Nº 51/LE147

Test report No:

NIE: 47275RAN.001A1

Test report (Modification 1)
REFERENCE STANDARDS:
FCC 47CFR Part 2.1093, Published RF Exposure KDB Procedures, IC RSS -102 Issue 5:2015

Identification of item tested.....:	Portable TETRA Terminal
Trade .....:	STP8X
Model and /or type reference .....:	STP8X040 (Full keypad version) STP8X140 (Reduced keypad version)
Other identification of the product .....:	Portable TETRA 2-way radio for use in TMO, DMO and repeater modes FCC ID: XX6STP8X IC: 8739A-STP8X
Final HW version .....:	PSBUW001T400R0001 (Full keypad version) PSXUW001T400R0001 (Reduced keypad version)
Final SW version .....:	V10
Features.....:	TETRA, Bluetooth
Manufacturer.....:	Company name: SEPURA PLC. Postal Address: 9000 Cambridge Research Park, Beach Drive, Waterbeach. Cambridge. CB25 9TL. UK Contact person: Steve Wood Job title/Dept: Product Conformance Manager / Development. Telephone: +44 (0) 1223876000 e-mail: Steve.wood@sepura.com
Test method requested, standard.....:	1. FCC 47 CFR Part 2.1093. (10-1-14 Edition) Radiofrequency radiation exposure evaluation: portable devices. 2. FCC OET KDB 447498 D01 General RF Exposure Guidance v06 (October 2015) 3. FCC OET KDB 865664 D01 - SAR Measurement Requirements for 100 MHz to 6 GHz v01r04 (August 2015). 4. FCC OET KDB 865664 D02 RF Exposure Reporting v01r02 (Octuber 2015) 5. FCC OET KDB 648474 D04 Handset SAR v01r03 (October 2015)

	6. FCC OET KDB 643646 D01 v01r03 SAR Test for PTT Radios (October 2015). 7. IC RSS-102 Issue 5 (2015-03) – Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) 8. Canada`s Safety Code No.6 – Limits of Human Exposure to Radiofrequency Electromag-netic Fields in the Frequency Range from 3 kHz to 300 GHz .
Summary .....:	Considering the results of the performed test according to FCC 47CFR Part 2.1093, the item under test is IN COMPLIANCE with the requested specifications specified in the standards. The maximum 1g volume averaged SAR found during this test has been 1.973 W/kg, for head exposure and TETRA 407-430 MHz Band. The maximum 1g volume averaged SAR for multiband transmission found during this test has been 1.999 W/kg, for head exposure. NOTE: The results presented in this Test Report apply only to the particular item under test established in page 1 of this document, as presented for test on the date(s) shown in section, "USAGE OF SAMPLES, TESTING PERIOD AND ENVIRONMENTAL CONDITIONS".
Approved by (name / position & signature) .....:	Miguel Lacave Antennas Lab Manager  MIGUEL LACAVE GARCÍA 2016.02.12 12:03:10 +01'00'
Date of issue .....:	2016-02-11
Report template No.....:	FDT11_17

Index

Competences and guarantees

AT4 wireless is a testing laboratory accredited by the National Accreditation Body (ENAC -Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance program for its measurement equipment.

AT4 wireless guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at AT4 wireless at the time of performance of the test.

AT4 wireless is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of AT4 wireless.

General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of AT4 wireless and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the following documents:

1. FCC OET KDB 865664 D01 - SAR Measurement Requirements for 100 MHz to 6 GHz v01r04 (August 2015).

Usage of samples

Samples undergoing test have been selected by: the client

Sample M/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
47275/33	PTT Radio	STP8X040	1PR302538G9F29J	2015-11-16
47275/21	Battery	--	--	2015-11-16

Sample M/02 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
47275/33	PTT Radio	STP8X040	1PR201438G9F29J	16/11/2015
47275/21	Battery	--	--	16/11/2015
47275/22	Battery	--	--	16/11/2015
47275/10	Antenna (Black)	--	--	16/11/2015
47275/11	Antenna (White)	--	--	16/11/2015
47275/14	Belt Clip	--	--	16/11/2015
47275/15	Adapter	--	--	16/11/2015
47275/16	Belt Accessory (Plastic)	--	--	16/11/2015
47275/02	Leather case adapter	STP8X Klick Fast Stud Kit	300-00911	16/11/2015
47275/08	Belt Accessory (Leather)	STP8X Ext. Belt Loop	300-00912	16/11/2015
47275/05	Leather case - shoulder strap	STP8X Hard leather case	300-00959	16/11/2015
47275/03	Holster Style leather case	STP8X Holster Style Hard leather case	300-00898	16/11/2015
47275/29	Microphone	STP8X Advanced RSM	300-00853	16/11/2015

1. Sample M/01 has undergone the test(s) specified in subclause “Test method requested”: Conducted average output power.
2. Sample M/02 has undergone the test(s) specified in subclause “Test method requested”: SAR evaluation for TETRA mode.

Test sample description

The test sample consists on a Portable TETRA Terminal[1]

1: See Remarks and comments.

Identification of the client

Company name:	SEPURA PLC.
Postal Address:	9000 Cambridge Research Park, Beach Drive, Waterbeach. Cambridge. CB25 9TL. UK
Contact person:	Steve Wood
Job title/Dept:	Product Conformance Manager / Development.
Telephone:	+44 (0) 1223876000
e-mail:	Steve.wood@sepura.com

Testing period

The performed test started on 2015-11-17 and finished on 2015-11-19.

The tests have been performed at AT4 wireless.

Environmental conditions

In the laboratory for measurements, the following limits were not exceeded during the test:

Temperature	Min. = 21.14 ºC Max. = 24.47 ºC
Relative humidity	Min. = 48.98 % Max. = 67.04 %

Modifications to the reference test report

It was introduced the following modifications in respect to the test report number 47275RAN.001 related with the same samples, in the next clauses and sub-clauses:

Clauses / Sub-clauses	Modification	Justification
Cover page	FCC and IC identification numbers	Client request.

This modification test report cancels and replaces the test report 47275RAN.001.

Remarks and comments

1: The device under test, model STP8X040, has identical internal hardware than model STP8X140, the unique difference between both models consists on a different numeric keypad termination. As both models use the same external radiating antenna and are considered as identical equipment in terms of internal hardware and software, measurements have been performed only on the STP8X040 model.

2: Testing of Bluetooth mode is not required according to FCC OET KDB 447498 D01 General RF Exposure Guidance v06, paragraph "4.3.1. Standalone SAR test exclusion considerations" and to the IC RSS-102 Issue 5 (2015-03) – Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands), paragraph 2.5.1 Exemption Limits for Routine Evaluation – SAR Evaluation. See Appendix B; section 2.4 Wi-Fi&Bluetooth of this document for more details.

3: Testing of other required channels is not required according to FCC OET KDB 447498 D01 General RF Exposure Guidance v06, paragraph "4.4.1. General SAR test reduction considerations".

4: Only FAST SAR measurement has been performed for this configuration, because the microphone accessory doesn't have any transmitting antenna and a very low SAR value, very close to ambient noise, was found.

5: Only the plots of the highest reported SAR for each test configuration and mode/band are included in appendix C.

Used instrumentation

1. Dosimetric E-field probe SPEAG ES3DV3
2. Data acquisition device SPEAG DAE4
3. Electro-optical converter SPEAG EOC3
4. 450 MHz dipole validation kit SPEAG D450V3
5. Robot Stäubli RX60BL
6. Robot controller Stäubli CM7MB
7. SAR measurement software SPEAG DASY52 V52.8.8.1222
8. SAR post processing software SPEAG SEMCAD X
9. Measurement server SPEAG DASY5 SE UMS 011 BS
10. SAM head-body simulator SPEAG Twin SAM V4.0
11. Oval flat phantom SPEAG ELI 4
12. Head and Body Tissue Equivalent Liquids for 450 MHz band
13. Vector network analyzer Agilent FieldFox N9923A
14. Dielectric probe kit SPEAG DAK-3.5
15. Power meter R&S NRVD and Power sensor R&S NRV-Z51
16. Power meter Agilent E4419B
17. RF Generator R&S SMU200A
18. DC Power supply Agilent U8002A
19. Dual directional coupler HP 778D.
20. Power amplifier MITEQ AMF-4D-00400600-50-30P
21. 6 dB attenuator Weinschel 75 A-6-11
22. 20 dB attenuator Weinschel 75 A-20-11
23. Handset positioner SPEAG Device Holder

Testing verdicts

Not applicable .....:	N/A
Pass .....:	P
Fail .....:	F
Not measured .....:	N/M

450 MHz band

FCC 47CFR Part 2.1093 Paragraph	VERDICT			
	NA	**P**	**F**	**NM**
(d)(1) TETRA		P		

2450 MHz band

FCC 47CFR Part 2.1093 Paragraph	VERDICT			
	NA	**P**	**F**	**NM**
(d)(1) Bluetooth		P[2]		

2: See Remarks and comments.

FCC 47CFR Part 2.1093 Paragraph	VERDICT			
	NA	**P**	**F**	**NM**
(d)(1) Simultaneous multi-band transmission		P		

Appendix A – Test configuration

INDEX

1. GENERAL INTRODUCTION

1.1. Application Standard

The Federal Communications Commission (FCC) sets the limits for occupational/controlled exposure to radio frequency electromagnetic fields for transmitting devices designed to be used within 20 centimetres of the body of the user under FCC 47 CFR Part 2.1093 - "Radiofrequency radiation exposure evaluation: portable devices", paragraph (d)(1).

1.2. General requirements

The SAR measurement has been performed continuing the following considerations and environment conditions:

- The ambient temperature shall be in the range of 18ºC to 25ºC and the variation shall not exceed +/- 2ºC during the test.
- The ambient humidity shall be in the range of and 30% - 70%.
- The device battery shall be fully charged before each measurement.

1.3. Measurement system requirements

The measurement system used for SAR tests fulfils the procedural and technical requirements described at the reference standards used.

1.4. Phantom requirements

The phantom for head worn is a simplified representation of the human anatomy and comprised of material with electrical properties similar to the corresponding tissues in human body. The human model has the following proportions:

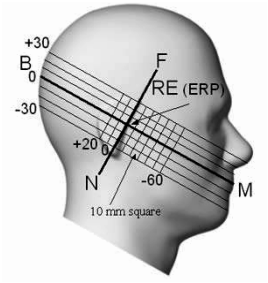


Figure 1: Proportions of Phantom

The shell model is a shaped container and it has the representation shown in the following figure:

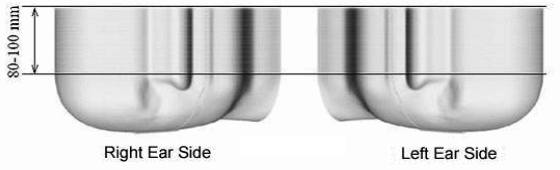


Figure 2: Proportions and shape of Phantom shell

The phantom model for body measurements is an elliptical open-top container with a flat bottom, with the following shape and dimensions:

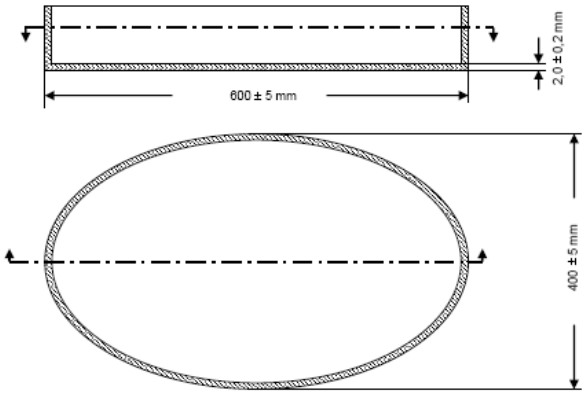


Figure 3: Proportions and shape of Phantom shell

1.5. Measurement Liquids requirements.

The liquids used to simulate the human tissues, must fulfils the requirements of the dielectric properties required. These target dielectric properties per FCC OET KDB 865664 D01 instructions come from the dipole and probe calibration data which are included in Appendix B, Section 3, of this document.

To minimize the effect of reflections on peak spatial-average SAR values, from the upper surface of the tissue-equivalent liquid, the depth of the liquid should be at least 15 cm.

2. MEASUREMENT SYSTEM

2.1. Measurement System

The DASY5 system for performing compliance tests consists of the following items:

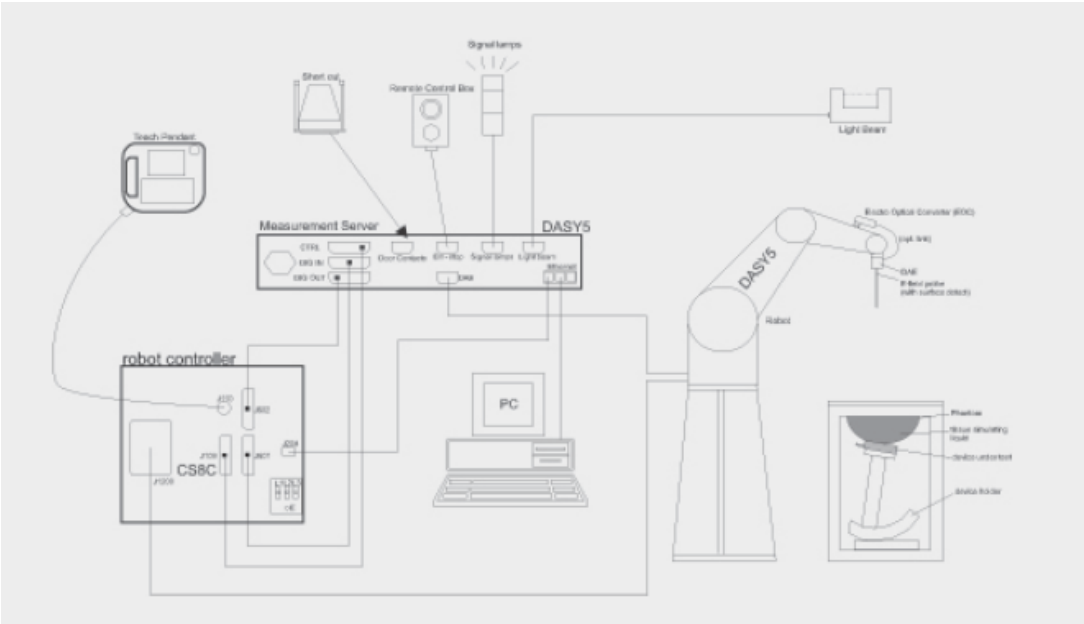


Figure 4: SAR Measurement system

- A standard high precision 6-axis robot (Stäubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win7 professional operating system and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

Manufacturer	Device	Type
Schmid & Partner Engineering AG	Dosimetric E-Field Probe	ES3DV3
Schmid & Partner Engineering AG	Data Acquisition Electronics	DAE4
Schmid & Partner Engineering AG	Electro-Optical Converter	EOC3
Stäubli	Robot	RX60BL
Stäubli	Robot controller	CS7MB
Schmid & Partner Engineering AG	Measurement Server	DASY5 SE UMS 011 BS
Schmid & Partner Engineering AG	SAM head-body simulator	TWIN SAM V4.0
Schmid & Partner Engineering AG	Oval flat phantom	SPEAG ELI 4
Schmid & Partner Engineering AG	Handset Positioner	SD000 HD1HA
Schmid & Partner Engineering AG	Measurement Software	DASY52 V52.8.8.1222
Schmid & Partner Engineering AG	Postprocessing Software	SEMCAD X
Rohde & Schwarz	RF Generator	SMU 200A
MITEQ	Power amplifier	AMF-4D-00400600-50-30P
Agilent	DC Power supply	U8002A
HP	Dual directional coupler	778D
Weinschel	6dB attenuator	75A-6-11
Weinschel	20 dB attenuator	75A-20-11
Rohde & Schwarz	Power Meter & Power Sensor	NRVD & NRV-Z51
Agilent	Power Meter	E4419B
Schmid & Partner Engineering AG	450 MHz System Validation Dipole	D450V3
Agilent	Vector Network Analyser	FieldFox N9923A
Schmid & Partner Engineering AG	Dielectric Probe Kit	DAK-3.5

Table 1: Measurement Equipment

DOSIMETRIC E-FIELD PROBE

ES3DV3
Isotropic E-Field Probe for Dosimetric Measurements

	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025
Frequency	10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)
Dynamic Range	5 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm

DATA ACQUISITION ELECTRONICS

DAE4 - Data Acquisition Electronics

	Signal amplifier, multiplexer, A/D converter, and control logic Serial optical link for communication with DASY4/5 embedded system (fully remote controlled) Two-step probe touch detector for mechanical surface detection and emergency robot stop
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV, 400mV)
Input Offset Voltage	< 5 µV (with auto zero)
Input Resistance	200 MOhm
Input Bias Current	< 50 fA

SAM HEAD-BODY SIMULATOR

Twin SAM

	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot. Twin SAM V5.0 has the same shell geometry and is manufactured from the same material as Twin SAM V4.0, but has reinforced top structure.
Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)
Dimensions **(incl. Wooden Support)**	Length: 1000 mm Width: 500 mm Height: adjustable feet
Filling Volume	approx. 25 liters
Wooden Support	SPEAG standard phantom table

OVAL FLAT PHANTOM

ELI

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.

ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure.

Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2.0 ± 0.2 mm (bottom plate)
Dimensions	Major axis: 600 mm Minor axis: 400 mm
Filling Volume	approx. 30 liters
Wooden Support	SPEAG standard phantom table

HANDSET POSITIONER

Mounting Device for Hand-Held Transmitters

In combination with the Twin SAM V5.0/V5.0c or ELI Phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat).

Material: Polyoxymethylene (POM)

DIPOLES

System Validation Kits 300 MHz – 6 GHz

Symmetrical dipole with I/4 balun
Enables measurement of feedpoint impedance with NWA
Matched for use near flat phantoms filled with tissue simulating solutions

Calibration	ISO/IEC 17025		
Frequency	300, 400, 450, 600, 733, 750, 835, 850, 900, 1300, 1450, 1500, 1640, 1750, 1800, 1900, 1950, 2000, 2100, 2300, 2450, 2550, 2600, 3000, 3300, 3500, 3700 MHz and D5GHz (5100-5800 MHz)		
Return Loss	> 20 dB at specified validation position		
Power Capability	> 100 W (f < 1GHz); > 40 W (f > 1GHz)		
Dimensions (length and overall height in mm)	**Product**	**Dipole length**	**Overall height**
	D450V3	290.0	330.0
	D750V3	179.0	330.0
	D900V2	148.5	340.0
	D1800V2	72.5	300.0
	D2000V2	65.0	300.0
	D2450V2	52.0	290.0
	D2600V2	49.2	290.0
	D5GHzV2	20.6	300.0

2.2. Test positions of device relative to head

The standard requires two test positions for the handset in the head. These positions are the "cheek" position and the “tilted” position. The tests positions used are described below. The handset should be tested in both positions (left and right sides) in the SAM phantom.

The DUT shall be placed in the Phantom in such way that the main point of the mobile terminal (acoustic output) coincides with the reference point located at the Phantom’s ear.

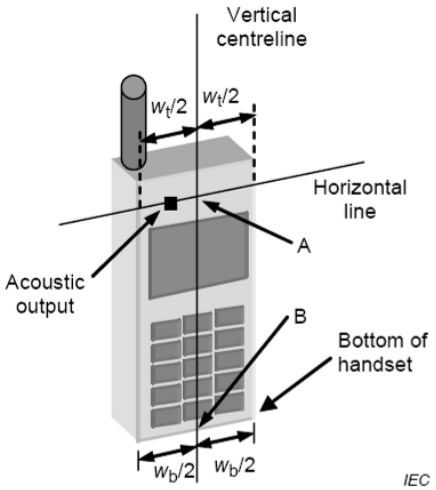


Figure 5: DUT’s basic scheme

SAR measurements will be performed for the following configurations as indicated in the reference standard:

- Right side of Phantom, Cheek position.
- Right side of Phantom, 15º Tilted position.
- Left side of Phantom, Cheek position.
- Left side of Phantom, 15º Tilted position.

Definition of the “cheek” position

The "cheek" position relative to Phantom is described as follows:

1. - Position the device with the vertical centre line of the body of the device and the horizontal line crossing the centre of the ear piece in a plane parallel to the sagital plane of the Phantom. While maintaining the device in this plane, align the centre line with the reference plane containing the three ear and mouth reference points (M, RE and LE).

2. - Translate the mobile phone box towards the Phantom until the ear-piece touches the ear reference point (RE or LE). While maintaining the device in the reference plane, move the bottom of the box until any point of the front side is in contact with the cheek of the Phantom.

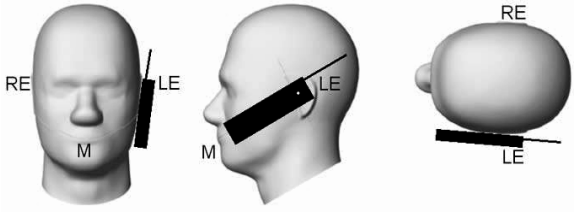


Figure 6: “Cheek” position of DUT

Definition of the tilted position:

The "15º tilted" position relative to Phantom is described as follows:

1. - Position the device in the “cheek” position described above.

2. - While maintaining the device in the reference plane described above and pivoting against the ear, move it outward away from the mouth by an angle of 15 degrees.

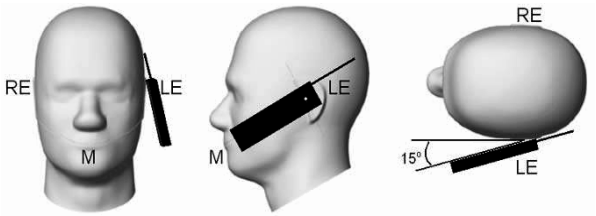


Figure 7: “Tilted” position of DUT

As the device under test is a Handheld PTT two-ways radio, Head SAR in-front-of the face exposure conditions is also required according to KDB 643646 D01.

Head SAR has been measured with the front face of the radio positioned at 2.5 cm parallel to the flat phantom.

2.3. Test positions of device relative to body.

Handheld PTT two-ways radios shall be tested for body-worn accessory exposure conditions according to KDB 643646 D01.

As the device under test may be use with several types of accessories, antennas, audio Accessory and carrying accessories, Body-worn exposure conditions has been tested for each worst combination of accessories at 0 mm distance to the flat phantom.

2.4. Test to be performed

For Head SAR test shall be performed at both DUT positions previously described, on each side of the **SAM Head-Body Simulator Phantom** using the centre frequency of each operating band.

Additionally, the configuration giving to the maximum mass averaged SAR shall be used to test the low-end and the high-end frequencies of each transmitting band. Thus, the tests to be performed are as follows:

- Measurements at Central Channel of application band:
  1. SAR measurement at the left side of Phantom and the cheek position of the DUT.
  2. SAR measurement at the left side of Phantom and the tilted 15º position of the DUT.
  3. SAR measurement at the right side of Phantom and the cheek position of the DUT.
  4. SAR measurement at the right side of Phantom and the tilted 15º position of the DUT.
  5. SAR measurement at the flat side of the Phantom with the front face DUT at 2.5cm parallel to the flat Phantom.
- Measurements at Low Channel of application band: SAR measurement at the side and position where the maximum SAR level, measured at Central channel, was found.
- Measurements at High Channel of application band: SAR measurement at the side and position where the maximum SAR level, measured at Central channel, was found.

For body SAR, test shall be performed with the radio placed in a body-worn accessory, positioned against the flat phantom, representative of the normal operating conditions expected by users, using the centre frequency of each operating band. Low and high channels for each band should be tested at this position.

"Additional body-worn" accessories must be considered for SAR compliance.

2.5. Description of interpolation/extrapolation scheme

The local SAR inside the Phantom is measured using small dipole sensing elements inside a probe element. The probe tip must not be in contact with the Phantoms surface in order to minimise measurement errors, but the highest local SAR is obtained from measurements at a certain distances from the shell trough extrapolation. The accurate assessment of the maximum SAR averaged over 1 gr. requires a very fine resolution in the three dimensional scanned data array. Since the measurements have to be performed over a limited time, the measured data have to be interpolated to provide an array of sufficient resolution.

The interpolation of 2D area scan is used after the initial area scan, at a fixed distance from the Phantom shell wall. The initial scan data is collected with approx. 10 mm spatial resolution and this interpolation is used to find the location of the local maximum for positioning the subsequent 3D scanning within a 1mm resolution.

For the 3D scan, data is collected on a spatially regular 3D grid having 5 mm steps in both directions. After the data collection by the SAR probe, the data are extrapolated in the depth direction to assign values to points in the 3D array closer to the shell wall. A notional extrapolation value is also assigned to the first point outside the shell wall so that subsequent interpolation schemes will be applicable right up to the shell wall boundary.

2.6. Determination of the largest peak spatial-average SAR

To determine the maximum value of the peak spatial-average SAR of a DUT, all device positions, configurations and operational modes should be tested for each frequency band.

The averaging volume shall be chosen as 1gr. of contiguous tissue. The cubic volumes, over which the SAR measurements are averaged after extrapolation and interpolation, are chosen in order to include the highest values of local SAR.

The maximum SAR level for the DUT will be the maximum level obtained of the performed measurements, and indicated in the previous points.

2.7. System Validation

Prior to the SAR measurements, system verification is done daily to verify the system accuracy. A complete SAR evaluation is done using a half-wavelength dipole as source with the frequency of the mid-band channel of the operating band, or within 10% of this channel.

The measured one-gram SAR should be within 10% of the expected target values specified in the calibration certificate of the dipole, for the specific tissue and frequency used.

3. UNCERTAINTY

According to FCC OET KDB 865664 D01 - SAR Measurement Requirements for 100 MHz to 6 GHz v01r04 (August 2015), as the highest measured 1-g SAR has been < 1.5 W/kg, SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in the actual SAR report, but it has been included for ISO 17025 accreditation.

Uncertainty for 300 MHz – 6 GHz

ERROR SOURCES	Uncertainty value (± %)	Probability distribution	Divisor	(c_i) 1g	(c_i) 10g	Standard uncertainty (1g) (± %)	Standard uncertainty (10g) (± %)
Measurement Equipment							
Probe Calibration	6.550	N	1	1	1	6.550	6.550
Axial Isotropy	4.700	R	√3	0.7	0.7	1.899	1.899
Hemisfericall Isotropy	9.600	R	√3	0.7	0.7	3.880	3.880
Boundary effect	2.000	R	√3	1	1	1.155	1.155
Linearity	4.700	R	√3	1	1	2.714	2.714
System Detection limits	1.000	R	√3	1	1	0.577	0.577
Probe modulation response	6.100	R	√3	1	1	3.522	3.522
Readout electronics	0.300	N	1	1	1	0.300	0.300
Response time	0.800	R	√3	1	1	0.462	0.462
Integration time	2.600	R	√3	1	1	1.501	1.501
RF Ambient noise	3.000	R	√3	1	1	1.732	1.732
RF Ambient reflections	3.000	R	√3	1	1	1.732	1.732
Probe positioner mech. restrictions	0.800	R	√3	1	1	0.462	0.462
Probe positioning with respect to phantom shell	6.700	R	√3	1	1	3.868	3.868
Max. SAR Eval.	4.000	R	√3	1	1	2.309	2.309
Test Sample Related							
Device holder uncertainty	2.900	N	1	1	1	2.900	2.900
Test sample positioning	3.600	N	1	1	1	3.600	3.600
Drift of output power	5.000	R	√3	1	1	2.887	2.887
Phantom and Setup							
Phantom uncertainty (shape and thickness tolerances)	6.600	R	√3	1	1	3.811	3.811
Algorithm for correcting SAR for deviations in permittivity and conductivity	1.900	N	√3	1	0.84	1.097	0.921
Liquid conductivity (meas.)	1.500	N	√3	0.78	0.71	0.675	0.615
Liquid permittivity (meas.)	1.200	N	√3	0.26	0.26	0.180	0.180
Liquid conductivity – temperature uncertainty	3.400	N	√3	0.78	0.71	1.531	1.394
Liquid permittivity – temperature uncertainty	0.400	N	√3	0.23	0.26	0.053	0.060
Combined standard uncertainty	$u_c = \sqrt{\sum_{1=1}^{m} c_i^2 \cdot u_i^2}$					**12.66**	**12.63**
Expanded uncertainty (confidence interval of 95%)	*ue =2.00 uc*					**25.33**	**25.26**

Table 2: Uncertainty Assessment for 300 MHz - 6 GHz

4. SAR LIMIT

The SAR values have to be averaged over a mass of 1 gr. (SAR 1 gr.) with the shape of a cube. This level couldn't exceed the values indicated in the application Standard:

Standard	Exposure	SAR	SAR Limit (W/kg)
FCC 47 CFR Part 2.1093 Paragraph (d)(1)	Ocupational/controlled	$SAR_{1\ gr.}$	8

Table 3: SAR limit

Having a worst case measurement, the SAR limit is valid for Ocupational/controlled exposure.

5. DEVICE UNDER TEST

5.1. Dimensions

Dimensions	Millimetres
Height x Width x Depth	210.0 x 63.0 x 40.0
Overall Diagonal:	212.0
Display Diagonal:	50.0

Table 4: Dimensions

5.2. Wireless Technology

Wireless Technology	SAR Testing	Frequency Bands	Modes
TETRA	Required	407 – 430 MHz 450 – 470 MHz	- TETRA
Bluetooth	Not Required	2.4 GHz	- Bluetooth

Table 5: Supported modes

5.3. Simultaneous Transmission

Simultaneous transmission evaluation was performed according to FCC OET KDB 447498 D01 General RF Exposure Guidance v06 (October 2015). The detailed simultaneous transmission combination is:

RF Exposure Condition	Capable Transmit Configurations
Head	1. TETRA 407 – 430 MHz + Bluetooth 2. TETRA 450 – 470 MHz + Bluetooth
In front of the Face	1. TETRA 407 – 430 MHz + Bluetooth 2. TETRA 450 – 470 MHz + Bluetooth
Body-worn	1. TETRA 407 – 430 MHz + Bluetooth 2. TETRA 450 – 470 MHz + Bluetooth

Table 6: Simultaneous transmission

5.4. Antenna Location

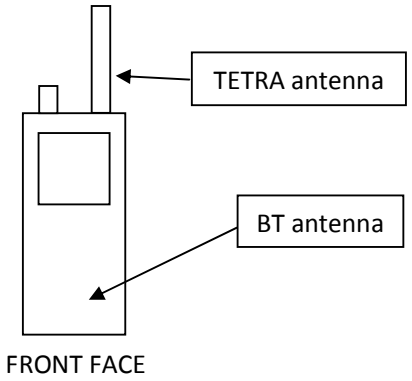


Figure 8: Antenna location sketch

5.5. Accessories

- Battery

There is only one battery type. See "Appendix A - Test results", Section 1.1 of this document for further information.

- Carrying Accessories

Carrying Accessory	Type	Metalic Parts	Test Distance	Distance Antenna - Phantom	Comments
1	Belt Clip	Yes	0 mm	35 mm	None
2	Belt Accessory (plastic)	No	0 mm	41 mm	Needs adapter 47275/15 to be used with the device
3	Belt Accessory (leather)	Yes	0 mm	46 mm	Needs adapter 47275/15 to be used with the device
4	Leather Case-Shoulder	Yes	0 mm	33 mm/51mm/70mm	Alone/+Acc 2/+Acc3
5	Holster Style leather case	Yes	0 mm	43 mm/59 mm	Acc2/+Acc3

Table 7: List of accesories

- Microphone

This accessory does not contian any radiating antennas.

- Antennas

There are two types of antennas with the same dimensions. White pointed antenna works into the 407-430MHz TETRA band and the black pointed one works into the 450-470 MHz TETRA band .

See "Appendix F – Photographs" of this document for further information.

Appendix B – Test results

INDEX

1. TEST CONDITIONS

1.1. Power supply (V):

V_n = 7.6 Li-polymer rechargeable battery

Type of power supply = DC Voltage from rechargeable Li-Ion 7.6 V battery.

1.2. Temperature (ºC):

T_n = +20.00 to +25.00

The subscript n indicates normal test conditions.

1.3. Test signal, Output Power and Frequencies

The actual DUT supports TETRA and Bluetooth transmitting modes. To perform testing into the 407-430 MHz and 450-470 MHz TETRA bands, the sample **(S/N: 1PR201438G9F29J)** was put into operation by using a software provided by the manufacturer.

A fully charged battery was used for every test sequence. In all operating bands and test position, the measurements were performed on middle channels. In each band, for those positions where the maximum averaged SAR was found, measurements were performed on lowest and highest channels except those with applicable test reductions [3].

3: See remarks and comments

The maximum time-average conducted power of the device for each mode was measured with a Power meter R&S NRVD and a thermocoupled power sensor NRV-Z51.

The target power alignments for RF components declared by the manufacturer for each supported technology are:

Protocol	Declared Target alignment for Low, Mid, High channels		
	Power level (dBm)	Tuning tolerance (dB)	Max. Output Power (dBm)
TETRA	22.6	+1/-1	23.6
Bluetooth	4.0	+1/-1	5.0

1.4. DUT and test-site configurations

The DUT was tested over head and body exposure conditions:

- For head tests, the DUT was placed in cheek and tilt position on the right/left side of the SAM phantom.

- For in-front-of face test, the DUT was placed with the front face against the flat side of the SAM phantom, with a testing distance of 25 mm. Althought the microphe accessory doesn´t contain any radiating antenna, a FAST SAR measurement was performed with the same configuration.

- For body tests, the DUT was placed with each carry accessory and transmitting antenna, with its back face in direct contact with the flat phantom surface, as its intended use. The highest SAR combination of accessories was also tested with the microphone accessory.

2. CONDUCTED AVERAGE POWER MEASUREMENTS

2.1. TETRA Bands

Band	Frequency (MHz)	Avg. Output Power (dBm)
407-430 MHz	407	22.31
407-430 MHz	418.5	22.34
407-430 MHz	430	22.45
450-470 MHz	450	22.31
450-470 MHz	460	22.36
450-470 MHz	470	22.41

2.2. Bluetooth

Based on paragraph "4.3.1 Standalone SAR test exclusion considerations" of the KDB 447498 D01 - General RF Exposure Guidance:

[(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

Protocol	Declared Max Avg. conducted output power+Tune-up		Min. Test Distance (mm)	Freq. (GHz)	Result	Test Exclusion
	(dBm)	(mW)				
Bluetooth	5.0	3.16	25	2.45	0.20	√

The computed value for Bluetooth is < 3.0, so Bluetooth mode qualifies for Standalone SAR test exclusion for 1-g SAR and 10-g

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)/x] W/kg for test separation distances ≤ 50 mm; where x = 7.5 for 1-g SAR and x= 18,75 for 10-g extremity SAR,.

Estimated SAR						
Protocol	Declared Max Avg. conducted output power+Tune-up		Min. Test distance (mm)	Frequency (GHz)	Estimated 1-g SAR	Estimated 10-g SAR
	(dBm)	(mW)				
Bluetooth	5	3.16	25	2.45	0.0264	0.0105

According to IC RSS-102 Issue 5 (2015-03) – Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands), paragraph 2.5.1 Exemption Limits for Routine Evaluation – SAR Evaluation, the device operates below the applicable output power level (adjusted for tune-up tolerance), for the specified separation distance defined in Table 1. Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power.

The DUT has an antenna with a gain of 2.0 dBi, so the isotropically radiated power (e.i.r.p.) source-based, time-averaged output power is 7.00 dBm → 5.01 mW. The exemption limit at 2450 MHz frequency, 25 mm distance, is 52 mW:

Output power level (e.i.r.p.) = 5.01 mW < 52mW

Therefore SAR testing is not needed according to IC RSS-102 Issue 5 (2015-03).

3. TISSUE PARAMETERS MEASUREMENTS

Frequency (MHz)	Target Head Tissue: Parameters used in Probe Calibration		Target Head Tissue: Parameters used in Dipole Calibration		Measured Head Tissue		Measured Date
	Permittivity	Conductivity [S/m]	Permittivity	Conductivity [S/m]	Permittivity	Conductivity [S/m]	
450	43.5 ± 5%	0.87 ± 5%	42.7 ± 6%	0.87 ± 6%	44.33	0.89	2015-11-17

Frequency (MHz)	Target Body Tissue: Parameters used in Probe Calibration		Target Body Tissue: Parameters used in Dipole Calibration		Measured Body Tissue		Measured Date
	Permittivity	Conductivity [S/m]	Permittivity	Conductivity [S/m]	Permittivity	Conductivity [S/m]	
450	56.7 ± 5%	0.94 ± 5%	55.0 ± 6%	0.95 ± 6%	55.03	0.96	2015-11-18

Note: The dielectric properties have been measured by the contact probe method at 23° C.

- Composition / Information on ingredients

Head and Muscle Tissue Simulation Liquids HSL450V2/MSL450V2

H2O	Water, 35 – 58%
Sucrose	Sugar, white, refined, 40 – 60%
NaCl	Sodium Chloride, 0 – 6%
Hydroxyethyl-cellulose	Medium Viscosity (CAS# 9004-62-0), <0.3%
Preventol-D7	Preservative: aqueous preparation, (CAS# 55965-84-9), containing 5-chloro-2-methyl-3(2H)-isothiazolone and 2-methyyl-3(2H)-isothiazolone, 0.1 – 0.7%

4. SYSTEM CHECK MEASUREMENTS

4.1. Validation results for Head TSL

Frequency (MHz)	Date	SAR	Target SAR	Measured SAR	Drift (%)	Limit (%)
450	17-11-2015	1 gr.	4.46	4.71	5.54	10
		10 gr.	2.98	3.15	5.57	10

4.2. Validation results for Body TSL

Frequency (MHz)	Date	SAR	Target SAR	Measured SAR	Drift (%)	Limit (%)
450	18-11-2015	1 gr.	4.45	4.70	5.58	10
		10 gr.	2.92	3.11	6.49	10

5. MEASUREMENT RESULTS FOR SAR (SPECIFIC ABSORPTION RATE)

Measurements have been performed using the normal TETRA transmission mode of the DUT adjusted to the maximum output power of the device. This transmission mode has an operating duty factor of 23%; therefore results have been scaled to a duty factor of 50% as indicated in KDB 447498 D01.

Max. Reported 1g SAR in the tables of section 5.5 is calculated from the measured 1g SAR value, using the following formula:

$$Max\_reported\_1g\_SAR = 1g\_SAR \cdot 10^{\frac{-Drift}{10}} \cdot \left(\frac{P_{OUT-MAX}}{P_{conducted}} \right)^{*} \cdot T_{duty-factor}$$

* Note: Only positive power scale is applied, if $P_{conducted} > P_{OUT\text{-}MAX} \rightarrow (P_{OUT\text{-}MAX} / P_{conducted}) = 1$

Where:
1g_SAR = Measured 1g Averaged SAR (W/kg)
Drift = DASY drift results (dB)
$P_{OUT\text{-}MAX}$ = Declared Target Power including tuning tolerance (W)
$P_{conducted}$ = Measured Conducted Output Power (W)
$T_{duty\text{-}factor}$ = A duty factor scale to 50% is applied to the transmission mode.

5.1. Summary maximum results for head measurements.

Band	Mode	Side / Position	Frequency (MHz)	Reported SAR (1g avg) (W/kg)	SAR limit (1g avg) (W/kg)
407-430 MHz	TETRA	Left / Tilted	418.5	1.973	8
450-470 MHz	TETRA	Left / Cheek	460	1.634	8

5.2. Summary maximum results for body measurements

Band	Mode	Accessory	Side / Position	Frequency (MHz)	Reported SAR (1g avg) (W/kg)	SAR limit (1g avg) (W/kg)
407-430 MHz	TETRA	47275/05	Back face 0 mm	418.5	0.808	8
450-470 MHz	TETRA	47275/14	Back face 0 mm	460	0.632	8

5.3. Result for head simultaneous multi-band transmission

Transmission Mode	Band	Max SAR (1g avg) (W/kg)	Σ SARi (W/kg)	SAR limit (W/kg)	Veredict
TETRA	407 – 430 MHz	1.973	1.999	8	Pass
Bluetooth	2.4 GHz	0.0264			
TETRA	450 – 470 MHz	1.653	1.679	8	Pass
Bluetooth	2.4 GHz	0.0264			

5.4. Result for body simultaneous multi-band transmission

Transmission Mode	Band	Max SAR (1g avg) (W/kg)	Σ SARi (W/kg)	SAR limit (W/kg)	Veredict
TETRA	407 – 430 MHz	0.808	0.834	8	Pass
Bluetooth	2.4 GHz	0.0264			
TETRA	450 – 470 MHz	0.632	0.658	8	Pass
Bluetooth	2.4 GHz	0.0264			

5.5. Results for TETRA 407 – 430 MHz band.

- **Head measurements**

Side / Position	Dist (mm)	Frequency (MHz)	1-g SAR (W/kg)	Power Drift (%)	Max Output Power (dBm)	Max. Reported 1-g SAR (W/kg)	Plot No.
Left / Cheek	0	418.5	0.504	-0.12	23.6	1.465	
Left / 15º Tilted	0	418.5	0.657	-1.71	23.6	1.973	1
Right / Cheek	0	418.5	0.425	-0.8	23.6	1.253	
Right / 15º Tilted	0	418.5	0.594	0.12	23.6	1.723	
Left / 15º Tilted	0	407	NM[3]	-	23.6	-	
Left / 15º Tilted	0	430	NM[3]	-	23.6	-	
Front of Face	25	418.5	0.249	0.35	23.6	0.722	2
Front of Face+ acc. 47275/29	25	418.5	0.0225[4]	0.23	23.6	0.065	

3 and 4: See remarks and comments.

- **Body measurements**

Accessory	Side / Position	Dist (mm)	Antenna Dist (mm)	Frequency (MHz)	1-g SAR (W/kg)	Power Drift (%)	Max Output Power (dBm)	Max. Reported 1-g SAR (W/kg)	Plot No.
47275/14	Back face	0	36	407	NM[3]	-	23.6	-	
	Back face	0	36	418.5	0.258	1.16	23.6	0.745	3
	Back face	0	36	430	NM[3]	-	23.6	-	
47275/02	Back face	0	41	407	NM[3]	-	23.6	-	
	Back face	0	41	418.5	0.249	-3.39	23.6	0.770	4
	Back face	0	41	430	NM[3]	-	23.6	-	
47275/08	Back face	0	53	407	NM[3]	-	23.6		
	Back face	0	53	418.5	0.199	0.69	23.6	0.575	5
	Back face	0	53	430	NM[3]	-	23.6		
47275/05	Back face	0	36	407	NM[3]	-	23.6		
	Back face	0	36	418.5	0.280	0.12	23.6	0.808	6
	Back face	0	36	430	NM[3]	-	23.6		
47275/03	Back face	0	43	407	NM[3]	-	23.6		
	Back face	0	43	418.5	0.199	0.58	23.6	0.575	7
	Back face	0	43	430	NM[3]	-	23.6		
47275/14 +29	Back face	0	36	407	NM[3]	-	23.6		
	Back face	0	36	418.5	0.185	0.23	23.6	0.534	8
	Back face	0	36	430	NM[3]	-	23.6		

3: See remarks and comments.

5.6. Results for TETRA 450 – 470 MHz band.

- **Head measurements**

Side / Position	Dist (mm)	Frequency (MHz)	1-g SAR (W/kg)	Power Drift (%)	Max Output Power (dBm)	Max. Reported 1-g SAR (W/kg)	Plot No.
Left / Cheek	0	460	0.566	1.27	23.6	1.634	9
Left / 15º Tilted	0	460	0.502	0	23.6	1.449	
Right / Cheek	0	460	0.521	-2.05	23.6	1.568	
Right / 15º Tilted	0	460	0.508	-0.92	23.6	1.494	
Left / Cheek	0	450	NM[3]	-	23.6	-	
Left / Cheek	0	470	NM[3]	-	23.6	-	
Front of Face	25	460	0.245	0.12	23.6	0.707	10
Front of Face+acc. 47275/29	25	460	0.0071[4]	-2.39	23.6	0.021	

3 and 4: See remarks and comments

- **Body measurements**

Accessory	Side / Position	Dist (mm)	Antenna Dist (mm)	Frequency (MHz)	1-g SAR (W/kg)	Power Drift (%)	Max Output Power (dBm)	Max. Reported 1-g SAR (W/kg)	Plot No.
47275/14	Back face	0	36	450	NM[3]	-	23.6	-	
	Back face	0	36	460	0.214	-1.14	23.6	0.632	11
	Back face	0	36	470	NM[3]	-	23.6	-	
47275/02	Back face	0	41	450	NM[3]	-	23.6	-	
	Back face	0	41	460	0.210	1.27	23.6	0.606	12
	Back face	0	41	470	NM[3]	-	23.6	-	
47275/08	Back face	0	53	450	NM[3]	-	23.6		
	Back face	0	53	460	0.187	-0.12	23.6	0.541	13
	Back face	0	53	470	NM[3]	-	23.6		
47275/05	Back face	0	36	450	NM[3]	-	23.6		
	Back face	0	36	460	0.207	0.69	23.6	0.598	14
	Back face	0	36	470	NM[3]	-	23.6		
47275/03	Back face	0	43	450	NM[3]	-	23.6		
	Back face	0	43	460	0.141	-0.80	23.6	0.414	15
	Back face	0	43	470	NM[3]	-	23.6		
47275/14 +29	Back face	0	36	450	NM[3]	-	23.6		
	Back face	0	36	460	0.182	1.16	23.6	0.525	16
	Back face	0	36	470	NM[3]	-	23.6		

3: See remarks and comments.

Appendix C – Measurement report

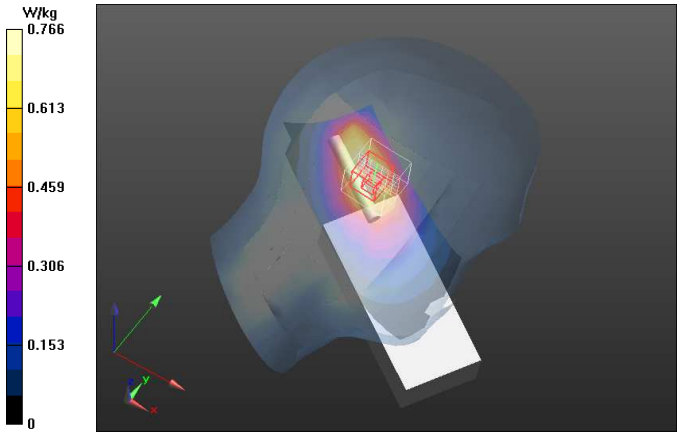
TETRA 407-430 MHz – Left hand side – Tilted position – Middle Channel – Plot Nº 1

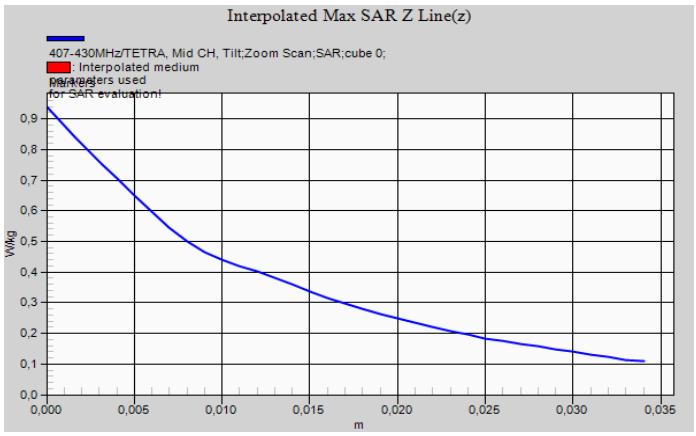
Test Laboratory: AT4 Wireless; Date: 17/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 418.5 MHz; Duty Cycle: 1:4.00037
Medium parameters used (interpolated): f = 418.5 MHz; σ = 0.85 S/m; ε_r = 44.874; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(6.91, 6.91, 6.91); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: SAM head-body simulator ; Type: Twin SAM V4.0; Serial: ---
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Left Hand Side/407-430MHz/TETRA, Mid CH, Tilt/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.766 W/kg

Left Hand Side/407-430MHz/TETRA, Mid CH, Tilt/Zoom Scan (8x8x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.96 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.939 W/kg
SAR(1 g) = 0.657 W/kg; SAR(10 g) = 0.454 W/kg (SAR corrected for target medium)
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.708 W/kg





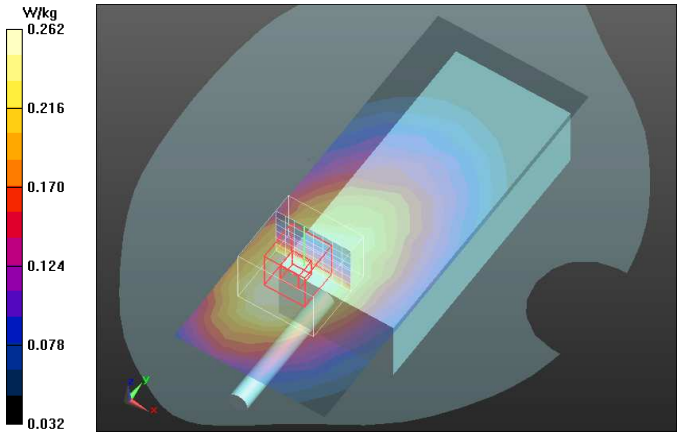
TETRA 407-430 MHz – Front of Face – Middle Channel – Plot Nº 2

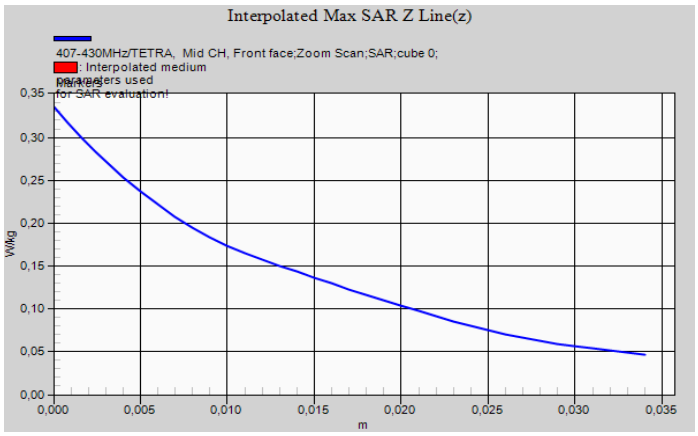
Test Laboratory: AT4 Wireless; Date: 17/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 418.5 MHz; Duty Cycle: 1:4.00037
Medium parameters used (interpolated): f = 418.5 MHz; σ = 0.85 S/m; ε_r = 44.874; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(6.91, 6.91, 6.91); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: SAM head-body simulator ; Type: Twin SAM V4.0; Serial: ---
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Face, d=25mm/407-430MHz/TETRA, Mid CH, Front face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.283 W/kg

Flat Phantom, Face, d=25mm/407-430MHz/TETRA, Mid CH, Front face/Zoom Scan (9x9x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.24 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.336 W/kg
SAR(1 g) = 0.249 W/kg; SAR(10 g) = 0.186 W/kg (SAR corrected for target medium)
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.262 W/kg





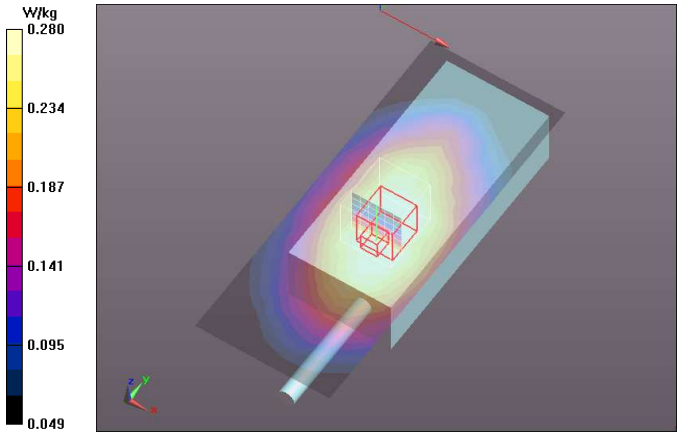
TETRA 407-430 MHz – Body – Back Face 0 mm – Accessory 1 – Middle Channel – Plot Nº 3

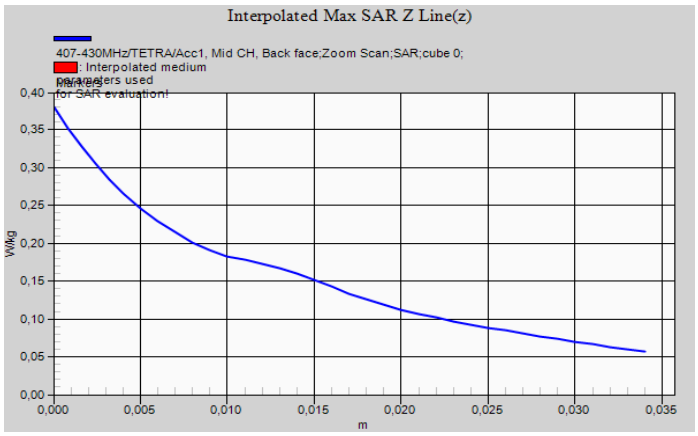
Test Laboratory: AT4 Wireless; Date: 18/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 418.5 MHz; Duty Cycle: 1:4.00037
Medium parameters used (interpolated): f = 418.5 MHz; σ = 0.94 S/m; ε_r = 55.582; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Body, d=0mm/407-430MHz/TETRA/Acc1, Mid CH, Back face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.296 W/kg

Flat Phantom, Body, d=0mm/407-430MHz/TETRA/Acc1, Mid CH, Back face/Zoom Scan (7x8x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.39 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.380 W/kg
SAR(1 g) = 0.258 W/kg; SAR(10 g) = 0.196 W/kg (SAR corrected for target medium)
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.280 W/kg





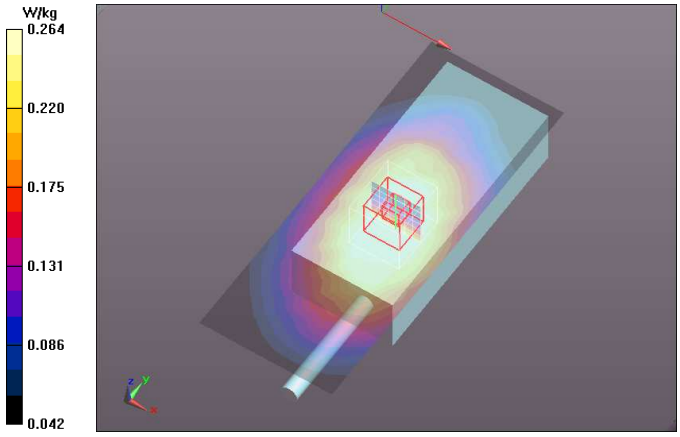
TETRA 407-430 MHz – Body – Back Face 0 mm – Accessory 2 – Middle Channel – Plot Nº 4

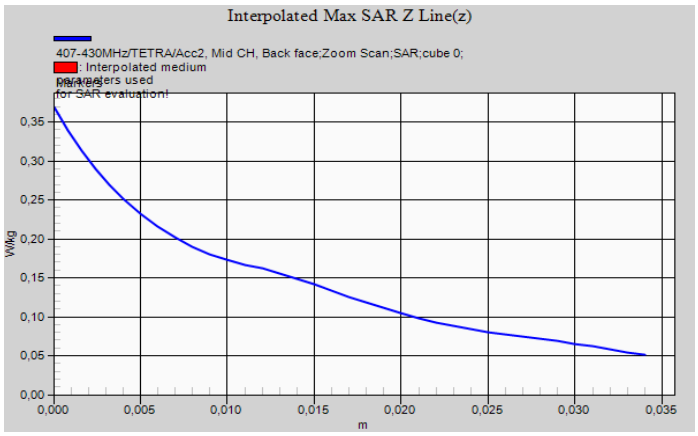
Test Laboratory: AT4 Wireless; Date: 18/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 418.5 MHz; Duty Cycle: 1:4.00037
Medium parameters used (interpolated): f = 418.5 MHz; σ = 0.94 S/m; ε_r = 55.582; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Body, d=0mm/407-430MHz/TETRA/Acc2, Mid CH, Back face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.292 W/kg

Flat Phantom, Body, d=0mm/407-430MHz/TETRA/Acc2, Mid CH, Back face/Zoom Scan (7x8x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.84 V/m; Power Drift = -0.30 dB
Peak SAR (extrapolated) = 0.369 W/kg
SAR(1 g) = 0.249 W/kg; SAR(10 g) = 0.189 W/kg (SAR corrected for target medium)
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.264 W/kg





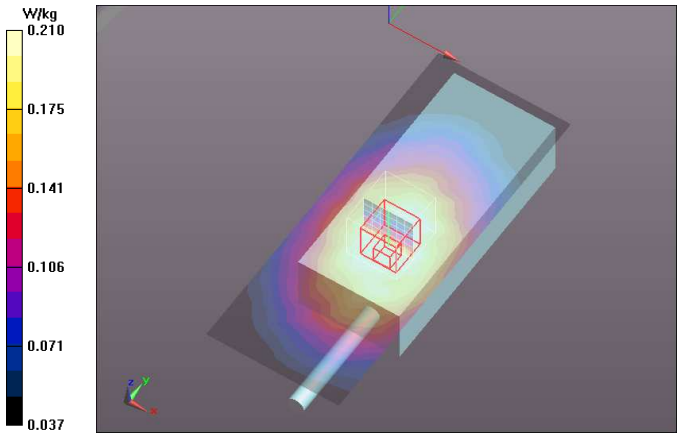
TETRA 407-430 MHz – Body – Back Face 0 mm – Accessory 3 – Middle Channel – Plot Nº 5

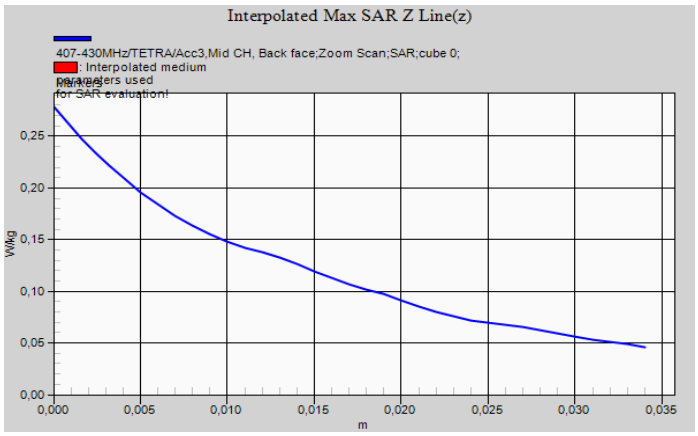
Test Laboratory: AT4 Wireless; Date: 18/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 418.5 MHz; Duty Cycle: 1:4.00037
Medium parameters used (interpolated): f = 418.5 MHz; σ = 0.94 S/m; ε_r = 55.582; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Body, d=0mm/407-430MHz/TETRA/Acc3,Mid CH, Back face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.226 W/kg

Flat Phantom, Body, d=0mm/407-430MHz/TETRA/Acc3,Mid CH, Back face/Zoom Scan (7x8x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.77 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.278 W/kg
SAR(1 g) = 0.199 W/kg; SAR(10 g) = 0.150 W/kg (SAR corrected for target medium)
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.210 W/kg





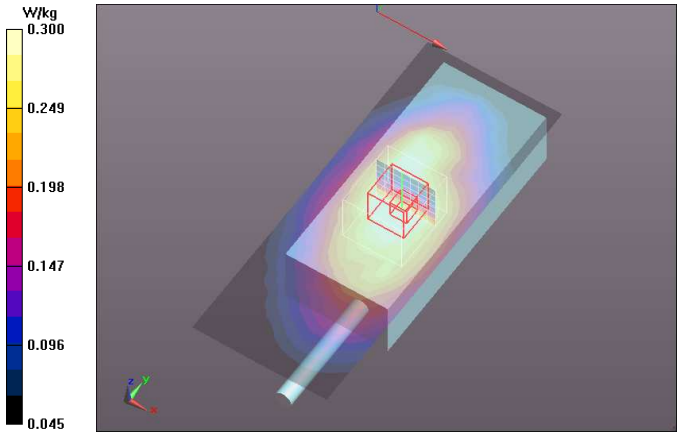
TETRA 407-430 MHz – Body – Back Face 0 mm – Accessory 4 – Middle Channel – Plot Nº 6

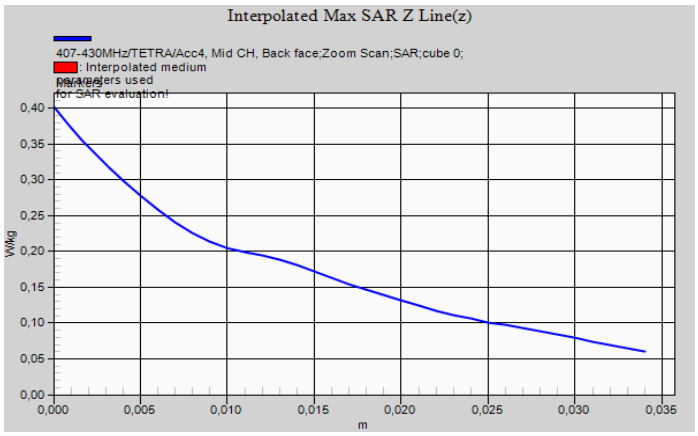
Test Laboratory: AT4 Wireless; Date: 19/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 418.5 MHz; Duty Cycle: 1:4.00037
Medium parameters used (interpolated): f = 418.5 MHz; σ = 0.94 S/m; ε_r = 55.582; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Body, d=0mm/407-430MHz/TETRA/Acc4, Mid CH, Back face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.317 W/kg

Flat Phantom, Body, d=0mm/407-430MHz/TETRA/Acc4, Mid CH, Back face/Zoom Scan (8x9x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.53 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.402 W/kg
SAR(1 g) = 0.280 W/kg; SAR(10 g) = 0.212 W/kg (SAR corrected for target medium)
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.300 W/kg





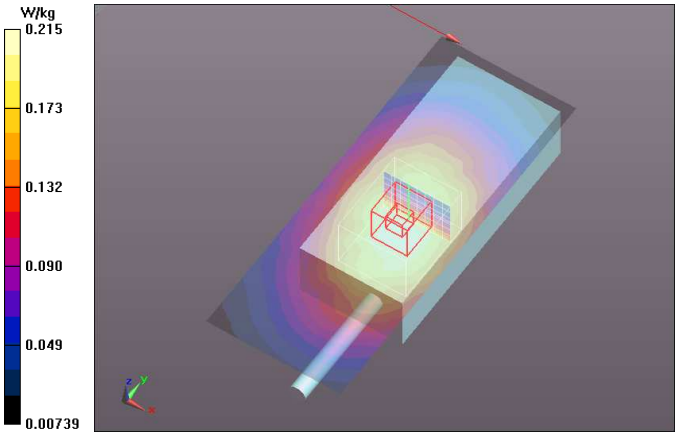
TETRA 407-430 MHz – Body – Back Face 0 mm – Accessory 5 + Accessory 2 – Middle Channel – Plot Nº 7

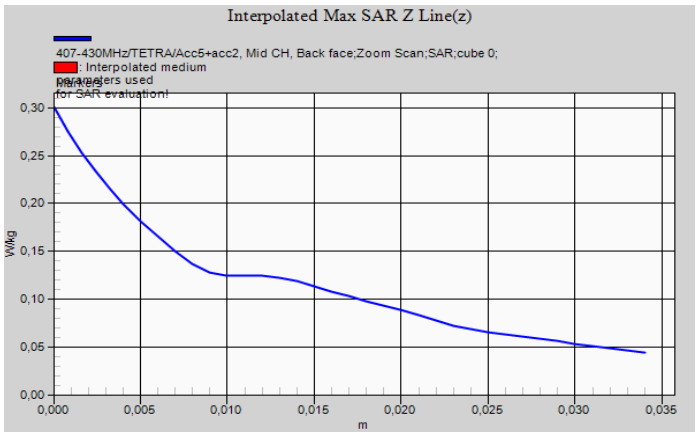
Test Laboratory: AT4 Wireless; Date: 18/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 418.5 MHz; Duty Cycle: 1:4.00037
Medium parameters used (interpolated): f = 418.5 MHz; σ = 0.94 S/m; ε_r = 55.582; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Body, d=0mm/407-430MHz/TETRA/Acc5+acc2, Mid CH, Back face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.215 W/kg

Flat Phantom, Body, d=0mm/407-430MHz/TETRA/Acc5+acc2, Mid CH, Back face/Zoom Scan (9x11x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.79 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.301 W/kg
SAR(1 g) = 0.199 W/kg; SAR(10 g) = 0.149 W/kg (SAR corrected for target medium)
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.208 W/kg





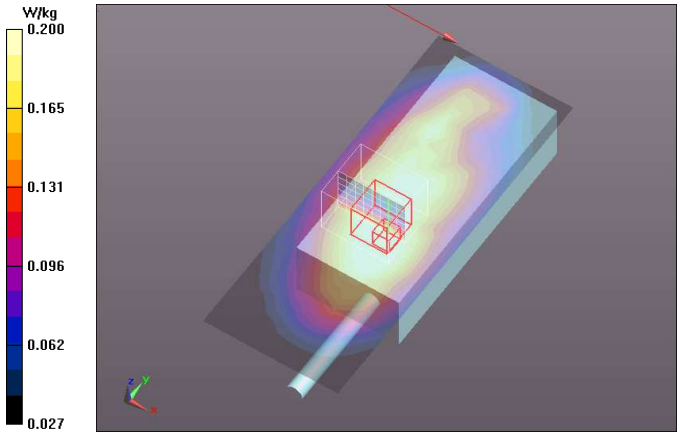
TETRA 407-430 MHz – Body – Back Face 0 mm – Accessory 4 + Microphone – Middle Channel – Plot Nº 8

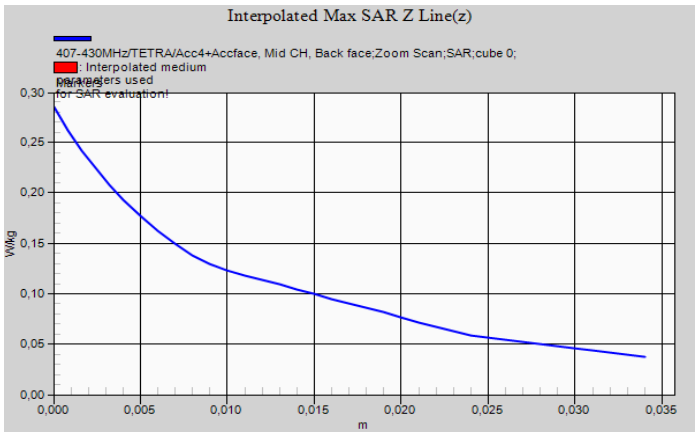
Test Laboratory: AT4 Wireless; Date: 19/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 418.5 MHz; Duty Cycle: 1:4.00037
Medium parameters used (interpolated): f = 418.5 MHz; σ = 0.94 S/m; ε_r = 55.582; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Body, d=0mm/407-430MHz/TETRA/Acc4+Accface, Mid CH, Back face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.213 W/kg

Flat Phantom, Body, d=0mm/407-430MHz/TETRA/Acc4+Accface, Mid CH, Back face/Zoom Scan (9x8x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.58 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.285 W/kg
SAR(1 g) = 0.185 W/kg; SAR(10 g) = 0.138 W/kg (SAR corrected for target medium)
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.200 W/kg





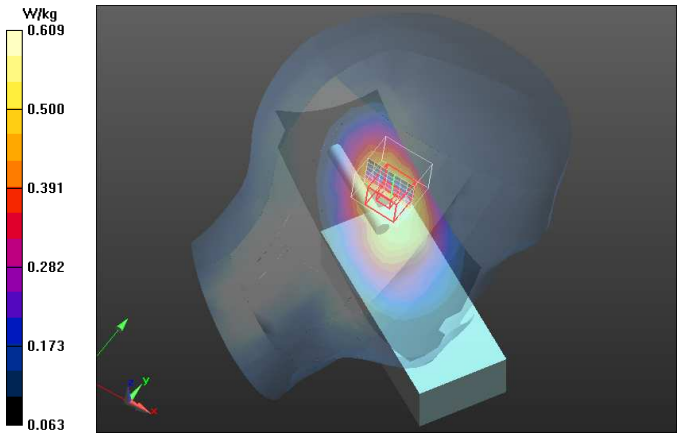
TETRA 450-470 MHz – Left hand side – Cheek position – Middle Channel – Plot Nº 9

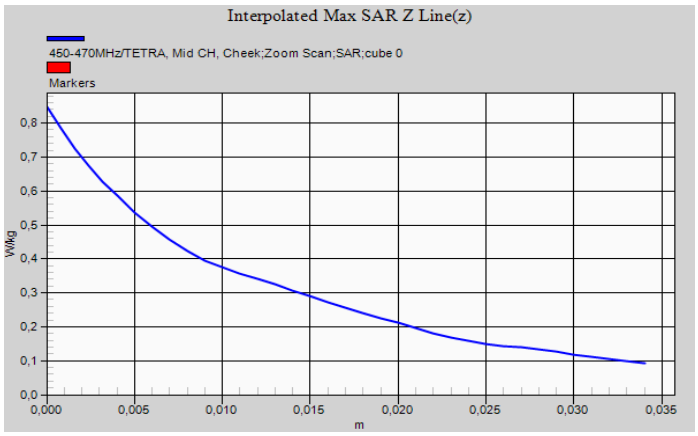
Test Laboratory: AT4 Wireless; Date: 17/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 460 MHz; Duty Cycle: 1:4.00037
Medium parameters used: f = 460 MHz; σ = 0.9 S/m; ε_r = 44.26; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(6.91, 6.91, 6.91); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: SAM head-body simulator ; Type: Twin SAM V4.0; Serial: ---
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Left Hand Side/450-470MHz/TETRA, Mid CH, Cheek/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.663 W/kg

Left Hand Side/450-470MHz/TETRA, Mid CH, Cheek/Zoom Scan (8x8x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.18 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.848 W/kg
SAR(1 g) = 0.566 W/kg; SAR(10 g) = 0.397 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.609 W/kg





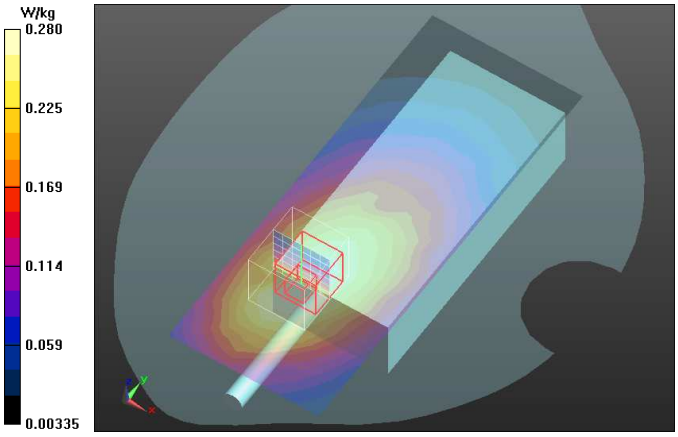
TETRA 450-470 MHz – Front of Face – Middle Channel – Plot Nº 10

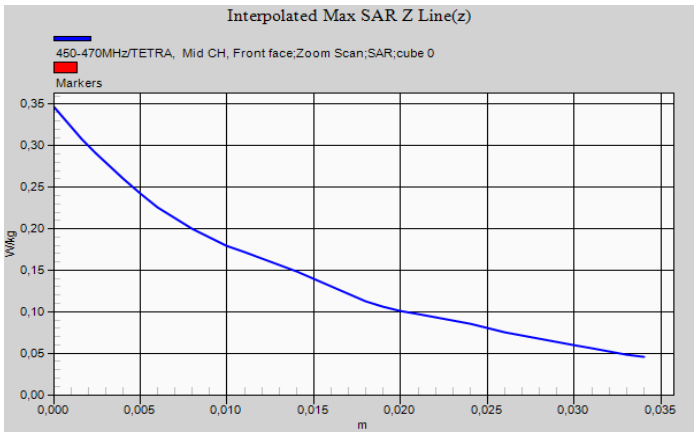
Test Laboratory: AT4 Wireless; Date: 18/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 460 MHz; Duty Cycle: 1:4.00037
Medium parameters used: f = 460 MHz; σ = 0.9 S/m; ε_r = 44.26; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(6.91, 6.91, 6.91); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: SAM head-body simulator ; Type: Twin SAM V4.0; Serial: ---
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Face, d=25mm/450-470MHz/TETRA, Mid CH, Front face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.280 W/kg

Flat Phantom, Face, d=25mm/450-470MHz/TETRA, Mid CH, Front face/Zoom Scan (7x8x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.61 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.347 W/kg
SAR(1 g) = 0.245 W/kg; SAR(10 g) = 0.181 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.261 W/kg





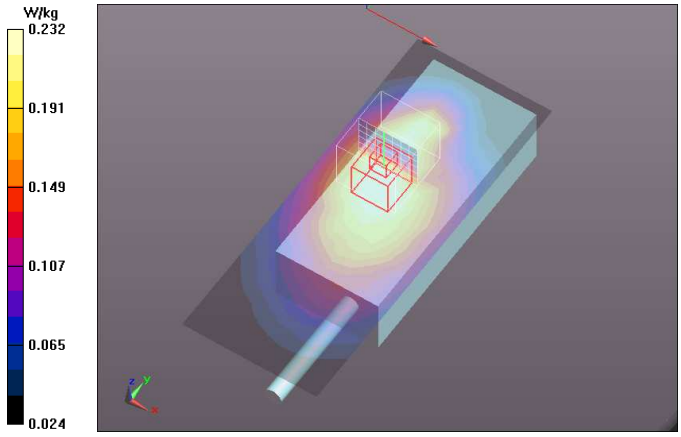
TETRA 450-470 MHz – Body – Back Face 0 mm – Accessory 1 – Middle Channel – Plot Nº 11

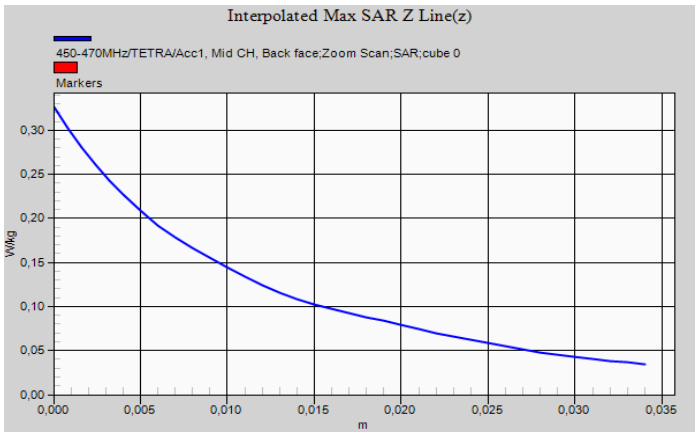
Test Laboratory: AT4 Wireless; Date: 19/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 460 MHz; Duty Cycle: 1:4.00037
Medium parameters used: f = 460 MHz; σ = 0.96 S/m; ε_r = 54.91; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Body, d=0mm/450-470MHz/TETRA/Acc1, Mid CH, Back face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.263 W/kg

Flat Phantom, Body, d=0mm/450-470MHz/TETRA/Acc1, Mid CH, Back face/Zoom Scan (8x9x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.37 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.327 W/kg
SAR(1 g) = 0.214 W/kg; SAR(10 g) = 0.157 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.232 W/kg





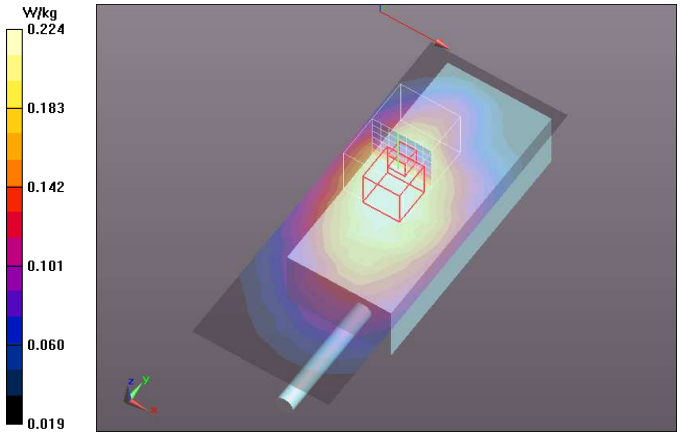
TETRA 450-470 MHz – Body – Back Face 0 mm – Accessory 2 – Middle Channel – Plot Nº 12

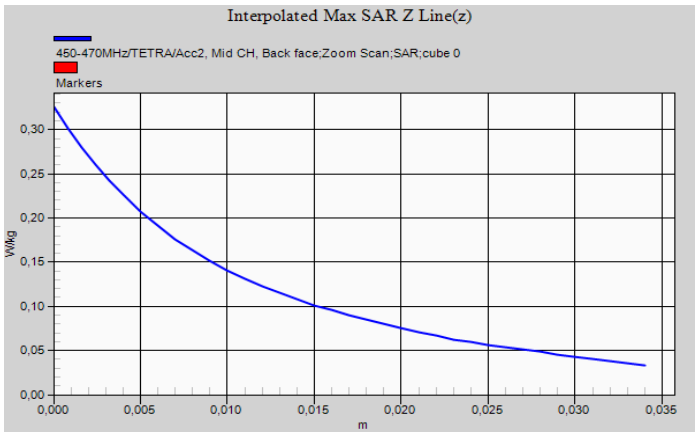
Test Laboratory: AT4 Wireless; Date: 19/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 460 MHz; Duty Cycle: 1:4.00037
Medium parameters used: f = 460 MHz; σ = 0.96 S/m; ε_r = 54.91; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Body, d=0mm/450-470MHz/TETRA/Acc2, Mid CH, Back face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.242 W/kg

Flat Phantom, Body, d=0mm/450-470MHz/TETRA/Acc2, Mid CH, Back face/Zoom Scan (8x11x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.47 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.326 W/kg
SAR(1 g) = 0.210 W/kg; SAR(10 g) = 0.156 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.224 W/kg





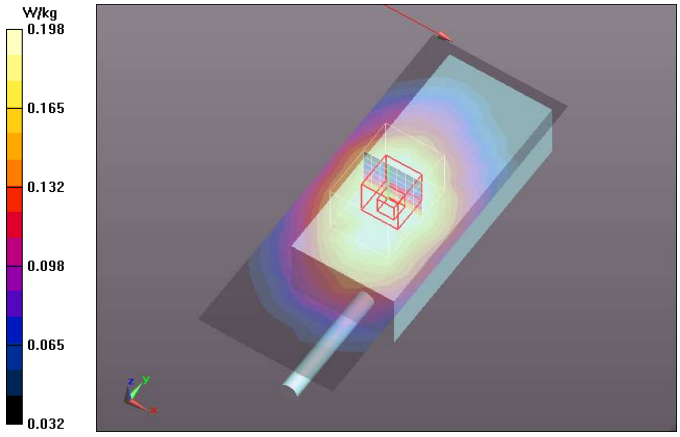
TETRA 450-470 MHz – Body – Back Face 0 mm – Accessory 3 – Middle Channel – Plot Nº 13

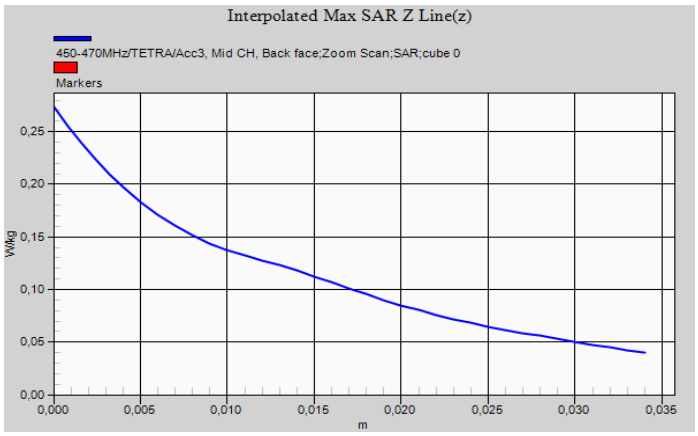
Test Laboratory: AT4 Wireless; Date: 19/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 460 MHz; Duty Cycle: 1:4.00037
Medium parameters used: f = 460 MHz; σ = 0.96 S/m; ε_r = 54.91; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Body, d=0mm/450-470MHz/TETRA/Acc3, Mid CH, Back face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.219 W/kg

Flat Phantom, Body, d=0mm/450-470MHz/TETRA/Acc3, Mid CH, Back face/Zoom Scan (8x11x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.36 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.274 W/kg
SAR(1 g) = 0.187 W/kg; SAR(10 g) = 0.140 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.198 W/kg





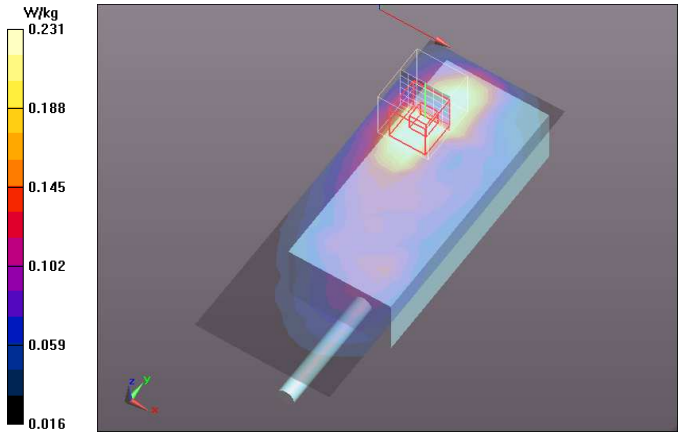
TETRA 450-470 MHz – Body – Back Face 0 mm – Accessory 4 – Middle Channel – Plot Nº 14

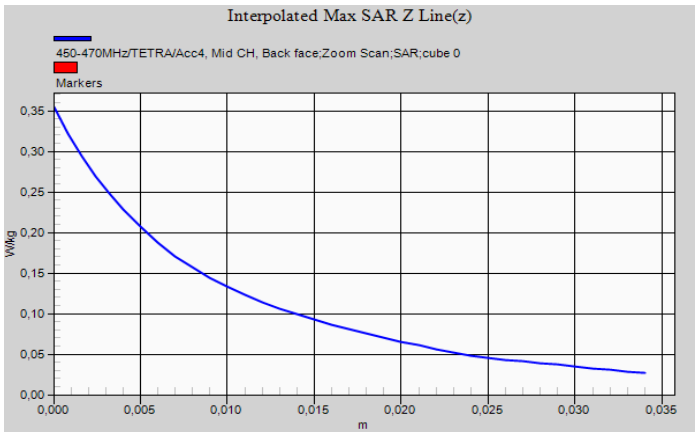
Test Laboratory: AT4 Wireless; Date: 19/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 460 MHz; Duty Cycle: 1:4.00037
Medium parameters used: f = 460 MHz; σ = 0.96 S/m; ε_r = 54.91; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Body, d=0mm/450-470MHz/TETRA/Acc4, Mid CH, Back face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.262 W/kg

Flat Phantom, Body, d=0mm/450-470MHz/TETRA/Acc4, Mid CH, Back face/Zoom Scan (7x8x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.974 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.355 W/kg
SAR(1 g) = 0.207 W/kg; SAR(10 g) = 0.131 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.231 W/kg





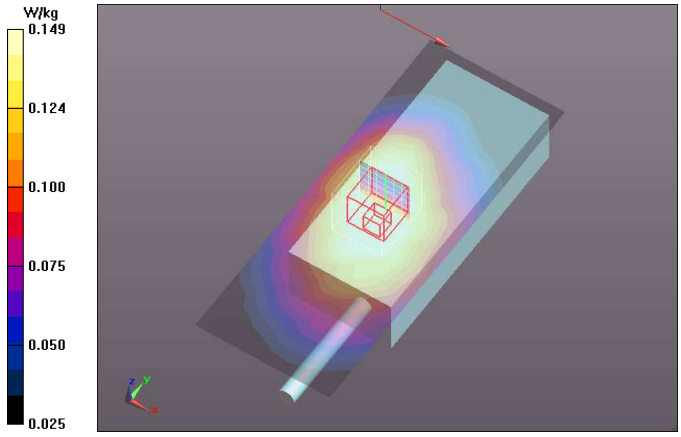
TETRA 450-470 MHz – Body – Back Face 0 mm – Accessory 5 – Middle Channel – Plot Nº 15

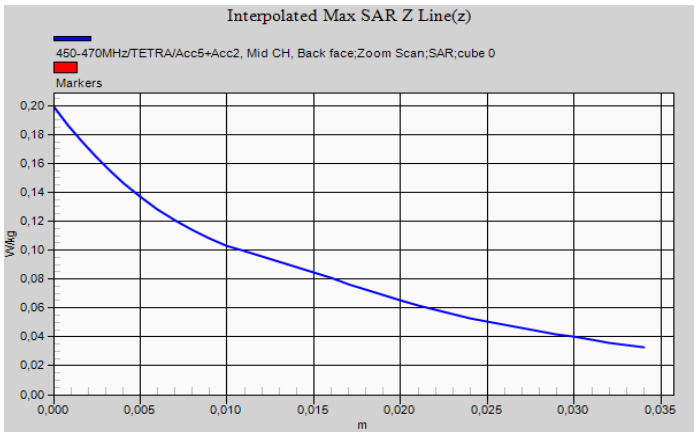
Test Laboratory: AT4 Wireless; Date: 19/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 460 MHz; Duty Cycle: 1:4.00037
Medium parameters used: f = 460 MHz; σ = 0.96 S/m; ε_r = 54.91; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Body, d=0mm/450-470MHz/TETRA/Acc5+Acc2, Mid CH, Back face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.162 W/kg

Flat Phantom, Body, d=0mm/450-470MHz/TETRA/Acc5+Acc2, Mid CH, Back face/Zoom Scan (7x8x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.65 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.199 W/kg
SAR(1 g) = 0.141 W/kg; SAR(10 g) = 0.106 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.149 W/kg





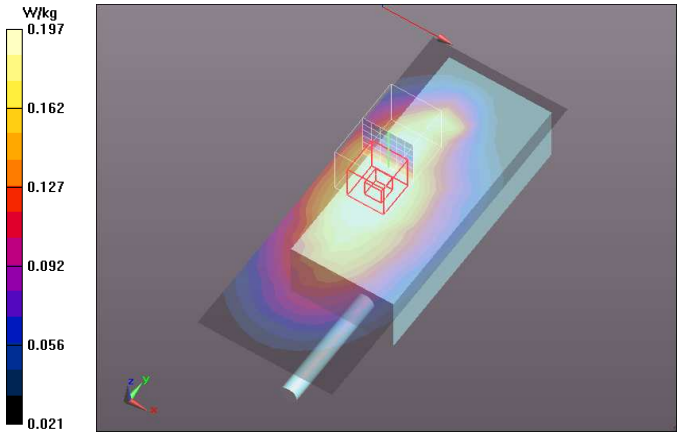
TETRA 450-470 MHz – Body – Back Face 0 mm – Accessory 1 + Microphone – Middle Channel – Plot Nº 16

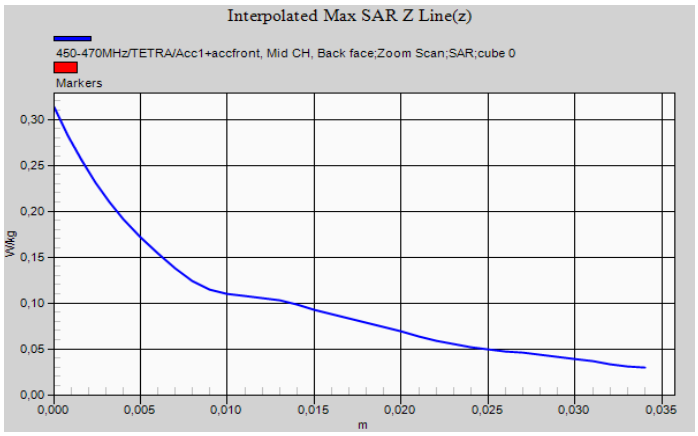
Test Laboratory: AT4 Wireless; Date: 19/11/2015

DUT: STP8X040; Type: PTT Radio; Serial: 1PR201438G9F29J
Communication System: UID 0, TETRA (0); Frequency: 460 MHz; Duty Cycle: 1:4.00037
Medium parameters used: f = 460 MHz; σ = 0.96 S/m; ε_r = 54.91; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Flat Phantom, Body, d=0mm/450-470MHz/TETRA/Acc1+accfront, Mid CH, Back face/Area Scan (9x22x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.213 W/kg

Flat Phantom, Body, d=0mm/450-470MHz/TETRA/Acc1+accfront, Mid CH, Back face/Zoom Scan (7x11x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.58 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.314 W/kg
SAR(1 g) = 0.182 W/kg; SAR(10 g) = 0.137 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.197 W/kg





Appendix D – System Validation Reports

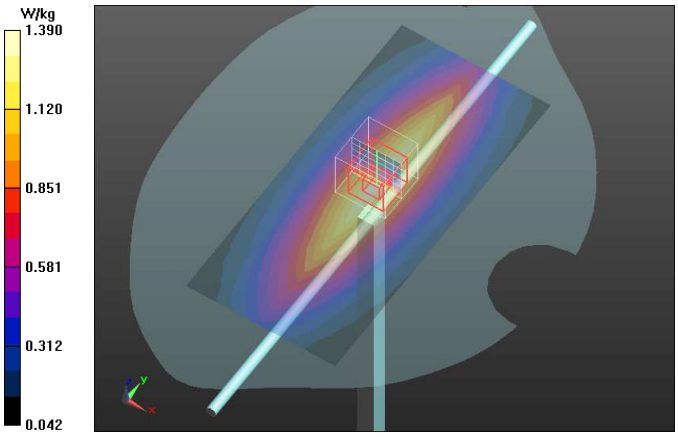
Validation results in 450 MHz Band for Head TSL

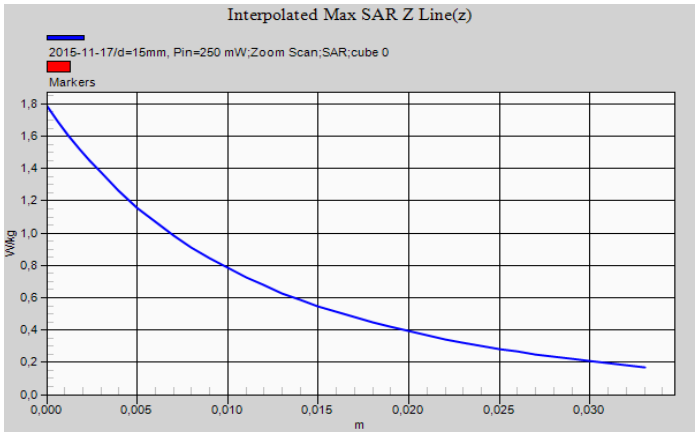
Test Laboratory: AT4 Wireless; Date: 17/11/2015

DUT: Dipole 450 MHz D450V3; Type: D450V3; Serial: D450V3 - SN:1092
Communication System: UID 0, CW (0); Frequency: 450 MHz; Duty Cycle: 1:1
Medium parameters used: f = 450 MHz; σ = 0.89 S/m; ε_r = 44.33; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(6.91, 6.91, 6.91); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: SAM head-body simulator ; Type: Twin SAM V4.0; Serial: ---
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration 450MHz Head/2015-11-17/d=15mm, Pin=250 mW/Area Scan (7x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.39 W/kg

Configuration 450MHz Head/2015-11-17/d=15mm, Pin=250 mW/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 40.95 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.79 W/kg
SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.782 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.37 W/kg





Validation results in 450 MHz Band for Body TSL

Test Laboratory: AT4 Wireless; Date: 18/11/2015

DUT: Dipole 450 MHz D450V3; Type: D450V3; Serial: D450V3 - SN:1092
Communication System: UID 0, CW (0); Frequency: 450 MHz; Duty Cycle: 1:1
Medium parameters used: f = 450 MHz; σ = 0.96 S/m; ε_r = 55.03; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration:
- Probe: ES3DV3 - SN3052; ConvF(7.11, 7.11, 7.11); Calibrated: 20/07/2015;
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 13/07/2015
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1060
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration 450MHz Body/2015-11-18/d=15mm, Pin=250 mW/Area Scan (7x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.38 W/kg

Configuration 450MHz Body/2015-11-18/d=15mm, Pin=250 mW/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 38.86 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 1.18 W/kg; SAR(10 g) = 0.781 W/kg (SAR corrected for target medium)