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SAR EVALUATION TO FCC REQUIREMENTS

TOP-K2620-T0 Hand Portable Transceiver

for
Tait Electronics Ltd (NZ)

Report Number: M010252A

Issue Date: 24th April 2001

This report is not an endorsement of the subject product.
The results within apply to the test sample as tested.

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TOP-K2620-TO Hand Portable Transceiver
Report Number: M010252A

1.0 GENERAL INFORMATION

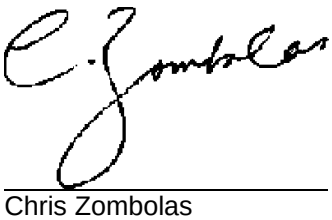
Test Sample:	Hand-Portable Transceiver
Model Number:	TOP-K2620-TO
Serial Number:	14079091
FCC ID:	CASTEL0032
Manufacturer:	Tait Electronics Ltd - New Zealand
Test Standard/s:	FCC – Supplement C (OET Bulletin 65): 1997 FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Field. FCC Rule Part – 2.1093, Docket 96-326
Test Dates:	6th March to 9th March and 13th March 2001
Tested for:	Tait Electronics Ltd 558 Wairakei Road Christchurch, New Zealand
Phone: **Fax:**	+64 3 358 1026 +64 3 358 0432
Contact:	Linda Grose – Compliance Co-ordinator

Test Officer/s:

Celina Ly

Aaron Sargent

Authorised Signature:



Chris Zombolas
EMC Technologies Pty Ltd

Executive Summary

This report contains the results of the SAR evaluation performed on the Tait Hand-Portable Transceiver Model TOP-K2620-TO. The EUT (Equipment Under Test) was tested in accordance with FCC requirements. The SAR was performed at its maximum transmitted power level (3 Watts).

The test sample is a Push To Talk (PTT) device, which operates in the frequency range 896.1 MHz to 940.9 MHz with the maximum transmit power of 3 Watts. The design of the device limits the transmit-receive duty cycle to a maximum of 25%, with a maximum transmit time limited to one minute.

Channel	Rx Frequency (MHz)	Tx Frequency (MHz)	Tx Power (Watts)
1	935.1	896.1	3
2	938.1	918.1	3
3	940.9	940.9	3
4	935.1	896.1	1
5	938.1	918.1	1
6	940.9	940.9	1

The EUT was tested at channels 1,2 and 3, which are the low, middle and high frequencies of 896.1 MHz to 940.9 MHz band of operation. The SAR was performed at the following positions:

- Left Ear
- Right Ear
- Nose tip position (20 mm Separation)
- 10 mm in front of Nose Tip (30 mm Separation)
- Belt Clip Position
- Belt Clip Position with Lapel Speaker Microphone

Test Position	SAR Level for (1g) mW/g (100% duty Cycle)	Extrapolated SAR for (1g) mW/g (50% duty Cycle)	Extrapolated SAR for (1g) mW/g (25% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)	Extrapolated SAR for (10g) mW/g (50% duty Cycle)	Extrapolated SAR for (10g) mW/g (25% duty Cycle)
The highest SAR of Touch Position						
Touch Left	2.01	1.005	0.503	1.48	0.74	0.37
The highest SAR of Nose Tip Position (20 mm separation)						
EUT - Antenna	4.03	2.015	1.01	2.94	1.47	0.735
The highest SAR of Nose Tip Position (30 mm separation)						
EUT - Antenna	2.40	1.20	0.60	1.79	0.895	0.448
The highest SAR of Belt Clip Position						
EUT - Antenna	4.40	2.20	1.10	3.25	1.625	0.813
The highest SAR of Belt Clip Position with Lapel speaker Microphone						
EUT - Antenna	2.24	1.12	0.56	1.65	0.825	0.413

The maximum measured SAR level was found to be at the “Nose Tip Position” at a frequency of 896.1MHz (channel 1). The test sample complied with the 1.6 mW/g SAR limit for an uncontrolled RF exposure, when the continuous transmit results are adjusted for a 25% transmit duty cycle. It complied with the controlled RF exposure limits, even for continuous transmit mode.

2.0 DESCRIPTION OF DEVICE

2.1 Description of Test Sample

The device tested was a Hand-Portable Transceiver employing frequency modulation (FM). It has an integral fixed antenna (non-retractable). The following specifications were supplied by the manufacturer.

Antenna Type: Monopole
Antenna Location: Top Left
Antenna Dimensions: Length 185 mm
Diameter at base 12 mm
Diameter of whip 5 mm

Antenna Gain:

Elevation 1	Test Condition	Gain Test Result (dBi)					
		Peak (dBi)			Average (dBi)		
Side - Side	Radio Position	895 MHz	915 MHz	941 MHz	895 MHz	915 MHz	941 MHz
	Free Space	2.13	2.91	3.17	-2.20	-1.95	-2.25

Elevation 1	Test Condition	Gain Test Result (dBi)					
		Peak (dBi)			Average (dBi)		
Azimuth	Radio Position	895 MHz	915 MHz	941 MHz	895 MHz	915 MHz	941 MHz
	Free Space	2.33	2.21	2.12	1.68	1.90	1.52

2.2 Test Signal, Frequency and Output Power

The test was performed on a Tait Hand-Portable Transceiver for this evaluation. The device employs frequency modulation (FM). The Transceiver was set to transmit continuously at its maximum output power of 3 Watts. The channels utilised in the measurements are shown in the table below. Channel 4, 5 and 6 use the same frequency as 1, 2 and 3 respectively, however the transmit power is limited to 1 watt.

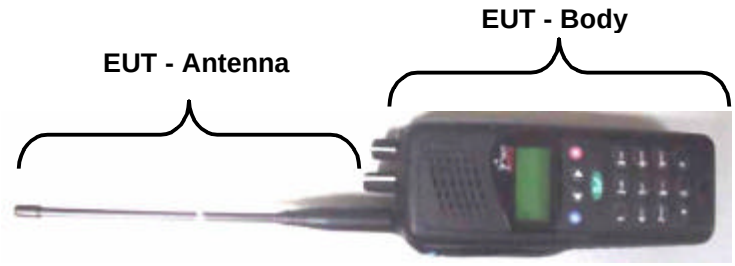
Channel	Frequency	Tx Power
1	896.1 MHz	3 Watts
2	918.1 MHz	3 Watts
3	940.9 MHz	3 Watts

The SAR was measured at the three test frequencies for each of the six test positions:

1. Left Ear
2. Right Ear
3. Nose tip position (20 mm Separation)
4. 10 mm in front of Nose Tip (30 mm Separation)
5. Belt Clip Position (Lapel Speaker Microphone not connected)
6. Belt Clip Position with Lapel Speaker Microphone

Preliminary SAR test performed on test positions 3 to 6, indicated there were two hot spots, one on the unit (keypad, mouthpiece and earpiece) and the other the antenna. Hence SAR test were performed in two parts (EUT – Body and EUT – Antenna) for test positions 3 to 6.

EUT – Body: SAR measurement is performed on the unit of the EUT.
EUT – Antenna: SAR measurement is performed on the antenna of the EUT.



2.3 Battery Status

The phone battery was fully charged prior to commencement of each measurement. Each SAR test was completed within 40 minutes. The battery condition was monitored by measuring the RF power at a defined position inside the phantom before the commencement of each test and again after the completion of the test.

The conducted power of the transceiver was measured before and after each SAR test using a Gigatronics 8542B power meter.

Touch Position			
Test Position	Test Freq. (MHz)	Power Measured before SAR test (W)	Power measured after SAR test (W)
Touch Left	896.1	2.81	2.58
Touch Left	918.1	3.15	2.94
Touch Left	940.9	3.07	2.86
Touch Right	896.1	3.10	2.87
Touch Right	918.1	3.04	2.93
Touch Right	940.9	3.12	2.98

Nose Tip Position (20 mm Separation)			
Test Position	Test Freq. (MHz)	Power Measured before SAR test (W)	Power measured after SAR test (W)
EUT - Body	896.1	2.75	2.60
EUT - Body	918.1	3.11	2.92
EUT - Body	940.9	2.88	2.75
EUT - Antenna	896.1	2.97	2.82
EUT - Antenna	918.1	3.08	2.84
EUT - Antenna	940.9	2.80	2.60

10 mm in front of Nose Tip (30 mm Separation)			
Test Position	Test Freq. (MHz)	Power Measured before SAR test (W)	Power measured after SAR test (W)
EUT - Body	896.1	2.81	2.71
EUT - Body	918.1	3.14	2.95
EUT - Body	940.9	3.08	2.74
EUT - Antenna	896.1	2.95	2.80
EUT - Antenna	918.1	2.98	2.74
EUT - Antenna	940.9	3.09	2.97

Belt Clip Position			
Test Position	Test Freq. (MHz)	Power Measured before SAR test (W)	Power measured after SAR test (W)
EUT - Body	896.1	2.99	2.80
EUT - Body	918.1	2.98	2.86
EUT - Body	940.9	3.28	3.11
EUT - Antenna	896.1	2.95	2.81
EUT - Antenna	918.1	3.01	2.90
EUT - Antenna	940.9	3.31	3.11

Belt Clip with Lapel Speaker Microphone.			
Test Position	Test Freq. (MHz)	Power Measured before SAR test (W)	Power measured after SAR test (W)
EUT - Body	896.1	2.80	2.67
EUT - Body	918.1	2.83	2.69
EUT - Body	940.9	2.98	2.90
EUT - Antenna	896.1	2.73	2.60
EUT - Antenna	918.1	3.00	2.76
EUT - Antenna	940.9	2.89	2.72

Battery Details

Battery #1:	Tait - Made in NZ	**Battery #2:**	Tait - Made in NZ	**Battery #3:**	Tait - Made in NZ
Type:	TOPB700	**Type:**	TOPB700	**Type:**	TOPB700
Serial No.:	15125411	**Serial No.:**	15125427	**Serial No:**	15103200
	1500 mAh		1500 mAh		1500 mAh
	Ni-MH Battery		Ni-MH Battery		Ni-MH Battery

2.4 Modulation scheme

The device employs standard frequency modulation (FM).

3.0 DESCRIPTION OF SAR MEASUREMENT SYSTEM

3.1 Probe Positioning System

The measurements were performed with the automated near-field scanning system, the DASY3 from Schmid & Partner Engineering AG (SPEAG), also known as the Kuster System. The system is based on a high precision 6 axis robot (working range greater that 1.1m), which positions the SAR measurement probes with a positional repeatability of better than ±0.02 mm. The DASY3 and the Generic Twin Phantom meet the requirements of the FCC measurement method.

3.2 E-Field Probe Type and Performance

The SAR measurements were conducted with the dosimetric probe ET3DV6 Serial: 1377 (manufactured by SPEAG) designed in the classical triangular configuration and optimised for dosimetric evaluation. The probe has been calibrated and found to be accurate to better than ±0.25 dB. The probe is suitable for measurements close to material discontinuity at the surface of the phantom. The sensors of the probe are directly loaded with a Schottky diodes and connected via highly resistive lines (length = 300 mm) to the data acquisition electronics (DAE). The DAE is connected to the computer system via a fibre optic link

3.3 Calibration and Validation Procedures and Data

Prior to the SAR assessment, the system validation kit was used to verify that DASY3 was operating within its specifications. The validation was performed at 900 MHz by feeding a known power level into a reference dipole, set at a know distance from the phantom. The measured SAR is compared to the theoretically derived value. If the measured SAR exceeds a tolerance of 5%, the cause is investigated and the system verification repeated. Final SAR measurements are not performed until the validation result is within the 5% tolerance.

3.4 Phantom Properties (Size, Shape, Shell Thickness, Tissue Material Properties)

The phantom used was the “Homogeneous Generic Twin Phantom” from SPEAG. It has a thickness of 2.0 mm and was filled with a tissue simulating liquid. The ear was simulated by means of a spacer to give a spacing of 4.0 mm between the earpiece of the EUT and the tissue simulating liquid. The flat section was used to represent “Nose Tip Position” and “Body Worn Position”.

SAR measurements were performed first with the brain simulating liquid and then with muscle simulating liquid. The dielectric parameters of the tissue simulating liquid were measured daily prior to each SAR assessment using the HP85070A dielectric probe kit and HP8753ES Network Analyser. The actual dielectric parameters are shown in Table 1A and 1B.

Table 1A: Measured Dielectric Values - Brain Simulating Liquid

Frequency Band	Îr (measured)	Îr (target)	s (mho/m) (measured)	s (target)	r kg/m^3
915 MHz	*40.6	45.8 ± 5% (43.51 to 48.09)	0.84	0.77 ± 10% (0.693 to 0.847)	1000

** The measured value of the liquid was outside the target range, however it did not underestimate the SAR values.*

Table 1B: Measured Dielectric Values - Muscle Simulating Liquid

Frequency Band	Îr (measured)	Îr (target)	s (mho/m) (measured)	s (target)	r kg/m^3
915 MHz	55.9	55.9 ± 5% (53.11 to 58.70)	0.98	0.98 ± 10% (0.882 to 1.08)	1040

3.5 Measurement Equipment Details

Equipment Type	Manufacturer	Model Number	Serial Number	Calibration Due
Robot - Six Axes	Staubli	RX90BL	N/A	Not applicable
Robot Remote Control	Schmid & Partner Engineering AG	CS7MB	RX90B	Not applicable
Generic Twin Phantom	Schmid & Partner Engineering AG	N/A	N/A	Not applicable
Data Acquisition Electronics	Schmid & Partner Engineering AG	DASE3 V1	359	24-Jun-01
Probe E-Field - Dummy	Schmid & Partner Engineering AG	DP1	N/A	Not applicable
Probe E-Field	Schmid & Partner Engineering AG	ET3DV6	1377	17-Aug-01
Probe E-Field	Schmid & Partner Engineering AG	ET3DV6	1380	17-Aug-01
Antenna Dipole 1800 MHz	Schmid & Partner Engineering AG	D1800V2	242	14-Dec-01
Antenna Dipole 900 MHz	Schmid & Partner Engineering AG	D900V2	047	12-Dec-01
RF Amplifier 600 MHz to 1100 MHz, 5W	Radio Technology	PAL1850-30B	813	Not applicable
Synthesized signal generator	Hewlett Packard	8662A	2222A00956	In test
RF Power Meter Dual	Giga-Tronics	8542B	1830125	21-June-01
RF Power Sensor 0.01 - 18 GHz	Giga-Tronics	80301A	1828782	21-June-01
RF Power Sensor 0.01 - 18 GHz	Giga-Tronics	80301A	1828805	21-June-01
Dual Directional Coupler	Hewlett Packard	778D	1144A04700	21-Aug-01
Spectrum Analyzer 9 kHz - 22 GHz	Hewlett Packard	8593EM	3412A00105	27-Mar-01

4.0 SAR MEASUREMENT PROCEDURE USING DASY3

The SAR evaluation was performed with the SPEAG DASY3 system. A summary of the procedure follows:

a) A measurement of the SAR value at a fixed location above the reference point is used as a reference value for assessing the power drop of the EUT. The SAR at this point is measured at the start of the test and then again at the end of the test.

b) The SAR distribution at the exposed side of the phantom is measured at a distance of 3.9 mm from the inner surface of the shell. The area covers the entire dimension of the head and the horizontal grid spacing is 20 mm x 20 mm. Based on this data, the area of the maximum absorption is determined by Spline interpolation.

c) Around this point, a volume of 32 mm x 32 mm x 34 mm is assessed by measuring 5 x 5 x 7 points. On the basis of this data set, the spatial peak SAR value is evaluated with the following procedure:

   (i) The data at the surface are extrapolated, since the centre of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation is based on a least square algorithm. A polynomial of the fourth order is calculated through the points in z-axes. This polynomial is then used to evaluate the points between the surface and the probe tip.

   (ii) The maximum interpolated value is searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) are computed using the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one-dimensional splines with the “Not a Knot”- condition (in x, y and z-direction). The volume is integrated with the trapezoidal – algorithm. One thousand points (10 x 10 x 10) are interpolated to calculate the averages.

   (iii) All neighbouring volumes are evaluated until no neighbouring volume with a higher average value is found.

   (iv) The SAR value at the same location as in Step (a) is again measured (If the value changes by more than 5%, the entire measurement is repeated.)

4.1 Description of the Test Positions

4.1.1 Touch Left and Right

The SAR evaluation was performed on both left and right hand side of the “Touch Position”. The reference line of the phone lies in the reference plane of the head. The centre of the earpiece of the phone is placed at the entry of the auditory canal. The angle between the reference line of the phone and the connecting both auditory canal openings is reduced until the any point of the device touches the Cheek.

Refer to Appendix A4 for test set up photos.

4.1.2.1 Nose Tip Position (20mm Separation)

The SAR evaluation was performed at the flat section of the phantom. The EUT was placed 20 mm from the phantom, this position is equivalent to the EUT placed in front of the nose.
Refer to Appendix A5 for test set up photos.

4.1.2.2 Nose Tip Position (30mm Separation)

The SAR test was also performed with the EUT placed 30 mm from the phantom, which is equivalent to 10 mm from the front of the nose tip.
Refer to Appendix A6 for test set up photos.

4.1.3 Belt Clip Position, Lapel Speaker Microphone not connected

The EUT was placed at the flat section of the phantom. The back of the EUT with belt clip was suspended until touching the phantom. The belt clip was used to separate the EUT from the phantom. This simulated the belt worn position.
Refer to Appendix A7 for test set up photos.

4.1.4 Belt Clip Position with Lapel Speaker Microphone

The EUT was connected with the lapel speaker microphone, the microphone was taped to the phantom. The transceiver was placed at the flat section of the phantom and suspended until the belt clip touched the phantom. This was equivalent to the device worn at the belt position with the speaker microphone at the shoulder.
Refer to Appendix A8 for test set up photos.

4.2 List of All Test Cases (Test Frequencies, User Modes etc)

For each test position, the SAR was measured at three test channels with the test sample operating at maximum power, as specified in section 2.2.

4.3 FCC SAR Limits for RF Exposure

Peak SAR Limits	Uncontrolled Exposure	Controlled Exposure
Partial Body (Head)	**1.6 mW/g** (averaged over 1g cube of tissue)	**8.0 mW/g** (averaged over 1g cube of tissue)
Hands, Wrists, Feet and Ankles	**4.0 mW/g** (averaged over 10g cube of tissue)	**20.0 mW/g** **(**averaged over 10g cube of tissue)
Spatial Average SAR Limits for Whole Body	**0.08 mW/g**	**0.4 mW/g**

5.0 MEASUREMENT UNCERTAINTY

Table 2: Uncertainty Budget for DASY3

Uncertainty Description	Error	Distrib.	Weight	Std. Dev.	Offset
Probe Uncertainty					
axial isotropy	±0.2 dB	U-shaped	0.5	±2.4%	
Spherical isotropy	±0.4 dB	U-shaped	0.5	±4.8%	
Isotropy from gradient	±0.5 dB	U-shaped	0		
Spatial resolution	±0.5%	normal	1	±0.5%	
Linearity error	±0.2 dB	rectang.	1	±2.7%	
Calibration error	±3.3%	normal	1	±3.3%	
SAR Evaluation Uncertainty					
Data acquisition error	±1%	rectang.	1	±0.6%	
ELF and RF disturbances	±0.25%	normal	1	±0.25%	
Conductivity assessment	±10%	rectang.	1	±5.8%	
Spatial Peak SAR Evaluation Uncertainty					
Extrapol boundary effect	±3%	normal	1	±3%	5%
Probe positioning error	±0.1mm	normal	1	±1%	
Integrat. and cube orient	±3%	normal	1	±3%	
Cube shape inaccuracies	±2%	normal	1	±1.2%	
Device positioning	±6%	normal	1	±6%	
Combined Uncertainties				**±11.7%**	**±5%**

Estimated total measurement uncertainty for the DASY3 measurement system was ±11.7%. The extended uncertainty (K = 2) was assessed to be ±23.5% based on 95% confidence level. The uncertainty is not added to the measurement result for FCC tests.

6.0 SAR EVALUATION RESULTS

The SAR values averaged over 1 g and 10 g tissue masses were determined for the test sample at the test positions described in Section 4.1.1 to 4.1.4. The results are given in Tables 3 to 12.

The plots with the corresponding SAR distributions, which reveal information about the location of the maximum SAR with respect to the device, are contained in Appendix B of this report.

6.1 SAR Measurement Results for Touch Position

In the following tables:
- 100% duty cycle is continuous transmit
- 50% duty cycle is a transmit / receive ratio of 50%.
- 25% duty cycle is a transmit / receive ratio of 25%

Table 3A: SAR Measurement Results - Touch Position

Test Position	Plot No.	Test Channel	Test Freq. (MHz)	SAR Level for (1g) mW/g (100% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)
Touch Left	1	1	896.1	1.20	0.863
Touch Left	2	2	918.1	2.01	1.48
Touch Left	3	3	940.9	1.71	1.25
Touch Right	4	1	896.1	1.63	1.19
Touch Right	5	2	918.1	2.01	1.47
Touch Right	6	3	940.9	2.00	1.45

Table 3B: The highest SAR for the "Touch Position" extrapolated to 50% duty cycle

Test Position	SAR Level for (1g) mW/g (100% duty Cycle)	Extrapolated SAR for (1g) mW/g (50% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)	Extrapolated SAR for (10g) mW/g (50% duty Cycle)
Touch Left	2.01	1.005	1.48	0.74
Touch Right	2.01	1.005	1.47	0.735

Table 3C: The highest SAR for the "Touch Position" extrapolated to 25% duty cycle

Test Position	SAR Level for (1g) mW/g (100% duty Cycle)	Extrapolated SAR for (1g) mW/g (25% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)	Extrapolated SAR for (10g) mW/g (25% duty Cycle)
Touch Left	2.01	0.503	1.48	0.37
Touch Right	2.01	0.503	1.47	0.368

The maximum measured SAR level for "Touch Position" was 2.01 mW/g for a 1 gram cube of mass and 1.48 mW/g for a 10 gram cube of mass at 100% duty cycle. These values were measured in the "Touch Left Position" at a frequency of 918.1 MHz (Channel 2).

These SAR levels extrapolated for a 50% duty cycle were 1.005 mW/g (1g) and 0.74 mW/g (10g). The extrapolated values for a 25% duty cycle were 0.503 mW/g (1g) and 0.37 mW/g (10g).

6.2 SAR Measurement Results for Nose Tip Position

6.2.1 20 mm Separation

Table 4A: SAR Measurement Results – Nose Tip Position (20 mm separation)

Test Position	Plot No.	Test Channel	Test Freq. (MHz)	SAR Level for (1g) mW/g 100% duty Cycle	SAR Level for (10g) mW/g 100% Duty Cycle
EUT – Body	7	1	896.1	1.46	0.920
EUT – Body	8	2	918.1	0.800	0.586
EUT – Body	9	3	940.9	0.759	0.555
EUT – Antenna	10	1	896.1	4.03	2.94
EUT – Antenna	11	2	918.1	3.80	2.74
EUT – Antenna	12	3	940.9	2.55	1.84

Table 4B: The highest SAR for the "Nose Tip Position (20 mm separation)" extrapolated to 50% duty cycle

Test Position	SAR Level for (1g) mW/g (100% duty Cycle)	Extrapolated SAR for (1g) mW/g (50% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)	Extrapolated SAR for (10g) mW/g (50% duty Cycle)
EUT – Body	1.46	0.73	0.920	0.46
EUT – Antenna	4.03	2.015	2.94	1.47

Table 4C: The highest SAR for the "Nose Tip Position (20 mm separation)" extrapolated to 25% duty cycle

Test Position	SAR Level for (1g) mW/g (100% duty Cycle)	Extrapolated SAR for (1g) mW/g (25% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)	Extrapolated SAR for (10g) mW/g (25% duty Cycle)
EUT - Body	1.46	0.365	0.920	0.23
EUT - Antenna	4.03	1.01	2.94	0.735

The maximum measured SAR level for "Nose Tip Position (20 mm separation)" was 4.03 mW/g for a 1 gram cube of mass and 2.94 mW/g for a 10 gram cube of mass at 100% duty cycle. These values were measured at the "EUT - Antenna" at a frequency of 896.1 MHz (Channel 1).

These SAR levels extrapolated for a 50% duty cycle were 2.015 mW/g (1g) and 1.47 mW/g (10g). The extrapolated values for a 25% duty cycle were 1.01 mW/g (1g) and 0.735 mW/g (10g).

6.2.2 Nose Tip Position with 30 mm Separation

Table 5A: SAR Measurement Results - Nose Tip Position (30 mm separation)

Test Position	Plot No.	Test Channel	Test Freq. (MHz)	SAR Level for (1g) mW/g	SAR Level for (10g) mW/g
EUT – Body	13	1	896.1	0.640	0.355
EUT – Body	14	2	918.1	0.424	0.312
EUT – Body	15	3	940.9	0.402	0.295
EUT – Antenna	16	1	896.1	2.40	1.79
EUT – Antenna	17	2	918.1	2.21	1.61
EUT – Antenna	18	3	940.9	1.46	1.07

Table 5B: The highest SAR for the "Nose Tip Position (30 mm separation)" extrapolated to 50% duty cycle

Test Position	SAR Level for (1g) mW/g (100% duty Cycle)	Extrapolated SAR for (1g) mW/g (50% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)	Extrapolated SAR for (10g) mW/g (50% duty Cycle)
EUT - Body	0.64	0.32	0.355	0.178
EUT - Antenna	2.40	1.20	1.79	0.895

Table 5C: The highest SAR for the "Nose Tip Position (30 mm separation)" extrapolated to 25% duty cycle

Test Position	SAR Level for (1g) mW/g (100% duty Cycle)	Extrapolated SAR for (1g) mW/g (25% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)	Extrapolated SAR for (10g) mW/g (25% duty Cycle)
EUT - Body	0.64	0.16	0.355	0.089
EUT - Antenna	2.40	0.60	1.79	0.448

The maximum measured SAR level for "Nose Tip Position (30 mm separation)" was 2.40 mW/g for a 1 gram cube of mass and 1.79 mW/g for a 10 gram cube of mass at 100% duty cycle. These values were measured at the "EUT - Antenna" at a frequency of 896.1 MHz (Channel 1).

These SAR levels extrapolated for a 50% duty cycle were 1.20 mW/g (1g) and 0.895 mW/g (10g). The extrapolated values for a 25% duty cycle were 1.20 mW/g (1g) and 0.448 mW/g (10g).

6.3 SAR Measurement Results for Belt Clip Position

(The Lapel Speaker Microphone cable was not connected for this test)

Table 6A: SAR Measurement Results – Belt Clip Position

Test Position	Plot No.	Test Channel	Test Freq. (MHz)	SAR Level for (1g) mW/g	SAR Level for (10g) mW/g
EUT - Body	19	1	896.1	1.29	0.792
EUT - Body	20	2	918.1	1.03	0.636
EUT - Body	20	3	940.9	0.830	0.595
EUT - Antenna	22	1	896.1	4.40	3.25
EUT - Antenna	23	2	918.1	3.56	2.60
EUT - Antenna	24	3	940.9	2.01	1.47

Table 6B: The highest SAR for the "Belt Clip Position" extrapolated to 50% duty cycle

Test Position	SAR Level for (1g) mW/g (100% duty Cycle)	Extrapolated SAR for (1g) mW/g (50% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)	Extrapolated SAR for (10g) mW/g (50% duty Cycle)
EUT - Body	1.29	0.645	0.792	0.396
EUT - Antenna	4.40	2.20	3.25	1.625

Table 6C: The highest SAR for the "Belt Clip Position" extrapolated to 25% duty cycle

Test Position	SAR Level for (1g) mW/g (100% duty Cycle)	Extrapolated SAR for (1g) mW/g (25% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)	Extrapolated SAR for (10g) mW/g (25% duty Cycle)
EUT - Body	1.29	0.323	0.792	0.198
EUT - Antenna	4.40	1.10	3.25	0.813

The maximum measured SAR level for "Belt Clip Position" was 4.40 mW/g for a 1 gram cube of mass and 3.25 mW/g for a 10 gram cube of mass at 100% duty cycle. These values were measured in the "EUT - Antenna" at a frequency of 896.1 MHz (Channel 1).

These SAR levels extrapolated for a 50% duty cycle were 2.20 mW/g (1g) and 1.625 mW/g (10g). The extrapolated values for a 25% duty cycle were 1.10 mW/g (1g) and 0.813 mW/g (10g).

Note: These tests were part of the explorative process, therefore these results are ignored for compliance purposes. The Belt-Clip without the Lapel Speaker Microphone connected does not represent a user configuration. It will not be operated in continuous transmit mode without the Lapel Speaker microphone connected.

6.4 SAR Measurement Results for Belt Clip Position with Lapel Speaker Microphone

Table 7A: SAR Measurement Results – Belt Clip Position with Lapel Speaker Microphone

Test Position	Plot No.	Test Channel	Test Freq. (MHz)	SAR Level for (1g) mW/g	SAR Level for (10g) mW/g
EUT - Body	25	1	896.1	0.966	0.593
EUT - Body	26	2	918.1	0.704	0.444
EUT - Body	27	3	940.9	0.703	0.457
EUT - Antenna	28	1	896.1	2.24	1.65
EUT - Antenna	29	2	918.1	1.34	0.986
EUT - Antenna	30	3	940.9	0.981	0.715

Table 7B: The highest SAR for the "Belt Clip Position with Lapel speaker microphone" extrapolated to 50% duty cycle

Test Position	SAR Level for (1g) mW/g (100% duty Cycle)	Extrapolated SAR for (1g) mW/g (50% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)	Extrapolated SAR for (10g) mW/g (50% duty Cycle)
EUT - Body	0.966	0.483	0.593	0.297
EUT - Antenna	2.24	1.12	1.65	0.825

Table 7C: The highest SAR for the "Belt Clip Position with Lapel speaker microphone" extrapolated to 25% duty cycle

Test Position	SAR Level for (1g) mW/g (100% duty Cycle)	Extrapolated SAR for (1g) mW/g (25% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)	Extrapolated SAR for (10g) mW/g (25% duty Cycle)
EUT - Body	0.966	0.242	0.593	0.148
EUT - Antenna	2.24	0.56	1.65	0.413

The maximum measured SAR level for "Belt Clip Position with Lapel Speaker Microphone" was 2.24 mW/g for a 1 gram cube of mass and 1.65 mW/g for a 10 gram cube of mass at 100% duty cycle. These values were measured at the "EUT - Antenna" at a frequency of 896.1 MHz (Channel 1).

These SAR levels extrapolated for a 50% duty cycle were 1.12 mW/g (1g) and 0.825 mW/g (10g). The extrapolated values for a 25% duty cycle were 0.56 mW/g (1g) and 0.413 mW/g (10g).

7.0 CONCLUSIONS

The TOP-K2620-TO Hand-Portable Transceiver was tested on behalf of Tait Electronics Ltd (NZ), in accordance with the SAR requirements of the Federal Communications Commission (FCC). The highest SAR levels are listed below.

Table 8: The Highest SAR Summary

Test Position	SAR Level for (1g) mW/g (100% duty Cycle)	Extrapolated SAR for (1g) mW/g (50% duty Cycle)	Extrapolated SAR for (1g) mW/g (25% duty Cycle)	SAR Level for (10g) mW/g (100% Duty Cycle)	Extrapolated SAR for (10g) mW/g (50% duty Cycle)	Extrapolated SAR for (10g) mW/g (25% duty Cycle)
The worst case of Touch Position						
Touch Left	2.01	1.005	0.503	1.48	0.74	0.37
Touch Right	2.01	1.005	0.503	1.47	0.735	0.368
The worst case of Nose Tip Position (20 mm separation)						
EUT - Antenna	4.03	2.015	1.01	2.94	1.47	0.735
The worst case of Nose Tip Position (30 mm separation)						
EUT - Antenna	2.40	1.20	0.60	1.79	0.895	0.448
The worst case of Belt Clip Position						
EUT - Antenna	4.40	2.20	1.10	3.25	1.625	0.813
The worst case of Belt Clip Position with Lapel speaker Microphone						
EUT - Antenna	2.24	1.12	0.56	1.65	0.825	0.413

The highest SAR levels were 4.40 mW/g and 3.25 mW/g for 1g and 10g cube of mass respectively at 100% duty cycle. This is below the controlled RF exposure limit of 8.0 mW/g, even taking the measurement uncertainty into account.

7.1 Controlled Exposure

The highest SAR level at 50% duty cycle was 2.20 mW/g (1g) and 1.625 mW/g (10g), which is below the controlled RF exposure limit of 8.0 mW/g, even taking the measurement uncertainty into account.

7.2 Uncontrolled Exposure

The maximum SAR level at 25% duty cycle was 1.10 mW/g (1g) and 0.813 mW/g (10g), which is below the uncontrolled RF exposure limit of 1.6 mW/g (1g), even taking the measurement uncertainty into account.

8.0 COMPLIANCE STATEMENT

The TOP-K2620-TO sample complied with the uncontrolled RF exposure limit when the continuous transmit results were adjusted for a 25% transmit duty cycle. It complied with the controlled RF exposure limits even for continuous transmit mode.

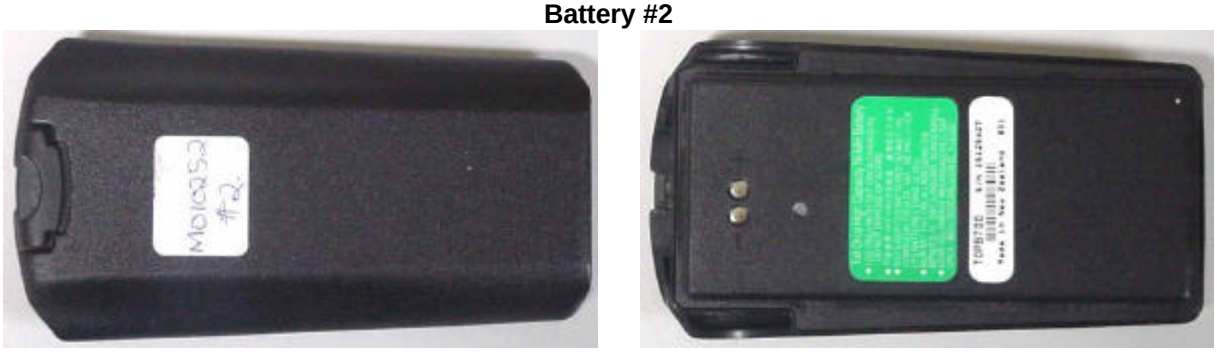
APPENDIX A1
TEST SAMPLE PHOTOGRAPHS

APPENDIX A2
TEST SAMPLE PHOTOGRAPHS

APPENDIX A3
TEST SAMPLE PHOTOGRAPHS

Battery #1

Battery #2



Battery #4

APPENDIX A4
TEST SET UP PHOTOGRAPHS
TOUCH POSITION

Touch Left

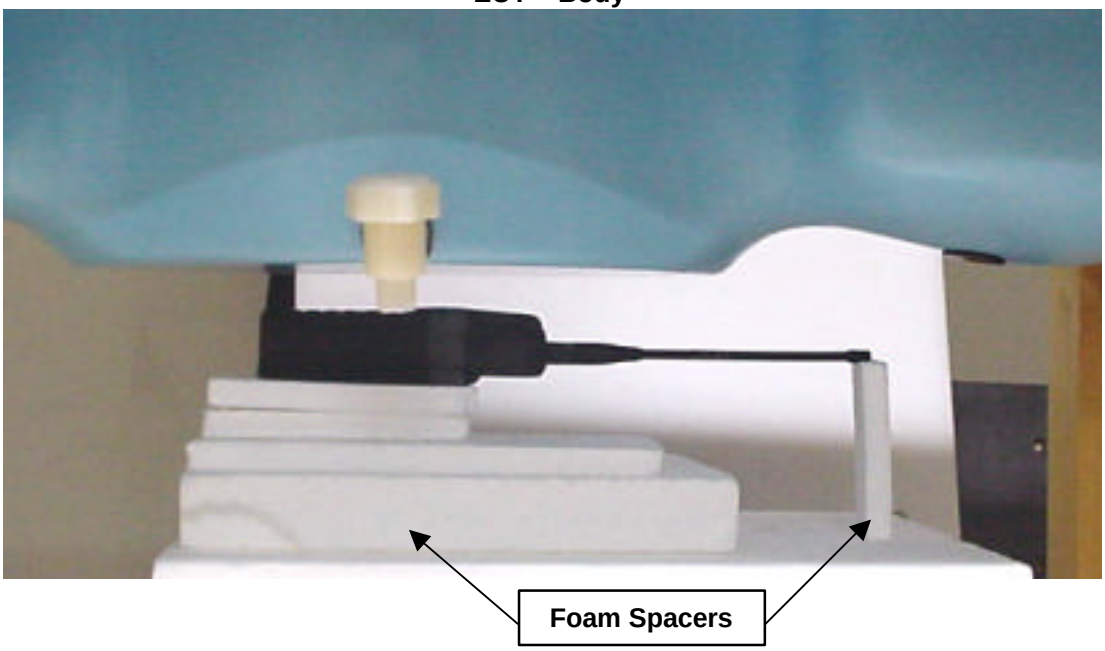
Foam Spacer

Touch Right

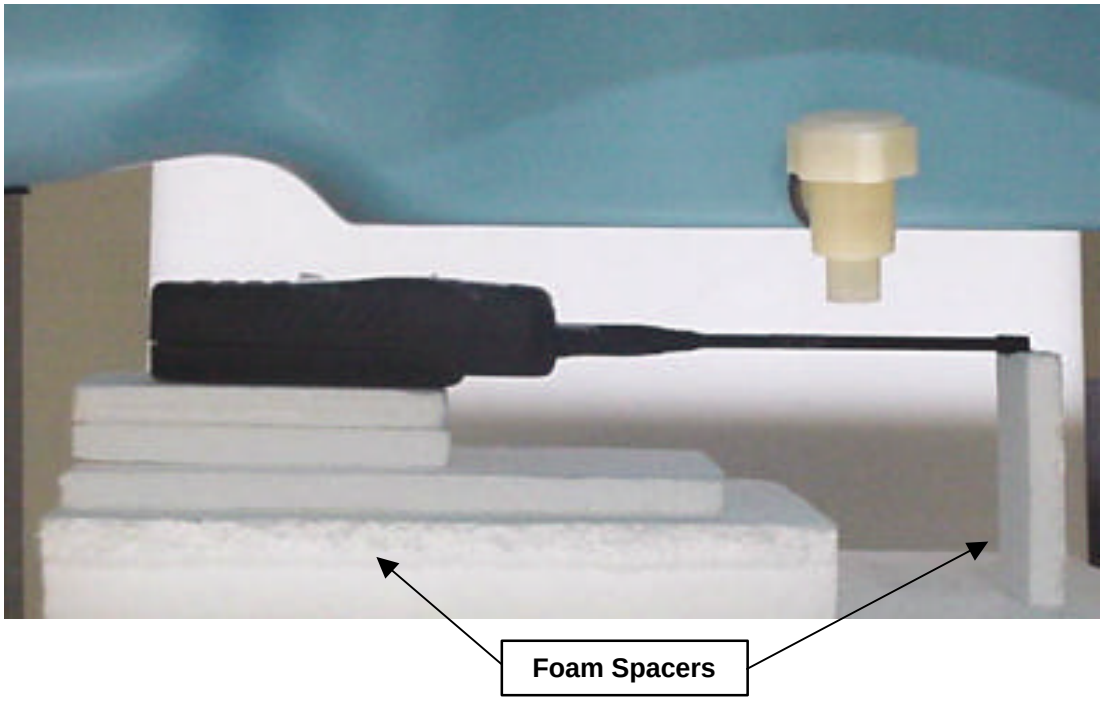
Foam Spacer

APPENDIX A5
TEST SET UP PHOTOGRAPHS
NOSE TIP POSITION (20 mm SEPARATION)

EUT – Body

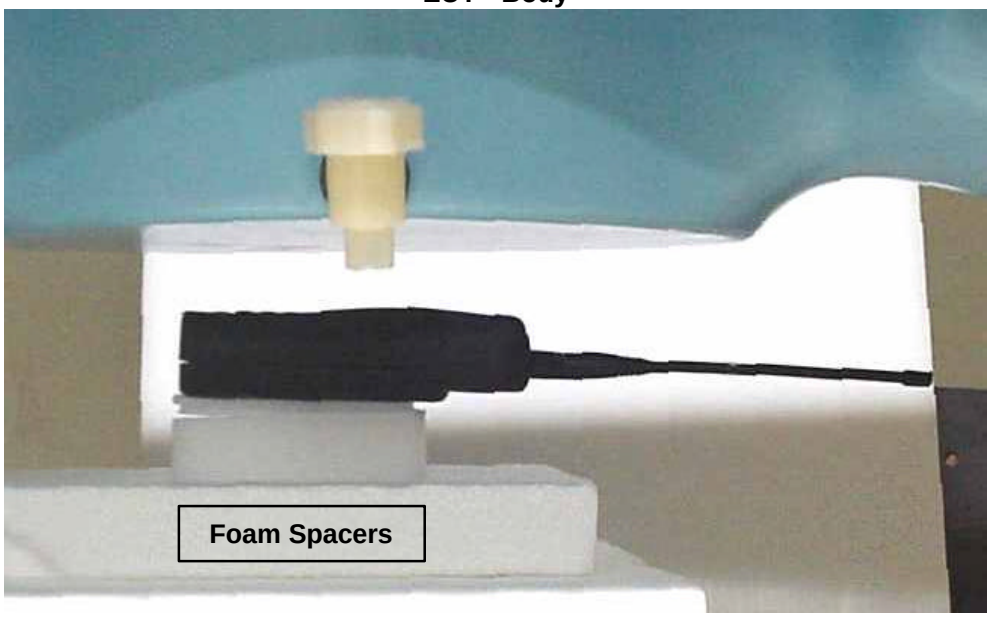


EUT - Antenna

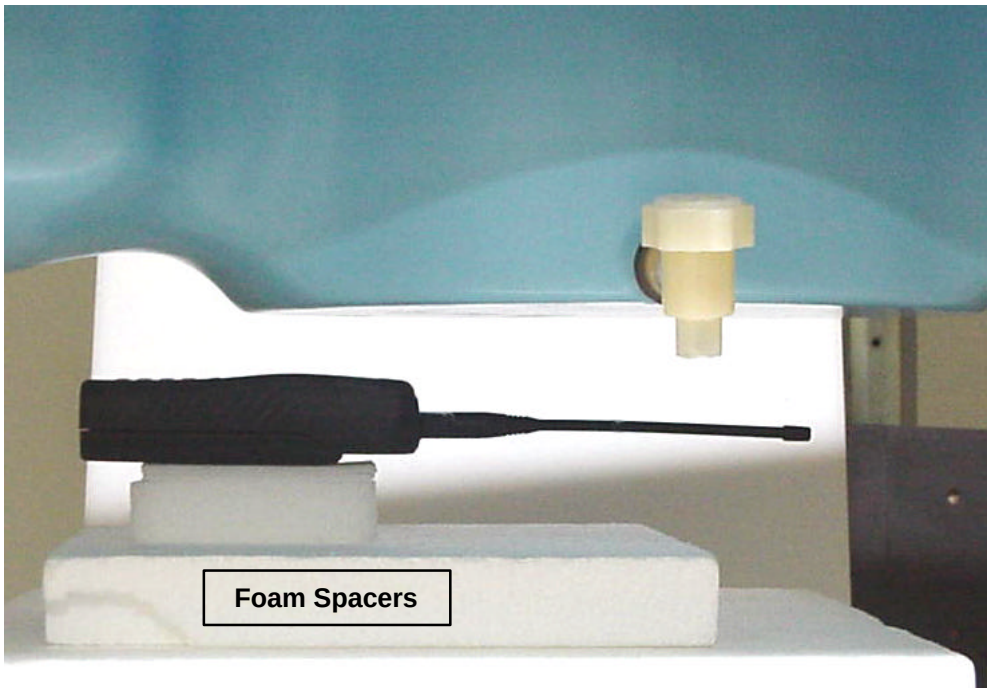


APPENDIX A6
TEST SET UP PHOTOGRAPHS
10 mm IN FRONT OF NOSE TIP (30 mm SEPARATION)

EUT - Body

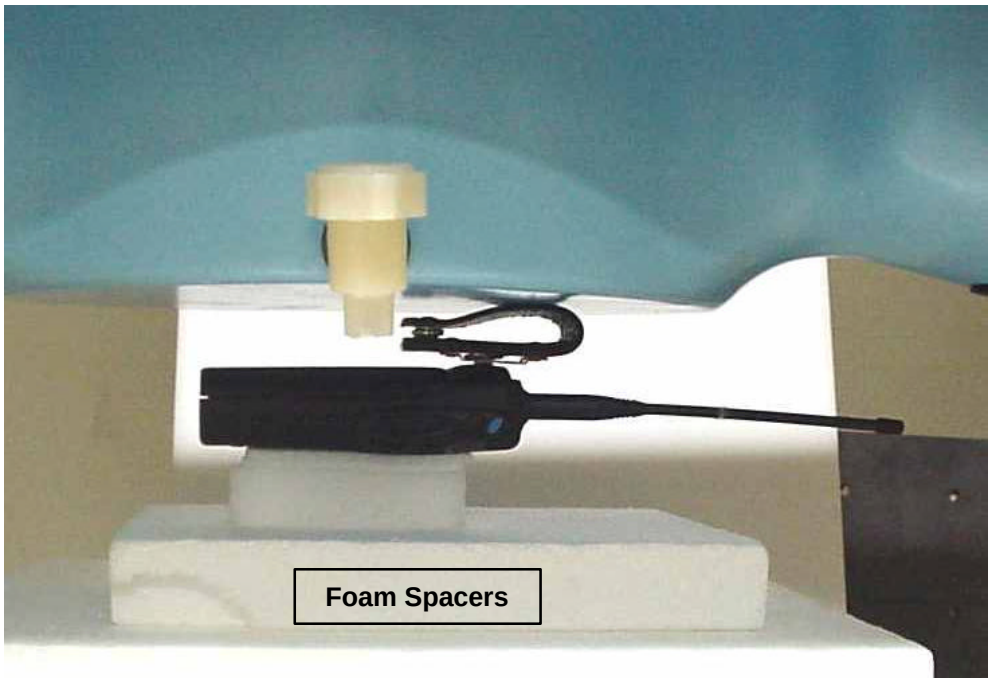


EUT - Antenna

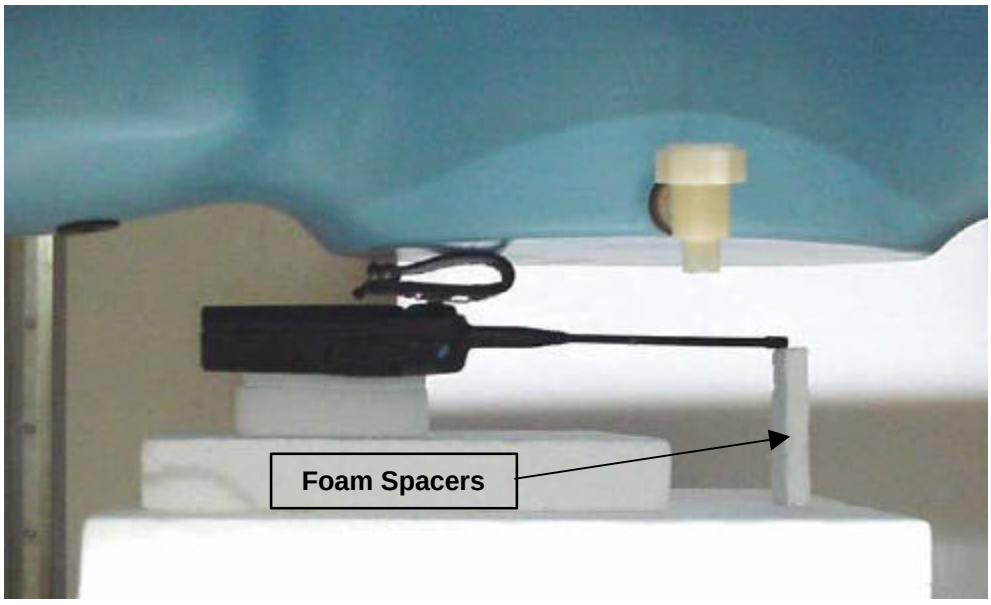


APPENDIX A7
TEST SET UP PHOTOGRAPHS
BELT CLIP POSITION

EUT - BODY



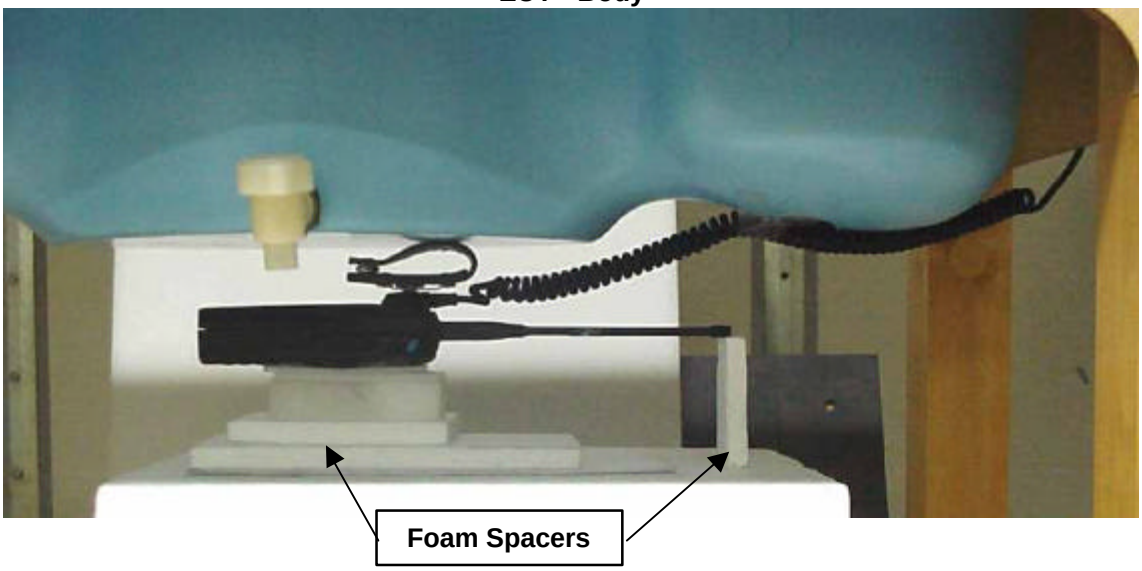
EUT - Antenna



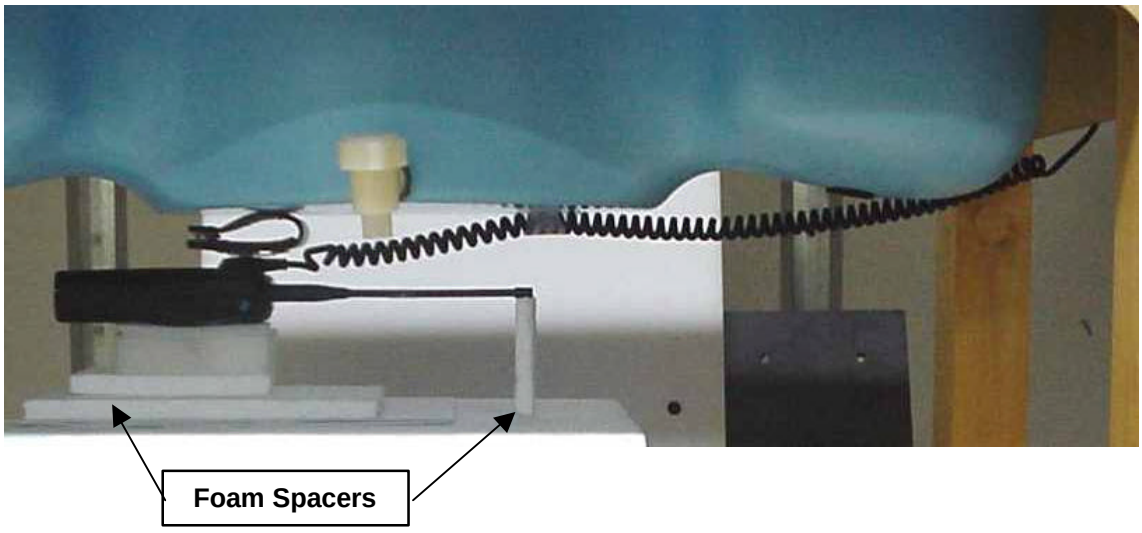
APPENDIX A8
TEST SET UP PHOTOGRAPHS

BELT CLIP POSITION WITH LAPEL SPEAKER MICROPHONE

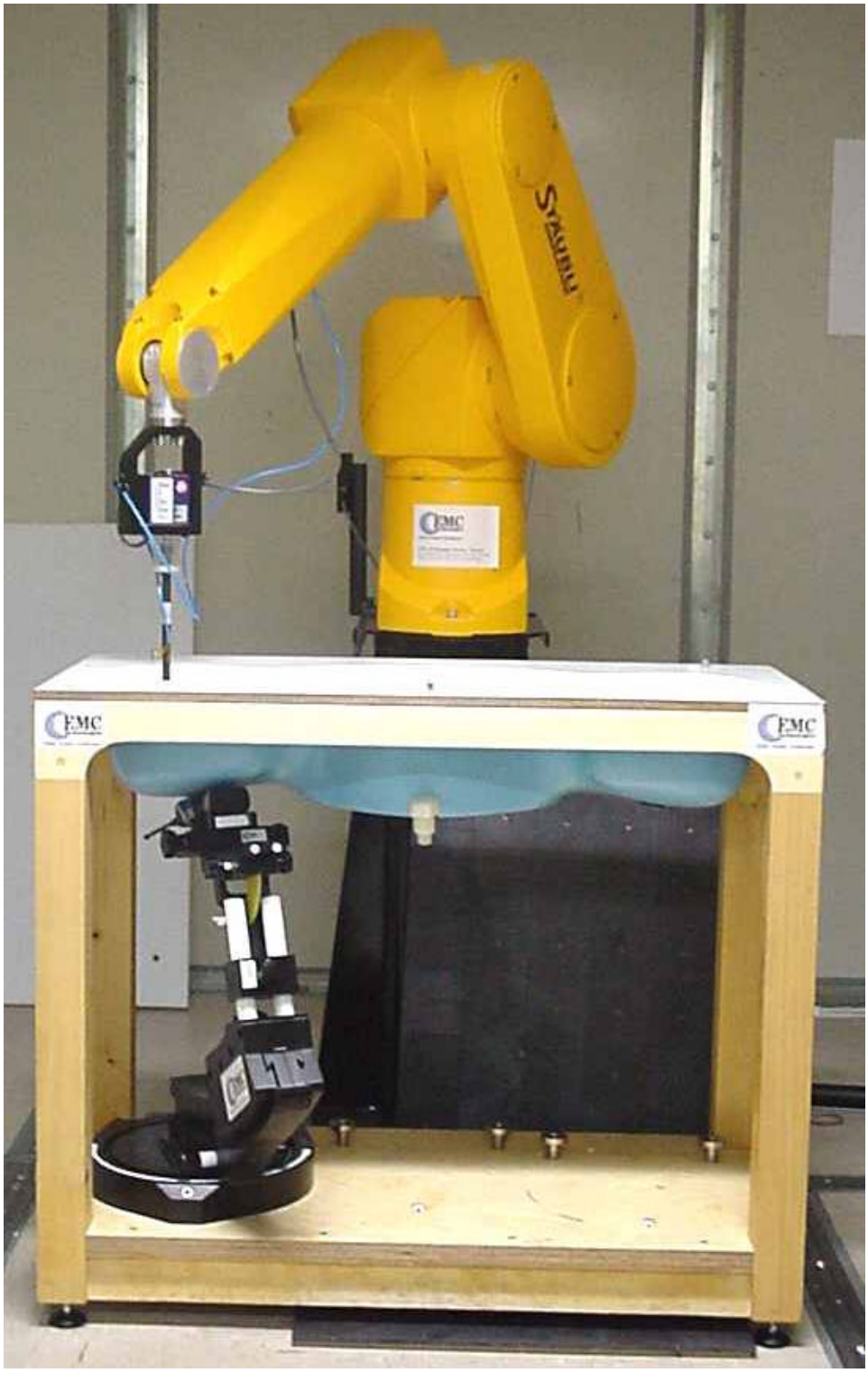
EUT - Body



EUT - Antenna



APPENDIX A9
TEST SAMPLE PHOTOGRAPHS



EMC TECHNOLOGIES - DASY3 SYSTEM

APPENDIX B
PLOTS OF THE SAR MEASUREMENTS

Plots of the measured SAR distributions inside the phantom are given in this Appendix for all tested configurations. The spatial peak SAR values were assessed with the procedure described in this report.

Note: The graphical visualisation of the phone position onto the plot of the SAR distribution gives only limited information on the RF current distribution on the surface of the device, since the curvature of the head causes graphical distortion.

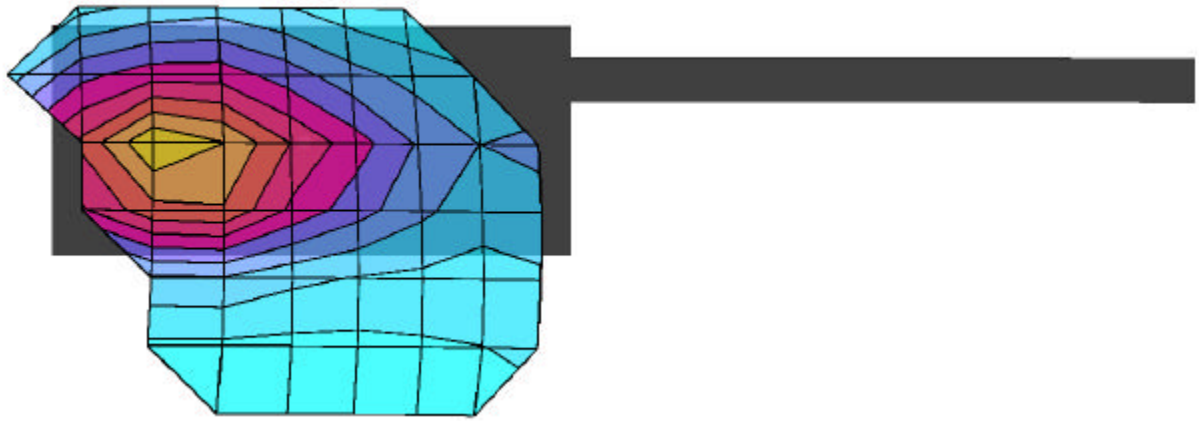
The Following Table contains a numbered list of the SAR plots

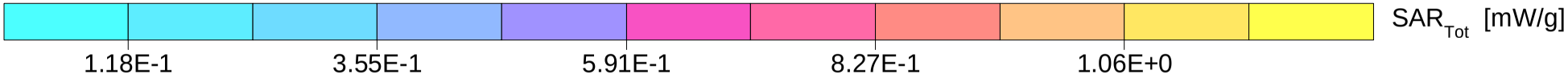
Touch Position		
Plot 1	Touch Left	Channel 1
Plot 2	Touch Left	Channel 2
Plot 3	Touch Left	Channel 3
Plot 4	Touch Right	Channel 1
Plot 5	Touch Right	Channel 2
Plot 6	Touch Right	Channel 3
Nose Tip Position (20mm Separation)		
Plot 7	EUT - Body	Channel 1
Plot 8	EUT - Body	Channel 2
Plot 9	EUT - Body	Channel 3
Plot 10	EUT - Antenna	Channel 1
Plot 11	EUT - Antenna	Channel 2
Plot 12	EUT - Antenna	Channel 3
10mm in Front of Nose Tip (30m Separation)		
Plot 13	EUT - Body	Channel 1
Plot 14	EUT - Body	Channel 2
Plot 15	EUT - Body	Channel 3
Plot 16	EUT - Antenna	Channel 1
Plot 17	EUT - Antenna	Channel 2
Plot 18	EUT - Antenna	Channel 3
Belt Clip Position		
Plot 19	EUT - Body	Channel 1
Plot 20	EUT - Body	Channel 2
Plot 21	EUT - Body	Channel 3
Plot 22	EUT - Antenna	Channel 1
Plot 23	EUT - Antenna	Channel 2
Plot 24	EUT - Antenna	Channel 3
Belt Clip Position with Lapel Speaker Microphone		
Plot 25	EUT - Body	Channel 1
Plot 26	EUT - Body	Channel 2
Plot 27	EUT - Body	Channel 3
Plot 28	EUT - Antenna	Channel 1
Plot 29	EUT - Antenna	Channel 2
Plot 30	EUT - Antenna	Channel 3

M010252 - C - Tait Electronics - Touch Position - Left - CH#1

ORCA TOP-K2620-TO

Generic Twin Phantom; Left Hand Section; Position: (70°,65°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.84 mho/m ε_r = 40.6 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 1.20 mW/g, (Worst-case extrapolation)
Cube 5x5x7: SAR (10g): 0.863 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.02 dB



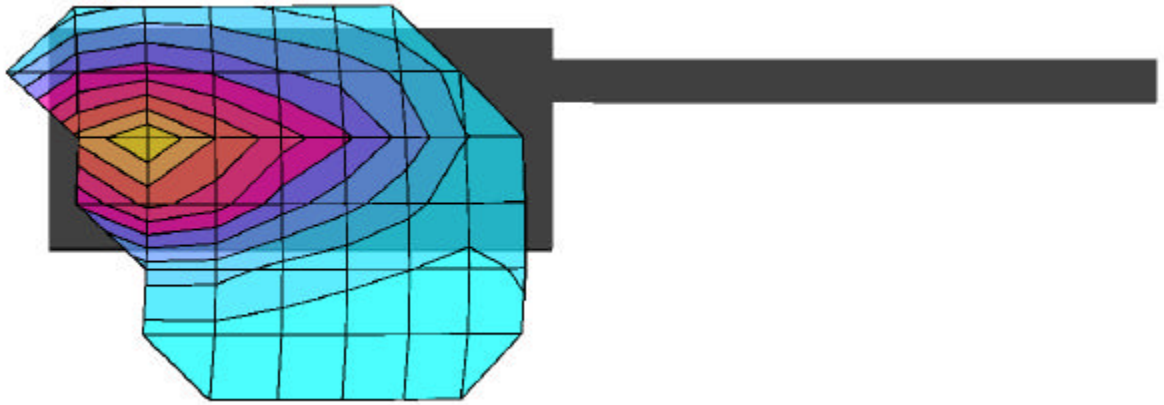


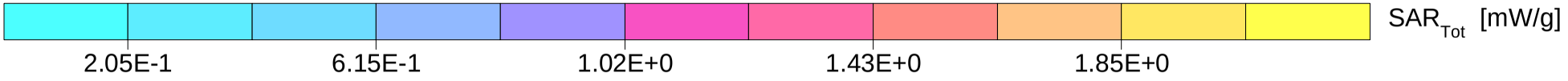
SAR Measurement Plot 1

M010252 - C - Tait Electronics - Touch Position - Left - CH#2

ORCA TOP-K2620-TO

Generic Twin Phantom; Left Hand Section; Position: (70°,65°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.82 mho/m ε_r = 42.6 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 2.01 mW/g, (Worst-case extrapolation)
Cube 5x5x7: SAR (10g): 1.48 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.21 dB



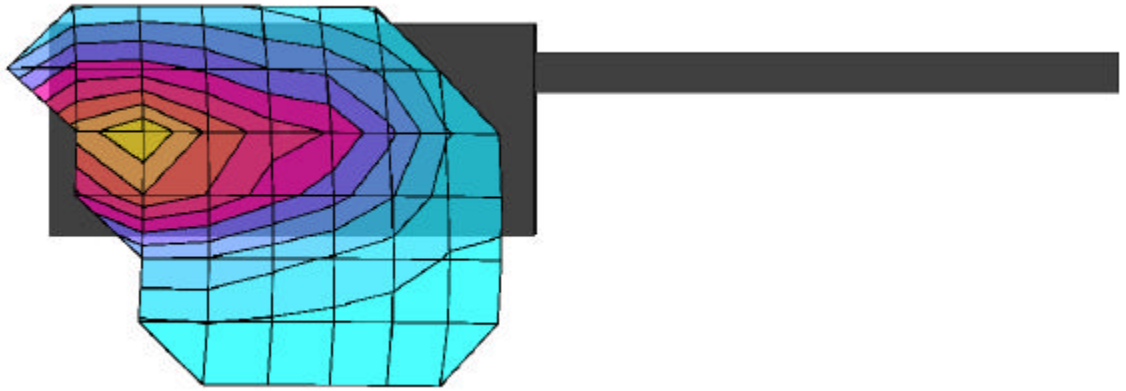


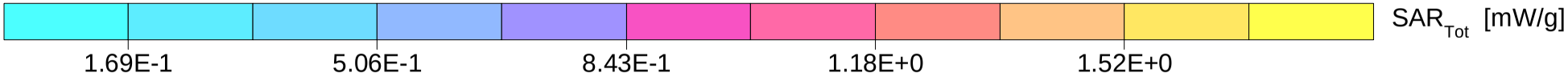
SAR Measurement Plot 2

M010252 - C - Tait Electronics - Touch Position - Left - CH#3

ORCA TOP-K2620-TO

Generic Twin Phantom; Left Hand Section; Position: (70°,65°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.82 mho/m ε_r = 42.6 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 1.71 mW/g, (Worst-case extrapolation)
Cube 5x5x7: SAR (10g): 1.25 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.10 dB



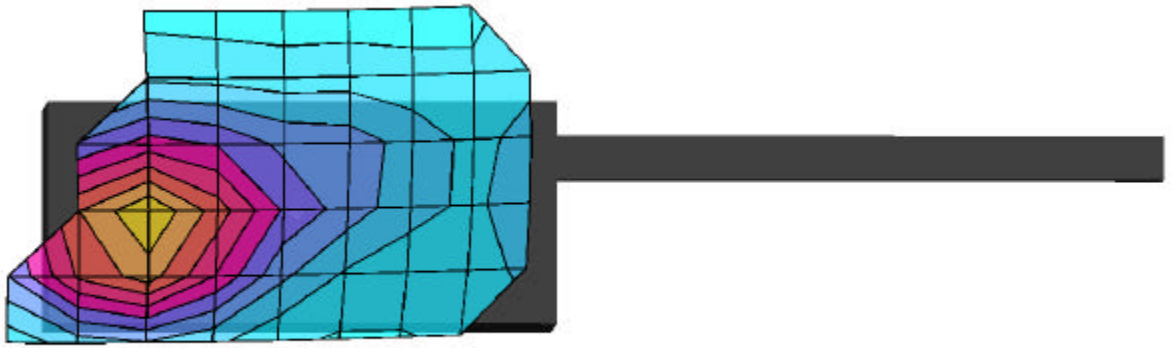


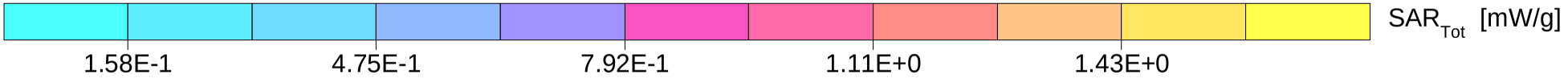
SAR Measurement Plot 3

M010252 - C - Tait Electronics - Touch Position - Right - CH#1

ORCA TOP-K2620-TO

Generic Twin Phantom; Right Hand Section; Position: (70°,65°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.84 mho/m ε_r = 40.6 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 1.63 mW/g, (Worst-case extrapolation)
Cube 5x5x7: SAR (10g): 1.19 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.08 dB



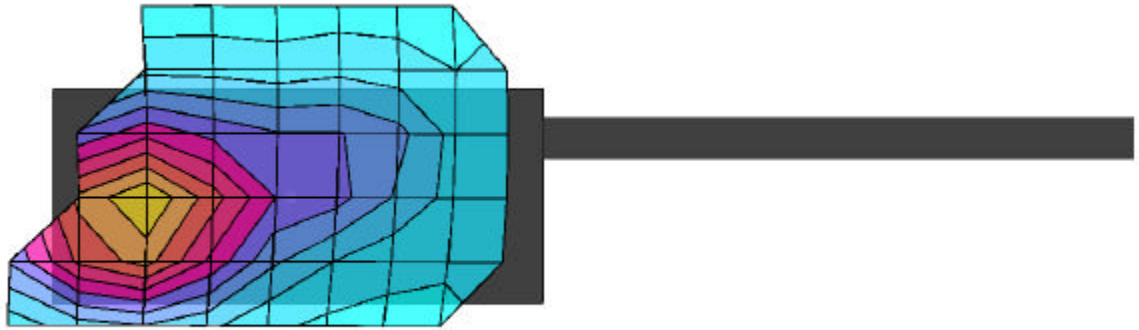


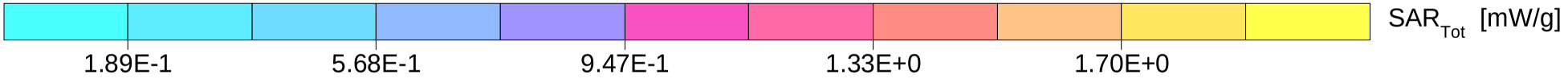
SAR Measurement Plot 4

M010252 - C - Tait Electronics - Touch Position - Right - CH#2

ORCA TOP-K2620-TO

Generic Twin Phantom; Right Hand Section; Position: (70°,65°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.84 mho/m ε_r = 40.6 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 2.01 mW/g, (Worst-case extrapolation)
Cube 5x5x7: SAR (10g): 1.47 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.16 dB



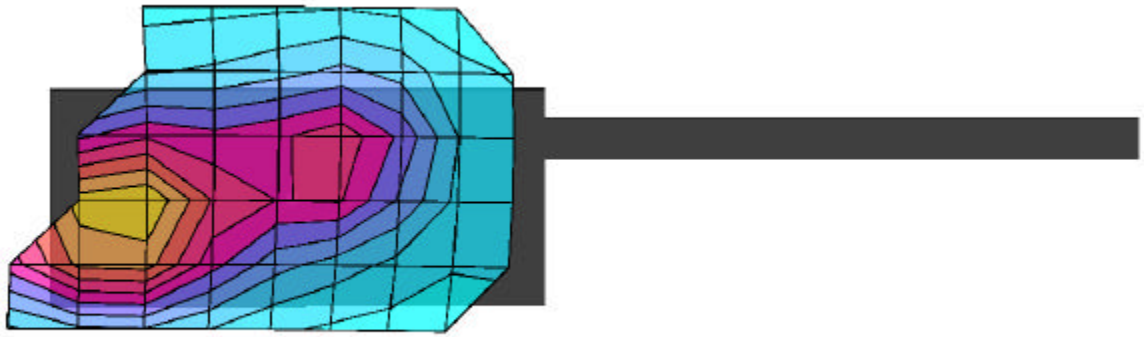


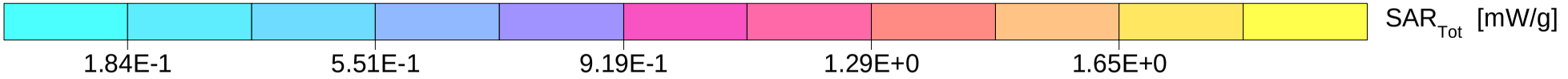
SAR Measurement Plot 5

M010252 - C - Tait Electronics - Touch Position - Right - CH#3

ORCA TOP-K2620-TO

Generic Twin Phantom; Right Hand Section; Position: (70°,65°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.84 mho/m ε_r = 40.6 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 2.00 mW/g, (Worst-case extrapolation)
Cube 5x5x7: SAR (10g): 1.45 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.21 dB



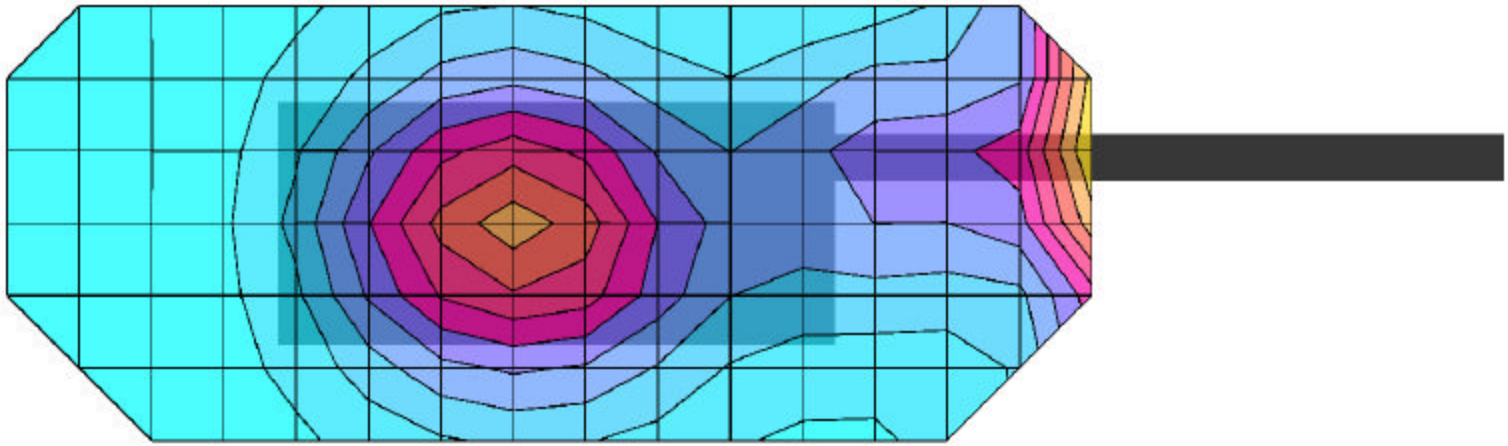


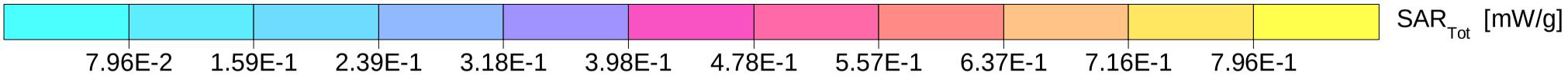
SAR Measurement Plot 6

M010252 - Tait Electronics - Face (20mm) - Unit Section - Ch#1

ORCA TOP-K2620-TO

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.82 mho/m ε_r = 41.8 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 1.46 mW/g ± 0.08 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.920 mW/g ± 0.18 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.20 dB



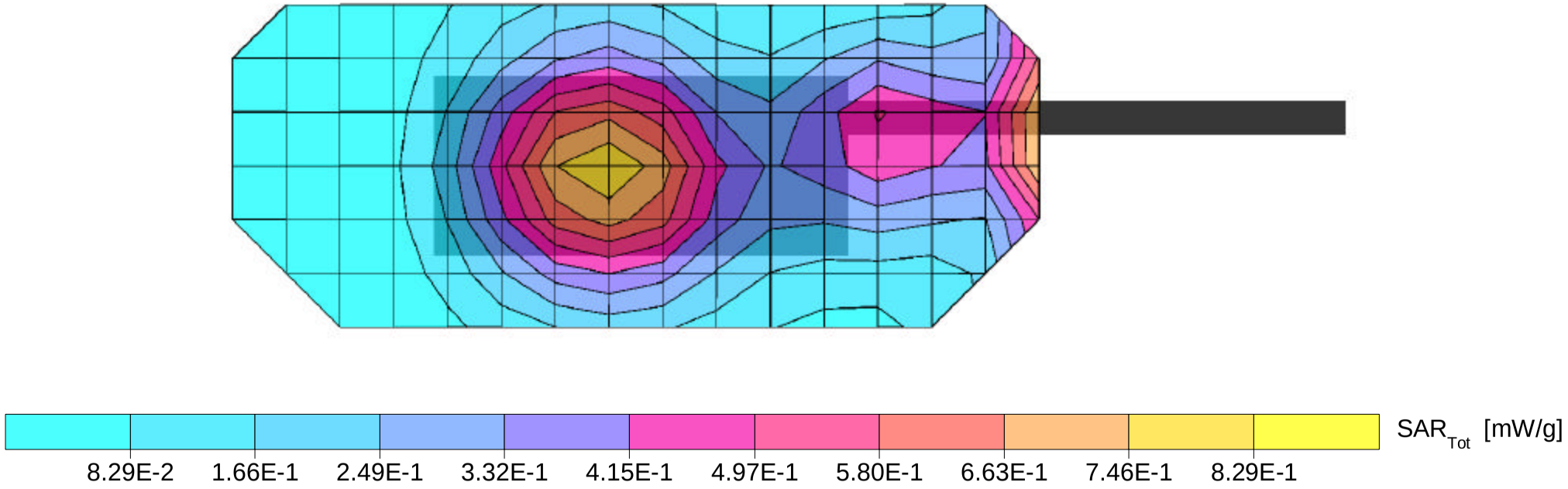


SAR Measurement Plot 7

M010252 - Tait Electronics - Face (20mm) - Unit Section - Ch#2

ORCA TOP-K2620-TO

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.82 mho/m ε_r = 41.8 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 0.800 mW/g ± 0.05 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.586 mW/g ± 0.04 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.18 dB

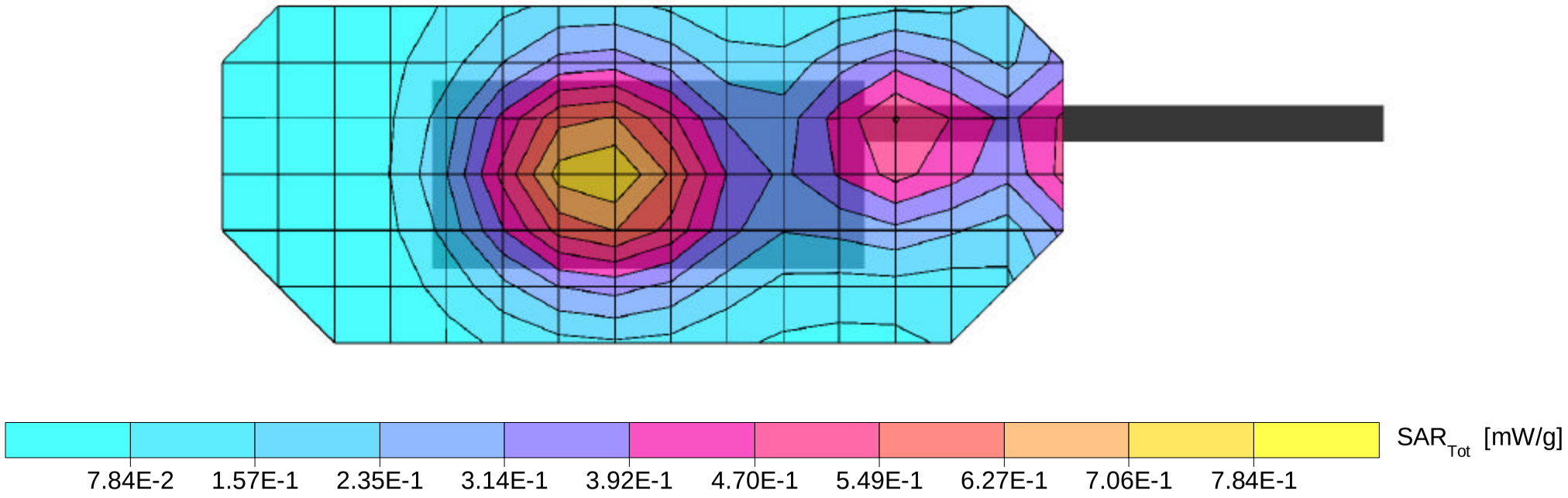


SAR Measurement Plot 8

M010252 - Tait Electronics - Face (20mm) - Unit Section - Ch#3

ORCA TOP-K2620-TO

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.82 mho/m ε_r = 41.8 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 0.759 mW/g ± 0.05 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.555 mW/g ± 0.04 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: 0.08 dB

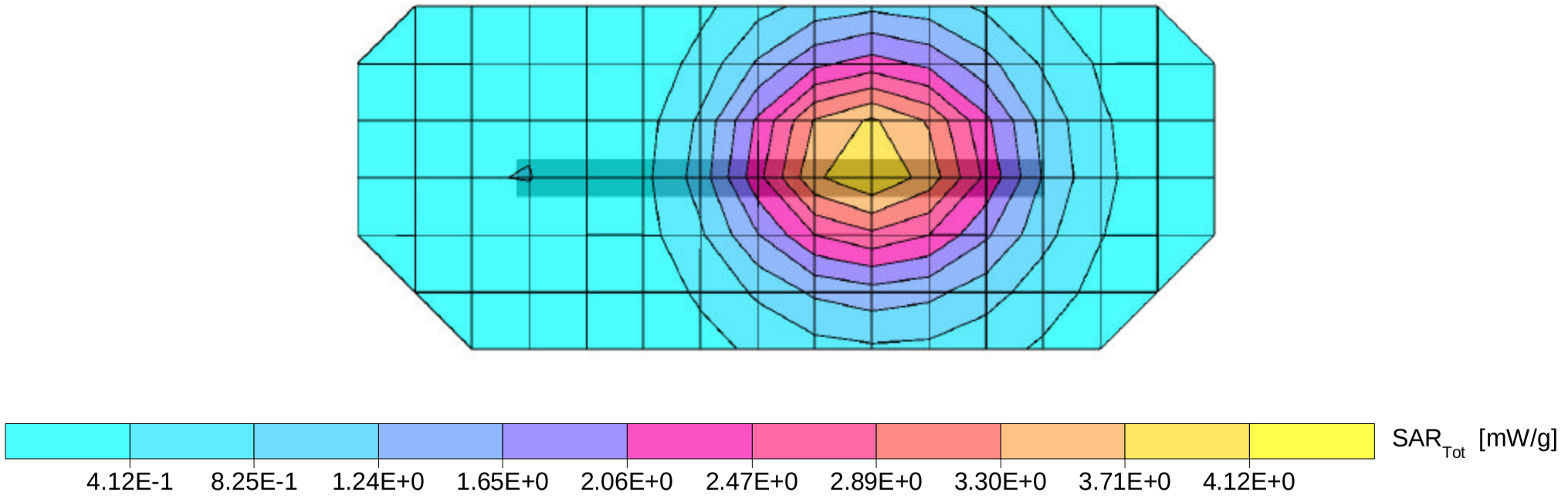


SAR Measurement Plot 9

M010252 - Tait Electronics - Face (20mm) - Antenna Section - Ch#1 #3

ORCA TOP-K2620-TO - ANT

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.82 mho/m ε_r = 41.8 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 4.03 mW/g ± 0.08 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 2.94 mW/g ± 0.05 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.12 dB

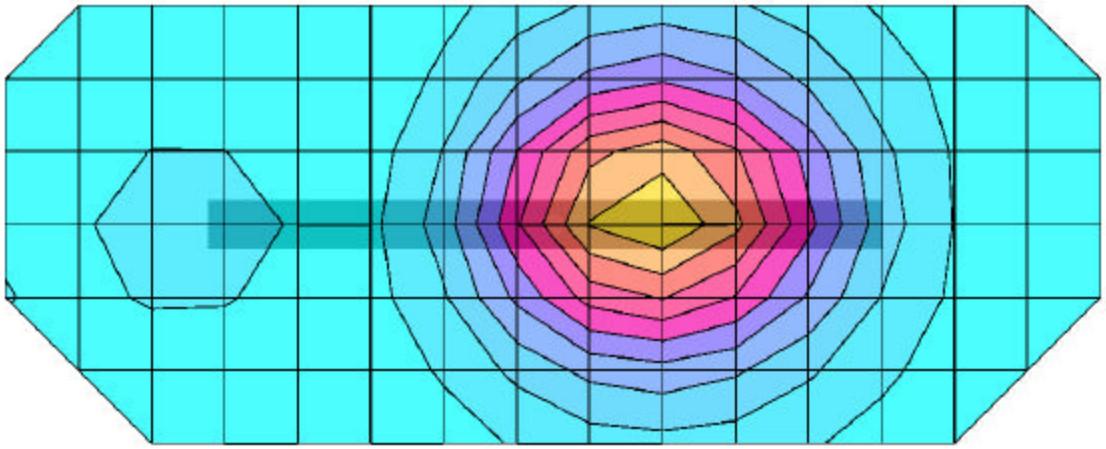


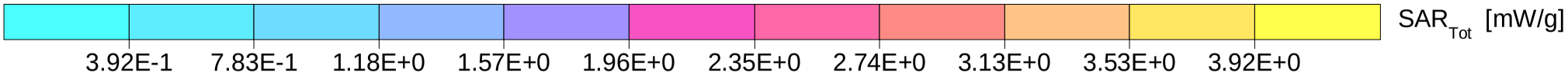
SAR Measurement Plot 10

M010252 - Tait Electronics - Face (20mm) - Antenna Section - Ch#2 #2

ORCA TOP-K2620-TO - ANT

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.82 mho/m ε_r = 41.8 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 3.80 mW/g ± 0.03 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 2.74 mW/g ± 0.04 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.41 dB



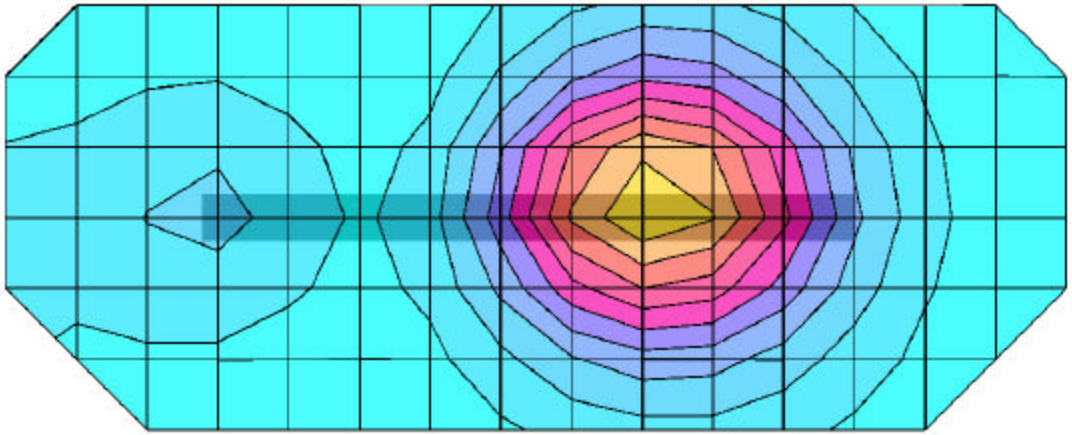


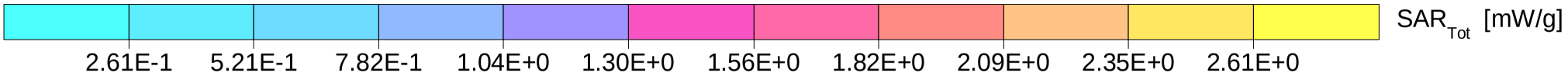
SAR Measurement Plot 11

M010252 - Tait Electronics - Face (20mm) - Antenna Section - Ch#3

ORCA TOP-K2620-TO - ANT

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.81 mho/m ε_r = 41.6 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 2.55 mW/g ± 0.05 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 1.84 mW/g ± 0.04 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.18 dB



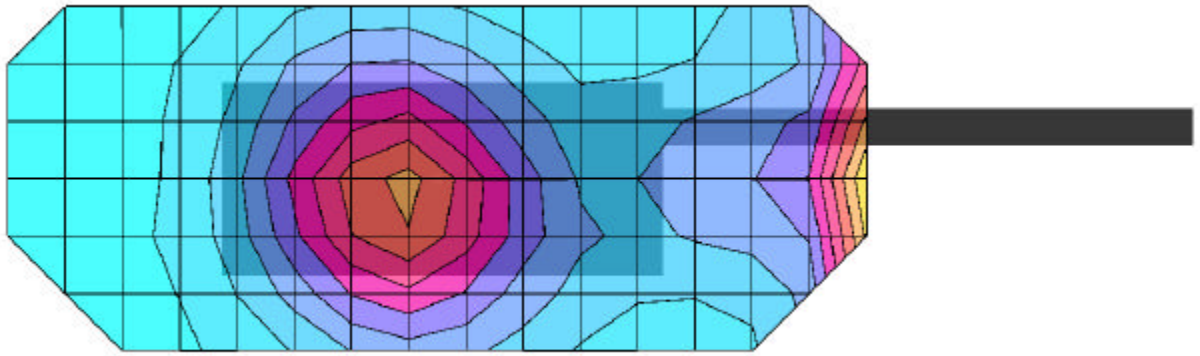


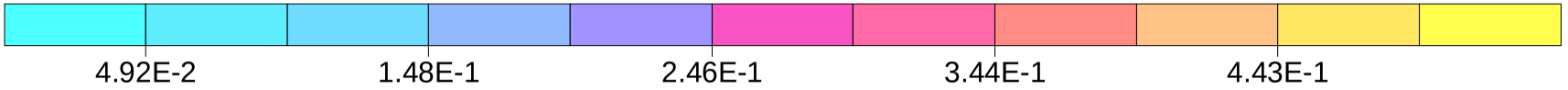
SAR Measurement Plot 12

M010252 - C - Tait Electronics - Face Position (30mm) - Unit Section - Ch#1 #2

ORCA TOP-K2620-TO

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.83 mho/m ε_r = 41.3 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 0.640 mW/g ± 0.61 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.355 mW/g ± 0.66 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.21 dB



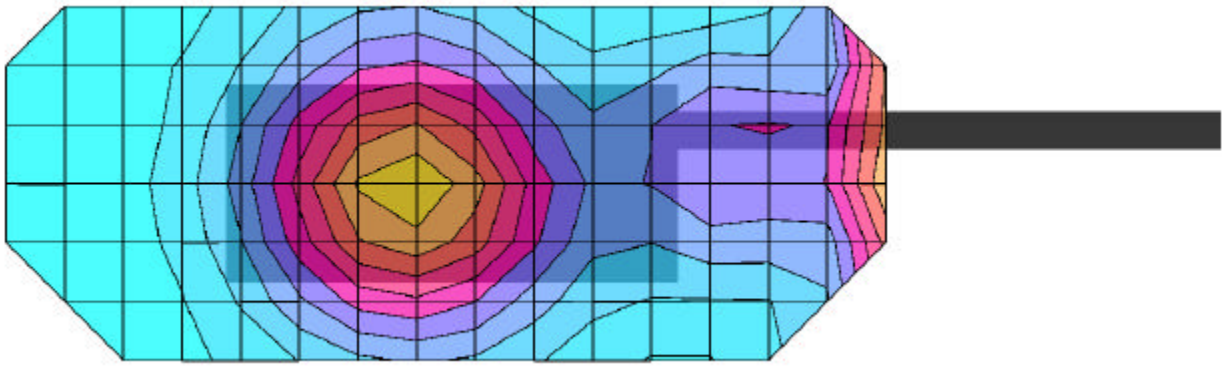


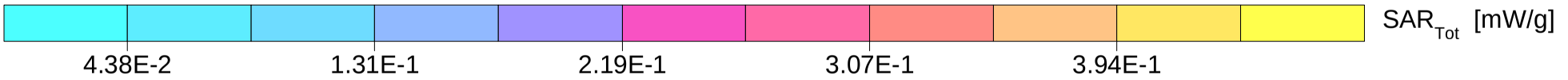
SAR Measurement Plot 13

M010252 - C - Tait Electronics - Face Position (30mm) - Unit Section - Ch#2 #3

ORCA TOP-K2620-TO

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.84 mho/m ε_r = 40.6 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 0.424 mW/g ± 0.01 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.312 mW/g ± 0.02 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.17 dB



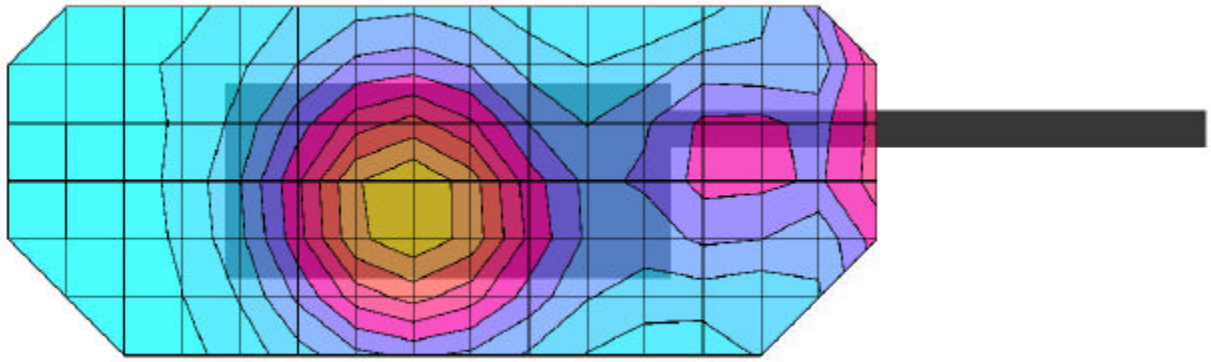


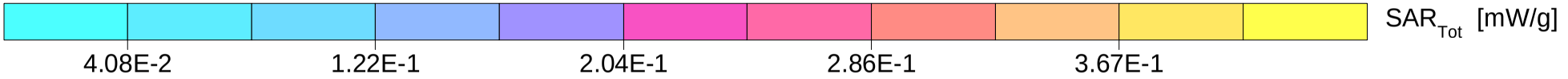
SAR Measurement Plot 14

M010252 - C - Tait Electronics - Face Position (30mm) - Unit Section - Ch#3 #3

ORCA TOP-K2620-TO

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.83 mho/m ε_r = 41.3 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 0.402 mW/g ± 0.04 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.295 mW/g ± 0.02 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: 0.11 dB



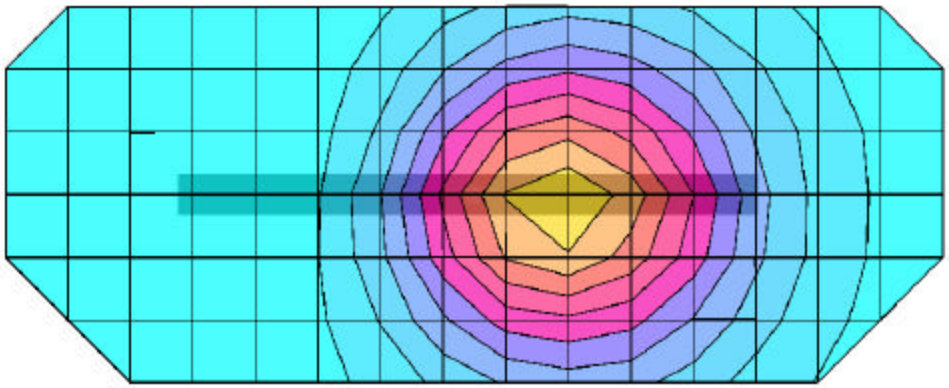


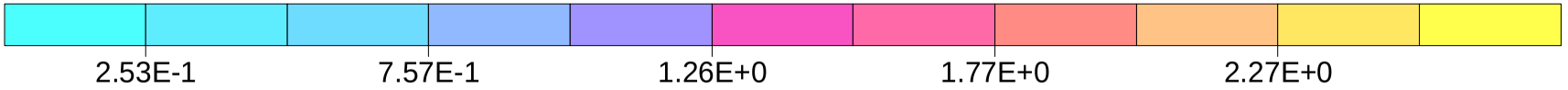
SAR Measurement Plot 15

M010252 - C - Tait Electronics - Face Position (30mm) - Antenna Section - Ch#1 #3

ORCA TOP-K2620-TO - ANT

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.83 mho/m ε_r = 41.3 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 2.40 mW/g ± 0.10 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 1.79 mW/g ± 0.08 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.06 dB



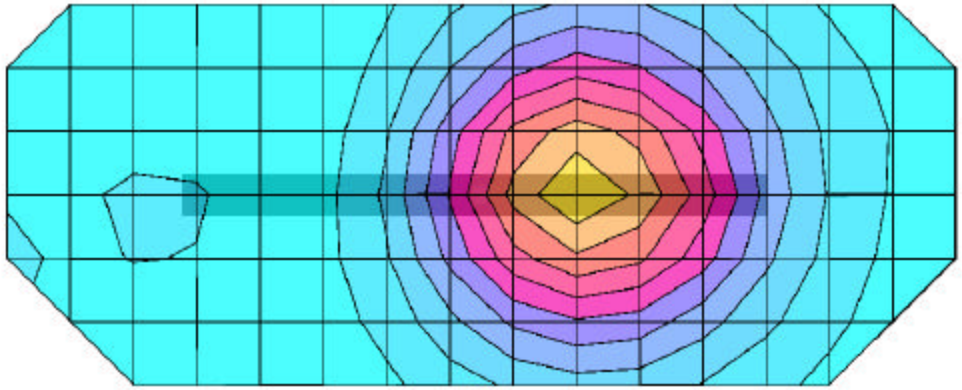


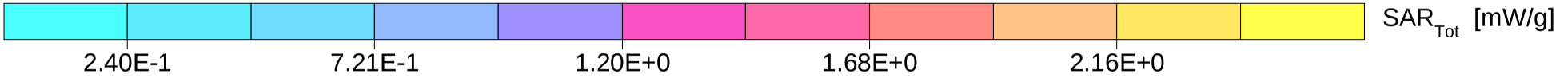
SAR Measurement Plot 16

M010252 - C - Tait Electronics - Face Position (30mm) - Antenna Section - Ch#2 #5

ORCA TOP-K2620-TO - ANT

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.84 mho/m ε_r = 40.6 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 2.21 mW/g ± 0.08 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 1.61 mW/g ± 0.07 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.36 dB



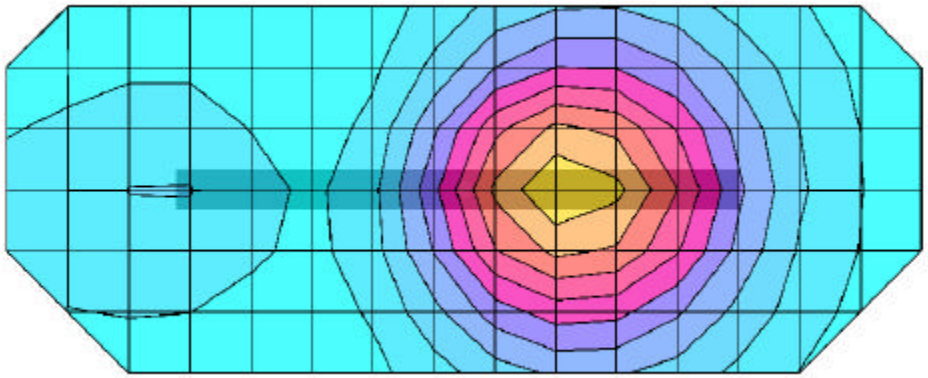


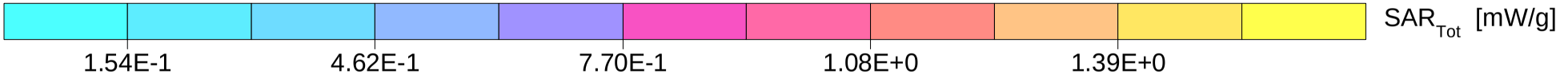
SAR Measurement Plot 17

M010252 - C - Tait Electronics - Face Position (30mm) - Antenna Section - Ch#3

ORCA TOP-K2620-TO - ANT

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Brain 900 MHz: σ = 0.82 mho/m ε_r = 41.9 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 1.46 mW/g ± 0.04 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 1.07 mW/g ± 0.03 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.14 dB



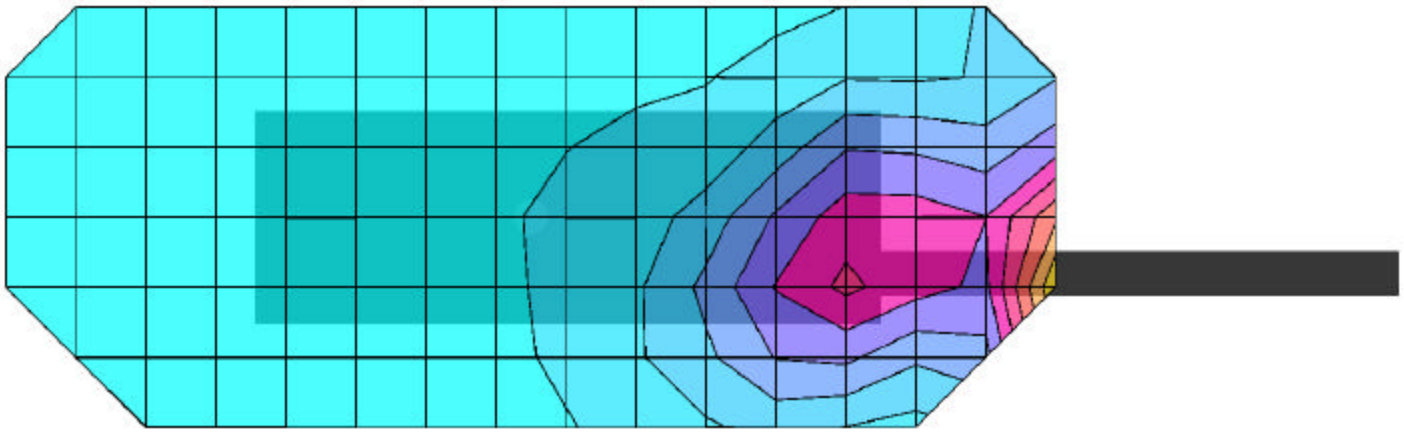


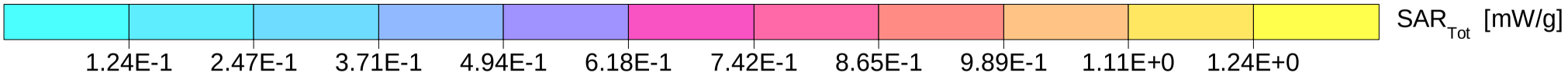
SAR Measurement Plot 18

M010252 - C - Tait Electronics - Belt Clip Position - Unit Section - Ch#1

ORCA TOP-K2620-TO (Back)

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Muscle 915 MHz: σ = 0.98 mho/m ε_r = 55.9 ρ = 1.04 g/cm^3
Cubes (2): SAR (1g): 1.29 mW/g ± 0.61 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.792 mW/g ± 0.50 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: 0.21 dB



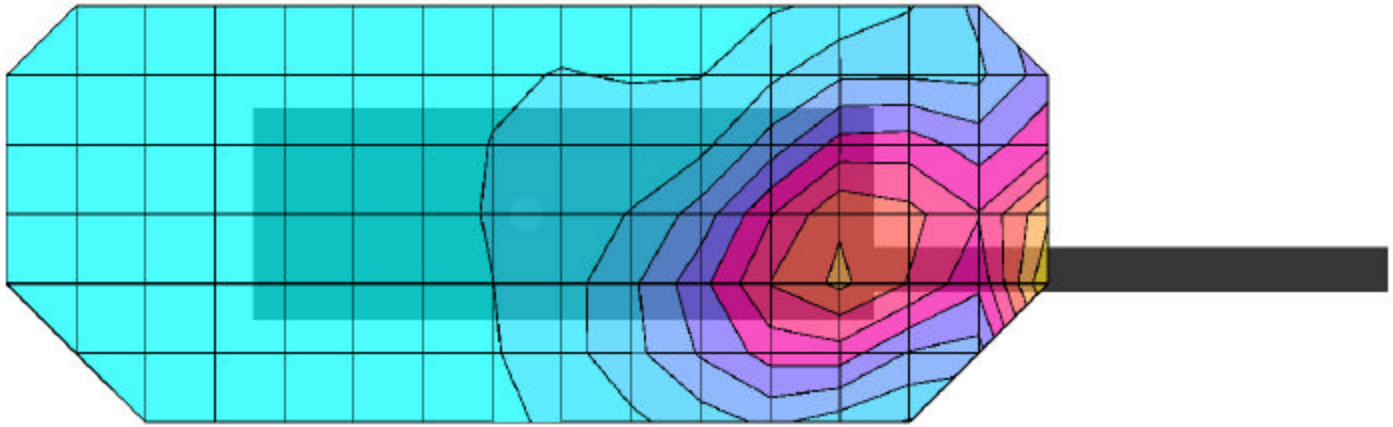


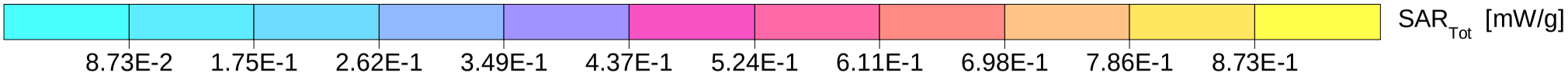
SAR Measurement Plot 19

M010252 - C - Tait Electronics - Belt Clip Position - Unit Section - Ch#2

ORCA TOP-K2620-TO (Back)

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Muscle 915 MHz: σ = 0.98 mho/m ε_r = 55.9 ρ = 1.04 g/cm^3
Cubes (2): SAR (1g): 1.03 mW/g ± 0.45 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.636 mW/g ± 0.31 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.06 dB



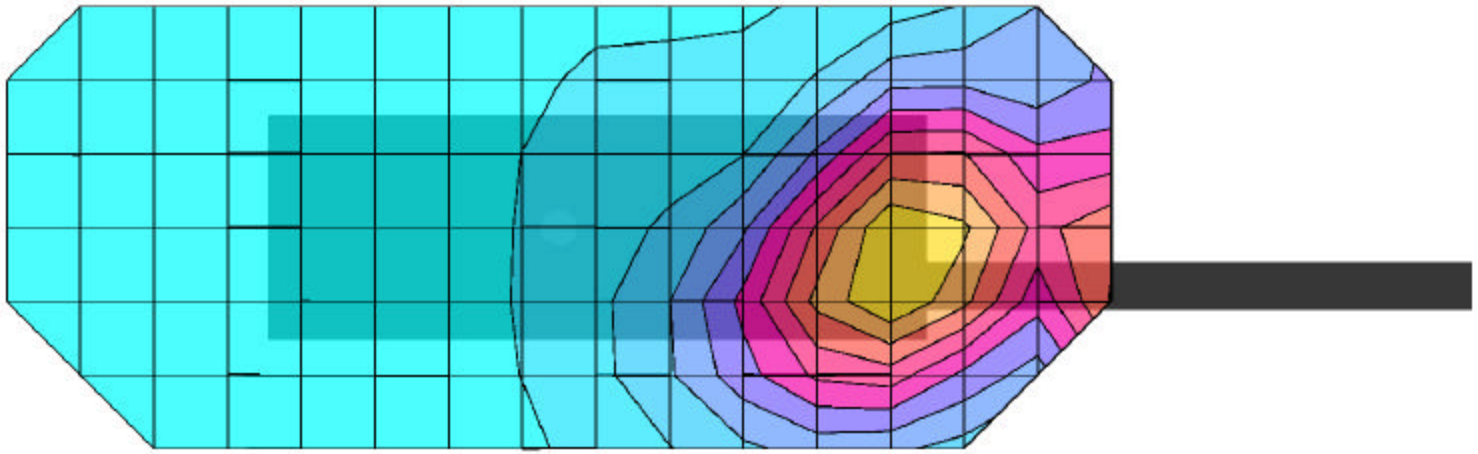


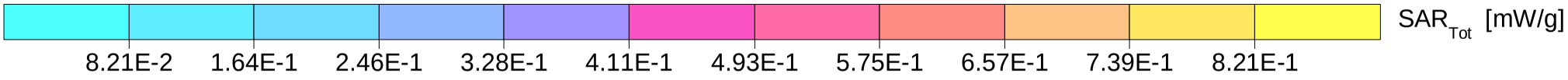
SAR Measurement Plot 20

M010252 - C - Tait Electronics - Belt Clip Position - Unit Section - Ch#3

ORCA TOP-K2620-TO (Back)

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Muscle 915 MHz: σ = 0.98 mho/m ε_r = 55.9 ρ = 1.04 g/cm^3
Cubes (2): SAR (1g): 0.830 mW/g ± 0.07 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.595 mW/g ± 0.05 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.06 dB



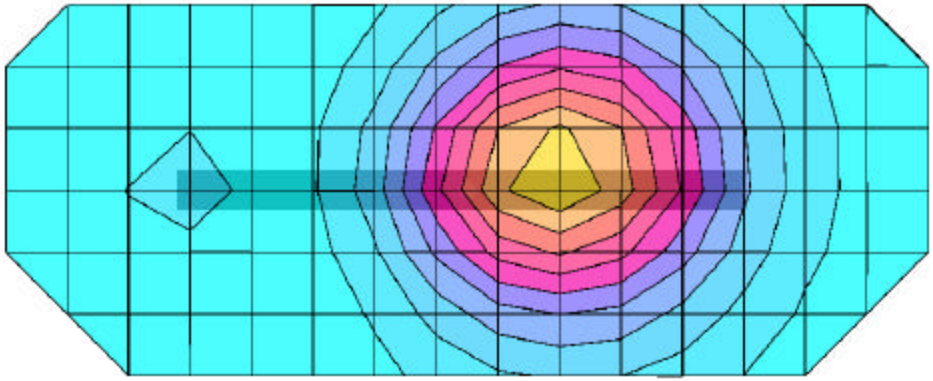


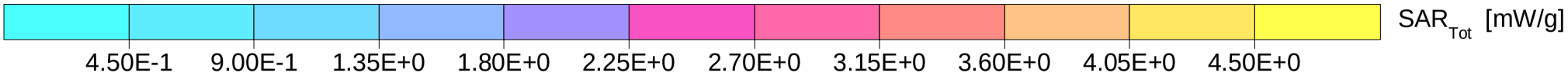
SAR Measurement Plot 21

M010252 - C - Tait Electronics - Belt Clip Position - Ant Section - Ch#1 (Spacer)

ORCA TOP-K2620-TO - ANT

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Muscle 915 MHz: σ = 0.98 mho/m ε_r = 55.9 ρ = 1.04 g/cm^3
Cubes (2): SAR (1g): 4.40 mW/g ± 0.05 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 3.25 mW/g ± 0.04 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.09 dB



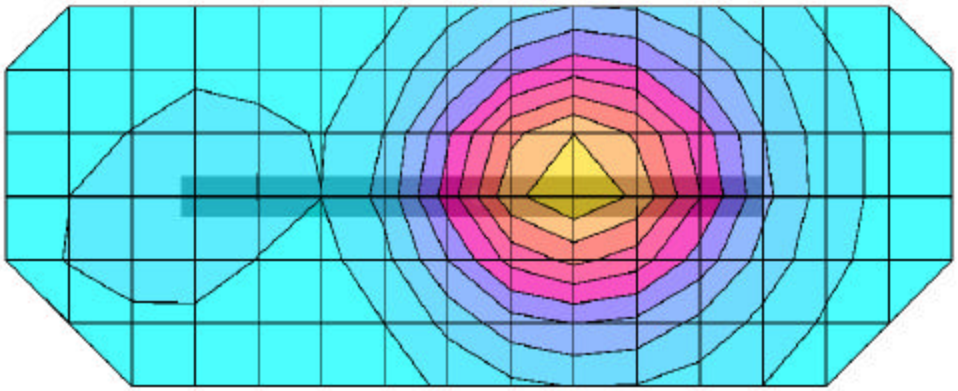


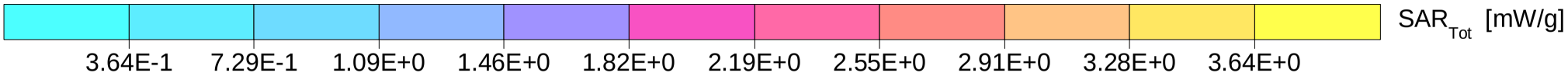
SAR Measurement Plot 22

M010252 - C - Tait Electronics - Belt Clip Position - Ant Section - Ch#2 (Spacer)

ORCA TOP-K2620-TO - ANT

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Muscle 915 MHz: σ = 0.98 mho/m ε_r = 55.9 ρ = 1.04 g/cm^3
Cubes (2): SAR (1g): 3.56 mW/g ± 0.09 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 2.60 mW/g ± 0.08 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.22 dB



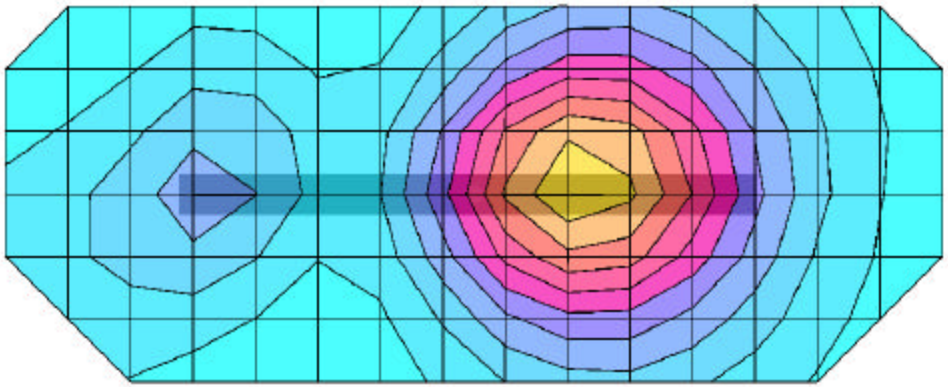


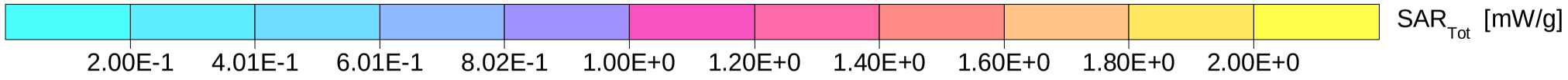
SAR Measurement Plot 23

M010252 - C - Tait Electronics - Belt Clip Position - Ant Section - Ch#3 (Spacer)

ORCA TOP-K2620-TO - ANT

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Muscle 915 MHz: σ = 0.98 mho/m ε_r = 55.9 ρ = 1.04 g/cm^3
Cubes (2): SAR (1g): 2.01 mW/g ± 0.03 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 1.47 mW/g ± 0.01 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.01 dB



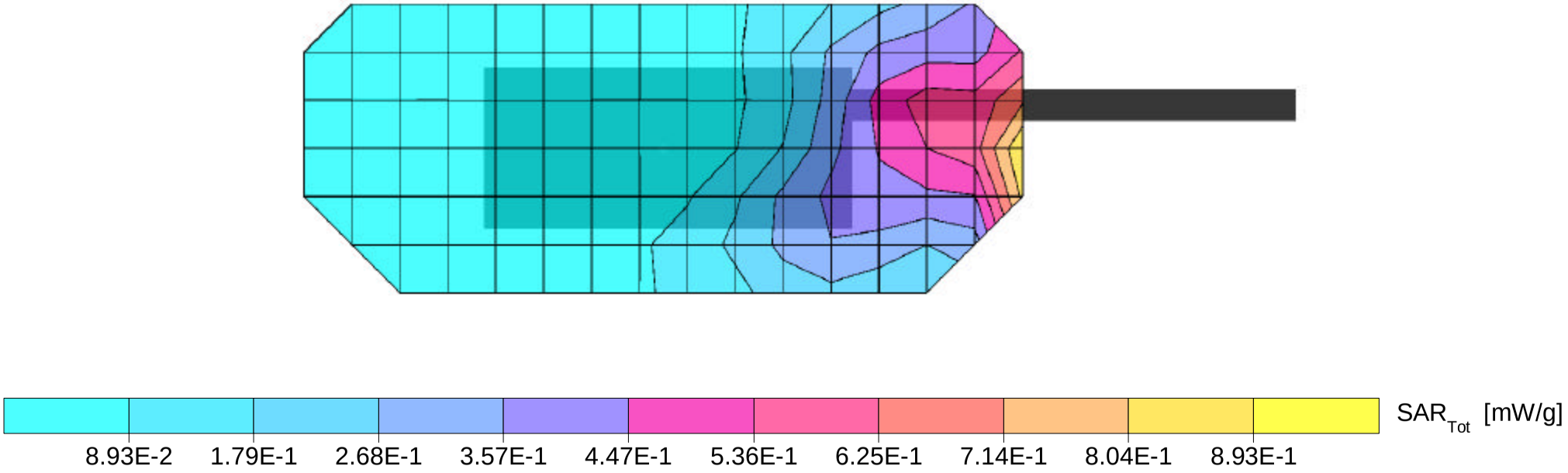


SAR Measurement Plot 24

M010252 - Tait Electronics - Belt Clip Position with Speaker Microphone - Unit Section - Ch#1

ORCA TOP-K2620-TO

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Muscle 915 MHz: σ = 0.98 mho/m ε_r = 55.9 ρ = 1.04 g/cm^3
Cubes (2): SAR (1g): 0.966 mW/g ± 0.07 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.593 mW/g ± 0.08 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: 0.38 dB

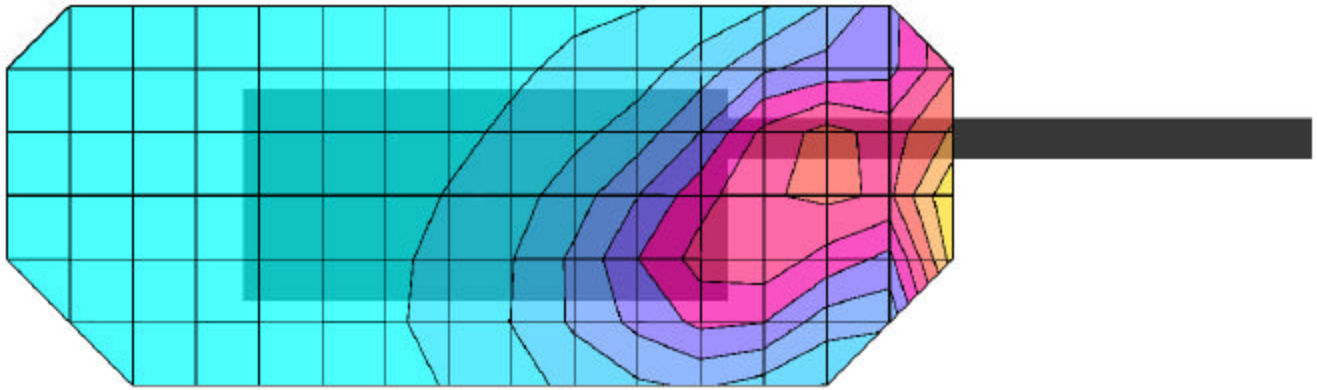


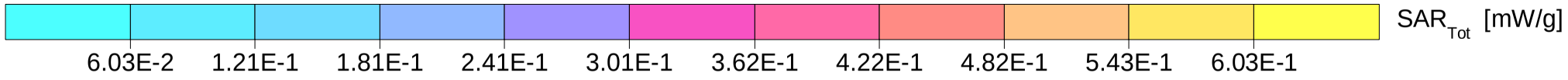
SAR Measurement Plot 25

M010252 - Tait Electronics - Belt Clip Position with Speaker Microphone - Unit Section - Ch#2

ORCA TOP-K2620-TO

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Muscle 915 MHz: σ = 0.98 mho/m ε_r = 55.9 ρ = 1.04 g/cm^3
Cubes (2): SAR (1g): 0.704 mW/g ± 0.15 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.444 mW/g ± 0.20 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.23 dB



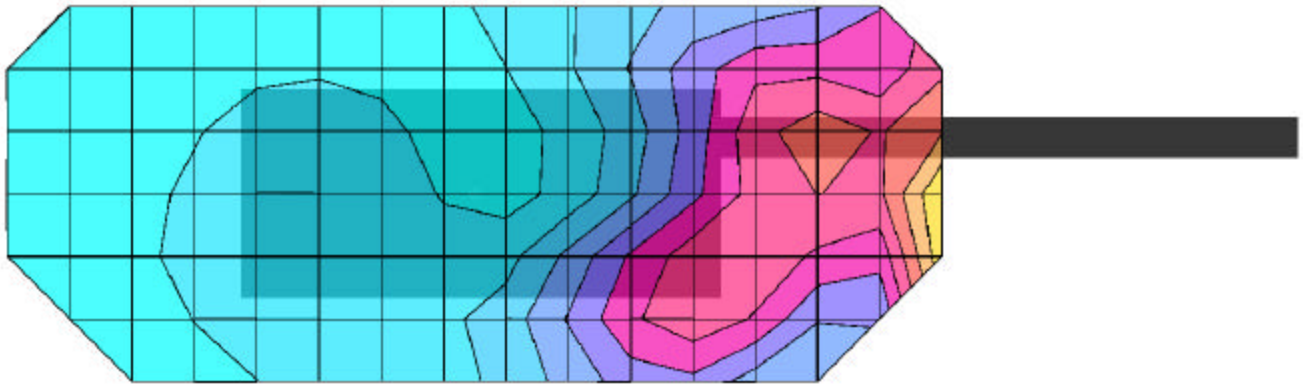


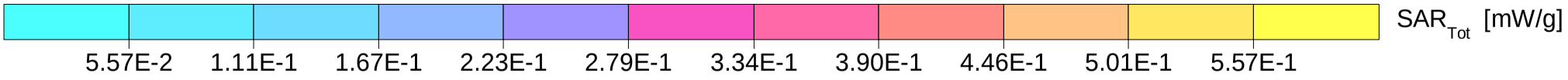
SAR Measurement Plot 26

M010252 - Tait Electronics - Belt Clip Position with Speaker Microphone - Unit Section - Ch#3

ORCA TOP-K2620-TO

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Muscle 915 MHz: σ = 0.98 mho/m ε_r = 55.9 ρ = 1.04 g/cm^3
Cubes (2): SAR (1g): 0.703 mW/g ± 0.39 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.457 mW/g ± 0.25 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: 0.16 dB



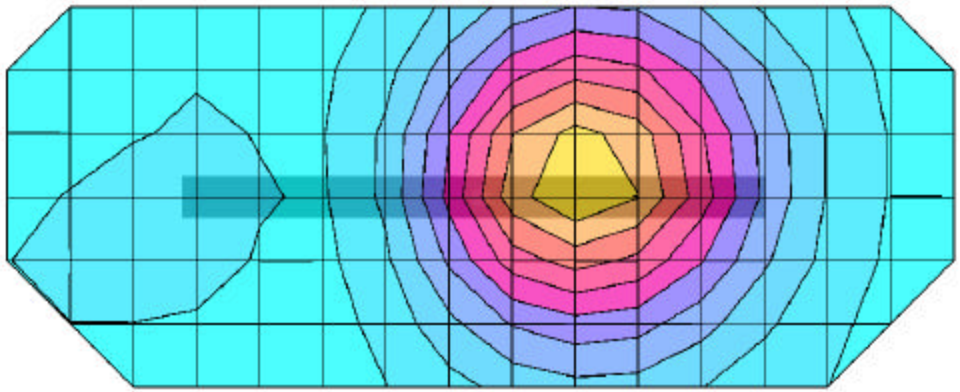


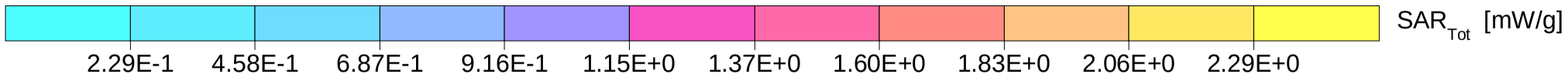
SAR Measurement Plot 27

M010252 - Tait Electronics - Belt Clip Position with Speaker Microphone - Ant Sec - Ch#1 #3

ORCA TOP-K2620-TO - ANT

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Muscle 915 MHz: σ = 0.98 mho/m ε_r = 55.9 ρ = 1.04 g/cm^3
Cubes (2): SAR (1g): 2.24 mW/g ± 0.06 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 1.65 mW/g ± 0.05 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.12 dB



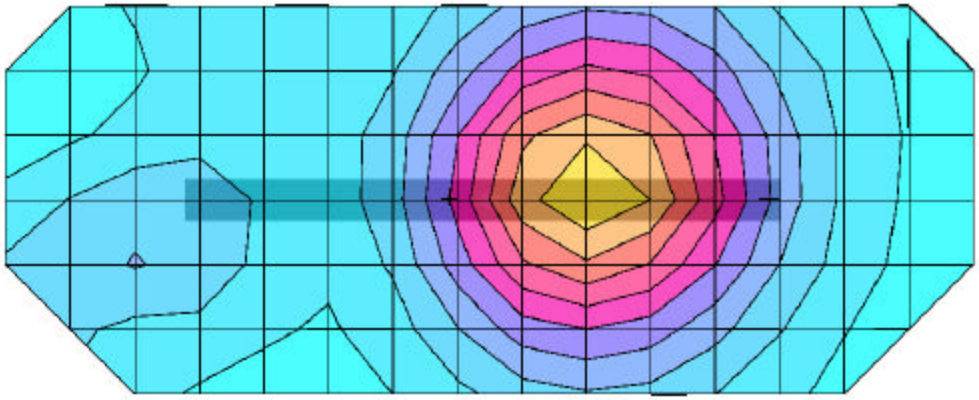


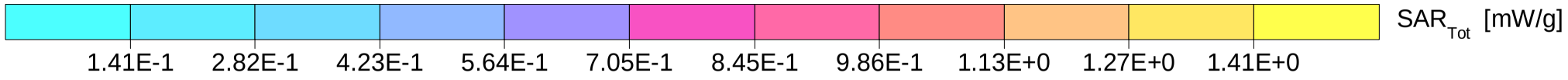
SAR Measurement Plot 28

M010252 - Tait Electronics - Belt Clip Position with Speaker Microphone - Ant Sec - Ch#2

ORCA TOP-K2620-TO - ANT

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Muscle 915 MHz: σ = 0.98 mho/m ε_r = 55.9 ρ = 1.04 g/cm^3
Cubes (2): SAR (1g): 1.34 mW/g ± 0.05 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.986 mW/g ± 0.04 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.14 dB



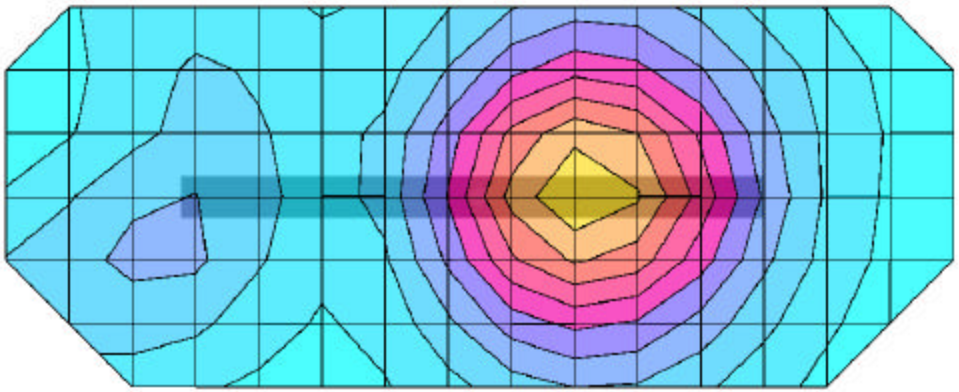


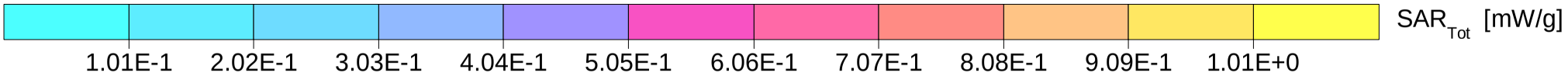
SAR Measurement Plot 29

M010252 - Tait Electronics - Belt Clip Position with Speaker Microphone - Ant Sec - Ch#3

ORCA TOP-K2620-TO - ANT

Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1377; ConvF(6.74,6.74,6.74)
Crest factor: 1.0; Muscle 915 MHz: σ = 0.98 mho/m ε_r = 55.9 ρ = 1.04 g/cm^3
Cubes (2): SAR (1g): 0.981 mW/g ± 0.05 dB, (Worst-case extrapolation)
Cubes (2): SAR (10g): 0.715 mW/g ± 0.04 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 15.0
Powerdrift: -0.03 dB





SAR Measurement Plot 30