



**MOTOROLA**



TESTING CERT # 2518.01

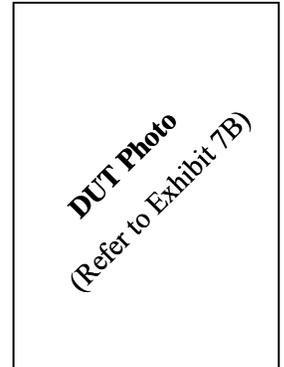
FCC ID: AZ489FT7040

**DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 1 of 3**

**Enterprise Mobility Solutions**  
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**Date of Report:** 10/01/09  
**Report Revision:** B  
**Report ID:** SAR rpt\_H97TGD9PW1AN (WITH QA00569AA AND QA00575AA)\_Rev B\_091001\_SR7228

**Responsible Engineer:** Stephen C. Whalen (Principal Staff Eng.)  
**Report Author:** Stephen C. Whalen (Principal Staff Eng.)  
**Date/s Tested:** 04/01/09-05/04/09  
**Manufacturer/Location:** Penang  
**Sector/Group/Div.:** EMS  
**Date submitted for test:** 3/31/09  
**DUT Description:** 380-470 MHz 1-5W, 764-870 MHz 1-3W, 6.25 kHz / 12.5 kHz / 25 kHz, Basic Top Display Model W/GPS. Capable of digital and analog FM transmission. Also capable of TDMA transmission  
**Test TX mode(s):** CW  
**Max. Power output:** 5.7W (UHF1), 2.99W (700 MHz), 3.6W (800 MHz)  
**Nominal Power:** 5.0W (UHF1), 2.5W (700 MHz), 3.0W (800 MHz)  
**Tx Frequency Bands:** 380-470 MHz (UHF1) & 764-776 MHz, 794-806 MHz, 806-824 MHz, 851-870 MHz(7/800 MHz)  
**Signaling type:** FM and TDMA  
**Model(s) Tested:** H97TGD9PW1AN (WITH QA00569AA AND QA00575AA)  
**Model(s) Certified:** H97TGD9PW1AN (WITH QA00569AA AND QA00575AA)  
**Serial Number(s):** Q02KK412, Q02KK40M  
**Classification:** Occupational/Controlled  
**Rule Part(s):** \*90 (406.1-470MHz, 763-775MHz, 793-805MHz, 806-824MHz, 851-869MHz)



\* SAR results outside of Part 90 are not applicable for FCC compliance demonstration.

**Max. Calc. : 1-g Avg. SAR: 6.74 W/kg (Body); 10-g Avg. SAR: 4.42 W/kg (Body)**  
**Max. Calc. : 1-g Avg. SAR: 4.63 W/kg (Face); 10-g Avg. SAR: 3.53 W/kg (Face)**

The test results clearly demonstrate compliance with FCC Occupational/Controlled RF Exposure limits of 8 W/kg averaged over 1 gram per the requirements of 47 CFR 2.1093(d). The 10 grams results are not applicable to FCC filing. The test results clearly demonstrate compliance with ICNIRP (1998) Guidelines for limiting exposure in time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz), Health Physics 74, 494-522 RF Exposure limits of 10 W/kg averaged over 10 grams of contiguous tissue.

Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with the national and international reference standards and guidelines listed in section 3.0 of this report. This report shall not be reproduced without written approval from an officially designated representative of the Motorola EME Laboratory. I attest to the accuracy of the data and assume full responsibility for the completeness of these measurements. This reporting format is consistent with the suggested guidelines of the TIA TSB-150 December 2004. The results and statements contained in this report pertain only to the device(s) evaluated.

*Signature on file*  
**Deanna Zakharia**  
 EMS EME Lab Senior Resource Manager,  
 Laboratory Director

**Approval Date:** 10/01/09

**Certification Date:** 07/08/09

**Certification No.:** L1090626P

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**Report Revision History**

Date	Revision	Comments
07/08/09	O	Initial release
08/14/09	A	Sections 7.1, 7.2, 7.3 and 7.4 were updated with references to Exhibit 7B.
10/01/09	B	Corrected frequency range 380-430MHz to 380-470MHz. Updates to front cover pages (parts 1-3) and last paragraph in section 6.0. Added additional comment under Table 2, added note in section 13.6 pg51 and added Appendix J - Additional Data Requested by FCC.

## 1.0 Introduction

This report details the utilization, test setup, test equipment, and test results of the Specific Absorption Rate (SAR) measurements performed at the EMS EME Test Laboratory for model number H97TGD9PW1AN (WITH QA00569AA AND QA00575AA) and FCC ID: AZ489FT7040. The results herein reflect prototype test results.

## 2.0 Abbreviations / Definitions

CNR: Calibration Not Required  
CQPSK: Compatible Quadrature Phase-Shift Keying  
CW: Continues Wave  
DUT: Device Under Test  
FM: Frequency Modulation  
NA: Not Applicable  
PSM: Public Safety Microphone.  
PTT: Push to Talk  
RSM: Remote Speaker Microphone  
TDMA: Time Division Multiple Access  
SAR: Specific Absorption Rate

Audio accessories: These accessories allow communication while the DUT is worn on the body.

Body worn accessories: These accessories allow the DUT to be worn on the body of the user.

Maximum Power: Defined as the upper limit of the production line final test station.

Receive only audio accessory: Audio accessories that do not enable transmission and are for listening only.

## 3.0 Referenced Standards and Guidelines

This product is designed to comply with the following applicable national and international standards and guidelines.

- IEC62209-1\*(2005) Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)
- United States Federal Communications Commission, Code of Federal Regulations; Rule Part 47CFR § 2.1093 sub-part J:1999
- Federal Communications Commission, “Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields”, OET Bulletin 65, Supplement C (Edition 01-01), FCC, Washington, D.C.: June 2001.
- IEEE 1528\*(2003), Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
- American National Standards Institute (ANSI) / Institute of Electrical and Electronics Engineers (IEEE) C95. 1-1992

- Institute of Electrical and Electronics Engineers (IEEE) C95.1-2005
  - International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
  - Ministry of Health (Canada) Safety Code 6 (1999), Limits of Human Exposure to Radio frequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz
  - Australian Communications Authority Radio communications (Electromagnetic Radiation - Human Exposure) Standard (2003)
  - ANATEL, Brazil Regulatory Authority, Resolution No. 303 of July 2, 2002 "Regulation of the limitation of exposure to electrical, magnetic, and electromagnetic fields in the radio frequency range between 9kHz and 300 GHz." and "Attachment to resolution # 303 from July 2, 2002"
  - Draft of IEC62209-2 Ed.1, Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices – Human models, Instrumentation, and Procedures Part 2: Procedure to determine the specific absorption rate (SAR) for mobile wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz), revised on Oct 3, 2008.
- \* The IEC62209-1 and IEEE1528 are applicable for hand-held devices used in close proximity to the ear only.

**4.0 SAR Limits**

**TABLE 1**

EXPOSURE LIMITS	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
Spatial Average - ANSI - (averaged over the whole body)	0.08	0.4
Spatial Peak - ANSI - (averaged over any 1-g of tissue)	1.6	8.0
Spatial Peak – ICNIRP/ANSI - (hands/wrists/feet/ankles averaged over 10-g)	4.0	20.0
Spatial Peak - ICNIRP - (Head and Trunk 10-g)	2.0	10.0

**5.0 SAR Result Scaling Methodology**

The calculated 1-gram and 10-gram averaged SAR results indicated as “Max Calc. 1g-SAR” and “Max Calc.10g-SAR” in the data tables is determined by scaling the measured SAR to account for power leveling variations and power slump. A table and graph of output power versus time is provided in APPENDIX G. For this device the “Max Calc. 1g-SAR” and “Max Calc.10g-SAR” are scaled using the following formula:

$$Max\_Calc = SAR\_meas \cdot 10^{\frac{-Drift}{10}} \cdot \frac{P\_max}{P\_int} \cdot DC$$

P\_max = Maximum Power (W)  
P\_int = Initial Power (W)  
Drift = DASY drift results (dB)  
SAR\_meas = Measured 1-g or 10-g Avg. SAR (W/kg)  
DC = Transmission mode duty cycle in % where applicable  
50% duty cycle is applied for PTT operation

Note: for conservative results, the following are applied:

If  $P_{int} > P_{max}$ , then  $P_{max}/P_{int} = 1$ .  
Drift = 1 for positive drift

Additional SAR scaling was applied using the methodologies outlined in FCC KDB450824 using tissue sensitivity values. SAR was scaled for conditions where the tissue permittivity was measured above the nominal target and for tissue conductivity that was measured below the nominal target. This scaling was only applied for the 380.0125 MHz channel in the UHF band and 809.000 and 823.9875 in the 794-824 MHz band.

## 6.0 Description of Device Under Test (DUT)

FCC ID: AZ489FT7040 operates using digital and analog frequency modulation (FM) as well as TDMA signaling incorporating traditional simplex two-way radio transmission protocol.

Time Division Multiple Access (TDMA) is used to allocate portions of the RF signal by dividing time into two slots. Time allocation enables each unit to transmit its voice information without interference from other transmitting units. Transmission from a unit or base station is accommodated during two time-slot lengths of 30 milliseconds with frame length of 60 milliseconds. C4FM CQPSK modulation is used and includes the following channel spaces; 6.25 kHz (equivalent), 12.5 kHz and 25 kHz. The TDMA technique requires sophisticated algorithms and a digital signal processor (DSP) to perform voice compressions/decompressions and RF modulation/demodulation. The maximum duty cycle for TDMA is 2:1 and is controlled by software. The FM signal is continuous. However because of hand shaking or Push-To-Talk (PTT) between users and/or base stations a conservative 50% duty cycle is applied. The TDMA mode was not tested because its duty cycle is inherently 50% and would include an additional 50% duty cycle for PTT.

The model represented under this filing utilizes removable antennas and is capable of transmitting in the 380-470 MHz, 764-776 MHz, 794-806 MHz, 806-824 MHz and 851-870 MHz bands. Bands 794-806 MHz and 806-824 MHz were combined into 794-824 MHz for SAR testing. The nominal output power is 5.0 watts at 380-470 MHz, 2.5 watts at 764-806 MHz, 3.0 watts at 806-824 MHz and 851-870 MHz with maximum output powers of 5.7 watts at 380-470 MHz, 2.99 watts at 764-806 MHz, 3.6 watts at 806-824 MHz and 851-870 MHz as defined by upper limit of the production line final test station. The intended operating positions are “at the face” with the DUT at least 1 inch from the mouth, and “at the body” by means of the offered body worn accessories. Body worn audio and PTT operation is accomplished by means of optional remote accessories that are connected to the radio.

## 7.0 Optional Accessories and Test Criteria

FCC ID: AZ489FT7040 is offered with optional accessories. All accessories were individually evaluated during the test plan creation to determine if testing was required. The following sections identify the test criteria and details for each accessory category.

**7.1 Antennas**

All antennas were tested. The table below lists the antennas, antenna descriptions and separation distances. Refer to Exhibit 7B section 6.1 for antenna photos and sections 1.0 and 2.0 for photos of antenna separation distances.

**TABLE 2**

Antenna Models	Description	Tested	* Separation distances between DUT antenna and phantom surface for given test configurations		
			Body Test Configuration		Face Test Configuration DUT @ 2.5cm
			Tested Carry Accessories	2.5cm Assessment DUT @ 2.5cm	
PMA4000A	UHF/700/800/GPS 380-520MHz, 764-870MHz, 1575MHz ¼ wave, -2dBd	Yes	26-160mm	41-55mm	41-60mm
PMAE4065A	UHF/GPS 380-520MHz, 1575MHz ¼ wave, -2dBd	Yes	25-142mm	37-46mm	37-47mm
PMAF4002A	700/800MHz ¼ wave, -10dBd	Yes	20-25mm	**Not Required	**Not Required

\* The 1st number indicated the minimum separation distance that measured at the antenna’s base while the second number reflects the separation distance measured at the antenna’s tip.

\*\* Antenna PMAF4002A is only used in combination (connected directly) with the PSM. The PSM is typically worn on the body and was therefore tested on the body with separation distances of 20-25mm. The 2.5cm body and face assessments would increase the separation distances to 34-36mm from the phantom. Additionally, tissue parameters are more conservative at the body as compared to the face.

**7.2 Batteries**

All batteries were evaluated during the test plan generation. Batteries that had the same chemistry, cell size, physical size and shape and do not decrease the separation distance were removed from the test plan. These batteries are identified in the table below. Refer to Exhibit 7B section 6.2 for photos of batteries and DUT height with long and short batteries.

**TABLE 3**

Battery Models	Description	Tested	Comments
NNTN7033A	FM Impres Li Ion 3900 mAh	Yes	Battery is long. FM(Factory Mutual)
NNTN7034A	Impres Li Ion 4000 mAh	Yes	Battery is long.
NNTN7035A	FM Impres NiMH 2000mAh- Rugged	Yes	Battery is long. FM(Factory Mutual)
NNTN7036A	FM Impres NiMH 2000mAh	No	Battery is long and has the same chemistry, cell size and physical size as NNTN7035A and does not change user separation distances.
NNTN7037A	Impres NiMH 2100mAh	Yes	Battery is long.
NNTN7573A	Impres NiMH 2100mAh- Rugged	No	Battery is long and has the same chemistry, cell size and physical size as NNTN7037A and does not change user separation distances.
NNTN7038A	Hi Cap Impres Li Ion 2500mAh	Yes	Battery is short.

### 7.3 Body worn Accessories

All body worn accessories were evaluated during the test plan generation. Accessories were grouped by metallic content, separation distances and similarities. All accessories that contain unique metallic content were tested. Accessories that do not contain unique metallic content were evaluated to determine which would offer the closest separation distance. Two items in the table below were removed from the test plan based on these conditions. Refer to Exhibit 7B sections 1.0 and 2.0 for photos of the body worn test configurations and section 6.3 for individual photos of the body worn accessories with the DUT.

**TABLE 4**

Body worn Models	Description	Tested	* Separation distances between DUT antenna and phantom surface. (mm)	Comments
NTN8266B	2.5" Belt Clip	Yes	25-53	Tested with both long and short batteries
HLN6875A	3.0" Belt Clip	Yes	44-98	Tested with both long and short batteries
NTN5243A	Shoulder / Carry Strap	Yes	23-114	Shoulder / Carry Strap can only be connected to the following body worn carry cases; PMLN5322A, PMLN5328A, PMLN5323A, PMLN5329A, PMLN5324A, PMLN5330A. Tested with applicable body worn case with overall highest battery
PMLN5331A	Holster / Carry Holder	Yes	39-117	Plastic holster that requires either belt clips (NTN8266B or HLN6875). Tested with both long and short batteries.
PMLN5407A	2.5" SVL Belt Loop (Optional belt loop for leather case PMLN5324A and PMLN5330A)	No	NA	The optional 2.5" leather belt loop is an alternative to the tested 2.75" leather belt loop. The belt loops are the same except that the 2.5" allows for a smaller width belt. The metallic content is the same as the 2.75" belt loop. Antenna separation distances exceed 70mm for the 2.75" belt loop as compared to the 25mm for belt clip NTN8266B.
PMLN5409A	3.0" SVL Belt Loop (Optional belt loop for leather case PMLN5324A and PMLN5330A)	No	NA	The optional 3.0" leather belt loop is an alternative to the tested 2.75" leather belt loop. The belt loops are the same except that the 3.0" allows for a larger width belt. The metallic content is the same as the 2.75" belt loop. Antenna separation distances exceed 70mm for the 2.75" belt loop as compared to the 25mm for belt clip NTN8266B.
PMLN5322A	Nylon Case w/ belt loop	Yes	45-94	Fits short battery only
PMLN5323A	Leather Case w/ belt loop	Yes	54-116	Fits short battery only
PMLN5324A	Leather Case High Activity w/ Swivel belt loop 2.75"	Yes	80-160	Fits short battery only
PMLN5328A	Nylon Case w/ belt loop	Yes	40-76	Fits long battery only
PMLN5329A	Leather Case w/ belt loop	Yes	57-112	Fits long battery only
PMLN5330A	Leather Case High Activity w/ Swivel belt loop 2.75"	Yes	74-144	Fits long battery only

\* The 1st number indicated the minimum separation distance that measured at the antenna's base while the second number reflects the separation distance measured at the antenna's tip.

**7.4 Audio Accessories**

All audio accessories were evaluated during the test plan generation. Accessories were grouped by categories; Public Safety Microphone (PSM), Remote Speaker Microphone (RSM), headsets, ear pieces and receive only ear pieces. Each category was then evaluated and sorted by connector, connector pin count, cable and color (black vs. beige). Accessories within a group that contained the same connector, connector pin count and cable were reduced to one representative sample for testing. Fourteen out of twenty five items in the table below were removed from the test plan based on these conditions. Refer to Exhibit 7B section 6.4 for photos of the RSM and PSM connected to the DUT and section 6.5 for photos illustrating examples of audio accessory similarities that were used to determine no test required.

**TABLE 5**

Audio Acc. Models	Description	Tested	Comments
Public Safety Microphone (PSM) - Applicable to body testing only.			
PMMN4059A	PSM - 18" IP54, 3.5mm jack TX/RX	Yes	PSM Antenna PMAF4002A is for 7/800 only
PMMN4060A	PSM - 24" IP54, 3.5mm jack TX/RX	Yes	PSM Antenna PMAF4002A is for 7/800 only
PMMN4061A	PSM - 30" IP54, 3.5mm jack TX/RX	Yes	PSM Antenna PMAF4002A is for 7/800 only
Remote Speaker Microphone (RSM) – Applicable to body testing only.			
PMMN4024A	RSM - Small core	Yes	
PMMN4062A	RSM –Large, plus noise canceling, IP54 3.5mm jack RX only for secondary audio.	Yes	Secondary audio jack allows for optional receive only ear piece e.g. WADN4190B or RLN4885B.
PMMN4025A	RSM - Smart	No	Same connector, pin count and cable as PMMN4062A.
PMMN4065A	RSM - Standard Large IP57	No	Same connector, pin count and cable as PMMN4062A
HMN4104A	RSM - IMPRES Display GCAI Submersible, w/jack & Ch. Selector (Model A)	No	Same connector, pin count and cable as PMMN4062A
Headsets w/ Microphone – Applicable to body testing only.			
PMLN5275A	Headset – Heavy duty core	Yes	
RMN5058A	Headset - Lightweight core w/PTT & VOX	Yes	
PMLN5101A	Headset - IMPRES Temple Transducer	Yes	
Ear Piece w/ Microphone – Applicable to body testing only.			
PMLN5111A	Ear Piece - Plus 3 wire Black- one programmable button	Yes	
PMLN5112A	Ear Piece - Plus 3 wire Beige-one programmable button.	No	Same as PMLN5111A except for color.
RLN5882A	Ear Piece - Smart 2 Wire PTT surveillance w/ acoustic tube black	Yes	
RLN5880A	Ear Piece - Smart 2 wire surveillance - black.	No	Same connector, pin count and cable as RLN5882A. The only difference is different style ear piece.
RLN5881A	Ear Piece - Smart 2 wire surveillance - beige	No	Same connector, pin count and cable as RLN5882A. The only difference is color and different style ear piece.
RLN5883A	Ear Piece, Smart 2 Wire PTT surveillance w/ acoustic tube beige.	No	Same connector, pin count and cable as RLN5882A except for color.

**TABLE 5 Continued**

Audio Acc. Models	Description	Tested	Comments
Receive/Listen Only Ear Piece (No Microphone) – Applicable to face testing only.			
RLN5879A	Ear Piece - Core 1 wire surveillance - beige	Yes	Tested at the face only.
RLN5878A	Ear Piece - Core 1 wire surveillance - black	No	Same as RLN5879A except for color
WADN4190B	Ear Piece – Flexible over the ear receiver for RSM	No	Secondary audio receiver accessory for tested RSM PMMN4062A.
RLN4885B	Ear Piece - Ear bud	No	Secondary audio receiver accessory for tested RSM PMMN4062A.
RLN4941A	Ear Piece - Translucent tube and ear tip-OTTO	No	Quick disconnect plastic acoustic tube ear piece (black) and includes RLN5886A.
RLN6242A	Ear Piece – Quick disconnect acoustic tube	No	Quick disconnect plastic acoustic tube ear piece.
RLN5886A	Ear Piece - Low noise tube kit	No	Low noise plastic acoustic tube ear piece.
RLN5887A	Ear Piece - High noise tube kit	No	High noise plastic acoustic tube with foam ear piece.

**8.0 Description of Test System**



**8.1 Descriptions of Robotics/Probes/Readout Electronics**

The laboratory utilizes a Dosimetric Assessment System (DASY4™) SAR measurement system Version 4.7 build 80 manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. The test system consists of a Stäubli RX90L robot, DAE4, and ES3DV3 E-field probe. The DASY4™ system is operated per the instructions in the DASY4™ Users Manual. The complete manual is available directly from SPEAG™. All measurement equipment used to assess EME SAR compliance was calibrated according to ISO/IEC 17025 A2LA guidelines. Section 9.0 presents additional test equipment information. Appendices B and C present the applicable calibration certificates. The E-field probe first scans a coarse grid over a large area

inside the phantom in order to locate the interpolated maximum SAR distribution. After the coarse scan measurement, the probe is automatically moved to a position at the interpolated maximum. The subsequent scan can directly use this position as reference for the cube evaluations.

**8.2 Description of Phantom(s)**

**8.2.1 Dual Flat Phantom**

Not Applicable

**8.2.2 SAM Phantom**

Not Applicable

**8.2.3 Elliptical Flat Phantom**

**TABLE 6**

Phantom ID (s)	Material Parameters	Phantom Dimensions LxWxD (mm)	Material Thickness (mm)	Support Structure Material	Loss Tangent (wood)
OVAL1016 OVAL1011 OVAL1019 OVAL1018	300MHz -6GHz; Er = 4+/- 1, Loss Tangent = ≤0.05	600x400x190	2mm +/- 0.2mm	Wood	< 0.05

**8.3 Description of Simulated Tissue**

The simulated tissue used is compliant to that specified in FCC Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01) and IEEE Std 1528 - 2003 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques". The simulated tissue used is also compliant to that specified in IEC62209-1 (2005) and adopted by CENELEC as EN62209-1 (2006).

The sugar based simulate tissue is produced by placing the correct measured amount of De-ionized water into a large container. Each of the dried ingredients are weighed and added to the water carefully to avoid clumping. If the solution has a high sugar concentration the water is pre-heated to aid in dissolving the ingredients. For Diacetin and similar type simulates, sugar and HEC ingredients are not needed. The solution is mixed thoroughly, covered, and allowed to sit overnight prior to use.

### Simulated Tissue Composition (by mass)

**TABLE 7**

% of listed ingredients	450MHz		835MHz	
	Head	Body	Head	Body
Sugar	56.0	46.5	57.0	44.9
Diacetin	0	0	0	0
De ionized -Water	39.1	50.53	40.45	53.06
Salt	3.8	1.87	1.45	0.94
HEC	1.0	1.0	1.0	1.0
Bact.	0.1	0.1	0.1	0.1

Reference section 10.1 for target parameters

### 9.0 Additional Test Equipment

The table below lists additional test equipment used during the SAR assessment.

**TABLE 8**

Equipment Type	Model Number	Serial Number	Calibration Due Date
Power Meter (Agilent)	E4419B	MY40330364	7/16/2009
Power Meter (Agilent)	E4418B	US39251266	2/26/2010
Power Sensor (Agilent)	8482B	3318A07546	6/2/2009
E-Series Avg. Power Sensor (Agilent)	E9301B	MY41495593	2/18/2010
E-Series Avg. Power Sensor (Agilent)	E9301B	MY41495594	2/18/2010
Power Sensor (Agilent)	8482B	3318A06774	2/27/2010
Bi-Directional Coupler (NARDA)	3020A	40295	6/9/2010
Signal Generator (Agilent)	E4438C	MY42082269	7/8/2010
AMP (Amplifier Research)	10WD1000	28782	CNR
Dickson Temperature Recorder	TM125	1195889	2/14/2010
Omega Digital Thermometer with J Type TC Probe	HH202A	18800	10/27/2009
Omega Digital Thermometer with J Type TC Probe	HH202A	18812	4/25/2009
Agilent PNA-L Network Analyzer	N5230A	MY45001092	5/22/2010
Dielectric Probe Kit (HP)	85070C	US99360076	CNR
Speag Dipole	D450V2	1002	9/26/2010
Speag Dipole	D835V2	435	9/22/2010

**10.0 SAR Measurement System Verification**

The SAR measurements were conducted with probe model/serial number ES3DV3/SN3147. The system performance check was conducted daily and within 24 hours prior to testing. DASY output files of the probe/dipole calibration certificates and system performance test results are included in appendices B, C, D respectively.

Dipole validation scans using head tissue equivalent medium are provided in APPENDIX D. The EMS EME lab validated the dipole to the applicable IEEE 1528-2003 system performance targets. Within the same day system validation was performed using FCC body tissue parameters to generate the system performance target values for body at the applicable frequency. The results of the EMS EME system performance validation are provided herein.

**10.1 Equivalent Tissue Test Results**

Simulated tissue prepared for SAR measurements is measured daily and within 24 hours prior to actual SAR testing to verify that the tissue is within +/- 5% of target parameters at the center of the transmit band. This measurement is done using the applicable equipment indicated in section 9.0. The table below summarizes the measured tissue parameters used for the SAR assessment.

**TABLE 9**

Frequency (MHz)	Tissue Type	Conductivity Target & Range (S/m)	Dielectric Constant Target & Range	Conductivity Meas. (S/m)	Dielectric Constant Meas.	Tested Date
450	FCC Body	0.94 (0.89-0.98)	56.7 (53.8-59.5)	0.92	56.2	4/1/2009
				0.92	57.0	4/2/2009
				0.94	59.1	4/3/2009
				0.92	58.8	4/6/2009
				0.92	58.7	4/7/2009
				0.95	56.1	4/9/2009
				0.95	55.9	4/10/2009
450	IEEE/ IEC Head	0.87 (0.82-0.91)	43.5 (41.3-45.6)	0.86	44.4	4/8/2009
				0.89	43.6	4/23/2009
				0.84	45.2	5/4/2009
425	FCC Body	0.94 (0.89-0.98)	57.0 (54.1-59.8)	0.90	56.6	4/1/2009
				0.89	57.3	4/2/2009
				0.92	59.5	4/3/2009
				0.90	59.2	4/6/2009
				0.90	59.1	4/7/2009
				0.93	56.8	4/8/2009
				0.93	56.5	4/9/2009
				0.93	56.3	4/10/2009
				0.95	56.9	4/23/2009
				0.95	56.9	4/27/2009
425	IEEE/ IEC Head	0.87 (0.82-0.91)	43.8 (41.6-45.9)	0.83	45.0	4/7/2009
				0.84	45.0	4/8/2009
				0.87	44.2	4/23/2009

**TABLE 9 (Continued)**

Frequency (MHz)	Tissue Type	Conductivity Target (S/m)	Dielectric Constant Target	Conductivity Meas. (S/m)	Dielectric Constant Meas.	Tested Date
835	FCC Body	0.97 (0.92-1.01)	55.2 (52.4-57.9)	1.01	56.2	4/11/2009
				1.00	53.4	4/13/2009
				0.98	56.2	4/14/2009
				0.98	54.0	4/15/2009
				0.98	54.0	4/16/2009
				0.98	54.4	4/17/2009
				0.98	54.0	4/18/2009
				0.97	53.2	4/19/2009
835	IEEE/ IEC Head	0.90 (0.85-0.94)	41.5 (39.4-43.5)	0.97	53.3	4/20/2009
				0.92	42.3	4/21/2009
				0.92	42.4	4/22/2009
				0.92	42.5	4/24/2009
770	FCC Body	0.96 (0.91-1.00)	55.5 (52.7-58.2)	0.95	56.8	4/11/2009
				0.94	54.0	4/13/2009
				0.92	56.9	4/14/2009
				0.92	54.7	4/15/2009
770	IEEE/ IEC Head	0.89 (0.84-0.93)	41.8 (39.7-43.8)	0.86	43.2	4/21/2009
809	FCC Body	0.97 (1.01-0.92)	55.3 (52.5-58.0)	0.96	54.3	4/15/2009
				0.95	54.2	4/16/2009
				0.95	54.6	4/17/2009
				0.95	54.2	4/18/2009
				0.95	53.5	4/20/2009
809	IEEE/ IEC Head	0.90 (0.85-0.94)	41.6 (39.5-43.6)	0.89	42.7	4/22/2009
				0.90	42.8	4/24/2009
860.5	FCC Body	1.00 (0.95-1.05)	55.1 (52.3-57.8)	1.01	53.8	4/18/2009
				1.00	53.0	4/19/2009
				1.00	53.1	4/20/2009
860.5	IEEE/ IEC Head	0.93 (0.88-0.97)	41.5 (39.4-43.5)	0.94	42.2	4/20/2009
				0.94	42.0	4/21/2009

**10.2 System Check Test Results**

System performance checks were conducted each day during the SAR assessment. The results are normalized to 1W. APPENDIX D explains how the targets were set and includes DASY plots for each day during the SAR assessment. The table below summarizes the daily system check results used for the SAR assessment.

**TABLE 10**

Probe Serial #	Tissue Type	Probe Cal Date	Dipole Kit / Serial #	Reference SAR @ 1W (W/kg)	System Check Test Results when normalized to 1W (W/kg)	Tested Date
3147	FCC Body	2/13/2009	SPEAG D450V2 /1002	4.52 +/- 10%	4.76	4/1/2009
					4.28	4/2/2009
					4.32	4/3/2009
					4.24	4/6/2009
					4.28	4/7/2009
					4.36	4/9/2009
					4.36	4/10/2009
					4.60	4/27/2009
3147	IEEE/ IEC Head	2/13/2009	SPEAG D450V2 /1002	4.68 +/- 10%	4.48	4/8/2009
					4.72	4/23/2009
					4.48	5/4/2009
3147	FCC Body	2/13/2009	SPEAG D835V2 /435	9.80 +/- 10%	9.60	4/11/2009
					9.76	4/13/2009
					9.52	4/14/2009
					9.44	4/15/2009
					9.60	4/16/2009
					9.48	4/17/2009
					9.60	4/18/2009
					9.48	4/19/2009
					9.48	4/20/2009
					9.80	4/23/2009
					9.68	4/27/2009
3147	IEEE/ IEC Head	2/13/2009	SPEAG D835V2 /435	9.53 +/- 10%	9.48	4/28/2009
					9.44	4/21/2009
					9.36	4/22/2009
					9.40	4/24/2009

Note: See APPENDIX D for an explanation of the reference SAR targets stated above.

**11.0 Environmental Test Conditions**

The EME Laboratory ambient environment is well controlled resulting in very stable simulated tissue temperature and therefore stable dielectric properties. Simulated tissue temperature is measured prior to each scan to insure it is within +/- 2°C of the temperature at which the dielectric properties were determined. The liquid depth within the phantom used for measurements was at least 15cm. Additional precautions are routinely taken to ensure the stability of the simulated tissue such as covering the phantoms when scans are not actively in process in order to minimize evaporation. The lab environment is continuously monitored. The table below presents the range and average environmental conditions during the SAR tests reported herein:

**TABLE 11**

	<b>Target</b>	<b>Measured</b>
<b>Ambient Temperature</b>	18 - 25 °C	Range: 20.2-23.1°C Avg. 21.8°C
<b>Relative Humidity</b>	30 - 70 %	Range: 36.0-57.9% Avg. 49.4%
<b>Tissue Temperature</b>	NA	Range: 18.6-21.6°C Avg. 20.8°C

The EME Lab RF environment uses a Spectrum Analyzer to monitor for extraneous large signal RF contaminants that could possibly affect the test results. If such unwanted signals are discovered the SAR scans are repeated.

**12.0 DUT Test Methodology**

**12.1 Measurements**

SAR measurements were performed using the DASY system described in section 8.0 using coarse and 5x5x7 or 7x7x7 zoom scan. Elliptical flat phantoms filled with applicable simulated tissue were used for body and face testing.

**12.2 DUT Configuration(s)**

The DUT is a portable device operational at the body and face as described in section 6.0 while using the applicable accessories listed in section 7.0.

**12.3 Device Positioning Procedures**

The positioning of the device for each body location is described below and illustrated in APPENDIX H.

**12.3.1 Body**

The DUT was positioned in normal use configuration against the phantom with the offered body worn accessory.

The DUT was positioned with its' front side separated 2.5cm and the back side with antenna separated 2.5cm from the phantom. Testing at 2.5cm is done to satisfy the conditions noted in the safety section of the manual.

**12.3.2 Head**

Not applicable.

**12.3.3 Face**

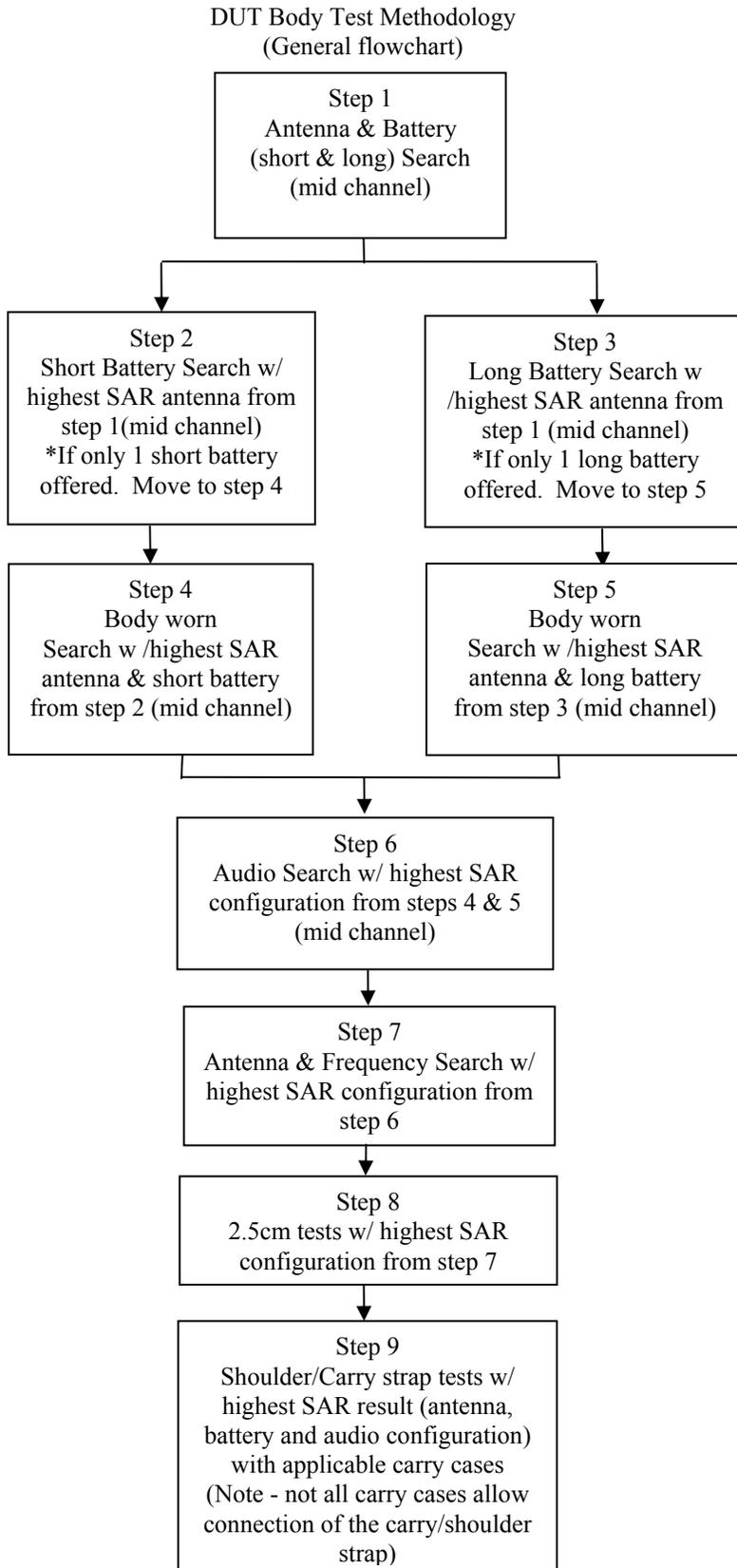
The DUT was positioned with its' front side separated 2.5cm from the phantom.

**12.4 Test Plan**

All modes of operation identified in section 6.0 were considered during the development of the test plan. The mode which presented the highest duty cycle was chosen for SAR assessment. All accessories listed in section 7.0 of this report were evaluated and only those identified for testing were used to develop the SAR test plan for this product.

An Expanded One Factor at A Time (OFAT) method was applied to develop the SAR test plan for this product. The following flowcharts identify the general approach to the test sequences for body and face positions.

12.4.1 General Test Flowchart



Flowchart Objectives  
Body

**Step 1** - Determine the highest SAR antenna for a short style battery and the highest SAR antenna for a long style battery. All tests in step 1 use belt clip NTN8266B which provides the closest separation distance and mid channel.

**Step 2** – Determine if other optional short batteries cause the SAR value to increase. All tests in step 2 use the same belt clip from step 1 along with the highest SAR antenna (mid channel) for short style batteries.

**Step 3** - Determine if other optional long batteries cause the SAR value to increase. All tests in step 3 use the same belt clip from step 1 along with the highest SAR antenna (mid channel) for long style batteries.

**Step 4** – Determine if the optional body worn carry cases (body worn only applicable to short batteries) cause the SAR value to increase. All tests in step 4 use the highest SAR antenna (mid channel) for short style batteries from step 1 and the highest SAR short battery from steps 1 & 2.

**Step 5** - Determine if the optional body worn carry cases (body worn only applicable to long batteries) cause the SAR value to increase. All tests in step 5 use the highest SAR antenna (mid channel) for long style batteries from step 1 and the highest SAR long battery from steps 1 & 3.

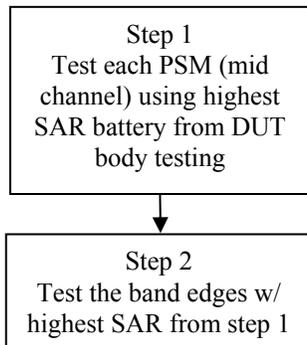
**Step 6** – Determine if the optional audio accessories cause the SAR value to increase. All tests in step 6 use the overall highest SAR combination of antenna (mid channel), battery and body worn carry case from the steps above.

**Step 7** – Determine if the low, mid & high channels for each antenna cause the SAR value to increase. All tests in step 7 use the overall highest SAR combination of battery, body worn carry case and audio from the steps above.

**Step 8** – Determine if the DUT positioned at 2.5cm from the body (front and back) for each antenna causes the SAR value to increase. All tests in step 8 use the overall highest SAR frequency per antenna, battery and audio from the steps above.

**Step 9** – Determine if the shoulder/Carry strap causes the SAR value to increase. Each applicable carry case that supports the carry strap and the highest SAR battery was tested at three sides. The back side (same position from steps 4 or 5), PTT button side and audio accessory connector side.

Public Safety Mic (PSM)  
Body Test Methodology  
(General flowchart)



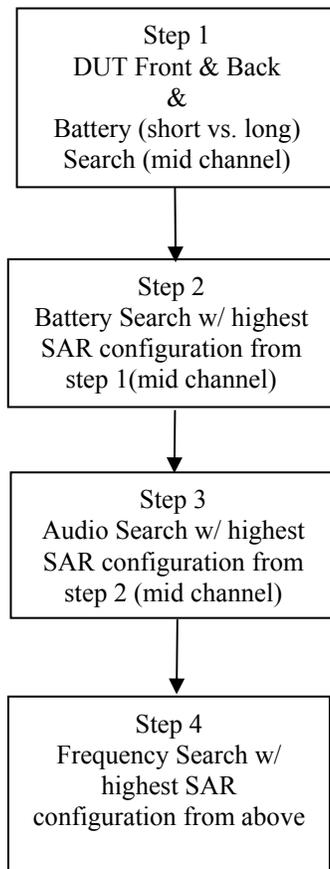
Flowchart Objectives

**PSM**

**Step 1** - Determine the highest SAR for all PSM at the mid channel.

**Step 2** – Determine if the low, mid & high channels cause the SAR value to change.

DUT Face Test Methodology  
(General flowchart)



**Face**

**Step 1** – Determine the highest SAR antenna for a short style battery and the highest SAR antenna for a long style battery for the front and back of the DUT and mid channel.

**Step 2** – Determine if optional batteries cause the SAR value to change. All tests in step 2 use the highest SAR antenna (mid channel) and highest front or back position from step 1.

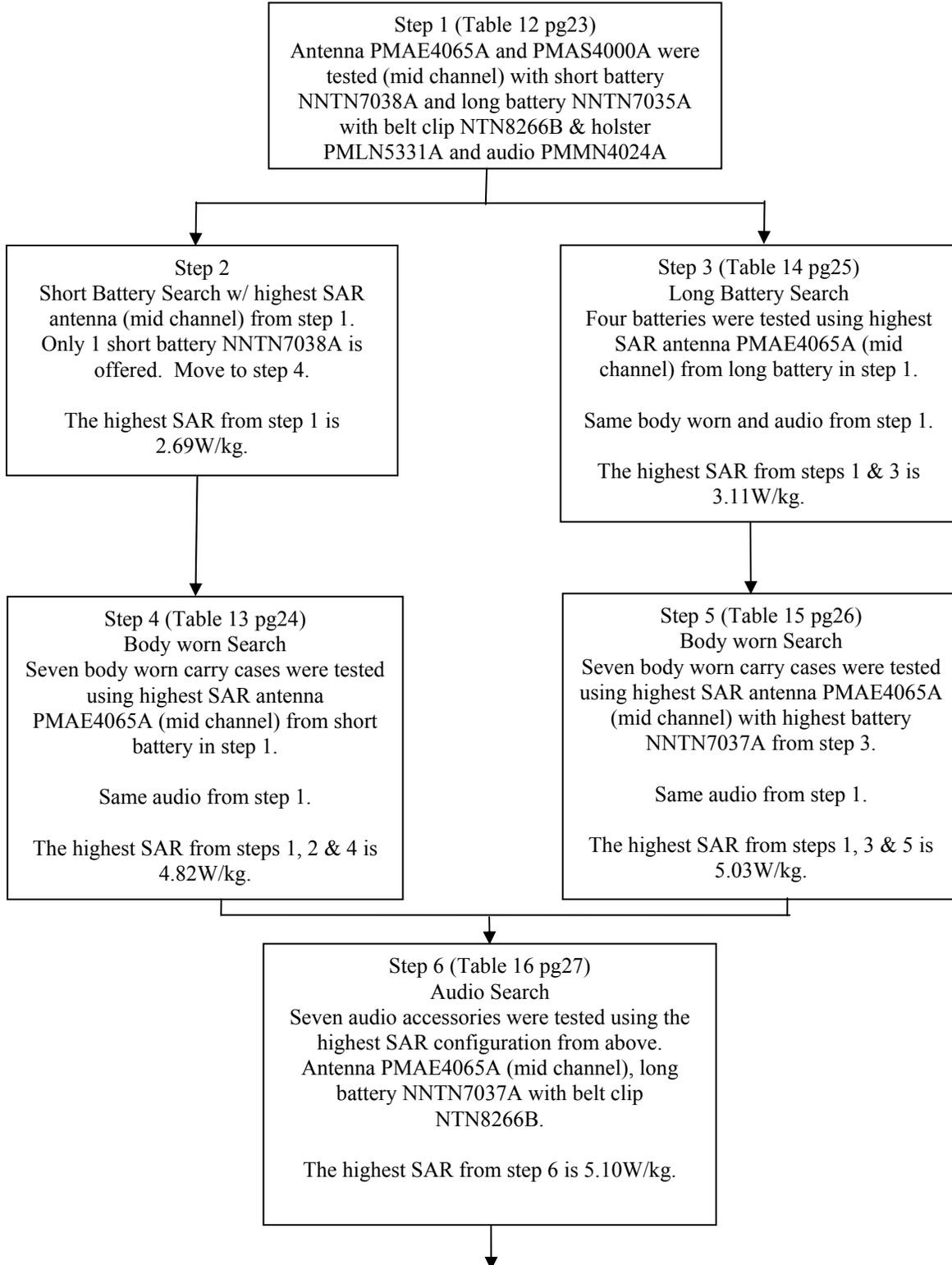
**Step 3** – Determine if the optional audio accessory causes the SAR value to change. All tests in step 3 use the overall highest SAR combination of antenna (mid channel), battery and front or back of DUT from the steps above.

**Step 4** – Determine if the low, mid & high channels for each antenna cause the SAR value to change. All tests in step 4 use the overall highest SAR combination of battery and front or back of DUT from the steps above.

13.0 DUT Test Data

13.1 UHF Test Flowchart Data Summary

UHF Band (380-470MHz)  
DUT Body Test Methodology



UHF Band (380-470MHz)  
DUT Body Test Methodology  
(Continued)

Step 7 (Table 17 pg28)  
Frequency Search Across antenna  
PMAE4065A and PMAS4000A with the  
highest SAR configuration from above.  
  
The highest SAR from step 7 is 6.47W/kg



Step 8 (Table 18 pg29)  
2.5cm testing with antenna PMAE4065A and  
PMAS4000A  
using the highest SAR frequency, battery and  
audio accessory from above.  
  
The highest SAR from step 8 is 2.78W/kg



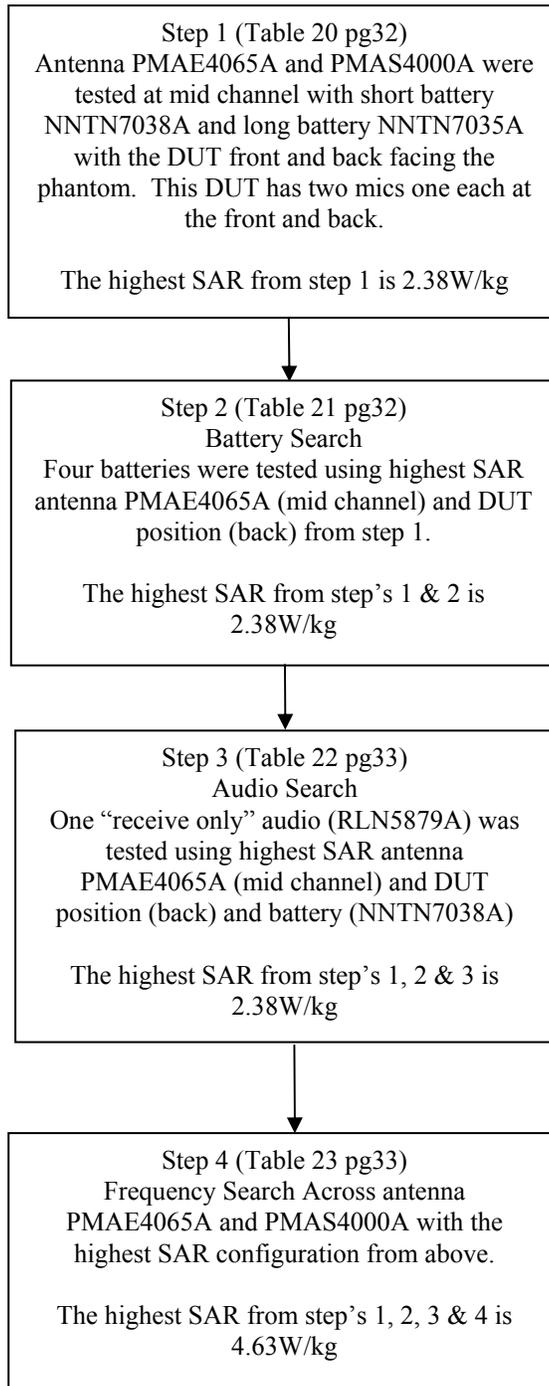
Step 9 (Table 19 pgs30 & 31)  
Carry / Shoulder Strap Testing  
using highest SAR antenna, frequency, battery  
and audio with the applicable body worn carry  
case (PMLN5328A, PMLN5329A &  
PMLN5330A)  
  
The highest SAR from step 9 is 4.09W/kg

**The highest UHF body SAR from above is  
6.47W/kg**

UHF Band (380-470MHz)  
PSM Body Test Methodology

Step 1 (pg31)  
Public Safety Mic Antenna is NOT available in  
the UHF band. No testing required.

UHF Band (380-470MHz)  
DUT Face Test Methodology



**The highest UHF Face SAR from above is 4.63W/kg**

**13.2 UHF Test Data**

**Assessments at the Body (CW mode)**

**Assessment of the offered antennas (UHF Test Flowchart pg 20 step 1):** Each applicable antenna was first tested at the mid channel with short battery (NNTN7038A) and long battery (NNTN7035A) to determine the antenna and battery combination that would result in the highest SAR. This configuration included body worn (NTN8266B belt clip and PMLN5331A plastic holster combination) and audio accessory (PMMN4024A). All SAR plots from the table below are included in APPENDIX F Section 1.0 - UHF Assessment of the offered antennas.

**TABLE 12**

**380-470MHz Band Assessments at Body – Assessment of offered antennas with long and short batteries**

Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090401-02/Q02KK412	PMAE4065A	425.000	NNTN7038A short	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	5.65	-0.136	5.17	3.93	2.69	2.05
<b>JsT-Ab-090402-02/Q02KK412</b>	PMAE4065A	425.000	NNTN7035A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	5.58	-0.193	5.75	4.32	3.07	2.31
JsT-Ab-090402-03/Q02KK412	PMAS4000A	425.000	NNTN7038A short	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	5.61	-0.096	2.27	1.71	1.18	0.89
JsT-Ab-090402-04/Q02KK412	PMAS4000A	425.000	NNTN7035A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	5.61	-0.081	2.80	2.11	1.45	1.09

**Assessments at the Body (CW mode)**

**Assessment of the offered body worn accessories for short battery (UHF Test Flowchart pg 20 step 4);** The set of body worn accessories only applicable to the short battery as outlined in section 7.0 were tested. These tests were conducted at mid channel using the SAR highest antenna (PMAE4065A) and short battery (NNTN7038A) combination from TABLE 12 along with the same audio (PMMN4024A). The highest SAR result from the table below is provided in APPENDIX F Section 2.0 - UHF Assessment of the offered body worn accessories for short battery.

Note that not all body worn accessories were tested. Section 7.0 includes detailed explanations for the accessories not tested (e.g. same metallic content and increased separation distance).

**TABLE 13**

380-470MHz Band Assessments at Body – Assessment of offered body worn accessories with short battery												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090401-02/Q02KK412	PMAE4065A	425.000	NNTN7038A short	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	5.65	-0.136	5.17	3.93	2.69	2.05
CM-Ab-090402-06/Q02KK412	PMAE4065A	425.000	NNTN7038A short	Against phantom	HLN6875A belt clip w/ PMLN5331A holster	PMMN4024A RSM	5.62	-0.215	3.57	2.70	1.90	1.44
<b>HvH-Ab-090406-03/Q02KK412</b>	PMAE4065A	425.000	NNTN7038A short	Against phantom	NTN8266B belt clip	PMMN4024A RSM	5.63	-0.254	8.99	6.26	4.82	3.36
CM-Ab-090406-07/Q02KK412	PMAE4065A	425.000	NNTN7038A short	Against phantom	HLN6875A belt clip	PMMN4024A RSM	5.62	-0.108	4.82	2.49	2.51	1.29
CM-Ab-090402-07/Q02KK412	PMAE4065A	425.000	NNTN7038A short	Against phantom	PMLN5322A nylon	PMMN4024A RSM	5.60	-0.175	4.66	3.52	2.47	1.87
CM-Ab-090402-09/Q02KK412	PMAE4065A	425.000	NNTN7038A short	Against phantom	PMLN5323A leather	PMMN4024A RSM	5.67	-0.071	3.64	2.76	1.86	1.41
CM-Ab-090402-10/Q02KK412	PMAE4065A	425.000	NNTN7038A short	Against phantom	PMLN5324A leather swvl w/2.75 loop	PMMN4024A RSM	5.64	-0.229	2.58	1.32	1.37	0.70

**Assessments at the Body (CW mode)**

**Assessment of the offered long battery accessories (UHF Test Flowchart pg 20 step 3);** The optional long batteries were tested. These tests were conducted at mid channel using the SAR highest antenna (PMAE4065A) and long battery combination from TABLE 12 along with the same audio (PMMN4024A). The highest SAR result from the table below is provided in APPENDIX F Section 3.0 - UHF Assessment of the offered long battery accessories.

Note that not all battery accessories were tested. Section 7.0 includes detailed explanations for the accessories not tested (e.g. battery’s that are built the same but under go additional environmental testing).

**TABLE 14**

380-470MHz Band Assessments at Body – Assessment of offered long batteries												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
JsT-Ab-090402-02/Q02KK412	PMAE4065A	425.000	NNTN7035A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	5.58	-0.193	5.75	4.32	3.07	2.31
JsT-Ab-090403-02/Q02KK412	PMAE4065A	425.000	NNTN7033A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	5.61	-0.096	5.30	3.98	2.75	2.07
JsT-Ab-090403-03/Q02KK412	PMAE4065A	425.000	NNTN7034A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	5.67	-0.622	4.45	2.92	2.58	1.69
<b>JsT-Ab-090403-04/Q02KK412</b>	PMAE4065A	425.000	NNTN7037A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	5.67	-0.202	5.90	4.47	3.11	2.35

**Assessments at the Body (CW mode)**

**Assessment of the offered body worn accessories for long battery (UHF Test Flowchart pg 20 step 5);** The set of body worn accessories only applicable to the long battery as outlined in section 7.0 were tested. These tests were conducted at mid channel using the SAR highest antenna (PMAE4065A) and long battery combination from TABLES 12 & 14 along with the same audio (PMMN4024A). The highest SAR result from the table below is provided in APPENDIX F Section 4.0 - UHF Assessment of the offered body worn accessories for long battery.

Note that not all body worn accessories were tested. Section 7.0 includes detailed explanations for the accessories not tested (e.g. same metallic content and increased separation distance).

**TABLE 15**

380-470MHz Band Assessments at Body – Assessment of offered body worn accessories with long battery												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
JsT-Ab-090403-04/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	5.67	-0.202	5.90	4.47	3.11	2.35
JsT-Ab-090403-05/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	HLN6875A belt clip w/ PMLN5331A holster	PMMN4024A RSM	5.67	-0.172	3.78	2.00	1.98	1.05
<b>CM-Ab-090406-08/Q02KK412</b>	PMAE4065A	425.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMMN4024A RSM	5.65	-0.133	9.68	6.27	5.03	3.26
CM-Ab-090406-09/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	HLN6875A belt clip	PMMN4024A RSM	5.66	-0.199	5.19	3.94	2.74	2.08
JsT-Ab-090403-06/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	PMLN5328A nylon	PMMN4024A RSM	5.66	-0.225	5.35	4.07	2.84	2.16
JsT-Ab-090403-07/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	PMLN5329A leather	PMMN4024A RSM	5.68	-0.135	3.79	2.90	1.96	1.50
JsT-Ab-090403-08/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	PMLN5330A leather swvl w/2.75 loop	PMMN4024A RSM	5.69	-0.154	2.82	2.16	1.46	1.12

**Assessments at the Body (CW mode)**

**Assessment of the offered audio accessories (UHF Test Flowchart pg 20 step 6):** The overall highest test configuration from the assessment of the antenna (PMAE4065A) at mid channel, battery (NNTN7037A) and body worn (NTN8266B) accessory sections above was selected to test seven audio accessories listed in section 7.0. The highest SAR result from the table below is provided in APPENDIX F Section 5.0 - UHF Assessment of the offered audio accessories.

Note: Not all audio accessories listed in section 7.0 were tested (e.g. color change, same audio cable and connector).

**TABLE 16**

380-470MHz Band Assessments at Body – Assessment of offered audio accessories												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090406-08/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMMN4024A RSM	5.65	-0.133	9.68	6.27	5.03	3.26
CM-Ab-090406-10/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMMN4062A RSM	5.66	-0.145	8.93	5.79	4.65	3.01
HvH-Ab-090407-02/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMLN5275A Headset	5.65	-0.225	9.37	6.13	4.98	3.26
<b>HvH-Ab-090407-03/Q02KK412</b>	PMAE4065A	425.000	NNTN7037A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	5.63	-0.244	9.53	6.19	5.10	3.31
HvH-Ab-090407-04/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMLN5111A 3 wire	5.66	-0.196	9.16	6.01	4.83	3.17
HvH-Ab-090407-05/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	NTN8266B belt clip	RLN5882A 2 wire	5.66	-0.046	8.15	5.31	4.15	2.70
HvH-Ab-090407-06/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMLN5101A Headset	5.67	-0.255	8.63	5.65	4.60	3.01

**Assessments at the Body (CW mode)**

**Assessment across the frequency bands for each of the offered antennas (UHF Test Flowchart pg 21 step 7):** Using the highest configuration from the body worn (NTN8266B), battery (NNTN7037A) and audio (RMN5058A) testing, each antenna was then tested across the frequency range (low, mid and high). The highest SAR result from the table below is provided in APPENDIX F Section 6.0 - UHF Assessment across the frequency bands for each of the offered antennas.

**TABLE 17**

380-470MHz Band Assessments at Body -Assessment across frequency band for each of the offered antenna												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090408-15/Q02KK412	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	5.55	-0.199	12.04	8.04	6.47	4.32
HvH-Ab-090407-03/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	5.63	-0.244	9.53	6.19	5.10	3.31
HvH-Ab-090409-02/Q02KK412	PMAE4065A	469.988	NNTN7037A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	5.65	-0.335	8.98	5.34	4.89	2.91
HvH-Ab-090427-05/Q02KK412	PMAS4000A	380.013	NNTN7037A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	5.59	-0.385	5.94	3.91	3.31	2.18
HvH-Ab-090504-02/Q02KK412	PMAS4000A	425.000	NNTN7037A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	5.60	-0.194	4.71	3.06	2.51	1.63
HvH-Ab-090409-04/Q02KK412	PMAS4000A	469.988	NNTN7037A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	5.67	-0.211	4.43	2.64	2.34	1.39

**Assessments at the Body (CW mode)**

**Assessment without body worn accessories at 2.5cm (UHF Test Flowchart pg 21 step 8):** All the offered antennas with only the test configuration (antenna PMAE4065A, frequency 380.013MHz, battery NNTN7037A and audio RMN5058A) that indicated the highest SAR result was selected to assess this device at 2.5cm with the front and back of the device facing the phantom. The highest SAR result from the table below is provided in APPENDIX F Section 7.0 - UHF Assessment without body worn accessories at 2.5cm.

Note: The 2.5cm assessments included the following configurations:

- Back of the device facing the phantom, positioned at 2.5cm from the phantom surface. Results for this test configuration may or may not be included depending on the location of the hot spot. If the peak SAR is located on the antenna then SAR result for this configuration would be lower due to increased separation distance.
- Back of the device facing the phantom, the antenna at 2.5cm from the phantom surface. Results for this test configuration may or may not be included depending on the location of the hot spot. This test position would not be applicable for cases where the peak is located on the DUT body and not the antenna.
- Front of the device facing the phantom, at 2.5cm from the phantom surface.

**TABLE 18**

380-470MHz Band Assessments at Body - Assessment at 2.5cm												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090409-07/Q02KK412	PMAE4065A	380.013	NNTN7037A long	Against phantom	None, back of DUT @ 2.5cm	RMN5058A Headset	5.63	-0.308	5.12	3.93	2.78	2.13
CM-Ab-090409-08/Q02KK412	PMAE4065A	380.013	NNTN7037A long	Against phantom	None, front of DUT @ 2.5cm	RMN5058A Headset	5.63	-0.107	4.55	3.55	2.37	1.84
CM-Ab-090409-11/Q02KK412	PMAS4000A	380.013	NNTN7037A long	Against phantom	None, back of DUT @ 2.5cm	RMN5058A Headset	5.66	-0.183	1.98	1.52	1.04	0.80
CM-Ab-090409-09/Q02KK412	PMAS4000A	380.013	NNTN7037A long	Against phantom	None, front of DUT @ 2.5cm	RMN5058A Headset	5.63	-0.093	1.64	1.27	0.85	0.66

**Assessments at the Body (CW mode)**

**Assessment with carry strap (UHF Test Flowchart pg 21 step 9):** Three styles (nylon, leather loop and leather swivel) of carry cases allow for the carry strap NTN5243A to be used. Again, using the SAR highest antenna (PMAE4065A), battery (NNTN7037A) and frequency (380.13MHz) combination each carry case style was tested with the carry strap. Since the carry strap can be positioned on the user’s shoulder each style carry case was tested with the back and each side (PTT side & accessory connector side) against the phantom. These positions are illustrated in Exhibit 7B section 2.1. The highest SAR result from the table below is provided in APPENDIX F Section 8.0 - UHF Assessment with carry strap.

**TABLE 19**

380-470MHz Band Assessments at Body -Assessment of carry strap												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090409-12/Q02KK412	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5328A nylon (long battery)	RMN5058A Headset	5.65	-0.203	5.13	3.92	2.71	2.07
CM-Ab-090410-02/Q02KK412	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5328A nylon (long battery) PTT side	RMN5058A Headset	5.67	-0.170	7.39	5.35	3.86	2.80
CM-Ab-090410-03/Q02KK412	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5328A nylon (long battery) Acc. side	RMN5058A Headset	5.67	-0.276	5.16	3.79	2.76	2.03
CM-Ab-090410-04/Q02KK412	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5329A leather (long battery)	RMN5058A Headset	5.65	-0.190	3.14	2.41	1.66	1.27
<b>CM-Ab-090410-05/Q02KK412</b>	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5329A leather (long battery) PTT side	RMN5058A Headset	5.60	-0.134	7.79	5.64	4.09	2.96
CM-Ab-090410-06/Q02KK412	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5329A leather (long battery) Acc. side	RMN5058A Headset	5.64	-0.362	4.75	3.48	2.61	1.91

Assessments at the Body (CW mode)

TABLE 19 (Continued)

380-470MHz Band Assessments at Body -Assessment of carry strap

Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090410-07/Q02KK412	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5330 A leather swvl w/out loop (long battery)	RMN5058A Headset	5.61	-0.163	6.61	4.18	3.49	2.20
CM-Ab-090410-08/Q02KK412	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5330 A leather swvl w/out loop (long battery) PTT side	RMN5058A Headset	5.67	-0.123	7.12	5.20	3.68	2.69
CM-Ab-090410-09/Q02KK412	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5330 A leather swvl w/out loop (long battery) Acc. side	RMN5058A Headset	5.65	-0.201	6.25	4.58	3.30	2.42

Assessment of the offered Public Safety Mic (PSM) accessories (UHF Test Flowchart pg 21 step 1): Public Safety Mic antenna is not available in the UHF band. No testing required.

**Assessments at the Face (CW mode)**

**Assessment of the offered antennas (UHF Test Flowchart pg 22 step 1):** Each applicable antenna was first tested at the mid channel with a short (NNTN7038A) and long (NNTN7035A) battery along with the front and back of the radio positioned at 2.5cm from the phantom. Note that this product has two microphones, one on the front and one on the back of the DUT and therefore both sides were assessed. The highest SAR result from the table below is provided in APPENDIX F Section 9.0 - UHF Assessment of the offered antennas.

**TABLE 20**

380-470MHz Band Assessments at Face – Assessment of offered antennas with long and short batteries DUT front and back												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Face-090407-07/Q02KK412	PMAE4065A	425.000	NNTN7038A short	Front 2.5cm	None	None	5.65	-0.246	3.82	2.96	2.04	1.58
<b>CM-Face-090407-08/Q02KK412</b>	PMAE4065A	425.000	NNTN7038A short	Back 2.5cm	None	None	5.62	-0.209	4.48	3.45	2.38	1.84
CM-Face-090407-09/Q02KK412	PMAE4065A	425.000	NNTN7035A long	Front 2.5cm	None	None	5.65	-0.060	3.32	2.59	1.70	1.32
CM-Face-090407-11/Q02KK412	PMAE4065A	425.000	NNTN7035A long	Back 2.5cm	None	None	5.66	-0.174	3.57	2.75	1.87	1.44
CM-Face-090407-12/Q02KK412	PMAS4000A	425.000	NNTN7038A short	Front 2.5cm	None	None	5.66	-0.030	1.64	1.27	0.83	0.64
HvH-Face-090408-02/Q02KK412	PMAS4000A	425.000	NNTN7038A short	Back 2.5cm	None	None	5.66	-0.104	1.99	1.53	1.03	0.79
HvH-Face-090408-04/Q02KK412	PMAS4000A	425.000	NNTN7035A long	Front 2.5cm	None	None	5.69	-0.199	1.86	1.45	0.98	0.76
HvH-Face-090408-03/Q02KK412	PMAS4000A	425.000	NNTN7035A long	Back 2.5cm	None	None	5.63	-0.191	2.23	1.71	1.18	0.90

**Assessment of the offered batteries (UHF Test Flowchart pg 22 step 2):** The optional batteries were tested. These tests were conducted at mid channel using the SAR highest antenna (PMAE4065A) and position (back) from Table 20. The highest SAR result from the table below is provided in APPENDIX F Section 10.0 - UHF Assessment of the offered batteries.

**TABLE 21**

380-470MHz Band Assessments at Face – Assessment of offered batteries												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
<b>CM-Face-090407-08/Q02KK412</b>	PMAE4065A	425.000	NNTN7038A short	Back 2.5cm	None	None	5.62	-0.209	4.48	3.45	2.38	1.84
HvH-Face-090408-08/Q02KK412	PMAE4065A	425.000	NNTN7033A long	Back 2.5cm	None	None	5.68	-0.221	3.62	2.77	1.91	1.46
HvH-Face-090408-06/Q02KK412	PMAE4065A	425.000	NNTN7034A long	Back 2.5cm	None	None	5.70	-0.533	3.66	2.81	2.07	1.59
CM-Face-090407-11/Q02KK412	PMAE4065A	425.000	NNTN7035A long	Back 2.5cm	None	None	5.66	-0.174	3.57	2.75	1.87	1.44
HvH-Face-090408-07/Q02KK412	PMAE4065A	425.000	NNTN7037A long	Back 2.5cm	None	None	5.68	-0.174	4.01	3.07	2.09	1.60

**Assessments at the Face (CW mode)**

**Assessment of “receive only” audio accessories (UHF Test Flowchart pg 22 step 3):** The antenna (PMAE4065A), battery (NNTN7038A) and position (back) with the highest SAR was selected to assess “receive only” audio RLN5879A. The highest SAR result from the table below is provided in APPENDIX F Section 11.0 - UHF Assessment of “receive only” audio accessories.

**TABLE 22**

380-470MHz Band Assessments at Face – Assessment of offered audio accessory												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Face-090408-09/Q02KK412	PMAE4065A	425.000	NNTN7038A short	Back 2.5cm	None	RLN5879A	5.69	-0.118	4.09	3.11	2.11	1.60

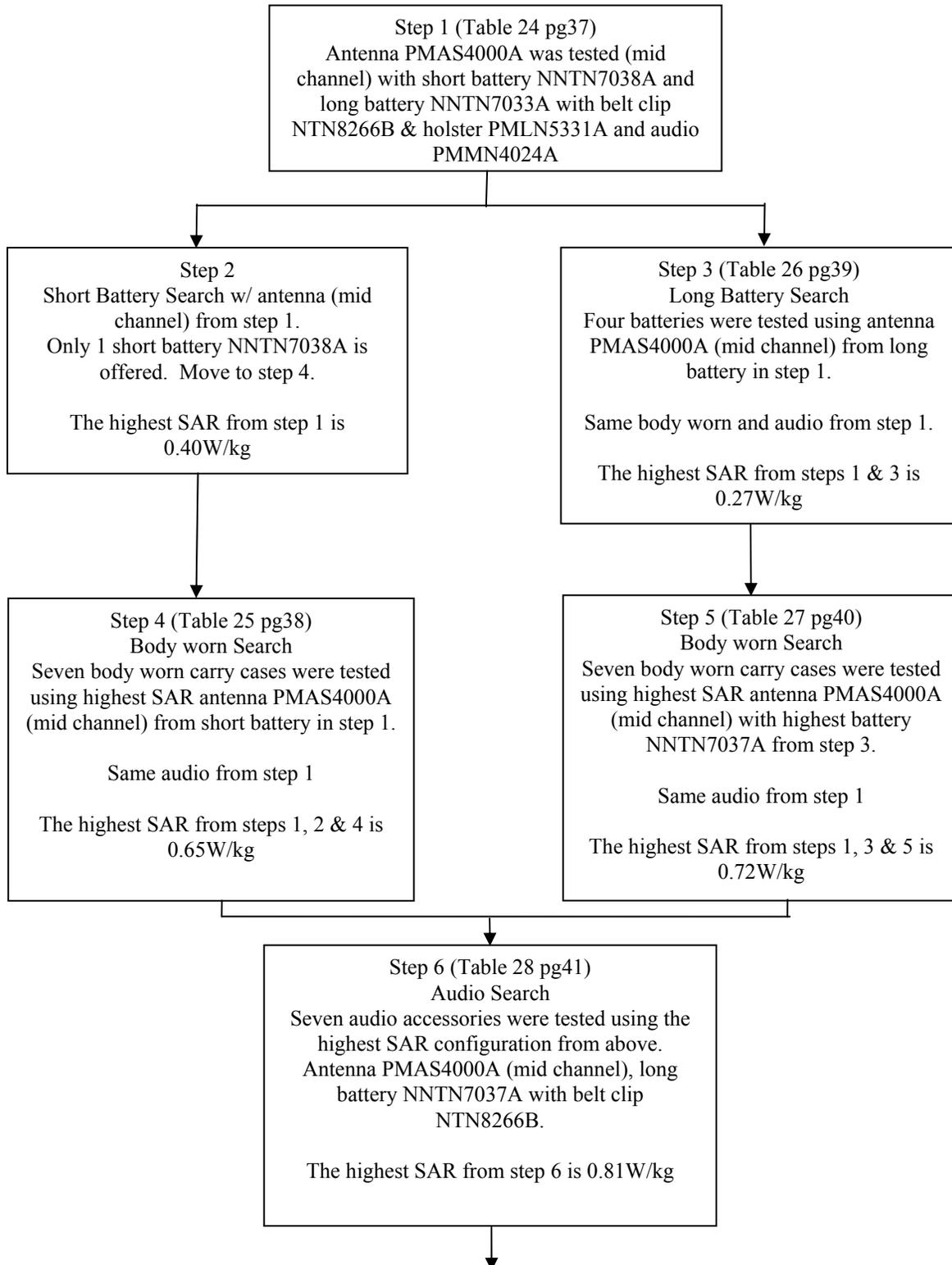
**Assessment across the frequency band for each of the offered antenna (UHF Test Flowchart pg 22 step 4):** The battery (NNTN7038A) and position (back) with the highest SAR was selected to assess each antenna across the frequency range (low, mid and high). The highest SAR result from the table below is provided in APPENDIX F Section 12.0 - UHF Assessment across the frequency band for each of the offered antenna.

**TABLE 23**

380-470MHz Band Assessments at Face – Assessment across frequency band for each of the offered antenna												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Face-090408-10/Q02KK412	PMAE4065A	380.013	NNTN7038A short	Back 2.5cm	None	None	5.53	-0.412	8.17	6.22	4.63	3.53
CM-Face-090407-08/Q02KK412	PMAE4065A	425.000	NNTN7038A short	Back 2.5cm	None	None	5.62	-0.209	4.48	3.45	2.38	1.84
CM-Face-090408-11/Q02KK412	PMAE4065A	469.988	NNTN7038A short	Back 2.5cm	None	None	5.63	-0.324	3.22	2.45	1.76	1.34
CM-Face-090408-12/Q02KK412	PMAS4000A	380.013	NNTN7038A short	Back 2.5cm	None	None	5.67	-0.281	3.11	2.36	1.67	1.26
HvH-Face-090408-02/Q02KK412	PMAS4000A	425.000	NNTN7038A short	Back 2.5cm	None	None	5.66	-0.104	1.99	1.53	1.03	0.79
HvH-Face-090411-02/Q02KK412	PMAS4000A	469.988	NNTN7038A short	Back 2.5cm	None	None	5.69	-0.253	1.74	1.33	0.92	0.71

### 13.3 770MHz Test Flowchart Data Summary

770MHz Band (764-776MHz)  
DUT Body Test Methodology



770MHz Band (764-776MHz)  
DUT Body Test Methodology  
(Continued)

Step 7 (Table 29 pg42)  
Frequency Search Across antenna  
PMAS4000A with the highest SAR  
configuration from above.  
  
The highest SAR from step 7 is 0.82W/kg



Step 8 (Table 30 pg43)  
2.5cm testing with antenna PMAS4000A  
using the highest SAR frequency, battery and  
audio accessory from above.  
  
The highest SAR from step 8 is 1.30W/kg



Step 9 (Table 31 pg44)  
Carry / Shoulder Strap Testing  
using highest SAR antenna, frequency, battery  
and audio with the applicable body worn carry  
case (PMLN5328A, PMLN5329A &  
PMLN5330A)  
  
The highest SAR from step 9 is 0.77W/kg

**The highest 770MHz band body SAR from  
above is 1.30W/kg**

770 Band (764-776MHz)  
PSM Body Test Methodology

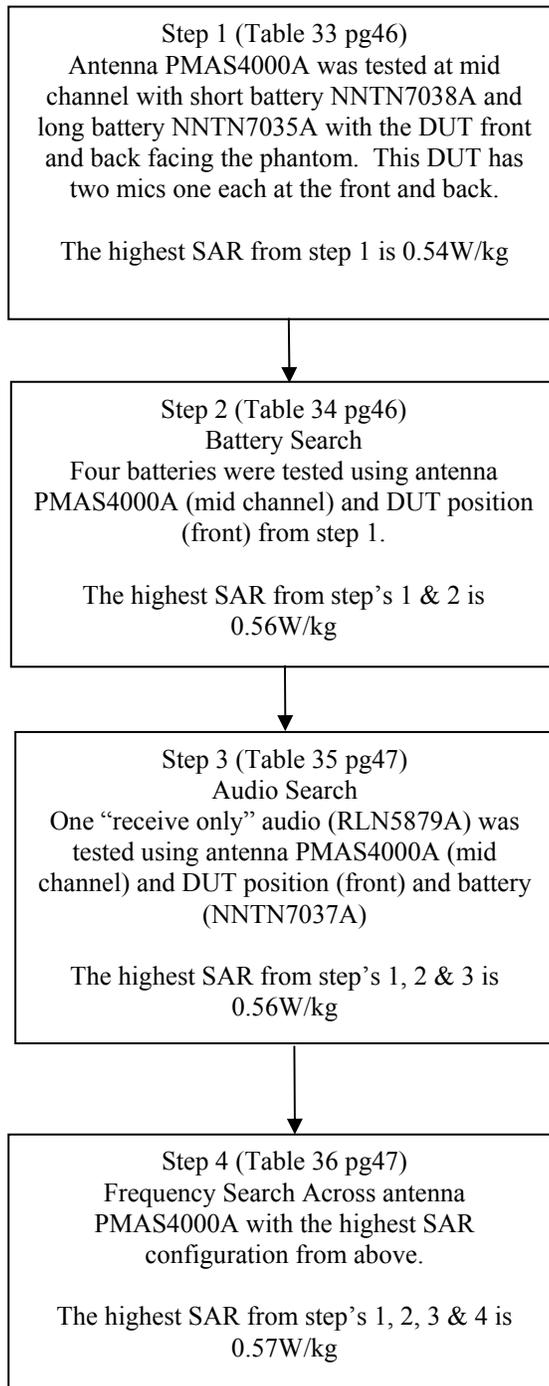
Step 1 (Table 32 pg45)  
Each PSM was tested using antenna  
PMAF4002A (mid channel) and the overall  
highest battery from DUT body testing.  
  
The highest SAR from step 1 is 3.50W/kg



Step 2 (Table 32 pg45)  
Frequency Search Across antenna  
PMAF4002A with the highest SAR  
configuration from above.  
  
The highest SAR from step 2 is 3.85W/kg

**The highest 770MHz band PSM SAR from  
above is 3.85W/kg**

770MHz Band (764-776MHz)  
 DUT Face Test Methodology



**The highest 770MHz band Face SAR from above is 0.57W/kg**

**13.4 770MHz Test Data**

**Assessments at the Body (CW mode)**

**Assessment of the offered antenna (770MHz Test Flowchart pg 34 step 1):** Antenna PMAS4000A was first tested at the center frequency with short battery (NNTN7038A) and long battery (NNTN7033A) to determine the antenna and battery combination that would result in the highest SAR. This configuration included body worn (NTN8266B belt clip and PMLN5331A plastic holster combination) and audio accessory (PMMN4024A). All SAR plots from the table below are included in APPENDIX F section 13.0 - 770MHz Assessment of the offered antenna.

**TABLE 24**

764-776MHz Band Assessments at Body – Assessment of offered antenna with short and long battery												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090411-04/Q02KK412	PMAS4000A	770.000	NNTN7038A short	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	2.93	-0.099	0.76	0.57	0.40	0.30
HvH-Ab-090411-11/Q02KK412	PMAS4000A	770.000	NNTN7033A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	2.94	-0.111	0.50	0.34	0.26	0.18

**Assessments at the Body (CW mode)**

**Assessment of the offered body worn accessories for short battery (770MHz Test Flowchart pg 34 step 4);** The set of body worn accessories only applicable to the short battery as outlined in section 7.0 were tested. These tests were conducted at mid channel using the antenna (PMAS4000A) and short battery (NNTN7038A) from TABLE 24 along with the same audio (PMMN4024A). The highest SAR result from the table below is provided in APPENDIX F Section 14.0 – 770MHz Assessment of the offered body worn accessories for short battery.

Note that not all body worn accessories were tested. Section 7.0 includes detailed explanations for the accessories not tested (e.g. same metallic content and increased separation distance).

**TABLE 25**

764-776MHz Band Assessments at Body – Assessment of offered body worn accessories with short battery												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090411-04/Q02KK412	PMAS4000A	770.000	NNTN7038A short	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	2.93	-0.099	0.76	0.57	0.40	0.30
HvH-Ab-090411-05/Q02KK412	PMAS4000A	770.000	NNTN7038A short	Against phantom	HLN6875A belt clip w/ PMLN5331A holster	PMMN4024A RSM	2.93	-0.186	0.57	0.43	0.30	0.23
<b>HvH-Ab-090411-06/Q02KK412</b>	PMAS4000A	770.000	NNTN7038A short	Against phantom	NTN8266B belt clip	PMMN4024A RSM	2.94	-0.065	1.26	0.74	0.65	0.38
HvH-Ab-090411-07/Q02KK412	PMAS4000A	770.000	NNTN7038A short	Against phantom	HLN6875A belt clip	PMMN4024A RSM	2.93	-0.241	0.84	0.62	0.45	0.34
HvH-Ab-090411-08/Q02KK412	PMAS4000A	770.000	NNTN7038A short	Against phantom	PMLN5322A nylon	PMMN4024A RSM	2.94	-0.315	0.71	0.53	0.39	0.29
HvH-Ab-090411-09/Q02KK412	PMAS4000A	770.000	NNTN7038A short	Against phantom	PMLN5323A leather	PMMN4024A RSM	2.93	-0.300	0.55	0.41	0.30	0.22
HvH-Ab-090411-10/Q02KK412	PMAS4000A	770.000	NNTN7038A short	Against phantom	PMLN5324A leather swvl w/2.75 loop	PMMN4024A RSM	2.93	-0.010	0.27	0.20	0.14	0.10

**Assessments at the Body (CW mode)**

**Assessment of the offered long batteries (770MHz Test Flowchart pg 34 step 3);** The optional long batteries were tested. These tests were conducted at mid channel using the antenna (PMAS4000A) and long battery (NNTN7033A) from TABLE 24 along with the same audio (PMMN4024A). The highest SAR result from the table below is provided in APPENDIX F Section 15.0 – 770MHz Assessment of the offered long batteries.

Note that not all battery accessories were tested. Section 7.0 includes detailed explanations for the accessories not tested (e.g. battery’s that are built the same but under go additional environmental testing).

**TABLE 26**

764-776MHz Band Assessments at Body – Assessment of offered long batteries												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090411-11/Q02KK412	PMAS4000A	770.000	NNTN7033A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	2.94	-0.111	0.50	0.34	0.26	0.18
CM-Ab-090411-13/Q02KK412	PMAS4000A	770.000	NNTN7034A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	2.94	-0.117	0.48	0.33	0.25	0.17
HvH-Ab-090413-02/Q02KK412	PMAS4000A	770.000	NNTN7035A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	2.92	-0.166	0.49	0.34	0.26	0.18
<b>CM-Ab-090411-14/Q02KK412</b>	PMAS4000A	770.000	NNTN7037A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	2.92	-0.139	0.51	0.34	0.27	0.18

**Assessments at the Body (CW mode)**

**Assessment of the offered body worn accessories for long battery (770MHz Test Flowchart pg 34 step 5);** The set of body worn accessories only applicable to the long battery as outlined in section 7.0 were tested. These tests were conducted at mid channel using the antenna (PMAS4000A) and long battery (NNTN7037A) from TABLES 24 & 26 along with the same audio (PMMN4024A). The highest SAR result from the table below is provided in APPENDIX F Section 16.0 - Assessment of the offered body worn accessories for long battery.

Note that not all body worn accessories were tested. Section 7.0 includes detailed explanations for the accessories not tested (e.g. same metallic content and increased separation distance).

**TABLE 27**

**764-776MHz Band Assessments at Body – Assessment of offered body worn accessories with long battery**

Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090411-14/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	2.92	-0.139	0.51	0.34	0.27	0.18
CM-Ab-090411-16/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	HLN6875A belt clip w/ PMLN5331A holster	PMMN4024A RSM	2.92	-0.192	0.51	0.37	0.27	0.20
<b>CM-Ab-090411-17/Q02KK412</b>	PMAS4000A	770.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMMN4024A RSM	2.98	-0.155	1.39	0.97	0.72	0.51
CM-Ab-090411-18/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	HLN6875A belt clip	PMMN4024A RSM	2.94	-0.214	0.62	0.44	0.33	0.24
HvH-Ab-090413-03/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	PMLN5328A nylon	PMMN4024A RSM	2.93	-0.269	0.46	0.34	0.25	0.19
HvH-Ab-090413-04/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	PMLN5329A leather	PMMN4024A RSM	2.91	-0.341	0.37	0.27	0.20	0.15
HvH-Ab-090413-05/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	PMLN5330A leather swvl w/2.75 loop	PMMN4024A RSM	2.92	-0.343	0.27	0.20	0.15	0.11

**Assessments at the Body (CW mode)**

**Assessment of the offered audio accessories (770MHz Test Flowchart pg 34 step 6):** The overall highest test configuration from the assessment of the antenna (PMAS4000A) at mid channel, battery (NNTN7037A) and body worn (NTN8266B) accessory sections above was selected to evaluate all the other 10 audio accessories listed in section 7.0 of the report. The highest SAR result from the table below is provided in APPENDIX F Section 17.0 – 770MHz Assessment of the offered audio accessories

Note: Not all audio accessories listed in section 7.0 were tested (e.g. color change, same audio cable and connector).

**TABLE 28**

764-776MHz Band Assessments at Body – Assessment of offered audio accessories												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090411-17/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMMN4024A RSM	2.98	-0.155	1.39	0.97	0.72	0.51
HvH-Ab-090413-07/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMMN4062A RSM	2.92	-0.109	1.42	1.00	0.75	0.52
<b>HvH-Ab-090413-08/Q02KK412</b>	PMAS4000A	770.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMLN5275A Headset	2.94	-0.138	1.55	1.11	0.81	0.58
CM-Ab-090413-12/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	2.94	-0.162	1.48	1.06	0.78	0.56
CM-Ab-090413-13/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMLN5111A 3 wire	2.94	-0.039	1.44	1.01	0.74	0.52
CM-Ab-090413-14/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	NTN8266B belt clip	RLN5882A 2 wire	2.91	-0.073	1.50	1.01	0.78	0.53
CM-Ab-090413-15/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMLN5101A Headset	2.92	-0.069	1.47	1.05	0.76	0.55

**Assessments at the Body (CW mode)**

**Assessment across the frequency band for the offered antenna (770MHz Test Flowchart pg 35 step 7):** Using the highest configuration from the body worn (NTN8266B), battery (NNTN7037A) and audio (PMLN5275A) testing, antenna PMAS4000A was then tested across the frequency range (low, mid and high). The highest SAR result from the table below is provided in APPENDIX F Section 18.0 Assessment across the frequency band for the offered antenna.

**TABLE 29**

764-776MHz Band Assessments at Body -Assessment across frequency band for the offered antenna												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090413-08/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Against phantom	NTN8266B belt clip	PMLN5275A Headset	2.94	-0.138	1.55	1.11	0.81	0.58
HvH-Ab-090414-02/Q02KK412	PMAS4000A	764.013	NNTN7037A long	Against phantom	NTN8266B belt clip	PMLN5275A Headset	2.94	-0.117	1.26	0.89	0.66	0.46
<b>HvH-Ab-090414-03/Q02KK412</b>	PMAS4000A	775.988	NNTN7037A long	Against phantom	NTN8266B belt clip	PMLN5275A Headset	2.98	-0.119	1.60	1.13	0.82	0.58

**Assessments at the Body (CW mode)**

**Assessment without body worn accessories at 2.5cm (770MHz Test Flowchart pg 35 step 8):** The offered antenna with only the test configuration (antenna PMAS4000A, frequency 775.988MHz, battery NNTN7037A and audio PMLN5275A cable) that indicated the highest SAR result was selected to assess this device at 2.5cm with the front and back of the device facing the phantom. The highest SAR result from the table below is provided in APPENDIX F Section 19.0 – 770MHz Assessment without body worn accessories at 2.5cm.

Note: The 2.5cm assessments included the following configurations:

- Back of the device facing the phantom, positioned at 2.5cm from the phantom surface. Results for this test configuration may or may not be included depending on the location of the hot spot. If the peak SAR is located on the antenna then SAR result for this configuration would be lower due to increased separation distance.
- Back of the device facing the phantom, the antenna at 2.5cm from the phantom surface. Results for this test configuration may or may not be included depending on the location of the hot spot. This test position would not be applicable for cases where the peak is located on the DUT body and not the antenna.
- Front of the device facing the phantom, at 2.5cm from the phantom surface.

**TABLE 30**

764-776MHz Band Assessments at Body - Assessment at 2.5cm												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090414-04/Q02KK412	PMAS4000A	775.988	NNTN7037A long	Against phantom	None, back of DUT w/ antenna @ 2.5cm	PMLN5275A Headset	2.96	-0.479	2.30	1.67	1.30	0.94
HvH-Ab-090414-05/Q02KK412	PMAS4000A	775.988	NNTN7037A long	Against phantom	None, front of DUT @ 2.5cm	PMLN5275A Headset	2.95	-0.871	0.62	0.47	0.38	0.29

**Assessments at the Body (CW mode)**

**Assessment with carry strap (770MHz Test Flowchart pg 35 step 9):** Three styles (nylon, leather loop and leather swivel) of carry cases allow for the carry strap NTN5243A to be used. Again, using the SAR highest antenna (PMAS4000A), frequency (775.988MHz), battery (NNTN7037A) and audio cable (PMLN5275A) combination each carry case style was tested with the carry strap. Since the carry strap can be positioned on the user’s shoulder each style carry case was tested with the back and each side (PTT side & accessory connector side) against the phantom. These positions are illustrated in Exhibit 7B section 2.1. The highest SAR result from the table below is provided in APPENDIX F Section 20.0 – 770MHz Assessment with carry strap.

**TABLE 31**

764-776MHz Band Assessments at Body -Assessment of carry strap												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090414-06/Q02KK412	PMAS4000A	775.988	NNTN7037A long	Against phantom	NTN5243A with PMLN5328 A nylon	PMLN5275A Headset	2.96	-0.236	0.33	0.24	0.17	0.13
HvH-Ab-090414-07/Q02KK412	PMAS4000A	775.988	NNTN7037A long	Against phantom	NTN5243A with PMLN5328 A nylon PTT side	PMLN5275A Headset	2.95	-0.108	0.37	0.26	0.19	0.14
HvH-Ab-090414-08/Q02KK412	PMAS4000A	775.988	NNTN7037A long	Against phantom	NTN5243A with PMLN5328 A nylon Accessory side	PMLN5275A Headset	2.94	-0.310	0.43	0.32	0.24	0.17
CM-Ab-090414-09/Q02KK412	PMAS4000A	775.988	NNTN7037A long	Against phantom	NTN5243A with PMLN5329 A leather	PMLN5275A Headset	2.95	-0.476	0.24	0.18	0.14	0.10
CM-Ab-090414-10/Q02KK412	PMAS4000A	775.988	NNTN7037A long	Against phantom	NTN5243A with PMLN5329 A leather PTT side	PMLN5275A Headset	2.96	-0.063	0.40	0.21	0.20	0.11
CM-Ab-090414-11/Q02KK412	PMAS4000A	775.988	NNTN7037A long	Against phantom	NTN5243A with PMLN5329 A leather Accessory side	PMLN5275A Headset	2.95	-0.253	0.42	0.32	0.23	0.17

Assessments at the Body (CW mode)

TABLE 31 (Continued)

764-776MHz Band Assessments at Body -Assessment of carry strap												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090414-12/Q02KK412	PMAS4000A	775.988	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5330 A leather swvl w/out loop	PMLN5275A Headset	2.95	-0.003	1.52	1.05	0.77	0.53
CM-Ab-090414-13/Q02KK412	PMAS4000A	775.988	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5330 A leather swvl w/out loop PTT side	PMLN5275A Headset	2.92	-0.254	0.82	0.59	0.45	0.32
HvH-Ab-090415-02/Q02KK412	PMAS4000A	775.988	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5330 A leather swvl w/out loop Accessory side	PMLN5275A Headset	2.94	-0.375	0.84	0.59	0.46	0.33

**Assessment of the offered Public Safety Mic (PSM) accessories (770MHz Test Flowchart pg 35 steps 1 & 2):** Only antenna PMAE4002A is available for PSM. Each PSM was tested at mid channel using the overall highest SAR battery (NNTN7037A) from the body. The highest PSM (PMMN4061A) was then tested at the low and high channels. The highest SAR result from the table below is provided in APPENDIX F Section 21.0 - 770MHz Assessment of the offered Public Safety Mic (PSM) accessories.

TABLE 32

764-776MHz Band Assessments at Body -Assessment of public safety mic (PSM)												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090415-03/Q02KK412	PMAF4002A	770.000	NNTN7037A long	Against phantom	PSM clip	PMMN4059A PSM	2.95	-0.130	4.36	2.89	2.28	1.51
HvH-Ab-090415-04/Q02KK412	PMAF4002A	770.000	NNTN7037A long	Against phantom	PSM clip	PMMN4060A PSM	2.76	-0.165	4.01	2.50	2.26	1.41
HvH-Ab-090415-05/Q02KK412	PMAF4002A	770.000	NNTN7037A long	Against phantom	PSM clip	PMMN4061A PSM	2.66	-0.135	6.04	3.95	3.50	2.29
Assessment across frequency band for the offered PSM antenna												
HvH-Ab-090415-06/Q02KK412	PMAF4002A	764.013	NNTN7037A long	Against phantom	PSM clip	PMMN4061A PSM	2.57	-0.129	5.90	3.89	3.54	2.33
HvH-Ab-090415-07/Q02KK412	PMAF4002A	775.988	NNTN7037A long	Against phantom	PSM clip	PMMN4061A PSM	2.72	-0.136	6.78	4.49	3.85	2.55

**Assessments at the Face (CW mode)**

**Assessment of the offered antenna (770MHz Test Flowchart pg 36 step 1):** Antenna PMAS4000A was first tested at the mid channel with a short (NNTN7038A) and long (NNTN7035A) battery along with the front and back of the radio positioned at 2.5cm from the phantom. Note that this product has two microphones, one on the front and one on the back of the DUT and therefore both sides were assessed. The highest SAR result from the table below is provided in APPENDIX F Section 22.0 – 770MHz Assessment of the offered antenna.

**TABLE 33**

764-776MHz Band Assessments at Face – Assessment of offered antenna with long and short batteries DUT front and back												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Face-090421-09/Q02KK412	PMAS4000A	770.000	NNTN7038A short	Front 2.5cm	None	None	2.96	-0.246	0.49	0.36	0.26	0.19
CM-Face-090421-10/Q02KK412	PMAS4000A	770.000	NNTN7038A short	Back 2.5cm	None	None	2.99	-0.109	0.42	0.32	0.22	0.16
<b>CM-Face-090421-12/Q02KK412</b>	PMAS4000A	770.000	NNTN7035A long	Front 2.5cm	None	None	2.95	-0.274	1.00	0.74	0.54	0.40
CM-Face-090421-13/Q02KK412	PMAS4000A	770.000	NNTN7035A long	Back 2.5cm	None	None	2.98	-0.057	0.73	0.55	0.37	0.28

**Assessment of the offered batteries (770MHz Test Flowchart pg 36 step 2):** The optional batteries were tested. These tests were conducted at mid channel using the SAR highest antenna (PMAS4000A) and position (front) from Table 33. The highest SAR result from the table below is provided in APPENDIX F Section 23.0 Assessment of the offered batteries.

**TABLE 34**

764-776MHz Band Assessments at Face – Assessment of offered batteries												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Face-090421-12/Q02KK412	PMAS4000A	770.000	NNTN7035A long	Front 2.5cm	None	None	2.95	-0.274	1.00	0.74	0.54	0.40
CM-Face-090421-14/Q02KK412	PMAS4000A	770.000	NNTN7033A long	Front 2.5cm	None	None	2.95	-0.116	0.85	0.63	0.44	0.33
CM-Face-090421-15/Q02KK412	PMAS4000A	770.000	NNTN7034A long	Front 2.5cm	None	None	2.96	-0.213	1.04	0.76	0.55	0.40
<b>CM-Face-090421-16/Q02KK412</b>	PMAS4000A	770.000	NNTN7037A long	Front 2.5cm	None	None	2.95	-0.305	1.03	0.76	0.56	0.41
HvH-Face-090421-09/Q02KK412	PMAS4000A	770.000	NNTN7038A short	Front 2.5cm	None	None	2.96	-0.246	0.49	0.36	0.26	0.19

**Assessments at the Face (CW mode)**

**Assessment of “receive only” audio accessories (770MHz Test Flowchart pg 36 step 3):** The antenna (PMAS4000A), battery (NNTN7037A) and position (front) with the highest SAR was selected to assess “receive only” audio RLN5879A. The highest SAR result from the table below is provided in APPENDIX F Section 24.0 – 770MHz Assessment of “receive only” audio accessories.

**Table 35**

764-776MHz Band Assessments at Face – Assessment of offered audio accessory												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Face-090421-17/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Front 2.5cm	None	RLN5879A	2.96	-0.221	0.78	0.58	0.42	0.31

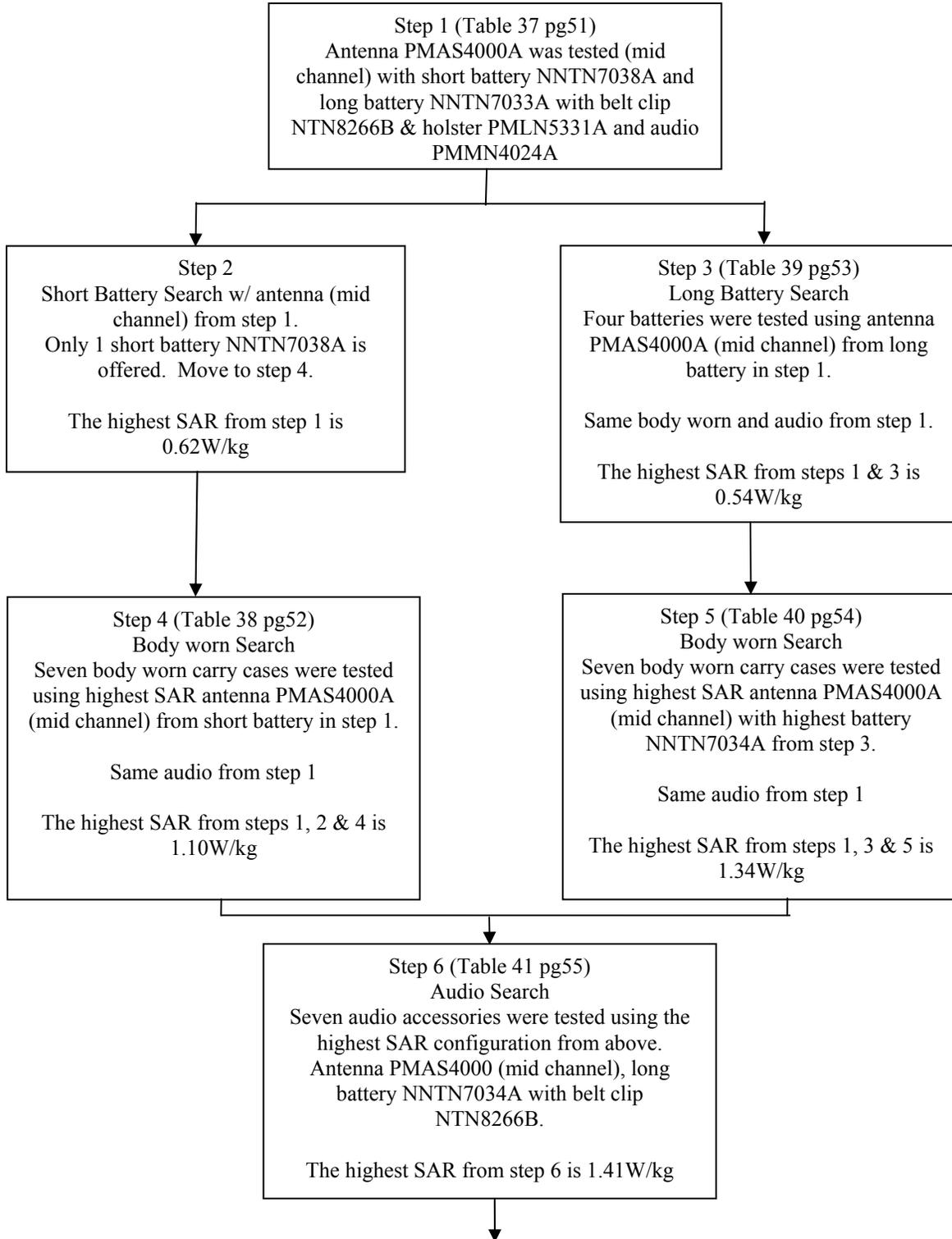
**Assessment across the frequency band for offered antenna (770MHz Test Flowchart pg 36 step 4):** The battery (NNTN7037A) and position (front) with the highest SAR was selected to assess antenna (PMAS4000A) across the frequency range (low, mid and high). The highest SAR result from the table below is provided in APPENDIX F Section 25.0 – 770MHz Assessment across the frequency band for offered antenna

**TABLE 36**

764-776MHz Band Assessments at Face – Assessment across frequency band for the offered antenna												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Face-090421-16/Q02KK412	PMAS4000A	770.000	NNTN7037A long	Front 2.5cm	None	None	2.95	-0.305	1.03	0.76	0.56	0.41
CM-Face-090421-18/Q02KK412	PMAS4000A	764.013	NNTN7037A long	Front 2.5cm	None	None	2.96	-0.237	1.01	0.74	0.54	0.40
CM-Face-090421-19/Q02KK412	PMAS4000A	775.988	NNTN7037A long	Front 2.5cm	None	None	2.96	-0.337	1.04	0.76	0.57	0.42

### 13.5 809MHz Test Flowchart Data Summary

809MHz Band (794-824MHz)  
DUT Body Test Methodology



809MHz Band (794-824MHz)  
 DUT Body Test Methodology  
 (Continued)

Step 7 (Table 42 pg56)  
 Frequency Search Across antenna  
 PMAS4000A with the highest SAR  
 configuration from above.  
 The highest SAR from step 7 is 1.41W/kg



Step 8 (Table 43 pg57)  
 2.5cm testing with antenna PMAS4000A  
 using the highest SAR frequency, battery and  
 audio accessory from above.  
 The highest SAR from step 8 is 1.36W/kg



Step 9 (Table 44 pg58)  
 Carry / Shoulder Strap Testing  
 using highest SAR antenna, frequency, battery  
 and audio with the applicable body worn carry  
 case (PMLN5328A, PMLN5329A &  
 PMLN5330A)  
 The highest SAR from step 9 is 1.32W/kg

**The highest 809MHz band body SAR from  
 above is 1.41W/kg**

809 Band (794-824MHz)  
 PSM Body Test Methodology

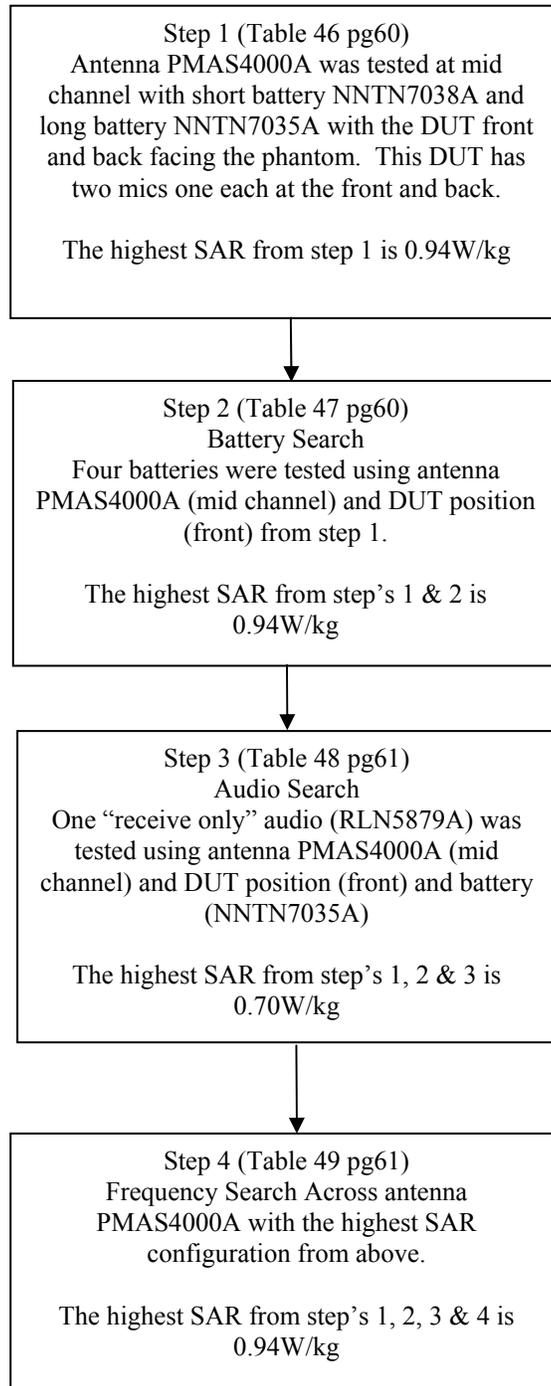
Step 1 (Table 45 pg59)  
 Each PSM was tested using antenna  
 PMAF4002A (mid channel) and the overall  
 highest battery from DUT body testing.  
 The highest SAR from step 1 is 3.71W/kg



Step 2 (Table 45 pg59)  
 Frequency Search Across antenna  
 PMAF4002A with the highest SAR  
 configuration from above.  
 The highest SAR from step 2 is 3.18W/kg

**The highest 809MHz band PSM SAR from  
 above is 3.71W/kg**

809MHz Band (794-824MHz)  
DUT Face Test Methodology



**The highest 809MHz band Face SAR from above is 0.94W/kg**

**13.6 809MHz Test Data**

**Assessments at the Body (CW mode)**

**Assessment of the offered antenna (809MHz Test Flowchart pg 48 step 1):** Antenna PMAS4000A was first tested at the center frequency with short battery (NNTN7038A) and long battery (NNTN7033A) to determine the antenna and battery combination that would result in the highest SAR. This configuration included body worn (NTN8266B belt clip and PMLN5331A plastic holster combination) and audio accessory (PMMN4024A). All SAR plots from the table below are included in APPENDIX F Section 26.0 – 809MHz Assessment of the offered antenna

As noted in section 6.0 the 794-806MHz & 806-824MHz bands were combined into one band 794-824MHz. The circuitry for the two bands are the same and only differ by power restrictions, 3W (794-806MHz) and 3.6W (806-824MHz), which is controlled by software. Therefore the center channel used for testing was 809MHz which is in the higher output power band.

**TABLE 37**

794-824MHz Band Assessments at Body – Assessment of offered antenna with short and long battery												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090415-08/Q02KK412	PMAS4000A	809.000	NNTN7038A short	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.59	-0.379	1.12	0.84	0.62	0.46
CM-Ab-090415-15/Q02KK412	PMAS4000A	809.000	NNTN7033A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.58	-0.320	0.99	0.69	0.54	0.37

**Assessments at the Body (CW mode)**

**Assessment of the offered body worn accessories for short battery (809MHz Test Flowchart pg 48 step 4);** The set of body worn accessories only applicable to the short battery as outlined in section 7.0 were tested. These tests were conducted at mid channel using the antenna (PMAS4000A) and short battery (NNTN7038A) from TABLE 37 along with the same audio (PMMN4024A). The highest SAR result from the table below is provided in APPENDIX F Section 27.0 - 809MHz Assessment of the offered body worn accessories for short battery.

Note that not all body worn accessories were tested. Section 7.0 includes detailed explanations for the accessories not tested (e.g. same metallic content and increased separation distance).

**TABLE 38**

794-824MHz Band Assessments at Body – Assessment of offered body worn accessories with short battery												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090415-08/Q02KK412	PMAS4000A	809.000	NNTN7038A short	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.59	-0.379	1.12	0.84	0.62	0.46
CM-Ab-090415-09/Q02KK412	PMAS4000A	809.000	NNTN7038A short	Against phantom	HLN6875A belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.57	-0.291	0.88	0.66	0.47	0.35
<b>CM-Ab-090415-10/Q02KK412</b>	PMAS4000A	809.000	NNTN7038A short	Against phantom	NTN8266B belt clip	PMMN4024A RSM	3.58	-0.272	2.06	1.35	1.10	0.72
CM-Ab-090415-11/Q02KK412	PMAS4000A	809.000	NNTN7038A short	Against phantom	HLN6875A belt clip	PMMN4024A RSM	3.57	-0.307	1.38	1.02	0.75	0.55
CM-Ab-090415-12/Q02KK412	PMAS4000A	809.000	NNTN7038A short	Against phantom	PMLN5322A nylon	PMMN4024A RSM	3.58	-0.337	1.20	0.90	0.65	0.49
CM-Ab-090415-13/Q02KK412	PMAS4000A	809.000	NNTN7038A short	Against phantom	PMLN5323A leather	PMMN4024A RSM	3.56	-0.289	0.92	0.69	0.50	0.37
CM-Ab-090415-14/Q02KK412	PMAS4000A	809.000	NNTN7038A short	Against phantom	PMLN5324A leather swvl w/2.75 loop	PMMN4024A RSM	3.56	-0.544	0.50	0.38	0.29	0.22

**Assessments at the Body (CW mode)**

**Assessment of the offered long batteries (809MHz Test Flowchart pg 48 step 3);** The optional long batteries were tested. These tests were conducted at mid channel using the antenna (PMAS4000A) and long battery (NNTN7033A) from TABLE 37 along with the same audio (PMMN4024A). The highest SAR result from the table below is provided in APPENDIX F Section 28.0 – 809MHz Assessment of the offered long batteries.

Note that not all battery accessories were tested. Section 7.0 includes detailed explanations for the accessories not tested (e.g. battery’s that are built the same but under go additional environmental testing).

**TABLE 39**

794-824MHz Band Assessments at Body – Assessment of offered long batteries												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090415-15/Q02KK412	PMAS4000A	809.000	NNTN7033A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.58	-0.320	0.99	0.69	0.54	0.37
<b>HvH-Ab-090416-02/Q02KK412</b>	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.59	-0.475	1.01	0.69	0.56	0.38
HvH-Ab-090416-03/Q02KK412	PMAS4000A	809.000	NNTN7035A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.58	-0.280	0.95	0.64	0.51	0.35
HvH-Ab-090416-04/Q02KK412	PMAS4000A	809.000	NNTN7037A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.58	-0.322	0.97	0.66	0.54	0.36

**Assessments at the Body (CW mode)**

**Assessment of the offered body worn accessories for long battery (809MHz Test Flowchart pg 48 step 5);** The set of body worn accessories only applicable to the long battery as outlined in section 7.0 were tested. These tests were conducted at mid channel using the antenna (PMAS4000A) and long battery (NNTN7034A) from TABLES 37 & 39 along with the same audio (PMMN4024A). The highest SAR result from the table below is provided in APPENDIX F Section 29.0 – 809MHz Assessment of the offered body worn accessories for long battery.

Note that not all body worn accessories were tested. Section 7.0 includes detailed explanations for the accessories not tested (e.g. same metallic content and increased separation distance).

**TABLE 40**

794-824MHz Band Assessments at Body – Assessment of offered body worn accessories with long battery												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090416-02/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.59	-0.475	1.01	0.69	0.56	0.38
CM-Ab-090416-05/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	HLN6875A belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.57	-0.333	0.52	0.39	0.28	0.21
<b>CM-Ab-090416-06/Q02KK412</b>	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN8266B belt clip	PMMN4024A RSM	3.56	-0.257	2.51	1.76	1.34	0.94
CM-Ab-090416-07/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	HLN6875A belt clip	PMMN4024A RSM	3.55	-0.350	0.62	0.46	0.34	0.25
CM-Ab-090416-08/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	PMLN5328A nylon	PMMN4024A RSM	3.57	-0.551	0.68	0.51	0.39	0.29
HvH-Ab-090417-02/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	PMLN5329A leather	PMMN4024A RSM	3.58	-0.336	0.51	0.38	0.28	0.21
HvH-Ab-090417-03/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	PMLN5330A leather swvl w/2.75 loop	PMMN4024A RSM	3.58	-0.280	0.29	0.21	0.15	0.11

**Assessments at the Body (CW mode)**

**Assessment of the offered audio accessories (809MHz Test Flowchart pg 48 step 6):** The overall highest test configuration from the assessment of the antenna (PMAS4000A) at mid channel, battery (NNTN7034A) and body worn (NTN8266B) accessory sections above was selected to evaluate all the other 10 audio accessories listed in section 7.0 of the report. The highest SAR result from the table below is provided in APPENDIX F Section 30.0 - 809MHz Assessment of the offered audio accessories.

Note: Not all audio accessories listed in section 7.0 were tested (e.g. color change, same audio cable and connector).

**TABLE 41**

794-824MHz Band Assessments at Body – Assessment of offered audio accessories												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090416-06/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN8266B belt clip	PMMN4024A RSM	3.56	-0.257	2.51	1.76	1.34	0.94
<b>HvH-Ab-090417-04/Q02KK412</b>	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN8266B belt clip	PMMN4062A RSM	3.59	-0.347	2.59	1.82	1.41	0.99
HvH-Ab-090417-05/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN8266B belt clip	PMLN5275A Headset	3.59	-0.264	2.50	1.73	1.33	0.92
HvH-Ab-090417-06/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	3.60	-0.304	2.59	1.85	1.39	0.99
HvH-Ab-090417-07/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN8266B belt clip	PMLN5111A 3 wire	3.59	-0.266	2.56	1.79	1.36	0.96
HvH-Ab-090417-08/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN8266B belt clip	RLN5882A 2 wire	3.59	-0.134	2.59	1.79	1.34	0.93
HvH-Ab-090417-09/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN8266B belt clip	PMLN5101A Headset	3.59	-0.315	2.51	1.74	1.35	0.94

**Assessments at the Body (CW mode)**

**Assessment across the frequency band for the offered antenna (809MHz Test Flowchart pg 49 step 7):** Using the highest configuration from the body worn (NTN8266B), battery (NNTN7034A) and audio (PMMN4062A) testing, antenna PMAS4000A was then tested across the frequency range (low, mid and high). The highest SAR result from the table below is provided in APPENDIX F Section 31.0 – 809MHz Assessment across the frequency band for the offered antenna.

**TABLE 42**

794-824MHz Band Assessments at Body -Assessment across frequency band for the offered antenna												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090417-04/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN8266B belt clip	PMMN4062A RSM	3.59	-0.347	2.59	1.82	1.41	0.99
HvH-Ab-090417-10/Q02KK412	PMAS4000A	794.013	NNTN7034A long	Against phantom	NTN8266B belt clip	PMMN4062A RSM	2.98	-0.145	2.12	1.50	1.10	0.78
CM-Ab-090417-11/Q02KK412	PMAS4000A	823.988	NNTN7034A long	Against phantom	NTN8266B belt clip	PMMN4062A RSM	3.62	-0.309	2.33	1.61	1.25	0.86

**Assessments at the Body (CW mode)**

**Assessment without body worn accessories at 2.5cm (809MHz Test Flowchart pg 49 step 8):** The offered antenna with only the test configuration (antenna PMAS4000A, frequency 809MHz, battery NNTN7034A and audio PMMN4062A cable) that indicated the highest SAR result was selected to assess this device at 2.5cm with the front and back of the device facing the phantom. The highest SAR result from the table below is provided in APPENDIX F Section 32.0 – 809MHz Assessment without body worn accessories at 2.5cm

Note: The 2.5cm assessments included the following configurations:

- Back of the device facing the phantom, positioned at 2.5cm from the phantom surface. Results for this test configuration may or may not be included depending on the location of the hot spot. If the peak SAR is located on the antenna then SAR result for this configuration would be lower due to increased separation distance.
- Back of the device facing the phantom, the antenna at 2.5cm from the phantom surface. Results for this test configuration may or may not be included depending on the location of the hot spot. This test position would not be applicable for cases where the peak is located on the DUT body and not the antenna.
- Front of the device facing the phantom, at 2.5cm from the phantom surface.

**TABLE 43**

794-824MHz Band Assessments at Body - Assessment at 2.5cm												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090417- 12/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	None, back of DUT w/ antenna @ 2.5cm	PMMN4062A RSM	3.60	-0.340	2.51	1.81	1.36	0.98
HvH-Ab-090420- 08/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	None, front of DUT @ 2.5cm	PMMN4062A RSM	3.58	-0.835	1.00	0.75	0.61	0.46

**Assessments at the Body (CW mode)**

**Assessment with carry strap (809MHz Test Flowchart pg 49 step 9):** Three styles (nylon, leather loop and leather swivel) of carry cases allow for the carry strap NTN5243A to be used. Again, using the SAR highest antenna (PMAS4000A), frequency (809MHz), battery (NNTN7034A) and audio cable (PMMN4062A) combination each carry case style was tested with the carry strap. Since the carry strap can be positioned on the user’s shoulder each style carry case was tested with the back and each side (PTT side & accessory connector side) against the phantom. These positions are illustrated in Exhibit 7B section 2.1. The highest SAR result from the table below is provided in APPENDIX F Section 33.0 - 809MHz Assessment with carry strap.

**TABLE 44**

794-824MHz Band Assessments at Body -Assessment of carry strap												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090417-14/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN5243A with PMLN5328 A nylon	PMMN4062A RSM	3.60	-0.327	0.66	0.50	0.36	0.27
CM-Ab-090417-15/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN5243A with PMLN5328 A nylon PTT side	PMMN4062A RSM	3.60	-0.535	0.74	0.53	0.42	0.30
CM-Ab-090417-16/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN5243A with PMLN5328 A nylon Accessory side	PMMN4062A RSM	3.61	-0.452	0.48	0.35	0.26	0.19
CM-Ab-090417-17/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN5243A with PMLN5329 A leather	PMMN4062A RSM	3.62	-0.293	0.38	0.29	0.20	0.15
CM-Ab-090417-18/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN5243A with PMLN5329 A leather PTT side	PMMN4062A RSM	3.61	-0.137	0.69	0.50	0.36	0.26
CM-Ab-090417-19/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN5243A with PMLN5329 A leather Accessory side	PMMN4062A RSM	3.62	-0.315	0.47	0.35	0.25	0.19

Assessments at the Body (CW mode)

TABLE 44 (Continued)

794-824MHz Band Assessments at Body -Assessment of carry strap												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090418-02/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN5243A w/ PMLN5330 A leather swvl w/out loop	PMMN4062A RSM	3.60	-0.252	2.49	1.73	1.32	0.92
HvH-Ab-090418-03/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN5243A w/ PMLN5330 A leather swvl w/out loop PTT side	PMMN4062A RSM	3.60	-0.463	0.61	0.37	0.34	0.20
HvH-Ab-090418-04/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Against phantom	NTN5243A w/ PMLN5330 A leather swvl w/out loop Accessory side	PMMN4062A RSM	3.59	-0.306	1.12	0.80	0.60	0.43

**Assessment of the offered Public Safety Mic (PSM) accessories (809MHz Test Flowchart pg 49 steps 1 & 2):** Only antenna PMAE4002A is available for PSM. Each PSM was tested at mid channel using the overall highest SAR battery (NNTN7034A) from the body. The highest PSM (PMMN4059A) was then tested at the low and high channels. The highest SAR result from the table below is provided in APPENDIX F Section 34.0 - 809MHz Assessment of the offered Public Safety Mic (PSM) accessories.

TABLE 45

794-824MHz Band Assessments at Body -Assessment of public safety mic (PSM)												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090418-05/Q02KK412	PMAF4002A	809.000	NNTN7034A long	Against phantom	PSM clip	PMMN4059A PSM	3.59	-0.838	6.04	3.88	3.71	2.37
HvH-Ab-090418-06/Q02KK412	PMAF4002A	809.000	NNTN7034A long	Against phantom	PSM clip	PMMN4060A PSM	3.63	-0.804	2.91	1.95	1.77	1.18
HvH-Ab-090418-07/Q02KK412	PMAF4002A	809.000	NNTN7034A long	Against phantom	PSM clip	PMMN4061A PSM	3.62	-0.801	3.82	2.62	2.32	1.59
Assessment across frequency band for the offered PSM antenna												
HvH-Ab-090418-08/Q02KK412	PMAF4002A	794.013	NNTN7034A long	Against phantom	PSM clip	PMMN4059A PSM	2.90	-0.136	5.97	3.78	3.18	2.01
HvH-Ab-090418-09/Q02KK412	PMAF4002A	823.988	NNTN7034A long	Against phantom	PSM clip	PMMN4059A PSM	3.68	-0.735	3.97	2.51	2.35	1.48

**Assessments at the Face (CW mode)**

**Assessment of the offered antenna (809MHz Test Flowchart pg 50 step 1):** Antenna PMAS4000A was first tested at the mid channel with a short (NNTN7038A) and long (NNTN7035A) battery along with the front and back of the radio positioned at 2.5cm from the phantom. Note that this product has two microphones, one on the front and one on the back of the DUT and therefore both sides were assessed. The highest SAR result from the table below is provided in APPENDIX F Section 35.0 – 809MHz Assessment of the offered antenna.

**TABLE 46**

794-824MHz Band Assessments at Face – Assessment of offered antennas with long and short batteries DUT front and back												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Face-090422-02/Q02KK412	PMAS4000A	809.000	NNTN7038A short	Front 2.5cm	None	None	3.59	-0.218	1.03	0.76	0.54	0.40
HvH-Face-090422-03/Q02KK412	PMAS4000A	809.000	NNTN7038A short	Back 2.5cm	None	None	3.60	-0.227	0.71	0.53	0.38	0.28
<b>HvH-Face-090422-04/Q02KK412</b>	PMAS4000A	809.000	NNTN7035A long	Front 2.5cm	None	None	3.58	-0.386	1.70	1.25	0.94	0.69
HvH-Face-090422-05/Q02KK412	PMAS4000A	809.000	NNTN7035A long	Back 2.5cm	None	None	3.57	-0.343	0.78	0.58	0.43	0.32

**Assessment of the offered batteries (809MHz Test Flowchart pg 50 step 2):** The optional batteries were tested. These tests were conducted at mid channel using the SAR highest antenna (PMAS4000A) and position (front) from Table 46. The highest SAR result from the table below is provided in APPENDIX F Section 36.0 – 809MHz Assessment of the offered batteries.

**TABLE 47**

794-824MHz Band Assessments at Face – Assessment of offered batteries												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
<b>HvH-Face-090422-04/Q02KK412</b>	PMAS4000A	809.000	NNTN7035A long	Front 2.5cm	None	None	3.58	-0.386	1.70	1.25	0.94	0.69
HvH-Face-090422-06/Q02KK412	PMAS4000A	809.000	NNTN7033A long	Front 2.5cm	None	None	3.58	-0.409	1.65	1.21	0.91	0.67
HvH-Face-090422-07/Q02KK412	PMAS4000A	809.000	NNTN7034A long	Front 2.5cm	None	None	3.56	-0.446	1.61	1.18	0.90	0.66
HvH-Face-090422-08/Q02KK412	PMAS4000A	809.000	NNTN7037A long	Front 2.5cm	None	None	3.57	-0.426	1.65	1.21	0.92	0.67
HvH-Face-090422-02/Q02KK412	PMAS4000A	809.000	NNTN7038A short	Front 2.5cm	None	None	3.59	-0.218	1.03	0.76	0.54	0.40

**Assessments at the Face (CW mode)**

**Assessment of “receive only” audio accessories (809MHz Test Flowchart pg 50 step 3):** The antenna (PMAS4000A), battery (NNTN7035A) and position (front) with the highest SAR was selected to assess “receive only” audio RLN5879A. The highest SAR result from the table below is provided in APPENDIX F Section 37.0 – 809MHz Assessment of “receive only” audio accessories.

**TABLE 48**

794-824MHz Band Assessments at Face – Assessment of offered audio accessory												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Face-090422-09/Q02KK412	PMAS4000A	809.000	NNTN7035A long	Front 2.5cm	None	RLN5879A	3.56	-0.389	1.26	0.93	0.70	0.51

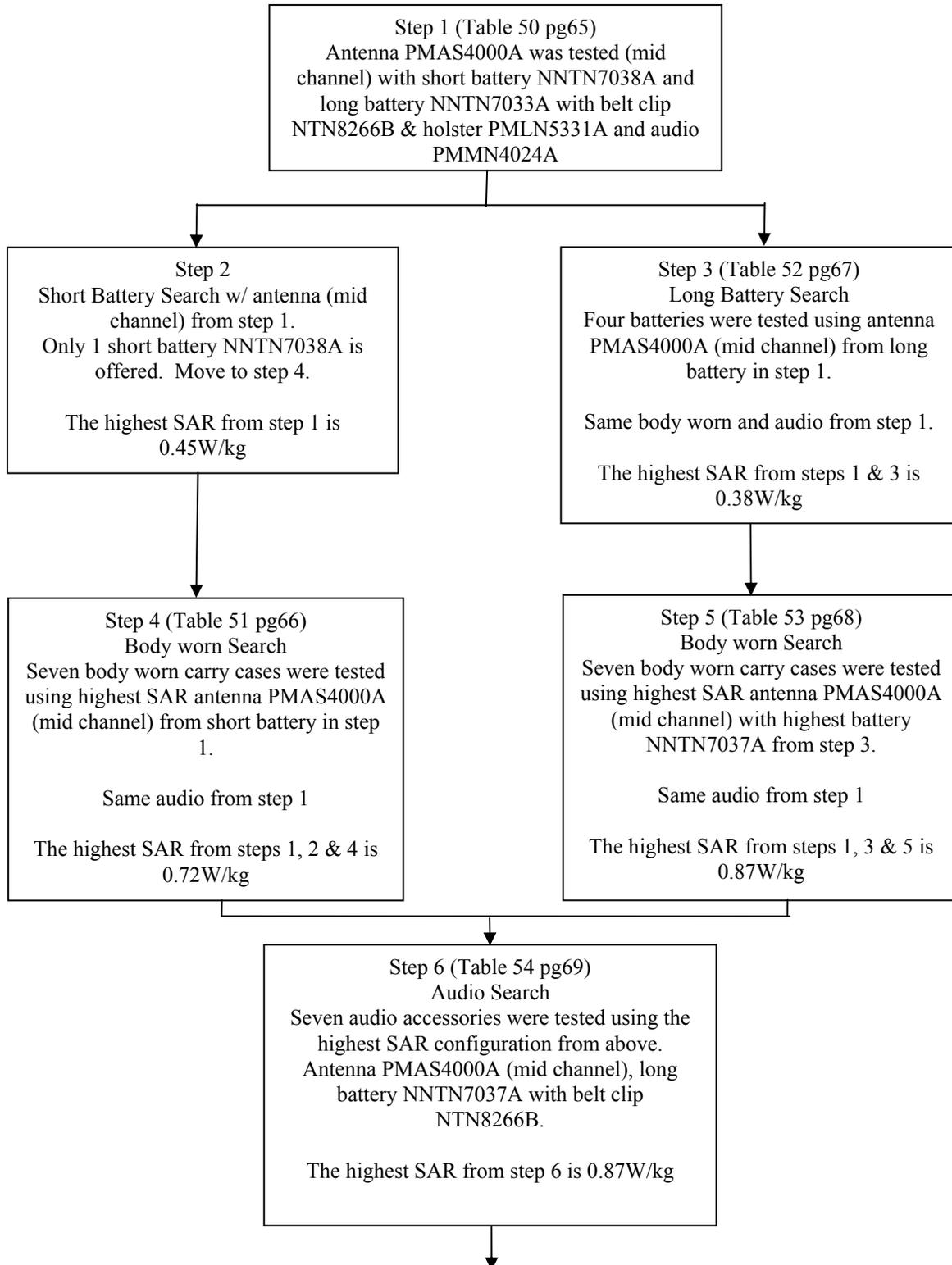
**Assessment across the frequency band for offered antenna (809MHz Test Flowchart pg 50 step 4):** The battery (NNTN7035A) and position (front) with the highest SAR was selected to assess antenna (PMAS4000A) across the frequency range (low, mid and high). The highest SAR result from the table below is provided in APPENDIX F Section 38.0 - 809MHz Assessment across the frequency band for offered antenna

**TABLE 49**

794-824MHz Band Assessments at Face – Assessment across frequency band for the offered antenna												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Face-090422-04/Q02KK412	PMAS4000A	809.000	NNTN7035A long	Front 2.5cm	None	None	3.58	-0.386	1.70	1.25	0.94	0.69
HvH-Face-090422-10/Q02KK412	PMAS4000A	794.013	NNTN7035A long	Front 2.5cm	None	None	2.95	-0.198	1.36	1.00	0.72	0.53
HvH-Face-090424-03/Q02KK412	PMAS4000A	823.988	NNTN7035A long	Front 2.5cm	None	None	3.56	-0.752	1.43	1.05	0.86	0.63

### 13.7 860MHz Test Flowchart Data Summary

860MHz Band (851-870MHz)  
DUT Body Test Methodology



860MHz Band (851-870MHz)  
 DUT Body Test Methodology  
 (Continued)

Step 7 (Table 55 pg70)  
 Frequency Search Across antenna  
 PMAS4000A with the highest SAR  
 configuration from above.  
 The highest SAR from step 7 is 1.01W/kg



Step 8 (Table 56 pg71)  
 2.5cm testing with antenna PMAS4000A  
 using the highest SAR frequency, battery and  
 audio accessory from above.  
 The highest SAR from step 8 is 0.33W/kg



Step 9 (Table 57 pg72)  
 Carry / Shoulder Strap Testing  
 using highest SAR antenna, frequency, battery  
 and audio with the applicable body worn carry  
 case (PMLN5328A, PMLN5329A &  
 PMLN5330A)  
 The highest SAR from step 9 is 0.91W/kg

**The highest 860MHz band body SAR from  
 above is 1.01W/kg**

860 Band (851-870MHz)  
 PSM Body Test Methodology

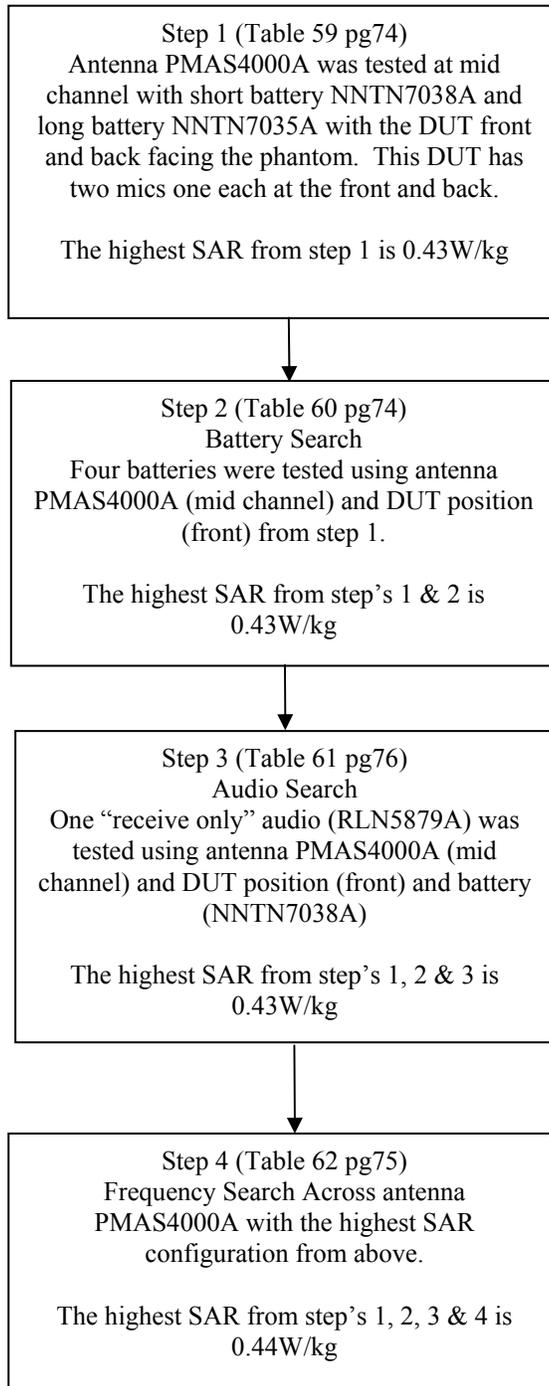
Step 1 (Table 58 pg73)  
 Each PSM was tested using antenna  
 PMAF4002A (mid channel) and the overall  
 highest battery from DUT body testing.  
 The highest SAR from step 1 is 1.85W/kg



Step 2 (Table 58 pg73)  
 Frequency Search Across antenna  
 PMAF4002A with the highest SAR  
 configuration from above.  
 The highest SAR from step 2 is 2.17W/kg

**The highest 860MHz band PSM SAR from  
 above is 2.17W/kg**

860MHz Band (851-870MHz)  
DUT Face Test Methodology



**The highest 860MHz band Face SAR from above is 0.44W/kg**

**13.8 860MHz Test Data**

**Assessments at the Body (CW mode)**

**Assessment of the offered antenna (860MHz Test Flowchart pg 62 step 1):** Antenna PMAS4000A was first tested at the center frequency with short battery (NNTN7038A) and long battery (NNTN7033A) to determine the antenna and battery combination that would result in the highest SAR. This configuration included body worn (NTN8266B belt clip and PMLN5331A plastic holster combination) and audio accessory (PMMN4024A). All SAR plots from the table below are included in APPENDIX F Section 39.0 – 860MHz Assessment of the offered antenna.

**TABLE 50**

851-870MHz Band Assessments at Body – Assessment of offered antenna with short and long battery												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090418- 10/Q02KK412	PMAS4000A	860.500	NNTN7038A short	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.58	-0.465	0.80	0.60	0.45	0.33
CM-Ab-090418- 17/Q02KK412	PMAS4000A	860.500	NNTN7033A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.59	-0.365	0.70	0.48	0.38	0.26

**Assessments at the Body (CW mode)**

**Assessment of the offered body worn accessories for short battery (860MHz Test Flowchart pg 62 step 4);** The set of body worn accessories only applicable to the short battery as outlined in section 7.0 were tested. These tests were conducted at mid channel using the antenna (PMAS4000A) and short battery (NNTN7038A) from TABLE 50 along with the same audio (PMMN4024A). The highest SAR result from the table below is provided in APPENDIX F Section 40.0 – 860MHz Assessment of the offered body worn accessories for short battery.

Note that not all body worn accessories were tested. Section 7.0 includes detailed explanations for the accessories not tested (e.g. same metallic content and increased separation distance).

**TABLE 51**

851-870MHz Band Assessments at Body – Assessment of offered body worn accessories with short battery												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090418-10/Q02KK412	PMAS4000A	860.500	NNTN7038A short	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.58	-0.465	0.80	0.60	0.45	0.33
HvH-Ab-090418-11/Q02KK412	PMAS4000A	860.500	NNTN7038A short	Against phantom	HLN6875A belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.59	-0.304	0.77	0.57	0.42	0.31
<b>HvH-Ab-090418-12/Q02KK412</b>	PMAS4000A	860.500	NNTN7038A short	Against phantom	NTN8266B belt clip	PMMN4024A RSM	3.58	-0.450	1.29	0.93	0.72	0.52
HvH-Ab-090418-13/Q02KK412	PMAS4000A	860.500	NNTN7038A short	Against phantom	HLN6875A belt clip	PMMN4024A RSM	3.60	-0.425	1.00	0.74	0.55	0.41
HvH-Ab-090418-14/Q02KK412	PMAS4000A	860.500	NNTN7038A short	Against phantom	PMLN5322A nylon	PMMN4024A RSM	3.59	-0.493	0.93	0.70	0.52	0.39
CM-Ab-090418-15/Q02KK412	PMAS4000A	860.500	NNTN7038A short	Against phantom	PMLN5323A leather	PMMN4024A RSM	3.60	-0.426	0.77	0.57	0.42	0.31
CM-Ab-090418-16/Q02KK412	PMAS4000A	860.500	NNTN7038A short	Against phantom	PMLN5324A leather swvl w/2.75 loop	PMMN4024A RSM	3.61	-0.367	0.44	0.33	0.24	0.18

**Assessments at the Body (CW mode)**

**Assessment of the offered long batteries (860MHz Test Flowchart pg 62 step 3);** The optional long batteries were tested. These tests were conducted at mid channel using the antenna (PMAS4000A) and long battery (NNTN7033A) from TABLE 50 along with the same audio (PMMN4024A). The highest SAR result from the table below is provided in APPENDIX F Section 41.0 - 860MHz Assessment of the offered long batteries.

Note that not all battery accessories were tested. Section 7.0 includes detailed explanations for the accessories not tested (e.g. battery’s that are built the same but under go additional environmental testing).

**TABLE 52**

851-870MHz Band Assessments at Body – Assessment of offered long batteries												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090418-17/Q02KK412	PMAS4000A	860.500	NNTN7033A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.59	-0.365	0.70	0.48	0.38	0.26
CM-Ab-090418-18/Q02KK412	PMAS4000A	860.500	NNTN7034A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.60	-0.351	0.67	0.46	0.36	0.25
CM-Ab-090418-19/Q02KK412	PMAS4000A	860.500	NNTN7035A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.60	-0.325	0.67	0.46	0.36	0.25
<b>CM-Ab-090418-20/Q02KK412</b>	PMAS4000A	860.500	NNTN7037A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.60	-0.340	0.71	0.49	0.38	0.26

**Assessments at the Body (CW mode)**

**Assessment of the offered body worn accessories for long battery (860MHz Test Flowchart pg 62 step 5);** The set of body worn accessories only applicable to the long battery as outlined in section 7.0 were tested. These tests were conducted at mid channel using the antenna (PMAS4000A) and long battery (NNTN7037A) from TABLES 50 & 52 along with the same audio (PMMN4024A). The highest SAR result from the table below is provided in APPENDIX F Section 42 - 860MHz Assessment of the offered body worn accessories for long battery.

Note that not all body worn accessories were tested. Section 7.0 includes detailed explanations for the accessories not tested (e.g. same metallic content and increased separation distance).

**TABLE 53**

851-870MHz Band Assessments at Body – Assessment of offered body worn accessories with long batteries												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090418-20/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	NTN8266B belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.60	-0.340	0.71	0.49	0.38	0.26
CM-Ab-090418-21/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	HLN6875A belt clip w/ PMLN5331A holster	PMMN4024A RSM	3.59	-0.431	0.97	0.60	0.54	0.33
<b>CM-Ab-090418-23/Q02KK412</b>	PMAS4000A	860.500	NNTN7037A long	Against phantom	NTN8266B belt clip	PMMN4024A RSM	3.60	-0.349	1.60	1.09	0.87	0.59
CM-Ab-090418-24/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	HLN6875A belt clip	PMMN4024A RSM	3.61	-0.331	0.58	0.43	0.31	0.23
HvH-Ab-090419-02/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	PMLN5328A nylon	PMMN4024A RSM	3.59	-0.407	0.70	0.50	0.38	0.28
CM-Ab-090420-09/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	PMLN5329A leather	PMMN4024A RSM	3.57	-0.267	0.87	0.63	0.47	0.34
HvH-Ab-090419-04/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	PMLN5330A leather swvl w/2.75 loop	PMMN4024A RSM	3.58	-0.312	0.46	0.33	0.25	0.18

**Assessments at the Body (CW mode)**

**Assessment of the offered audio accessories (860MHz Test Flowchart pg 62 step 6):** The overall highest test configuration from the assessment of the antenna (PMAS4000A) at mid channel, battery (NNTN7037A) and body worn (NTN8266B) accessory sections above was selected to evaluate all the other 10 audio accessories listed in section 7.0 of the report. The highest SAR result from the table below is provided in APPENDIX F Section 43.0 - 860MHz Assessment of the offered audio accessories.

Note: Not all audio accessories listed in section 7.0 were tested (e.g. color change, same audio cable and connector).

**TABLE 54**

851-870MHz Band Assessments at Body – Assessment of offered audio accessories												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090418-23/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	NTN8266B belt clip	PMMN4024A RSM	3.60	-0.349	1.60	1.09	0.87	0.59
HvH-Ab-090419-06/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	NTN8266B belt clip	PMMN4062A RSM	3.57	-0.325	1.55	1.06	0.84	0.58
HvH-Ab-090419-07/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	NTN8266B belt clip	PMLN5275A Headset	3.56	-0.251	1.56	1.07	0.84	0.57
HvH-Ab-090419-08/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	3.57	-0.199	1.50	1.03	0.79	0.54
HvH-Ab-090419-09/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	NTN8266B belt clip	PMLN5111A 3 wire	3.57	-0.310	1.54	1.06	0.83	0.57
<b>HvH-Ab-090419-10/Q02KK412</b>	PMAS4000A	860.500	NNTN7037A long	Against phantom	NTN8266B belt clip	RLN5882A 2 wire	3.57	-0.361	1.59	1.09	0.87	0.60
HvH-Ab-090419-11/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	NTN8266B belt clip	PMLN5101A Headset	3.59	-0.258	1.50	1.03	0.80	0.55

**Assessments at the Body (CW mode)**

**Assessment across the frequency band for the offered antenna (860MHz Test Flowchart pg 63 step 7):** Using the highest configuration from the body worn (NTN8266B), battery (NNTN7037A) and audio (RLN5882A) testing, antenna PMAS4000A was then tested across the frequency range (low, mid and high). The highest SAR result from the table below is provided in APPENDIX F Section 44.0 – 860MHz Assessment across the frequency band for the offered antenna.

**TABLE 55**

851-870MHz Band Assessments at Body -Assessment across frequency band for the offered antenna												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090419-10/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Against phantom	NTN8266B belt clip	RLN5882A 2 wire	3.57	-0.361	1.59	1.09	0.87	0.60
<b>HvH-Ab-090419-12/Q02KK412</b>	PMAS4000A	851.013	NNTN7037A long	Against phantom	NTN8266B belt clip	RLN5882A 2 wire	3.58	-0.281	1.88	1.27	1.01	0.68
HvH-Ab-090419-13/Q02KK412	PMAS4000A	869.988	NNTN7037A long	Against phantom	NTN8266B belt clip	RLN5882A 2 wire	3.57	-0.271	1.35	0.91	0.72	0.49

**Assessments at the Body (CW mode)**

**Assessment without body worn accessories at 2.5cm (860MHz Test Flowchart pg 63 step 8):** The offered antenna with only the test configuration (antenna PMAS4000A, frequency 851.013MHz, battery NNTN7037A and audio RLN5882A cable) that indicated the highest SAR result was selected to assess this device at 2.5cm with the front and back of the device facing the phantom. The highest SAR result from the table below is provided in APPENDIX F Section 45.0 – 860MHz Assessment without body worn accessories at 2.5cm

Note: The 2.5cm assessments included the following configurations:

- Back of the device facing the phantom, positioned at 2.5cm from the phantom surface. Results for this test configuration may or may not be included depending on the location of the hot spot. If the peak SAR is located on the antenna then SAR result for this configuration would be lower due to increased separation distance.
- Back of the device facing the phantom, the antenna at 2.5cm from the phantom surface. Results for this test configuration may or may not be included depending on the location of the hot spot. This test position would not be applicable for cases where the peak is located on the DUT body and not the antenna.
- Front of the device facing the phantom, at 2.5cm from the phantom surface.

**TABLE 56**

851-870MHz Band Assessments at Body - Assessment at 2.5cm												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090419- 15/Q02KK412	PMAS4000A	851.013	NNTN7037A long	Against phantom	None, back of DUT @ 2.5cm	RLN5882A 2 wire	3.60	-0.356	0.52	0.39	0.28	0.21
<b>HvH-Ab-090420- 07/Q02KK412</b>	PMAS4000A	851.013	NNTN7037A long	Against phantom	None, front of DUT @ 2.5cm	RLN5882A 2 wire	3.59	-0.806	0.55	0.41	0.33	0.25

**Assessments at the Body (CW mode)**

**Assessment with carry strap (860MHz Test Flowchart pg 63 step 9):** Three styles (nylon, leather loop and leather swivel) of carry cases allow for the carry strap NTN5243A to be used. Again, using the SAR highest antenna (PMAS4000A), frequency (851.013MHz), battery (NNTN7037A) and audio cable (RLN5882A) combination each carry case style was tested with the carry strap. Since the carry strap can be positioned on the user’s shoulder each style carry case was tested with the back and each side (PTT side & accessory connector side) against the phantom. These positions are illustrated in Exhibit 7B section 2.1. The highest SAR result from the table below is provided in APPENDIX F Section 46.0 - 860MHz Assessment with carry strap.

**TABLE 57**

851-870MHz Band Assessments at Body -Assessment of carry strap												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090419-17/Q02KK412	PMAS4000A	851.013	NNTN7037A long	Against phantom	NTN5243A with PMLN5328 A nylon	RLN5882A 2 wire	3.59	-0.529	0.86	0.62	0.49	0.35
CM-Ab-090419-18/Q02KK412	PMAS4000A	851.013	NNTN7037A long	Against phantom	NTN5243A with PMLN5328 A nylon PTT side	RLN5882A 2 wire	3.60	-0.344	0.73	0.52	0.40	0.28
CM-Ab-090419-19/Q02KK412	PMAS4000A	851.013	NNTN7037A long	Against phantom	NTN5243A with PMLN5328 A nylon Accessory side	RLN5882A 2 wire	3.59	-0.412	0.41	0.29	0.23	0.16
CM-Ab-090420-10/Q02KK412	PMAS4000A	851.013	NNTN7037A long	Against phantom	NTN5243A with PMLN5329 A leather	RLN5882A 2 wire	3.58	-0.301	0.62	0.45	0.33	0.24
CM-Ab-090419-22/Q02KK412	PMAS4000A	851.013	NNTN7037A long	Against phantom	NTN5243A with PMLN5329 A leather PTT side	RLN5882A 2 wire	3.60	-0.460	0.65	0.37	0.36	0.21
HvH-Ab-090420-02/Q02KK412	PMAS4000A	851.013	NNTN7037A long	Against phantom	NTN5243A with PMLN5329 A leather Accessory side	RLN5882A 2 wire	3.57	-0.505	0.45	0.33	0.25	0.19

Assessments at the Body (CW mode)

TABLE 57 (Continued)

851-870MHz Band Assessments at Body -Assessment of carry strap												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Ab-090420-03/Q02KK412	PMAS4000A	851.013	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5330 A leather swvl w/out loop	RLN5882A 2 wire	3.58	-0.382	1.65	1.20	0.91	0.66
HvH-Ab-090420-05/Q02KK412	PMAS4000A	851.013	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5330 A leather swvl w/out loop PTT side	RLN5882A 2 wire	3.58	-0.467	0.70	0.49	0.39	0.28
HvH-Ab-090420-06/Q02KK412	PMAS4000A	851.013	NNTN7037A long	Against phantom	NTN5243A w/ PMLN5330 A leather swvl w/out loop Accessory side	RLN5882A 2 wire	3.58	-0.415	0.44	0.31	0.24	0.17

**Assessment of the offered Public Safety Mic (PSM) accessories (860MHz Test Flowchart pg 63 steps 1 & 2):** Only antenna PMAE4002A is available for PSM. Each PSM was tested at mid channel using the overall highest SAR battery (NNTN7037A) from the body. The highest PSM (PMMN4059A) was then tested at the low and high channels. The highest SAR result from the table below is provided in APPENDIX F Section 47.0 - 860MHz Assessment of the offered Public Safety Mic (PSM) accessories.

TABLE 58

851-870MHz Band Assessments at Body -Assessment of public safety mic (PSM)												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090420-11/Q02KK412	PMAF4002A	860.500	NNTN7037A long	Against phantom	PSM clip	PMMN4059A PSM	3.31	-0.811	2.82	1.78	1.85	1.17
CM-Ab-090420-12/Q02KK412	PMAF4002A	860.500	NNTN7037A long	Against phantom	PSM clip	PMMN4060A PSM	3.70	-0.168	1.45	0.88	0.75	0.46
CM-Ab-090420-14/Q02KK412	PMAF4002A	860.500	NNTN7037A long	Against phantom	PSM clip	PMMN4061A PSM	3.45	-1.040	2.00	1.23	1.33	0.82
Assessment across frequency band for the offered PSM antenna												
CM-Ab-090420-15/Q02KK412	PMAF4002A	851.013	NNTN7037A long	Against phantom	PSM clip	PMMN4059A PSM	3.43	-1.150	3.17	1.96	2.17	1.34
CM-Ab-090420-16/Q02KK412	PMAF4002A	869.988	NNTN7037A long	Against phantom	PSM clip	PMMN4059A PSM	3.52	-0.272	1.96	1.18	1.07	0.64

**Assessments at the Face (CW mode)**

**Assessment of the offered antenna (860MHz Test Flowchart pg 63 step 1):** Antenna PMAS4000A was first tested at the mid channel with a short (NNTN7038A) and long (NNTN7035A) battery along with the front and back of the radio positioned at 2.5cm from the phantom. Note that this product has two microphones, one on the front and one on the back of the DUT and therefore both sides were assessed. The highest SAR result from the table below is provided in APPENDIX F Section 48.0 – 860MHz Assessment of the offered antenna.

**TABLE 59**

851-870MHz Band Assessments at Face – Assessment of the offered antenna with long and short batteries DUT front and back												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Face-090420-17/Q02KK412	PMAS4000A	860.500	NNTN7038A short	Front 2.5cm	None	None	3.59	-0.844	0.71	0.52	0.43	0.32
CM-Face-090420-18/Q02KK412	PMAS4000A	860.500	NNTN7038A short	Back 2.5cm	None	None	3.59	-0.296	0.50	0.37	0.27	0.20
CM-Face-090420-19/Q02KK412	PMAS4000A	860.500	NNTN7035A long	Front 2.5cm	None	None	3.57	-0.803	0.49	0.36	0.30	0.22
HvH-Face-090421-02/Q02KK412	PMAS4000A	860.500	NNTN7035A long	Back 2.5cm	None	None	3.57	-0.351	0.52	0.38	0.28	0.21

**Assessment of the offered batteries (860MHz Test Flowchart pg 64 step 2):** The optional batteries were tested. These tests were conducted at mid channel using the SAR highest antenna (PMAS4000A) and position (front) from Table 59. The highest SAR result from the table below is provided in APPENDIX F Section 49.0 - 860MHz Assessment of the offered batteries.

**TABLE 60**

851-870MHz Band Assessments at Face – Assessment of offered batteries												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Face-090420-17/Q02KK412	PMAS4000A	860.500	NNTN7038A short	Front 2.5cm	None	None	3.59	-0.844	0.71	0.52	0.43	0.32
HvH-Face-090421-03/Q02KK412	PMAS4000A	860.500	NNTN7033A long	Front 2.5cm	None	None	3.57	-0.557	0.54	0.39	0.31	0.23
HvH-Face-090421-04/Q02KK412	PMAS4000A	860.500	NNTN7034A long	Front 2.5cm	None	None	3.57	-0.503	0.55	0.40	0.31	0.23
HvH-Face-090421-05/Q02KK412	PMAS4000A	860.500	NNTN7037A long	Front 2.5cm	None	None	3.58	-0.604	0.53	0.38	0.30	0.22
CM-Face-090420-19/Q02KK412	PMAS4000A	860.500	NNTN7035A long	Front 2.5cm	None	None	3.57	-0.803	0.49	0.36	0.30	0.22

**Assessments at the Face (CW mode)**

**Assessment of “receive only” audio accessories (860MHz Test Flowchart pg 64 step 3):** The antenna (PMAS4000A), battery (NNTN7038A) and position (front) with the highest SAR was selected to assess “receive only” audio RLN5879A. The highest SAR result from the table below is provided in APPENDIX F Section 50.0 - 860MHz Assessment of “receive only” audio accessories.

**TABLE 61**

851-870MHz Band Assessments at Face – Assessment of offered audio accessory												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
HvH-Face-090421-06/Q02KK412	PMAS4000A	860.500	NNTN7038A short	Front 2.5cm	None	RLN5879A	3.58	-0.452	0.53	0.39	0.30	0.22

**Assessment across the frequency band for offered antenna (860MHz Test Flowchart pg 64 step 4):** The battery (NNTN7035A) and position (front) with the highest SAR was selected to assess antenna (PMAS4000A) across the frequency range (low, mid and high). The highest SAR result from the table below is provided in APPENDIX F Section 51.0 - 860MHz Assessment across the frequency band for offered antenna

**TABLE 62**

851-870MHz Band Assessments at Face – Assessment across frequency band for each of the offered antenna												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Face-090420-17/Q02KK412	PMAS4000A	860.500	NNTN7038A short	Front 2.5cm	None	None	3.59	-0.844	0.71	0.52	0.43	0.32
HvH-Face-090421-07/Q02KK412	PMAS4000A	851.013	NNTN7038A short	Front 2.5cm	None	None	3.59	-0.811	0.73	0.54	0.44	0.32
HvH-Face-090421-08/Q02KK412	PMAS4000A	869.988	NNTN7038A short	Front 2.5cm	None	None	3.57	-0.711	0.57	0.42	0.34	0.25

**13.9 Shorten Scan Assessment**

**Short scan assessment of the overall SAR highest configuration (UHF TABLE 17 pg28)** A second unit (SN Q02KK40M) was used to confirm the overall SAR highest configuration. A “shortened” scan was performed, using the test configuration and unit that produced the highest SAR results overall (in bold with \*) below, to validate the SAR drift of the full DASY4™ coarse and 7x7x7 zoom scans. Note that the shortened scan represents the zoom scan performance result; this is obtained by first running a coarse scan to find the peak area and then, using a newly charged battery, a 7x7x7 zoom scan only was performed. The results of the shortened cube scan presented in APPENDIX E demonstrate that the scaling methodology used to determine the calculated SAR results presented herein are valid. The highest SAR result from the table below is provided in APPENDIX F Section 52.0 - UHF Short scan assessment.

**TABLE 63**

Shorten Scan												
Run Number/ SN	Antenna	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Meas. 10g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Max Calc. 10g-SAR (W/kg)
CM-Ab-090408-15/Q02KK412	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	5.55	-0.199	12.04	8.04	6.47	4.32
<b>*CM-Ab-090410-10/Q02KK40M</b>	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	5.40	-0.196	11.74	7.79	6.48	4.30
<b>Shorten scan HvH-Ab-090423-09/Q02KK40M</b>	PMAE4065A	380.013	NNTN7037A long	Against phantom	NTN8266B belt clip	RMN5058A Headset	5.61	-0.058	13.10	8.58	6.74	4.42

**14.0 Conclusion**

The highest Operational Maximum Calculated 1-gram and 10-gram average SAR values found for FCC ID: AZ489FT7040 model H97TGD9PW1AN (WITH QA00569AA AND QA00575AA).

**Max. Calc.: 1-g Avg. SAR: 6.74 W/kg (Body); 10-g Avg. SAR: 4.42 W/kg (Body)**  
**Max. Calc.: 1-g Avg. SAR: 4.63 W/kg (Face); 10-g Avg. SAR: 3.53 W/kg (Face)**

The test results clearly demonstrate compliance with FCC Occupational/Controlled RF Exposure limits of **8 W/kg** per the requirements of 47 CFR 2.1093(d).

## **APPENDIX A**

### **Measurement Uncertainty**

The Measurement Uncertainty tables indicated in this APPENDIX are applicable to the DUT ranging from 100MHz to 800MHz and 800MHz to 3GHz, and for Dipole test frequency ranging from 300MHz to 800MHz and 800MHz to 3GHz. Therefore, the highest tolerance for the probe calibration uncertainty is indicated.

**Table 1A: Uncertainty Budget for Device Under Test, for 100MHz to 800MHz**

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e = f(d,k)</i>	<i>f</i>	<i>g</i>	<i>h = c x f / e</i>	<i>i = c x g / e</i>	<i>k</i>
Uncertainty Component	IEEE 1528 section	Tol. (± %)	Prob Dist	Div.	<i>c<sub>i</sub></i> (1 g)	<i>c<sub>i</sub></i> (10 g)	1 g <i>u<sub>i</sub></i> (±%)	10 g <i>u<sub>i</sub></i> (±%)	<i>v<sub>i</sub></i>
<b>Measurement System</b>									
Probe Calibration	E.2.1	10.0	N	1.00	1	1	10.0	10.0	∞
Axial Isotropy	E.2.2	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Boundary Effect	E.2.3	1.0	R	1.73	1	1	0.6	0.6	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1.0	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	0.3	N	1.00	1	1	0.3	0.3	∞
Response Time	E.2.7	1.1	R	1.73	1	1	0.6	0.6	∞
Integration Time	E.2.8	1.1	R	1.73	1	1	0.6	0.6	∞
RF Ambient Conditions - Noise	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1	0.0	R	1.73	1	1	0.0	0.0	∞
Probe Positioner Mech. Tolerance	E.6.2	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning w.r.t Phantom	E.6.3	1.4	R	1.73	1	1	0.8	0.8	∞
Max. SAR Evaluation (ext., int., avg.)	E.5	3.4	R	1.73	1	1	2.0	2.0	∞
<b>Test sample Related</b>									
Test Sample Positioning	E.4.2	3.2	N	1.00	1	1	3.2	3.2	29
Device Holder Uncertainty	E.4.1	4.0	N	1.00	1	1	4.0	4.0	8
SAR drift	6.6.2	5.0	R	1.73	1	1	2.9	2.9	∞
<b>Phantom and Tissue Parameters</b>									
Phantom Uncertainty	E.3.1	4.0	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity (target)	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measurement)	E.3.3	3.3	N	1.00	0.64	0.43	2.1	1.4	∞
Liquid Permittivity (target)	E.3.2	5.0	R	1.73	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (measurement)	E.3.3	1.9	N	1.00	0.6	0.49	1.1	0.9	∞
<b>Combined Standard Uncertainty</b>			RSS				14	13	965
<b>Expanded Uncertainty (95% CONFIDENCE LEVEL)</b>			<i>k</i> =2				27	27	

**Table 2A: Uncertainty Budget for Device Under Test, for 800MHz to 3GHz**

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e = f(d,k)</i>	<i>f</i>	<i>g</i>	<i>h = c x f / e</i>	<i>i = c x g / e</i>	<i>k</i>
Uncertainty Component	IEEE 1528 section	Tol. (± %)	Prob Dist	Div.	<i>c<sub>i</sub></i> (1 g)	<i>c<sub>i</sub></i> (10 g)	1 g <i>u<sub>i</sub></i> (±%)	10 g <i>u<sub>i</sub></i> (±%)	<i>v<sub>i</sub></i>
<b>Measurement System</b>									
Probe Calibration	E.2.1	5.9	N	1.00	1	1	5.9	5.9	∞
Axial Isotropy	E.2.2	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Boundary Effect	E.2.3	1.0	R	1.73	1	1	0.6	0.6	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1.0	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	0.3	N	1.00	1	1	0.3	0.3	∞
Response Time	E.2.7	1.1	R	1.73	1	1	0.6	0.6	∞
Integration Time	E.2.8	1.1	R	1.73	1	1	0.6	0.6	∞
RF Ambient Conditions - Noise	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1	0.0	R	1.73	1	1	0.0	0.0	∞
Probe Positioner Mech. Tolerance	E.6.2	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning w.r.t Phantom	E.6.3	1.4	R	1.73	1	1	0.8	0.8	∞
Max. SAR Evaluation (ext., int., avg.)	E.5	3.4	R	1.73	1	1	2.0	2.0	∞
<b>Test sample Related</b>									
Test Sample Positioning	E.4.2	3.2	N	1.00	1	1	3.2	3.2	29
Device Holder Uncertainty	E.4.1	4.0	N	1.00	1	1	4.0	4.0	8
SAR drift	6.6.2	5.0	R	1.73	1	1	2.9	2.9	∞
<b>Phantom and Tissue Parameters</b>									
Phantom Uncertainty	E.3.1	4.0	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity (target)	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measurement)	E.3.3	3.3	N	1.00	0.64	0.43	2.1	1.4	∞
Liquid Permittivity (target)	E.3.2	5.0	R	1.73	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (measurement)	E.3.3	1.9	N	1.00	0.6	0.49	1.1	0.9	∞
<b>Combined Standard Uncertainty</b>			RSS				11	11	411
<b>Expanded Uncertainty (95% CONFIDENCE LEVEL)</b>			<i>k</i> =2				22	22	

**Table 3A: Uncertainty Budget for System Validation (dipole & flat phantom)  
for 300MHz to 800MHz**

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e = f(d,k)</i>	<i>f</i>	<i>g</i>	<i>h = c x f / e</i>	<i>i = c x g / e</i>	<i>k</i>
Uncertainty Component	IEEE 1528 section	Tol. (± %)	Prob. Dist.	Div.	<i>c<sub>i</sub></i> (1 g)	<i>c<sub>i</sub></i> (10 g)	1 g <i>u<sub>i</sub></i> (±%)	10 g <i>u<sub>i</sub></i> (±%)	<i>v<sub>i</sub></i>
<b>Measurement System</b>									
Probe Calibration	E.2.1	9.0	N	1.00	1	1	9.0	9.0	∞
Axial Isotropy	E.2.2	4.7	R	1.73	1	1	2.7	2.7	∞
Spherical Isotropy	E.2.2	9.6	R	1.73	0	0	0.0	0.0	∞
Boundary Effect	E.2.3	1.0	R	1.73	1	1	0.6	0.6	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1.0	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	0.3	N	1.00	1	1	0.3	0.3	∞
Response Time	E.2.7	1.1	R	1.73	1	1	0.6	0.6	∞
Integration Time	E.2.8	0.0	R	1.73	1	1	0.0	0.0	∞
RF Ambient Conditions - Noise	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1	0.0	R	1.73	1	1	0.0	0.0	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning w.r.t. Phantom	E.6.3	1.4	R	1.73	1	1	0.8	0.8	∞
Max. SAR Evaluation (ext., int., avg.)	E.5	3.4	R	1.73	1	1	2.0	2.0	∞
<b>Dipole</b>									
Dipole Axis to Liquid Distance	8, E.4.2	2.0	R	1.73	1	1	1.2	1.2	∞
Input Power and SAR Drift Measurement	8, 6.6.2	5.0	R	1.73	1	1	2.9	2.9	∞
<b>Phantom and Tissue Parameters</b>									
Phantom Uncertainty	E.3.1	4.0	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity (target)	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measurement)	E.3.3	3.3	R	1.73	0.64	0.43	1.2	0.8	∞
Liquid Permittivity (target)	E.3.2	5.0	R	1.73	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (measurement)	E.3.3	1.9	R	1.73	0.6	0.49	0.6	0.5	∞
<b>Combined Standard Uncertainty</b>			RSS				11	11	99999
<b>Expanded Uncertainty (95% CONFIDENCE LEVEL)</b>			<i>k</i> =2				22	22	

**Table 4A: Uncertainty Budget for System Validation (dipole & flat phantom) for 800MHz to 3GHz**

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	$e = f(d,k)$	<i>f</i>	<i>g</i>	$h = c \times f / e$	$i = c \times g / e$	<i>k</i>
Uncertainty Component	IEEE 1528 section	Tol. ( $\pm \%$ )	Prob. Dist.	Div.	$c_i$ (1 g)	$c_i$ (10 g)	1 g $u_i$ ( $\pm\%$ )	10 g $u_i$ ( $\pm\%$ )	$v_i$
<b>Measurement System</b>									
Probe Calibration	E.2.1	5.9	N	1.00	1	1	5.9	5.9	$\infty$
Axial Isotropy	E.2.2	4.7	R	1.73	1	1	2.7	2.7	$\infty$
Spherical Isotropy	E.2.2	9.6	R	1.73	0	0	0.0	0.0	$\infty$
Boundary Effect	E.2.3	1.0	R	1.73	1	1	0.6	0.6	$\infty$
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	$\infty$
System Detection Limits	E.2.5	1.0	R	1.73	1	1	0.6	0.6	$\infty$
Readout Electronics	E.2.6	0.3	N	1.00	1	1	0.3	0.3	$\infty$
Response Time	E.2.7	1.1	R	1.73	1	1	0.6	0.6	$\infty$
Integration Time	E.2.8	0.0	R	1.73	1	1	0.0	0.0	$\infty$
RF Ambient Conditions - Noise	E.6.1	3.0	R	1.73	1	1	1.7	1.7	$\infty$
RF Ambient Conditions - Reflections	E.6.1	0.0	R	1.73	1	1	0.0	0.0	$\infty$
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1	1	0.2	0.2	$\infty$
Probe Positioning w.r.t. Phantom	E.6.3	1.4	R	1.73	1	1	0.8	0.8	$\infty$
Max. SAR Evaluation (ext., int., avg.)	E.5	3.4	R	1.73	1	1	2.0	2.0	$\infty$
<b>Dipole</b>									
Dipole Axis to Liquid Distance	8, E.4.2	2.0	R	1.73	1	1	1.2	1.2	$\infty$
Input Power and SAR Drift Measurement	8, 6.6.2	5.0	R	1.73	1	1	2.9	2.9	$\infty$
<b>Phantom and Tissue Parameters</b>									
Phantom Uncertainty	E.3.1	4.0	R	1.73	1	1	2.3	2.3	$\infty$
Liquid Conductivity (target)	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	$\infty$
Liquid Conductivity (measurement)	E.3.3	3.3	R	1.73	0.64	0.43	1.2	0.8	$\infty$
Liquid Permittivity (target)	E.3.2	5.0	R	1.73	0.6	0.49	1.7	1.4	$\infty$
Liquid Permittivity (measurement)	E.3.3	1.9	R	1.73	0.6	0.49	0.6	0.5	$\infty$
<b>Combined Standard Uncertainty</b>			RSS				9	9	99999
<b>Expanded Uncertainty (95% CONFIDENCE LEVEL)</b>			$k=2$				18	17	

Notes for Tables 1, 2, 3 and 4

- a) Column headings *a-k* are given for reference.
- b) Tol. - tolerance in influence quantity.
- c) Prob. Dist. – Probability distribution
- d) N, R - normal, rectangular probability distributions
- e) Div. - divisor used to translate tolerance into normally distributed standard uncertainty
- f)  $c_i$  - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.
- g)  $u_i$  – SAR uncertainty
- h)  $v_i$  - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty