
REPORT ON

Specific Absorption Rate Testing of the Intermec Technologies Corporation
700C Mobile Computer

Report No WS615078/02 Issue 2

July 2006



Product Service





Product Service

Competence. Certainty. Quality.

TUV Product Service Ltd, Octagon House, Concorde Way, Segensworth North, Fareham, Hampshire, United Kingdom, PO15 5RL
Tel: +44 (0) 1489 558100. Website: www.tuvps.co.uk; www.babt.com

REPORT ON Specific Absorption Rate Testing of the Intermec Technologies Corporation 700C Mobile Computer

Report No: WS615078/02 Issue 2

PREPARED FOR Intermec Technologies Corporation
550 Second Street. SE
CEDAR RAPIDS
IA 52401-2023
USA

ATTESTATION The wireless portable device described within this report has been shown to be capable of compliance for localised specific absorption rate (SAR) for General Population/Uncontrolled Exposure Limits as defined in the Following standards; FCC standard Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01) and RSS-102 Issue 1 (Provisional) September 25, 1999 of 1.6 W/kg. Also EN50361:2001, NZS 2772:Part 1:1999 Radiofrequency Fields Part 1 – Maximum Exposure Levels – 3KHz to 300GHz and Radiocommunications (Electromagnetic Radiation – Human Exposure) Standard 2003 of 2.0W/kg.

The measurements shown in this report were made in accordance with the procedures specified in Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01), RSS-102 Issue 1 (Provisional) September 25, EN50361:2001, NZS 2772:Part 1:1999 Radio frequency Fields Part 1 – Maximum Exposure Levels – 3KHz to 300GHz, Radiocommunications (Electromagnetic Radiation – Human Exposure) Standard 2003 and IEEE 1528-2003

All reported testing was carried out on a sample of equipment to demonstrate compliance with the above standards. The sample tested was found to comply with the requirements in the applied rules.

Issue 2 has been produced to correct data in section 1.4 of the original report.

A Miller
SAR Test Engineer

APPROVED BY

M J Hardy
Authorised Signatory

DATED

27th July 2006

Note: The test results reported herein relate only to the item tested as identified above and on the Status Page.

CONTENTS

Section	Page No
1	REPORT SUMMARY
1.1	Status 4
1.2	Summary 5
1.3	Test Results Summary 7
1.4	Output Power Measurements..... 9
2	TEST DETAILS
2.1	SAR Measurement System 11
	2.1.1 Robot System Specification
	2.1.2 Probe and Amplifier Specification
	2.1.3 SAR Measurement Procedure
2.2	Test Positions 12
2.3	SAR Distributions (Area Scans – 2D)..... 12
3	TEST EQUIPMENT
3.1	Test Equipment 31
3.2	Test Software 31
3.3	Dielectric Properties of Simulant Liquids..... 32
3.4	Test Conditions..... 33
3.5	Measurement Uncertainty 33
3.6	Probe Calibration Information..... 33
4	PHOTOGRAPHS
4.1	Test Positional Photographs..... 35
4.2	Photographs of Equipment Under Test (EUT)... 35
5	ACCREDITATION, DISCLAIMERS AND COPYRIGHT
5.1	Accreditation, Disclaimers and Copyright..... 37

SECTION 1

REPORT SUMMARY

Specific Absorption Rate Testing of the Intermec Technologies Corporation
700C Mobile Computer

WLAN Max 1g SAR (W/kg)	0.130
<p>The maximum 1g volume averaged SAR level measured for all the tests performed did not exceed the limits for General Population/Uncontrolled Exposure (W/kg) Partial Body of 1.6 W/kg. Level defined in Supplement C (Edition 01-01) to OET Bulletin 65 (97-01).</p>	

WLAN Max 10g SAR (W/kg)	0.077
<p>The maximum 10g volume averaged SAR level measured for all the tests performed did not exceed the 2 W/kg level defined for limiting the exposure of the general population to time-varying electric and magnetic fields by ICNIRP (1998), which is the relevant Standard for testing according to the CENELEC EN50361:2001 test method.</p>	

1.1 STATUS

MANUFACTURING DESCRIPTION	Mobile Computer
STATUS OF TEST	Specific Absorption Rate Testing
APPLICANT	Intermec Technologies Corporation
POWER CLASS	GSM 850 Class 4 / GSM 900 Class 5 GSM DCS 1800 / PCS 1900 Class 1 EGPRS GSM 850 / EGSM 900 Class E2
GPRS CLASS	Class B
GPRS MULTI-SLOT CLASS	12 (4Dn;4Up;Sum5)
EGPRS CLASS	Class B
EGPRS MULTI-SLOT CLASS	10 (4Dn;2Up;Sum5)
MANUFACTURER	Intermec Technologies Corporation
TYPE OR MODEL NUMBER	Intermec 700C
HARDWARE VERSION	v200
FIRMWARE VERSION	v14053
SERIAL NUMBER	01890600183
IMEI NUMBER	355634000425766
BATTERY MODEL	P/N: 318-013-004 (Li-ion 7.2V / 14.4WH)
BATTERY MANUFACTURER	Intermec Technologies Corporation

TEST SPECIFICATIONS:

1. EN50361: Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz). CENELEC, July 2001.
2. Federal Communications Commission (FCC) OET Bulletin 65c, Edition 01-01, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields – Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions.
3. RSS-102 Issue 1 (Provisional) September 25, 1999: Evaluation Procedure for Mobile and Portable Radio Transmitters with respect to Health Canada's Safety Code 6 for Exposure of Humans to radio Frequency Fields
4. Radiocommunications (Electromagnetic Radiation – Human Exposure) Standard 2003.
5. NZS 2772:Part 1:1999 Radiofrequency Fields Part 1 – Maximum Exposure Levels – 3KHz to 300GHz.

REFERENCES:

6. EN50360: Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300 MHz - 3 GHz). CENELEC, July 2001.
7. US Federal Government, Code of Federal Regulations, Title 47 Telecommunication, Chapter I Federal Communications Commission, part 2, section 1093.
8. IEEE 1528 – 2003: Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques.

BABT REGISTRATION NUMBER:	WS615078_24
RECEIPT OF TEST SAMPLES:	13 th March 2006
START OF TEST:	13 th March 2006
FINISH OF TEST:	27 th July 2006

1.2 SUMMARY

This report must be read in conjunction with the following TUV Product Service Limited Reports:- WS615078/01 Issue 2 and WS615078/03 Issue 1.

The unit supplied for testing is an Intermec 700C Mobile Computer, which offers Quad-Band (GSM/GPRS/EGPRS 850/900/1800/1900); Wireless Local Area Network (WLAN) 2450MHz and Bluetooth connectivity. For the purpose of this report testing was carried out with the Mobile Computer configured for WLAN connectivity. An assessment of the frequency and bit rate was carried out and it was found that 1Mb data rate provided the worst-case SAR value. The test program, supplied by the client, to drive the WLAN was called FCC Test Utility:- Driver version 1.0.0.0; Firmware version 1.39.0.14; Utility Version 1.01 and MAC OO OB 6B 1A DB BF.

The following accessories were supplied for assessment with the device, these were: -

- Belt Clip – Manufactured by The Clip Company (Part/No 805-612-001)
- 700C Holster#1 – Manufactured by Koszegi Industries Inc (Part/No 815-047-001)
- 700C Holster #2– Manufactured by Koszegi Industries Inc (Part/No 815-047-002)

For Head SAR assessment, testing was performed with the device in WLAN VOiP mode only using a Specific Anthropomorphic Mannequin (SAM) phantom, as specified in IEEE 1528-2003[8]. The phantom was filled with different simulant liquid appropriate to the frequency band. The dielectric properties were measured and found to be in accordance with the requirements for the dielectric properties specified in IEEE 1528-2003[1]. The Intermec 700C Mobile Computer had a fixed external antenna so that the requirement for testing with antenna extended and retracted was not applicable

SAR testing was performed at both the left and right ear of the phantom at both handset positions stated in the above specification. Testing was performed at the middle frequency of the WLAN band and at the top and the bottom frequencies for the position giving maximum SAR. The sequence used accorded with the block diagram of tests given in EN 50361. Testing was performed at the maximum power for WLAN band testing. This was achieved using on board software, which controlled the handset at maximum power level.

It is acknowledged that the device can be positioned in both Holsters #1 & #2 in various positions. Therefore prior to Body SAR assessment, the device was placed into the appropriate test position and worst case antenna positions (judged by separation distance) were established to reduce the number of SAR scans required.

Scans were performed at each position pertaining to the minimum separation distance to ascertain the maximum SAR for the device. The device was placed into the appropriate test mode and an area scan was performed on each face of the device to ascertain the location of the transmitter to enable the SAR testing to be performed on the appropriate face. This was performed for each Radio Module fitted. This was carried out with and without the Headset in position for the body assessment, this showed that there was no difference in SAR values and therefore all testing was carried out without the headset being used.

1.2 SUMMARY - Continued

For Body SAR assessment, the device was tested for typical body-worn operation. Flat Phantom dimensions 220mmx200mmx150mm and with a sidewall thickness of 2.0mm. The phantom was filled to a depth of 150mm with the appropriate Body simulant liquid. The dielectric properties were in accordance with the requirements for the dielectric properties specified in Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01)[2].

For Body SAR assessment the device was placed into a WLAN 1Mb data rate configuration, transmitting at maximum power. The 700C Mobile Computer was first placed into Holster #1 with the rear of the Holster placed to the 'side to phantom' (body). The device was then positioned in its intended user position whilst SAR assessment was carried out in the bottom, middle and top channel for each band assessed. This approach identified the channel giving the maximum SAR for the device. The device was then positioned in the one alternative position which gave the minimum distance relating to antenna phantom distance. A single SAR assessment was carried in this position.

The 700C Mobile Computer was then placed into Holster #2, the device was first positioned in its intended user position whilst a single SAR assessment was carried out in this position. The Device was then positioned in the one alternative position which gave the minimum distance relating to antenna phantom distance and another single SAR assessment was carried out in this position.

The device was configured with a belt – clip attachment. The device was then placed in its intended user position whilst a single SAR assessment was carried out in this position for each frequency assessed.

The belt clip of the Mobile Computer Holster contains a metal spring enclosed within a plastic housing, with nominal dimensions: Overall length 80mm (formed into a semi-closed U shape); width 25mm and thickness 0.5mm.

The maximum 10g volume averaged SAR level measured for all the tests performed did not exceed the 2 W/kg level defined for limiting the exposure of the general population to time-varying electric and magnetic fields by ICNIRP (1998), which is the relevant Standard for testing according to the CENELEC EN50361[1] test method.

The maximum 1g volume averaged SAR level measured for all the tests performed did not exceed the limits for General Population/Uncontrolled Exposure (W/kg) Partial Body of 1.6 W/kg. Level defined in Supplement C (Edition 01-01) to OET Bulletin 65 (97-01)[2].

WORST CASE SAR VALUE / POSITION / MODE

POSITION:	Left Hand Cheek 15° position against the SAM phantom.
MODE:	WLAN (VOiP) Lower frequency – 2412MHz
SAR Value:	0.130 W/kg (1g W/kg Limit) 0.077 W/kg (10g W/kg Limit)

1.3 TEST RESULT SUMMARY

SYSTEM PERFORMANCE / VALIDATION CHECK RESULTS

Prior to formal testing being performed a System Check was performed in accordance with OET 65 Supplement C (Edition 01-01) [2] and the results were compared against published data in Standard IEEE 1528-2003 [8]. The following results were obtained: -

Date	Dipole Used	Frequency (MHz)	Max 1g SAR (W/kg)*	Percentage Drift on Reference (%)	Max 10g SAR (W/kg)*	Percentage Drift on Reference (%)
11/04/2006	2450A	2450	47.25	-9.83	22.37	-6.79
17/05/2006	2450A	2450	47.26	-9.81	22.37	-6.78
24/05/2006	2450A	2450	48.50	-7.45	22.84	-4.82

*Normalised to a forward power of 1W

WLAN 2450MHz HEAD Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Intermec 700C Mobile Computer.

Position		Channel Number	Frequency (MHz)	Max Spot SAR (W/kg)	Max 1g SAR (W/kg)	Max 10g SAR (W/kg)	SAR Drift (%)	Area scan (Figure number)
Left or Right Hand Ear	Mobile Position							
LH	Cheek	6	2437.0	0.080	0.072	0.043	-3.670	Figure 7
LH	15°	6	2437.0	0.130	0.115	0.065	1.000	Figure 8
RH	Cheek	6	2437.0	0.070	0.059	0.034	-0.440	Figure 9
RH	15°	6	2437.0	0.130	0.114	0.065	1.060	Figure 10
LH	15°	1	2412.0	0.150	0.130	0.077	-2.870	Figure 11
RH	15°	13	2412.0	0.130	0.104	0.053	2.350	Figure 12
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) & 2.0 W/kg (10g)								

WLAN 2450MHz BODY Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Intermec 700C Mobile Computer Inserted into Holster #1.

Position		Channel Number	Frequency (MHz)	Max Spot SAR (W/kg)	Max 1g SAR (W/kg)	Max 10g SAR (W/kg)	SAR Drift (%)	Area scan (Figure number)
Spacing From Phantom	Mobile Position							
0.0mm	Rear facing-Normal	6	2437.0	0.050	0.060	0.036	-0.630	Figure 13
0.0mm	Front facing-Normal	6	2437.0	0.010	0.014	0.009	0.000	Figure 14
0.0mm	Rear facing-Normal	1	2412.0	0.060	0.078	0.046	-2.160	Figure 15
0.0mm	Rear facing-Normal	13	2472.0	0.050	0.066	0.038	-3.530	Figure 16
0.0mm	Rear facing-Inverted	1	2412.0	0.070	0.086	0.051	2.670	Figure 17
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) & 2.0 W/kg (10g)								

1.3 TEST RESULT SUMMARY

WLAN 2450MHz BODY Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Intermec 700C Mobile Computer Inserted into Holster #2.

Position		Channel Number	Frequency (MHz)	Max Spot SAR (W/kg)	Max 1g SAR (W/kg)	Max 10g SAR (W/kg)	SAR Drift (%)	Area scan (Figure number)
Spacing From Phantom	Mobile Position							
0.0mm	Rear facing – Normal	1	2412	0.040	0.055	0.035	0.000	Figure 18
0.0mm	Rear facing – Normal	6	2437	0.040	0.054	0.033	0.000	Figure 19
0.0mm	Rear facing – Normal	13	2472	0.040	0.049	0.029	0.000	Figure 20
0.0mm	Rear facing – Inverted	1	2412	0.060	0.075	0.043	0.000	Figure 21
0.0mm	LH-Side facing	1	2412	0.030	0.041	0.024	0.000	Figure 22
0.0mm	RH-Side facing	1	2412	0.010	0.020	0.010	0.000	Figure 23
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) & 2.0 W/kg (10g)								

WLAN 2450MHz BODY Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Intermec 700C Mobile Computer Configured with Belt Clip Part No: 805-612-001.

Position		Channel Number	Frequency (MHz)	Max Spot SAR (W/kg)	Max 1g SAR (W/kg)	Max 10g SAR (W/kg)	SAR Drift (%)	Area scan (Figure number)
Spacing From Phantom	Mobile Position							
0.0mm	Rear facing - Normal	1	2412	0.080	0.091	0.041	3.54	Figure 24
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) & 2.0 W/kg (10g)								

1.4 OUTPUT POWER OF TEST DEVICE MEASUREMENT METHOD

The EUT was set up to Transmit on all of the following frequencies (See Table Below).

The EUT was conductively connected to a Hewlett Packard 8990A Peak Power Analyser connected via an 84812A Peak Power Sensor. The peak power sensor was in turn connected to a 20 dB attenuator, which had a correction factor of 20.09 dB at 2450MHz. This figure was entered as a correction factor into the Hewlett Packard 8990A.

The unit was set to transmit using the customer supplied FCC Test Utility version 1.01 (Firmware 1.39.0.14; Driver 1.0.0.0). The Test Utility was configured for continuous transmit; rate 1mbit/s and channel's 1, 6, 11, 13 and Antenna 1 selected.

Calibration details for both the Peak Power Analyser and Peak Power Sensor are:
Calibration date: 12/10/2005; Calibration date due: 12/10/2006.

Modulation Data Rate 1Mbps

CHANNEL	PEAK MEASURED (dBm)	ERP (mW)
2412	19.81	95.72
2437	19.57	90.57
2462	19.63	91.83
2472	19.54	89.95

Note: The measurements were conducted on a sample declared as an identical build state to that supplied for SAR measurements. The serial number of the sample supplied for output power measurements is 010890600177. The firmware and hardware version were confirmed as being identical to that of the unit supplied for SAR evaluation.

SECTION 2

TEST DETAILS

Specific Absorption Rate Testing of the Intermec Technologies Corporation
700C Mobile Computer

2.1 SAR MEASUREMENT SYSTEM

This report must be read in conjunction with the following TUV Product Service Limited Reports:-
WS615078/01 Issue 2 and WS615078/03 Issue 1.

Details of the SAR Measurement System are contained within Report No WS615078/01 Issue 2.

2.2 TEST POSITIONS

This report must be read in conjunction with the following TUV Product Service Limited Reports:-
WS615078/01 Issue 2 and WS615078/03 Issue 1.

Details of the test positions used for test are contained within Report No WS615078/01 Issue 2.

2.3 2450MHz WLAN HEAD SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	18/05/2006 10:55:49	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_25b.txt	PROBE SERIAL NUMBER:	0190
AMBIENT TEMPERATURE:	24.4°C	LIQUID SIMULANT:	2450 Head
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	38.80
RELATIVE HUMIDITY:	44.7%	CONDUCTIVITY:	1.755
PHANTOM S/NO:	HeadFT04.csv	LIQUID TEMPERATURE:	23.0°C
PHANTOM ROTATION:	0°	MAX SAR Y-AXIS LOCATION:	29.20 mm
DUT POSITION:	LH Cheek	MAX SAR Z-AXIS LOCATION:	-113.75 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	6.89 V/m
TEST FREQUENCY:	2437MHz	SAR 1g:	0.072 W/kg
AIR FACTORS:	346 / 425 / 429	SAR 10g:	0.043 W/kg
CONVERSION FACTORS:	0.44 / 0.37 / 0.43	SAR START:	0.027 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.026 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	-3.67 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	17/05/06
INPUT POWER LEVEL:	165mW	EXTRAPOLATION:	poly4

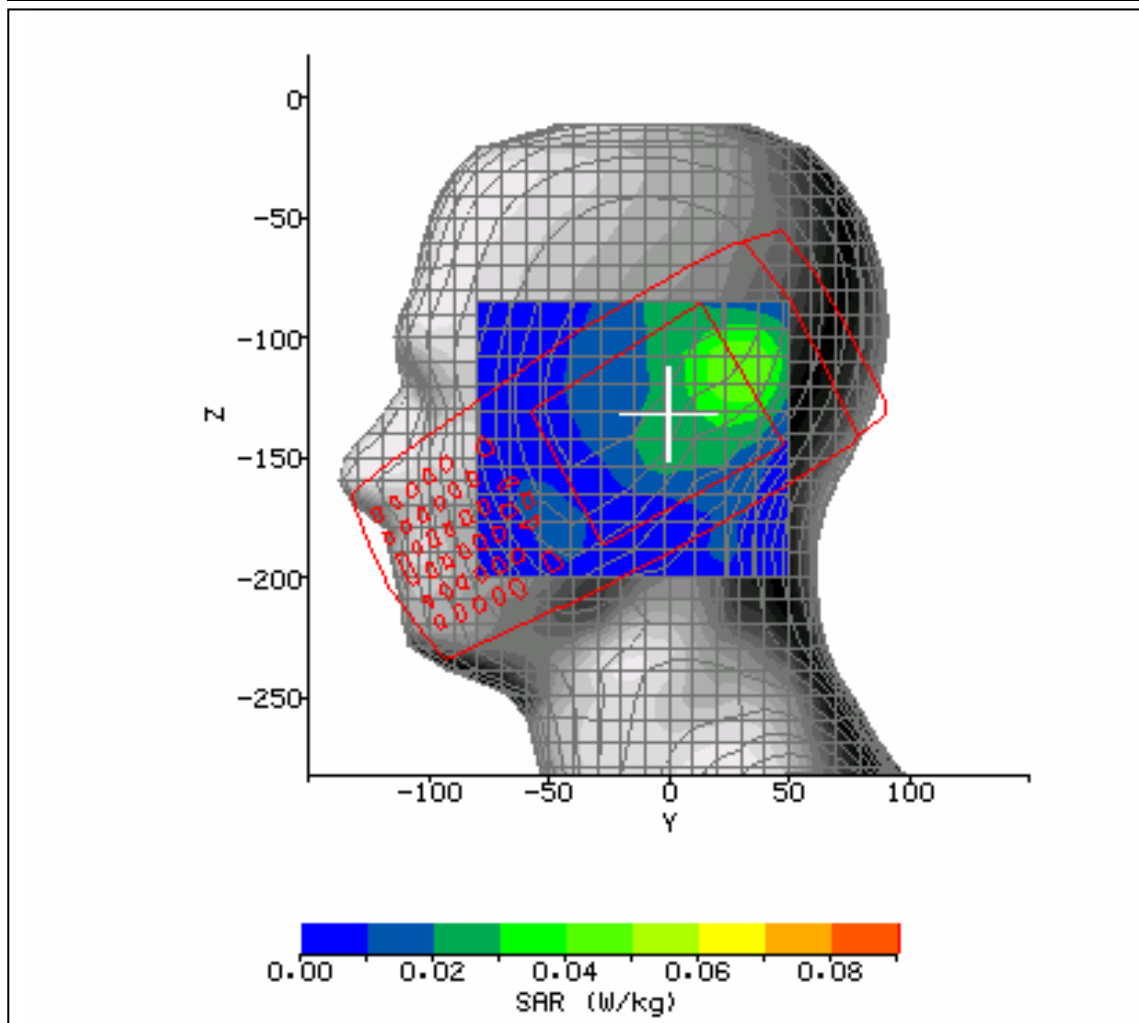


Figure 7: SAR Head Testing Results for the Intermec 700C Mobile Computer in Left Hand Cheek Position; Tested at 2437MHz (WLAN Middle Channel).

2.3 2450MHz WLAN HEAD SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	18/05/2006 11:30:17	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_26b.txt	PROBE SERIAL NUMBER:	0190
AMBIENT TEMPERATURE:	24.7°C	LIQUID SIMULANT:	2450 Head
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	38.80
RELATIVE HUMIDITY:	44.2%	CONDUCTIVITY:	1.755
PHANTOM S/NO:	HeadFT04.csv	LIQUID TEMPERATURE:	23.0°C
PHANTOM ROTATION:	0°	MAX SAR Y-AXIS LOCATION:	31.80 mm
DUT POSITION:	LH Cheek 15°	MAX SAR Z-AXIS LOCATION:	-110.30 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	8.59 V/m
TEST FREQUENCY:	2437MHz	SAR 1g:	0.115 W/kg
AIR FACTORS:	346 / 425 / 429	SAR 10g:	0.065 W/kg
CONVERSION FACTORS:	0.44 / 0.37 / 0.43	SAR START:	0.044 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.045 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	1.00 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	17/05/06
INPUT POWER LEVEL:	165mW	EXTRAPOLATION:	poly4

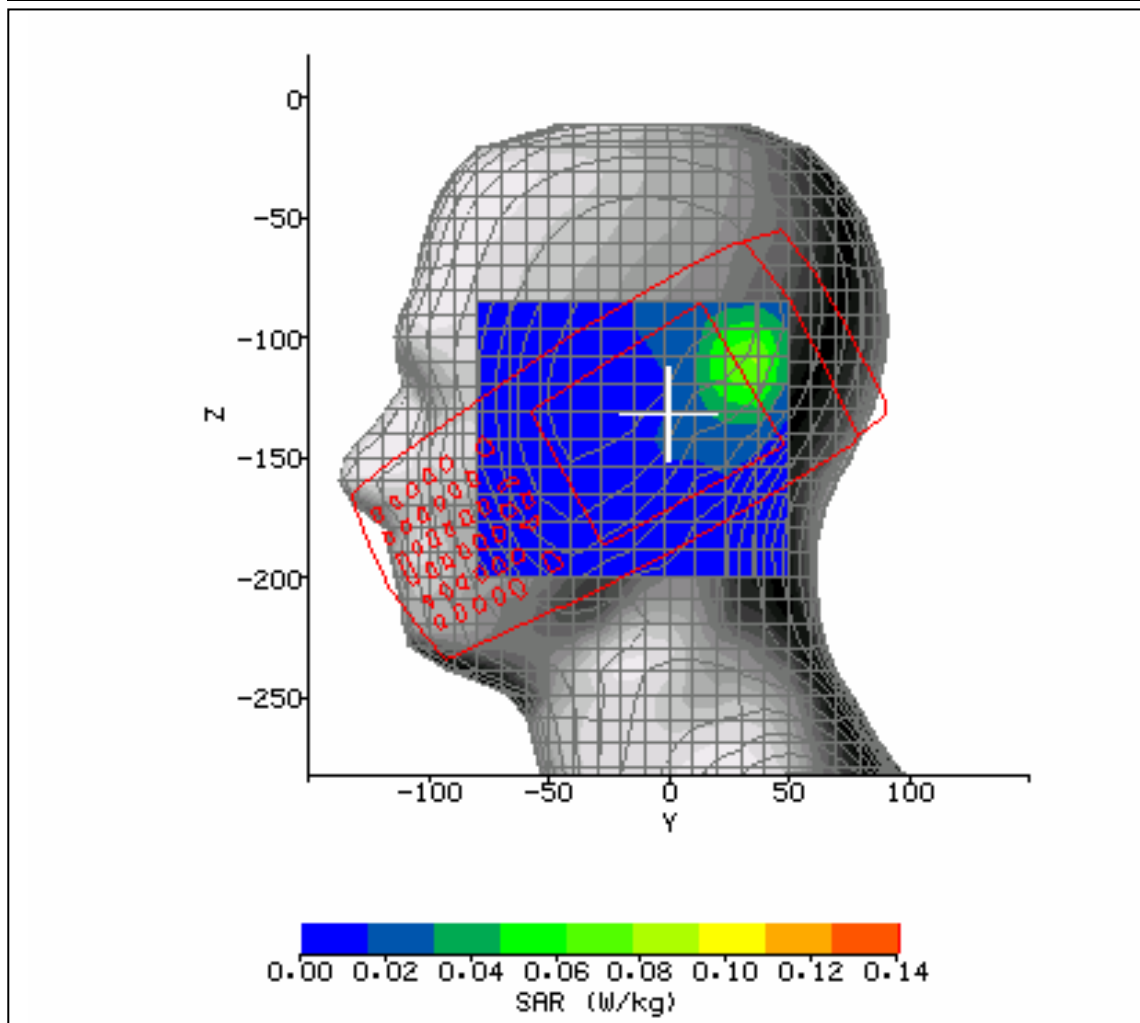


Figure 8: SAR Head Testing Results for the Intermec 700C Mobile Computer in Left Hand Cheek 15° Position; Tested at 2437MHz (WLAN Middle Channel).

2.3 2450MHz WLAN HEAD SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	18/05/2006 12:21:36	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_27b.txt	PROBE SERIAL NUMBER:	0190
AMBIENT TEMPERATURE:	24.8°C	LIQUID SIMULANT:	2450 Head
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	38.80
RELATIVE HUMIDITY:	43.9%	CONDUCTIVITY:	1.755
PHANTOM S/NO:	HeadFT04.csv	LIQUID TEMPERATURE:	23.2°C
PHANTOM ROTATION:	180°	MAX SAR Y-AXIS LOCATION:	-29.20 mm
DUT POSITION:	RH Cheek	MAX SAR Z-AXIS LOCATION:	-99.95 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	6.13 V/m
TEST FREQUENCY:	2437MHz	SAR 1g:	0.059 W/kg
AIR FACTORS:	346 / 425 / 429	SAR 10g:	0.034 W/kg
CONVERSION FACTORS:	0.44 / 0.37 / 0.43	SAR START:	0.021 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.021 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	-0.44 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	17/05/06
INPUT POWER LEVEL:	165mW	EXTRAPOLATION:	poly4

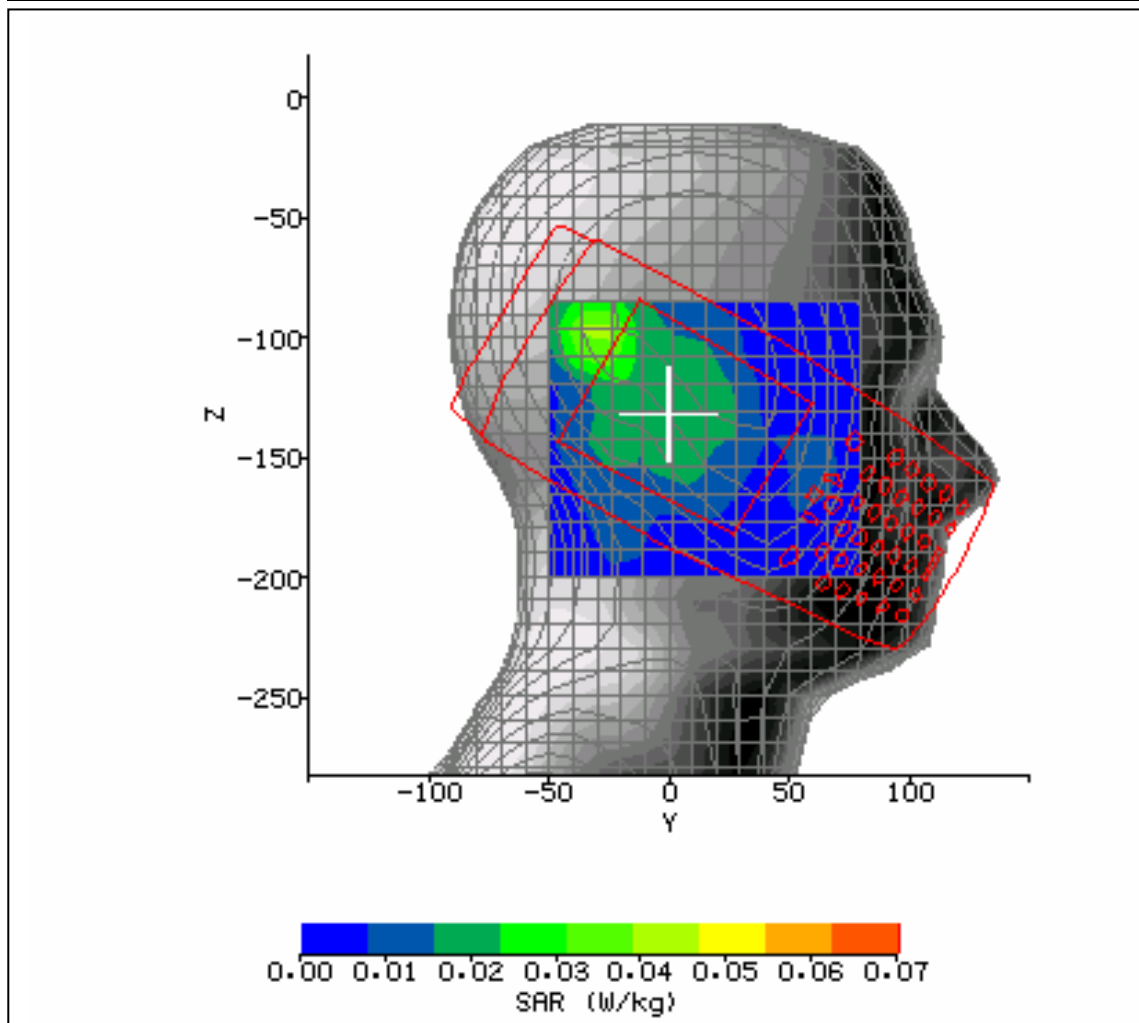


Figure 9: SAR Head Testing Results for the Intermec 700C Mobile Computer in Right Hand Cheek Position; Tested at 2437MHz (WLAN Middle Channel).

2.3 2450MHz WLAN HEAD SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	18/05/2006 15:03:40	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_28b.txt	PROBE SERIAL NUMBER:	0190
AMBIENT TEMPERATURE:	23.1°C	LIQUID SIMULANT:	2450 Head
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	38.80
RELATIVE HUMIDITY:	51.6%	CONDUCTIVITY:	1.755
PHANTOM S/NO:	HeadFT04.csv	LIQUID TEMPERATURE:	23.0°C
PHANTOM ROTATION:	180°	MAX SAR Y-AXIS LOCATION:	-31.80 mm
DUT POSITION:	RH Cheek 15°	MAX SAR Z-AXIS LOCATION:	-102.25 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	8.47 V/m
TEST FREQUENCY:	2437MHz	SAR 1g:	0.114 W/kg
AIR FACTORS:	346 / 425 / 429	SAR 10g:	0.065 W/kg
CONVERSION FACTORS:	0.44 / 0.37 / 0.43	SAR START:	0.043 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.044 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	1.06 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	17/05/06
INPUT POWER LEVEL:	165mW	EXTRAPOLATION:	poly4

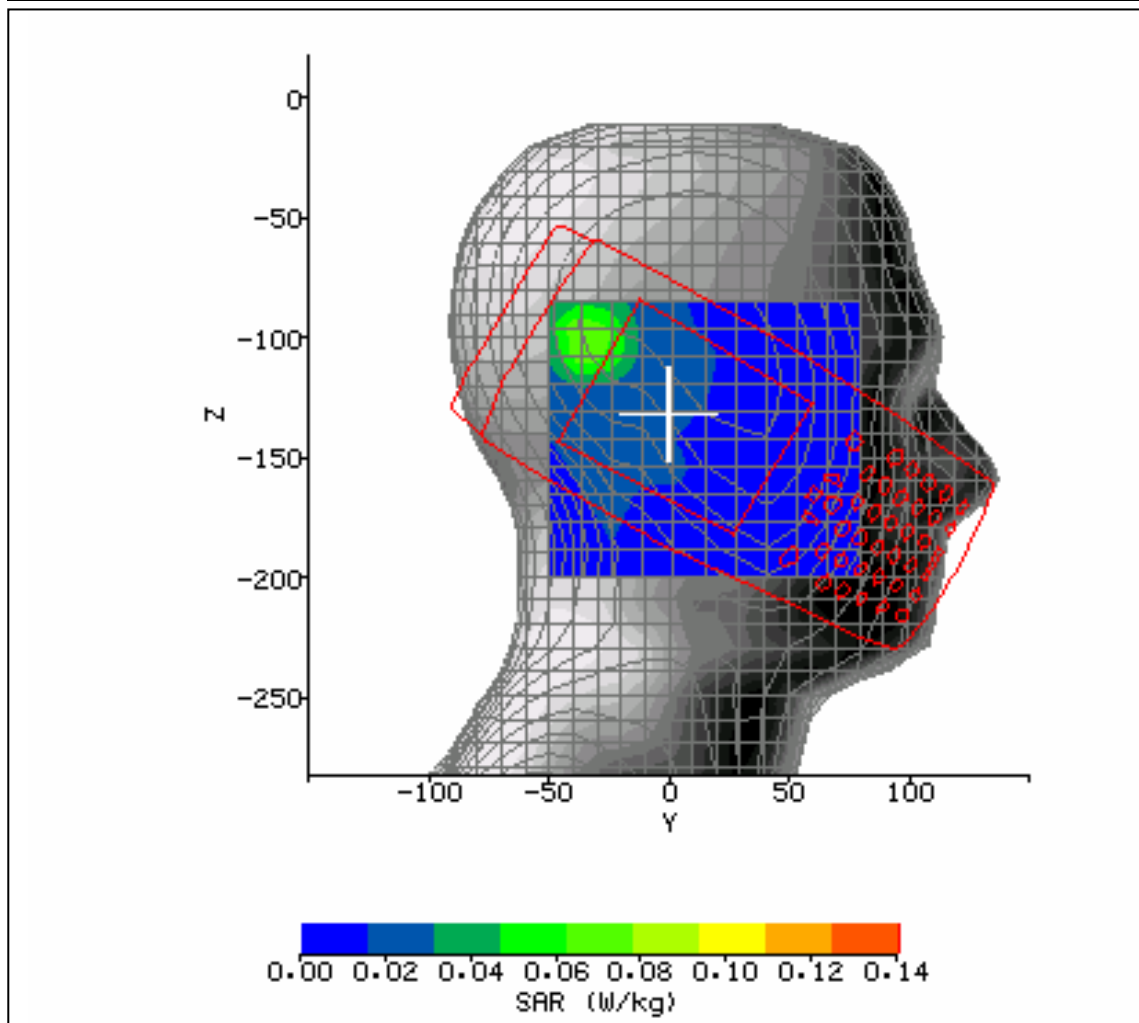


Figure 10: SAR Head Testing Results for the Intermec 700C Mobile Computer in Right Hand Cheek 15° Position; Tested at 2437MHz (WLAN Middle Channel).

2.3 2450MHz WLAN HEAD SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	18/05/2006 15:41:12	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_29b.txt	PROBE SERIAL NUMBER:	0190
AMBIENT TEMPERATURE:	22.2°C	LIQUID SIMULANT:	2450 Head
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	38.80
RELATIVE HUMIDITY:	47.0%	CONDUCTIVITY:	1.755
PHANTOM S/NO:	HeadFT04.csv	LIQUID TEMPERATURE:	23.0°C
PHANTOM ROTATION:	0°	MAX SAR Y-AXIS LOCATION:	33.10 mm
DUT POSITION:	LH Cheek 15°	MAX SAR Z-AXIS LOCATION:	-112.60 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	9.10 V/m
TEST FREQUENCY:	2412MHz	SAR 1g:	0.130 W/kg
AIR FACTORS:	346 / 425 / 429	SAR 10g:	0.077 W/kg
CONVERSION FACTORS:	0.44 / 0.37 / 0.43	SAR START:	0.057 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.055 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	-2.87 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	17/05/06
INPUT POWER LEVEL:	165mW	EXTRAPOLATION:	poly4

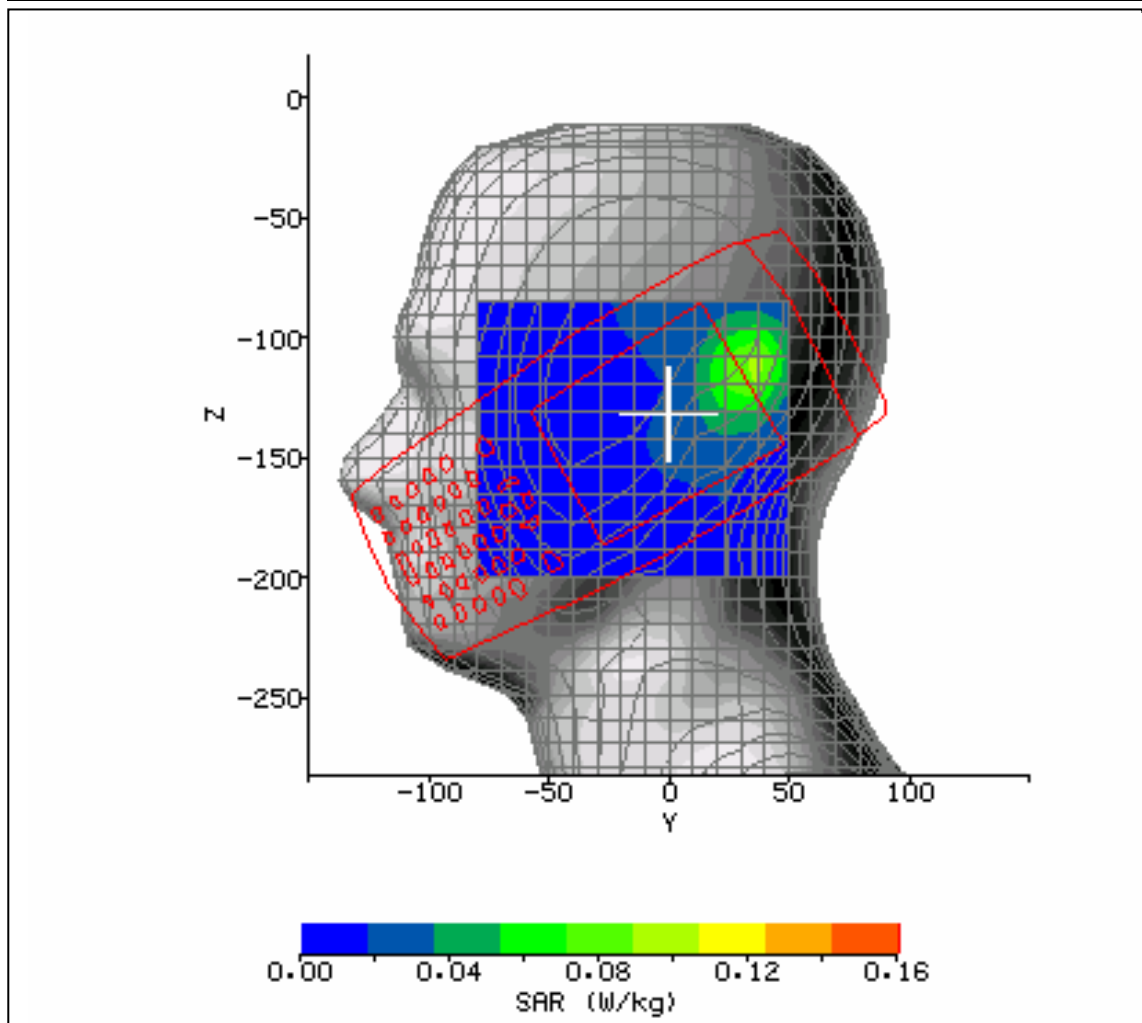


Figure 11: SAR Head Testing Results for the Intermec 700C Mobile Computer in Left Hand Cheek 15° Position; Tested at 2412MHz (WLAN Low Channel).

2.3 2450MHz WLAN HEAD SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	18/05/2006 16:13:47	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_30b.txt	PROBE SERIAL NUMBER:	0190
AMBIENT TEMPERATURE:	23.3°C	LIQUID SIMULANT:	2450 Head
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	38.80
RELATIVE HUMIDITY:	38.3%	CONDUCTIVITY:	1.755
PHANTOM S/NO:	HeadFT04.csv	LIQUID TEMPERATURE:	23.0°C
PHANTOM ROTATION:	0°	MAX SAR Y-AXIS LOCATION:	31.80 mm
DUT POSITION:	LH Cheek 15°	MAX SAR Z-AXIS LOCATION:	-111.45 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	8.61 V/m
TEST FREQUENCY:	2472MHz	SAR 1g:	0.104 W/kg
AIR FACTORS:	346 / 425 / 429	SAR 10g:	0.053 W/kg
CONVERSION FACTORS:	0.44 / 0.37 / 0.43	SAR START:	0.043 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.044 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	2.35 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	17/05/06
INPUT POWER LEVEL:	165mW	EXTRAPOLATION:	poly4

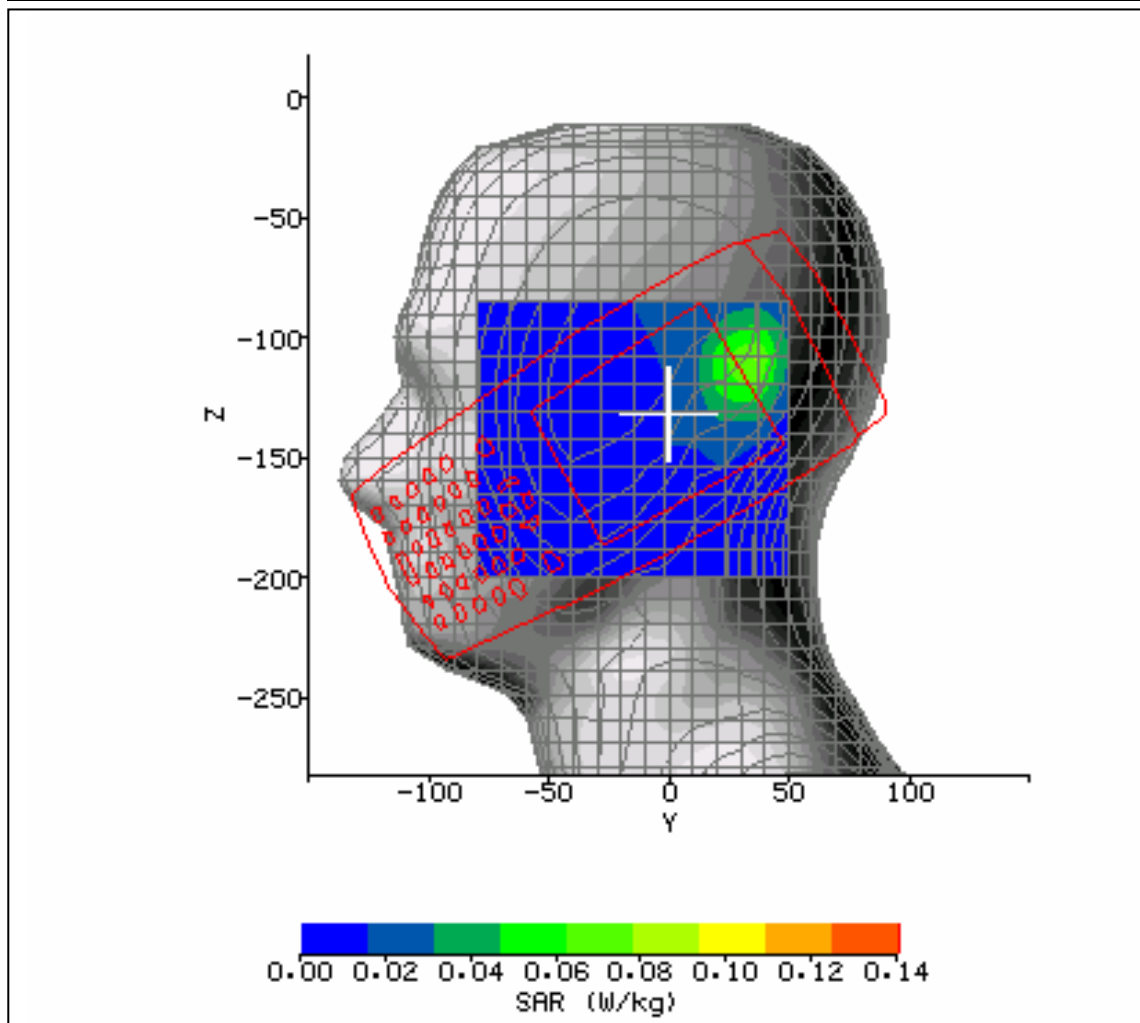


Figure 12: SAR Head Testing Results for the Intermec 700C Mobile Computer in Left Hand Cheek 15° Position; Tested at 2472MHz (WLAN High Channel).

2.3 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	19/05/2006 10:02:34	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_59.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	24.3°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	40.6%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadBox1.csv	LIQUID TEMPERATURE:	23.6°C
PHANTOM ROTATION:	0°	MAX SAR X-AXIS LOCATION:	47.00 mm
DUT POSITION:	Rear Facing – Normal Holster #1	MAX SAR Y-AXIS LOCATION:	0.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	4.95 V/m
TEST FREQUENCY:	2437MHz	SAR 1g:	0.014 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.036 W/kg
CONVERSION FACTORS:	0.497 / 0.497 / 0.497	SAR START:	0.008 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.008 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	-0.63 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	19/05/2006
INPUT POWER LEVEL:	20dBm	EXTRAPOLATION:	poly4

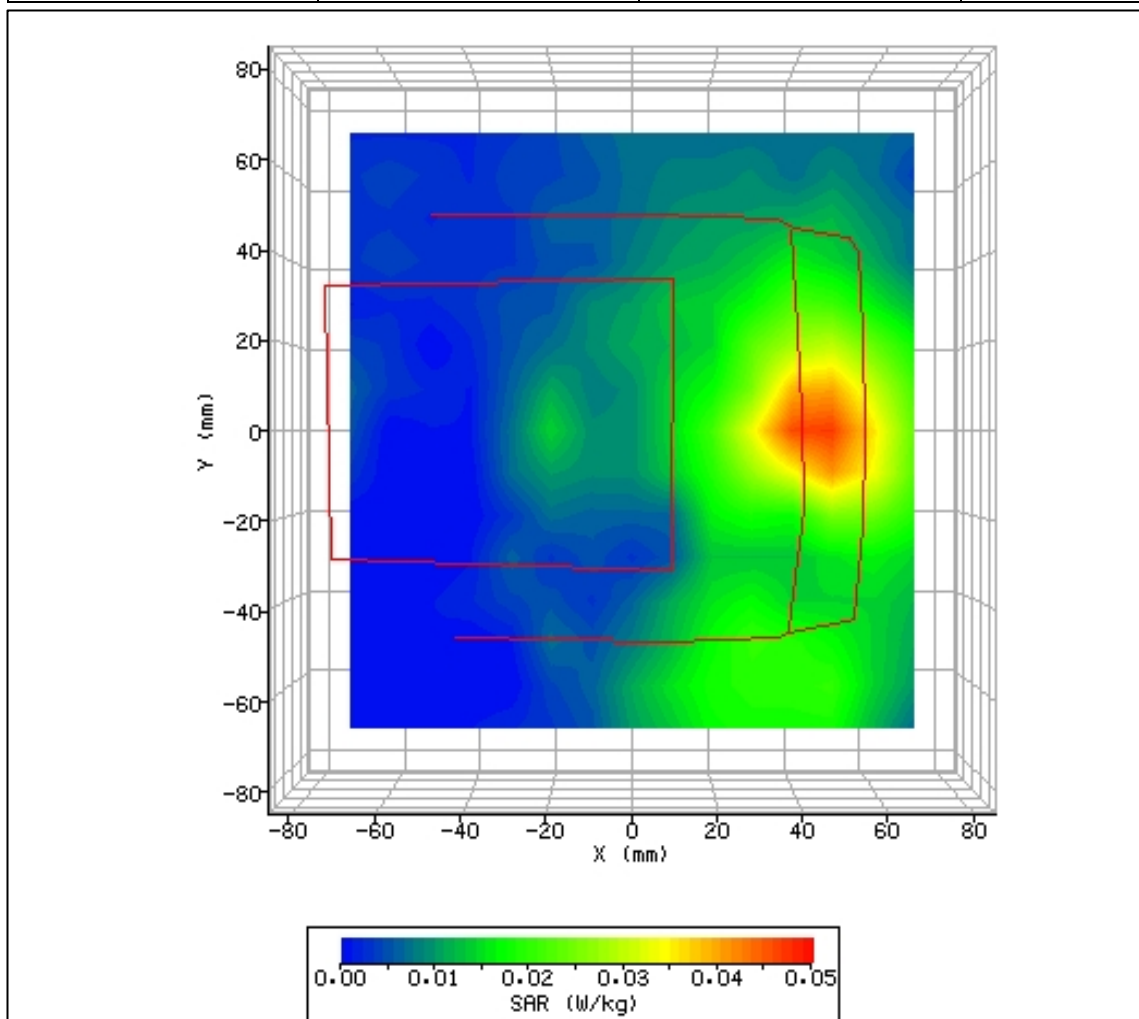


Figure 13: SAR Body Testing Results for the Intermec 700C Mobile Computer in Rear Facing Phantom Position in holster #1; Tested at 2437 MHz (WLAN Middle Channel) with 0.0mm Separation.

2.3 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	19/05/2006 10:33:29	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_60.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	24.1°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	42.0%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadBox1.csv	LIQUID TEMPERATURE:	23.6°C
PHANTOM ROTATION:	0°	MAX SAR X-AXIS LOCATION:	48.00 mm
DUT POSITION:	Front Facing – Normal Holster #1	MAX SAR Y-AXIS LOCATION:	11.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	2.31 V/m
TEST FREQUENCY:	2437MHz	SAR 1g:	0.014 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.009 W/kg
CONVERSION FACTORS:	0.497 / 0.497 / 0.497	SAR START:	0.003 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.003 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	0.00 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	19/05/2006
INPUT POWER LEVEL:	20dBm	EXTRAPOLATION:	poly4

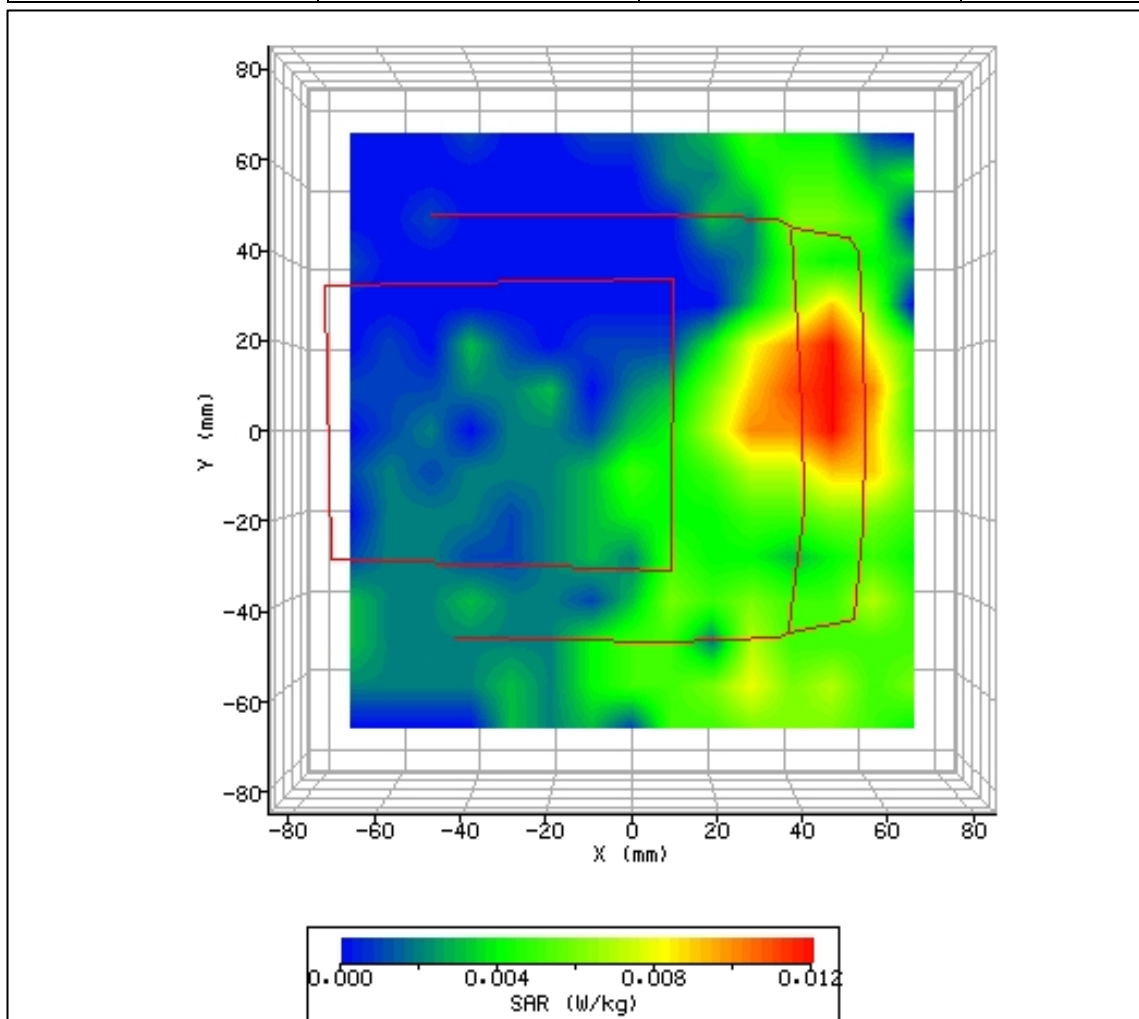


Figure 14: SAR Body Testing Results for the Intermec 700C Mobile Computer in Front Facing Phantom Position in holster #1; Tested at 2473MHz (WLAN Middle Channel) with 0.0mm Separation.

2.3 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	19/05/2006 11:03:32	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_61.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	23.8°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	42.5%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadBox1.csv	LIQUID TEMPERATURE:	22.5°C
PHANTOM ROTATION:	0°	MAX SAR X-AXIS LOCATION:	36.00 mm
DUT POSITION:	Rear Facing – Normal Holster #1	MAX SAR Y-AXIS LOCATION:	13.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	5.51 V/m
TEST FREQUENCY:	2412MHz	SAR 1g:	0.078 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.046 W/kg
CONVERSION FACTORS:	0.497 / 0.497 / 0.497	SAR START:	0.011 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.011 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	-2.16 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	19/05/2006
INPUT POWER LEVEL:	20dBm	EXTRAPOLATION:	poly4

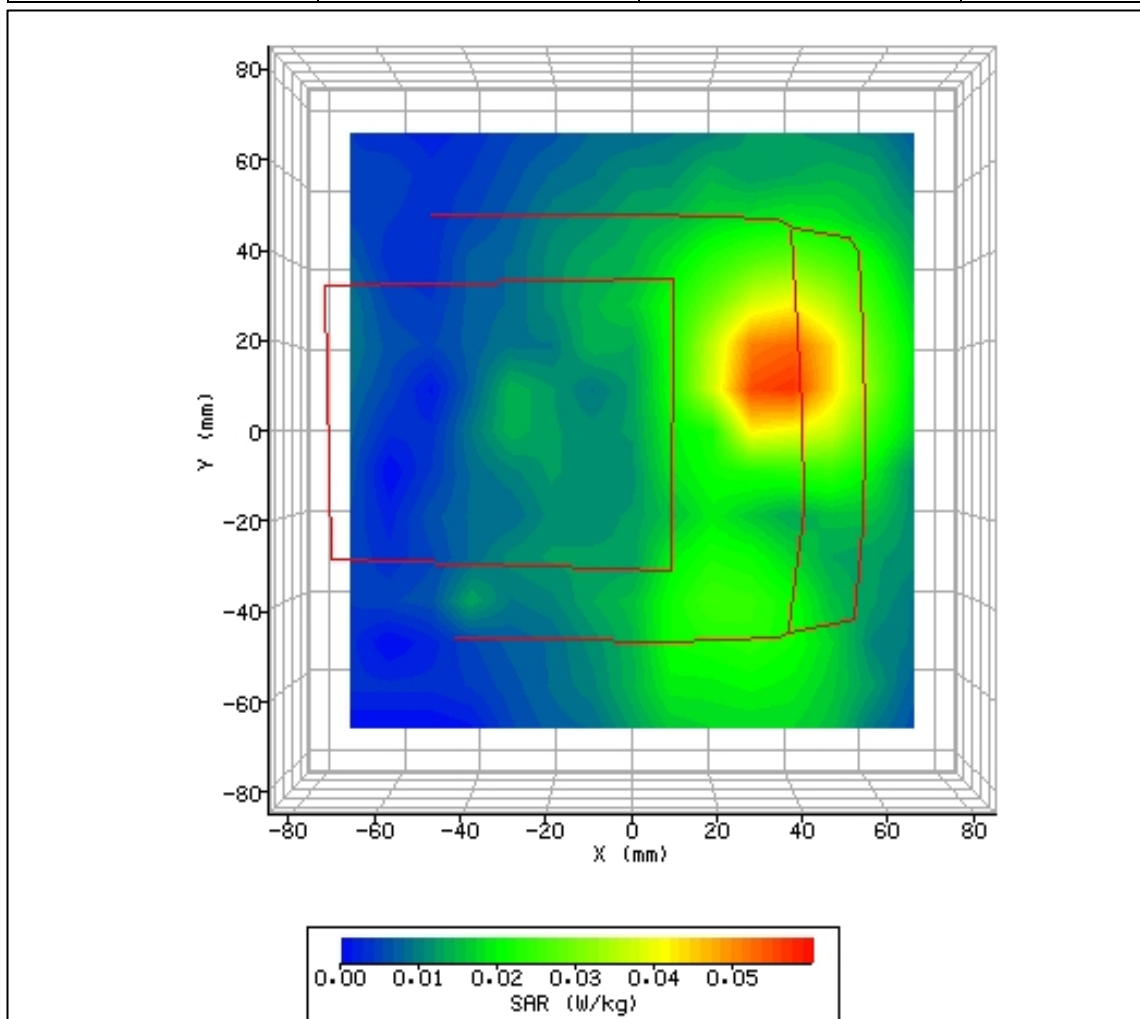


Figure 15: SAR Body Testing Results for the Intermec 700C Mobile Computer in Rear Facing Phantom Position in holster #1; Tested at 2412MHz (WLAN High Channel) with 0.0mm Separation.

2.3 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	19/05/2006 11:38:38	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_62.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	23.7°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	41.1%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadBox1.csv	LIQUID TEMPERATURE:	22.5°C
PHANTOM ROTATION:	0°	MAX SAR Y-AXIS LOCATION:	0.67 mm
DUT POSITION:	Rear Facing – Normal Holster #1	MAX SAR Z-AXIS LOCATION:	-476.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	5.11 V/m
TEST FREQUENCY:	2472MHz	SAR 1g:	0.066 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.038 W/kg
CONVERSION FACTORS:	0.497 / 0.497 / 0.497	SAR START:	0.008 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.008 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	-3.53 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	19/05/2006
INPUT POWER LEVEL:	20dBm	EXTRAPOLATION:	poly4

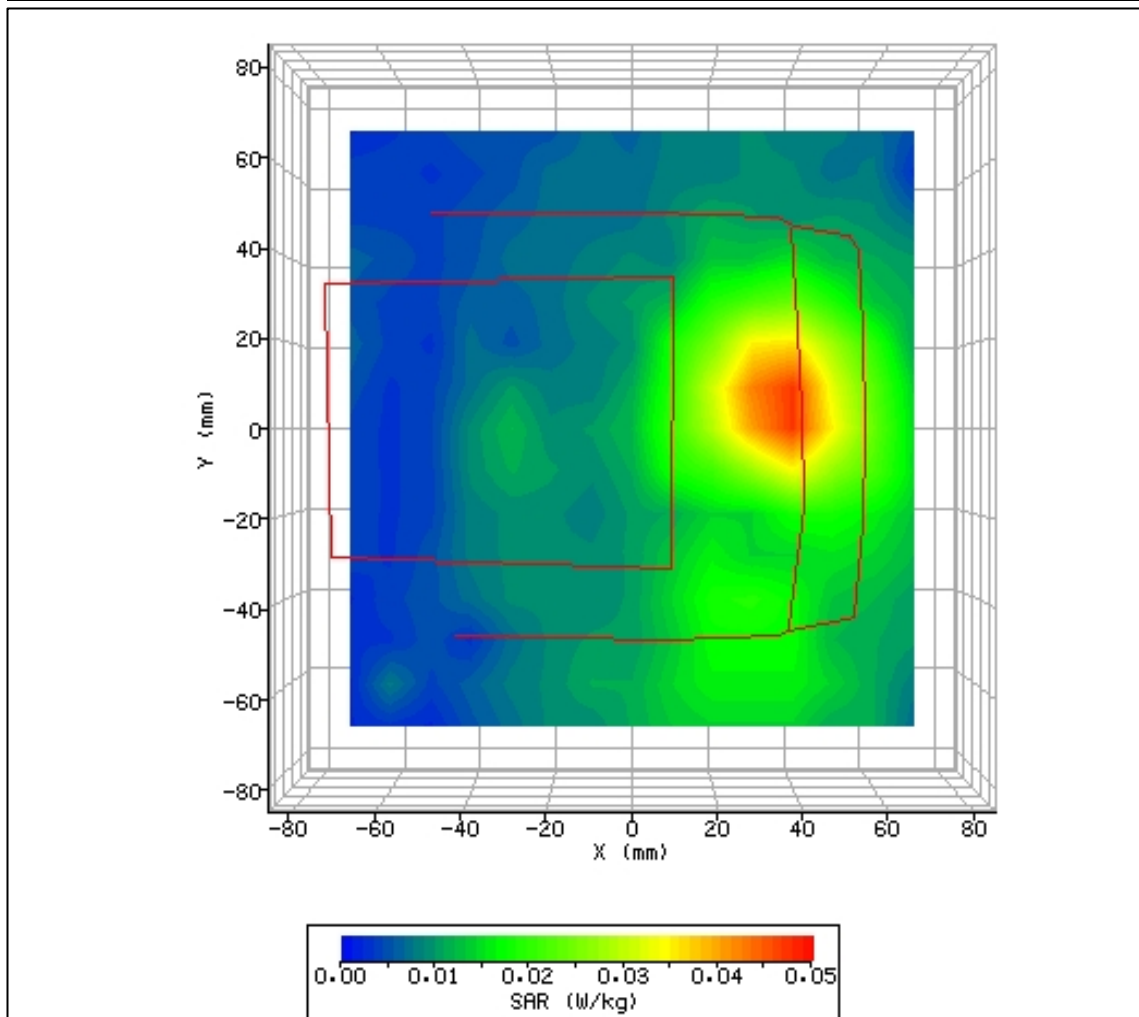


Figure 16: SAR Body Testing Results for the Intermec 700C Mobile Computer in Rear Facing Phantom Position in holster #1; Tested at 2472MHz (WLAN High Channel) with 0.0mm Separation.

2.3 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	19/05/2006 12:58:28	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_63.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	24.4°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	38.8%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadBox1.csv	LIQUID TEMPERATURE:	22.3°C
PHANTOM ROTATION:	0°	MAX SAR Y-AXIS LOCATION:	0.00 mm
DUT POSITION:	Rear Facing inverted - Holster #1	MAX SAR Z-AXIS LOCATION:	-476.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	5.75 V/m
TEST FREQUENCY:	2412MHz	SAR 1g:	0.086 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.051 W/kg
CONVERSION FACTORS:	0.497 / 0.497 / 0.497	SAR START:	0.012 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.012 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	2.67 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	19/05/2006
INPUT POWER LEVEL:	20dBm	EXTRAPOLATION:	poly4

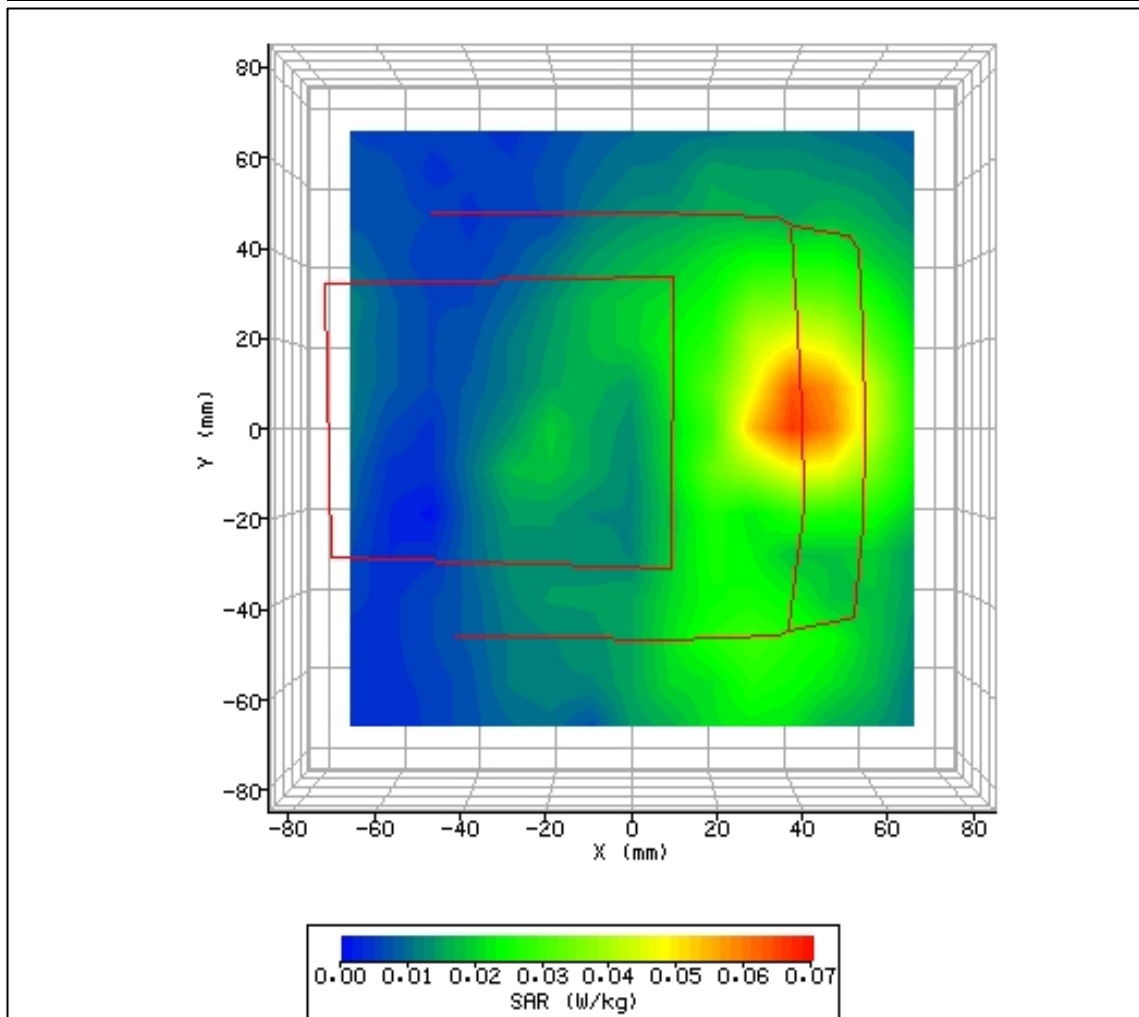


Figure 17: SAR Body Testing Results for the Intermec 700C Mobile Computer in Rear Facing Phantom Position inverted in holster #1; Tested at 2412MHz (WLAN Low Channel) with 0.0mm Separation.

2.3 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	19/05/2006 13:55:38	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_64.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	24.4°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	39.5%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadBox1.csv	LIQUID TEMPERATURE:	22.3°C
PHANTOM ROTATION:	0°	MAX SAR X-AXIS LOCATION:	28.00 mm
DUT POSITION:	Rear Facing - Holster #2	MAX SAR Y-AXIS LOCATION:	7.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	4.67 V/m
TEST FREQUENCY:	2412MHz	SAR 1g:	0.055 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.035 W/kg
CONVERSION FACTORS:	0.497 / 0.497 / 0.497	SAR START:	0.007 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.009 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	0.00 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	19/05/2006
INPUT POWER LEVEL:	20dBm	EXTRAPOLATION:	poly4

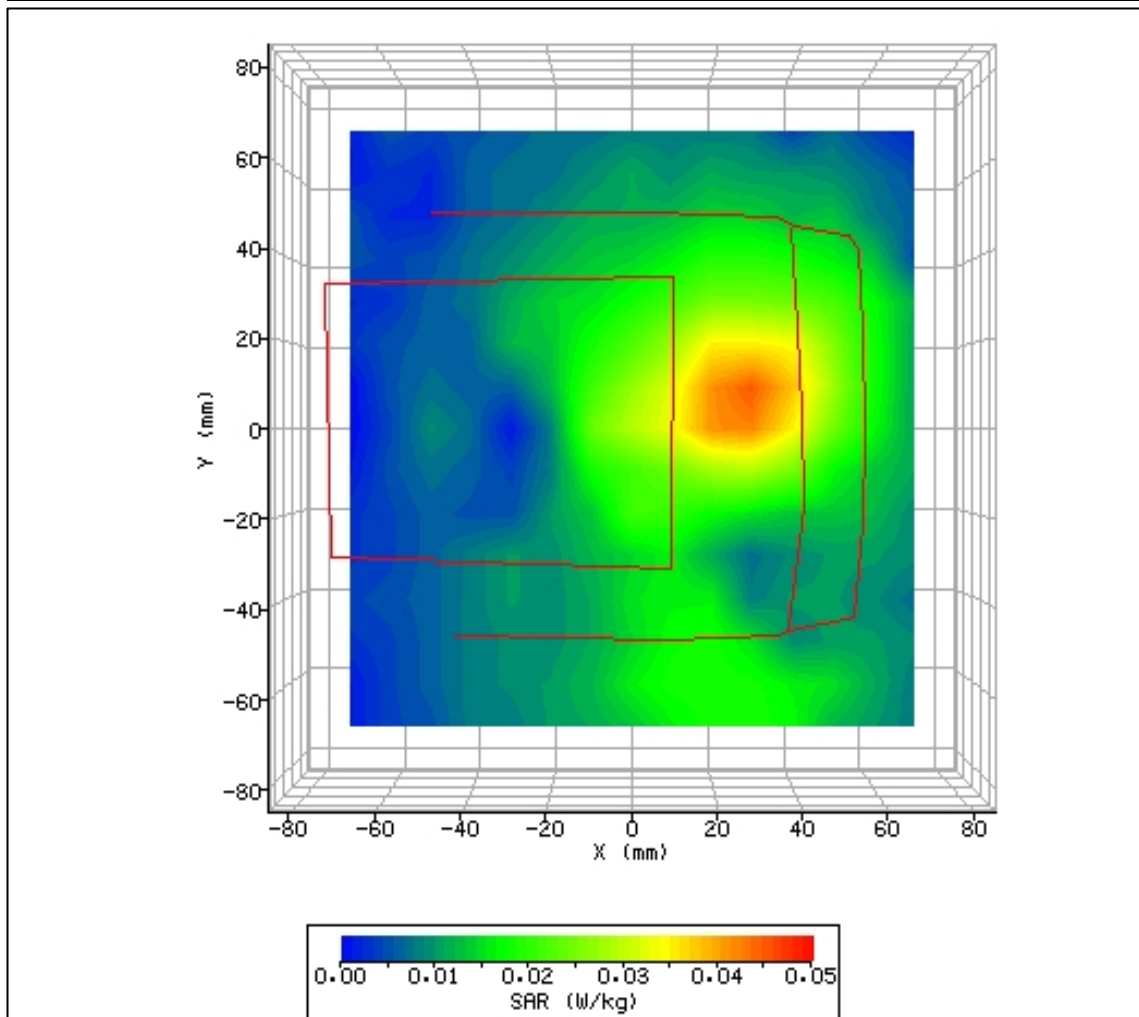


Figure 18: SAR Body Testing Results for the Intermec 700C Mobile Computer in Rear Facing Phantom Position in holster #2; Tested at 2412MHz (WLAN Low Channel) with 0.0mm Separation.

2.3 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	19/05/2006 14:28:08	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_65.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	23.4°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	41.3%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadBox1.csv	LIQUID TEMPERATURE:	22.3°C
PHANTOM ROTATION:	0°	MAX SAR X-AXIS LOCATION:	20.00 mm
DUT POSITION:	Rear Facing - Holster #2	MAX SAR Y-AXIS LOCATION:	10.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	4.66 V/m
TEST FREQUENCY:	2437MHz	SAR 1g:	0.054 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.033 W/kg
CONVERSION FACTORS:	0.497 / 0.497 / 0.497	SAR START:	0.007 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.007 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	0.00 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	19/05/2006
INPUT POWER LEVEL:	20dBm	EXTRAPOLATION:	poly4

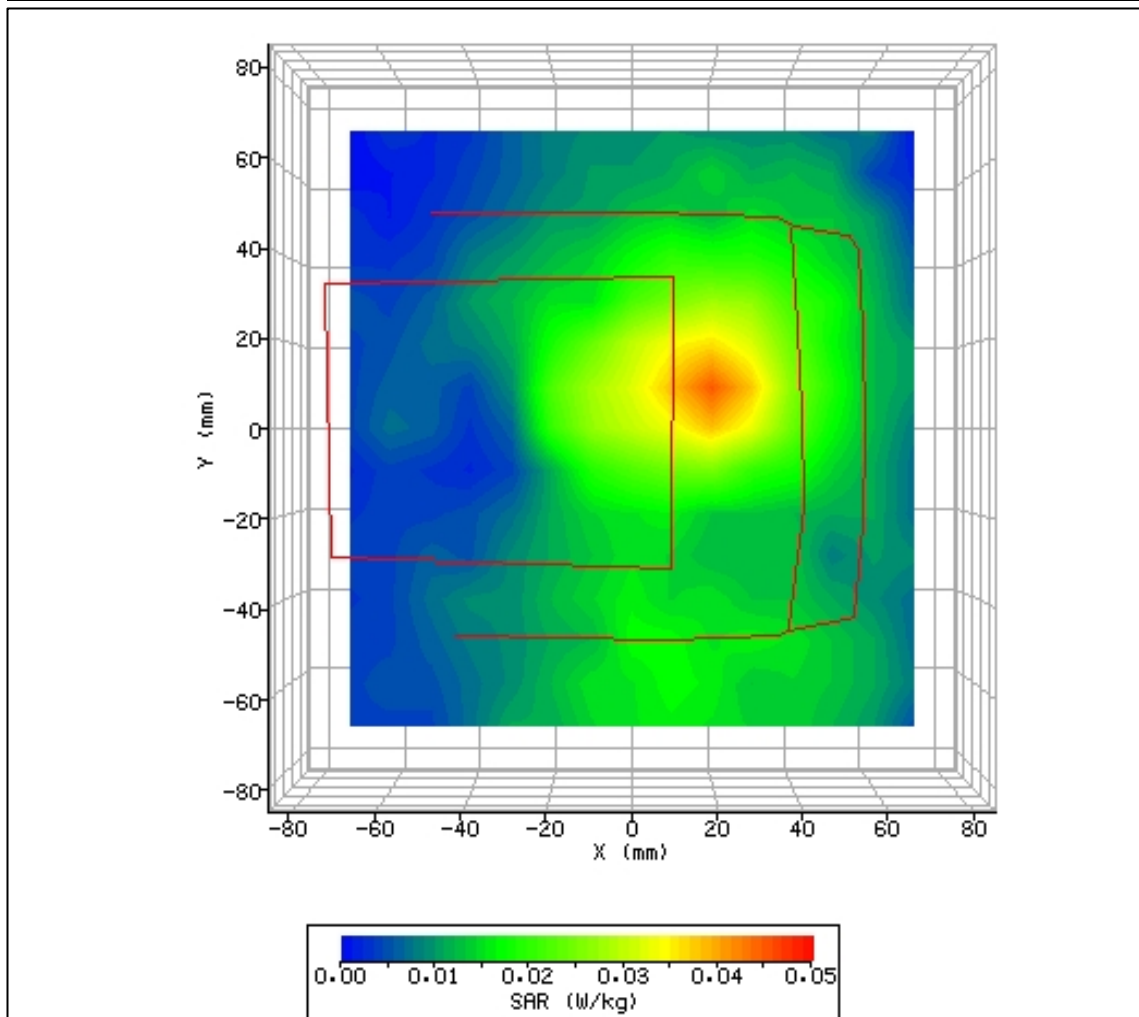


Figure 19: SAR Body Testing Results for the Intermec 700C Mobile Computer in Rear Facing Phantom Position in holster #2; Tested at 2437MHz (WLAN Middle Channel) with 0.0mm Separation.

2.3 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	19/05/2006 14:59:05	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_66.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	23.2°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	42.7%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadBox1.csv	LIQUID TEMPERATURE:	22.2°C
PHANTOM ROTATION:	0°	MAX SAR X-AXIS LOCATION:	18.00 mm
DUT POSITION:	Rear Facing - Holster #2	MAX SAR Y-AXIS LOCATION:	6.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	4.31 V/m
TEST FREQUENCY:	2472MHz	SAR 1g:	0.049 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.029 W/kg
CONVERSION FACTORS:	0.497 / 0.497 / 0.497	SAR START:	0.005 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.009 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	0.00 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	19/05/2006
INPUT POWER LEVEL:	20dBm	EXTRAPOLATION:	poly4

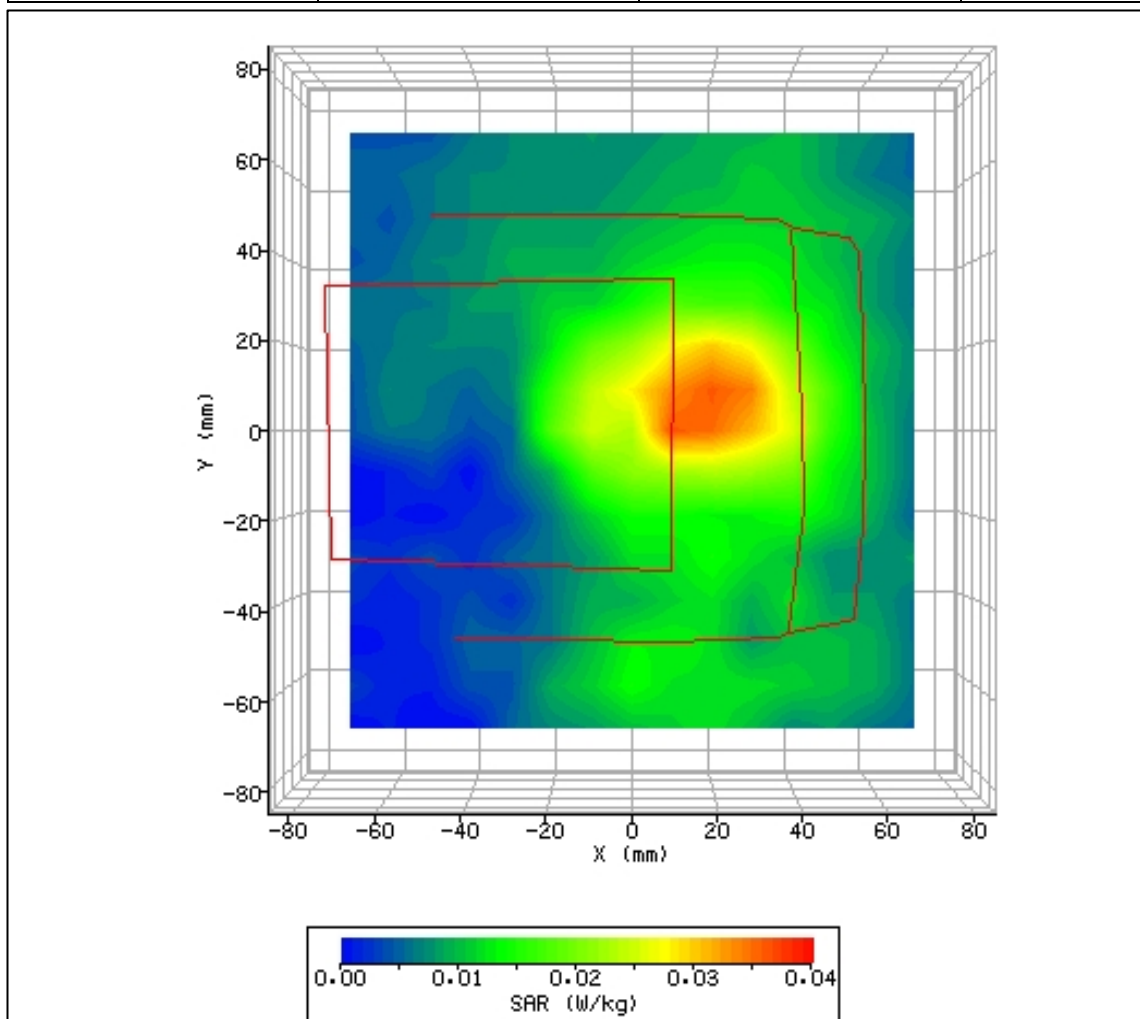


Figure 20: SAR Body Testing Results for the Intermec 700C Mobile Computer in Rear Facing Phantom Position in holster #2; Tested at 2472MHz (WLAN High Channel) with 0.0mm Separation.

2.3 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	19/05/2006 15:37:59	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_67.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	23.7°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	42.1%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadBox1.csv	LIQUID TEMPERATURE:	22.2°C
PHANTOM ROTATION:	0°	MAX SAR X-AXIS LOCATION:	18.00 mm
DUT POSITION:	Rear Facing Inverted - Holster #2	MAX SAR Y-AXIS LOCATION:	21.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	5.42 V/m
TEST FREQUENCY:	2412MHz	SAR 1g:	0.075 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.043 W/kg
CONVERSION FACTORS:	0.497 / 0.497 / 0.497	SAR START:	0.010 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.010 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	0.00 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	19/05/2006
INPUT POWER LEVEL:	20dBm	EXTRAPOLATION:	poly4

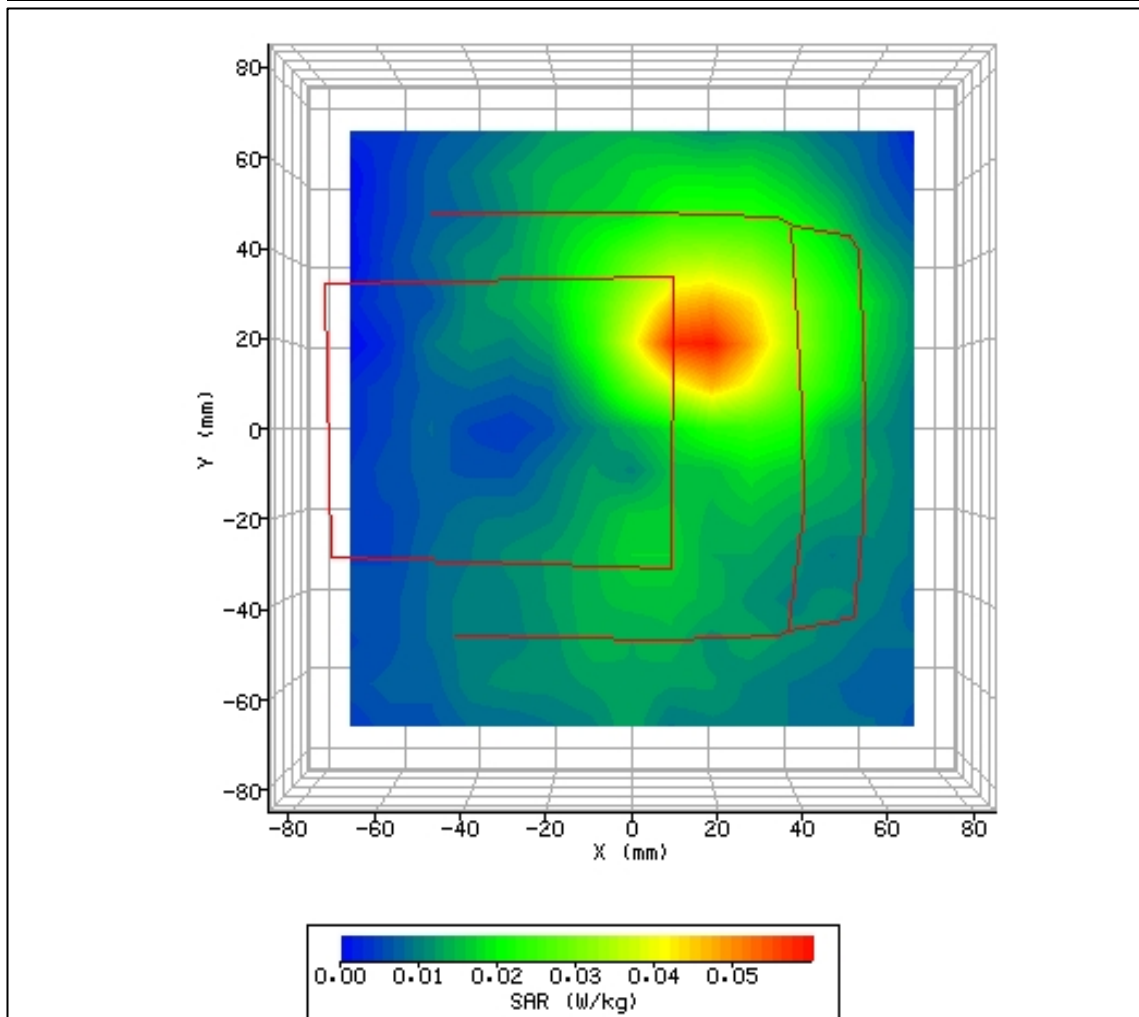


Figure 21: SAR Body Testing Results for the Intermec 700C Mobile Computer in Rear Facing Phantom Position inverted in holster #2; Tested at 2412MHz (WLAN Low Channel) with 0.0mm Separation.

2.3 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	24/05/2006 14:20:33	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_68.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	23.0°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	35.6%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadBox1.csv	LIQUID TEMPERATURE:	22.4°C
PHANTOM ROTATION:	0°	MAX SAR X-AXIS LOCATION:	41.00 mm
DUT POSITION:	LH-Side Facing - Holster #2	MAX SAR Y-AXIS LOCATION:	21.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	4.03 V/m
TEST FREQUENCY:	2412MHz	SAR 1g:	0.041 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.024 W/kg
CONVERSION FACTORS:	0.497 / 0.497 / 0.497	SAR START:	0.001 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.001 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	0.00 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	19/05/2006
INPUT POWER LEVEL:	20dBm	EXTRAPOLATION:	poly4

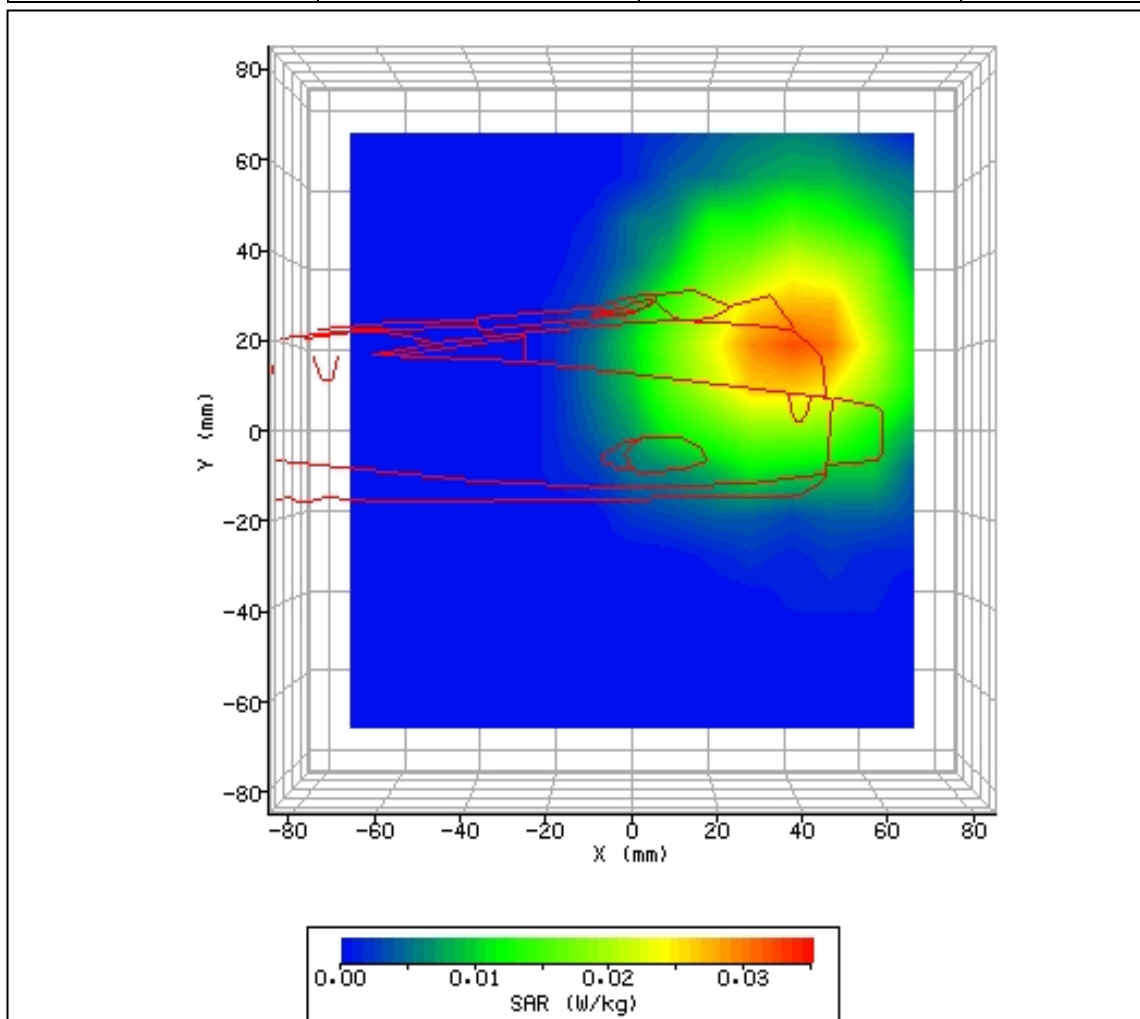


Figure 22: SAR Body Testing Results for the Intermec 700C Mobile Computer in LH-Side Facing Phantom Position in holster #2; Holster #2 in LH configuration; Tested at 2412MHz (WLAN Low Channel) with 0.0mm Separation.

2.3 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	24/05/2006 15:03:22	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_69.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	23.2°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	39.7%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadBox1.csv	LIQUID TEMPERATURE:	22.4°C
PHANTOM ROTATION:	0°	MAX SAR X-AXIS LOCATION:	19.00 mm
DUT POSITION:	RH-Side Facing - Holster #2	MAX SAR Y-AXIS LOCATION:	-17.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	2.68 V/m
TEST FREQUENCY:	2412MHz	SAR 1g:	0.020 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.010 W/kg
CONVERSION FACTORS:	0.497 / 0.497 / 0.497	SAR START:	0.000 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.000 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	0.00 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	19/05/2006
INPUT POWER LEVEL:	20dBm	EXTRAPOLATION:	poly4

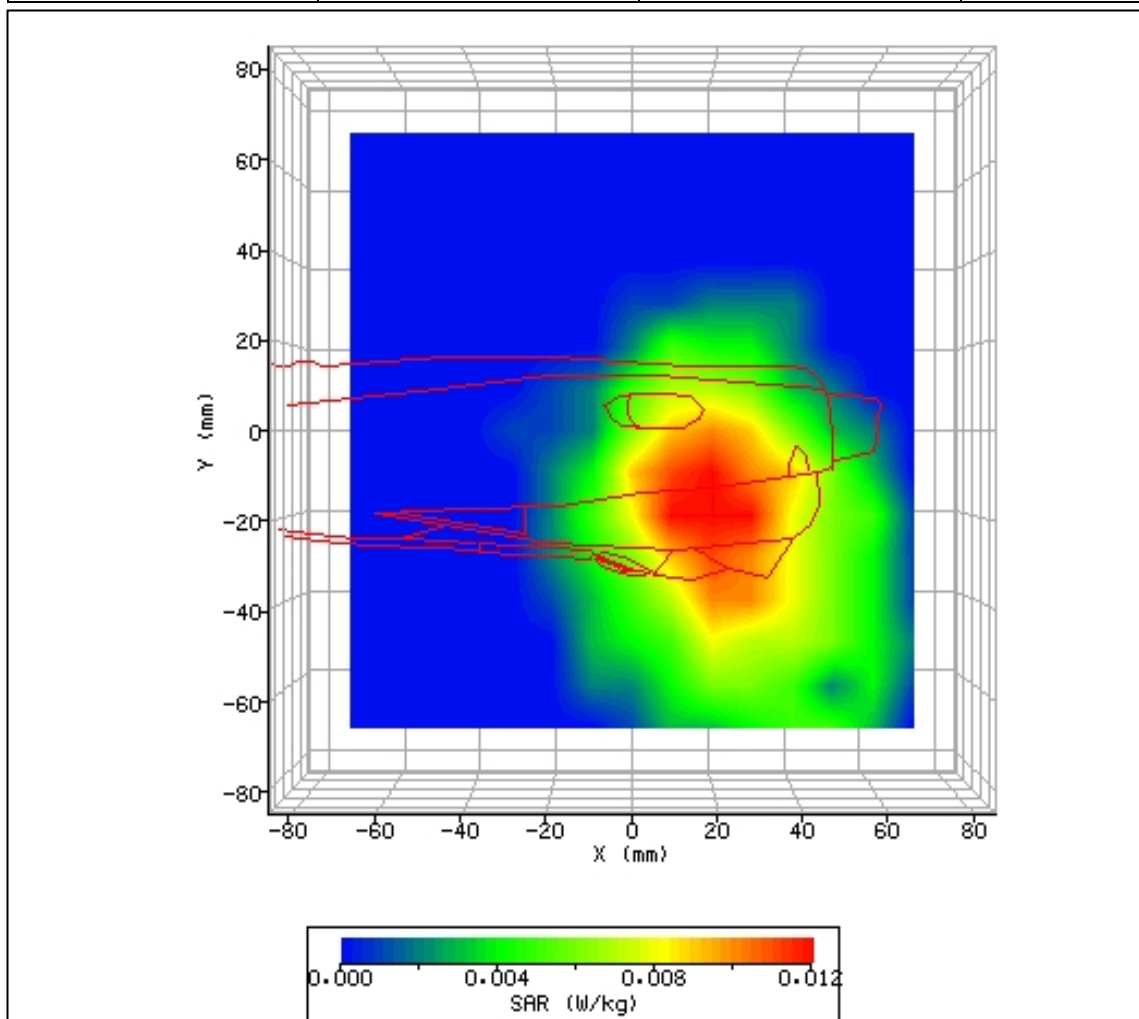


Figure 23: SAR Body Testing Results for the Intermec 700C Mobile Computer in RH-Side Facing Phantom Position in holster #2; Holster #2 in RH configuration; Tested at 2412MHz (WLAN Middle Channel) with 0.0mm Separation.

2.3 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COURSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	24/05/2006 16:39:54	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_70.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	24.1°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	39.7%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadBox1.csv	LIQUID TEMPERATURE:	22.1°C
PHANTOM ROTATION:	0°	MAX SAR X-AXIS LOCATION:	50.00 mm
DUT POSITION:	Rear Facing - Belt Clip	MAX SAR Y-AXIS LOCATION:	0.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	6.30 V/m
TEST FREQUENCY:	2412MHz	SAR 1g:	0.091 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.041 W/kg
CONVERSION FACTORS:	0.497 / 0.497 / 0.497	SAR START:	0.008 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.009 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	3.54 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	19/05/2006
INPUT POWER LEVEL:	20dBm	EXTRAPOLATION:	poly4

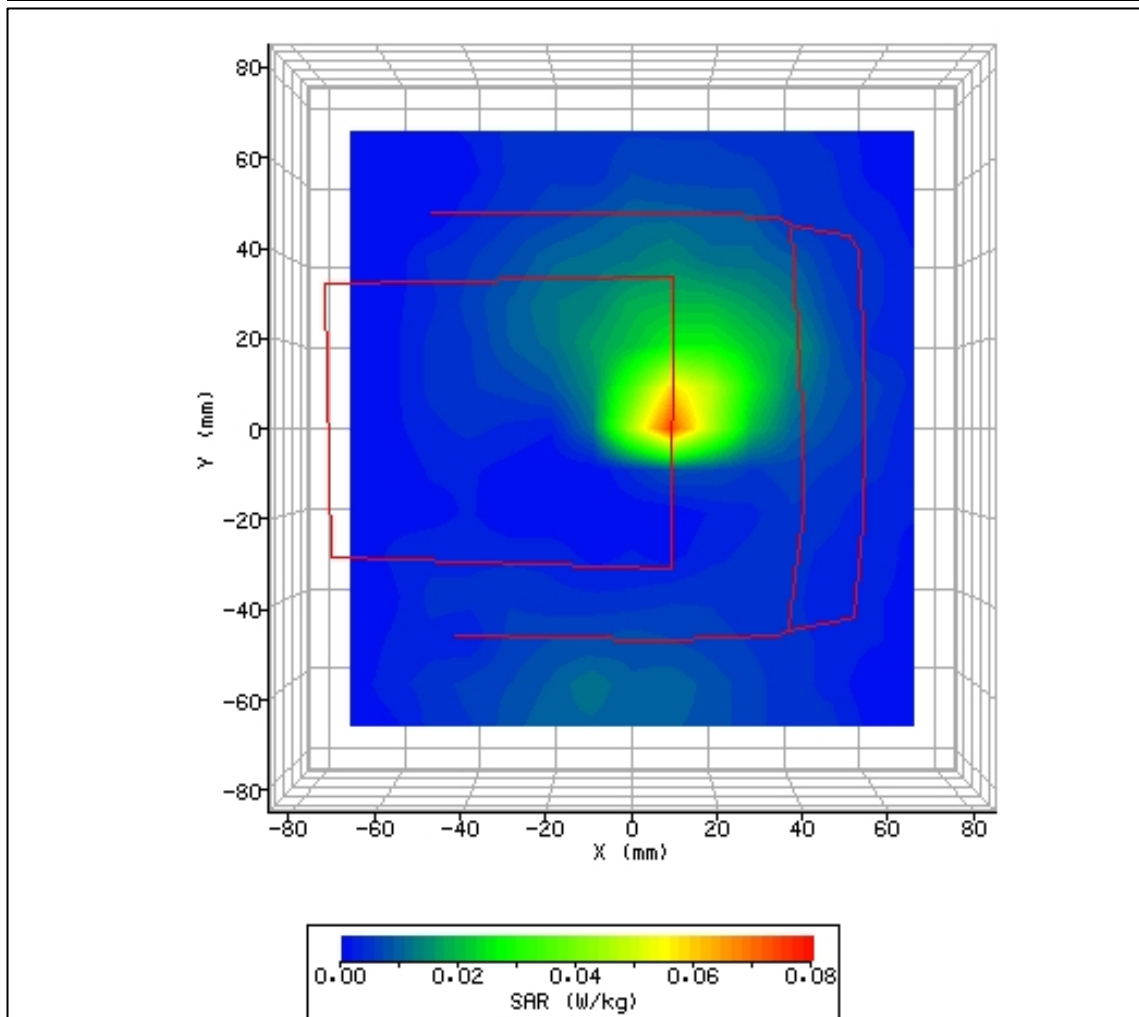


Figure 24: SAR Body Testing Results for the Intermec 700C Mobile Computer in Rear Facing Phantom Position Belt Clip Fitted; Tested at 2412MHz (WLAN Low Channel) with 0.0mm Separation.

SECTION 3

TEST EQUIPMENT

3.1 TEST EQUIPMENT

The following test equipment was used at BABT:

INSTRUMENT DESCRIPTION	MANUFACTURER	MODEL TYPE	TEST EQUIPMENT NO.	CALIBRATION DATES	
Bench-top Robot	Mitsubishi	RV-E2	156	N/A	N/A
Fast Probe Amplifier	IndexSAR Ltd.	IFA-010	1557	N/A	N/A
Side Bench 2	IndexSAR Ltd.	IXM-030	1571	N/A	N/A
Upright Bench 1	IndexSAR Ltd.	SARA2 system	1568	N/A	N/A
SAR Probe	IndexSAR Ltd.	IXP-050	1555	15/01/2006	15/01/2007
SAR Probe	IndexSAR Ltd.	IXP-050	2872	22/07/2005	22/07/2006
Signal Generator	Hewlett Packard	E4422A	61	15/02/2006	22/02/2007
Power Meter	Rohde & Schwarz	NRV	52	02/06/2005	02/06/2006
RF Pre-Amplifier	IndexSAR Ltd.	0.8-3G	2415	N/A	N/A
Bi-Directional Coupler	Krytar	1850	58	N/A	N/A
20dB Attenuator	Narda	766F-10	483	31/05/2005	31/05/2006
Hygrometer	Rotronic	I-1000	2783	01/06/2005	01/06/2006
Digital Thermometer	Digitron	T208	64	18/10/2005	18/10/2006
Thermocouple	Rohde & Schwarz	K	65	18/10/2005	18/10/2006
2450MHz Head TEM	BABT	Batch 6	N/A	02/04/2006	19/04/2006
2450MHz Body TEM	BABT	Batch 5	N/A	02/04/2006	19/04/2006
2450MHz Head TEM	BABT	Batch 6	N/A	13/05/2006	27/05/2006
2450MHz Body TEM	BABT	Batch 5	N/A	13/05/2006	27/05/2006
2450 MHz Dipole	IndexSAR Ltd.	IEEE1528	N/A	11/04/2006	30/05/2006
Flat Phantom 2mm Side	IndexSAR Ltd.	HeadBox01	1563	N/A	N/A
200mm Cube Box Phantom	IndexSAR Ltd.	IXB-070	1565	N/A	N/A

3.2 TEST SOFTWARE

The following software was used to control the BABT SARA2 System:

INSTRUMENT	VERSION NO.	DATE
SARA2 system	v.2.39 VPM	06/07/2005
Mitsubishi robot controller firmware revision	RV-E2 Version C9a	-
IFA-10 Probe amplifier	Version 2	-

3.3 DIELECTRIC PROPERTIES OF SIMULANT LIQUIDS

The fluid properties of the simulant fluids used during routine SAR evaluation meet the dielectric properties required by EN50361:2001 & OET Bulletin 65 (Edition 97-01).

The fluids were calibrated in our Laboratory and re-checked prior to any measurements being made against reference fluids stated in IEEE 1528-2003 of 0.9% NaCl (Salt Solution) at 23°C and also for Dimethylsulphoxide (DMS) at 21°C.

The fluids were made at BABT under controlled conditions from the following OET(65)c formulae and IEEE1528-2003. The composition of ingredients may have been modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation:

OET 65(c) Recipes

Ingredients (% by weight)	Frequency (MHz)									
	450		835		915		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.8	52.5
Conductivity (S/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.88	1.78

IEEE 1528 Recipes

Frequency (MHz)	300	450	835	900			1450	1800				1900	1950	2000	2100		2450			3000	
Recipe #	1	1	3	1	1	2	3	1	1	2	2	3	1	2	4	1	1	2	2	3	1
Ingredients (% by weight)																					
1,2-Propanediol							64.81														
Bactericide	0.19	0.19	0.5	0.1	0.1		0.5					0.5									0.5
Diacetin			48.9				49.2					49.43									49.75
DGBE								45.41	47	13.84	44.92		44.92	13.84	45	50	50	7.99	7.99		7.99
HEC	0.98	0.98		1	1																
NaCl	5.95	3.95	1.7	1.45	1.48	0.79	1.1	0.67	0.36	0.35	0.18	0.64	0.18	0.35					0.16	0.16	0.16
Sucrose	55.32	56.32		57	56.5																
Triton X-100											30.45									19.97	19.97
Water	37.56	38.56	48.9	40.45	40.92	34.4	49.2	53.82	52.64	55.36	54.9	49.43	54.9	55.36	55	50	50	71.88	71.88	49.75	71.88
Measured dielectric parameters																					
ϵ'	46	43.4	44.3	41.6	41.2	41.8	42.7	40.9	39.3	41	40.4	39.2	39.9	41	40.1	37	36.8	41.1	40.3	39.2	37.9
σ (S/m)	0.86	0.85	0.9	0.9	0.98	0.97	0.99	1.21	1.39	1.38	1.4	1.4	1.42	1.38	1.41	1.4	1.51	1.55	1.88	1.82	2.46
Temp. (°C)	22	22	20	22	22	22	20	22	22	21	22	20	21	21	20	22	22	20	20	20	20
Target dielectric parameters (Table 5-1)																					
ϵ'	45.3	43.5	41.5	41.5			40.5	40				39.8			39.2	38.5					
σ (S/m)	0.87	0.87	0.9	0.97			1.2	1.4				1.49			1.8	2.4					

3.3 DIELECTRIC PROPERTIES OF SIMULANT LIQUIDS

The dielectric properties of the tissue simulant liquids used for the SAR testing at BABT are as follows:-

FLUID TYPE	FREQUENCY	RELATIVE PERMITTIVITY ϵ_r (e') TARGET	RELATIVE PERMITTIVITY ϵ_r (e') MEASURED	CONDUCTIVITY σ TARGET	CONDUCTIVITY σ MEASURED
HEAD	2450 MHz	39.2	38.80	1.80	1.755
BODY	2450 MHz	52.7	52.57	1.95	1.980

3.4 TEST CONDITIONS

TEST LABORATORY CONDITIONS

Ambient Temperature: Within +15°C to +35°C at 20% RH to 75% RH.
 The actual Temperature during the testing ranged from 22.2°C to 25.8 °C.
 The actual Humidity during the testing ranged from 35.6% to 56.1% RH.

TEST FLUID TEMPERATURE RANGE

FREQUENCY (MHZ)	2450	2450
BODY / HEAD FLUID	HEAD	BODY
MIN TEMPERATURE (°C)	23.0	22.1
MAX TEMPERATURE (°C)	23.0	24.5

SAR DRIFT

This report must be read in conjunction with the following TUV Product Service Limited Reports:- WS615078/01 Issue 2 and WS615078/03 Issue 1. SAR Drift information is contained within Report No. WS615078/01 Issue 2.

3.5 MEASUREMENT UNCERTAINTY

This report must be read in conjunction with the following TUV Product Service Limited Reports:- WS615078/01 Issue 2 and WS615078/03 Issue 1. Measurement Uncertainty information is contained within Report No. WS615078/01 Issue 2.

3.6 PROBE CALIBRATION INFORMATION

This report must be read in conjunction with the following TUV Product Service Limited Report: WS615078/01 Issue 2 and WS615078/03 Issue 1. Probe calibration information is contained within Report No. WS615078/01 Issue 2.

SECTION 4

PHOTOGRAPHS

4.1 TEST POSITIONAL PHOTOGRAPHS

This report must be read in conjunction with the following TUV Product Service Limited Reports:-
WS615078/01 Issue 2 and WS615078/03 Issue 1.

Photographs of the test positions are contained within Report No WS615078/01 Issue 2.

4.2 PHOTOGRAPHS OF EQUIPMENT UNDER TEST (EUT)

This report must be read in conjunction with the following TUV Product Service Limited Reports:-
WS615078/01 Issue 2 and WS615078/03 Issue 1.

Photographs of the EUT are contained within Report No WS615078/01 Issue 2.

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

This report relates only to the actual item/items tested.

This report must not be reproduced, except in its entirety, without the written permission of
TUV Product Service Limited

© 2006 TUV Product Service Limited