Celltech
Testing and Engineering Services Lab

Test Report Serial Number:	45461397 R1.2
Test Report Date:	8 August 2017
Project Number:	1374

SAR Test Report - Class II Permissive Change

Applicant:

HARRIS

Harris Corporation
221 Jefferson Ridge Parkway
Lynchburg, VA, 24501
USA

Maximum Reported 1g SAR			
FCC	HEAD:	2.24	W/kg
	BODY:	4.65	
ISEDC	HEAD:	2.34	
	BODY:	4.65	
Occupational Limit:		8.00	

FCC ID: **OWDTR-0143-E**

IC Registration Number: **3636B-0143**

Product Model Number / HVIN: **XS-PFM9M, XS-PFM9Y XS-PPM9M, XS-PPM9Y**

Product Name / PMN: **XL-185P**

In Accordance With:

FCC 47 CFR §2.1093
Radiofrequency Radiation Exposure Evaluation: Portable Devices

IC RSS-102 Issue 5
Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

Approved By:

Ben Hewson, President
Celltech Labs Inc.
21-364 Lougheed Rd.
Kelowna, BC, V1X 7R8
Canada

ilac-MRA A2LA ACCREDITED
Test Lab Certificate: 2470.01

Industry Canada
IC Registration 3874A-1

FCC
FCC Registration: 714830

Table of Contents

1.0 DOCUMENT CONTROL

Revision History				
Samples Tested By:	Trevor Whillock	**Date(s) of Evaluation:**		22 June - 26 June, 2017
Report Prepared By:	Art Voss, P.Eng.	**Report Reviewed By:**		Ben Hewson
Report Revision	**Description of Revision**	**Revised Section**	**Revised By**	**Revision Date**
1.0	Initial Release	-	-	18 July 2017
1.1	Revised Reference to Antenna	All	Art Voss	2 August 2017
1.2	Revised HVIN	Cover 2.0	Art Voss	8 August 2017

2.0 CLIENT AND DEVICE INFORMATION

Client Information		
Applicant Name	**Harris Corporation**	
Applicant Address	221 Jefferson Ridge Parkway	
	Lynchburg, VA, 24501	
	USA	
DUT Information		
Device Identifier(s):	**FCC ID:**	**OWDTR-0143-E**
	IC:	**3636B-0143**
Type of Equipment:	Licensed Non-Broadcast Transmitter Held to Face (TNF) FCC Part 90	
	Land Mobile Radio Transmitter/Receiver (27.41-960MHz) RSS-119	
	Digital Transmission System (DTS) FCC Part 15, RSS 247	
	Unlicensed National Information Infrastructure (NII) FCC Part 15	
	Spread Spectrum Transmitter (DSS) FCC Part 15	
Device Model(s) / HVIN:	XS-PFM9M	
	XS-PFM9Y	
	XS-PPM9M	
	XS-PPM9Y	
Device Marketing Name / PMN:	XL-185P	
Test Sample Serial No.:	T/A Sample - Identical Prototype	
Transmit Frequency Range:	700 Band *: 768-776MHz, 798-806MHz	
	800 Band: 806-816MHz, 851-861MHz	
	900 Band: 896-902MHz, 935-944MHz	
	WLAN: 2412-2462MHz, 5180-5825MHz	
	BT/BLE: 2402-2480MHz	
Number of Channels:	Programmable	
Manuf. Max. Rated Output Power:	7/8/900MHz Band: 34.8dBm	
	BlueTooth: 12.7dBm	
	BLE: 8.4dBm	
	WLAN 2.4G: 23.7dBm	
	WLAN 5G: 11.8dBm	
Modulation:	LMR: FM	
Duty Cycle:	50% PTT Duty Cycle	
DUT Power Source:	See Manufacturer's Accessory List	
Deviation(s) from standard/procedure:	None	
Modification of DUT:	None	

* 768-769MHz, 775-776MHz, 798-799MHz, 805-806MHz : Authorized for Canada Only.

3.0 SCOPE OF EVALUATION

This is a Class II Permissive Change to add a E75-0286-001 (Larsen SPEN 14918) antenna to the XL-185P.

The XL-185P, FCC ID: OWDTR-0143-E, ISED ID: 3636B-0143 is a single-band, Push-To-Talk (PTT) Licensed Mobile Radio (LMR) transceiver intended for Occupational Use. It incorporates WiFi and BlueTooth transmitters.

The E75-0286-001 antenna is a 1/2 wave length whip antenna with a frequency range of 890-960MHz.

In this document, the following DUT references are made:

The XL-185P, FCC ID: OWDTR-0143-E, ISED ID: 3636B-0143 is referenced in this report as XL-185P.

The Test Plan developed for this evaluation leverages SAR test data from previous evaluations of the OWDTR-0143-E, 3636B-0143 and is based on test channels, configurations and accessories which produced the highest (worst case) SAR. The WiFi and BlueTooth transmitters use a separate antenna and it has been shown that their SAR contribution is unaffected by the LMR antenna. The number of required test channels for frequency range of this antenna are shown below:

3.1 Required Number of Test Channels

Number of Required Test Channels

Frequency			Number of Channels		Spacing	
f_{LOW} (MHz)	f_{HIGH} (MHz)	f_C (MHz)	KDB 447498 (N_C)	IEC 62209 (N_C)	KDB 447498 (MHz)	IEC 62209 (MHz)
890	944	**917**	**4**	**3**	**18.0**	**27.0**

KDB 447498: $N_C = \text{RoundUp}\{[100(F_{HIGH} - F_{LOW})/Fc]^{0.5} \times (F_C/100)^{0.2}\}$

IEC 62209-1: $N_C = 2 \times \{\text{RoundUp}[10(F_{HIGH} - F_{LOW})/F_C]\} + 1$

Notes:

Per FCC KDB 643646 D01v01r03 (A1)(A2)
I) When the Head/Body SAR of an antenna tested in A) is:
a) ≤ 3.5 W/kg, testing of all other required channels is not necessary for that antenna
b) > 3.5 W/kg and ≤ 4.0 W/kg, testing of the required immediately adjacent channel(s) is not necessary;3 testing of the other required channels may still be required
c) > 4.0 W/kg and ≤ 6.0 W/kg, Head/Body SAR should be measured for that antenna on the required immediately adjacent channels; testing of the other required channels still needs consideration
d) > 6.0 W/kg, test all required channels for that antenna

4.0 NORMATIVE REFERENCES

Normative References*	
ANSI / ISO 17025:2005	General Requirements for competence of testing and calibration laboratories
FCC CFR Title 47 Part 2 Title 47: Part 2.1093:	Code of Federal Regulations Telecommunication Radiofrequency Radiation Exposure Evaluation: Portable Devices
Health Canada Safety Code 6 (2015)	Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3kHz to 300GHz
Industry Canada Spectrum Management & Telecommunications Policy RSS-102 Issue 5:	Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
IEEE International Committee on Electromagnetic Safety IEEE 1528-2013:	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
IEC International Standard IEC 62209-2 2010	Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 2
FCC KDB KDB 865664 D01v01r04	SAR Measurement Requirements for 100MHz to 6GHz
FCC KDB KDB 447498 D01v06	Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies
FCC KDB KDB 643646 D01v01r03	SAR Test Reduction Considerations for Occupational PTT Radios
* When the issue number or issue date is omitted, the latest version is assumed.	

5.0 STATEMENT OF COMPLIANCE

This measurement report demonstrates that samples of the product model(s) were evaluated for Specific Absorption Rate (SAR) on the date(s) shown, in accordance with the Measurement Procedures cited and were found to comply with the Standard(s) Applied based on the Exposure Limits of the Use Group indicated for which the product is intended to be used.

Applicant:	**Date(s) Evaluated:**
Harris Corporation	22 June - 26 June 2017
Product Name / PMN:	**Product Model Number / HVIN:**
XL-185P	XS-PFM9M, XS-PFM9Y XS-PPM9M, XS-PPM9Y
FCC ID:	**ISEDC ID:**
OWDTR-0143-E	3636B-0143
Standard(s) Applied:	
FCC 47 CFR §2.1093 Health Canada's Safety Code 6	
Measurement Procedures:	
FCC KDB 865664, FCC KDB 447498, FCC KDB 643646 Industry Canada RSS-102 Issue 5 IEEE Standard 1528-2013, IEC 62209-2	
Use Group:	**Limits Applied:**
[ ] General Population / User Unaware	[ ] 1.6W/kg - 1g Volume
[X] Occupational / User Aware	[X] 8.0W/kg - 1g Volume
Reason for Issue:	
[ ] New Certification	[X] Class II Permissive Change
Reason for Change:	
Addition of E75-0286-001, 1/2 Wave, 890-960MHz, Whip Antenna (SPEN14918)	

The results of this investigation are based solely on the test sample(s) provided by the applicant which was not adjusted, modified or altered in any manner whatsoever equired to carry out specific tests or measurements. A description of the device, operating configuration, detailed summary of the test results, methodologies and procedures used during this evaluation, the equipment used and the various provisions of the rules are included in this test report.

I attest that the data reported herein is true and accurate w ithin the tolerance of the Measurement Instrument Uncertainty; that all tests and measurements w ere performed in accordance w ith accepted practices or procedures; and that all tests and measurements w ere performed by me or by trained personnel under my direct supervision. The results of this investigation are based solely on the test sample(s) provided by the client w hich w ere not adjusted, modified or altered in any manner w hatsoever, except as required to carry out specific tests or measurements. This test report has been completed in accordance w ith ISO/IEC 17025.	Art Voss, P.Eng. Technical Manager Celltech Labs Inc. 18 July 2017 Date

6.0 RF CONDUCTED POWER MEASUREMENT

Table 6.0 Conducted Power Measurements

Conducted Power Measurements					
Channel	Frequency (MHz)	Measured Power (dBm)	Rated Power (dBm)	Delta (dBm)	SAR Test Channel (Y/N)
n/a	768.000	34.32	34.80	-0.48	N
n/a	776.000	34.31	34.80	-0.49	N
n/a	798.000	34.37	34.80	-0.43	N
n/a	806.000	35.09	34.80	0.29	N
n/a	816.000	35.11	35.50	-0.39	N
n/a	851.000	35.09	35.50	-0.41	N
n/a	861.000	35.01	35.50	-0.49	Y
n/a	896.000	35.05	35.50	-0.45	Y
n/a	898.500	35.05	35.50	-0.45	Y
n/a	901.000	35.00	35.50	-0.50	Y
n/a	935.000	35.12	35.50	-0.38	Y
n/a	937.500	35.12	35.50	-0.38	Y
n/a	940.000	35.12	35.50	-0.38	Y

7.0 ACCESSORIES EVALUATED

Table 7.0 Manufacturer's Accessory List

Change History			
Change ID	**Date**	**Change Type**	**Description of Change**
1	23 March 2017	Initial	Initial Filing
2	30 June 2017	C2PC	Add E75-0286-001, 1/2 Wave, 890-960MHz, Whip Antenna (SPEN14918)

Manufacturer's Accessory List							
Test Report ID Number	**Manufacturer's Part Number**	**Description**	**Change ID[1]**	**UDC Group[2]**	**Type II Group[3]**	**SAR[4] Evaluated**	**SAR[5] Tested**
		Antenna					
T1	14035-4450-01	1/2 Wave Whip Antenna, (762-944 MHz)	**1**			**Y**	**Y**
T2	14035-4450-02	1/4 Wave Stub Antenna (762-944 MHz)	**1**			**Y**	**Y**
T3	KRE1011223/02	900 MHz Antenna (896-941 MHz)	**1**			**Y**	**Y**
T4	E75-0286-001	1/2 Wave Whip Antenna (890-960MHz)	**1**			**Y**	**Y**
		Battery					
P1	14034-4010-01	Li-Ion Battery 7.2VDC, 3300mAh	**1**			**Y**	**Y**
P2	14034-4010-04	Li-Ion Battery 7.2VDC, 3100mAh, 22Wh	**1**			**Y**	**Y**
P3	14034-4010-05	Li-Ion Battery 7.2VDC, 3100mAh, 22Wh, UL	**1**			**Y**	**-**

Manufacturer's Accessory List							
Test Report ID Number	Manufacturer's Part Number	Description	Change ID[1]	UDC Group[2]	Type II Group[3]	SAR[4] Evaluated	SAR[5] Tested
Audio Accessory							
A1	12082-0600-01	Standard Speaker Microphone	1	7A	PB	Y	Y
A2	12082-0600-02	Storm Speaker Microphone	1	7A	PB	Y	Y
A28	12082-0600-03	Storm Speaker Microphone	6	7A	PB	Y	Y
A3	12150-1000-01	Premium Speaker MIC, Fire, NC	1	9	PB	Y	Y
A4	12082-0650-01	Microphone, Palm, 2-Wire Black	1	7A	IL	Y	Y
A5	12082-0650-02	Microphone, Palm, 2-Wire Beige	3	7A	IL	Y	-
A6	12082-0650-03	Microphone, Mini Lapel, 3-Wire Black	1	7A	IL	Y	Y
A7	12082-0650-04	Microphone, Mini Lapel, 3-Wire Beige	3	7A	IL	Y	-
A8	12082-0650-05	Earphone Kit, Black, XG-100P	**			Y	-
A9	12082-0650-06	Earphone Kit, Beige, XG-100P	**			Y	-
A10	12082-0650-07	Headset, In-Ear, Boom MIC, In-Line PTT	3	7A	IL	Y	-
A11	12082-0650-08	Headset, LTWT, OTH, Single Ear, IN-Line PTT	3	7A	IL	Y	-
A12	12082-0650-09	Headset, LTWT, BTH, Dual Ear, In_Line PTT	3	7A	IL	Y	-
A13	12082-0650-10	Headset, LTWT, BTH, Dual Ear, Pig Tail PTT	3	7A	PT	Y	Y
A14	12082-0650-11	Headset, LTWT, BTH, Dual In-Ear, In_Line PTT	3	7A	IL	Y	-
A15	12082-0650-12	Headset, LTWT, BTH, Dual In-Ear, Pig Tail PTT	3	7A	PT	Y	Y
A16	12082-0650-13	Headset, Heavy Duty, BTH, w/PTT, XG-100P	3	7A	IL	Y	Y
A17	12082-0650-14	Headset, Heavy Duty, OTH, w/PTT, XG-100P	3	7A	IL	Y	-
A18	12082-0650-15	Headset, BTH, Boom MIC, Earpiece, w/PTT	**			Y	-
A19	12082-0650-16	Headset, Tactical, Boom MIC, Earpiece, w/PTT	3	7A	PT	Y	-
A20	12082-0650-17	Skull MIC, w/Body PTT, Earcup, XG-100P	3	9	BB	Y	Y
A21	12082-0650-18	Throat MIC, w/Acoustic Tube, Body PTT	3	9	BB	Y	-
A22	12082-0650-19	Throat MIC, w/Acoustic Tube, Body & Ring PTT	3	9	RB	Y	-
A23	12082-0681-01	Speaker MIC, Wireless Bluetooth	3	BT	PB	Y	-
A24	12082-0684-01	BlueTooth, Covert, Earpiece, MIC, PTT	3	BT	n/a	Y	-
A25	14002-0197-01	Hirose to Unity Adapter	1	7B	n/a	Y	Y
A26	LS103239V1	Earphone, Lapel MIC, 2.5mm	3	n/a	n/a	Y	Y
A27	LS103239V2	Earphone, Lapel MIC, 2.5mm, Right Angle	4	n/a	n/a	Y	-

Manufacturer's Accessory List

Test Report ID Number	Manufacturer's Part Number	Description	Change ID[1]	UDC Group[1]	Type II Group[2]	SAR[3] Evaluated	SAR[4] Tested
		Body-Worn Accessory					
B1	12082-1290-01	Metal Belt Clip	**1**			**Y**	**Y**
B2	12082-3230-01	D-Swivel (Used w/ 14002-0218-01 and KRY 1011609/1)	**1**			**Y**	**Y**
B3	14002-0218-01	Premium Belt Loop	**1**			**Y**	**Y**
B4	14035-4200-01	Holster, Leather, Radio, Premium	**3**			**Y**	**Y**
B5	14035-4200-02	Holster, Leather w/Rings for Shoulder Strap, Radio, Premium	**3**			**Y**	**Y**
B6	14035-4200-03	Holster, Nylon, Black, Radio, Premium	**			**Y**	
B7	14035-4200-04	Holster, Ring, Leather, Radio, Premium	**			**Y**	
B8	14035-4201-01	Kit, 14035-4200-01 Holster Assy w/ 14002-0218-01 Belt Loop	**			**Y**	
B9	14035-4202-02	Kit, 14035-4200-02 Holster Assy w/ 14002-0218-01 Belt Loop	**			**Y**	
B10	14035-4202-01	Holster, Leather, Radio, Standard	**			**Y**	
B11	14035-4202-02	Holster, Leather w/Rings for Shoulder Strap, Radio, Standard	**			**Y**	
B12	14035-4202-03	Holster, Nylon, Black, Radio, Standard	**			**Y**	
B13	14035-4202-04	Holster, Ring, Leather, Radio, Standard	**			**Y**	
B14	CC103333V1	Shoulder Strap	**1**			**Y**	**Y**
B15	KRY 1011609/1	Leather Belt Loop	**1**			**Y**	**Y**

(1) From Table 8.0 - Indicates which change the item was introduced or tested. A "**" in this column indicates these accessories were evaluated on similar product and are deemed compliant.

(2) UDC Group: 9 = 9 Pin, 7A = 7 Pin, 7B = 7 Pin Modified

(3) Type II Group: PB = Palm Button, IL = In-Line Pushbutton, PT = Pigtail Pushbutton, RB = Ring Pushbutton, BB = Body Button, BT = BlueTooth

(4) Accessories are categorized into groups of similar design and construction. Samples of individual groups are SAR Tested and the SAR results apply to ALL members of the Accessory Group. A "Y" in this column indicates the accessory is deemed acceptable.

(5) Accessories and/or Accessory Group members SAR Tested.

8.0 SAR MEASUREMENT SUMMARY

Table 8.0: Measured Results - BODY

Measured SAR Results (1g) - BODY Configuration (FCC/ISED)															
Date	Plot ID	DUT		Test Frequency (*MHz*)	Modulation	Accessories				DUT Spacing		Conducted Power (*dBm*)	Measured SAR (10g)		SAR Drift (*dB*)
		M/N	Type			Antenna ID	Battery ID	Body ID	Audio ID	DUT (*mm*)	Antenna (*mm*)		100% DC (*W/kg*)	50% DC (*W/kg*)	
22 Jun 2017	B1	XL-185P	Radio 1	896	CW	E75-0286-001	4010-01	B1	A1	0	30		8.010	4.005	0.411
23 Jun 2017	B2*	XL-185P	Radio 1	861	CW	E75-0286-001	4010-01	B1	A1	0	30		6.460	3.230	0.103
23 Jun 2017	B3*	XL-185P	Radio 1	898.5	CW	E75-0286-001	4010-01	B1	A1	0	30		8.110	4.055	0.056
22 Jun 2017	B4	XL-185P	Radio 1	901	CW	E75-0286-001	4010-01	B1	A1	0	30		8.390	4.195	0.094
22 Jun 2017	B5	XL-185P	Radio 1	935	CW	E75-0286-001	4010-01	B1	A1	0	30		8.020	4.010	-0.040
23 Jun 2017	B6*	XL-185P	Radio 1	937.5	CW	E75-0286-001	4010-01	B1	A1	0	30		8.190	4.095	-0.006
22 Jun 2017	B7	XL-185P	Radio 1	940	CW	E75-0286-001	4010-01	B1	A1	0	30		7.960	3.980	-0.257
SAR Limit							Spatial Peak			Head/Body		RF Exposure Category			
FCC 47 CFR 2.1093				Health Canada Safety Code 6			1 Gram Average			8.0 W/kg		Occupational/User Aware			

* As per FCC KDB 643664, When SAR for an antenna is > 4.0, testing of immediately adjacent channels is required.

Table 8.1: Measured Results - FACE

Measured SAR Results (1g) - FACE Configuration (FCC/ISED)															
Date	Plot ID	DUT		Test Frequency (*MHz*)	Modulation	Accessories				DUT Spacing		Conducted Power (*dBm*)	Measured SAR (10g)		SAR Drift (*dB*)
		M/N	Type			Antenna ID	Battery ID	Body ID	Audio ID	DUT (*mm*)	Antenna (*mm*)		100% DC (*W/kg*)	50% DC (*W/kg*)	
26 Jun 2017	F1	XL-185P	Radio 1	896	CW	E75-0286-001	4010-01	n/a	n/a	25	33		2.550	1.275	-0.124
26 Jun 2017	F2	XL-185P	Radio 1	901	CW	E75-0286-001	4010-01	n/a	n/a	25	33		2.220	1.110	-0.067
26 Jun 2017	F3	XL-185P	Radio 1	935	CW	E75-0286-001	4010-01	n/a	n/a	25	33		1.990	0.995	-0.177
26 Jun 2017	F4	XL-185P	Radio 1	940	CW	E75-0286-001	4010-01	n/a	n/a	25	33		4.100	2.050	-0.195
SAR Limit							Spatial Peak			Head/Body		RF Exposure Category			
FCC 47 CFR 2.1093				Health Canada Safety Code 6			1 Gram Average			8.0 W/kg		Occupational/User Aware			

9.0 ANALYSIS OF SIMULTANEOUS TRANSMISSION

The XL-185P incorporates integrated Wi-Fi and BlueTooth transmitters capable of simultaneously transmitting with the LMR transmitter. The Wi-Fi and BlueTooth transmitters share the same antenna and the transmissions are interleaved such that only one transmitter is transmitting at a time. As per FCC KDB 447498, simultaneous transmission analysis is required for devices capable of simultaneous transmission. The Wi-Fi, BT and LTE SAR are subject to General Population limits of 1.6W/kg. The LMR SAR is subject to Occupational limits of 8.0W/kg. To determine compliance when different SAR limits are applied to the different transmit modes, the Sum-of-the-Ratios of the SAR to the respective SAR limit is applied. When the Sum-of-the-Ratios is ≤ 1.0, simultaneous SAR test exclusion may be applied.

SAR for each transmission band, transmission mode and/or equipment class was evaluated with Body-Worn and Audio Accessories in the BODY configuration and without Body-Worn or Audio Accessories in the HEAD configurations. Only the Maximum *reported* SAR for each is used in the Sum-of-the-Ratios calculation and the worst case of all possible combinations is considered.

Table 9.0 List of Possible Transmitters

List of Possible Transmitters				
Type	Class	Frequency Range		Rated Output Power (dBm)
		Lower (MHz)	Upper (MHz)	
LMR 7/800	TNF	768.0	861.0	34.8
LMR 900		896.0	944.0	35.4
BlueTooth	DSS	2402.0	2480.0	12.7
BLE	DTS	2402.0	2480.0	8.4
WiFi 2.4	DTS	2412.0	2462.0	23.7
WiFi 5	NII	5150.0	5850.0	11.8

Table 9.1 List of Possible Transmitters Combinations

Simultaneous Transmitter Combinations					
Configuration Number	Transmitter				
	LMR 7/8/900	BlueTooth	BLE	WiFi 2.4	WiFi 5
1	X	X			
2	X		X		
3	X			X	
4	X				X

Indicates this configuration is not supported

Table 9.2 Analysis of Sum-of-the-Ratios

Analysis of Sum-of-the-Ratios For All Transmitters and Configurations													
Configuration Number	Configuration	Transmitter Type										Sum of Ratios	Sum of SARs
		LMR Band		BlueTooth		BLE		WiFi 2.4		WiFi 5			
		stand-alone SAR (W/kg)	Ratio to Limit	*stand-alone* SAR (W/kg)	Ratio to Limit	*stand-alone* SAR (W/kg)	Ratio to Limit	*stand-alone* SAR (W/kg)	Ratio to Limit	*stand-alone* SAR (W/kg)	Ratio to Limit		
		SAR Limit = 8.0W/kg (Occupational)		*SAR Limit = 1.6W/kg (General Population)*									*(W/kg)*
1	HEAD	2.187	0.273	0.006	0.004							0.277	2.193
2		2.187	0.273			0.048	0.030					0.303	**2.235**
3		2.187	0.273					0.040	0.025			0.298	2.227
4		2.187	0.273							0.031	0.019	0.293	2.218
1	BODY	4.600	0.575	0.006	0.004							0.579	4.606
2		4.600	0.575			0.048	0.030					0.605	**4.648**
3		4.600	0.575					0.040	0.025			0.600	4.640
4		4.600	0.575							0.031	0.019	0.594	4.631

Indicates this combination is not supported

From the above, the Sum-of-the-Ratios for any given simultaneous transmission combination, when applied to their respective SAR limit, exceeds 1.0. No further analysis is required.

10.0 SCALING OF MAXIMUM MEASURE SAR

Table 10.0 SAR Scaling

Scaling of Maximum Measured SAR (1)														
Plot ID	Configuration	Freq (MHz)	Measured Fluid Deviation Permittivity	Measured Fluid Deviation Conductivity	Measured Conducted Power (dBm)	Measured Drift (dB)	Measured SAR (1g) (W/kg)							
F4	FACE	940	-3.81%	2.02%	35.1	-0.195	2.050							
B4	BODY	901	-2.24%	-3.62%	35.0	0.094	4.195							
Step 1														
Fluid Sensitivity Adjustment														
Plot ID	Scale Factor (%)		X	Measured SAR (W/kg)		=	Step 1 Adjusted SAR (1g) (W/kg)							
F4	1.000%		X	2.050		=	2.050							
B4	1.000%		X	4.195		=	4.195							
Step 2														
Manufacturer's Tune-Up Tolerance														
Plot ID	Measured Conducted Power (dBm)		Rated Power (dBm)		Delta (dB)	+	Step 1 Adjusted SAR (W/kg)		=	Step 2 Adjusted SAR (1g) (W/kg)				
F4	35.1		35.4		-0.28	+	2.050		=	2.187				
B4	35.0		35.4		-0.4	+	4.195		=	4.600				
Step 3														
Simultaneous Transmission - Bluetooth and/or WiFi														
Plot ID	Rated Output Power (Pmax) (mW)	Freq (MHz)	Separation Distance (mm)		Estimated SAR (W/kg)	+	Step 2 Adjusted SAR (W/kg)		=	Step 3 Adjusted SAR (1g) (W/kg)				
F4					0.05	+	2.187		=	2.237				
B4					0.05	+	4.600		=	4.650				
Step 4														
Drift Adjustment														
Plot ID	Measured Drift (dB)		+	Step 3 Adjusted SAR (W/kg)		=	Step 4 Adjusted SAR (1g) (W/kg)							
F4	-0.195		+	2.237		=	2.339							
B4	0.094		+	4.650		=	4.600							
Step 5														
Reported SAR														
Plot ID	FCC From Steps 1 through 3 1g SAR (W/kg)		ISED From Steps 1 through 4 1g SAR (W/kg)											
F4	2.24		2.34											
B4	4.65		4.65											

NOTES to Table 10.0
(1) Scaling of the Maximum Measured SAR is based on the highest, 100% duty cycle, Face, Body and/or Head SAR measured of ALL test channels, configurations and accessories used during THIS evaluation. The Measured Fluid Deviation parameters apply only to deviation of the tissue equivalent fluids used at the frequencies which produced the highest measured SAR. The Measured Conducted Power applies to the Conducted Power measured at the frequencies producing the highest Face and Body SAR. The Measured Drift is the SAR drift associated with that specific SAR measurement. The Reported SAR is the accumulation of all SAR Adjustments from the applicable Steps 1 through 4. The Plot ID is for indentification of the SAR Measurement Plots in Annex A of this report. NOTE: Some of the scaling factors in Steps 1 through 4 may not apply and are identified by light gray text.
Step 1
Per IEC-62209-1 and FCC KDB 865664. Scaling required only when Measured Fluid Deviation is greater than 5%. If the Measured Fluid Deviation is greater than 5%, Table 10.1 will be shown and will indicate the SAR scaling factor in percent (%). SAR is MULTIPLIED by this scaling factor only when the scaling factor is positive (+).
Step 2
Per KDB 447498. Scaling required only when the difference (Delta) between the Measured Conducted Power and the Manufacturer's Rated Conducted Power is (-) Negative. The absolute value of Delta is ADDED to the SAR.
Step 3
Per KDB 447498 4.3.2. The SAR, either measured or calculated, of ANY and ALL simultaneous transmitters must be added together and includes all contributors.
Step 4
Per IEC 62209-1. Scaling required only when Measured Drift is (-) Negative. The absolute value of Measured Drift is added to Reported or Simultaneous Reported SAR.
Step 5
The Reported SAR is the Maximum Final Adjusted Cumulative SAR from the applicable Steps 1 through 4 and are reported on Page 1 of this report.

I attest that the data reported herein is true and accurate within the tolerance of the Measurement Instrument Uncertainty; that all tests and measurements were performed in accordance with accepted practices or procedures; and that all tests and measurements were performed by me or by trained personnel under my direct supervision. The results of this investigation are based solely on the test sample(s) provided by the client which were not adjusted, modified or altered in any manner whatsoever, except as required to carry out specific tests or measurements. This test report has been completed in accordance with ISO/IEC 17025.	 Trevor Whillock Test Lab Engineer Celltech Labs Inc. 18 July 2017 Date

11.0 SAR EXPOSURE LIMITS

Table 11.0 Exposure Limits

SAR RF EXPOSURE LIMITS			
FCC 47 CFR§2.1093	**Health Canada Safety Code 6**	**General Population / Uncontrolled Exposure(4)**	**Occupational / Controlled Exposure(5)**
Spatial Average(1) (averaged over the whole body)		0.08 W/kg	0.4 W/kg
Spatial Peak(2) (Head and Trunk averaged over any 1 g of tissue)		1.6 W/kg	**8.0 W/kg**
Spatial Peak(3) (Hands/Wrists/Feet/Ankles averaged over 10 g)		4.0 W/kg	20.0 W/kg
(1) The Spatial Average value of the SAR averaged over the whole body.			
(2) The Spatial Peak value of the SAR averaged over any 1 gram of tissue, defined as a tissue volume in the shape of a cube and over the appropriate averaging time.			
(3) The Spatial Peak value of the SAR averaged over any 10 grams of tissue, defined as a tissue volume in the shape of a cube and over the appropriate averaging time.			
(4) Uncontrolled environments are defined as locations where there is potential exposure to individuals who have no knowledge or control of their potential exposure.			
(5) Controlled environments are defined as locations where there is potential exposure to individuals who have knowledge of their potential exposure and can exercise control over their exposure.			

12.0 DETAILS OF SAR EVALUATION

Table 12.1 Day Log

Day Log							
Date	Ambient Temp °C	Fluid Temp °C	Humidity	TSL	Fluid Param	SPC	DUT Test
22 Jun 2017	21	22.4	22%	835B		X	
22 Jun 2017	25	23.1	18%	900B			X
23 Jun 2017	22	23.1	19%	900B			X
26 Jun 2017	25	23.4	21%	900H	X	X	
26 Jun 2017	25	24.3	19%	900H			X

12.2 DUT Setup and Configuration

DUT Setup and Configuration
Overview
The number of test channels and test configurations performed on this device were based on the accessory combinations which produced the highest, or worst case, SAR from previous SAR evaluations of the XL-185P, FCC ID: OWDTR-0143-E and ISED ID: 3636B-0143. Table 6.0 identifies those test channels and each channel was tested in the BODY and FACE configuration.
The **XL-185P** was evaluated at the maximum conducted output power level, preset by the manufacturer, with a fully charged battery in unmodulated continuous transmit operation (Continuous Wave mode at 100% duty cycle) with the transmit key continuously depressed. For a Push-To-Talk (PTT) device with a manually operated transmit pushbutton, a 50% duty cycle compensation for the *reported SAR* was used, as per FCC KDB 447498 (6.1). This was applied only to the LMR bands.
The test procedures outlined in FCC KDB 643646 "SAR Test Reduction Considerations for Occupational PTT Radios" as well as FCC KDB 865664, ISED RSS-102 and IEEE 1528 were used throughout the evaluation of this device in the LMR bands.

12.3 DUT Positioning

DUT Positioning
Positioning
The DUT Positioner was securely fastened to the Phantom Platform. Registration marks were placed on the DUT and the Positioner to ensure consistent positioning of the DUT for each test evaluation.
FACE Configuration
The DUT was securely clamped into the device holder with the surface of the DUT normally held to the user's face facing the phantom. The device holder was adjusted to ensure that the horizontal axis of the DUT was parallel to the bottom of the phantom. A 25mm spacer block was used to set the separation distance between the DUT and the phantom to 25mm. When applicable and unless by design, the antenna of the DUT was prevented from sagging away from the phantom. The spacer block was removed before testing.
BODY Configuration
Body-Worn and Audio Accessories were affixed to the DUT in the manner in which they are intended to be used. The DUT, with its accessories, were securely clamped into the device holder with the surface of the DUT normally in contact with the body in direct contact with the bottom of the phantom, or 0mm separation from the DUT's accessory to the phantom. Body-Worn Accessory straps, linkages, etc. were positioned in a fashion resembling that for which they were intended to be used. Audio Accessory cables, etc., were positioned in a fashion resembling that for which they were intended to be used.
HEAD Configuration
This device is not intended to be held to the ear and was not tested in the HEAD configuration.

12.4 General Procedures and Report

General Procedures and Reporting
General Procedures
The fluid dielectric parameters of the Active Tissue Simulating Liquid (TSL) were measured as described in this Section, recorded and entered into the DASY Measurement Server. Active meaning the TSL used during the SAR evaluation of the DUT. The temperature of the Active TSL was measured and recorded prior to performing a System Performance Check (SPC). An SPC was performed with the Active TSL prior to the start of the test series. The temperature of the Active TSL was measured throughout the day and the Active TSL temperature was maintained to $\pm$ 0.5°C. The Active TSL temperature was maintained to within ±1.0°C throughout the test series. TSL analysis and SPC were repeated when the Active TSL use exceeded 84 hours. An Area Scan exceeding the length and width of the DUT projection was performed and the locations of all maximas within 2dB of the Peak SAR recorded. A Zoom Scan centered over the Peak SAR location(s) was performed and the 1g and 10g SAR values recorded. The resolutions of the Area Scan and Zoom Scan are described in the Scan Resolution table(s) in this Section. A Power Reference Measurement was taken at the phantom reference point immediately prior to the Area Scan. A Power Drift measurement was taken at the phantom reference point immediately following the Zoom Scan to determine the power drift. A Z-Scan from the *Maximum Distance to Phantom Surface* to the fluid surface was performed following the power drift measurement.
Reporting
The 1g SAR, 10g SAR and power drift measurements are recorded in the SAR Measurement Summary tables in the SAR Measurement Summary Section of this report. The SAR values shown in the 100% DC (Duty Cycle) column are the SAR values reported by the SAR Measurement Server with the DUT operating at 100% transmit duty cycle. The SAR values in the 50% DC column have been scaled by 50% for 50% Push-To-Talk duty cycle compensation. These tables also include other information such as transmit channel and frequency, modulation, accessories tested and DUT-phantom separation distance. In the Scaling of Maximum Measured SAR Section of this report, the highest measured SAR in the BODY and FACE configurations, within the entire scope of this assessment, are, when applicable, scaled for Fluid Sensitivity, Manufacturer's Tune-Up Tolerance, Simultaneous Transmission and Drift. With the exception of Duty Cycle correction/compensation, SAR values are ONLY scaled up, not down. The final results of this scaling is the *reported SAR* which appears on the Cover Page of this report.

12.5 Fluid Dielectric and Systems Performance Check

Fluid Dielectric and Systems Performance Check
Fluid Dielectric Measurement Procedure
The fluid dielectric parameters of the Tissue Simulating Liquid (TSL) are measured using the Open-Ended Coax Method connected to an Agilent 8753ET Network Analyzer connected to a measurement server running Aprel Dielectric Property Measurement System. A frequency range of ± 100MHz for frequencies > 300MHz and ± 50MHz for frequencies ≤ 300MHz with frequency step size of 10MHz is used. The center frequency is centered around the SAR measurement probe's calibration point for that TSL frequency range. A calibration of the setup is performed using a short-open-deionized water (at 23°C in a 300ml beaker) method. A sample of the TSL is placed in a 300ml beaker and the open-ended coax is submerged approximately 8mm below the fluid surface in the approximate center of the beaker. A check of the setup is made to ensure no air is trapped under the open-ended coax. The sample of TSL is measured and compared to the FCC OET Bulletin 65 Supplement C targets for HEAD or BODY for the entire fluid measurement range. Fluid adjustment are made if the dielectric parameters are > 5% in range that the DUT is to be tested. If the adjustments fail to bring the parameters to ≤ 5% but are < 10%, the SAR Fluid Sensitivity as per IEC 62201-1 and FCC KDB 865664 are applied to the highest measured SAR. A TSL with dielectric parameters > 10% in the DUT test frequency range are not used.
Systems Performance Check
The fluid dielectric parameters of the Active TSL are entered into the DASY Measurement Server at each of the 10MHz step size intervals. Active meaning the TSL used during the SAR evaluation of the DUT. The DASY Measurement System will automatically interpolate the dielectric parameters for DUT test frequencies that fall between the 10MHz step intervals. A Systems Performance Check (SPC) is performed in accordance with IEEE 1528 "System Check" and FCC KDB 865664 "System Verification". A validation source, dipole or Confined Loop Antenna (CLA), is placed under the geometric center of the phantom and separated from the phantom in accordance to the validation source's Calibration Certificate data. A CW signal set to the frequency of the validate source's and SAR measurement probe's calibration frequency with a forward power set to the validation source's Calibration Certificate data power setting is applied to the validation source. An Area Scan is centered over the projection of the validation source's feed point and an Area Scan is taken. A Zoom Scan centered over the Peak SAR measurement of the Area Scan and the 1g and 10g SAR is measured. The measured 1g and 10g SAR is compared to the 1g and 10g SAR measurements from the validation source's Calibration Certificate. When required, the measured SAR is normalized to 1.0W and compared to the normalized SAR indicated on the validation source's Calibration Certificate. The SPC is considered valid when the measured and normalized SAR is ≤ 10% of the measured and normalize SAR of the validation source's Calibration Certificate. The fluid dielectric parameters of the Active TSL and SPC are repeated when the Active TSL has been in use for greater than 84 hours or if the Active TSL temperature has exceed ± 1°C of the initial fluid analysis.

12.6 Scan Resolution 100MHz to 2GHz

Scan Resolution 100MHz to 2GHz	
Maximum distance from the closest measurement point to phantom surface: (Geometric Center of Probe Center)	**4 ± 1 mm**
Maximum probe angle normal to phantom surface. (Flat Section ELI Phantom)	**5° ± 1°**
Area Scan Spatial Resolution ΔX, ΔY	**15 mm**
Zoom Scan Spatial Resolution ΔX, ΔY	**7.5 mm**
Zoom Scan Spatial Resolution ΔZ (Uniform Grid)	**5 mm**
Zoom Scan Volume X, Y, Z	**30 mm**
Phantom	**ELI**
Fluid Depth	**150 ± 5 mm**
An Area Scan with an area extending beyond the device was used to locate the candidate maximas within 2dB of the global maxima.	
A Zoom Scan centered over the peak SAR location(s) determined by the Area Scan was used to determine the 1-gram and 10-gram peak spatial-average SAR	

12.7 Scan Resolution 2GHz to 3GHz

Scan Resolution 2GHz to 3GHz	
Maximum distance from the closest measurement point to phantom surface: (Geometric Center of Probe Center)	**4 ± 1 mm**
Maximum probe angle normal to phantom surface. (Flat Section ELI Phantom)	**5° ± 1°**
Area Scan Spatial Resolution ΔX, ΔY	**12 mm**
Zoom Scan Spatial Resolution ΔX, ΔY	**5 mm**
Zoom Scan Spatial Resolution ΔZ (Uniform Grid)	**5 mm**
Zoom Scan Volume X, Y, Z	**30 mm**
Phantom	**ELI**
Fluid Depth	**150 ± 5 mm**
An Area Scan with an area extending beyond the device was used to locate the candidate maximas within 2dB of the global maxima.	
A Zoom Scan centered over the peak SAR location(s) determined by the Area Scan was used to determine the 1-gram and 10-gram peak spatial-average SAR	

12.8 Scan Resolution 5GHz to 6GHz

Scan Resolution 5GHz to 6GHz	
Maximum distance from the closest measurement point to phantom surface: (Geometric Center of Probe Center)	**4 ± 1 mm**
Maximum probe angle normal to phantom surface. (Flat Section ELI Phantom)	**5° ± 1°**
Area Scan Spatial Resolution ΔX, ΔY	**10 mm**
Zoom Scan Spatial Resolution ΔX, ΔY	**4 mm**
Zoom Scan Spatial Resolution ΔZ (Uniform Grid)	**2 mm**
Zoom Scan Volume X, Y, Z	**22 mm**
Phantom	**ELI**
Fluid Depth	**100 ± 5 mm**
An Area Scan with an area extending beyond the device was used to locate the candidate maximas within 2dB of the global maxima.	
A Zoom Scan centered over the peak SAR location(s) determined by the Area Scan was used to determine the 1-gram and 10-gram peak spatial-average SAR	

13.0 MEASUREMENT UNCERTAINTIES

Table 13.0 Measurement Uncertainty

UNCERTAINTY BUDGET FOR DEVICE EVALUATION (IEEE 1528-2013 Table 9)									
Uncertainty Component	**IEEE 1528 Section**	**Uncertainty Value ±%**	**Probability Distribution**	**Divisor**	**ci 1g**	**ci 10g**	**Uncertainty Value ±% (1g)**	**Uncertainty Value ±% (10g)**	**V_i or V_{eff}**
Measurement System									
Probe Calibration*	E.2.1	6.6	Normal	1	1	1	6.60	6.60	∞
Axial Isotropy*	E.2.2	4.7	Rectangular	1.732050808	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy*	E.2.2	9.6	Rectangular	1.732050808	0.7	0.7	3.9	3.9	∞
Boundary Effect*	E.2.3	8.3	Rectangular	1.732050808	1	1	4.8	4.8	∞
Linearity*	E.2.4	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
System Detection Limits*	E.2.4	1.0	Rectangular	1.732050808	1	1	0.6	0.6	∞
Modulation Response	E.2.5	4.0	Rectangular	1.732050808	1	1	2.3	2.3	∞
Readout Electronics*	E.2.6	1.0	Normal	1	1	1	1.0	1.0	∞
Response Time*	E.2.7	0.8	Rectangular	1.732050808	1	1	0.5	0.5	∞
Integration Time*	E.2.8	1.4	Rectangular	1.732050808	1	1	0.8	0.8	∞
RF Ambient Conditions - Noise	E.6.1	0.0	Rectangular	1.732050808	1	1	0.0	0.0	∞
RF Ambient Conditions - Reflection	E.6.1	0.0	Rectangular	1.732050808	1	1	0.0	0.0	∞
Probe Positioner Mechanical Tolerance*	E.6.2	0.4	Rectangular	1.732050808	1	1	0.2	0.2	∞
Probe Positioning wrt Phantom Shell*	E.6.3	2.9	Rectangular	1.732050808	1	1	1.7	1.7	∞
Extrapolation, interpolation & integration algorithms for max. SAR evaluation*	E.5	3.9	Rectangular	1.732050808	1	1	2.3	2.3	∞
Test Sample Related									
Test Sample Positioning	E.4.2	0.3	Normal	1	1	1	0.3	0.3	5
Device Holder Uncertainty*	E.4.1	3.6	Normal	1	1	1	3.6	3.6	∞
SAR Drift Measurement**	E.2.9	0.0	Rectangular	1.732050808	1	1	0.0	0.0	∞
SAR Scaling***	E.6.5	2.0	Rectangular	1.732050808	1	1	1.2	1.2	∞
Phantom and Tissue Parameters									
Phantom Uncertainty*	E.3.1	4.0	Rectangular	1.732050808	1	1	2.3	2.3	∞
SAR Correction Uncertainty	E.3.2	1.2	Normal	1	1	0.84	1.2	1.0	∞
Liquid Conductivity (measurement)	E.3.3	6.8	Normal	1	0.78	0.71	5.3	4.8	10
Liquid Permittivity (measurement)	E.3.3	5.3	Normal	1	0.23	0.26	1.2	1.4	10
Liquid Conductivity (Temperature)	E.3.2	0.1	Rectangular	1.732050808	0.78	0.71	0.1	0.0	∞
Liquid Permittivity Temperature)	E.3.2	0.0	Rectangular	1.732050808	0.23	0.26	0.0	0.0	∞
Effective Degrees of Freedom(1)								**V_{eff} =**	**873.2**
Combined Standard Uncertainty			**RSS**				**12.59**	**12.40**	
Expanded Uncertainty (95% Confidence Interval)			**k=2**				**25.18**	**24.80**	
Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003									

(1) The Effective Degrees of Freedom is > 30 therefore a coverage factor of k=2 represents an approximate confidence level of 95%.

* Provided by SPEAG

Table 13.1 Calculation of Degrees of Freedom

Table 13.1

Calculation of the Degrees and Effective Degrees of Freedom	
$v_i = n - 1$	$v_{eff} = \dfrac{u_c^4}{\sum_{i=1}^{m} \dfrac{c_i^4 u_i^4}{v_i}}$

14.0 FLUID DIELECTRIC PARAMETERS

Table 14.0 Fluid Dielectric Parameters 900MHz BODY TSL

****

Aprel Laboratory
Test Result for UIM Dielectric Parameter
Thu 22/Jun/2017 09:20:08
Freq Frequency(GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.8000	55.34	0.97	54.76	0.94
0.8100	55.30	0.97	54.58	0.92
0.8200	55.26	0.97	54.61	0.94
0.8300	55.22	0.97	54.20	0.95
0.8400	55.18	0.98	54.43	0.95
0.8500	55.15	0.99	54.06	0.98
0.8600	55.12	1.00	54.07	0.98
0.8700	55.09	1.01	54.02	1.00
0.8800	55.06	1.03	54.01	1.00
0.8900	55.03	1.04	54.04	1.01
0.9000	55.00	1.05	53.78	1.01
0.9100	55.00	1.06	53.65	1.04
0.9200	54.99	1.06	53.68	1.03
0.9300	54.97	1.07	53.37	1.04
0.9400	54.95	1.07	53.72	1.07
0.9500	54.93	1.08	53.14	1.07
0.9600	54.92	1.08	53.34	1.10
0.9700	54.90	1.08	52.93	1.10
0.9800	54.88	1.09	52.99	1.11
0.9900	54.86	1.09	52.82	1.13
1.0000	54.84	1.10	53.01	1.14

FLUID DIELECTRIC PARAMETERS

Date:	22 Jun 2017	Fluid Temp:	22.4	Frequency:	900MHz	Tissue:	Body

Freq (MHz)		Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
800.0000		54.7600	0.9400	55.3400	0.97	-1.05%	-3.09%
810.0000		54.5800	0.9200	55.3000	0.97	-1.30%	-5.15%
820.0000		54.6100	0.9400	55.2600	0.97	-1.18%	-3.09%
830.0000		54.2000	0.9500	55.2200	0.97	-1.85%	-2.06%
840.0000		54.4300	0.9500	55.1800	0.98	-1.36%	-3.06%
850.0000		54.0600	0.9800	55.1500	0.99	-1.98%	-1.01%
860.0000		54.0700	0.9800	55.1200	1.00	-1.90%	-2.00%
861.0000	*	54.0650	0.9820	55.1170	1.00	-1.91%	-1.90%
870.0000		54.0200	1.0000	55.0900	1.01	-1.94%	-0.99%
880.0000		54.0100	1.0000	55.0600	1.03	-1.91%	-2.91%
890.0000		54.0400	1.0100	55.0300	1.04	-1.80%	-2.88%
896.0000	*	53.8840	1.0100	55.0120	1.05	-2.05%	-3.44%
898.5000	*	53.8190	1.0100	55.0045	1.05	-2.16%	-3.67%
900.0000		53.7800	1.0100	55.0000	1.05	-2.22%	-3.81%
901.0000	*	53.7670	1.0130	55.0000	1.05	-2.24%	-3.62%
910.0000		53.6500	1.0400	55.0000	1.06	-2.45%	-1.89%
920.0000		53.6800	1.0300	54.9900	1.06	-2.38%	-2.83%
930.0000		53.3700	1.0400	54.9700	1.07	-2.91%	-2.80%
935.0000	*	53.5450	1.0550	54.9600	1.07	-2.57%	-1.40%
937.5000	*	53.6325	1.0625	54.9550	1.07	-2.41%	-0.70%
940.0000	*	53.7200	1.0700	54.9500	1.07	-2.24%	0.00%
950.0000		53.1400	1.0700	54.9300	1.08	-3.26%	-0.93%
960.0000		53.3400	1.1000	54.9200	1.08	-2.88%	1.85%
970.0000		52.9300	1.1000	54.9000	1.08	-3.59%	1.85%
980.0000		52.9900	1.1100	54.8800	1.09	-3.44%	1.83%
990.0000		52.8200	1.1300	54.8600	1.09	-3.72%	3.67%
1000.0000		53.0100	1.1400	54.8400	1.10	-3.34%	3.64%

*Channel Frequency Tested

Table 14.1 Fluid Dielectric Parameters 900MHz HEAD TSL

****
Aprel Laboratory
Test Result for UIM Dielectric Parameter
Mon 26/Jun/2017 08:48:46
Freq Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM
****

Freq	FCC_eH	FCC_sH	Test_e	Test_s
0.8000	41.68	0.90	41.08	0.88
0.8100	41.63	0.90	40.85	0.88
0.8200	41.58	0.90	40.89	0.90
0.8300	41.53	0.90	40.82	0.90
0.8400	41.50	0.91	40.71	0.90
0.8500	41.50	0.92	40.47	0.92
0.8600	41.50	0.93	40.22	0.93
0.8700	41.50	0.94	40.17	0.94
0.8800	41.50	0.95	40.10	0.95
0.8900	41.50	0.96	39.89	0.97
0.9000	41.50	0.97	39.76	0.98
0.9100	41.50	0.98	39.78	0.98
0.9200	41.49	0.98	39.53	1.00
0.9300	41.47	0.99	39.24	1.01
0.9400	41.45	0.99	39.87	1.01
0.9500	41.43	0.99	39.37	1.02
0.9600	41.42	1.00	39.14	1.04
0.9700	41.40	1.00	39.04	1.05
0.9800	41.38	1.01	39.27	1.05
0.9900	41.36	1.01	38.78	1.05
1.0000	41.34	1.01	38.63	1.07

FLUID DIELECTRIC PARAMETERS

Date:	26 Jun 2017	Fluid Temp:	23.4	Frequency:	0HeaMHz	Tissue:	Head

Freq (MHz)		Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
800.0000		41.0800	0.8800	41.6800	0.90	-1.44%	-2.22%
810.0000		40.8500	0.8800	41.6300	0.90	-1.87%	-2.22%
820.0000		40.8900	0.9000	41.5800	0.90	-1.66%	0.00%
830.0000		40.8200	0.9000	41.5300	0.90	-1.71%	0.00%
840.0000		40.7100	0.9000	41.5000	0.91	-1.90%	-1.10%
850.0000		40.4700	0.9200	41.5000	0.92	-2.48%	0.00%
860.0000		40.2200	0.9300	41.5000	0.93	-3.08%	0.00%
861.0000	*	40.2150	0.9310	41.5000	0.93	-3.10%	0.00%
870.0000		40.1700	0.9400	41.5000	0.94	-3.20%	0.00%
880.0000		40.1000	0.9500	41.5000	0.95	-3.37%	0.00%
890.0000		39.8900	0.9700	41.5000	0.96	-3.88%	1.04%
896.0000	*	39.8120	0.9760	41.5000	0.97	-4.07%	1.04%
898.5000	*	39.7795	0.9785	41.5000	0.97	-4.15%	1.03%
900.0000		39.7600	0.9800	41.5000	0.97	-4.19%	1.03%
901.0000	*	39.7620	0.9800	41.5000	0.97	-4.19%	0.93%
910.0000		39.7800	0.9800	41.5000	0.98	-4.14%	0.00%
920.0000		39.5300	1.0000	41.4900	0.98	-4.72%	2.04%
930.0000		39.2400	1.0100	41.4700	0.99	-5.38%	2.02%
935.0000	*	39.5550	1.0100	41.4600	0.99	-4.59%	2.02%
937.5000	*	39.7125	1.0100	41.4550	0.99	-4.20%	2.02%
940.0000	*	39.8700	1.0100	41.4500	0.99	-3.81%	2.02%
950.0000		39.3700	1.0200	41.4300	0.99	-4.97%	3.03%
960.0000		39.1400	1.0400	41.4200	1.00	-5.50%	4.00%
970.0000		39.0400	1.0500	41.4000	1.00	-5.70%	5.00%
980.0000		39.2700	1.0500	41.3800	1.01	-5.10%	3.96%
990.0000		38.7800	1.0500	41.3600	1.01	-6.24%	3.96%
1000.0000		38.6300	1.0700	41.3400	1.01	-6.56%	5.94%

*Channel Frequency Tested

15.0 SYSTEM VERIFICATION TEST RESULTS

Table 15.0 System Verification Results 900MHz BODY TSL

System Verification Test Results					
Date		Frequency (MHz)	Validation Source		
			P/N		S/N
22June 2017		900	D900V2		54
Fluid Type	Fluid Temp °C	Ambient Temp °C	Ambient Humidity (%)	Forward Power (mW)	Source Spacing (mm)
Body	22.4	21	22%	250	15
Fluid Parameters					
Permittivity			Conductivity		
Measured	Target	Deviation	Measured	Target	Deviation
53.80	55.00	-2.22%	1.01	1.05	-3.81%
Measured SAR					
1 gram			10 gram		
Measured	Target	Deviation	Measured	Target	Deviation
2.67	2.86	-6.64%	1.70	1.85	-8.11%
Measured SAR Normalized to 1.0W					
1 gram			10 gram		
Normalized	Target	Deviation	Normalized	Target	Deviation
10.68	11.44	-6.64%	6.80	7.40	-8.11%

Prior to the SAR evaluations, system checks were performed on the planar section of the phantom and a SPEAG validation dipole in accordance with the procedures described in IEEE 1528-2013, FCC KDB 846224 and IEC 62209-1.

The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer.

The forward power was applied to the dipole and the system was verified to a tolerance of +10% from the system manufacturer's dipole calibration target SAR value.

The forward power applied was same forward power applied by the calibration lab during the calibration of this validation source.

Table 15.1 System Verification Results 900MHz HEAD TSL

System Verification Test Results					
Date		Frequency (MHz)	Validation Source		
			P/N		S/N
26June 2017		900	D900V2		54
Fluid Type	Fluid Temp °C	Ambient Temp °C	Ambient Humidity (%)	Forward Power (mW)	Source Spacing (mm)
Head	23.4	25	21%	250	15
Fluid Parameters					
Permittivity			Conductivity		
Measured	Target	Deviation	Measured	Target	Deviation
39.80	39.76	-4.19%	0.98	0.97	1.03%
Measured SAR					
1 gram			10 gram		
Measured	Target	Deviation	Measured	Target	Deviation
2.66	2.81	-5.64%	1.67	1.79	-7.19%
Measured SAR Normalized to 1.0W					
1 gram			10 gram		
Normalized	Target	Deviation	Normalized	Target	Deviation
10.64	11.24	-5.34%	6.68	7.16	-6.70%

Prior to the SAR evaluations, system checks were performed on the planar section of the phantom and a SPEAG validation dipole in accordance with the procedures described in IEEE 1528-2013, FCC KDB 846224 and IEC 62209-1.

The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer.

The forward power was applied to the dipole and the system was verified to a tolerance of +10% from the system manufacturer's dipole calibration target SAR value.

The forward power applied was same forward power applied by the calibration lab during the calibration of this validation source.

16.0 MEASUREMENT SYSTEM SPECIFICATIONS

Table 16.0 Measurement System Specifications

Measurement System Specification	
Specifications	
Positioner	Stäubli Unimation Corp. Robot Model: RX60L
Repeatability	0.02 mm
No. of axis	6
Data Acquisition Electronic (DAE) System	
Cell Controller	
Processor	AMD Athlon XP 2400+
Clock Speed	2.0 GHz
Operating System	Windows XP Professional
Data Converter	
Features	Signal Amplifier, multiplexer, A/D converter, and control logic
Software	Measurement Software: DASY
	Postprocessing Software: SEMCAD, V1.8 Build 186
Connecting Lines	Optical downlink for data and status info., Optical uplink for commands and clock
DASY Measurement Server	
Function	Real-time data evaluation for field measurements and surface detection
Hardware	PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM
Connections	COM1, COM2, DAE, Robot, Ethernet, Service Interface
E-Field Probe	
Model	EX3DV4
Serial No.	3600
Construction	Triangular core fiber optic detection system
Frequency	10 MHz to 6 GHz
Linearity	±0.2 dB (30 MHz to 3 GHz)
Phantom	
Type	ELI Elliptical Planar Phantom
Shell Material	Fiberglass
Thickness	2mm +/- .2mm
Volume	> 30 Liter

Measurement System Specification

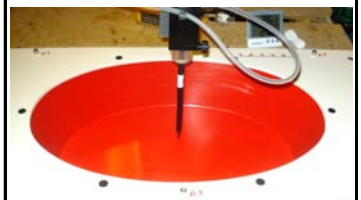
Probe Specification

Construction:	Symmetrical design with triangular core; Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, glycol)
Calibration:	In air from 10 MHz to 2.5 GHz In head simulating tissue at frequencies of 900 MHz and 1.8 GHz (accuracy ± 8%)
Frequency:	10 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Directivity:	± 0.2 dB in head tissue (rotation around probe axis) ± 0.4 dB in head tissue (rotation normal to probe axis)
Dynamic Range:	5 μW/g to > 100 mW/g; Linearity: ± 0.2 dB
Surface Detect:	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Dimensions:	Overall length: 330 mm; Tip length: 16 mm; Body diameter: 12 mm; Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
Application:	General dosimetry up to 3 GHz; Compliance tests of mobile phone

EX3DV4 E-Field Probe

Phantom Specification

The SAM V5.0 phantom is an elliptical planar fiberglass shell phantom with a shell thickness of 2.0mm +/- .2mm at the planar area. This phantom conforms to OET Bulletin 65, Supplement C, IEEE 1528-2013, IEC 62209-1 and IEC 62209-2.



ELI Phantom

Device Positioner Specification

The DASY device positioner has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65^{O}. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections.

Device Positioner

17.0 TEST EQUIPMENT LIST

Table 17.0 Equipment List and Calibration

Test Equipment List				
DESCRIPTION	**ASSET NO.**	**SERIAL NO.**	**DATE CALIBRATED**	**CALIBRATION INTERVAL**
Schmid & Partner DASY System	-	-	-	-
-DASY Measurement Server	158	1078	CNR	CNR
-Robot	46	599396-01	CNR	CNR
-DAE4	19	353	24-Apr-17	Annual
-EX3DV4 E-Field Probe	213	3600	27-Apr-17	Annual
-CLA150 Validation Source	251	4007	27-Apr-17	Triennial
-D835V2 Validation Dipole	217	4D075	23-Apr-15	Triennial
-D900V2 Validation Dipole	20	54	17-Apr-17	Triennial
-D450V3 Validation Dipole	221	1068	21-Apr-15	Triennial
-D2450V2 Validation Dipole	25	825	23-Apr-15	Triennial
-D5GHzV2 Validation Dipole	126	1031	20-Apr-15	Triennial
ELI Phantom	247	-	CNR	CNR
HP 85070C Dielectric Probe Kit	33	none	CNR	CNR
Gigatronics 8652A Power Meter	110	1835801	29-Feb-16	Triennial
Gigatronics 80701A Power Sensor	248	1833687	29-Feb-16	Triennial
HP 8753ET Network Analyzer	134	US39170292	22-Oct-14	Triennial
Rohde & Schwarz SMR20 Signal Generator	6	100104	29-May-17	Triennial
Amplifier Research 5S1G4 Power Amplifier	106	26235	CNR	CNR

18.0 FLUID COMPOSITION

Table 18.1 Fluid Composition 900MHz HEAD TSL

900			900MHz Head	
Tissue Simulating Liquid (TSL) Composition				
Component by Percent Weight				
Water	**Sugar**	**Salt(1)**	**HEC(2)**	**Bacteriacide(3)**
40.71	56.63	1.48	0.99	0.19

(1) Non-Iodinized
(2) **H**ydroxy**E**thyl-**C**ellulose: Sigma-Aldrich P/N 54290-500g
(3) Dow Chemical Dowicil 75 Antimicrobial Perservative

Table 18.2 Fluid Composition 900MHz BODY TSL

900			900MHz Body	
Tissue Simulating Liquid (TSL) Composition				
Component by Percent Weight				
Water	**Sugar**	**Salt(1)**	**HEC(2)**	**Bacteriacide(3)**
53.79	45.13	0.98	0.0	0.1

(1) Non-Iodinized
(2) **H**ydroxy**E**thyl-**C**ellulose: Sigma-Aldrich P/N 54290-500g
(3) Dow Chemical Dowicil 75 Antimicrobial Perservative

APPENDIX A – SYSTEM VERIFICATION PLOTS

Date/Time: 22/06/2017 12:27:25 PM

Test Laboratory: Celltech Labs

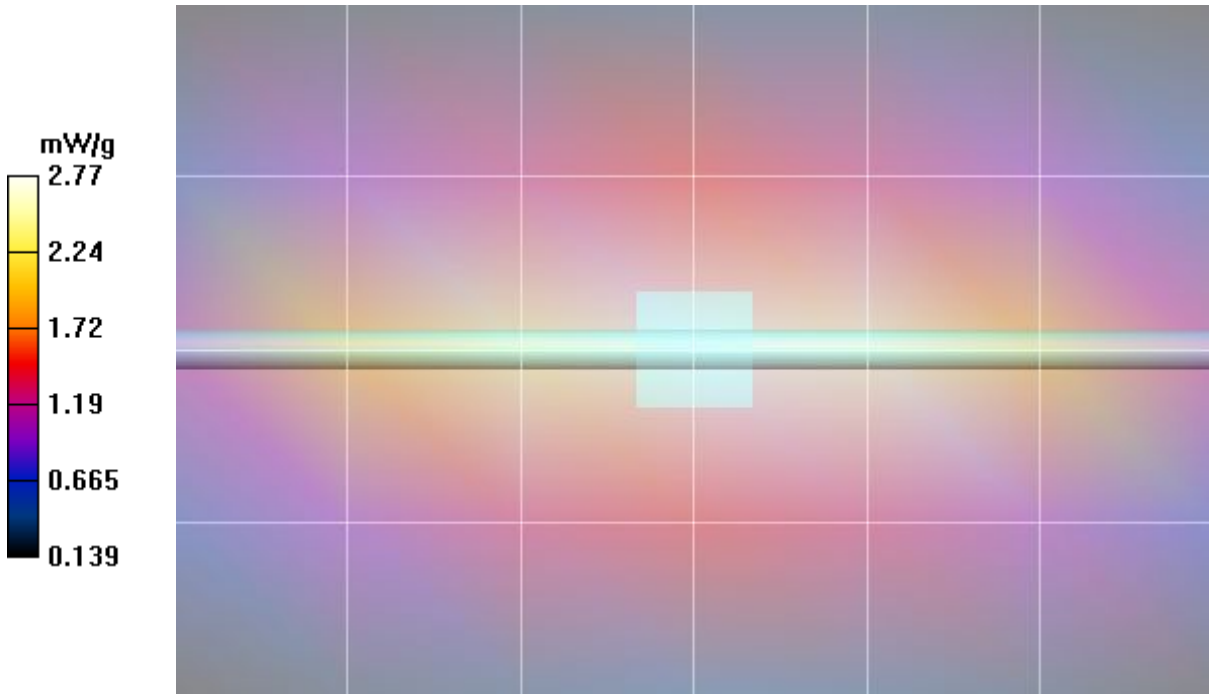
DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:054; Calibrated:04/17/2017
Program Name: SPC 900B

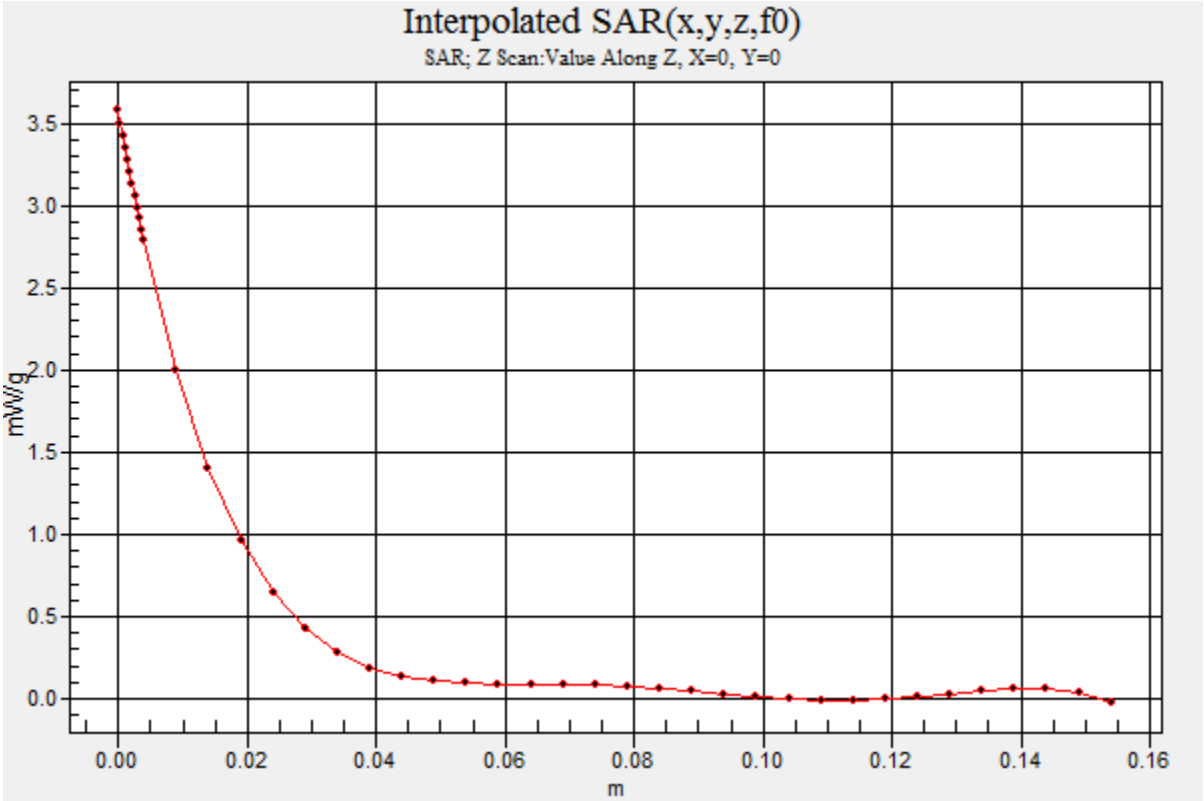
Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 900 MHz; σ = 1.01 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

Body d=15mm Pin=250mW. TS=[2.574][2.86][3.146]W/kg/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.77 mW/g

Body d=15mm Pin=250mW. TS=[2.574][2.86][3.146]W/kg/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 53.3 V/m; Power Drift = 0.042 dB
Peak SAR (extrapolated) = 4.10 W/kg
SAR(1 g) = 2.67 mW/g; SAR(10 g) = 1.7 mW/g
Maximum value of SAR (measured) = 2.89 mW/g





Date/Time: 26/06/2017 9:59:01 AM

Test Laboratory: Celltech Labs

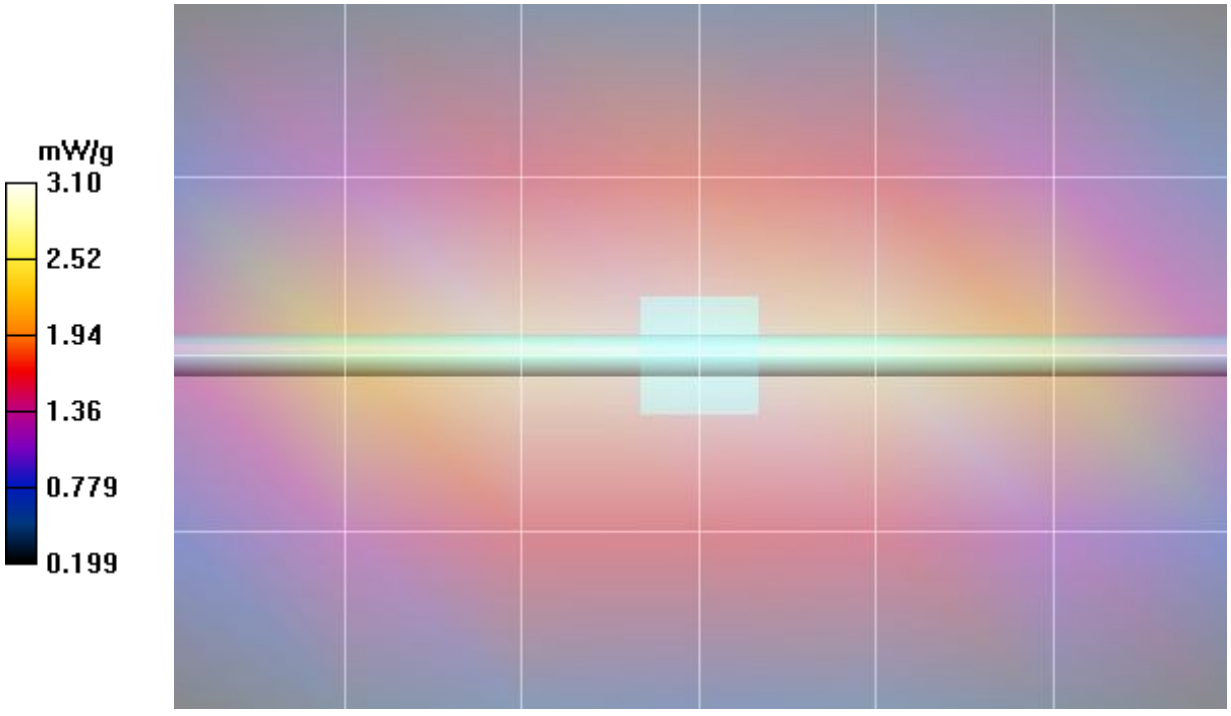
DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:054; Calibrated:04/17/2017
Program Name: SPC 900H

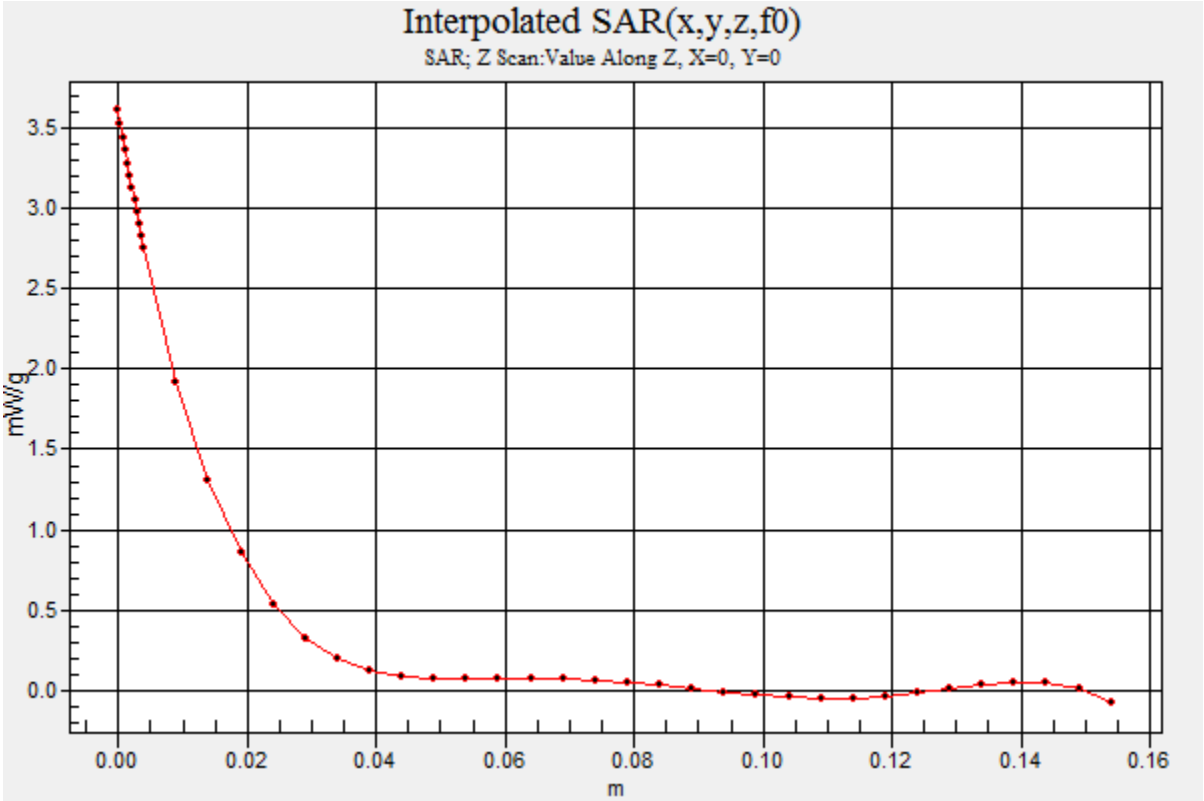
Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 900 MHz; σ = 0.98 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.25, 8.25, 8.25); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

Head d=15mm Pin=250mW. TS=[2.529][2.81][3.091]W/kg/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.10 mW/g

Head d=15mm Pin=250mW. TS=[2.529][2.81][3.091]W/kg/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 56.1 V/m; Power Drift = -0.324 dB
Peak SAR (extrapolated) = 4.15 W/kg
SAR(1 g) = 2.66 mW/g; SAR(10 g) = 1.67 mW/g
Maximum value of SAR (measured) = 2.88 mW/g





APPENDIX B – MEASUREMENT PLOTS OF MAXIMUM MEASURED SAR

Plot B1

Date/Time: 22/06/2017 2:32:32 PM

Test Laboratory: Celltech Labs

DUT:Harris; Type: PTT Radio Transceiver;
Program Name: 900B

Communication System: Lotus -OWDTR-0143-E; Frequency: 896 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 896 MHz; σ = 1.01 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

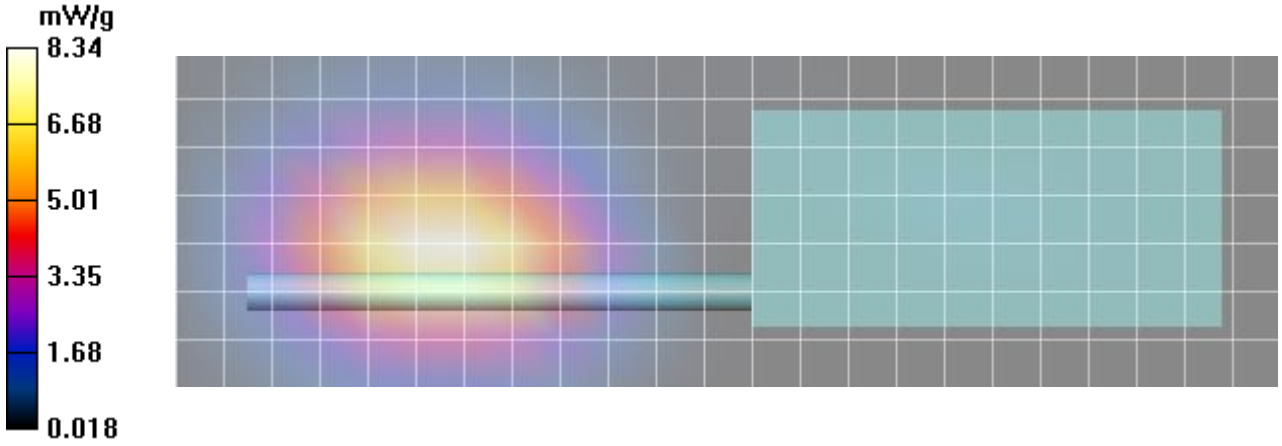
DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

B1 Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 896MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01 2/Area Scan (8x24x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 8.34 mW/g

B1 Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 896MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01 2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 7.89 V/m; Power Drift = 0.411 dB
Peak SAR (extrapolated) = 11.0 W/kg
SAR(1 g) = 8.01 mW/g; SAR(10 g) = 5.64 mW/g

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 8.47 mW/g



Plot B2

Date/Time: 23/06/2017 8:33:54 AM

Test Laboratory: Celltech Labs

DUT:Harris; Type: PTT Radio Transceiver;
Program Name: 900B

Communication System: Lotus -OWDTR-0143-E; Frequency: 861 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 861 MHz; σ = 0.982 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

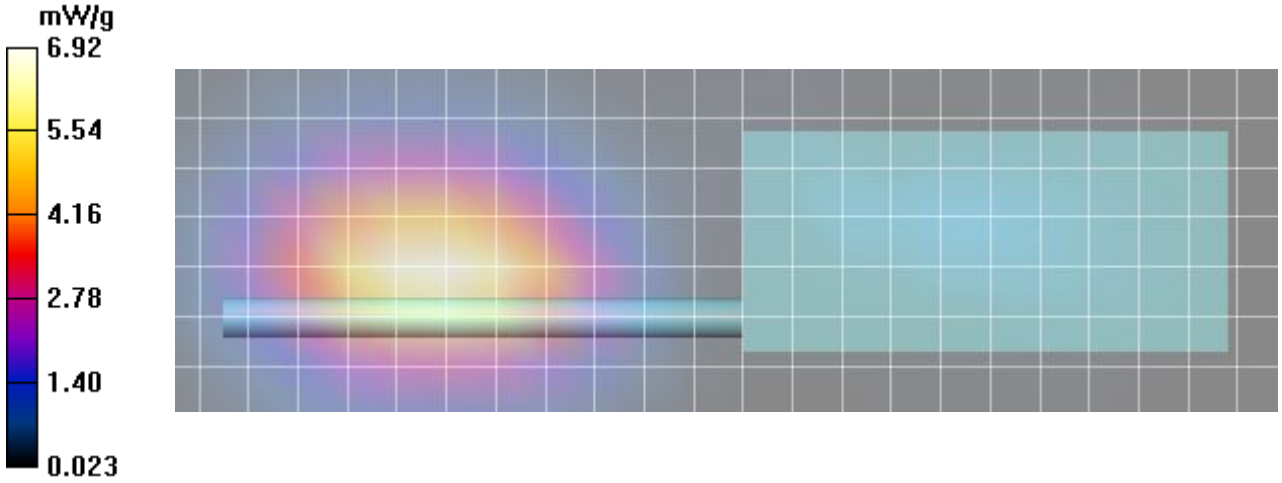
DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

B2 Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 861 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Area Scan (8x24x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 6.92 mW/g

B2 Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 861 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 13.8 V/m; Power Drift = 0.103 dB
Peak SAR (extrapolated) = 8.82 W/kg
SAR(1 g) = 6.46 mW/g; SAR(10 g) = 4.56 mW/g

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 6.83 mW/g



Plot B3

Date/Time: 23/06/2017 9:43:29 AM

Test Laboratory: Celltech Labs

DUT:Harris; Type: PTT Radio Transceiver;
Program Name: 900B

Communication System: Lotus -OWDTR-0143-E; Frequency: 898.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 898.5 MHz; σ = 1.01 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

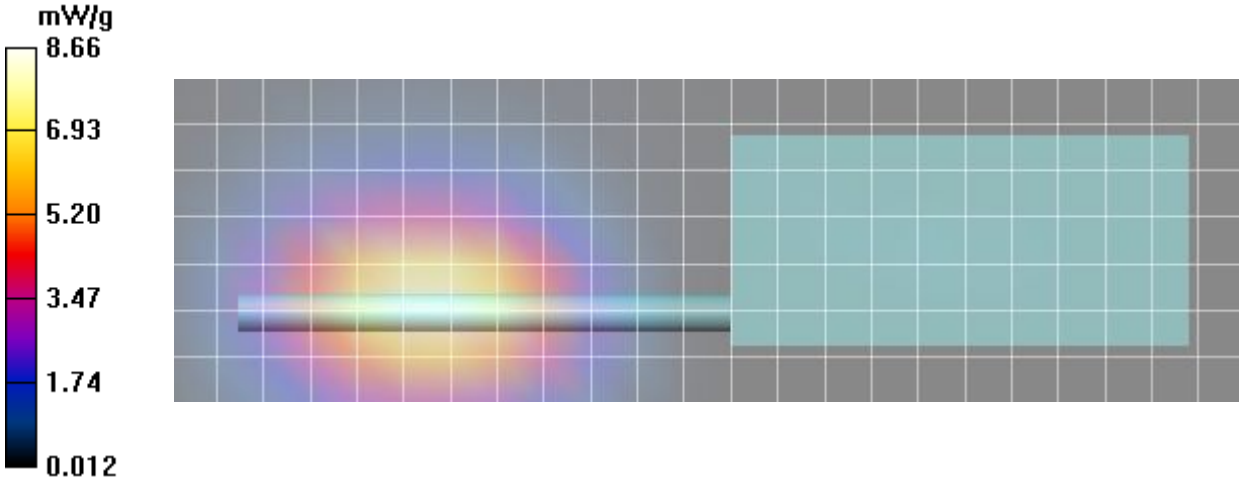
DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

B3 Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 898.5 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Area Scan (8x24x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 8.66 mW/g

B3 Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 898.5 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.17 V/m; Power Drift = 0.056 dB
Peak SAR (extrapolated) = 11.1 W/kg
SAR(1 g) = 8.11 mW/g; SAR(10 g) = 5.74 mW/g

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 8.62 mW/g



Plot B4

Date/Time: 22/06/2017 2:09:39 PMDate/Time: 22/06/2017 2:19:01 PM

Test Laboratory: Celltech Labs

DUT:Harris; Type: PTT Radio Transceiver;
Program Name: 900B

Communication System: Lotus -OWDTR-0143-E; Frequency: 901 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 901 MHz; σ = 1.01 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

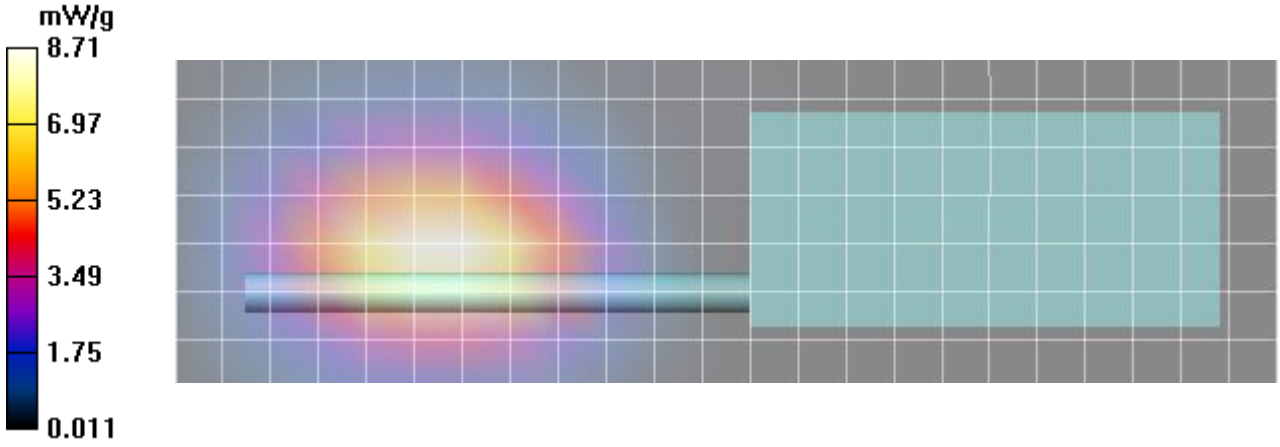
DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

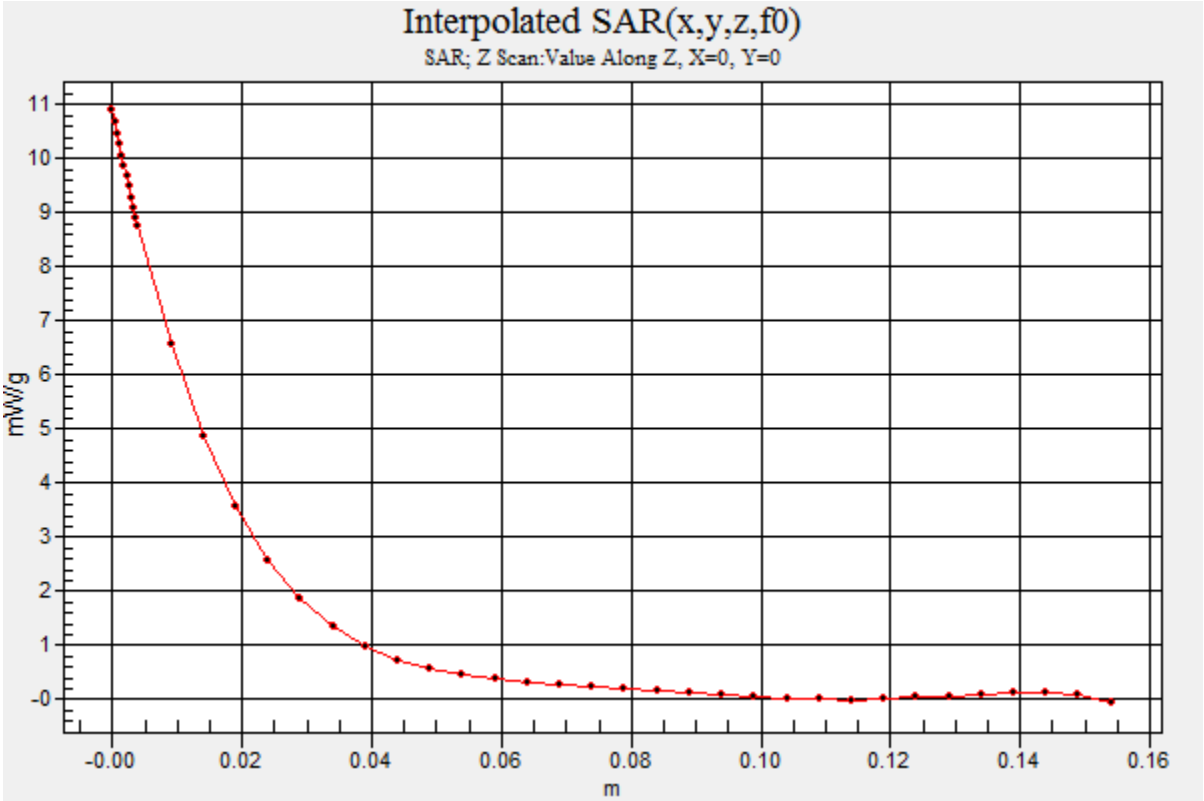
B4Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 901MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Area Scan (8x24x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 8.71 mW/g

B4Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 901MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 8.47 V/m; Power Drift = 0.094 dB
Peak SAR (extrapolated) = 11.6 W/kg
SAR(1 g) = 8.39 mW/g; SAR(10 g) = 5.88 mW/g

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 8.87 mW/g





Plot B5

Date/Time: 22/06/2017 2:51:29 PM

Test Laboratory: Celltech Labs

DUT:Harris; Type: PTT Radio Transceiver;
Program Name: 900B

Communication System: Lotus -OWDTR-0143-E; Frequency: 935 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 935 MHz; σ = 1.06 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

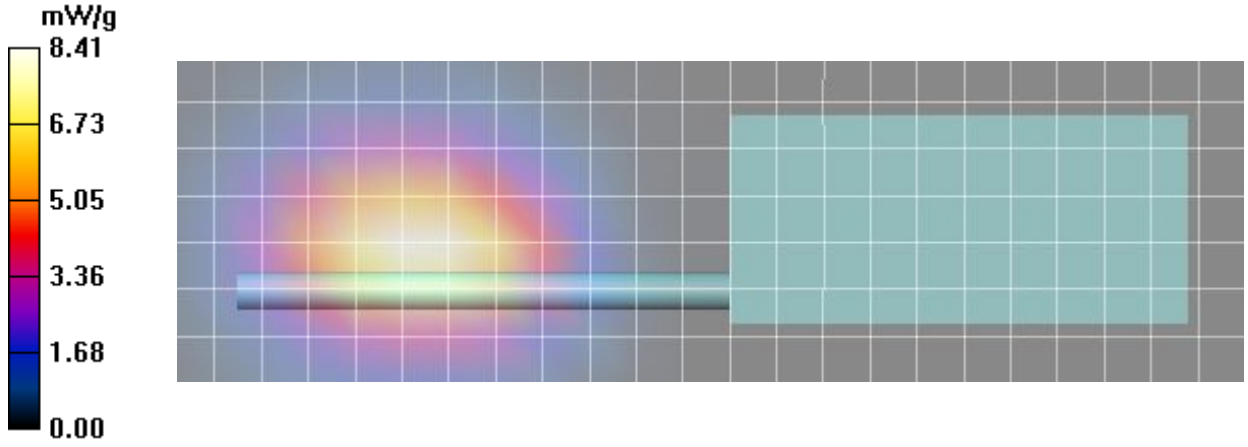
DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

B5 Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 935 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Area Scan (8x24x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 8.41 mW/g

B5 Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 935 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 8.61 V/m; Power Drift = -0.040 dB
Peak SAR (extrapolated) = 11.1 W/kg
SAR(1 g) = 8.02 mW/g; SAR(10 g) = 5.61 mW/g

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 8.47 mW/g



Plot B6

Date/Time: 23/06/2017 9:25:56 AM

Test Laboratory: Celltech Labs

DUT:Harris; Type: PTT Radio Transceiver;
Program Name: 900B

Communication System: Lotus -OWDTR-0143-E; Frequency: 937.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 937.5 MHz; σ = 1.06 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

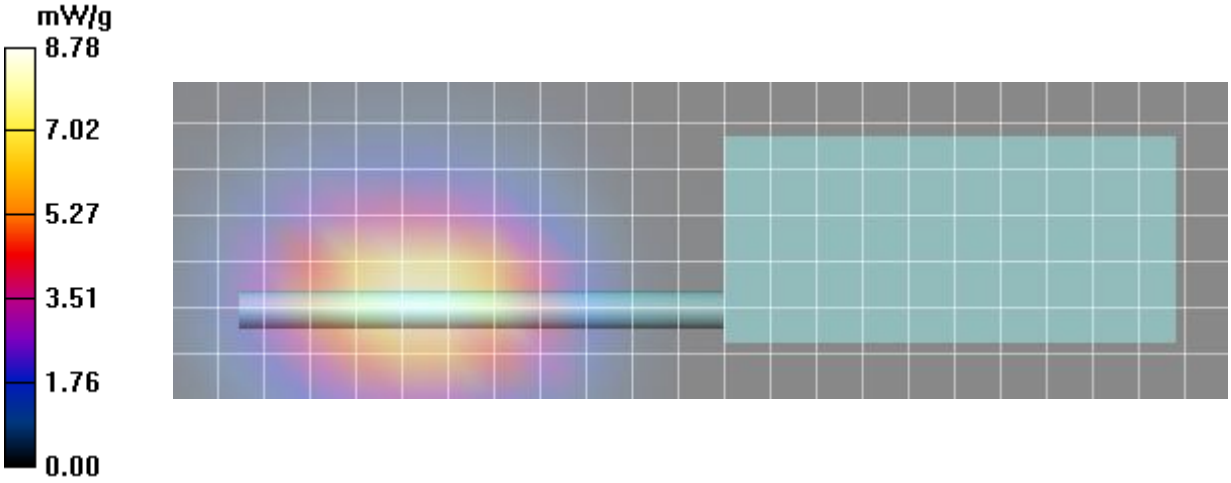
DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

B6 Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 937.5 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Area Scan (8x24x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 8.78 mW/g

B6 Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 937.5 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.07 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 11.3 W/kg
SAR(1 g) = 8.19 mW/g; SAR(10 g) = 5.72 mW/g

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 8.70 mW/g



Plot B7

Date/Time: 22/06/2017 3:30:49 PM

Test Laboratory: Celltech Labs

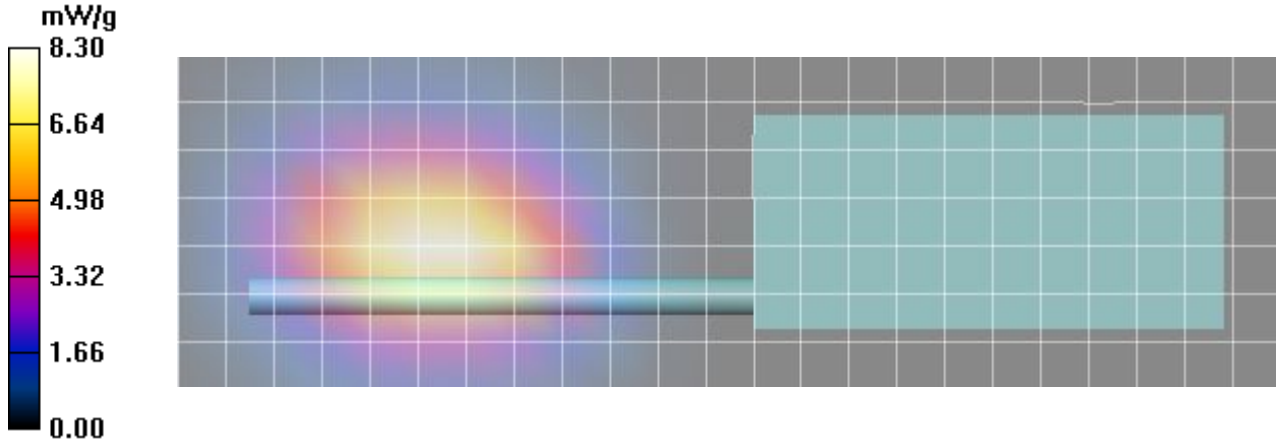
DUT:Harris; Type: PTT Radio Transceiver;
Program Name: 900B

Communication System: Lotus -OWDTR-0143-E; Frequency: 940 MHz;Duty Cycle: 1:1
Medium parameters used: f = 940 MHz; σ = 1.07 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.13, 8.13, 8.13); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

B7 Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 940 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Area Scan (8x24x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 8.30 mW/g

B7 Body, SYS, Eclipse XL-185P 8/900 w/ LTE, 940 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.14 V/m; Power Drift = -0.257 dB
Peak SAR (extrapolated) = 11.0 W/kg
SAR(1 g) = 7.96 mW/g; SAR(10 g) = 5.54 mW/g
Maximum value of SAR (measured) = 8.39 mW/g



Plot F1

Date/Time: 26/06/2017 2:34:51 PM

Test Laboratory: Celltech Labs

DUT:Harris; Type: PTT Radio Transceiver;
Program Name: 900B

Communication System: Lotus -OWDTR-0143-E; Frequency: 896 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 896 MHz; σ = 0.976 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

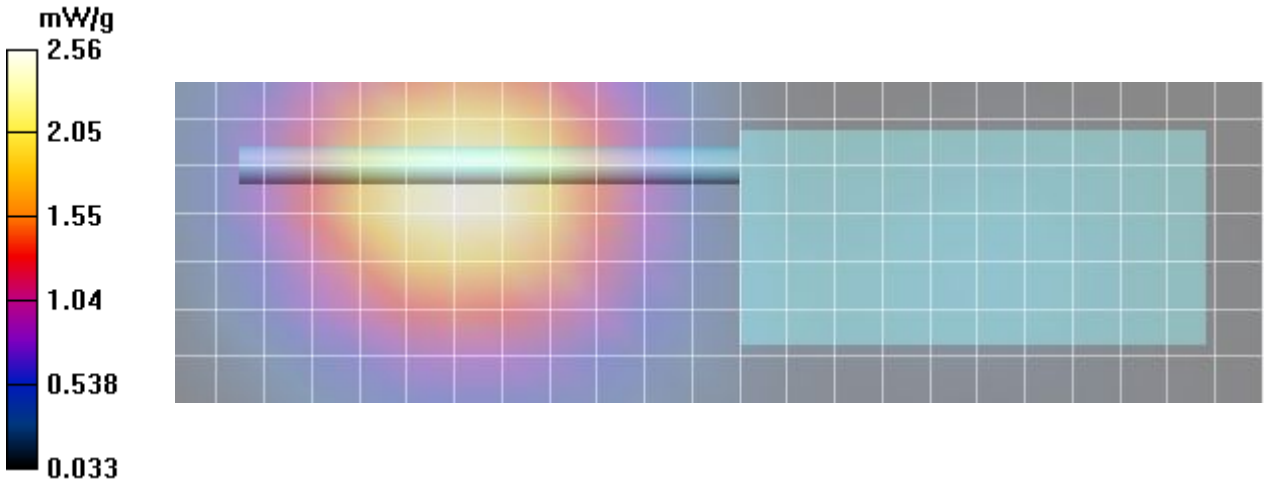
DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.25, 8.25, 8.25); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

F1 Face, SYS, Eclipse XL-185P 8/900 w/ LTE, 896MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Area Scan (8x24x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 2.56 mW/g

F1 Face, SYS, Eclipse XL-185P 8/900 w/ LTE, 896MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = -0.124 dB
Peak SAR (extrapolated) = 3.43 W/kg
SAR(1 g) = 2.55 mW/g; SAR(10 g) = 1.84 mW/g

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 2.70 mW/g



Plot F2

Date/Time: 26/06/2017 3:06:54 PM

Test Laboratory: Celltech Labs

DUT:Harris; Type: PTT Radio Transceiver;
Program Name: 900B

Communication System: Lotus -OWDTR-0143-E; Frequency: 901 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 901 MHz; σ = 0.98 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

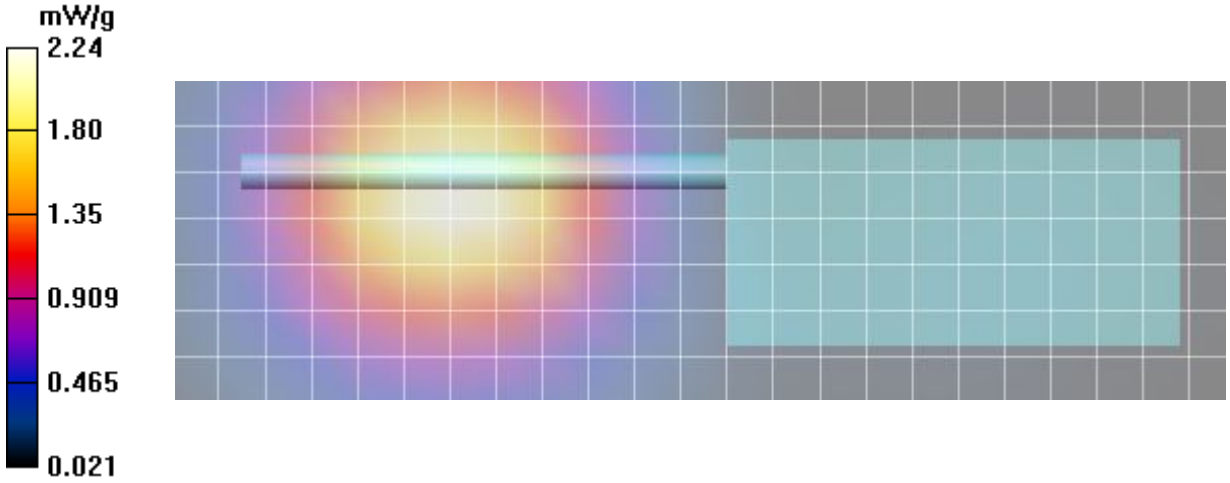
DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.25, 8.25, 8.25); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

F2 Face, SYS, Eclipse XL-185P 8/900 w/ LTE, 901MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Area Scan (8x24x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 2.24 mW/g

F2 Face, SYS, Eclipse XL-185P 8/900 w/ LTE, 901MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = 0.067 dB
Peak SAR (extrapolated) = 2.99 W/kg
SAR(1 g) = 2.22 mW/g; SAR(10 g) = 1.6 mW/g

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 2.34 mW/g



Plot F3

Date/Time: 26/06/2017 3:27:21 PM

Test Laboratory: Celltech Labs

DUT:Harris; Type: PTT Radio Transceiver;
Program Name: 900B

Communication System: Lotus -OWDTR-0143-E; Frequency: 935 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 935 MHz; σ = 1.01 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

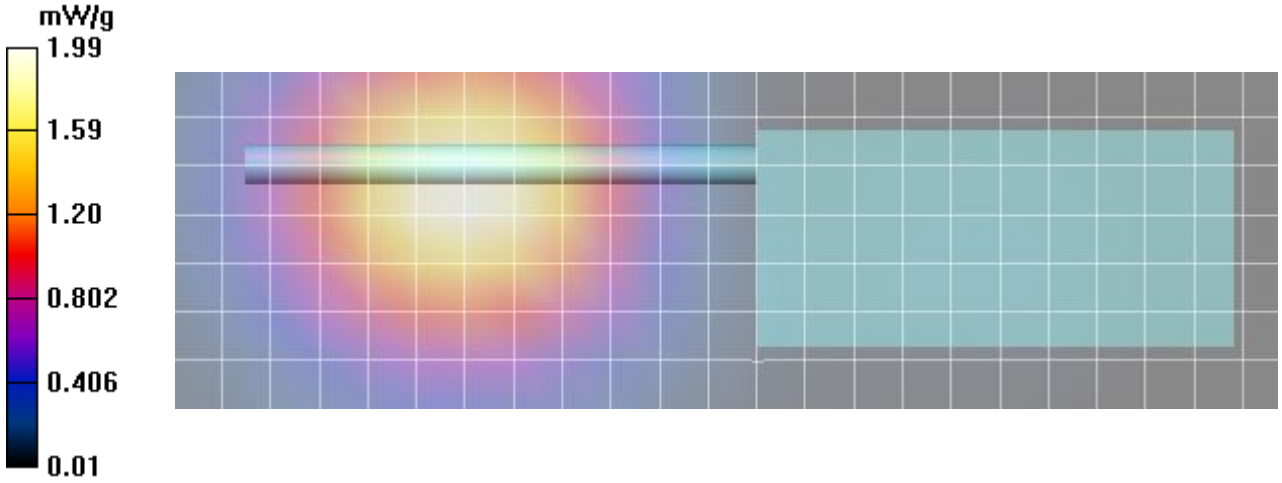
DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.25, 8.25, 8.25); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

F3 Face, SYS, Eclipse XL-185P 8/900 w/ LTE, 935 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Area Scan (8x24x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 1.99 mW/g

F3 Face, SYS, Eclipse XL-185P 8/900 w/ LTE, 935 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = -0.177 dB
Peak SAR (extrapolated) = 2.70 W/kg
SAR(1 g) = 1.99 mW/g; SAR(10 g) = 1.42 mW/g

Info: Interpolated medium parameters used for SAR evaluation!
Maximum value of SAR (measured) = 2.11 mW/g



Plot F4

Date/Time: 26/06/2017 3:46:01 PM

Test Laboratory: Celltech Labs

DUT:Harris; Type: PTT Radio Transceiver;
Program Name: 900B

Communication System: Lotus -OWDTR-0143-E; Frequency: 940 MHz;Duty Cycle: 1:1
Medium parameters used: f = 940 MHz; σ = 1.01 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3600; ConvF(8.25, 8.25, 8.25); Calibrated: 27/04/2017
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 24/04/2017
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 145

F4 Face, SYS, Eclipse XL-185P 8/900 w/ LTE, 940 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Area Scan (8x24x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 4.11 mW/g

F4 Face, SYS, Eclipse XL-185P 8/900 w/ LTE, 940 MHz, bc, spk-mic, ant E75-0286-001, bat 4010-01/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 11.7 V/m; Power Drift = -0.195 dB
Peak SAR (extrapolated) = 5.67 W/kg
SAR(1 g) = 4.1 mW/g; SAR(10 g) = 2.89 mW/g
Maximum value of SAR (measured) = 4.36 mW/g