

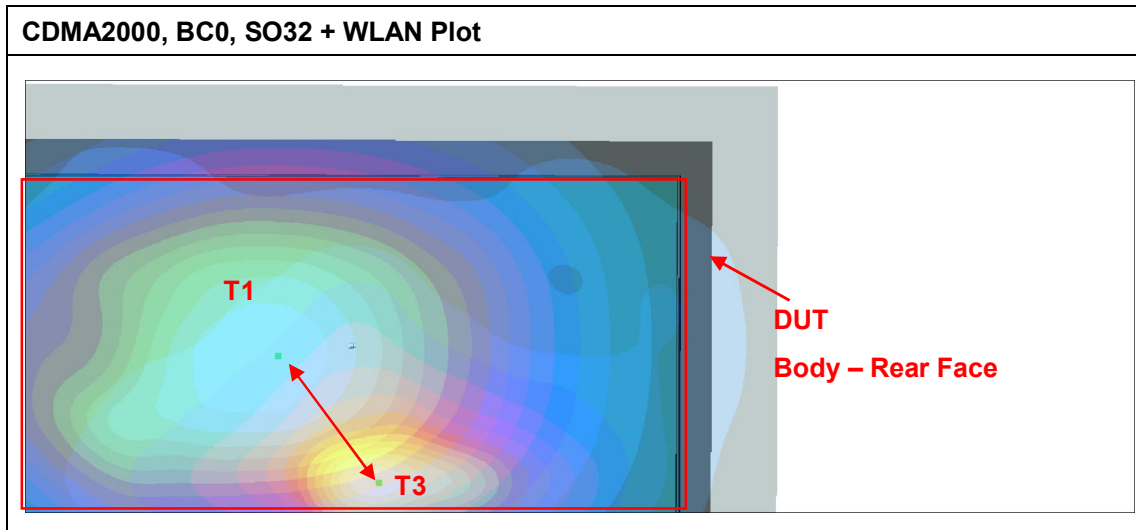
Appendix G. Volume Scan Plots for WWAN, Wimax, and WLAN

In this appendix, there are two parts , (1) SPLSR plots, and (2) Volume Scan Plots.

(1) SPLSR Plots:

The SPLSR calculation procedure follows the section 11.5, and only the worst case SPLSR ratio are shown here.

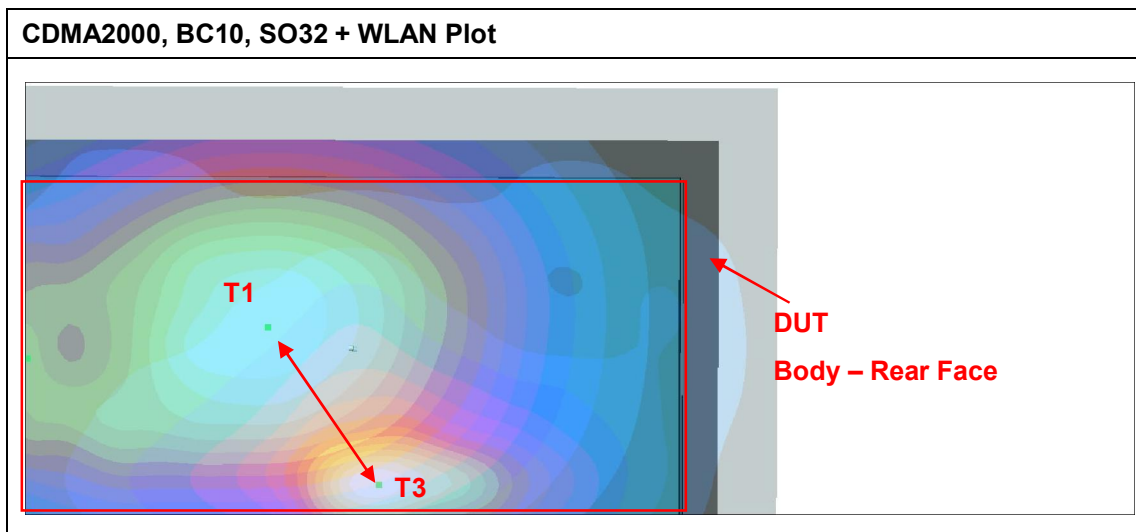
The calculation of SPLSR for (Body-Rear Face, CDMA2000 BC0 SO32 + WLAN) is as below:



Coordinate of Peak SAR Location (X, Y, Z) : T1(-0.0128, -0.0178, -0.205), T3(0.0064, 0.0014, -0.205) Peak Location Spacing = 2.7 cm

SPLSR (SAR to Peak Location Spacing Ratio) = $(1.05 + 0.446) / 2.7 = 0.551$

The calculation of SPLSR for (Body-Rear Face, CDMA2000 BC10 SO32 + WLAN) is as below:



Coordinate of Peak SAR Location (X, Y, Z) : T1(-0.0188, -0.0214, -0.205), T3(0.0064, 0.0014, -0.205)

Peak Location Spacing = 3.4 cm

SPLSR (SAR to Peak Location Spacing Ratio) = $(1.11 + 0.446) / 3.4 = 0.46$

(2) Volume Scan Plots:

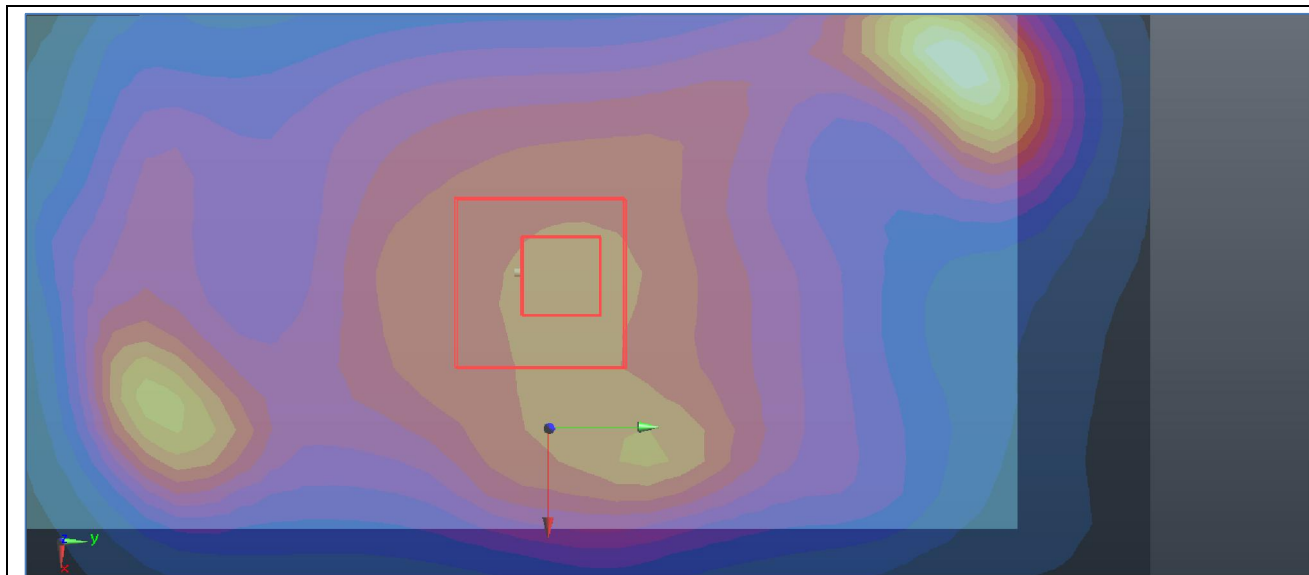
Plot No.	Band	Mode	Test Position	Ch.	Battery	SAR _{1g} (W/kg)	Multi Band SAR _{1g} (W/kg)
#111	CDMA2000 BC0	RC3+SO32	Body-worn Rear Face	Ch 1013	1	1.06	1.22
#115	WiMAX	QPSK 1/2, 5M, Ant-0		2593 MHz	1	0.572	
#113	802.11b	-		Ch 6	1	0.391	
#111	CDMA2000 BC0	RC3+SO32	Body-worn Rear Face	Ch 1013	1	1.06	1.19
#114	WiMAX	QPSK 1/2, 5M, Ant-1		2593 MHz	1	0.613	
#113	802.11b	-		Ch 6	1	0.391	
#112	CDMA2000 BC10	RC3+SO32	Body-worn Rear Face	Ch 476	1	1.17	1.33
#115	WiMAX	QPSK 1/2, 5M, Ant-0		2593 MHz	1	0.572	
#113	802.11b	-		Ch 6	1	0.391	
#112	CDMA2000 BC10	RC3+SO32	Body-worn Rear Face	Ch 476	1	1.17	1.3
#114	WiMAX	QPSK 1/2, 5M, Ant-1		2593 MHz	1	0.613	
#113	802.11b	-		Ch 6	1	0.391	

The WiMax SAR peaks are not overlapping with other peaks (WLAN, CDMA). From the aggregate 1g-SAR, the volume scan peaks are surround by CDMA and WLAN peaks, and mainly contributed from CDMA and WLAN. Therefore, scaling for WiMax control symbol is not applied in the volume scan.

Plot No.	Band	Mode	Test Position	Ch.	Battery	SAR _{1g} (W/kg)	Multi Band SAR _{1g} (W/kg)
#122	CDMA2000 BC0	Ev-Do	Hotspot Rear Face	Ch 1013	1	0.906	1.04
#115	WiMAX	QPSK 1/2, 5M, Ant-0		2593 MHz	1	0.572	
#113	802.11b	-		Ch 6	1	0.391	
#122	CDMA2000 BC0	Ev-Do	Hotspot Rear Face	Ch 1013	1	0.906	1.02
#114	WiMAX	QPSK 1/2, 5M, Ant-1		2593 MHz	1	0.613	
#113	802.11b	-		Ch 6	1	0.391	
#121	CDMA2000 BC10	Ev-Do	Hotspot Rear Face	Ch 476	1	0.941	1.07
#115	WiMAX	QPSK 1/2, 5M, Ant-0		2593 MHz	1	0.572	
#113	802.11b	-		Ch 6	1	0.391	
#121	CDMA2000 BC10	Ev-Do	Hotspot Rear Face	Ch 476	1	0.941	1.02
#114	WiMAX	QPSK 1/2, 5M, Ant-1		2593 MHz	1	0.613	
#113	802.11b	-		Ch 6	1	0.391	

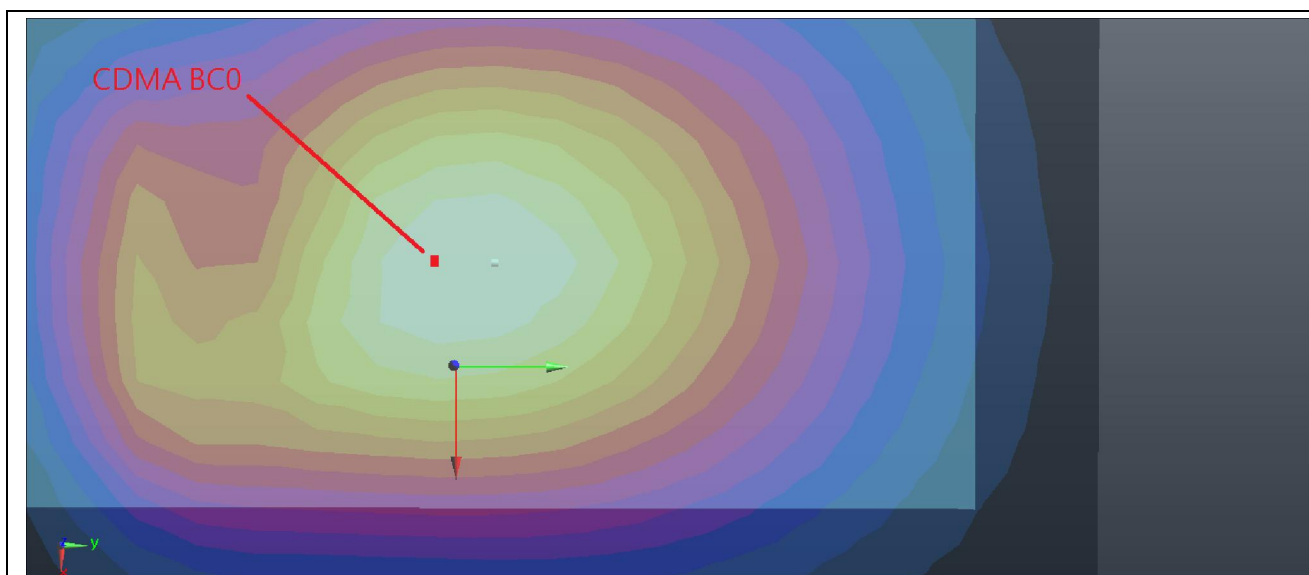
Note:

1. The worst configuration on each position is used for the volume scan.
2. The RTAP 153.6kbps (Ev-Do Rev 0) setting was used for data connection in Hotspot mode.
3. The WiMax SAR peaks are not overlapping with other peaks (WLAN, CDMA). From the aggregate 1g-SAR, the volume scan peaks are surround by CDMA and WLAN peaks, and mainly contributed from CDMA and WLAN. Therefore, scaling for WiMax control symbol is not applied in the volume scan.

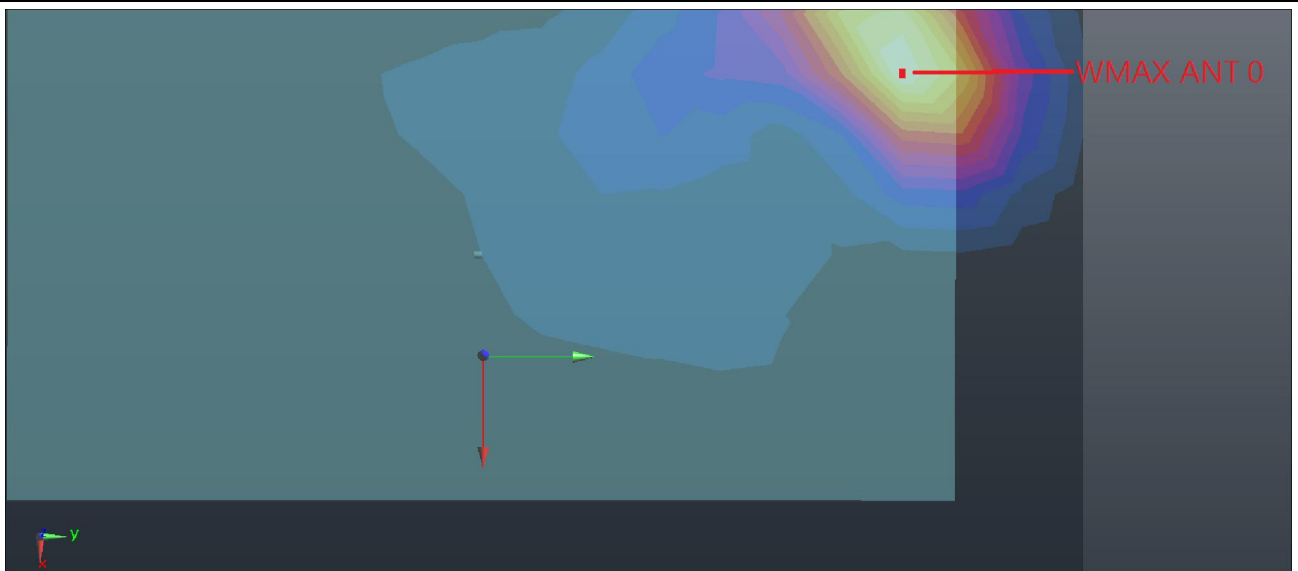
< Set 1 - Volume scan data - CDMA2000 BC0 + Wimax- Ant 0 + WLAN 802.11b>


Multi Bands SAR – The composited SAR location (in red square block) is far away the Peak SAR of Wimax (up right corner)

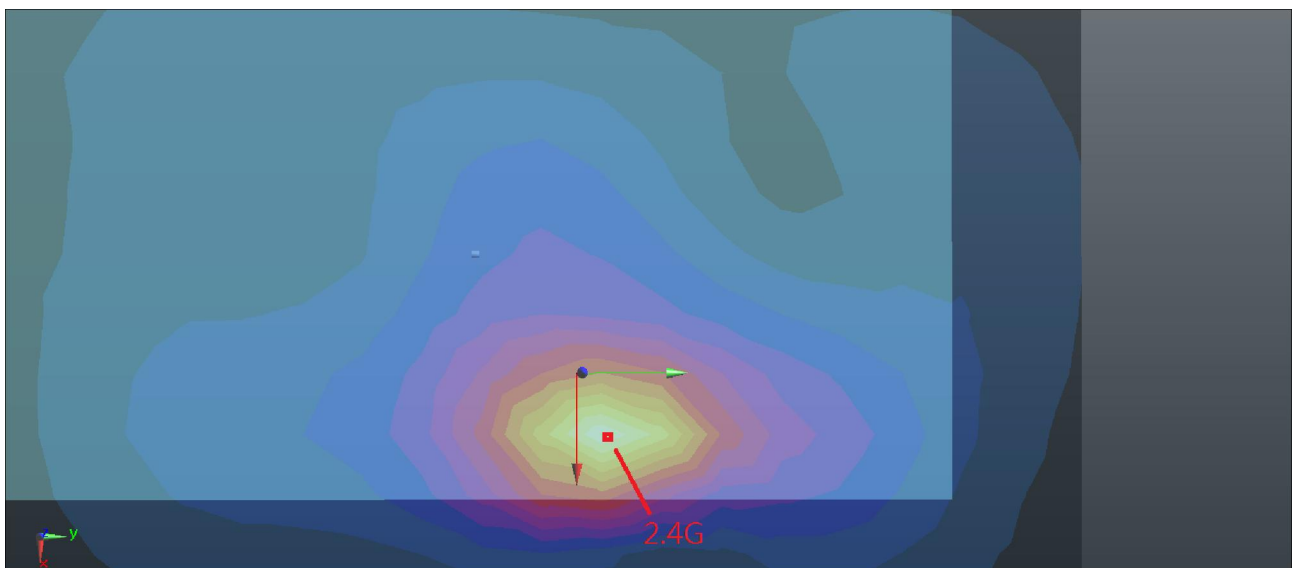
Note: The light-blue area represents whole DUT dimension for each plot.



Plot # 111 for CDMA BC0

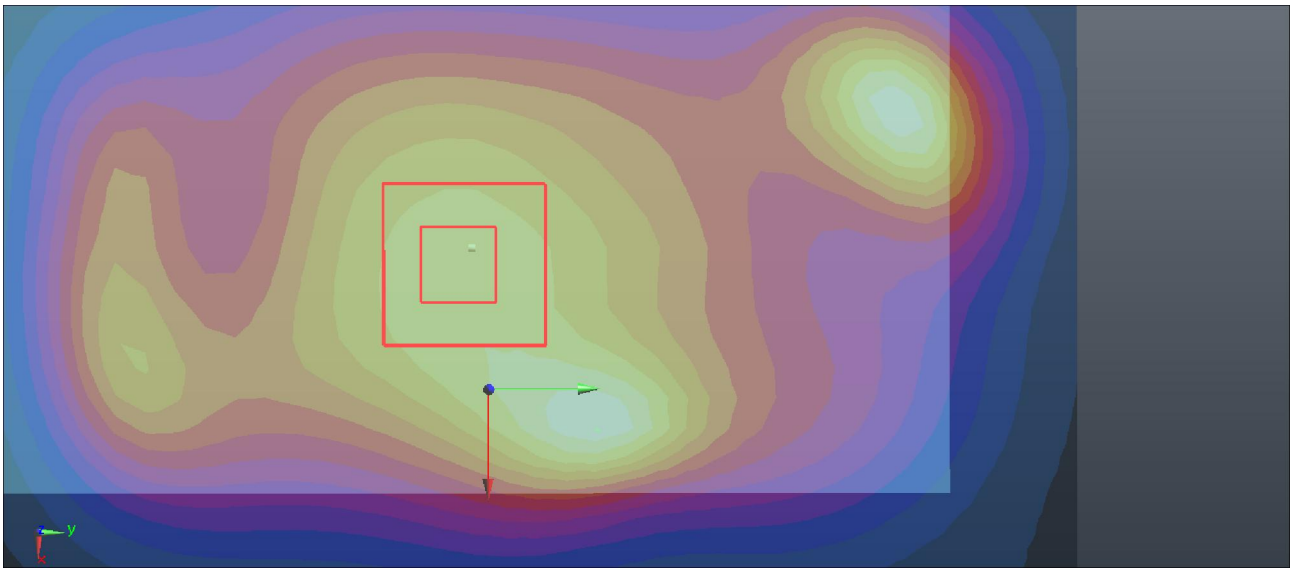


Plot #115 for Wimax – Ant 0

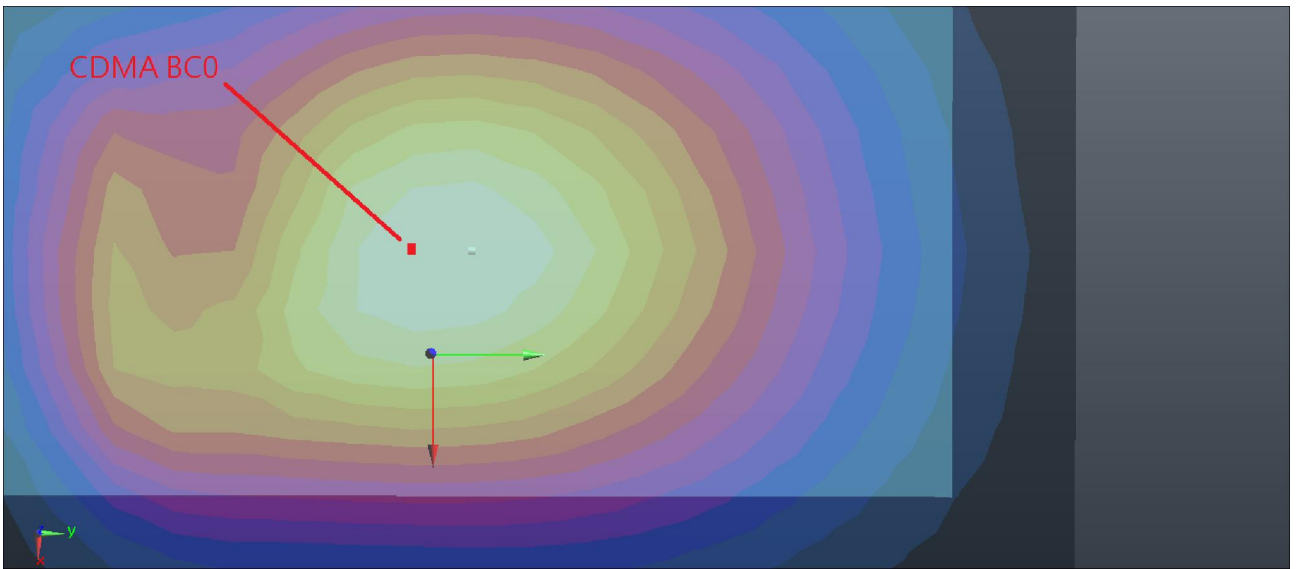


Plot #113 for 802.11b

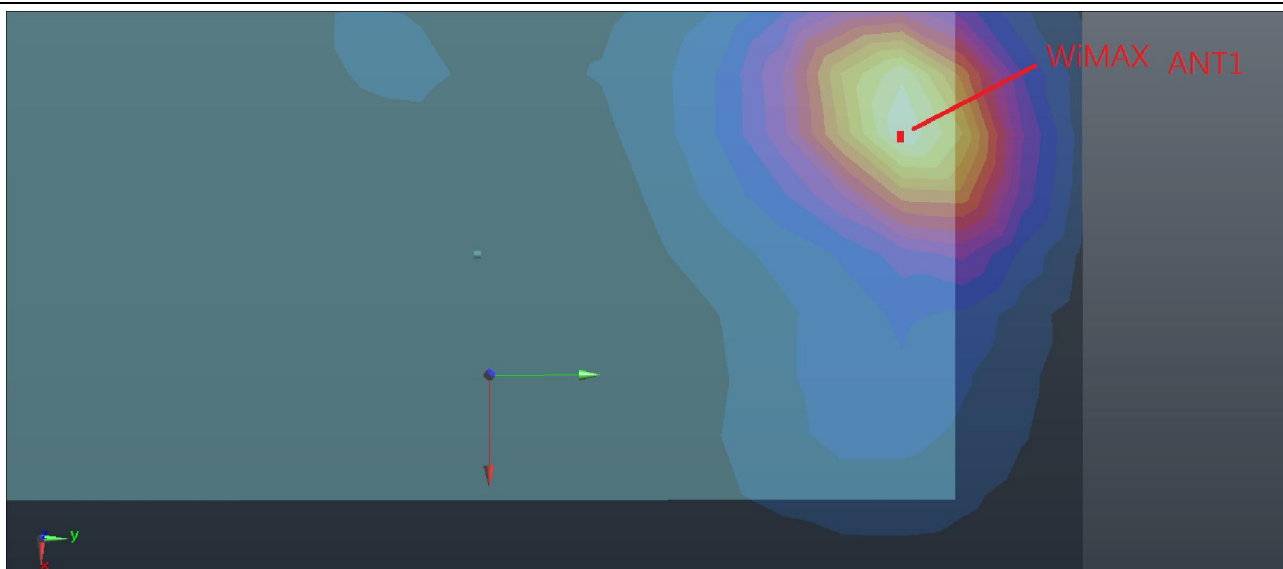
< Set 2 - Volume scan data - CDMA2000 BC0 + Wimax- Ant 1 + WLAN 802.11b>



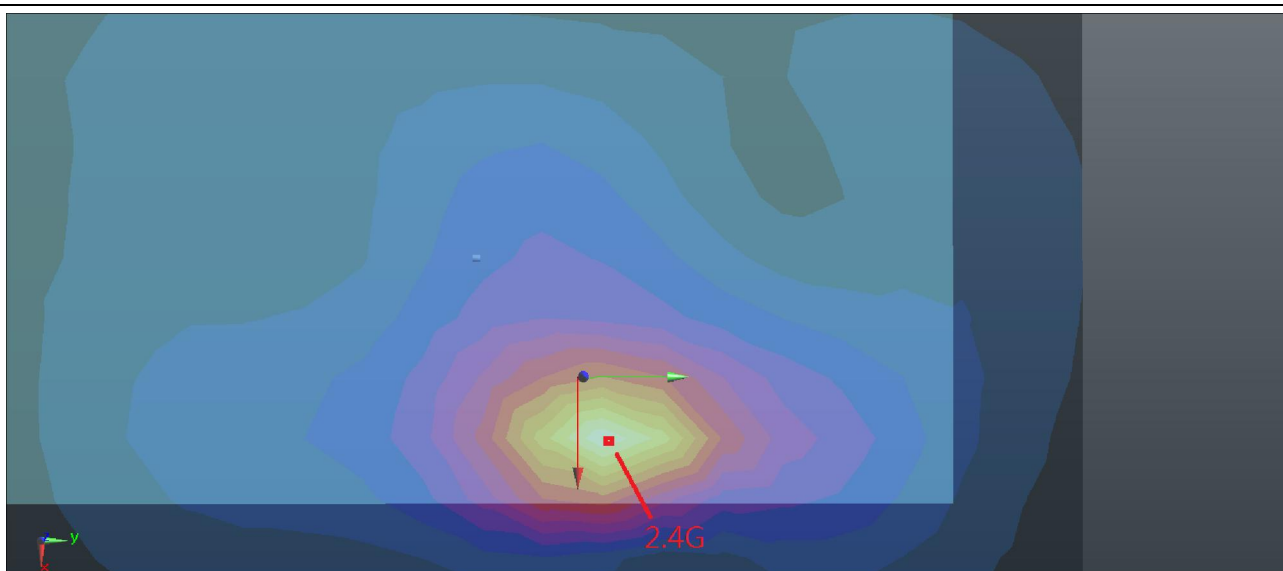
Multi Bands SAR – The composited SAR location (in red square block) is far away the Peak SAR of Wimax (up right corner)



Plot #111 for CDMA2000 BC0

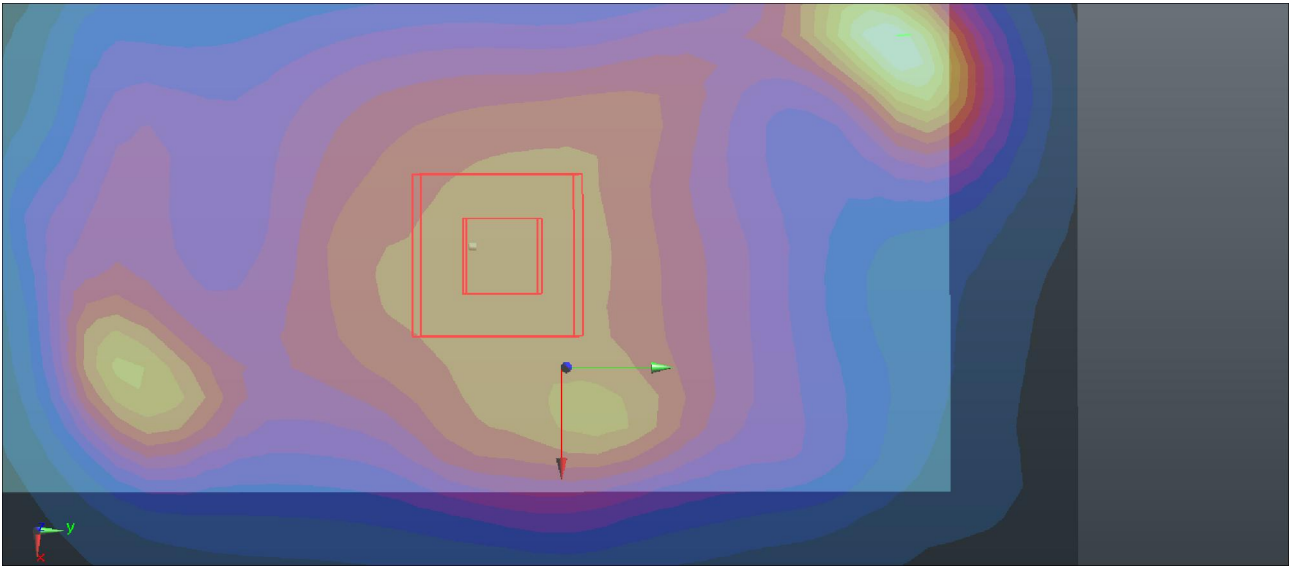


Plot #114 for Wimax – Ant 1

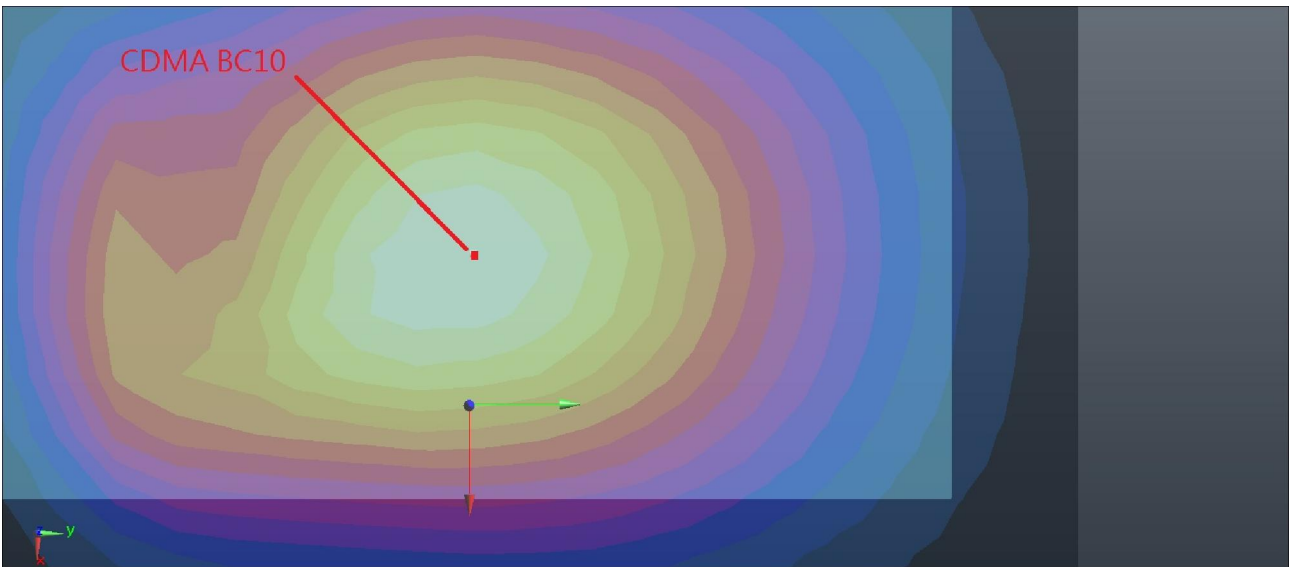


Plot #113 for WLAN - 802.11b

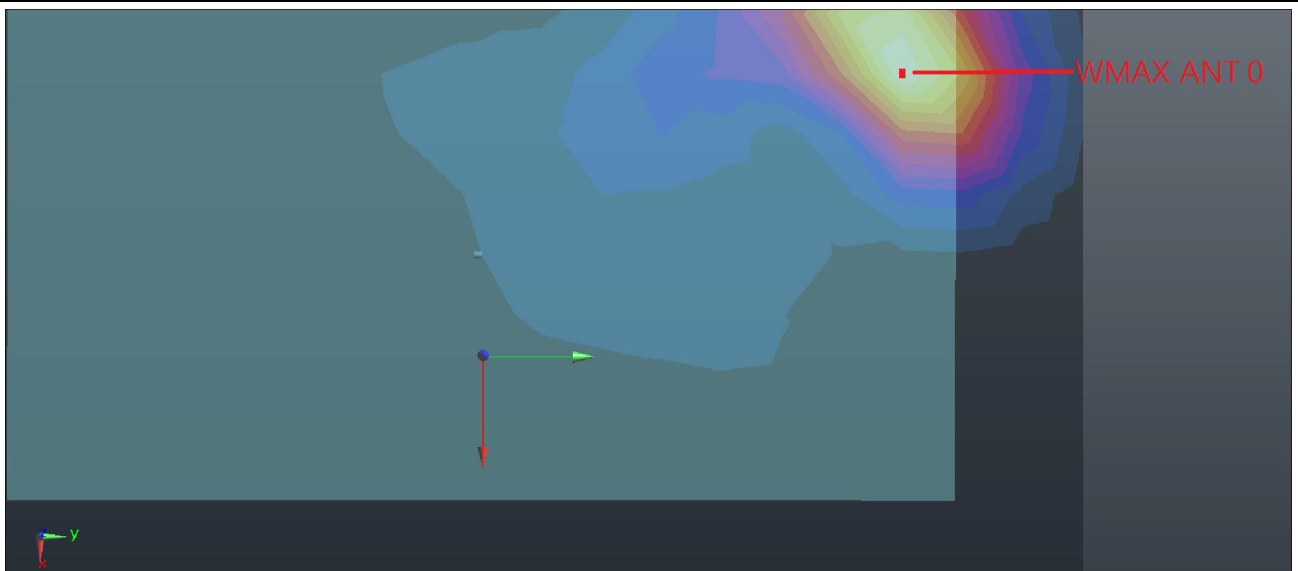
< Set 3 - Volume scan data - CDMA2000 BC10 + Wimax- Ant 0 + WLAN 802.11b>



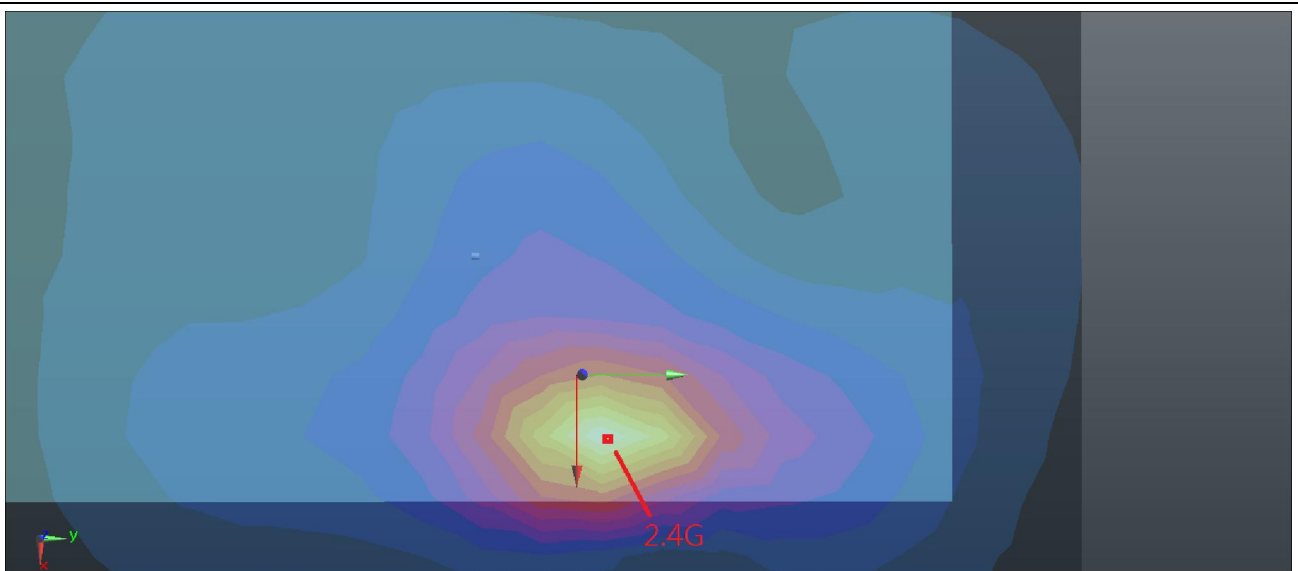
Multi Bands SAR – The composited SAR location (in red square block) is far away the Peak SAR of Wimax (up right corner)



Plot #112 for CDMA2000 BC10

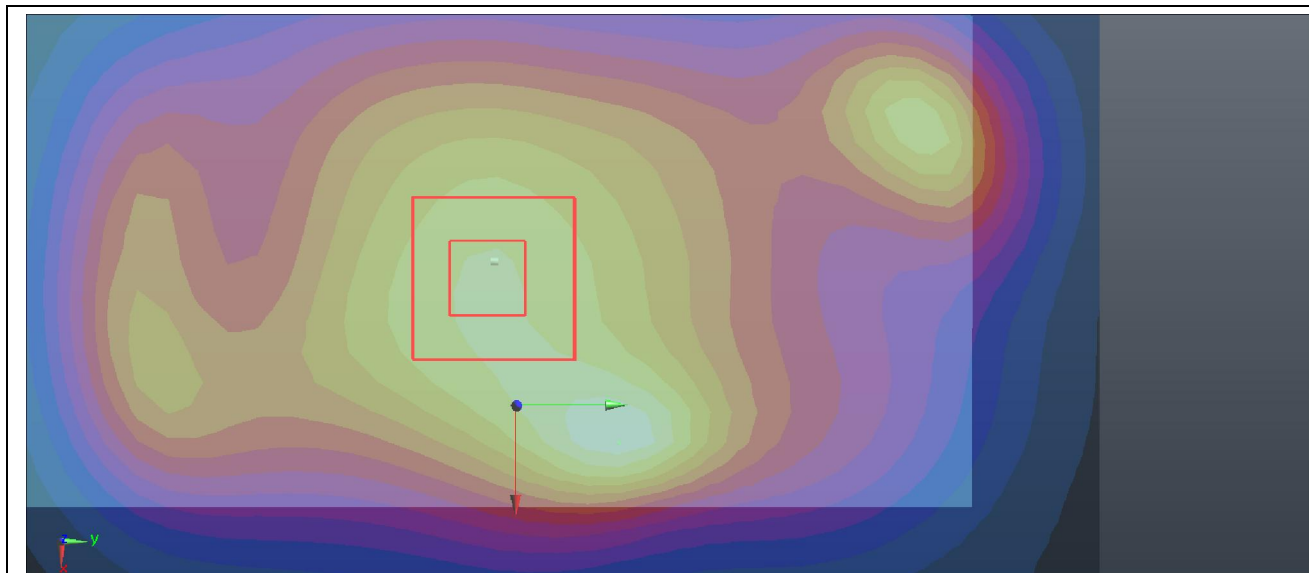


Plot #115 for Wimax – Ant 0

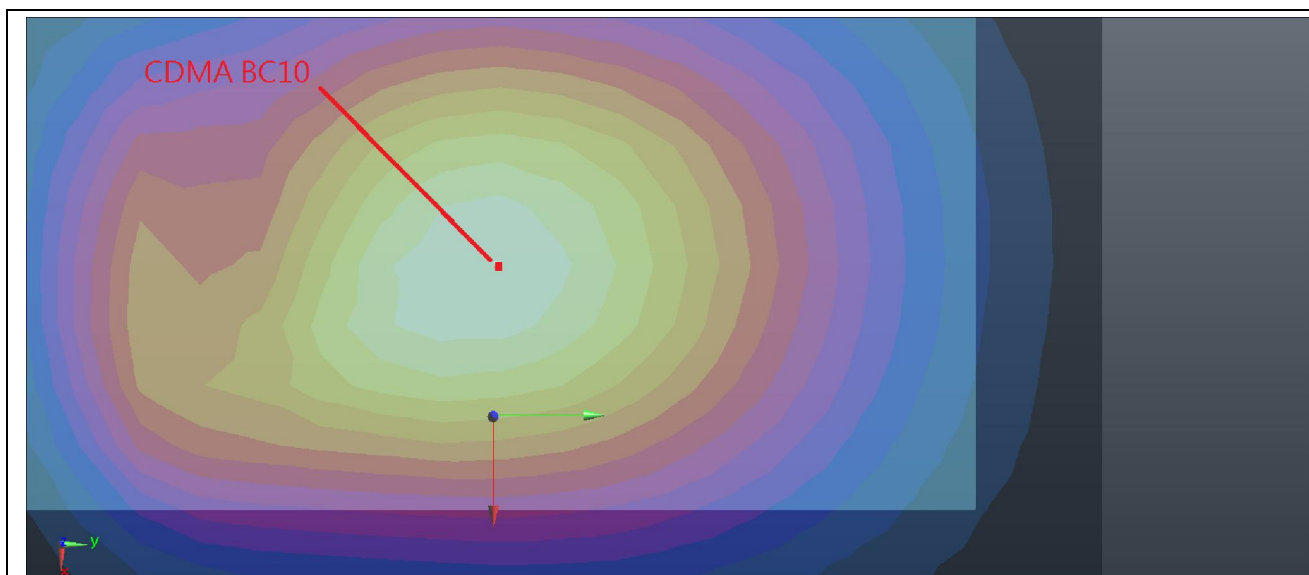


Plot #113 for WLAN 802.11b

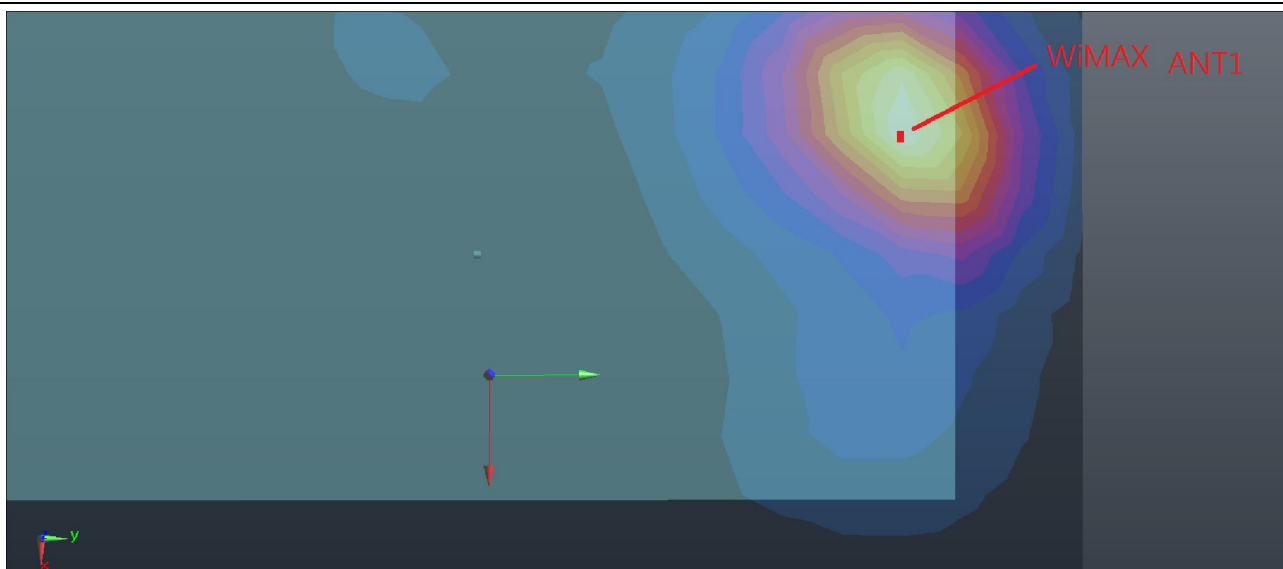
< Set 4 - Volume scan data - CDMA2000 BC10 + Wimax- Ant 1 + WLAN 802.11b>



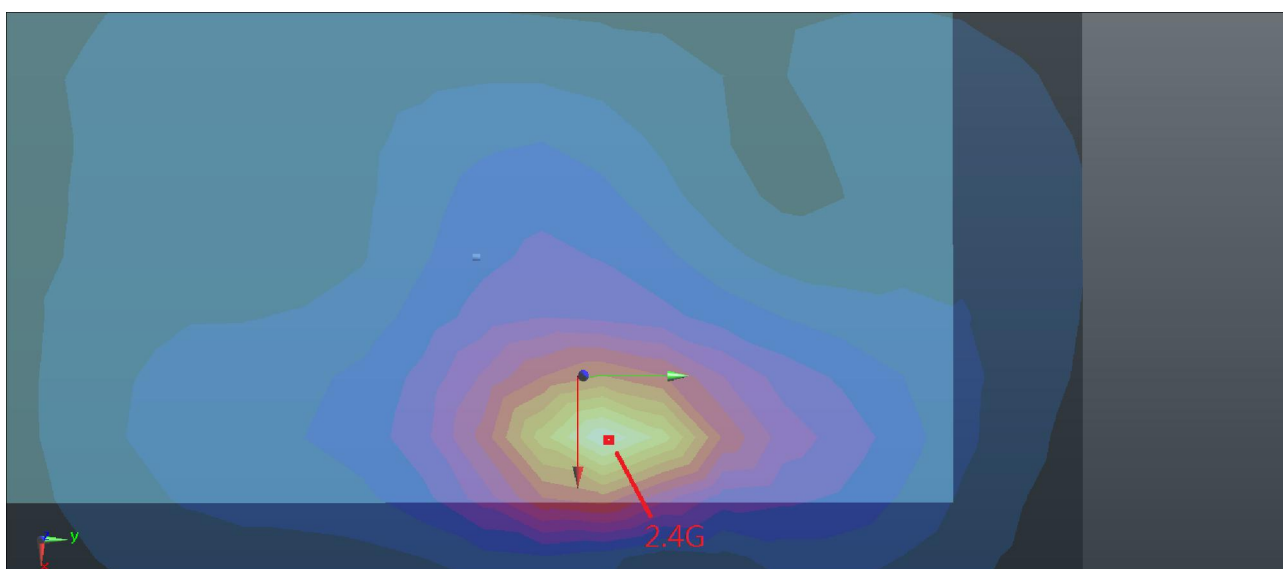
Multi Bands SAR – The composited SAR location (in red square block) is far away the Peak SAR of Wimax (up right corner)



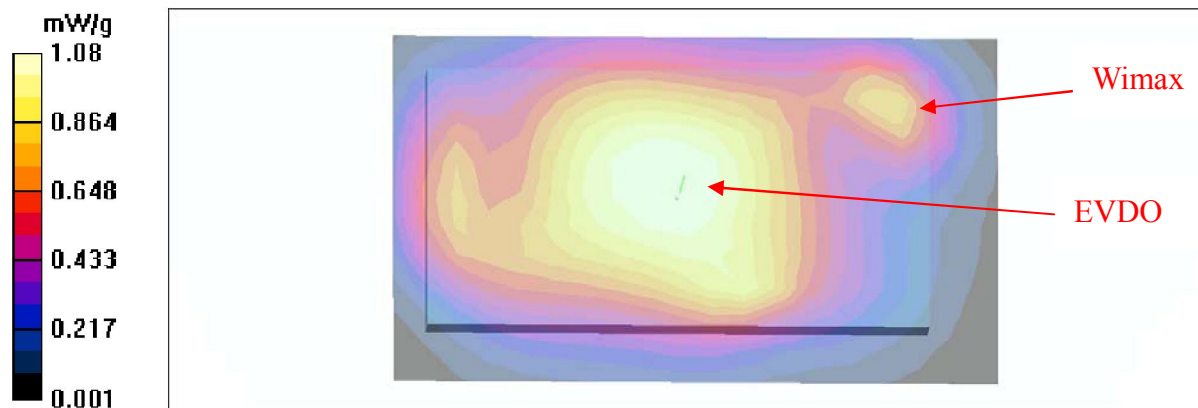
Plot #112 for CDMA2000 BC10



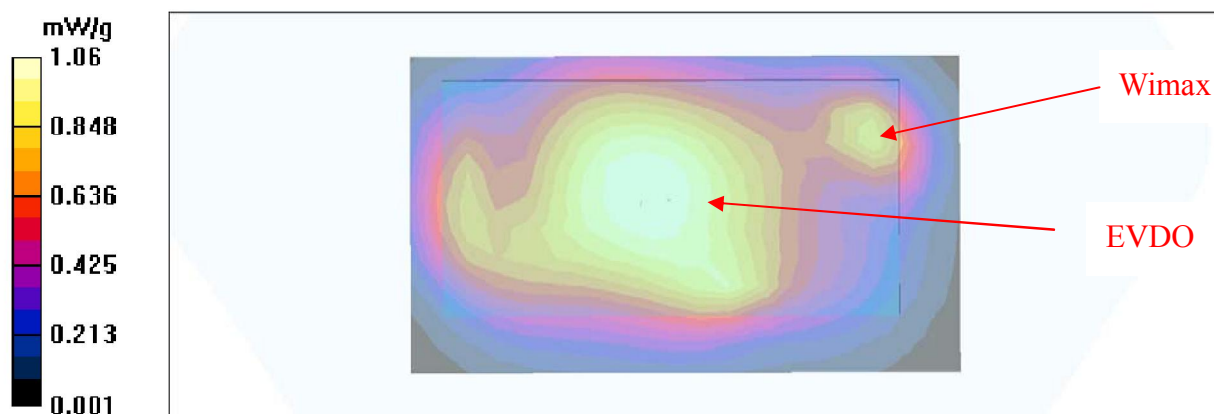
Plot #114 for Wimax – Ant 1



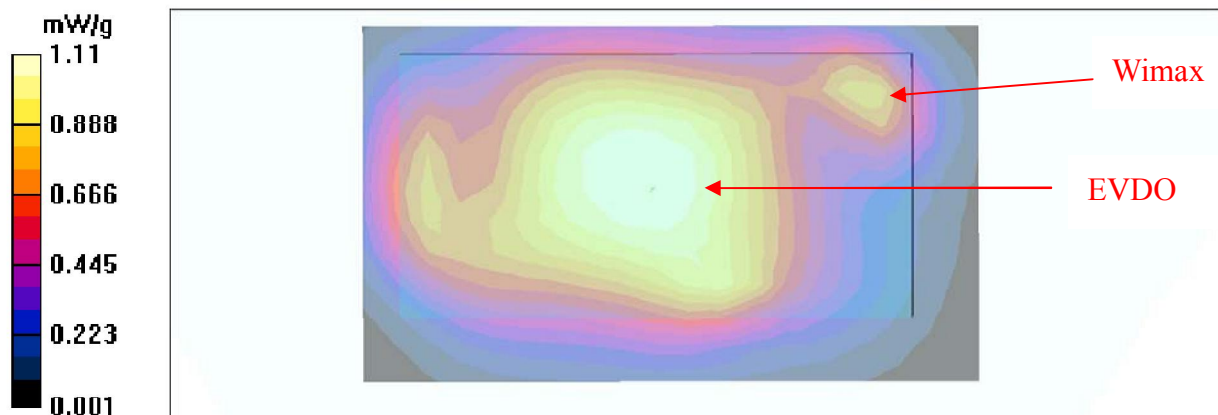
Plot #113 for WLAN 802.11b

< Set 5 - Volume scan data – EVDO BC0 + Wimax- Ant 0 + WLAN 802.11b>
Multi Band Result:
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.769 mW/g
Maximum value of SAR (measured) = 1.08 mW/g

Multi Bands SAR for EVDO BC0 + Wimax – Ant 0 + WLAN 802.11b

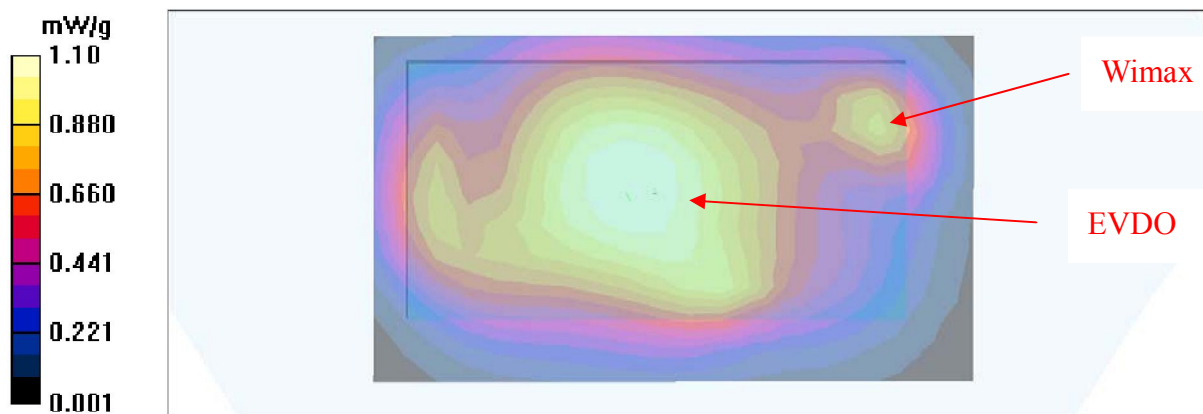
Note: The light-blue area represents whole DUT dimension for each plot.

< Set 6 - Volume scan data – EVDO BC0 + Wimax- Ant 1 + WLAN 802.11b>
Multi Band Result:
SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.758 mW/g
Maximum value of SAR (measured) = 1.06 mW/g

Multi Bands SAR for EVDO BC0 + Wimax – Ant 1 + WLAN 802.11b

Note: The light-blue area represents whole DUT dimension for each plot.

< Set 7 - Volume scan data – EVDO BC10 + Wimax- Ant 0 + WLAN 802.11b>
Multi Band Result:
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.794 mW/g
Maximum value of SAR (measured) = 1.11 mW/g

Multi Bands SAR for EVDO BC10 + Wimax – Ant 0 + WLAN 802.11b

Note: The light-blue area represents whole DUT dimension for each plot.

< Set 8 - Volume scan data – EVDO BC10 + Wimax- Ant 1 + WLAN 802.11b>
Multi Band Result:
SAR(1 g) = 1.05 mW/g; SAR(10 g) = 0.782 mW/g
Maximum value of SAR (measured) = 1.10 mW/g

Multi Bands SAR for EVDO BC10 + Wimax – Ant 1 + WLAN 802.11b

Note: The light-blue area represents whole DUT dimension for each plot.

#121 CDMA2000 BC10_RTAP153.6K_Bottom_1cm_Ch476_Battery1_Volume**DUT: 112033**

Communication System: CDMA ; Frequency: 817.9 MHz; Duty Cycle: 1:1

Medium: MSL_850_110603 Medium parameters used: $f = 817.9$ MHz; $\sigma = 0.967$ mho/m; $\epsilon_r = 54.7$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.4 °C ; Liquid Temperature : 21.5 °C

DASY4 Configuration:

- Probe: ET3DV6 - SN1787; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/5/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1249; Calibrated: 2011/2/21
- Phantom: SAM-Left; Type: QD 000 P40 C; Serial: TP-1477
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch476/Volume Scan (12x20x7): Measurement grid: dx=8mm, dy=8mm, dz=5mm

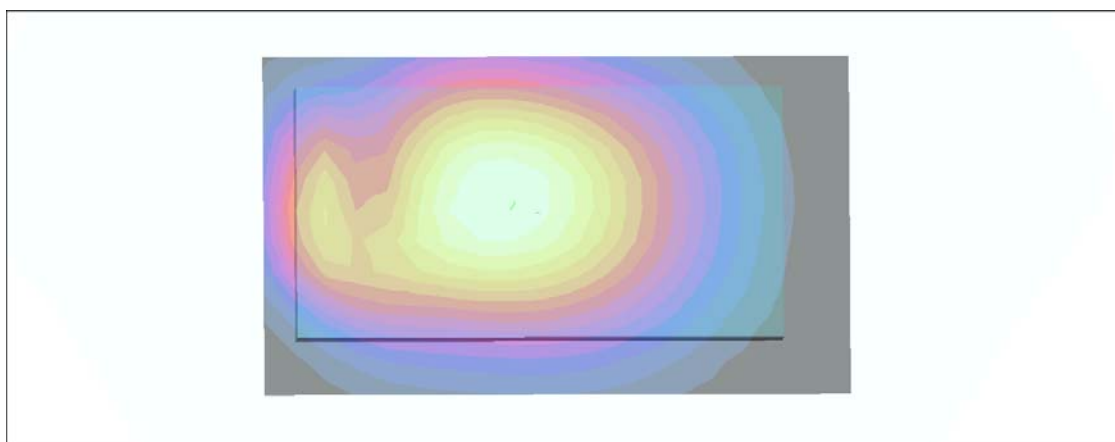
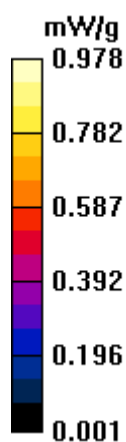
Reference Value = 32.4 V/m; Power Drift = 0.009 dB

Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.941 mW/g; SAR(10 g) = 0.715 mW/g

Total Absorbed Power = 0.097855 W

Maximum value of SAR (measured) = 0.978 mW/g



#122 CDMA2000 BC0_RTAP153.6K_Bottom_1cm_Ch1013_Battery1_Volume**DUT: 112033**

Communication System: CDMA ; Frequency: 824.7 MHz; Duty Cycle: 1:1

Medium: MSL_850_110603 Medium parameters used: $f = 825$ MHz; $\sigma = 0.924$ mho/m; $\epsilon_r = 54.6$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.4 °C ; Liquid Temperature : 21.5 °C

DASY4 Configuration:

- Probe: ET3DV6 - SN1787; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/5/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1249; Calibrated: 2011/2/21
- Phantom: SAM-Left; Type: QD 000 P40 C; Serial: TP-1477
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1013/Volume Scan (12x20x7): Measurement grid: dx=8mm, dy=8mm, dz=5mm

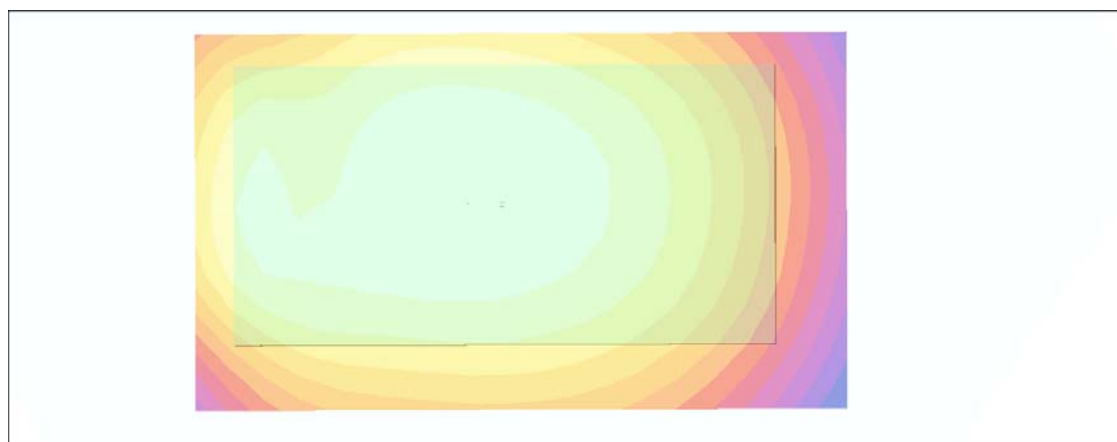
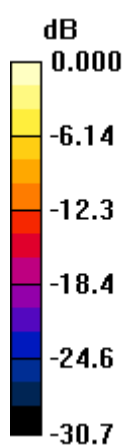
Reference Value = 32.6 V/m; Power Drift = 0.009 dB

Peak SAR (extrapolated) = 1.09 W/kg

SAR(1 g) = 0.906 mW/g; SAR(10 g) = 0.690 mW/g

Total Absorbed Power = 0.0945539 W

Maximum value of SAR (measured) = 0.941 mW/g



0 dB = 0.941mW/g