EMC & RF Test Report

As per

RSS-247 Issue 2:2017
&
FCC Part 15 Subpart 15.247

Unlicensed Intentional Radiators
DTS System

on the

ECB601/ECB501

Issued by:

TÜV SÜD Canada Inc.
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Testing produced for

ecobee

See Appendix A for full client & EUT details.

Prepared by:

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R-14023, G-20072
C-14498, T-20060

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Report Scope

This report addresses the EMC verification testing and test results of the **Ecobee Inc.'s** Model: **ECB601/ECB501** (2.4 GHz DTS) and is herein referred to as EUT (Equipment Under Test). The EUT was tested for compliance against the following standards:

RSS-247 Issue 2:2017

FCC Part 15 Subpart C 15.247

Test procedures, results, justifications, and engineering considerations, if any, follow later in this report.

This report does not imply product endorsement by any government, accreditation agency, or TÜV SÜD Canada Inc.

Opinions or interpretations expressed in this report, if any, are outside the scope of TÜV SÜD Canada Inc. accreditations. Any opinions expressed do not necessarily reflect the opinions of TÜV SÜD Canada Inc., unless otherwise stated.

Summary

The results contained in this report relate only to the item(s) tested.

EUT:	ECB601/ECB501
FCC Certification #, FCC ID:	WR955470766937
Industry Canada Certification #, IC:	7981A-55470766937
EUT passed all tests performed	Yes
Tests conducted by	Min Xie
Report reviewed by	Amir Emami

For testing dates, see "Testing Environmental Conditions and Dates".

Test Results Summary

Standard/Method	Description	Class/Limit	Result
FCC 15.203	Antenna Requirement	Unique	Pass See Justification
FCC 15.205 RSS-GEN (Table 6)	Restricted Bands for Intentional Operation	QuasiPeak Average	Pass
FCC 15.207 RSS-GEN (Table 3)	Power Line Conducted Emissions	QuasiPeak Average	Pass
FCC 15.209 RSS-GEN (Table 4)	Spurious Radiated Emissions	QuasiPeak Average	Pass
FCC 15.247(a)2 RSS-247 5.2(a)	6 dB Bandwidth	> 500 kHz	Pass
FCC 15.247(b)2 RSS-247 5.4(d)	Max Output Power	< 1 Watt	Pass
FCC 15.247(b)4 RSS-247 5.4(d)	Antenna Gain	< 6 dBi	Pass See Justifications
FCC 15.247(d) RSS-247 5.5	Antenna Conducted Spurious	< 30 dBc	Pass
FCC 15.247(e) RSS-247 5.2(b)	Spectral Density	< 8 dBm (3 kHz BW)	Pass
Overall Result			**Pass**

If the product as tested or otherwise complies with the specification, the EUT is deemed to comply with the requirement and is deemed a ‘PASS’ grade. If not ‘FAIL’ grade will be issued. Note that ‘PASS’ / ‘FAIL’ grade is independent of any measurement uncertainties. A ‘PASS’ / ‘FAIL’ grade within measurement uncertainty is marked with a ‘*’.

Notes, Justifications, or Deviations

The following notes, justifications for tests not performed or deviations from the above listed specifications apply:

For the Antenna requirement specified in FCC 15.203 (RSS-247 section 5.4(d)), the unit uses a 1.5 dBi gain flexible PCB antenna which is less than 6 dBi gain.

For the Restricted Bands of operation, the EUT is designed to only operate between 2400 – 2483.5 MHz.

The EUT is not a hybrid system and FCC 15.247 (f) does not apply to it.

The EUT contains a 902 – 928 MHz FHSS/Hybrid transmitter, a 2400 – 2483.5 MHz FHSS transmitter, three 2400 – 2483.5 DTS MHz transmitter, and UNII-1 and UNII-3 transmitters. Antenna co-location testing is applicable and documented in a test report.

For maximum permissible exposure, this device operates at less than 1 Watt at 2400 – 2483.5 MHz and is designed to operate greater than 20 cm from any personnel during normal operation. No testing is required, however worst-case calculated exposure compliance was shown in the RF Exposure exhibits.

This DTS report documents the 2.4 GHz 802.11 complaint transceiver. It has b/g/n protocols. The n protocol operates with 20 and 40 MHz bandwidth. Each protocol has multiple modulation schemes and data rates. For each protocol, bandwidth and power were pre-scanned and the worst-case results were presented in this report.

Sample Calculation(s)

Radiated Emission Test

E-Field Level = Received Signal + Antenna Factor + Cable Loss – Pre-Amp Gain
E-Field Level = 50dBµV + 10dB/m + 2dB – 20dB
E-Field Level = 42dBµV/m

Margin = Limit – E-Field Level
Margin = 50dBµV/m – 42dBµV/m
Margin = 8.0 dB (pass)

Power Line Conducted Emission Test

E-Field Level = Received Signal + Attenuation Factor + Cable Loss + LISN Factor
E-Field Level = 50dBµV + 10dB + 2.5dB + 0.5dB
E-Field Level = 63dBµV

Margin = Limit – E-Field Level
Margin = 73dBµV – 63dBµV
Margin = 10.0 dB (pass)

Applicable Standards, Specifications and Methods

ANSI C63.4:2014	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI C63.10:2013	American National Standard For Testing Unlicensed Wireless Devices
CFR 47 FCC 15 Subpart C	Code of Federal Regulations – Radio Frequency Devices, Intentional Radiators
CISPR 32:2012	Electromagnetic Compatibility of Multimedia Equipment – Emission Requirements
FCC KDB 558074: 2019	FCC KDB 558074 Digital Transmission Systems, measurements and procedures
FCC KDB 447498: 2015	RF exposure procedures and equipment authorization policies for mobile and portable devices
ICES-003 Issue 7 2020	Digital Apparatus - Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard
RSS-GEN Issue 5: 2018+A1:2019+A2:2021	General Requirements and Information for the Certification of Radio Apparatus
RSS-247 Issue 2:2017	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
ISO 17025:2017	General Requirements for the Competence of Testing and Calibration Laboratories

Document Revision Status

Revision	Date	Description	Initials
000	2022-04-24	Initial Release	MX
001	2022-05-03	Updated Appendix A and added antenna gain.	MX

Definitions and Acronyms

The following definitions and acronyms are applicable in this report.
See also ANSI C63.14.

DTS – Digital Transmission System
LISN – Line Impedance Stabilization Network
NCR – No Calibration Required
NSA – Normalized Site Attenuation
N/A – Not Applicable
RF – Radio Frequency

AE – Auxiliary Equipment. A digital accessory that feeds data into or receives data from another device (host) that in turn, controls its operation.

Antenna Port – Port, other than a broadcast receiver tuner port, for connection of an antenna used for intentional transmission and/or reception of radiated RF energy.

BW – Bandwidth. Unless otherwise stated, this refers to the 6 dB bandwidth.

EMC – Electro-Magnetic Compatibility. The ability of an equipment or system to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment.

EMI – Electro-Magnetic Immunity. The ability to maintain a specified performance when the equipment is subjected to disturbance (unwanted) signals of specified levels.

EUT – Equipment Under Test. A device or system being evaluated for compliance that is representative of a product to be marketed.

ITE – Information Technology Equipment. Has a primary function of entry, storage, display, retrieval, transmission, processing, switching, or control of data and/or telecommunication messages and which may be equipped with one or more ports typically for information transfer.

Testing Facility

Testing for EMC on the EUT was carried out at TÜV SÜD Canada testing lab near Toronto, Ontario. The testing lab has calibrated 3m semi-anechoic chambers which allow measurements on a EUT that has a maximum width or length of up to 2m and a height of up to 3m. The testing lab also has a calibrated 10m Open Area Test Site (OATS). The chambers are equipped with a turntable that is capable of testing devices up to 5000lb in weight and are equipped with a mast that controls the polarization and height of the antenna. Control of the mast occurs in the control room adjoining the shielded chamber. This facility is capable of testing products that are rated for single phase or 3-phase AC input and DC capability is also available. Radiated emission measurements are performed using a BiLog antenna and a Horn antenna where applicable. Conducted emissions, unless otherwise stated, are performed using a LISN and using the vertical ground plane if applicable.

Calibrations and Accreditations

The 3m semi-anechoic chamber is registered with Federal Communications Commission (FCC, CA6844), Innovation, Science and Economic Development Canada (ISED, 6844A-3) and Voluntary Control Council for Interference (VCCI, R-14023, G-20072, C-14498, and T-20060). This chamber was calibrated for Normalized Site Attenuation (NSA) using test procedures outlined in ANSI C63.4 "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz". The chamber is lined with ferrite tiles and absorption cones to minimize any undesired reflections. The NSA data is kept on file at TÜV SÜD Canada. For radiated susceptibility testing, a 16 point field calibration has been performed on the chamber. The field uniformity data is kept on file at TÜV SÜD Canada. TÜV SÜD Canada Inc. is accredited to ISO 17025 by A2LA with Testing Certificate #2955.02. The laboratory's current scope of accreditation listing can be found as listed on the A2LA website. All measuring equipment is calibrated on an annual or biennial basis as listed for each respective test.

Testing Environmental Conditions and Dates

Following environmental conditions were recorded in the facility during time of testing

Date	Test	Initials	Temperature (ºC)	Humidity (%)	Pressure (kPa)
2021-09-16	Radiated Emissions	MX	24.3	48.9	102.2
2021-09-14	Radiated Emissions	MX	24.0	57.2	101.0
2021-09-13	Radiated Emissions	MX	24.0	44.8	101.8
2022-02-16	Antenna Conducted Emissions	MX	23.0	17.4	101.6
2022-02-17	Antenna Conducted Emissions	MX	23.2	22.3	100.5
2021-10-01	Power Line Conducted Emissions	MX	23.2	39.8	102.2

Detailed Test Results Section

6dB Bandwidth of Digitally Modulated Systems

Purpose

The purpose of this test is to ensure that the bandwidth occupied exceeds a stated minimum. This helps ensure the utilization of the frequency allocation is sufficiently wide. This also helps prevent corruption of data by ensuring adequate data separation to distinguish the reception of the intended information.

Limits and Method

The limit is as specified in FCC Part 15.247(a)2 and RSS-247 5.2(a).

Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz. This should be measured with a 100 kHz RBW and a 300 kHz VBW.

The method is given in FCC KDB 558074 Section 8.1 and ANSI C63.10.

Results

The EUT passed. The minimum measured 6 dB BW was of all modulations were greater than 500 kHz.

Additional 99% bandwidth were measured for information purpose. There is no requirement on 99% bandwidth.

The EUT supports three modes of operation, 802.11 b/g/n. The n-mode supports 20 and 40 MHz nominal bandwidth. Three Channels for each mode were measured. The following tables show the 6 dB and 99% bandwidth:

Bandwidth - B-Mode					
Channel	**Frequency (MHz)**	**6 dB BW (MHz)**	**99% BW (MHz)**	**6 dB BW Limit (kHz)**	**Pass/Fail**
1	2412	9.040	13.89	500	Pass
6	2437	9.030	13.89	500	Pass
11	2462	8.990	13.91	500	Pass

Bandwidth G-Mode					
Channel	**Frequency (MHz)**	**6 dB BW (MHz)**	**99% BW (MHz)**	**6 dB BW Limit (kHz)**	**Pass/Fail**
1	2412	15.670	16.67	500	Pass
6	2437	15.750	16.65	500	Pass
11	2462	15.660	16.65	500	Pass

Bandwidth N-Mode: 20 MHz					
Channel	**Frequency (MHz)**	**6 dB BW (MHz)**	**99% BW (MHz)**	**6 dB Limit (kHz)**	**Pass/Fail**
1	2412	15.658	17.60	500	Pass
6	2437	15.875	17.59	500	Pass
11	2462	15.690	17.59	500	Pass

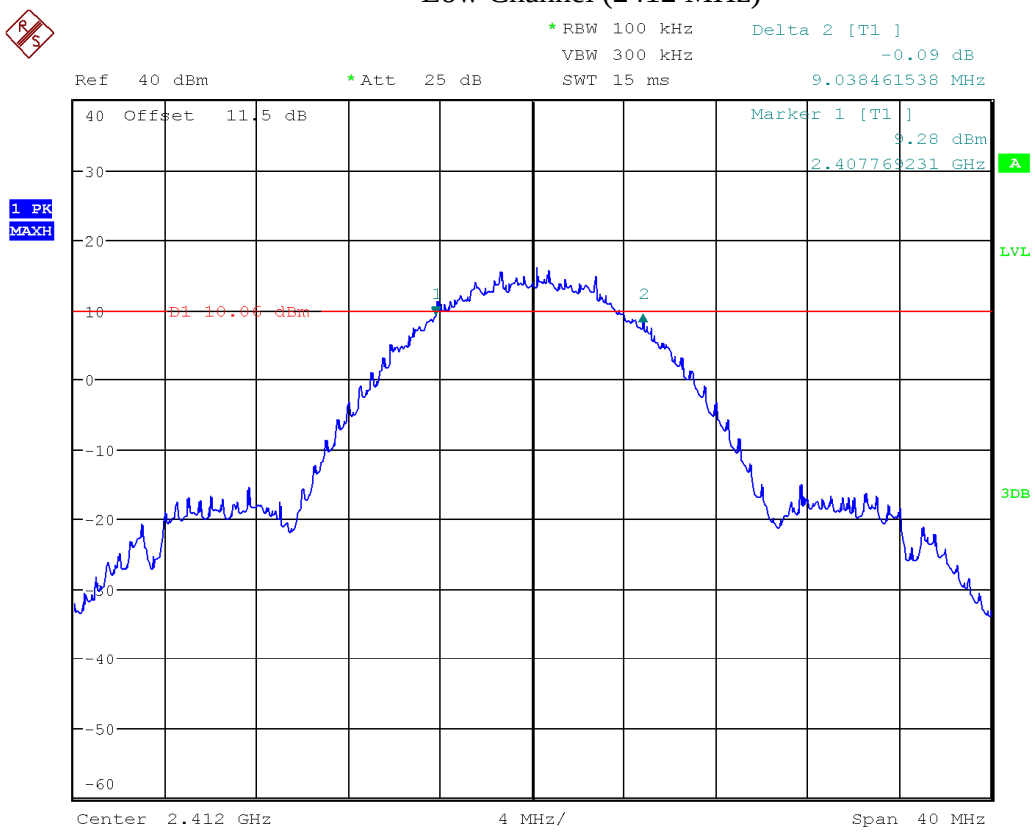
Bandwidth N-Mode: 40 MHz					
Channel	**Frequency (MHz)**	**6 dB BW (MHz)**	**99% BW (MHz)**	**6 dB Limit (kHz)**	**Pass/Fail**
3	2422	35.670	36.06	500	Pass
6	2437	35.708	36.03	500	Pass
9	2452	36.050	36.06	500	Pass

Graphs

The graphs shown below show the OBW of the device during the conducted measurement operation of the EUT. This is measured by a max hold on the spectrum analyzer.

6 dB Bandwidth B- Mode

Low Channel (2412 MHz)



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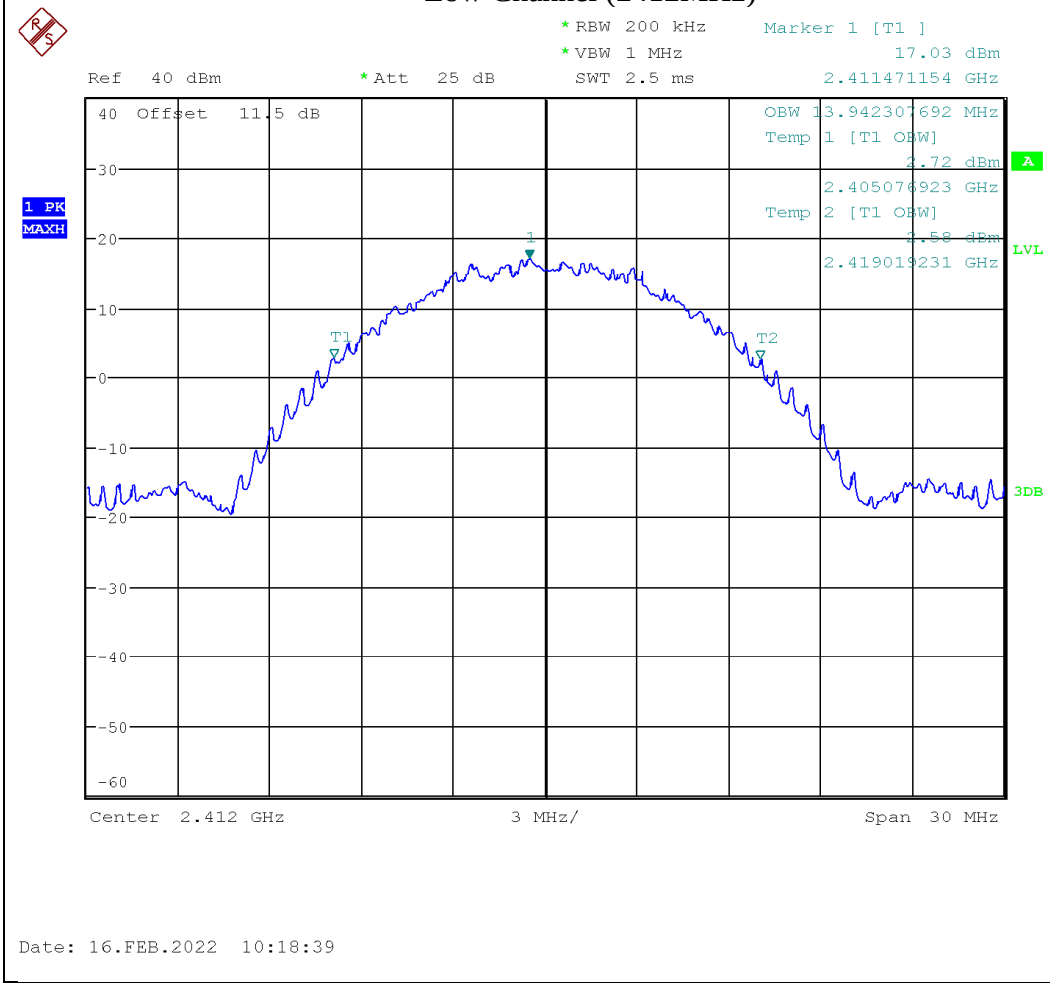
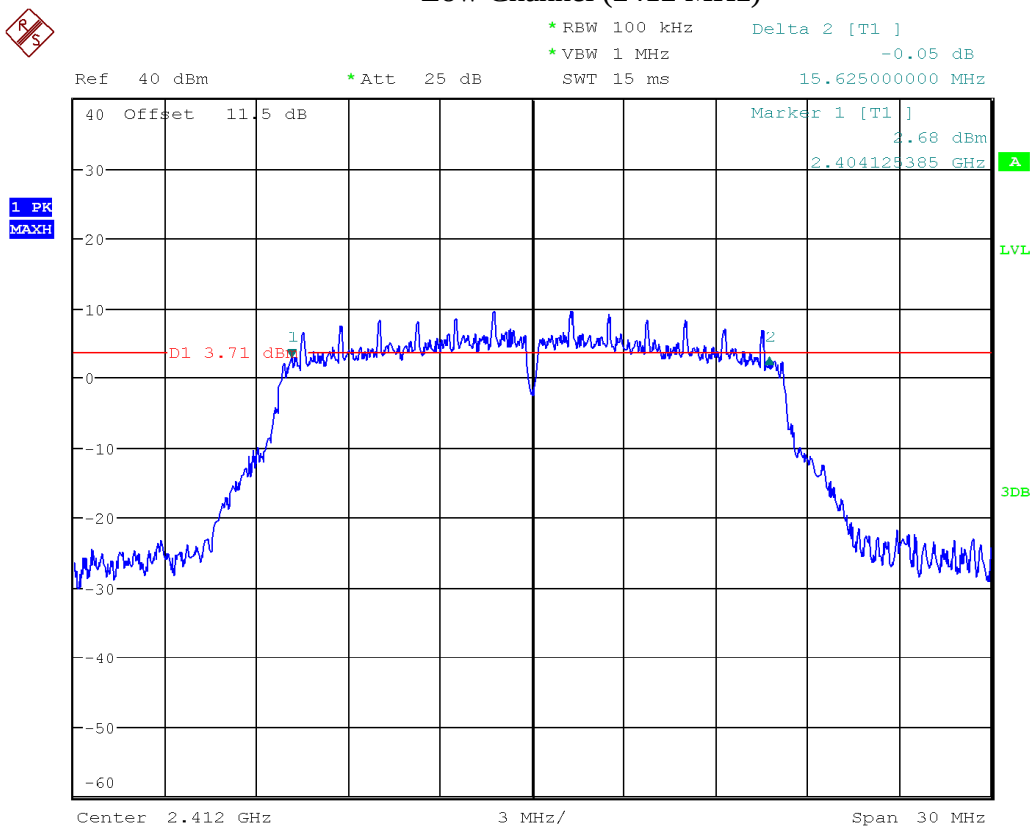
99% Bandwidth B- Mode

Low Channel (2412MHz)



6 dB Bandwidth G- Mode

Low Channel (2412 MHz)



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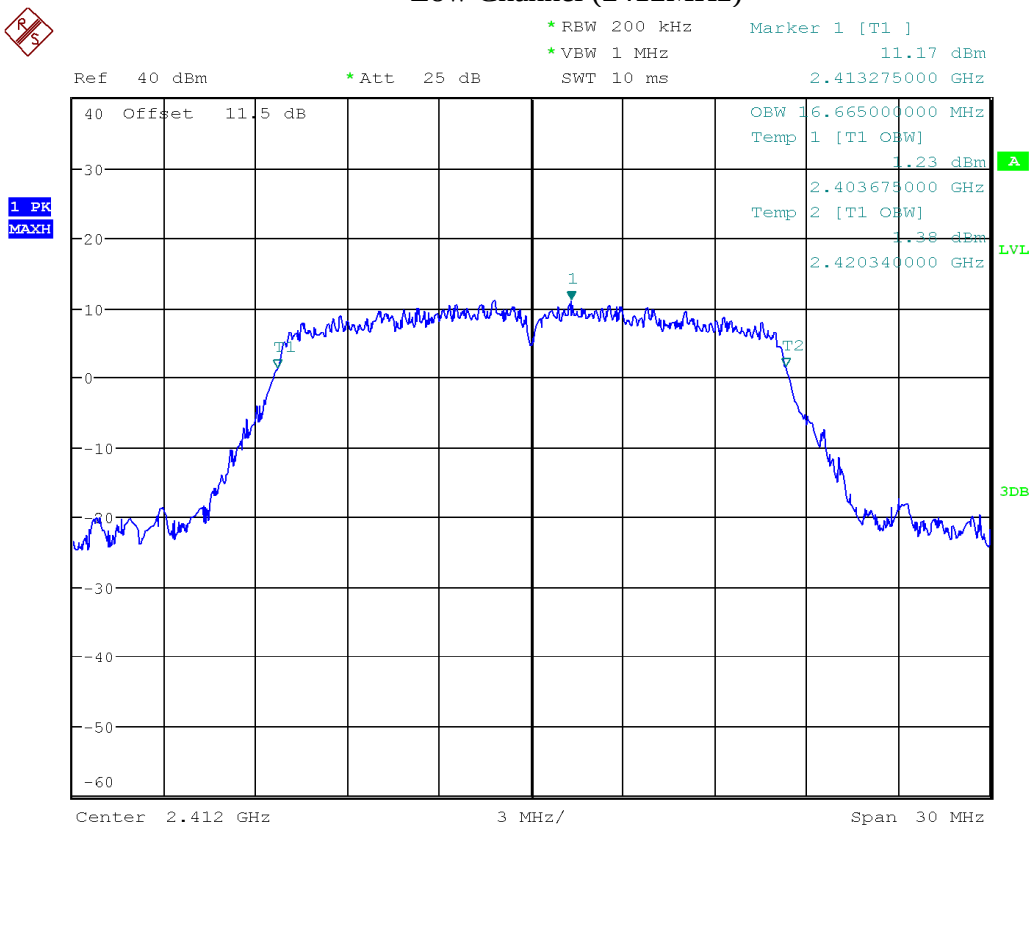
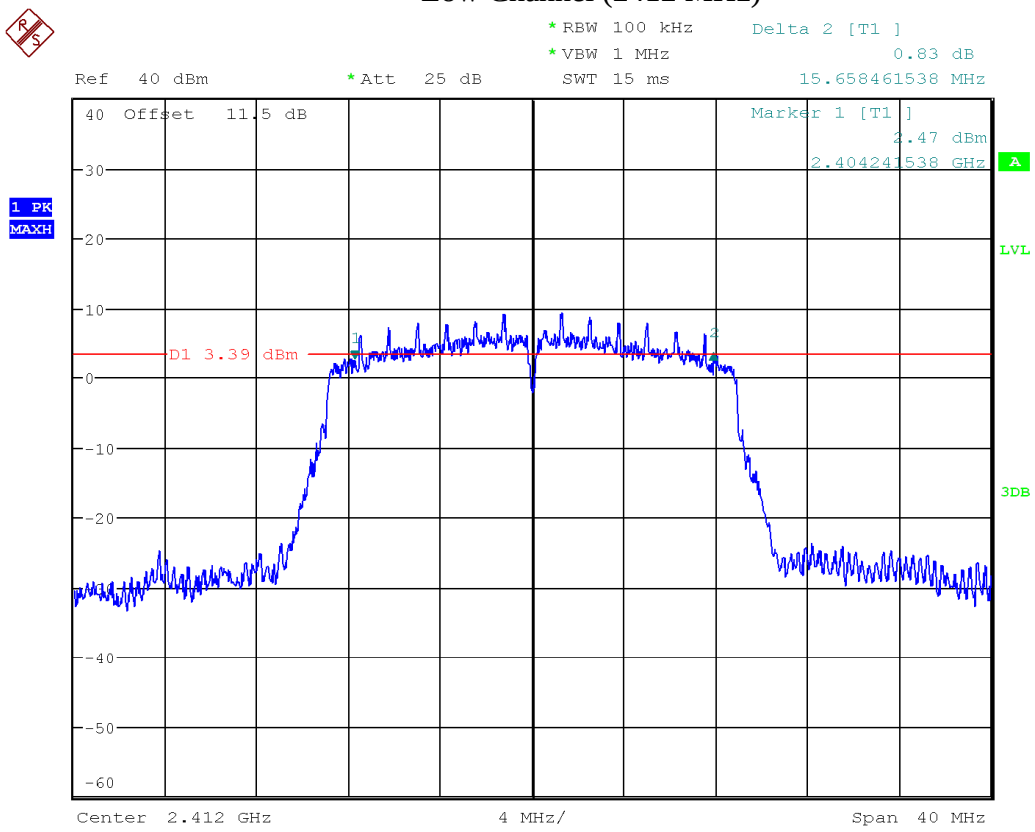
99% Bandwidth G- Mode

Low Channel (2412MHz)



6 dB Bandwidth N- Mode: 20 MHz

Low Channel (2412 MHz)



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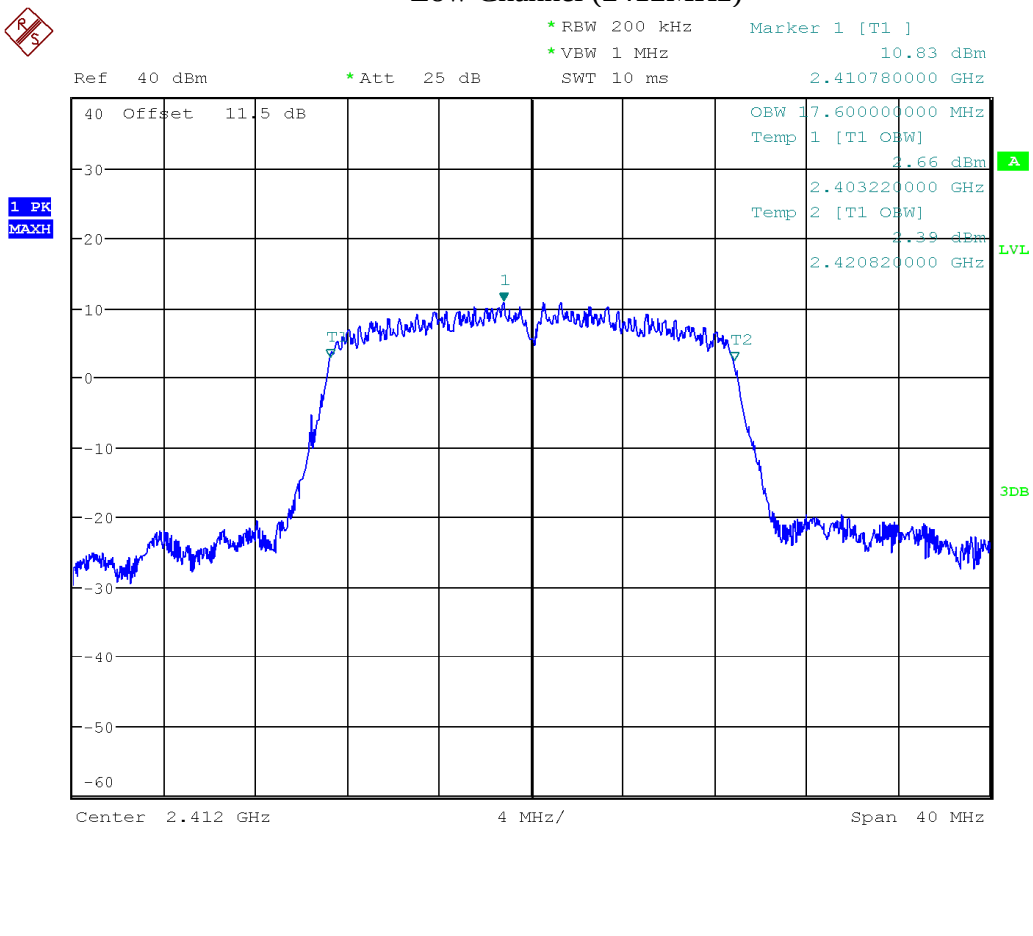
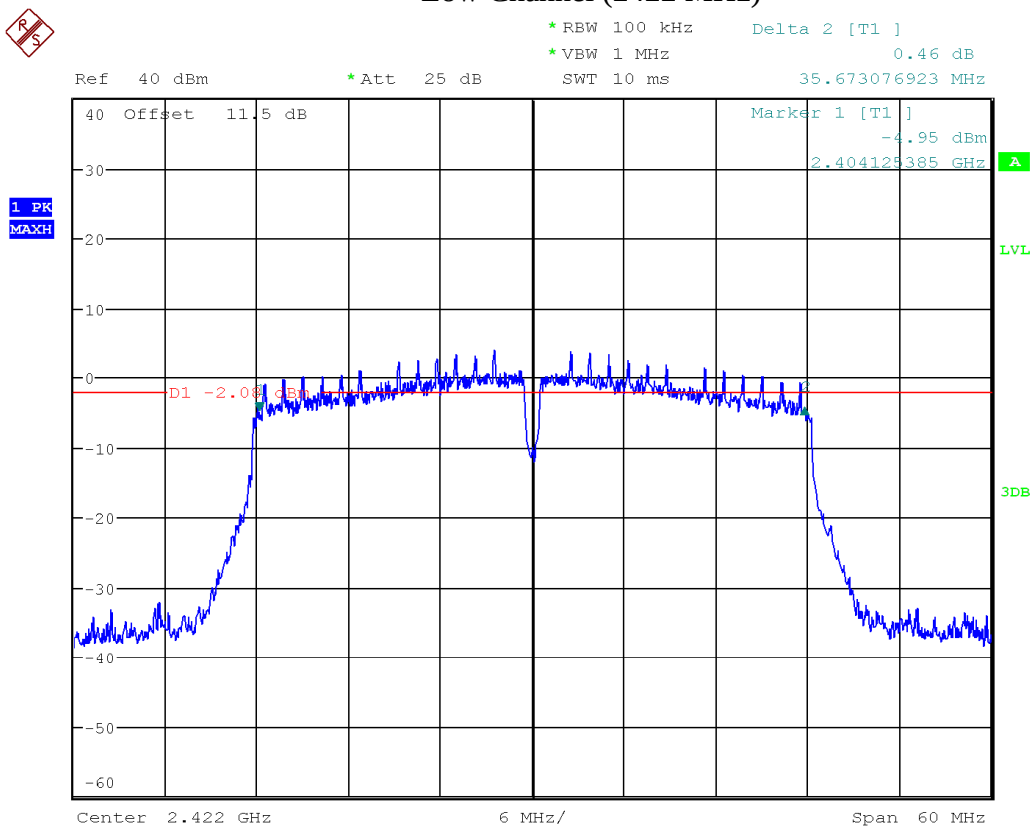
99% Bandwidth N- Mode: 20 MHz

Low Channel (2412MHz)



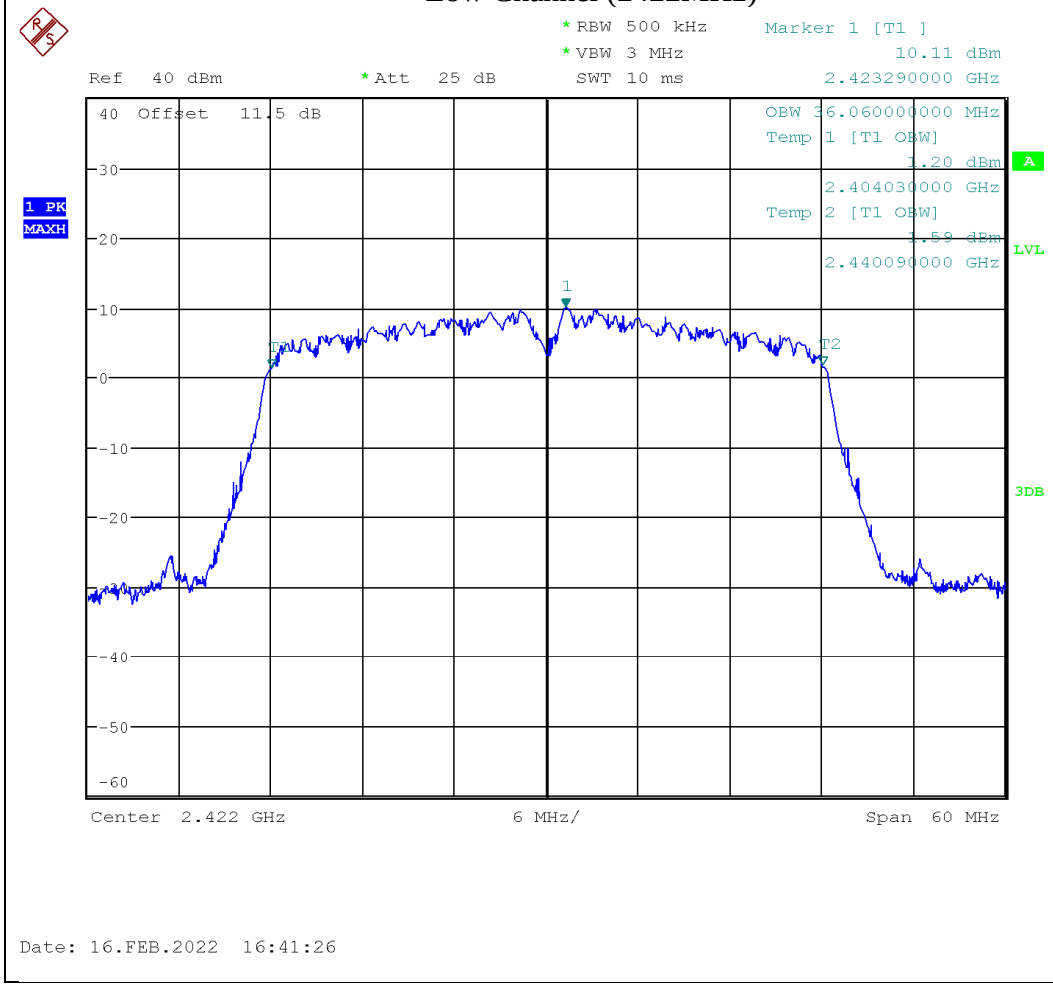
6 dB Bandwidth N- Mode: 40 MHz

Low Channel (2422 MHz)



99% Bandwidth N- Mode: 40 MHz

Low Channel (2422MHz)



Note: See 'Appendix B – EUT & Test Setup Photos' for photos showing the test set-up.

Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
Spectrum Analyzer	FSQ26	Rohde & Schwarz	Nov 30, 2021	Nov 30, 2023	GEMC 234
Attenuator 10 dB	8493B	Agilent	Oct 4, 2021	Oct 4, 2022	GEMC133

Maximum Peak Envelope Conducted Power

Purpose

The purpose of this test is to ensure that the maximum power conducted to the radiating element does not exceed the limits specified. This ensures that if the end-user replaces the antenna, the maximum power does not exceed an amount which may create an excessive power level.

Limits and Method

The limits are defined in FCC Part 15.247(b) and RSS-247 5.4(d).
For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands, the peak limit is 1 watt (30 dBm).

The method is given in FCC KDB 558074 Section 9.1.2 and ANSI C63.10.

Results

The EUT passed. The EUT was set to transmit at pre-set power. The EUT supports three modes of operation, 802.11 b/g/n. The n-mode supports 20 and 40 MHz nominal bandwidth. Three Channels for each mode were measured. The following tables show the peak power: The external attenuator and cable loss were accounted for as reference offset in the spectrum analyzer.

Output Power: B-Mode					
Channel	**Frequency (MHz)**	**Avg Power (dBm)**	**Avg Power (mW)**	**Limit (mW)**	**Pass/Fail**
1	2412	22.94	196.79	1000	Pass
6	2437	22.95	197.24	1000	Pass
11	2462	22.95	197.24	1000	Pass

Output Power: G-Mode					
Channel	**Frequency (MHz)**	**Avg Power (dBm)**	**Avg Power (mW)**	**Limit (mW)**	**Pass/Fail**
1	2412	19.72	93.76	1000	Pass
6	2437	19.56	90.36	1000	Pass
11	2462	19.51	89.33	1000	Pass

Output Power: N-Mode: 20 MHz					
Channel	**Frequency (MHz)**	**Power (dBm)**	**Power (mW)**	**Limit (mW)**	**Pass/Fail**
1	2412	18.97	78.89	1000	Pass
6	2437	18.92	77.98	1000	Pass
11	2462	18.87	77.09	1000	Pass

Output Power: N-Mode: 40 MHz					
Channel	**Frequency (MHz)**	**Power (dBm)**	**Power (mW)**	**Limit (mW)**	**Pass/Fail**
3	2422	16.58	45.50	1000	Pass
6	2437	16.45	44.16	1000	Pass
9	2452	16.48	44.46	1000	Pass

Note: The external attenuator and cable loss are accounted for as reference offset in the spectrum analyzer

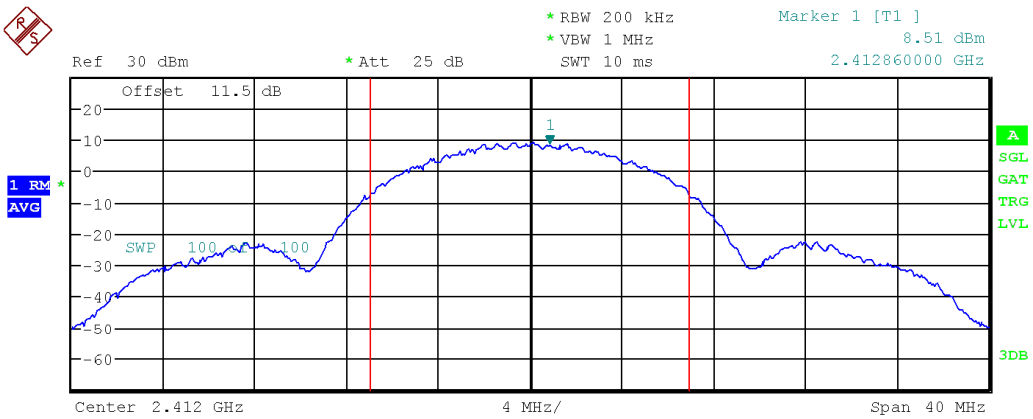
Graphs

The graphs shown below show the average power output of the device during the conducted measurement operation of the EUT. The integrated band power measurement method was used.

The external attenuator and cable loss are accounted for as reference offset in the spectrum analyzer.

Average Power, B-Mode

Low Channel



Tx Channel

Bandwidth	13.89 MHz	Power	22.94 dBm

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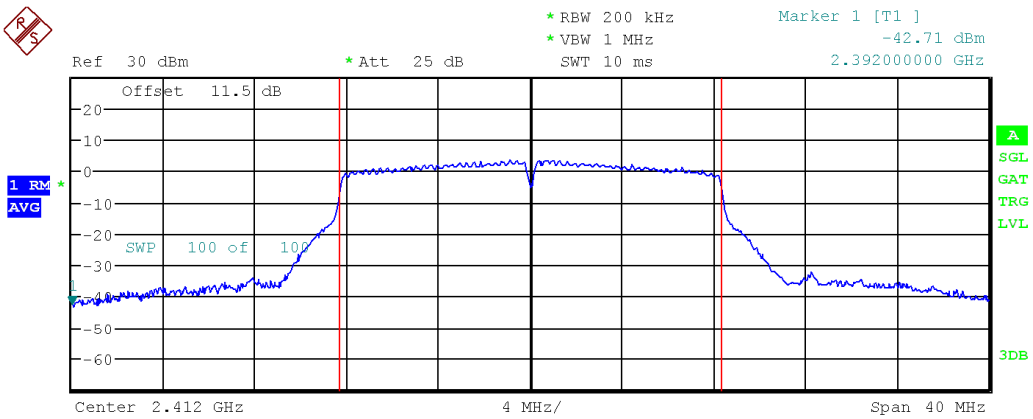
Average Power, G-Mode

Low Channel



Tx Channel

Bandwidth	16.67 MHz	Power	19.72 dBm

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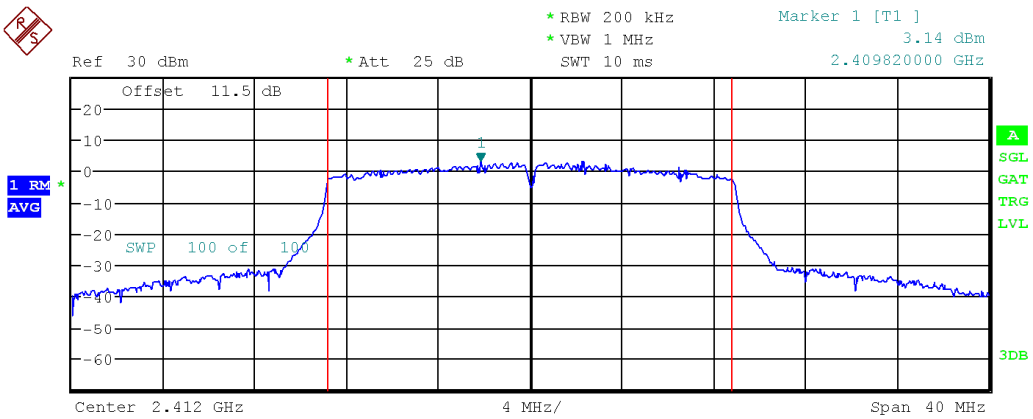
Average Power, N-Mode: 20 MHz

Low Channel



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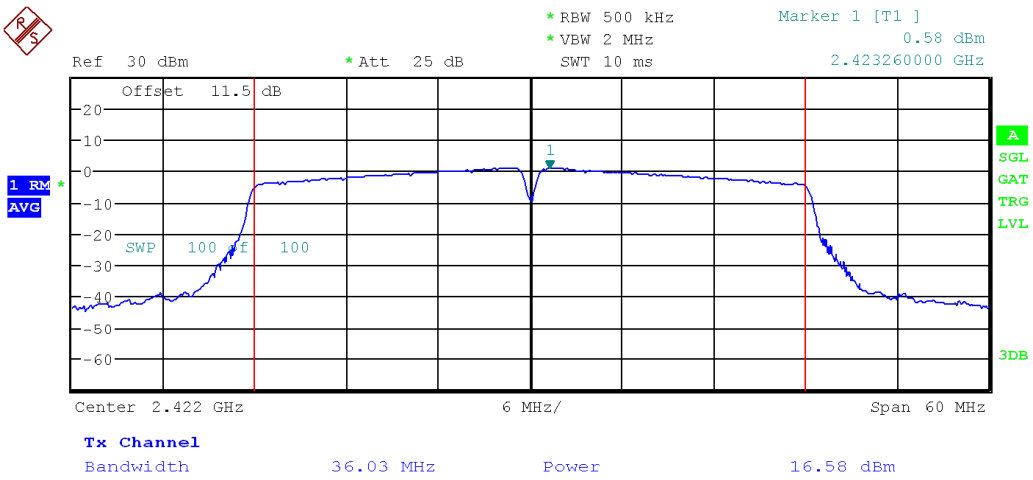
Average Power, N-Mode: 40 MHz

Low Channel



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See 'Appendix B – EUT and Test Setup Photos' for photos showing the test set-up.

Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
Spectrum Analyzer	FSQ26	Rohde & Schwarz	Nov 30, 2021	Nov 30, 2023	GEMC 234
Attenuator 10 dB	8493B	Agilent	Oct 4, 2021	Oct 4, 2022	GEMC133

Power Spectral Density

Purpose

The purpose of this test is to ensure that the maximum power spectral density to the radiating element does not exceed the limits specified. This ensures that the modulation is significantly wide enough, or low enough in power that it will allow for co-operation of other wireless devices operating within this frequency allocation.

Limits and Method

The limits are defined in 15.247(e) and RSS-247 5.2(b).

For digitally modulated systems, 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.

The method is given in FCC KDB 558074 and ANSI C63.10 Section 11.10.3 (AVGPSD-1).

Results

The EUT passed. The EUT was set to transmit at maximum power. The EUT supports three modes of operation, 802.11 b/g/n. The n-mode supports 20 and 40 MHz nominal bandwidth. Three Channels for each mode were measured. The following tables show the peak power spectral density: External attenuator and cable loss were accounted for as reference offset in the spectrum analyzer.

PSD: B-Mode				
Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm/3kHz)	Pass/Fail
1	2412	6.20	8	Pass
6	2437	6.41	8	Pass
11	2462	6.60	8	Pass

PSD: G-Mode				
Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm/3kHz)	Pass/Fail
1	2412	0.60	8	Pass
6	2437	0.58	8	Pass
11	2462	0.54	8	Pass

PSD, N-Mode: 20 MHz				
Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm/3kHz)	Pass/Fail
1	2412	-0.27	8	Pass
6	2437	-0.27	8	Pass
11	2462	-0.21	8	Pass

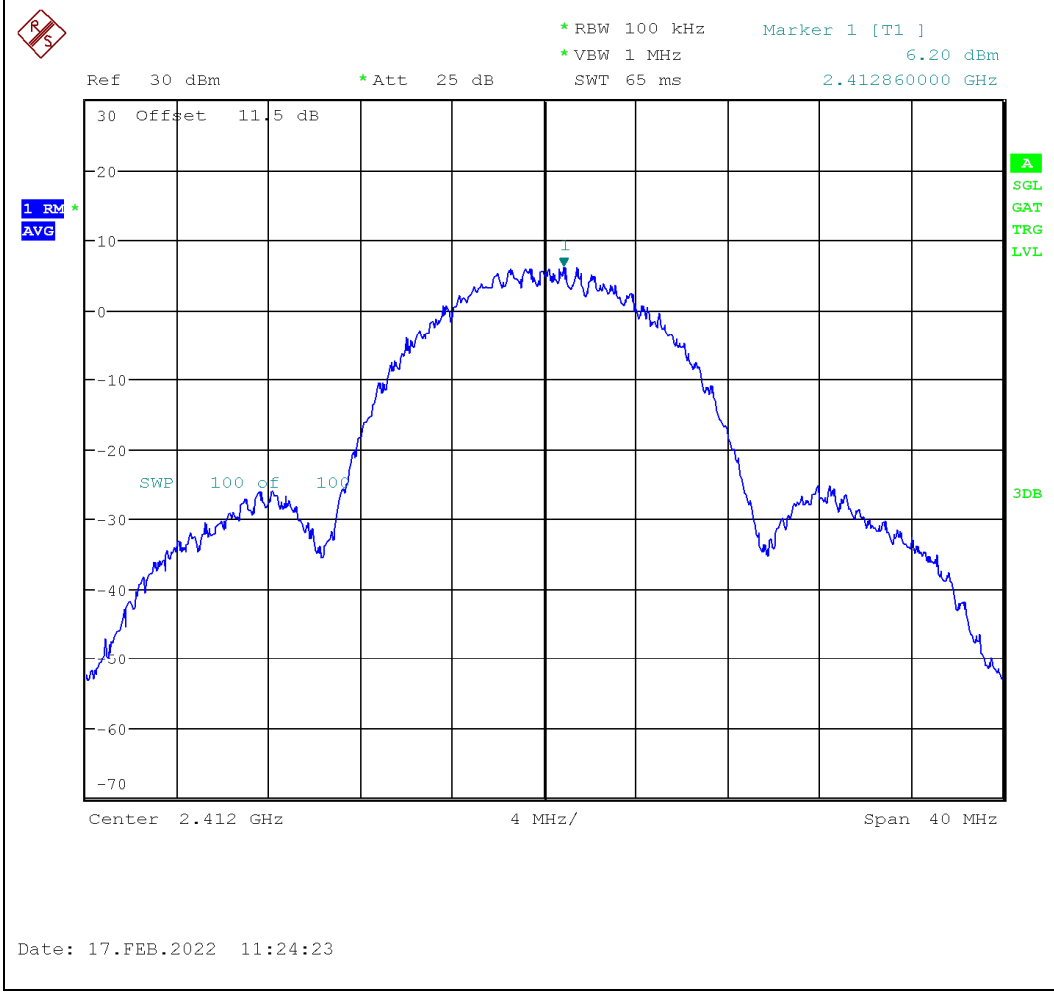
PSD, N-Mode: 40 MHz				
Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm/3kHz)	Pass/Fail
3	2422	-4.70	8	Pass
6	2437	-5.30	8	Pass
9	2452	-2.83	8	Pass

Graphs

The graphs shown below show the power spectral density of the device during the conducted measurement operation of the EUT. Low, middle, and high channels were investigated. The external attenuator and cable loss are accounted for as reference offset in the spectrum analyzer.

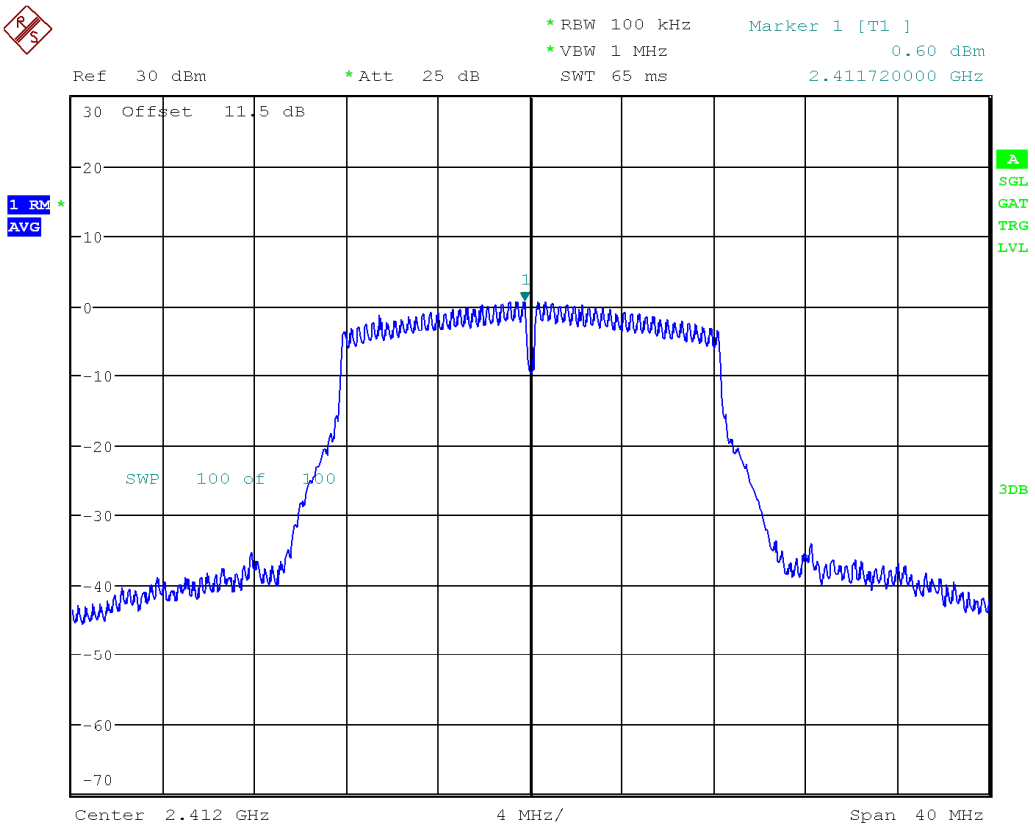
PSD, B-Mode

Low Channel



PSD, G-Mode

Low Channel



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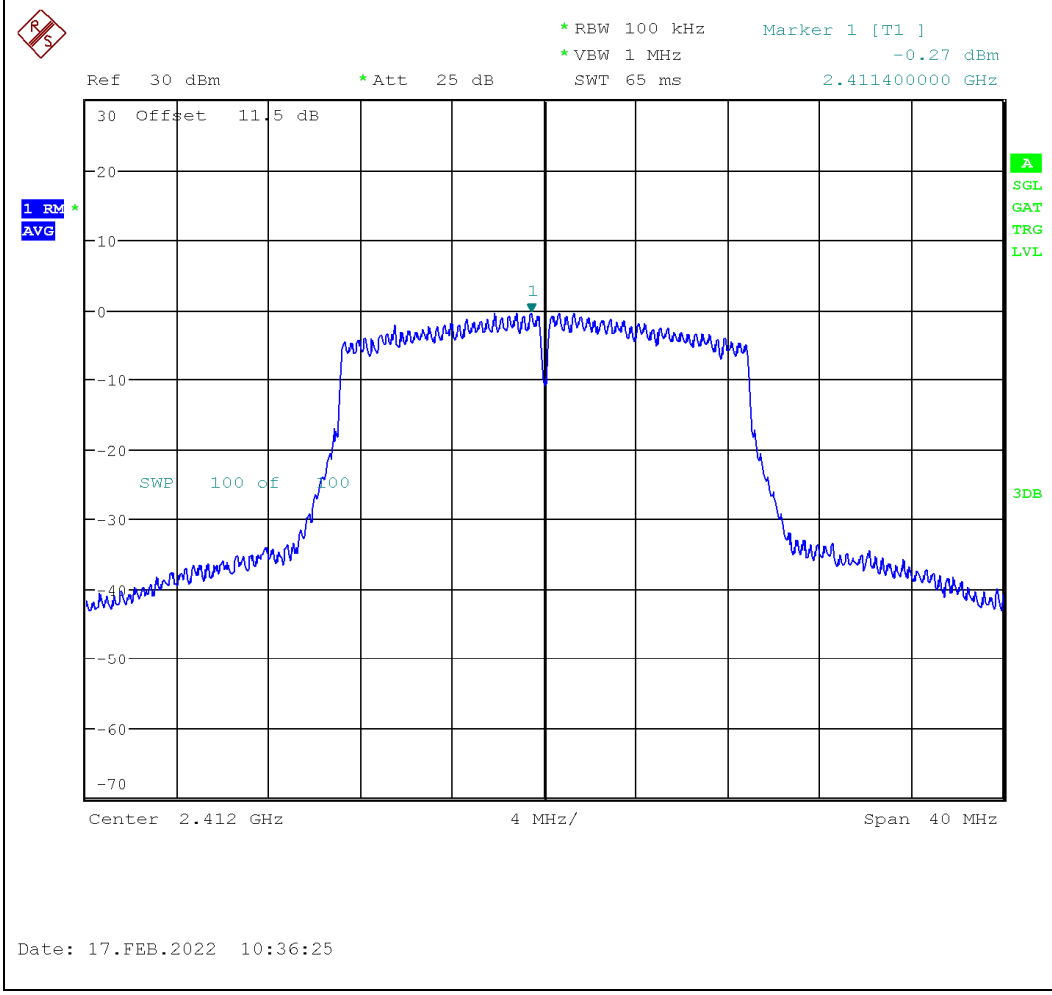
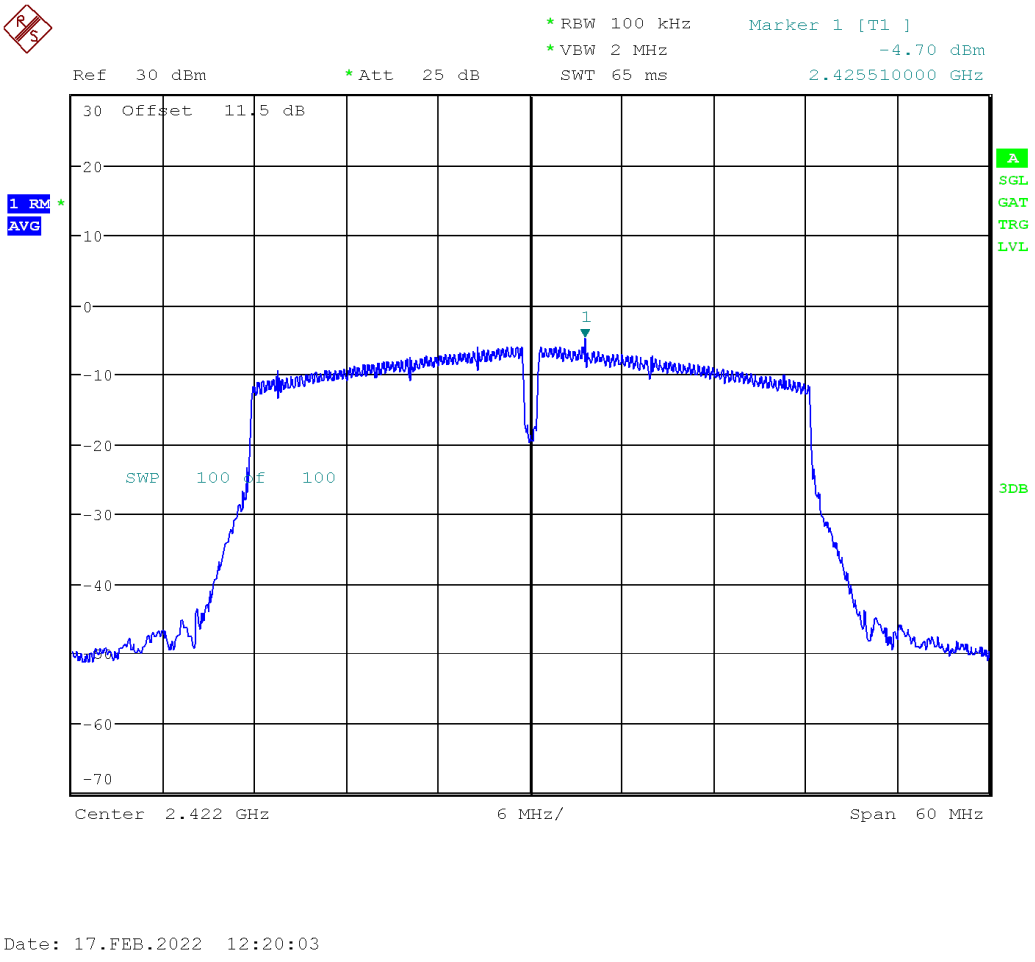
PSD, N-Mode: 20 MHz

Low Channel



PSD, N-Mode: 40 MHz

Low Channel



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Antenna Spurious Conducted Emissions

Purpose

The purpose of this test is to ensure that the maximum power conducted to the radiating element at frequencies outside of the authorized spectrum does not exceed the limits specified. This ensures that the only the intended signal is delivered to the radiating element.

Limits and Method

The limits are defined in 15.247(d) and RSS-247 5.5. In any 100 kHz band, the peak spurious harmonics emissions must be at least 20 dB below the fundamental. Spurious Conducted emissions are to be evaluated up to the 10^{th} harmonic. This -20 dBc requirement also applies at the 'band edge' or 2.4 GHz and 2.4835 GHz.

The method is given in FCC KDB 558074 Section 11 and ANSI C63.10

Results

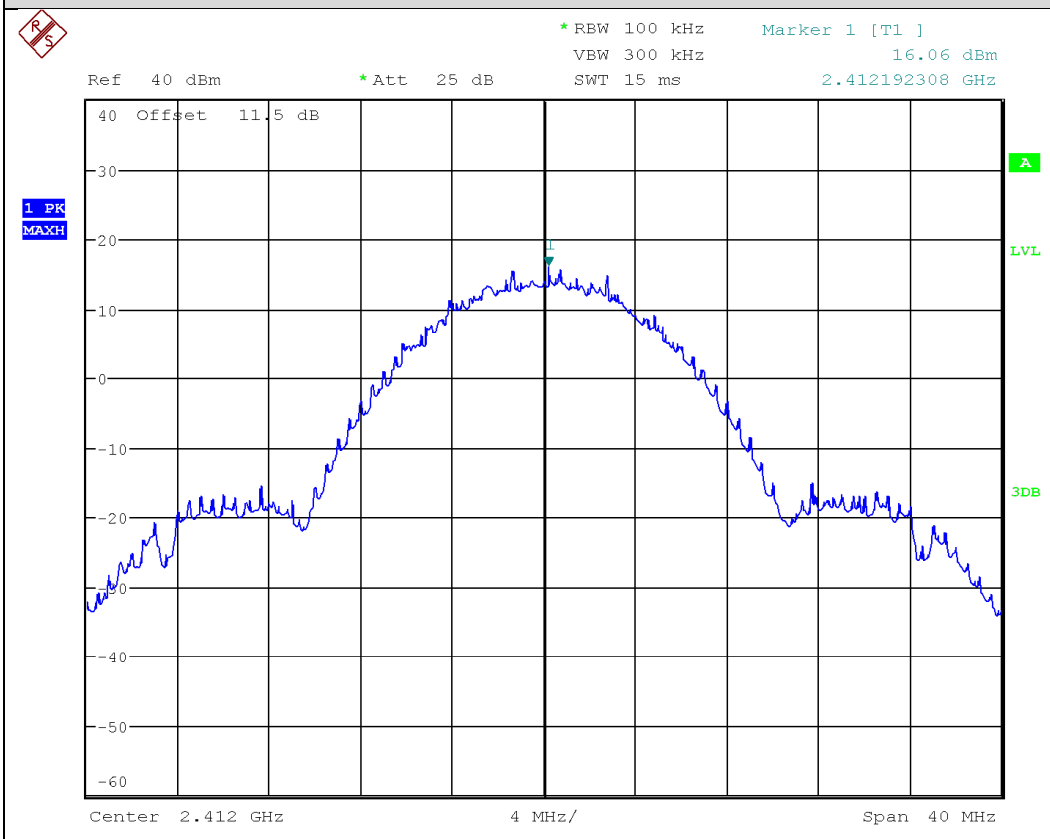
The EUT passed. Low, middle, and high bands were measured. The -30 dBc requirement is shown for the lower band edge at 2.4 GHz in the low band and for the higher band edge at 2.4835 GHz in the high band.

Graphs

The graphs shown below show the power output of the device during the conducted measurement operation of the EUT.

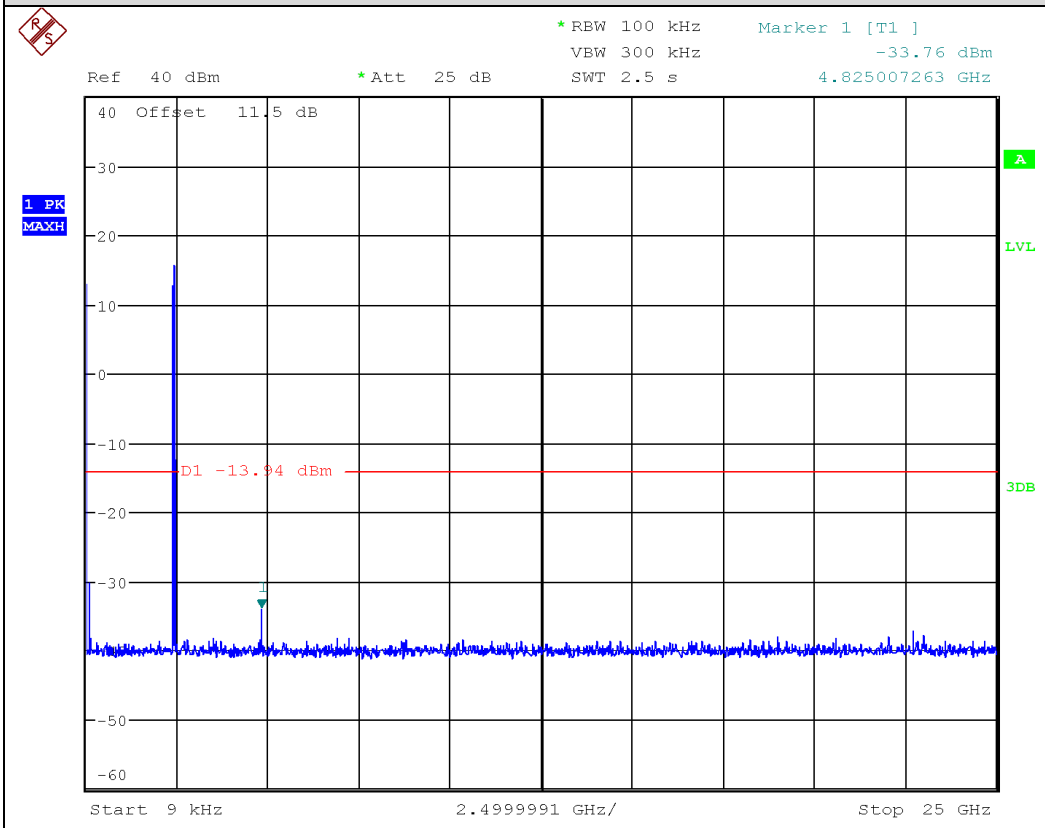
-30 dBc, B-Mode

Reference level: 16.06 dBm



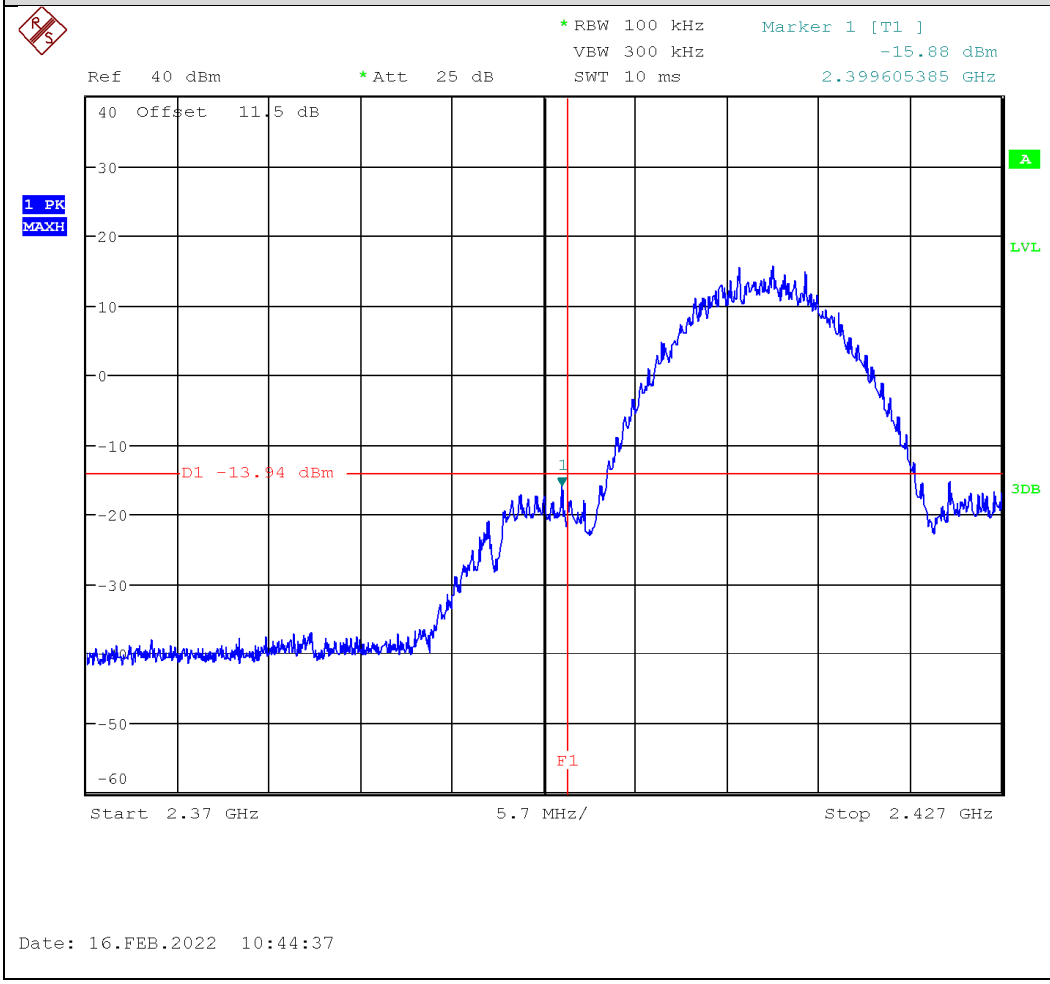
-30 dBc, B-Mode

9 kHz – 24 GHz



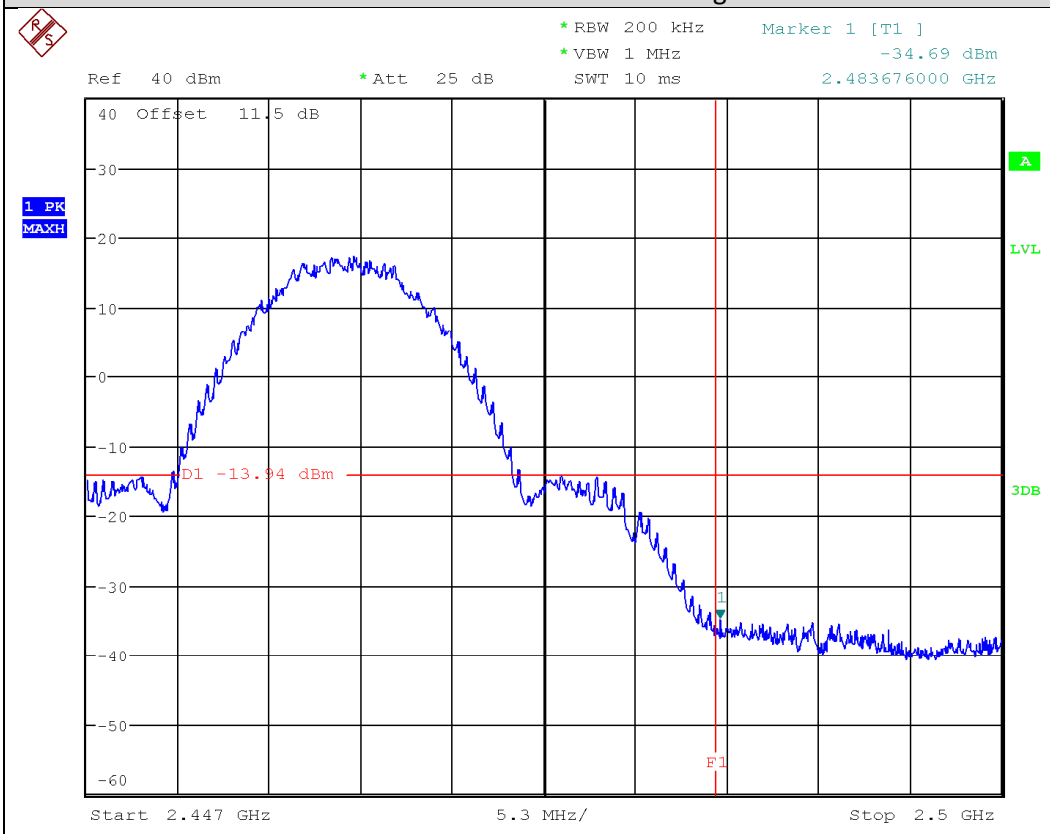
-30 dBc, B-Mode

2400 MHz Band edge



-30 dBc, B-Mode

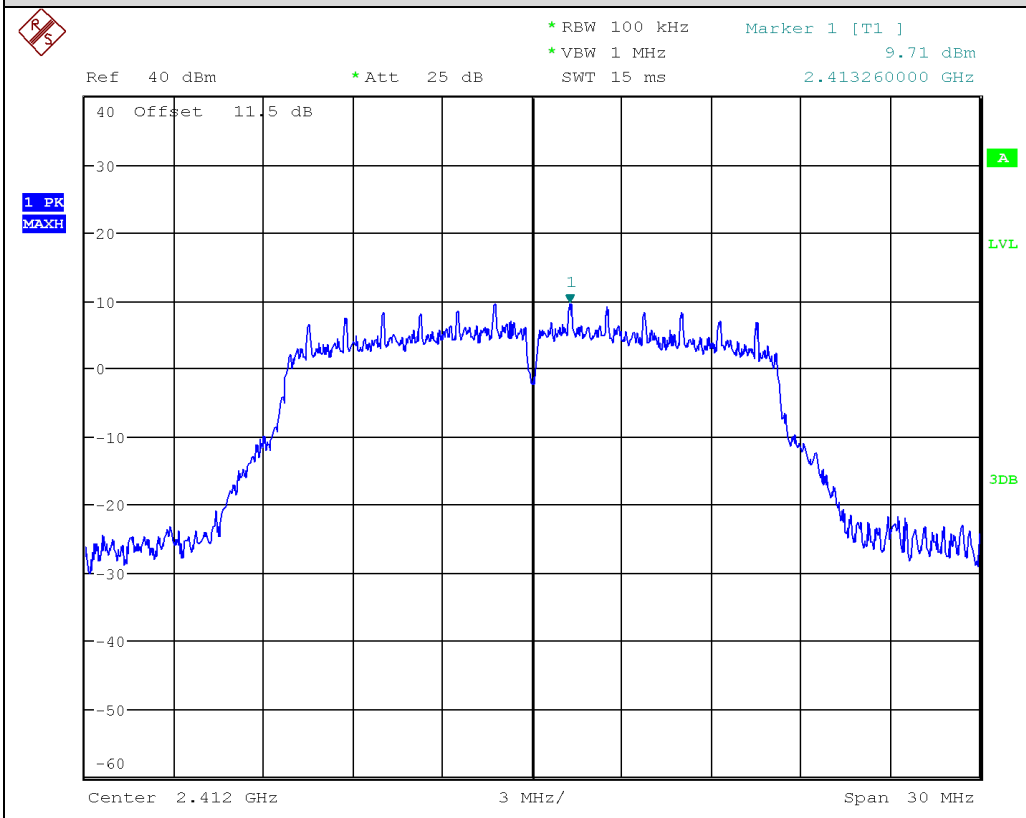
2483.5 MHz Band edge



Date: 16.FEB.2022 11:18:10

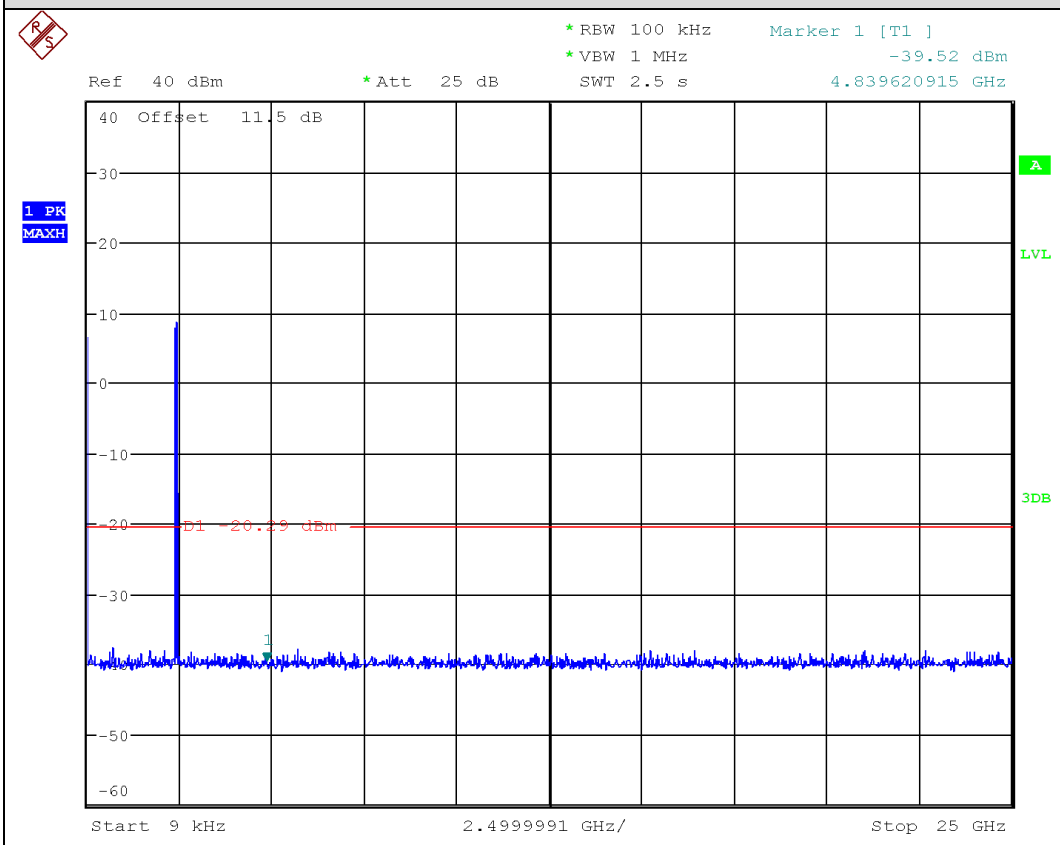
-30 dBc, G-Mode

Reference level: 9.71 dBm



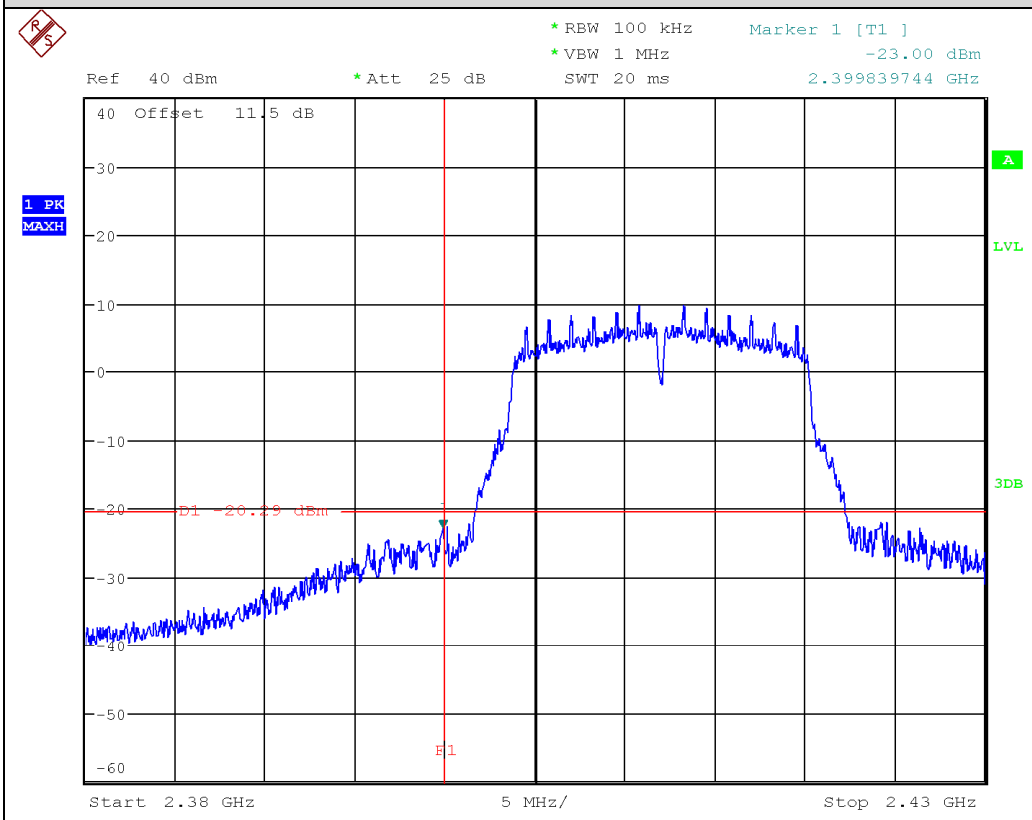
-30 dBc, G-Mode

9 kHz – 25 GHz



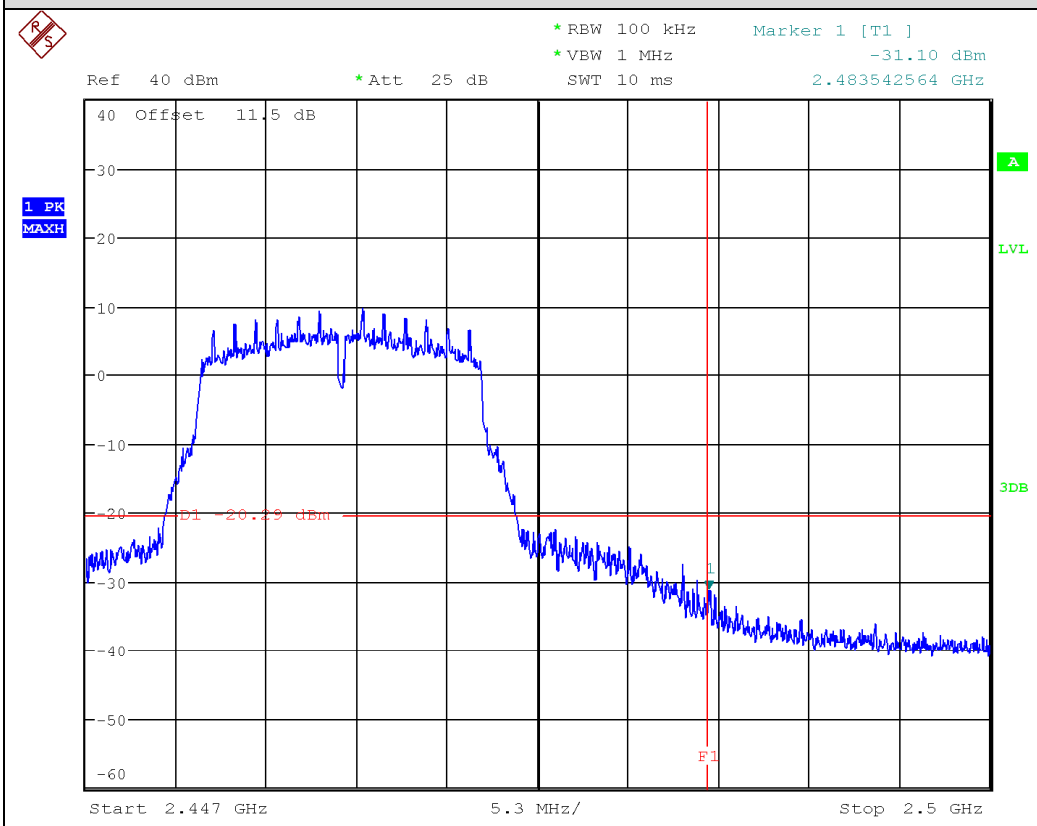
-30 dBc, G-Mode

2400 MHz Band edge



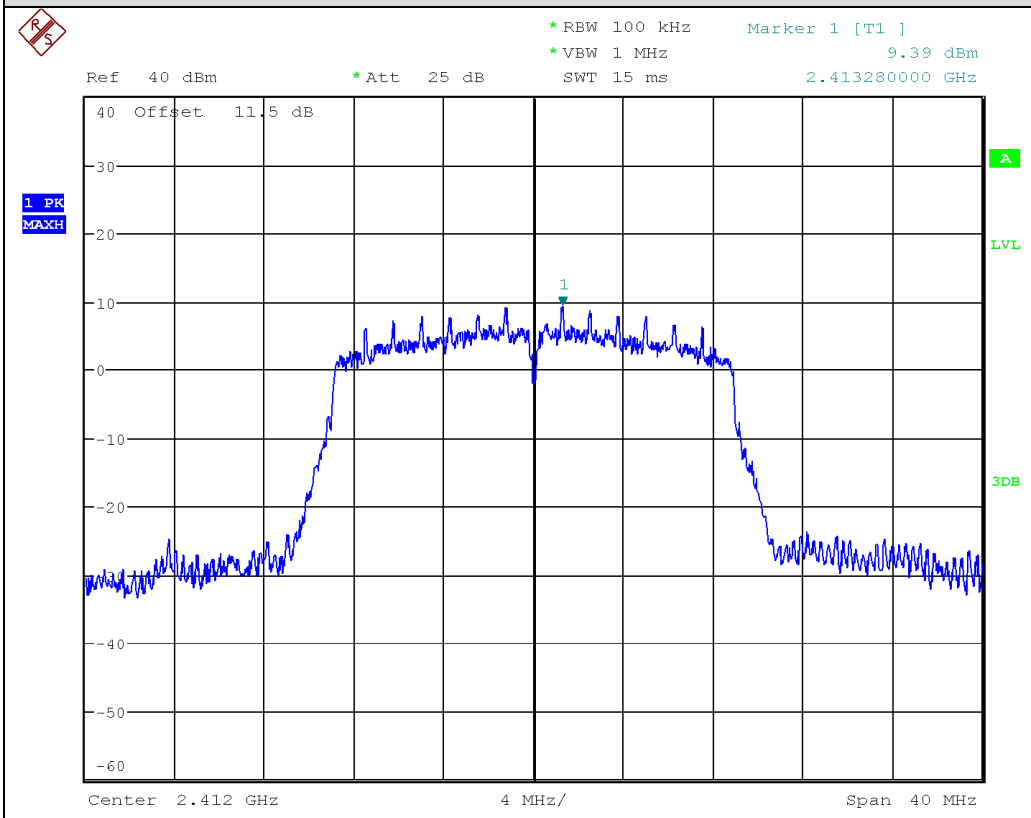
-30 dBc, G-Mode

2483.5 MHz Band edge



-30 dBc, N-Mode: 20 MHz

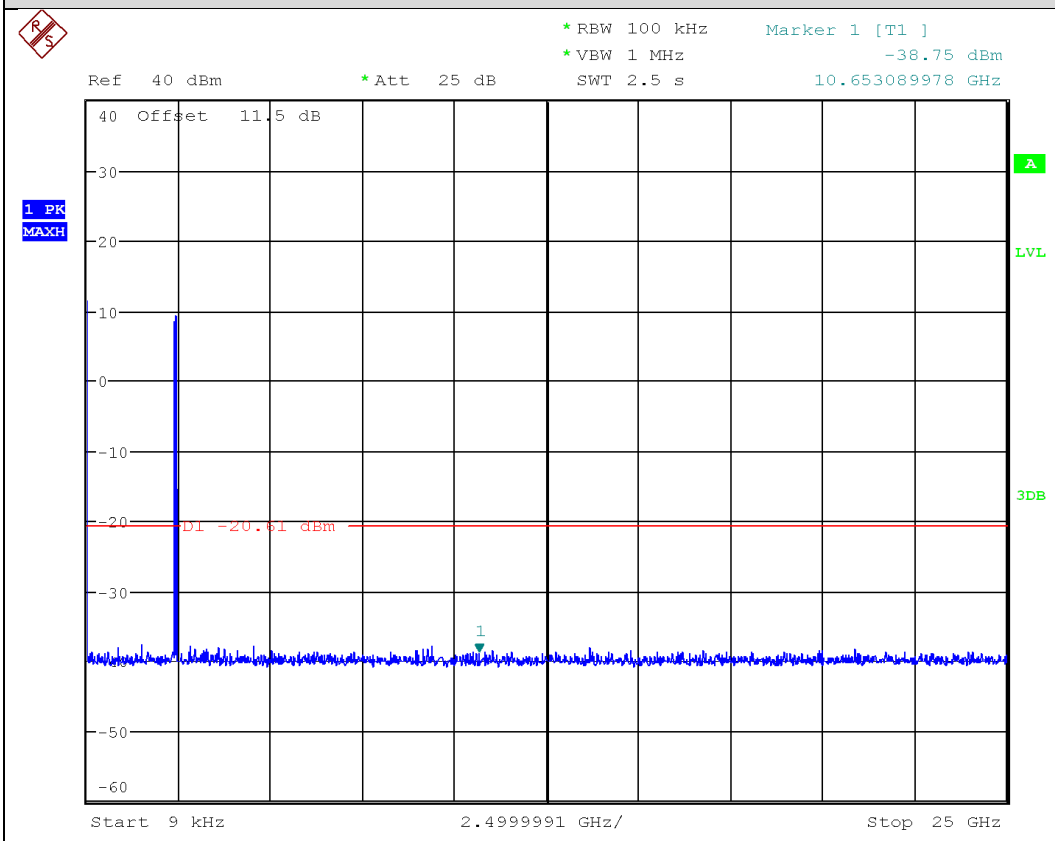
Reference level: 9.39 dBm



Date: 16.FEB.2022 14:08:36

-30 dBc, N-Mode: 20 MHz

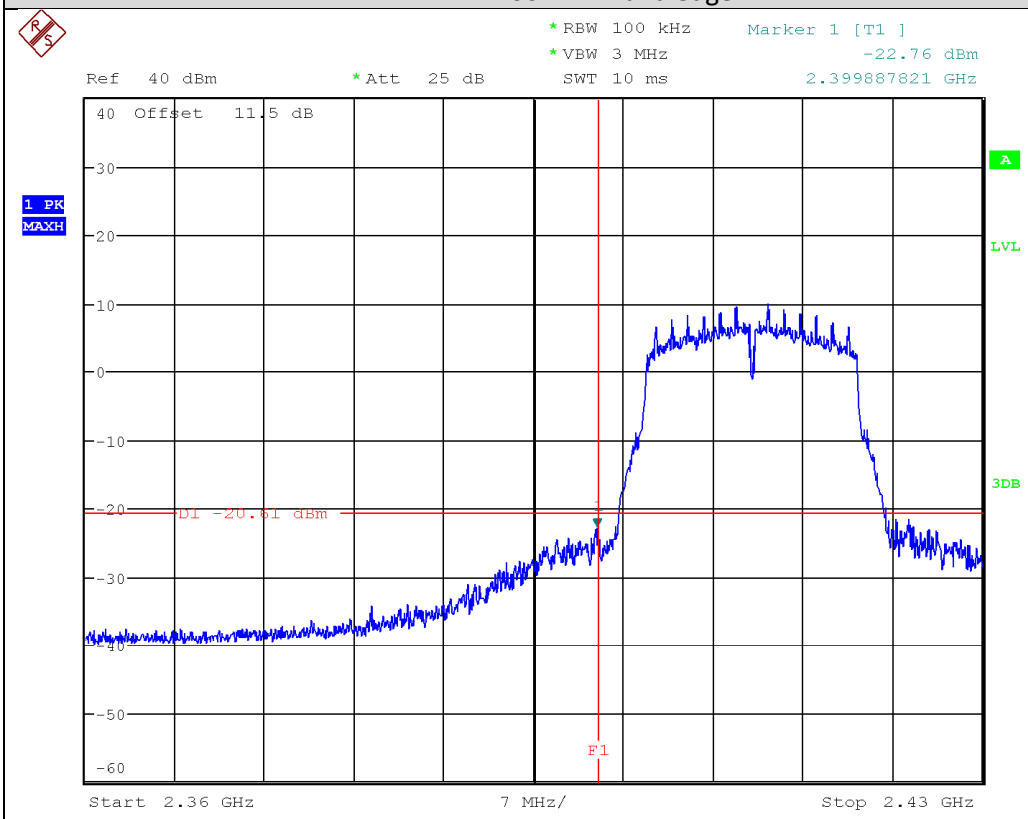
9 kHz – 25 GHz



Date: 16.FEB.2022 15:46:29

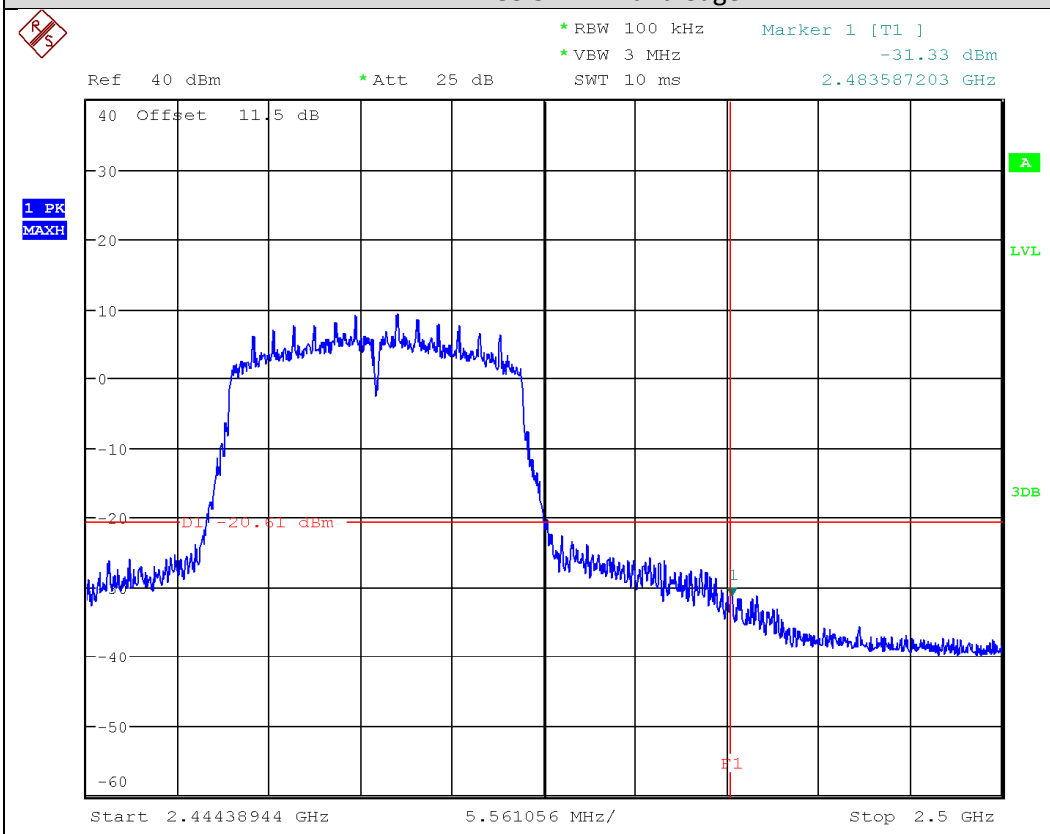
-30 dBc, N-Mode: 20 MHz

2400 MHz Band edge



-30 dBc, N-Mode: 20 MHz

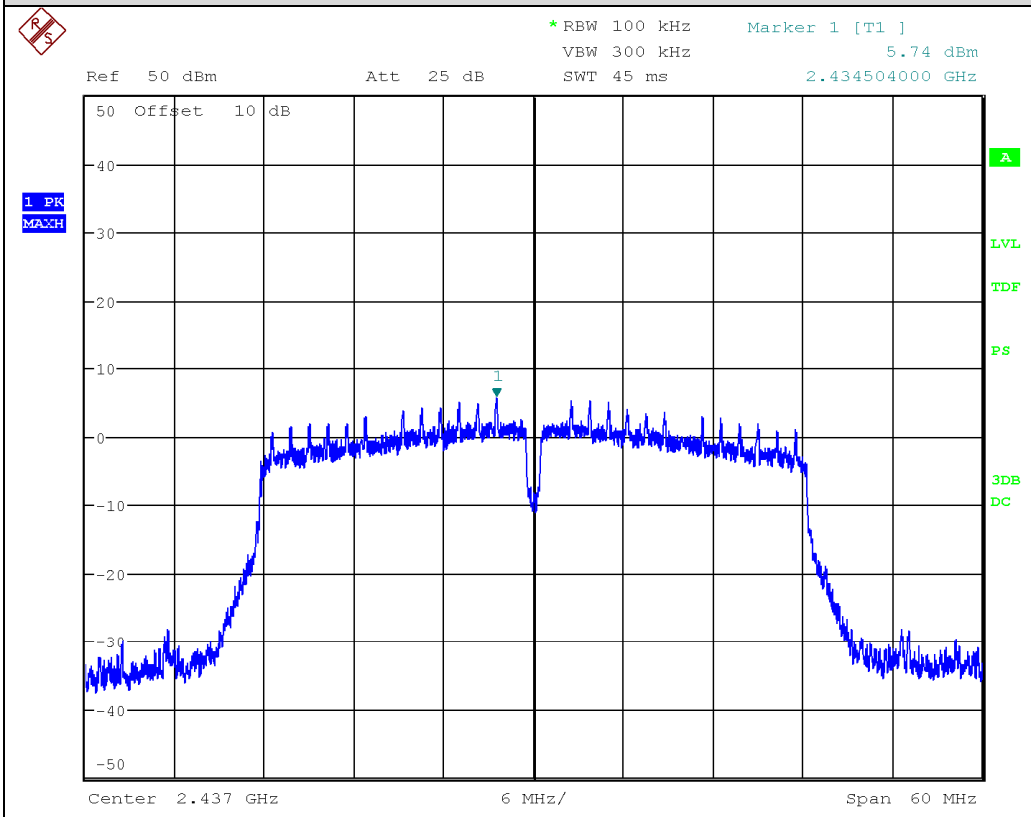
2483.5 MHz Band edge



Date: 16.FEB.2022 15:20:22

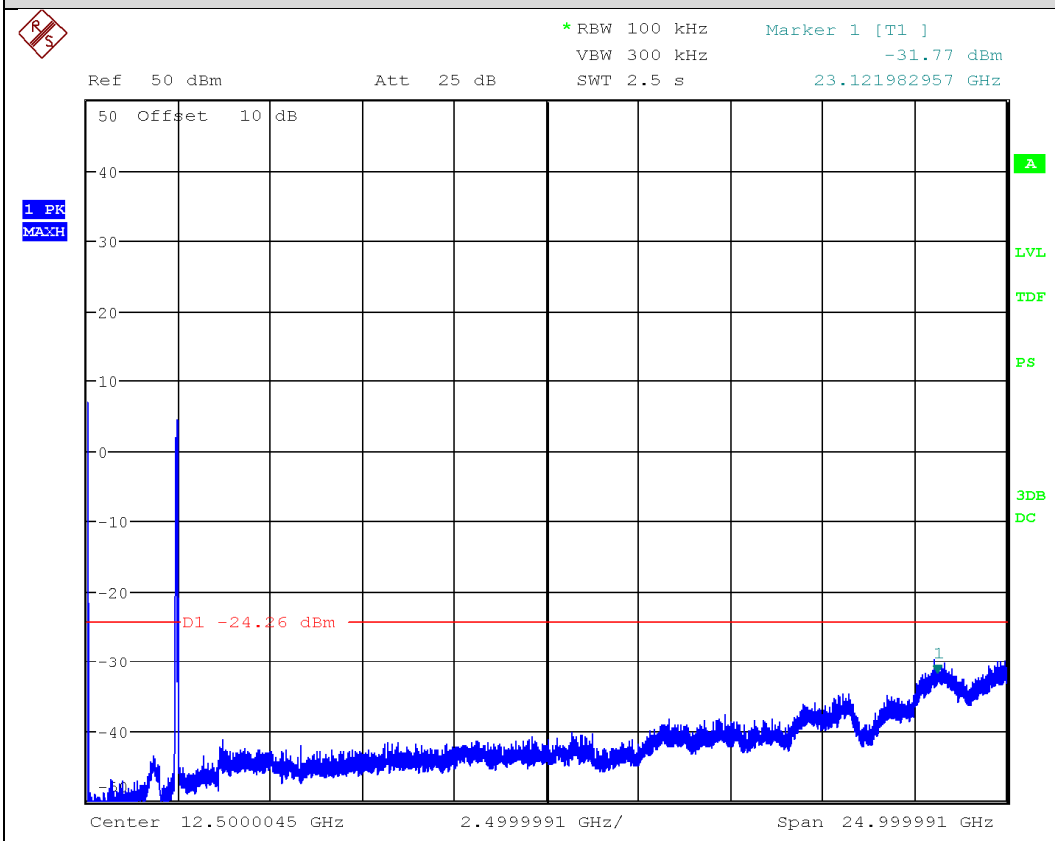
-30 dBc, N-Mode: 40 MHz

Reference level: 5.74dBm



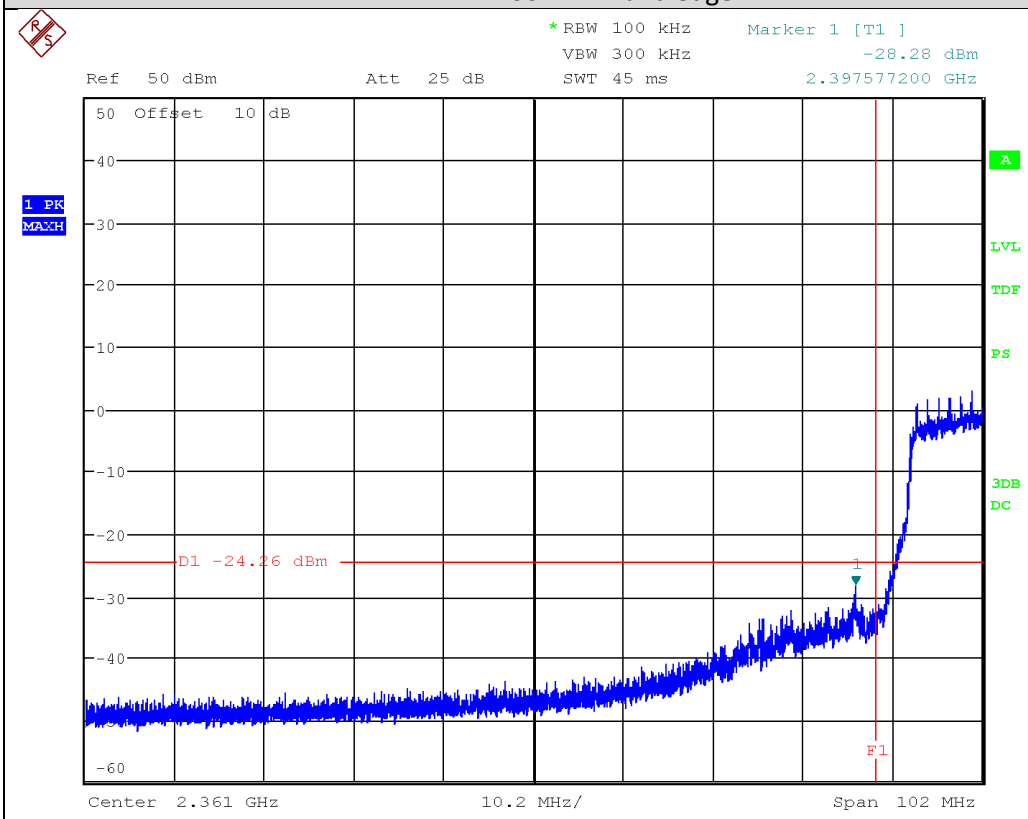
-30 dBc, N-Mode: 40 MHz

9 kHz – 25 GHz



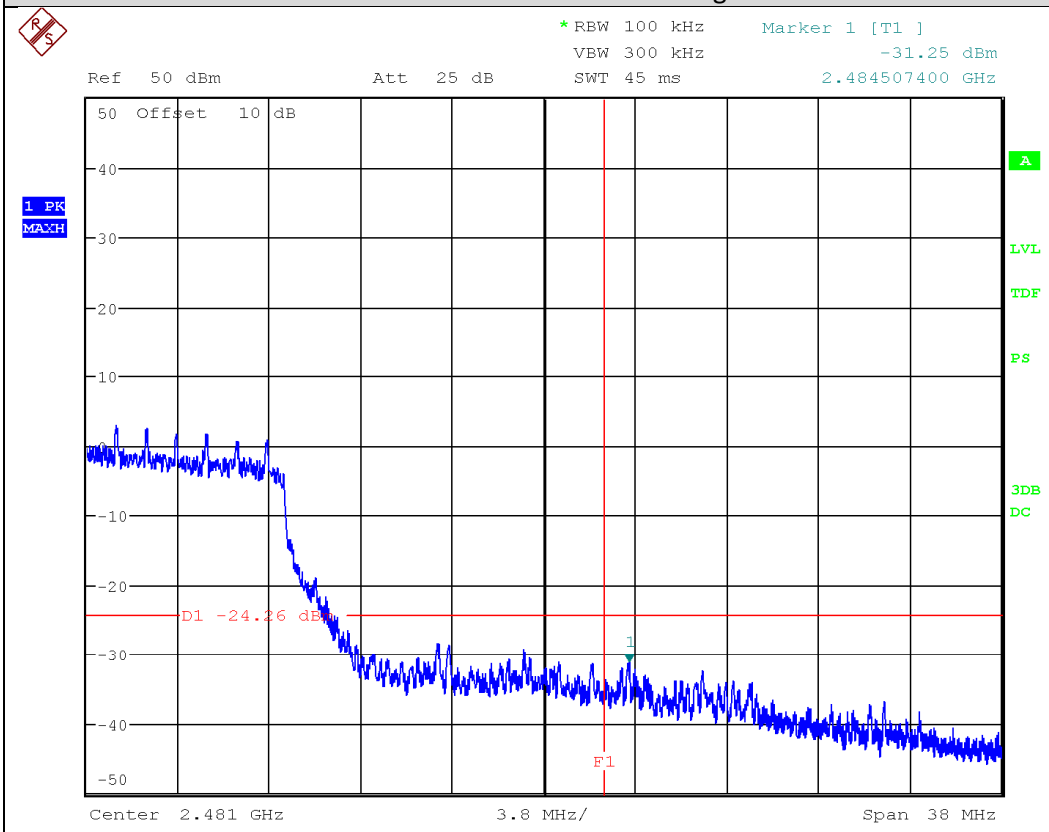
-30 dBc, N-Mode: 40 MHz

2400 MHz Band edge



-30 dBc, N-Mode: 40 MHz

2483.5 MHz Band edge



See 'Appendix B – EUT and Test Setup Photos' for photos showing the test set-up.

Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
Spectrum Analyzer	ESU 40	Rohde & Schwarz	Jan. 15, 2020	Jan. 15, 2022	GEMC 233
Attenuator 10 dB	8493B	Agilent	Oct 4, 2021	Oct 4, 2022	GEMC133
Attenuator 10 dB	3M-10	Weinschel	Oct 4, 2021	Oct 4, 2022	GEMC 279

Transmitter Spurious Radiated Emissions

Purpose

The purpose of this test is to ensure that the RF energy unintentionally emitted from the EUT does not exceed the limits listed below as defined in the applicable test standard, as measured from a receiving antenna. This helps protect broadcast radio services such as television, FM radio, pagers, cellular telephones, emergency services, and so on, from unwanted interference.

Limits and Method

The method is as defined in FCC KDB 558074 Section 12.2 and ANSI C63.10.

The limits, as defined in 15.247(d) for unintentional radiated emissions, apply for those emissions that fall in the restricted bands, as defined in Section 15.205(a). These emissions must comply with the radiated emission limits specified in Section 15.209(a).

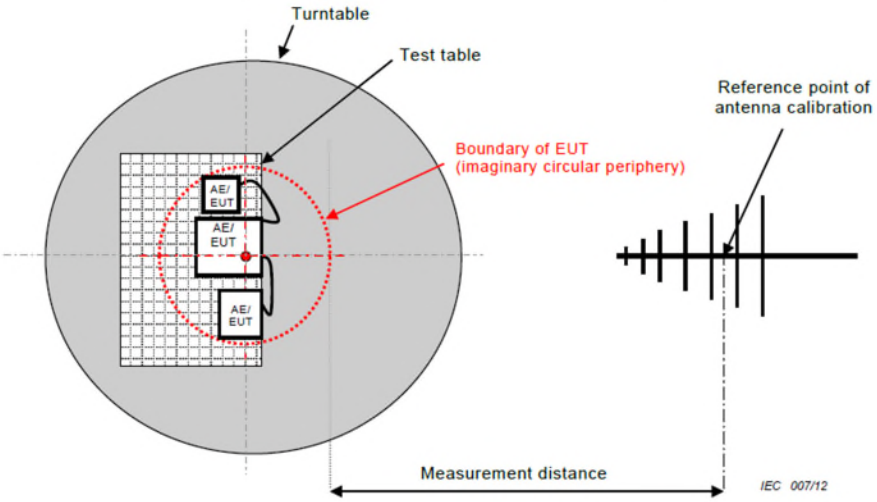
All unintentional emissions must also meet the 'Spurious Conducted Emissions' requirements of -30 dBc or greater. See also 'Antenna Spurious Conducted Emissions' for further details.

Frequency	Field Strength Limit (µV/m)	Field Strength at 3m (dBµV/m)
0.009 MHz – 0.490 MHz	2400/F(kHz) [a] (at 300m)	128.5 to 93.8[a]
0.490 MHz – 1.705 MHz	24000/F(kHz)[a] (at 30m)	73.8 to 63.0[a]
1.705 MHz – 30 MHz	30[a] (at 30m)	69.5[a]
30 MHz – 88 MHz	100[a] (at 3m)	40.0[a]
88 MHz – 216 MHz	150[a] (at 3m)	43.5[a]
216 MHz – 960 MHz	200[a] (at 3m)	46.0[a]
Above 960 MHz	500[a] (at 3m)	54.0[a]
Above 1000 MHz	500[b] (at 3m)	54.0[b]
Above 1000 MHz	5 mV/m[c] (at 3m)	74.0[c]

[a]Limit is with Quasi Peak detector with bandwidths as defined in CISPR-16-1-1
[b]Limit is with 1 MHz measurement bandwidth and using an Average detector
[c]Limit is with 1 MHz measurement bandwidth and using a Peak detector

Based on ANSI C63.4 Section 4.2, if the Peak detector measurements do not exceed the Quasi-Peak limits, where defined, then the EUT is deemed to have passed the requirements.

Typical Radiated Emissions Setup



Measurement Uncertainty

The expanded measurement uncertainty is calculated in accordance with CISPR 16-4-2 and is ±5.67dB for 30MHz – 1GHz and ±4.58dB for 1GHz – 18GHz with a 'k=2' coverage factor and a 95% confidence level.

Preliminary Graphs

The graphs shown below are maximized peak measurement graphs measured with a resolution bandwidth greater than or equal to the final required detector over a full 0-360°. This peaking process is done as a worst-case measurement and enables the detection of frequencies of concern for final measurement. For final measurements with the appropriate detector, where applicable, please refer to the tables under Final Measurements.

In accordance with FCC Part 15, Subpart A, Section 15.33, the device was scanned to the 10^{th} harmonic (a minimum of 24.835 GHz).

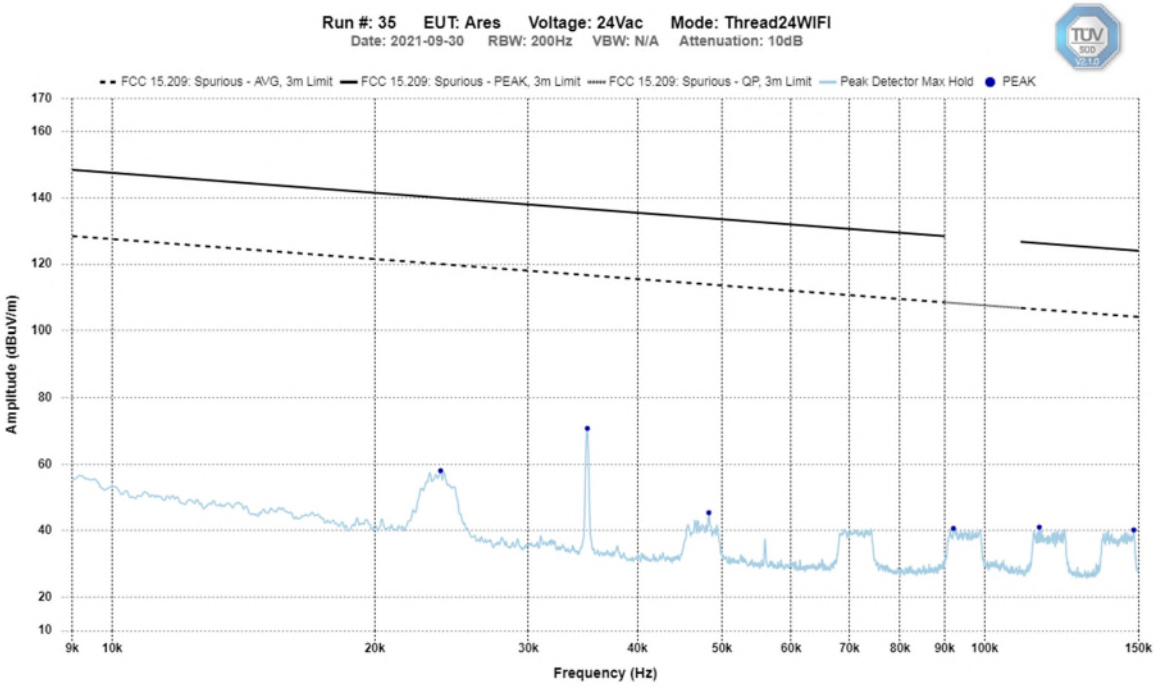
Devices scanned may be scanned at alternate test distances and in accordance with FCC Part 15, Subpart A, Section 15.31, an extrapolation factor of 20 dB/decade was used above 30 MHz and 40 dB/decade below 30 MHz. For example, for 1 meter measurements, an extrapolation factor 9.5 dB from 20 Log (1m / 3m) is applied.

Peak output power for low, middle, and high channels were checked. The worst case was used for the spurious emissions.

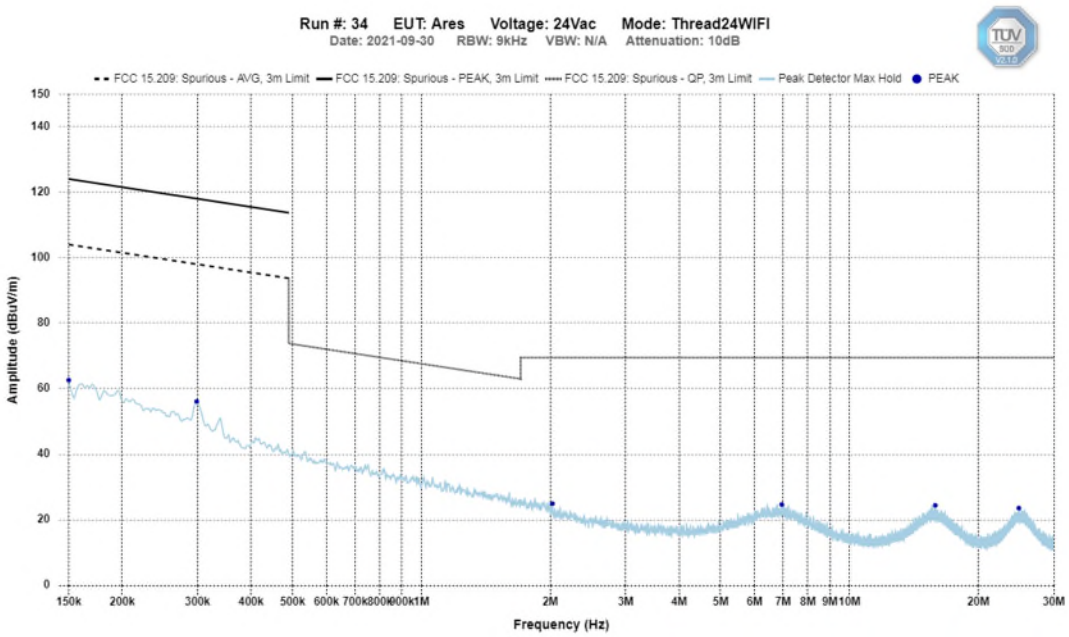
Band-edge measurement graphs are shown for illustration purposes. See final measurement section for all measurements.

Spurious Emissions

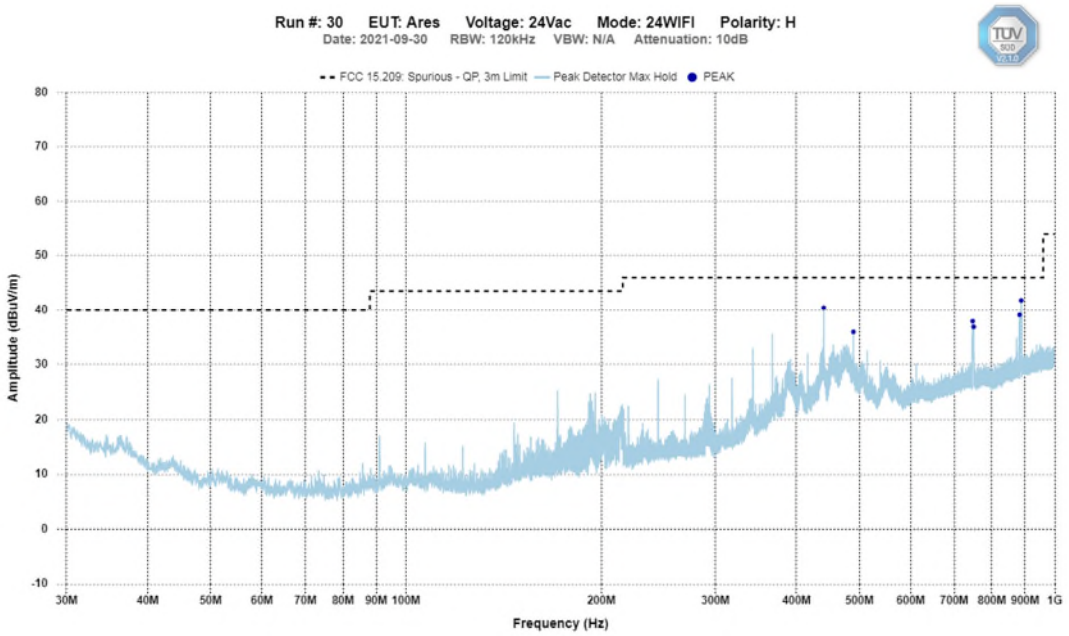
9 kHz – 150 kHz
Peak Emission Graph



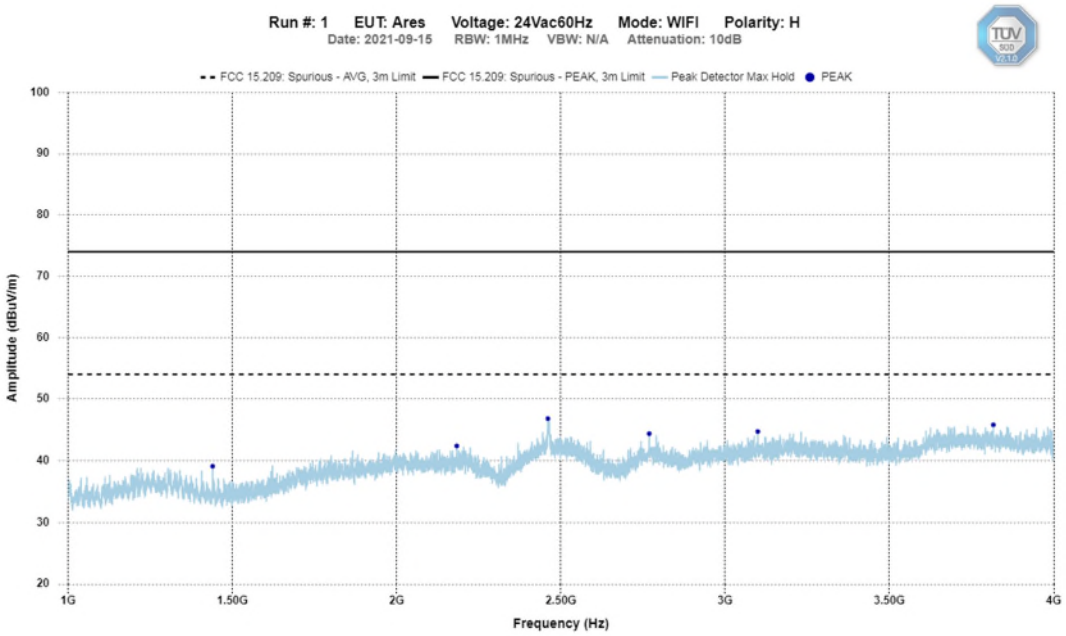
Mid Channel
150 kHz – 30 MHz
Peak Emission Graph



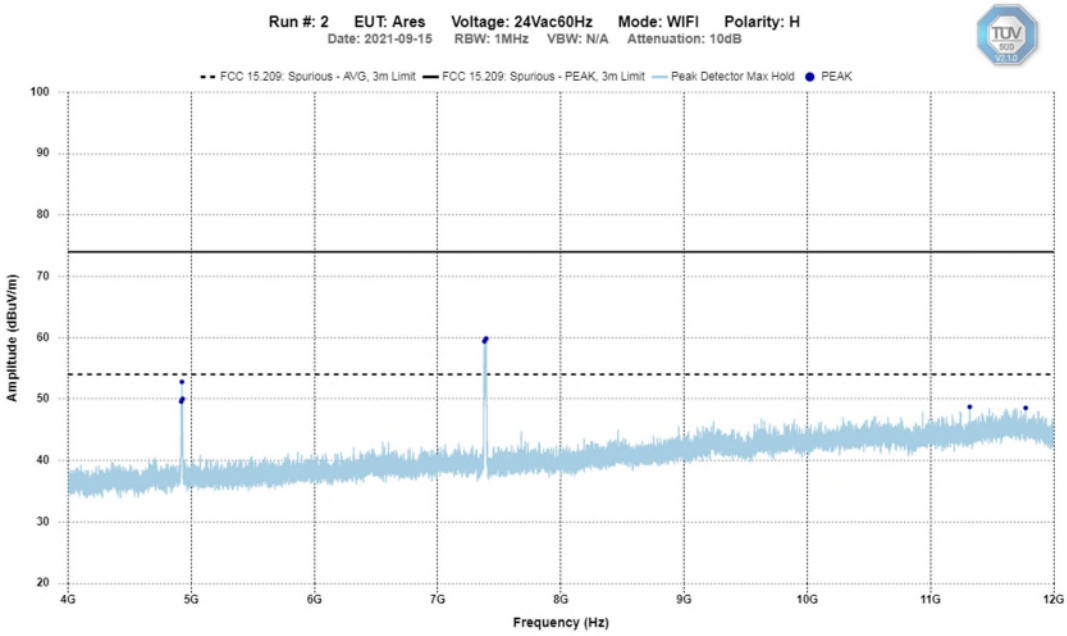
Mid Channel – 30 MHz – 1 GHz
Horizontal - Peak Emission Graph



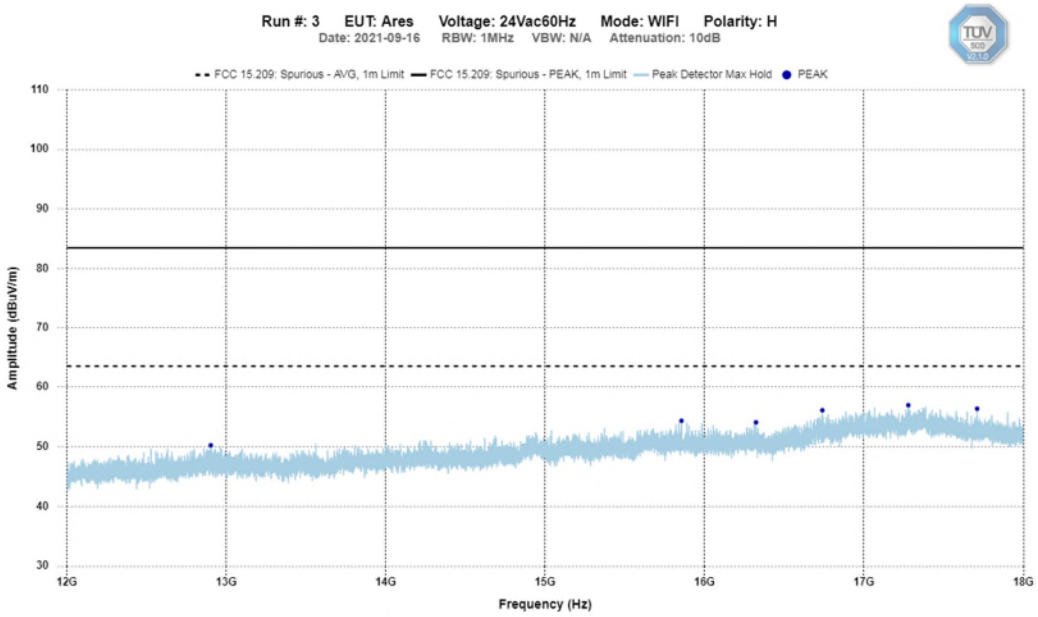
Mid Channel – 1 GHz – 4 GHz
Horizontal - Peak Emission Graph



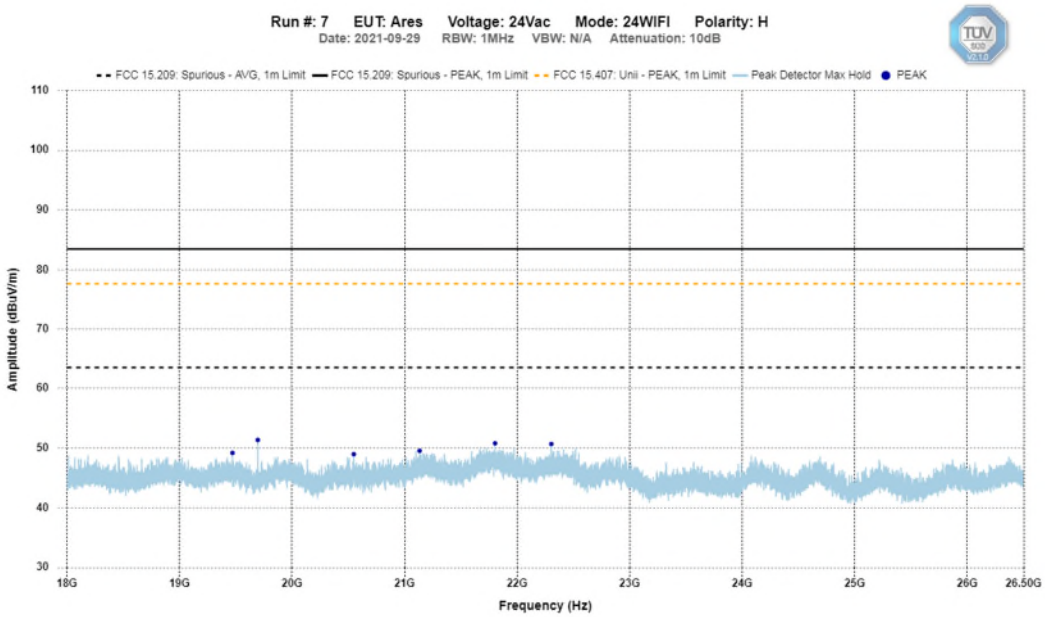
Mid Channel – 4 GHz – 12 GHz
Horizontal - Peak Emission Graph



Mid Channel – 12 GHz – 18 GHz
Horizontal - Peak Emission Graph

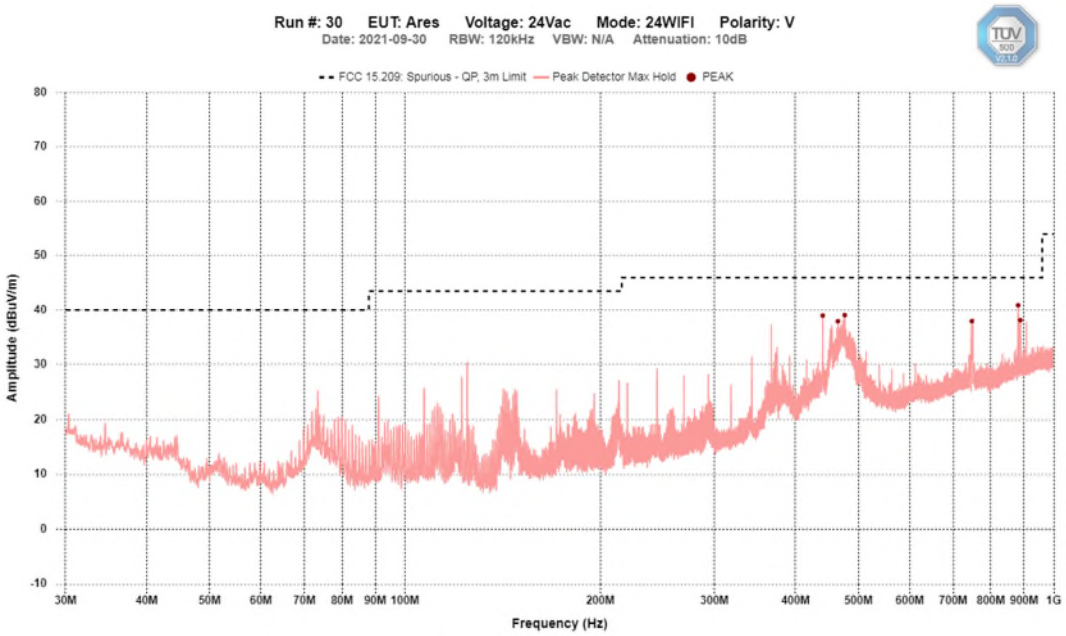


Mid Channel – 18 GHz – 26 GHz
Horizontal - Peak Emission Graph

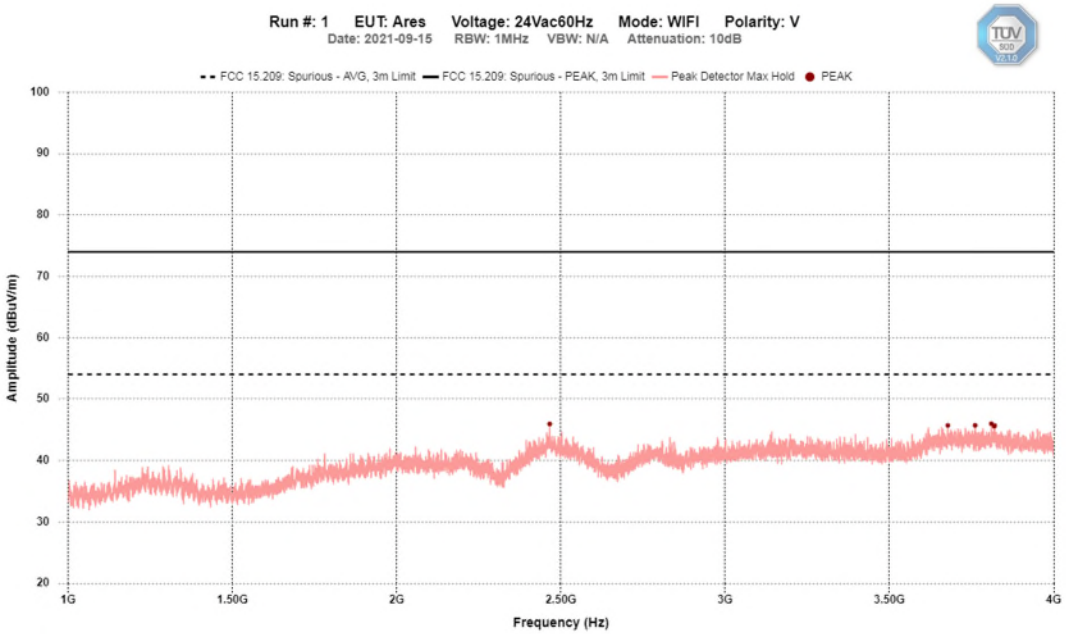


Plot was taken at a 1 meter distance. All emissions were noise floor of measurement instrument. No emissions were found in this frequency range.

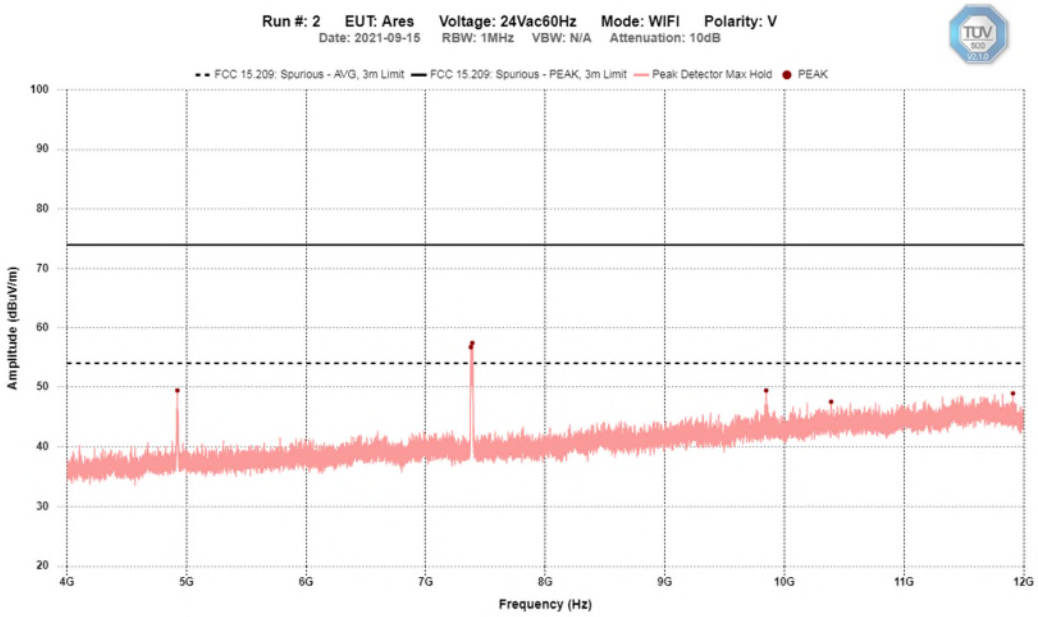
Mid Channel – 30 MHz – 1 GHz
Vertical - Peak Emission Graph



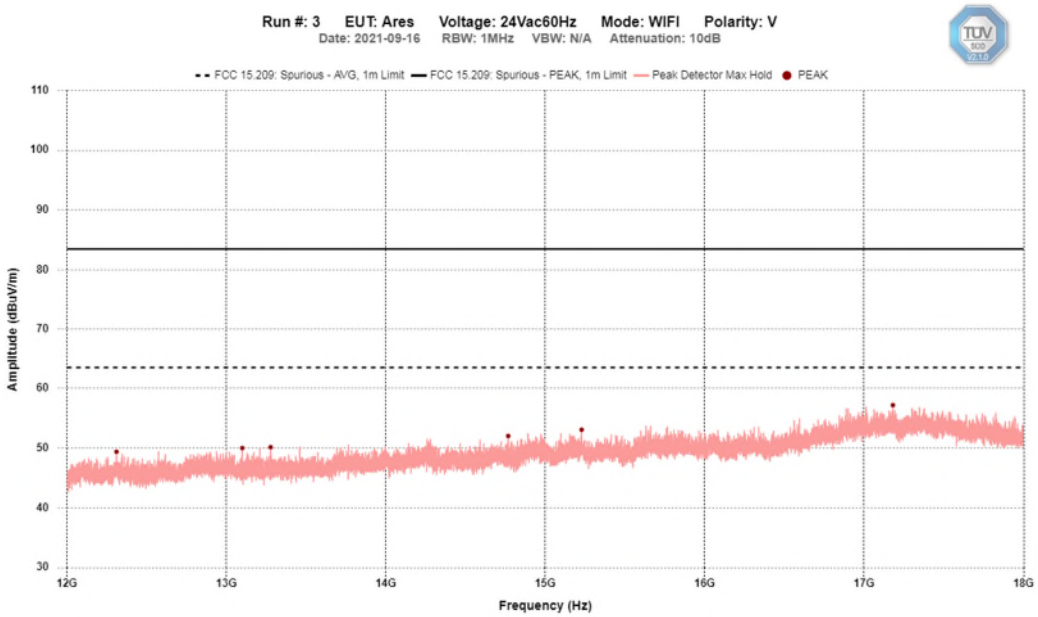
Mid Channel – 1 GHz – 4 GHz
Vertical - Peak Emission Graph



Mid Channel – 4 GHz – 12 GHz
Vertical - Peak Emission Graph

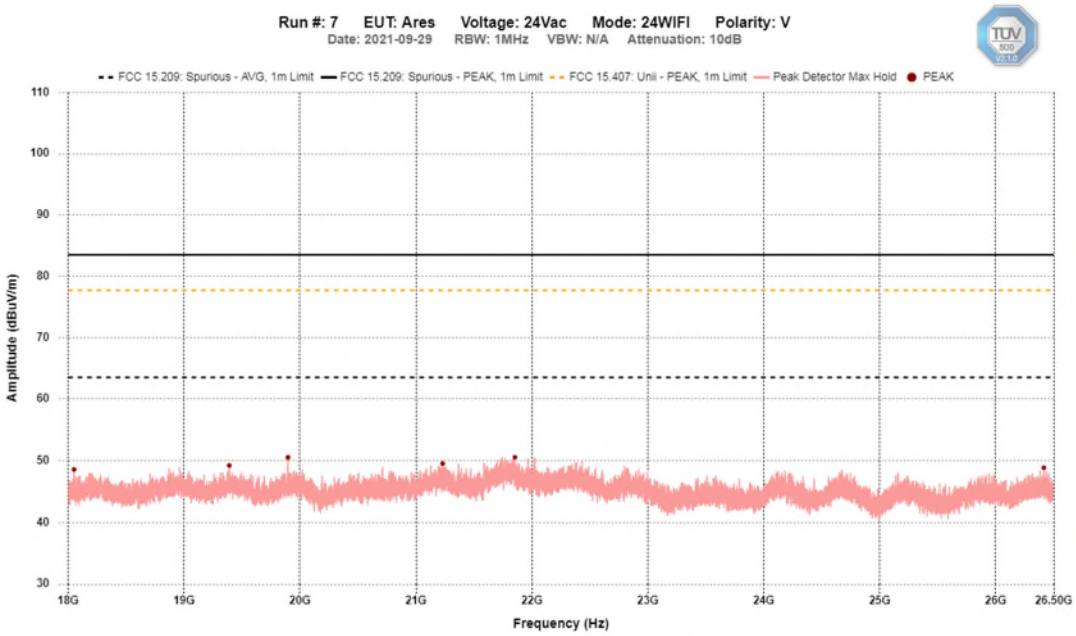


Mid Channel – 12 GHz – 18 GHz
Vertical - Peak Emission Graph



12 – 18 GHz plots were taken at a 1 meter distance. All emissions were noise floor of measurement instrument. No emissions were found in this frequency range.

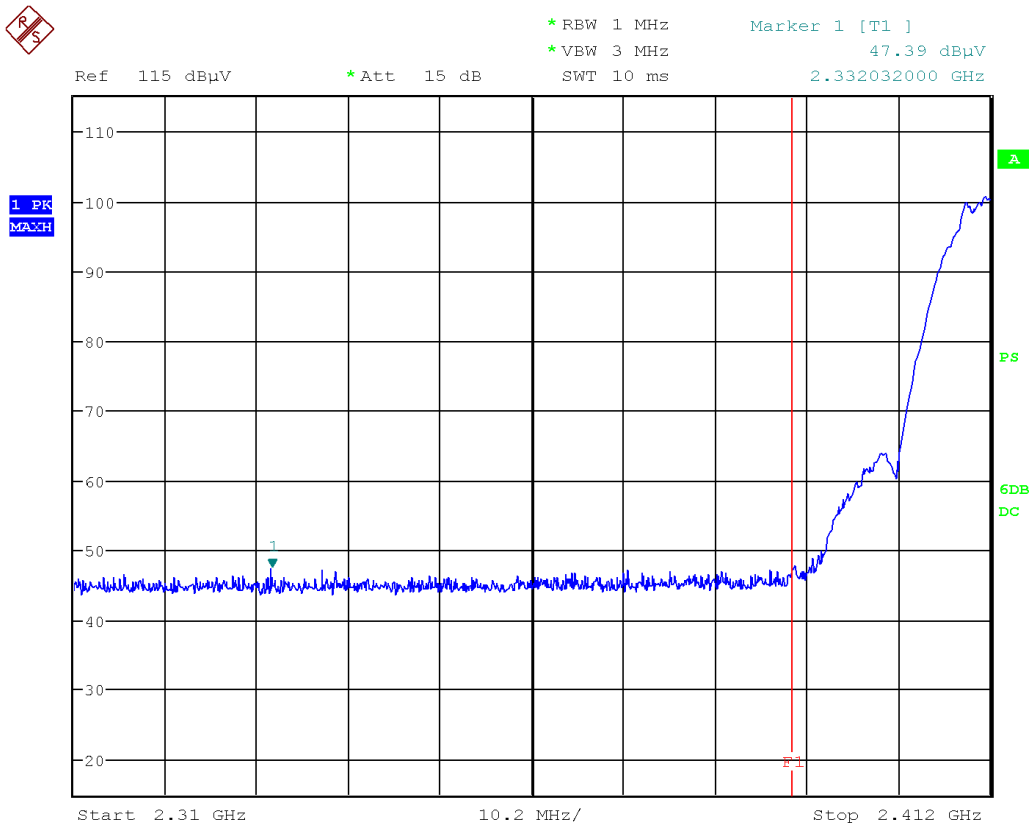
Mid Channel – 18 GHz – 25 GHz
Vertical - Peak Emission Graph



Plot was taken at a 1 meter distance. All emissions were noise floor of measurement instrument. No emissions were found in this frequency range.

ECB601: Band Edges – B-Mode

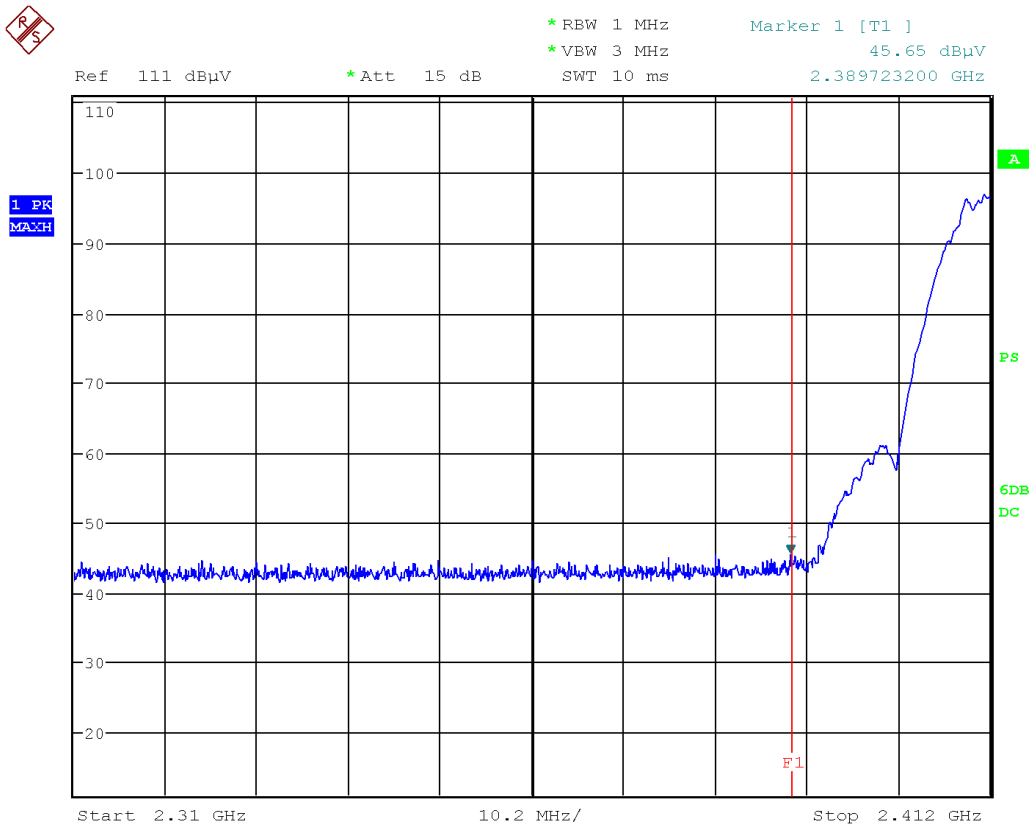
Band Edge – Low Channel (802.11b)
Horizontal - Peak Emission



Date: 15.SEP.2021 12:14:27

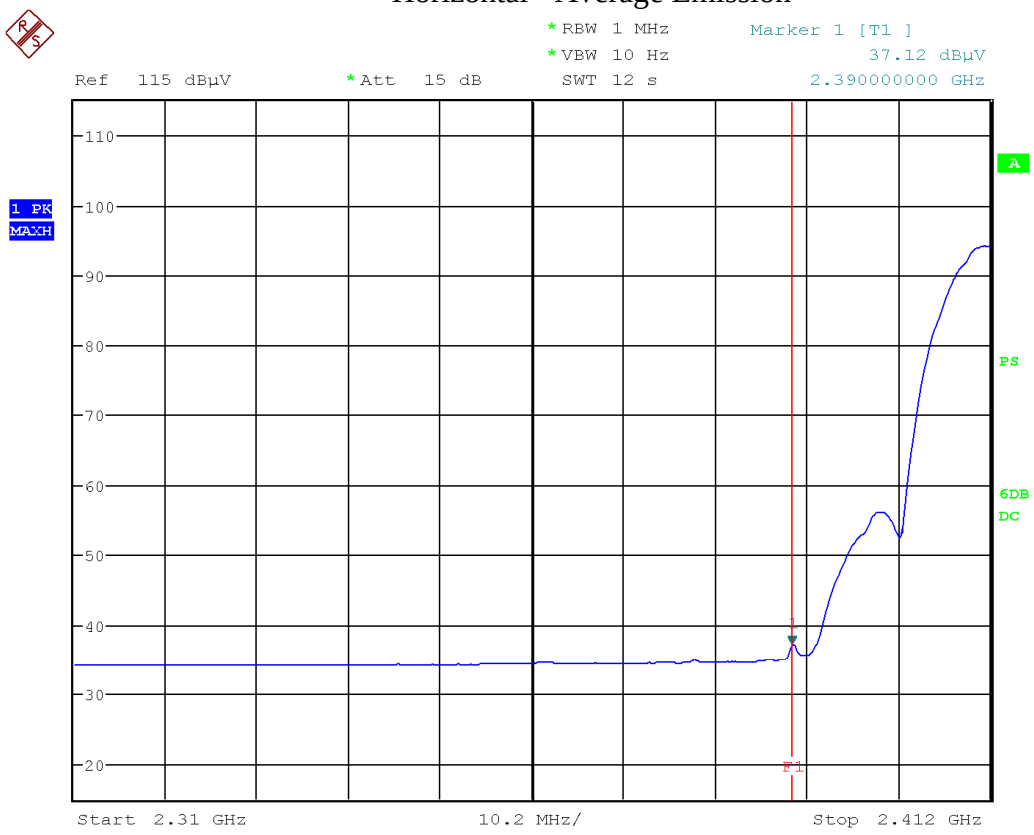
Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

Band Edge – Low Channel (802.11b)
Vertical - Peak Emission



Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

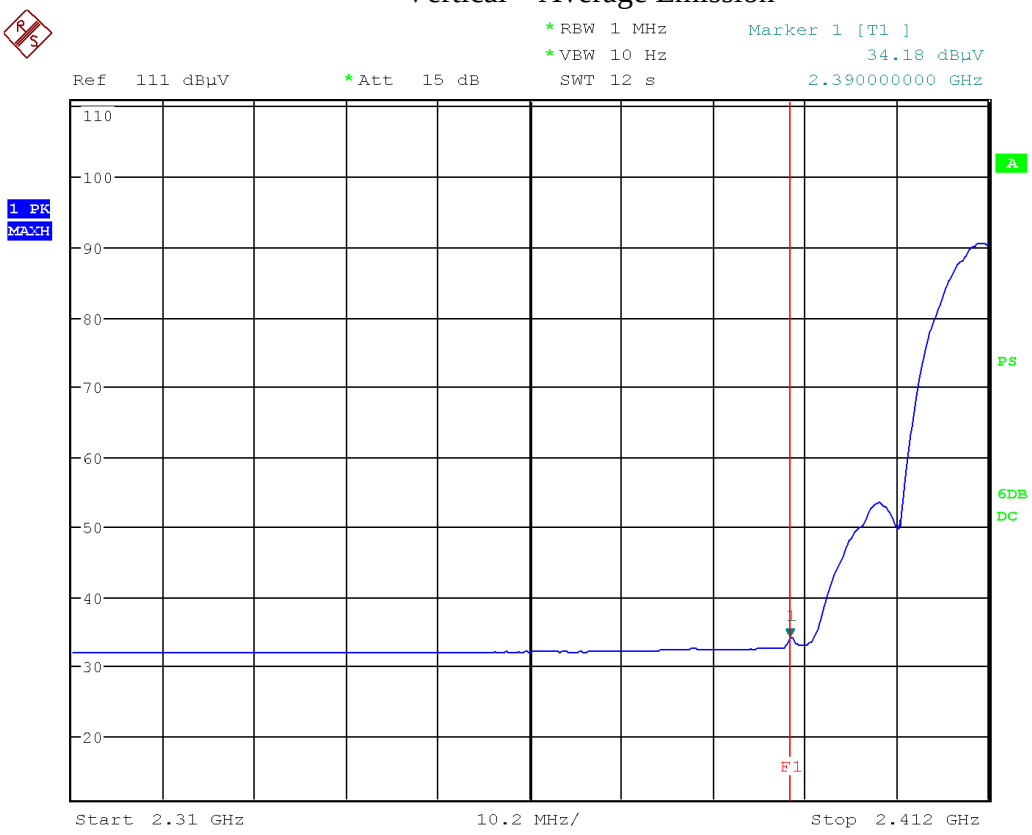
Band Edge – Low Channel (802.11b)
Horizontal - Average Emission



Date: 15.SEP.2021 12:15:17

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

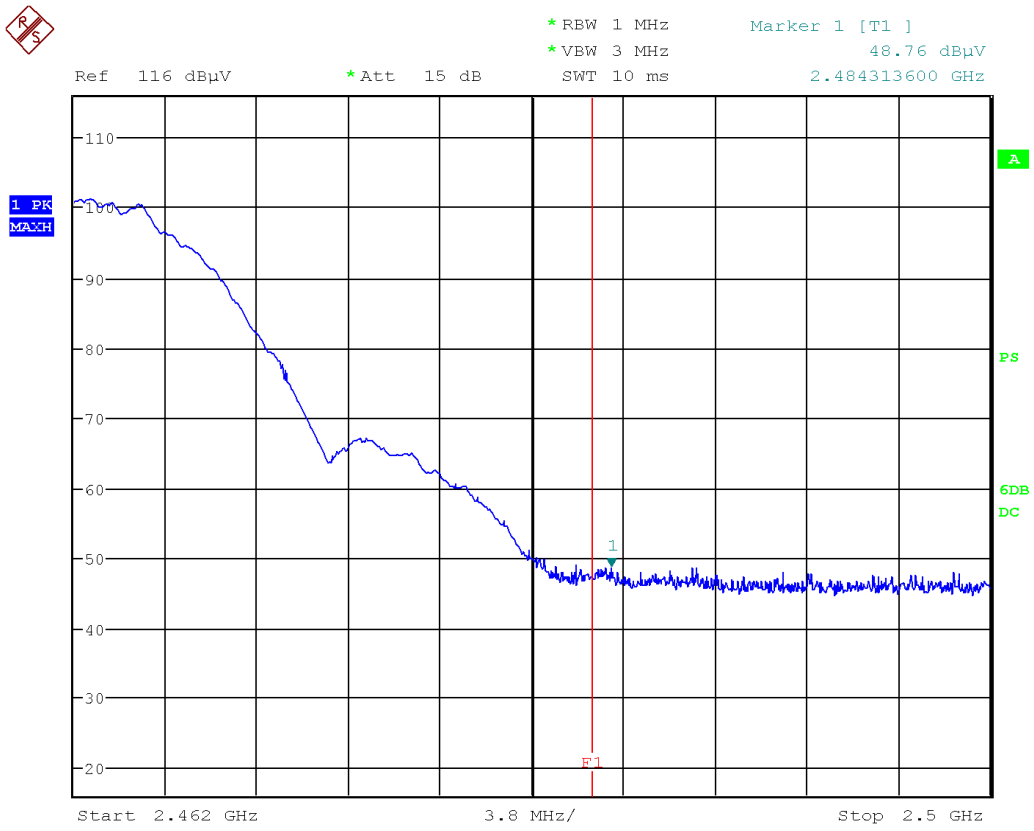
Band Edge – Low Channel (802.11b)
Vertical – Average Emission



Date: 15.SEP.2021 12:20:17

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

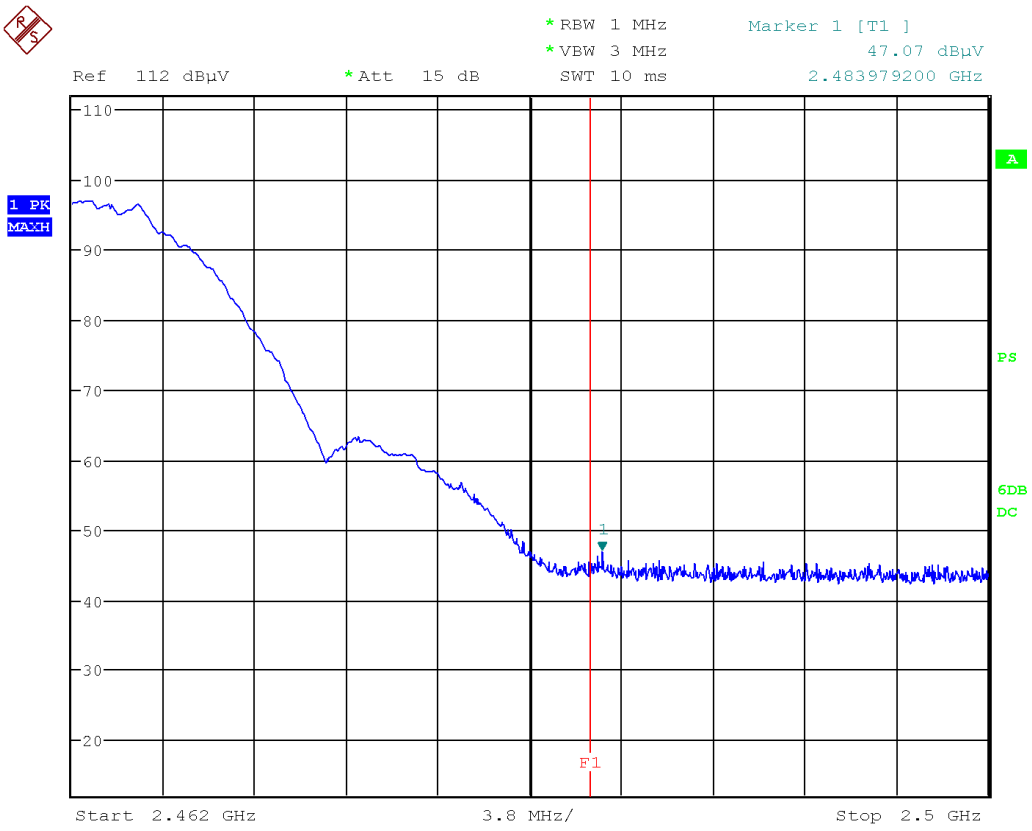
Band Edge – High Channel (802.11b)
Horizontal - Peak Emission



Date: 15.SEP.2021 12:43:30

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

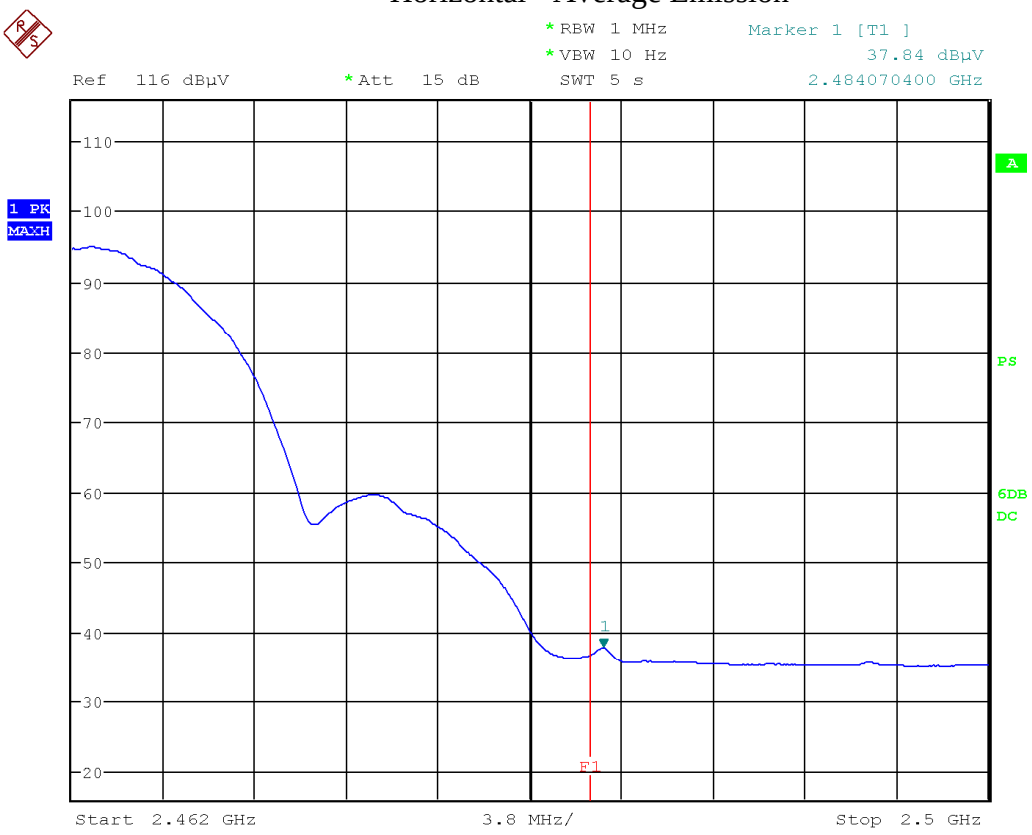
Band Edge – High Channel (802.11b)
Vertical - Peak Emission



Date: 15.SEP.2021 12:47:56

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

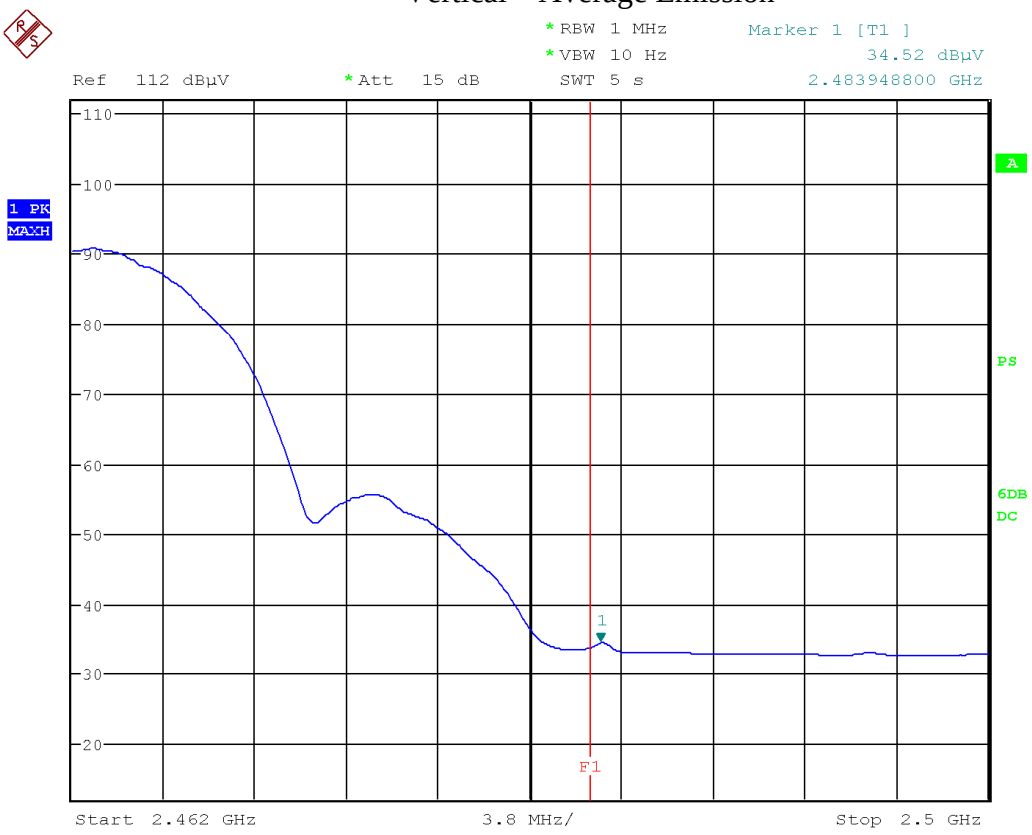
Band Edge – High Channel (802.11b)
Horizontal - Average Emission



Date: 15.SEP.2021 12:43:52

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

Band Edge – High Channel (802.11b)
Vertical – Average Emission

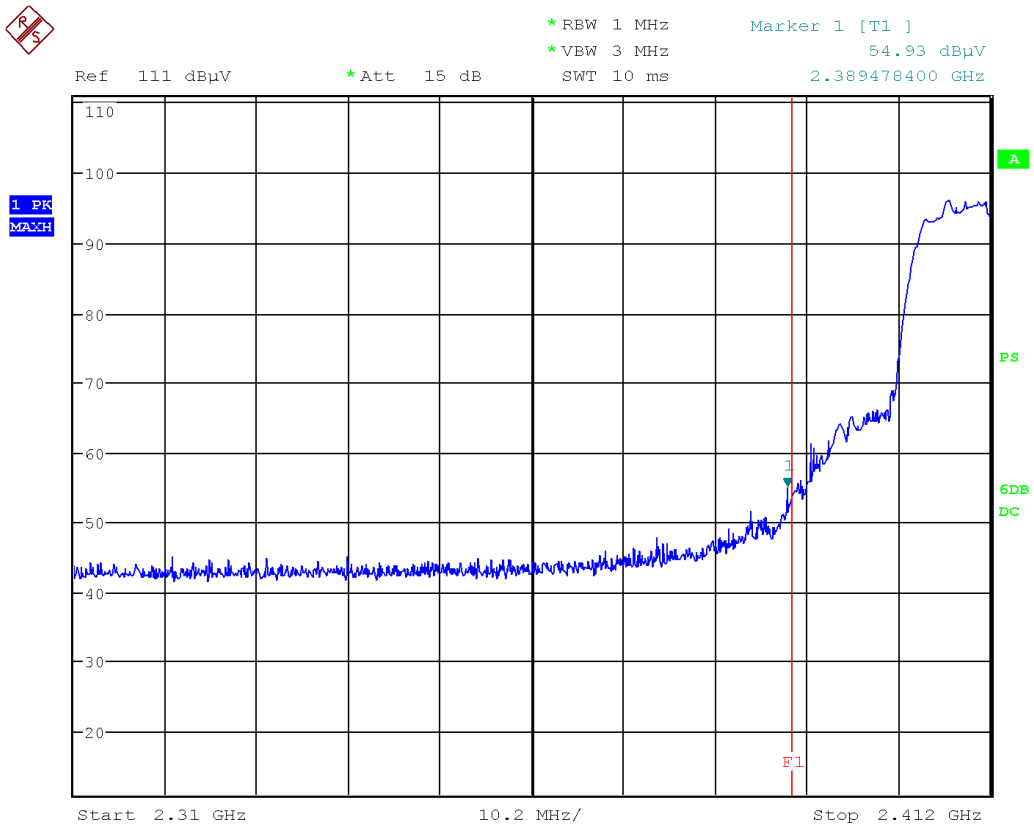


Date: 15.SEP.2021 12:48:19

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

ECB601: Band Edges – G-Mode

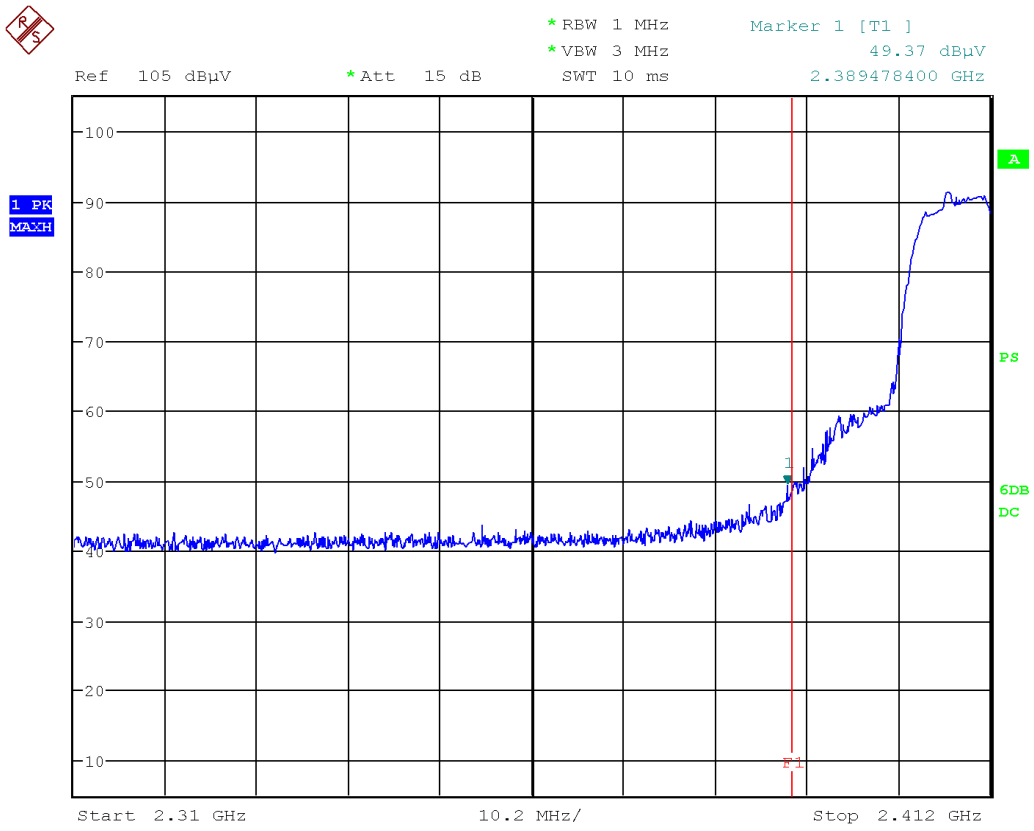
Band Edge – Low Channel (802.11g)
Horizontal - Peak Emission



Date: 15.SEP.2021 16:13:23

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

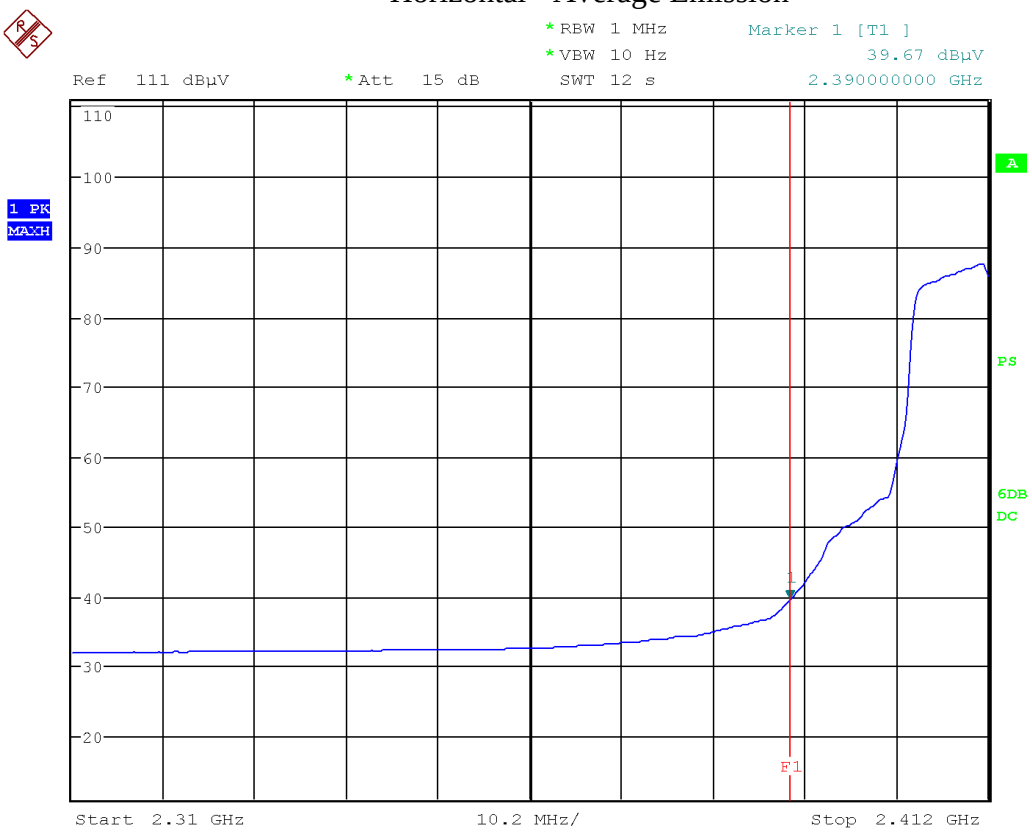
Band Edge – Low Channel (802.11g)
Vertical - Peak Emission



Date: 15.SEP.2021 16:21:08

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

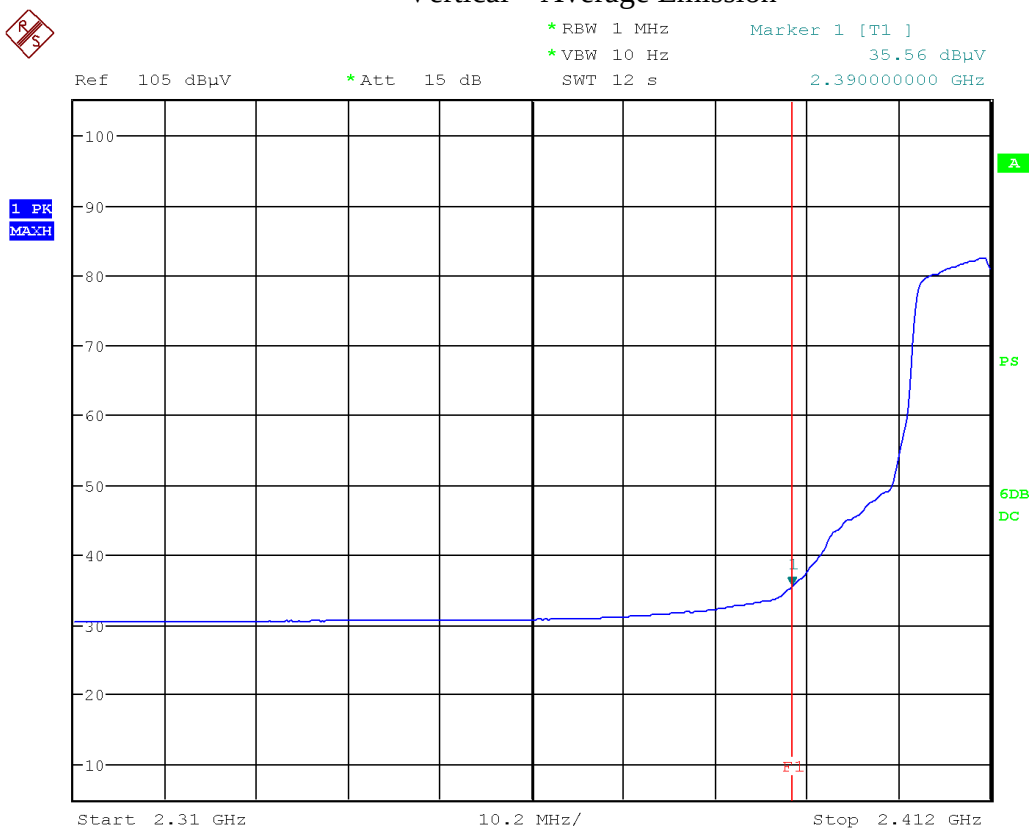
Band Edge – Low Channel (802.11g)
Horizontal - Average Emission



Date: 15.SEP.2021 16:14:13

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

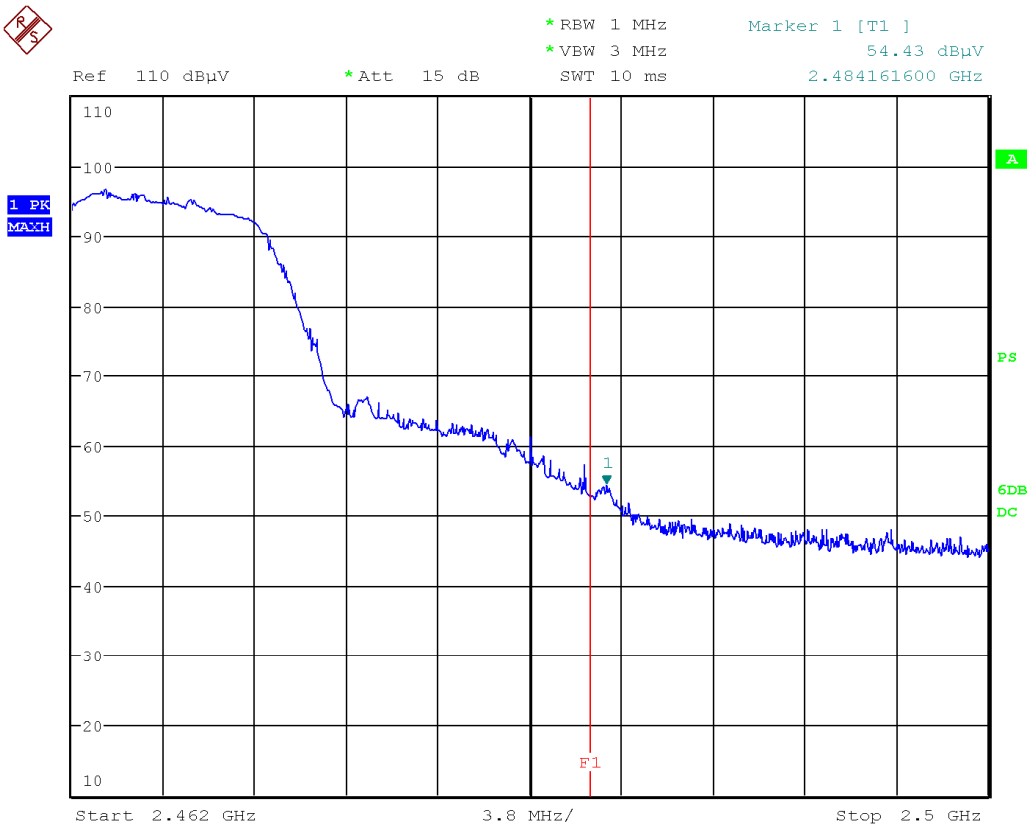
Band Edge – Low Channel (802.11g)
Vertical – Average Emission



Date: 15.SEP.2021 16:21:58

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

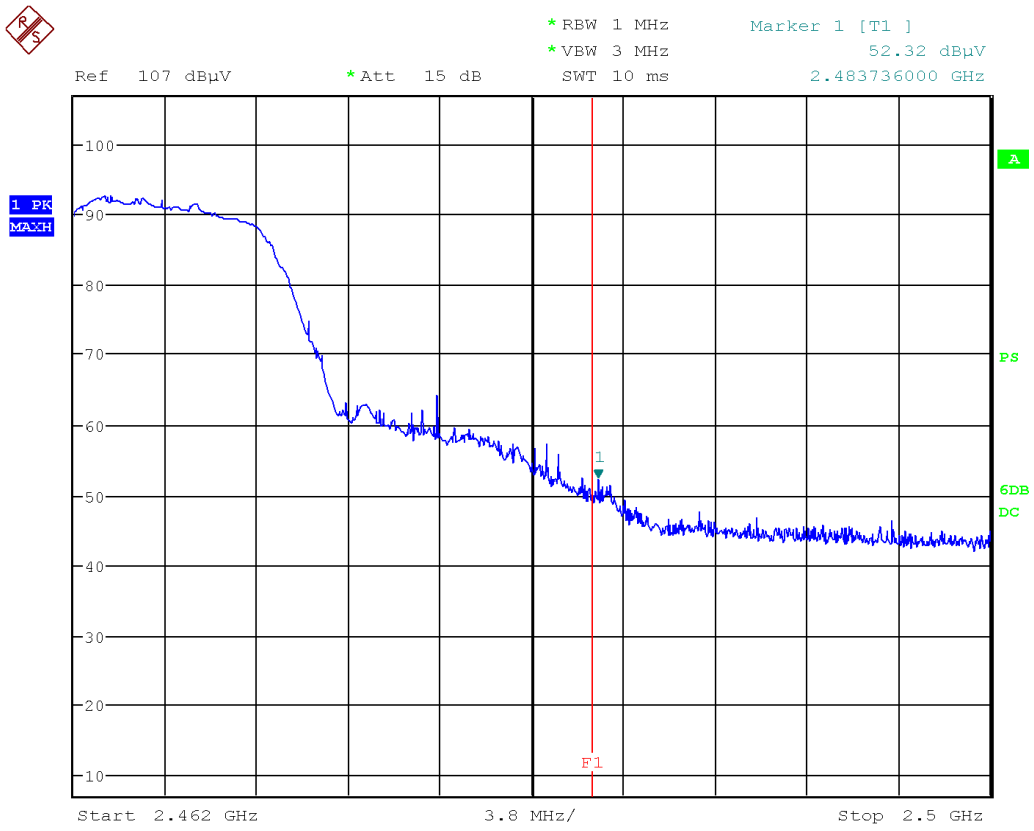
Band Edge – High Channel (802.11g)
Horizontal - Peak Emission



Date: 15.SEP.2021 16:56:31

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

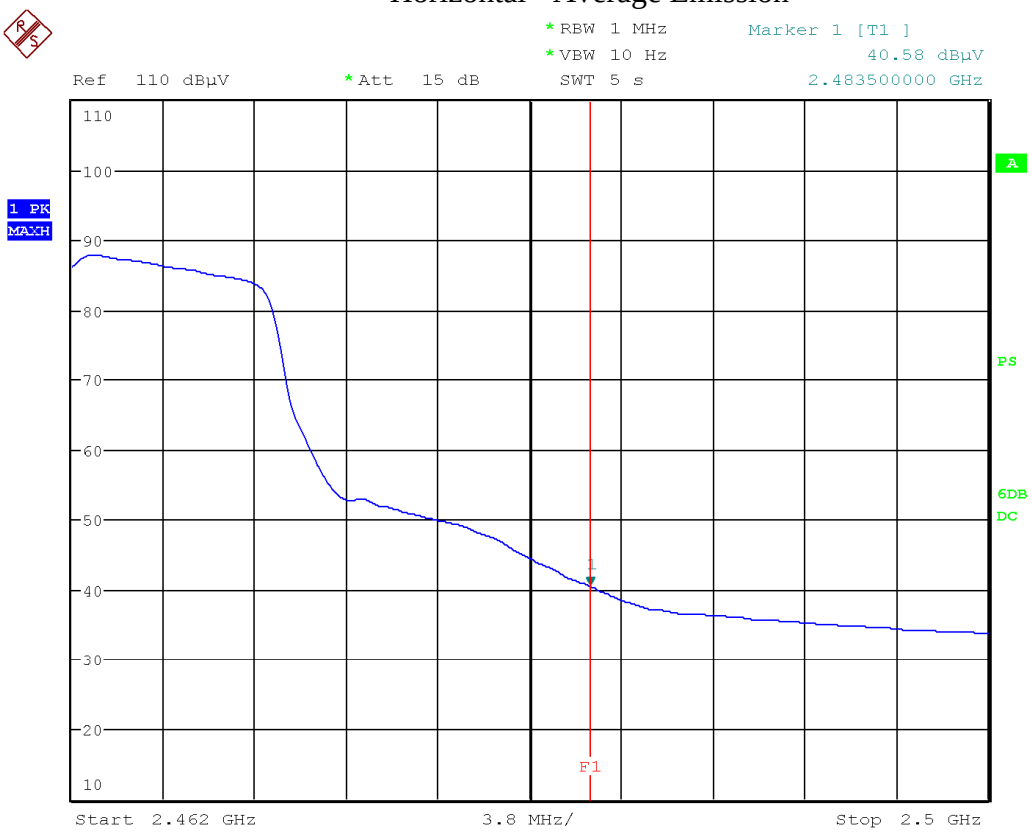
Band Edge – High Channel (802.11g)
Vertical - Peak Emission



Date: 15.SEP.2021 17:09:54

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

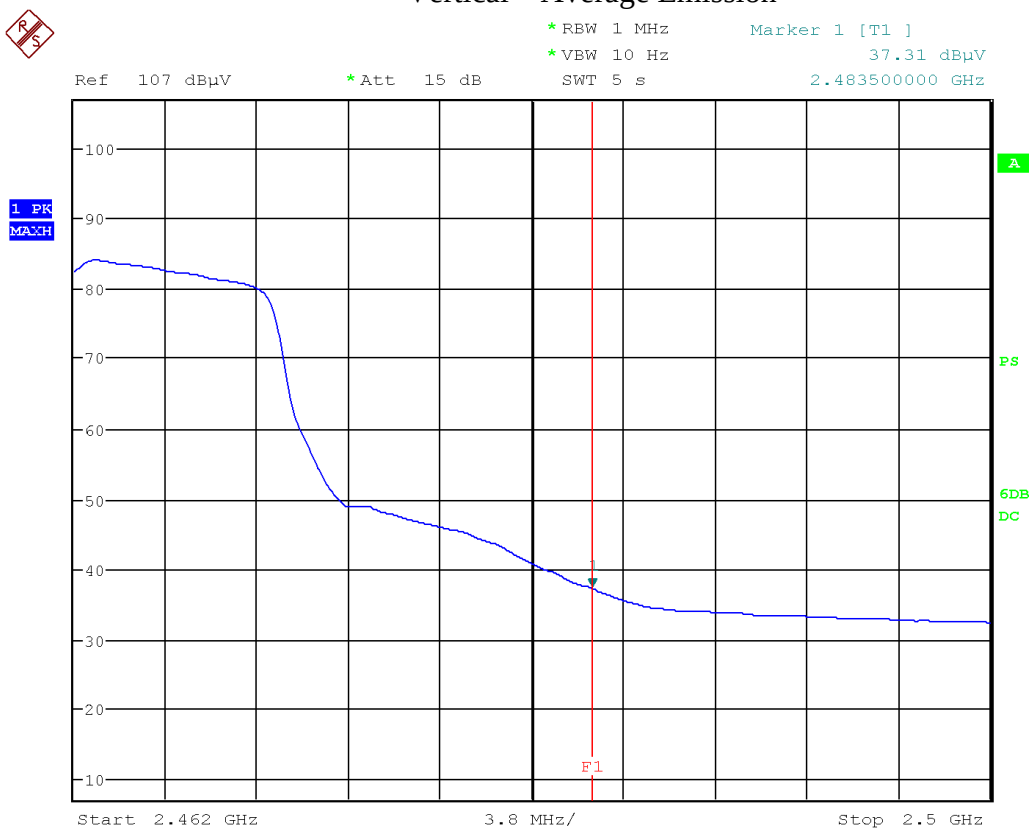
Band Edge – High Channel (802.11g)
Horizontal - Average Emission



Date: 15.SEP.2021 16:56:53

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

Band Edge – High Channel (802.11g)
Vertical – Average Emission

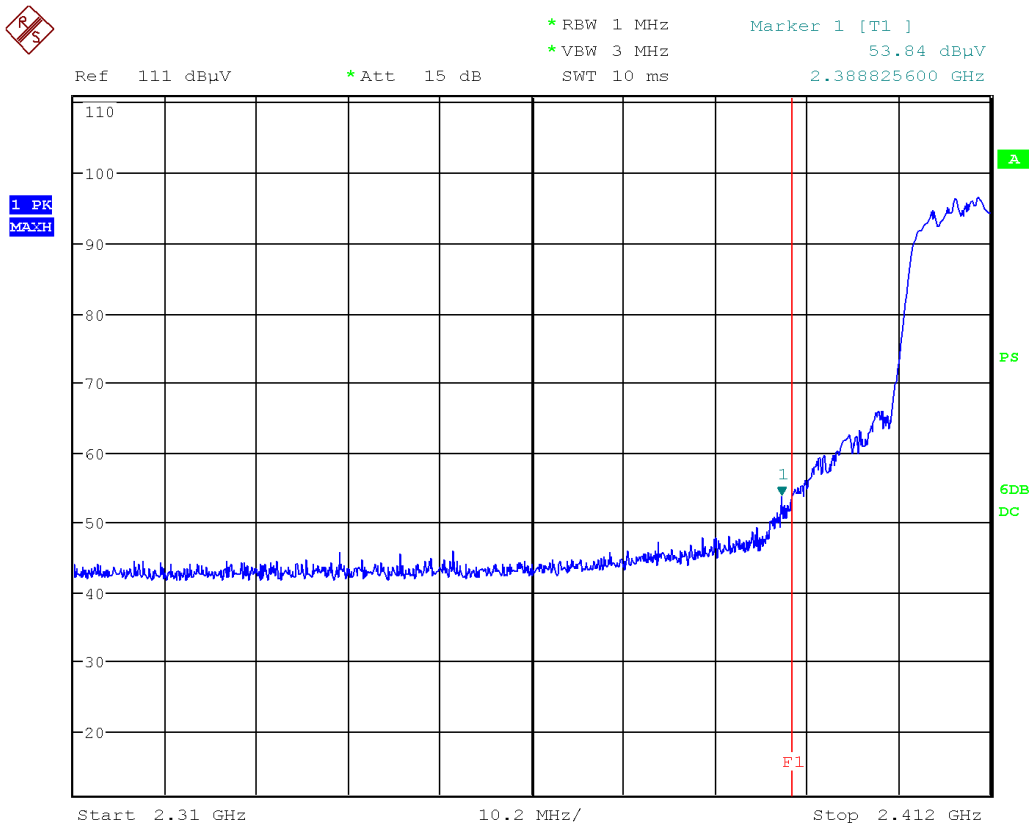


Date: 15.SEP.2021 17:10:16

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

ECB601: Band Edges – N-Mode/20 MHz BW

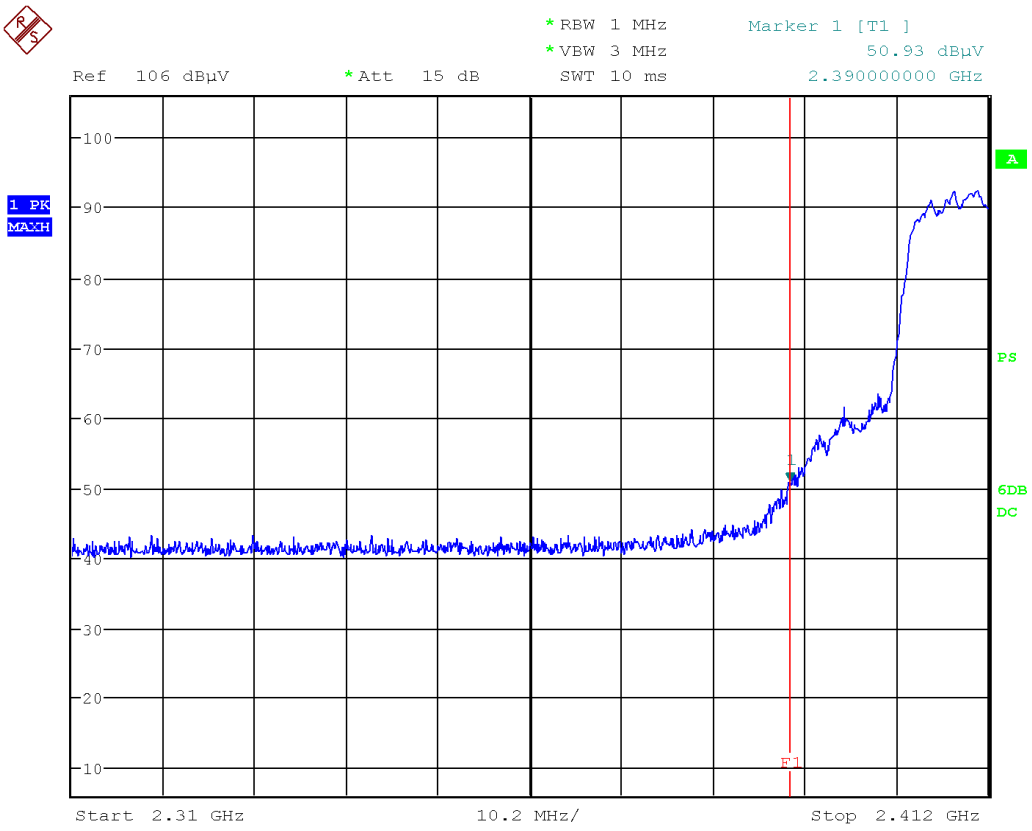
Band Edge – Low Channel (802.11n/20MHz)
Horizontal - Peak Emission



Date: 14.SEP.2021 17:53:19

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

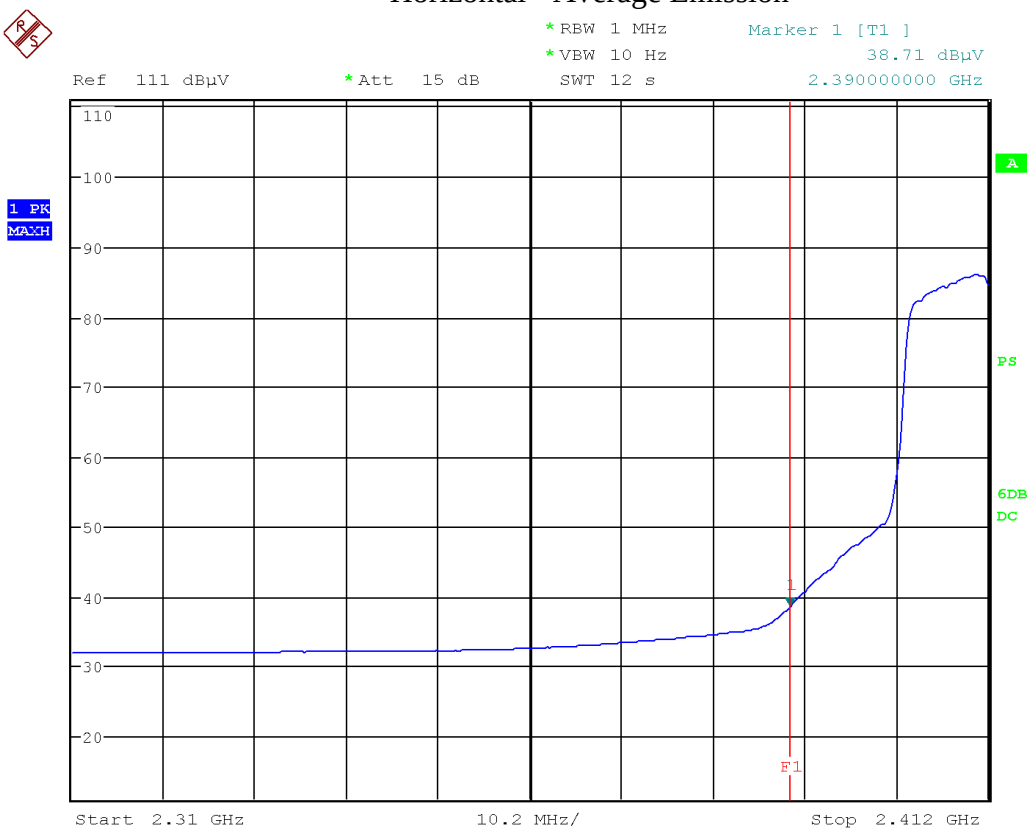
Band Edge – Low Channel (802.11n/20MHz)
Vertical - Peak Emission



Date: 14.SEP.2021 18:00:07

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

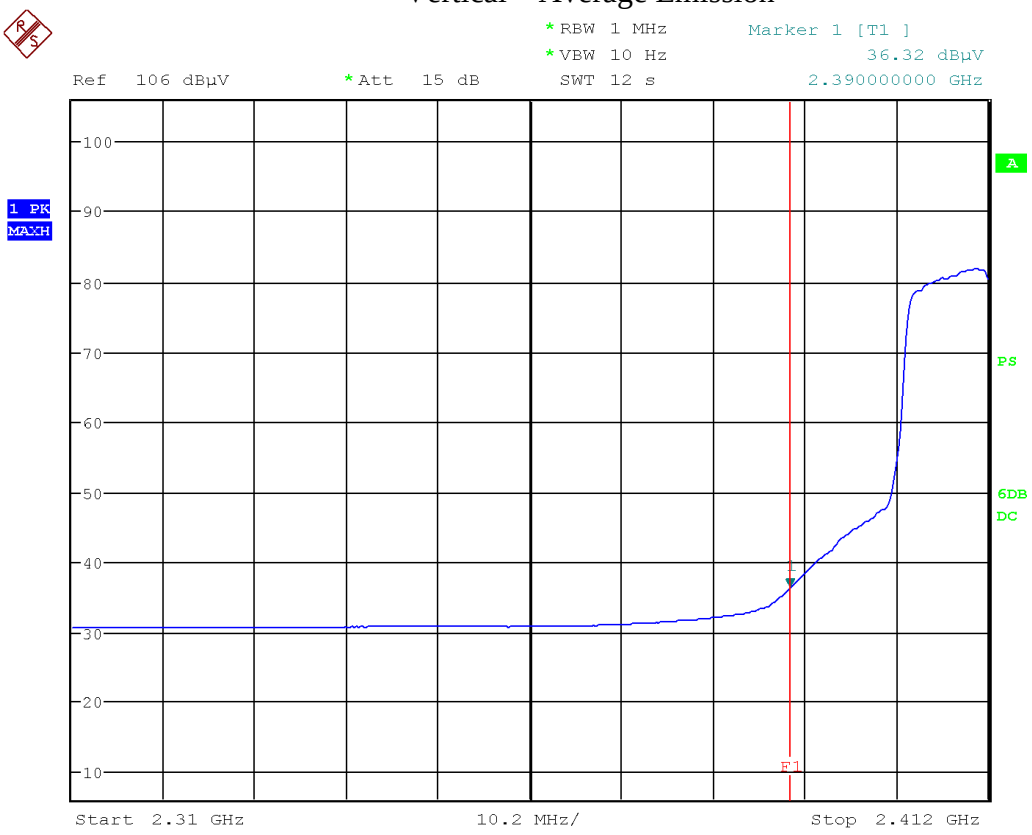
Band Edge – Low Channel (802.11n/20MHz)
Horizontal - Average Emission



Date: 14.SEP.2021 17:54:09

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

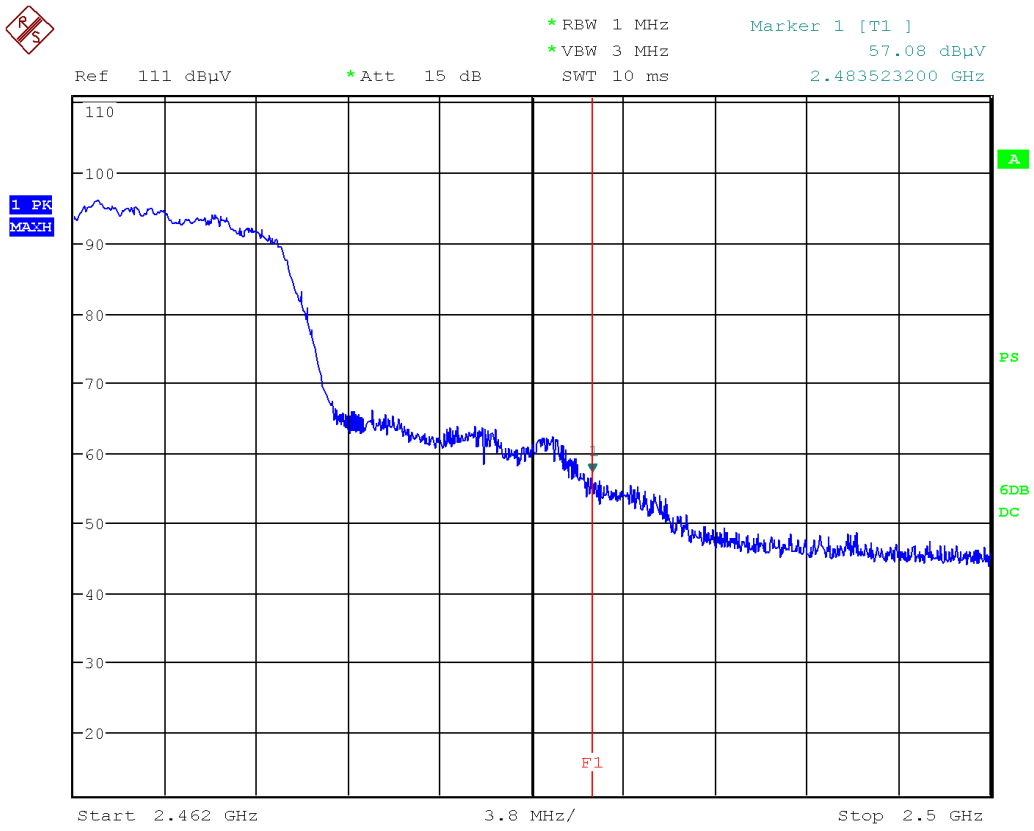
Band Edge – Low Channel (802.11n/20MHz)
Vertical – Average Emission



Date: 14.SEP.2021 18:00:57

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

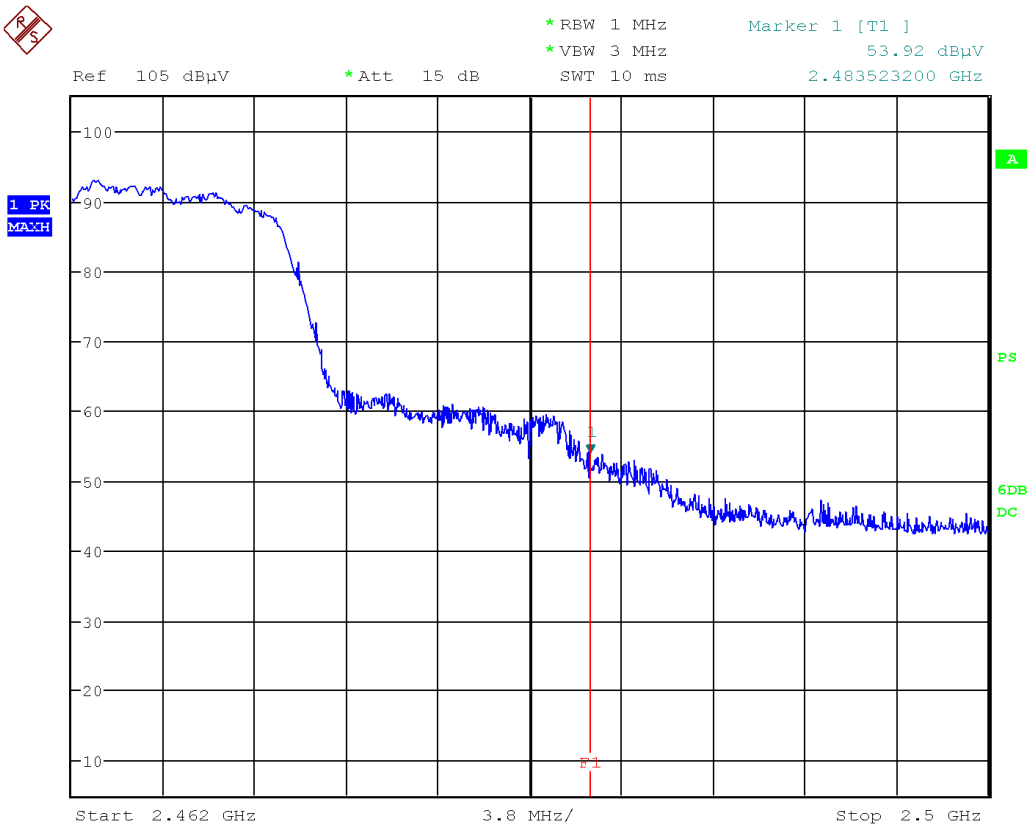
Band Edge – High Channel (802.11n/20MHz)
Horizontal - Peak Emission



Date: 14.SEP.2021 18:13:54

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

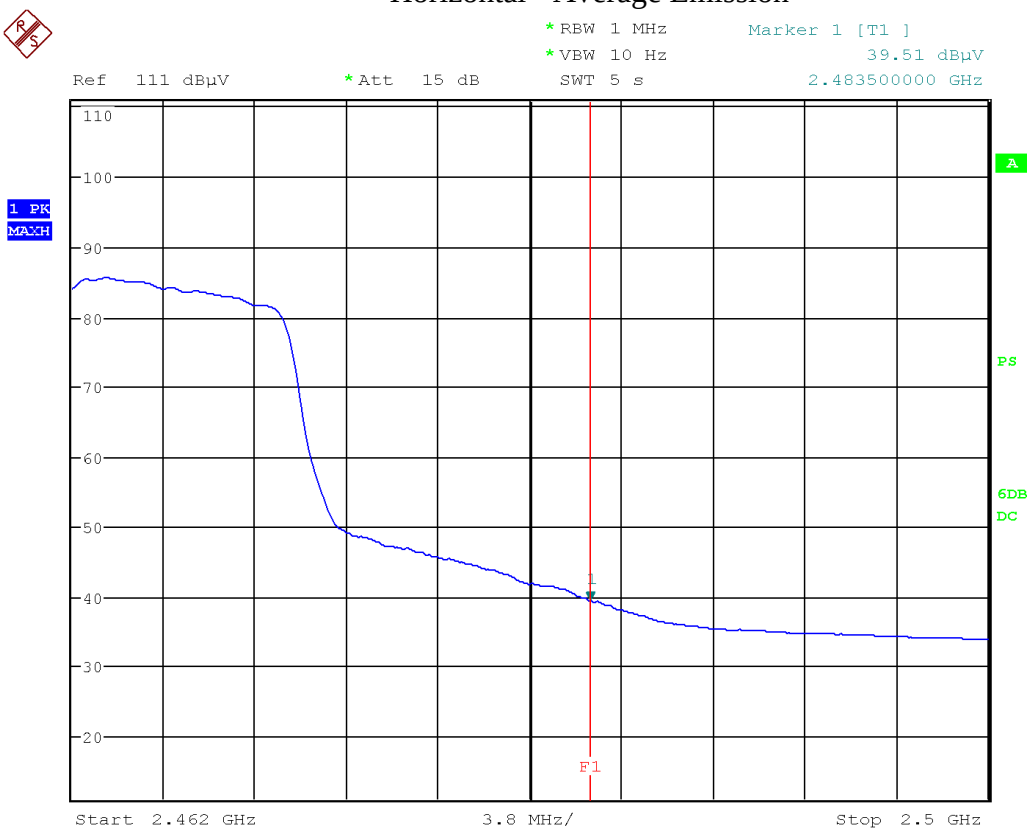
Band Edge – High Channel (802.11n/20MHz)
Vertical - Peak Emission



Date: 14.SEP.2021 18:09:55

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

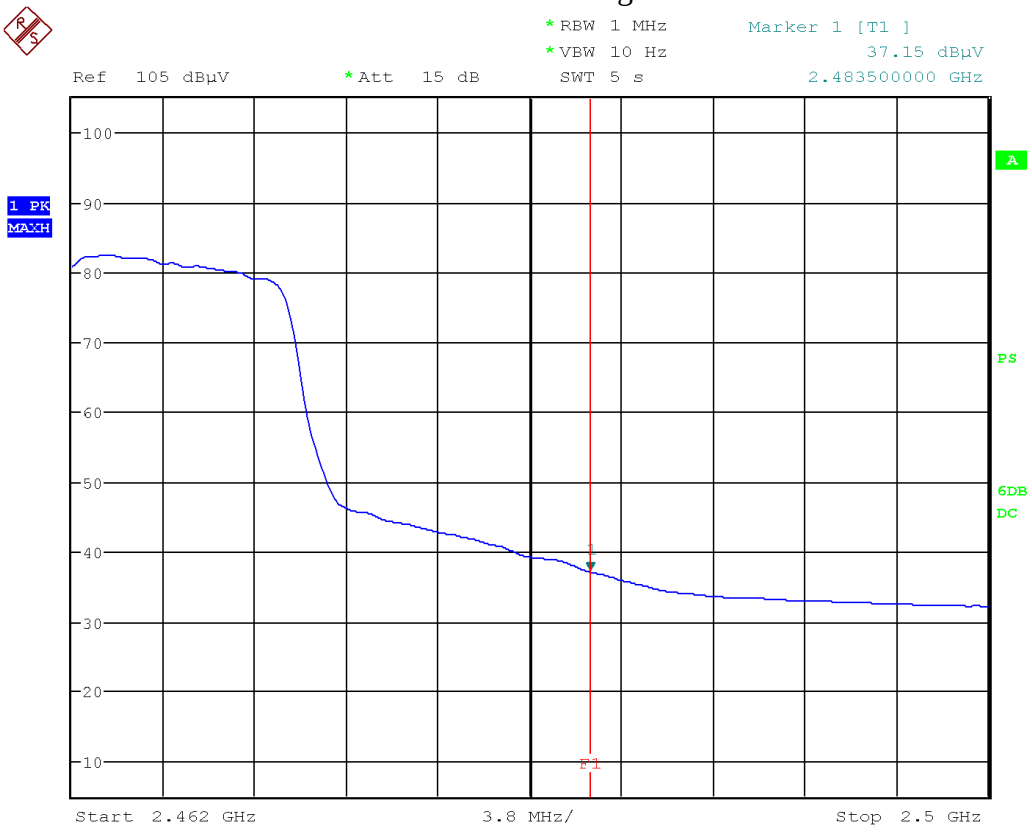
Band Edge – High Channel (802.11n/20MHz)
Horizontal - Average Emission



Date: 14.SEP.2021 18:14:16

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

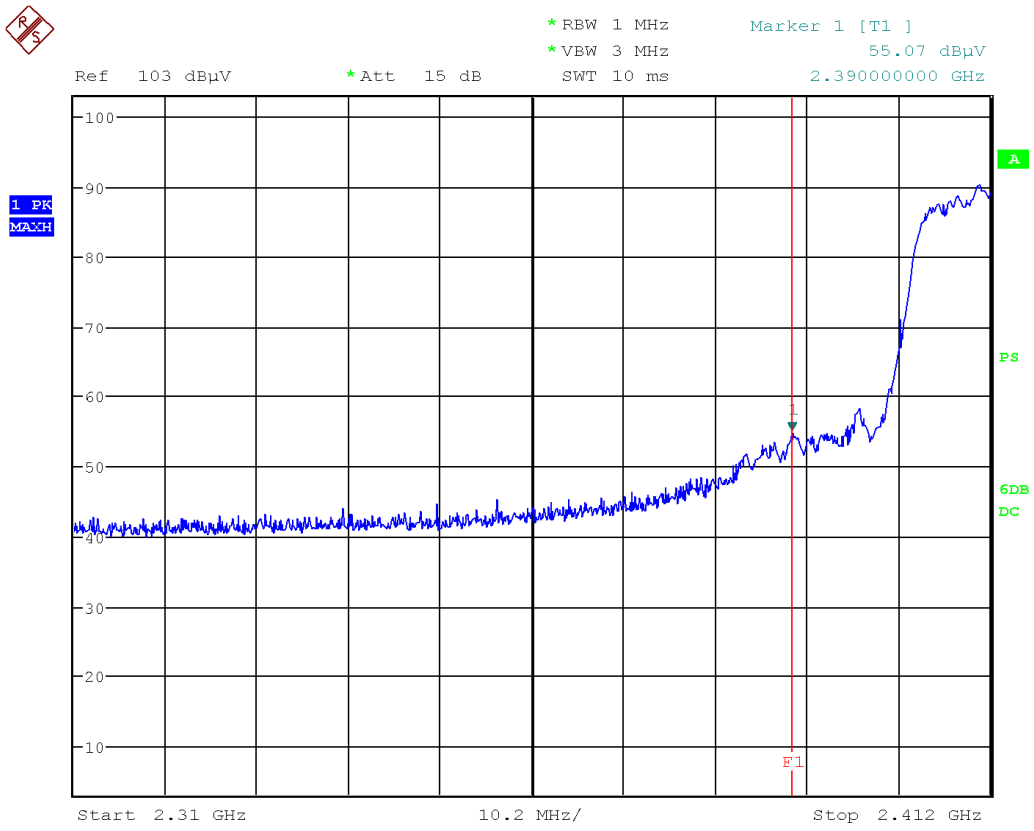
Band Edge – High Channel (802.11n/20MHz)
Vertical – Average Emission



Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

ECB601: Band Edges – N-Mode/40 MHz

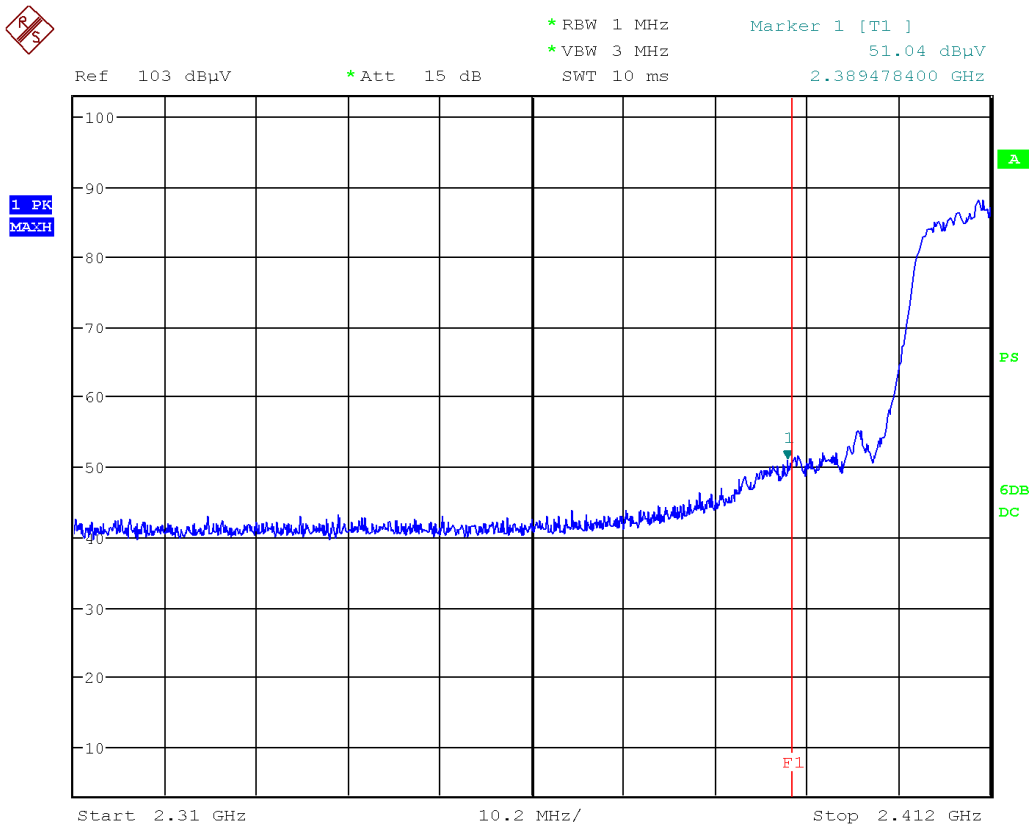
Band Edge – Low Channel (802.11n/40MHz)
Horizontal - Peak Emission



Date: 15.SEP.2021 10:13:40

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

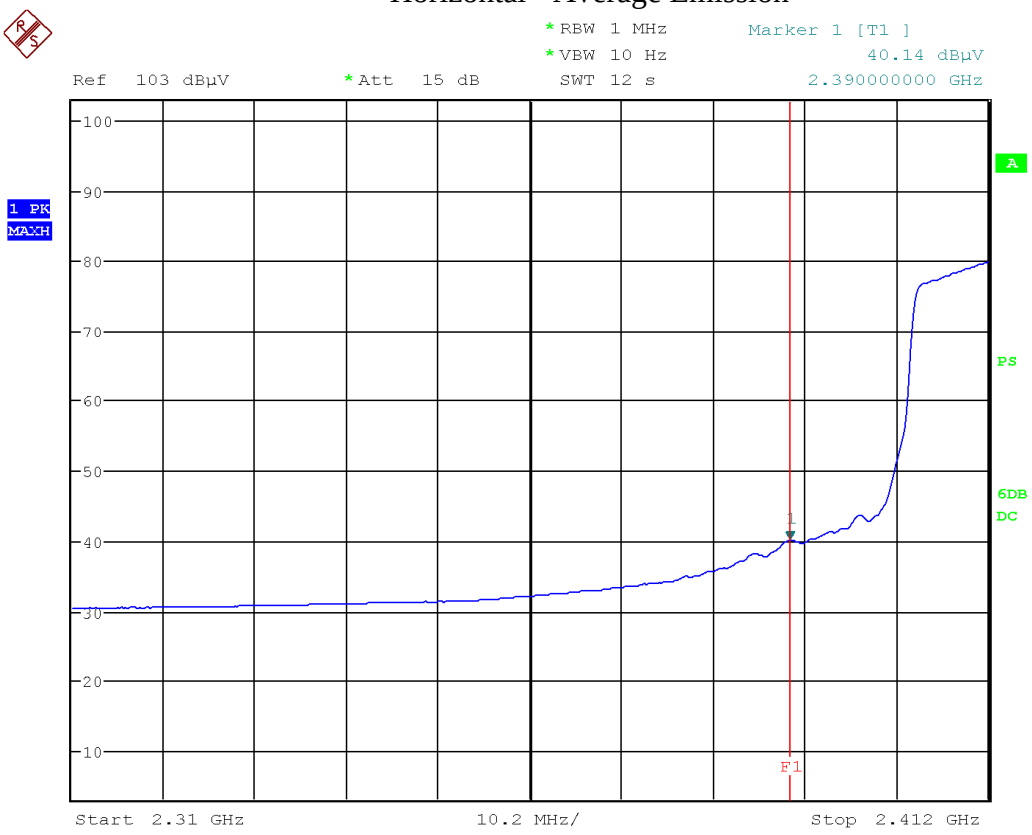
Band Edge – Low Channel (802.11n/40MHz)
Vertical - Peak Emission



Date: 15.SEP.2021 10:19:23

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

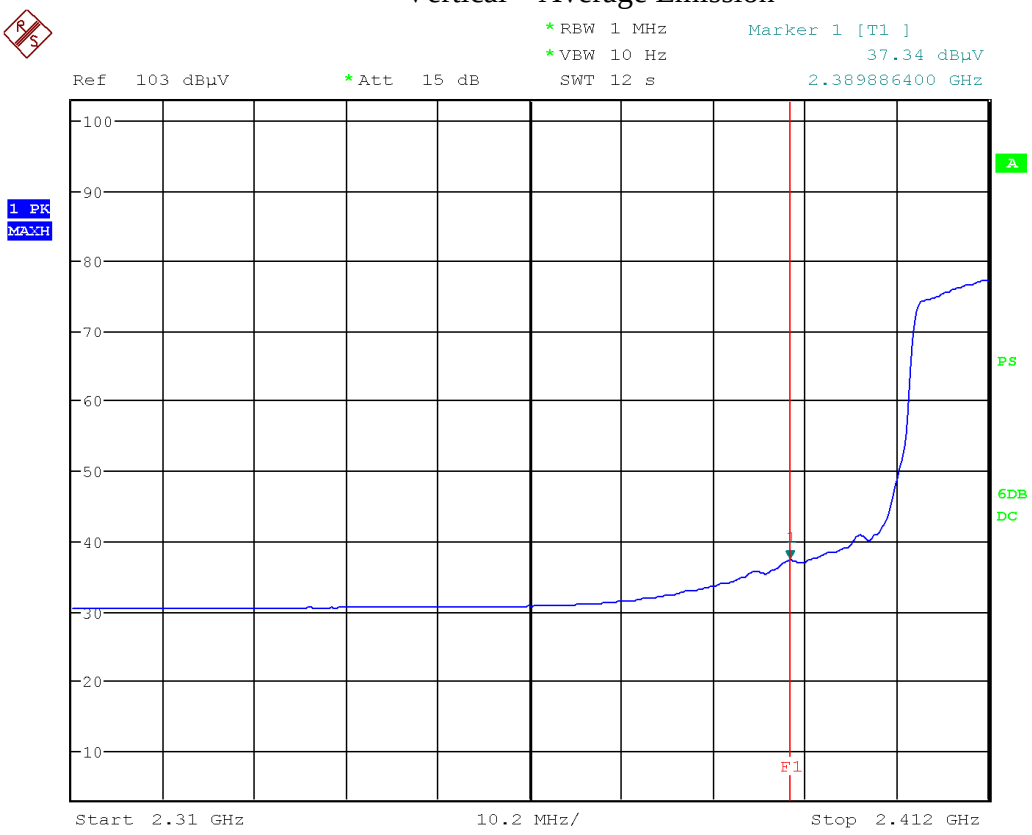
Band Edge – Low Channel (802.11n/40MHz)
Horizontal - Average Emission



Date: 15.SEP.2021 10:14:30

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

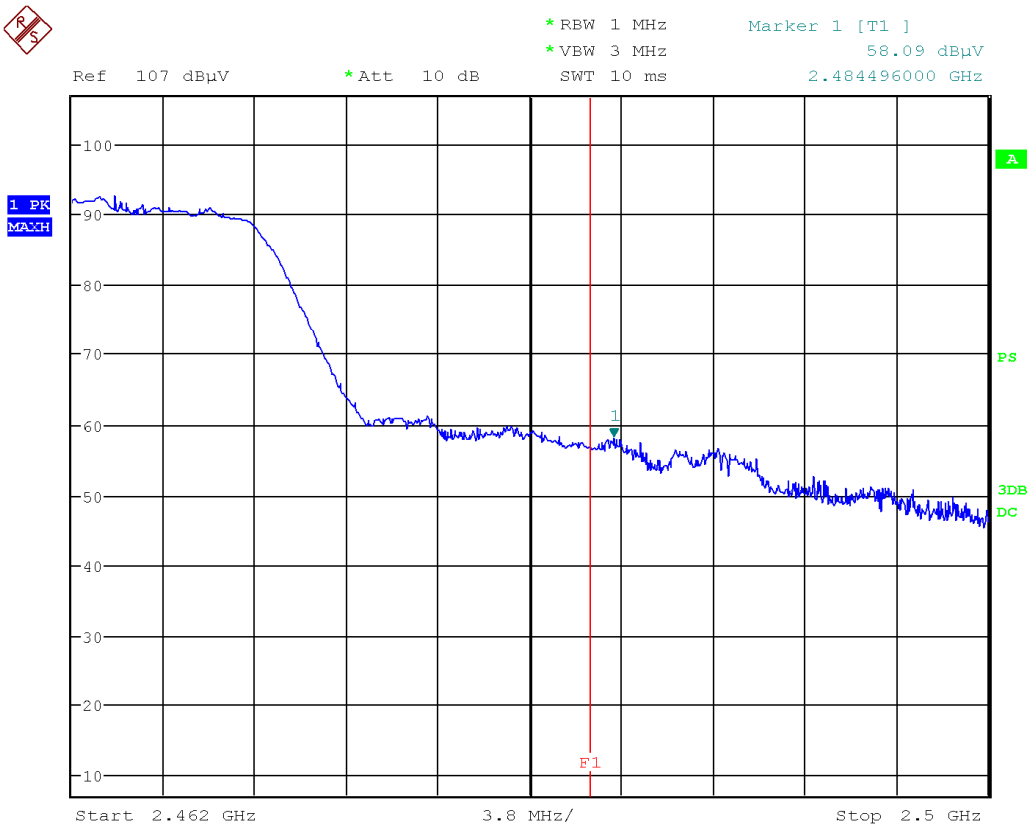
Band Edge – Low Channel (802.11n/40MHz)
Vertical – Average Emission



Date: 15.SEP.2021 10:20:13

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

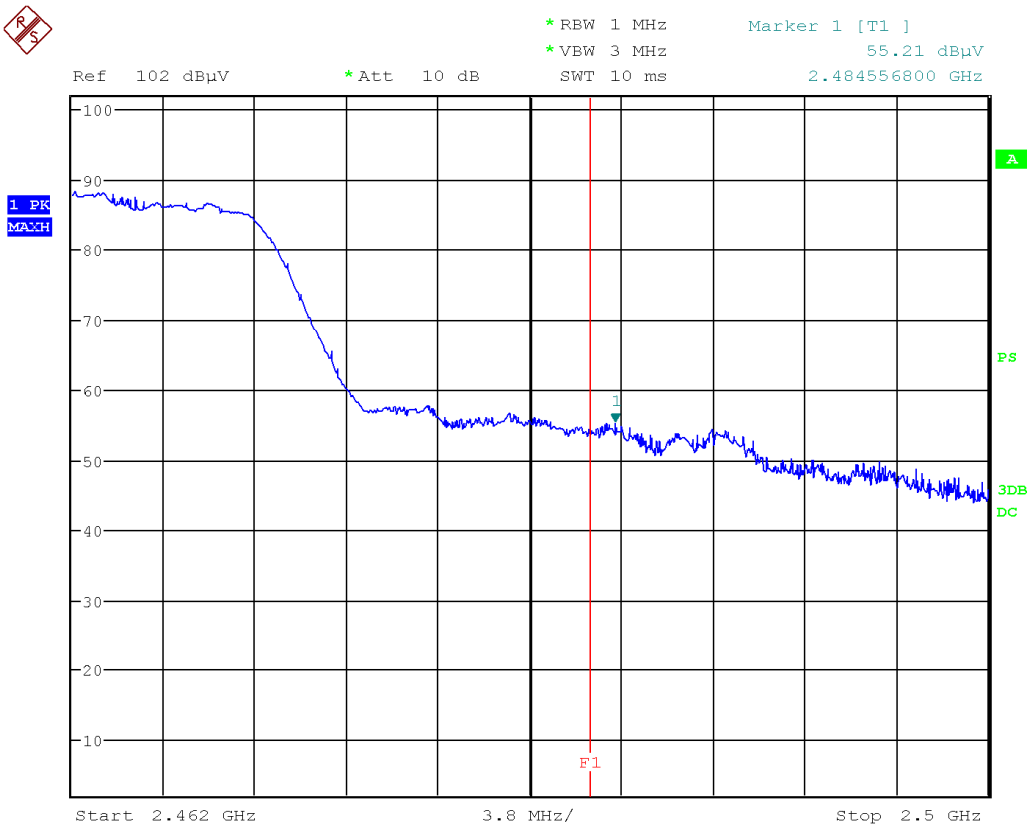
Band Edge – High Channel (802.11n/40MHz)
Horizontal - Peak Emission



Date: 13.SEP.2021 14:55:32

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

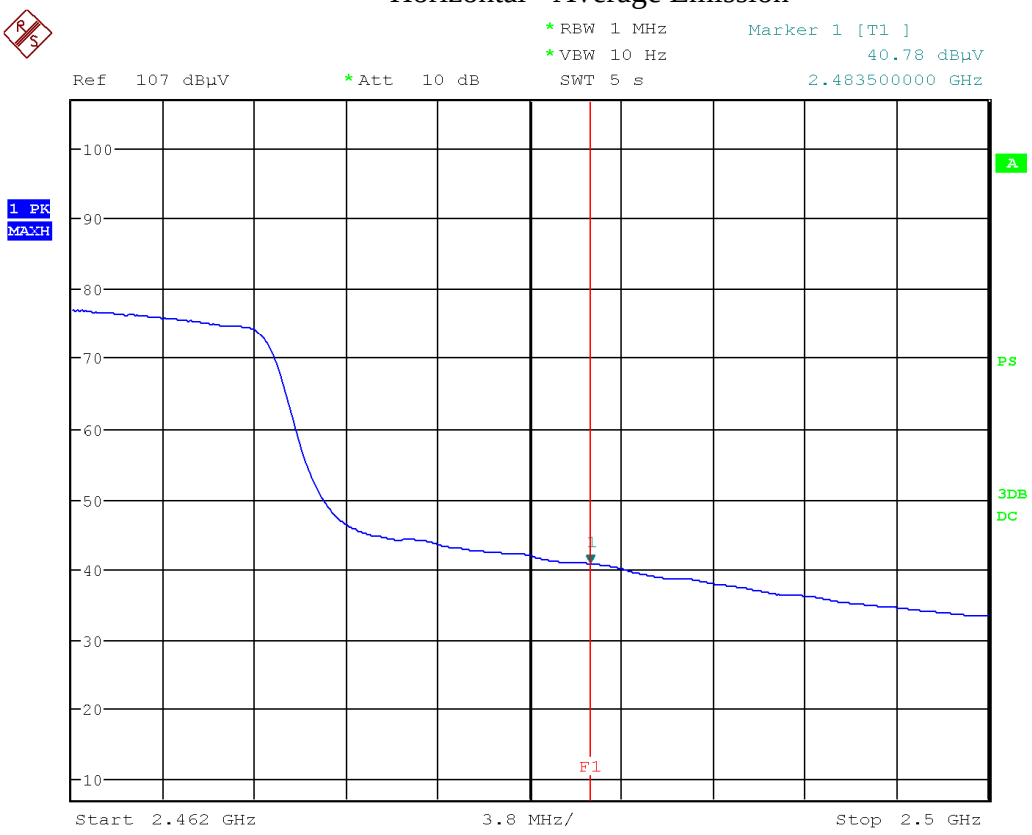
Band Edge – High Channel (802.11n/40MHz)
Vertical - Peak Emission



Date: 13.SEP.2021 14:59:54

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

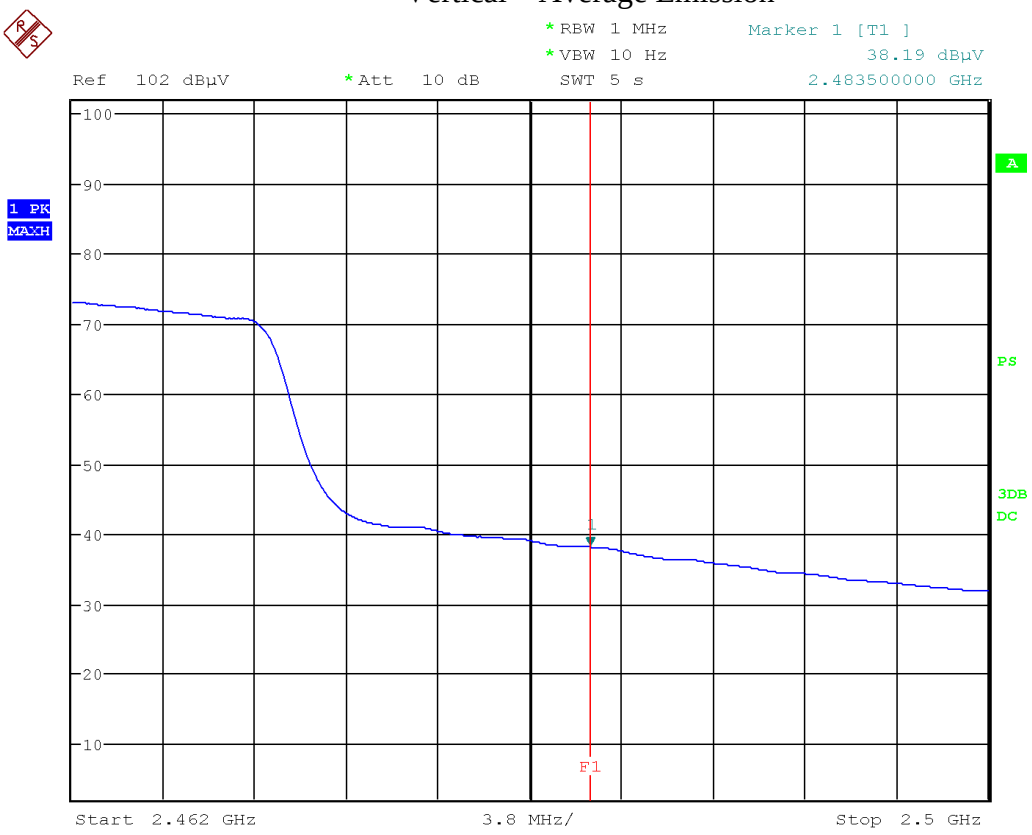
Band Edge – High Channel (802.11n/40MHz)
Horizontal - Average Emission



Date: 13.SEP.2021 14:55:54

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

Band Edge – High Channel (802.11n/40MHz)
Vertical – Average Emission

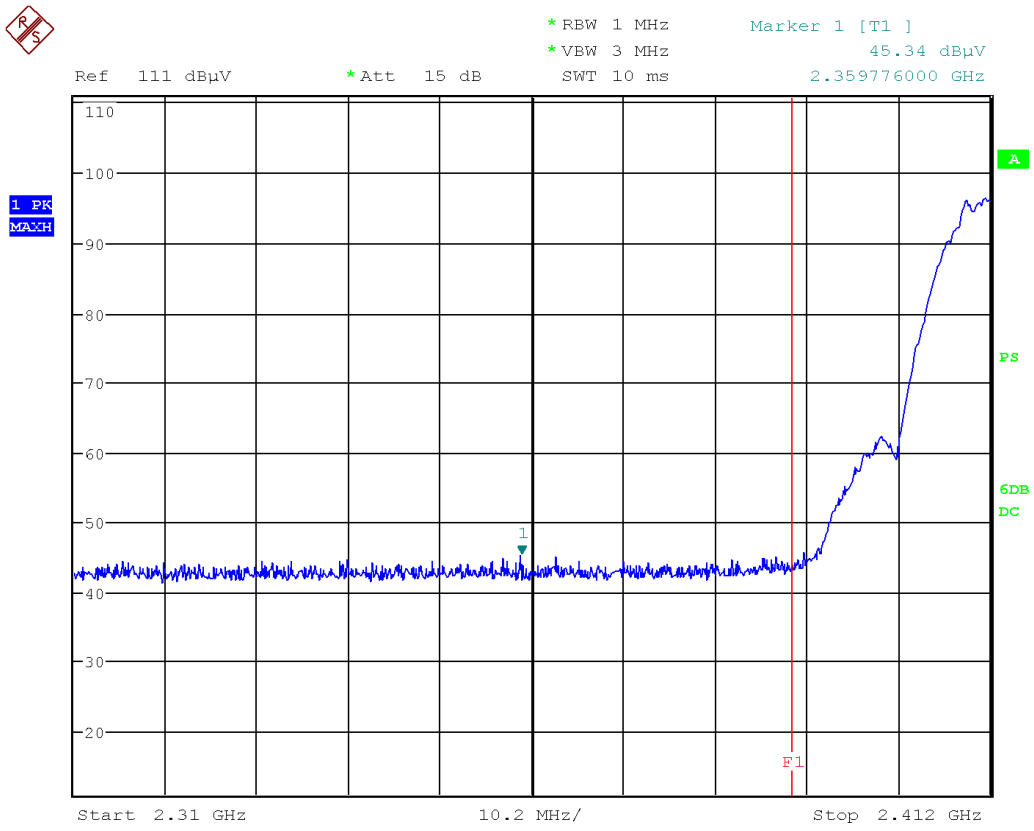


Date: 13.SEP.2021 15:00:16

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

ECB501: Band Edges – B-Mode

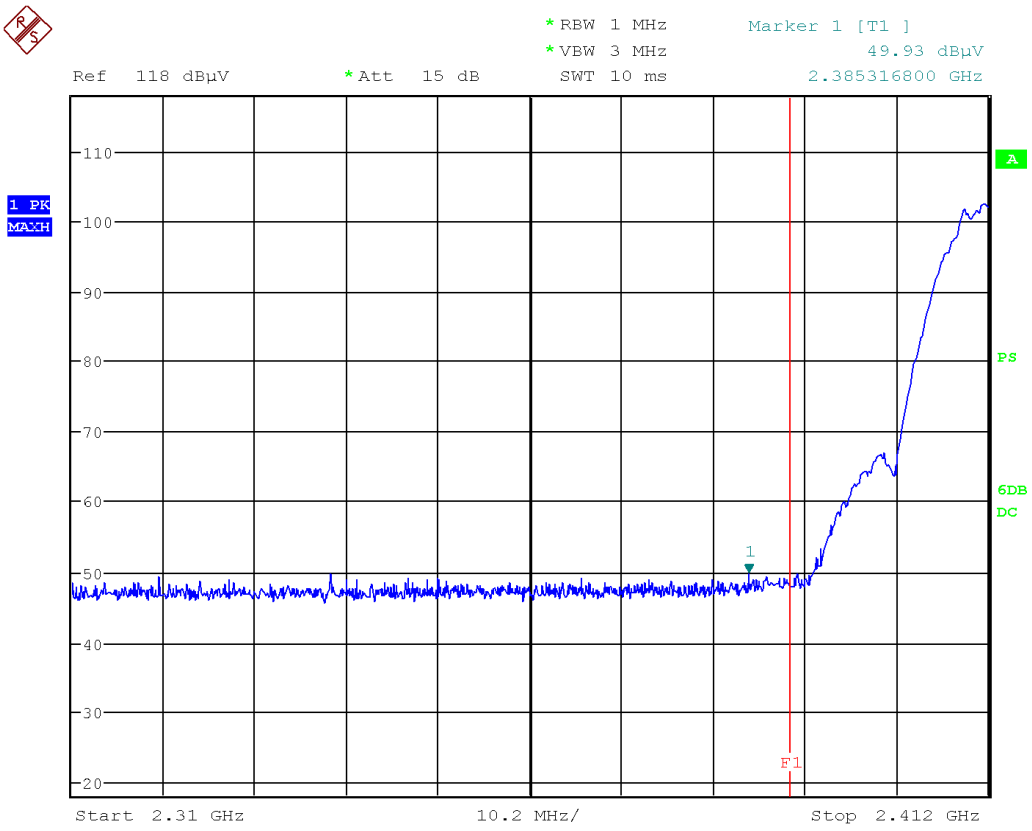
Band Edge – Low Channel (802.11b)
Horizontal - Peak Emission



Date: 14.SEP.2021 13:32:13

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

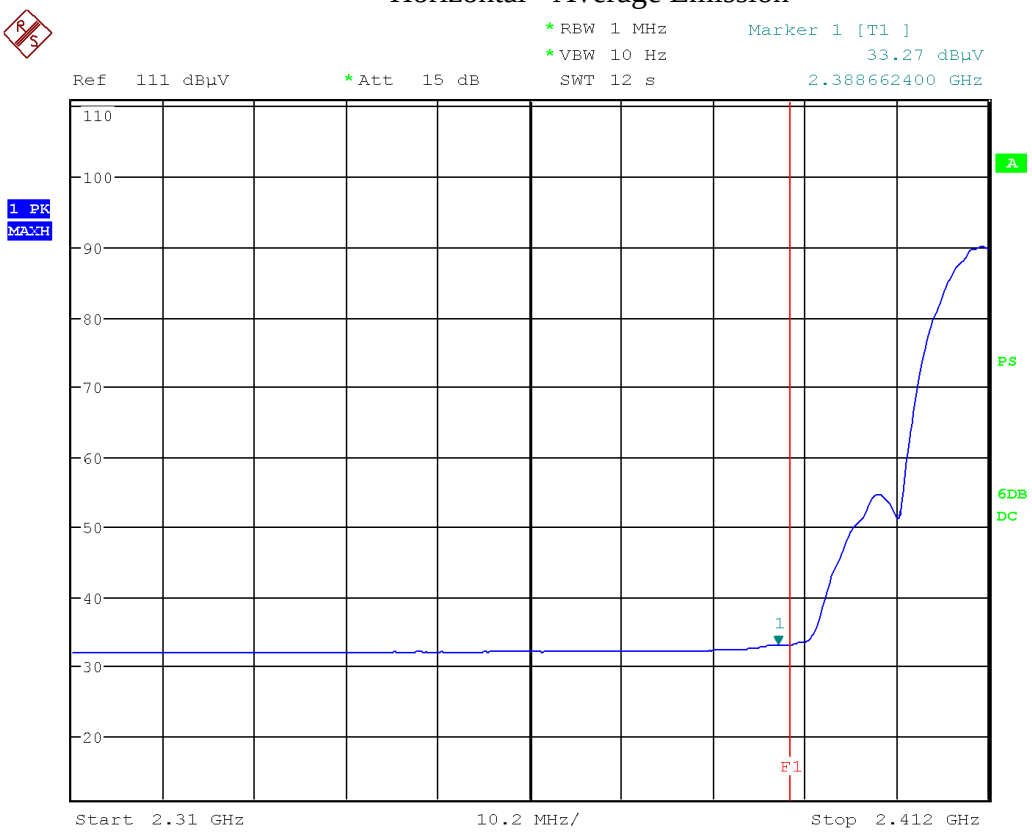
Band Edge – Low Channel (802.11b)
Vertical - Peak Emission



Date: 14.SEP.2021 13:28:02

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

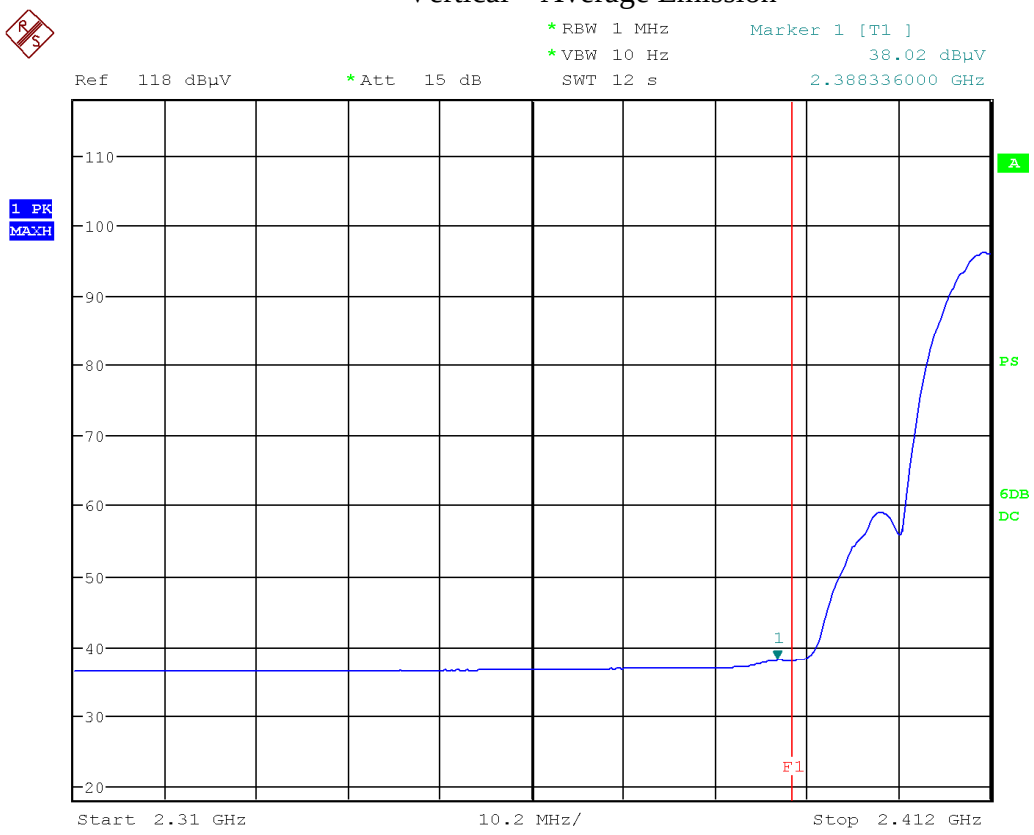
Band Edge – Low Channel (802.11b)
Horizontal - Average Emission



Date: 14.SEP.2021 13:33:03

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

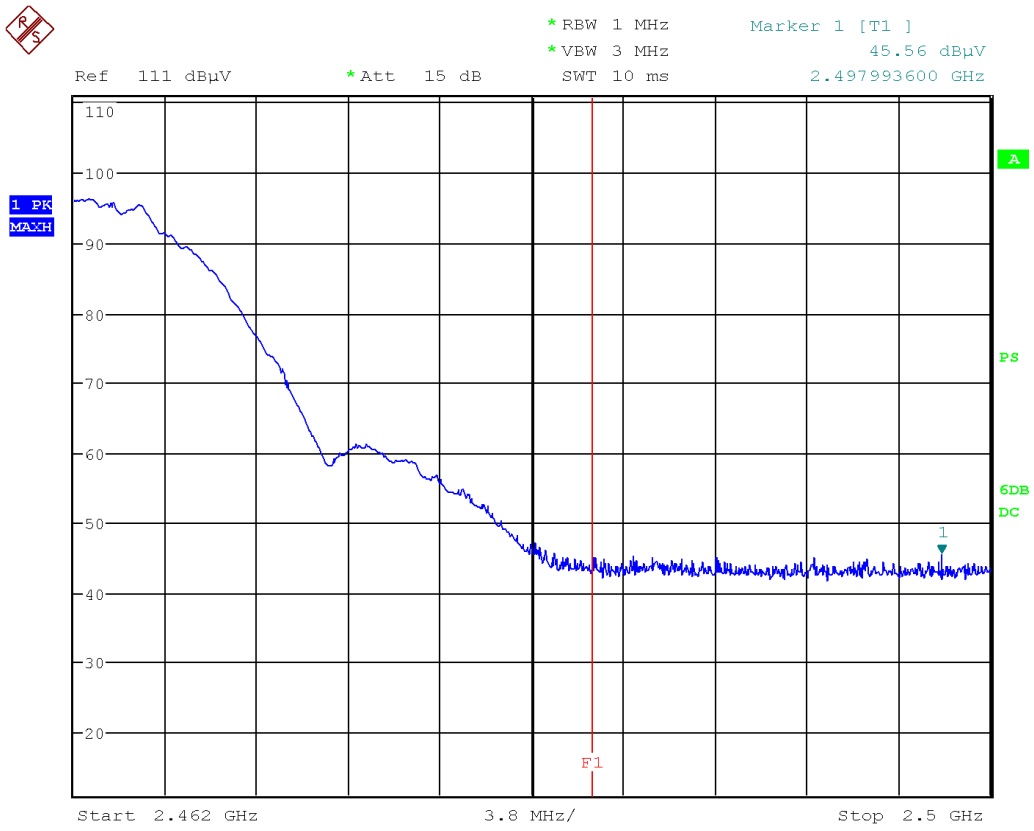
Band Edge – Low Channel (802.11b)
Vertical – Average Emission



Date: 14.SEP.2021 13:28:52

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

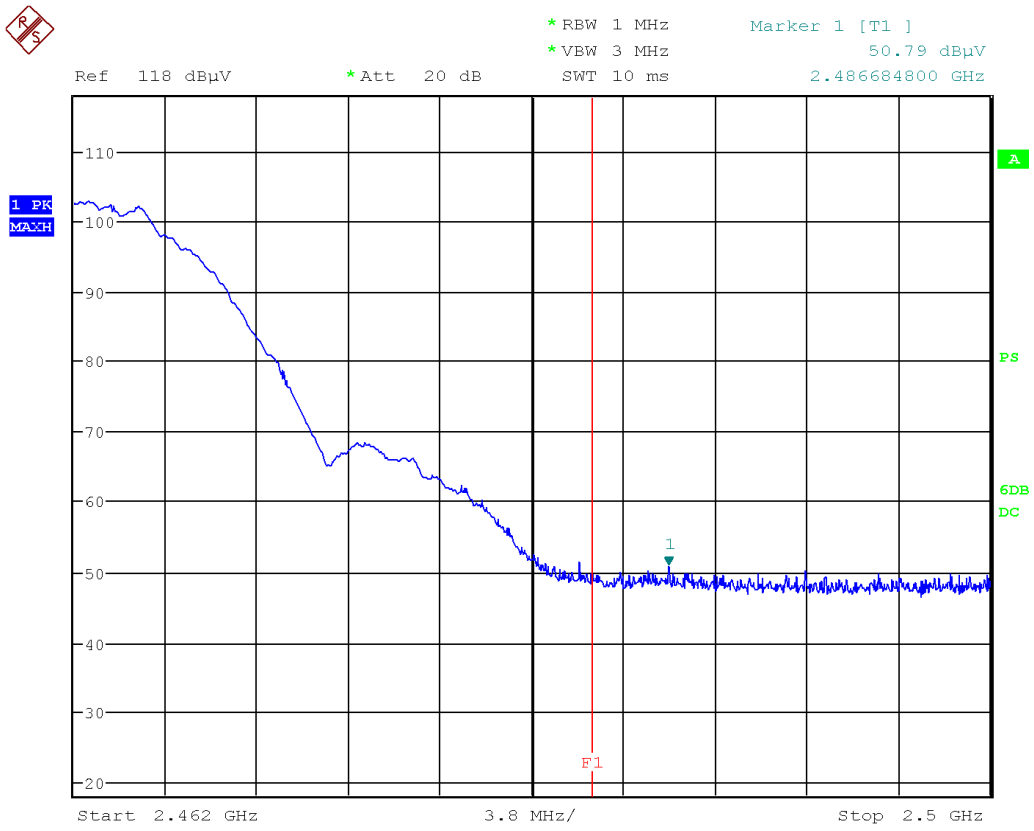
Band Edge – High Channel (802.11b)
Horizontal - Peak Emission



Date: 14.SEP.2021 09:47:32

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

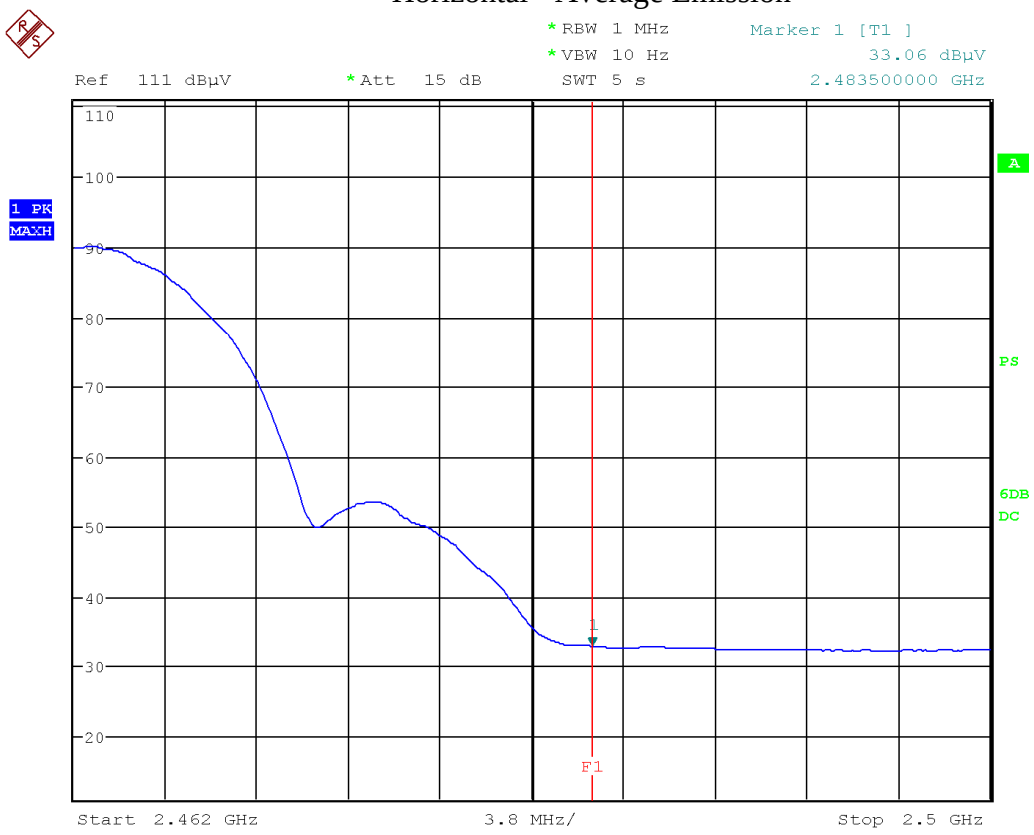
Band Edge – High Channel (802.11b)
Vertical - Peak Emission



Date: 14.SEP.2021 09:53:10

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

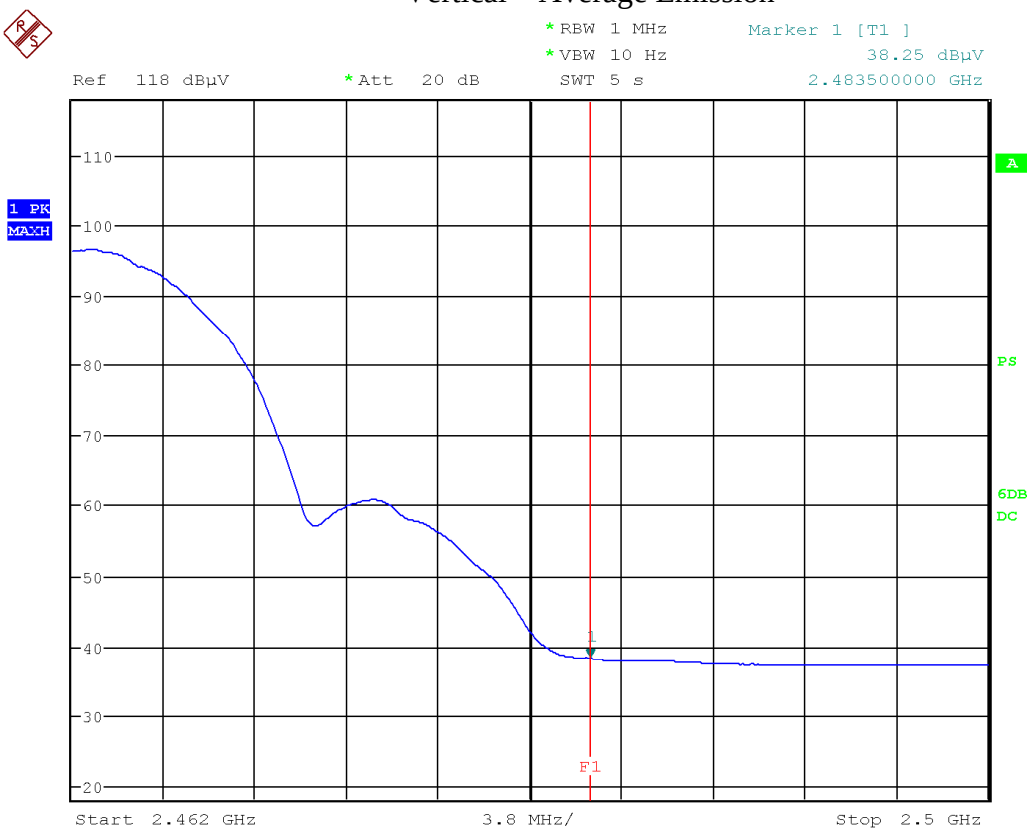
Band Edge – High Channel (802.11b)
Horizontal - Average Emission



Date: 14.SEP.2021 09:47:54

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

Band Edge – High Channel (802.11b)
Vertical – Average Emission

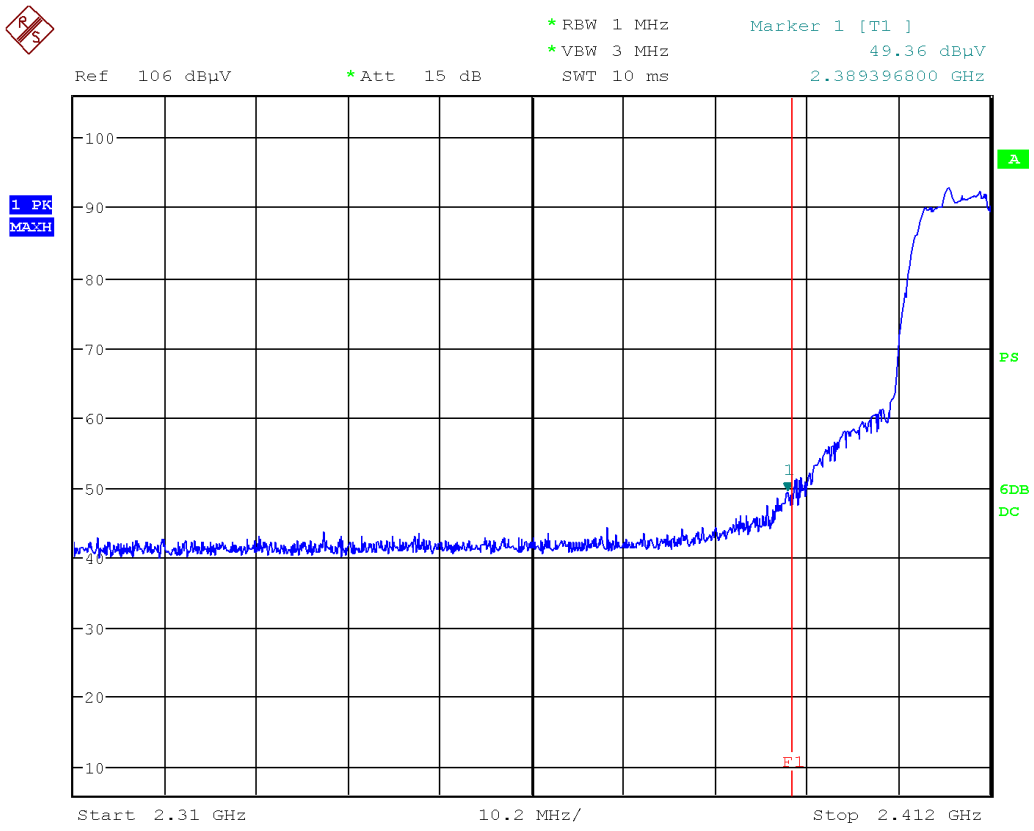


Date: 14.SEP.2021 09:53:32

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

ECB501: Band Edges – G-Mode

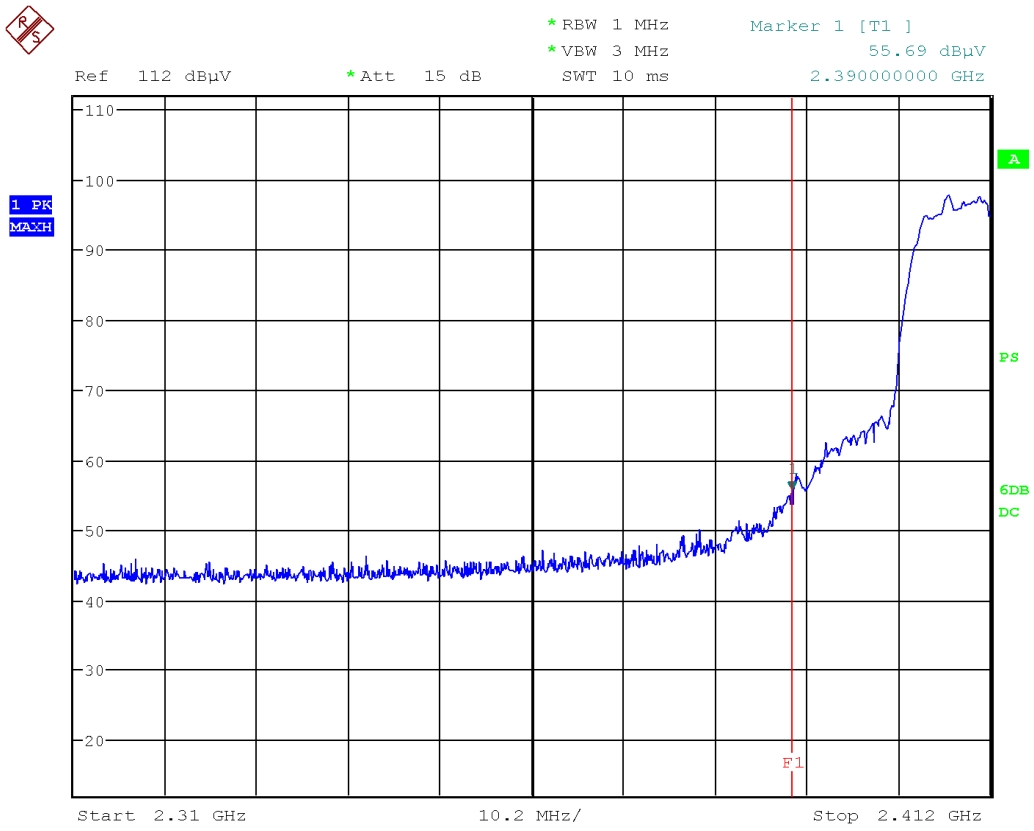
Band Edge – Low Channel (802.11g)
Horizontal - Peak Emission



Date: 14.SEP.2021 14:05:18

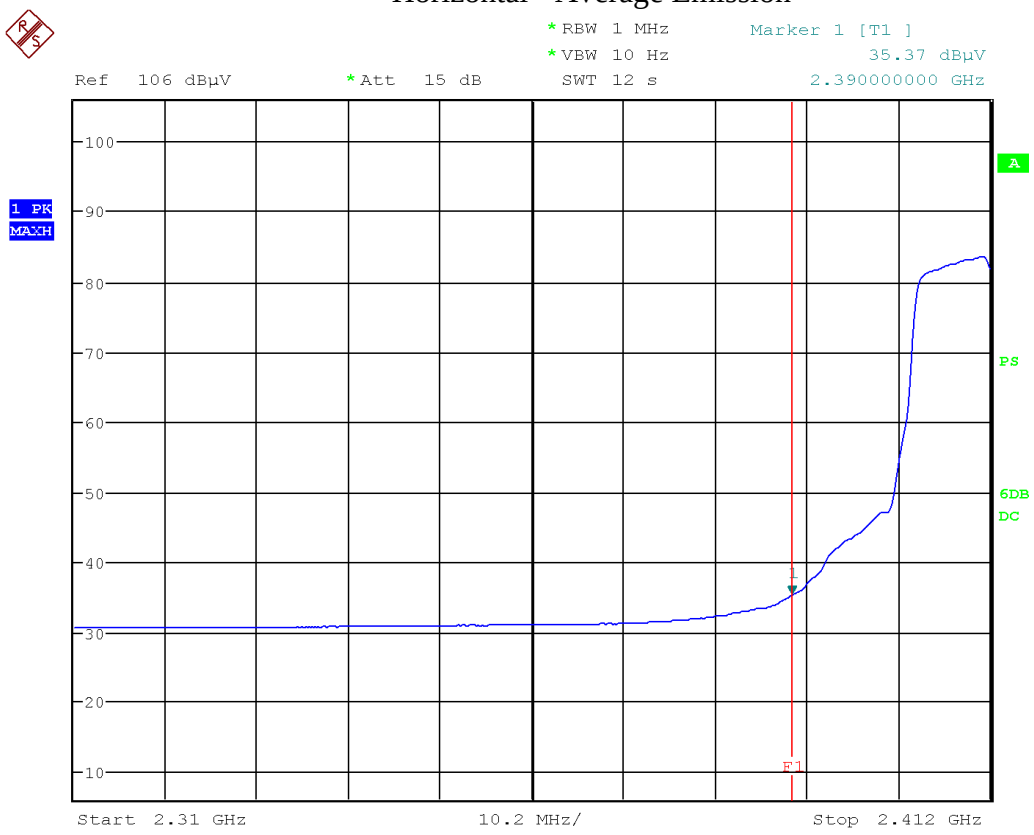
Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

Band Edge – Low Channel (802.11g)
Vertical - Peak Emission



Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

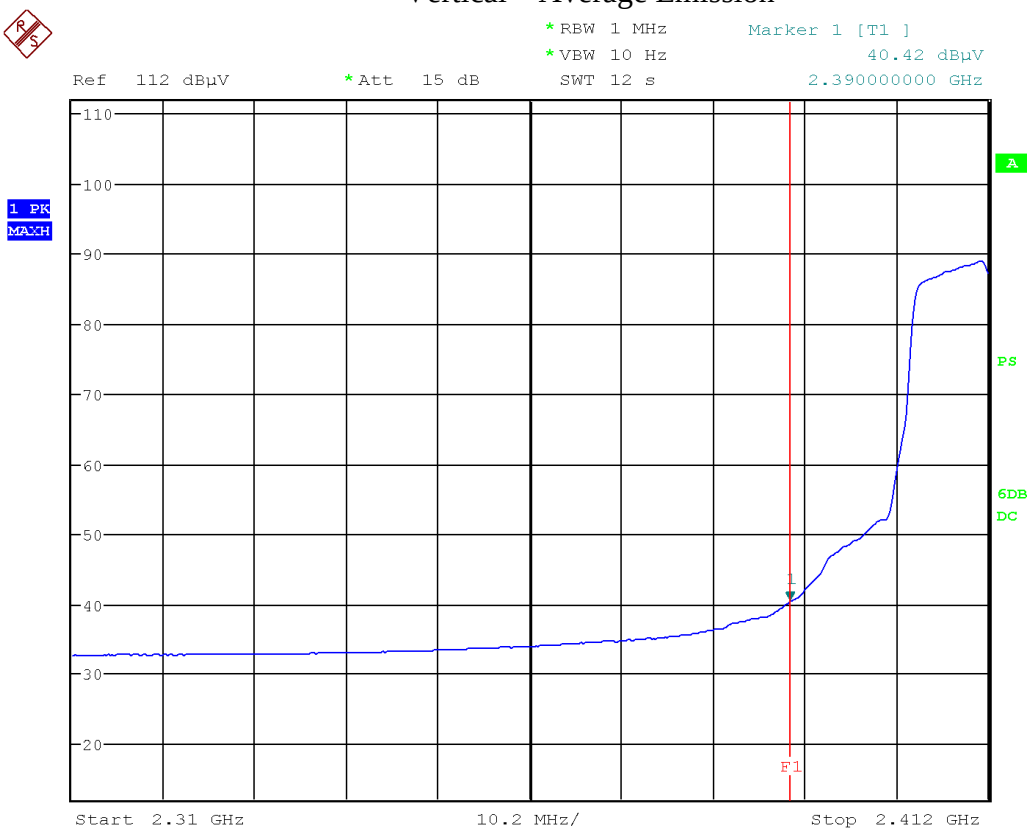
Band Edge – Low Channel (802.11g)
Horizontal - Average Emission



Date: 14.SEP.2021 14:06:08

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

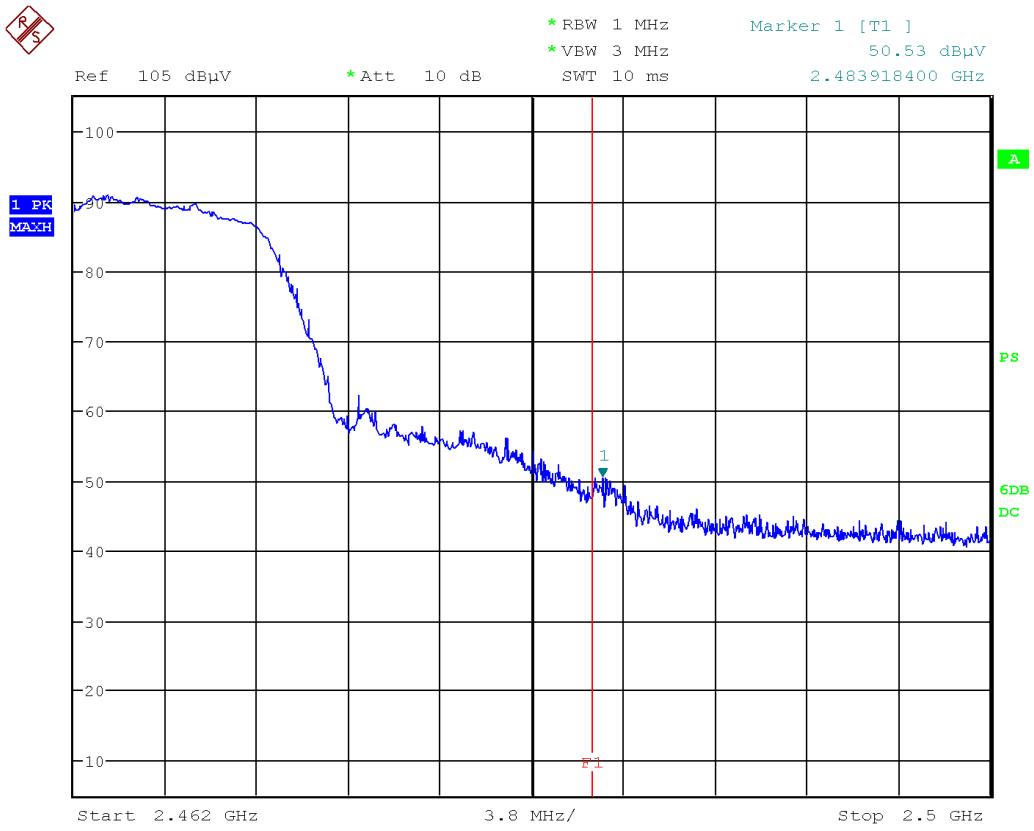
Band Edge – Low Channel (802.11g)
Vertical – Average Emission



Date: 14.SEP.2021 14:01:12

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

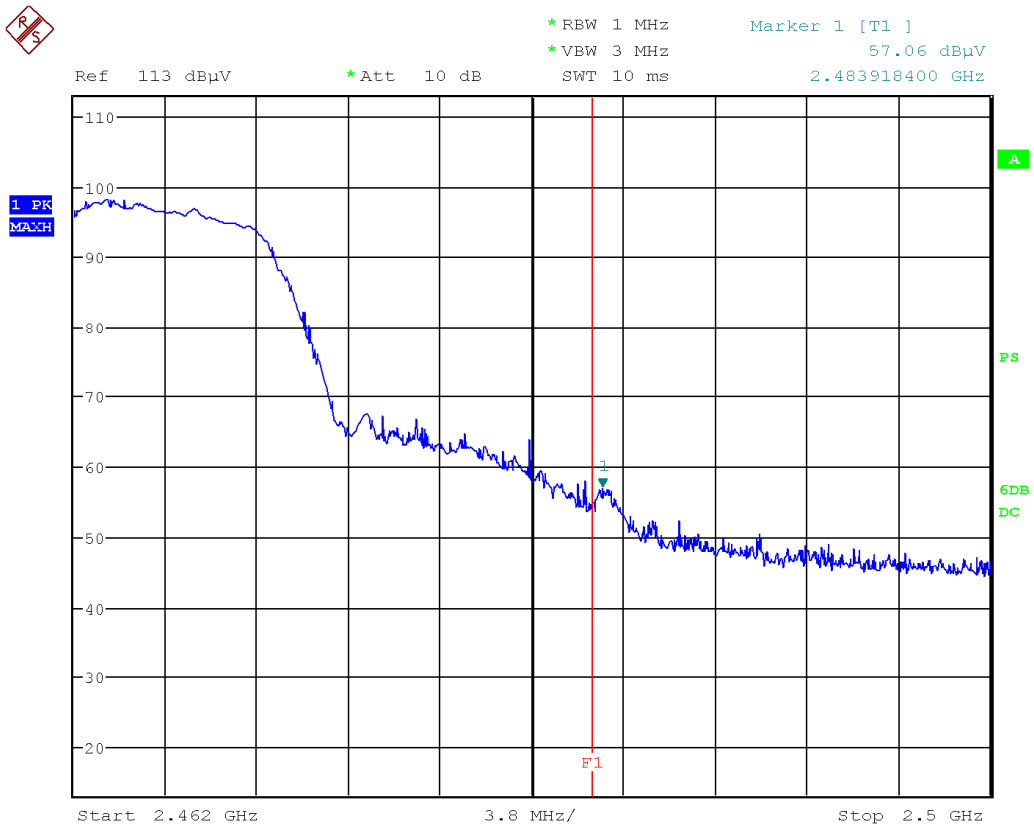
Band Edge – High Channel (802.11g)
Horizontal - Peak Emission



Date: 14.SEP.2021 12:51:43

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

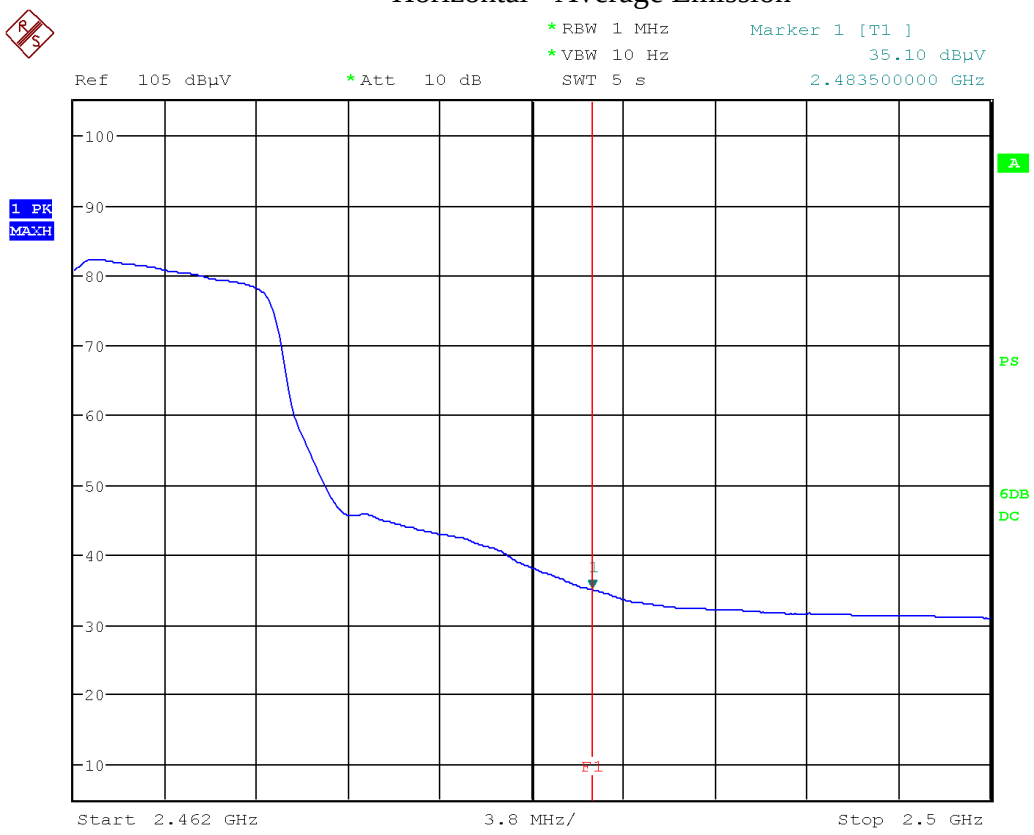
Band Edge – High Channel (802.11g)
Vertical - Peak Emission



Date: 14.SEP.2021 12:48:04

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

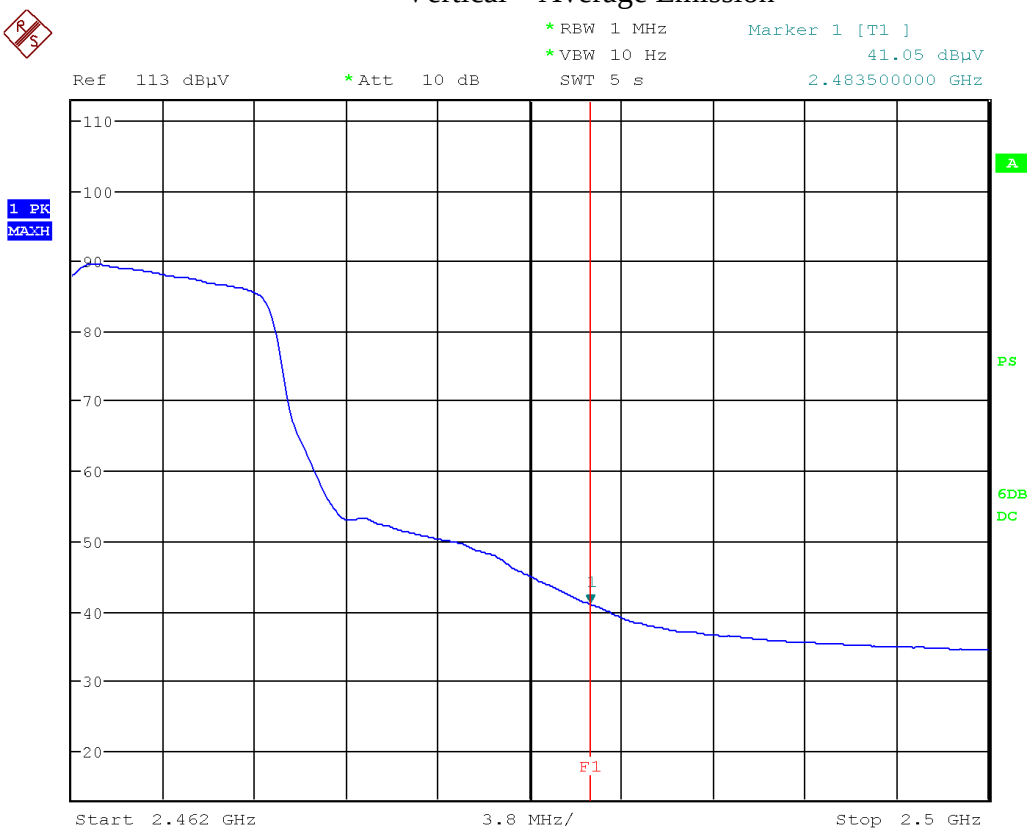
Band Edge – High Channel (802.11g)
Horizontal - Average Emission



Date: 14.SEP.2021 12:52:05

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

Band Edge – High Channel (802.11g)
Vertical – Average Emission

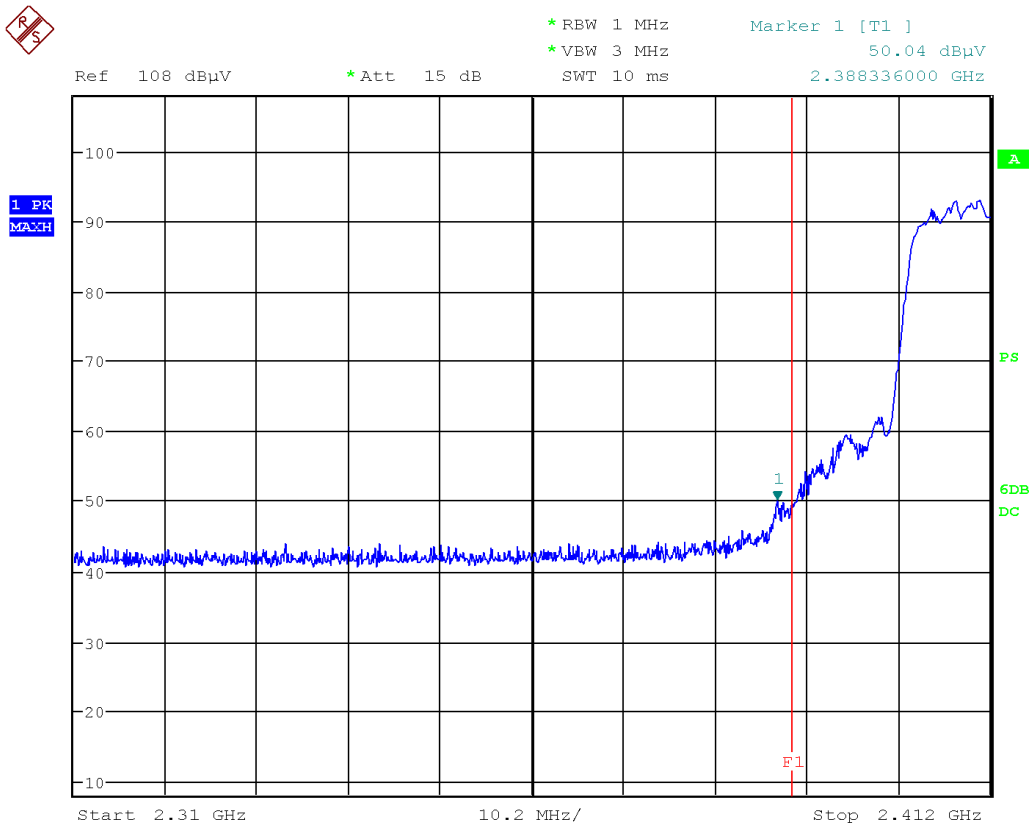


Date: 14.SEP.2021 12:48:26

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

ECB501: Band Edges – N-Mode/20 MHz BW

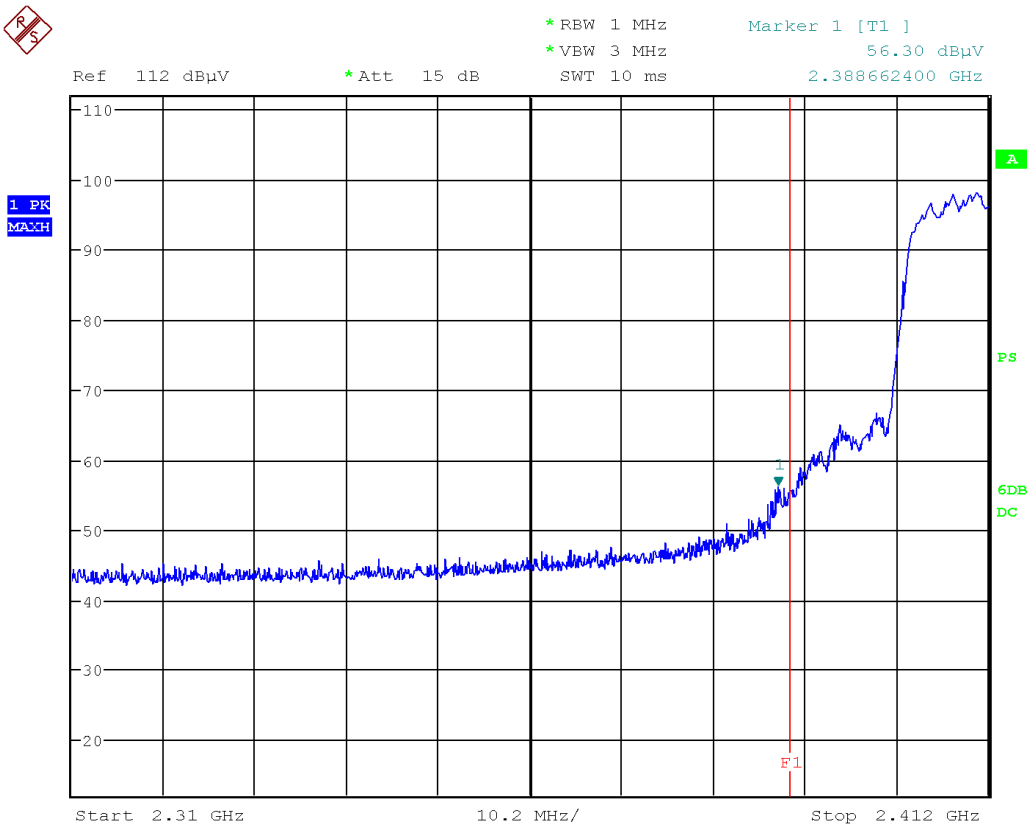
Band Edge – Low Channel (802.11n/20MHz)
Horizontal - Peak Emission



Date: 14.SEP.2021 14:30:12

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

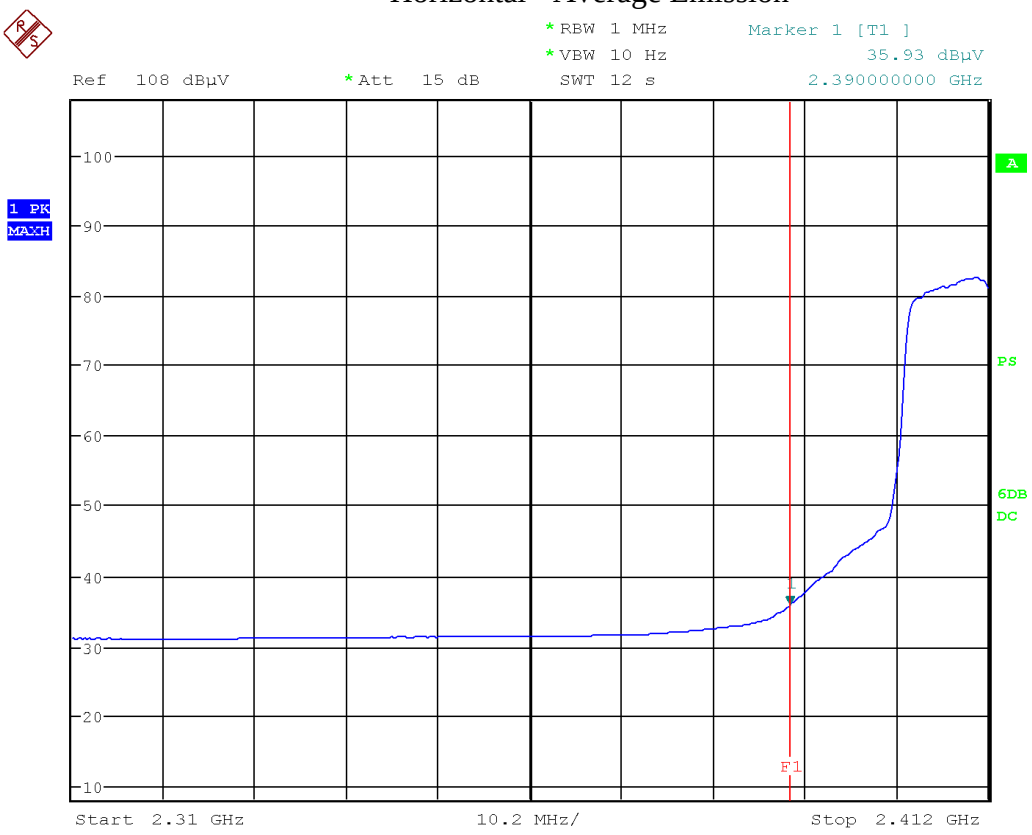
Band Edge – Low Channel (802.11n/20MHz)
Vertical - Peak Emission



Date: 14.SEP.2021 14:24:58

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

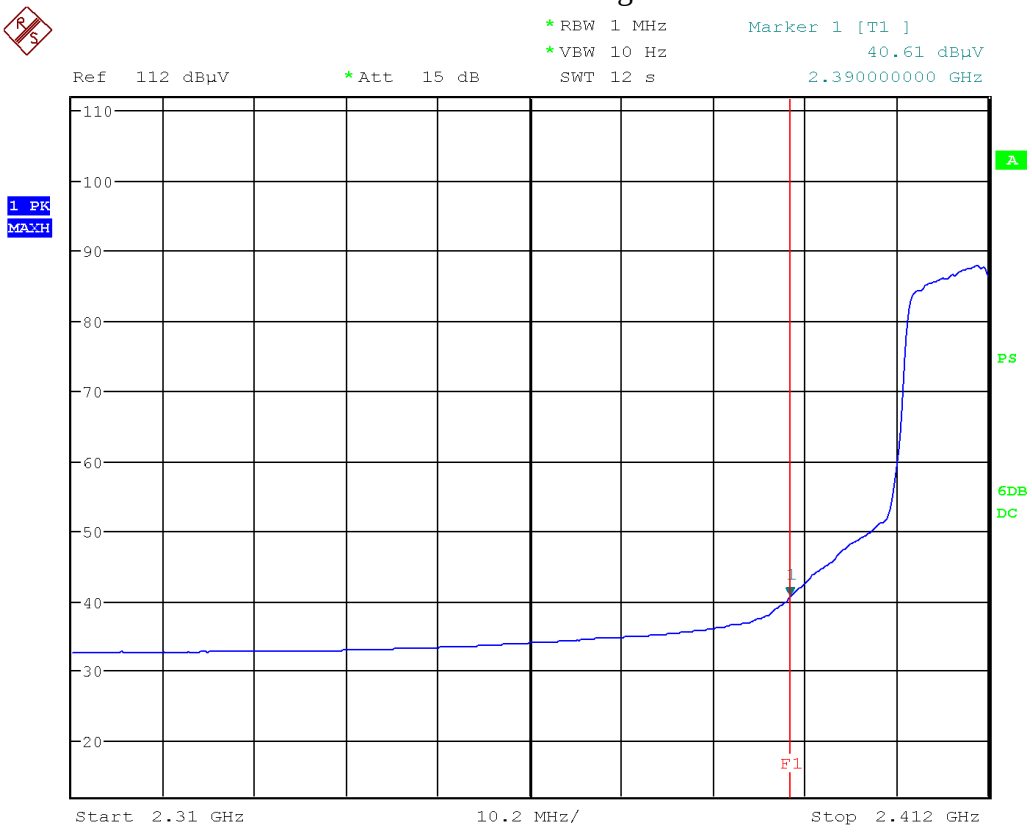
Band Edge – Low Channel (802.11n/20MHz)
Horizontal - Average Emission



Date: 14.SEP.2021 14:31:02

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

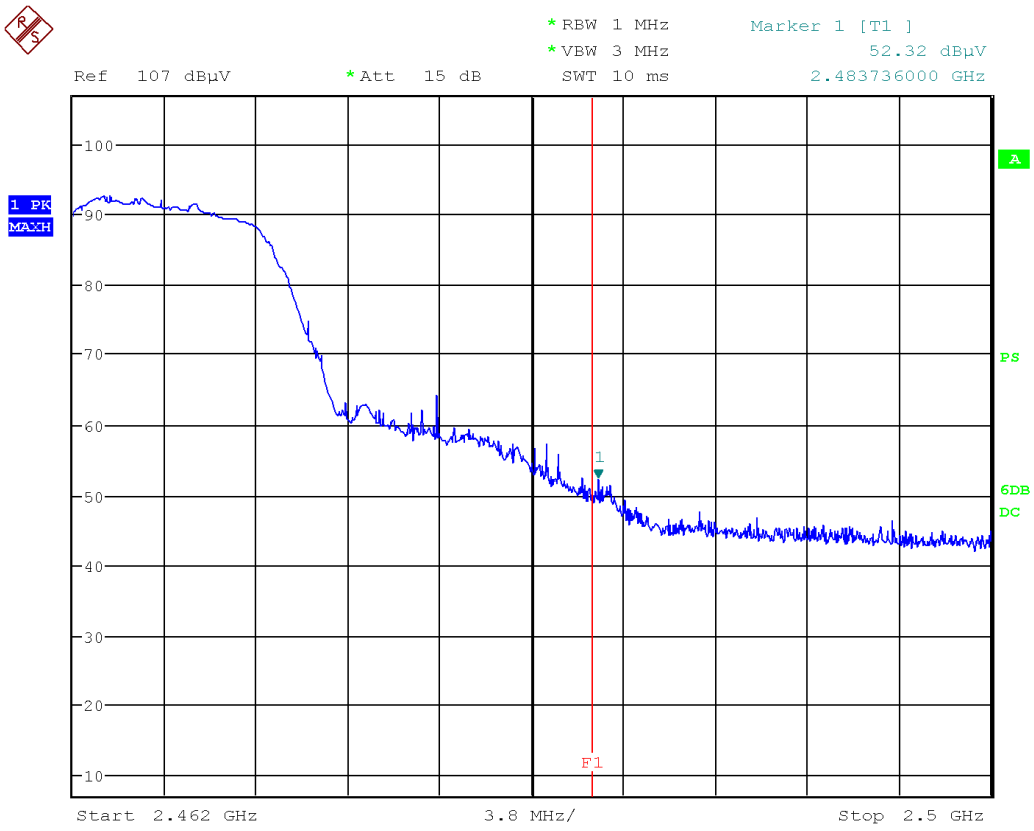
Band Edge – Low Channel (802.11n/20MHz)
Vertical – Average Emission



Date: 14.SEP.2021 14:25:48

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

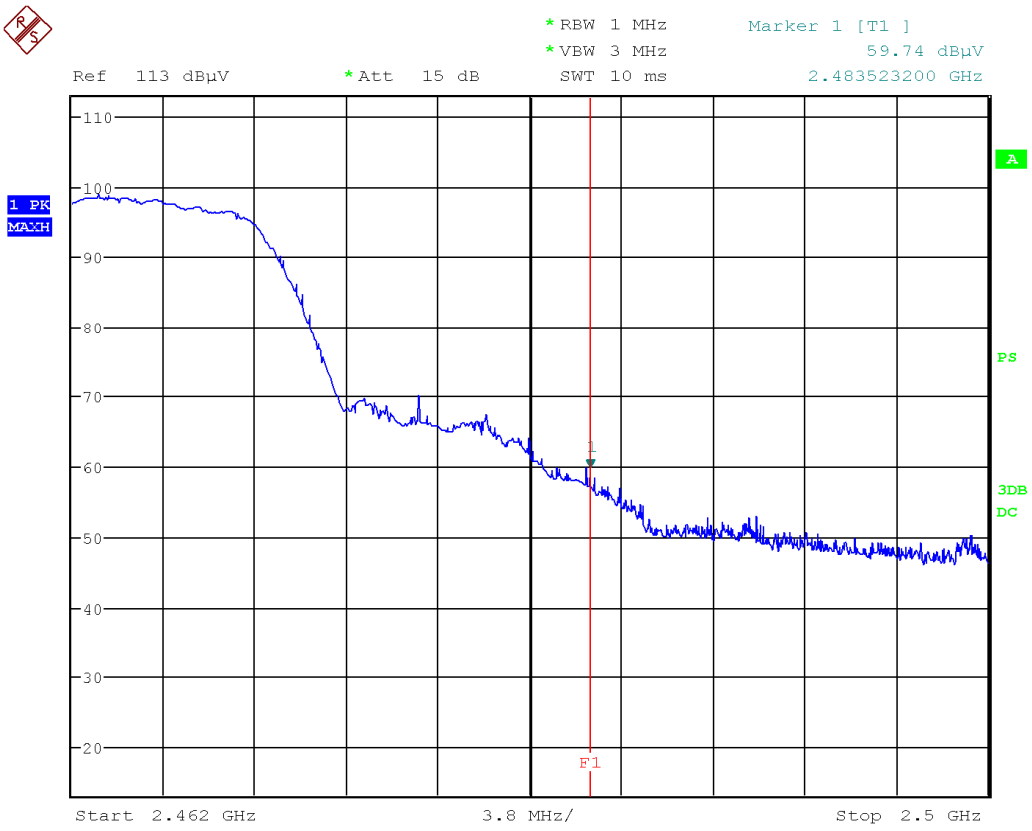
Band Edge – High Channel (802.11n/20MHz)
Horizontal - Peak Emission



Date: 15.SEP.2021 17:09:54

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

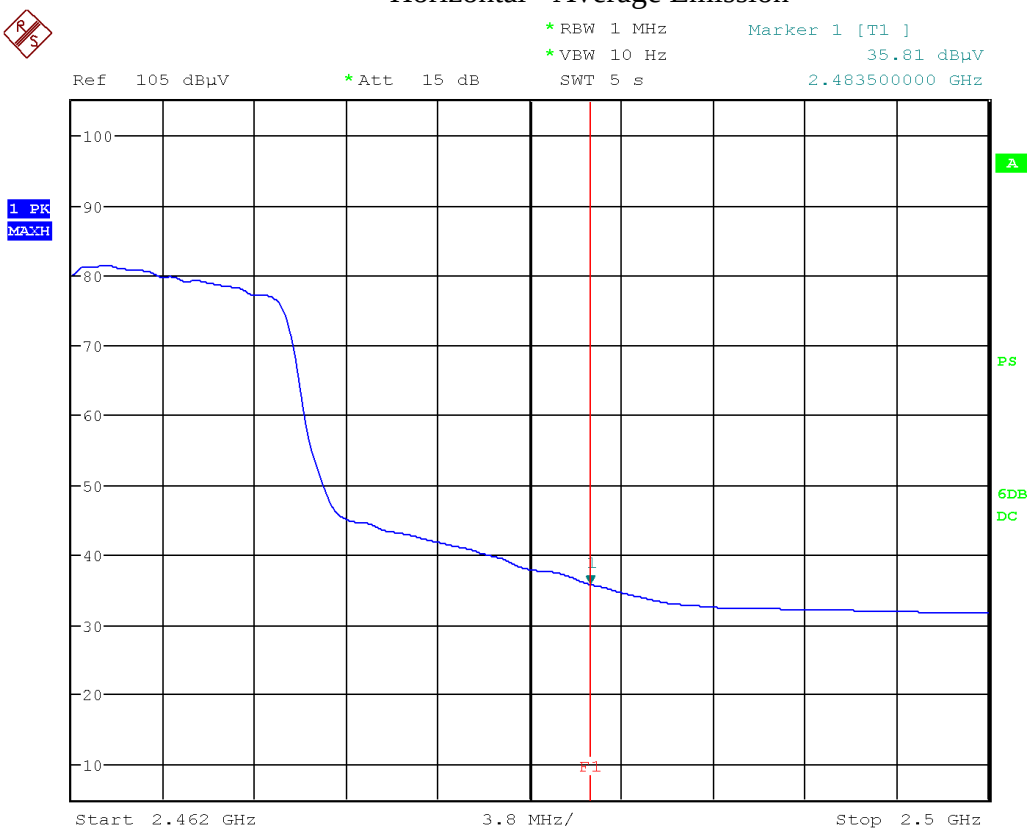
Band Edge – High Channel (802.11n/20MHz)
Vertical - Peak Emission



Date: 13.SEP.2021 16:13:32

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

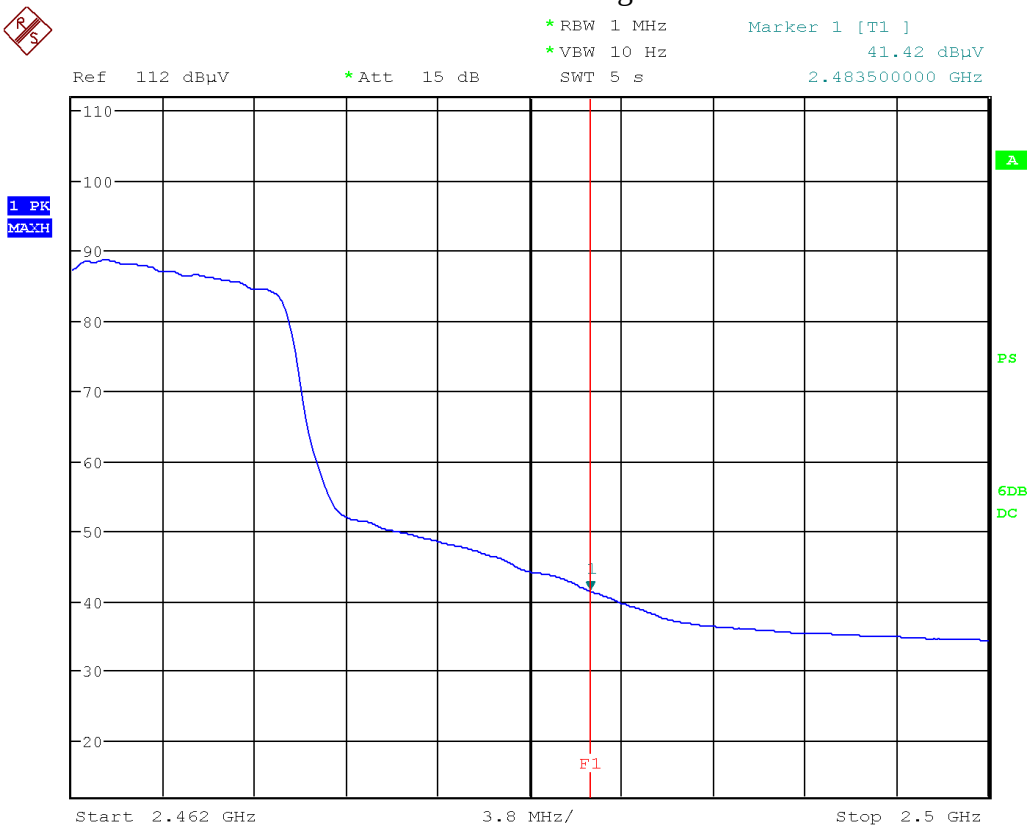
Band Edge – High Channel (802.11n/20MHz)
Horizontal - Average Emission



Date: 14.SEP.2021 12:25:03

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

Band Edge – High Channel (802.11n/20MHz)
Vertical – Average Emission

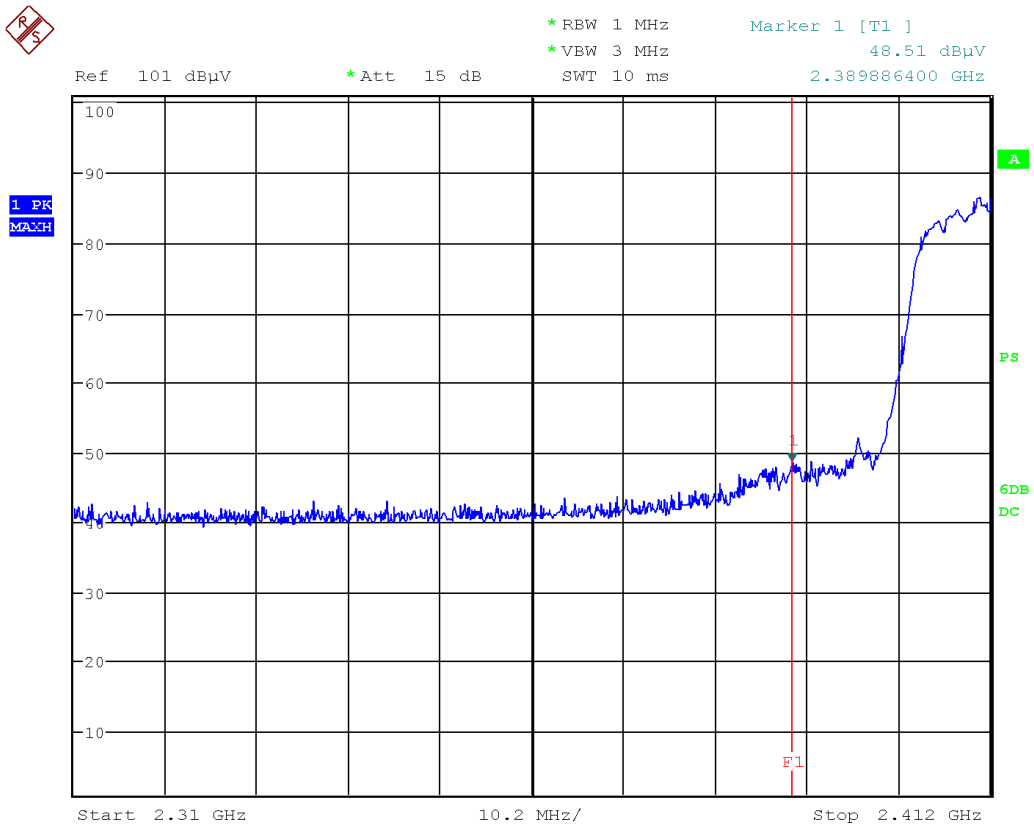


Date: 14.SEP.2021 12:29:03

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

ECB501: Band Edges – N-Mode/40 MHz

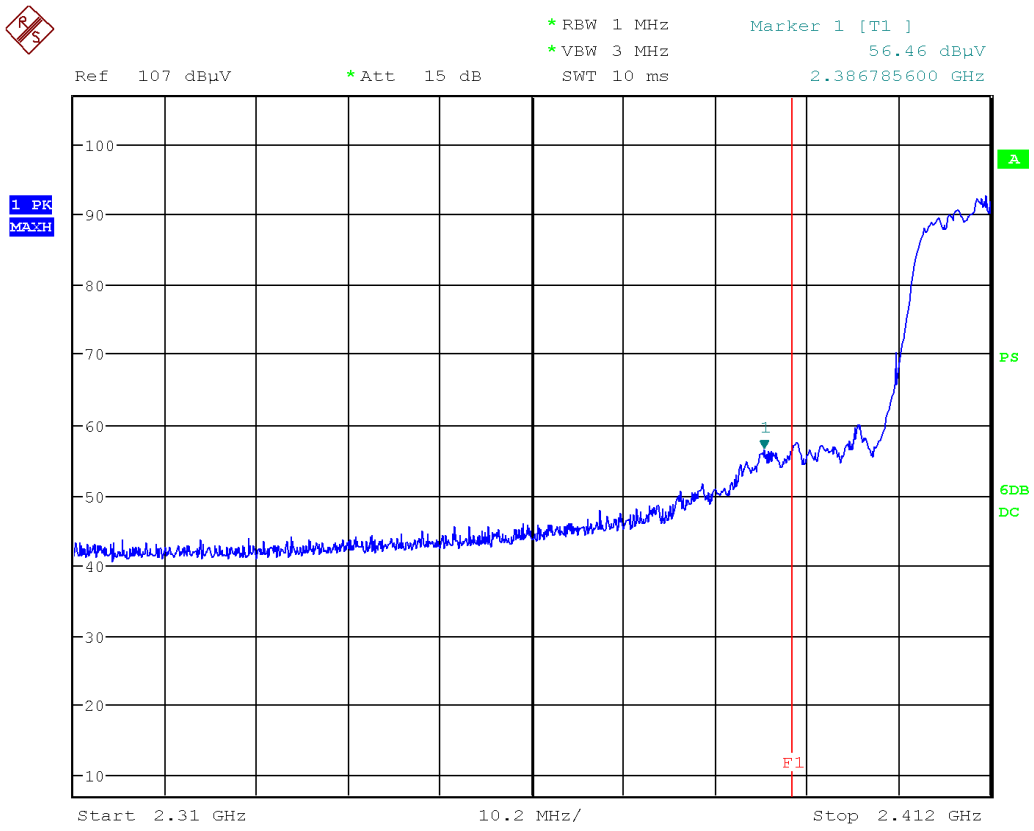
Band Edge – Low Channel (802.11n/40MHz)
Horizontal - Peak Emission



Date: 14.SEP.2021 14:57:46

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

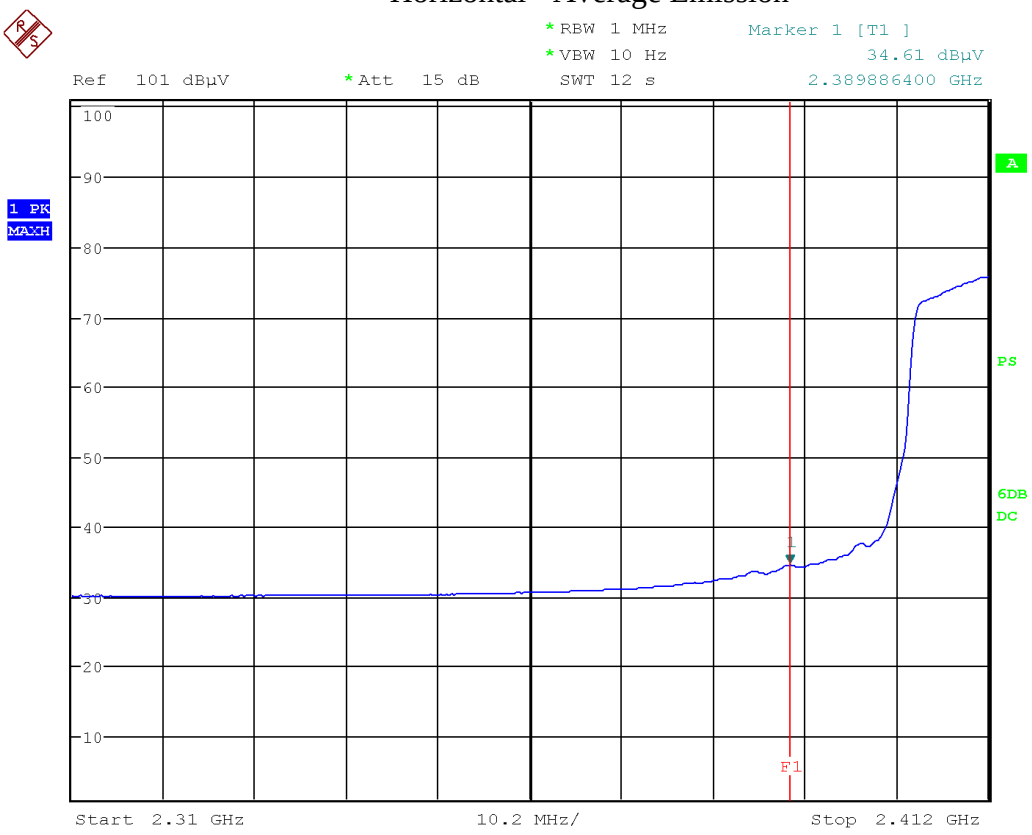
Band Edge – Low Channel (802.11n/40MHz)
Vertical - Peak Emission



Date: 14.SEP.2021 14:50:46

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

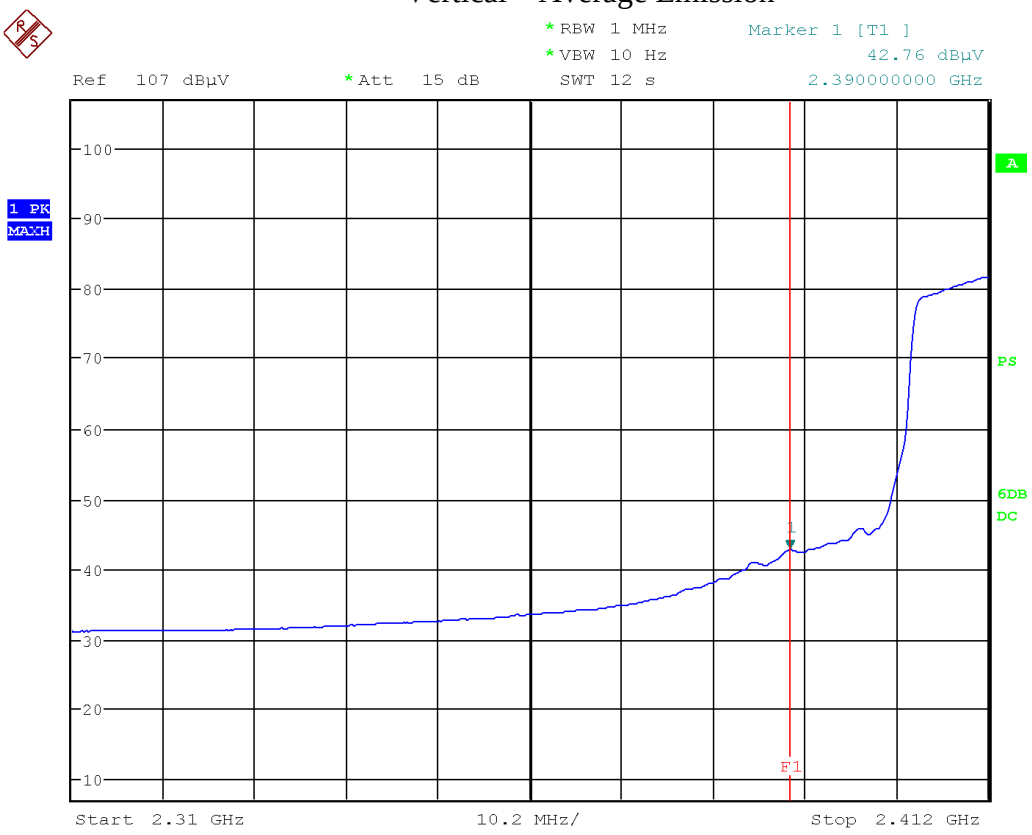
Band Edge – Low Channel (802.11n/40MHz)
Horizontal - Average Emission



Date: 14.SEP.2021 14:58:36

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

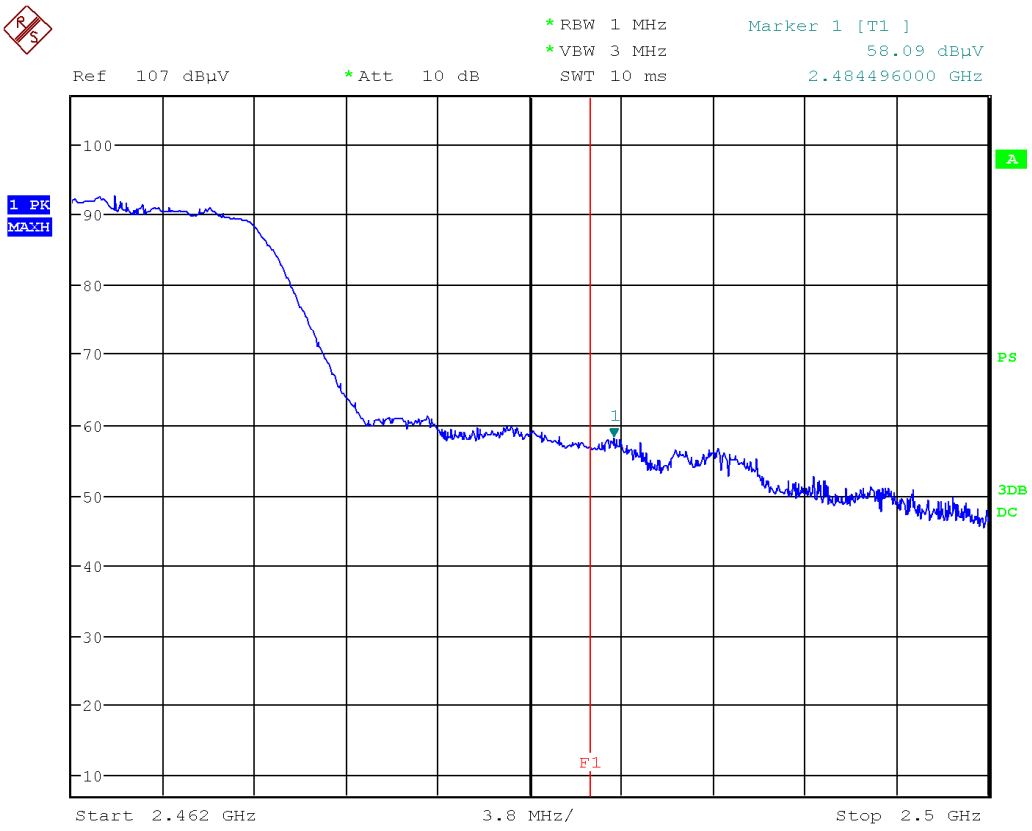
Band Edge – Low Channel (802.11n/40MHz)
Vertical – Average Emission



Date: 14.SEP.2021 14:51:36

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

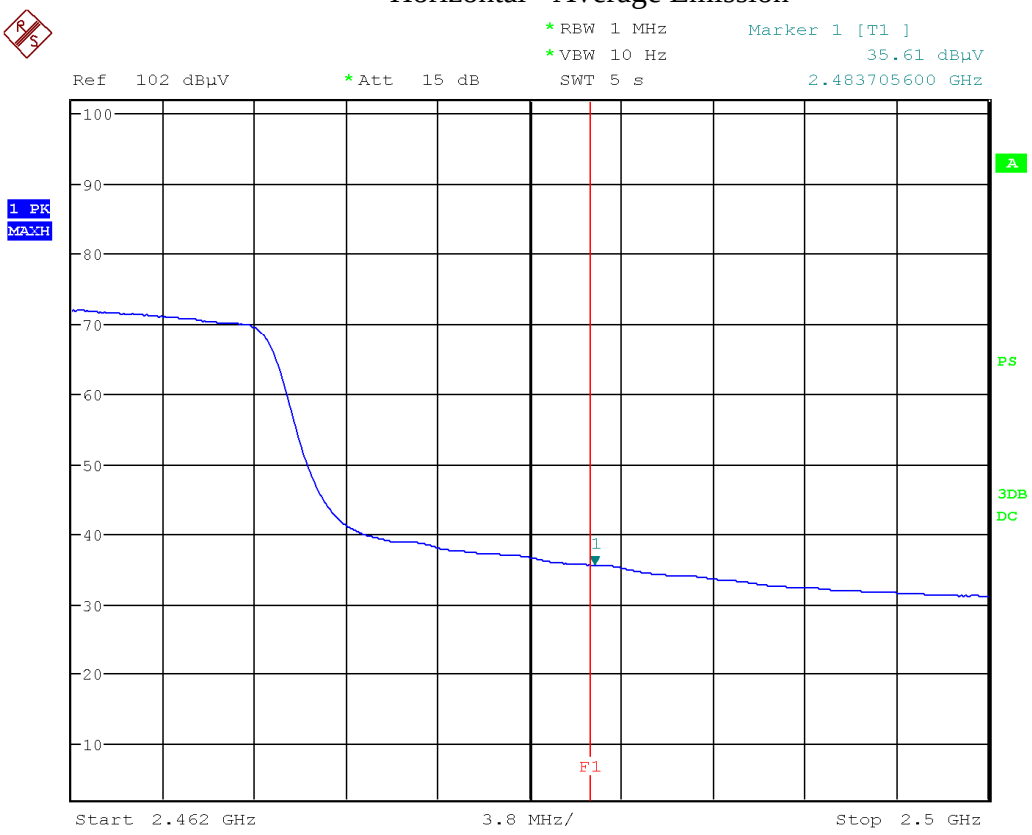
Band Edge – High Channel (802.11n/40MHz)
Vertical - Peak Emission



Date: 13.SEP.2021 14:55:32

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

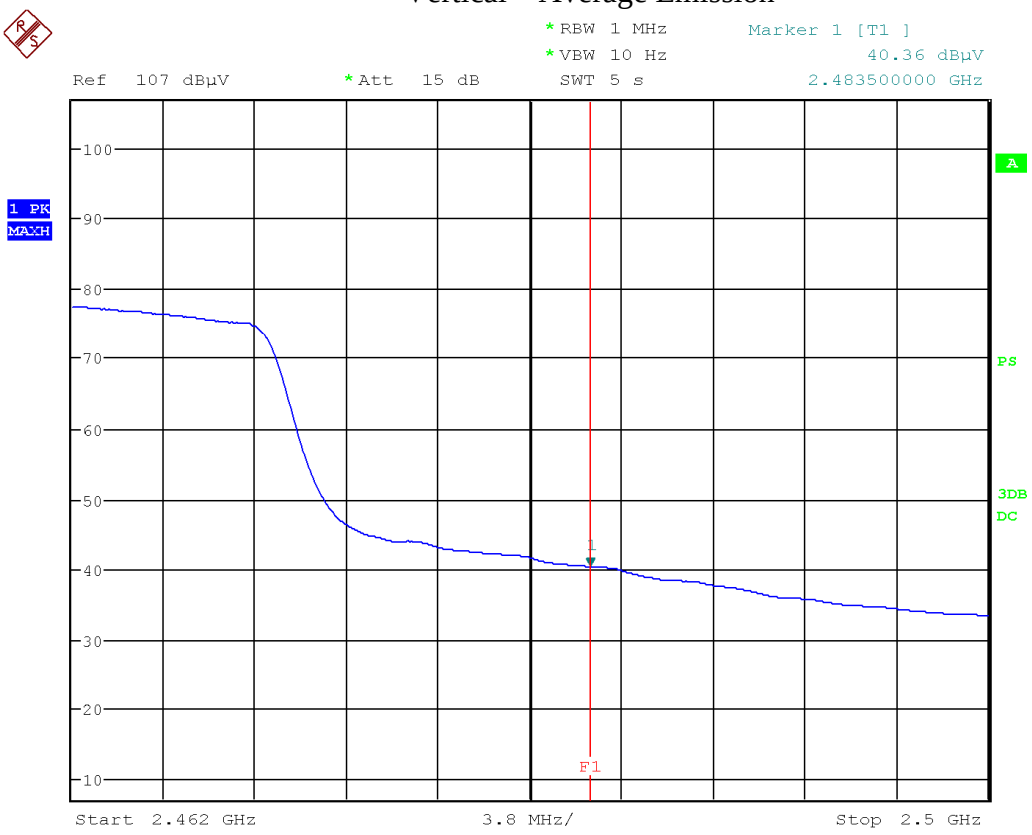
Band Edge – High Channel (802.11n/40MHz)
Horizontal - Average Emission



Date: 13.SEP.2021 16:58:52

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

Band Edge – High Channel (802.11n/40MHz)
Vertical – Average Emission



Date: 13.SEP.2021 16:53:09

Note: Restricted band Band Edge plot was taken at a 3m measurement distance. The marker shows the raw value. See the Final Measurements and Results section below for correct values.

Final Measurements and Results

The EUT passed. Low, middle, and high bands were measured.

In accordance with 15.247(d), only frequencies exceeding the 15.209 limit that occur within the bands listed in 15.205 need to be verified with a final detector. Emissions outside the restricted bands were measured for informational purposes.

The measurements were maximized by rotating the turn table over a full 0-360 rotation and the antenna height was varied from 1 m to 4 m.

Frequency (Hz)	Detector	Correction Factor (dB)	Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dB)	Test Result
Horizontal						
888.39M	PEAK	4.5	41.8	46.0	4.2	Pass
440.67M	PEAK	-7.4	40.4	46.0	5.6	Pass
883.14M	PEAK	4.3	39.1	46.0	6.9	Pass
747.6M	PEAK	1.5	38.0	46.0	8.0	Pass
750.27M	PEAK	1.6	36.9	46.0	9.1	Pass
489.63M	PEAK	-4.8	36.0	46.0	10.0	Pass
Vertical						
881.7M	PEAK	4.2	40.9	46.0	5.1	Pass
476.49M	PEAK	-4.8	39.0	46.0	7.0	Pass
440.67M	PEAK	-7.4	39.0	46.0	7.0	Pass
888.6M	PEAK	4.5	38.1	46.0	7.9	Pass
748.2M	PEAK	1.5	38.0	46.0	8.0	Pass
465.15M	PEAK	-5.9	37.9	46.0	8.1	Pass

ECB601 B-Mode

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B601 802.11B - Low Channel 20 MHz											
2412	Peak	Horz	100.6	32.1	3.2	10.0	-34.0	111.9			PASS
2412	Avg	Horz	94.5	32.1	3.2	10.0	-34.0	105.8			PASS
2412	Peak	Vert	96.9	32.1	3.2	10.0	-34.0	108.2			PASS
2412	Avg	Vert	90.5	32.1	3.2	10.0	-34.0	101.8			PASS
2332	Peak	Horz	47.4	31.9	3.2	10.0	-34.2	58.2	74.0	15.8	PASS
2390	Avg	Horz	37.1	32.0	3.2	10.0	-34.1	48.2	54.0	5.8	PASS
2389.7	Peak	Vert	45.7	32.0	3.2	10.0	-34.1	56.8	74.0	17.2	PASS
2390	Avg	Vert	34.2	32.0	3.2	10.0	-34.1	45.3	54.0	8.7	PASS
2488.1	Peak	Horz	43.5	32.2	3.2	10.0	-33.8	55.2	74.0	18.8	PASS
2489	Avg	Horz	30.8	32.2	3.2	10.0	-33.8	42.5	54.0	11.5	PASS
2486.8	Peak	Vert	43.3	32.2	3.2	10.0	-33.8	55.0	74.0	19.0	PASS
2489	Avg	Vert	30.4	32.2	3.2	10.0	-33.8	42.1	54.0	11.9	PASS
4824	Peak	Horz	52.7	34.2	4.3	0.0	-32.5	58.7	74.0	15.3	PASS
4824	Avg	Horz	42.7	34.2	4.3	0.0	-32.5	48.7	54.0	5.3	PASS
4824	Peak	Vert	51.2	34.2	4.3	0.0	-32.5	57.1	74.0	16.9	PASS
4824	Avg	Vert	41.0	34.2	4.3	0.0	-32.5	47.0	54.0	7.0	PASS
7236	Peak	Horz	50.5	35.7	6.0	0.0	-32.9	59.3	74.0	14.7	PASS
7236	Avg	Horz	41.3	35.7	6.0	0.0	-32.9	50.1	54.0	3.9	PASS
7236	Peak	Vert	48.1	35.7	6.0	0.0	-32.9	56.8	74.0	17.2	PASS
7236	Avg	Vert	38.6	35.7	6.0	0.0	-32.9	47.4	54.0	6.6	PASS
9648	Peak	Horz	39.4	36.7	6.9	0.0	-31.9	51.2	74.0	22.8	PASS
9648	Avg	Horz	26.9	36.7	6.9	0.0	-31.9	38.7	54.0	15.3	PASS
9648	Peak	Vert	41.2	36.7	6.9	0.0	-31.9	52.9	74.0	21.1	PASS
9648	Avg	Vert	28.3	36.7	6.9	0.0	-31.9	40.1	54.0	13.9	PASS
B601 802.11B - Mid Channel 20 MHz											
2437	Peak	Horz	100.5	32.2	3.2	10.0	-33.9	112.0			PASS
2437	Avg	Horz	94.4	32.2	3.2	10.0	-33.9	105.9			PASS
2437	Peak	Vert	95.7	32.2	3.2	10.0	-33.9	107.2			PASS
2437	Avg	Vert	89.4	32.2	3.2	10.0	-33.9	100.9			PASS
4874	Peak	Horz	50.6	34.2	4.4	0.0	-32.6	56.6	74.0	17.4	PASS
4874	Avg	Horz	40.2	34.2	4.4	0.0	-32.6	46.1	54.0	7.9	PASS
4874	Peak	Vert	49.4	34.2	4.4	0.0	-32.6	55.3	74.0	18.7	PASS
4874	Avg	Vert	38.5	34.2	4.4	0.0	-32.6	44.4	54.0	9.6	PASS
7311	Peak	Horz	52.8	35.7	6.0	0.0	-33.0	61.5	74.0	12.5	PASS
7311	Avg	Horz	43.5	35.7	6.0	0.0	-33.0	52.2	54.0	1.8	PASS
7311	Peak	Vert	50.9	35.7	6.0	0.0	-33.0	59.6	74.0	14.4	PASS
7311	Avg	Vert	41.3	35.7	6.0	0.0	-33.0	50.0	54.0	4.0	PASS
9748	Peak	Horz	40.0	36.8	6.9	0.0	-32.2	51.5	74.0	22.5	PASS
9748	Avg	Horz	27.5	36.8	6.9	0.0	-32.2	39.0	54.0	15.0	PASS
9748	Peak	Vert	41.8	36.8	6.9	0.0	-32.2	53.4	74.0	20.6	PASS
9748	Avg	Vert	29.1	36.8	6.9	0.0	-32.2	40.7	54.0	13.3	PASS

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B601 802.11B - High Channel 20 MHz											
2462	Peak	Horz	101.5	32.3	3.2	10.0	-33.8	113.2			PASS
2462	Avg	Horz	95.1	32.3	3.2	10.0	-33.8	106.8			PASS
2462	Peak	Vert	97.2	32.3	3.2	10.0	-33.8	108.9			PASS
2462	Avg	Vert	90.9	32.3	3.2	10.0	-33.8	102.5			PASS
2362.1	Peak	Horz	43.3	31.9	3.2	10.0	-34.1	54.3	74.0	19.7	PASS
2385.3	Avg	Horz	30.6	32.0	3.2	10.0	-34.1	41.7	54.0	12.3	PASS
2389.1	Peak	Vert	43.3	32.0	3.2	10.0	-34.1	54.4	74.0	19.6	PASS
2385.5	Avg	Vert	30.3	32.0	3.2	10.0	-34.1	41.4	54.0	12.6	PASS
2484.3	Peak	Horz	48.8	32.2	3.2	10.0	-33.8	60.4	74.0	13.6	PASS
2484.1	Avg	Horz	37.8	32.2	3.2	10.0	-33.8	49.5	54.0	4.5	PASS
2484	Peak	Vert	47.1	32.2	3.2	10.0	-33.8	58.8	74.0	15.2	PASS
2483.9	Avg	Vert	34.5	32.2	3.2	10.0	-33.8	46.2	54.0	7.8	PASS
4924	Peak	Horz	49.6	34.1	4.4	0.0	-32.6	55.6	74.0	18.4	PASS
4924	Avg	Horz	38.6	34.1	4.4	0.0	-32.6	44.6	54.0	9.4	PASS
4924	Peak	Vert	47.9	34.1	4.4	0.0	-32.6	53.9	74.0	20.1	PASS
4924	Avg	Vert	36.7	34.1	4.4	0.0	-32.6	42.7	54.0	11.3	PASS
7386	Peak	Horz	52.3	35.7	5.9	0.0	-33.1	60.9	74.0	13.1	PASS
7386	Avg	Horz	43.0	35.7	5.9	0.0	-33.1	51.6	54.0	2.4	PASS
7386	Peak	Vert	51.7	35.7	5.9	0.0	-33.1	60.2	74.0	13.8	PASS
7386	Avg	Vert	42.5	35.7	5.9	0.0	-33.1	51.1	54.0	2.9	PASS
9848	Peak	Horz	41.6	37.0	6.9	0.0	-32.1	53.3	74.0	20.7	PASS
9848	Avg	Horz	29.3	37.0	6.9	0.0	-32.1	41.1	54.0	12.9	PASS
9848	Peak	Vert	45.0	37.0	6.9	0.0	-32.1	56.8	74.0	17.2	PASS
9848	Avg	Vert	32.7	37.0	6.9	0.0	-32.1	44.5	54.0	9.5	PASS

ECB601 G-Mode

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B601, 802.11G- Low Channel 20 MHz											
2412	Peak	Horz	96.4	32.1	3.2	10.0	-34.0	107.7			PASS
2412	Avg	Horz	87.6	32.1	3.2	10.0	-34.0	98.9			PASS
2412	Peak	Vert	91.3	32.1	3.2	10.0	-34.0	102.6			PASS
2412	Avg	Vert	82.5	32.1	3.2	10.0	-34.0	93.8			PASS
2389.5	Peak	Horz	54.9	32.0	3.2	10.0	-34.1	66.0	74.0	8.0	PASS
2390	Avg	Horz	39.7	32.0	3.2	10.0	-34.1	50.8	54.0	3.2	PASS
2389.5	Peak	Vert	49.4	32.0	3.2	10.0	-34.1	60.5	74.0	13.5	PASS
2390	Avg	Vert	35.6	32.0	3.2	10.0	-34.1	46.7	54.0	7.3	PASS
2489.2	Peak	Horz	44.0	32.2	3.2	10.0	-33.8	55.7	74.0	18.3	PASS
2483.6	Avg	Horz	30.5	32.2	3.2	10.0	-33.8	42.1	54.0	11.9	PASS
2489.3	Peak	Vert	43.0	32.2	3.2	10.0	-33.8	54.7	74.0	19.3	PASS
2484.7	Avg	Vert	30.2	32.2	3.2	10.0	-33.8	41.9	54.0	12.1	PASS
4824	Peak	Horz	48.1	34.2	4.3	0.0	-32.5	54.1	74.0	19.9	PASS
4824	Avg	Horz	35.4	34.2	4.3	0.0	-32.5	41.4	54.0	12.6	PASS
4824	Peak	Vert	46.9	34.2	4.3	0.0	-32.5	52.9	74.0	21.1	PASS
4824	Avg	Vert	33.2	34.2	4.3	0.0	-32.5	39.2	54.0	14.8	PASS
7236	Peak	Horz	49.4	35.7	6.0	0.0	-32.9	58.1	74.0	15.9	PASS
7236	Avg	Horz	35.2	35.7	6.0	0.0	-32.9	44.0	54.0	10.0	PASS
7236	Peak	Vert	46.9	35.7	6.0	0.0	-32.9	55.6	74.0	18.4	PASS
7236	Avg	Vert	33.5	35.7	6.0	0.0	-32.9	42.2	54.0	11.8	PASS
B601, 802.11G - Mid Channel 20 MHz											
2437	Peak	Horz	96.6	32.2	3.2	10.0	-33.9	108.1			PASS
2437	Avg	Horz	87.9	32.2	3.2	10.0	-33.9	99.5			PASS
2437	Peak	Vert	91.8	32.2	3.2	10.0	-33.9	103.3			PASS
2437	Avg	Vert	82.7	32.2	3.2	0.0	-33.9	84.2			PASS
4874	Peak	Horz	46.3	34.2	4.4	0.0	-32.6	52.2	74.0	21.8	PASS
4874	Avg	Horz	33.9	34.2	4.4	0.0	-32.6	39.8	54.0	14.2	PASS
4874	Peak	Vert	45.1	34.2	4.4	0.0	-32.6	51.0	74.0	23.0	PASS
4874	Avg	Vert	32.4	34.2	4.4	0.0	-32.6	38.3	54.0	15.7	PASS
7311	Peak	Horz	50.0	35.7	6.0	0.0	-33.0	58.6	74.0	15.4	PASS
7311	Avg	Horz	36.2	35.7	6.0	0.0	-33.0	44.9	54.0	9.1	PASS
7311	Peak	Vert	48.8	35.7	6.0	0.0	-33.0	57.5	74.0	16.5	PASS
7311	Avg	Vert	34.8	35.7	6.0	0.0	-33.0	43.5	54.0	10.5	PASS

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B601, 802.11G - High Channel 20 MHz											
2462	Peak	Horz	97.0	32.3	3.2	10.0	-33.8	108.6			PASS
2462	Avg	Horz	88.1	32.3	3.2	10.0	-33.8	99.8			PASS
2462	Peak	Vert	92.9	32.3	3.2	10.0	-33.8	104.5			PASS
2462	Avg	Vert	84.3	32.3	3.2	10.0	-33.8	96.0			PASS
2387.6	Peak	Horz	43.7	32.0	3.2	10.0	-34.1	54.8	74.0	19.2	PASS
2389.6	Avg	Horz	30.7	32.0	3.2	10.0	-34.1	41.8	54.0	12.2	PASS
2380.3	Peak	Vert	43.5	32.0	3.2	10.0	-34.1	54.6	74.0	19.4	PASS
2388.3	Avg	Vert	30.4	32.0	3.2	10.0	-34.1	41.5	54.0	12.5	PASS
2484.2	Peak	Horz	54.4	32.2	3.2	10.0	-33.8	66.1	74.0	7.9	PASS
2483.5	Avg	Horz	40.6	32.2	3.2	10.0	-33.8	52.3	54.0	1.7	PASS
2483.7	Peak	Vert	52.3	32.2	3.2	10.0	-33.8	64.0	74.0	10.0	PASS
2483.5	Avg	Vert	37.3	32.2	3.2	10.0	-33.8	49.0	54.0	5.0	PASS
4924	Peak	Horz	45.3	34.1	4.4	0.0	-32.6	51.3	74.0	22.7	PASS
4924	Avg	Horz	32.5	34.1	4.4	0.0	-32.6	38.5	54.0	15.5	PASS
4924	Peak	Vert	44.2	34.1	4.4	0.0	-32.6	50.2	74.0	23.8	PASS
4924	Avg	Vert	31.4	34.1	4.4	0.0	-32.6	37.4	54.0	16.6	PASS
7386	Peak	Horz	51.0	35.7	5.9	0.0	-33.1	59.6	74.0	14.4	PASS
7386	Avg	Horz	37.3	35.7	5.9	0.0	-33.1	45.9	54.0	8.1	PASS
7386	Peak	Vert	49.6	35.7	5.9	0.0	-33.1	58.1	74.0	15.9	PASS
7386	Avg	Vert	35.7	35.7	5.9	0.0	-33.1	44.3	54.0	9.7	PASS
9848	Peak	Horz	41.3	37.0	6.9	0.0	-32.1	53.1	74.0	20.9	PASS
9848	Avg	Horz	28.8	37.0	6.9	0.0	-32.1	40.5	54.0	13.5	PASS
9848	Peak	Vert	41.7	37.0	6.9	0.0	-32.1	53.5	74.0	20.5	PASS
9848	Avg	Vert	28.9	37.0	6.9	0.0	-32.1	40.7	54.0	13.3	PASS

ECB601 N-Mode/20 MHz

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B601 802.11N - Low Channel 20 MHz											
2412	Peak	Horz	96.7	32.1	3.2	10.0	-34.0	108.0			PASS
2412	Avg	Horz	86.2	32.1	3.2	10.0	-34.0	97.5			PASS
2412	Peak	Vert	92.4	32.1	3.2	10.0	-34.0	103.7			PASS
2412	Avg	Vert	82.0	32.1	3.2	10.0	-34.0	93.3			PASS
2388.8	Peak	Horz	53.8	32.0	3.2	10.0	-34.1	65.0	74.0	9.0	PASS
2390	Avg	Horz	38.7	32.0	3.2	10.0	-34.1	49.8	54.0	4.2	PASS
2390	Peak	Vert	50.9	32.0	3.2	10.0	-34.1	62.0	74.0	12.0	PASS
2390	Avg	Vert	36.3	32.0	3.2	10.0	-34.1	47.4	54.0	6.6	PASS
2492.7	Peak	Horz	43.8	32.2	3.2	10.0	-33.7	55.5	74.0	18.5	PASS
2483.6	Avg	Horz	30.5	32.2	3.2	10.0	-33.8	42.2	54.0	11.8	PASS
2499.2	Peak	Vert	43.1	32.2	3.2	10.0	-33.7	54.8	74.0	19.2	PASS
2484.2	Avg	Vert	30.1	32.2	3.2	10.0	-33.8	41.8	54.0	12.2	PASS
4824	Peak	Horz	46.2	34.2	4.3	0.0	-32.5	52.1	74.0	21.9	PASS
4824	Avg	Horz	33.2	34.2	4.3	0.0	-32.5	39.2	54.0	14.8	PASS
4824	Peak	Vert	43.2	34.2	4.3	0.0	-32.5	49.1	74.0	24.9	PASS
4824	Avg	Vert	30.6	34.2	4.3	0.0	-32.5	36.5	54.0	17.5	PASS
7236	Peak	Horz	47.6	35.7	6.0	0.0	-32.9	56.4	74.0	17.6	PASS
7236	Avg	Horz	32.6	35.7	6.0	0.0	-32.9	41.4	54.0	12.6	PASS
7236	Peak	Vert	44.3	35.7	6.0	0.0	-32.9	53.1	74.0	20.9	PASS
7236	Avg	Vert	31.3	35.7	6.0	0.0	-32.9	40.1	54.0	13.9	PASS
9648	Peak	Horz	39.2	36.7	6.9	0.0	-31.9	50.9	74.0	23.1	PASS
9648	Avg	Horz	26.4	36.7	6.9	0.0	-31.9	38.1	54.0	15.9	PASS
9648	Peak	Vert	38.3	36.7	6.9	0.0	-31.9	50.1	74.0	23.9	PASS
9648	Avg	Vert	26.3	36.7	6.9	0.0	-31.9	38.1	54.0	15.9	PASS
B601 802.11N - Mid Channel 20 MHz											
2437	Peak	Horz	97.9	32.2	3.2	10.0	-33.9	109.4			PASS
2437	Avg	Horz	87.5	32.2	3.2	10.0	-33.9	99.0			PASS
2437	Peak	Vert	93.9	32.2	3.2	10.0	-33.9	105.4			PASS
2437	Avg	Vert	83.3	32.2	3.2	10.0	-33.9	94.9			PASS
4874	Peak	Horz	46.6	34.2	4.4	0.0	-32.6	52.5	74.0	21.5	PASS
4874	Avg	Horz	32.9	34.2	4.4	0.0	-32.6	38.8	54.0	15.2	PASS
4874	Peak	Vert	41.7	34.2	4.4	0.0	-32.6	47.6	74.0	26.4	PASS
4874	Avg	Vert	29.6	34.2	4.4	0.0	-32.6	35.6	54.0	18.4	PASS
7311	Peak	Horz	48.7	35.7	6.0	0.0	-33.0	57.4	74.0	16.6	PASS
7311	Avg	Horz	34.2	35.7	6.0	0.0	-33.0	42.9	54.0	11.1	PASS
7311	Peak	Vert	46.9	35.7	6.0	0.0	-33.0	55.5	74.0	18.5	PASS
7311	Avg	Vert	33.0	35.7	6.0	0.0	-33.0	41.7	54.0	12.3	PASS
9748	Peak	Horz	38.8	36.8	6.9	0.0	-32.2	50.3	74.0	23.7	PASS
9748	Avg	Horz	26.4	36.8	6.9	0.0	-32.2	37.9	54.0	16.1	PASS
9748	Peak	Vert	39.4	36.8	6.9	0.0	-32.2	51.0	74.0	23.0	PASS
9748	Avg	Vert	26.4	36.8	6.9	0.0	-32.2	38.0	54.0	16.0	PASS

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B601 802.11N - High Channel 20 MHz											
2462	Peak	Horz	96.3	32.3	3.2	10.0	-33.8	108.0			PASS
2462	Avg	Horz	85.7	32.3	3.2	10.0	-33.8	97.4			PASS
2462	Peak	Vert	93.0	32.3	3.2	10.0	-33.8	104.7			PASS
2462	Avg	Vert	82.6	32.3	3.2	10.0	-33.8	94.3			PASS
2355.2	Peak	Horz	43.6	31.9	3.2	10.0	-34.2	54.5	74.0	19.5	PASS
2389.3	Avg	Horz	30.6	32.0	3.2	10.0	-34.1	41.7	54.0	12.3	PASS
2367.7	Peak	Vert	43.3	32.0	3.2	10.0	-34.1	54.4	74.0	19.6	PASS
2385.6	Avg	Vert	30.4	32.0	3.2	10.0	-34.1	41.5	54.0	12.5	PASS
2483.5	Peak	Horz	57.1	32.2	3.2	10.0	-33.8	68.8	74.0	5.2	PASS
2483.5	Avg	Horz	39.5	32.2	3.2	10.0	-33.8	51.2	54.0	2.8	PASS
2483.5	Peak	Vert	53.9	32.2	3.2	10.0	-33.8	65.6	74.0	8.4	PASS
2483.5	Avg	Vert	37.2	32.2	3.2	10.0	-33.8	48.8	54.0	5.2	PASS
4924	Peak	Horz	44.5	34.1	4.4	0.0	-32.6	50.5	74.0	23.5	PASS
4924	Avg	Horz	31.6	34.1	4.4	0.0	-32.6	37.6	54.0	16.4	PASS
4924	Peak	Vert	40.0	34.1	4.4	0.0	-32.6	46.0	74.0	28.0	PASS
4924	Avg	Vert	27.6	34.1	4.4	0.0	-32.6	33.6	54.0	20.4	PASS
7386	Peak	Horz	48.3	35.7	5.9	0.0	-33.1	56.8	74.0	17.2	PASS
7386	Avg	Horz	34.4	35.7	5.9	0.0	-33.1	42.9	54.0	11.1	PASS
7386	Peak	Vert	42.8	35.7	5.9	0.0	-33.1	51.4	74.0	22.6	PASS
7386	Avg	Vert	28.7	35.7	5.9	0.0	-33.1	37.3	54.0	16.7	PASS

ECB601 N-Mode/40 MHz

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B601 802.11N - Low Channel 40 MHz											
2422	Peak	Horz	93.9	32.1	3.2	10.0	-34.0	105.3			PASS
2422	Avg	Horz	82.7	32.1	3.2	10.0	-34.0	94.1			PASS
2422	Peak	Vert	89.6	32.1	3.2	10.0	-34.0	100.9			PASS
2422	Avg	Vert	78.9	32.1	3.2	10.0	-34.0	90.2			PASS
2390	Peak	Horz	55.1	32.0	3.2	10.0	-34.1	66.2	74.0	7.8	PASS
2390	Avg	Horz	40.1	32.0	3.2	10.0	-34.1	51.3	54.0	2.7	PASS
2389.5	Peak	Vert	51.0	32.0	3.2	10.0	-34.1	62.2	74.0	11.8	PASS
2389.9	Avg	Vert	37.3	32.0	3.2	10.0	-34.1	48.5	54.0	5.5	PASS
2485.4	Peak	Horz	45.1	32.2	3.2	10.0	-33.8	56.8	74.0	17.2	PASS
2483.5	Avg	Horz	32.3	32.2	3.2	10.0	-33.8	44.0	54.0	10.0	PASS
2489.3	Peak	Vert	44.2	32.2	3.2	10.0	-33.8	55.9	74.0	18.1	PASS
2483.5	Avg	Vert	30.9	32.2	3.2	10.0	-33.8	42.6	54.0	11.4	PASS
4844	Peak	Horz	44.5	34.2	4.3	0.0	-32.5	50.5	74.0	23.5	PASS
4844	Avg	Horz	31.7	34.2	4.3	0.0	-32.5	37.6	54.0	16.4	PASS
4844	Peak	Vert	41.3	34.2	4.3	0.0	-32.5	47.3	74.0	26.7	PASS
4844	Avg	Vert	28.2	34.2	4.3	0.0	-32.5	34.1	54.0	19.9	PASS
7266	Peak	Horz	42.7	35.7	6.0	0.0	-33.0	51.4	74.0	22.6	PASS
7266	Avg	Horz	30.2	35.7	6.0	0.0	-33.0	38.9	54.0	15.1	PASS
7266	Peak	Vert	40.4	35.7	6.0	0.0	-33.0	49.1	74.0	24.9	PASS
7266	Avg	Vert	27.7	35.7	6.0	0.0	-33.0	36.4	54.0	17.6	PASS
9688	Peak	Horz	39.1	36.8	6.9	0.0	-32.1	50.7	74.0	23.3	PASS
9688	Avg	Horz	26.4	36.8	6.9	0.0	-32.1	38.0	54.0	16.0	PASS
9688	Peak	Vert	38.6	36.8	6.9	0.0	-32.1	50.2	74.0	23.8	PASS
9688	Avg	Vert	26.4	36.8	6.9	0.0	-32.1	38.0	54.0	16.0	PASS
B601 802.11N - Mid Channel 40 MHz											
2437	Peak	Horz	94.5	32.2	3.2	10.0	-33.9	106.0			PASS
2437	Avg	Horz	83.3	32.2	3.2	10.0	-33.9	94.8			PASS
2437	Peak	Vert	90.2	32.2	3.2	10.0	-33.9	101.8			PASS
2437	Avg	Vert	79.1	32.2	3.2	10.0	-33.9	90.6			PASS
4874	Peak	Horz	43.5	34.2	4.4	0.0	-32.6	49.4	74.0	24.6	PASS
4874	Avg	Horz	30.7	34.2	4.4	0.0	-32.6	36.6	54.0	17.4	PASS
4874	Peak	Vert	41.8	34.2	4.4	0.0	-32.6	47.7	74.0	26.3	PASS
4874	Avg	Vert	29.7	34.2	4.4	0.0	-32.6	35.6	54.0	18.4	PASS
7311	Peak	Horz	42.8	35.7	6.0	0.0	-33.0	51.5	74.0	22.5	PASS
7311	Avg	Horz	30.3	35.7	6.0	0.0	-33.0	38.9	54.0	15.1	PASS
7311	Peak	Vert	41.3	35.7	6.0	0.0	-33.0	50.0	74.0	24.0	PASS
7311	Avg	Vert	28.3	35.7	6.0	0.0	-33.0	36.9	54.0	17.1	PASS
9748	Peak	Horz	39.3	36.8	6.9	0.0	-32.2	50.9	74.0	23.1	PASS
9748	Avg	Horz	26.4	36.8	6.9	0.0	-32.2	38.0	54.0	16.0	PASS
9748	Peak	Vert	38.8	36.8	6.9	0.0	-32.2	50.3	74.0	23.7	PASS
9748	Avg	Vert	26.6	36.8	6.9	0.0	-32.2	38.1	54.0	15.9	PASS

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B601 802.11N - High Channel 40 MHz											
2452	Peak	Horz	95.5	32.3	3.2	10.0	-33.9	107.2			PASS
2452	Avg	Horz	80.1	32.3	3.2	10.0	-33.9	91.7			PASS
2452	Peak	Vert	91.9	32.3	3.2	10.0	-33.9	103.6			PASS
2452	Avg	Vert	76.4	32.3	3.2	10.0	-33.9	88.1			PASS
2387.1	Peak	Horz	45.5	32.0	3.2	10.0	-34.1	56.6	74.0	17.4	PASS
2389.8	Avg	Horz	31.7	32.0	3.2	10.0	-34.1	42.8	54.0	11.2	PASS
2378.5	Peak	Vert	45.0	32.0	3.2	10.0	-34.1	56.0	74.0	18.0	PASS
2390	Avg	Vert	30.3	32.0	3.2	10.0	-34.1	41.4	54.0	12.6	PASS
2484.5	Peak	Horz	58.1	32.2	3.2	10.0	-33.8	69.8	74.0	4.2	PASS
2483.5	Avg	Horz	40.8	32.2	3.2	10.0	-33.8	52.5	54.0	1.5	PASS
2484.6	Peak	Vert	55.2	32.2	3.2	10.0	-33.8	66.9	74.0	7.1	PASS
2483.5	Avg	Vert	38.2	32.2	3.2	10.0	-33.8	49.9	54.0	4.1	PASS
4904	Peak	Horz	43.6	34.1	4.4	0.0	-32.6	49.5	74.0	24.5	PASS
4904	Avg	Horz	30.5	34.1	4.4	0.0	-32.6	36.4	54.0	17.6	PASS
4904	Peak	Vert	40.7	34.1	4.4	0.0	-32.6	46.6	74.0	27.4	PASS
4904	Avg	Vert	27.6	34.1	4.4	0.0	-32.6	33.5	54.0	20.5	PASS
7356	Peak	Horz	42.8	35.7	5.9	0.0	-33.1	51.4	74.0	22.6	PASS
7356	Avg	Horz	30.4	35.7	5.9	0.0	-33.1	38.9	54.0	15.1	PASS
7356	Peak	Vert	40.1	35.7	5.9	0.0	-33.1	48.7	74.0	25.3	PASS
7356	Avg	Vert	27.5	35.7	5.9	0.0	-33.1	36.1	54.0	17.9	PASS

ECB501 B-Mode

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B501 802.11B - Low Channel 20 MHz											
2412	Peak	Horz	96.4	32.1	3.2	10.0	-34.0	107.7			PASS
2412	Avg	Horz	90.1	32.1	3.2	10.0	-34.0	101.4			PASS
2412	Peak	Vert	102.7	32.1	3.2	10.0	-34.0	114.0			PASS
2412	Avg	Vert	96.5	32.1	3.2	10.0	-34.0	107.8			PASS
2359.8	Peak	Horz	45.3	31.9	3.2	10.0	-34.2	56.3	74.0	17.7	PASS
2388.7	Avg	Horz	33.3	32.0	3.2	10.0	-34.1	44.4	54.0	9.6	PASS
2385.3	Peak	Vert	49.9	32.0	3.2	10.0	-34.1	61.0	74.0	13.0	PASS
2388.3	Avg	Vert	38.0	32.0	3.2	10.0	-34.1	49.1	54.0	4.9	PASS
2490.9	Peak	Horz	43.3	32.2	3.2	10.0	-33.7	55.0	74.0	19.0	PASS
2483.8	Avg	Horz	30.1	32.2	3.2	10.0	-33.8	41.8	54.0	12.2	PASS
2494.3	Peak	Vert	43.5	32.2	3.2	10.0	-33.7	55.2	74.0	18.8	PASS
2484.3	Avg	Vert	30.4	32.2	3.2	10.0	-33.8	42.1	54.0	11.9	PASS
4824	Peak	Horz	50.1	34.2	4.3	0.0	-32.5	56.1	74.0	17.9	PASS
4824	Avg	Horz	39.9	34.2	4.3	0.0	-32.5	45.9	54.0	8.1	PASS
4824	Peak	Vert	53.4	34.2	4.3	0.0	-32.5	59.4	74.0	14.6	PASS
4824	Avg	Vert	43.3	34.2	4.3	0.0	-32.5	49.3	54.0	4.7	PASS
7236	Peak	Horz	43.6	35.7	6.0	0.0	-32.9	52.3	74.0	21.7	PASS
7236	Avg	Horz	31.6	35.7	6.0	0.0	-32.9	40.3	54.0	13.7	PASS
7236	Peak	Vert	42.3	35.7	6.0	0.0	-32.9	51.1	74.0	22.9	PASS
7236	Avg	Vert	31.3	35.7	6.0	0.0	-32.9	40.0	54.0	14.0	PASS
9648	Peak	Horz	39.0	36.7	6.9	0.0	-31.9	50.8	74.0	23.2	PASS
9648	Avg	Horz	26.8	36.7	6.9	0.0	-31.9	38.5	54.0	15.5	PASS
9648	Peak	Vert	40.2	36.7	6.9	0.0	-31.9	51.9	74.0	22.1	PASS
9648	Avg	Vert	28.2	36.7	6.9	0.0	-31.9	40.0	54.0	14.0	PASS
B501 802.11B - Mid Channel 20 MHz											
2437	Peak	Horz	96.2	32.2	3.2	10.0	-33.9	107.7			PASS
2437	Avg	Horz	89.7	32.2	3.2	10.0	-33.9	101.3			PASS
2437	Peak	Vert	102.3	32.2	3.2	10.0	-33.9	113.8			PASS
2437	Avg	Vert	95.8	32.2	3.2	10.0	-33.9	107.4			PASS
4874	Peak	Horz	49.0	34.2	4.4	0.0	-32.6	54.9	74.0	19.1	PASS
4874	Avg	Horz	38.7	34.2	4.4	0.0	-32.6	44.6	54.0	9.4	PASS
4874	Peak	Vert	52.2	34.2	4.4	0.0	-32.6	58.1	74.0	15.9	PASS
4874	Avg	Vert	41.8	34.2	4.4	0.0	-32.6	47.8	54.0	6.2	PASS
7311	Peak	Horz	42.2	35.7	6.0	0.0	-33.0	50.8	74.0	23.2	PASS
7311	Avg	Horz	31.4	35.7	6.0	0.0	-33.0	40.0	54.0	14.0	PASS
7311	Peak	Vert	42.3	35.7	6.0	0.0	-33.0	50.9	74.0	23.1	PASS
7311	Avg	Vert	31.3	35.7	6.0	0.0	-33.0	40.0	54.0	14.0	PASS
9748	Peak	Horz	38.8	36.8	6.9	0.0	-32.2	50.4	74.0	23.6	PASS
9748	Avg	Horz	26.8	36.8	6.9	0.0	-32.2	38.3	54.0	15.7	PASS
9748	Peak	Vert	39.1	36.8	6.9	0.0	-32.2	50.6	74.0	23.4	PASS
9748	Avg	Vert	26.5	36.8	6.9	0.0	-32.2	38.0	54.0	16.0	PASS

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B501 802.11B - High Channel 20 MHz											
2462	Peak	Horz	96.6	32.3	3.2	10.0	-33.8	108.3			PASS
2462	Avg	Horz	90.2	32.3	3.2	10.0	-33.8	101.9			PASS
2462	Peak	Vert	103.1	32.3	3.2	10.0	-33.8	114.8			PASS
2462	Avg	Vert	96.7	32.3	3.2	10.0	-33.8	108.4			PASS
2369.3	Peak	Horz	42.9	32.0	3.2	10.0	-34.1	54.0	74.0	20.0	PASS
2389.4	Avg	Horz	30.6	32.0	3.2	10.0	-34.1	41.7	54.0	12.3	PASS
2344.4	Peak	Vert	45.8	31.9	3.2	10.0	-34.2	56.7	74.0	17.3	PASS
2389.1	Avg	Vert	33.1	32.0	3.2	10.0	-34.1	44.2	54.0	9.8	PASS
2498	Peak	Horz	45.6	32.2	3.2	10.0	-33.7	57.3	74.0	16.7	PASS
2483.5	Avg	Horz	33.1	32.2	3.2	10.0	-33.8	44.7	54.0	9.3	PASS
2486.7	Peak	Vert	50.8	32.2	3.2	10.0	-33.8	62.5	74.0	11.5	PASS
2483.5	Avg	Vert	38.3	32.2	3.2	10.0	-33.8	49.9	54.0	4.1	PASS
4924	Peak	Horz	48.8	34.1	4.4	0.0	-32.6	54.8	74.0	19.2	PASS
4924	Avg	Horz	38.0	34.1	4.4	0.0	-32.6	44.0	54.0	10.0	PASS
4924	Peak	Vert	51.0	34.1	4.4	0.0	-32.6	57.0	74.0	17.0	PASS
4924	Avg	Vert	40.3	34.1	4.4	0.0	-32.6	46.3	54.0	7.7	PASS
7386	Peak	Horz	42.5	35.7	5.9	0.0	-33.1	51.1	74.0	22.9	PASS
7386	Avg	Horz	32.0	35.7	5.9	0.0	-33.1	40.5	54.0	13.5	PASS
7386	Peak	Vert	43.3	35.7	5.9	0.0	-33.1	51.8	74.0	22.2	PASS
7386	Avg	Vert	31.6	35.7	5.9	0.0	-33.1	40.1	54.0	13.9	PASS

ECB501 G-Mode

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B501, 802.11g - Low Channel 20 MHz											
2412	Peak	Horz	92.9	32.1	3.2	10.0	-34.0	104.2			PASS
2412	Avg	Horz	83.7	32.1	3.2	10.0	-34.0	94.9			PASS
2412	Peak	Vert	98.0	32.1	3.2	10.0	-34.0	109.3			PASS
2412	Avg	Vert	89.0	32.1	3.2	10.0	-34.0	100.2			PASS
2389.4	Peak	Horz	49.4	32.0	3.2	10.0	-34.1	60.5	74.0	13.5	PASS
2390	Avg	Horz	35.4	32.0	3.2	10.0	-34.1	46.5	54.0	7.5	PASS
2390	Peak	Vert	55.7	32.0	3.2	10.0	-34.1	66.8	74.0	7.2	PASS
2390	Avg	Vert	40.4	32.0	3.2	10.0	-34.1	51.5	54.0	2.5	PASS
2492.5	Peak	Horz	43.1	32.2	3.2	10.0	-33.7	54.8	74.0	19.2	PASS
2485.4	Avg	Horz	30.2	32.2	3.2	10.0	-33.8	41.9	54.0	12.1	PASS
2498.3	Peak	Vert	43.8	32.2	3.2	10.0	-33.7	55.5	74.0	18.5	PASS
2483.6	Avg	Vert	30.9	32.2	3.2	10.0	-33.8	42.6	54.0	11.4	PASS
4824	Peak	Horz	47.0	34.2	4.3	0.0	-32.5	53.0	74.0	21.0	PASS
4824	Avg	Horz	33.8	34.2	4.3	0.0	-32.5	39.8	54.0	14.2	PASS
4824	Peak	Vert	49.2	34.2	4.3	0.0	-32.5	55.1	74.0	18.9	PASS
4824	Avg	Vert	36.8	34.2	4.3	0.0	-32.5	42.7	54.0	11.3	PASS
7236	Peak	Horz	39.1	35.7	6.0	0.0	-32.9	47.8	74.0	26.2	PASS
7236	Avg	Horz	28.3	35.7	6.0	0.0	-32.9	37.1	54.0	16.9	PASS
7236	Peak	Vert	39.8	35.7	6.0	0.0	-32.9	48.5	74.0	25.5	PASS
7236	Avg	Vert	27.3	35.7	6.0	0.0	-32.9	36.0	54.0	18.0	PASS
9648	Peak	Horz	38.9	36.7	6.9	0.0	-31.9	50.6	74.0	23.4	PASS
9648	Avg	Horz	26.3	36.7	6.9	0.0	-31.9	38.1	54.0	15.9	PASS
9648	Peak	Vert	39.2	36.7	6.9	0.0	-31.9	51.0	74.0	23.0	PASS
9648	Avg	Vert	26.4	36.7	6.9	0.0	-31.9	38.2	54.0	15.8	PASS
B501, 802.11g - Mid Channel Z axis											
2437	Peak	Horz	92.4	32.2	3.2	10.0	-33.9	103.9			PASS
2437	Avg	Horz	83.1	32.2	3.2	10.0	-33.9	94.7			PASS
2437	Peak	Vert	98.3	32.2	3.2	10.0	-33.9	109.9			PASS
2437	Avg	Vert	89.7	32.2	3.2	10.0	-33.9	101.3			PASS
4874	Peak	Horz	45.8	34.2	4.4	0.0	-32.6	51.7	74.0	22.3	PASS
4874	Avg	Horz	32.7	34.2	4.4	0.0	-32.6	38.6	54.0	15.4	PASS
4874	Peak	Vert	47.4	34.2	4.4	0.0	-32.6	53.3	74.0	20.7	PASS
4874	Avg	Vert	35.0	34.2	4.4	0.0	-32.6	41.0	54.0	13.0	PASS
7311	Peak	Horz	40.9	35.7	6.0	0.0	-33.0	49.6	74.0	24.4	PASS
7311	Avg	Horz	28.1	35.7	6.0	0.0	-33.0	36.8	54.0	17.2	PASS
7311	Peak	Vert	40.4	35.7	6.0	0.0	-33.0	49.0	74.0	25.0	PASS
7311	Avg	Vert	28.1	35.7	6.0	0.0	-33.0	36.7	54.0	17.3	PASS
9748	Peak	Horz	40.0	36.8	6.9	0.0	-32.2	51.5	74.0	22.5	PASS
9748	Avg	Horz	27.4	36.8	6.9	0.0	-32.2	38.9	54.0	15.1	PASS
9748	Peak	Vert	38.7	36.8	6.9	0.0	-32.2	50.3	74.0	23.7	PASS
9748	Avg	Vert	26.3	36.8	6.9	0.0	-32.2	37.8	54.0	16.2	PASS

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B501, 802.11g - High Channel 20 MHz											
2462	Peak	Horz	91.4	32.3	3.2	10.0	-33.8	103.1			PASS
2462	Avg	Horz	82.5	32.3	3.2	10.0	-33.8	94.2			PASS
2462	Peak	Vert	98.9	32.3	3.2	10.0	-33.8	110.6			PASS
2462	Avg	Vert	89.8	32.3	3.2	10.0	-33.8	101.4			PASS
2323	Peak	Horz	41.7	31.8	3.1	10.0	-34.3	52.4	74.0	21.6	PASS
2389.6	Avg	Horz	29.3	32.0	3.2	10.0	-34.1	40.4	54.0	13.6	PASS
2388.7	Peak	Vert	42.7	32.0	3.2	10.0	-34.1	53.8	74.0	20.2	PASS
2388.9	Avg	Vert	30.5	32.0	3.2	10.0	-34.1	41.7	54.0	12.3	PASS
2483.9	Peak	Horz	50.5	32.2	3.2	10.0	-33.8	62.2	74.0	11.8	PASS
2483.5	Avg	Horz	35.1	32.2	3.2	10.0	-33.8	46.8	54.0	7.2	PASS
2483.9	Peak	Vert	57.1	32.2	3.2	10.0	-33.8	68.7	74.0	5.3	PASS
2483.5	Avg	Vert	41.0	32.2	3.2	10.0	-33.8	52.7	54.0	1.3	PASS
4924	Peak	Horz	46.7	34.1	4.4	0.0	-32.6	52.7	74.0	21.3	PASS
4924	Avg	Horz	33.1	34.1	4.4	0.0	-32.6	39.1	54.0	14.9	PASS
4924	Peak	Vert	48.1	34.1	4.4	0.0	-32.6	54.1	74.0	19.9	PASS
4924	Avg	Vert	35.8	34.1	4.4	0.0	-32.6	41.8	54.0	12.2	PASS
7386	Peak	Horz	40.7	35.7	5.9	0.0	-33.1	49.3	74.0	24.7	PASS
7386	Avg	Horz	27.6	35.7	5.9	0.0	-33.1	36.1	54.0	17.9	PASS
7386	Peak	Vert	40.1	35.7	5.9	0.0	-33.1	48.7	74.0	25.3	PASS
7386	Avg	Vert	27.3	35.7	5.9	0.0	-33.1	35.9	54.0	18.1	PASS

ECB501 N-Mode/20 MHz

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B501 802.11N/20MHz - Low Channel 20 MHz											
2412	Peak	Horz	93.3	32.1	3.2	10.0	-34.0	104.6			PASS
2412	Avg	Horz	82.7	32.1	3.2	10.0	-34.0	94.0			PASS
2412	Peak	Vert	98.6	32.1	3.2	10.0	-34.0	109.8			PASS
2412	Avg	Vert	87.9	32.1	3.2	10.0	-34.0	99.2			PASS
2388.3	Peak	Horz	50.0	32.0	3.2	10.0	-34.1	61.1	74.0	12.9	PASS
2390	Avg	Horz	35.9	32.0	3.2	10.0	-34.1	47.0	54.0	7.0	PASS
2388.7	Peak	Vert	56.3	32.0	3.2	10.0	-34.1	67.4	74.0	6.6	PASS
2390	Avg	Vert	40.6	32.0	3.2	10.0	-34.1	51.7	54.0	2.3	PASS
2492.2	Peak	Horz	43.3	32.2	3.2	10.0	-33.7	55.0	74.0	19.0	PASS
2484	Avg	Horz	30.2	32.2	3.2	10.0	-33.8	41.9	54.0	12.1	PASS
2490.7	Peak	Vert	43.7	32.2	3.2	10.0	-33.7	55.4	74.0	18.6	PASS
2484	Avg	Vert	30.8	32.2	3.2	10.0	-33.8	42.5	54.0	11.5	PASS
4824	Peak	Horz	46.5	34.2	4.3	0.0	-32.5	52.5	74.0	21.5	PASS
4824	Avg	Horz	33.5	34.2	4.3	0.0	-32.5	39.5	54.0	14.5	PASS
4824	Peak	Vert	48.6	34.2	4.3	0.0	-32.5	54.6	74.0	19.4	PASS
4824	Avg	Vert	35.8	34.2	4.3	0.0	-32.5	41.7	54.0	12.3	PASS
7236	Peak	Horz	39.9	35.7	6.0	0.0	-32.9	48.6	74.0	25.4	PASS
7236	Avg	Horz	27.3	35.7	6.0	0.0	-32.9	36.1	54.0	17.9	PASS
7236	Peak	Vert	39.7	35.7	6.0	0.0	-32.9	48.5	74.0	25.5	PASS
7236	Avg	Vert	27.3	35.7	6.0	0.0	-32.9	36.1	54.0	17.9	PASS
B501 802.11N/20MHz - Mid Channel 20 MHz											
2437	Peak	Horz	93.3	32.2	3.2	10.0	-33.9	104.9			PASS
2437	Avg	Horz	82.8	32.2	3.2	10.0	-33.9	94.4			PASS
2437	Peak	Vert	99.2	32.2	3.2	10.0	-33.9	110.7			PASS
2437	Avg	Vert	88.5	32.2	3.2	10.0	-33.9	100.0			PASS
4874	Peak	Horz	45.0	34.2	4.4	0.0	-32.6	50.9	74.0	23.1	PASS
4874	Avg	Horz	32.3	34.2	4.4	0.0	-32.6	38.2	54.0	15.8	PASS
4874	Peak	Vert	47.5	34.2	4.4	0.0	-32.6	53.4	74.0	20.6	PASS
4874	Avg	Vert	34.5	34.2	4.4	0.0	-32.6	40.4	54.0	13.6	PASS
7311	Peak	Horz	40.3	35.7	6.0	0.0	-33.0	48.9	74.0	25.1	PASS
7311	Avg	Horz	27.4	35.7	6.0	0.0	-33.0	36.1	54.0	17.9	PASS
7311	Peak	Vert	40.5	35.7	6.0	0.0	-33.0	49.1	74.0	24.9	PASS
7311	Avg	Vert	27.4	35.7	6.0	0.0	-33.0	36.0	54.0	18.0	PASS

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B501 802.11N/20MHz - High Channel 20 MHz											
2462	Peak	Horz	92.1	32.3	3.2	10.0	-33.8	103.8			PASS
2462	Avg	Horz	81.7	32.3	3.2	10.0	-33.8	93.3			PASS
2462	Peak	Vert	99.4	32.3	3.2	10.0	-33.8	111.1			PASS
2462	Avg	Vert	88.8	32.3	3.2	10.0	-33.8	100.5			PASS
2373.7	Peak	Horz	43.2	32.0	3.2	10.0	-34.1	54.2	74.0	19.8	PASS
2389.1	Avg	Horz	30.4	32.0	3.2	10.0	-34.1	41.5	54.0	12.5	PASS
2384.9	Peak	Vert	43.9	32.0	3.2	10.0	-34.1	55.0	74.0	19.0	PASS
2388.2	Avg	Vert	31.4	32.0	3.2	10.0	-34.1	42.5	54.0	11.5	PASS
2483.6	Peak	Horz	52.3	32.2	3.2	10.0	-33.8	64.0	74.0	10.0	PASS
2483.5	Avg	Horz	35.8	32.2	3.2	10.0	-33.8	47.5	54.0	6.5	PASS
2483.5	Peak	Vert	59.7	32.2	3.2	10.0	-33.8	71.4	74.0	2.6	PASS
2483.5	Avg	Vert	41.4	32.2	3.2	10.0	-33.8	53.1	54.0	0.9	PASS
4924	Peak	Horz	44.0	34.1	4.4	0.0	-32.6	50.0	74.0	24.0	PASS
4924	Avg	Horz	31.1	34.1	4.4	0.0	-32.6	37.0	54.0	17.0	PASS
4924	Peak	Vert	45.5	34.1	4.4	0.0	-32.6	51.5	74.0	22.5	PASS
4924	Avg	Vert	32.3	34.1	4.4	0.0	-32.6	38.3	54.0	15.7	PASS
7386	Peak	Horz	40.0	35.7	5.9	0.0	-33.1	48.5	74.0	25.5	PASS
7386	Avg	Horz	27.5	35.7	5.9	0.0	-33.1	36.1	54.0	17.9	PASS
7386	Peak	Vert	40.3	35.7	5.9	0.0	-33.1	48.8	74.0	25.2	PASS
7386	Avg	Vert	27.4	35.7	5.9	0.0	-33.1	35.9	54.0	18.1	PASS

ECB501 N-Mode/40 MHz

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B501 802.11N/20MHz - Low Channel 40 MHz											
2422	Peak	Horz	89.8	32.1	3.2	10.0	-34.0	101.2			PASS
2422	Avg	Horz	78.7	32.1	3.2	10.0	-34.0	90.0			PASS
2422	Peak	Vert	95.7	32.1	3.2	10.0	-34.0	107.1			PASS
2422	Avg	Vert	84.5	32.1	3.2	10.0	-34.0	95.8			PASS
2389.9	Peak	Horz	48.5	32.0	3.2	10.0	-34.1	59.6	74.0	14.4	PASS
2389.9	Avg	Horz	34.6	32.0	3.2	10.0	-34.1	45.7	54.0	8.3	PASS
2386.8	Peak	Vert	56.5	32.0	3.2	10.0	-34.1	67.6	74.0	6.4	PASS
2390	Avg	Vert	42.8	32.0	3.2	10.0	-34.1	53.9	54.0	0.1	PASS
2492	Peak	Horz	43.5	32.2	3.2	10.0	-33.7	55.1	74.0	18.9	PASS
2484.6	Avg	Horz	30.6	32.2	3.2	10.0	-33.8	42.3	54.0	11.7	PASS
2485.7	Peak	Vert	45.6	32.2	3.2	10.0	-33.8	57.3	74.0	16.7	PASS
2483.5	Avg	Vert	32.7	32.2	3.2	10.0	-33.8	44.4	54.0	9.6	PASS
4844	Peak	Horz	43.5	34.2	4.3	10.0	-32.5	59.4	74.0	14.6	PASS
4844	Avg	Horz	30.3	34.2	4.3	10.0	-32.5	46.3	54.0	7.7	PASS
4844	Peak	Vert	44.9	34.2	4.3	10.0	-32.5	60.9	74.0	13.1	PASS
4844	Avg	Vert	32.7	34.2	4.3	10.0	-32.5	48.6	54.0	5.4	PASS
7266	Peak	Horz	40.1	35.7	6.0	10.0	-33.0	58.8	74.0	15.2	PASS
7266	Avg	Horz	27.4	35.7	6.0	10.0	-33.0	46.1	54.0	7.9	PASS
7266	Peak	Vert	39.9	35.7	6.0	10.0	-33.0	58.6	74.0	15.4	PASS
7266	Avg	Vert	27.3	35.7	6.0	10.0	-33.0	46.0	54.0	8.0	PASS
B501 802.11N/20MHz - Mid Channel 40 MHz											
2437	Peak	Horz	89.9	32.2	3.2	10.0	-33.9	101.5			PASS
2437	Avg	Horz	79.1	32.2	3.2	10.0	-33.9	90.6			PASS
2437	Peak	Vert	95.4	32.2	3.2	10.0	-33.9	106.9			PASS
2437	Avg	Vert	84.3	32.2	3.2	10.0	-33.9	95.8			PASS
4874	Peak	Horz	42.9	34.2	4.4	0.0	-32.6	48.8	74.0	25.2	PASS
4874	Avg	Horz	30.1	34.2	4.4	0.0	-32.6	36.1	54.0	17.9	PASS
4874	Peak	Vert	45.3	34.2	4.4	0.0	-32.6	51.2	74.0	22.8	PASS
4874	Avg	Vert	32.0	34.2	4.4	0.0	-32.6	38.0	54.0	16.0	PASS
7311	Peak	Horz	39.9	35.7	6.0	0.0	-33.0	48.5	74.0	25.5	PASS
7311	Avg	Horz	27.4	35.7	6.0	0.0	-33.0	36.0	54.0	18.0	PASS
7311	Peak	Vert	40.1	35.7	6.0	0.0	-33.0	48.7	74.0	25.3	PASS
7311	Avg	Vert	27.4	35.7	6.0	0.0	-33.0	36.0	54.0	18.0	PASS

Test Frequency (MHz)	Detection Mode	Antenna Polarity (Horz/Vert)	Received Signal (dBµV)	Antenna Factor (dB/m)	Cable Factor (dB)	Attenuator (dB)	Pre-Amp Gain (dB)	Level (dBµV/m)	Emission Limit (dBµV/m)	Margin (dB)	Result
B501 802.11N/20MHz - High Channel 40 MHz											
2452	Peak	Horz	89.7	32.3	3.2	10.0	-33.9	101.3			PASS
2452	Avg	Horz	74.4	32.3	3.2	10.0	-33.9	86.1			PASS
2452	Peak	Vert	96.0	32.3	3.2	10.0	-33.9	107.6			PASS
2452	Avg	Vert	80.4	32.3	3.2	10.0	-33.9	92.0			PASS
2313.5	Peak	Horz	44.6	31.8	3.1	10.0	-34.3	55.2	74.0	18.8	PASS
2389.7	Avg	Horz	31.1	32.0	3.2	10.0	-34.1	42.2	54.0	11.8	PASS
2384.4	Peak	Vert	46.8	32.0	3.2	10.0	-34.1	57.9	74.0	16.1	PASS
2389.7	Avg	Vert	33.5	32.0	3.2	10.0	-34.1	44.6	54.0	9.4	PASS
2484.4	Peak	Horz	52.6	32.2	3.2	10.0	-33.8	64.3	74.0	9.7	PASS
2483.7	Avg	Horz	35.6	32.2	3.2	10.0	-33.8	47.3	54.0	6.7	PASS
2483.8	Peak	Vert	58.1	32.2	3.2	10.0	-33.8	69.8	74.0	4.2	PASS
2483.5	Avg	Vert	40.4	32.2	3.2	10.0	-33.8	52.0	54.0	2.0	PASS
4904	Peak	Horz	42.7	34.1	4.4	10.0	-32.6	58.6	74.0	15.4	PASS
4904	Avg	Horz	31.4	34.1	4.4	10.0	-32.6	47.3	54.0	6.7	PASS
4904	Peak	Vert	44.2	34.1	4.4	10.0	-32.6	60.1	74.0	13.9	PASS
4904	Avg	Vert	31.8	34.1	4.4	10.0	-32.6	47.7	54.0	6.3	PASS
7356	Peak	Horz	39.7	35.7	5.9	10.0	-33.1	58.3	74.0	15.7	PASS
7356	Avg	Horz	27.4	35.7	5.9	10.0	-33.1	45.9	54.0	8.1	PASS
7356	Peak	Vert	39.5	35.7	5.9	10.0	-33.1	58.1	74.0	15.9	PASS
7356	Avg	Vert	27.3	35.7	5.9	10.0	-33.1	45.9	54.0	8.1	PASS

Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
Spectrum Analyzer	ESU 40	Rohde & Schwarz	Jan. 15, 2020	Jan. 15, 2022	GEMC 233
Loop Antenna	EM 6871	Electro-Metrics	Feb 26, 2021	Feb 26, 2023	GEMC 70
Loop Antenna	EM 6872	Electro-Metrics	Feb 26, 2021	Feb 26, 2023	GEMC 71
BiLog Antenna	3142-C	ETS-Lindgren	Nov. 25, 2020	Nov. 25, 2022	GEMC 8
Horn Antenna 2 – 18 GHz	WBH218HN	Q-par	Apr. 1, 2020	Apr. 1, 2022	GEMC 6375
Horn Antenna 1 – 18 GHz	3117	ETS-Lindgren	Feb. 17, 2020	Feb. 17, 2022	GEMC 340
Horn Antenna 18 - 26.5 GHz	SAS-572	A.H. Systems	Dec. 1, 2020	Dec. 1, 2022	GEMC 6371
Attenuator 6 dB	612-6-1	Meca Electronics, Inc	NCR	NCR	GEMC 286
Attenuator 10 dB	8493B	Agilent	Oct 4, 2021	Oct 4, 2022	GEMC133
Pre-Amp 9 kHz – 1 GHz	CPA9230	Chase	May 22, 2020	May 22, 2022	GEMC 301
Pre-Amp 1 – 26.5 GHz	HP 8449B	HP	Dec. 20, 2019	Dec. 20, 2021	GEMC 189
2.4GHz-2.5GHz Notch Filter	BRM50702	Micro-Tronics	NCR	NCR	GEMC 230
4GHz HPF	11SH10-4000/T12000	K & L Microwave	NCR	NCR	GEMC 119
RF Cable <1GHz	LMR-400	LexTec	NCR	NCR	GEMC 274
RF Cable <1GHz	Sucoflex 104A	Huber+Suhner	NCR	NCR	GEMC 271
RF Cable >1GHz	EMC2	MegaPhase	NCR	NCR	GEMC 369
Emissions Software	V2.1.0	TUV SUD Canada, Inc.	NCR	NCR	GEMC 361

Power Line Conducted Emissions

Purpose

The purpose of this test is to ensure that the RF energy unintentionally emitted from the EUT's power line does not exceed the limits listed below as defined in the applicable test standard, as measured from a LISN. This helps protect lower frequency radio services such as AM radio, shortwave radio, amateur radio operators, maritime radio, CB radio, and so on, from unwanted interference.

Limits and Method

The limits are as defined in 47 CFR FCC Part 15 Section 15.207
Method is as defined in ANSI C63.4

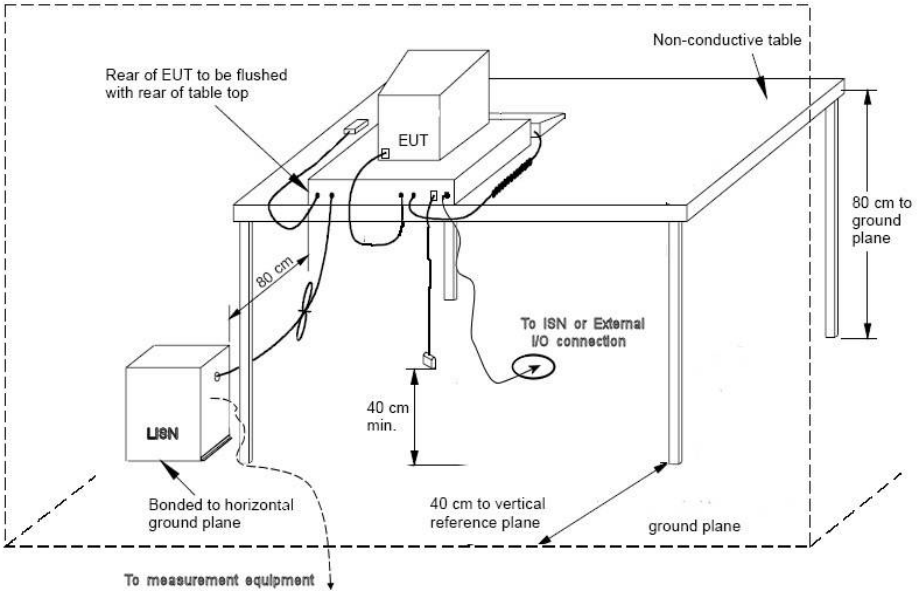
Average Limits		Quasi-Peak Limits	
150 kHz – 500 kHz	56 to 46* dBµV	150 kHz – 500 kHz	66 to 56* dBµV
500 kHz – 5 MHz	46 dBµV	500 kHz – 5 MHz	56 dBµV
5 MHz – 30 MHz	50 dBµV	5 MHz – 30 MHz	60 dBµV

* Decreases linearly with the logarithm of the frequency

Both Quasi-Peak and Average limits are applicable and each is specified as being measured with a resolution bandwidth of 9 kHz. For Quasi-Peak, a video bandwidth at least three times greater than the resolution bandwidth is used.

Based on ANSI C63.4 Section 4.2, if the Peak or Quasi-Peak detector measurements do not exceed the Average limits, then the EUT is deemed to have passed the requirements.

Typical Setup Diagram



Measurement Uncertainty

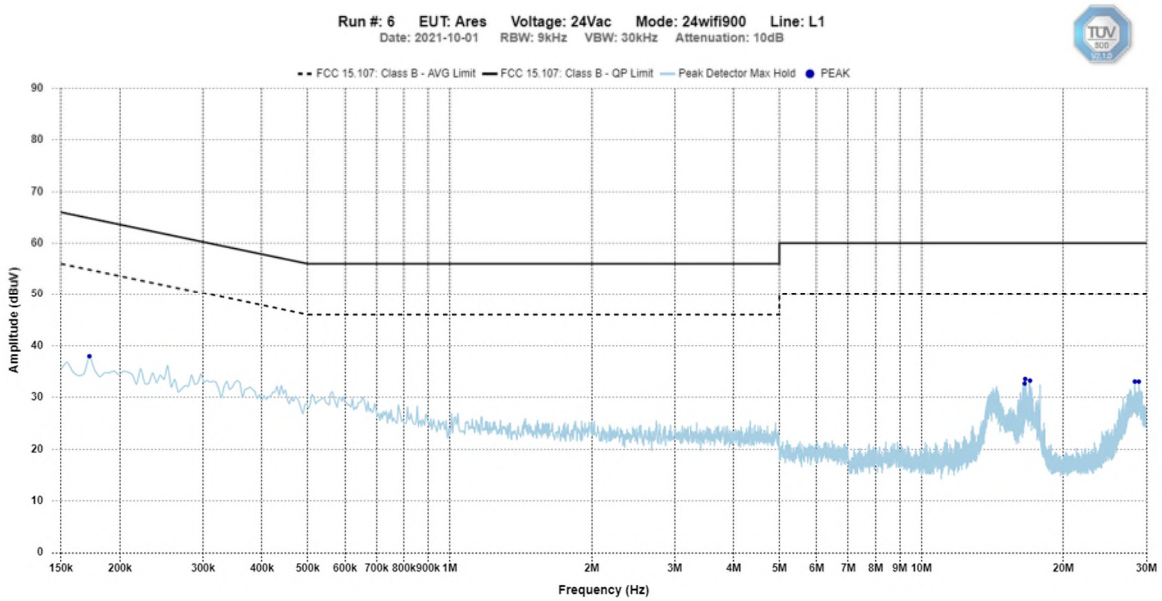
The expanded measurement uncertainty is calculated in accordance with CISPR 16-4-2 and is ±2.27dB with a 'k=2' coverage factor and a 95% confidence level.

Preliminary Graphs

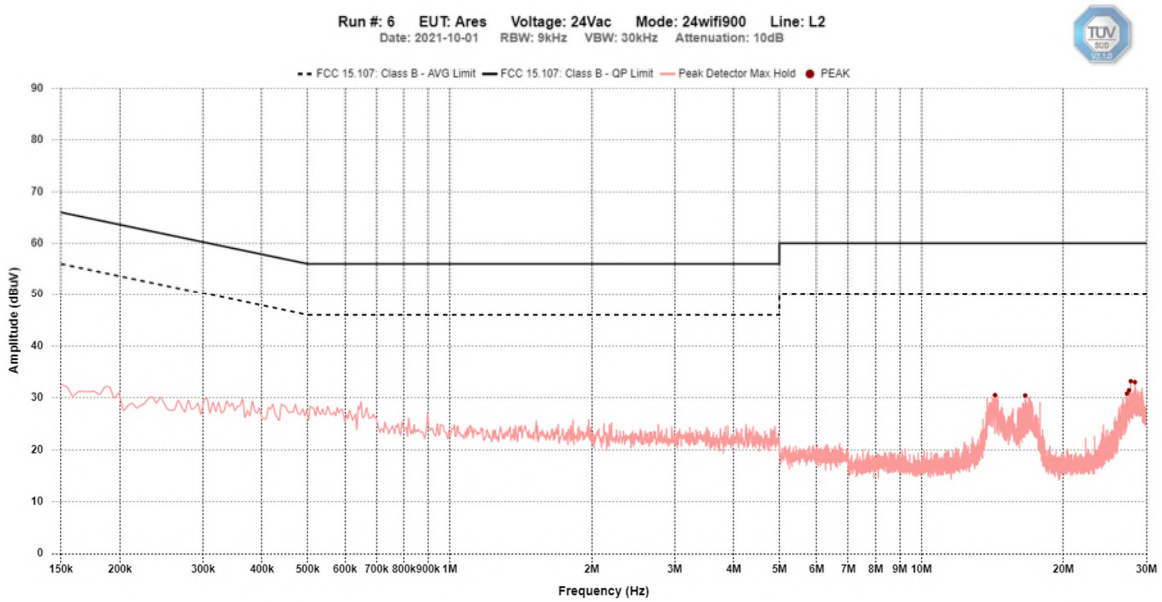
The graphs shown below are maximized peak measurement graphs measured with a resolution bandwidth greater than or equal to the final required detector. This peaking process is done as a worst case measurement and enables the detection of frequencies of concern for final measurement. For final measurements with the appropriate detector, where applicable, please refer to the tables under Final Measurements.

ECB601

Line 1 (L1) – 120Vac 60Hz

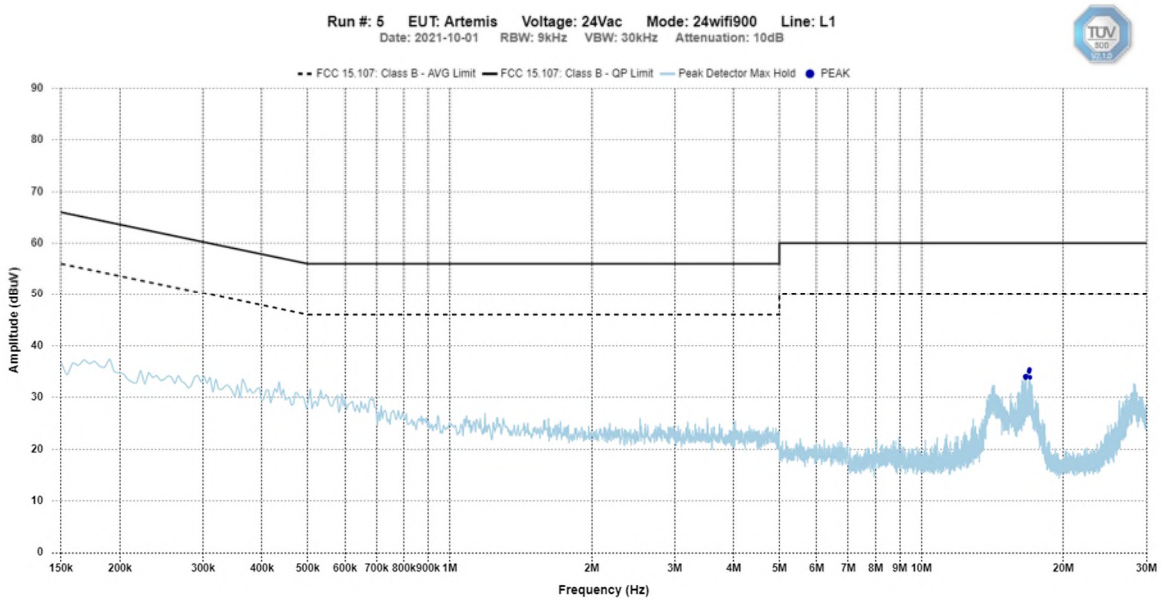


Line 2 (L2) – 120Vac 60Hz

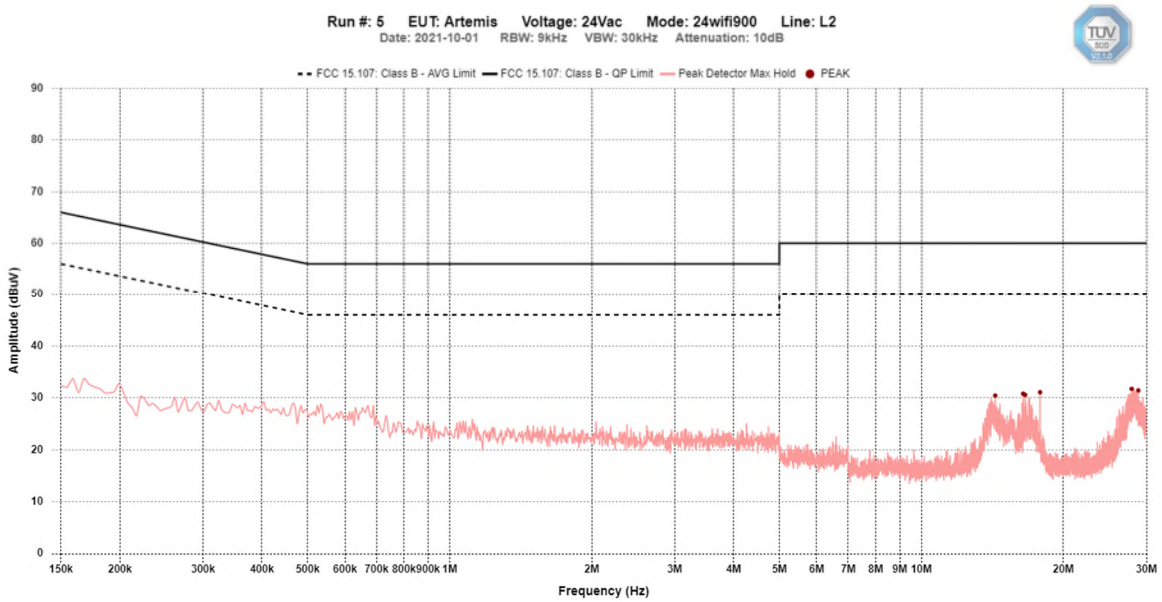


ECB501

Line 1 (L1) – 120Vac 60Hz



Line 2 (L2) – 120Vac 60Hz



Final Measurements

EUT Name		EB601						
Limit		FCC 15.109						
Power Supply		**120Vac 60Hz**						
Frequency (Hz)	**Detector**	**Correction Factor (dB)**	**Level (dBuV)**	**QP Limit (dBuV)**	**AVG Limit (dBuV)**	**QP Margin (dB)**	**AVG Margin (dB)**	**Test Result**
Line 1								
16.603M	PEAK	10.4	33.6	60.0	50.0	26.4	16.4	Pass
17.0M	PEAK	10.5	33.2	60.0	50.0	26.8	16.8	Pass
172.276k	PEAK	10.1	38.0	65.4	55.4	27.4	17.4	Pass
28.36M	PEAK	10.9	33.1	60.0	50.0	26.9	16.9	Pass
28.922M	PEAK	10.9	33.0	60.0	50.0	27.0	17.0	Pass
16.559M	PEAK	10.4	32.7	60.0	50.0	27.3	17.3	Pass
Line 2								
27.804M	PEAK	10.8	33.2	60.0	50.0	26.8	16.8	Pass
28.365M	PEAK	10.9	33.0	60.0	50.0	27.0	17.0	Pass
27.559M	PEAK	10.8	31.5	60.0	50.0	28.5	18.5	Pass
27.282M	PEAK	10.8	30.8	60.0	50.0	29.2	19.2	Pass
14.327M	PEAK	10.4	30.5	60.0	50.0	29.5	19.5	Pass
16.603M	PEAK	10.4	30.5	60.0	50.0	29.5	19.5	Pass

Average and Quasi-Peak Emissions Table

Note:

Peak = Peak measurement
AVG = Average measurement
QP = Quasi-Peak measurement

See 'Appendix B – EUT, Peripherals and Test Setup Photos' for photos showing the test set-up for the highest line conducted emission

Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
Spectrum Analyzer	ESL 6	Rohde & Schwarz	Feb. 25, 2019	Feb. 25, 2021	GEMC 160
LISN	FCC-LISN-50/250-16-2-01	FCC	Jan. 16, 2020	Jan. 16, 2022	GEMC 302
RF Cable 3m	LMR-400-3M-50Ω-MN-MN	LexTec	NCR	NCR	GEMC 276
Attenuator 10 dB	6N10W-10	Inmet	NCR	NCR	GEMC 350
Emissions Software	0.1.99	TUV SUD Canada, Inc.	NCR	NCR	GEMC 58

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Appendix A – EUT Summary

For further details for filing purposes, refer to filing package.

General EUT Description

Client	
Organization / Address	Ecobee Inc. 25 Dockside Drive. Suite 700 Toronto, ON. M5A 0B5, Canada
Contact	John Russomanno
Phone	416-809-2405
Email	johnr@ecobee.com
EUT Details	
EUT Name	ECB601/ECB501
FCC ID	WR955470766937
IC	7981A-55470766937
Equipment Category	Unlicensed transmitter
Basic EUT Functionality	EUT is a smart thermostat that have a 2400 – 2483.5 MHz DTS (802.11 b/g/n) and FHSS transmitters and a 902 – 928 MHz FHSS/Hybrid transmitter. 5150-5250 MHz and 5725-5850 MHz UNII transmitter.
Input Voltage and Frequency	24 Vac 60 Hz
Connectors available on EUT	1 (terminals for HVAC control)
Peripherals Required for Test	120 Vac – 24 Vac step down transformer.
Release type	Final
Intentional Radiator Frequency Range	2400 – 2483.5 MHz for DTS and FHSS 902 – 928 MHz FHSS/Hybrid 5150-5250 MHz and 5725-5850 MHz UNII transmitter.
Antenna	Flexible PCB antennas
Type of Transmitter	Hybrid, Frequency Hopping and Digitally Modulated
Modulation	FSK for Sub Gig Various for 2.4 GHz 802.11 b/g/n, FSK, etc
EUT Configuration	Test software was configured to transmit continuously at 100% duty cycle and to control

	hopping through its pseudo random sequence or single channel. Channels tested: Lowest and Highest

Note the EUT is considered to have been received the date of the commencement of the first test, unless otherwise stated. For a close-up picture of the EUT, see 'Appendix B – EUT and Test Setup Photos'.

Appendix B – EUT and Test Setup Photos

Refer to the files separate from this test report