



ElitePro S1200 Smart Thermostat

Report #: 24002

FCC ID: HS9-THX1200WF01

IC: 573R-THX1200WF01

FCC 15.247

RSS-247 Issue 3

RSS-Gen Issue 5 + A1 + A2

Issue Date: <2025-06-11>

Prepared by and for:

Resideo LLC.

2 Corporate Center Dr.

Suite 100 PO Box 9040

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Testing

NVLAP Lab Code: 600110

REVISION HISTORY

Revision	Prepared By	Reviewed By	Revision Detail	Release Date
00	Jose Badia	Christian Fouth	Original version	05/08/2025
1.0	Jose Badia	Christian Fouth	Power setting change	06/09/2025
2.0	Jose Badia	Christian Fouth	Remove Powerline conducted section	06/11/2025

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ATTESTATION OF TEST RESULTS

Company Name: Resideo LLC., 2 Corporate Center Dr., Melville, NY 11747, USA
EUT Description: Smart Thermostat
Model: Elite Pro S1200
Serial Number: MEL-1175, MEL-1174
Sample receipt date: 04/16/2025
Last Date of test: 06/09/2025

Standards

Specification	Method
CFR 47 Pt 15 Subpart C, Section 15.247:2023	ANSI C63.10: 2013
RSS-247 Issue 3	
RSS-GEN Issue 5 +A1 +A2	

Guidance

FCC KDB 558074 V05R02:2019

Resideo LLC. tested the above equipment in accordance with the requirements set forth in the listed standards. All indications of Pass/Fail in the report are opinions expressed by Resideo LLC. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

This document is a record of the FCC/ISED Test Report for Resideo LLC. products. It demonstrates the data required to be analyzed to certify a product according to the requirements of the FCC & ISED.

The results in the report reflect only the tested samples, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only.

This document may not be altered or revised in any way unless done so by Resideo LLC. and all revisions are duly noted in the revisions section. Any alterations of this document not carried out by Resideo LLC. will constitute fraud and shall nullify the document.

Resideo LLC. is the legal entity name for Honeywell Home / Resideo. All three names can be used interchangeably within this test report.

Report Prepared By:

Jose Badia

Name: Jose Badia

Title: Regulatory Certification Engineer
Resideo LLC.

Reviewed & Approved By:

Christian Fouth

Name: Christian Fouth

Title: Sr. Wireless Certification Engineer
Resideo LLC.

TEST RESULT SUMMARY

Test Description	Result	FCC Section (s)	RSS Section (s)	Comments
DTS Bandwidth	Pass	15.247	RSS-247 5.2	N/A
Occupied Bandwidth (99%)	Evaluated	15.247	RSS-Gen 6.7	There is no compliance requirement for this test
Output Power	Pass	15.247	RSS-247 5.4	N/A
Power Spectral Density	Pass	15.247	RSS-247 5.2	N/A
Spurious Conducted Emissions	Pass	15.247	RSS-247 5.5	N/A
Conducted Band Edge	Pass	15.247	RSS-247 5.5	N/A

Deviations from test standard

None

ACCREDITATIONS AND AUTHORIZATIONS

USA
FCC - test site and measurement facility used to collect data are located at 2 Corporate Center Dr., Melville, NY 11747, USA. Resideo LLC. is accredited by NVLAP, Laboratory Code 600110-0 . The full scope of accreditation can be viewed at the NVLAP website. Designation Number: US5344
Canada
ISED - test site and measurement facility used to collect data are located at 2 Corporate Center Dr., Melville, NY 11747, USA. Resideo LLC. is accredited by NVLAP, Laboratory Code 600110-0 . The full scope of accreditation can be viewed at the NVLAP website. CAB Identifier: US0242

MEASUREMENT UNCERTAINTY

The measuring equipment utilized to perform the tests documented in this report have been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty (+/-)
Frequency Accuracy	0.0007
Amplitude Accuracy (dB)	1.2
Conducted Power (dB)	1.2
Temperature (°C)	0.7
Humidity (% RH)	2.5
DC Supply Voltages	0.7
AC Supply Voltages	1

Uncertainty figures are valid to a confidence level of 95%.

Test Setup Block Diagrams

Measurement Bandwidths

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 – 0.15	1.0	0.2	0.2
0.15 – 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Unless otherwise stated, measurements were made using the bandwidths and detectors specified. No video filter was used

Antenna Port Conducted Measurements



Sample Calculation

Where relevant, the following sample calculation is provided:

Conducted Emissions:

Adjusted Level (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Transducer Factor (dB)

EQUIPMENT UNDER TEST

Test Item Description

The THX1200WF01 is a Redlink, Wi-Fi, BLE (Bluetooth Low Energy), and Radar enabled thermostat operating in the, 900MHz, 2.4GHz, 5Ghz ISM band and 60GHz band for Radar.

This report covers only the 2.4 GHz BLE portion of the device.

Test Sample Identification

Sample ID Number	Date Received
MEL-1175 (Antenna port testing)	04/16/2025
MEL-1174 (Conducted AC Line testing)	04/16/2025

Worst-Case Configuration & Mode

Testing was performed with the EUT set to transmit at the low/middle/high channels with the highest output power and $\geq 98\%$ duty cycle as worst-case scenario.

Power setting

The power settings below reflect the maximum power that the EUT is allowed to transmit at during normal operation.

Modulation Types	Position (if multiple channels)	Power Setting (dBm)
GFSK / 1Mbps	Low channel – 2402 MHz	14
	Mid channel – 2440 MHz	14
	High channel – 2480 MHz	14

Antenna description

Antenna	Type	Frequency Range (MHz)	Highest Gain (dBi)
Side Antenna	PCB	2402 - 2480	3
Top Antenna	PCB	2402 - 2480	1.9

Test & Measurement Equipment

The following test and measurement equipment was utilized for the tests documented in this report:

Equipment List

Instrument Type	ID #	Serial #	Manufacturer	Model	Cal Date	Cal Due Date
RF Lab (Power & Antenna Port Measurements)						
Spectrum Analyzer	11549	MY46187211	Agilent	E4440A	3/5/2024	3/5/2026
Power Sensor	11568	105317	Rohde & Schwarz	NRP-Z81	11/3/2023	11/3/2025
Attenuator	-	1624	Pasternack	PE7087-6	03/25/2025	03/25/2026
Misc.						
Measurement Software	11543	Version 9.5	UL	UL EMC	N/A	N/A
Environmental Meter	11548	A078188	Extech Instruments	SD700	3/29/2024	3/31/2027

*-Passive devices & Preamps are characterized in-house, not calibrated.

ANTENNA PORT MEASUREMENTS

Duty Cycle

Test Description

There is no compliance requirement to be met by this test, so therefore no pass/fail criteria.

The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum.

The test software provided for operation in a fixed, single channel mode allows the EUT to operate continuously at 100% Duty Cycle.

6dB Emission Bandwidth (DTS Bandwidth)

Test Description

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. Refer to KDB 558074 D01 15.247 Meas Guidance v05.

Test Criteria

Reference	Method	Limit
CFR 47 Subpart C 15.247 (a)(2) RSS-247 Section 5.2 (a)	ANSI C63.10	≥ 500kHz

Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
Jose Badia	RF Lab	5/7/2025	21.67	28	1010.2	P

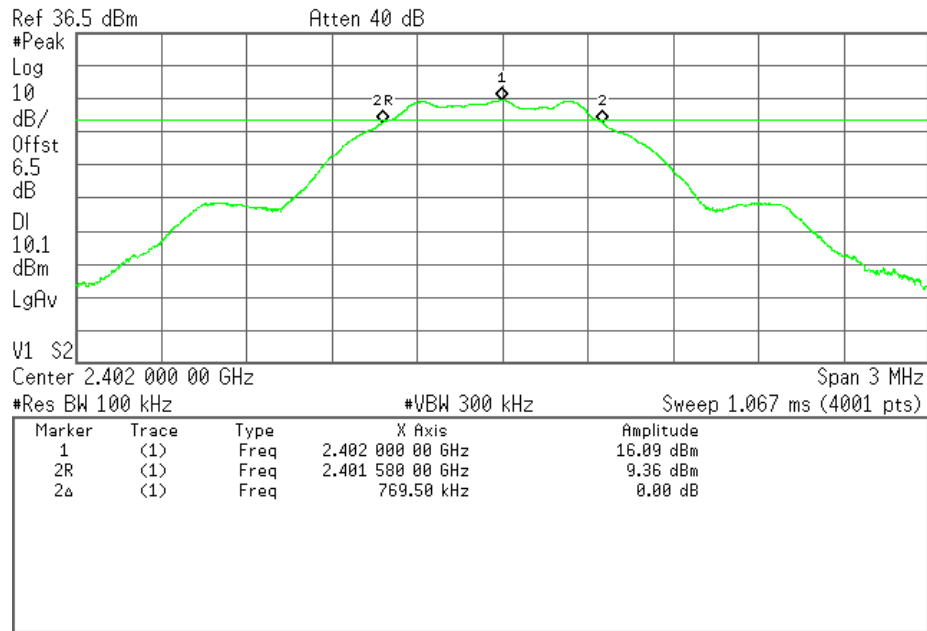
Test Results

Channel	Frequency (MHz)	6dB Bandwidth (kHz)	
		Side Antenna	Top Antenna
Low	2402	769.50	792.75
Mid	2440	783.00	790.50
High	2480	786.75	790.50

6dB Bandwidth Plots

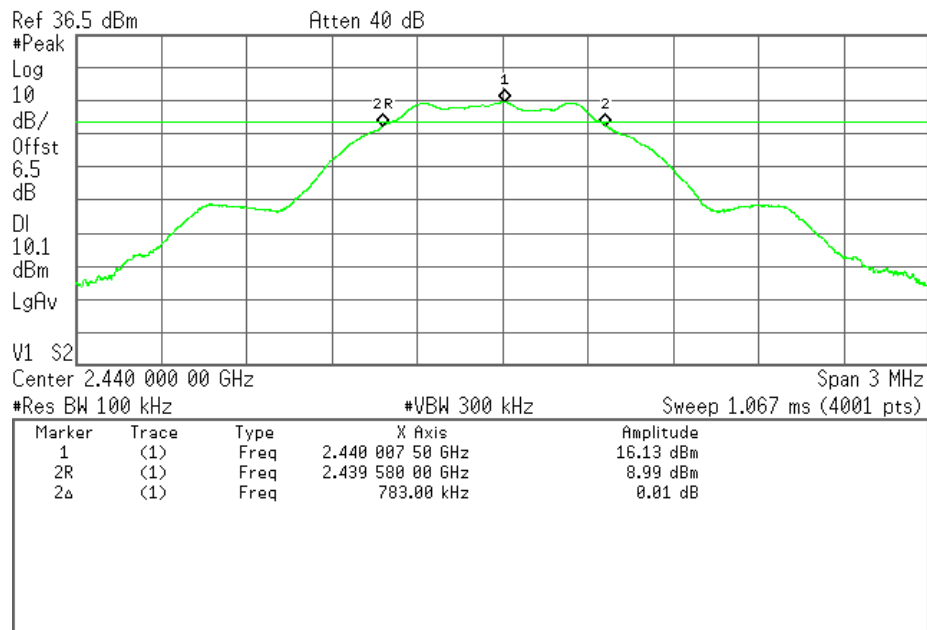
Side Antenna

Agilent



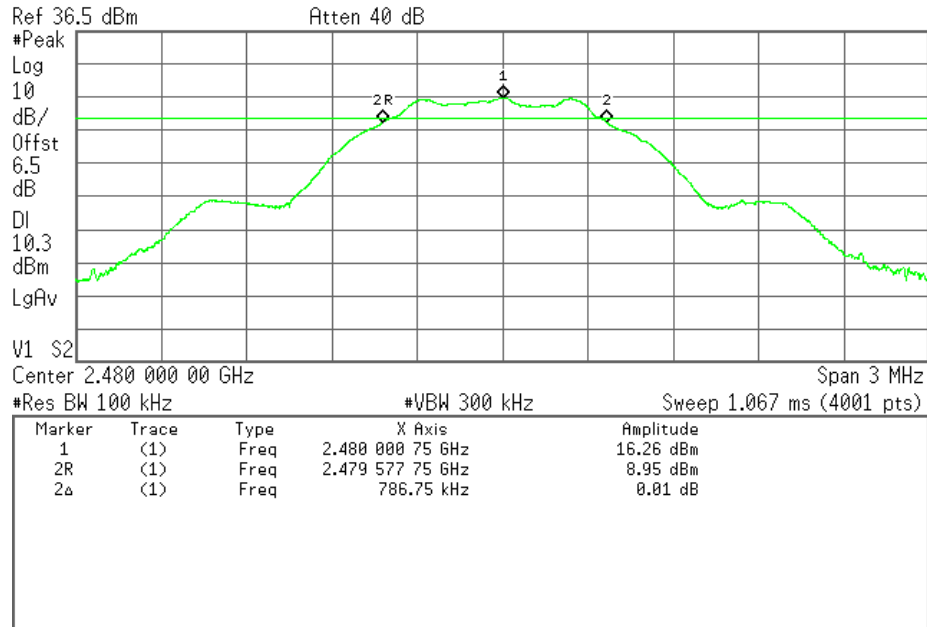
Side Antenna: Low Channel - Plot

Agilent



Side Antenna: Mid Channel - Plot

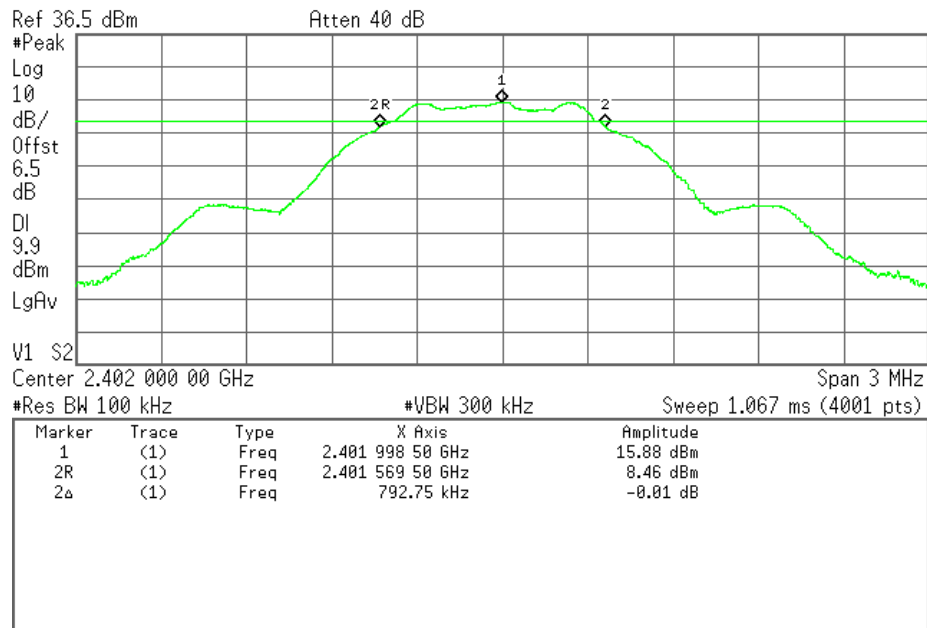
Agilent



Side Antenna: High Channel – Plot

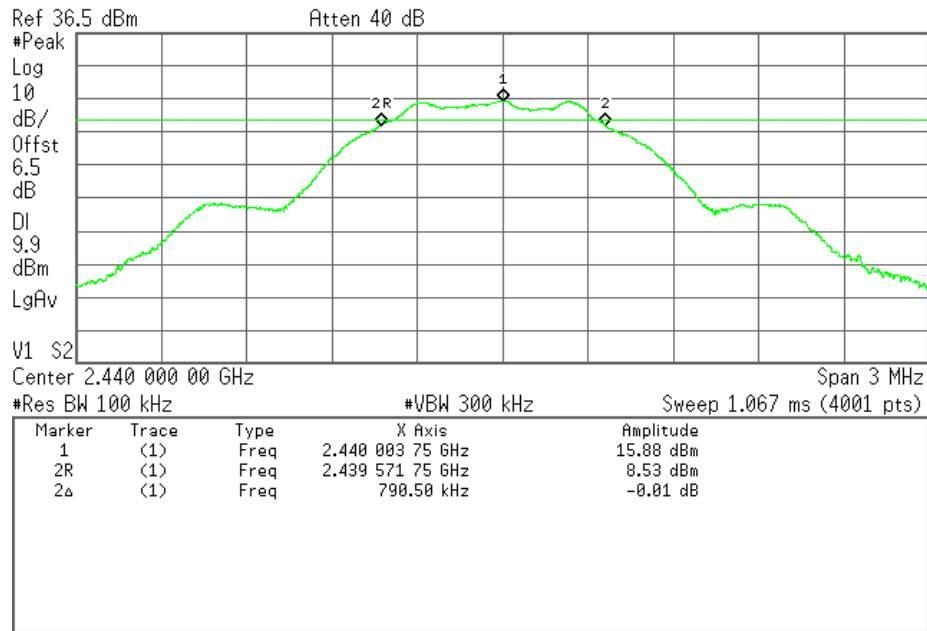
Top Antenna

Agilent



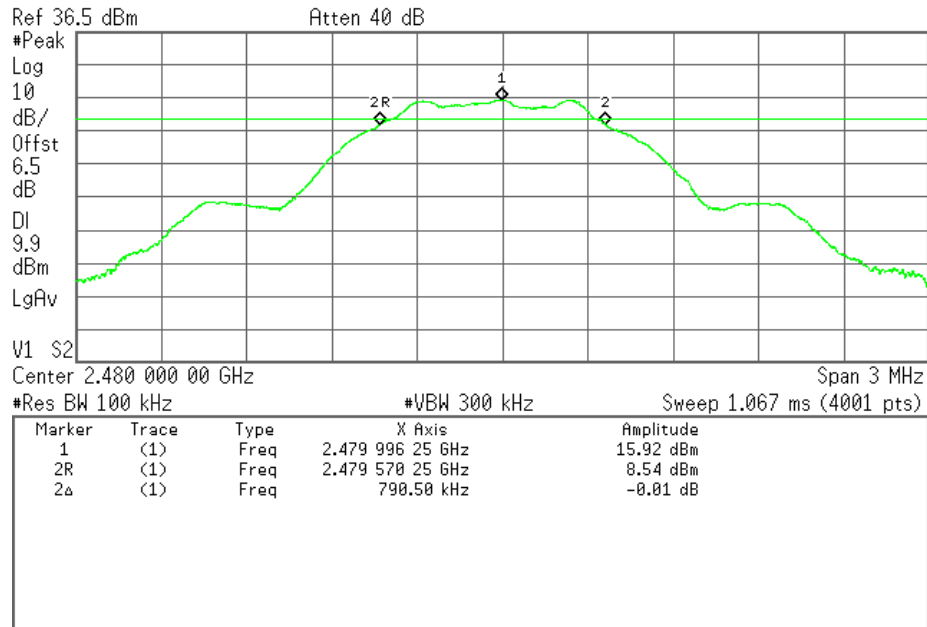
Top Antenna: Low Channel - Plot

* Agilent



Top Antenna: Mid Channel - Plot

* Agilent



Top Antenna: High Channel - Plot

99% Occupied Bandwidth

Test Description

The emission bandwidth (x dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated x dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth.

When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured.

Test Criteria

Reference	Limit
RSS-GEN, Section 6.7	N/A

Test Information

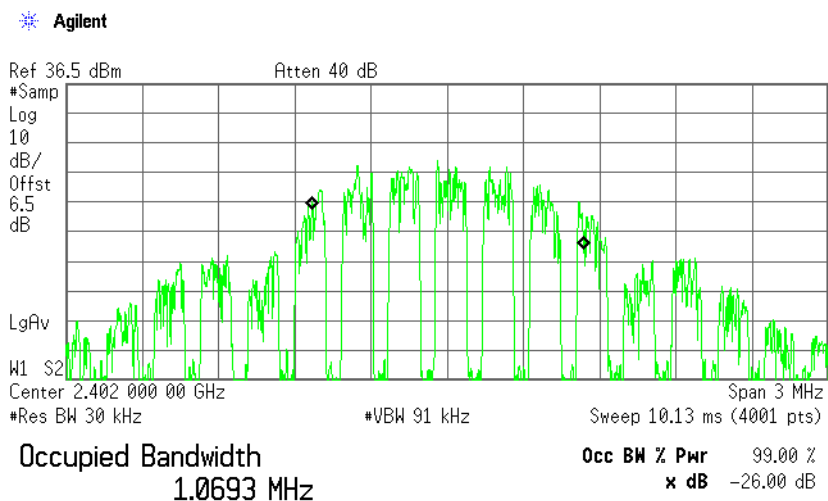
Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
Jose Badia	RF Lab	5/7/2025	21.67	28	1010.2	P

Test Results

Channel	Frequency (MHz)	99% Bandwidth (in MHz)	
		Side Antenna	Top Antenna
Low	2402	1.07	1.02
Mid	2440	1.07	1.07
High	2480	1.07	1.07

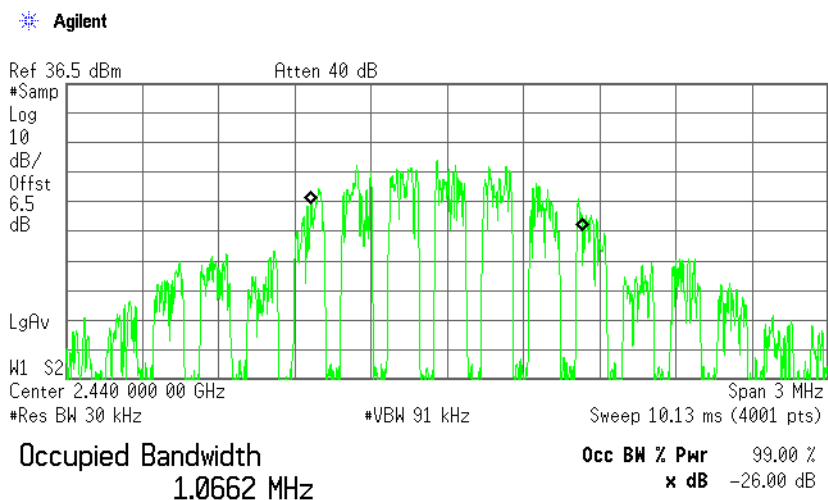
99% Occupied Bandwidth Plots

Side Antenna



Transmit Freq Error 2.027 kHz
x dB Bandwidth 1.216 MHz*

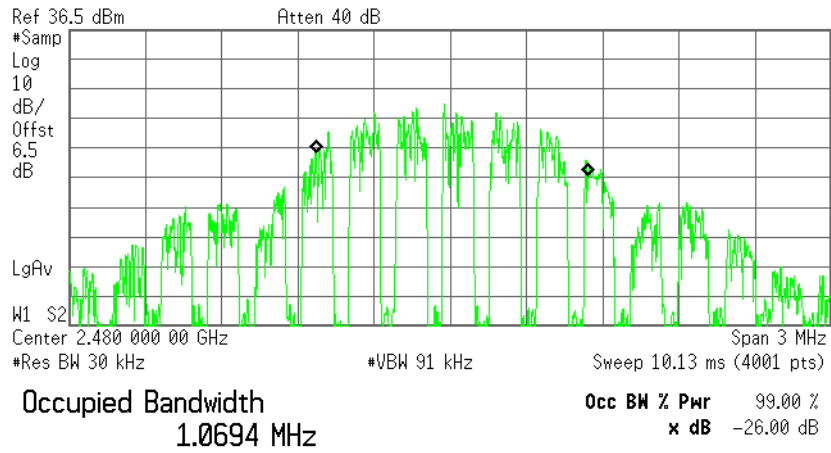
Side Antenna: Low Channel - Plot



Transmit Freq Error -1.428 kHz
x dB Bandwidth 1.213 MHz*

Side Antenna: Mid Channel - Plot

* Agilent

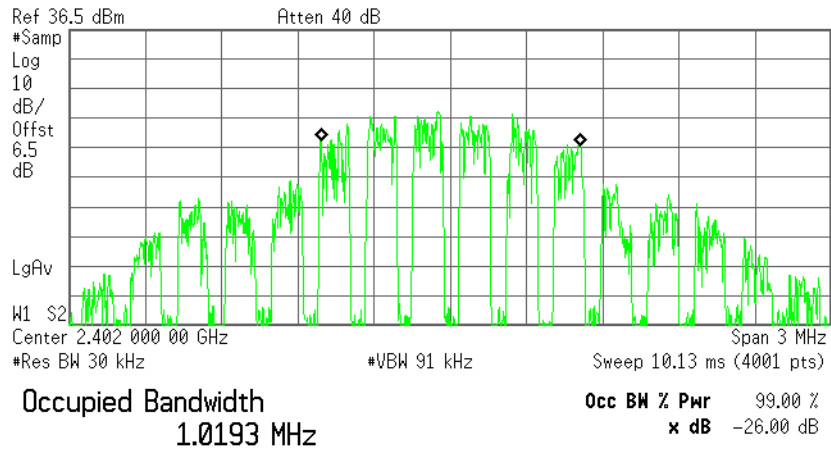


Transmit Freq Error 6.464 kHz
x dB Bandwidth 1.176 MHz*

Side Antenna: High Channel – Plot

Top Antenna

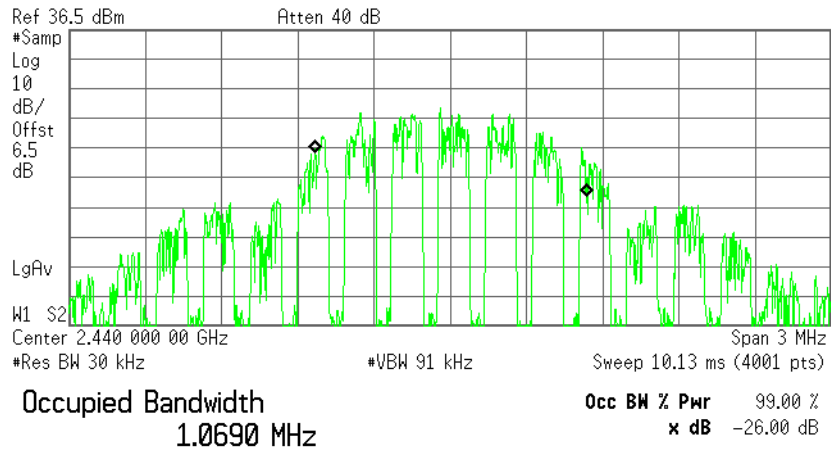
* Agilent



Transmit Freq Error 1.056 kHz
x dB Bandwidth 1.330 MHz*

Top Antenna: Low Channel - Plot

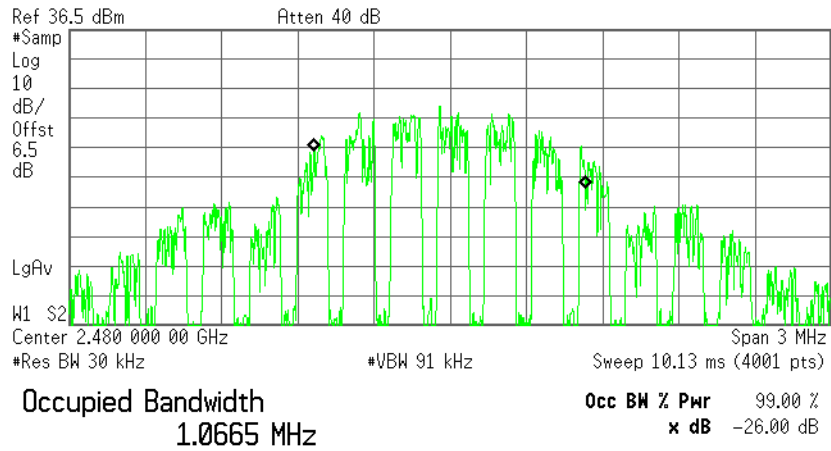
* Agilent



Transmit Freq Error 1.602 kHz
x dB Bandwidth 1.216 MHz*

Top Antenna: Mid Channel - Plot

* Agilent



Transmit Freq Error -2.151 kHz
x dB Bandwidth 1.213 MHz*

Top Antenna: High Channel - Plot

Maximum Conducted Output Power

Test Description

For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz and 5725-5850MHz bands, the conducted output power limit (specified below) is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Maximum peak conducted output power was the method employed to determine fundamental emission output power.

Method PKPM1 per C63.10 and KDB 558074 was utilized for this test program.

Test Criteria

Reference	Method	Limit
CFR 47 Subpart C 15.247 (b)(3) RSS-247 Section 5.4 (d)	ANSI C63.10	1W (30dBm)

Test Information

Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
Jose Badia	RF Lab	06/09/2025	20.00	26	1003.2	P

Test Results

Channel	Frequency (MHz)	Tx Channel Power (dBm)	
		Side Antenna	Top Antenna
Low	2402	14.07	13.73
Mid	2440	14.04	13.79
High	2480	14.09	13.88

Output Power Plots:

Note: PKPM1 method uses a power meter for measurement and therefore no plots are produced.

Maximum Power Spectral Density

Test Description

The DTS rules specify a conducted PSD limit within the *DTS bandwidth* during any time interval of continuous transmission. Such specifications require that the same method as used to determine the conducted output power shall also be used to determine the power spectral density. Therefore, if maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used.

Since maximum peak conducted output power was the method employed to determine fundamental emission output power, then the peak power spectral density method was utilized.

Method PKPSD per C63.10 and KDB 558074 was utilized for this test program.

Test Criteria

Reference	Method	Limit
CFR 47 Subpart C 15.247 (e) RSS-247 Section 5.2 (b)	ANSI C63.10:2013	< 8 dBm in any 3 kHz Band

Test Information

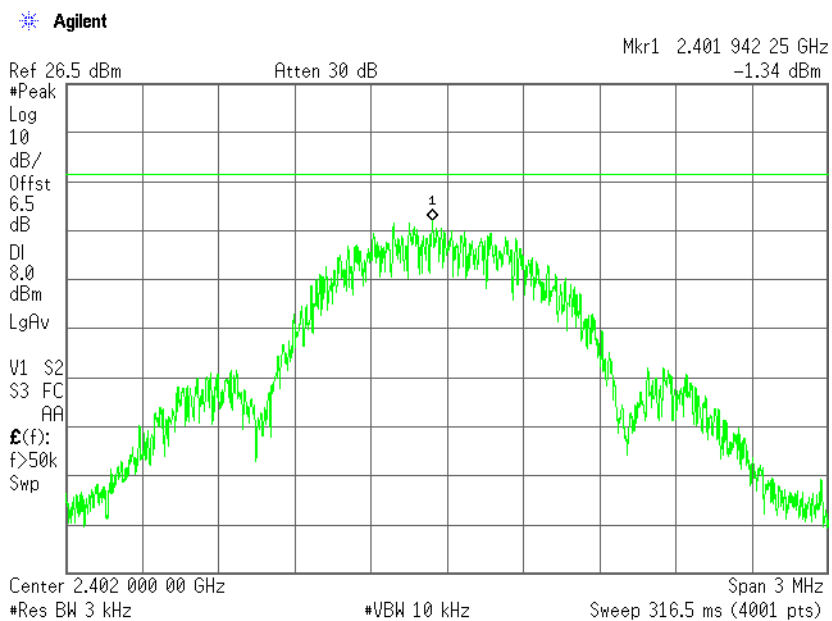
Tester	Test Location	Date	Temperature (°C)	Humidity (%RH)	Pressure (mbar)	Results (P/F)
Jose Badia	RF Lab	6/9/2025	21.67	28	1010.2	P

Test Results

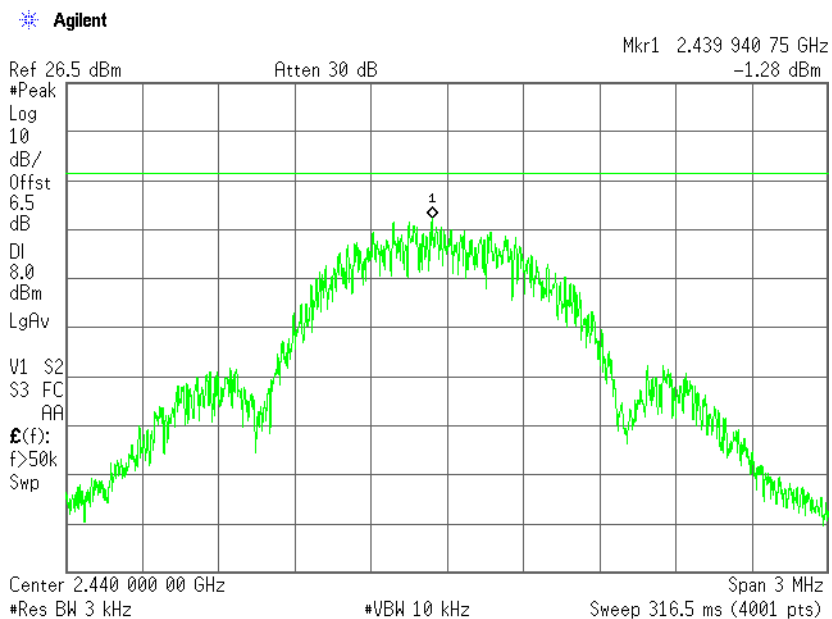
Channel	Frequency (MHz)	Max PSD (dBm)	
		Side Antenna	Top Antenna
Low	2402	-1.34	-1.58
Mid	2440	-1.28	-1.58
High	2480	-1.25	-1.54

PSD Plots

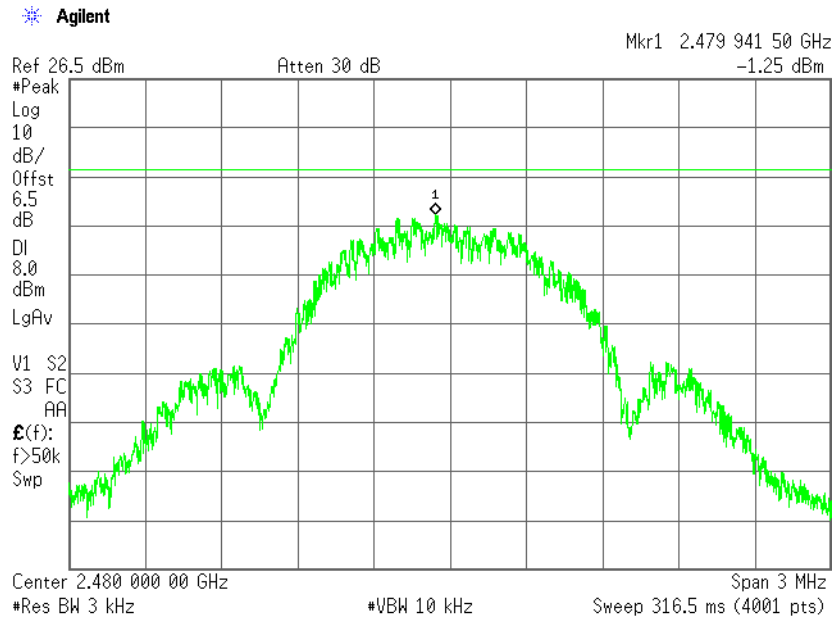
Side Antenna



Side Antenna: Low Channel - Plot

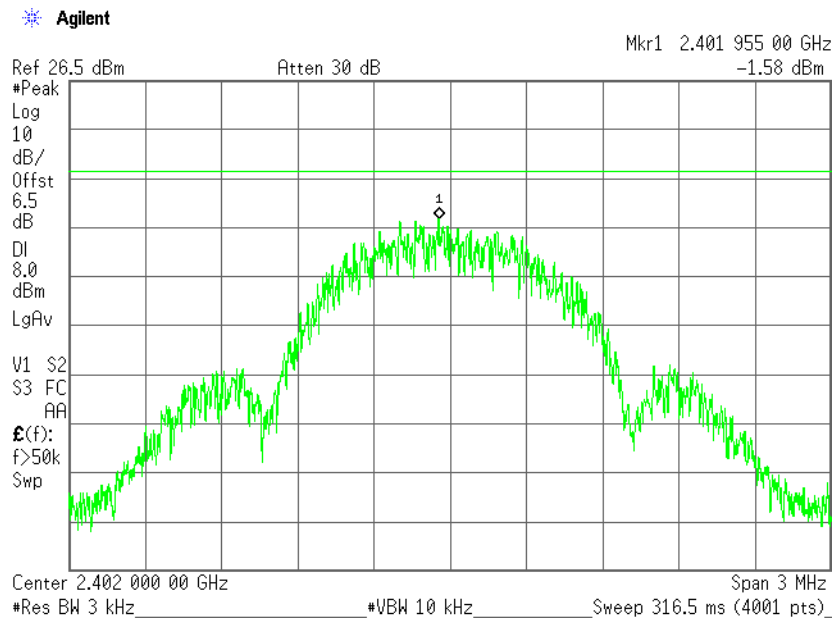


Side Antenna: Mid Channel – Plot

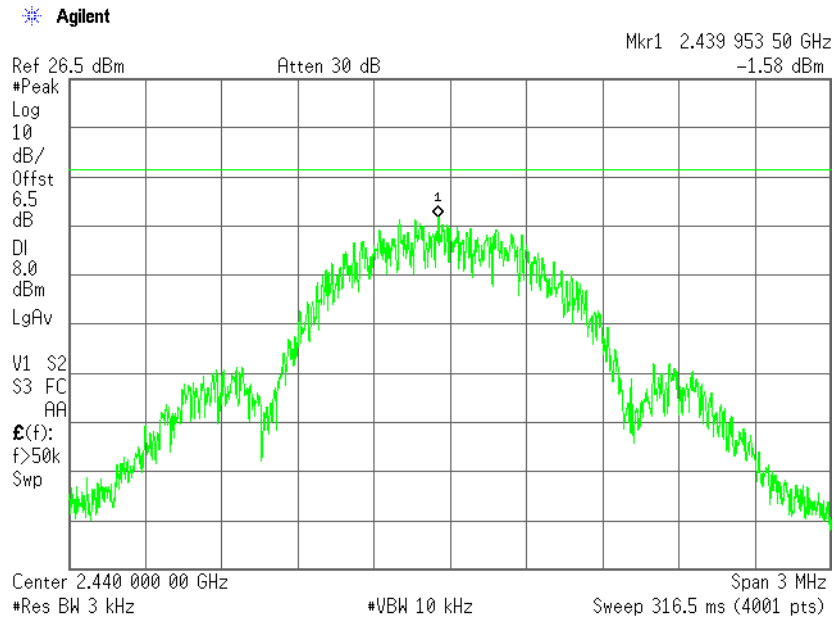


Side Antenna: High Channel – Plot

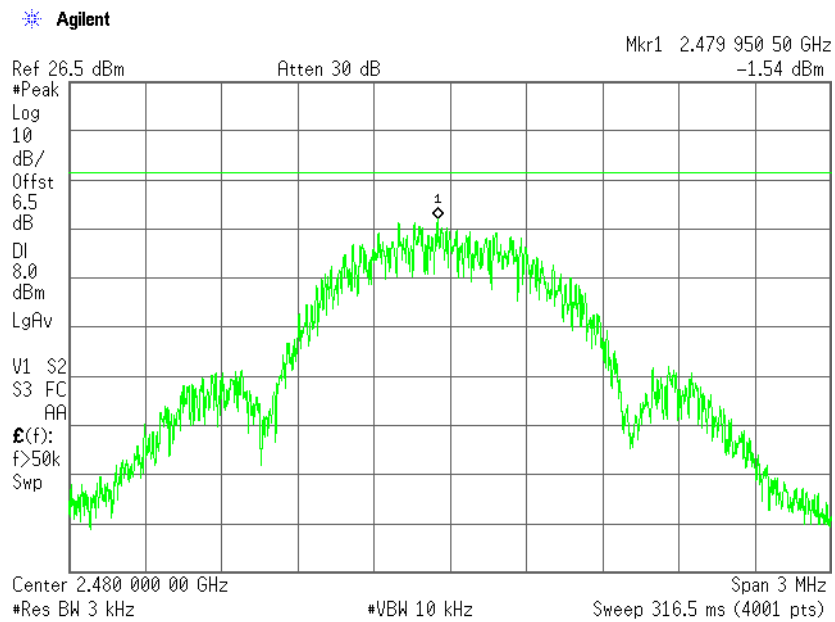
Top Antenna



Top Antenna: Low Channel - Plot



Top Antenna: Mid Channel - Plot



Top Antenna: High Channel - Plot

Spurious Conducted Emissions

Test Description

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on RF conducted measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

Test Criteria

Reference	Method	Limit
CFR 47 Subpart C 15.247 (d) RSS-247, Section 5.5	ANSI C63.10:2013	20dBc Below the Fundamental

Note: 20dBc is in reference to the previously measured PSD measurements as referenced in ANSI C63.10 Section 11.11.2

Test Information

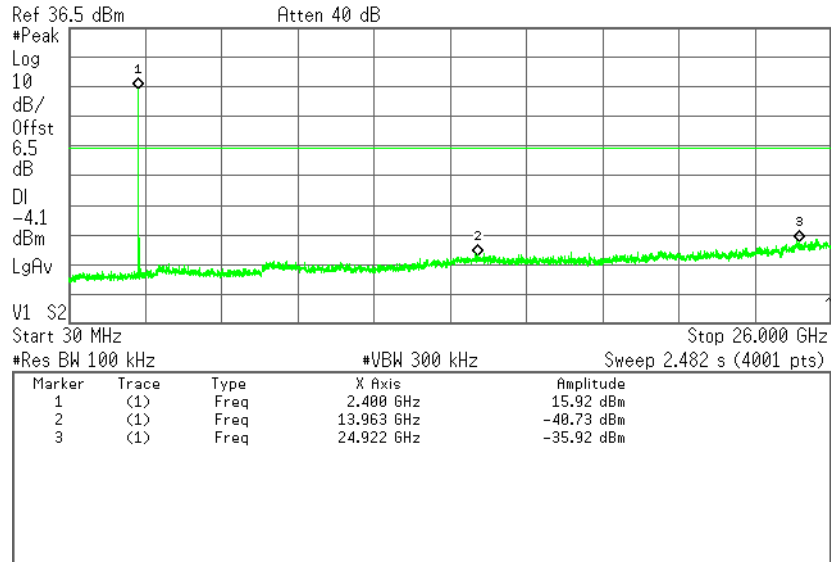
<u>Tester</u>	<u>Test Location</u>	<u>Date</u>	<u>Temperature</u> (°C)	<u>Humidity</u> (%RH)	<u>Pressure</u> (mbar)	<u>Results (P/F)</u>
Jose Badia	RF Lab	5/8/2025	23.33	49	1015.0	P

Test Results

Spurious Conducted Plots

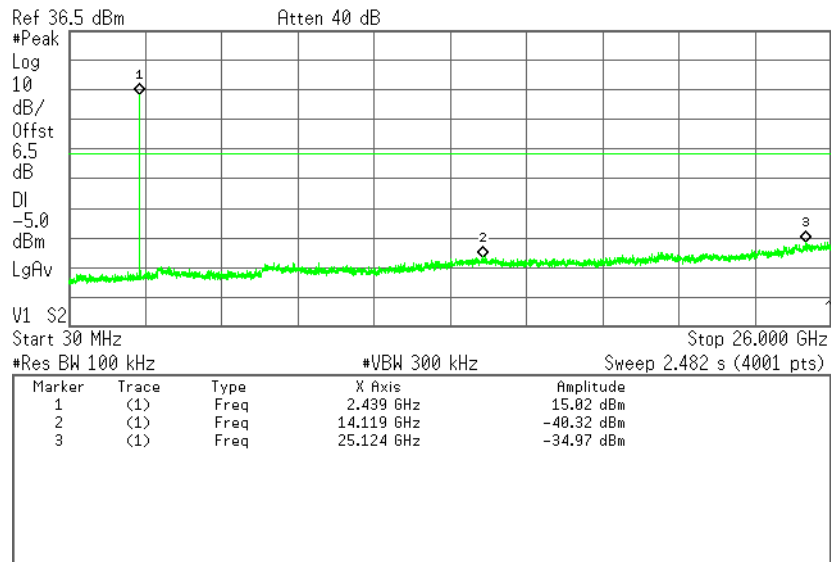
Side Antenna

Agilent

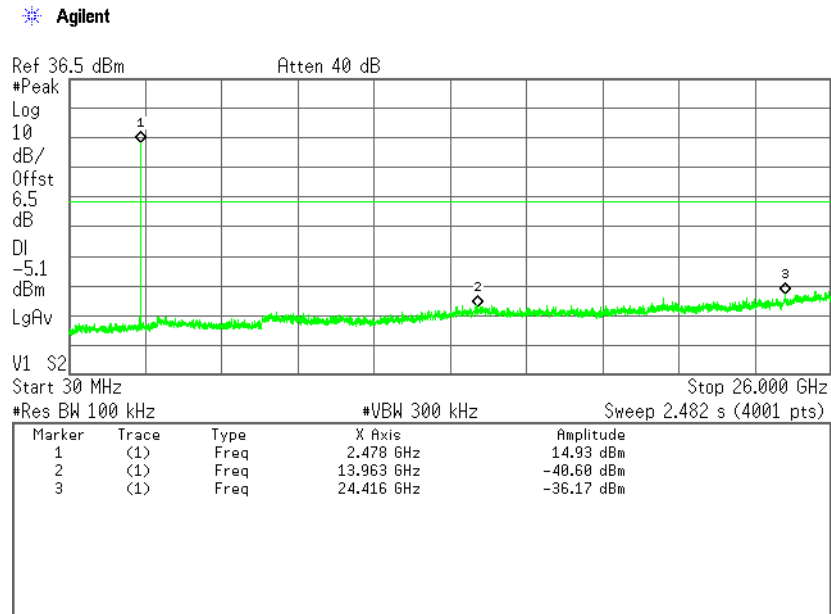


Side Antenna: Low Channel - Plot

Agilent

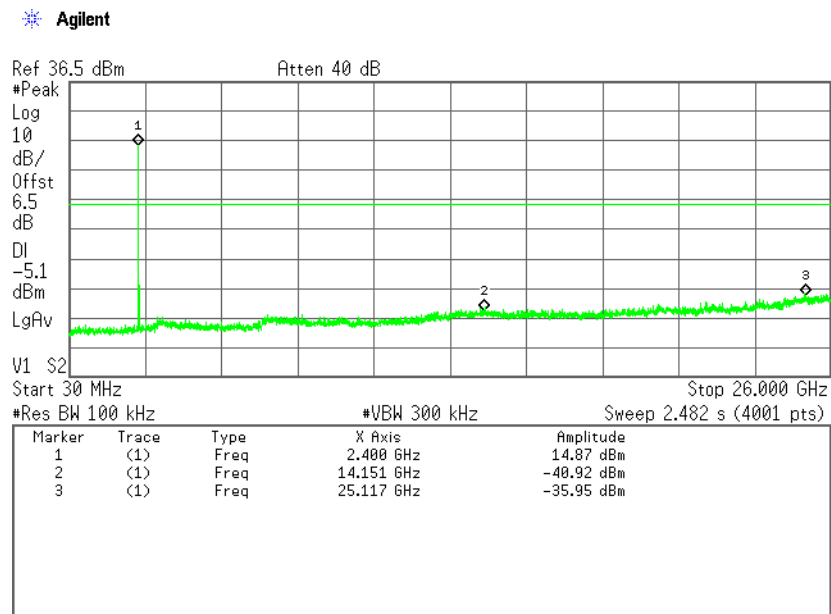


Side Antenna: Mid Channel - Plot



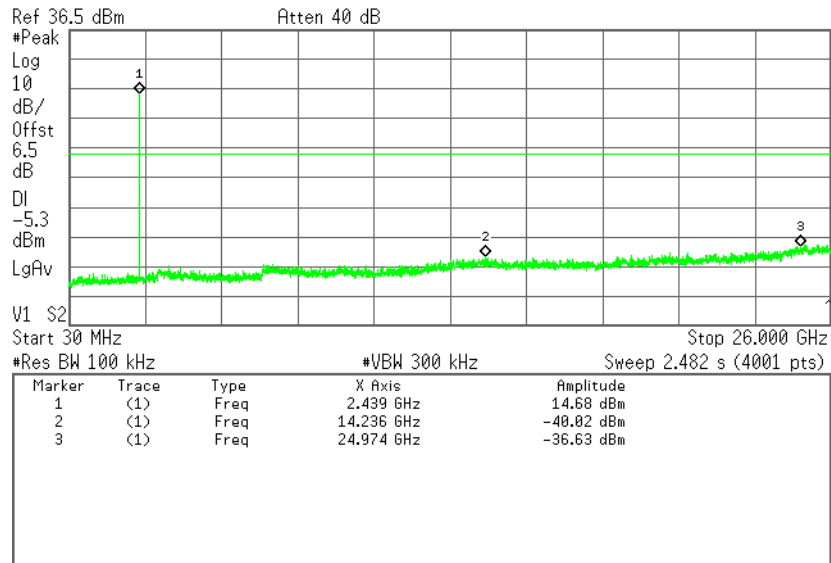
Side Antenna: High Channel – Plot

Top Antenna



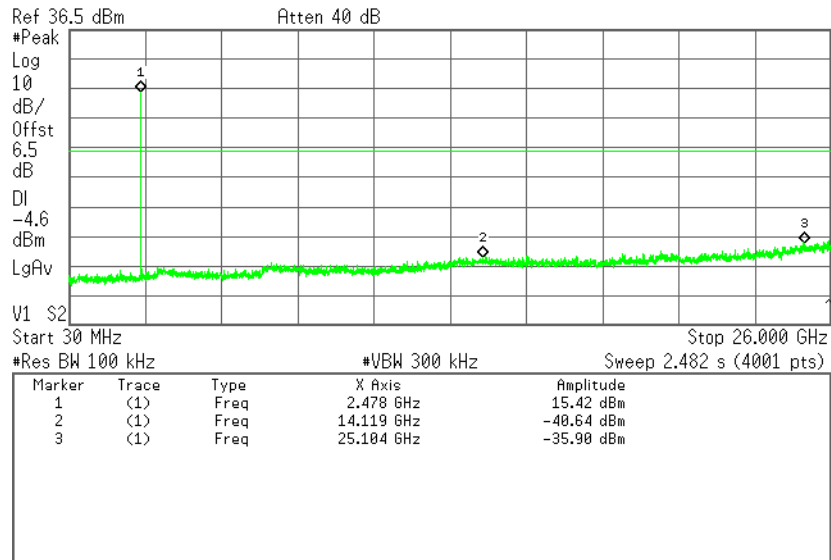
Top Antenna: Low Channel - Plot

* Agilent



Top Antenna: Mid Channel - Plot

* Agilent



Top Antenna: High Channel - Plot

Conducted Band Edge

Test Description

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on RF conducted measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

Test Criteria

Reference	Method	Limit
CFR 47 Subpart C 15.247 (d) RSS-247, Section 5.5	ANSI C63.10:2013	20dBc Below the Fundamental

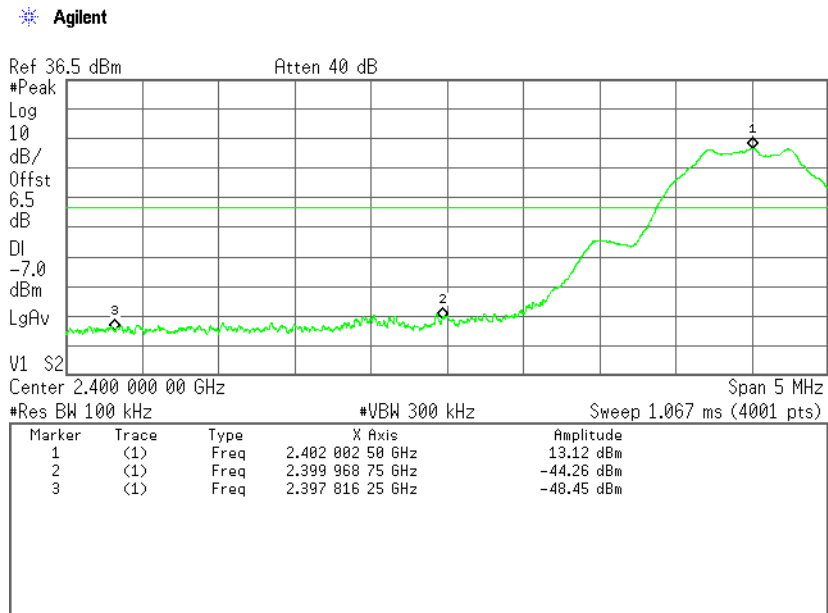
Note: 20dBc is in reference to the previously measured PSD measurements as referenced in ANSI C63.10 Section 11.11.2

Test Information

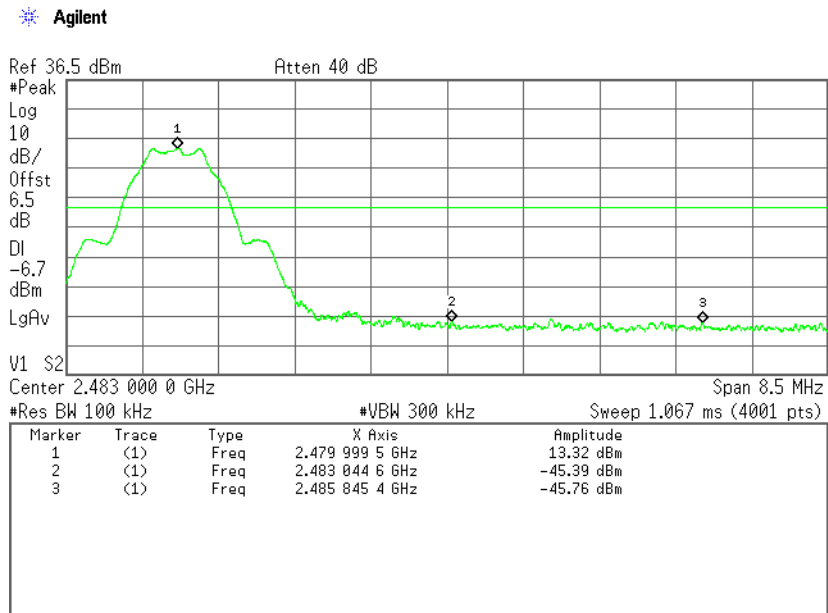
<u>Tester</u>	<u>Test Location</u>	<u>Date</u>	<u>Temperature</u> (°C)	<u>Humidity</u> (%RH)	<u>Pressure</u> (mbar)	<u>Results (P/F)</u>
Jose Badia	RF Lab	6/9/2025	23.33	49	1015.0	P

Test Results

Band Edge Plots

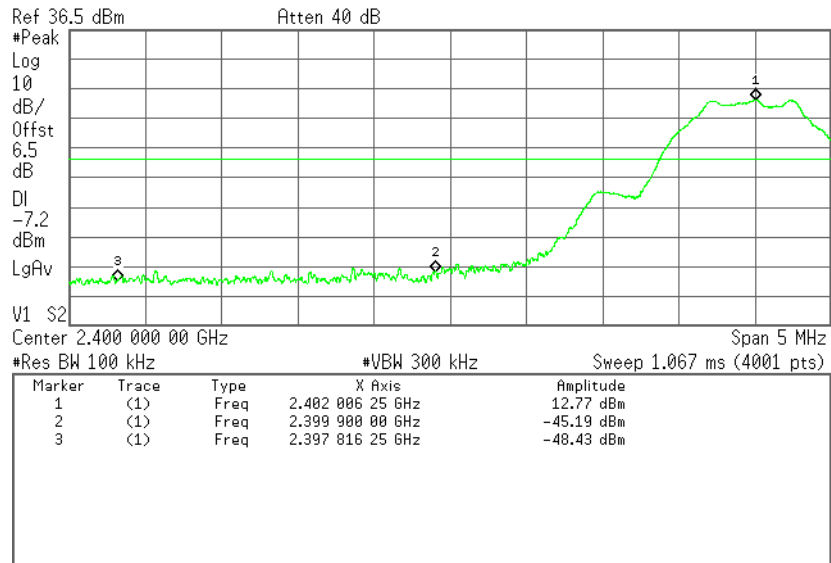


Side Antenna: Low Channel - Plot



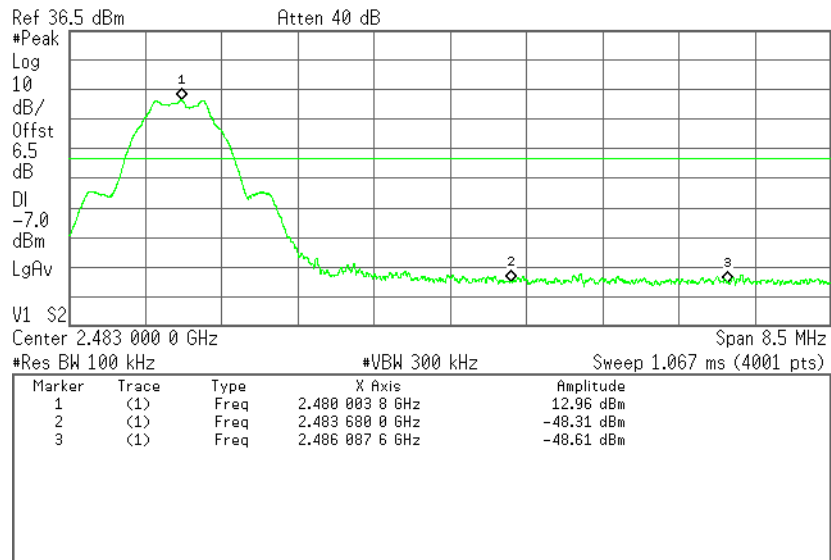
Side Antenna: High Channel - Plot

* Agilent



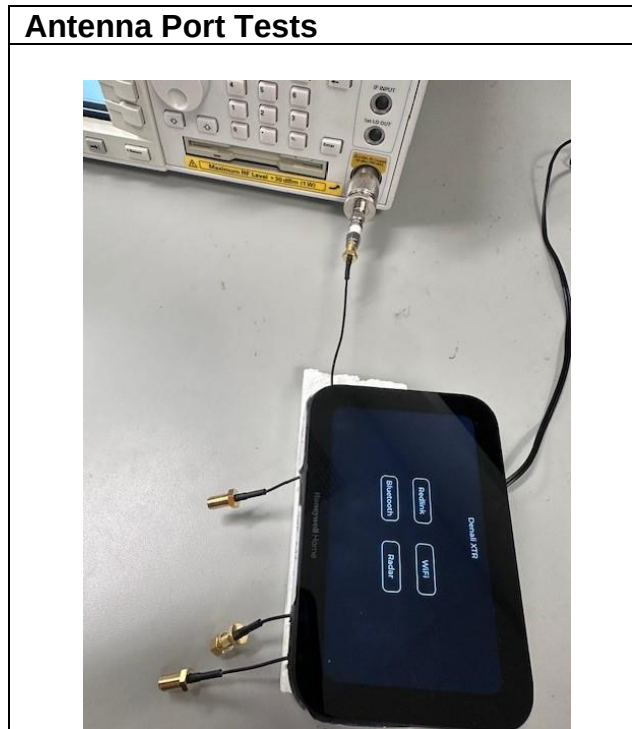
Top Antenna: Low Channel - Plot

* Agilent



Top Antenna: High Channel - Plot

Setup Photos



Note: Above photo is representative of both all tested antenna ports. Only the BLE antenna ports were tested for purposes of this report.

END OF REPORT