

**COMPLIANCE WORLDWIDE INC.
TEST REPORT 189-25RFR1**

In Accordance with the Requirements of
RSS-102, Issue 6
**Radio Frequency (RF) Exposure Compliance of Radiocommunication
Apparatus**

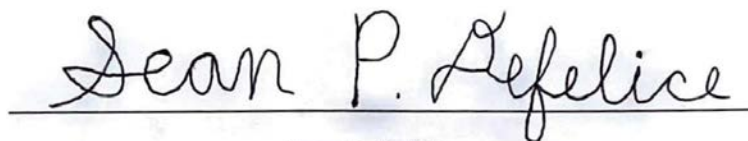
Issued to
Qorvo, Inc.
Decawave Limited
Adelaide Chambers, Peter Street
Dublin, Ireland D08 T6YA

for the
Model: DWM3001C

IC: 23794-DWM3001

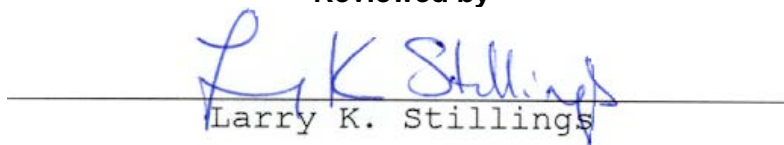
Report Issued on July 30, 2025
Revised on August 11, 2025

Tested by



Sean P. Defelice

Reviewed by



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1. Scope

This test report certifies that the Qorvo Decawave Limited DWM3001C, as tested, meets the ISED RSS-102, Issue 6 Section 6.1 requirements exempting the device from a SAR Evaluation and Section 8 for total exposure.

The scope of this test report is limited to the test sample provided by the client, only in as much as that sample represents other production units. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required. Measurement Uncertainty will not be applied to any of the measurement / testing results in this test report to determine pass/fail criteria per the Decision Rule as defined in ISO/IEC Guide 17025-2017 Clause 3.7. Revision R1 updates the report to include an exclusion for the UWB radio and for simultaneous operation of the BLE and UWB radios.

2. Product Details

2.1. Manufacturer:	Qorvo, Inc..
2.2. Model Numbers:	DWM3001C
2.3. Serial Numbers:	2227402CA5
2.4. Description:	The Qorvo® DWM3001C is a fully integrated UWB transceiver module based on the Qorvo DW3110 IC. Integration of the DW3110 IC, nRF52833 MCU, planar UWB antenna, accelerometer, power management and crystal simplifies the design cycle.
2.5. Power Source:	USB 5 VDC Support Board (3.3V module)
2.6. Hardware Revision:	N/A
2.7. Software Revision:	N/A
2.8. Modulation Types:	Gaussian frequency shift keying (GFSK), Pulse Modulation Frequency Hopping (UWB)
2.9. Operating Frequencies:	2.402 to 2.480 GHz (BLE), 6.5 & 8 GHz (UWB)
2.10. EMC Modifications:	None

3. Product Configuration

3.1. EUT Hardware

Manufacturer	Model	Serial Number	Input Volts	Freq (Hz) Or DC	Description/Function
Qorvo	DWM3001C	2227402CA5	3.3	DC	UWB / BLE Module

3.2. Support Equipment

Manufacturer	Model /Part # / Options	Serial Number	Input Voltage	Freq (Hz)	Description/Function
Lenovo	ThinkPad T440P	PB-031DX9	120	60	For controlling the board

3. Product Configuration (continued)

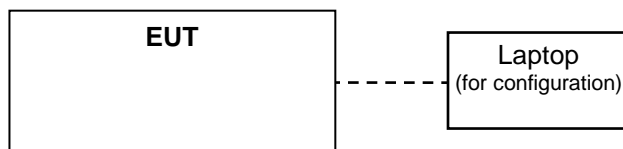
3.3. Cables

Cable Type	Length	Shield	From	To
USB	15M	Yes	EUT	Laptop for Configuration

3.4. Operational Characteristics & Software

Install the battery to the device under test. Special test firmware was loaded into the EUT so that a channel / frequency could be selected and set via a temporary serial connection through a laptop. For the BLE, frequencies, 2402, 2440 MHz or 2480 MHz are selected for the testing, for the UWB frequencies of 6.5 GHz (CH5) or 8 GHz (CH9) are selected for the testing.

3.5. Block Diagram



4. Measurements Parameters

4.1. Measurement Equipment and Software Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due	Interval
Spectrum Analyzer, 2 Hz to 26.5 GHz ²	Rohde & Schwarz	FSW26	102057	7/19/2026	2 Years
Dbl Ridged Guide Antenna 1 - 18 GHz	ETS-Lindgren	3117	00227631	4/21/2026	4 Years
Preamplifier, 1 GHz to 26.5 GHz	Hewlett Packard	8449B	3008A01323	3/5/2026	2 Years
Preamplifier 2 to 12 GHz	JCA	JCA48-4111B1	7087S	9/28/2025	2 Years
Barometric Pressure/Humidity & Temp Datalogger	Extech Instruments	SD700	Q590483	4/4/2026	2 Years

² FSW26 Firmware revision: V4.71 SP1, Date installed: 11/16/2020 Previous V4.61, installed 08/11/2020.

4. Measurements Parameters (continued)

4.2. Software Used to Perform Test

Manufacturer	Software Description	Title or Model #	Rev.	Report Sections
Compliance Worldwide	Test Report Generation Software	Test Report Generator	1.0	Used to process conducted emissions data

4.3 Measurement & Equipment Setup

Test Dates:	2/10/2025, 7/1/2025, 7/11/2025
Test Engineer:	Sean Defelice
Site Temperature (°C):	21.2
Relative Humidity (%RH):	35
Frequency Range:	9 kHz to 1 GHz
Measurement Distance:	3 Meters and 1 Meter
EMI Receiver IF Bandwidth:	200 Hz (30 kHz – 150 kHz) 9 kHz (150 kHz – 30 MHz) 120 kHz (30 MHz – 1 GHz)
EMI Receiver Avg Bandwidth:	≥ 3 * RBW or IF(BW)
Detector Functions:	Peak, Quasi-Peak and Average

4.4 Test Procedure

Test measurements were made in accordance ISED RSS-247, Issue 3, Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and License-Exempt Local Area Network (LE-LAN) Devices and ISED RSS-220, Issue 1 Devices Using Ultra-Wideband (UWB) Technology.

The measurement procedures in this report are in accordance with ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

FCC OET Publication Number KDB 558074 D01 v05r02, Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS), Frequency Hopping Spread Spectrum Systems, and Hybrid System Devices Operating Under §15.247, dated April 2, 2019 is also referenced.

In addition, ISED RSS-102, Issue 6, (December 15, 2023) are referenced for the testing and requirements detailed in this report.

5. Choice of Equipment for Test Suits

5.1 Choice of Model

This test report is based on the test samples supplied by the manufacturer and are reported by the manufacturer to be equivalent to the production units.

5.2 Presentation

This test sample was tested complete with all required ancillary equipment. Refer to Section 3 of this report for product equipment configuration.

5.3 Choice of Operating Frequencies

The EUT, as tested, operates on 40 channels, from channels 0 to 39 in the 2.4 GHz band.

In accordance with ANSI C63.10-2013, section 5.6, and FCC Part 15.31 (m), the choice of operating frequencies selected for the testing detailed in this report are outlined in the following table:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
37	2402	9	2422	18	2442	28	2462
0	2404	10	2424	19	2444	29	2464
1	2406	38	2426	20	2446	30	2466
2	2408	11	2428	21	2448	31	2468
3	2410	12	2430	22	2450	32	2470
4	2412	13	2432	23	2452	33	2472
5	2414	14	2434	24	2454	34	2474
6	2416	15	2436	25	2456	35	2476
7	2418	16	2438	26	2458	36	2478
8	2420	17	2440	27	2460	39	2480

5.4 Mode of Operation

Modulation type : GFSK

Payload pattern : PRBS9

Payload Length : 37 bytes

For band edge measurements (section 7.6), the DTS bandwidth measurements were taken into consideration for the worse case examples.

6. Measurement Data (continued)

6.1. Maximum Conducted Output Power (ISED RSS-247 5.4 d)

Requirement: For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 Watt (+30 dBm).

Procedure: This test was performed in accordance with the procedure detailed in FCC OET publication number KDB 558074, Section 9.1.1.

Test Notes: A spectrum analyzer resolution bandwidth of 1 MHz and a video bandwidth of 3 MHz were used to meet the requirements of FCC OET publication number 558074, Section 9.1.1 and the measured product DTS bandwidth. The field strength measured at 3 Meters was converted to dBm by subtracting 95.2. The maximum antenna gain of 0.5 dBi at 2450 MHz additionally subtracted to determine the conducted output power.

Results: The device under test meets the required maximum peak conducted output power level of 1 Watt (30 dBm).

1 MBPS

BLE Channel	Frequency	Maximum Peak Radiated Power	Antenna Gain (Peak)	Maximum Peak Conducted Output Power	Peak Limit	Margin	Result
	(MHz)	(dBμV/m)	dBi	(dBm)	(dBm)	(dB)	
37	2402	96.22	0.50	0.52	30.00	-29.48	Compliant
17	2440	97.43	0.50	1.73	30.00	-28.27	Compliant
39	2480	99.26	0.50	3.56	30.00	-26.44	Compliant

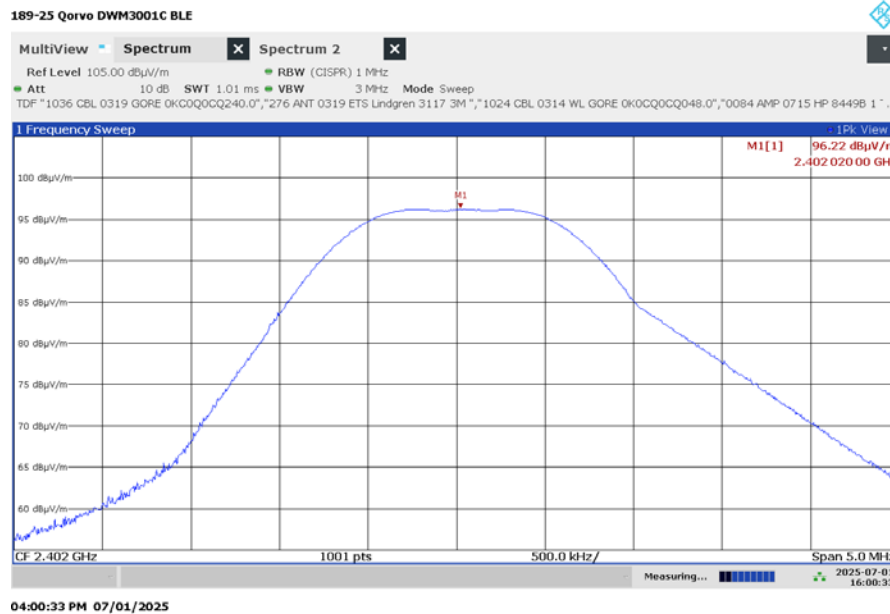
2 MBPS

BLE Channel	Frequency	Maximum Peak Radiated Power	Antenna Gain (Peak)	Maximum Peak Conducted Output Power	Peak Limit	Margin	Result
	(MHz)	(dBμV/m)	dBi	(dBm)	(dBm)	(dB)	
37	2402	96.20	0.50	0.50	30.00	-29.50	Compliant
17	2440	97.34	0.50	1.64	30.00	-28.36	Compliant
39	2480	99.25	0.50	3.55	30.00	-26.45	Compliant

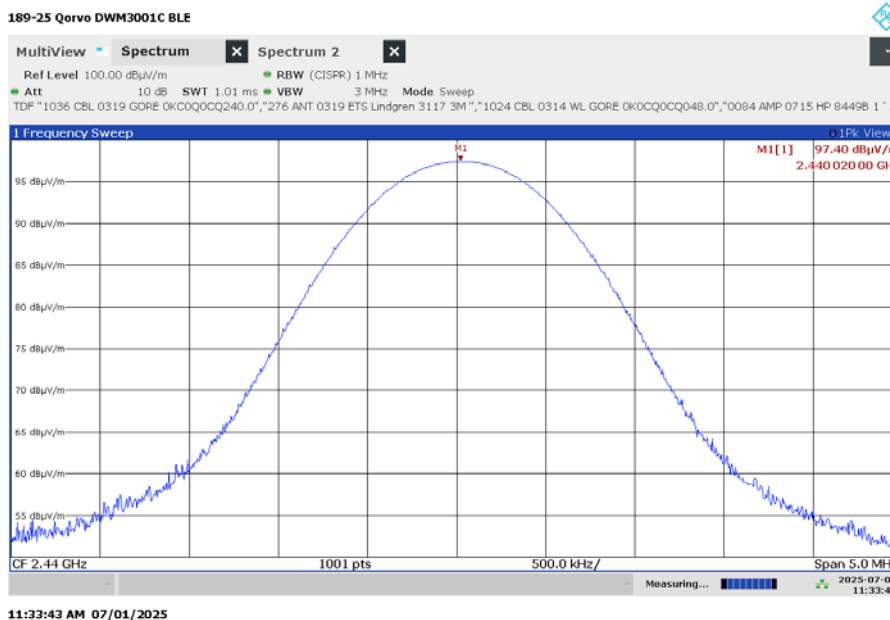
6. Measurement Data (continued)

6.1. Maximum Conducted Output Power (ISED RSS-247 5.4 d)

6.1.1. Low Channel – 37, 2402 MHz, 1MPBS



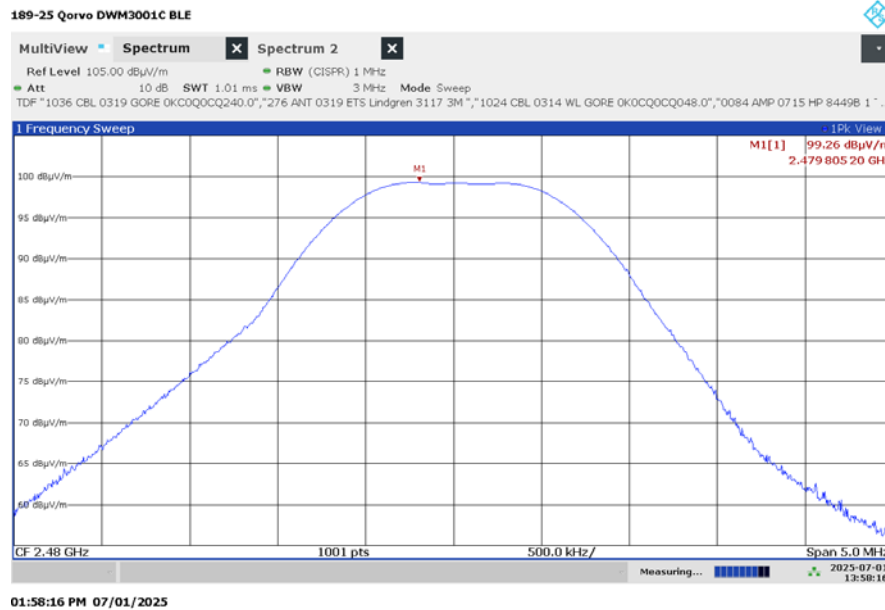
6.1.2. Middle Channel – 17, 2440 MHz, 1MBPS



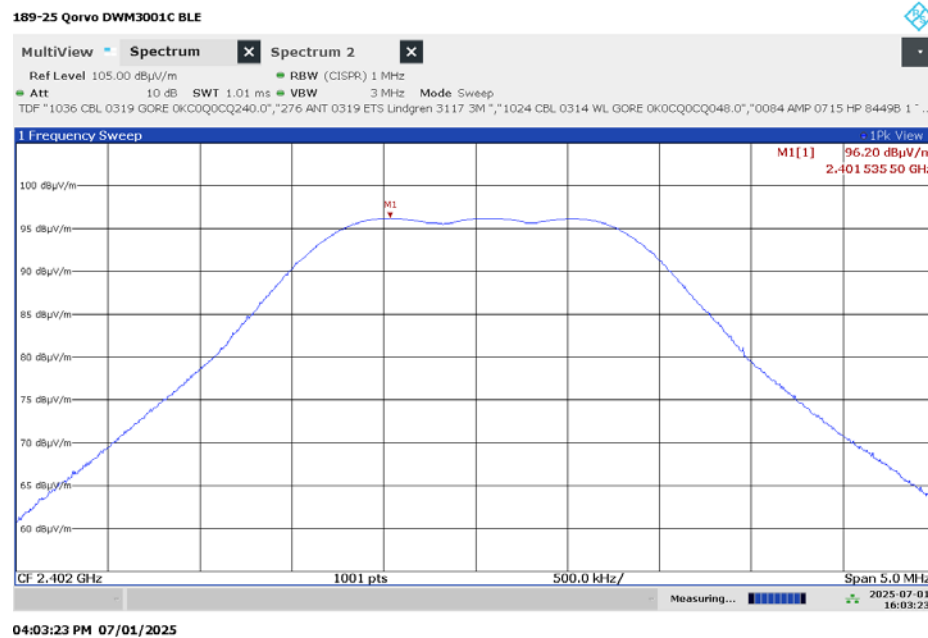
6. Measurement Data (continued)

6.1. Maximum Conducted Output Power (ISED RSS-247 5.4 d) (continued)

6.1.3. High Channel – 39, 2480 MHz, 1MBPS



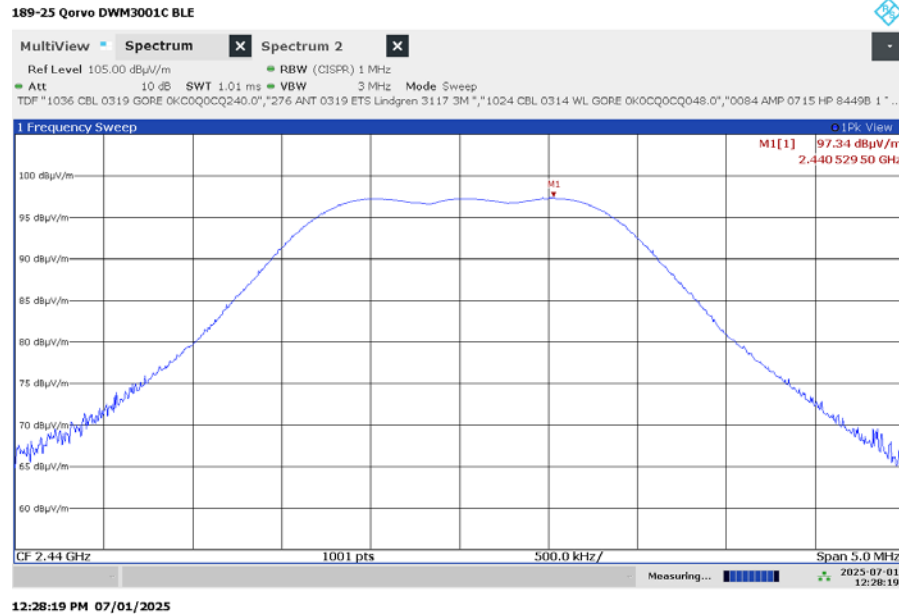
6.1.4. Low Channel – 37, 2402 MHz, 2MPBS



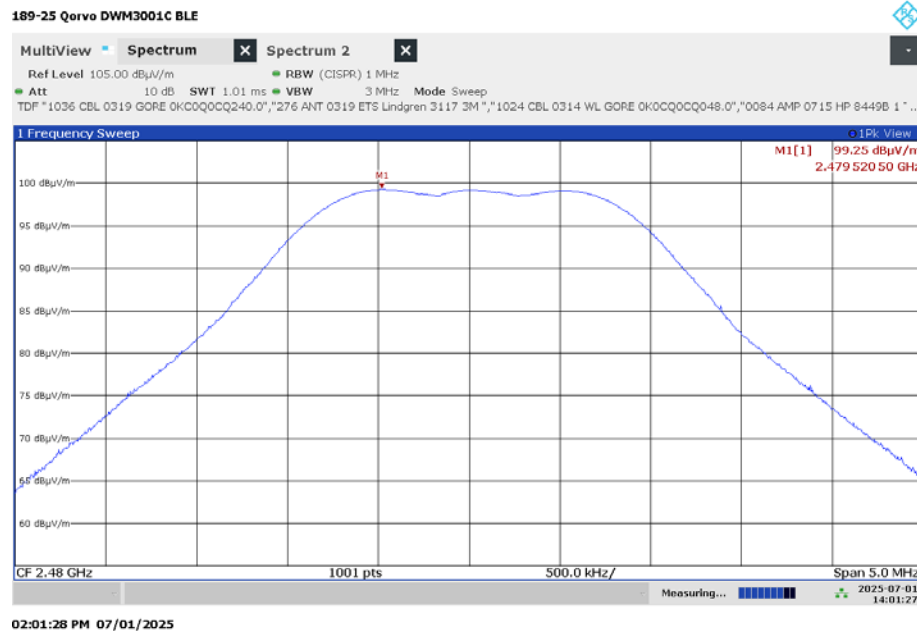
6. Measurement Data (continued)

6.1. Maximum Conducted Output Power (ISED RSS-247 5.4 d) (continued)

6.1.5. Middle Channel – 17, 2440 MHz, 2MBPS



6.1.6. High Channel – 39, 2480 MHz, 2MBPS



6. Measurement Data (continued)

6.2. Peak Emissions in a 50 MHz Bandwidth (RSS-220 5.3.1 (g) continued)

6.2.1 Plot of Peak Power at 3 Meters – Channel 5

Frequency (GHz)	Amplitude ¹	Limit	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	(dBμV/m)	(dBμV/m)	(dB)	H/V	cm	Deg	
6.488	94.91	95.20	-0.29	V	215	230	Compliant

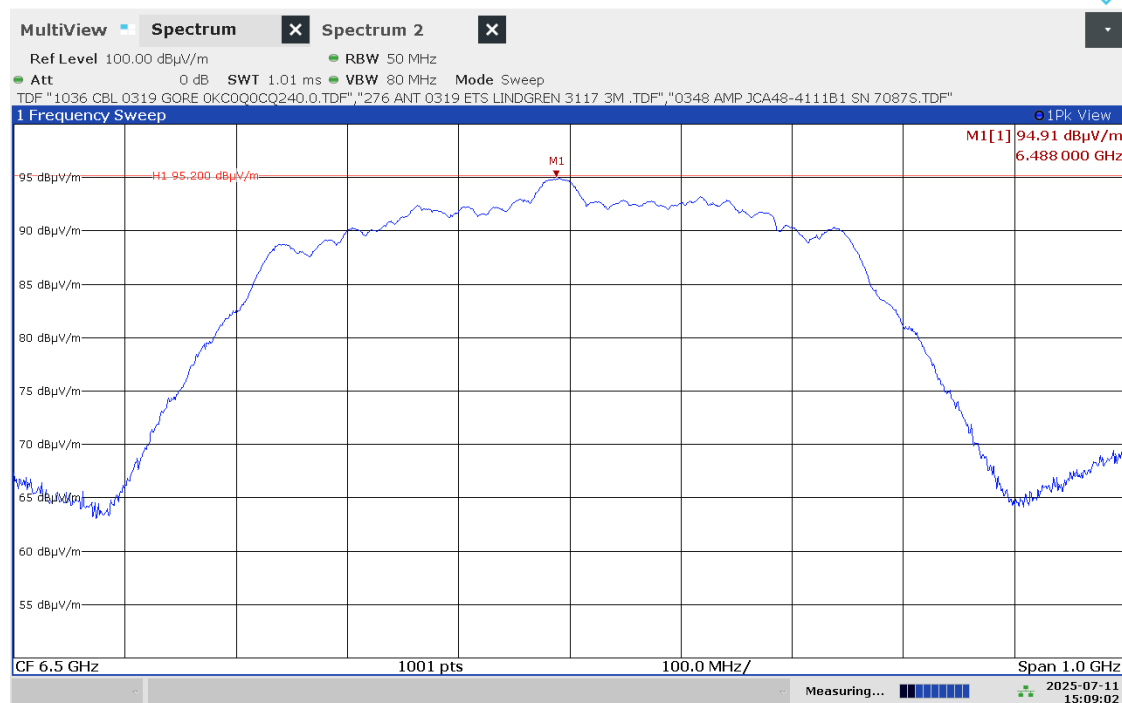
Notes: ¹ Antenna Factor (AF), Cable Factor (CF) and External Preamplifier Gain (PAG) have been entered into the analyzer as transducer factors.

Equation (22) from ANSI C63.10-2013, $EIRP = E_{meas} + 20 \log(d_{meas}) - 104.7$; $d_{meas} = 3$

$EIRP (dBm) = E_{meas} (dBμV/m) - 95.2$

Frequency (GHz)	Amplitude ¹ (dBm)	Limit (dBm)	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	EIRP	EIRP	(dB)	H/V	cm	Deg	
6.488	-0.29	0.00	-0.29	V	215	225	Compliant

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6. Measurement Data (continued)

6.2. Peak Emissions in a 50 MHz Bandwidth (RSS-220 5.3.1 (g) continued)

6.2.2 Plot of Peak Power at 3 Meters – Channel 9

Frequency (GHz)	Amplitude ¹	Limit	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	(dBμV/m)	(dBμV/m)	(dB)	H/V	cm	Deg	
7.988	94.95	95.20	-0.25	V	134	179	Compliant

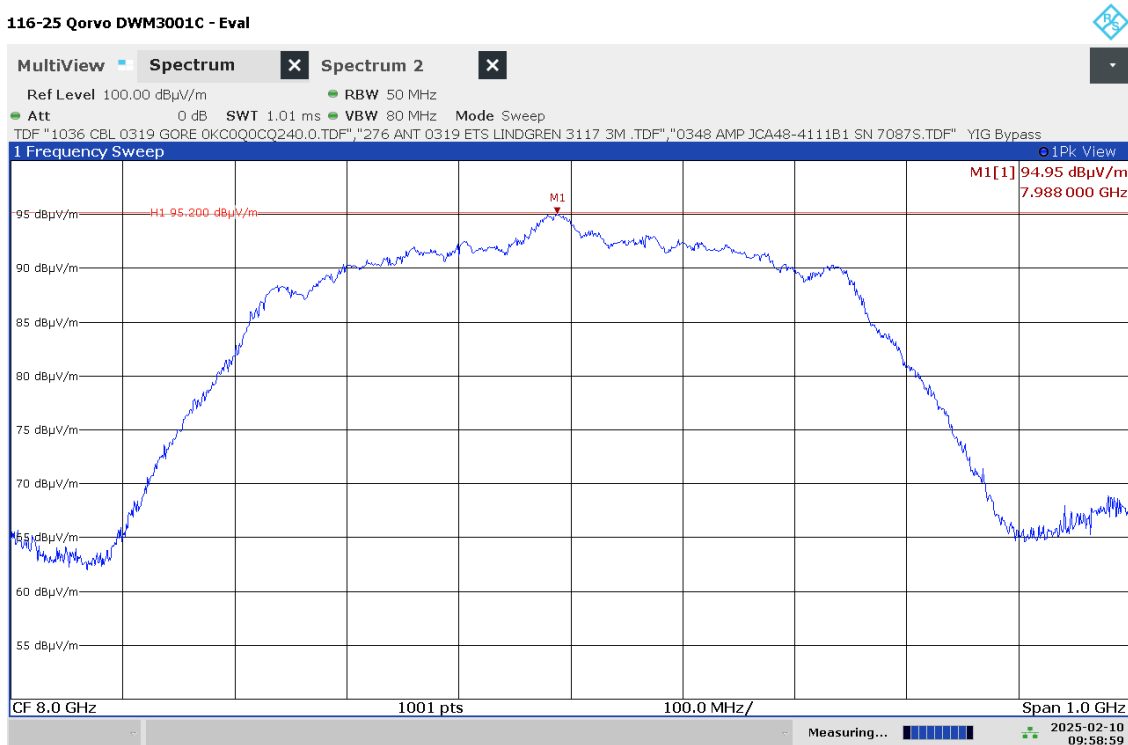
Notes: ¹ Antenna Factor (AF), Cable Factor (CF) and External Preamplifier Gain (PAG) have been entered into the analyzer as transducer factors.

Equation (22) from ANSI C63.10-2013, $EIRP = E_{meas} + 20 \log(d_{meas}) - 104.7$; $d_{meas} = 3$

$EIRP (dBm) = E_{meas} (dBμV/m) - 95.2$

Frequency (GHz)	Amplitude ¹ (dBm)	Limit (dBm)	Margin	Ant Polarity	Ant Height	Turntable Azimuth	Result
	EIRP	EIRP	(dB)	H/V	cm	Deg	
7.988	-0.25	0.00	-0.25	V	134	179	Compliant

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6. Measurement Data (continued)

6.3. 99% Emission Bandwidth (RSS-GEN 6.7)

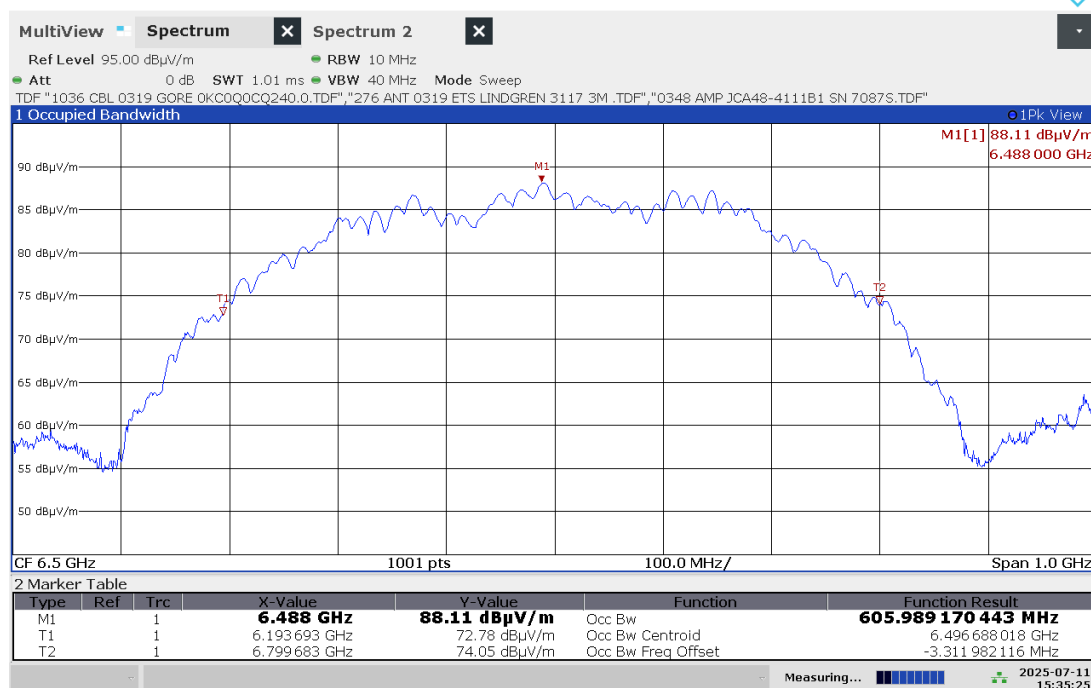
Requirement: The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs RSS-Gen, Section 6.7.

Test Note: The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

The detector of the spectrum analyzer shall be set to "Sample". However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or "Max Hold") may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.

6.3.1 Plot of 99% Emission Bandwidth, Channel 5, 605,989 MHz

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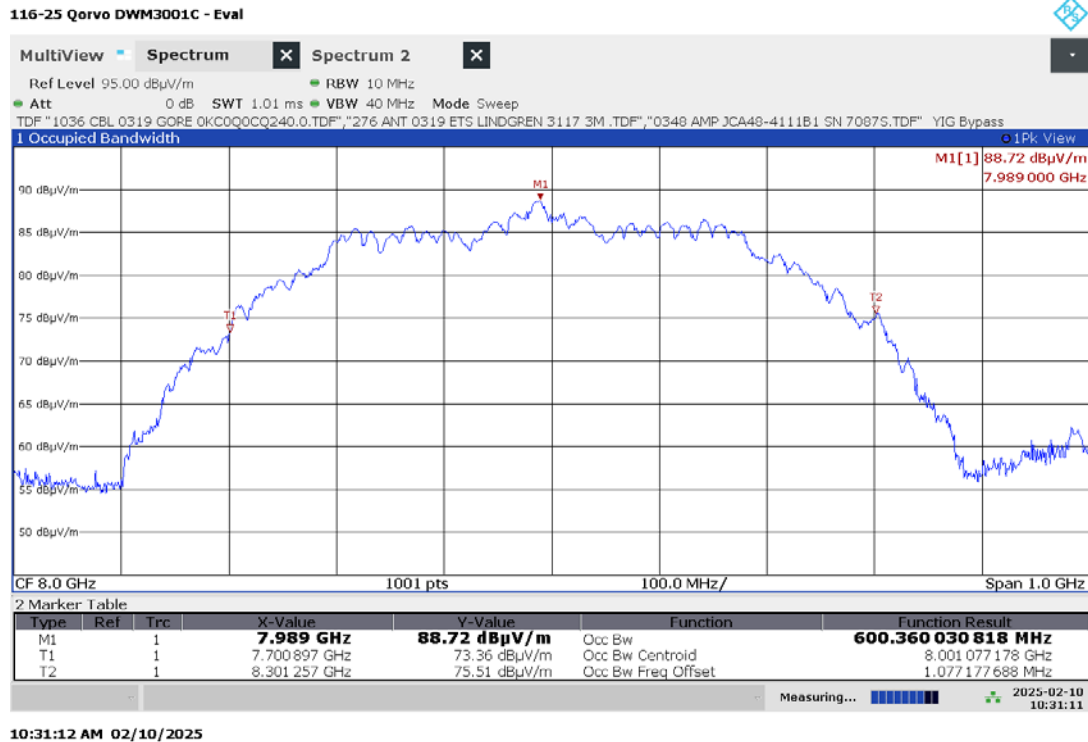


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6. Measurement Data (continued)

6.3. 99% Emission Bandwidth (RSS-GEN 6.7) continued

6.3.2 Plot of 99% Emission Bandwidth, Channel 9, 600,360 MHz



6. Measurement Data (continued)

6.4. Radio Frequency (RF) Exposure of Radiocommunication Apparatus (RSS-102, Issue 6)

6.4.1. RSS-102 Issue 6 Requirements

Requirement: Devices operating at or below the applicable output power levels (adjusted for tune-up tolerance) specified in Table 11, based on the separation distance, are exempt from SAR evaluation. The separation distance, defined as the distance between the user and/or bystander and the antenna and/or radiating element of the device or the outer surface of the device, shall be less than or equal to 20 cm for these exemption limits to apply.

When the operating frequency of the device is between two frequencies located in Table 11, linear interpolation shall be applied for the applicable separation distance. If the separation distance of the device is between two distances located in Table 11, linear interpolation may be applied for the applicable frequency.

Table Frequency (MHz)	Table Limit ≤ 5mm (mW)
1900.00	6.00
2450.00	3.00
3500.00	2.00

	Frequency	Separation Distance	Maximum Power	RSS-102 Limit	Result
	MHz	mm	mW	mW	
1 MBPS	2402	≤5	1.13	3.26	Compliant
	2440	≤5	1.49	3.05	Compliant
	2480	≤5	2.27	2.97	Compliant
2 MBPS	2402	≤5	1.12	3.26	Compliant
	2440	≤5	1.46	3.05	Compliant
	2480	≤5	2.26	2.97	Compliant

¹ Taken from the peak conducted power of this report and converted to mW

Worst case ratio against the limit is at 2480 MHz = 2.27 / 2.97 mW

Result: Compliant, the device meets the exemption limits from Table 11 of RSS-102, Issue 6 at less than or equal to 5mm separation.

6. Measurement Data (continued)**6.4. Radio Frequency (RF) Exposure of Radiocommunication Apparatus (RSS-102, Issue 6)****6.4.1. RSS-102 Issue 6 Requirements (continued)**

Requirement: Section 6.5: A transmitter producing emissions in the 6 GHz - 30 GHz frequency range (i.e. where the occupied bandwidth (99% emission bandwidth) is fully contained within this range) is exempt from routine IPD evaluation if the output power (adjusted for tune-up tolerance) is less than or equal to 1 mW (0 dBm).

Channel	Frequency	Maximum Peak Power	RSS-102 Limit	Result
	MHz	mW	mW	
5	6488	0.935	1.00	Compliant
9	7988	0.944	1.00	Compliant

Result: Compliant, the device meets the exemption limit using the devices peak power which is less than 1 mW. The RMS time averaged power is significantly less.

6. Measurement Data (continued)

6.4. Radio Frequency (RF) Exposure of Radiocommunication Apparatus (RSS-102, Issue 6)

6.4.1. RSS-102 Issue 6 Requirements (continued)

Requirement: SAR values from exempted transmitters shall be included in the total exposure assessment. A SAR value of 0.4 W/kg for 1 g, 1 W/kg for 10 g, or an estimated SAR value based on the ratio of the power level and the power exemption limit may be used to determine the standalone SAR value for test configurations that do not require a SAR evaluation based on test reductions or on the exemption limits outlined in section 6.3. The estimated SAR value, $SAR_{estimated}$, is calculated using equation (2):

$$SAR_{estimated} = \frac{P_{max}}{P_{max,exemption}} \times 0.25 \times SAR_{limit} \text{ W/kg}$$

Worst Case Ratio of $SAR_{estimated}$ = $2.27/2.97 \times 0.25 \times 0.4 \text{ W/kg} = 0.076 \text{ W/kg}$

The ER for a transmitter producing emissions in the 6 GHz to 30 GHz frequency range and is exempted in accordance with section 6.5 (i.e. where the occupied bandwidth (99% emission bandwidth) and is fully contained within this range) shall be accounted for by using equation:

$$ER_{exempted_{1mW,z}} = 0.1 \left(\frac{\max[P_{cond,z}, P_{EIRP,z}]}{1 \text{ mW}} \right)$$

Z is the number of simultaneously operating transmitters for which the 1 mW exemption as outlined in section 6.5 applies (refer to section 8.2.2.4)

Note: The EUT only supports transmitting on one UWB Channel at a time.

Thermal-based ER for transmitters above 10 MHz can be calculated using SAR-, APD-, and IPD-based measurements/simulation results as outlined in sections 8.2.2.1, 8.2.2.2 and 8.2.2.3, respectively. The exposure from exempted transmitters shall be included in the determination of the thermal-based ER above 10 MHz.

Worst Case Ratio $ER_{exempted_{1mw}} = 0.1 \times 0.944/1.000 = 0.0944$

6. Measurement Data (continued)

6.4. Radio Frequency (RF) Exposure of Radiocommunication Apparatus (RSS-102, Issue 6)

6.4.1. RSS-102 Issue 6 Requirements (continued)

Requirement: Total Exposure: The various $ER_{therm} \leq 10 \text{ MHz}$ and $ER_{therm} > 10 \text{ MHz}$ from each of the different transmitters and different exposure metrics can be combined to determine the TER for all transmitters (TER_{therm}) using equation

$$TER_{therm} = SAR_{estimated} + ER_{exempted1mw}$$

Compliance with the SAR-PD-based RF exposure limits is achieved if $TER_{therm} \leq 1$.

$$\text{Total Exposure Ratio } TER_{therm} = 0.076 + 0.0944 = 0.171 < 1.0$$

Result: Compliant, the Total Exposure Ratio is less than 1.0 for the BLE and UWB Radios operating simultaneously.