SAR Values [LTE Band 2]

Ch.	Freq. (MHz)	Mode	Test Position	Conducted Power (dBm)	Maximum Allowed Power (dBm)	Power drift	Scaling Factor	SAR_{1-g} results(W/kg)		Graph Results
								Measured	Reported	
measured / reported SAR numbers - Head										
18900	1880.0	20M_1RB	Left Cheek	22.65	23.00	0.17	1.08	**0.126**	**0.14**	**#7**
18900	1880.0	20M_1RB	Left Tilt	22.65	23.00	-0.12	1.08	0.096	0.10	
18900	1880.0	20M_1RB	Right Cheek	22.65	23.00	0.13	1.08	0.119	0.13	
18900	1880.0	20M_1RB	Right Tilt	22.65	23.00	-0.11	1.08	0.095	0.10	
18900	1880.0	20M_50RB	Left Cheek	21.74	22.00	-0.10	1.06	0.111	0.12	
18900	1880.0	20M_50RB	Left Tilt	21.74	22.00	-0.11	1.06	0.085	0.09	
18900	1880.0	20M_50RB	Right Cheek	21.74	22.00	0.16	1.06	0.105	0.11	
18900	1880.0	20M_50RB	Right Tilt	21.74	22.00	-0.12	1.06	0.083	0.09	
measured / reported SAR numbers - Body (hotspot open, distance 10mm)										
18900	1880.0	20M_1RB	Front	22.65	23.00	-0.12	1.08	0.267	0.29	
18900	1880.0	20M_1RB	Back	22.65	23.00	-0.16	1.08	**0.405**	**0.44**	**#8**
18900	1880.0	20M_1RB	Left Side	22.65	23.00	-0.09	1.08	0.178	0.19	
18900	1880.0	20M_1RB	Right Side	22.65	23.00	0.10	1.08	0.129	0.14	
18900	1880.0	20M_1RB	Bottom Side	22.65	23.00	-0.08	1.08	0.231	0.25	
18900	1880.0	20M_50RB	Front	21.74	22.00	-0.11	1.06	0.209	0.22	
18900	1880.0	20M_50RB	Back	21.74	22.00	-0.06	1.06	0.317	0.34	
18900	1880.0	20M_50RB	Left Side	21.74	22.00	-0.06	1.06	0.139	0.15	
18900	1880.0	20M_50RB	Right Side	21.74	22.00	0.12	1.06	0.101	0.11	
18900	1880.0	20M_50RB	Bottom Side	21.74	22.00	-0.03	1.06	0.181	0.19	
measured / reported SAR numbers- Body worn (distance 10mm)										
18900	1880.0	20M_1RB	Front	22.65	23.00	-0.12	1.08	0.267	0.29	
18900	1880.0	20M_1RB	Back	22.65	23.00	-0.16	1.08	**0.405**	**0.44**	
18900	1880.0	20M_50RB	Front	21.74	22.00	-0.11	1.06	0.209	0.22	
18900	1880.0	20M_50RB	Back	21.74	22.00	-0.06	1.06	0.317	0.34	

SAR Values [LTE Band 4]

Ch.	Freq. (MHz)	Mode	Test Position	Conducted Power (dBm)	Maximum Allowed Power (dBm)	Power drift	Scaling Factor	SAR_{1-g} results(W/kg)		Graph Results
								Measured	Reported	
measured / reported SAR numbers - Head										
20175	1732.5	20M_1RB	Left Cheek	22.56	23.00	0.14	1.11	**0.132**	**0.15**	**#9**
20175	1732.5	20M_1RB	Left Tilt	22.56	23.00	-0.12	1.11	0.098	0.11	
20175	1732.5	20M_1RB	Right Cheek	22.56	23.00	0.13	1.11	0.121	0.13	
20175	1732.5	20M_1RB	Right Tilt	22.56	23.00	-0.11	1.11	0.092	0.10	
20175	1732.5	20M_50RB	Left Cheek	21.63	22.00	0.16	1.09	0.112	0.12	
20175	1732.5	20M_50RB	Left Tilt	21.63	22.00	-0.11	1.09	0.083	0.09	
20175	1732.5	20M_50RB	Right Cheek	21.63	22.00	0.19	1.09	0.103	0.11	
20175	1732.5	20M_50RB	Right Tilt	21.63	22.00	-0.16	1.09	0.078	0.09	
measured / reported SAR numbers - Body (hotspot open, distance 10mm)										
20175	1732.5	20M_1RB	Front	22.56	23.00	-0.12	1.11	0.176	0.19	
20175	1732.5	20M_1RB	Back	22.56	23.00	0.15	1.11	**0.270**	**0.30**	**#10**
20175	1732.5	20M_1RB	Left Side	22.56	23.00	-0.09	1.11	0.118	0.13	
20175	1732.5	20M_1RB	Right Side	22.56	23.00	0.10	1.11	0.090	0.10	
20175	1732.5	20M_1RB	Bottom Side	22.56	23.00	-0.08	1.11	0.154	0.17	
20175	1732.5	20M_50RB	Front	21.63	22.00	-0.11	1.09	0.142	0.15	
20175	1732.5	20M_50RB	Back	21.63	22.00	0.06	1.09	0.217	0.24	
20175	1732.5	20M_50RB	Left Side	21.63	22.00	-0.09	1.09	0.094	0.10	

20175	1732.5	20M_50RB	Right Side	21.63	22.00	0.12	1.09	0.072	0.08	
20175	1732.5	20M_50RB	Bottom Side	21.63	22.00	-0.17	1.09	0.124	0.13	
measured / reported SAR numbers- Body worn (distance 10mm)										
20175	1732.5	20M_1RB	Front	22.56	23.00	-0.12	1.11	0.176	0.19	
20175	1732.5	20M_1RB	Back	22.56	23.00	0.15	1.11	**0.270**	**0.30**	
20175	1732.5	20M_50RB	Front	21.63	22.00	-0.11	1.09	0.142	0.15	
20175	1732.5	20M_50RB	Back	21.63	22.00	0.06	1.09	0.217	0.24	

SAR Values [LTE Band 7]

Ch.	*Freq. (MHz)*	*Mode*	*Test Position*	*Conducted Power (dBm)*	*Maximum Allowed Power (dBm)*	*Power drift*	*Scaling Factor*	*SAR_{1-g} results(W/kg)*		*Graph Results*
								Measured	*Reported*	
measured / reported SAR numbers - Head										
21100	2535	20M_1RB	Left Cheek	22.15	22.50	-0.11	1.08	**0.253**	**0.27**	**#11**
21100	2535	20M_1RB	Left Tilt	22.15	22.50	-0.12	1.08	0.208	0.23	
21100	2535	20M_1RB	Right Cheek	22.15	22.50	0.13	1.08	0.240	0.26	
21100	2535	20M_1RB	Right Tilt	22.15	22.50	-0.11	1.08	0.194	0.21	
21100	2535	20M_50RB	Left Cheek	21.26	21.50	-0.17	1.06	0.195	0.21	
21100	2535	20M_50RB	Left Tilt	21.26	21.50	-0.15	1.06	0.160	0.17	
21100	2535	20M_50RB	Right Cheek	21.26	21.50	0.10	1.06	0.185	0.20	
21100	2535	20M_50RB	Right Tilt	21.26	21.50	-0.11	1.06	0.149	0.16	
measured / reported SAR numbers - Body (hotspot open, distance 10mm)										
21100	2535	20M_1RB	Front	22.15	22.50	-0.16	1.08	0.506	0.55	
21100	2535	20M_1RB	Back	22.15	22.50	0.17	1.08	**0.711**	**0.77**	**#12**
21100	2535	20M_1RB	Left Side	22.15	22.50	-0.11	1.08	0.337	0.37	
21100	2535	20M_1RB	Right Side	22.15	22.50	0.10	1.08	0.314	0.34	
21100	2535	20M_1RB	Bottom Side	22.15	22.50	-0.08	1.08	0.405	0.44	
21100	2535	20M_50RB	Front	21.26	21.50	-0.12	1.06	0.215	0.227	
21100	2535	20M_50RB	Back	21.26	21.50	0.08	1.06	0.342	0.361	
21100	2535	20M_50RB	Left Side	21.26	21.50	-0.09	1.06	0.231	0.244	
21100	2535	20M_50RB	Right Side	21.26	21.50	0.10	1.06	0.038	0.040	
21100	2535	20M_50RB	Bottom Side	21.26	21.50	-0.08	1.06	0.117	0.124	
measured / reported SAR numbers- Body worn (distance 10mm)										
21100	2535	20M_1RB	Front	22.15	22.50	-0.16	1.08	0.506	0.55	
21100	2535	20M_1RB	Back	22.15	22.50	0.17	1.08	**0.711**	**0.77**	
21100	2535	20M_50RB	Front	21.26	21.50	-0.12	1.06	0.215	0.227	
21100	2535	20M_50RB	Back	21.26	21.50	0.08	1.06	0.342	0.361	

SAR Values [LTE Band 17]

Ch.	*Freq. (MHz)*	*Mode*	*Test Position*	*Conducted Power (dBm)*	*Maximum Allowed Power (dBm)*	*Power drift*	*Scaling Factor*	*SAR_{1-g} results(W/kg)*		*Graph Results*
								Measured	*Reported*	
measured / reported SAR numbers - Head										
23790	710	10M_1RB	Left Cheek	22.40	23.00	-0.11	1.15	**0.036**	**0.04**	**#13**
23790	710	10M_1RB	Left Tilt	22.40	23.00	-0.12	1.15	0.029	0.03	
23790	710	10M_1RB	Right Cheek	22.40	23.00	0.13	1.15	0.034	0.04	
23790	710	10M_1RB	Right Tilt	22.40	23.00	-0.11	1.15	0.026	0.03	
23790	710	10M_25RB	Left Cheek	21.45	22.00	-0.11	1.14	0.030	0.03	
23790	710	10M_25RB	Left Tilt	21.45	22.00	-0.12	1.14	0.024	0.03	
23790	710	10M_25RB	Right Cheek	21.45	22.00	0.13	1.14	0.029	0.03	
23790	710	10M_25RB	Right Tilt	21.45	22.00	-0.11	1.14	0.022	0.02	
measured / reported SAR numbers - Body (hotspot open, distance 10mm)										
23790	710	10M_1RB	Front	22.40	23.00	-0.10	1.15	0.140	0.16	
23790	710	10M_1RB	Back	22.40	23.00	0.11	1.15	**0.204**	**0.23**	**#14**

23790	710	10M_1RB	Left Side	22.40	23.00	0.09	1.15	0.097	0.11	
23790	710	10M_1RB	Right Side	22.40	23.00	0.10	1.15	0.110	0.13	
23790	710	10M_1RB	Bottom Side	22.40	23.00	-0.08	1.15	0.105	0.12	
23790	710	10M_25RB	Front	21.45	22.00	-0.12	1.14	0.093	0.11	
23790	710	10M_25RB	Back	21.45	22.00	0.09	1.14	0.136	0.15	
23790	710	10M_25RB	Left Side	21.45	22.00	-0.15	1.14	0.064	0.07	
23790	710	10M_25RB	Right Side	21.45	22.00	0.10	1.14	0.073	0.08	
23790	710	10M_25RB	Bottom Side	21.45	22.00	-0.08	1.14	0.070	0.08	
measured / reported SAR numbers- Body worn (distance 10mm)										
23790	710	10M_1RB	Front	22.40	23.00	-0.10	1.15	0.140	0.16	
23790	710	10M_1RB	Back	22.40	23.00	0.11	1.15	**0.204**	**0.23**	
23790	710	10M_25RB	Front	21.45	22.00	-0.12	1.14	0.093	0.11	
23790	710	10M_25RB	Back	21.45	22.00	0.09	1.14	0.136	0.15	

SAR Values [WIFI 2.4G]

Ch.	*Freq. (MHz)*	*Service*	*Test Position*	*Maximum Allowed Power (dBm)*	*Conducted Power (dBm)*	*Power drift*	*Scaling Factor*	*SAR_{1-g} results(W/kg)*		*Graph Results*
								Measured	*Reported*	
measured / reported SAR numbers - Head										
6	2437	DSSS	Left Cheek	16.85	17.00	-0.05	1.03	**0.106**	**0.11**	**#15**
6	2437	DSSS	Left Tilt	16.85	17.00	-0.11	1.03	0.090	0.09	
6	2437	DSSS	Right Cheek	16.85	17.00	0.09	1.03	0.096	0.10	
6	2437	DSSS	Right Tilt	16.85	17.00	-0.07	1.03	0.084	0.09	
measured / reported SAR numbers - Body (hotspot open, distance 10mm)										
6	2437	DSSS	Front	16.85	17.00	-0.12	1.03	0.057	0.06	
6	2437	DSSS	Back	16.85	17.00	0.17	1.03	**0.093**	**0.10**	**#16**
6	2437	DSSS	Left Side	16.85	17.00	-0.08	1.03	0.046	0.05	
6	2437	DSSS	Top Side	16.85	17.00	-0.01	1.03	0.048	0.05	
measured / reported SAR numbers- Body worn (distance 10mm)										
6	2437	DSSS	Front	16.85	17.00	-0.12	1.03	0.057	0.06	
6	2437	DSSS	Back	16.85	17.00	0.17	1.03	**0.093**	**0.10**	

WIFI 2.4G - Scaled Reported SAR

Mode	Test Position	Frequency		Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
		CH	MHz				
802.11b 1Mbps	Left-Cheek	6	2437	99.81%	100%	**0.11**	**0.11**
	Left-Tilt	6	2437	99.81%	100%	0.09	0.09
	Right-Cheek	6	2437	99.81%	100%	0.10	0.10
	Right-Tilt	6	2437	99.81%	100%	0.09	0.09
	Front	6	2437	99.81%	100%	0.06	0.06
	Back	6	2437	99.81%	100%	**0.10**	**0.10**
	Left Side	6	2437	99.81%	100%	0.05	0.05
	Top Side	6	2437	99.81%	100%	0.05	0.05

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. A maximum transmission duty factor of 99.81%is achievable for WLAN in this project.

SAR Values [WIFI 5G]

Ch.	*Freq. (MHz)*	*Service*	*Test Position*	*Maximum Allowed Power (dBm)*	*Conducted Power (dBm)*	*Power drift*	*Scaling Factor*	*SAR_{1-g} results(W/kg)*		*Graph Results*
								Measured	*Reported*	
measured / reported SAR numbers - Head										
48	5240	DSSS	Left Cheek	16.47	17.00	-0.12	1.13	**0.169**	**0.19**	**#17**
48	5240	DSSS	Left Tilt	16.47	17.00	-0.11	1.13	0.143	0.16	
48	5240	DSSS	Right Cheek	16.47	17.00	0.09	1.13	0.154	0.17	
48	5240	DSSS	Right Tilt	16.47	17.00	-0.07	1.13	0.134	0.15	
measured / reported SAR numbers - Body (hotspot open, distance 10mm)										

48	5240	DSSS	Front	16.47	17.00	-0.11	1.13	0.071	0.08	
48	5240	DSSS	Back	16.47	17.00	0.10	1.13	**0.116**	**0.13**	**#18**
48	5240	DSSS	Left Side	16.47	17.00	-0.06	1.13	0.046	0.06	
48	5240	DSSS	Top Side	16.47	17.00	-0.05	1.13	0.060	0.08	
measured / reported SAR numbers- Body worn (distance 10mm)										
48	5240	DSSS	Front	16.47	17.00	-0.11	1.13	0.071	0.08	
48	5240	DSSS	Back	16.47	17.00	0.10	1.13	**0.116**	**0.13**	

WIFI 5G - Scaled Reported SAR

Mode	Test Position	Frequency		Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
		CH	MHz				
802.11a	Left-Cheek	48	5240	99.37%	100%	**0.19**	**0.19**
	Left-Tilt	48	5240	99.81%	100%	0.16	0.16
	Right-Cheek	48	5240	99.81%	100%	0.17	0.17
	Right-Tilt	48	5240	99.81%	100%	0.15	0.15
	Front	48	5240	99.81%	100%	0.08	0.08
	Back	48	5240	99.81%	100%	**0.13**	**0.13**
	Left Side	48	5240	99.81%	100%	0.06	0.06
	Top Side	48	5240	99.81%	100%	0.08	0.08

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. A maximum transmission duty factor of 99.81%is achievable for WLAN in this project.

Note:

1. The value with black color is the maximum Reported SAR Value of each test band.
2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is optional for such test configuration(s).
3. Per KDB 941225 D02, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA/HSUPA output power is < 0.25dB higher than RMC, or reported SAR with RMC 12.2kbps setting is ≤ 1.2W/kg, HSDPA/HSUPA SAR evaluation can be excluded.
4. Per KDB 248227- Channels with measured maximum output power within ¼ dB of each other are considered to have the same maximum output, When there are multiple test channels with the same measured maximum output power, the channel closest to mid-band frequency is selected for SAR measurement. And when there are multiple test channels with the same measured maximum output power and equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.
5. Per KDB 248227- When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
6. Per KDB 648474 D04, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
13. Per KDB648474 D04 require when the separation distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, using the same wireless mode test configuration for voice and data, such as UMTS, LTE and Wi-Fi, and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface)

5.6. Simultaneous TX SAR Considerations

5.6.1 Introduction

The following procedures adopted from “FCC SAR Considerations for Cell Phones with Multiple Transmitters” are applicable to handsets with built-in unlicensed transmitters such as 802.11 a/b/g/n and Bluetooth devices which may simultaneously transmit with the licensed transmitter.
For the DUT,the BT and WiFi modules sharing same antenna,GSM and WCDMA module sharing a single antenna;

Application Simultaneous Transmission information:

Air-Interface	Band (MHz)	Type	Simultaneous Transmissions	Voice over Digital Transport(Data)
GSM	850	VO	Yes,WLAN or BT/BLE	N/A
	1900	VO		
	GPRS/EDGE	DT	Yes,WLAN or BT/BLE	N/A
WCDMA	BandV	DT	Yes,WLAN or BT/BLE	N/A
LTE	Band 2/ Band 4/Band7/Band 17	DT	Yes,WLAN or BT/BLE	N/A
WLAN	2450	DT	Yes,GSM,GPRS,EDGE,UMTS	Yes
BT/BLE	2450	DT	Yes,GSM,GPRS,EDGE,UMTS	N/A
Note:VO-Voice Service only;DT-Digital Transport				

Note: BT and WLAN can be active at the same time, but only with interleaving of packages switched on board level. That means that they don’t transmit at the same time.
BLE-Bluetooth low energy;
BT- Classical Bluetooth

5.6.2 Evaluation of Simultaneous SAR

Head Exposure Conditions

Simultaneous transmission SAR for 2.4G WiFi and GSM/WCDMA/LTE

Test Position	GSM850 Reported SAR_{1-g} (W/Kg)	GSM1900 Reported SAR_{1-g} (W/Kg)	WCDMA Band V Reported SAR_{1-g} (W/Kg)	LTE Band 2 Reported SAR_{1-g} (W/Kg)	LTE Band 4 Reported SAR_{1-g} (W/Kg)	LTE Band 7 Reported SAR_{1-g} (W/Kg)	LTE Band 17 Reported SAR_{1-g} (W/Kg)	WiFi 2.4G Reported SAR_{1-g} (W/Kg)	MAX. ΣSAR_{1-g} (W/Kg)	SAR_{1-g} Limit (W/Kg)
Left Cheek	**0.13**	**0.18**	**0.13**	**0.14**	**0.15**	**0.27**	**0.04**	**0.11**	**0.38**	1.6
Left Tilt	0.10	0.13	0.11	0.10	0.11	0.23	0.03	0.09	0.32	1.6
Right Cheek	0.12	0.16	0.12	0.13	0.13	0.26	0.04	0.10	0.36	1.6
Right Tilt	0.09	0.12	0.10	0.10	0.10	0.21	0.03	0.09	0.30	1.6

Simultaneous transmission SAR for 5G WiFi and GSM/WCDMA/LTE

Test Position	GSM850 Reported SAR_{1-g} (W/Kg)	GSM1900 Reported SAR_{1-g} (W/Kg)	WCDMA Band V Reported SAR_{1-g} (W/Kg)	LTE Band 2 Reported SAR_{1-g} (W/Kg)	LTE Band 4 Reported SAR_{1-g} (W/Kg)	LTE Band 7 Reported SAR_{1-g} (W/Kg)	LTE Band 17 Reported SAR_{1-g} (W/Kg)	WiFi 5G Reported SAR_{1-g} (W/Kg)	MAX. ΣSAR_{1-g} (W/Kg)	SAR_{1-g} Limit (W/Kg)
Left Cheek	**0.13**	**0.18**	**0.13**	**0.14**	**0.15**	**0.27**	**0.04**	**0.19**	**0.46**	1.6
Left Tilt	0.10	0.13	0.11	0.10	0.11	0.23	0.03	0.16	0.39	1.6
Right Cheek	0.12	0.16	0.12	0.13	0.13	0.26	0.04	0.17	0.43	1.6
Right Tilt	0.09	0.12	0.10	0.10	0.10	0.21	0.03	0.15	0.36	1.6

Simultaneous transmission SAR for Bluetooth and GSM/WCDMA/LTE

Test Position	GSM850 Reported SAR_{1-g} (W/Kg)	GSM1900 Reported SAR_{1-g} (W/Kg)	WCDMA Band V Reported SAR_{1-g} (W/Kg)	LTE Band 2 Reported SAR_{1-g} (W/Kg)	LTE Band 4 Reported SAR_{1-g} (W/Kg)	LTE Band 7 Reported SAR_{1-g} (W/Kg)	LTE Band 17 Reported SAR_{1-g} (W/Kg)	Bluetooth Estimated SAR_{1-g} (W/Kg)	MAX. ΣSAR_{1-g} (W/Kg)	SAR_{1-g} Limit (W/Kg)
Left Cheek	**0.13**	**0.18**	**0.13**	**0.14**	**0.15**	**0.27**	**0.04**	**0.13**	**0.40**	1.6
Left Tilt	0.10	0.13	0.11	0.10	0.11	0.23	0.03	0.13	0.36	1.6
Right Cheek	0.12	0.16	0.12	0.13	0.13	0.26	0.04	0.13	0.39	1.6
Right Tilt	0.09	0.12	0.10	0.10	0.10	0.21	0.03	0.13	0.34	1.6

Hotsopt Exposure Conditions

Simultaneous transmission SAR for 2.4GWiFi and GSM/WCDMA/LTE

Test Position	GSM850 Reported SAR_{1-g} (W/Kg)	GSM1900 Reported SAR_{1-g} (W/Kg)	WCDMA Band V Reported SAR_{1-g} (W/Kg)	LTE Band 2 Reported SAR_{1-g} (W/Kg)	LTE Band 4 Reported SAR_{1-g} (W/Kg)	LTE Band 7 Reported SAR_{1-g} (W/Kg)	LTE Band 17 Reported SAR_{1-g} (W/Kg)	WiFi 2.4G Reported SAR_{1-g} (W/Kg)	MAX. ΣSAR_{1-g} (W/Kg)	SAR_{1-g} Limit (W/Kg)
Front	0.23	0.30	0.27	0.29	0.19	0.55	0.16	0.06	0.61	1.6
Back	**0.35**	**0.46**	**0.38**	**0.44**	**0.30**	**0.77**	**0.23**	**0.10**	**0.87**	1.6
Left Side	0.16	0.20	0.18	0.19	0.13	0.37	0.11	0.05	0.42	1.6
Right Side	0.11	0.15	0.17	0.14	0.10	0.34	0.13	/	0.34	1.6
Bottom Side	0.20	0.26	0.22	0.25	0.17	0.44	0.12	/	0.44	1.6
Top Side	/	/	/	/	/	/	/	0.05	0.05	1.6

Simultaneous transmission SAR for 5GWiFi and GSM/WCDMA/LTE

Test Position	GSM850 Reported SAR_{1-g} (W/Kg)	GSM1900 Reported SAR_{1-g} (W/Kg)	WCDMA Band V Reported SAR_{1-g} (W/Kg)	LTE Band 2 Reported SAR_{1-g} (W/Kg)	LTE Band 4 Reported SAR_{1-g} (W/Kg)	LTE Band 7 Reported SAR_{1-g} (W/Kg)	LTE Band 17 Reported SAR_{1-g} (W/Kg)	WiFi 5G Reported SAR_{1-g} (W/Kg)	MAX. ΣSAR_{1-g} (W/Kg)	SAR_{1-g} Limit (W/Kg)
Front	0.23	0.30	0.27	0.29	0.19	0.55	0.16	0.08	0.63	1.6
Back	**0.35**	**0.46**	**0.38**	**0.44**	**0.30**	**0.77**	**0.23**	**0.13**	**0.90**	1.6
Left Side	0.16	0.20	0.18	0.19	0.13	0.37	0.11	0.06	0.43	1.6
Right Side	0.11	0.15	0.17	0.14	0.10	0.34	0.13	/	0.34	1.6
Bottom Side	0.20	0.26	0.22	0.25	0.17	0.44	0.12	/	0.44	1.6
Top Side	/	/	/	/	/	/	/	0.08	0.08	1.6

Note:
1. The WiFi and BT share same antenna, so cannot transmit at same time.

2. The value with block color is the maximum values of standalone
3. The value with blue color is the maximum values of $\sum SAR_{1-g}$

5.7. General description of test procedures

1. The DUT is tested using CMU 200 communications testers as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted peak power.
2. Test positions as described in the tables above are in accordance with the specified test standard.
3. Tests in body position were performed in that configuration, which generates the highest time based averaged output power (see conducted power results).
4. Tests in head position with GSM were performed in voice mode with 1 timeslot unless GPRS/EGPRS/DTM function allows parallel voice and data traffic on 2 or more timeslots.
5. UMTS was tested in RMC mode with 12.2 kbit/s and TPC bits set to 'all 1'.
6. WiFi was tested in 802.11b/g/n mode with 1 Mbit/s and 6 Mbit/s. According to KDB 248227 the SAR testing for 802.11g/n is not required since When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
7. Required WiFi test channels were selected according to KDB 248227
8. According to FCC KDB pub 248227 D01, When there are multiple test channels with the same measured maximum output power, the channel closest to mid-band frequency is selected for SAR measurement and when there are multiple test channels with the same measured maximum output power and equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.
9. According to FCC KDB pub 941225 D06 this device has been tested with 10 mm distance to the phantom for operation in WiFi hot spot mode.
10. Per FCC KDB pub 941225 D06 the edges with antennas within 2.5 cm are required to be evaluated for SAR to cover WiFi hot spot function.
11. According to IEEE 1528 the SAR test shall be performed at middle channel. Testing of top and bottom channel is optional.
12. According to KDB 447498 D01 testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
    - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
    - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
    - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
13. IEEE 1528-2013 require the middle channel to be tested first. This generally applies to wireless devices that are designed to operate in technologies with tight tolerances for maximum output power variations across channels in the band. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.
14. Per KDB648474 D04 require when the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is < 1.2 W/kg.
15. Per KDB648474 D04 require when the separation distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, using the same wireless mode test configuration for voice and data, such as UMTS, LTE and Wi-Fi, and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface)
16. 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g SAR > 1.2 W/kg.
17. Per KDB648474 D04 require for phablet SAR test considerations，For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.
18. 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g SAR > 1.2 W/kg.

5.8. SAR Measurement Variability

According to KDB865664, Repeated measurements are required only when the measured SAR is ≥ 0.80 W/kg. If the measured SAR value of the initial repeated measurement is < 1.45 W/kg with ≤ 20% variation, only one repeated measurement is required to reaffirm that the results are not expected to have substantial variations, which may introduce significant compliance concerns. A second repeated measurement is required only if the measured result for the initial repeated measurement is within 10% of the SAR limit and vary by more than 20%, which are often related to device and measurement setup difficulties. The following procedures are applied to determine if repeated measurements are required. The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of

2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.19 The repeated measurement results must be clearly identified in the SAR report. All measured SAR, including the repeated results, must be considered to determine compliance and for reporting according to KDB 690783.Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.

1) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
2) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
3) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20

Band	RF Exposure Configuration	Test Position	Repeated SAR (yes/no)	Highest Measured SAR_{1-g} (W/Kg)	First Repeated	
					Measued SAR_{1-g} (W/Kg)	Largest to Smallest SAR Ratio
GSM850	Standalone	Body – Back	no	0.35	n/a	n/a
GSM1900	Standalone	Body – Back	no	0.46	n/a	n/a
WCDMA Band V	Standalone	Body – Back	no	0.38	n/a	n/a
LTE Band 2	Standalone	Body – Back	no	0.44	n/a	n/a
LTE Band 4	Standalone	Body – Back	no	0.30	n/a	n/a
LTE Band 7	Standalone	Body – Back	no	0.77	n/a	n/a
LTE Band 17	Standalone	Body – Back	no	0.23	n/a	n/a
2.4GWLAN	Standalone	Body – Back	no	0.10	n/a	n/a
5GWLAN	Standalone	Body – Back	no	0.13	n/a	n/a

Remark:

1. *Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the orignal and first repeated measurement is not > 1.20 or 3 (1-g or 10-g respectively)*

5.9. Measurement Uncertainty (300MHz-3GHz)

Not required as SAR measurement uncertainty analysis is required in SAR reports only when the highest measured SAR in a frequency band is ≥ 1.5 W/kg for 1-g SAR accoridng to KDB865664D01.

5.10. System Check Results

Date: 07/03/2017

DUT: Dipole 750MHz; Type: D750V2; Serial: D750V3 - SN: 1156
Program Name: System Performance Check Head at 750 MHz

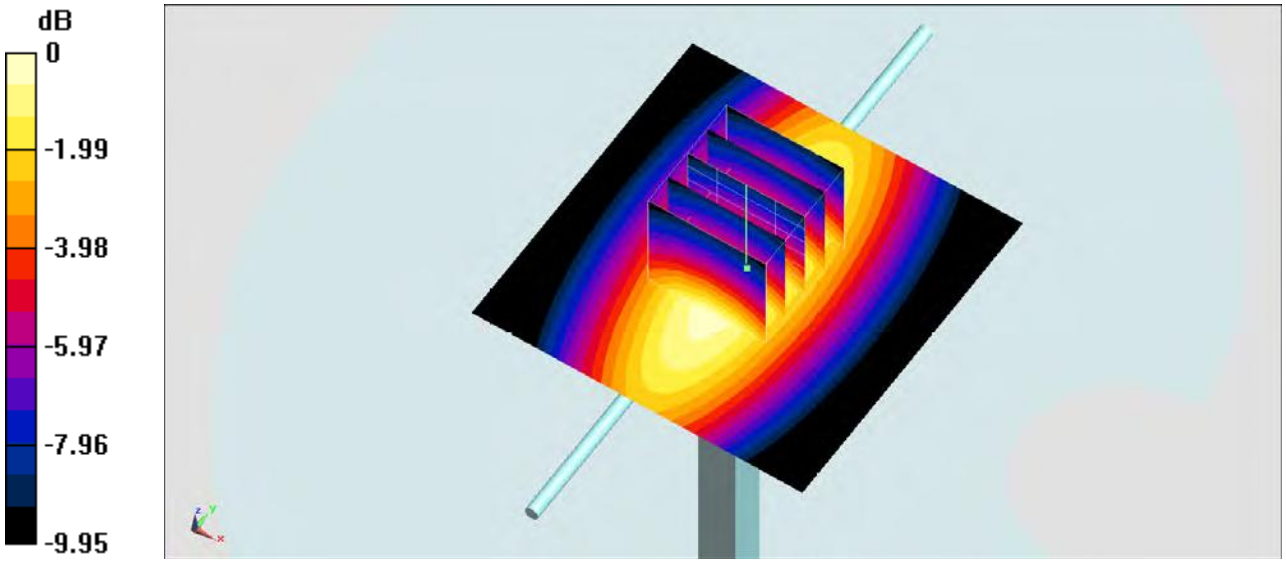
Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 750 MHz; σ = 0.89 S/m; εr = 41.01; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(6.76, 6.76, 6.76); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (61x91x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 2.60 mW/g

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7mm, dy=7mm, dz=5mm
Reference Value = 55.49 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.07 W/kg
SAR(1 g) = 2.08 W/kg; SAR(10 g) = 1.39 W/kg
Maximum value of SAR (measured) = 2.62 W/kg



Date: 07/03/2017

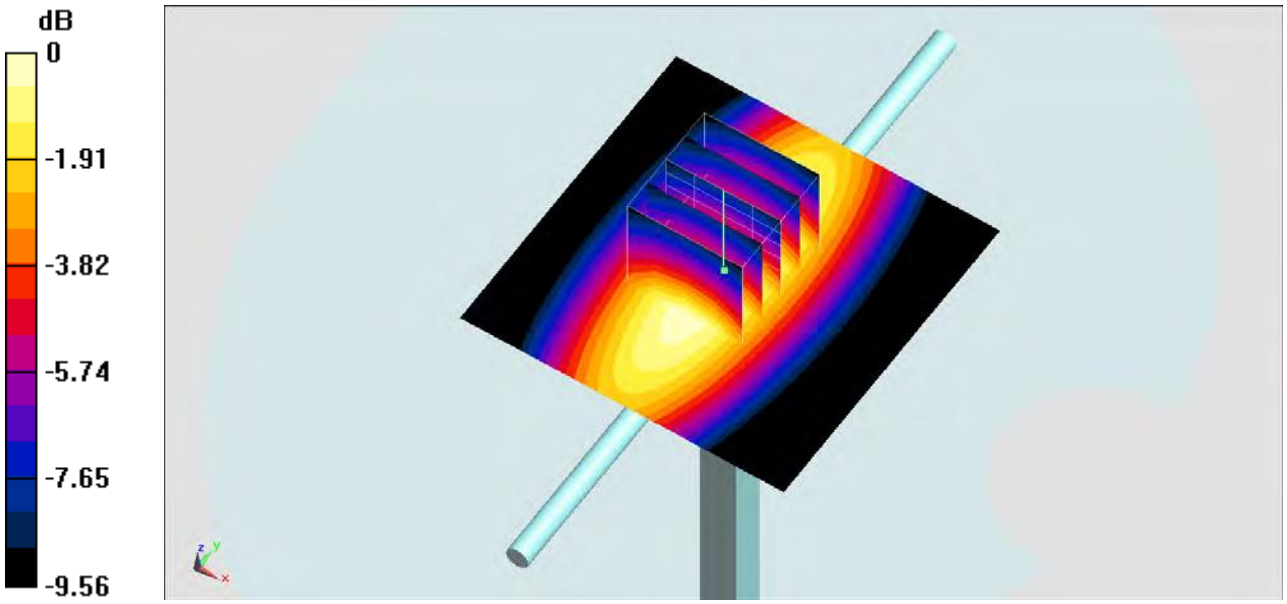
DUT: Dipole 750MHz; Type: D750V2; Serial: D750V3 - SN: 1156
Program Name: System Performance Check at 750 MHz Body

Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 750 MHz; σ = 0.97 S/m; εr = 57.87; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(6.25, 6.25, 6.25); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (61x91x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) =2.89 mW/g
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.70 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.87 W/kg
SAR(1 g) = 2.26 W/kg; SAR(10 g) = 1.46 W/kg
Maximum value of SAR (measured) = 2.89 W/kg



Date: 06/06/2017

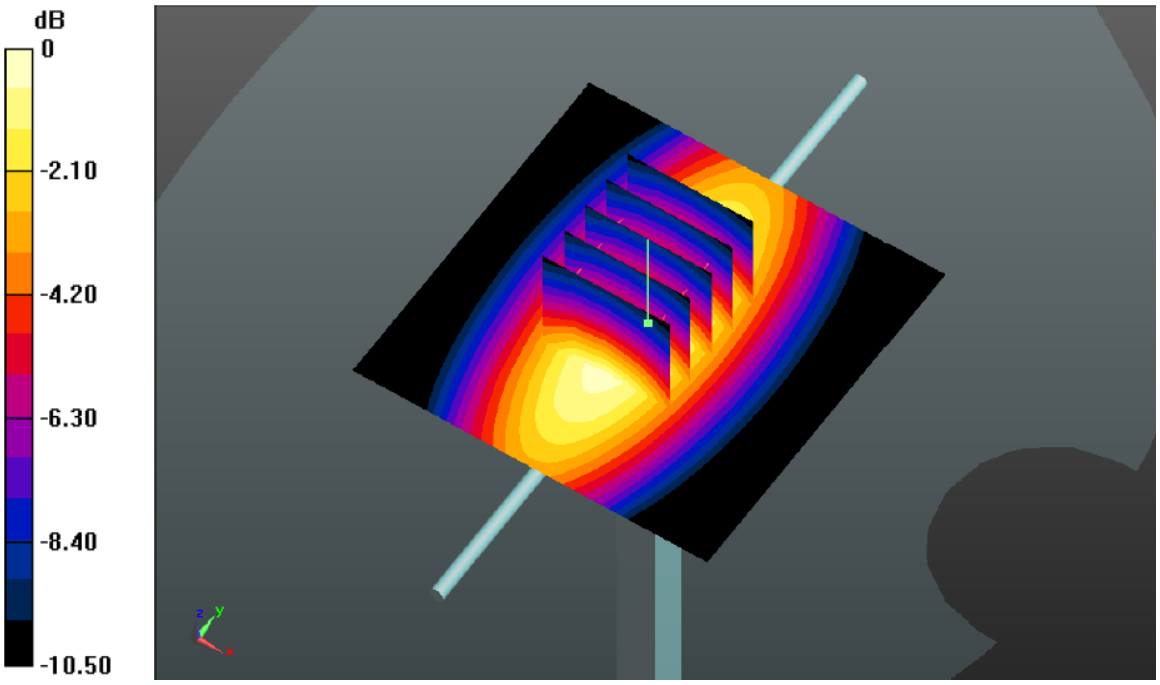
DUT: Dipole 835MHz; Type: D835V2; Serial: D835V2 - SN: 4d069
Program Name: System Performance Check Head at 835 MHz

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.95 mho/m; ε_r = 42.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(6.53, 6.53, 6.53); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW/Area Scan (61x131x1): Interpolated grid: dx=1.5mm, dy=1.5mm
Maximum value of SAR (interpolated) = 2.61 mW/g

d=15mm, Pin=250mW/Zoom Scan (7X7x7) Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.235 V/m; Power Drift = 0.07dB
Peak SAR (extrapolated) = 3.43 W/kg
SAR(1 g) = 2.26 mW/g; SAR(10 g) = 1.50 mW/g
Maximum value of SAR (measured) = 2.68 mW/g



Date: 06/06/2017

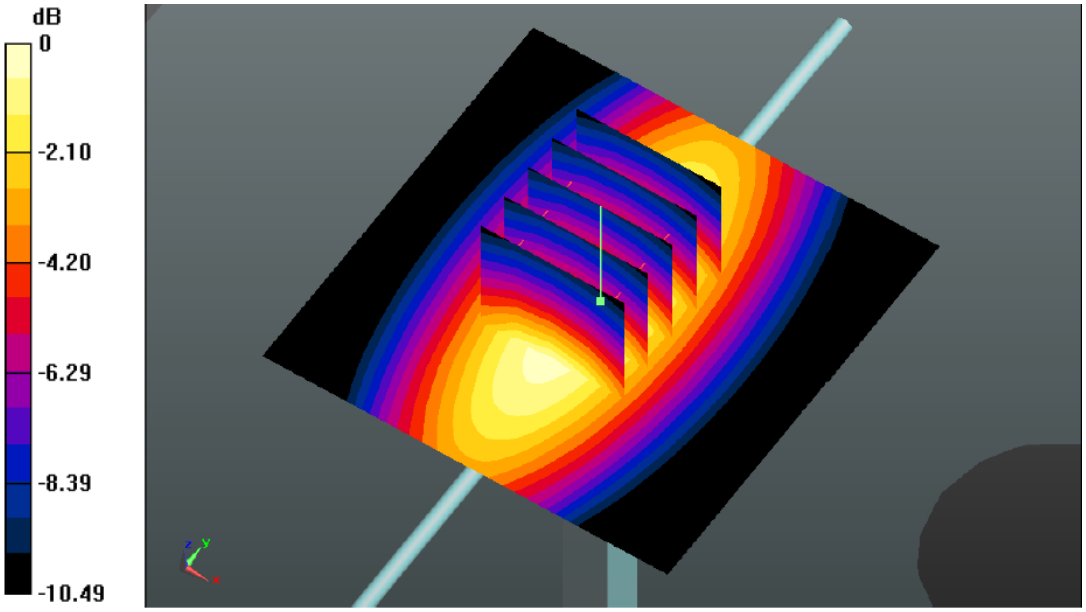
DUT: Dipole 835MHz; Type: D835V2; Serial: D835V2 - SN: 4d069
Program Name: System Performance Check at 835 MHz Body

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 1.02 mho/m; ε_r = 57.01; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(6.27, 6.27, 6.27); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW/Area Scan (61x131x1): Interpolated grid: dx=1.5mm, dy=1.5mm
Maximum value of SAR (interpolated) = 2.849 mW/g

d=15mm, Pin=250mW/Zoom Scan (7X7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.585 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 3.871 W/kg
SAR(1 g) = 2.53 mW/g; SAR(10 g) = 1.65 mW/g
Maximum value of SAR (measured) = 3.302 mW/g



Date: 06/09/2017

DUT: Dipole 1750MHz; Type: D1750V2; Serial: D1750V2
Program Name: System Performance Check Head at 1750 MHz

Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f =1750 MHz; σ =1.41 S/m; εr =40.73; ρ =1000 kg/m3
Phantom section: Flat Section

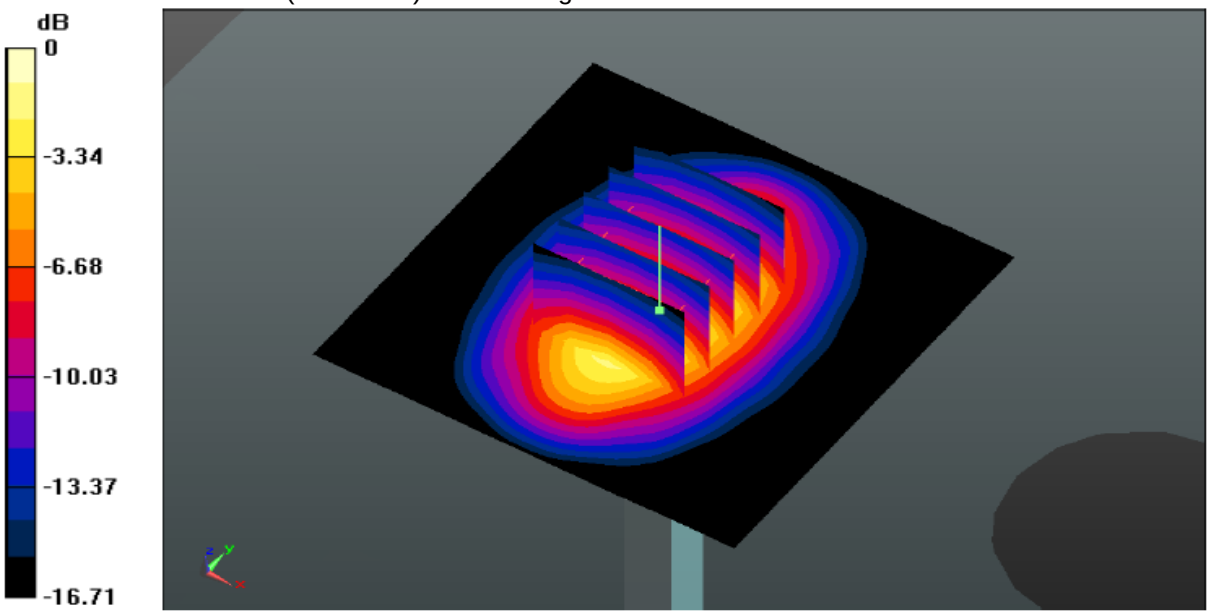
DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(5.54,5.54,5.54); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (61x91x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 12.6 W/kg

Zoom Scan (7x7x5)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.561 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 16.828 mW/g

SAR(1 g) =9.62 mW/g; SAR(10 g) = 4.98 mW/g

Maximum value of SAR (measured) = 13.0 W/kg



Date: 06/09/2017

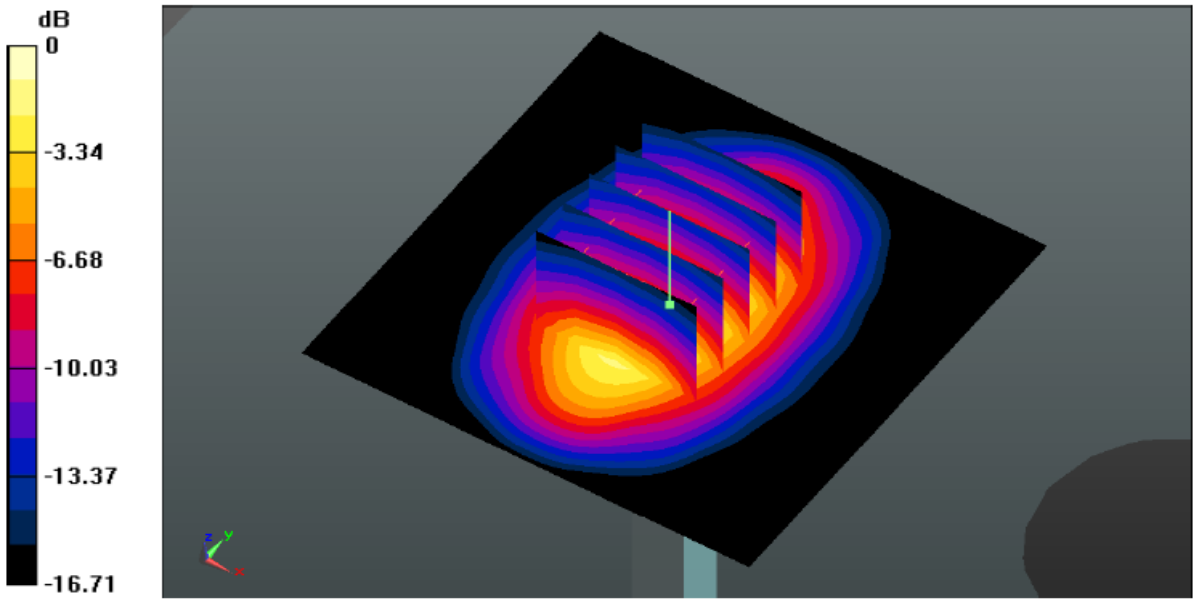
DUT: Dipole 1750MHz; Type: D1750V2; Serial: D1750V2
Program Name: System Performance Check at Body 1750 MHz

Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f =1750 MHz; σ =1.44 S/m; εr =53.52; ρ =1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(5.28,5.28,5.28); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

AreaScan(61x61x1): Measurementgrid:dx=15mm,dy=15mm
MaximumvalueofSAR(interpolated)=13.354mW/g

ZoomScan(5x5x7)/Cube0: Measurementgrid:dx=8mm,dy=8mm,dz=5mm
ReferenceValue=87.582V/m;PowerDrift=-0.06dB
Peak SAR (extrapolated) = 16.752 W/kg
SAR(1 g) = 9.30 mW/g; SAR(10 g) = 4.99 mW/g
Maximum value of SAR (measured) = 13.273 mW/g



Date: 06/12/2017

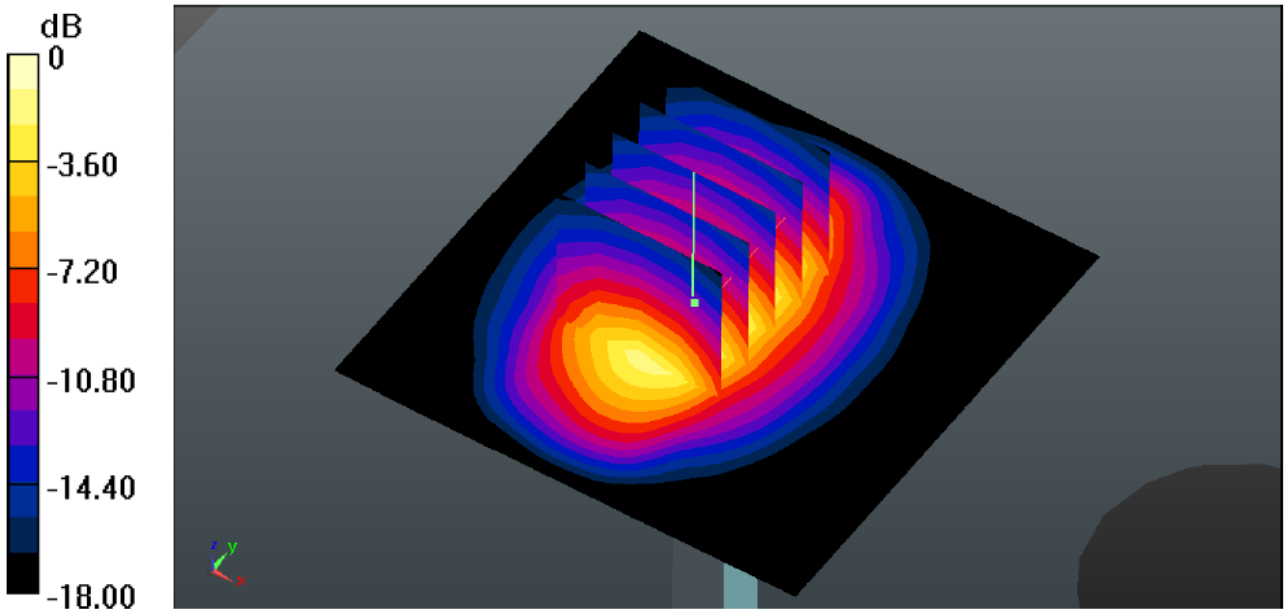
DUT: Dipole 1900MHz; Type: D1900V2; Serial: 5d194
Program Name: System Performance Check Head at 1900 MHz

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.44 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(6.40, 6.40, 6.40); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW/Area Scan (61x131x1): Interpolated grid: dx=1.5mm, dy=1.5mm
Maximum value of SAR (interpolated) = 13.476 mW/g

d=15mm, Pin=250mW/Zoom Scan Scan (7X7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.267 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 19.227 W/kg
SAR(1 g) = 10.35 mW/g; SAR(10 g) = 5.32 mW/g
Maximum value of SAR (measured) = 13.5 mW/g



Date: 06/12/2017

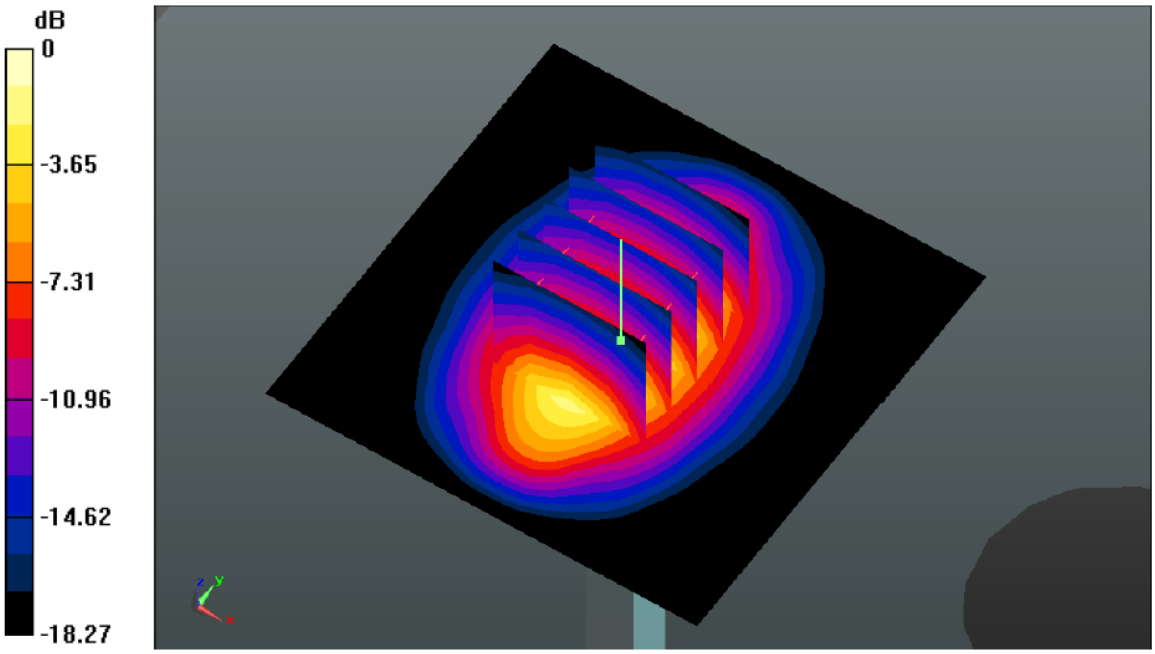
DUT: Dipole 1900MHz; Type: D1900V2; Serial: 5d194
Program Name: System Performance Check at Body 1900 MHz

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.58 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(5.05, 5.05, 5.05); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW/Area Scan (61x131x1): Interpolated grid: dx=1.5mm, dy=1.5mm
Maximum value of SAR (interpolated) = 13.4 mW/g

d=15mm, Pin=250mW/Zoom Scan (5X5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 91.52 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 18.7 W/kg
SAR(1 g) = 9.95 mW/g; SAR(10 g) = 5.09 mW/g
Maximum value of SAR (measured) = 12.8 mW/g



Date: 06/16/2017

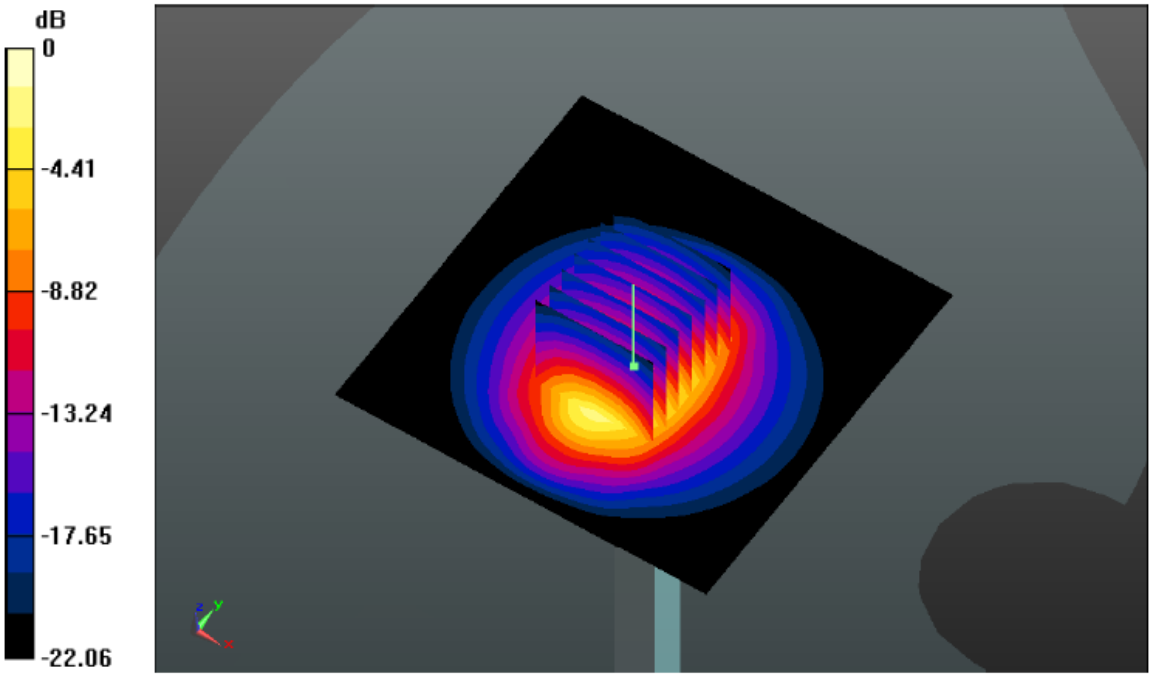
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 955
Program Name: System Performance Check Head at 2450 MHz

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.83 mho/m; ε_r = 38.19; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(4.97, 4.97, 4.97); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW/Area Scan (61x131x1): Interpolated grid: dx=1.2mm, dy=1.2mm
Maximum value of SAR (interpolated) = 16.7 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 87.0 V/m; Power Drift = 0.019 dB
Peak SAR (extrapolated) = 30.7 W/kg
SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.45 mW/g
Maximum value of SAR (measured) = 16.2 mW/g



Date: 06/16/2017

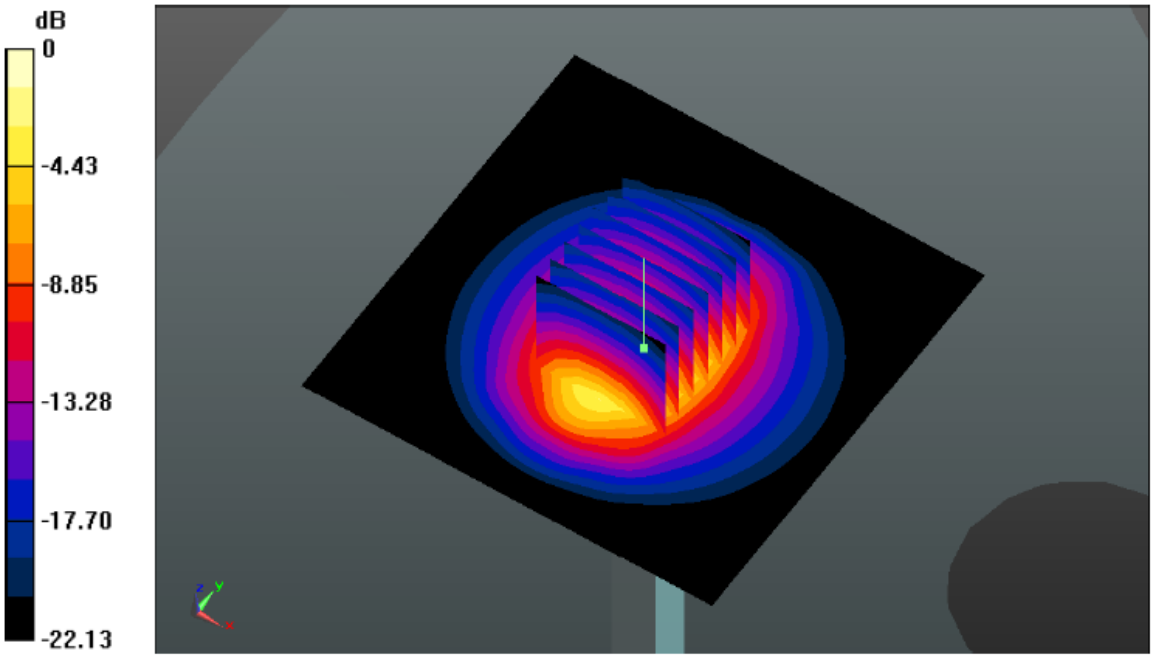
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 955
Program Name: System Performance Check Body at 2450 MHz

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.90 mho/m; ε_r = 50.59; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(4.70, 4.70, 4.70); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW/Area Scan (91x91x1): Interpolated grid: dx=1.2mm, dy=1.2mm
Maximum value of SAR (interpolated) = 16.2 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.5 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 27.0 W/kg
SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.34 mW/g
Maximum value of SAR (measured) = 15.4 mW/g



Date: 06/21/2017

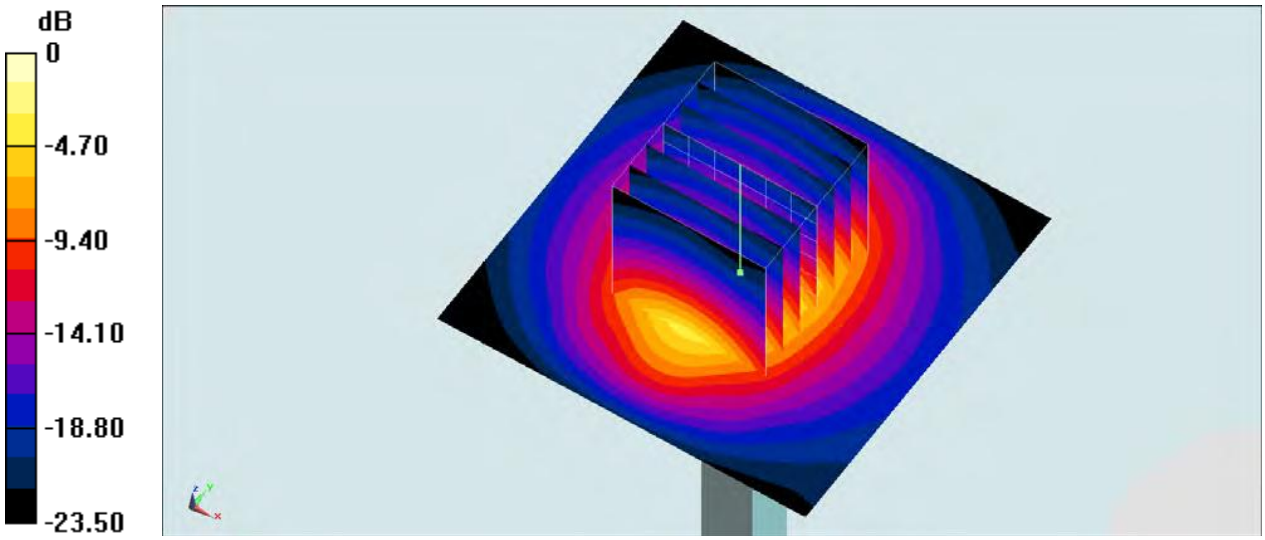
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1120
Program Name: System Performance Check Head at 2600 MHz

Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 2600 MHz; σ = 1.93S/m; εr = 38.83; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(4.77,4.77,4.77); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (61x91x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 22.8 mW/g
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 110.2 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 33.1 W/kg
SAR(1 g) = 14.2 W/kg; SAR(10 g) = 6.29 W/kg
Maximum value of SAR (measured) = 25.6 W/kg



Date: 06/21/2017

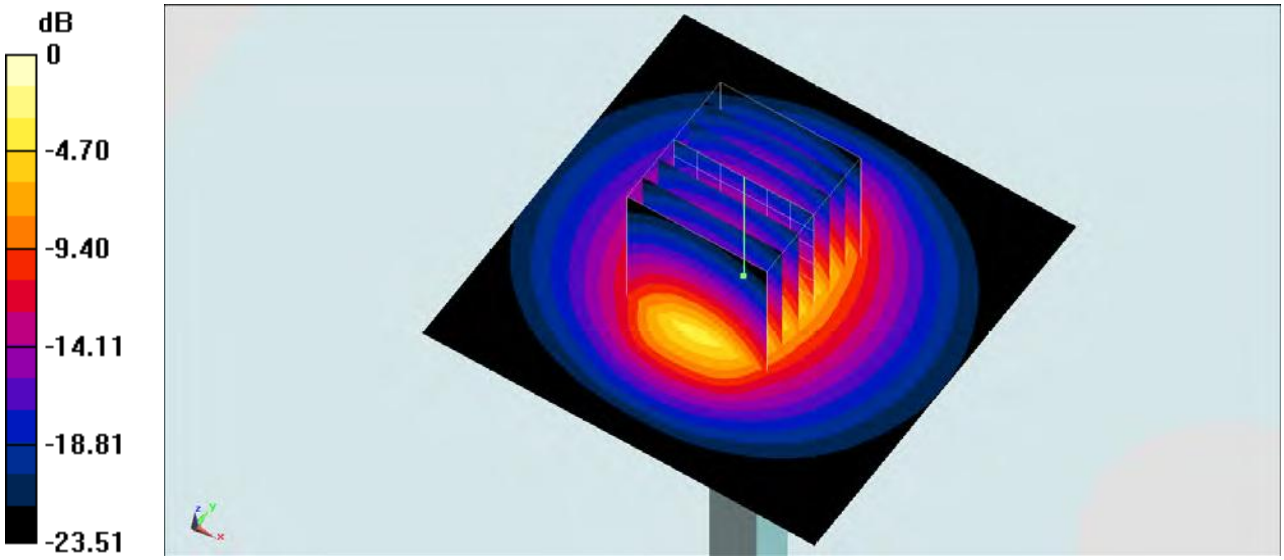
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1120
Program Name: System Performance Check Body at 2600 MHz

Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 2600 MHz; σ = 2.14S/m; εr = 51.12; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(4.52,4.52,4.52); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (61x91x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 24.6 mW/g
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 108.4 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 30.0 W/kg
SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.01 W/kg
Maximum value of SAR (measured) = 23.8 W/kg



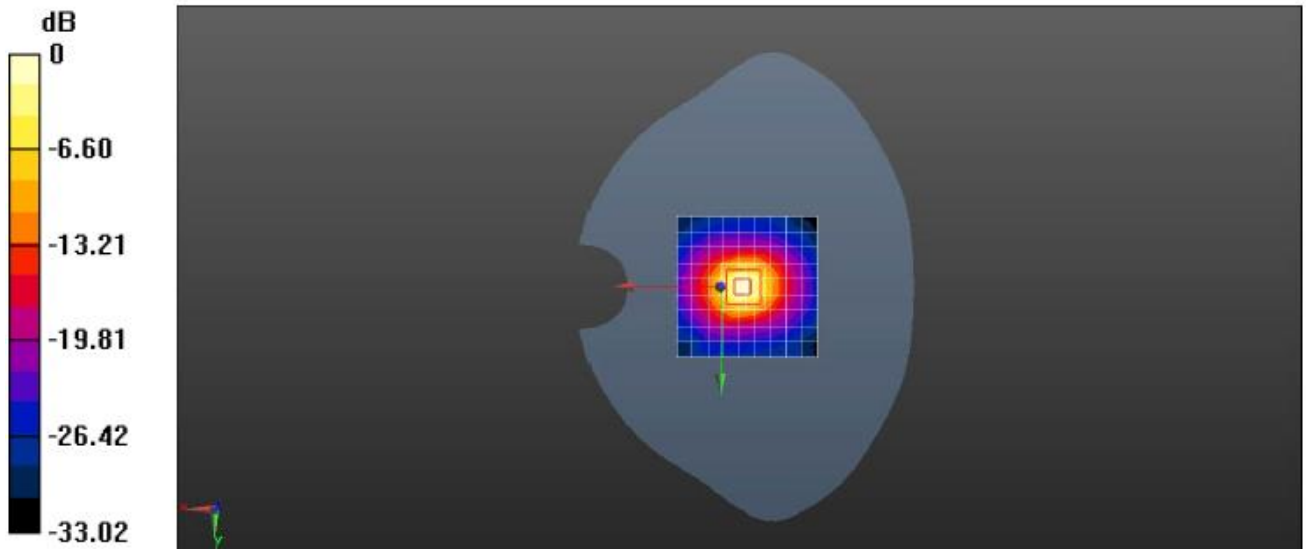
Date: 06/28/2017

Program Name: System Performance Check Head at 5200 MHz

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 4.64 mho/m; εr = 36.7; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: EX3DV4 - SN3836; ConvF(5.32,5.32,5.32);
-Sensor-Surface: 3mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan(61x91x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 9.67 W/kg
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=4mm
Reference Value = 60.64 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 32.73 W/kg
SAR(1 g) = 8.18 W/kg; SAR(10 g) = 2.32 W/kg
Maximum value of SAR (measured) = 9.70 W/kg



System Performance Check 5200MHz 100mW

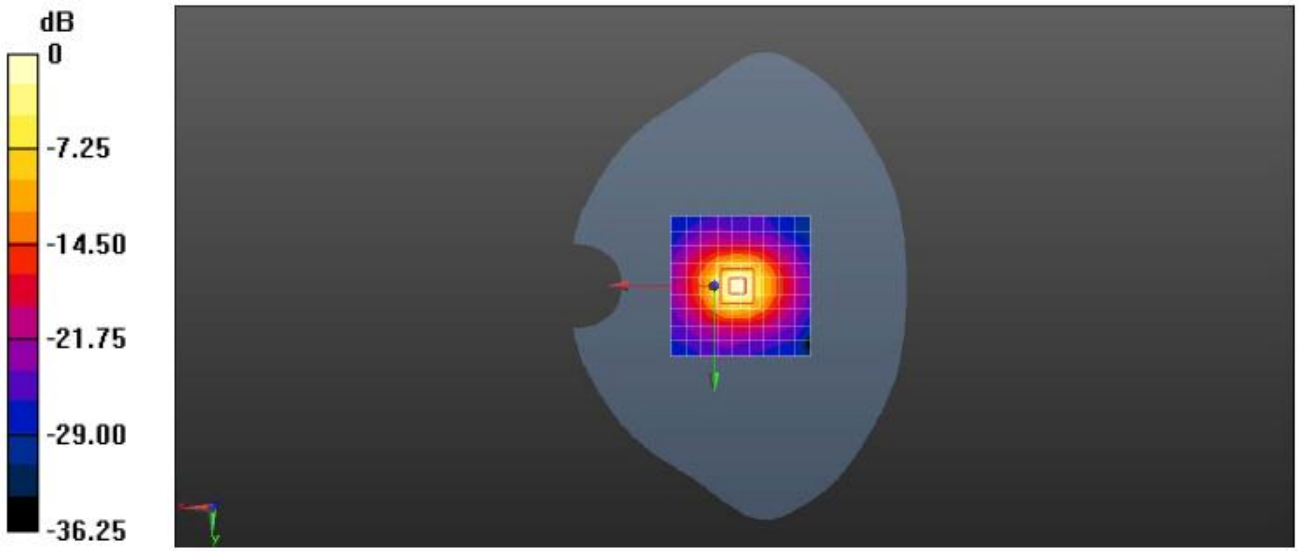
Date: 06/28/2017

Program Name: System Performance Check Body at 5200 MHz

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.107 mho/m; εr = 50.47; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: EX3DV4 - SN3836; ConvF(4.83,4.83,4.83);
-Sensor-Surface: 3mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (61x91x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 9.05 W/kg
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=4mm
Reference Value = 60.064 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 33.36 W/kg
SAR(1 g) = 7.48 W/kg; SAR(10 g) = 2.12 W/kg
Maximum value of SAR (measured) = 9.13 W/kg



System Performance Check 5200MHz 100mW

5.11. SAR Test Graph Results

SAR plots for **the highest measured SAR** in each exposure configuration, wireless mode and frequency band combination according to FCC KDB 865664 D02

#1

Date: 06/06/2017

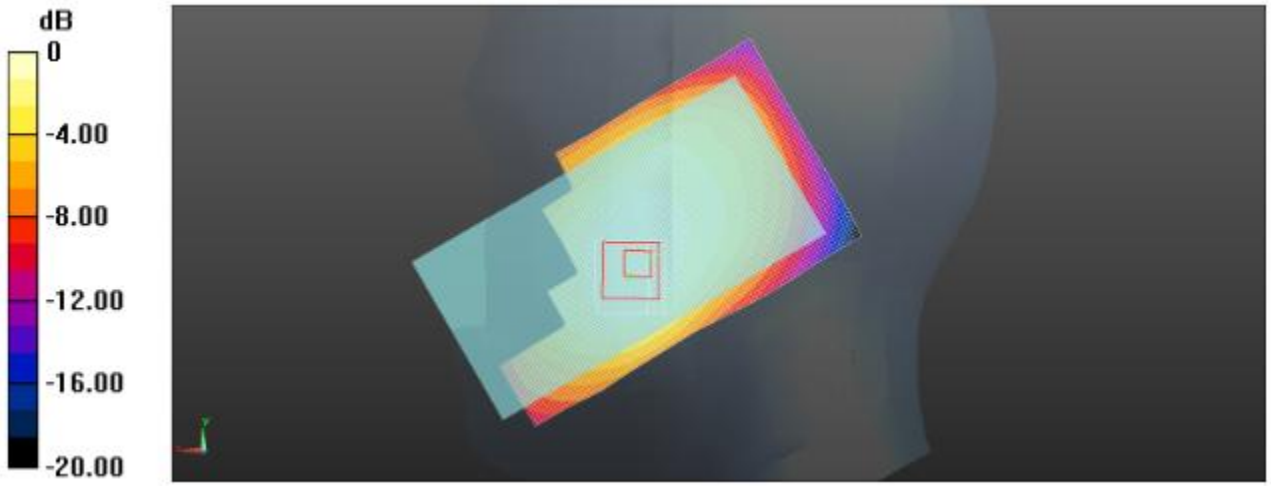
DUT: DK66; Serial: IMEI Number
Program Name: DK66

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(6.53, 6.53,6.53); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) =0.224 W/kg

Zoom Scan (5x5x6)/Cube 0: Measurement grid: dx=7mm, dy=7mm, dz=5mm
Reference Value = 7.676 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.228 mW/g
SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.093 mW/g
Maximum value of SAR (measured) = 0.202 W/kg



#2

Date: 06/06/2017

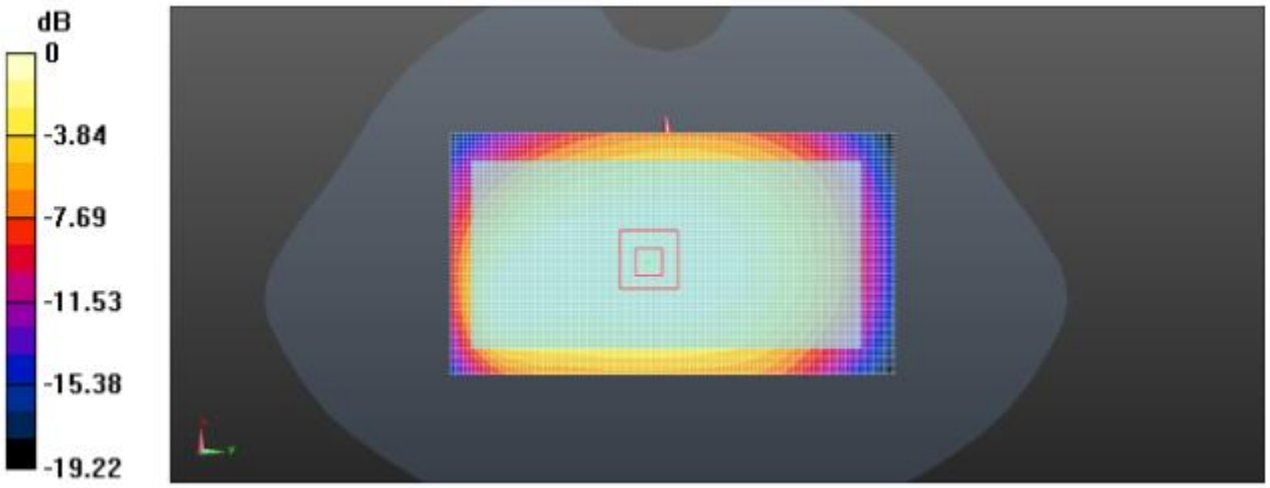
DUT: DK66; Serial: IMEI Number
Program Name: DK66

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.02 mho/m; ε_r = 56.92; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(6.27, 6.27,6.27); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.329 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.778 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.451 mW/g
SAR(1 g) = 0.325 mW/g; SAR(10 g) = 0.198 mW/g
Maximum value of SAR (measured) = 0.331 W/kg



#3

Date: 06/12/2017

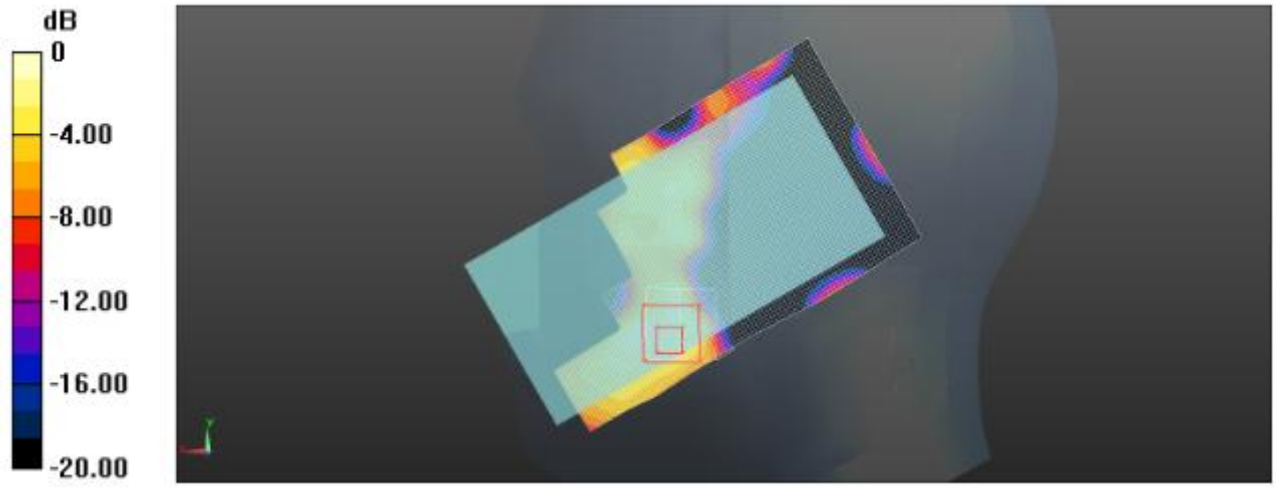
DUT: DK66; Serial: IMEI Number
Program Name: DK66

Communication System: GSM 1900; Frequency: 1880MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.44 mho/m; εr = 41.30; ρ = 1000 kg/m3
Phantom section: Right Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(5.26, 5.26,5.26); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.234 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.562 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.314 mW/g
SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.105 mW/g
Maximum value of SAR (measured) = 0.232 W/kg



#4

Date: 06/12/2017

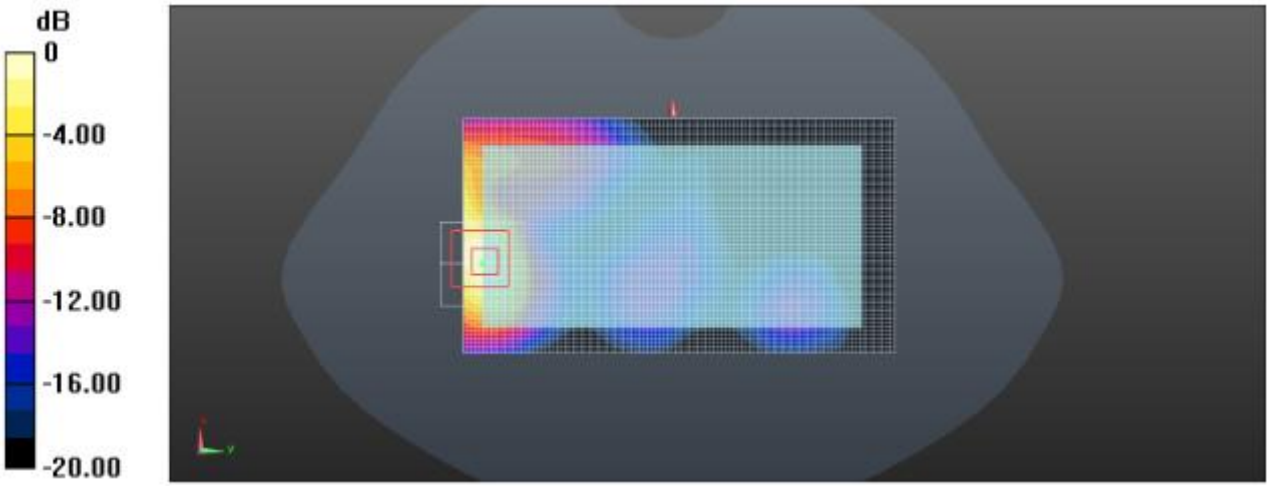
DUT: DK66; Serial: IMEI Number
Program Name: DK66

Communication System: GPRS1900; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.58 mho/m; εr = 55.20; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(5.05, 5.05,5.05); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) =0.527 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.212 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.764 mW/g
SAR(1 g) = 0.428 mW/g; SAR(10 g) = 0.224 mW/g
Maximum value of SAR (measured) = 0.516 W/kg



#5

Date: 06/06/2017

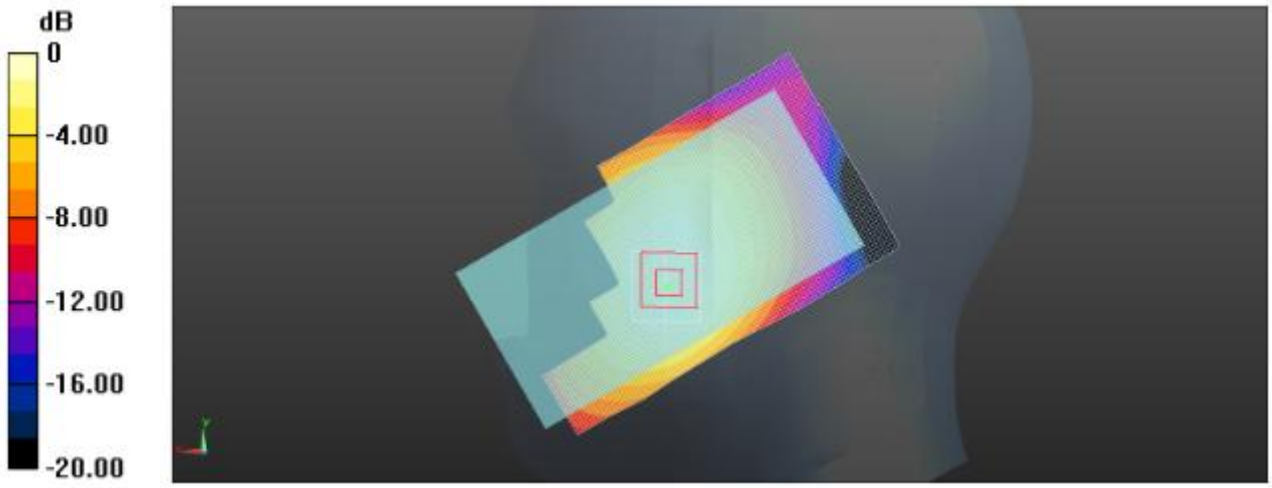
DUT: DK66; Serial: IMEI Number
Program Name: DK66

Communication System: W850; Frequency: 836.6MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.95 mho/m; εr = 42.80; ρ = 1000 kg/m3
Phantom section: Right Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(6.53, 6.53,6.53); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) =0.123 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.686 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.138 mW/g
SAR(1 g) = 0.117 mW/g; SAR(10 g) = 0.093 mW/g
Maximum value of SAR (measured) = 0.122 W/kg



#6

Date: 06/06/2017

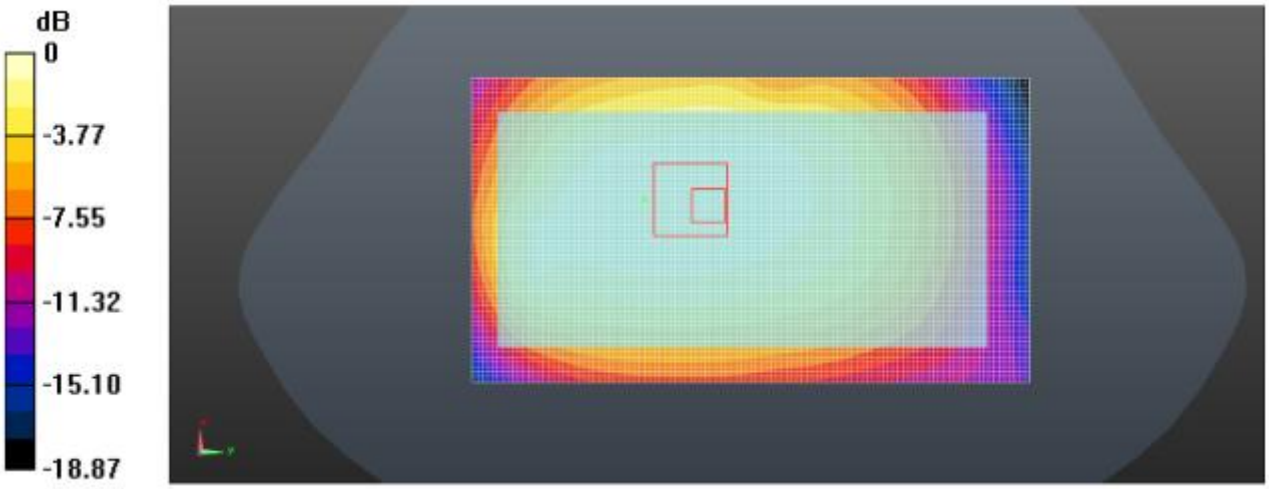
DUT: DK66; Serial: IMEI Number
Program Name: DK66

Communication System: W850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.02 mho/m; εr = 57.01; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(6.27, 6.27,6.27); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) =0.431W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.138 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.602 mW/g
SAR(1 g) = 0.339 mW/g; SAR(10 g) = 0.198 mW/g
Maximum value of SAR (measured) = 0.434 W/kg



#7

Date: 06/12/2017

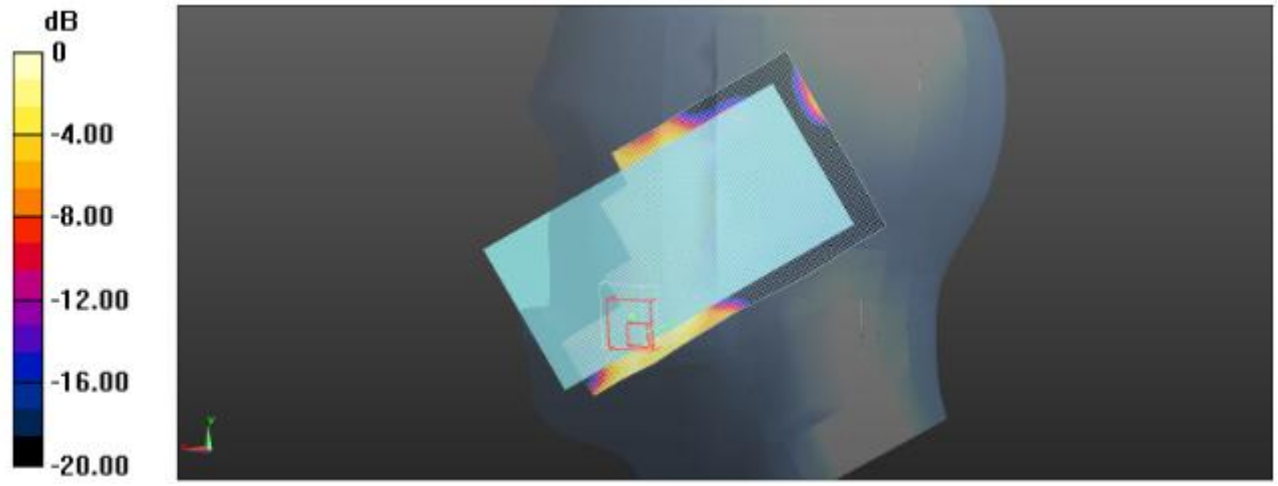
DUT: DK66; Serial: IMEI Number
Program Name: DK66

Communication System: Customer System; Frequency: 1880.0 MHz;Duty Cycle:1:1
Medium parameters used (interpolated): f =1880.0 MHz; σ = 1.41 mho/m; ε = 40.01; ρ=1000 kg/m3

Phantom section: Left Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(5.26,5.26,5.26); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.162W/kg
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.685 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.258 mW/g
SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.095 mW/g
Maximum value of SAR (measured) = 0.157 W/kg



#8

Date: 06/12/2017

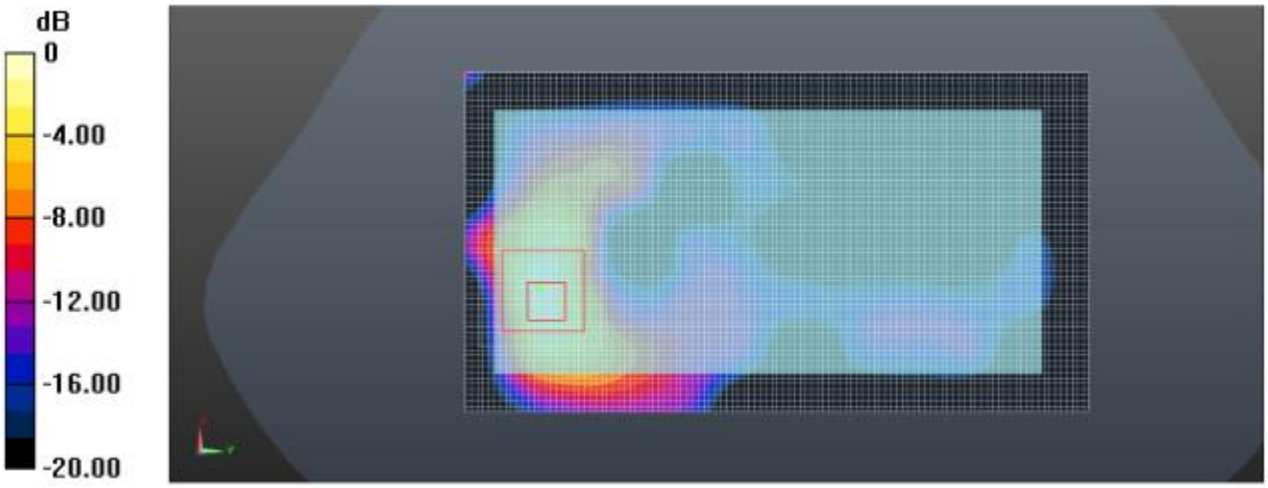
DUT: DK66; Serial: IMEI Number
Program Name: DK66

Communication System: Customer System; Frequency: 1880.0 MHz;Duty Cycle:1:1

Medium parameters used (interpolated): f=1880.0 MHz; σ=1.51S/m; εr=53.21; ρ=1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(5.05,5.05,5.05); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.445 W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.380 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.556 mW/g
SAR(1 g) = 0.405 mW/g; SAR(10 g) = 0.194 mW/g
Maximum value of SAR (measured) = 0.437 W/kg



#9

Date: 06/092017

DUT: DK66; Serial: IMEI Number
Program Name: DK66

Communication System: Generic LTE; Frequency: 1732.5 MHz;Duty Cycle: 1:1

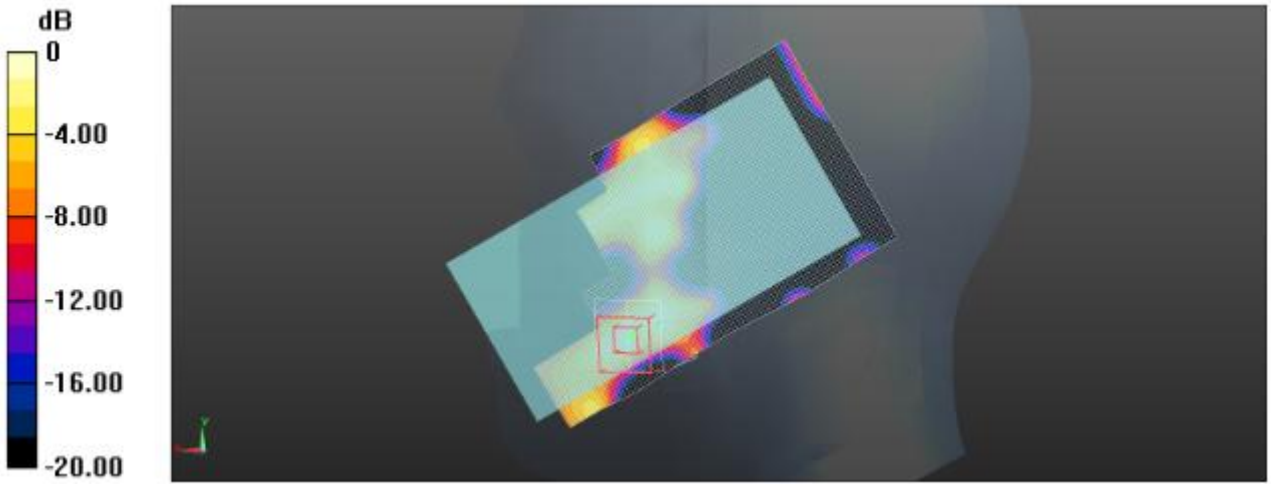
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.363 mho/m; εr = 40.136; ρ = 1000 kg/m3
Phantom section: Left Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(5.54,5.54,5.54); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) =0.192 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =2.853 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.265 mW/g
SAR(1 g) = 0.132 mW/g; SAR(10 g) = 0.104 mW/g

Maximum value of SAR (measured) = 0.185 W/kg



#10

Date: 06/092017

DUT: DK66; Serial: IMEI Number
Program Name: DK66

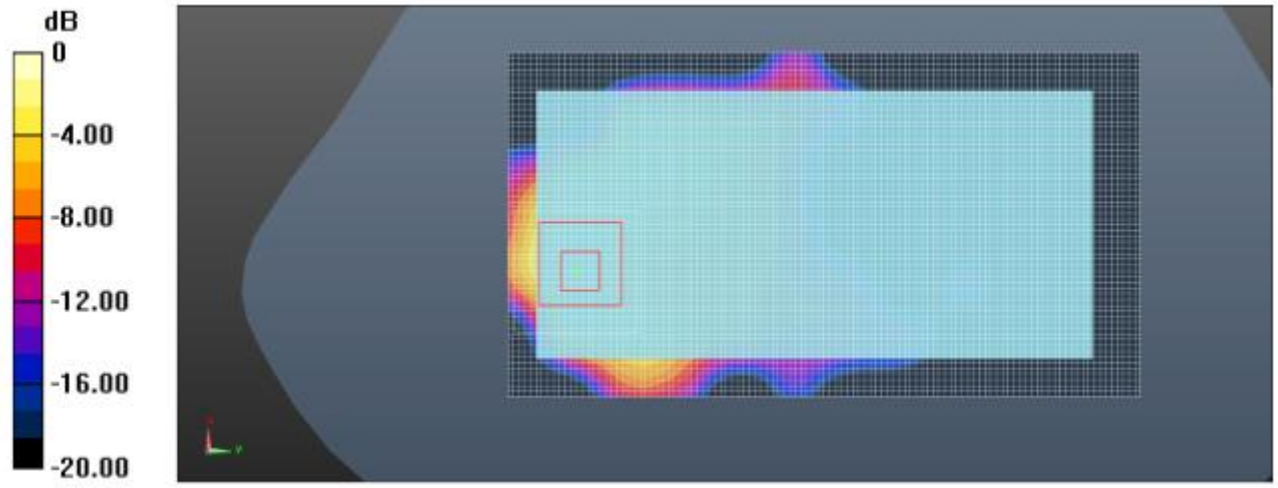
Communication System: Generic LTE; Frequency: 1732.5 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.459 mho/m; εr = 53.239; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(5.28,5.28,5.28); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) =0.306W/kg
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.849 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.480 mW/g
SAR(1 g) = 0.270 mW/g; SAR(10 g) = 0.138 mW/g

Maximum value of SAR (measured) = 0.306 W/kg



#11

Date: 06/21/2017

DUT: DK66; Serial: IMEI Number
Program Name: DK66

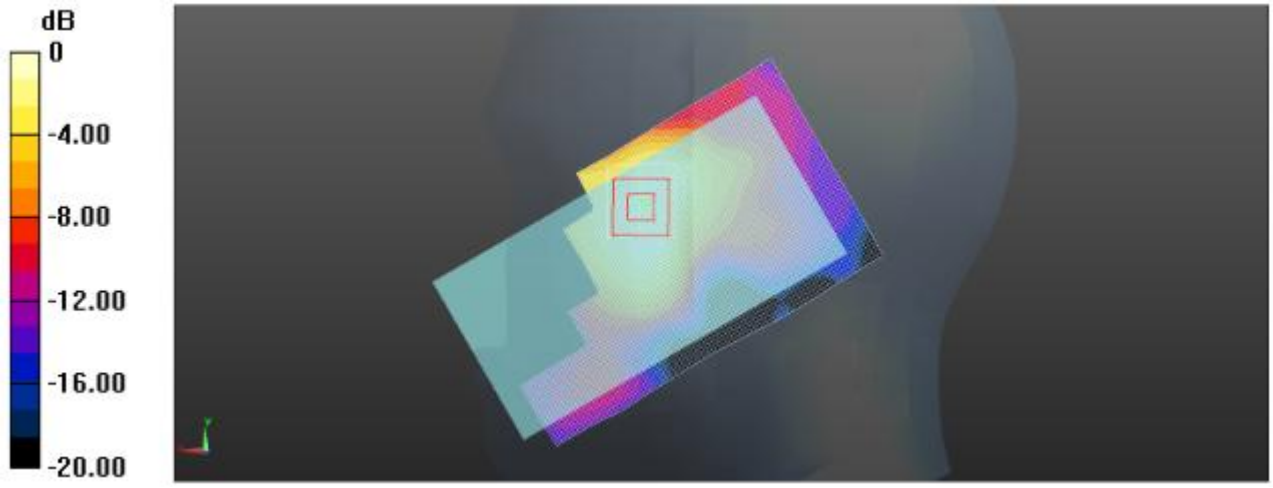
Communication System: Customer System; Frequency: 2535.0 MHz;Duty Cycle:1:1

Medium parameters used (interpolated): f =2535.0 MHz; σ = 1.91 mho/m; ε = 39.01; ρ=1000 kg/m3
Phantom section: Left Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(4.77, 4.77, 4.77); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) =0.359 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.618 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.410 mW/g
SAR(1 g) = 0.253 mW/g; SAR(10 g) = 0.128 mW/g
Maximum value of SAR (measured) = 0.365 W/kg



#12

Date: 06/21/2017

DUT: DK66; Serial: IMEI Number
Program Name: DK66

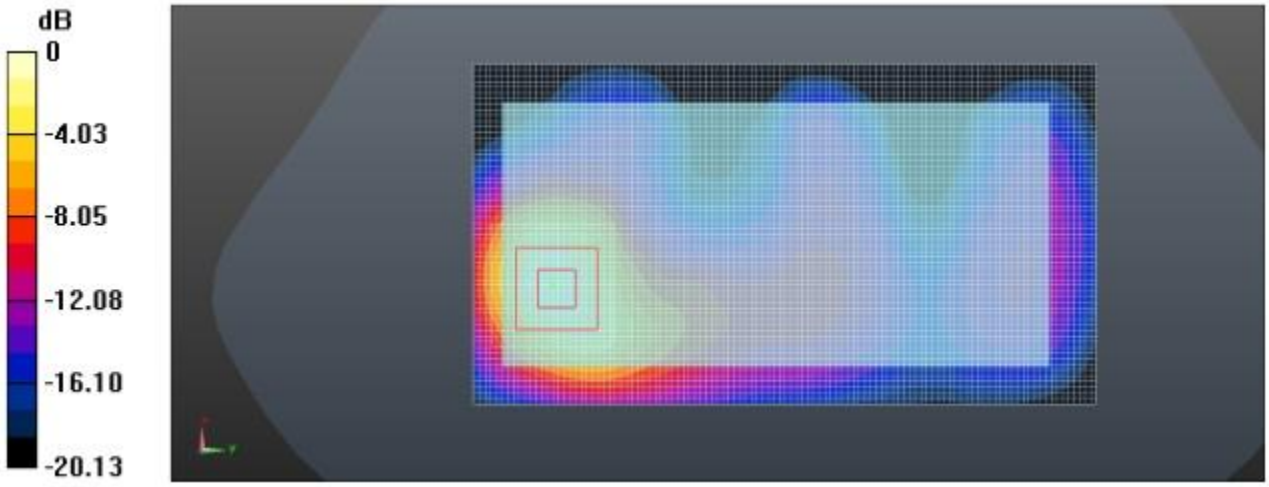
Communication System: Generic LTE; Frequency: 2535 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2535 MHz; σ = 1.99 mho/m; εr = 52.49; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(4.52,4.52,4.52); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) =0.769W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.268 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 1.851 mW/g
SAR(1 g) = 0.711 mW/g; SAR(10 g) = 0.291 mW/g
Maximum value of SAR (measured) = 0.793 W/kg



#13

Date: 07/03/2017

DUT: DK66; Serial: IMEI Number
Program Name: DK66

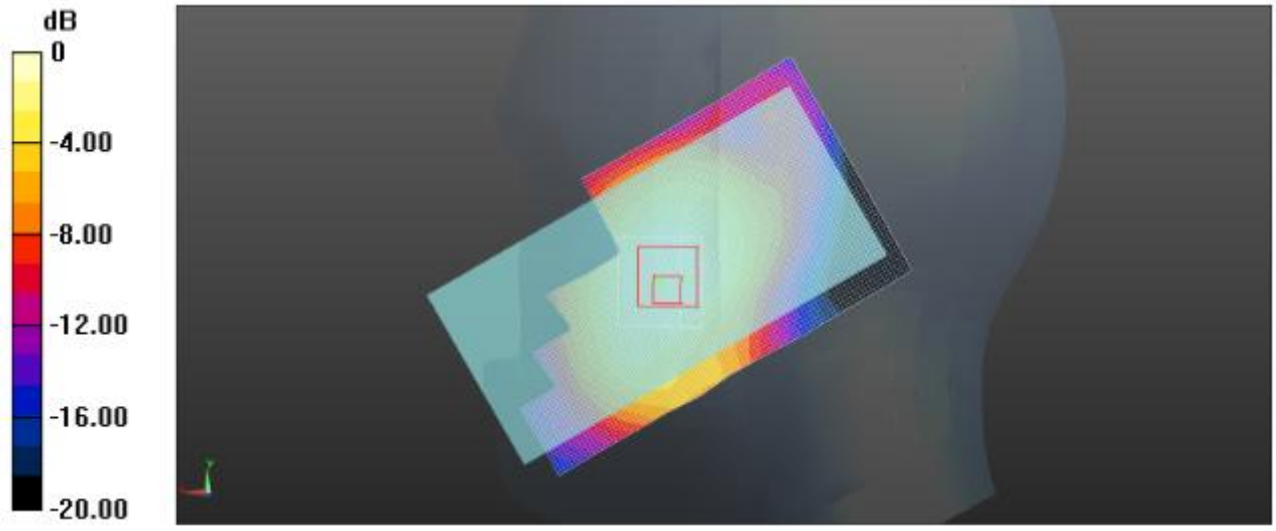
Communication System: Generic LTE; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 710 MHz; σ = 0.88 mho/m; εr = 42.41; ρ = 1000 kg/m3

Phantom section: Left Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(6.76, 6.76, 6.76); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0384 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.295 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.046 mW/g
SAR(1 g) = 0.036 mW/g; SAR(10 g) = 0.029 mW/g
Maximum value of SAR (measured) = 0.0382 W/kg



#14

Date: 07/03/2017

DUT: DK66; Serial: IMEI Number
Program Name: DK66

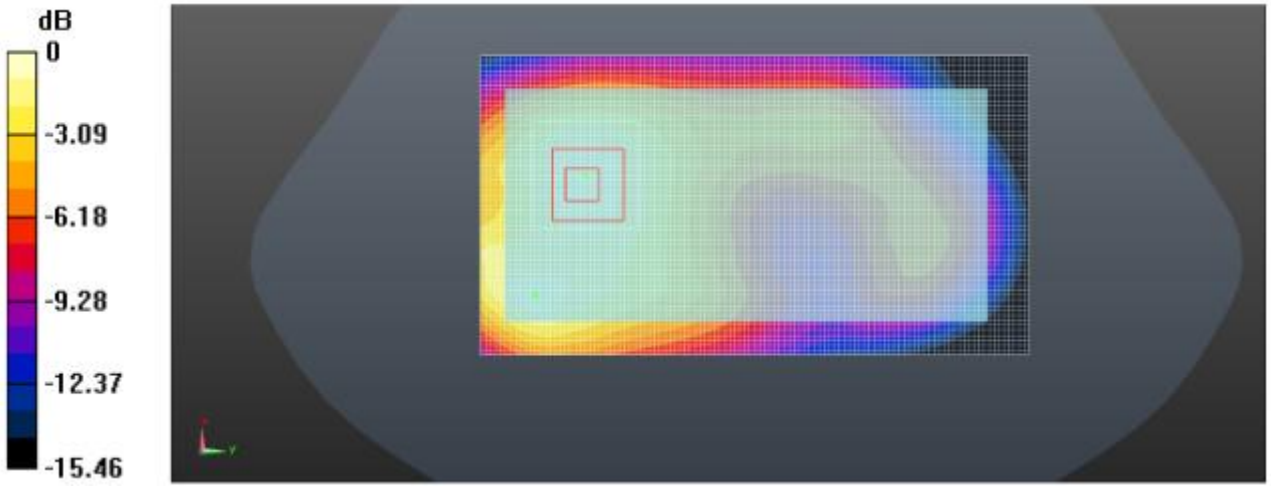
Communication System: Generic LTE; Frequency: 710 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 710 MHz; σ = 0.96 mho/m; εr = 55.412; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(6.25, 6.25, 6.25); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.267 W/kg

Zoom Scan (5x5x6)/Cube 0: Measurement grid: dx=7mm, dy=7mm, dz=5mm
Reference Value = 9.042 V/m; Power Drift = 0.11dB
Peak SAR (extrapolated) = 0.388 W/kg
SAR(1 g) = 0.204 W/kg; SAR(10 g) = 0.105 W/kg
Maximum value of SAR (measured) = 0.274 W/kg



#15

Date: 06/16/2017

DUT: DK66; Serial: IMEI Number
Program Name: DK66

Communication System: 802.11; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.81 mho/m; εr = 37.80; ρ = 1000 kg/m3
Phantom section: Left Section

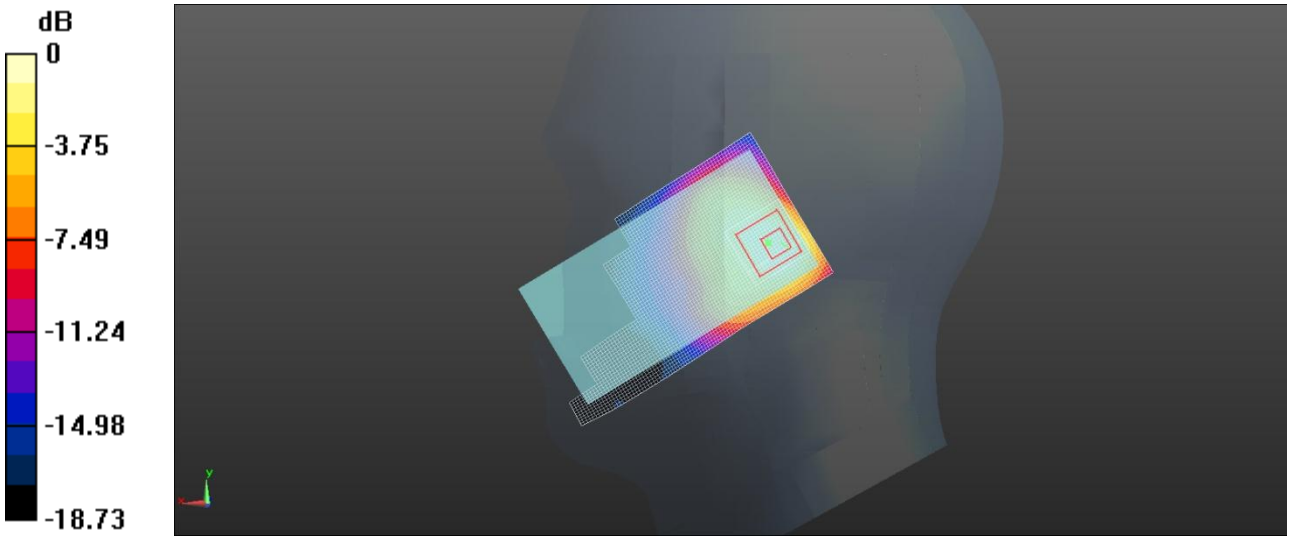
DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(4.97, 4.97,4.97); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Left Cheek/Area Scan (51x101x1): Interpolated grid: dx=1.2mm, dy=1.2mm
Maximum value of SAR (interpolated) = 0.227 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =2.866 V/m; Power Drift =-0.05 dB
Peak SAR (extrapolated) = 0.257 mW/g

SAR(1 g) = 0.106 mW/g; SAR(10 g) = 0.084 mW/g

Maximum value of SAR (measured) = 0.224 W/kg



#16

Date: 06/16/2017

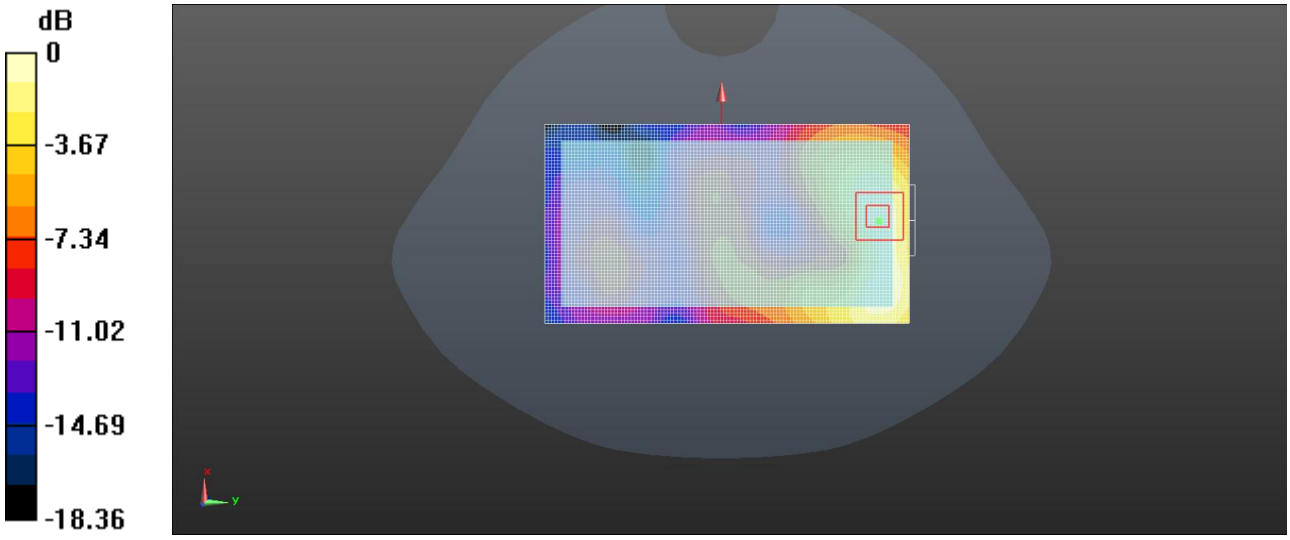
DUT: DK66; Serial: IMEI Number
Program Name: DK66

Communication System: 802.11; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.88 mho/m; εr = 52.18; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: ES3DV3 - SN3292;ConvF(4.70, 4.70,4.70); Calibrated: 09/02/2016;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.118 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.244 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.152 mW/g
SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.056 mW/g
Maximum value of SAR (measured) = 0.126 W/kg



#17

Date: 06/28/2017

DUT: DK66; Serial: IMEI Number
Program Name: DK66

Communication System: Customer System; Frequency: 5240 MHz;Duty Cycle:1:1
Medium parameters used: f = 5240 MHz; σ = 4.64 mho/m; εr = 36.7; ρ = 1000 kg/m3

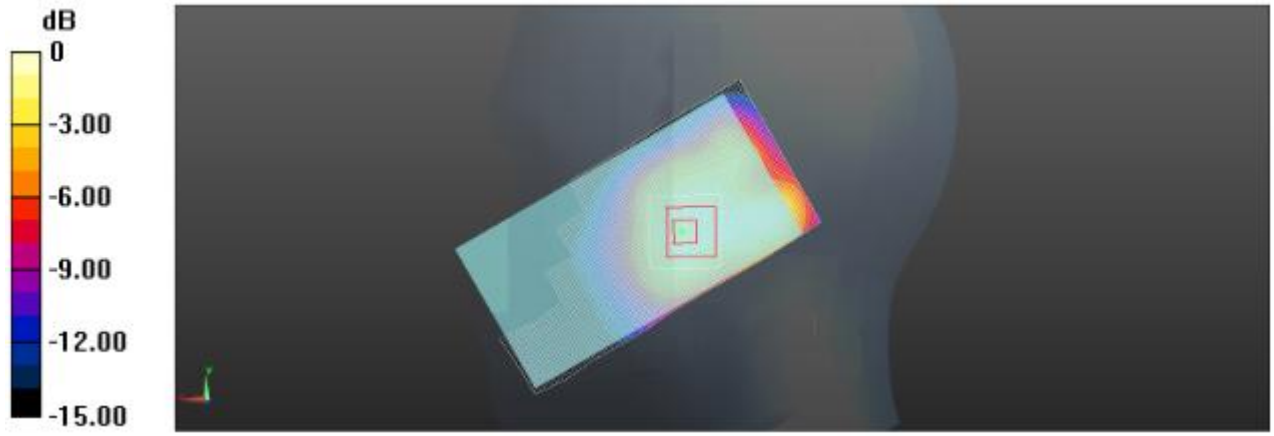
Phantom section: Left Section

DASY5 Configuration:
-Probe: EX3DV4 - SN3836; ConvF(5.32,5.32,5.32);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.288 W/kg

Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=4mm
Reference Value = 12.23 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.310 mW/g
SAR(1 g) = 0.169 mW/g; SAR(10 g) = 0.117 mW/g

Maximum value of SAR (measured) = 0.287 W/kg



#18

Date: 06/28/2017

DUT: DK66; Serial: IMEI Number
Program Name: DK66

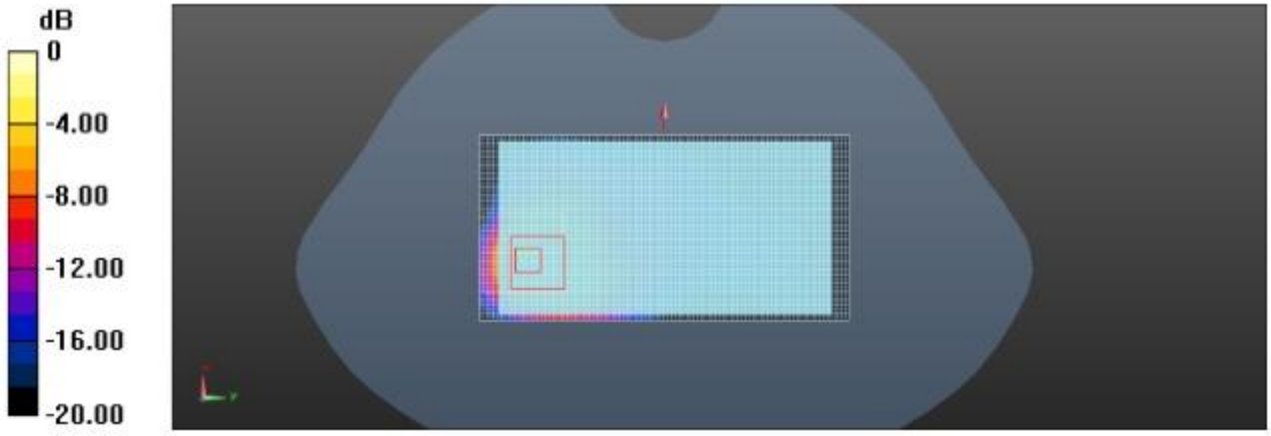
Communication System: Customer System; Frequency: 5240 MHz;Duty Cycle:1:1

Medium parameters used: f = 5240 MHz; σ =5.105 mho/m; εr = 50.47; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:
-Probe: EX3DV4 - SN3836; ConvF(4.83,4.83,4.83);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
-Electronics: DAE4 Sn1315; Calibrated: 7/26/2016
- Phantom: SAM 2; Type: SAM; Serial: TP-1432
- Measurement SW: DASY5, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Area Scan (51x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.213 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.257 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.326 W/kg
SAR(1 g) = 0.116 W/kg; SAR(10 g) = 0.101 W/kg
Maximum value of SAR (measured) = 0.224 W/kg



6. Calibration Certificate

6.1. 3292 Probe Calibration Certificate

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S C S Schweizerischer Kalibrierdienst
Service suisse d'étalonnage
Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client CIQ-SZ (Audon) **Certificate No: ES3-3292_Sep16**

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3292

Calibration procedure(s) QA CAL-01.v9, QA CAL-12.v9, QA CAL-23.v5, QA CAL-25.v6
Calibration procedure for dosimetric E-field probes

Calibration date: September 2, 2016

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: S5277 (20x)	05-Apr-16 (No. 217-02293)	Apr-17
Reference Probe ES3DV2	SN: 3013	31-Dec-15 (No. ES3-3013_Dec15)	Dec-16
DAE4	SN: 660	23-Dec-15 (No. DAE4-660_Dec15)	Dec-16
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 2, 2016

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
Accreditation No.: **SCS 0108**
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "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)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Probe ES3DV3

SN:3292

Manufactured:	July 6, 2010
Repaired:	August 29, 2016
Calibrated:	September 2, 2016

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3292

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.94	0.95	0.93	± 10.1 %
DCP (mV)[B]	105.7	101.2	111.7	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	205.6	±3.5 %
		Y	0.0	0.0	1.0		212.6	
		Z	0.0	0.0	1.0		204.7	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3292

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
450	43.5	0.87	7.12	7.12	7.12	0.20	1.30	± 13.3 %
750	41.9	0.89	6.76	6.76	6.76	0.80	1.19	± 12.0 %
835	41.5	0.90	6.53	6.53	6.53	0.43	1.64	± 12.0 %
900	41.5	0.97	6.40	6.40	6.40	0.53	1.43	± 12.0 %
1750	40.1	1.37	5.54	5.54	5.54	0.80	1.15	± 12.0 %
1900	40.0	1.40	5.26	5.26	5.26	0.55	1.47	± 12.0 %
2450	39.2	1.80	4.97	4.97	4.97	0.64	1.41	± 12.0 %
2600	39.0	1.96	4.77	4.77	4.77	0.80	1.28	± 12.0 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3292

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
450	56.7	0.94	7.33	7.33	7.33	0.13	1.50	± 13.3 %
750	55.5	0.96	6.25	6.25	6.25	0.38	1.66	± 12.0 %
835	55.2	0.97	6.27	6.27	6.27	0.47	1.56	± 12.0 %
900	55.0	1.05	6.16	6.16	6.16	0.80	1.15	± 12.0 %
1750	53.4	1.49	5.28	5.28	5.28	0.70	1.36	± 12.0 %
1900	53.3	1.52	5.05	5.05	5.05	0.64	1.44	± 12.0 %
2450	52.7	1.95	4.70	4.70	4.70	0.74	1.22	± 12.0 %
2600	52.5	2.16	4.52	4.52	4.52	0.80	1.13	± 12.0 %

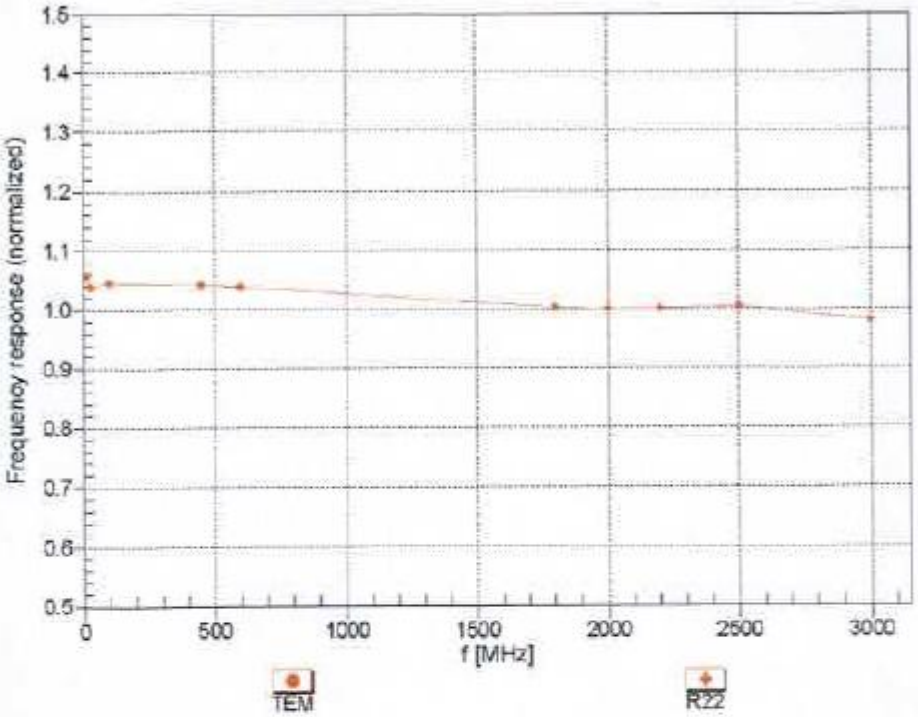
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

Frequency Response of E-Field

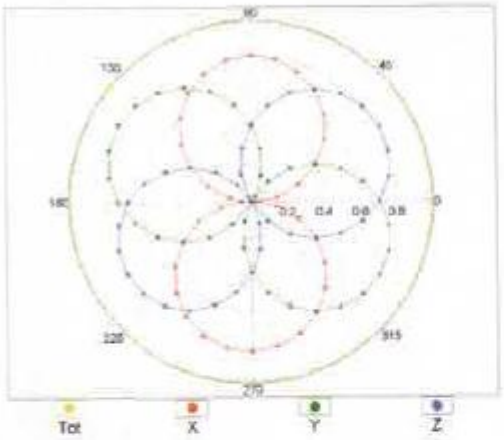
(TEM-Cell:ifi110 EXX, Waveguide: R22)



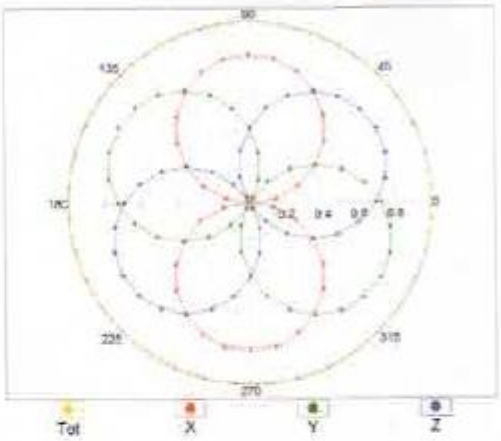
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

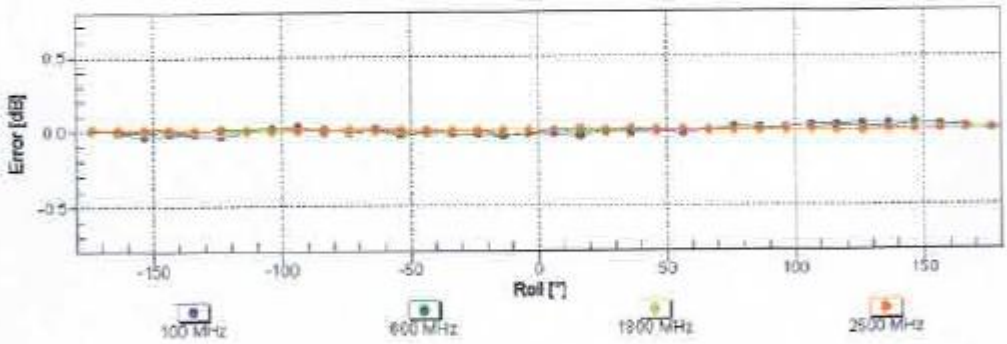
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



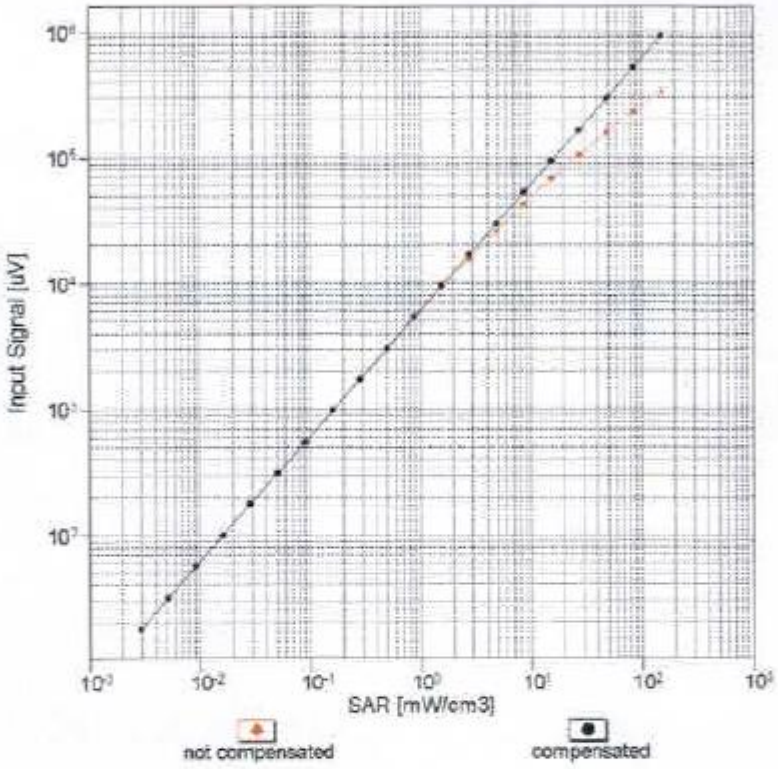
f=1800 MHz,R22

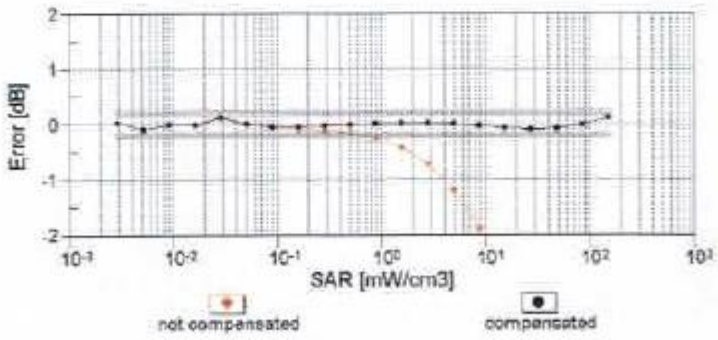




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR$_{head}$)
(TEM cell , f_{eval}= 1900 MHz)

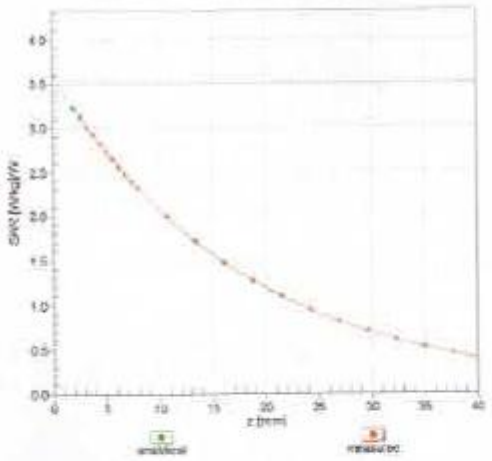




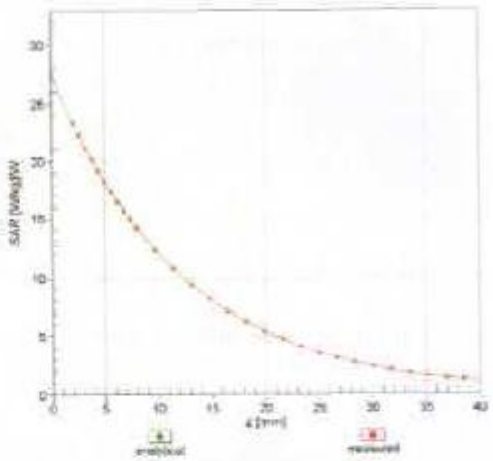
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 900 MHz,WGLS R9 (H_convF)

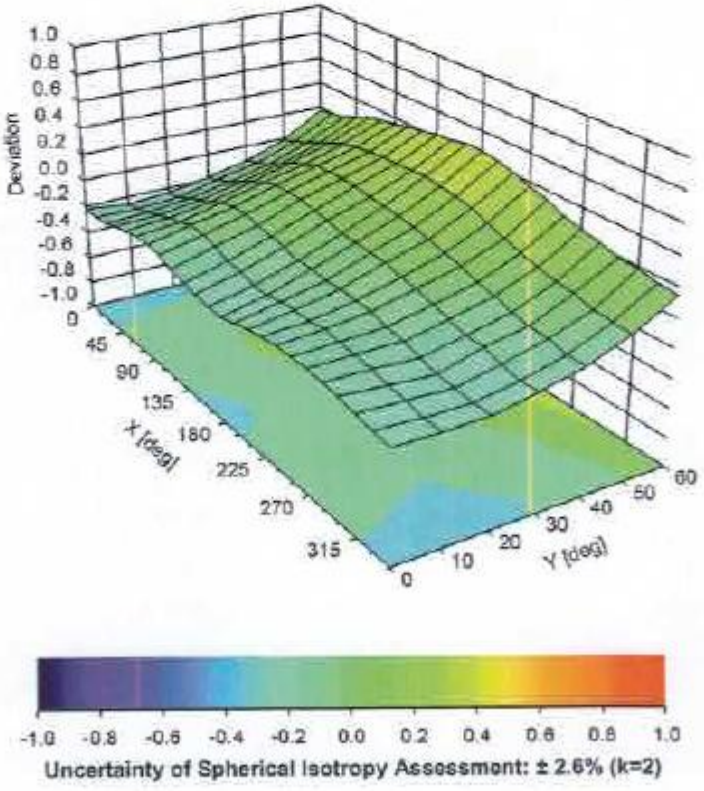


f = 1750 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

6.2. 3836 Probe Calibration Ceriticate

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中国认可 国际互认 校准 CALIBRATION CNAS L0570

Client Sunway Certificate No: Z16-97101

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3836
Calibration Procedure(s)	FD-Z11-2-004-01 Calibration Procedures for Dosimetric E-field Probes
Calibration date:	July 07, 2016

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	27-Jun-16 (CTTL, No.J16X04777)	Jun-17
Power sensor NRP-Z91	101547	27-Jun-16 (CTTL, No.J16X04777)	Jun-17
Power sensor NRP-Z91	101548	27-Jun-16 (CTTL, No.J16X04777)	Jun-17
Reference10dBAttenuator	18N50W-10dB	13-Mar-16(CTTL,No.J16X01547)	Mar-18
Reference20dBAttenuator	18N50W-20dB	13-Mar-16(CTTL, No.J16X01548)	Mar-18
Reference Probe EX3DV4	SN 3617	26-Aug-15(SPEAG,No.EX3-3617_Aug15)	Aug-16
DAE4	SN 1331	21-Jan-16(SPEAG, No.DAE4-1331_Jan16)	Jan -17
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
SignalGeneratorMG3700A	6201052605	27-Jun-16 (CTTL, No.J16X04776)	Jun-17
Network Analyzer E5071C	MY46110673	26-Jan-16 (CTTL, No.J16X00894)	Jan -17

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Qi Dianyuan	SAR Project Leader	
Approved by:	Lu Bingsong	Deputy Director of the laboratory	

Issued: July 08, 2016

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Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	modulation dependent linearization parameters
Polarization Φ	Φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i θ=0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz)", February 2005

c) IEC 62209-2, "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)", March 2010

d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization θ=0 (f≤900MHz in TEM-cell; f>1800MHz: waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below ConvF).
- *NORM(f)x,y,z = NORMx,y,z* frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- *Ax,y,z; Bx,y,z; Cx,y,z;VRx,y,z:*A,B,C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from±50MHz to±100MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

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Probe EX3DV4

SN: 3836

Calibrated: July 07, 2016

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3836

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm(μV/(V/m)^2)^A	0.40	0.46	0.43	±10.8%
DCP(mV)^B	93.2	100.2	98.0	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	167.8	±2.0%
		Y	0.0	0.0	1.0		182.5	
		Z	0.0	0.0	1.0		176.7	

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

^{A} The uncertainties of Norm X, Y, Z do not affect the E^2-field uncertainty inside TSL (see Page 5 and Page 6).
^{B} Numerical linearization parameter: uncertainty not required.
^{E} Uncertainly is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3836

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz][C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha[G]	Depth[G] (mm)	Unct. (k=2)
750	41.9	0.89	9.43	9.43	9.43	0.30	0.80	±12%
835	41.5	0.90	9.42	9.42	9.42	0.15	1.58	±12%
900	41.5	0.97	9.03	9.03	9.03	0.15	1.46	±12%
1750	40.1	1.37	8.04	8.04	8.04	0.14	1.63	±12%
1900	40.0	1.40	7.60	7.60	7.60	0.16	1.59	±12%
2300	39.5	1.67	7.45	7.45	7.45	0.53	0.68	±12%
2450	39.2	1.80	7.07	7.07	7.07	0.54	0.71	±12%
2600	39.0	1.96	6.96	6.96	6.96	0.61	0.66	±12%
5200	36.0	4.66	5.32	5.32	5.32	0.40	1.42	±13%
5300	35.9	4.76	5.13	5.13	5.13	0.40	1.40	±13%
5500	35.6	4.96	4.85	4.85	4.85	0.40	1.35	±13%
5600	35.5	5.07	4.59	4.59	4.59	0.40	1.45	±13%
5800	35.3	5.27	4.71	4.71	4.71	0.40	1.45	±13%

[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequency below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3836

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz][C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha[G]	Depth[G] (mm)	Unct. (k=2)
750	55.5	0.96	9.38	9.38	9.38	0.30	0.85	±12%
835	55.2	0.97	9.25	9.25	9.25	0.17	1.44	±12%
900	55.0	1.05	8.95	8.95	8.95	0.14	1.60	±12%
1750	53.4	1.49	7.64	7.64	7.64	0.17	1.71	±12%
1900	53.3	1.52	7.33	7.33	7.33	0.18	1.80	±12%
2300	52.9	1.81	7.45	7.45	7.45	0.51	0.80	±12%
2450	52.7	1.95	7.20	7.20	7.20	0.62	0.70	±12%
2600	52.5	2.16	6.99	6.99	6.99	0.52	0.79	±12%
5200	49.0	5.30	4.83	4.83	4.83	0.50	1.25	±13%
5300	48.9	5.42	4.60	4.60	4.60	0.50	1.35	±13%
5500	48.6	5.65	4.32	4.32	4.32	0.50	1.35	±13%
5600	48.5	5.77	4.20	4.20	4.20	0.50	1.40	±13%
5800	48.2	6.00	4.30	4.30	4.30	0.50	1.30	±13%

[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequency below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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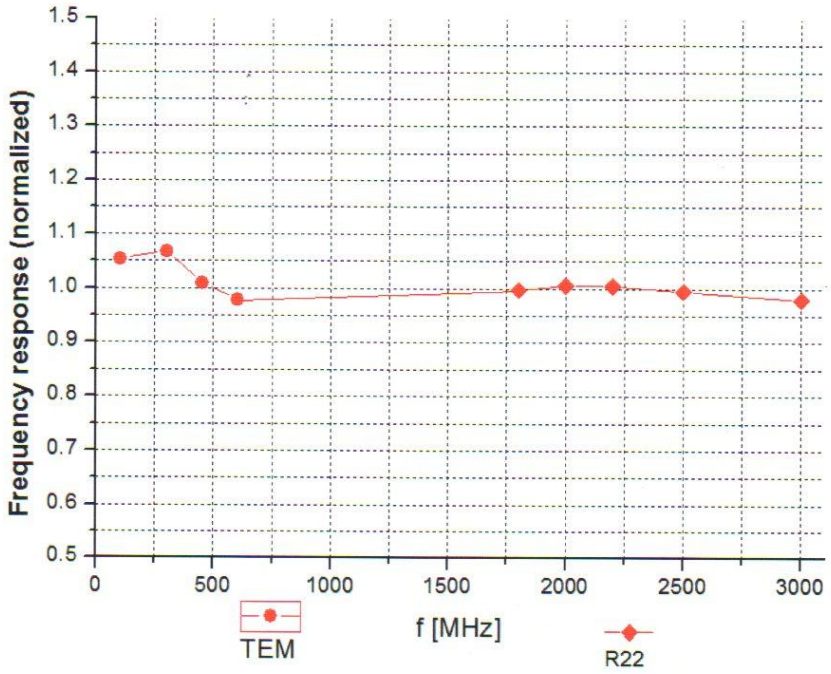
Frequency Response of E-Field
(TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ±7.5% (k=2)

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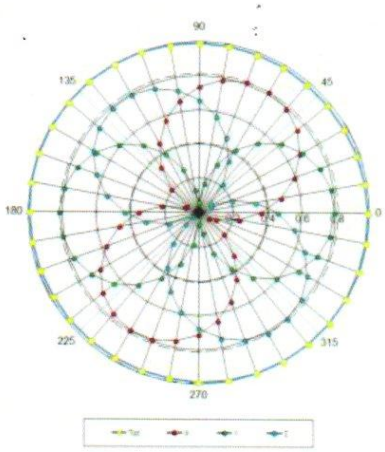
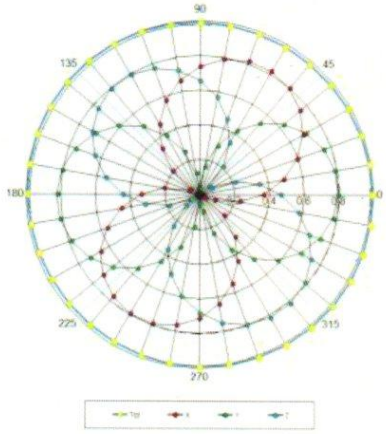
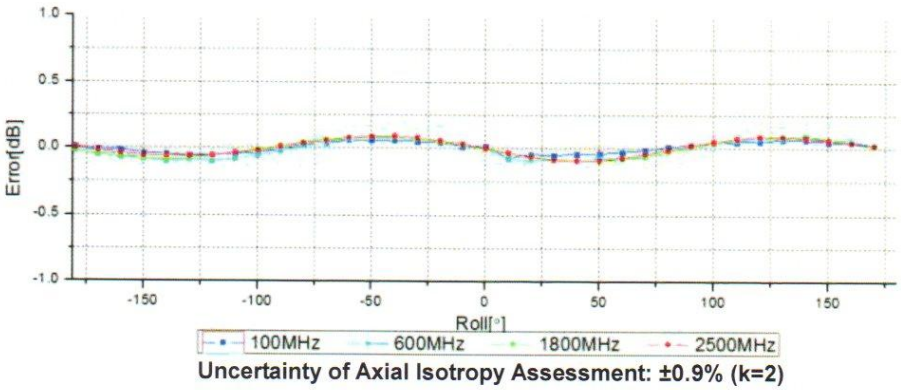
Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM



f=1800 MHz, R22





Uncertainty of Axial Isotropy Assessment: ±0.9% (k=2)

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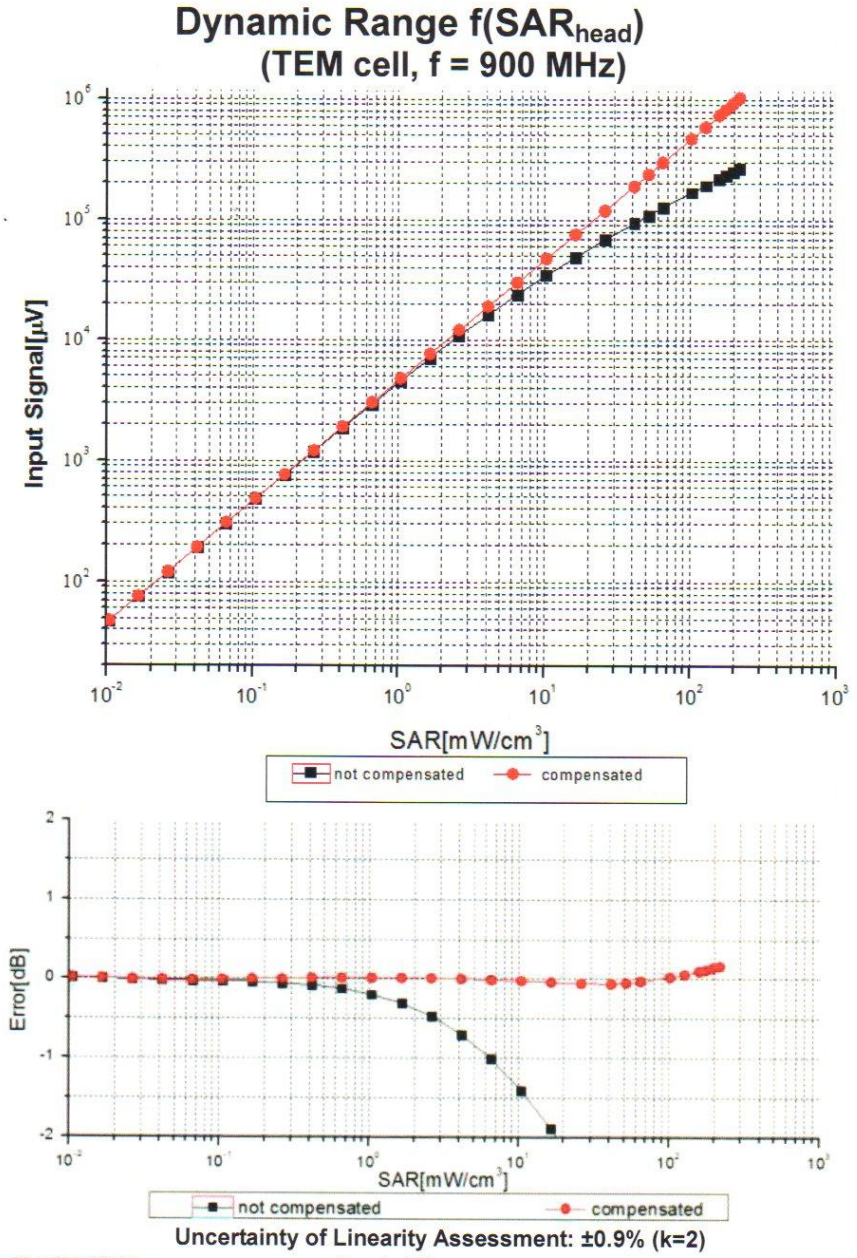

Uncertainty of Linearity Assessment: ±0.9% (k=2)

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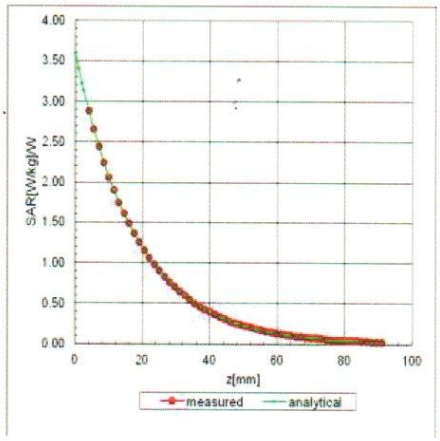
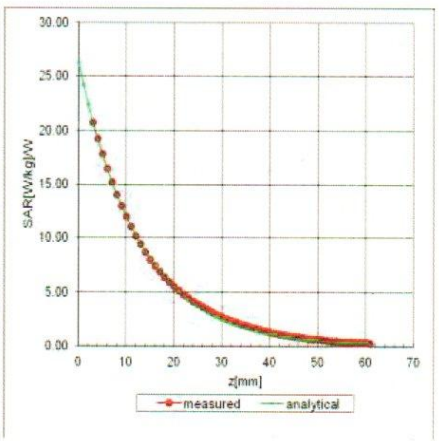
Conversion Factor Assessment

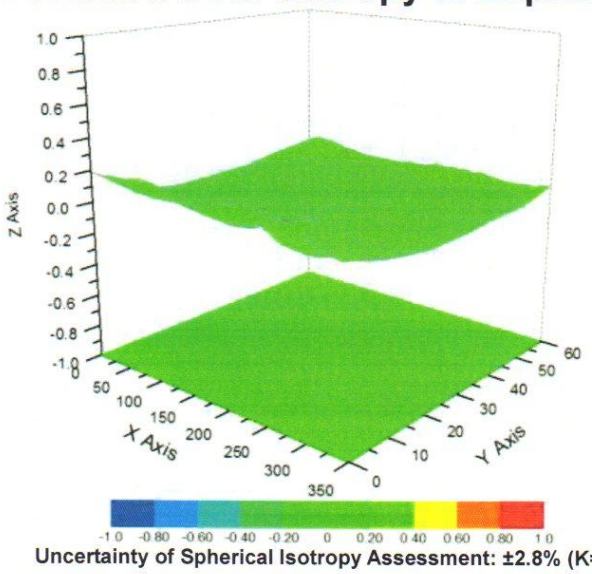
f=900 MHz, WGLS R9(H_convF)



f=1900 MHz, WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: ±2.8% (K=2)