



RF EXPOSURE TEST REPORT

Applicant Name:
Garmin International Inc.
1200 E. 151st Street
Olathe, Kansas
USA 66062

Date of Testing:
06/29/2026 – 07/23/2026
Test Site/Location:
Element, Columbia, MD, USA

Document Serial No.:
1M2606160048-01.IPH

FCC ID: IPH-A5126

APPLICANT: GARMIN INTERNATIONAL INC.

DUT Type: Portable Digital Transceiver
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model(s): AA5126

Equipment Class	Band & Mode	Tx Frequency	SAR
			1g Body (W/kg)
DTS	2.4 GHz WIFI	2412 - 2462 MHz	1.19
NII	5 GHz WIFI	U-NII-1: 5180 - 5240 MHz U-NII-2A: 5260 - 5320 MHz U-NII-2C: 5500 - 5720 MHz U-NII-3: 5745 - 5825 MHz	1.19
DSS	2.4 GHz Bluetooth	2402 - 2480 MHz	0.19

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.9 of this report; for North American frequency bands only.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.


RJ Ortanez
VP - Connected Technologies



The SAR Tick is an initiative of the Mobile & Wireless Forum (MWF). While a product may be considered eligible, use of the SAR Tick logo requires an agreement with the MWF. Further details can be obtained by emailing: sartick@mwfi.info.

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Revision	Description	Issue Date	Revised by:
-	Initial Release	07/29/2026	WKR0000005818

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1 TEST LABORATORY INFORMATION

1.1 Introduction

This test report for device subject to testing at an accredited testing laboratory has been generated by the testing laboratory that tested the device. Detailed location and accredited information regarding the testing laboratories are provided below.

1.2 Test Laboratories Information

1.2.1 Testing Laboratory 1

Test Firm Name	ELEMENT MATERIALS TECHNOLOGY WASHINGTON DC LLC
Test Lab Location	7185 Oakland Mills Road, Columbia, MD 21046, United States Tel. +1.410.290.6652 / Fax +1.410.290.6654
Accreditation Info.	Lab Code. (ISED): 2451B
	CAB Identifier (NIST): US0110
	ISO/IEC 17025 (A2LA): CERT #2041.01
	 
Measurement system No.	L, S

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2 DEVICE UNDER TEST

2.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
2.4 GHz WIFI	Data	2412 - 2462 MHz
5 GHz WIFI	Data	U-NII-1: 5180 - 5240 MHz U-NII-2A: 5260 - 5320 MHz U-NII-2C: 5500 - 5720 MHz U-NII-3: 5745 - 5825 MHz
2.4 GHz Bluetooth	Data	2402 - 2480 MHz

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2.2 Nominal and Maximum Output Power Specifications

There is no power reduction used for any band/mode implemented in this device for SAR purposes. This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D04v01.

2.2.1 2.4 GHz WLAN Output Power

Band	IEEE 802.11 Modulated Output Power (in dBm)					
	SISO					
	A1					
	b		g		n	
Maximum / Nominal Power	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WLAN	15.0	13.0	15.0	13.0	15.0	13.0

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2.2.2 5 GHz WLAN Output Power

Mode	Band	IEEE 802.11 Modulated Output Power (in dBm)					
		SISO					
		A2					
		a		n		ac	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WIFI (20MHz BW)	UNII-1	13.0	11.0	13.0	11.0	13.0	11.0
	UNII-2A	13.0	11.0	13.0	11.0	13.0	11.0
		ch. 52: 10.0	8.0	ch. 52: 10.0	8.0	ch. 52: 10.0	8.0
	UNII-2C	7.5	5.5	7.5	5.5	7.5	5.5
UNII-3	11.0	9.0	11.0	9.0	11.0	9.0	
5 GHz WIFI (40MHz BW)	UNII-1			14.0	12.0	14.0	12.0
	UNII-2A			12.0	10.0	12.0	10.0
	UNII-2C			7.5	5.5	7.5	5.5
	UNII-3			10.0	8.0	10.0	8.0
5 GHz WIFI (80MHz BW)	UNII-1					13.0	11.0
	UNII-2A					12.0	10.0
	UNII-2C					7.5	5.5
	UNII-3					11.0	9.0

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2.2.3 2.4 GHz Maximum Bluetooth Output Power

Mode	Data Rate	Modulated Output Power (in dBm)	
		Single Antenna	
		A1	
Maximum / Nominal Power		Max	Nom.
Bluetooth	1Mbps	4.5	2.5
Bluetooth EDR	2Mbps	4.0	2.0
Bluetooth EDR	3Mbps	4.0	2.0
Bluetooth LE	1Mbps	5.5	3.5
Bluetooth LE	2Mbps	5.5	3.5

2.3 DUT Antenna Locations

The overall dimensions of this device are > 200 mm. A diagram showing the location of the device antennas can be found in the DUT Antenna Diagram and SAR Test Setup Photographs Appendix. Exact antenna dimensions and separation distances are shown in the Technical Descriptions in the FCC filing.

Table 2-1
Device Edges/Sides for SAR Testing

Antenna	Back	Front	Top	Bottom	Right	Left
A1	Yes	Yes	No	Yes	No	Yes
A2	Yes	Yes	No	Yes	No	Yes

Note: Particular DUT edges were not required to be evaluated for SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D07v01r02. The distances between the transmit antennas and the edges of the device are included in the filing.

2.4 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D04v01, transmitters are considered to be operating simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

This device does not contain multiple transmitters that operate simultaneously; therefore, no simultaneous transmission analysis is required according to FCC KDB Publication 447498 D04v01 4.3.2 procedures.

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2.5 Miscellaneous SAR Test Considerations

(A) WIFI/BT

This device supports IEEE 802.11ac with the following features:

- a) Up to 80 MHz Bandwidth only
- b) No aggregate channel configurations
- c) 1 Tx antenna output
- d) 256 QAM is supported
- e) TDWR supported
- f) TDWR band gap channels 138, 142, and 144 are not supported

2.6 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D04v01 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 616217 D04v01r02
- IEC 62479:2010
- SPEAG DASY6 System Handbook
- IEC/IEEE 63195-1:2022

2.7 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units. The serial numbers used for each test are indicated alongside the results in Section 10.

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3 INTRODUCTION

The FCC and Innovation, Science, and Economic Development Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. [1]

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [3] and Health Canada RF Exposure Guidelines Safety Code 6 [22]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (SAR) due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” Report No. Vol 74. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

3.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 3-1).

Equation 3-1
SAR Mathematical Equation

$$SAR = \frac{d}{dt} \left(\frac{dU}{dm} \right) = \frac{d}{dt} \left(\frac{dU}{\rho dv} \right)$$

SAR is expressed in units of Watts per Kilogram (W/kg).

$$SAR = \frac{\sigma \cdot E^2}{\rho}$$

where:

- σ = conductivity of the tissue-simulating material (S/m)
- ρ = mass density of the tissue-simulating material (kg/m³)
- E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.[6]

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4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
 - a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
 - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
 - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

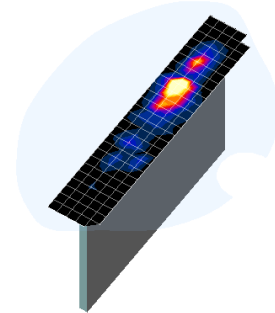


Figure 4-1
Sample SAR Area
Scan

Table 4-1
Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04*

Frequency	Maximum Area Scan Resolution (mm) ($\Delta x_{\text{area}}, \Delta y_{\text{area}}$)	Maximum Zoom Scan Resolution (mm) ($\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}}$)	Maximum Zoom Scan Spatial Resolution (mm)			Minimum Zoom Scan Volume (mm) (x,y,z)
			Uniform Grid	Graded Grid		
				$\Delta z_{\text{zoom}}(n)$	$\Delta z_{\text{zoom}}(1)^*$	
≤ 2 GHz	≤ 15	≤ 8	≤ 5	≤ 4	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 30
2-3 GHz	≤ 12	≤ 5	≤ 5	≤ 4	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 30
3-4 GHz	≤ 12	≤ 5	≤ 4	≤ 3	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 28
4-5 GHz	≤ 10	≤ 4	≤ 3	≤ 2.5	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 25
5-6 GHz	≤ 10	≤ 4	≤ 2	≤ 2	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 22

*Also compliant to IEEE 1528-2013 Table 6

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5 TEST CONFIGURATION POSITIONS

5.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon = 3$ and loss tangent $\delta = 0.02$.

5.2 SAR Testing per KDB 447498 D04v01

For devices with overall dimensions $>200\text{mm}$, the back surface and edges of the device should be tested for SAR compliance with the device touching the phantom. The SAR Exclusion Threshold in KDB 447498 D04v01 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom. Please see the exact antenna locations shown in the Technical Descriptions document.

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6 RF EXPOSURE LIMITS

6.1 Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

6.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Table 6-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT <i>General Population</i> (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT <i>Occupational</i> (W/kg) or (mW/g)
Peak Spatial Average SAR Head	1.6	8.0
Whole Body SAR	0.08	0.4
Peak Spatial Average SAR Hands, Feet, Ankle, Wrists, etc.	4.0	20

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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7 FCC MEASUREMENT PROCEDURES

7.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D04v01, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

7.2 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v02r02 for more details.

7.2.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters.

A periodic duty factor is required for current generation SAR systems to measure SAR. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

7.2.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII-2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is > 1.2 W/kg. When different maximum output powers are specified for the bands, SAR measurement for the U-NII band with the lower maximum output power is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.2.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. When Terminal Doppler Weather Radar (TDWR) restriction applies, the channels at 5.60 – 5.65 GHz in U-NII-2C band must be disabled with acceptable mechanisms and documented in the equipment certification. Unless band gap channels are permanently disabled, SAR must be considered for these channels. Each band is tested independently according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

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7.2.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all positions in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.2.5 2.4 GHz SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

- 1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

2.4 GHz 802.11 g/n/ax OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.2.6 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. Per April 2019 TCB Workshop guidance, 802.11ax was considered the highest order 802.11 mode. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

7.2.7 Initial Test Configuration Procedure

For OFDM, an initial test configuration is determined for each frequency band and aggregated band, according to the transmission mode with the highest maximum output power specified for SAR measurements. When the same maximum output power is specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration(s) with the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order IEEE 802.11 mode. The channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required.

Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR

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result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 7.2.6). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.2.8 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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8 RF CONDUCTED POWERS

8.1 WLAN Conducted Powers

Table 10-1
2.4 GHz WLAN Maximum Average RF Power – Ant A1

2.4GHz WIFI (20MHz 802.11b SISO A1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	13.71
2437	6		14.10
2462	11		14.23

2.4GHz WIFI (20MHz 802.11g SISO A1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	13.49
2437	6		13.75
2462	11		14.11

2.4GHz WIFI (20MHz 802.11n SISO A1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	14.27
2437	6		14.38
2462	11		14.82

Table 10-2
5 GHz WLAN Maximum Average RF Power – Ant A2

5GHz WIFI (40MHz 802.11n SISO A2)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5190	38	13.73
	5230	46	14.00

5GHz WIFI (40MHz 802.11ac SISO A2)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5190	38	13.64
	5230	46	13.76

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5GHz WIFI (20MHz 802.11a SISO A2)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-2A	5260	52	9.59
	5280	56	12.11
	5300	60	11.68
	5320	64	11.77
5GHz WIFI (20MHz 802.11n SISO A2)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-2A	5260	52	9.17
	5280	56	11.42
	5300	60	11.36
	5320	64	11.39
5GHz WIFI (20MHz 802.11ac SISO A2)			
UNII-2A	5260	52	9.04
	5280	56	11.52
	5300	60	11.18
	5320	64	11.02

5GHz WIFI (80MHz 802.11ac SISO A2)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-2C	5530	106	7.00
	5610	122	6.63
UNII-3	5775	155	9.50

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
- For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-band channels, due to an even number of channels, both channels were measured.

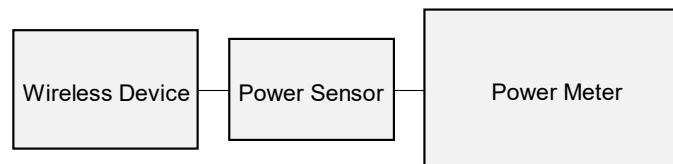


Figure 10-1
Power Measurement Setup

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8.2 Bluetooth Conducted Powers

Table 8-1
Bluetooth Maximum Average RF Power– A1

Frequency [MHz]	Data Rate [Mbps]	Mod.	Channel No.	Avg Conducted Power		Target [dBm]
				[dBm]	[mW]	
2402	1 Mbps	GFSK	0	2.94	1.968	2.50
2441	1 Mbps	GFSK	39	3.94	2.477	2.50
2480	1 Mbps	GFSK	78	2.73	1.875	2.50
2402	2 Mbps	$\pi/4$ -DQPSK	0	4.00	2.512	2.00
2441	2 Mbps	$\pi/4$ -DQPSK	39	3.53	2.254	2.00
2480	2 Mbps	$\pi/4$ -DQPSK	78	2.73	1.873	2.00
2402	3 Mbps	8DPSK	0	4.00	2.512	2.00
2441	3 Mbps	8DPSK	39	3.52	2.247	2.00
2480	3 Mbps	8DPSK	78	2.68	1.854	2.00

Table 8-2
Bluetooth LE Maximum Average RF Power– A1

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Average Conducted Power	
				[dBm]	[mW]
2402	1 Mbps	37	LE	3.94	2.477
2440	1 Mbps	17	LE	3.97	2.495
2480	1 Mbps	39	LE	3.50	2.239
2402	2 Mbps	37	LE	3.83	2.415
2440	2 Mbps	17	LE	3.89	2.449
2480	2 Mbps	39	LE	2.99	1.991

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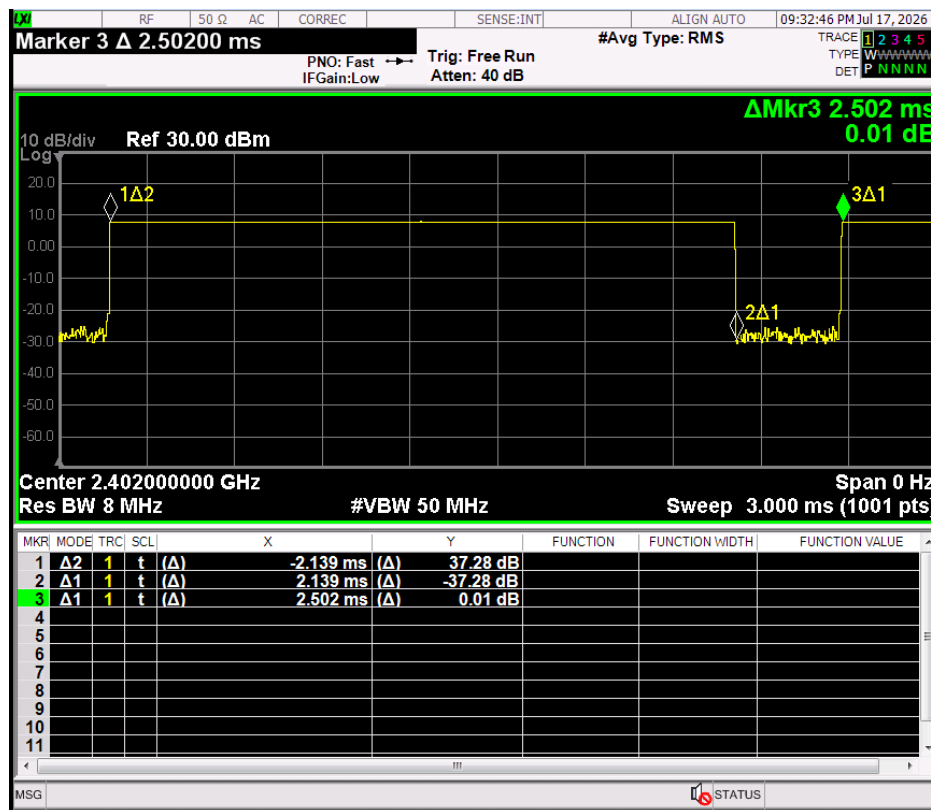


Figure 10-2
Bluetooth LE Antenna A1 Transmission Plot

Equation 10-1
Bluetooth LE Antenna A1 Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.139ms}{2.502ms} * 100\% = 85.49\%$$

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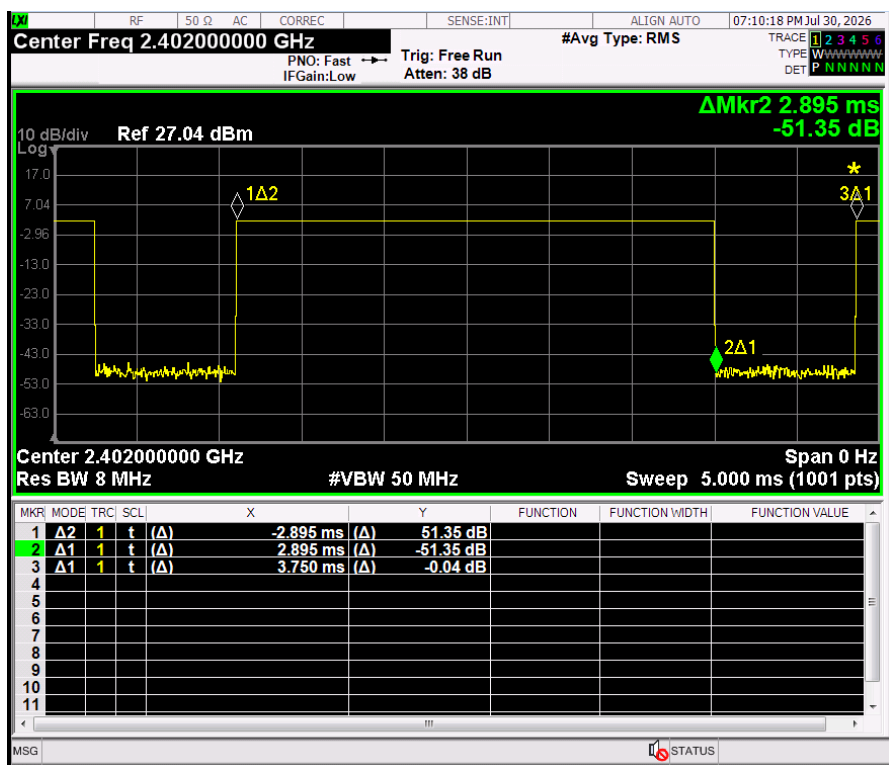


Figure 10-3
Bluetooth Antenna A1 Transmission Plot

Equation 10-2
Bluetooth Antenna A1 Duty Cycle Calculation

$$\text{Duty Cycle} = \frac{\text{Pulse Width}}{\text{Period}} * 100\% = \frac{2.895\text{ms}}{3.750\text{ms}} * 100\% = 77.2\%$$

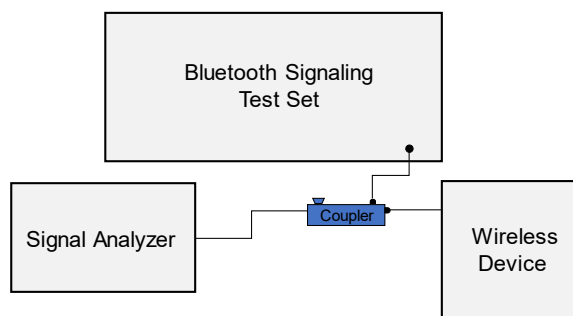


Figure 10-3
Power Measurement Setup

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9 SYSTEM VERIFICATION

9.1 Tissue Verification

Table 11-1
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
06/29/2026	2450 Head	19.3	2300	1.688	38.740	1.670	39.500	1.08%	-1.92%
			2310	1.695	38.722	1.679	39.480	0.95%	-1.92%
			2320	1.703	38.704	1.687	39.460	0.89%	-1.92%
			2400	1.765	38.582	1.756	39.280	0.51%	-1.77%
			2450	1.804	38.492	1.800	39.200	0.22%	-1.81%
			2480	1.828	38.436	1.833	39.162	-0.27%	-1.85%
			2500	1.843	38.410	1.855	39.136	-0.65%	-1.88%
			2510	1.851	38.395	1.866	39.123	-0.80%	-1.88%
			2535	1.872	38.352	1.883	39.092	-1.11%	-1.89%
			2550	1.885	38.325	1.909	39.073	-1.26%	-1.91%
			2560	1.893	38.303	1.920	39.060	-1.41%	-1.94%
			2600	1.925	38.233	1.964	39.009	-1.99%	-1.99%
			2650	1.960	38.141	2.018	38.945	-2.58%	-2.06%
			2680	1.992	38.094	2.051	38.907	-2.68%	-2.09%
			2700	2.007	38.070	2.073	38.882	-3.18%	-2.09%
			2300	1.639	38.720	1.670	39.500	1.66%	-3.24%
			2310	1.646	38.209	1.679	39.480	-1.97%	-3.22%
			2320	1.654	38.197	1.687	39.460	-1.96%	-3.20%
			2400	1.712	38.074	1.756	39.280	-2.51%	-3.09%
07/23/2026	2450 Head	19.6	2400	1.746	37.988	1.800	39.200	-3.00%	-3.09%
			2480	1.769	37.948	1.833	39.162	-3.49%	-3.10%
			2500	1.783	37.916	1.855	39.136	-3.88%	-3.11%
			2510	1.790	37.900	1.886	39.123	-4.07%	-3.13%
			2535	1.810	37.862	1.893	39.092	-4.38%	-3.17%
			2550	1.823	37.829	1.909	39.073	-4.50%	-3.18%
			2560	1.832	37.816	1.920	39.060	-4.58%	-3.18%
			5150	4.401	35.885	4.608	36.050	-4.49%	-0.46%
			5180	4.418	35.884	4.616	36.040	-4.33%	-0.47%
			5170	4.427	35.887	4.626	36.030	-4.36%	-0.46%
			5180	4.431	35.875	4.635	36.009	-4.40%	-0.37%
			5190	4.433	35.854	4.645	35.998	-4.56%	-0.40%
			5200	4.435	35.815	4.655	35.986	-4.73%	-0.48%
			5210	4.442	35.775	4.666	35.975	-4.80%	-0.50%
			5220	4.452	35.742	4.676	35.963	-4.79%	-0.61%
			5240	4.487	35.676	4.696	35.940	-4.45%	-0.73%
			5250	4.504	35.667	4.706	35.929	-4.29%	-0.73%
			5260	4.511	35.660	4.717	35.917	-4.24%	-0.72%
			5270	4.531	35.658	4.727	35.906	-4.15%	-0.69%
			5280	4.541	35.650	4.737	35.894	-4.14%	-0.68%
07/13/2026	5200-5800 Head	20.4	5290	4.548	35.635	4.748	35.883	-4.21%	-0.69%
			5300	4.553	35.619	4.759	35.871	-4.32%	-0.71%
			5310	4.553	35.587	4.768	35.860	-4.51%	-0.76%
			5320	4.556	35.544	4.778	35.849	-4.60%	-0.85%
			5350	4.758	35.142	4.963	35.643	-4.13%	-1.41%
			5310	4.759	35.142	4.973	35.632	-4.30%	-1.38%
			5320	4.758	35.125	4.983	35.620	-4.52%	-1.39%
			5330	4.767	35.102	4.994	35.609	-4.55%	-1.42%
			5340	4.775	35.085	5.004	35.597	-4.58%	-1.52%
			5350	4.784	35.060	5.014	35.586	-4.59%	-1.65%
			5360	4.801	34.958	5.024	35.574	-4.44%	-1.73%
			5380	4.838	34.911	5.045	35.551	-4.10%	-1.80%
			5400	4.883	34.862	5.065	35.529	-3.99%	-1.79%
			5410	4.891	34.866	5.076	35.518	-4.04%	-1.77%
			5420	4.873	34.852	5.086	35.506	-4.19%	-1.73%
			5440	4.884	34.850	5.106	35.483	-4.33%	-1.78%
			5460	4.907	34.762	5.127	35.460	-4.29%	-1.87%
			5470	4.922	34.727	5.137	35.440	-4.17%	-2.04%
			5480	4.939	34.700	5.147	35.437	-4.04%	-2.08%
			5490	4.955	34.684	5.158	35.426	-3.94%	-2.09%
			5700	4.972	34.667	5.168	35.414	-3.79%	-2.11%
			5710	4.984	34.661	5.178	35.403	-3.75%	-2.10%
			5720	4.994	34.654	5.188	35.391	-3.74%	-2.08%
			5745	5.004	34.615	5.214	35.363	-4.03%	-2.12%
			5750	5.007	34.597	5.219	35.357	-4.06%	-2.15%
			5755	5.011	34.580	5.224	35.351	-4.08%	-2.18%
			5765	5.019	34.548	5.234	35.340	-4.11%	-2.25%
			5775	5.033	34.507	5.245	35.329	-4.04%	-2.33%
			5785	5.050	34.486	5.256	35.317	-3.90%	-2.35%
			5795	5.067	34.480	5.265	35.305	-3.76%	-2.34%
			5800	5.075	34.483	5.270	35.300	-3.70%	-2.31%
			5800	5.076	34.483	5.270	35.300	-3.70%	-2.31%
			5805	5.085	34.482	5.275	35.294	-3.60%	-2.30%
			5825	5.109	34.459	5.296	35.271	-3.53%	-2.30%
			5835	5.109	34.467	5.305	35.260	-3.69%	-2.17%
			5845	5.113	34.466	5.315	35.210	-3.80%	-2.11%
			5850	5.114	34.457	5.320	35.200	-3.87%	-2.11%
			5855	5.118	34.441	5.325	35.197	-3.89%	-2.15%
			5865	5.128	34.410	5.338	35.180	-3.90%	-2.22%
			5865	5.128	34.410	5.338	35.180	-3.90%	-2.22%
			5865	5.128	34.410	5.338	35.180	-3.90%	-2.22%
			5875	5.138	34.398	5.347	35.163	-3.96%	-2.29%
			5885	5.146	34.350	5.357	35.177	-3.94%	-2.35%
			5905	5.185	34.306	5.379	35.163	-3.61%	-2.44%
			5900	5.075	34.483	5.270	35.300	-3.70%	-2.31%
			5900	5.075	34.483	5.270	35.300	-3.70%	-2.31%

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 D01v01r04 and IEEE 1528-2013 6.6.1.2. The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

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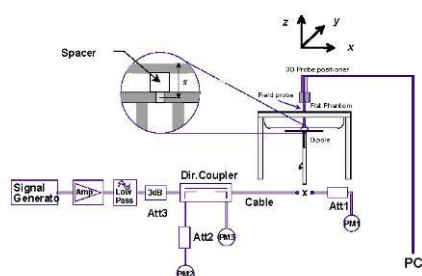
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9.2 Test System Verification

Prior to SAR assessment, the system is verified using the procedures and dipole sources as defined by IEEE 1528-2013. The system is verified to $\pm 10\%$ of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in the SAR System Validation Appendix.

**Table 11-2
System Verification Results**

SAR System	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp. (C)	Liquid Temp. (C)	Input Power (W)	Source SN	Probe SN	DAE	Measured SAR 1g (W/kg)	1W Target SAR 1g (W/kg)	1W Normalized SAR 1g (W/kg)	Deviation 1g (%)	Measured SAR 10g (W/kg)	1W Target SAR 10g (W/kg)	1W Normalized SAR 10g (W/kg)	Deviation 10g (%)
L	2450	Head	06/29/2026	19.3	20.9	0.10	797	7539	1450	5.47	52.60	54.70	3.99%	2.57	24.80	25.70	3.63%
L	2450	Head	07/23/2026	22.2	20.4	0.10	797	7539	1450	5.64	52.60	56.40	7.22%	2.66	24.80	26.60	7.26%
S	5250	Head	07/13/2026	22.0	21.1	0.05	1191	3914	728	3.79	78.40	75.80	-3.32%	1.09	22.50	21.80	-3.11%
S	5600	Head	07/13/2026	22.0	21.1	0.05	1191	3914	728	3.89	77.50	77.80	0.39%	1.11	22.30	22.20	-0.45%
S	5750	Head	07/13/2026	22.0	21.1	0.05	1191	3914	728	3.83	75.40	76.60	1.59%	1.10	21.50	22.00	2.33%
S	5850	Head	07/13/2026	22.0	21.1	0.05	1191	3914	728	3.98	76.80	79.60	3.65%	1.12	21.90	22.40	2.28%



**Figure 9-1
System Verification Setup Diagram**



**Figure 9-2
System Verification Setup Photo**

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10 SAR DATA SUMMARY

10.1 2.4 GHz WLAN Standalone SAR Data

Table 10-1| Plot A1

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	DUT Version	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	A1	V1	92W000039	99.73	-0.02	2412.00	1	1.0	15.0	13.71	Back	0	0.655	1.946	1.003	0.884	
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	A1	V1	92W000039	99.73	-0.03	2437.00	6	1.0	15.0	14.10	Back	0	0.965	1.230	1.003	1.191	Plot
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	A1	V2	92W000315	99.73	0.06	2437.00	6	1.0	15.0	14.10	Back	0	0.745	1.230	1.003	0.919	
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	A1	V1	92W000039	99.73	0.06	2437.00	6	1.0	15.0	14.10	Back	0	0.912	1.230	1.003	1.125	
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	A1	V1	92W000039	99.73	-0.05	2462.00	11	1.0	15.0	14.23	Back	0	0.814	1.194	1.003	0.975	
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	A1	V1	92W000039	99.73	-0.08	2462.00	11	1.0	15.0	14.23	Front	0	0.114	1.194	1.003	0.137	
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	A1	V1	92W000039	99.73	-0.11	2462.00	11	1.0	15.0	14.23	Bottom	0	0.040	1.194	1.003	0.048	
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	A1	V1	92W000039	99.73	-0.02	2462.00	11	1.0	15.0	14.23	Left	0	0.583	1.194	1.003	0.698	
ANSI/IEEE C63.1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Body 1.6 W/kg (mW/g) averaged over 1 gram				

Note: Blue entry represents variability measurement

10.2 5 GHz WLAN Standalone SAR Data

Table 10-2| Plot A2

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	DUT Version	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	A2	V1	92V000199	94.81	0.03	5190.00	38	U-NII-1	13.5	14.0	13.73	Back	0	0.916	1.064	1.055	1.028	Plot
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	A2	V1	92V000199	94.81	-0.03	5230.00	46	U-NII-1	13.5	14.0	14.00	Back	0	1.130	1.000	1.055	1.389	
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	A2	V2	92V000315	94.81	-0.04	5230.00	46	U-NII-1	13.5	14.0	14.00	Back	0	1.070	1.000	1.055	1.129	
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	A2	V1	92V000199	94.81	0.15	5230.00	46	U-NII-1	13.5	14.0	14.00	Back	0	1.130	1.000	1.055	1.182	
Body	5 GHz WiFi / IEEE 802.11a	20	OFDM	A2	V1	92V000199	98.08	0.01	5260.00	52	U-NII-2A	6.0	10.0	9.59	Back	0	0.235	1.099	1.020	0.263	
Body	5 GHz WiFi / IEEE 802.11a	20	OFDM	A2	V1	92V000199	98.08	0.06	5280.00	56	U-NII-2A	6.0	13.0	12.11	Back	0	0.777	1.227	1.020	0.972	
Body	5 GHz WiFi / IEEE 802.11a	20	OFDM	A2	V1	92V000199	98.08	0.01	5300.00	60	U-NII-2A	6.0	13.0	11.08	Back	0	0.792	1.355	1.020	1.095	
Body	5 GHz WiFi / IEEE 802.11a	20	OFDM	A2	V1	92V000199	98.08	0.07	5320.00	64	U-NII-2A	6.0	13.0	11.77	Back	0	0.805	1.327	1.020	1.090	
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	A2	V1	92V000199	90.48	-0.10	5530.00	106	U-NII-2C	29.3	7.5	7.00	Back	0	0.928	1.122	1.105	1.151	
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	A2	V1	92V000199	90.48	0.08	5530.00	106	U-NII-2C	29.3	7.5	7.00	Back	0	0.855	1.122	1.105	1.094	
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	A2	V1	92V000199	90.48	0.01	5610.00	122	U-NII-2C	29.3	7.5	6.63	Back	0	0.850	1.222	1.105	1.148	
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	A2	V1	92V000199	90.48	0.00	5775.00	155	U-NII-3	29.3	11.0	9.50	Back	0	0.797	1.413	1.105	1.182	
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	A2	V1	92V000199	94.81	0.08	5230.00	46	U-NII-1	13.5	14.0	14.00	Front	0	0.010	1.000	1.055	0.011	
Body	5 GHz WiFi / IEEE 802.11a	20	OFDM	A2	V1	92V000199	98.08	0.01	5280.00	56	U-NII-2A	6.0	13.0	12.11	Front	0	0.011	1.227	1.020	0.014	
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	A2	V1	92V000199	90.48	0.08	5530.00	106	U-NII-2C	29.3	7.5	7.00	Front	0	0.034	1.122	1.105	0.042	
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	A2	V1	92V000199	90.48	0.04	5775.00	155	U-NII-3	29.3	11.0	9.50	Front	0	0.010	1.413	1.105	0.016	
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	A2	V1	92V000199	94.81	-0.18	5230.00	46	U-NII-1	13.5	14.0	14.00	Bottom	0	0.154	1.000	1.055	0.162	
Body	5 GHz WiFi / IEEE 802.11a	20	OFDM	A2	V1	92V000199	98.08	-0.01	5280.00	56	U-NII-2A	6.0	13.0	12.11	Bottom	0	0.103	1.227	1.020	0.129	
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	A2	V1	92V000199	90.48	0.08	5530.00	106	U-NII-2C	29.3	7.5	7.00	Bottom	0	0.287	1.122	1.105	0.356	
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	A2	V1	92V000199	90.48	-0.20	5775.00	155	U-NII-3	29.3	11.0	9.50	Bottom	0	0.185	1.413	1.105	0.289	
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	A2	V1	92V000199	94.81	-0.06	5230.00	46	U-NII-1	13.5	14.0	14.00	Left	0	0.395	1.000	1.055	0.311	
Body	5 GHz WiFi / IEEE 802.11a	20	OFDM	A2	V1	92V000199	98.08	-0.03	5280.00	56	U-NII-2A	6.0	13.0	12.11	Left	0	0.309	1.227	1.020	0.262	
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	A2	V1	92V000199	90.48	0.08	5530.00	106	U-NII-2C	29.3	7.5	7.00	Left	0	0.484	1.122	1.105	0.600	
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	A2	V1	92V000199	90.48	-0.02	5775.00	155	U-NII-3	29.3	11.0	9.50	Left	0	0.392	1.413	1.105	0.612	
ANSI/IEEE C63.1992 - SAFETY LIMIT																Body					
Spatial Peak																1.6 W/kg (mW/g)					
Uncontrolled Exposure/General Population																averaged over 1 gram					

Note: Blue entry represents variability measurement

10.3 Bluetooth Standalone SAR Data

Table 10-3| Plot A3

Exposure	Band / Mode	Service / Modulation	Ant.	DUT Version	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz Bluetooth	FHSS	A1	V1	92V000199	77.20	0.00	2441.00	39	1	4.5	3.94	Back	0	0.116	1.138	1.295	0.171	
Body	2.4 GHz Bluetooth LE	DSSS	A1	V1	92V000199	85.49	0.01	2402.00	37	1	5.5	3.94	Back	0	0.031	1.432	1.170	0.052	
Body	2.4 GHz Bluetooth LE	DSSS	A1	V2	92V000347	85.49	-0.10	2440.00	17	1	5.5	3.97	Back	0	0.088	1.422	1.170	0.146	
Body	2.4 GHz Bluetooth LE	DSSS	A1	V1	92V000199	85.49	0.00	2440.00	17	1	5.5	3.97	Back	0	0.116	1.422	1.170	0.193	Plot
Body	2.4 GHz Bluetooth LE	DSSS	A1	V1	92V000199	85.49	0.03	2480.00	39	1	5.5	3.50	Back	0	0.040	1.585	1.170	0.074	
Body	2.4 GHz Bluetooth LE	DSSS	A1	V1	92V000199	85.49	0.01	2440.00	17	1	5.5	3.97	Front	0	0.000	1.422	1.170	0.000	
Body	2.4 GHz Bluetooth LE	DSSS	A1	V1	92V000199	85.49	0.09	2440.00	17	1	5.5	3.97	Bottom	0	0.002	1.422	1.170	0.003	
Body	2.4 GHz Bluetooth LE	DSSS	A1	V1	92V000199	85.49	0.04	2440.00	17	1	5.5	3.97	Left	0	0.078	1.422	1.170	0.130	
ANSI/IEEE C63.1 1992 - SAFETY LIMIT													Body						
Spatial Peak													1.6 W/kg (mW/g)						
Uncontrolled Exposure/General Population													averaged over 1 gram						

10.4 SAR Test Notes

General Notes:

- The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528:2020, and FCC KDB Publication 447498 D04v01.
- Batteries are fully charged at the beginning of the SAR measurements.
- Liquid tissue depth was at least 15.0 cm for all frequencies.
- The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.

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5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D04v01.
6. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 11 for variability analysis.

WLAN Notes:

1. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 7.2.5 for more information.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 7.2.6 for more information.
3. When the maximum reported 1g averaged SAR is ≤ 0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
4. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.

Bluetooth Notes

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 100% transmission duty factor for Bluetooth and 100% transmission duty factor for Bluetooth LE to determine compliance. See RF Conducted Power Section for the time domain plot and calculation for the duty factor of the device.
2. BT LE frame averaged target > BT BDR frame averaged target, as a result a BT BDR spot-check on the worst case position from BT LE was run to ensure compliance.

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11 SAR MEASUREMENT VARIABILITY

11.1 SAR Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

- 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
- 2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~10% from the 1g SAR limit).
- 3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .
- 4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg
- 5) When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

BODY VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Antenna Config	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
2450	2437.00	6	2.4 GHz WIFI/IEEE 802.11b	DSSS	Back	A1	0.965	0.912	1.06	N/A	N/A	N/A	N/A
5250	5230.00	46	5 GHz WIFI/IEEE 802.11n	OFDM	Back	A2	1.130	1.120	1.01	N/A	N/A	N/A	N/A
5600	5530.00	106	5 GHz WIFI/IEEE 802.11ac	OFDM	Back	A2	0.928	0.882	1.05	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Body 1.6 W/kg (mW/g) averaged over 1 gram							

11.2 SAR Measurement Uncertainty

The measured SAR was < 1.5 W/kg for 1g and < 3.75 W/kg for 10g for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE 1528-2013 was not required.

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12 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	E4404B	Spectrum Analyzer	N/A	N/A	N/A	MY45113242
Agilent	E4438C	ESG Vector Signal Generator	11/2/2025	Annual	11/2/2026	MY45093852
Agilent	E4438C	ESG Vector Signal Generator	3/23/2026	Annual	3/23/2027	MY45092078
Agilent	N5182A	MXG Vector Signal Generator	4/13/2026	Annual	4/13/2027	MY48180366
Agilent	8753ES	S-Parameter Vector Network Analyzer	10/28/2025	Annual	10/28/2026	MY40003841
Agilent	8753ES	S-Parameter Vector Network Analyzer	10/27/2025	Annual	10/27/2026	US39170118
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433973
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433974
Anritsu	MN8110B	I/O Adaptor	CBT	N/A	CBT	6261747881
Insize	1108-150	Insize - Digital Caliper	1/7/2026	Annual	1/7/2027	1410255640
Anritsu	MA24106A	USB Power Sensor	2/20/2026	Annual	2/20/2027	1520501
Anritsu	MA24106A	USB Power Sensor	12/12/2025	Annual	12/12/2026	1344554
Control Company	4352	Long Stem Thermometer	12/22/2025	Biennial	12/22/2027	250770121
Control Company	4352	Long Stem Thermometer	12/22/2025	Biennial	12/22/2027	250770096
Control Company	4040	Therm./ Clock/ Humidity Monitor	12/29/2025	Biennial	12/29/2027	250778120
Control Company	4040	Therm./ Clock/ Humidity Monitor	10/24/2025	Biennial	10/24/2027	250652331
Control Company	4040	Therm./ Clock/ Humidity Monitor	10/15/2024	Biennial	10/15/2026	240763503
Keysight Technologies	N9020A	MXA Signal Analyzer	6/5/2026	Annual	6/5/2027	MY54500644
Keysight Technologies	N9020A	MXA Signal Analyzer	7/7/2025	Biennial	7/7/2027	MY56470202
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	ZUDC10-83-S+	Directional Coupler	CBT	N/A	CBT	2050
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Pasternack	NC-100	Torque Wrench	5/29/2025	Biennial	5/29/2027	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit	11/10/2025	Annual	11/10/2026	1277
SPEAG	DAKS-3.5	Portable Dielectric Assessment Kit	8/5/2025	Annual	8/5/2026	1041
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1237
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1331
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1390
GW Instek	GPS-3030DD	DC Power Supply	N/A	N/A	N/A	E1883874
SPEAG	D2450V2	2450 MHz SAR Dipole	10/7/2025	Annual	10/7/2026	797
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/16/2026	Annual	1/16/2027	1191
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/7/2026	Annual	5/7/2027	728
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/10/2026	Annual	3/10/2027	1450
SPEAG	EX3DV4	SAR Probe	5/8/2026	Annual	5/8/2027	3914
SPEAG	EX3DV4	SAR Probe	3/11/2026	Annual	3/11/2027	7539

Note: 1) All equipment was used solely within its respective calibration period. 2) CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

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13 MEASUREMENT UNCERTAINTIES

Note: The tables below represent the worst-case uncertainty budget among the uncertainty budgets of all testing laboratories listed in Section 1.2

Applicable for SAR measurements < 6GHz on a flat phantom:

SAR Uncertainty Budget based on IEEE 1528-2013 and SPEAG (0.3 GHz to 6 GHz)

a	b	c	d	e f(d,k)	f	g	h cx/fe	i cxg/e	k
Uncertainty component	Reference	Tol. (± %)	Prob. dist.	Dvi.	ci (1g)	ci (10g)	lg ui (± %)	10g ui (± %)	vi
Measurement system									
Probe calibration	E.2.1	6.55	N	1	1	1	6.55	6.55	∞
Axial isotropy	E.2.2	0.25	N	1	0.707	0.707	0.18	0.18	∞
Hemispherical isotropy	E.2.2	1.30	N	1	0.707	0.707	0.92	0.92	∞
Boundary effect	E.2.3	2.00	R	1.73	1	1	1.15	1.15	∞
Linearity	E.2.4	0.30	R	1.73	1	1	0.17	0.17	∞
System detection limits	E.2.4	0.25	R	1.73	1	1	0.14	0.14	∞
Modulation response	E.2.5	4.80	R	1.73	1	1	2.77	2.77	∞
Readout electronics	E.2.6	0.30	N	1	1	1	0.30	0.30	∞
Response time	E.2.7	1.01	R	1.73	1	1	0.58	0.58	∞
Integration time	E.2.8	2.60	R	1.73	1	1	1.50	1.50	∞
RF ambient conditions - noise	E.6.1	3.00	R	1.73	1	1	1.73	1.73	∞
RF ambient conditions - reflections	E.6.1	3.00	R	1.73	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	E.6.2	0.04	R	1.73	1	1	0.02	0.02	∞
Probe positioning with respect to phantom shell	E.6.3	0.80	R	1.73	1	1	0.46	0.46	∞
Extrapolation, interpolation, and integration algorithms for max. SAR evaluation	E.5	4.00	R	1.73	1	1	2.31	2.31	∞
Test sample related									
Test sample positioning	E.4.2	3.12	N	1	1	1	3.12	3.12	35
Device holder uncertainty	E.4.1	1.67	N	1	1	1	1.67	1.67	5
Output power variation - SAR drift	E.2.9	5.00	R	1.73	1	1	2.89	2.89	∞
SAR scaling	E.6.5	0.00	R	1.73	1	1	0.00	0.00	∞
Phantom and tissue parameters									
Phantom shell uncertainty - shape, thickness and permittivity	E.3.1	7.60	R	1.73	1	1	4.39	4.39	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	0.00	N	1	1	1	0.00	0.00	∞
Liquid conductivity measurement	E.3.3	2.50	N	1	0.78	0.71	1.95	1.78	∞
Liquid permittivity measurement	E.3.3	2.50	N	1	0.23	0.26	0.58	0.65	∞
Liquid conductivity - temperature uncertainty	E.3.4	3.36	R	1.73	0.78	0.71	1.51	1.38	∞
Liquid permittivity - temperature uncertainty	E.3.4	0.77	R	1.73	0.23	0.26	0.10	0.12	∞
Liquid Conductivity - deviation from target values	E.3.2	5.00	R	1.73	0.64	0.43	1.85	1.24	∞
Liquid Permittivity - deviation from target values	E.3.2	5.00	R	1.73	0.60	0.49	1.73	1.41	∞
Combined standard uncertainty							11.0	10.8	40
Expanded uncertainty (95% confidence interval)							21.9	21.6	

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14 CONCLUSION

14.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

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