REPORT ON

Specific Absorption Rate Co-Location Assessment of the Intermec Technologies Corporation 700C Mobile Computer

Report No WS615078/03 Issue 1 **June 2006**

Product Service

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

Report No: WS615078/03 Issue 1

PREPARED FOR
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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 Radiofrequency 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.

A Miller
SAR Test Engineer

APPROVED BY

M J Hardy
Authorised Signatory

DATED 13th June 2006

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

CONTENTS

SECTION 1

REPORT SUMMARY

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

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:	13th March 2006
START OF TEST:	13th March 2006
FINISH OF TEST:	1st June 2006

1.2 SUMMARY

This report must be read in conjunction with the following TUV Product Service Limited Reports' WS615078/01 Issue 2 and WS615078/02 Issue 1.

The unit supplied for testing is an Intermec 700C Mobile Computer, which offers Quad-Band (GSM/GPRS/EGPRS 850/900/1800/1900); WLAN 2450MHz and Bluetooth connectivity.
The unit provides simultaneous multi-band transmission, for the purpose of this report the following radio combinations were assessed for collocated head and body SAR.

- GSM 850; WLAN and Bluetooth.
- GSM 1900; WLAN and Bluetooth.

Prior to collocation assessment each of the radios were individually assessed to the requirements of the applied standards for full details see TUV Product Service Limited Reports' WS615078/01 Issue 2 and WS615078/02 Issue 1. From the individually assessed radios it was determined which combination of position and frequency provided the worst-case SAR. These positions were then used for the simultaneous transmission assessment.
The procedure for the assessment of this wireless device with simultaneous multi-band transmission was selected from the draft document entitled PT_62209_2004_040_Siegbahn_Douglas_Section_6_3_measurement_procedure:-
Alternative 1: Assessment by summation of separately assessed maximum SAR values.
This procedure gives a fast method to determine the upper limit of the multi-band SAR

1. Assess the maximum mass-averaged SAR at frequency 1 and separately according to IEC62209 part 1.
2. Add the two maximum mass-averaged SAR values to obtain the multi-band SAR

In addition to the assessment by summation of separately assessed maximum SAR values the following was used to show how much the secondary transmitters contributed to the maximum SAR of dominant transmitter. The Eeff V/m of each point of each of the area scans was squared then multiplied by the appropriate conductivity value then added together and finally a square root value obtained for each point. The resultant was recompiled into a combined data file normalised to a conductivity value of 1.00 and then loaded into SARA2. A new data visualisation file was then created. See section 2 of this report for full details.

1.3 COLLOCATION ASSESSMENT SUMMARY

ASSESSMENT BY SUMMATION OF SEPARATELY ASSESSED MAXIMUM SAR VALUES

GSM 850 Head SAR Collocation Assessment

Dominant Transmitter	:	850 MHz
Dominant Transmitter Mode	:	GSM Class 1
Modulation	:	GMSK (12.5%)
Phantom	:	SAM
EUT Position	:	RH Cheek 15°
Maximum mass-averaged SAR (1g)	:	0.375 W/kg

Non-Dominant Transmitter	:	2450 MHz
Non-Dominant Transmitter Mode	:	WLAN VOiP
Modulation	:	DSSS (100%)
Phantom	:	SAM
EUT Position	:	RH Cheek 15°
Maximum mass-averaged SAR (1g)	:	0.114 W/kg

Non-Dominant Transmitter	:	2450 MHz
Non-Dominant Transmitter Mode	:	Bluetooth Test Mode.
Modulation	:	CW (100%)
Phantom	:	SAM
EUT Position	:	RH Cheek 15°
Maximum mass-averaged SAR (1g)	:	0.009 W/kg

Upper limit estimation of the multi-band SAR is 0.498W/kg

GSM 1900 Head SAR Collocation Assessment

Dominant Transmitter	:	1900 MHz
Dominant Transmitter Mode	:	GPRS Class 12
Modulation	:	GMSK (50%)
Phantom	:	SAM
EUT Position	:	RH Cheek 15°
Maximum mass-averaged SAR (1g)	:	0.138 W/kg

Non-Dominant Transmitter	:	2450 MHz
Non-Dominant Transmitter Mode	:	WLAN VOiP
Modulation	:	DSSS (100%)
Phantom	:	SAM
EUT Position	:	RH Cheek 15°
Maximum mass-averaged SAR (1g)	:	0.114 W/kg

Non-Dominant Transmitter	:	2450 MHz
Non-Dominant Transmitter Mode	:	Bluetooth Test Mode.
Modulation	:	CW (100%)
Phantom	:	SAM
EUT Position	:	RH Cheek 15°
Maximum mass-averaged SAR (1g)	:	0.009 W/kg

Upper limit estimation of the multi-band SAR is 0.261W/kg

1.3 COLLOCATION ASSESSMENT SUMMARY

ASSESSMENT BY SUMMATION OF SEPARATELY ASSESSED MAXIMUM SAR VALUES

GSM 850 Body SAR Collocation Assessment

Dominant Transmitter	:	850 MHz
Dominant Transmitter Mode	:	GSM Class 1
Modulation	:	GMSK (12.5%)
Phantom	:	Flat Phantom
EUT Position	:	Front facing inverted in Holster P/N 815-047-001
Separation Distance	:	0.0mm
Maximum mass-averaged SAR (1g)	:	0.689W/kg

Non-Dominant Transmitter	:	2450 MHz
Non-Dominant Transmitter Mode	:	WLAN VOiP
Modulation	:	DSSS (100%)
Phantom	:	Flat Phantom
EUT Position	:	Front facing inverted in Holster P/N 815-047-001
Separation Distance	:	0.0mm
Maximum mass-averaged SAR (1g)	:	0.014W/kg

Non-Dominant Transmitter	:	2450 MHz
Non-Dominant Transmitter Mode	:	Bluetooth Test Mode.
Modulation	:	CW (100%)
Phantom	:	Flat Phantom
EUT Position	:	Front facing inverted in Holster P/N 815-047-001
Separation Distance	:	0.0mm
Maximum mass-averaged SAR (1g)	:	0.000W/kg

Upper limit estimation of the multi-band SAR is 0.703W/kg

GSM 1900 Body SAR Collocation Assessment

Dominant Transmitter	:	1900 MHz
Dominant Transmitter Mode	:	GPRS Class 12
Modulation	:	GMSK (50%)
Phantom	:	Flat Phantom
EUT Position	:	Front facing inverted in Holster P/N 815-047-001
Separation Distance	:	0.0mm
Maximum mass-averaged SAR (1g)	:	0.138W/kg

Non-Dominant Transmitter	:	2450 MHz
Non-Dominant Transmitter Mode	:	WLAN VOiP
Modulation	:	DSSS (100%)
Phantom	:	Flat Phantom
EUT Position	:	Front facing inverted in Holster P/N 815-047-001
Separation Distance	:	0.0mm
Maximum mass-averaged SAR (1g)	:	0.014W/kg

Non-Dominant Transmitter	:	2450 MHz
Non-Dominant Transmitter Mode	:	Bluetooth Test Mode.
Modulation	:	CW (100%)
Phantom	:	Flat Phantom
EUT Position	:	Front facing inverted in Holster P/N 815-047-001
Separation Distance	:	0.0mm
Maximum mass-averaged SAR (1g)	:	0.000W/kg

Upper limit estimation of the multi-band SAR is 0.152W/kg

SECTION 2

ASSESSMENT DETAILS

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

2.1 850MHz GSM HEAD SAR TEST RESULT INCLUDING COARSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	22/03/2006 12:30:57	DUT BATTERY MODEL/NO:	318-013-002
FILENAME:	WS615078_06.txt	PROBE SERIAL NUMBER:	0170
AMBIENT TEMPERATURE:	21.7°C	LIQUID SIMULANT:	835 Head
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	42.17
RELATIVE HUMIDITY:	33.5%	CONDUCTIVITY:	0.911
PHANTOM S/NO:	HeadFT04.csv	LIQUID TEMPERATURE:	22.8°C
PHANTOM ROTATION:	180°	MAX SAR Y-AXIS LOCATION:	-26.50 mm
DUT POSITION:	RH Cheek 15°	MAX SAR Z-AXIS LOCATION:	-97.50 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	21.23 V/m
TEST FREQUENCY:	848.8MHz	SAR 1g:	0.375 W/kg
AIR FACTORS:	433 / 367 / 399	SAR 10g:	0.260 W/kg
CONVERSION FACTORS:	0.260 / 0.260 / 0.260	SAR START:	0.190 W/kg
TYPE OF MODULATION:	GMSK	SAR END:	0.191 W/kg
MODN. DUTY CYCLE:	12.5%	SAR DRIFT DURING SCAN:	0.42 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	21/03/06
INPUT POWER LEVEL:	5	EXTRAPOLATION:	poly4

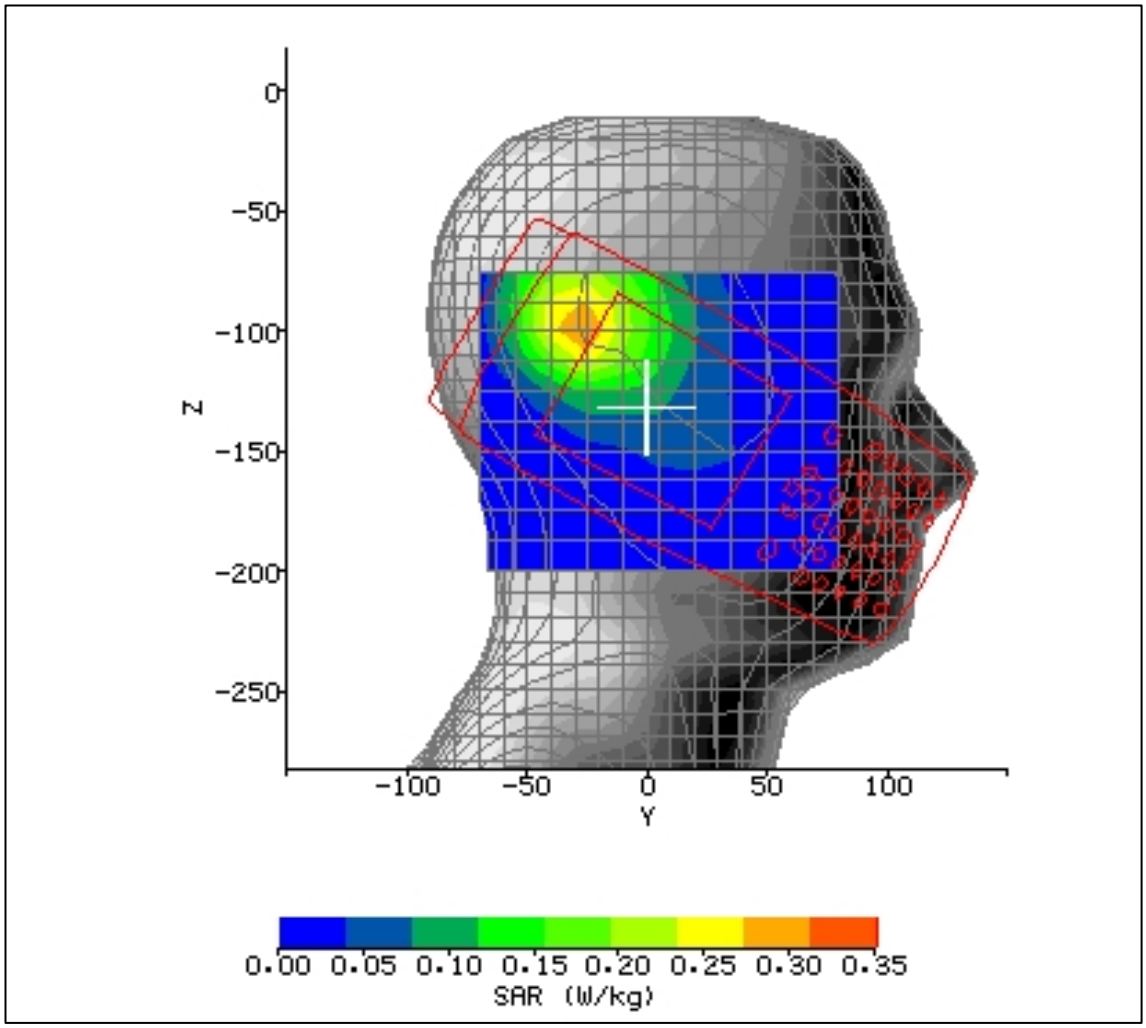

Figure 1: SAR Head Testing Results for the Intermec 700C Mobile Computer in Right Hand 15° Cheek Position; Tested at 848.8MHz (850MHz GSM High Channel).

2.1.1 2450MHz WLAN HEAD SAR TEST RESULT INCLUDING COARSE 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

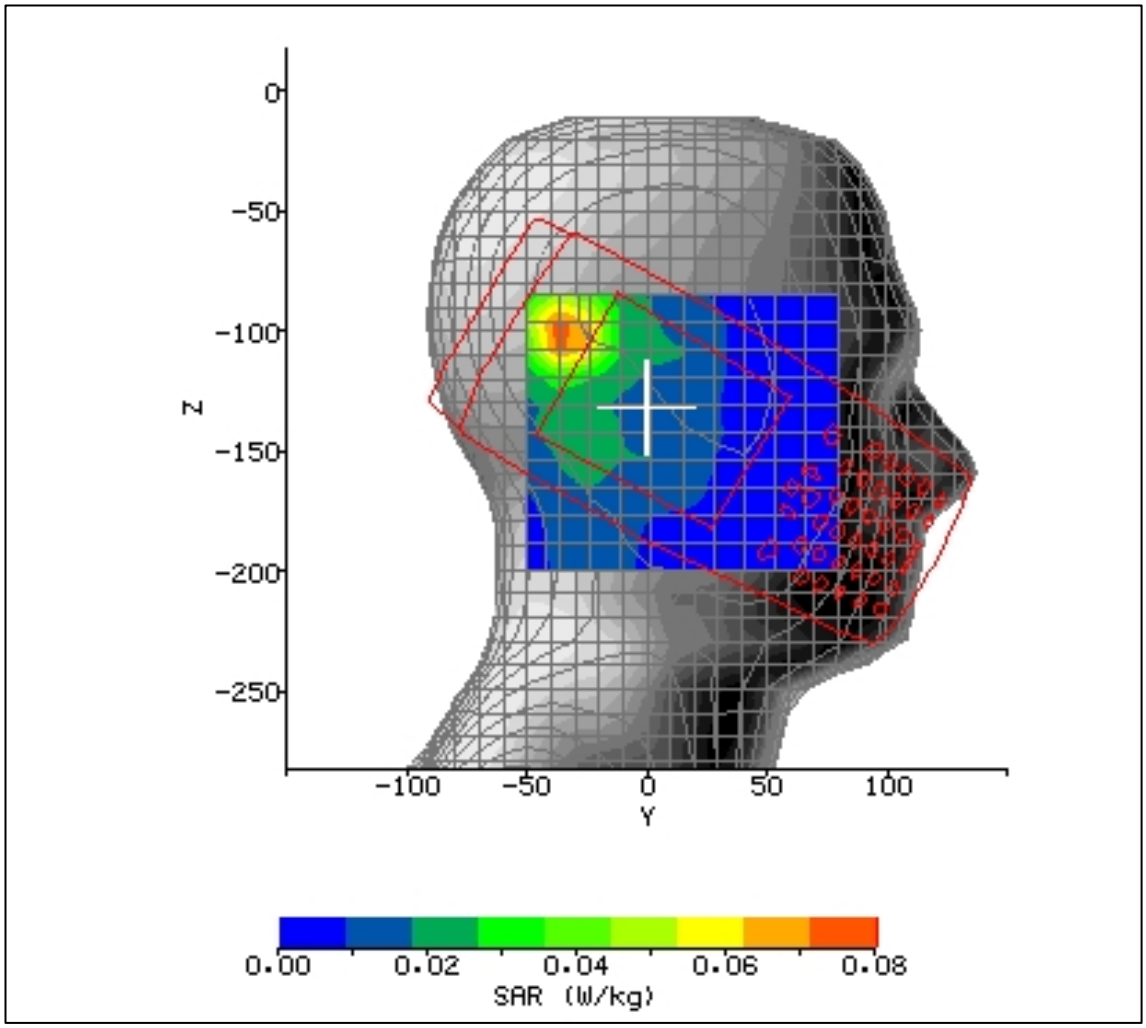

Figure 2: SAR Head Testing Results for the Intermec 700C Mobile Computer in Right Hand Cheek 15° Position; Tested at 2437MHz (WLAN Middle Channel).

2.1.2 2402MHz BLUETOOTH HEAD SAR TEST RESULT INCLUDING COARSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	26/05/2006 15:11:37	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_73.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	24.8°C	LIQUID SIMULANT:	2450 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.57
RELATIVE HUMIDITY:	55.1%	CONDUCTIVITY:	1.98
PHANTOM S/NO:	HeadFT04.csv	LIQUID TEMPERATURE:	23.5°C
PHANTOM ROTATION:	180°	MAX SAR Y-AXIS LOCATION:	-37.00 mm
DUT POSITION:	RH Cheek 15°	MAX SAR Z-AXIS LOCATION:	-119.50 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	2.36 V/m
TEST FREQUENCY:	2402MHz	SAR 1g:	0.009 W/kg
AIR FACTORS:	345.6 / 425.4 / 428.9	SAR 10g:	0.004 W/kg
CONVERSION FACTORS:	0.431 / 0.431 / 0.431	SAR START:	0.002 W/kg
TYPE OF MODULATION:	DSSS	SAR END:	0.002 W/kg
MODN. DUTY CYCLE:	100%	SAR DRIFT DURING SCAN:	-4.25 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	24/05/2006
INPUT POWER LEVEL:	165mW	EXTRAPOLATION:	poly4

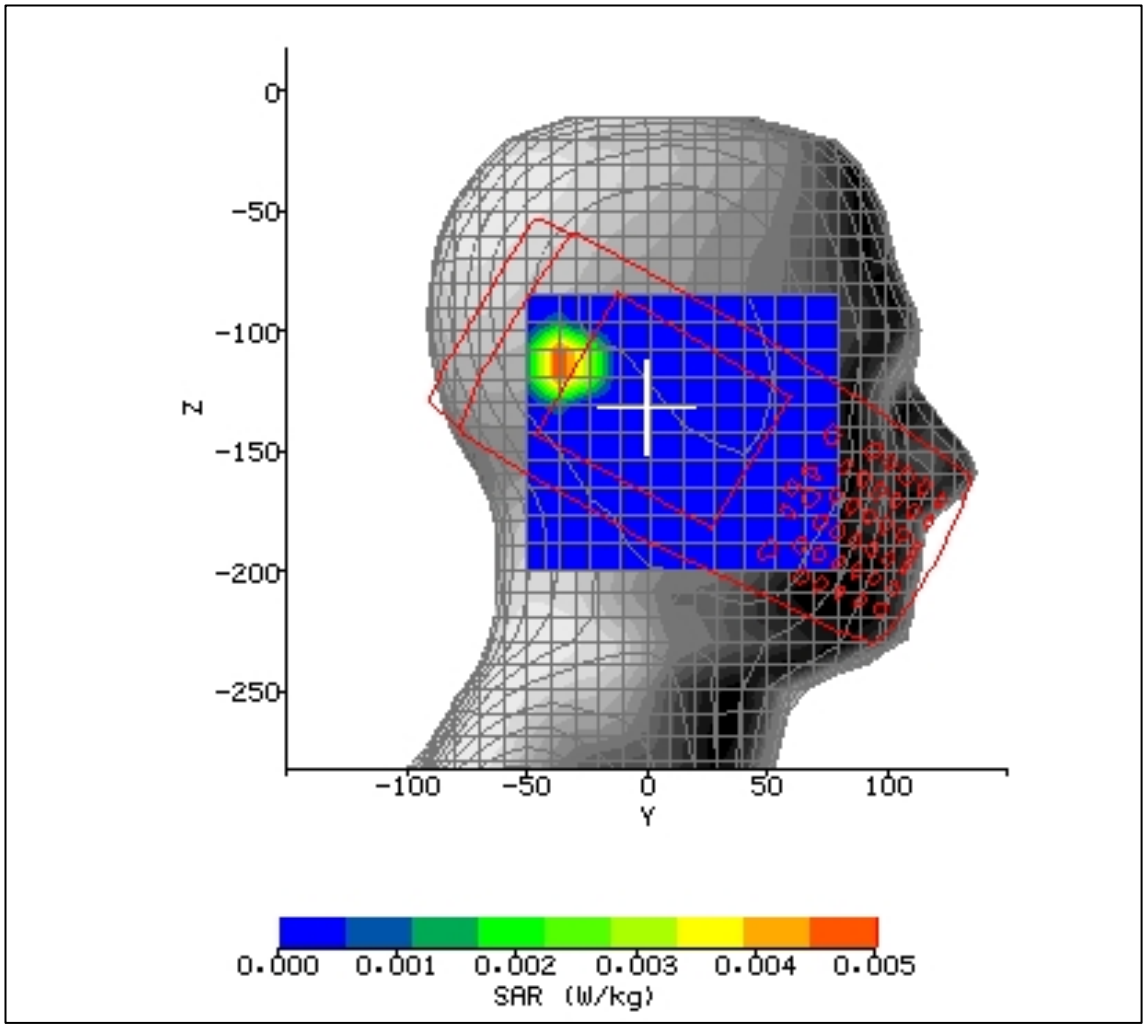

Figure 3: SAR Head Testing Results for the Intermec 700C Mobile Computer in Right Hand Cheek 15° Position; Tested at 2402MHz (Bluetooth Low Channel).

2.1.3 1900MHz GSM HEAD SAR TEST RESULT INCLUDING COARSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	28/03/2006 12:58:43	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_23.txt	PROBE SERIAL NUMBER:	0190
AMBIENT TEMPERATURE:	23.0°C	LIQUID SIMULANT:	1900 Head
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	40.17
RELATIVE HUMIDITY:	36.2%	CONDUCTIVITY:	1.425
PHANTOM S/NO:	HeadFT04.csv	LIQUID TEMPERATURE:	21.8°C
PHANTOM ROTATION:	180°	MAX SAR Y-AXIS LOCATION:	-32.50 mm
DUT POSITION:	RH Cheek 15°	MAX SAR Z-AXIS LOCATION:	-103.75 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	11.23 V/m
TEST FREQUENCY:	1850.2MHz	SAR 1g:	0.138 W/kg
AIR FACTORS:	346 / 425 / 429	SAR 10g:	0.087 W/kg
CONVERSION FACTORS:	0.400 / 0.34 / 0.39	SAR START:	0.070 W/kg
TYPE OF MODULATION:	GMSK	SAR END:	0.072 W/kg
MODN. DUTY CYCLE:	12.5%	SAR DRIFT DURING SCAN:	2.66 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	28/03/06
INPUT POWER LEVEL:	0	EXTRAPOLATION:	poly4

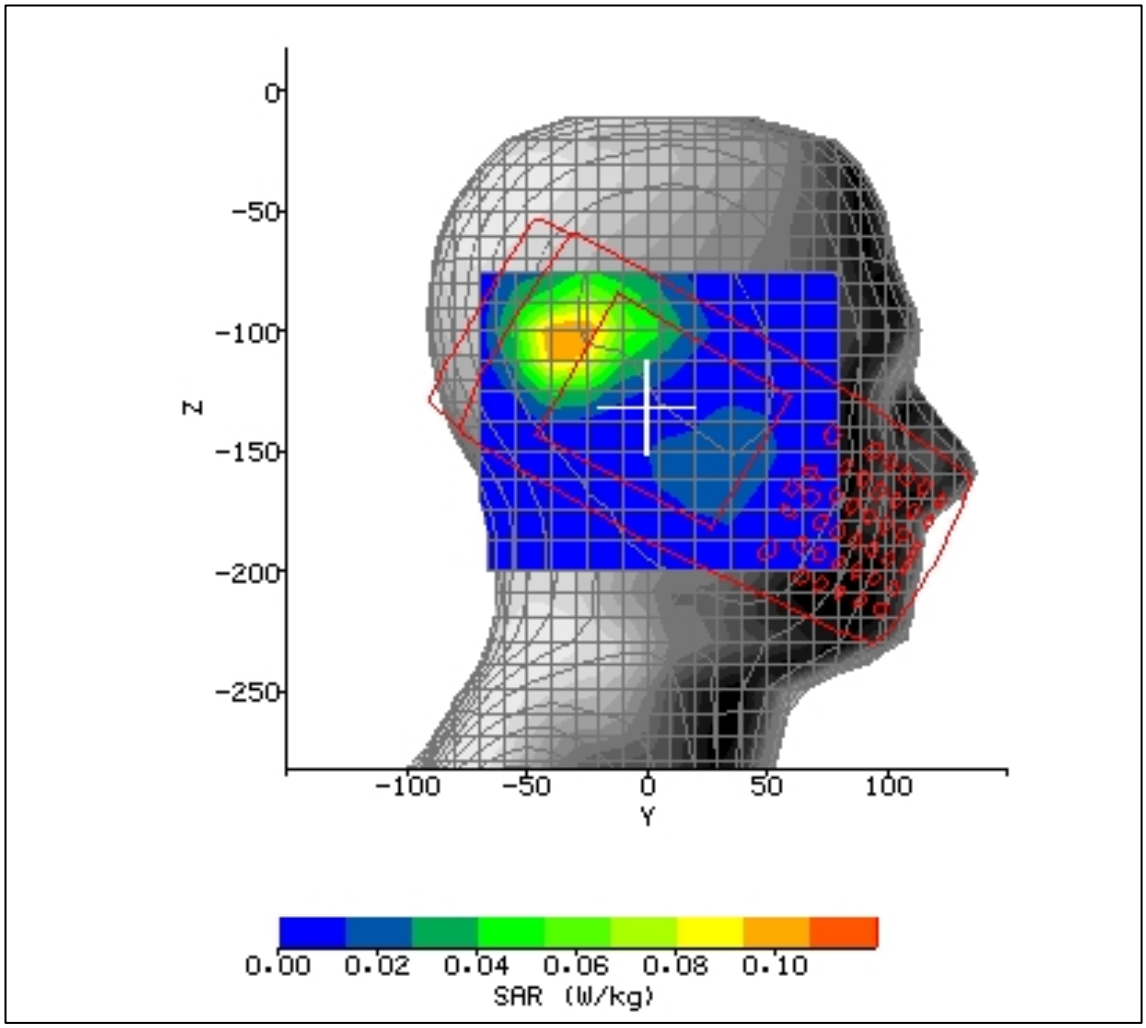

Figure 4: SAR Head Testing Results for the Intermec 700C Mobile Computer in Right Hand 15° Cheek Position; Tested at 1850.2MHz (1900MHz GSM Low Channel).

2.1.4 GSM850; WLAN AND BLUETOOTH COLLOCATED HEAD SAR COARSE AREA SCAN – 2D

In addition to the assessment by summation of separately assessed maximum SAR values the following was used to show how much the secondary transmitters contributed to the maximum SAR of dominant transmitter. The Eeff V/m of each point of each of the area scans was squared then multiplied by the appropriate conductivity value then added together and finally a square root value obtained for each point. The resultant was recompiled into a combined data file normalised to a conductivity value of 1.00 and then loaded into SARA2. A new data visualisation file was then created.

The maximum spot SAR from the 850MHz ; WLAN and Bluetooth radios were added together; GSM 850 maxima spot SAR 0.321 W/kg; WLAN maxima spot SAR 0.077 W/kg and Bluetooth maxima spot SAR 0.005 W/kg giving a maximum spot SAR of 0.403W/kg. This was then compared to a point-by-point summation of the maxima spot SAR of which a maxima obtained was 0.348w/kg.

In summary, adding the maxima of the separate scans would show about a 25.55% increase, but the point-by-point addition shows that this is pessimistic by a factor of 3 as the actual increase in the maximum would only be 8.41% when compared to the maxima spot SAR of the dominant transmitter. Also, the change in distribution is almost imperceptible when a combined data file is recompiled by SARA2.

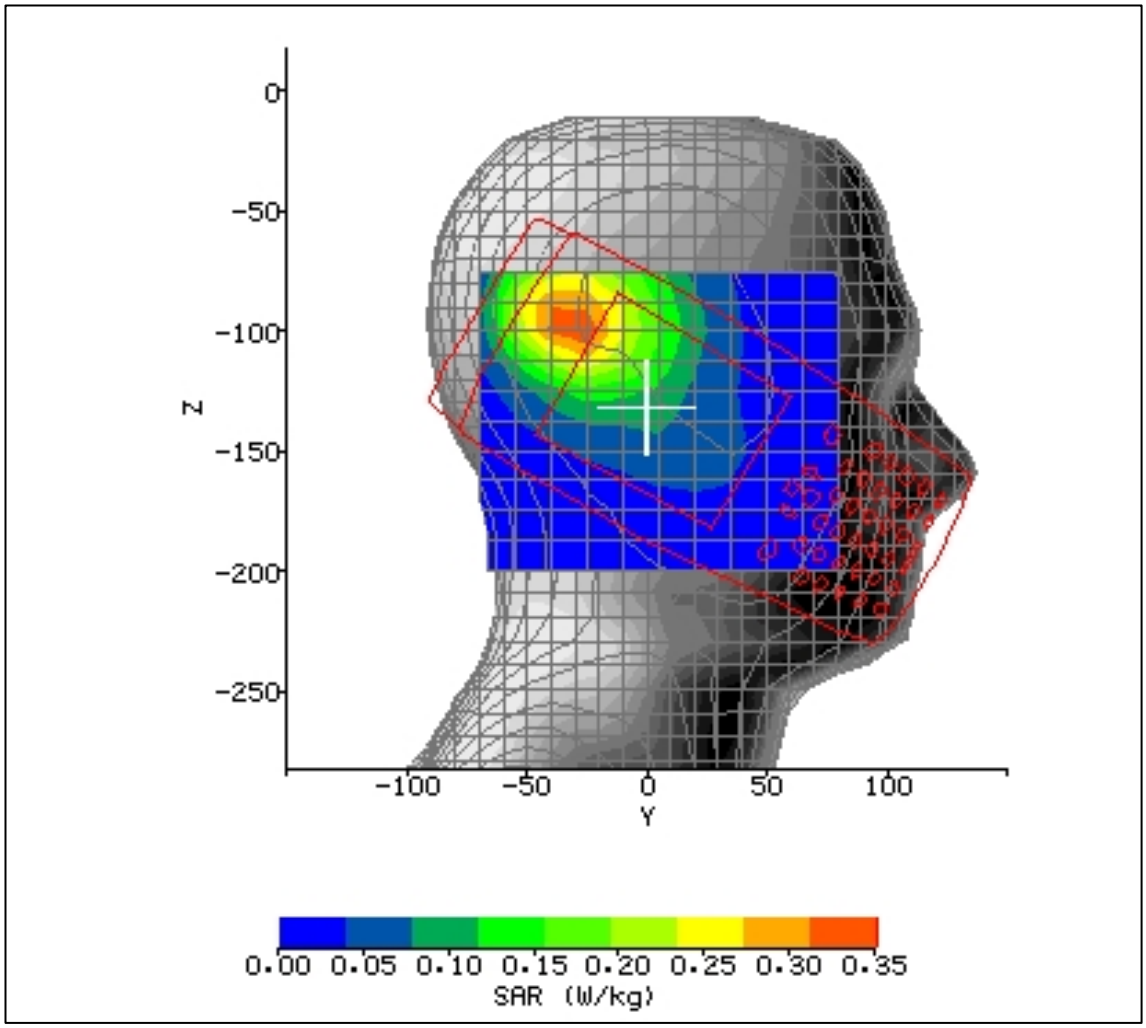

Figure 5: Co-located Assessment Results for the Intermec 700C Mobile Computer in Right Hand Cheek 15° Position; 848.8MHz (850MHz GSM High Channel); 2437MHz (WLAN Middle Channel) and 2402MHz (Bluetooth Low Channel) Recompiled data file.

2.1.5 GSM1900; WLAN AND BLUETOOTH COLLOCATED HEAD SAR COARSE AREA SCAN – 2D

In addition to the assessment by summation of separately assessed maximum SAR values the following was used to show how much the secondary transmitters contributed to the maximum SAR of dominant transmitter. The Eeff V/m of each point of each of the area scans was squared then multiplied by the appropriate conductivity value then added together and finally a square root value obtained for each point. The resultant was recompiled into a combined data file normalised to a conductivity value of 1.00 and then loaded into SARA2. A new data visualisation file was then created.

The maximum spot SAR from the 1900MHz; WLAN and Bluetooth radios were added together; GSM 1900 maxima spot SAR 0.109 W/kg; WLAN maxima spot SAR 0.077 W/kg and Bluetooth maxima spot SAR 0.005 W/kg giving a maximum spot SAR of 0.191W/kg. This was then compared to a point-by-point summation of the maxima spot SAR of which a maxima obtained was 0.169w/kg.

In summary, adding the maxima of the separate scans would show about a 75.23% increase, but the point-by-point addition shows that this is pessimistic by a factor of 1.4 as the actual increase in the maximum would only be 55.05% when compared to the maxima spot SAR of the dominant transmitter. Also, the change in distribution is perceptible when a combined data file is recompiled by SARA2.

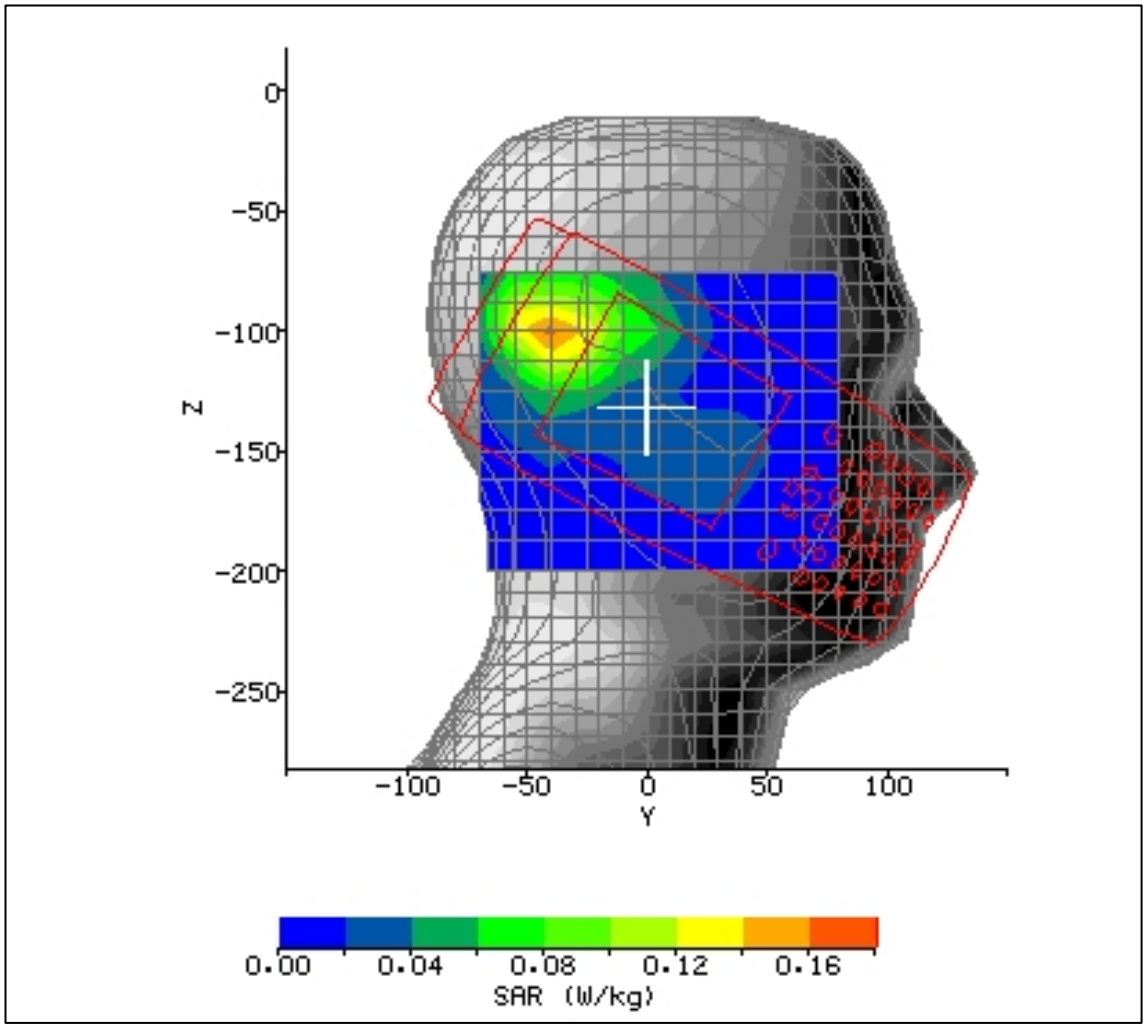

Figure 6: Co-located Assessment Results for the Intermec 700C Mobile Computer in Right Hand Cheek 15° Position; 1850.2MHz (1900MHz GSM Low Channel); 2437MHz (WLAN Middle Channel) and 2402MHz (Bluetooth Low Channel) Recompiled data file.

2.2 850MHz GPRS BODY SAR TEST RESULT INCLUDING COARSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	05/04/2006 14:13:17	DUT BATTERY MODEL/NO:	318-013-004
FILENAME:	WS615078_34.txt	PROBE SERIAL NUMBER:	170
AMBIENT TEMPERATURE:	22.6°C	LIQUID SIMULANT:	850 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	56.8
RELATIVE HUMIDITY:	34.6%	CONDUCTIVITY:	0.973
PHANTOM S/NO:	HeadBox01.csv	LIQUID TEMPERATURE:	22.2°C
PHANTOM ROTATION:	0°	MAX SAR Y-AXIS LOCATION:	-19.00 mm
DUT POSITION:	Front facing Inverted in holster #1	MAX SAR Z-AXIS LOCATION:	-475.60 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	24.85 V/m
TEST FREQUENCY:	848.8MHz	SAR 1g:	0.689 W/kg
AIR FACTORS:	433 / 367 / 399	SAR 10g:	0.460 W/kg
CONVERSION FACTORS:	0.276 / 0.276 / 0.276	SAR START:	0.144 W/kg
TYPE OF MODULATION:	GMSK	SAR END:	0.144 W/kg
MODN. DUTY CYCLE:	50%	SAR DRIFT DURING SCAN:	0.00 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	28/03/06
INPUT POWER LEVEL:	4x33dBm	EXTRAPOLATION:	poly4

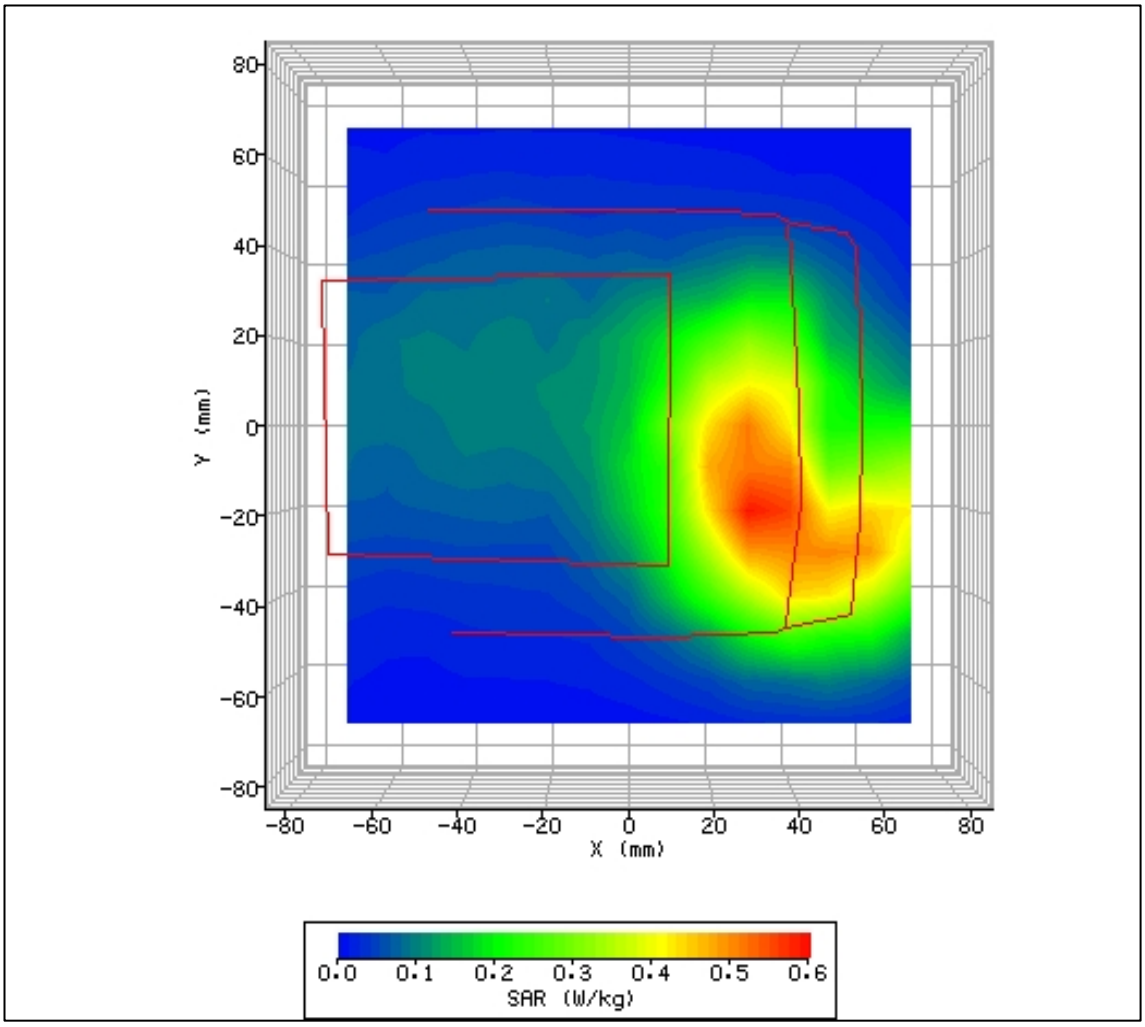

Figure 7: SAR Body Testing Results for the Intermec 700C Mobile Computer in Front Facing Phantom Position inverted in holster #1; Tested at 848.8MHz (850MHz GPRS High Channel) with 0.0mm Separation.

2.2.1 2450MHz WLAN BODY SAR TEST RESULT INCLUDING COARSE 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:	0.015 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

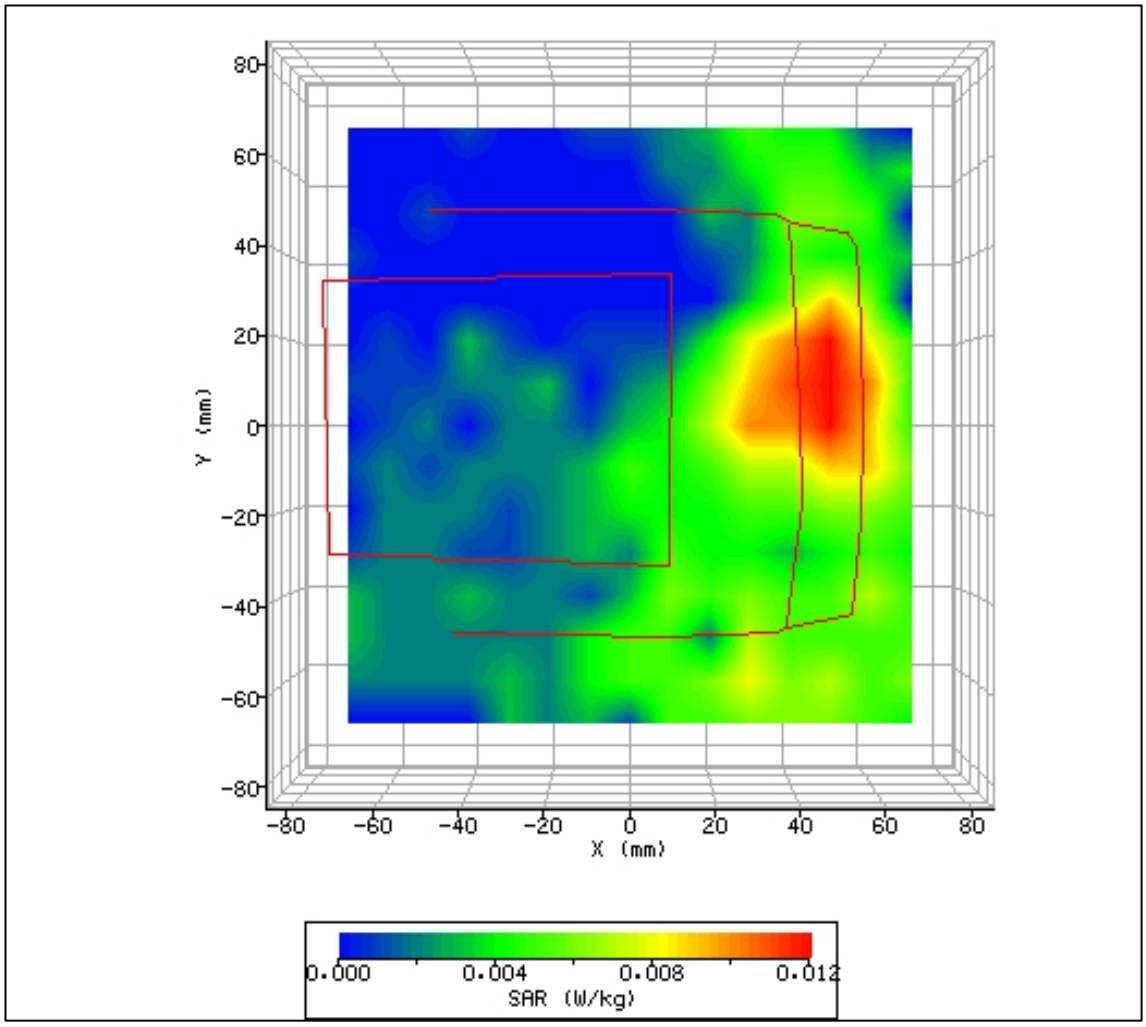

Figure 8: SAR Body Testing Results for the Intermec 700C Mobile Computer in Front Facing Phantom Position in holster #1; Tested at 2473MHz (WLAN Middle Channel) with 0.0mm Separation.

2.2.2 1900MHz GPRS BODY SAR TEST RESULT INCLUDING COARSE AREA SCAN – 2D

SYSTEM / SOFTWARE:	SARA2 / 2.39 VPM	INPUT POWER DRIFT:	0.0 dB
DATE / TIME:	07/04/2006 16:14:32	DUT BATTERY MODEL/NO:	318-013-002
FILENAME:	WS615078_48.txt	PROBE SERIAL NUMBER:	190
AMBIENT TEMPERATURE:	23.2°C	LIQUID SIMULANT:	1900 Body
DEVICE UNDER TEST:	Intermec 700C	RELATIVE PERMITTIVITY:	52.97
RELATIVE HUMIDITY:	35.1%	CONDUCTIVITY:	1.478
PHANTOM S/NO:	HeadBox01.csv	LIQUID TEMPERATURE:	21.2°C
PHANTOM ROTATION:	0°	MAX SAR X-AXIS LOCATION:	46.00 mm
DUT POSITION:	Front facing inverted in holster #1	MAX SAR Y-AXIS LOCATION:	-34.00 mm
ANTENNA CONFIGURATION:	Integral	MAX E FIELD:	14.55 V/m
TEST FREQUENCY:	1880MHz	SAR 1g:	0.401 W/kg
AIR FACTORS:	346 / 425 / 429	SAR 10g:	0.235 W/kg
CONVERSION FACTORS:	0.4 / 0.34 / 0.40	SAR START:	0.067 W/kg
TYPE OF MODULATION:	GMSK	SAR END:	0.066 W/kg
MODN. DUTY CYCLE:	25%	SAR DRIFT DURING SCAN:	-1.72 %
DIODE COMPRESSION FACTORS (V*200):	20 / 20 / 20	PROBE BATTERY LAST CHANGED:	07/04/06
INPUT POWER LEVEL:	4x30dBm	EXTRAPOLATION:	poly4

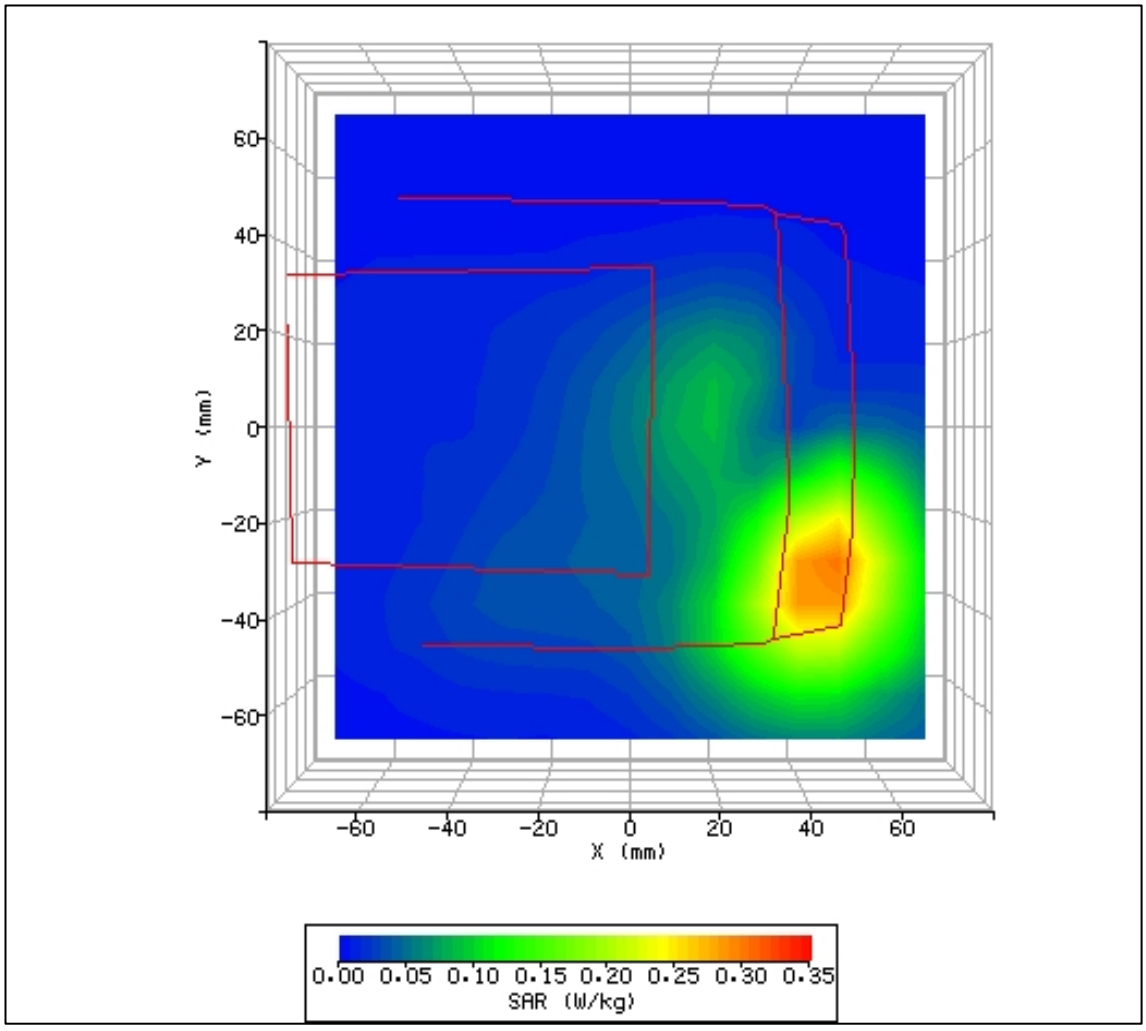

Figure 9: SAR Body Testing Results for the Intermec 700C Mobile Computer in Front Facing Phantom Position inverted in holster #1; Tested at 1880.0MHz (1900MHz GPRS Middle Channel) with 0.0mm Separation.

2.2.3 GPRS850MHz; WLAN AND BLUETOOTH COLLOCATED BODY SAR COARSE AREA SCAN – 2D

In addition to the assessment by summation of separately assessed maximum SAR values the following was used to show how much the secondary transmitters contributed to the maximum SAR of dominant transmitter. The Eeff V/m of each point of each of the area scans was squared then multiplied by the appropriate conductivity value then added together and finally a square root value obtained for each point. The resultant was recompiled into a combined data file normalised to a conductivity value of 1.00 and then loaded into SARA2. A new data visualisation file was then created.

The maximum spot SAR from the 850MHz; WLAN and Bluetooth radios were added together; GPRS 850 maxima spot SAR 0.592 W/kg; WLAN maxima spot SAR 0.012 W/kg and Bluetooth maxima spot SAR 0.000 W/kg giving a maximum spot SAR of 0.604W/kg. This was then compared to a point-by-point summation of the maxima spot SAR of which a maxima obtained was 0.597w/kg.

In summary, adding the maxima of the separate scans would show about a 2.03% increase, but the point-by-point addition shows that this is pessimistic by a factor of 3 as the actual increase in the maximum would only be 0.84% when compared to the maxima spot SAR of the dominant transmitter. Also, the change in distribution is almost imperceptible when a combined data file is recompiled by SARA2.

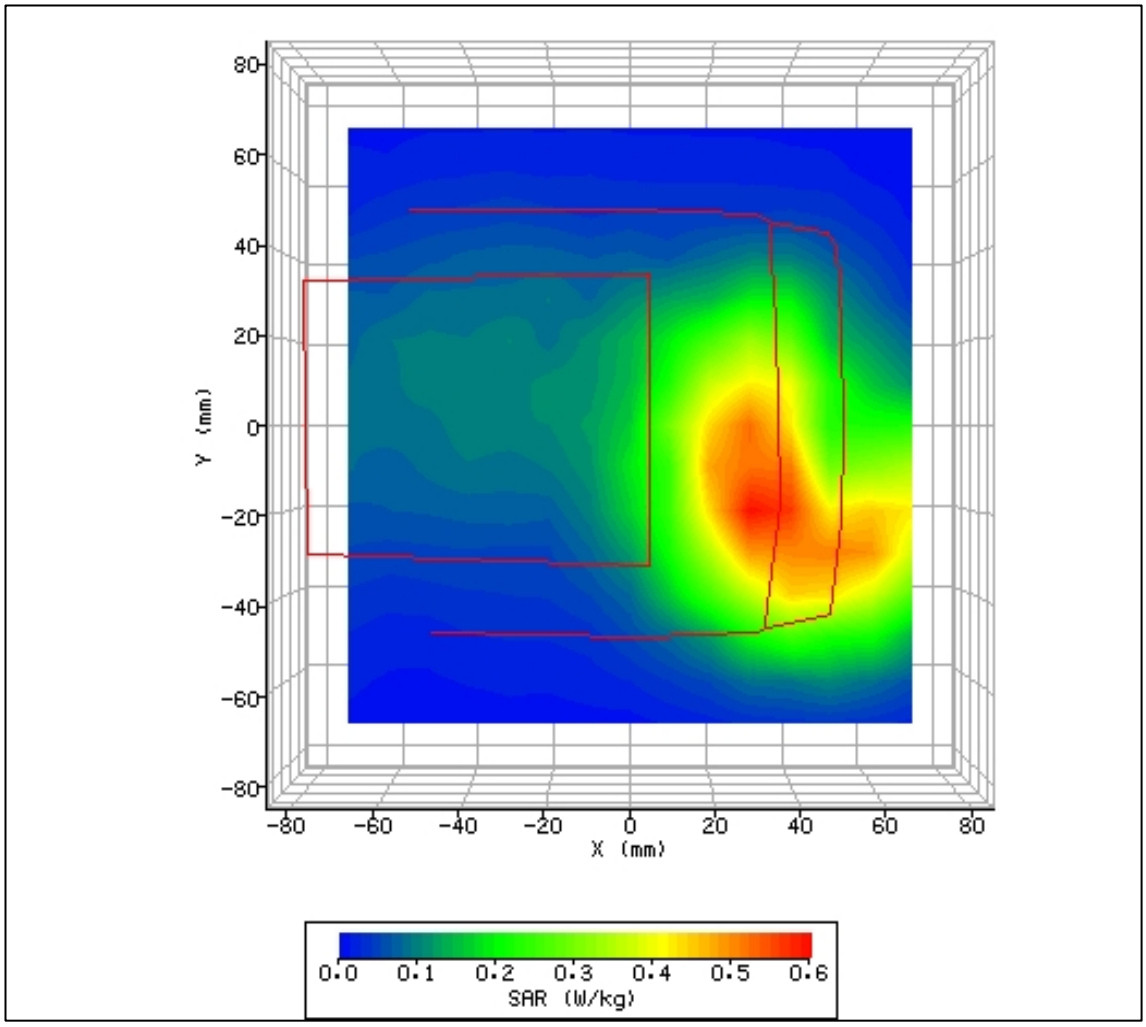

Figure 10: Co-located Assessment Results for the Intermec 700C Mobile Computer Front Facing Phantom Position inverted in holster #1; 848.8MHz (850MHz GPRS High Channel); 2437MHz (WLAN Middle Channel) and 2402MHz (Bluetooth Low Channel) Recompiled data file.

2.2.4 GPRS1900MHz; WLAN AND BLUETOOTH COLLOCATED BODY SAR COARSE AREA SCAN – 2D

In addition to the assessment by summation of separately assessed maximum SAR values the following was used to show how much the secondary transmitters contributed to the maximum SAR of dominant transmitter. The Eeff V/m of each point of each of the area scans was squared then multiplied by the appropriate conductivity value then added together and finally a square root value obtained for each point. The resultant was recompiled into a combined data file normalised to a conductivity value of 1.00 and then loaded into SARA2. A new data visualisation file was then created.

The maximum spot SAR from the 1900MHz; WLAN and Bluetooth radios were added together; GPRS 1900 maxima spot SAR 0.302 W/kg; WLAN maxima spot SAR 0.012 W/kg and Bluetooth maxima spot SAR 0.000 W/kg giving a maximum spot SAR of 0.314W/kg. This was then compared to a point-by-point summation of the maxima spot SAR of which a maxima obtained was 0.306w/kg.

In summary, adding the maxima of the separate scans would show about a 3.97% increase, but the point-by-point addition shows that this is pessimistic by a factor of 3 as the actual increase in the maximum would only be 1.32% when compared to the maxima spot SAR of the dominant transmitter. Also, the change in distribution is almost imperceptible when a combined data file is recompiled by SARA2.

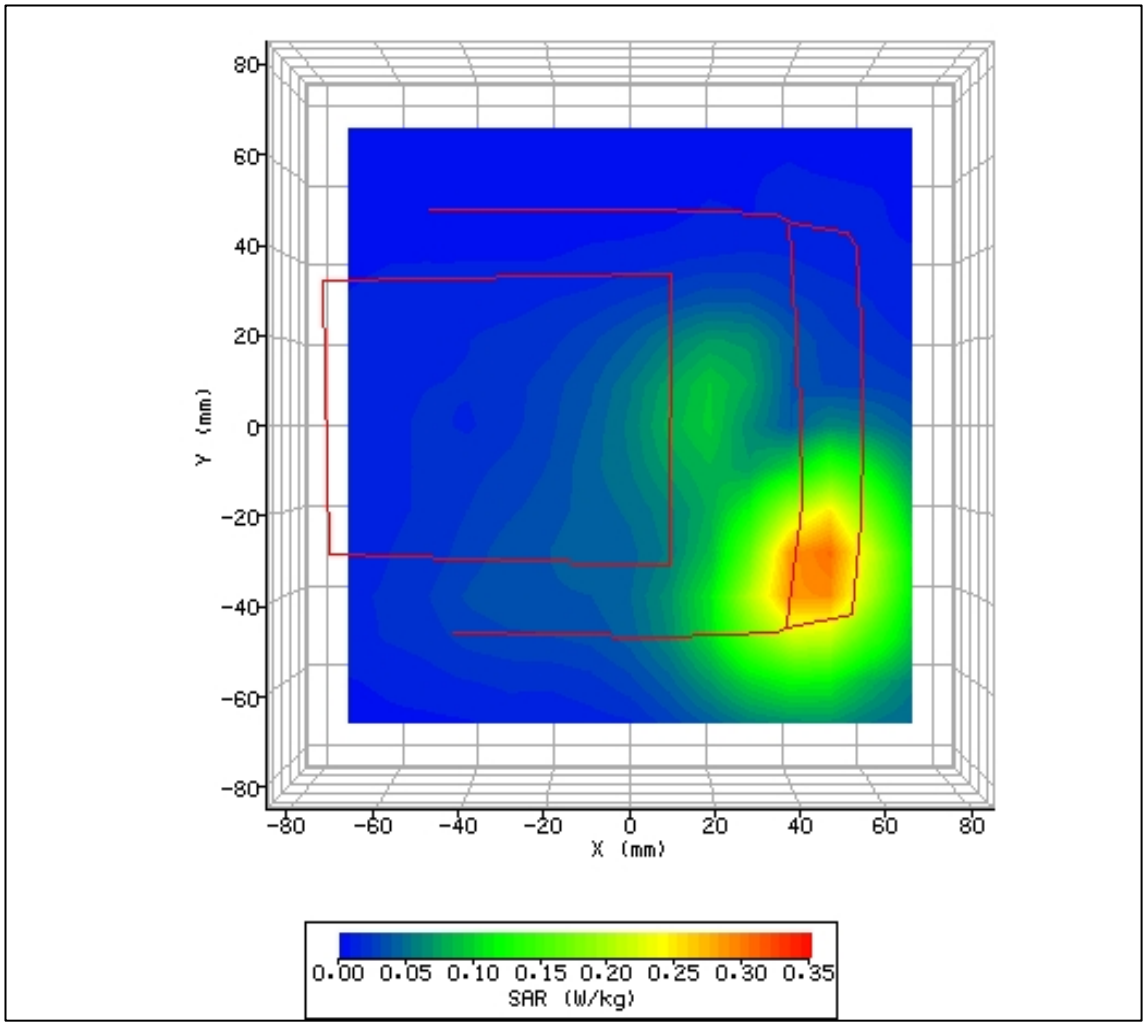

Figure 11: Co-located Assessment Results for the Intermec 700C Mobile Computer in Front Facing Phantom Position inverted in holster #1; 848.8MHz (850MHz GSM High Channel); 2437MHz (WLAN Middle Channel) and 2402MHz (Bluetooth Low Channel) Recompiled data file.

SECTION 3

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

3.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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