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## Report On

Specific Absorption Rate Testing of the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS

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COMMERCIAL-IN-CONFIDENCE

**REPORT ON**

Specific Absorption Rate Testing of the  
Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM  
(GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI,  
FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular  
phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS

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**This report has been up-issued to Issue 2 to amend the model description.**





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## **SECTION 1**

### **REPORT SUMMARY**

Specific Absorption Rate Testing of the  
Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM  
(GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE  
(B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC, FeliCa) and  
GPS



## 1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Specific Absorption Rate Testing of the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS to the requirements of KDB 447498 – D01 v05 General RF Exposure Guidance.

Objective	To perform Specific Absorption Rate Testing to determine the Equipment Under Test's (EUT's) compliance with the requirements specified of KDB 447498 – D01 v05 General RF Exposure Guidance, for the series of tests carried out.
Applicant	Sharp Communication Compliance Ltd
Manufacturer	Sharp Corporation
Manufacturing Description	Mobile Handset
Model Number	SHL23
Power Class	GSM 850MHz Class 4 PCS 1900MHz Class 1 WCDMA FDD V Class 3
GPRS Class	B
GPRS Multi-slot Class	12
Serial/IMEI Number(s)	004401114893031 004401114893015
Number of Samples Tested	2
Hardware Version	PP1
Software Version	C8082 / A9100
Battery Cell Manufacturer	Sharp Corporation
Battery Model Number	Integral Battery; Non Removable
Test Specification/Issue/Date	KDB 447498 – D01 v05 General RF Exposure Guidance
Start of Test	01 October 2013
Finish of Test	10 October 2013
Related Document(s)	FCC 47CFR 2.1093: 2012 KDB 248227 - v01r02 (Rev 1.2) KDB 865664 – D01 v01 KDB 865664 – D02 v01 KDB 648474 – D04 v01 KDB 941225 - D01 v02 KDB 941225 – D06 v01 KDB 941225 – D02 v02r01 IEEE 1528-2003
Name of Engineer(s)	Nigel Grigsby Michael Mawby



## 1.2 BRIEF SUMMARY OF RESULTS

The measurements shown in this report were made in accordance with the procedures specified KDB 865664 – D01 v05.

The maximum 1g volume averaged SAR found during this Assessment

Max 1g SAR (W/kg) Body	0.54 (Measured)	0.72 (Scaled)
Max 1g SAR (W/kg) Head	0.47 (Measured)	0.63 (Scaled)
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.		

## 1.3 TEST RESULTS SUMMARY

### 1.3.1 System Performance / Validation Check Results

Prior to formal testing being performed a System Check was performed in accordance with KDB 865665 and the results were compared against published data in Standard IEEE 1528-2003. The following results were obtained: -

System performance / Validation results

Date	Dipole Used	Frequency (MHz)	Max 1g SAR (W/kg)*	Percentage Drift on Reference
30/09/2013	835	835	11.03	4.96%
02/10/2013	835	835	10.20	-3.69%
03/10/2013	1900	1900	40.78	-0.52%
03/10/2013	1900	1900	38.98	-4.47%
04/10/2013	2450	2450	56.47	0.51%
04/10/2013	2450	2450	54.46	2.79%
07/10/2013	5000	5200	70.78	0.34%
07/10/2013	5000	5500	74.04	-2.59%
08/10/2013	5000	5200	88.47	5.69%
08/10/2013	5000	5500	76.70	-5.45%

\*Normalised to a forward power of 1W



**1.3.2 Results Summary Tables**

GSM 850MHz Head Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS.

Test Position	Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Left Cheek	128	824.2	32.42	33.5	0.30	0.38	Figure 8
Left 15°	128	824.2	32.42	33.5	0.20	0.26	Figure 9
Right Cheek	128	824.2	32.42	33.5	0.38	0.49	Figure 10
Right 15°	128	824.2	32.42	33.5	0.18	0.23	Figure 11

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz

GSM 850MHz GPRS Head Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS.

Test Position	Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Left Cheek	128	824.2	26.03	27.6	0.25	0.36	Figure 12
Left 15°	128	824.2	26.03	27.6	0.17	0.24	Figure 13
Right Cheek	128	824.2	26.03	27.6	0.32	0.46	Figure 14
Right 15°	128	824.2	26.03	27.6	0.19	0.27	Figure 15

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz



GSM 850MHz GPRS Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS.

Position		Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Spacing	Position							
10mm	Front Facing	128	824.2	26.03	27.6	0.33	0.47	Figure 16
10mm	Rear Facing	128	824.2	26.03	27.6	0.41	0.58	Figure 17
10mm	Right Edge	128	824.2	26.03	27.6	0.16	0.23	Figure 18
10mm	Left Edge	128	824.2	26.03	27.6	0.27	0.39	Figure 19
10mm	Bottom Edge	128	824.2	26.03	27.6	0.10	0.14	Figure 20

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz  
 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06  
 KDB – 648474 D04 - When the reported SAR for body-worn accessory, measured without a headset connected to the handset, is >1.2W/kg, the highest reported SAR configuration for that wireless mode and frequency band is repeated for that body worn accessory with a headset attached to the handset.

WCDMA FDDV Head Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS.

Test Position	Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Left Cheek	4133	826.6	22.94	24.2	0.38	0.51	Figure 21
Left 15°	4133	826.6	22.94	24.2	0.28	0.37	Figure 22
Right Cheek	4133	826.6	22.94	24.2	0.47	0.63	Figure 23
Right 15°	4133	826.6	22.94	24.2	0.26	0.35	Figure 24

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz



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WCDMA FDDV Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS.

Position		Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Spacing	Position							
10mm	Front Facing	4133	826.6	22.94	24.2	0.44	0.59	Figure 25
10mm	Rear Facing	4133	826.6	22.94	24.2	0.54	0.72	Figure 26
10mm	Right Edge	4133	826.6	22.94	24.2	0.23	0.31	Figure 27
10mm	Left Edge	4133	826.6	22.94	24.2	0.36	0.48	Figure 28
10mm	Bottom Edge	4133	826.6	22.94	24.2	0.13	0.17	Figure 29

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz  
 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06  
 KDB – 648474 D04 - When the reported SAR for body-worn accessory, measured without a headset connected to the handset, is >1.2W/kg, the highest reported SAR configuration for that wireless mode and frequency band is repeated for that body worn accessory with a headset attached to the handset.

PCS 1900MHz Head Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS.

Test Position	Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Left Cheek	810	1909.8	29.98	30.5	0.19	0.21	Figure 30
Left 15°	810	1909.8	29.98	30.5	0.05	0.06	Figure 31
Right Cheek	810	1909.8	29.98	30.5	0.14	0.16	Figure 32
Right 15°	810	1909.8	29.98	30.5	0.04	0.05	Figure 33

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz



PCS 1900MHz GPRS Head Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS.

Test Position	Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Left Cheek	661	1880	24.31	25.3	0.21	0.26	Figure 34
Left 15°	661	1880	24.31	25.3	0.05	0.06	Figure 35
Right Cheek	661	1880	24.31	25.3	0.16	0.20	Figure 36
Right 15°	661	1880	24.31	25.3	0.08	0.10	Figure 37

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz

PCS 1900MHz GPRS Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS.

Position		Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Spacing	Position							
10mm	Front Facing	661	1880	24.31	25.3	0.23	0.29	Figure 38
10mm	Rear Facing	661	1880	24.31	25.3	0.38	0.48	Figure 39
10mm	Right Edge	661	1880	24.31	25.3	0.13	0.16	Figure 40
10mm	Bottom Edge	661	1880	24.31	25.3	0.37	0.46	Figure 41

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz  
 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06  
 KDB – 648474 D04 - When the reported SAR for body-worn accessory, measured without a headset connected to the handset, is >1.2W/kg, the highest reported SAR configuration for that wireless mode and frequency band is repeated for that body worn accessory with a headset attached to the handset.



WLAN 2450MHz Head Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS

Test Position	Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Left Cheek	6	2437.0	16.67	17.5	0.11	0.13	Figure 42
Left 15°	6	2437.0	16.67	17.5	0.08	0.10	Figure 43
Right Cheek	6	2437.0	16.67	17.5	0.30	0.36	Figure 44
Right 15°	6	2437.0	16.67	17.5	0.14	0.17	Figure 45

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz

WLAN 2450MHz Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS.

Position		Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Spacing	Position							
10mm	Front Facing	6	2437.0	16.67	17.5	0.06	0.07	Figure 46
10mm	Rear Facing	6	2437.0	16.67	17.5	0.26	0.31	Figure 47
10mm	Right Edge	6	2437.0	16.67	17.5	0.17	0.21	Figure 48
10mm	Top Edge	6	2437.0	16.67	17.5	0.03	0.04	Figure 49

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz  
 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06  
 KDB – 648474 D04 - When the reported SAR for body-worn accessory, measured without a headset connected to the handset, is >1.2W/kg, the highest reported SAR configuration for that wireless mode and frequency band is repeated for that body worn accessory with a headset attached to the handset.



WLAN 5000MHz Head Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS. (NUA)\*

Test Position	Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Left Cheek	48	5240.0	14.39	16.0	0.14	0.20	Figure 50
Left 15°	48	5240.0	14.39	16.0	0.07	0.10	Figure 51
Right Cheek	48	5240.0	14.39	16.0	0.32	0.46	Figure 52
Right 15°	48	5240.0	14.39	16.0	0.16	0.23	Figure 53

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz  
 \*(NUA) Not UKAS Accredited

WLAN 5000MHz Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS. (NUA)\*

Position		Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Spacing	Position							
10mm	Front Facing	48	5240.0	14.39	16.0	0.06	0.09	Figure 54
10mm	Rear Facing	48	5240.0	14.39	16.0	0.37	0.54	Figure 55
10mm	Right Edge	48	5240.0	14.39	16.0	0.22	0.32	Figure 56
10mm	Top Edge	48	5240.0	14.39	16.0	0.02	0.03	Figure 57

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz  
 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06  
 KDB – 648474 D04 - When the reported SAR for body-worn accessory, measured without a headset connected to the handset, is >1.2W/kg, the highest reported SAR configuration for that wireless mode and frequency band is repeated for that body worn accessory with a headset attached to the handset.  
 \*(NUA) Not UKAS Accredited



WLAN 5000MHz Head Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS. (NUA)\*

Test Position	Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Left Cheek	56	5280.0	14.72	16.0	0.14	0.19	Figure 58
Left 15°	56	5280.0	14.72	16.0	0.16	0.21	Figure 59
Right Cheek	56	5280.0	14.72	16.0	0.34	0.46	Figure 60
Right 15°	56	5280.0	14.72	16.0	0.34	0.46	Figure 61

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz  
 KDB 248227 - v01r02 (Rev 1.2) – Testing was carried out on Channel 56 instead of the default test channel as this was the channel with the maximum output power.  
 \*(NUA) Not UKAS Accredited

WLAN 5000MHz Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS. (NUA)\*

Position		Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Spacing	Position							
10mm	Front Facing	56	5280.0	14.72	16.0	0.06	0.08	Figure 62
10mm	Rear Facing	56	5280.0	14.72	16.0	0.37	0.50	Figure 63
10mm	Right Edge	56	5280.0	14.72	16.0	0.24	0.32	Figure 64
10mm	Top Edge	56	5280.0	14.72	16.0	0.04	0.05	Figure 65

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz  
 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06  
 KDB – 648474 D04 - When the reported SAR for body-worn accessory, measured without a headset connected to the handset, is >1.2W/kg, the highest reported SAR configuration for that wireless mode and frequency band is repeated for that body worn accessory with a headset attached to the handset.  
 KDB 248227 - v01r02 (Rev 1.2) – Testing was carried out on Channel 56 instead of the default test channel as this was the channel with the maximum output power.  
 \*(NUA) Not UKAS Accredited



WLAN 5000MHz Head Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS . (NUA)\*

Test Position	Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Left Cheek	104	5520.0	13.34	14	0.30	0.35	Figure 66
Left 15°	104	5520.0	13.34	14	0.12	0.14	Figure 67
Right Cheek	104	5520.0	13.34	14	0.12	0.14	Figure 68
Right 15°	104	5520.0	13.34	14	0.21	0.24	Figure 69

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz  
 \*(NUA) Not UKAS Accredited

WLAN 5000MHz Body & Hotspot Configuration Specific Absorption Rate (Maximum SAR) 1g & 10g Results for the Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS. (NUA)\*

Position		Channel Number	Frequency (MHz)	Measured Conducted Power (dBm)	Tune Up limit (dBm)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)	Area scan (Figure number)
Spacing	Position							
10mm	Front Facing	104	5520.0	13.34	14	0.04	0.05	Figure 70
10mm	Rear Facing	104	5520.0	13.34	14	0.29	0.34	Figure 71
10mm	Right Edge	104	5520.0	13.34	14	0.22	0.26	Figure 72
10mm	Top Edge	104	5520.0	13.34	14	0.02	0.02	Figure 73

Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g)  
 KDB 447498 D01 - Testing of other required channels within the operation mode of a frequency band is not required when the reported 1g SAR for mid-band or highest output power channel is:  
 ≤ 0.8W/kg when the transmission band is ≤ 100MHz  
 ≤ 0.6W/kg when the transmission band is between 100MHz and 200MHz  
 ≤ 0.4W/kg when the transmission band is ≥ 200MHz  
 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06  
 KDB – 648474 D04 - When the reported SAR for body-worn accessory, measured without a headset connected to the handset, is >1.2W/kg, the highest reported SAR configuration for that wireless mode and frequency band is repeated for that body worn accessory with a headset attached to the handset.  
 \*(NUA) Not UKAS Accredited



**1.3.3 Simultaneous Transmission**

Position	GPRS 850MHz 1g SAR (W/kg) CH 128 (Scaled SAR values)	WLAN 2.4GHz 1g SAR (W/kg) CH 6 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Head			
Left Cheek	0.36	0.13	0.49
Left 15°	0.24	0.10	0.34
Right Cheek	0.46	0.36	0.82
Right 15°	0.27	0.17	0.44
Simultaneous Transmission KDB 447498 D01			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	GPRS 850MHz 1g SAR (W/kg) CH 128 (Scaled SAR values)	WLAN 2.4GHz 1g SAR (W/kg) CH 6 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Body			
Front	0.47	0.07	0.54
Rear	0.58	0.31	0.89
Top Edge	N/A	0.04	N/A
Bottom Edge	0.14	N/A	N/A
Left edge	0.39	N/A	N/A
Right Edge	0.23	0.21	0.44
Simultaneous Transmission KDB 447498 D01 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	GPRS 850MHz 1g SAR (W/kg) CH 128 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 48 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Head			
Left Cheek	0.36	0.20	0.56
Left 15°	0.24	0.10	0.34
Right Cheek	0.46	0.46	0.92
Right 15°	0.27	0.23	0.50
Simultaneous Transmission KDB 447498 D01			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



Position	GPRS 850MHz 1g SAR (W/kg) CH 128 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 48 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Body			
Front	0.47	0.09	0.56
Rear	0.58	0.54	1.12
Top Edge	N/A	0.03	N/A
Bottom Edge	0.14	N/A	N/A
Left edge	0.39	N/A	N/A
Right Edge	0.23	0.32	0.55
Simultaneous Transmission KDB 447498 D01 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	GPRS 850MHz 1g SAR (W/kg) CH 128 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 56 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Head			
Left Cheek	0.36	0.19	0.55
Left 15°	0.24	0.21	0.45
Right Cheek	0.46	0.46	0.92
Right 15°	0.27	0.46	0.73
Simultaneous Transmission KDB 447498 D01			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	GPRS 850MHz 1g SAR (W/kg) CH 128 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 56 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Body			
Front	0.47	0.08	0.55
Rear	0.58	0.50	1.08
Top Edge	N/A	0.05	N/A
Bottom Edge	0.14	N/A	N/A
Left edge	0.39	N/A	N/A
Right Edge	0.23	0.32	0.55
Simultaneous Transmission KDB 447498 D01 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



Position	GPRS 850MHz 1g SAR (W/kg) CH 128 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 104 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Head			
Left Cheek	0.36	0.35	0.71
Left 15°	0.24	0.14	0.38
Right Cheek	0.46	0.14	0.6
Right 15°	0.27	0.24	0.51
Simultaneous Transmission KDB 447498 D01			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	GPRS 850MHz 1g SAR (W/kg) CH 128 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 104 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Body			
Front	0.47	0.05	0.52
Rear	0.58	0.34	0.92
Top Edge	N/A	0.02	N/A
Bottom Edge	0.14	N/A	N/A
Left edge	0.39	N/A	N/A
Right Edge	0.23	0.26	0.49
Simultaneous Transmission KDB 447498 D01 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	WCDMA FDDV 1g SAR (W/kg) CH 4133 (Scaled SAR values)	WLAN 2.4GHz 1g SAR (W/kg) CH 6 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Head			
Left Cheek	0.51	0.13	0.64
Left 15°	0.37	0.10	0.47
Right Cheek	0.63	0.36	0.99
Right 15°	0.35	0.17	0.52
Simultaneous Transmission KDB 447498 D01			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



Product Service

Position	WCDMA FDDV 1g SAR (W/kg) CH 4133 (Scaled SAR values)	WLAN 2.4GHz 1g SAR (W/kg) CH 6 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Body			
Front	0.59	0.07	0.66
Rear	0.72	0.31	1.03
Top Edge	N/A	0.04	N/A
Bottom Edge	0.17	N/A	N/A
Left edge	0.48	N/A	N/A
Right Edge	0.31	0.21	0.52
Simultaneous Transmission KDB 447498 D01 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	WCDMA FDDV 1g SAR (W/kg) CH 4133 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 48 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Head			
Left Cheek	0.51	0.20	0.71
Left 15°	0.37	0.10	0.47
Right Cheek	0.63	0.46	1.09
Right 15°	0.35	0.23	0.58
Simultaneous Transmission KDB 447498 D01			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	WCDMA FDDV 1g SAR (W/kg) CH 4133 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 48 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Body			
Front	0.59	0.09	0.68
Rear	0.72	0.54	1.26
Top Edge	N/A	0.03	N/A
Bottom Edge	0.17	N/A	N/A
Left edge	0.48	N/A	N/A
Right Edge	0.31	0.32	0.63
Simultaneous Transmission KDB 447498 D01 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



Product Service

Position	WCDMA FDDV 1g SAR (W/kg) CH 4133 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 56 (Scaled SAR values)	Σ 1g SAR (W/kg)
Head			
Left Cheek	0.51	0.19	0.70
Left 15°	0.37	0.21	0.58
Right Cheek	0.63	0.46	1.09
Right 15°	0.35	0.46	0.81
Simultaneous Transmission KDB 447498 D01			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	WCDMA FDDV 1g SAR (W/kg) CH 4133 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 56 (Scaled SAR values)	Σ 1g SAR (W/kg)
Body			
Front	0.59	0.08	0.67
Rear	0.72	0.50	1.22
Top Edge	N/A	0.05	N/A
Bottom Edge	0.17	N/A	N/A
Left edge	0.48	N/A	N/A
Right Edge	0.31	0.32	0.63
Simultaneous Transmission KDB 447498 D01 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	WCDMA FDDV 1g SAR (W/kg) CH 4133 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 104 (Scaled SAR values)	Σ 1g SAR (W/kg)
Head			
Left Cheek	0.51	0.35	0.86
Left 15°	0.37	0.14	0.51
Right Cheek	0.63	0.14	0.77
Right 15°	0.35	0.24	0.59
Simultaneous Transmission KDB 447498 D01			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



Position	WCDMA FDDV 1g SAR (W/kg) CH 4133 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 104 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Body			
Front	0.59	0.05	0.64
Rear	0.72	0.34	1.06
Top Edge	N/A	0.02	N/A
Bottom Edge	0.17	N/A	N/A
Left edge	0.48	N/A	N/A
Right Edge	0.31	0.26	0.57
Simultaneous Transmission KDB 447498 D01 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	GPRS 1900MHz 1g SAR (W/kg) CH 661 (Scaled SAR values)	WLAN 2.4GHz 1g SAR (W/kg) CH 6 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Head			
Left Cheek	0.26	0.13	0.39
Left 15°	0.06	0.10	0.16
Right Cheek	0.20	0.36	0.56
Right 15°	0.10	0.17	0.27
Simultaneous Transmission KDB 447498 D01			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	GPRS 1900MHz 1g SAR (W/kg) CH 661 (Scaled SAR values)	WLAN 2.4GHz 1g SAR (W/kg) CH 6 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Body			
Front	0.29	0.07	0.36
Rear	0.48	0.31	0.79
Top Edge	N/A	0.04	N/A
Bottom Edge	0.46	N/A	N/A
Left edge	N/A	N/A	N/A
Right Edge	0.16	0.21	0.37
Simultaneous Transmission KDB 447498 D01 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



Position	GPRS 1900MHz 1g SAR (W/kg) CH 661 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 48 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Head			
Left Cheek	0.26	0.20	0.46
Left 15°	0.06	0.10	0.16
Right Cheek	0.20	0.46	0.66
Right 15°	0.10	0.23	0.33
Simultaneous Transmission KDB 447498 D01			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	GPRS 1900MHz 1g SAR (W/kg) CH 661 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 48 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Body			
Front	0.29	0.09	0.38
Rear	0.48	0.54	1.02
Top Edge	N/A	0.03	N/A
Bottom Edge	0.46	N/A	N/A
Left edge	N/A	N/A	N/A
Right Edge	0.16	0.32	0.48
Simultaneous Transmission KDB 447498 D01 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	GPRS 1900MHz 1g SAR (W/kg) CH 661 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 56 (Scaled SAR values)	$\Sigma$ 1g SAR (W/kg)
Head			
Left Cheek	0.26	0.19	0.45
Left 15°	0.06	0.21	0.27
Right Cheek	0.20	0.46	0.66
Right 15°	0.10	0.46	0.56
Simultaneous Transmission KDB 447498 D01			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



Position	GPRS 1900MHz 1g SAR (W/kg) CH 661 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 56 (Scaled SAR values)	Σ 1g SAR (W/kg)
Body			
Front	0.29	0.08	0.37
Rear	0.48	0.50	0.98
Top Edge	N/A	0.05	N/A
Bottom Edge	0.46	N/A	N/A
Left edge	N/A	N/A	N/A
Right Edge	0.16	0.32	0.48
Simultaneous Transmission KDB 447498 D01 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	GPRS 1900MHz 1g SAR (W/kg) CH 661 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 104 (Scaled SAR values)	Σ 1g SAR (W/kg)
Head			
Left Cheek	0.26	0.35	0.61
Left 15°	0.06	0.14	0.2
Right Cheek	0.20	0.14	0.34
Right 15°	0.10	0.24	0.34
Simultaneous Transmission KDB 447498 D01			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.

Position	GPRS 1900MHz 1g SAR (W/kg) CH 661 (Scaled SAR values)	WLAN 5GHz 1g SAR (W/kg) CH 104 (Scaled SAR values)	Σ 1g SAR (W/kg)
Body			
Front	0.29	0.05	0.34
Rear	0.48	0.34	0.82
Top Edge	N/A	0.02	N/A
Bottom Edge	0.46	N/A	N/A
Left edge	N/A	N/A	N/A
Right Edge	0.16	0.26	0.42
Simultaneous Transmission KDB 447498 D01 Testing was carried out with a 10mm separation distance to meet the requirements of KDB 941225 D06			

Simultaneous SAR measurements were not required as the sum of the 1g SAR measurements did not exceed 1.6 W/kg.



## 1.4 PRODUCT INFORMATION

### 1.4.1 Technical Description

The equipment under test (EUT) was a Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM (GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE (B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC,FeliCa) and GPS. A full technical description can be found in the manufacturer's documentation.

### 1.4.2 Test Configuration and Modes of Operation

The testing was performed with an integral battery supplied and manufactured by Sharp Corporation. The battery was fully charged before each measurement and there were no external connections.

For head SAR assessment, testing was performed with the device in the declared normal position of operation for GSM 850MHz, PCS 1900MHz, WCDMA FDDV, WLAN 2.4GHz and WLAN 5GHz frequency bands at maximum power. The device was placed against a Specific Anthropomorphic Mannequin (SAM) phantom. The phantom was filled with 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 KDB 865665. Testing was performed at both the left and right ear of the phantom at both handset positions stated in the applied specification.

For body SAR assessment, testing was performed for GSM 850MHz, PCS 1900MHz, WCDMA FDDV, WLAN 2.4GHz and WLAN 5GHz frequency bands at maximum power. The device was placed at a distance of 10 mm from the bottom of the flat phantom for all body testing. The Flat Phantom dimensions were 245mm x 195mm x 200mm with a sidewall thickness of 2.00mm. The phantom was filled to a minimum depth of 150mm with the appropriate Body simulant liquid. The dielectric properties were in accordance with the requirements specified in KDB 865665. As the device is capable of hotspot configuration a 10mm separation distance was used to meet the requirements of KDB 941225 D06 Hotspot.

Testing was performed in each position at the frequency that gave the highest output power for each band. No SAR levels were found to be  $>0.80$  W/kg (KDB 447498 D01) and therefore no additional testing was required at the remaining frequencies / channels of the bands. WLAN testing was achieved using the devices internal software, customer supplied software and settings supplied by the customer. The worse case data rate for WLAN testing was obtained from data provided by TUV. The worst case was deemed as the data rate which produced the highest level of conducted average power. For 2.4GHz WLAN this was 5.5Mbps for 802.11b. For 5GHz WLAN this was 6Mbps for 802.11a.

Included in this report are descriptions of the test method; the equipment used and an analysis of the test uncertainties applicable and diagrams indicating the locations of maximum SAR for each test position along with photographs indicating the positioning of the handset against the body as appropriate



**1.5 FCC POWER MEASUREMENTS**

**1.5.1 Method**

Conducted power measurements were made using a power meter.

**1.5.2 Conducted Power Measurements**

**GSM 850**

Modulation	Frequency (MHz)	Conducted Carrier Power (dBm)	
		Peak	Average
GMSK - Voice	824.2	32.64	32.42
	836.6	32.39	32.16
	849.2	32.36	32.12
GMSK - GPRS	824.2	26.23	26.03
	836.6	26.02	25.89
	849.2	26.15	25.88

**PCS 1900**

Modulation	Frequency (MHz)	Conducted Carrier Power (dBm)	
		Peak	Average
GMSK - Voice	1850.2	29.14	28.72
	1880.0	29.47	29.06
	1909.8	30.34	29.98
GMSK - GPRS	1850.2	23.91	23.58
	1880.0	24.44	24.31
	1909.8	23.85	23.66



**WCDMA FDD V**

Modulation	Frequency (MHz)	Conducted Carrier Power (dBm)	
		Peak	Average
WCDMA - 12.2kbps RMC	826.6	26.44	22.94
	835.0	25.95	22.77
	826.4	26.42	22.85
WCDMA - 12.2kbps AMR with 3.4kbps SRB	826.6	26.46	22.98
	835.0	25.96	22.69
	826.4	26.20	22.88
WCDMA - HSDPA (Subtest #1)	826.6	26.33	21.82
	835.0	25.70	21.08
	826.4	26.33	20.79
WCDMA - HSDPA (Subtest #2)	826.6	25.41	21.66
	835.0	25.37	21.36
	826.4	25.53	21.62
WCDMA - HSDPA (Subtest #3)	826.6	25.71	20.04
	835.0	25.30	21.25
	826.4	26.66	21.25
WCDMA - HSDPA (Subtest #4)	826.6	25.71	21.50
	835.0	25.30	21.28
	826.4	25.92	21.20
WCDMA - HSUPA (Subtest #1)	826.6	25.67	21.65
	835.0	25.08	20.53
	826.4	25.74	21.06
WCDMA - HSUPA (Subtest #2)	826.6	24.81	21.22
	835.0	24.17	20.80
	826.4	25.60	21.37



Modulation	Frequency (MHz)	Conducted Carrier Power (dBm)	
		Peak	Average
WCDMA - 12.2kbps RMCWCDMA - HSUPA (Subtest #3)	826.6	26.31	22.10
	835.0	25.62	21.67
	826.4	26.74	22.22
WCDMA - HSUPA (Subtest #4)	826.6	25.50	21.92
	835.0	25.16	21.64
	826.4	25.59	21.93
WCDMA - HSUPA (Subtest #5)	826.6	26.32	21.92
	835.0	25.74	21.60
	826.4	26.60	22.09

**WLAN**

Modulation	Frequency (MHz)	Conducted Carrier Power (dBm)	
		Peak	Average
802.11(b) - 2.4 GHz – 5.5 Mbps	2412	17.66	14.41
	2437	19.85	16.76
	2462	17.10	13.76
802.11(g) - 2.4 GHz - 9 Mbps	2412	22.52	13.88
	2437	22.82	14.43
	2462	22.35	13.13
802.11(n20) - 2.4 GHz – MCS0	2412	22.38	13.14
	2437	22.45	13.41
	2462	21.84	12.59
802.11a - 5GHz - 6Mbps	5180	24.64	13.50
	5200	25.10	14.33
	5220	24.87	14.11
	5240	24.94	14.39
	5260	24.86	14.43
	5280	25.09	14.72
	5300	25.16	14.50
	5320	24.35	13.23



Modulation	Frequency (MHz)	Conducted Carrier Power (dBm)	
		Peak	Average
802.11a - 5GHz - 6Mbps	5500	23.73	13.31
	5520	24.03	13.34
	5540	23.79	13.06
	5560	23.67	13.02
	5580	23.77	13.15
	5600	23.70	13.21
	5620	24.18	13.31
	5640	24.18	13.24
	5660	23.53	12.89
	5680	23.79	12.80
	5700	23.53	12.97

802.11n20 - 5GHz – MCS1	5180	23.54	12.81
	5200	23.97	12.60
	5220	23.38	12.55
	5240	23.28	12.35
	5260	23.77	12.45
	5280	23.71	12.58
	5300	23.71	12.51
	5320	23.43	12.22
	5500	23.27	12.00
	5520	23.18	12.48
	5540	22.88	11.76
	5560	22.76	11.50
	5580	22.70	11.76
	5600	23.55	12.36
	5620	23.25	12.38
	5640	22.88	11.99
	5660	22.58	11.69
	5680	22.21	11.64
	5700	22.98	11.83



Modulation	Frequency (MHz)	Conducted Carrier Power (dBm)	
		Peak	Average
802.11n40 - 5GHz – MCS1	5190	23.75	12.51
	5230	23.51	12.12
	5270	23.32	12.15
	5310	23.84	12.44
	5510	22.90	11.83
	5550	22.86	11.81
	5590	23.42	12.22
	5630	23.51	12.32
5670	21.95	11.31	

802.11ac20 - 5GHz – MCS1	5180	23.83	13.54
	5200	23.48	13.27
	5220	23.36	13.09
	5240	23.14	12.90
	5260	23.46	13.32
	5280	23.73	13.58
	5300	23.82	13.63
	5320	23.35	13.05
	5500	23.50	13.26
	5520	23.45	13.34
	5540	23.22	13.14
	5560	22.98	12.95
	5580	23.12	13.07
	5600	23.45	13.33
	5620	23.46	13.24
	5640	23.20	13.22
	5660	22.97	12.86
	5680	22.82	12.74
5700	22.82	12.74	



Modulation	Frequency (MHz)	Conducted Carrier Power (dBm)	
		Peak	Average
802.11ac40 - 5GHz – MCS0	5190	23.67	13.31
	5230	23.48	13.22
	5270	23.47	13.34
	5310	23.66	13.38
	5510	23.76	13.52
	5550	23.21	13.09
	5590	23.50	13.34
	5630	23.35	13.17
	5670	22.83	12.78

Modulation	Frequency (MHz)	Conducted Carrier Power (dBm)	
		Peak	Average
802.11ac80 - 5GHz – MCS0	5210	24.11	13.33
	5290	24.25	13.54
	5530	23.60	13.04

**Bluetooth**

Modulation	Frequency (MHz)	Conducted Carrier Power (dBm)	
		Peak	Average
DH5	2402	0.95	-1.54
	2441	1.47	-1.21
	2480	1.75	-0.68



Product Service

**1.5.3 Standalone SAR Test Exclusion Considerations (KDB 447498 D01)**

The 1g SAR Test exclusion thresholds for 100 MHz to 6 GHz *test separation distances* ≤ 50 mm are determined by:

$$[(\text{max power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \sqrt{f (\text{GHz})} \leq 3.0, \text{ where}$$

- $f (\text{GHz})$  is the RF channel transmit frequency in GHz.
- Power and distance are rounded to the nearest mW and mm before calculation.
- The result is rounded to one decimal place for comparison.
- When the maximum test separation distance is < 5 mm, a distance of 5 mm is applied.

Band	Frequency (MHz)	Max Power		Test Position	Distance (mm)	Threshold	Test Exclusion
		(dBm)	(mW)				
GSM 850MHz GPRS 850MHz GPRS 850MHz	824.2	33.5	2238.72	Head	< 5	406.5	No
		27.6	575.45	Head	< 5	104.5	No
		27.6	575.45	Body	10	52.2	No
FDD V	826.6	23.6	229.09	Head	< 5	41.7	No
				Body	10	20.8	No
GSM 1900	1909.8	30.5	1122.02	Head	< 5	310.1	No
	1880.0	25.3	338.84	Head	< 5	92.9	No
	1880.0	25.3	338.84	Body	10	46.5	No
WLAN 2.4 GHz	2437.0	17.5	56.23	Head	< 5	17.6	No
				Body	10	8.8	No
WLAN 5GHz	5240.0	16.0	39.81	Head	< 5	18.2	No
				Body	10	9.1	No
WLAN 5GHz	5280.0	16.0	39.81	Head	< 5	18.3	No
				Body	10	9.1	No
WLAN 5GHz	5520.0	14.0	25.12	Head	< 5	11.8	No
				Body	10	5.9	No
Bluetooth	2480.0	-0.68	0.86	Head	< 5	0.3	Yes
				Body	10	0.1	Yes



## **SECTION 2**

### **TEST DETAILS**

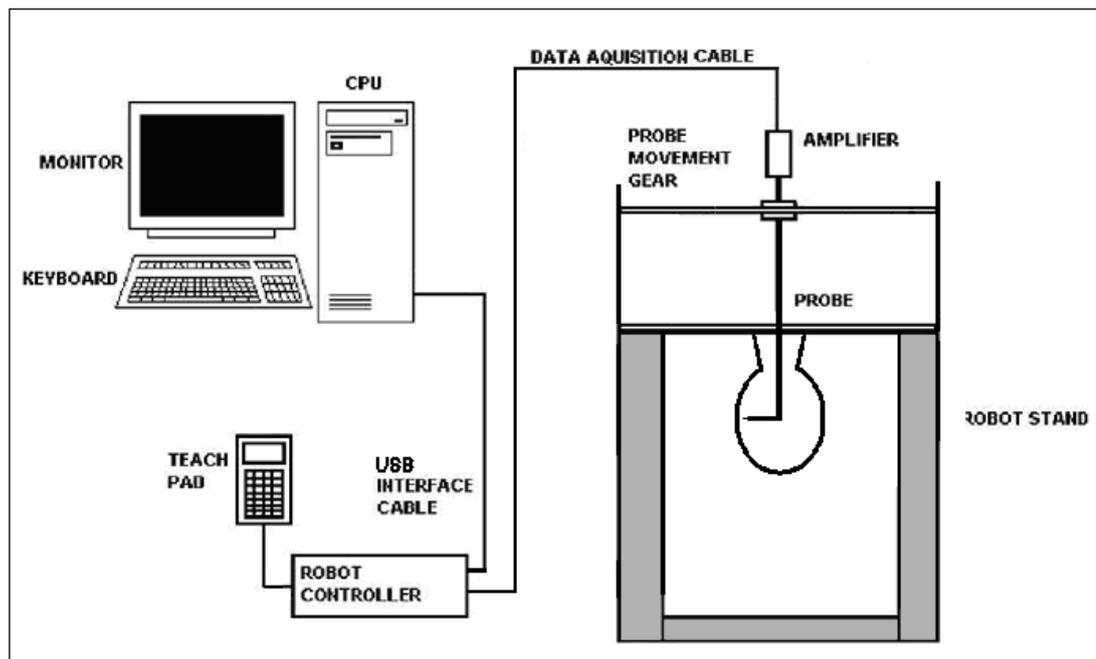
Specific Absorption Rate Testing of the  
Sharp SHL23 Dual-band CDMA (BC0, BC6) & Quad-band GSM  
(GSM850/GSM900/DCS1800/PCS1900) & Dual-band UMTS (FDDI, FDDV) & Quad-band LTE  
(B1, B3, B11, B18) multi mode cellular phone with Bluetooth, WLAN, SRD (NFC, FeliCa) and  
GPS

## 2.1 SARA-C SAR MEASUREMENT SYSTEM

### 2.1.1 Robot System Specification

The SAR measurement system being used is the IndexSAR SARA-C system, which consists of a cartesian 6-axis robot jig, a dedicated robot controller, a straight IndexSAR probe, an L-shaped IndexSAR probe, a fast amplifier, and two phantoms: an upside-down SAM phantom, and a rectangular box phantom,

**Figure 1.** The L-probe is used in connection with measurements on DUTs held against the SAM phantom, while the straight probe is used exclusively in the box phantom. The robot is used to articulate the probe to programmed positions inside the phantom head to obtain SAR readings from the DUT.



**Figure 1 Schematic diagram of the SARA-C measurement system showing the L-probe and upside-down SAM phantom**

The system is controlled remotely from a PC, which contains the software to drive the robot and data acquisition equipment. The software also displays the data obtained from test scans.

The position and digitised shape of the phantom heads are made available to the software for accurate positioning of the probe and reduction of set-up time. The SAM phantom heads are individually digitised using a Mitutoyo CMM machine to a precision of 0.001mm. The data is then converted into a shape format for the software, providing an accurate description of the phantom shell. Even with this accuracy, registration errors and deformation of the phantom when filled with 7 litres of fluid, can lead to probe placement errors of 1mm or more. For this reason, the L-probes house a 2-axis strain gauge unit, which allow the actual phantom wall position to be sensed to an accuracy of 0.3mm during probe movements.

In operation, the system first does an area (2D) scan within the liquid following the curve of the phantom wall at a fixed distance. When the maximum SAR point has been found, the system will then carry out a 3D scan centred at that point to determine volume averaged SAR level.



Product Service

## 2.1.2 Probe and Amplifier Specification

### IndexSAR isotropic immersible straight SAR probes

Straight probes are constructed using three orthogonal dipole sensors arranged on an interlocking, triangular prism core. The probes have built-in shielding against static charges and are contained within a PEEK cylindrical enclosure material at the tip. The tips come in either 5mm (typically for use up to 3GHz) or 2.5mm (above 3GHz) versions, model types IXP-050 and IXP-025 respectively.

Straight probes are calibrated by NPL in the UK.

Straight probes are used exclusively in the box phantom, to measure SAR from DUTs placed against the phantom base. In SARA2, straight probes were also used in the SAM phantom, but this is forbidden in SARA-C, where L-probes are demanded. NB the reverse is not true: L-probes can be used in the box phantom.

### IndexSAR L-probes

The L-shaped probe is so designed to ensure the probe tip can remain perpendicular to the SAM phantom wall during scans. To allow for greater probe articulation freedom, the SAM phantom head has been turned upside down and the probe is inserted through the throat aperture, rather than through a small hole at the top of the head in the old SARA2 SAR measurement system.

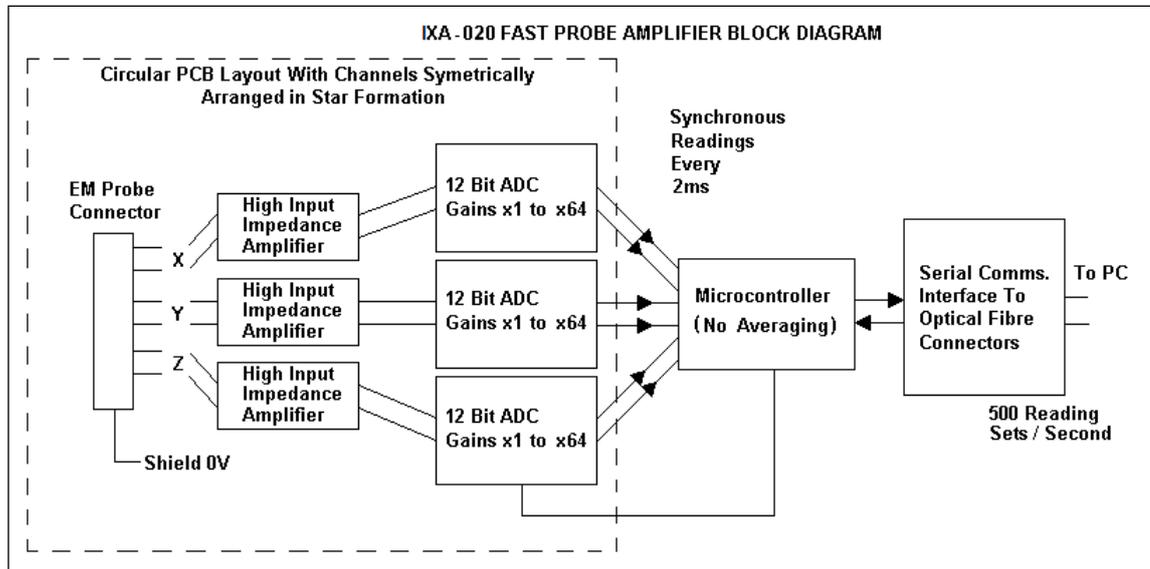
Like the straight probes, L-probes also come in the same two tip sizes: IXP-020 (5mm) and IXP-021 (2.5mm).

L-probes are calibrated to national standards in-house by IndexSAR.

L-probes can be used either in the SAM head, or against the side wall of the box phantom.

IFA-020 Fast Amplifier

A block diagram of the fast probe amplifier electronics is shown below.



**Figure 2 Schematic diagram of the fast amplifier**

This amplifier has a time constant of approx.  $50\mu\text{s}$ , which is much faster than the SAR probe response time. The overall system time constant is therefore that of the probe ( $<1\text{ms}$ ) and a reading containing data for all three channels is returned to the PC every 2ms. The conversion period is approx.  $1\mu\text{s}$  at the start of each 2ms period. This enables the probe to follow pulse modulated signals of periods  $\gg 2\text{ms}$ . The PC software applies the linearisation procedure separately to each reading, so no linearisation corrections for the averaging of modulated signals are needed in this case.

The fast amplifier sampling rate can be adjusted via the SARA-C user interface from 1.7ms to 2.3ms. When not measuring CW signals, it is important to ensure that this probe reading rate and the modulated signal's pulse repetition rate are not unintentionally synchronised since this can lead to aliasing and a gross reduction in accuracy. For GSM signals, the default amplifier sampling rate of 2ms is entirely satisfactory, whereas changing it to 2.3ms (almost exactly half the GSM frame rate) could mean GSM bursts are always missed.

When aggregating 2ms samples to reduce the stochastic noise, it is equally important to match the number of samples with the longer-term timing structure of the modulation scheme. Taking GSM as an example again, since 120ms is the precise length of a GSM traffic channel multiframe, best practice would dictate that aggregated samples should cover exact multiples of this timescale. In this case, setting the number of samples to be aggregated to 120 (2 multiframes), or 240 samples (4 multiframes) should be ideal. Other signalling protocols would require changing these numbers as appropriate.



## Phantoms

The Flat phantom used is a rectangular Perspex Box IndexSAR item IXB-2HF, dimensions 240 x 190 x 195mm (w x d x h). The base and one side wall are made of FR4 material which has specific dielectric properties and a tightly-controlled thickness. The base is used in tandem with straight probes, measuring either a DUT or a validation dipole, while the side wall is for performing validations with the L-probe. It is also feasible to perform measurements on body-worn devices with the L-probe against the side window, but only if the L-probe is suitably calibrated (ie if the measurement standard demands body and head fluids have the same dielectric properties).

The Specific Anthropomorphic Mannequin (SAM) Upright Phantom is fabricated using moulds generated from the CAD files as specified by CENELEC EN 62209-1: 2006.

### **2.1.3 SAR Measurement Procedure**

Detailed measurement procedures for SARA-C are set out in a separate IndexSAR technical document ("SARA-C Operational Procedures")

A test set and dipole antenna control the handset via an air link and a low-mass phone holder can position the phone at either ear. Graduated scales are provided to set the phone in the 15 degree position. The upright phantom head holds approx. 7 litres of simulant liquid. The phantom is filled and emptied through the 110mm diameter penetration hole in the neck.

An area scan is performed inside the head at a fixed distance of 5mm from the curved surface on the source side. An algorithm presents the user with the location of any local hotspots and allows one to be selected for a follow-up 3D scan, looking at how the signal absorption varies with depth. A comparison between the start and end readings at a fixed distance from the DUT also enables the power drift during measurement to be assessed.

#### SARA-C Interpolation and Extrapolation schemes

SARA-C software contains support for both 2D cubic B-spline interpolation as well as 3D cubic B-spline interpolation. In addition, for extrapolation purposes, a proprietary curve-fitting routine is implemented as a weighted average of 3 different polynomial fits. The polynomial fitting procedures have been extensively tested by comparing the fitting coefficients generated by the SARA-C procedures with those obtained using the polynomial fit functions of Microsoft Excel when applied to the same test input data.

#### Interpolation of 2D area scan

The 2D cubic B-spline interpolation is used after the initial area scan at fixed distance from the phantom shell wall. The initial scan data are collected with approx. 115mm spatial resolution and spline interpolation is used to find the location of the local maximum to within a 1mm resolution for positioning the subsequent 3D scanning.

#### Extrapolation of 3D scan

For the 3D scan, data are collected on a spatially regular, but conformal, 3D grid having (by default) 6.4 mm steps in the lateral dimensions and 3.5 mm steps in the depth direction (away from the source). SARA-C enables full control over the selection of alternative step sizes in all directions.



The overall accuracy of the 1g and 10g SAR volume average depends largely on the accuracy with which the probe can be re-positioned in the head. Although the digitised shape of the head is available to the SARA-C software, a better positioning solution is to use strain gauges attached to the L-probe to feel for the actual surface and to base all movements relative to this positive detection. An even more precise, but time-consuming, method is to place the probe tip in positive contact against the phantom wall, then step backwards 0.01mm at a time while monitoring the recorded SAR reading. At the exact moment that the probe detaches from contact, the SAR reading will suddenly fall.

After the data collection, the data are extrapolated up to the shell wall in the depth direction to assign values to points in the 3D array which cannot be measured in practice because of the finite size of the sensor tip. For automated measurements inside the head, the distance of the closest plane from the wall cannot be less than 2.7mm (for 5mm probes) and 1.39mm (for 2.5mm probes), this being the distance of the probe sensors behind the front edge of the probe tip.

#### Interpolation of 3D scan and volume averaging

The procedure used in SARA-C for defining the volumes used in SAR averaging follow the method of adapting the surface of the 'cube' to conform with the curved inner surface of the phantom (see Appendix C.2.2.1 in EN 62209-1: 2006). This is called, here, the conformal scheme.

For each row of data in the depth direction, the data are extrapolated to the phantom wall, and interpolated to less than 1mm spacing and average values are calculated from the phantom surface for the row of data over distances corresponding to the requisite depth for 10g and 1g cubes. This results in two 2D arrays of data, one for 1g and the other for 10g masses, which are then cubic B-spline interpolated to sub mm lateral resolution. A search routine then moves an averaging square around through the 2D array and records the maximum value of the corresponding 1g and 10g volume averages.

The default step size is 3.5mm, but this is under user-control. The compromise is with time of scan, so it is not practical to make it much smaller or scan times become long and power-drop influences become larger.

The robot positioning system specification for the repeatability of the positioning (**dss** in EN 62209-1: 2006) is +/- 0.04mm.

#### 2.1.4 Head Test Positions

This recommended practice specifies exactly two test positions for the handset against the head phantom, the “Cheek” position and the “tilted” position. The handset should be tested in both positions on the left and right sides of the SAM phantom. In each test position the centre of the earpiece of the device is placed directly at the entrance of the auditory canal. The angles mentioned in the test positions used are referenced to the line connecting both auditory canal openings. The plane this line is on is known as the reference plane. Testing is performed on the right and left-hand sides of the generic phantom head.

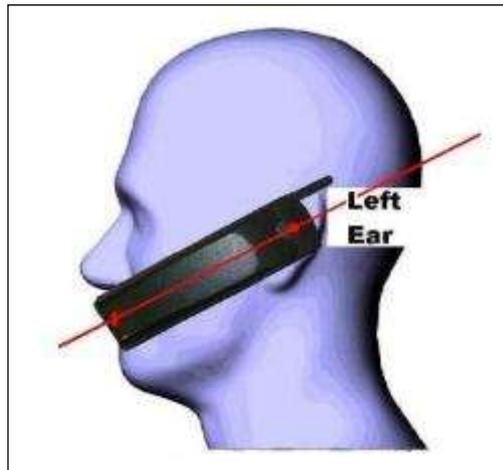


Figure 3 Side view of mobile next to head showing alignment

### The Cheek Position

The Cheek Position is where the mobile is in the reference plane and the line between the mobile and the line connecting both auditory canal openings is reduced until any part of the mobile touches any part of the generic twin phantom head.

### The 15° Position

The 15° Position is where the mobile is in the reference Cheek position and the phone is kept in contact with the auditory canal at the earpiece; the bottom of the phone is then tilted away from the phantom mouth by 15°.

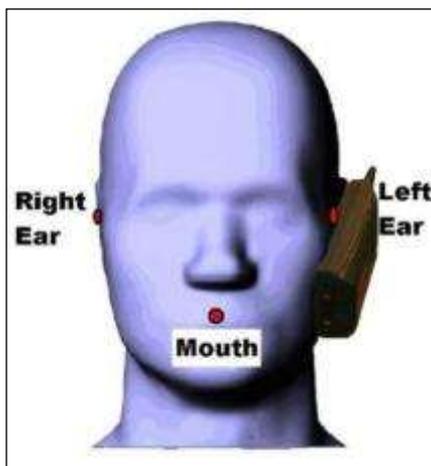


Figure 4 Cheek position

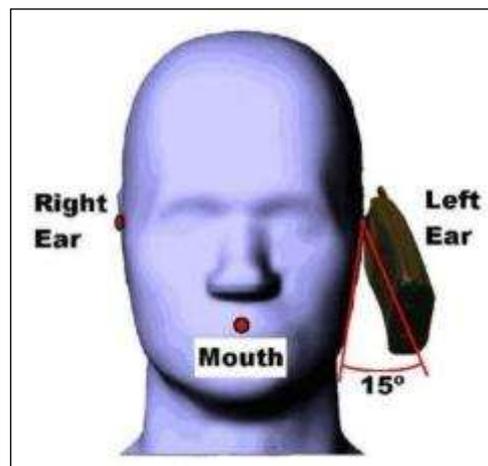


Figure 5 15° Tilt Position

2.2 GSM 850MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	01/10/2013-10:00:29	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	52.30°C	LIQUID SIMULANT:	850Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	42.69
RELATIVE HUMIDITY:	22.80%	CONDUCTIVITY:	0.913
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	56.90mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-121.20mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	18.015
TEST FREQUENCY:	824.2MHz	SAR 1g:	0.303 W/kg
TYPE OF MODULATION:	GMSK (Voice Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	12.5%	SAR START:	0.295 W/kg
INPUT POWER LEVEL:	33.5dBm	SAR END:	0.305 W/kg
PROBE BATTERY LAST CHANGED:	01/10/2013	SAR DRIFT DURING SCAN:	3.400 %

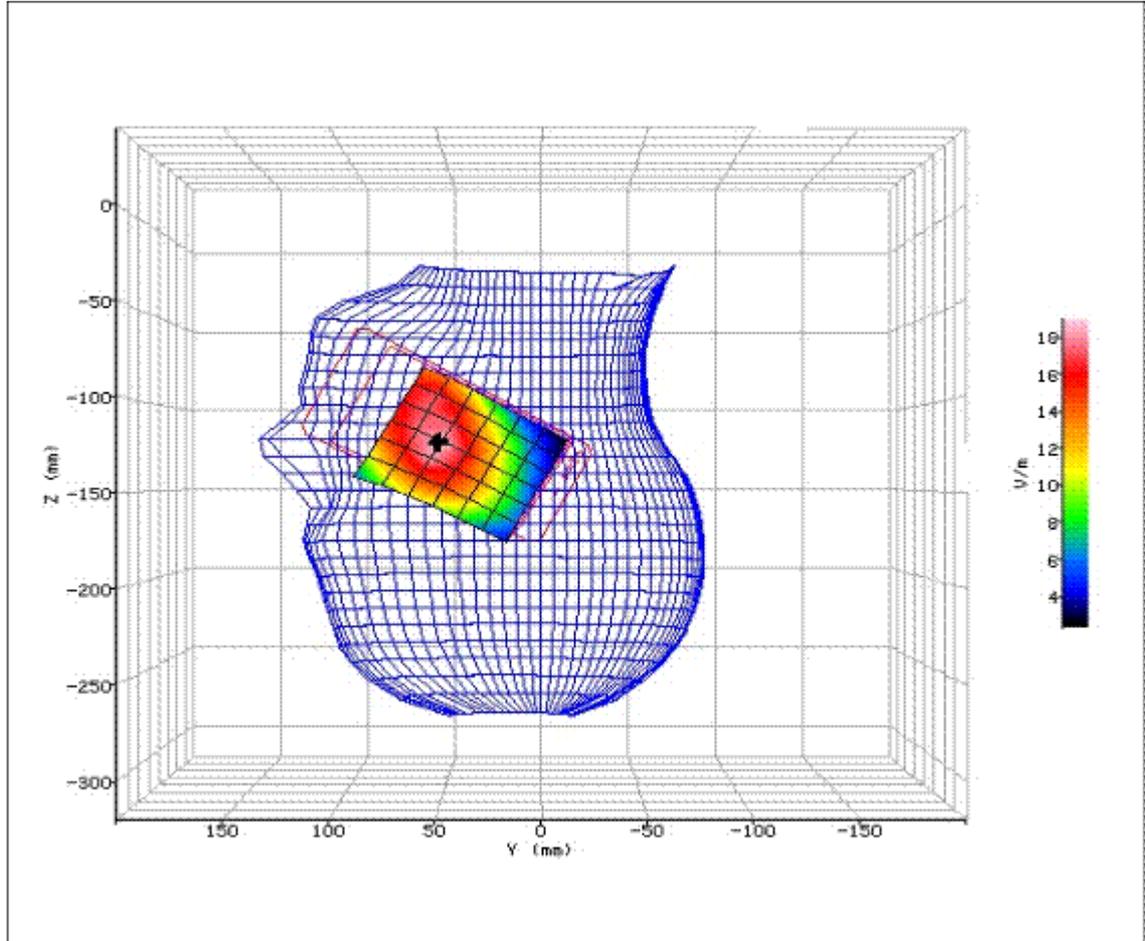


Figure 8: SAR Head Testing Results for the SHL23 Mobile Handset at 824.2MHz.

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	01/10/2013-10:19:23	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	52.30°C	LIQUID SIMULANT:	850Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	42.69
RELATIVE HUMIDITY:	22.80%	CONDUCTIVITY:	0.913
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	44.90mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-136.40mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	14.144
TEST FREQUENCY:	824.2MHz	SAR 1g:	0.196 W/kg
TYPE OF MODULATION:	GMSK (Voice Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	12.5%	SAR START:	0.192 W/kg
INPUT POWER LEVEL:	33.5dBm	SAR END:	0.177 W/kg
PROBE BATTERY LAST CHANGED:	01/10/2013	SAR DRIFT DURING SCAN:	-7.800 %

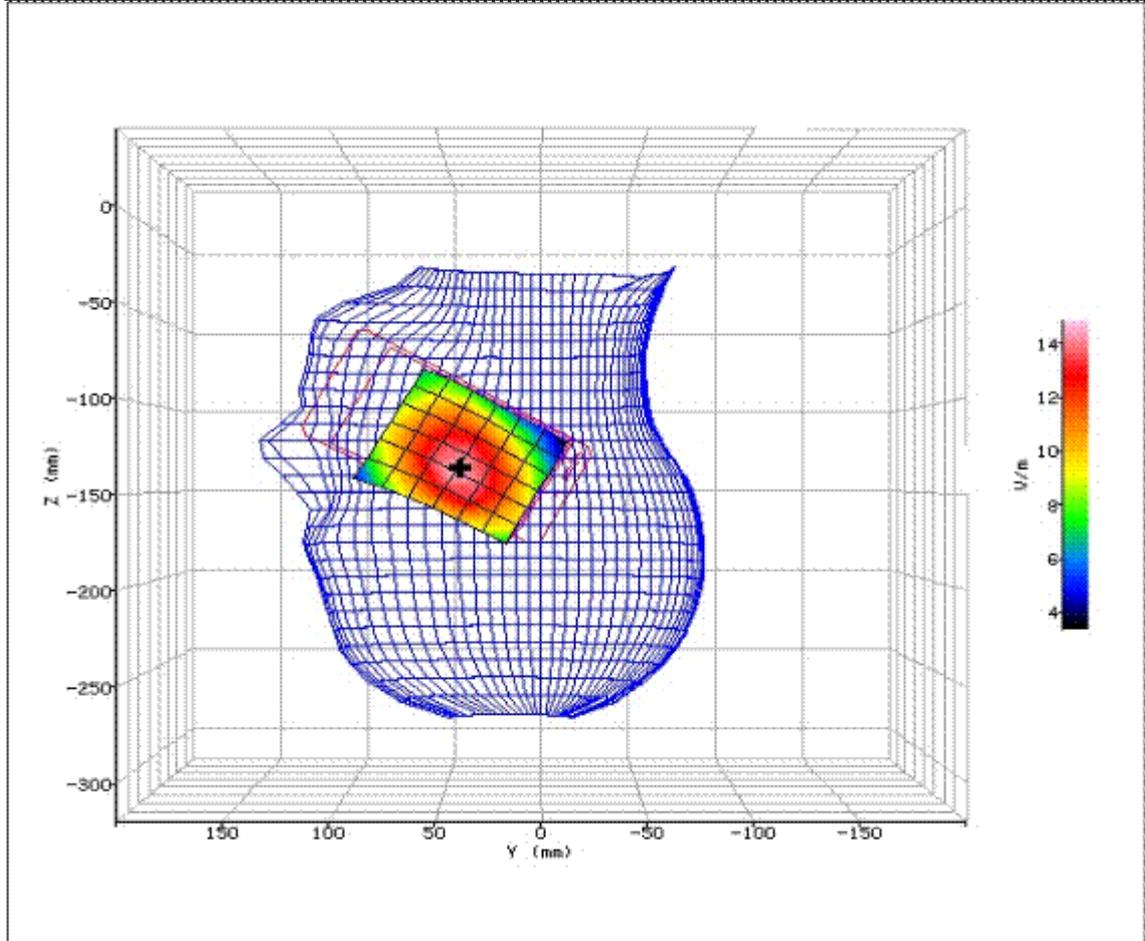


Figure 9: SAR Head Testing Results for the SHL23 Mobile Handset at 824.2MHz.



SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	01/10/2013-11:07:26	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	52.30°C	LIQUID SIMULANT:	850Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	42.69
RELATIVE HUMIDITY:	22.80%	CONDUCTIVITY:	0.913
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	56.90mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-114.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	20.987
TEST FREQUENCY:	824.2MHz	SAR 1g:	0.377 W/kg
TYPE OF MODULATION:	GMSK (Voice Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	12.5%	SAR START:	0.392 W/kg
INPUT POWER LEVEL:	33.5dBm	SAR END:	0.417 W/kg
PROBE BATTERY LAST CHANGED:	01/10/2013	SAR DRIFT DURING SCAN:	6.400 %

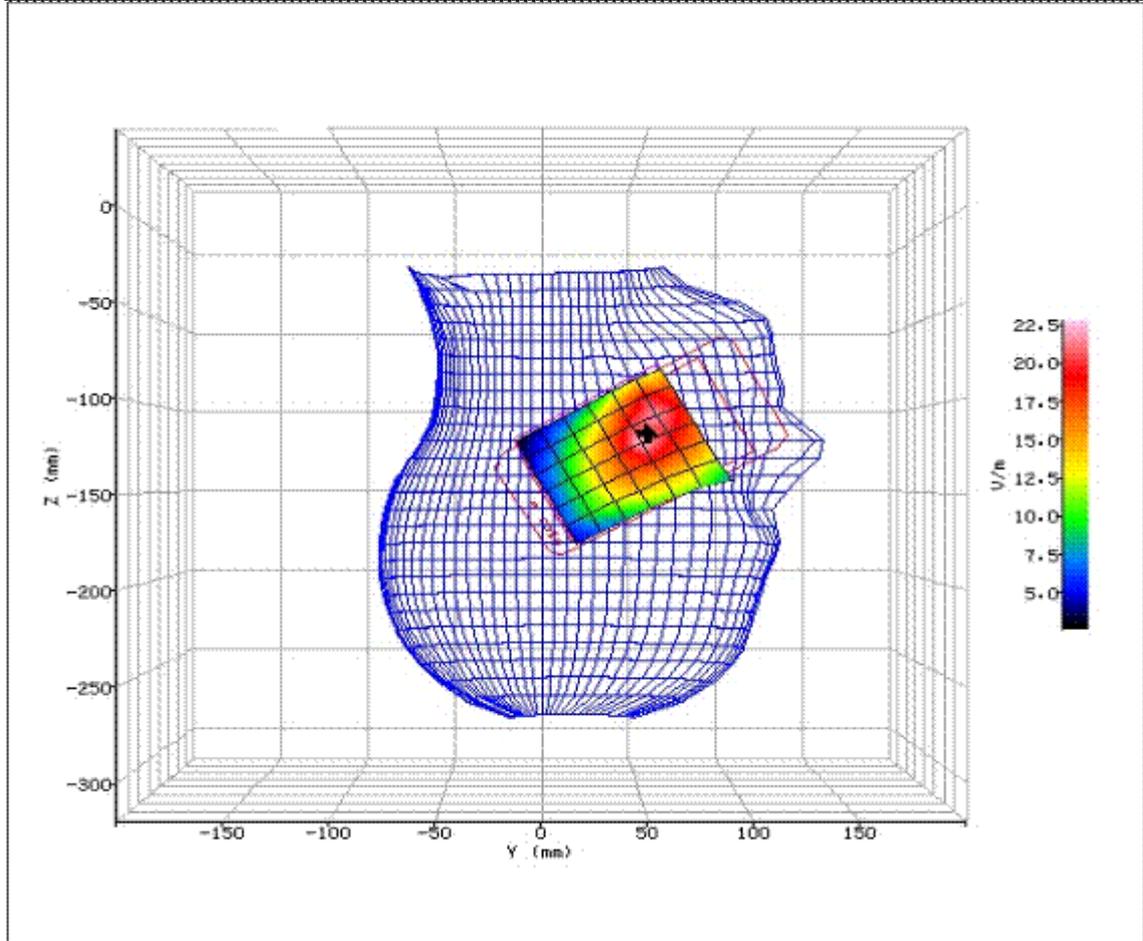


Figure 10: SAR Head Testing Results for the SHL23 Mobile Handset at 824.2MHz.



SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	01/10/2013-11:25:46	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	52.30°C	LIQUID SIMULANT:	850Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	42.69
RELATIVE HUMIDITY:	22.80%	CONDUCTIVITY:	0.913
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	41.50mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-127.00mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	14.802
TEST FREQUENCY:	824.2MHz	SAR 1g:	0.178 W/kg
TYPE OF MODULATION:	GMSK (Voice Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	12.5%	SAR START:	0.194 W/kg
INPUT POWER LEVEL:	33.5dBm	SAR END:	0.185 W/kg
PROBE BATTERY LAST CHANGED:	01/10/2013	SAR DRIFT DURING SCAN:	-4.600 %

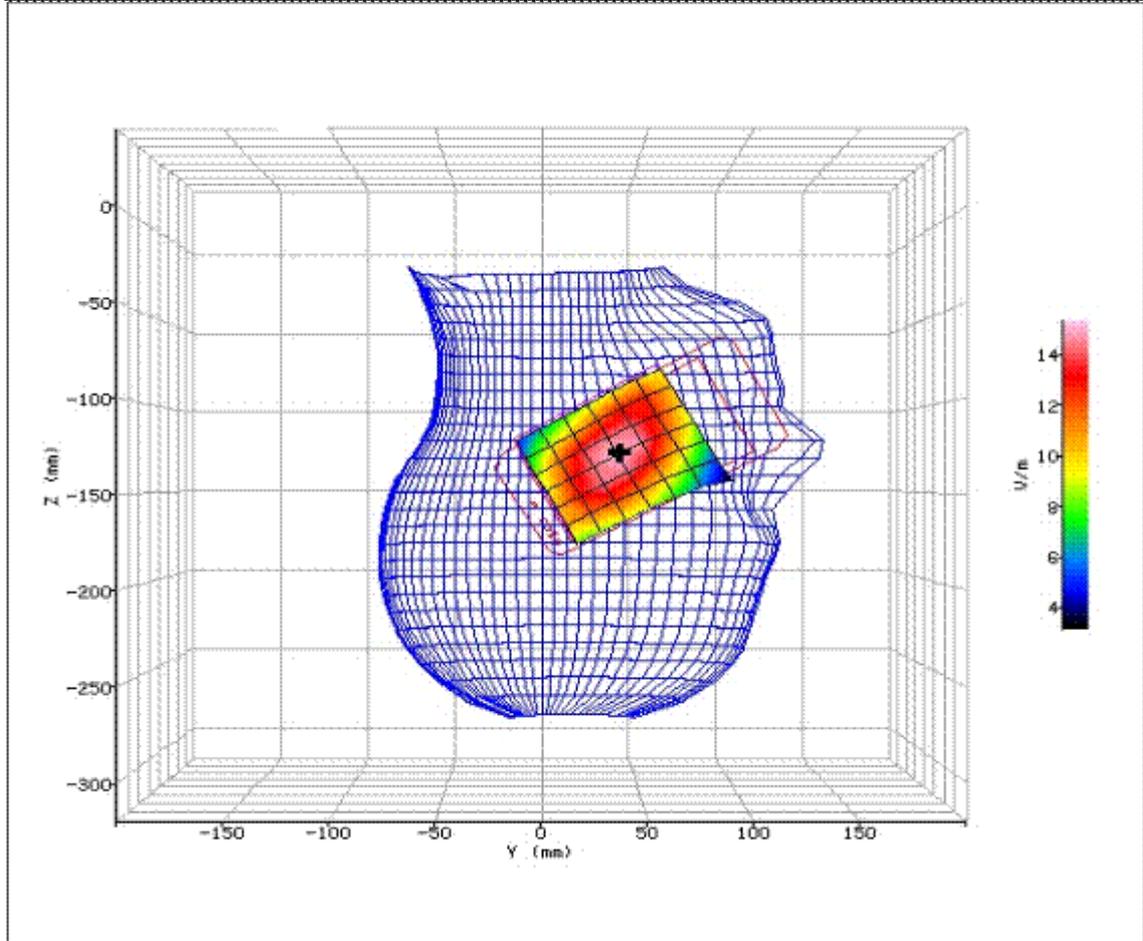


Figure 11: SAR Head Testing Results for the SHL23 Mobile Handset at 824.2MHz.

2.3 GSM 850MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	01/10/2013-14:03:23	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	52.30°C	LIQUID SIMULANT:	850Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	42.69
RELATIVE HUMIDITY:	22.80%	CONDUCTIVITY:	0.913
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	57.40mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-119.00mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	16.351
TEST FREQUENCY:	824.2MHz	SAR 1g:	0.251 W/kg
TYPE OF MODULATION:	GMSK (GPRS Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	25%	SAR START:	0.243 W/kg
INPUT POWER LEVEL:	28.4dBm	SAR END:	0.253 W/kg
PROBE BATTERY LAST CHANGED:	01/10/2013	SAR DRIFT DURING SCAN:	4.100 %

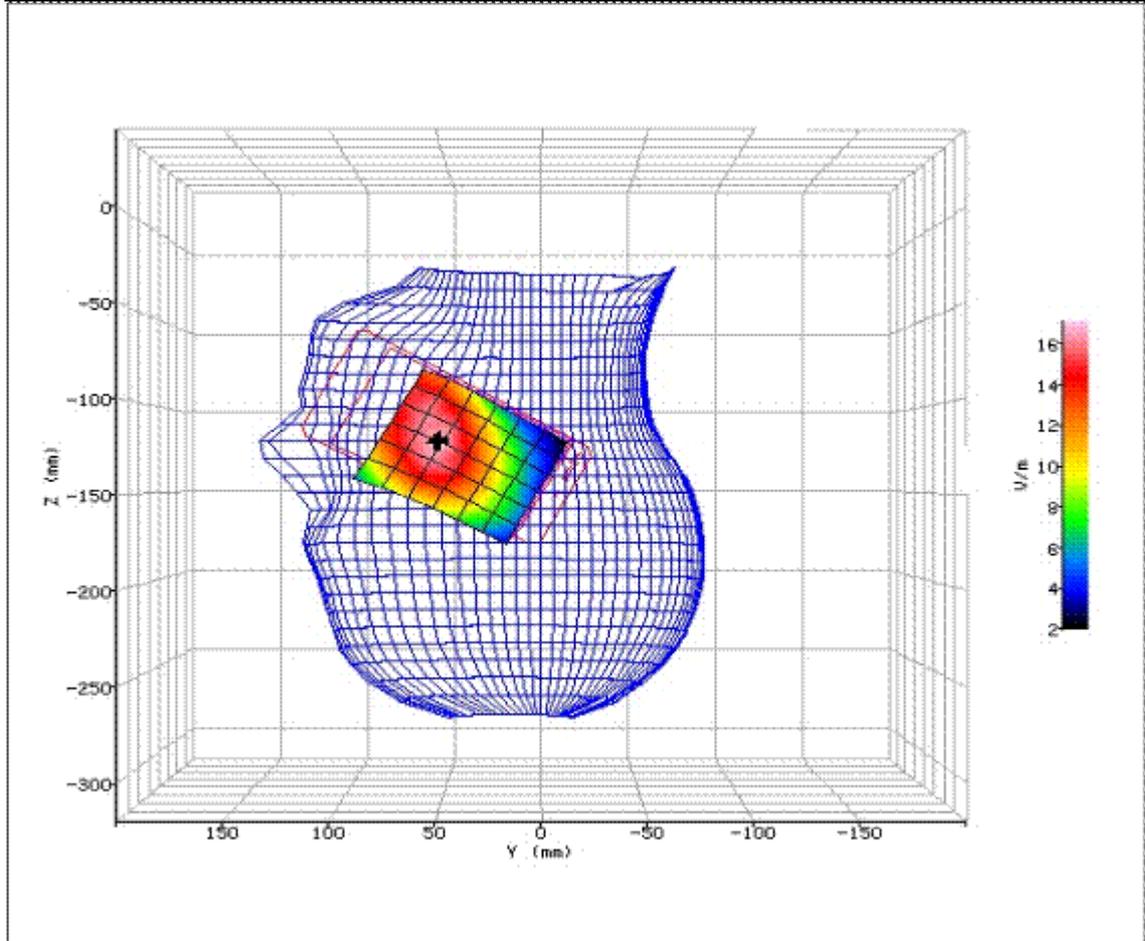


Figure 12: SAR Head Testing Results for the SHL23 Mobile Handset at 824.2MHz.



<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	01/10/2013-14:21:37	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	52.30°C	<b>LIQUID SIMULANT:</b>	850Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	42.69
<b>RELATIVE HUMIDITY:</b>	22.80%	<b>CONDUCTIVITY:</b>	0.913
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.80°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	45.00mm
<b>DUT POSITION:</b>	Left-15°	<b>MAX SAR Z-AXIS LOCATION:</b>	-135.00mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	12.850
<b>TEST FREQUENCY:</b>	824.2MHz	<b>SAR 1g:</b>	0.171 W/kg
<b>TYPE OF MODULATION:</b>	GMSK (GPRS Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	25%	<b>SAR START:</b>	0.148 W/kg
<b>INPUT POWER LEVEL:</b>	28.4dBm	<b>SAR END:</b>	0.150 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	01/10/2013	<b>SAR DRIFT DURING SCAN:</b>	1.400 %

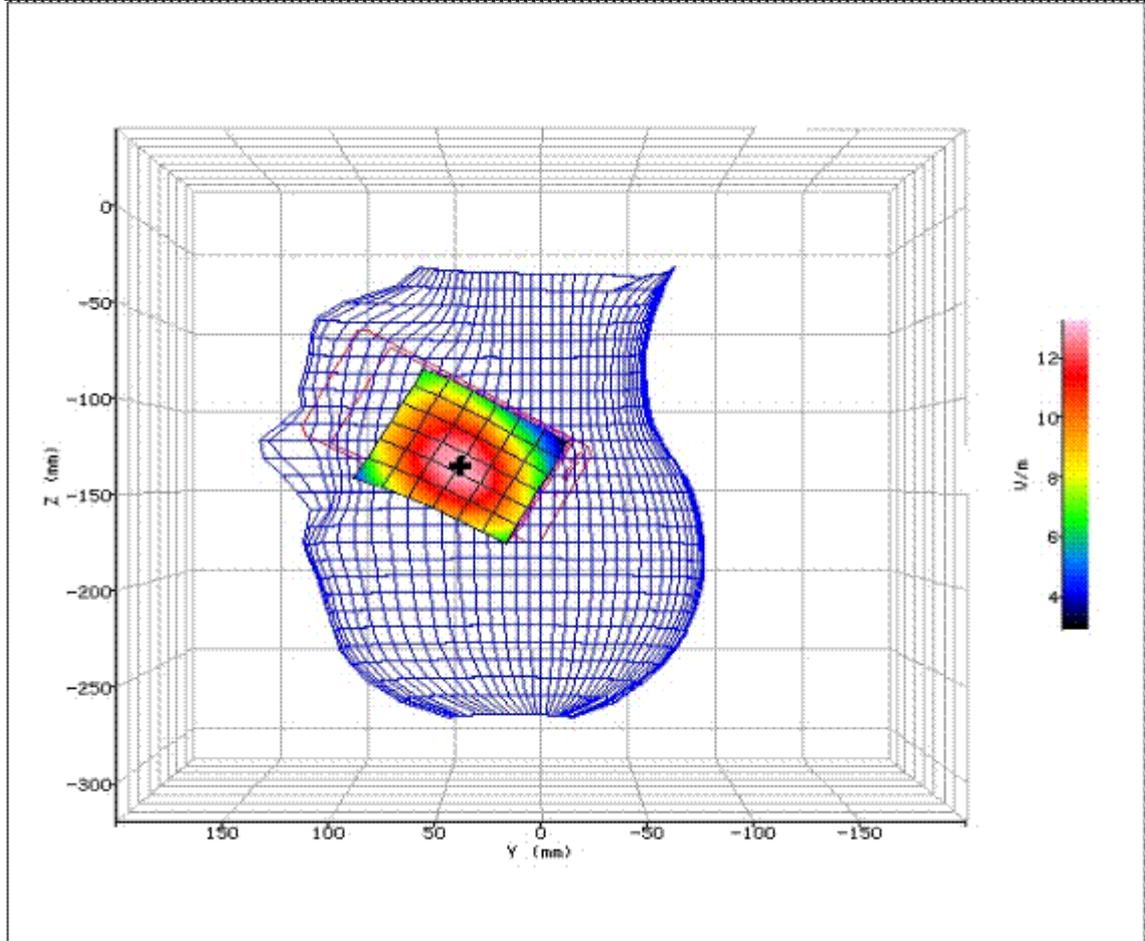


Figure 13: SAR Head Testing Results for the SHL23 Mobile Handset at 824.2MHz.



<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	01/10/2013-12:57:16	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	52.30°C	<b>LIQUID SIMULANT:</b>	850Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	42.69
<b>RELATIVE HUMIDITY:</b>	22.80%	<b>CONDUCTIVITY:</b>	0.913
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.80°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	57.70mm
<b>DUT POSITION:</b>	Right-Cheek	<b>MAX SAR Z-AXIS LOCATION:</b>	-113.20mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	19.773
<b>TEST FREQUENCY:</b>	824.2MHz	<b>SAR 1g:</b>	0.319 W/kg
<b>TYPE OF MODULATION:</b>	GMSK (GPRS Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	25%	<b>SAR START:</b>	0.342 W/kg
<b>INPUT POWER LEVEL:</b>	28.4dBm	<b>SAR END:</b>	0.322 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	01/10/2013	<b>SAR DRIFT DURING SCAN:</b>	-5.800 %

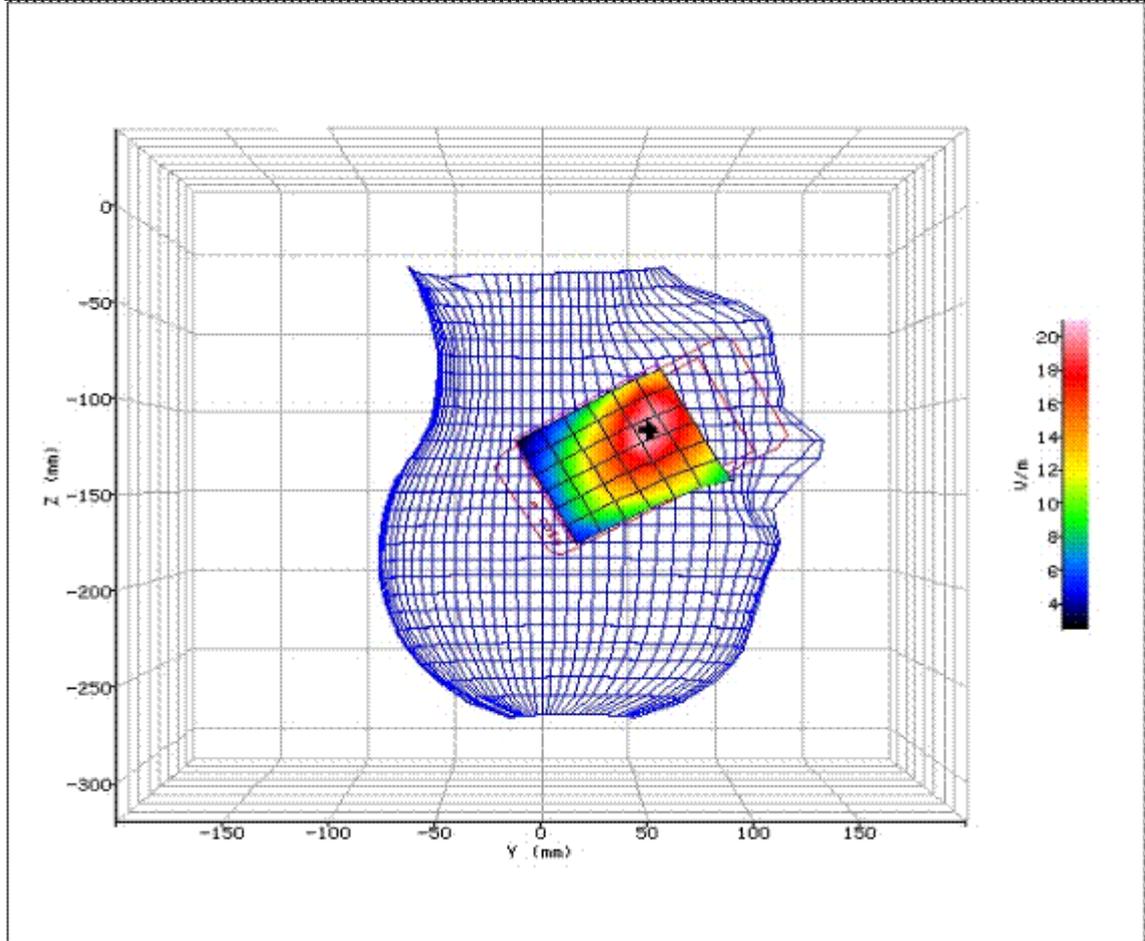


Figure 14: SAR Head Testing Results for the SHL23 Mobile Handset at 824.2MHz.

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	01/10/2013-13:40:21	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	52.30°C	LIQUID SIMULANT:	850Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	42.69
RELATIVE HUMIDITY:	22.80%	CONDUCTIVITY:	0.913
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	44.10mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-125.60mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	14.840
TEST FREQUENCY:	824.2MHz	SAR 1g:	0.190 W/kg
TYPE OF MODULATION:	GMSK (GPRS Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	25%	SAR START:	0.195 W/kg
INPUT POWER LEVEL:	28.4dBm	SAR END:	0.192 W/kg
PROBE BATTERY LAST CHANGED:	01/10/2013	SAR DRIFT DURING SCAN:	-1.500 %

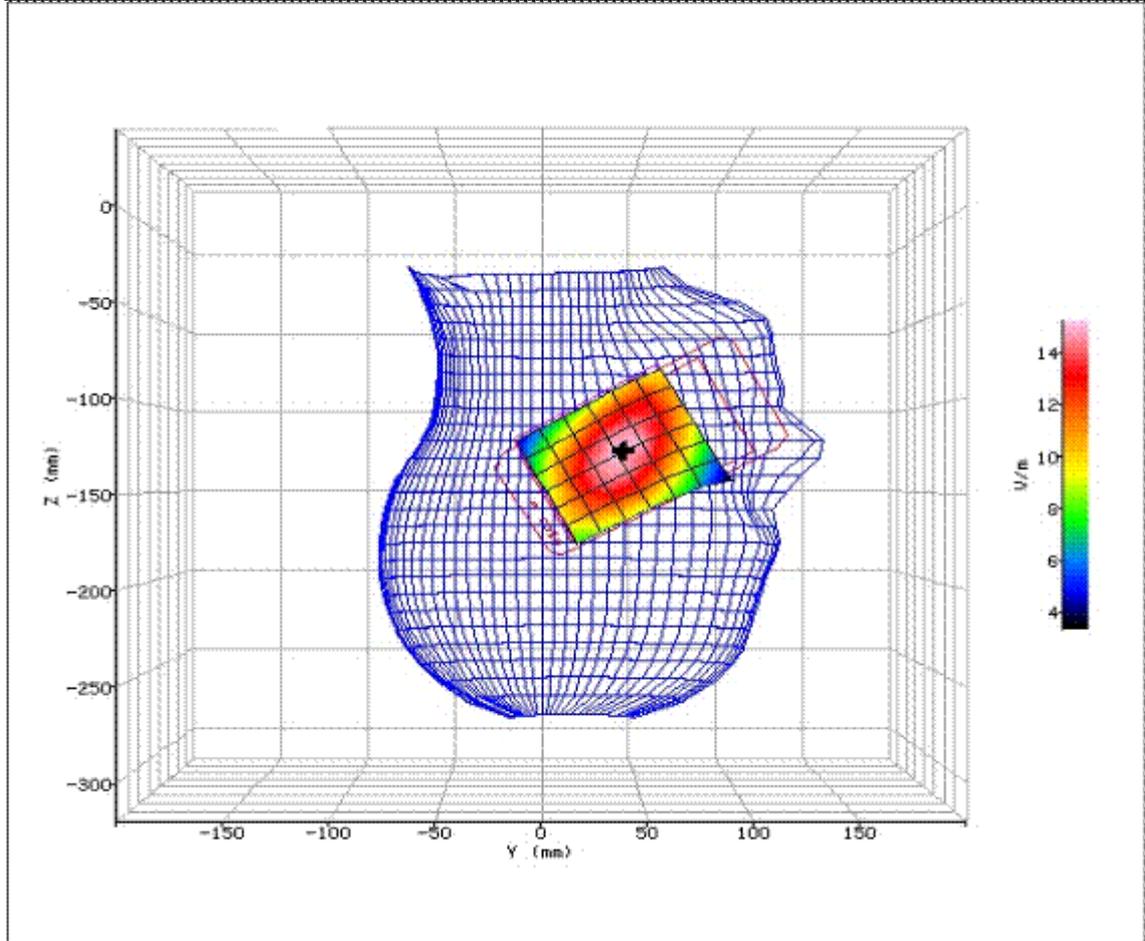


Figure 15: SAR Head Testing Results for the SHL23 Mobile Handset at 824.2MHz.

2.4 GSM 850MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	02/10/2013-15:57:01	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.10°C	LIQUID SIMULANT:	850Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	56.99
RELATIVE HUMIDITY:	66.40%	CONDUCTIVITY:	1.015
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.60°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	35.40mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-5.30mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	18.511
TEST FREQUENCY:	824.2MHz	SAR 1g:	0.332 W/kg
TYPE OF MODULATION:	GMSK (GPRS Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	25%	SAR START:	0.356 W/kg
INPUT POWER LEVEL:	28.4dBm	SAR END:	0.332 W/kg
PROBE BATTERY LAST CHANGED:	02/10/2013	SAR DRIFT DURING SCAN:	-6.700 %

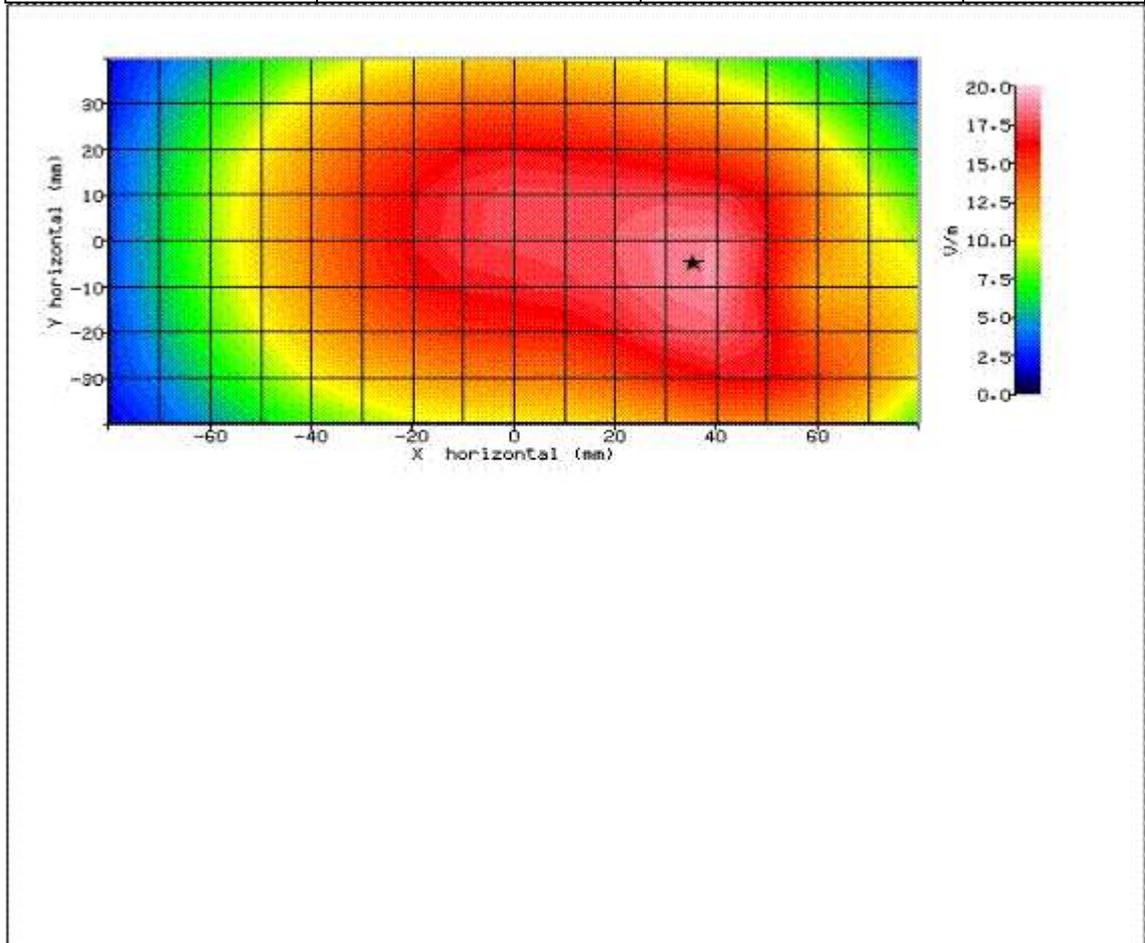


Figure 16: SAR Body Testing Results for the SHL23 Mobile Handset at 824.2MHz.



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	02/10/2013-16:10:41	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.10°C	LIQUID SIMULANT:	850Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	56.99
RELATIVE HUMIDITY:	66.40%	CONDUCTIVITY:	1.015
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.60°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	34.70mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	7.40mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	20.20.3
TEST FREQUENCY:	824.2MHz	SAR 1g:	0.414 W/kg
TYPE OF MODULATION:	GMSK (GPRS Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	25%	SAR START:	0.438 W/kg
INPUT POWER LEVEL:	28.4dBm	SAR END:	0.440 W/kg
PROBE BATTERY LAST CHANGED:	02/10/2013	SAR DRIFT DURING SCAN:	0.500 %

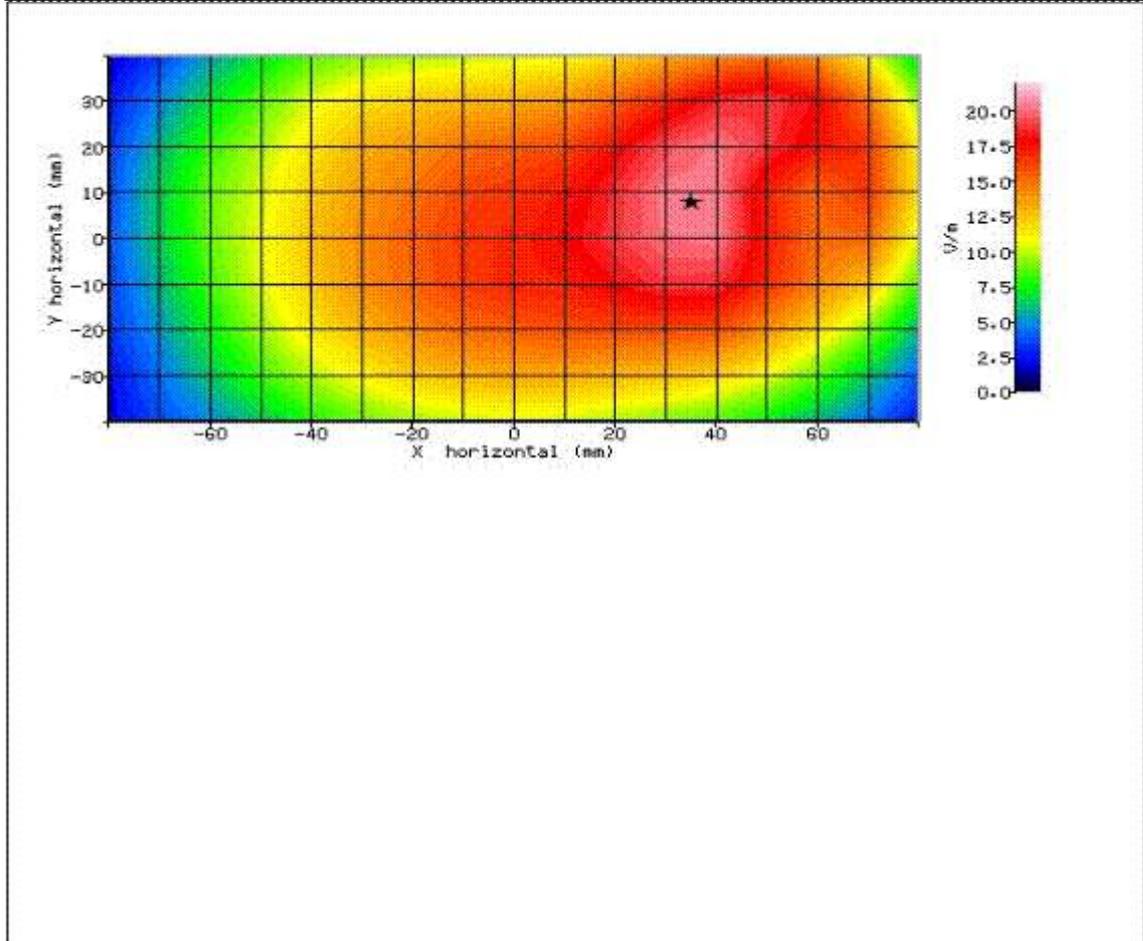


Figure 17: SAR Body Testing Results for the SHL23 Mobile Handset at 824.2MHz.

<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	02/10/2013-16:29:06	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.10°C	<b>LIQUID SIMULANT:</b>	850Body
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	56.99
<b>RELATIVE HUMIDITY:</b>	66.40%	<b>CONDUCTIVITY:</b>	1.015
<b>PHANTOM S/NO:</b>	IXB-2HF	<b>LIQUID TEMPERATURE:</b>	22.60°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR X-AXIS LOCATION:</b>	-5.90mm
<b>DUT POSITION:</b>	10mm-Right Edge	<b>MAX SAR Y-AXIS LOCATION:</b>	0.50mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	12.736
<b>TEST FREQUENCY:</b>	824.2MHz	<b>SAR 1g:</b>	0.158 W/kg
<b>TYPE OF MODULATION:</b>	GMSK (GPRS Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	25%	<b>SAR START:</b>	0.167 W/kg
<b>INPUT POWER LEVEL:</b>	28.4dBm	<b>SAR END:</b>	0.175 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	02/10/2013	<b>SAR DRIFT DURING SCAN:</b>	4.800 %

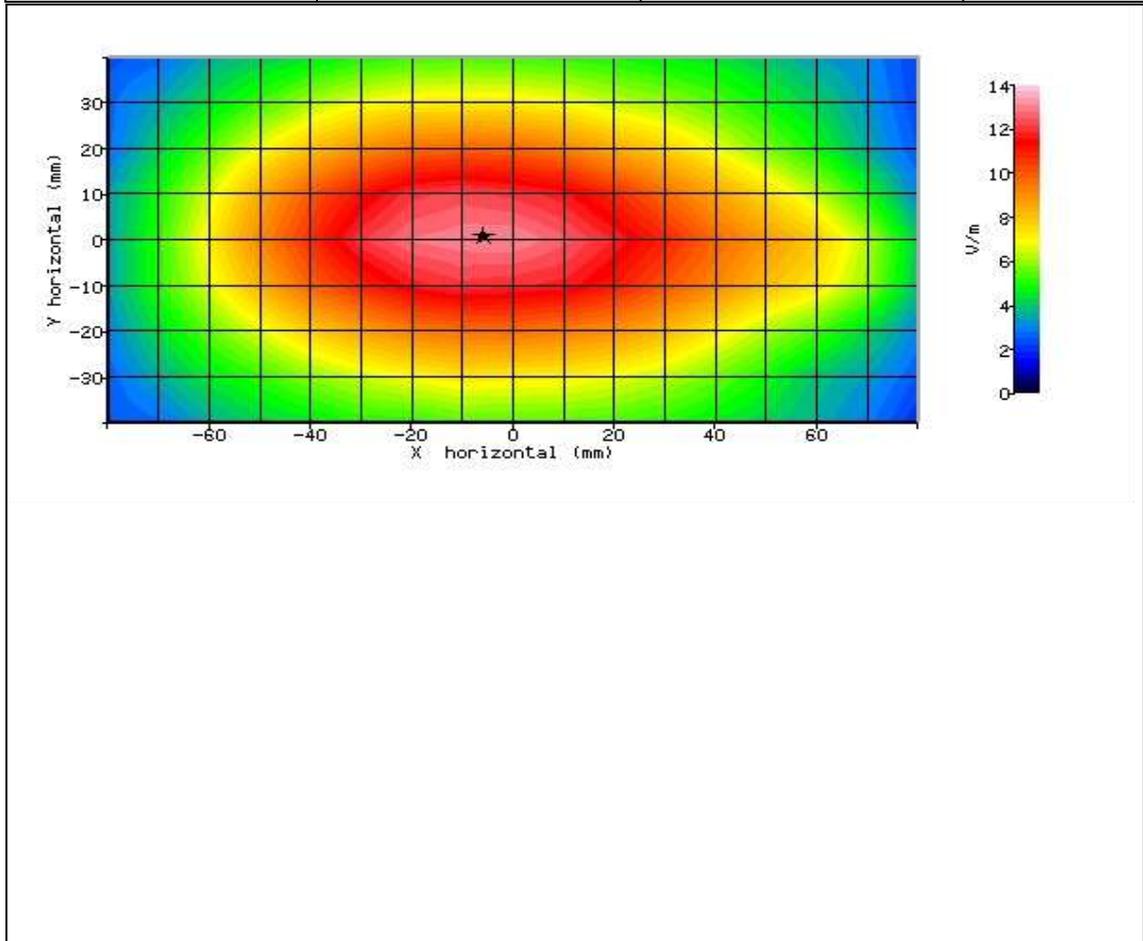


Figure 18: SAR Body Testing Results for the SHL23 Mobile Handset at 824.2MHz.

<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	02/10/2013-16:44:43	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.10°C	<b>LIQUID SIMULANT:</b>	850Body
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	56.99
<b>RELATIVE HUMIDITY:</b>	66.40%	<b>CONDUCTIVITY:</b>	1.015
<b>PHANTOM S/NO:</b>	IXB-2HF	<b>LIQUID TEMPERATURE:</b>	22.60°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR X-AXIS LOCATION:</b>	-3.30mm
<b>DUT POSITION:</b>	10mm-Left Edge	<b>MAX SAR Y-AXIS LOCATION:</b>	6.50mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	16.110
<b>TEST FREQUENCY:</b>	824.2MHz	<b>SAR 1g:</b>	0.267 W/kg
<b>TYPE OF MODULATION:</b>	GMSK (GPRS Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	25%	<b>SAR START:</b>	0.277 W/kg
<b>INPUT POWER LEVEL:</b>	28.4dBm	<b>SAR END:</b>	0.298 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	02/10/2013	<b>SAR DRIFT DURING SCAN:</b>	7.800 %

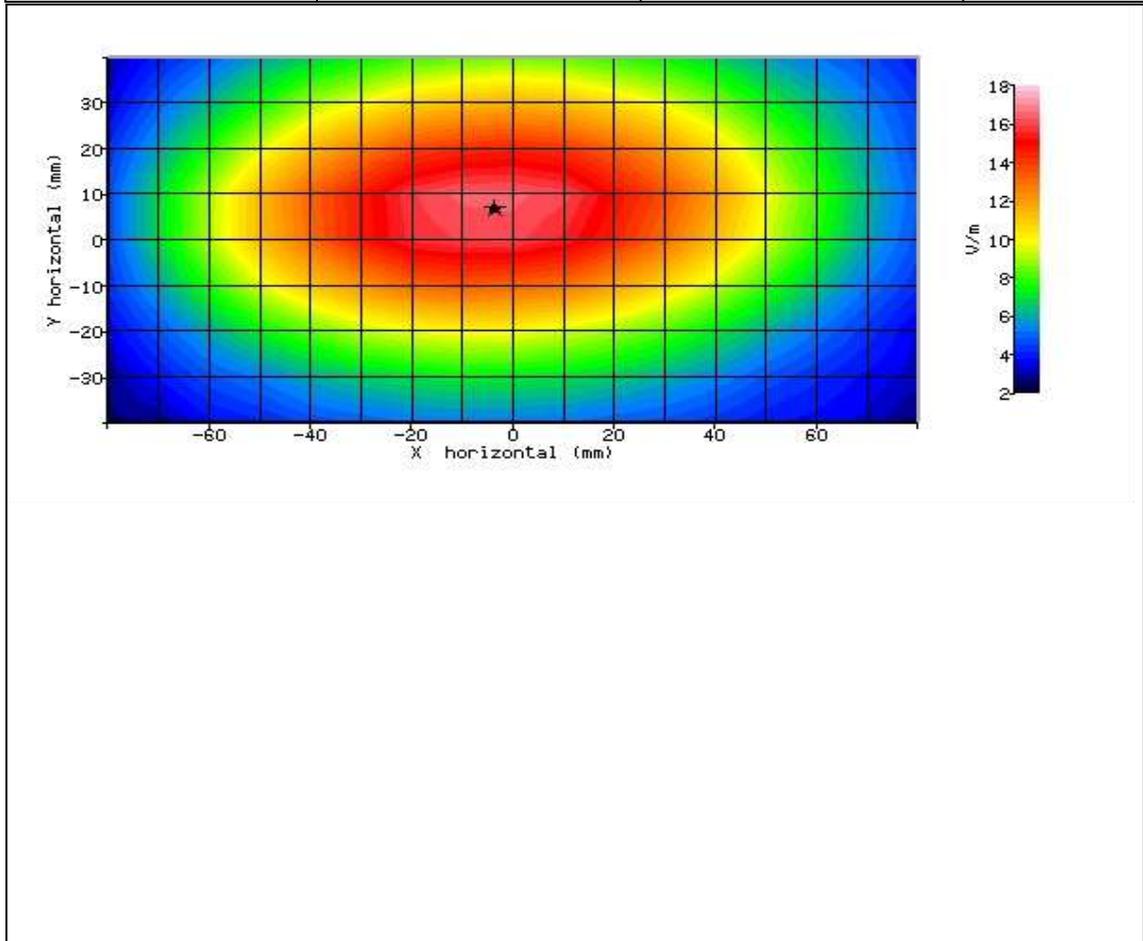


Figure 19: SAR Body Testing Results for the SHL23 Mobile Handset at 824.2MHz.



<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	02/10/2013-17:09:21	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.10°C	<b>LIQUID SIMULANT:</b>	850Body
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	56.99
<b>RELATIVE HUMIDITY:</b>	66.40%	<b>CONDUCTIVITY:</b>	1.015
<b>PHANTOM S/NO:</b>	IXB-2HF	<b>LIQUID TEMPERATURE:</b>	22.60°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR X-AXIS LOCATION:</b>	9.40mm
<b>DUT POSITION:</b>	10mm-Bottom Edge	<b>MAX SAR Y-AXIS LOCATION:</b>	7.70mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	9.095
<b>TEST FREQUENCY:</b>	824.2MHz	<b>SAR 1g:</b>	0.097 W/kg
<b>TYPE OF MODULATION:</b>	GMSK (GPRS Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	25%	<b>SAR START:</b>	0.110 W/kg
<b>INPUT POWER LEVEL:</b>	28.4dBm	<b>SAR END:</b>	0.105 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	02/10/2013	<b>SAR DRIFT DURING SCAN:</b>	-4.200 %

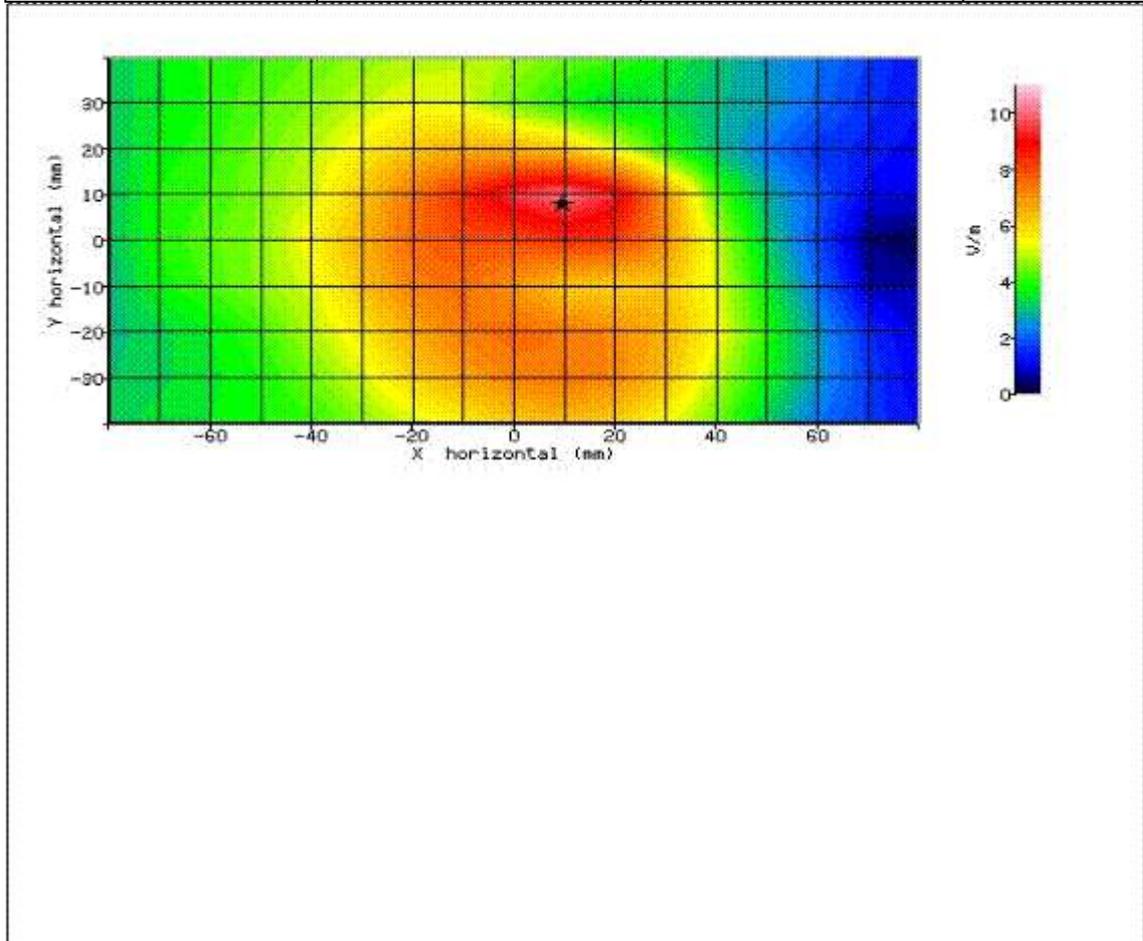


Figure 20: SAR Body Testing Results for the SHL23 Mobile Handset at 824.2MHz.

2.5 WCDMA FDDV HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	02/10/2013-08:41:47	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	69.30°C	LIQUID SIMULANT:	850Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	42.69
RELATIVE HUMIDITY:	22.90%	CONDUCTIVITY:	0.913
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	58.30mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-120.60mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	20.002
TEST FREQUENCY:	826.6MHz	SAR 1g:	0.384 W/kg
TYPE OF MODULATION:	QPSK (RMC Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.371 W/kg
INPUT POWER LEVEL:	23.6dBm	SAR END:	0.371 W/kg
PROBE BATTERY LAST CHANGED:	02/10/2013	SAR DRIFT DURING SCAN:	0.000 %

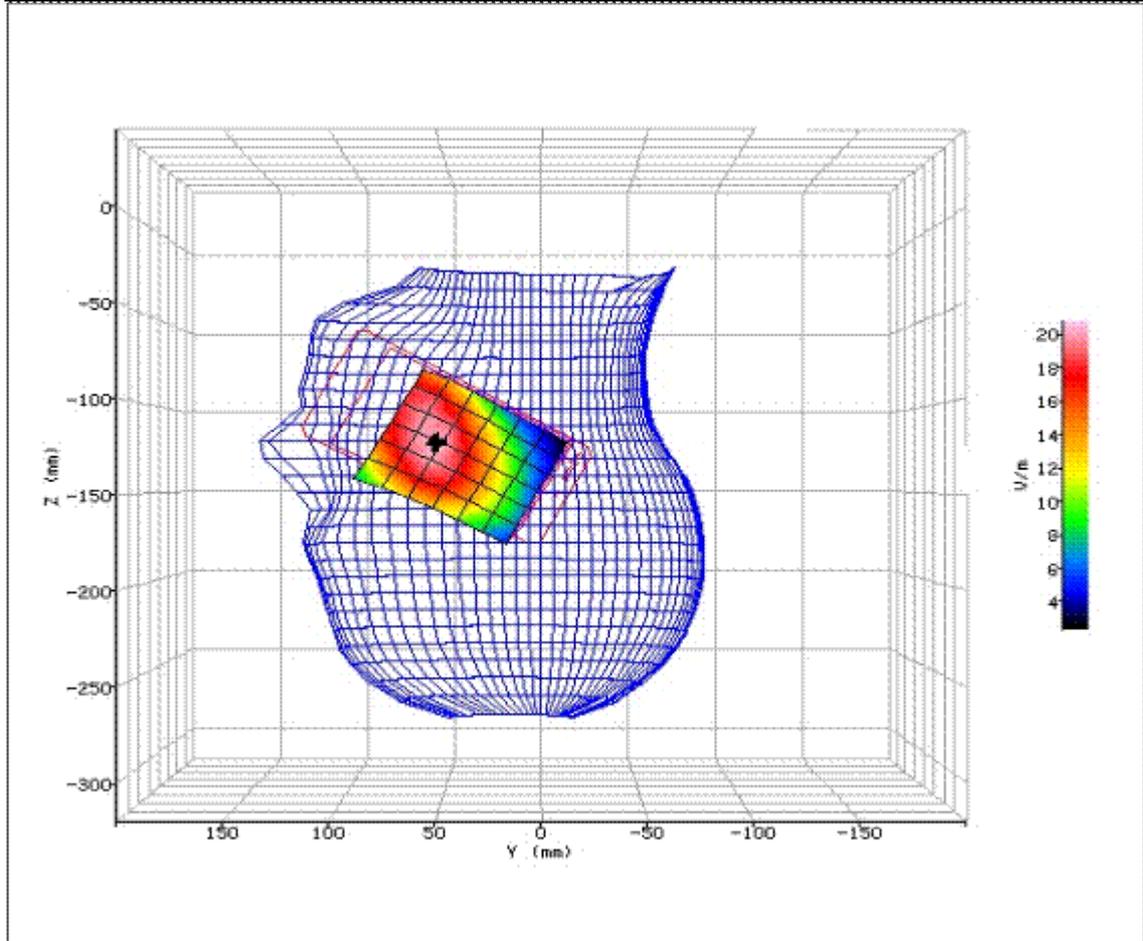


Figure 21: SAR Head Testing Results for the SHL23 Mobile Handset at 826.6MHz.

<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	02/10/2013-09:05:02	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	69.30°C	<b>LIQUID SIMULANT:</b>	850Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	42.69
<b>RELATIVE HUMIDITY:</b>	22.90%	<b>CONDUCTIVITY:</b>	0.913
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.80°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	45.20mm
<b>DUT POSITION:</b>	Left-15°	<b>MAX SAR Z-AXIS LOCATION:</b>	-136.90mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	16.341
<b>TEST FREQUENCY:</b>	826.6MHz	<b>SAR 1g:</b>	0.282 W/kg
<b>TYPE OF MODULATION:</b>	QPSK (RMC Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.246 W/kg
<b>INPUT POWER LEVEL:</b>	23.6dBm	<b>SAR END:</b>	0.257 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	02/10/2013	<b>SAR DRIFT DURING SCAN:</b>	4.500 %

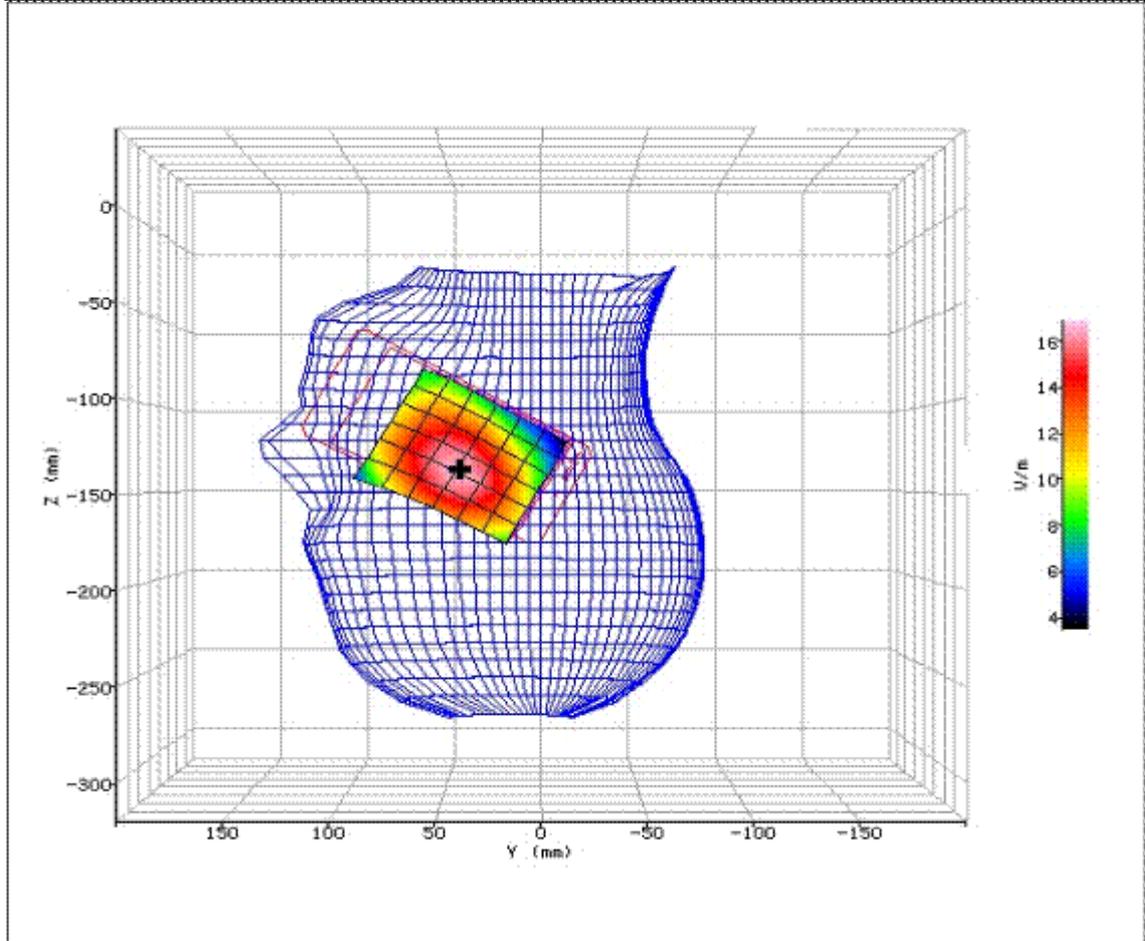


Figure 22: SAR Head Testing Results for the SHL23 Mobile Handset at 826.6MHz.



<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	02/10/2013-09:28:48	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	69.30°C	<b>LIQUID SIMULANT:</b>	850Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	42.69
<b>RELATIVE HUMIDITY:</b>	22.90%	<b>CONDUCTIVITY:</b>	0.913
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.80°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	56.90mm
<b>DUT POSITION:</b>	Right-Cheek	<b>MAX SAR Z-AXIS LOCATION:</b>	-114.90mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	22.918
<b>TEST FREQUENCY:</b>	826.6MHz	<b>SAR 1g:</b>	0.470 W/kg
<b>TYPE OF MODULATION:</b>	QPSK (RMC Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.464 W/kg
<b>INPUT POWER LEVEL:</b>	23.6dBm	<b>SAR END:</b>	0.471 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	02/10/2013	<b>SAR DRIFT DURING SCAN:</b>	1.500 %

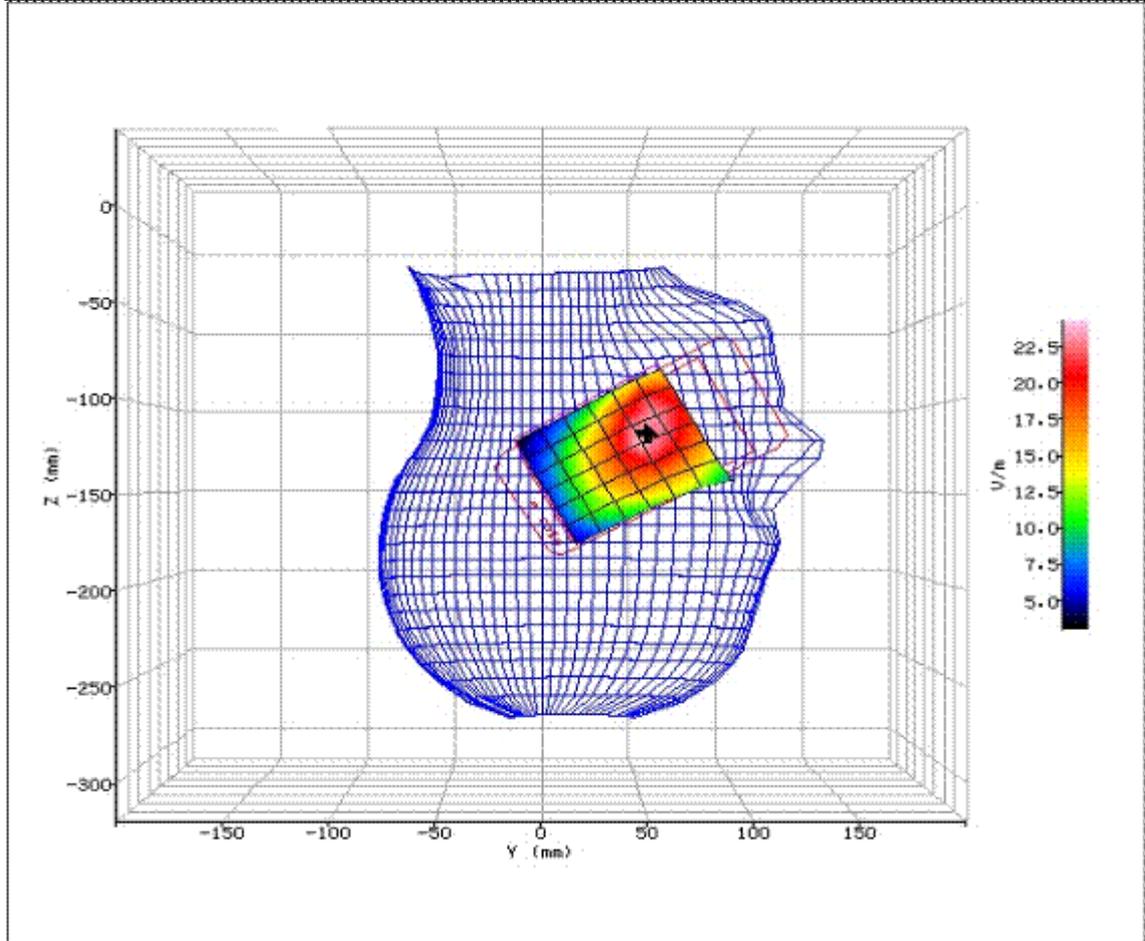


Figure 23: SAR Head Testing Results for the SHL23 Mobile Handset at 826.6MHz.



<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	02/10/2013-09:48:38	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	69.30°C	<b>LIQUID SIMULANT:</b>	850Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	42.69
<b>RELATIVE HUMIDITY:</b>	22.90%	<b>CONDUCTIVITY:</b>	0.913
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.80°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	39.60mm
<b>DUT POSITION:</b>	Right-15°	<b>MAX SAR Z-AXIS LOCATION:</b>	-126.70mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	16.758
<b>TEST FREQUENCY:</b>	826.6MHz	<b>SAR 1g:</b>	0.258 W/kg
<b>TYPE OF MODULATION:</b>	QPSK (RMC Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.257 W/kg
<b>INPUT POWER LEVEL:</b>	23.6dBm	<b>SAR END:</b>	0.257 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	02/10/2013	<b>SAR DRIFT DURING SCAN:</b>	0.000 %

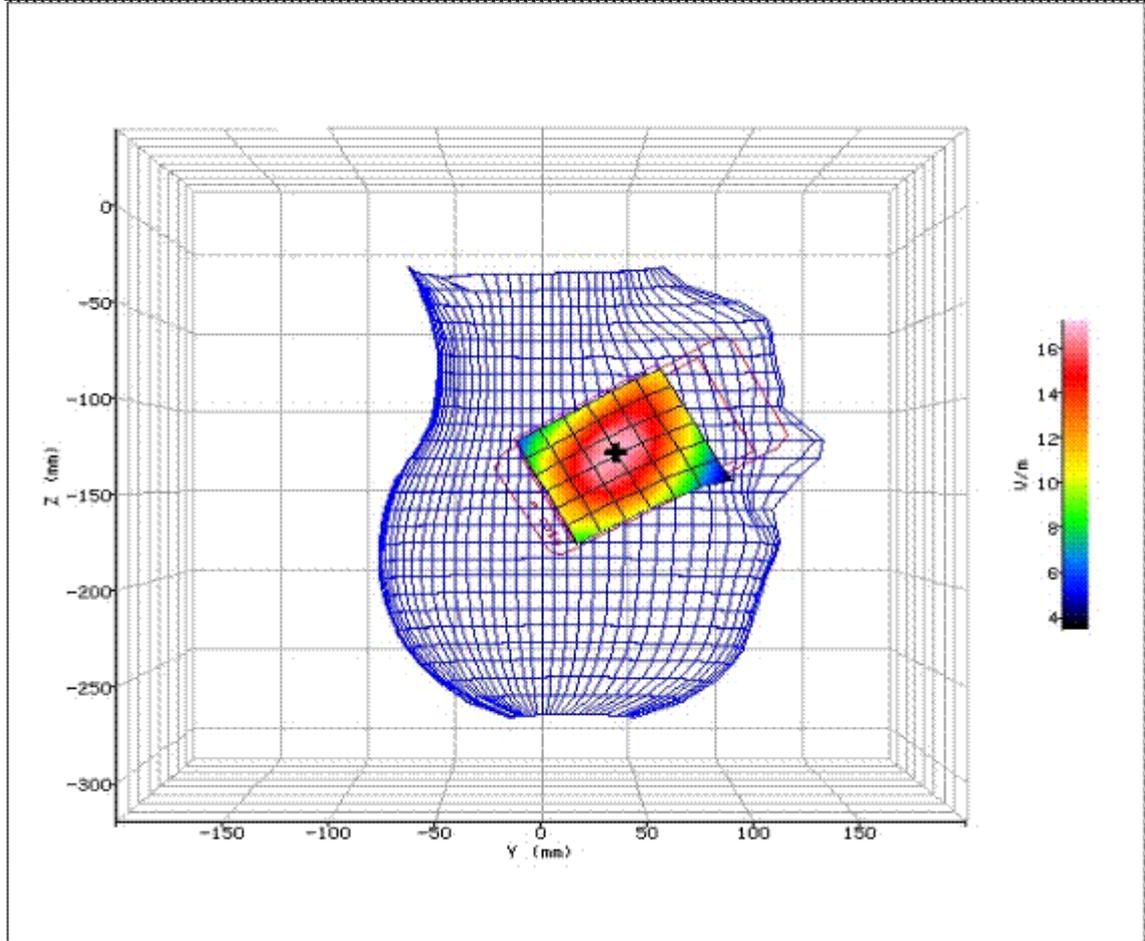


Figure 24: SAR Head Testing Results for the SHL23 Mobile Handset at 826.6MHz.

2.6 WCDMA FDDV BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	02/10/2013-13:11:45	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.10°C	LIQUID SIMULANT:	850Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	56.99
RELATIVE HUMIDITY:	66.40%	CONDUCTIVITY:	1.015
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.60°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	33.70mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-1.10mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	20.811
TEST FREQUENCY:	826.6MHz	SAR 1g:	0.435 W/kg
TYPE OF MODULATION:	QPSK (RMC Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.460 W/kg
INPUT POWER LEVEL:	23.6dBm	SAR END:	0.457 W/kg
PROBE BATTERY LAST CHANGED:	02/10/2013	SAR DRIFT DURING SCAN:	-0.700 %

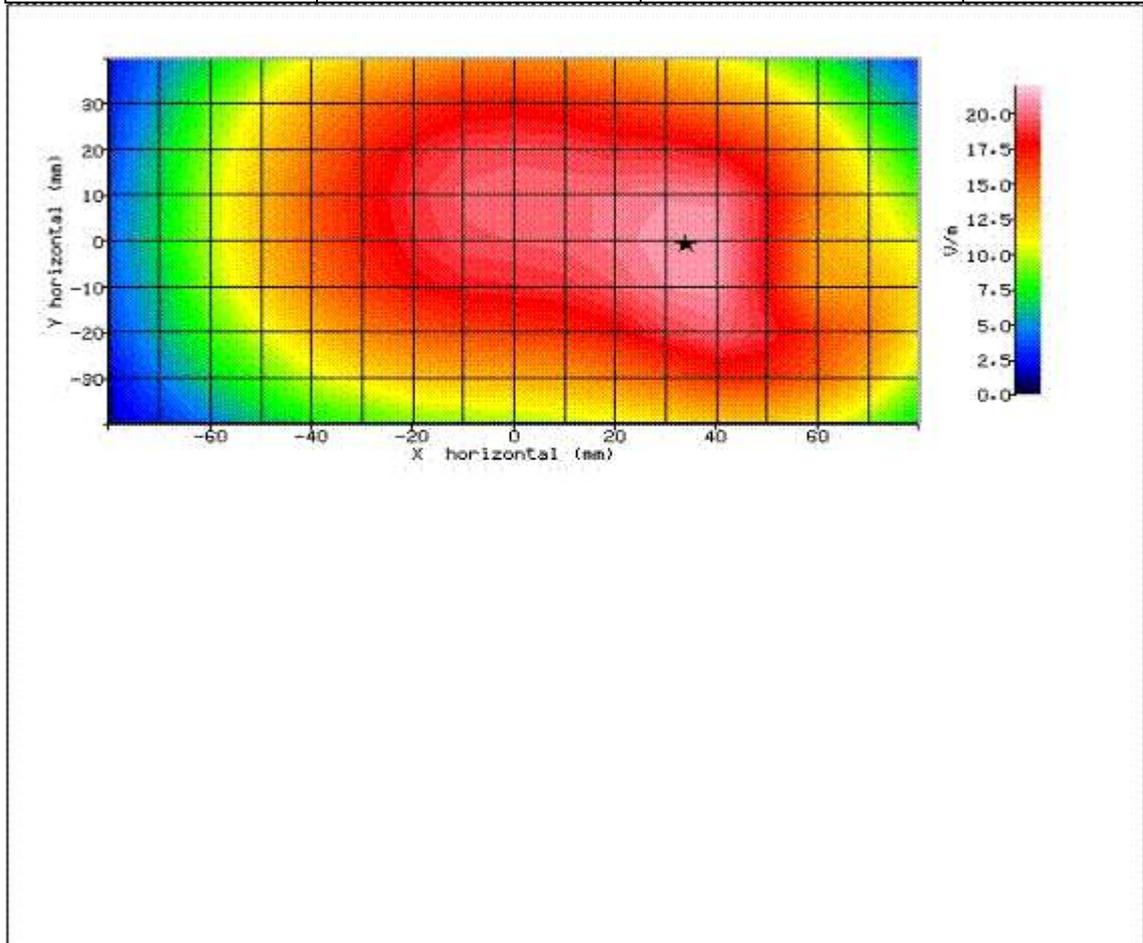


Figure 25: SAR Body Testing Results for the SHL23 Mobile Handset at 826.6MHz.



Product Service

<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	02/10/2013-13:34:30	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.10°C	<b>LIQUID SIMULANT:</b>	850Body
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	56.99
<b>RELATIVE HUMIDITY:</b>	66.40%	<b>CONDUCTIVITY:</b>	1.015
<b>PHANTOM S/NO:</b>	IXB-2HF	<b>LIQUID TEMPERATURE:</b>	22.60°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR X-AXIS LOCATION:</b>	30.60mm
<b>DUT POSITION:</b>	10mm-Rear Facing	<b>MAX SAR Y-AXIS LOCATION:</b>	15.60mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	23.088
<b>TEST FREQUENCY:</b>	826.6MHz	<b>SAR 1g:</b>	0.537 W/kg
<b>TYPE OF MODULATION:</b>	QPSK (RMC Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.573 W/kg
<b>INPUT POWER LEVEL:</b>	23.6dBm	<b>SAR END:</b>	0.577 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	02/10/2013	<b>SAR DRIFT DURING SCAN:</b>	0.600 %

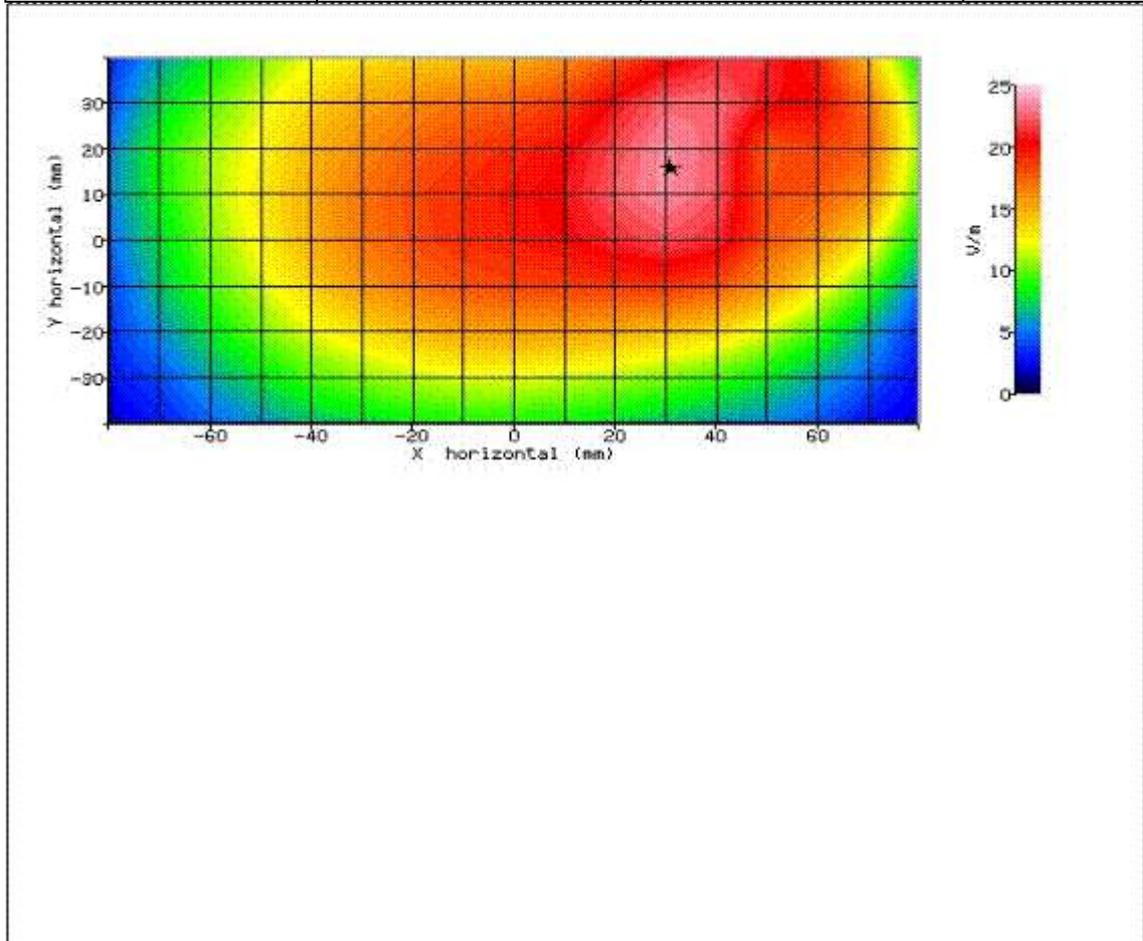


Figure 26: SAR Body Testing Results for the SHL23 Mobile Handset at 826.6MHz.

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	02/10/2013-13:49:34	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.10°C	LIQUID SIMULANT:	850Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	56.99
RELATIVE HUMIDITY:	66.40%	CONDUCTIVITY:	1.015
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.60°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-17.30mm
DUT POSITION:	10mm-Right Edge	MAX SAR Y-AXIS LOCATION:	8.50mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	15.058
TEST FREQUENCY:	826.6MHz	SAR 1g:	0.233 W/kg
TYPE OF MODULATION:	QPSK (RMC Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.249 W/kg
INPUT POWER LEVEL:	23.6dBm	SAR END:	0.250 W/kg
PROBE BATTERY LAST CHANGED:	02/10/2013	SAR DRIFT DURING SCAN:	0.200 %

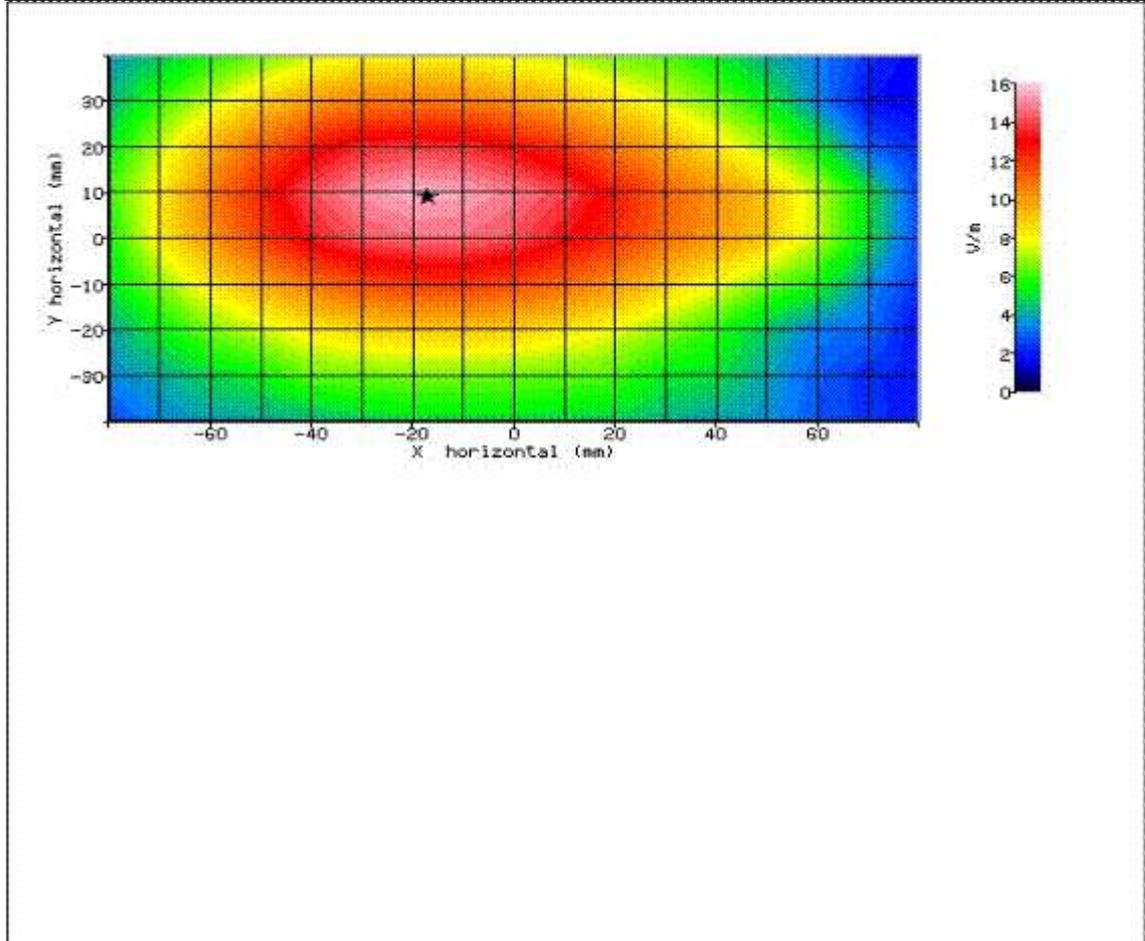


Figure 27: SAR Body Testing Results for the SHL23 Mobile Handset at 826.6MHz.



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	02/10/2013-14:03:36	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.10°C	LIQUID SIMULANT:	850Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	56.99
RELATIVE HUMIDITY:	66.40%	CONDUCTIVITY:	1.015
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.60°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	8.60mm
DUT POSITION:	10mm-Left Edge	MAX SAR Y-AXIS LOCATION:	9.10mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	18.672
TEST FREQUENCY:	826.6MHz	SAR 1g:	0.357 W/kg
TYPE OF MODULATION:	QPSK (RMC Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.383 W/kg
INPUT POWER LEVEL:	23.6dBm	SAR END:	0.380 W/kg
PROBE BATTERY LAST CHANGED:	02/10/2013	SAR DRIFT DURING SCAN:	-0.900 %

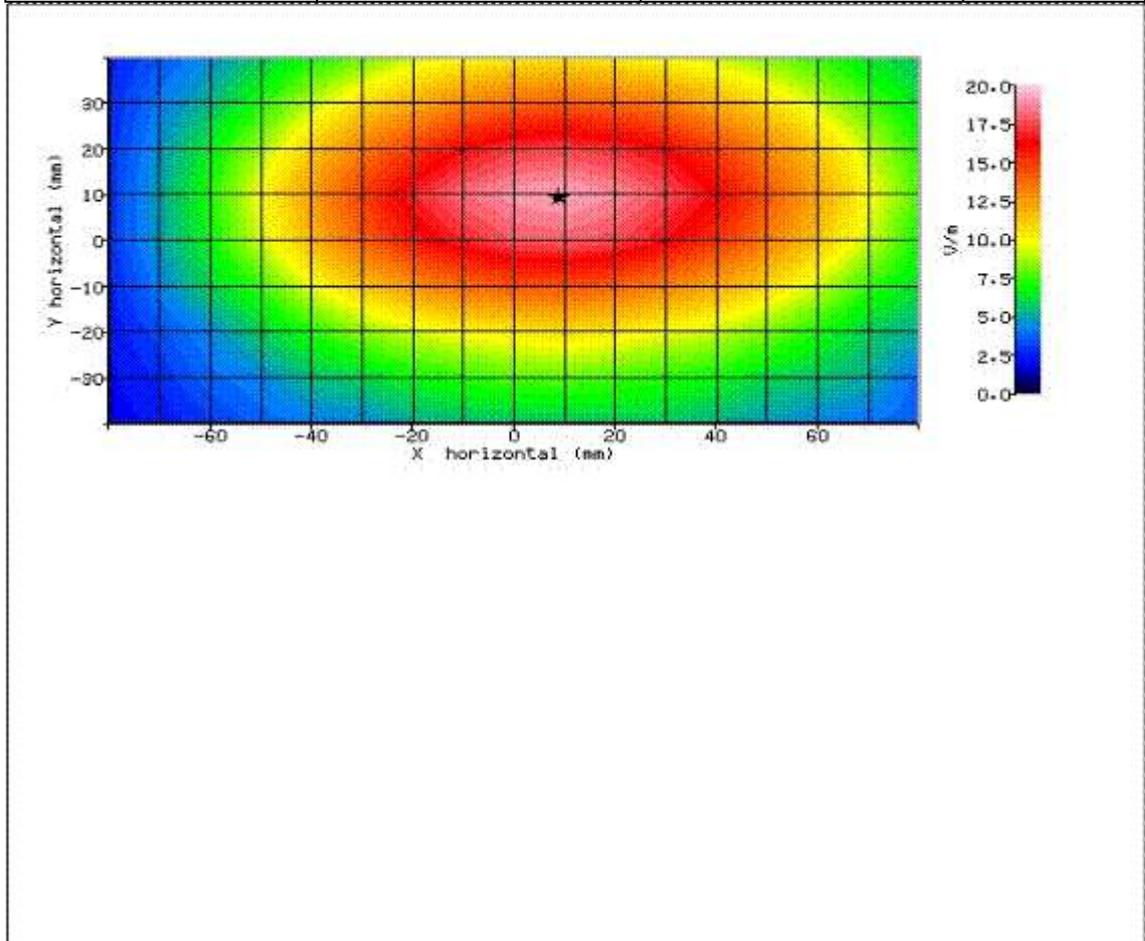


Figure 28: SAR Body Testing Results for the SHL23 Mobile Handset at 826.6MHz.



Product Service

<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	02/10/2013-14:19:13	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.10°C	<b>LIQUID SIMULANT:</b>	850Body
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	56.99
<b>RELATIVE HUMIDITY:</b>	66.40%	<b>CONDUCTIVITY:</b>	1.015
<b>PHANTOM S/NO:</b>	IXB-2HF	<b>LIQUID TEMPERATURE:</b>	22.60°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR X-AXIS LOCATION:</b>	12.40mm
<b>DUT POSITION:</b>	10mm-Bottom Edge	<b>MAX SAR Y-AXIS LOCATION:</b>	16.30mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	10.127
<b>TEST FREQUENCY:</b>	826.6MHz	<b>SAR 1g:</b>	0.129 W/kg
<b>TYPE OF MODULATION:</b>	QPSK (RMC Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.146 W/kg
<b>INPUT POWER LEVEL:</b>	23.6dBm	<b>SAR END:</b>	0.147 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	02/10/2013	<b>SAR DRIFT DURING SCAN:</b>	0.500 %

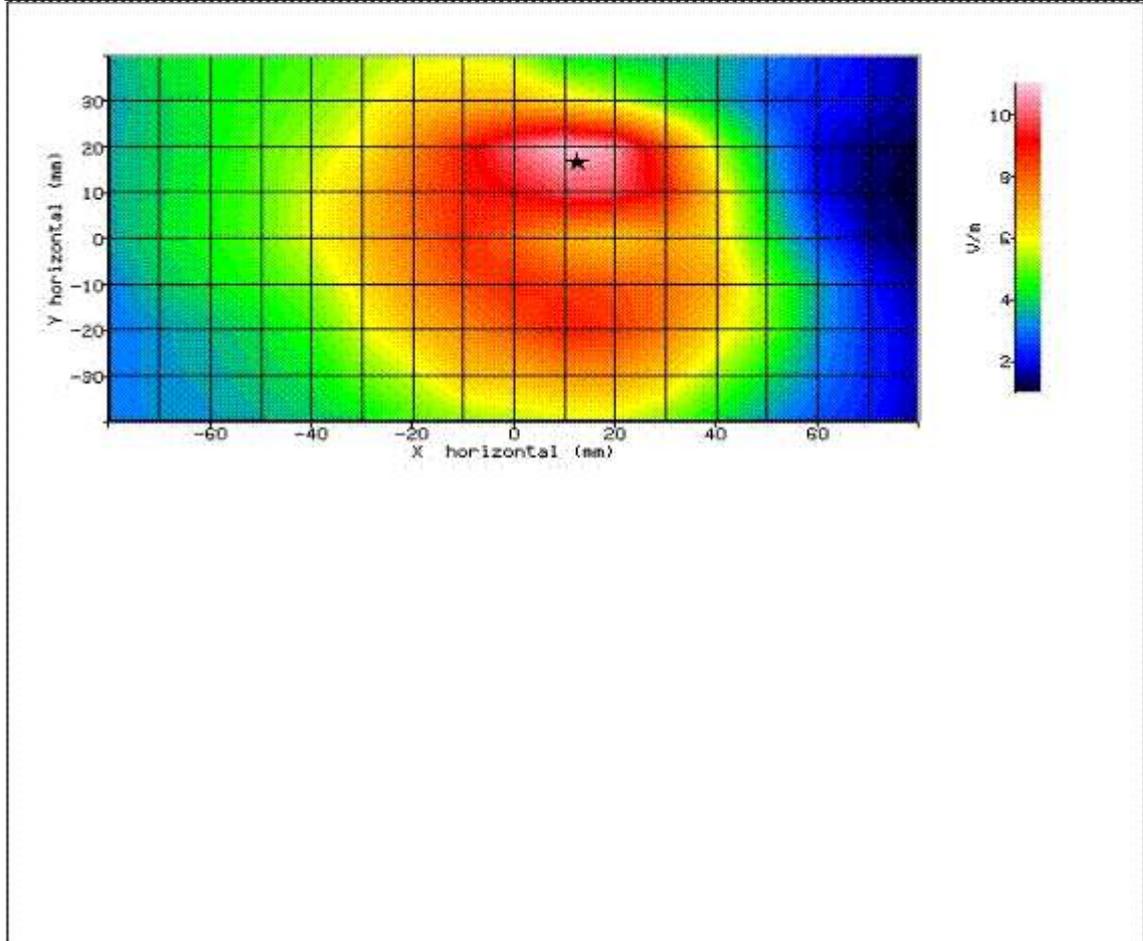


Figure 29: SAR Body Testing Results for the SHL23 Mobile Handset at 826.6MHz.

2.7 PCS 1900MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	03/10/2013-14:07:43	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	22.80°C	LIQUID SIMULANT:	1900Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	40.08
RELATIVE HUMIDITY:	68.60%	CONDUCTIVITY:	1.447
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	59.40mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-97.60mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	12.082
TEST FREQUENCY:	1909.8MHz	SAR 1g:	0.191 W/kg
TYPE OF MODULATION:	GMSK (Voice Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	12.5%	SAR START:	0.232 W/kg
INPUT POWER LEVEL:	30.5dBm	SAR END:	0.251 W/kg
PROBE BATTERY LAST CHANGED:	03/10/2013	SAR DRIFT DURING SCAN:	8.200 %

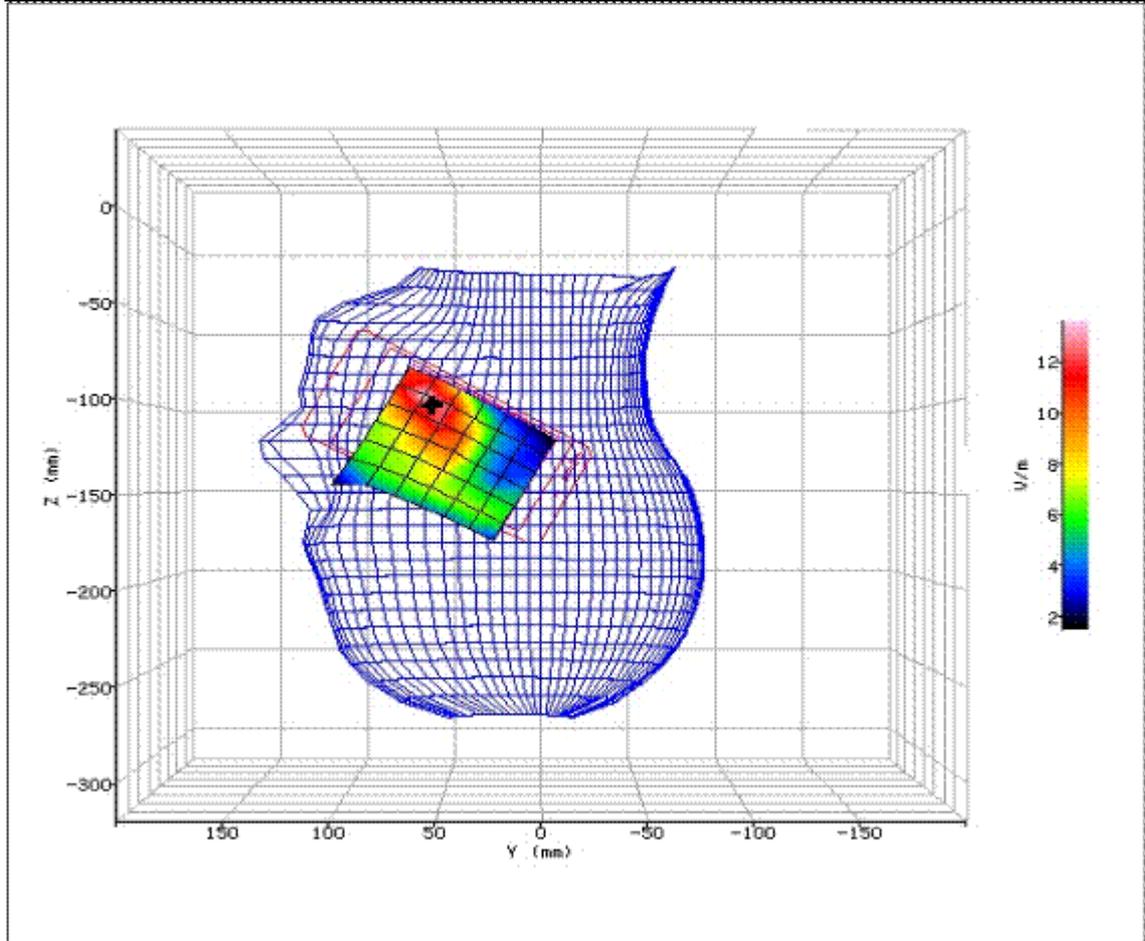


Figure 30: SAR Head Testing Results for the SHL23 Mobile Handset at 1909.8MHz.

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	03/10/2013-14:26:49	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	22.80°C	LIQUID SIMULANT:	1900Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	40.08
RELATIVE HUMIDITY:	68.60%	CONDUCTIVITY:	1.447
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	52.00mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-107.20mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	6.262
TEST FREQUENCY:	1909.8MHz	SAR 1g:	0.050 W/kg
TYPE OF MODULATION:	GMSK (Voice Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	12.5%	SAR START:	0.065 W/kg
INPUT POWER LEVEL:	30.5dBm	SAR END:	0.070 W/kg
PROBE BATTERY LAST CHANGED:	03/10/2013	SAR DRIFT DURING SCAN:	7.700 %

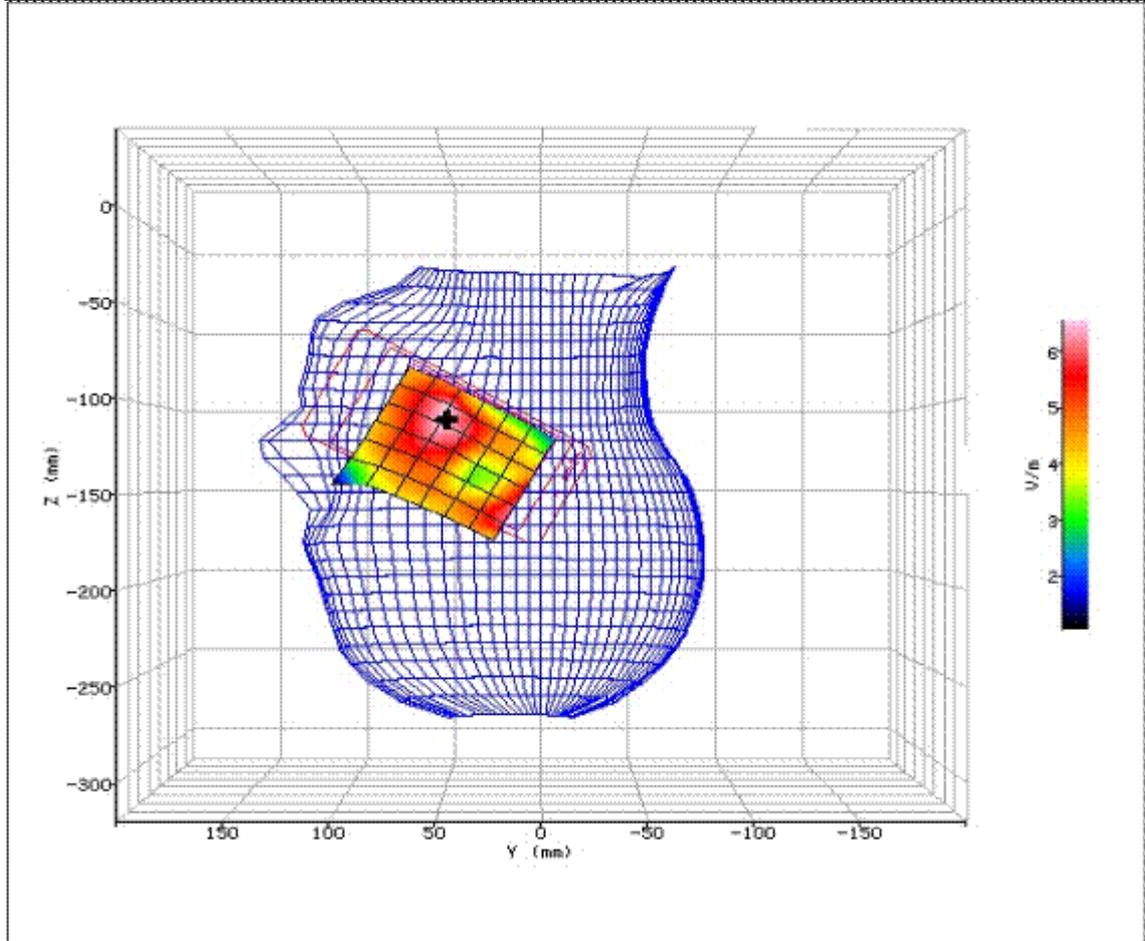


Figure 31: SAR Head Testing Results for the SHL23 Mobile Handset at 1909.8MHz.

<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	03/10/2013-14:52:18	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	22.80°C	<b>LIQUID SIMULANT:</b>	1900Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	40.08
<b>RELATIVE HUMIDITY:</b>	68.60%	<b>CONDUCTIVITY:</b>	1.447
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.80°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	61.30mm
<b>DUT POSITION:</b>	Right-Cheek	<b>MAX SAR Z-AXIS LOCATION:</b>	-139.70mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	9.463
<b>TEST FREQUENCY:</b>	1909.8MHz	<b>SAR 1g:</b>	0.139 W/kg
<b>TYPE OF MODULATION:</b>	GMSK (Voice Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	12.5%	<b>SAR START:</b>	0.142 W/kg
<b>INPUT POWER LEVEL:</b>	30.5dBm	<b>SAR END:</b>	0.135 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	03/10/2013	<b>SAR DRIFT DURING SCAN:</b>	-4.900 %

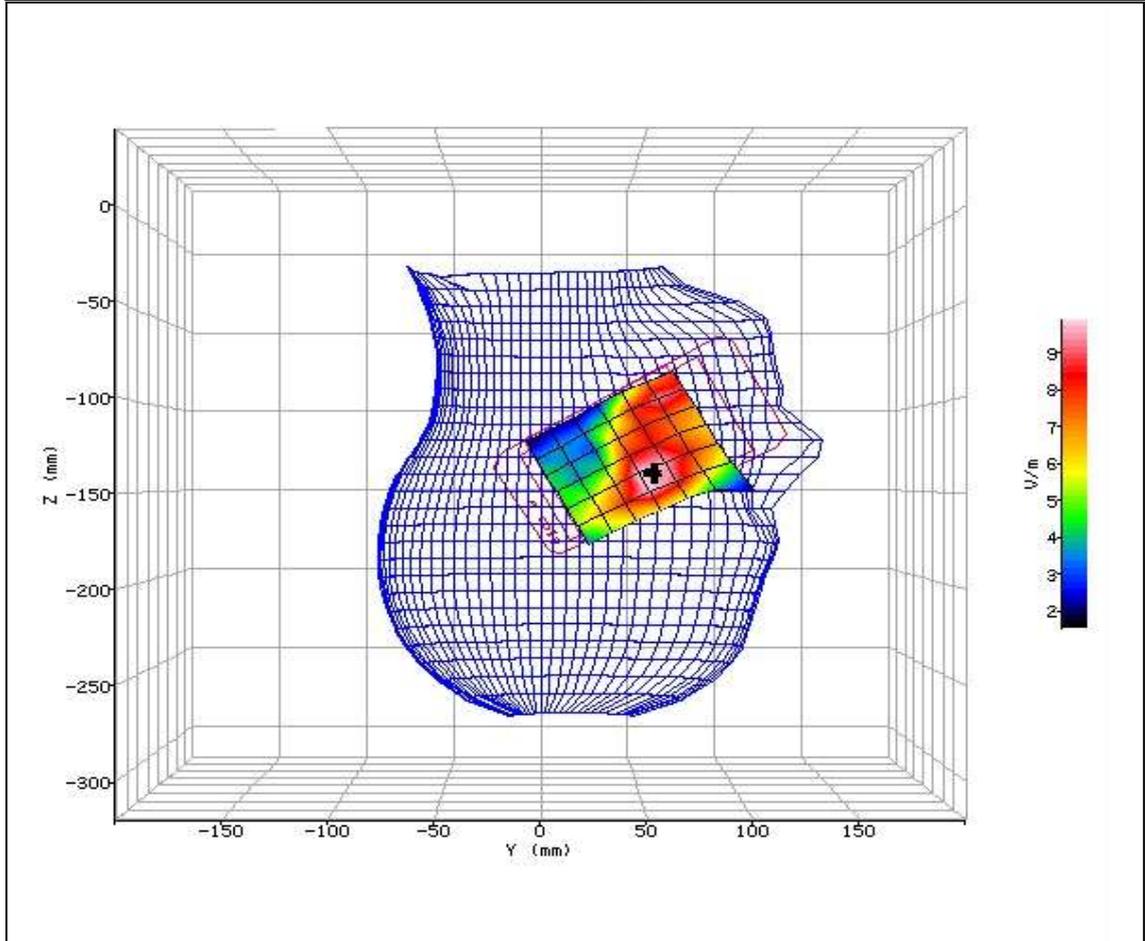


Figure 32: SAR Head Testing Results for the SHL23 Mobile Handset at 1909.8MHz.

<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	03/10/2013-15:13:42	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	22.80°C	<b>LIQUID SIMULANT:</b>	1900Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	40.08
<b>RELATIVE HUMIDITY:</b>	68.60%	<b>CONDUCTIVITY:</b>	1.447
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.80°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	31.30mm
<b>DUT POSITION:</b>	Right-15°	<b>MAX SAR Z-AXIS LOCATION:</b>	-162.80mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	5.761
<b>TEST FREQUENCY:</b>	1909.8MHz	<b>SAR 1g:</b>	0.044 W/kg
<b>TYPE OF MODULATION:</b>	GMSK (Voice Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	12.5%	<b>SAR START:</b>	0.047 W/kg
<b>INPUT POWER LEVEL:</b>	30.5dBm	<b>SAR END:</b>	0.048 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	03/10/2013	<b>SAR DRIFT DURING SCAN:</b>	2.100 %

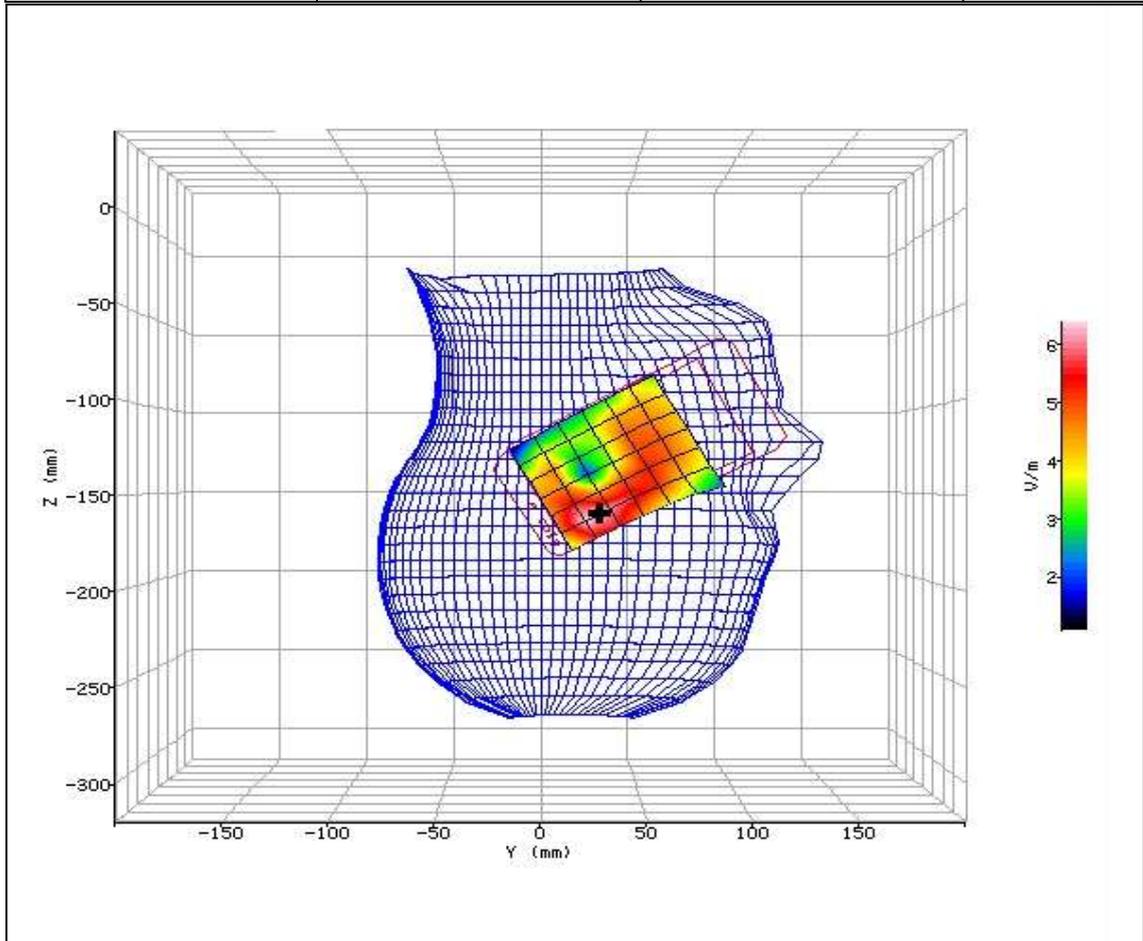


Figure 33: SAR Head Testing Results for the SHL23 Mobile Handset at 1909.8MHz.

2.8 PCS 1900MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	03/10/2013-17:39:28	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	22.80°C	LIQUID SIMULANT:	1900Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	40.08
RELATIVE HUMIDITY:	68.60%	CONDUCTIVITY:	1.447
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	58.70mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-97.20mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	12.679
TEST FREQUENCY:	1880MHz	SAR 1g:	0.212 W/kg
TYPE OF MODULATION:	GMSK (GPRS Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	25%	SAR START:	0.270 W/kg
INPUT POWER LEVEL:	25.3dBm	SAR END:	0.292 W/kg
PROBE BATTERY LAST CHANGED:	03/10/2013	SAR DRIFT DURING SCAN:	8.100 %

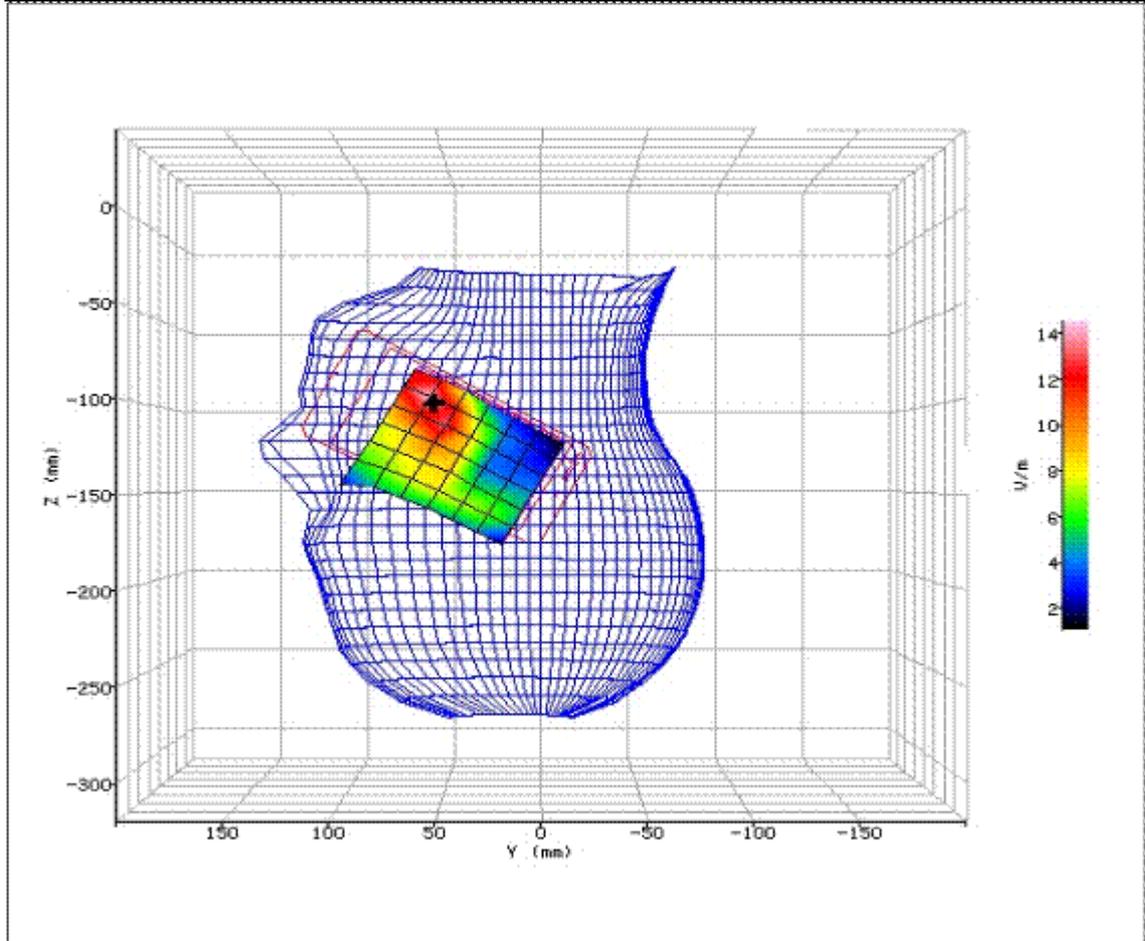


Figure 34: SAR Head Testing Results for the SHL23 Mobile Handset at 1880MHz.



<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	03/10/2013-17:58:34	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	22.80°C	<b>LIQUID SIMULANT:</b>	1900Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	40.08
<b>RELATIVE HUMIDITY:</b>	68.60%	<b>CONDUCTIVITY:</b>	1.447
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.80°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	53.40mm
<b>DUT POSITION:</b>	Left-15°	<b>MAX SAR Z-AXIS LOCATION:</b>	-106.50mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	6.034
<b>TEST FREQUENCY:</b>	1880MHz	<b>SAR 1g:</b>	0.048 W/kg
<b>TYPE OF MODULATION:</b>	GMSK (GPRS Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	25%	<b>SAR START:</b>	0.053 W/kg
<b>INPUT POWER LEVEL:</b>	25.3dBm	<b>SAR END:</b>	0.051 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	03/10/2013	<b>SAR DRIFT DURING SCAN:</b>	-3.800 %

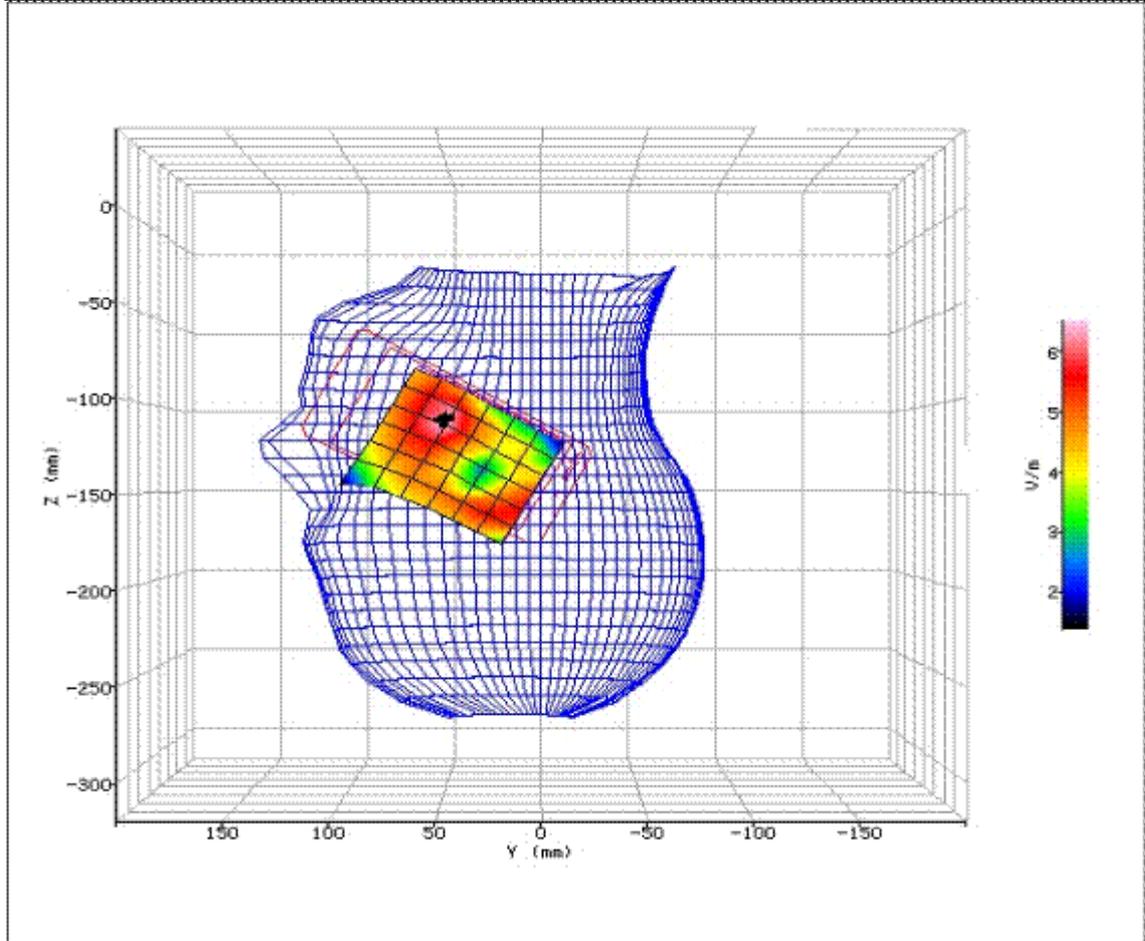


Figure 35: SAR Head Testing Results for the SHL23 Mobile Handset at 1880MHz.



<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	03/10/2013-16:18:14	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	22.80°C	<b>LIQUID SIMULANT:</b>	1900Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	40.08
<b>RELATIVE HUMIDITY:</b>	68.60%	<b>CONDUCTIVITY:</b>	1.447
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.80°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	61.10mm
<b>DUT POSITION:</b>	Right-Cheek	<b>MAX SAR Z-AXIS LOCATION:</b>	-138.10mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	10.084
<b>TEST FREQUENCY:</b>	1880MHz	<b>SAR 1g:</b>	0.157 W/kg
<b>TYPE OF MODULATION:</b>	GMSK (GPRS Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	25%	<b>SAR START:</b>	0.156 W/kg
<b>INPUT POWER LEVEL:</b>	25.3dBm	<b>SAR END:</b>	0.152 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	03/10/2013	<b>SAR DRIFT DURING SCAN:</b>	-2.600 %

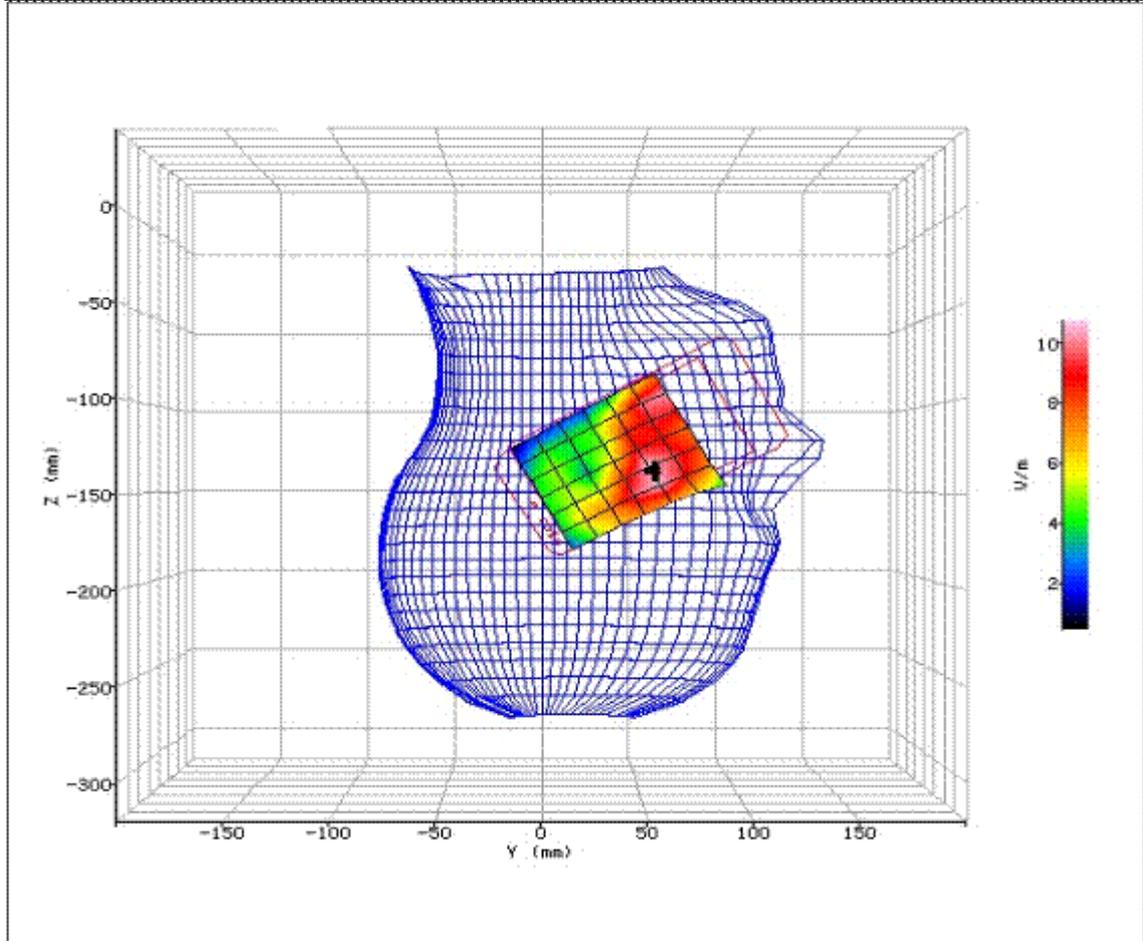


Figure 36: SAR Head Testing Results for the SHL23 Mobile Handset at 1880MHz.

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	03/10/2013-16:38:21	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	22.80°C	LIQUID SIMULANT:	1900Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	40.08
RELATIVE HUMIDITY:	68.60%	CONDUCTIVITY:	1.447
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	60.10mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-137.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	7.324
TEST FREQUENCY:	1880MHz	SAR 1g:	0.079 W/kg
TYPE OF MODULATION:	GMSK (GPRS Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	25%	SAR START:	0.081 W/kg
INPUT POWER LEVEL:	25.3dBm	SAR END:	0.078 W/kg
PROBE BATTERY LAST CHANGED:	03/10/2013	SAR DRIFT DURING SCAN:	-3.700 %

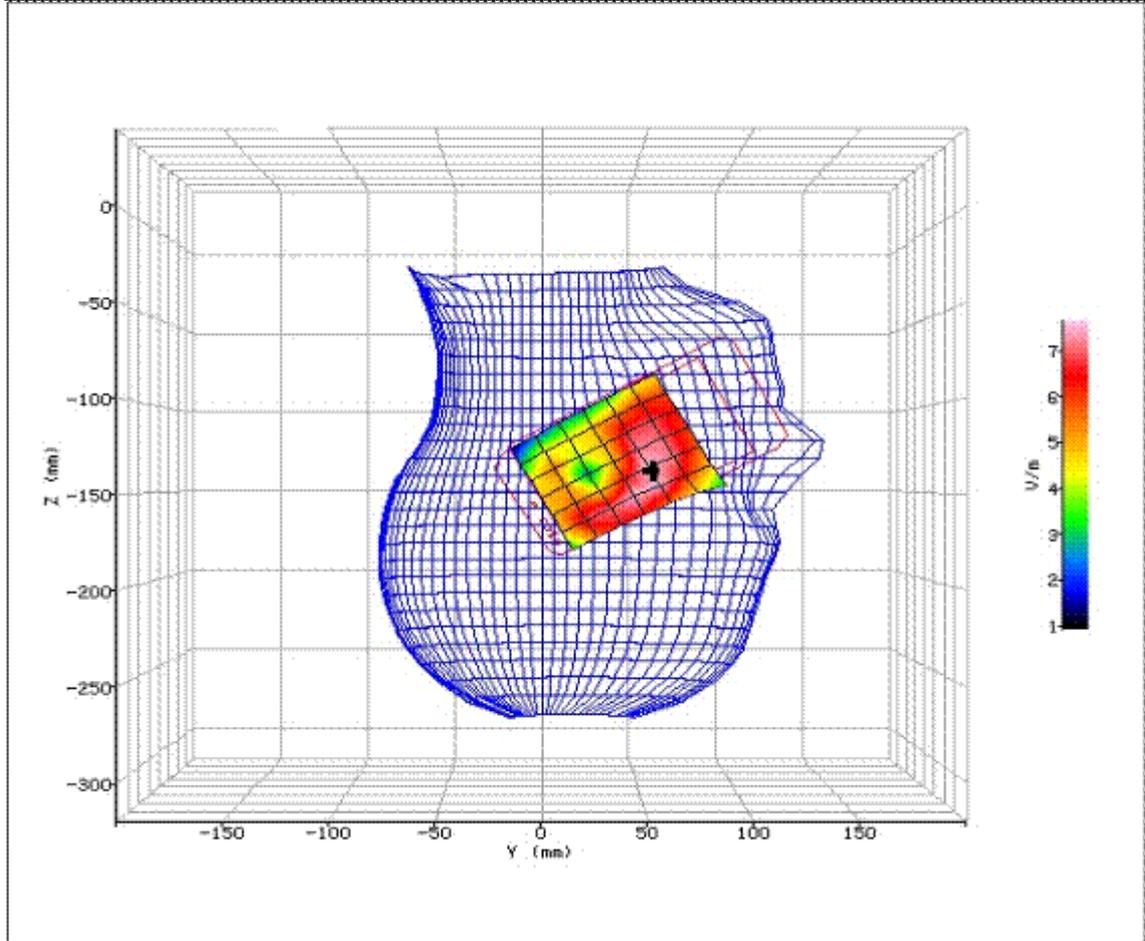


Figure 37: SAR Head Testing Results for the SHL23 Mobile Handset at 1880MHz.

2.9 PCS 1900MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	03/10/2013-09:53:21	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	22.50°C	LIQUID SIMULANT:	1900Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	53.64
RELATIVE HUMIDITY:	63.60%	CONDUCTIVITY:	1.497
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.40°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	70.30mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-23.40mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	11.559
TEST FREQUENCY:	1880MHz	SAR 1g:	0.230 W/kg
TYPE OF MODULATION:	GMSK (GPRS Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	25%	SAR START:	0.240 W/kg
INPUT POWER LEVEL:	25.3dBm	SAR END:	0.234 W/kg
PROBE BATTERY LAST CHANGED:	03/10/2013	SAR DRIFT DURING SCAN:	-2.200 %

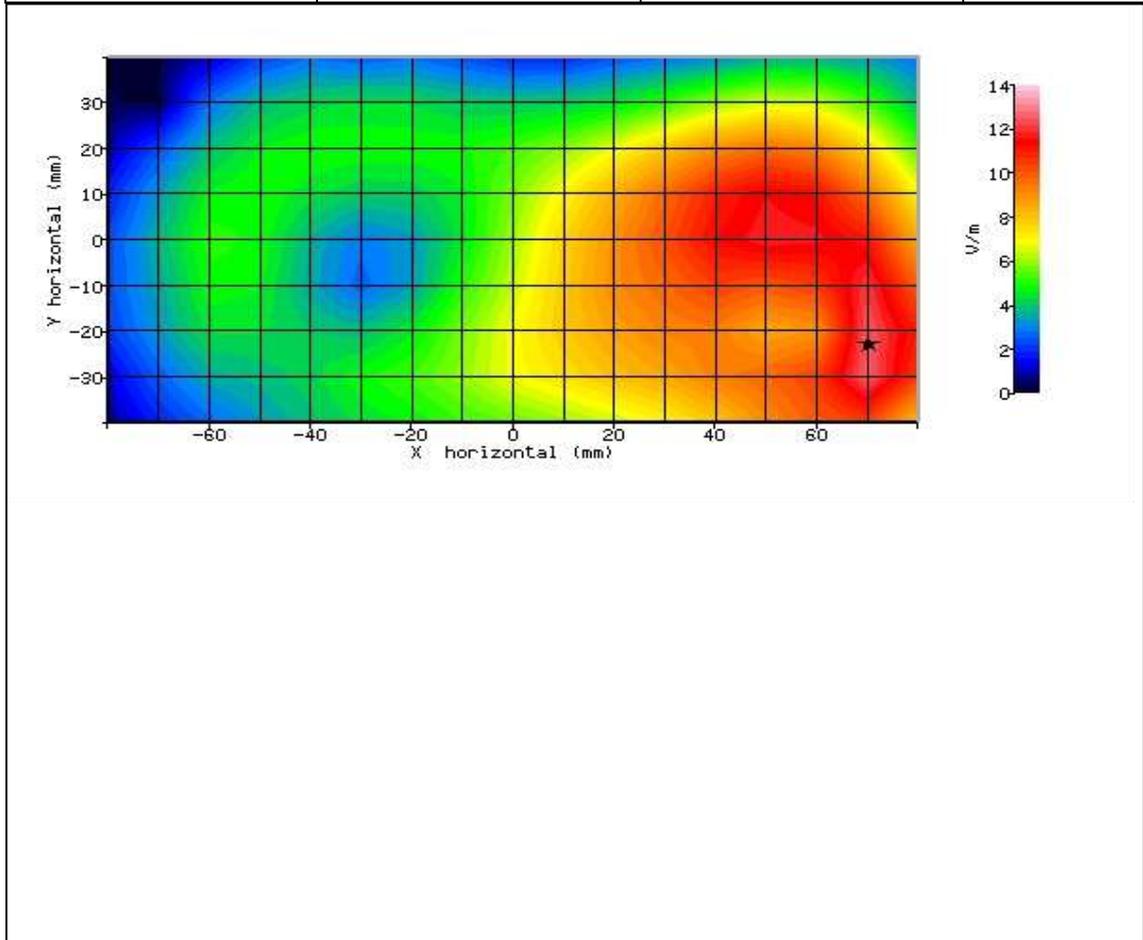


Figure 38: SAR Body Testing Results for the SHL23 Mobile Handset at 1880MHz.



<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	03/10/2013-10:19:30	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	22.50°C	<b>LIQUID SIMULANT:</b>	1900Body
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	53.64
<b>RELATIVE HUMIDITY:</b>	63.60%	<b>CONDUCTIVITY:</b>	1.497
<b>PHANTOM S/NO:</b>	IXB-2HF	<b>LIQUID TEMPERATURE:</b>	22.40°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR X-AXIS LOCATION:</b>	73.80mm
<b>DUT POSITION:</b>	10mm-Rear Facing	<b>MAX SAR Y-AXIS LOCATION:</b>	8.80mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	14.426
<b>TEST FREQUENCY:</b>	1880MHz	<b>SAR 1g:</b>	0.381 W/kg
<b>TYPE OF MODULATION:</b>	GMSK (GPRS Mode)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	25%	<b>SAR START:</b>	0.393 W/kg
<b>INPUT POWER LEVEL:</b>	25.3dBm	<b>SAR END:</b>	0.414 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	03/10/2013	<b>SAR DRIFT DURING SCAN:</b>	5.100 %

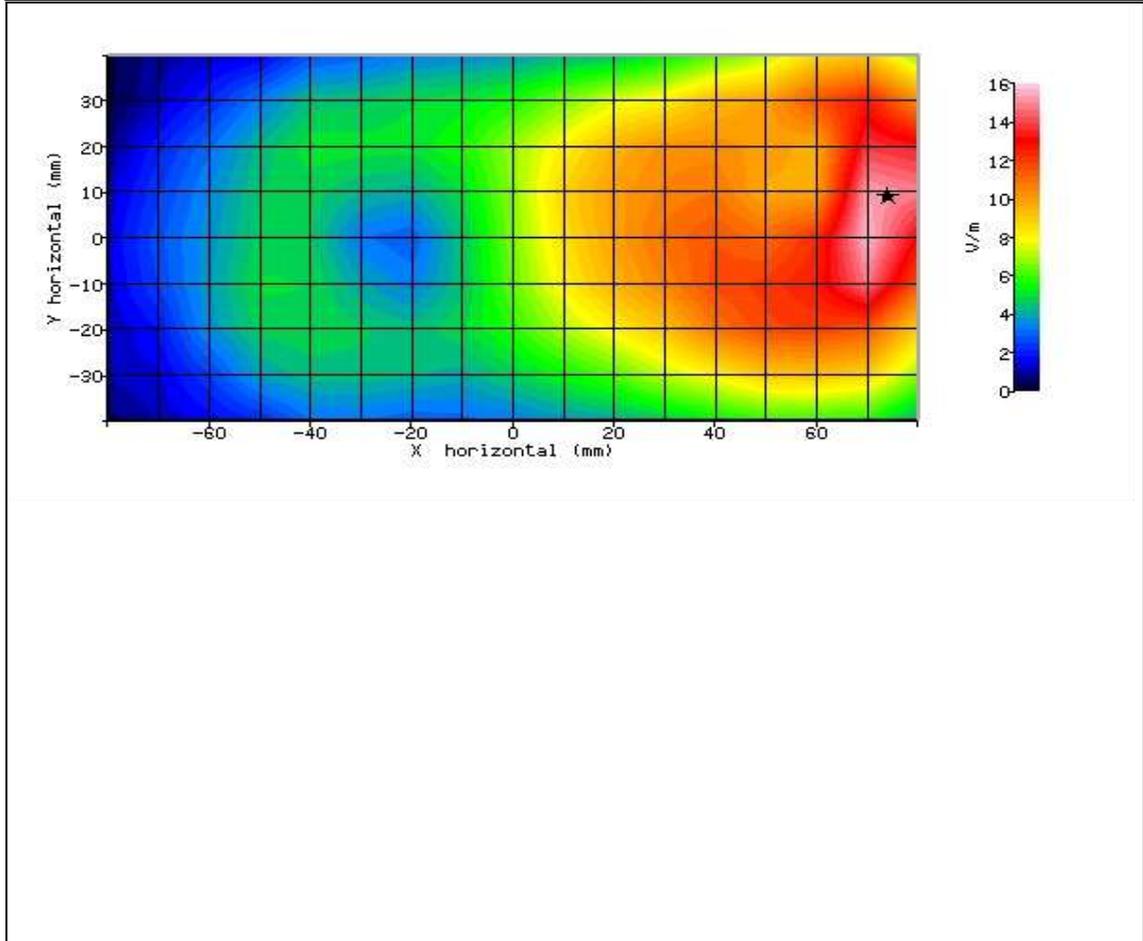


Figure 39: SAR Body Testing Results for the SHL23 Mobile Handset at 1880MHz.

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	03/10/2013-11:15:45	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	22.50°C	LIQUID SIMULANT:	1900Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	53.64
RELATIVE HUMIDITY:	63.60%	CONDUCTIVITY:	1.497
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.40°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	45.80mm
DUT POSITION:	10mm-Right Edge	MAX SAR Y-AXIS LOCATION:	-4.00mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	8.663
TEST FREQUENCY:	1880MHz	SAR 1g:	0.126 W/kg
TYPE OF MODULATION:	GMSK (GPRS Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	25%	SAR START:	0.130 W/kg
INPUT POWER LEVEL:	25.3dBm	SAR END:	0.134 W/kg
PROBE BATTERY LAST CHANGED:	03/10/2013	SAR DRIFT DURING SCAN:	3.700 %

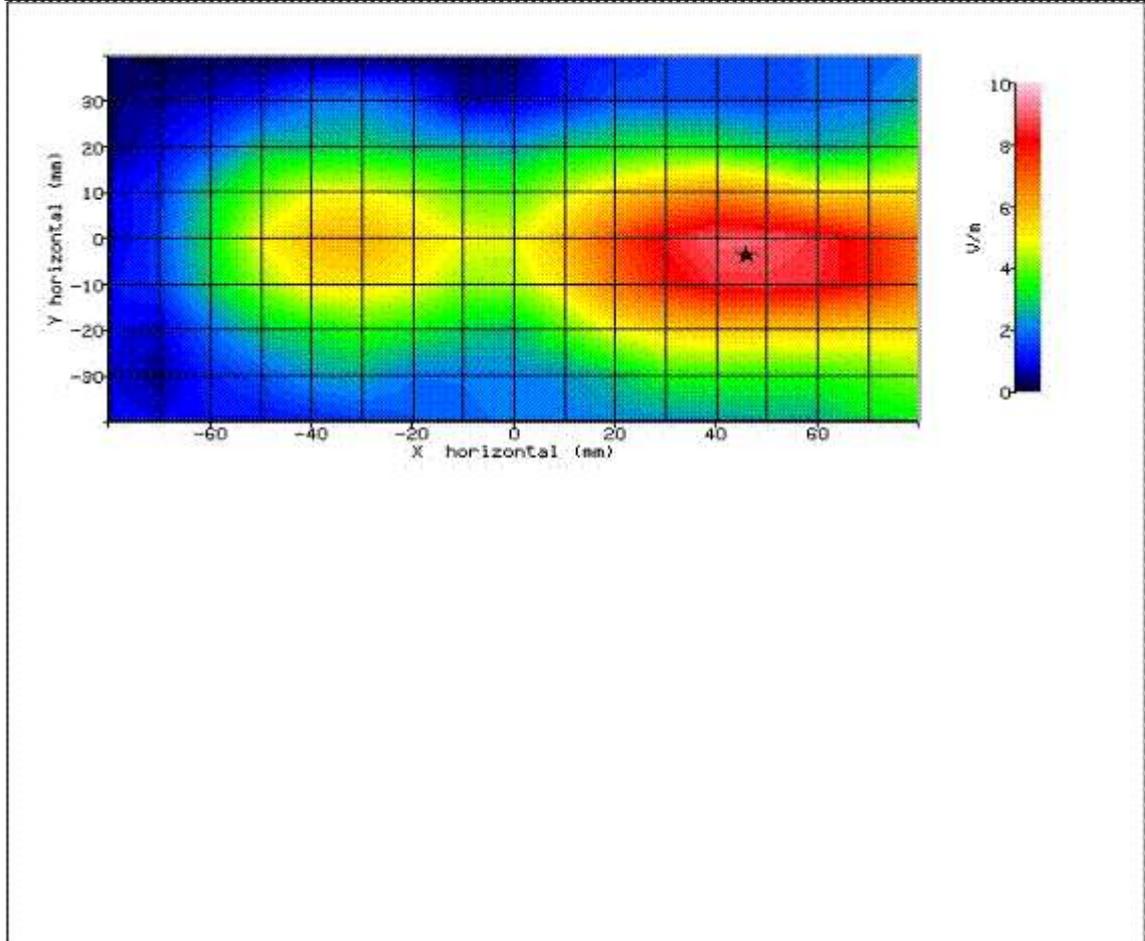


Figure 40: SAR Body Testing Results for the SHL23 Mobile Handset at 1880MHz.



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	03/10/2013-11:31:10	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	22.50°C	LIQUID SIMULANT:	1900Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	53.64
RELATIVE HUMIDITY:	63.60%	CONDUCTIVITY:	1.497
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.40°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	2.90mm
DUT POSITION:	10mm-Bottom Edge	MAX SAR Y-AXIS LOCATION:	2.00mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	14.936
TEST FREQUENCY:	1880MHz	SAR 1g:	0.368 W/kg
TYPE OF MODULATION:	GMSK (GPRS Mode)	SAR 10g:	N/A
MODN. DUTY CYCLE:	25%	SAR START:	0.389 W/kg
INPUT POWER LEVEL:	25.3dBm	SAR END:	0.387 W/kg
PROBE BATTERY LAST CHANGED:	03/10/2013	SAR DRIFT DURING SCAN:	-0.600 %

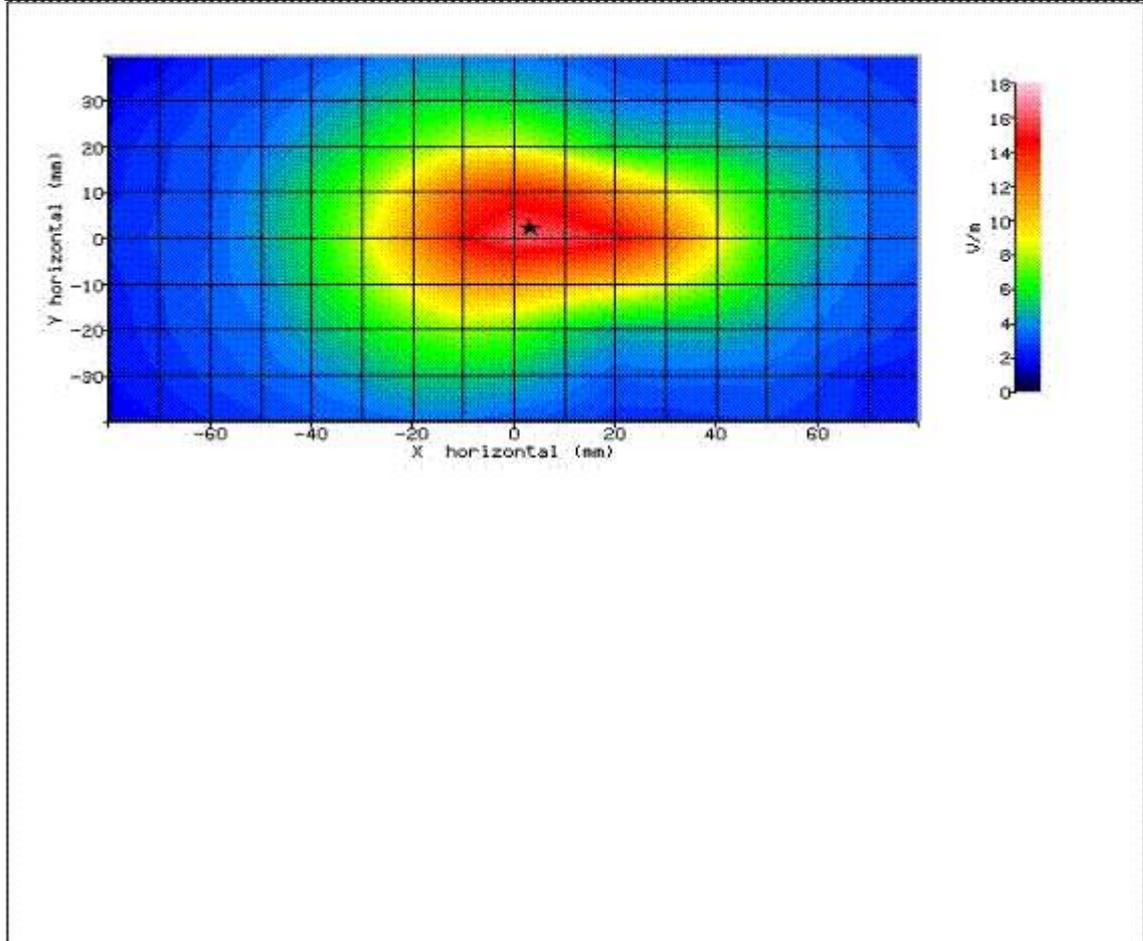


Figure 41: SAR Body Testing Results for the SHL23 Mobile Handset at 1880MHz.



2.10 WLAN 2450MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	04/10/2013-09:58:27	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.00°C	LIQUID SIMULANT:	2450Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	37.68
RELATIVE HUMIDITY:	63.70%	CONDUCTIVITY:	1.813
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.60°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	2.60mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-120.30mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	6.688
TEST FREQUENCY:	2437.0MHz	SAR 1g:	0.105 W/kg
TYPE OF MODULATION:	WLAN (DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.099 W/kg
INPUT POWER LEVEL:	17.5dBm	SAR END:	0.099 W/kg
PROBE BATTERY LAST CHANGED:	04/10/2013	SAR DRIFT DURING SCAN:	0.000 %

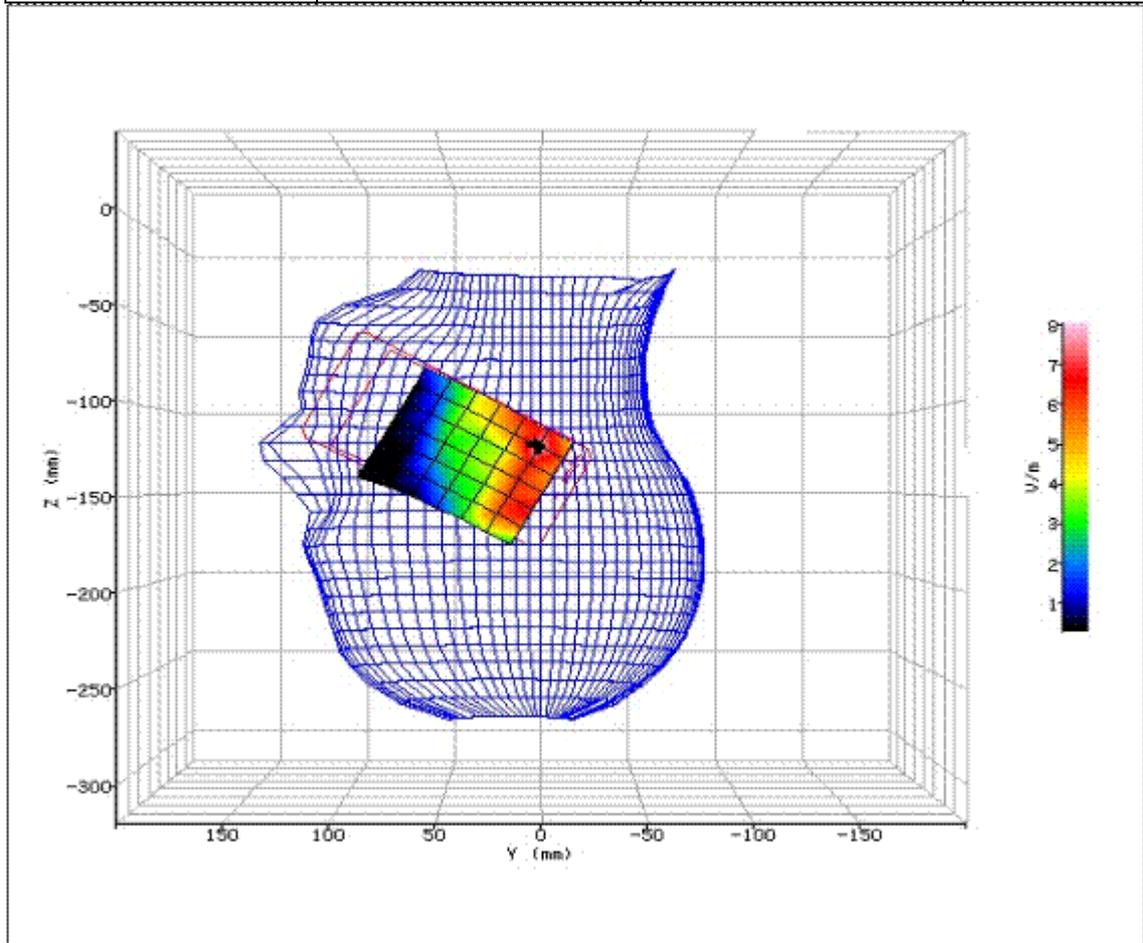


Figure 42: SAR Head Testing Results for the SHL23 Mobile Handset at 2437.0MHz.

<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	04/10/2013-10:18:57	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.00°C	<b>LIQUID SIMULANT:</b>	2450Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	37.68
<b>RELATIVE HUMIDITY:</b>	63.70%	<b>CONDUCTIVITY:</b>	1.813
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.60°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	13.40mm
<b>DUT POSITION:</b>	Left-15°	<b>MAX SAR Z-AXIS LOCATION:</b>	-159.00mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	5.765
<b>TEST FREQUENCY:</b>	2437.0MHz	<b>SAR 1g:</b>	0.084 W/kg
<b>TYPE OF MODULATION:</b>	WLAN (DSSS)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.076 W/kg
<b>INPUT POWER LEVEL:</b>	17.5dBm	<b>SAR END:</b>	0.082 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	04/10/2013	<b>SAR DRIFT DURING SCAN:</b>	7.900 %

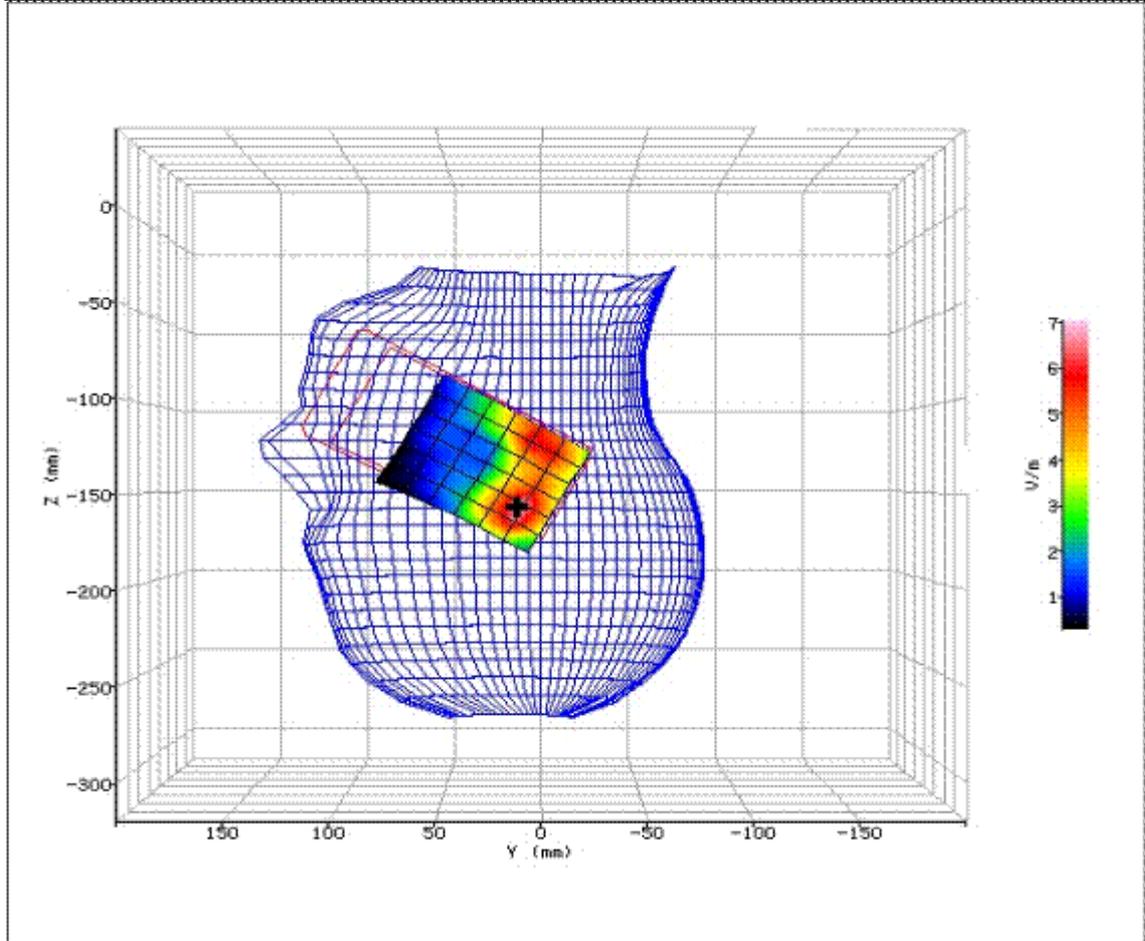


Figure 43: SAR Head Testing Results for the SHL23 Mobile Handset at 2437.0MHz.

<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	04/10/2013-10:43:23	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.00°C	<b>LIQUID SIMULANT:</b>	2450Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	37.68
<b>RELATIVE HUMIDITY:</b>	63.70%	<b>CONDUCTIVITY:</b>	1.813
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.60°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	32.90mm
<b>DUT POSITION:</b>	Right-Cheek	<b>MAX SAR Z-AXIS LOCATION:</b>	-173.10mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	12.488
<b>TEST FREQUENCY:</b>	2437.0MHz	<b>SAR 1g:</b>	0.299 W/kg
<b>TYPE OF MODULATION:</b>	WLAN (DSSS)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.370 W/kg
<b>INPUT POWER LEVEL:</b>	17.5dBm	<b>SAR END:</b>	0.361 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	04/10/2013	<b>SAR DRIFT DURING SCAN:</b>	-2.400 %

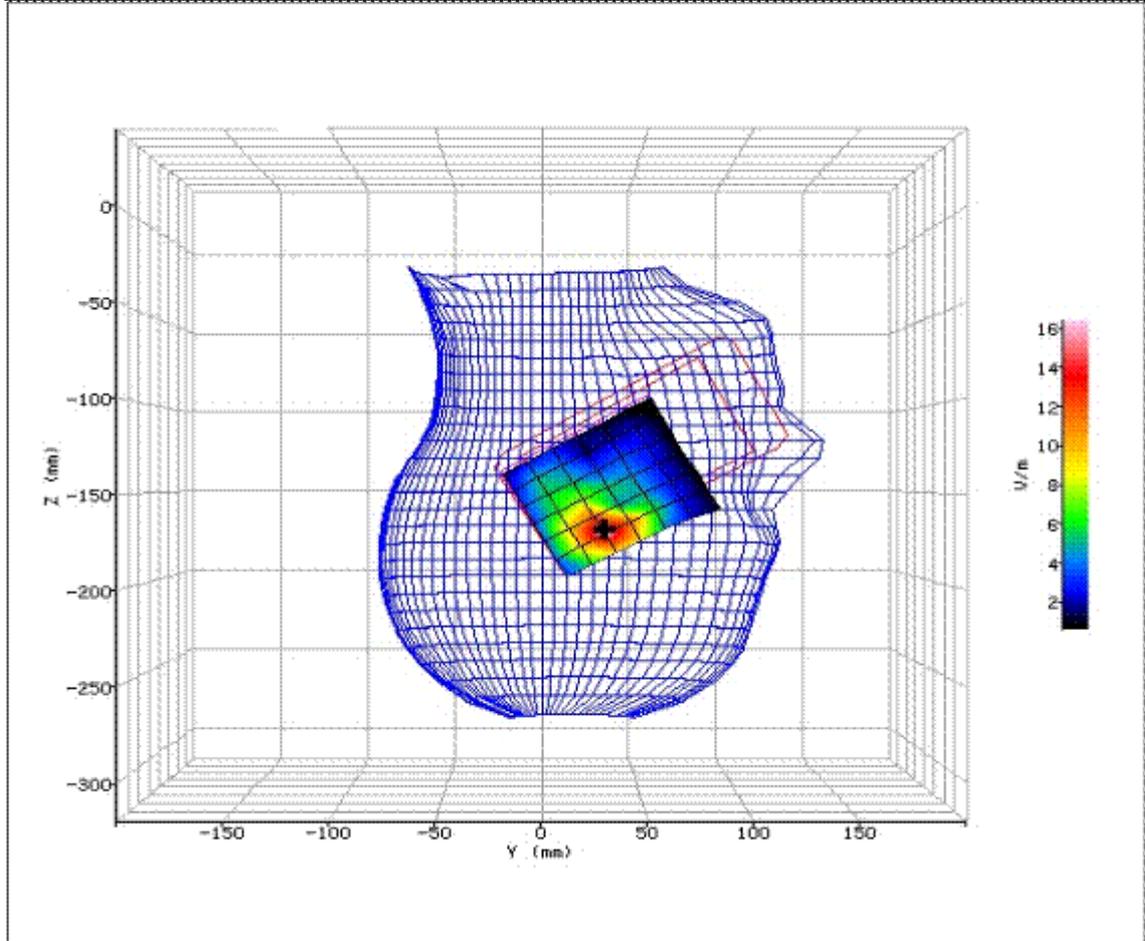


Figure 44: SAR Head Testing Results for the SHL23 Mobile Handset at 2437.0MHz.



<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	04/10/2013-11:01:56	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.00°C	<b>LIQUID SIMULANT:</b>	2450Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	37.68
<b>RELATIVE HUMIDITY:</b>	63.70%	<b>CONDUCTIVITY:</b>	1.813
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.60°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	28.90mm
<b>DUT POSITION:</b>	Right-15°	<b>MAX SAR Z-AXIS LOCATION:</b>	-175.30mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	8.315
<b>TEST FREQUENCY:</b>	2437.0MHz	<b>SAR 1g:</b>	0.139 W/kg
<b>TYPE OF MODULATION:</b>	WLAN (DSSS)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.152 W/kg
<b>INPUT POWER LEVEL:</b>	17.5dBm	<b>SAR END:</b>	0.150 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	04/10/2013	<b>SAR DRIFT DURING SCAN:</b>	-1.300 %

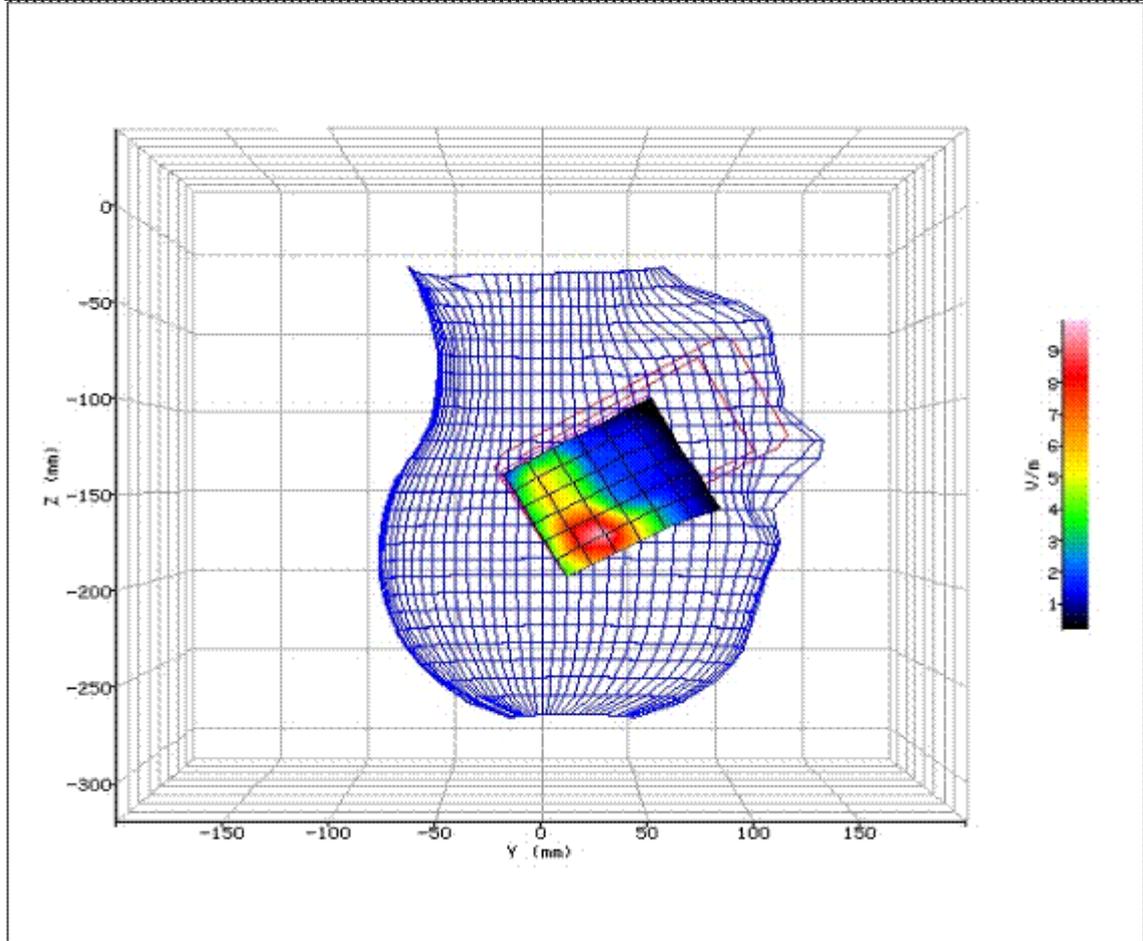


Figure 45: SAR Head Testing Results for the SHL23 Mobile Handset at 2437.0MHz.



2.11 WLAN 2450MHZ BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	04/10/2013-16:57:23	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	22.90°C	LIQUID SIMULANT:	2450Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	51.57
RELATIVE HUMIDITY:	60.00%	CONDUCTIVITY:	1.962
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.70°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-44.80mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-35.00mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	4.935
TEST FREQUENCY:	2437.0MHz	SAR 1g:	0.055 W/kg
TYPE OF MODULATION:	WLAN (DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.057 W/kg
INPUT POWER LEVEL:	17.5dBm	SAR END:	0.058 W/kg
PROBE BATTERY LAST CHANGED:	04/10/2013	SAR DRIFT DURING SCAN:	1.600 %

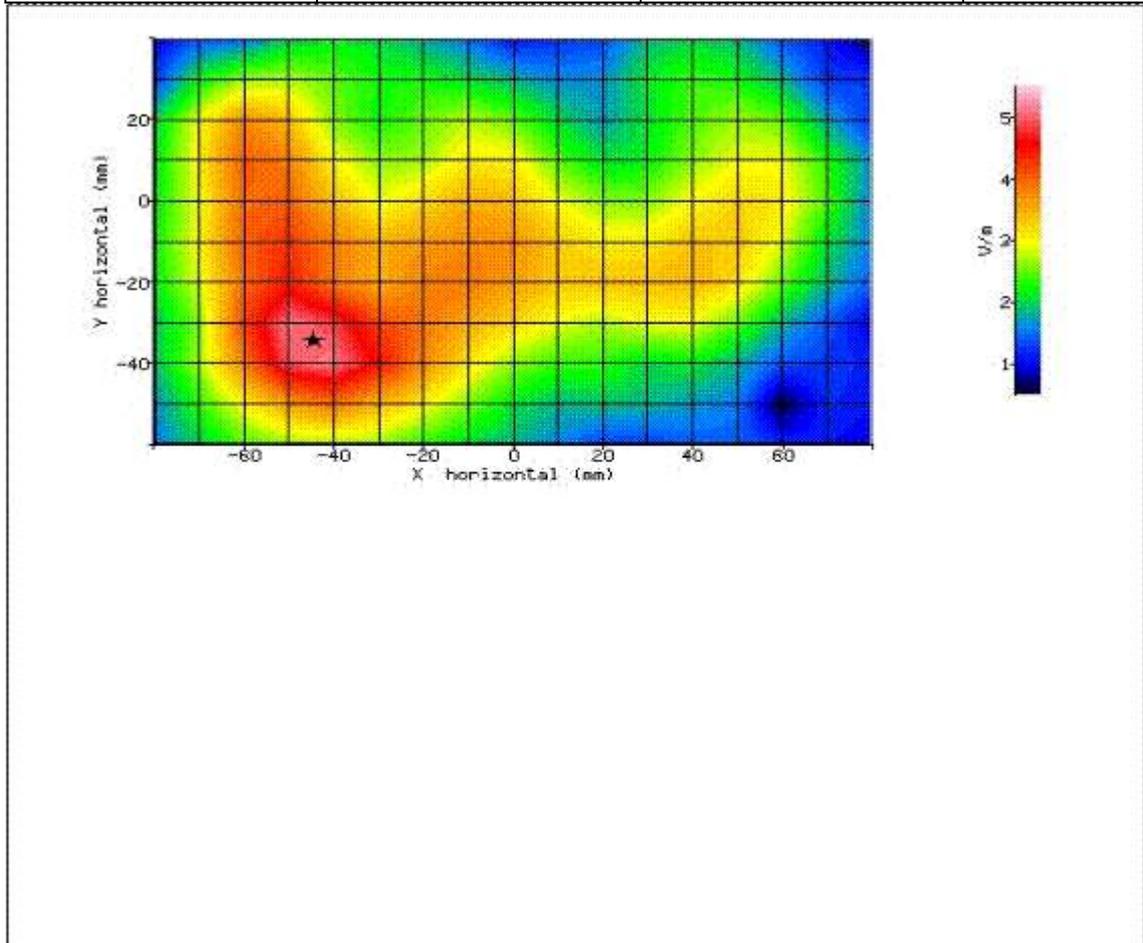


Figure 46: SAR Body Testing Results for the SHL23 Mobile Handset at 2437.0MHz.

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	04/10/2013-17:15:10	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	22.90°C	LIQUID SIMULANT:	2450Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	51.57
RELATIVE HUMIDITY:	60.00%	CONDUCTIVITY:	1.962
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.70°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-41.00mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	37.40mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	10.078
TEST FREQUENCY:	2437.0MHz	SAR 1g:	0.256 W/kg
TYPE OF MODULATION:	WLAN (DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.283 W/kg
INPUT POWER LEVEL:	17.5dBm	SAR END:	0.281 W/kg
PROBE BATTERY LAST CHANGED:	04/10/2013	SAR DRIFT DURING SCAN:	-0.600 %

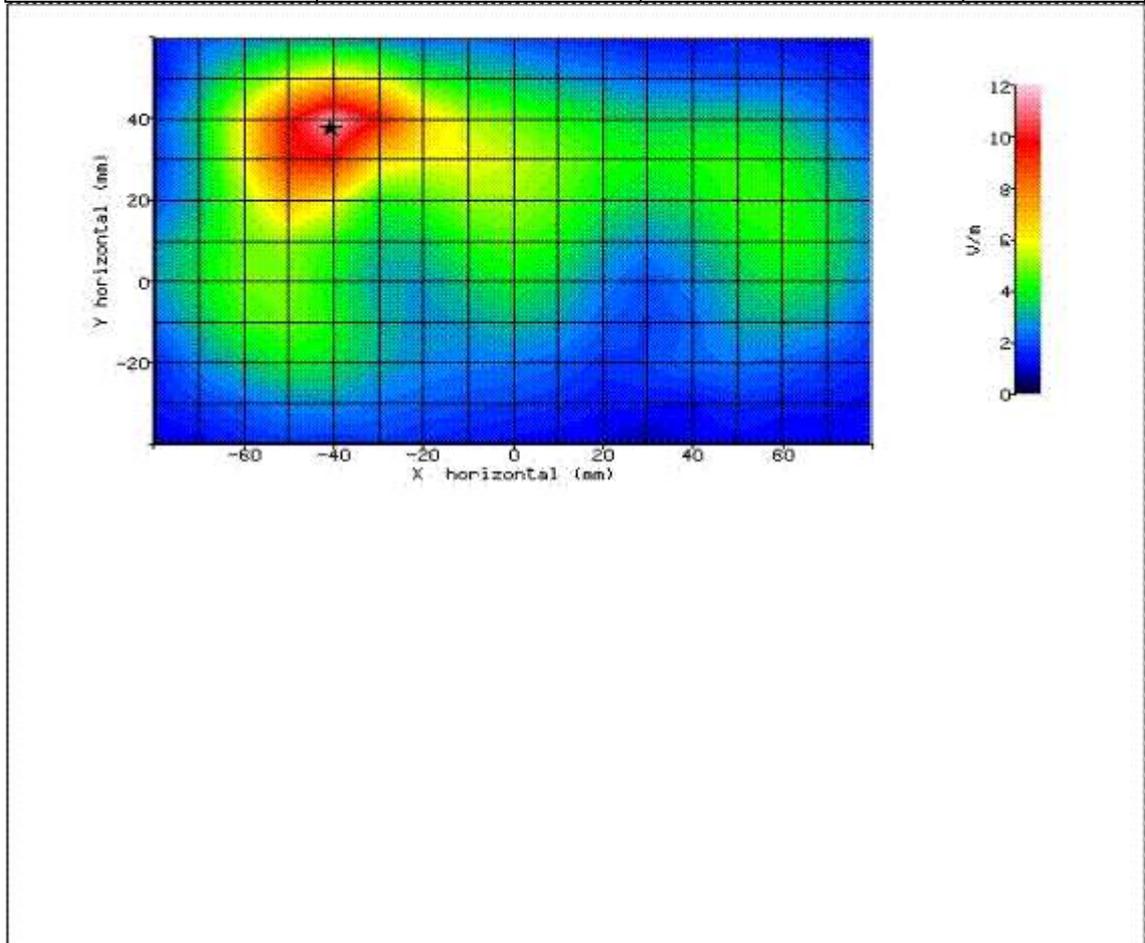


Figure 47: SAR Body Testing Results for the SHL23 Mobile Handset at 2437.0MHz.

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	04/10/2013-17:32:12	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	22.90°C	LIQUID SIMULANT:	2450Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	51.57
RELATIVE HUMIDITY:	60.00%	CONDUCTIVITY:	1.962
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.70°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-44.50mm
DUT POSITION:	10mm-Right Edge	MAX SAR Y-AXIS LOCATION:	0.30mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	8.475
TEST FREQUENCY:	2437.0MHz	SAR 1g:	0.171 W/kg
TYPE OF MODULATION:	WLAN (DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.183 W/kg
INPUT POWER LEVEL:	17.5dBm	SAR END:	0.186 W/kg
PROBE BATTERY LAST CHANGED:	04/10/2013	SAR DRIFT DURING SCAN:	1.200 %

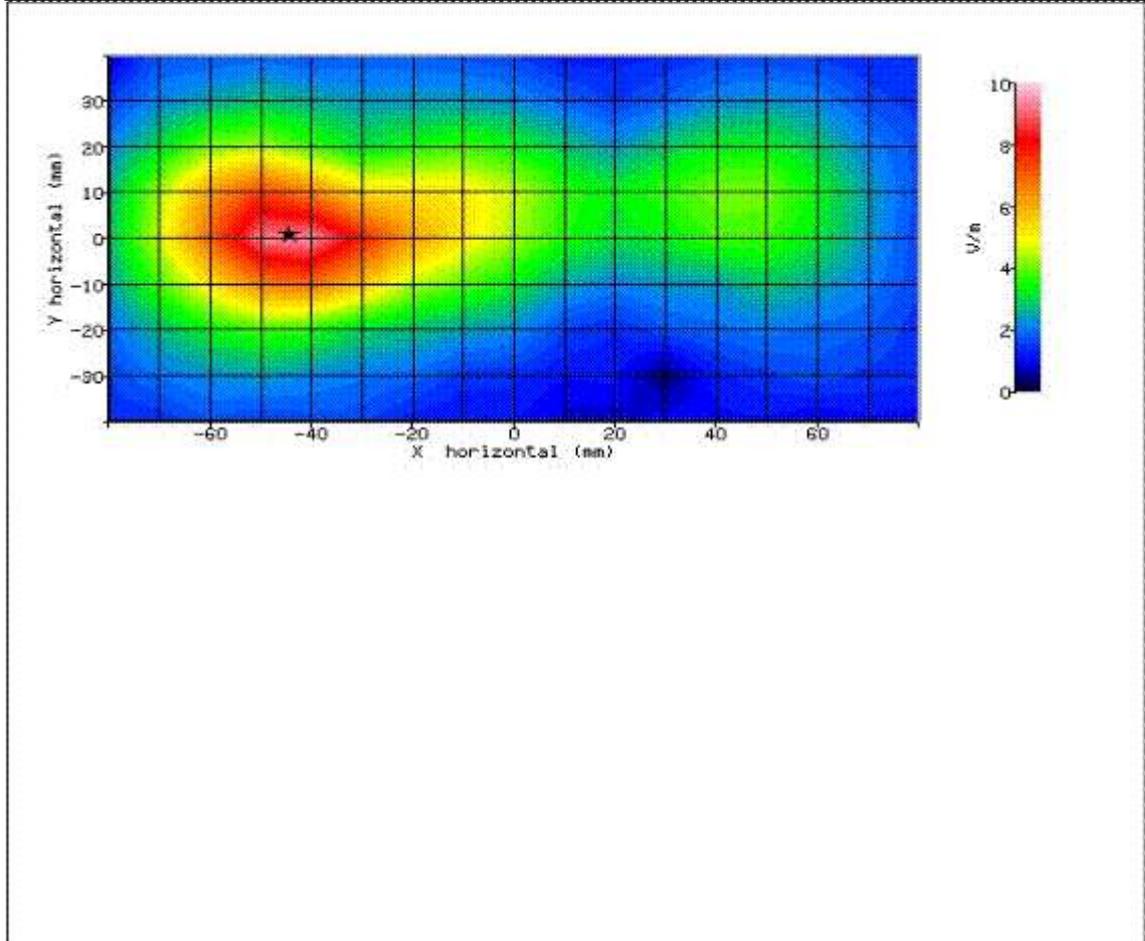


Figure 48: SAR Body Testing Results for the SHL23 Mobile Handset at 2437.0MHz.

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	04/10/2013-17:47:43	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	22.90°C	LIQUID SIMULANT:	2450Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	51.57
RELATIVE HUMIDITY:	60.00%	CONDUCTIVITY:	1.962
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.70°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	5.60mm
DUT POSITION:	10mm-Top Edge	MAX SAR Y-AXIS LOCATION:	6.60mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	3.838
TEST FREQUENCY:	2437.0MHz	SAR 1g:	0.033 W/kg
TYPE OF MODULATION:	WLAN (DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.035 W/kg
INPUT POWER LEVEL:	17.5dBm	SAR END:	0.034 W/kg
PROBE BATTERY LAST CHANGED:	04/10/2013	SAR DRIFT DURING SCAN:	-2.900 %

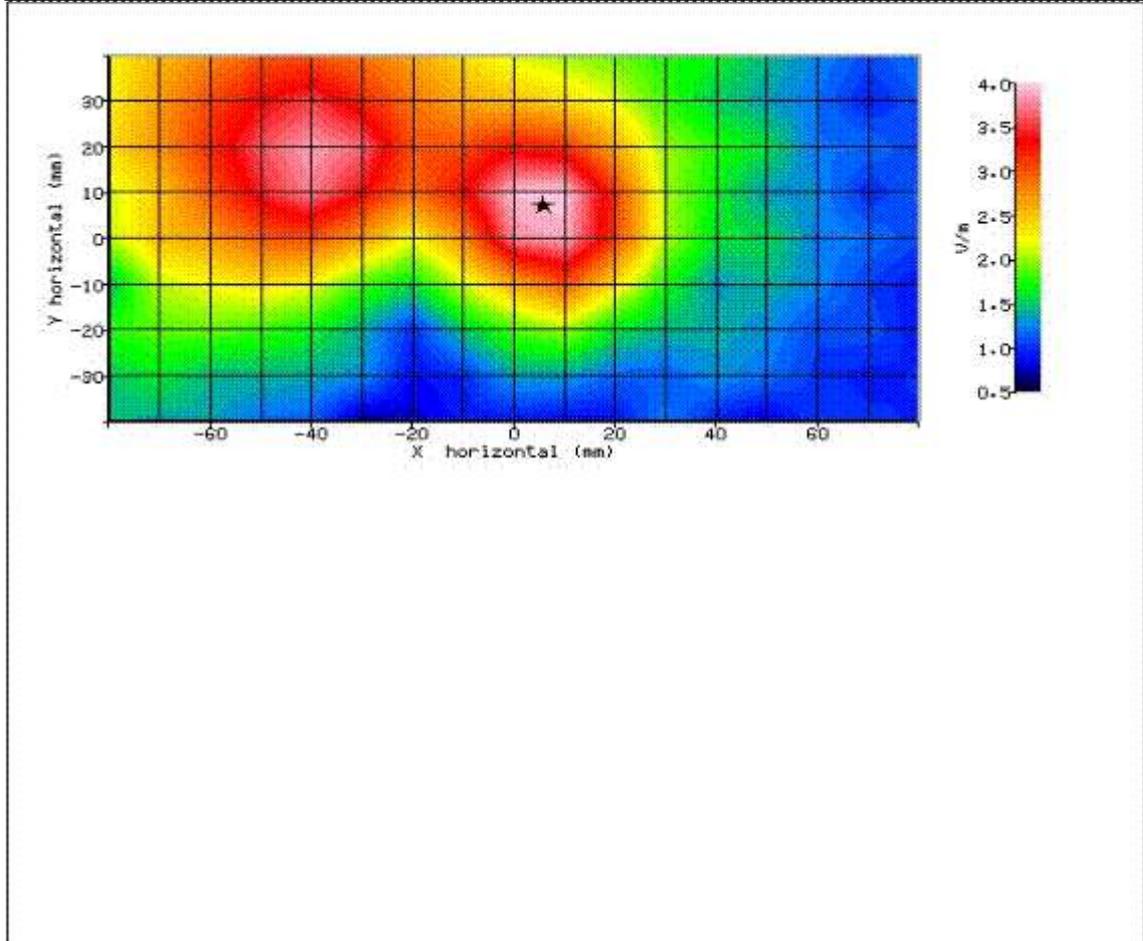


Figure 49: SAR Body Testing Results for the SHL23 Mobile Handset at 2437.0MHz.



2.12 WLAN 5000MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	09/10/2013-10:51:19	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	35.35
RELATIVE HUMIDITY:	49.70%	CONDUCTIVITY:	4.556
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.90°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-2.70mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-132.30mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	3.197
TEST FREQUENCY:	5240.0MHz	SAR 1g:	0.136 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.054 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.052 W/kg
PROBE BATTERY LAST CHANGED:	09/10/2013	SAR DRIFT DURING SCAN:	-3.700 %

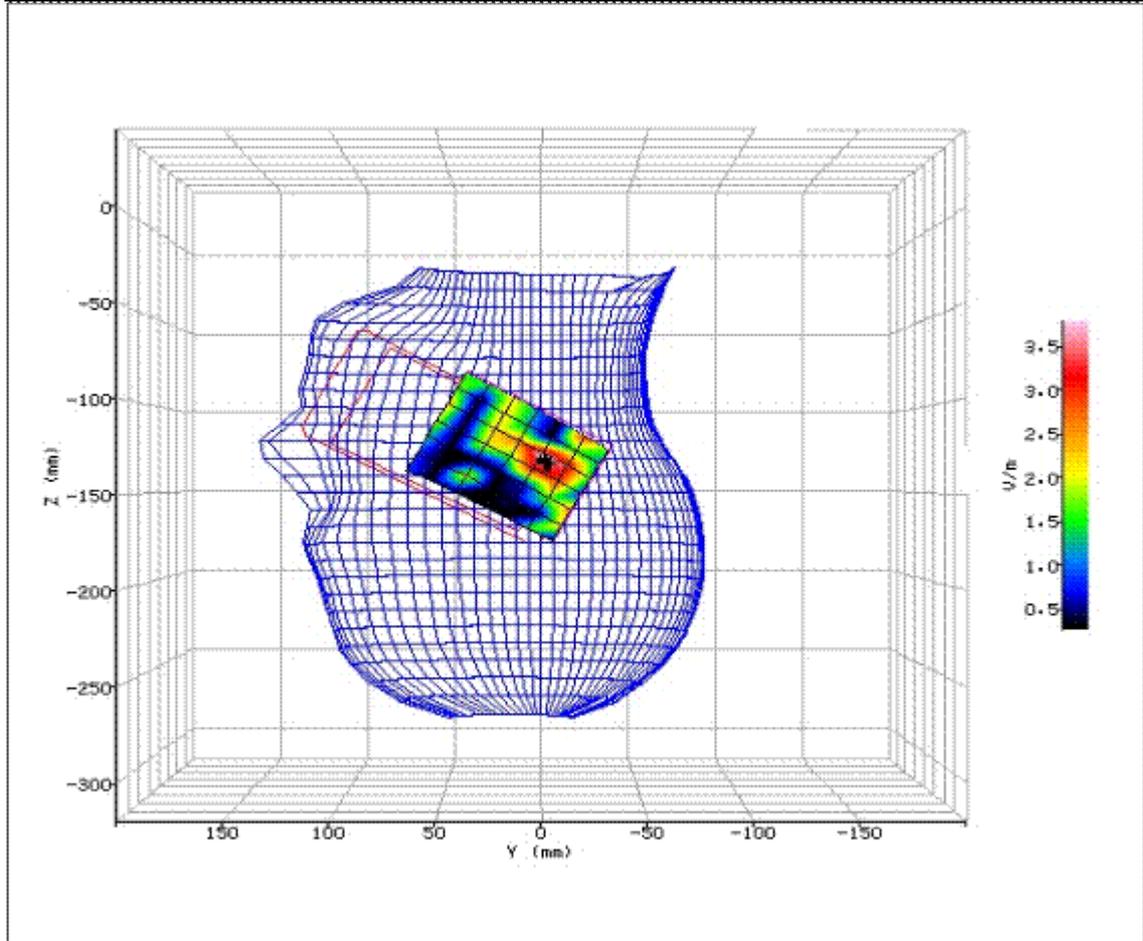


Figure 50: SAR Head Testing Results for the SHL23 Mobile Handset at 5240.0MHz. (NUA)

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	09/10/2013-11:19:03	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	35.35
RELATIVE HUMIDITY:	49.70%	CONDUCTIVITY:	4.556
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.90°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-12.70mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-147.10mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	3.502
TEST FREQUENCY:	5240.0MHz	SAR 1g:	0.072 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.116 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.116 W/kg
PROBE BATTERY LAST CHANGED:	09/10/2013	SAR DRIFT DURING SCAN:	0.000 %

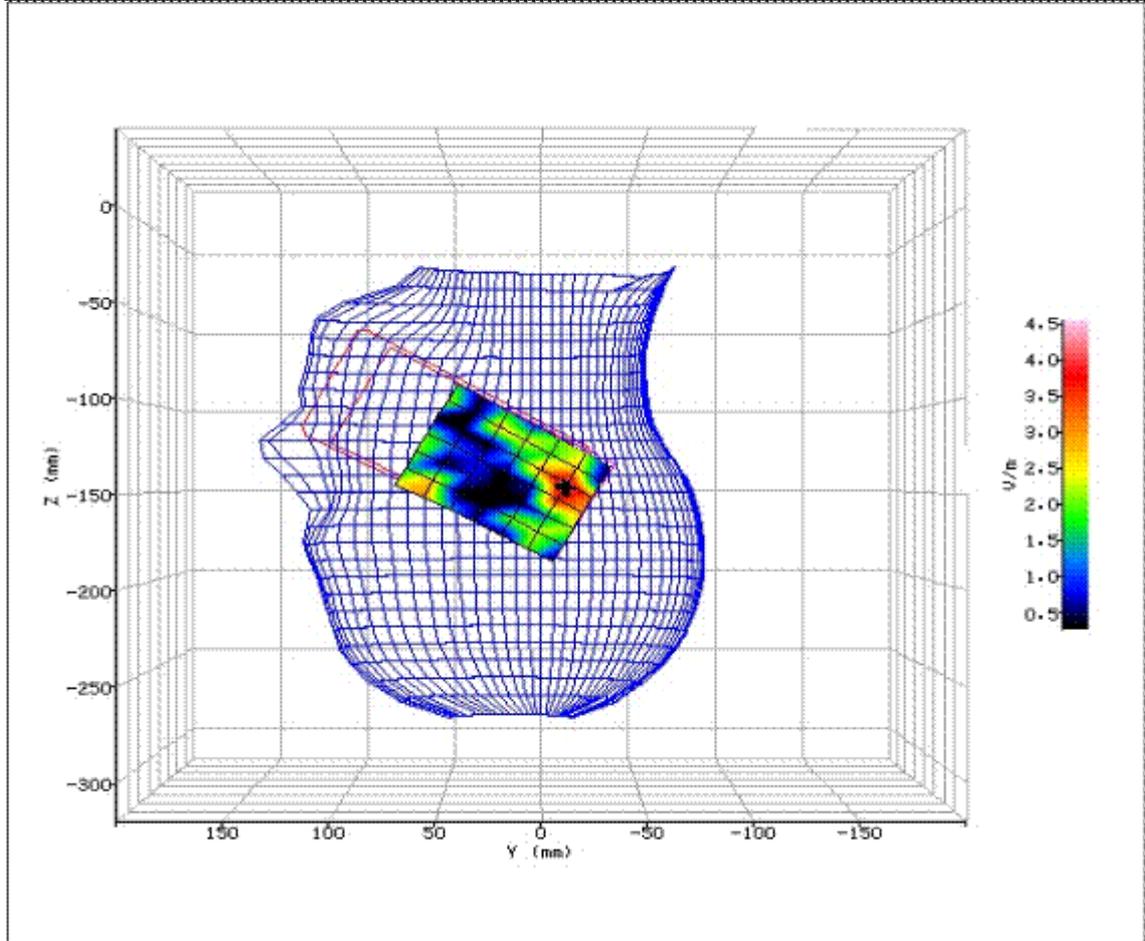


Figure 51: SAR Head Testing Results for the SHL23 Mobile Handset at 5240.0MHz. (NUA)



<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	09/10/2013-13:06:39	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.30°C	<b>LIQUID SIMULANT:</b>	5000Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	35.35
<b>RELATIVE HUMIDITY:</b>	49.70%	<b>CONDUCTIVITY:</b>	4.556
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.90°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	44.60mm
<b>DUT POSITION:</b>	Right-Cheek	<b>MAX SAR Z-AXIS LOCATION:</b>	-169.60mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	4.485
<b>TEST FREQUENCY:</b>	5240.0MHz	<b>SAR 1g:</b>	0.319 W/kg
<b>TYPE OF MODULATION:</b>	WLAN(DSSS)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.332 W/kg
<b>INPUT POWER LEVEL:</b>	16dBm	<b>SAR END:</b>	0.332 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	09/10/2013	<b>SAR DRIFT DURING SCAN:</b>	0.000 %

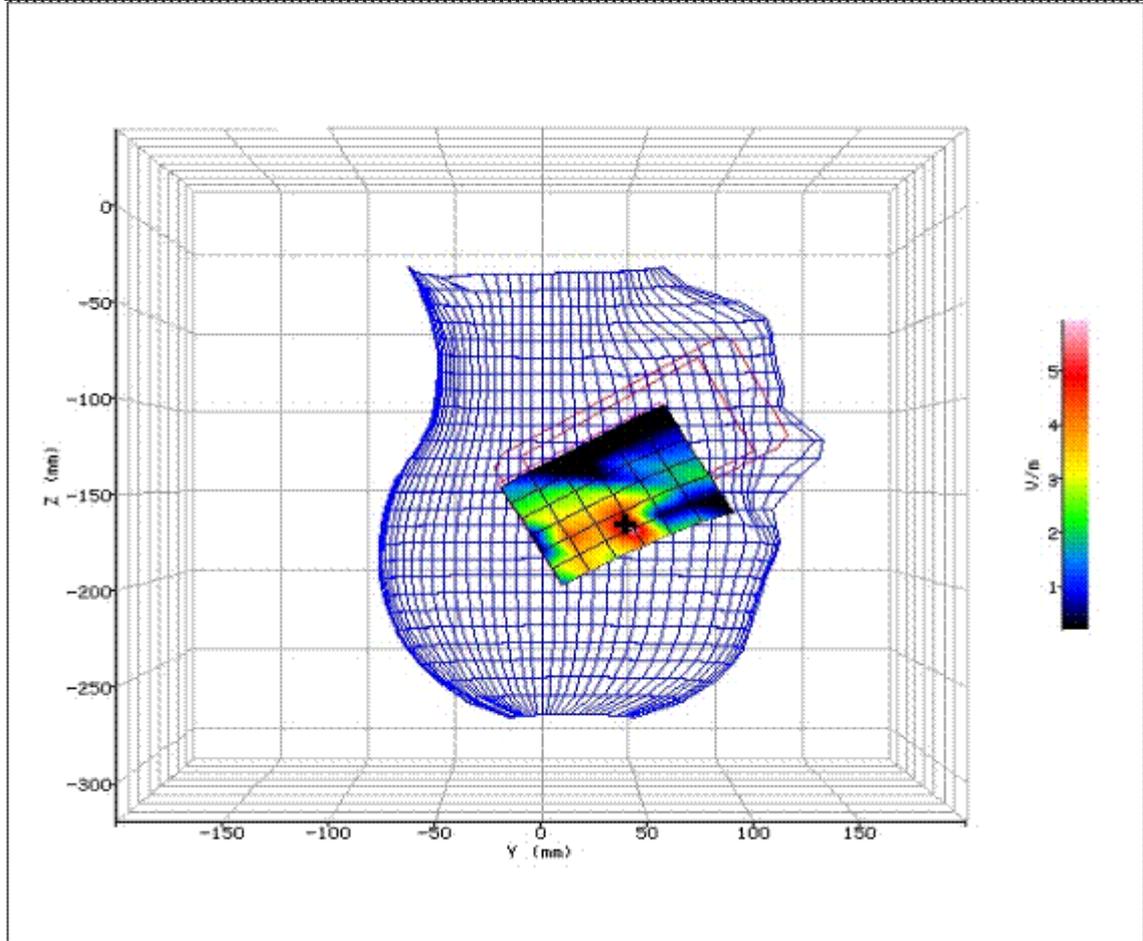


Figure 52: SAR Head Testing Results for the SHL23 Mobile Handset at 5240.0MHz. (NUA)

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	09/10/2013-13:27:23	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	35.35
RELATIVE HUMIDITY:	49.70%	CONDUCTIVITY:	4.556
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.90°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	11.90mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-171.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	4.591
TEST FREQUENCY:	5240.0MHz	SAR 1g:	0.160 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.208 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.208 W/kg
PROBE BATTERY LAST CHANGED:	09/10/2013	SAR DRIFT DURING SCAN:	0.000 %

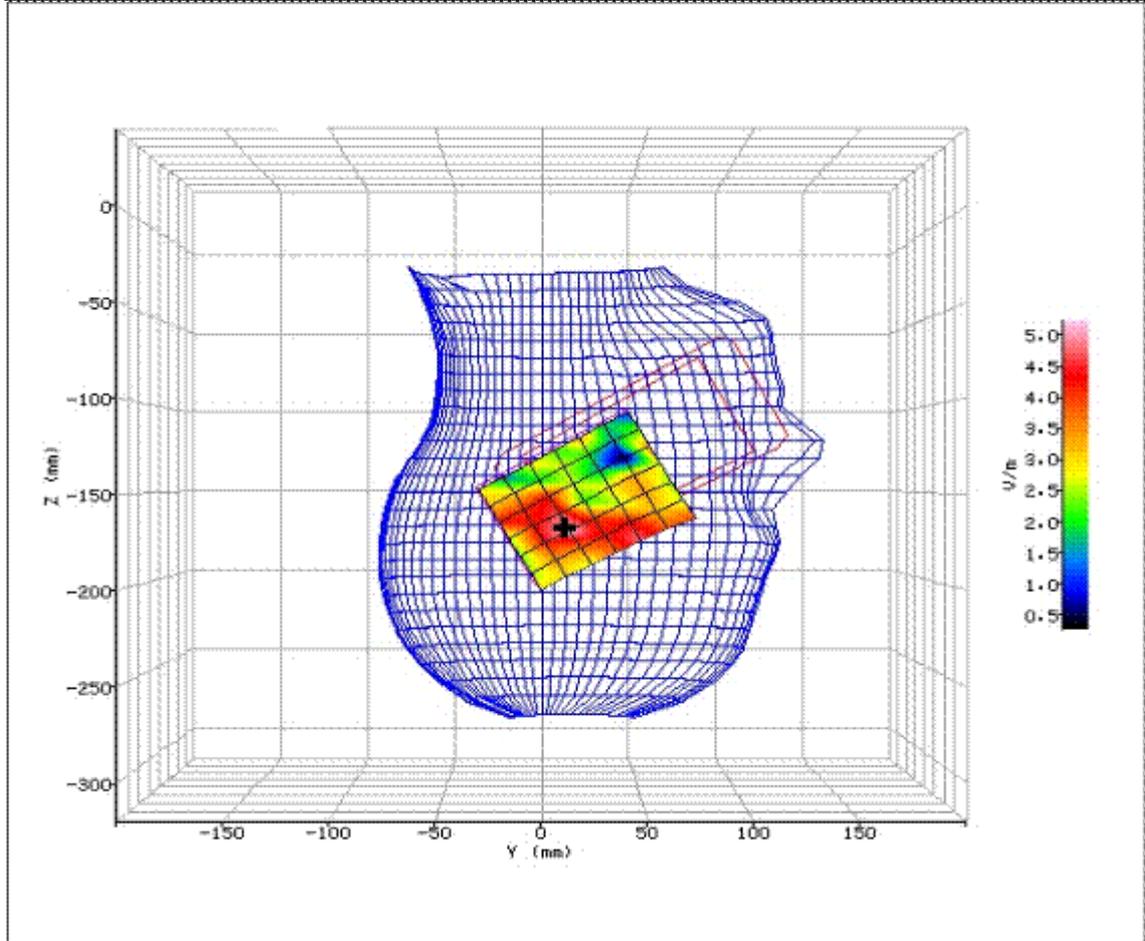


Figure 53: SAR Head Testing Results for the SHL23 Mobile Handset at 5240.0MHz. (NUA)

2.13 WLAN 5000MHZ BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/10/2013-10:18:06	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	49.67
RELATIVE HUMIDITY:	54.70%	CONDUCTIVITY:	5.091
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-41.90mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-46.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	3.615
TEST FREQUENCY:	5240.0MHz	SAR 1g:	0.063 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.088 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.084 W/kg
PROBE BATTERY LAST CHANGED:	08/10/2013	SAR DRIFT DURING SCAN:	-4.700 %

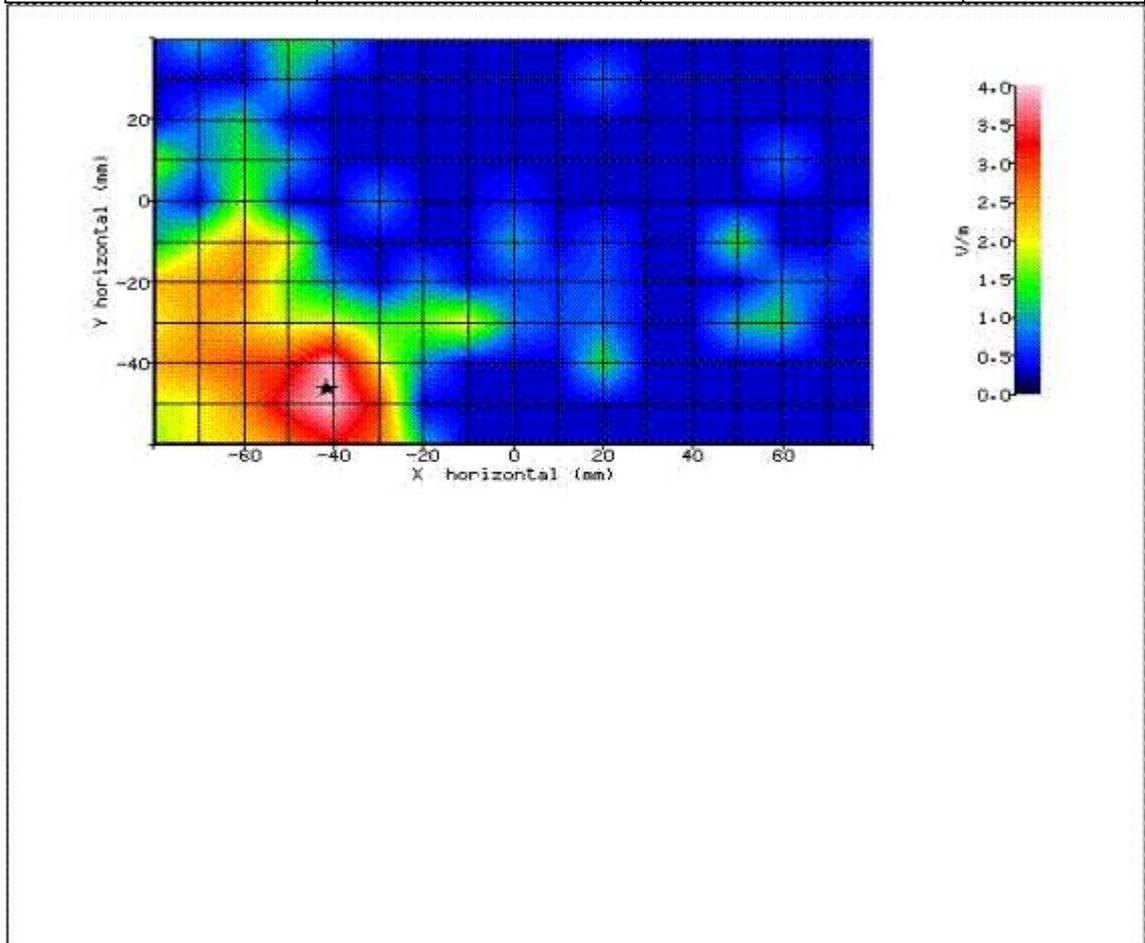


Figure 54: SAR Body Testing Results for the SHL23 Mobile Handset at 5240.0MHz. (NUA)

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/10/2013-10:32:11	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	49.67
RELATIVE HUMIDITY:	54.70%	CONDUCTIVITY:	5.091
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-35.80mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	31.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	8.180
TEST FREQUENCY:	5240.0MHz	SAR 1g:	0.365 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.579 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.593 W/kg
PROBE BATTERY LAST CHANGED:	08/10/2013	SAR DRIFT DURING SCAN:	2.500 %

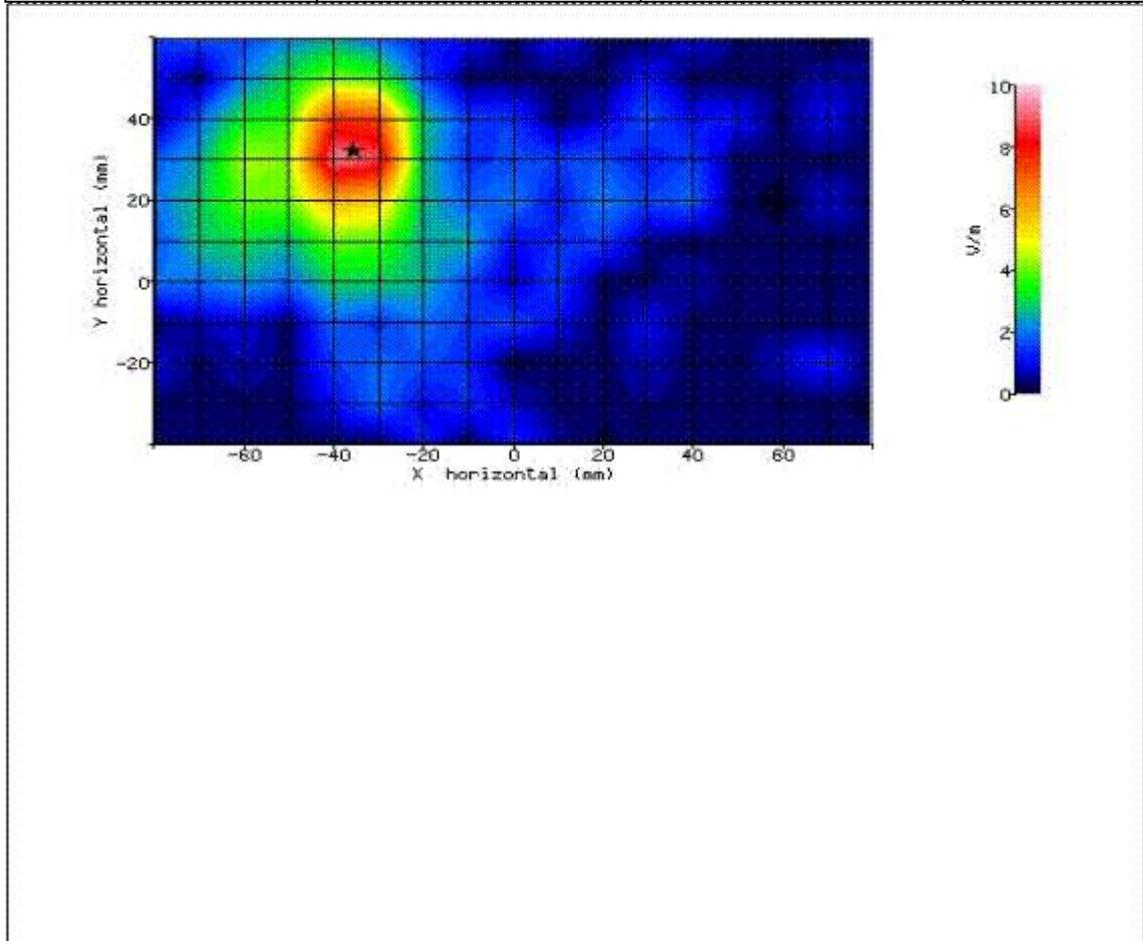


Figure 55: SAR Body Testing Results for the SHL23 Mobile Handset at 5240.0MHz. (NUA)

<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	08/10/2013-10:49:52	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.30°C	<b>LIQUID SIMULANT:</b>	5000Body
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	49.67
<b>RELATIVE HUMIDITY:</b>	54.70%	<b>CONDUCTIVITY:</b>	5.091
<b>PHANTOM S/NO:</b>	IXB-2HF	<b>LIQUID TEMPERATURE:</b>	22.80°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR X-AXIS LOCATION:</b>	-40.90mm
<b>DUT POSITION:</b>	10mm-Right Edge	<b>MAX SAR Y-AXIS LOCATION:</b>	-9.10mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	6.516
<b>TEST FREQUENCY:</b>	5240.0MHz	<b>SAR 1g:</b>	0.222 W/kg
<b>TYPE OF MODULATION:</b>	WLAN(DSSS)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.351 W/kg
<b>INPUT POWER LEVEL:</b>	16dBm	<b>SAR END:</b>	0.339 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	08/10/2013	<b>SAR DRIFT DURING SCAN:</b>	-3.400 %

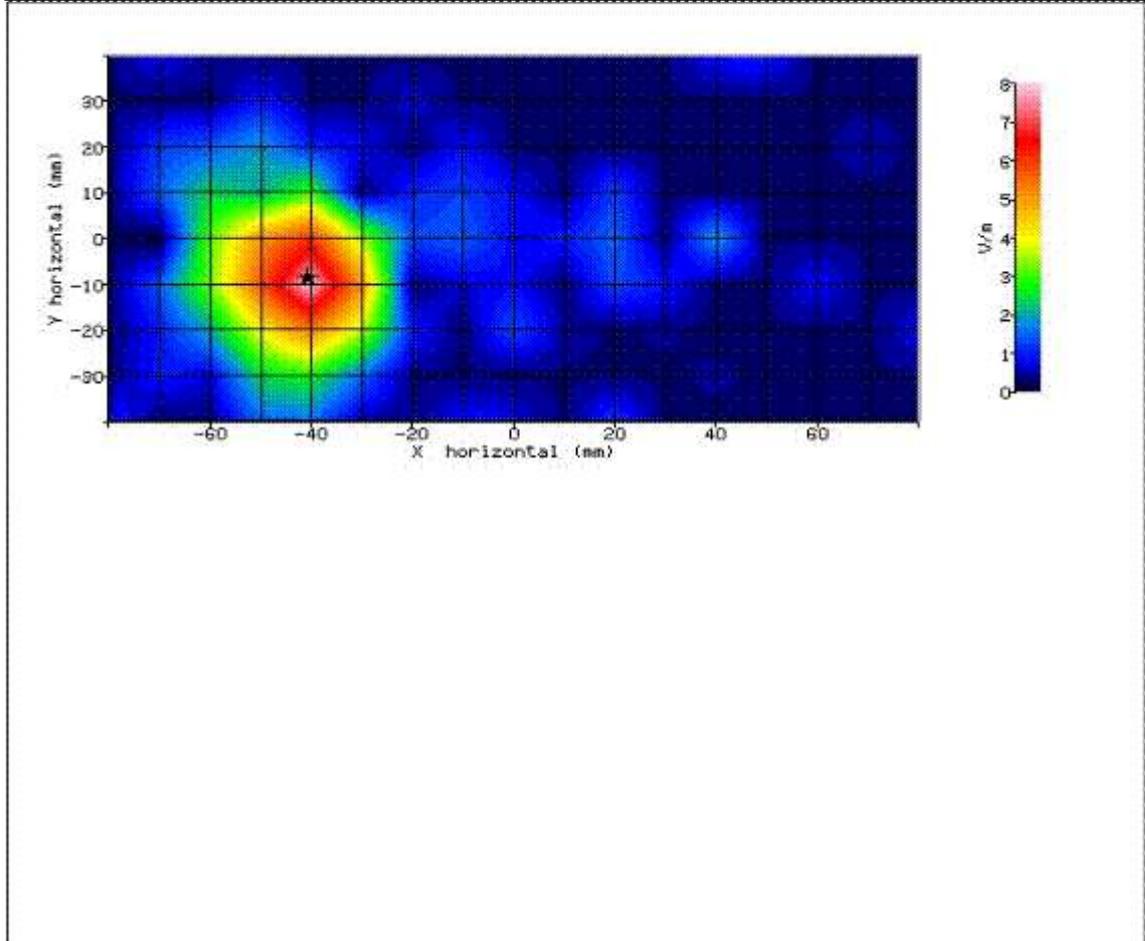


Figure 56: SAR Body Testing Results for the SHL23 Mobile Handset at 5240.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/10/2013-11:06:04	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	49.67
RELATIVE HUMIDITY:	54.70%	CONDUCTIVITY:	5.091
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	13.60mm
DUT POSITION:	10mm-Top Edge	MAX SAR Y-AXIS LOCATION:	3.40mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.433
TEST FREQUENCY:	5240.0MHz	SAR 1g:	0.017 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.027 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.027 W/kg
PROBE BATTERY LAST CHANGED:	08/10/2013	SAR DRIFT DURING SCAN:	0.000 %

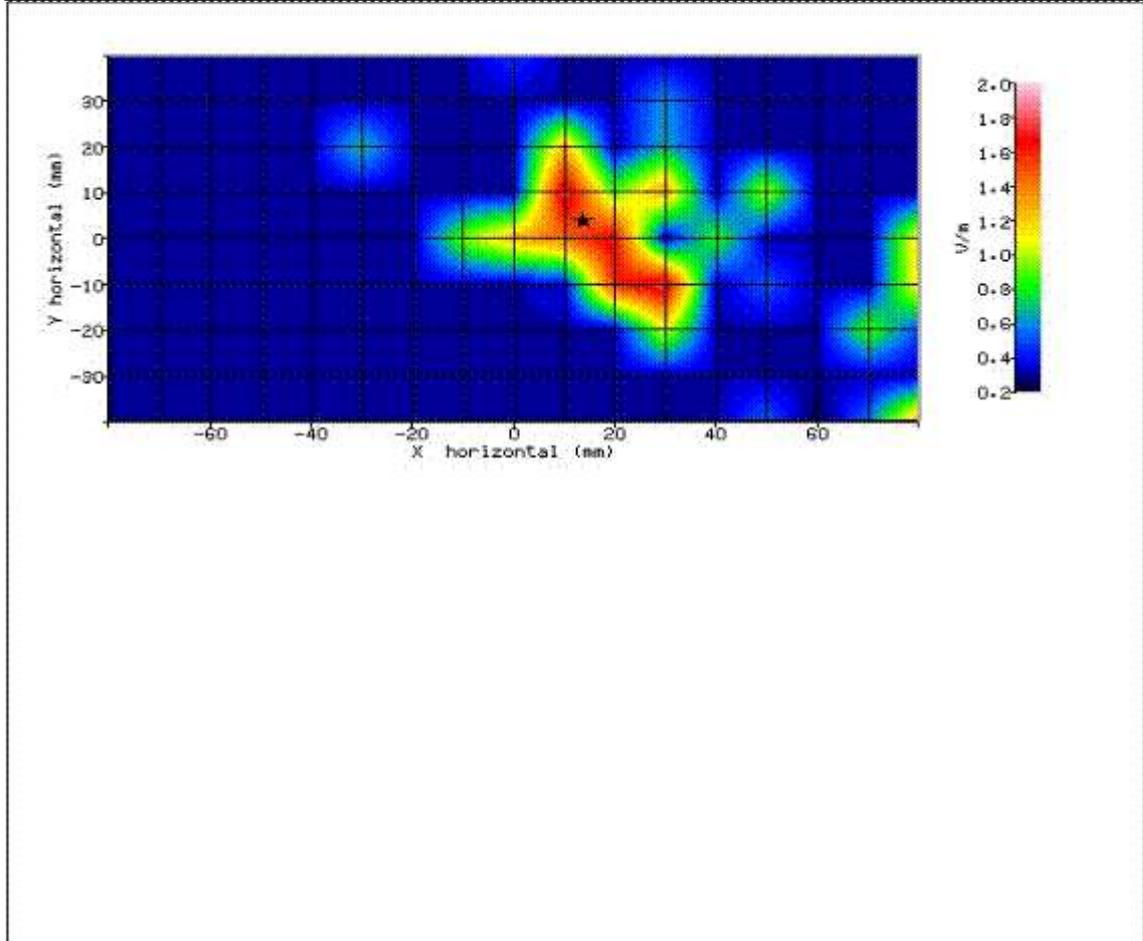


Figure 57: SAR Body Testing Results for the SHL23 Mobile Handset at 5240.0MHz. (NUA)

2.14 WLAN 5000MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	09/10/2013-16:19:17	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	35.35
RELATIVE HUMIDITY:	49.70%	CONDUCTIVITY:	4.556
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.90°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	1.80mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-152.70mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	5.151
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.138 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.282 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.282 W/kg
PROBE BATTERY LAST CHANGED:	09/10/2013	SAR DRIFT DURING SCAN:	0.000 %

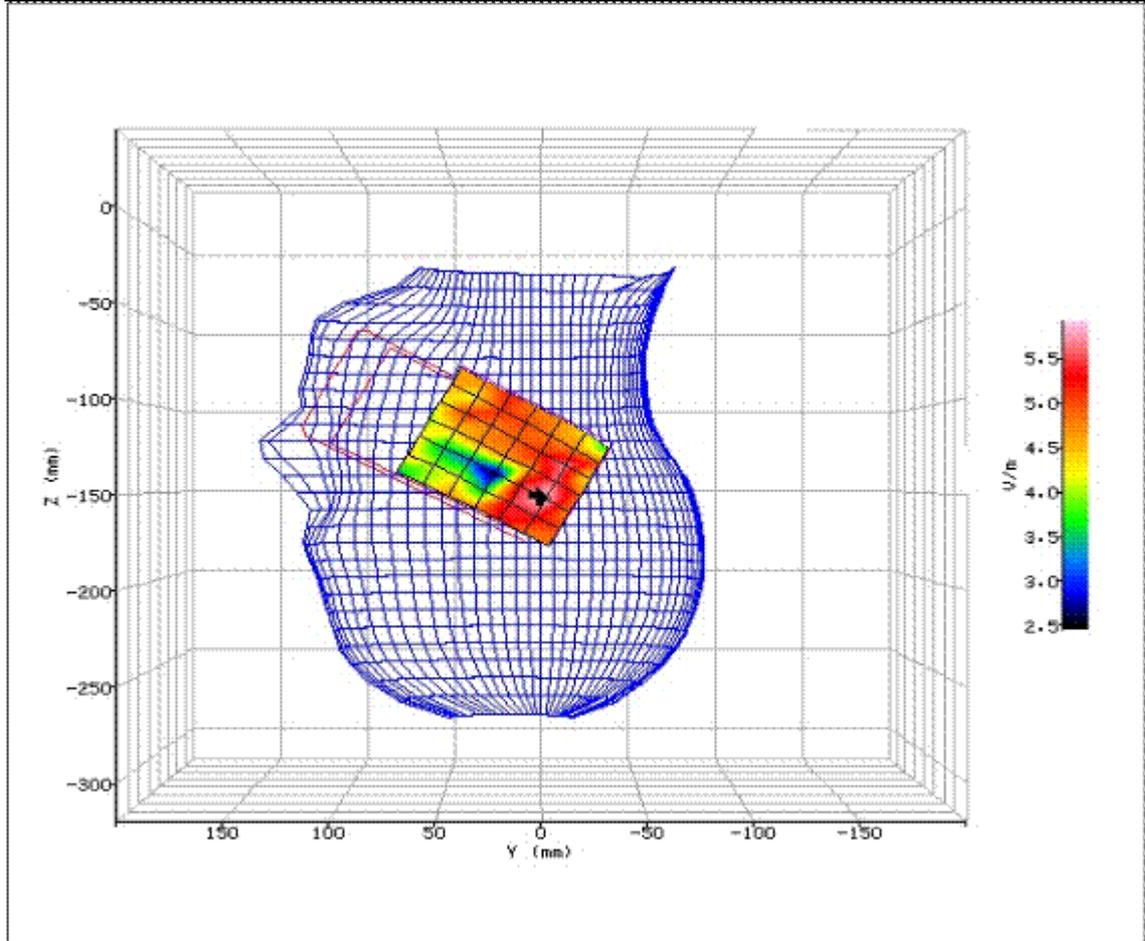


Figure 58: SAR Head Testing Results for the SHL23 Mobile Handset at 5280.0MHz. (NUA)

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	09/10/2013-16:41:02	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	35.35
RELATIVE HUMIDITY:	49.70%	CONDUCTIVITY:	4.556
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.90°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-9.80mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-143.50mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	10.084
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.164 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.417 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.417 W/kg
PROBE BATTERY LAST CHANGED:	09/10/2013	SAR DRIFT DURING SCAN:	0.000 %

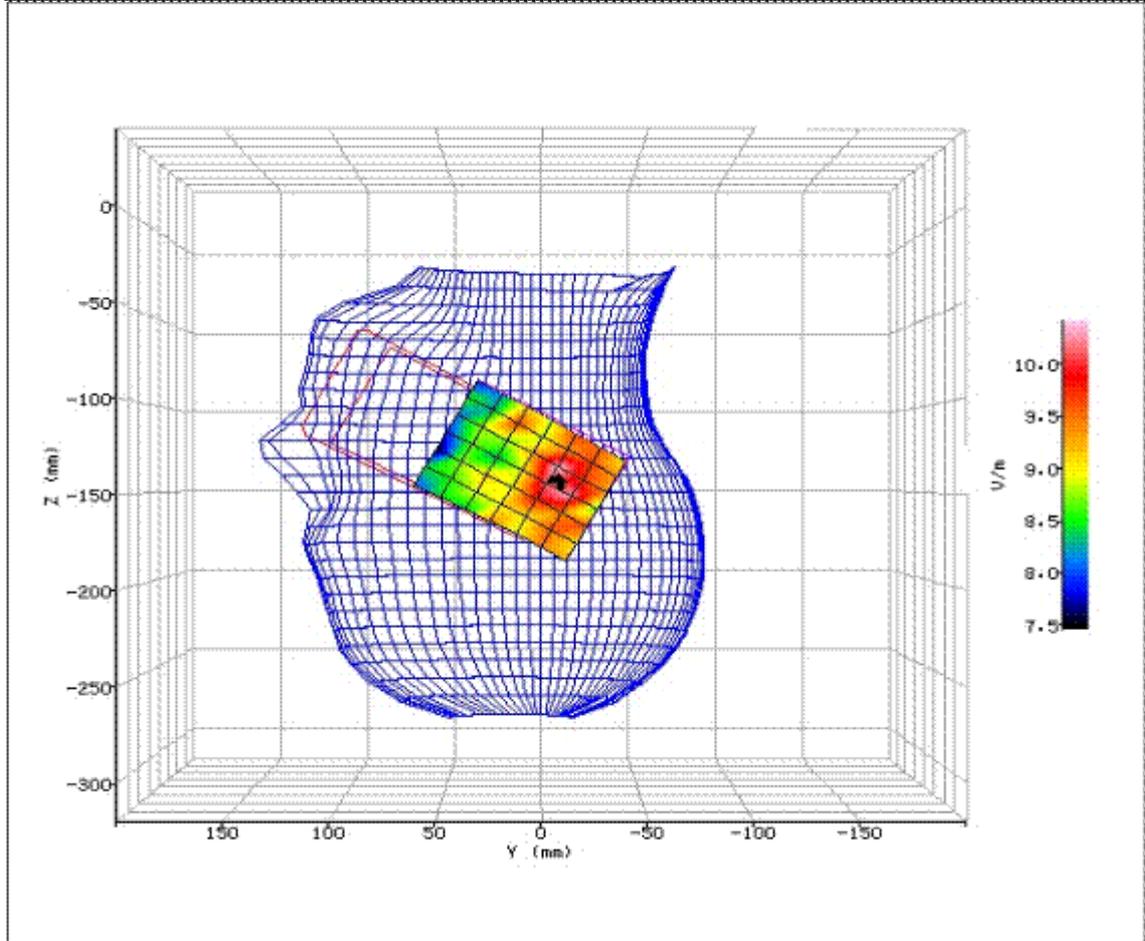


Figure 59: SAR Head Testing Results for the SHL23 Mobile Handset at 5280.0MHz. (NUA)



<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	09/10/2013-17:13:48	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.30°C	<b>LIQUID SIMULANT:</b>	5000Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	35.35
<b>RELATIVE HUMIDITY:</b>	49.70%	<b>CONDUCTIVITY:</b>	4.556
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	22.90°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	41.20mm
<b>DUT POSITION:</b>	Right-Cheek	<b>MAX SAR Z-AXIS LOCATION:</b>	-170.20mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	5.460
<b>TEST FREQUENCY:</b>	5280.0MHz	<b>SAR 1g:</b>	0.336 W/kg
<b>TYPE OF MODULATION:</b>	WLAN(DSSS)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.588 W/kg
<b>INPUT POWER LEVEL:</b>	16dBm	<b>SAR END:</b>	0.588 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	09/10/2013	<b>SAR DRIFT DURING SCAN:</b>	0.000 %

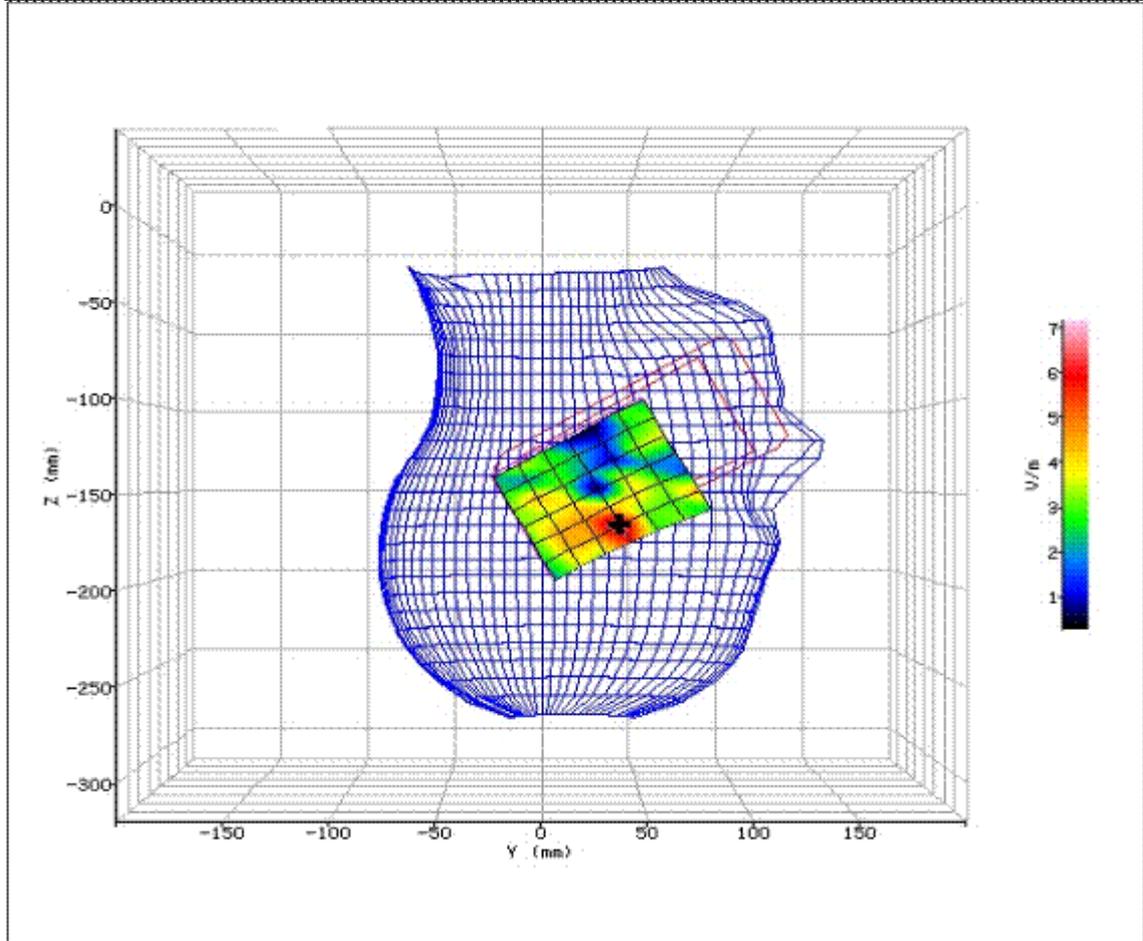


Figure 60: SAR Head Testing Results for the SHL23 Mobile Handset at 5280.0MHz. (NUA)

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	09/10/2013-17:32:56	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	35.35
RELATIVE HUMIDITY:	49.70%	CONDUCTIVITY:	4.556
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	22.90°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	15.30mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-176.10mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	6.983
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.339 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.370 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.370 W/kg
PROBE BATTERY LAST CHANGED:	09/10/2013	SAR DRIFT DURING SCAN:	0.000 %

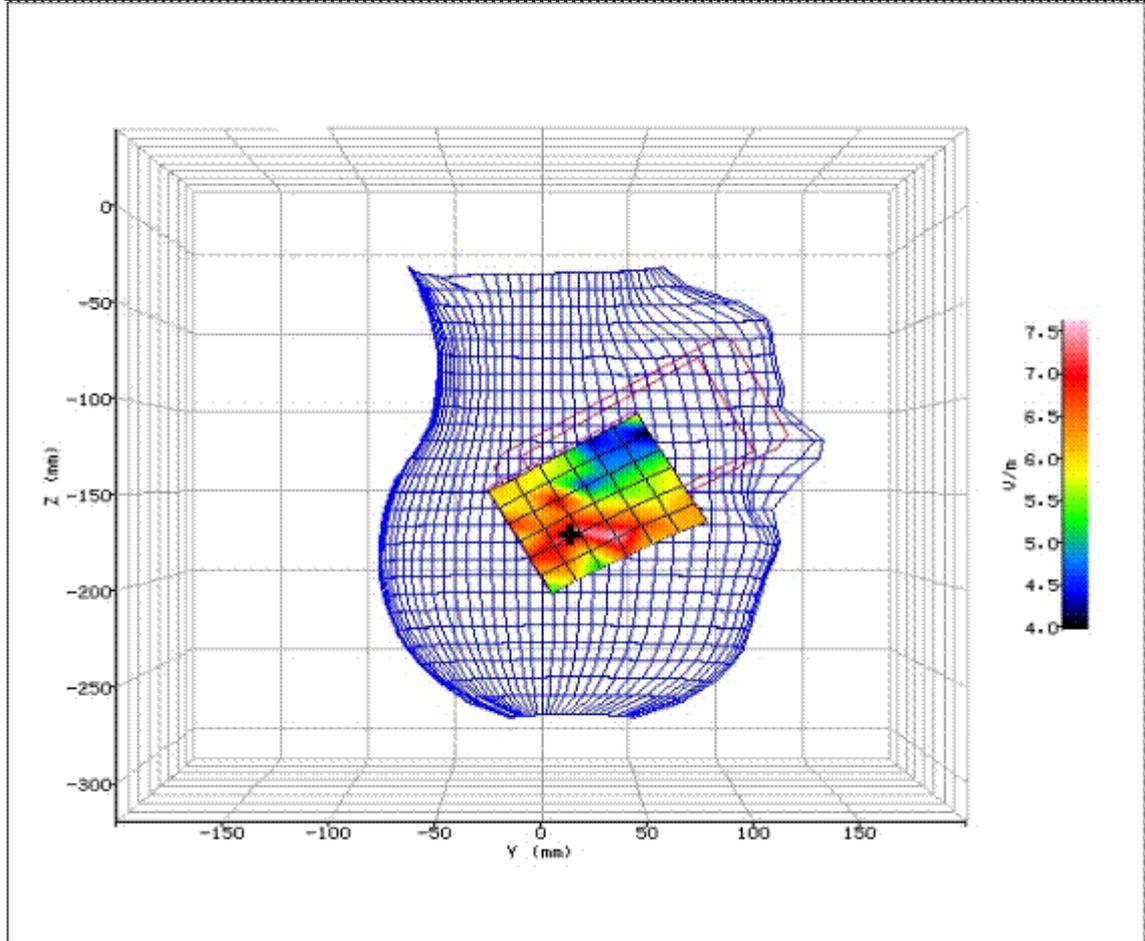


Figure 61: SAR Head Testing Results for the SHL23 Mobile Handset at 5280.0MHz. (NUA)

2.15 WLAN 5000MHZ BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/10/2013-11:27:47	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	49.67
RELATIVE HUMIDITY:	54.70%	CONDUCTIVITY:	5.091
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-41.30mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-39.10mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	3.793
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.060 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.090 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.086 W/kg
PROBE BATTERY LAST CHANGED:	08/10/2013	SAR DRIFT DURING SCAN:	-5.200 %

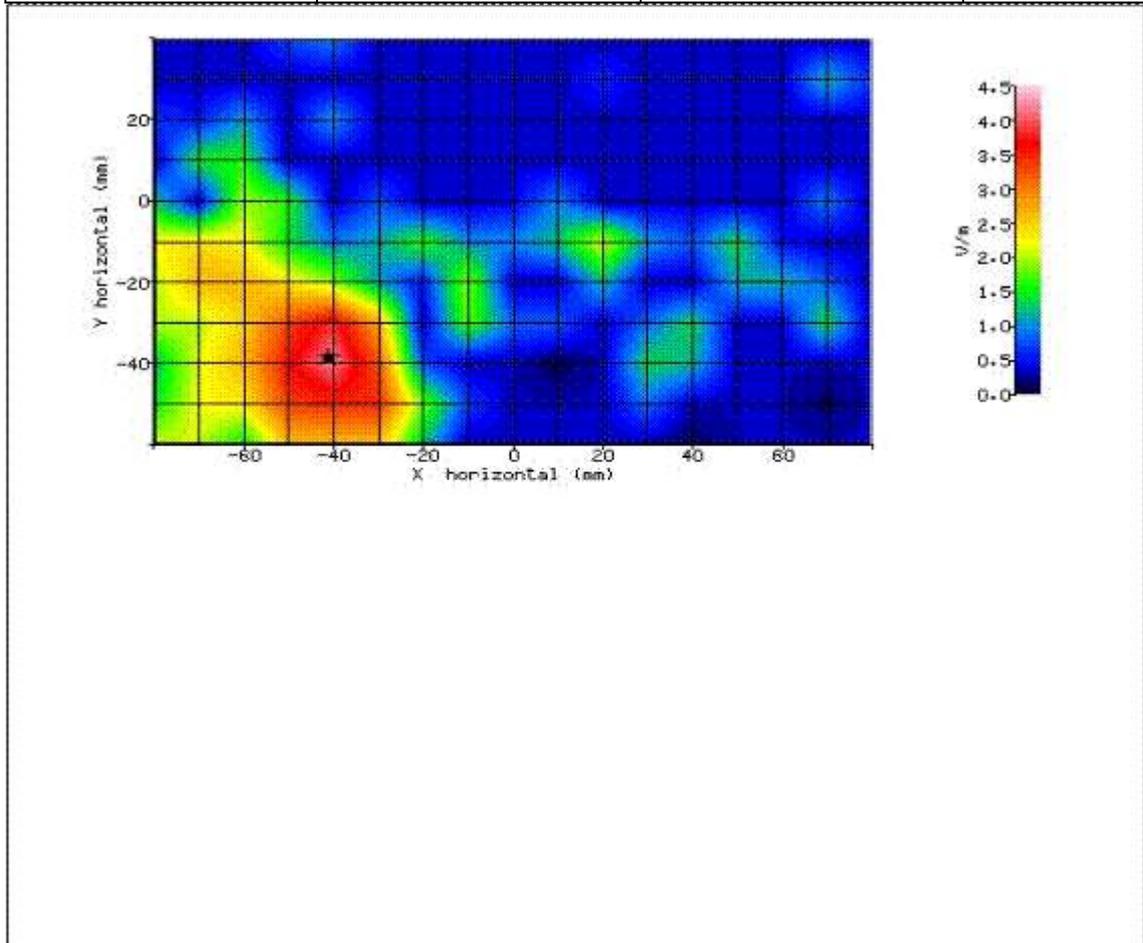


Figure 62: SAR Body Testing Results for the SHL23 Mobile Handset at 5280.0MHz. (NUA)

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/10/2013-11:42:57	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	49.67
RELATIVE HUMIDITY:	54.70%	CONDUCTIVITY:	5.091
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-34.90mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	33.40mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	8.084
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.367 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.572 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.585 W/kg
PROBE BATTERY LAST CHANGED:	08/10/2013	SAR DRIFT DURING SCAN:	2.200 %

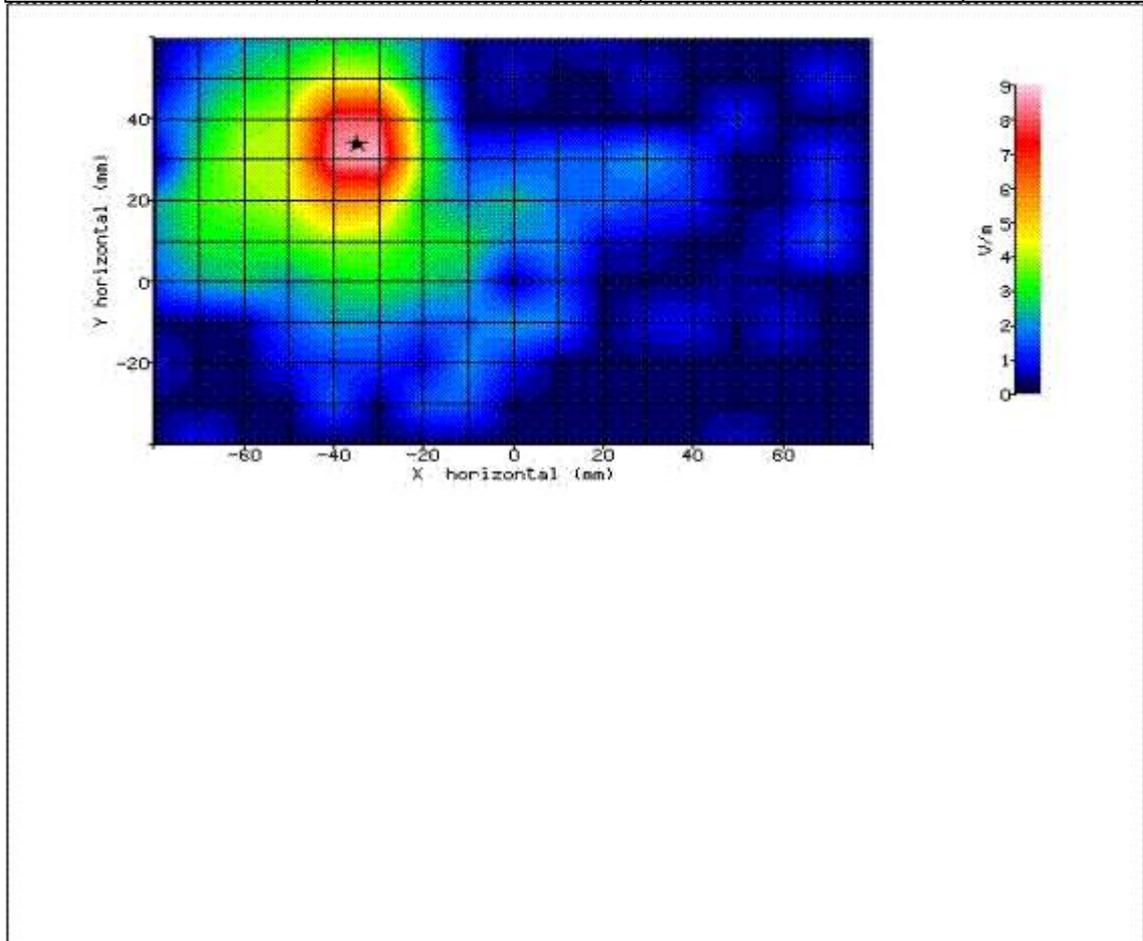


Figure 63: SAR Body Testing Results for the SHL23 Mobile Handset at 5280.0MHz. (NUA)

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/10/2013-11:56:55	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	49.67
RELATIVE HUMIDITY:	54.70%	CONDUCTIVITY:	5.091
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-39.00mm
DUT POSITION:	10mm-Right Edge	MAX SAR Y-AXIS LOCATION:	-5.70mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	6.725
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.236 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.369 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.381 W/kg
PROBE BATTERY LAST CHANGED:	08/10/2013	SAR DRIFT DURING SCAN:	3.000 %

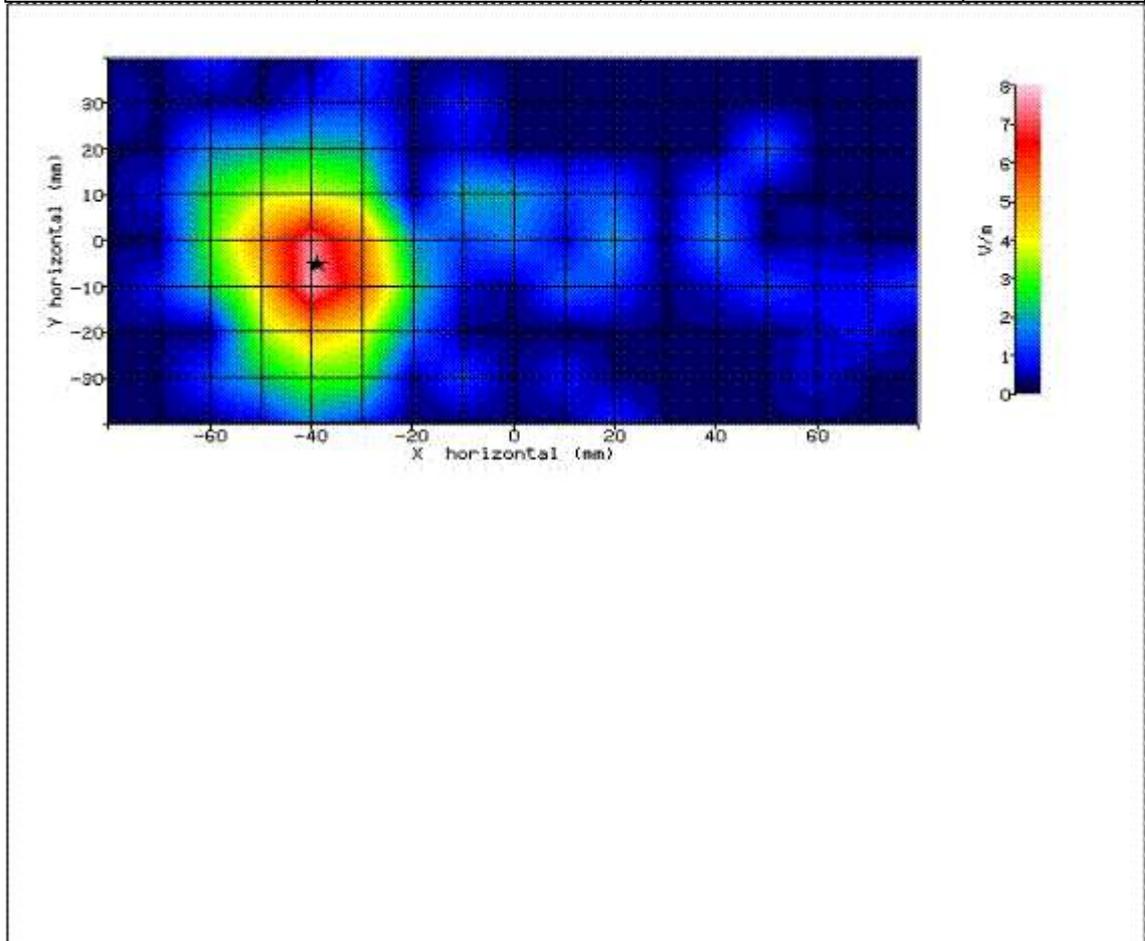


Figure 64: SAR Body Testing Results for the SHL23 Mobile Handset at 5280.0MHz. (NUA)

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/10/2013-12:10:56	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000Body
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	49.67
RELATIVE HUMIDITY:	54.70%	CONDUCTIVITY:	5.091
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	22.80°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	15.90mm
DUT POSITION:	10mm-Top Edge	MAX SAR Y-AXIS LOCATION:	-7.20mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.025
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.037 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.034 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.034 W/kg
PROBE BATTERY LAST CHANGED:	08/10/2013	SAR DRIFT DURING SCAN:	0.000 %

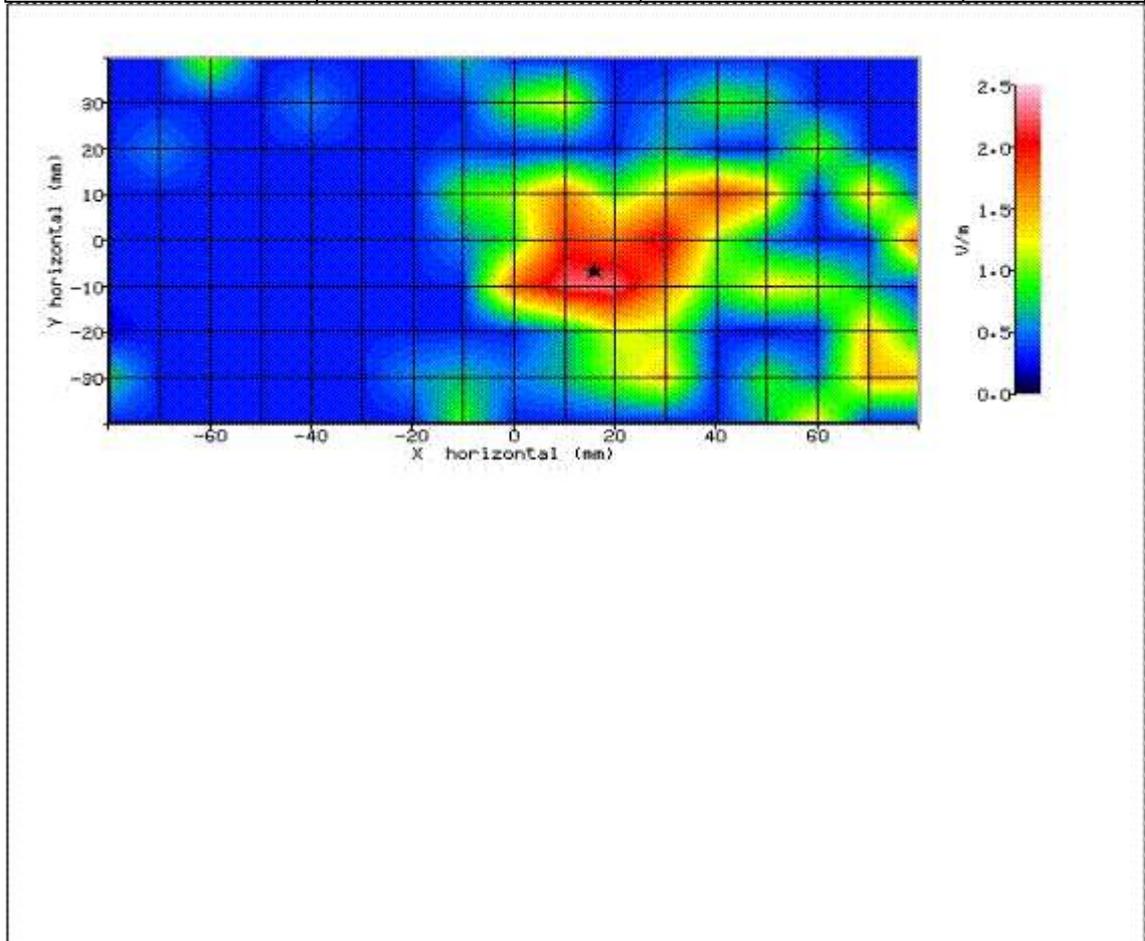


Figure 65: SAR Body Testing Results for the SHL23 Mobile Handset at 5280.0MHz. (NUA)

2.16 WLAN 5000MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	10/10/2013-08:35:18	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.20°C	LIQUID SIMULANT:	5000Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	34.52
RELATIVE HUMIDITY:	26.50%	CONDUCTIVITY:	4.896
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	14.60mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-110.40mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.869
TEST FREQUENCY:	5520.0MHz	SAR 1g:	0.295 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.098 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.098 W/kg
PROBE BATTERY LAST CHANGED:	10/10/2013	SAR DRIFT DURING SCAN:	0.000 %

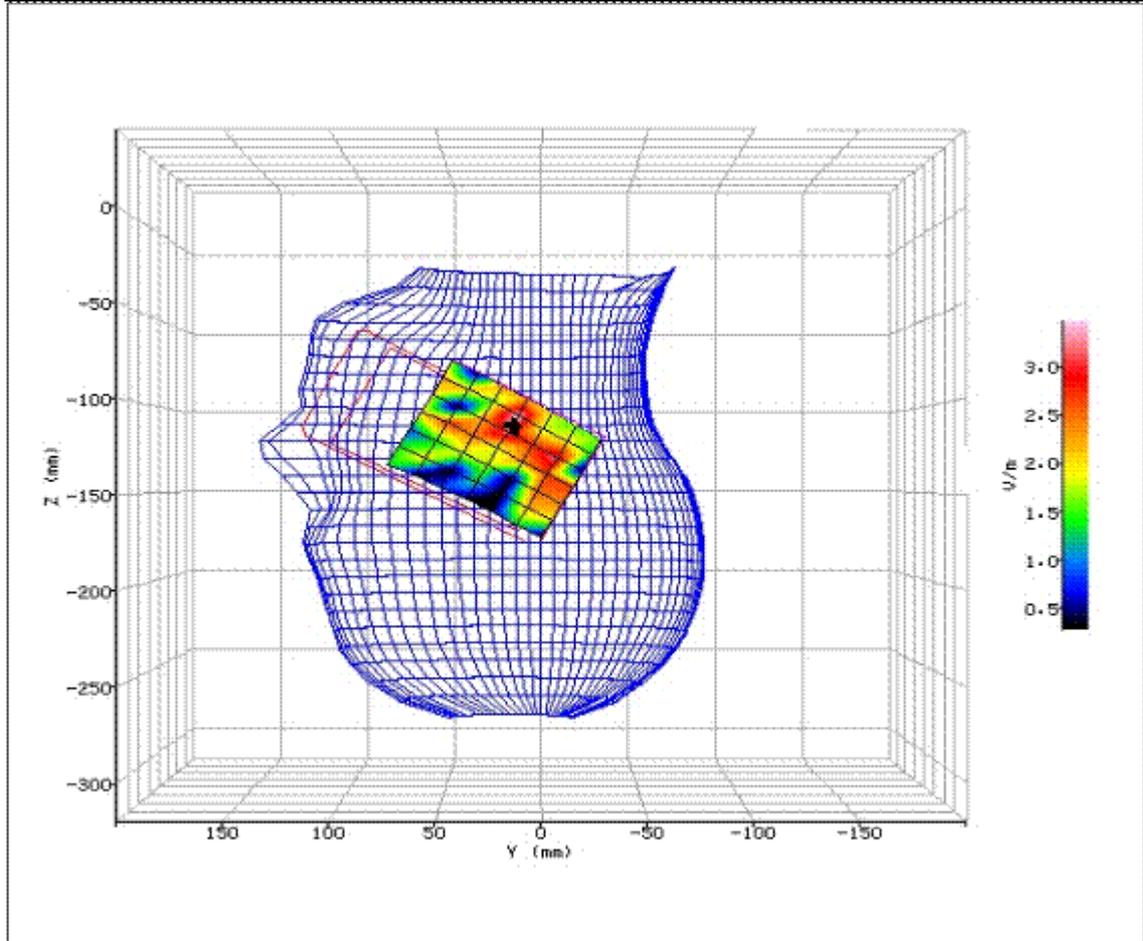


Figure 66: SAR Head Testing Results for the SHL23 Mobile Handset at 5520.0MHz. (NUA)

SYSTEM / SOFTWARE:	SARA-C / v6.08.11	INPUT POWER DRIFT:	0 dB
DATE / TIME:	10/10/2013-08:54:39	DUT BATTERY MODEL/NO:	n/a
AMBIENT TEMPERATURE:	23.20°C	LIQUID SIMULANT:	5000Head
DEVICE UNDER TEST:	SHL23	RELATIVE PERMITTIVITY:	34.52
RELATIVE HUMIDITY:	26.50%	CONDUCTIVITY:	4.896
PHANTOM S/NO:	IBX-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-7.40mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-143.40mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.535
TEST FREQUENCY:	5520.0MHz	SAR 1g:	0.122 W/kg
TYPE OF MODULATION:	WLAN(DSSS)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.085 W/kg
INPUT POWER LEVEL:	16dBm	SAR END:	0.085 W/kg
PROBE BATTERY LAST CHANGED:	10/10/2013	SAR DRIFT DURING SCAN:	0.000 %

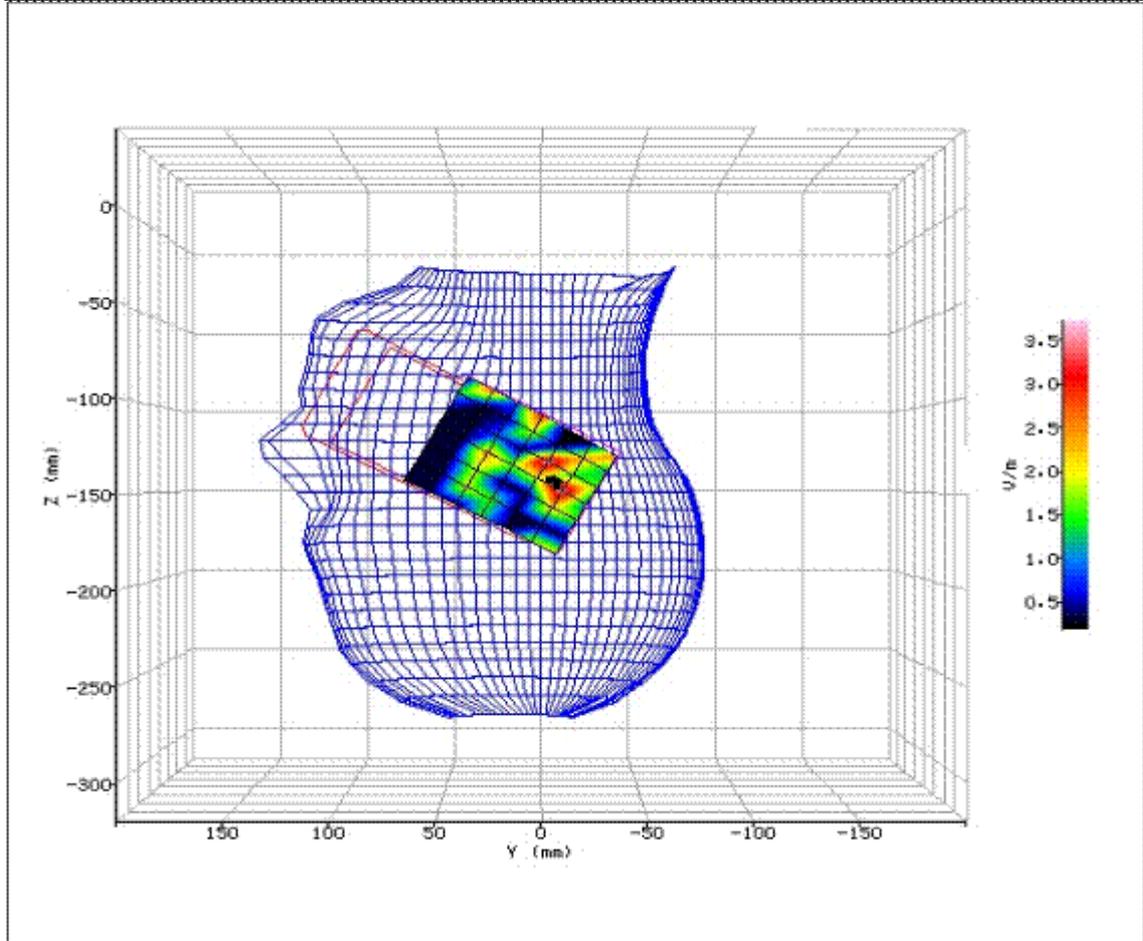


Figure 67: SAR Head Testing Results for the SHL23 Mobile Handset at 5520.0MHz. (NUA)



<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	10/10/2013-09:21:21	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.20°C	<b>LIQUID SIMULANT:</b>	5000Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	34.52
<b>RELATIVE HUMIDITY:</b>	26.50%	<b>CONDUCTIVITY:</b>	4.896
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	23.00°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	44.10mm
<b>DUT POSITION:</b>	Right-Cheek	<b>MAX SAR Z-AXIS LOCATION:</b>	-175.00mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	4.920
<b>TEST FREQUENCY:</b>	5520.0MHz	<b>SAR 1g:</b>	0.117 W/kg
<b>TYPE OF MODULATION:</b>	WLAN(DSSS)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.336 W/kg
<b>INPUT POWER LEVEL:</b>	16dBm	<b>SAR END:</b>	0.353 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	10/10/2013	<b>SAR DRIFT DURING SCAN:</b>	5.100 %

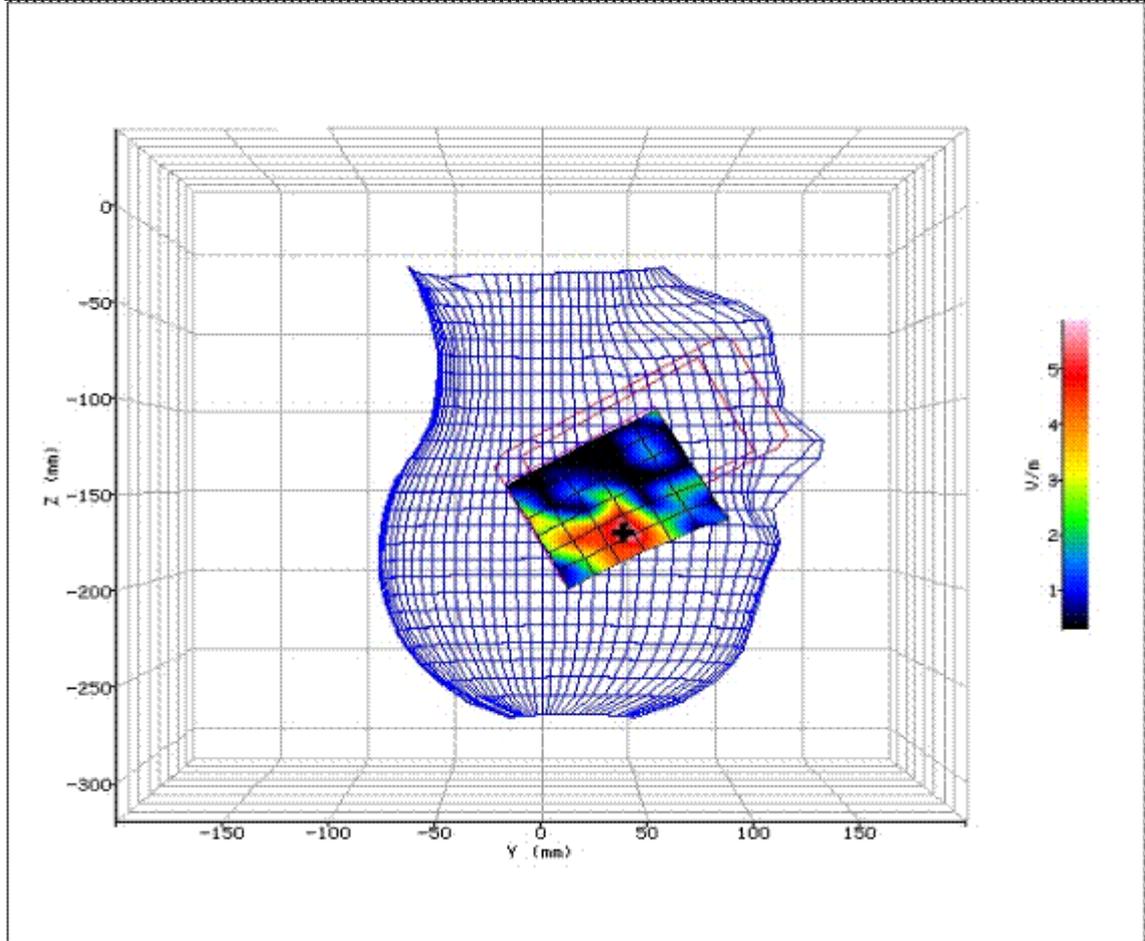


Figure 68: SAR Head Testing Results for the SHL23 Mobile Handset at 5520.0MHz. (NUA)

<b>SYSTEM / SOFTWARE:</b>	SARA-C / v6.08.11	<b>INPUT POWER DRIFT:</b>	0 dB
<b>DATE / TIME:</b>	10/10/2013-09:49:17	<b>DUT BATTERY MODEL/NO:</b>	n/a
<b>AMBIENT TEMPERATURE:</b>	23.20°C	<b>LIQUID SIMULANT:</b>	5000Head
<b>DEVICE UNDER TEST:</b>	SHL23	<b>RELATIVE PERMITTIVITY:</b>	34.52
<b>RELATIVE HUMIDITY:</b>	26.50%	<b>CONDUCTIVITY:</b>	4.896
<b>PHANTOM S/NO:</b>	IBX-040	<b>LIQUID TEMPERATURE:</b>	23.00°C
<b>PHANTOM ROTATION:</b>	N/A	<b>MAX SAR Y-AXIS LOCATION:</b>	50.10mm
<b>DUT POSITION:</b>	Right-15°	<b>MAX SAR Z-AXIS LOCATION:</b>	-178.30mm
<b>ANTENNA CONFIGURATION:</b>	N/A	<b>MAX E FIELD:</b>	3.729
<b>TEST FREQUENCY:</b>	5520.0MHz	<b>SAR 1g:</b>	0.210 W/kg
<b>TYPE OF MODULATION:</b>	WLAN(DSSS)	<b>SAR 10g:</b>	N/A
<b>MODN. DUTY CYCLE:</b>	100%	<b>SAR START:</b>	0.118 W/kg
<b>INPUT POWER LEVEL:</b>	16dBm	<b>SAR END:</b>	0.117 W/kg
<b>PROBE BATTERY LAST CHANGED:</b>	10/10/2013	<b>SAR DRIFT DURING SCAN:</b>	-0.800 %

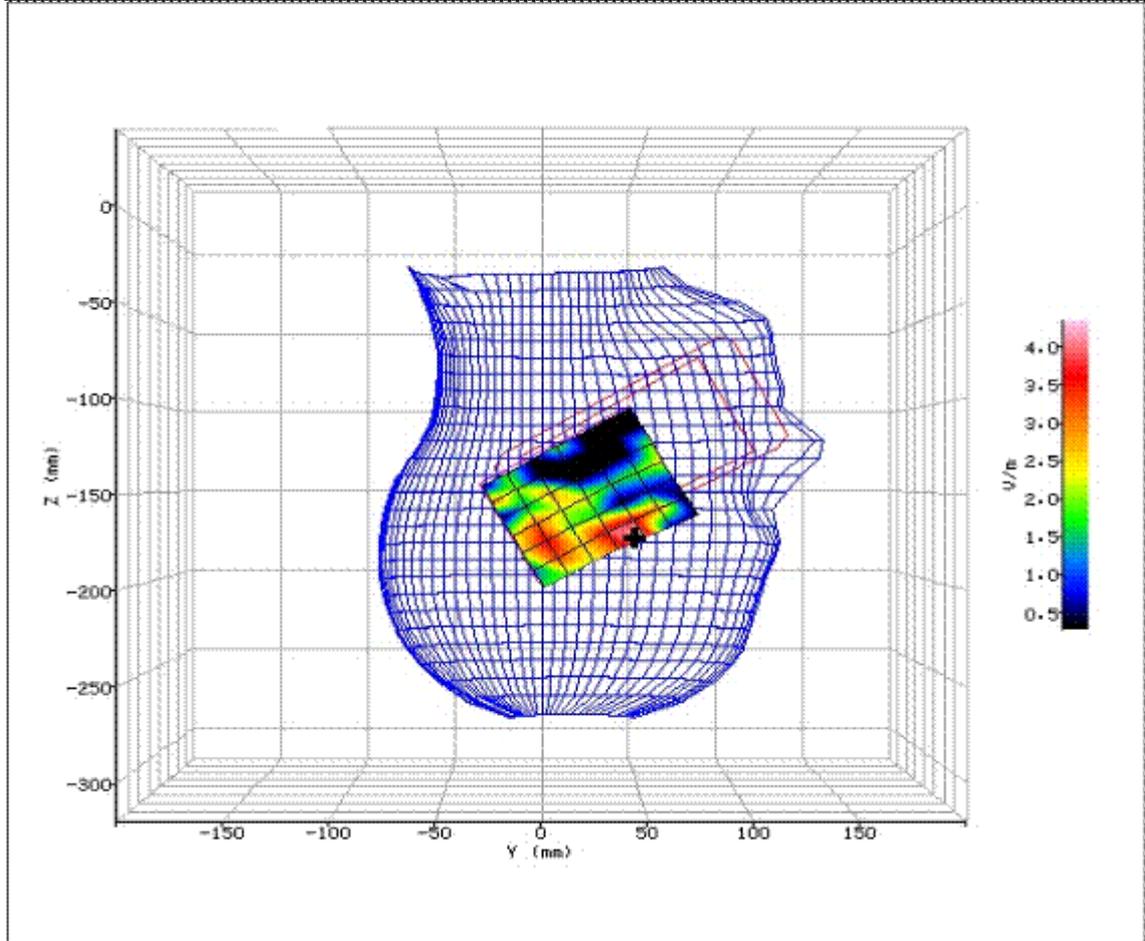


Figure 69: SAR Head Testing Results for the SHL23 Mobile Handset at 5520.0MHz. (NUA)