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RADIO TEST REPORT

REPORT NUMBER: M2111032-3

**TEST STANDARD: FCC PART 15 SUBPART C
SECTION 15.247**

ISED RSS-247 SECTION 5.0

**CLIENT: AUTOMATIC TECHNOLOGY
AUSTRALIA PTY.LTD.**

**DEVICE: WIRELESS BASE STATION
MODULE**

MODEL: GDL2V2

FCC ID: X4K-GDWLABS01

IC: 8880A-GDWLABS01

DATE OF ISSUE: 17 MARCH 2022

EMC Technologies Pty Ltd reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. EMC Technologies Pty Ltd shall have no liability for any deductions, inferences or generalisations drawn by the client or others from EMC Technologies Pty Ltd issued reports. This report shall not be used to claim, constitute or imply product endorsement by EMC Technologies Pty Ltd.



Accredited for compliance with ISO/IEC 17025 – Testing. The results of tests, calibration and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

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REVISION TABLE

Version	Sec/Para Changed	Change Made	Date
1		Initial issue of document	17/03/2022



Accreditation No.5292

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TEST CERTIFICATE

Device: Wireless Base Station Module
Model Number: GDL2V2
Manufacturer: Countermastr Technology (Dalian) Co., Ltd.
Address: Building 7#, Zhongqing Industrial Park, Dalian Area of China Polit Free Trade Zone, Liaoning Province, China, 116600

Radio: 2.4 GHz RF transceiver
FCC ID: X4K-GDWLABS01
IC: 8880A-GDWLABS01

Tested for: Automatic Technology Australia Pty.Ltd.
Address: 6-8 Fiveways Boulevard, Keysborough, Victoria 3173, Australia
Phone Number: +61 3 9791 0275
Contact: Nikolai Klepikov
Email: Nikolai.Klepikov@ata-aust.com.au

Standard: FCC Part 15, Subpart C, Section 15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

ISED RSS-247, Issue 2, Section 5 Standard specifications for frequency hopping systems and digital transmission systems operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz

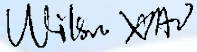
Result: The Wireless Base Station Module complied with the applicable requirements of the above standards. Refer to Report M2111032-3 for full details.

Test Date: 25 January 2022 - 17 February 2022

Issue Date: 17 March 2022

Test Engineer: 
Ian Paul Ng

Attestation: *I hereby certify that the device(s) described herein were tested as described in this report and that the data included is that which was obtained during such testing.*

Authorised Signatory: 
Wilson Xiao
Lead Engineer - Radio

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RADIO TEST REPORT

1 TEST SUMMARY

Sec.	Description	FCC	ISED	Result(s)
6.1	Antenna Requirement	§15.203	RSS-Gen 6.8	Complied
6.2	Restricted Bands of Operation	§15.205	RSS-Gen 8.10	Complied
6.3	Conducted Limits	§15.207	RSS-Gen 8.8	Not Applicable
6.4	Radiated emission limits; general requirements	§15.209	RSS-Gen 8.9	Complied
6.5	20 dB Bandwidth	§15.247(a)(1)	RSS-247 5.1(a)	Complied
6.6	Carrier Frequency Separation	§15.247(a)(1)	RSS-247 5.1(b)	Complied
6.7	Number of Hopping Frequencies	§15.247(a)(1)	RSS-247 5.1(d)	Complied
6.8	Average Time of Occupancy	§15.247(a)(1)	RSS-247 5.1(d)	Complied
6.9	Peak Output Power	§15.247(b)	RSS-247 5.4	Complied
6.10	Out-of-Band/Spurious Emissions	§15.247(d)	RSS-247 5.5	Complied
6.11	Band-Edge Emission Measurements	§15.247(d)	RSS-247 5.5	Complied
6.12	Maximum Permissible Exposure	§15.247(i)	RSS-102	Complied
6.13	Occupied Bandwidth – 99% power	§15.215	RSS-Gen 6.7	Complied

2 TEST FACILITY

2.1 General

EMC Technologies Pty Ltd is accredited by the FCC as a test laboratory able to perform compliance testing for the public. EMC Technologies Pty Ltd has also been designated as a Conformity Assessment Body (CAB) by Australian Communications and Media Authority (ACMA) under the APECTEL MRA and is designated to perform compliance testing on equipment subject to Declaration of Conformity (DoC) and Certification under Parts 15 and 18 of the FCC Commission's rules – **Registration Number 494713 & Designation number AU0001.**

EMC Technologies Pty Ltd is also an ISED Canada recognized testing laboratory – **ISED company number: 3569B and CAB identifier number: AU0001.**

2.2 Test Laboratory/Accreditations

NATA is the Australian National laboratory accreditation body and has accredited EMC Technologies to operate to the IEC/ISO17025 requirements. A major requirement for accreditation is the assessment of the company and its personnel as being technically competent in testing to the standards. This requires fully documented test procedures, continued calibration of all equipment to the National Standard at the National Measurements Institute (NMI) and an internal quality system similar to ISO 9002. NATA has mutual recognition agreements with the National Voluntary Laboratory Accreditation Program (NVLAP) and the American Association for Laboratory Accreditation (A²LA).

All testing in this report has been conducted in accordance with EMC Technologies' scope of NATA accreditation to ISO 17025 for both testing and calibration and ISO 17020 for Inspection – **Accreditation Number 5292.**

The current full scope of accreditation can be found on the NATA website: www.nata.com.au

3 TEST EQUIPMENT CALIBRATION

Measurement instrumentation and transducers were calibrated in accordance with the applicable standards by an independent NATA registered laboratory such as Keysight Technologies (Australia) Pty Ltd or the National Measurement Institute (NMI) or in-house. All equipment calibration is traceable to Australian national standards at the National Measurements Institute.

Equipment Type	Make/Model/Serial Number	Last Cal. dd/mm/yyyy	Due Date dd/mm/yyyy	Cal. Interval
Chamber	Frankonia SAC-3-2 (R-144)	10/08/2020	10/08/2023	3 Year ^{*1}
EMI Receiver	R&S ESW26 Sn: 101306 (R-143)	21/06/2021	21/06/2022	1 Year ^{*2}
Antennas	EMCO 6502 Active Loop Antenna Sn: 2021 (A-310)	31/08/2020	31/08/2022	2 Year ^{*2}
	SUNOL JB1 Sn: A052518 (A-434)	13/11/2020	13/11/2022	2 Year ^{*2}
	EMCO 3115 Horn Antenna Sn: 9501-4398 (A-406)	10/01/2022	10/01/2025	3 Year ^{*1}
	ETS-Lindgren 3160-09 Horn Antenna Sn:66032 (A307)	30/04/2021	30/04/2024	3 Year ^{*1}
Cables ^{*3}	Huber & Suhner Sucoflex 104A Sn: 503055 (C-457)	26/11/2021	26/11/2022	1 Year ^{*1}
	Huber & Suhner Sucoflex 104A Sn: 800448 (C-520)	26/11/2021	26/11/2022	1 Year ^{*1}
	Huber & Suhner Sucoflex 104A Sn: 27319 (C-273)	29/06/2021	29/06/2022	1 Year ^{*1}

Note *1. Internal NATA calibration.

Note *2. External NATA / A2LA calibration.

Note *3. Cables are verified before measurements are taken.

4 MEASUREMENT UNCERTAINTY

EMC Technologies has evaluated the equipment and the methods used to perform the emissions testing. The estimated measurement uncertainties for emissions tests shown within this report are as follows:

Radiated Emissions:	9 kHz to 30 MHz	±4.1 dB
	30 MHz to 300 MHz	±5.1 dB
	300 MHz to 1000 MHz	±4.7 dB
	1 GHz to 18 GHz	±4.6 dB
	18 GHz to 40 GHz	±4.6 dB
Peak Output Power:		±1.5 dB

The above expanded uncertainties are based on standard uncertainties multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Application of measurement uncertainty for this report:

The referenced uncertainty standard specifies that determination of compliance shall be based on measurements without taking into account measurement instrumentation uncertainty. However, the measurement uncertainty shall appear in the test report.

5 Device Details

(Information supplied by the Client)

5.1 EUT (Transmitter) Details

Radio:	2.4 GHz RF transceiver
Frequency band:	2400 – 2483.5 MHz
Number of Channels:	16
Operating Frequency:	Low Channel: 2405 MHz Mid Channel: 2440 MHz High Channel: 2480 MHz
Modulation:	GFSK
Antenna:	$\frac{1}{4}$ wavelength monopole, soldered to PCB
Antenna gain:	-1.0 dBi

5.2 EUT (Host) Details

Test Sample:	Wireless Base Station Module
Model Number:	GDL2V2
Supply Rating:	5VDC, 30mA

5.3 Test Configuration

Testing was performed with the EUT's Transceiver set to transmit continuously at Low Channel (2405 MHz), Mid Channel (2440 MHz) and High Channel (2480 MHz) or normal Hopping On mode.

5.4 Modifications

No modifications were required to achieve compliance.

5.5 Deviations from the Standard

No deviation from the standard.



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6 RESULTS

6.1 §15.203/ RSS-Gen 6.8 Antenna Requirement

The test sample's radio module incorporates a $\frac{1}{4}$ wavelength monopole which is soldered to PCB and cannot be replaced by another type.

Antenna Type: $\frac{1}{4}$ wavelength monopole

Antenna Peak Gain: -1.0 dBi

Connector: N/A, soldered to PCB

The above installation will prevent any unauthorised switching of antennas.

6.2 §15.205/ RSS-Gen 8.10/ RSS-247 3.3 Restricted Bands of Operation

The provisions of the §15.205/ RSS-Gen 8.10/ RSS-247 3.3 restricted bands of operation and §15.209 radiated emissions limits have been met, refer to section 6.10.

6.3 §15.207/ RSS-Gen 8.8 Conducted Limits

The device is battery powered (DC) and does not connect directly to the AC mains network. Test was not applicable.

6.4 §15.209/ RSS-Gen 8.9 Radiated Emission Limits; General Requirements

The provisions of the §15.205/ RSS-Gen 8.10/ RSS-247 3.3 restricted bands of operation and §15.209/ RSS-Gen 8.9 radiated emissions limits have been met, refer to section 6.10.

6.5 §15.247(a)(1)/ RSS-247 5.1(a) 20 dB bandwidth

6.5.1 Test Procedure

The tests were performed in accordance with ANSI C63.10: 2013 Clause 6.9.

The 20 dB bandwidth was measured while the device was transmitting with typical modulation applied. The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised when measuring the bandwidth.

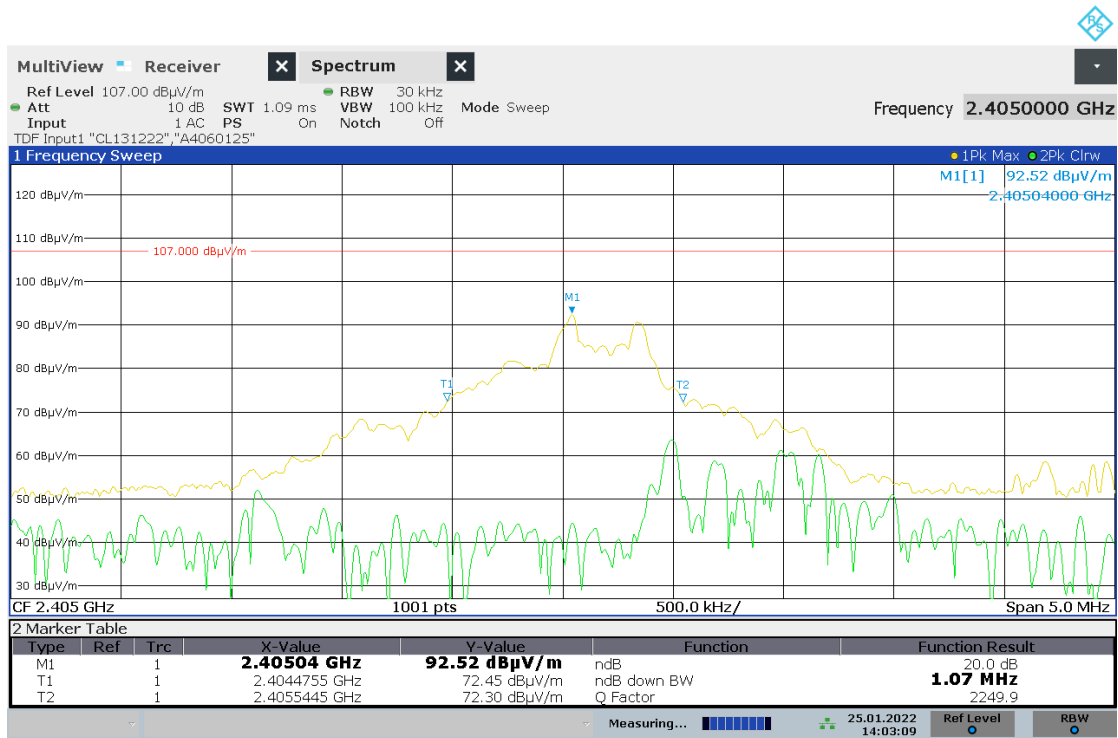
6.5.2 Limits

In the band 2400-2483.5MHz, the maximum 20 dB Bandwidth is not specified.

6.5.3 Results

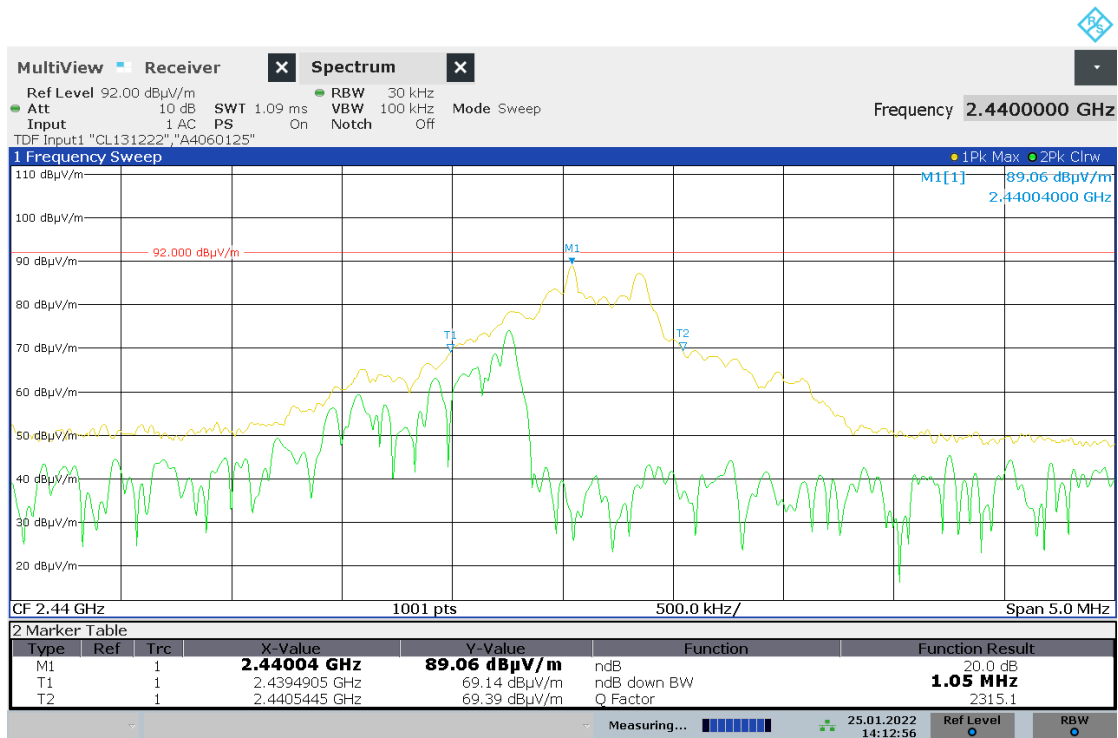
Table 6-1: 20 dB Bandwidth

Frequency (MHz)	20 dB Bandwidth (MHz)
2405	1.07
2440	1.05
2480	1.06



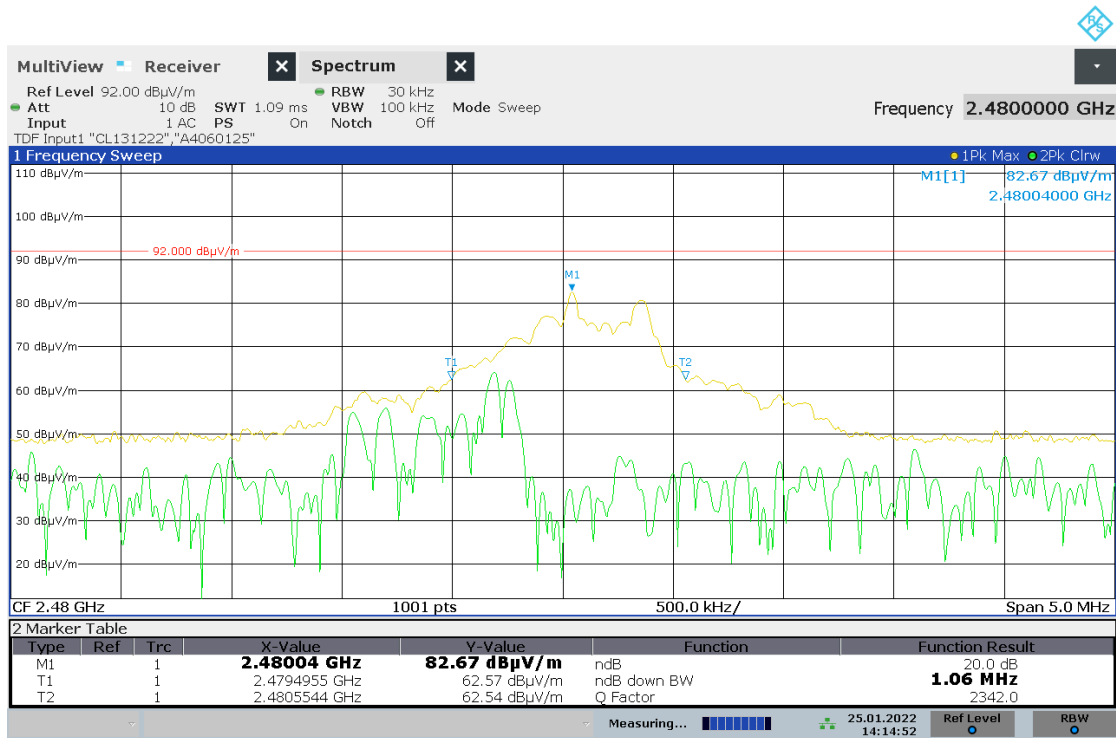
14:03:10 25.01.2022

Graph 6-1: 20 dB bandwidth, 2405 MHz



14:12:57 25.01.2022

Graph 6-2: 20 dB bandwidth, 2440 MHz



14:14:52 25.01.2022

Graph 6-3: 20 dB bandwidth, 2480 MHz

6.6 §15.247(a)(1)/ RSS-247 5.1(b) Carrier Frequency Separation

6.6.1 Test Procedure

The tests were performed in accordance to ANSI C63.10: 2013 clause 7.8.2.

6.6.2 Limits

Hopping channel carrier frequencies separated by a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

6.6.3 Results

Table 6-2: Carrier Frequency Separation

Carrier Frequency Separation	Limit	Results
5.05 MHz	≥ 713 kHz	Complied



09:47:19 27.01.2022

Graph 6-4: Carrier Frequency Separation

6.7 §15.247(a)(1)(iii)/ RSS-247 5.1(d) Number of Hopping Frequencies

6.7.1 Test Procedure

The tests were performed in accordance to ANSI C63.10: 2013 clause 7.8.3.

6.7.2 Limits

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

6.7.3 Results

Table 6-3: Number of Hopping Frequencies

Number of Hopping Frequencies	Limit	Results
16	≥ 15	Complied



Graph 6-5: Number of Hopping Frequencies

6.8 §15.247(a)(1)(iii)/ RSS-247 5.1(d) Average Time of Occupancy

6.8.1 Test Procedure

The tests were performed in accordance to ANSI C63.10: 2013 clause 7.8.4.

6.8.2 Limits

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

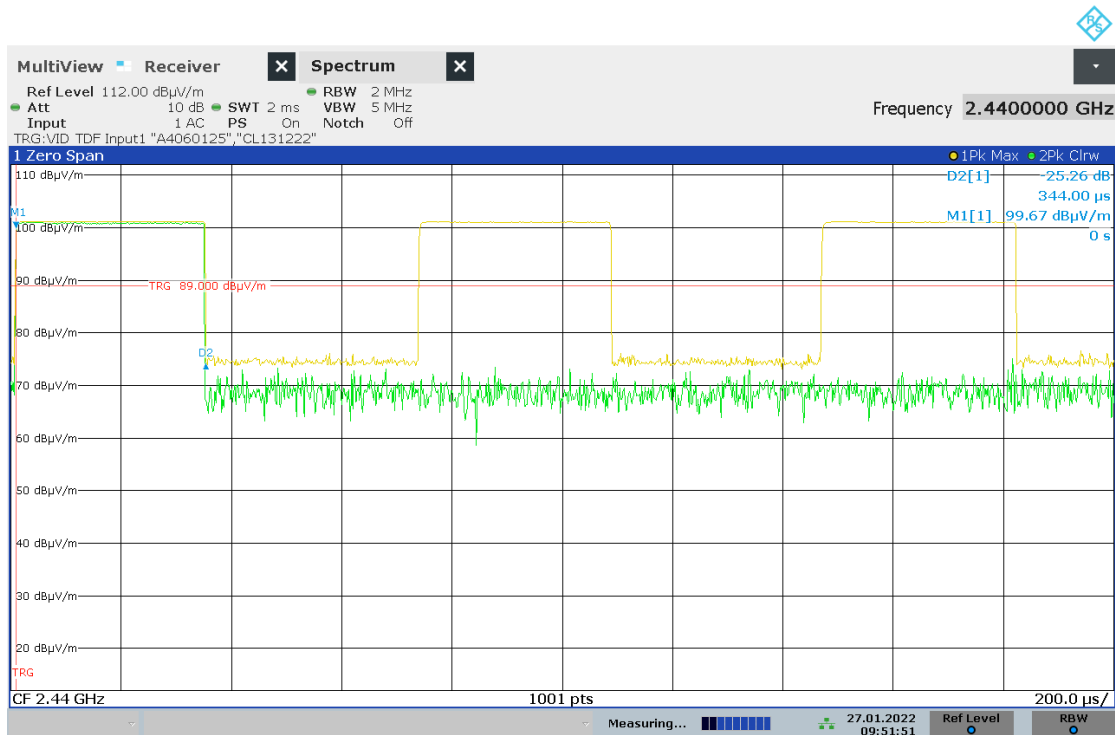
6.8.3 Results

Table 6-4: Average Time of Occupancy

Single Pulse (ms)	Number of hops in 0.2s period	Number of hops in 6.4s period*	Average Time of Occupancy (ms)	Limit (ms)	Results
0.344	26	832	286.208	≤ 400	Complied

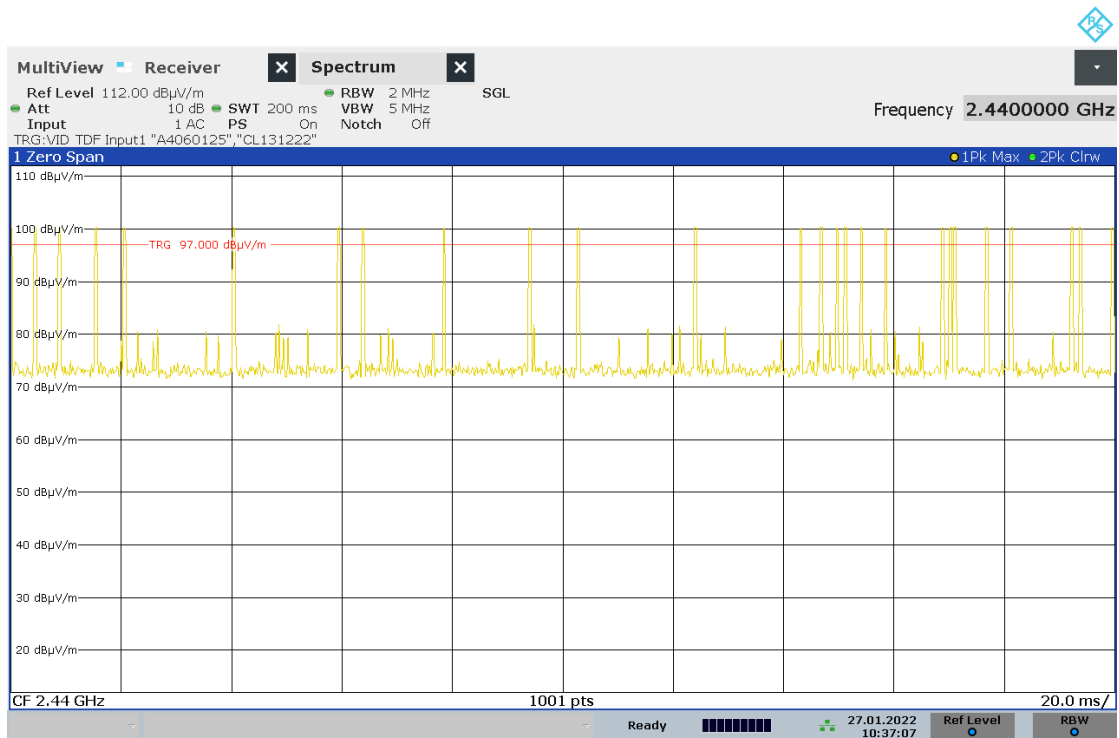
***Note:** Number of hops in the period specified in the requirements = (number of hops on spectrum analyzer) × (period specified in the requirements / analyzer sweep time)

Time of Occupancy = 832 × 0.344 ms = 286.208 ms



09:51:52 27.01.2022

Graph 6-6: Single Pulse



10:37:07 27.01.2022

Graph 6-7: Number of hops in 0.2s period



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6.9 §15.247(b)/ RSS-247 5.4 Peak Output Power

6.9.1 Test Procedure

The maximum peak conducted output power was measured in accordance to ANSI C63.10: 2013 clause 7.8.5

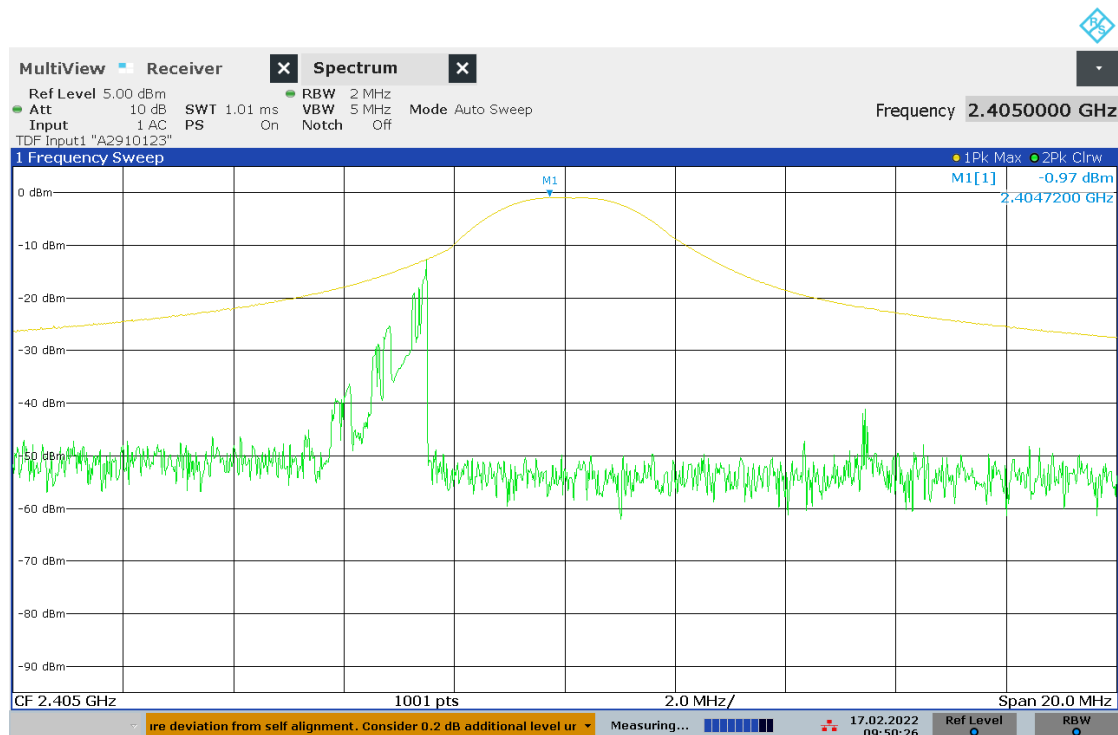
6.9.2 Limits

The maximum peak conducted output power at 2400-2483.5 MHz is 0.125 Watt.

6.9.3 Results

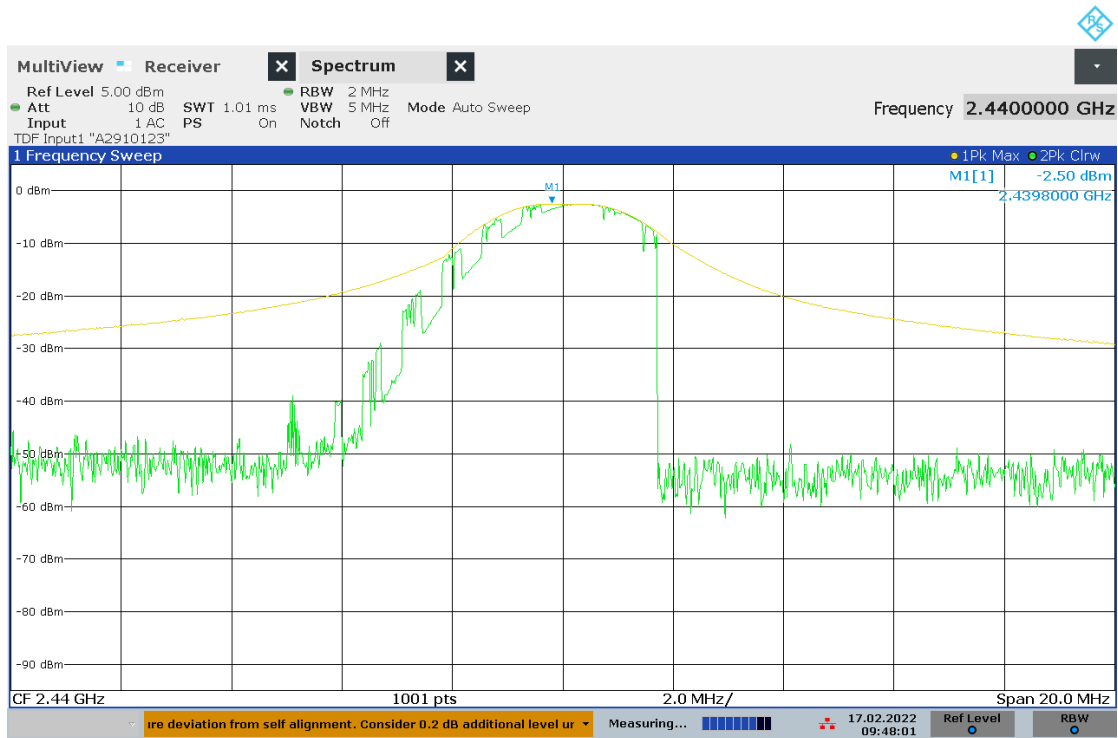
Table 6-5: Maximum Peak Power

Freq. (MHz)	Conducted Output Power		Limit (W)	Results
	(dBm)	(W)		
2405	-0.97	0.000799	0.125	Complied
2440	-2.50	0.000562	0.125	Complied
2480	-4.70	0.000338	0.125	Complied



09:50:27 17.02.2022

Graph 6-8: Maximum Peak Power, 2405MHz



09:48:01 17.02.2022

Graph 6-9: Maximum Peak Power, 2440MHz



09:49:34 17.02.2022

Graph 6-10: Maximum Peak Power, 2480MHz

6.10 §15.247(d)/ RSS-247 5.5 Out-of-Band/Spurious Emission

6.10.1 Test procedure

Radiated out-of-band/spurious emissions measurements were performed in a semi-anechoic chamber compliant with ANSI C63.4: 2014.

The test frequency range was sub-divided into smaller bands with the defined resolution bandwidths to permit reliable display and identification of emissions.

Frequency range (MHz)	Measurement Bandwidth (kHz)	Measurement Distance (m)	Antenna
0.009 to 0.150	0.2	3	0.6 metre loop antenna
0.150 to 30	9	3	
30 to 1000	120	3	Biconilog hybrid
1000 to 18 000	1000	3	Standard gain or broadband horn
18 000 to 40 000	1000	1	

EUT was set at a height of 0.8 m for measurements below 1000 MHz and set at a height of 1.5 m for measurements above 1000 MHz.

The sample was slowly rotated with the spectrum analyser set to Max-Hold. This was performed for at least two antenna heights. When an emission was located, it was positively identified and its maximum level was found by rotating the automated turntable and by varying the antenna height. For below 1000 MHz the emissions were measured with a Quasi-Peak detector, and for above 1000 MHz the emissions were measured with Peak and Average detectors.

EUT was investigated on all three axes (x, y, and z). Only measurements on the worst axis are presented.

The measurement data for each frequency range was corrected for cable losses, antenna factors and preamplifier gain. This process was performed for both horizontal and vertical polarisations of the measurement antenna.

6.10.2 Evaluation of field strength

Field strengths were calculated automatically by the software using pre-stored calibration data. The method of calculation is shown below:

$$E = V + AF - G + L$$

Where: E = Radiated Field Strength in dB μ V/m.

V = EMI Receiver Voltage in dB μ V.

AF = Antenna Factor in dB/m (stored as a data array).

G = Preamplifier Gain in dB (stored as a data array).

L = Cable loss in dB (stored as a data array of Insertion Loss versus frequency).

6.10.3 Limits

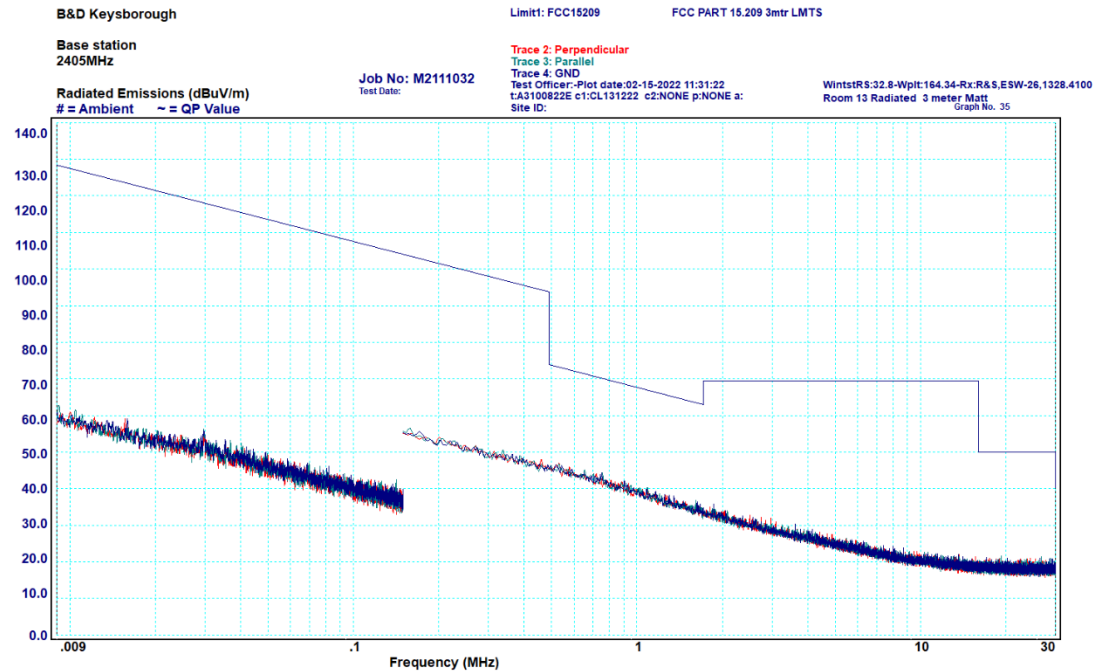
The limit applied is in accordance with the out-of-band/spurious emissions limit defined in §15.247(d).

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.

However, the general limits of §15.209 apply for the restricted bands of operation defined in §15.205.

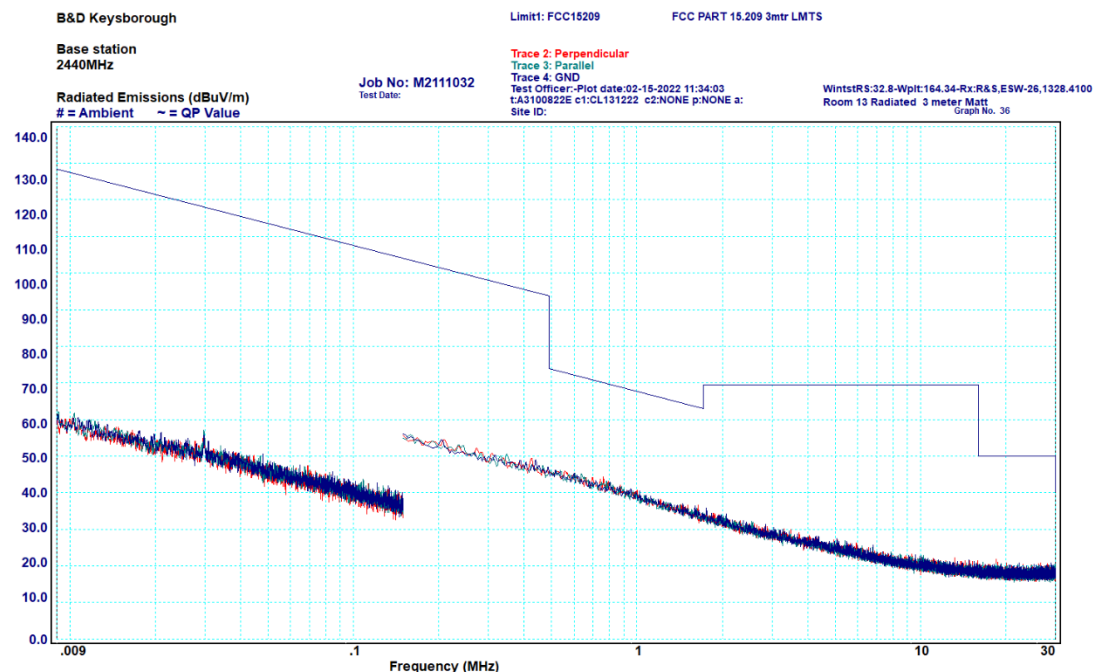
6.10.4 Transmitter Spurious Emissions: 9 kHz to 30 MHz

All emissions measured in the frequency band 9kHz - 30MHz complied with the requirements of the standard.



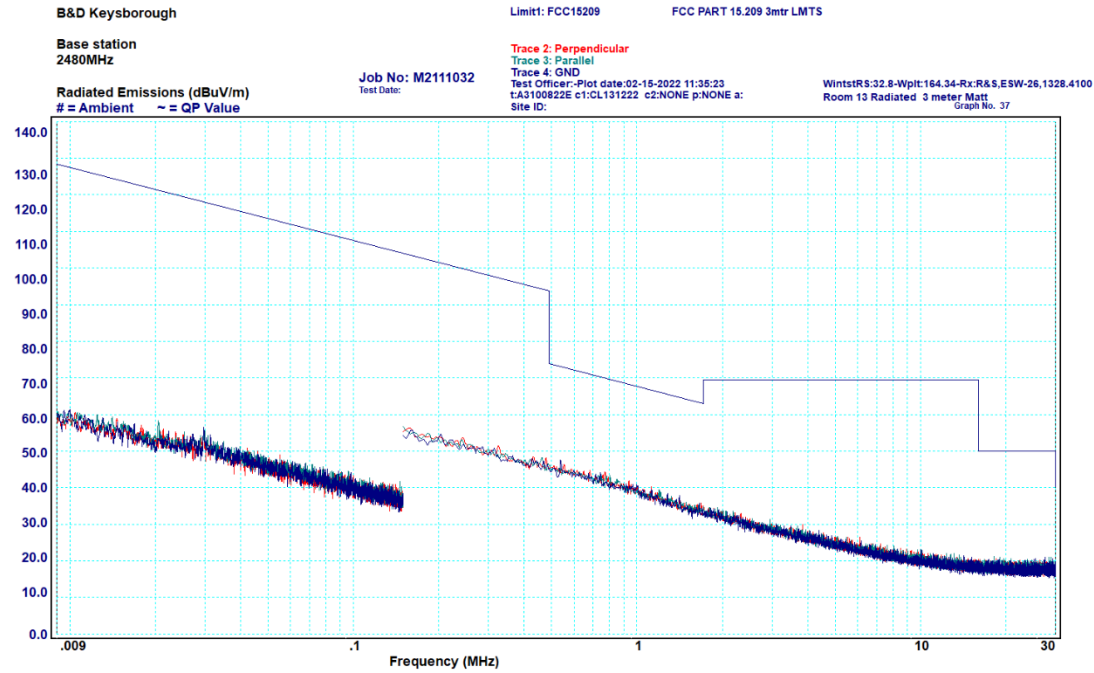
Graph 6-11: Transmitter Spurious Emissions, 9 kHz – 30 MHz, 2405 MHz

No peaks were measured within 10 dB of the limit.



Graph 6-12: Transmitter Spurious Emissions, 9 kHz – 30 MHz, 2440 MHz

No peaks were measured within 10 dB of the limit.

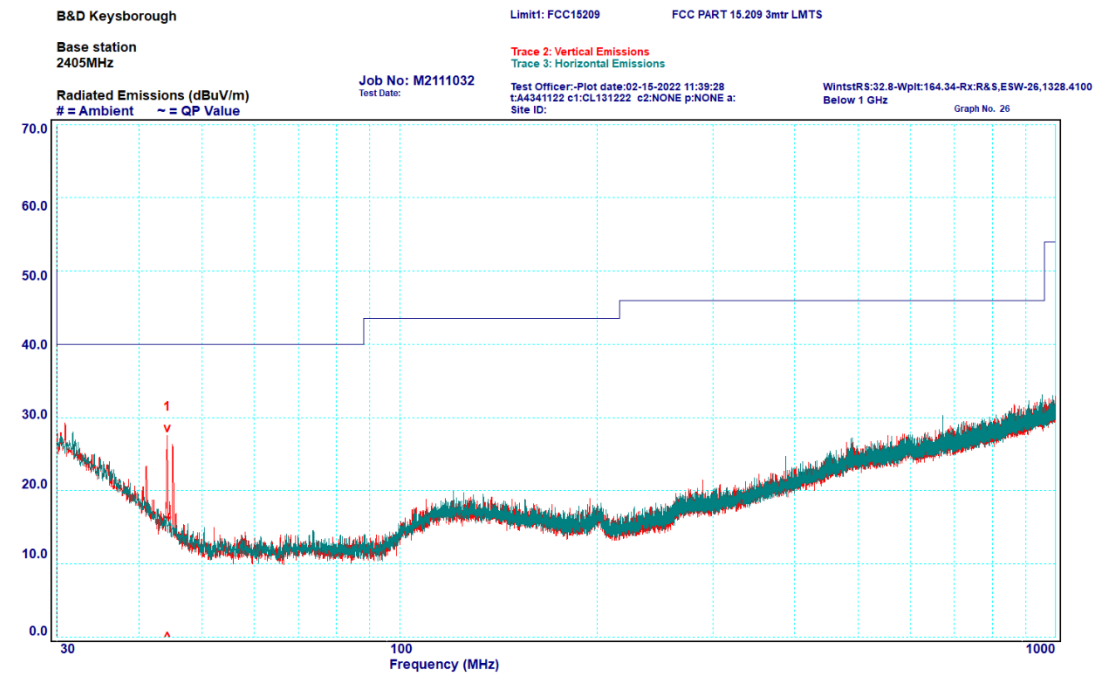


Graph 6-13: Transmitter Spurious Emissions, 9 kHz – 30 MHz, 2480 MHz

No peaks were measured within 10 dB of the limit.

6.10.5 Transmitter Spurious Emissions: 30 - 1000 MHz

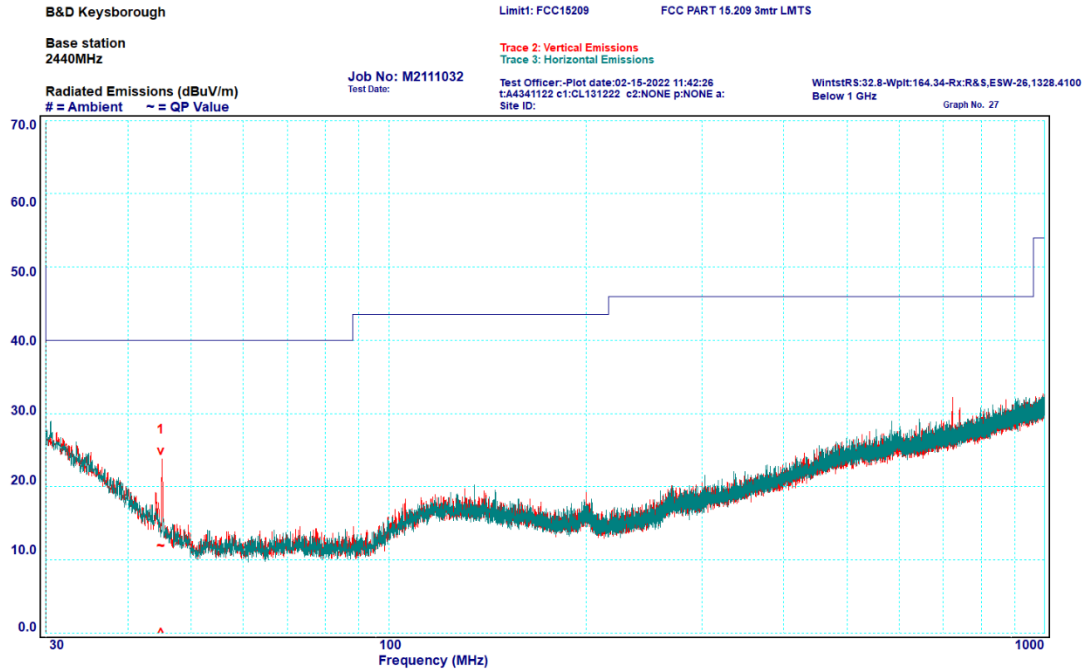
All emissions measured in the frequency band 30 – 1000 MHz complied with the requirements of the standard.



Graph 6-14: Transmitter Spurious Emissions, 30 – 1000 MHz, 2405 MHz

Table 6-6: Transmitter Spurious Emissions, 30 – 1000 MHz, 2405 MHz

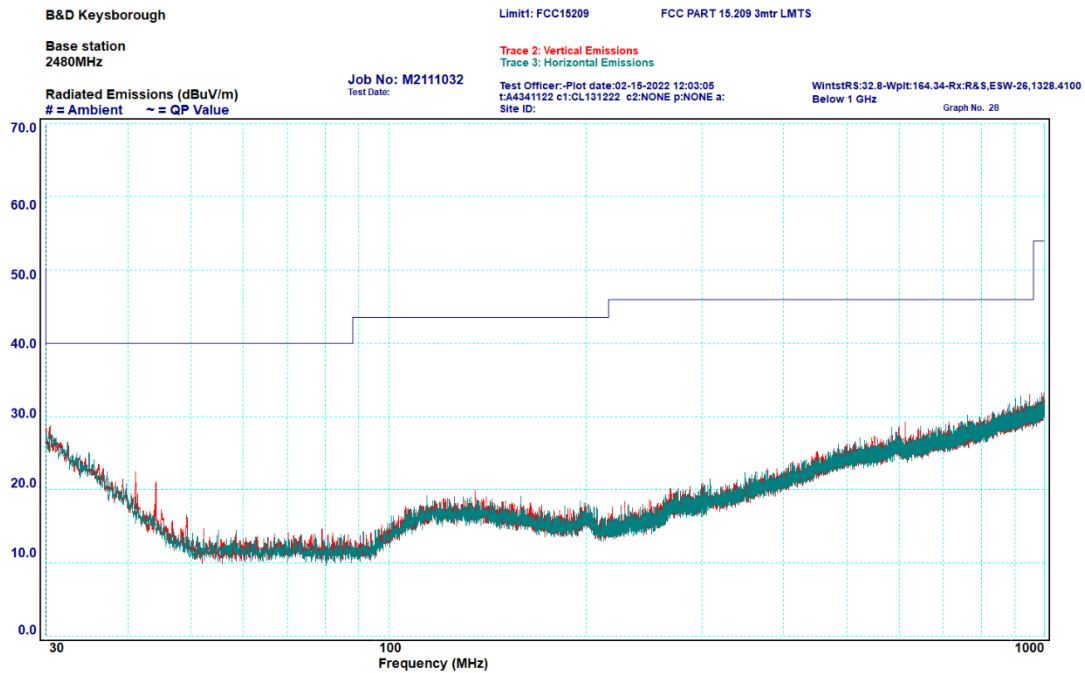
Peak	Frequency (MHz)	Polarisation	Quasi Peak		
			Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	44.22	Vertical	16.2	40.0	-23.8



Graph 6-15: Transmitter Spurious Emissions, 30 – 1000 MHz, 2440 MHz

Table 6-7: Transmitter Spurious Emissions, 30 – 1000 MHz, 2440 MHz

Peak	Frequency (MHz)	Polarisation	Quasi Peak		
			Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	44.95	Vertical	11.9	40.0	-28.1



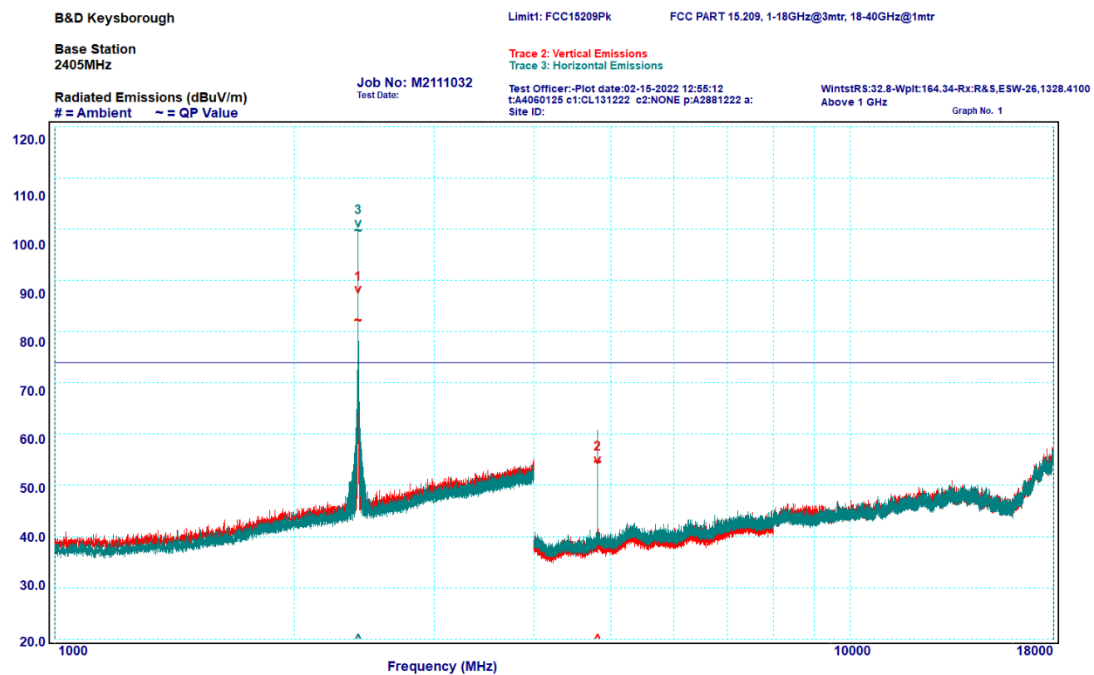
Graph 6-16: Transmitter Spurious Emissions, 30 – 1000 MHz, 2480 MHz

No peaks were measured within 10 dB of the limit.

6.10.6 Transmitter Spurious Emissions: 1 - 18 GHz

All emissions measured in the frequency band 1 – 18 GHz complied with the requirements of the standard.

Peak Measurement:

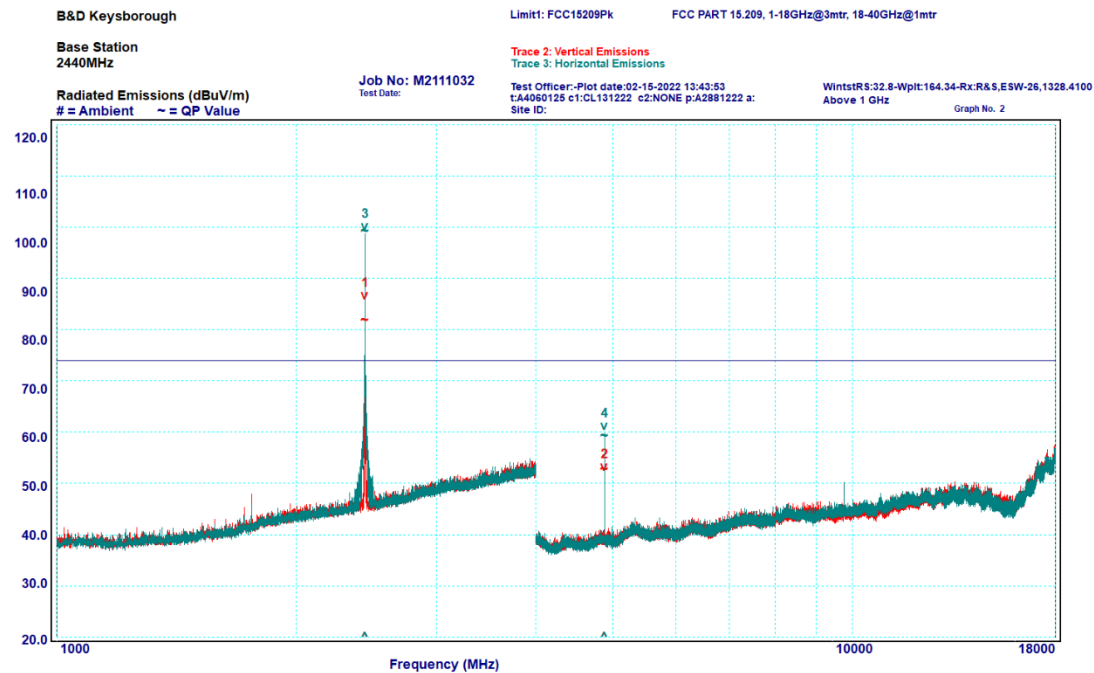


Graph 6-17: Transmitter Spurious Emissions, 1 – 18 GHz, 2405 MHz, Peak

Table 6-8: Transmitter Spurious Emissions, 1 – 18 GHz, 2405 MHz, Peak

Peak	Frequency (MHz)	Polarisation	Peak		
			Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*1	2405.06	Vertical	--	--	--
2	4810.09	Vertical	54.4	74.0	-19.6
*3	2405.04	Horizontal	--	--	--

*Note: Peaks above the limit are the fundamental transmission and not subject to the spurious emissions limit of the standard

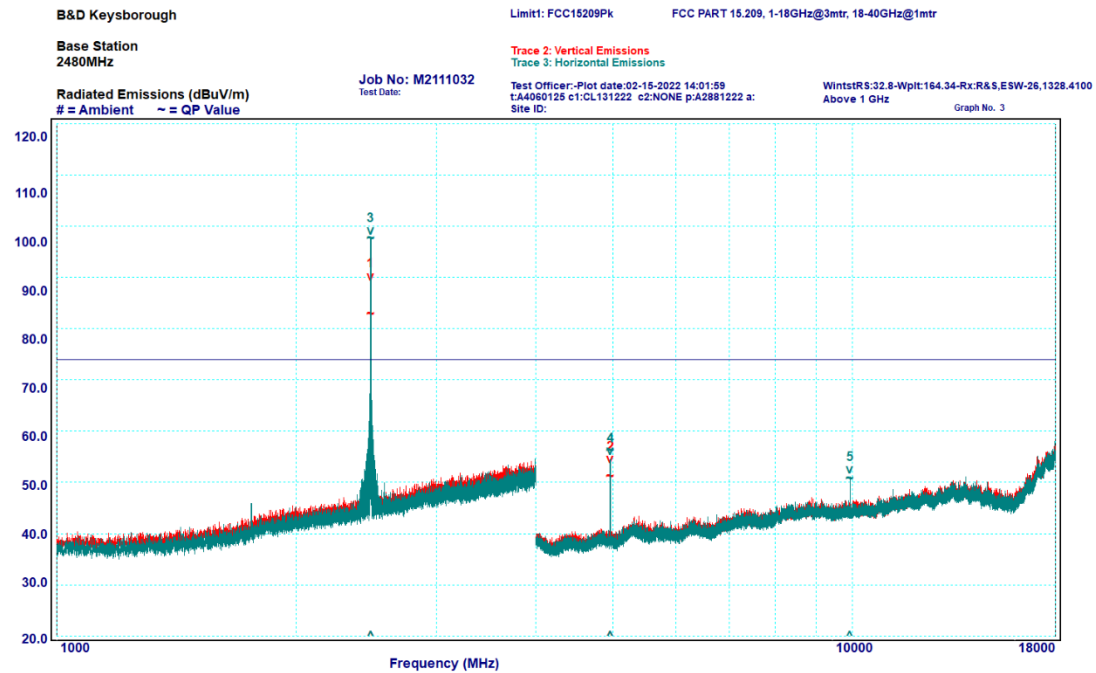


Graph 6-18: Transmitter Spurious Emissions, 1 – 18 GHz, 2440 MHz, Peak

Table 6-9: Transmitter Spurious Emissions, 1 – 18 GHz, 2440 MHz, Peak

Peak	Frequency (MHz)	Polarisation	Peak		
			Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*1	2440.04	Vertical	--	--	--
2	4880.11	Vertical	52.7	74.0	-21.3
*3	2440.04	Horizontal	--	--	--
4	4880.28	Horizontal	59.3	74.0	-14.7

*Note: Peaks above the limit are the fundamental transmission and not subject to the spurious emissions limit of the standard.



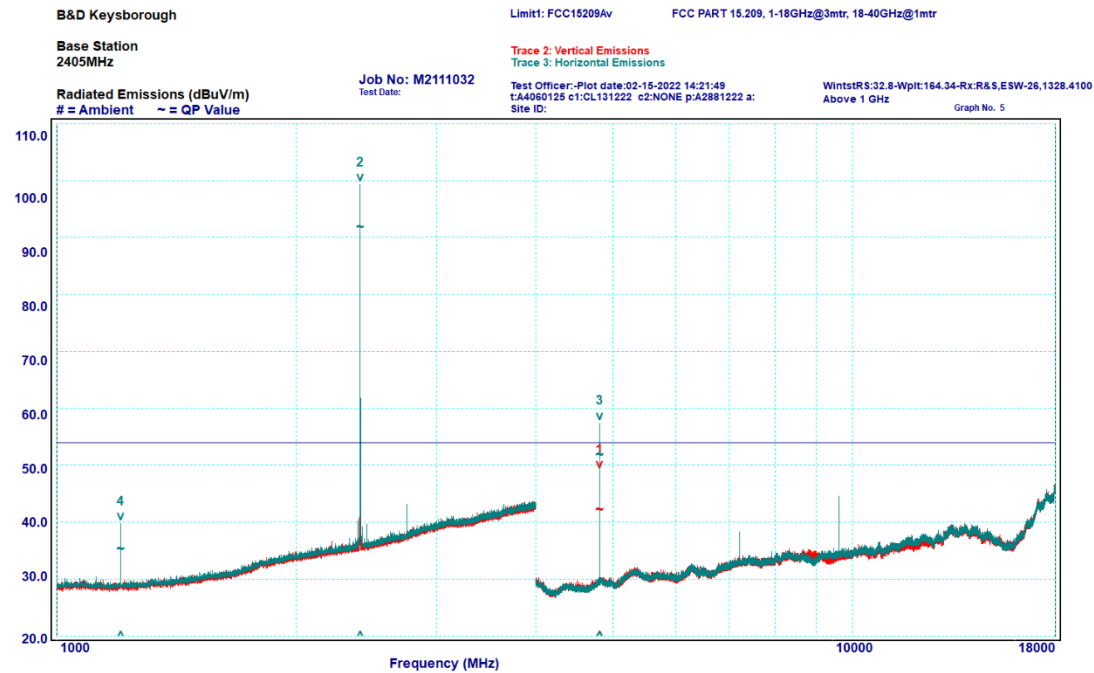
Graph 6-19: Transmitter Spurious Emissions, 1 – 18 GHz, 2480 MHz, Peak

Table 6-10: Transmitter Spurious Emissions, 1 – 18 GHz, 2480 MHz, Peak

Peak	Frequency (MHz)	Polarisation	Peak		
			Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
*1	2480.05	Vertical	--	--	--
2	4960.11	Vertical	51.1	74.0	-22.9
*3	2480.08	Horizontal	--	--	--
4	4960.14	Horizontal	56.2	74.0	-17.8
5	9921.38	Horizontal	50.8	74.0	-23.2

*Note: Peaks above the limit are the fundamental transmission and not subject to the spurious emissions limit of the standard.

Average Measurement:

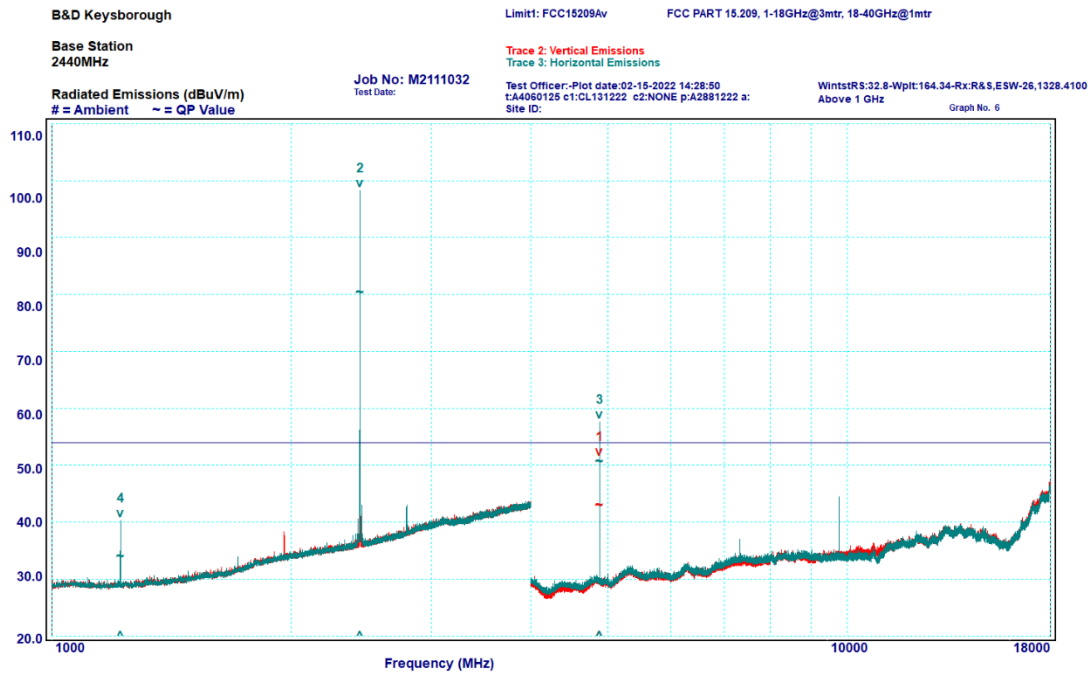


Graph 6-20: Transmitter Spurious Emissions, 1 – 18 GHz, 2405 MHz, Average

Table 6-11: Transmitter Spurious Emissions, 1 – 18 GHz, 2405 MHz, Average

Peak	Frequency (MHz)	Polarisation	Average		
			Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
1	4810.36	Vertical	42.2	54.0	-11.8
*2	2405.21	Horizontal	--	--	--
3	4810.44	Horizontal	51.8	54.0	-2.2
4	1202.62	Horizontal	35.2	54.0	-18.8

*Note: Peak 2 is the fundamental transmission and not subject to the spurious emissions limit of the standard

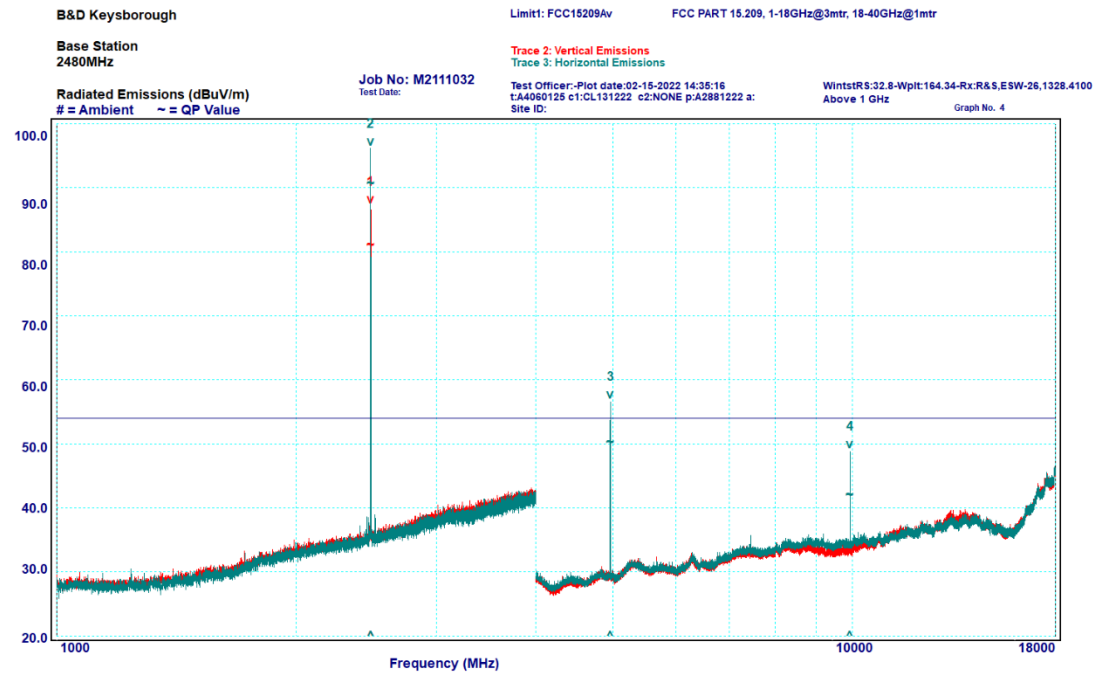


Graph 6-21: Transmitter Spurious Emissions, 1 – 18 GHz, 2440 MHz, Average

Table 6-12: Transmitter Spurious Emissions, 1 – 18 GHz, 2440 MHz, Average

Peak	Frequency (MHz)	Polarisation	Average		
			Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
1	4880.37	Vertical	43.0	54.0	-11.0
*2	2440.21	Horizontal	--	--	--
3	4880.36	Horizontal	50.6	54.0	-3.4
4	1220.12	Horizontal	33.9	54.0	-20.1

*Note: Peak 2 is the fundamental transmission and not subject to the spurious emissions limit of the standard.



Graph 6-22: Transmitter Spurious Emissions, 1 – 18 GHz, 2480 MHz, Average

Table 6-13: Transmitter Spurious Emissions, 1 – 18 GHz, 2480 MHz, Average

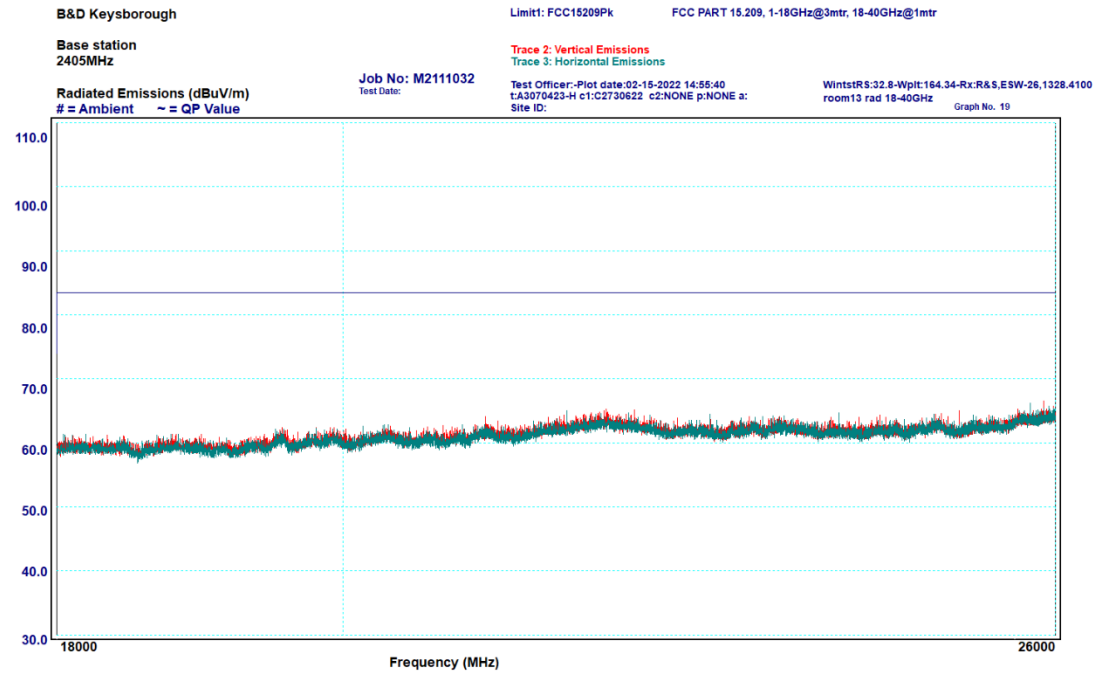
Peak	Frequency (MHz)	Polarisation	Average		
			Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*1	2480.23	Vertical	--	--	--
*2	2480.22	Horizontal	--	--	--
3	4960.45	Horizontal	50.2	54.0	-3.8
4	9921.40	Horizontal	42.0	54.0	-12.0

*Note: Peaks 1 and 2 are the fundamental transmission and not subject to the spurious emissions limit of the standard

6.10.7 Transmitter Spurious Emissions: 18 – 26 GHz

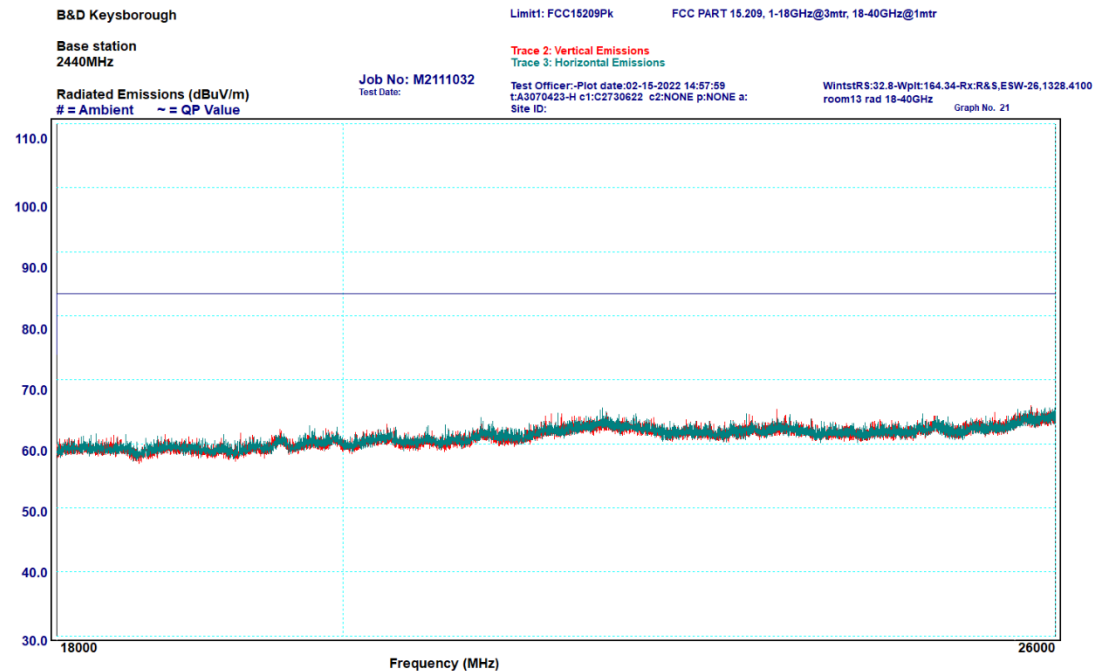
All emissions measured in the frequency band 18 – 26 GHz complied with the requirements of the standard.

Peak Measurement:



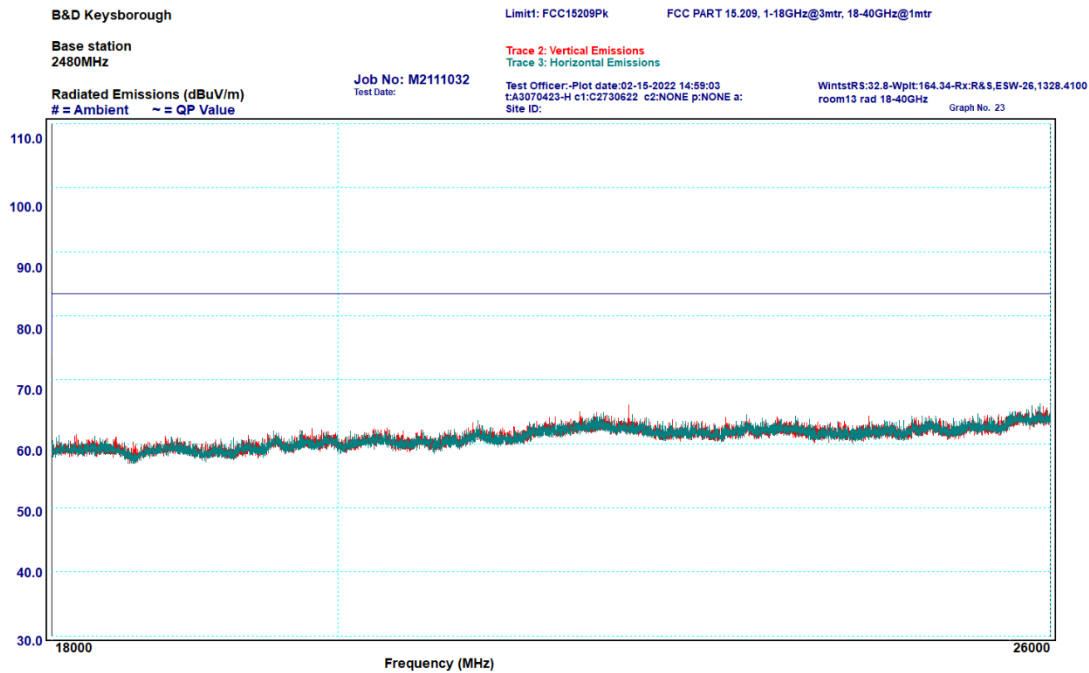
Graph 6-23: Transmitter Spurious Emissions, 18 – 26 GHz, 2405 MHz, Peak

No peaks were measured within 10 dB of the limit.



Graph 6-24: Transmitter Spurious Emissions, 18 – 26 GHz, 2440 MHz, Peak

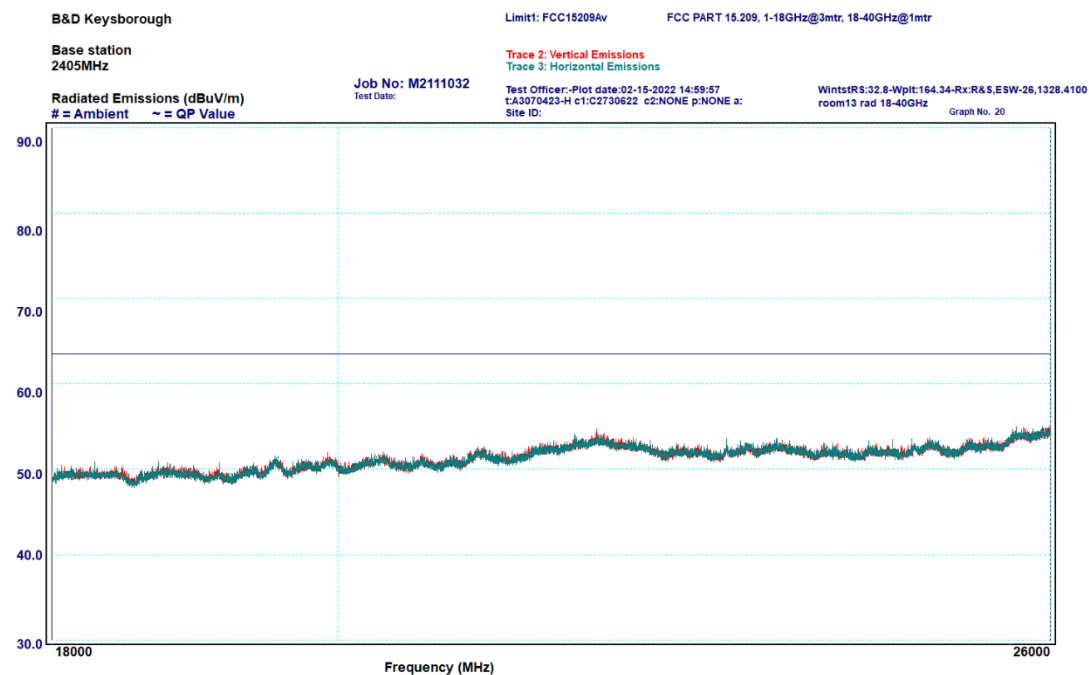
No peaks were measured within 10 dB of the limit.



Graph 6-25: Transmitter Spurious Emissions, 18 – 26 GHz, 2480 MHz, Peak

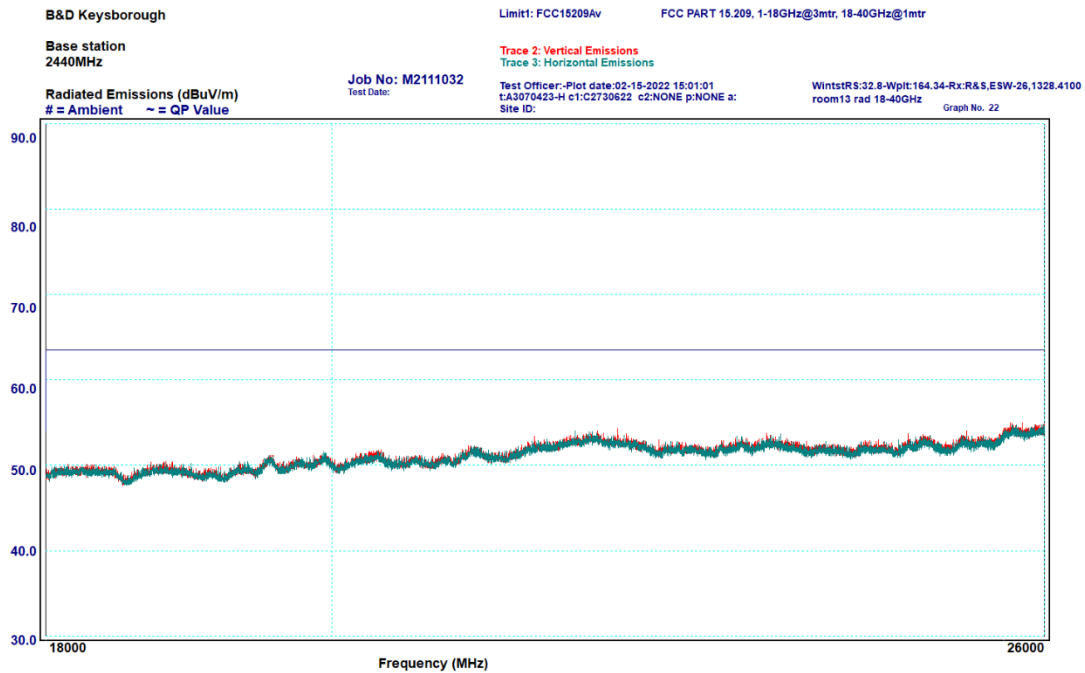
No peaks were measured within 10 dB of the limit.

Average Measurement:



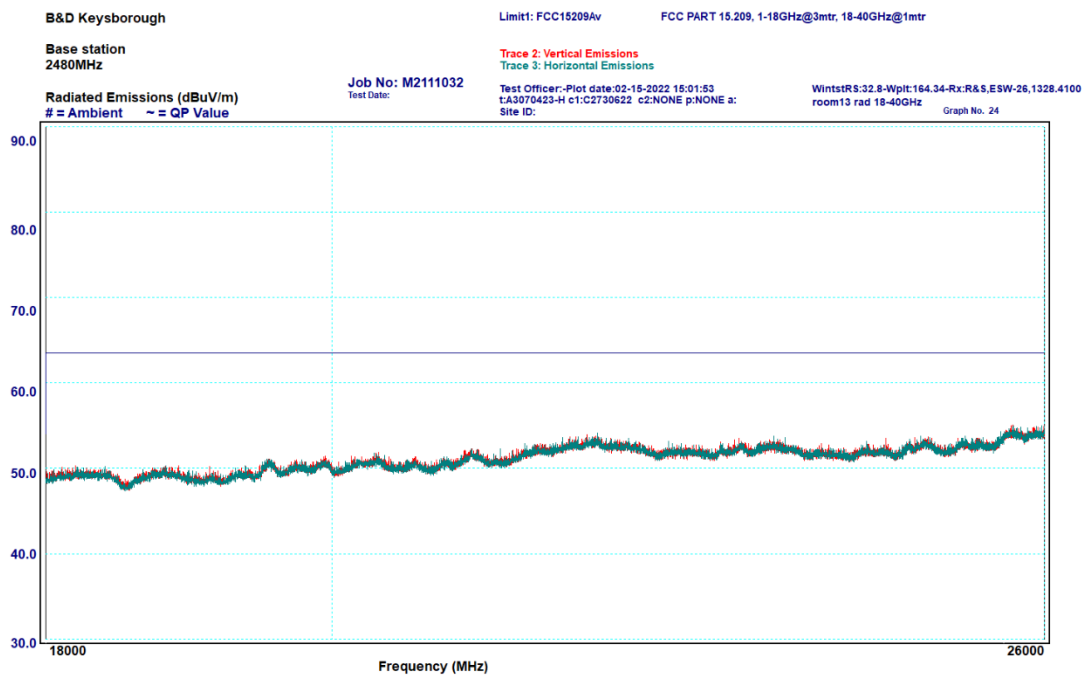
Graph 6-26: Transmitter Spurious Emissions, 18 – 26 GHz, 2405 MHz, Average

No peaks were measured within 10 dB of the limit.



Graph 6-27: Transmitter Spurious Emissions, 18 – 26 GHz, 2440 MHz, Average

No peaks were measured within 10 dB of the limit.



Graph 6-28: Transmitter Spurious Emissions, 18 – 26 GHz, 2480 MHz, Average

No peaks were measured within 10 dB of the limit.

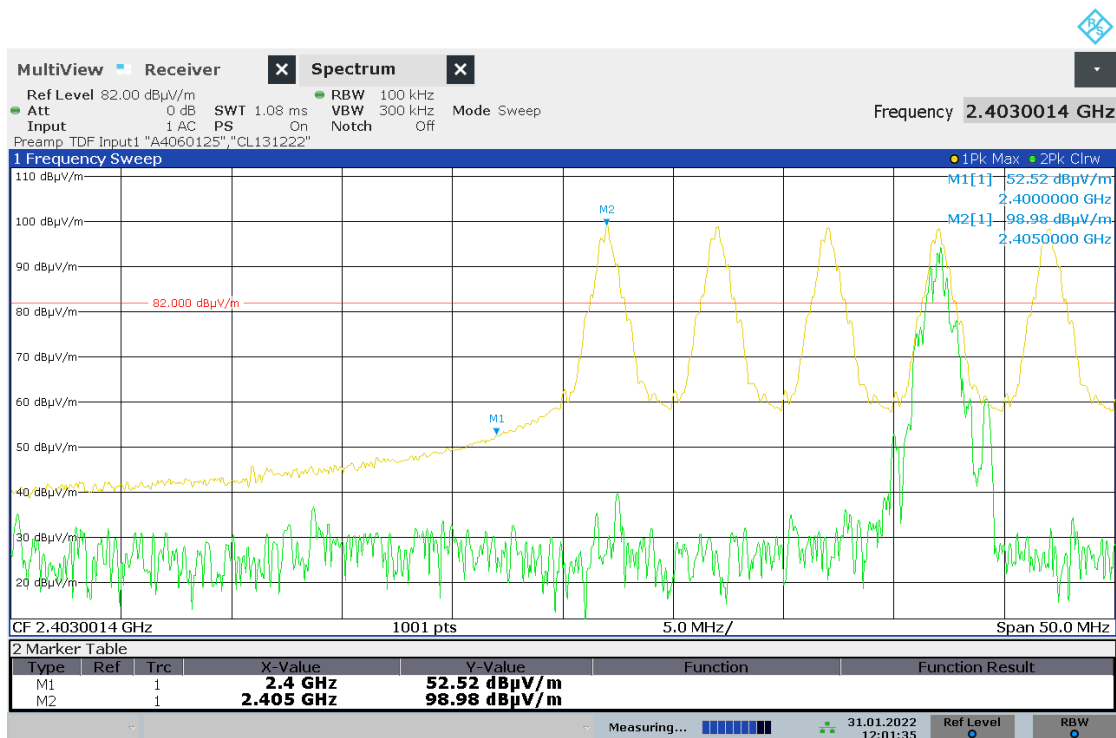
6.11 §15.247(d)/ §RSS-247 5.5 Band Edge Emission Measurements

Band-edge measurements were done using radiated in accordance to ANSI C63.10 clause 6.10. All emissions measured near the lower and higher band edge complied with the requirements of §15.247/ RSS-247 5.0.



11:57:50 31.01.2022

Graph 6-29: Band Edge Emission, Lower Band-edge, Hopping off



12:01:36 31.01.2022

Graph 6-30: Band Edge Emission, Lower Band-edge, Hopping on

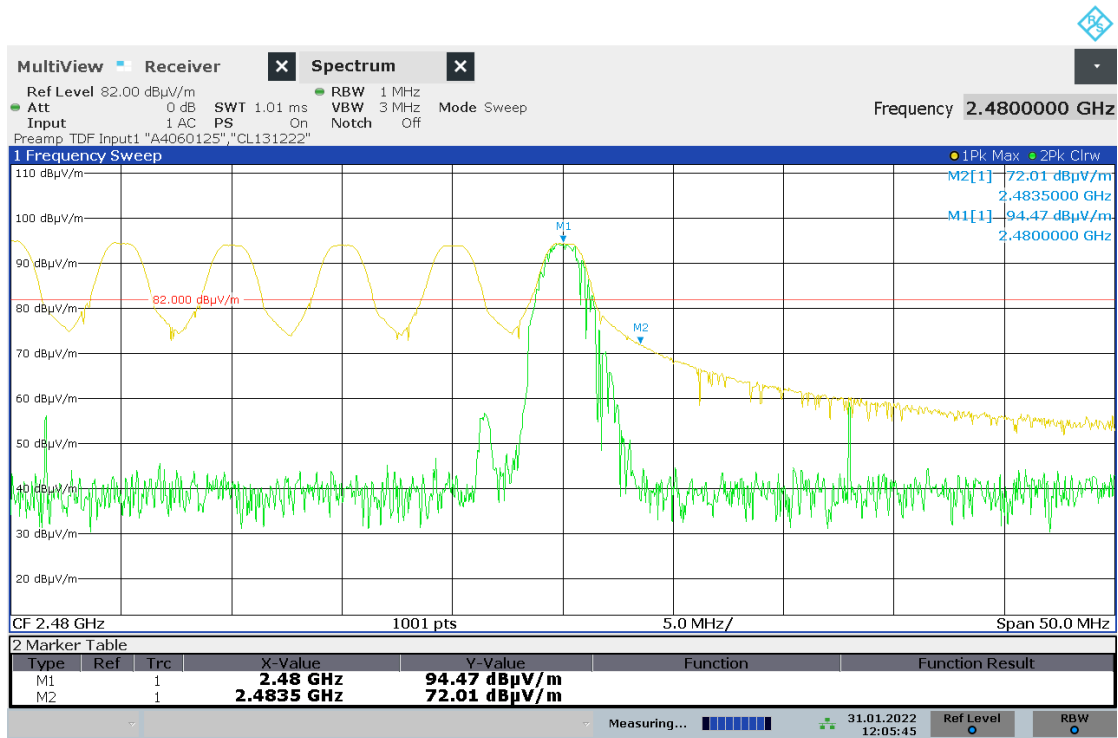
Table 6-14: Band Edge Emission, Lower Band-edge

Operating Mode	Measurement Type	Freq (MHz)	Measurement (dB μ V/m)	Limit (dB μ V/m)	Result
Hopping off	Peak	2400	53.82	74	Complied
Hopping on	Peak	2400	52.52	74	Complied



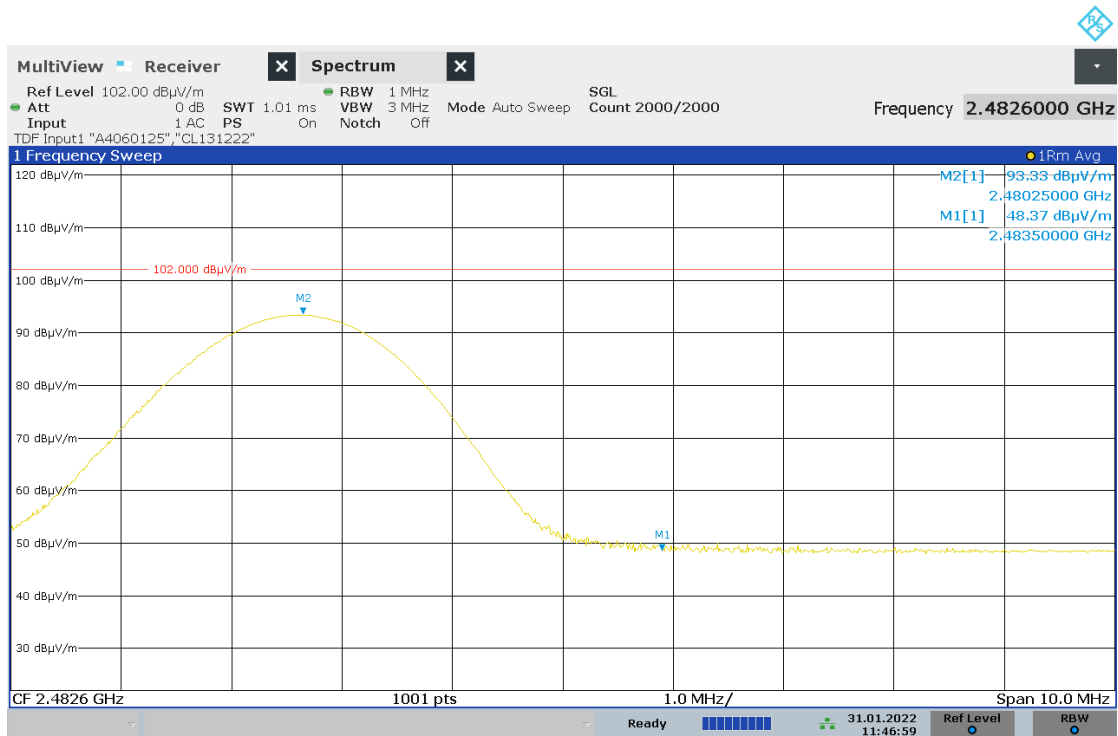
12:16:35 31.01.2022

Graph 6-31: Band Edge Emission, Upper Band-edge, Peak, Hopping off



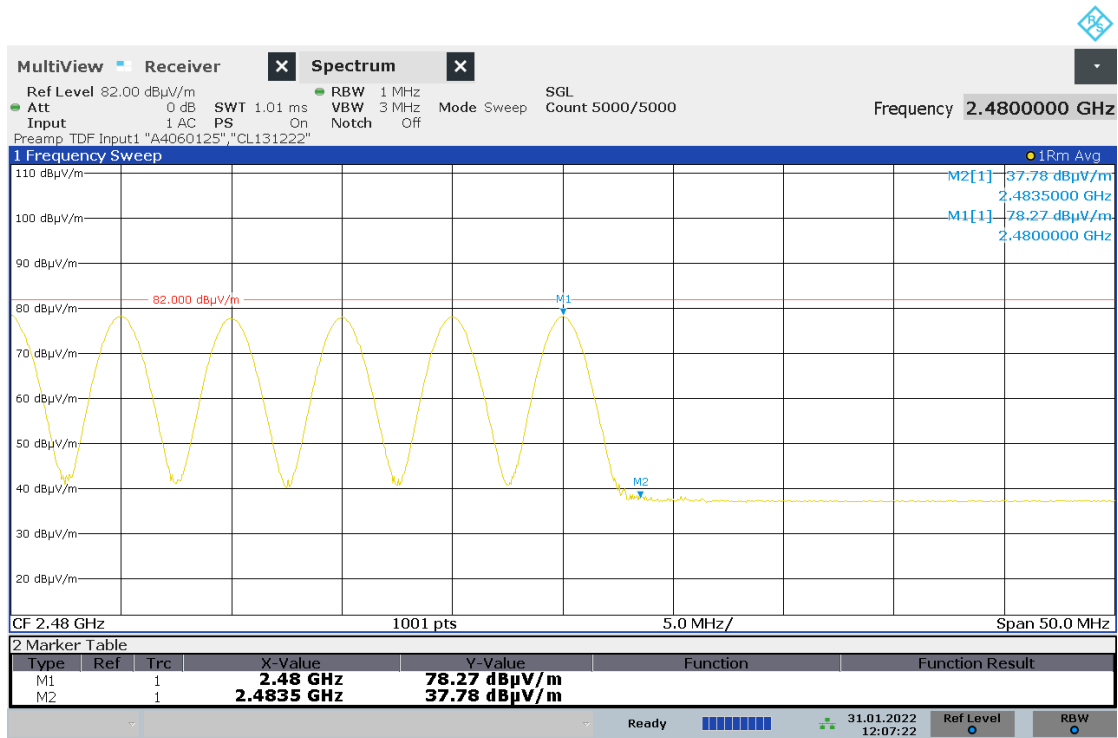
12:05:45 31.01.2022

Graph 6-32: Band Edge Emission, Upper Band-edge, Peak, Hopping on



11:47:00 31.01.2022

Graph 6-33: Band Edge Emission, Upper Band-edge, Average, Hopping off



12:07:23 31.01.2022

Graph 6-34: Band Edge Emission, Upper Band-edge, Average, Hopping on

Table 6-15: Band Edge Emission, Upper Band-edge

Operating Mode	Measurement Type	Freq (MHz)	Measurement (dBμV/m)	Limit (dBμV/m)	Result
Hopping off	Peak	2483.5	73.09	74	Complied
Hopping on	Peak	2483.5	72.01	74	Complied
Hopping off	Average	2483.5	48.37	54	Complied
Hopping on	Average	2483.5	37.78	54	Complied

6.12 §15.247(i)/ RSS-Gen 3.4/RSS-102 Maximum Permissible Exposure

The EUT complied with the applicable maximum permissible exposure levels. Refer to EMC Technologies report M2111032-7 and M2111032-8.



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6.13 §15.215/ RSS-Gen 6.7 Occupied Bandwidth – 99% power

6.13.1 Test procedure

The bandwidth containing 99% power of the transmitted signal was measured using the procedure from ANSI C63.10 section 6.9.

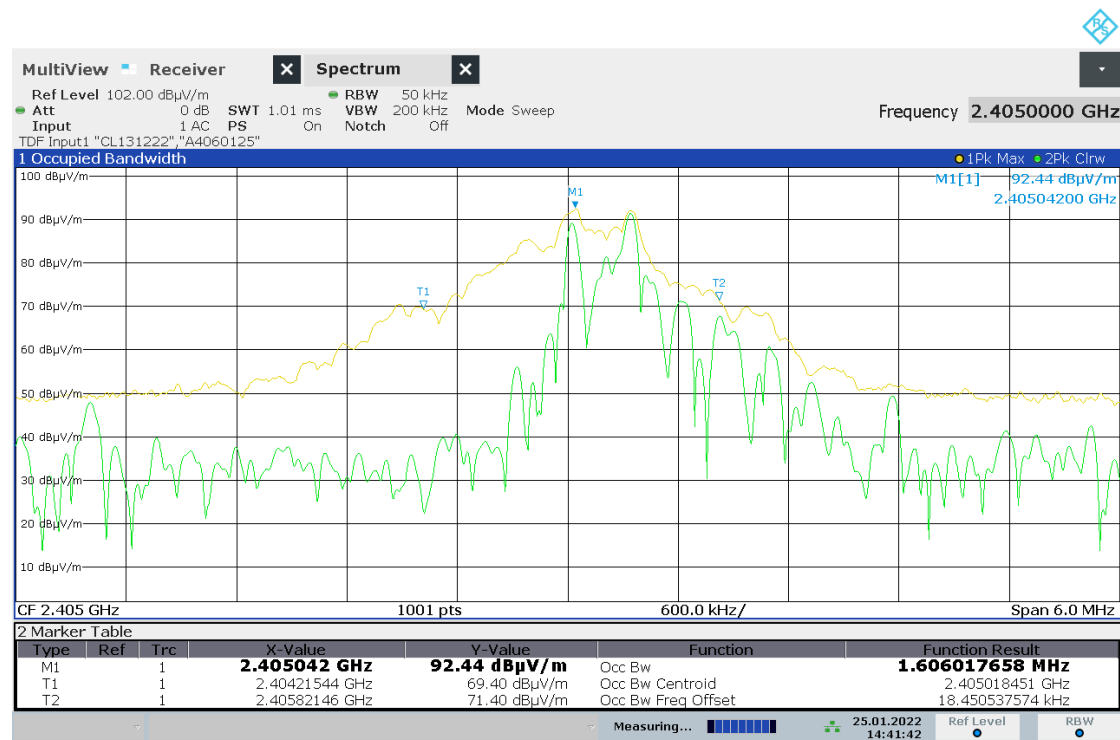
6.13.2 Limits

The 99% power should be contained within the frequency band 2400 – 2483.5 MHz.

6.13.3 Results

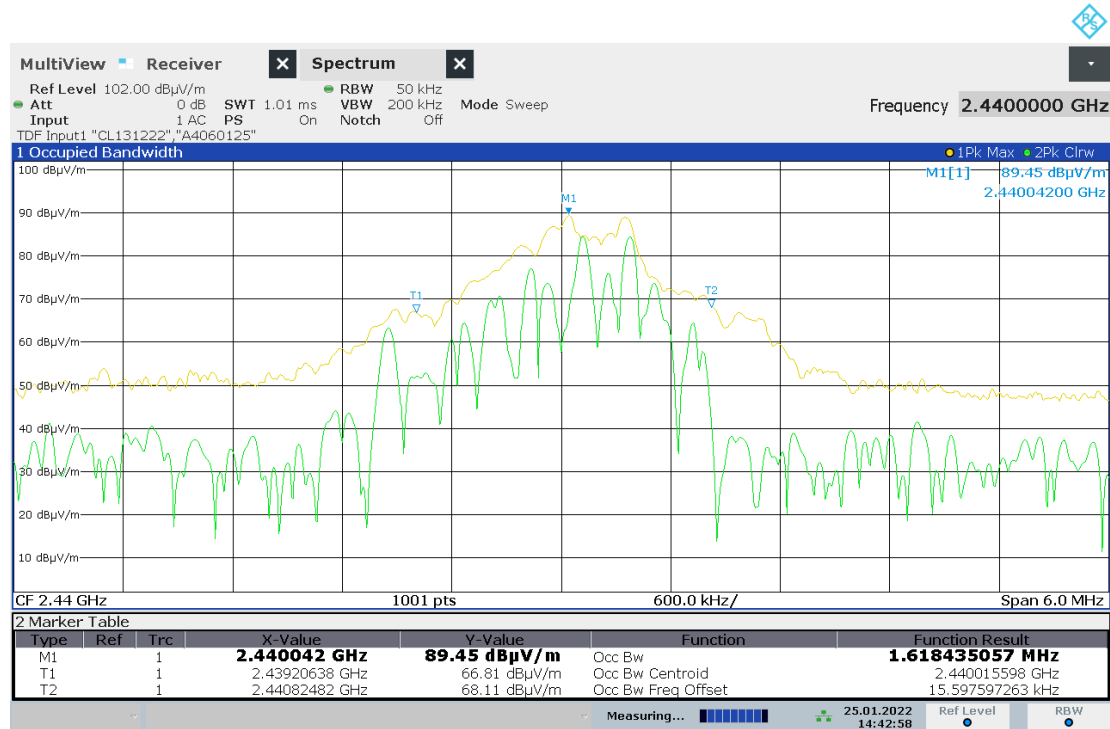
Table 6-16: Occupied Bandwidth

Freq. (MHz)	99% Bandwidth (MHz)	Lower Frequency (MHz)	Upper Frequency (MHz)	Result
2405	1.60	2404.2	2405.8	Complied
2440	1.61	2439.2	2440.8	Complied
2480	1.65	2479.1	2480.8	Complied



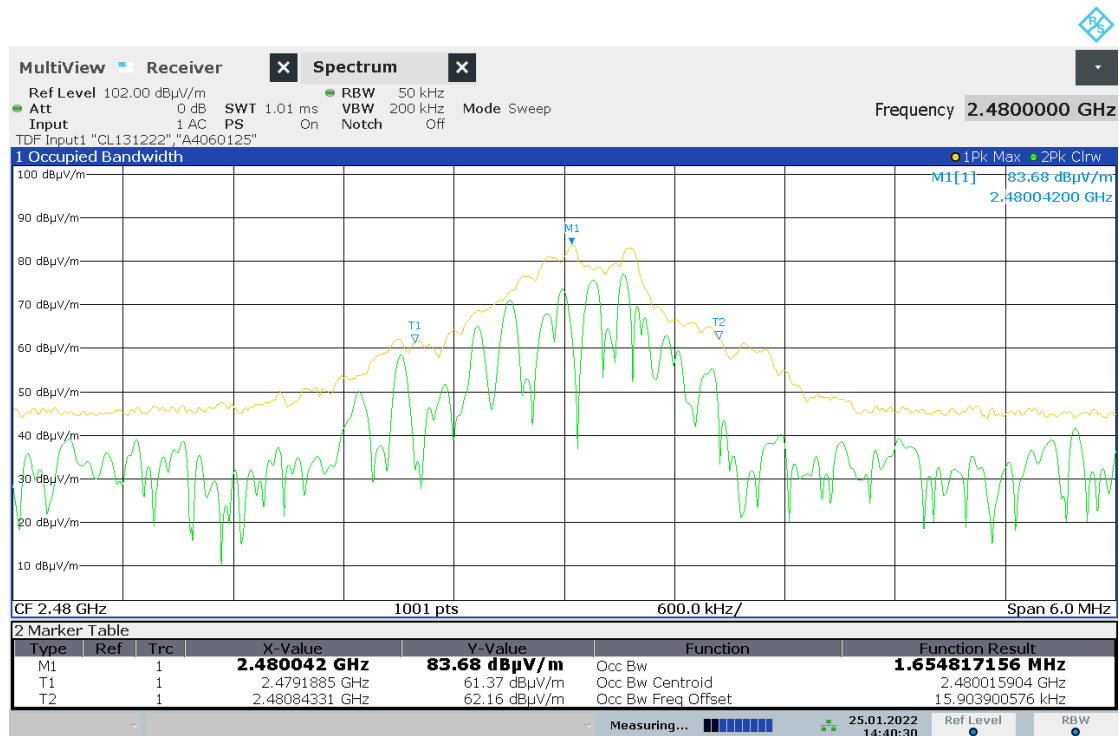
14:41:42 25.01.2022

Graph 6-35: Occupied bandwidth, 2405 MHz



14:42:58 25.01.2022

Graph 6-36: Occupied bandwidth, 2440 MHz



14:40:30 25.01.2022

Graph 6-37: Occupied bandwidth, 2480 MHz

END OF REPORT