

Test report

408216-17R1TRFWL

Date of issue: April 19, 2021

Applicant:

Garmin International, Inc.

Product:

Battery Cradle + Battery (ANT)

Model:

A04118

Specifications:

◆ **LP0002-2020-07-15**

Low-power Radio-frequency Devices

Clause 4.10.2 Operation within the bands 2400 MHz-2483.5 MHz, 5725 MHz-5875 MHz, 24.00 GHz-24.25 GHz

Lab and test locations

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Website	www.nemko.com
FCC Site Number	Test Firm Registration Number: 392943 Designation Number: US5058
ISED Test Site	2040B-3

Tested by	Martha Espinoza, Wireless Test Engineer
Reviewed by	James Cunningham, EMC/MIL/WL Supervisor
Review date	April 19, 2021
Reviewer signature	

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko USA's ISO/IEC 17025 accreditation.

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Section 1 Report summary

1.1 Applicant

Company name	Garmin International, Inc.
Address	1200 E. 151 st street
City	Olathe
Province/State	KS
Postal/Zip code	66062
Country	USA

1.2 Manufacturer

Company name	Garmin International, Inc.
Address	1200 E. 151 st street
City	Olathe
Province/State	KS
Postal/Zip code	66062
Country	USA

1.3 Test specifications

LP0002 – July 15, 2020	Operation within the bands 2400 MHz-2483.5 MHz, 5725 MHz-5875 MHz, 24.00 GHz-24.25 GHz
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1.4 Test methods

ANSI C63.10-2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
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1.5 Exclusions

None

1.6 Statement of compliance

In the configuration tested, the EUT was found compliant.

Testing was performed against all relevant requirements of the test standard. Results obtained indicate that the product under test complies in full with the requirements tested. The test results relate only to the items tested.

See “Summary of test results” for full details.

1.7 Test report revision history

Table 1.7-1: Test report revision history

Revision #	Details of changes made to test report
408216-17TRFWL	Original report issued
408216-17R1TRFWL	Updated version of LP002, applied requirements of Clause 4.10.2

Notes:

Section 2 Summary of test results

2.1 LP0002, Intentional Radiators Test Results

Part	Test description	Verdict
2.3	Conducted limits	Not applicable ¹
4.10.2.1	Frequency bands	Pass ²
4.10.2.2	Fundamental and harmonic emissions	Pass
4.10.2.3	Fixed point-to-point operation devices	Not applicable

Notes: ¹ EUT is battery power only.

² EUT operates in the 2400 – 2483.5 MHz frequency band.

Section 3 Equipment under test (EUT) details

3.1 Sample information

Receipt date	November 9, 2020
Nemko sample ID number	NEx: 408216

3.2 EUT information

Product name	Battery Cradle + Battery
Model	A04118
Serial number	Conducted sample (50212): 3345709192 Radiated sample (30926): 3345709262
Part number	N/A

3.3 Technical information

Frequency band	2400 – 2483.5 MHz
Minimum frequency (MHz)	2402
Maximum frequency (MHz)	2480
Type of modulation	GFSK
Emission classification	N/A
Power requirements	Battery package
Antenna information	3.8 dBi maximum antenna gain

3.4 EUT exercise and monitoring details

Conducted and radiated sample were configured through a tool named “RF State Setter” where different parameters can be configured such as, channel frequency, continuous wave signal, modulated signal, ANT, BLE, etc., depending on the test requirement.

3.5 EUT setup details

Table 3.5-1: EUT sub assemblies

Description	Brand name	Model/Part number	Serial number	Rev.
Battery cradle	Garmin	A04118	3345709192	---
Battery	Garmin	A04119	3345708884	---

Table 3.5-2: EUT interface ports

Description	Qty.
Field disturbance sensor port	1
Field disturbance sensor display port	1
Battery port	1

3.5 EUT setup details continued

Table 3.5-1: Support equipment

Description	Brand name	Model/Part number	Serial number	Rev.
Laptop	Dell	Latitude	N/A	---
ANT USB	Dynastream	ANTUSB-m	203-JN6016	---

Table 3.5-2: Inter-connection cables

Cable description	From	To	Length (ft)
N/A	N/A	N/A	N/A

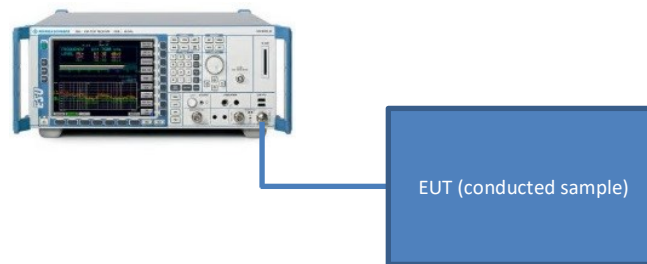


Figure 3.5-1: Test conducted setup.

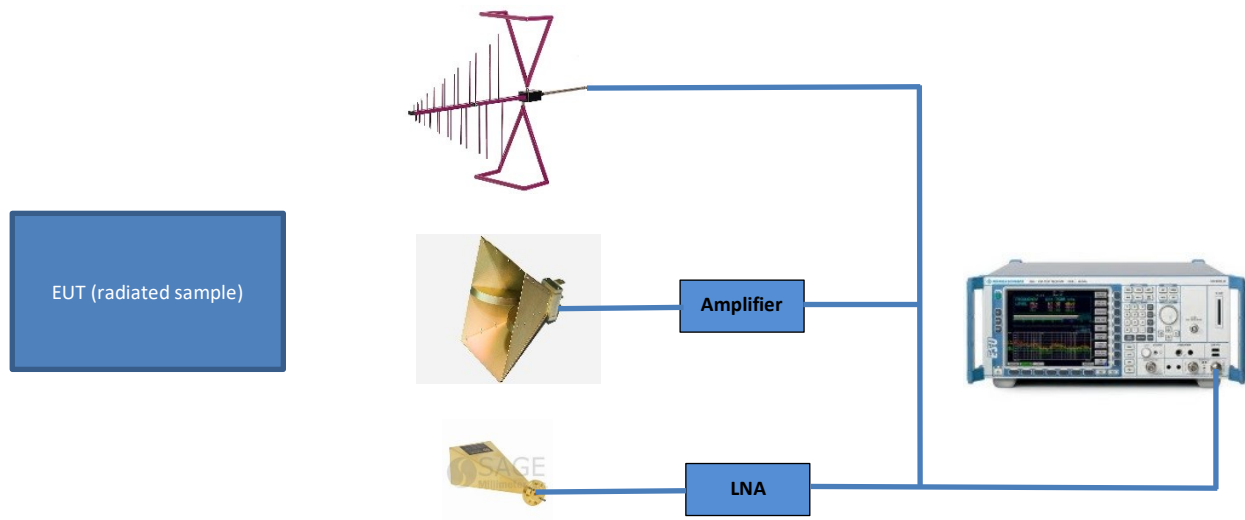


Figure 3.5-2: Test radiated setup

Section 4 Engineering considerations

4.1 Modifications incorporated in the EUT

There were no modifications performed to the EUT during this assessment.

4.2 Technical judgment

None

4.3 Deviations from laboratory tests procedures

No deviations were made from laboratory procedures

Section 5 Test conditions

5.1 Atmospheric conditions

Temperature	15-30 °C
Relative humidity	20-75 %
Air pressure	86–106 kPa

When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.

5.2 Power supply range

The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages $\pm 5\%$, for which the equipment was designed.

Section 6 Measurement uncertainty

6.1 Uncertainty of measurement

Measurement uncertainty budgets for the tests are detailed below. Measurement uncertainty calculations assume a coverage factor of $K = 2$ with 95% certainty.

Test name	Measurement uncertainty, dB
All antenna port measurements/ including OBW	0.55
Conducted spurious emissions	1.13
Radiated spurious emissions	3.78
AC power line conducted emissions	1.38
Supply Voltages	0.05%
Time	2.09%

Table 6.1-1: Measurement uncertainty.

Important note: All testing in this document were done using the maximum radiation pattern from transmitter antenna for covering the worst case in all the measurements.

Section 7 Test Equipment

7.1 Test equipment list

Table 7.1-1: Test Equipment List

Equipment	Manufacturer	Model no.	Asset no.	Cal cycle	Next cal.
EMI Test Receiver	Rohde & Schwarz	ESU40	E1131	1 year	03 Dec 2021
EMI Test Receiver	Rohde & Schwarz	ESU40	E1121	1 year	01 Dec 2021
Spectrum analyzer	Rohde & Schwarz	FSW	E1302	1 year	18 Sep 2021
Spectrum analyzer	Rohde & Schwarz	FSV	E1120	1 year	19 Dec 2021
System controller	Sunol sciences	SC104V	E1191	NCR	NCR
Power sensor	ETS Lindgren	7002-006	E1062	1 year	29 Oct 2021
DRG Horn	ETS-Lindgren	3117-PA	E1139	2 years	21 March 2021
Bilog Antenna	Schaffner	CBL6111C	1763	2 years	18 Feb 2022
Antenna Horn	Sage	SAR-2309-42-S2	E1143	2 years	13 Nov 2022
Low Noise Amplifier	Sage	SBL-1834034030-KFKF	E1228	NCR	NCR

Table 7.1-2: Test Software

Manufacturer of Software	Details
Rohde & Schwarz	EMC 32 V10.60.15

Section 8 Testing data

8.1 Field strength of fundamental emissions

8.1.1 Definition and limits

LP0002 → 4.10.2.2

(a) The field strength of the emission shall be no less than or equal to the limit in the table below.

Fundamental frequency (MHz)	Field strength of fundamental emissions (millivolts/meter)
2400-2483.5	50
5725-5875	50
24000-24250	250

8.1.2 Test summary

Verdict	Pass		
Test date	November 12, 2020 December 16, 2020 December 17, 2020 December 19, 2020	Temperature	21°C 21°C 20°C 23°C
Test engineer	Martha Espinoza	Air pressure	1002 mbar 1005 mbar 1001 mbar 1000 mbar
Test location	3m semi anechoic chamber	Relative humidity	51 % 48 % 50 % 51 %

8.1.3 Notes

Testing was performed in ANT mode and the EUT transmitting on a fixed channel at full power. The EUT was configured to transmit continuously on the lowest, middle, and highest channels. Radiated measurements were performed at a 3 m measurement distance.

8.1.4 Setup details

EUT setup configuration	Tabletop
Test facility	10 m semi-anechoic chamber, 3 m measurement distance

Receiver settings for radiated measurements below 1 GHz:

Resolution bandwidth	120 kHz
Video bandwidth	300 kHz
Detector mode	Peak (preview measurements) Quasi-Peak (final measurements)
Trace mode	Max Hold
Measurement time	5 s (final measurements)

Receiver settings for radiated measurements above 1 GHz:

Resolution bandwidth	1 MHz
Video bandwidth	3 MHz
Detector mode	Average and peak (final measurements)
Trace mode	Max Hold
Measurement time	5 s (final measurements)

Field strength of fundamental emissions

8.1.5 Test data

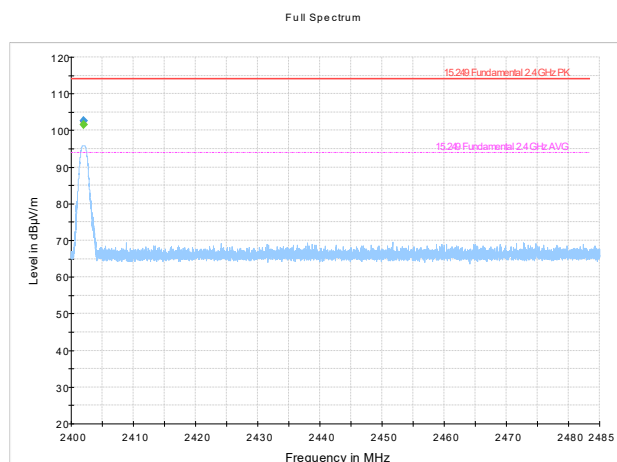


Figure 8.1-1: Field strength of fundamental, 2402 MHz

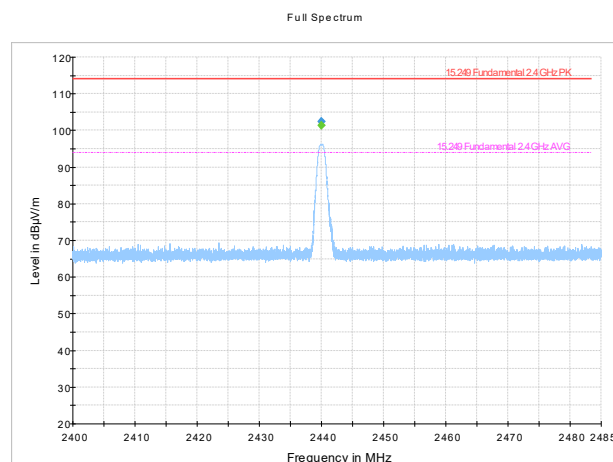


Figure 8.1-2: Field strength of fundamental, 2440 MHz

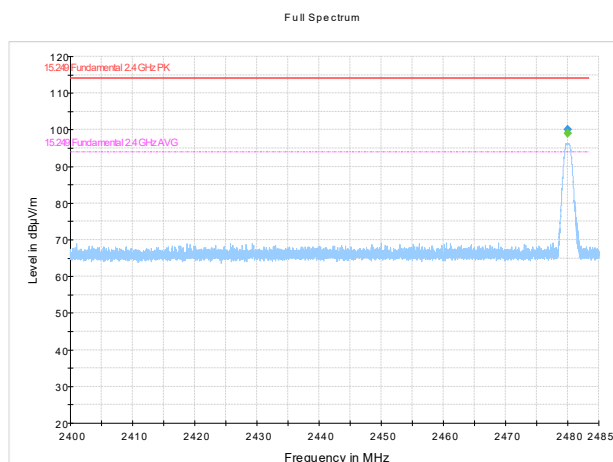


Figure 8.1-3: Field strength of fundamental, 2480 MHz

Table 8.1-1: Field strength of fundamental

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2402.050000	---	82.61	93.97	5000.0	1000.000	110.4	V	25.0	19.8
2402.050000	102.61	---	113.97	5000.0	1000.000	110.4	V	25.0	19.8
2439.950000	---	82.46	93.97	5000.0	1000.000	109.3	V	25.0	20.1
2439.950000	102.46	---	113.97	5000.0	1000.000	109.3	V	25.0	20.1
2480.040000	---	80.09	93.97	5000.0	1000.000	110.4	V	35.0	20.2
2480.040000	100.09	---	113.97	5000.0	1000.000	110.4	V	35.0	20.2

Peak values were measured directly. Average values were calculated using a duty cycle correction factor. During normal operation, the transmitter has a duty cycle of less than 1 %. To calculate the duty cycle correction, the duty cycle in normal operation was measured:

Field strength of fundamental emissions

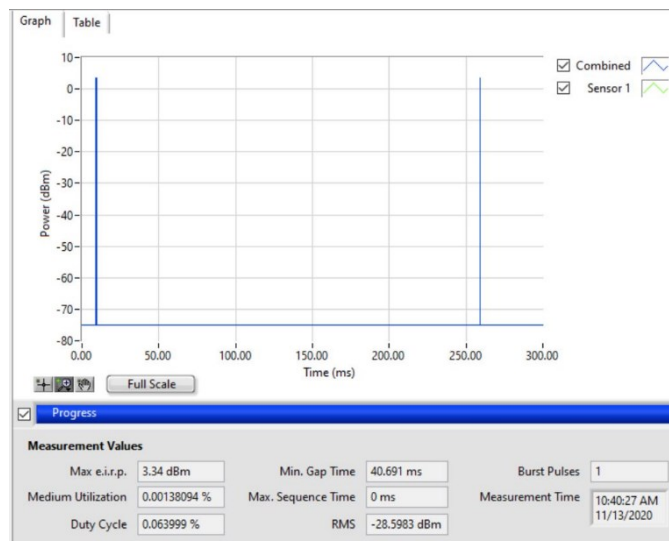


Figure 8.1-4: Normal operation duty cycle measurement with power sensor

Duty cycle correction factor calculated as:

$$\begin{aligned}\delta \text{ (dB)} &= 20 \text{ Log (duty cycle)} \\ \delta \text{ (dB)} &= 20 \text{ Log (0.00063999)} \\ \delta \text{ (dB)} &= -63.876\end{aligned}$$

This exceeds the recommended maximum duty cycle correction factor of -20 dB therefore a correction of -20 dB will be used.

Therefore, the average power of the fundamental reported in Table 8.2-3 above is calculated by adding the duty cycle correction factor (-20 dB) to the measured peak power.

8.2 Harmonic and spurious emissions

8.2.1 Definition and limits

LP0002 → 4.10.2.2, 4.10.2.4

The field strength of harmonic emissions shall be less than or equal to the limit in the table below.

Fundamental frequency (MHz)	Field strength of harmonic emissions (microvolts/meter)
2400-2483.5	500
5725-5875	500
24000-24250	2500

Emissions outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emissions limits in Section 3.6 of LP0002, whichever is lower.

8.2.2 Test summary

Verdict	Pass		
Test date	November 12, 2020 December 16, 2020 December 17, 2020 December 19, 2020	Temperature	21°C 21°C 20°C 23°C
Test engineer	Martha Espinoza	Air pressure	1002 mbar 1005 mbar 1001 mbar 1000 mbar
Test location	3m semi anechoic chamber	Relative humidity	51 % 48 % 50 % 51 %

8.2.3 Notes

Testing was performed in ANT mode and the EUT transmitting on a fixed channel at full power.
The EUT was configured to transmit continuously on the lowest, middle, and highest channels.
The spectrum was search from 30 MHz to 26 GHz (above the 10th harmonic of the highest transmit frequency).
Radiated measurements were performed at a 3 m measurement distance.

8.2.4 Setup details

EUT setup configuration	Tabletop
Test facility	10 m semi anechoic chamber

Receiver settings for radiated measurements below 1 GHz:

Resolution bandwidth	120 kHz
Video bandwidth	300 kHz
Detector mode	Peak (preview measurements) Quasi-Peak (final measurements)
Trace mode	Max Hold
Measurement time	1 s (final measurements)

Receiver settings for radiated measurements above 1 GHz:

Resolution bandwidth	1 MHz
Video bandwidth	3 MHz
Detector mode	Average and peak (final measurements)
Trace mode	Max Hold
Measurement time	1 s (final measurements)

8.2.5 Test data

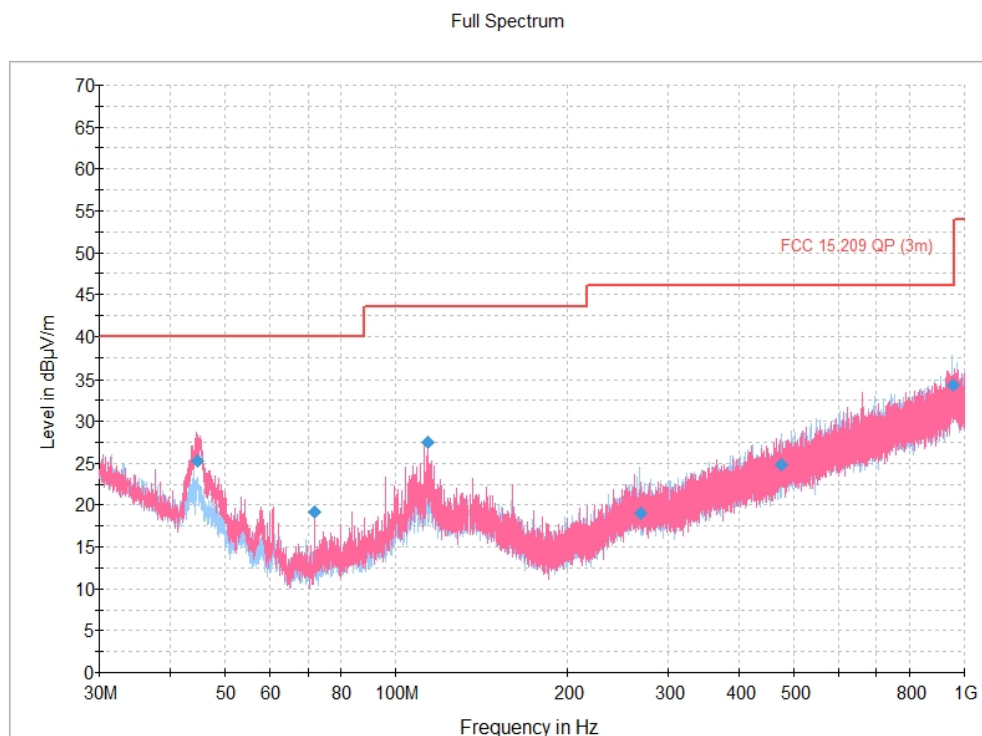


Figure 8.2-1: Radiated emissions, 2402 MHz, 30 – 1000 MHz

Table 8.2-1: Radiated emissions, 2402 MHz, 30 – 1000 MHz

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
44.622333	25.31	40.00	14.69	5000.0	120.000	105.0	V	224.0	18.6
72.001000	19.10	40.00	20.90	5000.0	120.000	401.0	V	224.0	13.9
113.646333	27.49	43.50	16.01	5000.0	120.000	395.0	V	188.0	19.1
268.548667	19.05	46.00	26.95	5000.0	120.000	182.0	H	11.0	21.4
475.920000	24.80	46.00	21.20	5000.0	120.000	213.0	H	280.0	26.7
953.156000	34.34	46.00	11.66	5000.0	120.000	245.0	H	256.0	34.7

Notes:

Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Limits converted to dBµV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Full Spectrum

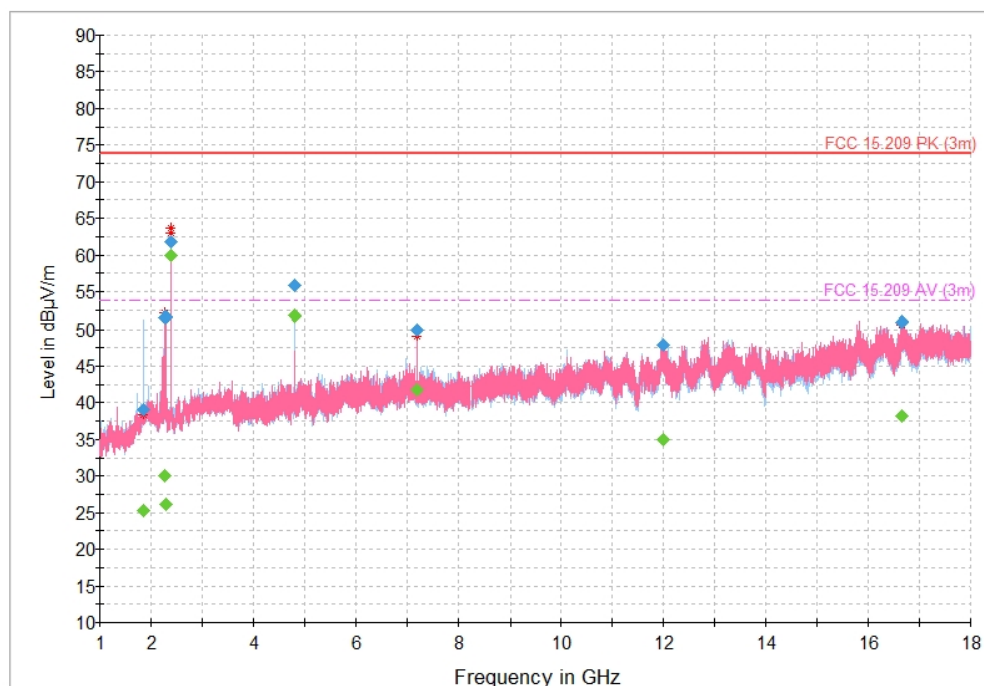


Figure 8.2-2: Radiated emissions, 2402 MHz, 1 – 18 GHz

Table 8.2-2: Radiated emissions, 2402 MHz, 1 – 18 GHz

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1863.666667	39.00	---	73.90	34.90	5000.0	1000.000	388.0	H	92.0	-11.2
1863.666667	---	25.32	53.90	28.58	5000.0	1000.000	388.0	H	92.0	-11.2
2273.866667	---	29.99	53.90	23.91	5000.0	1000.000	161.0	V	0.0	-10.4
2273.866667	51.56	---	73.90	22.34	5000.0	1000.000	161.0	V	0.0	-10.4
2290.133333	51.63	---	73.90	22.27	5000.0	1000.000	108.0	V	0.0	-10.5
2290.133333	---	26.11	53.90	27.79	5000.0	1000.000	108.0	V	0.0	-10.5
2402.166667	Low channel fundamental									
2402.166667	Low channel fundamental									
4804.200000	---	51.86	53.90	2.04	5000.0	1000.000	275.0	H	324.0	-1.7
4804.200000	55.81	---	73.90	18.09	5000.0	1000.000	275.0	H	324.0	-1.7
7205.733333	---	41.80	53.90	12.10	5000.0	1000.000	173.0	V	240.0	0.7
7205.733333	49.99	---	73.90	23.91	5000.0	1000.000	173.0	V	240.0	0.7
11984.833333	---	34.91	53.90	18.99	5000.0	1000.000	181.0	H	0.0	6.1
11984.833333	47.82	---	73.90	26.08	5000.0	1000.000	181.0	H	0.0	6.1
16654.400000	50.96	---	73.90	22.94	5000.0	1000.000	410.0	H	288.0	13.9
16654.400000	---	38.17	53.90	15.73	5000.0	1000.000	410.0	H	288.0	13.9

Field strength (dBμV/m) = receiver/spectrum analyzer value (dBμV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBμV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

A 2.4 GHz notch filter was used to prevent overloading.

Full Spectrum

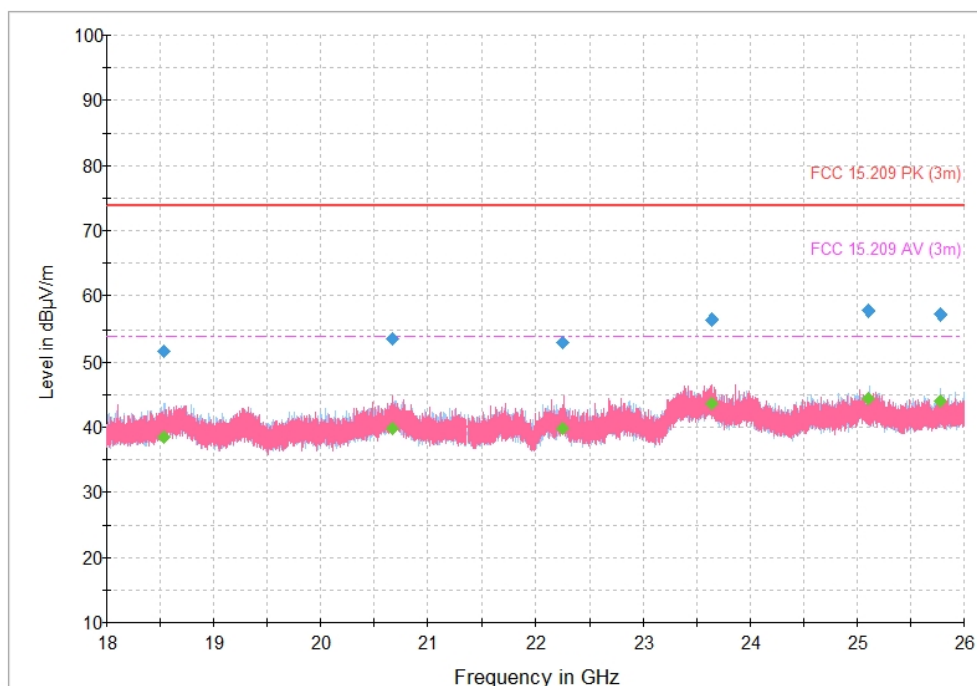


Figure 8.2-3: Radiated emissions, 2402 MHz, 18 – 26 GHz

Table 8.2-3: Radiated emissions, 2402 MHz, 18 – 26 GHz

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18535.666667	51.73	---	73.90	22.17	3000.0	1000.000	170.0	H	241.0	18.1
18535.666667	---	38.39	53.90	15.51	3000.0	1000.000	170.0	H	241.0	18.1
20665.800000	---	39.85	53.90	14.05	3000.0	1000.000	316.0	V	210.0	20.3
20665.800000	53.48	---	73.90	20.42	3000.0	1000.000	316.0	V	210.0	20.3
22251.266667	---	39.86	53.90	14.04	3000.0	1000.000	213.0	V	172.0	19.4
22251.266667	53.03	---	73.90	20.87	3000.0	1000.000	213.0	V	172.0	19.4
23642.066667	56.39	---	73.90	17.51	3000.0	1000.000	381.0	V	0.0	23.5
23642.066667	---	43.55	53.90	10.35	3000.0	1000.000	381.0	V	0.0	23.5
25109.933333	---	44.37	53.90	9.53	3000.0	1000.000	369.0	H	179.0	22.8
25109.933333	57.86	---	73.90	16.04	3000.0	1000.000	369.0	H	179.0	22.8
25784.733333	---	44.04	53.90	9.86	3000.0	1000.000	351.0	H	0.0	22.6
25784.733333	57.17	---	73.90	16.73	3000.0	1000.000	351.0	H	0.0	22.6

Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBµV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

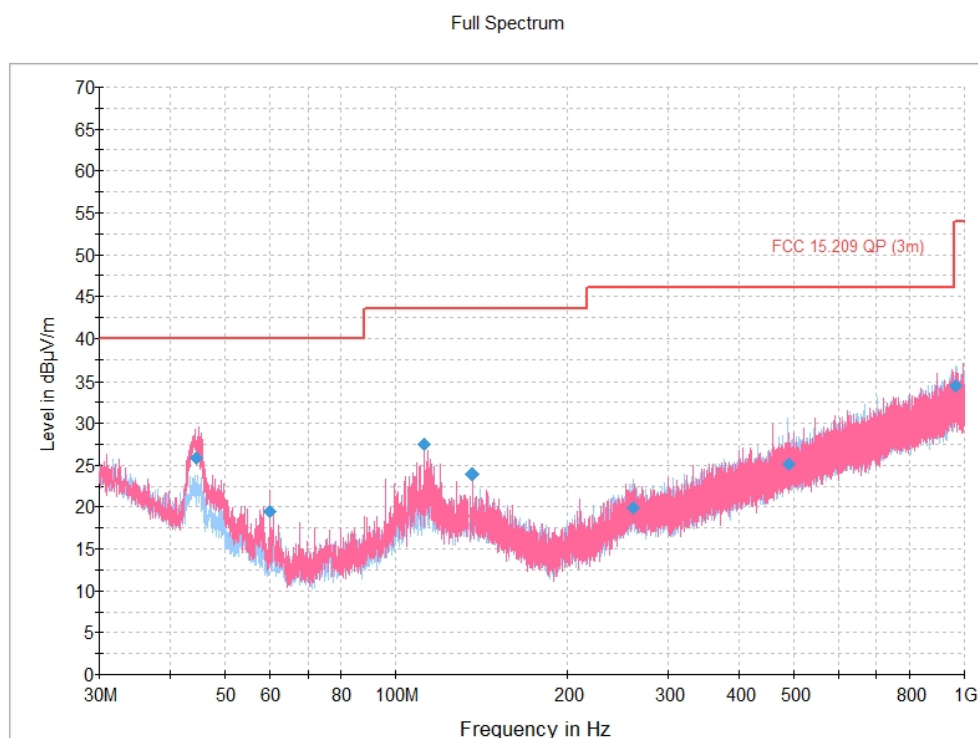


Figure 8.2-4: Radiated emissions, 2440 MHz, 30 – 1000 MHz

Table 8.2-4: Radiated emissions, 2440 MHz, 30 – 1000 MHz

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
44.601000	25.91	40.00	14.09	5000.0	120.000	98.0	V	312.0	18.6
60.005333	19.53	40.00	20.47	5000.0	120.000	135.0	V	107.0	12.7
112.029667	27.45	43.50	16.05	5000.0	120.000	389.0	V	91.0	18.9
136.021000	23.97	43.50	19.53	5000.0	120.000	383.0	V	92.0	19.7
260.880333	19.91	46.00	26.09	5000.0	120.000	263.0	H	90.0	22.1
489.490000	25.16	46.00	20.84	5000.0	120.000	292.0	H	136.0	26.9
964.917333	34.46	53.90	19.44	5000.0	120.000	241.0	H	160.0	34.7

Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBµV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Full Spectrum

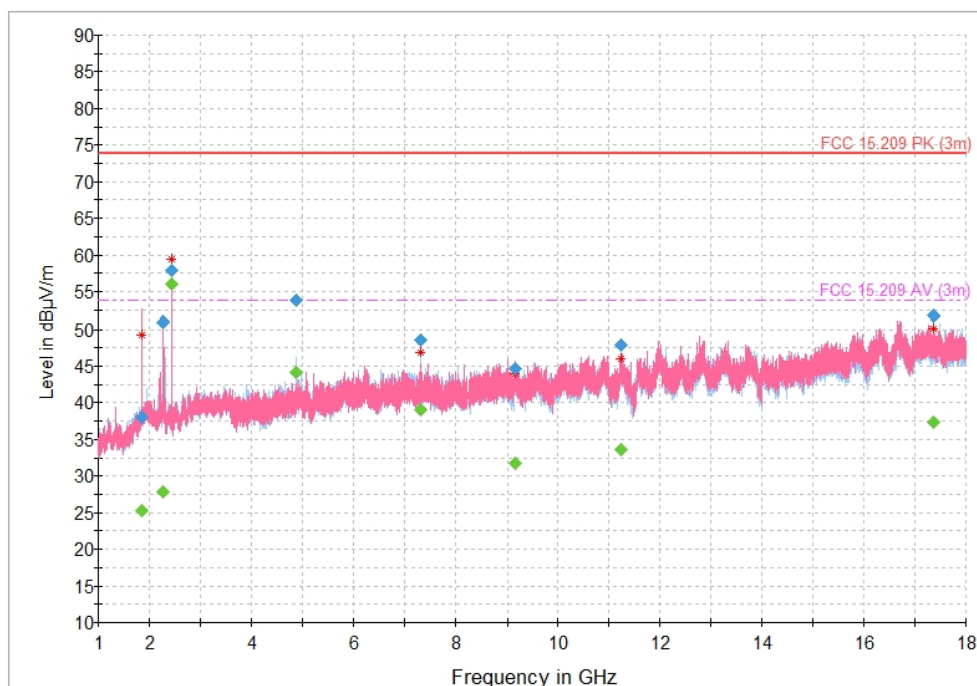


Figure 8.2-5: Radiated emissions, 2440 MHz, 1 – 18 GHz

Table 8.2-5: Radiated emissions, 2440 MHz, 1 – 18 GHz

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1853.900000	38.10	---	73.90	35.80	5000.0	1000.000	232.0	V	127.0	-11.3
1853.900000	---	25.30	53.90	28.60	5000.0	1000.000	232.0	V	127.0	-11.3
2279.933333	---	27.85	53.90	26.05	5000.0	1000.000	160.0	V	358.0	-10.4
2279.933333	50.92	---	73.90	22.98	5000.0	1000.000	160.0	V	358.0	-10.4
2439.900000	Middle channel fundamental									
2439.900000	Middle channel fundamental									
4880.133333	53.81	---	73.90	20.09	5000.0	1000.000	268.0	H	327.0	-2.0
4880.133333	---	44.14	53.90	9.76	5000.0	1000.000	268.0	H	327.0	-2.0
7319.866667	48.55	---	73.90	25.35	5000.0	1000.000	201.0	H	208.0	0.8
7319.866667	---	39.06	53.90	14.84	5000.0	1000.000	201.0	H	208.0	0.8
9149.866667	---	31.66	53.90	22.24	5000.0	1000.000	392.0	V	0.0	3.2
9149.866667	44.64	---	73.90	29.26	5000.0	1000.000	392.0	V	0.0	3.2
11241.733333	---	33.60	53.90	20.30	5000.0	1000.000	194.0	H	58.0	4.6
11241.733333	47.80	---	73.90	26.10	5000.0	1000.000	194.0	H	58.0	4.6
17363.800000	---	37.31	53.90	16.59	5000.0	1000.000	227.0	V	256.0	13.4
17363.800000	51.72	---	73.90	22.18	5000.0	1000.000	227.0	V	256.0	13.4

Field strength (dBμV/m) = receiver/spectrum analyzer value (dBμV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBμV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

A 2.4 GHz notch filter was used to prevent overloading.

Full Spectrum

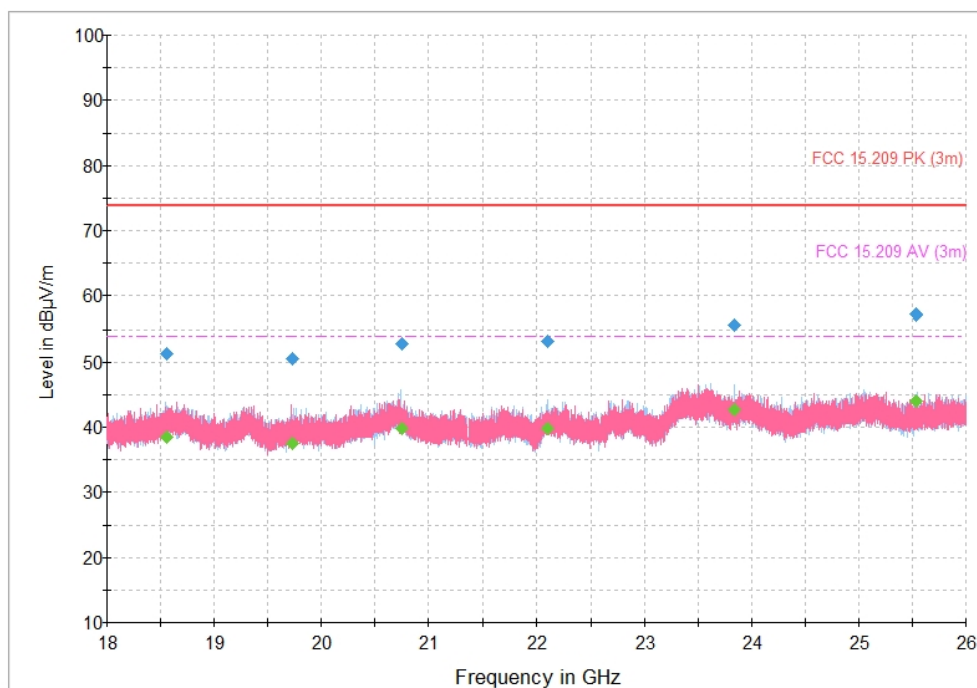


Figure 8.2-6: Radiated emissions, 2440 MHz, 18 – 26 GHz

Table 8.2-6: Radiated emissions, 2440 MHz, 18 – 26 GHz

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18554.733333	---	38.39	53.90	15.51	3000.0	1000.000	402.0	H	301.0	18.2
18554.733333	51.27	---	73.90	22.63	3000.0	1000.000	402.0	H	301.0	18.2
19727.533333	50.57	---	73.90	23.33	3000.0	1000.000	306.0	V	136.0	17.8
19727.533333	---	37.50	53.90	16.40	3000.0	1000.000	306.0	V	136.0	17.8
20747.933333	52.79	---	73.90	21.11	3000.0	1000.000	369.0	H	222.0	20.3
20747.933333	---	39.84	53.90	14.06	3000.0	1000.000	369.0	H	222.0	20.3
22098.866667	53.13	---	73.90	20.77	3000.0	1000.000	322.0	H	138.0	19.2
22098.866667	---	39.89	53.90	14.01	3000.0	1000.000	322.0	H	138.0	19.2
23845.800000	55.73	---	73.90	18.17	3000.0	1000.000	137.0	H	121.0	22.5
23845.800000	---	42.77	53.90	11.13	3000.0	1000.000	137.0	H	121.0	22.5
25536.600000	---	44.04	53.90	9.86	3000.0	1000.000	259.0	H	54.0	22.7
25536.600000	57.23	---	73.90	16.67	3000.0	1000.000	259.0	H	54.0	22.7

Field strength (dBμV/m) = receiver/spectrum analyzer value (dBμV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBμV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Full Spectrum

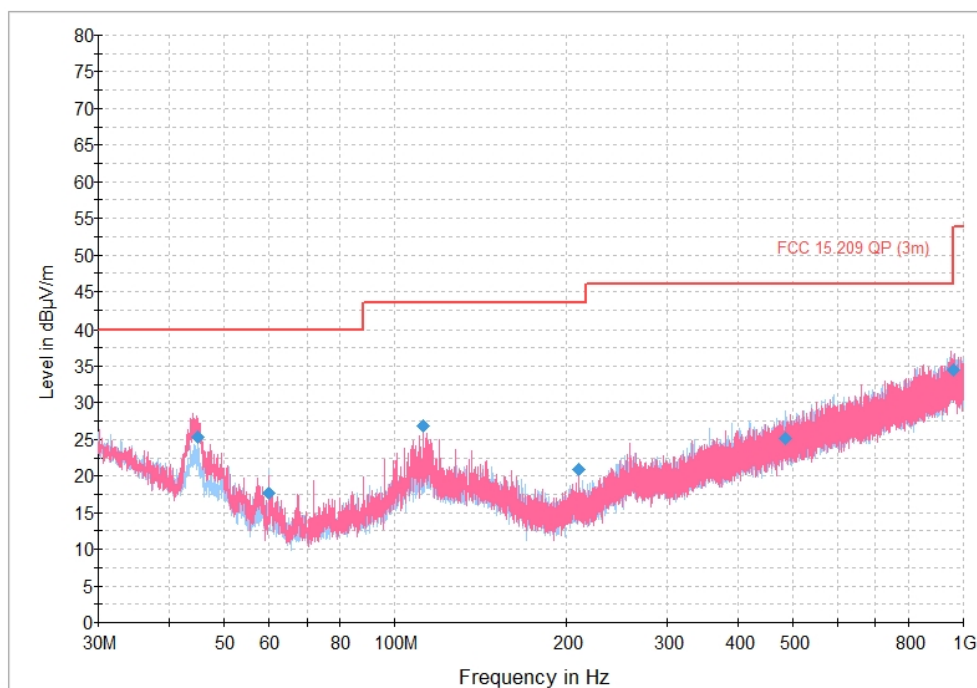


Figure 8.2-7: Radiated emissions, 2480 MHz, 30 – 1000 MHz

Table 8.2-7: Radiated emissions, 2480 MHz, 30 – 1000 MHz

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
45.048000	25.36	40.00	14.64	5000.0	120.000	98.0	V	12.0	18.4
60.013000	17.62	40.00	22.38	5000.0	120.000	171.0	H	23.0	12.7
112.062000	26.80	43.50	16.70	5000.0	120.000	402.0	V	270.0	18.9
209.999667	20.83	43.50	22.67	5000.0	120.000	200.0	V	56.0	18.2
485.795333	25.16	46.00	20.84	5000.0	120.000	240.0	H	272.0	26.9
960.516000	34.42	53.90	19.48	5000.0	120.000	171.0	H	129.0	34.7

Field strength (dBμV/m) = receiver/spectrum analyzer value (dBμV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBμV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Full Spectrum

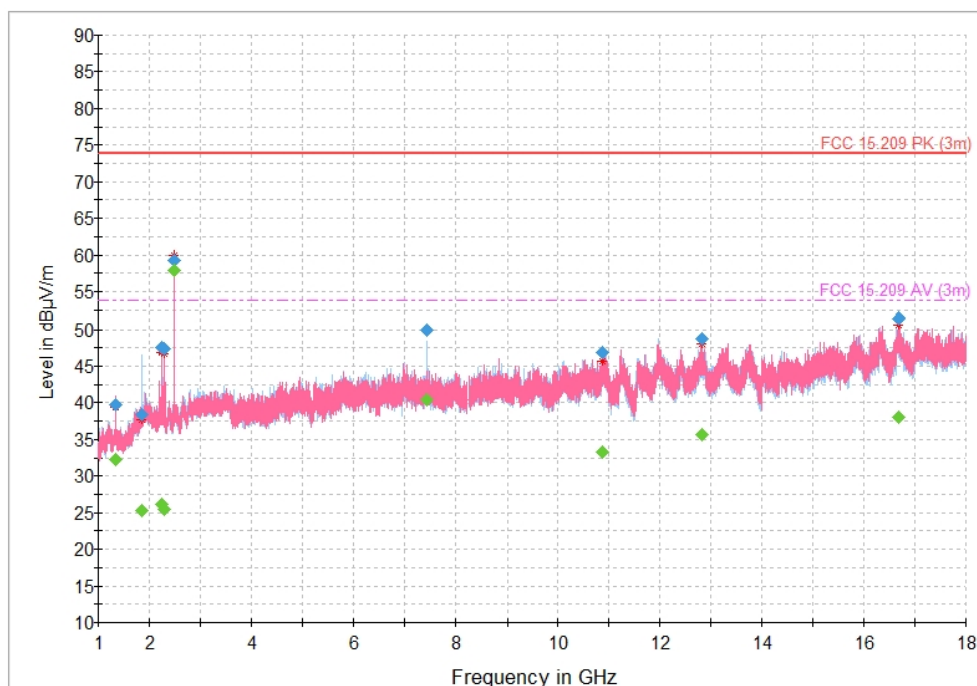


Figure 8.2-8: Radiated emissions, 2480 MHz, 1 – 18 GHz

Table 8.2-8: Radiated emissions, 2480 MHz, 1 – 18 GHz

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1350.033333	39.78	---	73.90	34.12	5000.0	1000.000	190.0	V	0.0	-14.4
1350.033333	---	32.23	53.90	21.67	5000.0	1000.000	190.0	V	0.0	-14.4
1854.533333	38.29	---	73.90	35.61	5000.0	1000.000	325.0	H	58.0	-11.3
1854.533333	---	25.25	53.90	28.65	5000.0	1000.000	325.0	H	58.0	-11.3
2256.133333	---	26.10	53.90	27.80	5000.0	1000.000	138.0	V	354.0	-10.5
2256.133333	47.53	---	73.90	26.37	5000.0	1000.000	138.0	V	354.0	-10.5
2303.900000	47.33	---	73.90	26.57	5000.0	1000.000	128.0	V	0.0	-10.5
2303.900000	---	25.47	53.90	28.43	5000.0	1000.000	128.0	V	0.0	-10.5
2479.966667	High channel fundamental									
2479.966667	High channel fundamental									
7439.600000	---	40.46	53.90	13.44	5000.0	1000.000	205.0	H	242.0	1.3
7439.600000	49.85	---	73.90	24.05	5000.0	1000.000	205.0	H	242.0	1.3
10864.400000	46.90	---	73.90	27.00	5000.0	1000.000	410.0	H	260.0	4.3
10864.400000	---	33.19	53.90	20.71	5000.0	1000.000	410.0	H	260.0	4.3
12818.266667	---	35.64	53.90	18.26	5000.0	1000.000	245.0	V	224.0	8.9
12818.266667	48.80	---	73.90	25.10	5000.0	1000.000	245.0	V	224.0	8.9
16693.133333	---	38.01	53.90	15.89	5000.0	1000.000	282.0	V	301.0	14.3
16693.133333	51.39	---	73.90	22.51	5000.0	1000.000	282.0	V	301.0	14.3

Field strength (dBμV/m) = receiver/spectrum analyzer value (dBμV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBμV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

A 2.4 GHz notch filter was used to prevent overloading.

Full Spectrum

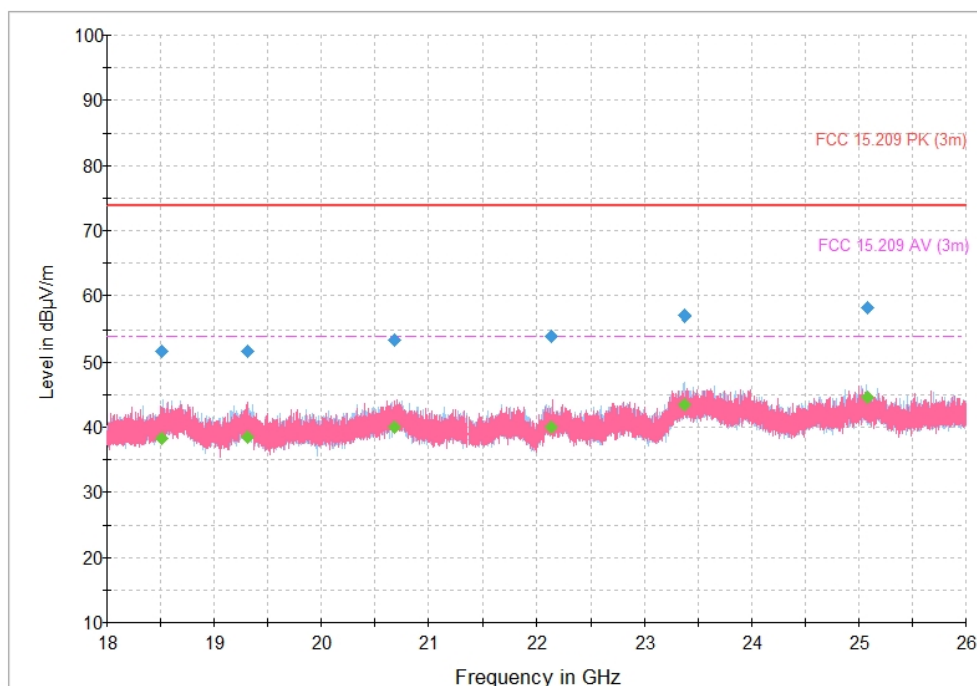


Figure 8.2-9: Radiated emissions, 2480 MHz, 18 – 26 GHz

Table 8.2-9: Radiated emissions, 2480 MHz, 18 – 26 GHz

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18515.000000	---	38.22	53.90	15.68	3000.0	1000.000	410.0	H	333.0	18.0
18515.000000	51.57	---	73.90	22.33	3000.0	1000.000	410.0	H	333.0	18.0
19306.866667	51.67	---	73.90	22.23	3000.0	1000.000	284.0	V	152.0	18.6
19306.866667	---	38.55	53.90	15.35	3000.0	1000.000	284.0	V	152.0	18.6
20687.133333	---	39.98	53.90	13.92	3000.0	1000.000	272.0	V	138.0	20.5
20687.133333	53.46	---	73.90	20.44	3000.0	1000.000	272.0	V	138.0	20.5
22137.533333	53.90	---	73.90	20.00	3000.0	1000.000	180.0	V	0.0	19.3
22137.533333	---	40.00	53.90	13.90	3000.0	1000.000	180.0	V	0.0	19.3
23370.866667	---	43.42	53.90	10.48	3000.0	1000.000	320.0	H	0.0	23.0
23370.866667	56.99	---	73.90	16.91	3000.0	1000.000	320.0	H	0.0	23.0
25078.066667	---	44.65	53.90	9.25	3000.0	1000.000	340.0	H	106.0	22.9
25078.066667	58.10	---	73.90	15.80	3000.0	1000.000	340.0	H	106.0	22.9

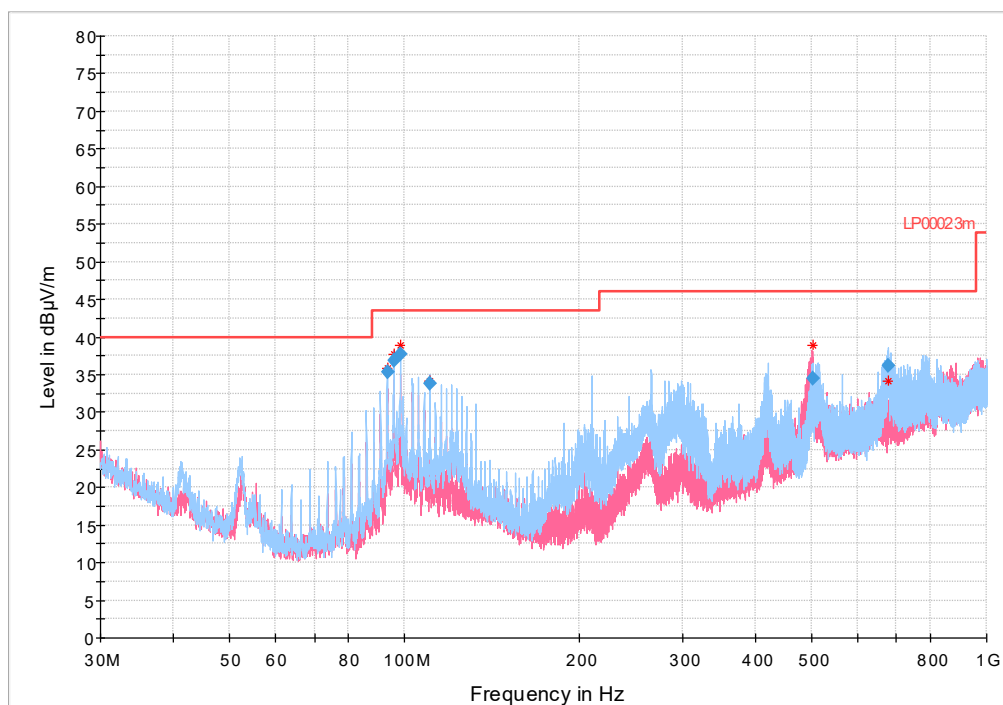
Field strength (dBμV/m) = receiver/spectrum analyzer value (dBμV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBμV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Full Spectrum

**Figure 8.2-10:** Radiated emissions, LEFT 24 MHz bandwidth, 30 – 1000 MHz**Table 8.2-3:** Radiated emissions, LEFT 24 MHz bandwidth, 30 – 1000 MHz

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
93.328667	35.37	43.50	8.13	5000.0	120.000	317.0	H	0.0	15.4
95.746000	36.84	43.50	6.66	5000.0	120.000	177.6	H	-1.0	15.9
98.251000	37.73	43.50	5.77	5000.0	120.000	190.7	H	0.0	16.4
110.530000	33.80	43.50	9.70	5000.0	120.000	238.0	H	0.0	18.0
501.891000	34.48	46.00	11.52	5000.0	120.000	119.8	V	63.0	26.3
677.958667	36.18	46.00	9.82	5000.0	120.000	114.7	H	355.0	29.5

Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Limits converted to dBµV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Notes:

Full Spectrum

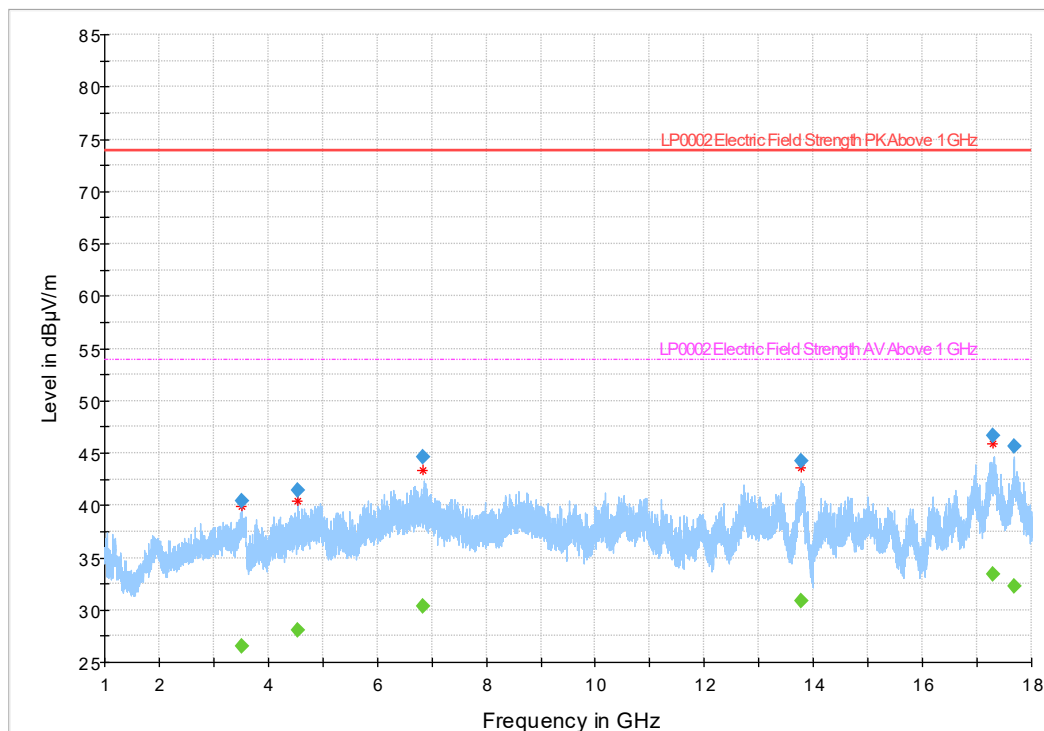


Figure 8.2-11: Radiated emissions, LEFT 24 MHz bandwidth, 1 – 18 GHz

Table 8.2-4: Radiated emissions, LEFT 24 MHz bandwidth, 1 - 18 GHz

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3513.150000	---	26.51	53.90	27.39	1000.0	1000.000	307.8	V	48.0	-6.9
3513.150000	40.37	---	73.90	33.53	1000.0	1000.000	307.8	V	48.0	-6.9
4534.000000	---	28.00	53.90	25.90	1000.0	1000.000	302.6	H	112.0	-3.0
4534.000000	41.49	---	73.90	32.41	1000.0	1000.000	302.6	H	112.0	-3.0
6846.450000	---	30.29	53.90	23.61	1000.0	1000.000	331.5	V	0.0	-0.4
6846.450000	44.65	---	73.90	29.25	1000.0	1000.000	331.5	V	0.0	-0.4
13770.350000	---	30.86	53.90	23.04	1000.0	1000.000	158.7	V	228.0	7.5
13770.350000	44.27	---	73.90	29.63	1000.0	1000.000	158.7	V	228.0	7.5
17299.900000	46.67	---	73.90	27.23	1000.0	1000.000	207.8	H	21.0	9.7
17299.900000	---	33.35	53.90	20.55	1000.0	1000.000	207.8	H	21.0	9.7
17693.600000	45.58	---	73.90	28.32	1000.0	1000.000	303.7	H	134.0	9.7
17693.600000	---	32.25	53.90	21.65	1000.0	1000.000	303.7	H	134.0	9.7

Notes:

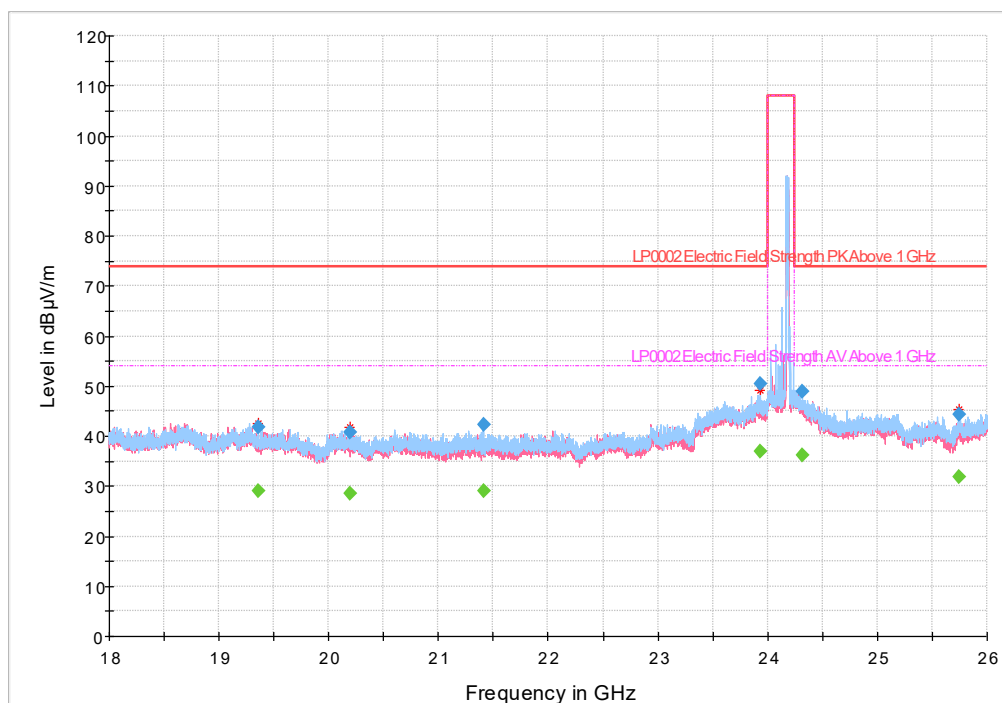
The marked row as low channel fundamental is the wanted frequency of the transmitter and is not evaluated against the limits.

Field strength (dBμV/m) = receiver/spectrum analyzer value (dBμV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Limits converted to dBμV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Full Spectrum

**Figure 8.2-12:** Radiated emissions, LEFT 24 MHz bandwidth, 18 - 26 GHz**Table 8.2-5:** Radiated emissions, LEFT 24 MHz bandwidth, 18 - 26 GHz

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
19361.100000	41.68	---	73.90	32.22	1000.0	1000.000	247.8	H	158.0	7.2
19361.100000	---	29.02	53.90	24.88	1000.0	1000.000	247.8	H	158.0	7.2
20193.900000	40.84	---	73.90	33.06	1000.0	1000.000	275.9	H	356.0	6.7
20193.900000	---	28.50	53.90	25.40	1000.0	1000.000	275.9	H	356.0	6.7
21409.100000	42.41	---	73.90	31.49	1000.0	1000.000	113.5	H	44.0	6.8
21409.100000	---	28.95	53.90	24.95	1000.0	1000.000	113.5	H	44.0	6.8
23929.500000	50.36	---	73.90	23.54	1000.0	1000.000	188.4	H	204.0	14.7
23929.500000	---	37.04	53.90	16.86	1000.0	1000.000	188.4	H	204.0	14.7
24311.500000	48.88	---	73.90	25.02	1000.0	1000.000	362.7	H	253.0	14.7
24311.500000	---	36.28	53.90	17.62	1000.0	1000.000	362.7	H	253.0	14.7
25741.900000	44.34	---	73.90	29.56	1000.0	1000.000	117.0	H	34.0	10.0
25741.900000	---	31.78	53.90	22.12	1000.0	1000.000	117.0	H	34.0	10.0

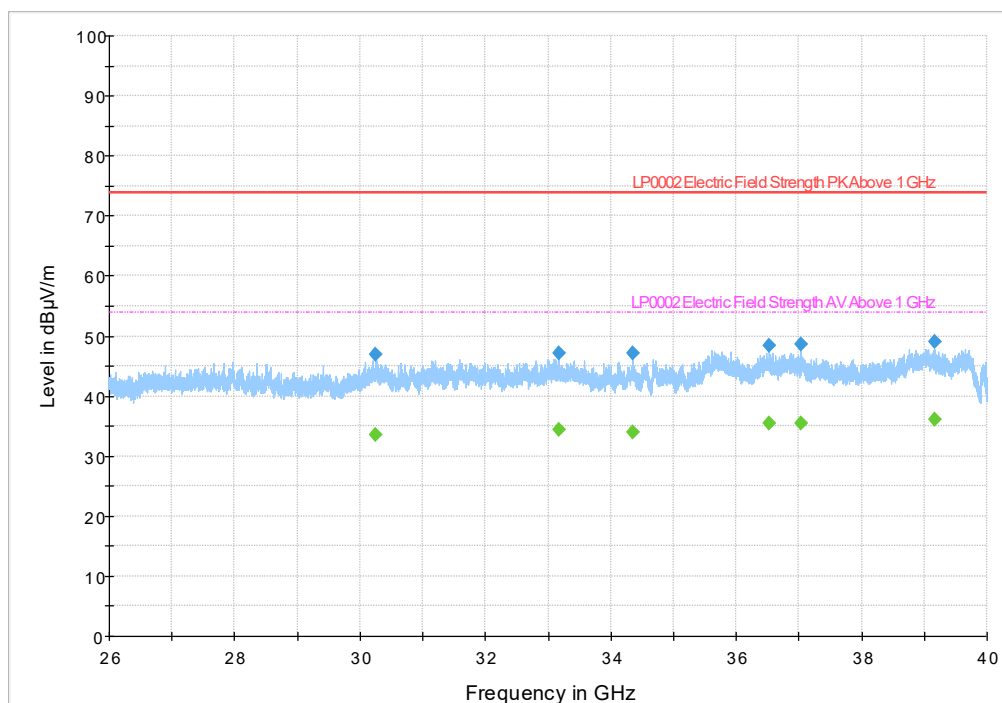
Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Limits converted to dBµV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Notes:

Full Spectrum

**Figure 8.2-13:** Radiated emissions, LEFT 24 MHz bandwidth, 26 - 40 GHz**Table 8.2-5:** Radiated emissions, LEFT 24 MHz bandwidth, 26 - 40 GHz

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
30239.825000	---	33.47	53.90	20.43	5000.0	1000.000	111.7	V	-10.0	10.5
30239.825000	46.93	---	73.90	26.97	5000.0	1000.000	111.7	V	-10.0	10.5
33168.925000	---	34.32	53.90	19.58	5000.0	1000.000	140.2	H	245.0	12.0
33168.925000	47.17	---	73.90	26.73	5000.0	1000.000	140.2	H	245.0	12.0
34348.050000	47.19	---	73.90	26.71	5000.0	1000.000	152.7	H	202.0	12.5
34348.050000	---	33.96	53.90	19.94	5000.0	1000.000	152.7	H	202.0	12.5
36527.650000	---	35.49	53.90	18.41	5000.0	1000.000	125.0	H	180.0	14.0
36527.650000	48.40	---	73.90	25.50	5000.0	1000.000	125.0	H	180.0	14.0
37029.275000	---	35.47	53.90	18.43	5000.0	1000.000	206.3	V	207.0	14.3
37029.275000	48.67	---	73.90	25.23	5000.0	1000.000	206.3	V	207.0	14.3
39168.625000	49.09	---	73.90	24.81	5000.0	1000.000	166.2	H	231.0	16.4
39168.625000	---	36.16	53.90	17.74	5000.0	1000.000	166.2	H	231.0	16.4

Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBµV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

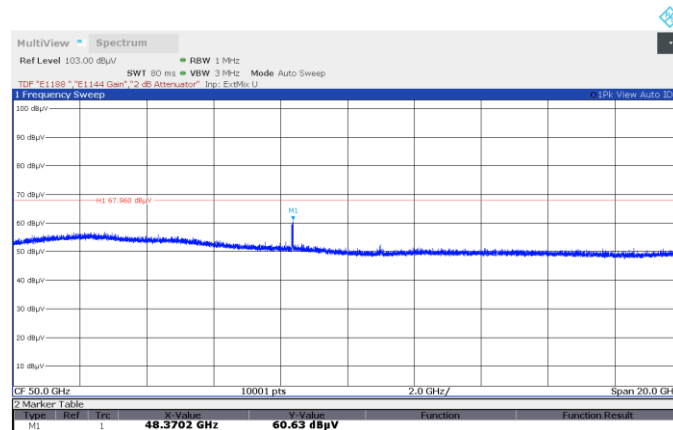


Figure 8.2-14: Radiated emissions, LEFT 24 MHz bandwidth, 40 – 60 GHz

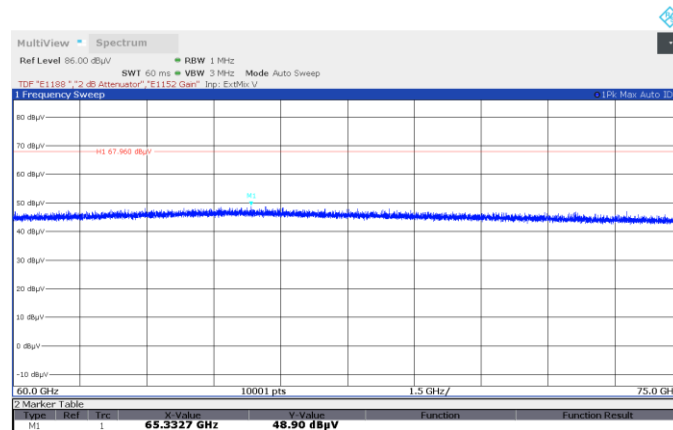


Figure 8.2-15: Radiated emissions, LEFT 24 MHz bandwidth, 60 – 75 GHz

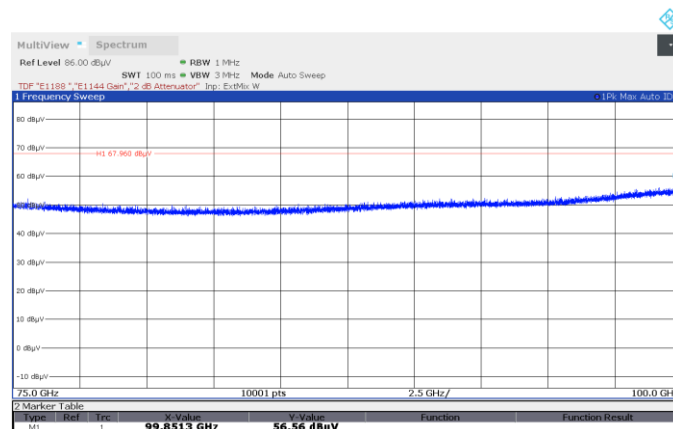
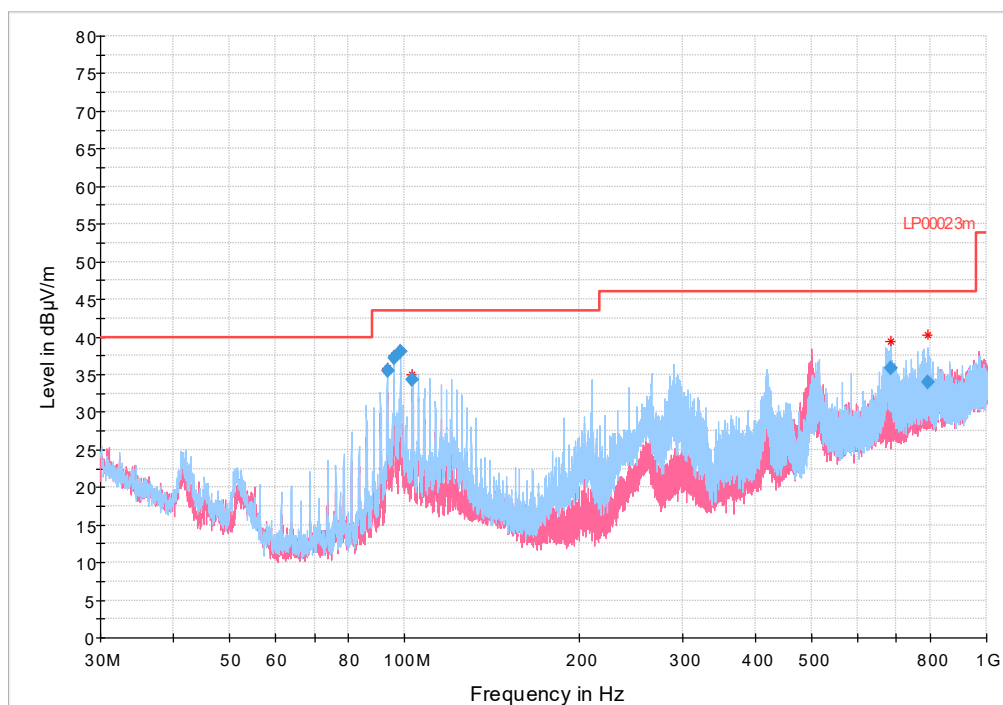


Figure 8.2-16: Radiated emissions, LEFT 24 MHz bandwidth, 75 – 100 GHz

Full Spectrum

**Figure 8.2-17: Radiated emissions, MID 48 MHz bandwidth, 30 – 1000 MHz****Table 8.2-3: Radiated emissions, MID 48 MHz bandwidth, 30 – 1000 MHz**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
93.328667	35.52	43.50	7.98	5000.0	120.000	310.6	H	357.0	15.4
95.786000	37.13	43.50	6.37	5000.0	120.000	180.4	H	0.0	15.9
98.235667	38.00	43.50	5.50	5000.0	120.000	191.3	H	-1.0	16.4
103.150333	34.27	43.50	9.23	5000.0	120.000	194.6	H	0.0	17.3
683.923333	35.89	46.00	10.11	5000.0	120.000	105.7	H	0.0	29.5
791.326333	33.99	46.00	12.01	5000.0	120.000	98.0	H	15.0	31.4

Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBµV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Full Spectrum

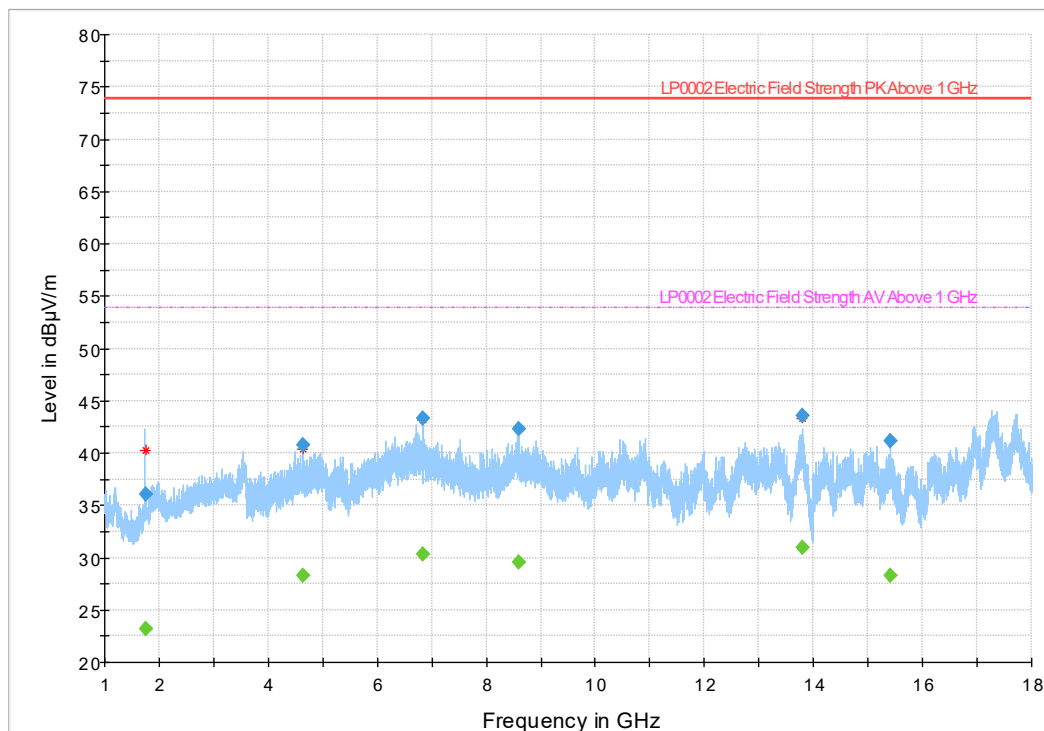


Figure 8.2-18: Radiated emissions, MID 48 MHz bandwidth, 1 – 18 GHz

Table 8.2-4: Radiated emissions, MID 48 MHz bandwidth, 1 - 18 GHz

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1747.750000	---	23.20	53.90	30.70	1000.0	1000.000	124.5	V	252.0	-13.0
1747.750000	36.08	---	73.90	37.82	1000.0	1000.000	124.5	V	252.0	-13.0
4632.050000	40.74	---	73.90	33.16	1000.0	1000.000	166.0	H	138.0	-2.9
4632.050000	---	28.24	53.90	25.66	1000.0	1000.000	166.0	H	138.0	-2.9
6847.950000	43.31	---	73.90	30.59	1000.0	1000.000	365.3	V	160.0	-0.4
6847.950000	---	30.26	53.90	23.64	1000.0	1000.000	365.3	V	160.0	-0.4
8591.700000	42.35	---	73.90	31.55	1000.0	1000.000	315.8	V	0.0	0.3
8591.700000	---	29.60	53.90	24.30	1000.0	1000.000	315.8	V	0.0	0.3
13795.650000	---	30.93	53.90	22.97	1000.0	1000.000	401.0	H	334.0	7.5
13795.650000	43.61	---	73.90	30.29	1000.0	1000.000	401.0	H	334.0	7.5
15404.300000	41.16	---	73.90	32.74	1000.0	1000.000	235.3	H	44.0	6.3
15404.300000	---	28.25	53.90	25.65	1000.0	1000.000	235.3	H	44.0	6.3

Notes:

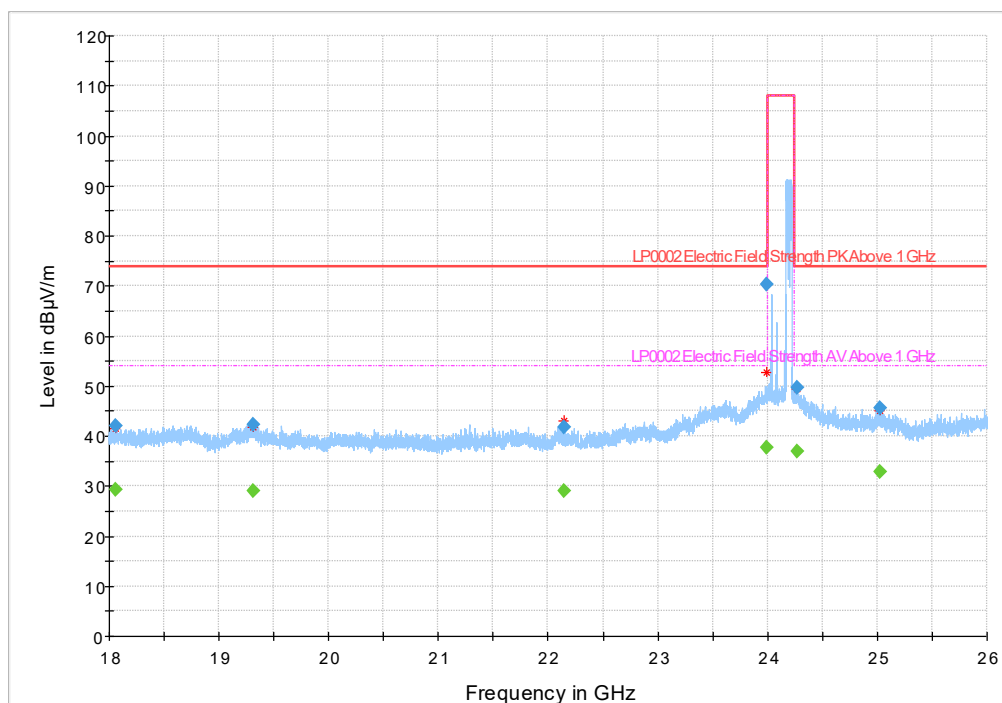
The marked row as low channel fundamental is the wanted frequency of the transmitter and is not evaluated against the limits.

Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Limits converted to dBµV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Full Spectrum

**Figure 8.2-19:** Radiated emissions, MID 48 MHz bandwidth, 18 - 26 GHz**Table 8.2-5:** Radiated emissions, MID 48 MHz bandwidth, 18 - 26 GHz

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
18059.000000	42.05	---	73.90	31.85	1000.0	1000.000	111.3	H	9.0	6.2
18059.000000	---	29.40	53.90	24.50	1000.0	1000.000	111.3	H	9.0	6.2
19311.800000	---	29.01	53.90	24.89	1000.0	1000.000	288.6	V	16.0	7.1
19311.800000	42.34	---	73.90	31.56	1000.0	1000.000	288.6	V	16.0	7.1
22149.400000	---	29.14	53.90	24.76	1000.0	1000.000	287.9	V	126.0	7.3
22149.400000	41.90	---	73.90	32.00	1000.0	1000.000	287.9	V	126.0	7.3
23995.000000	---	37.79	53.90	16.11	1000.0	1000.000	185.0	H	11.0	15.8
23995.000000	70.35	---	73.90	3.55	1000.0	1000.000	185.0	H	11.0	15.8
24268.600000	---	36.98	53.90	16.92	1000.0	1000.000	325.0	V	41.0	15.4
24268.600000	49.60	---	73.90	24.30	1000.0	1000.000	325.0	V	41.0	15.4
25029.800000	45.57	---	73.90	28.33	1000.0	1000.000	175.0	V	162.0	11.0
25029.800000	---	32.90	53.90	21.00	1000.0	1000.000	175.0	V	162.0	11.0

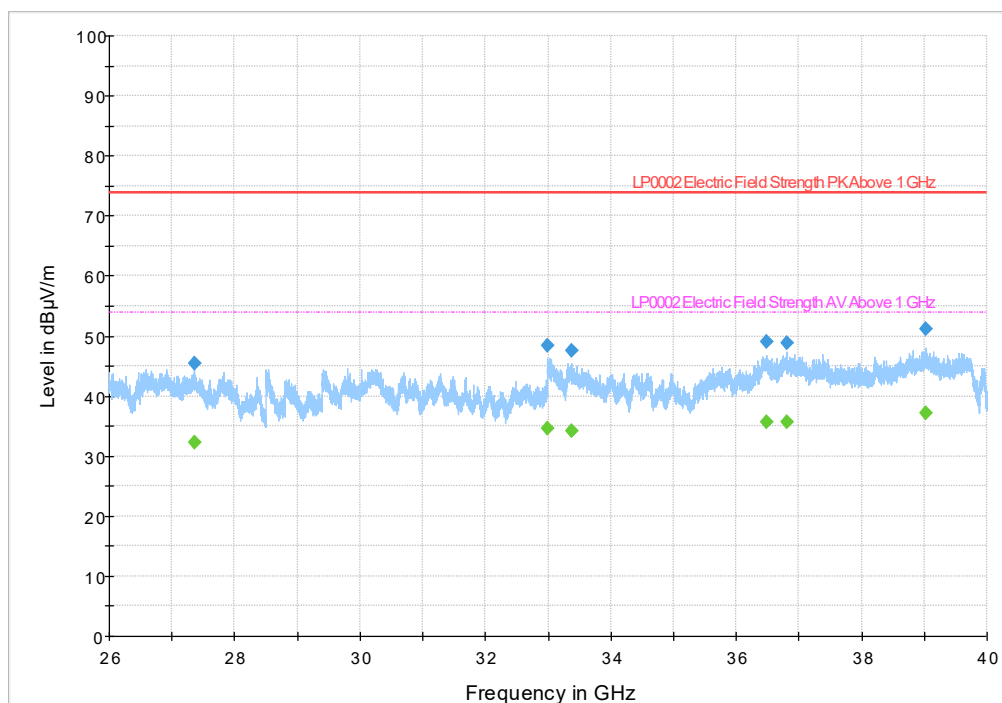
Field strength (dBμV/m) = receiver/spectrum analyzer value (dBμV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBμV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Full Spectrum

**Figure 8.2-20:** Radiated emissions, MID 48 MHz bandwidth, 26 - 40 GHz**Table 8.2-5:** Radiated emissions, MID 48 MHz bandwidth, 26 - 40 GHz

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
27352.975000	45.44	---	73.90	28.46	5000.0	1000.000	208.9	V	290.0	7.6
27352.975000	---	32.19	53.90	21.71	5000.0	1000.000	208.9	V	290.0	7.6
32991.875000	48.34	---	73.90	25.56	5000.0	1000.000	98.0	H	10.0	12.2
32991.875000	---	34.53	53.90	19.37	5000.0	1000.000	98.0	H	10.0	12.2
33368.750000	47.64	---	73.90	26.26	5000.0	1000.000	164.5	H	188.0	11.6
33368.750000	---	34.26	53.90	19.64	5000.0	1000.000	164.5	H	188.0	11.6
36482.325000	---	35.59	53.90	18.31	5000.0	1000.000	163.0	H	-10.0	14.0
36482.325000	48.94	---	73.90	24.96	5000.0	1000.000	163.0	H	-10.0	14.0
36802.400000	48.77	---	73.90	25.13	5000.0	1000.000	212.5	V	327.0	14.4
36802.400000	---	35.57	53.90	18.33	5000.0	1000.000	212.5	V	327.0	14.4
39019.650000	---	37.09	53.90	16.81	5000.0	1000.000	175.0	H	4.0	16.3
39019.650000	51.11	---	73.90	22.79	5000.0	1000.000	175.0	H	4.0	16.3

Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBµV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Harmonic and spurious emissions

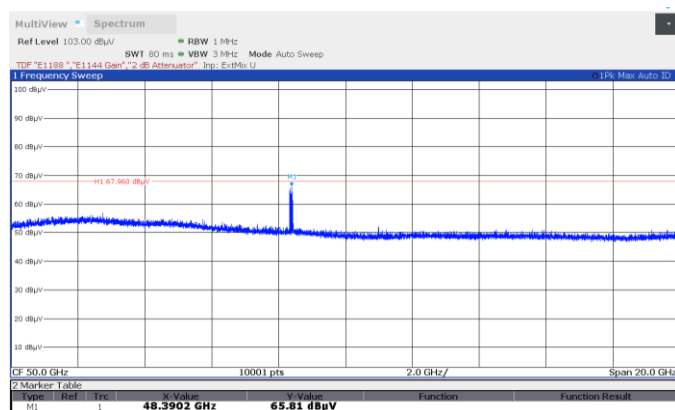


Figure 8.2-21: Radiated emissions, MID 48 MHz bandwidth, 40 – 60 GHz

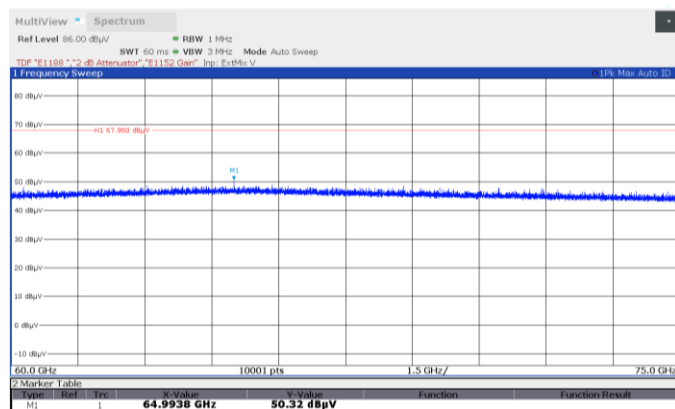


Figure 8.2-22: Radiated emissions, MID 48 MHz bandwidth, 60 – 75 GHz

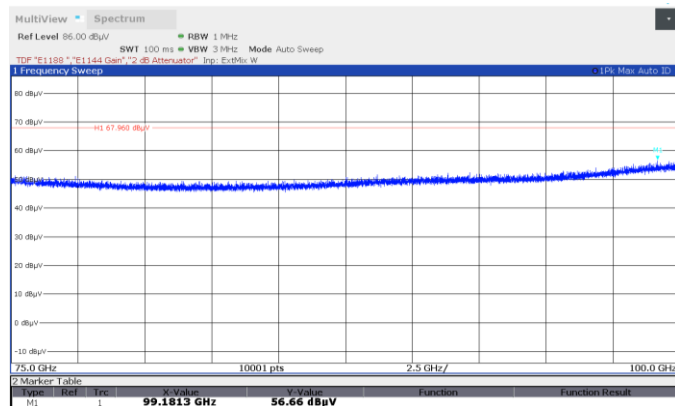


Figure 8.2-23: Radiated emissions, MID 48 MHz bandwidth, 75 – 100 GHz

Full Spectrum

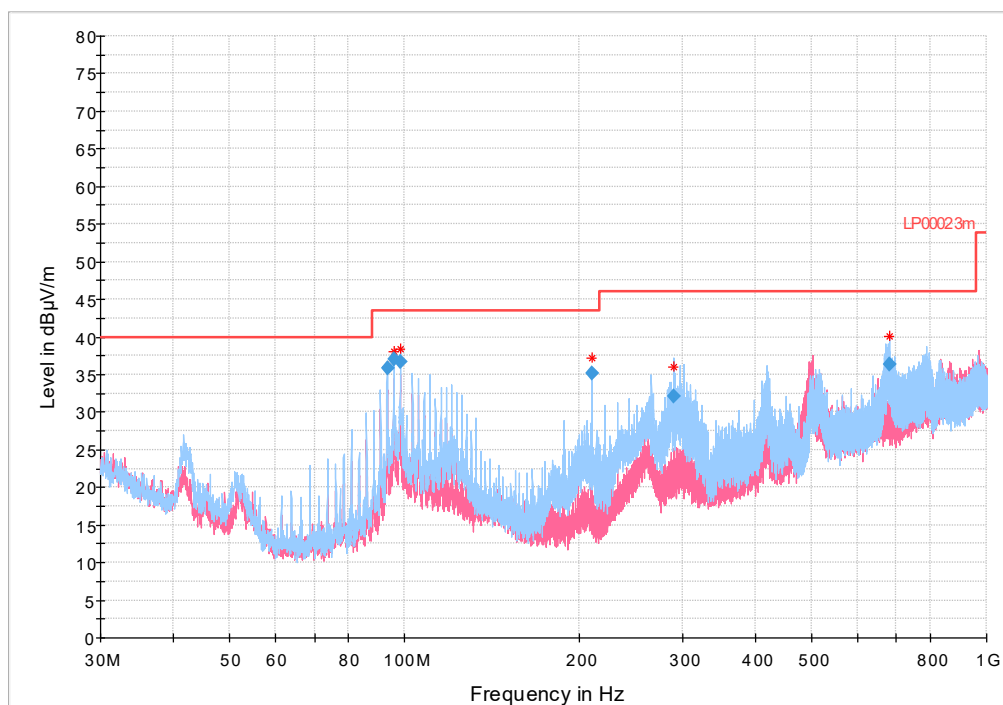


Figure 8.2-24: Radiated emissions, RIGHT 24 MHz bandwidth, 30 – 1000 MHz

Table 8.2-3: Radiated emissions, RIGHT 24 MHz bandwidth, 30 – 1000 MHz

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
93.328667	35.80	43.50	7.70	5000.0	120.000	170.2	H	353.0	15.4
95.778333	37.03	43.50	6.47	5000.0	120.000	183.6	H	0.0	15.9
98.211000	36.64	43.50	6.86	5000.0	120.000	176.3	H	15.0	16.4
210.109000	35.23	43.50	8.27	5000.0	120.000	139.8	H	238.0	16.3
289.658333	32.14	46.00	13.86	5000.0	120.000	106.7	H	255.0	20.6
681.630333	36.32	46.00	9.68	5000.0	120.000	112.3	H	0.0	29.5

Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Limits converted to dBµV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Notes:

Full Spectrum

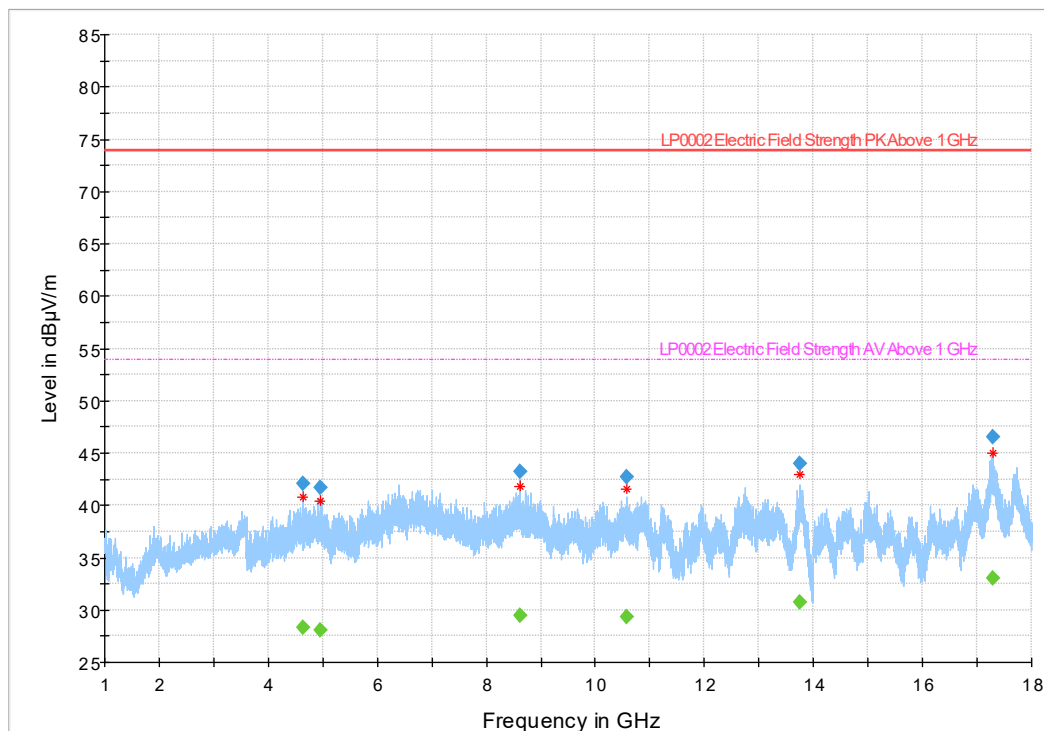


Figure 8.2-25: Radiated emissions, RIGHT 24 MHz bandwidth, 1 – 18 GHz

Table 8.2-4: Radiated emissions, RIGHT 24 MHz bandwidth, 1 - 18 GHz

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4630.050000	---	28.34	53.90	25.56	15000.0	1000.000	227.2	V	28.0	-2.9
4630.050000	42.07	---	73.90	31.83	15000.0	1000.000	227.2	V	28.0	-2.9
4967.300000	---	28.09	53.90	25.81	15000.0	1000.000	241.2	H	50.0	-3.3
4967.300000	41.69	---	73.90	32.21	15000.0	1000.000	241.2	H	50.0	-3.3
8623.450000	43.21	---	73.90	30.69	15000.0	1000.000	170.8	H	28.0	0.3
8623.450000	---	29.44	53.90	24.46	15000.0	1000.000	170.8	H	28.0	0.3
10567.400000	---	29.31	53.90	24.59	15000.0	1000.000	168.9	H	130.0	2.6
10567.400000	42.68	---	73.90	31.22	15000.0	1000.000	168.9	H	130.0	2.6
13755.650000	---	30.72	53.90	23.18	15000.0	1000.000	383.7	V	290.0	7.4
13755.650000	43.98	---	73.90	29.92	15000.0	1000.000	383.7	V	290.0	7.4
17289.000000	46.56	---	73.90	27.34	15000.0	1000.000	243.0	H	243.0	9.8
17289.000000	---	33.07	53.90	20.83	15000.0	1000.000	243.0	H	243.0	9.8

Notes:

The marked row as low channel fundamental is the wanted frequency of the transmitter and is not evaluated against the limits.

Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Limits converted to dBµV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Full Spectrum

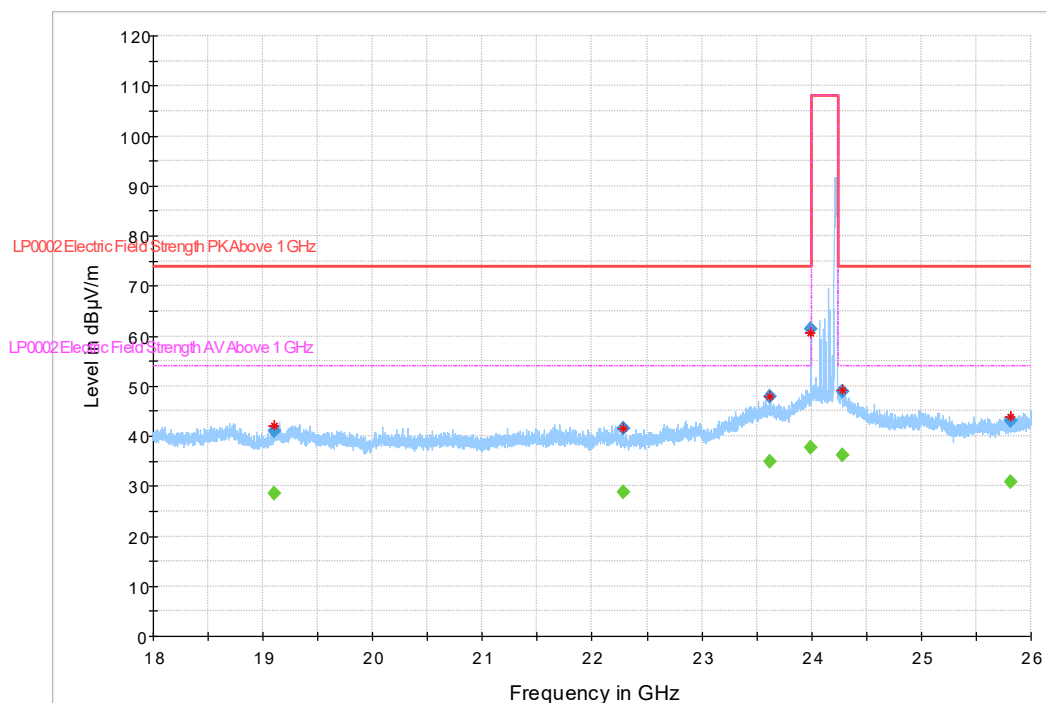


Figure 8.2-26: Radiated emissions, RIGHT 24 MHz bandwidth, 18 - 26 GHz

Table 8.2-5: Radiated emissions, RIGHT 24 MHz bandwidth, 18 - 26 GHz

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
19101.800000	---	28.65	53.90	25.25	1000.0	1000.000	203.0	H	298.0	6.7
19101.800000	41.03	---	73.90	32.87	1000.0	1000.000	203.0	H	298.0	6.7
22279.800000	---	28.85	53.90	25.05	1000.0	1000.000	114.5	H	196.0	7.2
22279.800000	41.46	---	73.90	32.44	1000.0	1000.000	114.5	H	196.0	7.2
23619.400000	---	34.91	53.90	18.99	1000.0	1000.000	186.1	H	183.0	12.9
23619.400000	47.82	---	73.90	26.08	1000.0	1000.000	186.1	H	183.0	12.9
23996.600000	61.41	---	73.90	12.49	1000.0	1000.000	107.0	H	195.0	15.8
23996.600000	---	37.72	53.90	16.18	1000.0	1000.000	107.0	H	195.0	15.8
24281.800000	48.96	---	73.90	24.94	1000.0	1000.000	300.0	H	218.0	15.2
24281.800000	---	36.20	53.90	17.70	1000.0	1000.000	300.0	H	218.0	15.2
25819.800000	43.00	---	73.90	30.90	1000.0	1000.000	301.6	H	279.0	10.2
25819.800000	---	30.88	53.90	23.02	1000.0	1000.000	301.6	H	279.0	10.2

Field strength (dBμV/m) = receiver/spectrum analyzer value (dBμV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Notes:

Limits converted to dBμV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Full Spectrum

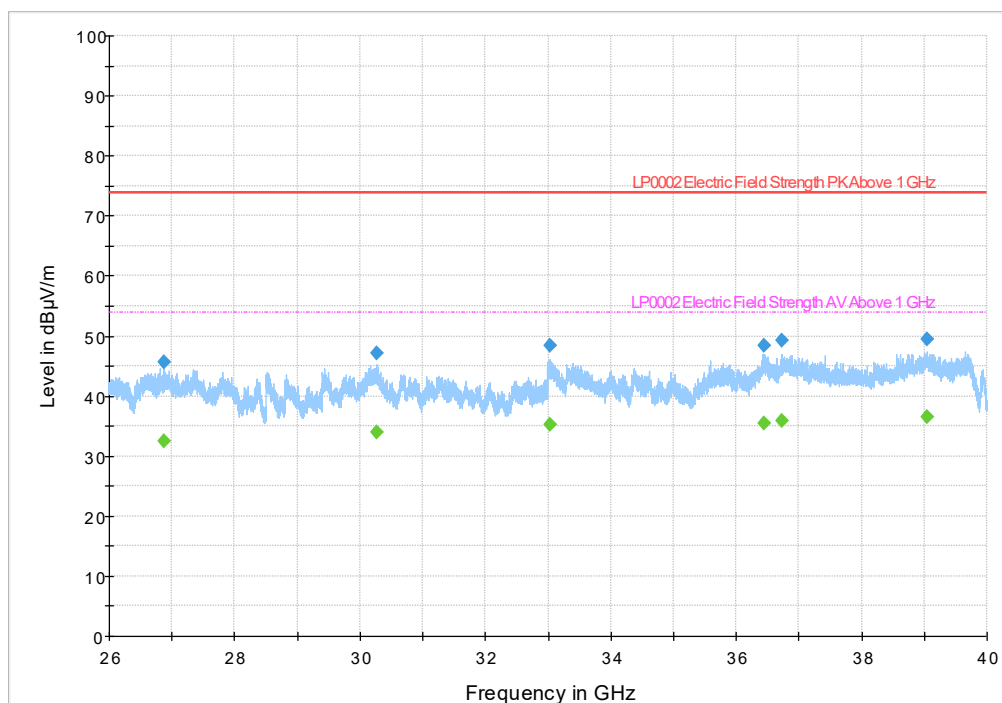


Figure 8.2-27: Radiated emissions, RIGHT 24 MHz bandwidth, 26 - 40 GHz

Table 8.2-5: Radiated emissions, RIGHT 24 MHz bandwidth, 26 - 40 GHz

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
26868.450000	---	32.47	53.90	21.43	5000.0	1000.000	225.0	H	205.0	6.9
26868.450000	45.56	---	73.90	28.34	5000.0	1000.000	225.0	H	205.0	6.9
30267.425000	---	33.88	53.90	20.02	5000.0	1000.000	160.3	V	57.0	10.6
30267.425000	47.04	---	73.90	26.86	5000.0	1000.000	160.3	V	57.0	10.6
33026.150000	48.43	---	73.90	25.47	5000.0	1000.000	173.4	H	88.0	12.2
33026.150000	---	35.24	53.90	18.66	5000.0	1000.000	173.4	H	88.0	12.2
36445.025000	48.44	---	73.90	25.46	5000.0	1000.000	149.1	H	249.0	13.9
36445.025000	---	35.45	53.90	18.45	5000.0	1000.000	149.1	H	249.0	13.9
36730.900000	49.17	---	73.90	24.73	5000.0	1000.000	175.0	H	3.0	14.3
36730.900000	---	35.81	53.90	18.09	5000.0	1000.000	175.0	H	3.0	14.3
39048.225000	49.55	---	73.90	24.35	5000.0	1000.000	142.3	V	40.0	16.4
39048.225000	---	36.55	53.90	17.35	5000.0	1000.000	142.3	V	40.0	16.4

Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

Correction factors = antenna factor ACF (dB) + cable loss (dB)

Limits converted to dBµV/m and an inverse proportionality factor of 20 dB per decade has been used to normalize the specification limit to a measurement distance of 3 meters to determine compliance.

Notes:

Harmonic and spurious emissions

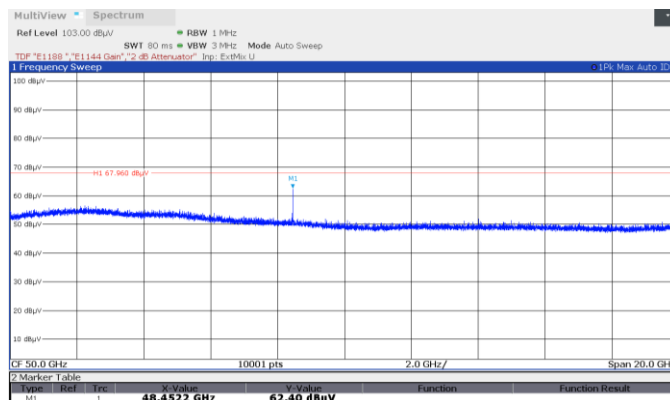


Figure 8.2-28: Radiated emissions, RIGHT 24 MHz bandwidth, 40 – 60 GHz

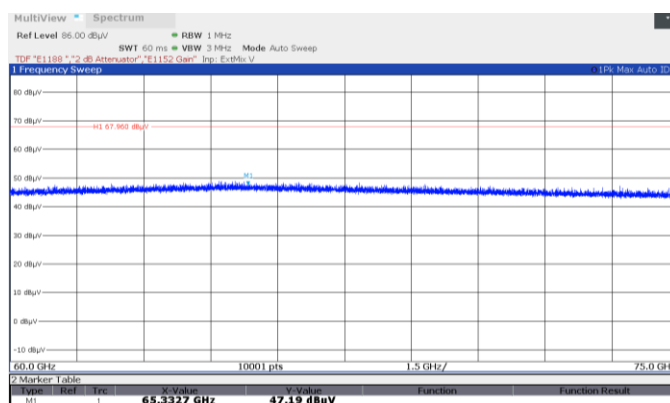


Figure 8.2-29: Radiated emissions, RIGHT 24 MHz bandwidth, 60 – 75 GHz

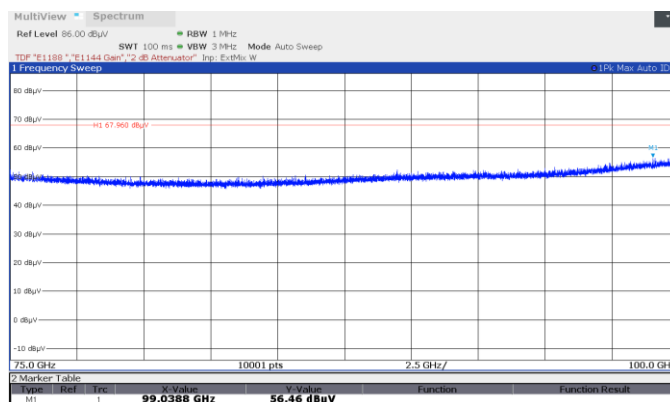


Figure 8.2-30: Radiated emissions, RIGHT 24 MHz bandwidth, 75 – 100 GHz

Section 9 Block diagrams of test set-ups

9.1 Radiated emissions set-up

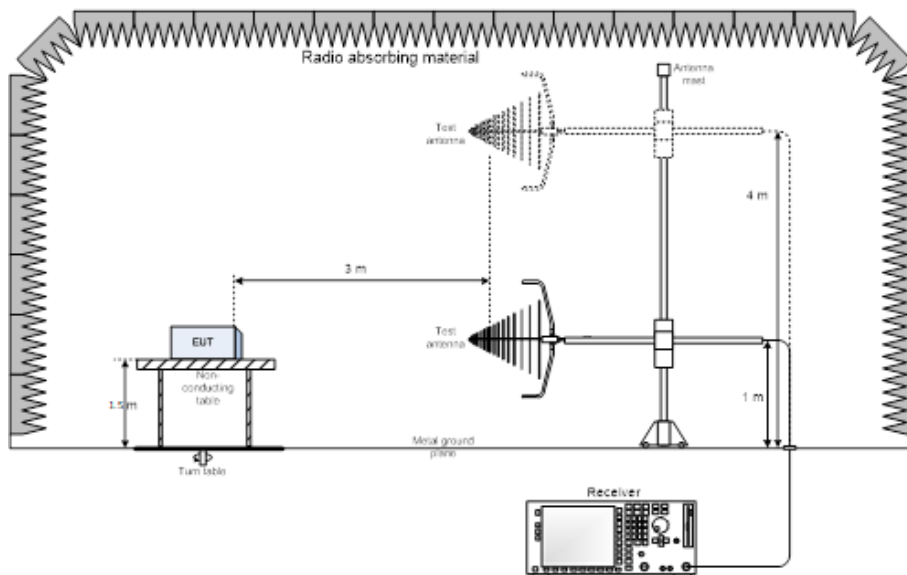


Figure 9.1-1 30 MHz - 1000 MHz Setup

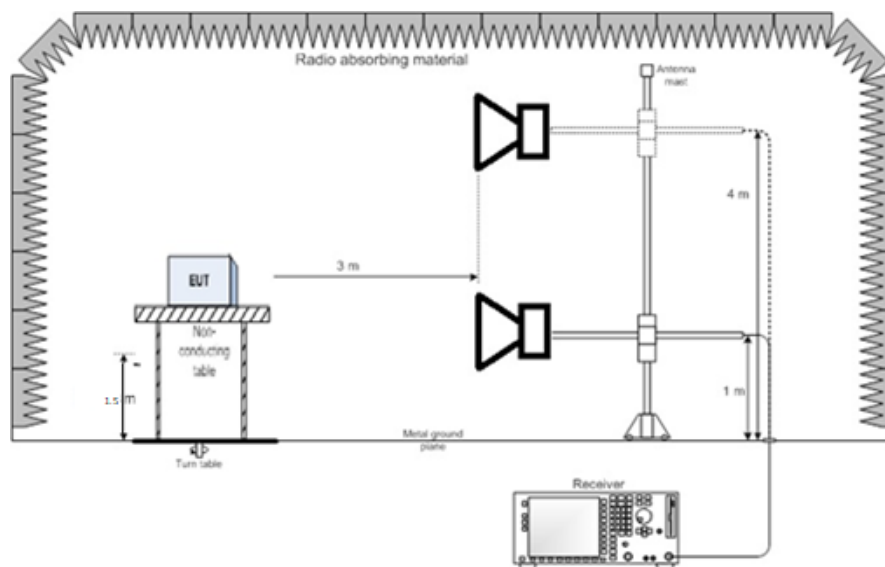


Figure 9.1-2 1 GHz - 26 GHz Setup

Thank you for choosing

