

<u>Date(s) of Evaluation</u> September 04-07, 2012

Test Report Issue Date
August 10, 2016

Test Report Serial No. 46451355-1R1.1

<u>Description of Test(s)</u> Specific Absorption Rate Test Report Revision No.
Rev. 1.0

RF Exposure Category
Occupational (Controlled)



#### **APPENDIX E - DIPOLE CALIBRATION**

Applicant:	HAF	RRIS Corporation	FCC ID:	OWDTR-0140-E	IC:		3636B-0140	HARRIS
DUT Type:	Porta	ble 700/800-Band P1	T Radio Trar	sceiver with Bluetooth				
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#### Calibration Laboratory of

Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland





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Accreditation No.: SCS 108

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

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Client

Celltech

Certificate No: D835V2-4d075\_Apr12

## CALIBRATION CERTIFICATE

Object

D835V2 - SN: 4d075

Calibration procedure(s)

QA CAL-05.v8

Calibration procedure for dipole validation kits above 700 MHz

Calibration date:

April 20, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

ID#	Cal Date (Certificate No.)	Scheduled Calibration
GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
US37292783	05-Oct-11 (No. 217-01451)	Oct-12
SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
ID#	Check Date (in house)	Scheduled Check
MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12
Name	Function	Signature
Israe El-Naouq	Laboratory Technician	Jeraa et Daoug
Katja Pokovic	Technical Manager	0014
	GB37480704 US37292783 SN: 5058 (20k) SN: 5047.2 / 06327 SN: 3205 SN: 601  ID #  MY41092317 100005 US37390585 S4206  Name Israe El-Naouq	GB37480704 05-Oct-11 (No. 217-01451) US37292783 05-Oct-11 (No. 217-01451) SN: 5058 (20k) 27-Mar-12 (No. 217-01530) SN: 5047.2 / 06327 27-Mar-12 (No. 217-01533) SN: 3205 30-Dec-11 (No. ES3-3205_Dec11) SN: 601 04-Jul-11 (No. DAE4-601_Jul11)  ID # Check Date (in house)  MY41092317 18-Oct-02 (in house check Oct-11) 100005 04-Aug-99 (in house check Oct-11) US37390585 S4206 18-Oct-01 (in house check Oct-11)  Name Function Israe El-Naouq Laboratory Technician

Issued: April 20, 2012

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Certificate No: D835V2-4d075\_Apr12

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#### **Glossary:**

TSL

tissue simulating liquid

ConvF N/A sensitivity in TSL / NORM x,y,z

not applicable or not measured

#### **Calibration is Performed According to the Following Standards:**

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

#### **Additional Documentation:**

d) DASY4/5 System Handbook

#### **Methods Applied and Interpretation of Parameters:**

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed
  point exactly below the center marking of the flat phantom section, with the arms oriented
  parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

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

Certificate No: D835V2-4d075\_Apr12 Page 2 of 8

#### **Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, $dy$ , $dz = 5 mm$	
Frequency	835 MHz ± 1 MHz	

### **Head TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.1 ± 6 %	0.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

#### **SAR result with Head TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.36 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.42 mW /g ± 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.55 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.19 mW /g ± 16.5 % (k=2)

#### **Body TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.5 ± 6 %	1.01 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		

#### **SAR result with Body TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.47 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	9.56 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.62 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	6.31 mW / g ± 16.5 % (k=2)

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#### **Appendix**

#### **Antenna Parameters with Head TSL**

Impedance, transformed to feed point	51.4 Ω - 4.6 jΩ		
Return Loss	- 26.5 dB		

#### **Antenna Parameters with Body TSL**

Impedance, transformed to feed point	46.8 Ω - 6.2 jΩ
Return Loss	- 22.8 dB

#### **General Antenna Parameters and Design**

Electrical Delay (one direction)	1.395 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

#### **Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	November 09, 2007

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#### **DASY5 Validation Report for Head TSL**

Date: 20.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d075

Communication System: CW; Frequency: 835 MHz

Medium parameters used: f = 835 MHz;  $\sigma = 0.9 \text{ mho/m}$ ;  $\varepsilon_r = 41.1$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

#### DASY52 Configuration:

Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 30.12.2011;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn601; Calibrated: 04.07.2011

Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001

DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

#### Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

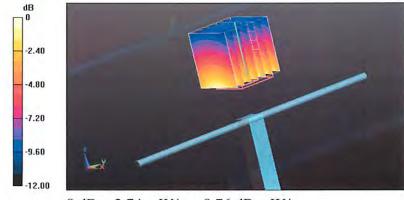
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.890 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.477 mW/g

SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.55 mW/g

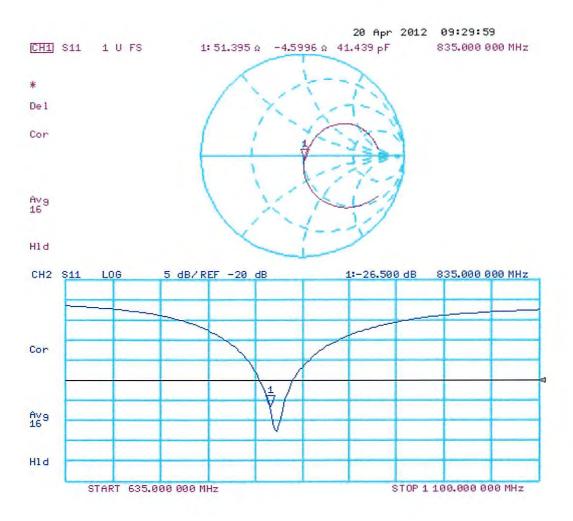
Maximum value of SAR (measured) = 2.74 mW/g



0 dB = 2.74 mW/g = 8.76 dB mW/g

Certificate No: D835V2-4d075\_Apr12 Page 5 of 8

## Impedance Measurement Plot for Head TSL



#### **DASY5 Validation Report for Body TSL**

Date: 19.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d075

Communication System: CW; Frequency: 835 MHz

Medium parameters used: f = 835 MHz;  $\sigma = 1.01$  mho/m;  $\varepsilon_r = 54.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

#### DASY52 Configuration:

Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 30.12.2011;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn601; Calibrated: 04.07.2011

Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001

DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

#### Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

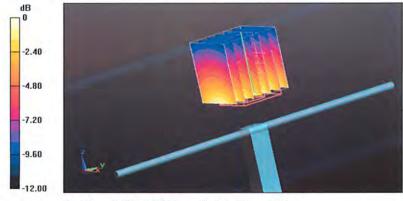
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.283 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 3.580 mW/g

SAR(1 g) = 2.47 mW/g; SAR(10 g) = 1.62 mW/g

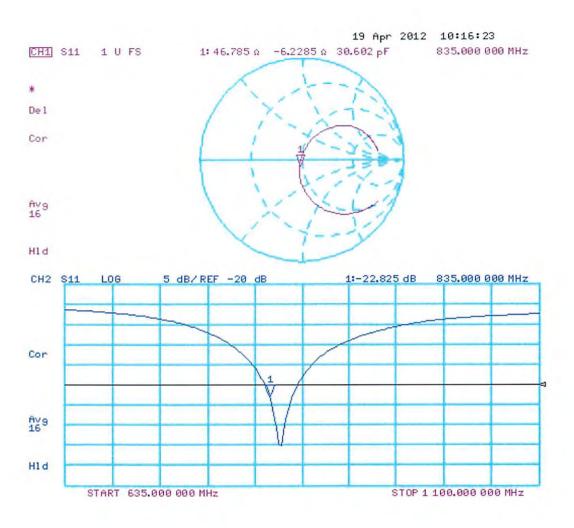
Maximum value of SAR (measured) = 2.87 mW/g



0 dB = 2.87 mW/g = 9.16 dB mW/g

Certificate No: D835V2-4d075\_Apr12

## Impedance Measurement Plot for Body TSL





<u>Date(s) of Evaluation</u> September 04-07, 2012

Test Report Issue Date
August 10, 2016

Test Report Serial No. 46451355-1R1.1

<u>Description of Test(s)</u> Specific Absorption Rate Test Report Revision No.
Rev. 1.0

RF Exposure Category
Occupational (Controlled)



#### **APPENDIX F - PROBE CALIBRATION**

Applicant:	HAF	RRIS Corporation	FCC ID:	OWDTR-0140-E	IC:		3636B-0140	HARRIS
DUT Type:	Porta	ortable 700/800-Band PTT Radio Transceiver with Bluetooth DUT Name: XG-25P 7/800						
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Client

Celltech

Accreditation No.: SCS 108

Certificate No: ET3-1590\_Apr12

### **CALIBRATION CERTIFICATE**

Object

ET3DV6 - SN:1590

Calibration procedure(s)

QA CAL-01.v8, QA CAL-12.v7, QA CAL-23.v4, QA CAL-25.v4

Calibration procedure for dosimetric E-field probes

Calibration date:

April 24, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 660	10-Jan-12 (No. DAE4-660_Jan12)	Jan-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

Name Function Signature
Calibrated by: Jeton Kastrati Laboratory Technician

Approved by: Katja Pokovic Technical Manager

Issued: April 26, 2012

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#### Glossary:

TSL tissue simulating liquid
NORMx,y,z sensitivity in free space
ConvF sensitivity in TSL / NORMx,y,z
DCP diode compression point

CF crest factor (1/duty\_cycle) of the RF signal modulation dependent linearization parameters

Polarization  $\varphi$   $\varphi$  rotation around probe axis

Polarization 9 9 rotation around an axis that is in the plane normal to probe axis (at measurement center),

i.e., 9 = 0 is normal to probe axis

#### Calibration is Performed According to the Following Standards:

 a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003

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

#### **Methods Applied and Interpretation of Parameters:**

- NORMx,y,z: Assessed for E-field polarization 9 = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide).
   NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)x,y,z = NORMx,y,z \* frequency\_response (see Frequency Response Chart). This linearization is
  implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included
  in the stated uncertainty of ConvF.
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z: A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Continue No. 570 4500 April 0

# Probe ET3DV6

SN:1590

Manufactured:

March 19, 2001 April 24, 2012

Calibrated:

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

## DASY/EASY - Parameters of Probe: ET3DV6 - SN:1590

#### **Basic Calibration Parameters**

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (μV/(V/m) <sup>2</sup> ) <sup>A</sup>	1.79	1.92	1.60	± 10.1 %
DCP (mV) <sup>B</sup>	94.8	98.4	88.8	

#### **Modulation Calibration Parameters**

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc <sup>E</sup> (k=2)
0	CW	0.00	Х	0.00	0.00	1.00	143.4	±4.6 %
			Υ	0.00	0.00	1.00	150.1	
			Z	0.00	0.00	1.00	179.4	

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

<sup>8</sup> Numerical linearization parameter: uncertainty not required.

<sup>&</sup>lt;sup>A</sup> The uncertainties of NormX,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Pages 5 and 6).

E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

## DASY/EASY - Parameters of Probe: ET3DV6 - SN:1590

#### **Calibration Parameter Determined in Head Tissue Simulating Media**

					_			
f (MHz) <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity (S/m) F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	43.5	0.87	7.54	7.54	7.54	0.20	2.16	± 13.4 %
750	41.9	0.89	7.11	7.11	7.11	0.29	3.00	± 12.0 %
835	41.5	0.90	6.77	6.77	6.77	0.27	3.00	± 12.0 %
900	41.5	0.97	6.67	6.67	6.67	0.29	3.00	± 12.0 %

<sup>&</sup>lt;sup>c</sup> Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

F At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to

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

## DASY/EASY - Parameters of Probe: ET3DV6 - SN:1590

#### Calibration Parameter Determined in Body Tissue Simulating Media

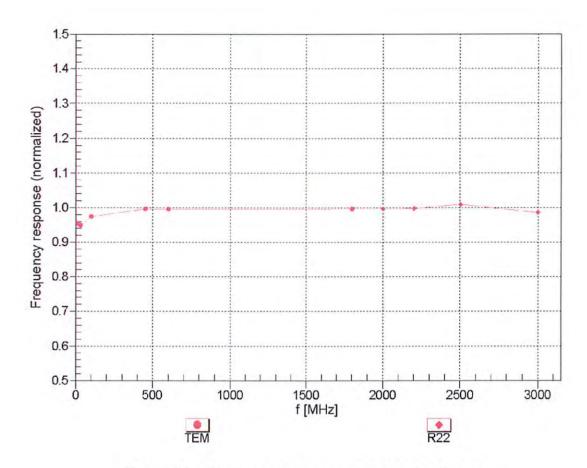
f (MHz) <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity (S/m) <sup>F</sup>	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	56.7	0.94	7.93	7.93	7.93	0.12	2.07	± 13.4 %
750	55.5	0.96	6.71	6.71	6.71	0.22	3.00	± 12.0 %
835	55.2	0.97	6.54	6.54	6.54	0.27	3.00	± 12.0 %
900	55.0	1.05	6.51	6.51	6.51	0.29	2.92	± 12.0 %

<sup>&</sup>lt;sup>c</sup> Frequency validity of  $\pm$  100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to  $\pm$  50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

F At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to  $\pm$  10% if liquid compensation formula is applied to

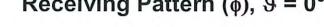
<sup>&</sup>lt;sup>L</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\varepsilon$  and  $\sigma$ ) can be relaxed to  $\pm$  10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\varepsilon$  and  $\sigma$ ) is restricted to  $\pm$  5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

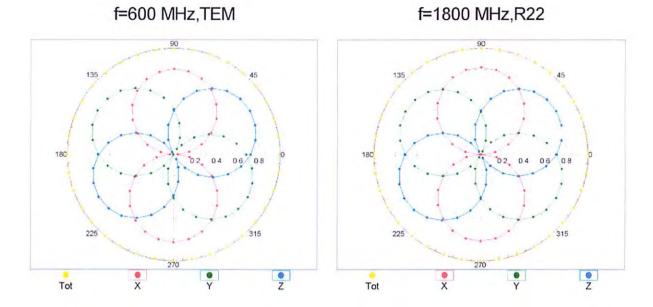
# Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)

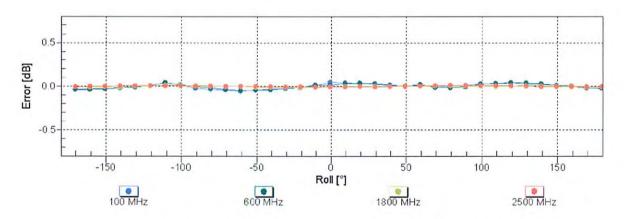


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

## Receiving Pattern ( $\phi$ ), $\vartheta = 0^{\circ}$

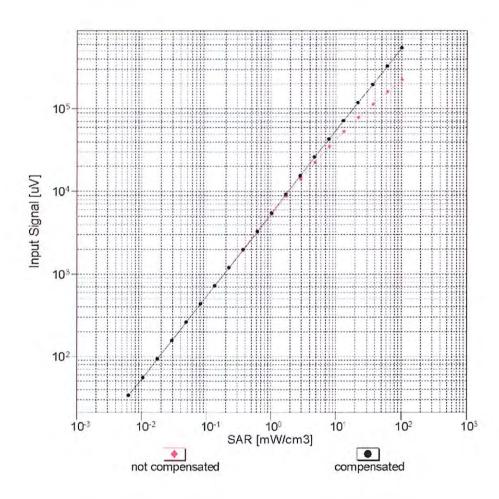


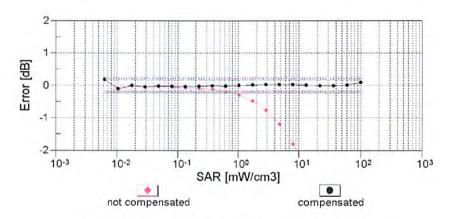




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

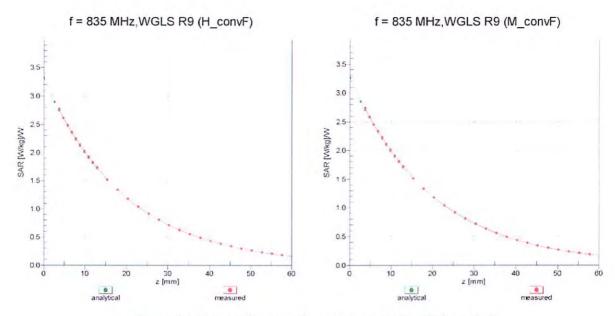
## Dynamic Range f(SAR<sub>head</sub>) (TEM cell , f = 900 MHz)





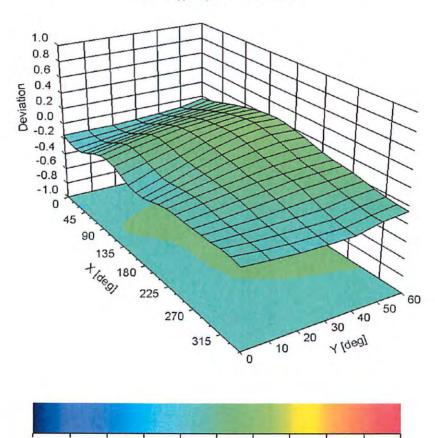
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

## **Conversion Factor Assessment**



## **Deviation from Isotropy in Liquid**

Error ( $\phi$ ,  $\vartheta$ ), f = 900 MHz



-0.8

-0.6

-0.4

-0.2

0.0

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

8.0

## DASY/EASY - Parameters of Probe: ET3DV6 - SN:1590

#### **Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle (°)	-170.8
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	enabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	4 mm

Certificate No: ET3-1590\_Apr12 Page 11 of 11



<u>Date(s) of Evaluation</u> September 04-07, 2012

Test Report Issue Date
August 10, 2016

Test Report Serial No. 46451355-1R1.1

<u>Description of Test(s)</u> Specific Absorption Rate Test Report Revision No.
Rev. 1.0

RF Exposure Category
Occupational (Controlled)



#### **APPENDIX G - BARSKI PLANAR PHANTOM CERTIFICATE OF CONFORMITY**

Applicant:	HAF	RRIS Corporation	FCC ID:	OWDTR-0140-E	IC:		3636B-0140	HARRIS
DUT Type:	Porta	Portable 700/800-Band PTT Radio Transceiver with Bluetooth DUT Name: XG-25					XG-25P 7/800	
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2378 Westlake Road Kelowna, B.C. Canada V1Z-2V2



Ph. # 250-769-6848 Fax # 250-769-6334

E-mail: <u>barskiind@shaw.ca</u>
Web: www.bcfiberglass.com

#### FIBERGLASS FABRICATORS

## Certificate of Conformity

Item: Flat Planar Phantom Unit # 03-01

Date: June 16, 2003

Manufacturer: Barski Industries (1985 Ltd)

Test	Requirement	Details
Shape	Compliance to geometry according to drawing	Supplied CAD drawing
Material Thickness	Compliant with the requirements	2mm +/- 0.2mm in measurement area
Material Parameters	Dielectric parameters for required frequencies Based on Dow Chemical technical data	100 MHz-5 GHz Relative permittivity<5 Loss Tangent<0.05

#### Conformity

Based on the above information, we certify this product to be compliant to the requirements specified.

Signature:

Daniel Chailler





Fiberglass Planar Phantom - Top View



Fiberglass Planar Phantom - Front View



Fiberglass Planar Phantom - Back View

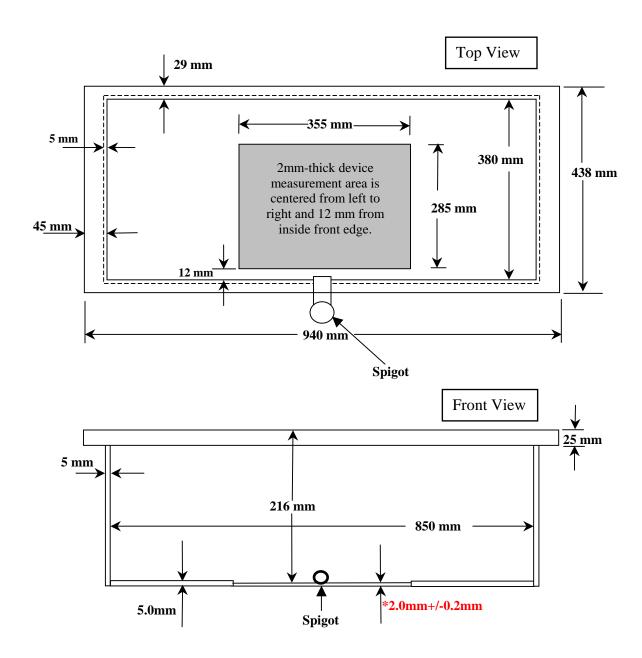


Fiberglass Planar Phantom - Bottom View



#### **Dimensions of Fiberglass Planar Phantom**

(Manufactured by Barski Industries Ltd. - Unit# 03-01)



Note: Measurements that aren't repeated for the opposite sides are the same as the side measured. This drawing is not to scale.



<u>Date(s) of Evaluation</u> September 04-07, 2012

Test Report Issue Date
August 10, 2016

Test Report Serial No. 46451355-1R1.1

<u>Description of Test(s)</u> Specific Absorption Rate Test Report Revision No.
Rev. 1.0

RF Exposure Category
Occupational (Controlled)



#### **APPENDIX H - SAM TWIN PHANTOM CERTIFICATE OF CONFORMITY**

Applicant:	HAF	RRIS Corporation	FCC ID:	OWDTR-0140-E	IC:		3636B-0140	HARRIS
DUT Type:	Porta	ortable 700/800-Band PTT Radio Transceiver with Bluetooth DUT Name: XG-25P 7/800						
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## Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

#### Certificate of conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 BA
Series No	TP-1002 and higher
Manufacturer / Origin	Untersee Composites Hauptstr. 69 CH-8559 Fruthwilen
	Switzerland

#### Tests

The series production process used allows the limitation to test of first articles. Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series units (called samples).

Test	Requirement	Details	Units tested
Shape	Compliance with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness	Compliant with the requirements according to the standards	2mm +/- 0.2mm in specific areas	First article, Samples
Material parameters	Dielectric parameters for required frequencies	200 MHz – 3 GHz Relative permittivity < 5 Loss tangent < 0.05.	Material sample TP 104-5
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards	Liquid type HSL 1800 and others according to the standard.	Pre-series, First article

#### **Standards**

- [1] CENELEC EN 50361
- [2] IEEE P1528-200x draft 6.5
- [3] IEC PT 62209 draft 0.9
- (\*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of [1] and [3].

#### Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standard [1] and draft standards [2] and [3].

Date

18.11.2001

Signature / Stamp

Schmid & Partner Engineering AG

Zeughausstrasse 43, CH-8004 Zurich Tel. +41 1 245 97 00, Fax +41 1 245 97 79

Fin Brubolt



<u>Date(s) of Evaluation</u> September 04-07, 2012

Test Report Issue Date
August 10, 2016

Test Report Serial No. 46451355-1R1.1

<u>Description of Test(s)</u> Specific Absorption Rate Test Report Revision No.
Rev. 1.0

RF Exposure Category
Occupational (Controlled)



#### APPENDIX I - AUDIO ACCESSORY COMBINATIONS (FCC KDB 643646 D01v01r01)

Applicant:	HAF	RRIS Corporation	FCC ID:	OWDTR-0140-E	IC:		3636B-0140	HARRIS		
DUT Type:	Porta	ble 700/800-Band P	TT Radio Tran	sceiver with Bluetooth	DUT Na	me:	XG-25P 7/800			
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#### HARRIS CORPORATION FCC ID: OWDTR-0073-E XG-25P 700/800 PTT Radio Transceiver (SYSTEM)

Body	SAI	R Te	st C	ons	ider	atior	ns fo	r Aud	dio A	cces	ssor	ies v	vith	out l	Built	t-in A	Ante	nna	- Au	dio /	Acce	essc	ry C	om	bina	tion	s (F	CCI	KDB	6436	646 I	<b>D01</b> v	/01r(	)1 P	age	9)						
				Batte	ery a	(Add	ditior	nal)					В	atte	ry b	(Add	lition	al)					В	litio	nal)			Battery d (Default)														
Audio Accessory ID #	Antenna 1, 2										P	nte	nna 1	, 2							P	nter	nna 1	1, 2							Αı	nten	na 1									
	Bw		Bw#5 Bw#1		3w#1 Bv		Bw#3		Bv	v#4 Bv		Bw#6		Bw#5		Bw#1		Bw#3		Bw#4		Bw#6		Bw#5		Bw#1		Bw#3		Bw#4		v#6	Bw#5		Bw#1		Bw#3		Bw	ı#4	Bw	#6
G1a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G1b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G3a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G3b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G4	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G5	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G6a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G6b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G7a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G7b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G7c	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G7d	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G8a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G8b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G9a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G9b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G10	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G11a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G11b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G12a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G12b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		

- All audio accessory options can be utilized with any antenna, battery and body-worn combination.
   The accessory combinations evaluated for SAR are highlighted in yellow.
   Please refer to Section 5.0 of the SAR report for description of accessory ID #.

- 4. Bw = Body-worn

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#### HARRIS CORPORATION FCC ID: OWDTR-0073-E XG-25P 700/800 PTT Radio Transceiver (Scan)

Body	SAI	R Te	st C	ons	ide	atio	ns fo	r Au	dio A	Acces	ssor	ies v	vith	out	Buil	t-in /	Ante	nna	- Au	dio A	Acce	esso	ry C	oml	bina	tion	s (F	СС	KDB	643	646 I	D01v	/01r(	)1 P	age	9)						
				Batte	ery a	a (Ad	ditio	nal)					Е	Batte	ry b	(Add	lition	al)			Battery c (Additional)											Battery d (Default)										
Audio Accessory ID #	Antenna 1, 2											ļ	Ante	nna 1	l, 2							Α	nter	nna '	1, 2							Αı	nten	na 1								
	Bw		Bw#5 Bw#		Bw#1 Bw#		В	Bw#4		Bw#6		v#5	Bw#1		Bv	Bw#3		ı#4	Bv	Bw#6		Bw#5		Bw#1		Bw#3		Bw#4		Bw#6		v#5	Bw#1		Bw#3		Bw#4		Bw	#6		
G1a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G1b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G3a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G3b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G4	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G5	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G6a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G6b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G7a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G7b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G7c	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G7d	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G8a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G8b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G9a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G9b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G10	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G11a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G11b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G12a	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
G12b	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		

- All audio accessory options can be utilized with any antenna, battery and body-worn combination.
   The accessory combinations evaluated for SAR are highlighted in yellow.
   Please refer to Section 5.0 of the SAR report for description of accessory ID #.

- 4. Bw = Body-worn

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