MOTOROLA SOLUTIONS

SAMM 826

CERTIFICATE 2518.05

DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 1 of 2

Motorola Solutions Inc.
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Date of Report: 11/06/2023
Report Revision: B

Responsible Engineer:	Yeng Yee Yeong (EME Engineer)
Report Author:	Yeng Yee Yeong (EME Engineer)
Date/s Tested:	08/14/2023-08/24/2023 & 09/26/2023
Manufacturer:	Motorola Solutions Inc.
Manufacturer Location:	PLOT 2A, MEDAN BAYAN LEPAS, MUKIM 12, S.W.D 11900 BAYAN LEPAS, PENANG, MALAYSIA
DUT Description:	Handheld Portable – APX N50 UHF MODEL 2 PORTABLE
Test TX mode(s):	FM, BT & WLAN
Max. Power output:	Refer Table 3
Nominal Power:	Refer Table 3
Tx Frequency Bands:	Refer Table 3
Signaling type:	FM (LMR), 802.11b/g/n/a/ac (WLAN), FHSS (Bluetooth / Bluetooth LE)
Model(s) Tested:	H25XDF9PW6AN (PMUE2891A)
Model(s) Certified:	Refer Section 1.0 Introduction
Serial Number(s):	287TZP0477, 287TZP0493 & 287TZP0464
Classification:	Occupational/Controlled Environment
Firmware Version:	L06221125
Applicant Name:	Motorola Solutions Inc.
Applicant Address:	8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322
FCC ID:	AZ489FT7175 This report contains results that are immaterial for FCC equipment approval, which are clearly identified.
FCC Test Firm Registration Number:	823256
IC:	109U-89FT7175 This report contains results that are immaterial for ISED equipment approval, which are clearly identified.
ISED Test Site registration:	24843

The test results clearly demonstrate compliance with Occupational/Controlled Environment RF Exposure limits of 8 W/kg averaged over 1 gram per the requirements of FCC 47 CFR § 2.1093 and RSS-102 (Issue 5)

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 4.0 of this report (no deviation from standard methods). This report shall not be reproduced without written approval from an officially designated representative of the Motorola Solutions Inc 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.

Saw Sun Hock (Approval Signatory)
Approved Date: 11/08/2023

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APPENDICES

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H DUT, Body worn and audio accessories Photos

Report Revision History

Date	Revision	Comments
10/12/2023	A	Initial release
11/06/2023	B	To update the Model's Description and the BT/WiFi Antenna Gain information

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 Motorola Solutions Inc. EME Test Laboratory for handheld portable model number H25XDF9PW6AN (PMUE2891A) is fully evaluated for LMR. WLAN 2.4GHz and WLAN 5GHz are variant models from reference model with H25UCF9PW6AN (PMUF1999A) & H15UCF9PW6AN (PMUF1998A), FCC ID: AZ489FT7161, IC ID: 109U-89FT7161. This device is classified as Occupational/Controlled Environment and models certified are listed as below:

Model	Description
H25XDF9PW6AN (PMUE2891A)	APX N50 UHF MODEL 2 PORTABLE
H25XDF9PW6AN-H (PMUE2891A)	APX N50 UHF MODEL 2 PORTABLE HAZLOC MODEL
H15XDF9PW6AN (PMUE2892A)	APX N30 UHF MODEL 2 PORTABLE
H15XDF9PW6AN-H (PMUE2892A)	APX N30 UHF MODEL 2 PORTABLE HAZLOC MODEL

2.0 FCC SAR Summary

Table 1

Equipment Class	Frequency band (MHz)	Max Calc at Body (W/kg)	Max Calc at Face (W/kg)
		1g-SAR	1g-SAR
TNF	406.1-512MHz (LMR)	5.85	4.86
DTS	2412 – 2462 MHZ (WLAN 2.4 GHz)	0.113	0.035
NII	5180 – 5825 MHz (WLAN 5 GHz)	0.090	0.066
*DSS	2402 – 2480MHz	NA	NA
Simultaneous Results		5.96	4.93

*Results not required per KDB (refer to Sections 14.3)

3.0 Abbreviations / Definitions

BT: Bluetooth
CNR: Calibration Not Required
CW: Continuous Wave
DSS Part 15 Spread Spectrum Transmitter
DUT: Device Under Test

EME:	Electromagnetic Energy
FHSS:	Frequency Hopping Spread Spectrum
FM:	Frequency Modulation
NA:	Not Applicable
LMR:	Land Mobile Radio
OFDM:	Orthogonal Frequency Division Multiplexing
GFSK:	Gaussian Frequency-Shift Keying
PTT:	Push to Talk
RSM:	Remote Speaker Microphone
SAR:	Specific Absorption Rate
TNF:	Licensed Non-Broadcast Transmitter Held to Face

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.

4.0 Referenced Standards and Guidelines

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

- Federal Communications Commission, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields", OET Bulletin 65, FCC, Washington, D.C.: 1997.
- Institute of Electrical and Electronics Engineers (IEEE) C95.1-2019
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 2020
- Ministry of Health (Canada) Safety Code 6 (2015), Limits of Human Exposure to Radio frequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz
- RSS-102 (Issue 5) – Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands)
- Australian Communications Authority Radio communications (Electromagnetic Radiation - Human Exposure) Standard (2014)
- ANATEL, Brazil Regulatory Authority, Resolution No 700 of September 28, 2018 "Approves the Regulation on the Assessment of Human Exposure to Electric, Magnetic and Electromagnetic Fields Associated with the Operation of Radio communication Transmitting Stations.
- IEC/IEEE 62209-1528-2020- Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)

- FCC KDB – 643646 D01 SAR Test for PTT Radios v01r03
- FCC KDB – 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB – 865664 D02 RF Exposure Reporting v01r02
- FCC KDB – 447498 D04 Interim General RF Exposure Guidance v01
- FCC KDB – 248227 D01 802.11 Wi-Fi SAR v02r02

5.0 SAR Limits

Table 2

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

6.0 Description of Device Under Test (DUT)

This portable device operates in the LMR bands using frequency modulation (FM) incorporating traditional simplex two-way radio transmission protocol. This device also contains WLAN technology for data applications and Bluetooth/B technology for short range wireless devices.

The LMR bands in this device operate in a half duplex system. A half duplex system only allows the user to transmit or receive. This device cannot transmit and receive simultaneously. The user must stop transmitting in order to receive a signal or listen for a response, regardless of PTT button or use of voice activated audio accessories. This type of operation, along with the RF safety booklet, which instructs the user to transmit no more than 50% of the time, justifies the use of 50% duty factor for this device.

This device also incorporates GFSK Bluetooth transmission device which is a Frequency Hopping Spread Spectrum (FHSS) technology. The Bluetooth radio modem is used to wireless link audio accessories. The maximum actual transmission duty cycle is imposed by the Bluetooth. The maximum duty cycle for BT is 77%.

Table 3 below summarizes the technologies, bands, maximum duty cycles and maximum output powers. Maximum output powers are defined as upper limit of the production line final test station.

Table 3

Technologies	Band (MHz)	Transmission	Duty Cycle (%)	Conducted (Average Detector)	
				Nominal Power (W)	Max Power (W)
LMR	380-520	FM	*50	5.00	5.70
WLAN 802.11 b	2412-2462	DSSS, OFDM	98.86	0.0447	0.0631
WLAN 802.11 g	2412-2462	OFDM	96.88	NA	0.03162 (CH 1 & 11) 0.0631 (CH 6)
WLAN 802.11 n	2412-2462	OFDM	98.01	NA	0.03162 (CH 1 & 11) 0.05012 (CH 6)
WLAN 802.11 a (20 MHz)	5180-5825	OFDM	97.01	NA	UNII-1: 0.0282 UNII-2A, 2C: 0.0282 (Other Channels) UNII-3: 0.0224 (Other Channels) UNII-2A: 0.0224 (CH 64) UNII-2C: 0.00794 (CH 100) UNII-3: 0.0100 (CH 140) UNII-3: 0.0282 (CH 132)
WLAN 802.11 n (20 MHz)	5180-5825	OFDM	97.97	NA	UNII-1, 2A: 0.0224 UNII-2C, 3: 0.0224 (Other Channels) UNII-2C: 0.01122 (CH 100) UNII-3: 0.01122 (CH 140)
WLAN 802.11 ac (20 MHz)	5180-5825	OFDM	97.97	NA	UNII-1, 2A: 0.0224 UNII-2C, 3: 0.0224 (Other Channels) UNII-2C: 0.01122 (CH 100) UNII-3: 0.01122 (CH 140)
BT	2402-2480	GFSK	77	NA	0.01349
BT LE (1M)	2402-2480	GFSK	62.74	0.0501	0.00708

Note - * includes 50% PTT operation

The intended operating positions are “at the face” with the DUT at least 1 inch (2.5cm) 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. Operation at the body without an audio accessory attached is possible by means of BT accessories.

7.0 Optional Accessories and Test Criteria

This device is offered with optional accessories. All accessories were individually evaluated during the test plan creation to determine if testing was required per the guidelines outlined in “SAR Test Reduction Considerations for Occupational PTT Radios” FCC KDB 643646 to assess compliance of this device. The following sections identify the test criteria and details for each accessory category. Refer to Exhibit 7B for antenna separation distances.

7.1 Antennas

Table 4

Antenna No.	Antenna Models	Description	Selected for test	Tested
1	AN000451A01	UHF Stubby Antenna (380-520 MHz), 9cm, ¼ wavelength, -1 dBi gain	Yes	Yes
2	AN000452A01	UHF Whip Antenna (380 - 520 MHz), 12cm, ¼ wavelength, 0 dBi gain	Yes	Yes
3	AN000410A01	WiFi/BT Antenna: 2.4-2.48GHz (¼ wavelength, 1.48 dBi gain), 5.15-5.85GHz (¼ wavelength, 4.88 dBi gain)	Yes	Yes

7.2 Battery

Table 5

Battery No.	Battery Models	Description	Selected for test	Tested	Comments
1	PMNN4813A	BATT LIION IMPRES 2 IP68 2850T	Yes	Yes	Default battery for body testing
2	PMNN4815A	BATT LIION IMPRES 2 DIV 1 IP68 3200T	Yes	Yes	Default battery for face testing

7.3 Body worn Accessories

Table 6

Body worn No.	Body worn Models	Description	Selected for test	Tested	Comments
1	4200865599	1.75" Wide Leather Belt	No	No	Not required for testing as it's a belt waist for the belt loops.
2	PMLN5407	Replacement 2.5" Leather Swivel Belt Loop	Yes	Yes	Paired with PMLN8609A
3	PMLN5408	Replacement 2.75" Leather Swivel Belt Loop	Yes	Yes	Paired with PMLN8609A
4	PMLN5409	Replacement 3.0" Leather Swivel Belt Loop	Yes	Yes	Paired with PMLN8609A
5	PMLN8369A	CARRY ACCESSORY-BELT CLIP,APX N30/APX N50 2.0 BELT CLIP (2.0" BELT CLIP)	Yes	Yes	
6	PMLN8370A	CARRY ACCESSORY-BELT CLIP,APX N30/APX N50 2.5 BELT CLIP (2.5" BELT CLIP)	Yes	Yes	
7	PMLN8609A	APX N30/APXN50 HARD LEATHER CARRY CASE 2.75 INCH SWIVEL BELT LOOP, PMNN4813 BATTERY	Yes	Yes	Paired with PMLN5407, PMLN5408 and PMLN5409.

7.4 Audio Accessories

Table 7

Audio No.	Audio Acc. Models	Description	Selected for test	Tested	Comments
1	PMMN4128A	RM780 IMPRES WINDPORTING REMOTE SPEAKER MICROPHONE, LARGE (IP68)	Yes	Yes	Default Audio
2	NMN6271A	IMPRES XP RSM FOR APX W/ DUAL MIC NOISE SUPPRESSION	No	No	By Similarity to NMN6274B
3	NMN6274B	IMPRES XP RSM FOR APX W/ DUAL MIC NOISE SUPPRESSION, 3.5MM THRD JACK	Yes	Yes	Paired with PMLN8334A
4	PMLN6827A	ACCESSORY KIT,TACTICAL GCAI PTT INTERFACE MODULE	Yes	Yes	Paired with PMLN6828A, PMLN6829A and PMLN8334A
5	PMLN6828A	ACCESSORY KIT,TACTICAL THROAT MICROPHONE	Yes	Yes	Paired with PMLN6827A and PMLN8334A
6	PMLN6829A	TACTICAL EAR MICROPHONE	Yes	Yes	Paired with PMLN6827A and PMLN8334A
7	PMLN8085A	BEHIND-THE-HEAD HEADSET	No	No	By Similarity to PMLN8086A
8	PMLN8086A	OVER-THE-HEAD HEADSET	Yes	Yes	
9	PMLN8265A	HEADBAND HEADSET W/ NEXUS	Yes	Yes	Paired with PMLN8297A
10	PMLN8266A	NECKBAND HEADSET W/ NEXUS	No	No	By Similarity to PMLN8265A
11	PMLN8267A	HARDHAT HEADSET W/ NEXUS	No	No	By Similarity to PMLN8265A
12	PMLN8295A	2-WIRE SWIVEL LOUD AUDIO EARPIECE WITH EARTIP	Yes	Yes	
13	PMLN8297A	GCAI-MINI PTT NEXUS ADAPTER	Yes	Yes	Paired with PMLN8265A
14	PMLN8337A	1-WIRE SINGLE EARBUD WITH REMOVABLE EARHOOK LOUD AUDIO EARPIECE	Yes	Yes	
15	PMLN8341A	1-WIRE SURVEILLANCE KIT WITH LOUD AUDIO TRANSLUCENT TUBE	No	No	By Similarity to PMLN8337A
16	PMLN8342A	2-WIRE SURVEILLANCE KIT WITH LOUD AUDIO TRANSLUCENT TUBE	No	No	By Similarity to PMLN8295A
17	PMLN8343A	3-WIRE SURVEILLANCE KIT WITH LOUD AUDIO TRANSLUCENT TUBE	Yes	Yes	
18	PMMN4132A	ACCESSORY KIT, XVE500 REMOTE SPEAKER MIC, HIGH IMPACT GREEN WITH KNOB	Yes	Yes	Paired with PMLN8334A

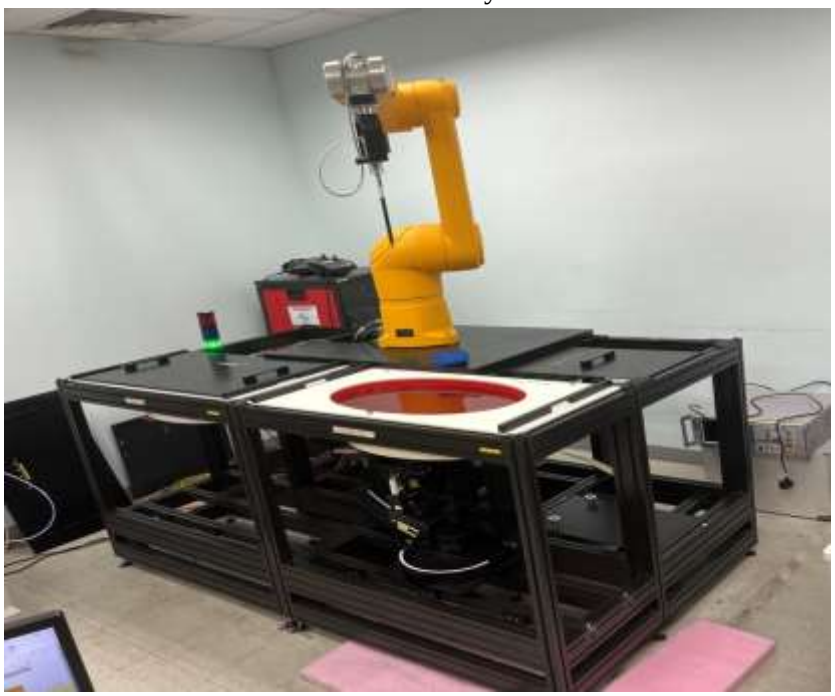
Table 7 (Continued)

Audio No.	Audio Acc. Models	Description	Selected for test	Tested	Comments
19	PMMN4132ABLK	ACCESSORY KIT, XVE500 REMOTE SPEAKER MICROPHONE, BLACK WITH KNOB	No	No	By Similarity to PMLN4132A
20	PMMN4137A	ACCESSORY KIT, XVE500 REMOTE SPEAKER MICROPHONE, HIGH IMPACT GREEN, NO CHANNEL KNOB	No	No	By Similarity to PMLN4132A
21	PMMN4137ABLK	ACCESSORY KIT, XVE500 REMOTE SPEAKER MICROPHONE, BLACK, NO CHANNEL KNOB	No	No	By Similarity to PMLN4132A
-22	PMMN4140A	RM760 IMPRES WINDPORTING REMOTE SPEAKER MICROPHONE, LARGE (IP68)	No	No	By Similarity to PMLN4128A
23	PMMN4141A	AUDIO ACCESSORY-REMOTE SPEAKER MICROPHONE,XVP750 RSM	Yes	Yes	
24	PMMN4142A	AUDIO ACCESSORY-REMOTE SPEAKER MICROPHONE,XVP730 RSM	No	No	By Similarity to PMLN4141A
25	PMLN8334A	CABLES-ADAPTER CABLES,GCAI MINI TO GCAI CABLE ADAPTER, FOR APX	Yes	Yes	Paired with NMN6274B, PMLN6827A, PMLN6828A, PMLN6829A and PMMN4132A

8.0 Description of Test System

DASY5™ Test System

DASY6™ Test System



8.1 Descriptions of Robotics/Probes/Readout Electronics

Table 8

Dosimetric System type	System version	DAE type	Probe Type
Schmid & Partner Engineering AG SPEAG DASY 5	52.10.4.1527	DAE4	EX3DV4 (E-Field)
Schmid & Partner Engineering AG SPEAG DASY 6	V16.2.2.1588	DAE4	EX3DV4 (E-Field)

The DASY5™ and DASY6™ systems are operate per the instructions in the DASY5™ and DASY6™ Users Manuals. The complete manuals are available directly from SPEAG™. All measurement equipment used to assess 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.

8.2 Description of Phantom(s)

Table 9

Phantom Type	Phantom(s) Used	Material Parameters	Phantom Dimensions LxWxD (mm)	Material Thickness (mm)	Support Structure Material	Loss Tangent (wood)
Triple Flat	NA	200MHz -6GHz; Er = 3-5, Loss Tangent = ≤0.05	280x175x175	2mm +/- 0.2mm	Wood	< 0.05
SAM	NA	300MHz -6GHz; Er = < 5, Loss Tangent = ≤0.05	Human Model			
Oval Flat	√	300MHz -6GHz; Er = 4+/- 1, Loss Tangent = ≤0.05	600x400x190			

8.3 Description of Simulated Tissue

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. The solution is mixed thoroughly, covered, and allowed to sit overnight prior to use.

The simulated tissue mixture was mixed based on the Simulated Tissue Composition indicated in Table 10. During the daily testing of this product, the applicable mixture was used to measure the Di-electric parameters at each of the tested frequencies to verify that the Di-electric parameters were within the tolerance of the tissue specifications.

Simulated Tissue Composition (percent by mass)

Table 10

Ingredients	450MHz	2450MHz(1)	5GHz(1)
	Head	Head	Head
Sugar	56.0	NA	NA
Diacetin	0	NA	NA
De ionized-Water	39.1	NA	NA
Salt	3.8	NA	NA
HEC	1.0	NA	NA
Bact.	0.1	NA	NA

Note: (1) SPEAG provides Motorola proprietary stimulant ingredients for the 2.45GHz & 5GHz bands.

9.0 Additional Test Equipment

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

Table 11

Equipment Type	Model Number	Serial Number	Calibration Date	Calibration Due Date
SPEAG PROBE	EX3DV4	7594	11/2/2022	11/2/2025
SPEAG PROBE	EX3DV4	7519	02/28/2022	02/28/2025
SPEAG DAE	DAE4	729	06/09/2021	06/09/2024
SPEAG DAE	DAE4	684	02/22/2022	02/22/2025
POWER AMPLIFIER	50W100D	357646	CNR	CNR
POWER AMPLIFIER	5S1G4	312988	CNR	CNR
VECTOR SIGNAL GENERATOR	E4438C	MY45091270	09/21/2022	09/21/2023*
VECTOR SIGNAL GENERATOR	E4438C	MY47272101	10/27/2022	10/27/2023
BI-DIRECTIONAL COUPLER	3022	81639	09/15/2022	09/15/2023*
BI-DIRECTIONAL COUPLER	3022	77115	7/18/2023	07/18/2024
BI-DIRECTIONAL COUPLER	3022	81640	06/09/2023	06/09/2024
POWER METER	E4418B	MY45100739	12/07/2022	12/07/2023
POWER METER	E4419B	MY45103725	06/18/2023	06/18/2024
POWER METER	E4418B	MY45107917	07/27/2023	07/27/2024
POWER SENSOR	E4412A	MY61060015	04/10/2023	04/10/2024
POWER SENSOR	E9301B	MY50280001	05/19/2023	05/19/2024
POWER SENSOR	E9301B	MY50290001	06/16/2023	06/16/2024
POWER SENSOR	E4412A	MY61020016	08/21/2023	08/21/2024
DATA LOGGER	DSB	16398306	12/14/2022	12/14/2023
DATA LOGGER	DSB	16326820	11/12/2022	11/12/2023
THERMOMETER	HH806AU	080307	11/28/2022	11/28/2023
TEMPERATURE PROBE	80PK-22	06032017	11/28/2022	11/28/2023
NETWORK ANALYZER	E5071B	MY42403218	09/24/2022	09/24/2023*
NETWORK ANALYZER	E5071B	MY42403147	2/21/2023	2/21/2024
DIELECTRIC ASSESSMENT KIT	DAK-3.5	1120	10/03/2022	10/03/2023
DIGITAL THERMOMETER	1523	3492108	11/04/2022	11/04/2023
TEMPERATURE PROBE	PR-10L-4-100-1/4-6-BX	WNWR037791	11/04/2022	11/04/2023
SPEAG DIPOLE	D450V3	1053	02/17/2022	02/17/2025
SPEAG DIPOLE	D2450V2	781	10/13/2021	10/13/2024
SPEAG DIPOLE	D5GHZV2	1027	02/10/2022	02/10/2025
SPEAG DIPOLE	D5GHZV2	1026	09/24/2021	09/24/2024
POWER METER	E4419B	GB42420608	11/14/2022	11/14/2023
POWER SENSOR	E9301B	MY55210006	05/18/2023	05/18/2024

Note: * Denotes SAR assessment was done before the equipment calibration due date.

10.0 SAR Measurement System Validation and Verification

DASY output files of the probe/dipole calibration certificates and system verification test results are included in Appendices B, C & D respectively.

10.1 System Validation

The SAR measurement system was validated according to procedures in KDB 865664. The validation status summary Table is below.

Table 12

Dates	Probe Calibration Point		Probe SN	Measured Tissue Parameters		Validation		
				σ	ϵ_r	Sensitivity	Linearity	Isotropy
07/29/2023	Head	450	7594	0.89	43.76	Pass	Pass	Pass
06/08/2023	Head	2450	7519	1.77	36.60	Pass	Pass	Pass
06/10/2023		5250		4.25	34.30	Pass	Pass	Pass
07/01/2023		5600		4.67	38.40	Pass	Pass	Pass
06/11/2023		5750		4.84	38.10	Pass	Pass	Pass

10.2 System Verification

System verification checks were conducted each day during the SAR assessment. The results are normalized to 1W. Appendix D includes DASY plots with the largest deviation from the qualified source SAR target for each dipole. The Table below summarizes the daily system check results used for the SAR assessment.

Table 13

Probe Serial #	Tissue Type	Dipole Kit / Serial #	Ref SAR @ 1W (W/kg)	System Check Results Measured (W/kg)	System Check Test Results when normalized to 1W (W/kg)	Tested Date	Deviation (%)
7594	IEEE/IEC Head	SPEAG D450V3 / 1053	4.60 ± 10%	1.21	4.84	08/14/2023	5.2
7594	IEEE/IEC Head	SPEAG D450V3 / 1053	4.60 ± 10%	1.18	4.72	08/15/2023@	2.6
7594	IEEE/IEC Head	SPEAG D450V3 / 1053	4.60 ± 10%	1.18	4.72	08/16/2023@	2.6
7594	IEEE/IEC Head	SPEAG D450V3 / 1053	4.60 ± 10%	1.22	4.88	08/17/2023@	**6.1**
7594	IEEE/IEC Head	SPEAG D450V3 / 1053	4.60 ± 10%	1.18	4.72	08/18/2023	2.6
7594	IEEE/IEC Head	SPEAG D450V3 / 1053	4.60 ±10%	1.20	4.80	08/19/2023@	4.3
7594	IEEE/IEC Head	SPEAG D450V3 / 1053	4.60 ±10%	1.14	4.56	09/26/2023	-0.9
7519	IEEE/IEC Head	SPEAG D2450V2 / 781	52.70 ± 10%	13.20	52.80	08/15/2023	0.2
7519	IEEE/IEC Head	SPEAG D2450V2 / 781	52.70 ± 10%	13.70	54.80	08/16/2023	**4.0**
7519	IEEE/IEC Head	SPEAG D5GHZV2 / 1026	80.60 ± 10%	8.06	80.60	08/17/2023	0.0
7519	IEEE/IEC Head	SPEAG D5GHZV2 / 1026	80.60 ± 10%	7.69	76.90	08/18/2023@	-4.6
7519	IEEE/IEC Head	SPEAG D5GHZV2 / 1026	83.90 ± 10%	7.79	77.90	08/19/2023@	-7.2
7519	IEEE/IEC Head	SPEAG D5GHZV2 / 1026	83.90 ± 10%	7.58	75.80	08/20/2023@	**-9.7**
7519	IEEE/IEC Head	SPEAG D5GHZV2 / 1026	83.90 ± 10%	7.67	76.70	08/21/2023@	-8.6
7519	IEEE/IEC Head	SPEAG D5GHZV2 / 1026	83.90 ± 10%	7.66	76.60	08/22/2023@	-8.7
7519	IEEE/IEC Head	SPEAG D5GHZV2 / 1027	80.90 ± 10%	7.83	78.30	08/23/2023	**-3.2**
7519	IEEE/IEC Head	SPEAG D5GHZV2 / 1026	80.60 ± 10%	7.34	73.40	08/24/2023	-8.9

Note: '@' indicates that tissue test result covers next test day (within 24 hours)

10.3 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 14

Frequency (MHz)	Tissue Type	Conductivity Target (S/m)	Dielectric Constant Target	Conductivity Meas. (S/m)	Dielectric Constant Meas.	Tested Date
380.013	IEEE/ IEC Head	0.87 (0.83-0.91)	44.3 (42.1-46.6)	0.84	44.5	08/18/2023
393.100	IEEE/ IEC Head	0.87 (0.83-0.91)	44.2 (42.0-46.4)	0.85	44.2	08/18/2023
406.200	IEEE/ IEC Head	0.87 (0.83-0.91)	44.0 (41.8-46.2)	0.83	43.8	08/14/2023
		0.87 (0.83-0.91)	44.0 (41.8-46.2)	0.85	43.3	08/15/2023@
		0.87 (0.83-0.91)	44.0 (41.8-46.2)	0.85	44.7	08/15/2023@
		0.87 (0.83-0.91)	44.0 (41.8-46.2)	0.84	44.3	08/17/2023
418.000	IEEE/ IEC Head	0.87 (0.83-0.91)	43.9 (41.7-46.1)	0.84	43.5	08/14/2023
		0.87 (0.83-0.91)	43.9 (41.7-46.1)	0.86	43.0	08/15/2023@
		0.87 (0.83-0.91)	43.9 (41.7-46.1)	0.85	44.06	08/17/2023
423.800	IEEE/ IEC Head	0.87 (0.83-0.91)	43.8 (41.6-46.0)	0.84	43.4	08/14/2023
		0.87 (0.83-0.91)	43.8 (41.6-46.0)	0.86	42.9	08/15/2023@
		0.87 (0.83-0.91)	43.8 (41.6-46.0)	0.86	44.4	08/16/2023
		0.87 (0.83-0.91)	43.8 (41.6-46.0)	0.85	43.9	08/17/2023
430.000	IEEE/ IEC Head	0.87 (0.83-0.91)	43.7 (41.6-45.9)	0.85	43.3	08/14/2023
		0.87 (0.83-0.91)	43.7 (41.6-45.9)	0.87	42.8	08/15/2023@
		0.87 (0.83-0.91)	43.7 (41.6-45.9)	0.86	43.8	08/17/2023

Note: '@' indicates that tissue test result covers next test day (within 24 hours)

Table 14 (Continued)

Frequency (MHz)	Tissue Type	Conductivity Target (S/m)	Dielectric Constant Target	Conductivity Meas. (S/m)	Dielectric Constant Meas.	Tested Date
441.500	IEEE/ IEC Head	0.87 (0.83-0.91)	43.6 (41.4-45.8)	0.86	43.0	08/14/2023
		0.87 (0.83-0.91)	43.6 (41.4-45.8)	0.88	42.5	08/15/2023@
		0.87 (0.83-0.91)	43.6 (41.4-45.8)	0.87	43.6	08/17/20232
450.000	IEEE/ IEC Head	0.87 (0.83-0.91)	43.5 (41.3-45.7)	0.88	42.4	08/15/2023@
		0.87 (0.83-0.91)	43.5 (41.3-45.7)	0.88	43.4	08/17/2023
		0.87 (0.83-0.91)	43.5 (41.3-45.7)	0.86	42.5	09/26/2023
459.100	IEEE/ IEC Head	0.87 (0.83-0.91)	43.5 (41.3-45.6)	0.87	42.6	08/14/2023
		0.87 (0.83-0.91)	43.5 (41.3-45.6)	0.89	42.2	08/15/2023@
		0.87 (0.83-0.91)	43.5 (41.3-45.6)	0.90	43.6	08/16/2023@
		0.87 (0.83-0.91)	43.5 (41.3-45.6)	0.87	42.3	08/17/2023
470.000	IEEE/ IEC Head	0.87 (0.83-0.91)	43.4 (41.2-45.6)	0.88	42.4	08/14/2023
		0.87 (0.83-0.91)	43.4 (41.2-45.6)	0.90	42.0	08/15/2023@
		0.87 (0.83-0.91)	43.4 (41.2-45.6)	0.91	43.3	08/16/2023@
		0.87 (0.83-0.91)	43.4 (41.2-45.6)	0.88	42.01	08/17/2023
476.700	IEEE/ IEC Head	0.87 (0.83-0.92)	43.4 (41.2-45.6)	0.88	42.3	08/14/2023
		0.87 (0.83-0.92)	43.4 (41.2-45.6)	0.91	41.8	08/15/2023@
		0.87 (0.83-0.92)	43.4 (41.2-45.6)	0.91	43.2	08/16/2023@
494.400	IEEE/ IEC Head	0.87 (0.83-0.92)	43.3 (41.1-45.4)	0.90	41.4	08/15/2023@
512.000	IEEE/ IEC Head	0.87 (0.83-0.92)	43.2 (41.0-45.3)	0.92	41.1	08/15/2023@
		0.87 (0.83-0.92)	43.2 (41.0-45.3)	0.92	41.1	08/16/2023
		0.87 (0.83-0.92)	43.2 (41.0-45.3)	0.91	41.2	08/17/2023
		0.87 (0.83-0.92)	43.2 (41.0-45.3)	0.90	41.2	08/19/2023@
		0.87 (0.83-0.92)	43.2 (41.0-45.3)	0.92	41.3	09/26/2023

Note: '@' indicates that tissue test result covers next test day (within 24 hours)

Table 14 (Continued)

Frequency (MHz)	Tissue Type	Conductivity Target (S/m)	Dielectric Constant Target	Conductivity Meas. (S/m)	Dielectric Constant Meas.	Tested Date
519.988	IEEE/ IEC Head	0.87 (0.83-0.92)	43.1 (41.0-45.3)	0.92	41.1	08/17/2023@
		0.87 (0.83-0.92)	43.1 (41.0-45.3)	0.92	41.0	08/18/2023
2412	IEEE/ IEC Head	1.77 (1.68-1.86)	39.3 (35.3-43.2)	1.77	37.8	08/15/2023
		1.77 (1.68-1.86)	39.3 (35.3-43.2)	1.77	39.4	08/16/2023
2437	IEEE/ IEC Head	1.79 (1.70-1.88)	39.2 (35.3-43.1)	1.79	39.4	08/16/2023
2462	IEEE/ IEC Head	1.81 (1.72-1.90)	39.2 (35.3-43.1)	1.81	39.3	08/16/2023
5260	IEEE/ IEC Head	4.72 (4.25-5.19)	35.9 (32.3-39.5)	4.44	34.8	08/17/2023
		4.72 (4.25-5.19)	35.9 (32.3-39.5)	4.39	34.0	08/19/2023@
5300	IEEE/ IEC Head	4.76 (4.28-5.24)	35.9 (32.3-39.5)	4.43	33.9	08/19/2023@
5320	IEEE/ IEC Head	4.78 (4.3-5.26)	35.9 (32.3-39.5)	4.45	33.9	08/19/2023@
5500	IEEE/ IEC Head	4.97 (4.47-5.46)	35.7 (32.1-39.2)	4.65	33.3	08/20/2023@
5500	IEEE/ IEC Head	4.97 (4.47-5.46)	35.7 (32.1-39.2)	4.76	34.3	08/20/2023
5560	IEEE/ IEC Head	5.03 (4.53-5.53)	35.6 (32-39.1)	4.81	34.2	08/21/2023@
5600	IEEE/ IEC Head	5.07 (4.56-5.58)	35.5 (32-39.1)	4.67	33.0	08/23/2023@
5640	IEEE/ IEC Head	5.11 (4.60-5.62)	35.5 (31.9-39.0)	4.82	33.2	08/21/2023
5640	IEEE/ IEC Head	5.11 (4.60-5.62)	35.5 (31.9-39.0)	4.82	33.2	08/22/2023@
5660	IEEE/ IEC Head	5.13 (4.62-5.64)	35.4 (31.9-39)	4.93	34.0	08/21/2023@
5660	IEEE/ IEC Head	5.13 (4.62-5.64)	35.4 (31.9-39)	4.84	33.2	08/21/2023
5745	IEEE/ IEC Head	5.22 (4.69-5.74)	35.4 (31.8-38.9)	4.89	33.3	08/23/2023
5750	IEEE/ IEC Head	5.22 (4.7-5.74)	35.4 (31.8-38.9)	4.83	32.8	08/23/2023@
5825	IEEE/ IEC Head	5.3 (4.77-5.83)	35.3 (31.7-38.8)	4.90	32.7	08/23/2023@
5825	IEEE/ IEC Head	5.3 (4.77-5.83)	35.3 (31.7-38.8)	4.98	33.1	08/23/2023

Note: '@' indicates that tissue test result covers next test day (within 24 hours)

11.0 Environmental Test Conditions

The EME Laboratory's 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 +/– 2ºC 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 15

	Target	Measured
Ambient Temperature	18 – 25 ˚C	Range: 21.3 – 23.4˚C Avg. 22.0 ˚C
Tissue Temperature	18 – 25 ˚C	Range: 20.7 - 22.6˚C Avg. 21.6˚C

Relative humidity target range is a recommended target

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 Setup and Methodology

12.1 Measurements

SAR measurements were performed using the DASY system described in section 8.0 using zoom scans. Oval flat phantoms filled with applicable simulated tissue were used for body and face testing.

The Table below includes the step sizes and resolution of area and zoom scans per KDB 865664 requirements.

Table 16

Description		≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface		5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location		30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: ΔxArea, ΔyArea		≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
		When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: ΔxZoom, ΔyZoom		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: ΔzZoom(n)	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.			

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. All accessories listed in section 7.0 of this report were considered when implementing the guidelines specified in KDB 643646.

12.3 DUT Positioning Procedures

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

12.3.1 Body

The DUT was positioned in normal use configuration against the phantom with the offered body worn accessory as well as with and without the offered audio accessories as applicable.

12.3.2 Head

Not applicable.

12.3.3 Face

The DUT was positioned with its' front and back sides separated 2.5cm from the phantom.

12.4 DUT Test Channels

The number of test channels was determined by using the following IEEE 1528 equation. The use of this equation produces the same or more test channels compared to the FCC KDB 447498 number of test channels formula.

$$N_c = 2 * roundup[10 * (f_{high} - f_{low}) / f_c] + 1$$

Where

N_c = Number of channels
F_{high} = Upper channel
F_{low} = Lower channel
F_c = Center channel

12.5 SAR Result Scaling Methodology

The calculated 1-gram averaged SAR results indicated as "Max Calc. 1g-SAR" in the data Tables is determined by scaling the measured SAR to account for power leveling variations and drift. Appendix F includes a shortened scan to justify SAR scaling for drift. For this device the "Max Calc. 1g-SAR" is scaled using the following formula:

$$Max\_Calc = SAR\_meas \cdot 10^{\frac{-Drift}{10}} \cdot \frac{P\_\max}{P\_\text{int}} \cdot DC$$

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 KDB 865664 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. Negative or reduced SAR scaling is not permitted.

12.6 DUT Test Plan

The guidelines and requirements outlined in section 4.0 were used to assess compliance of this device. All modes of operation identified in section 6.0 were considered during the development of the test plan. All tests were performed in CW and WLAN modes. 50% duty cycle was applied to PTT configurations (CW) while different duty cycles were applied to different WLAN configurations in the final results.

Standalone and simultaneous BT testing were assess in sections 14.3 and 16.1 per the guidelines of KDB 447498.

13.0 DUT Test Data

13.1 LMR assessments at the Body for 406.1-512MHz band

Battery PMNN4813A was selected as the default battery for assessments at the Body because it is the thinnest battery (refer to Exhibit 7B for battery illustration). The default battery was used during conducted power measurements for all test channels within FCC allocated frequency range (406.1-512MHz) which are listed in Table 17. The channel with the highest conducted power will be identified as the default channel per KDB 643646 (SAR Test for PTT Radios).

Table 17

Test Freq (MHz)	Power (W)
406.2000	5.590
418.0500	5.560
423.8000	5.540
430.0000	5.530
441.5000	5.490
450.0000	5.460
459.1000	5.500
470.0000	5.690
476.7000	5.560
494.4000	5.420
512.0000	5.440

Assessments at the Body with Body worn PMLN8369A

DUT assessment with offered antennas, default battery and, default body worn accessory per KDB 643646. Optional batteries were tested per the requirements of KDB 643646. Refer to Table 17 for highest output power channel.

Table 18

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
AN000451A01	PMNN4813A	PMLN8369A	PMMN4128A	406.2000	5.50	-0.41	7.33	4.17	DAN-AB-230814-09
				418.0500	5.53	-0.35	7.75	4.33	DAN-AB-230814-10
				423.8000	5.53	-0.30	7.51	4.15	DAN-AB-230814-11
				430.0000	5.49	-0.32	6.85	3.83	DAN-AB-230814-12
				441.5000	5.50	-0.16	6.25	3.36	DAN-AB-230814-13
				450.0000					
				459.1000	5.46	-0.02	7.30	3.83	DAN-AB-230814-07
				470.0000	5.55	-0.06	9.53	4.96	DAN-AB-230814-06
				476.7000	5.47	-0.13	8.73	4.69	DAN-AB-230814-08
				494.4000					
				512.0000					
AN000452A01				406.2000	5.56	-0.47	5.65	3.23	SAN-AB-230814-17
				418.0500					
				423.8000					
				430.0000					
				441.5000					
				450.0000					
				459.1000	5.48	-0.02	7.62	3.98	DAN-AB-230814-15
				470.0000	5.54	-0.09	9.88	***5.19**	DAN-AB-230814-14
				476.7000	5.55	-0.10	9.15	4.81	SAN-AB-230814-16
				494.4000					
				512.0000					
Optional batteries									
AN000451A01	PMNN4815A	PMLN8369A	PMMN4128A	470.0000	5.53	-0.13	6.82	3.62	SAN-AB-230814-18
AN000452A01					5.59	-0.05	7.15	3.69	SAN-AB-230814-19

Note: *The SAR value in bold indicates the highest SAR of LMR for ISED Body.

Assessments at the Body with Body Worn PMLN8370A

DUT assessment with offered antennas, default battery and, default body worn accessory per KDB 643646. Optional batteries were tested per the requirements of KDB 643646. Refer to Table 17 for highest output power channel.

Table 19

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
AN000451A01	PMNN4813A	PMLN8370A	PMMN4128A	406.2000	5.50	-0.40	7.81	4.44	DAN-AB-230815-06
				418.0500	5.54	-0.35	7.41	4.13	DAN-AB-230815-07
				423.8000	5.53	-0.26	7.71	4.22	DAN-AB-230815-08
				430.0000	5.50	-0.18	7.47	4.03	DAN-AB-230815-09
				441.5000	5.49	-0.10	7.63	4.05	DAN-AB-230815-10
				450.0000	5.47	-0.01	5.66	2.96	DAN-AB-230815-11
				459.1000	5.54	-0.03	6.08	3.15	SAN-AB-230815-04
				470.0000	5.56	-0.08	9.07	4.74	SAN-AB-230815-03
				476.7000	5.50	-0.09	9.89	5.23	SAN-AB-230815-05
				494.4000	5.42	-0.09	8.48	4.55	DAN-AB-230815-14
				512.0000	5.42	-0.03	10.40	5.51	DAN-AB-230815-13
AN000452A01				406.2000	5.57	-0.45	5.38	3.08	AMF-AB-230815-18
				418.0500					
				423.8000					
				430.0000					
				441.5000					
				450.0000					
				459.1000	5.51	-0.01	8.29	4.30	DAN-AB-230815-16
				470.0000	5.57	-0.05	8.59	4.45	DAN-AB-230815-15
				476.7000	5.52	-0.07	9.69	5.08	AMF-AB-230815-17
				494.4000					
				512.0000					
Optional batteries									
AN000451A01	PMNN4815A	PMLN8370A	PMMN4128A	512.0000	5.42	-0.32	8.38	4.74	AMF-AB-230815-19
AN000452A01				476.7000	5.50	-0.06	7.99	4.20	AMF-AB-230815-20

Assessments at the Body with Body Worn PMLN8609A with PMLN5407

DUT assessment with offered antennas, default battery and, default body worn accessory per KDB 643646. Optional batteries were tested per the requirements of KDB 643646. Refer to Table 17 for highest output power channel.

Table 20

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
AN000451A01	PMNN4813A	PMLN8609A w/ PMLN5407	PMMN4128A	406.2000					
				418.0500					
				423.8000					
				430.0000					
				441.5000					
				450.0000					
				459.1000					
				470.0000	5.67	-0.02	3.05	1.54	AMF-AB-230816-01@
				476.7000					
				494.4000					
				512.0000					
AN000452A01				406.2000					
				418.0500					
				423.8000					
				430.0000					
				441.5000					
				450.0000					
				459.1000					
				470.0000	5.69	-0.12	3.35	1.72	AMF-AB-230816-02@
				476.7000					
				494.4000					
				512.0000					

Assessments at the Body with Body Worn PMLN8609A with PMLN5409

DUT assessment with offered antennas, default battery and, default body worn accessory per KDB 643646. Optional batteries were tested per the requirements of KDB 643646. Refer to Table 17 for highest output power channel.

Table 21

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
AN000451A01	PMNN4813A	PMLN8609A w/ PMLN5409	PMMN4128A	406.2000					
				418.0500					
				423.8000					
				430.0000					
				441.5000					
				450.0000					
				459.1000					
				470.0000	5.64	-0.05	3.03	1.55	AMF-AB-230816-03@
				476.7000					
				494.4000					
				512.0000					
AN000452A01				406.2000					
				418.0500					
				423.8000					
				430.0000					
				441.5000					
				450.0000					
				459.1000					
				470.0000	5.67	0.04	3.02	1.52	AMF-AB-230816-04@
				476.7000					
				494.4000					
				512.0000					

Assessments at the Body with Body Worn PMLN8609A with PMLN5408

DUT assessment with offered antennas, default battery and, default body worn accessory per KDB 643646. Optional batteries were tested per the requirements of KDB 643646. Refer to Table 17 for highest output power channel.

Table 22

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
AN000451A01	PMNN4813A	PMLN8609A w/ PMLN5408	PMMN4128A	406.2000					
				418.0500					
				423.8000					
				430.0000					
				441.5000					
				450.0000					
				459.1000					
				470.0000	5.66	-0.02	3.01	1.52	AMF-AB-230816-05@
				476.7000					
				494.4000					
				512.0000					
AN000452A01				406.2000					
				418.0500					
				423.8000					
				430.0000					
				441.5000					
				450.0000					
				459.1000					
				470.0000	5.68	-0.10	3.11	1.60	AMF-AB-230816-06@
				476.7000					
				494.4000					
				512.0000					

Assessment at the Body with other Audio Accessories

Assessment of additional audio accessories per "KDB 643646 Body SAR Test Consideration for Audio Accessories without Built-in Antenna; Sec 1, A" where SAR plots of the highest results per Table (bolded) is presented in Appendix E.

Table 23

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
AN000451A01	PMNN4813A	PMLN8370A	NMN6274B w/ PMLN8334A	512.0000	5.42	-0.01	9.49	5.00	DAN-AB-230816-08@
			PMLN6828A w/ PMLN6827A w/ PMLN8334A		5.43	-0.05	9.28	4.93	DAN-AB-230816-09@
			PMLN6829A w/ PMLN6827A w/ PMLN8334A		5.43	-0.05	10.50	5.57	DAN-AB-230816-10@
			PMLN8086A		5.43	0.03	10.30	5.41	DAN-AB-230816-11@
			PMLN8265A w/ PMLN8297A		5.42	-0.05	10.50	5.59	DAN-AB-230816-12@
			PMLN8295A		5.43	-0.06	11.00	**5.85**	DAN-AB-230816-13@
			PMLN8337A		5.43	-0.04	9.07	4.80	DAN-AB-230816-14@
			PMLN8343A		5.42	-0.02	10.60	5.60	DAN-AB-230816-15@
			PMMN4132A w/ PMLN8334A		5.43	-0.07	10.30	5.49	DAN-AB-230816-16@
			PMMN4141A		5.43	-0.07	8.67	4.62	DAN-AB-230816-18

Assessment of wireless BT configuration

Assessment of using the overall highest SAR configuration at the body from above without an audio accessory attached.

Table 24

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
AN000451A01	PMNN4813A	PMLN8370A	None	512.0000	5.42	0.02	10.60	5.57	AMF-AB-230816-21

13.2 LMR assessments at the Face for 406.1-512MHz band

Battery PMNN4815A was selected as the default battery for assessments at the Face because it has the highest capacity (refer to Exhibit 7B for battery illustration). The default battery was used during conducted power measurements for all test channels within FCC allocated frequency range (406.1-512MHz) which are listed in Table 25. The channel with the highest conducted power will be identified as the default channel per KDB 643646 (SAR Test for PTT Radios).

Table 25

Test Freq (MHz)	Power (W)
406.2000	5.570
418.0500	5.570
423.8000	5.560
430.0000	5.540
441.5000	5.440
450.0000	5.480
459.1000	5.620
470.0000	5.530
476.7000	5.430
494.4000	5.530
512.0000	5.640

DUT assessment with offered antennas, default battery with front of DUT positioned 2.5cm facing phantom per KDB 643646. Optional batteries were tested per the requirements of KDB 643646. Refer to Table 25 for highest output power channel. SAR plots of the highest results per Table 26 (bolded) are presented in the Appendix E.

Table 26

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
AN000451A01	PMNN4815A	None @ front	None	470.0000	5.59	-0.14	7.52	3.96	AMF-FACE-230816-22
				406.2000	5.55	-0.30	6.83	3.76	AMF-FACE-230816-23
				423.8000	5.51	-0.39	6.17	3.49	AMF-FACE-230816-24
AN000452A01	PMNN4815A	None @ front	None	470.0000	5.56	-0.04	8.66	4.48	AMF-FACE-230817-01@
				459.1000	5.42	-0.09	7.17	3.85	AMF-FACE-230817-02@
				476.7000	5.46	-0.05	9.20	**4.86**	AMF-FACE-230817-03@
				406.2000	5.50	-0.34	7.38	4.14	DAN-FACE-230817-05
				418.0500	5.50	-0.27	6.94	3.83	DAN-FACE-230817-06
				423.8000	5.51	-0.19	6.92	3.74	DAN-FACE-230817-07
				512.0000	5.45	-0.22	7.05	3.88	DAN-FACE-230817-08@
				441.5000	5.43	-0.02	6.92	3.65	DAN-FACE-230817-09
Optional batteries									
AN000452A01	PMNN4813A	None @ front	None	476.7000	5.51	-0.06	8.29	4.35	DAN-FACE-230817-10@

13.3 Assessment for ISED, Canada

Based on the assessment results for body and face per KDB643646, additional tests were not required for ISED, Canada frequency range (406.1-430MHz) and (450-470MHz) as the testing performed is in compliance with Industry Canada frequency range.

As per ISED Notice 2016-DRS001, additional tests were required for the low, mid and high frequency channels for the configuration with the highest SAR value. The SAR results are in Table 27 and Table 28. SAR plots of the highest results per Table (bolded) are presented in the Appendix E.

Table 27

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
Body (406.1-430MHz)									
AN000451A01	PMNN4813A	PMLN8370A	PMLN8295A	406.2000	5.50	-0.41	8.35	**4.76**	DAN-AB-230817-11
				418.0500	5.50	-0.38	7.88	4.46	DAN-AB-230817-12
				430.0000	5.53	-0.21	7.43	4.02	DAN-AB-230817-13
Face (406.1-430MHz)									
AN000452A01	PMNN4815A	None @ front	None	406.2000	5.50	-0.34	7.38	**4.14**	DAN-FACE-230817-05
				418.0500	5.50	-0.27	6.94	3.83	DAN-FACE-230817-06
				430.0000	5.51	-0.06	6.72	3.52	DAN-FACE-230817-16

Table 28

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
Body (450-470MHz)									
AN000451A01	PMNN4813A	PMLN8370A	PMLN8295A	450.0000	5.42	0.00	7.64	4.02	AMF-AB-230817-18
				459.1000	5.50	-0.03	8.15	4.25	AMF-AB-230817-19
				470.0000	5.62	-0.06	8.80	4.52	AMF-AB-230817-20
Face (450-470MHz)									
AN000452A01	PMNN4815A	None @ front	None	450.0000	5.45	-0.03	7.01	3.69	AMF-FACE-230818-01@
				459.1000	5.42	-0.09	7.17	3.85	AMF-FACE-230817-02@
				470.0000	5.56	-0.04	8.66	**4.48**	AMF-FACE-230817-01@

Note: The overall highest SAR configurations of assessments at the ISED frequency (450-470MHz) for Body can be found in the Table 18 SAR plot in Appendix E.

13.4 Assessment for outside FCC Frequency range

Additional assessment of outside FCC frequency range using highest SAR configuration from above. The highest SAR for outside FCC frequency range body is lower than the FCC frequency range body while the highest SAR for outside FCC frequency range face is higher than the FCC frequency range face, the SAR plots of the highest result per Table (bolded) are presented in the Appendix E. (Highest SAR configuration of Body refers to Table 23)

Table 29

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
Body									
AN000451A01	PMNN4813A	PMLN8370A	PMLN8295A	380.0125	5.53	-0.09	10.60	5.58	SAN-AB-230818-07
				393.1000	5.54	-0.18	9.72	5.21	SAN-AB-230818-08
				519.9875	5.48	-0.04	10.50	5.51	AMF-AB-230818-03@
AN000452A01				380.0125	5.60	-0.14	10.00	5.26	AMF-AB-230818-15
				393.1000	5.60	-0.30	10.00	5.45	AMF-AB-230818-16
				519.9875	5.50	-0.01	9.15	4.75	SAN-AB-230818-11
Face									
AN000451A01	PMNN4815A	None @ front	None	380.0125	5.58	-0.07	5.10	2.65	SAN-FACE-230818-13
				393.1000	5.61	0.00	6.79	3.45	AMF-FACE-230818-14
				519.9875	5.52	-0.21	8.53	4.62	SAN-FACE-230818-12
AN000452A01				380.0125	5.55	0.01	7.96	4.09	AMF-FACE-230818-05
				393.1000	5.55	-0.07	9.35	**4.88**	SAN-FACE-230818-06
				519.9875	5.50	-0.07	6.96	3.67	AMF-FACE-230818-02@

Note: The overall highest SAR for Body is 5.85W/kg as shown in another Table (Table 23).

14.0 DUT Test Data for WLAN

SAR test reduction is applied using the following criteria according to KDB 248227:

a. For 2.4GHz 802.11 g/n SAR testing is not required when then highest reported SAR for DSSS is adjusted by ratio of OFDM to DSSS specified maximum output power and adjusted SAR is ≤1.2 W/kg.

b. U-NII-1 SAR testing not required when U-NII-2A band highest reported SAR for a test configuration is ≤1.2 W/kg.

c. For all positions/configurations, when reported SAR is >0.8W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤1.2 W/kg or all required test positions/configurations are tested.

14.1 Assessment for WLAN 2.4GHz (802.11 b/g/n) for FCC

Output Power Data

These power measurements in Table 30 were used to determine the necessary modes for SAR testing according to KDB 248227.

Table 30

Band	802.11	Ch. BW	Ch.	Freq. (MHz)	Measured conducted power (W)
2.4 GHz	b	20	1	2412	0.048
			6	2437	0.048
			11	2462	0.046
	g	20	1	2412	0.024
			6	2437	0.047
			11	2462	0.029
	n	20	1	2412	0.025
			6	2437	0.038
			11	2462	0.029

Table below indicates the SAR results that have been performed based on previous highest configurations. SAR plots of the highest results per Table 31 (bolded) are present in the Appendix E.

Table 31

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
Body									
AN000410A01	PMNN4813A	PMLN8369A	None	2412.0000	0.052	-0.30	0.114	0.150	Previous Highest Configuration BAD-AB-220610-01#
AN000410A01	PMNN4813A	PMLN8369A	None	2412.0000	0.048	-0.27	0.069	0.097	MFR(MHN)-AB-230815-04
				2437.0000	0.048	-0.01	0.067	0.090	MFR(MHN)-AB-230816-10
				2462.0000	0.046	-0.30	0.076	**0.113**	IRA-AB-230816-11
Face									
AN000410A01	PMNN4813A	Radio @ front 2.5cm	None	2412.0000	0.047	0.07	0.027	0.037	Previous Highest Configuration BL-FACE-220702-02
AN000410A01	PMNN4813A	Radio @ front 2.5cm	None	2412.0000	0.048	-0.13	0.021	0.029	MFR(MHN)-FACE-230816-06
				2437.0000	0.048	0.32	0.026	**0.035**	MFR(MHN)-FACE-230816-08
				2462.0000	0.046	-0.22	0.016	0.023	MFR(MHN)-FACE-230816-09

Assessments for ISED Canada

Based on the assessment results for body and face per KDB643646, additional tests were not required for the Industry Canada frequency range (2412-2462MHz) as the testing performed is in compliance with Industry Canada frequency range.

As per ISED Notice 2016-DRS001, additional tests for the low, mid and high frequency channels for the configuration with the highest SAR values have already been covered by the previous Table.

14.2 Assessment for WLAN 5.0 GHz (802.11 a/n/ac) for FCC

Output Power Data

These power measurements in Table 33 were used to determine the necessary modes for SAR testing according to KDB 248227.

Table 32

Band	802.11	Ch. BW	Ch.	Freq. (MHz)	Measured conducted power (W)
U-NII-1	a	20	36	5180	0.023
			40	5200	0.024
			44	5220	0.025
			48	5240	0.025
	n	20	36	5180	0.019
			40	5200	0.020
			44	5220	0.021
			48	5240	0.021
	ac	20	36	5180	0.015
			40	5200	0.016
			44	5220	0.016
			48	5240	0.016
U-NII-2A	a	20	52	5260	0.025
			56	5280	0.025
			60	5300	0.026
			64	5320	0.020
	n	20	52	5260	0.021
			56	5280	0.021
			60	5300	0.022
			64	5320	0.021
	ac	20	52	5260	0.022
			56	5280	0.022
			60	5300	0.022
			64	5320	0.022

Table 32 (Continued)

Band	802.11	Ch. BW	Ch.	Freq. (MHz)	Measured conducted power (W)
U-NII-2C	a	20	100	5500	0.010
			112	5560	0.027
			116	5580	0.026
			128	5640	0.024
	n	20	100	5500	0.011
			112	5560	0.020
			116	5580	0.020
			128	5640	0.020
	ac	20	100	5500	0.010
			112	5560	0.019
			116	5580	0.018
			128	5640	0.019
U-NII-3	a	20	132	5660	0.024
			149	5745	0.020
			165	5825	0.019
	n	20	132	5660	0.019
			149	5745	0.021
			165	5825	0.019
	ac	20	132	5660	0.018
			149	5745	0.020
			165	5825	0.018

Tables below indicate the SAR results that have been performed based on previous highest configurations. SAR plots of the highest results per Table (bolded) are present in the Appendix E.

Assessments for U-NII-2A, U-NII-2C and U-NII 3 for FCC

Table 33

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
U-NII-2A: 802.11a, 20MHz BW - Body									
AN000410A01	PMNN4813A	PMLN8369A	None	5260.0000	0.020	-0.44	0.029	0.048	Previous Highest Configuration MFR-AB-220212-08
AN000410A01	PMNN4813A	PMLN8369A	None	5260.0000	0.025	0.03	0.023	0.027	IRA-AB-230817-03

Table 33 (Continued)

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
U-NII-2A: 802.11a, 20MHz BW - Body									
AN000410A01	PMNN4813A	PMLN8369A	None	5300.0000	0.026	-0.19	0.027	**0.032**	IRA-AB-230819-02@
				5320.0000	0.020	-0.20	0.021	0.025	ZIQ-AB-230819-03@
U-NII-2A: 802.11a, 20MHz BW - Face									
AN000410A01	PMNN4813A	Radio @ front 2.5cm	None	5260.0000	0.020	0.16	0.027	0.040	Previous Highest Configuration BL-FACE-220701-11
AN000410A01	PMNN4813A	Radio @ front 2.5cm	None	5260.0000	0.025	-0.38	0.014	**0.018**	IRA-FACE-230819-01@
				5300.0000	0.026	-0.13	0.012	0.014	ZIQ-FACE-230819-05@
				5320.0000	0.020	-0.40	0.003	0.003	ZIQ-FACE-230819-06@
U-NII-2C: 802.11a, 20MHz BW - Body									
AN000410A01	PMNN4813A	PMLN8370A	None	5640.0000	0.020	0.37	0.023	0.033	Previous Highest Configuration MFR-AB-220202-09#
AN000410A01	PMNN4813A	PMLN8370A	None	5500.0000	0.008	-0.03	0.010	0.010	MFR(MHN)-AB-230820-11
				5560.0000	0.027	-0.40	0.032	0.038	MFR(MHN)-AB-230821-01@
				5640.0000	0.024	-0.19	0.072	**0.090**	IRA-AB-230822-01@
U-NII-2C: 802.11a, 20MHz BW - Face									
AN000410A01	PMNN4813A	Radio @ front 2.5cm	None	5640.0000	0.020	-0.18	0.037	0.056	Previous Highest Configuration SAN-FACE-220203-02#
AN000410A01	PMNN4813A	Radio @ front 2.5cm	None	5500.0000	0.008	0.22	0.001	0.001	ZIQ-FACE-230820-06@
				5560.0000	0.027	-0.43	0.045	0.054	IRA-FACE-230823-05@
				5640.0000	0.024	-0.38	0.051	**0.066**	MFR(MHN)-FACE-230821-10

Table 33 (Continued)

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
U-NII-3: 802.11a, 20MHz BW - Body									
AN000410A01	PMNN4813A	PMLN8370A	None	5660.0000	0.023	0.11	0.033	0.043	Previous Highest Configuration SAN-AB-220213-03#
AN000410A01	PMNN4813A	PMLN8370A	None	5660.0000	0.024	-0.26	0.060	**0.078**	MFR(MHN)-AB-230821-02@
				5745.0000	0.020	0.35	0.001	0.001	IRA-AB-230823-04@
				5825.0000	0.019	-0.22	0.014	0.018	IRA-AB-230823-03@
U-NII-3: 802.11a, 20MHz BW - Face									
AN000410A01	PMNN4813A	Radio @ front 2.5cm	None	5660.0000	0.023	-0.40	0.043	0.061	Previous Highest Configuration AF-FACE-220204-12
AN000410A01	PMNN4813A	Radio @ front 2.5cm	None	5660.0000	0.024	-0.17	0.049	**0.063**	MHN-FACE-230821-12
				5745.0000	0.020	-0.43	0.037	0.048	ZIQ-FACE-230823-08
				5825.0000	0.019	-0.16	0.034	0.043	ZIQ-FACE-230823-09

Assessments for ISED Canada

Based on the assessment results for body and face per KDB643646 D01, additional tests were not required for the Industry Canada frequency range (U-NII-2A, U-NII-2C and U-NII-3) as the testing performed is in compliance with Industry Canada frequency range.

As per ISED Notice 2016-DRS001, additional tests were required for the low, mid and high frequency channels for the configuration with the highest SAR value with the highest SAR values have already been covered by the previous Table.

14.3 Assessment at the Bluetooth

14.3.1 FCC Requirement

Per guidelines in KDB 447498, SAR-based thresholds are derived based on frequency, power and separation distance of the RF source.

The SAR-based exemption formula indicated below, applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, or less than or equal to the threshold *P*th (mW) refer to Table B.2.

*P*th (mW) = $ERP_{20cm}(\frac{d}{20})^x \; for\; distance\; d \leq 20\; cm$

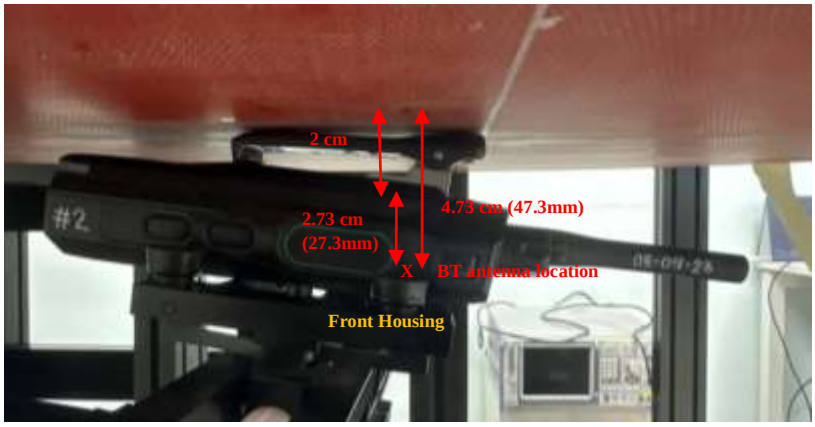
Where $x = -log10\ \left(\frac{60}{ERP_{20}\sqrt{f}}\right)$

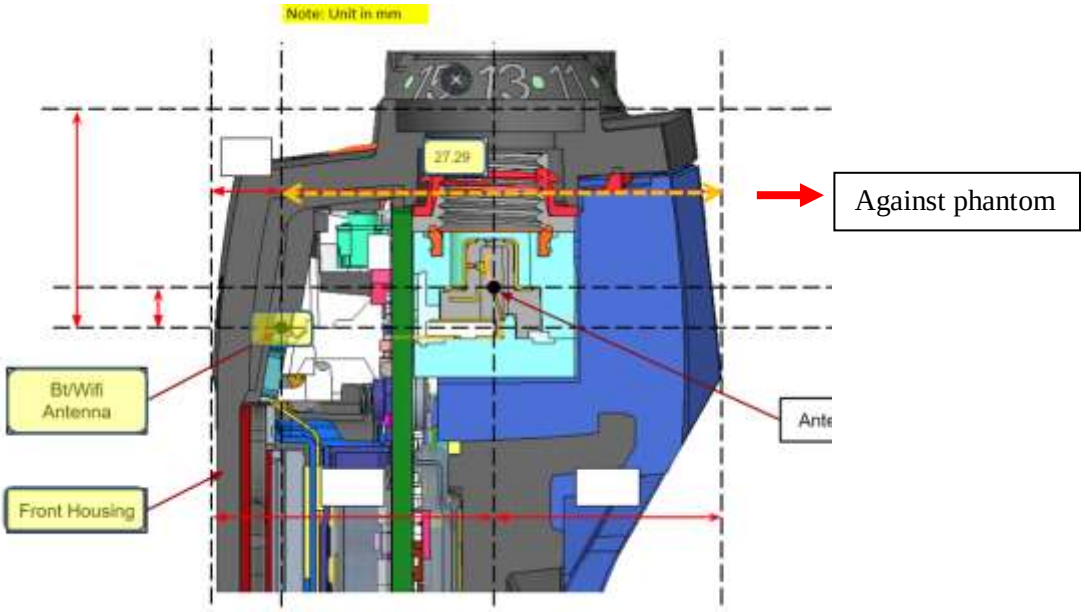
This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive).

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

The closest separation distance from the Bluetooth Antenna to the phantom is 2.00 + 2.73 = 4.73 cm with a belt clip, as indicated in the following pictures.





The BT maximum power of the device is 13.49 mW with 77% duty cycle, therefore the standalone Bluetooth transmitter operates at maximum time-averaged power:
= 13.49 mW * 77%
= 10.39 mW or 10.17 dBm

According to Table B.2, at the distance 45 mm, the power threshold, *P*th at frequency 2450 MHz is 179 mW.

Since the maximum time-averaged power of the device is lower than the power threshold, routine evaluation can be exempted.

14.3.2 ISED Canada Requirement

Based on RSS-102 (Issue 5), exemption limits for SAR evaluation for controlled devices at Bluetooth frequency band with separation distance 4.73 cm was 235 mW as shown the following RSS-102 (Issue 5) Table 1.

Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance[4,5]

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

Standalone Bluetooth transmitter operates at maximum time-averaged power:
= 13.49 mW * 77%
= 10.39 mW or 10.17 dBm

Equivalent isotropically radiated power (EIRP):
= Maximum conducted power, dBm + Antenna gain, dBi
= 10.17 dBm + (1.48 dBi)
= 11.65 dBm or 14.62 mW

Since the output power level, 14.62 mW is below the threshold power level of 235 mW, SAR test is not required for Bluetooth.

*For separation distance, kindly refer to the pictures in section 14.3.1.

15.0 Shorten Scan Assessment

A "shortened" scan using the highest SAR configuration overall from above was performed to validate the SAR drift of the full DASY6™ coarse and 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 zoom scan only was performed. The results of the shortened cube scan presented in Appendix D demonstrate that the scaling methodology used to determine the calculated SAR results presented herein are valid. The SAR result from the Table (bolded) below is provided in Appendix F.

Table 34

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
AN000451A01	PMNN4813A	PMLN8370A	PMLN8295A	512.0000	5.42	0.27	10.90	**5.73**	SAN-AB-230926-10

16.0 Simultaneous Transmission

The Table below summarizes the simultaneous transmission conditions for this device.

Table 35

Exposure Conditions	Item	Capable Simultaneous Transmit Configurations
Body-Worn	1	LMR + WLAN 2.4 GHz
	2	LMR + WLAN 5 GHz
	3	LMR + BT
Face	1	LMR + WLAN 2.4 GHz
	2	LMR + WLAN 5 GHz
	3	LMR + BT

BT, WLAN 2.4 GHz and 5GHz are sharing the same antenna, only one technology to transmit at a single time.

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16.1 Simultaneous Transmission Exemption for BT

Per guidelines in KDB 447498, SAR-based exemption may be considered for test exemption for portable device exposure conditions; therefore, the following formula was used to determine exemption for simultaneous transmission:

$$[(P_i/P_{th}) + (Evaluated_k / Exposure\ Limit_k)] = 0.79, \text{ which is} < 1$$

where:

the available maximum time-averaged power (Pi)

= 10.39 mW (13.49 mW * 77% duty cycle)

the exemption threshold power (Pth) according to Table B.2 in 13.10 = 179 mW

the maximum reported SAR portable RF source k in the device from an existing evaluation ($Evaluated_k$) = 5.85 W/kg

the occupational/controlled specific absorption rate (SAR) limit for portable sources ($Exposure\ Limit_k$) = 8 W/kg

Per the result from the calculation above, simultaneous exemption is applied and therefore SAR results are not reported herein. Besides, as BT frequency range is similar to WLAN 2.4GHz frequency range, thus the BT is not included in the Simultaneous Transmission in Table 36.

16.2 Simultaneous Transmission for LMR, BT, WLAN 2.4GHz and 5GHz

The Table below summarizes the simultaneous transmissions between LMR and WLAN bands.

Table 36

Exposure Conditions	Standalone SAR (W/kg)			Sum of SAR (W/kg)	
	LMR	2.4GHz	5GHz	LMR + 2.4GHz	LMR + 5GHz
Body worn Exposure	5.85	0.113	0.090	5.96	5.94
Face Exposure	4.86	0.035	0.066	4.90	4.93

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 FCC 47 CFR § 2.1093 and RSS-102 (Issue 5).

17.0 Results Summary

Based on the test guidelines from section 4.0 and satisfying frequencies within FCC bands and ISED Canada Frequency bands, the highest Operational Maximum Calculated 1-gram average SAR values found for this filing:

Table 37

Designator	Frequency band (MHz)	Max Calc at Body (W/kg)	Max Calc at Face (W/kg)
		1g-SAR	1g-SAR
FCC			
LMR	406.1-512	5.85	4.86
WLAN	2412-2462	0.113	0.035
	5180 - 5825	0.090	0.066
Simultaneous Results		5.96	4.93
ISED			
LMR	406.1-430 450-470	5.19	4.48
WLAN	2412-2462	0.113	0.035
	5180 - 5825	0.090	0.066
Simultaneous Results		5.30	4.55
Overall			
LMR	380-520	5.85	4.88
WLAN	2412-2472	0.113	0.035
	5180 - 5825	0.090	0.066
Simultaneous Results		5.96	4.95

All results are scaled to the maximum output power.

18.0 Variability Assessment

Per the guidelines in KDB 865664 SAR variability assessment is required because SAR results are above 4.0W/kg (Occupational).

The Table below includes the test results of the original measurement(s), the repeated measurement(s), and the ratio (SAR_{high}/SAR_{low}) for the applicable test configuration(s).

Table 40

Run#	Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq. (MHz)	Adj Calc. 1g-SAR (W/kg)	Ratio	Comments
DAN-AB-230816-13@	AN000451A01	PMNN4813A	PMLN8370A	PMLN8295A	512.0000	5.58	1.02	No additional repeated scans is required due to the Ratio (SAR_{high}/SAR_{low}) < 1.20
SAN-AB-230926-10						5.45		

19.0 System Uncertainty

A system uncertainty analysis is not required for this report per KDB 865664 because the highest report SAR value for Occupational exposure is less than 7.5W/kg.

Per the guidelines of ISO/IEC 17025 a reported system uncertainty is required and therefore measurement uncertainty budget is included in Appendix A.

Appendix A

Measurement Uncertainty Budget

Uncertainty Budget for System Validation (dipole & flat phantom) for 300 MHz to 800MHz

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	IEEE 1528 section	**Tol. (± %)**	**Prob. Dist.**	**Div.**	c_i **(1 g)**	c_i **(10 g)**	**1 g** u_i **(±%)**	**10 g** u_i **(±%)**	v_i
Measurement System									
Probe Calibration	E.2.1	6.7	N	1.00	1	1	6.7	6.7	∞
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	∞
Dipole									
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	∞
Phantom and Tissue Parameters									
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	∞
Combined Standard Uncertainty			RSS				10	9	99999
Expanded Uncertainty (95% CONFIDENCE LEVEL)			*k*=2				19	18	

Notes for uncertainty budget Tables:
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) *ci* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.
g) *ui* – SAR uncertainty
h) *vi* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty

Uncertainty Budget for System Validation (dipole & flat phantom) for 800 MHz to 3 GHz

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	**IEEE 1528 section**	**Tol. (± %)**	**Prob. Dist.**	**Div.**	**c_i (1 g)**	**c_i (10 g)**	**1 g u_i (±%)**	**10 g u_i (±%)**	**v_i**
Measurement System									
Probe Calibration	E.2.1	6.0	N	1.00	1	1	6.0	6.0	∞
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	∞
Dipole									
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	∞
Phantom and Tissue Parameters									
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	∞
Combined Standard Uncertainty			RSS				9	9	99999
Expanded Uncertainty (95% CONFIDENCE LEVEL)			*k*=2				18	17	

Notes for uncertainty budget Tables:
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) *ci* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.
g) *ui* – SAR uncertainty
h) *vi* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty

Uncertainty Budget for System Validation (dipole & flat phantom) for 3 to 6 GHz

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	**IEEE 1528 section**	**Tol. (± %)**	**Prob. Dist.**	**Div.**	**c_i (1 g)**	**c_i (10 g)**	**1 g u_i (±%)**	**10 g u_i (±%)**	**v_i**
Measurement System									
Probe Calibration	E.2.1	7.0	N	1.00	1	1	7.0	7.0	∞
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	2.0	R	1.73	1	1	1.2	1.2	∞
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	1.0	R	1.73	1	1	0.6	0.6	∞
Probe Positioning w.r.t. Phantom	E.6.3	4.0	R	1.73	1	1	2.3	2.3	∞
Max. SAR Evaluation (ext., int., avg.)	E.5	2.1	R	1.73	1	1	1.2	1.2	∞
Dipole									
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	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	E.3.1	4.0	R	1.73	1	1	2.3	2.3	∞
Dielectric Parameter Correction	--	1.4	N	1.00	1	0.79	1.4	1.1	∞
Liquid Conductivity (measurement)	E.3.3	3.3	R	1.73	0.64	0.43	1.2	0.8	∞
Liquid Permittivity (measurement)	E.3.3	1.9	R	1.73	0.6	0.49	0.6	0.5	∞
Combined Standard Uncertainty			RSS				10	10	99999
Expanded Uncertainty (95% CONFIDENCE LEVEL)			*k*=2				19	19	

Notes for uncertainty budget Tables:
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) *ci* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.
g) *ui* – SAR uncertainty
h) *vi* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty

Uncertainty Budget for Device Under Test, for 100 MHz to 800 MHz

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	**IEEE 1528 section**	**Tol. (± %)**	**Prob Dist**	**Div.**	**c_i (1 g)**	**c_i (10 g)**	**1 g u_i (±%)**	**10 g u_i (±%)**	**v_i**
Measurement System									
Probe Calibration	E.2.1	6.7	N	1.00	1	1	6.7	6.7	∞
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	∞
Test sample Related									
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	∞
Phantom and Tissue Parameters									
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	∞
Combined Standard Uncertainty			RSS				12	11	482
Expanded Uncertainty (95% CONFIDENCE LEVEL)			*k*=2				23	23	

Notes for uncertainty budget Tables:
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) *ci* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.
g) *ui* – SAR uncertainty
h) *vi* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty

Uncertainty Budget for Device Under Test, for 800 MHz to 3 GHz

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	**IEEE 1528 section**	**Tol. (± %)**	**Prob Dist**	**Div.**	**c_i (1 g)**	**c_i (10 g)**	**1 g u_i (±%)**	**10 g u_i (±%)**	**v_i**
Measurement System									
Probe Calibration	E.2.1	6.0	N	1.00	1	1	6.0	6.0	∞
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	∞
Test sample Related									
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	∞
Phantom and Tissue Parameters									
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	∞
Combined Standard Uncertainty			RSS				11	11	419
Expanded Uncertainty (95% CONFIDENCE LEVEL)			*k*=2				22	22	

Notes for uncertainty budget Tables:
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) *ci* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.
g) *ui* – SAR uncertainty
h) *vi* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty

Uncertainty Budget for Device Under Test for 3 to 6 GHz

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	**IEEE 1528 section**	**Tol. (± %)**	**Prob Dist**	**Div.**	**c_i (1 g)**	**c_i (10 g)**	**1 g u_i (±%)**	**10 g u_i (±%)**	**v_i**
Measurement System									
Probe Calibration	E.2.1	7.0	N	1.00	1	1	7.0	7.0	∞
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	2.0	R	1.73	1	1	1.2	1.2	∞
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	1.0	R	1.73	1	1	0.6	0.6	∞
Probe Positioning w.r.t Phantom	E.6.3	4.0	R	1.73	1	1	2.3	2.3	∞
Max. SAR Evaluation (ext., int., avg.)	E.5	2.1	R	1.73	1	1	1.2	1.2	∞
Test sample Related									
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	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	E.3.1	4.0	R	1.73	1	1	2.3	2.3	∞
Dielectric Parameter Correction	--	1.4	N	1.00	1	0.79	1.4	1.1	∞
Liquid Conductivity (measurement)	E.3.3	3.3	N	1.00	0.64	0.43	2.1	1.4	∞
Liquid Permittivity (measurement)	E.3.3	1.9	N	1.00	0.6	0.49	1.1	0.9	∞
Combined Standard Uncertainty			RSS				12	12	504
Expanded Uncertainty (95% CONFIDENCE LEVEL)			*k*=2				23	23	

Notes for uncertainty budget Tables:
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) *ci* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.
g) *ui* – SAR uncertainty
h) *vi* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty