



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-12:04:43	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.60°C	LIQUID SIMULANT:	2450
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	37.68
RELATIVE HUMIDITY:	47.60%	CONDUCTIVITY:	1.774
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	11.00mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-112.20mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.299
TEST FREQUENCY:	2437.0MHz	SAR 1g:	0.015 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.012 W/kg
INPUT POWER LEVEL:	11dBm	SAR END:	0.011 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	-3.600 %

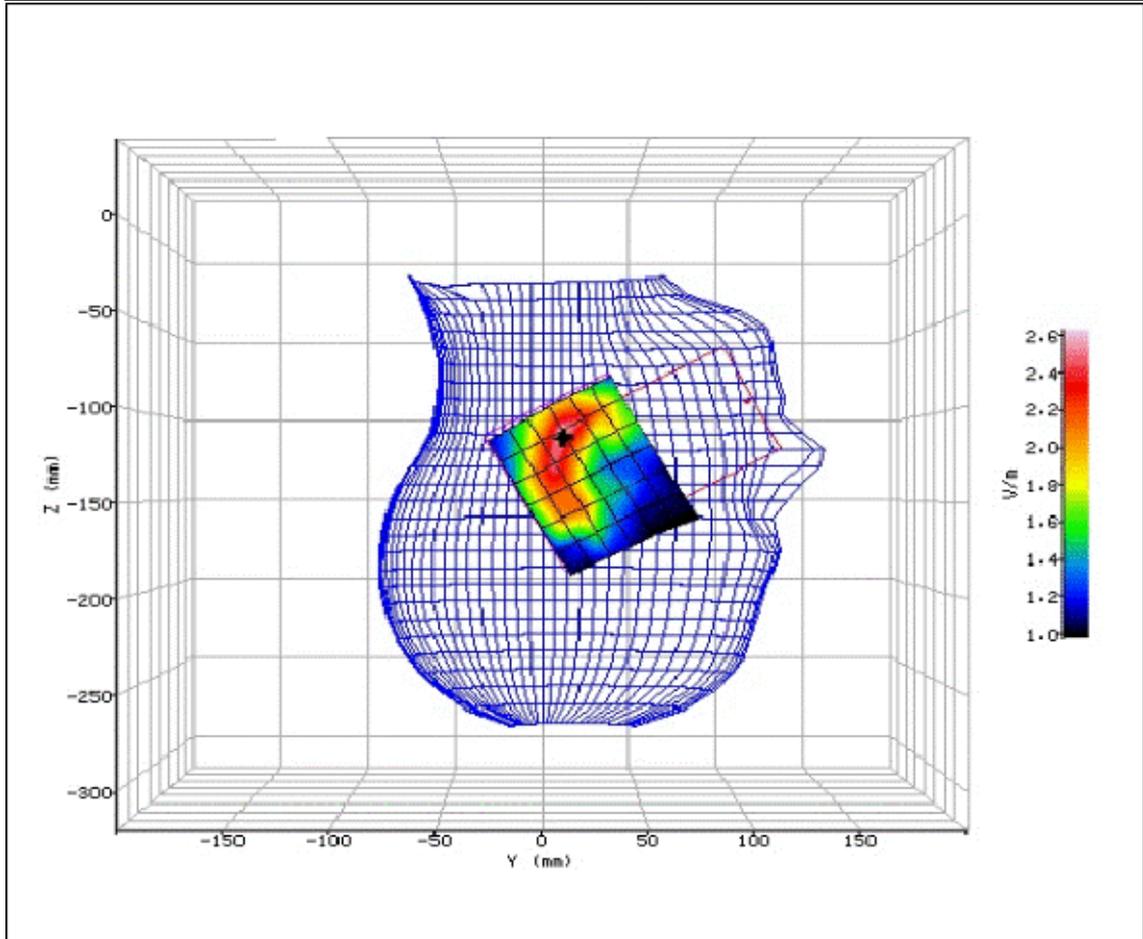


Figure 121: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 2437.0MHz.



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-12:28:59	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.60°C	LIQUID SIMULANT:	2450
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	37.68
RELATIVE HUMIDITY:	47.60%	CONDUCTIVITY:	1.774
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	14.40mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-152.60mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.836
TEST FREQUENCY:	2437.0MHz	SAR 1g:	0.009 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.008 W/kg
INPUT POWER LEVEL:	11dBm	SAR END:	0.008 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	0.000 %

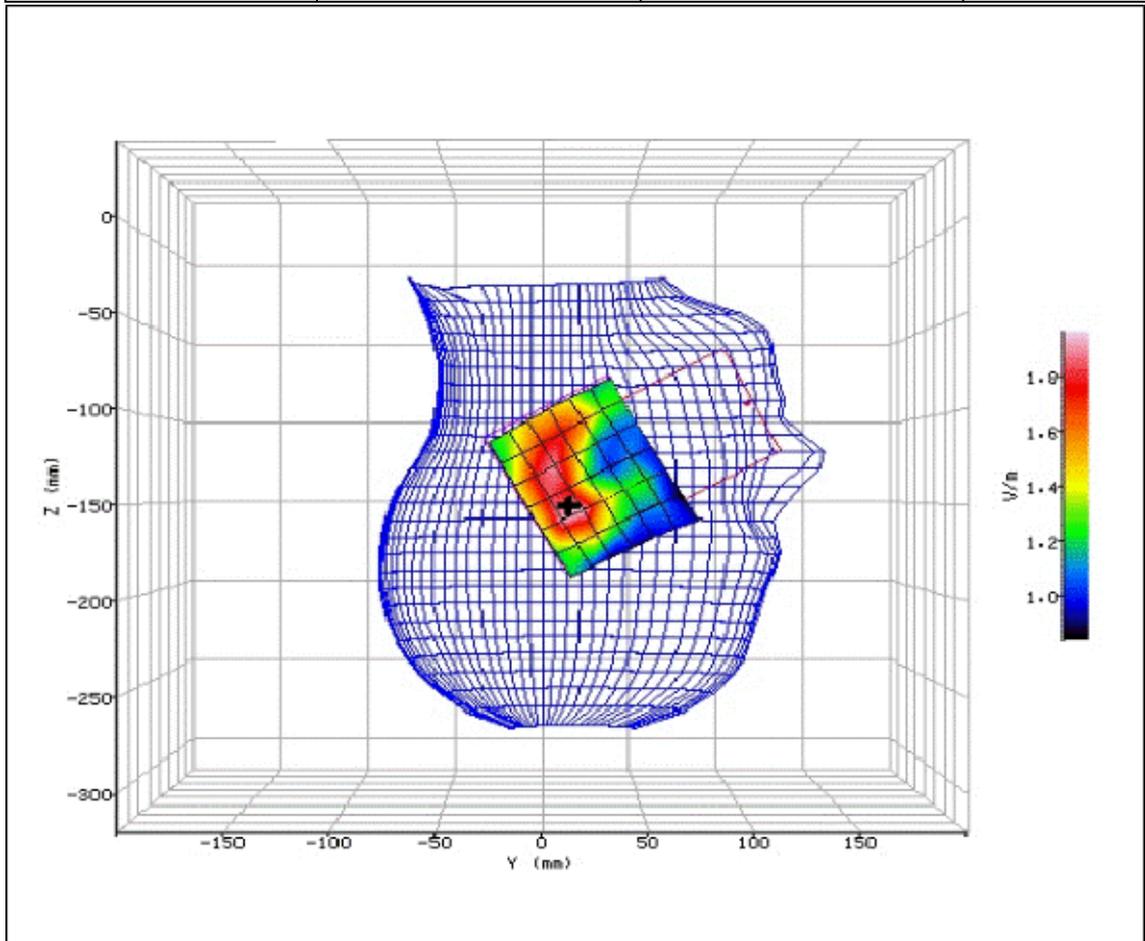


Figure 122: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 2437.0MHz.



2.24 WLAN 2450MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	01/05/2015-06:43:43	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	22.80°C	LIQUID SIMULANT:	2450
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	49.80
RELATIVE HUMIDITY:	30.60%	CONDUCTIVITY:	2.001
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-38.00mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	42.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.719
TEST FREQUENCY:	2437.0MHz	SAR 1g:	0.008 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.008 W/kg
INPUT POWER LEVEL:	11dBm	SAR END:	0.008 W/kg
PROBE BATTERY LAST CHANGED:	01/05/2015	SAR DRIFT DURING SCAN:	0.000 %

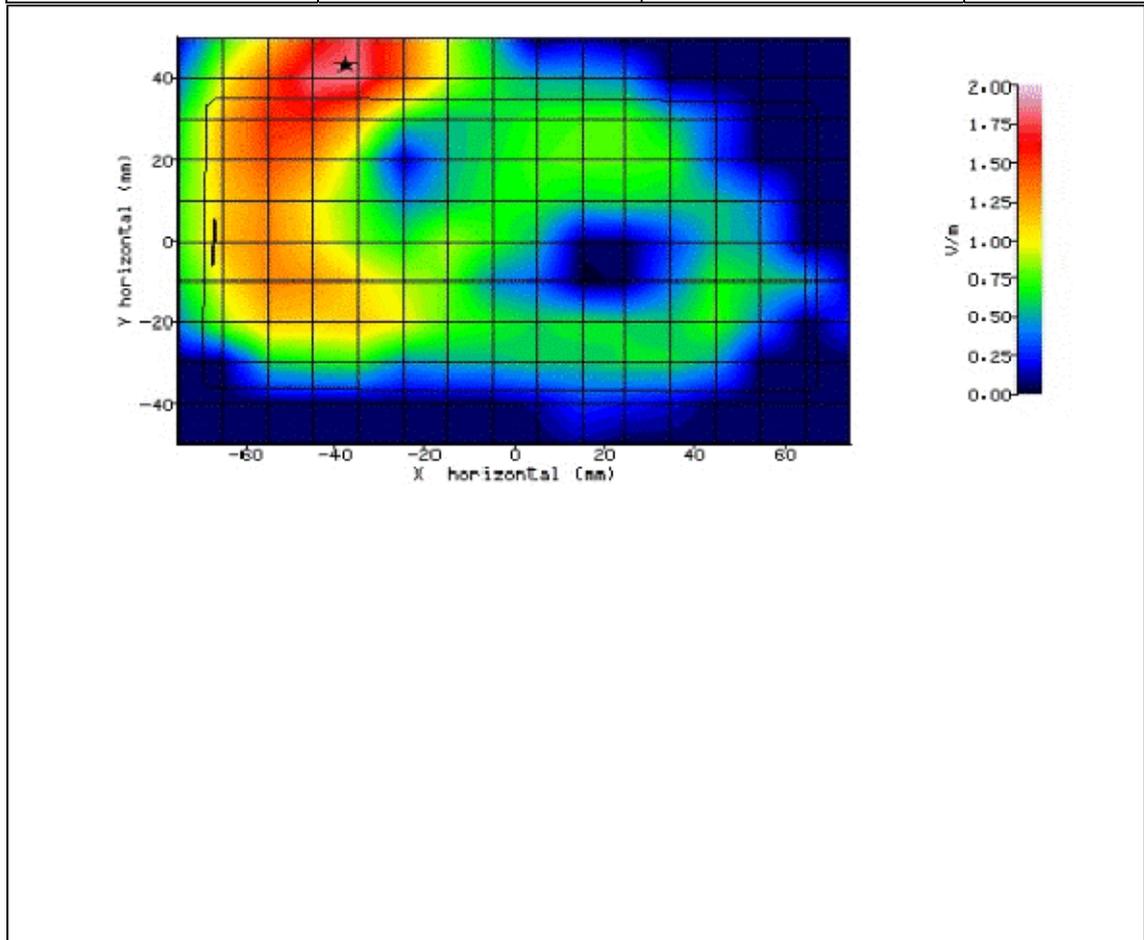


Figure 123: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 2437.0MHz.



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	01/05/2015-07:04:02	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	22.80°C	LIQUID SIMULANT:	2450
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	49.80
RELATIVE HUMIDITY:	30.60%	CONDUCTIVITY:	2.001
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-38.80mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	-29.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	4.070
TEST FREQUENCY:	2437.0MHz	SAR 1g:	0.052 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.054 W/kg
INPUT POWER LEVEL:	11dBm	SAR END:	0.022 W/kg
PROBE BATTERY LAST CHANGED:	01/05/2015	SAR DRIFT DURING SCAN:	-4.500 %

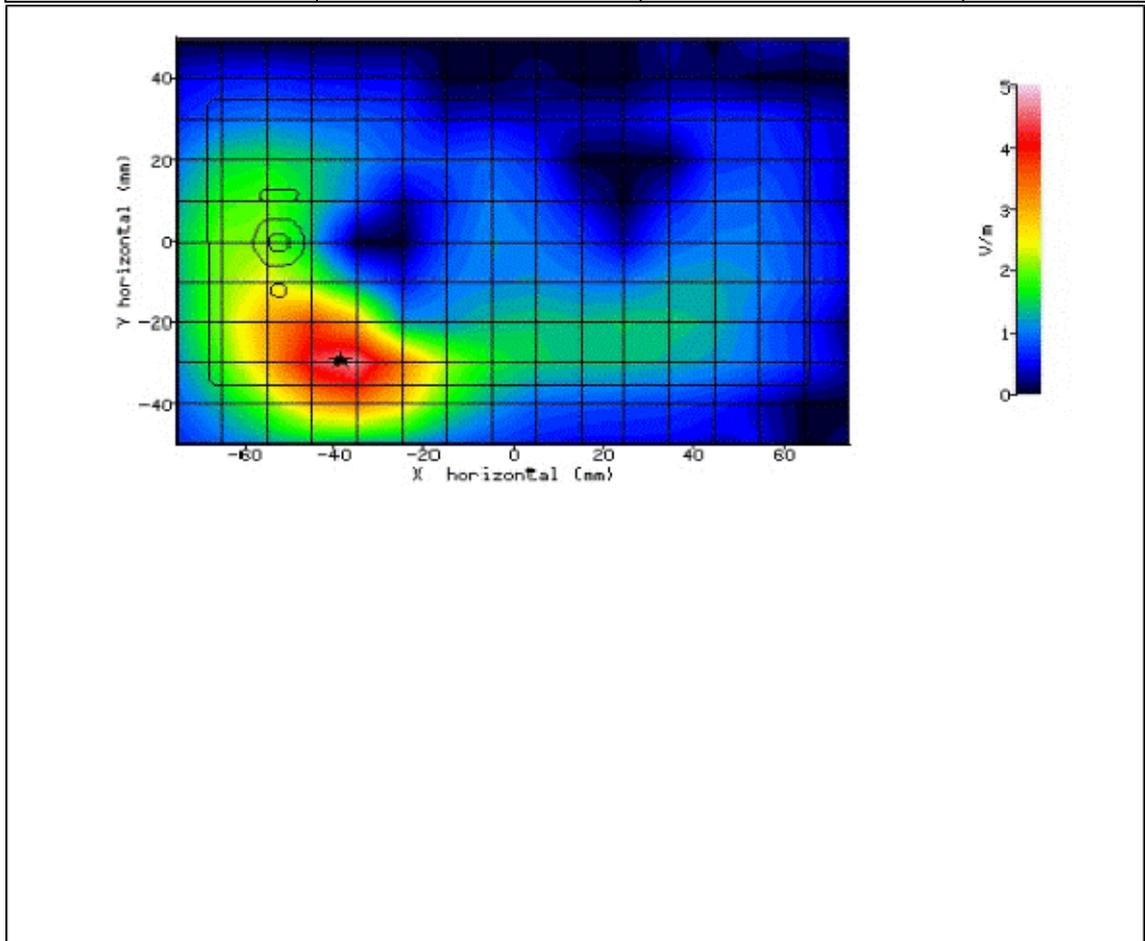


Figure 124: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 2437.0MHz.



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	01/05/2015-07:31:59	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	22.80°C	LIQUID SIMULANT:	2450
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	49.80
RELATIVE HUMIDITY:	30.60%	CONDUCTIVITY:	2.001
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-40.00mm
DUT POSITION:	10mm-Left Edge	MAX SAR Y-AXIS LOCATION:	6.70mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	3.418
TEST FREQUENCY:	2437.0MHz	SAR 1g:	0.030 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.030 W/kg
INPUT POWER LEVEL:	11dBm	SAR END:	0.030 W/kg
PROBE BATTERY LAST CHANGED:	01/05/2015	SAR DRIFT DURING SCAN:	0.300 %

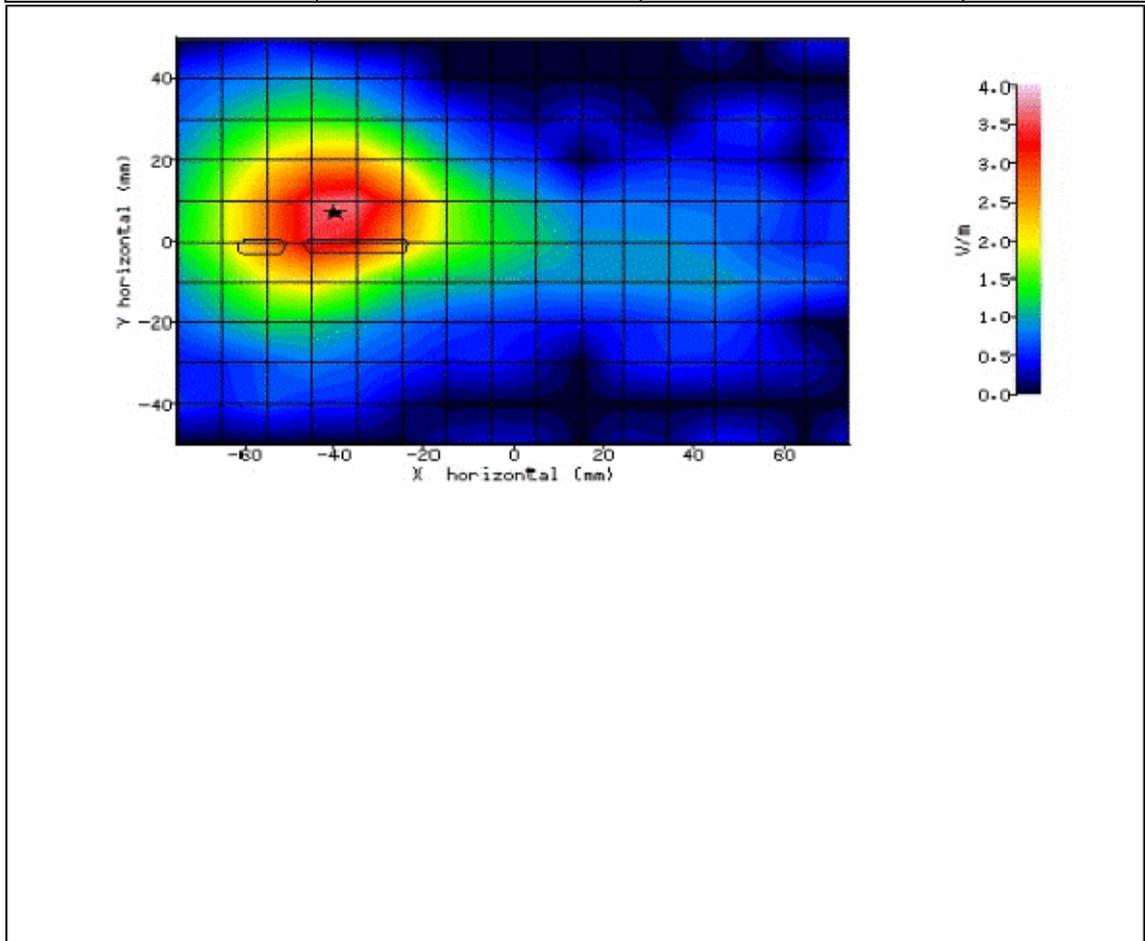


Figure 125: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 2437.0MHz.



2.25 WLAN 5180MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-09:43:19	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	36.30%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	23.60mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-110.30mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.229
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.003 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.005 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.001 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	0.000 %

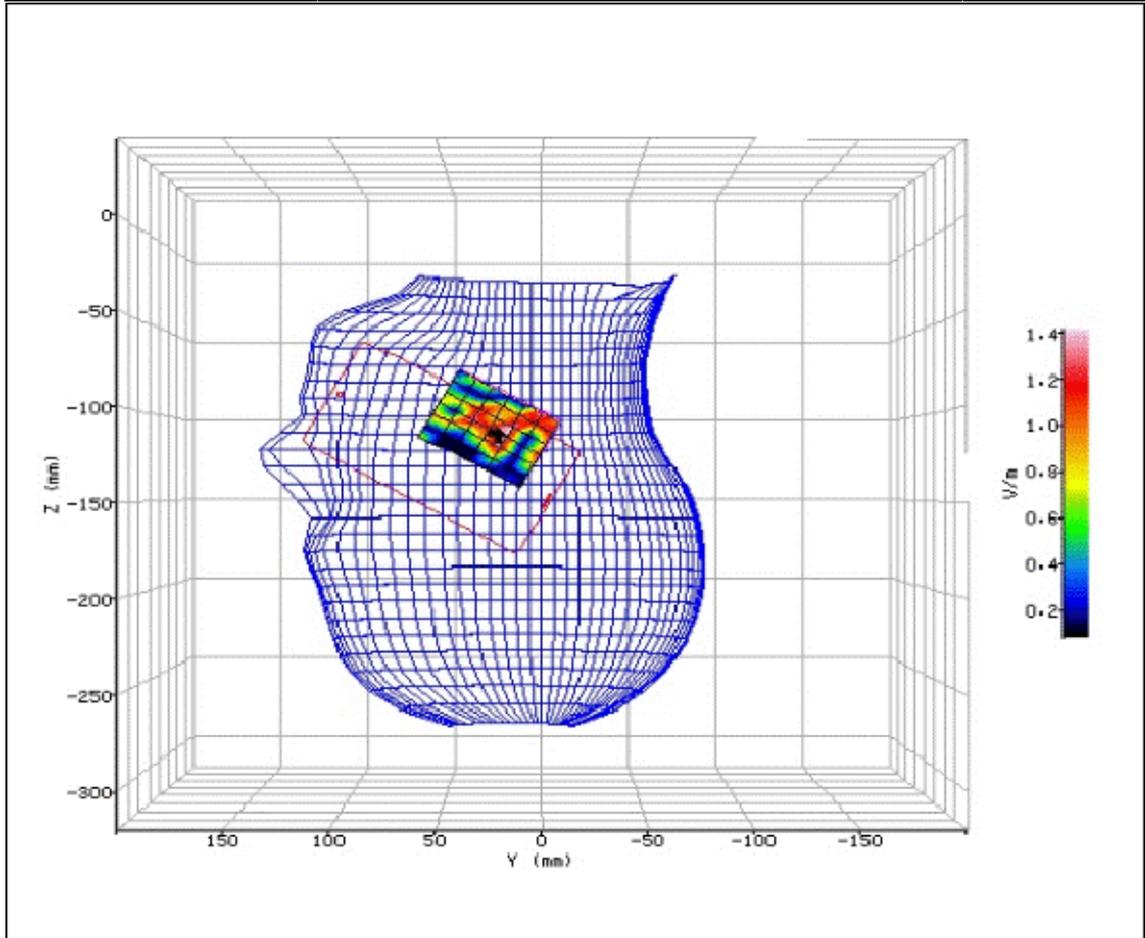


Figure 126: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-10:09:04	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	36.30%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-7.30mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-135.50mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.238
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.018 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.023 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.023 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	-2.100 %

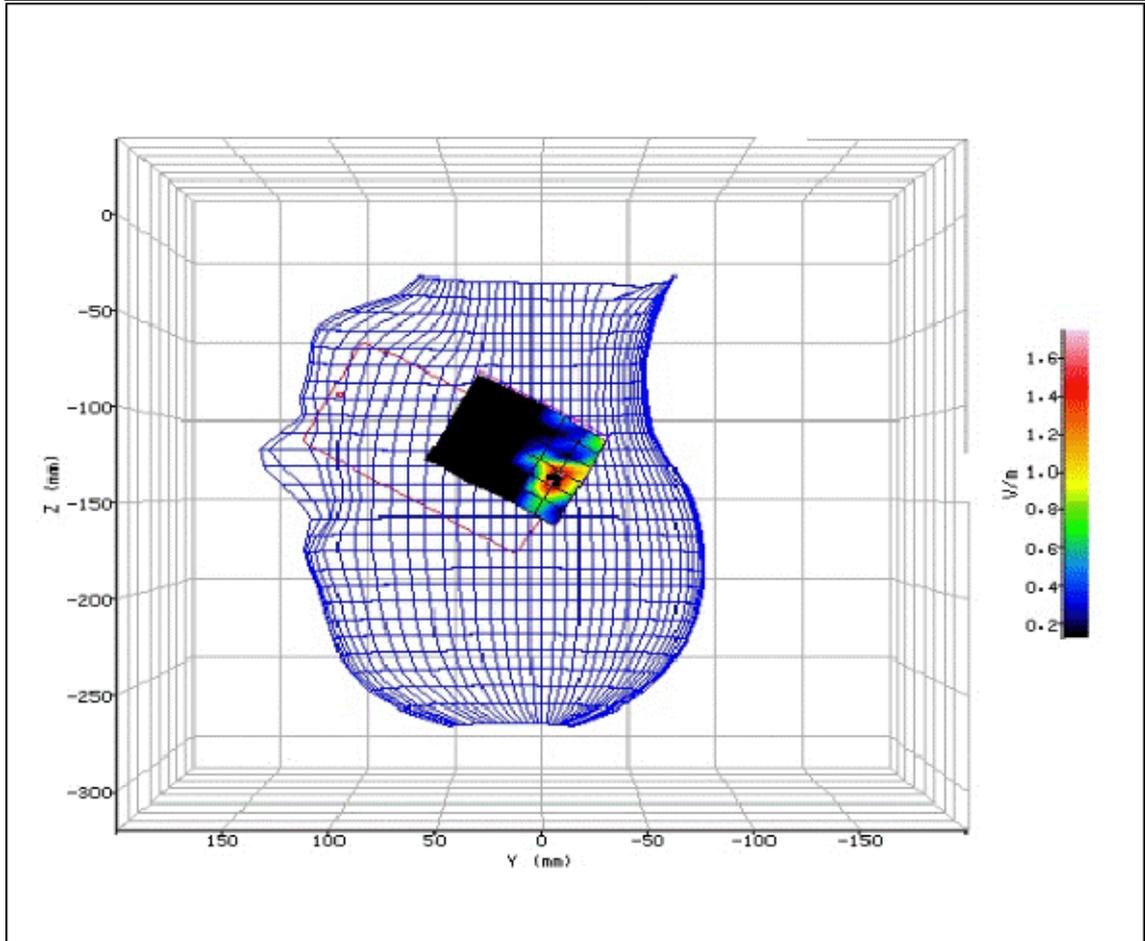


Figure 127: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-09:40:04	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	33.70mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-180.10mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.661
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.044 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.068 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.070 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	2.400 %

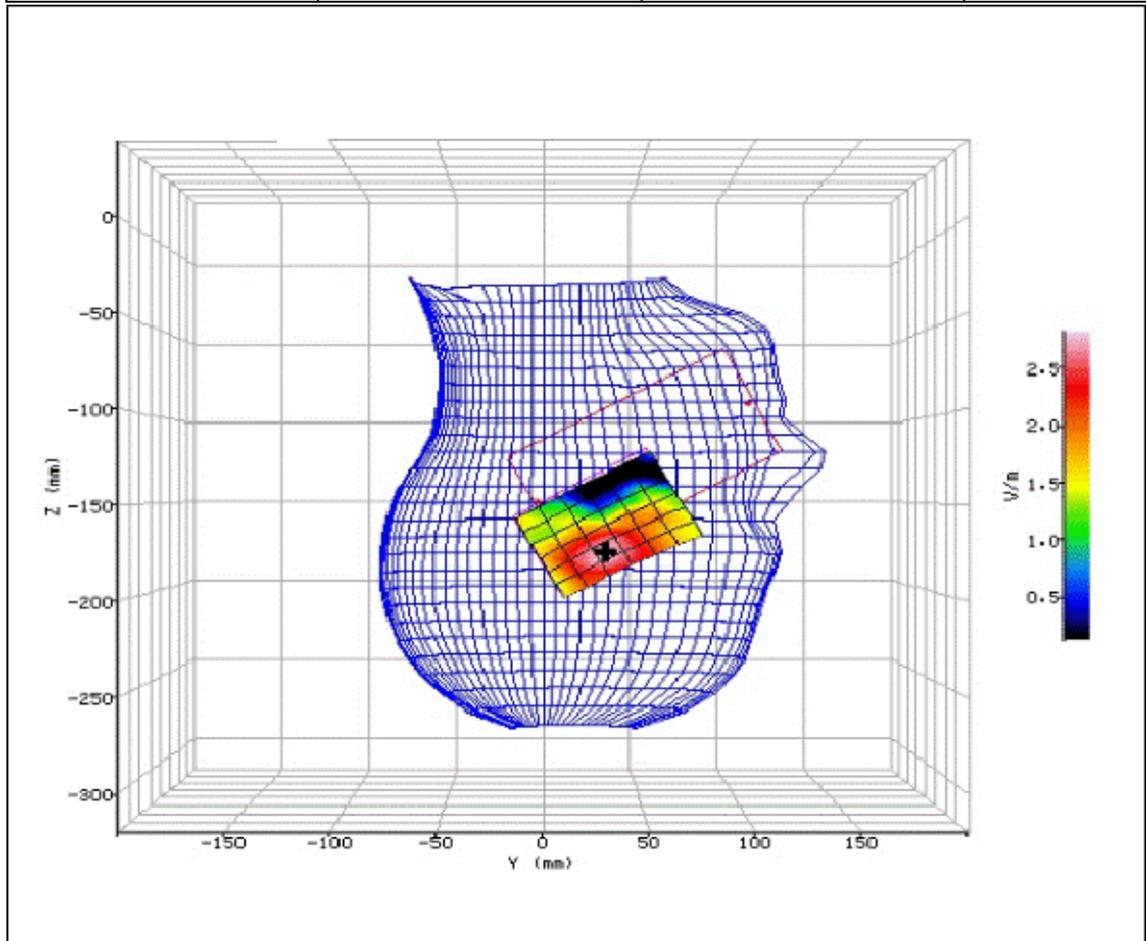


Figure 128: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-10:12:24	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	27.00mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-183.80mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.762
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.034 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.074 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.067 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	-7.200 %

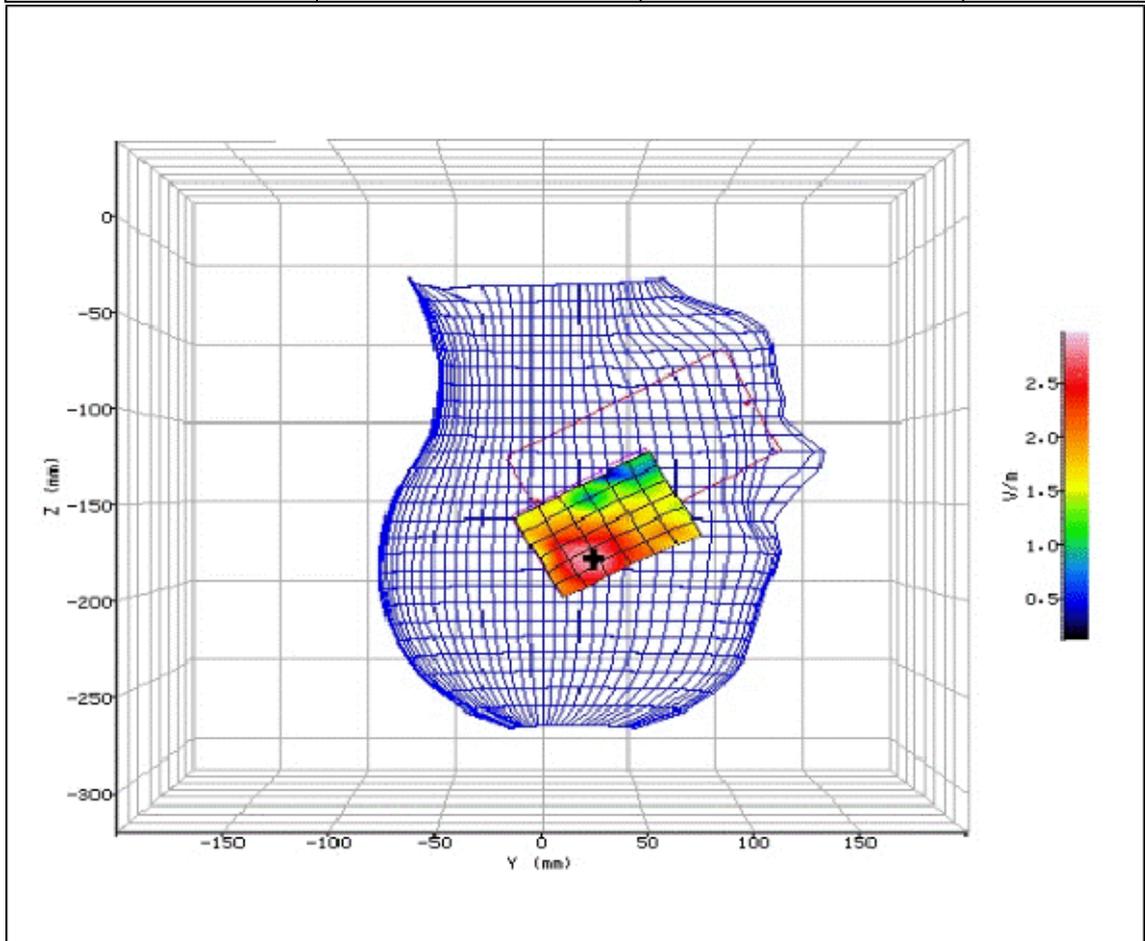


Figure 129: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



2.26 WLAN 5180MHZ BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-14:36:16	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.60°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	35.10%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-63.900mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-37.200mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.723
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.017 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.017 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.017 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	0.000 %

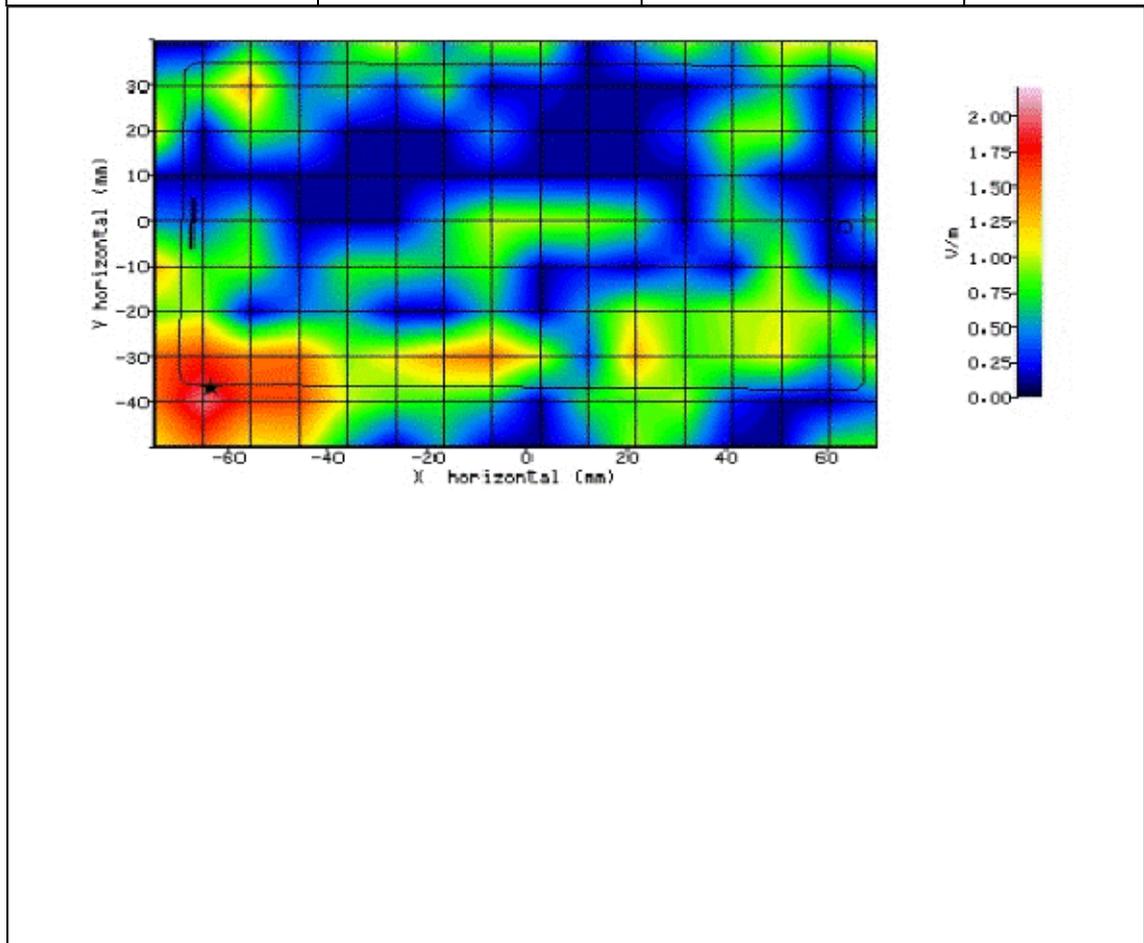


Figure 130: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-14:59:49	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.60°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	35.10%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-60.300mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	27.600mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	5.782
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.188 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.289 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.284 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	-1.600 %

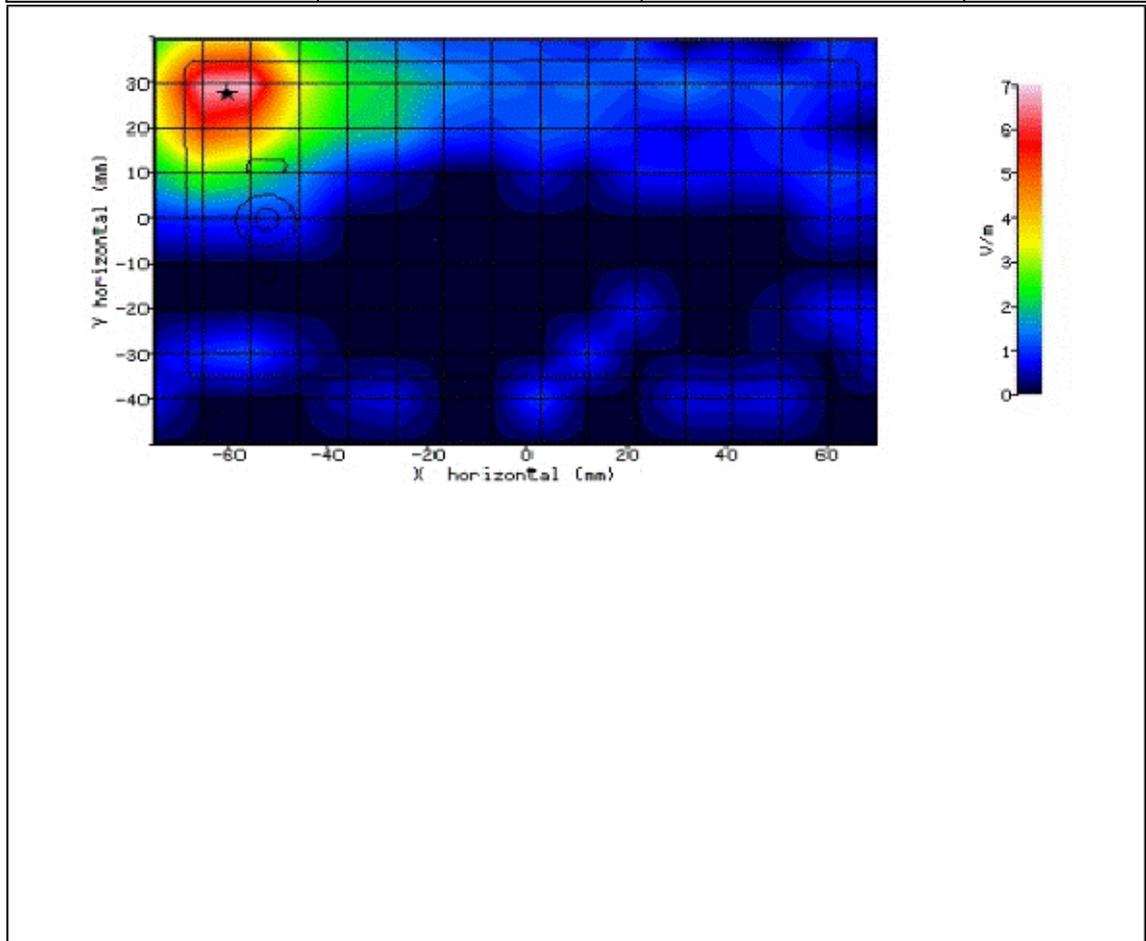


Figure 131: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-15:33:11	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.60°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	35.10%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-63.400mm
DUT POSITION:	10mm-Right Edge	MAX SAR Y-AXIS LOCATION:	-5.600mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	3.371
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.061 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.090 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.097 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	8.200 %

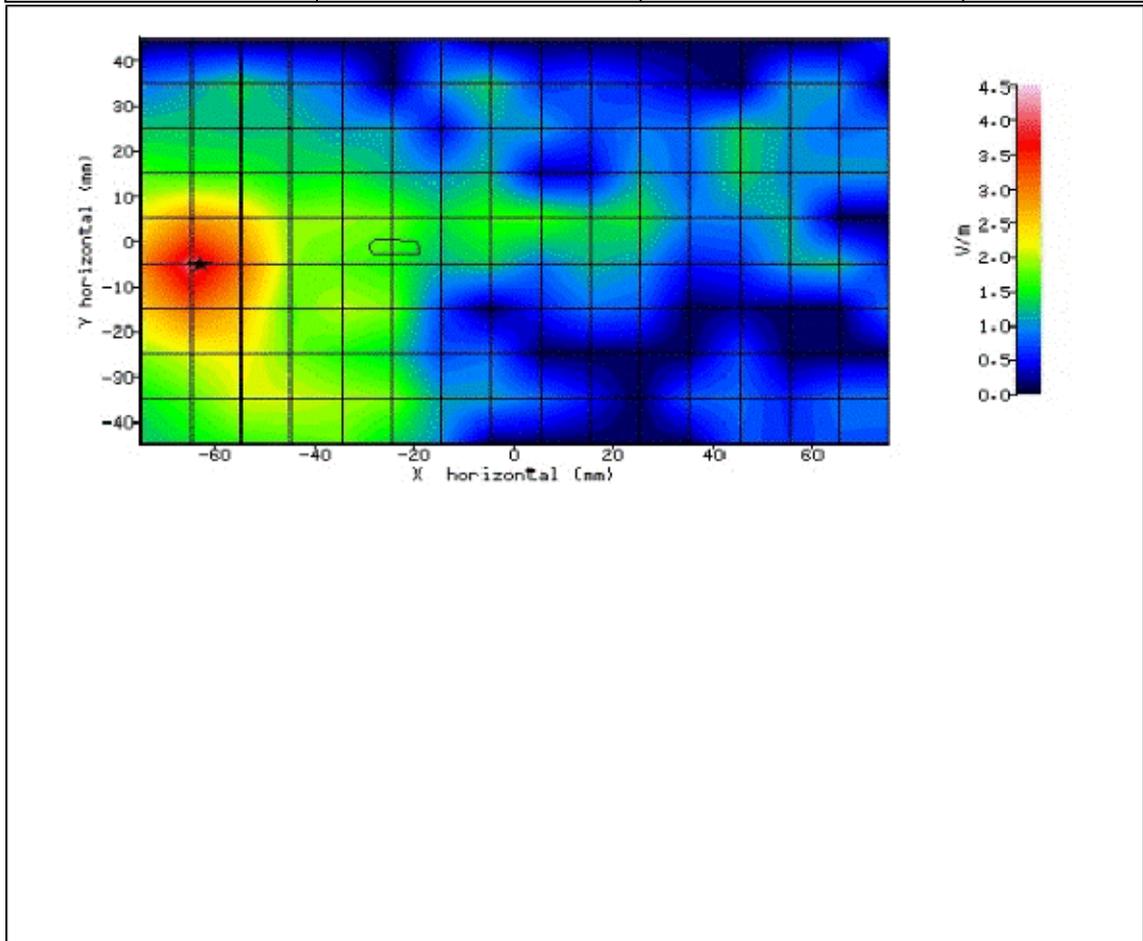


Figure 132: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-15:52:06	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.60°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	35.10%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	33.300mm
DUT POSITION:	10mm-Top Edge	MAX SAR Y-AXIS LOCATION:	-9.800mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.329
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.026 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.043 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.043 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	0.000 %

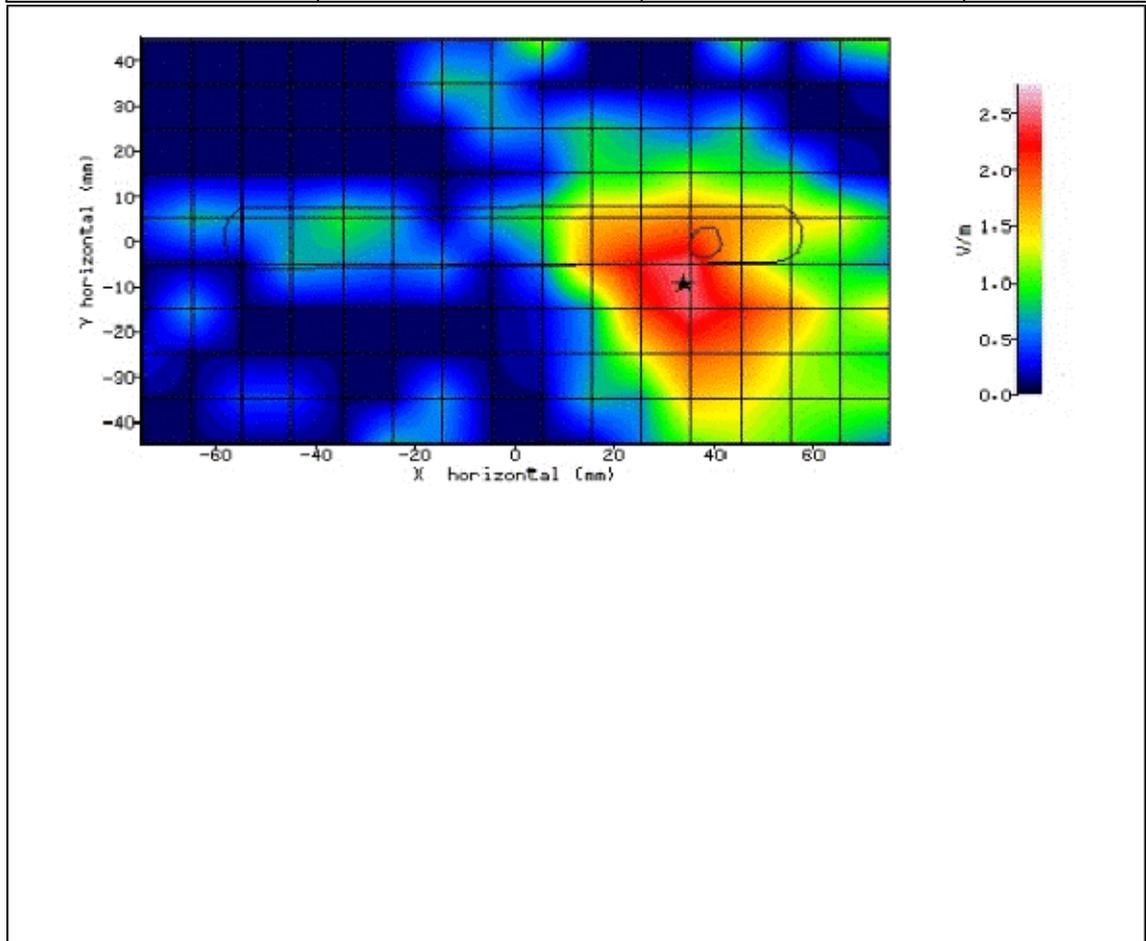


Figure 133: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



2.27 WLAN 5180MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-10:47:12	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	36.30%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	56.60mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-166.50mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.342
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.043 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.058 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.057 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	-0.600 %

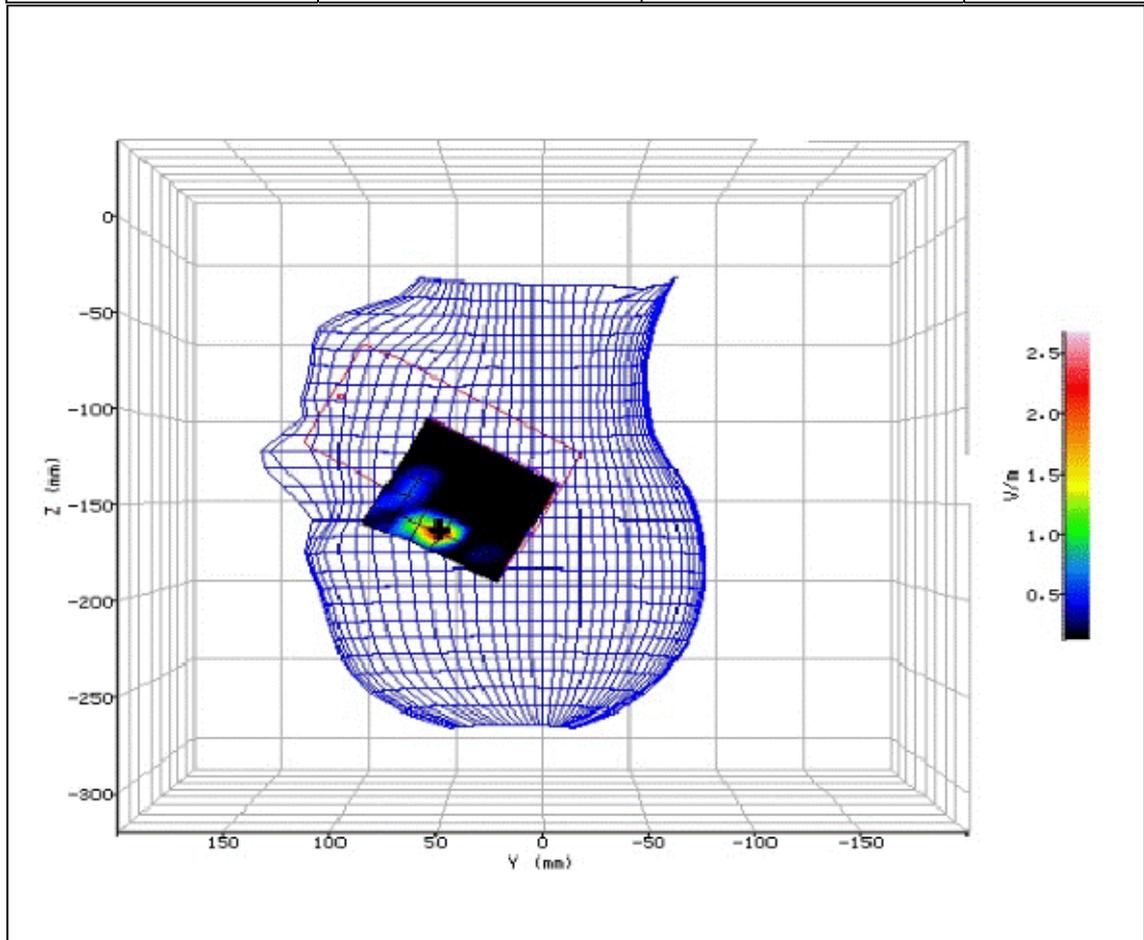


Figure 134: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-11:11:15	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	36.30%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	54.80mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-168.70mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	0.768
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.005 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.009 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.002 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	0.000 %

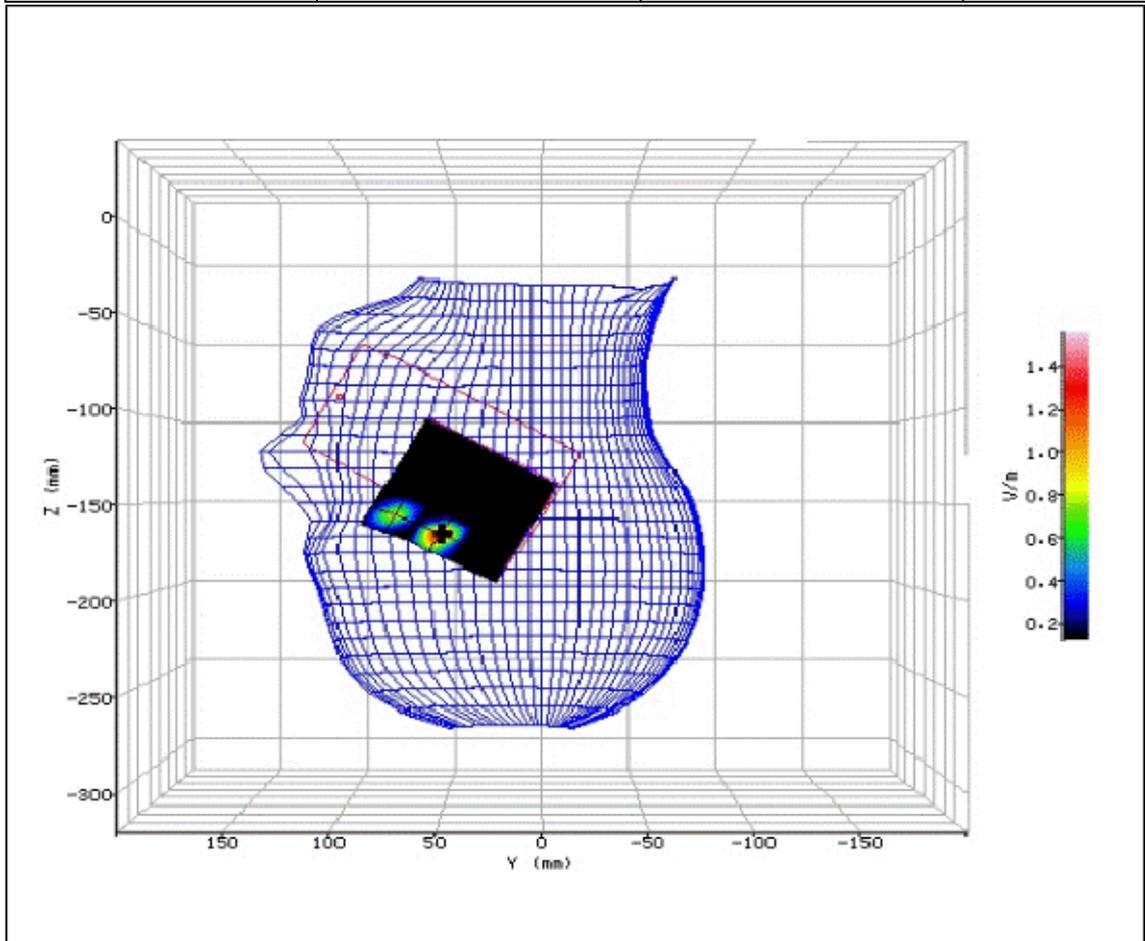


Figure 135: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-10:53:56	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	29.70mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-99.60mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.045
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.020 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.045 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.032 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

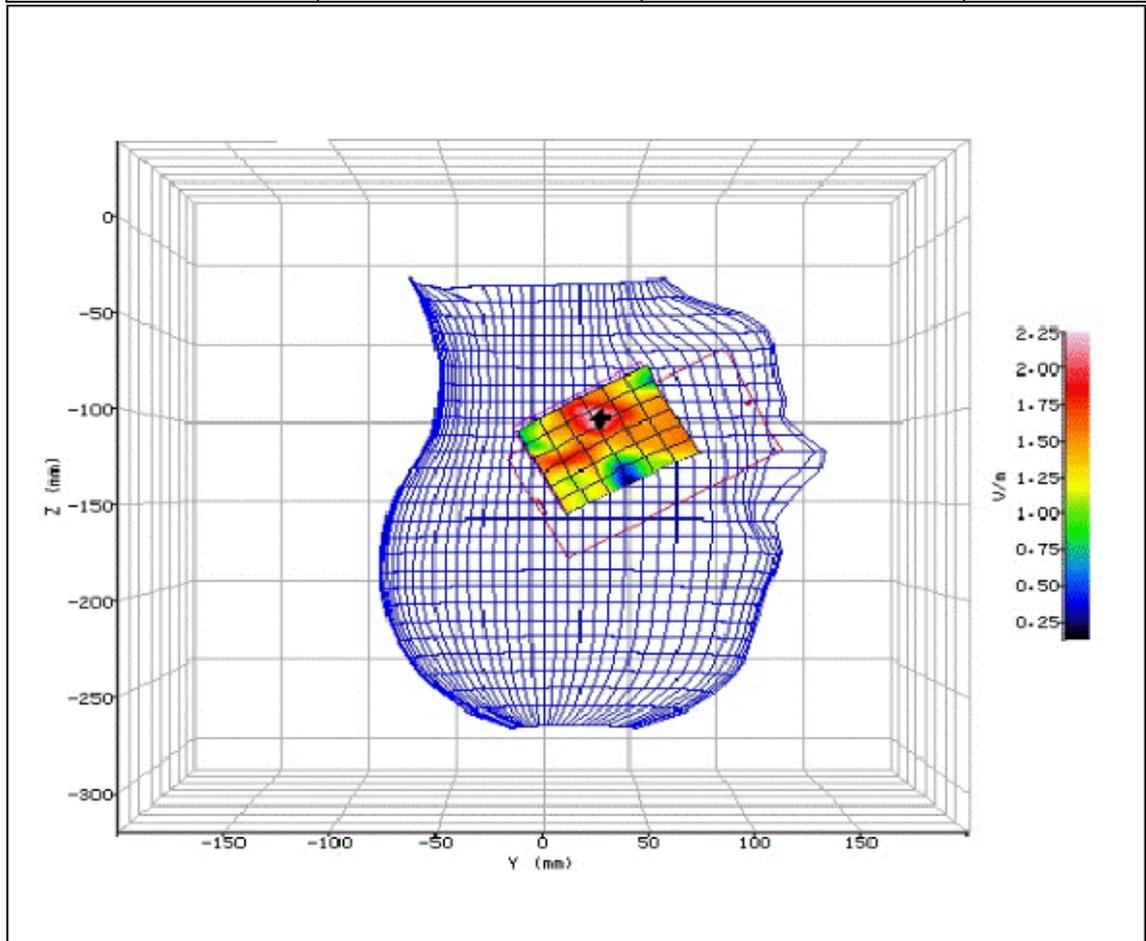


Figure 136: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-11:27:16	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	22.80mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-95.00mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.539
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.009 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.017 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.013 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

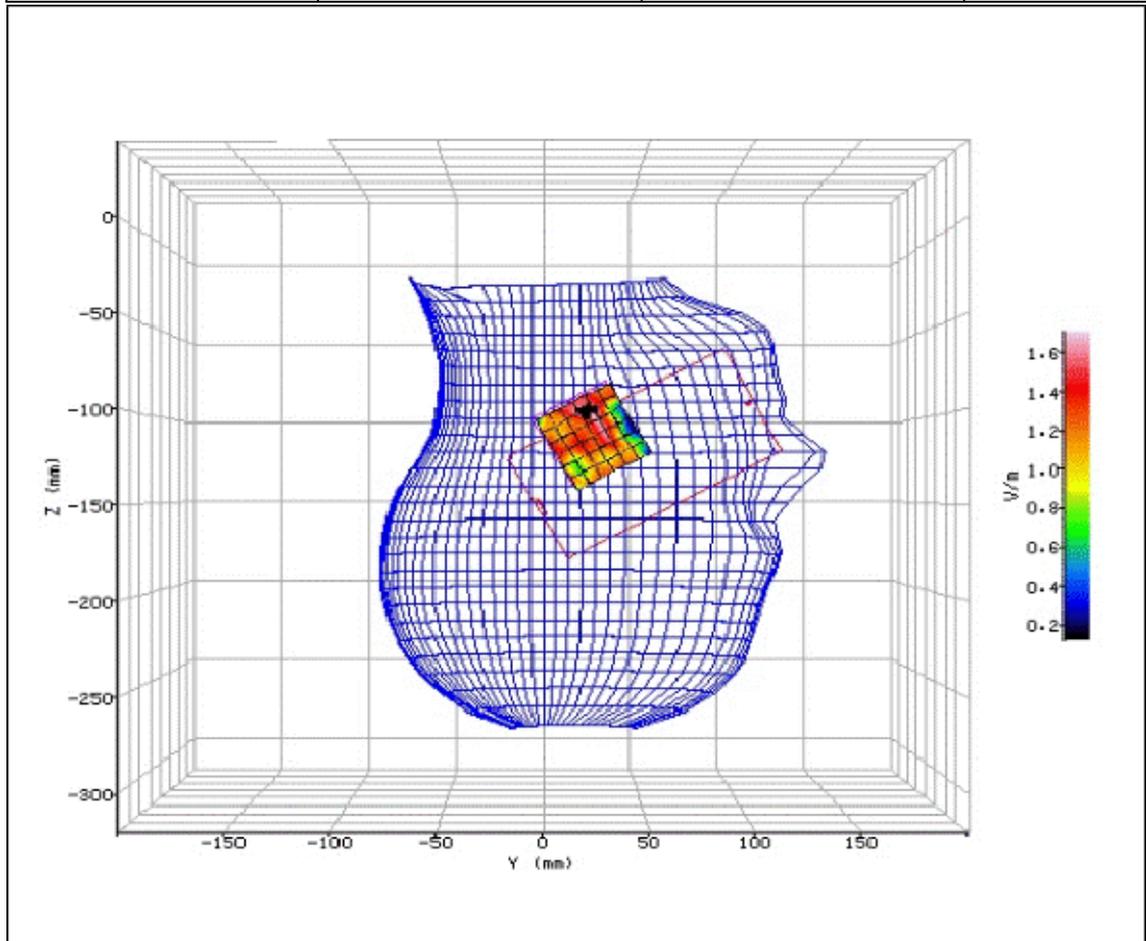


Figure 137: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



2.28 WLAN 5180MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-06:26:42	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-28.600mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	38.900mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	0.595
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.004 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.011 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.011 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

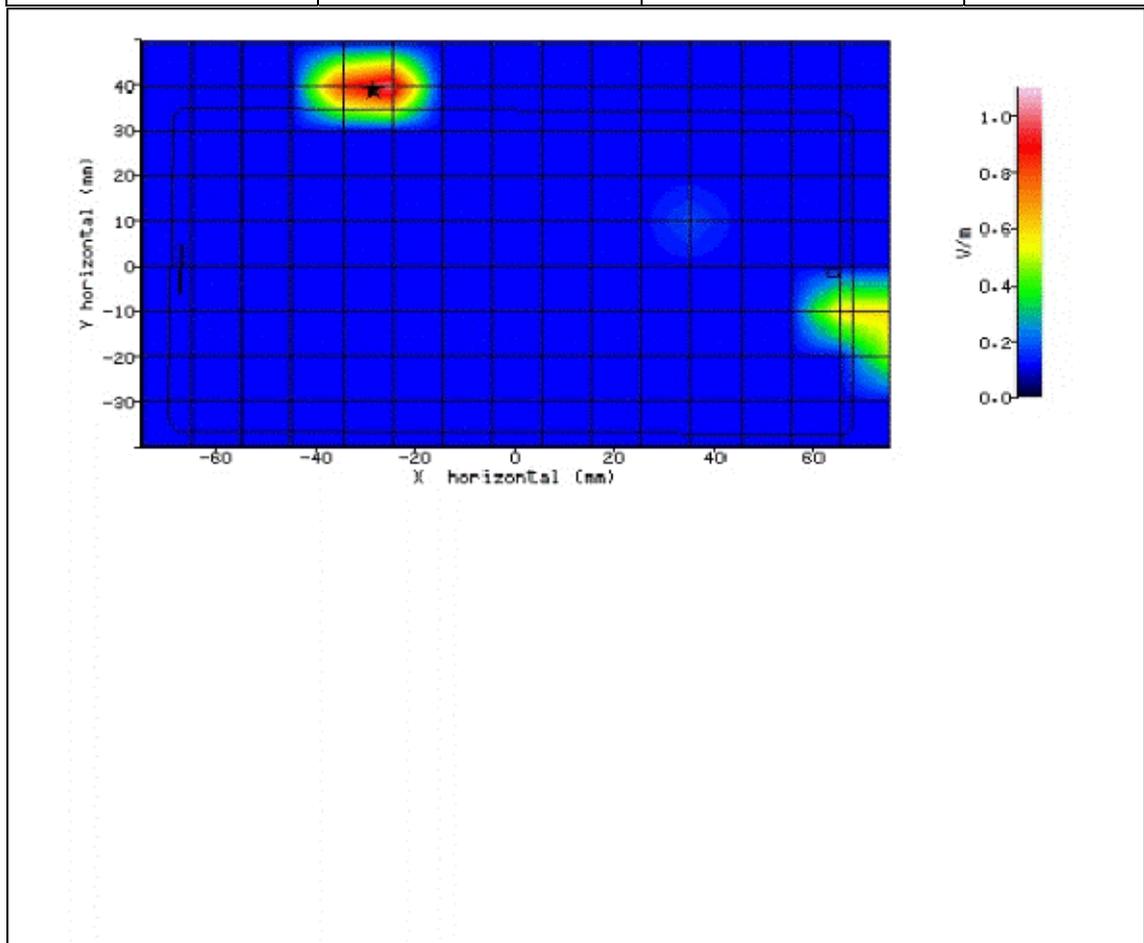


Figure 138: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-06:46:01	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-32.600mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	-29.000mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.190
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.035 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.062 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.067 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	8.200 %

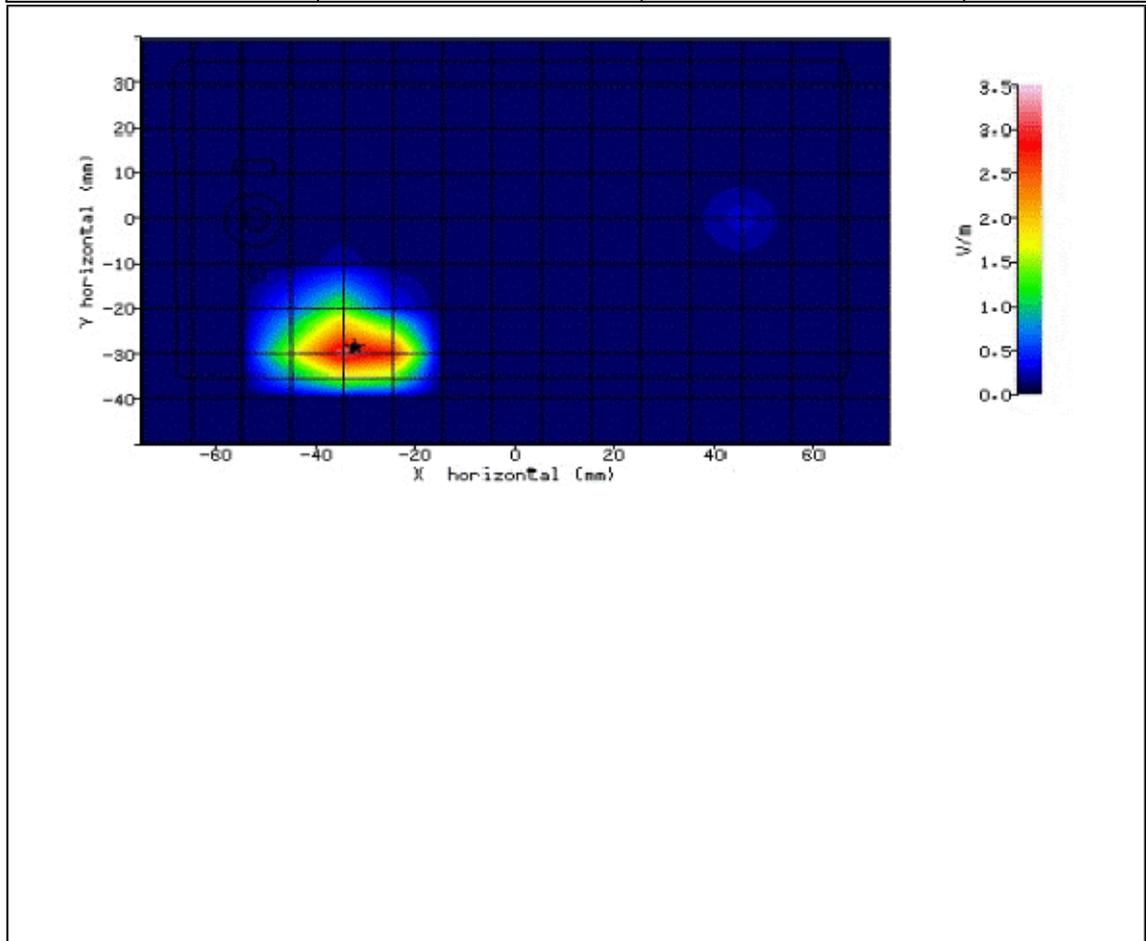


Figure 139: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-07:06:43	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-34.100mm
DUT POSITION:	10mm-Left Edge	MAX SAR Y-AXIS LOCATION:	15.900mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	0.846
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.005 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.013 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.012 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	-7.600 %

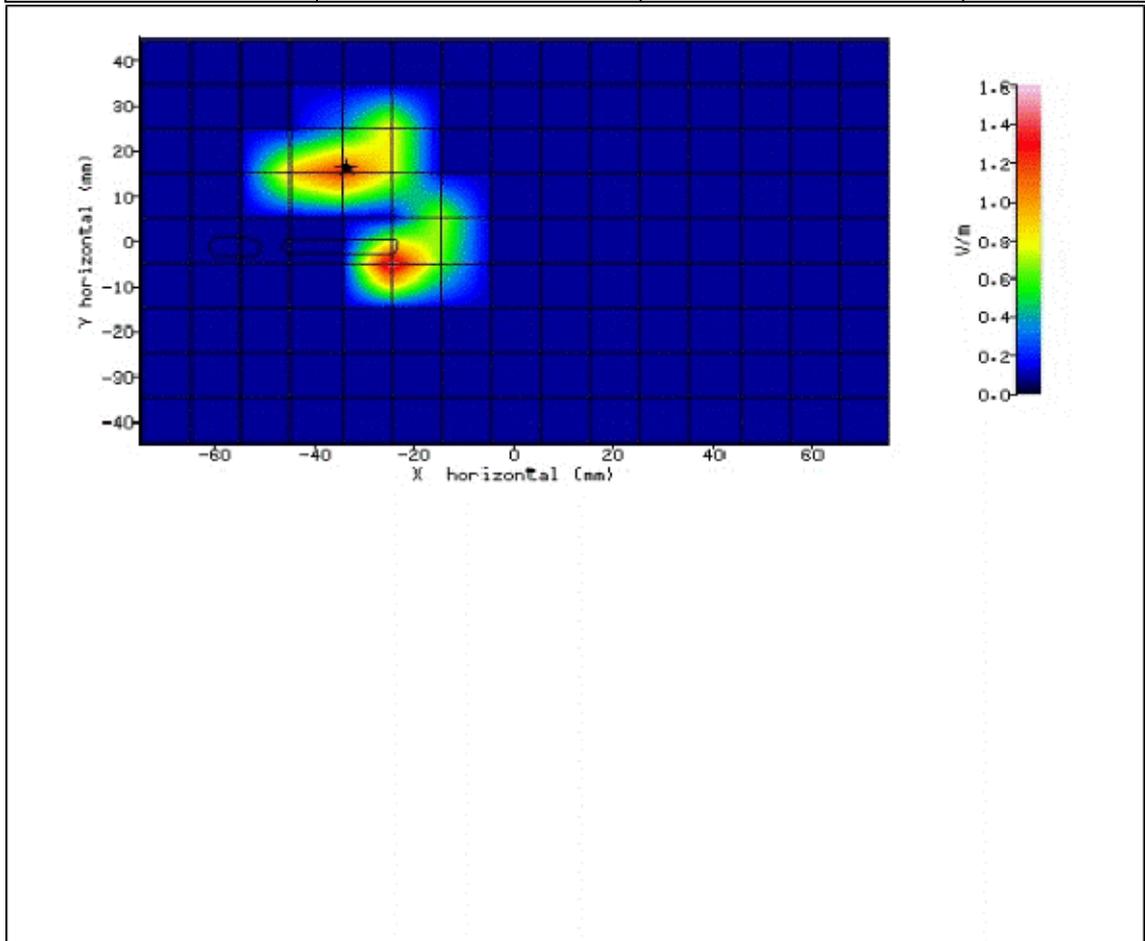


Figure 140: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



2.29 WLAN 5280MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-11:58:34	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	36.30%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-3.10mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-128.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.123
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.008 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.016 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.014 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	-7.900 %

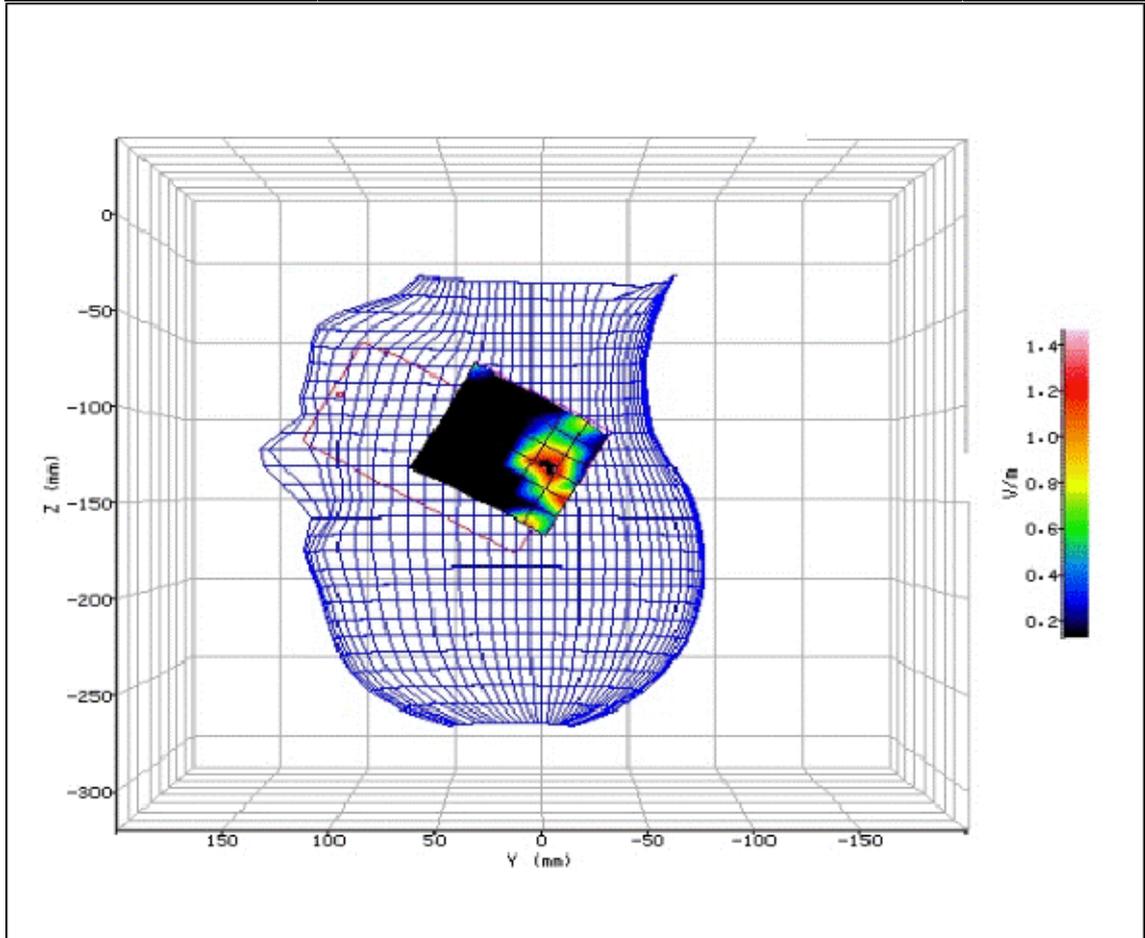


Figure 141: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-15:51:07	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	36.30%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-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:	-135.50mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.114
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.019 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.016 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.026 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	0.000 %

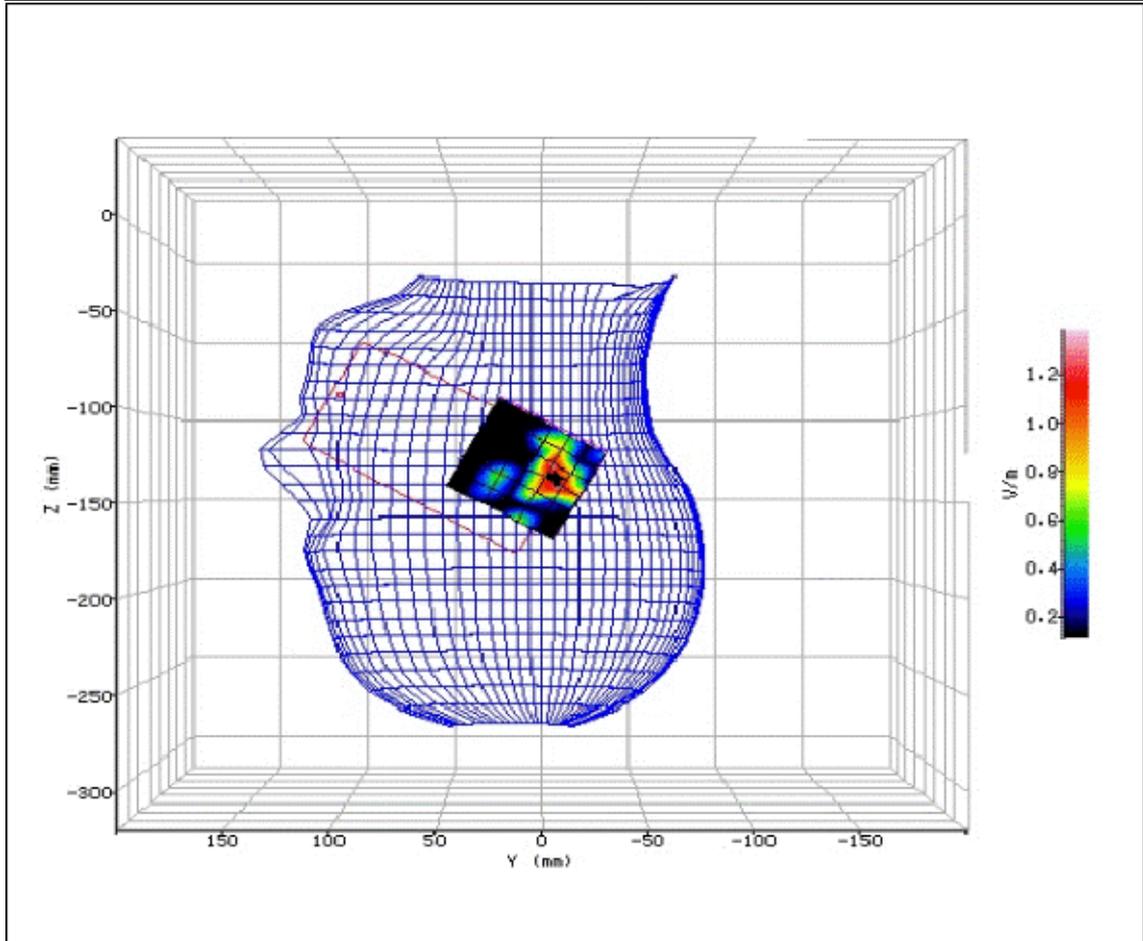


Figure 142: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-12:04:38	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	29.20mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-180.30mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.633
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.045 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.073 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.073 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	-0.100 %

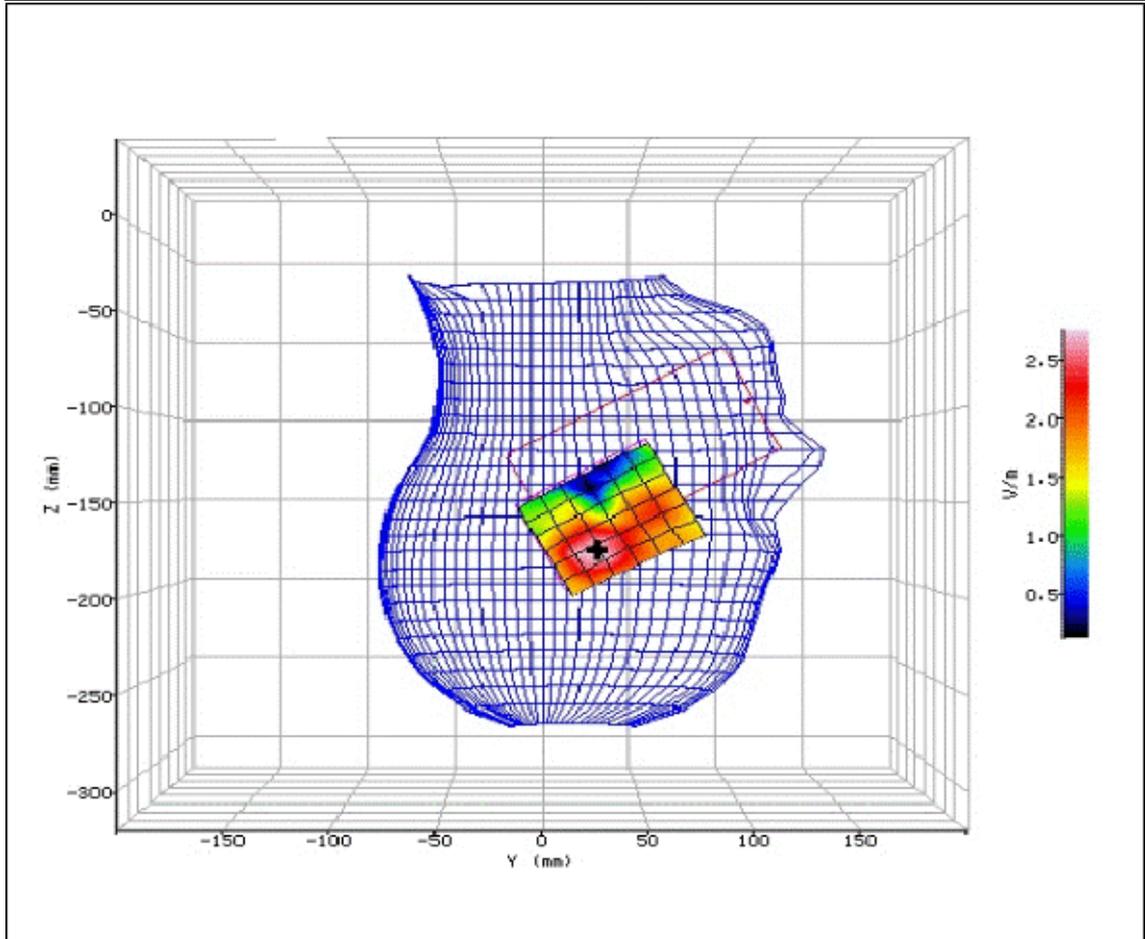


Figure 143: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-12:39:43	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	25.90mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-183.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.470
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.038 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.054 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.059 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	9.400 %

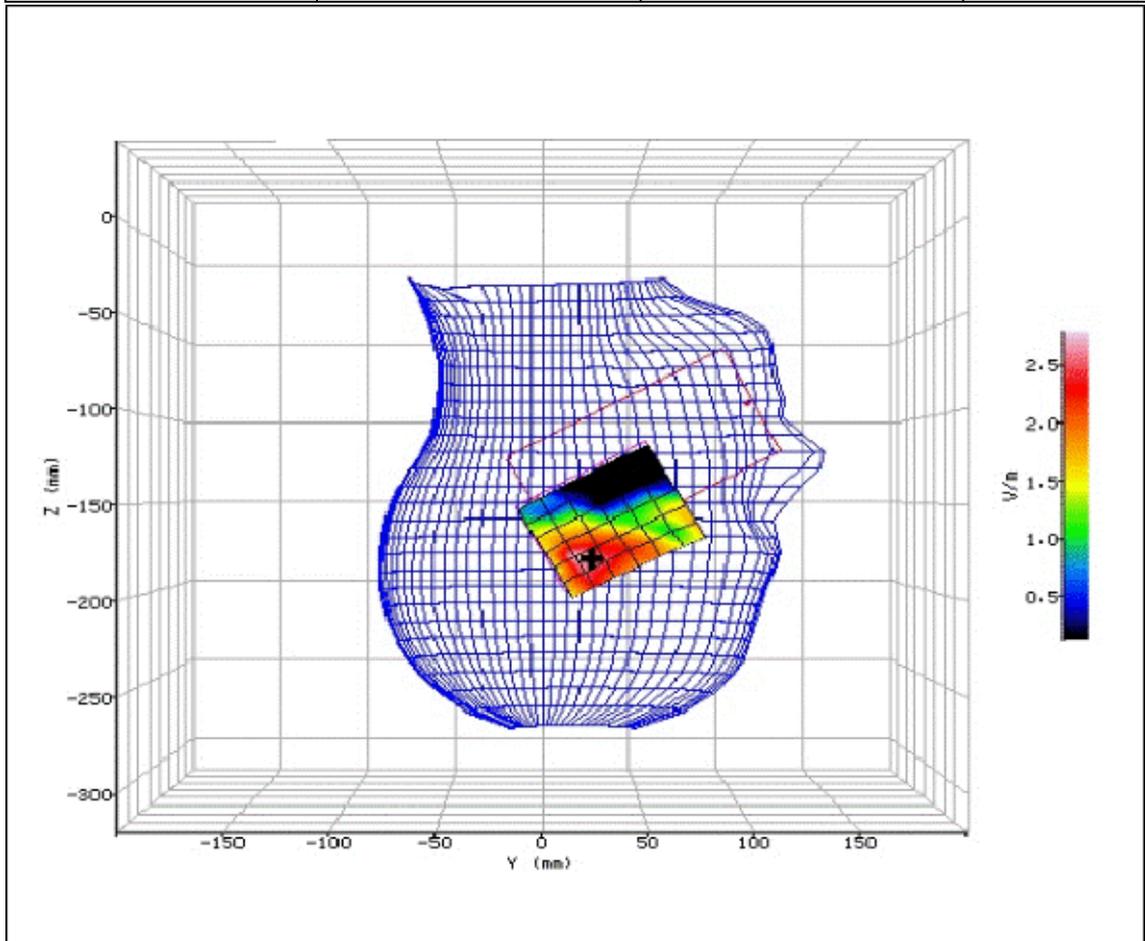


Figure 144: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



2.30 WLAN 5280MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-08:45:15	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-59.400mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-41.500mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.470
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.005 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.011 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.011 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

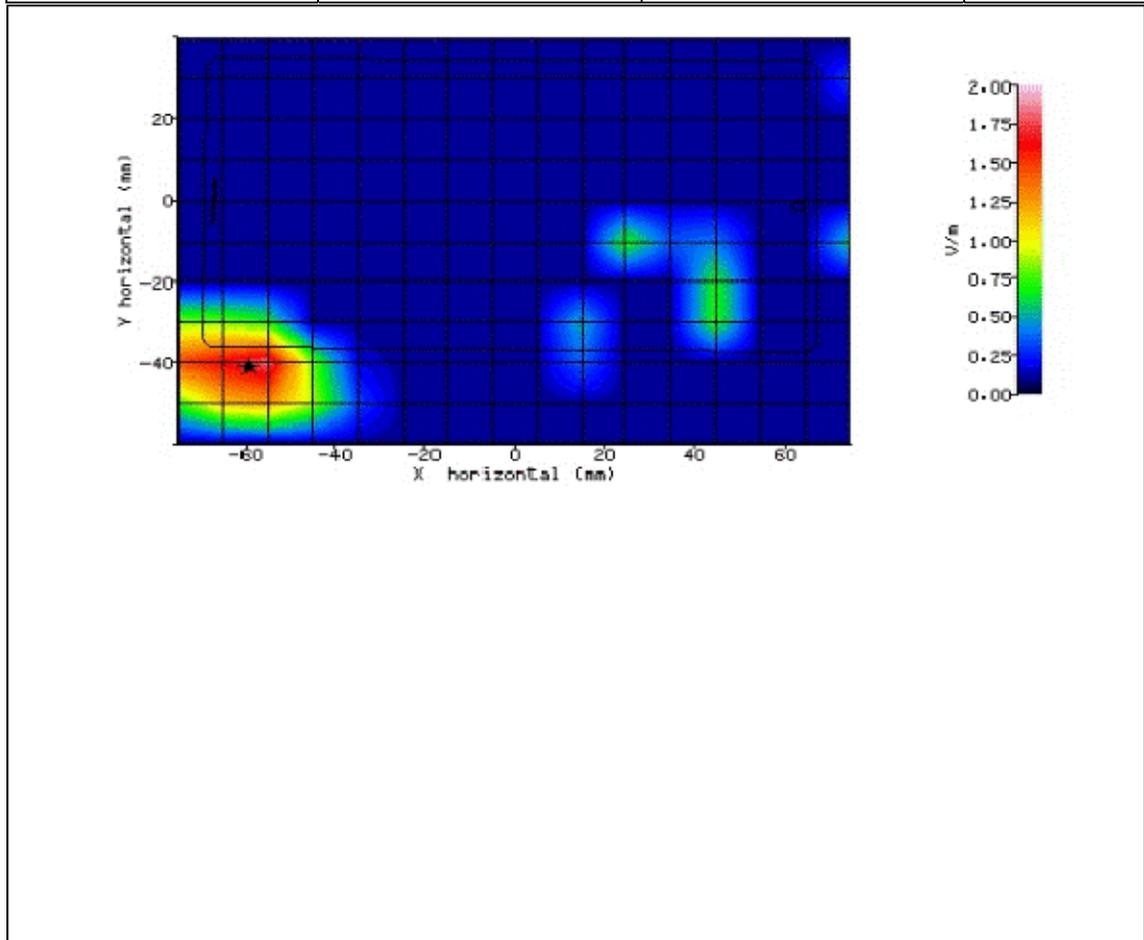


Figure 145: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-09:04:45	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-58.900mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	31.100mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	5.255
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.159 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.237 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.230 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	-2.800 %

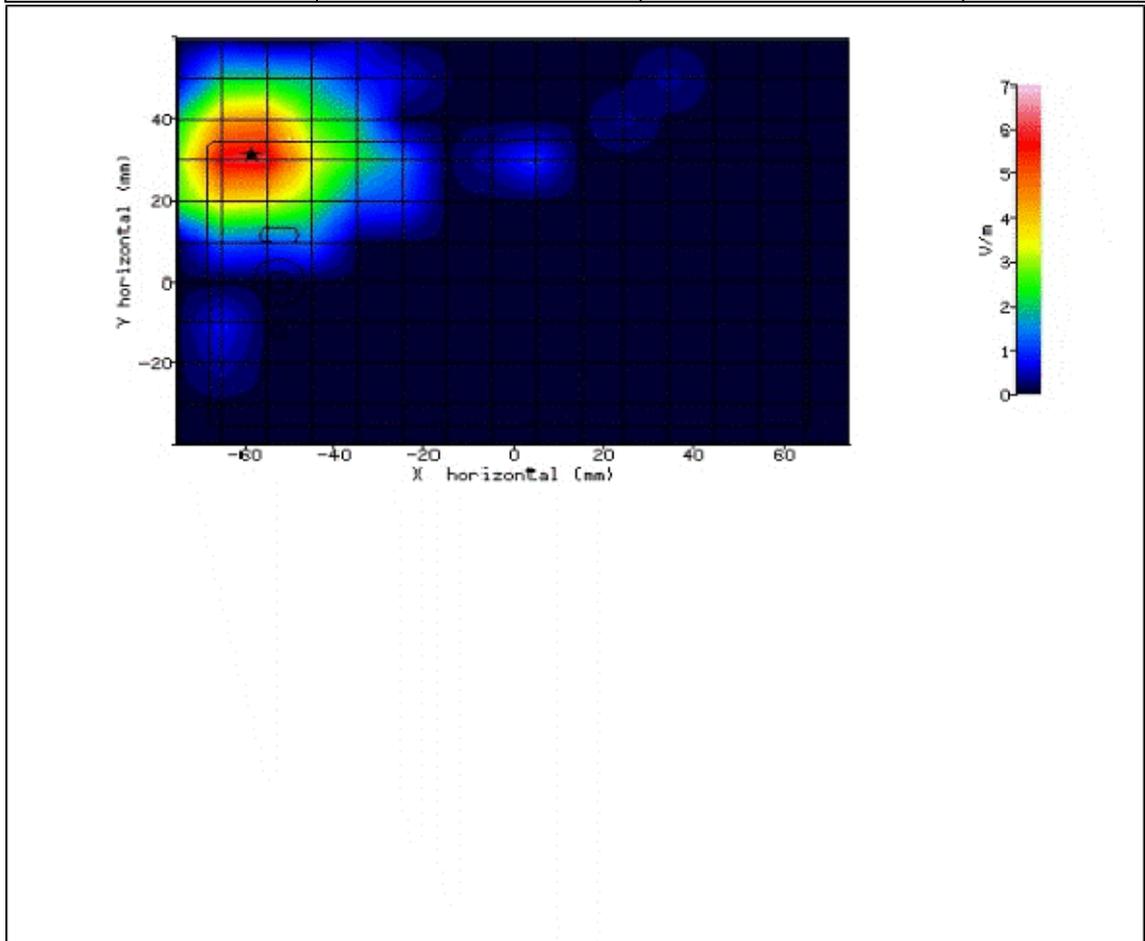


Figure 146: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-08:12:40	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-60.400mm
DUT POSITION:	10mm-Right Edge	MAX SAR Y-AXIS LOCATION:	-5.100mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	3.153
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.053 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.077 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.074 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	-4.000 %

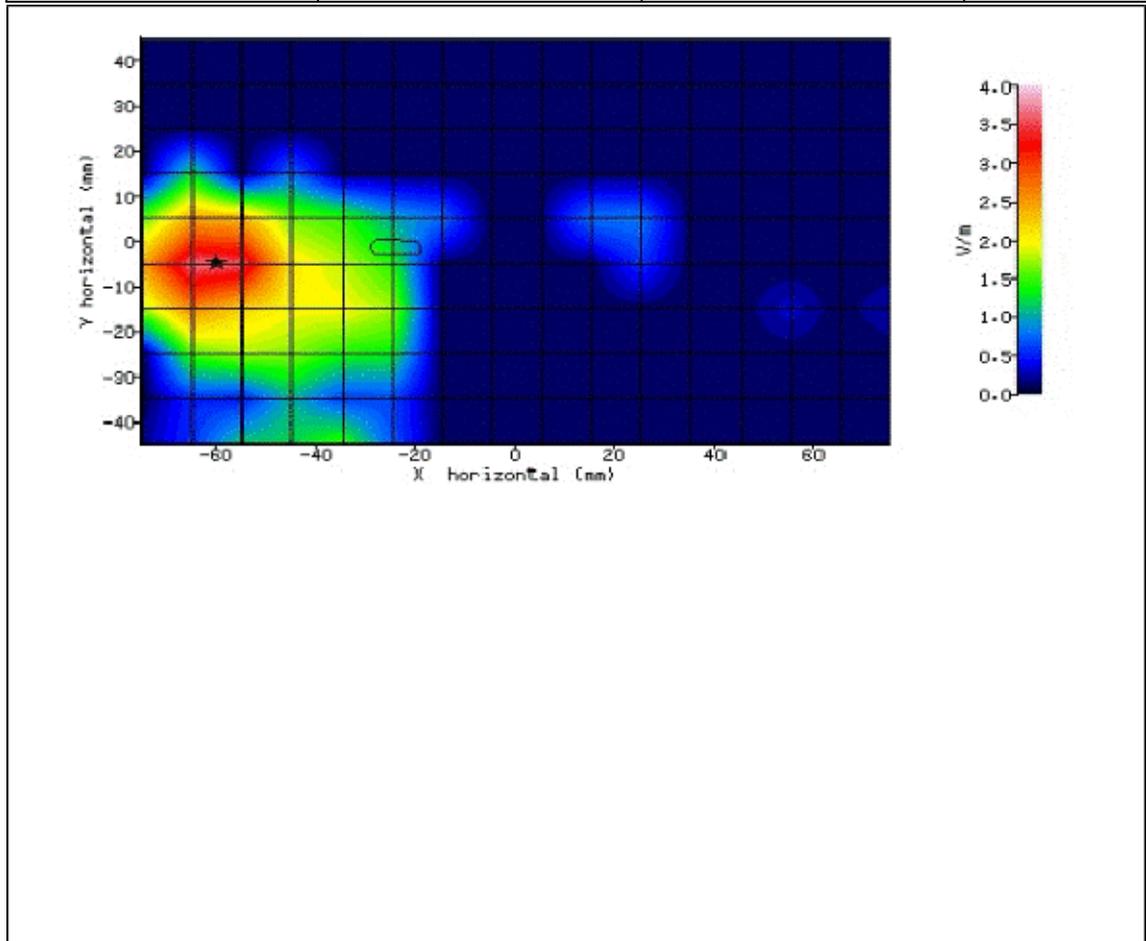


Figure 147: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-07:53:21	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	40.300mm
DUT POSITION:	10mm-Top Edge	MAX SAR Y-AXIS LOCATION:	-12.900mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.756
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.011 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.019 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.019 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	-3.600 %

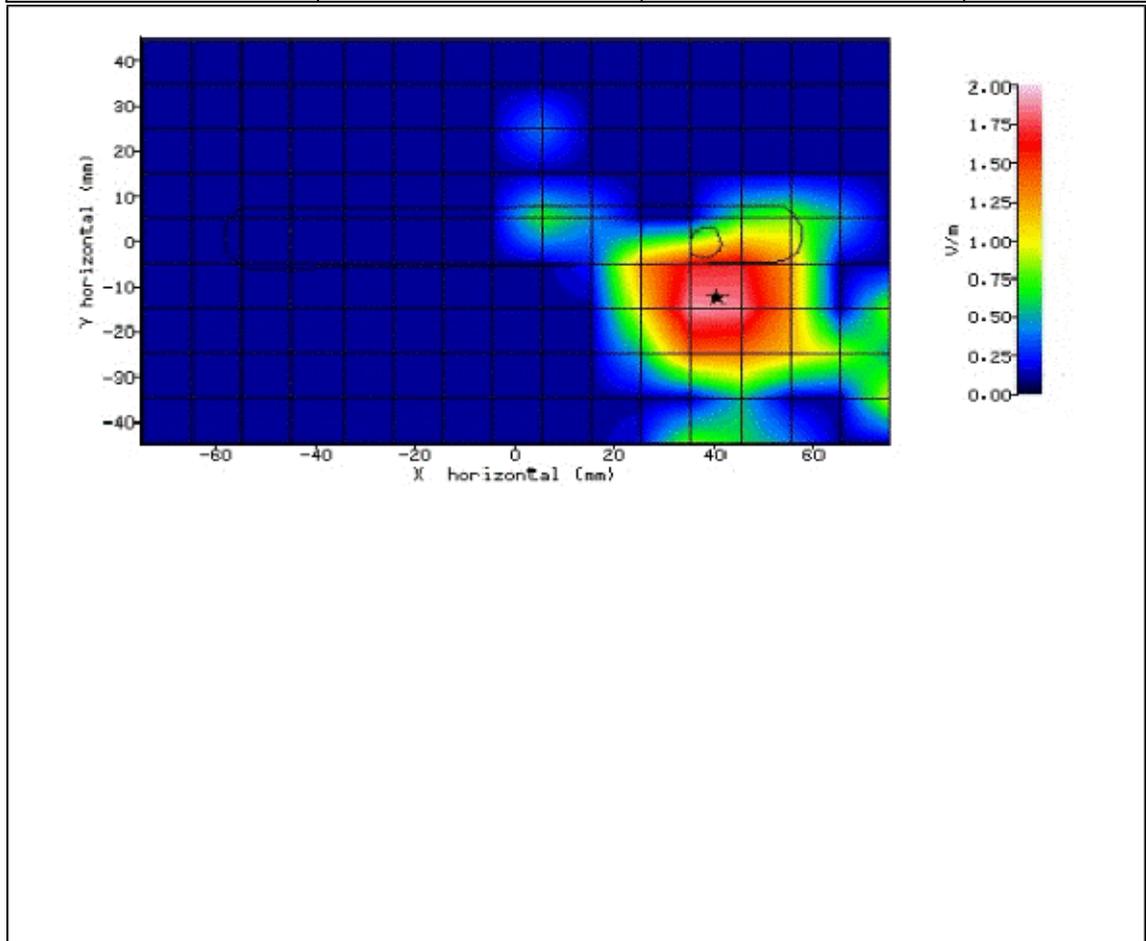


Figure 148: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



2.31 WLAN 5280MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-13:24:01	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	36.30%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	59.40mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-169.60mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.487
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.021 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.022 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.021 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	-1.600 %

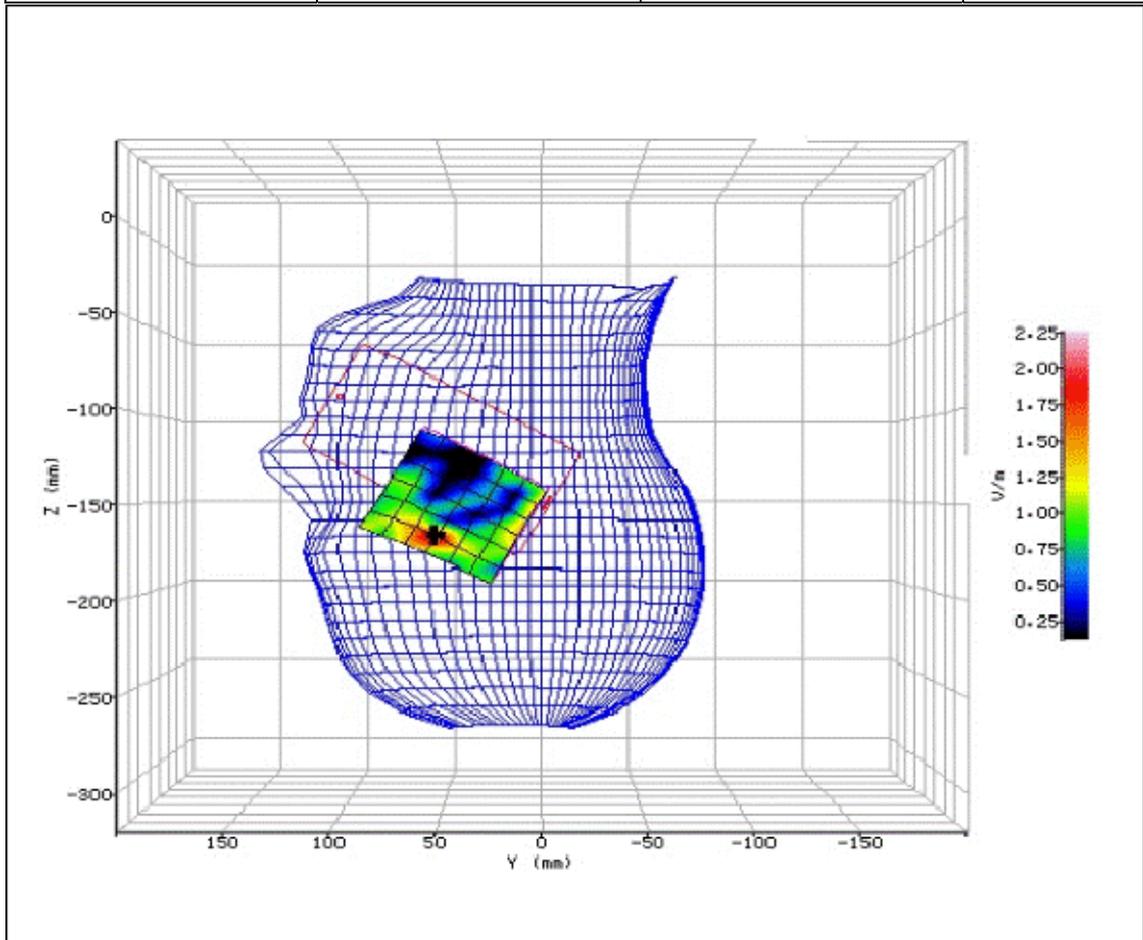


Figure 149: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-13:58:25	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	36.30%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	65.40mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-166.80mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.102
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.016 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.005 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.007 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	0.000 %

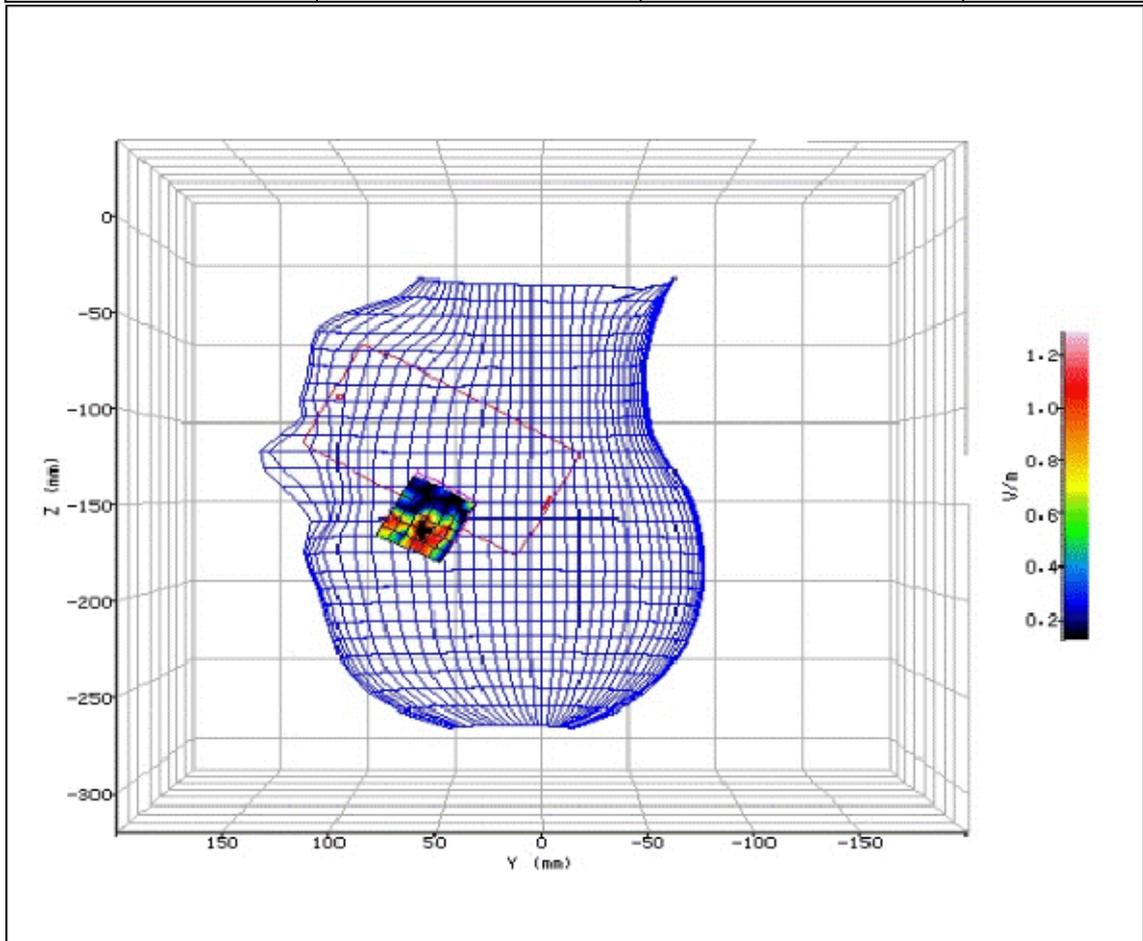


Figure 150: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-13:24:09	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	34.70mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-95.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.461
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.002 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.010 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.001 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

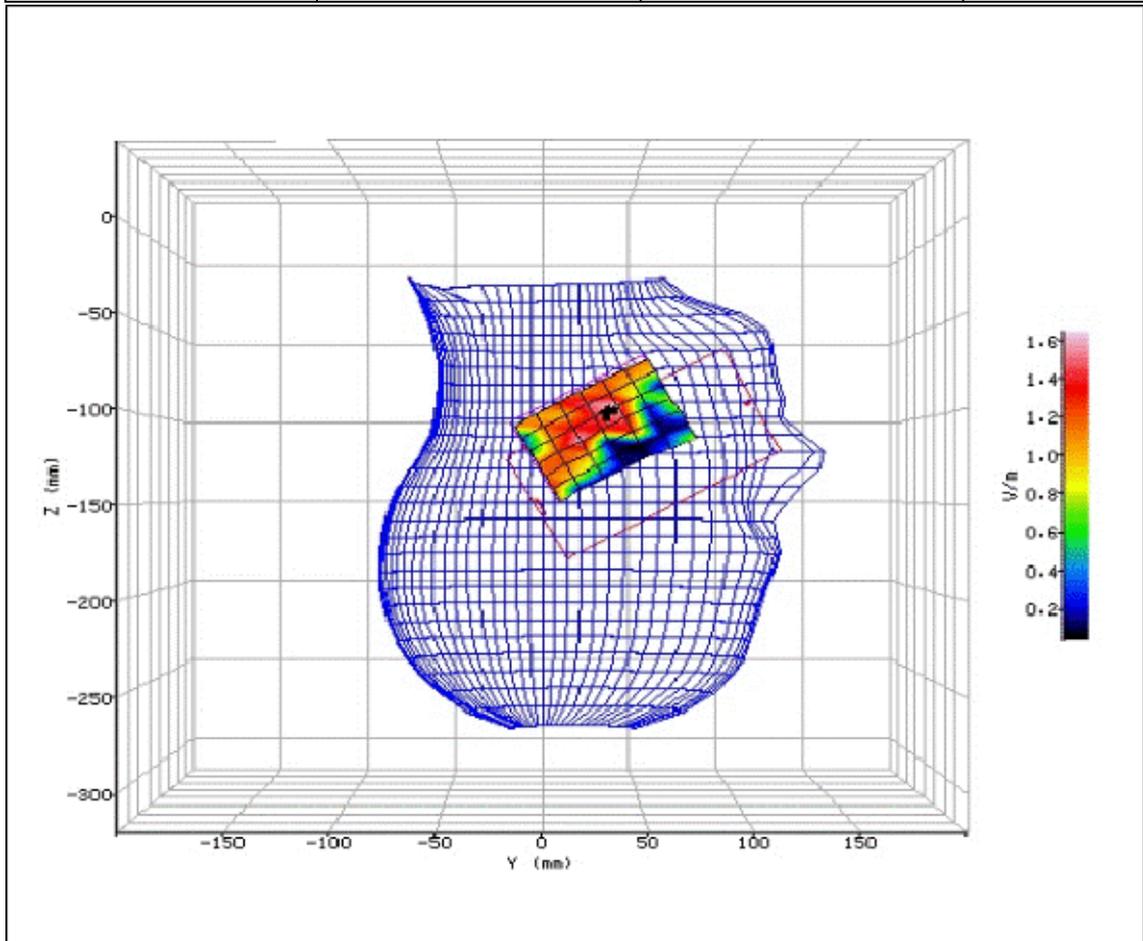


Figure 151: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



Product Service

No Measured SAR

Figure 152: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz.  
(NUA)



Product Service

**2.32 WLAN 5000MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D**

No Measured SAR

Figure 153: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz.  
(NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-10:25:20	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-33.100mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	-28.200mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.188
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.037 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.062 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.057 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	-8.500 %

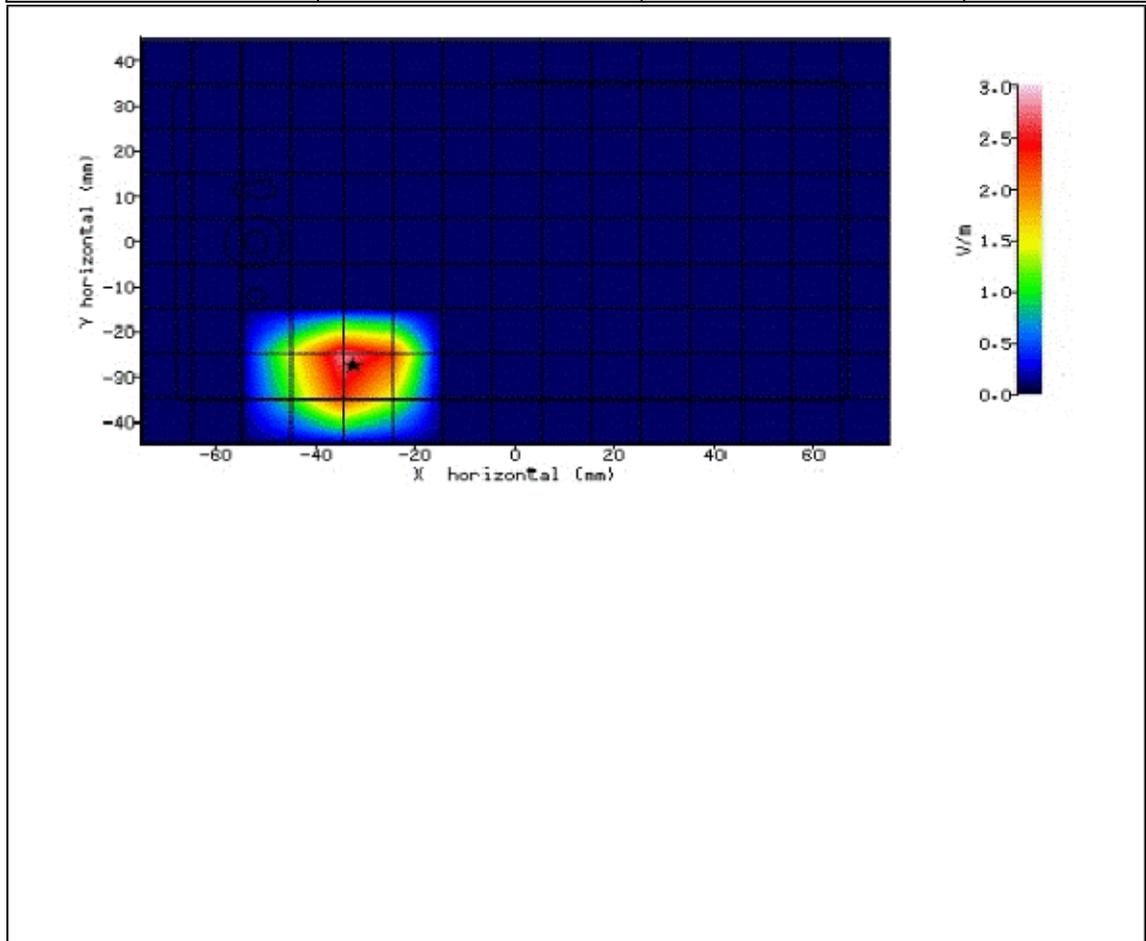


Figure 154: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-10:44:58	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-32.900mm
DUT POSITION:	10mm-Left Edge	MAX SAR Y-AXIS LOCATION:	15.000mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.030
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.006 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.018 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.018 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

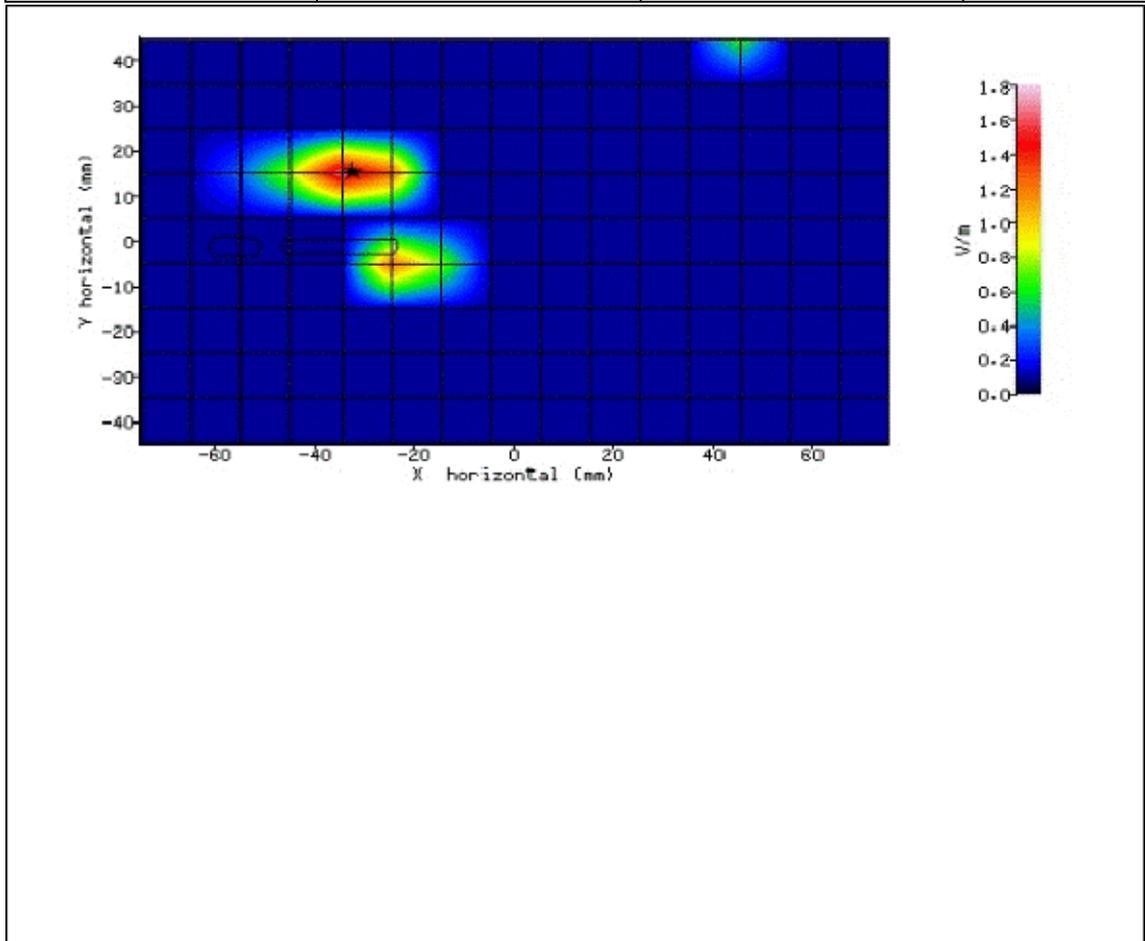


Figure 155: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



2.33 WLAN 5600MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-10:53:25	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.80°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	34.41
RELATIVE HUMIDITY:	33.30%	CONDUCTIVITY:	4.812
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-6.900mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-127.200mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.582
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.025 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.025 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.025 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	-1.800 %

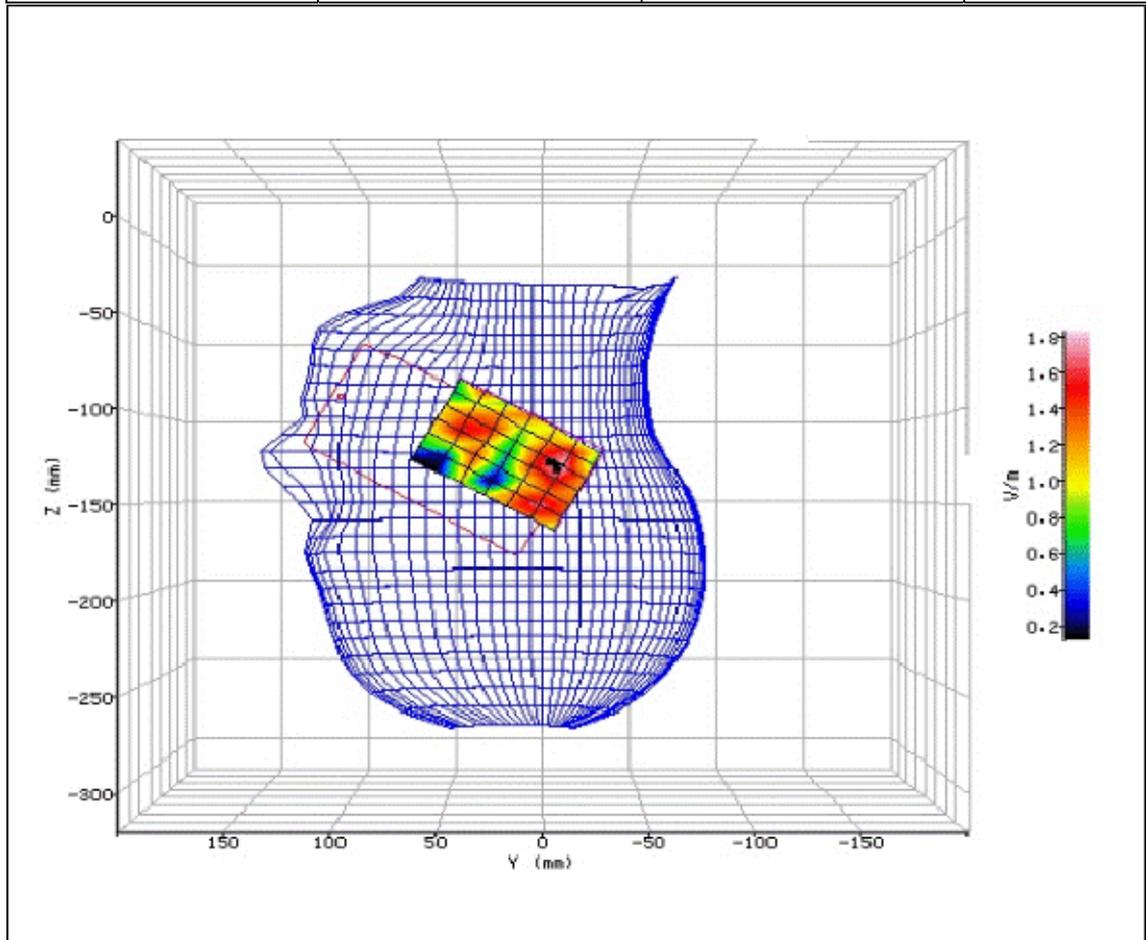


Figure 156: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-11:17:39	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.80°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	34.41
RELATIVE HUMIDITY:	33.30%	CONDUCTIVITY:	4.812
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-4.900mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-132.500mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.738
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.058 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.028 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.022 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

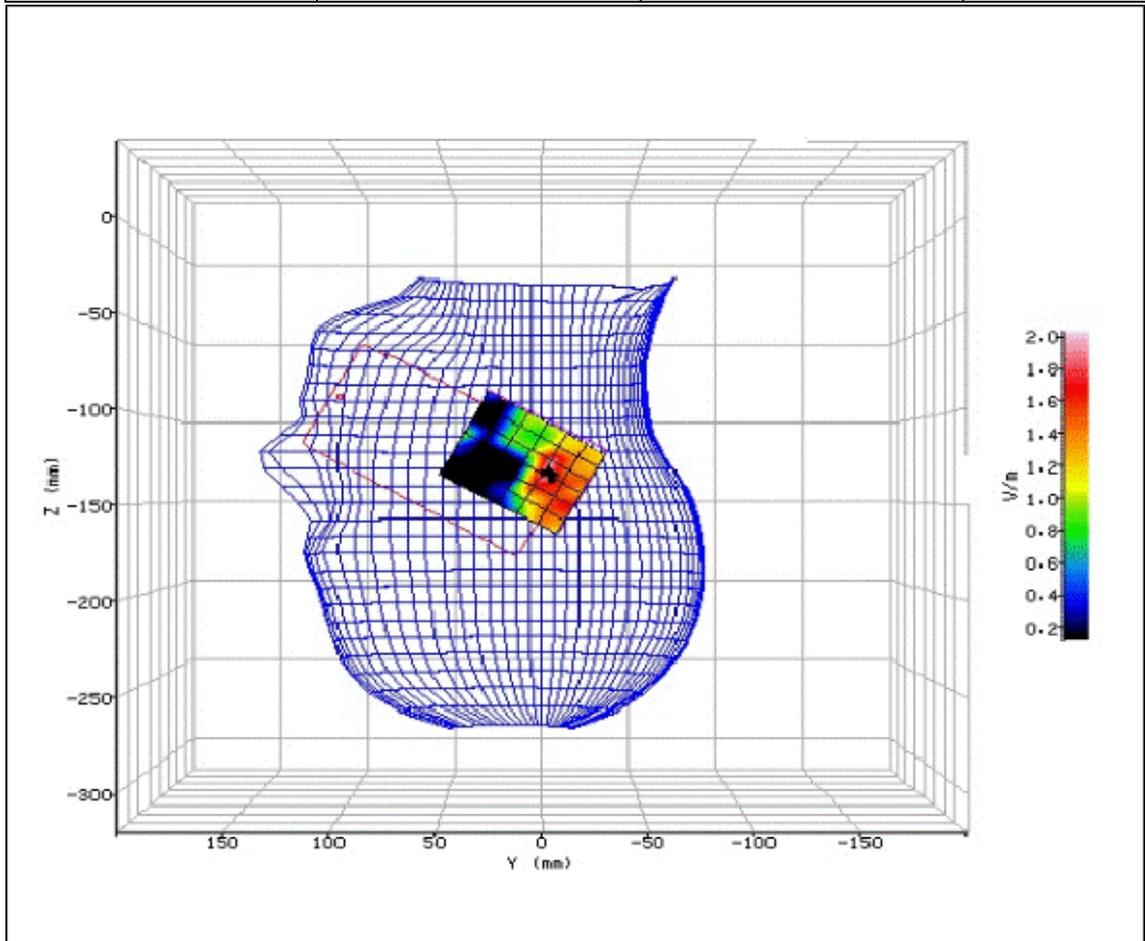


Figure 157: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-14:38:32	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.80°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	34.41
RELATIVE HUMIDITY:	33.30%	CONDUCTIVITY:	4.812
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	27.600mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-174.500mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.594
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.050 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.098 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.105 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	7.400 %

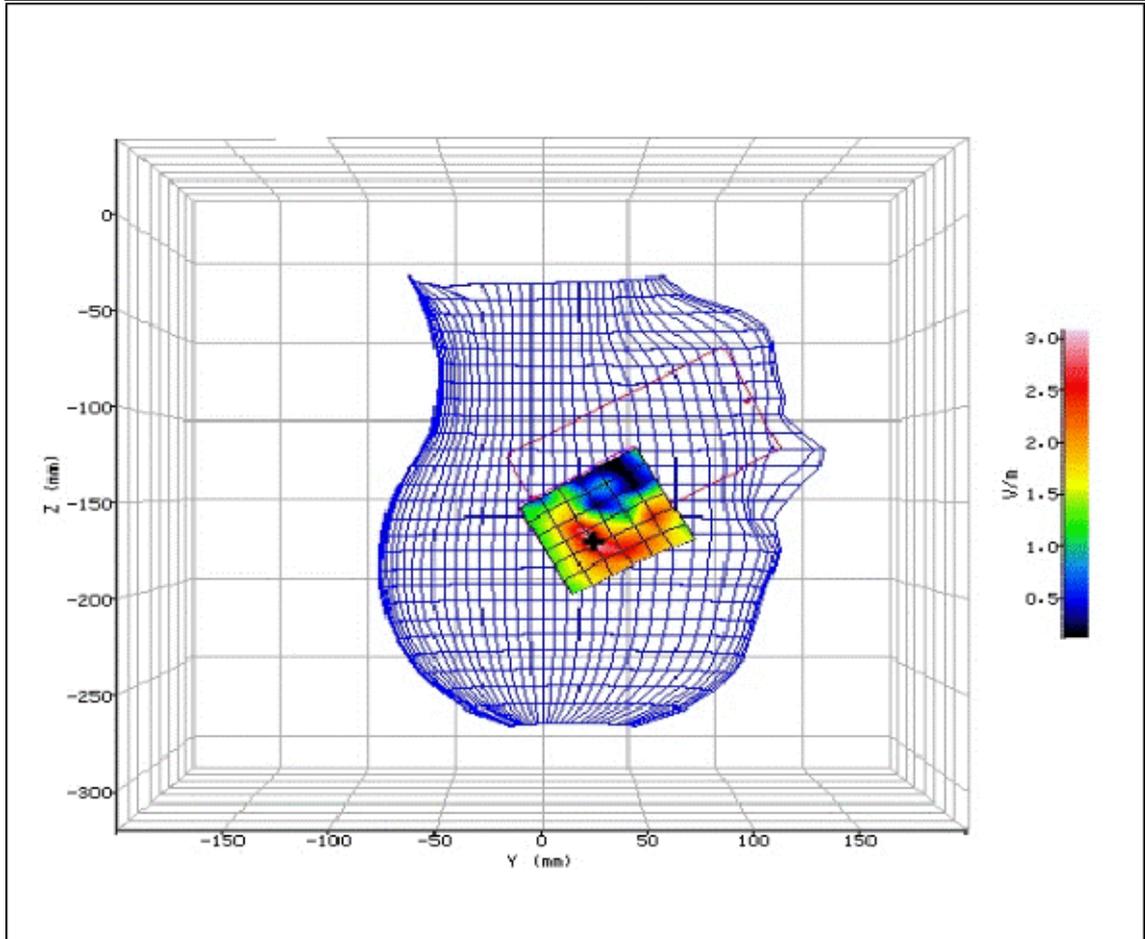


Figure 158: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-15:08:12	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.80°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	34.41
RELATIVE HUMIDITY:	33.30%	CONDUCTIVITY:	4.812
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	28.900mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-176.700mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.546
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.043 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.091 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.086 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	-5.900 %

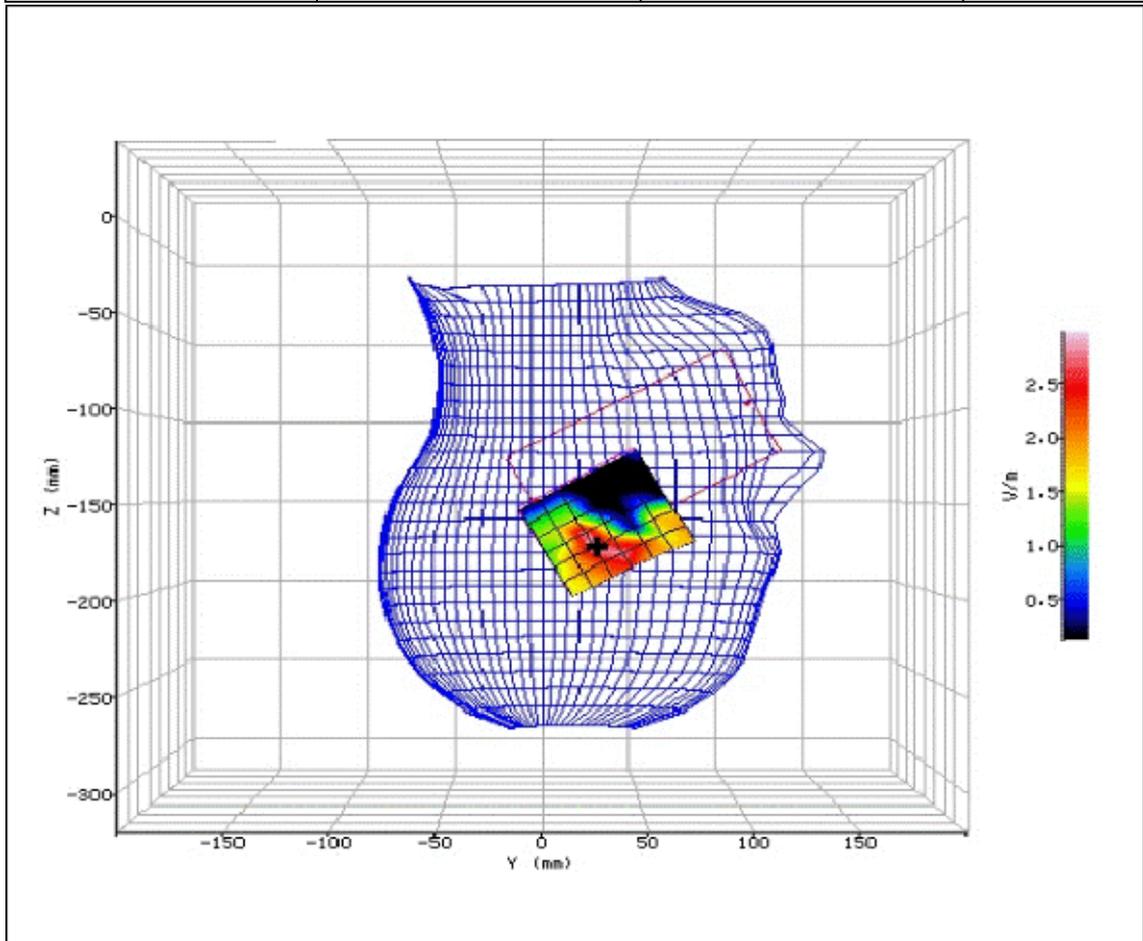


Figure 159: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



2.34 WLAN 5600MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-09:39:37	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	47.15
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.531
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-59.500mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-36.700mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.038
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.026 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.026 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.013 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	6.900 %

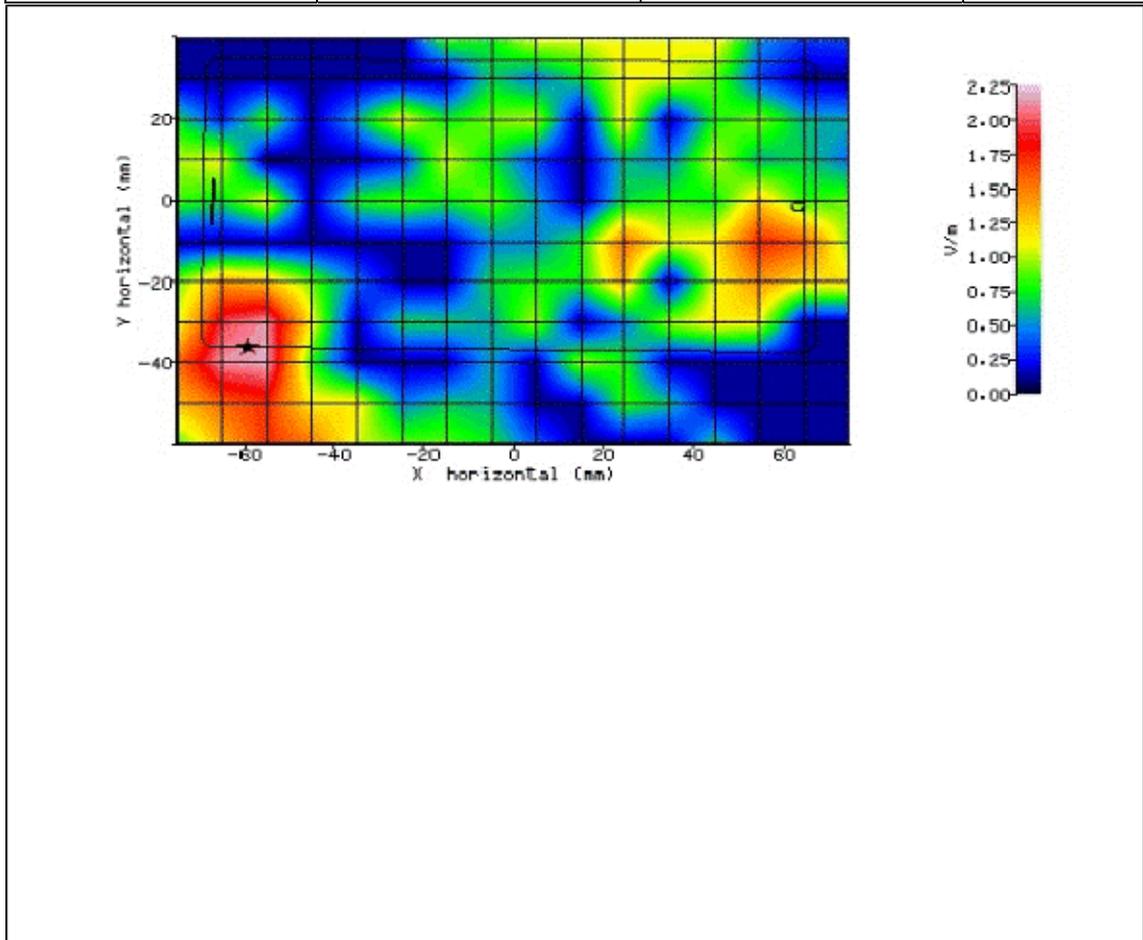


Figure 160: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-09:59:29	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	47.15
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.531
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-49.300mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	29.900mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	4.587
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.113 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.145 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.153 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	5.400 %

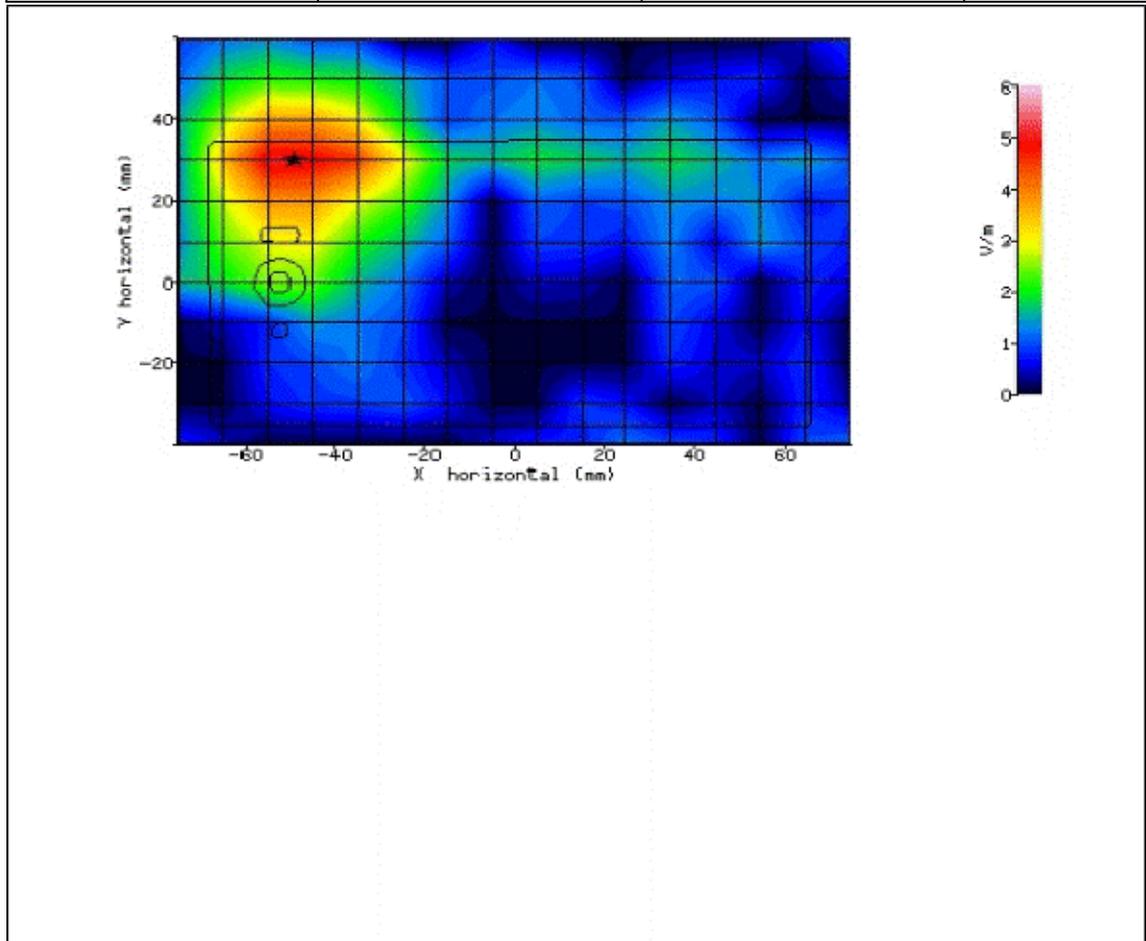


Figure 161: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-08:49:15	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	47.15
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.531
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-54.600mm
DUT POSITION:	10mm-Right Edge	MAX SAR Y-AXIS LOCATION:	-0.100mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	3.551
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.062 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.081 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.083 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	3.100 %

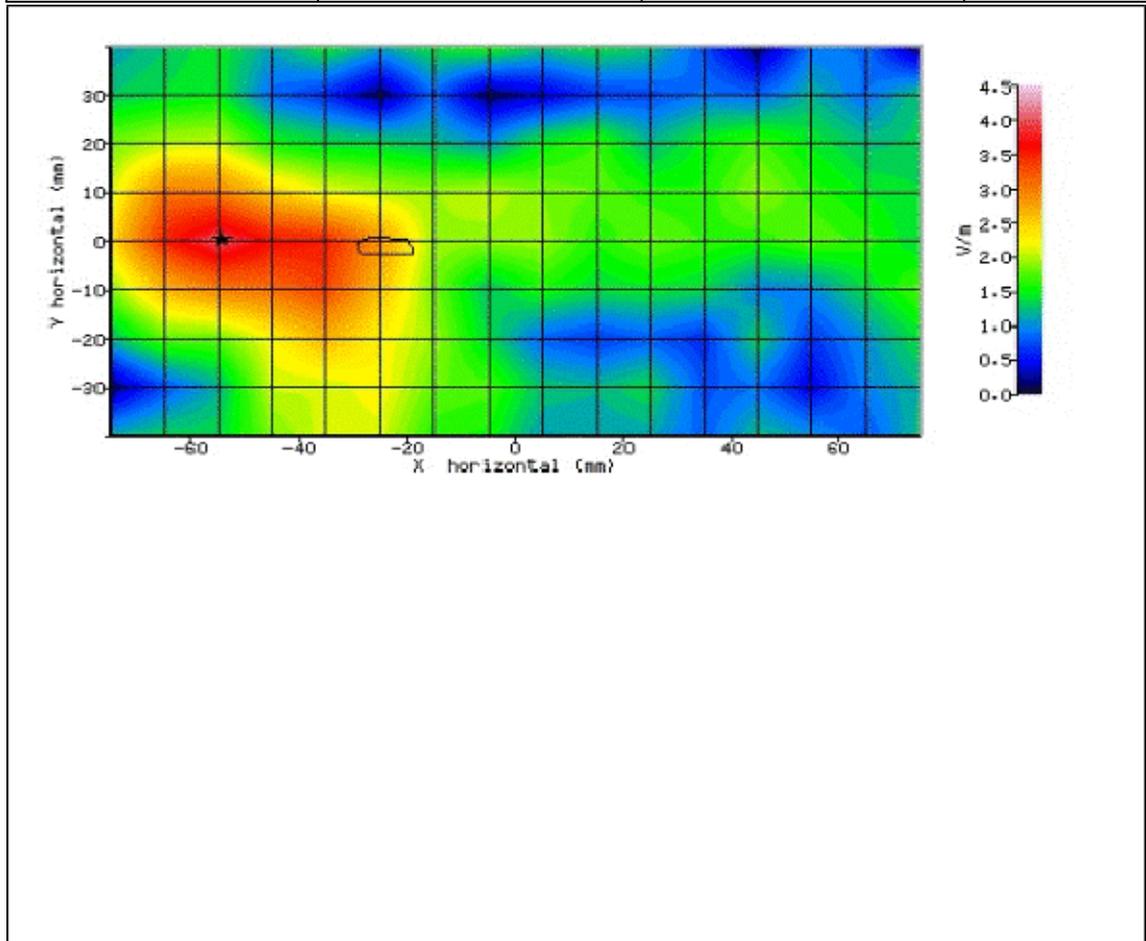


Figure 162: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-09:07:35	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	47.15
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.531
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	41.200mm
DUT POSITION:	10mm-Top Edge	MAX SAR Y-AXIS LOCATION:	-5.400mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.048
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.018 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.019 W/kg
INPUT POWER LEVEL:	12dBm	SAR END:	0.019 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

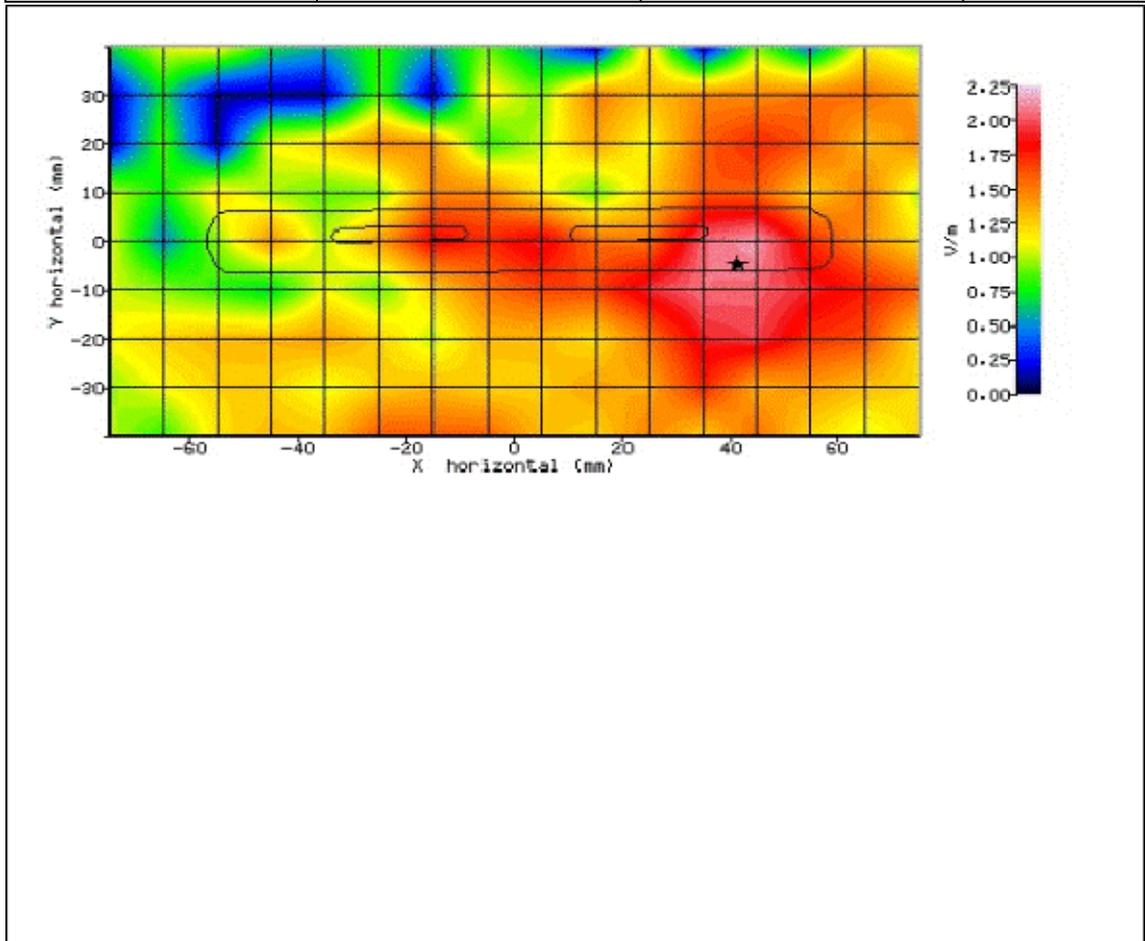


Figure 163: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



2.35 WLAN 5600MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-11:54:31	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.80°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	34.41
RELATIVE HUMIDITY:	33.30%	CONDUCTIVITY:	4.812
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	54.200mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-177.500mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.302
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.009 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.007 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.008 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

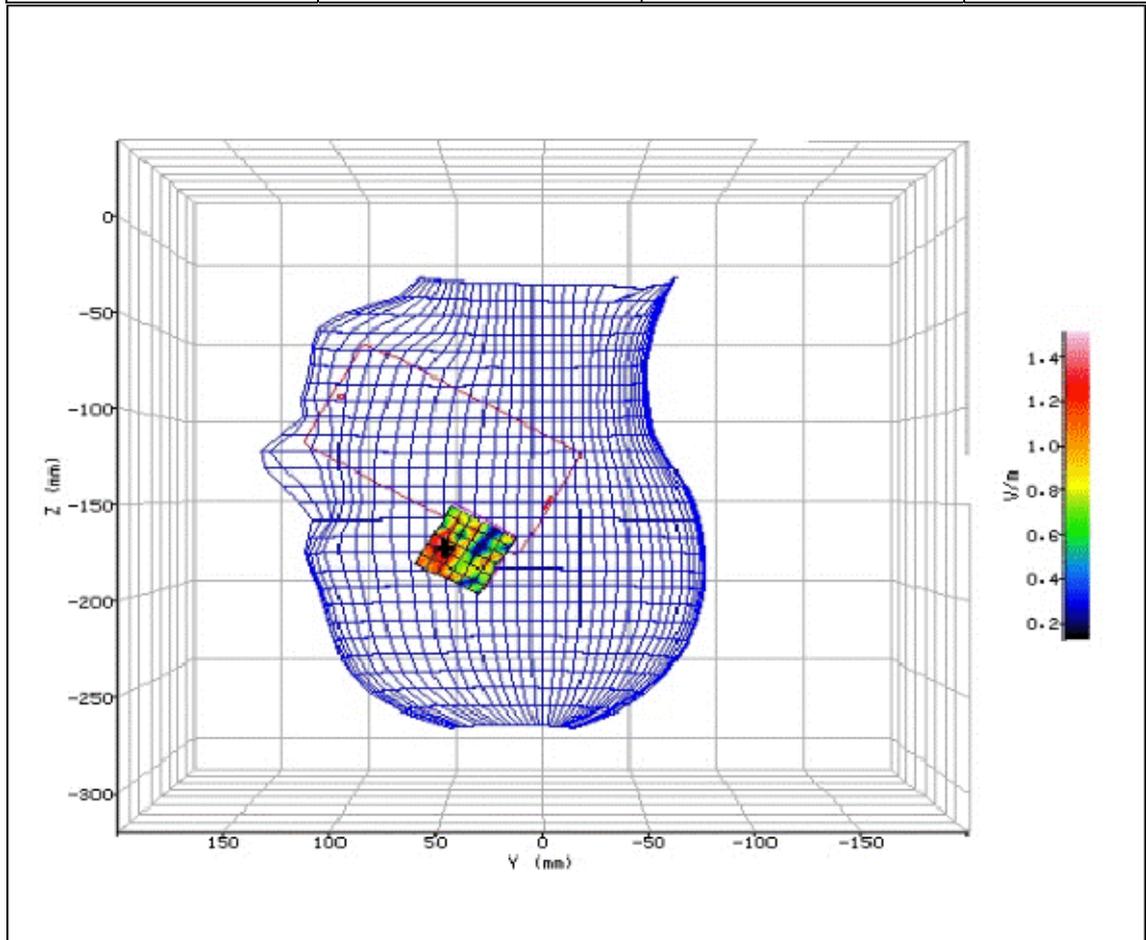


Figure 164: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-12:23:02	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.80°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	34.41
RELATIVE HUMIDITY:	33.30%	CONDUCTIVITY:	4.812
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	64.600mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-167.800mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.315
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.005 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.007 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.007 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

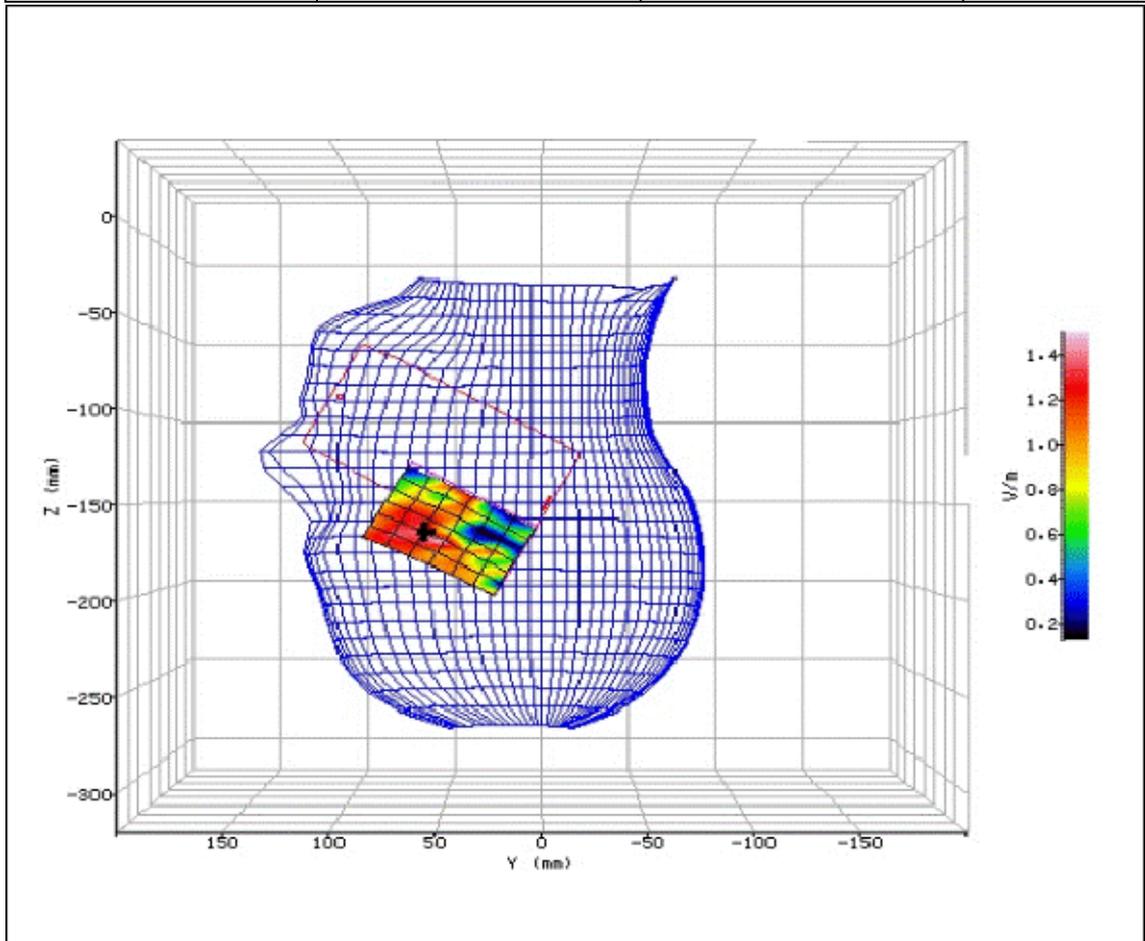


Figure 165: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



Product Service

No Measured SAR

Figure 166: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz.  
(NUA)



Product Service

No Measured SAR

Figure 167: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz.  
(NUA)



Product Service

**2.36 WLAN 5600MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D**

No Measured SAR

Figure 168: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz.  
(NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-11:06:59	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	47.15
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.531
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-32.300mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	-33.600mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.885
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.071 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.038 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.038 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

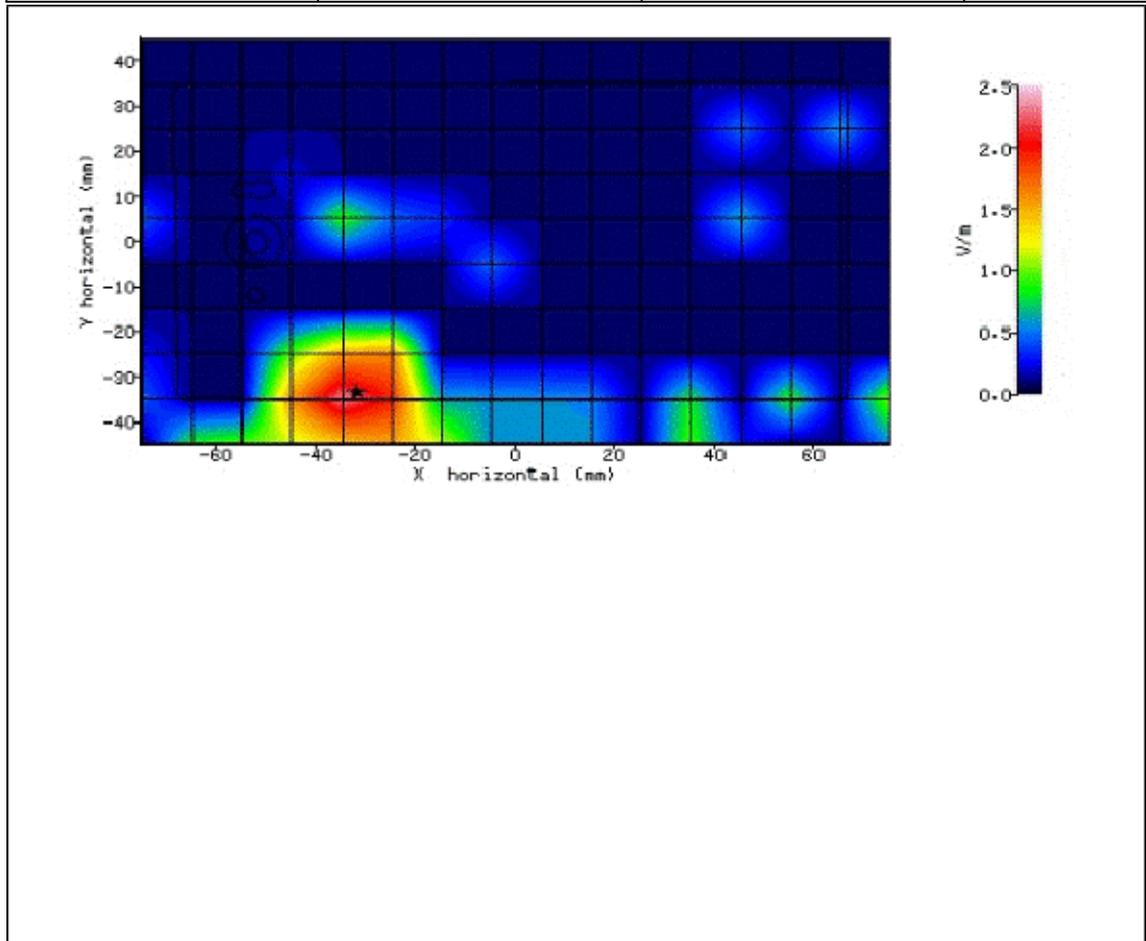


Figure 169: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-11:35:19	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	47.15
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.531
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-28.200mm
DUT POSITION:	10mm-Left Edge	MAX SAR Y-AXIS LOCATION:	12.500mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.698
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.016 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.024 W/kg
INPUT POWER LEVEL:	11.5dBm	SAR END:	0.024 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

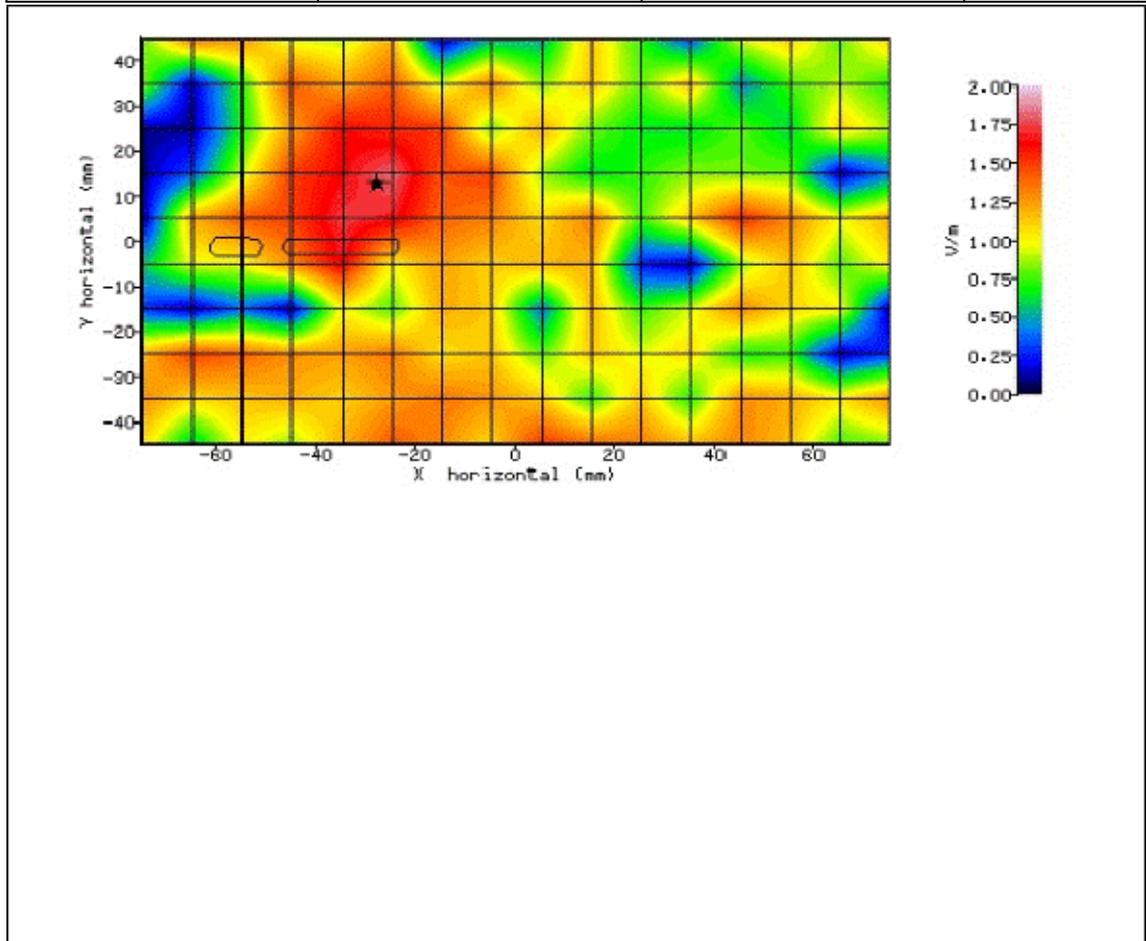


Figure 170: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



2.37 WLAN 5190MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-14:57:19	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	36.30%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-7.50mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-133.80mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.277
TEST FREQUENCY:	5190.0MHz	SAR 1g:	0.035 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.021 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.018 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	0.000 %

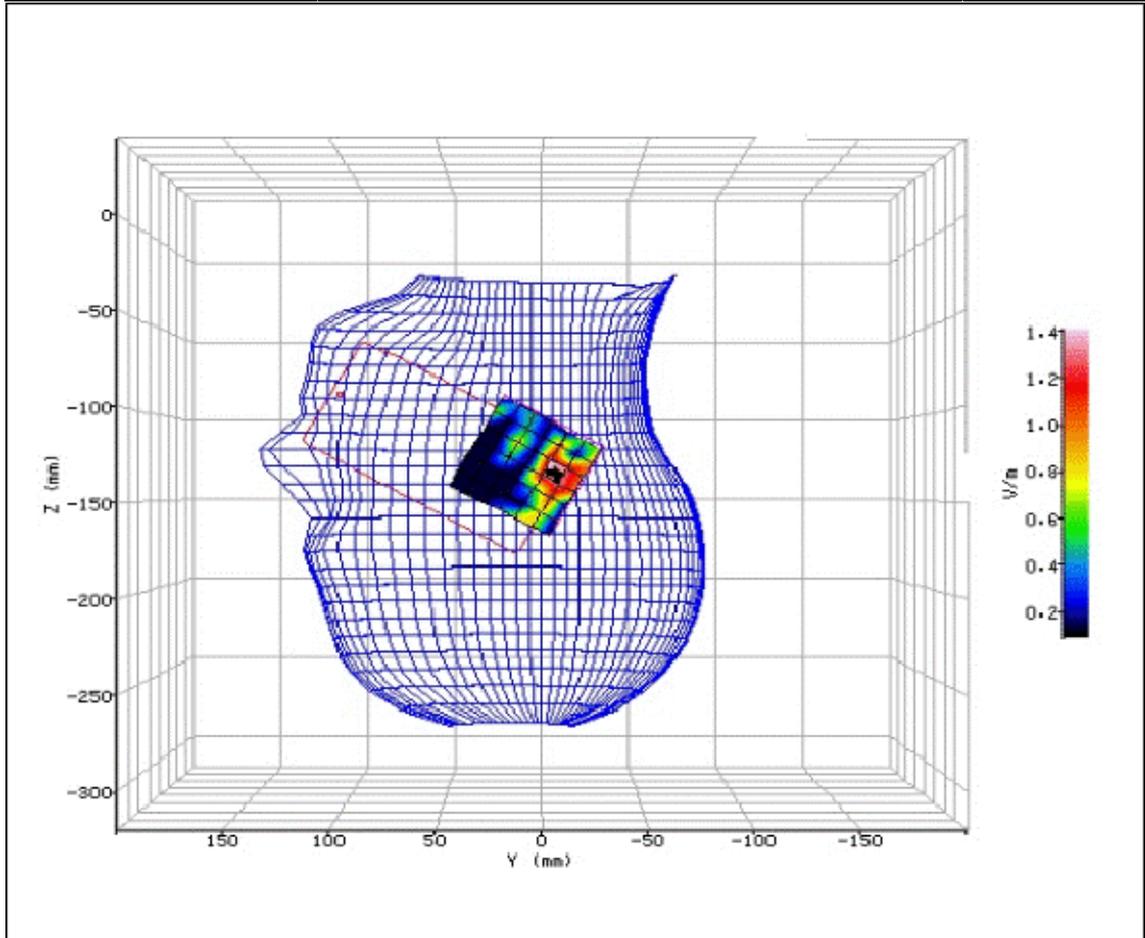


Figure 171: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5190.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-15:23:18	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	36.30%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-9.90mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-137.50mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.708
TEST FREQUENCY:	5190.0MHz	SAR 1g:	0.019 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.022 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.020 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	-9.400 %

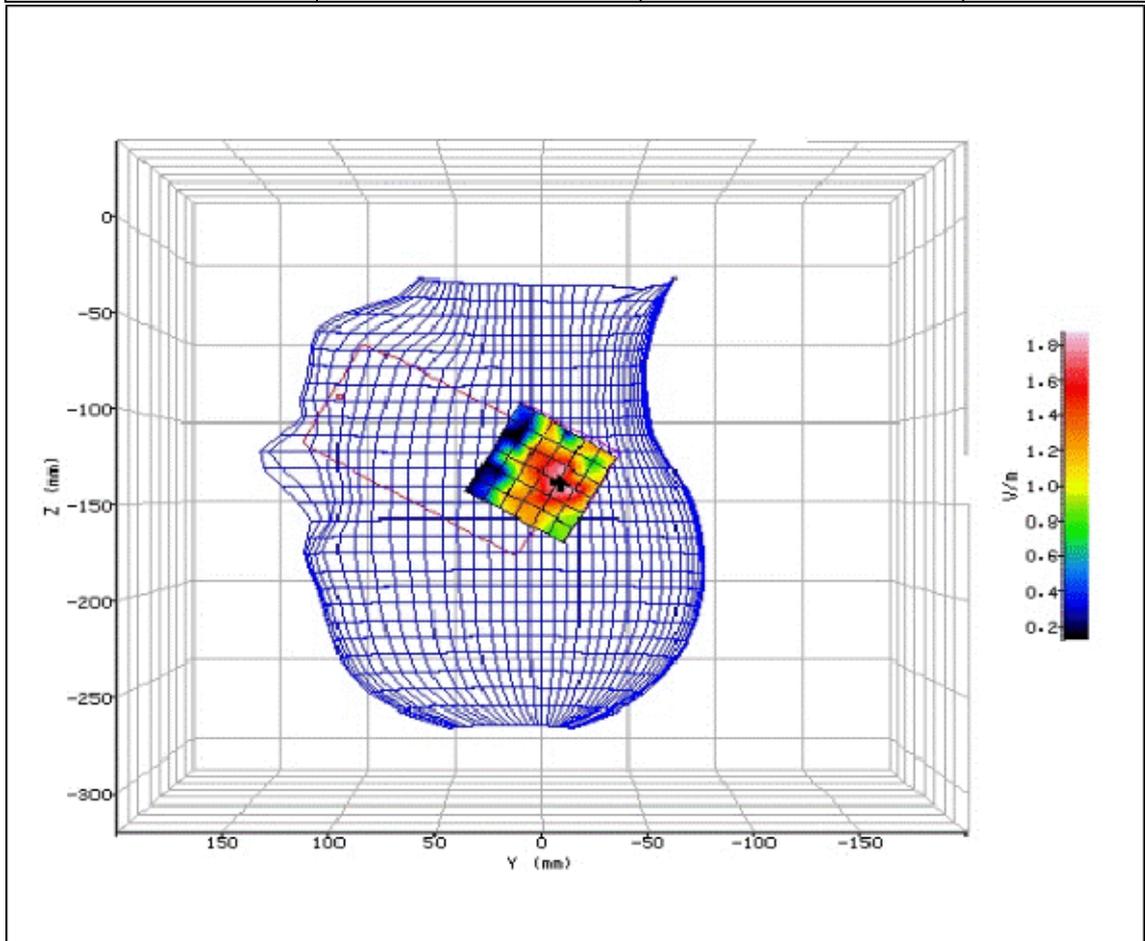


Figure 172: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5190.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-14:27:29	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	30.40mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-180.30mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.463
TEST FREQUENCY:	5190.0MHz	SAR 1g:	0.041 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.054 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.053 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	-2.100 %

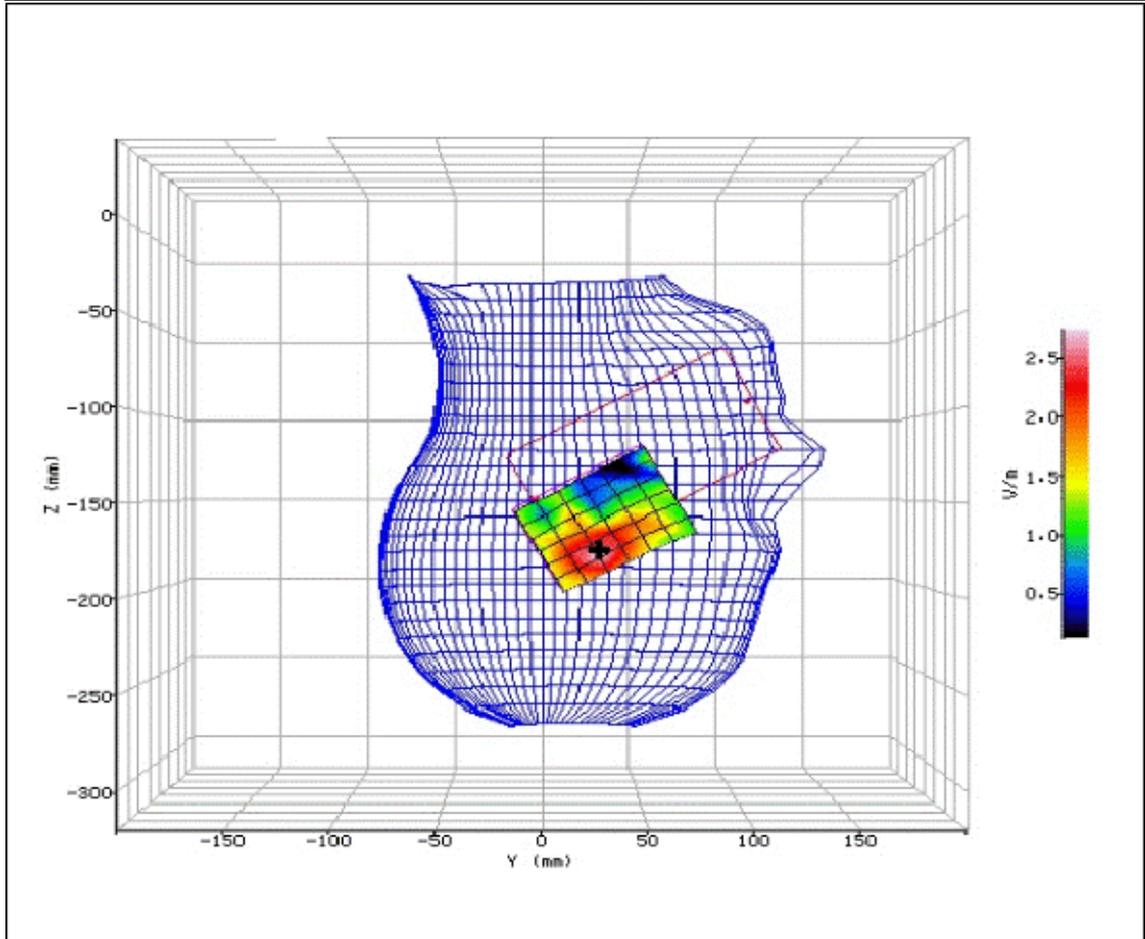


Figure 173: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5190.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-12:39:43	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	22.60mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-182.20mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.371
TEST FREQUENCY:	5190.0MHz	SAR 1g:	0.038 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.054 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.058 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	8.600 %

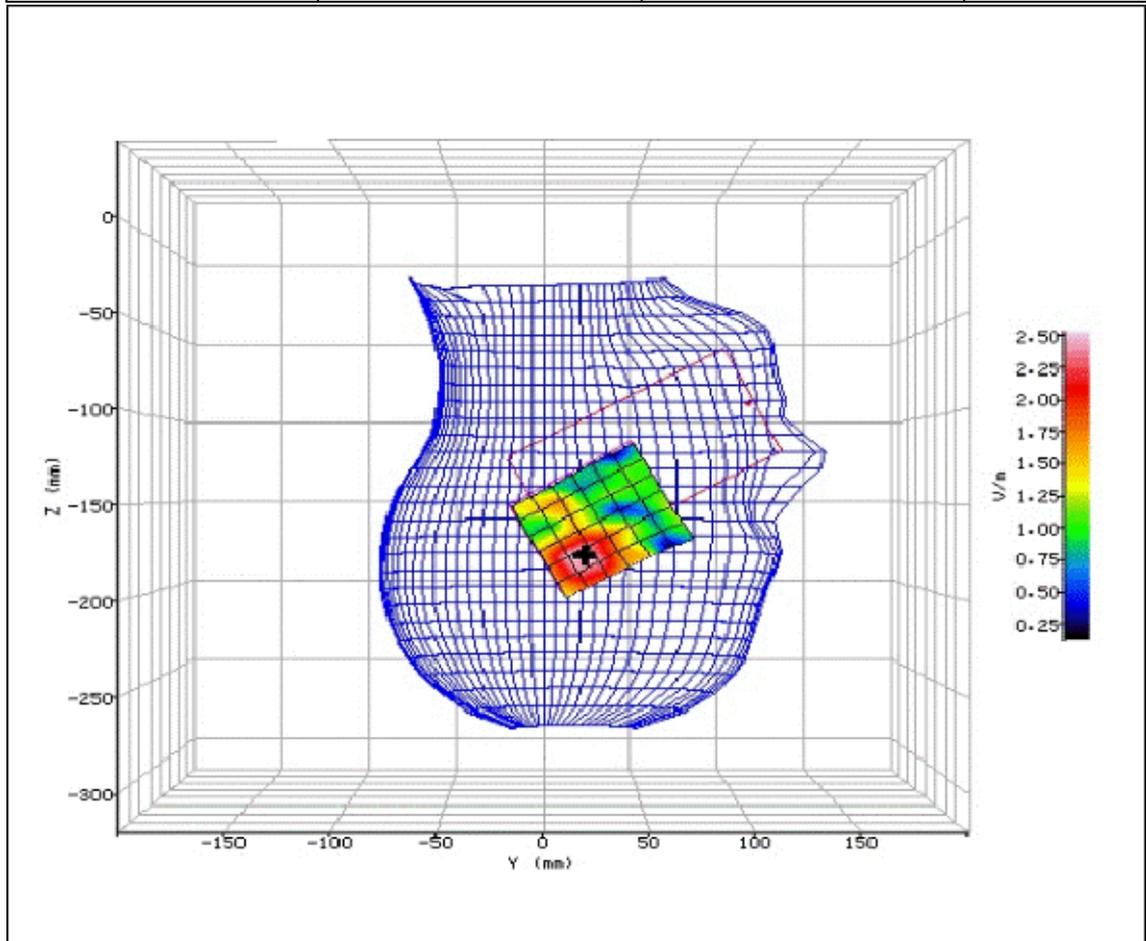


Figure 174: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5190.0MHz. (NUA)



2.38 WLAN 5191MHZ BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-12:31:01	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-65.100mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-44.000mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.530
TEST FREQUENCY:	5191.0MHz	SAR 1g:	0.003 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.011 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.011 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

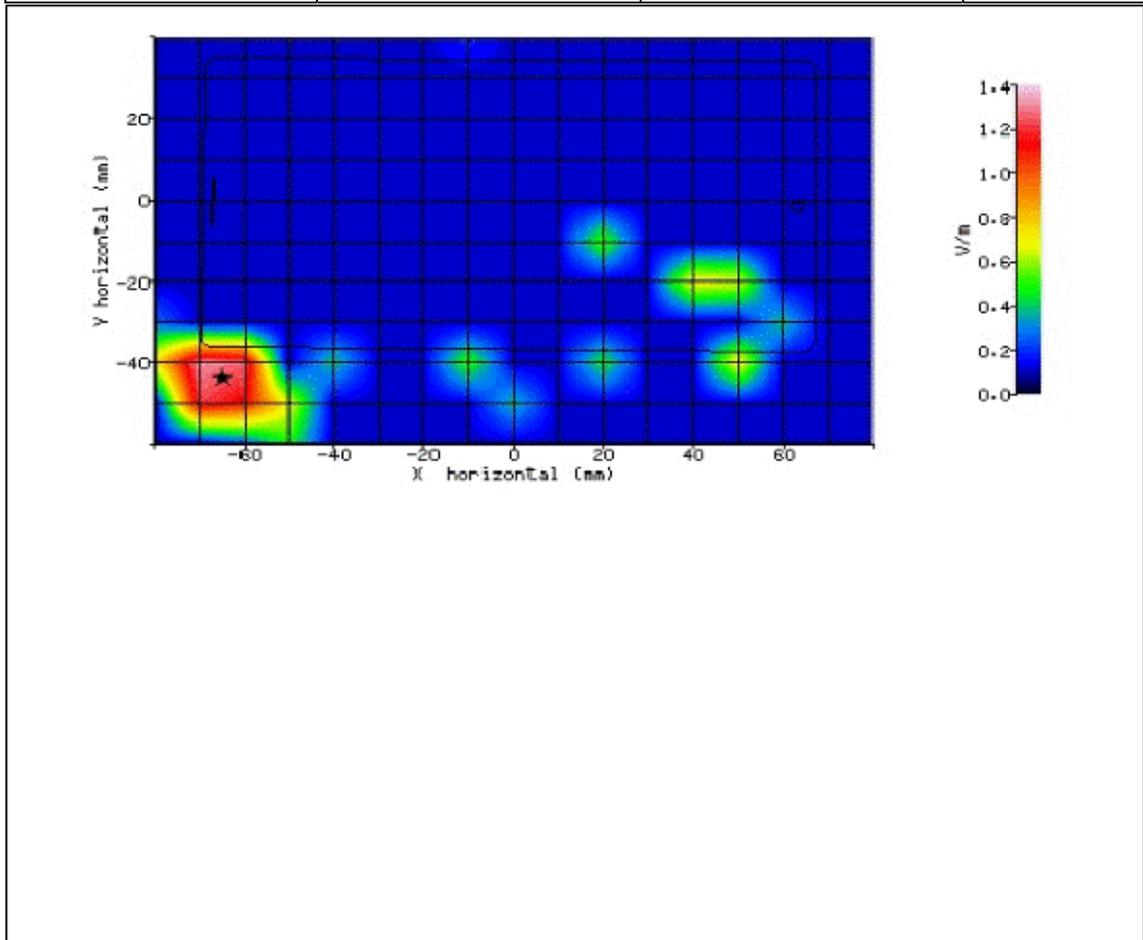


Figure 175: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5191.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-12:52:08	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-59.500mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	28.900mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	5.229
TEST FREQUENCY:	5191.0MHz	SAR 1g:	0.149 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.234 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.231 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	-1.600 %

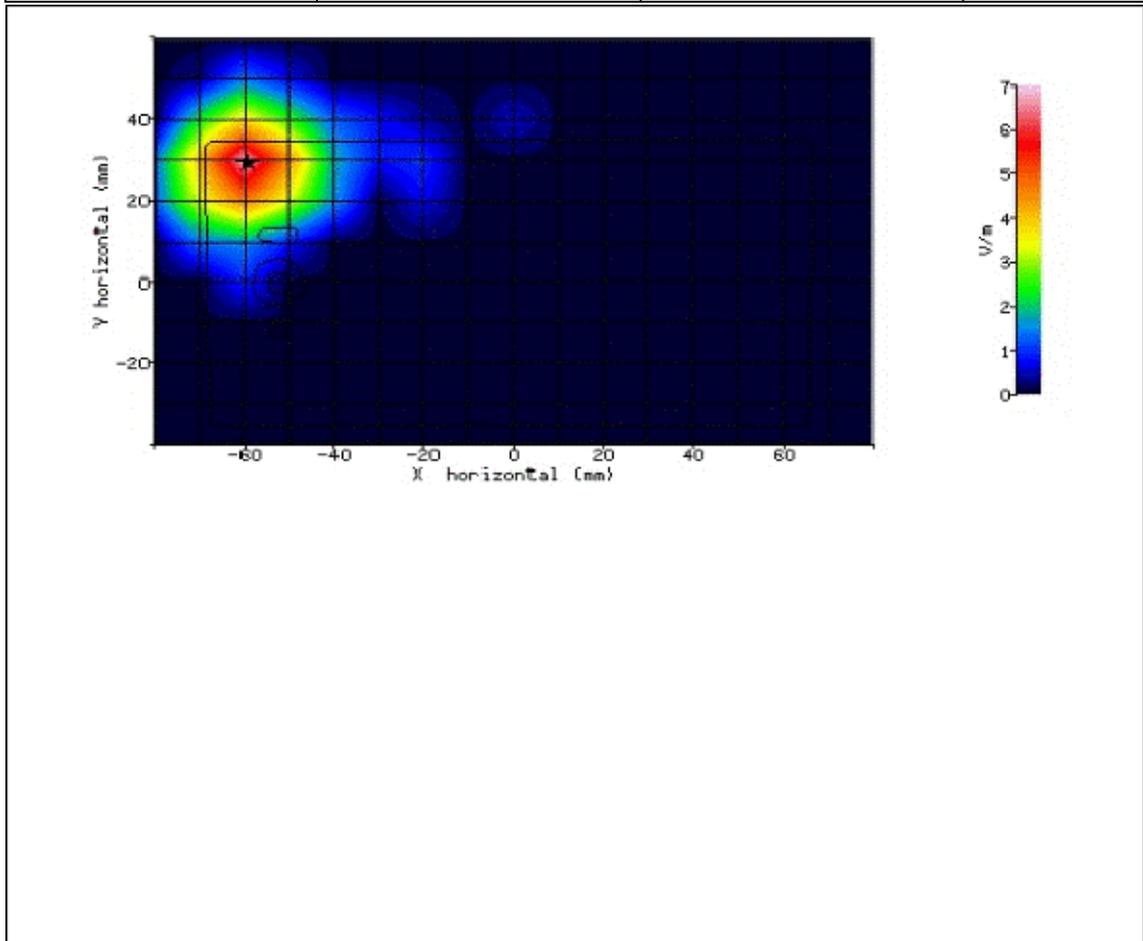


Figure 176: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5191.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-11:26:29	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-61.00mm
DUT POSITION:	10mm-Right Edge	MAX SAR Y-AXIS LOCATION:	-5.00mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.862
TEST FREQUENCY:	5191.0MHz	SAR 1g:	0.048 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.076 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.076 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

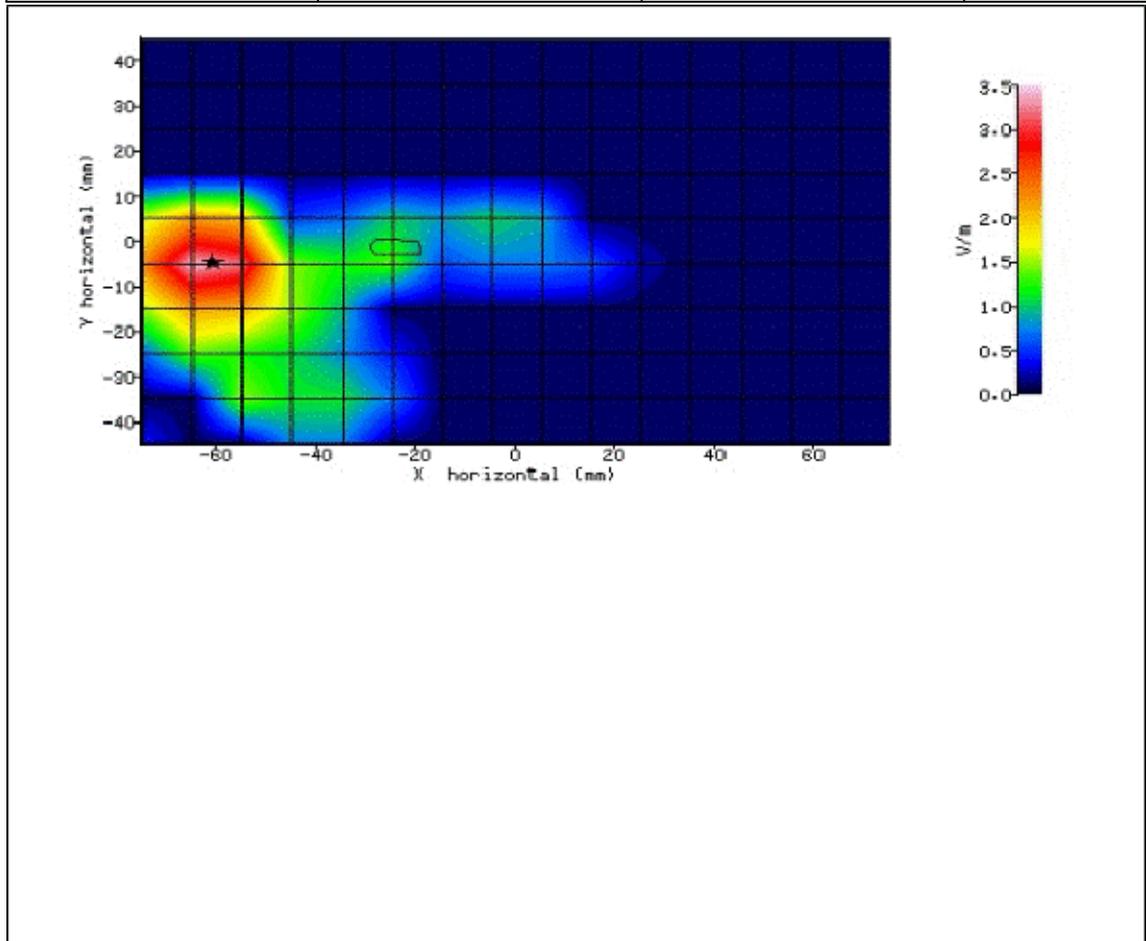


Figure 177: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5191.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-11:44:55	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	36.60mm
DUT POSITION:	10mm-Top Edge	MAX SAR Y-AXIS LOCATION:	-8.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.890
TEST FREQUENCY:	5191.0MHz	SAR 1g:	0.014 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.024 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.024 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

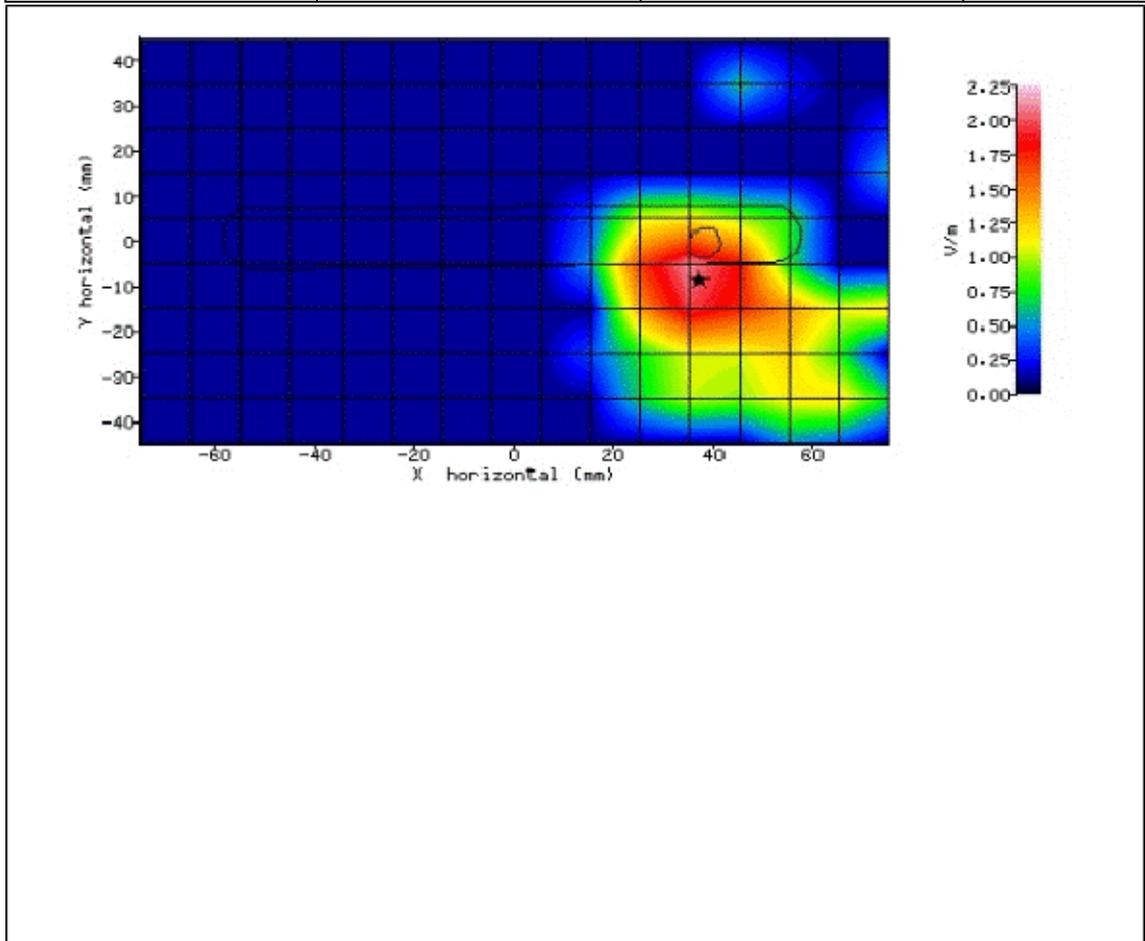


Figure 178: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5191.0MHz. (NUA)



2.39 WLAN 5190MHZ HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-16:28:34	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	36.30%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	58.20mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-166.80mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.843
TEST FREQUENCY:	5190.0MHz	SAR 1g:	0.037 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.082 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.077 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	-7.200 %

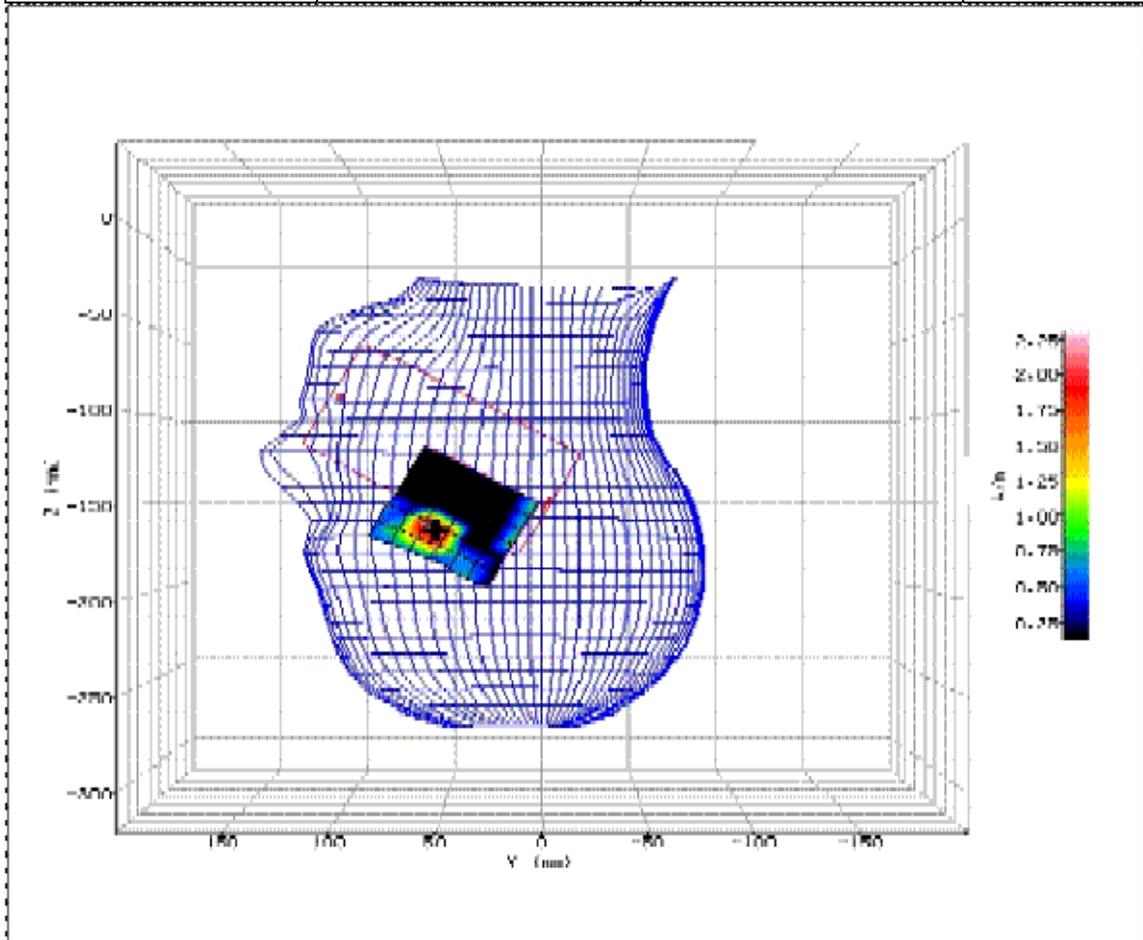


Figure 179: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5190.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	05/05/2015-16:53:53	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	36.30%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	57.50mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-173.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.414
TEST FREQUENCY:	5190.0MHz	SAR 1g:	0.008 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.013 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.009 W/kg
PROBE BATTERY LAST CHANGED:	05/05/2015	SAR DRIFT DURING SCAN:	0.000 %

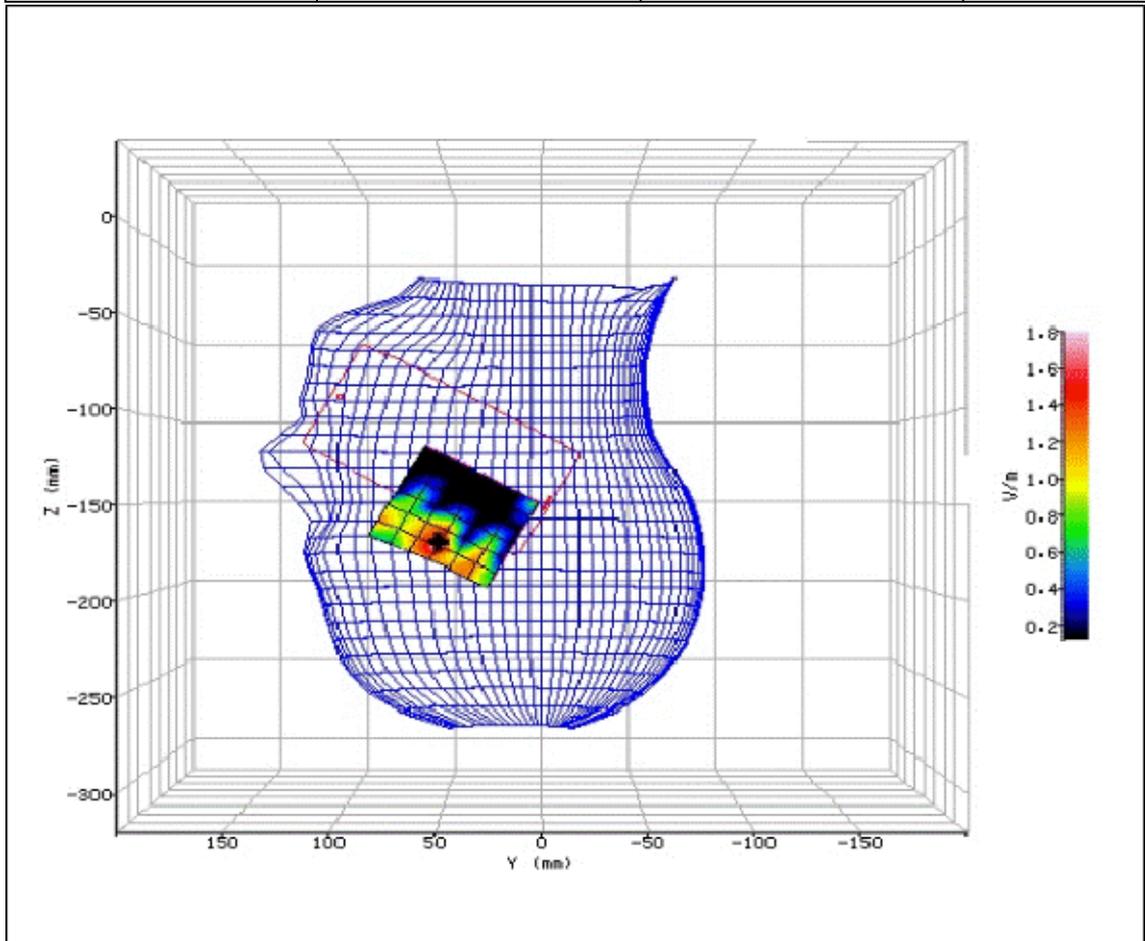


Figure 180: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5190.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-07:02:48	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	33.40%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	22.90°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	19.20mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-99.80mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.997
TEST FREQUENCY:	5190.0MHz	SAR 1g:	0.019 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.024 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.021 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

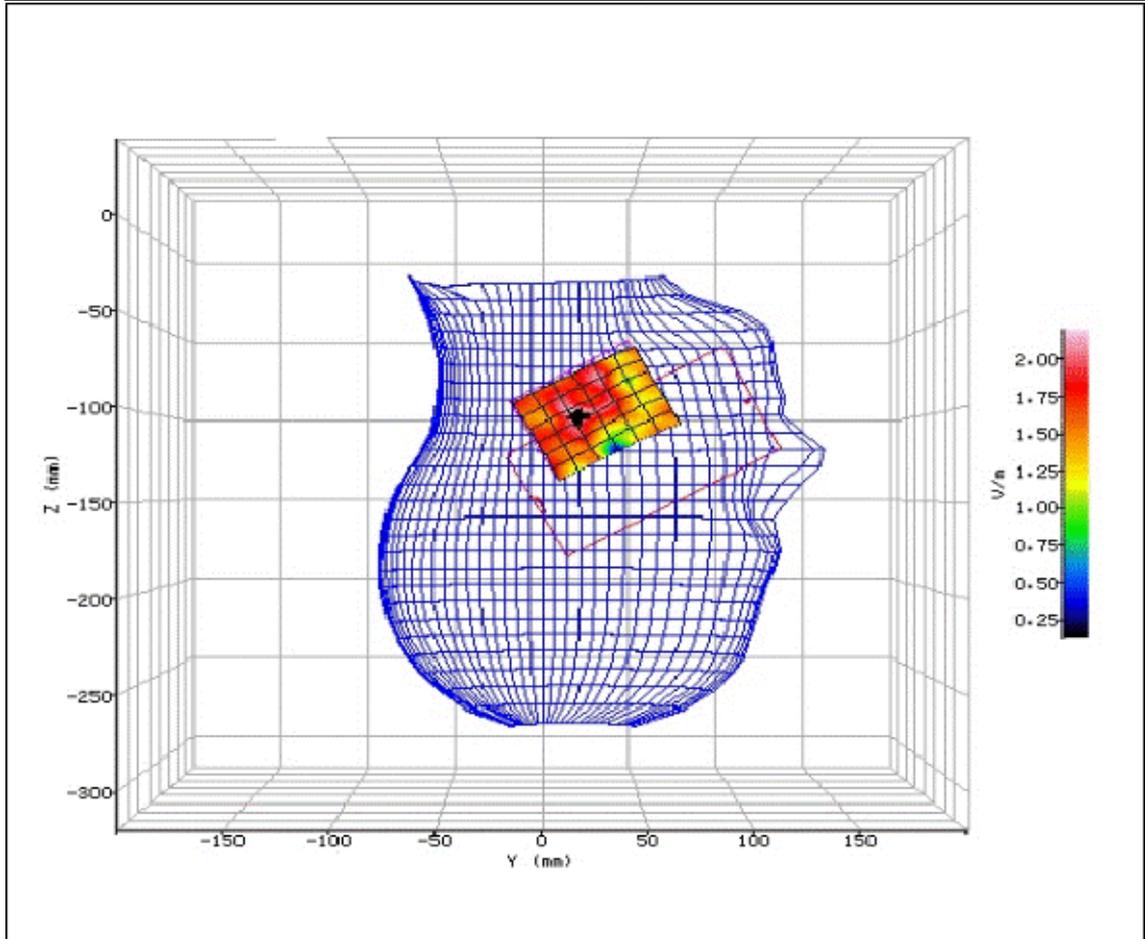


Figure 181: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5190.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-07:29:00	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	33.40%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	22.90°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	29.60mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-86.00mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.819
TEST FREQUENCY:	5190.0MHz	SAR 1g:	0.009 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.011 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.013 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

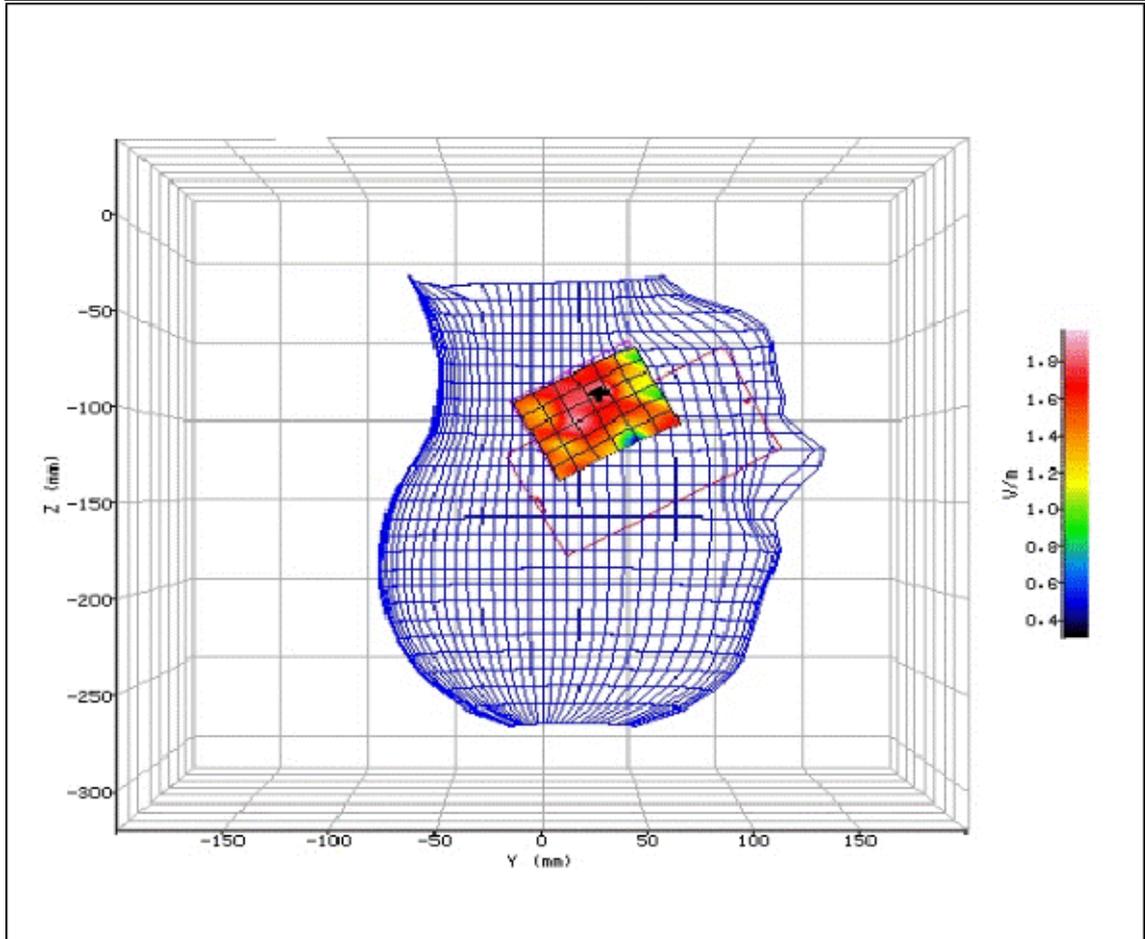


Figure 182: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5190.0MHz. (NUA)



2.40 WLAN 5190MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-13:32:57	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	58.50mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-28.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	0.430
TEST FREQUENCY:	5190.0MHz	SAR 1g:	0.001 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.001 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.001 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

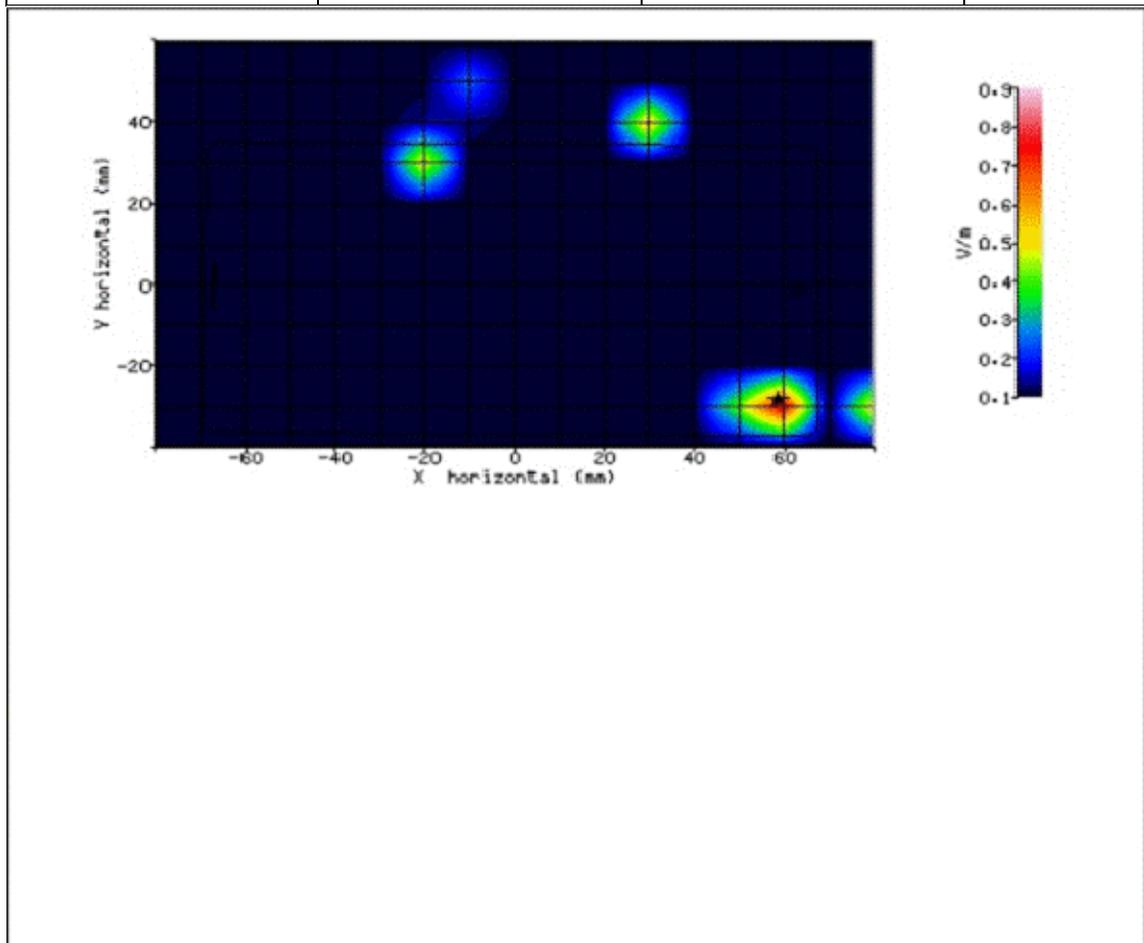


Figure 183: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5190.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-13:52:36	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-32.60mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	-27.00mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.967
TEST FREQUENCY:	5190.0MHz	SAR 1g:	0.032 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.046 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.046 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	2.500 %

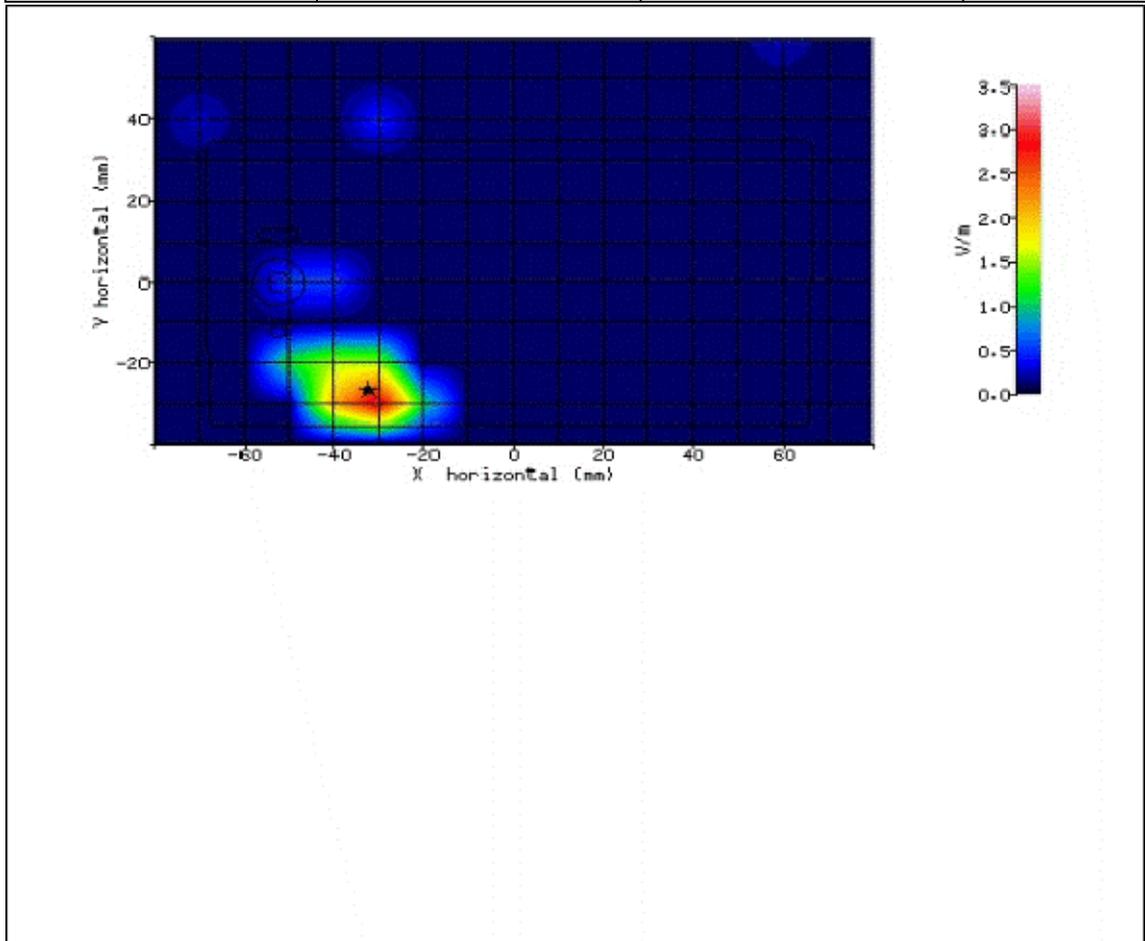


Figure 184: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5190.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-14:36:27	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-25.20mm
DUT POSITION:	10mm-Left Edge	MAX SAR Y-AXIS LOCATION:	0.10mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.040
TEST FREQUENCY:	5190.0MHz	SAR 1g:	0.006 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.018 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.018 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	-2.400 %

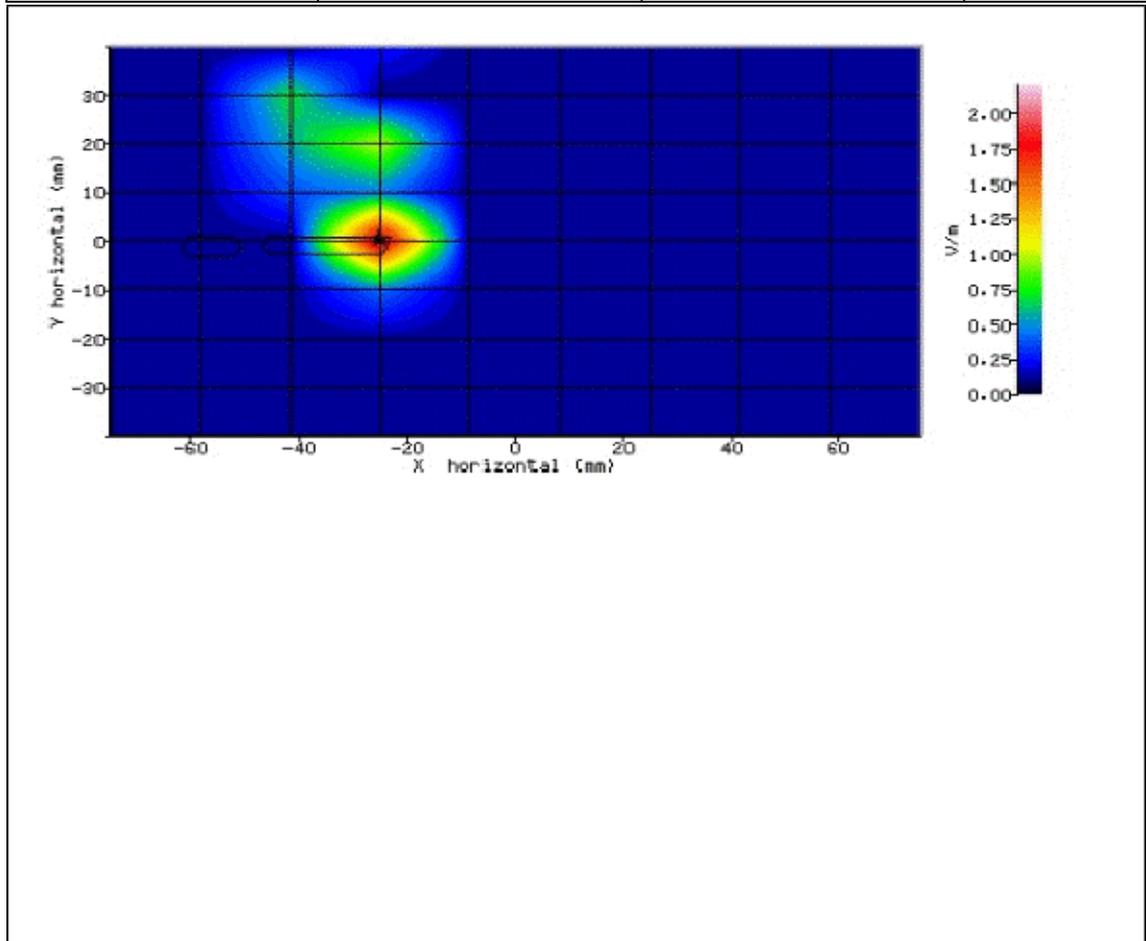


Figure 185: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5190.0MHz. (NUA)



2.41 WLAN 5270MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-06:35:33	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-3.30mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-131.10mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.710
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.019 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.025 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.020 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

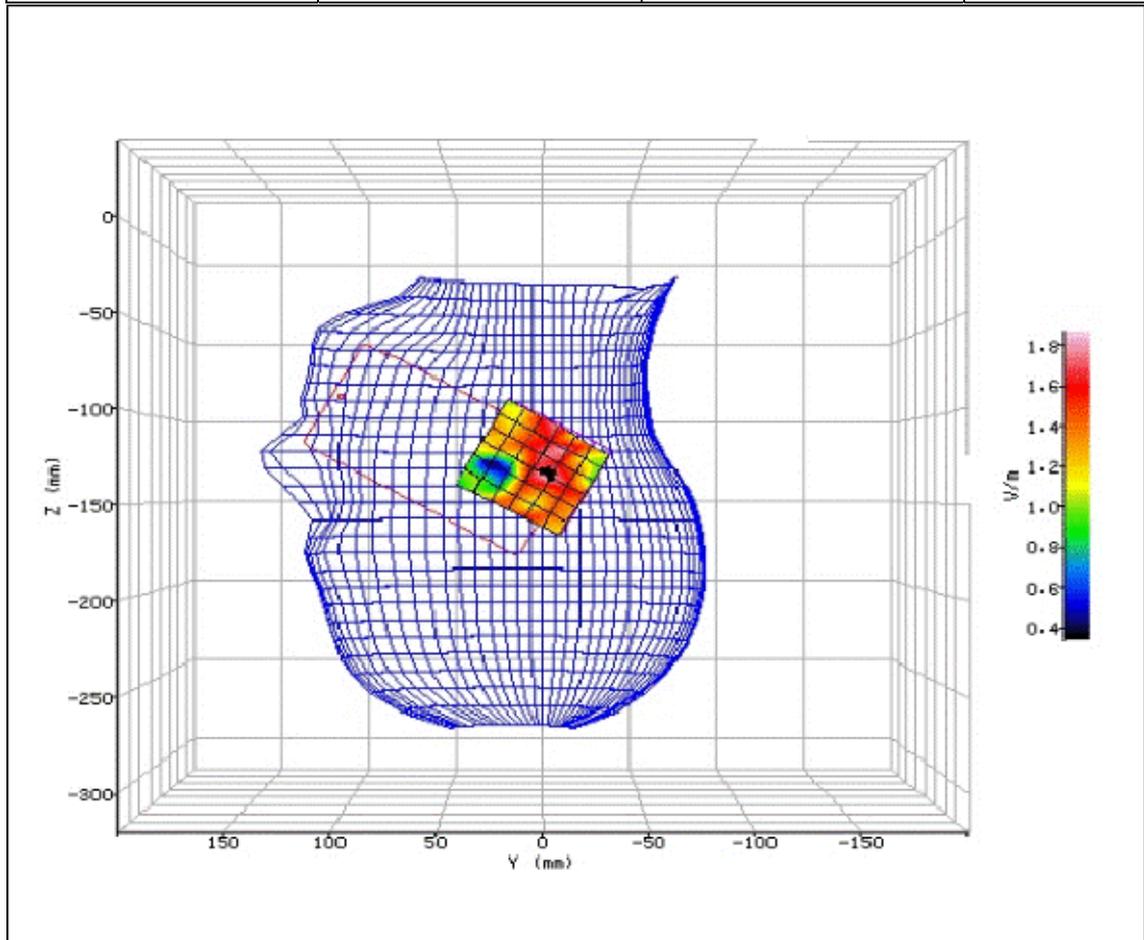


Figure 186: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-07:05:30	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-9.20mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-128.40mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.648
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.022 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.017 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.028 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

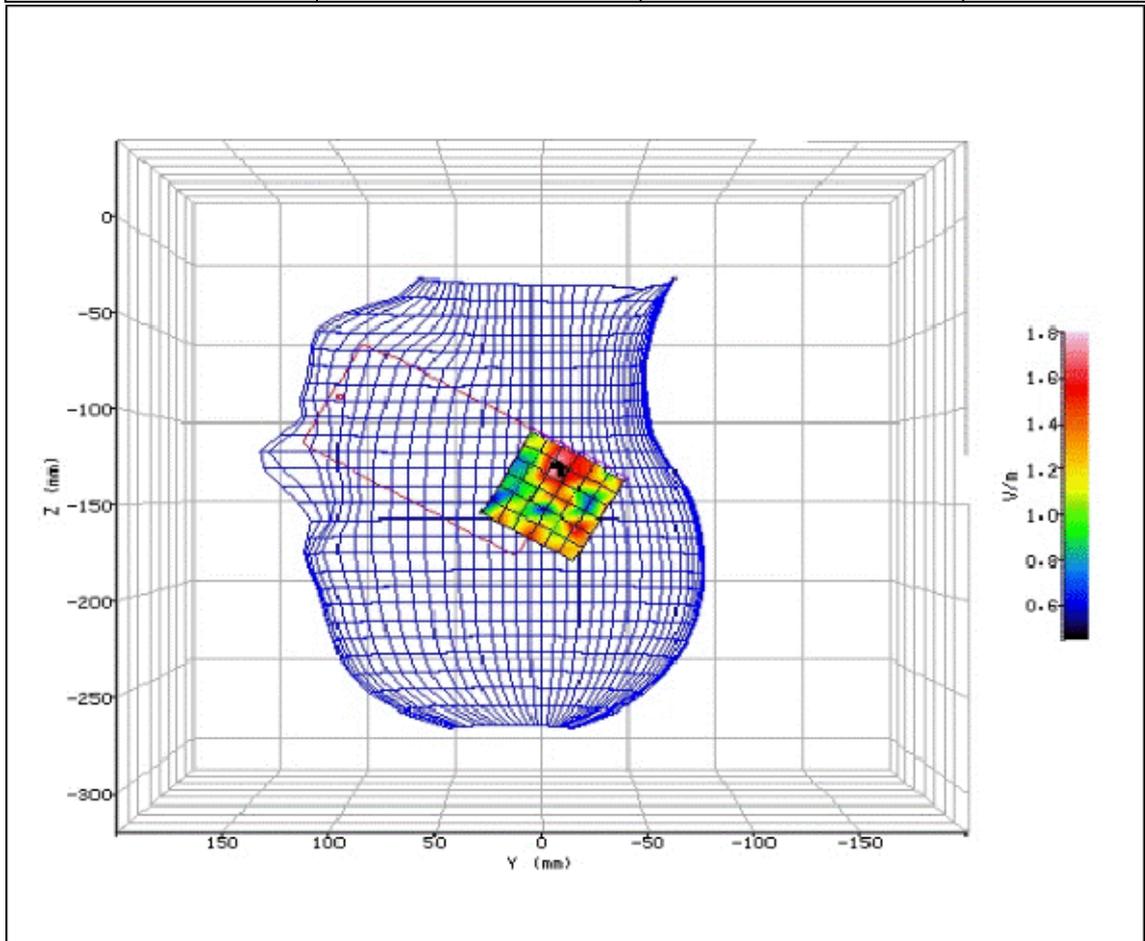


Figure 187: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-08:12:38	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	33.40%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	22.90°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	29.60mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-178.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.722
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.050 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.059 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.067 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

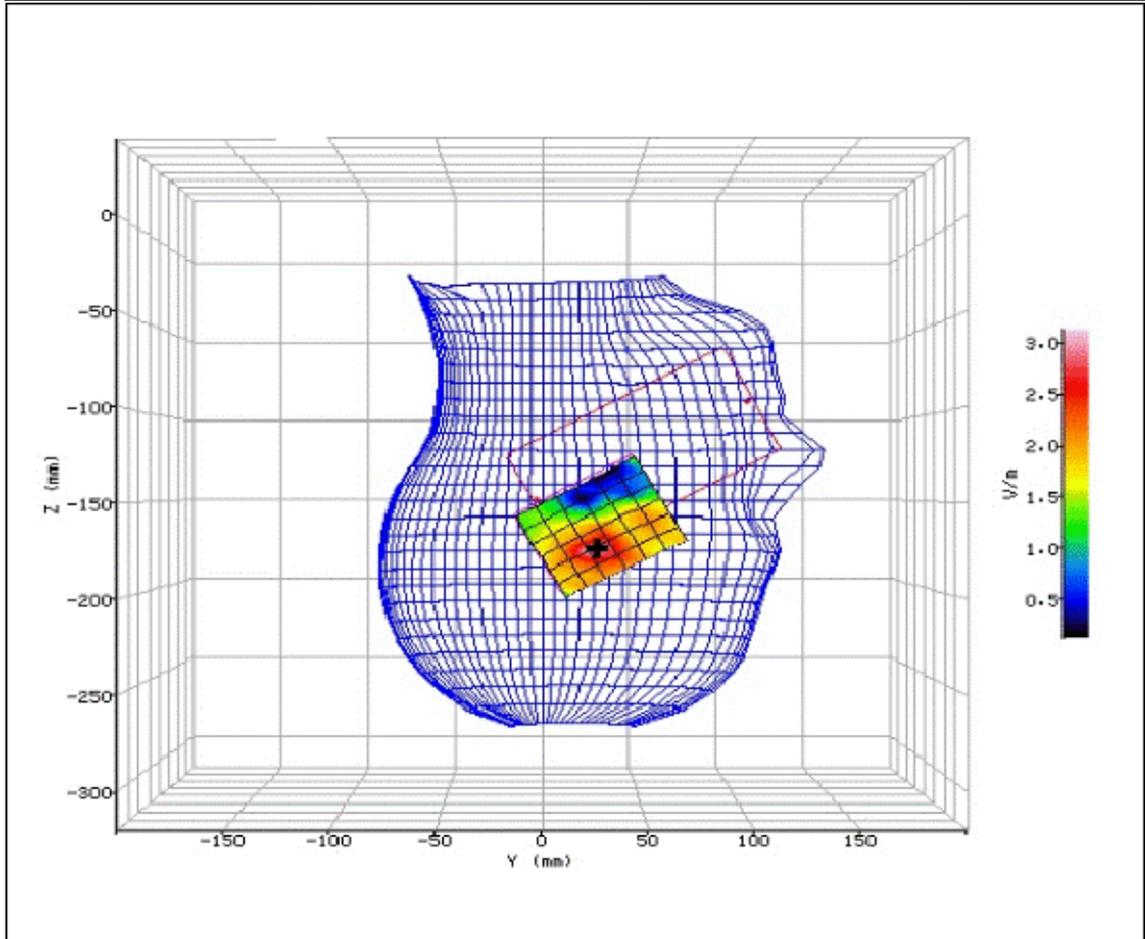


Figure 188: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-08:37:39	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	33.40%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	22.90°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	26.80mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-182.60mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.827
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.040 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.066 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.066 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

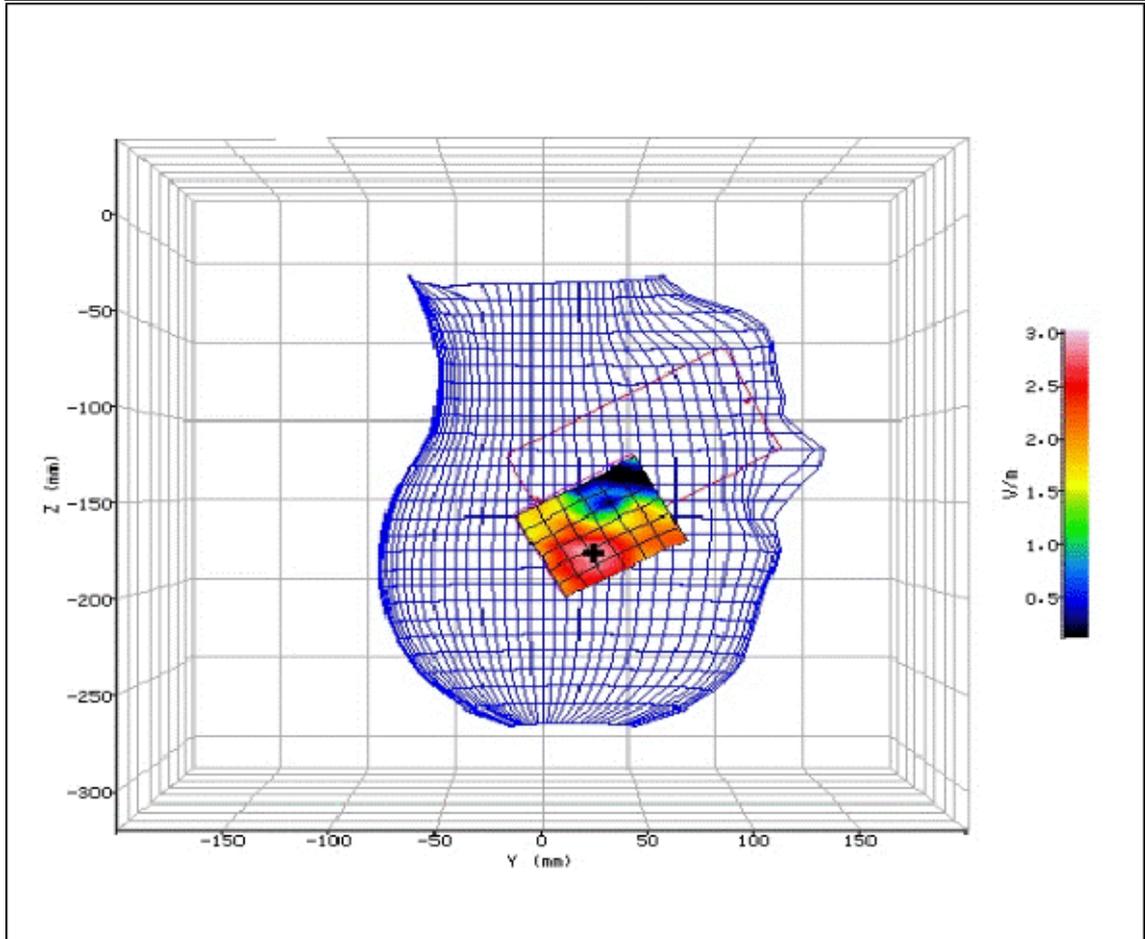


Figure 189: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



2.42 WLAN 5270MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-16:04:44	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-63.30mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-40.80mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	0.901
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.008 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.013 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.013 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

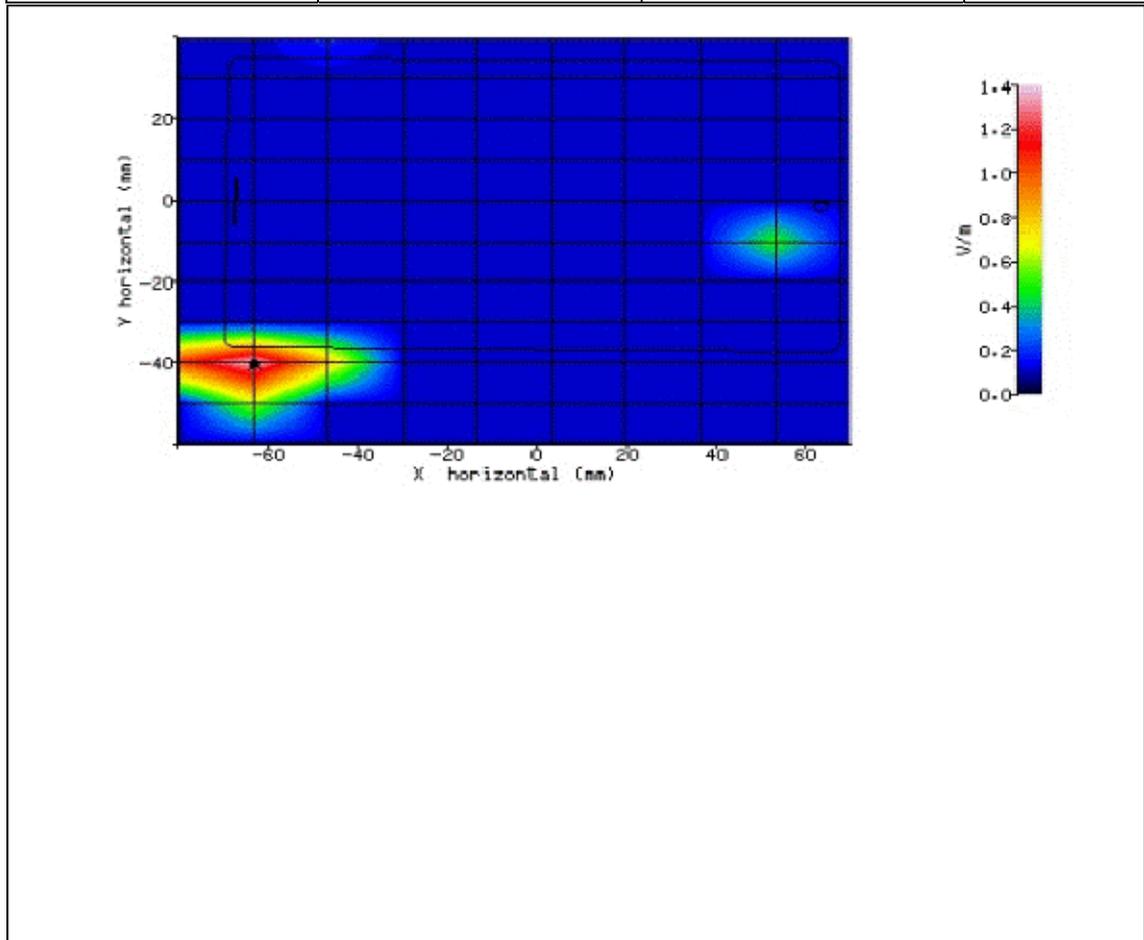


Figure 190: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-05:53:53	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-55.80mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	29.60mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	4.355
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.129 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.193 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.184 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	-4.800 %

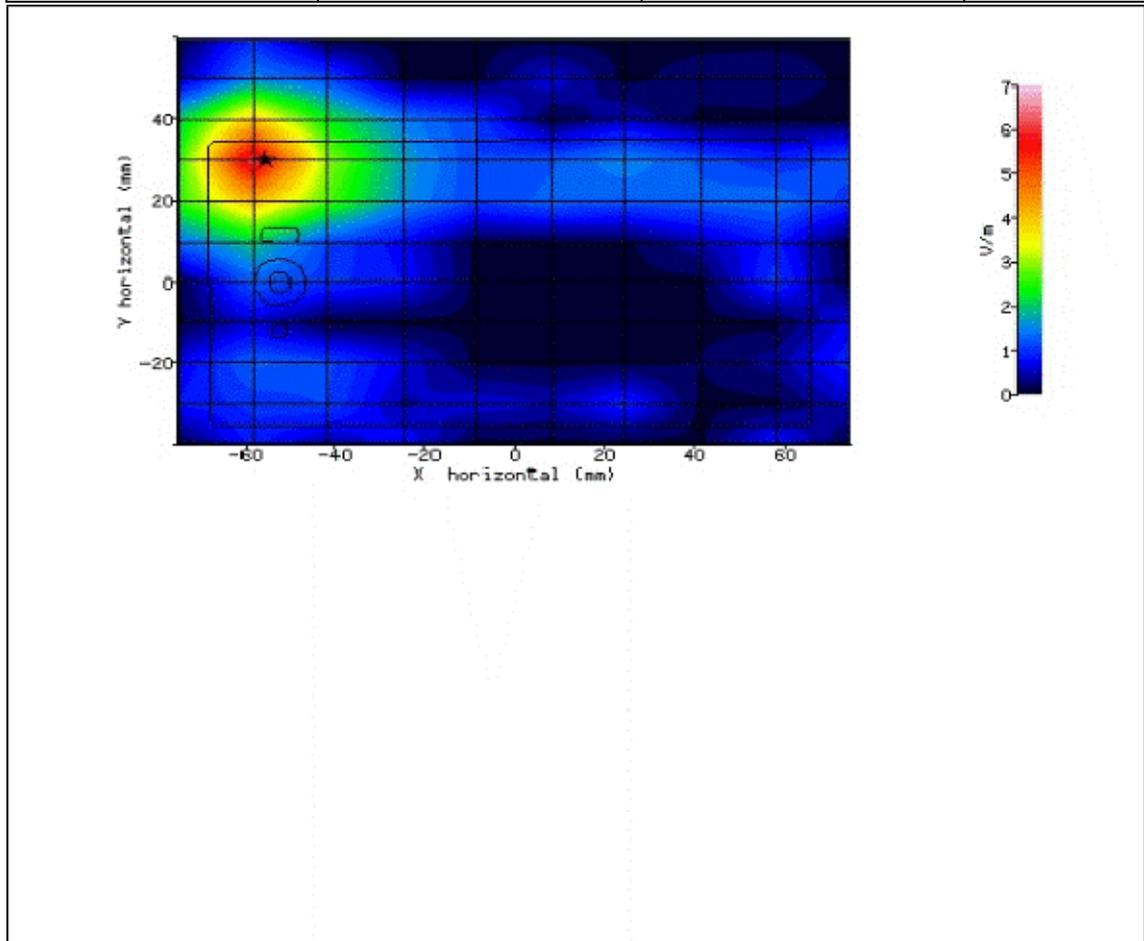


Figure 191: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-15:19:44	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-57.80mm
DUT POSITION:	10mm-Right Edge	MAX SAR Y-AXIS LOCATION:	-4.20mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	5.574
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.045 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.065 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.065 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

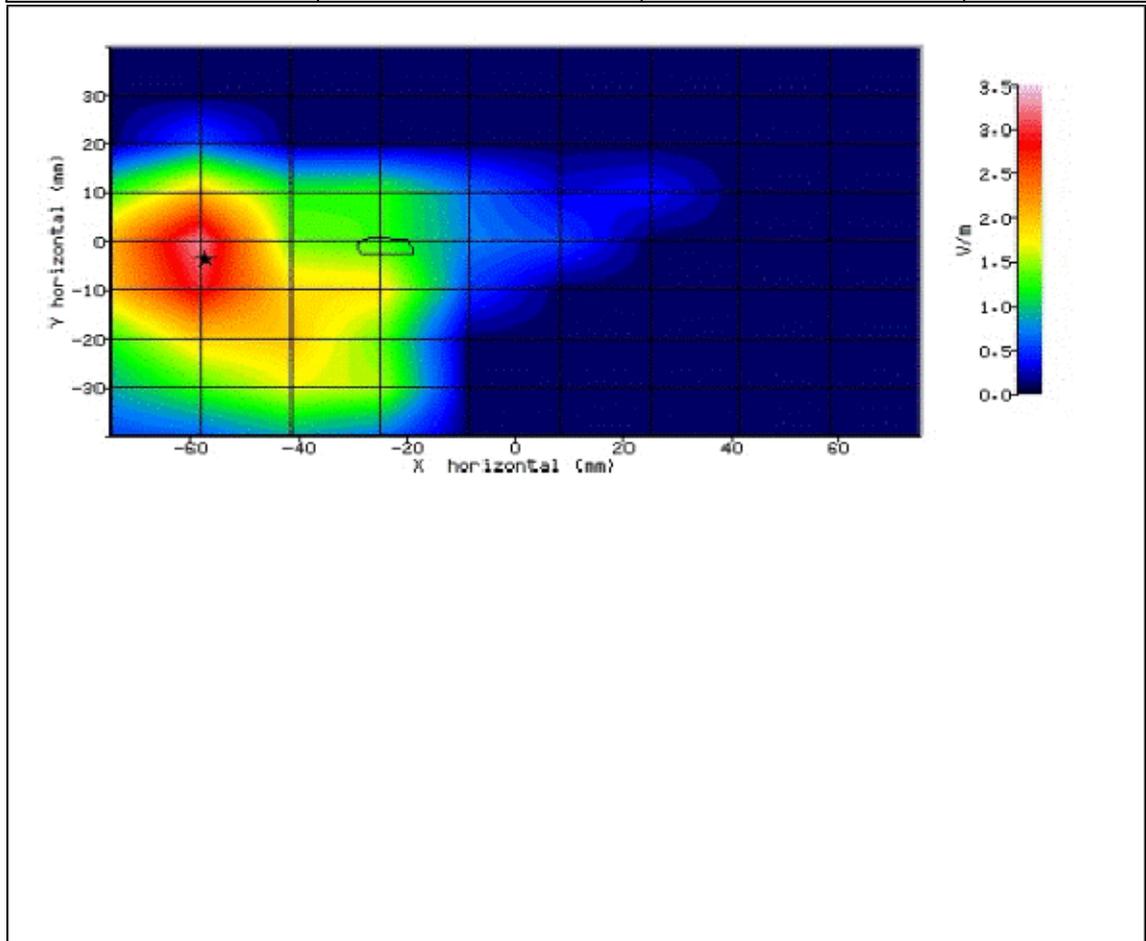


Figure 192: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-15:36:39	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.90%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	42.10mm
DUT POSITION:	10mm-Top Edge	MAX SAR Y-AXIS LOCATION:	-5.60mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.633
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.041 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.025 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.025 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

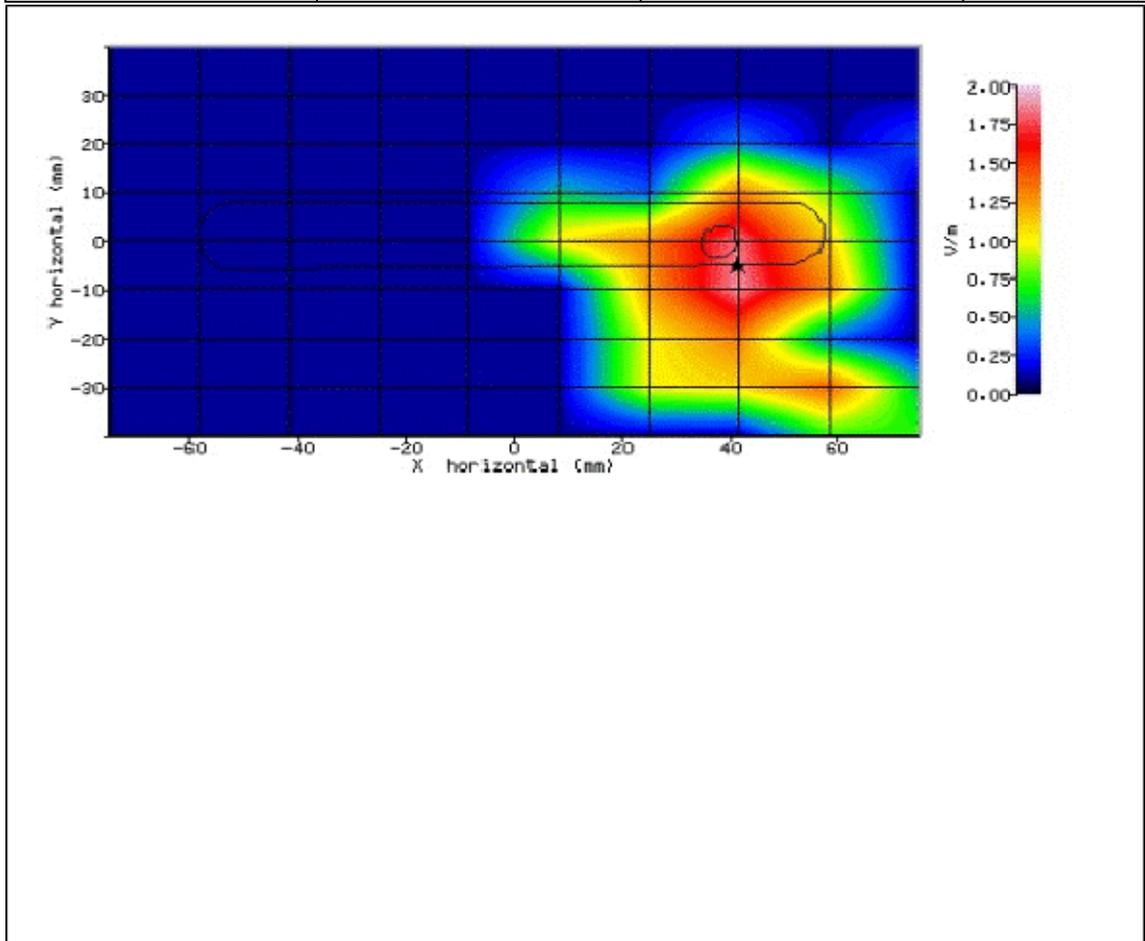


Figure 193: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



2.43 WLAN 5270MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-07:43:41	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	57.80mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-168.60mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.626
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.021 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.017 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.020 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

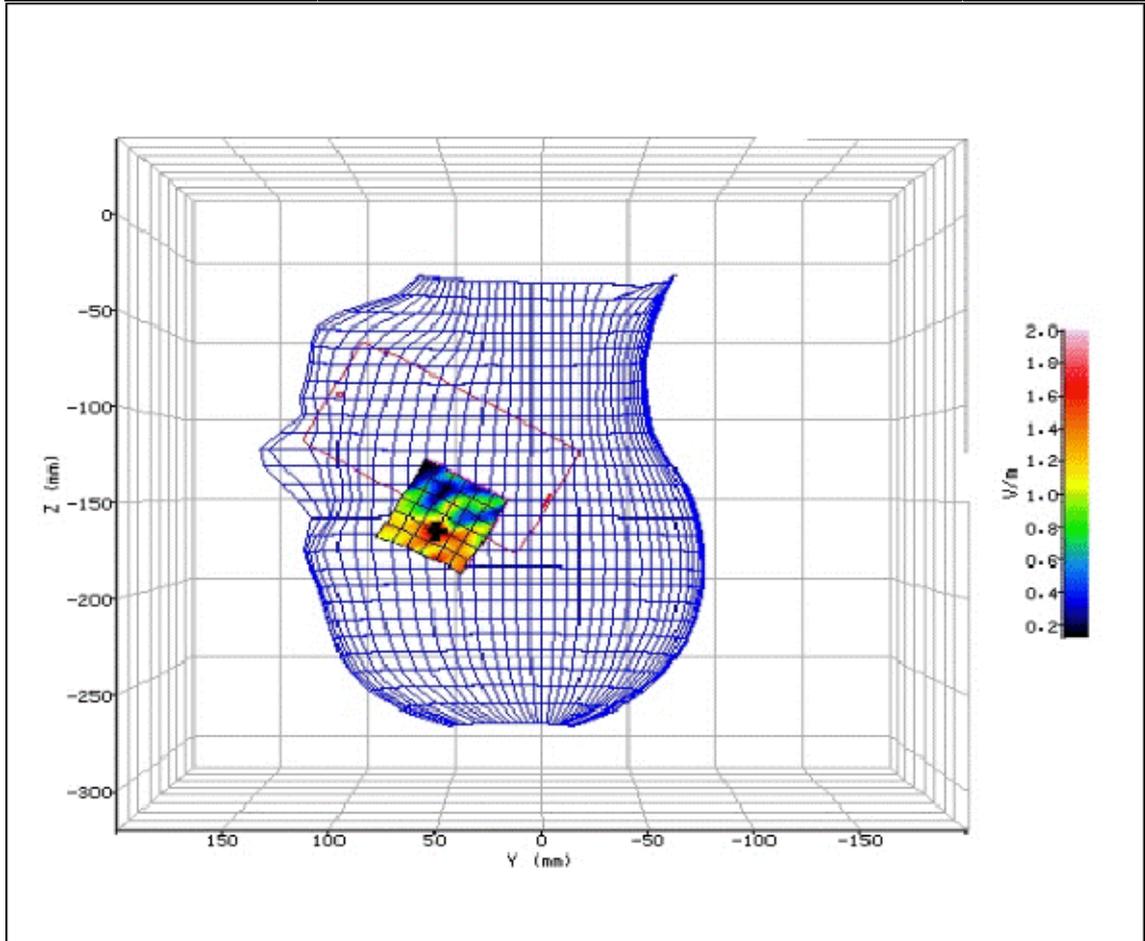


Figure 194: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	06/05/2015-08:46:55	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	32.50%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	58.60mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-167.40mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.632
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.011 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.012 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.016 W/kg
PROBE BATTERY LAST CHANGED:	06/05/2015	SAR DRIFT DURING SCAN:	0.000 %

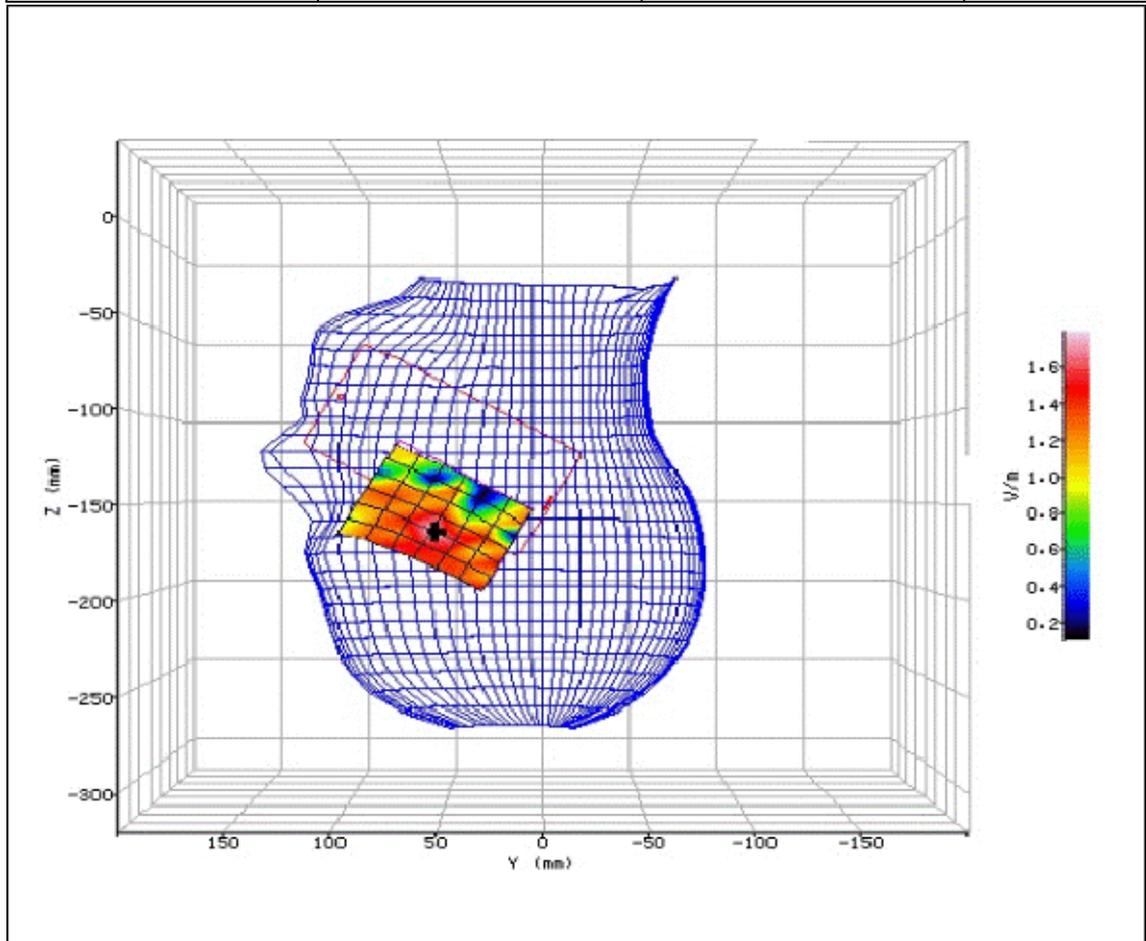


Figure 195: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-09:10:21	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	33.40%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	22.90°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	25.70mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-98.70mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.868
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.012 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.022 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.020 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

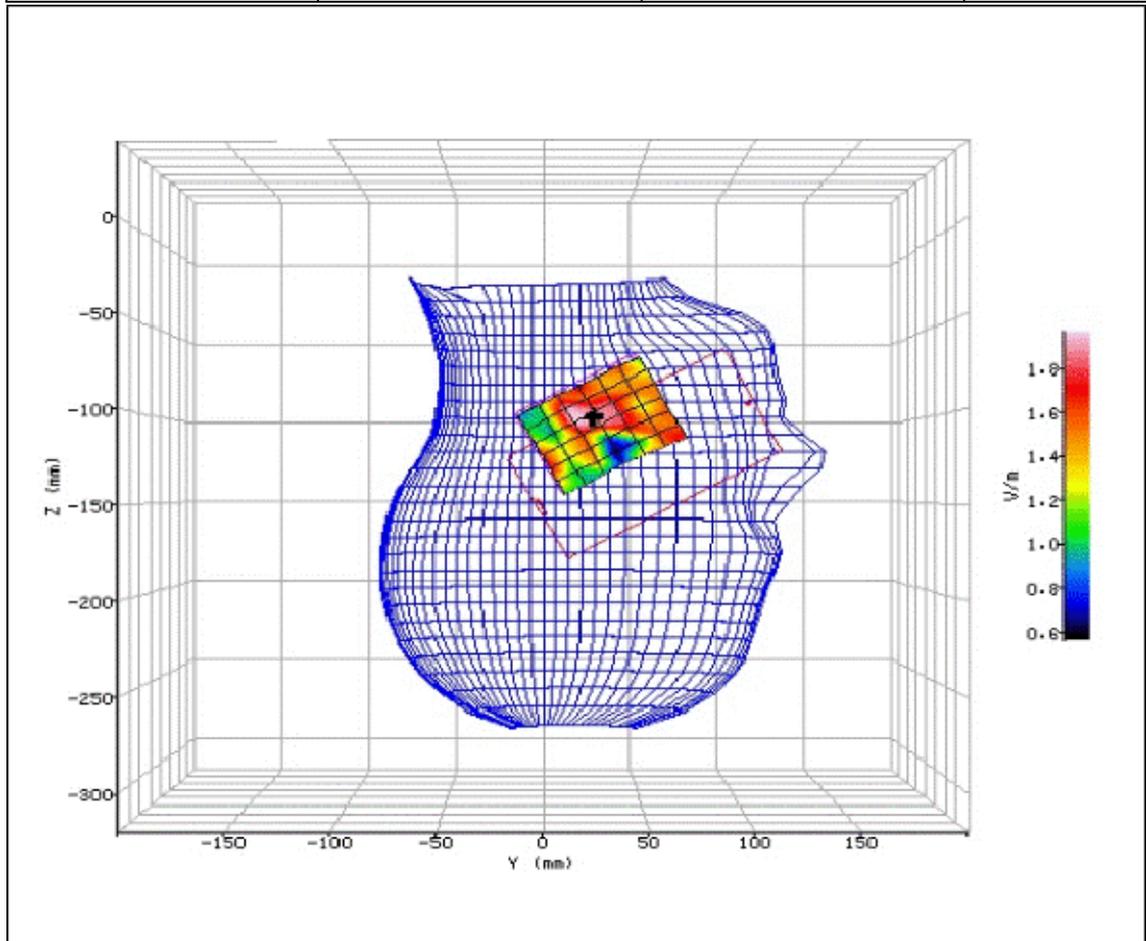


Figure 196: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



Product Service

No Measured SAR

Figure 197: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz.  
(NUA)



2.44 WLAN 5270MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-06:27:15	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-20.000mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	38.900mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	0.285
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.001 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.011 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.011 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

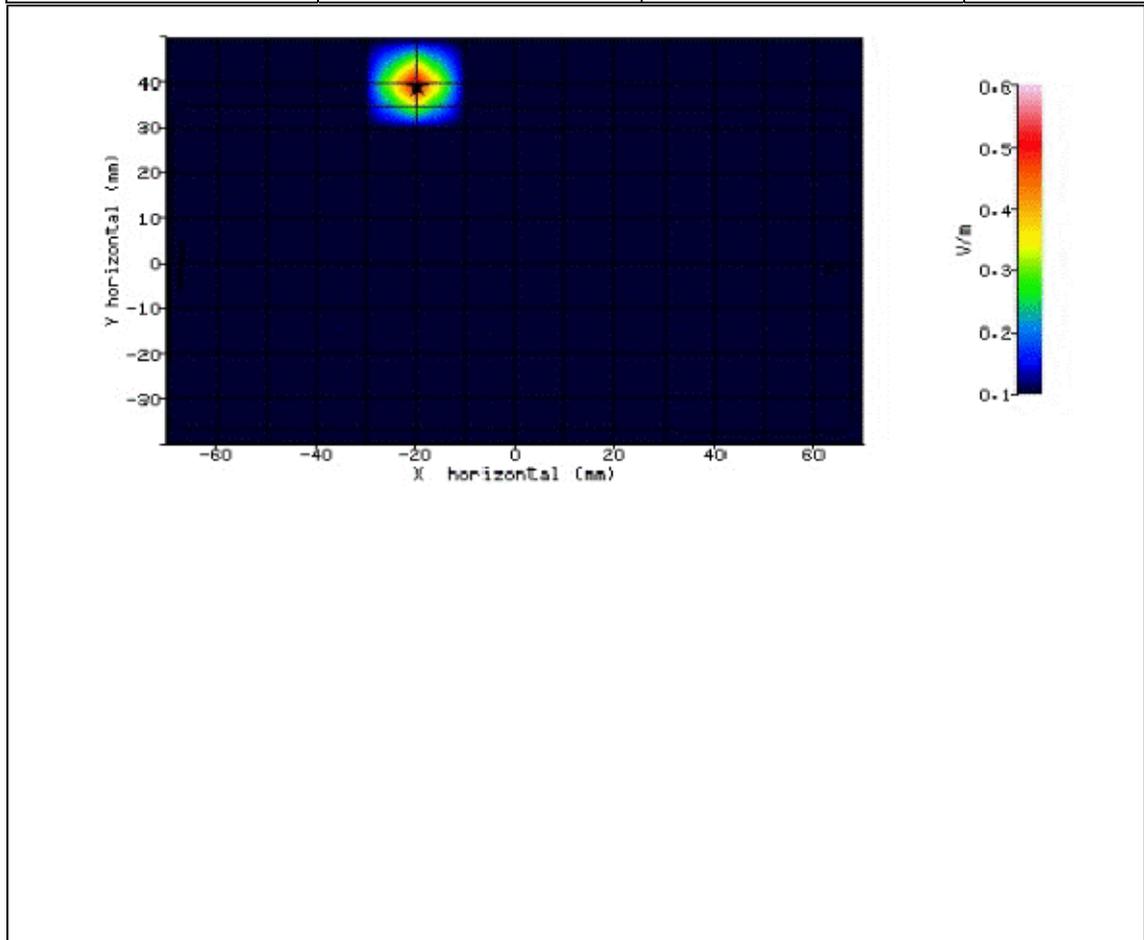


Figure 198: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-06:54:03	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-33.500mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	-30.200mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.805
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.031 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.045 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.045 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

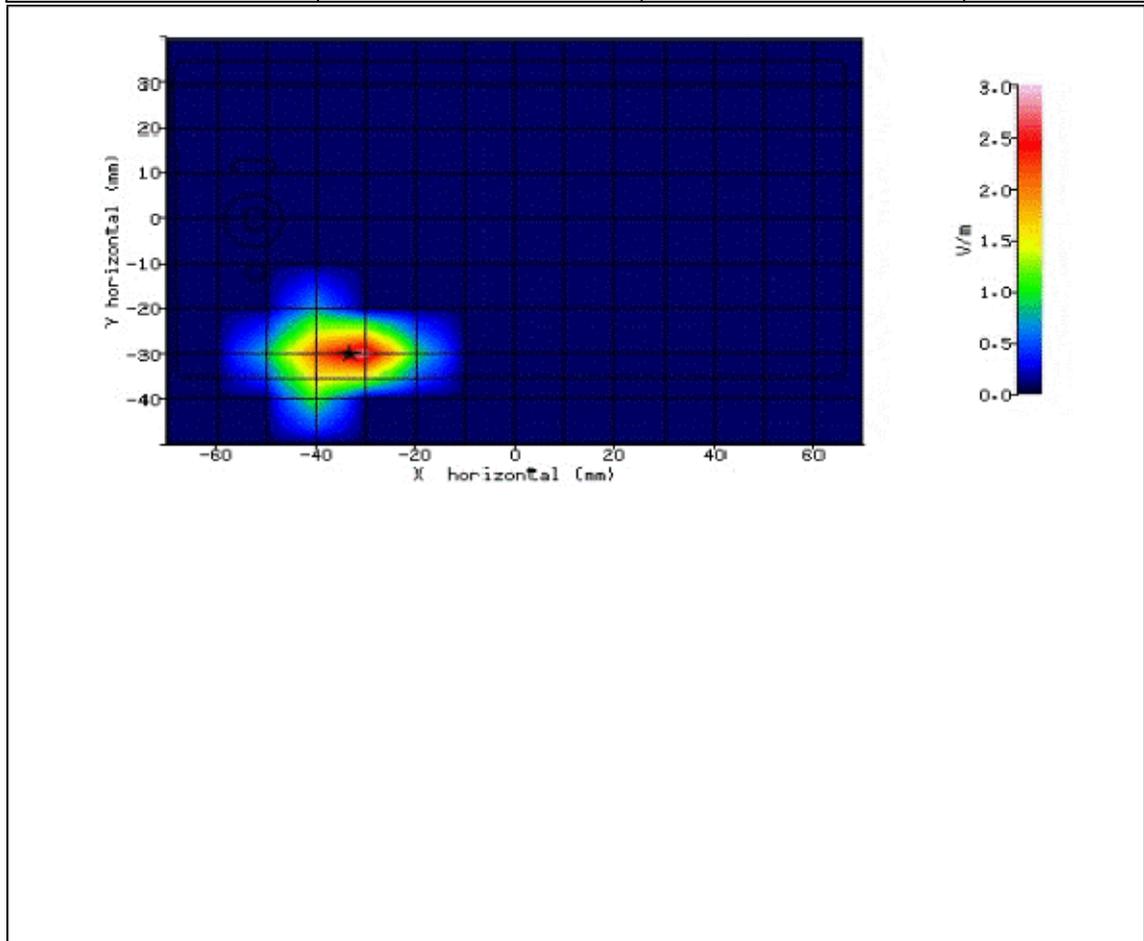


Figure 199: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-07:17:41	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-34.400mm
DUT POSITION:	10mm-Left Edge	MAX SAR Y-AXIS LOCATION:	15.600mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.068
TEST FREQUENCY:	5270.0MHz	SAR 1g:	0.004 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.008 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.008 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

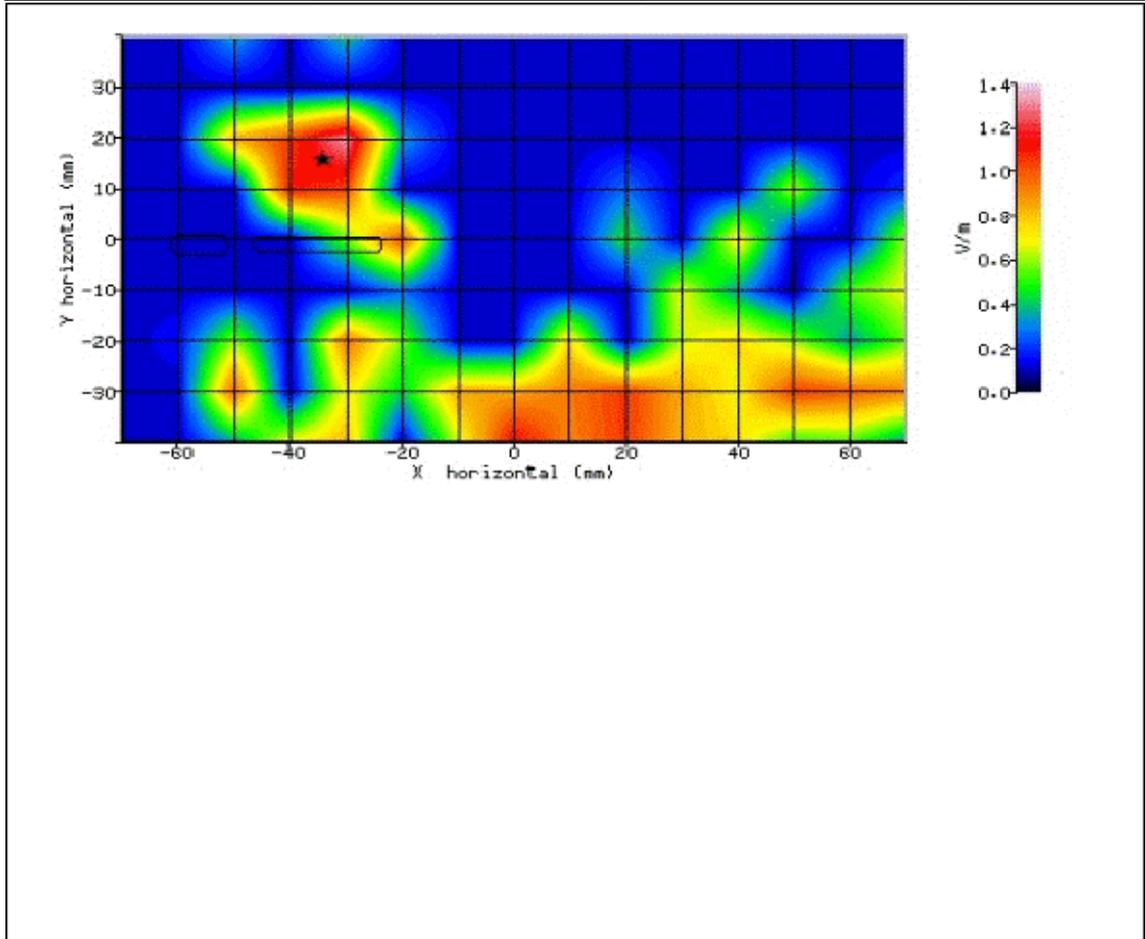


Figure 200: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5270.0MHz. (NUA)



2.45 WLAN 5590MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-12:58:07	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.80°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	34.41
RELATIVE HUMIDITY:	33.30%	CONDUCTIVITY:	4.812
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	5.40mm
DUT POSITION:	Left-Cheek	MAX SAR Z-AXIS LOCATION:	-142.60mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.416
TEST FREQUENCY:	5590.0MHz	SAR 1g:	0.017 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.010 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.017 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

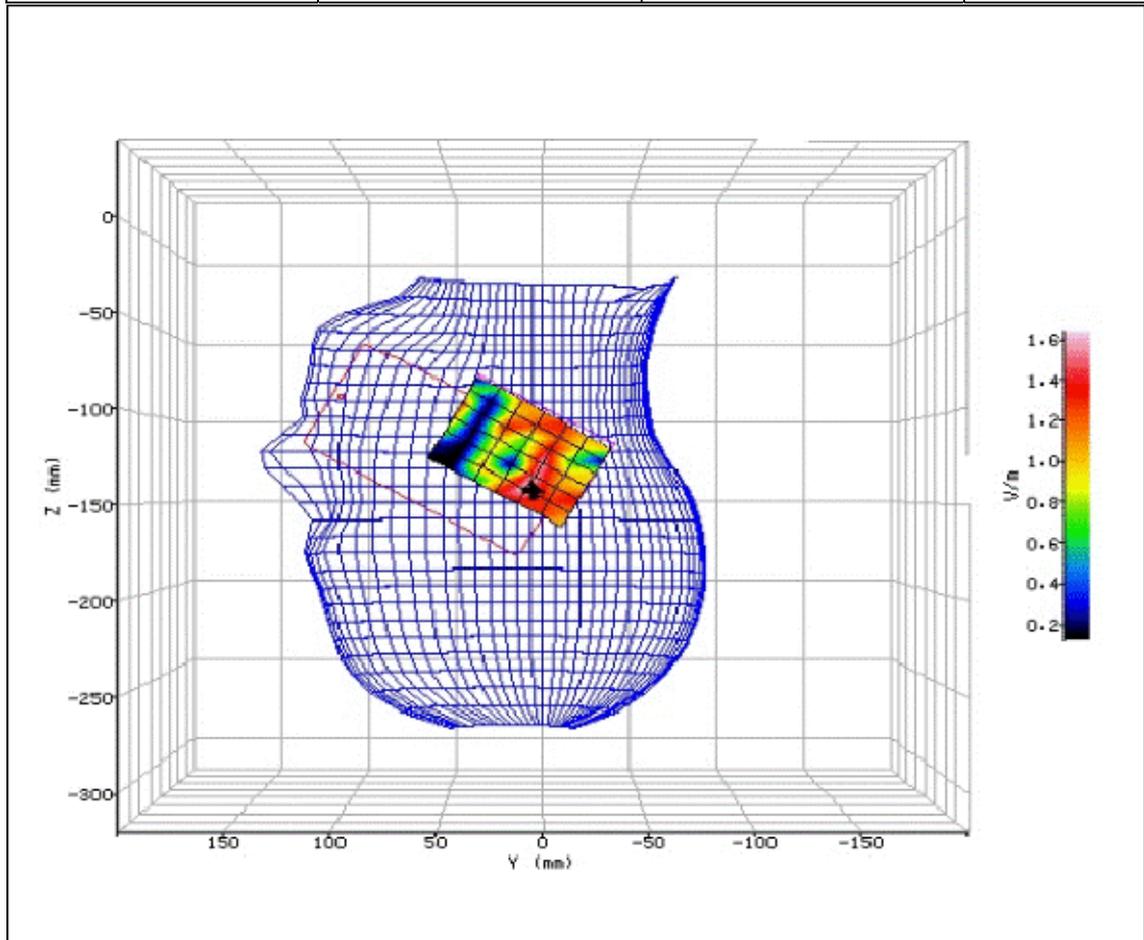


Figure 201: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-13:21:21	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.80°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	34.41
RELATIVE HUMIDITY:	33.30%	CONDUCTIVITY:	4.812
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-5.10mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	130.80mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.300
TEST FREQUENCY:	5590.0MHz	SAR 1g:	0.034 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.026 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.025 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	-6.400 %

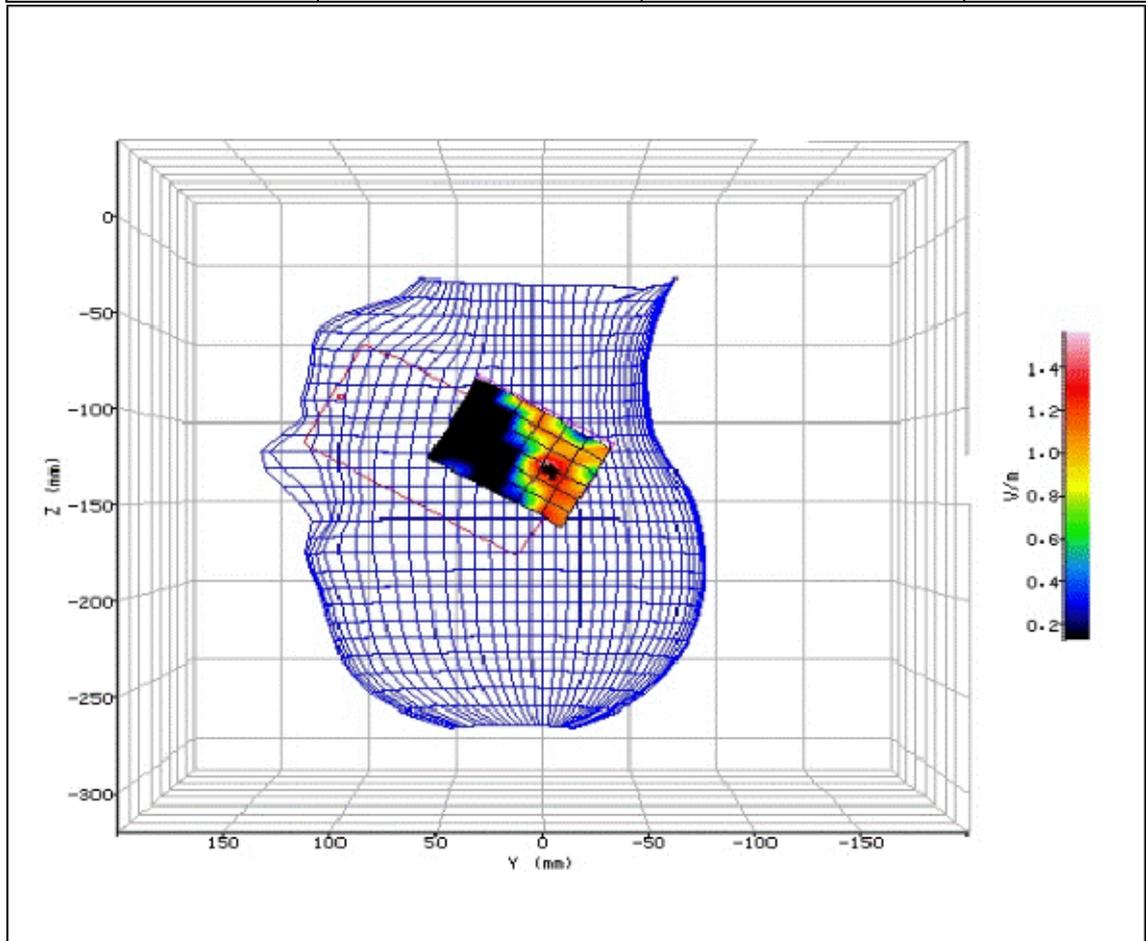


Figure 202: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-16:18:28	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.80°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	34.41
RELATIVE HUMIDITY:	33.30%	CONDUCTIVITY:	4.812
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	33.10mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-177.80mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.427
TEST FREQUENCY:	5590.0MHz	SAR 1g:	0.054 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.061 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.066 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	8.100 %

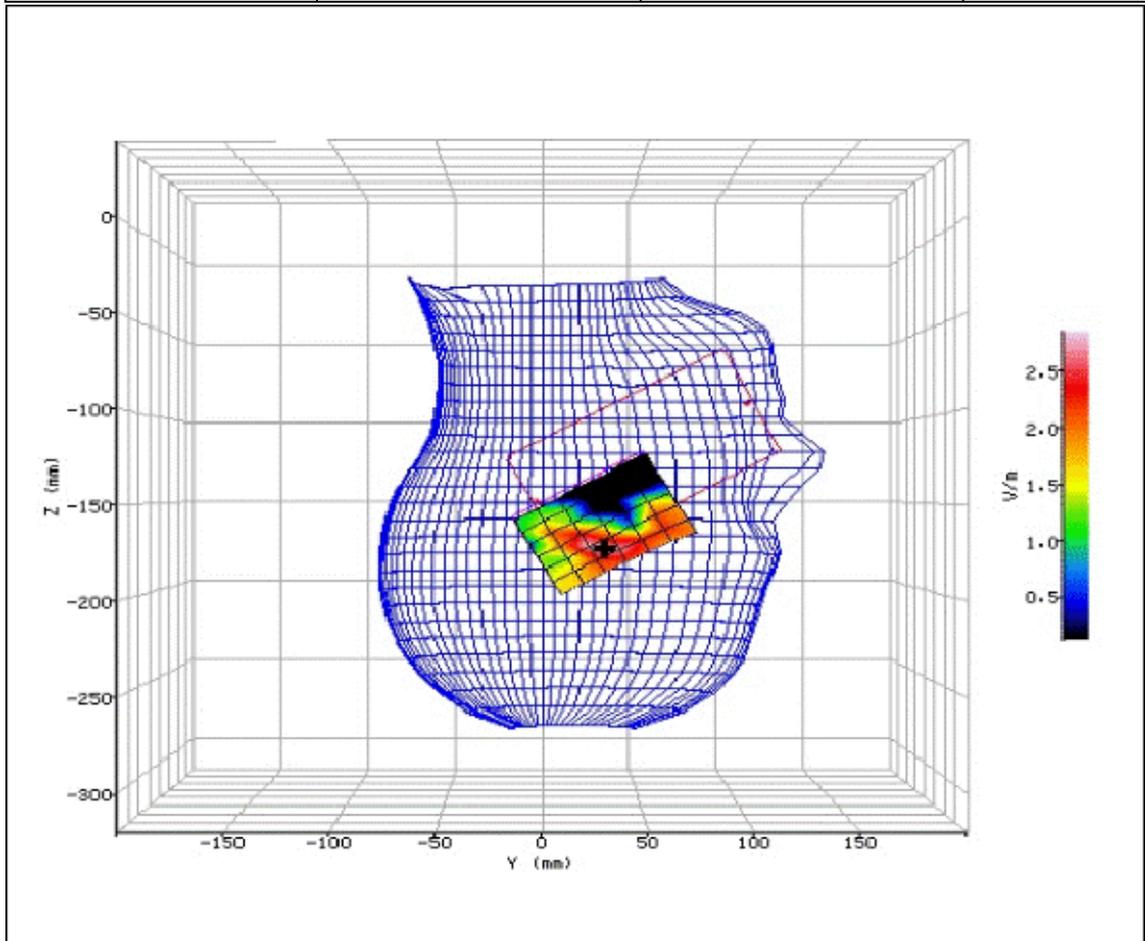


Figure 203: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/05/2015-07:02:41	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.80°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	34.41
RELATIVE HUMIDITY:	33.30%	CONDUCTIVITY:	4.812
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.20°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	27.10mm
DUT POSITION:	Right-15°	MAX SAR Z-AXIS LOCATION:	-177.10mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.705
TEST FREQUENCY:	5590.0MHz	SAR 1g:	0.048 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.098 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.103 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	5.100 %

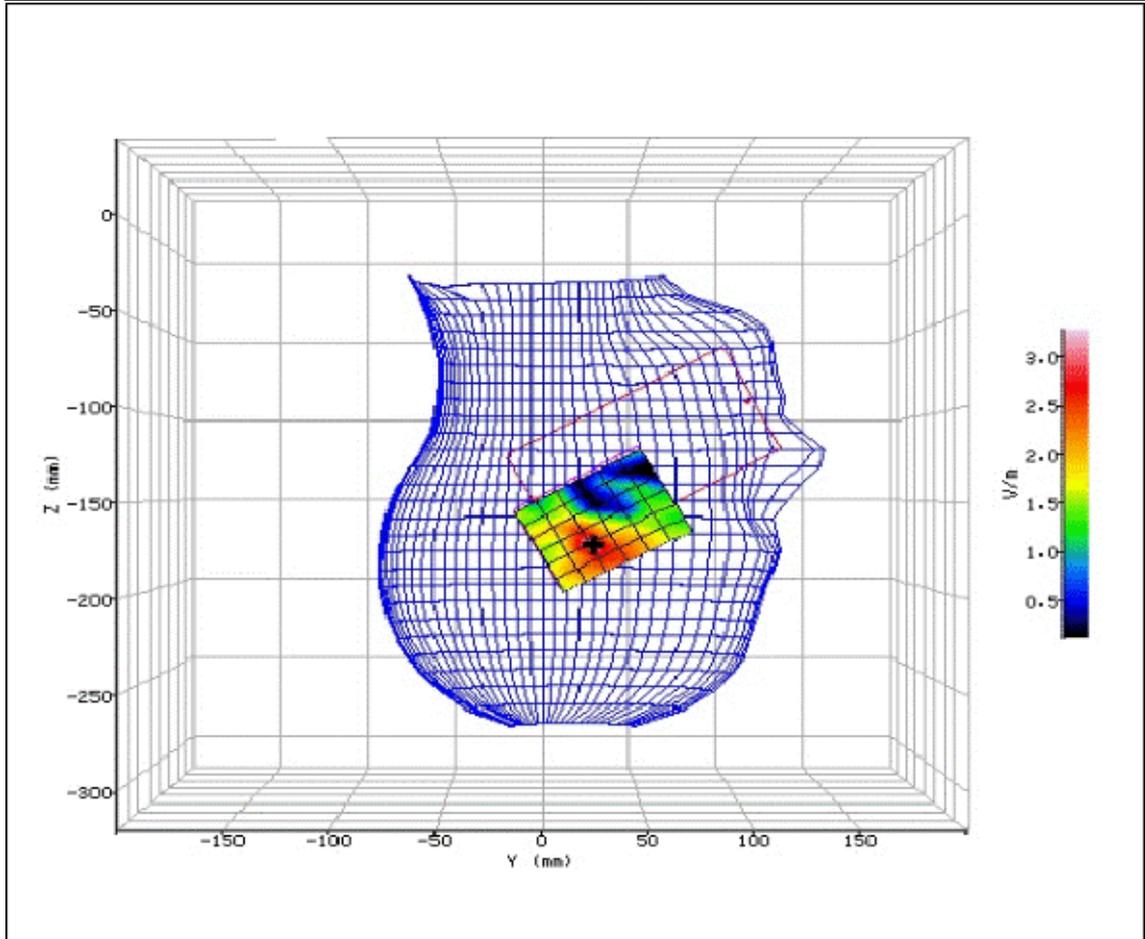


Figure 204: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz. (NUA)



2.46 WLAN 5590MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-13:18:15	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	47.15
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.531
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-59.300mm
DUT POSITION:	10mm-Front Facing	MAX SAR Y-AXIS LOCATION:	-39.200mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.180
TEST FREQUENCY:	5590.0MHz	SAR 1g:	0.027 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.024 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.024 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.300 %

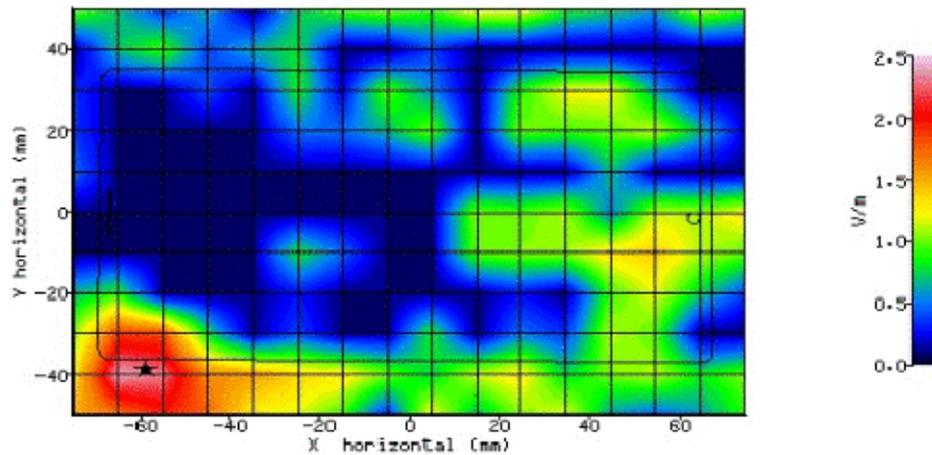


Figure 205: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-13:36:38	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	47.15
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.531
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-50.90mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	28.80mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	4.204
TEST FREQUENCY:	5590.0MHz	SAR 1g:	0.104 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.125 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.126 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.400 %

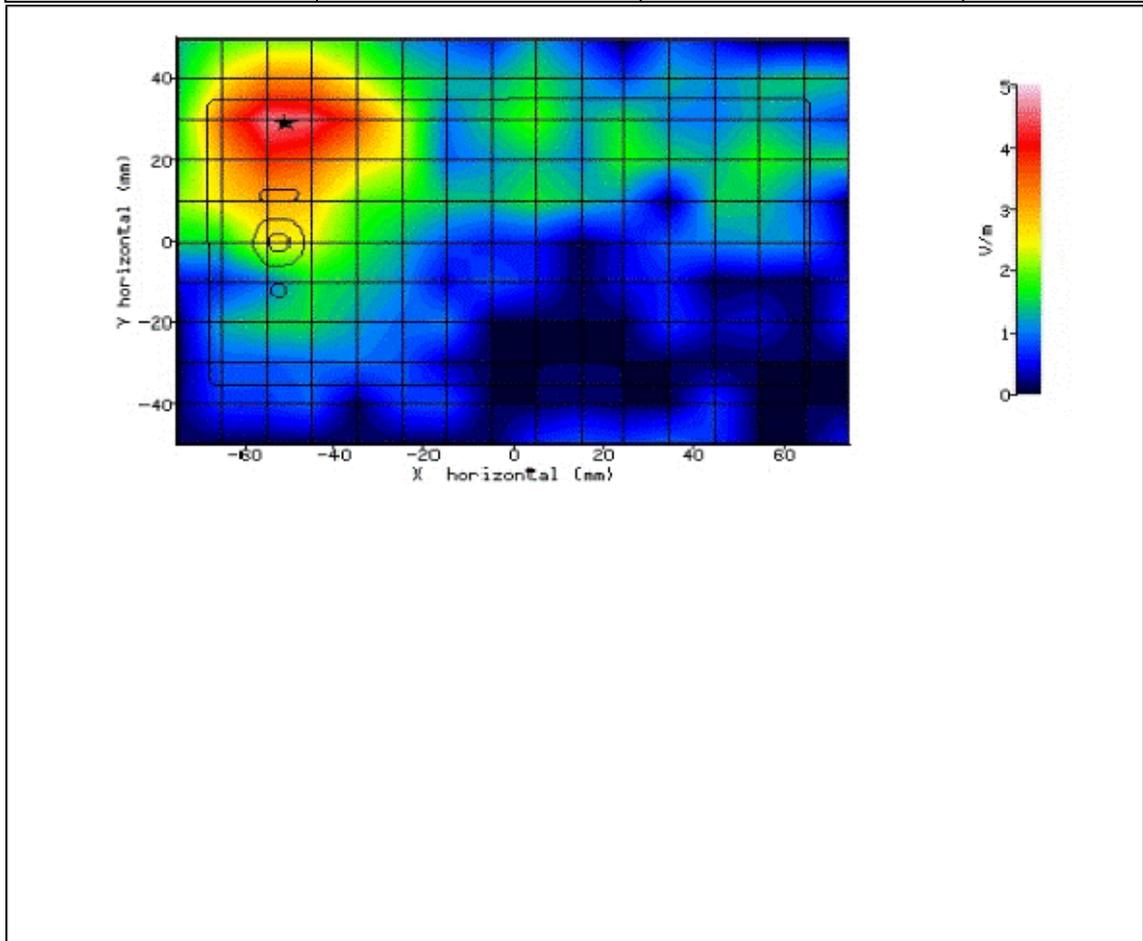


Figure 206: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-12:05:02	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	47.15
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.531
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-54.40mm
DUT POSITION:	10mm-Right Edge	MAX SAR Y-AXIS LOCATION:	-0.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	3.064
TEST FREQUENCY:	5590.0MHz	SAR 1g:	0.047 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.067 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.062 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	-7.400 %

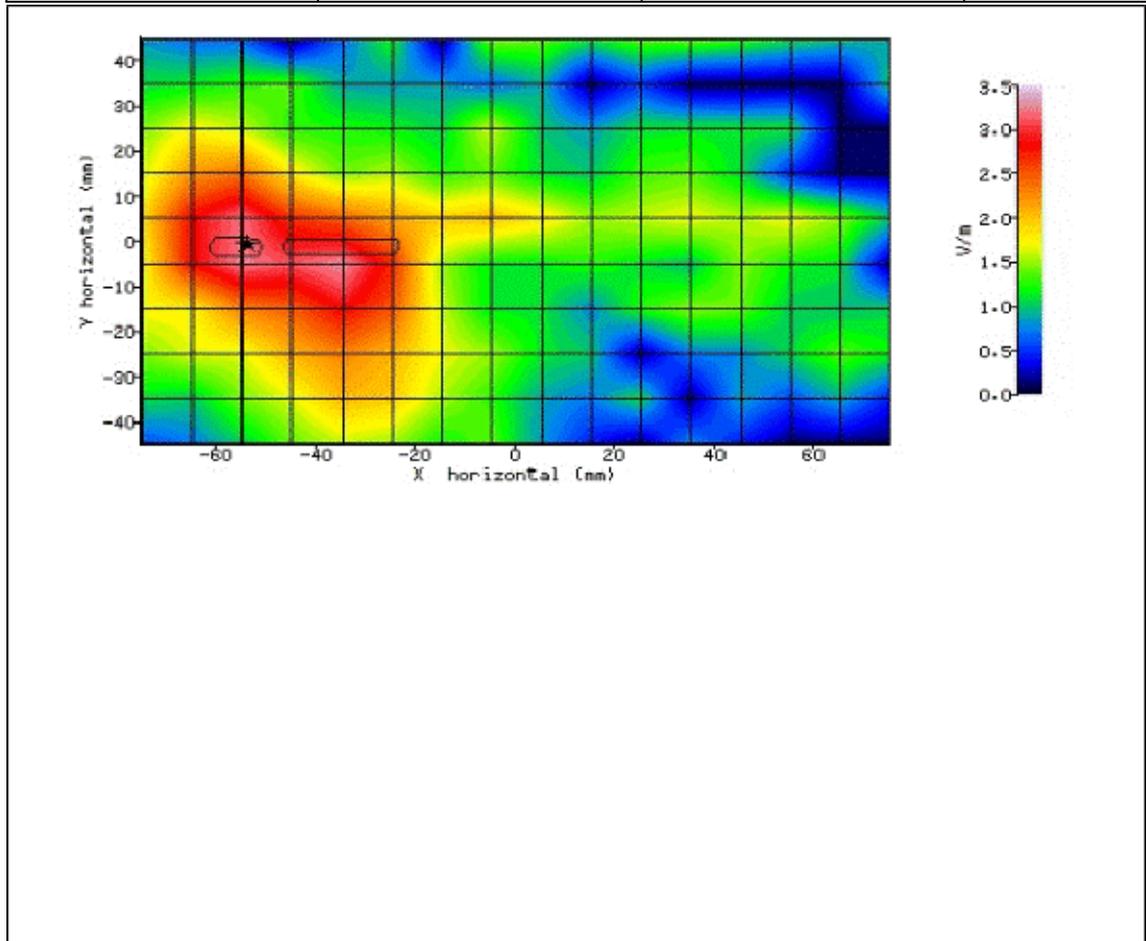


Figure 207: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-12:27:39	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	47.15
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.531
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	43.40mm
DUT POSITION:	10mm-Top Edge	MAX SAR Y-AXIS LOCATION:	-8.90mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.660
TEST FREQUENCY:	5590.0MHz	SAR 1g:	0.018 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.015 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.015 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

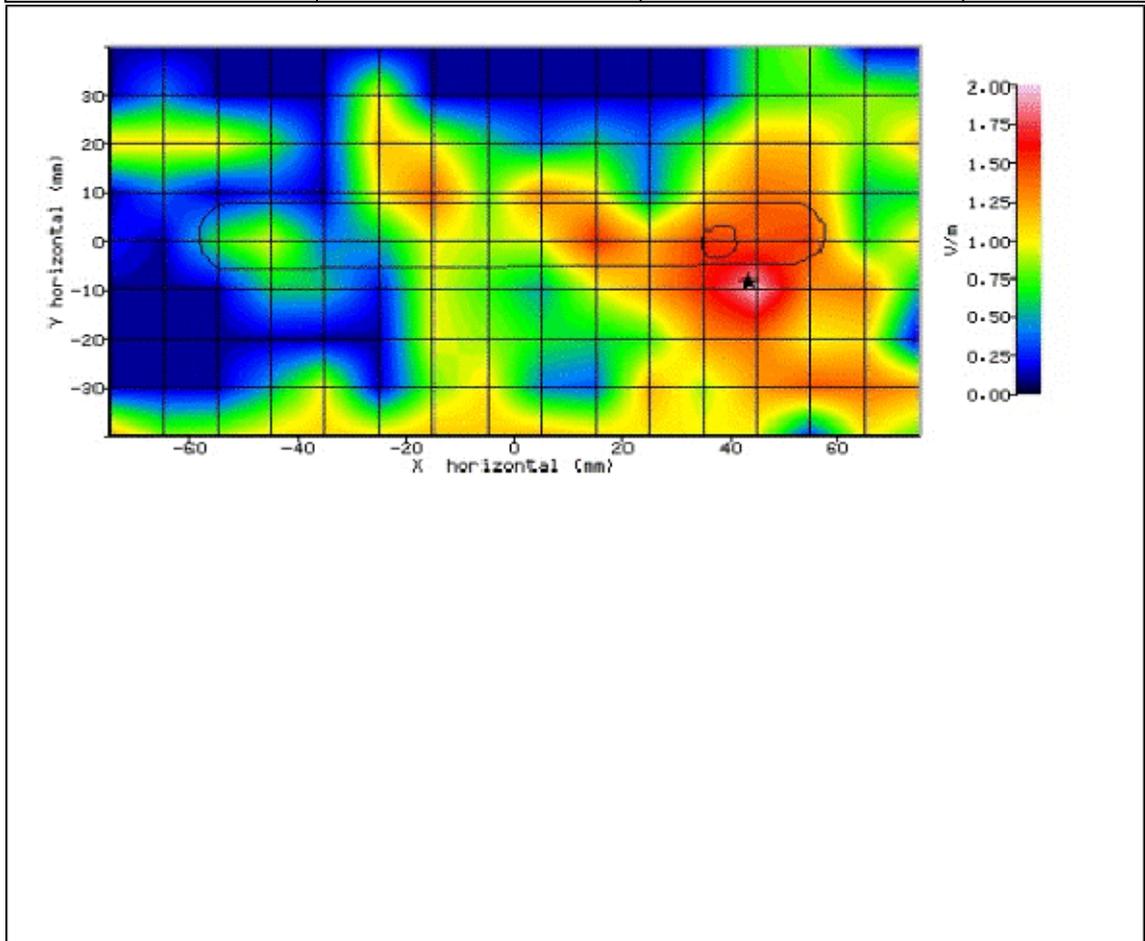


Figure 208: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz. (NUA)



Product Service

**2.47 WLAN 5590MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D**

No Measured SAR

Figure 209: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz.  
(NUA)



Product Service

No Measured SAR

Figure 210: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz.  
(NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/05/2015-07:41:08	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	34.41
RELATIVE HUMIDITY:	34.80%	CONDUCTIVITY:	4.812
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	12.70mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-114.10mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.877
TEST FREQUENCY:	5590.0MHz	SAR 1g:	0.009 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.008 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.005 W/kg
PROBE BATTERY LAST CHANGED:	08/07/2015	SAR DRIFT DURING SCAN:	0.000 %

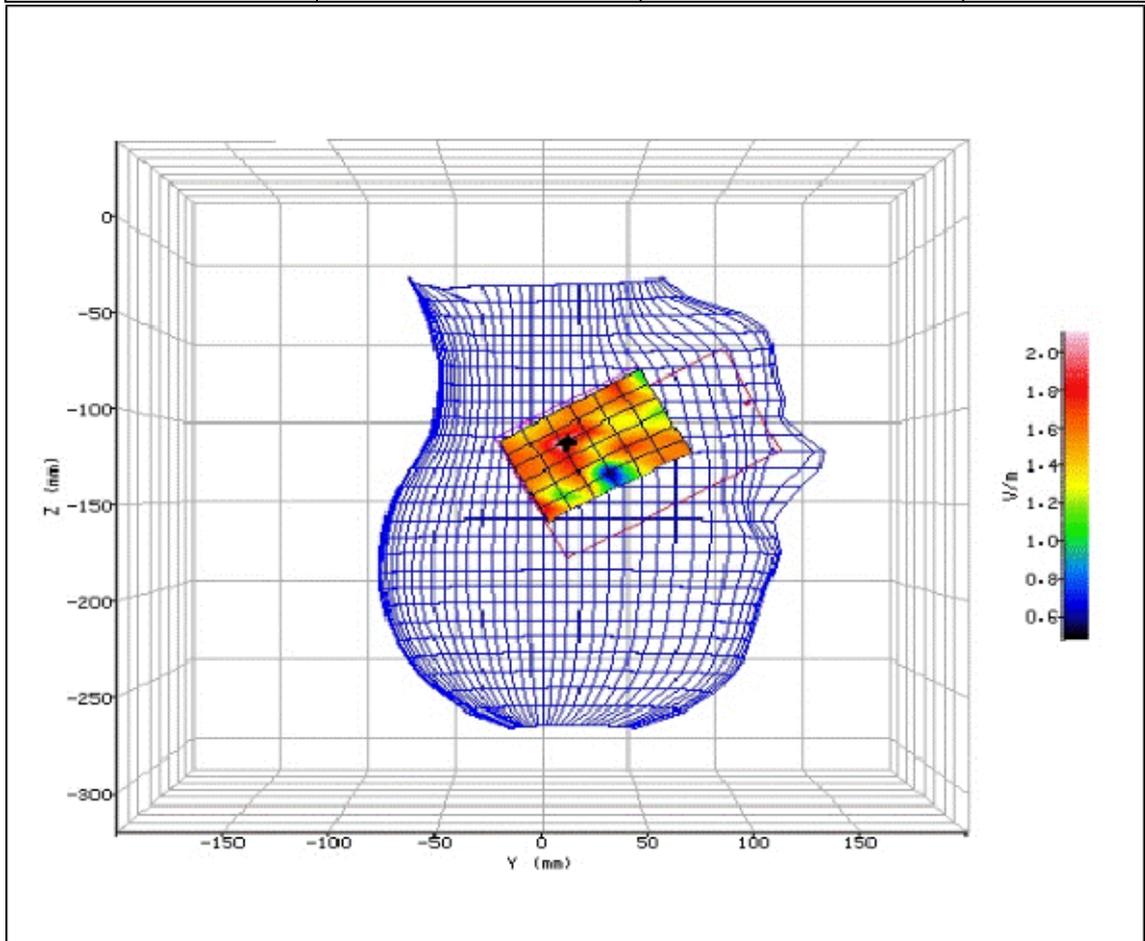


Figure 211: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz. (NUA)



Product Service

No Measured SAR

Figure 212: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz.  
(NUA)



Product Service

**2.48 WLAN 5590MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D**

No Measured SAR

Figure 213: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz.  
(NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-14:19:18	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	47.15
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.531
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-34.40mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	-29.80mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.555
TEST FREQUENCY:	5590.0MHz	SAR 1g:	0.024 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.035 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.035 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

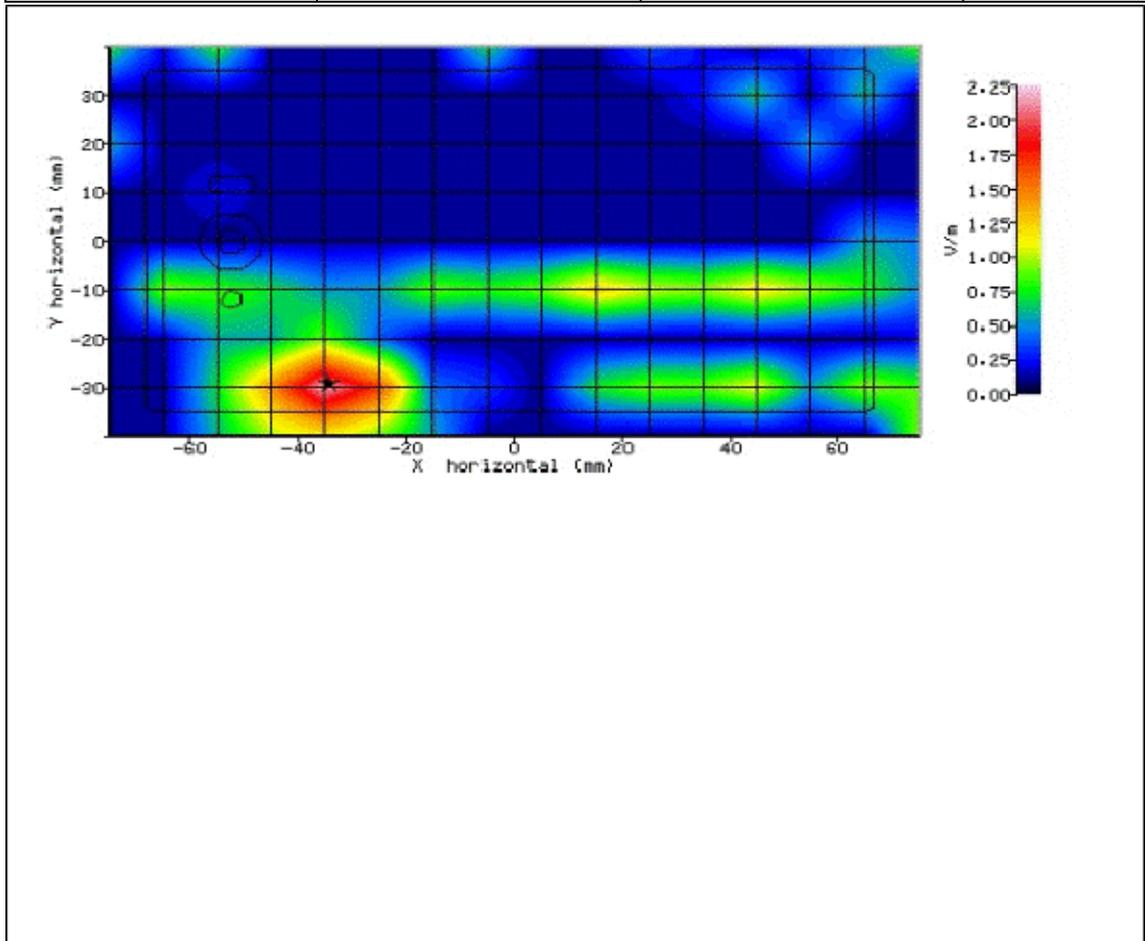


Figure 214: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-14:38:36	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.40°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	47.15
RELATIVE HUMIDITY:	31.80%	CONDUCTIVITY:	5.531
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.00°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-28.50mm
DUT POSITION:	10mm-Left Edge	MAX SAR Y-AXIS LOCATION:	12.40mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.084
TEST FREQUENCY:	5590.0MHz	SAR 1g:	0.011 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.013 W/kg
INPUT POWER LEVEL:	9.5dBm	SAR END:	0.013 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	0.000 %

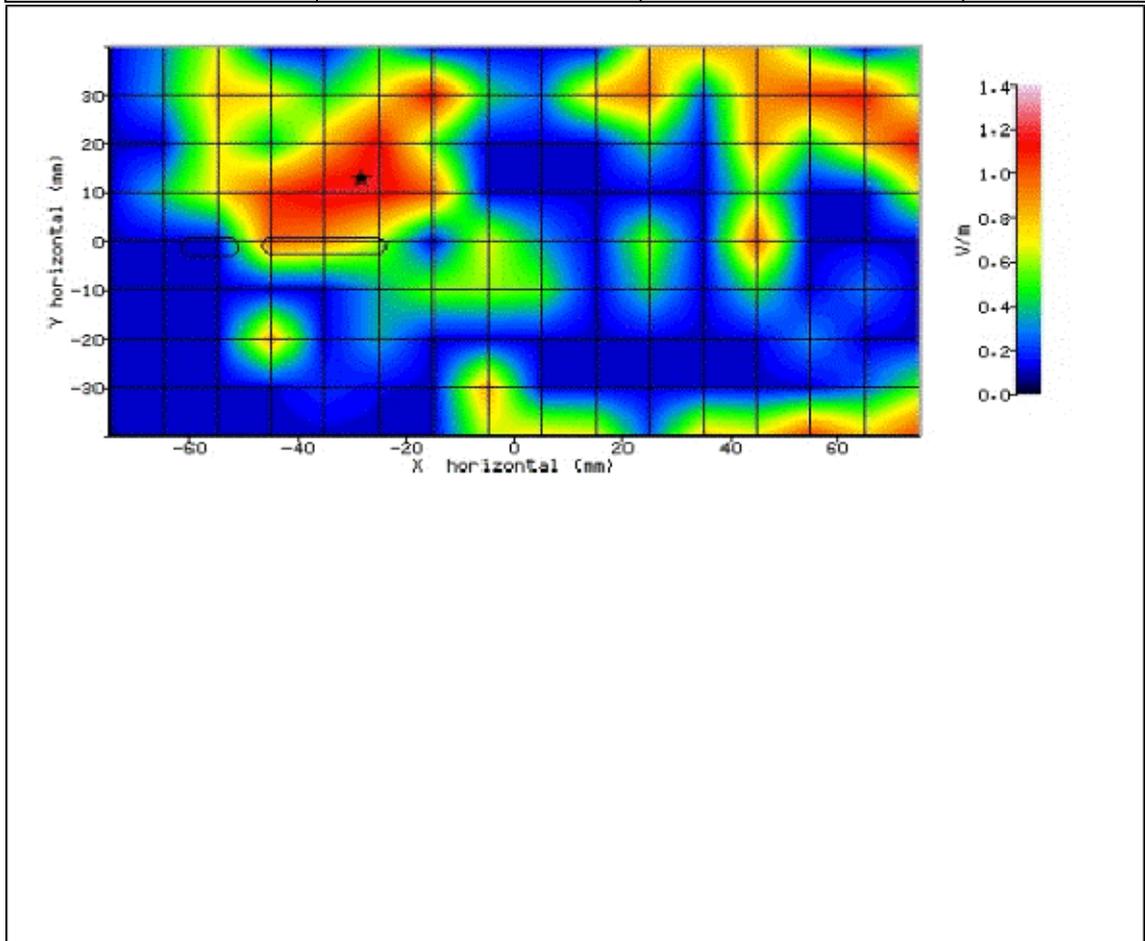


Figure 215: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5590.0MHz. (NUA)



2.49 WLAN 5180MHz HEAD SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/05/2015-09:21:34	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	34.80%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	29.400mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-178.600mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.369
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.029 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.038 W/kg
INPUT POWER LEVEL:	10ddBm	SAR END:	0.038 W/kg
PROBE BATTERY LAST CHANGED:	08/05/2015	SAR DRIFT DURING SCAN:	0.400 %

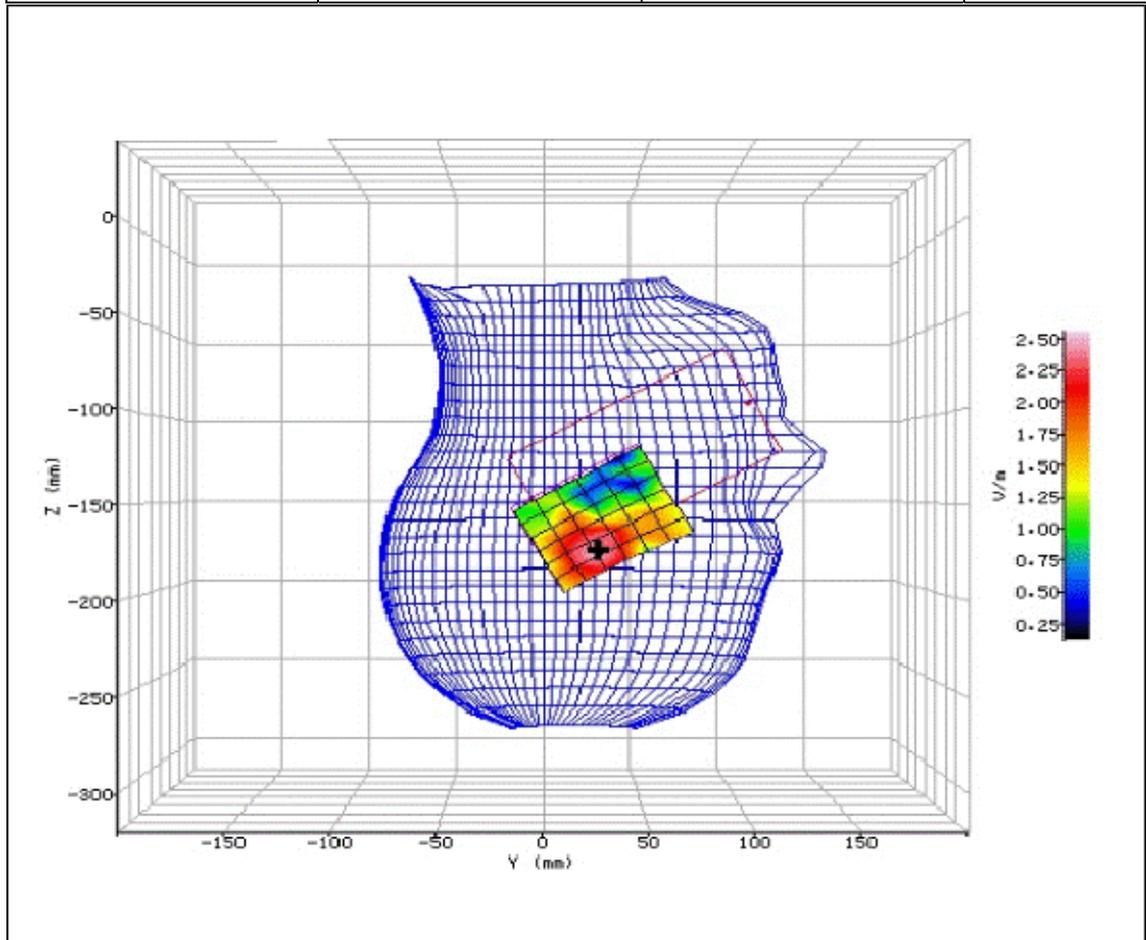


Figure 216: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/05/2015-10:05:31	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	35.25
RELATIVE HUMIDITY:	34.80%	CONDUCTIVITY:	4.456
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	29.300mm
DUT POSITION:	Right-Cheek	MAX SAR Z-AXIS LOCATION:	-177.100mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	2.604
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.042 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.055 W/kg
INPUT POWER LEVEL:	10dBm	SAR END:	0.057 W/kg
PROBE BATTERY LAST CHANGED:	08/05/2015	SAR DRIFT DURING SCAN:	4.700 %

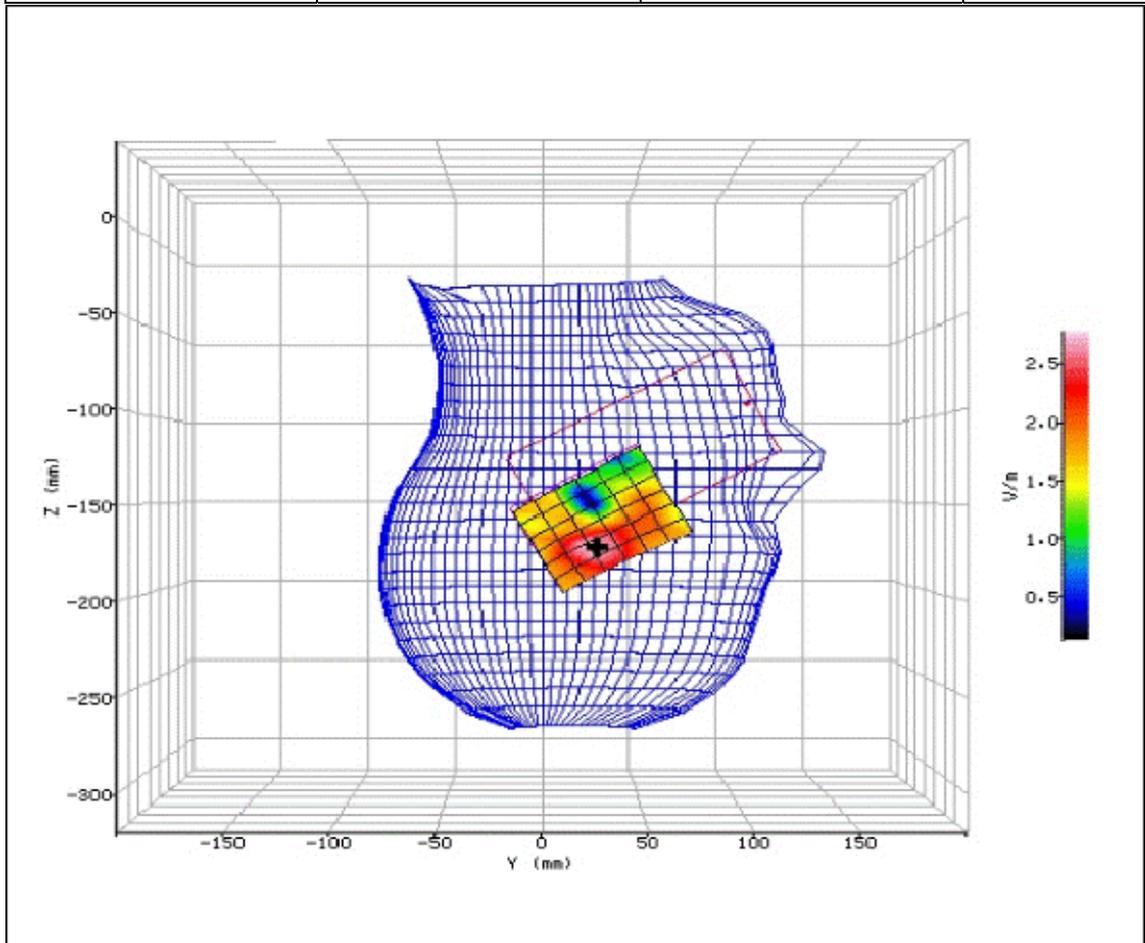


Figure 217: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/05/2015-10:39:23	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.50°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	34.41
RELATIVE HUMIDITY:	34.80%	CONDUCTIVITY:	4.812
PHANTOM S/NO:	IXB-040	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR Y-AXIS LOCATION:	-1.000mm
DUT POSITION:	Left-15°	MAX SAR Z-AXIS LOCATION:	-128.200mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	1.243
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.028 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.018 W/kg
INPUT POWER LEVEL:	10ddBm	SAR END:	0.016 W/kg
PROBE BATTERY LAST CHANGED:	08/05/2015	SAR DRIFT DURING SCAN:	0.000 %

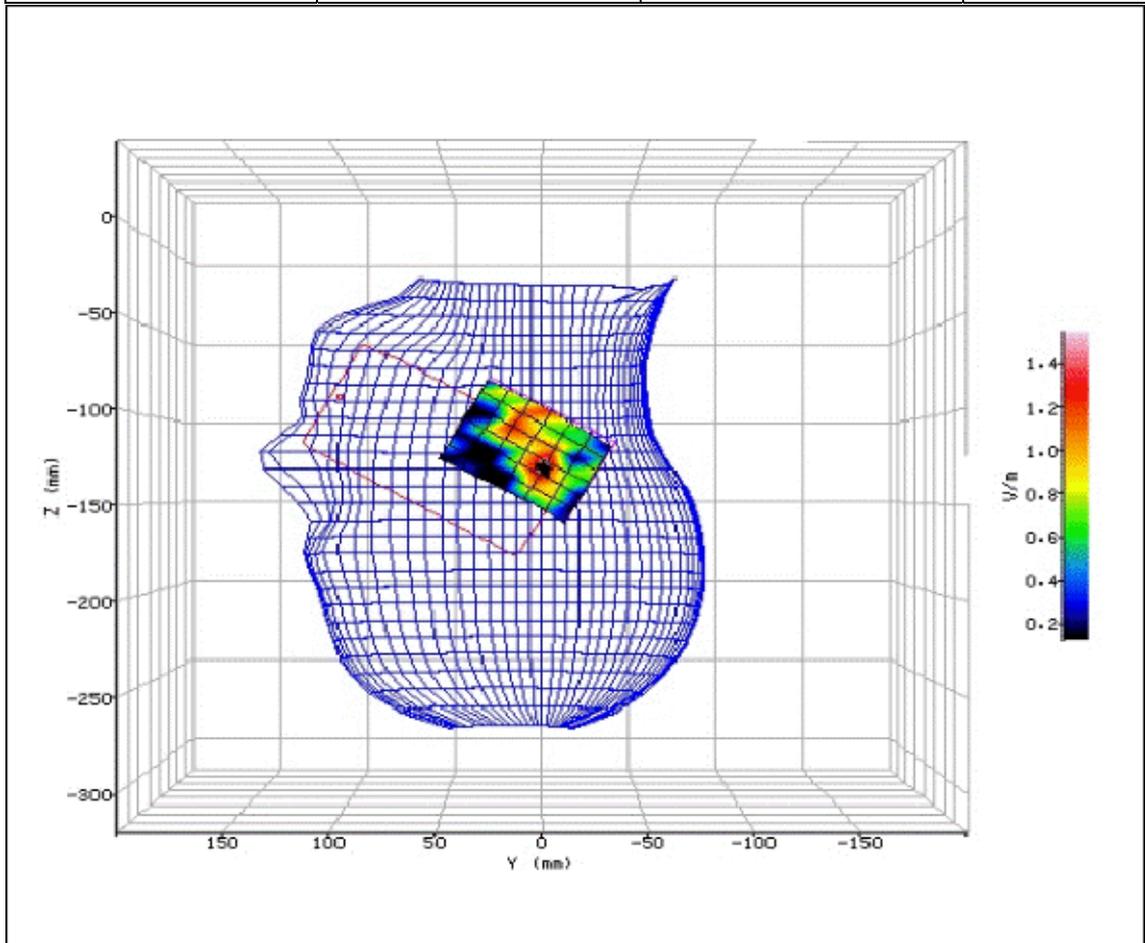


Figure 218: SAR Head Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



2.50 WLAN 5180MHz BODY SAR TEST RESULTS AND COURSE AREA SCANS – 2D

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/05/2015-06:40:09	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.80%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-58.700mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	29.800mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	4.659
TEST FREQUENCY:	5180.0MHz	SAR 1g:	0.125 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.194 W/kg
INPUT POWER LEVEL:	10ddBm	SAR END:	0.205 W/kg
PROBE BATTERY LAST CHANGED:	08/05/2015	SAR DRIFT DURING SCAN:	0.945 %

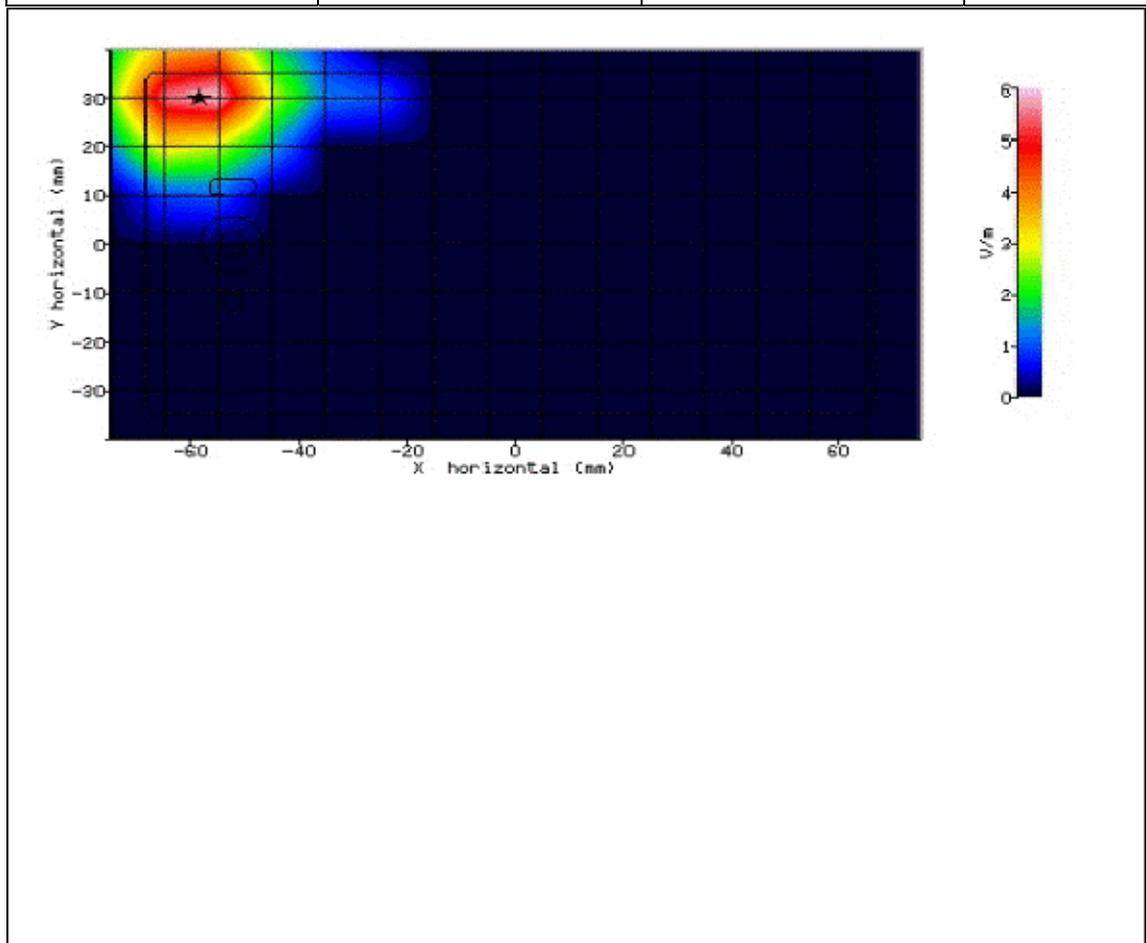


Figure 219: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5180.0MHz. (NUA)



SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	08/05/2015-07:05:57	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.80%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-57.100mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	29.400mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	4.504
TEST FREQUENCY:	5280.0MHz	SAR 1g:	0.107 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.185 W/kg
INPUT POWER LEVEL:	10ddBm	SAR END:	0.185 W/kg
PROBE BATTERY LAST CHANGED:	08/05/2015	SAR DRIFT DURING SCAN:	0.000 %

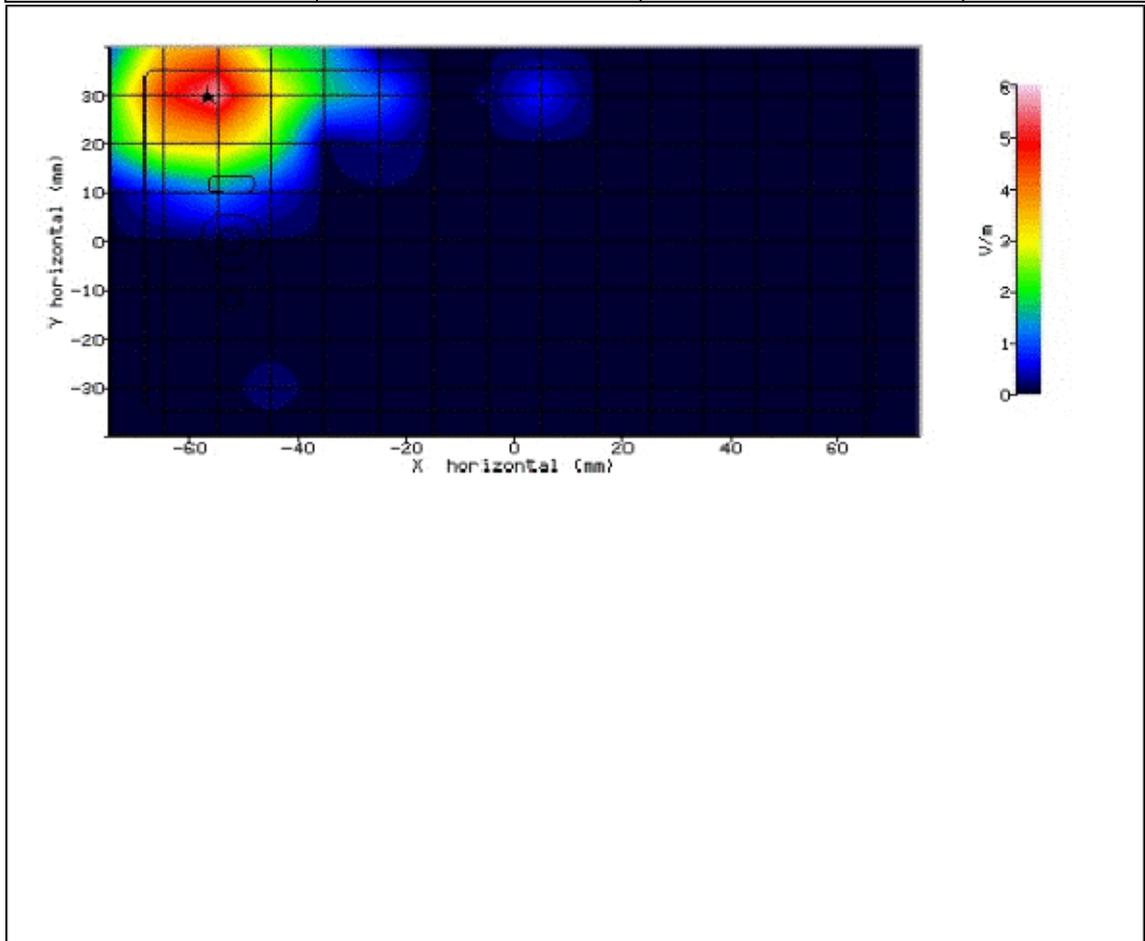


Figure 220: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5280.0MHz. (NUA)



Product Service

SYSTEM / SOFTWARE:	SARA-C / v6.09.15	INPUT POWER DRIFT:	0 dB
DATE / TIME:	07/05/2015-16:16:23	DUT BATTERY MODEL/NO:	Integral
AMBIENT TEMPERATURE:	23.30°C	LIQUID SIMULANT:	5000
DEVICE UNDER TEST:	SHV32	RELATIVE PERMITTIVITY:	48.16
RELATIVE HUMIDITY:	32.80%	CONDUCTIVITY:	5.057
PHANTOM S/NO:	IXB-2HF	LIQUID TEMPERATURE:	23.10°C
PHANTOM ROTATION:	N/A	MAX SAR X-AXIS LOCATION:	-48.400mm
DUT POSITION:	10mm-Rear Facing	MAX SAR Y-AXIS LOCATION:	33.200mm
ANTENNA CONFIGURATION:	N/A	MAX E FIELD:	3.929
TEST FREQUENCY:	5600.0MHz	SAR 1g:	0.082 W/kg
TYPE OF MODULATION:	WLAN (OFDM)	SAR 10g:	N/A
MODN. DUTY CYCLE:	100%	SAR START:	0.119 W/kg
INPUT POWER LEVEL:	10ddBm	SAR END:	0.117 W/kg
PROBE BATTERY LAST CHANGED:	07/05/2015	SAR DRIFT DURING SCAN:	-1.200 %

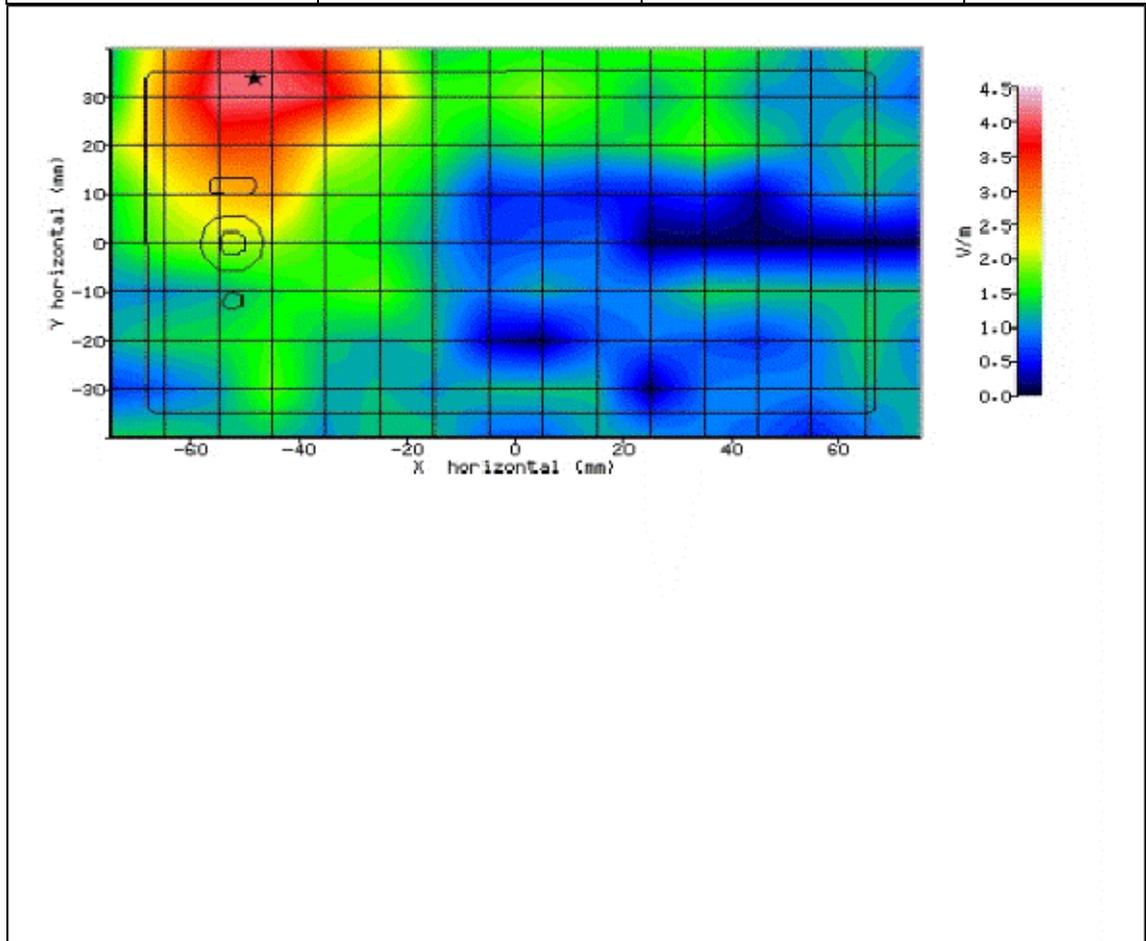


Figure 221: SAR Body Testing Results for the Sharp SHV32 Mobile Handset at 5600.0MHz. (NUA)



Product Service

### **SECTION 3**

### **TEST EQUIPMENT USED**



### 3.1 TEST EQUIPMENT USED

The following Test equipment used at TÜV SÜD Product Service:

Instrument Description	Manufacturer	Model Type	TE Number	Cal Period (months)	Calibration Due Date
Signal Generator	Hewlett Packard	ESG4000A	38	12	21-May-2015
10MHz - 2.5GHz, 3W, Amplifier	Vectawave Technology	VTL5400	51	-	TU
Directional Coupler	Krytar	1850	58	-	TU
Communications Tester	Rohde & Schwarz	CMU 200	442	12	TU
Attenuator (20dB, 20W)	Narda	766F-20	483	12	4-Jun-2015
Dipole Positioner/Support (plastic)	IndexSar Ltd	IXH-020	1585	-	TU
Bi-directional Coupler	IndexSar Ltd	7401 (VDC0830-20)	2414	-	TU
Antenna (Omnidirectional)	Katherin Scala Division	OG-890/1990/DC	2906	-	TU
Power Meter	Rohde & Schwarz	NRVD	2979	12	20-May-2015
Radio Communications Test Set	Rohde & Schwarz	CMU 200	3035	12	6-Nov-2015
Hygrometer	Rotronic	I-1000	2784	12	15-Apr-2016
Power Sensor	Rohde & Schwarz	NRV-Z1	3563	12	20-May-2015
Meter & T/C	R.S Components	Meter 615-8206 & Type K T/C	3612	12	24-Sep-2015
SAR 1800 MHz dipole	Speag	D1800V2	3855	36	19-Feb-2017
SAR 900 MHz dipole	Speag	D900V2	3856	36	19-Feb-2017
SAR 2450 MHz dipole	Speag	D2450V2	3875	36	19-Feb-2017
SAR 1900 MHz dipole	Speag	D1900V2	3876	36	19-Feb-2017
SAR 5GHz dipole	Speag	D5GHzV2	4309	36	TU
Head Phantom	IndexSar Ltd	IXB-040 Inverted SAM phantom	4075	-	TU
Part of SARAC System	IndexSar Ltd	Robot Controller	4076	-	TU
Head Phantom	IndexSar Ltd	IXB-040 Inverted SAM phantom	4254	-	TU
hold handsets against SAM Phantom during testing	IndexSar Ltd	Handset Holder	4257	-	TU
Spacer used to raise body phantom	IndexSar Ltd	Body Phantom Spacer	4258	-	TU
hold handsets against SAM Phantom	IndexSar Ltd	Handset Holder	4265	-	TU
Part of SARAC System	IndexSar Ltd	Wooden Bench	4266	-	TU
Part of SARAC System	IndexSar Ltd	Robot Controller	4267	-	TU
Cartesian 4-axis Robot	IndexSar Ltd	SARAC	4269	-	TU
Part of SARAC System	IndexSar Ltd	White Benchtop	4270	-	TU
Immersible SAR Probe	IndexSar Ltd	IPX-050	4313	24	13-Mar-2017
Flat Phantom	IndexSar Ltd	IXB-2HF 700-6000MHz	4399	-	TU
Flat Phantom	IndexSar Ltd	IXB-2HF 700-6000MHz	4400	-	TU



Instrument Description	Manufacturer	Model Type	TE Number	Cal Period (months)	Calibration Due Date
SAR Probe	IndexSar Ltd	IPX-020	4317	24	20-Mar-2017
SAR Probe	IndexSar Ltd	IXP-021	4311	24	21-Mar-2016
SAR Probe	IndexSar Ltd	IXP-025	4562	24	21-Mar-2017
700MHz Head Fluid	IndexSar Ltd	Batch 20	N/A	1	18-May-2015
700MHz Body Fluid	IndexSar Ltd	Batch 13	N/A	1	18-May-2015
835MHz Head Fluid	IndexSar Ltd	Batch 20	N/A	1	18-May-2015
835MHz Body Fluid	IndexSar Ltd	Batch 13	N/A	1	18-May-2015
1900MHz Head Fluid	IndexSar Ltd	Batch 8	N/A	1	18-May-2015
1900MHz Body Fluid	IndexSar Ltd	Batch 4	N/A	1	18-May-2015
2450MHz Head Fluid	IndexSar Ltd	Batch 11	N/A	1	18-May-2015
2450MHz Body Fluid	IndexSar Ltd	Batch 7	N/A	1	18-May-2015
2600MHz Head Fluid	IndexSar Ltd	Batch 11	N/A	1	18-May-2015
2600MHz Body Fluid	IndexSar Ltd	Batch 7	N/A	1	18-May-2015
2600MHz Body Fluid	IndexSar Ltd	Batch 8	N/A	1	10-July-2015
5000MHz Head Fluid	IndexSar Ltd	Batch 5	N/A	1	18-May-2015
5000MHz Body Fluid	IndexSar Ltd	Batch 3	N/A	1	18-May-2015

TU - Traceability Unscheduled



Product Service

### 3.2 TEST SOFTWARE

The following software was used to control the TÜV SÜD Product Service SARAC System.

Instrument	Version Number	Date
SARA-C system	v.6.09.08	23 July 2014
IFA-10 Probe amplifier	Version 2	-



**3.3 DIELECTRIC PROPERTIES OF SIMULANT LIQUIDS**

The fluid properties of the simulant fluids used during routine SAR evaluation meet the dielectric properties required KDB 865665.

**IEEE 1528 Recipes**

Frequency (MHz)	300	450		835	900			1450	1800				1900	1950	2000	2100		2450		3000	
Recipe#	1	1	3	1	1	2	3	1	1	2	2	3	1	2	4	1	1	2	2	3	2
Ingredients (% by weight)																					
1, 2-Propanediol							64.81														
Bactericide	0.19	0.19	0.50	0.10	0.10		0.50														0.50
Diacetin			48.90				49.20														49.45
DGBE								45.41	47.00	13.84	44.92		44.94	13.84	45.00	50.00	50.00	7.99	7.99		7.99
HEC	0.98	0.96		1.00	1.00																
NaCl	5.95	3.95	1.70	1.45	1.48	0.79	1.10	0.67	0.36	0.35	0.18	0.64	0.18	0.35					0.16	0.16	0.16
Sucrose	55.32	56.32		57.00	56.50																
Triton X-100										30.45				30.45					19.97	19.97	19.97
Water	37.56	38.56	48.90	40.45	40.92	34.40	49.20	53.80	52.64	55.36	54.90	49.43	54.90	55.36	55.00	50.00	50.00	71.88	71.88	49.75	71.88
Measured dielectric parameters																					
$\epsilon_r$	46.00	43.40	44.30	41.60	41.20	41.80	42.70	40.9	39.3	41.00	40.40	39.20	39.90	41.00	40.10	37.00	36.80	41.10	40.30	39.20	37.90
$\sigma$ (S/m)	0.86	0.85	0.90	0.90	0.98	0.97	0.99	1.21	1.39	1.38	1.40	1.40	1.42	1.38	1.41	1.40	1.51	1.55	1.88	1.82	2.46
Temp (°C)	22	22	20	22	22	22	20	22	22	21	22	20	21	21	20	22	22	20	20	20	20
Target dielectric parameters (Table 2)																					
$\epsilon_r$	45.30	43.50	41.5	41.50	40.50	40.00										39.80	39.20	38.50			
$\sigma$ (S/m)	0.87	0.87	0.9	0.97	1.20	1.40										1.49	1.80	2.40			

NOTE – Multiple columns for any single frequency are optional recipe #, reference: 1 (Kanda et al. [B185]), 2 (Vigneras [B143]), 3 (Peyman and Gabriel [B119]), 4 (Fukunaga et al [B50])

The dielectric properties of the tissue simulant liquids used for the SAR testing at TÜV SÜD Product Service are as follows:-

Fluid Type and Frequency	Relative Permittivity $\epsilon_r$ (Target)	Relative Permittivity $\epsilon_r$ (Measured)	Conductivity $\sigma$ Target	Conductivity $\sigma$ Measured
700MHz Head	42.2	42.9	0.89	0.90
700MHz Body	55.7	55.1	0.96	0.99
835MHz Head	41.5	41.8	0.90	0.90
835MHz Body	55.2	55.1	0.97	0.99
1900MHz Head	40.0	40.9	1.40	1.45
1900MHz Body	53.3	54.2	1.52	1.57
2450 MHz Head	39.2	37.7	1.80	1.77
2450MHz Body	52.7	50.1	1.95	2.00
2600MHz Head	39.0	37.1	1.96	1.93
2600MHz Body	52.2	49.9	2.16	2.11
5200MHz Head	36.0	35.3	4.66	4.66
5200MHz Body	49.0	48.2	5.30	5.30
5500MHz Head	35.6	34.4	4.96	4.96
5500MHz Body	48.6	47.2	5.65	5.53



### 3.4 TEST CONDITIONS

#### 3.4.1 Test Laboratory Conditions

Ambient temperature: Within +15°C to +35°C.

The actual temperature during the testing ranged from 22.6°C to 23.6°C.

The actual humidity during the testing ranged from 22.9% to 47.6% RH.

#### 3.4.2 Test Fluid Temperature Range

Frequency	Body / Head Fluid	Min Temperature °C	Max Temperature °C
700MHz	Body	23.0	23.0
835MHz	Head	22.5	22.8
835MHz	Body	22.5	23.0
1900MHz	Head	23.2	23.2
1900MHz	Body	23.2	23.2
2450MHz	Head	23.0	23.2
2450MHz	Body	23.0	23.0
2600MHz	Body	22.9	23.1
5000MHz	Head	22.9	23.2
5000MHz	Body	23.0	23.1

#### 3.4.3 SAR Drift

The SAR Drift was within acceptable limits during scans. The maximum SAR Drift, drift due to the handset electronics, was recorded as 9.4% (1.104 dB) for head and 8.5% (1.093 dB) for body. The measurement uncertainty budget for this assessment includes the maximum SAR Drift figures for Head and/or Body as applicable.



3.5 MEASUREMENT UNCERTAINTY

Head SAR Measurements.

Source of Uncertainty	Description	Tolerance / Uncertainty ± %	Probability distribution	Div	$c_i$ (1g)	Standard Uncertainty ± % (1g)	$V_i$ or $V_{eff}$
<i>Measurement System</i>							
Probe calibration	7.2.1	8.73	N	1	1	8.73	∞
Isotropy	7.2.1.2	3.18	R	1.73	1	1.84	∞
Probe angle >30deg	additional	12.00	R	1.73	1	6.93	∞
Boundary effect	7.2.1.5	0.49	R	1.73	1	0.28	∞
Linearity	7.2.1.3	1.00	R	1.73	1	0.58	∞
Detection limits	7.2.1.4	0.00	R	1.73	1	0.00	∞
Readout electronics	7.2.1.6	0.30	N	1	1	0.30	∞
Response time	7.2.1.7	0.00	R	1.73	1	0.00	∞
Integration time (equiv.)	7.2.1.8	1.38	R	1.73	1	0.80	∞
RF ambient conditions	7.2.3.6	3.00	R	1.73	1	1.73	∞
Probe positioner mech. restrictions	7.2.2.1	5.35	R	1.73	1	3.09	∞
Probe positioning with respect to phantom shell	7.2.2.3	5.00	R	1.73	1	2.89	∞
Post-processing	7.2.4	7.00	R	1.73	1	4.04	∞
<i>Test sample related</i>							
Test sample positioning	7.2.2.4	1.50	R	1.73	1	0.87	∞
Device holder uncertainty	7.2.2.4.2	1.73	R	1.73	1	1.00	∞
Drift of output power	7.2.3.4	9.4	R	1.73	1	5.43	∞
<i>Phantom and set-up</i>							
Phantom uncertainty (shape and thickness tolerances)	7.2.2.2	2.01	R	1.73	1	1.16	∞
Liquid conductivity (target)	7.2.3.3	5.00	R	1.73	0.64	1.85	∞
Liquid conductivity (meas.)	7.2.3.3	5.00	N	1	0.64	3.20	∞
Liquid permittivity (target)	7.2.3.4	5.00	R	1.73	0.6	1.73	∞
Liquid permittivity (meas.)	7.2.3.4	3.00	N	1	0.6	1.80	∞
Combined standard uncertainty			RSS			12.02	
Expanded uncertainty (95% confidence interval)			K=2			24.05	



Body SAR Measurements.

Source of Uncertainty	Description	Tolerance / Uncertainty ± %	Probability distribution	Div	$c_i$ (1g)	Standard Uncertainty ± % (1g)	$V_i$ or $V_{eff}$
<i>Measurement System</i>							
Probe calibration	7.2.1	8.73	N	1	1	8.73	∞
Isotropy	7.2.1.2	3.18	R	1.73	1	1.84	∞
Boundary effect	7.2.1.5	0.49	R	1.73	1	0.28	∞
Linearity	7.2.1.3	1.00	R	1.73	1	0.58	∞
Detection limits	7.2.1.4	0.00	R	1.73	1	0.00	∞
Readout electronics	7.2.1.6	0.30	N	1	1	0.30	∞
Response time	7.2.1.7	0.00	R	1.73	1	0.00	∞
Integration time (equiv.)	7.2.1.8	1.38	R	1.73	1	0.80	∞
RF ambient conditions	7.2.3.6	3.00	R	1.73	1	1.73	∞
Probe positioner mech. restrictions	7.2.2.1	0.60	R	1.73	1	0.35	∞
Probe positioning with respect to phantom shell	7.2.2.3	2.00	R	1.73	1	1.15	∞
Post-processing	7.2.4	7.00	R	1.73	1	4.04	∞
<i>Test sample related</i>							
Test sample positioning	7.2.2.4	1.50	R	1.73	1	0.87	∞
Device holder uncertainty	7.2.2.4.2	1.73	R	1.73	1	1.00	∞
Drift of output power	7.2.3.4	8.5	R	1.73	1	4.91	∞
<i>Phantom and set-up</i>							
Phantom uncertainty (shape and thickness tolerances)	7.2.2.2	2.01	R	1.73	1	1.16	∞
Liquid conductivity (target)	7.2.3.3	5.00	R	1.73	0.64	1.85	∞
Liquid conductivity (meas.)	7.2.3.3	5.00	N	1	0.64	3.20	∞
Liquid permittivity (target)	7.2.3.4	5.00	R	1.73	0.6	1.73	∞
Liquid permittivity (meas.)	7.2.3.4	3.00	N	1	0.6	1.80	∞
Combined standard uncertainty			RSS			11.59	
Expanded uncertainty (95% confidence interval)			K=2			23.17	



Product Service

## **SECTION 4**

### **ACCREDITATION, DISCLAIMERS AND COPYRIGHT**



Product Service

#### 4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



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

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

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Product Service

**ANNEX A**

**PROBE CALIBRATION REPORT**



Product Service



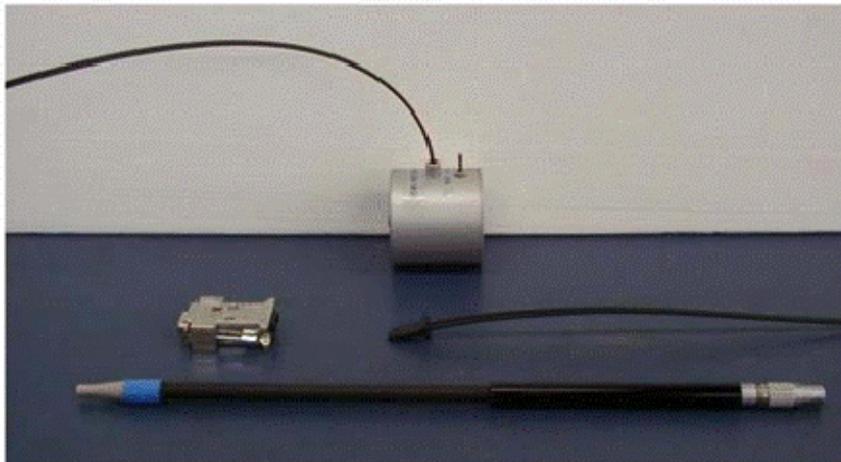
**IMMERSIBLE SAR PROBE**

**CALIBRATION REPORT**

**Part Number: IXP – 050**

**S/N 0204**

**March 2015**



**Indexsar Limited**  
**Oakfield House**  
**Cudworth Lane**  
**Newdigate**  
**Surrey RH5 5BG**  
Tel: +44 (0) 1306 632 870  
Fax: +44 (0) 1306 631 834  
e-mail: [enquiries@indexsar.com](mailto:enquiries@indexsar.com)

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Product Service



**Indexsar Limited**  
**Oakfield House**  
**Cudworth Lane**  
**Newdigate**  
**Surrey RH5 5BG**  
 Tel: +44 (0) 1306 632 870  
 Fax: +44 (0) 1306 631 834  
 e-mail: [enquiries@indexsar.com](mailto:enquiries@indexsar.com)

**Calibration Certificate 1503/0204**  
**Date of Issue: 31 March 2015**  
**Immersible SAR Probe**

Type:	IXP-050
Manufacturer:	IndexSAR, UK
Serial Number:	0204
Place of Calibration:	IndexSAR, UK
Date of Receipt of Probe:	10 February 2015
Calibration Dates:	25 February– 13 March 2015
Customer:	TUV Sud

IndexSAR Ltd hereby declares that the IXP-050 Probe named above has been calibrated for conformity to the current versions of IEEE 1528, IEC 62209-1, IEC 62209-2, and FCC SAR standards using the methods described in this calibration document. Where applicable, the standards used in the calibration process are traceable to the UK's National Physical Laboratory.

Calibrated by:  Engineer

Approved by:  Director

Please keep this certificate with the calibration document. When the probe is sent for a calibration check, please include the calibration document.



## INTRODUCTION

Straight probes work on either SARA-C (to measure SAR values in flat phantoms containing Body tissue simulant fluid), or on SARA2 (where they, too, can measure in a flat phantom with Body fluid, or in a SAM phantom containing Head fluid).

This Report presents measured calibration data for a particular Indexsar SAR probe (S/N 0204) for use on SARA-C only. **The calibration factors do not apply to, and will not give correct readings on, the IndexSAR SARA2 system.**

Indexsar probes are characterised using procedures that, where applicable, follow the recommendations of IEC 62209-1 [Ref 1], IEEE 1528 [Ref 2], IEC 62209-2 [Ref 3] and FCC [Ref 4] standards. The procedures incorporate techniques for probe linearisation, isotropy assessment and determination of liquid factors (conversion factors). Calibrations are determined by comparing probe readings with analytical computations in canonical test geometries (waveguides) using normalised power inputs.

Each step of the calibration procedure and the equipment used is described in the sections below.

## CALIBRATION PROCEDURE

### 1. Objectives

The calibration process comprises the following stages

- 1) Determination of the channel sensitivity factors which optimise the probe's overall axial isotropy
- 2) Channel sensitivity factors are largely frequency independent. Consequently, they can be combined to model the exponential decay of SAR in a waveguide fluid cell at each frequency of interest, and hence derive the liquid conversion factors at that frequency.

### 2. Probe output

The probe channel output signals are linearised in the manner set out in Refs [1] - [4]. The following equation is utilized for each channel:

$$U_{lin} = U_{o/p} + U_{o/p}^2 / DCP \quad (1)$$

where  $U_{lin}$  is the linearised signal,  $U_{o/p}$  is the raw output signal in mV and DCP is the diode compression potential, also in mV.

DCP is determined from fitting equation (1) to measurements of  $U_{lin}$  versus source feed power over the full dynamic range of the probe. The DCP is a characteristic of the Schottky diodes used as the sensors. For the IXP-020 probes with CW signals the DCP values are typically 100mV.



For this value of DCP, the typical linearity response of IXP-050 probes to CW and to GSM modulation is shown in Figure 4, along with departures of this same dataset from linearity.

In turn, measurements of E-field are determined using the following equation:

$$E_{\text{liq}}^2 \text{ (V/m)} = U_{\text{linx}} * \text{Air Factor}_x * \text{Liq Factor}_x + U_{\text{liny}} * \text{Air Factor}_y * \text{Liq Factor}_y + U_{\text{linz}} * \text{Air Factor}_z * \text{Liq Factor}_z \quad (3)$$

Here, "Air Factor" represents each channel's sensitivity, while "Liq Factor" represents the enhancement in signal level when the probe is immersed in tissue-simulant liquids at each frequency of interest.

### 3. Selecting channel sensitivity factors to optimise isotropic response

Within SARA-C, an L-probe's predominant mode of operation is with the tip pointing directly towards the source of radiation. Consequently, optimising the probe's response to boresight signals ("axial isotropy") is far more important than optimising its spherical isotropy (where the direction, as well as the polarisation angle, of the incoming radiation must be taken into account).

The setup for measuring the probe's axial isotropy is shown in Figure 1. Since isotropy is frequency-independent, measurements are normally made at a frequency of 900MHz as lower frequencies are more tolerant of positional inaccuracies.

A 900MHz waveguide containing head-fluid simulant is selected. Like all waveguides used during probe calibration, this particular waveguide contains two distinct sections: an air-filled launcher section, and a liquid cell section, separated by a dielectric matching window designed to minimise reflections at the air-liquid interface.

The waveguide stands in an upright position and the liquid cell section is filled with 900MHz brain fluid to within 10 mm of the open end. The depth of liquid ensures there is negligible radiation from the waveguide open top and that the probe calibration is not influenced by reflections from nearby objects.

During the measurement, a  $TE_{01}$  mode is launched into the waveguide by means of an N-type-to-waveguide adapter. The probe is then lowered vertically into the liquid until the tip is exactly 10mm above the centre of the dielectric window. This particular separation ensures that the probe is operating in a part of the waveguide where boundary corrections are not necessary.

Care must also be taken that the probe tip is centred while rotating.

The exact power applied to the input of the waveguide during this stage of the probe calibration is immaterial since only relative values are of interest while the probe rotates. However, the power must be sufficiently above the noise floor and free from drift.



The dedicated Indexsar calibration software rotates the probe in 10 degree steps about its axis, and at each position, an Indexsar 'Fast' amplifier samples the probe channels 500 times per second for 0.4 s. The raw  $U_{\text{op}}$  data from each sample are packed into 10 bytes and transmitted back to the PC controller via an optical cable.  $U_{\text{linx}}$ ,  $U_{\text{liny}}$  and  $U_{\text{linz}}$  are derived from the raw  $U_{\text{op}}$  values and written to an Excel template.

Once data have been collected from a full probe rotation, the Air Factors are adjusted using a special Excel Solver routine to equalise the output from each channel and hence minimise the axial isotropy. This automated approach to optimisation removes the effect of human bias.

Figure 2 represents the output from each diode sensor as a function of probe rotation angle.

4. Determination of Conversion ("Liquid") Factors at each frequency of interest

A lookup table of conversion factors for a probe allows a SAR value to be derived at the measured frequencies, and for either brain or body fluid-simulant.

The method by which the conversion factors are assessed is based on the comparison between measured and analytical rates of decay of SAR with height above a dielectric window. This way, not only can the conversion factors for that frequency/fluid combination be determined, but an allowance can also be made for the scale and range of boundary layer effects.

The theoretical relationship between the SAR at the cross-sectional centre of the lossy waveguide as a function of the longitudinal distance ( $z$ ) from the dielectric separator is given by Equation 4:

$$SAR(z) = \frac{4(P_f - P_b)}{\rho ab \delta} e^{-2z/\delta} \tag{4}$$

Here, the density  $\rho$  is conventionally assumed to be  $1000 \text{ kg/m}^3$ ,  $ab$  is the cross-sectional area of the waveguide, and  $P_f$  and  $P_b$  are the forward and reflected power inside the lossless section of the waveguide, respectively. The penetration depth  $\delta$  (which is the reciprocal of the waveguide-mode attenuation coefficient) is a property of the lossy liquid and is given by Equation (5).

$$\delta = \left[ \text{Re} \left\{ \sqrt{(\pi / \alpha)^2 + j \omega \mu_0 (\sigma + j \omega \epsilon_0 \epsilon_r)} \right\} \right]^{-1} \tag{5}$$

where  $\sigma$  is the conductivity of the tissue-simulant liquid in S/m,  $\epsilon_r$  is its relative permittivity, and  $\omega$  is the radial frequency (rad/s). Values for  $\sigma$  and  $\epsilon_r$  are obtained prior to each waveguide test using an Indexsar DiLine measurement kit, which uses the TEM method as recommended in [2].  $\sigma$  and  $\epsilon_r$  are both



temperature- and fluid-dependent, so are best measured using a sample of the tissue-simulant fluid immediately prior to the actual calibration.

Wherever possible, all DiLine and calibration measurements should be made in the open laboratory at  $22 \pm 2.0^{\circ}\text{C}$ ; if this is not possible, the values of  $\sigma$  and  $\epsilon_r$  should reflect the actual temperature. Values employed for calibration are listed in the tables below.

By ensuring the liquid height in the waveguide is at least three penetration depths, reflections at the upper surface of the liquid are negligible. The power absorbed in the liquid is therefore determined solely from the waveguide forward and reflected power.

Different waveguides are used for 700MHz, 835/900MHz, 1450MHz, 1800/1900MHz, 2100/2450/2600MHz and 5200/5800MHz measurements. Table A.1 of [1] can be used for designing calibration waveguides with a return loss greater than 20 dB at the most important frequencies used for personal wireless communications, and better than 15dB for frequencies greater than 5GHz. Values for the penetration depth for these specific fixtures and tissue-simulating mixtures are also listed in Table A.1.

According to [1], this calibration technique provides excellent accuracy, with standard uncertainty of less than 3.6% depending on the frequency and medium. The calibration itself is reduced to power measurements traceable to a standard calibration procedure. The practical limitation to the frequency band of 800 to 5800 MHz because of the waveguide size is not severe in the context of compliance testing.

During calibration, the probe is lowered carefully until it is just touching the cross-sectional centre of the dielectric window. 240 samples are then taken and written to an Excel template file before moving the probe vertically upwards. This cycle is repeated 150 times. The vertical separation between readings is determined from practical considerations of the expected SAR decay rate, and range from 0.35mm steps below 3GHz, down to 0.05mm at 5GHz.

Once the data collection is complete, a Solver routine is run which optimises the measured-theoretical fit by varying the conversion factor, and the boundary correction size and range.

For calibrations at 450MHz, where waveguide calibrations become unfeasible, a full 3D SAR scan over a tuned dipole is performed, and the conversion factor adjusted to make the measured 1g and 10g volume-averaged SAR values agree with published targets.

#### **CALIBRATION FACTORS MEASURED FOR PROBE S/N 0204**

The probe was calibrated at 700, 835, 900, 1800, 1900, 2100, 2450 and 2600 MHz in liquid samples representing brain and body liquid at these frequencies.



The calibration was for CW signals only, and the axis of the probe was parallel to the direction of propagation of the incident field i.e. end-on to the incident radiation. The axial isotropy of the probe was measured by rotating the probe about its axis in 10 degree steps through 360 degrees in this orientation.

The reference point for the calibration is in the centre of the probe's cross-section at a distance of 2.7 mm from the probe tip in the direction of the probe amplifier. A value of 2.7 mm should be used for the tip to sensor offset distance in the software. The distance of 2.7mm for assembled probes has been confirmed by taking X-ray images of the probe tips (see Figure 5).

It is important that the diode compression point and air factors used in the software are the same as those quoted in the results tables, as these are used to convert the diode output voltages to a SAR value.

**CALIBRATION EQUIPMENT**

The table on page 19 indicates the calibration status of all test equipment used during probe calibration.

**MEASUREMENT UNCERTAINTIES**

A complete measurement uncertainty analysis for the SARA-C measurement system has been published in Reference [6]. Table 17 from that document is re-created below, and lists the uncertainty factors associated just with the calibration of probes.

Source of uncertainty	Uncertainty value ± %	Probability distribution	Divisor	c <sub>i</sub>	Standard uncertainty u <sub>i</sub> ± %	v <sub>i</sub> or v <sub>eff</sub>
Forward power	3.92	N	1.00	1	3.92	∞
Reflected power	4.09	N	1.00	1	4.09	∞
Liquid conductivity	1.308	N	1.00	1	1.31	∞
Liquid permittivity	1.271	N	1.00	1	1.27	∞
Field homogeneity	3.0	R	1.73	1	1.73	∞
Probe positioning	0.22	R	1.73	1	0.13	∞
Field probe linearity	0.2	R	1.73	1	0.12	∞
Combined standard uncertainty		RSS			6.29	

At the 95% confidence level, therefore, the expanded uncertainty is ±12.4%

**SUMMARY OF GAL FACTORS FOR PROBE IXP-050 S/N 0204**

Relative Channel Sensitivities (to optimise Axial Isotropy)				
	X	Y	Z	
Air Factors*	91.78	66.90	81.32	(V/m) <sup>2</sup> /mV
DCPs	100	100	100	mV

Measured Isotropy	(+/-) dB
Axial Isotropy*	0.05±0.01

Physical Information	
Sensor offset (mm)	2.7
Elbow – Tip dimension (mm)	0.0



SAR Conversion Factors/ Boundary Corrections							
Frequency* (MHz)	Head Fluid			Body Fluid			Notes
	SAR Conv Factor	Boundary Correction f(θ)	Boundary Correction d(mm)	SAR Conv Factor	Boundary Correction f(θ)	Boundary Correction d(mm)	
450	0.311	0.90	1.7	0.317	1.00	1.6	3
700	0.313	0.89	1.7	0.312	0.58	1.8	1,2
835	0.307	1.78	1.1	0.309	0.53	1.5	1,2
900	0.311	0.81	1.6	0.318	0.94	1.4	1,2
1800	0.357	0.70	1.5	0.382	0.51	1.9	1,2
1900	0.392	0.76	1.8	0.398	0.58	1.8	1,2
2100	0.395	0.70	2.0	0.434	0.62	1.5	1,2
2450	0.397	1.09	1.4	0.440	1.04	1.2	1,2
2600	0.382	1.30	1.5	0.446	1.11	1.4	1,2
<b>Notes</b>							
1)	Calibrations done at 22°C +/-2°C						
2)	Waveguide calibration						
3)	By validation						

The valid frequency of SARA-C probe calibrations are ±100MHz (F<300MHz) and ±200MHz (F>300MHz).



**PROBE SPECIFICATIONS**

Indexsar probe 0204, along with its calibration, is compared with BSEN 62209-1 and IEEE standards recommendations (Refs [1] and [2]) in the Tables below. A listing of relevant specifications is contained in the tables below:

<b>Dimensions</b>	<b>S/N 0204</b>	<b>BSEN [1]</b>	<b>IEEE [2]</b>
Overall length (mm)	350		
Tip length (mm)	10		
Body diameter (mm)	12		
Tip diameter (mm)	5.2	8	8
Distance from probe tip to dipole centers (mm)	2.7		

<b>Typical Dynamic range</b>	<b>S/N 0204</b>	<b>BSEN [1]</b>	<b>IEEE [2]</b>
Minimum (W/kg)	0.01	<0.02	0.01
Maximum (W/kg) N.B. only measured to > 100 W/kg on representative probes	>100	>100	100

<b>Isotropy (measured at 900MHz)</b>	<b>S/N 0204</b>	<b>BSEN [1]</b>	<b>IEEE [2]</b>
Axial rotation with probe normal to source (+/- dB)	0.05	0.5	0.25

NB Isotropy is frequency independent

<b>Construction</b>	Each probe contains three orthogonal dipole sensors arranged on a triangular prism core, protected against static charges by built-in shielding, and covered at the tip by PEEK cylindrical enclosure material. No adhesives are used in the immersed section. Outer case materials are PEEK and heat-shrink sleeving.
<b>Chemical resistance</b>	Tested to be resistant to TWEEN20 and sugar/salt-based simulant liquids but probes should be removed, cleaned and dried when not in use.  NOT recommended for use with glycol or soluble oil-based liquids.

**REFERENCES**

References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

For a specific reference, subsequent revisions do not apply.

For a non-specific reference, the latest version applies.

- [1] IEC 62209-1.  
Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices — Human models, instrumentation, and procedures — Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)
- [2] IEEE 1528  
Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
- [3] IEC 62209-2  
Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, Instrumentation, and procedures – Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)
- [4] FCC KDB865664
- [5] Indexsar Report IXS-0300, October 2007.  
Measurement uncertainties for the SARA2 system assessed against the recommendations of BS EN 62209-1:2006
- [6] SARA-C SAR Testing System: Measurement Uncertainty, v1.0.3. October 2011.

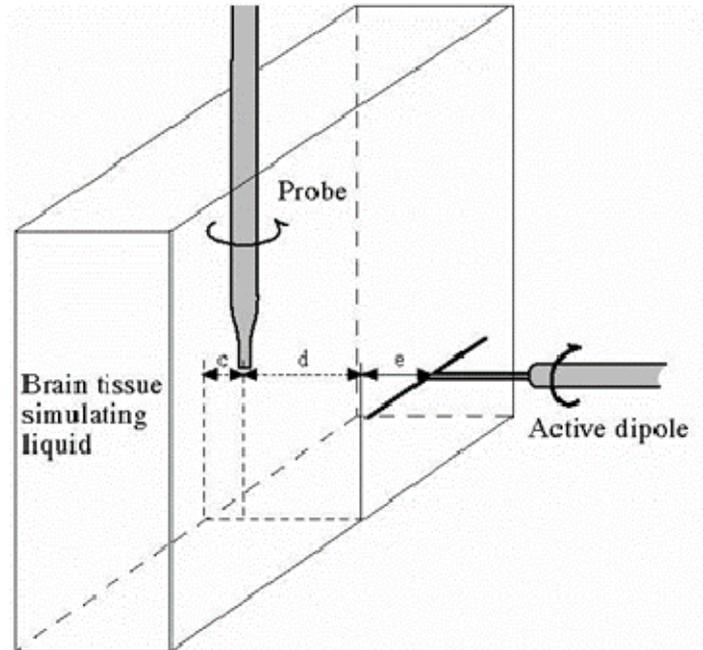


Figure 1. Spherical isotropy jig showing probe, dipole and box filled with simulated brain liquid (see Ref [2], Section A.5.2.1)

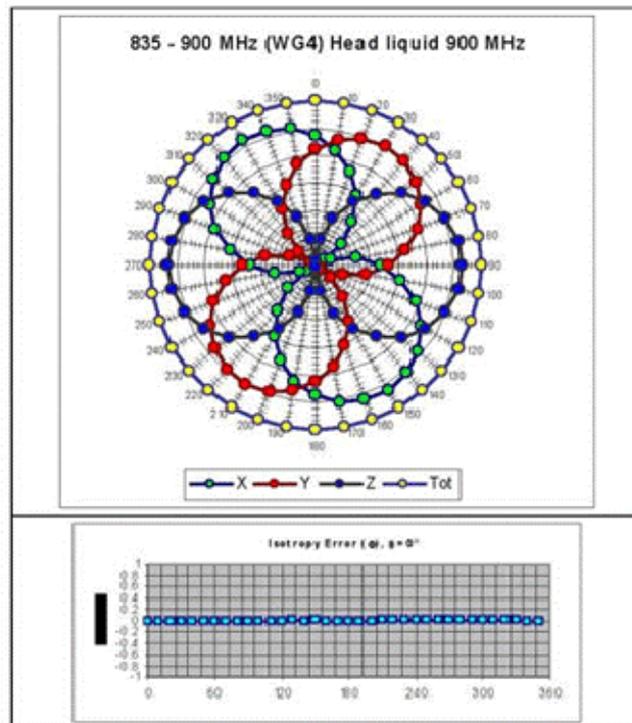


Figure 2. The axial isotropy of a typical IXP-Q50 probe obtained by rotating the probe in a liquid-filled waveguide at 900 MHz. (NB Axial Isotropy is largely frequency- independent)

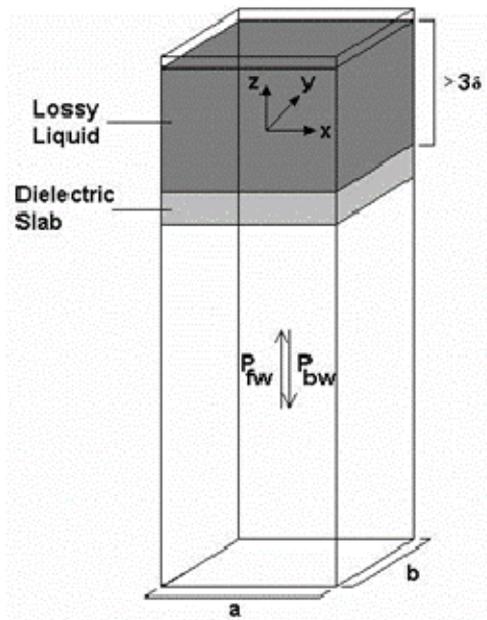


Figure 3. Geometry used for waveguide calibration (after Ref [2]. Section A.3.2.2)

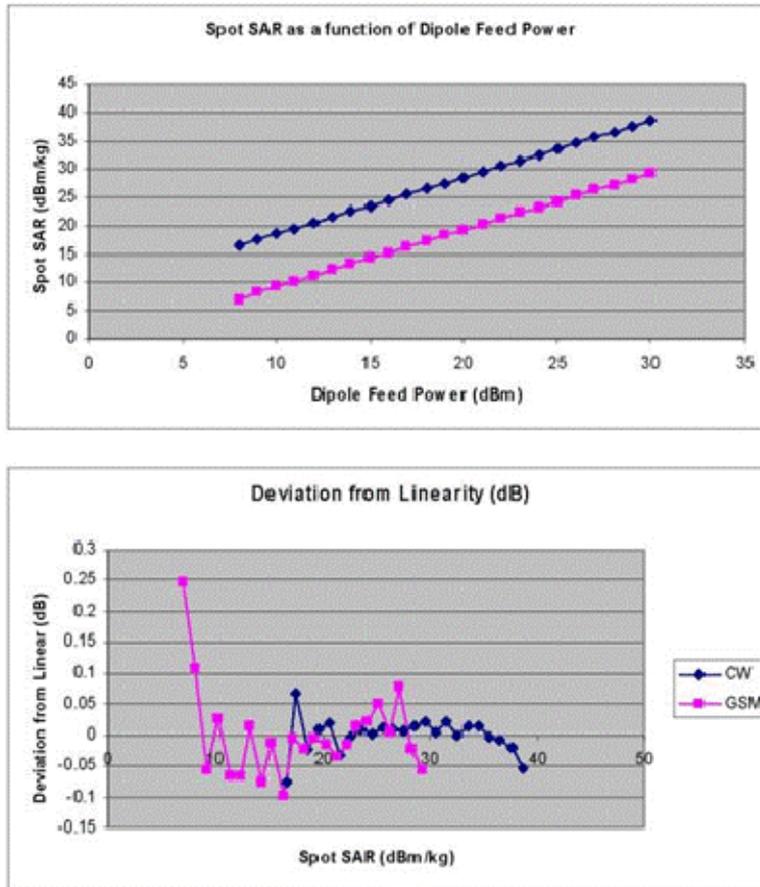


Figure 4 : The typical linearity response of IXP-050 probes to both CW (blue) and GSM (pink) modulation in close proximity to a source dipole. The top diagram shows the SAR reading as a function of dipole feed power, with GSM modulation being approx a factor of 8 (ie 9dB) lower than CW. The lower diagram shows the departure from linearity of the same two datasets.

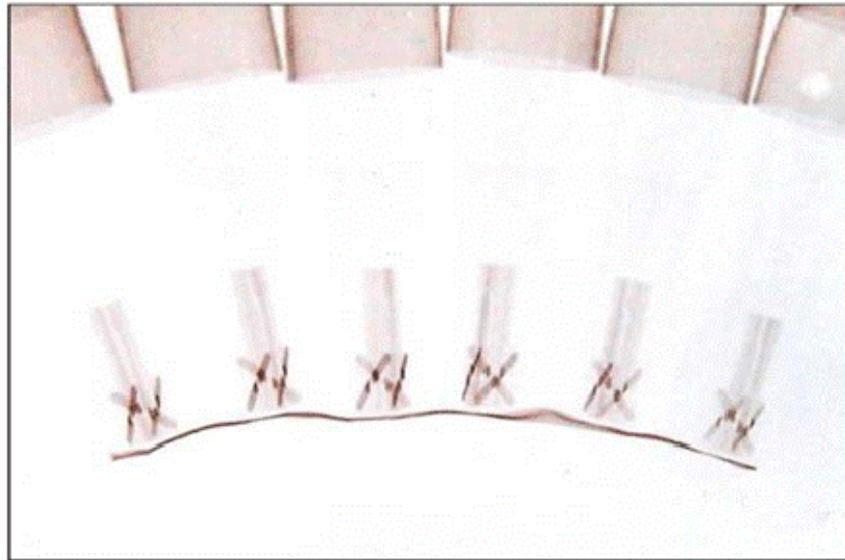


Figure 5 : X-ray positive image of 5mm probes

Table indicating the dielectric parameters of the liquids used for calibrations at each frequency

Frequency (MHz)	Fluid Type	Measured		Target		% Deviation		Verdict	
		Relative Permittivity	Conductivity (S/m)	Relative Permittivity	Conductivity (S/m)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
450	Head	43.52	0.864	43.5	0.87	0.0	-0.7	Pass	Pass
700		43.349	0.888	42.2	0.89	2.8	0.1	Pass	Pass
835		41.55	0.898	41.5	0.90	0.1	-0.2	Pass	Pass
900		41.139	0.957	41.5	0.97	-0.9	-1.3	Pass	Pass
1800		39.632	1.401	40.0	1.40	-0.9	0.1	Pass	Pass
1900		40.057	1.396	40.0	1.40	0.1	-0.3	Pass	Pass
2100		40.32	1.51	39.8	1.49	1.3	1.3	Pass	Pass
2450		39.03	1.849	39.2	1.80	-0.4	2.7	Pass	Pass
2600		38.587	1.972	39.0	1.96	-1.1	0.6	Pass	Pass
450		Body	56.86	0.938	56.7	0.94	0.3	-0.2	Pass
700	55.954		0.964	55.73	0.96	0.4	0.5	Pass	Pass
835	55.587		0.977	55.2	0.97	0.7	0.7	Pass	Pass
900	54.857		1.045	55	1.05	-0.3	-0.5	Pass	Pass
1800	52.958		1.531	53.3	1.52	-0.6	0.7	Pass	Pass
1900	52.965		1.524	53.3	1.52	-0.6	0.3	Pass	Pass
2100	53.886		1.818	53.2	1.82	1.3	-0.1	Pass	Pass
2450	52.768		1.965	52.7	1.95	0.1	0.8	Pass	Pass
2600	52.354		2.179	52.5	2.16	-0.3	0.9	Pass	Pass

Table of test equipment calibration status

Instrument description	Supplier / Manufacturer	Modell	Serial No.	Last calibration date	Cal certificate number	See Annex	Calibration due date
Power sensor	Rohde & Schwarz	NRP-Z23	100063	14/08/2013	10-300287035	1	14/08/2015
Power sensor	Rohde & Schwarz	NRP-Z23	100169	06/08/2014	1400-48811	2	06/08/2016
Dielectric property measurement	Indexsar	DiLine (sensor lengths: 160mm, 80mm and 60mm)	N/A	(absolute) – checked against NPL values using reference liquids	N/A		N/A
Vector network analyser	Anritsu	MS6423B	003102	17/02/2015	RMA20027002	3	17/02/2016
SMA autocalibration module	Anritsu	36581KCF/1	001902	22/01/2015	RMA20021769	4	22/01/2016



Product Service

**Annex 1**

Calibration Certificate of NRP-223 power sensor, S/N 100063

		<b>Calibration Certificate</b> Certificate Number 10-300287035
<b>Kalibrierschein</b>		<b>Zertifikatsnummer</b>
<b>Unit Data</b>		
Item / Gegenstand	Average power sensor	
Manufacturer / Hersteller	ROHDE & SCHWARZ	
Type	NRP-223	
Material Number / Materialnummer	1137.8002.02	Serial Number / Seriennummer: 100063
Asset Number / Inventurnummer		
<b>Order Data</b>		
Customer / Auftraggeber	IndexSAR Ltd	
	Oakfield House, RH5 5BG Newdigate GB	
Order Number / Bestellnummer		
Date of Receipt / Eingangsdatum	2013-08-08	
<b>Performance</b>		
Place and Date of Calibration / Ort und Datum der Kalibrierung	Memmingen, 2013-08-14	
Scope of Calibration / Umfang der Kalibrierung	Standard Calibration	
Statement of Compliance (incoming) / Konformitätsaussage (Anlieferung)	Measurement results within specifications	
Statement of Compliance (outgoing) / Konformitätsaussage (Auslieferung)	Measurement results within specifications	
Extent of Calibration Documents / Umfang des Kalibrierdokuments	2 Pages Calibration Certificate 17 Pages Outgoing Results 17 Pages Incoming Results	
This calibration certificate documents, that the named item is tested and measured against defined specifications. Measurement results are located usually in the corresponding interval with a probability of approx. 95% (coverage factor $k = 2$ ). Calibration is performed with test equipment and standards directly or indirectly traceable by means of approved calibration techniques to the PTB/DKD or other national / international standards, which realize the physical units of measurement according to the International System of Units (SI). In all cases where no standards are available, measurements are referenced to standards of the R&S laboratories. Principles and methods of calibration correspond with EN ISO/IEC 17025. The applied quality system is certified to EN ISO 9001. This calibration certificate may not be reproduced other than in full. Calibration certificates without signatures are not valid. The user is obliged to have the object recalibrated at appropriate intervals.		
Dieser Kalibrierschein dokumentiert, dass der genannte Gegenstand nach festgelegten Vorgaben geprüft und gemessen wurde. Die Messwerte liegen im Regelfall mit einer Wahrscheinlichkeit von annähernd 95% in zugeordneten Wertebereichen (Erweiterte Messunsicherheit mit $k = 2$ ). Die Kalibrierung erfolgte mit Messmitteln und Normale, die direkt oder indirekt durch Ableitung mittels anerkannter Kalibriertechniken rückgeführt sind auf Normale der PTB/DKD oder anderer nationaler/internationaler Standards zur Darstellung der physikalischen Einheiten in Übereinstimmung mit dem internationalen Einheitensystem (SI). Wenn keine Normale existieren, erfolgt die Rückführung auf Bezugnormale der R&S-Laboratorien. Grundsätze und Verfahren der Kalibrierung entsprechen EN ISO/IEC 17025. Das angewandte Qualitätsmanagement-System ist zertifiziert nach EN ISO 9001. Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Kalibrierscheine ohne Signifizierungen sind ungültig. Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.		
<b>Rohde &amp; Schwarz GmbH &amp; Co. KG; Service Operations West</b>		
Date of Issue / Ausstellungsdatum	Head of Laboratory / Laborleitung	Person Responsible / Bearbeiter
2013-08-14	Courage	Ruprecht Schmid
		Page 1/2 ver0115RSM000
ROHDE & SCHWARZ GmbH & Co. KG, Münchenerstraße 15 · D-81171 München, Federal Republic of Germany · Telefon (089) 41 29-0 · Telefax (089) 41 29-132 75 Geschäftsführung: Manfred Pflaichmann (Vorsitzender), Christian Leisner, Gerhard Seiser Sitz München · Registeramt: HRB 16 270 · Persönlich haftender Geschäftsführer: Rüdiger Verwaltungsgesellschaft · Sitz München · Registeramt: AG München HRB 1 534		



Product Service

Material Number 1137.8002.02      Serial Number 100003      **Certificate Number 10-300287035**

Calibration Method      **NRVC-1109.0930.32**      Relative Humidity      **20%-60%**  
 Kalibrieranweisung           Relative Luftfeuchte  
 Ambient Temperature      **(23 ± 1) °C**  
 Umgebungstemperatur

Working standards used (having a significant effect on the accuracy)  
 Verwendete Gebrauchsnormale (mit signifikantem Einfluss auf die Genauigkeit)

Item Gegenstand	Type Typ	Serial Number Seriennummer	Calibration Certificate Number Kalibrierscheinnummer	Cal. Due Kalbr. bis
Dual Channel Powermeter	NRVD	100842	0114 D-M-15195-01-00 2013-08	2014-11-30
Dual Channel Power Meter	NRVD	838583/0023	0113 D-M-15195-01-00 2013-08	2014-11-30
Vector Network Analyzer	ZVM	836228/0020	0102 CKCD-K-16101-2011-08	2013-10-31
Access Set for Lin. Measurement	NRVC-B2	848992/0028	0085 D-M-15195-01-00 2013-01	2014-04-30
Calibration Kit Type-N (50 Ohm)	000540	2705A00100	217-01723 [METAS]	2016-03-31
Power Standard	NRVC	836482/0005	0082 D-M-15195-01-00 2013-01	2014-04-30

Conformity statements take the measurement uncertainties into account.  
 Die Konformitätsaussagen berücksichtigen die Messunsicherheiten.

Notes  
 Anmerkungen

Installed options are included in calibration. Depending on installed options, numbers of pages of the record are not consecutive.





Product Service

<b>Material number</b> 1137.8002.02	<b>Certificate Number</b> 1400-48811
<b>Serial number</b> ID: 1137.8002.02-100189-aj	<b>Zertifikatsnummer</b>
<small>Materialnummer</small> Ser.: 100189	

<b>Calibration instruction</b> See first page of calibration results	<b>Date of receipt</b> 2014-06-06
<small>Kalibrieranweisung</small>	<small>Eingangsdatum</small> (YYYY-MM-DD)
<b>Ambient temperature</b> (23 ± 2) °C	<b>Relative humidity</b> 20 % - 60 %
<small>Umgebungstemperatur</small>	<small>Relative Luftfeuchte</small>

This calibration fulfils the requirements of the standard / guideline  
Diese Kalibrierung entspricht den Forderungen der Norm / Richtlinie

<b>Working standards used (having a significant effect on the accuracy)</b> <small>Verwendete Gebrauchsnormale (mit signifikantem Einfluss auf die Genauigkeit)</small>				
Item <small>Gegenstand</small>	Type <small>Typ</small>	Serial number <small>Seriennummer</small>	Calibration certificate number <small>Kalibrierschein Nummer</small>	Cal. due <small>Kalibr. bis</small>
See page 2 of calibration results				

**UGB** (Uncertainty guard Band): Measurement uncertainty violates the datasheet limit

**UGB1** A compliance statement may be possible where a confidence level of less than 95 % is acceptable.  
Die Bestätigung der Konformität ist möglich, sofern ein Grad des Vertrauens von weniger als 95% akzeptabel ist.

**UGB2** A non-compliance statement may be possible where a confidence level of less than 95 % is acceptable.  
Die Bestätigung der Nicht-Konformität ist möglich, sofern ein Grad des Vertrauens von weniger als 95% akzeptabel ist.

**Conformity statements take the measurement uncertainties into account.**  
Die Konformitätsaussagen berücksichtigen die Messunsicherheiten.

Ref: ILAC-G8:1996 "Guidelines on Assessment and Reporting of Compliance with Specification (based on measurements and tests in a laboratory)"

**Notes**  
Anmerkungen

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