

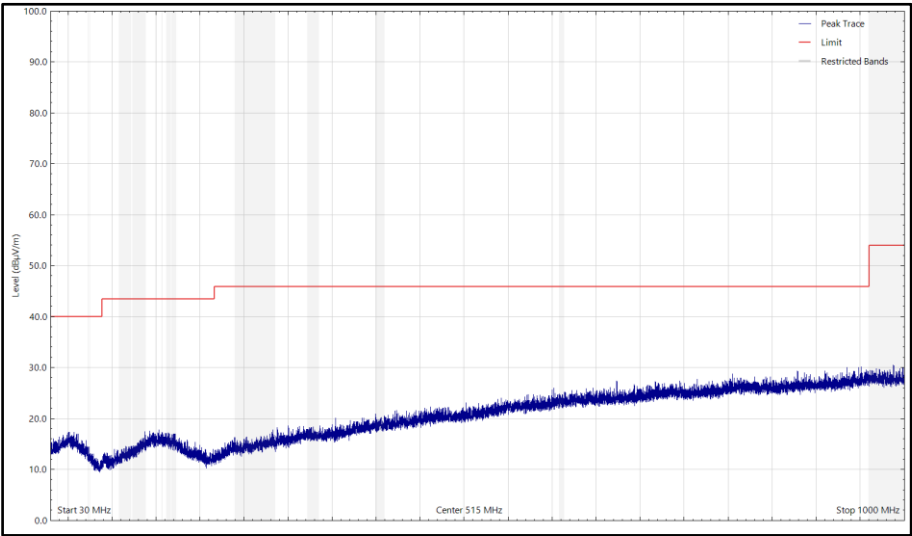


Figure 72 - Zigbee_Mid Channel_Z, 2440 MHz, 30 MHz to 1 GHz, Vertical (Peak)

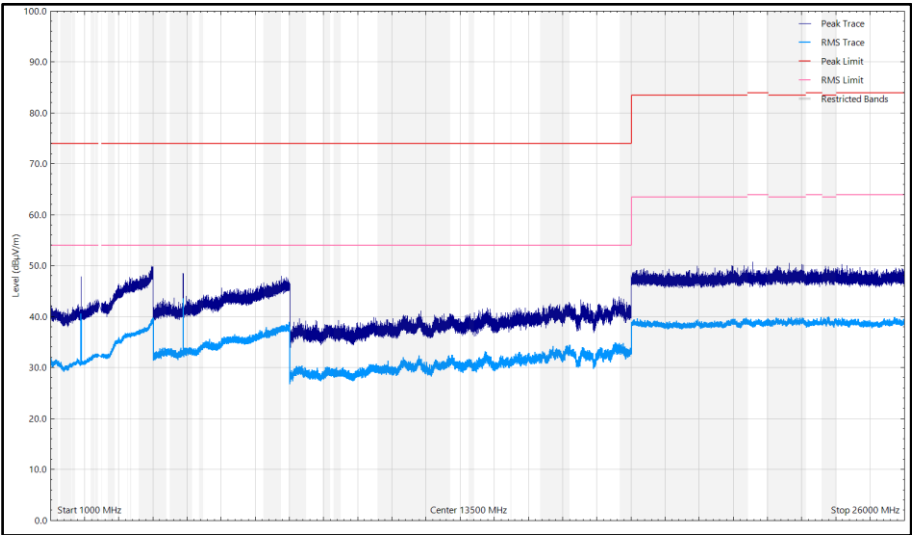


Figure 73 - Zigbee_Mid Channel_Z, 2440 MHz, 1 GHz to 26 GHz, Vertical



Frequency (MHz)	Level	Limit	Margin (dB)	Detector	Unit	Angle (°)	Height (cm)	Polarisation	Orientation
4960.950	46.51	54.00	-7.49	CISPR Avg	dBuv/m	196	338	Vertical	

Table 39 - Zigbee_Top Channel_X, 2480 MHz, 30 MHz to 26 GHz

No other emissions found within 10 dB of the limit.

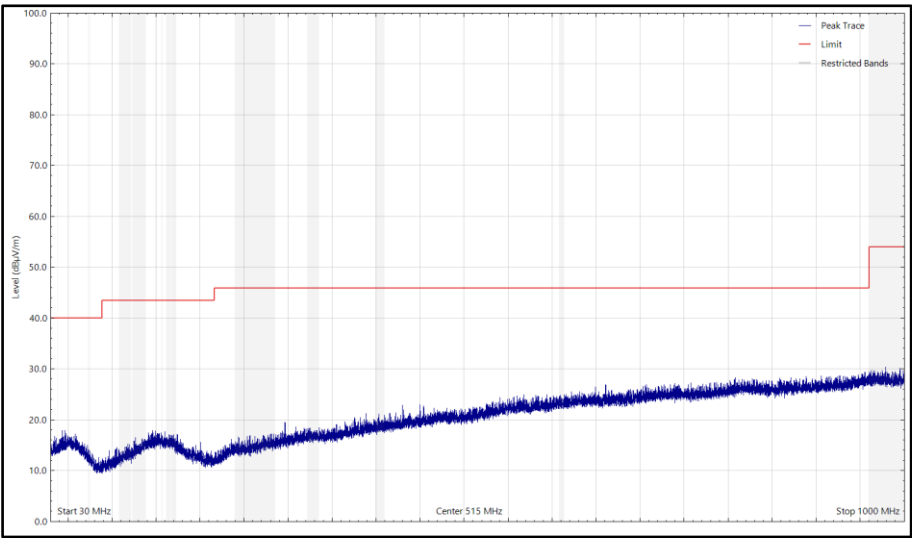


Figure 74 - Zigbee_Top Channel_X, 2480 MHz, 30 MHz to 1 GHz, Horizontal (Peak)

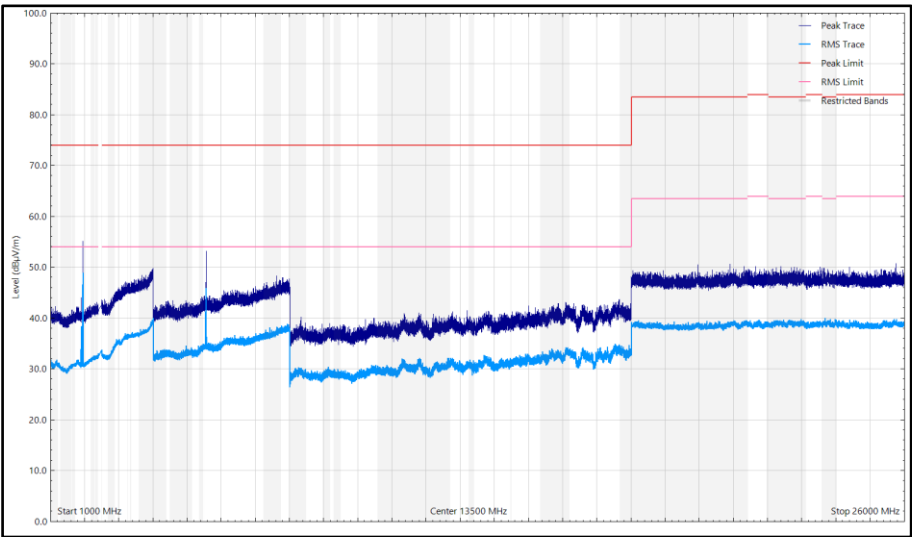


Figure 75 - Zigbee_Top Channel_X, 2480 MHz, 1 GHz to 26 GHz, Horizontal

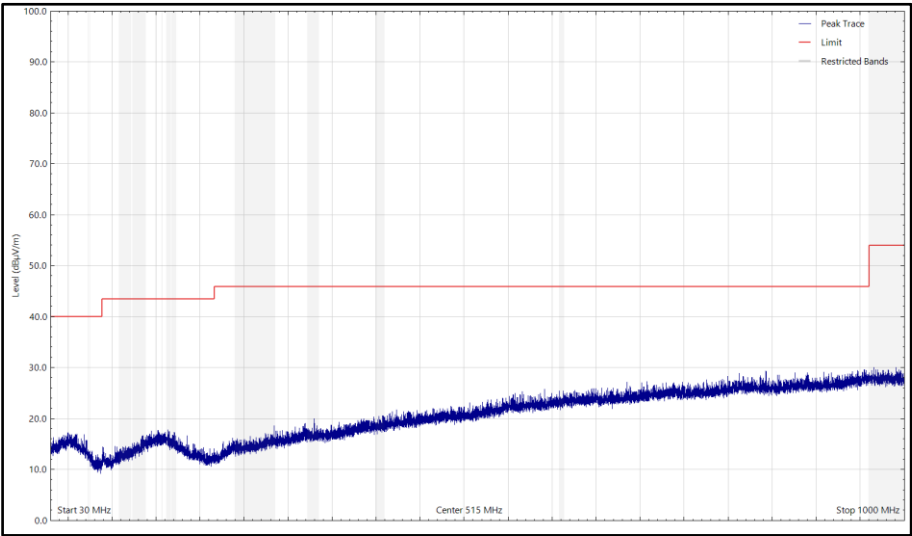


Figure 76 - Zigbee_Top Channel_X, 2480 MHz, 30 MHz to 1 GHz, Vertical (Peak)

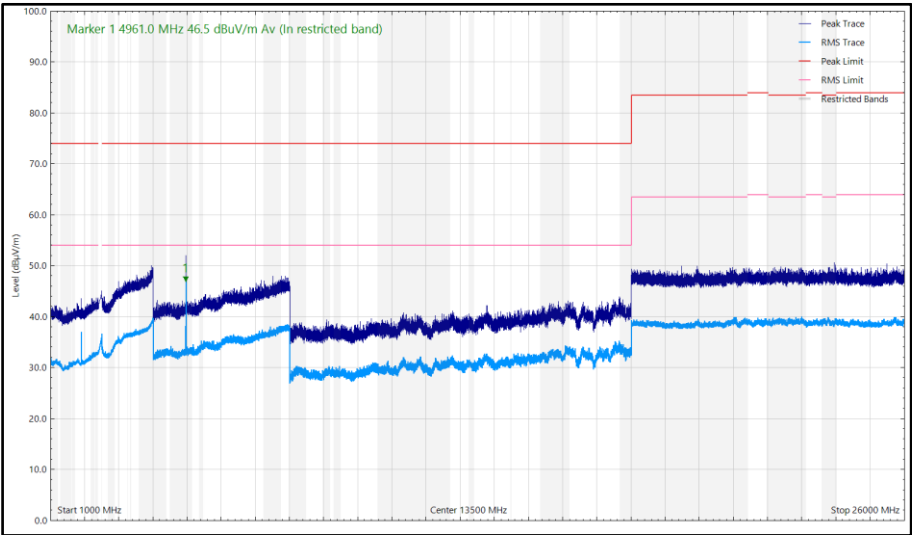


Figure 77 - Zigbee_Top Channel_X, 2480 MHz, 1 GHz to 26 GHz, Vertical



Frequency (MHz)	Level	Limit	Margin (dB)	Detector	Unit	Angle (°)	Height (cm)	Polarisation	Orientation
4959.060	44.84	54.00	-9.16	CISPR Avg	dBuV/m	351	150	Horizontal	

Table 40 - Zigbee_Top Channel_Y, 2480 MHz, 30 MHz to 26 GHz

No other emissions found within 10 dB of the limit.

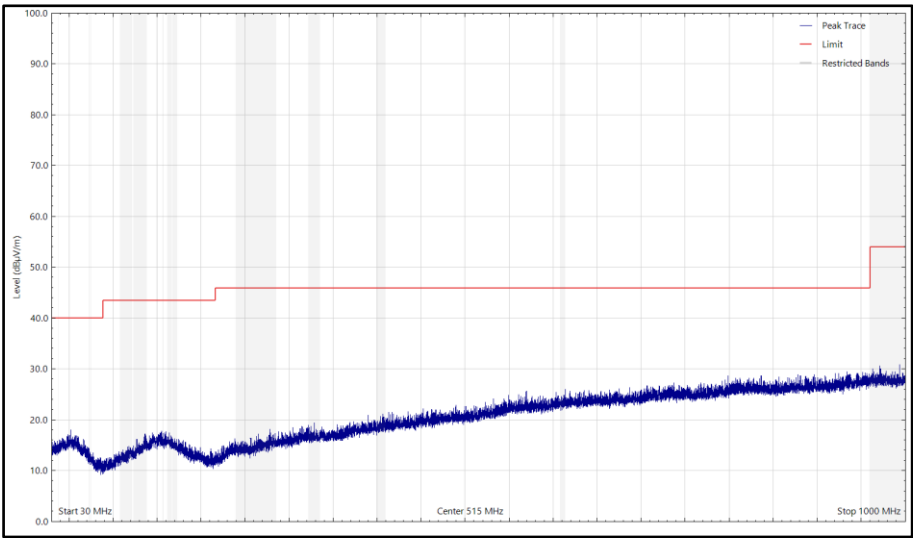


Figure 78 - Zigbee_Top Channel_Y, 2480 MHz, 30 MHz to 1 GHz, Horizontal (Peak)

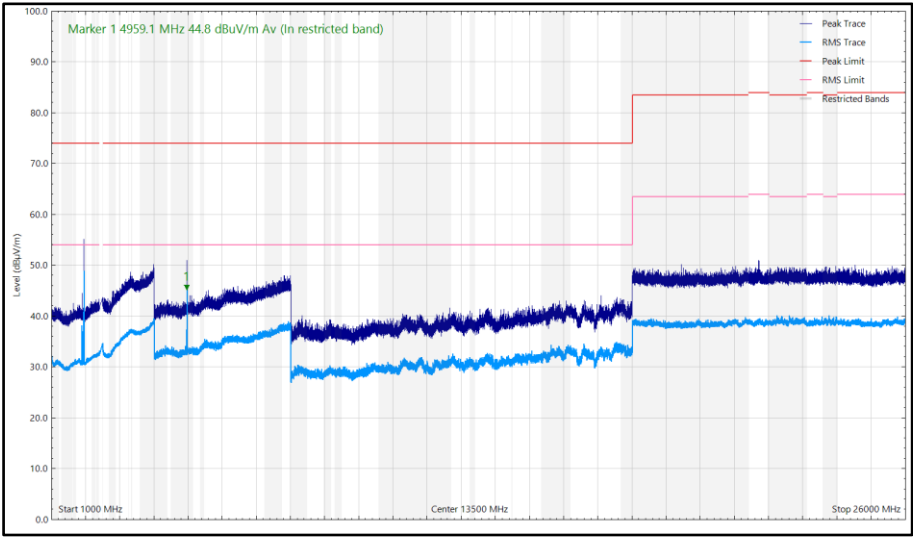


Figure 79 - Zigbee_Top Channel_Y, 2480 MHz, 1 GHz to 26 GHz, Horizontal

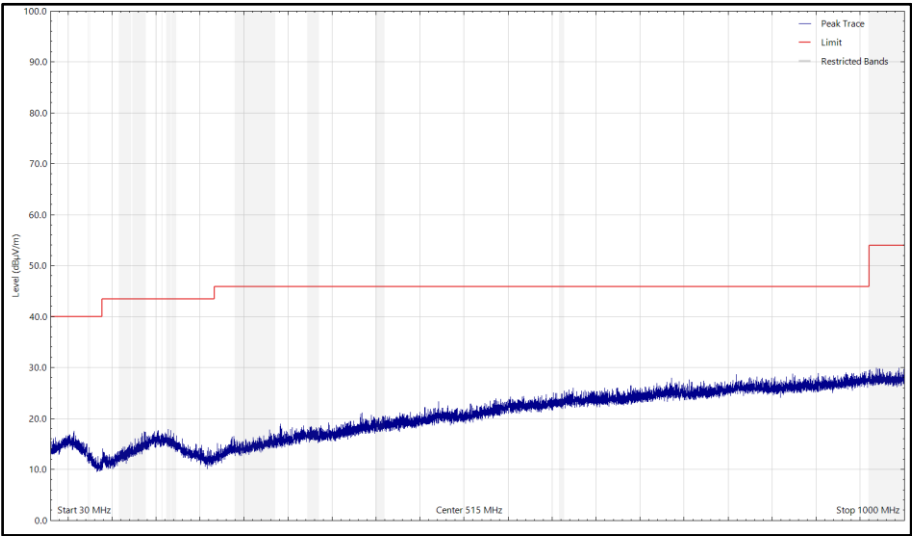


Figure 80 - Zigbee_Top Channel_Y, 2480 MHz, 30 MHz to 1 GHz, Vertical (Peak)

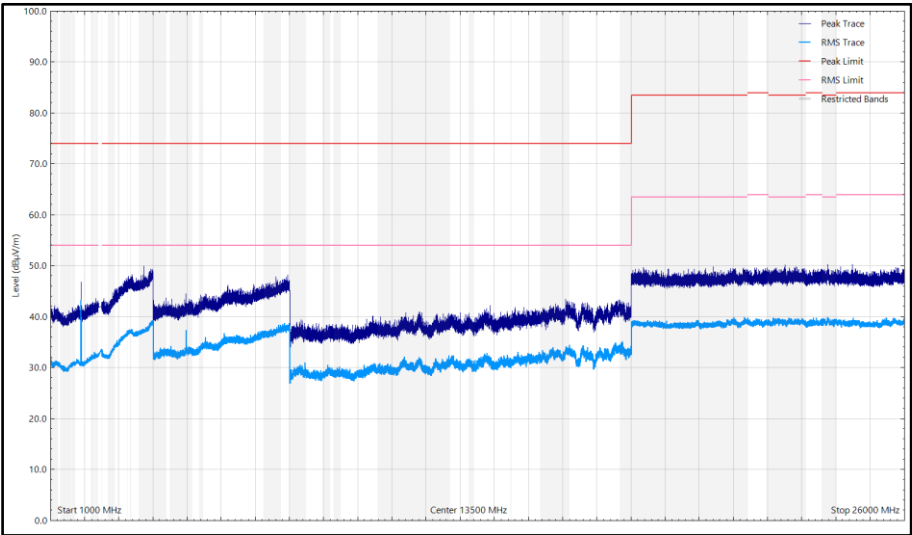


Figure 81 - Zigbee_Top Channel_Y, 2480 MHz, 1 GHz to 26 GHz, Vertical



Frequency (MHz)	Level	Limit	Margin (dB)	Detector	Unit	Angle (°)	Height (cm)	Polarisation	Orientation
*									

Table 41 - Zigbee_Top Channel_Z, 2480 MHz, 30 MHz to 26 GHz

*No emissions found within 10 dB of the limit.

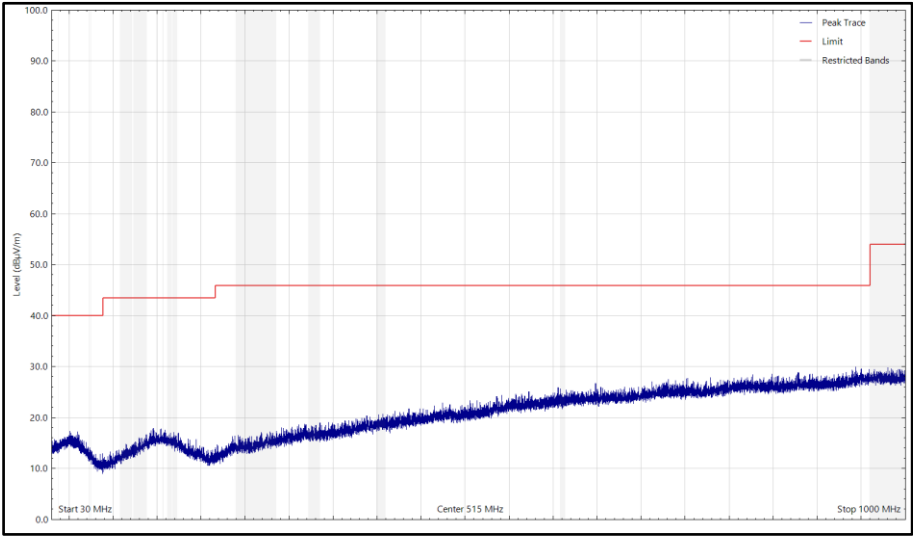


Figure 82 - Zigbee_Top Channel_Z, 2480 MHz, 30 MHz to 1 GHz, Horizontal (Peak)

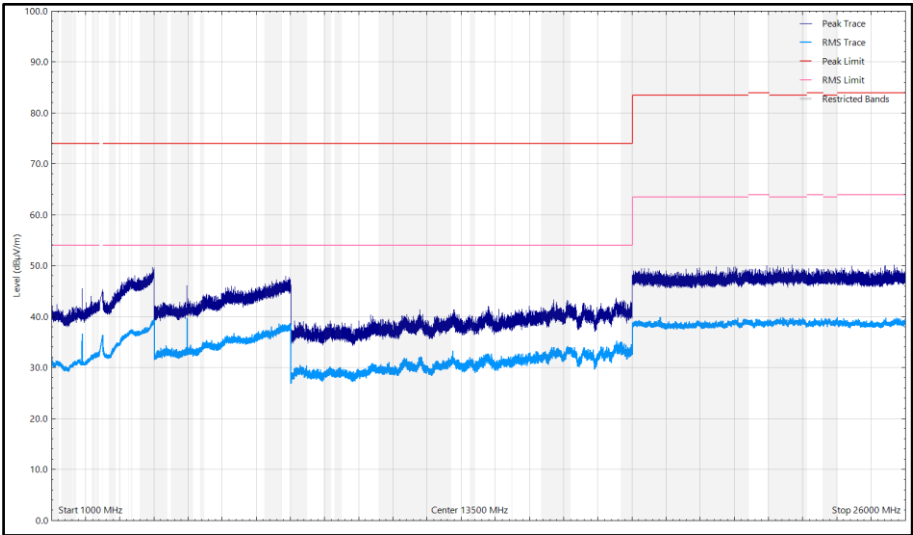


Figure 83 - Zigbee_Top Channel_Z, 2480 MHz, 1 GHz to 26 GHz, Horizontal

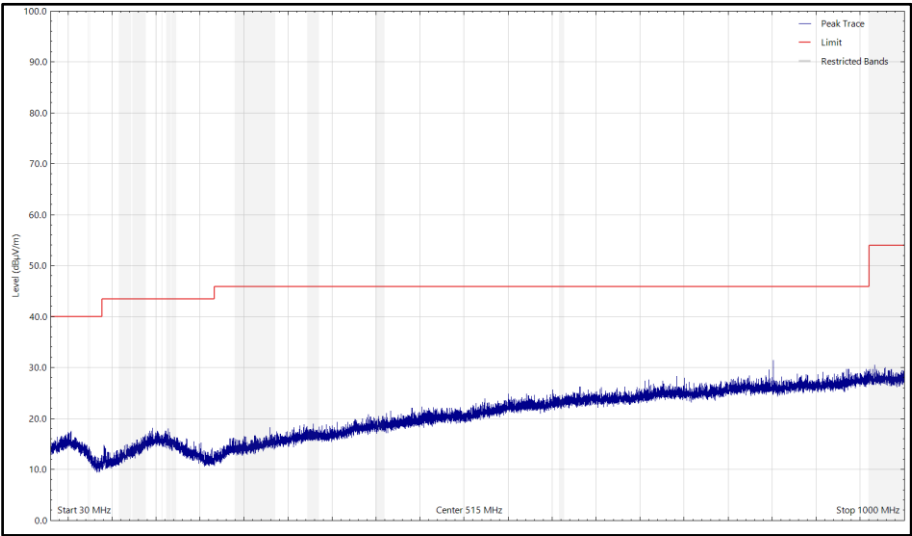


Figure 84 - Zigbee_Top Channel_Z, 2480 MHz, 30 MHz to 1 GHz, Vertical (Peak)

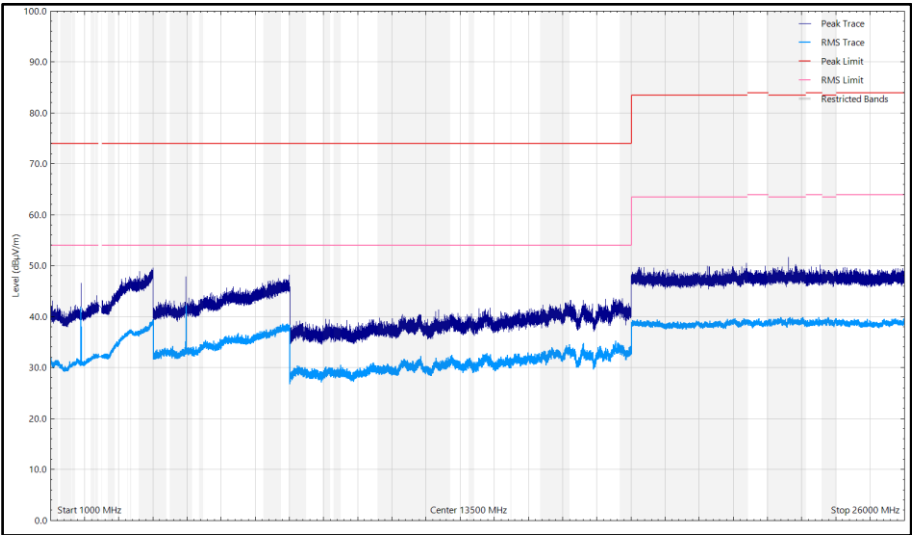


Figure 85 - Zigbee_Top Channel_Z, 2480 MHz, 1 GHz to 26 GHz, Vertical



FCC 47 CFR Part 15, Limit Clause 15.247 (d)

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 either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in 15.209(a)

ISED RSS-247, Limit Clause 6.6

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

In addition, radiated emissions which fall in the restricted bands, as defined in RSS-GEN, clause 8.10, must also comply with the radiated emission limits specified in RSS-GEN clause 8.9.

2.3.8 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 5.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Antenna (DRG, 18 GHz to 40 GHz)	Link Microtek Ltd	AM180HA-K-TU2	230	24	08-Oct-2026
Pre-Amplifier (18 GHz to 40 GHz)	Phase One	PSO4-0087	1534	12	20-Oct-2026
3m Semi-Anechoic Chamber	Rainford	RF Chamber 5	1545	36	23-Apr-2027
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Power Supply Unit	Farnell	TSV-70	2043	12	O/P Mon
Hygrometer	Rotronic	I-1000	2784	12	04-Nov-2026
True RMS Multimeter	Fluke	179	4006	12	21-Mar-2026
Mast Controller	Maturo GmbH	NCD	4810	-	TU
Tilt Antenna Mast	Maturo GmbH	TAM 4.0-P	4811	-	TU
Antenna (DRG, 1 GHz to 10.5 GHz)	Schwarzbeck	BBHA9120B	4848	12	05-Jul-2026
Emissions Software	TUV SUD	EmX V3.6	5125	-	Software
Antenna (DRG, 7.5 GHz to 18 GHz)	Schwarzbeck	HWRD750	5216	12	12-Jul-2026
3 GHz High pass filter	Wainwright	WHKX12-2580-3000-18000-80SS	5220	12	04-Apr-2026
Cable 2.92m	Junkosha	MWX241-01000KMS	5413	12	23-May-2026
Pre-Amplifier (1 GHz to 26.5 GHz)	Agilent Technologies	8449B	5445	12	10-Jul-2026
Cable (SMA to SMA, 2 m)	Junkosha	MWX221-02000AMSAMS/A	5517	12	06-Jun-2026
7 GHz High pass Filter	Wainwright	WHKX12-5850-6800-18000-80SS	5549	12	31-Aug-2026
Power Supply	TTI	EX355R	5573	-	TU
Pre-Amplifier (8 GHz to 18 GHz)	Wright Technologies	APS06-0061	5596	12	28-Oct-2026
Test Receiver	Rohde & Schwarz	ESW44	5802	12	05-Nov-2026
Cable (K-Type to K-Type, 2 m)	Junkosha	MWX241-02000KMSKMS/B	5934	12	12-Jun-2026
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9168	6635	24	25-Jul-2027
MXA Signal Analyser	Keysight Technologies	N9020B	6876	24	31-Aug-2026



Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Cable Assy 8m (N to N) 18GHz	Junkosha	MWX221-08000NMSNMS/B	7050	12	03-Oct-2026

Table 42

TU - Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment



2.4 Emission Bandwidth

2.4.1 Specification Reference

FCC 47 CFR Part 15C Clause 15.247 (a)(2)
ISED RSS-247 clause 6.3.1
ISED RSS-GEN clause 6.7

2.4.2 Equipment Under Test and Modification State

MSR2G42026, S/N: 2755 #4 - Modification State 0

2.4.3 Date of Test

23-December-2025

2.4.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 11.8.1 for 6 dB BW and 6.9.3 for 99% occupied bandwidth measurements.

The EUT was powered as per 1.5.2.

IEEE 802.15.4

For testing on Channel 26 (2480MHz) the power was reduced to -4dBm as requested by the customer.

2.4 GHz Bluetooth Low Energy

LE2M is not supported on the advertising channels therefore, CH0 and CH36 were used for the purposes of testing LE2M

CH37 and CH39 were used for the other data types.

2.4.5 Environmental Conditions

Ambient Temperature	18.3 - 19.2 °C
Relative Humidity	37.4 - 53.1 %

2.4.6 Test Results

2.4 GHz Bluetooth Low Energy

Data Rate	Frequency (MHz)	99 % Occupied Bandwidth (kHz)	6 dB Bandwidth (kHz)
LE Coded S=8	2402 MHz	1091	720
LE Coded S=8	2440 MHz	1094	720
LE Coded S=8	2480 MHz	1097	736
LE Coded S=2	2402 MHz	1091	696
LE Coded S=2	2440 MHz	1063	712
LE Coded S=2	2480 MHz	1061	704
LE1M	2402 MHz	1068	712
LE1M	2440 MHz	1077	728
LE1M	2480 MHz	1081	712
LE2M	2404 MHz	2063	1400
LE2M	2440 MHz	2081	1384
LE2M	2478 MHz	2091	1344

Table 43



Figure 86 - 2402 MHz, LE Coded S=8, 99% Occupied Bandwidth



Figure 87 - 2440 MHz, LE Coded S=8, 99% Occupied Bandwidth



Figure 88 - 2480 MHz, LE Coded S=8, 99% Occupied Bandwidth



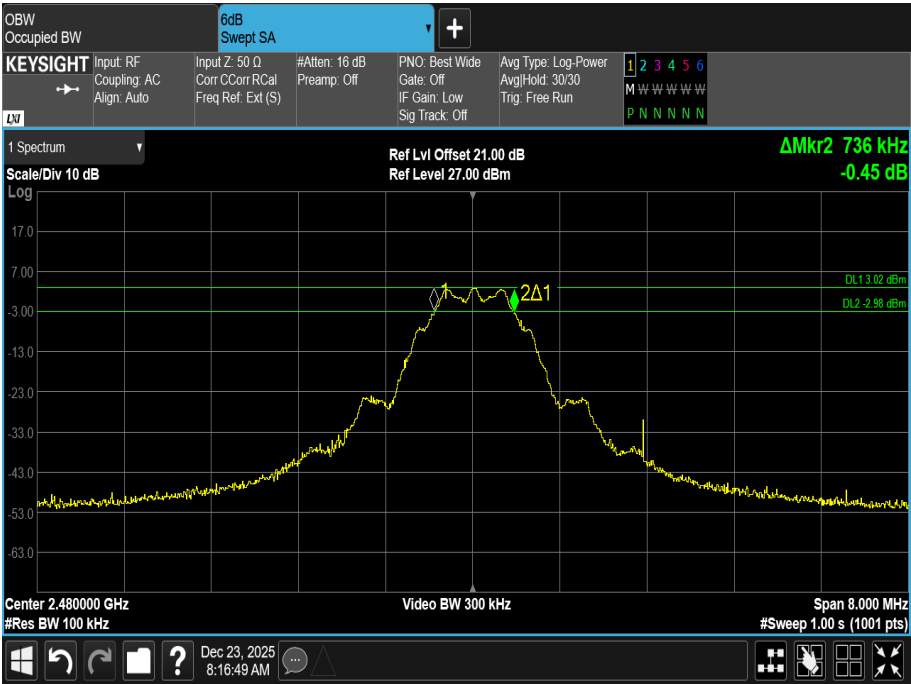


Figure 91 - 2480 MHz, LE Coded S=8, 6 dB Bandwidth



Figure 92 - 2402 MHz, LE Coded S=2, 99% Occupied Bandwidth



Figure 93 - 2440 MHz, LE Coded S=2, 99% Occupied Bandwidth

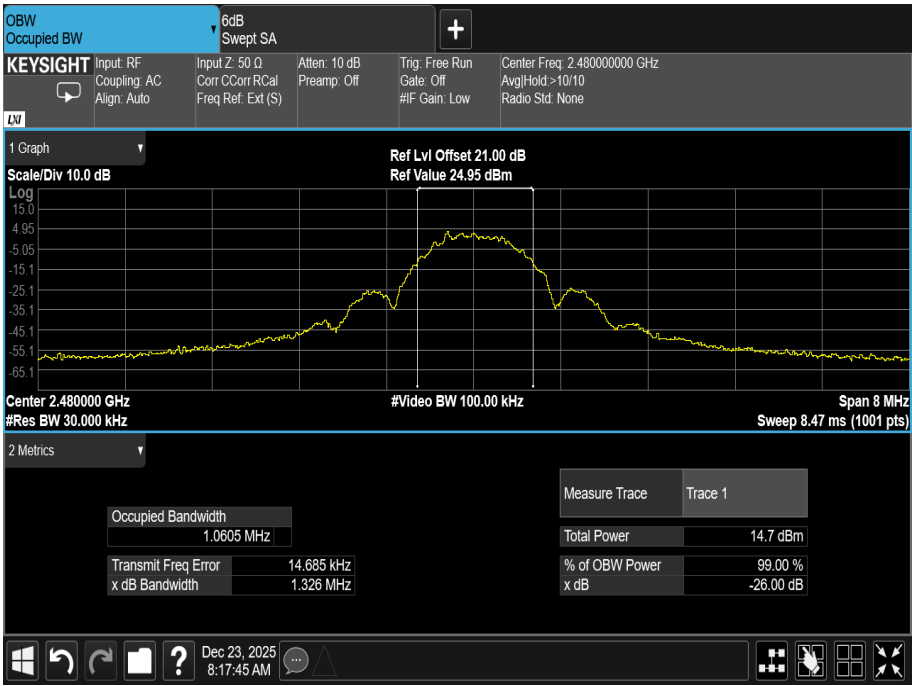


Figure 94 - 2480 MHz, LE Coded S=2, 99% Occupied Bandwidth

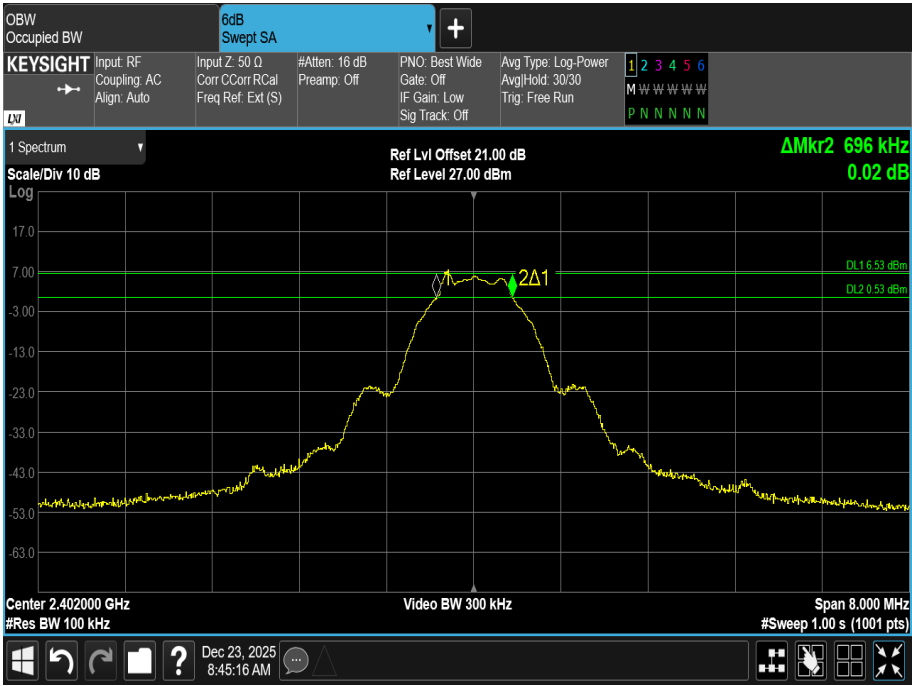


Figure 95 - 2402 MHz, LE Coded S=2, 6 dB Bandwidth

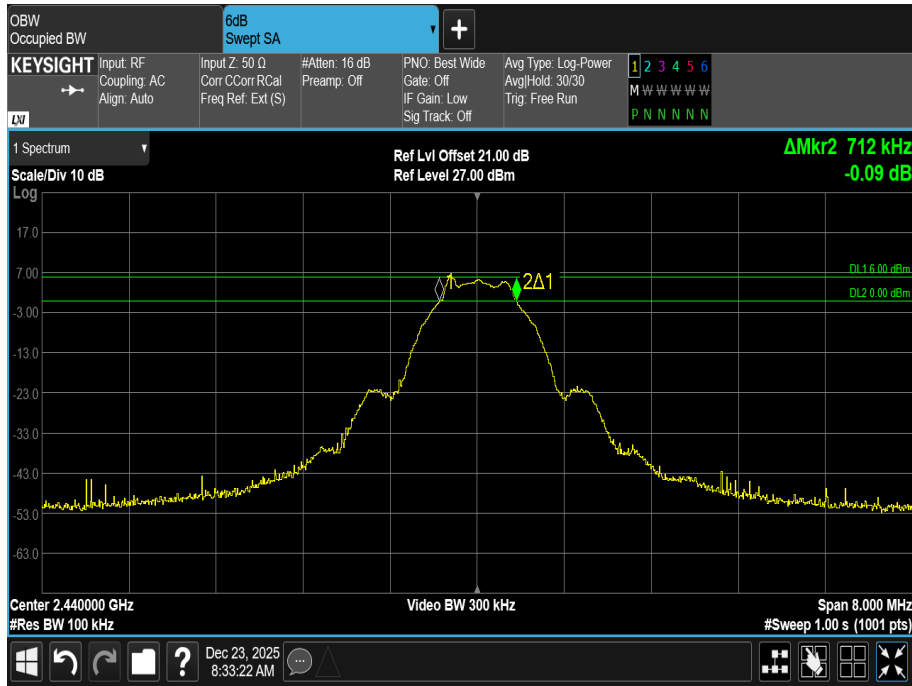


Figure 96 - 2440 MHz, LE Coded S=2, 6 dB Bandwidth

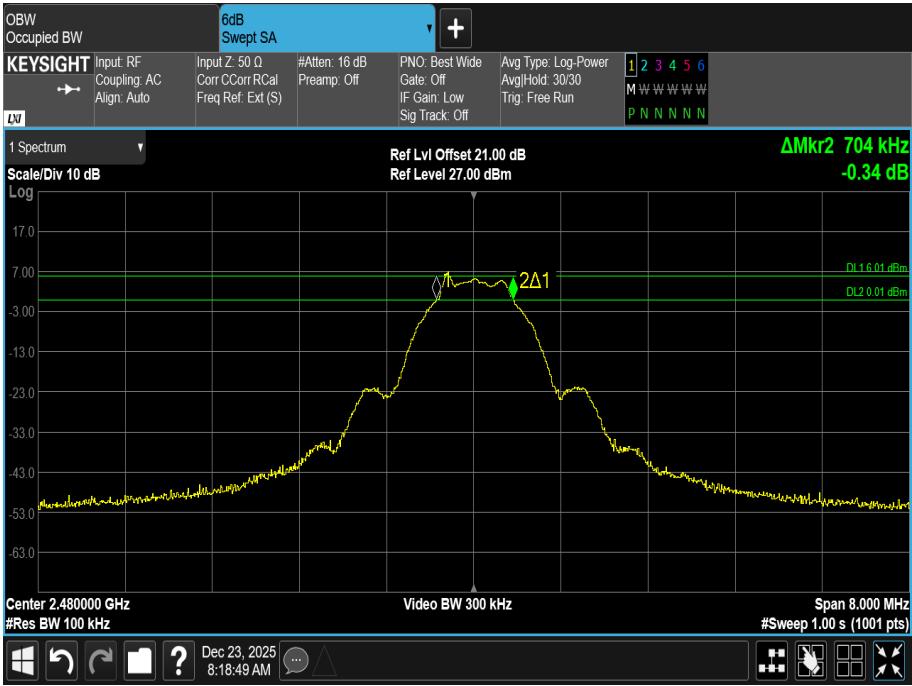


Figure 97 - 2480 MHz, LE Coded S=2, 6 dB Bandwidth



Figure 98 – 2402, LE1M, 99% Occupied Bandwidth



Figure 99 - 2440, LE1M, 99% Occupied Bandwidth



Figure 100 - 2480, LE1M, 99% Occupied Bandwidth

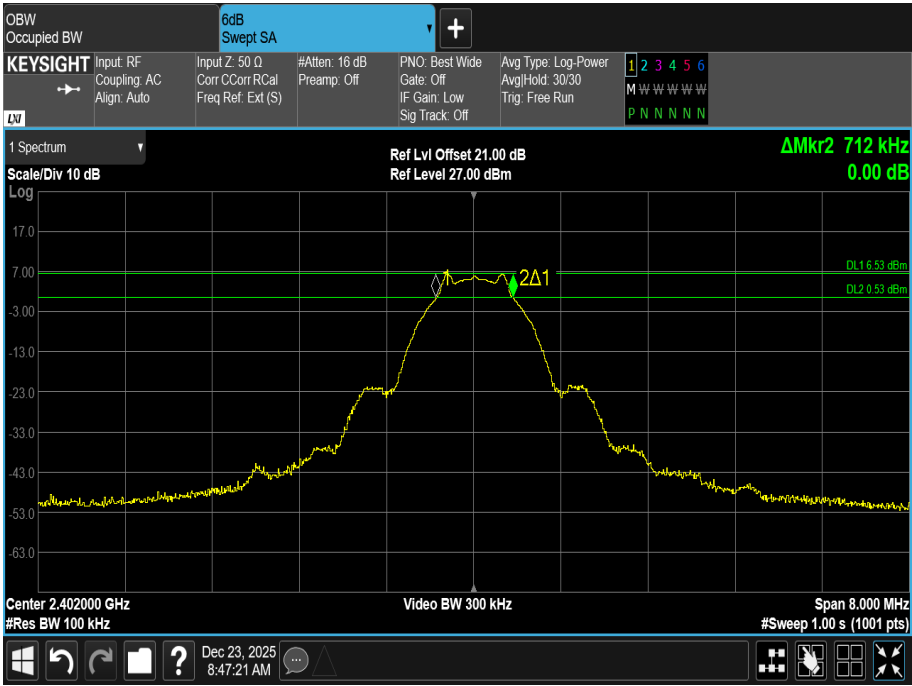


Figure 101 - 2402, LE1M, 6dB Bandwidth

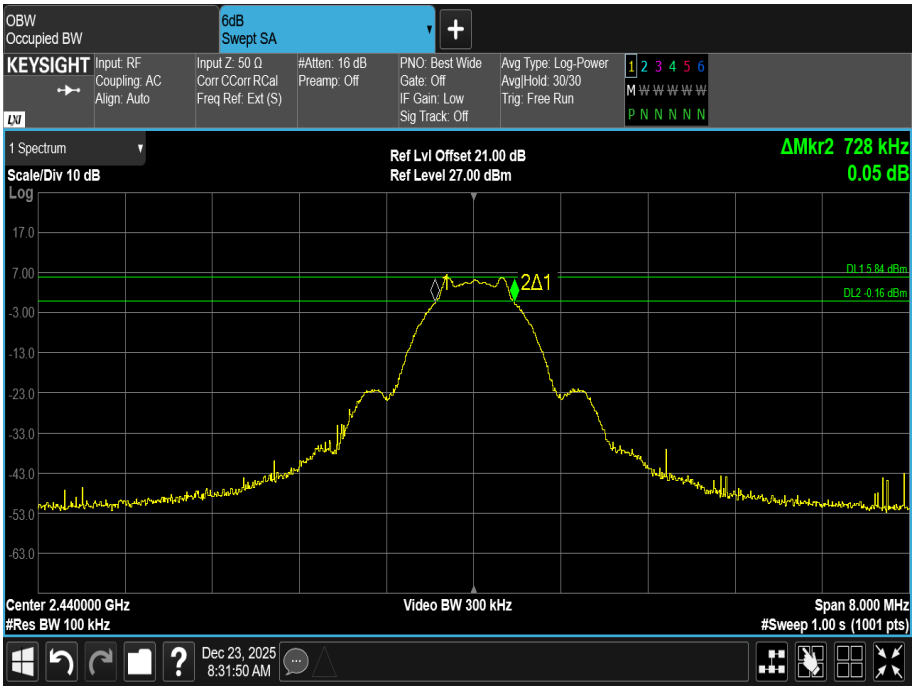


Figure 102 - 2440, LE1M, 6dB Bandwidth

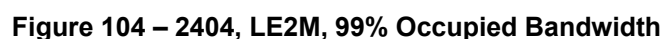




Figure 105 - 2440, LE2M, 99% Occupied Bandwidth



Figure 106 - 2478, LE2M, 99% Occupied Bandwidth

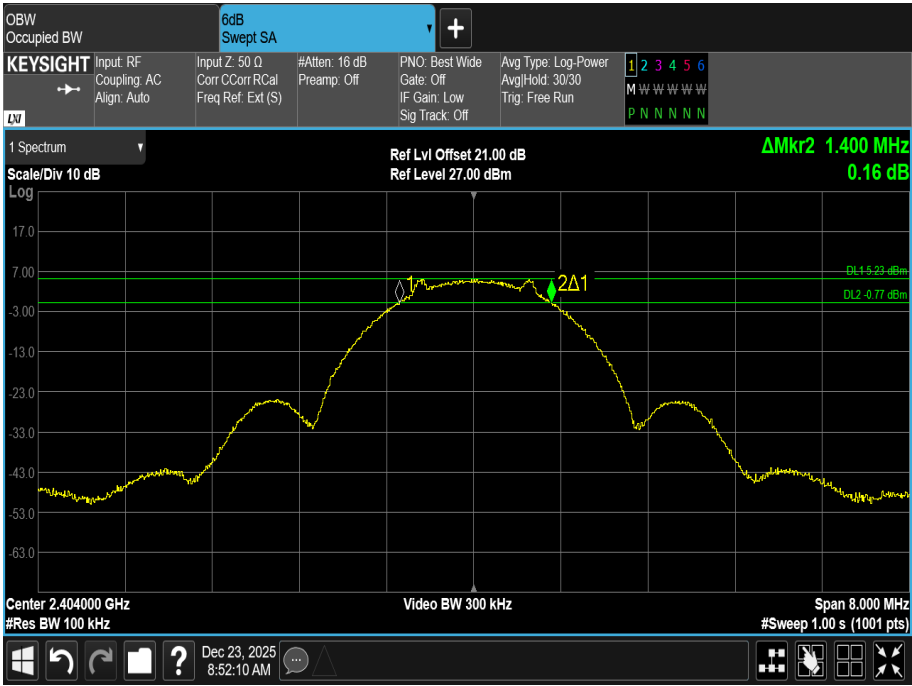


Figure 107 – 2404, LE2M, 6dB Bandwidth

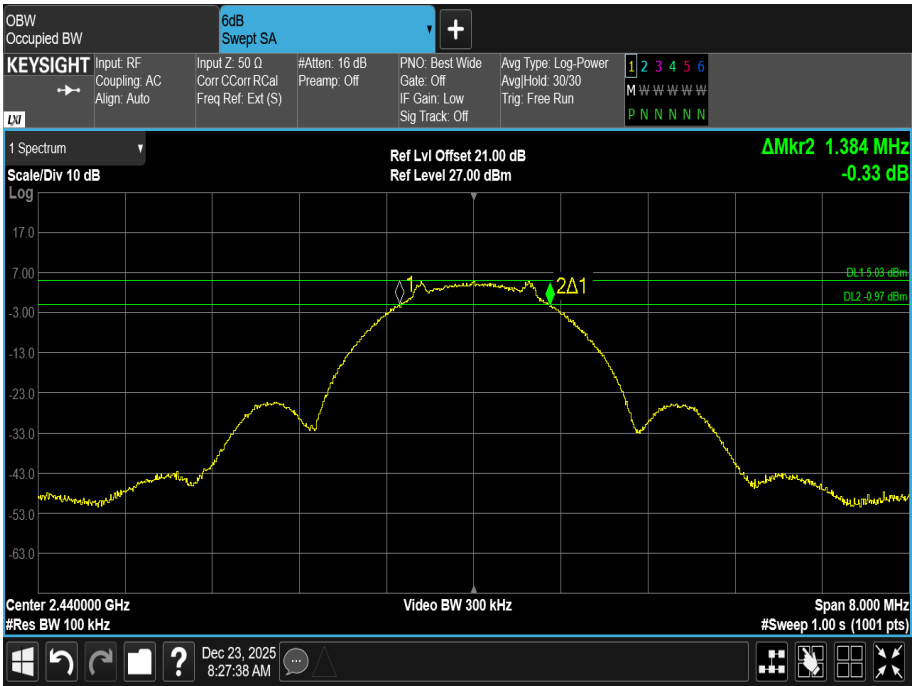


Figure 108 - 2440, LE2M, 6dB Bandwidth

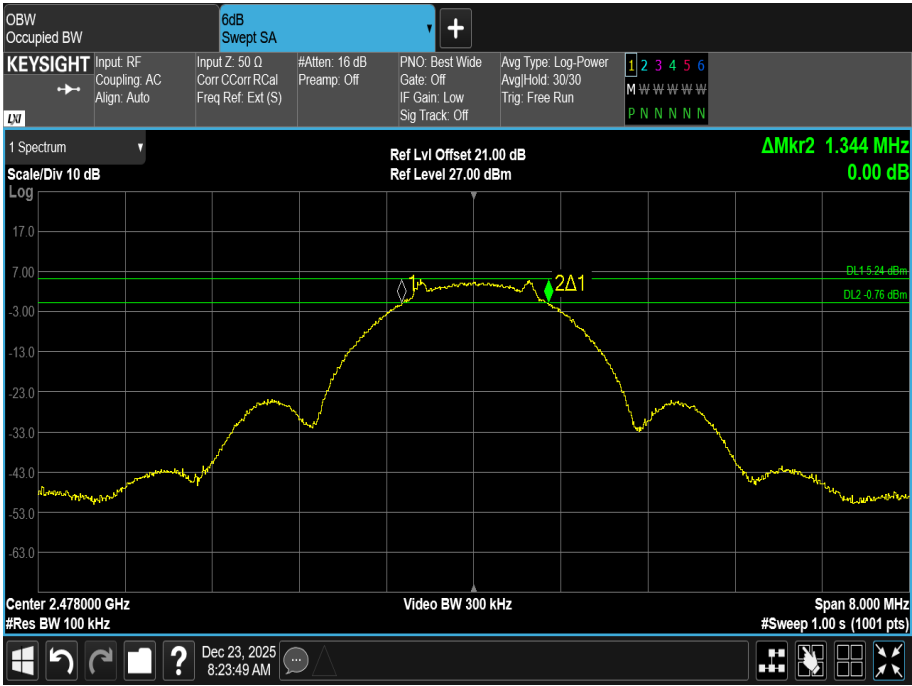


Figure 109 - 2478, LE2M, 6dB Bandwidth



IEEE 802.15.4

Frequency (MHz)	99 % Occupied Bandwidth (kHz)	6 dB Bandwidth (kHz)
2405	2662	1512
2440	2656	1536
2480	2654	1512

Table 44

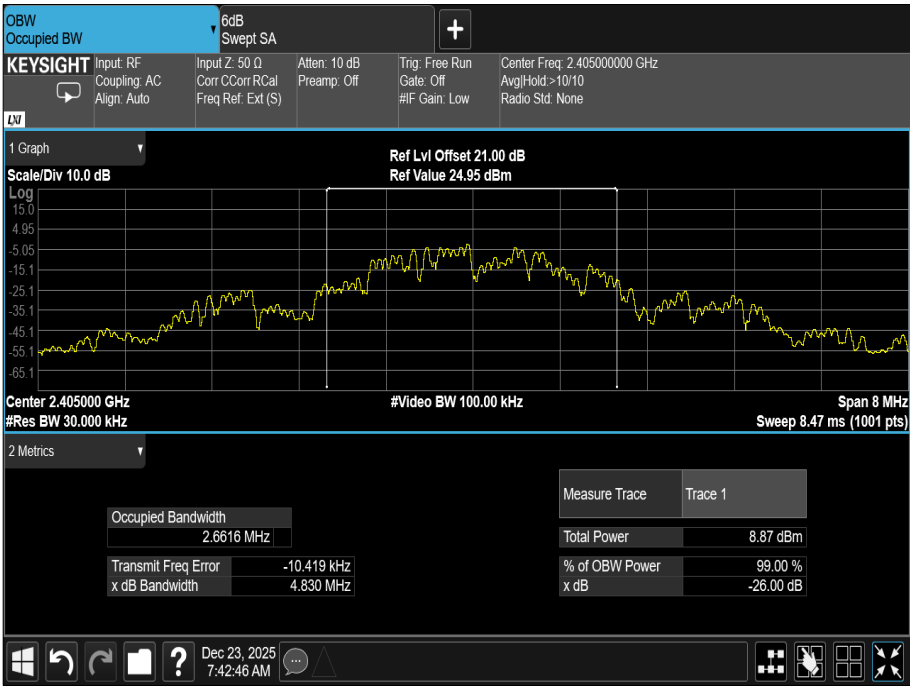


Figure 110 - 2405 MHz, 99% Occupied Bandwidth



Figure 111 - 2440 MHz, 99% Occupied Bandwidth



Figure 112 - 2480 MHz, 99% Occupied Bandwidth

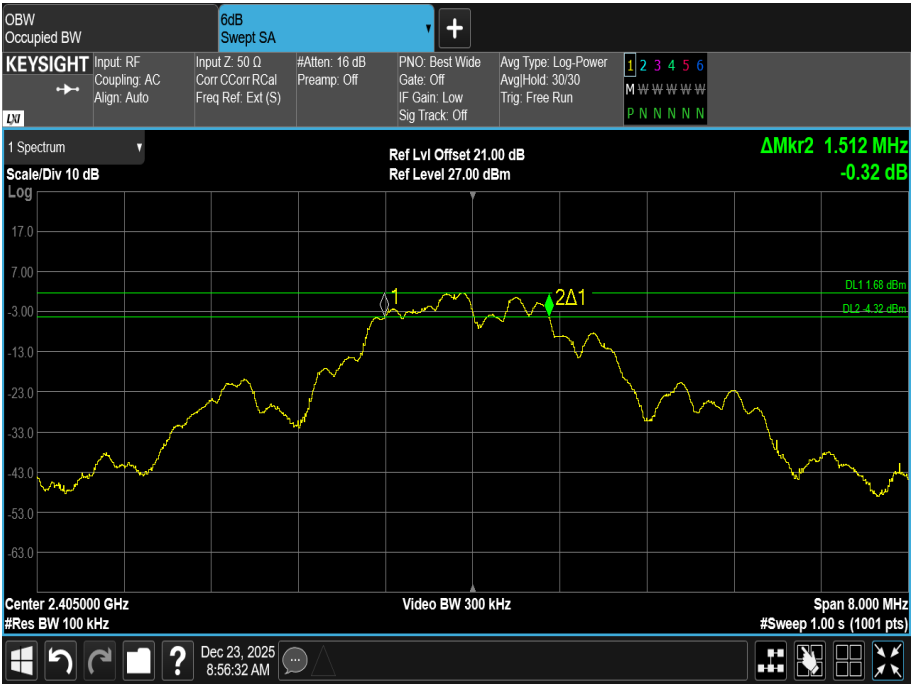


Figure 113 - 2405 MHz, 6dB Bandwidth

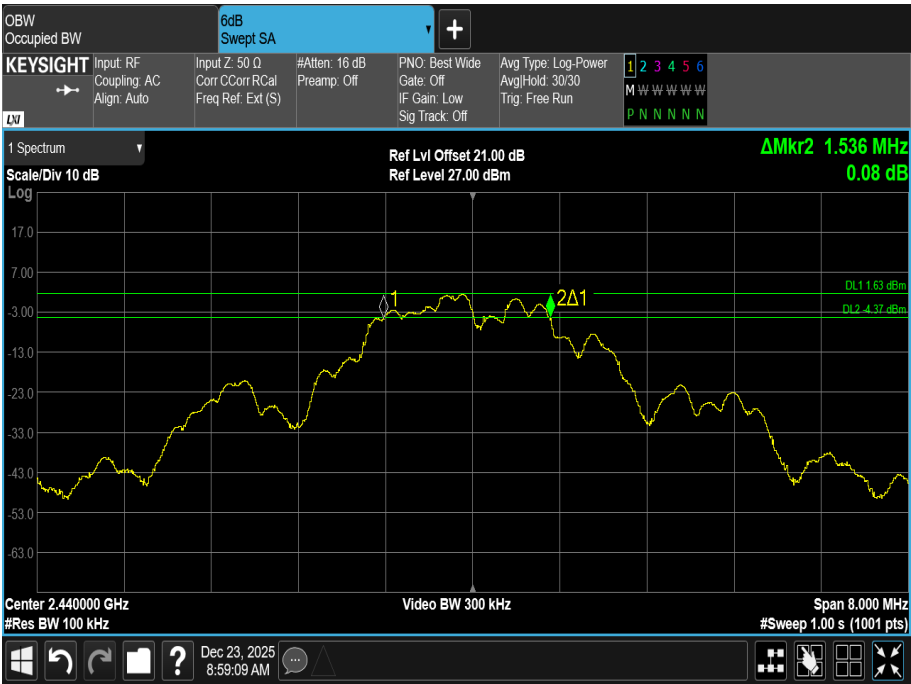


Figure 114 - 2440 MHz, 6dB Bandwidth

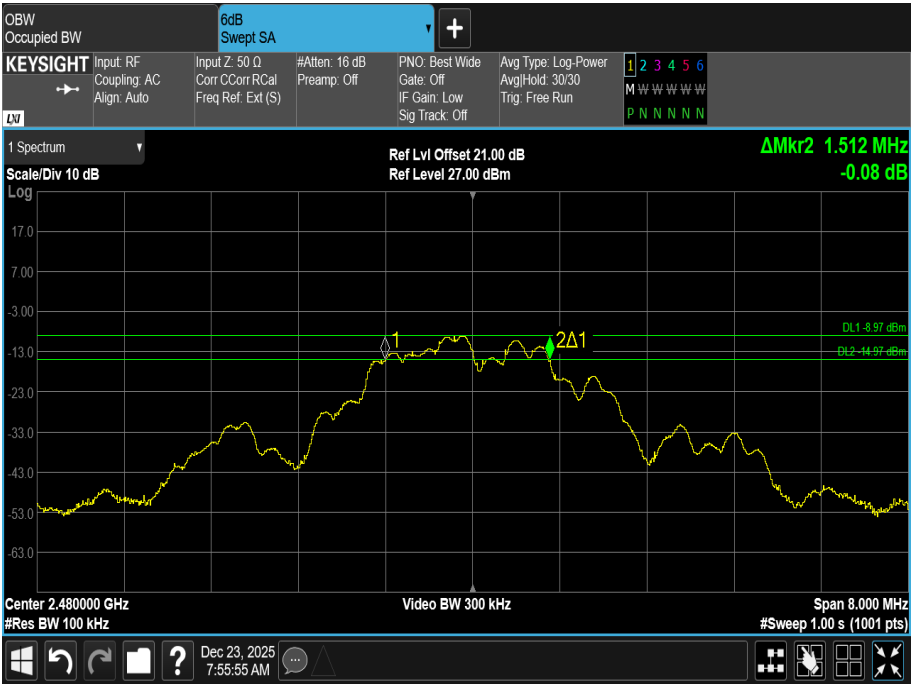


Figure 115 - 2480 MHz, 6dB Bandwidth

FCC 47 CFR Part 15, Limit Clause 15.247(a)(2) and ISSED RSS-247, Clause 6.3.1(a)

The minimum 6 dB bandwidth shall be at least 500 kHz.



2.4.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Multimeter	Iso-tech	IDM101	2421	12	11-Nov-2026
HygroPalm	Rotronic	HygroPalm 0	3484	12	25-Nov-2026
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	02-Jul-2026
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	17-Mar-2026
GPSDR Frequency Standard	Spectracom	SecureSync 1200-0408-0601	4393	6	18-Mar-2026
Quad Power Supply	Rohde & Schwarz	HMP4040	4955	-	O/P Mon
1m Coaxial Cable Assy	Junkosha	MWX221-01000AMSAMS/A	6376	12	06-Jun-2026
MXA Signal Analyser	Keysight Technologies	N9020B	6418	24	15-Oct-2027
20dB 10W/18GHz F/M SMA bidirectional Attenuator	Weinschel	WA41-20-0102	7027	12	06-Jun-2026

Table 45

O/P Mon – Output Monitored using calibrated equipment



2.5 Maximum Conducted Output Power

2.5.1 Specification Reference

FCC 47 CFR Part 15C Clause 15.247 (b)
ISED RSS-247 Clause 6
ISED RSS-GEN Clause 6.12

2.5.2 Equipment Under Test and Modification State

MSR2G42026, S/N: 2755 #4 - Modification State 0

2.5.3 Date of Test

16-December-2025 to 22-December-2025

2.5.4 Test Method

The test was performed in accordance with ANSI C63.10 clause 11.9.1.2 Method PKPM1.

An antenna gain of 2.3 dBi was added to the conducted output power results to convert into e.i.r.p.

The path loss was measured using a ZVA Network Analyser.

The EUT was powered as per 1.5.2.

IEEE 802.15.4

Testing on the bottom and middle channel was performed with the DUT set to 7 dBm. for testing on Channel 26 (2480 MHz) the power setting was reduced to -4dBm as requested by the customer.

2.4 GHz Bluetooth Low Energy

LE2M is not supported on the advertising channels therefore, CH0 and CH36 were used for the purposes of testing LE2M

CH37 and CH39 were used for the other data types.

2.5.5 Environmental Conditions

Ambient Temperature	18.9 - 19.2 °C
Relative Humidity	49.4 - 53.1 %

2.5.6 Test Results

2.4 GHz Bluetooth Low Energy

Data Rates	Frequency (MHz)	Maximum Output Power (Conducted)		Maximum Output Power (EIRP)	
		dBm	mW	dBm	mW
LE Coded S=8	2402 MHz	7.215	5.266	9.515	8.943
LE Coded S=8	2440 MHz	7.011	5.025	9.311	8.533
LE Coded S=8	2480 MHz	6.627	4.599	8.927	7.811
LE Coded S=2	2402 MHz	7.147	5.184	9.447	8.804
LE Coded S=2	2440 MHz	7.067	5.090	9.367	8.644
LE Coded S=2	2480 MHz	6.599	4.570	8.899	7.761
LE1M	2402 MHz	7.115	5.146	9.415	8.740
LE1M	2440 MHz	7.045	5.064	9.345	8.600
LE1M	2480 MHz	6.632	4.605	8.932	7.820
LE2M	2404 MHz	7.151	5.189	9.451	8.813
LE2M	2440 MHz	7.020	5.035	9.320	8.551
LE2M	2478 MHz	6.6628	4.600	8.928	7.813

Table 46

IEEE 802.15.4

Frequency (MHz)	Maximum Output Power (Conducted)		Maximum Output Power (EIRP)	
	dBm	mW	dBm	mW
2405	7.107	5.137	9.407	8.724
2440	6.988	4.998	9.288	8.488
2480	-2.593	0.550	-0.293	0.935

Table 47

FCC 47 CFR Part 15, Limit Clause 15.247 (b)(3)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

ISED RSS-247, Limit Clause 6.3.2

For DTS operating in the band 902-928 MHz, the maximum peak conducted output power shall not exceed 1W, and the e.i.r.p. shall not exceed 4 W.

For DTS operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W, and the e.i.r.p. shall not exceed 4 W, except as provided in RSS-247 section 6.5 a) and b).

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power.



2.5.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Multimeter	Iso-tech	IDM101	2421	12	11-Nov-2026
HygroPalm	Rotronic	HygroPalm 0	3484	12	25-Nov-2026
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	02-Jul-2026
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	17-Mar-2026
Quad Power Supply	Rohde & Schwarz	HMP4040	4955	-	O/P Mon
1m Coaxial Cable Assy	Junkosha	MWX221-01000AMSAMS/A	6376	12	06-Jun-2026
USB Wideband Power Sensor	Boonton	RTP5008	6590	12	07-Apr-2026
20dB 10W/18GHz F/M SMA bidirectional Attenuator	Weinschel	WA41-20-0102	7027	12	06-Jun-2026

Table 48

O/P Mon – Output Monitored using calibrated equipment



2.6 Power Spectral Density

2.6.1 Specification Reference

FCC 47 CFR Part 15C Clause 15.247 (e)
ISED RSS-247 Clause 6.3.1
ISED RSS-GEN Clause 6.12

2.6.2 Equipment Under Test and Modification State

MSR2G42026, S/N: 2755 #4 - Modification State 0

2.6.3 Date of Test

16-December-2025 to 22-December-2025

2.6.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 11.10.2
The EUT was powered as per 1.5.2.

IEEE 802.15.4

For testing on Channel 26 (2480 MHz) the power was reduced to -4dBm as requested by the customer.

2.4 GHz Bluetooth Low Energy

This test was performed in accordance with ANSI C63.10, clause 11.10.2.

LE2M is not supported on the advertising channels therefore, CH0 and CH36 were used for the purposes of testing LE2M

2.6.5 Environmental Conditions

Ambient Temperature	18.9 - 19.2 °C
Relative Humidity	49.4 - 53.1 %

2.6.6 Test Results

2.4 GHz Bluetooth Low Energy

Data Rates	Frequency (MHz)	Power Spectral Density (dBm)	Measurement Bandwidth (kHz)
LE Coded S=8	2402 MHz	3.61	100
LE Coded S=8	2440 MHz	3.43	100
LE Coded S=8	2480 MHz	3.03	100
LE Coded S=2	2402 MHz	6.64	100
LE Coded S=2	2440 MHz	6.58	100
LE Coded S=2	2480 MHz	6.16	100
LE1M	2402 MHz	6.68	100
LE1M	2440 MHz	6.51	100
LE1M	2480 MHz	6.11	100
LE2M	2404 MHz	5.56	100
LE2M	2440 MHz	5.49	100
LE2M	2478 MHz	5.21	100

Table 49

IEEE 802.15.4

Frequency (MHz)	Power Spectral Density (dBm)	Measurement Bandwidth (kHz)
2405	1.96	100
2440	1.89	100
2480	-8.49	100

Table 50

FCC 47 CFR Part 15, Limit Clause 15.247 (e)

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

ISED RSS-247, Limit Clause 6.3.1(b)

The transmitter power spectral density conducted from the transmitter to the antenna(s) shall not be greater than 8 dBm/3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of RSS-247 clause 6.3.2. The power spectral density shall be determined using the same method as is used to determine the maximum conducted output power.



2.6.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Multimeter	Iso-tech	IDM101	2421	12	11-Nov-2026
HygroPalm	Rotronic	HygroPalm 0	3484	12	25-Nov-2026
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	02-Jul-2026
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	17-Mar-2026
GPSDR Frequency Standard	Spectracom	SecureSync 1200-0408-0601	4393	6	18-Mar-2026
Quad Power Supply	Rohde & Schwarz	HMP4040	4955	-	O/P Mon
1m Coaxial Cable Assy	Junkosha	MWX221-01000AMSAMS/A	6376	12	06-Jun-2026
MXA Signal Analyser	Keysight Technologies	N9020B	6418	24	15-Oct-2027
20dB 10W/18GHz F/M SMA bidirectional Attenuator	Weinschel	WA41-20-0102	7027	12	06-Jun-2026

Table 51

O/P Mon – Output Monitored using calibrated equipment

3 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
Restricted Band Edges	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB
Authorised Band Edges	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB
Spurious Radiated Emissions	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB
Emission Bandwidth	± 50.1 kHz
Maximum Conducted Output Power	Method PM: ± 0.65 dB Method SA: ± 1.05 dB
Power Spectral Density	± 1.00 dB

Table 52

Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115:2023, Clause 4.3.4 (Simple Acceptance). The measurement results are directly compared with the test limit to determine conformance with the requirements of the standard.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8.