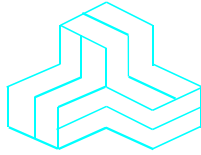


ENGINEERING TEST REPORT



Broadcom WLAN MiniPCI card Model No.: BCM94309MP

Tested For

Broadcom Corporation
190 Mathilda Place
Sunnyvale, California 94086
USA

In Accordance With

SAR (Specific Absorption Rate) Requirements
using guidelines established in IEEE C95.1-1991,
FCC OET Bulletin 65 (Supplement C),
Industry Canada RSS-102(Issue 1) and
ACA Radiocommunications (Electromagnetic Radiation – Human Exposure)
Amendment Standard 2000 (No. 1)

UltraTech's File No.: BRQ-002-SAR

This Test report is Issued under the Authority of
Tri M. Luu, Professional Engineer,
Vice President of Engineering
UltraTech Group of Labs



Date: February 25, 2003

Report Prepared by: JaeWook Choi

Tested by: JaeWook Choi

Issued Date: February 25, 2003

Test Dates: February 15, 2003

The results in this Test Report apply only to the sample(s) tested, which has been randomly selected.

UltraTech

3000 Bristol Circle, Oakville, Ontario, Canada, L6H 6G4
Telephone (905) 829-1570 Facsimile (905) 829-8050
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EXHIBIT 1. INTRODUCTION

The additional assessment has been conducted in order to ensure the RF safety compliance of the D.U.T mounted in different types of the host laptop PC units with different antenna configuration as specified in this report. The evaluation proceeded as based on the factors which was determined through prescans SAR measurements as documented in the original report. The test were performed at 5 mm separation distance since at this distance, the DUT was found be in compliance with the specific limit for general population exposure. All other conditions were set to be the same as on the original test. Refer to the original report for more test details

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Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>**File #: BRQ-002-SAR****February 25, 2003**

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EXHIBIT 2. PERFORMANCE ASSESSMENT

2.1. CLIENT AND MANUFACTURER INFORMATION

APPLICANT:	
Name:	Broadcom Corporation
Address:	190 Mathilda Place Sunnyvale, California 94086 USA
Contact Person:	Chris McGough Phone #: +1 408 922 5810 Fax #: +1 408 543 3399 Email Address: cmcgough@broadcom.com

MANUFACTURER:	
Name:	Broadcom Corporation
Address:	190 Mathilda Place Sunnyvale, California 94086 USA
Contact Person:	Chris McGough Phone #: +1 408 922 5810 Fax #: +1 408 543 3399 Email Address: cmcgough@broadcom.com

2.2. DEVICE UNDER TEST (D.U.T.) DESCRIPTION

The following is the information provided by the applicant.

Trade Name	The Broadcom Wireless LAN mini-PCI card
Type/Model Number	BCM94309MP
Serial Number	1388
Type of Equipment	Wireless LAN Card
Frequency of Operation	2400 ~ 2483.5 MHz , 5150 ~ 5350 MHz
Rated RF Power	15 dBm avg power in packet @ 5,180 MHz 15 dBm avg power in packet @ 5,260 MHz 15 dBm avg power in packet @ 5,320 MHz
Modulation Employed	DSSS (2GHz band), OFDM(5GHz band)
External Power Supply	Power supplied through the laptop computer
Primary User Functions of D.U.T.:	Data Radio Communication Through Air

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2.3. ANCILLARY EQUIPMENT

- Laptop #2: Laptop PC (Dell, M/N: PP05L) with the Hitachi Monopole MFJ type antenna (Main – M/N: HFT01-DL01, Aux – M/N: HFT01-DL01)
- Laptop #3: Laptop PC (Dell, M/N: PP02X) with the Hitachi Monopole MFJ type antenna (Main - M/N: HFT04-DL01-Main, Aux – M/N: HFT04-DL01-AUX)
- Laptop #4: Laptop PC (Dell, M/N: PP02X) with the Wistron NeWeb Corp. Triple-band antenna (Main – P/N: 81.CA915.001, Aux – P/N: 81.CA915.002)
- AC Power adaptor (M/N: HP-OQ065B83)

Laptop # 2 has the same housing case as the ancillary laptop used in the original report but has a different set of MAIN and AUX antenna from the different manufacturer.

Laptop #3 & #4 has the same housing case but each laptop has a different set of MAIN and AUX antenna from the different manufacturer.

		Laptop #1	Laptop #2	Laptop #3	Laptop #4
Laptop Model Number		PP05L	PP05L	PP02X	PP02X
Antenna		Wistron NeWeb Corp.	Hitachi	Hitachi	Wistron NeWeb Corp.
Antenna Model Number	MAIN	81.CA513.001	HFT01-DL01	HFT04-DL01-MAIN	81.CA915.001
	AUX	81.CA513.002	HFT01-DL01	HFT04-DL01-AUX	81.CA915.002
Comment		Tested in the original report	Tested in this report	Tested in this report	Tested in this report

2.4. SPECIFIC OPERATING CONDITIONS

D.U.T. was made to transmit with a 98% duty cycle which is the maximum duty cycle configurable instead of with its actual nominal duty cycle as a worst case consideration, using the exclusive software for SAR test provided by the manufacturer.

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EXHIBIT 3. SUMMARY OF TEST RESULTS

3.1. LOCATION OF TESTS

All of the measurements described in this report were performed at UltraTech Group of Labs located at:
3000 Bristol Circle, in the city of Oakville, Province of Ontario, Canada.

All measurements were performed in UltraTech’s shielded chamber, 24’ x 16’ x 8’.

3.2. APPLICABILITY & SUMMARY OF SAR RESULTS

The maximum peak spatial - average SAR measured was found to be 1.0998 W/Kg at 5 mm separation distance.

Exposure Category and SAR Limits	Test Requirements	Compliance (Yes/No)
<p>General population/Uncontrolled exposure</p> <p>0.08W/kg whole body average and spatial peak SAR of 1.6W/kg, averaged over 1gram of tissue Hands, wrist, feet and ankles have a peak SAR not to exceed 4 W/kg, averaged over 10 grams of tissue.</p>	<p>Requirements using guidelines established in IEEE C95.1-1991</p> <p>FCC OET Bulletin 65 (Supplement C)</p> <p>Industry Canada RSS-102 (Issue 1).</p> <p>ACA Radiocommunications (Electromagnetic Radiation – Human Exposure) Amendment Standard 2000 (No. 1)</p>	<p>YES</p>
<p>Occupational/Controlled Exposure</p> <p>0.4W/kg whole body average and spatial peak SAR of 8W/kg, averaged over 1gram of tissue Hands, wrist, feet and ankles have a peak SAR not to exceed 20 W/kg, averaged over 10 grams of tissue.</p>	<p>Requirements using guidelines established in IEEE C95.1-1991</p> <p>FCC OET Bulletin 65 (Supplement C),</p> <p>Industry Canada RSS-102 (Issue 1)</p> <p>ACA Radiocommunications (Electromagnetic Radiation – Human Exposure) Amendment Standard 2000 (No. 1)</p>	<p>N/A</p>

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EXHIBIT 4. MEASUREMENTS, EXAMINATIONS & TEST DATA

4.1. TEST SETUP

D.U.T. Information		Condition	
Product Name	Broadcom WLAN MiniPCI card	Robot Type	6 Axis
Model Number	BCM94309MP	Scan Type	SAR - Area/Zoom/Att Vs Depth
Serial Number	1388	Measured Field	E
Frequency Band [MHz]	5150 ~ 5350	Phantom Type	2 _{mm} base Flat Phantom
Frequency Tested [MHz]	5180.0, 5260.0, 5320.0	Phantom Position	Waist
Measured Output Power [dBm] (POP Power)	22.0 pk @ 5,180 MHz 22.0 pk @ 5,260 MHz 22.0 pk @ 5,320 MHz	Room Temperature [°C]	21.0 ± 1
Antenna Type	Refer to 2.3	Room Humidity [%]	30 ± 10
Modulation	OFDM @ 5GHz band	Tissue Temperature [°C]	21.0 ± 1
Duty Cycle	98 %		

Type of Tissue	Muscle
Test Frequency [MHz]	5240
Measured Dielectric Constant	47.3 (-3.5 %)
Measured Conductivity [S/m]	5.61 (+4.9 %)
Penetration Depth (Plane Wave Excitation) [mm]	6.64
Probe Model Number	E-TR
Probe Serial Number	UT-0200-1
Probe Orientation	Isotropic
Probe Offset [mm]	2.00
Probe Tip Diameter [mm]	4.00
Sensor Factor (η_{pd}) [mV/(mW/cm ²)]	10.8
Conversion Factor (γ)	2.721
Sensitivity (ζ) [W/Kg/mV]	0.719

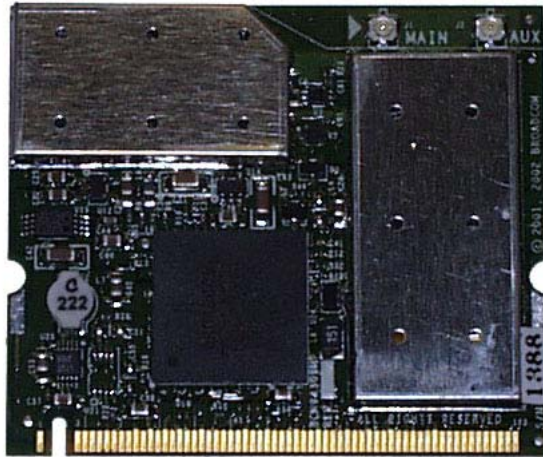
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4.2. PHOTOGRAPH OF D.U.T. AND ALL ACCESSORIES



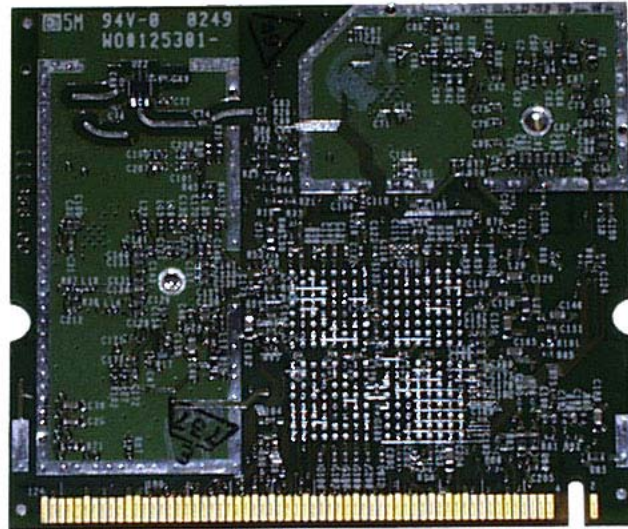
< BCM94309MP Broadcom WLAN MiniPCI card front view >

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< BCM94309MP Broadcom WLAN MiniPCI card rear view >

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4.2.1. Laptop #2 (M/N: PP05L, Hitachi Monopole MFJ type Antenna)



< Dell Latitude Laptop PC (M/N: PP05L) – MAIN and AUX antenna location and cable routing >

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< D.U.T. installed in miniPCI slot >

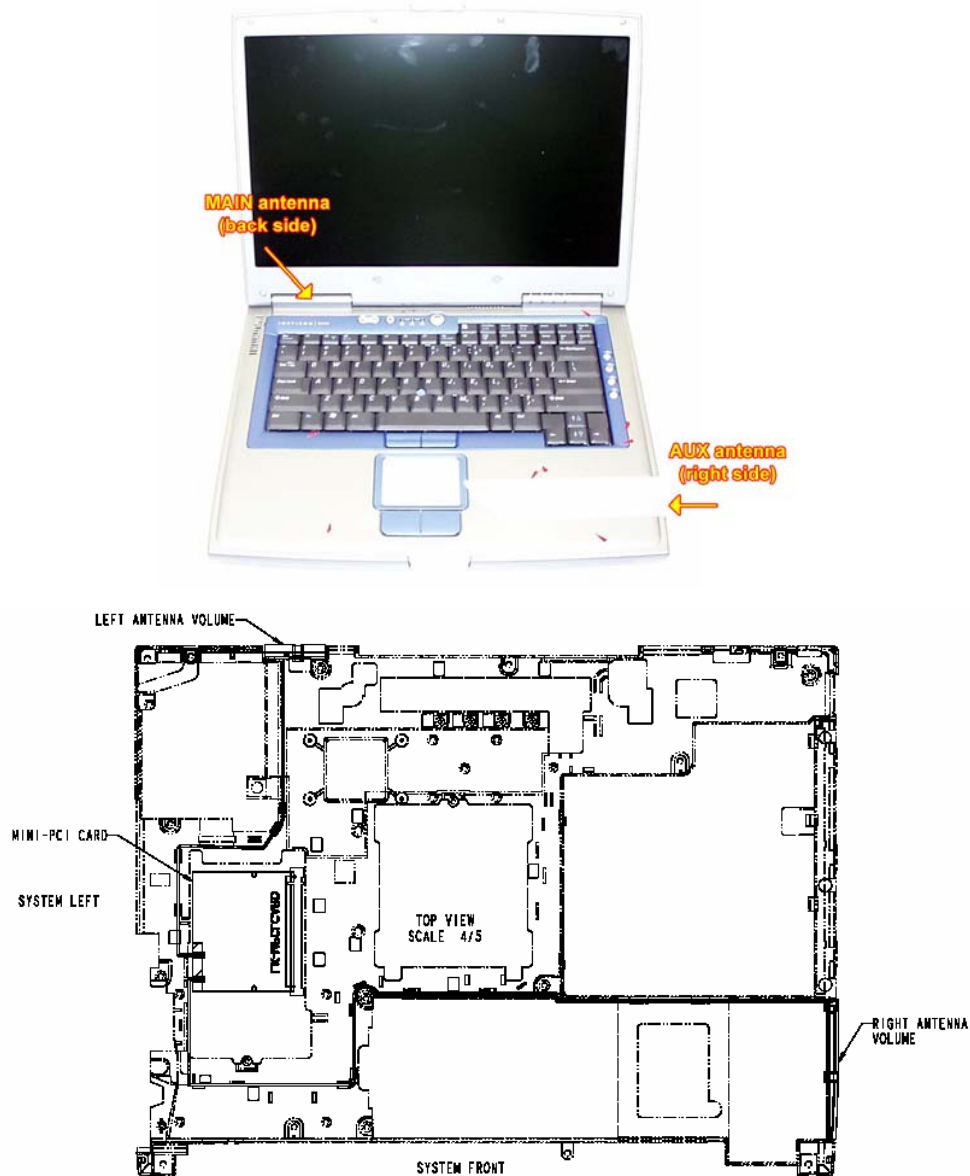
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4.2.2. Laptop #3 & #4 (M/N: PP02X, Hitachi Monopole MFJ type Antenna or Wistron NeWeb Corp. Triple-band Antenna)



< Dell Inspiron (M/N: PP02X) – MAIN and AUX antenna location and cable routing >

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< D.U.T. installed in miniPCI slot >

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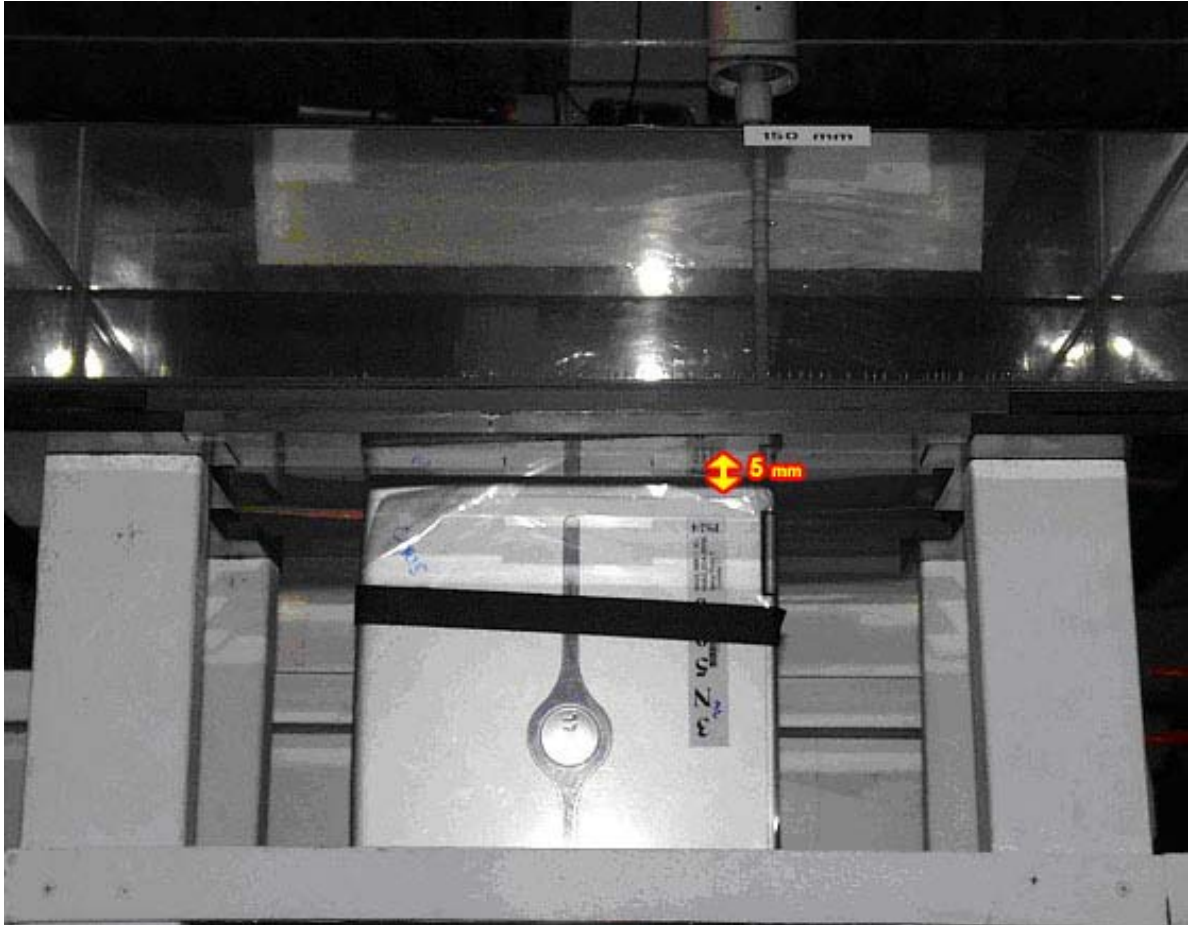
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4.3. PHOTOGRAPH OF D.U.T. POSITION

4.3.1. Laptop #2 (M/N: PP05L, Hitachi Monopole MFJ type Antenna)

4.3.1.1. Left side of the host PC toward the phantom and 5 mm separation distance (Main antenna)



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4.3.1.2. Right side of the host PC toward the phantom and 5 mm separation distance (Aux antenna)



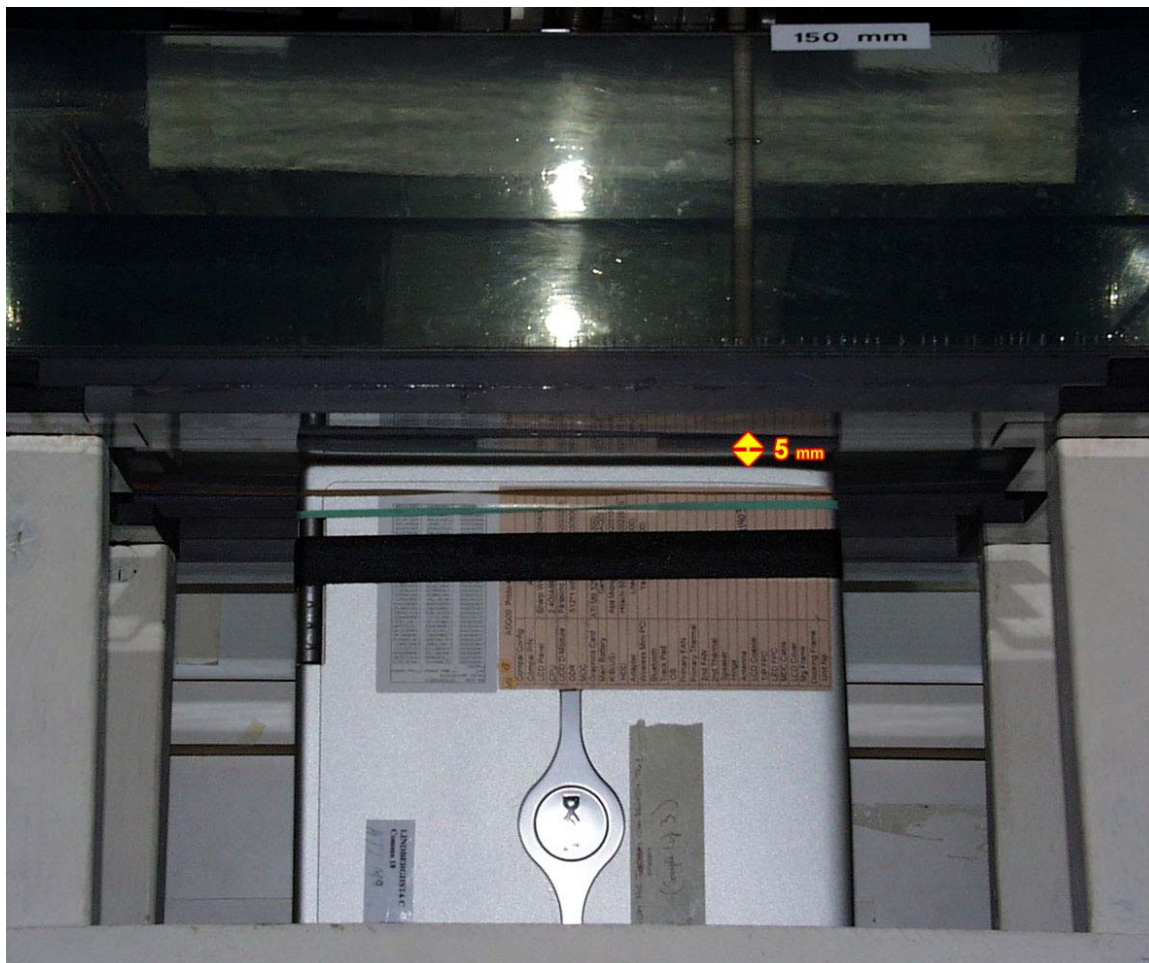
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4.3.2.2. Right side of the host PC toward the phantom and 5 mm separation distance (Aux antenna)



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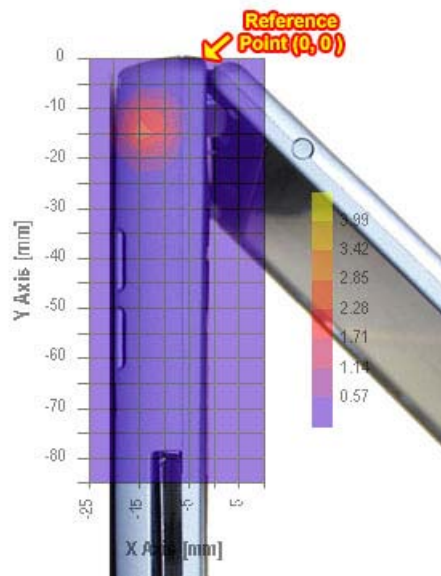
4.4. MAXIMUM PEAK SPATIAL-AVERAGE SAR

4.4.1. Laptop #2 (M/N: PP05L, Hitachi Monopole MFJ type Antenna)

4.4.1.1. Maximum peak spatial-average SAR data

#	Configuration	Device Test Positions	Antenna Position	Freq. [MHz]	Channel	MAX. SAR [W/Kg]
02	Left side of the host PC toward the phantom 5 mm separation distance 6 MBPS data rate	Body-worn (By Stander)	Main antenna (left side) - Fixed	5260	CH52	0.7884

4.4.1.2. Maximum peak spatial-average SAR location



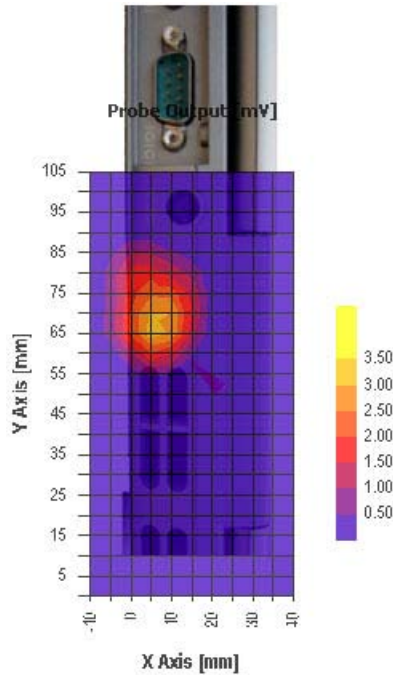
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4.4.2. Laptop #3 (M/N: PP02X, Hitachi Monopole MFJ type Antenna) & #4 (M/N: PP02X, Wistron NeWeb Corp. Triple-band Antenna)

4.4.2.1. Maximum peak spatial-average SAR data

#	Configuration	Device Test Positions	Antenna Position	Freq. [MHz]	Channel	MAX. SAR [W/Kg]
13	Back side of the host PC toward the phantom 5 mm separation distance 6 MBPS data rate	Body-worn (By Stander)	Main antenna (back side) - Fixed	5180	CH36	1.0998

4.4.2.2. Maximum peak spatial-average SAR location



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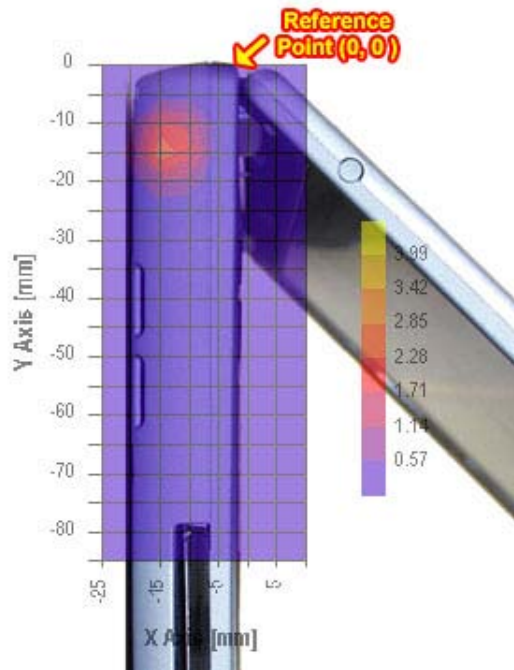
4.5. SAR MEASUREMENT

4.5.1. Body-worn (By Stander) Configuration

4.5.1.1. Laptop #2 (M/N: PP05L, Hitachi Monopole MFJ type Antenna)

4.5.1.1.1. Main antenna (left side)

#	Configuration	Device Test Positions	Antenna Position	Freq. [MHz]	Channel	Power reference before [dBm]	Power reference after [dBm]	MAX SAR [W/Kg]
01	Left side of the host PC toward the phantom 6 MBPS data rate	5 mm separation	Main antenna (left side) – Fixed	5180	CH36			* note)
02				5260	CH52	21.9 _{pk}	21.8 _{pk}	0.7884
03				5320	CH64			* note)



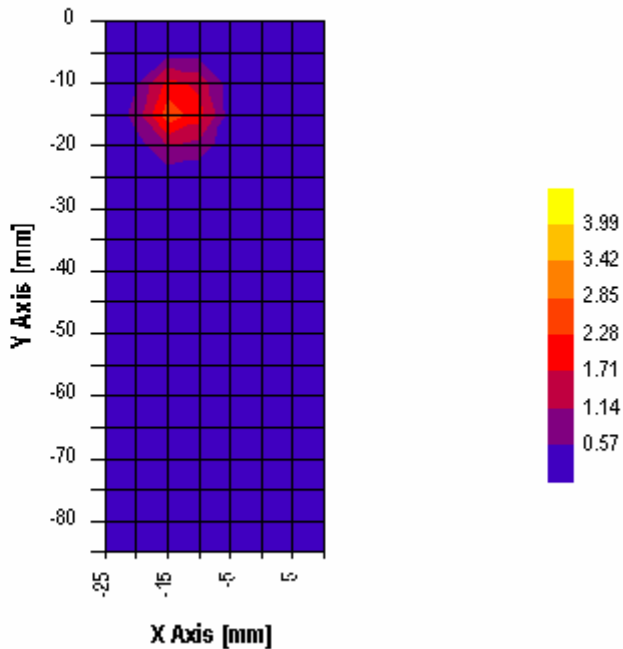
* If the SAR measured at the middle channel for each test configuration is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

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4.5.1.1.1. CH 52, 5260 MHz

Test date [MM/DD/YYYY]	02/20/2003
Test by	JaeWook Choi
Room temperature [°C]	21
Room humidity [%]	30
Simulated tissue temperature [°C]	21
Separation distance, d [mm]	5
Test frequency [MHz]	5260
E-field Probe	M/N: E-TR, S/N: UT-0200-1, Sensor Offset: 2.0 mm
Sensor Factor (η_{pd}) [mV/(mW/cm ²)]	10.8
Amplifier Settings (AS ₁ , AS ₂ , AS ₃)	0.00596768, 0.00563160, 0.00779221
Tissue Type	Muscle
Measured conductivity [S/m]	5.61 (+4.9 %)
Measured dielectric constant	47.3 (-3.5 %)
Conversion Factor (γ)	2.721
Sensitivity (ζ) [W/Kg/mV]	0.719
Power [dBm]	21.9 peak conducted
Measurement Volume Specification (X × Y × Z)	5 pts × 5 pts × 13 pts, 12 mm × 12 mm × 12 mm, Resolution: 3 mm × 3 mm × 1 mm
SAR _{1g} [W/Kg]	0.7884

Probe Output [mV]

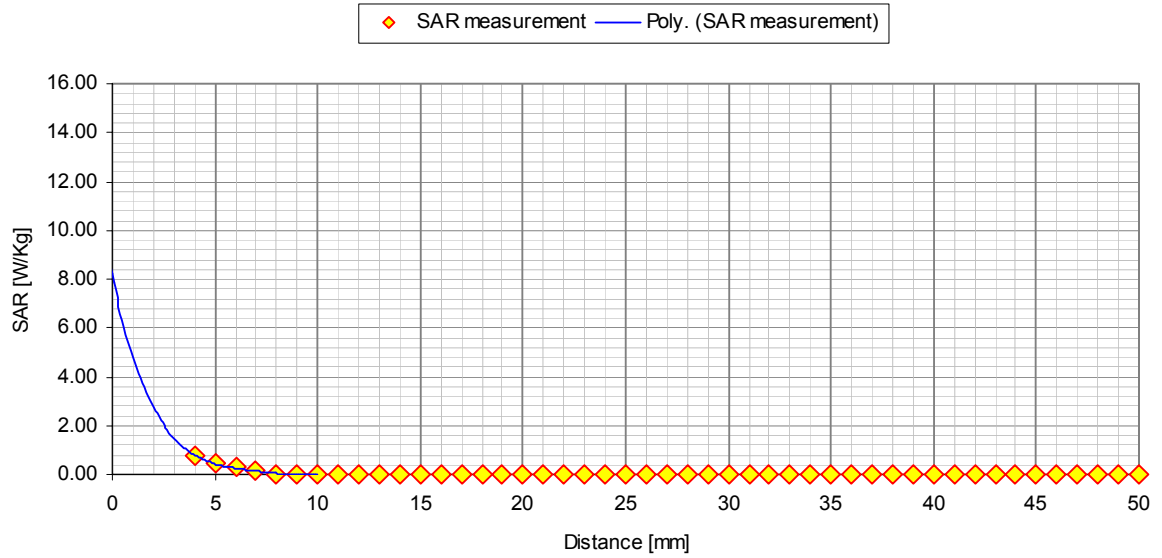


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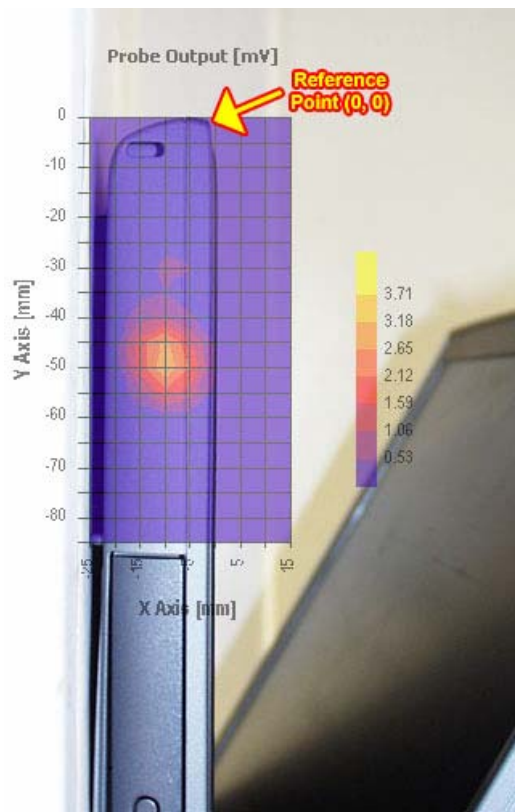
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4.5.1.1.2. Aux antenna (right side)

#	Configuration	Device Test Positions	Antenna Position	Freq. [MHz]	Channel	Power reference before [dBm]	Power reference after [dBm]	MAX SAR [W/Kg]
04	Right side of the host PC toward the phantom 6 MBPS data rate	5 mm separation	Aux antenna (right side) - Fixed	5180	CH36			* note)
05				5260	CH52	21.9 _{pk}	21.8 _{pk}	0.0774
06				5320	CH64			* note)



* If the SAR measured at the middle channel for each test configuration is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

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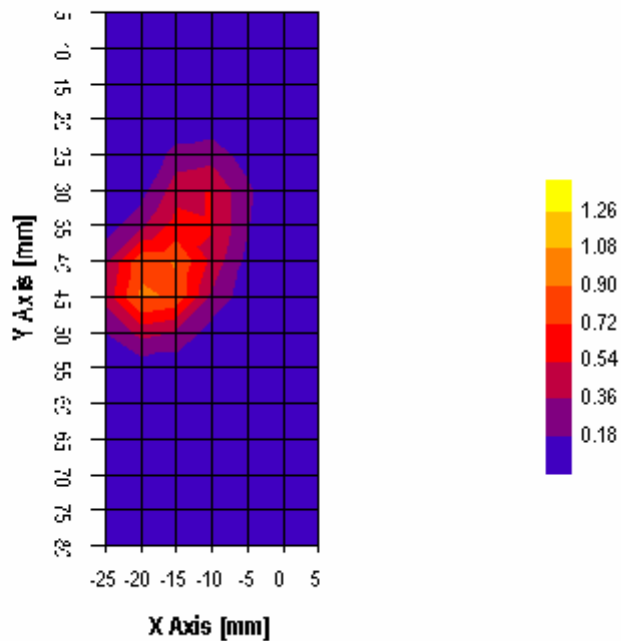
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4.5.1.1.2.1. CH 52, 5260 MHz

Test date [MM/DD/YYYY]	02/20/2003
Test by	JaeWook Choi
Room temperature [°C]	21
Room humidity [%]	30
Simulated tissue temperature [°C]	21
Separation distance, d [mm]	5
Test frequency [MHz]	5260
E-field Probe	M/N: E-TR, S/N: UT-0200-1, Sensor Offset: 2.0 mm
Sensor Factor (η_{pd}) [mV/(mW/cm ²)]	10.8
Amplifier Settings (AS ₁ , AS ₂ , AS ₃)	0.00596768, 0.00563160, 0.00779221
Tissue Type	Muscle
Measured conductivity [S/m]	5.61 (+4.9 %)
Measured dielectric constant	47.3 (-3.5 %)
Conversion Factor (γ)	2.721
Sensitivity (ζ) [W/Kg/mV]	0.719
Power [dBm]	21.9 peak conducted
Measurement Volume Specification (X × Y × Z)	5 pts × 5 pts × 13 pts, 12 mm × 12 mm × 12 mm, Resolution: 3 mm × 3 mm × 1 mm
SAR _{1g} [W/Kg]	0.0774

Probe Output [mV]

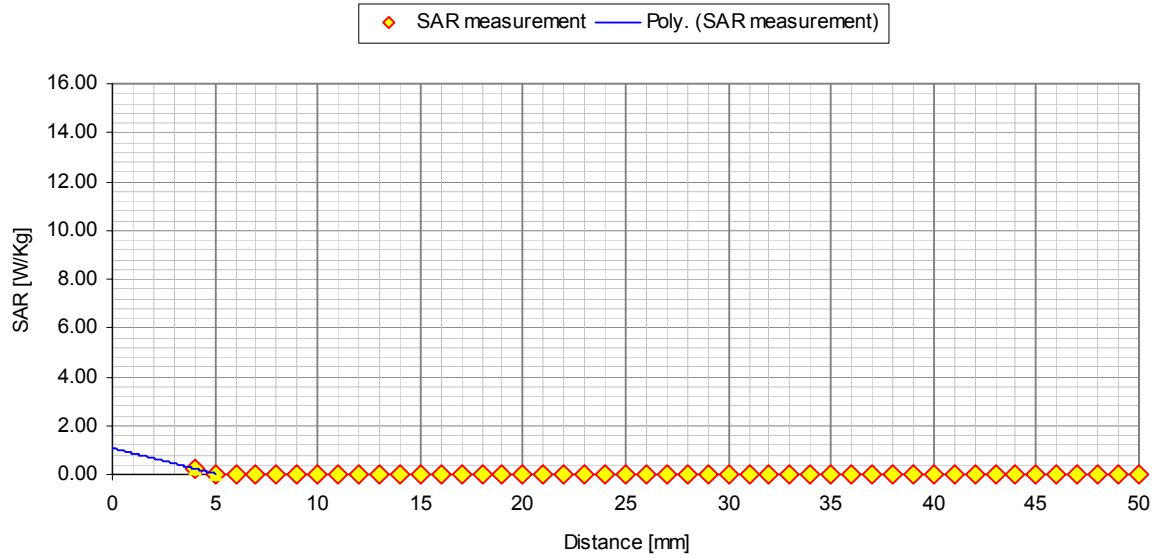


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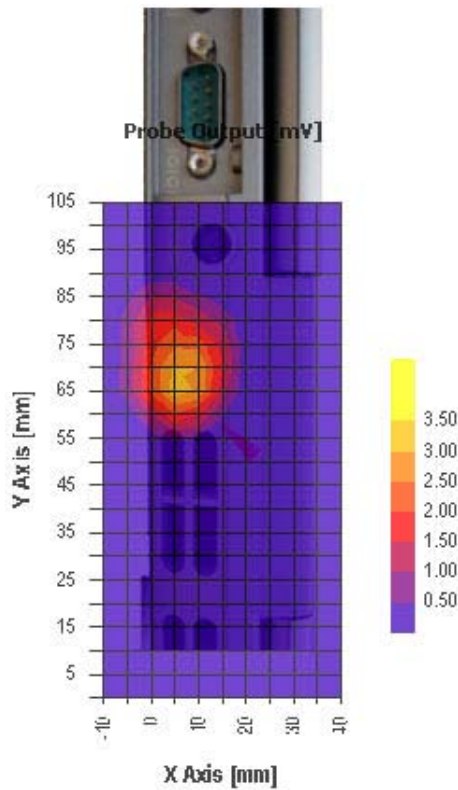
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4.5.1.2. Laptop #3 (M/N: PP02X, Hitachi Monopole MFJ type Antenna)

4.5.1.2.1. Main antenna (back side)

#	Configuration	Device Test Positions	Antenna Position	Freq. [MHz]	Channel	Power reference before [dBm]	Power reference after [dBm]	MAX SAR [W/Kg]
07	Back side of the host PC toward the phantom 6 MBPS data rate	5 mm separation	Main antenna (back side) – Fixed	5180	CH36	21.9 _{pk}	21.8 _{pk}	0.3030
08				5260	CH52	21.9 _{pk}	21.8 _{pk}	0.9710
09				5320	CH64	21.9 _{pk}	21.8 _{pk}	0.3518



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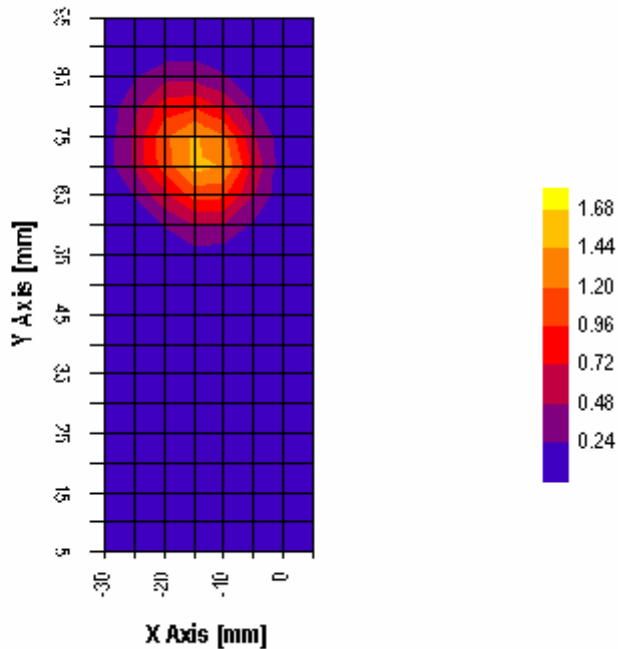
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4.5.1.2.1.1. CH 36, 5180 MHz

Test date [MM/DD/YYYY]	02/18/2003
Test by	JaeWook Choi
Room temperature [°C]	21
Room humidity [%]	30
Simulated tissue temperature [°C]	21
Separation distance, d [mm]	5
Test frequency [MHz]	5180
E-field Probe	M/N: E-TR, S/N: UT-0200-1, Sensor Offset: 2.0 mm
Sensor Factor (η_{pd}) [mV/(mW/cm ²)]	10.8
Amplifier Settings (AS ₁ , AS ₂ , AS ₃)	0.00596768, 0.00563160, 0.00779221
Tissue Type	Muscle
Measured conductivity [S/m]	5.61 (+4.9 %)
Measured dielectric constant	47.3 (-3.5 %)
Conversion Factor (γ)	2.721
Sensitivity (ζ) [W/Kg/mV]	0.719
Power [dBm]	21.9 peak conducted
Measurement Volume Specification (X × Y × Z)	5 pts × 5 pts × 13 pts, 12 mm × 12 mm × 12 mm, Resolution: 3 mm × 3 mm × 1 mm
SAR _{1g} [W/Kg]	0.3030

Probe Output [mV]

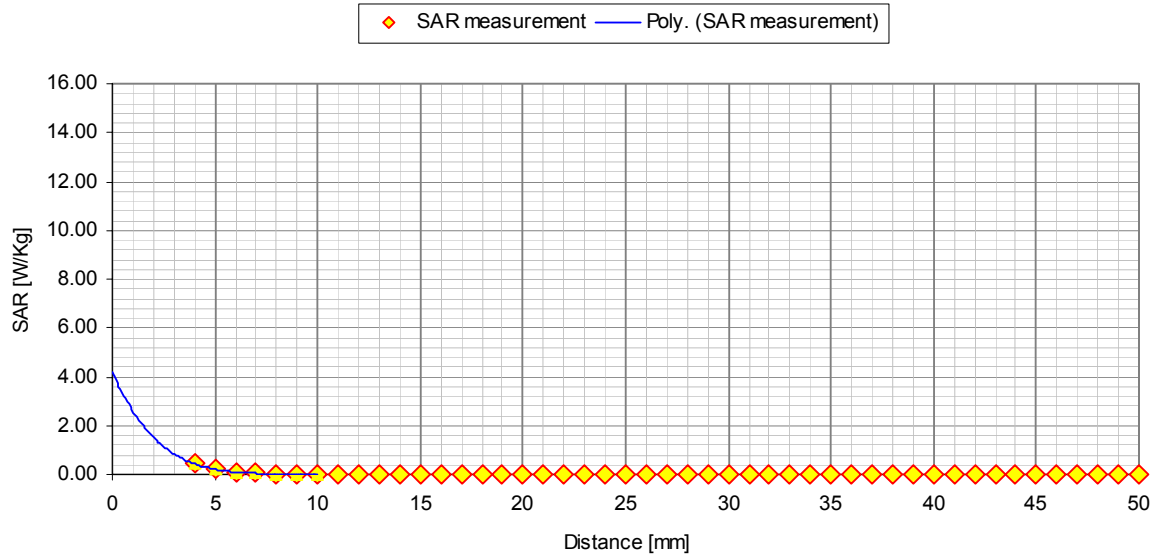


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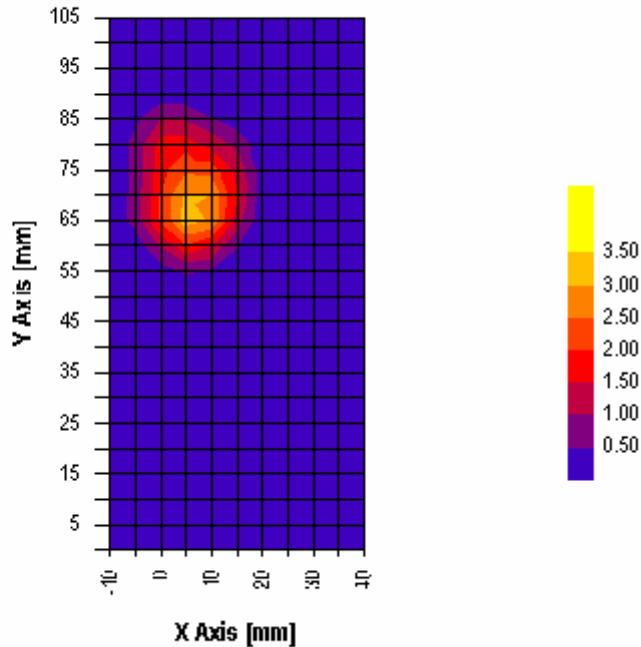
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4.5.1.2.1.2. CH 52, 5260 MHz

Test date [MM/DD/YYYY]	02/18/2003
Test by	JaeWook Choi
Room temperature [°C]	21
Room humidity [%]	30
Simulated tissue temperature [°C]	21
Separation distance, d [mm]	5
Test frequency [MHz]	5260
E-field Probe	M/N: E-TR, S/N: UT-0200-1, Sensor Offset: 2.0 mm
Sensor Factor (η_{pd}) [mV/(mW/cm ²)]	10.8
Amplifier Settings (AS ₁ , AS ₂ , AS ₃)	0.00596768, 0.00563160, 0.00779221
Tissue Type	Muscle
Measured conductivity [S/m]	5.61 (+4.9 %)
Measured dielectric constant	47.3 (-3.5 %)
Conversion Factor (γ)	2.721
Sensitivity (ζ) [W/Kg/mV]	0.719
Power [dBm]	21.9 peak conducted
Measurement Volume Specification (X × Y × Z)	5 pts × 5 pts × 13 pts, 12 mm × 12 mm × 12 mm, Resolution: 3 mm × 3 mm × 1 mm
SAR _{1g} [W/Kg]	0.9710

Probe Output [mV]

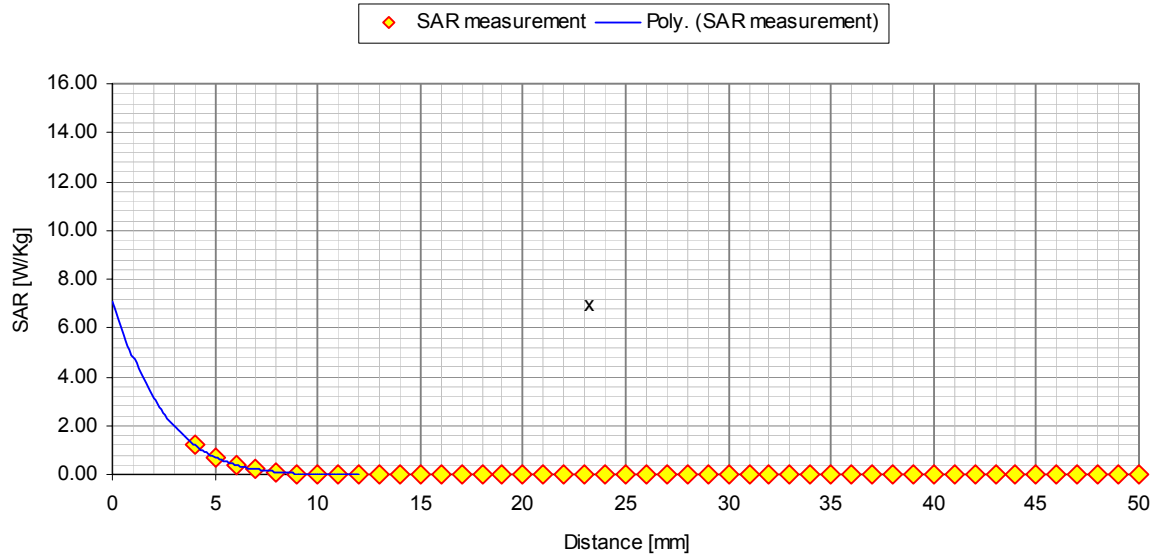


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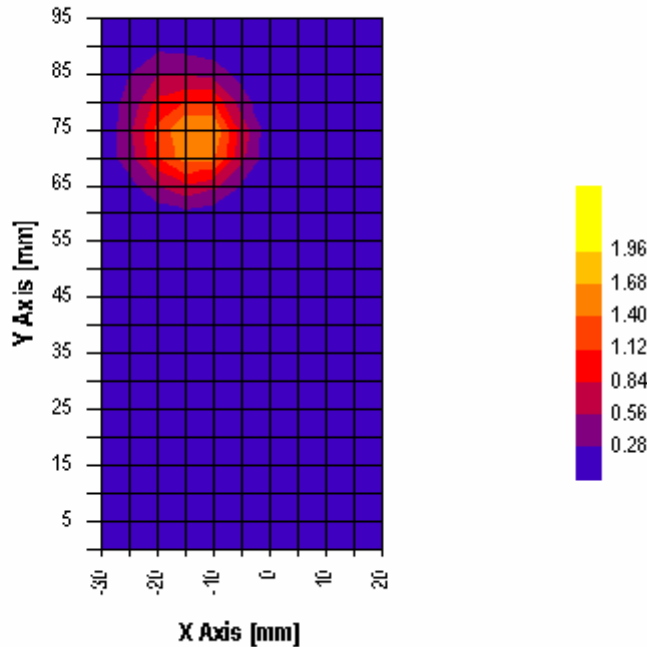
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4.5.1.2.1.3. CH 64, 5320 MHz

Test date [MM/DD/YYYY]	02/18/2003
Test by	JaeWook Choi
Room temperature [°C]	21
Room humidity [%]	30
Simulated tissue temperature [°C]	21
Separation distance, d [mm]	5
Test frequency [MHz]	5320
E-field Probe	M/N: E-TR, S/N: UT-0200-1, Sensor Offset: 2.0 mm
Sensor Factor (η_{pd}) [mV/(mW/cm ²)]	10.8
Amplifier Settings (AS ₁ , AS ₂ , AS ₃)	0.00596768, 0.00563160, 0.00779221
Tissue Type	Muscle
Measured conductivity [S/m]	5.61 (+4.9 %)
Measured dielectric constant	47.3 (-3.5 %)
Conversion Factor (γ)	2.721
Sensitivity (ζ) [W/Kg/mV]	0.719
Power [dBm]	21.9 peak conducted
Measurement Volume Specification (X × Y × Z)	5 pts × 5 pts × 13 pts, 12 mm × 12 mm × 12 mm, Resolution: 3 mm × 3 mm × 1 mm
SAR _{1g} [W/Kg]	0.3518

Probe Output [mV]

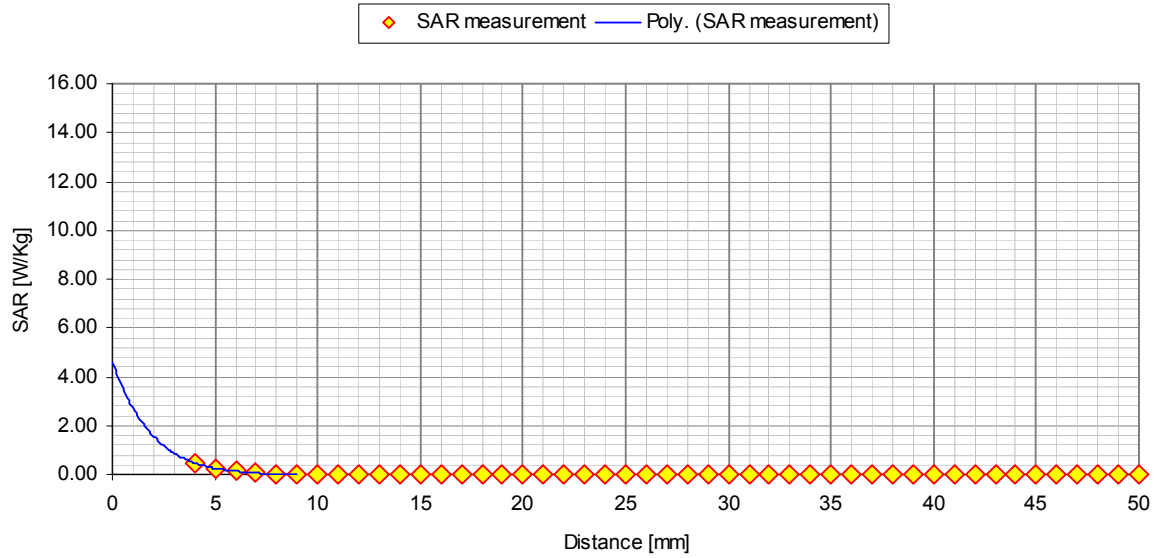


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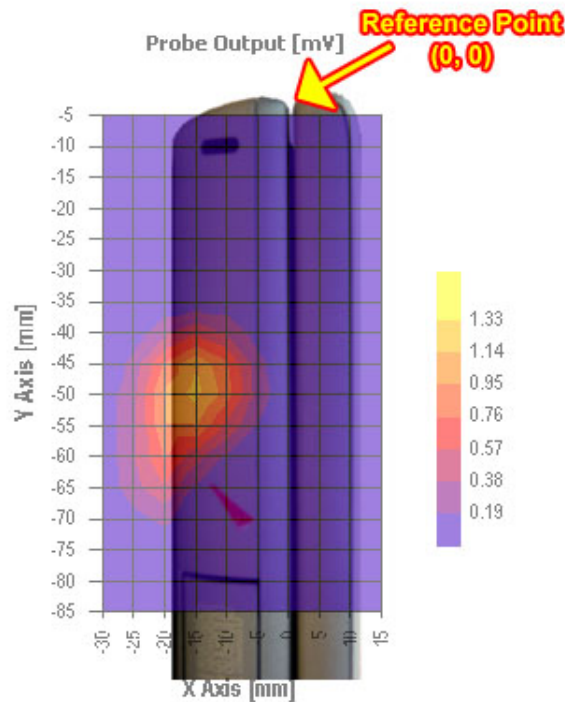
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4.5.1.2.2. Aux antenna (right side)

#	Configuration	Device Test Positions	Antenna Position	Freq. [MHz]	Channel	Power reference before [dBm]	Power reference after [dBm]	MAX SAR [W/Kg]
10	Right side of the host PC toward the phantom 6 MBPS data rate	5 mm separation	Aux antenna (right side) – Fixed	5180	CH36			* note)
11				5260	CH52	21.9 _{pk}	21.8 _{pk}	0.1596
12				5320	CH64			* note)



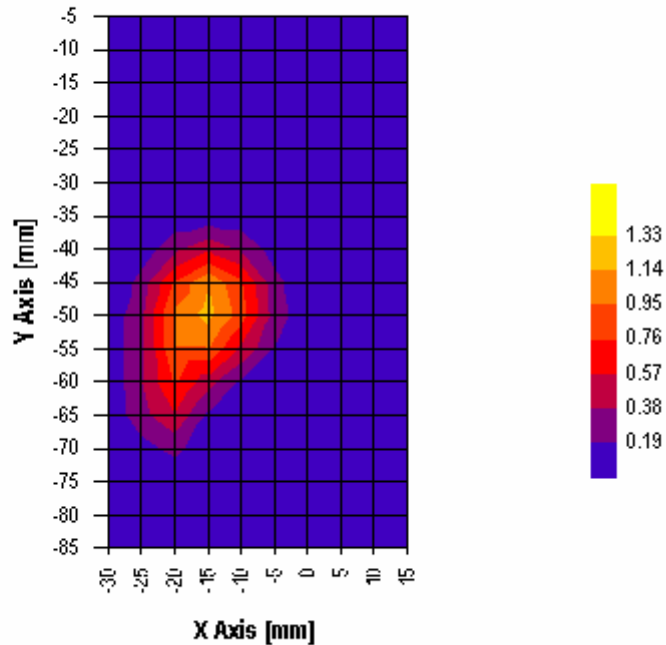
* If the SAR measured at the middle channel for each test configuration is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

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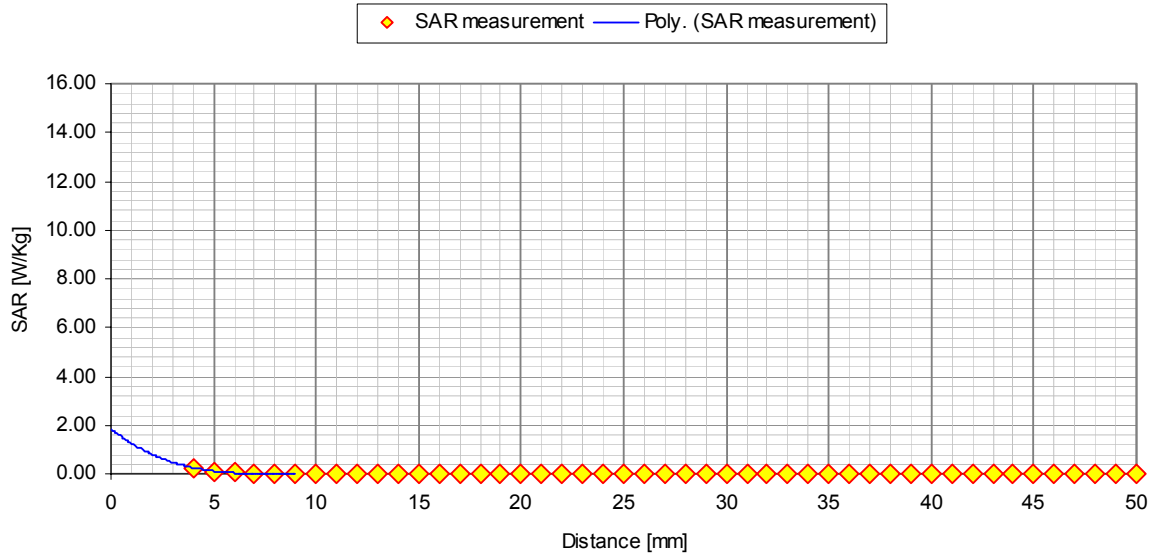
4.5.1.2.2.1. CH 52, 5260 MHz

Test date [MM/DD/YYYY]	02/18/2003
Test by	JaeWook Choi
Room temperature [°C]	21
Room humidity [%]	30
Simulated tissue temperature [°C]	21
Separation distance, d [mm]	5
Test frequency [MHz]	5260
E-field Probe	M/N: E-TR, S/N: UT-0200-1, Sensor Offset: 2.0 mm
Sensor Factor (η_{pd}) [mV/(mW/cm ²)]	10.8
Amplifier Settings (AS ₁ , AS ₂ , AS ₃)	0.00596768, 0.00563160, 0.00779221
Tissue Type	Muscle
Measured conductivity [S/m]	5.61 (+4.9 %)
Measured dielectric constant	47.3 (-3.5 %)
Conversion Factor (γ)	2.721
Sensitivity (ζ) [W/Kg/mV]	0.719
Power [dBm]	21.9 peak conducted
Measurement Volume Specification (X × Y × Z)	5 pts × 5 pts × 13 pts, 12 mm × 12 mm × 12 mm, Resolution: 3 mm × 3 mm × 1 mm
SAR _{1g} [W/Kg]	0.1596

Probe Output [mV]



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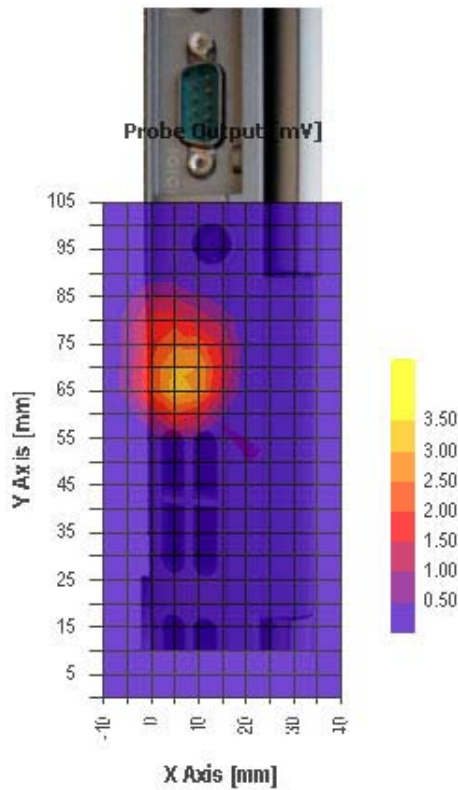
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4.5.1.3. Laptop #4 (M/N: PP02X, Wistron NeWeb Corp. Triple-band Antenna)

4.5.1.3.1. Main antenna (back side)

#	Configuration	Device Test Positions	Antenna Position	Freq. [MHz]	Channel	Power reference before [dBm]	Power reference after [dBm]	MAX SAR [W/Kg]
13	Back side of the host PC toward the phantom 6 MBPS data rate	5 mm separation	Main antenna (back side) – Fixed	5180	CH36	21.9 _{pk}	21.8 _{pk}	1.0998
14				5260	CH52	21.9 _{pk}	21.8 _{pk}	0.5997
15				5320	CH64	21.9 _{pk}	21.8 _{pk}	0.2789



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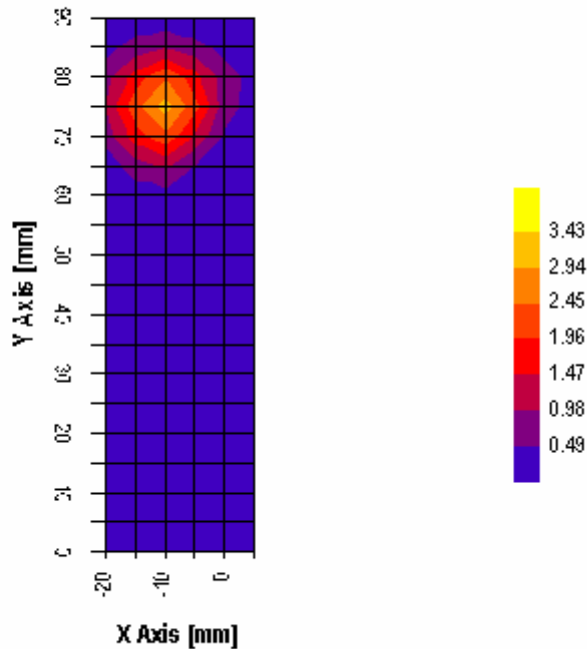
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4.5.1.3.1.1. CH 36, 5180 MHz

Test date [MM/DD/YYYY]	02/19/2003
Test by	JaeWook Choi
Room temperature [°C]	21
Room humidity [%]	30
Simulated tissue temperature [°C]	21
Separation distance, d [mm]	5
Test frequency [MHz]	5180
E-field Probe	M/N: E-TR, S/N: UT-0200-1, Sensor Offset: 2.0 mm
Sensor Factor (η_{pd}) [mV/(mW/cm ²)]	10.8
Amplifier Settings (AS ₁ , AS ₂ , AS ₃)	0.00596768, 0.00563160, 0.00779221
Tissue Type	Muscle
Measured conductivity [S/m]	5.61 (+4.9 %)
Measured dielectric constant	47.3 (-3.5 %)
Conversion Factor (γ)	2.721
Sensitivity (ζ) [W/Kg/mV]	0.719
Power [dBm]	21.9 peak conducted
Measurement Volume Specification (X × Y × Z)	5 pts × 5 pts × 13 pts, 12 mm × 12 mm × 12 mm, Resolution: 3 mm × 3 mm × 1 mm
SAR _{1g} [W/Kg]	1.0998

Probe Output [mV]

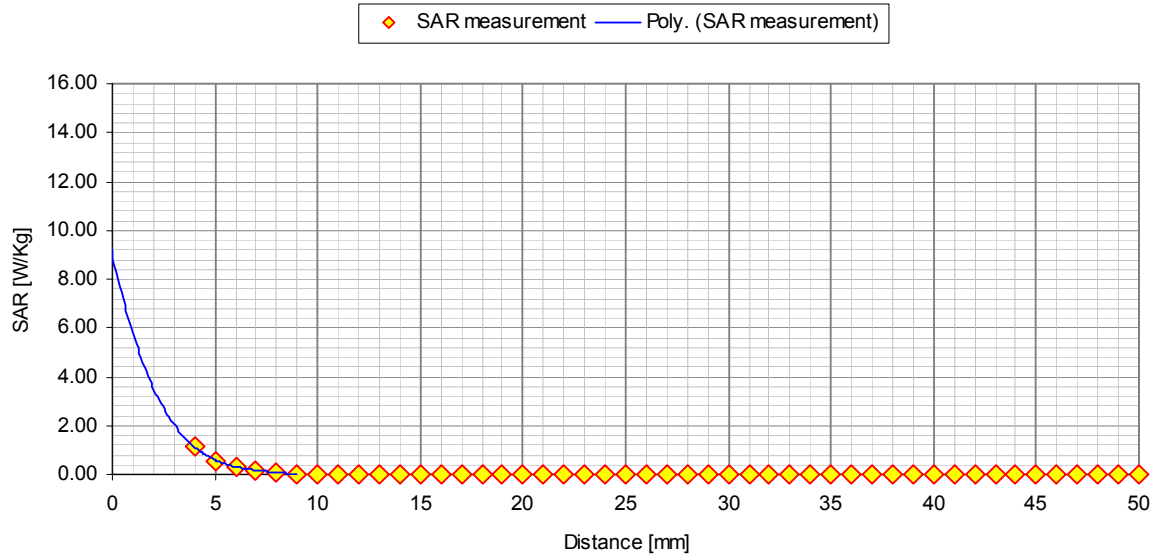


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File #: BRQ-002-SAR
 February 25, 2003

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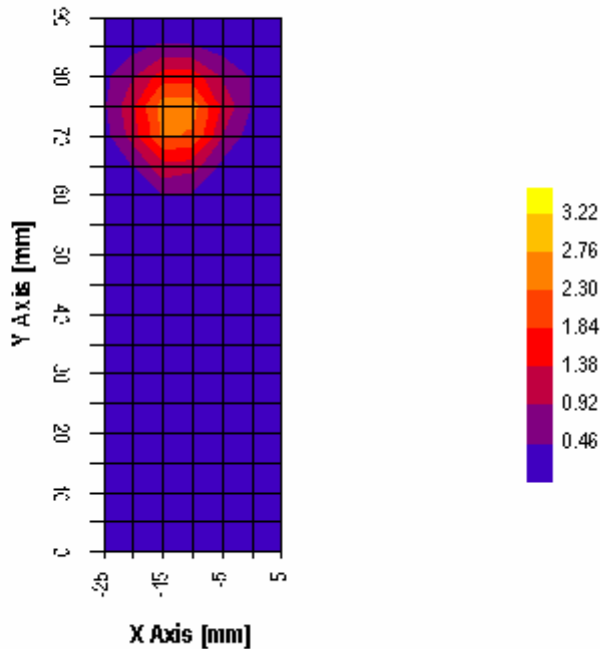
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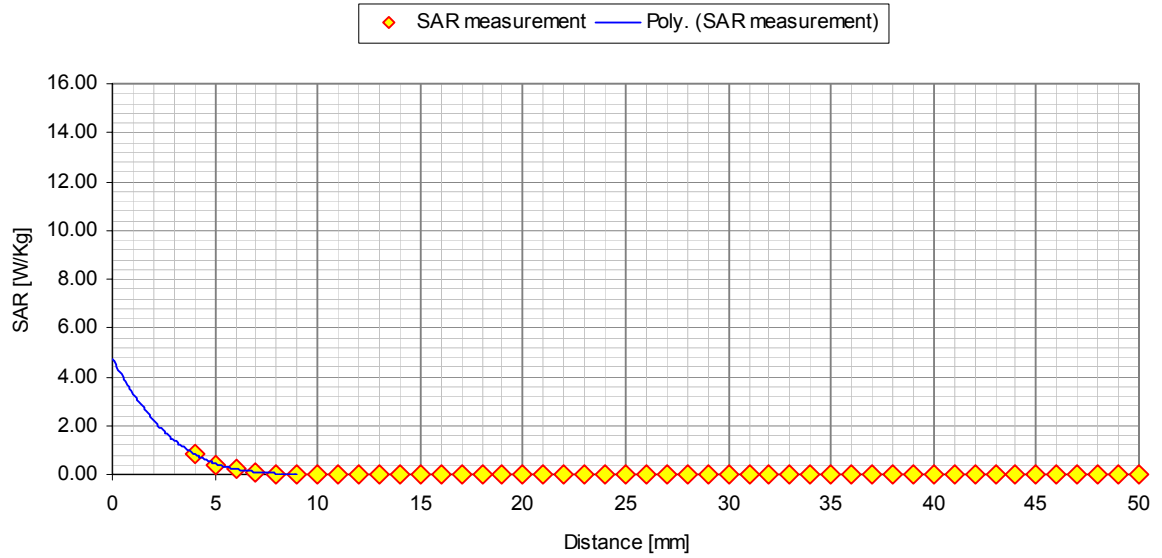
4.5.1.3.1.2. CH 52, 5260 MHz

Test date [MM/DD/YYYY]	02/19/2003
Test by	JaeWook Choi
Room temperature [°C]	21
Room humidity [%]	30
Simulated tissue temperature [°C]	21
Separation distance, d [mm]	5
Test frequency [MHz]	5260
E-field Probe	M/N: E-TR, S/N: UT-0200-1, Sensor Offset: 2.0 mm
Sensor Factor (η_{pd}) [mV/(mW/cm ²)]	10.8
Amplifier Settings (AS ₁ , AS ₂ , AS ₃)	0.00596768, 0.00563160, 0.00779221
Tissue Type	Muscle
Measured conductivity [S/m]	5.61 (+4.9 %)
Measured dielectric constant	47.3 (-3.5 %)
Conversion Factor (γ)	2.721
Sensitivity (ζ) [W/Kg/mV]	0.719
Power [dBm]	21.9 peak conducted
Measurement Volume Specification (X × Y × Z)	5 pts × 5 pts × 13 pts, 12 mm × 12 mm × 12 mm, Resolution: 3 mm × 3 mm × 1 mm
SAR _{1g} [W/Kg]	0.5997

Probe Output [mV]



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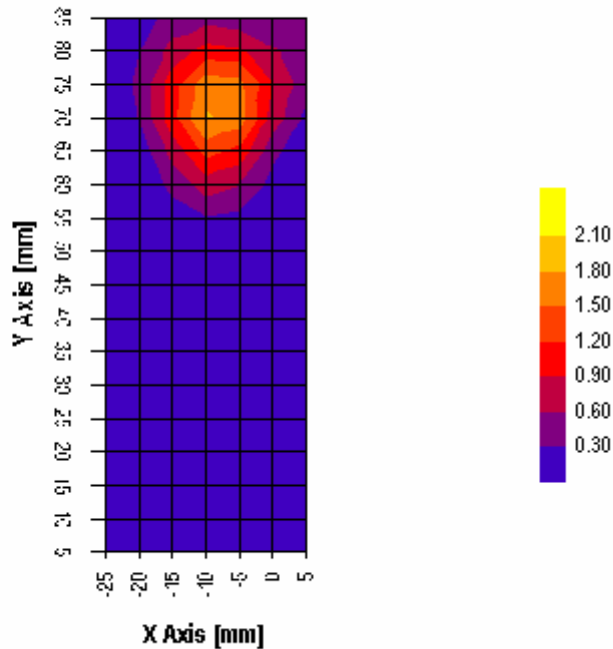
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4.5.1.3.1.3. CH 64, 5320 MHz

Test date [MM/DD/YYYY]	02/19/2003
Test by	JaeWook Choi
Room temperature [°C]	21
Room humidity [%]	30
Simulated tissue temperature [°C]	21
Separation distance, d [mm]	5
Test frequency [MHz]	5320
E-field Probe	M/N: E-TR, S/N: UT-0200-1, Sensor Offset: 2.0 mm
Sensor Factor (η_{pd}) [mV/(mW/cm ²)]	10.8
Amplifier Settings (AS ₁ , AS ₂ , AS ₃)	0.00596768, 0.00563160, 0.00779221
Tissue Type	Muscle
Measured conductivity [S/m]	5.61 (+4.9 %)
Measured dielectric constant	47.3 (-3.5 %)
Conversion Factor (γ)	2.721
Sensitivity (ζ) [W/Kg/mV]	0.719
Power [dBm]	21.9 peak conducted
Measurement Volume Specification (X × Y × Z)	5 pts × 5 pts × 13 pts, 12 mm × 12 mm × 12 mm, Resolution: 3 mm × 3 mm × 1 mm
SAR _{1g} [W/Kg]	0.2789

Probe Output [mV]

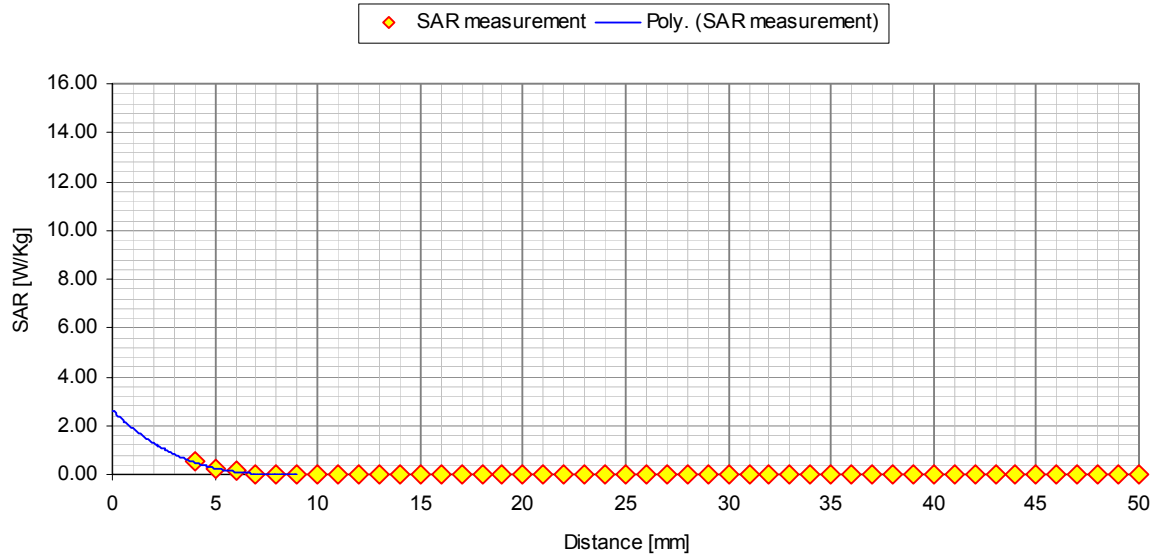


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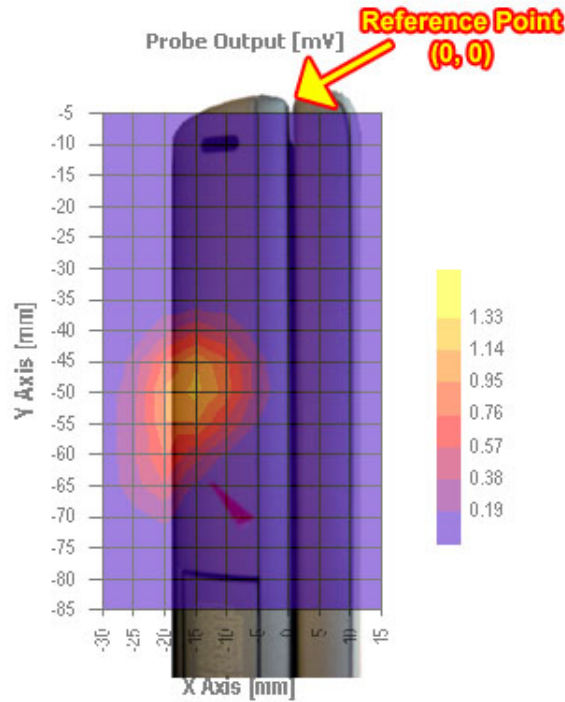
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4.5.1.3.2. Aux antenna (right side)

#	Configuration	Device Test Positions	Antenna Position	Freq. [MHz]	Channel	Power reference before [dBm]	Power reference after [dBm]	MAX SAR [W/Kg]
16	Right side of the host PC toward the phantom 6 MBPS data rate	5 mm separation	Aux antenna (right side) – Fixed	5180	CH36			* note)
17				5260	CH52	21.9 _{pk}	21.8 _{pk}	0.4211
18				5320	CH64			* note)



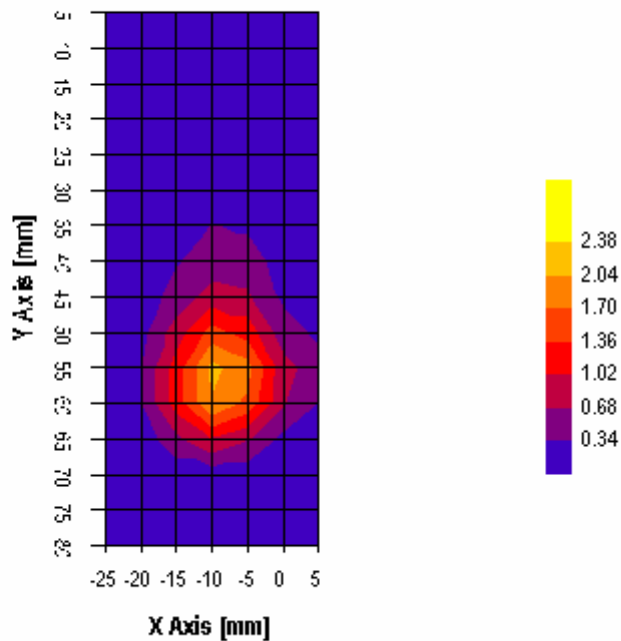
* If the SAR measured at the middle channel for each test configuration is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

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4.5.1.3.2.1. CH 52, 5260 MHz

Test date [MM/DD/YYYY]	02/19/2003
Test by	JaeWook Choi
Room temperature [°C]	21
Room humidity [%]	30
Simulated tissue temperature [°C]	21
Separation distance, d [mm]	5
Test frequency [MHz]	5260
E-field Probe	M/N: E-TR, S/N: UT-0200-1, Sensor Offset: 2.0 mm
Sensor Factor (η_{pd}) [mV/(mW/cm ²)]	10.8
Amplifier Settings (AS ₁ , AS ₂ , AS ₃)	0.00596768, 0.00563160, 0.00779221
Tissue Type	Muscle
Measured conductivity [S/m]	5.61 (+4.9 %)
Measured dielectric constant	47.3 (-3.5 %)
Conversion Factor (γ)	2.721
Sensitivity (ζ) [W/Kg/mV]	0.719
Power [dBm]	21.9 peak conducted
Measurement Volume Specification (X × Y × Z)	5 pts × 5 pts × 13 pts, 12 mm × 12 mm × 12 mm, Resolution: 3 mm × 3 mm × 1 mm
SAR _{1g} [W/Kg]	0.4211

Probe Output [mV]

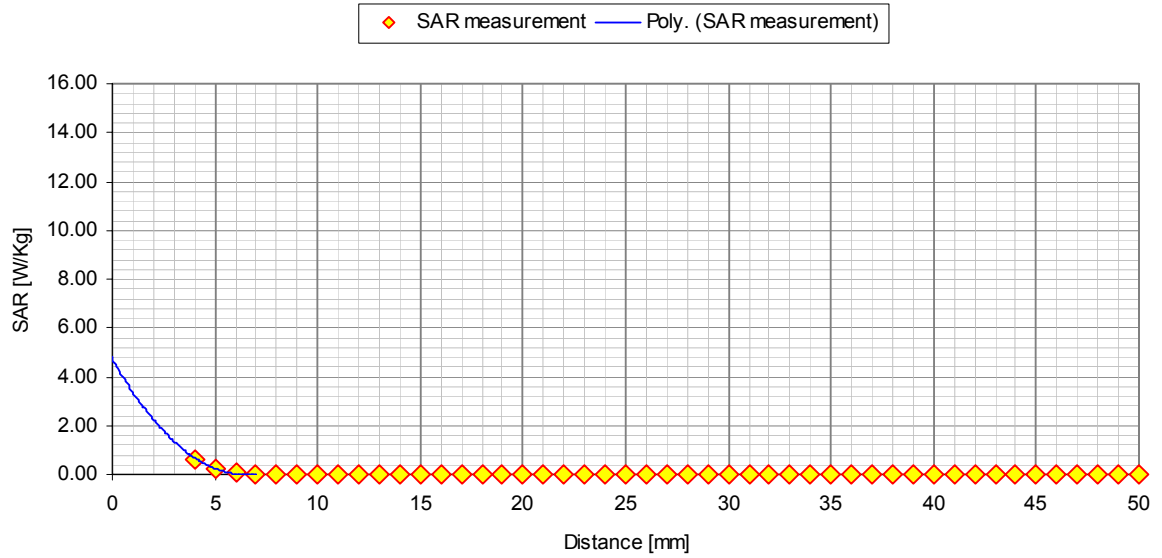


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