RADIO Testing of the

Abbott Laboratories CRM
Assert-IQ™ Insertable Cardiac Monitor
Model: DM5000, DM5300 and DM5500

In accordance with:
FCC Part 15 Subpart C §15.247 and IC RSS-247
Issue 2 February 2017

Product Service

Choose certainty.
Add value.

Prepared for:
Abbott Laboratories CRM
15900 Valley View Court
Sylmar, CA 91342 USA

COMMERCIAL-IN-CONFIDENCE

Issue Date: October 2022
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Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

EXECUTIVE SUMMARY
A sample of this product was tested and found to be in compliance with FCC Part 15 Subpart C §15.247 and IC RSS-247 Issue 2 February 2017

A2LA Cert. No. 2955.13

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Product Service

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1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	Initial Release	11/07/2022

1.2 Introduction

Objective	To perform Radio Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Abbott Laboratories CRM 15900 Valley View Court Sylmar, CA 91342 USA
Applicant Contact Information	Perry Li Associate Research Fellow perry.li@abbott.com (818) 493-3793
Model Number(s)	DM5000, DM5300 and DM5500
Serial Number(s)	511002708, 511002885 and 511002888
Number of Sample/s Tested	3
Test Specification/Issue/Date	• FCC Part 15 Subpart C §15.247 (October 01, 2021) • IC RSS-247 Issue 2 February 2017 Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices • RSS-Gen - General Requirements for Compliance of Radio Apparatus (Issue 5, Amendment 2 February 2021).
Start of Test	October 11, 2022
Finish of Test	October 24, 2022
Name of Engineer(s)	Ferdinand S. Custodio David Hewitt Ivan Retana

Related Document(s)

- ANSI C63.10-2013. American National Standard of Procedures for Compliance testing of Unlicensed Wireless Devices.
- KDB 558074 D01 15.247 v05r02 Guidance for compliance measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices operating under Section 15.247 of the FCC rules.
- Supporting documents for EUT certification are separate exhibits.

Product Service

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC Part 15 Subpart C §15.247 and IC RSS-247 Issue 2 February 2017 with cross-reference to the corresponding IC RSS standard are shown below.

Report Section	Standard Section	Standard Spec Clause	Test Description	Result	Comments/Base Standard
2.1	§15.247(b)(3)	RSS-247 5.4(d)	Peak Output Power	Compliant	
2.2	§15.207(a)	RSS-Gen 8.8	Conducted Emissions	N/A	Battery powered
2.3	-	RSS-Gen 6.7	99% Emission Bandwidth	Compliant	
2.4	§15.247(a)(2)	RSS-247 5.2(a)	Minimum 6 dB RF Bandwidth	Compliant	
0	§15.247(d)	RSS-247 5.5	Out-of-Band Emissions - Conducted	Compliant	
2.6	§15.247(d)	RSS-247 5.5	Band-edge Compliance of RF Conducted Emissions	Compliant	
2.7	§15.247(d)	RSS-247 5.5	Radiated Spurious Emissions	Compliant	
	-	RSS-Gen 7.3 and 7.4	Receiver Spurious Emissions	N/A[1]	
2.8	§15.247(e)	RSS-247 5.2(b)	Power Spectral Density for Digitally Modulated Device	Compliant	

N/A[1] Not required as per RSS-Gen 5.3 The EUT does not fall into any category defined as Receiver under RSS-Gen.

1.4 Product Information

1.4.1 Technical Description

The Equipment Under Test (EUT) is an Abbott Laboratories CRM Assert-IQ™ Insertable Cardiac Monitor. The EUT goes under the skin near the heart and will be used to collect cardiac data and communicate with BLE equipped external device to be able to send and receive data securely over the air. This test report covers the following models: DM5000, DM5300 and DM5500. DM5000 and DM5300 are identical except for the type of accelerometer used. The DM5500 is evaluated separately having a slightly different outer case, different header with the same antenna, and a different battery.

1.4.2 EUT Specification

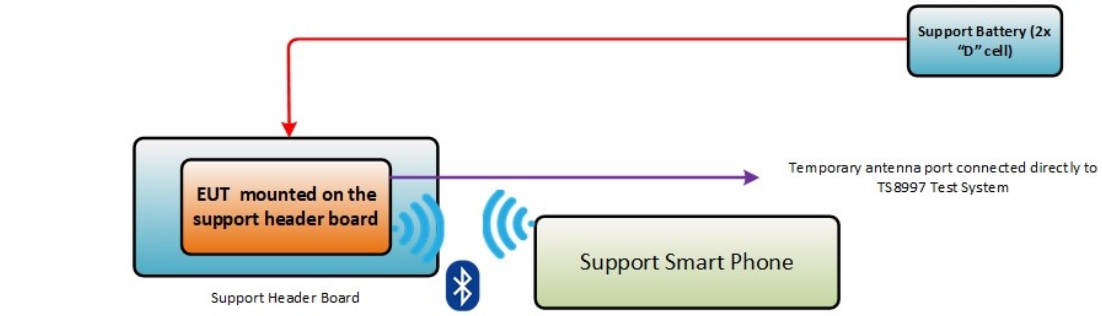
EUT Description	Insertable Cardiac Monitor
Model Name	Assert-IQ™
Model Number(s)	DM5000, DM5300 and DM5500
Rated Voltage	3VDC when mounted on the support header board
Mode Verified	Bluetooth LE 4.2
Modulation	GFSK
Capability	IEEE 802.15.1 Bluetooth Low Energy (BLE 4.0)
Primary Unit (EUT)	☐ Production ☒ Pre-Production ☐ Engineering
Manufacturer Declared Temperature Range	37°C (implantable)
Maximum Reported Output Power	-7.95 dBm EIRP
Frequency Range	2402MHz to 2480MHz
Antenna Type	Internal monopole
Manufacturer	Abbott Laboratories CRM
Antenna Model	-
Maximum Antenna Gain	-9.35 dBi for DM5500 and -14.74 dBi for DM5300. Antennas are the same between the models. However, the physical header design affects the performance hence the difference in gain.

1.4.3 Test Configuration

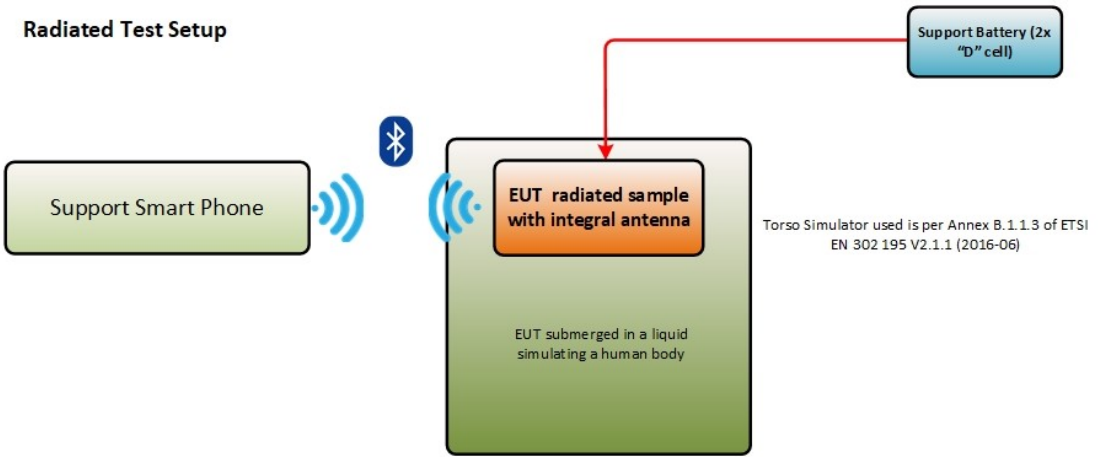
Configuration Number	Description
Default	EUT mounted on a support Header Board. Special test firmware allows RF configuration over Bluetooth connection using a smart phone with a proprietary app installed. For Radiated emissions, radiated samples are provided programmed similarly as the conducted sample mounted on the Header Board.

1.4.4 Simplified Test Configuration Diagram

Antenna Conducted Port Test Setup



Radiated Test Setup



1.4.5 Support Equipment and I/O cables

Manufacturer	Equipment/Cable	Description
Abbott	Header Board	Model ICM 2.0 Rev. 2 ASSY: 90800328
Zurich Med Tech	Fat Liquid	Item No. TLe5c.24@2450 Product No. ZL AAF 245 CA (Batch: 220308-2)
St. Jude Medical	Programmer	MERLIN™ Patient Care System 3650
Samsung	Smart Phone	SM-J320A Android 6.0.1 Build Number MMB29K.J320AUCU1APC9

1.5 Deviations from the Standard

There were no deviations made during testing from the applicable test standard or test plan.

1.6 EUT Modification Record

The table below details modifications made to the EUT during the test program. The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
0	As supplied by the manufacturer	-	-

1.7 Test Methods

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

For conducted and radiated emissions, the equipment under test (EUT) was configured to measure its highest possible emission level. This level was based on the maximized cable configuration from exploratory testing per ANSI C63.10-2013. The test modes were adapted according to the Operating Instructions provided by the manufacturer/client.

1.8 Test Location

TÜV SÜD America conducted the following tests at our San Diego CA, Test Laboratory's.

Office Address:

TÜV SÜD America Inc. (Mira Mesa)

10040 Mesa Rim Road, San Diego, CA 92121-2912 (32.901268,-117.177681).
Phone: (858) 678 1400 Fax: (858) 546 0364.

TÜV SÜD America Inc. (Rancho Bernardo)

16936 Via Del Campo, San Diego, CA 92127-1708 (33.018644,-117.092409).
Phone: (858) 678 1400 Fax: (858) 546 0364.

1.9 Test Facility Registration

1.9.1 FCC – Designation No.: US1146

TÜV SÜD America Inc. (San Diego), is an accredited test facility with the site description report on file and has met all the requirements specified in §2.948 of the FCC rules. The acceptance letter from the FCC is maintained in our files and the Designation is US1146.

1.9.2 Innovation, Science and Economic Development Canada (ISED) Registration No.: 3067A-1 & 22806-1

The 10m Semi-anechoic chamber of TÜV SÜD America Inc. (San Diego Rancho Bernardo) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 3067A-1.

The 3m Semi-anechoic chamber of TÜV SÜD America Inc. (San Diego Mira Mesa) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 22806-1.

1.9.3 BSMI – Laboratory Code: SL2-IN-E-028R (US0102)

TÜV Product Service Inc. (San Diego) is a recognized RADIO testing laboratory by the BSMI under the MRA (Mutual Recognition Arrangement) with the United States. Accreditation includes CNS 13438 up to 6GHz.

1.9.4 NCC (National Communications Commission - US0102)

TÜV SÜD America Inc. (San Diego) is listed as a Foreign Recognized Telecommunication Equipment Testing Laboratory and is accredited to ISO/IEC 17025 (A2LA Certificate No.2955.13) which under APEC TEL MRA Phase 1 was designated as a Conformity Assessment Body competent to perform testing of equipment subject to the Technical Regulations covered under its scope of accreditation including RTTE01, PLMN01 and PLMN08 for TTE type of testing and LP0002 for Low-Power RF Device type of testing.

1.9.5 VCCI – Registration No. A-0280 and A-0281

TÜV SÜD America Inc. (San Diego) is a VCCI registered measurement facility which includes radiated field strength measurement, radiated field strength measurement above 1GHz, mains port interference measurement and telecommunication port interference measurement.

1.9.6 RRA – Identification No. US0102

TÜV SÜD America Inc. (San Diego) is National Radio Research Agency (RRA) recognized laboratory under Phase I of the APEC Tel MRA.

1.9.7 OFCA – U.S. Identification No. US0102

TÜV SÜD America Inc. (San Diego) is recognized by Office of the Communications Authority (OFCA) under Appendix B, Phase I of the APEC Tel MRA.

Product Service

2 Test Details

2.1 Peak Output Power

2.1.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(b)(3)
RSS-247, Clause 5.4 (d)

2.1.2 Standard Applicable

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands, the maximum peak conducted output shall not exceed 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

2.1.3 Equipment Under Test and Modification State

Serial No: 511002708 and 511002885 / Default Test Configuration

2.1.4 Date of Test/Initial of test personnel who performed the test

October 11, 2022 / FSC

2.1.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.6 Environmental Conditions (Rancho Bernardo Satellite Facility)

Ambient Temperature	25.4°C
Relative Humidity	55.0%
ATM Pressure	99.5kPa

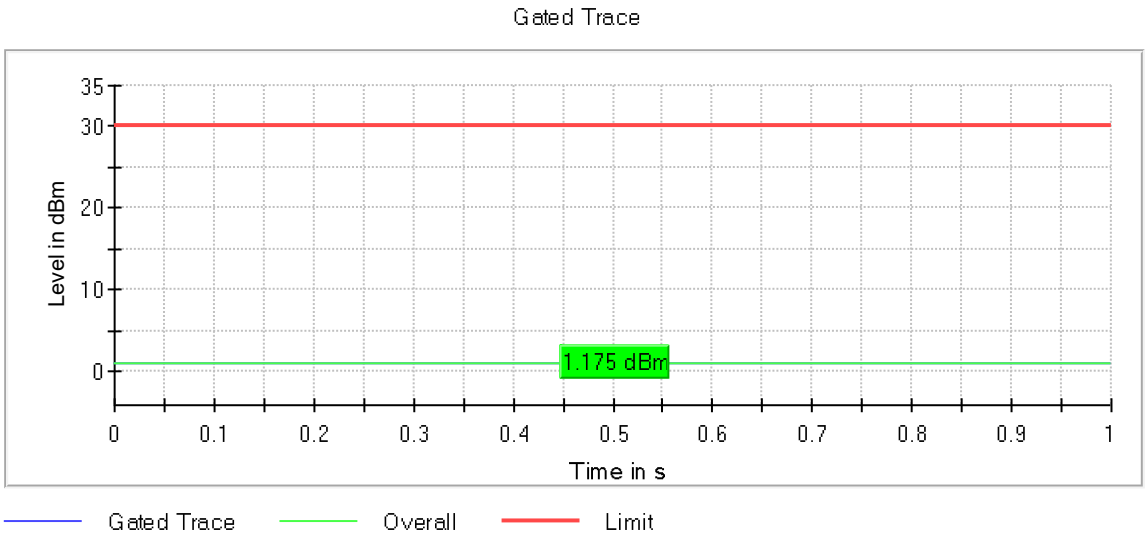
2.1.7 Additional Observations

- This is a conducted test using direct connection to the TS8997 Test System.
- The path loss was all accounted for with the test system calibration.
- Test methodology is per FCC title 47 part 15 §15.247(b), KDB 558074 D01 DTS Meas Guidance v05 and ANSI C63.10-2013 11.9.2.3.2.

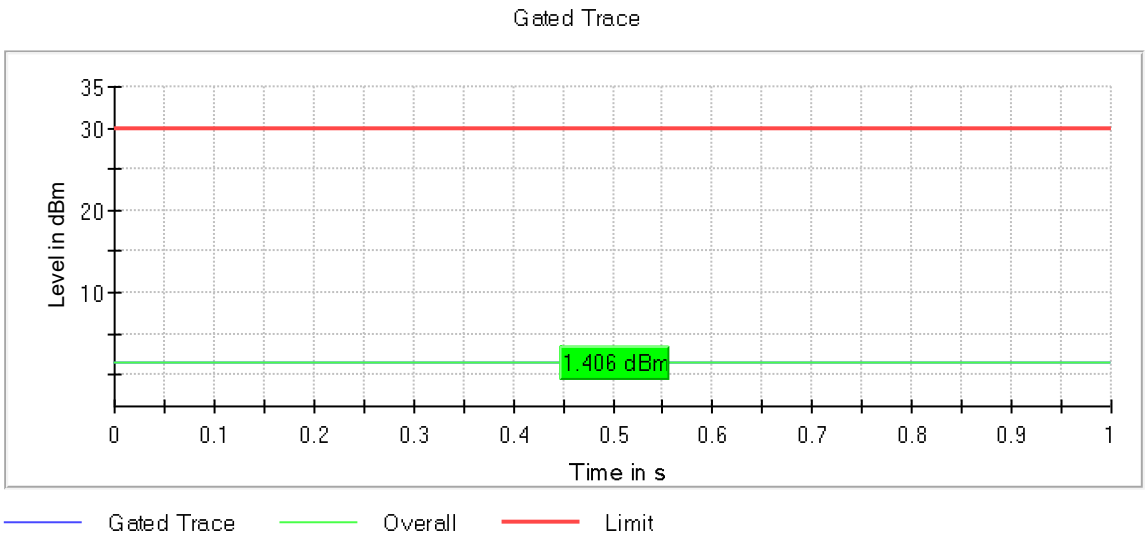
2.1.8 Test Results

EUT	DUT Frequency (MHz)	Gated RMS* (dBm)	Limit Max (dBm)	DutyCycle (%)	Result
Worst case variant	2402.000000	1.2	30	100.00	PASS
	2440.000000	1.4		100.00	PASS
	2480.000000	1.1		100.00	PASS

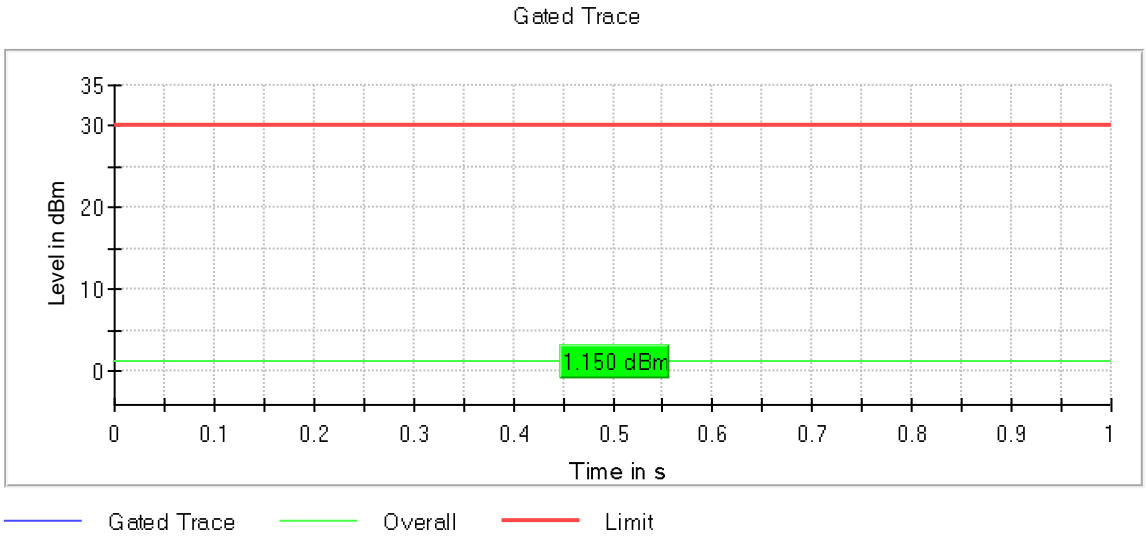
2.1.9 Sample Test Plots



Bluetooth LE. Low Channel



Bluetooth LE. Mid Channel



Bluetooth LE. High Channel

2.1.10 Power Meter Settings

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 µs	1.000 µs

2.2 Conducted Emissions

2.2.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.207(a)
RSS-GEN, Clause 8.8

2.2.2 Standard Applicable

An intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN).

Frequency of emission (MHz)	Conducted limit (dBµV)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

**Decreases with the logarithm of the frequency.*

2.2.3 Equipment Under Test and Modification State

N/A. EUT is a battery powered implantable device.

2.3 99% Emission Bandwidth

2.3.1 Specification Reference

RSS-Gen Clause 6.7

2.3.2 Standard Applicable

The emission bandwidth (x dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated x dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth.
When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured.

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW.

Note: Video averaging is not permitted.
A peak, or peak hold, may be used in place of the sampling detector as this may produce a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold may be necessary to determine the occupied bandwidth if the device is not transmitting continuously.
The trace data points are recovered and are directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded.
The difference between the two recorded frequencies is the 99% occupied bandwidth.

2.3.3 Equipment Under Test and Modification State

Serial No: 511002708 and 511002885 / Default Test Configuration

2.3.4 Date of Test/Initial of test personnel who performed the test

October 11, 2022 / FSC

2.3.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.6 Environmental Conditions (Rancho Bernardo Satellite Facility)

Ambient Temperature	25.4°C
Relative Humidity	55.0%
ATM Pressure	99.5kPa

2.3.7 Additional Observations

- This is a conducted test using direct connection to the TS8997 Test System.
- The path loss was all accounted for with the test system calibration.
- Test methodology is per Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05 and ANSI C63.10-2013 11.8.1.

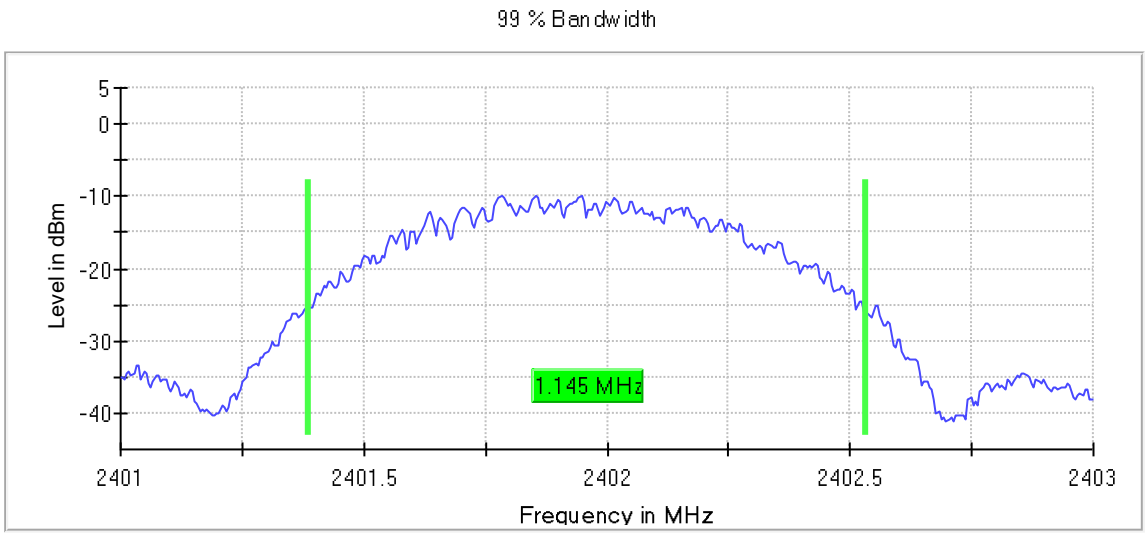
2.3.8 Sample Measurement Settings

Setting	Instrument Value	Target Value
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
Sweeptime	189.648 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	7 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.29 dB	0.30 dB

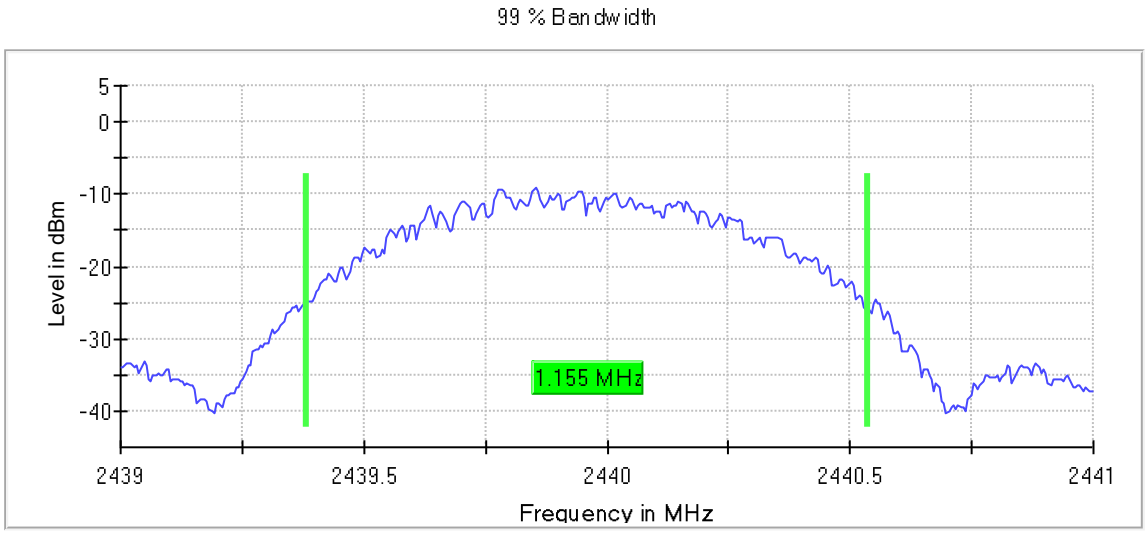
2.3.9 Test Results

DUT Frequency (MHz)	99% Bandwidth	Band Edge Left (MHz)	Band Edge Right (MHz)	Result
2402.000000	1.145000	2401.387500	2402.532500	PASS
2440.000000	1.155000	2439.382500	2440.537500	PASS
2480.000000	1.160000	2479.382500	2480.542500	PASS

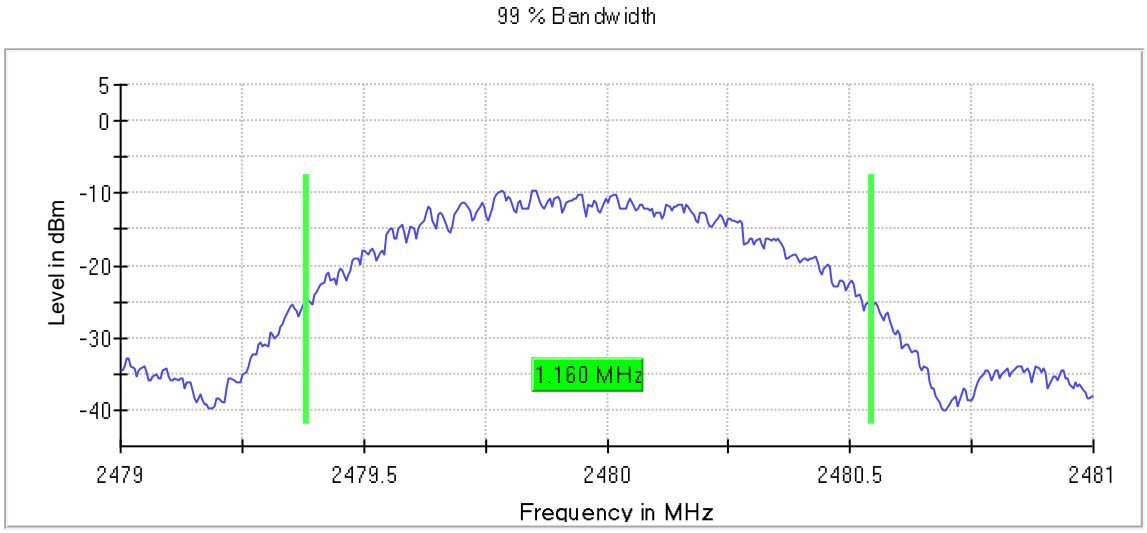
2.3.10 Test Plots



Bluetooth LE Low Channel



Bluetooth LE Middle Channel



Bluetooth LE High Channel

2.4 Minimum 6 dB RF Bandwidth

2.4.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(a)(2)
RSS-247, Clause 5.2 (a)

2.4.2 Standard Applicable

(2) 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.

2.4.3 Equipment Under Test and Modification State

Serial No: 511002708 and 511002885 / Default Test Configuration

2.4.4 Date of Test/Initial of test personnel who performed the test

October 11, 2022 / FSC

2.4.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.6 Environmental Conditions (Rancho Bernardo Satellite Facility)

Ambient Temperature	25.4°C
Relative Humidity	55.0%
ATM Pressure	99.5kPa

2.4.7 Additional Observations

- This is a conducted test using direct connection to the TS8997 Test System.
- The path loss was all accounted for with the test system calibration.
- Test methodology is per FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05 and ANSI C63.10-2013 11.8.1.

2.4.8 Sample Measurement Settings

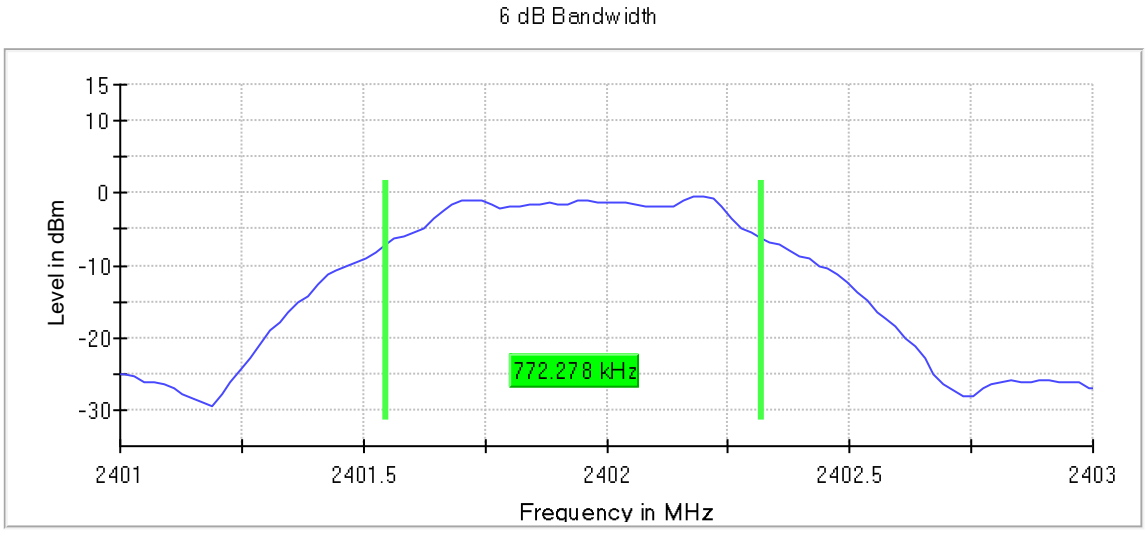
Setting	Instrument Value	Target Value
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
Sweeptime	18.938 µs	AUTO

Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	9 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.21 dB	0.50 dB

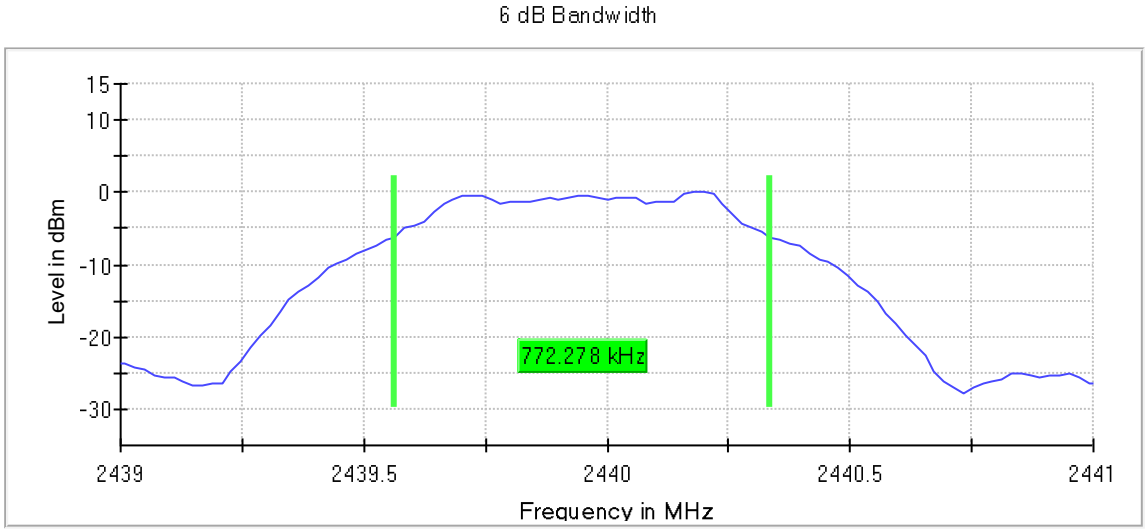
2.4.9 Test Results

DUT Frequency (MHz)	Limit Min (MHz)	Bandwidth (MHz)	Result
2402.000000	0.500000	0.772278	PASS
2440.000000		0.772278	PASS
2480.000000		0.792080	PASS

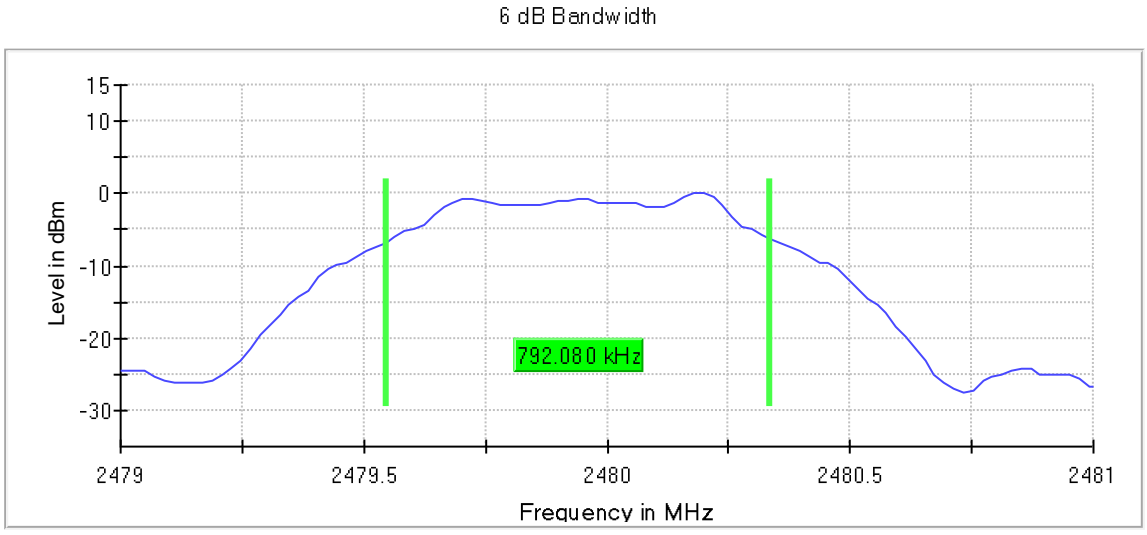
2.4.10 Test Plots



Bluetooth LE Low Channel



Bluetooth LE Middle Channel



Bluetooth LE High Channel

2.5 Out-Of-Band Emissions - Conducted

2.5.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(d)
RSS-247, Clause 5.5

2.5.2 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

2.5.3 Equipment Under Test and Modification State

Serial No: 511002708 and 511002885 / Default Test Configuration

2.5.4 Date of Test/Initial of test personnel who performed the test

October 11, 2022 / FSC

2.5.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

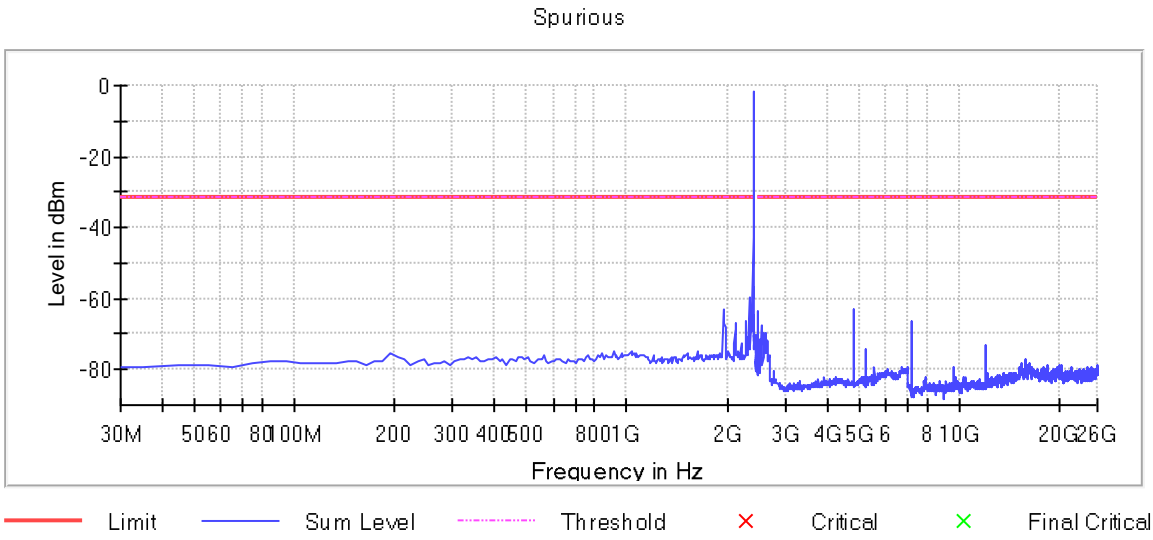
2.5.6 Environmental Conditions (Rancho Bernardo Satellite Facility)

Ambient Temperature	25.4°C
Relative Humidity	55.0%
ATM Pressure	99.5kPa

2.5.7 Additional Observations

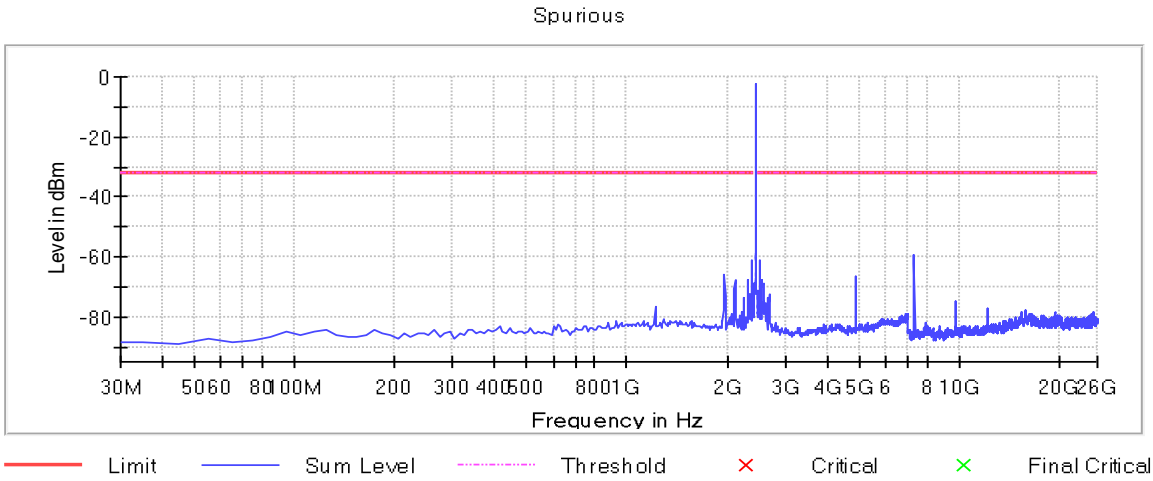
- This is a conducted test using direct connection to the TS8997 Test System.
- The path loss was all accounted for with the test system calibration.
- Test methodology is per FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v05 and ANSI C63.10-2013 11.11.2 & 11.11.3.
- No emissions observed within the measurement threshold during prescan, further verification is not required.

2.5.8 Test Results

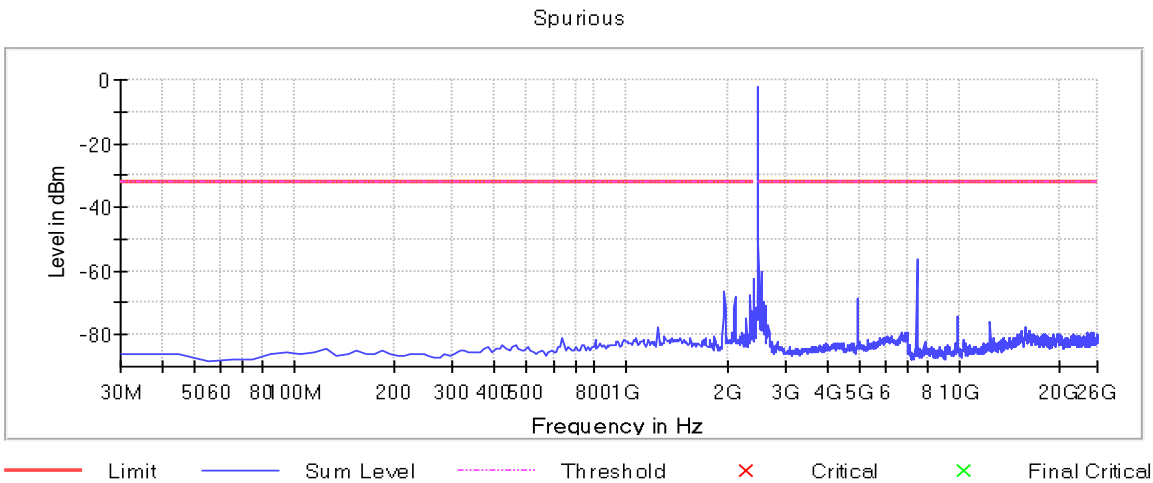


Low Channel					
Frequency (MHz)	**Level Pre Measurement (dBm)**	**level (dBm)**	**Limit (dBm)**	**Margin (dB)**	**Result**
-	-	-	-	-	--

No emissions observed within the measurement threshold, no further verification required.



Middle Channel					
Frequency (MHz)	**Level Pre Measurement (dBm)**	**level (dBm)**	**Limit (dBm)**	**Margin (dB)**	**Result**
-	-	-	-	-	--



High Channel					
Frequency (MHz)	**Level Pre Measurement (dBm)**	**level (dBm)**	**Limit (dBm)**	**Margin (dB)**	**Result**
-	-	-	-	-	--

2.5.9 Sample Measurement Settings

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	238	~ 238
Sweeptime	23.700 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	5 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

2.6 Band-Edge Compliance Of RF Conducted Emissions

2.6.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(d)
FCC 47 CFR Part 15, Clause 15.205
RSS-247, Clause 5.5

2.6.2 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

2.6.3 Equipment Under Test and Modification State

Serial No: 511002708 and 511002885 / Default Test Configuration

2.6.4 Date of Test/Initial of test personnel who performed the test

October 11, 2022 / FSC

2.6.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.6.6 Environmental Conditions (Rancho Bernardo Satellite Facility)

Ambient Temperature	25.4°C
Relative Humidity	55.0%
ATM Pressure	99.5kPa

2.6.7 Additional Observations

- This is a conducted test using direct connection to the Spectrum Analyzer being controlled by the TS8997 Test System.
- The path loss was all accounted for with the test system calibration.
- Test methodology is per FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v05 8.7 and ANSI C63.10-2013.

2.6.8 Sample Measurement Settings

Measurement 1		
Setting	**Instrument Value**	**Target Value**
Span	90.000 MHz	90.000 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1800	~ 1800
Sweeptime	113.672 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	13 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.16 dB	0.50 dB

Measurement 2		
Setting	**Instrument Value**	**Target Value**
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
Sweeptime	94.727 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace

Stablevalue	0.50 dB	0.50 dB
Run	7 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

2.6.9 Test Results (Lower Band Edge)

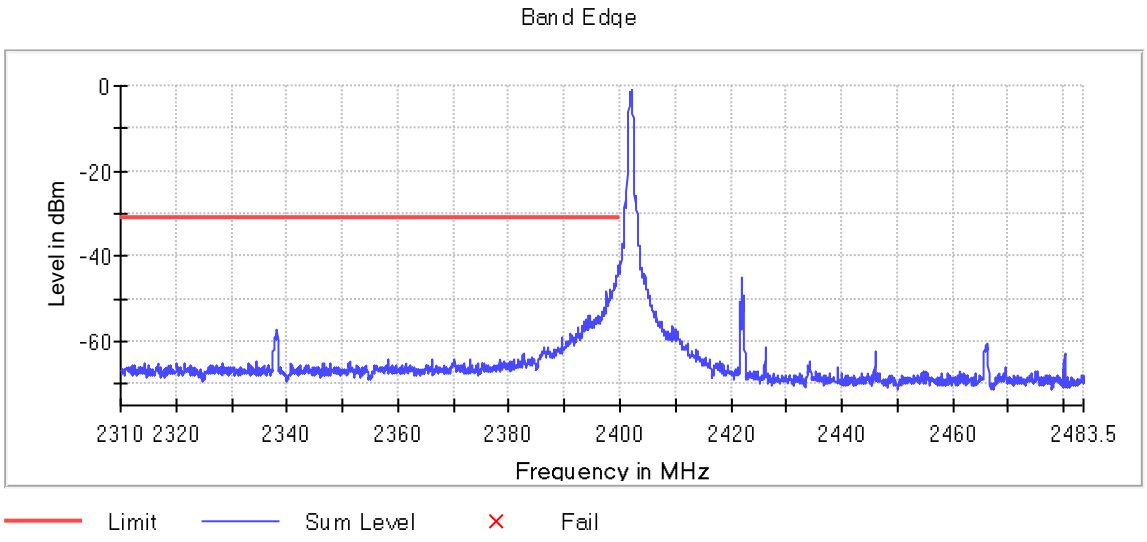
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.875000	-41.5	10.5	-31.0	PASS
2399.825000	-41.8	10.8	-31.0	PASS
2399.925000	-42.0	11.0	-31.0	PASS
2399.975000	-42.3	11.3	-31.0	PASS
2399.675000	-42.4	11.4	-31.0	PASS
2399.725000	-42.4	11.5	-31.0	PASS
2399.775000	-42.7	11.7	-31.0	PASS
2399.625000	-43.1	12.1	-31.0	PASS
2399.475000	-44.4	13.4	-31.0	PASS
2399.325000	-44.5	13.5	-31.0	PASS
2399.525000	-44.5	13.5	-31.0	PASS
2399.575000	-44.6	13.6	-31.0	PASS
2399.375000	-44.7	13.7	-31.0	PASS
2399.275000	-45.1	14.1	-31.0	PASS
2399.425000	-45.2	14.2	-31.0	PASS

2.6.10 Test Results (Upper Band Edge)

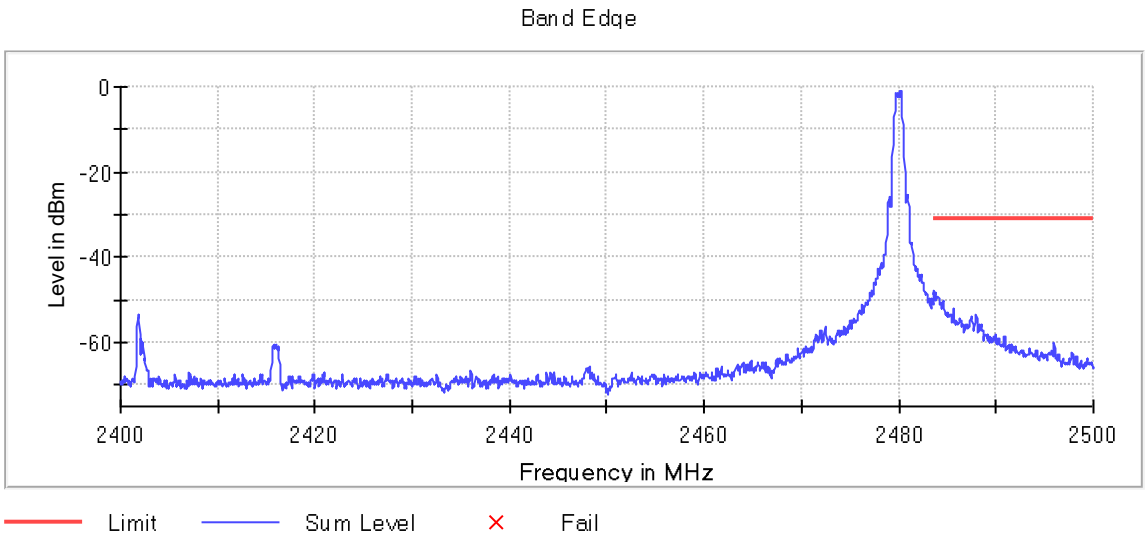
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.675000	-47.8	17.1	-30.8	PASS
2483.525000	-48.1	17.3	-30.8	PASS
2483.575000	-48.1	17.4	-30.8	PASS
2483.775000	-48.4	17.7	-30.8	PASS
2483.625000	-48.5	17.8	-30.8	PASS
2483.725000	-48.7	17.9	-30.8	PASS
2483.825000	-49.0	18.3	-30.8	PASS
2484.075000	-49.1	18.4	-30.8	PASS
2483.925000	-49.1	18.4	-30.8	PASS
2483.975000	-49.2	18.5	-30.8	PASS
2484.025000	-49.4	18.6	-30.8	PASS

2484.125000	-49.5	18.7	-30.8	PASS
2484.575000	-50.0	19.3	-30.8	PASS
2484.525000	-50.1	19.3	-30.8	PASS
2483.875000	-50.3	19.5	-30.8	PASS

2.6.11 Test Plots



Bluetooth LE Low Band Edge



Bluetooth LE Upper Band Edge

2.6.12 Upper band edge calculation (2483.5 MHz) within Restricted Band

Not required. This requirement will be covered in the next Section (Radiated Spurious Emissions). Full radiated testing on a radiated sample (EUT with integral antenna) will be performed per §15.205 to cover emissions which fall in the restricted bands.

2.7 Radiated Spurious Emissions

2.7.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(d)
RSS-247, Clause 5.5

2.7.2 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

2.7.3 Equipment Under Test and Modification State

Serial No: 511002708 and 511002885 / Default Test Configuration

2.7.4 Date of Test/Initial of test personnel who performed the test

October 12, 21 and 24, 2022 / DH and IR

2.7.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.7.6 Environmental Conditions (Rancho Bernardo Satellite Facility)

Ambient Temperature	25.7 °C
Relative Humidity	54.0 %
ATM Pressure	99.3 kPa

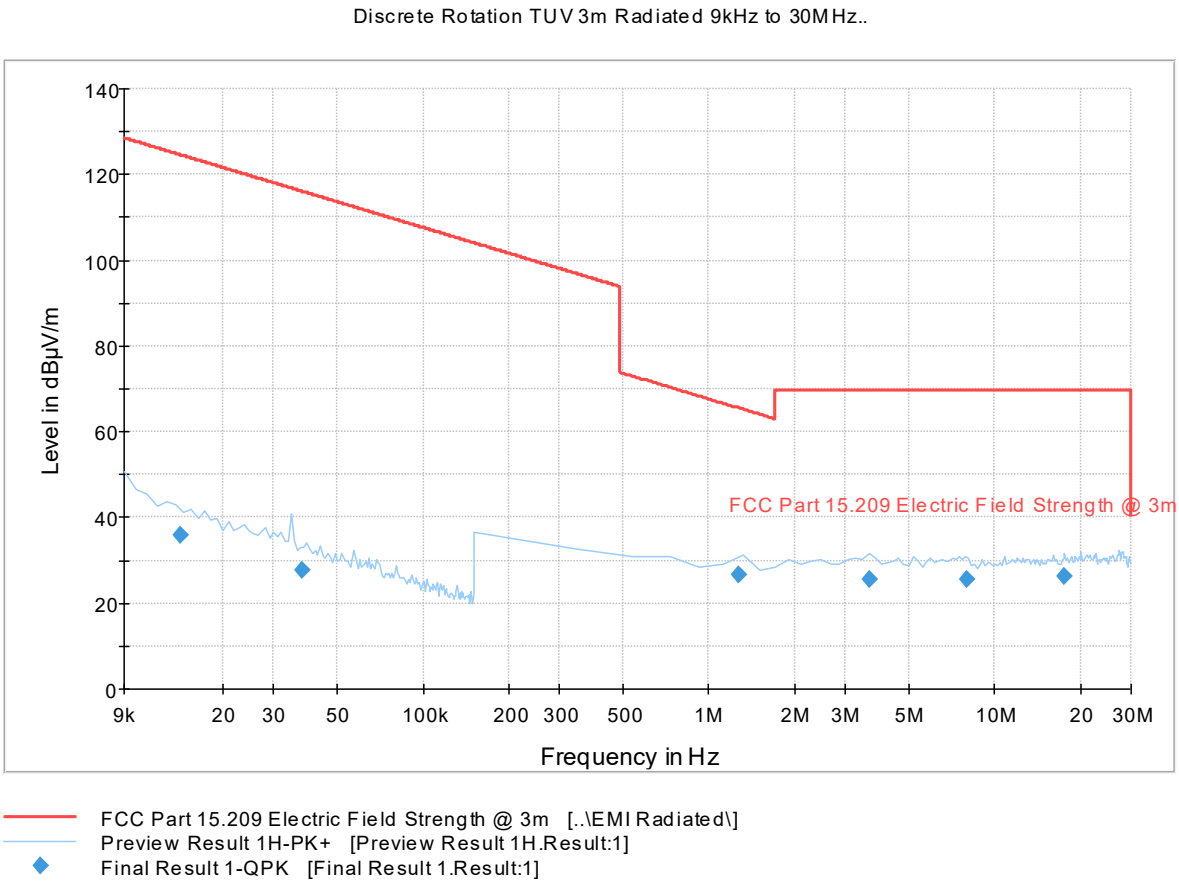
2.7.7 Additional Observations

- This is a radiated test. The spectrum was searched from 9kHz to the 10th harmonic.
- There are no emissions found that do not comply to the restricted bands defined in FCC Part 15 Subpart C, 15.205 or Part 15.247(d).
- Measurement was done using EMC32 automated software. Reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only. See Section 2.7.8 for sample computation.

2.7.8 Sample Computation (Radiated Emission)

Measuring equipment raw measurement (dbµV) @ 30 MHz			-0.8
Correction Factor (dB)	Asset# 1066 (cable)	18.1	12.6
	Asset# 1172 (cable)	0.3	
	Asset# 1175(cable)	0.3	
	Asset# 1002 (antenna)	17.2	
Reported QuasiPeak Final Measurement (dbµV/m) @ 30MHz			**11.8**

2.7.9 Test Results for below 30MHz (DM5500)

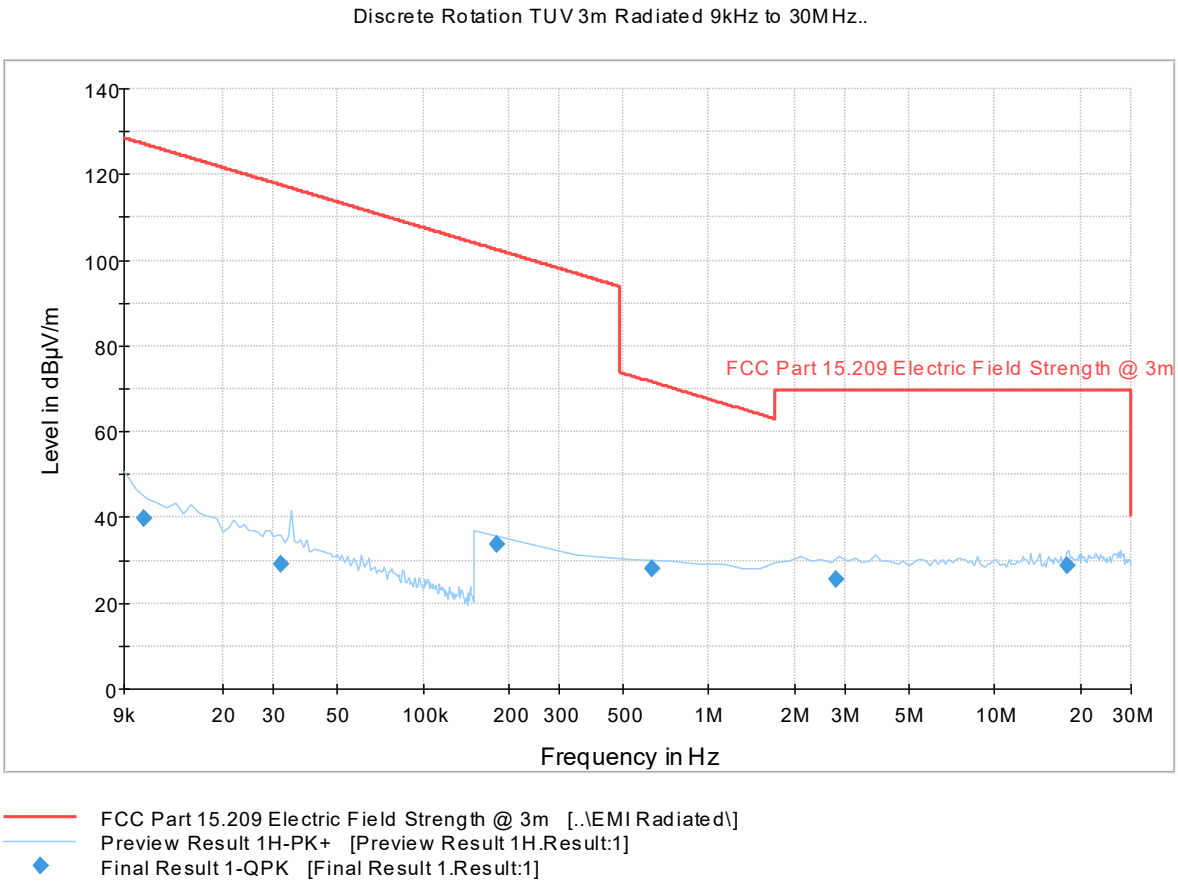


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
0.014240	35.9	1000.0	0.200	H	279.0	22.9	88.6	124.5
0.037636	27.8	1000.0	0.200	H	235.0	21.0	88.3	116.1
1.277987	26.6	1500.0	9.000	H	147.0	20.0	38.9	65.5
3.655961	25.7	1500.0	9.000	H	5.0	20.4	43.9	69.5
7.992247	25.7	1500.0	9.000	H	255.0	20.6	43.8	69.5
17.567805	26.2	1500.0	9.000	H	249.0	22.8	43.4	69.5

Test Notes: Only the worst-case channel presented as the margin observed on all three channels are >40dB.

2.7.10 Test Results for below 30MHz (DM5300)

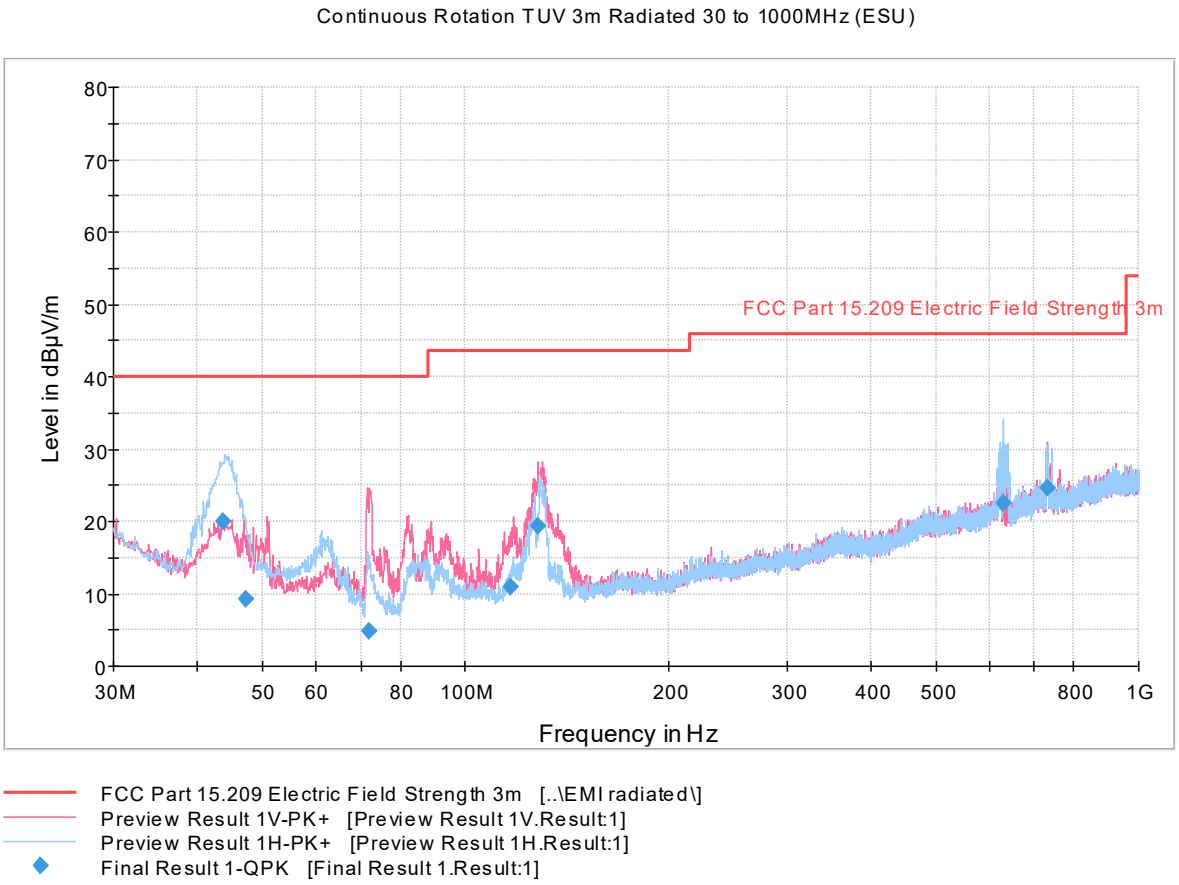


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
0.010578	39.7	1000.0	0.200	H	337.0	23.8	87.4	127.1
0.031636	29.1	1000.0	0.200	H	29.0	21.4	88.5	117.6
0.182000	33.6	1500.0	9.000	H	57.0	19.5	68.8	102.4
0.632494	28.1	1500.0	9.000	H	79.0	19.7	43.5	71.6
2.792636	25.8	1500.0	9.000	H	35.0	20.2	43.8	69.5
18.027468	28.7	1500.0	9.000	H	235.0	23.0	40.9	69.5

Test Notes: Only the worst-case channel presented as the margin observed on all three channels are >40dB.

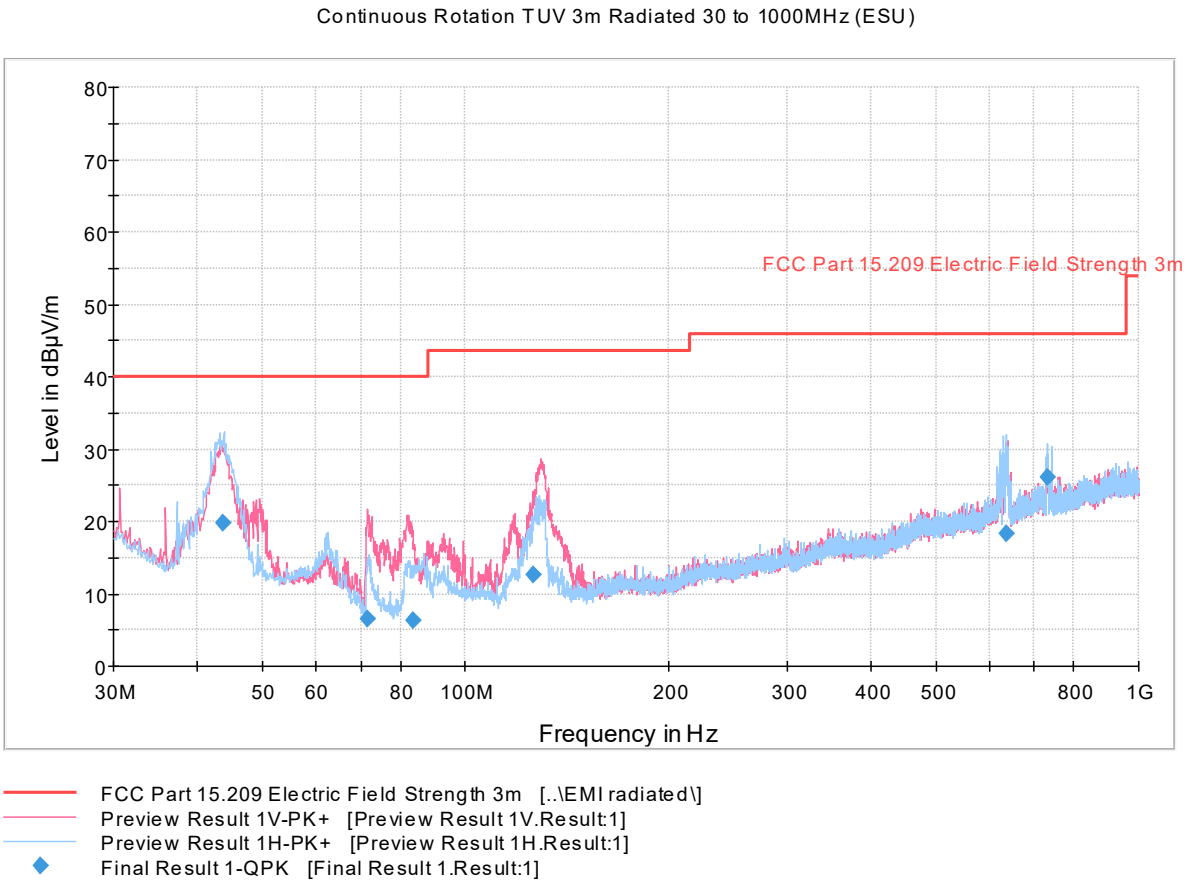
2.7.11 Test Results for 30MHz to 1GHz (Low Channel DM5500)



Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
43.648000	20.0	1000.0	120.000	300.0	H	298.0	-15.2	20.0	40.0
47.158000	9.3	1000.0	120.000	105.0	V	22.0	-16.2	30.7	40.0
71.973000	4.9	1000.0	120.000	100.0	V	19.0	-18.2	35.1	40.0
116.85900	10.9	1000.0	120.000	100.0	V	0.0	-15.8	32.6	43.5
128.02700	19.3	1000.0	120.000	115.0	V	-13.0	-16.2	24.2	43.5
629.15200	22.5	1000.0	120.000	333.0	H	104.0	-1.6	23.5	46.0
731.31000	24.6	1000.0	120.000	400.0	V	39.0	0.4	21.4	46.0

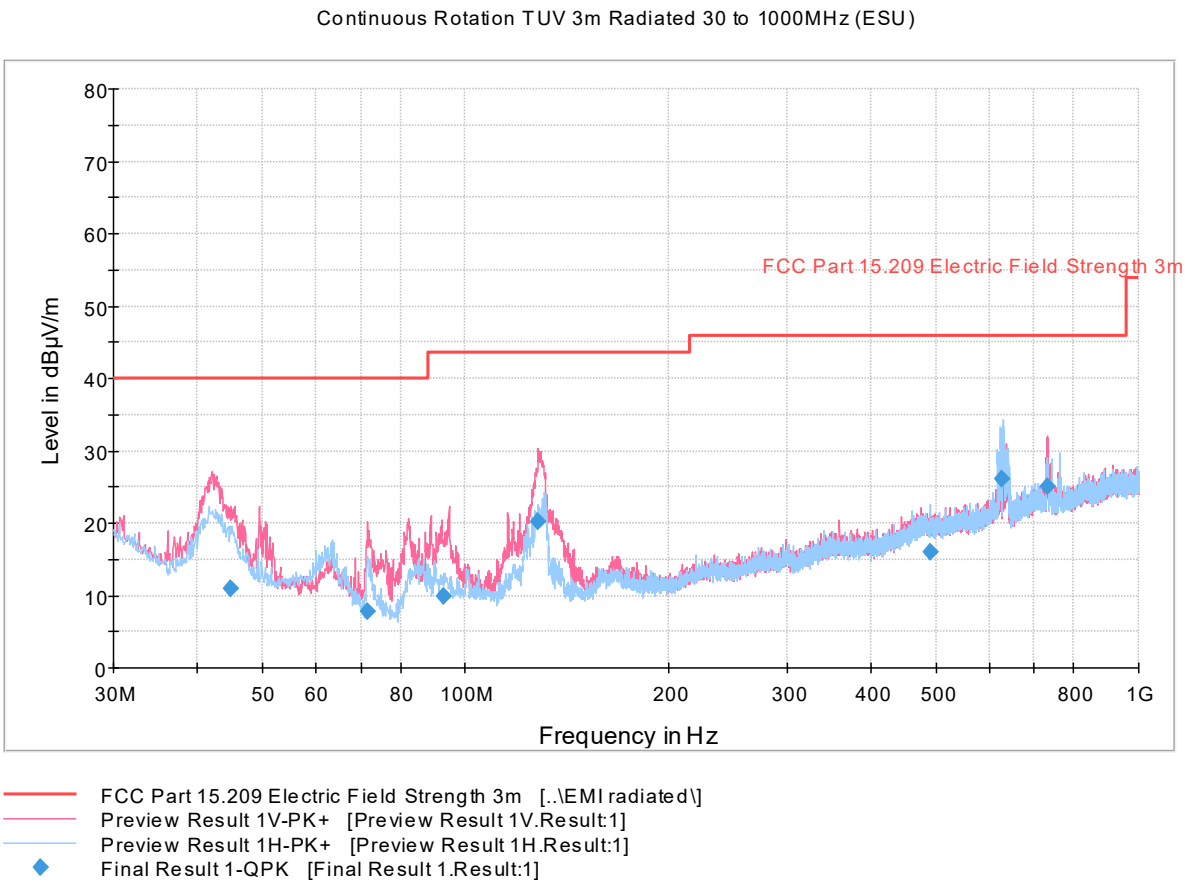
2.7.12 Test Results for 30MHz to 1GHz (Mid Channel DM5500)



Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
43.574000	19.8	1000.0	120.000	300.0	H	343.0	-15.2	20.2	40.0
71.653000	6.5	1000.0	120.000	100.0	V	52.0	-18.2	33.5	40.0
83.495000	6.3	1000.0	120.000	105.0	V	52.0	-17.8	33.7	40.0
125.96200	12.6	1000.0	120.000	105.0	V	156.0	-16.2	30.9	43.5
636.65700	18.4	1000.0	120.000	315.0	H	117.0	-2.0	27.6	46.0
730.03000	26.1	1000.0	120.000	250.0	H	194.0	0.3	19.9	46.0

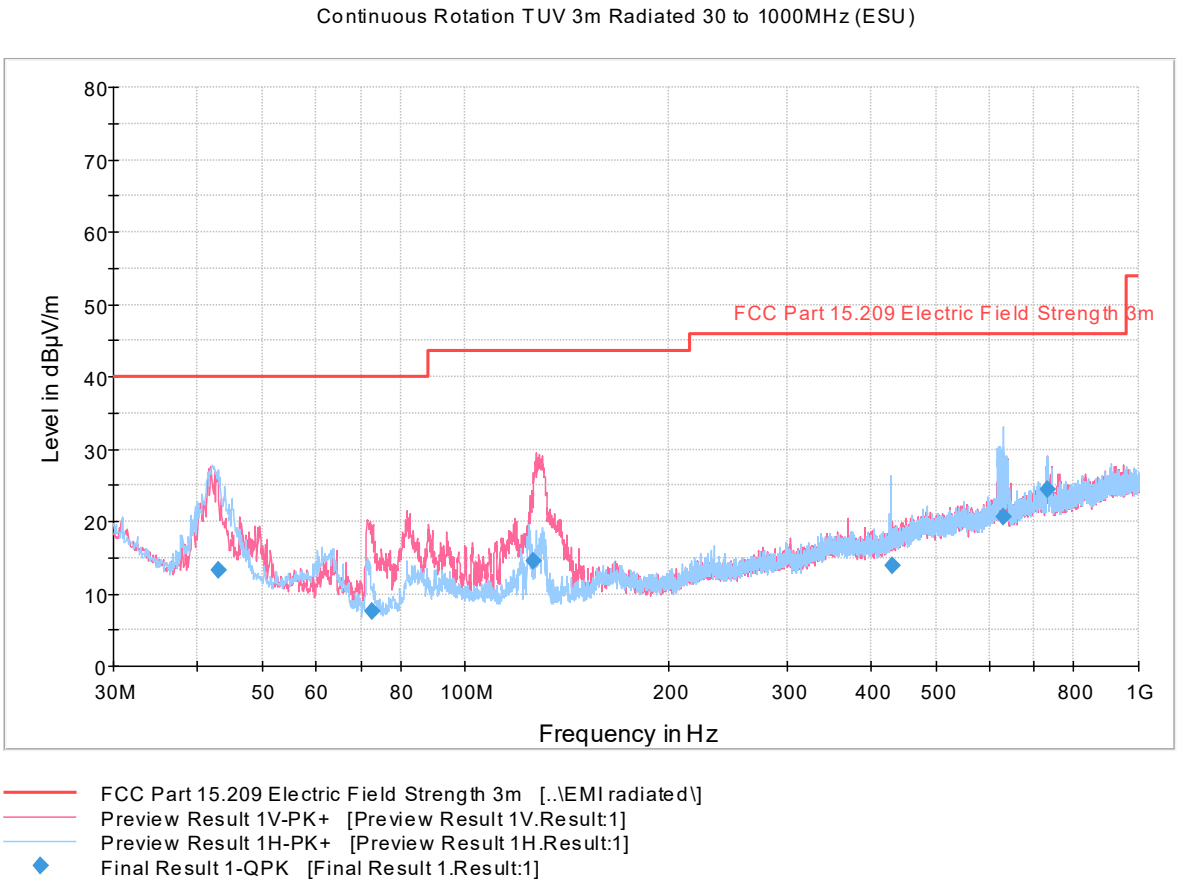
2.7.13 Test Results for 30MHz to 1GHz (High Channel DM5500)



Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
44.840000	10.9	1000.0	120.000	100.0	V	23.0	-15.6	29.1	40.0
71.676000	7.7	1000.0	120.000	200.0	V	67.0	-18.2	32.3	40.0
92.745000	9.9	1000.0	120.000	109.0	V	-6.0	-15.7	33.6	43.5
128.00400	20.2	1000.0	120.000	100.0	V	-11.0	-16.2	23.3	43.5
489.79100	16.0	1000.0	120.000	400.0	H	205.0	-3.5	30.0	46.0
626.25400	26.0	1000.0	120.000	400.0	H	144.0	-1.4	20.0	46.0
731.32300	25.1	1000.0	120.000	100.0	V	230.0	0.4	20.9	46.0

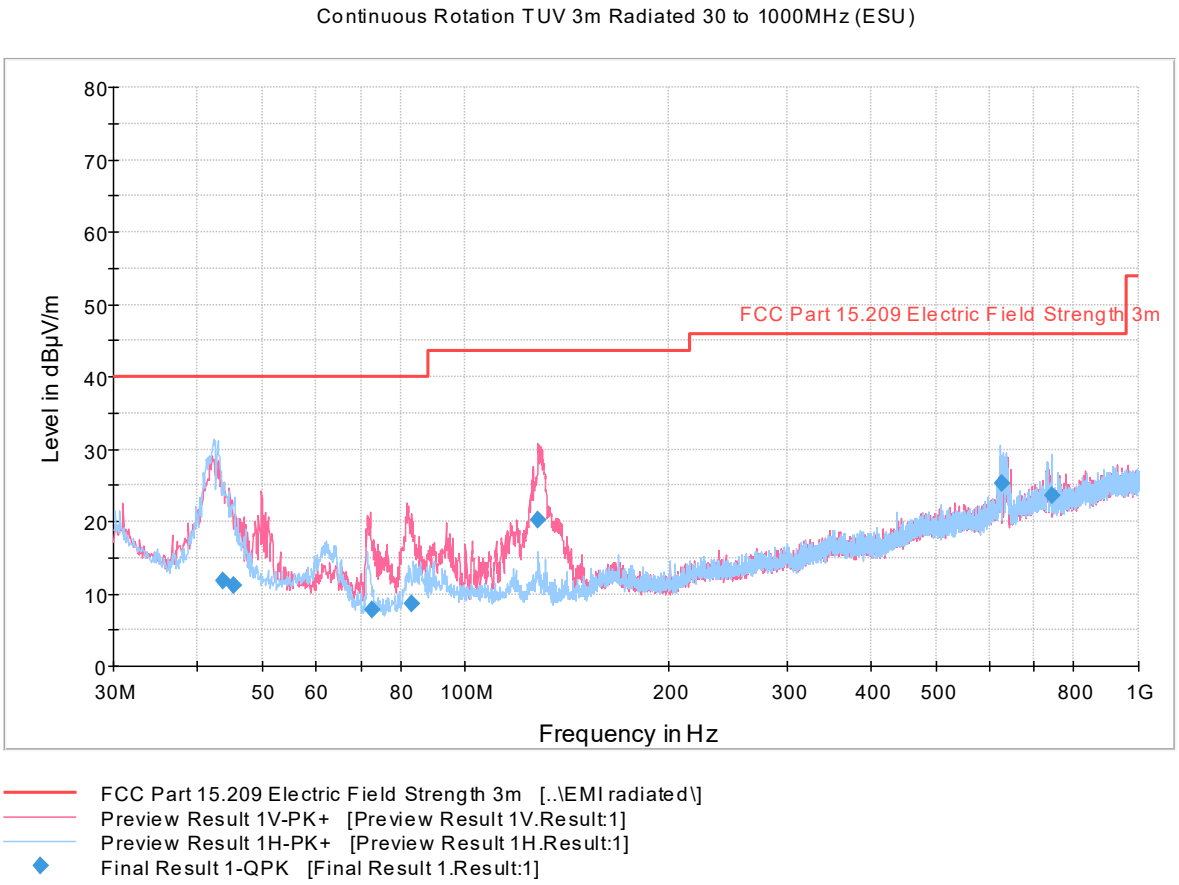
2.7.14 Test Results for 30MHz to 1GHz (Low Channel DM5300)



Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
43.011000	13.2	1000.0	120.000	100.0	V	18.0	-14.9	26.8	40.0
72.693000	7.7	1000.0	120.000	100.0	V	52.0	-18.1	32.3	40.0
126.00900	14.6	1000.0	120.000	100.0	V	295.0	-16.2	28.9	43.5
429.63500	13.9	1000.0	120.000	245.0	H	265.0	-5.7	32.1	46.0
629.19200	20.6	1000.0	120.000	400.0	H	109.0	-1.6	25.4	46.0
731.93300	24.5	1000.0	120.000	100.0	V	129.0	0.3	21.5	46.0

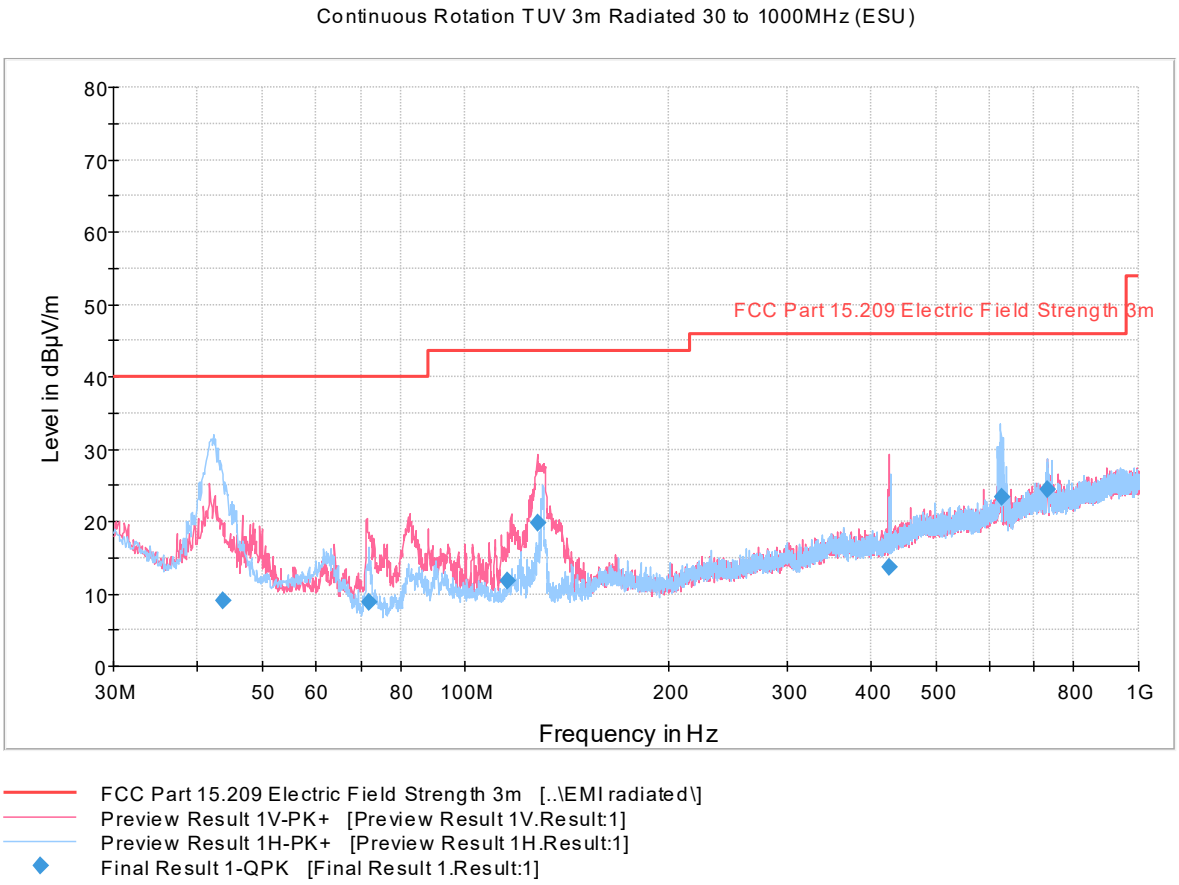
2.7.15 Test Results for 30MHz to 1GHz (Mid Channel DM5300)



Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
43.742000	11.7	1000.0	120.000	350.0	H	15.0	-15.2	28.3	40.0
45.308000	11.1	1000.0	120.000	100.0	V	10.0	-15.8	28.9	40.0
72.590000	7.8	1000.0	120.000	100.0	V	54.0	-18.1	32.2	40.0
83.118000	8.6	1000.0	120.000	105.0	V	53.0	-17.8	31.4	40.0
128.00400	20.2	1000.0	120.000	100.0	V	-12.0	-16.2	23.3	43.5
625.34200	25.4	1000.0	120.000	400.0	H	176.0	-1.4	20.6	46.0
743.62900	23.6	1000.0	120.000	197.0	H	354.0	0.5	22.4	46.0

2.7.16 Test Results for 30MHz to 1GHz (High Channel DM5300)

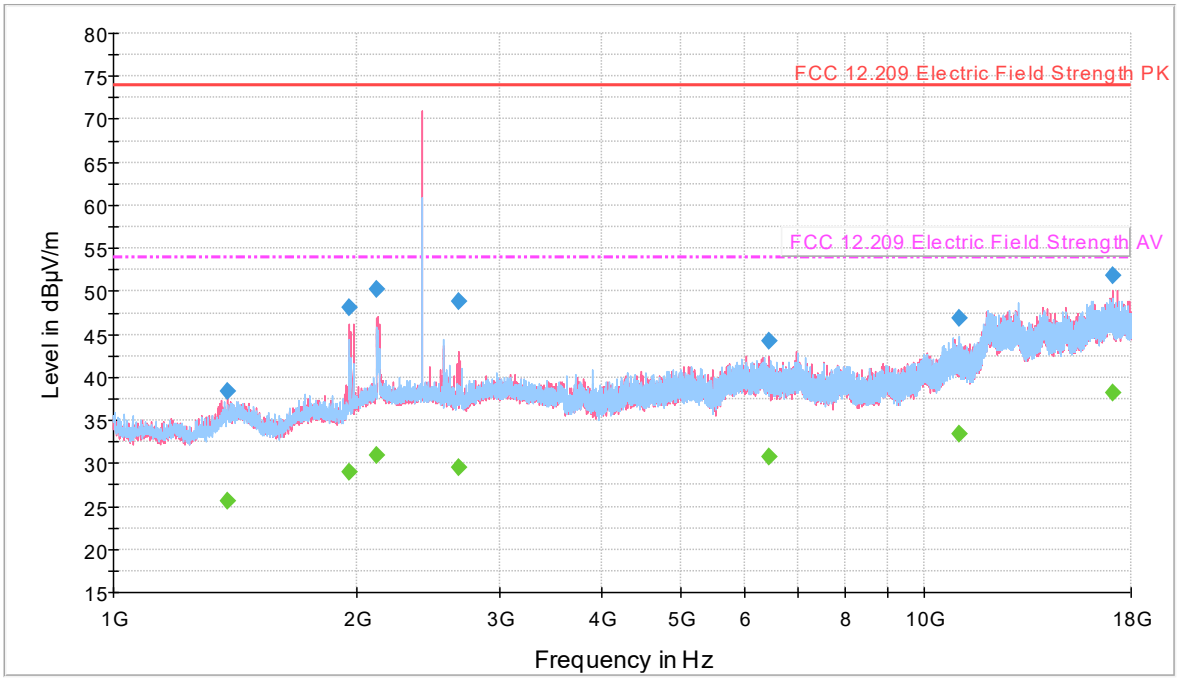


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
43.702000	9.2	1000.0	120.000	234.0	H	15.0	-15.2	30.8	40.0
71.722000	8.7	1000.0	120.000	100.0	V	47.0	-18.2	31.3	40.0
115.72900	11.7	1000.0	120.000	100.0	V	-8.0	-15.7	31.8	43.5
128.01600	19.9	1000.0	120.000	100.0	V	340.0	-16.2	23.6	43.5
426.24600	13.6	1000.0	120.000	345.0	V	242.0	-5.7	32.4	46.0
624.99900	23.3	1000.0	120.000	400.0	H	122.0	-1.3	22.7	46.0
731.87600	24.3	1000.0	120.000	100.0	V	-7.0	0.3	21.7	46.0

Product Service

2.7.17 Test Results for 1GHz to 18GHz (Low Channel DM5500)



FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI radiated\]
FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI radiated\]
Preview Result 1V-PK+ [Preview Result 1V.Result:2]
Preview Result 1H-PK+ [Preview Result 1H.Result:2]
Final Result 1-PK+ [Final Result 1.Result:1]
Final Result 2-AVG [Final Result 2.Result:1]

Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1380.60000	38.4	1000.	1000.000	177.6	V	-13.0	-6.1	35.5	73.9
1952.23333	48.1	1000.	1000.000	400.0	V	242.0	-3.3	25.8	73.9
2111.43333	50.3	1000.	1000.000	103.7	V	-6.0	-2.4	23.6	73.9
2667.93333	48.9	1000.	1000.000	252.3	V	-13.0	-1.1	25.0	73.9
6450.76666	44.2	1000.	1000.000	406.7	V	150.0	6.3	29.7	73.9
11064.7666	46.8	1000.	1000.000	178.6	H	36.0	11.8	27.1	73.9
17061.5666	51.9	1000.	1000.000	406.7	V	190.0	19.2	22.0	73.9

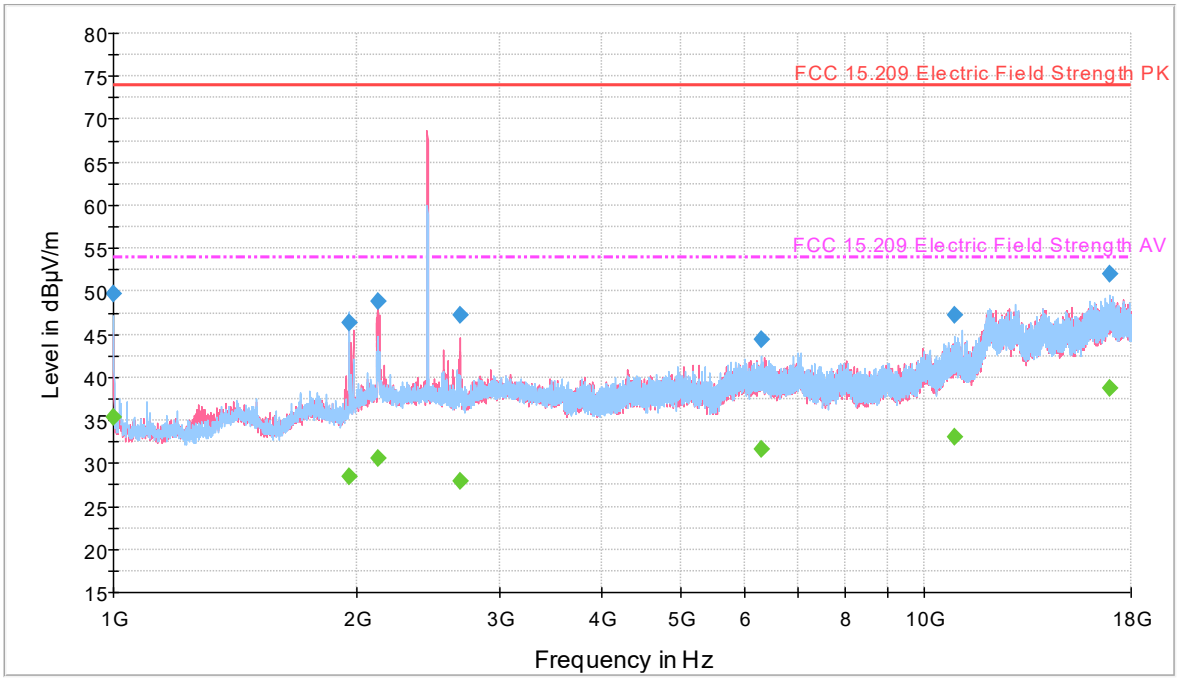
Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1380.60000	25.6	1000.	1000.000	177.6	V	-13.0	-6.1	28.3	53.9
1952.23333	28.9	1000.	1000.000	400.0	V	242.0	-3.3	25.0	53.9
2111.43333	30.9	1000.	1000.000	103.7	V	-6.0	-2.4	23.0	53.9
2667.93333	29.5	1000.	1000.000	252.3	V	-13.0	-1.1	24.4	53.9
6450.76666	30.7	1000.	1000.000	406.7	V	150.0	6.3	23.2	53.9
11064.7666	33.4	1000.	1000.000	178.6	H	36.0	11.8	20.5	53.9
17061.5666	38.3	1000.	1000.000	406.7	V	190.0	19.2	15.6	53.9

Test Notes: Fundamental verification is performed under Section 2.1 of this test report.

Product Service

2.7.18 Test Results for 1GHz to 18GHz (Mid Channel DM5500)



FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI Radiated\]
FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI Radiated\]
Preview Result 1V-PK+ [Preview Result 1V.Result:2]
Preview Result 1H-PK+ [Preview Result 1H.Result:2]
Final Result 1-PK+ [Final Result 1.Result:1]
Final Result 2-AVG [Final Result 2.Result:1]

Peak Data

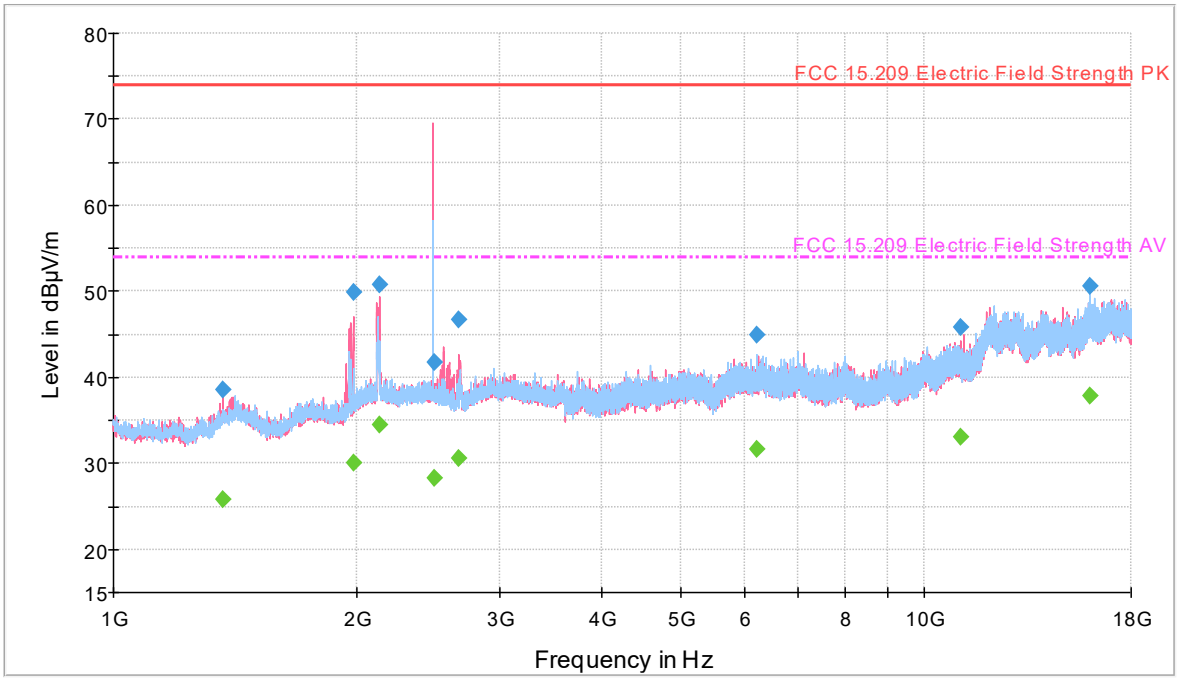
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1000.50000	49.6	1000.	1000.000	309.2	H	292.0	-8.0	24.3	73.9
1952.23333	46.3	1000.	1000.000	410.7	H	219.0	-3.3	27.6	73.9
2118.73333	48.8	1000.	1000.000	321.1	V	84.0	-2.4	25.1	73.9
2673.76666	47.2	1000.	1000.000	406.7	V	18.0	-1.1	26.7	73.9
6301.96666	44.5	1000.	1000.000	166.6	H	-1.0	6.2	29.4	73.9
10892.6666	47.3	1000.	1000.000	383.0	H	38.0	12.0	26.6	73.9
16956.7333	52.1	1000.	1000.000	152.2	H	90.0	18.9	21.8	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1000.00000	34.07	53.90	19.83	1000.0	1000.000	163.0	H	287.0	-6
1595.33333	26.81	53.90	27.09	1000.0	1000.000	175.0	H	22.0	-4
4804.06666	40.32	53.90	13.58	1000.0	1000.000	325.0	H	289.0	5
7206.26666	42.69	53.90	11.21	1000.0	1000.000	335.0	V	72.0	6
7206.66666	44.50	53.90	9.40	1000.0	1000.000	335.0	V	69.0	6
16796.0333	46.09	53.90	7.81	1000.0	1000.000	365.0	V	319.0	18
16812.8333	46.26	53.90	7.64	1000.0	1000.000	365.0	V	334.0	18

Test Notes: Fundamental verification is performed under Section 2.1 of this test report.

2.7.19 Test Results for 1GHz to 18GHz (High Channel DM5500)



FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI Radiated\]
FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI Radiated\]
Preview Result 1V-PK+ [Preview Result 1V.Result:2]
Preview Result 1H-PK+ [Preview Result 1H.Result:2]
Final Result 1-PK+ [Final Result 1.Result:1]
Final Result 2-AVG [Final Result 2.Result:1]

Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1363.80000	38.5	1000.	1000.000	238.4	V	20.0	-5.7	35.4	73.9
1976.23333	50.0	1000.	1000.000	186.5	V	-1.0	-2.9	23.9	73.9
2129.20000	50.7	1000.	1000.000	186.5	V	-20.0	-2.3	23.2	73.9
2483.50000	41.7	1000.	1000.000	208.5	V	20.0	-1.1	32.2	73.9
2667.70000	46.7	1000.	1000.000	151.2	V	-8.0	-1.0	27.2	73.9
6212.06666	44.9	1000.	1000.000	235.4	V	-8.0	6.0	29.0	73.9
11085.5000	45.8	1000.	1000.000	208.5	H	16.0	11.8	28.1	73.9
16046.9333	50.5	1000.	1000.000	182.6	H	-18.0	17.8	23.4	73.9

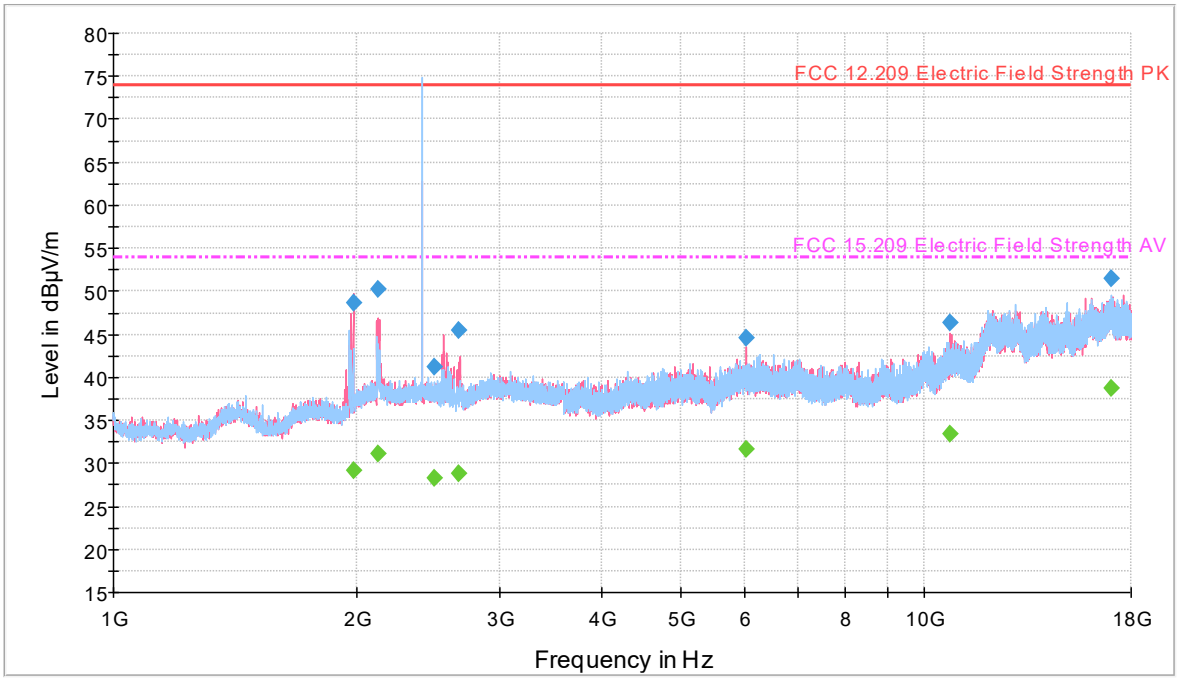
Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1363.80000	25.7	1000.	1000.000	238.4	V	20.0	-5.7	28.2	53.9
1976.23333	30.1	1000.	1000.000	186.5	V	-1.0	-2.9	23.8	53.9
2129.20000	34.6	1000.	1000.000	186.5	V	-20.0	-2.3	19.3	53.9
2483.50000	28.3	1000.	1000.000	208.5	V	20.0	-1.1	25.6	53.9
2667.70000	30.6	1000.	1000.000	151.2	V	-8.0	-1.0	23.3	53.9
6212.06666	31.6	1000.	1000.000	235.4	V	-8.0	6.0	22.3	53.9
11085.5000	33.1	1000.	1000.000	208.5	H	16.0	11.8	20.8	53.9
16046.9333	37.8	1000.	1000.000	182.6	H	-18.0	17.8	16.1	53.9

Test Notes: Fundamental verification is performed under Section 2.1 of this test report.

Product Service

2.7.20 Test Results for 1GHz to 18GHz (Low Channel DM5300)



FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI Radiated\]
FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI Radiated\]
Preview Result 1V-PK+ [Preview Result 1V.Result:2]
Preview Result 1H-PK+ [Preview Result 1H.Result:2]
Final Result 1-PK+ [Final Result 1.Result:1]
Final Result 2-AVG [Final Result 2.Result:1]

Peak Data

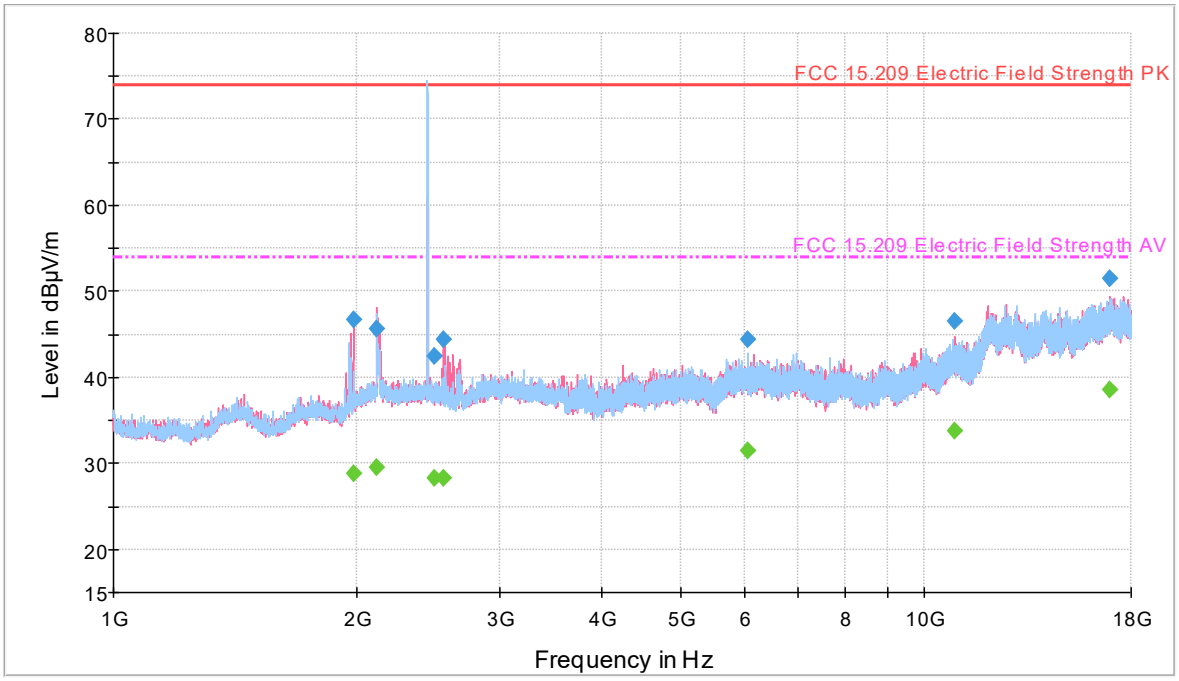
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1977.70000	48.6	1000.	1000.000	116.7	H	-1.0	-2.8	25.3	73.9
2119.60000	50.2	1000.	1000.000	147.7	V	20.0	-2.4	23.7	73.9
2483.50000	41.3	1000.	1000.000	175.3	V	16.0	-1.1	32.6	73.9
2672.03333	45.5	1000.	1000.000	175.3	V	16.0	-1.1	28.4	73.9
6033.26666	44.6	1000.	1000.000	163.6	H	10.0	5.6	29.3	73.9
10781.4333	46.3	1000.	1000.000	135.7	H	20.0	11.9	27.6	73.9
17010.0333	51.5	1000.	1000.000	120.7	H	-13.0	19.1	22.4	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1977.70000	29.2	1000.	1000.000	116.7	H	-1.0	-2.8	24.7	53.9
2119.60000	31.0	1000.	1000.000	147.7	V	20.0	-2.4	22.9	53.9
2483.50000	28.3	1000.	1000.000	175.3	V	16.0	-1.1	25.6	53.9
2672.03333	28.8	1000.	1000.000	175.3	V	16.0	-1.1	25.1	53.9
6033.26666	31.6	1000.	1000.000	163.6	H	10.0	5.6	22.3	53.9
10781.4333	33.5	1000.	1000.000	135.7	H	20.0	11.9	20.4	53.9
17010.0333	38.7	1000.	1000.000	120.7	H	-13.0	19.1	15.2	53.9

Test Notes: Fundamental verification is performed under Section 2.1 of this test report.

2.7.21 Test Results for 1GHz to 18GHz (Mid Channel DM5300)



FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI Radiated\]
FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI Radiated\]
Preview Result 1V-PK+ [Preview Result 1V.Result:2]
Preview Result 1H-PK+ [Preview Result 1H.Result:2]
Final Result 1-PK+ [Final Result 1.Result:1]
Final Result 2-AVG [Final Result 2.Result:1]

Peak Data

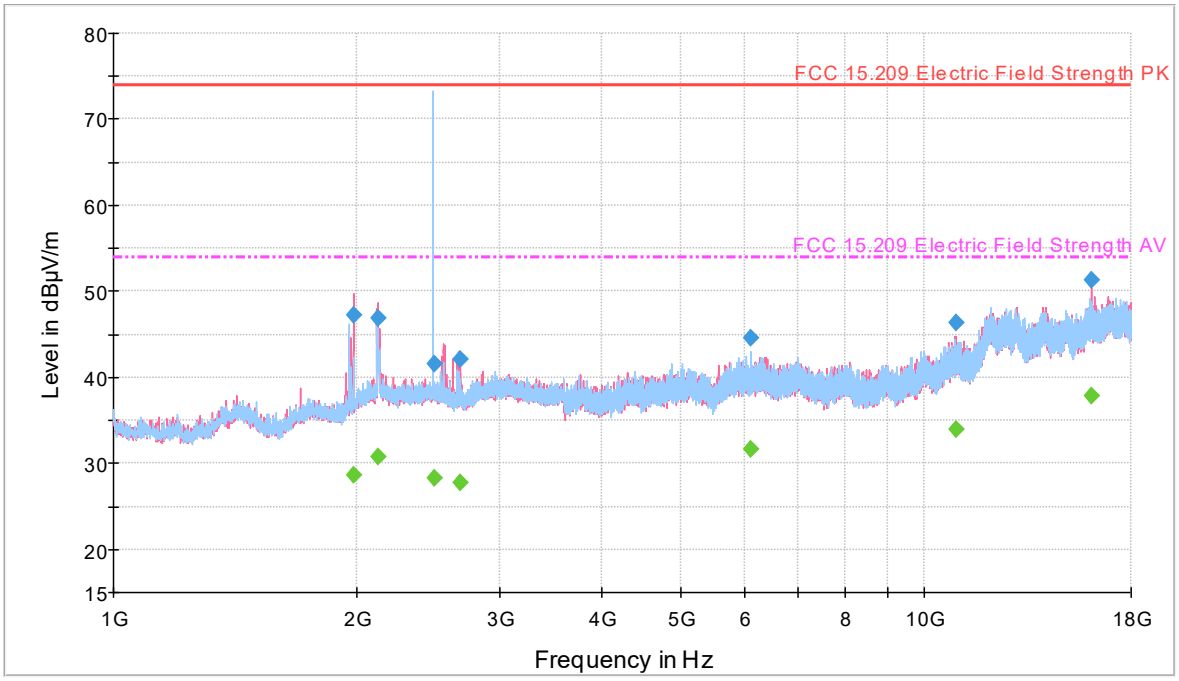
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1977.70000	46.7	1000.	1000.000	112.7	H	-13.0	-2.8	27.2	73.9
2113.33333	45.6	1000.	1000.000	175.3	H	-2.0	-2.4	28.3	73.9
2483.80000	42.4	1000.	1000.000	150.7	V	5.0	-1.1	31.5	73.9
2554.93333	44.3	1000.	1000.000	123.7	H	-2.0	-0.9	29.6	73.9
6055.76666	44.4	1000.	1000.000	123.7	V	-8.0	5.6	29.5	73.9
10928.2000	46.5	1000.	1000.000	139.7	V	-13.0	12.0	27.4	73.9
16966.2000	51.5	1000.	1000.000	143.7	V	20.0	18.9	22.4	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1977.70000	28.8	1000.	1000.000	112.7	H	-13.0	-2.8	25.1	53.9
2113.33333	29.4	1000.	1000.000	175.3	H	-2.0	-2.4	24.5	53.9
2483.80000	28.3	1000.	1000.000	150.7	V	5.0	-1.1	25.6	53.9
2554.93333	28.3	1000.	1000.000	123.7	H	-2.0	-0.9	25.6	53.9
6055.76666	31.4	1000.	1000.000	123.7	V	-8.0	5.6	22.5	53.9
10928.2000	33.8	1000.	1000.000	139.7	V	-13.0	12.0	20.1	53.9
16966.2000	38.5	1000.	1000.000	143.7	V	20.0	18.9	15.4	53.9

Test Notes: Fundamental verification is performed under Section 2.1 of this test report.

2.7.22 Test Results for 1GHz to 18GHz (High Channel DM5300)



FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI Radiated\]
FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI Radiated\]
Preview Result 1V-PK+ [Preview Result 1V.Result:2]
Preview Result 1H-PK+ [Preview Result 1H.Result:2]
Final Result 1-PK+ [Final Result 1.Result:1]
Final Result 2-AVG [Final Result 2.Result:1]

Peak Data

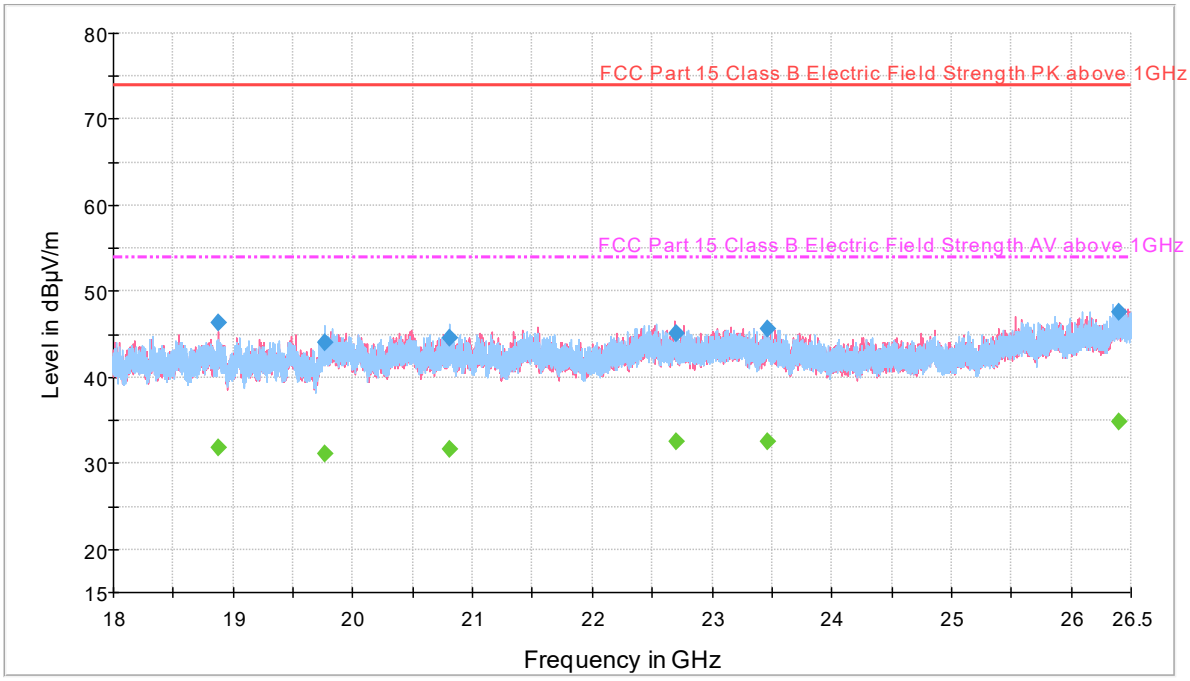
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1977.30000	47.3	1000.	1000.000	99.7	H	-18.0	-2.8	26.6	73.9
2116.90000	46.9	1000.	1000.000	158.6	V	15.0	-2.4	27.0	73.9
2483.50000	41.5	1000.	1000.000	116.7	V	20.0	-1.1	32.4	73.9
2672.66666	42.1	1000.	1000.000	127.7	V	-19.0	-1.1	31.8	73.9
6116.23333	44.6	1000.	1000.000	159.6	V	-13.0	5.7	29.3	73.9
10971.4333	46.4	1000.	1000.000	139.7	H	20.0	11.9	27.5	73.9
16058.8000	51.3	1000.	1000.000	176.3	H	20.0	17.8	22.6	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1977.30000	28.7	1000.	1000.000	99.7	H	-18.0	-2.8	25.2	53.9
2116.90000	30.8	1000.	1000.000	158.6	V	15.0	-2.4	23.1	53.9
2483.50000	28.3	1000.	1000.000	116.7	V	20.0	-1.1	25.6	53.9
2672.66666	27.8	1000.	1000.000	127.7	V	-19.0	-1.1	26.1	53.9
6116.23333	31.7	1000.	1000.000	159.6	V	-13.0	5.7	22.2	53.9
10971.4333	34.0	1000.	1000.000	139.7	H	20.0	11.9	19.9	53.9
16058.8000	37.9	1000.	1000.000	176.3	H	20.0	17.8	16.0	53.9

Test Notes: Fundamental verification is performed under Section 2.1 of this test report.

2.7.23 Test Results for 18GHz to 26GHz (Low Channel DM5500)



FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI radiated\]
FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI radiated\]
Preview Result 1V-PK+ [Preview Result 1V.Result:2]
Preview Result 1H-PK+ [Preview Result 1H.Result:2]
Final Result 1-PK+ [Final Result 1.Result:1]
Final Result 2-AVG [Final Result 2.Result:1]

Peak Data

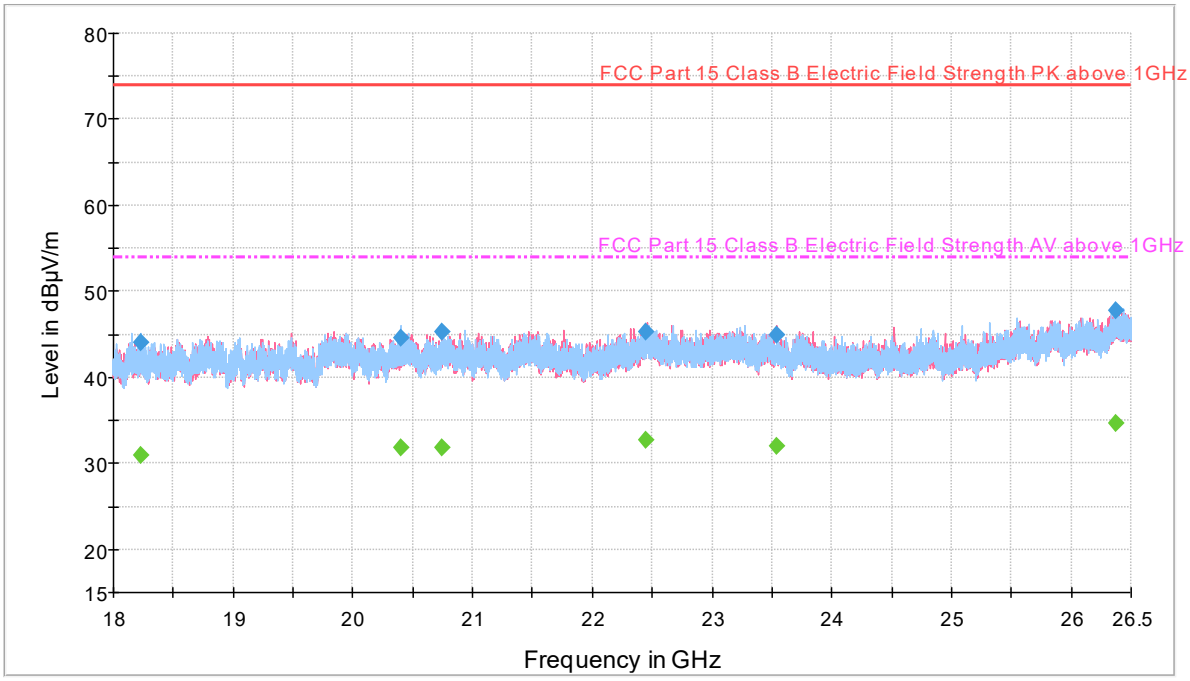
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18877.3500	46.3	1000.	1000.000	159.6	V	291.0	-2.6	27.6	73.9
19762.7000	44.0	1000.	1000.000	145.7	H	0.0	-2.4	29.9	73.9
20805.5666	44.6	1000.	1000.000	158.6	H	356.0	-1.2	29.3	73.9
22695.0666	45.2	1000.	1000.000	103.7	V	1.0	0.3	28.7	73.9
23459.0666	45.6	1000.	1000.000	110.7	V	96.0	-0.2	28.3	73.9
26398.4166	47.7	1000.	1000.000	116.0	H	-10.0	3.3	26.2	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18877.3500	31.8	1000.	1000.000	159.6	V	291.0	-2.6	22.1	53.9
19762.7000	31.1	1000.	1000.000	145.7	H	0.0	-2.4	22.8	53.9
20805.5666	31.7	1000.	1000.000	158.6	H	356.0	-1.2	22.2	53.9
22695.0666	32.4	1000.	1000.000	103.7	V	1.0	0.3	21.5	53.9
23459.0666	32.6	1000.	1000.000	110.7	V	96.0	-0.2	21.3	53.9
26398.4166	34.8	1000.	1000.000	116.0	H	-10.0	3.3	19.1	53.9

Product Service

2.7.24 Test Results for 18GHz to 26GHz (Mid Channel DM5500)



FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI radiated\]
FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI radiated\]
Preview Result 1V-PK+ [Preview Result 1V.Result:2]
Preview Result 1H-PK+ [Preview Result 1H.Result:2]
Final Result 1-PK+ [Final Result 1.Result:1]
Final Result 2-AVG [Final Result 2.Result:1]

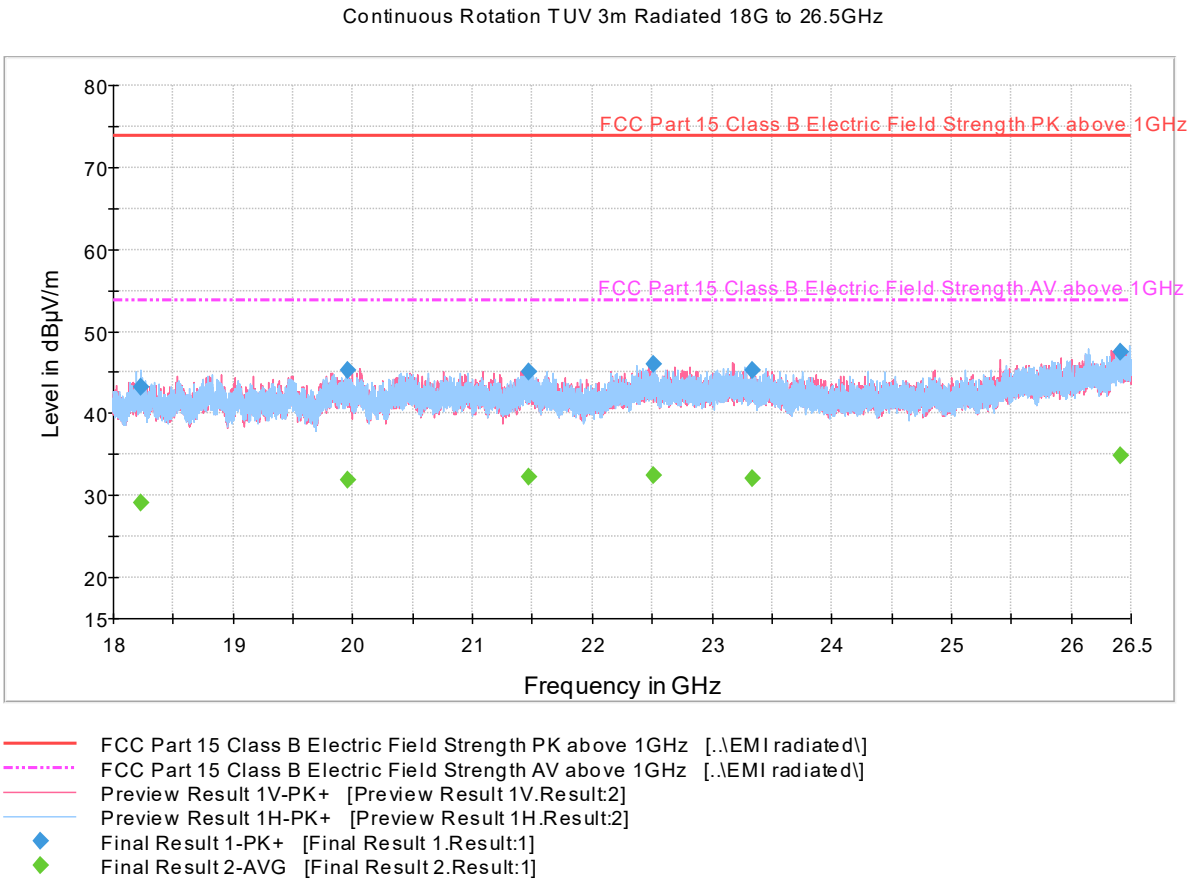
Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18230.7833	44.1	1000.	1000.000	165.0	H	171.0	-2.5	29.8	73.9
20401.2833	44.5	1000.	1000.000	108.7	H	338.0	-2.0	29.4	73.9
20748.4833	45.4	1000.	1000.000	152.6	V	-10.0	-1.5	28.5	73.9
22453.0000	45.2	1000.	1000.000	107.7	V	139.0	0.0	28.7	73.9
23535.8500	44.9	1000.	1000.000	160.6	V	77.0	-0.2	29.0	73.9
26367.8000	47.8	1000.	1000.000	138.7	H	156.0	3.1	26.1	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18230.7833	30.9	1000.	1000.000	165.0	H	171.0	-2.5	23.0	53.9
20401.2833	31.8	1000.	1000.000	108.7	H	338.0	-2.0	22.1	53.9
20748.4833	31.8	1000.	1000.000	152.6	V	-10.0	-1.5	22.1	53.9
22453.0000	32.7	1000.	1000.000	107.7	V	139.0	0.0	21.2	53.9
23535.8500	32.1	1000.	1000.000	160.6	V	77.0	-0.2	21.8	53.9
26367.8000	34.7	1000.	1000.000	138.7	H	156.0	3.1	19.2	53.9

2.7.25 Test Results for 18GHz to 26GHz (High Channel DM5500)



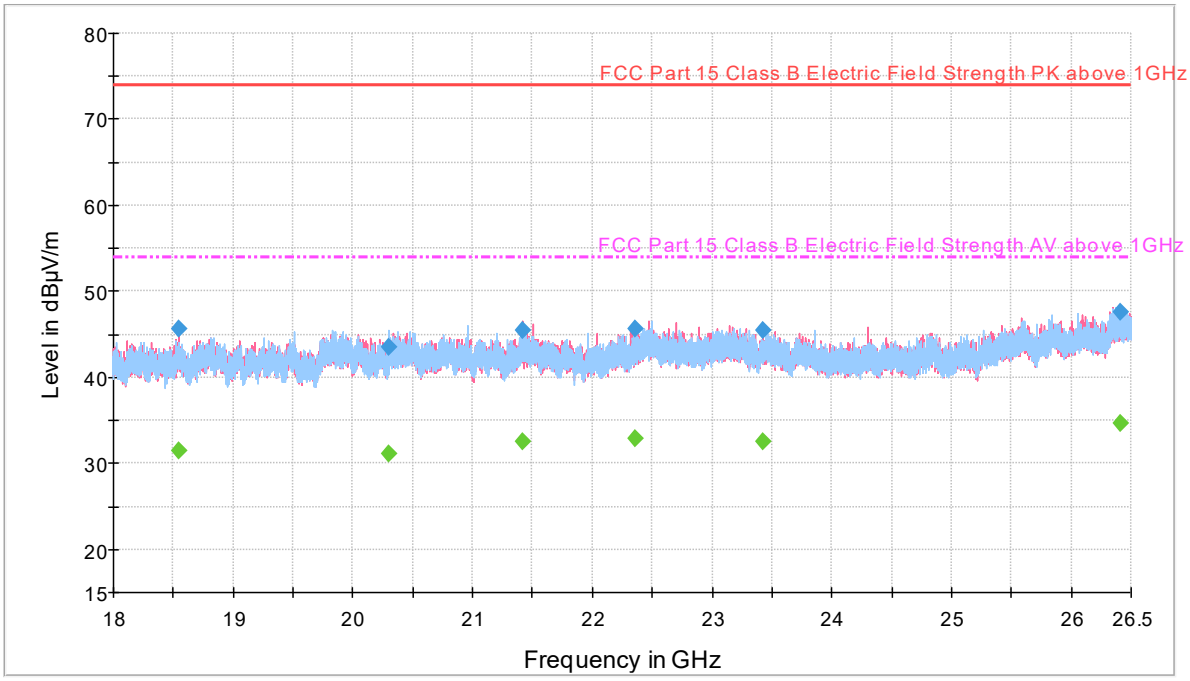
Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18225.3333	43.1	1000.	1000.000	145.0	H	162.0	-2.5	30.8	73.9
19955.7166	45.3	1000.	1000.000	138.4	H	169.0	-2.4	28.6	73.9
21463.2166	45.2	1000.	1000.000	119.5	H	284.0	-0.9	28.7	73.9
22510.5166	45.9	1000.	1000.000	128.4	H	223.0	0.1	28.0	73.9
23337.9666	45.2	1000.	1000.000	129.4	H	10.0	0.1	28.7	73.9
26405.4833	47.4	1000.	1000.000	131.4	V	93.0	3.3	26.5	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18225.3333	29.1	1000.	1000.000	145.0	H	162.0	-2.5	24.8	53.9
19955.7166	32.0	1000.	1000.000	138.4	H	169.0	-2.4	21.9	53.9
21463.2166	32.2	1000.	1000.000	119.5	H	284.0	-0.9	21.7	53.9
22510.5166	32.5	1000.	1000.000	128.4	H	223.0	0.1	21.4	53.9
23337.9666	32.0	1000.	1000.000	129.4	H	10.0	0.1	21.9	53.9
26405.4833	34.9	1000.	1000.000	131.4	V	93.0	3.3	19.0	53.9

2.7.26 Test Results for 18GHz to 26GHz (Low Channel DM5300)



FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI radiated\]
FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI radiated\]
Preview Result 1V-PK+ [Preview Result 1V.Result:2]
Preview Result 1H-PK+ [Preview Result 1H.Result:2]
Final Result 1-PK+ [Final Result 1.Result:1]
Final Result 2-AVG [Final Result 2.Result:1]

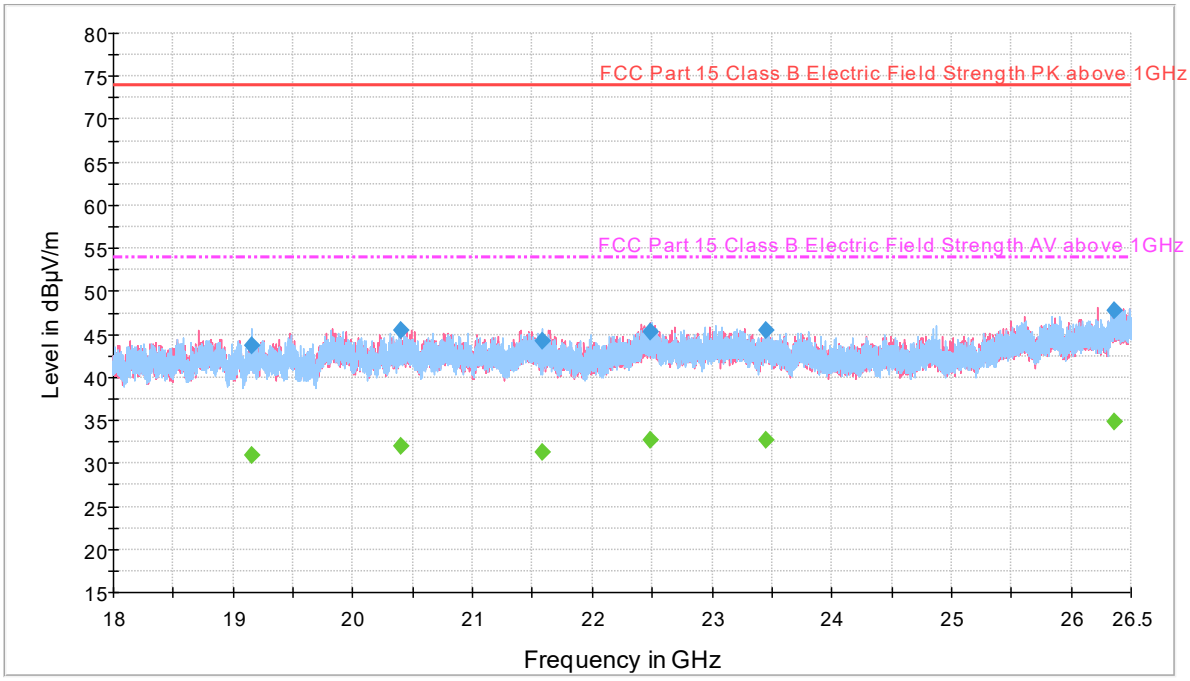
Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18541.0833	45.6	1000.	1000.000	165.0	V	-10.0	-2.3	28.3	73.9
20303.8666	43.6	1000.	1000.000	101.7	H	350.0	-2.2	30.3	73.9
21423.2000	45.4	1000.	1000.000	104.7	V	305.0	-1.0	28.5	73.9
22359.3166	45.7	1000.	1000.000	155.6	H	146.0	-0.4	28.2	73.9
23421.6666	45.5	1000.	1000.000	148.7	V	0.0	-0.3	28.4	73.9
26410.7166	47.6	1000.	1000.000	103.7	H	264.0	3.3	26.3	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18541.0833	31.5	1000.	1000.000	165.0	V	-10.0	-2.3	22.4	53.9
20303.8666	31.0	1000.	1000.000	101.7	H	350.0	-2.2	22.9	53.9
21423.2000	32.5	1000.	1000.000	104.7	V	305.0	-1.0	21.4	53.9
22359.3166	32.8	1000.	1000.000	155.6	H	146.0	-0.4	21.1	53.9
23421.6666	32.6	1000.	1000.000	148.7	V	0.0	-0.3	21.3	53.9
26410.7166	34.7	1000.	1000.000	103.7	H	264.0	3.3	19.2	53.9

2.7.27 Test Results for 18GHz to 26GHz (Mid Channel DM5300)



FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI radiated\]
FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI radiated\]
Preview Result 1V-PK+ [Preview Result 1V.Result:2]
Preview Result 1H-PK+ [Preview Result 1H.Result:2]
Final Result 1-PK+ [Final Result 1.Result:1]
Final Result 2-AVG [Final Result 2.Result:1]

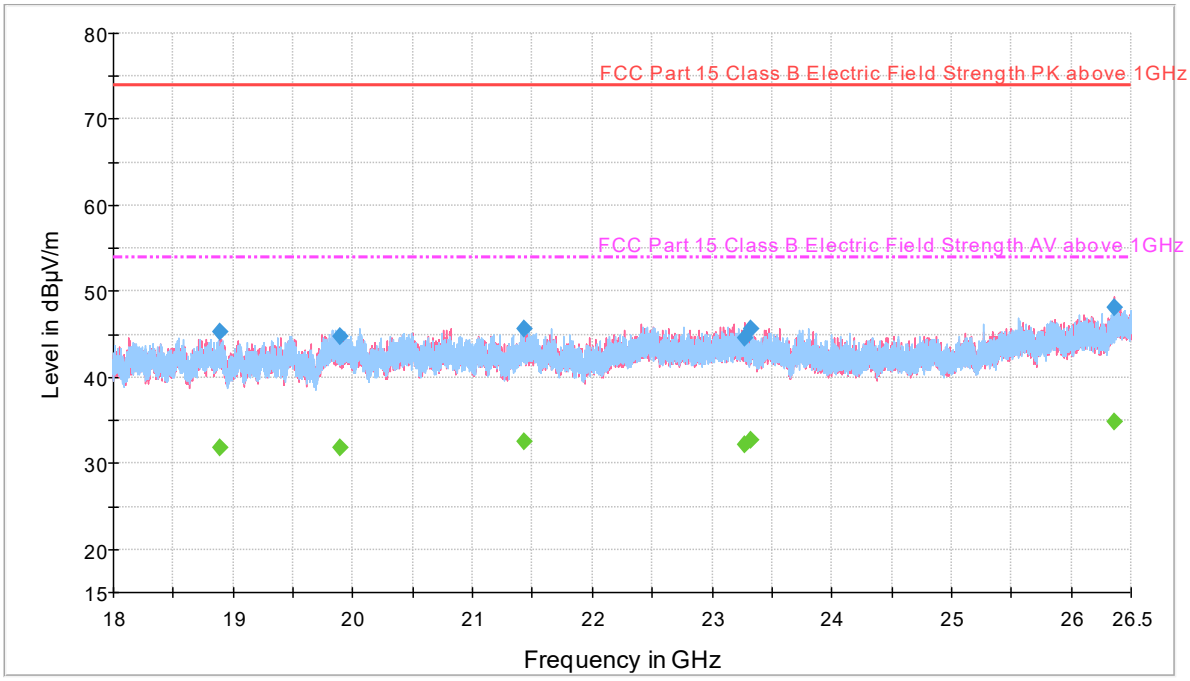
Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
19158.8666	43.6	1000.	1000.000	117.0	H	354.0	-2.9	30.3	73.9
20398.6666	45.4	1000.	1000.000	117.0	V	10.0	-2.0	28.5	73.9
21588.5000	44.3	1000.	1000.000	102.7	H	10.0	-0.7	29.6	73.9
22480.7666	45.3	1000.	1000.000	160.6	V	228.0	0.1	28.6	73.9
23450.0500	45.6	1000.	1000.000	159.6	H	169.0	-0.2	28.4	73.9
26357.5166	47.7	1000.	1000.000	144.7	H	268.0	3.1	26.2	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
19158.8666	30.9	1000.	1000.000	117.0	H	354.0	-2.9	23.0	53.9
20398.6666	32.0	1000.	1000.000	117.0	V	10.0	-2.0	21.9	53.9
21588.5000	31.3	1000.	1000.000	102.7	H	10.0	-0.7	22.6	53.9
22480.7666	32.6	1000.	1000.000	160.6	V	228.0	0.1	21.3	53.9
23450.0500	32.7	1000.	1000.000	159.6	H	169.0	-0.2	21.2	53.9
26357.5166	34.9	1000.	1000.000	144.7	H	268.0	3.1	19.0	53.9

2.7.28 Test Results for 18GHz to 26GHz (High Channel DM5300)



FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI radiated\]
FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI radiated\]
Preview Result 1V-PK+ [Preview Result 1V.Result:2]
Preview Result 1H-PK+ [Preview Result 1H.Result:2]
Final Result 1-PK+ [Final Result 1.Result:1]
Final Result 2-AVG [Final Result 2.Result:1]

Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18888.0833	45.3	1000.	1000.000	105.7	V	10.0	-2.6	28.6	73.9
19896.2166	44.7	1000.	1000.000	101.7	H	-4.0	-2.2	29.2	73.9
21426.7500	45.6	1000.	1000.000	111.7	H	24.0	-1.0	28.3	73.9
23272.9500	44.6	1000.	1000.000	116.7	V	220.0	0.5	29.3	73.9
23328.3666	45.6	1000.	1000.000	153.7	H	337.0	0.2	28.3	73.9
26357.4833	48.1	1000.	1000.000	165.0	V	99.0	3.1	25.8	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18888.0833	31.8	1000.	1000.000	105.7	V	10.0	-2.6	22.1	53.9
19896.2166	31.8	1000.	1000.000	101.7	H	-4.0	-2.2	22.1	53.9
21426.7500	32.5	1000.	1000.000	111.7	H	24.0	-1.0	21.4	53.9
23272.9500	32.1	1000.	1000.000	116.7	V	220.0	0.5	21.8	53.9
23328.3666	32.8	1000.	1000.000	153.7	H	337.0	0.2	21.1	53.9
26357.4833	34.9	1000.	1000.000	165.0	V	99.0	3.1	19.0	53.9

2.8 Power Spectral Density

2.8.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(e)
RSS-247, Clause 5.2(b)

2.8.2 Standard Applicable

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. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

2.8.3 Equipment Under Test and Modification State

Serial No: 511002708 and 511002885 / Default Test Configuration

2.8.4 Date of Test/Initial of test personnel who performed the test

October 11, 2022 / FSC

2.8.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.8.6 Environmental Conditions (Rancho Bernardo Satellite Facility)

Ambient Temperature	25.4°C
Relative Humidity	55.0%
ATM Pressure	99.5kPa

2.8.7 Additional Observations

- This is a conducted test using direct connection to the TS8997 Test System.
- The path loss was all accounted for with the test system calibration.
- Test methodology is per FCC title 47 part 15 §15.247(a),(e), KDB 558074 D01 DTS Meas Guidance v05 F and ANSI C63.10-2013.

2.8.8 Test Results Summary

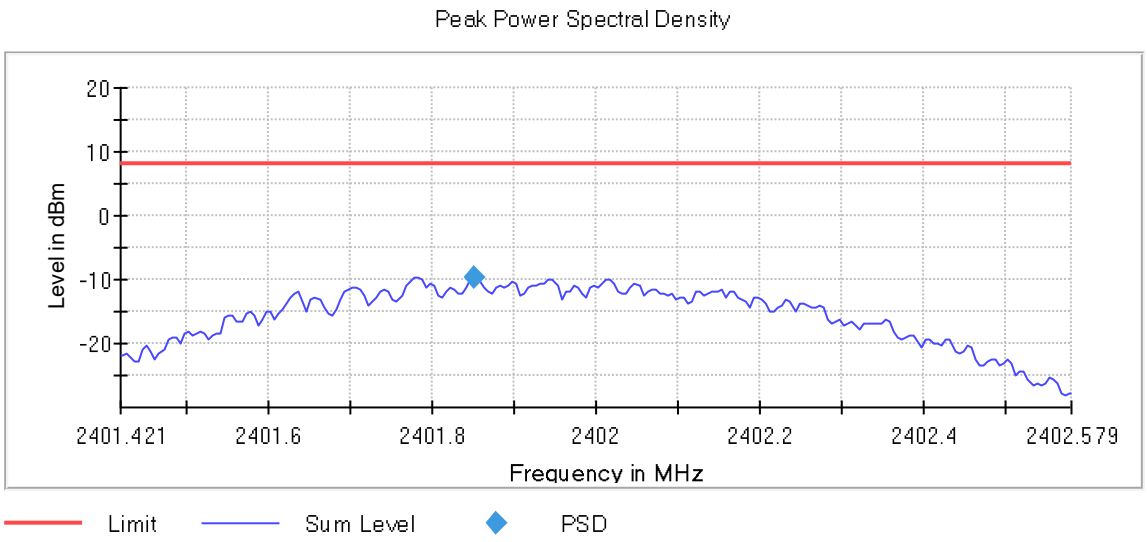
DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	2401.852701	-9.625	8.0	PASS
2440.000000	2439.777804	-9.083	8.0	PASS
2480.000000	2479.847741	-9.344	8.0	PASS

2.8.9 Sample Measurement Settings

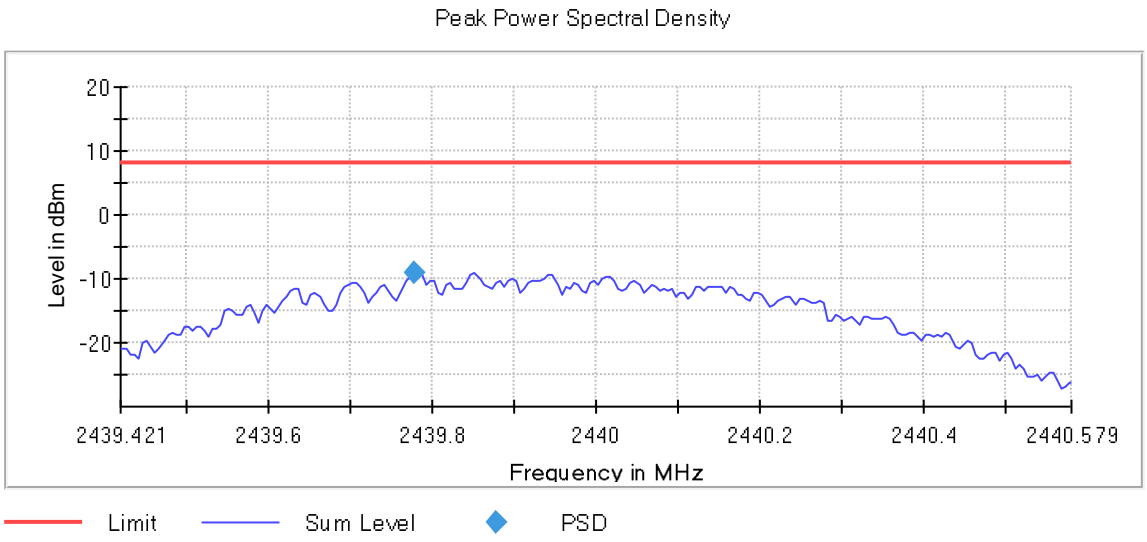
Setting	Instrument Value	Target Value
Span	1.158 MHz	1.158 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	232	~ 232
Sweeptime	1.160 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	3 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.34 dB	0.50 dB

Product Service

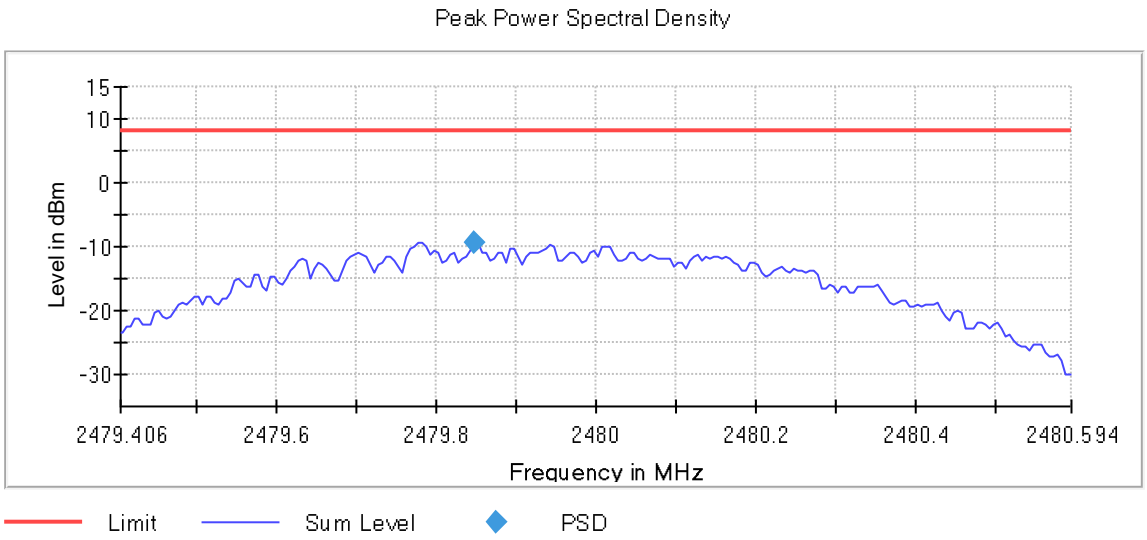
2.8.10 Test Plots



Bluetooth LE Low Channel



Bluetooth LE Mid Channel



Bluetooth LE High Channel

3 Test Equipment Used

3.1 List of absolute measuring and other principal items of test equipment.

List of absolute measuring and other principal items of test equipment.

ID Number (SDGE/SDRB)	Test Equipment	Type	Serial Number	Manufacturer	Cal Date	Cal Due Date
Conducted Port Setup						
7643	Signal/Spectrum Analyzer	FSV30	1321.3008K30/103166	Rhode & Schwarz	09/02/21	12/02/22
7655	Vector Signal Generator	SMBV100A	260734	Rhode & Schwarz	09/02/21	12/02/22
7654	Signal Generator	SMB 100A	175750	Rhode & Schwarz	09/02/21	12/02/22
7656	OSP with B157	OSP120	101310	Rhode & Schwarz	09/02/21	12/02/22
8825	20dB Attenuator	46-20-34	BK5773	Weinschel Corp.	Verified by 7643 and 7654	
Radiated Emission						
1033	BiConiLog Antenna	3142C	00044556	ETS Lindgren	10/05/21	10/05/23
51235	RF Pre-Amp (9kHz to 1GHz)	310	412802	Sonoma	08/26/21	08/26/23
7575	1-18GHz DRG Horn	3117	155511	ETS Lindgren	08/08/21	08/08/24
8628	Pre Amplifier	QLJ-01182835-JO	8986002	Quinstar	05/29/22	05/29/23
1049	EMI Test Receiver	ESU40	100133	Rhone & Schwarz	09/21/22	09/21/23
40815	18GHz to 40GHz Low Noise Amplifier	SLKKa-30-6	19D18	Spacek Labs	08/21/22	08/21/23
9001	18-26 GHz Antenna	HO42S	101	Custom Microwave, Inc	09/23/21	09/23/23
9002	26-40 GHz Antenna	HO28S	102	Custom Microwave, Inc	09/23/21	09/23/23
Miscellaneous						
7619	Barometer/ Temperature/Humidity	iBTHX-W	15250268	Omega	05/27/22	05/27/23
43003	True RMS Multimeter	85 III	69880143	Fluke	11/19/21	11/19/22
6672	D.C. Power Supply	E3611A	KR73012637	Hewlett Packard	Verified by 43003	
	Test Software	EMC32	V10.50.40	Rhode & Schwarz	N/A	

3.2 Measurement Uncertainty

Calculation of Measurement Uncertainty per CISPR 16-4-2:2011 with Corr. 1

3.2.1 Radiated Measurements (9kHz to 30MHz)

	Input Quantity (Contribution) X_i	Value		Prob. Dist.	Divisor	$u_i(x)$	$u_i(x)^2$
1	Receiver reading	0.10	dB	Normal, k=1	1.000	0.10	0.01
2	Attenuation: antenna-receiver	0.20	dB	Normal, k=2	2.000	0.10	0.01
3	Antenna factor AF	0.44	dB	Normal, k=2	2.000	0.22	0.05
4	Receiver sinewave accuracy	0.15	dB	Normal, k=2	2.000	0.08	0.01
5	Receiver pulse amplitude	1.50	dB	Rectangular	1.732	0.87	0.75
6	Receiver pulse repetition rate	1.50	dB	Rectangular	1.732	0.87	0.75
7	Noise floor proximity	0.50	dB	Rectangular	1.732	0.29	0.08
8	Mismatch: antenna-receiver	0.95	dB	U-shaped	1.414	0.67	0.45
9	AF frequency interpolation	0.30	dB	Rectangular	1.732	0.17	0.03
10	AF height deviations	0.10	dB	Rectangular	1.732	0.06	0.00
11	Directivity difference at 3 m	3.12	dB	Rectangular	1.732	1.80	3.24
12	Phase center location at 3 m	1.00	dB	Rectangular	1.732	0.58	0.33
13	Cross-polarization	0.90	dB	Rectangular	1.732	0.52	0.27
14	Balance	0.00	dB	Rectangular	1.732	0.00	0.00
15	Site imperfections	0.00	dB	Triangular	2.449	0.00	0.00
16	Separation distance at 3 m	0.30	dB	Rectangular	1.732	0.17	0.03
17	Effect of setup table material	0.00	dB	Rectangular	1.732	0.00	0.00
18	Table height at 3 m	0.10	dB	Normal, k=2	2.000	0.05	0.00
19	Near-field effects	0.00	dB	Triangular	2.449	0.00	0.00
20	Effect of ambient noise on OATS	0.00	dB				0.00
	Combined standard uncertainty			Normal	2.45	dB	
	Expanded uncertainty			Normal, k=2	**4.91**	**dB**	

3.2.2 Radiated Measurements (30MHz to 1GHz)

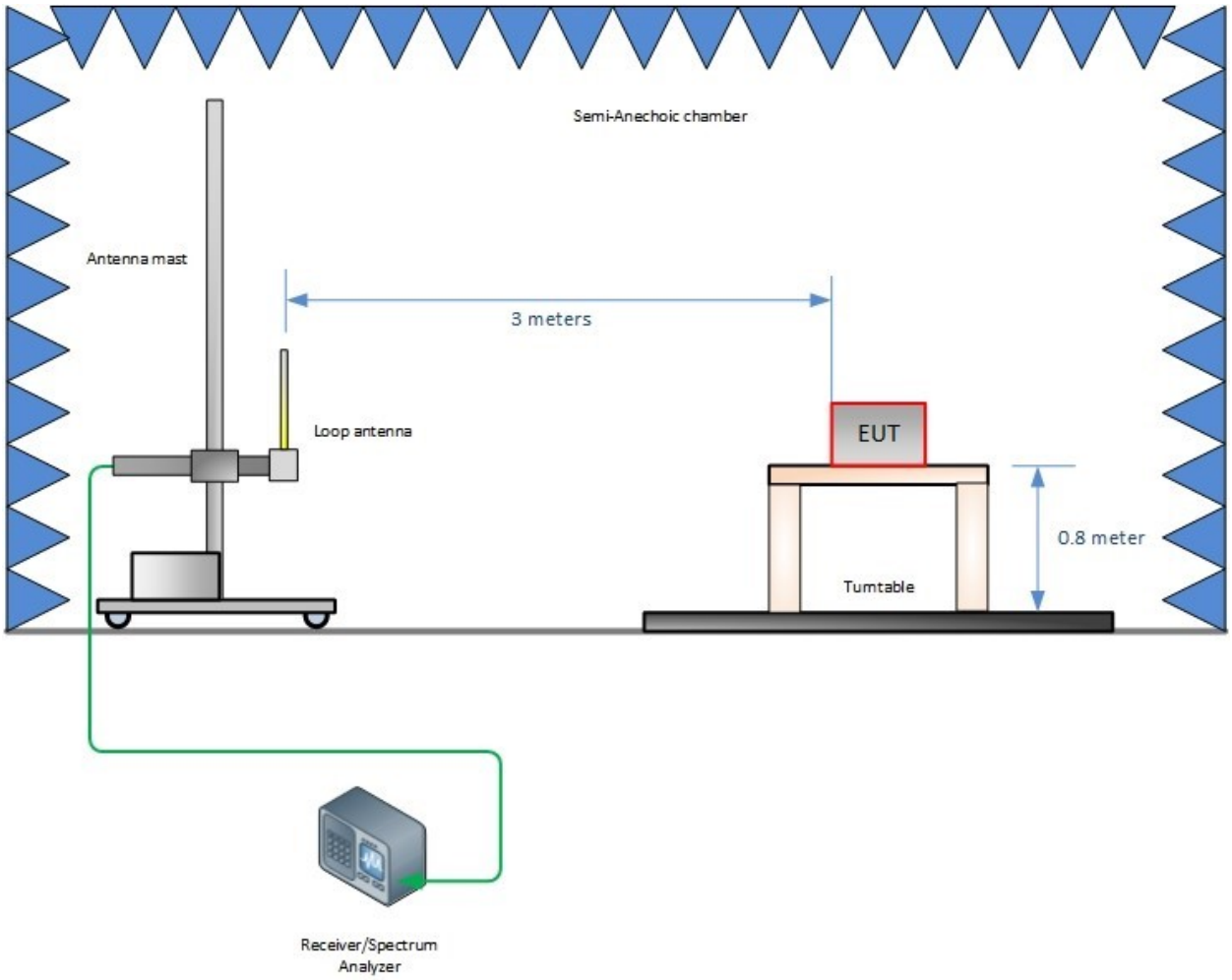
	Input Quantity (Contribution) X_i	Value		Prob. Dist.	Divisor	$u_i(x)$	$u_i(x)^2$
1	Receiver reading	0.10	dB	Normal, k=1	1.000	0.10	0.01
2	Attenuation: antenna-receiver	0.20	dB	Normal, k=2	2.000	0.10	0.01
3	Antenna factor AF	0.58	dB	Normal, k=2	2.000	0.29	0.08
4	Receiver sinewave accuracy	0.15	dB	Normal, k=2	2.000	0.08	0.01
5	Receiver pulse amplitude	1.50	dB	Rectangular	1.732	0.87	0.75
6	Receiver pulse repetition rate	1.50	dB	Rectangular	1.732	0.87	0.75
7	Noise floor proximity	0.50	dB	Rectangular	1.732	0.29	0.08
8	Mismatch: antenna-receiver	0.95	dB	U-shaped	1.414	0.67	0.45
9	AF frequency interpolation	0.30	dB	Rectangular	1.732	0.17	0.03

10	AF height deviations	0.10	dB	Rectangular	1.732	0.06	0.00
11	Directivity difference at 3 m	3.12	dB	Rectangular	1.732	1.80	3.24
12	Phase center location at 3 m	1.00	dB	Rectangular	1.732	0.58	0.33
13	Cross-polarization	0.90	dB	Rectangular	1.732	0.52	0.27
14	Balance	0.00	dB	Rectangular	1.732	0.00	0.00
15	Site imperfections	3.99	dB	Triangular	2.449	1.63	2.65
16	Separation distance at 3 m	0.30	dB	Rectangular	1.732	0.17	0.03
17	Effect of setup table material	0.57	dB	Rectangular	1.732	0.33	0.11
18	Table height at 3 m	0.10	dB	Normal, k=2	2.000	0.05	0.00
19	Near-field effects	0.00	dB	Triangular	2.449	0.00	0.00
20	Effect of ambient noise on OATS	0.00	dB				0.00
	Combined standard uncertainty			Normal	2.97	dB	
	Expanded uncertainty			Normal, k=2	**5.94**	**dB**	

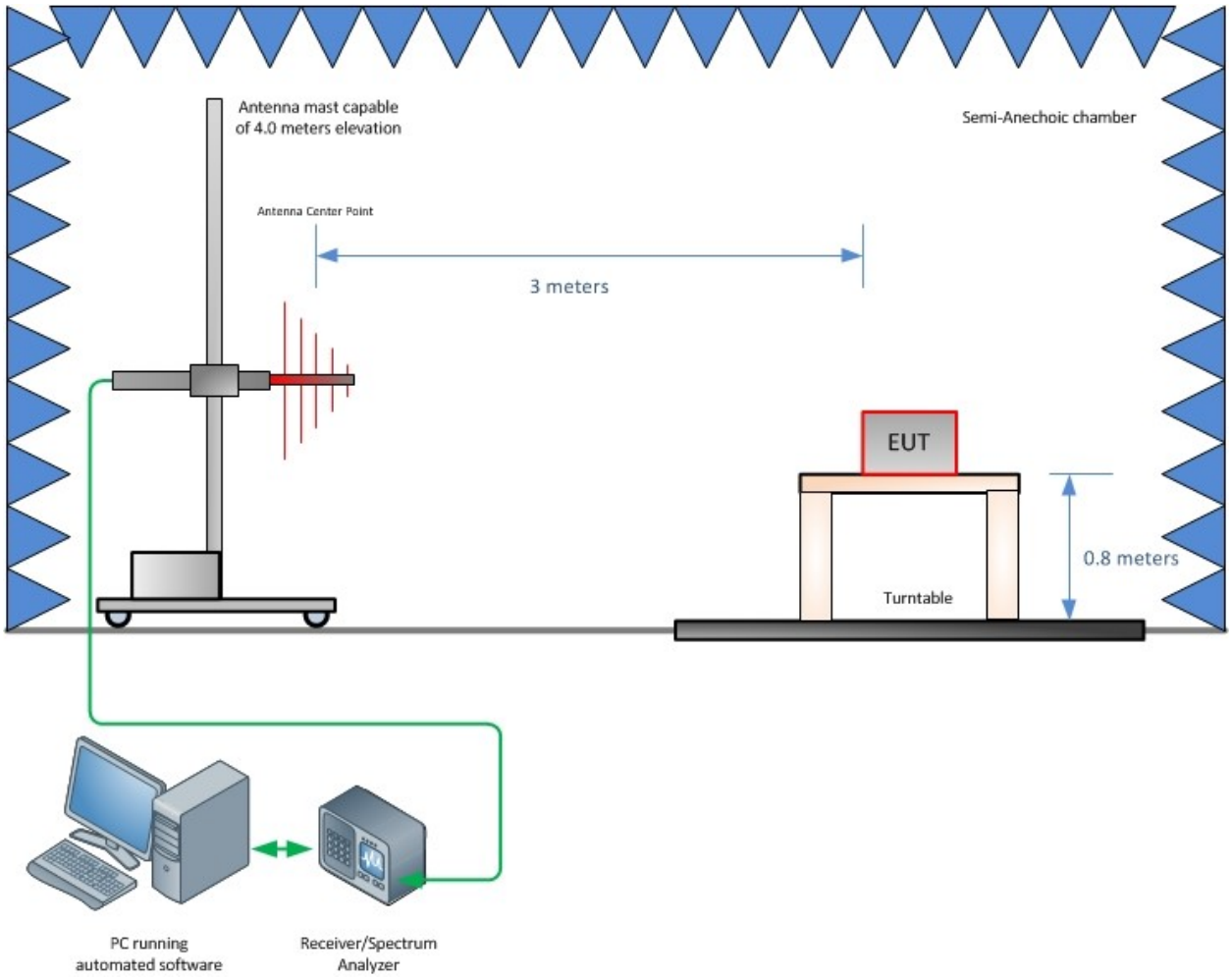
3.2.3 Radiated Emission Measurements (1GHz to 18GHz)

	Input Quantity (Contribution) X_i	Value		Prob. Dist.	Divisor	$u_i(x)$	$u_i(x)^2$
1	Receiver reading	0.10	dB	Normal, k=1	1.000	0.10	0.01
2	Attenuation: antenna-receiver	0.20	dB	Normal, k=2	2.000	0.10	0.01
3	Antenna factor AF	0.75	dB	Normal, k=2	2.000	0.38	0.14
4	Receiver sinewave accuracy	0.45	dB	Normal, k=2	2.000	0.23	0.05
5	Receiver pulse amplitude	1.50	dB	Rectangular	1.732	0.87	0.75
6	Receiver pulse repetition rate	1.50	dB	Rectangular	1.732	0.87	0.75
7	Noise floor proximity	0.50	dB	Rectangular	1.732	0.29	0.08
8	Mismatch: antenna-receiver	0.95	dB	U-shaped	1.414	0.67	0.45
9	AF frequency interpolation	0.30	dB	Rectangular	1.732	0.17	0.03
10	AF height deviations	0.10	dB	Rectangular	1.732	0.06	0.00
11	Directivity difference at 3 m	3.12	dB	Rectangular	1.732	1.80	3.24
12	Phase center location at 3 m	1.00	dB	Rectangular	1.732	0.58	0.33
13	Cross-polarisation	0.90	dB	Rectangular	1.732	0.52	0.27
14	Balance	0.00	dB	Rectangular	1.732	0.00	0.00
15	Site imperfections	3.25	dB	Triangular	2.449	1.33	1.76
16	Separation distance at 3 m	0.30	dB	Rectangular	1.732	0.17	0.03
17	Effect of setup table material	0.77	dB	Rectangular	1.732	0.44	0.20
18	Table height at 3 m	0.10	dB	Normal, k=2	2.000	0.05	0.00
19	Near-field effects	0.00	dB	Triangular	2.449	0.00	0.00
20	Effect of ambient noise on OATS	0.00	dB				0.00
	Combined standard uncertainty			Normal	2.85	dB	
	Expanded uncertainty			Normal, k=2	**5.70**	**dB**	

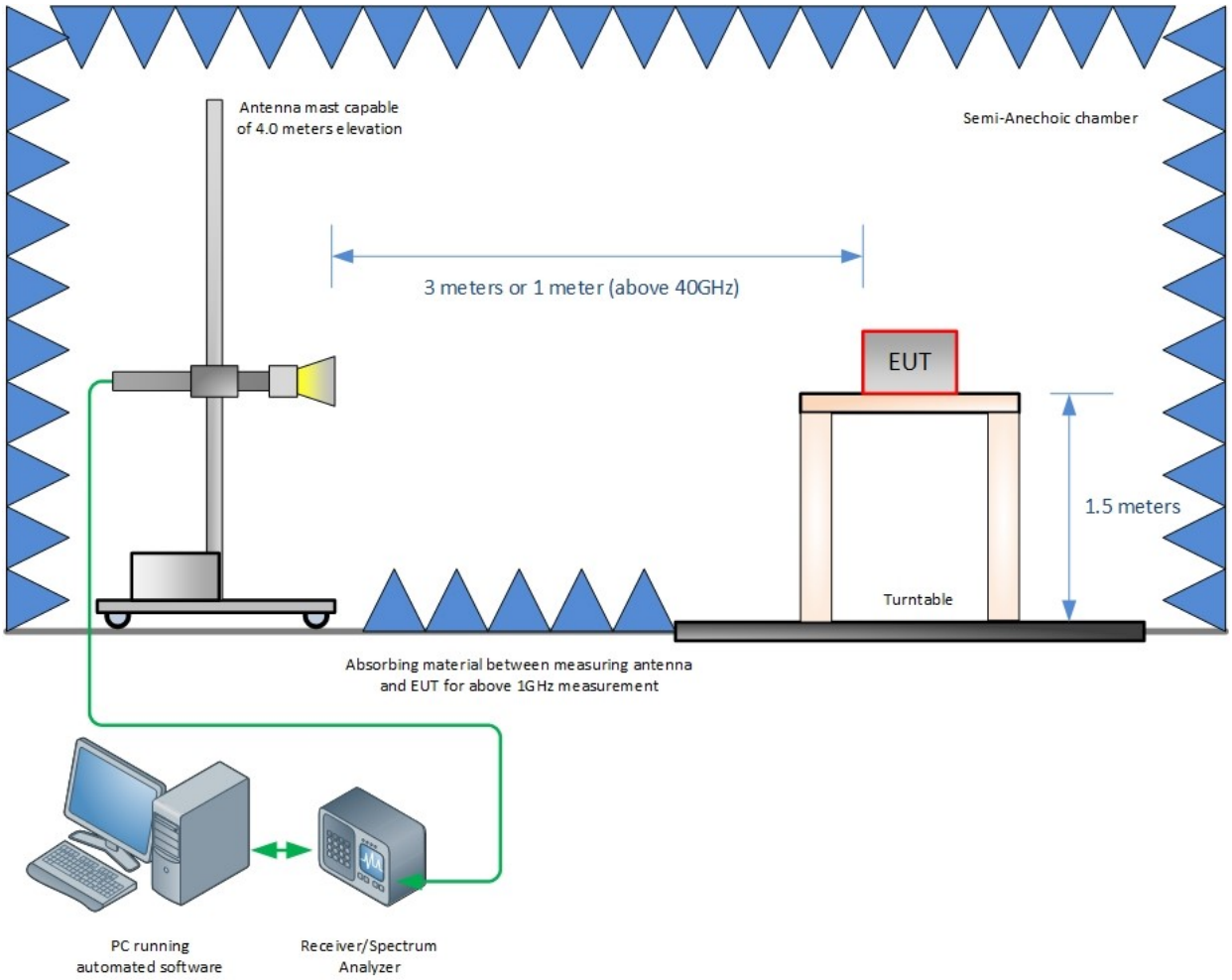
4 Test Set-up Diagrams for Emissions Test



Radiated Emission Test Setup (Below 30MHz)



Radiated Emission Test Setup (30MHz to 1GHz)



Radiated Emission Test Setup (Above 1GHz)

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