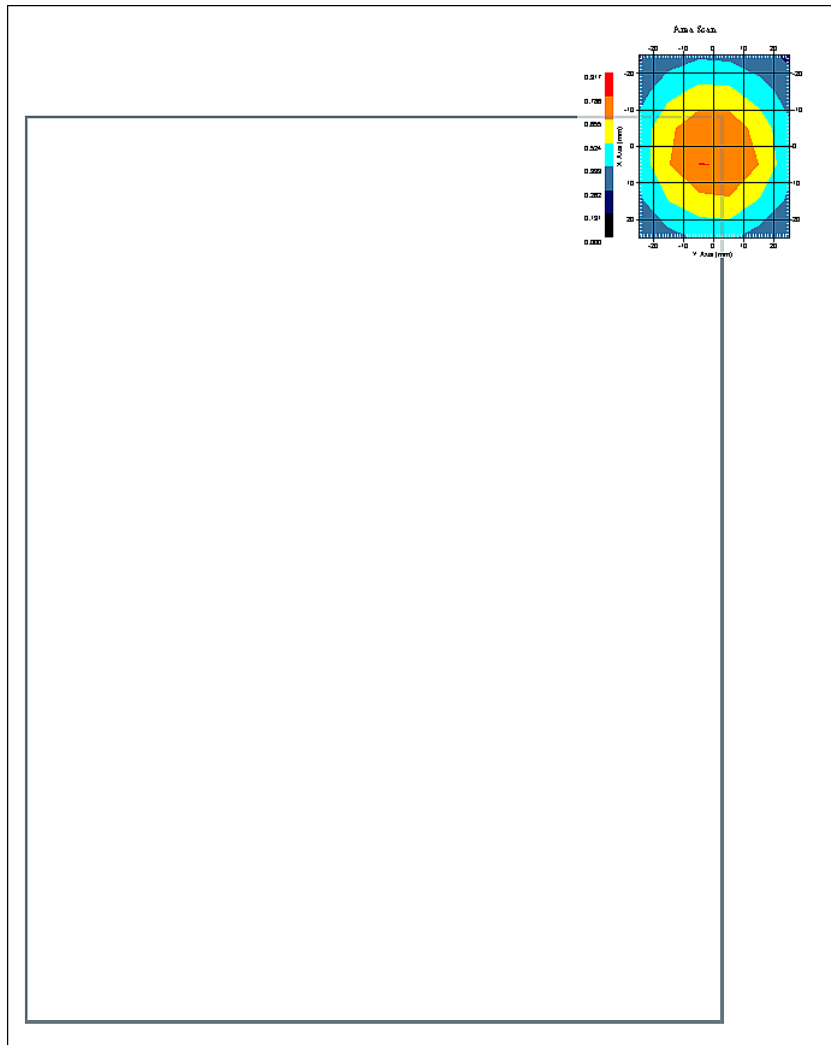
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 1900.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:54:19 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : High



1 gram SAR value : 0.760 W/kg
10 gram SAR value : 0.452 W/kg
Area Scan Peak SAR : 0.787 W/kg
Zoom Scan Peak SAR : 1.211 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 08:35:06 AM
End Time : 03-Dec-2008 08:50:20 AM
Scanning Time : 914 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : WCDMA
Model : Minicooper
Frequency : 1900.00 MHz
Max. Transmit Pwr : 0.28 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WWAN
Orientation : Touch
Power Drift-Start : 1.147 W/kg
Power Drift-Finish: 1.171 W/kg
Power Drift (%) : 2.138

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 1900
Frequency : 1900.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 43.00 RH%
Epsilon : 53.04 F/m
Sigma : 1.54 S/m
Density : 1000.00 kg/cu. m

Probe Data

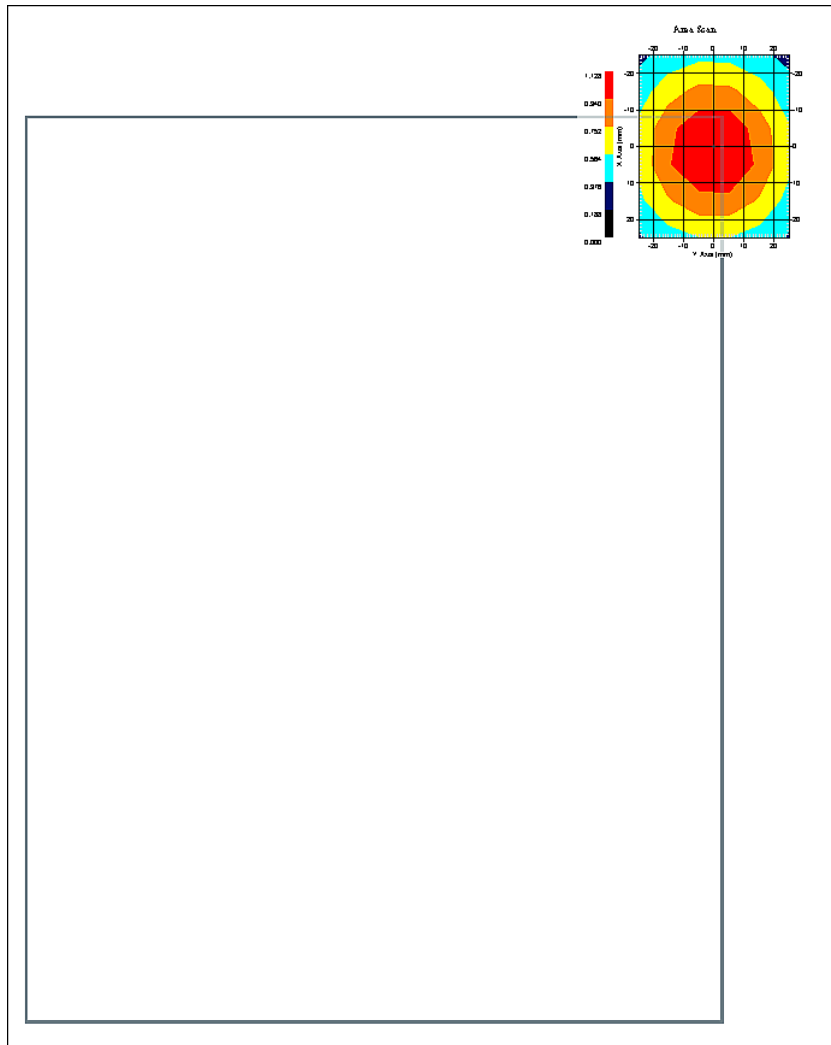
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 1900.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:54:19 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

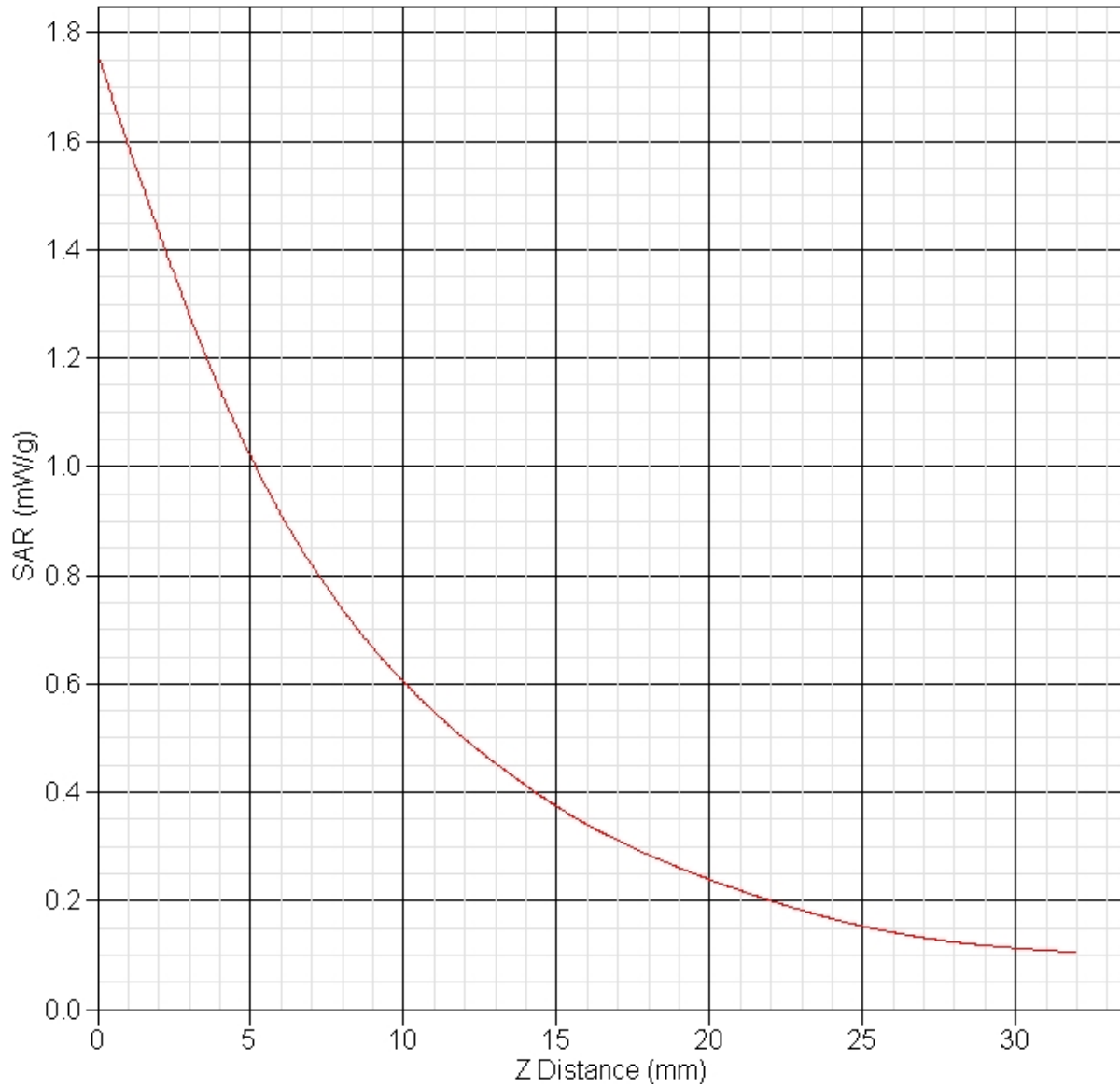
Other Data

DUT Position : Touch
Separation : 0
Channel : Low



1 gram SAR value : 1.092 W/kg
10 gram SAR value : 0.651 W/kg
Area Scan Peak SAR : 1.126 W/kg
Zoom Scan Peak SAR : 1.761 W/kg

SAR-Z Axis at Hotspot x:5.07 y:-3.14



SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 08:16:59 AM
End Time : 03-Dec-2008 08:32:16 AM
Scanning Time : 917 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : WCDMA
Model : Minicooper
Frequency : 1900.00 MHz
Max. Transmit Pwr : 0.28 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WWAN
Orientation : Touch
Power Drift-Start : 1.160 W/kg
Power Drift-Finish: 1.150 W/kg
Power Drift (%) : -0.895

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 1900
Frequency : 1900.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 43.00 RH%
Epsilon : 53.04 F/m
Sigma : 1.54 S/m
Density : 1000.00 kg/cu. m

Probe Data

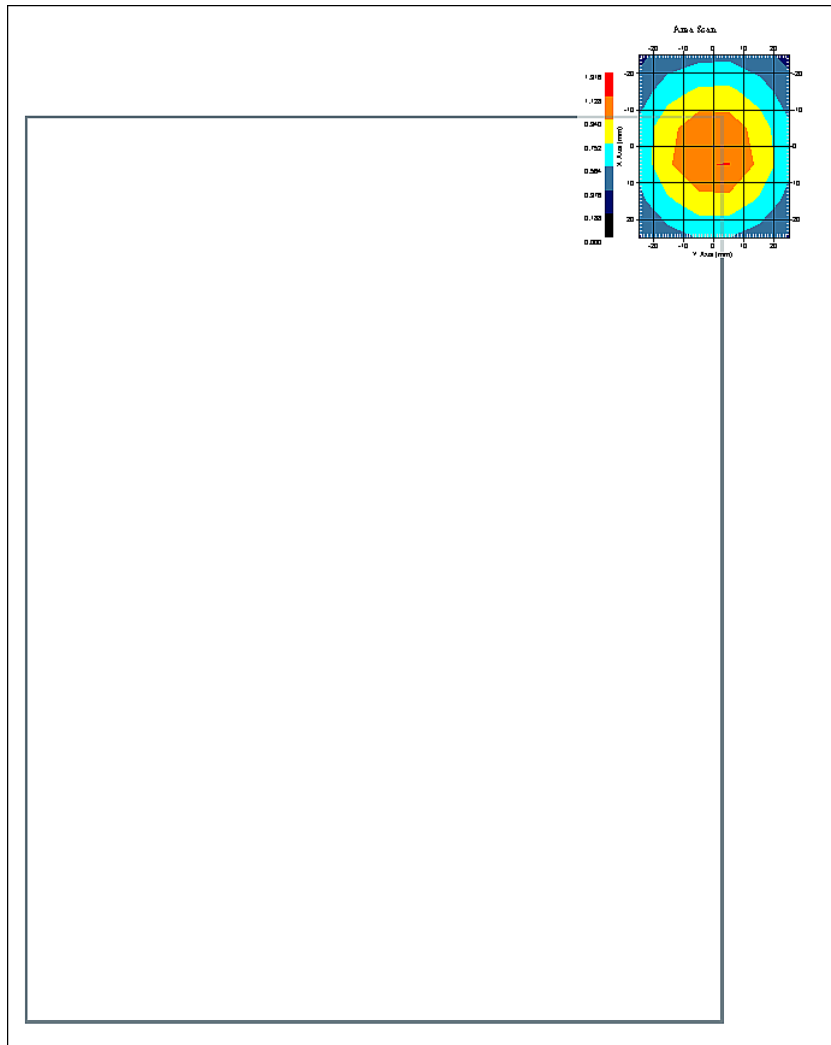
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 1900.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:54:19 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 1.070 W/kg
10 gram SAR value : 0.632 W/kg
Area Scan Peak SAR : 1.130 W/kg
Zoom Scan Peak SAR : 1.731 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 08:54:14 AM
End Time : 03-Dec-2008 09:09:31 AM
Scanning Time : 917 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : WCDMA
Model : Minicooper
Frequency : 1900.00 MHz
Max. Transmit Pwr : 0.28 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WWAN
Orientation : Touch
Power Drift-Start : 1.145 W/kg
Power Drift-Finish: 1.150 W/kg
Power Drift (%) : 0.487

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 1900
Frequency : 1900.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 43.00 RH%
Epsilon : 53.04 F/m
Sigma : 1.54 S/m
Density : 1000.00 kg/cu. m

Probe Data

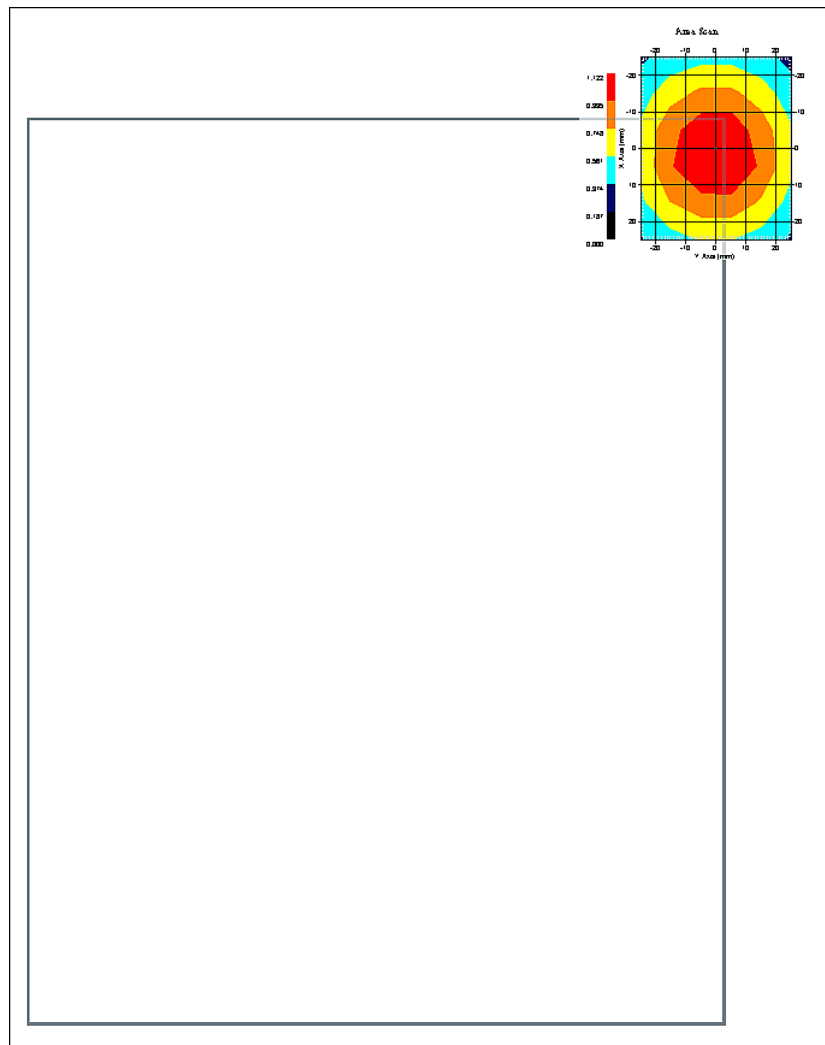
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 1900.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:54:19 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : High



1 gram SAR value : 1.073 W/kg
10 gram SAR value : 0.642 W/kg
Area Scan Peak SAR : 1.122 W/kg
Zoom Scan Peak SAR : 1.711 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 01:08:26 PM
End Time : 03-Dec-2008 01:23:57 PM
Scanning Time : 931 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1030 g
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.279 W/kg
Power Drift-Finish: 0.277 W/kg
Power Drift (%) : -0.717

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

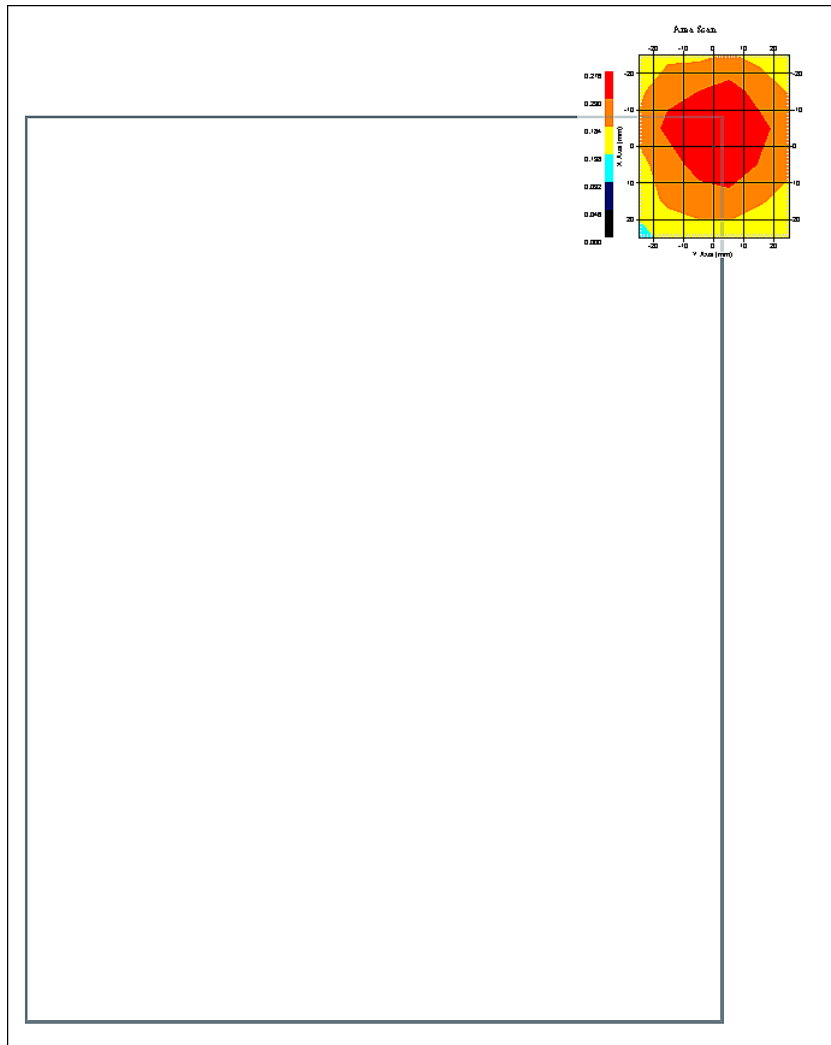
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 2:15:36 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.272 W/kg
10 gram SAR value : 0.176 W/kg
Area Scan Peak SAR : 0.273 W/kg
Zoom Scan Peak SAR : 0.430 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 01:31:03 PM
End Time : 03-Dec-2008 01:46:42 PM
Scanning Time : 939 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1030 g
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.263 W/kg
Power Drift-Finish: 0.269 W/kg
Power Drift (%) : 2.280

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

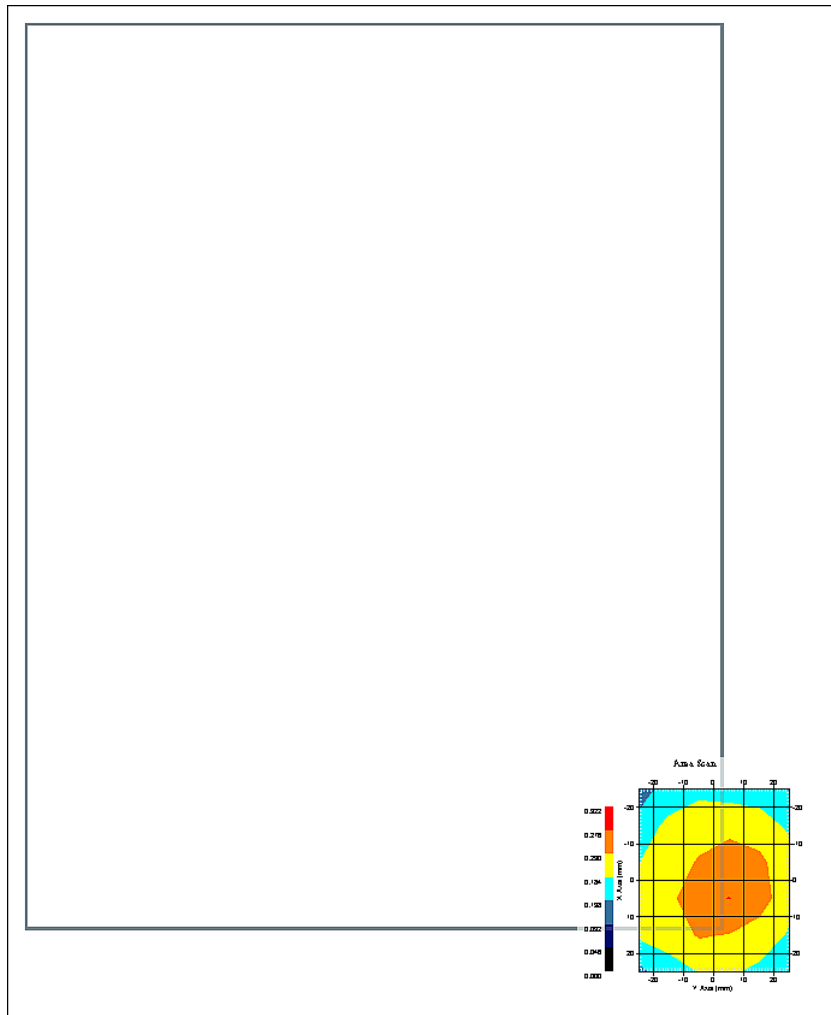
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.289 W/kg
10 gram SAR value : 0.191 W/kg
Area Scan Peak SAR : 0.277 W/kg
Zoom Scan Peak SAR : 0.440 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 02:15:11 PM
End Time : 03-Dec-2008 02:30:26 PM
Scanning Time : 915 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 b
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.254 W/kg
Power Drift-Finish: 0.263 W/kg
Power Drift (%) : 3.545

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

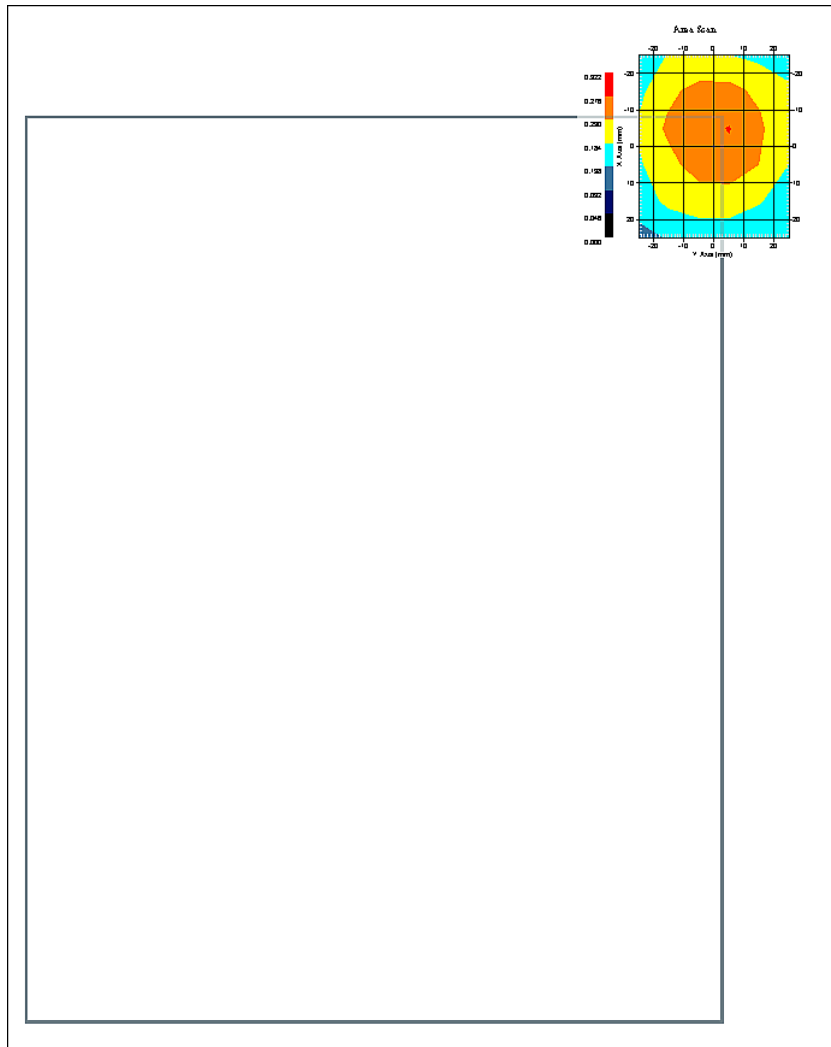
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
 Scan Type : Complete
 Tissue Temp. : 20.00 °C
 Ambient Temp. : 23.00 °C
 Set-up Date : 03-Dec-2008
 Set-up Time : 2:15:36 PM
 Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
 Separation : 0
 Channel : Low



1 gram SAR value : 0.261 W/kg
 10 gram SAR value : 0.173 W/kg
 Area Scan Peak SAR : 0.278 W/kg
 Zoom Scan Peak SAR : 0.380 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 03:18:19 PM
End Time : 03-Dec-2008 03:33:30 PM
Scanning Time : 911 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 b
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.290 W/kg
Power Drift-Finish: 0.287 W/kg
Power Drift (%) : -1.129

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

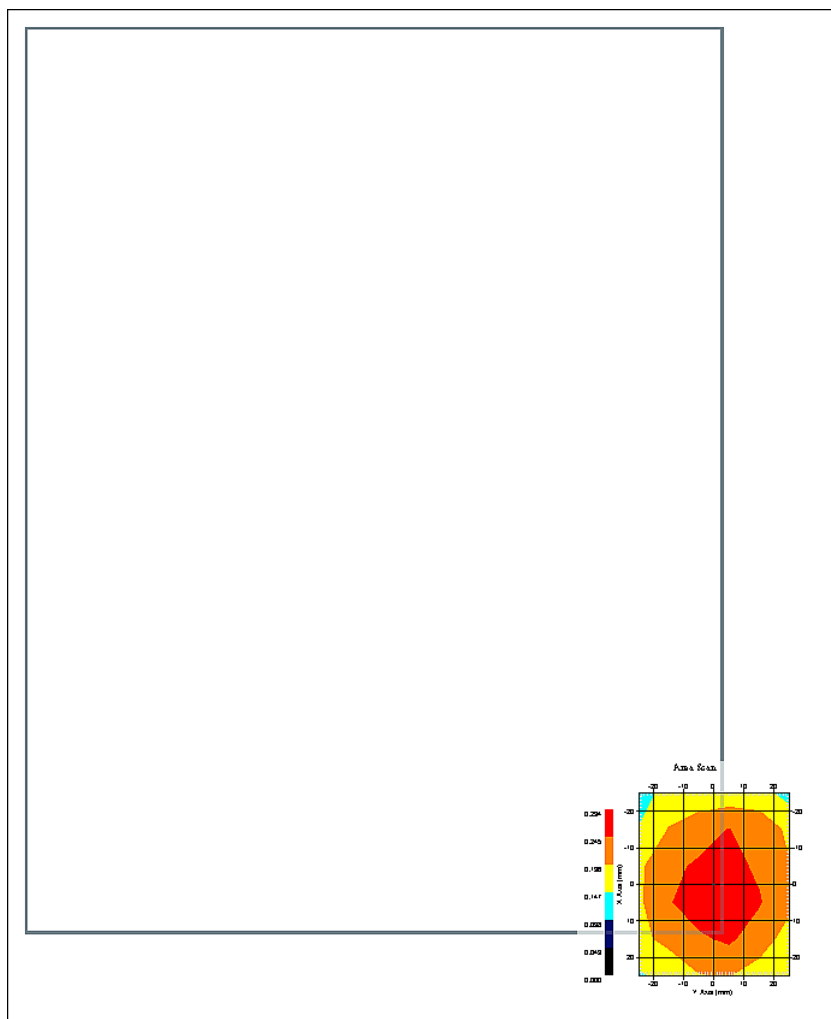
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Low



1 gram SAR value : 0.275 W/kg
10 gram SAR value : 0.178 W/kg
Area Scan Peak SAR : 0.292 W/kg
Zoom Scan Peak SAR : 0.440 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 02:36:23 PM
End Time : 03-Dec-2008 02:51:22 PM
Scanning Time : 899 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n20
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.272 W/kg
Power Drift-Finish: 0.279 W/kg
Power Drift (%) : 2.631

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

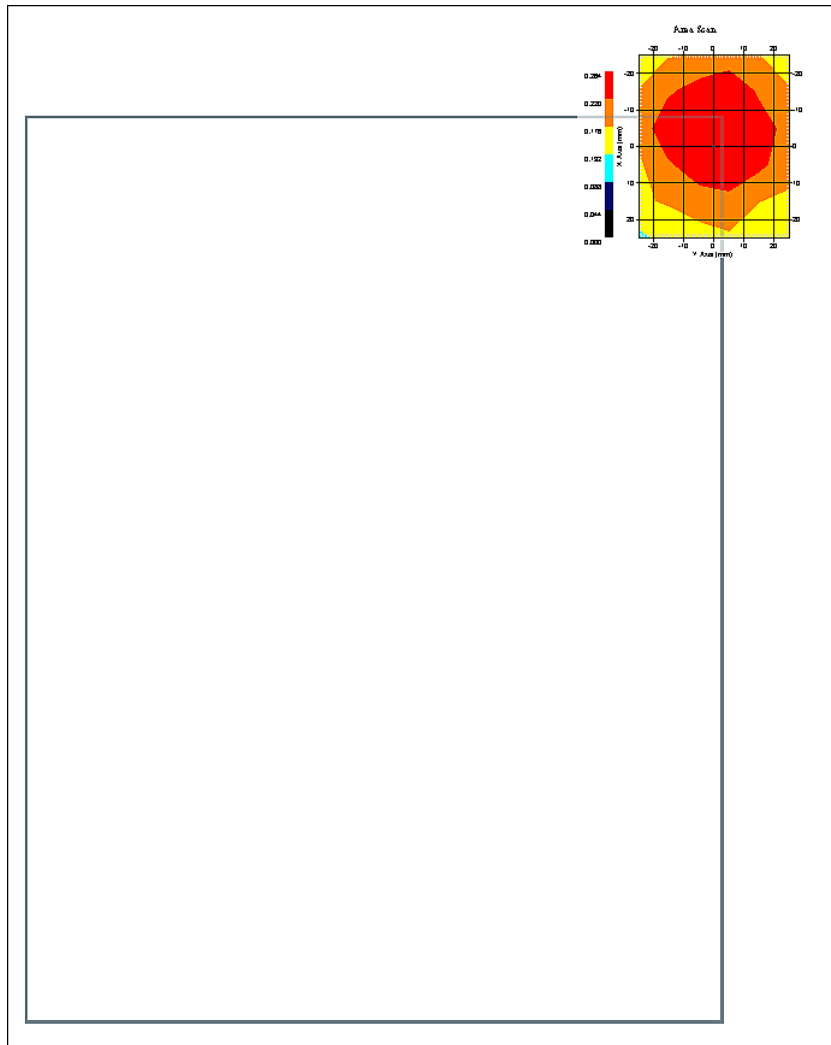
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 2:15:36 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.265 W/kg
10 gram SAR value : 0.178 W/kg
Area Scan Peak SAR : 0.261 W/kg
Zoom Scan Peak SAR : 0.410 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 03:37:22 PM
End Time : 03-Dec-2008 03:52:15 PM
Scanning Time : 893 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n20
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.275 W/kg
Power Drift-Finish: 0.286 W/kg
Power Drift (%) : 3.975

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

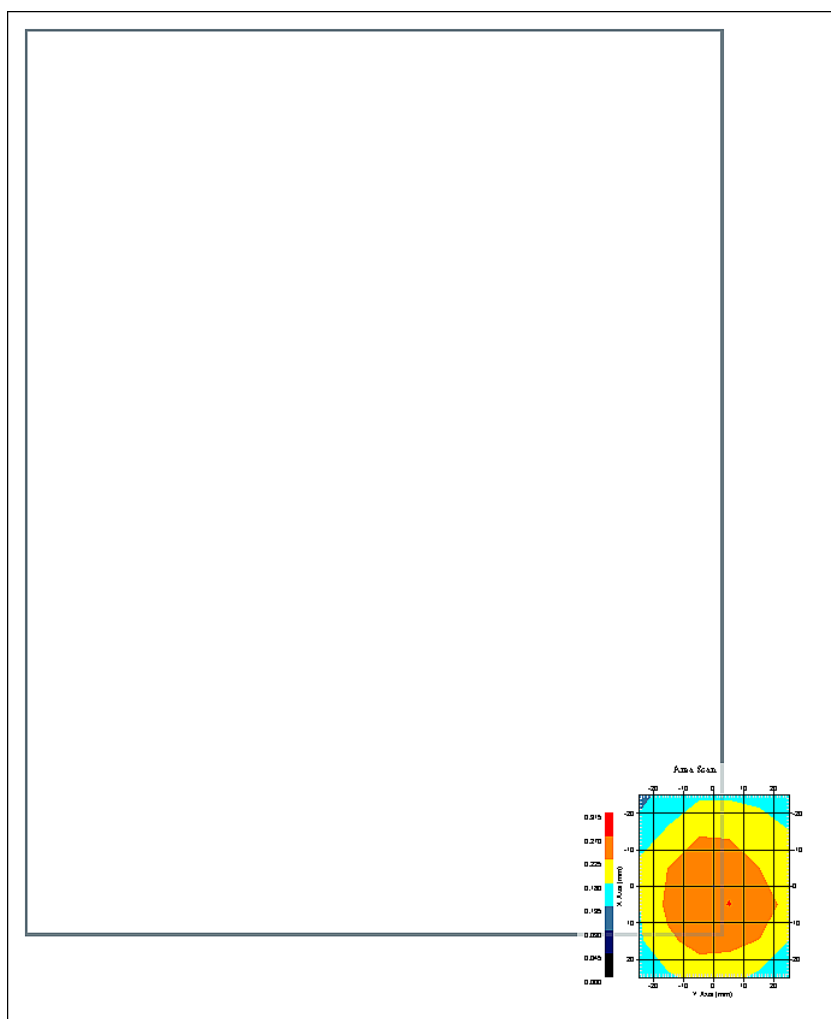
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.268 W/kg
10 gram SAR value : 0.178 W/kg
Area Scan Peak SAR : 0.271 W/kg
Zoom Scan Peak SAR : 0.400 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 02:57:52 PM
End Time : 03-Dec-2008 03:13:13 PM
Scanning Time : 921 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n40
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.267 W/kg
Power Drift-Finish: 0.272 W/kg
Power Drift (%) : 1.878

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

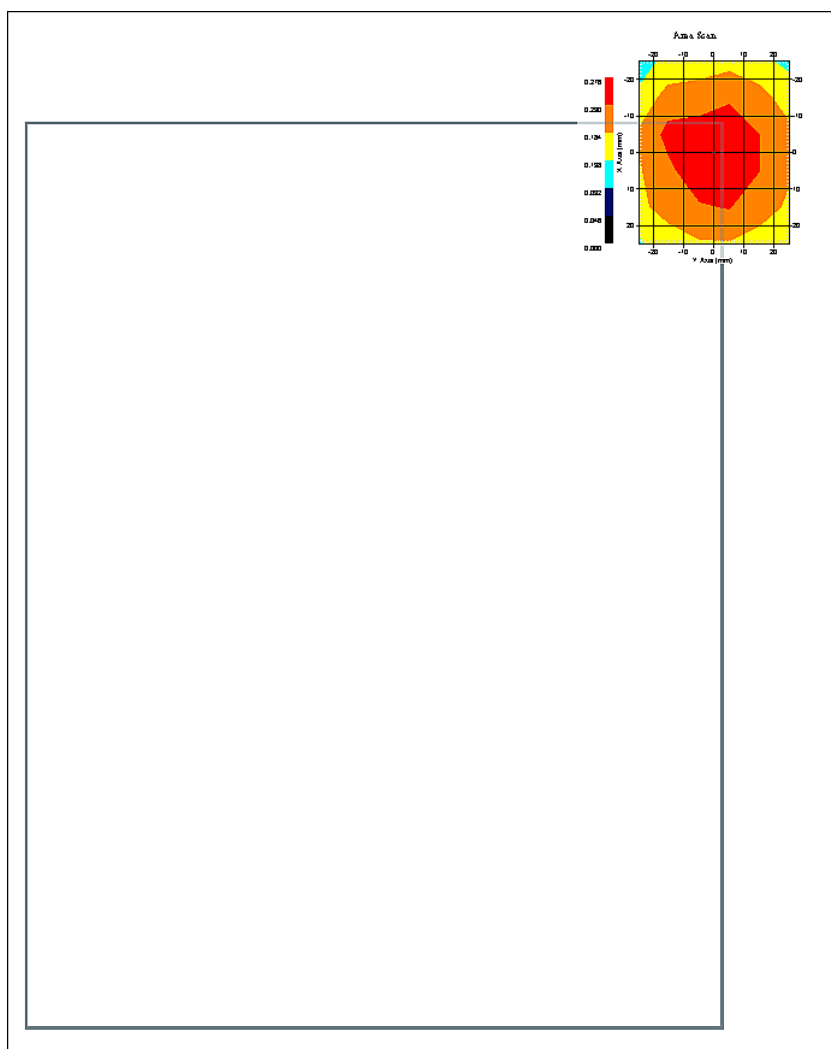
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
 Scan Type : Complete
 Tissue Temp. : 20.00 °C
 Ambient Temp. : 23.00 °C
 Set-up Date : 03-Dec-2008
 Set-up Time : 2:15:36 PM
 Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
 Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
 Separation : 0
 Channel : Mid



1 gram SAR value : 0.273 W/kg
 10 gram SAR value : 0.177 W/kg
 Area Scan Peak SAR : 0.276 W/kg
 Zoom Scan Peak SAR : 0.460 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 03:57:04 PM
End Time : 03-Dec-2008 04:12:01 PM
Scanning Time : 897 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n40
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.269 W/kg
Power Drift-Finish: 0.276 W/kg
Power Drift (%) : 2.803

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

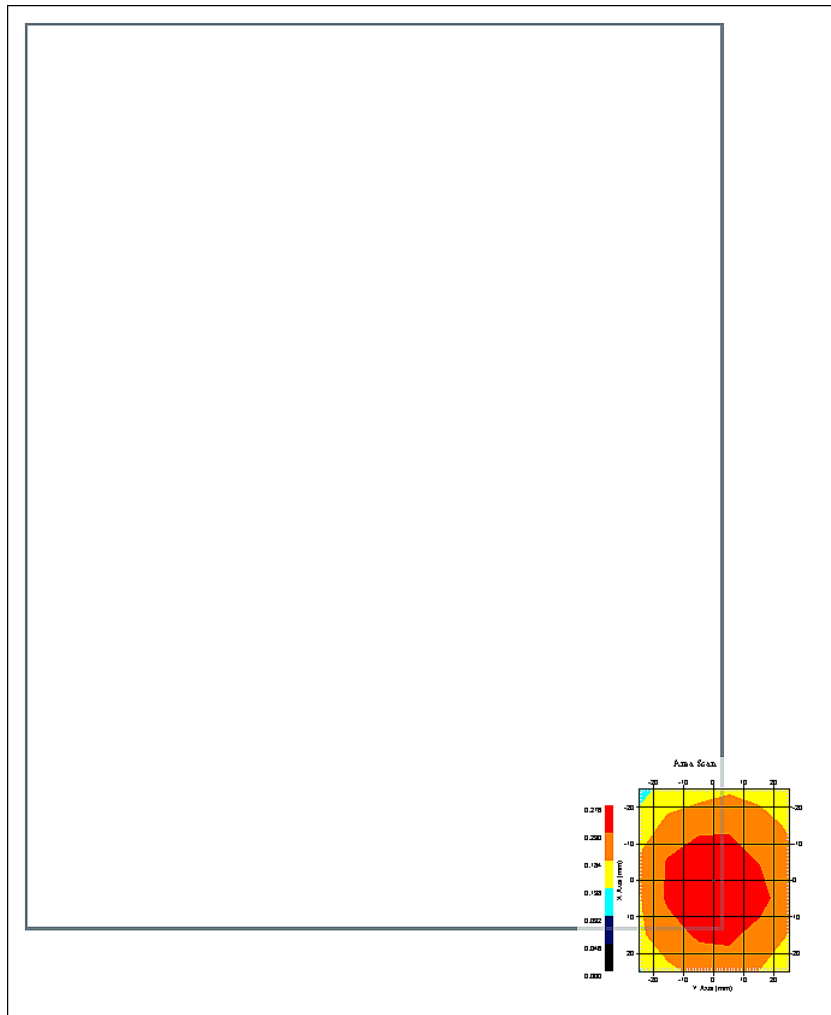
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.271 W/kg
10 gram SAR value : 0.179 W/kg
Area Scan Peak SAR : 0.276 W/kg
Zoom Scan Peak SAR : 0.420 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 04:44:10 PM
End Time : 03-Dec-2008 04:59:14 PM
Scanning Time : 904 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 g
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.278 W/kg
Power Drift-Finish: 0.276 W/kg
Power Drift (%) : -0.461

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

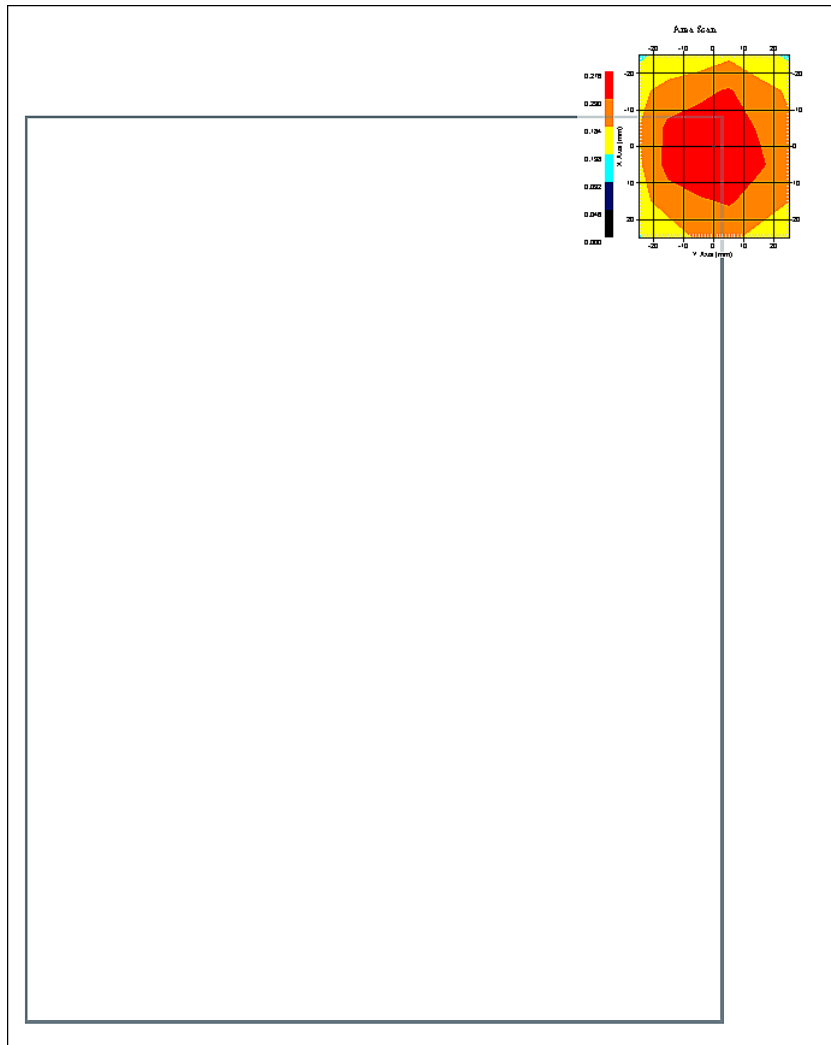
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 2:15:36 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.262 W/kg
10 gram SAR value : 0.178 W/kg
Area Scan Peak SAR : 0.274 W/kg
Zoom Scan Peak SAR : 0.420 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 05:43:04 PM
End Time : 03-Dec-2008 05:58:10 PM
Scanning Time : 906 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 g
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.274 W/kg
Power Drift-Finish: 0.266 W/kg
Power Drift (%) : -2.698

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

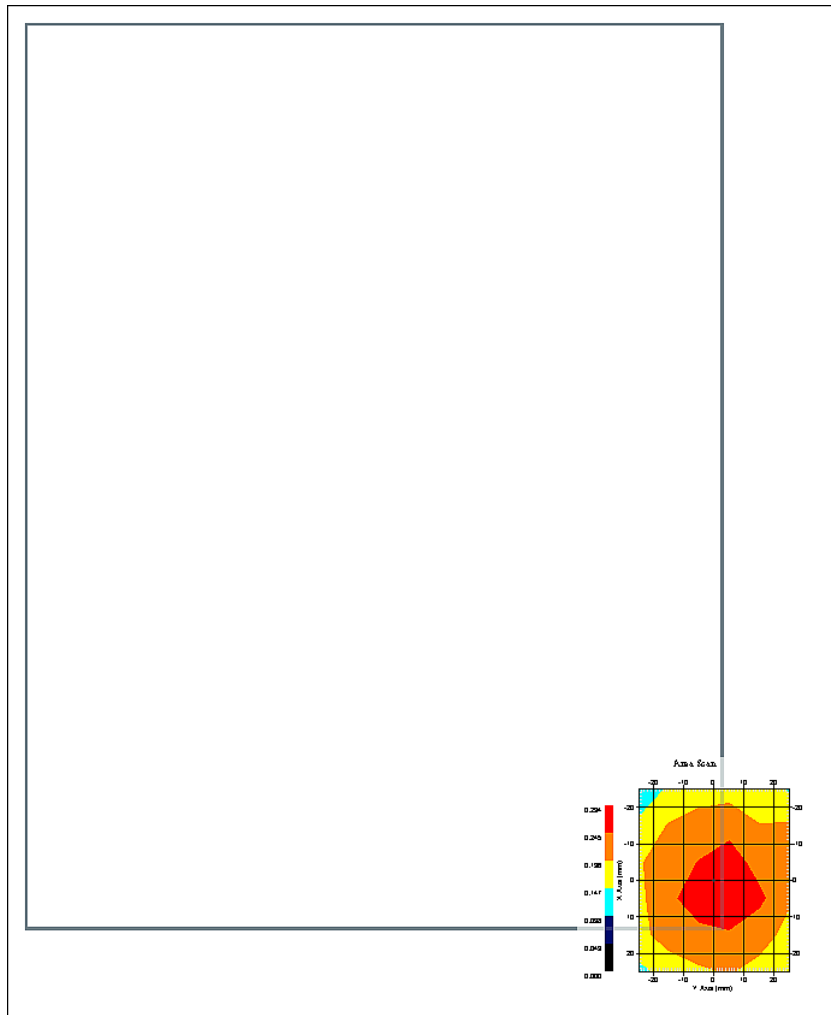
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.276 W/kg
10 gram SAR value : 0.178 W/kg
Area Scan Peak SAR : 0.293 W/kg
Zoom Scan Peak SAR : 0.430 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 06:41:27 AM
End Time : 03-Dec-2008 06:56:21 AM
Scanning Time : 894 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 g
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant3
Orientation : Touch
Power Drift-Start : 0.317 W/kg
Power Drift-Finish: 0.326 W/kg
Power Drift (%) : 3.007

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

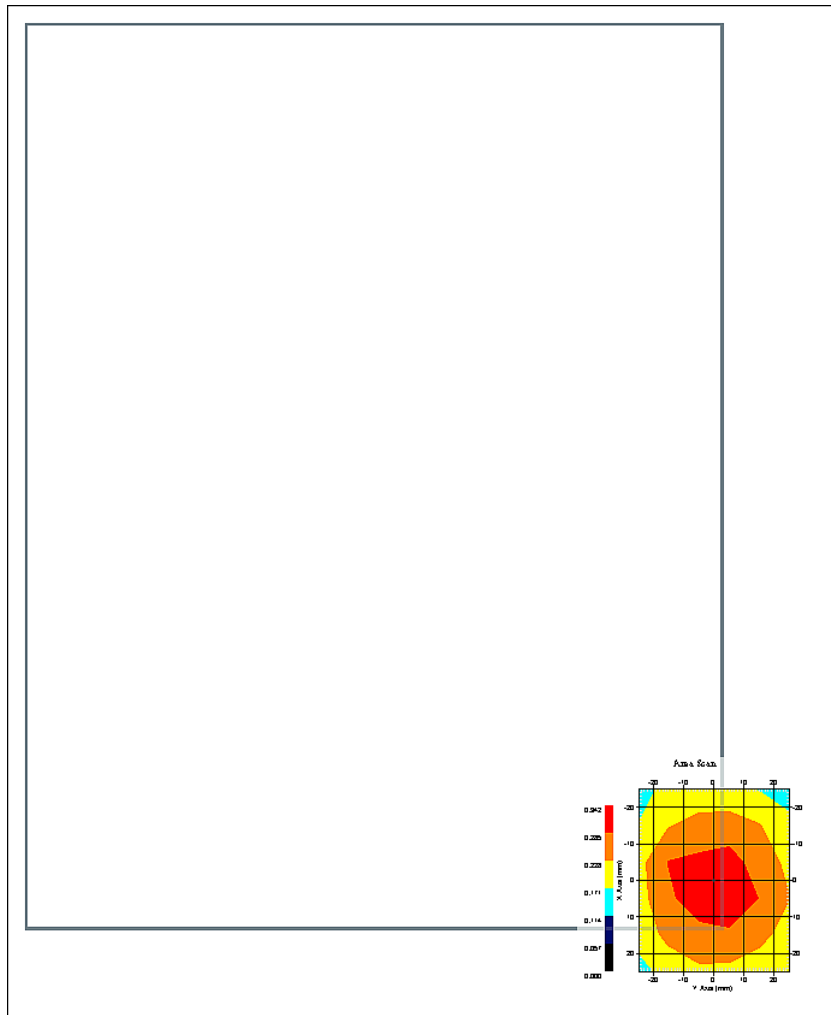
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

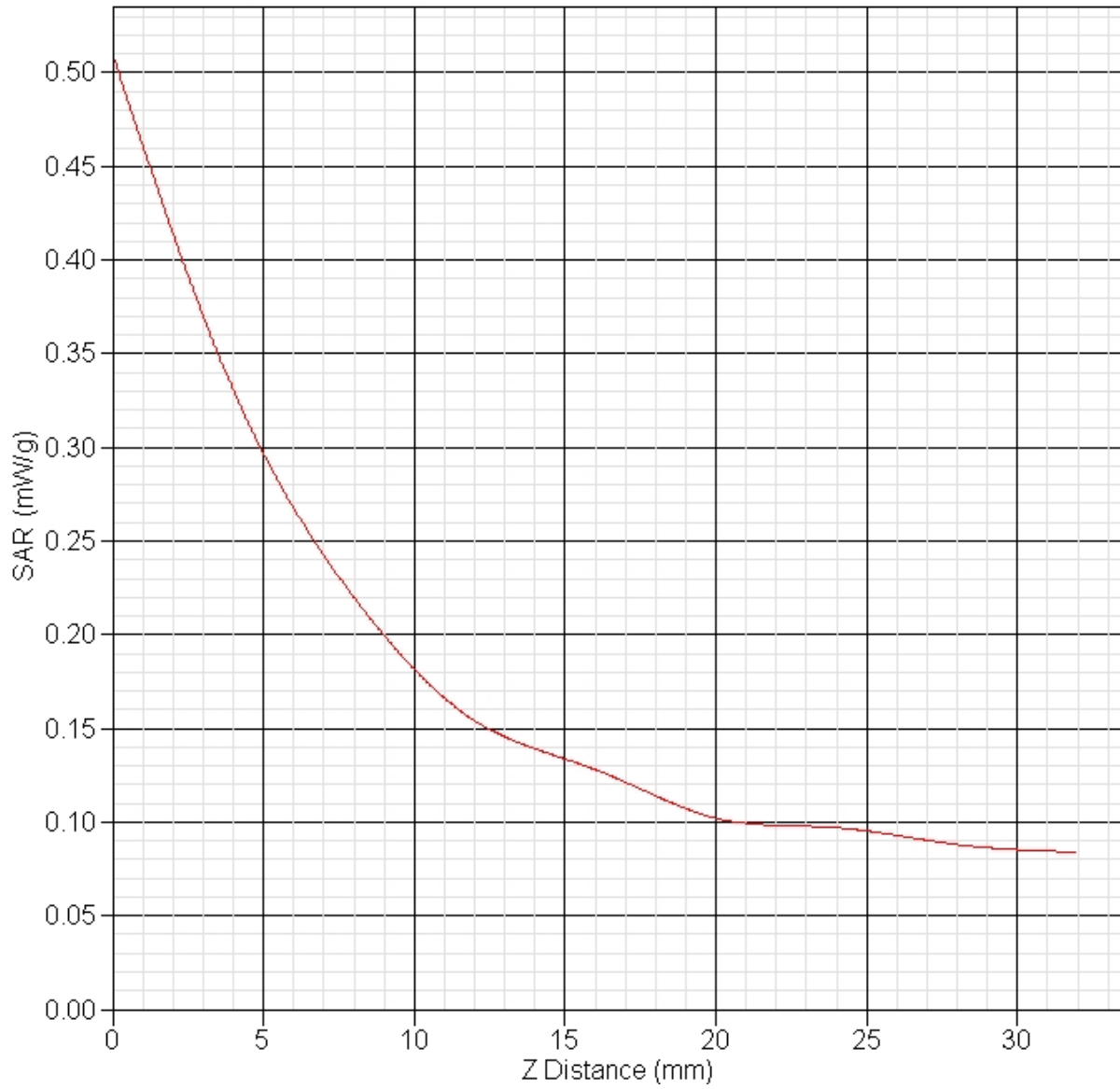
Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.320 W/kg
10 gram SAR value : 0.207 W/kg
Area Scan Peak SAR : 0.341 W/kg
Zoom Scan Peak SAR : 0.510 W/kg

SAR-Z Axis
at Hotspot x:-2.92 y:4.86



SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 05:04:40 PM
End Time : 03-Dec-2008 05:19:52 PM
Scanning Time : 912 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n20
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.269 W/kg
Power Drift-Finish: 0.265 W/kg
Power Drift (%) : -1.379

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

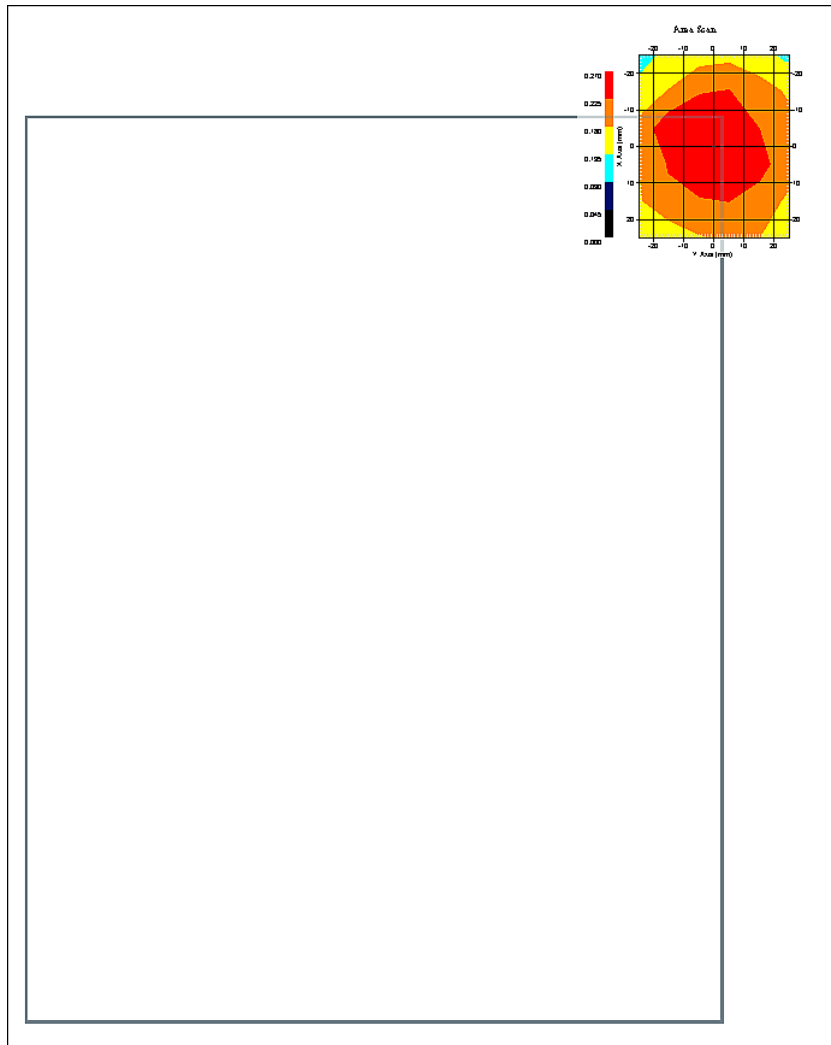
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 2:15:36 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.272 W/kg
10 gram SAR value : 0.176 W/kg
Area Scan Peak SAR : 0.269 W/kg
Zoom Scan Peak SAR : 0.440 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 06:02:14 PM
End Time : 03-Dec-2008 06:17:20 PM
Scanning Time : 906 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n20
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.272 W/kg
Power Drift-Finish: 0.273 W/kg
Power Drift (%) : 0.628

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

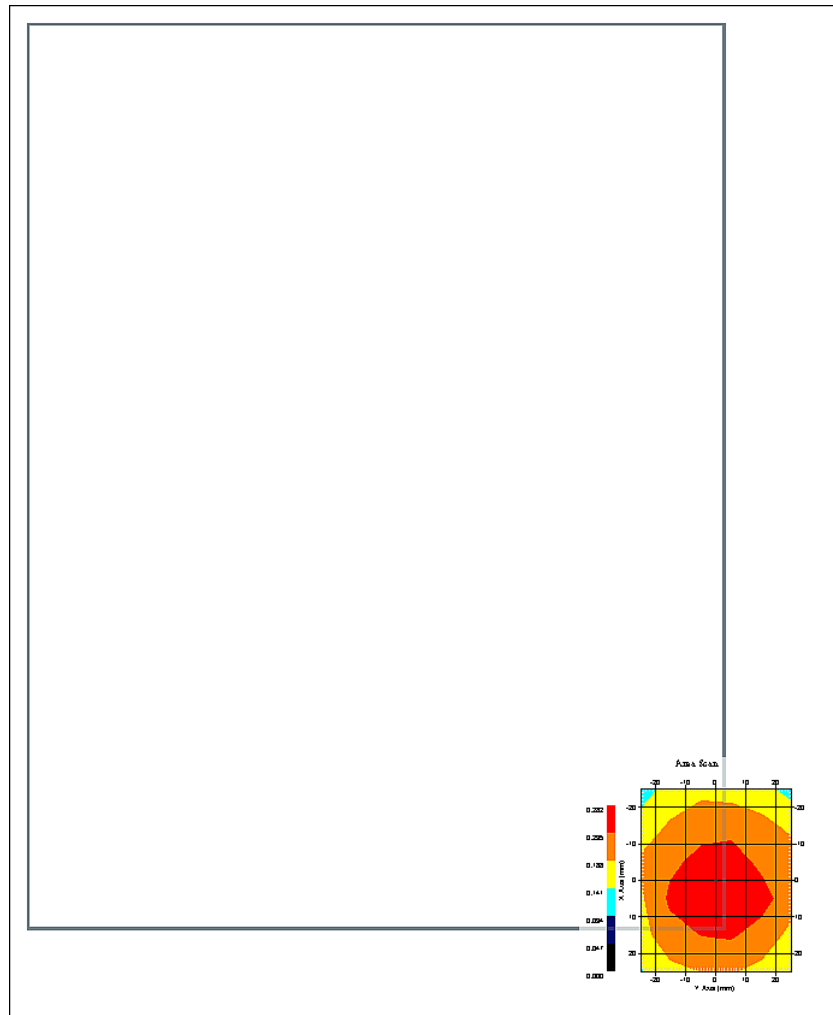
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.267 W/kg
10 gram SAR value : 0.176 W/kg
Area Scan Peak SAR : 0.282 W/kg
Zoom Scan Peak SAR : 0.410 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 07:00:25 PM
End Time : 03-Dec-2008 07:15:26 PM
Scanning Time : 901 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n20
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant 3
Orientation : Touch
Power Drift-Start : 0.326 W/kg
Power Drift-Finish: 0.333 W/kg
Power Drift (%) : 2.356

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

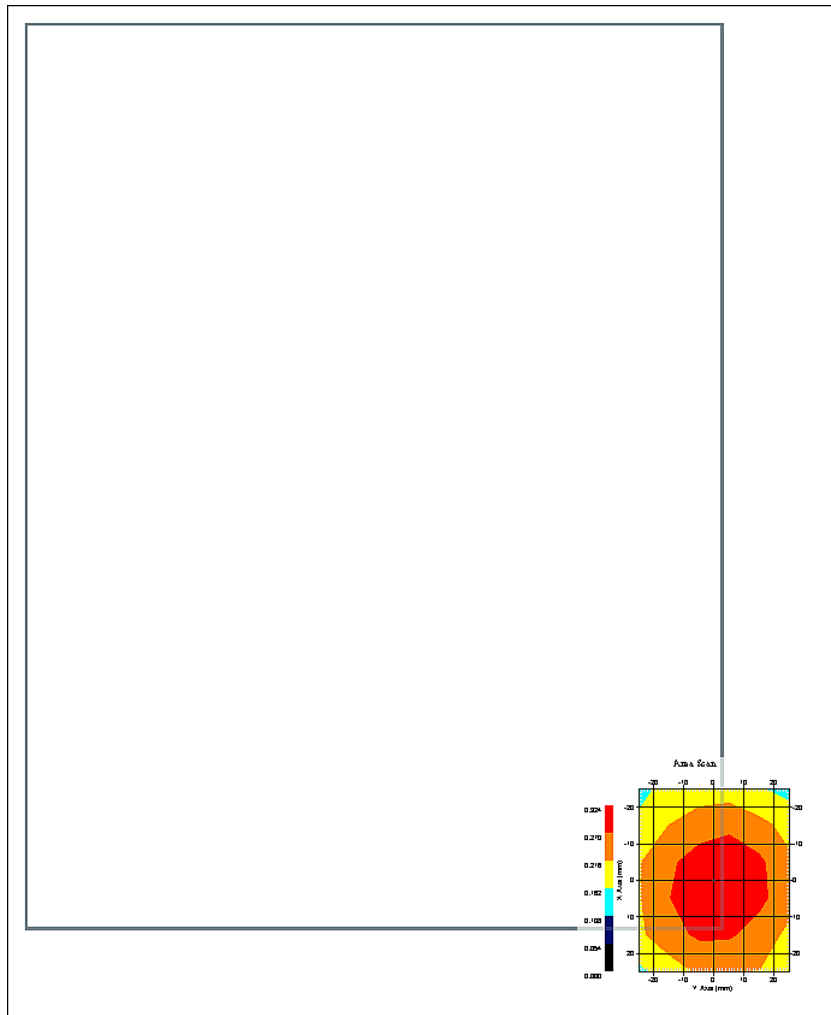
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.318 W/kg
10 gram SAR value : 0.203 W/kg
Area Scan Peak SAR : 0.321 W/kg
Zoom Scan Peak SAR : 0.530 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 05:23:59 PM
End Time : 03-Dec-2008 05:39:14 PM
Scanning Time : 915 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n40
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.267 W/kg
Power Drift-Finish: 0.269 W/kg
Power Drift (%) : 0.744

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

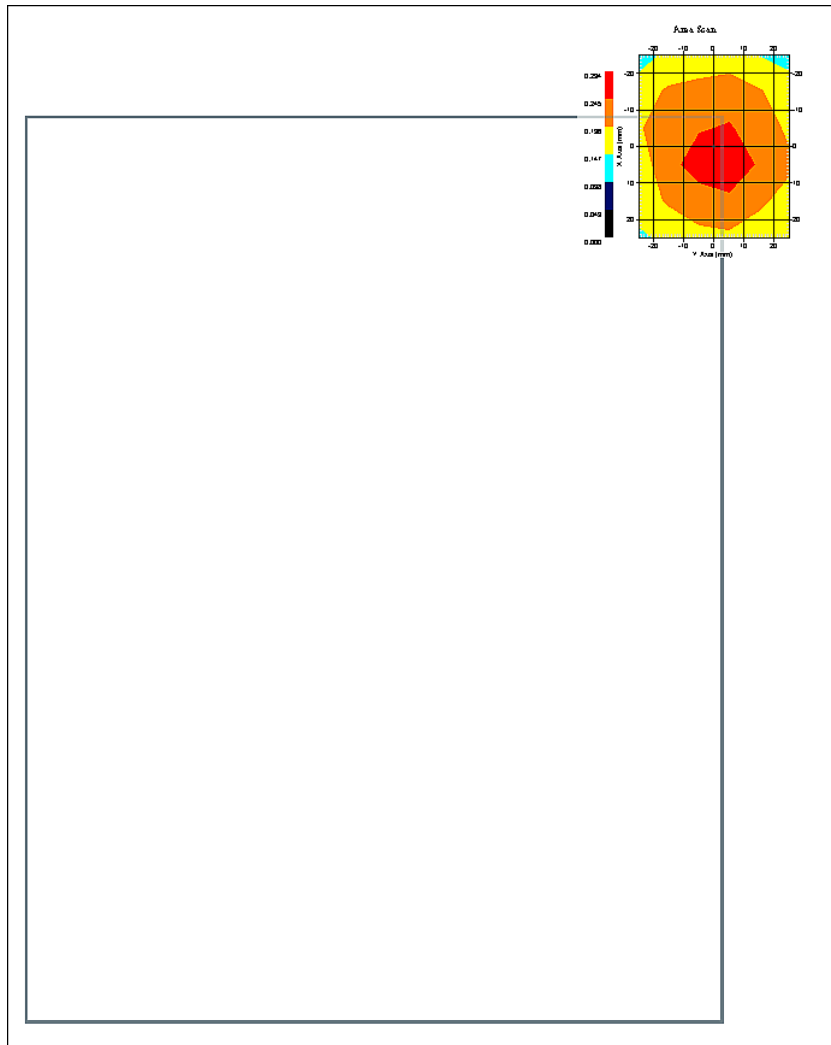
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 2:15:36 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.268 W/kg
10 gram SAR value : 0.180 W/kg
Area Scan Peak SAR : 0.291 W/kg
Zoom Scan Peak SAR : 0.420 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 06:22:30 PM
End Time : 03-Dec-2008 06:37:25 PM
Scanning Time : 895 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n40
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.273 W/kg
Power Drift-Finish: 0.274 W/kg
Power Drift (%) : 0.364

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

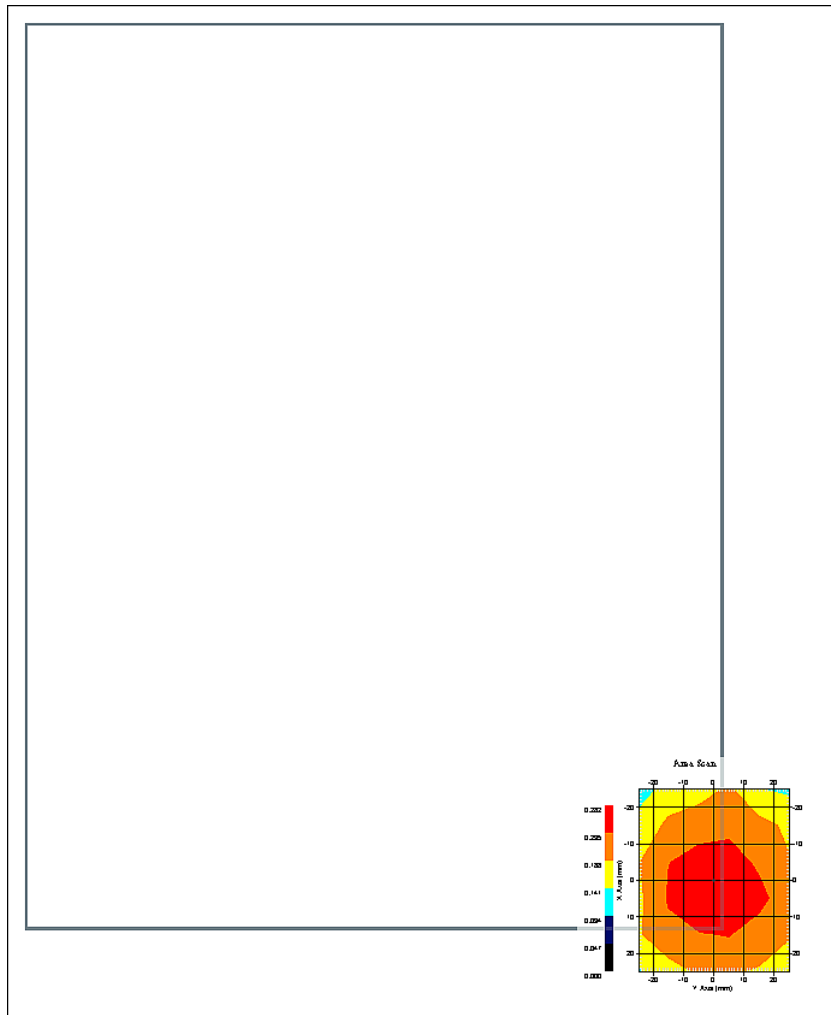
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.271 W/kg
10 gram SAR value : 0.175 W/kg
Area Scan Peak SAR : 0.280 W/kg
Zoom Scan Peak SAR : 0.440 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 07:19:34 PM
End Time : 03-Dec-2008 07:34:39 PM
Scanning Time : 905 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n40
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant 3
Orientation : Touch
Power Drift-Start : 0.314 W/kg
Power Drift-Finish: 0.318 W/kg
Power Drift (%) : 1.269

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

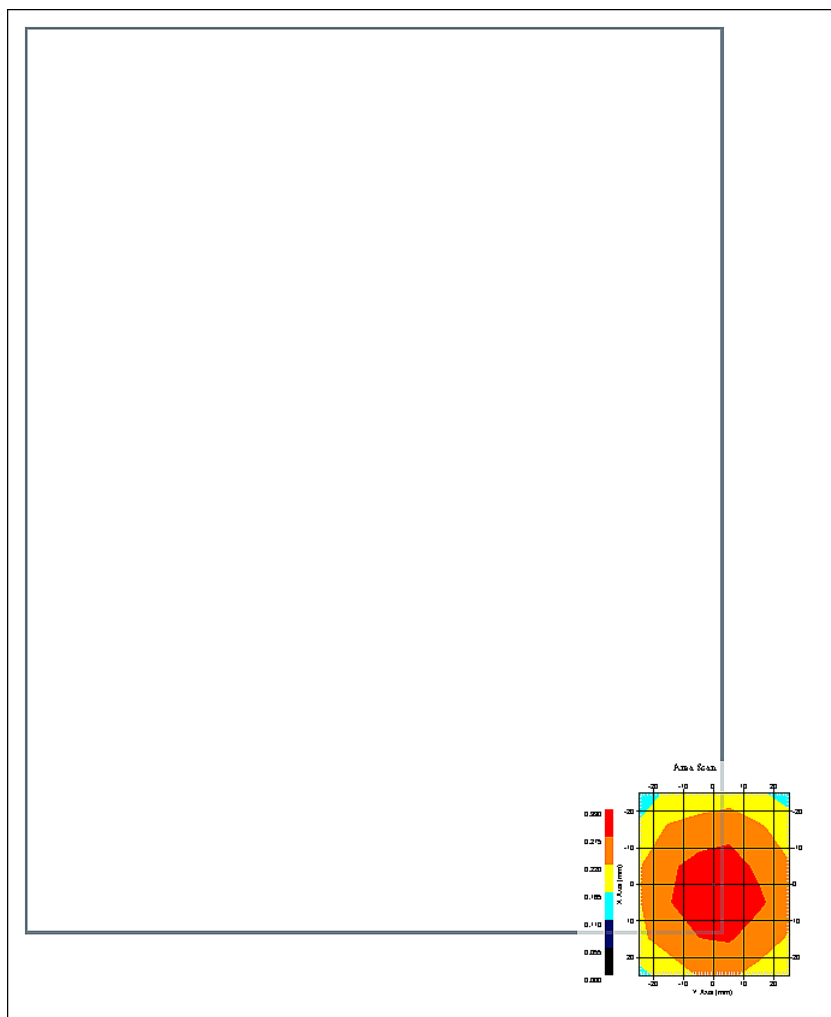
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.296 W/kg
10 gram SAR value : 0.191 W/kg
Area Scan Peak SAR : 0.328 W/kg
Zoom Scan Peak SAR : 0.470 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 08:03:35 PM
End Time : 03-Dec-2008 08:18:44 PM
Scanning Time : 909 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 b
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.276 W/kg
Power Drift-Finish: 0.271 W/kg
Power Drift (%) : -1.861

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

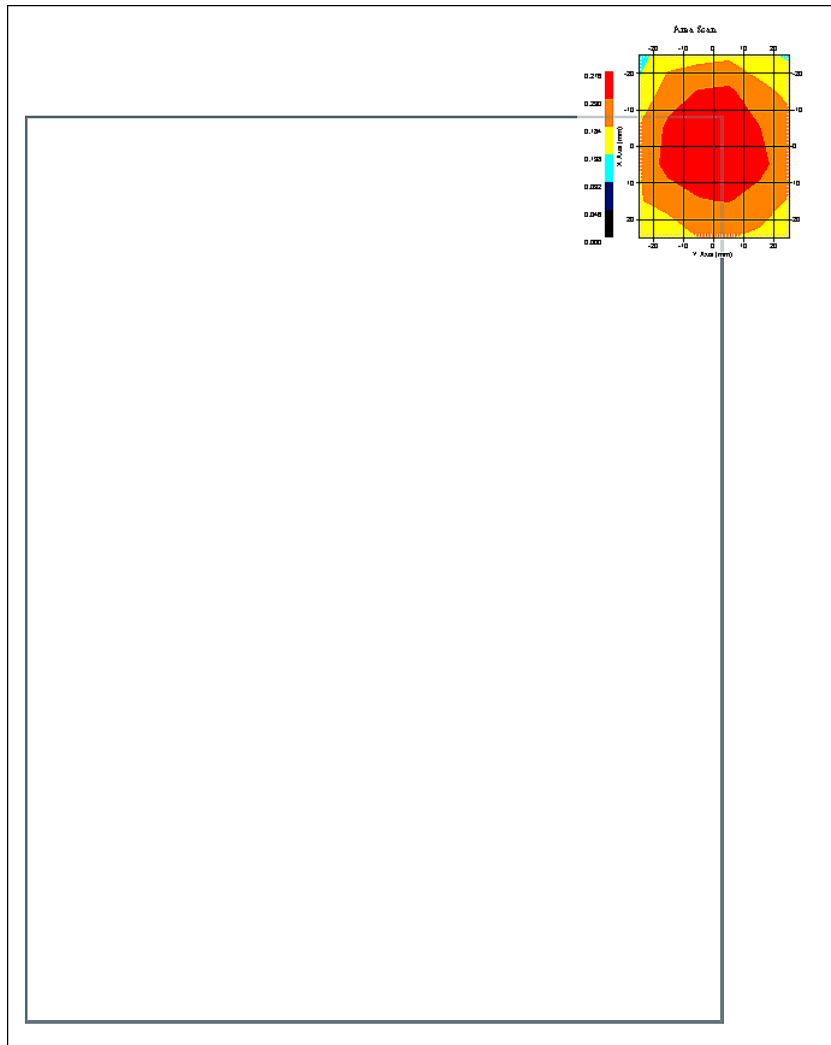
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 2:15:36 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.274 W/kg
10 gram SAR value : 0.178 W/kg
Area Scan Peak SAR : 0.274 W/kg
Zoom Scan Peak SAR : 0.450 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 09:02:38 PM
End Time : 03-Dec-2008 09:17:49 PM
Scanning Time : 911 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 b
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.263 W/kg
Power Drift-Finish: 0.268 W/kg
Power Drift (%) : 1.901

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

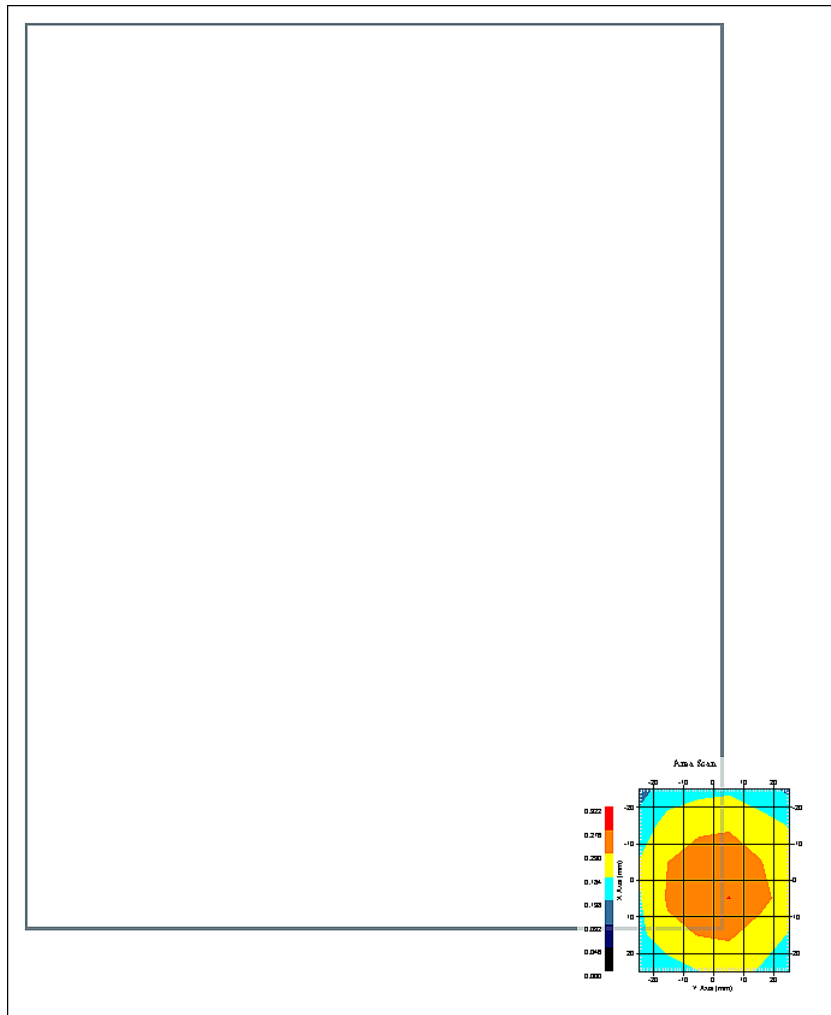
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.268 W/kg
10 gram SAR value : 0.176 W/kg
Area Scan Peak SAR : 0.277 W/kg
Zoom Scan Peak SAR : 0.440 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 08:22:52 PM
End Time : 03-Dec-2008 08:38:07 PM
Scanning Time : 915 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n20
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.266 W/kg
Power Drift-Finish: 0.271 W/kg
Power Drift (%) : 1.877

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

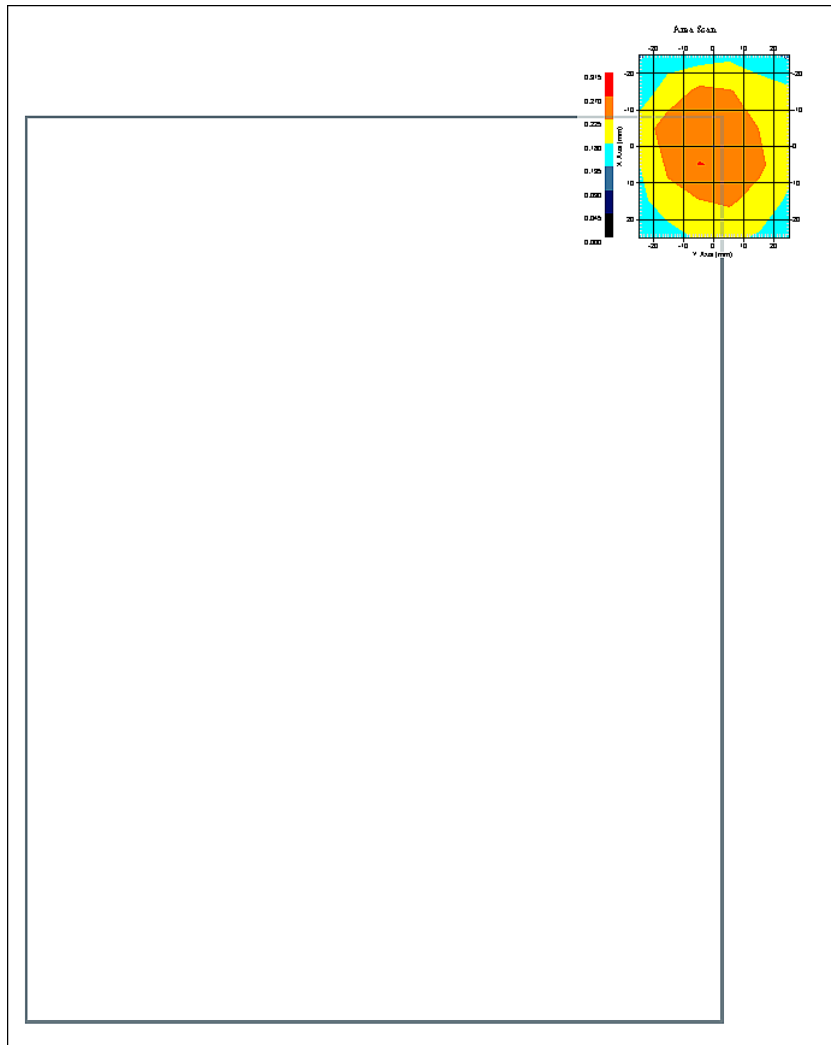
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 2:15:36 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.266 W/kg
10 gram SAR value : 0.183 W/kg
Area Scan Peak SAR : 0.271 W/kg
Zoom Scan Peak SAR : 0.420 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 09:21:56 PM
End Time : 03-Dec-2008 09:36:58 PM
Scanning Time : 902 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n20
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.268 W/kg
Power Drift-Finish: 0.268 W/kg
Power Drift (%) : -0.054

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

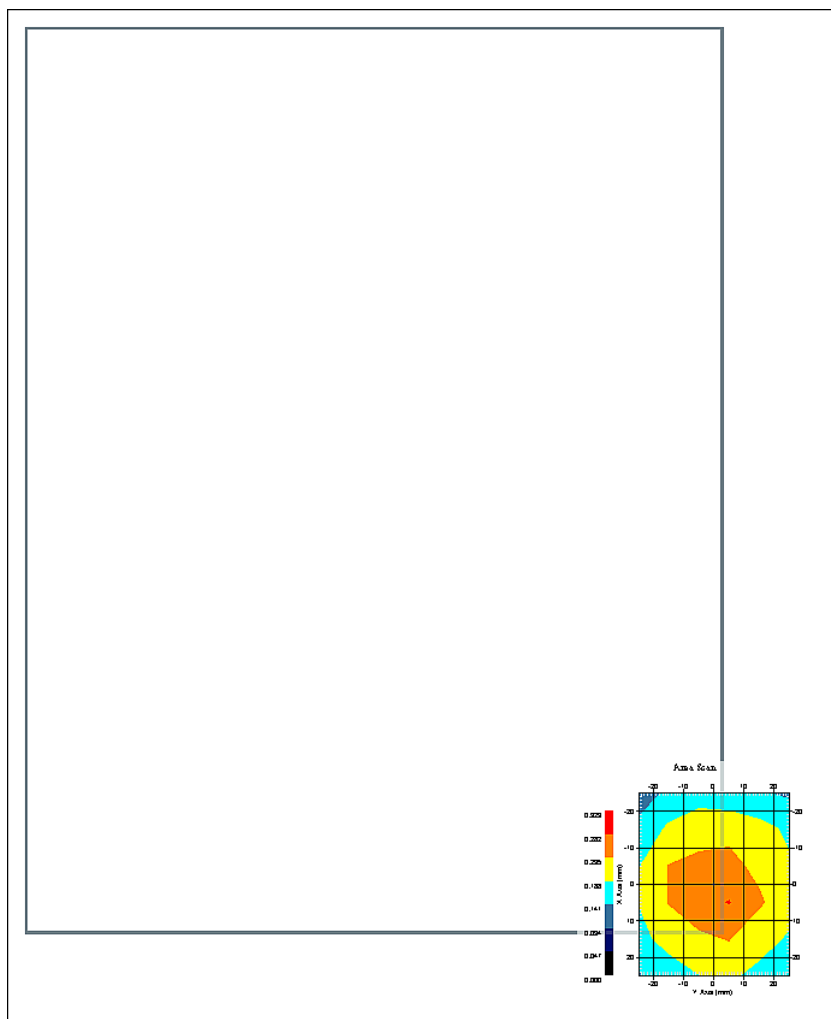
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.276 W/kg
10 gram SAR value : 0.180 W/kg
Area Scan Peak SAR : 0.284 W/kg
Zoom Scan Peak SAR : 0.440 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 08:43:22 PM
End Time : 03-Dec-2008 08:58:36 PM
Scanning Time : 914 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n40
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.267 W/kg
Power Drift-Finish: 0.271 W/kg
Power Drift (%) : 1.495

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

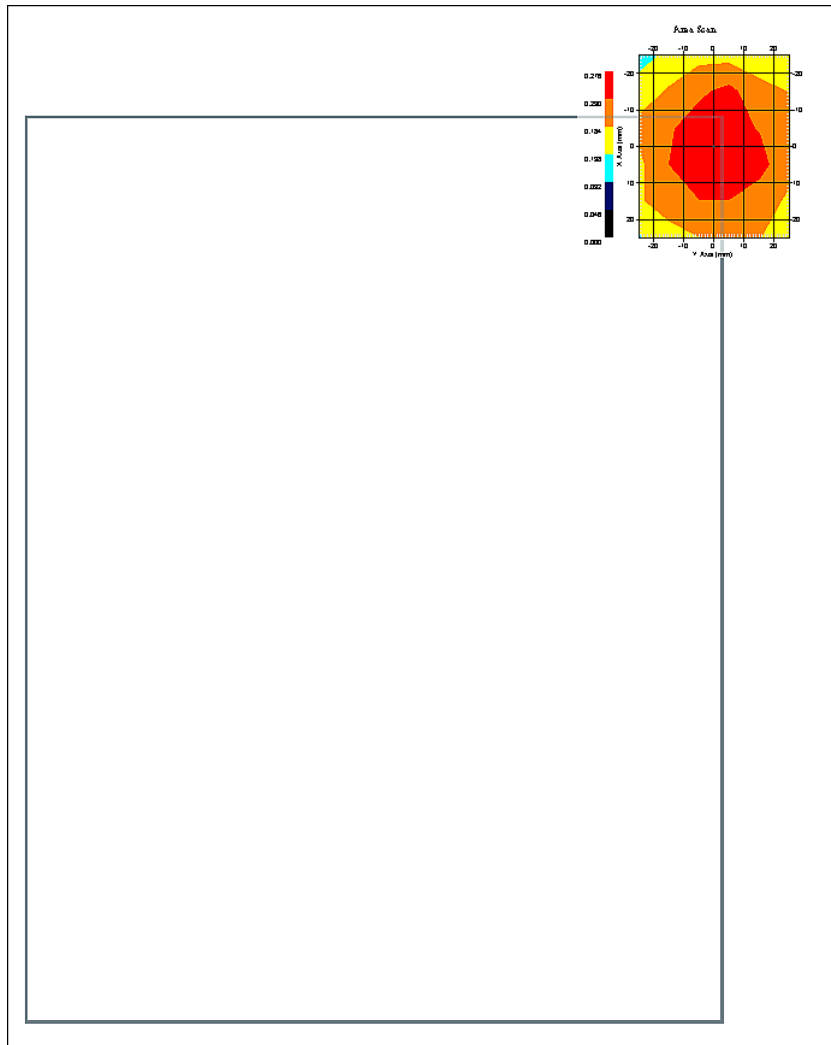
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 2:15:36 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.277 W/kg
10 gram SAR value : 0.181 W/kg
Area Scan Peak SAR : 0.274 W/kg
Zoom Scan Peak SAR : 0.440 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 03-Dec-2008
Starting Time : 03-Dec-2008 09:41:06 PM
End Time : 03-Dec-2008 09:56:02 PM
Scanning Time : 896 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n40
Model : Minicooper
Frequency : 2450.00 MHz
Max. Transmit Pwr : 0.1 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.268 W/kg
Power Drift-Finish: 0.272 W/kg
Power Drift (%) : 1.432

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 2450
Frequency : 2450.00 MHz
Last Calib. Date : 03-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 41.00 RH%
Epsilon : 53.36 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data

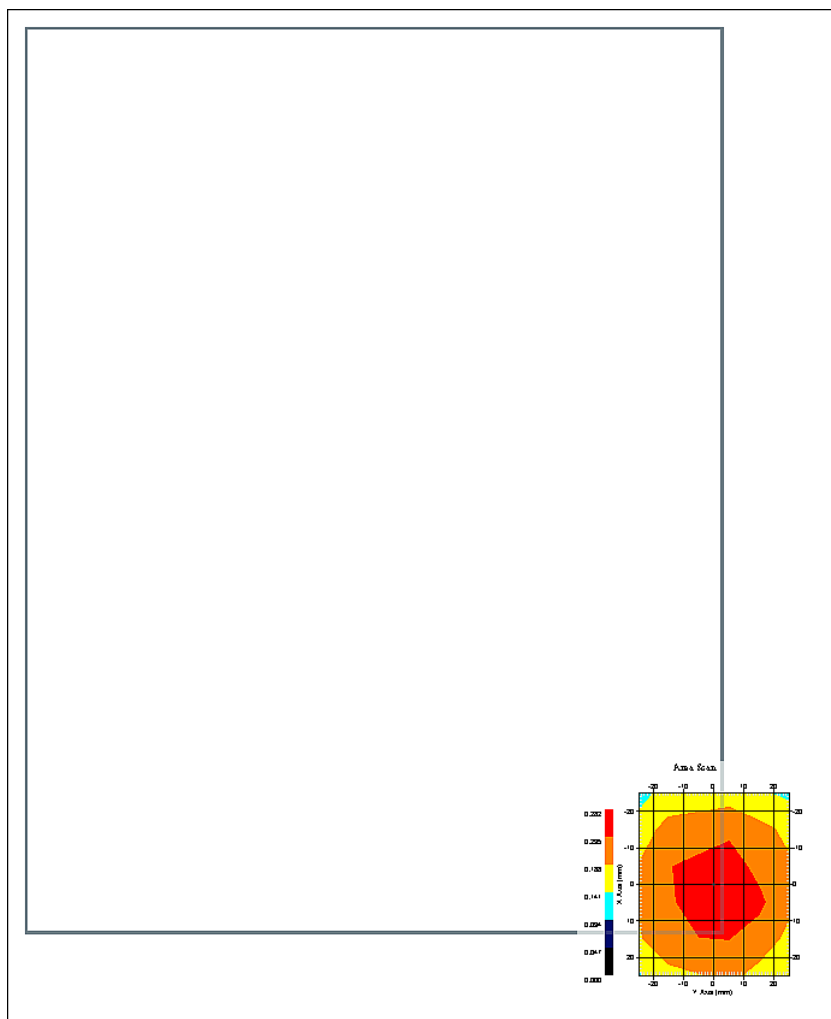
Name : Probe 215 - RFEL
Model : E020
Type : E-Field Triangle
Serial No. : 215
Last Calib. Date : 03-Nov-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 03-Dec-2008
Set-up Time : 7:46:34 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=4mm
Zoom Scan : 5x5x8 : Measurement x=8mm, y=8mm, z=4mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.278 W/kg
10 gram SAR value : 0.180 W/kg
Area Scan Peak SAR : 0.282 W/kg
Zoom Scan Peak SAR : 0.460 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 07:31:08 AM
End Time : 08-Dec-2008 07:56:00 AM
Scanning Time : 1492 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 a1
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.275 W/kg
Power Drift-Finish: 0.279 W/kg
Power Drift (%) : 1.670

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

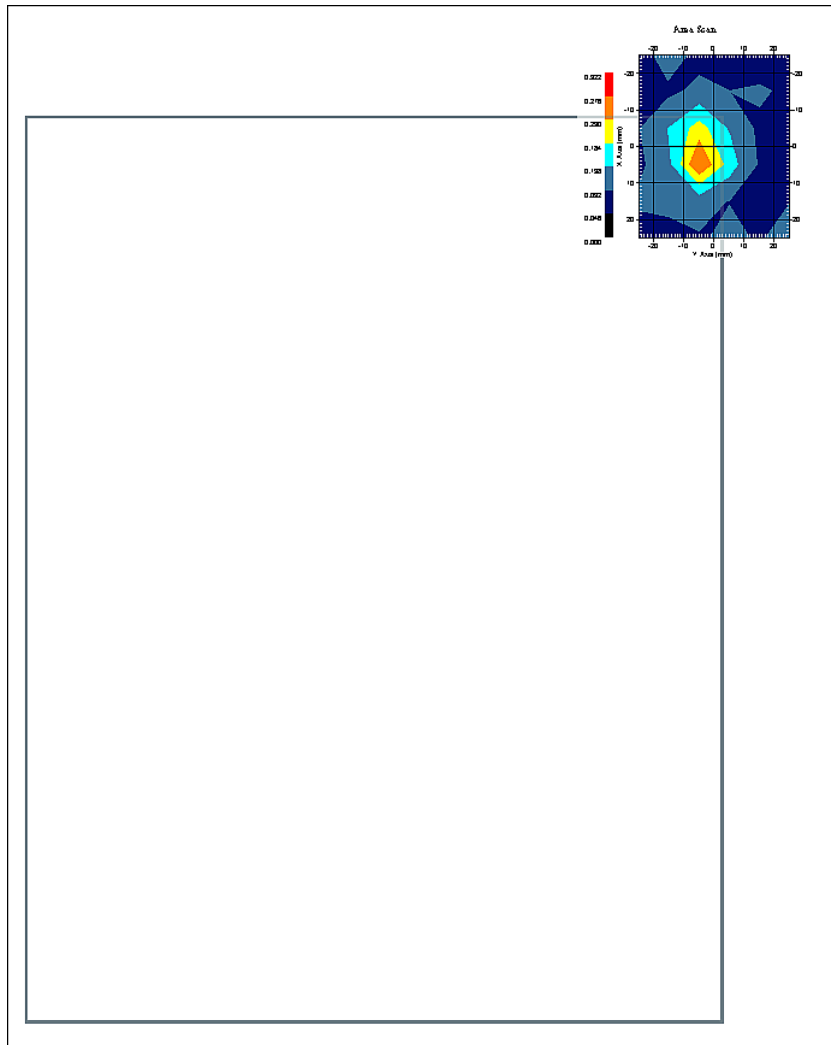
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 8:04:10 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.196 W/kg
10 gram SAR value : 0.127 W/kg
Area Scan Peak SAR : 0.277 W/kg
Zoom Scan Peak SAR : 0.370 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 09:32:13 AM
End Time : 08-Dec-2008 09:57:09 AM
Scanning Time : 1496 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 a1
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.273 W/kg
Power Drift-Finish: 0.277 W/kg
Power Drift (%) : 1.534

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

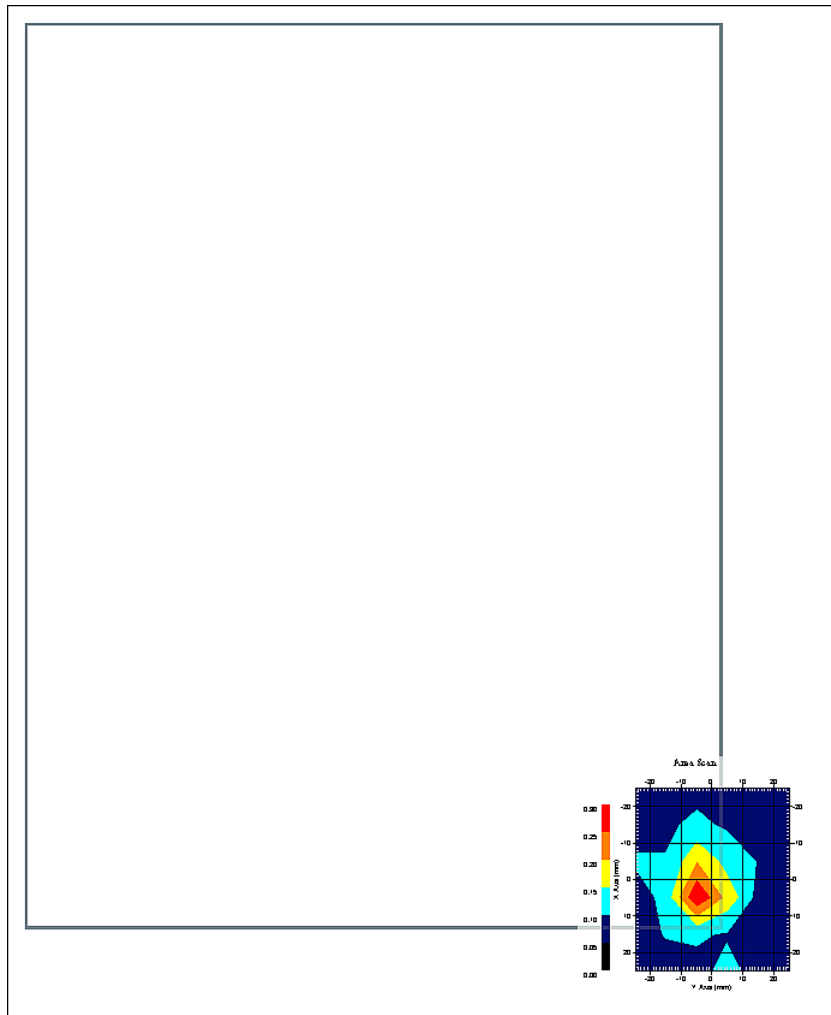
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.204 W/kg
10 gram SAR value : 0.125 W/kg
Area Scan Peak SAR : 0.299 W/kg
Zoom Scan Peak SAR : 0.400 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 08:01:06 AM
End Time : 08-Dec-2008 08:25:59 AM
Scanning Time : 1493 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 a2
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.281 W/kg
Power Drift-Finish: 0.289 W/kg
Power Drift (%) : 3.120

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

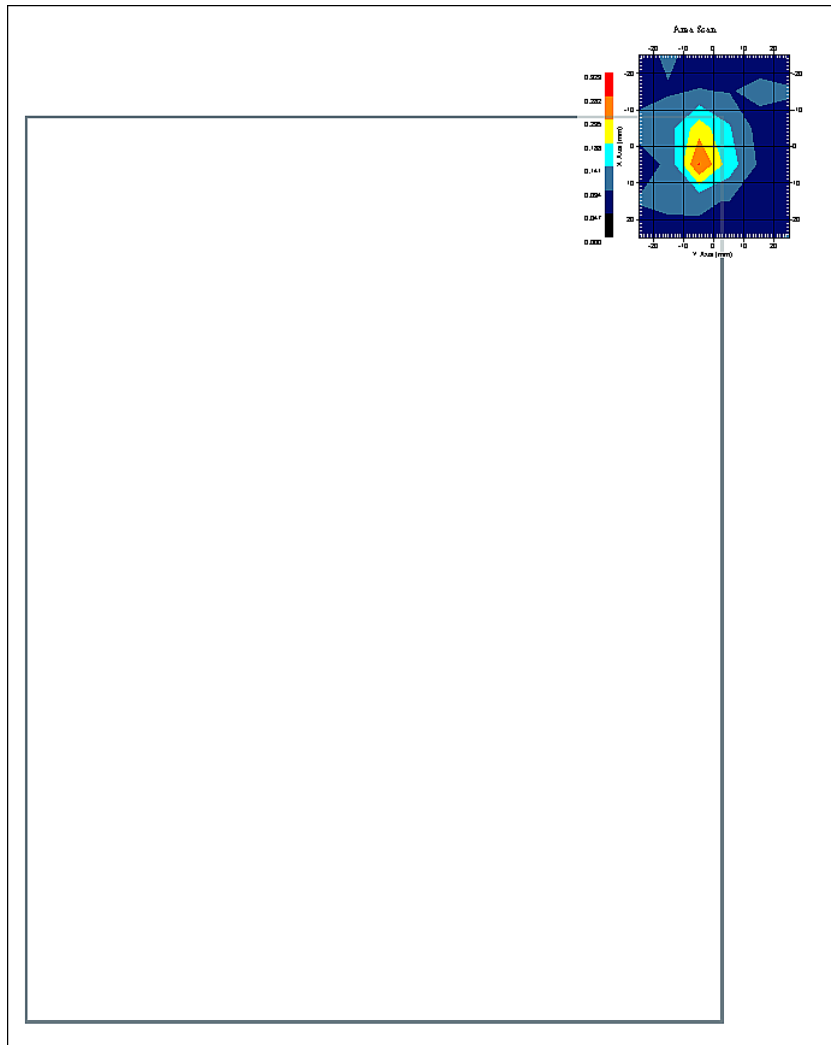
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 8:04:10 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.196 W/kg
10 gram SAR value : 0.125 W/kg
Area Scan Peak SAR : 0.285 W/kg
Zoom Scan Peak SAR : 0.360 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 10:01:55 AM
End Time : 08-Dec-2008 10:26:39 AM
Scanning Time : 1484 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 a2
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.276 W/kg
Power Drift-Finish: 0.277 W/kg
Power Drift (%) : 0.432

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

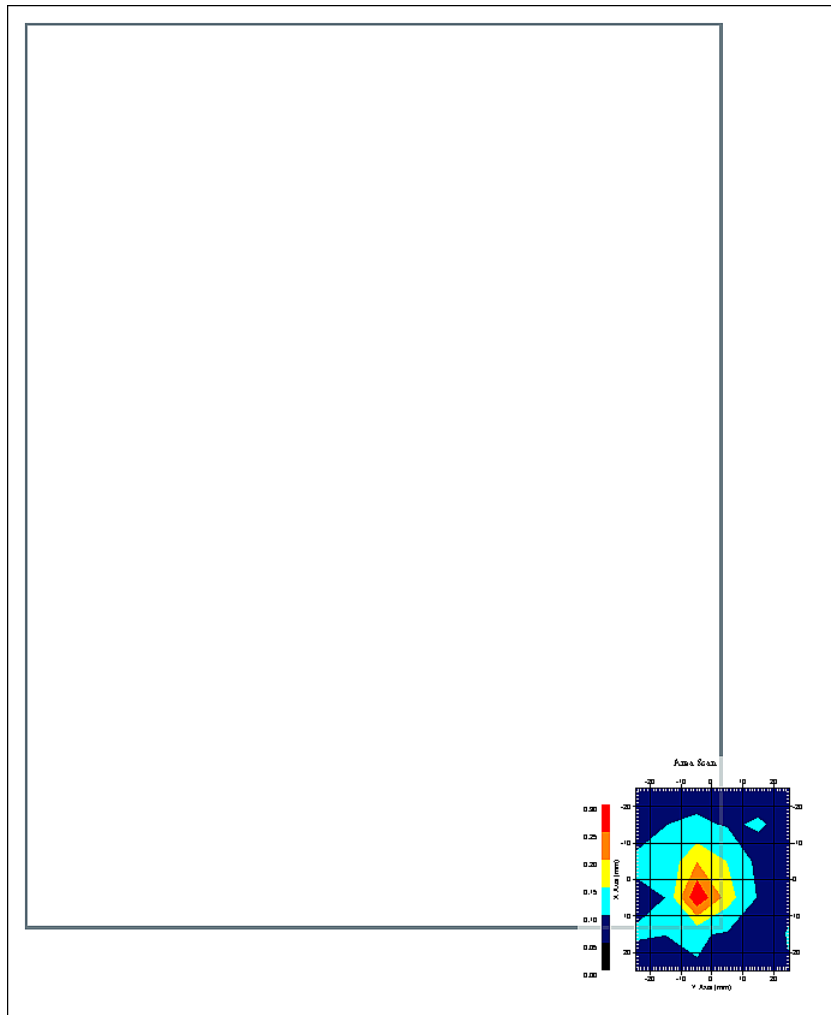
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.201 W/kg
10 gram SAR value : 0.124 W/kg
Area Scan Peak SAR : 0.298 W/kg
Zoom Scan Peak SAR : 0.390 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 08:31:06 AM
End Time : 08-Dec-2008 08:55:48 AM
Scanning Time : 1482 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n20
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.277 W/kg
Power Drift-Finish: 0.287 W/kg
Power Drift (%) : 3.516

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

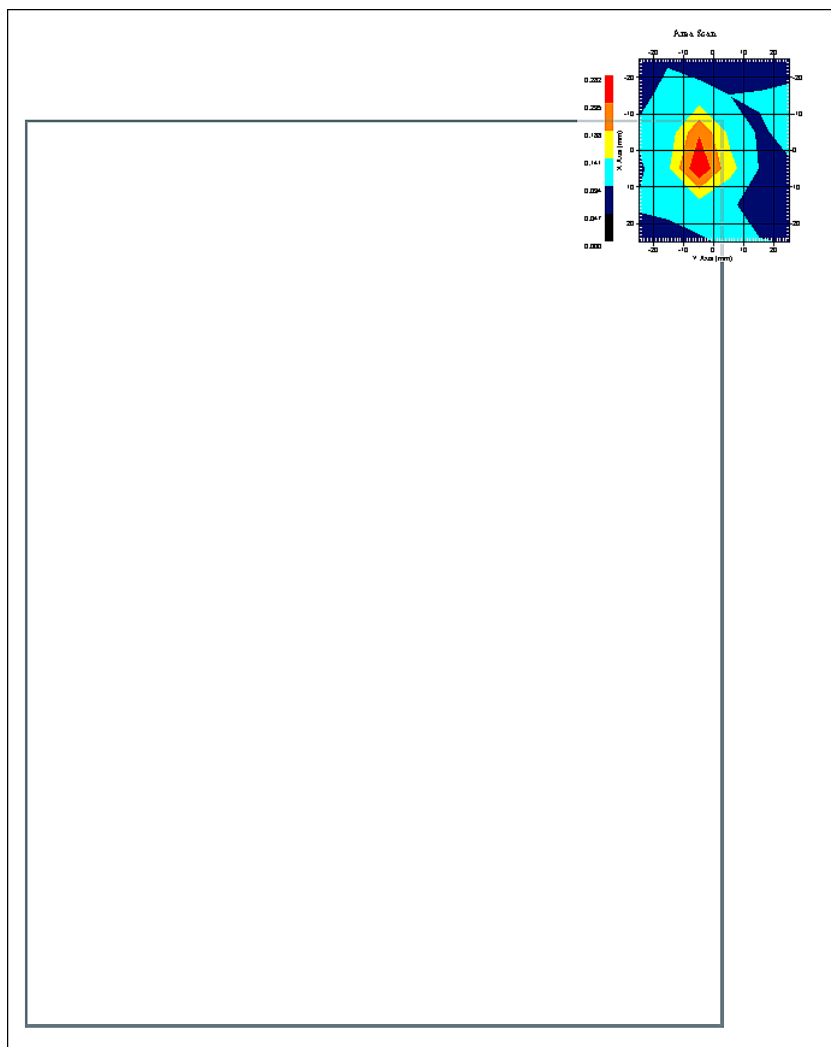
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 8:04:10 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.197 W/kg
10 gram SAR value : 0.125 W/kg
Area Scan Peak SAR : 0.281 W/kg
Zoom Scan Peak SAR : 0.370 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 10:31:23 AM
End Time : 08-Dec-2008 10:56:11 AM
Scanning Time : 1488 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n20
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.283 W/kg
Power Drift-Finish: 0.280 W/kg
Power Drift (%) : -0.986

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

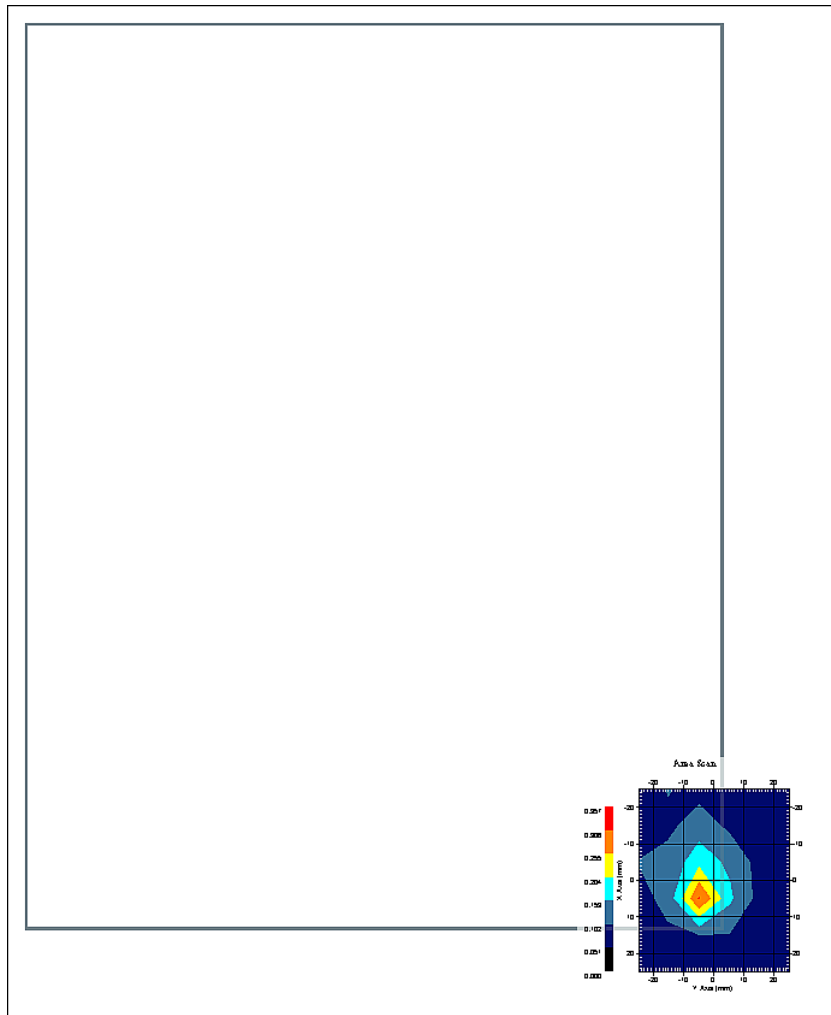
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.199 W/kg
10 gram SAR value : 0.124 W/kg
Area Scan Peak SAR : 0.308 W/kg
Zoom Scan Peak SAR : 0.390 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 09:03:13 AM
End Time : 08-Dec-2008 09:28:09 AM
Scanning Time : 1496 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n40
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.289 W/kg
Power Drift-Finish: 0.296 W/kg
Power Drift (%) : 2.425

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

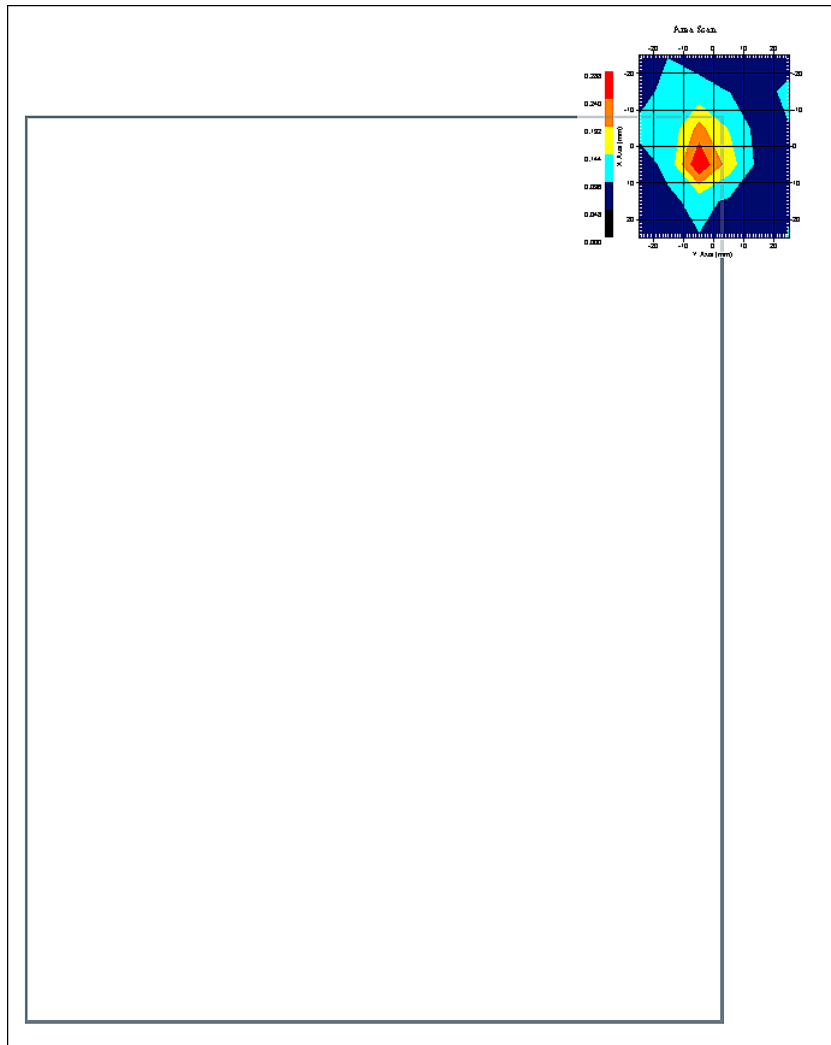
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 8:04:10 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.190 W/kg
10 gram SAR value : 0.121 W/kg
Area Scan Peak SAR : 0.287 W/kg
Zoom Scan Peak SAR : 0.360 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 11:01:32 AM
End Time : 08-Dec-2008 11:26:25 AM
Scanning Time : 1493 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n40
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.279 W/kg
Power Drift-Finish: 0.278 W/kg
Power Drift (%) : -0.358

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

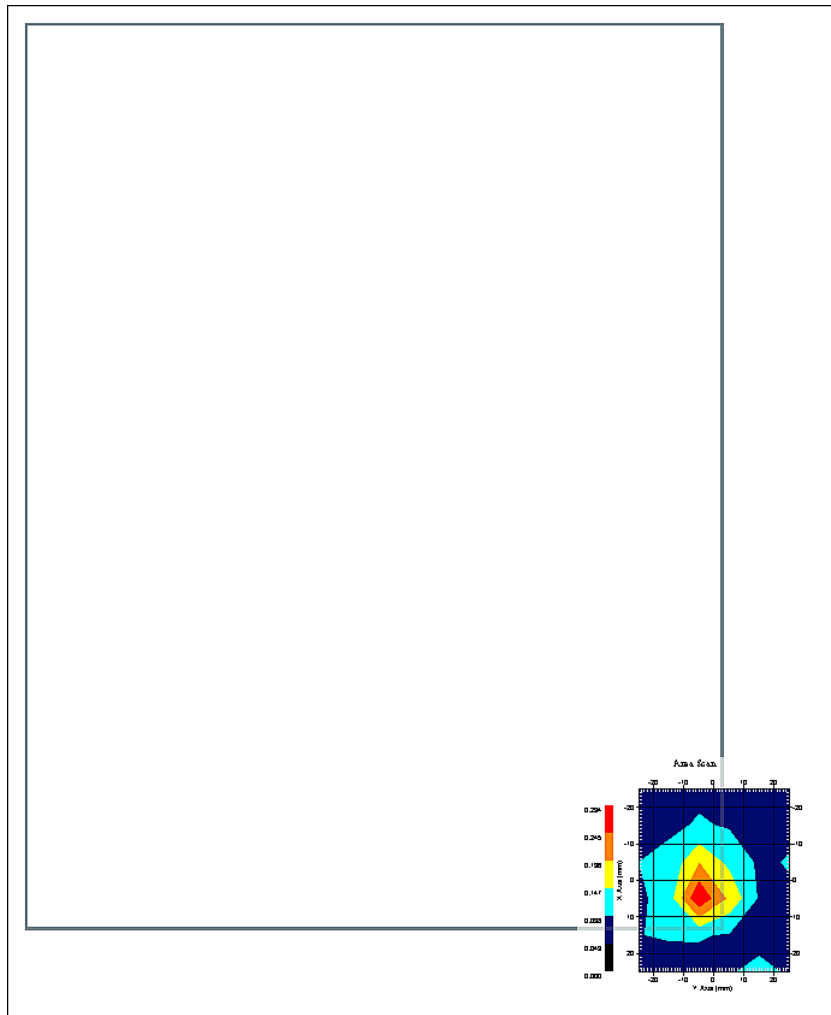
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.199 W/kg
10 gram SAR value : 0.126 W/kg
Area Scan Peak SAR : 0.292 W/kg
Zoom Scan Peak SAR : 0.380 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 12:00:52 PM
End Time : 08-Dec-2008 12:25:48 PM
Scanning Time : 1496 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 a1
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.287 W/kg
Power Drift-Finish: 0.283 W/kg
Power Drift (%) : -1.399

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

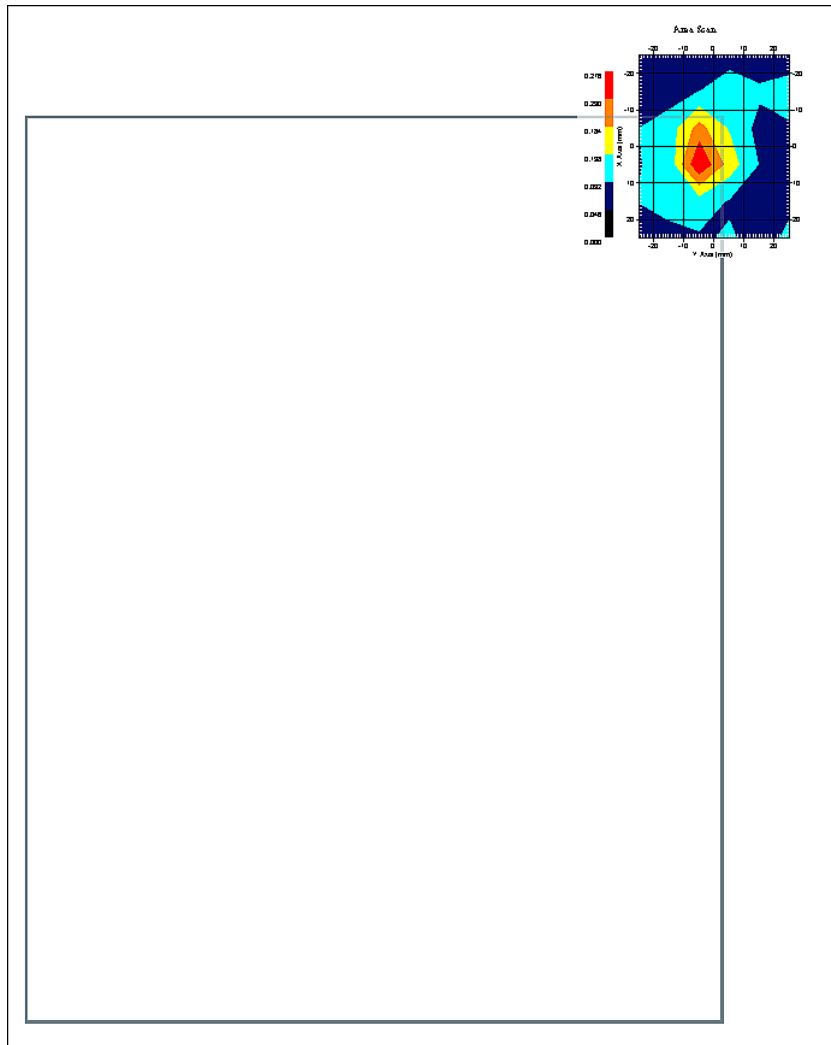
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 8:04:10 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.187 W/kg
10 gram SAR value : 0.117 W/kg
Area Scan Peak SAR : 0.276 W/kg
Zoom Scan Peak SAR : 0.330 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 01:59:53 PM
End Time : 08-Dec-2008 02:24:49 PM
Scanning Time : 1496 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 a1
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.279 W/kg
Power Drift-Finish: 0.274 W/kg
Power Drift (%) : -1.642

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

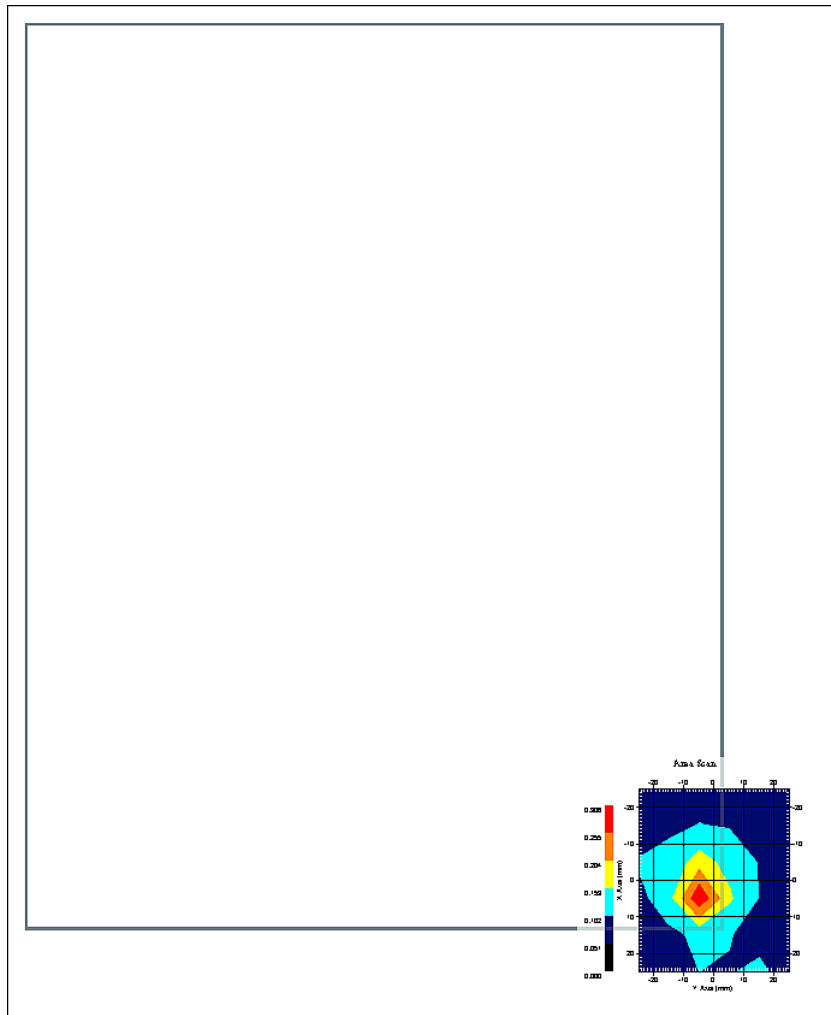
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.198 W/kg
10 gram SAR value : 0.124 W/kg
Area Scan Peak SAR : 0.303 W/kg
Zoom Scan Peak SAR : 0.390 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 03:56:19 PM
End Time : 08-Dec-2008 04:21:00 PM
Scanning Time : 1481 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 a1
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant 3
Orientation : Touch
Power Drift-Start : 0.392 W/kg
Power Drift-Finish: 0.401 W/kg
Power Drift (%) : 2.136

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

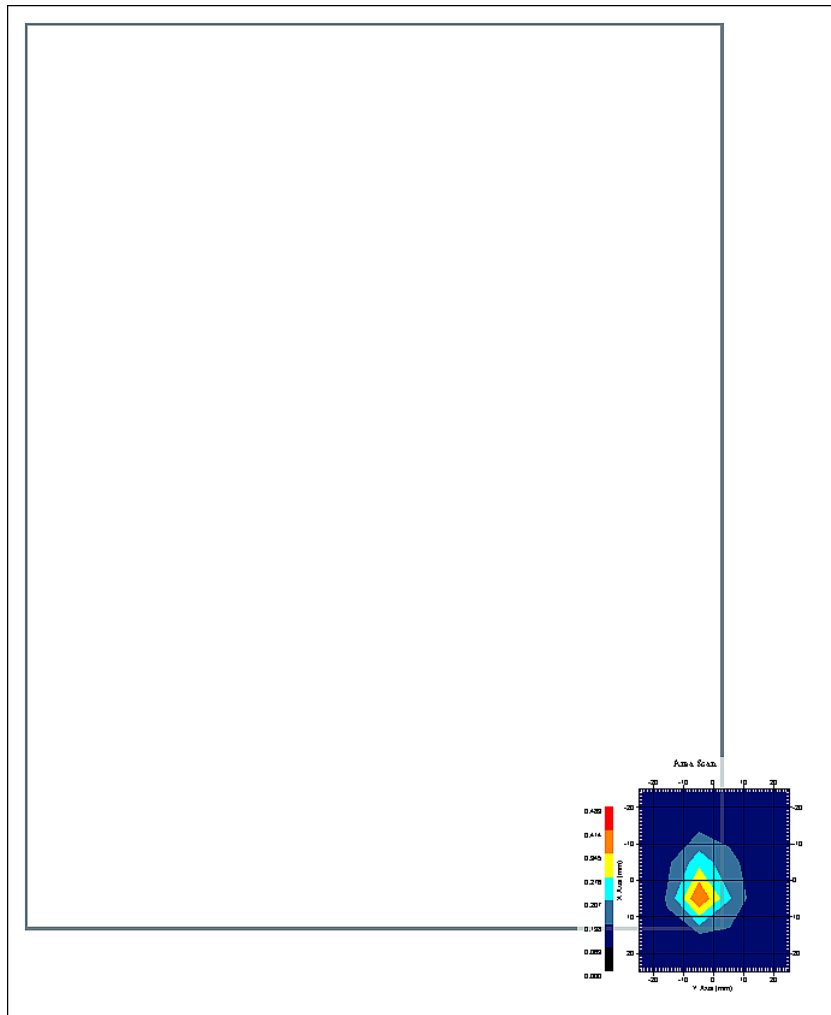
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.268 W/kg
10 gram SAR value : 0.146 W/kg
Area Scan Peak SAR : 0.415 W/kg
Zoom Scan Peak SAR : 0.580 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 12:29:28 PM
End Time : 08-Dec-2008 12:54:24 PM
Scanning Time : 1496 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 a2
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.298 W/kg
Power Drift-Finish: 0.291 W/kg
Power Drift (%) : -2.142

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

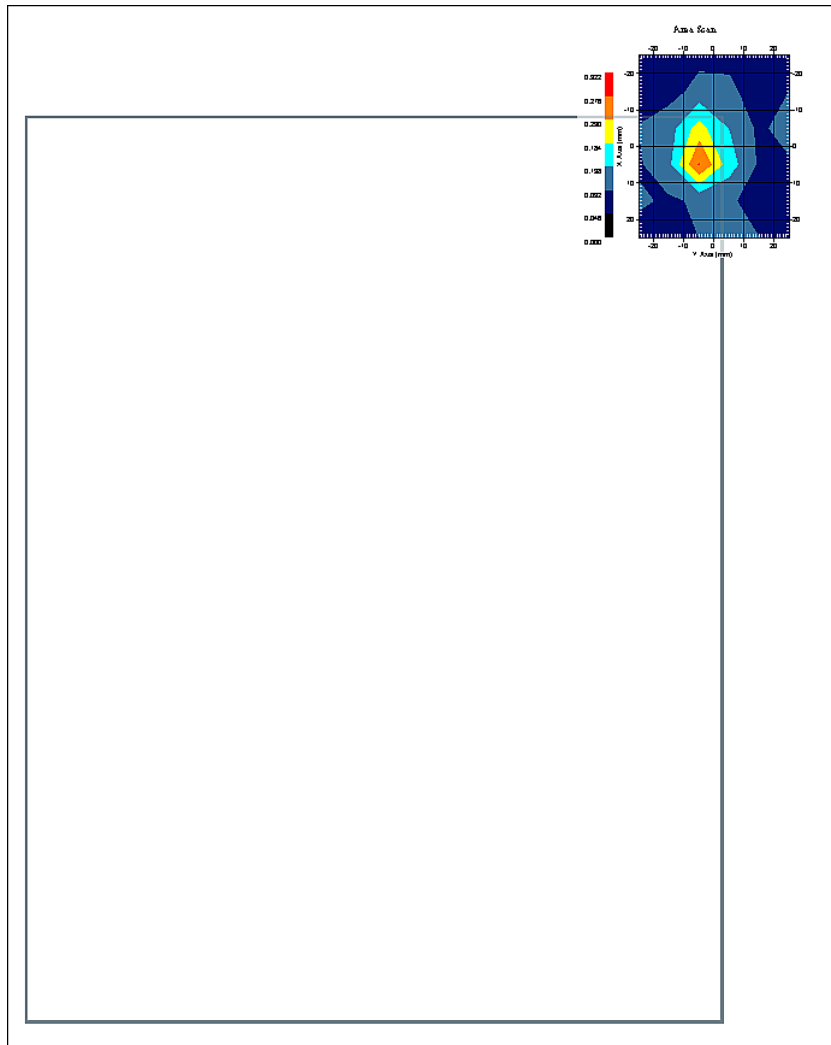
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 8:04:10 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.193 W/kg
10 gram SAR value : 0.117 W/kg
Area Scan Peak SAR : 0.278 W/kg
Zoom Scan Peak SAR : 0.370 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 02:29:55 PM
End Time : 08-Dec-2008 02:54:45 PM
Scanning Time : 1490 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 a2
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.281 W/kg
Power Drift-Finish: 0.274 W/kg
Power Drift (%) : -2.759

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

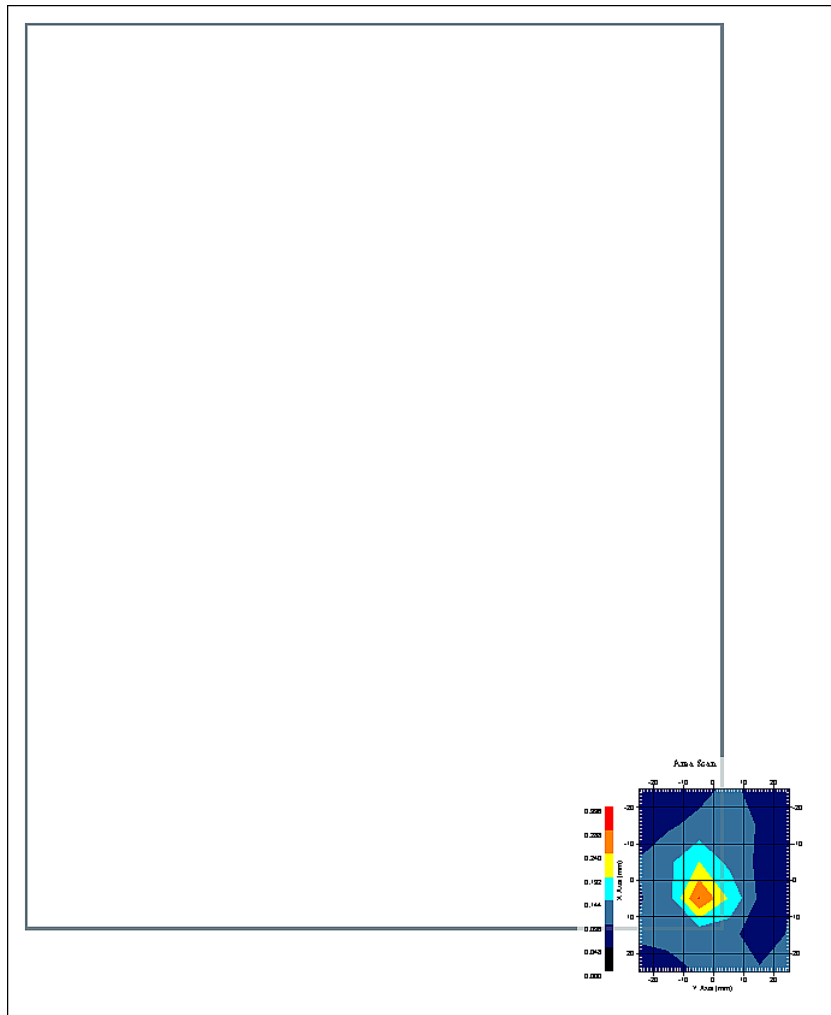
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.200 W/kg
10 gram SAR value : 0.125 W/kg
Area Scan Peak SAR : 0.290 W/kg
Zoom Scan Peak SAR : 0.380 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 04:26:42 PM
End Time : 08-Dec-2008 04:51:35 PM
Scanning Time : 1493 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 a2
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant 3
Orientation : Touch
Power Drift-Start : 0.391 W/kg
Power Drift-Finish: 0.399 W/kg
Power Drift (%) : 2.041

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

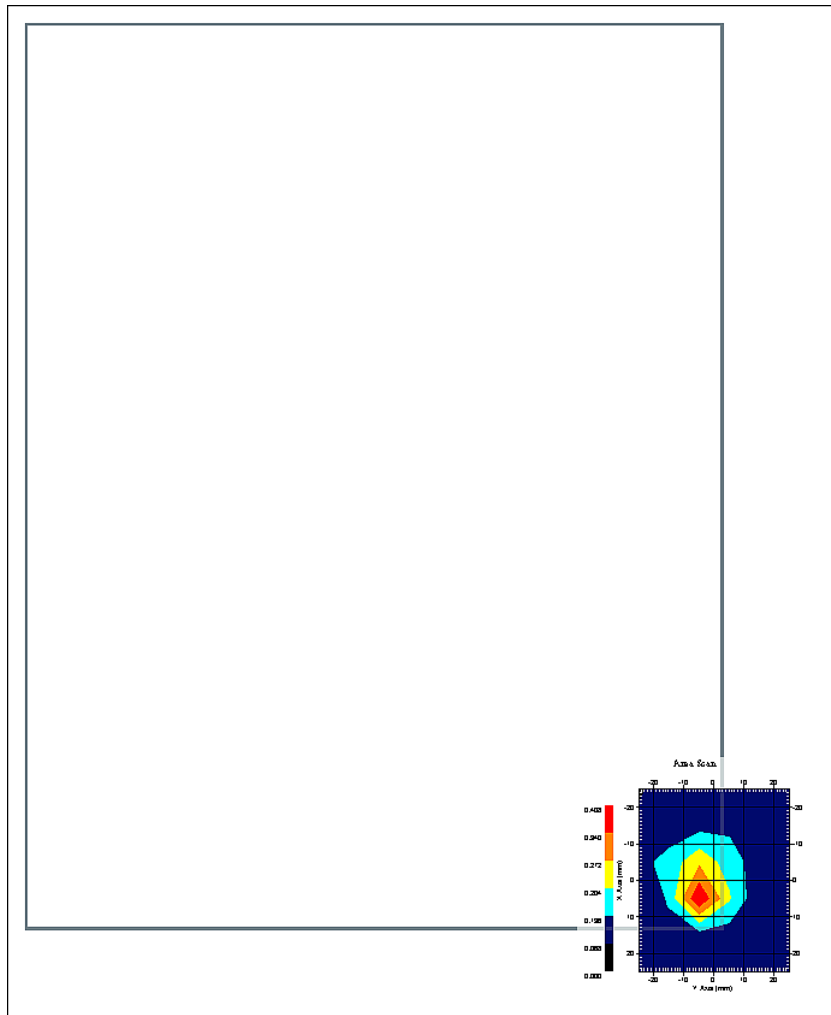
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

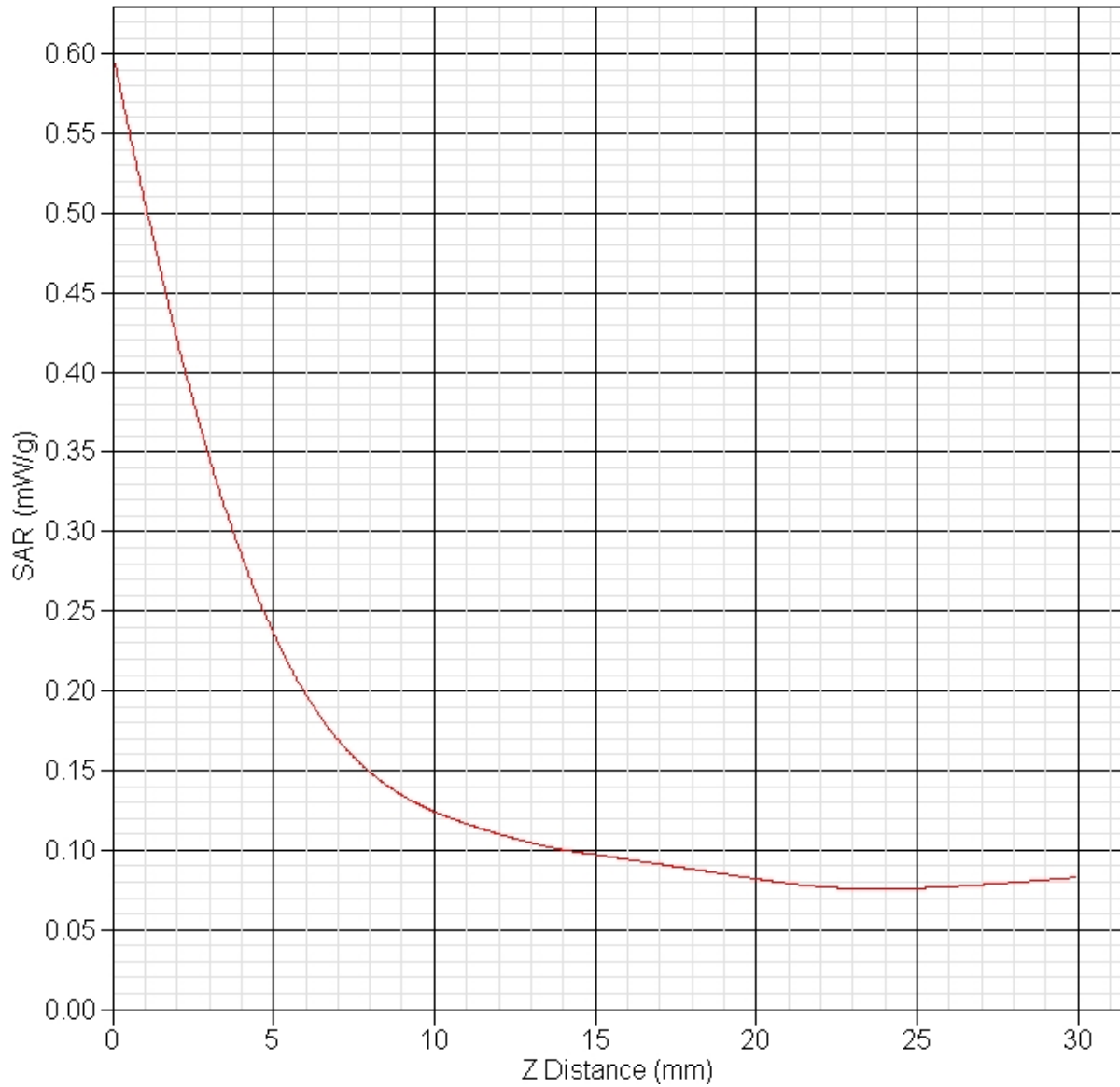
Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.276 W/kg
10 gram SAR value : 0.146 W/kg
Area Scan Peak SAR : 0.407 W/kg
Zoom Scan Peak SAR : 0.600 W/kg

SAR-Z Axis at Hotspot x:5.09 y:-5.17



SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 12:58:09 PM
End Time : 08-Dec-2008 01:23:05 PM
Scanning Time : 1496 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n20
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.292 W/kg
Power Drift-Finish: 0.284 W/kg
Power Drift (%) : -2.933

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

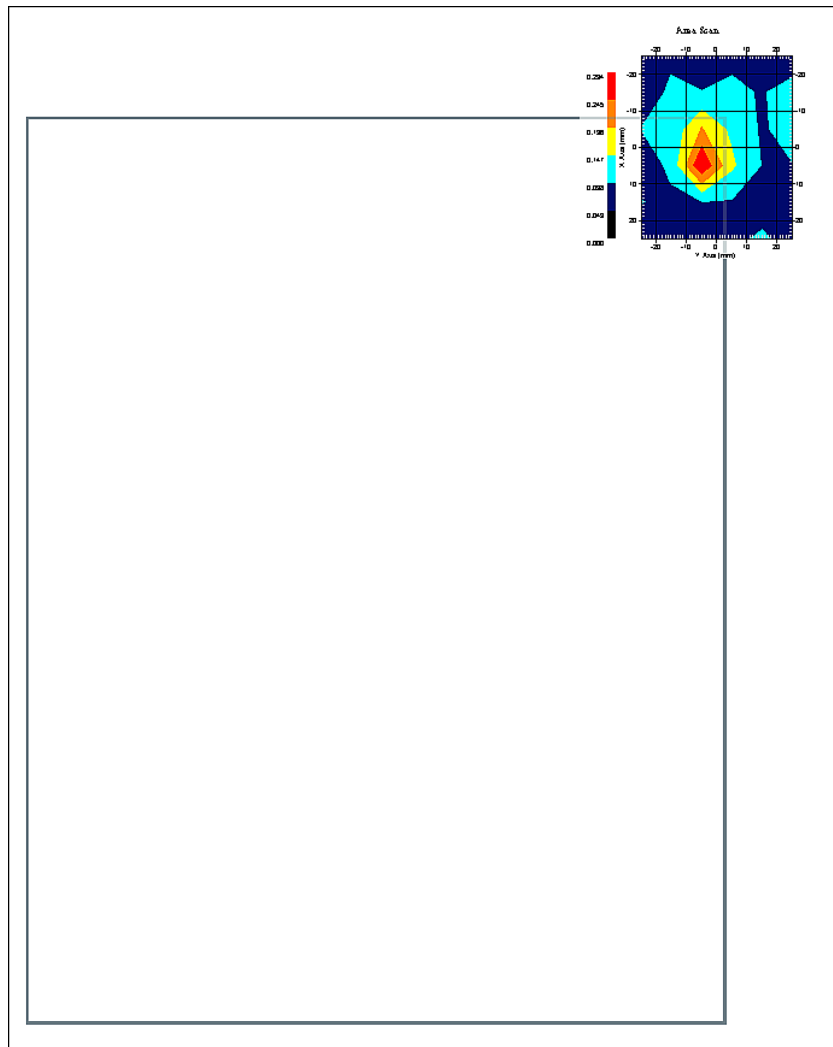
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 8:04:10 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.200 W/kg
10 gram SAR value : 0.129 W/kg
Area Scan Peak SAR : 0.292 W/kg
Zoom Scan Peak SAR : 0.380 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 02:58:44 PM
End Time : 08-Dec-2008 03:23:43 PM
Scanning Time : 1499 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n20
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.273 W/kg
Power Drift-Finish: 0.277 W/kg
Power Drift (%) : 1.463

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

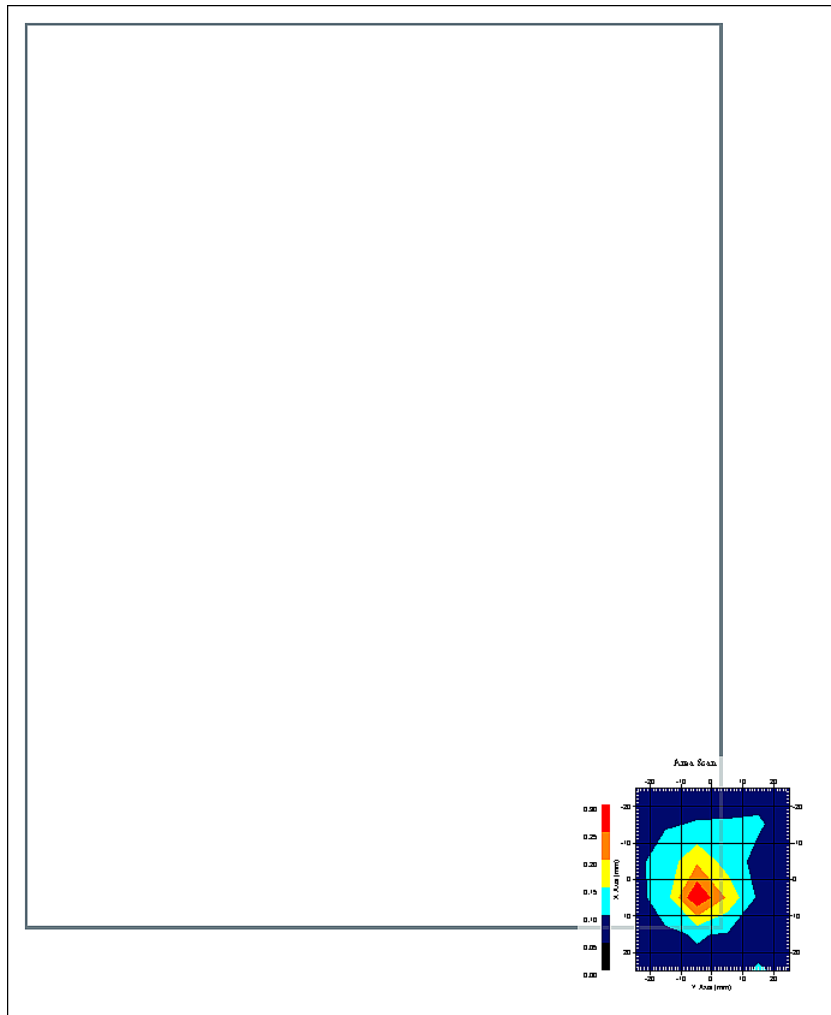
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.198 W/kg
10 gram SAR value : 0.122 W/kg
Area Scan Peak SAR : 0.299 W/kg
Zoom Scan Peak SAR : 0.390 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 04:55:18 PM
End Time : 08-Dec-2008 05:20:09 PM
Scanning Time : 1491 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n20
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant 3
Orientation : Touch
Power Drift-Start : 0.389 W/kg
Power Drift-Finish: 0.399 W/kg
Power Drift (%) : 2.406

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

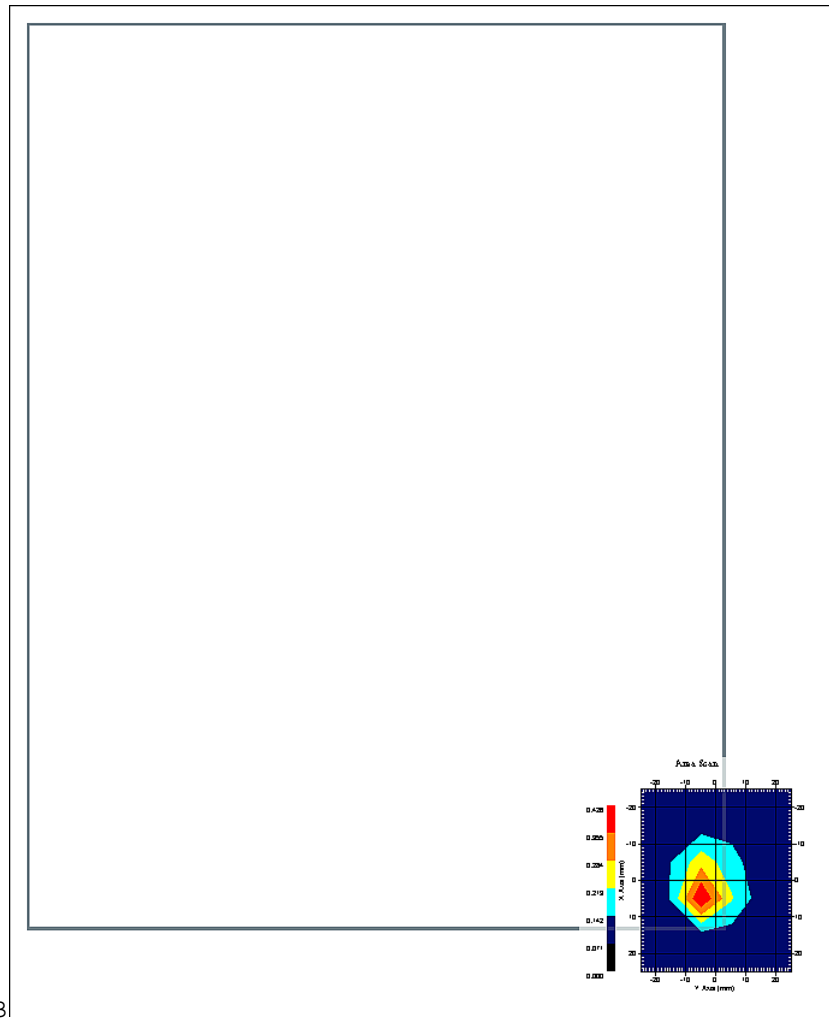
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
 Scan Type : Complete
 Tissue Temp. : 20.00 °C
 Ambient Temp. : 23.00 °C
 Set-up Date : 08-Dec-2008
 Set-up Time : 7:38:51 AM
 Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
 Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
 Separation : 0
 Channel : Mid



1 gram SAR value : 0.265 W/kg
 10 gram SAR value : 0.143 W/kg
 Area Scan Peak SAR : 0.424 W/kg
 Zoom Scan Peak SAR : 0.580 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 01:27:33 PM
End Time : 08-Dec-2008 01:54:05 PM
Scanning Time : 1592 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n40
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.261 W/kg
Power Drift-Finish: 0.264 W/kg
Power Drift (%) : 1.140

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

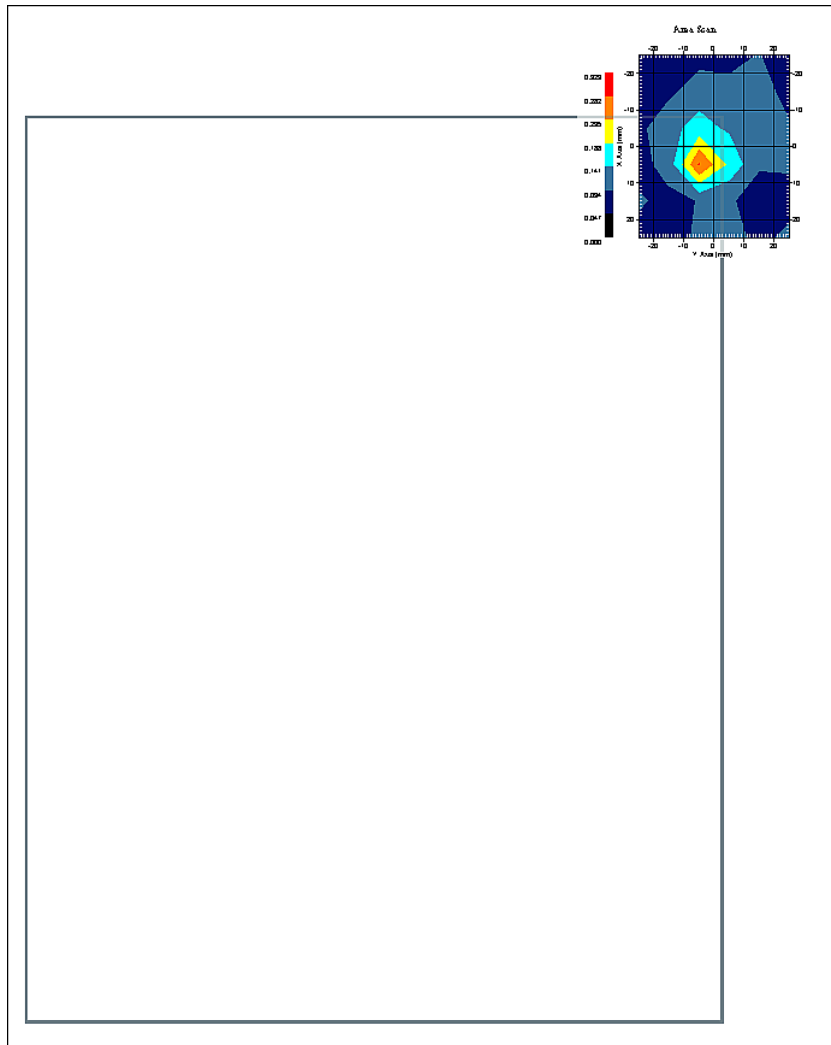
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.198 W/kg
10 gram SAR value : 0.122 W/kg
Area Scan Peak SAR : 0.284 W/kg
Zoom Scan Peak SAR : 0.390 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 03:27:24 PM
End Time : 08-Dec-2008 03:52:16 PM
Scanning Time : 1492 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n40
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.272 W/kg
Power Drift-Finish: 0.276 W/kg
Power Drift (%) : 1.243

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

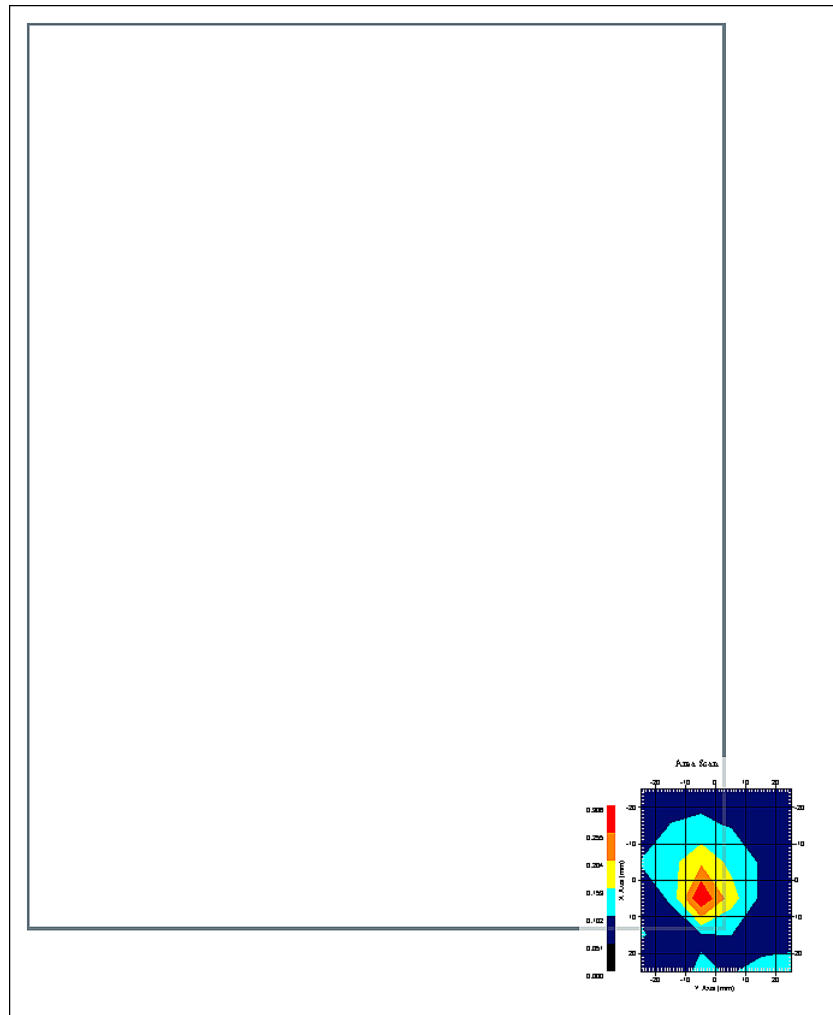
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.200 W/kg
10 gram SAR value : 0.124 W/kg
Area Scan Peak SAR : 0.306 W/kg
Zoom Scan Peak SAR : 0.390 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 05:24:57 PM
End Time : 08-Dec-2008 05:49:49 PM
Scanning Time : 1492 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n40
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant 3
Orientation : Touch
Power Drift-Start : 0.389 W/kg
Power Drift-Finish: 0.388 W/kg
Power Drift (%) : -0.104

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

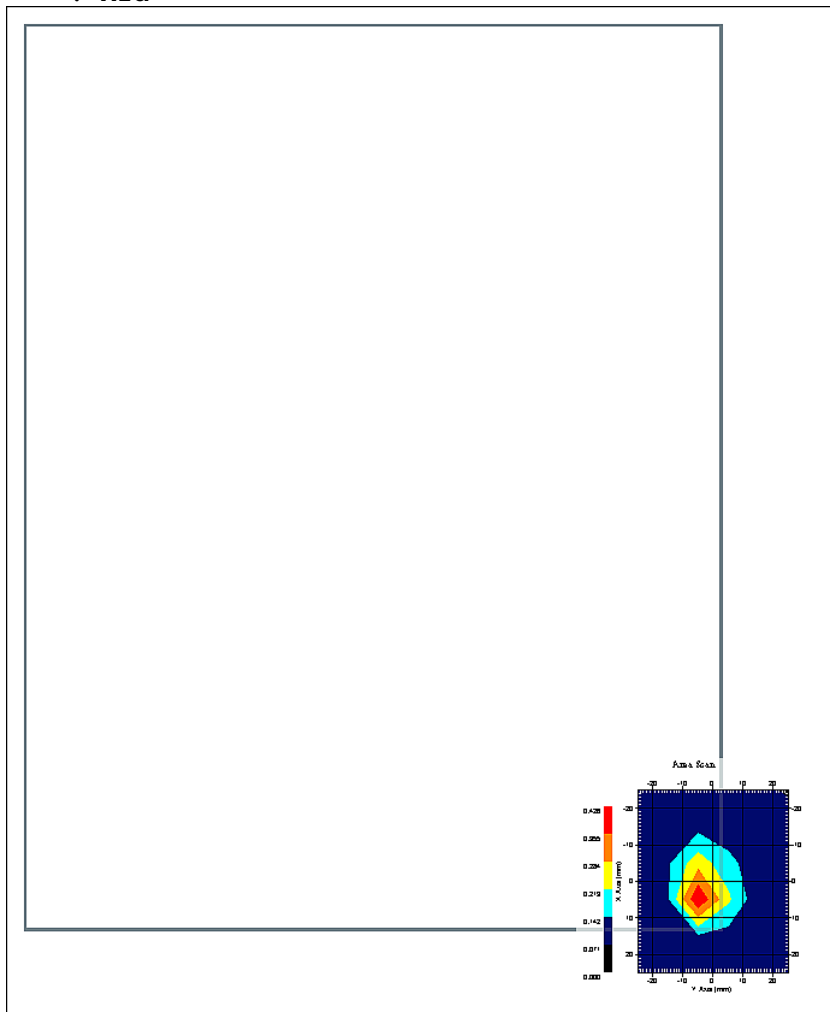
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.259 W/kg
10 gram SAR value : 0.140 W/kg
Area Scan Peak SAR : 0.423 W/kg
Zoom Scan Peak SAR : 0.570 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 06:15:38 PM
End Time : 08-Dec-2008 06:40:39 PM
Scanning Time : 1501 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 a1
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.301 W/kg
Power Drift-Finish: 0.312 W/kg
Power Drift (%) : 3.911

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

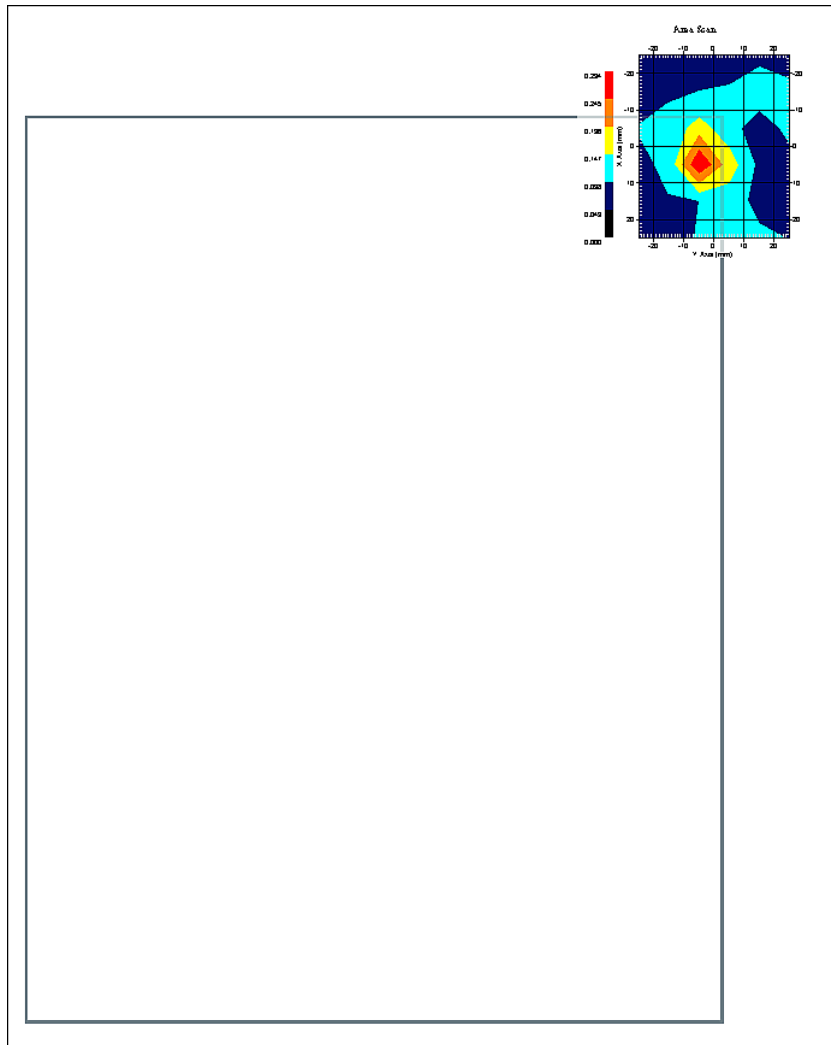
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.203 W/kg
10 gram SAR value : 0.125 W/kg
Area Scan Peak SAR : 0.293 W/kg
Zoom Scan Peak SAR : 0.400 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 08:12:54 PM
End Time : 08-Dec-2008 08:37:50 PM
Scanning Time : 1496 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 a1
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.289 W/kg
Power Drift-Finish: 0.289 W/kg
Power Drift (%) : 0.000

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

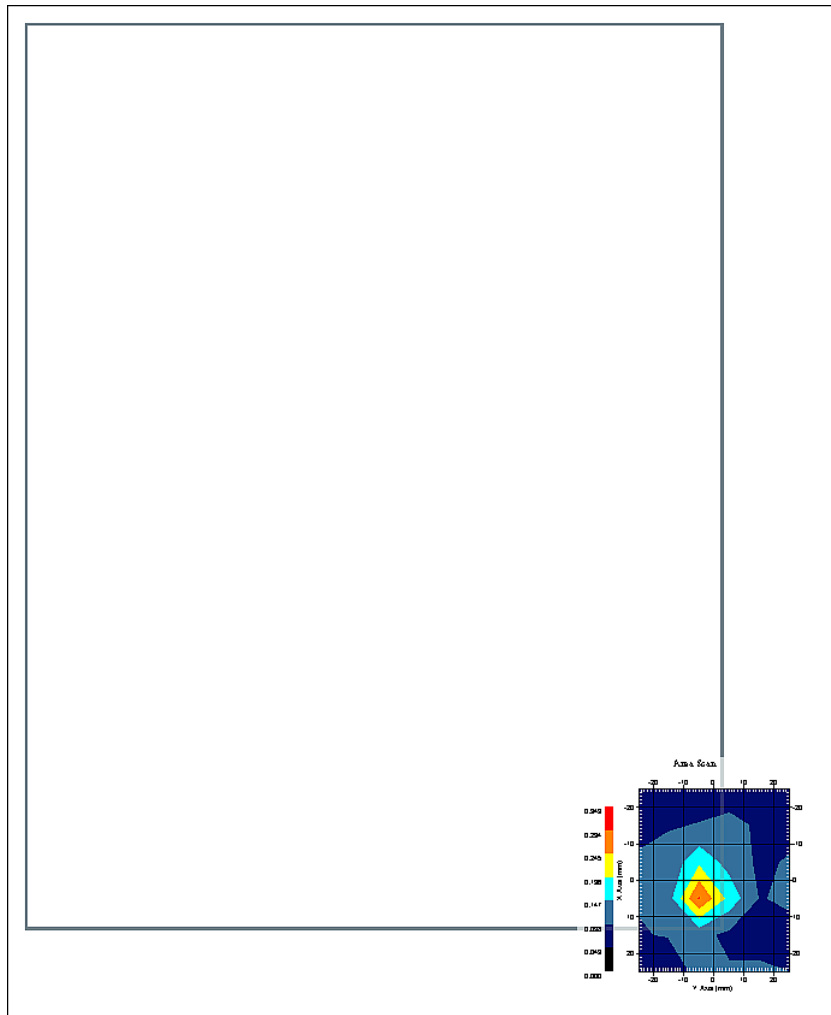
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.199 W/kg
10 gram SAR value : 0.124 W/kg
Area Scan Peak SAR : 0.296 W/kg
Zoom Scan Peak SAR : 0.390 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 06:45:47 PM
End Time : 08-Dec-2008 07:10:42 PM
Scanning Time : 1495 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 a2
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.272 W/kg
Power Drift-Finish: 0.269 W/kg
Power Drift (%) : -1.104

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

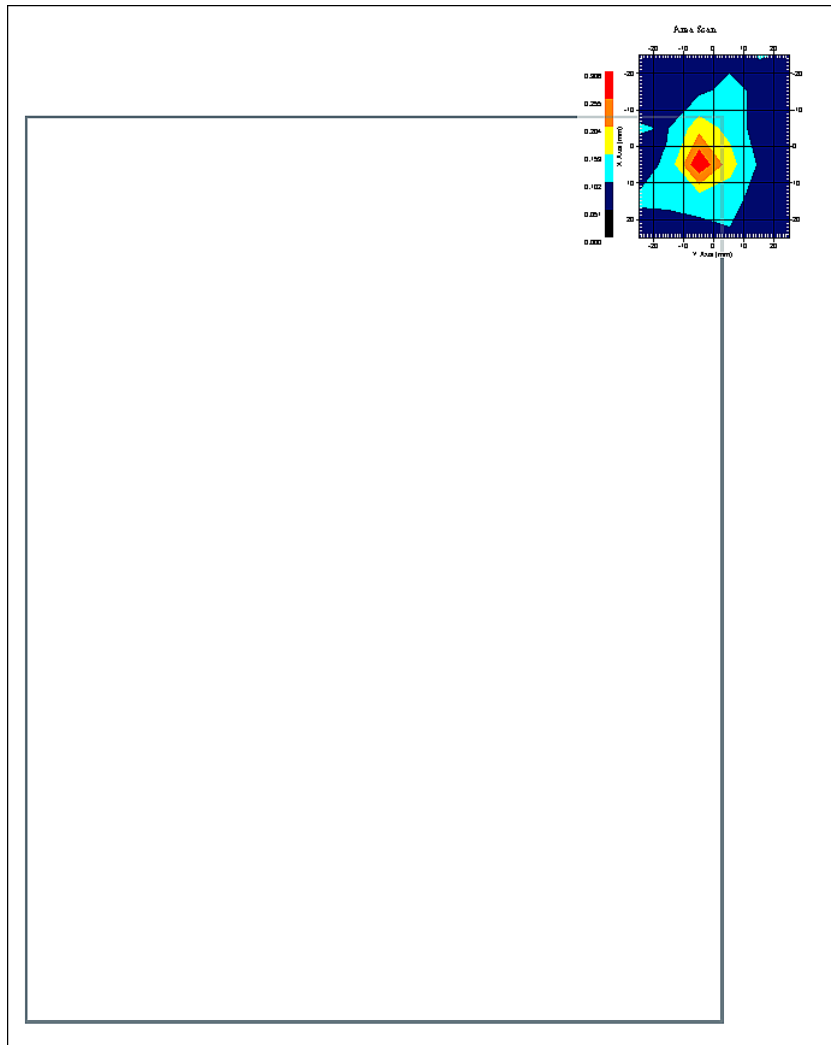
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.200 W/kg
10 gram SAR value : 0.123 W/kg
Area Scan Peak SAR : 0.303 W/kg
Zoom Scan Peak SAR : 0.390 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 08:41:11 PM
End Time : 08-Dec-2008 09:06:07 PM
Scanning Time : 1496 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 a2
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.281 W/kg
Power Drift-Finish: 0.278 W/kg
Power Drift (%) : -1.133

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

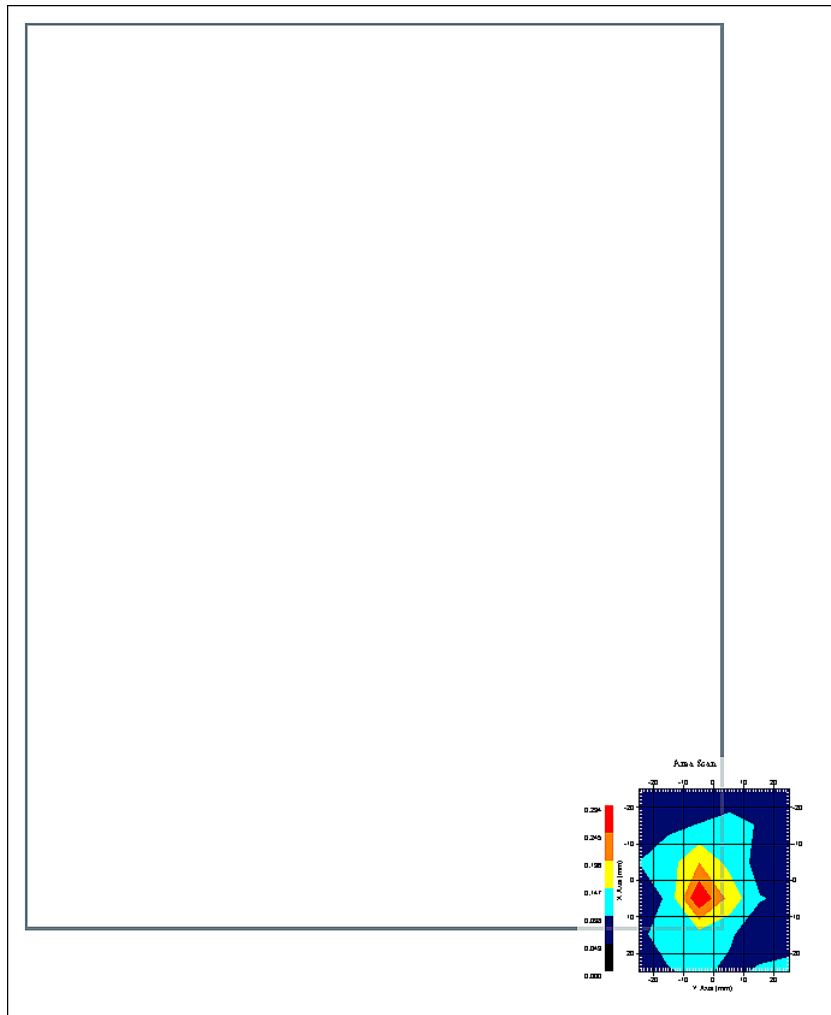
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.203 W/kg
10 gram SAR value : 0.126 W/kg
Area Scan Peak SAR : 0.292 W/kg
Zoom Scan Peak SAR : 0.400 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 07:14:52 PM
End Time : 08-Dec-2008 07:39:45 PM
Scanning Time : 1493 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n20
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.277 W/kg
Power Drift-Finish: 0.283 W/kg
Power Drift (%) : 2.306

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

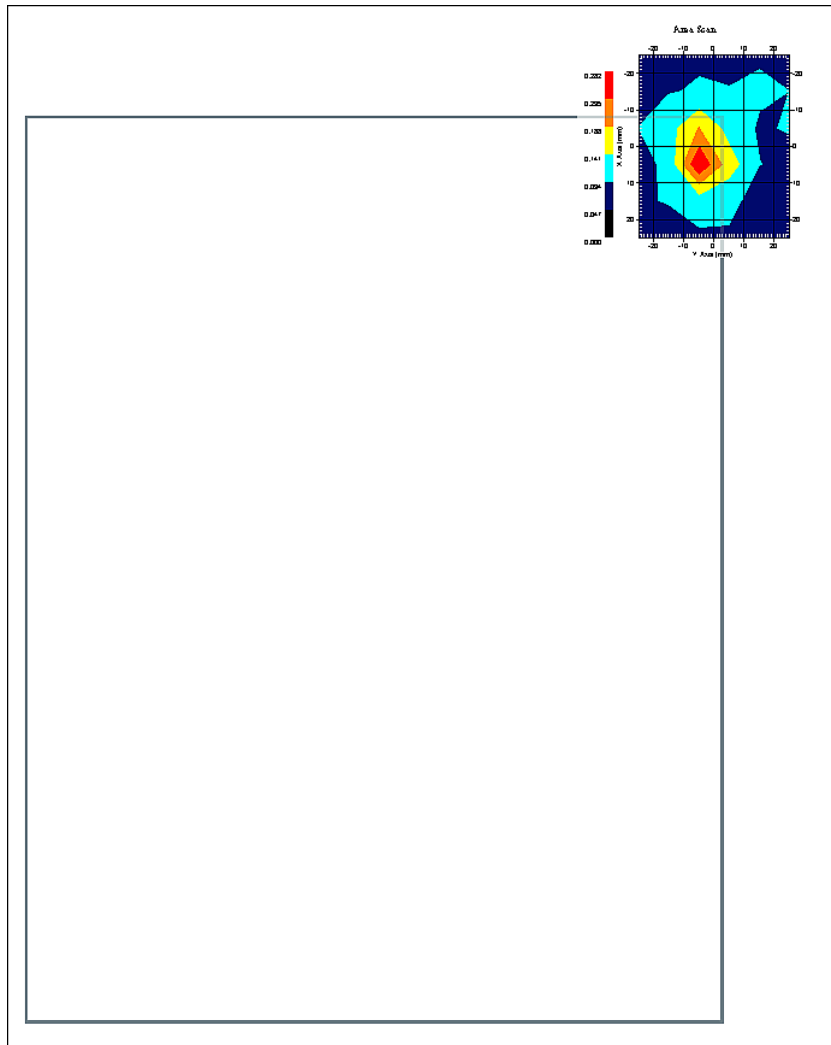
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.199 W/kg
10 gram SAR value : 0.123 W/kg
Area Scan Peak SAR : 0.279 W/kg
Zoom Scan Peak SAR : 0.380 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 09:11:00 PM
End Time : 08-Dec-2008 09:35:49 PM
Scanning Time : 1489 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n20
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.279 W/kg
Power Drift-Finish: 0.284 W/kg
Power Drift (%) : 2.000

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

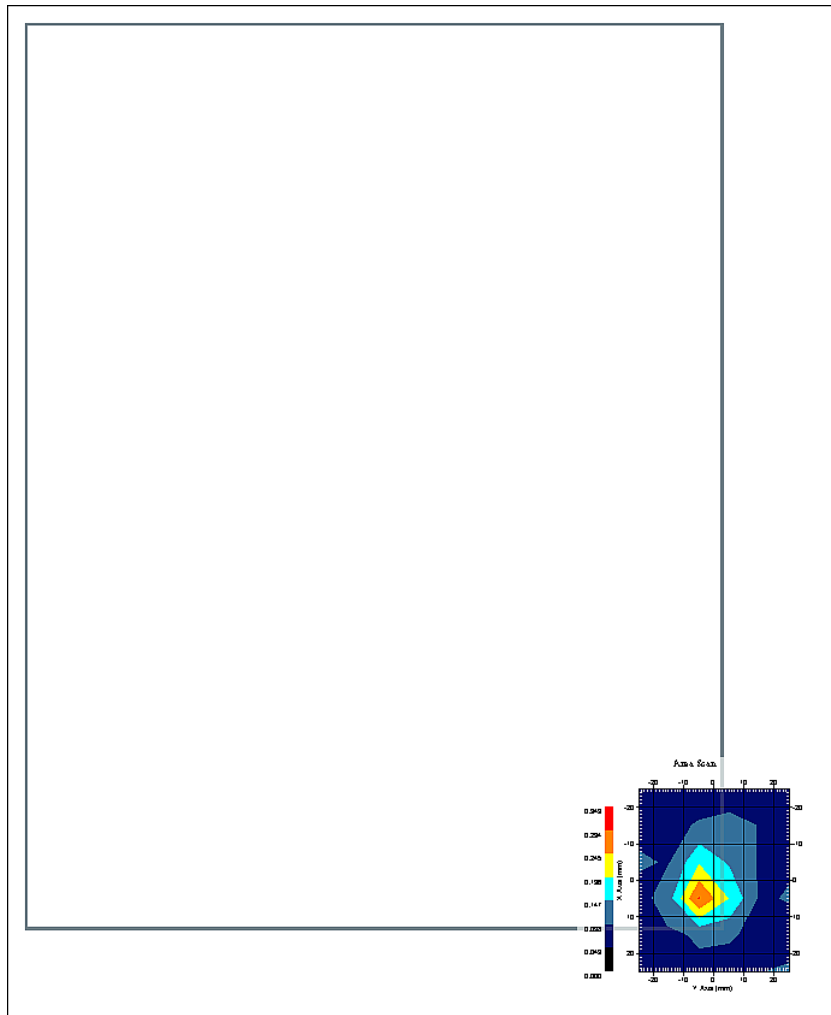
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.202 W/kg
10 gram SAR value : 0.124 W/kg
Area Scan Peak SAR : 0.297 W/kg
Zoom Scan Peak SAR : 0.410 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 07:43:58 PM
End Time : 08-Dec-2008 08:08:57 PM
Scanning Time : 1499 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n40
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.274 W/kg
Power Drift-Finish: 0.280 W/kg
Power Drift (%) : 2.188

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

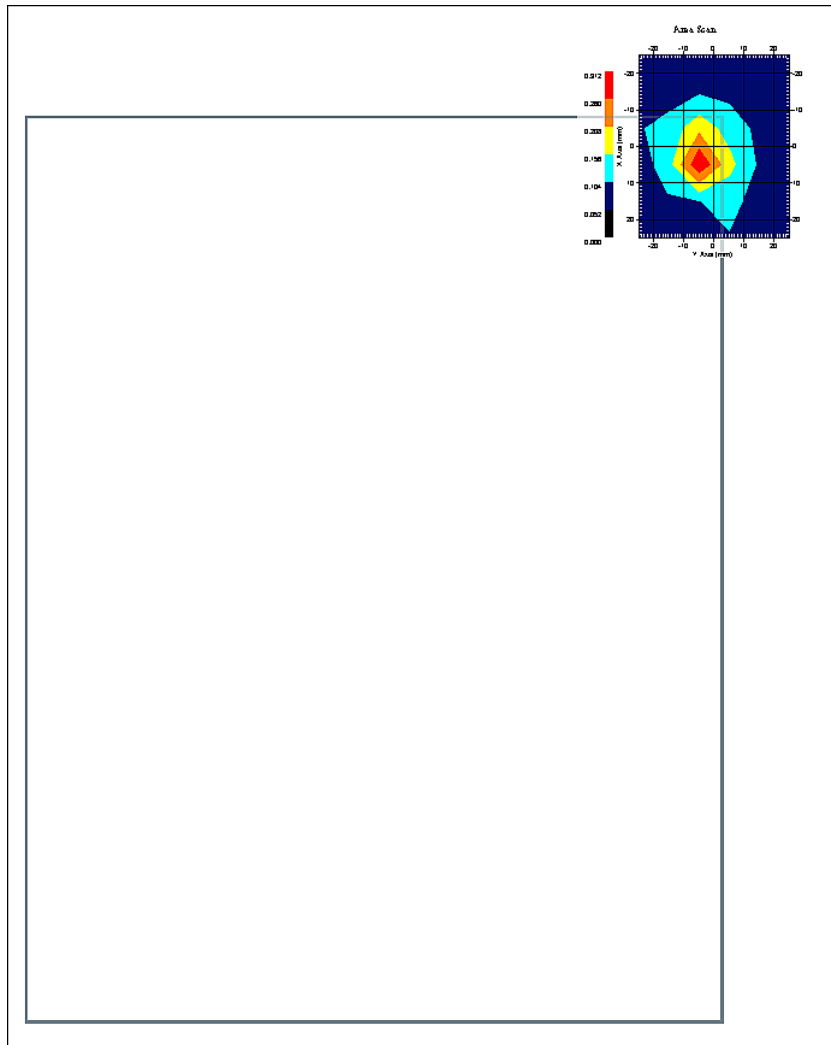
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.203 W/kg
10 gram SAR value : 0.122 W/kg
Area Scan Peak SAR : 0.312 W/kg
Zoom Scan Peak SAR : 0.400 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 08-Dec-2008
Starting Time : 08-Dec-2008 09:39:34 PM
End Time : 08-Dec-2008 10:04:26 PM
Scanning Time : 1492 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n40
Model : Minicooper
Frequency : 5200.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.264 W/kg
Power Drift-Finish: 0.270 W/kg
Power Drift (%) : 2.273

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5200
Frequency : 5200.00 MHz
Last Calib. Date : 08-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 47.40 F/m
Sigma : 5.23 S/m
Density : 1000.00 kg/cu. m

Probe Data

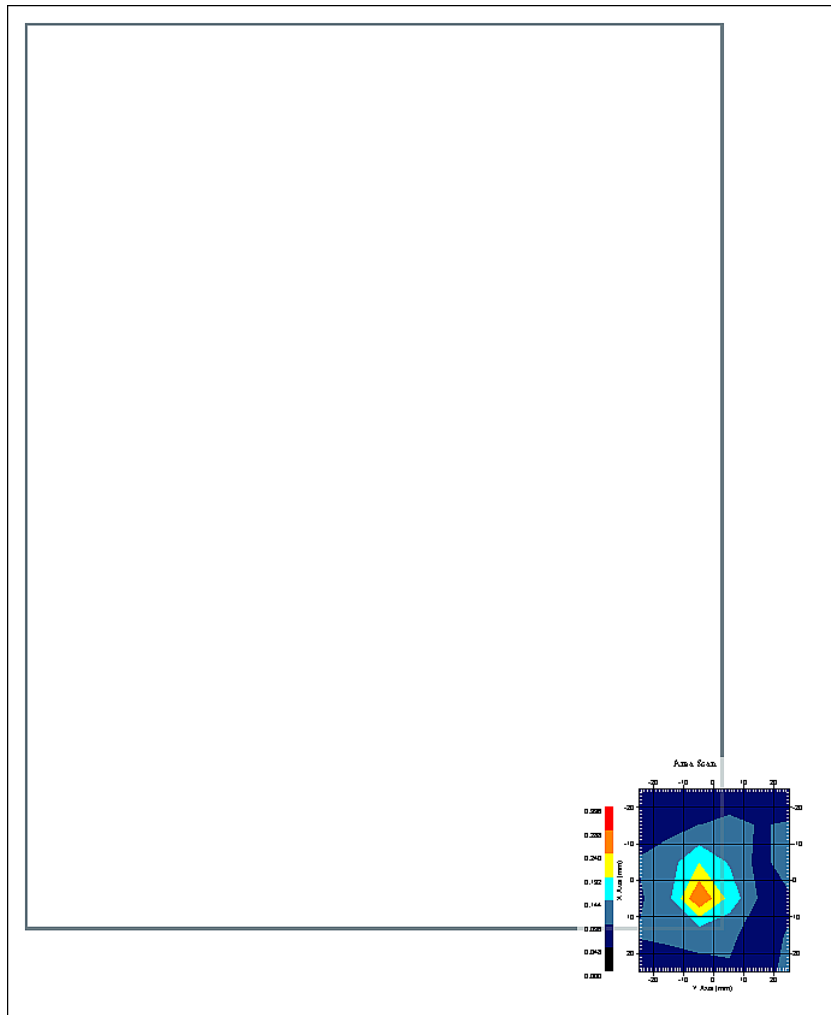
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 8.6
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 08-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.195 W/kg
10 gram SAR value : 0.124 W/kg
Area Scan Peak SAR : 0.289 W/kg
Zoom Scan Peak SAR : 0.370 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 07:32:32 AM
End Time : 06-Dec-2008 07:57:21 AM
Scanning Time : 1489 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 a6
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.281 W/kg
Power Drift-Finish: 0.287 W/kg
Power Drift (%) : 2.416

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

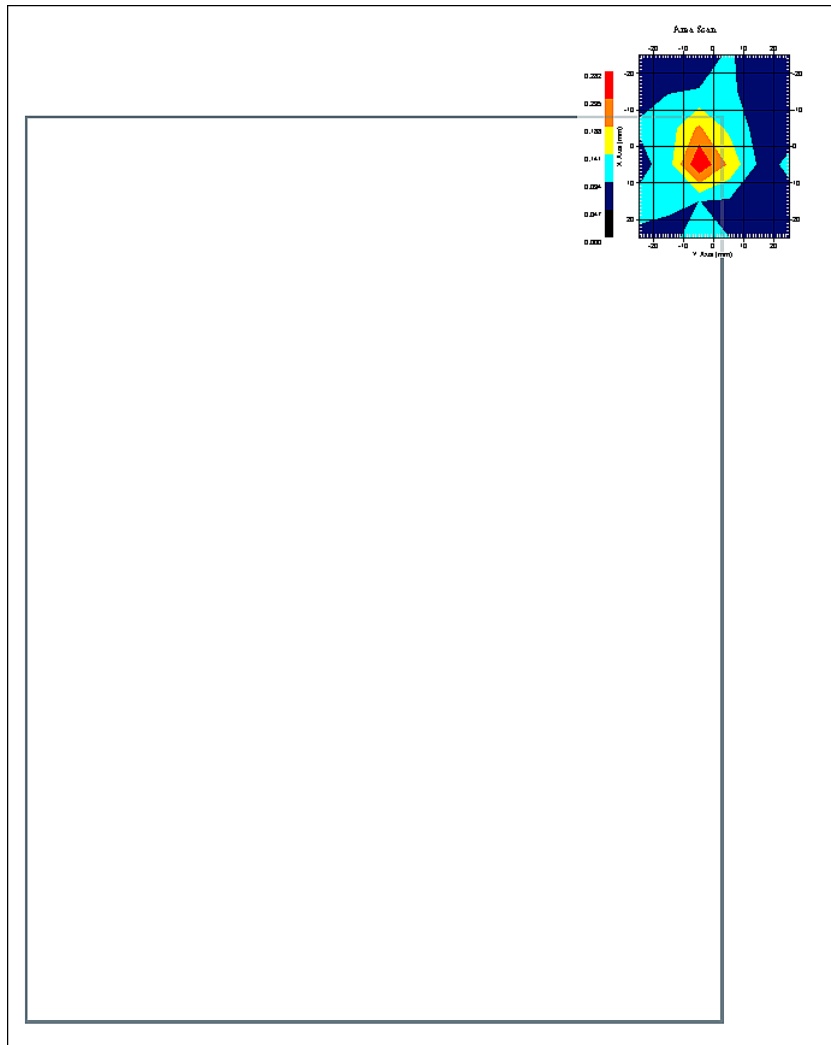
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:04:10 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.195 W/kg
10 gram SAR value : 0.125 W/kg
Area Scan Peak SAR : 0.281 W/kg
Zoom Scan Peak SAR : 0.360 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 08:59:15 AM
End Time : 06-Dec-2008 09:24:15 AM
Scanning Time : 1500 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 a6
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - A6
Orientation : Touch
Power Drift-Start : 0.278 W/kg
Power Drift-Finish: 0.280 W/kg
Power Drift (%) : 0.859

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

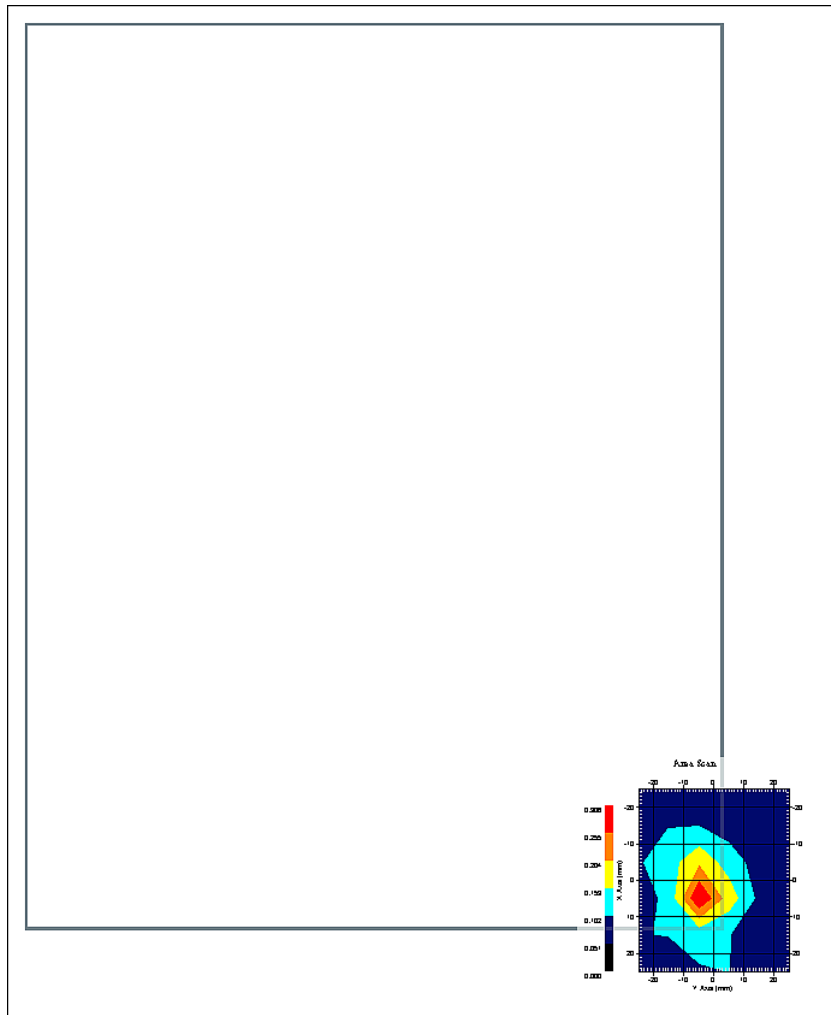
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.208 W/kg
10 gram SAR value : 0.126 W/kg
Area Scan Peak SAR : 0.306 W/kg
Zoom Scan Peak SAR : 0.410 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 08:01:09 AM
End Time : 06-Dec-2008 08:26:05 AM
Scanning Time : 1496 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n20
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.276 W/kg
Power Drift-Finish: 0.283 W/kg
Power Drift (%) : 2.530

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

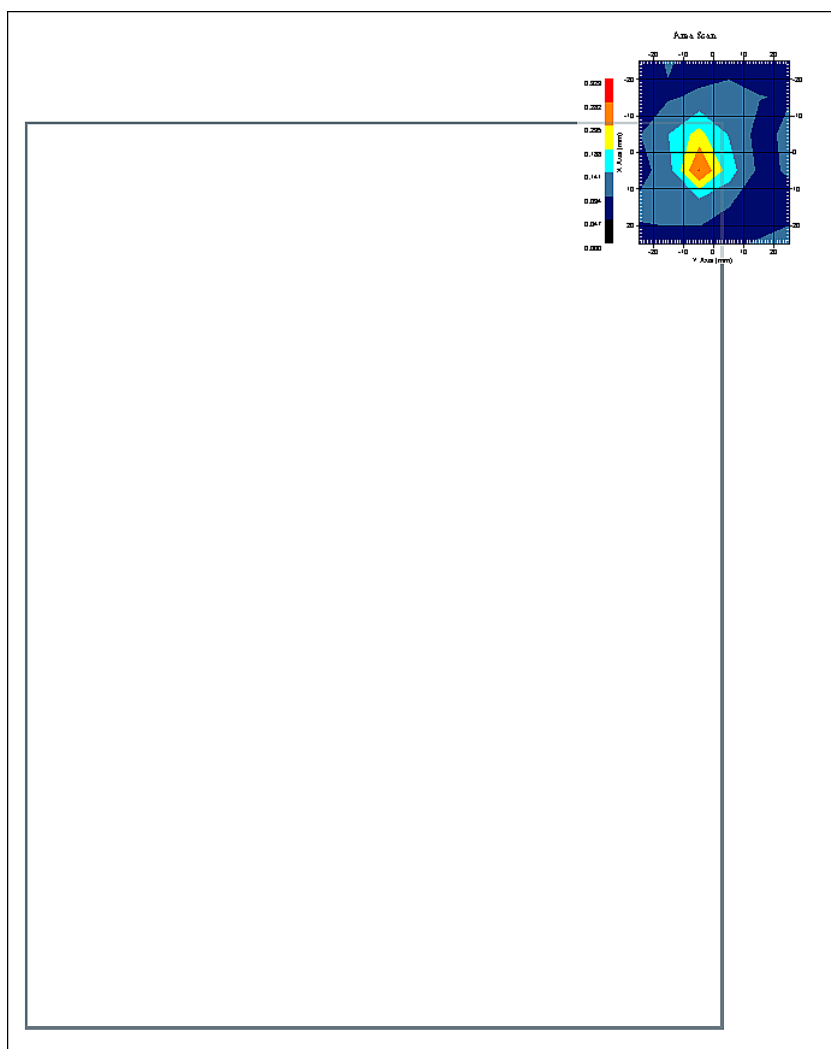
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:04:10 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.195 W/kg
10 gram SAR value : 0.127 W/kg
Area Scan Peak SAR : 0.285 W/kg
Zoom Scan Peak SAR : 0.370 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 09:28:05 AM
End Time : 06-Dec-2008 09:53:04 AM
Scanning Time : 1499 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n20
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.273 W/kg
Power Drift-Finish: 0.281 W/kg
Power Drift (%) : 3.213

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

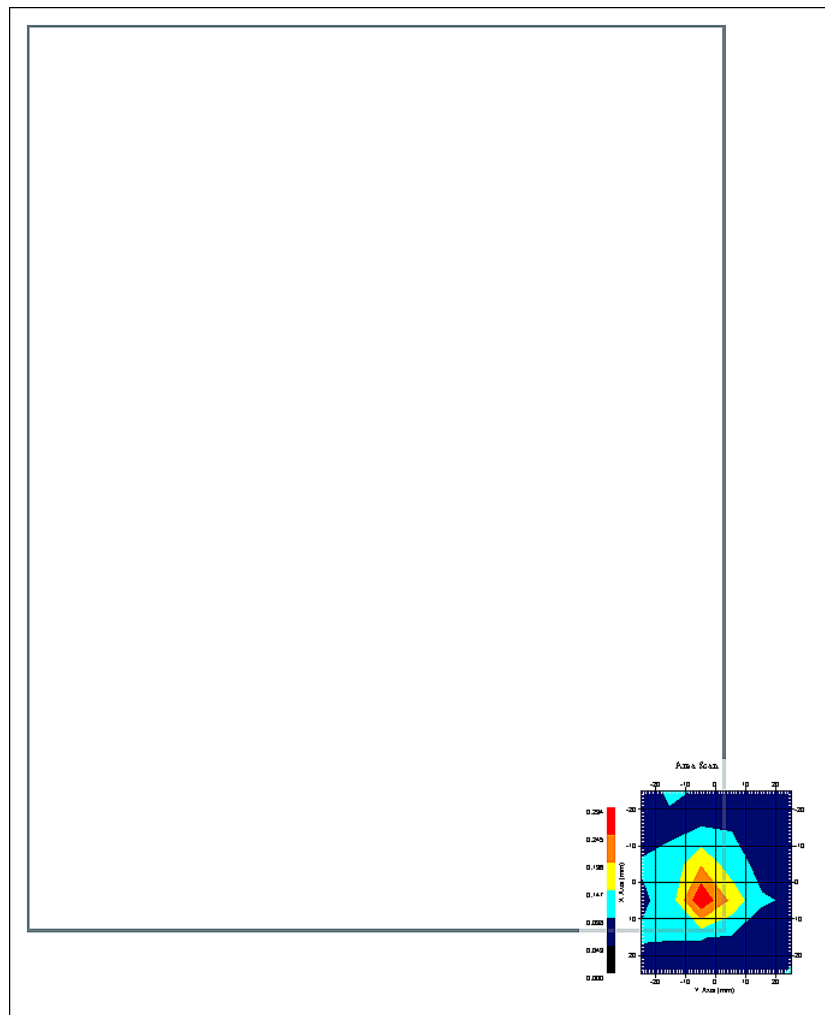
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 7:38:51 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.201 W/kg
10 gram SAR value : 0.126 W/kg
Area Scan Peak SAR : 0.293 W/kg
Zoom Scan Peak SAR : 0.390 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 08:30:19 AM
End Time : 06-Dec-2008 08:55:42 AM
Scanning Time : 1523 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n40
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.300 W/kg
Power Drift-Finish: 0.300 W/kg
Power Drift (%) : -0.106

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

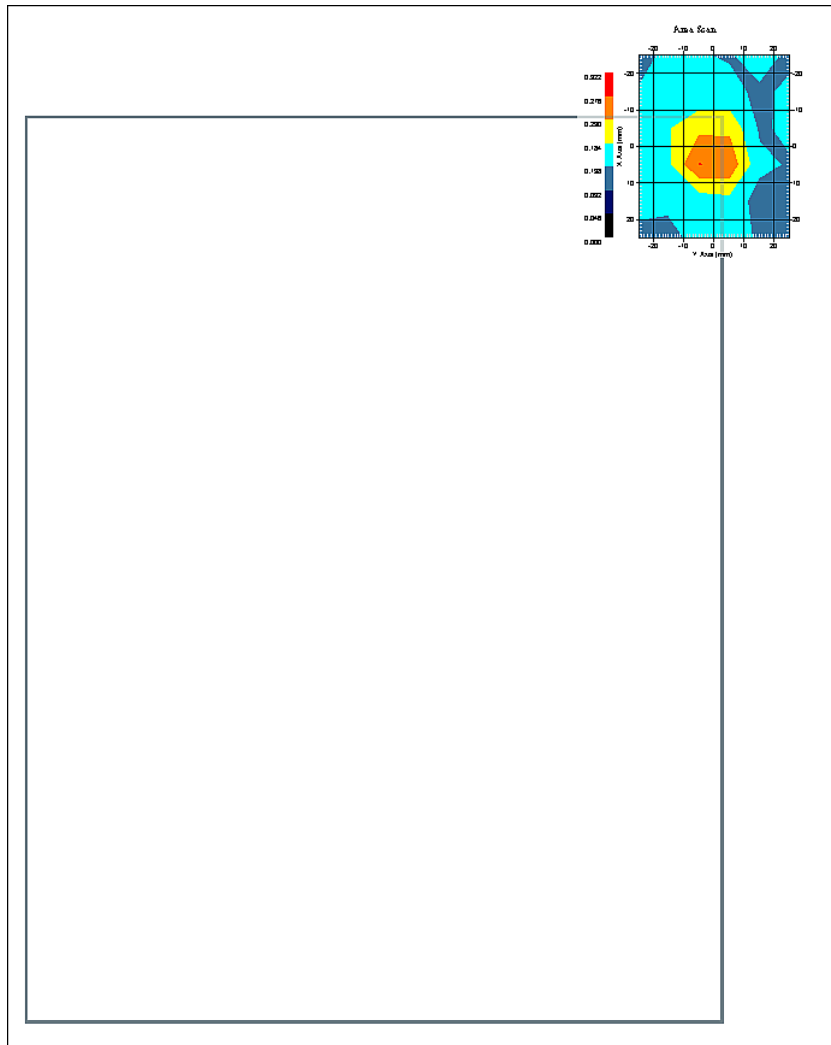
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.227 W/kg
10 gram SAR value : 0.163 W/kg
Area Scan Peak SAR : 0.277 W/kg
Zoom Scan Peak SAR : 0.350 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 09:57:52 AM
End Time : 06-Dec-2008 10:23:13 AM
Scanning Time : 1521 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n40
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.237 W/kg
Power Drift-Finish: 0.244 W/kg
Power Drift (%) : 2.953

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

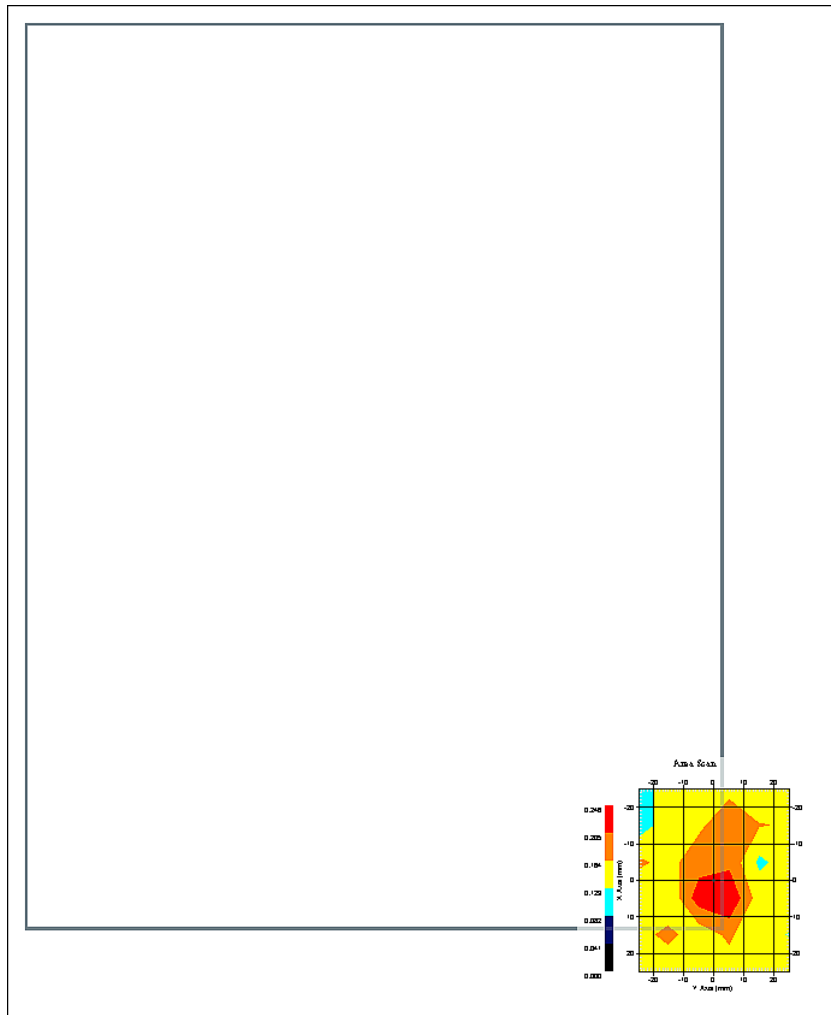
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x12 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.202 W/kg
10 gram SAR value : 0.161 W/kg
Area Scan Peak SAR : 0.243 W/kg
Zoom Scan Peak SAR : 0.310 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 10:51:32 AM
End Time : 06-Dec-2008 11:16:43 AM
Scanning Time : 1511 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 a6
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.283 W/kg
Power Drift-Finish: 0.290 W/kg
Power Drift (%) : 2.478

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

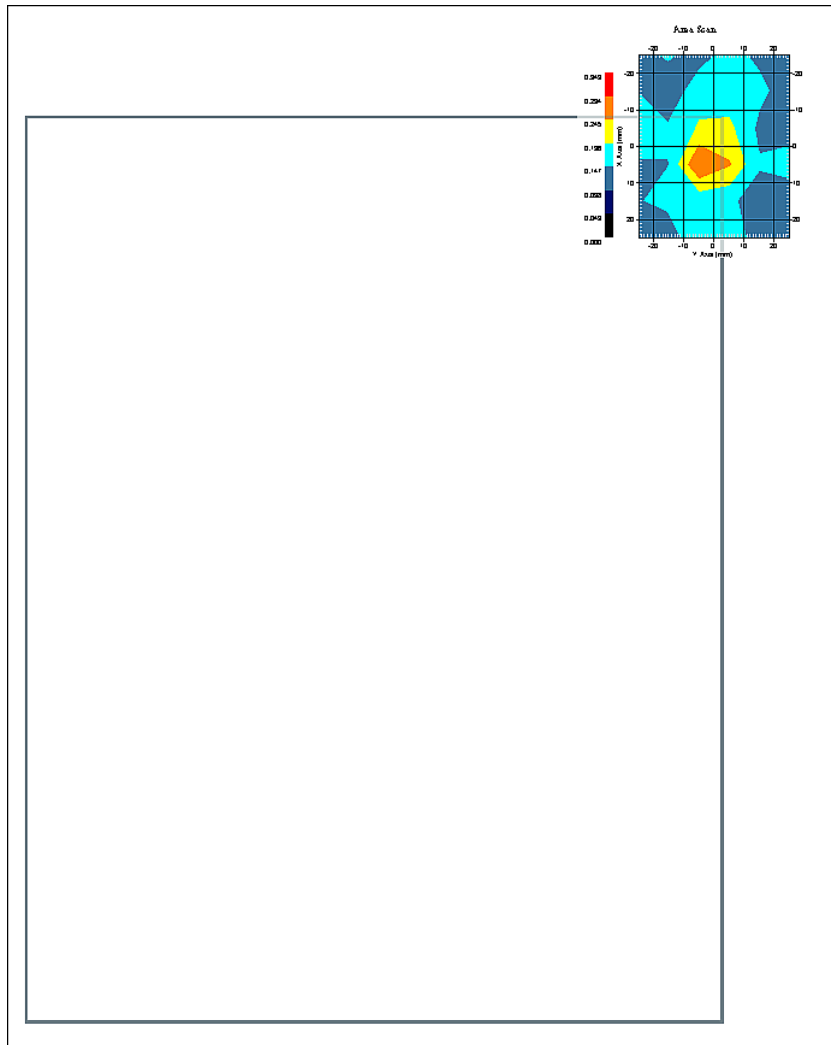
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.234 W/kg
10 gram SAR value : 0.169 W/kg
Area Scan Peak SAR : 0.295 W/kg
Zoom Scan Peak SAR : 0.390 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 12:19:39 PM
End Time : 06-Dec-2008 12:44:52 PM
Scanning Time : 1513 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 a6
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.267 W/kg
Power Drift-Finish: 0.270 W/kg
Power Drift (%) : 0.947

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

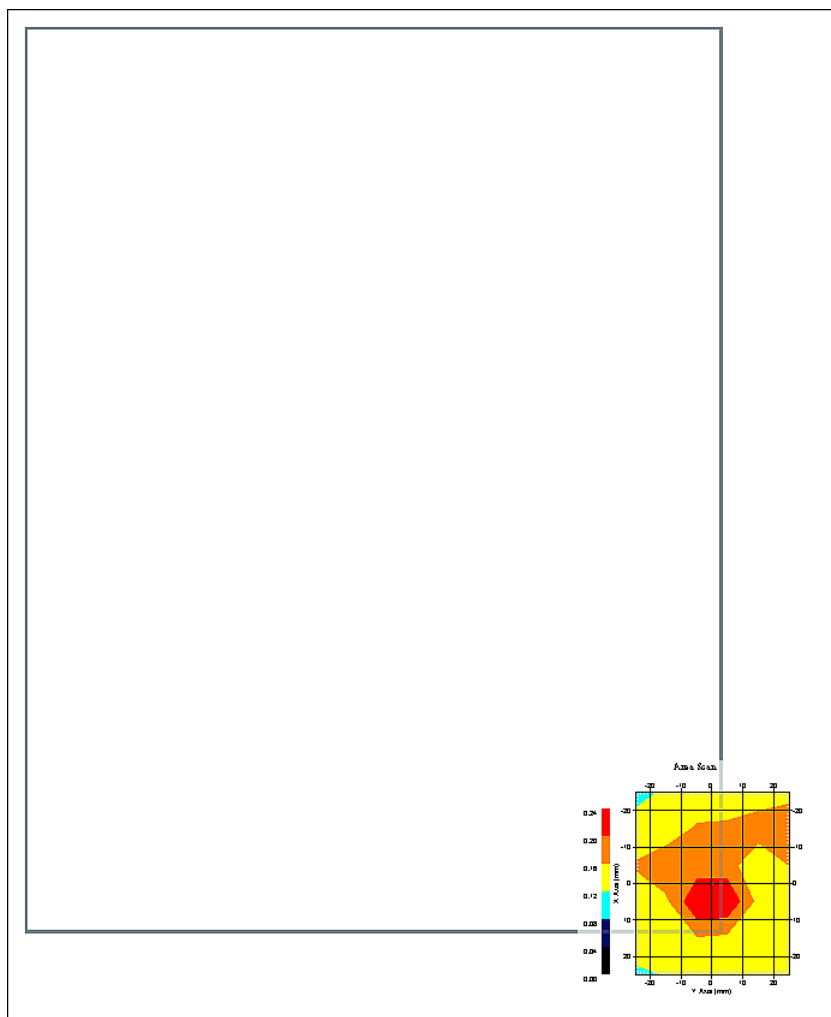
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.205 W/kg
10 gram SAR value : 0.163 W/kg
Area Scan Peak SAR : 0.240 W/kg
Zoom Scan Peak SAR : 0.280 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 09-Dec-2008 01:46:58 PM
End Time : 06-Dec-2008 02:12:01 PM
Scanning Time : 1503 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 a6
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant 3
Orientation : Touch
Power Drift-Start : 0.515 W/kg
Power Drift-Finish: 0.524 W/kg
Power Drift (%) : 1.727

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

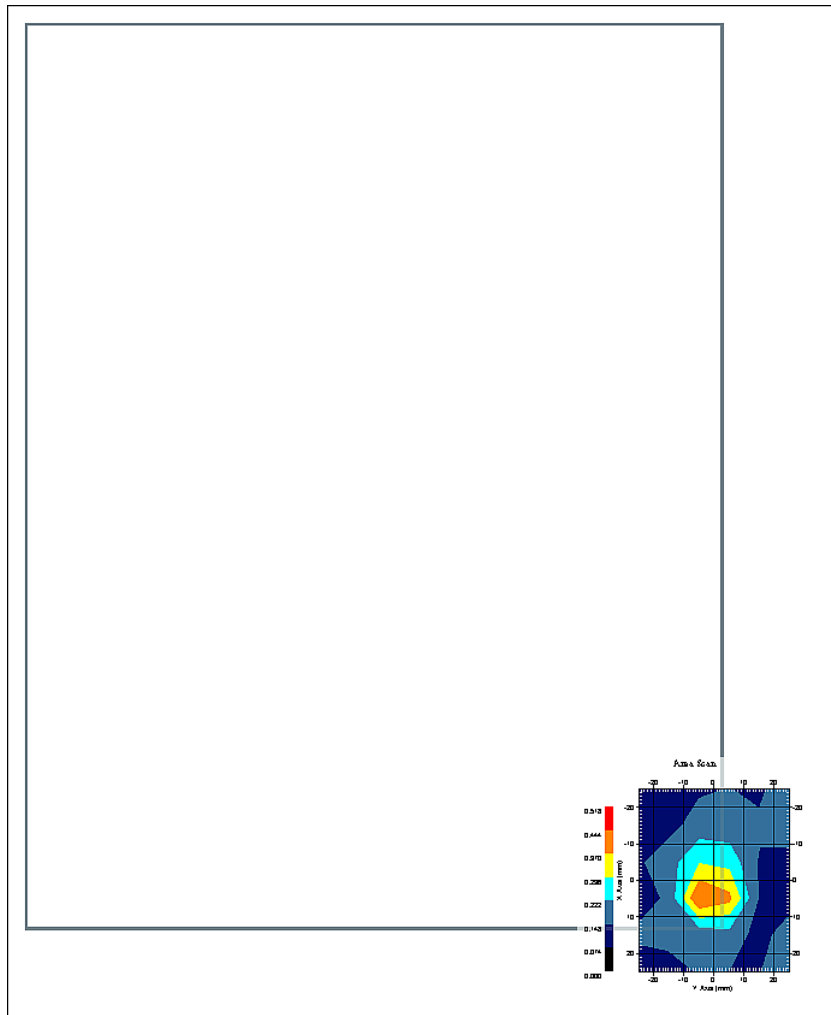
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.310 W/kg
10 gram SAR value : 0.193 W/kg
Area Scan Peak SAR : 0.446 W/kg
Zoom Scan Peak SAR : 0.590 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 11:20:55 AM
End Time : 06-Dec-2008 11:46:10 AM
Scanning Time : 1515 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n20
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.304 W/kg
Power Drift-Finish: 0.307 W/kg
Power Drift (%) : 0.982

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

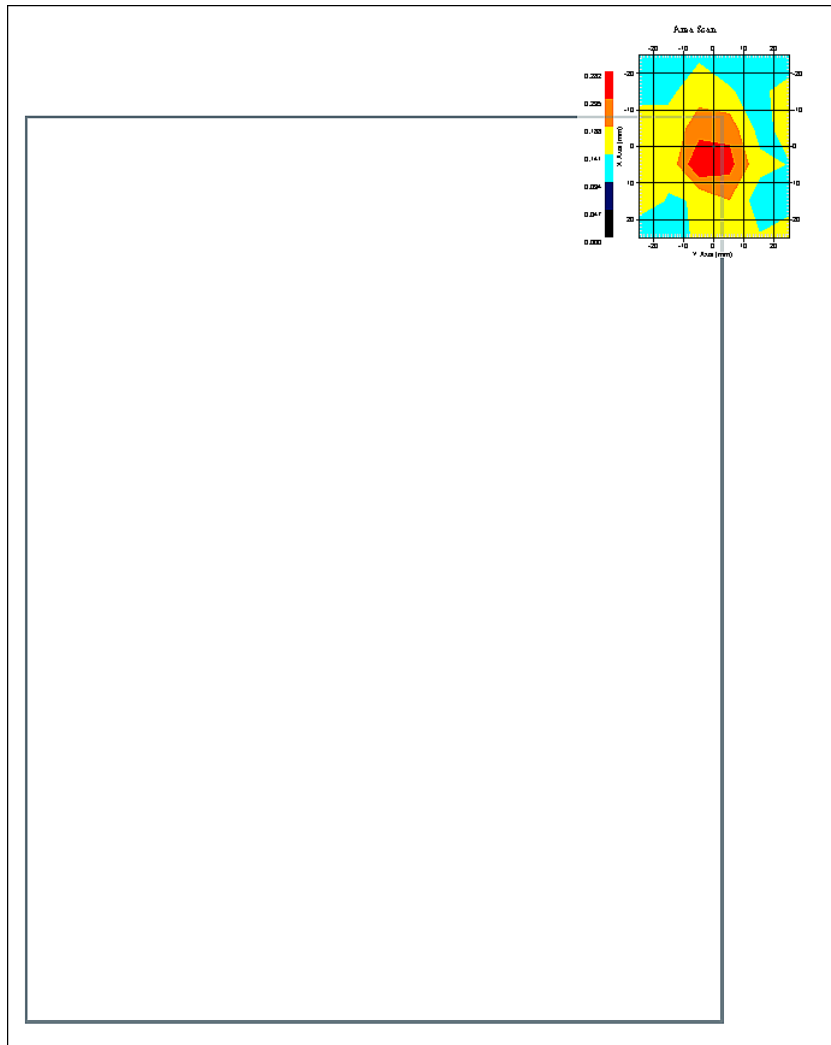
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.233 W/kg
10 gram SAR value : 0.162 W/kg
Area Scan Peak SAR : 0.282 W/kg
Zoom Scan Peak SAR : 0.370 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 12:48:02 PM
End Time : 06-Dec-2008 01:13:20 PM
Scanning Time : 1518 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n20
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.314 W/kg
Power Drift-Finish: 0.313 W/kg
Power Drift (%) : -0.403

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

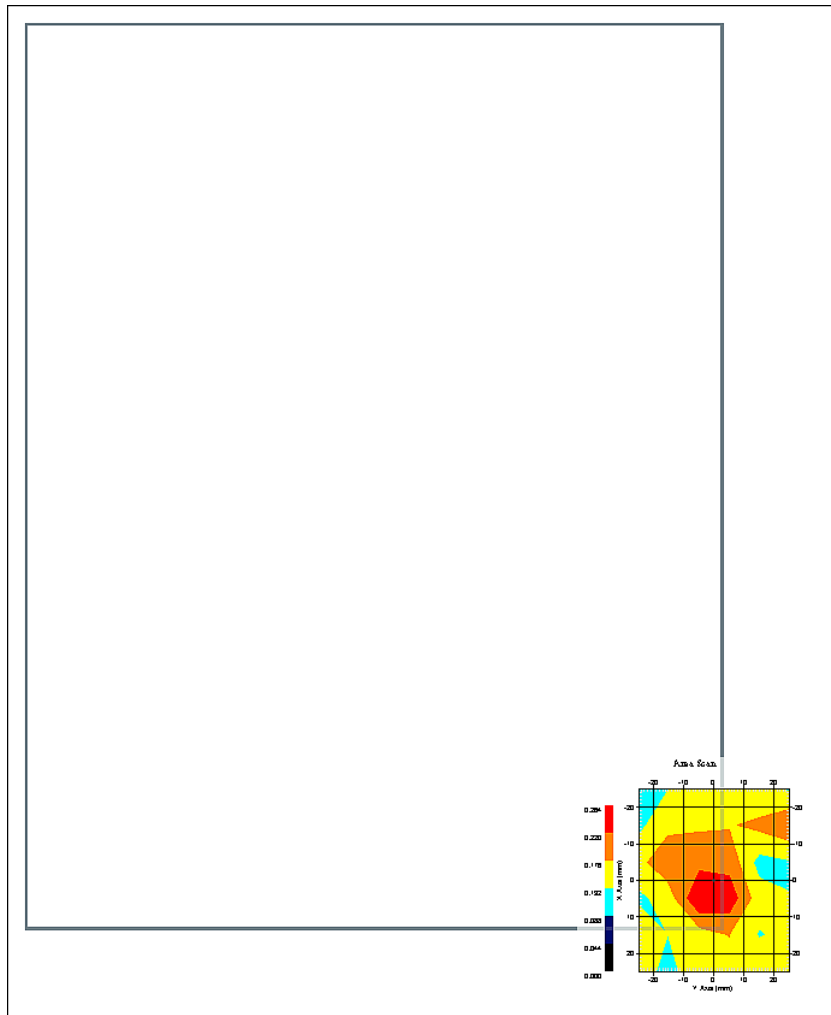
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.216 W/kg
10 gram SAR value : 0.154 W/kg
Area Scan Peak SAR : 0.264 W/kg
Zoom Scan Peak SAR : 0.360 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 09-Dec-2008 01:46:58 PM
End Time : 06-Dec-2008 02:12:01 PM
Scanning Time : 1503 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n20
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant 3
Orientation : Touch
Power Drift-Start : 0.515 W/kg
Power Drift-Finish: 0.524 W/kg
Power Drift (%) : 1.727

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

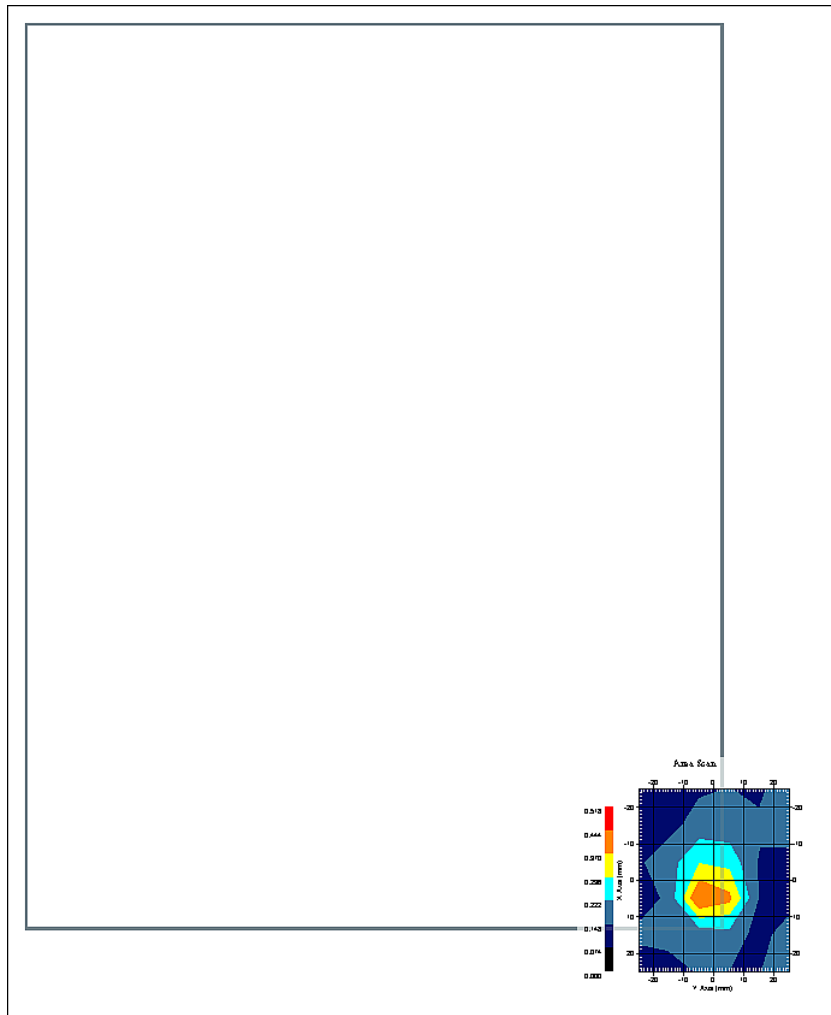
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

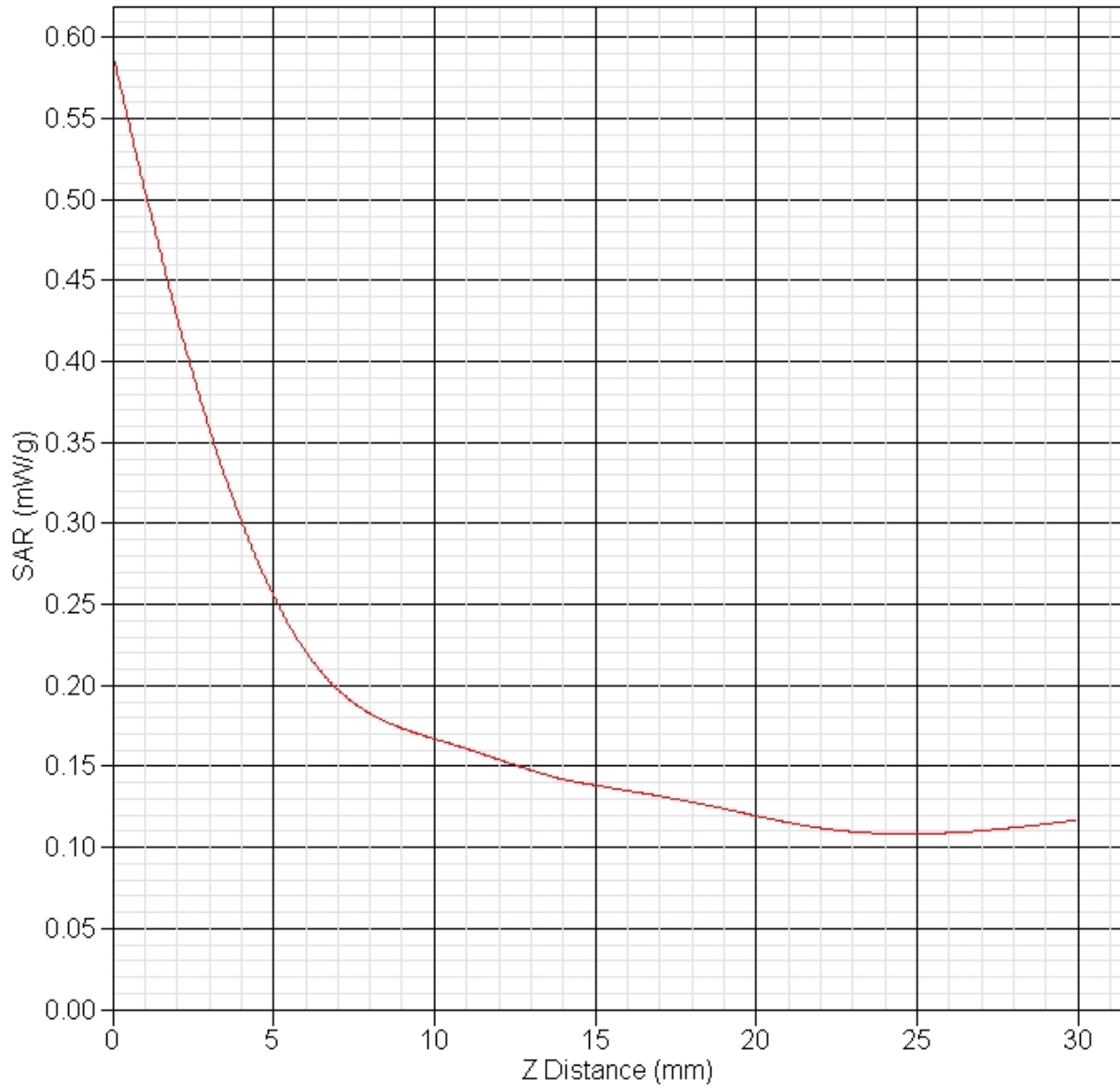
Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.310 W/kg
10 gram SAR value : 0.193 W/kg
Area Scan Peak SAR : 0.446 W/kg
Zoom Scan Peak SAR : 0.590 W/kg

SAR-Z Axis at Hotspot x:5.08 y:-5.14



SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 11:50:11 AM
End Time : 06-Dec-2008 12:15:30 PM
Scanning Time : 1519 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n40
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.303 W/kg
Power Drift-Finish: 0.298 W/kg
Power Drift (%) : -1.774

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

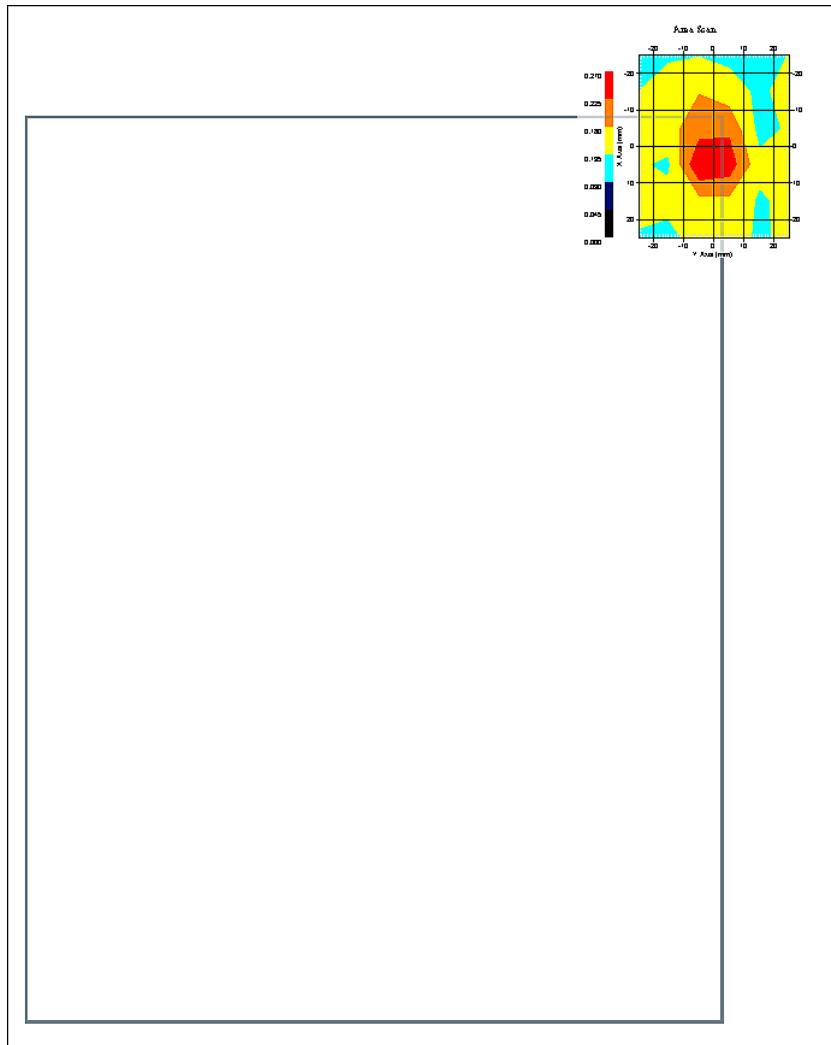
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.223 W/kg
10 gram SAR value : 0.162 W/kg
Area Scan Peak SAR : 0.270 W/kg
Zoom Scan Peak SAR : 0.350 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 01:17:33 PM
End Time : 06-Dec-2008 01:42:38 PM
Scanning Time : 1505 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n40
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.294 W/kg
Power Drift-Finish: 0.301 W/kg
Power Drift (%) : 2.383

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

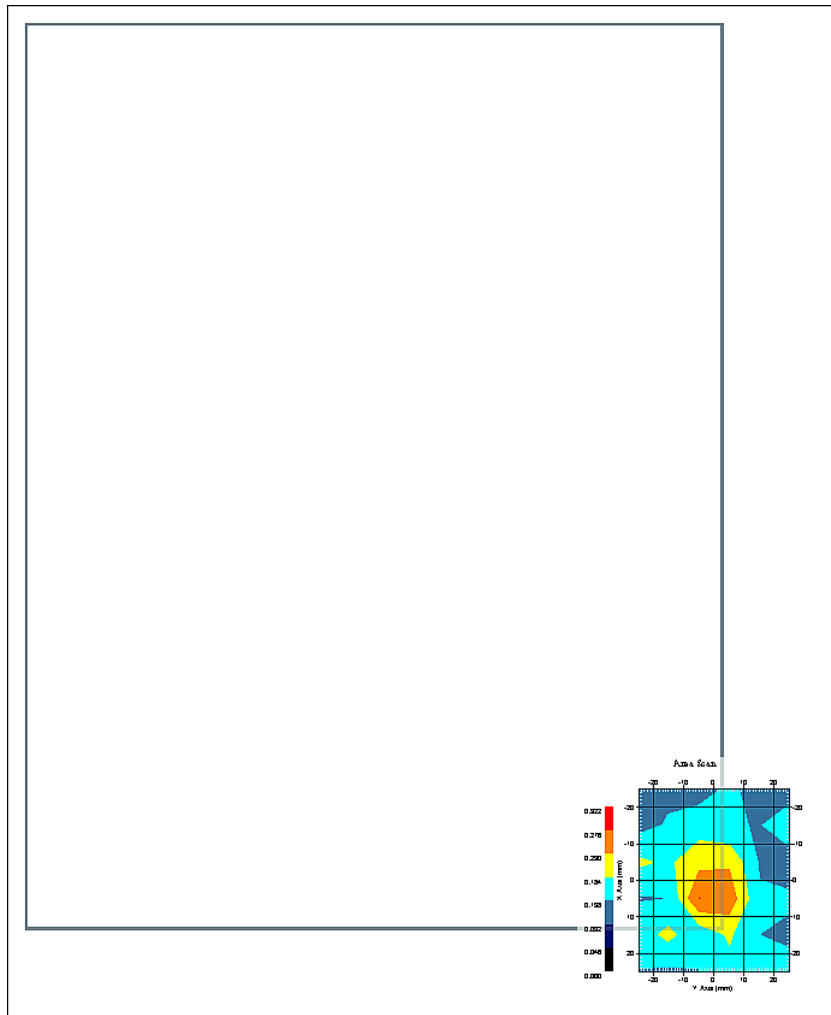
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.217 W/kg
10 gram SAR value : 0.162 W/kg
Area Scan Peak SAR : 0.277 W/kg
Zoom Scan Peak SAR : 0.340 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 02:43:40 PM
End Time : 06-Dec-2008 03:11:43 PM
Scanning Time : 1503 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n40
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant 3
Orientation : Touch
Power Drift-Start : 0.529 W/kg
Power Drift-Finish: 0.530 W/kg
Power Drift (%) : 0.301

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

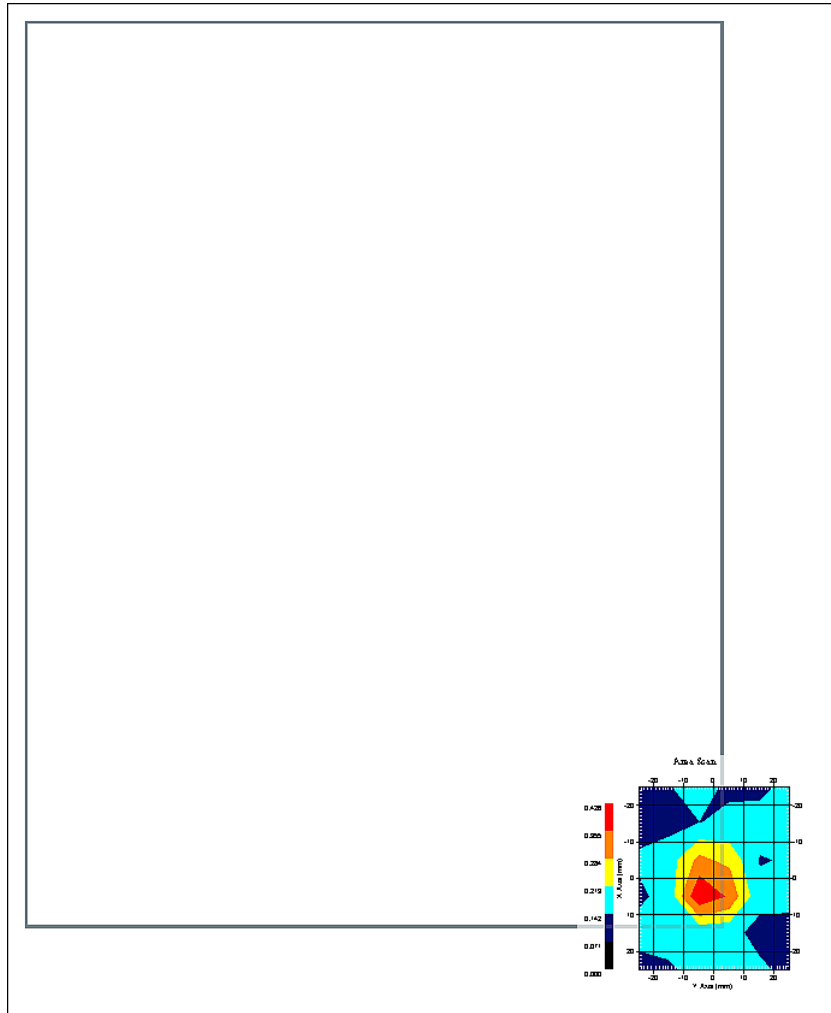
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.310 W/kg
10 gram SAR value : 0.197 W/kg
Area Scan Peak SAR : 0.424 W/kg
Zoom Scan Peak SAR : 0.600 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 03:45:54 PM
End Time : 06-Dec-2008 04:11:07 PM
Scanning Time : 1513 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 a6
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.302 W/kg
Power Drift-Finish: 0.310 W/kg
Power Drift (%) : 2.645

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

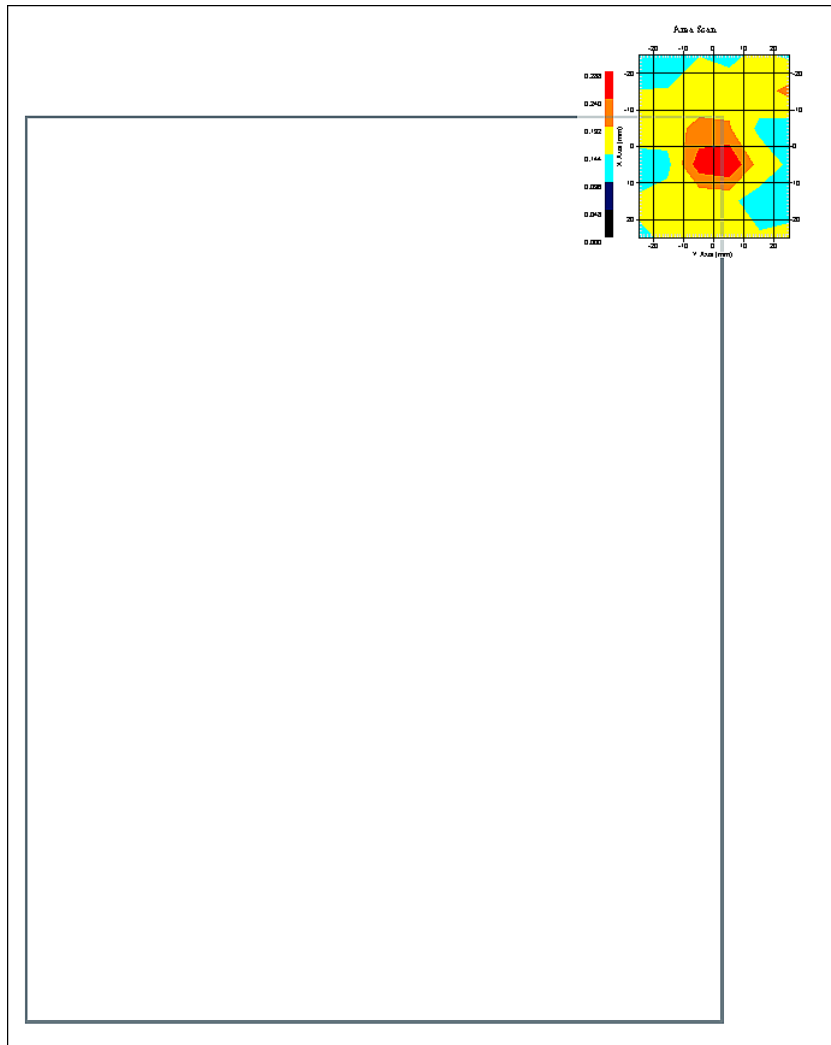
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.231 W/kg
10 gram SAR value : 0.171 W/kg
Area Scan Peak SAR : 0.287 W/kg
Zoom Scan Peak SAR : 0.380 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 05:13:40 PM
End Time : 06-Dec-2008 05:38:53 PM
Scanning Time : 1513 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 a6
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.293 W/kg
Power Drift-Finish: 0.299 W/kg
Power Drift (%) : 2.054

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

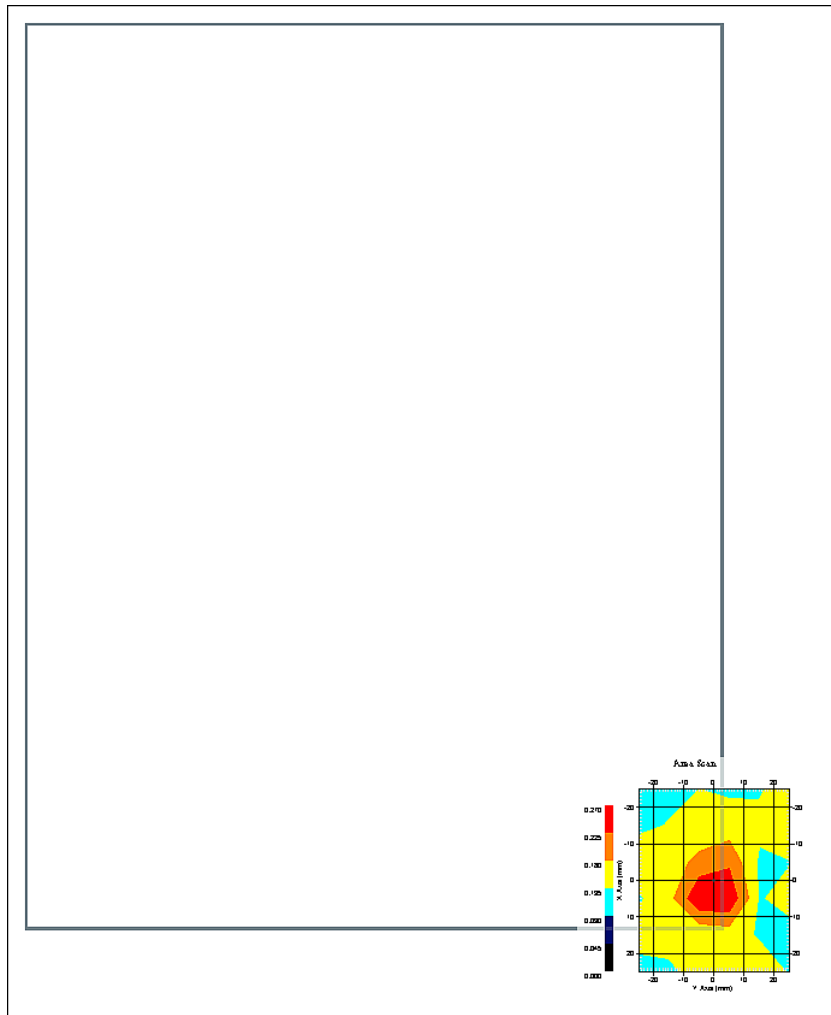
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.215 W/kg
10 gram SAR value : 0.161 W/kg
Area Scan Peak SAR : 0.268 W/kg
Zoom Scan Peak SAR : 0.350 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 04:15:04 PM
End Time : 06-Dec-2008 04:40:19 PM
Scanning Time : 1515 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n20
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.291 W/kg
Power Drift-Finish: 0.295 W/kg
Power Drift (%) : 1.376

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

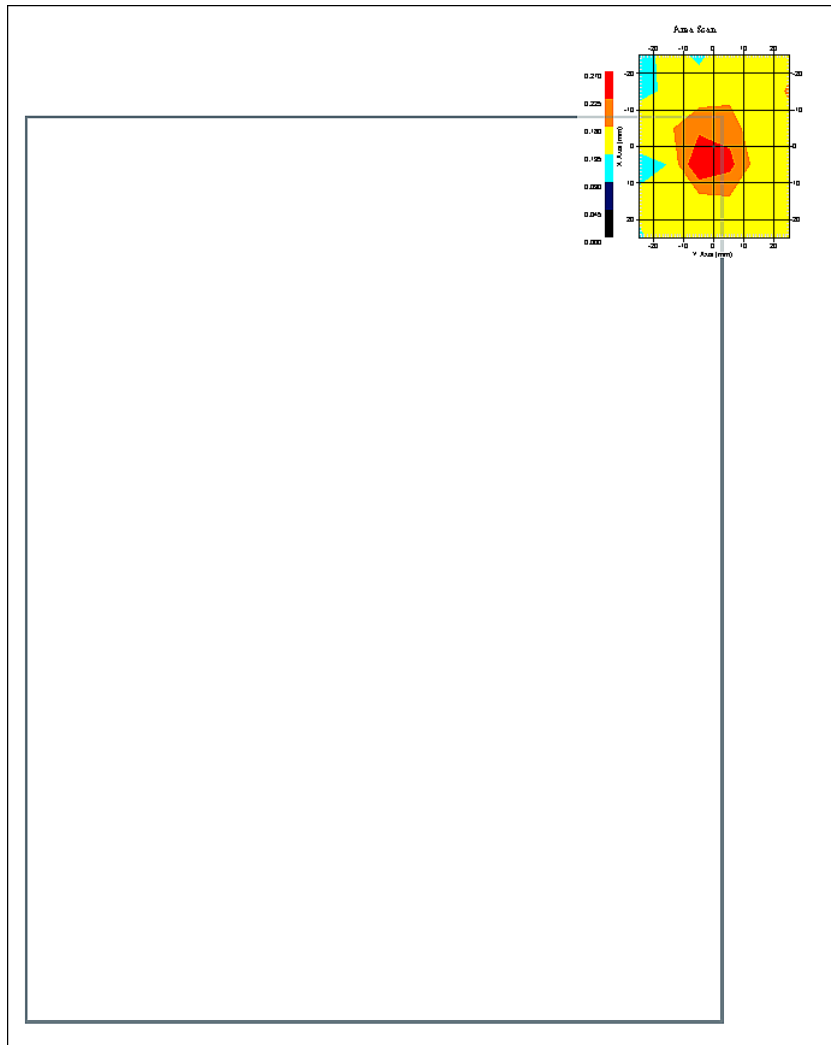
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.223 W/kg
10 gram SAR value : 0.160 W/kg
Area Scan Peak SAR : 0.268 W/kg
Zoom Scan Peak SAR : 0.350 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 05:42:46 PM
End Time : 06-Dec-2008 06:08:05 PM
Scanning Time : 1519 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n20
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.305 W/kg
Power Drift-Finish: 0.302 W/kg
Power Drift (%) : -0.833

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

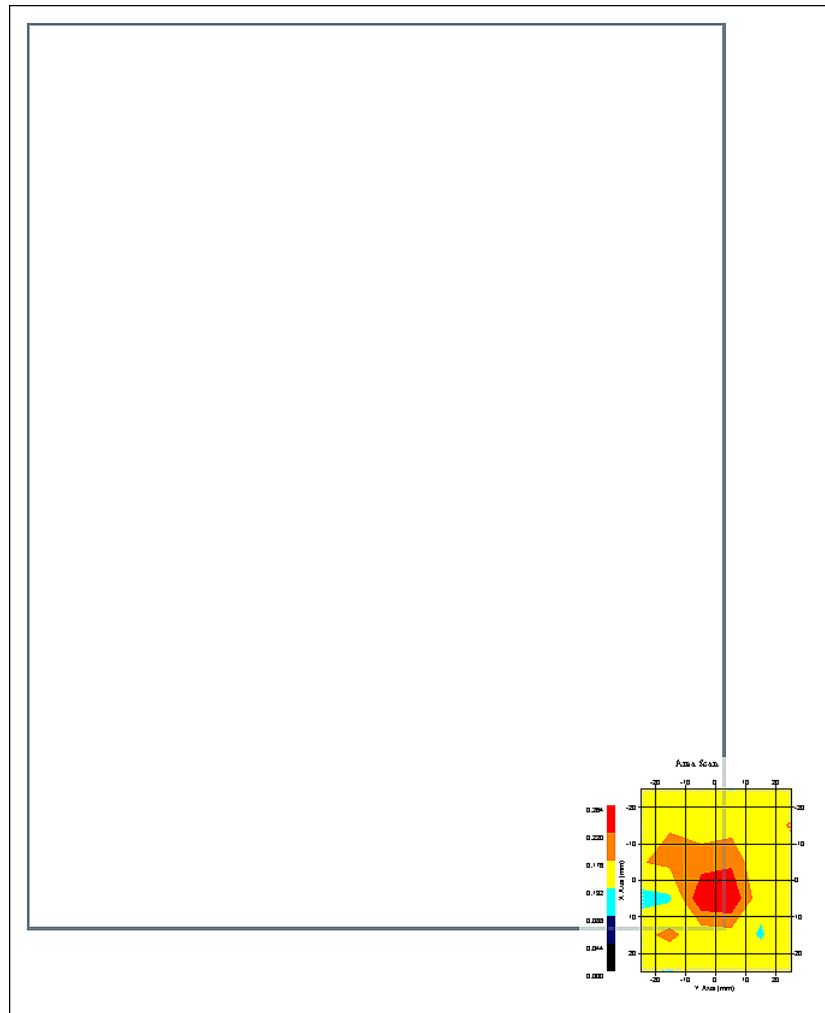
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.234 W/kg
10 gram SAR value : 0.173 W/kg
Area Scan Peak SAR : 0.262 W/kg
Zoom Scan Peak SAR : 0.380 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 04:44:11 PM
End Time : 06-Dec-2008 05:09:22 PM
Scanning Time : 1511 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n40
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.300 W/kg
Power Drift-Finish: 0.307 W/kg
Power Drift (%) : 2.335

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

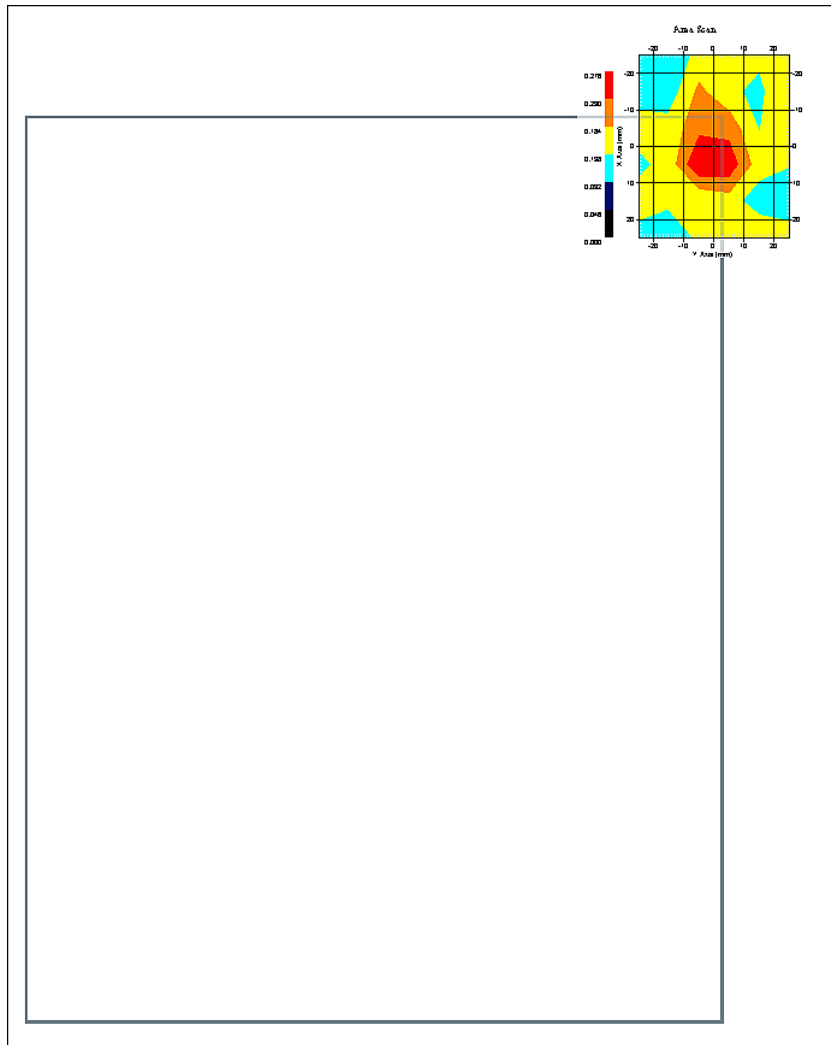
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
 Scan Type : Complete
 Tissue Temp. : 20.00 °C
 Ambient Temp. : 23.00 °C
 Set-up Date : 06-Dec-2008
 Set-up Time : 8:08:52 AM
 Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
 Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
 Separation : 0
 Channel : Mid



1 gram SAR value : 0.219 W/kg
 10 gram SAR value : 0.158 W/kg
 Area Scan Peak SAR : 0.274 W/kg
 Zoom Scan Peak SAR : 0.320 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 06-Dec-2008
Starting Time : 06-Dec-2008 06:12:53 PM
End Time : 06-Dec-2008 06:38:06 PM
Scanning Time : 1513 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n40
Model : Minicooper
Frequency : 5600.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.308 W/kg
Power Drift-Finish: 0.302 W/kg
Power Drift (%) : -1.855

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5600
Frequency : 5600.00 MHz
Last Calib. Date : 06-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 48.57 F/m
Sigma : 5.91 S/m
Density : 1000.00 kg/cu. m

Probe Data

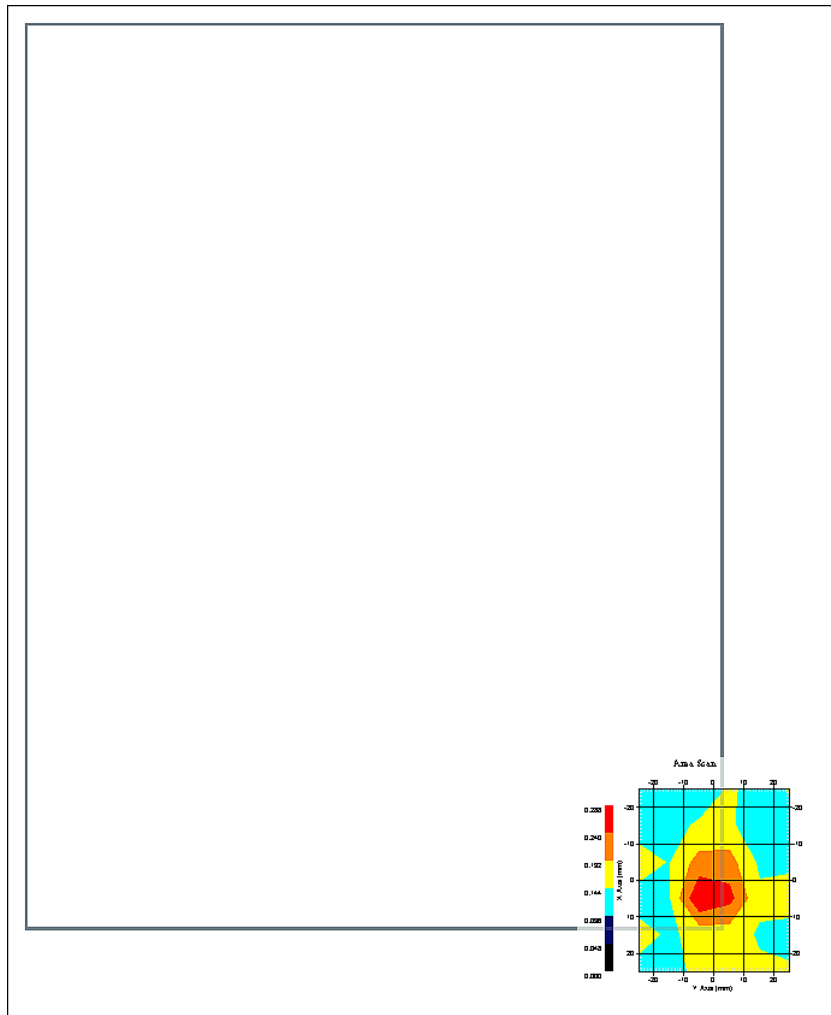
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5600.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 6.1
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 06-Dec-2008
Set-up Time : 8:08:52 AM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.226 W/kg
10 gram SAR value : 0.157 W/kg
Area Scan Peak SAR : 0.286 W/kg
Zoom Scan Peak SAR : 0.350 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 07:13:32 AM
End Time : 07-Dec-2008 07:38:34 AM
Scanning Time : 1502 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 a8
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.451 W/kg
Power Drift-Finish: 0.457 W/kg
Power Drift (%) : 1.337

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

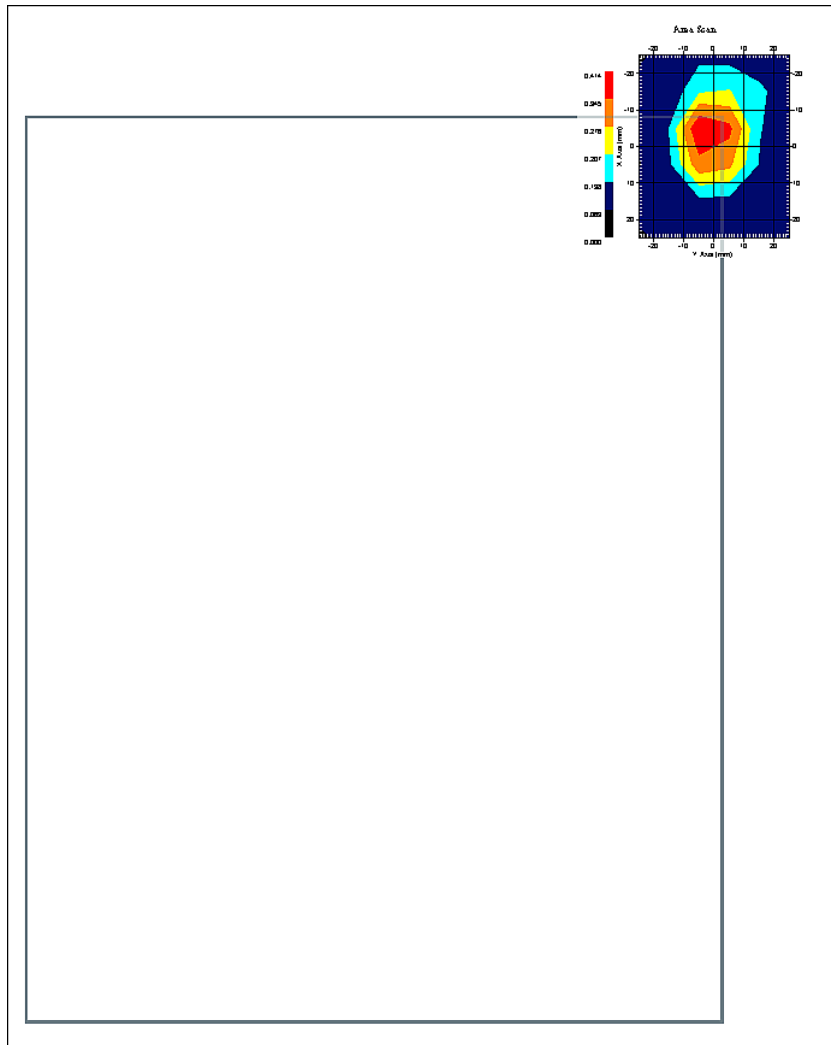
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.296 W/kg
10 gram SAR value : 0.151 W/kg
Area Scan Peak SAR : 0.413 W/kg
Zoom Scan Peak SAR : 0.590 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 08:39:36 AM
End Time : 07-Dec-2008 09:04:35 AM
Scanning Time : 1499 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 a8
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.459 W/kg
Power Drift-Finish: 0.469 W/kg
Power Drift (%) : 2.153

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

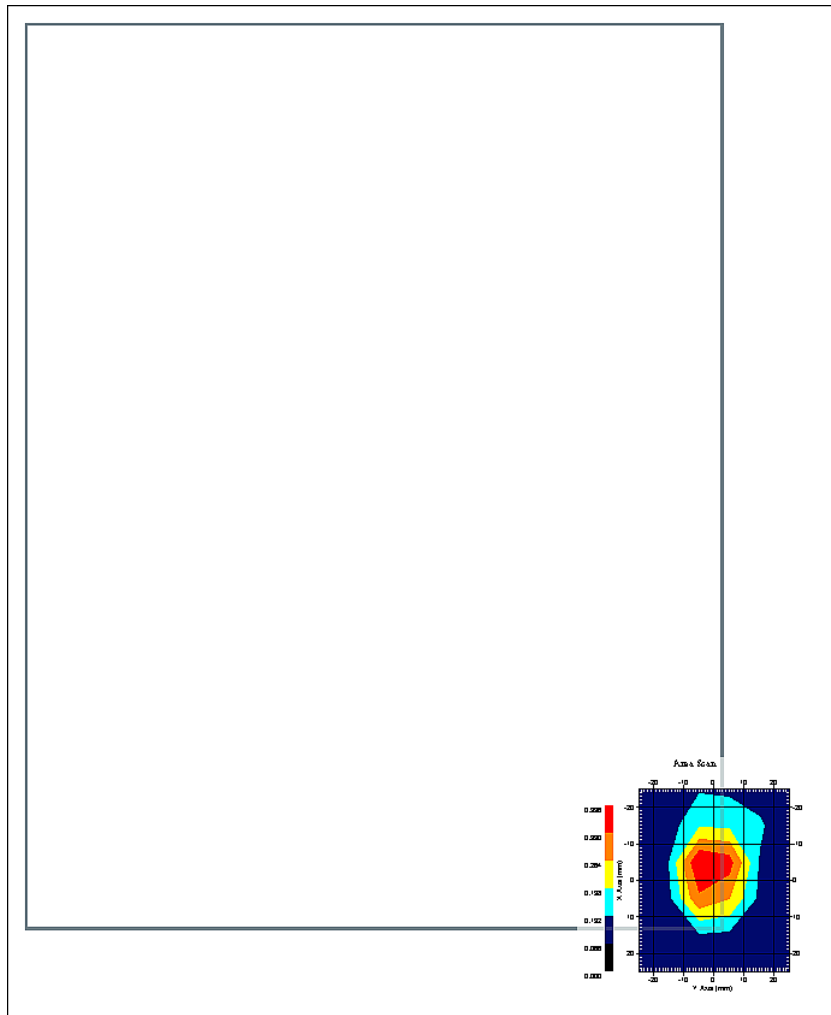
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.280 W/kg
10 gram SAR value : 0.142 W/kg
Area Scan Peak SAR : 0.394 W/kg
Zoom Scan Peak SAR : 0.550 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 07:42:57 AM
End Time : 07-Dec-2008 08:07:53 AM
Scanning Time : 1496 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n20
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.457 W/kg
Power Drift-Finish: 0.453 W/kg
Power Drift (%) : -0.875

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

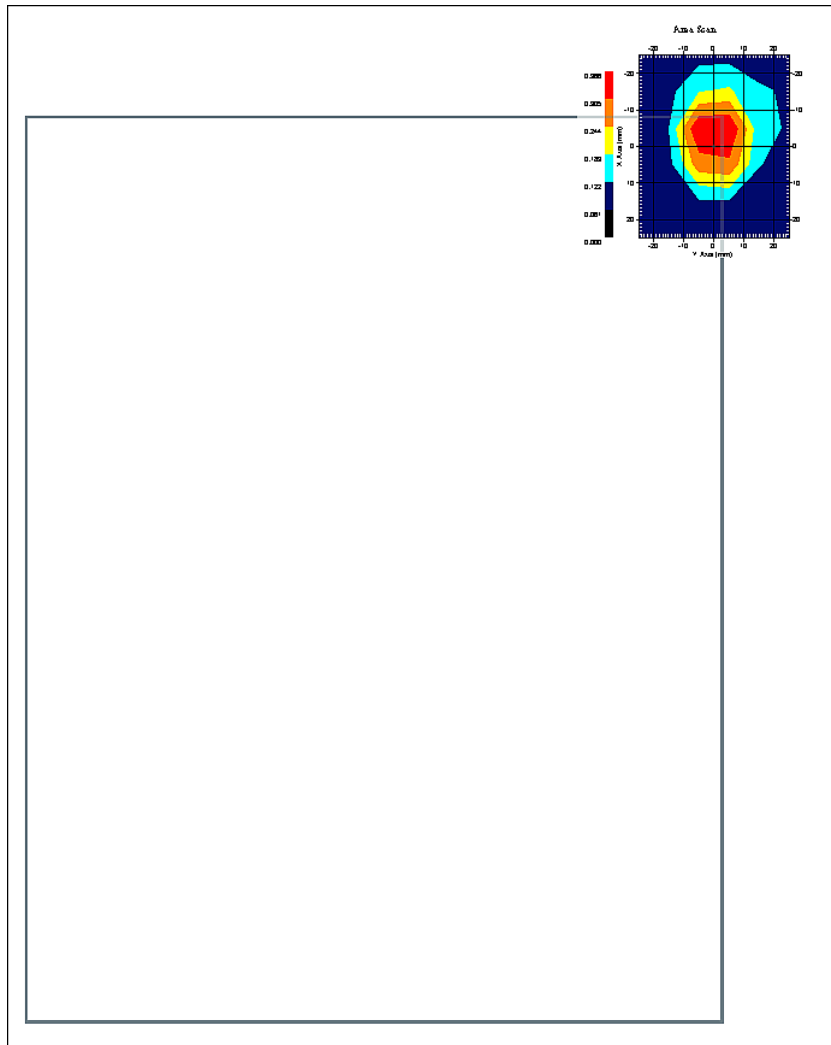
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.301 W/kg
10 gram SAR value : 0.150 W/kg
Area Scan Peak SAR : 0.366 W/kg
Zoom Scan Peak SAR : 0.580 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 09:07:02 AM
End Time : 07-Dec-2008 09:33:07 AM
Scanning Time : 1505 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n20
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.458 W/kg
Power Drift-Finish: 0.460 W/kg
Power Drift (%) : 0.455

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

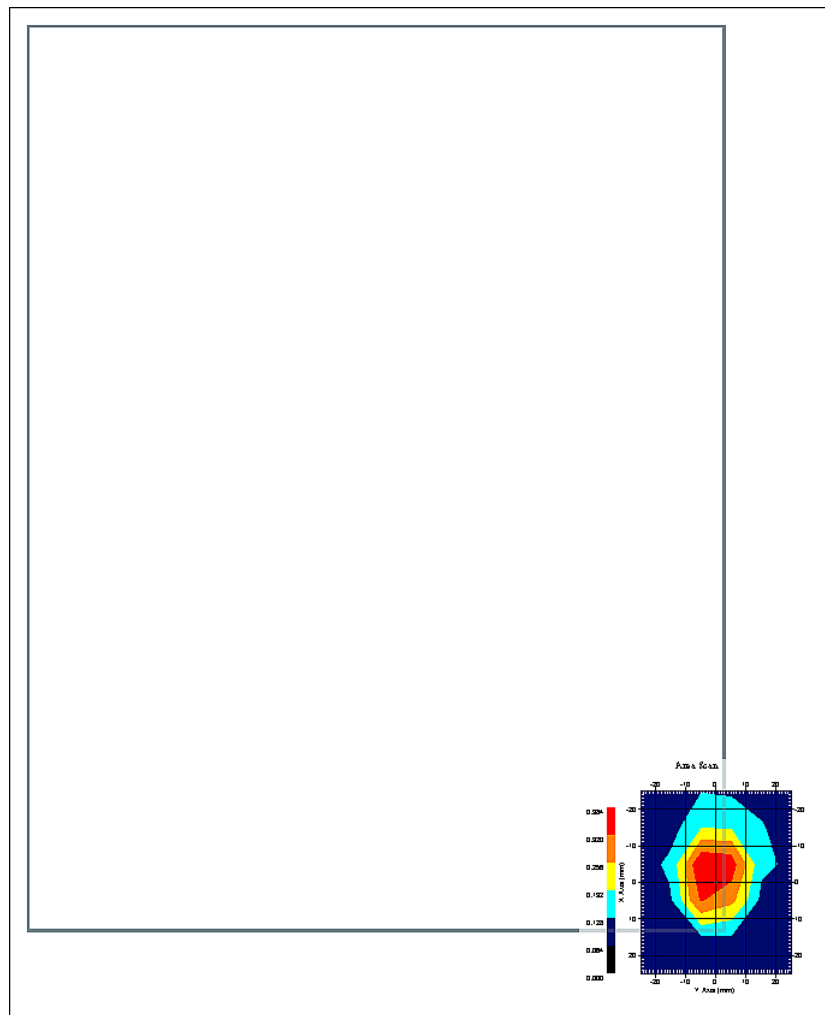
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.288 W/kg
10 gram SAR value : 0.146 W/kg
Area Scan Peak SAR : 0.382 W/kg
Zoom Scan Peak SAR : 0.560 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 08:10:13 AM
End Time : 07-Dec-2008 08:35:18 AM
Scanning Time : 1505 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n40
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.472 W/kg
Power Drift-Finish: 0.486 W/kg
Power Drift (%) : 2.960

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

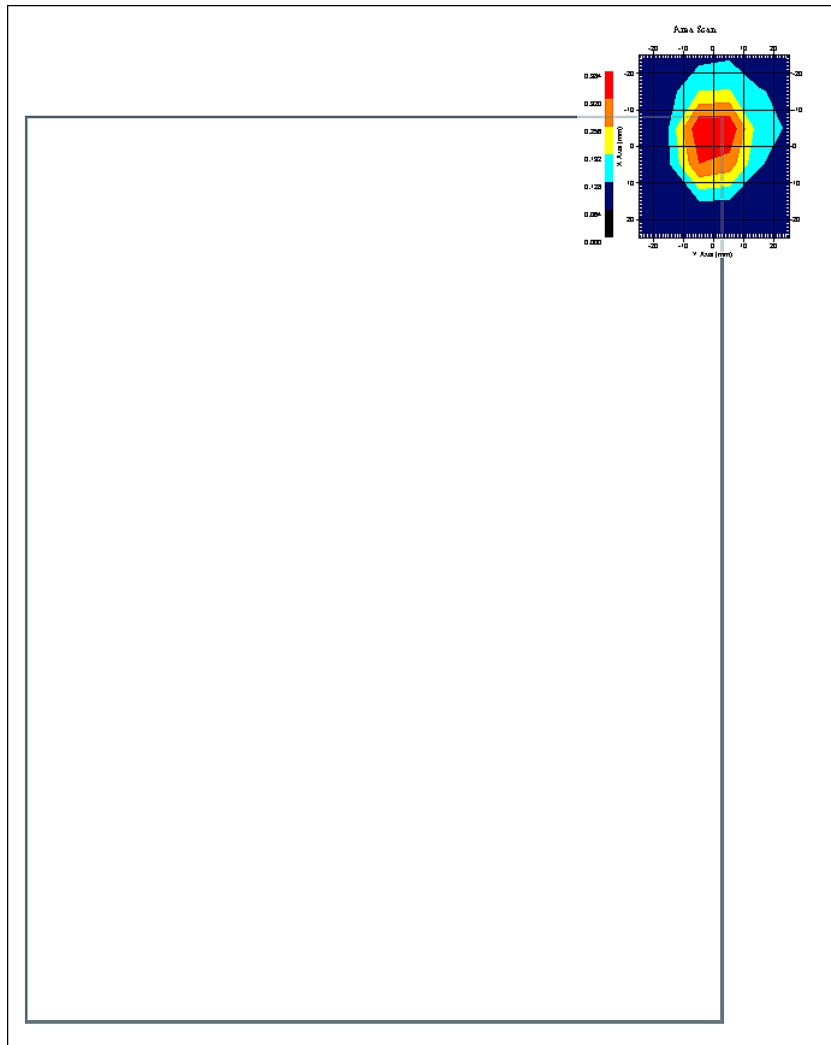
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.296 W/kg
10 gram SAR value : 0.140 W/kg
Area Scan Peak SAR : 0.381 W/kg
Zoom Scan Peak SAR : 0.610 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 09:37:17 AM
End Time : 07-Dec-2008 10:02:15 AM
Scanning Time : 1498 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 1031 n40
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.466 W/kg
Power Drift-Finish: 0.464 W/kg
Power Drift (%) : -0.307

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

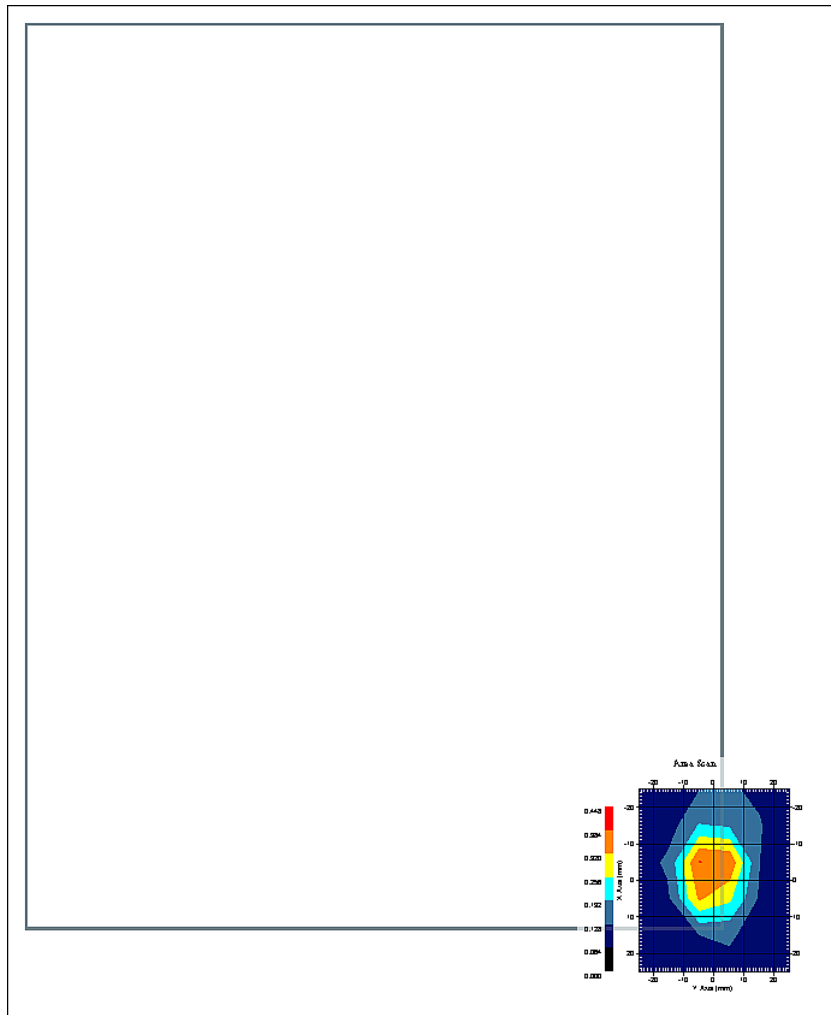
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.296 W/kg
10 gram SAR value : 0.146 W/kg
Area Scan Peak SAR : 0.385 W/kg
Zoom Scan Peak SAR : 0.610 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 10:36:19 AM
End Time : 07-Dec-2008 11:01:20 AM
Scanning Time : 1501 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 a8
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.492 W/kg
Power Drift-Finish: 0.480 W/kg
Power Drift (%) : -2.435

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

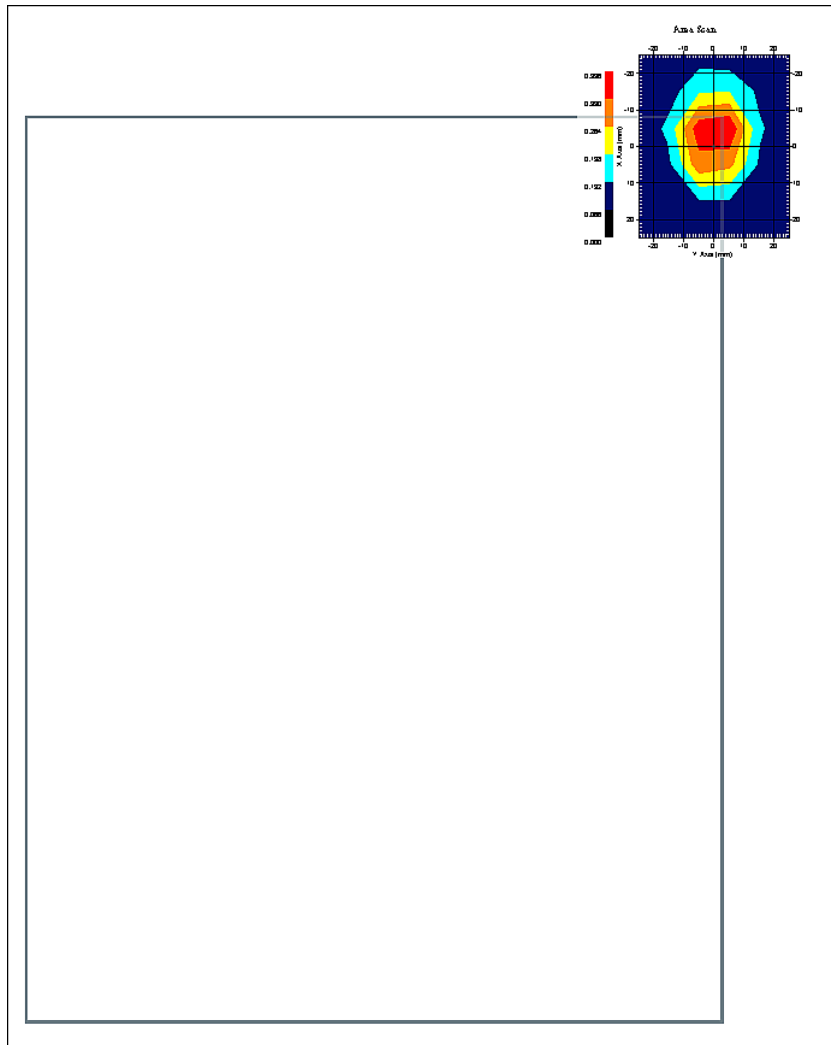
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.304 W/kg
10 gram SAR value : 0.152 W/kg
Area Scan Peak SAR : 0.395 W/kg
Zoom Scan Peak SAR : 0.610 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 12:03:49 PM
End Time : 07-Dec-2008 12:28:45 PM
Scanning Time : 1496 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 a8
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.467 W/kg
Power Drift-Finish: 0.475 W/kg
Power Drift (%) : 1.789

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

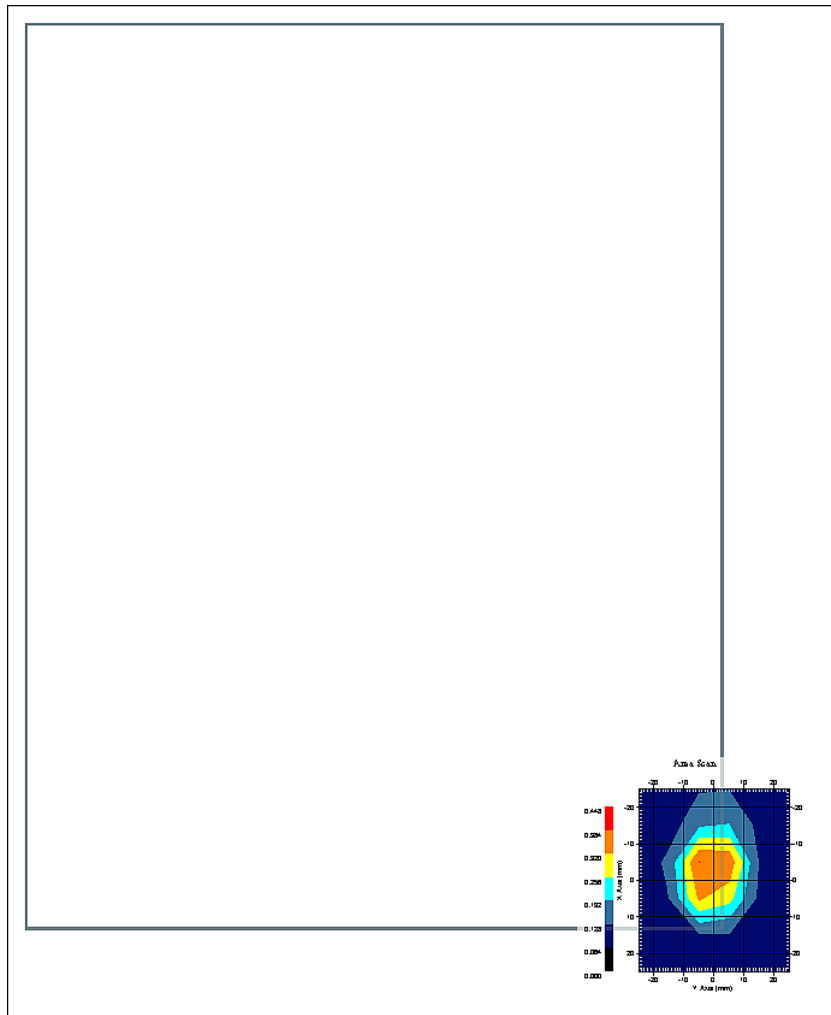
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.292 W/kg
10 gram SAR value : 0.145 W/kg
Area Scan Peak SAR : 0.385 W/kg
Zoom Scan Peak SAR : 0.590 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 01:30:07 PM
End Time : 07-Dec-2008 01:55:06 PM
Scanning Time : 1499 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 a8
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant 3
Orientation : Touch
Power Drift-Start : 0.577 W/kg
Power Drift-Finish: 0.578 W/kg
Power Drift (%) : 0.080

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

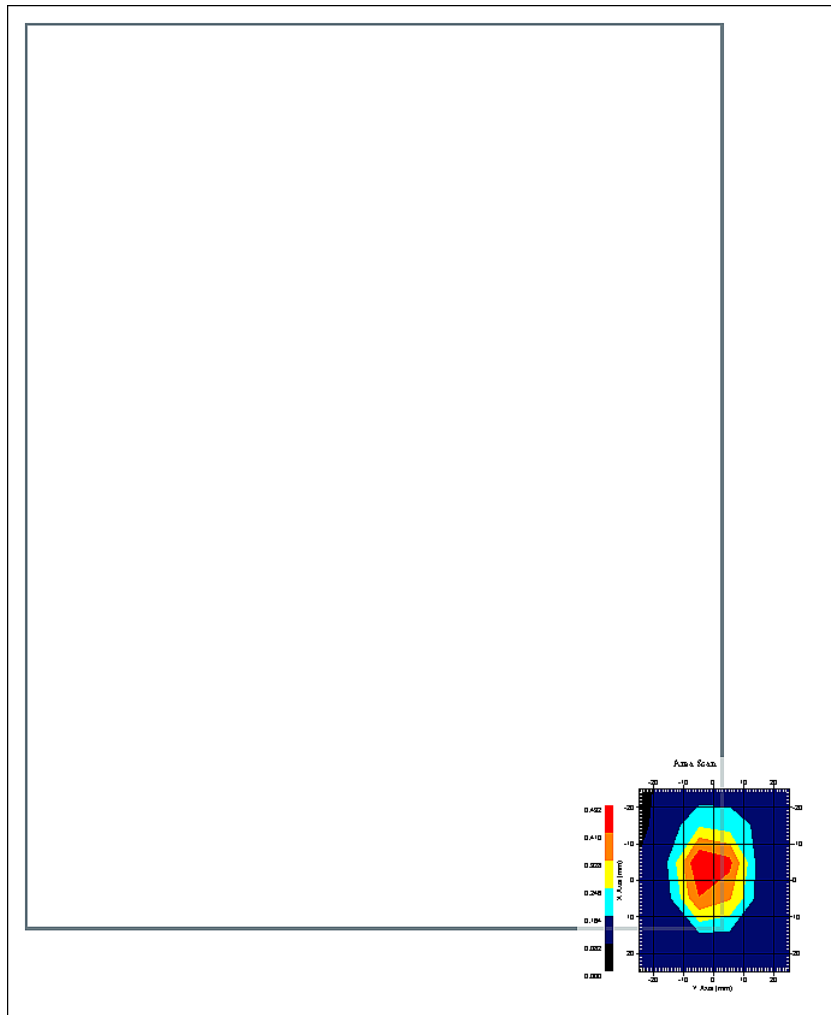
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.359 W/kg
10 gram SAR value : 0.167 W/kg
Area Scan Peak SAR : 0.490 W/kg
Zoom Scan Peak SAR : 0.750 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 11:05:28 AM
End Time : 07-Dec-2008 11:30:28 AM
Scanning Time : 1500 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n20
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.480 W/kg
Power Drift-Finish: 0.484 W/kg
Power Drift (%) : 0.830

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

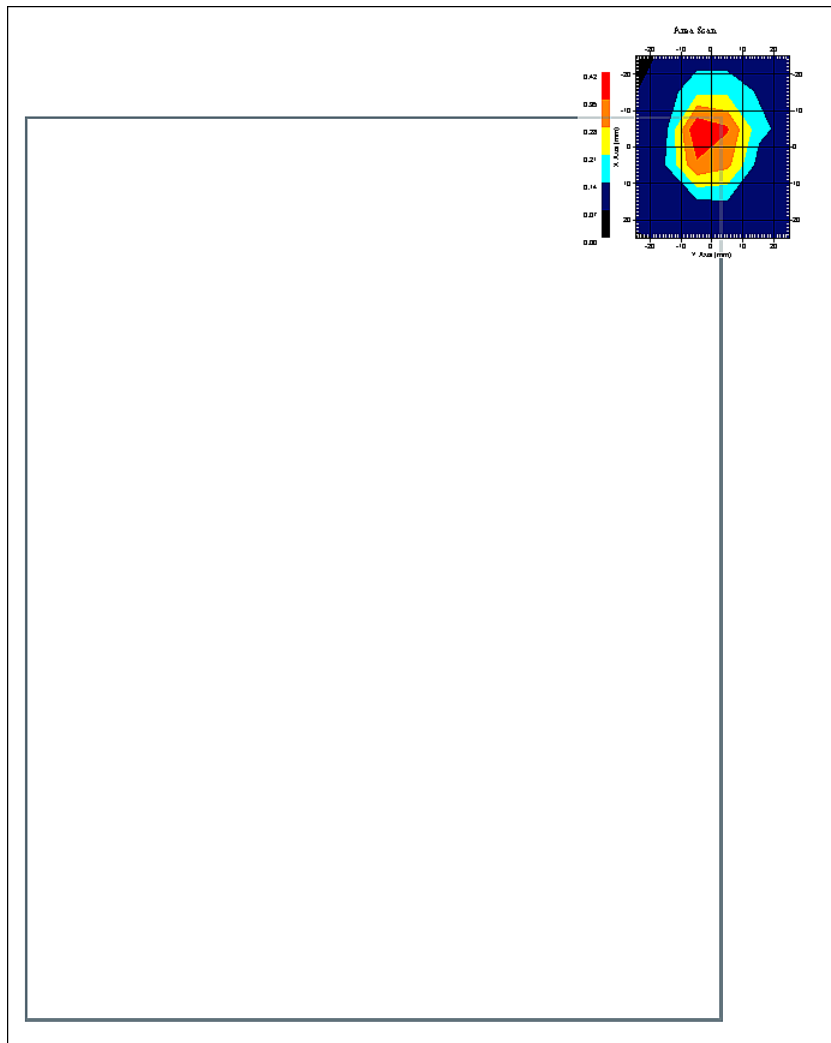
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.319 W/kg
10 gram SAR value : 0.156 W/kg
Area Scan Peak SAR : 0.420 W/kg
Zoom Scan Peak SAR : 0.620 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 12:32:27 PM
End Time : 07-Dec-2008 12:57:25 PM
Scanning Time : 1498 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n20
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.469 W/kg
Power Drift-Finish: 0.473 W/kg
Power Drift (%) : 0.959

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

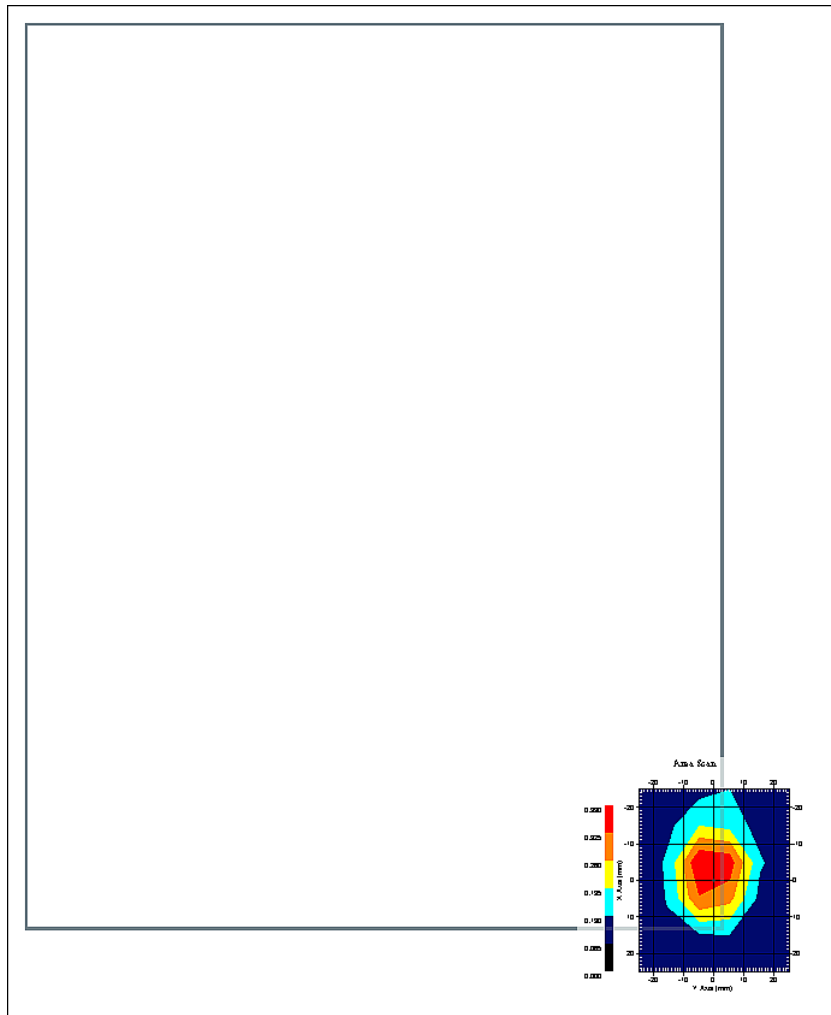
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.299 W/kg
10 gram SAR value : 0.146 W/kg
Area Scan Peak SAR : 0.389 W/kg
Zoom Scan Peak SAR : 0.610 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 01:59:12 PM
End Time : 07-Dec-2008 02:24:13 PM
Scanning Time : 1501 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n20
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant 3
Orientation : Touch
Power Drift-Start : 0.578 W/kg
Power Drift-Finish: 0.597 W/kg
Power Drift (%) : 3.325

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

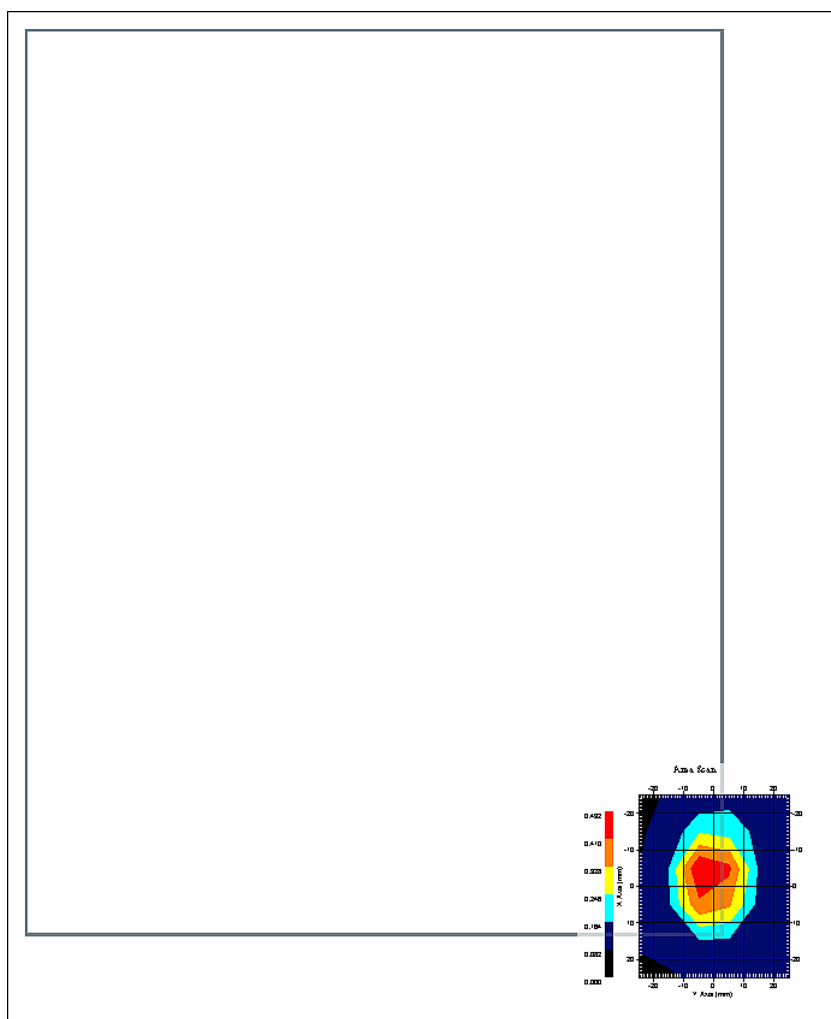
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

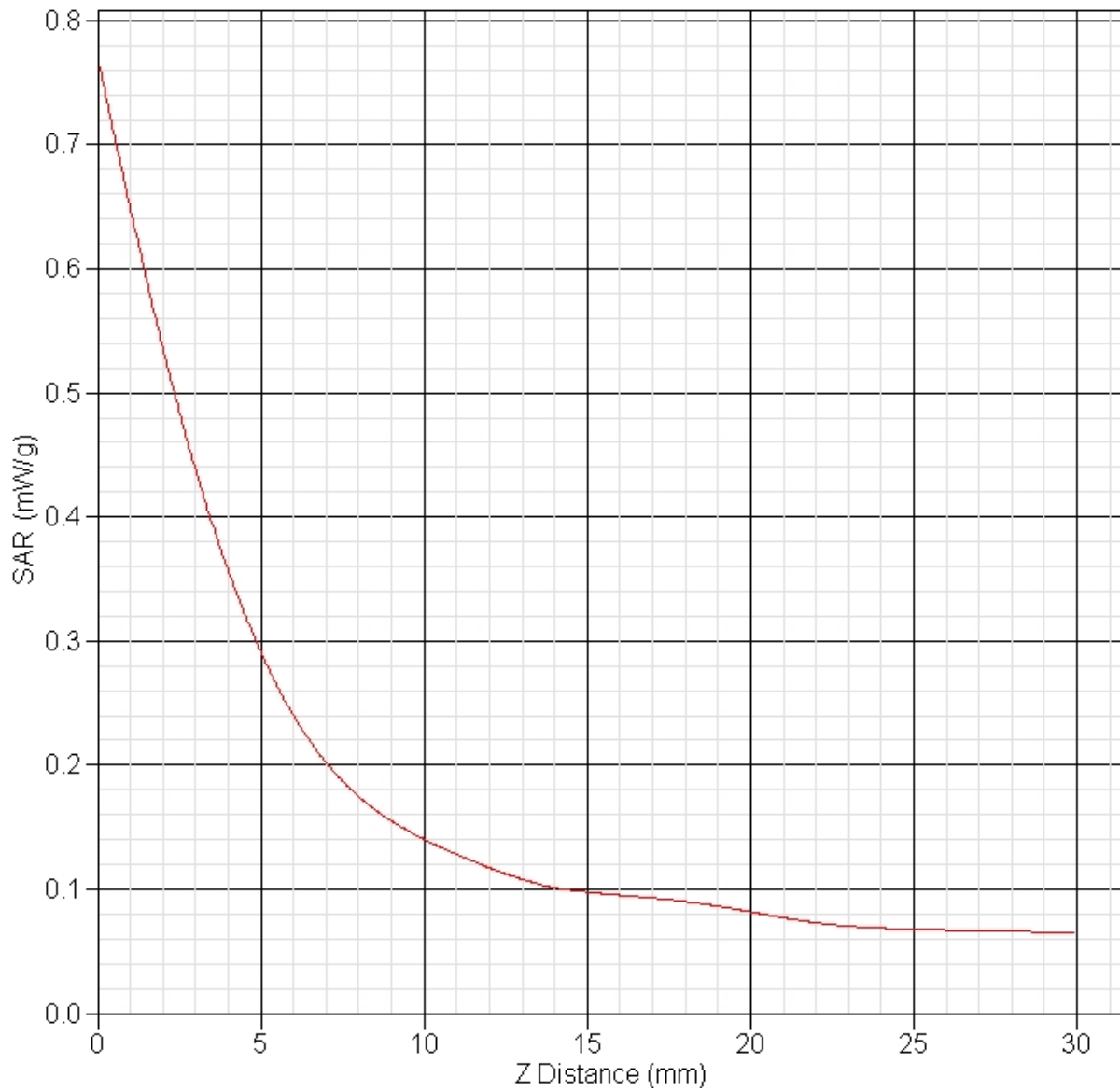
Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.369 W/kg
10 gram SAR value : 0.172 W/kg
Area Scan Peak SAR : 0.492 W/kg
Zoom Scan Peak SAR : 0.770 W/kg

SAR-Z Axis
at Hotspot x:-4.90 y:2.83



SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 11:34:39 AM
End Time : 07-Dec-2008 11:59:37 AM
Scanning Time : 1498 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n40
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.482 W/kg
Power Drift-Finish: 0.480 W/kg
Power Drift (%) : -0.298

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

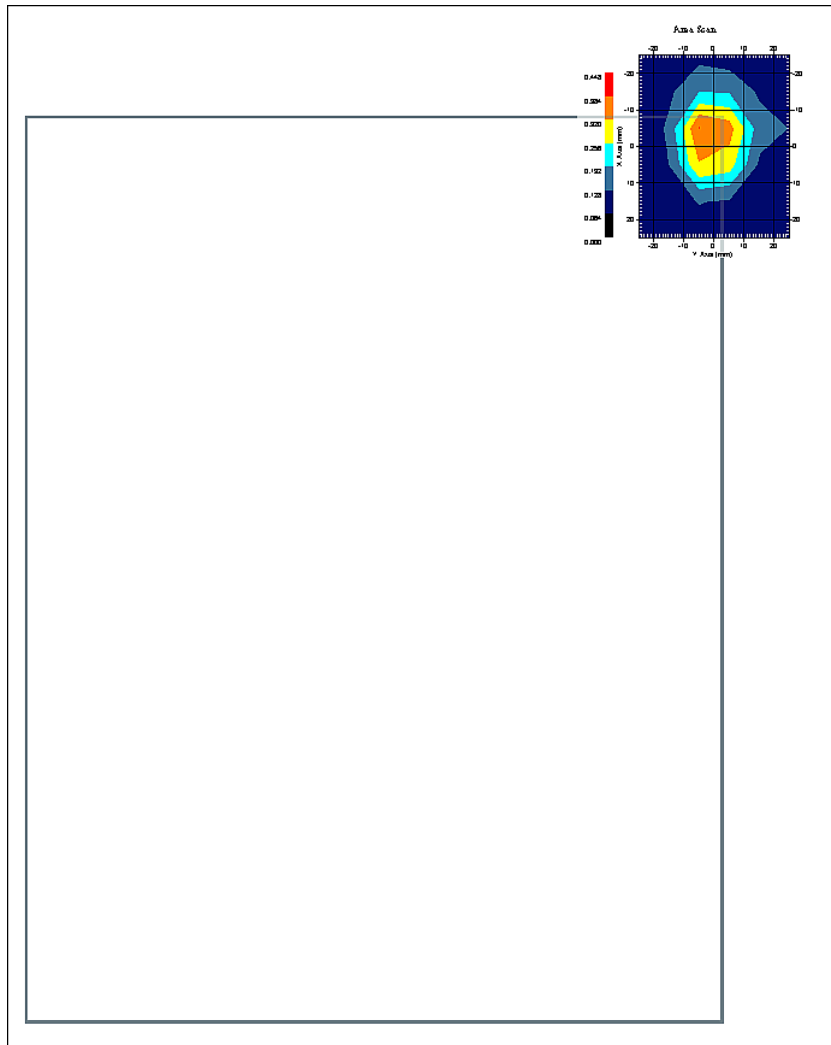
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.309 W/kg
10 gram SAR value : 0.151 W/kg
Area Scan Peak SAR : 0.385 W/kg
Zoom Scan Peak SAR : 0.620 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 01:01:29 PM
End Time : 07-Dec-2008 01:26:28 PM
Scanning Time : 1499 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n40
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.467 W/kg
Power Drift-Finish: 0.471 W/kg
Power Drift (%) : 0.902

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

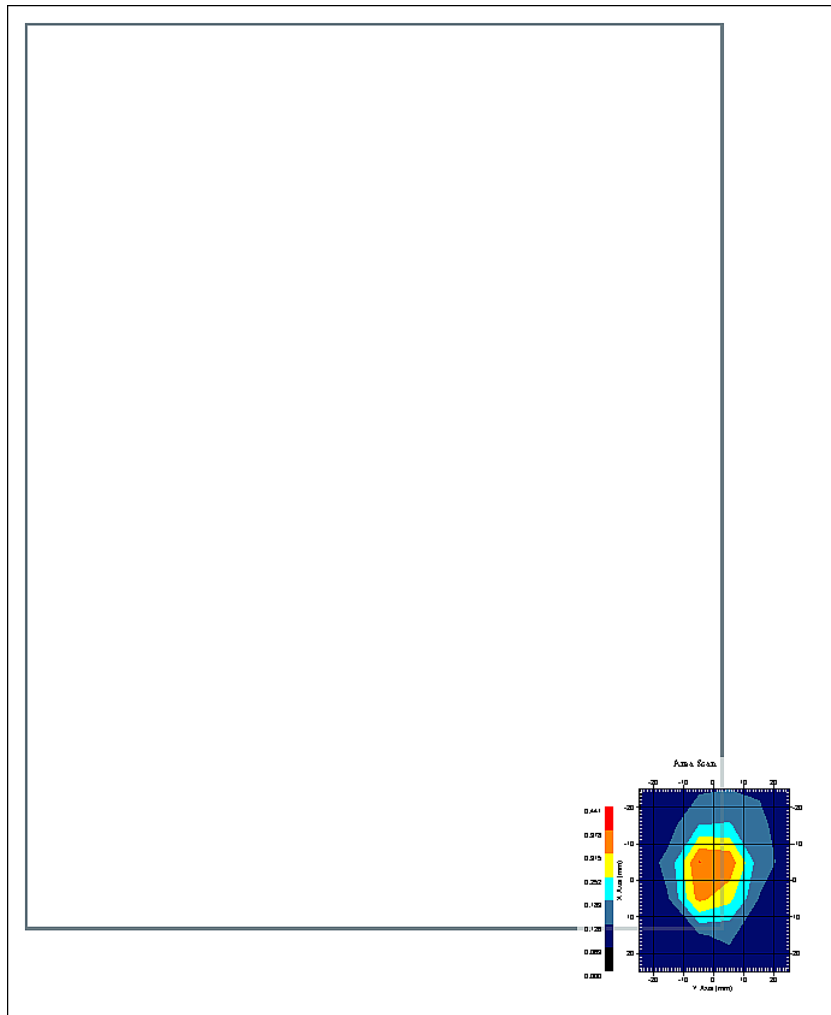
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.292 W/kg
10 gram SAR value : 0.143 W/kg
Area Scan Peak SAR : 0.379 W/kg
Zoom Scan Peak SAR : 0.610 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 02:28:17 PM
End Time : 07-Dec-2008 02:53:17 PM
Scanning Time : 1500 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 533 n40
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Ant 3
Orientation : Touch
Power Drift-Start : 0.590 W/kg
Power Drift-Finish: 0.587 W/kg
Power Drift (%) : -0.389

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

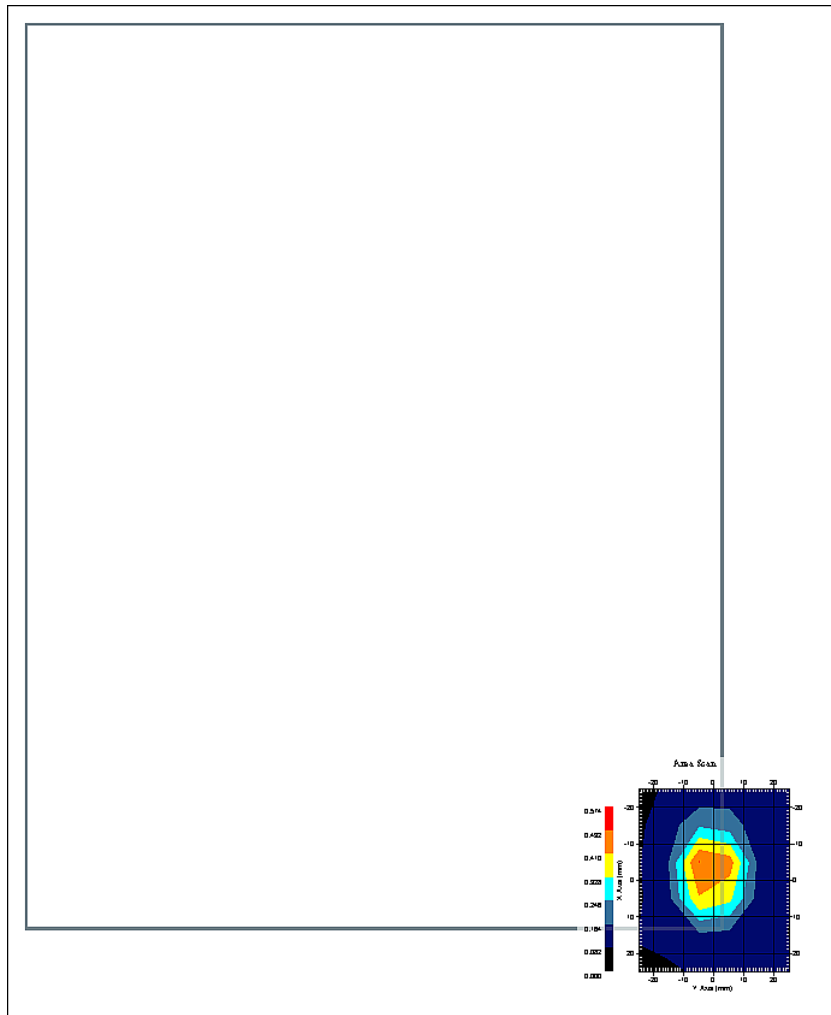
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.357 W/kg
10 gram SAR value : 0.169 W/kg
Area Scan Peak SAR : 0.493 W/kg
Zoom Scan Peak SAR : 0.740 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 03:23:43 PM
End Time : 07-Dec-2008 03:48:41 PM
Scanning Time : 1498 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 a8
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.476 W/kg
Power Drift-Finish: 0.467 W/kg
Power Drift (%) : -1.828

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

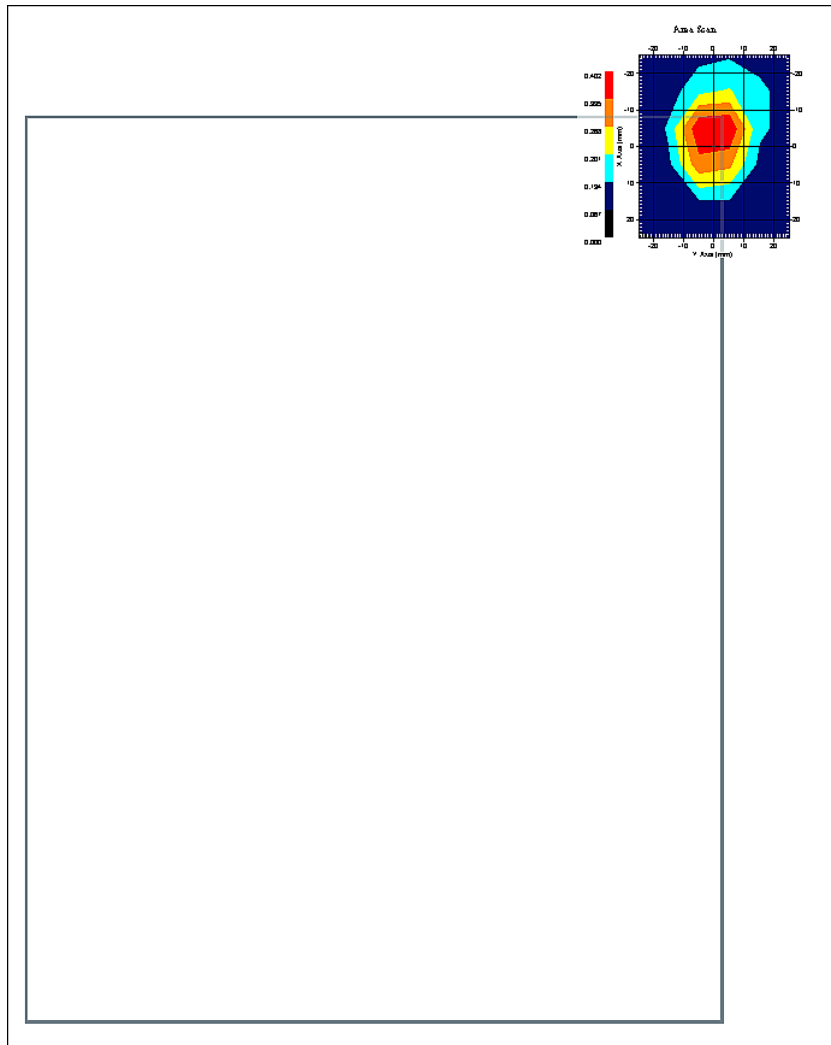
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.295 W/kg
10 gram SAR value : 0.151 W/kg
Area Scan Peak SAR : 0.400 W/kg
Zoom Scan Peak SAR : 0.610 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 04:50:33 PM
End Time : 07-Dec-2008 05:15:31 PM
Scanning Time : 1498 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 a8
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.462 W/kg
Power Drift-Finish: 0.465 W/kg
Power Drift (%) : 0.800

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

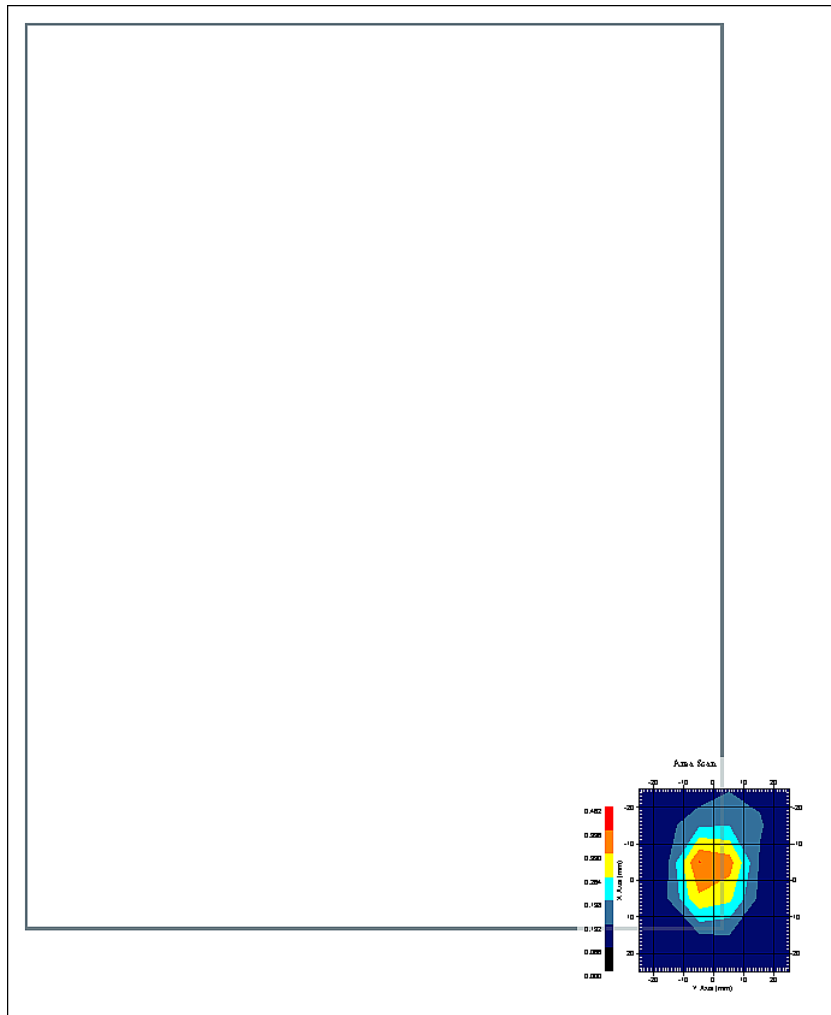
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.294 W/kg
10 gram SAR value : 0.146 W/kg
Area Scan Peak SAR : 0.398 W/kg
Zoom Scan Peak SAR : 0.590 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 03:52:08 PM
End Time : 07-Dec-2008 04:17:05 PM
Scanning Time : 1497 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n20
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.468 W/kg
Power Drift-Finish: 0.481 W/kg
Power Drift (%) : 2.731

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

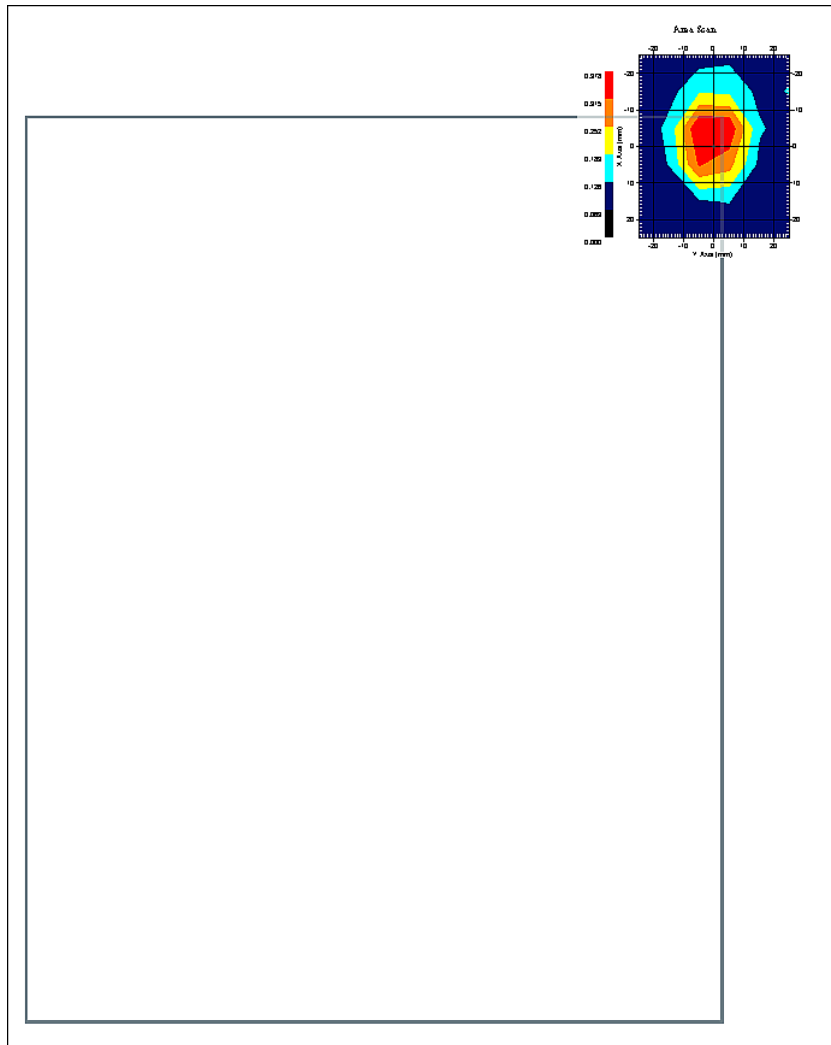
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.301 W/kg
10 gram SAR value : 0.151 W/kg
Area Scan Peak SAR : 0.378 W/kg
Zoom Scan Peak SAR : 0.630 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 05:19:37 PM
End Time : 07-Dec-2008 05:44:40 PM
Scanning Time : 1503 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n20
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.465 W/kg
Power Drift-Finish: 0.479 W/kg
Power Drift (%) : 3.092

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

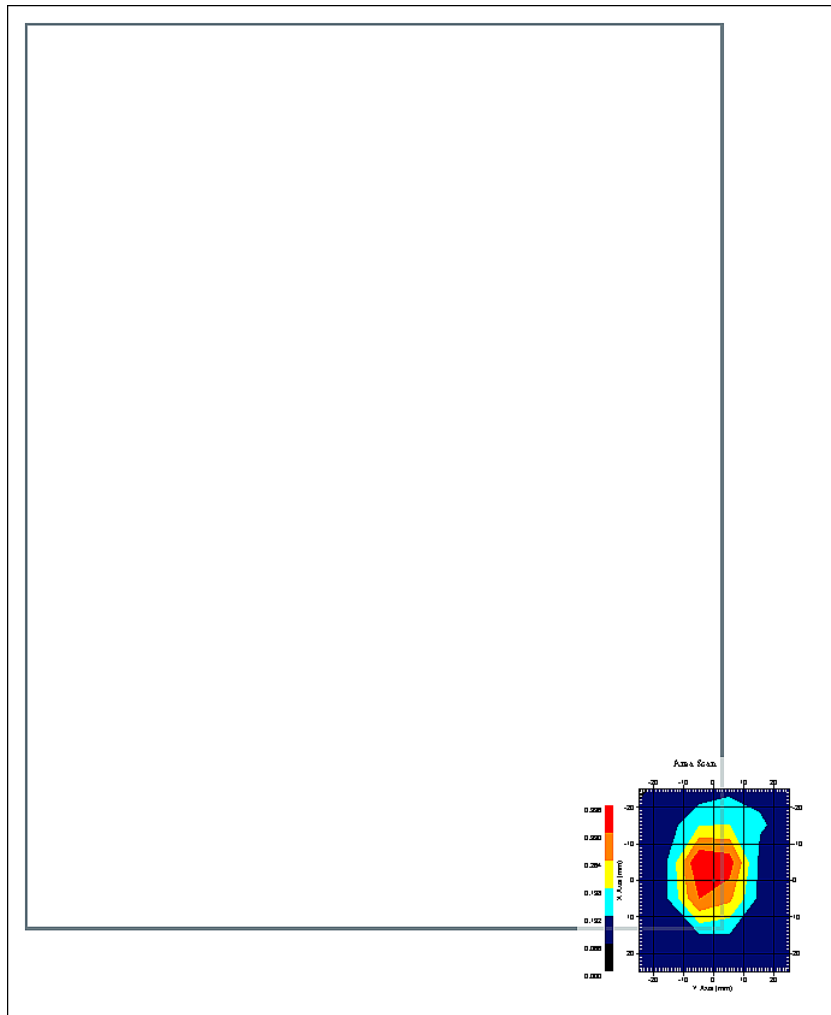
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.291 W/kg
10 gram SAR value : 0.145 W/kg
Area Scan Peak SAR : 0.394 W/kg
Zoom Scan Peak SAR : 0.590 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 04:21:32 PM
End Time : 07-Dec-2008 04:46:25 PM
Scanning Time : 1493 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n40
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Main
Orientation : Touch
Power Drift-Start : 0.466 W/kg
Power Drift-Finish: 0.470 W/kg
Power Drift (%) : 0.897

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

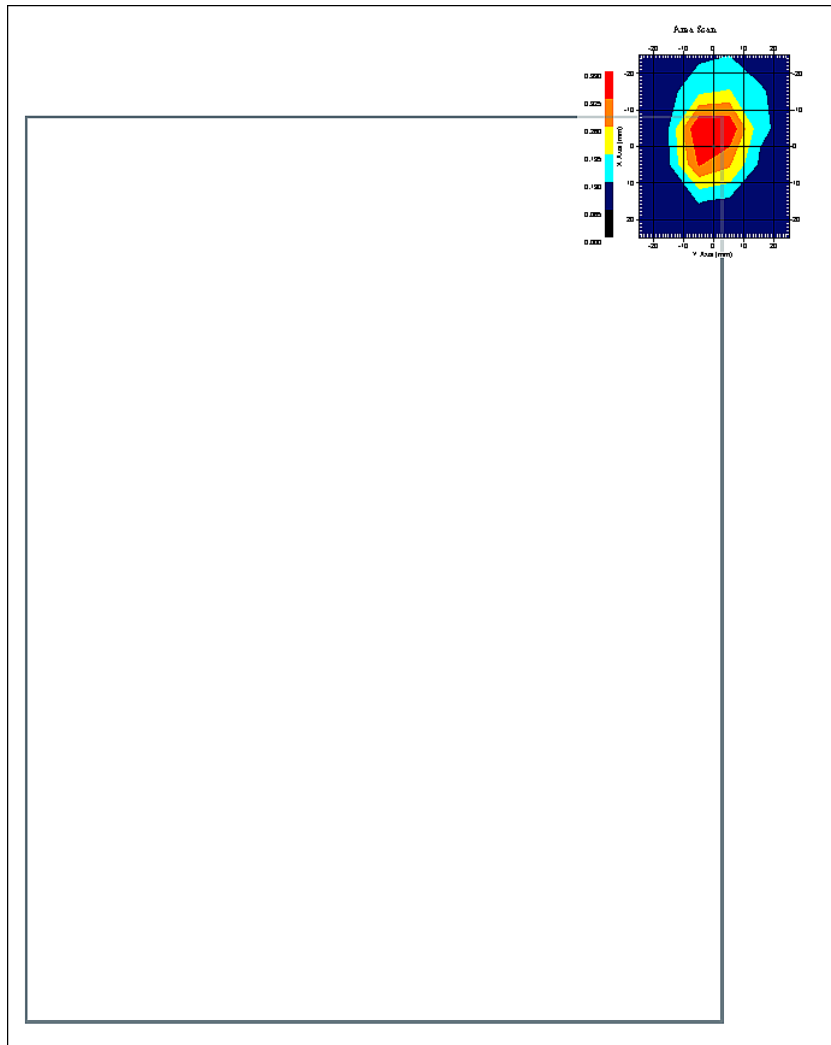
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

Other Data

DUT Position : Touch
Separation : 0
Channel : Mid



1 gram SAR value : 0.291 W/kg
10 gram SAR value : 0.145 W/kg
Area Scan Peak SAR : 0.389 W/kg
Zoom Scan Peak SAR : 0.600 W/kg

SAR Test Report

By Operator : Jay
Measurement Date : 07-Dec-2008
Starting Time : 07-Dec-2008 05:48:46 PM
End Time : 07-Dec-2008 06:13:48 PM
Scanning Time : 1502 secs

Product Data

Device Name : Novatel Wireless
Serial No. : 275
Mode : 512 n40
Model : Minicooper
Frequency : 5800.00 MHz
Max. Transmit Pwr : 0.05 W
Drift Time : 0 min(s)
Length : 290 mm
Width : 225 mm
Depth : 24 mm
Antenna Type : WLAN - Aux
Orientation : Touch
Power Drift-Start : 0.466 W/kg
Power Drift-Finish: 0.471 W/kg
Power Drift (%) : 1.037

Phantom Data

Name : APREL-Uni
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Serial No. : System Default
Location : Center
Description : Uni-Phantom

Tissue Data

Type : BODY
Serial No. : 5800
Frequency : 5800.00 MHz
Last Calib. Date : 07-Dec-2008
Temperature : 20.00 °C
Ambient Temp. : 23.00 °C
Humidity : 50.00 RH%
Epsilon : 49.31 F/m
Sigma : 5.89 S/m
Density : 1000.00 kg/cu. m

Probe Data

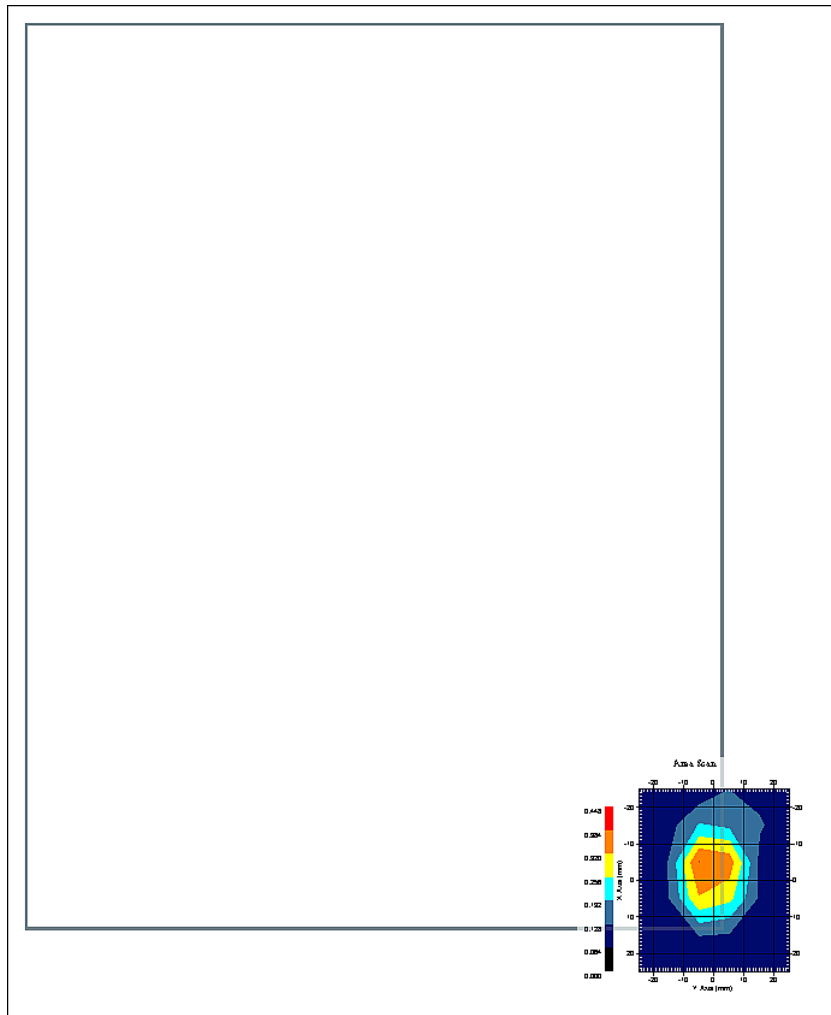
Name : Probe E030-001 - RFEL
Model : E030
Type : E-Field Triangle
Serial No. : E030-001
Last Calib. Date : 14-Apr-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 12
Probe Sensitivity: 1.20 1.20 1.20 $\mu\text{V}/(\text{V}/\text{m})^2$
Compression Point: 95.00 mV
Offset : 1.06 mm

Measurement Data

Crest Factor : 1
Scan Type : Complete
Tissue Temp. : 20.00 °C
Ambient Temp. : 23.00 °C
Set-up Date : 07-Dec-2008
Set-up Time : 1:30:25 PM
Area Scan : 6x6x1 : Measurement x=10mm, y=10mm, z=2mm
Zoom Scan : 7x7x10 : Measurement x=4mm, y=4mm, z=2.5mm

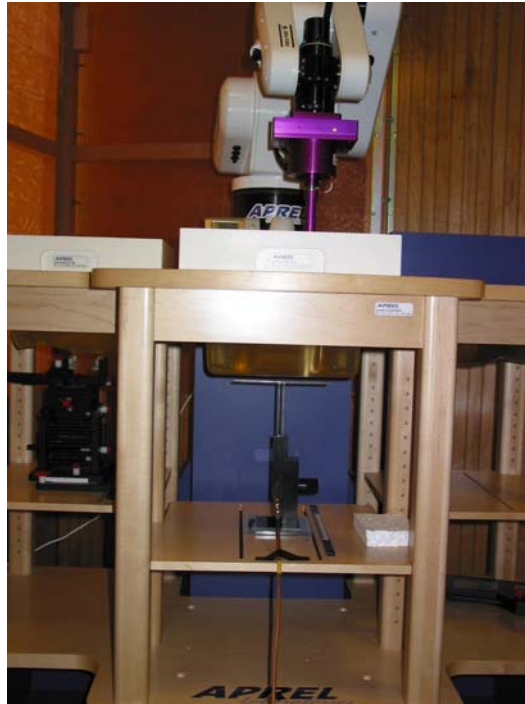
Other Data

DUT Position : Touch
Separation : 0
Channel : Mid

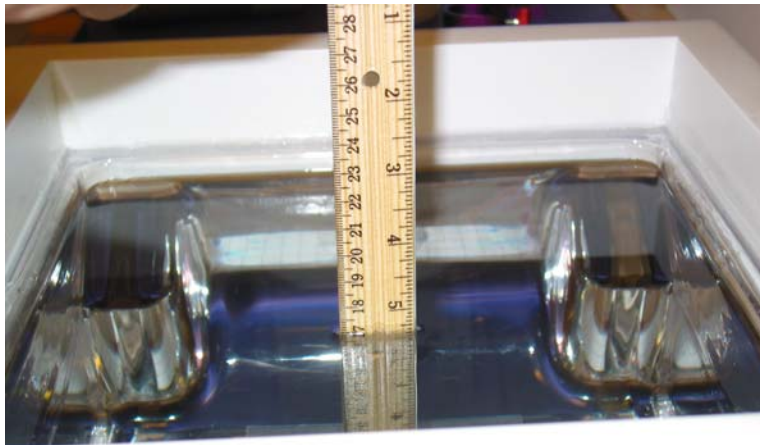


1 gram SAR value : 0.295 W/kg
10 gram SAR value : 0.146 W/kg
Area Scan Peak SAR : 0.385 W/kg
Zoom Scan Peak SAR : 0.610 W/kg

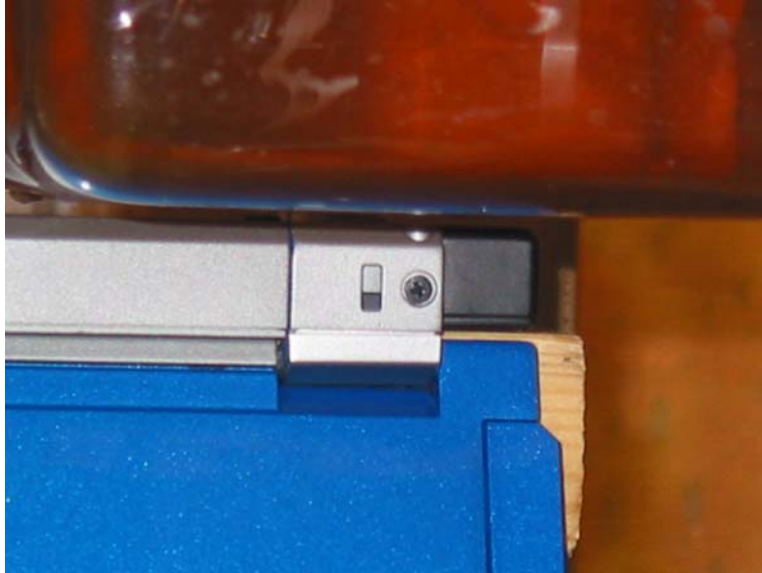
Appendix C – SAR Test Setup Photos



System Body Configuration



Body Tissue Depth



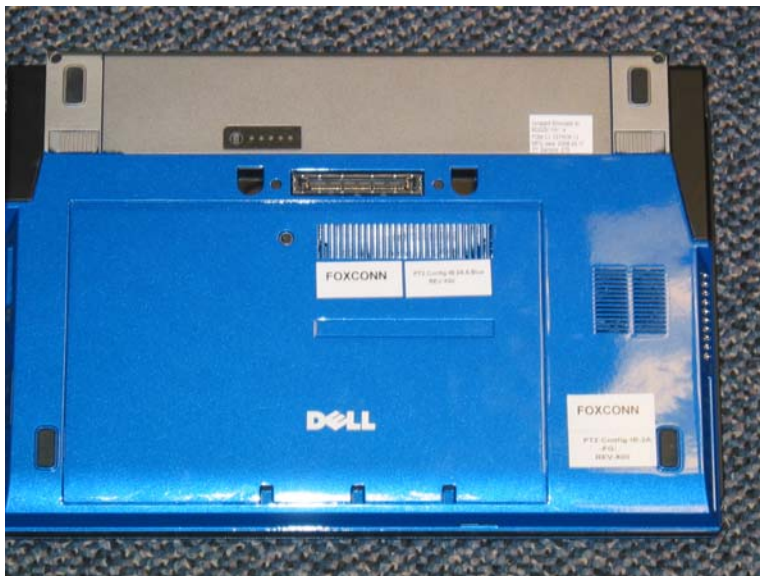
WWAN & Main Antenna WLAN Test Configuration



Auxiliary Antenna WLAN Test Configuration



Front of Device



Back of Device



Back of Device with Cover Removed



WWAN & WLAN Modules Location

Appendix D – Probe Calibration Data Sheets

NCL CALIBRATION LABORATORIES

Calibration File No.: CP-926

Client.: RFEL

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated in the
NCL CALIBRATION LABORATORIES by qualified personnel following recognized
procedures and using transfer standards traceable to NRC/NIST.

Equipment: Miniature Isotropic RF Probe 835 MHz

BODY Calibration

Manufacturer: APREL Laboratories

Model No.: E-020

Serial No.: 215

Calibration Procedure: SSI/DRB-TP-D01-032-E020-V2

Project No: RFEL-00150-CAL-5367

Calibrated: 3rd November 2008

Released on: 3rd November 2008

This Calibration Certificate is Incomplete Unless Accompanied with the Calibration Results Summary
This calibration has been conducted in line with the SCC ISO-IEC 17025 Scope of Accreditation
Accredited Laboratory Number 48

Released By: _____

NCL CALIBRATION LABORATORIES

51 SPECTRUM WAY
NEPEAN, ONTARIO
CANADA K2R 1E6

Division of APREL Lab.
TEL: (613) 820-4988
FAX: (613) 820-4161

Introduction

This Calibration Report reproduces the results of the calibration performed in line with the SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure. The results contained within this report are for APREL E-Field Probe E-020 215.

References

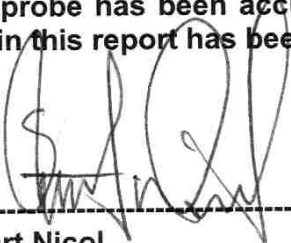
SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure
IEEE 1528 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques"
IEEE 1309 "IEEE Standard for Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas, from 9 KHz to 40 GHz" 2005
SSI-TP-011 Tissue Calibration Procedure
IEC 62209 "Human exposure to radio frequency fields from handheld and body-mounted wireless communication devices –Human models, instrumentation and procedures Part 1 & 2: Procedure to determine the Specific Absorption Rate (SAR) for handheld devices used in close proximity of the ear (frequency range of 200MHz to 3GHz)"

Conditions

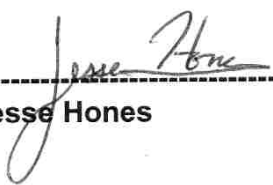
Probe 215 was a re-calibration.

Ambient Temperature of the Laboratory: 22 °C +/- 0.5°C
Temperature of the Tissue: 21 °C +/- 0.5°C

We the undersigned attest that to the best of our knowledge the calibration of this probe has been accurately conducted and that all information contained within this report has been reviewed for accuracy.



Stuart Nicol



Jesse Hones

Calibration Results Summary

Probe Type:	E-Field Probe E-020
Serial Number:	215
Frequency:	835 MHz
Sensor Offset:	1.56 mm
Sensor Length:	2.5 mm
Tip Enclosure:	Ertalyte*
Tip Diameter:	<5 mm
Tip Length:	60 mm
Total Length:	290 mm

*Resistive to recommended tissue recipes per IEEE-1528

Sensitivity in Air

Channel X:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Channel Y:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Channel Z:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Diode Compression Point:	95 mV

Sensitivity in Body Tissue Measured

Frequency: 835 MHz

Epsilon: 55.2 (+/-5%) **Sigma:** 1.05 S/m (+/-10%)

ConvF

Channel X: 6.3

Channel Y: 6.3

Channel Z: 6.3

Tissue sensitivity values were calculated using the load impedance of the APREL Laboratories Daq-Paq.

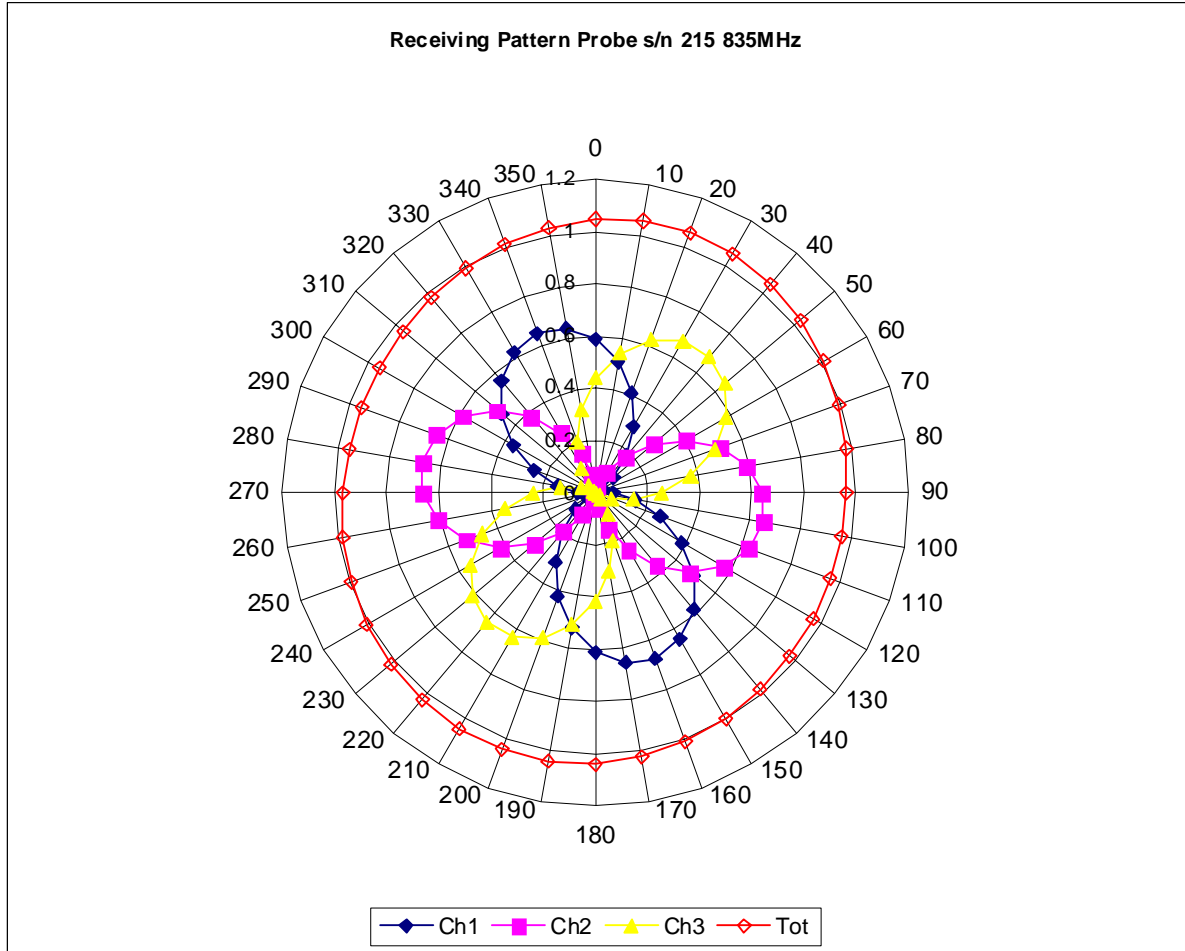
Boundary Effect:

Uncertainty resulting from the boundary effect is less than 2% for the distance between the tip of the probe and the tissue boundary, when less than 2.44mm.

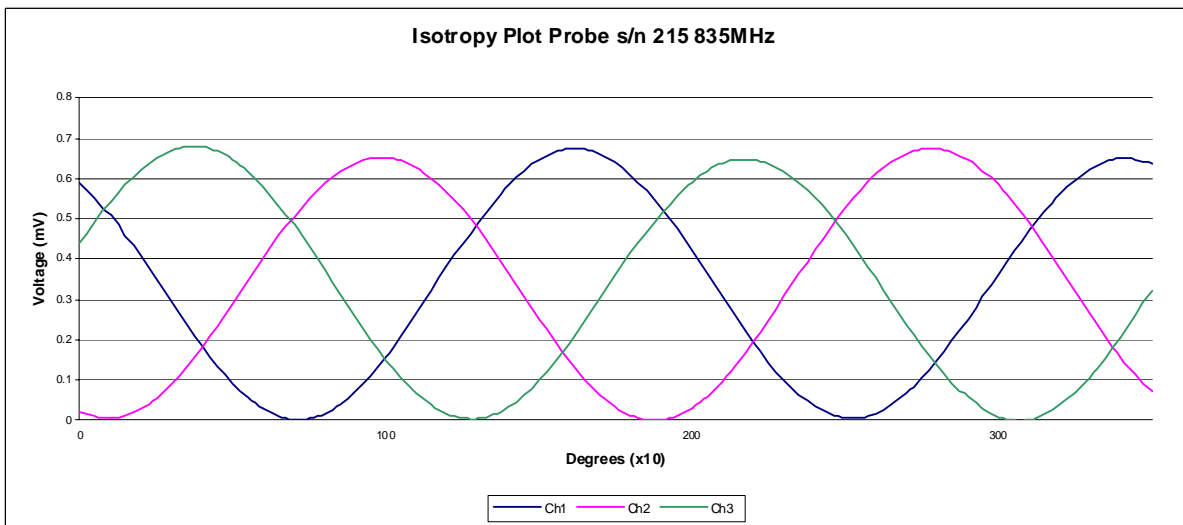
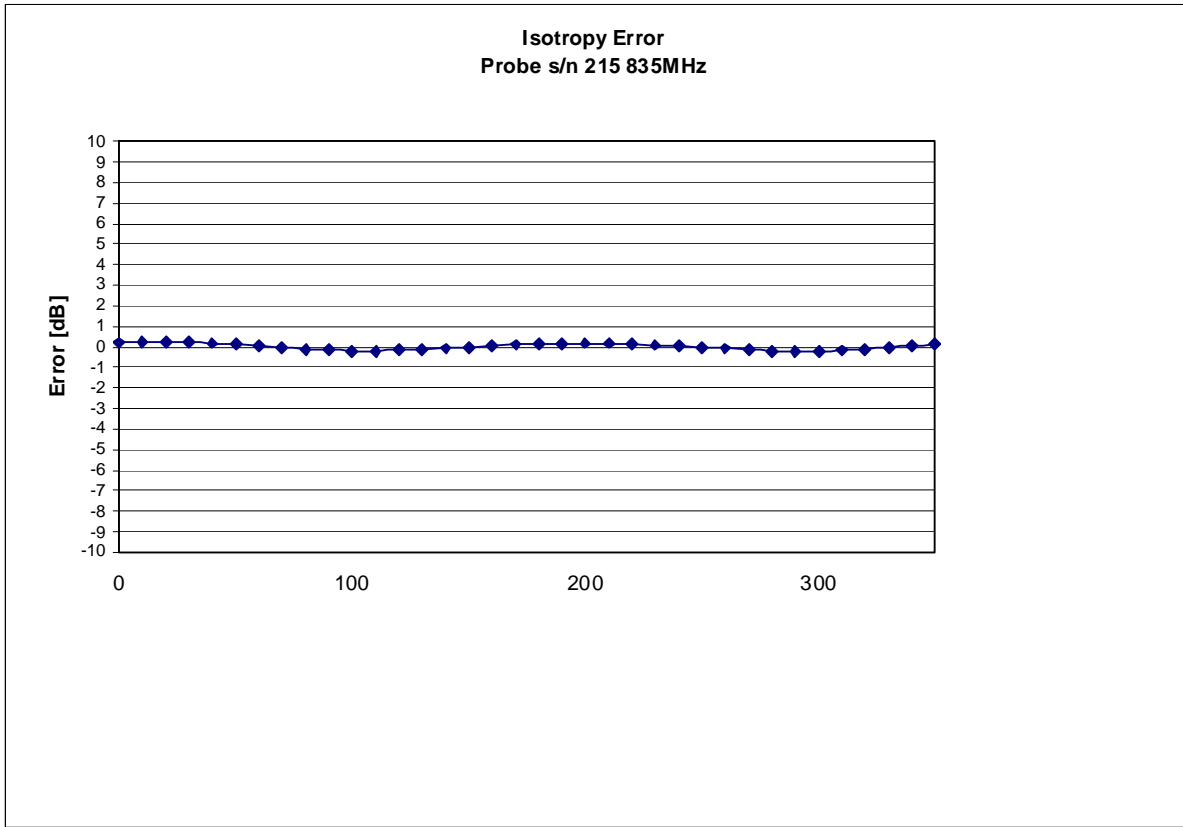
Spatial Resolution:

The measured probe tip diameter is 5 mm (+/- 0.01 mm) and therefore meets the requirements of SSI/DRB-TP-D01-032 for spatial resolution.

Receiving Pattern 835 MHz (Air)



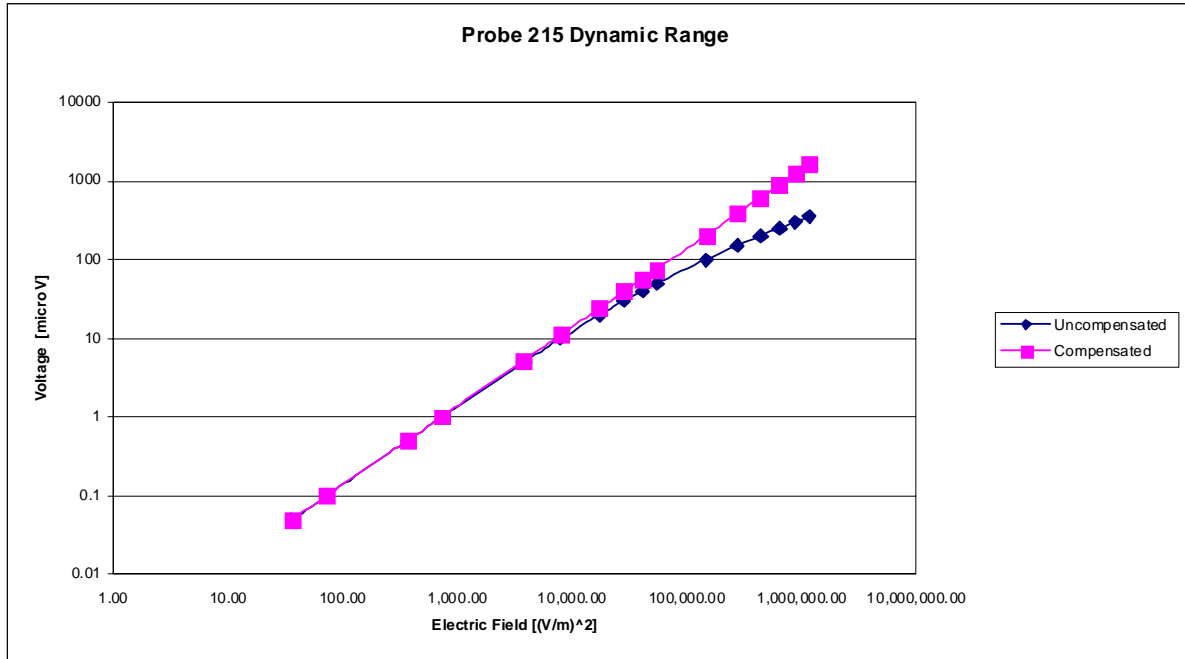
Isotropy Error 835 MHz (Air)



Isotropicity Tissue:

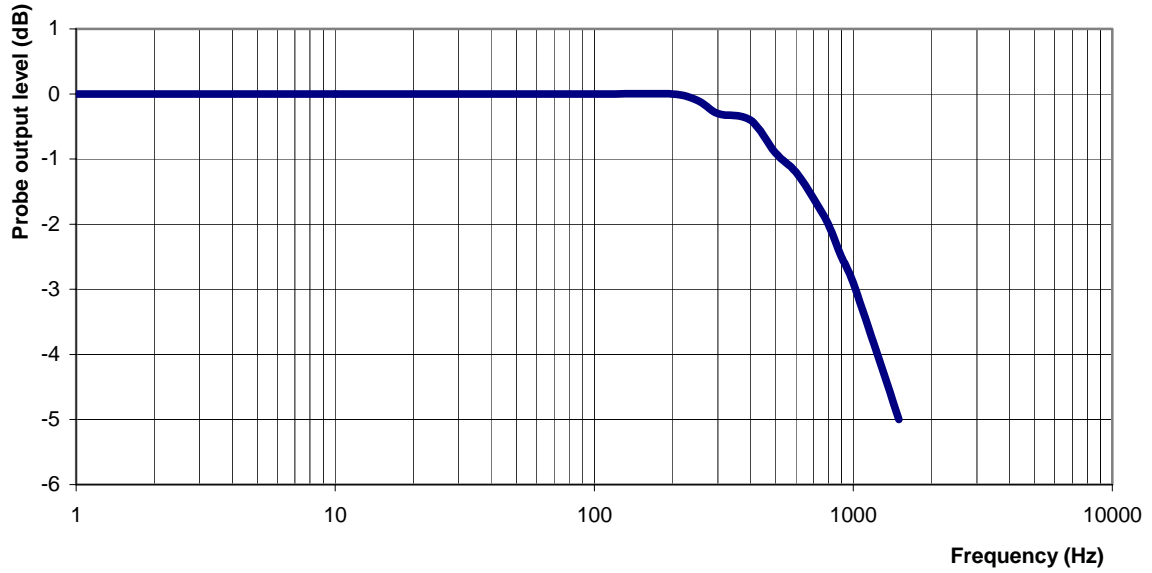
0.10 dB

Dynamic Range



Video Bandwidth

Probe Frequency Characteristics



Video Bandwidth at 500 Hz 1 dB
Video Bandwidth at 1.02 KHz: 3 dB

Conversion Factor Uncertainty Assessment Measured

Sensitivity in Body Tissue

Frequency: 835 MHz
Epsilon: 55.2 (+/-5%) **Sigma:** 1.05 S/m (+/-10%)

ConvF

Channel X: 6.3 7%(K=2)
Channel Y: 6.3 7%(K=2)
Channel Z: 6.3 7%(K=2)

To minimize the uncertainty calculation all tissue sensitivity values were calculated using a load impedance of 5 MΩ.

Boundary Effect:

For a distance of 2.5mm the evaluated uncertainty (increase in the probe sensitivity) is less than 2%.

Test Equipment

The test equipment used during Probe Calibration, manufacturer, model number and, current calibration status are listed and located on the main APREL server R:\NCL\Calibration Equipment\Instrument List May 2008.

NCL CALIBRATION LABORATORIES

Calibration File No.: CP-933

Client.: RFEL

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated in the **NCL CALIBRATION LABORATORIES** by qualified personnel following recognized procedures and using transfer standards traceable to NRC/NIST.

Equipment: Miniature Isotropic RF Probe 1900 MHz

BODY Calibration

Manufacturer: APREL Laboratories

Model No.: E-020

Serial No.: 215

Calibration Procedure: SSI/DRB-TP-D01-032-E020-V2

Project No: RFEL-00150-CAL-5367

Calibrated: 3rd November 2008

Released on: 3rd November 2008

This Calibration Certificate is Incomplete Unless Accompanied with the Calibration Results Summary
This calibration has been conducted in line with the SCC ISO-IEC 17025 Scope of Accreditation
Accredited Laboratory Number 48

Released By: _____

NCL CALIBRATION LABORATORIES

51 SPECTRUM WAY
NEPEAN, ONTARIO
CANADA K2R 1E6

Division of APREL Lab.
TEL: (613) 820-4988
FAX: (613) 820-4161

Introduction

This Calibration Report reproduces the results of the calibration performed in line with the SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure. The results contained within this report are for APREL E-Field Probe E-020 215.

References

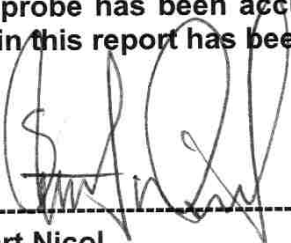
SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure
IEEE 1528 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques"
IEEE 1309 "IEEE Standard for Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas, from 9 KHz to 40 GHz" 2005
SSI-TP-011 Tissue Calibration Procedure
IEC 62209 "Human exposure to radio frequency fields from handheld and body-mounted wireless communication devices –Human models, instrumentation and procedures Part 1 & 2: Procedure to determine the Specific Absorption Rate (SAR) for handheld devices used in close proximity of the ear (frequency range of 200MHz to 3GHz)"

Conditions

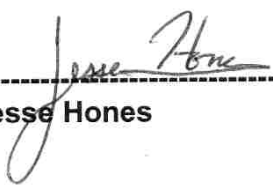
Probe 215 was a re-calibration.

Ambient Temperature of the Laboratory: 22 °C +/- 0.5°C
Temperature of the Tissue: 21 °C +/- 0.5°C

We the undersigned attest that to the best of our knowledge the calibration of this probe has been accurately conducted and that all information contained within this report has been reviewed for accuracy.



Stuart Nicol



Jesse Hones

Calibration Results Summary

Probe Type:	E-Field Probe E-020
Serial Number:	215
Frequency:	1900 MHz
Sensor Offset:	1.56 mm
Sensor Length:	2.5 mm
Tip Enclosure:	Ertalyte*
Tip Diameter:	<5 mm
Tip Length:	60 mm
Total Length:	290 mm

*Resistive to recommended tissue recipes per IEEE-1528

Sensitivity in Air

Channel X:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Channel Y:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Channel Z:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Diode Compression Point:	95 mV

Sensitivity in Body Tissue Measured

Frequency: 1900 MHz

Epsilon: 54.2 (+/-5%) **Sigma:** 1.57 S/m (+/-5%)

ConvF

Channel X: 5.0

Channel Y: 5.0

Channel Z: 5.0

Tissue sensitivity values were calculated using the load impedance of the APREL Laboratories Daq-Paq.

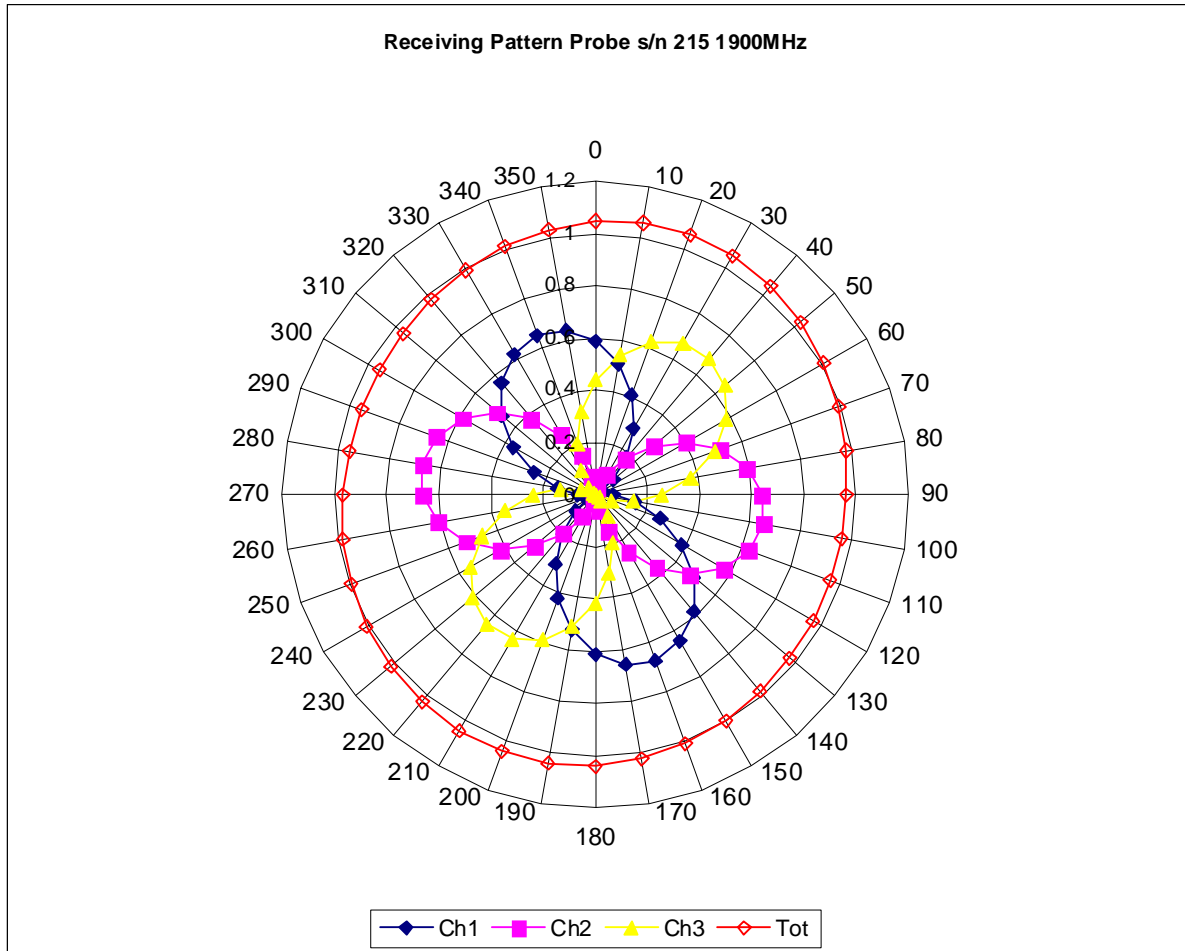
Boundary Effect:

Uncertainty resulting from the boundary effect is less than 2% for the distance between the tip of the probe and the tissue boundary, when less than 2.44mm.

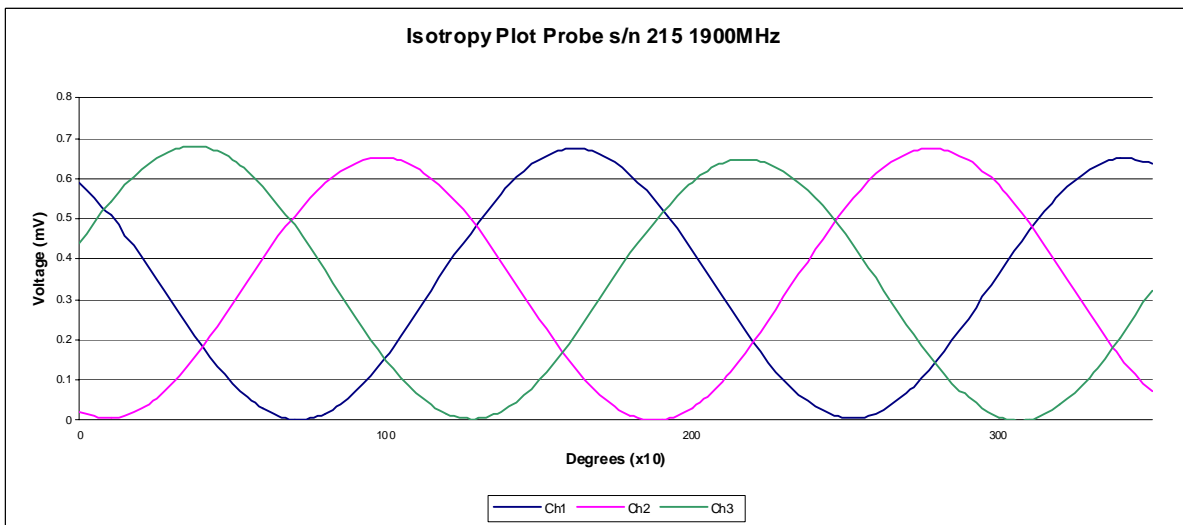
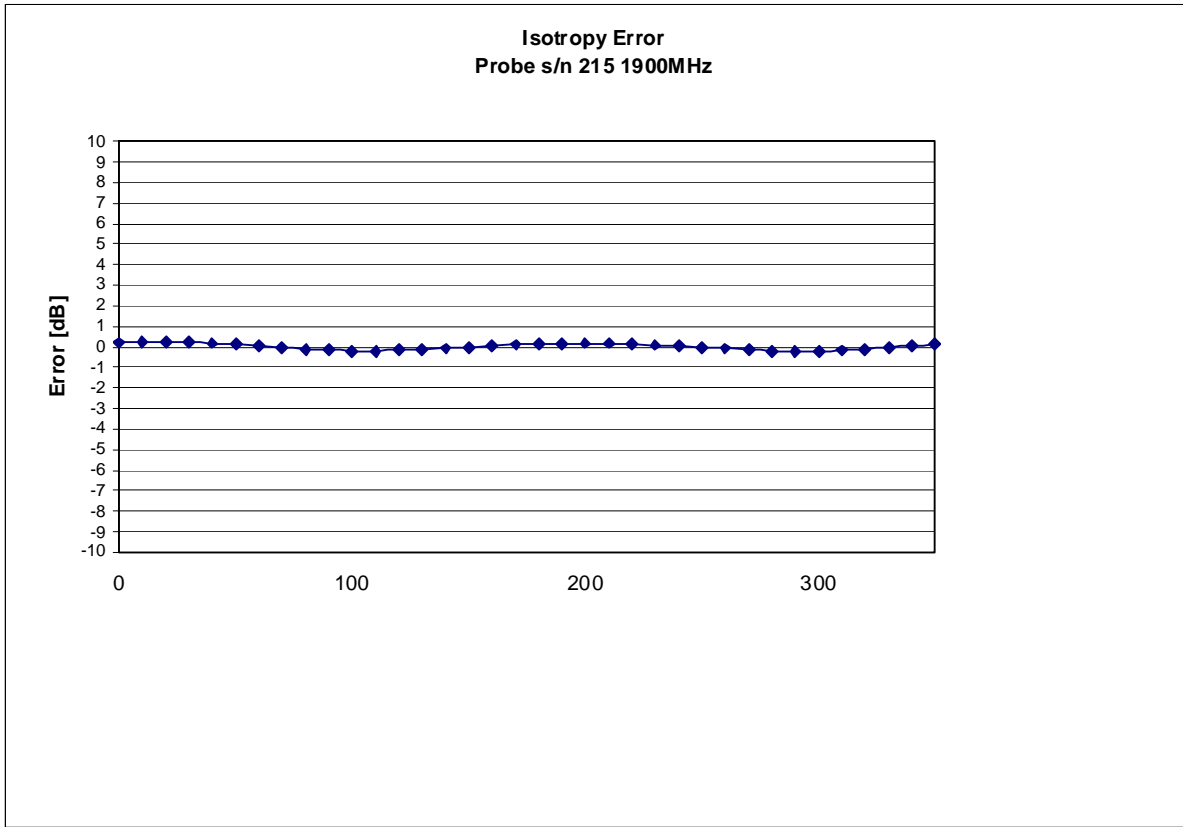
Spatial Resolution:

The measured probe tip diameter is 5 mm (+/- 0.01 mm) and therefore meets the requirements of SSI/DRB-TP-D01-032 for spatial resolution.

Receiving Pattern 1900 MHz (Air)



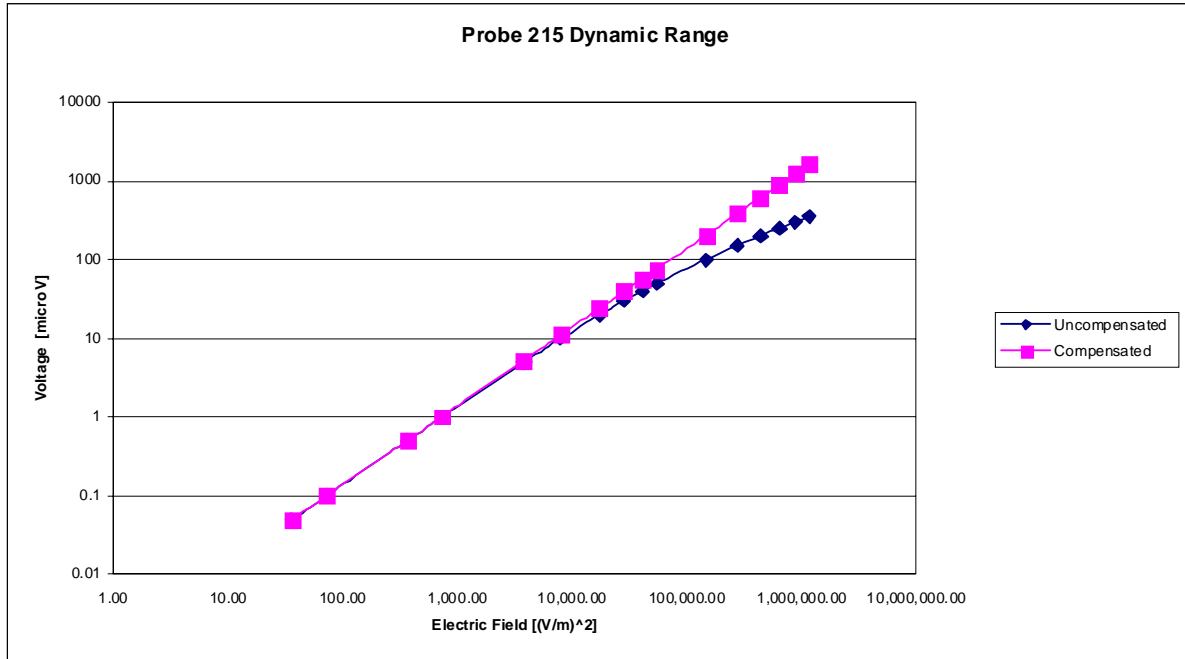
Isotropy Error 1900 MHz (Air)



Isotropicity Tissue:

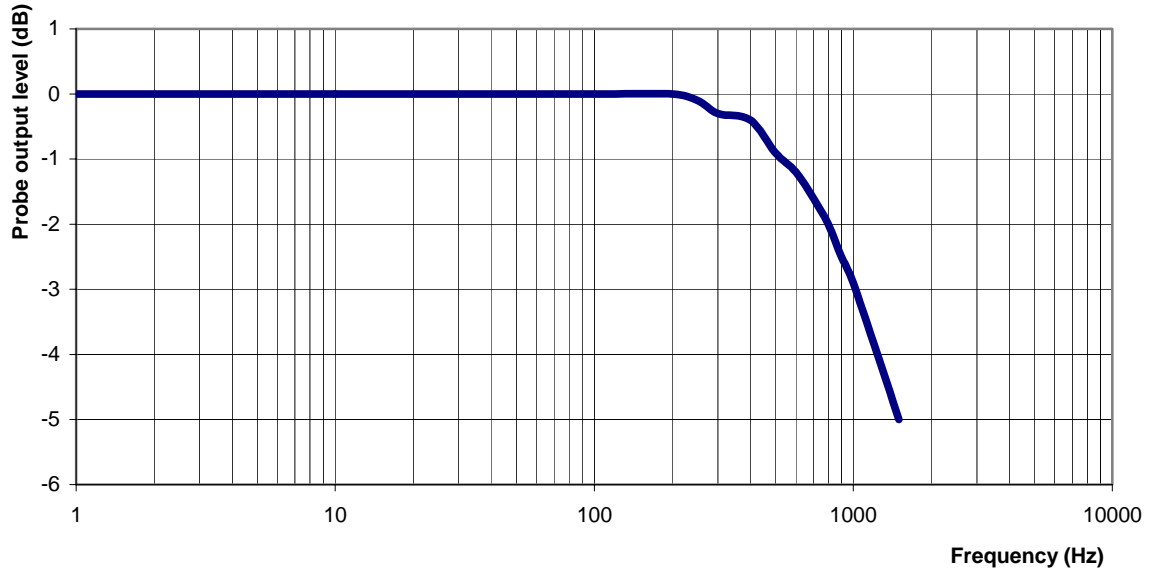
0.10 dB

Dynamic Range



Video Bandwidth

Probe Frequency Characteristics



Video Bandwidth at 500 Hz 1 dB
Video Bandwidth at 1.02 KHz: 3 dB

Conversion Factor Uncertainty Assessment Measured

Sensitivity in Body Tissue

Frequency: 1900 MHz

Epsilon: 54.2 (+/-5%) **Sigma:** 1.57 S/m (+/-5%)

ConvF

Channel X: 5.0 7%(K=2)

Channel Y: 5.0 7%(K=2)

Channel Z: 5.0 7%(K=2)

To minimize the uncertainty calculation all tissue sensitivity values were calculated using a load impedance of 5 MΩ.

Boundary Effect:

For a distance of 2.5mm the evaluated uncertainty (increase in the probe sensitivity) is less than 2%.

Test Equipment

The test equipment used during Probe Calibration, manufacturer, model number and, current calibration status are listed and located on the main APREL server R:\NCL\Calibration Equipment\Instrument List May 2008.

NCL CALIBRATION LABORATORIES

Calibration File No.: CP-935

Client.: RFEL

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated in the
NCL CALIBRATION LABORATORIES by qualified personnel following recognized
procedures and using transfer standards traceable to NRC/NIST.

Equipment: Miniature Isotropic RF Probe 2450 MHz

BODY Calibration

Manufacturer: APREL Laboratories

Model No.: E-020

Serial No.: 215

Calibration Procedure: SSI/DRB-TP-D01-032-E020-V2

Project No: RFEL-00150-CAL-5367

Calibrated: 3rd November 2008

Released on: 3rd November 2008

This Calibration Certificate is Incomplete Unless Accompanied with the Calibration Results Summary
This calibration has been conducted in line with the SCC ISO-IEC 17025 Scope of Accreditation
Accredited Laboratory Number 48

Released By: _____

NCL CALIBRATION LABORATORIES

51 SPECTRUM WAY
NEPEAN, ONTARIO
CANADA K2R 1E6

Division of APREL Lab.
TEL: (613) 820-4988
FAX: (613) 820-4161

Introduction

This Calibration Report reproduces the results of the calibration performed in line with the SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure. The results contained within this report are for APREL E-Field Probe E-020 215.

References

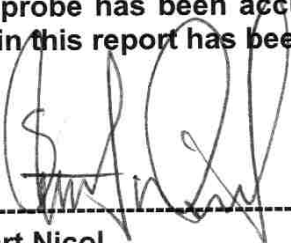
SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure
IEEE 1528 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques"
IEEE 1309 "IEEE Standard for Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas, from 9 KHz to 40 GHz" 2005
SSI-TP-011 Tissue Calibration Procedure
IEC 62209 "Human exposure to radio frequency fields from handheld and body-mounted wireless communication devices –Human models, instrumentation and procedures Part 1 & 2: Procedure to determine the Specific Absorption Rate (SAR) for handheld devices used in close proximity of the ear (frequency range of 200MHz to 3GHz)"

Conditions

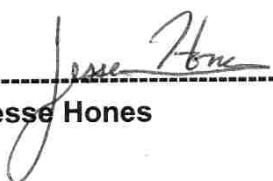
Probe 215 was a re-calibration.

Ambient Temperature of the Laboratory: 22 °C +/- 0.5°C
Temperature of the Tissue: 21 °C +/- 0.5°C

We the undersigned attest that to the best of our knowledge the calibration of this probe has been accurately conducted and that all information contained within this report has been reviewed for accuracy.



Stuart Nicol



Jesse Hones

Calibration Results Summary

Probe Type:	E-Field Probe E-020
Serial Number:	215
Frequency:	2450 MHz
Sensor Offset:	1.56 mm
Sensor Length:	2.5 mm
Tip Enclosure:	Ertalyte*
Tip Diameter:	<5 mm
Tip Length:	60 mm
Total Length:	290 mm

*Resistive to recommended tissue recipes per IEEE-1528

Sensitivity in Air

Channel X:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Channel Y:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Channel Z:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Diode Compression Point:	95 mV

Sensitivity in Body Tissue Measured

Frequency: 2450 MHz

Epsilon: 53.8 (+/-5%) **Sigma:** 1.99 S/m (+/-5%)

ConvF

Channel X: 4.5

Channel Y: 4.5

Channel Z: 4.5

Tissue sensitivity values were calculated using the load impedance of the APREL Laboratories Daq-Paq.

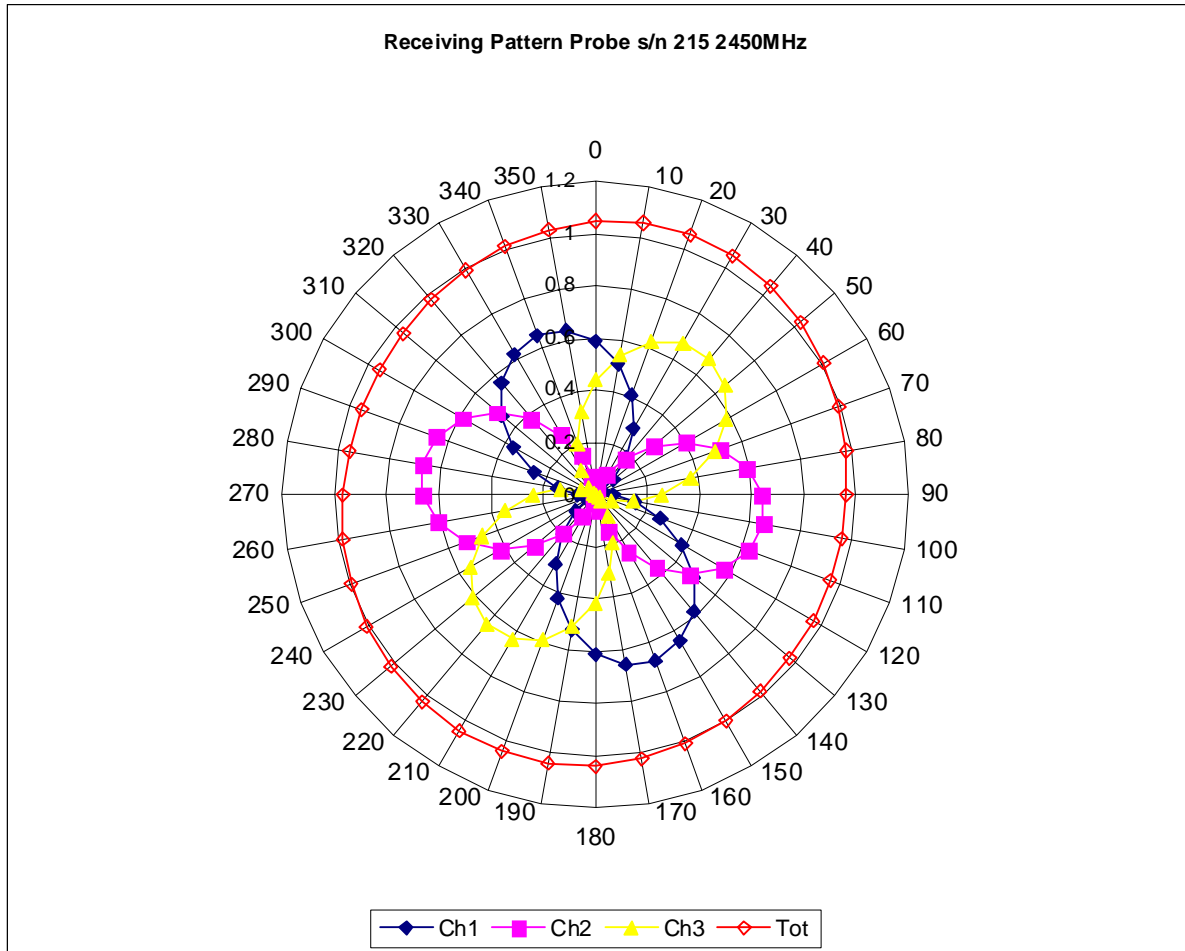
Boundary Effect:

Uncertainty resulting from the boundary effect is less than 2% for the distance between the tip of the probe and the tissue boundary, when less than 2.44mm.

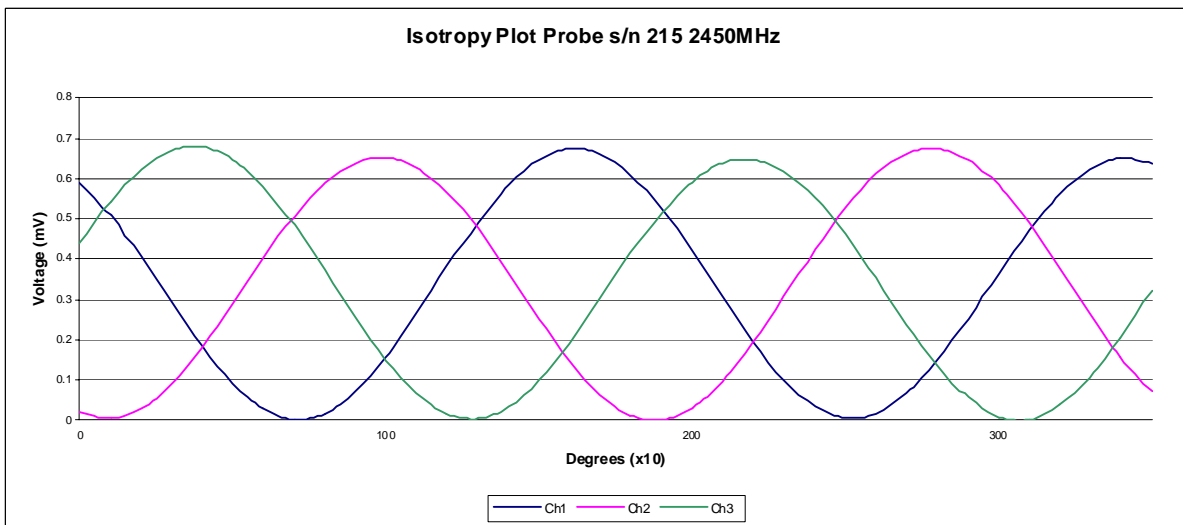
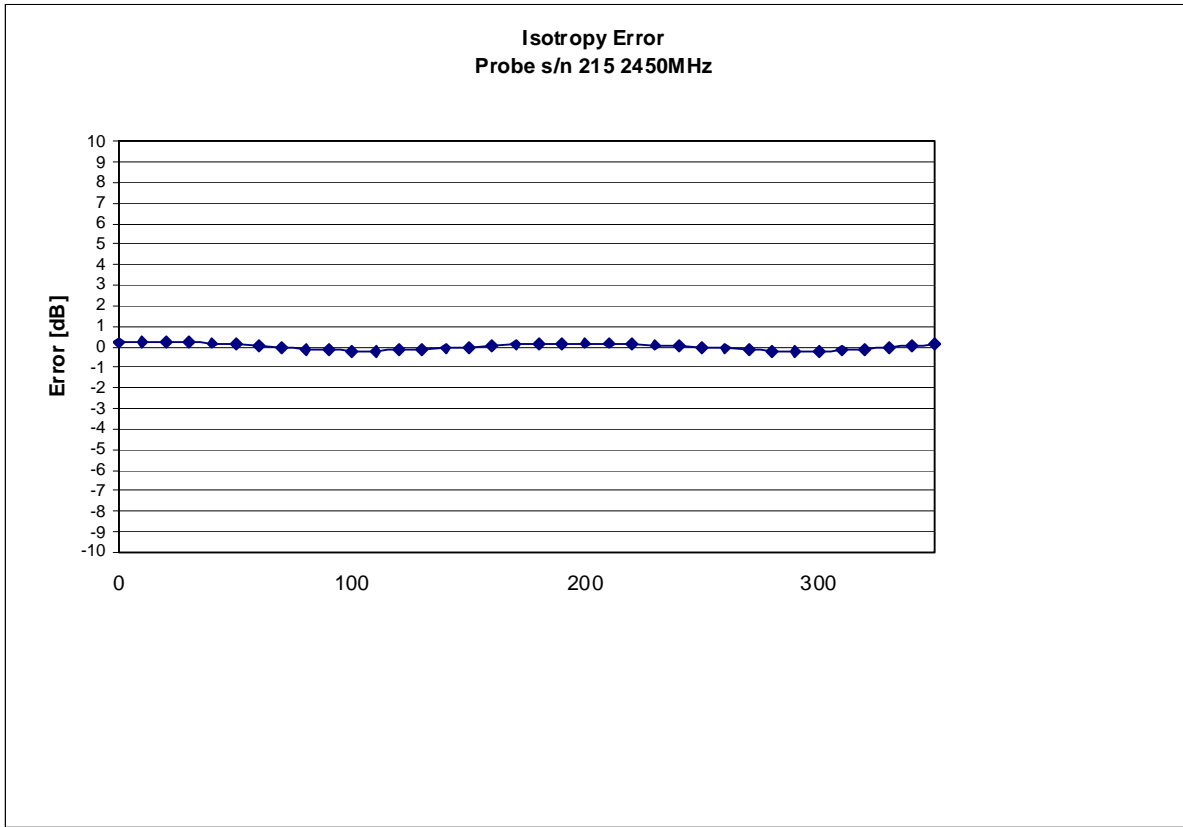
Spatial Resolution:

The measured probe tip diameter is 5 mm (+/- 0.01 mm) and therefore meets the requirements of SSI/DRB-TP-D01-032 for spatial resolution.

Receiving Pattern 2450 MHz (Air)



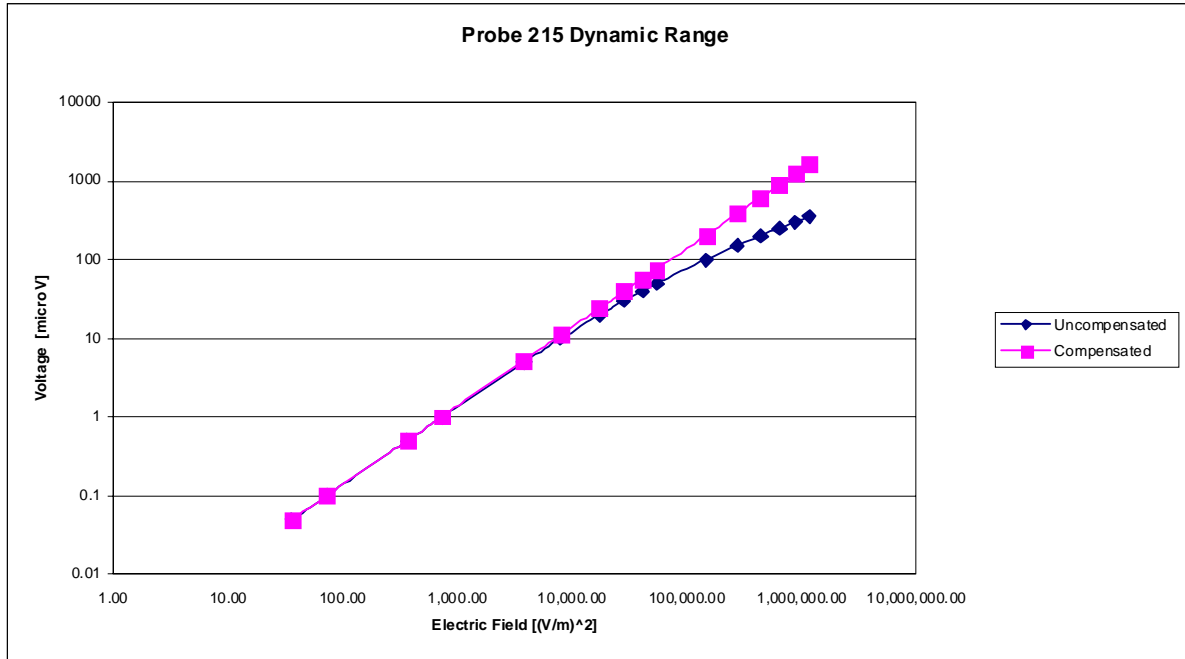
Isotropy Error 2450 MHz (Air)



Isotropicity Tissue:

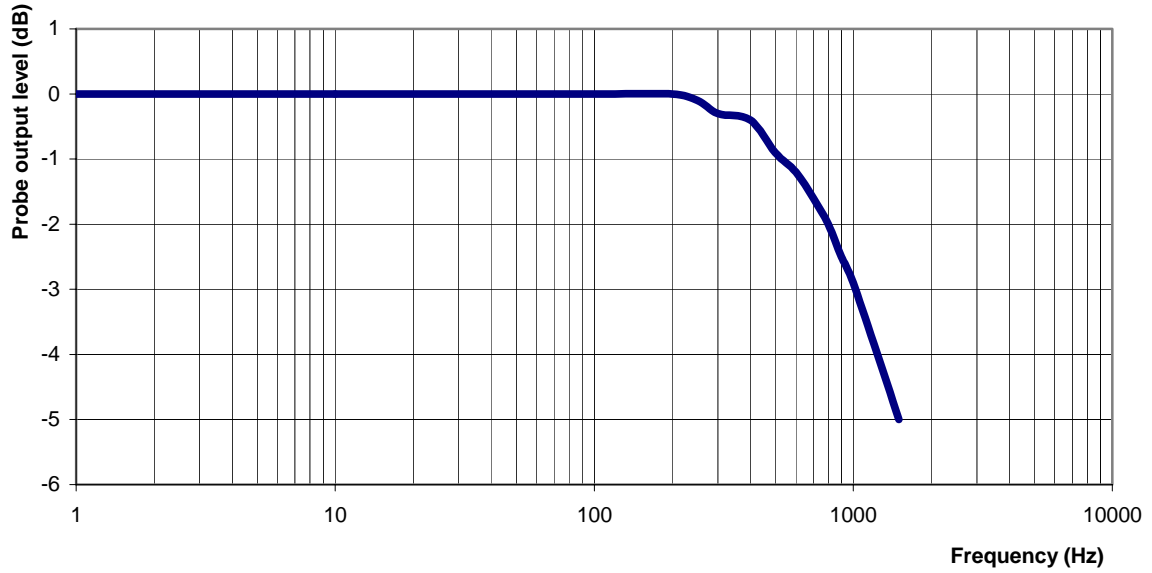
0.10 dB

Dynamic Range



Video Bandwidth

Probe Frequency Characteristics



Video Bandwidth at 500 Hz 1 dB
Video Bandwidth at 1.02 KHz: 3 dB

Conversion Factor Uncertainty Assessment

Sensitivity in Body Tissue

Frequency: 2450 MHz

Epsilon: 53.8 (+/-5%)

Sigma: 1.99 S/m (+/-5%)

ConvF

Channel X: 4.5 7%(K=2)

Channel Y: 4.5 7%(K=2)

Channel Z: 4.5 7%(K=2)

To minimize the uncertainty calculation all tissue sensitivity values were calculated using a load impedance of 5 MΩ.

Boundary Effect:

For a distance of 2.5mm the evaluated uncertainty (increase in the probe sensitivity) is less than 2%.

Test Equipment

The test equipment used during Probe Calibration, manufacturer, model number and, current calibration status are listed and located on the main APREL server R:\NCL\Calibration Equipment\Instrument List May 2008.

NCL CALIBRATION LABORATORIES

Calibration File No.: CP-868

Client.: RFEL

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated in the
NCL CALIBRATION LABORATORIES by qualified personnel following recognized
procedures and using transfer standards traceable to NRC/NIST.

Equipment: Miniature Isotropic RF Probe 5200 MHz

BODY Calibration

Manufacturer: APREL Laboratories

Model No.: E-020

Serial No.: E030-001

Calibration Procedure: SSI/DRB-TP-D01-032-E020-V2

Project No: RFEL-E030-5334

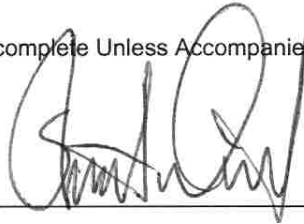
Calibrated: 14th April 2008

Released on: 14th April 2008

APREL Laboratories Certified Under Laboratory 48 of SCC

This Calibration Certificate is Incomplete Unless Accompanied with the Calibration Results Summary

Released By: _____



NCL CALIBRATION LABORATORIES

51 SPECTRUM WAY
NEPEAN, ONTARIO
CANADA K2R 1E6

Division of APREL Lab.
TEL: (613) 820-4988
FAX: (613) 820-4161

Introduction

This Calibration Report reproduces the results of the calibration performed in line with the SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure. The results contained within this report are for APREL E-Field Probe E030-001.

References

SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure

IEEE 1528 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques"

SSI-TP-011 Tissue Calibration Procedure

IEC 62209 "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 1 & 2: Procedure to determine the Specific Absorption Rate (SAR) for hand-held devices used in close proximity of the ear (frequency range of 300 MHz to 3 GHz)"

IEEE 1309 Draft Standard for Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas, from 9kHz to 40GHz


Conditions

Probe E030-001 was a new probe.

Ambient Temperature of the Laboratory: 22 °C +/- 0.5°C

Temperature of the Tissue: 21 °C +/- 0.5°C

We the undersigned attest that to the best of our knowledge the calibration of this probe has been accurately conducted and that all information contained within this report has been reviewed for accuracy.



Stuart Nicol



Jesse Hones

Calibration Results Summary

Probe Type:	E-Field Probe E-030
Serial Number:	E030-001
Frequency:	5200 MHz
Sensor Offset:	1.06 mm
Sensor Length:	2.5 mm
Tip Enclosure:	Composite*
Tip Diameter:	<2.5 mm
Tip Length:	55 mm
Total Length:	289 mm

*Resistive to recommended tissue recipes per IEEE-1528

Sensitivity in Air

Channel X:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Channel Y:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Channel Z:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Diode Compression Point:	95 mV

Sensitivity in Body Tissue Measured

Frequency: 5200 MHz

Epsilon: 48.11 **Sigma:** 5.51 S/m

ConvF:

Channel X: 8.6

Channel Y: 8.6

Channel Z: 8.6

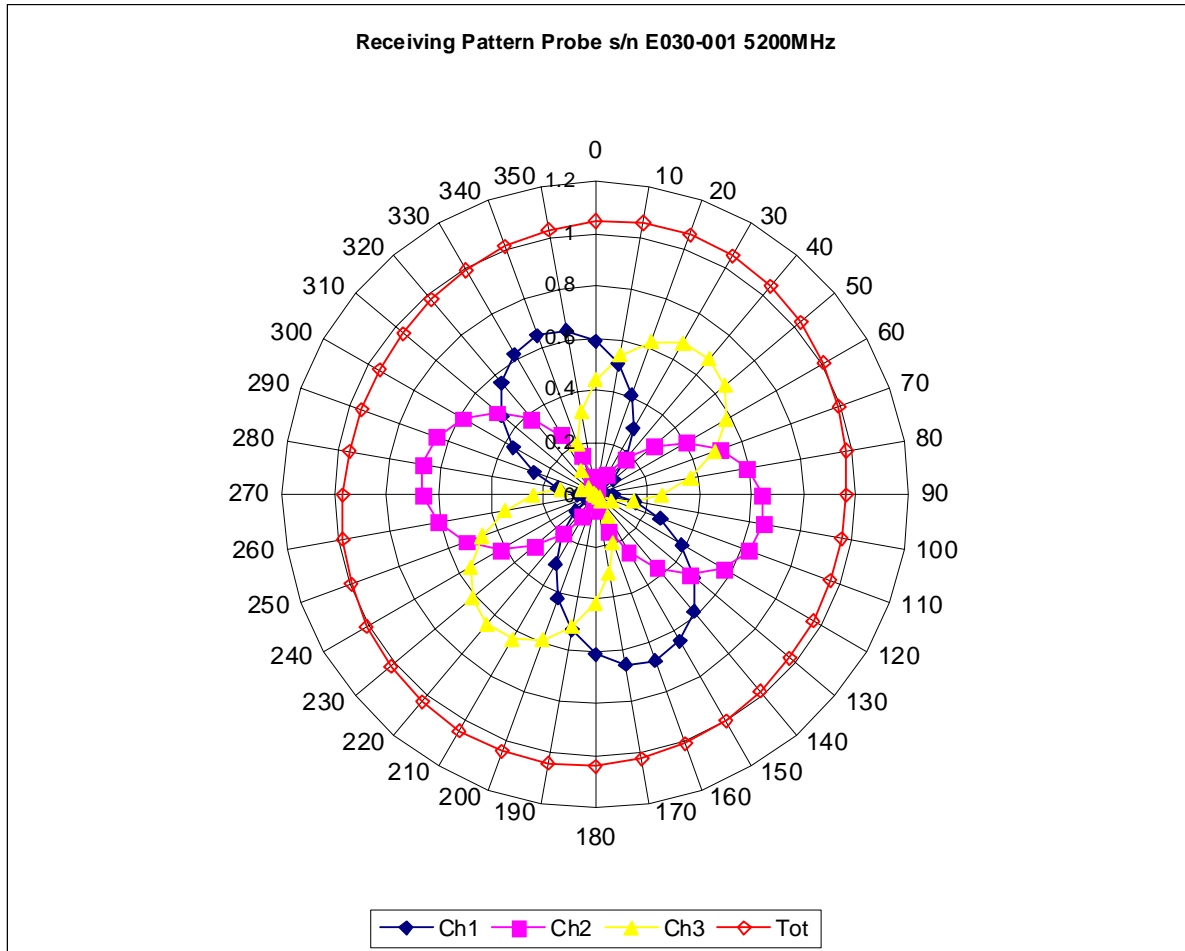
Boundary Effect:

Uncertainty resulting from the boundary effect is less than 2.1% for the distance between the tip of the probe and the tissue boundary, when less than 0.58mm.

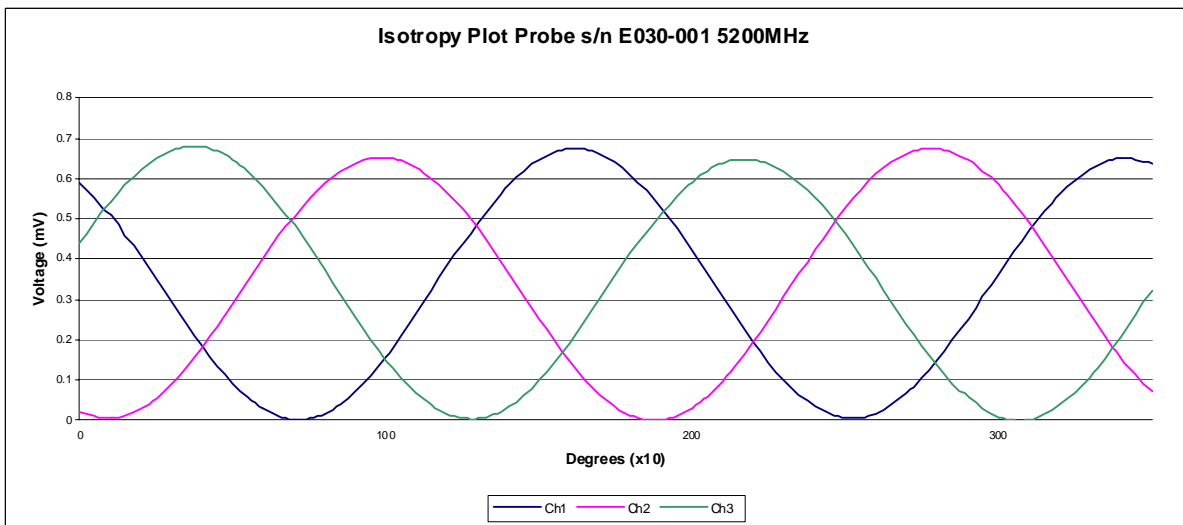
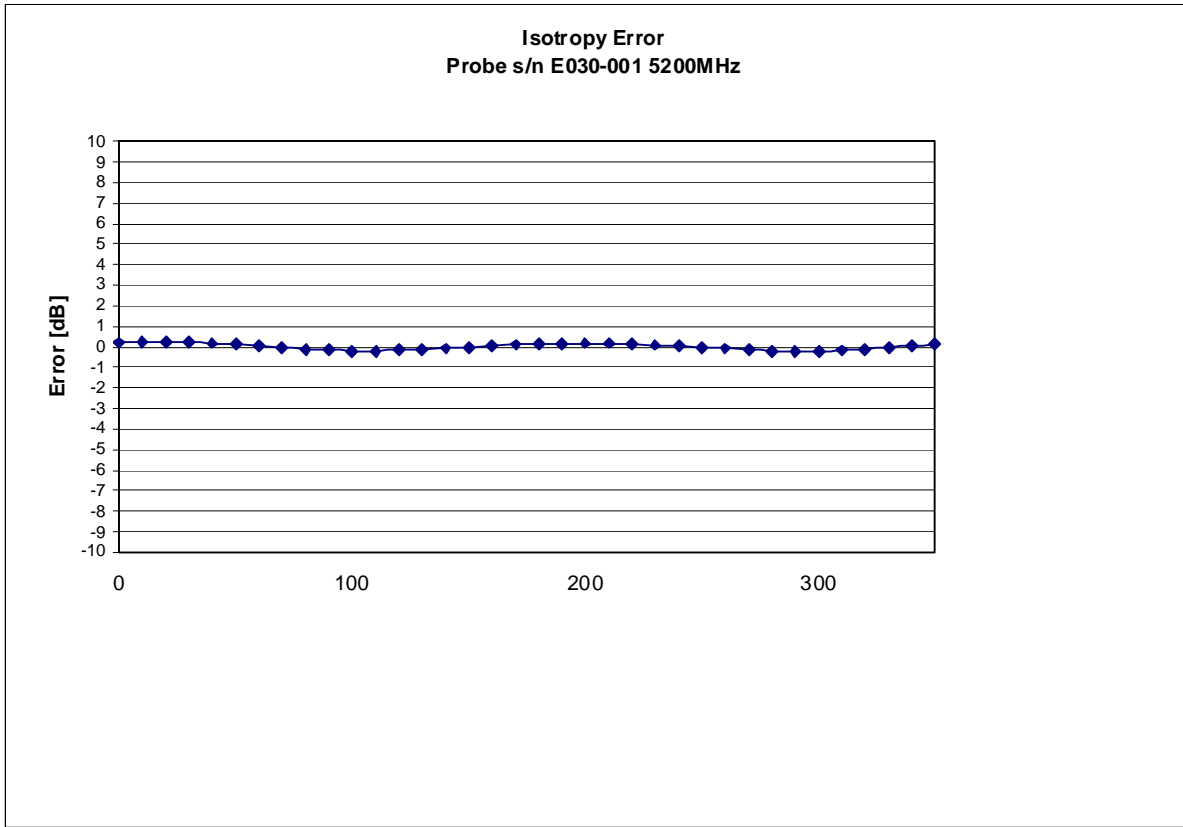
Spatial Resolution:

The measured probe tip diameter is 2.5mm (+/- 0.01 mm) and therefore meets the requirements of SSI/DRB-TP-D01-032 for spatial resolution.

Receiving Pattern 5200 MHz (Air)



Isotropy Error 5200 MHz (Air)

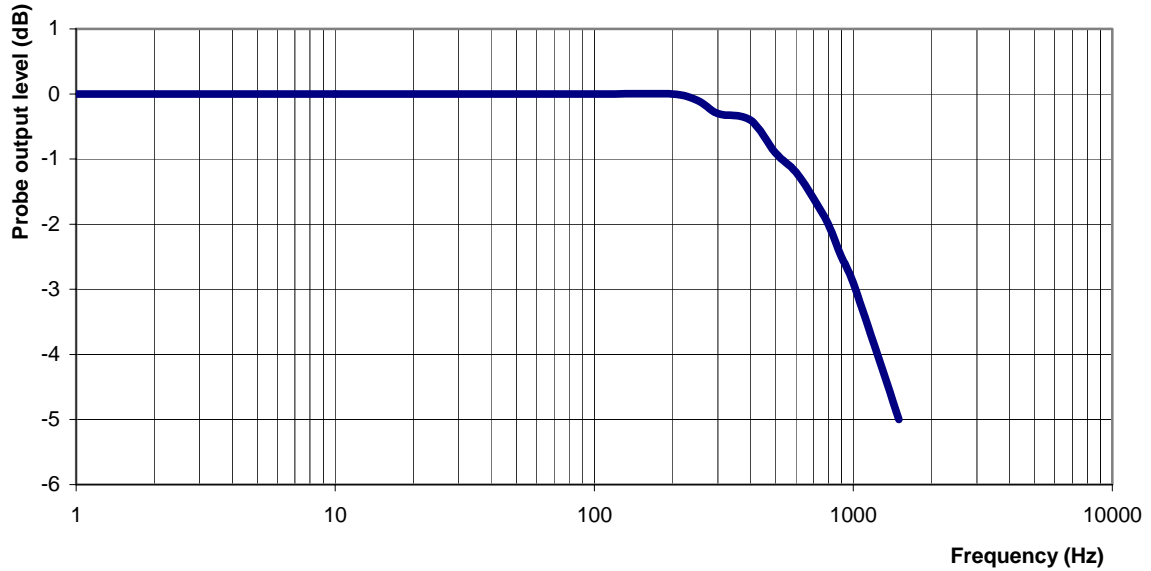


Isotropicity Tissue:

0.10 dB

Video Bandwidth

Probe Frequency Characteristics



Video Bandwidth at 500 Hz 1 dB
Video Bandwidth at 1.02 KHz: 3 dB

Conversion Factor Uncertainty Assessment

Sensitivity in Body Tissue Measured

Frequency:		5200 MHz	
Epsilon:	48.11	Sigma:	5.51 S/m
ConvF			
Channel X:	8.6	7%(K=2)	
Channel Y:	8.6	7%(K=2)	
Channel Z:	8.6	7%(K=2)	

To minimize the uncertainty calculation all tissue sensitivity values were calculated using a load impedance of 5 M Ω .

Boundary Effect:

For a distance of 0.58mm the evaluated uncertainty (increase in the probe sensitivity) is less than 2.1%.

Test Equipment

The test equipment used during Probe Calibration, manufacturer, model number and, current calibration status are listed and located on the main APREL server R:\NCL\Calibration Equipment\Instrument List May 2007.

NCL CALIBRATION LABORATORIES

Calibration File No.: CP-869

Client.: RFEL

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated in the **NCL CALIBRATION LABORATORIES** by qualified personnel following recognized procedures and using transfer standards traceable to NRC/NIST.

Equipment: Miniature Isotropic RF Probe 5600 MHz

BODY Calibration

Manufacturer: APREL Laboratories

Model No.: E-020

Serial No.: E030-001

Calibration Procedure: SSI/DRB-TP-D01-032-E020-V2

Project No: RFEL-E030-5334

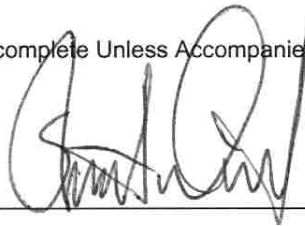
Calibrated: 14th April 2008

Released on: 14th April 2008

APREL Laboratories Certified Under Laboratory 48 of SCC

This Calibration Certificate is Incomplete Unless Accompanied with the Calibration Results Summary

Released By: _____



NCL CALIBRATION LABORATORIES

51 SPECTRUM WAY
NEPEAN, ONTARIO
CANADA K2R 1E6

Division of APREL Lab.
TEL: (613) 820-4988
FAX: (613) 820-4161

Introduction

This Calibration Report reproduces the results of the calibration performed in line with the SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure. The results contained within this report are for APREL E-Field Probe E030-001.

References

SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure

IEEE 1528 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques"

SSI-TP-011 Tissue Calibration Procedure

IEC 62209 "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 1 & 2: Procedure to determine the Specific Absorption Rate (SAR) for hand-held devices used in close proximity of the ear (frequency range of 300 MHz to 3 GHz)"

IEEE 1309 Draft Standard for Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas, from 9kHz to 40GHz


Conditions

Probe E030-001 was a new probe.

Ambient Temperature of the Laboratory: 22 °C +/- 0.5°C

Temperature of the Tissue: 21 °C +/- 0.5°C

We the undersigned attest that to the best of our knowledge the calibration of this probe has been accurately conducted and that all information contained within this report has been reviewed for accuracy.



Stuart Nicol



Jesse Hones

Calibration Results Summary

Probe Type:	E-Field Probe E-030
Serial Number:	E030-001
Frequency:	5600 MHz
Sensor Offset:	1.06 mm
Sensor Length:	2.5 mm
Tip Enclosure:	Composite*
Tip Diameter:	<2.5 mm
Tip Length:	55 mm
Total Length:	289 mm

*Resistive to recommended tissue recipes per IEEE-1528

Sensitivity in Air

Channel X:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Channel Y:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Channel Z:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Diode Compression Point:	95 mV

Sensitivity in Body Tissue Measured

Frequency: 5600 MHz

Epsilon: 46.43 **Sigma:** 5.87 S/m

ConvF:

Channel X: 6.1

Channel Y: 6.1

Channel Z: 6.1

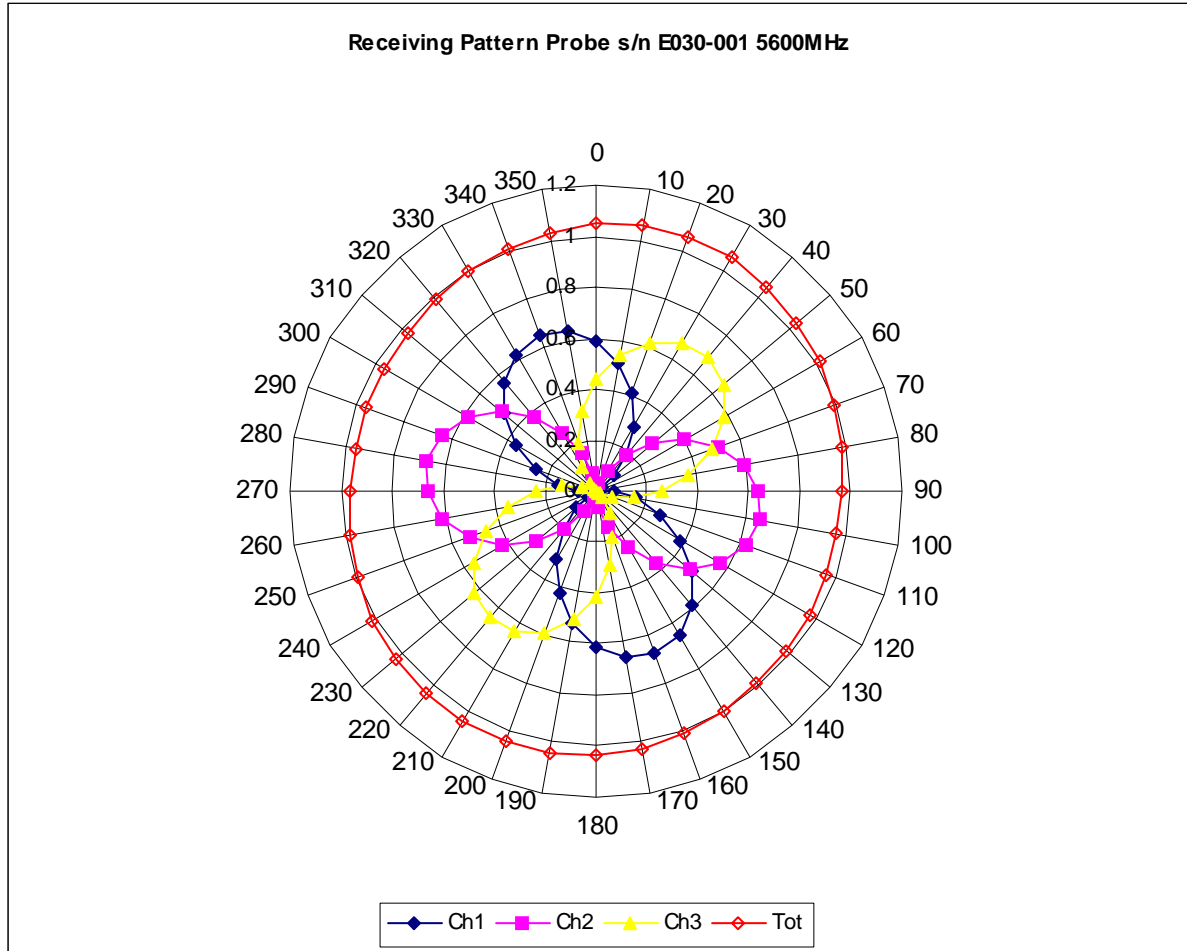
Boundary Effect:

Uncertainty resulting from the boundary effect is less than 2.1% for the distance between the tip of the probe and the tissue boundary, when less than 0.58mm.

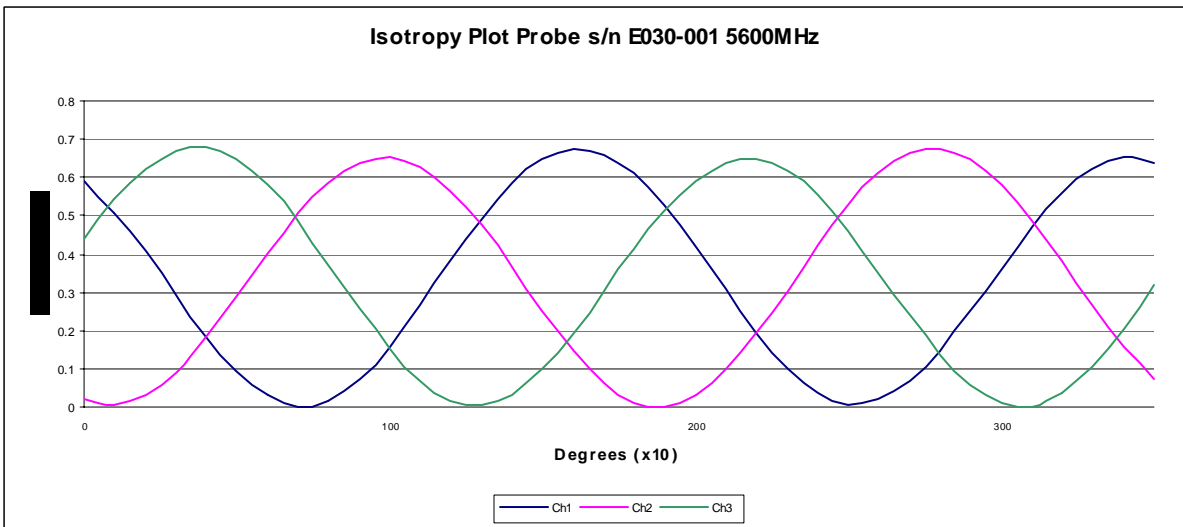
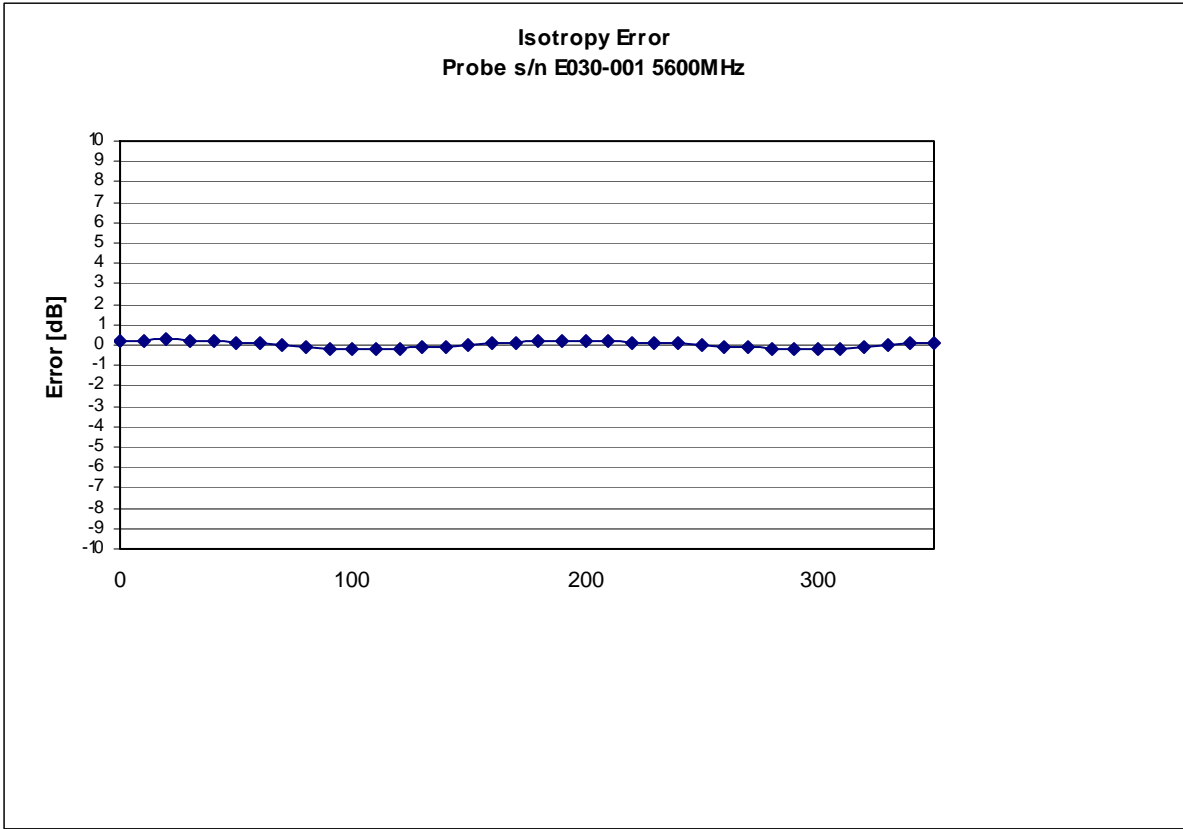
Spatial Resolution:

The measured probe tip diameter is 2.5mm (+/- 0.01 mm) and therefore meets the requirements of SSI/DRB-TP-D01-032 for spatial resolution.

Receiving Pattern 5600 MHz (Air)



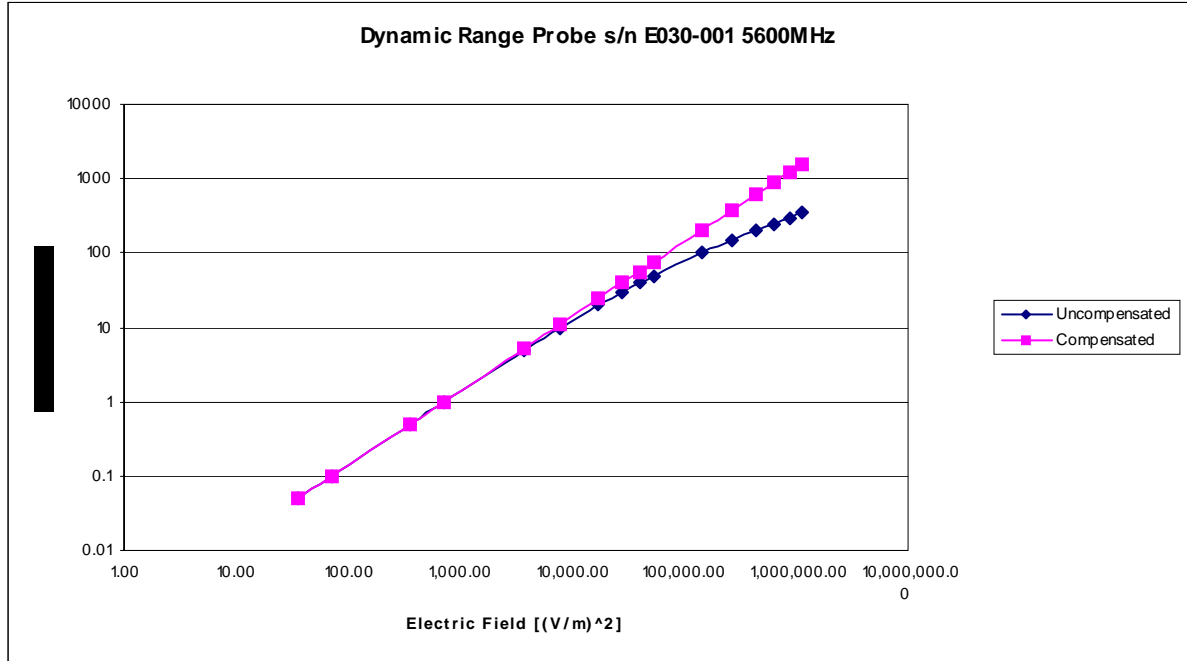
Isotropy Error 5600 MHz (Air)



Isotropicity Tissue:

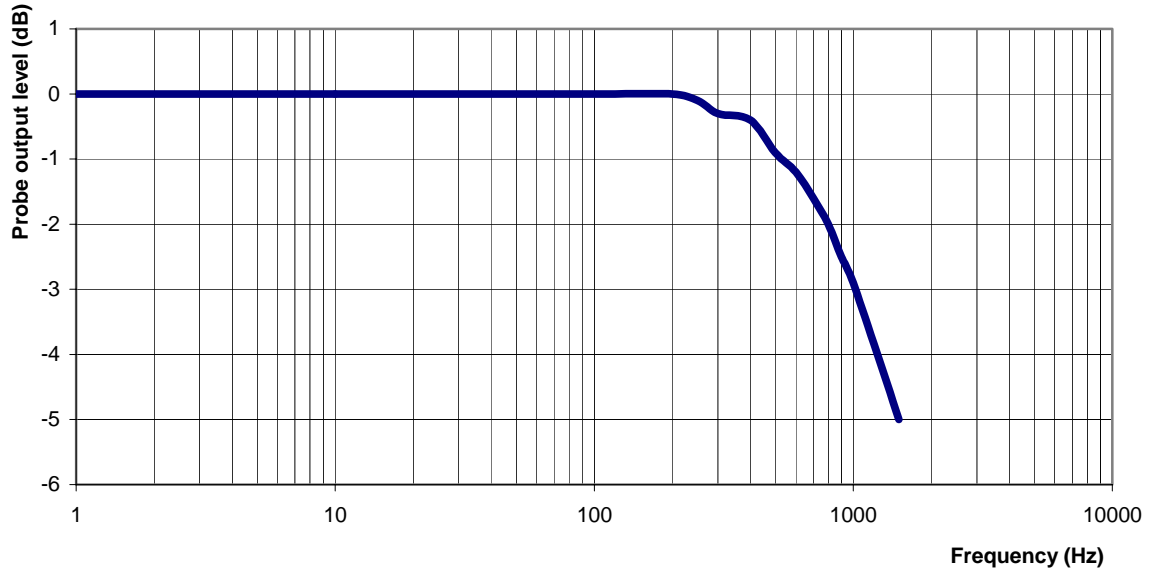
0.10 dB

Dynamic Range



Video Bandwidth

Probe Frequency Characteristics



Video Bandwidth at 500 Hz 1 dB
Video Bandwidth at 1.02 KHz: 3 dB

Conversion Factor Uncertainty Assessment

Sensitivity in Body Tissue Measured

Frequency: 5600 MHz

Epsilon: 46.43

Sigma: 5.87 S/m

ConvF

Channel X: 6.1 7%(K=2)

Channel Y: 6.1 7%(K=2)

Channel Z: 6.1 7%(K=2)

To minimize the uncertainty calculation all tissue sensitivity values were calculated using a load impedance of 5 M Ω .

Boundary Effect:

For a distance of 0.58mm the evaluated uncertainty (increase in the probe sensitivity) is less than 2.1%.

Test Equipment

The test equipment used during Probe Calibration, manufacturer, model number and, current calibration status are listed and located on the main APREL server R:\NCL\Calibration Equipment\Instrument List May 2007.

NCL CALIBRATION LABORATORIES

Calibration File No.: CP-870

Client.: RFEL

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated in the
NCL CALIBRATION LABORATORIES by qualified personnel following recognized
procedures and using transfer standards traceable to NRC/NIST.

Equipment: Miniature Isotropic RF Probe 5800 MHz

BODY Calibration

Manufacturer: APREL Laboratories

Model No.: E-020

Serial No.: E030-001

Calibration Procedure: SSI/DRB-TP-D01-032-E020-V2

Project No: RFEL-E030-5334

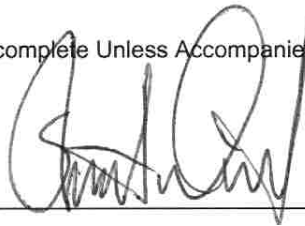
Calibrated: 14th April 2008

Released on: 14th April 2008

APREL Laboratories Certified Under Laboratory 48 of SCC

This Calibration Certificate is Incomplete Unless Accompanied with the Calibration Results Summary

Released By: _____



NCL CALIBRATION LABORATORIES

51 SPECTRUM WAY
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Division of APREL Lab.
TEL: (613) 820-4988
FAX: (613) 820-4161

Introduction

This Calibration Report reproduces the results of the calibration performed in line with the SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure. The results contained within this report are for APREL E-Field Probe E030-001.

References

SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure

IEEE 1528 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques"

SSI-TP-011 Tissue Calibration Procedure

IEC 62209 "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 1 & 2: Procedure to determine the Specific Absorption Rate (SAR) for hand-held devices used in close proximity of the ear (frequency range of 300 MHz to 3 GHz)"

IEEE 1309 Draft Standard for Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas, from 9kHz to 40GHz


Conditions

Probe E030-001 was a new probe.

Ambient Temperature of the Laboratory: 22 °C +/- 0.5°C

Temperature of the Tissue: 21 °C +/- 0.5°C

We the undersigned attest that to the best of our knowledge the calibration of this probe has been accurately conducted and that all information contained within this report has been reviewed for accuracy.



Stuart Nicol



Jesse Hones

Calibration Results Summary

Probe Type:	E-Field Probe E-030
Serial Number:	E030-001
Frequency:	5800 MHz
Sensor Offset:	1.06 mm
Sensor Length:	2.5 mm
Tip Enclosure:	Composite*
Tip Diameter:	<2.5 mm
Tip Length:	55 mm
Total Length:	289 mm

*Resistive to recommended tissue recipes per IEEE-1528

Sensitivity in Air

Channel X:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Channel Y:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Channel Z:	1.2 $\mu\text{V}/(\text{V}/\text{m})^2$
Diode Compression Point:	95 mV

Sensitivity in Body Tissue Measured

Frequency: 5800 MHz

Epsilon: 46.38 **Sigma:** 6.22 S/m

ConvF:

Channel X: 12

Channel Y: 12

Channel Z: 12

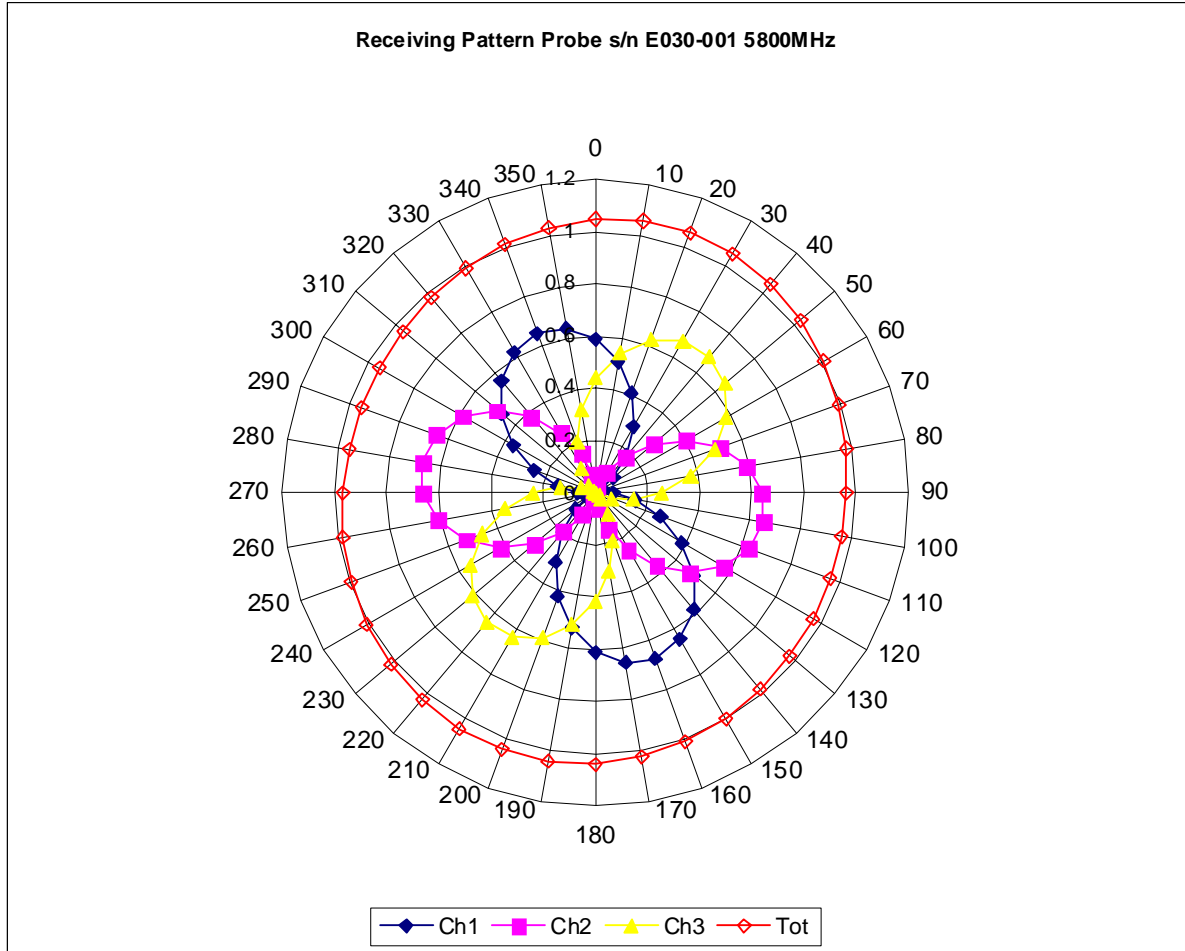
Boundary Effect:

Uncertainty resulting from the boundary effect is less than 2.1% for the distance between the tip of the probe and the tissue boundary, when less than 0.58mm.

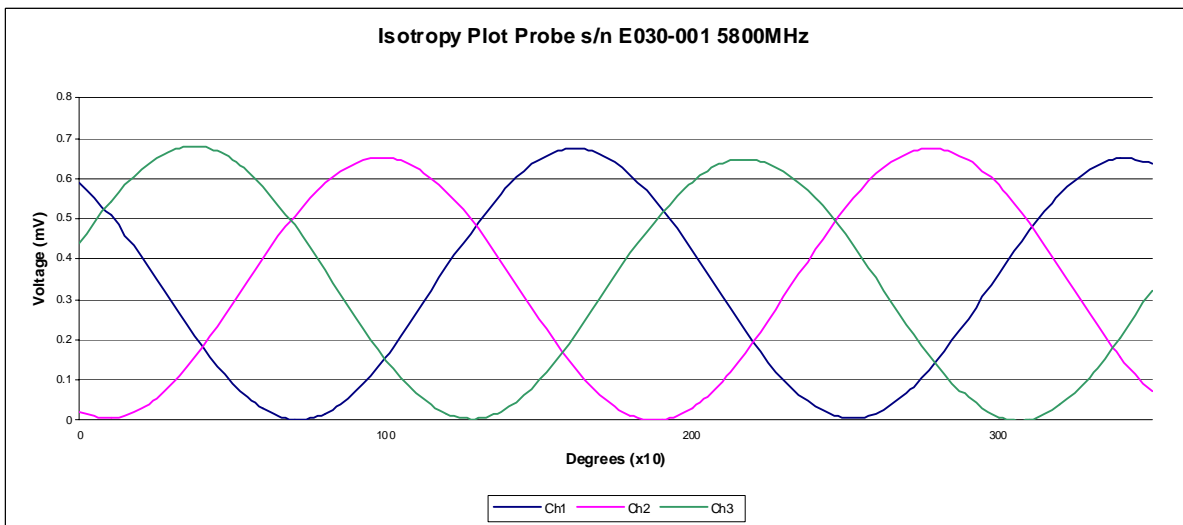
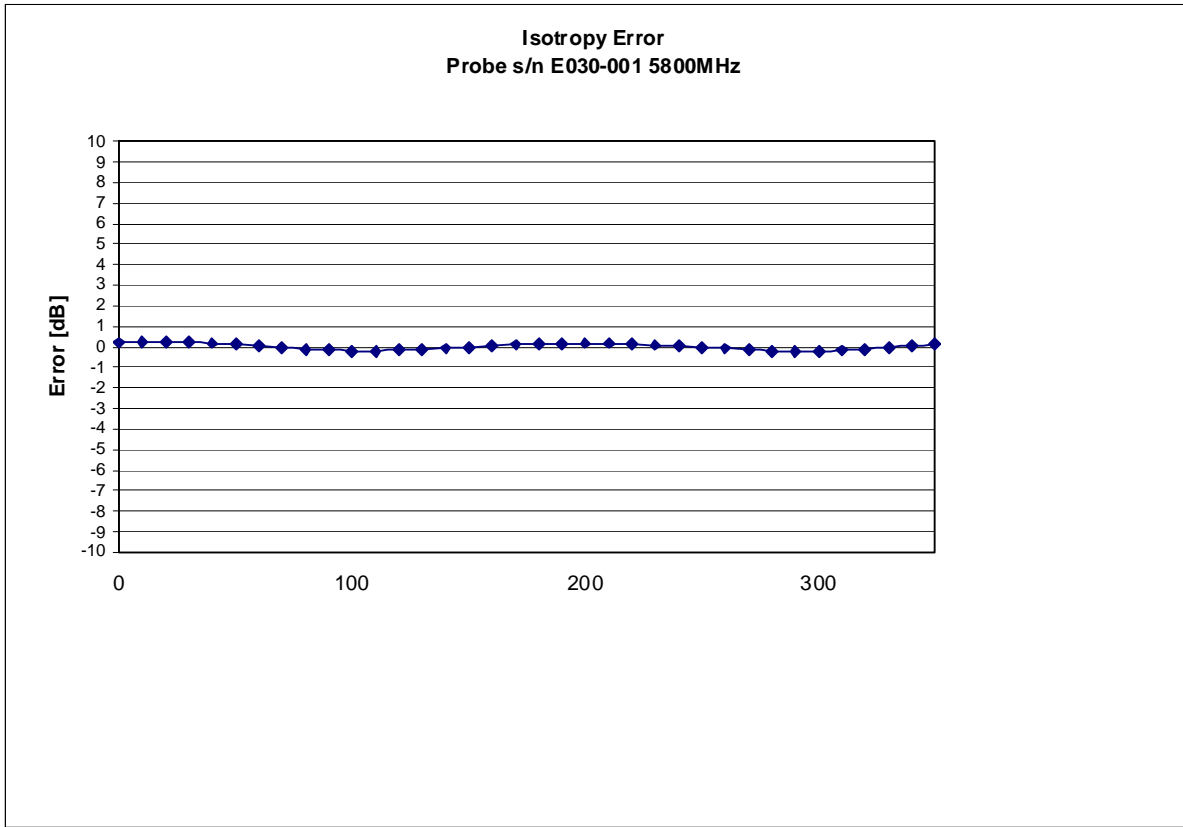
Spatial Resolution:

The measured probe tip diameter is 2.5mm (+/- 0.01 mm) and therefore meets the requirements of SSI/DRB-TP-D01-032 for spatial resolution.

Receiving Pattern 5800 MHz (Air)



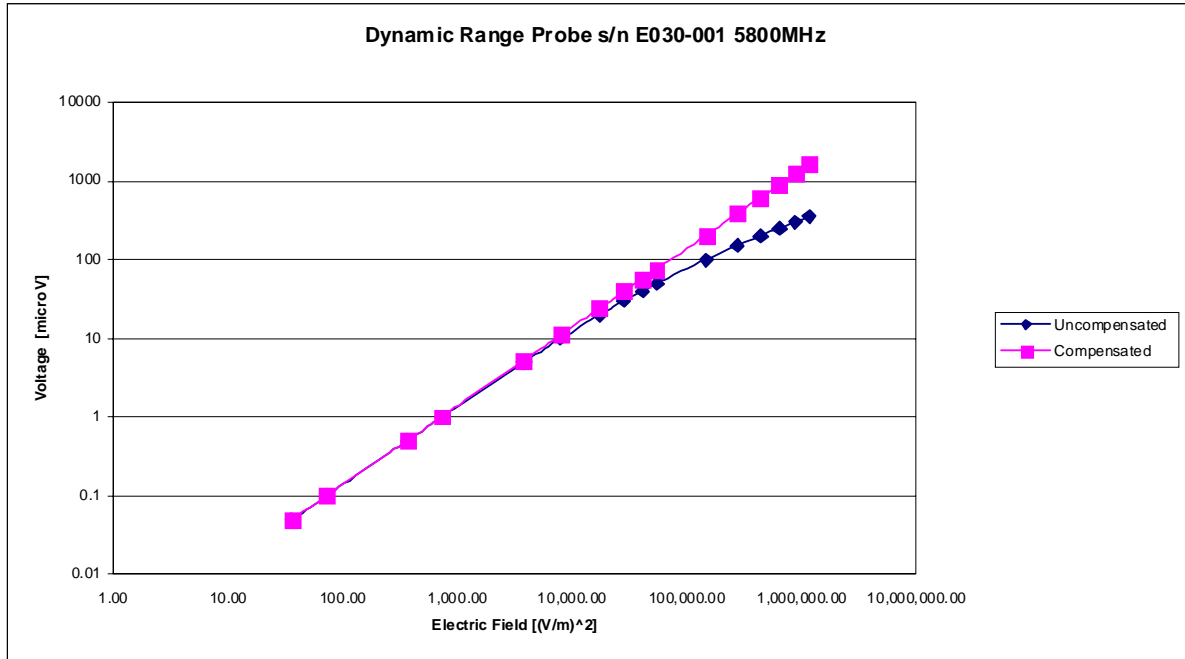
Isotropy Error 5800 MHz (Air)



Isotropicity Tissue:

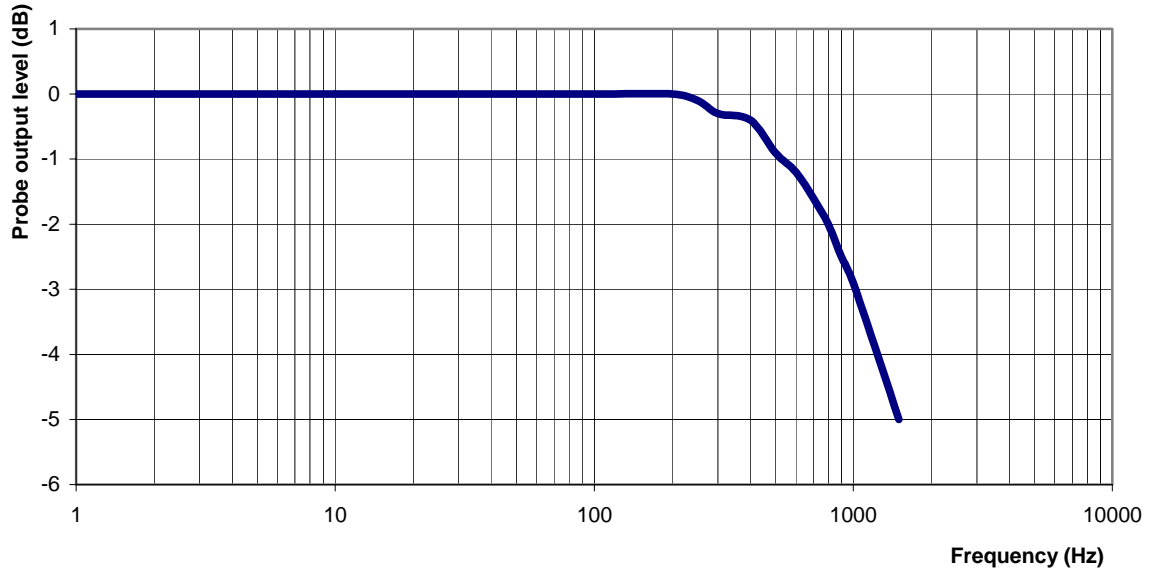
0.10 dB

Dynamic Range



Video Bandwidth

Probe Frequency Characteristics



Video Bandwidth at 500 Hz 1 dB
Video Bandwidth at 1.02 KHz: 3 dB

Test Equipment

The test equipment used during Probe Calibration, manufacturer, model number and, current calibration status are listed and located on the main APREL server R:\NCL\Calibration Equipment\Instrument List May 2007.

Appendix E – Dipole Calibration Data Sheets

RF Exposure Lab, LLC

Calibration File No: CAL.20080203

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated at RF Exposure Lab, LLC by qualified personnel following recognized procedures and using transfer standards traceable to NRC/NIST.

Validation Dipole

Manufacturer: APREL Laboratories

Part Number: ALS-D-835-S-2

Frequency: 835 MHz

Serial No: RFE-274

Manufactured: 20 February 2004
Calibrated: 22 February 2008

Calibrated By: Signature on File
Jay Moulton – Technical Manager

Approved By: Signature on File
Tamara Moulton – Quality Manager

Measurement Uncertainty:

Repeatability:	2.3%
Tissue Uncertainty:	3.2%
Network Analyzer:	2.5%



RF EXPOSURE LAB, LLC

2867 Progress Place, Suite 4D
Escondido, CA 92029

Tel: (760) 737-3131
FAX: (760) 737-9131

Calibration Results Summary

The following results relate to the Calibrated Dipole and should be used as a quick reference for the user.

Mechanical Dimensions

Length: 161.8 mm
Height: 91.1 mm

Electrical Specifications

Head

SWR: 1.1182 U
Return Loss: -27.508 dB
Impedance: 49.648 Ω

System Validation Results

Frequency	1 Gram	10 Gram
835 MHz	9.500	6.000

Body

SWR: 1.1533 U
Return Loss: -23.596 dB
Impedance: 51.395 Ω

System Validation Results

Frequency	1 Gram	10 Gram
835 MHz	9.750	6.240

Head Measurement Conditions

The measurements were performed in the Uni-Phantom filled with head simulating liquid of the following electrical parameters at 835 MHz:

Relative Dielectricity	41.48	± 5%
Conductivity	0.92 mho/m	± 5%

The APREL Laboratories ALSAS system with a dosimetric E-field probe E-020 (SN:217, Conversion factor 6.0 at 835 MHz) was used for the measurements.

The dipole was mounted so that the dipole feed point was positioned below the center marking of the flat phantom and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 15mm from the dipole center to the solution surface.

The coarse grid with a grid spacing of 10mm was aligned with the dipole. The 5x5x8 fine cube was chosen for cube integration. The dipole input power (forward power) was 100mW ± 3%. The results are normalized to 1W input power.

The laboratories environmental conditions were as follows during the calibration sequence.

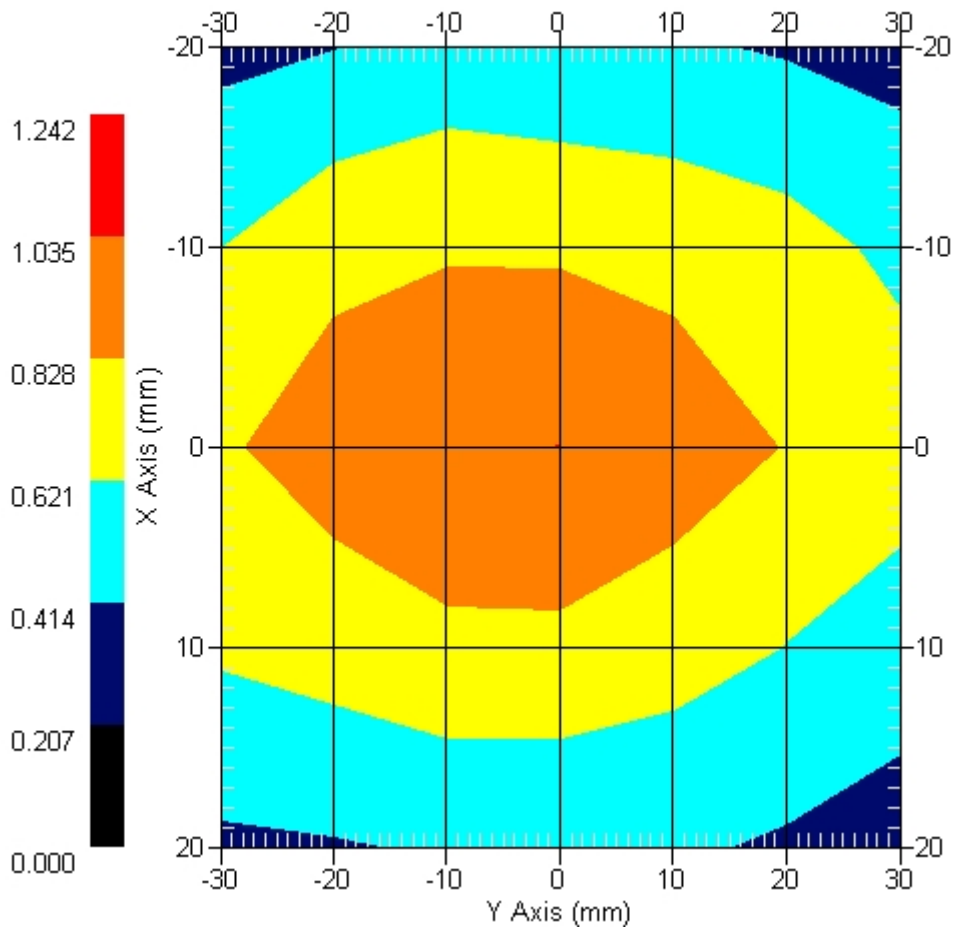
Ambient Temperature of the Laboratory:	24 °C ± 1.0 °C
Temperature of the Tissue:	20 °C ± 1.0 °C
Relative Humidity:	40%

SAR Measurement

Standard SAR measurements were performed according to the measurement conditions described above. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR values measured with the dosimetric probe E-020 SN:217 and applying the advanced extrapolation are:

Averaged over 1 cm³ (1 g) of tissue: 9.500 mW/g ± 19.0% (k=2)¹
 Averaged over 10 cm³ (10 g) of tissue: 6.000 mW/g ± 18.5% (k=2)¹

Area Scan



1 gram SAR value : 0.950 W/kg
 10 gram SAR value : 0.600 W/kg
 Area Scan Peak SAR : 1.037 W/kg
 Zoom Scan Peak SAR : 1.541 W/kg

¹ validation uncertainty

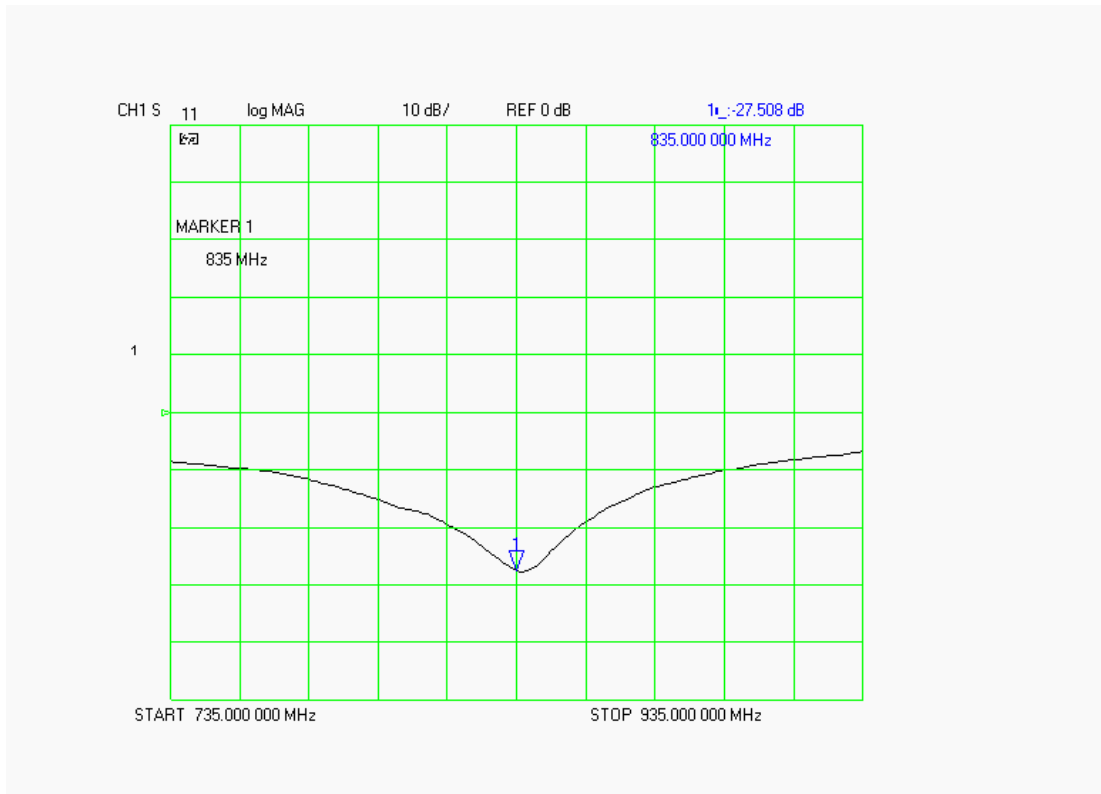
Dipole Impedance and Return Loss

The impedance was measured at the SMA connector with a network analyzer. The dipole was positioned at the flat phantom sections according to measurement conditions stated above during impedance measurements.

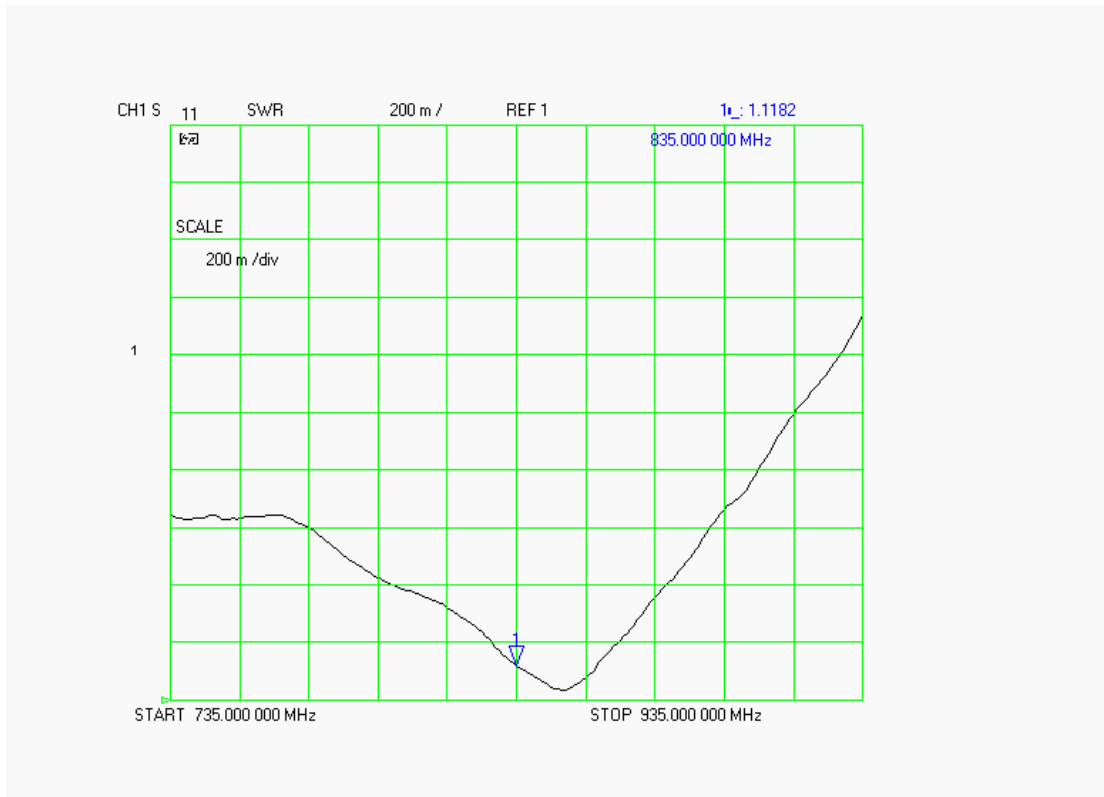
Test	Result
S11 R/L	-27.508 dB
SWR	1.1182 U
Impedance	49.648 Ω

The following graphs are the results as displayed on the Vector Network Analyzer.

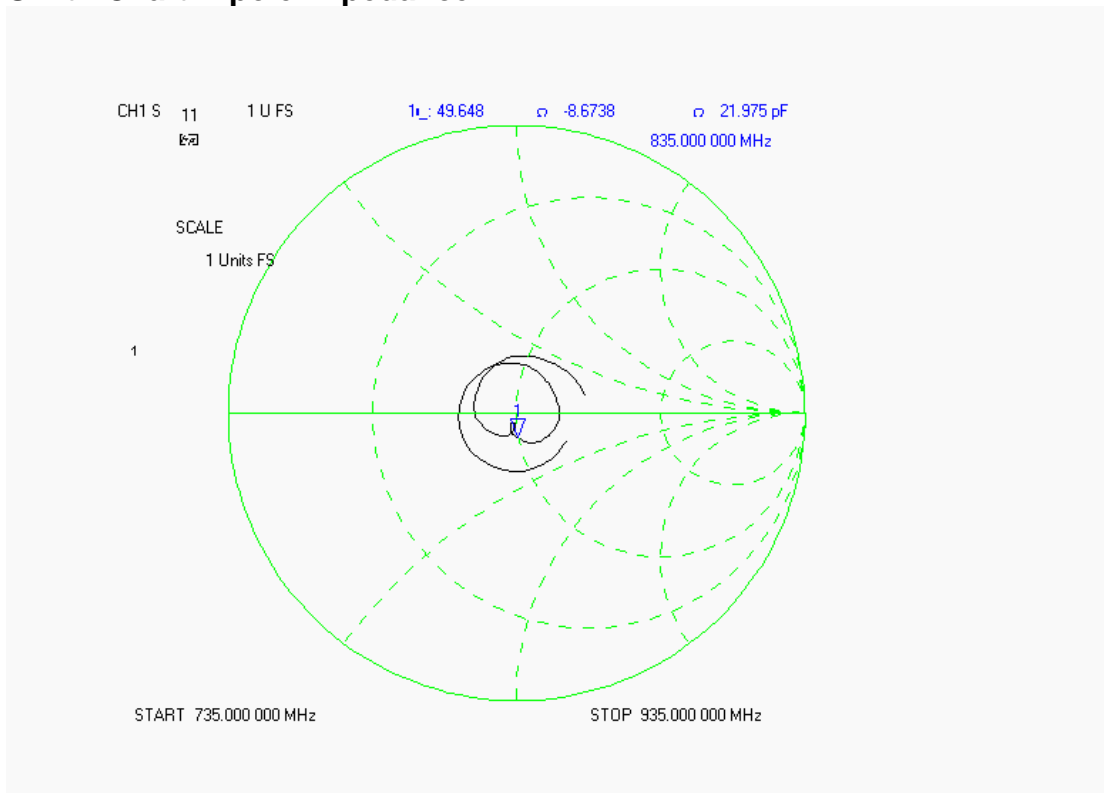
S11 Parameter Return Loss



SWR



Smith Chart Dipole Impedance



Body Measurement Conditions

The measurements were performed in the Uni-Phantom filled with body simulating liquid of the following electrical parameters at 835 MHz:

Relative Dielectricity	55.20	± 5%
Conductivity	0.96 mho/m	± 5%

The APREL Laboratories ALSAS system with a dosimetric E-field probe E-020 (SN:217, Conversion factor 6.1 at 835 MHz) was used for the measurements.

The dipole was mounted so that the dipole feed point was positioned below the center marking of the flat phantom and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 15mm from the dipole center to the solution surface.

The coarse grid with a grid spacing of 10mm was aligned with the dipole. The 5x5x8 fine cube was chosen for cube integration. The dipole input power (forward power) was 100mW ± 3%. The results are normalized to 1W input power.

The laboratories environmental conditions were as follows during the calibration sequence.

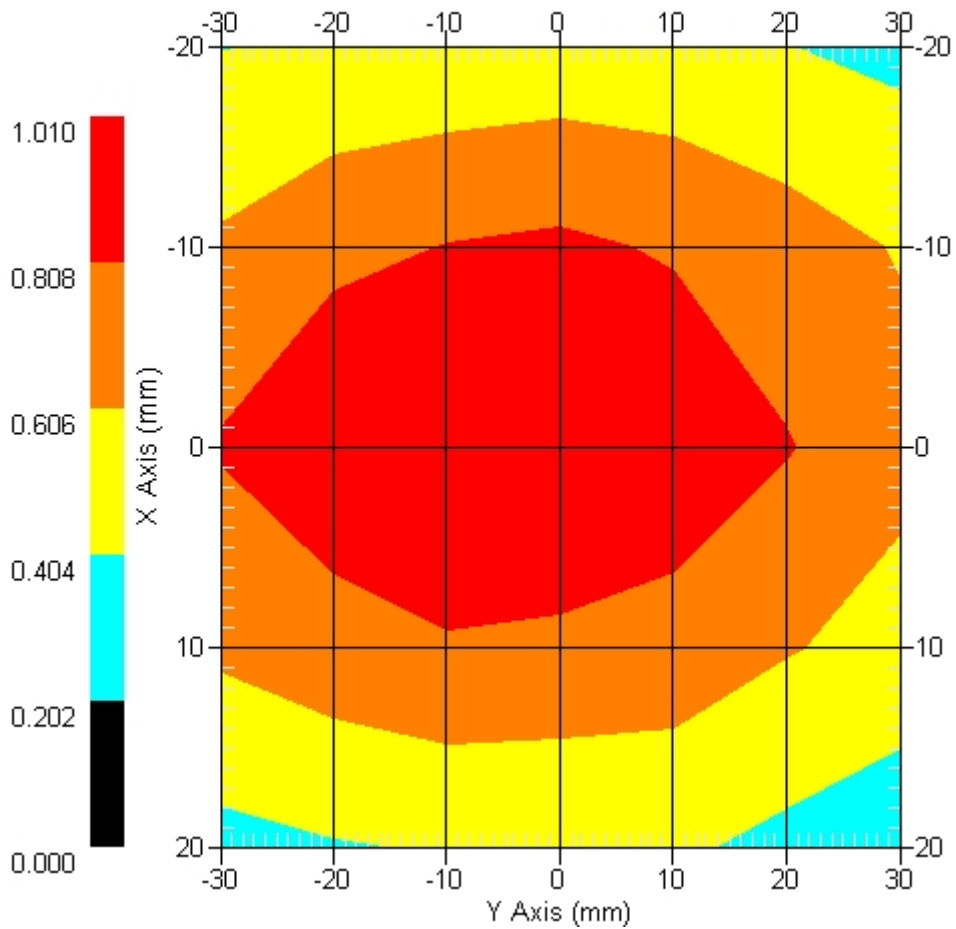
Ambient Temperature of the Laboratory:	24 °C ± 1.0 °C
Temperature of the Tissue:	20 °C ± 1.0 °C
Relative Humidity:	40%

SAR Measurement

Standard SAR measurements were performed according to the measurement conditions described above. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR values measured with the dosimetric probe E-020 SN:217 and applying the advanced extrapolation are:

Averaged over 1 cm³ (1 g) of tissue: 9.750 mW/g ± 19.1% (k=2)¹
 Averaged over 10 cm³ (10 g) of tissue: 6.240 mW/g ± 18.6% (k=2)¹

Area Scan



1 gram SAR value : 0.975 W/kg
 10 gram SAR value : 0.624 W/kg
 Area Scan Peak SAR : 1.009 W/kg
 Zoom Scan Peak SAR : 1.571 W/kg

¹ validation uncertainty

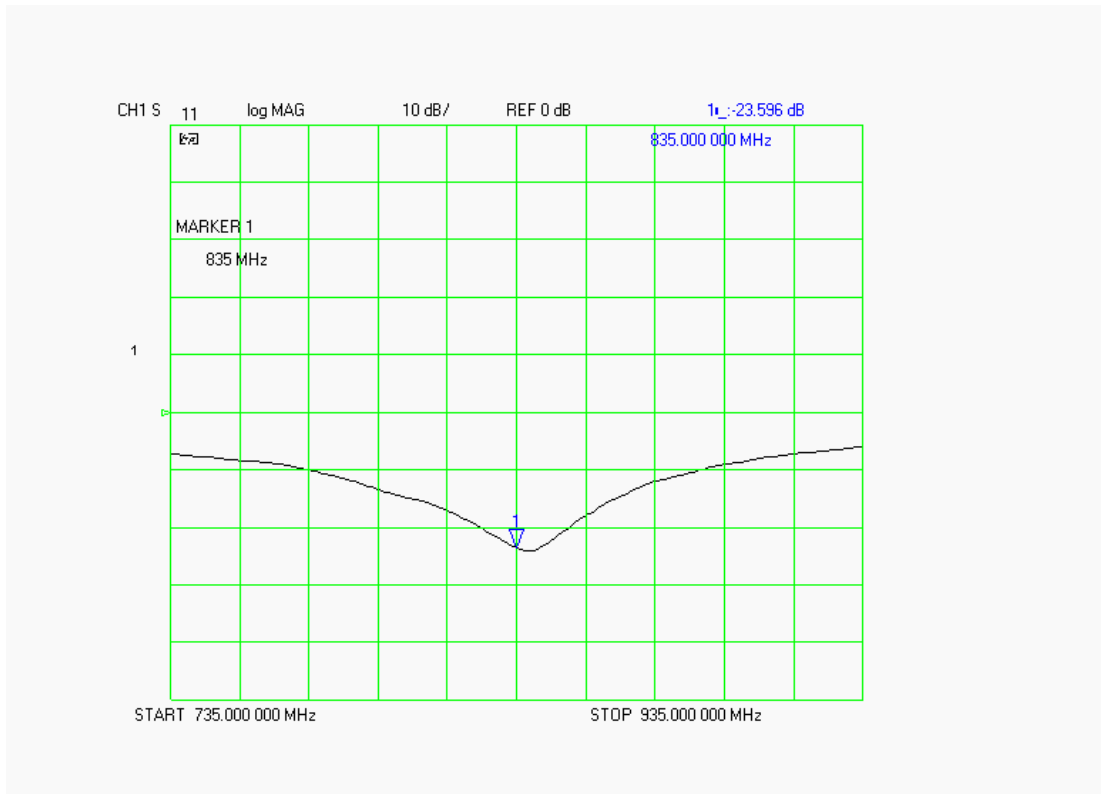
Dipole Impedance and Return Loss

The impedance was measured at the SMA connector with a network analyzer. The dipole was positioned at the flat phantom sections according to measurement conditions stated above during impedance measurements.

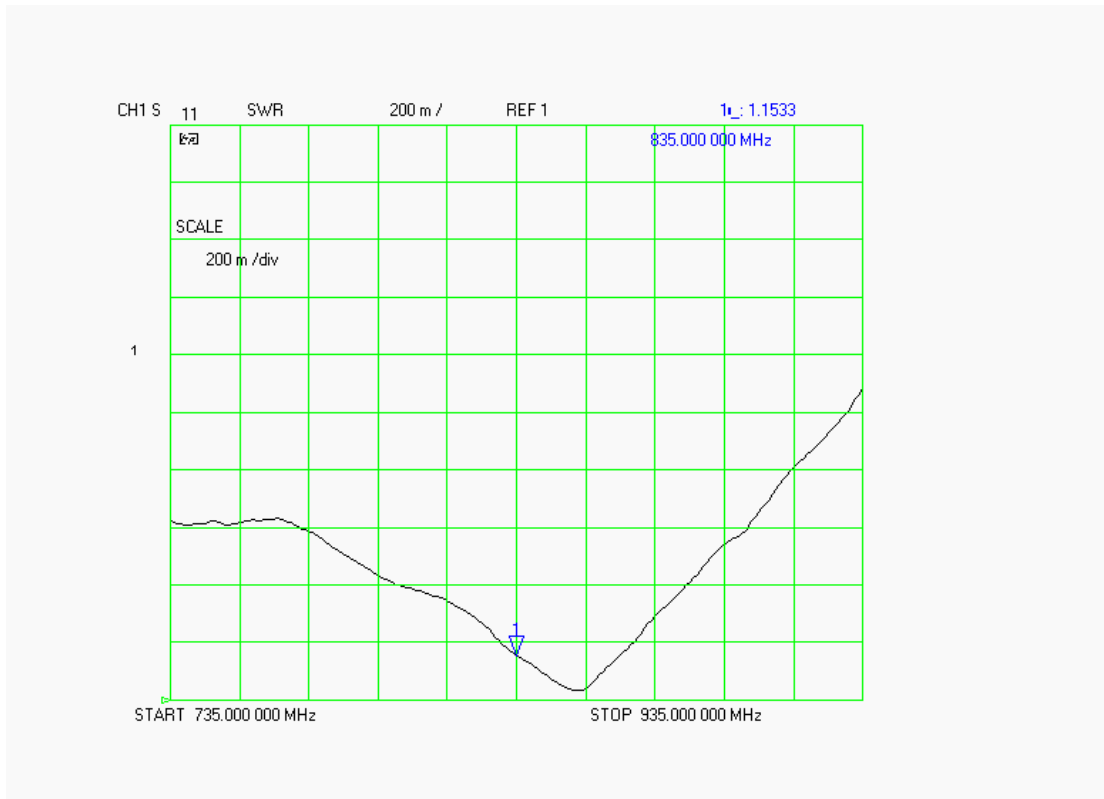
Test	Result
S11 R/L	-23.596 dB
SWR	1.1533 U
Impedance	51.395 Ω

The following graphs are the results as displayed on the Vector Network Analyzer.

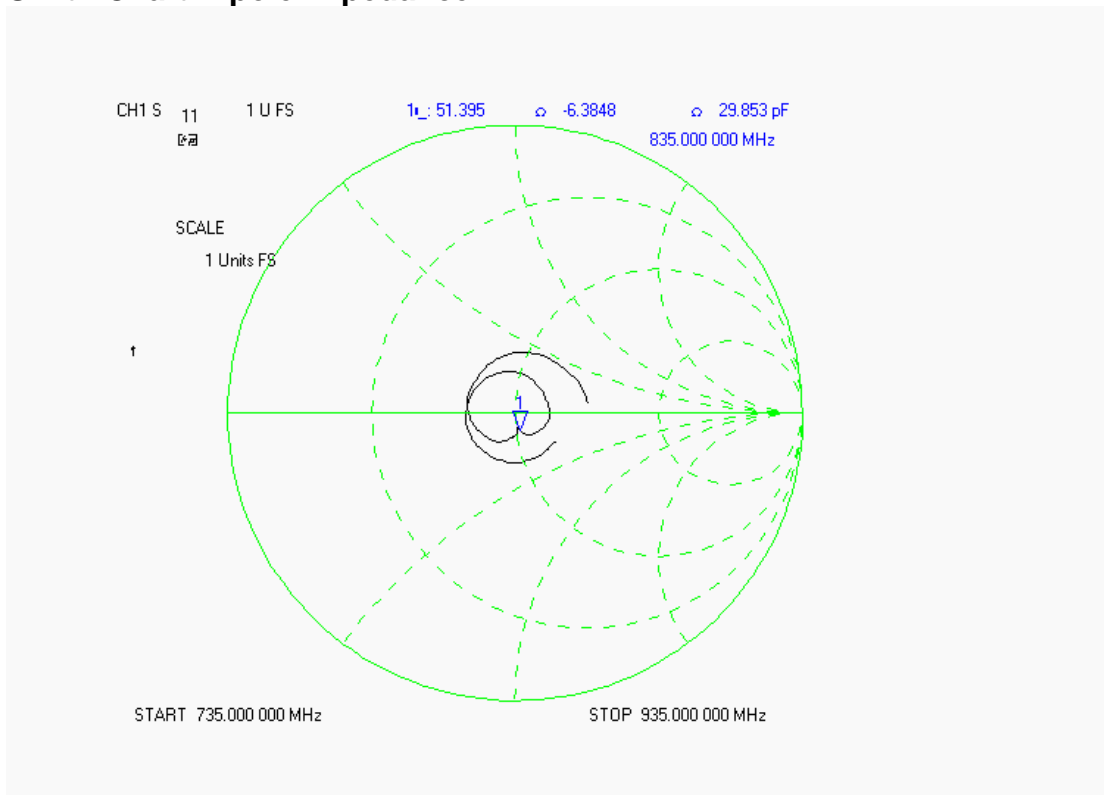
S11 Parameter Return Loss



SWR



Smith Chart Dipole Impedance



Test Equipment List

The test equipment used during Dipole Calibration, manufacturer, model number and, current calibration status are listed and located on the RF Exposure Lab, LLC system computer C:\Test Equipment\Calibration Equipment\Instrument List February 2008.

RF Exposure Lab, LLC

Calibration File No: CAL.20080202

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated at RF Exposure Lab, LLC by qualified personnel following recognized procedures and using transfer standards traceable to NRC/NIST.

Validation Dipole

Manufacturer: APREL Laboratories

Part Number: ALS-D-1900-S-2

Frequency: 1.9 GHz

Serial No: RFE-277

Manufactured: 20 February 2004
Calibrated: 21 February 2008

Calibrated By: Signature on File
Jay Moulton – Technical Manager

Approved By: Signature on File
Tamara Moulton – Quality Manager

Measurement Uncertainty:

Repeatability:	2.3%
Tissue Uncertainty:	3.2%
Network Analyzer:	2.5%



RF EXPOSURE LAB, LLC

2867 Progress Place, Suite 4D
Escondido, CA 92029

Tel: (760) 737-3131
FAX: (760) 737-9131

Calibration Results Summary

The following results relate to the Calibrated Dipole and should be used as a quick reference for the user.

Mechanical Dimensions

Length: 68.0 mm
Height: 37.5 mm

Electrical Specifications

Head

SWR: 1.0793 U
Return Loss: -38.514 dB
Impedance: 49.063 Ω

System Validation Results

Frequency	1 Gram	10 Gram
1.9 GHz	39.380	20.270

Body

SWR: 1.1006 U
Return Loss: -41.682 dB
Impedance: 53.580 Ω

System Validation Results

Frequency	1 Gram	10 Gram
1.9 GHz	40.990	21.090

Head Measurement Conditions

The measurements were performed in the Uni-Phantom filled with head simulating liquid of the following electrical parameters at 1900 MHz:

Relative Dielectricity	39.97	± 5%
Conductivity	1.41 mho/m	± 5%

The APREL Laboratories ALSAS system with a dosimetric E-field probe E-020 (SN:217, Conversion factor 4.65 at 1900 MHz) was used for the measurements.

The dipole was mounted so that the dipole feed point was positioned below the center marking of the flat phantom and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from the dipole center to the solution surface.

The coarse grid with a grid spacing of 10mm was aligned with the dipole. The 5x5x8 fine cube was chosen for cube integration. The dipole input power (forward power) was 100mW ± 3%. The results are normalized to 1W input power.

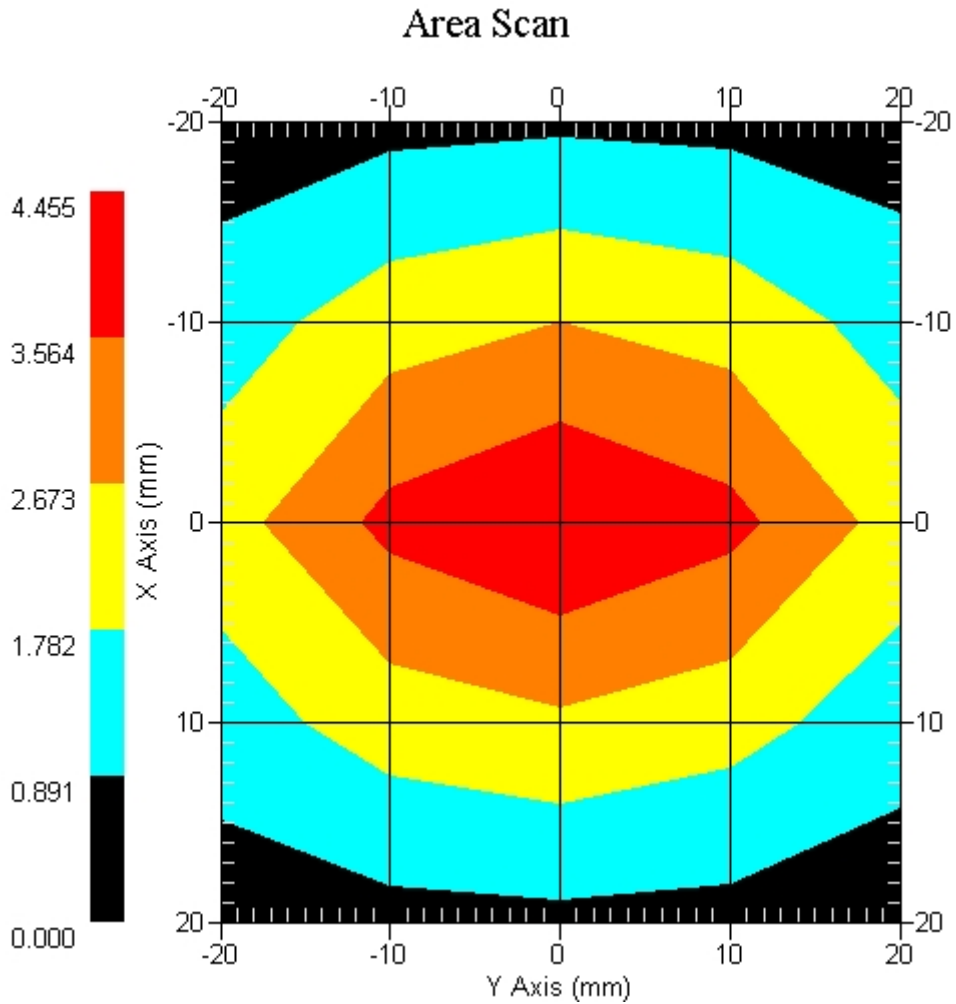
The laboratories environmental conditions were as follows during the calibration sequence.

Ambient Temperature of the Laboratory:	23 °C ± 1.0 °C
Temperature of the Tissue:	20 °C ± 1.0 °C
Relative Humidity:	40%

SAR Measurement

Standard SAR measurements were performed according to the measurement conditions described above. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR values measured with the dosimetric probe E-020 SN:217 and applying the advanced extrapolation are:

Averaged over 1 cm³ (1 g) of tissue: 39.380 mW/g ± 19.2% (k=2)¹
 Averaged over 10 cm³ (10 g) of tissue: 20.270 mW/g ± 18.8% (k=2)¹



1 gram SAR value : 3.938 W/kg
 10 gram SAR value : 2.027 W/kg
 Area Scan Peak SAR : 4.455 W/kg
 Zoom Scan Peak SAR : 7.246 W/kg

¹ validation uncertainty

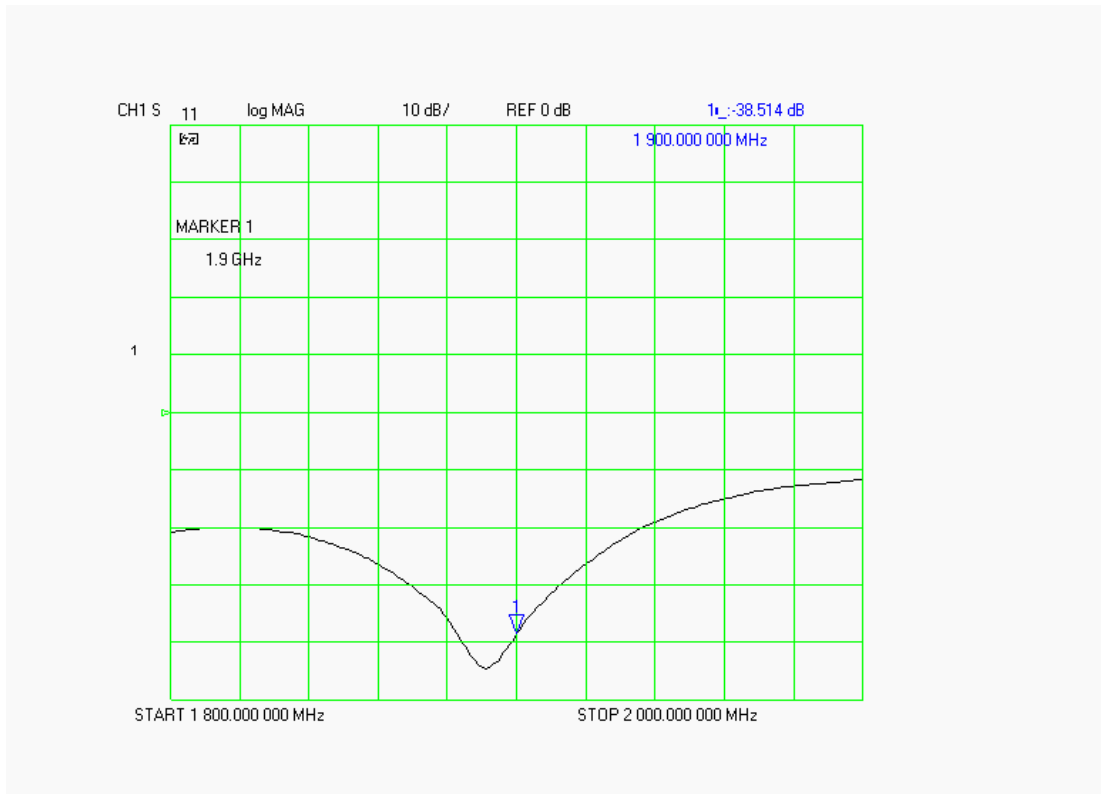
Dipole Impedance and Return Loss

The impedance was measured at the SMA connector with a network analyzer. The dipole was positioned at the flat phantom sections according to measurement conditions stated above during impedance measurements.

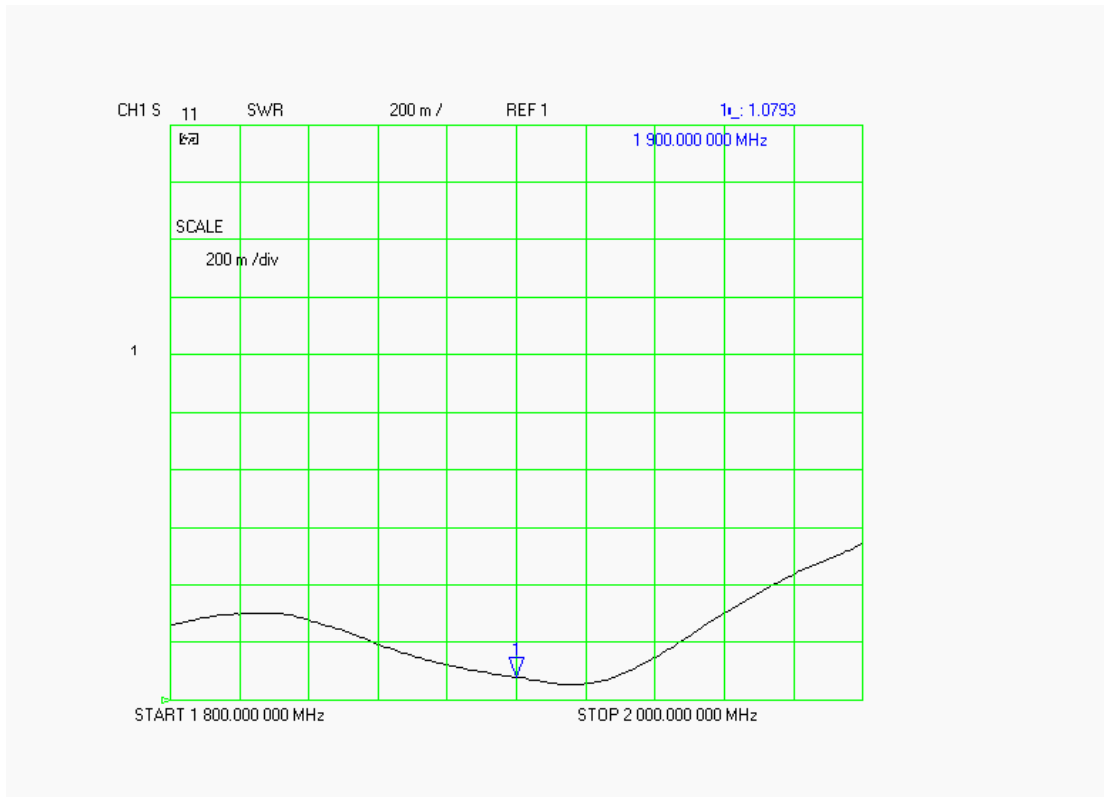
Test	Result
S11 R/L	-38.514 dB
SWR	1.0793 U
Impedance	49.063 Ω

The following graphs are the results as displayed on the Vector Network Analyzer.

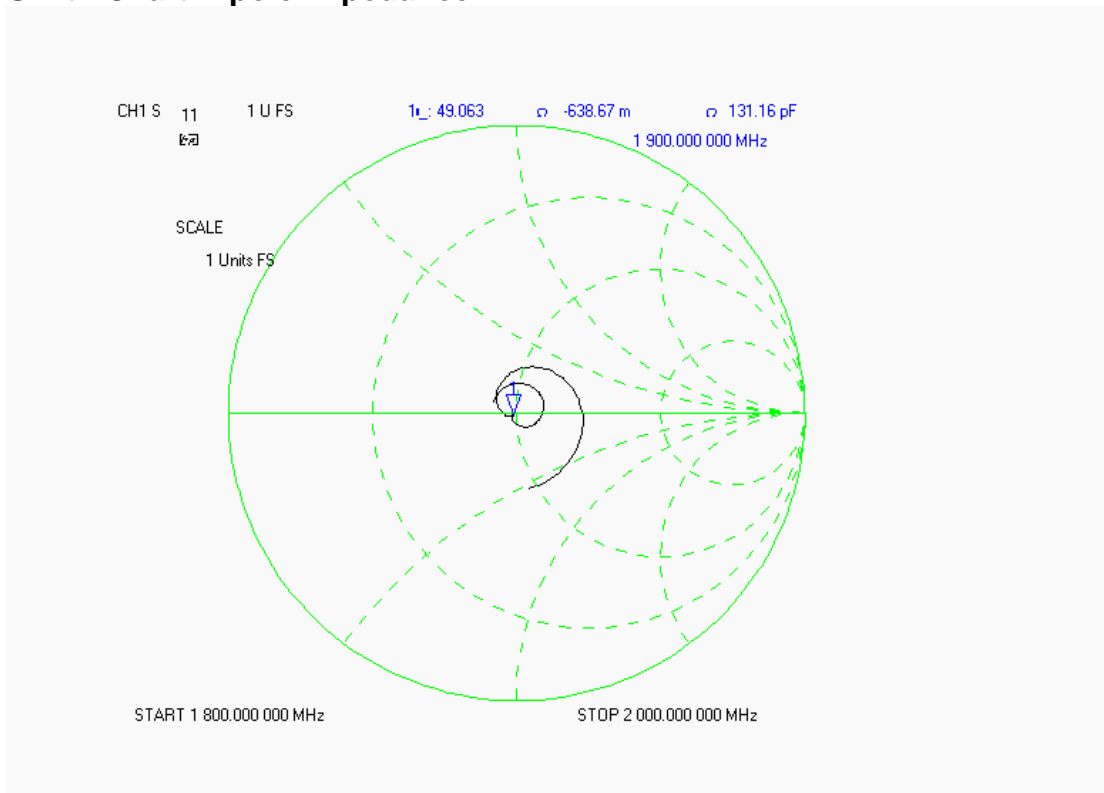
S11 Parameter Return Loss



SWR



Smith Chart Dipole Impedance



Body Measurement Conditions

The measurements were performed in the Uni-Phantom filled with body simulating liquid of the following electrical parameters at 1900 MHz:

Relative Dielectricity	53.27	± 5%
Conductivity	1.50 mho/m	± 5%

The APREL Laboratories ALSAS system with a dosimetric E-field probe E-020 (SN:217, Conversion factor 4.85 at 1900 MHz) was used for the measurements.

The dipole was mounted so that the dipole feed point was positioned below the center marking of the flat phantom and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from the dipole center to the solution surface.

The coarse grid with a grid spacing of 10mm was aligned with the dipole. The 5x5x8 fine cube was chosen for cube integration. The dipole input power (forward power) was 100mW ± 3%. The results are normalized to 1W input power.

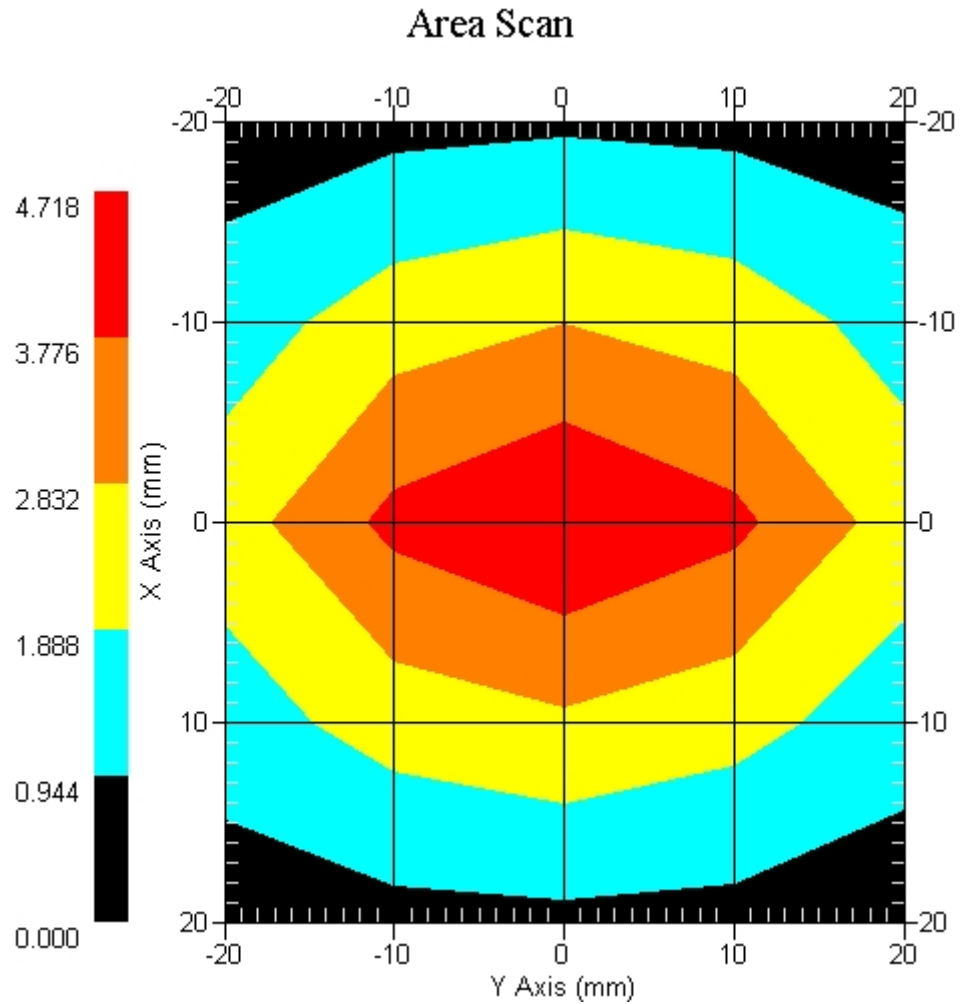
The laboratories environmental conditions were as follows during the calibration sequence.

Ambient Temperature of the Laboratory:	23 °C ± 1.0 °C
Temperature of the Tissue:	20 °C ± 1.0 °C
Relative Humidity:	40%

SAR Measurement

Standard SAR measurements were performed according to the measurement conditions described above. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR values measured with the dosimetric probe E-020 SN:217 and applying the advanced extrapolation are:

Averaged over 1 cm³ (1 g) of tissue: 40.990 mW/g ± 18.9% (k=2)¹
 Averaged over 10 cm³ (10 g) of tissue: 21.090 mW/g ± 18.5% (k=2)¹



1 gram SAR value : 4.099 W/kg
 10 gram SAR value : 2.109 W/kg
 Area Scan Peak SAR : 4.718 W/kg
 Zoom Scan Peak SAR : 7.606 W/kg

¹ validation uncertainty

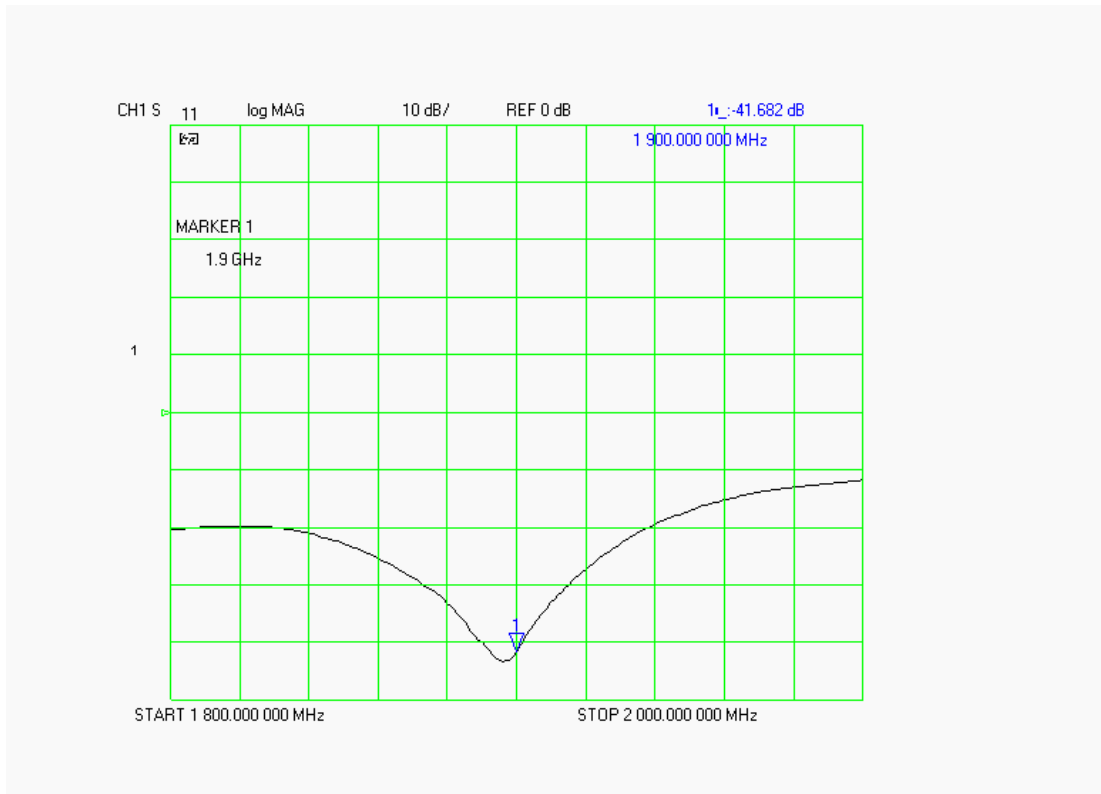
Dipole Impedance and Return Loss

The impedance was measured at the SMA connector with a network analyzer. The dipole was positioned at the flat phantom sections according to measurement conditions stated above during impedance measurements.

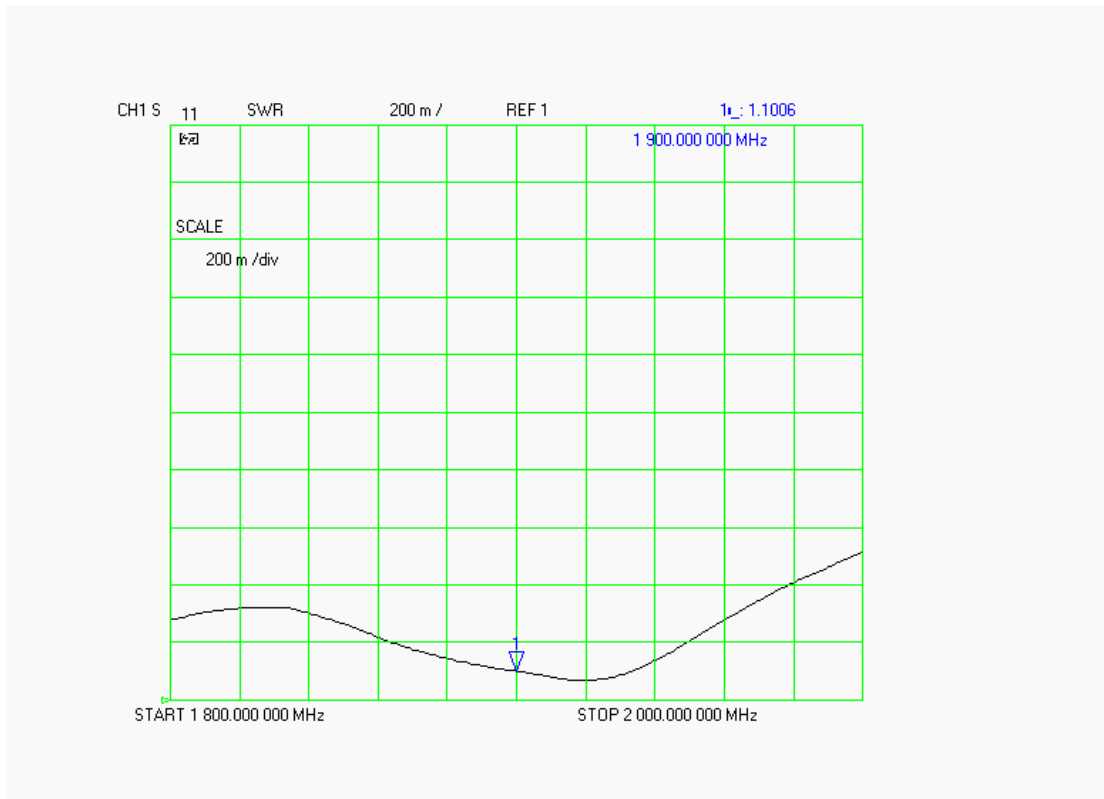
Test	Result
S11 R/L	-41.682 dB
SWR	1.1006 U
Impedance	53.580 Ω

The following graphs are the results as displayed on the Vector Network Analyzer.

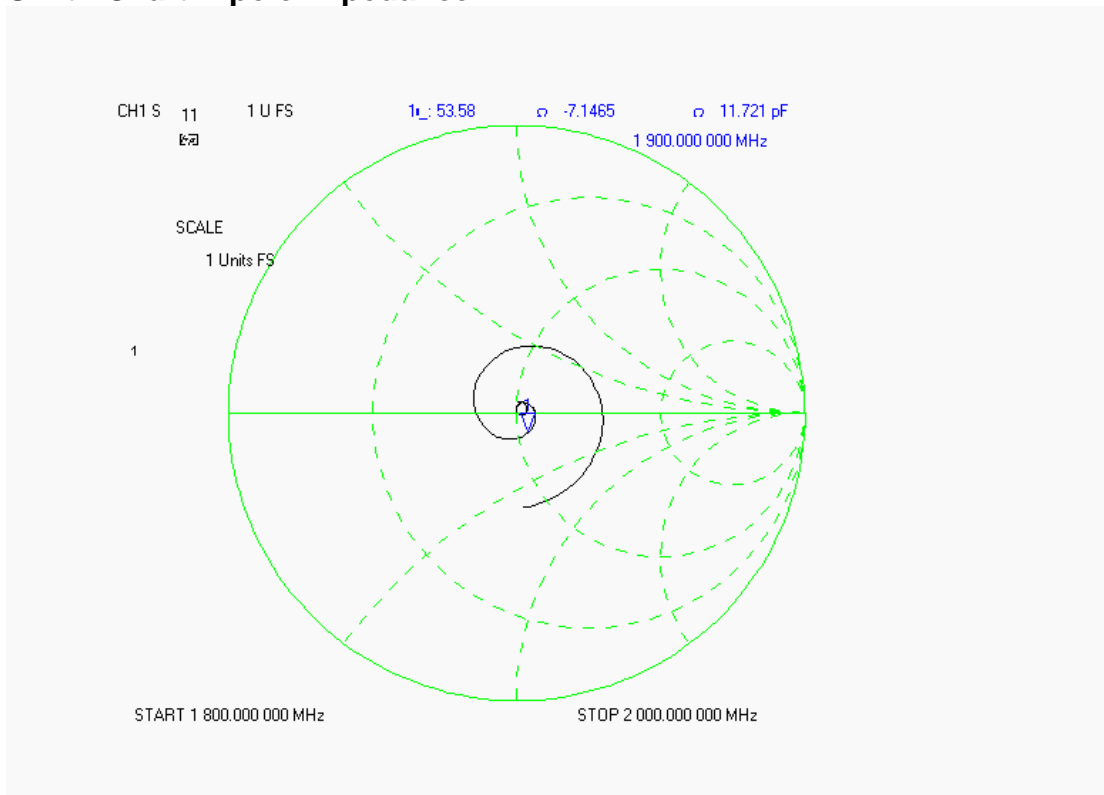
S11 Parameter Return Loss



SWR



Smith Chart Dipole Impedance



Test Equipment List

The test equipment used during Dipole Calibration, manufacturer, model number and, current calibration status are listed and located on the RF Exposure Lab, LLC system computer C:\Test Equipment\Calibration Equipment\Instrument List February 2008.

RF Exposure Lab, LLC

Calibration File No: CAL.20080201

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated at RF Exposure Lab, LLC by qualified personnel following recognized procedures and using transfer standards traceable to NRC/NIST.

Validation Dipole

Manufacturer: APREL Laboratories

Part Number: ALS-D-2450-S-2

Frequency: 2.4 GHz

Serial No: RFE-278

Manufactured: 20 February 2004
Calibrated: 20 February 2008

Calibrated By: Signature on File
Jay Moulton – Technical Manager

Approved By: Signature on File
Tamara Moulton – Quality Manager

Measurement Uncertainty:

Repeatability:	2.3%
Tissue Uncertainty:	3.2%
Network Analyzer:	2.5%



RF EXPOSURE LAB, LLC

2867 Progress Place, Suite 4D
Escondido, CA 92029

Tel: (760) 737-3131
FAX: (760) 737-9131

Calibration Results Summary

The following results relate to the Calibrated Dipole and should be used as a quick reference for the user.

Mechanical Dimensions

Length: 51.5 mm
Height: 30.5 mm

Electrical Specifications

Head

SWR: 1.0953 U
Return Loss: -29.601 dB
Impedance: 53.854 Ω

System Validation Results

Frequency	1 Gram	10 Gram
2.45 GHz	52.880	24.500

Body

SWR: 1.1354 U
Return Loss: -31.173 dB
Impedance: 54.146 Ω

System Validation Results

Frequency	1 Gram	10 Gram
2.45 GHz	53.550	24.710

Head Measurement Conditions

The measurements were performed in the Uni-Phantom filled with head simulating liquid of the following electrical parameters at 2450 MHz:

Relative Dielectricity	39.37	± 5%
Conductivity	1.78 mho/m	± 5%

The APREL Laboratories ALSAS system with a dosimetric E-field probe E-020 (SN:217, Conversion factor 3.4 at 2450 MHz) was used for the measurements.

The dipole was mounted so that the dipole feed point was positioned below the center marking of the flat phantom and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from the dipole center to the solution surface.

The coarse grid with a grid spacing of 10mm was aligned with the dipole. The 5x5x8 fine cube was chosen for cube integration. The dipole input power (forward power) was 100mW ± 3%. The results are normalized to 1W input power.

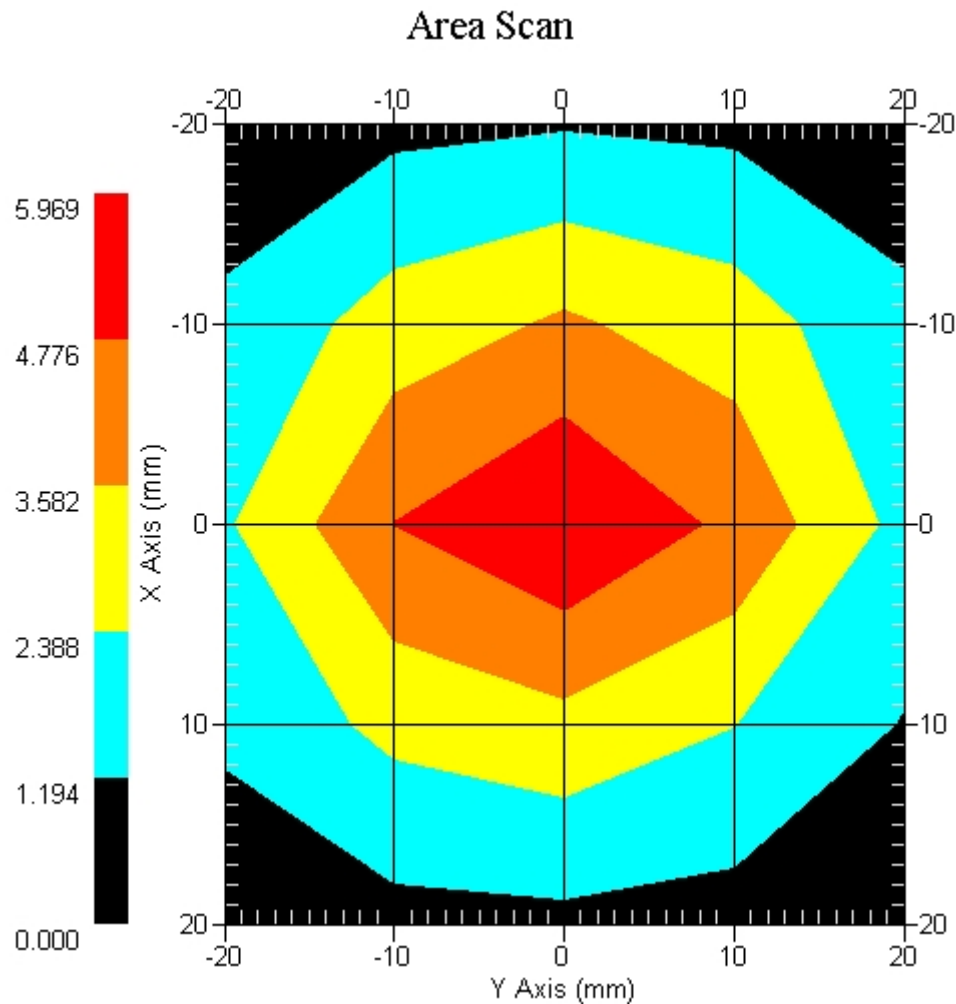
The laboratories environmental conditions were as follows during the calibration sequence.

Ambient Temperature of the Laboratory:	24 °C ± 1.0 °C
Temperature of the Tissue:	20 °C ± 1.0 °C
Relative Humidity:	41%

SAR Measurement

Standard SAR measurements were performed according to the measurement conditions described above. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR values measured with the dosimetric probe E-020 SN:217 and applying the advanced extrapolation are:

Averaged over 1 cm³ (1 g) of tissue: 52.880 mW/g ± 19.7% (k=2)¹
 Averaged over 10 cm³ (10 g) of tissue: 24.500 mW/g ± 19.4% (k=2)¹



1 gram SAR value : 5.288 W/kg
 10 gram SAR value : 2.450 W/kg
 Area Scan Peak SAR : 5.969 W/kg
 Zoom Scan Peak SAR : 10.890 W/kg

¹ validation uncertainty

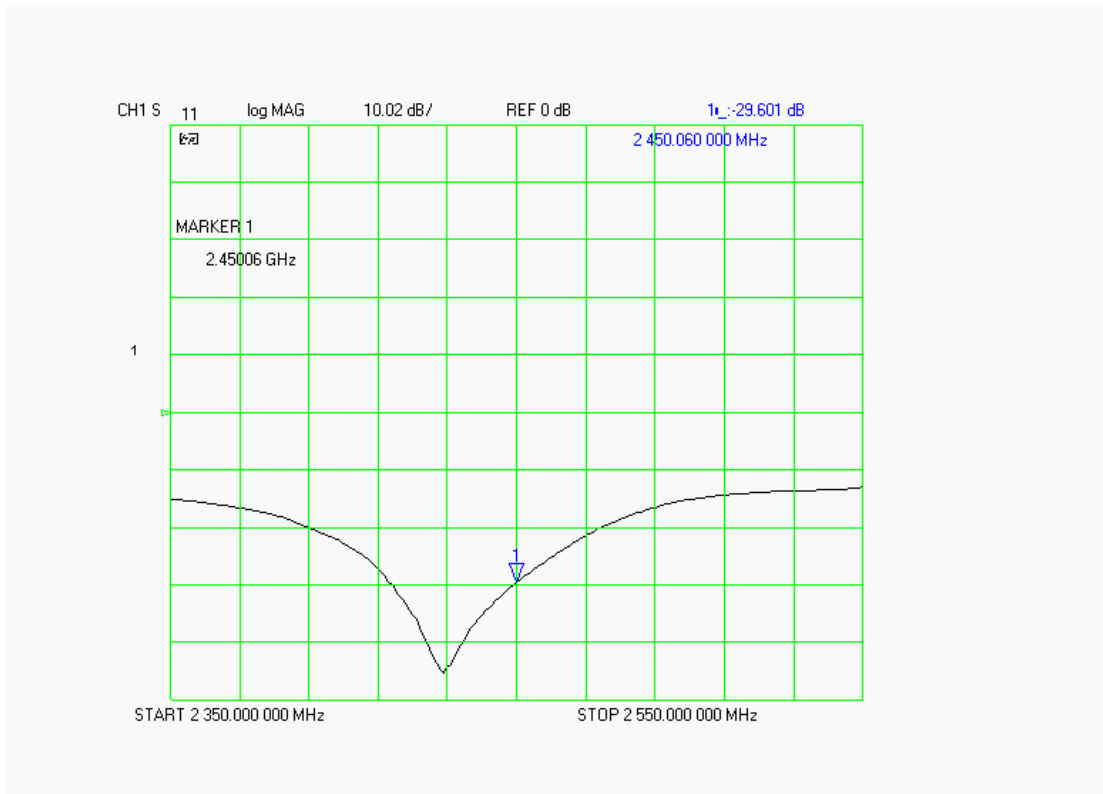
Dipole Impedance and Return Loss

The impedance was measured at the SMA connector with a network analyzer. The dipole was positioned at the flat phantom sections according to measurement conditions stated above during impedance measurements.

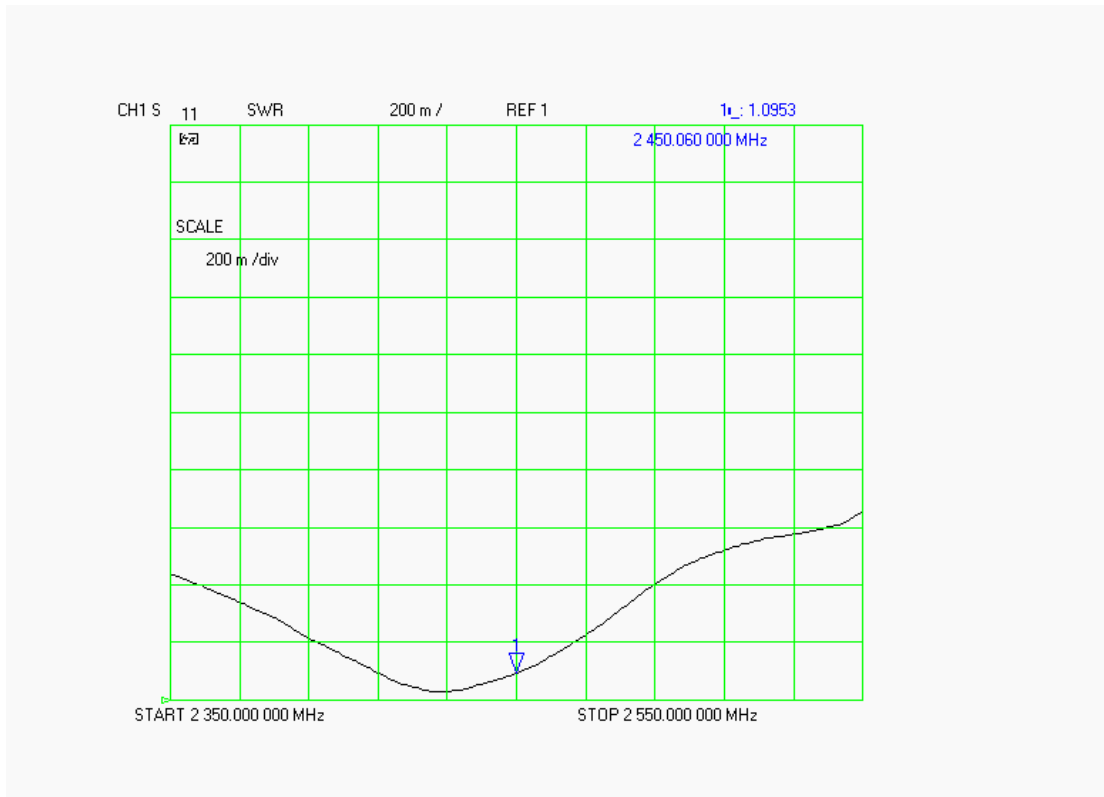
Test	Result
S11 R/L	-29.601 dB
SWR	1.0953 U
Impedance	53.854 Ω

The following graphs are the results as displayed on the Vector Network Analyzer.

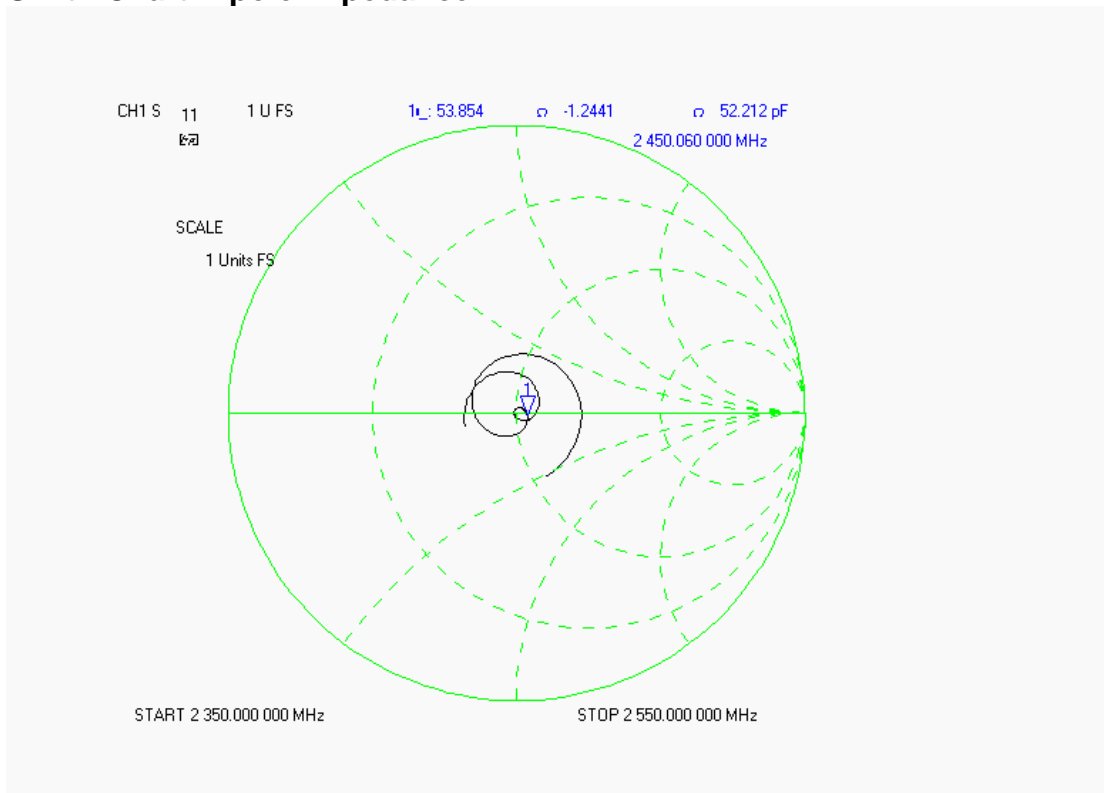
S11 Parameter Return Loss



SWR



Smith Chart Dipole Impedance



Body Measurement Conditions

The measurements were performed in the Uni-Phantom filled with body simulating liquid of the following electrical parameters at 2450 MHz:

Relative Dielectricity	52.59	± 5%
Conductivity	1.92 mho/m	± 5%

The APREL Laboratories ALSAS system with a dosimetric E-field probe E-020 (SN:217, Conversion factor 3.61 at 2450 MHz) was used for the measurements.

The dipole was mounted so that the dipole feed point was positioned below the center marking of the flat phantom and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from the dipole center to the solution surface.

The coarse grid with a grid spacing of 10mm was aligned with the dipole. The 5x5x8 fine cube was chosen for cube integration. The dipole input power (forward power) was 100mW ± 3%. The results are normalized to 1W input power.

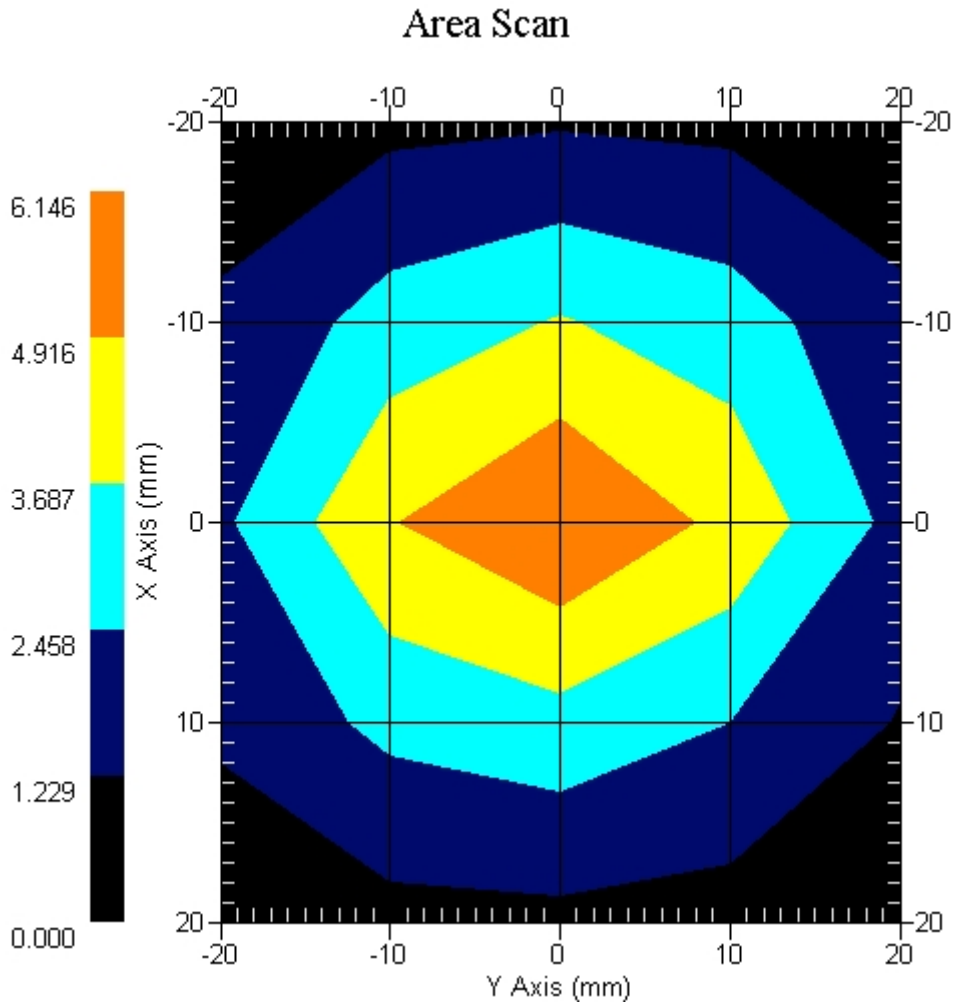
The laboratories environmental conditions were as follows during the calibration sequence.

Ambient Temperature of the Laboratory:	24 °C ± 1.0 °C
Temperature of the Tissue:	20 °C ± 1.0 °C
Relative Humidity:	41%

SAR Measurement

Standard SAR measurements were performed according to the measurement conditions described above. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR values measured with the dosimetric probe E-020 SN:217 and applying the advanced extrapolation are:

Averaged over 1 cm³ (1 g) of tissue: 53.550 mW/g ± 18.8% (k=2)¹
 Averaged over 10 cm³ (10 g) of tissue: 24.710 mW/g ± 18.4% (k=2)¹



1 gram SAR value : 5.355 W/kg
 10 gram SAR value : 2.471 W/kg
 Area Scan Peak SAR : 6.146 W/kg
 Zoom Scan Peak SAR : 11.090 W/kg

¹ validation uncertainty

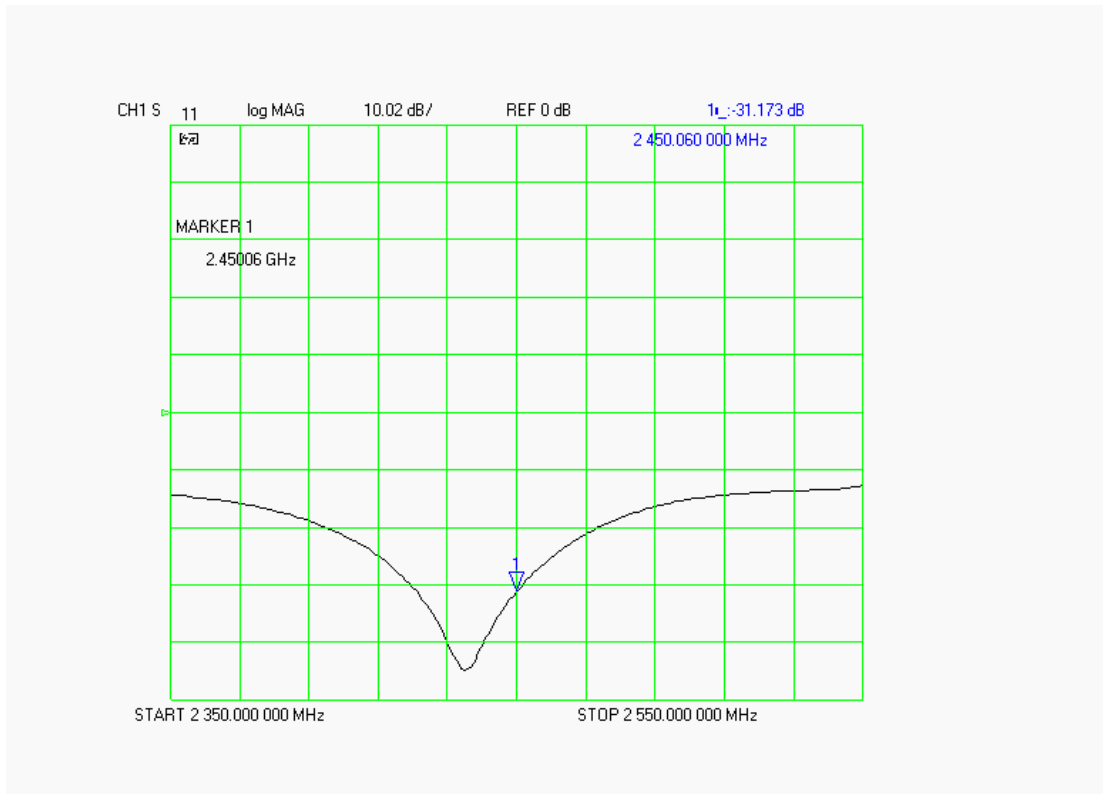
Dipole Impedance and Return Loss

The impedance was measured at the SMA connector with a network analyzer. The dipole was positioned at the flat phantom sections according to measurement conditions stated above during impedance measurements.

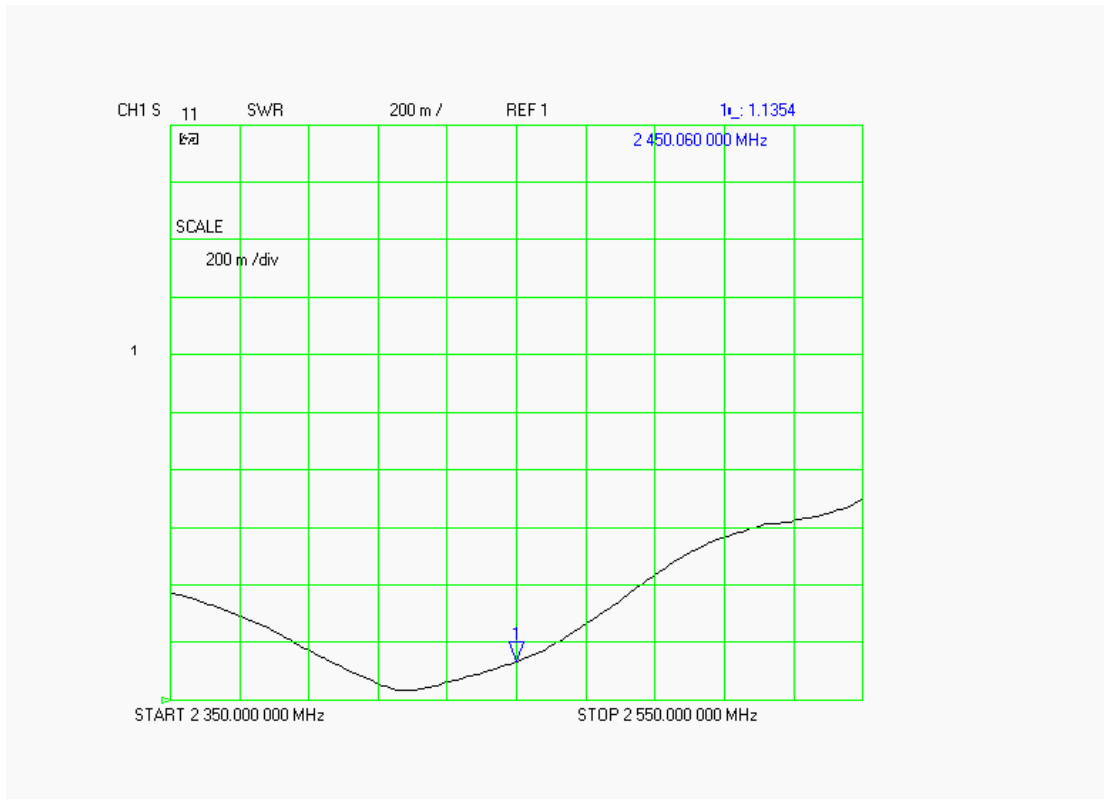
Test	Result
S11 R/L	-31.173 dB
SWR	1.1354 U
Impedance	54.146 Ω

The following graphs are the results as displayed on the Vector Network Analyzer.

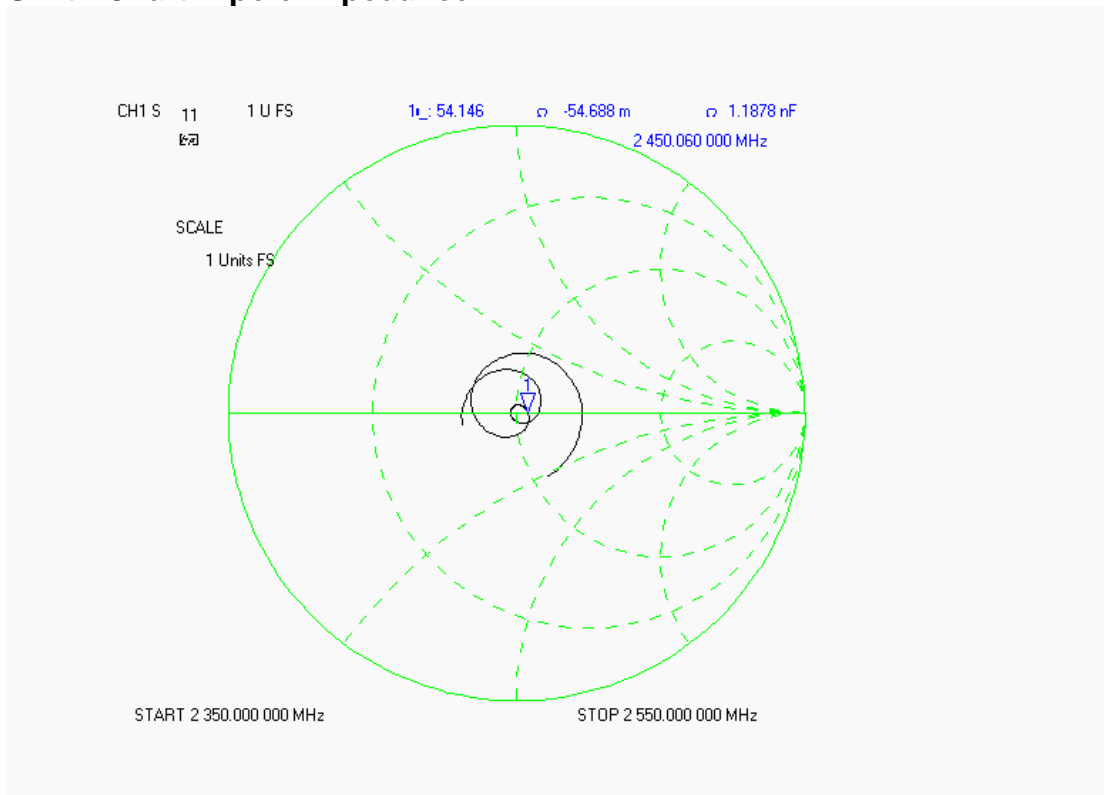
S11 Parameter Return Loss



SWR



Smith Chart Dipole Impedance



Test Equipment List

The test equipment used during Dipole Calibration, manufacturer, model number and, current calibration status are listed and located on the RF Exposure Lab, LLC system computer C:\Test Equipment\Calibration Equipment\Instrument List February 2008.

RF Exposure Lab, LLC

Calibration File No: CAL.20070501

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated at RF Exposure Lab, LLC by qualified personnel following recognized procedures and using transfer standards traceable to NRC/NIST.

Validation Dipole

Manufacturer: APREL Laboratories

Part Number: ALS-D-BB-S-2

Frequency: 5.2 GHz to 5.8 GHz

Serial No: 235-00801

Manufactured: 22 May 2005
Calibrated: 23 May 2007

Calibrated By: Signature on File
Jay Moulton – Technical Manager

Approved By: Signature on File
Tamara Moulton – Quality Manager

Measurement Uncertainty:

Repeatability:	2.3%
Tissue Uncertainty:	3.2%
Network Analyzer:	2.5%



RF EXPOSURE LAB, LLC

2867 Progress Place, Suite 4D
Escondido, CA 92029

Tel: (760) 737-3131
FAX: (760) 737-9131

Calibration Results Summary

The following results relate to the Calibrated Dipole and should be used as a quick reference for the user.

Mechanical Dimensions

Length: 23.3 mm
Height: 20.3 mm

Electrical Specifications

5.2 GHz Body

SWR: 1.8749 U
Return Loss: -17.057 dB
Impedance: 54.252 Ω

System Validation Results

Frequency	1 Gram	10 Gram
5.2 GHz	62.98	15.44

5.6 GHz Body

SWR: 1.2178 U
Return Loss: -18.513 dB
Impedance: 45.365 Ω

System Validation Results

Frequency	1 Gram	10 Gram
5.6 GHz	59.92	15.30

5.8 GHz Body

SWR: 1.8551 U
Return Loss: -10.237 dB
Impedance: 45.014 Ω

System Validation Results

Frequency	1 Gram	10 Gram
5.8 GHz	58.92	15.05

5.2 GHz Body Measurement Conditions

The measurements were performed in the Uni-Phantom filled with body simulating liquid of the following electrical parameters at 5.2 GHz:

Relative Dielectricity	49.19	± 5%
Conductivity	5.40 mho/m	± 5%

The APREL Laboratories ALSAS system with a dosimetric E-field probe E-030 (SN:AL-E3P1, Conversion factor 13.0 at 5.2 GHz) was used for the measurements.

The dipole was mounted so that the dipole feed point was positioned below the center marking of the flat phantom and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from the dipole center to the solution surface.

The coarse grid with a grid spacing of 10mm was aligned with the dipole. The 7x7x7 fine cube was chosen for cube integration. The dipole input power (forward power) was 100mW ± 3%. The results are normalized to 1W input power.

The laboratories environmental conditions were as follows during the calibration sequence.

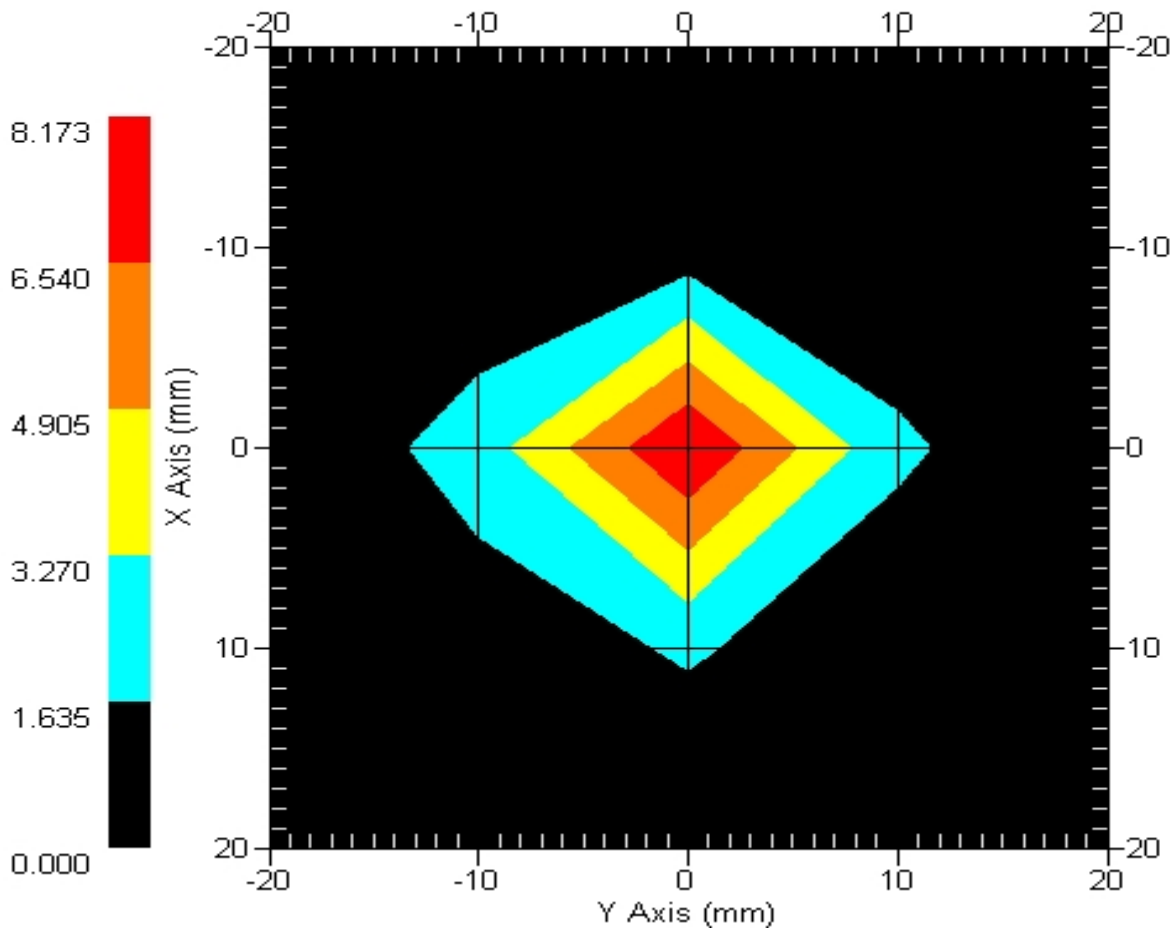
Ambient Temperature of the Laboratory:	23 °C ± 1.0 °C
Temperature of the Tissue:	20 °C ± 1.0 °C
Relative Humidity:	52%

SAR Measurement

Standard SAR measurements were performed according to the measurement conditions described above. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR values measured with the dosimetric probe E-030 SN:AL-E3P1 and applying the advanced extrapolation are:

Averaged over 1 cm³ (1 g) of tissue: 62.98 mW/g ± 19.1% (k=2)¹
 Averaged over 10 cm³ (10 g) of tissue: 15.44 mW/g ± 18.8% (k=2)¹

Area Scan



1 gram SAR value : 6.298 W/kg
 10 gram SAR value : 1.544 W/kg
 Area Scan Peak SAR : 8.173 W/kg
 Zoom Scan Peak SAR : 21.817 W/kg

¹ validation uncertainty

5.6 GHz Body Measurement Conditions

The measurements were performed in the Uni-Phantom filled with body simulating liquid of the following electrical parameters at 5.6 GHz:

Relative Dielectricity	48.22	± 5%
Conductivity	5.68 mho/m	± 5%

The APREL Laboratories ALSAS system with a dosimetric E-field probe E-030 (SN:AL-E3P1, Conversion factor 13.5 at 5.6 GHz) was used for the measurements.

The dipole was mounted so that the dipole feed point was positioned below the center marking of the flat phantom and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from the dipole center to the solution surface.

The coarse grid with a grid spacing of 10mm was aligned with the dipole. The 7x7x7 fine cube was chosen for cube integration. The dipole input power (forward power) was 100mW ± 3%. The results are normalized to 1W input power.

The laboratories environmental conditions were as follows during the calibration sequence.

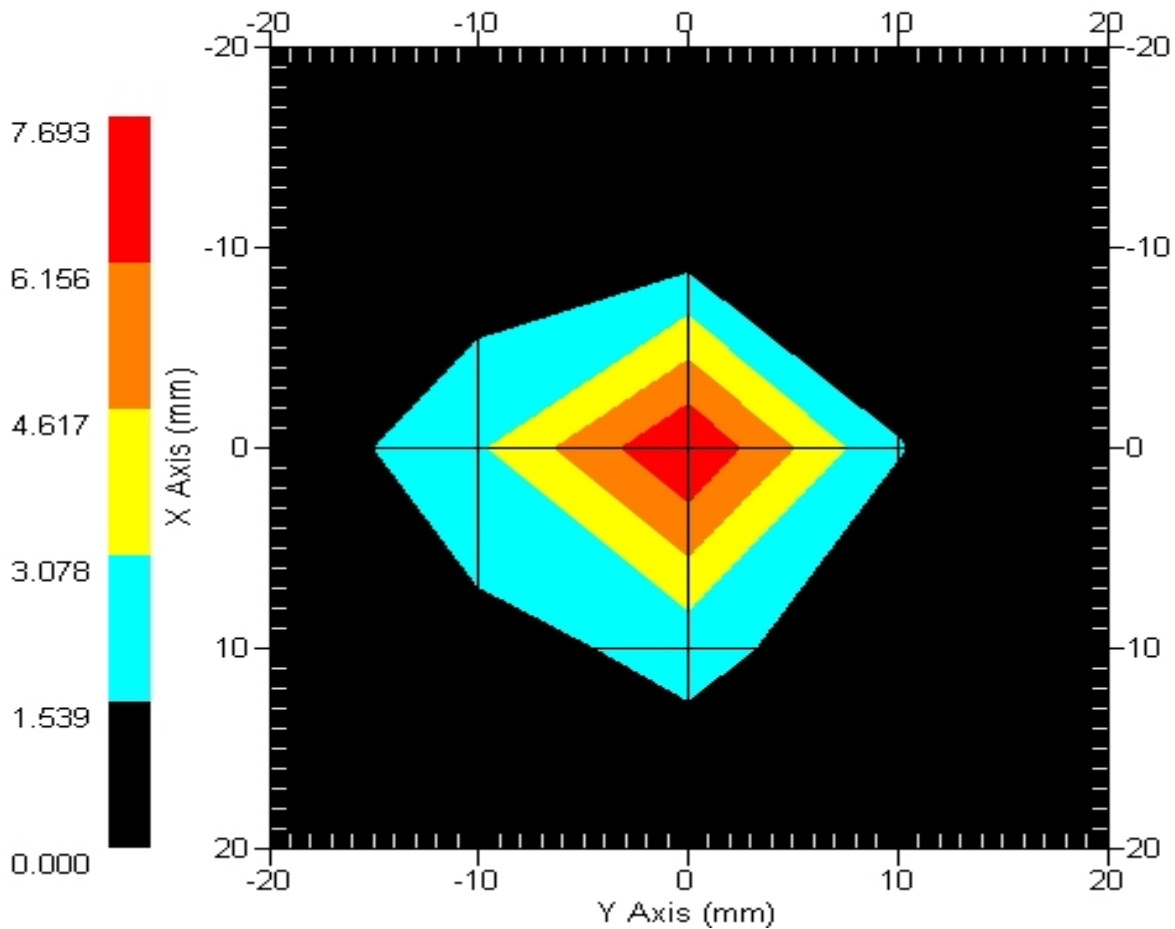
Ambient Temperature of the Laboratory:	23 °C ± 1.0 °C
Temperature of the Tissue:	20 °C ± 1.0 °C
Relative Humidity:	52%

SAR Measurement

Standard SAR measurements were performed according to the measurement conditions described above. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR values measured with the dosimetric probe E-030 SN:AL-E3P1 and applying the advanced extrapolation are:

Averaged over 1 cm³ (1 g) of tissue: 59.92 mW/g ± 19.1% (k=2)¹
 Averaged over 10 cm³ (10 g) of tissue: 15.30 mW/g ± 18.8% (k=2)¹

Area Scan



1 gram SAR value : 5.992 W/kg
 10 gram SAR value : 1.530 W/kg
 Area Scan Peak SAR : 7.693 W/kg
 Zoom Scan Peak SAR : 19.415 W/kg

¹ validation uncertainty

5.8 GHz Body Measurement Conditions

The measurements were performed in the Uni-Phantom filled with body simulating liquid of the following electrical parameters at 5.8 GHz:

Relative Dielectricity	48.53	± 5%
Conductivity	5.95 mho/m	± 5%

The APREL Laboratories ALSAS system with a dosimetric E-field probe E-030 (SN:AL-E3P1, Conversion factor 14.0 at 5.8 GHz) was used for the measurements.

The dipole was mounted so that the dipole feed point was positioned below the center marking of the flat phantom and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from the dipole center to the solution surface.

The coarse grid with a grid spacing of 10mm was aligned with the dipole. The 7x7x7 fine cube was chosen for cube integration. The dipole input power (forward power) was 100mW ± 3%. The results are normalized to 1W input power.

The laboratories environmental conditions were as follows during the calibration sequence.

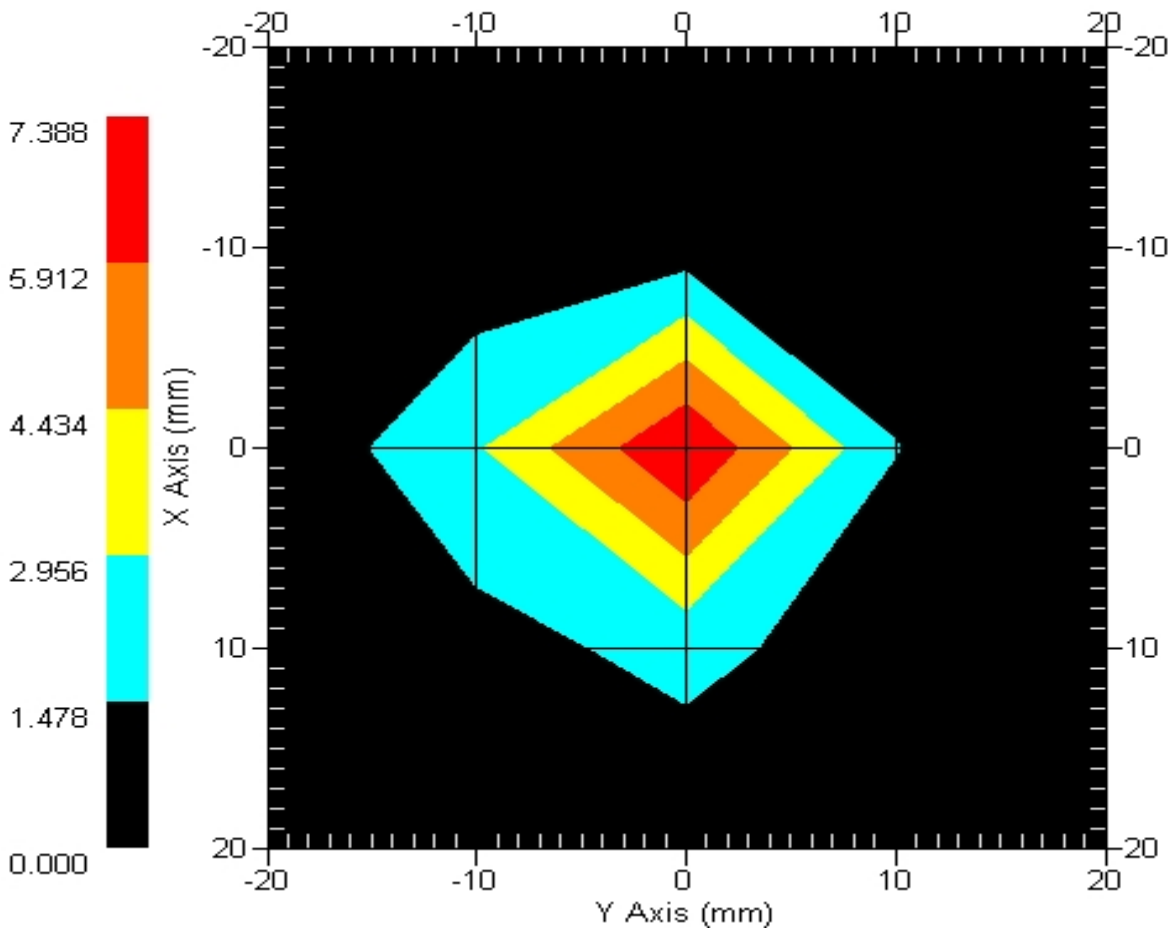
Ambient Temperature of the Laboratory:	23 °C ± 1.0 °C
Temperature of the Tissue:	20 °C ± 1.0 °C
Relative Humidity:	52%

SAR Measurement

Standard SAR measurements were performed according to the measurement conditions described above. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR values measured with the dosimetric probe E-030 SN:AL-E3P1 and applying the advanced extrapolation are:

Averaged over 1 cm³ (1 g) of tissue: 58.92 mW/g ± 19.1% (k=2)¹
 Averaged over 10 cm³ (10 g) of tissue: 15.05 mW/g ± 18.8% (k=2)¹

Area Scan



1 gram SAR value : 5.892 W/kg
 10 gram SAR value : 1.505 W/kg
 Area Scan Peak SAR : 7.388 W/kg
 Zoom Scan Peak SAR : 19.315 W/kg

¹ validation uncertainty

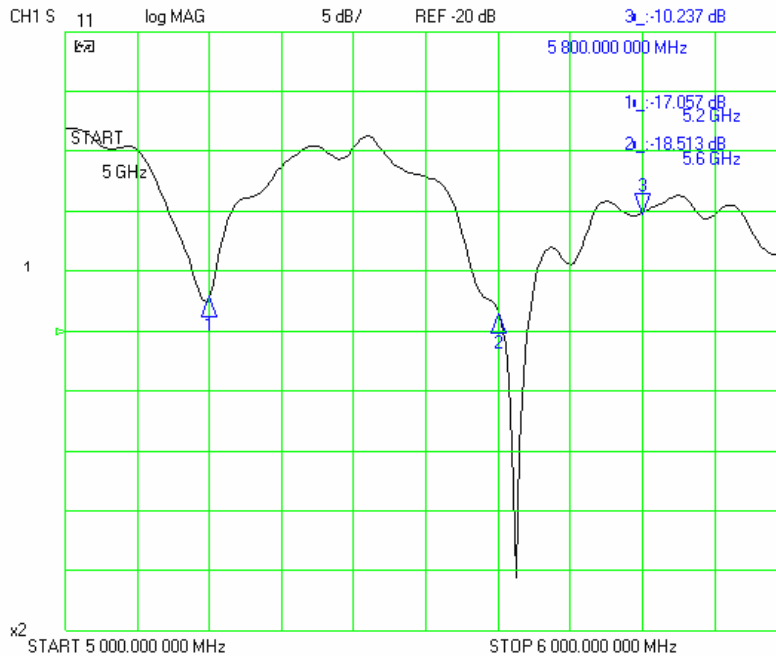
Dipole Impedance and Return Loss

The impedance was measured at the SMA connector with a network analyzer. The dipole was positioned at the flat phantom sections according to measurement conditions stated above during impedance measurements.

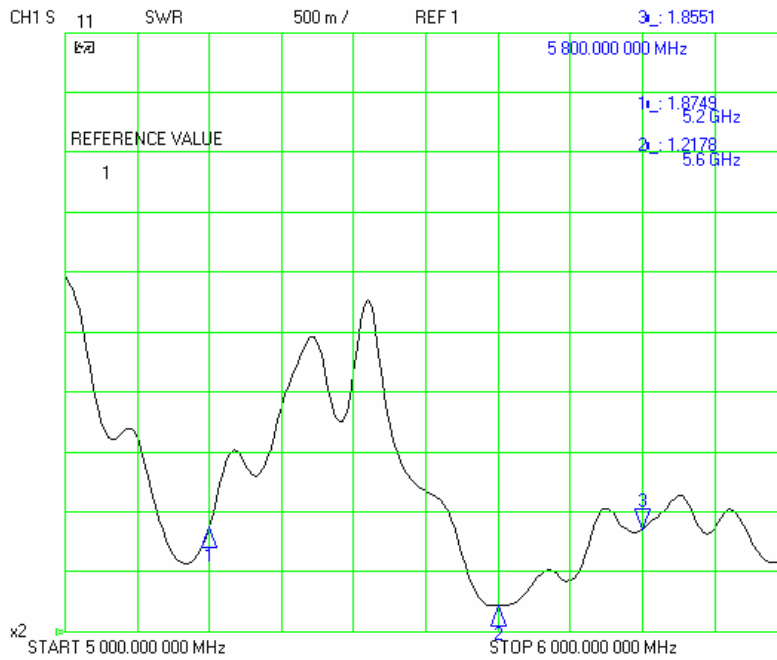
Test	Result – 5.2 GHz	Result – 5.6 GHz	Result – 5.8 GHz
S11 R/L	-17.057 dB	-18.513 dB	-10.237 dB
SWR	1.8749 U	1.2178 U	1.8551 U
Impedance	54.252 Ω	45.365 Ω	45.014 Ω

The following graphs are the results as displayed on the Vector Network Analyzer.

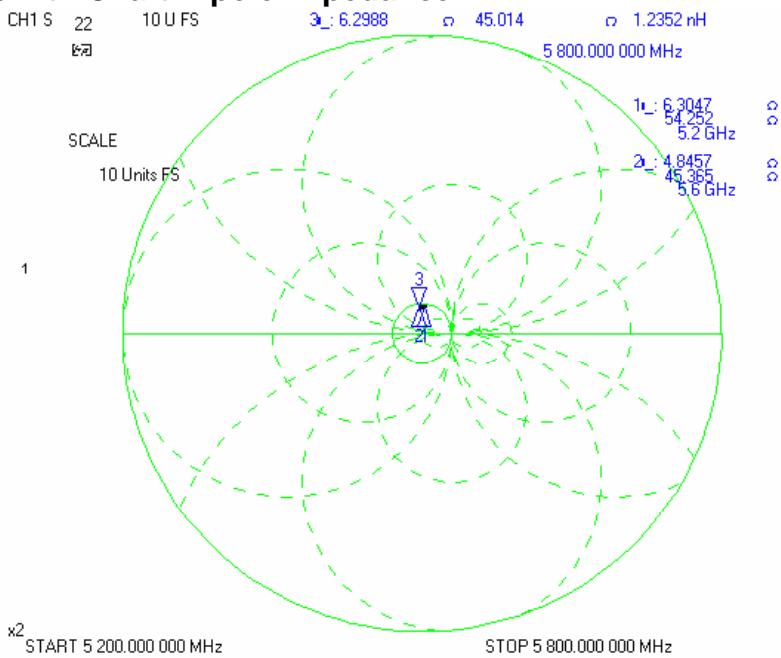
S11 Parameter Return Loss



SWR



Smith Chart Dipole Impedance



Test Equipment List

The test equipment used during Dipole Calibration, manufacturer, model number and, current calibration status are listed and located on the RF Exposure Lab, LLC system computer C:\Test Equipment\Calibration Equipment\Instrument List May 2007.

Appendix F – Phantom Calibration Data Sheets

NCL CALIBRATION LABORATORIES

Calibration File No.: RFE-273

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated in the **NCL CALIBRATION LABORATORIES** by qualified personnel following recognized procedures and using transfer standards traceable to National Standards.

Thickness of the UniPhantom is 2 mm \pm 10%
Pinna thickness is 6 mm \pm 10%

Resolution:	0.01 mm	Calibrated to:	0.0 mm
Stability:	OK	Accuracy:	< 0.1 mm

Calibrated By: Karen K. Feb 17/04.

NCL CALIBRATION LABORATORIES

51 SPECTRUM WAY
NEPEAN, ONTARIO
CANADA K2R 1E6

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