VELENTIUM LLC.
TEST REPORT

SCOPE OF WORK
Emissions Testing on Model M3000 Remote Control for the Medical Device (BLE)

REPORT NUMBER
104664086BOX-011

ISSUE DATE
September 22, 2021

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October 19, 2021

PAGES
74

DOCUMENT CONTROL NUMBER
Non-Specific Radio Report Shell Rev. December 2017

EMISSIONS TEST REPORT

(FULL COMPLIANCE)

Report Number: 104664086BOX-011
Project Number: G104664086

Report Issue Date: 09/22/2021
Report Revision Date: 10/19/2021

Model(s) Tested: M3000 (BLE)
Model(s) Partially Tested: None
Model(s) Not Tested but declared equivalent by the client: None

Standards: CFR47 FCC Part 15.247 Subpart C: 09/2021,
CFR47 FCC Part 15 Subpart B: 09/2021,
RSS-247 Issue 2 February 2017,
ISED ICES-003 Issue 7 October 15, 2020,
RSS-Gen Issue 5 April 2018 +Amendment 1 March 2019,

Tested by:
Intertek Testing Services NA, Inc.
70 Codman Hill Road
Boxborough, MA 01719
USA

Client:
Velentium LLC
22316 Grand Corner Dr
Suite 150
Katy, TX 77494
USA

Report prepared by

Vathana Ven / EMC Engineering Supervisor

Report reviewed by

Kouma Sinn / EMC Engineering Supervisor

Table of Contents

1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary

Section	Test full name	Result
3	Client Information	--
4	Description of Equipment Under Test and Variant Models	--
5	System Setup and Method	--
6	Maximum Peak Output Power and Human RF exposure CFR47 FCC Part 15 Subpart C:09/2021, Section 15.247 (b)(3) RSS-247 Issue 2 February 2017	Pass
7	6 dB Bandwidth and Occupied Bandwidth CFR47 FCC Part 15 Subpart C: 09/2021, Section 15.247 (a)(2) RSS-247 Issue 2 February 2017	Pass
8	Maximum Power Spectral Density CFR47 FCC Part 15 Subpart C: 09/2021, Section 15.247 (e) RSS-247 Issue 2 February 2017	Pass
9	Band Edge Compliance CFR47 FCC Part 15 Subpart C: 09/2021, Section 15.247 (d) RSS-247 Issue 2: 02/2017)	Pass
10	Transmitter spurious emissions CFR47 FCC Part 15 Subpart C: 09/2021, Section 15.247 (d) RSS-247 Issue 2 February 2017	Pass
11	Digital Device and Receiver Radiated Spurious Emissions (CFR47 FCC Part 15 Subpart B 15.109: 09/2021, ISED ICES-003 Issue 7 October 15, 2020	Pass
12	AC Mains Conducted Emissions FCC 47CFR Part 15.107: 09/2021 ISED ICES-003 Issue 7 October 15, 2020	N/A*
13	Revision History	--

*The EUT is battery powered.

3 Client Information

This EUT was tested at the request of:

Client: Velentium LLC
22316 Grand Corner Dr
Suite 150
Katy, TX 77494
USA

Contact: Alberto Lin
Telephone: +1 (832) 907-6336
Fax: None
Email: alberto.lin@velentium.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: Nevro Corp.
1800 Bridge Parkway
Redwood City, CA 94065
USA

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Patient Remote	Nevro	M3000	3250834
Patient Remote	Nevro	M3000	3250843
Patient Remote	Nevro	M3000	3250844

Receive Date:	11/17/2020
Received Condition:	Good
Type:	Production

Description of Equipment Under Test (provided by client)
The PTR shall be a handheld external that communicates via Bluetooth Low Energy (BLE) with stimulators. It shall be used by the patient to select and display the current program (from the set stored in the stimulator), to turn stimulation on and off, to change and display the stimulation amplitude (from the range stored in the stimulator), to get and display the battery level of the stimulator, to get and display the impedance state of the stimulator and to confirm that an associated IPG is in MRI Mode

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
2.1V – 3.2V	~15mA (avg), ~320mA (peak)	DC	N/A

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	The EUT was set to transmit at Low, Mid, and High channel continuous with modulation at 100 % duty cycle.
2	The EUT was set to receive

Software used by the EUT:

No.	Descriptions of EUT Exercising
1	Nevro DVT Test System 1.2.7783.20626

Radio/Receiver Characteristics	
Frequency Band(s)	2402-2480 MHz
Modulation Type(s)	GFSK
Maximum Output Power	Low Channel (2402 MHz): 2.66 dBm Mid Channel (2440 MHz): 1.82 dBm High Channel (2480 MHz): 1.22 dBm
Test Channels	Low Channel (2402 MHz) Mid Channel (2440 MHz) High Channel (2480 MHz)
Occupied Bandwidth	Low Channel (2402 MHz): 1.063 MHz Mid Channel (2440 MHz): 1.064 MHz High Channel (2480 MHz): 1.066 MHz
6 dB Bandwidth	Low Channel (2402 MHz): 654.30 kHz Mid Channel (2440 MHz): 669.30 kHz High Channel (2480 MHz): 734.30 kHz
Frequency Hopper: Number of Hopping Channels	N/A
Frequency Hopper: Channel Dwell Time	N/A
Frequency Hopper: Max interval between two instances of use of the same channel	N/A
MIMO Information (# of Transmit and Receive antenna ports)	1
Equipment Type	Standalone
Antenna Type and Gain	Integrated, 0 dBi

Variant Models:

The following variant models were not tested as part of this evaluation, but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

None

5 System Setup and Method

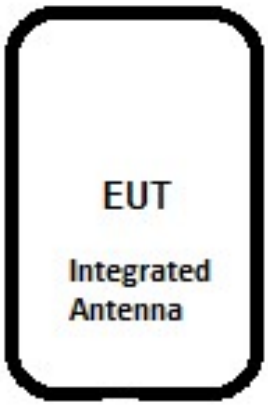
Cables					
ID	Description	Length (m)	Shielding	Ferrites	Termination
--	None	--	--	--	--

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
None			

5.1 Method:

Configuration as required by Configuration as required by FCC Part 15 Subpart C 15.247: 09/2021, FCC Part 15 Subpart B: 09/2021, RSS 247 Issue 2: 02/2017, ISED ICES-003 Issue 7 October 15, 2020, RSS-Gen Issue 5 April 2018 +Amendment 1 March 2019, ANSI C 63.10: 2013, ANSI C 63.4: 2014, and 558074 D0115.247Meas Guidancev05r02.

5.2 EUT Block Diagram:



6 Maximum Peak Output Power

6.1 Method

Tests are performed in accordance with CFR47 FCC Part 15.247, RSS-247, RSS-102, ANSI C63.10, and KDB 558074 D0115.247Meas Guidancev05r02. Note the antenna-port conducted method was not possible so, the radiated method was used per ANSI C63.10 Section 11.3.

TEST SITE: AMAP LAB

6.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV005	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
DAV005'	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	10/27/2020	10/27/2021
CEN001'	DC-40GHz attenuator 20dB	Centric RF	C411-20	CEN001	01/22/2021	01/22/2022
CBLSHF204'	Cable, SMA - SMA, 9kHz -40GHz, (Cable Kit 5)	Huber + Suhner	Sucoflex 102EA	234714001	02/03/2021	02/03/2022

Software Utilized:

Name	Manufacturer	Version
None	--	--

6.3 Results:

The sample tested was found to Comply.

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt or 30 dBm.

Frequency (MHz)	Conducted Output Power (dBm)
2402	2.66
2440	1.82
2480	1.22

6.4 Setup Photograph:

Not included in this report

6.5 Test Data:

Output power, Low Channel (Conducted)

15:16:26 16.08.2021

Output power, Mid Channel (Conducted)

15:38:59 16.08.2021

Notes: Cable and external attenuator's factors were internally compensated as TDF.

Output power, High Channel (Conducted)

Notes: Cable and external attenuator's factors were internally compensated as TDF.

Test Personnel:	Vathana Ven VSV	Test Date:	08/16/2021
Supervising/Reviewing Engineer: (Where Applicable)	Kouma Sinn KPS		
Product Standard:	CFR47 FCC Part 15.247 RSS-247, RSS-102	Limit Applied:	See report section 6.3
Input Voltage:	Battery Powered	Ambient Temperature:	22 ºC
Pretest Verification w/ Ambient Signals or BB Source:	**N/A**	Relative Humidity:	12 %
		Atmospheric Pressure:	1017 mbars

Deviations, Additions, or Exclusions: None

7 6 dB Bandwidth and Occupied Bandwidth

7.1 Method

Tests are performed in accordance with CFR47 FCC Part 15.247, RSS-247, and ANSI C63.10.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

7.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV005	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
DAV005'	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	10/27/2020	10/27/2021
CEN001'	DC-40GHz attenuator 20dB	Centric RF	C411-20	CEN001	01/22/2021	01/22/2022
CBLSHF204'	Cable, SMA - SMA, 9kHz -40GHz, (Cable Kit 5)	Huber + Suhner	Sucoflex 102EA	234714001	02/03/2021	02/03/2022

Software Utilized:

Name	Manufacturer	Version
None	--	--

7.3 Results:

The sample tested was found to Comply.

§15.247 (a) (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.

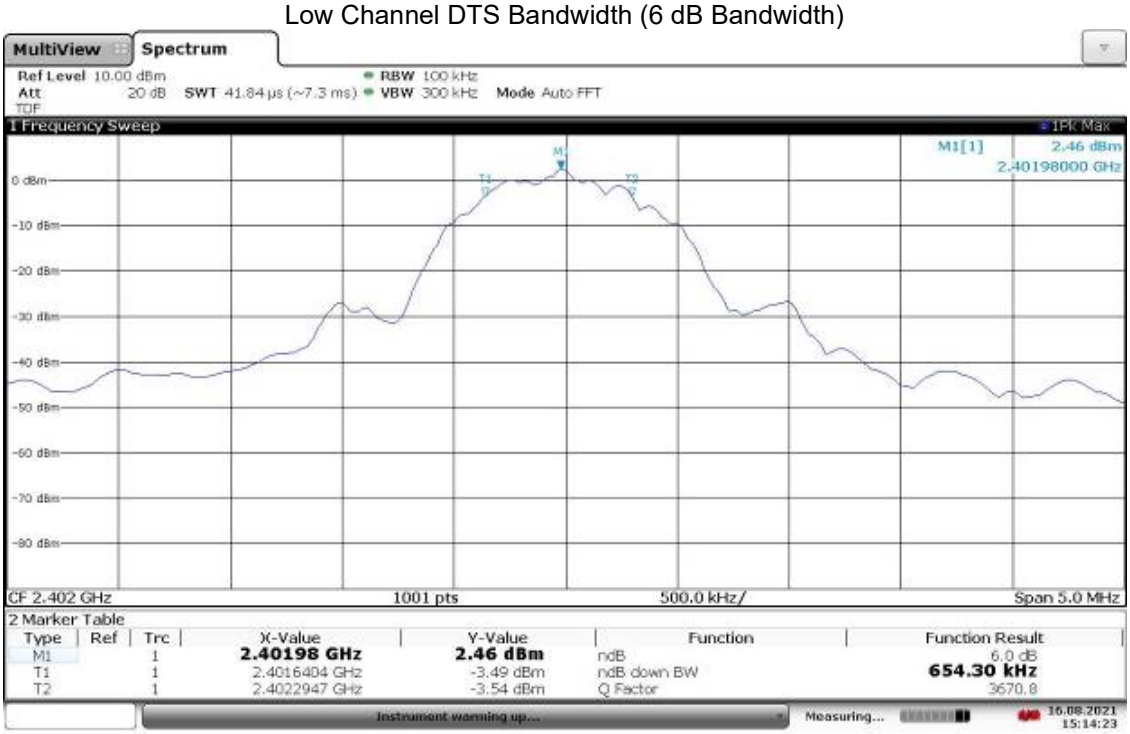
Frequency	DTS Bandwidth (6 dB Bandwidth)	Occupied Bandwidth
(MHz)	(kHz)	(MHz)
2402	654.30	1.063
2440	669.30	1.064
2480	734.30	1.066

7.4 Setup Photograph:

Not included in this report

7.5 Plots/Data:

Low Channel DTS Bandwidth (6 dB Bandwidth)

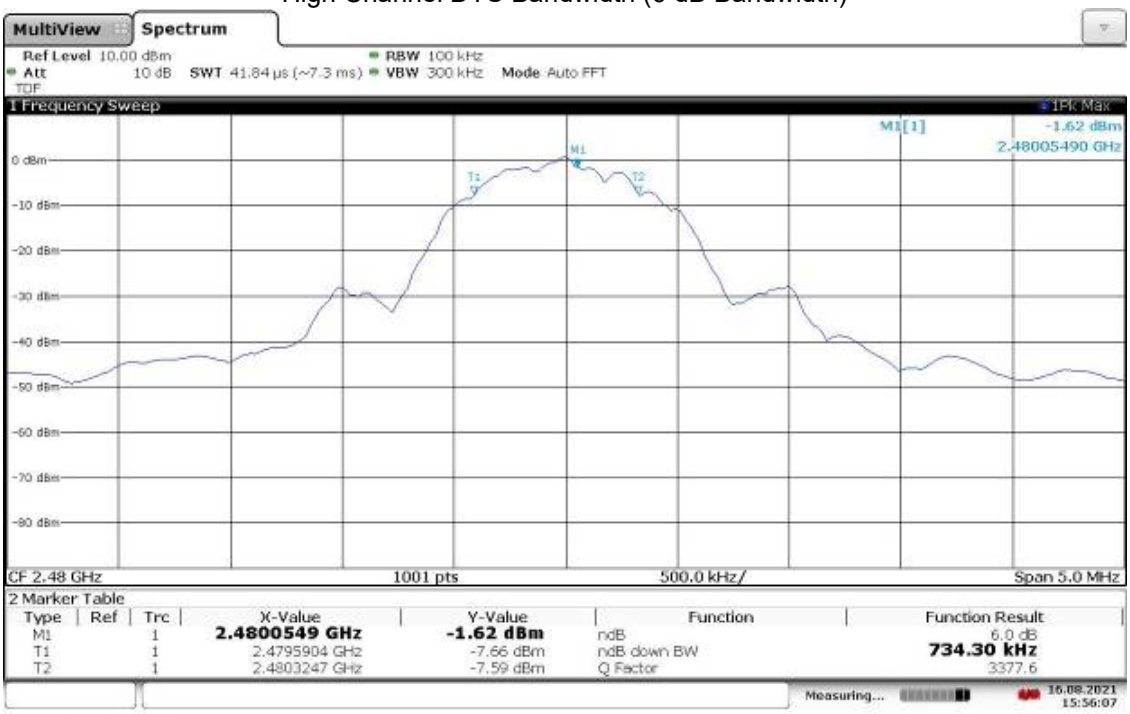


15:14:23 16.08.2021

Mid Channel DTS Bandwidth (6 dB Bandwidth)

15:41:07 16.08.2021

High Channel DTS Bandwidth (6 dB Bandwidth)



15:56:07 16.08.2021

Low Channel Occupied Bandwidth

15:12:07 16.08.2021

Mid Channel Occupied Bandwidth

15:40:36 16.08.2021

High Channel Occupied Bandwidth

15:57:23 16.08.2021

Test Personnel:	Vathana Ven VSV	Test Date:	08/16/2021
Supervising/Reviewing Engineer: (Where Applicable)	Kouma Sinn KPS		
Product Standard:	CFR47 FCC Part 15.247 RSS-247, RSS-102	Limit Applied:	See report section 7.3
Input Voltage:	Battery Powered	Ambient Temperature:	22 ºC
Pretest Verification w/ Ambient Signals or BB Source:	N/A	Relative Humidity:	12 %
		Atmospheric Pressure:	1017 mbars

Deviations, Additions, or Exclusions: None

8 Maximum Power Spectral Density

8.1 Method

Tests are performed in accordance with CFR47 FCC Part 15.247, RSS-247, and ANSI C63.10.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

8.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV005	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
DAV005'	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	10/27/2020	10/27/2021
CEN001'	DC-40GHz attenuator 20dB	Centric RF	C411-20	CEN001	01/22/2021	01/22/2022
CBLSHF204'	Cable, SMA - SMA, 9kHz -40GHz, (Cable Kit 5)	Huber + Suhner	Sucoflex 102EA	234714001	02/03/2021	02/03/2022

Software Utilized:

Name	Manufacturer	Version
None	--	--

8.3 Results:

The sample tested was found to Comply.

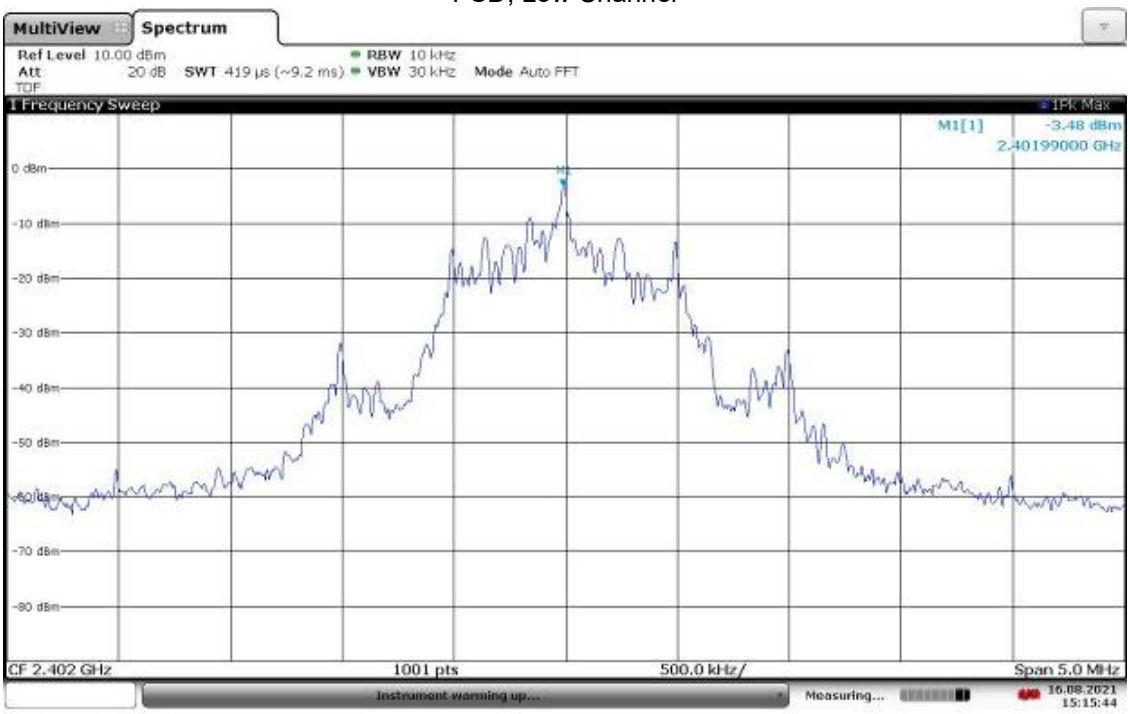
§15.247 (e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

8.4 Setup Photograph:

Not included in this report

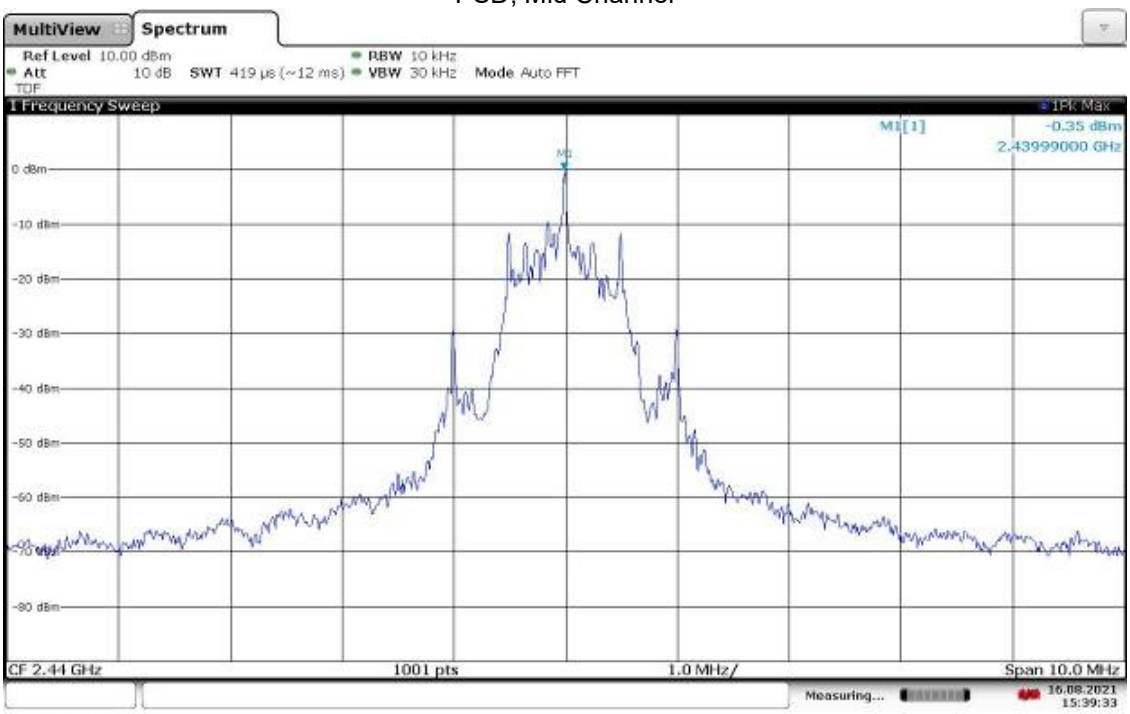
8.5 Test Data:

PSD, Low Channel



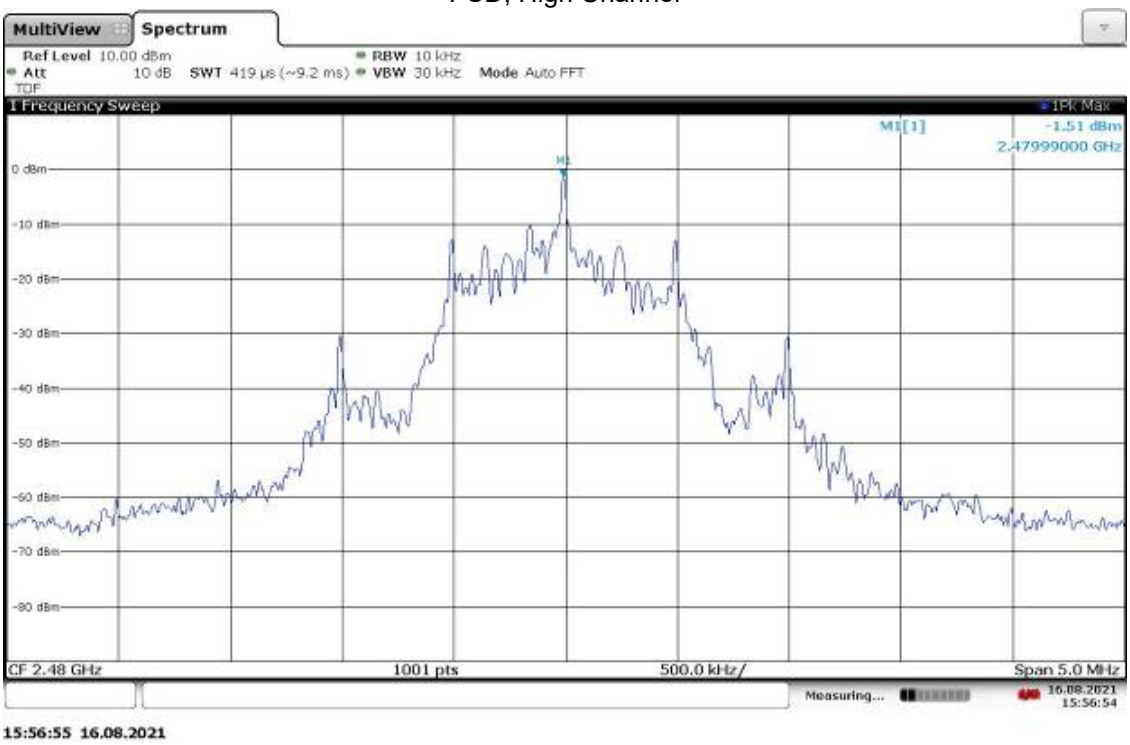
15:15:45 16.08.2021

PSD, Mid Channel



15:39:33 16.08.2021

PSD, High Channel



Test Personnel:	Vathana Ven VSV	Test Date:	08/16/2021
Supervising/Reviewing Engineer: (Where Applicable)	Kouma Sinn KPS		
Product Standard:	CFR47 FCC Part 15.247 RSS-247, RSS-102	Limit Applied:	See report section 8.3
Input Voltage:	Battery Powered	Ambient Temperature:	22 ºC
Pretest Verification w/ Ambient Signals or BB Source:	**N/A**	Relative Humidity:	12 %
		Atmospheric Pressure:	1017 mbars

Deviations, Additions, or Exclusions: None

9 Band Edge Compliance

9.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C 15.247 RSS 247, ANSI C 63.10, and ANSI C 63.4.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
Radiated Emissions, 10m	30-1000 MHz	4.6dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	5.3 dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.5 dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	5.2 dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	5.0 dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	5.0 dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG
Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 52.0 dBμV
AF = 7.4 dB/m
CF = 1.6 dB
AG = 29.0 dB
FS = 32 dBμV/m

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV
NF = Net Reading in dBμV

Example:

FS = RA + AF + CF – AG = 52.0 + 7.4 + 1.6 – 29.0 = 32.0
$UF = 10^{(32\ dB\mu V / 20)}$ = 39.8 μV/m

9.2 Test Equipment Used:

Test equipment used for conducted measurements

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV005	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
DAV005'	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	10/27/2020	10/27/2021
CEN001'	DC-40GHz attenuator 20dB	Centric RF	C411-20	CEN001	01/22/2021	01/22/2022
CBLSHF204'	Cable, SMA - SMA, 9kHz -40GHz, (Cable Kit 5)	Huber + Suhner	Sucoflex 102EA	234714001	02/03/2021	02/03/2022

Test equipment used for radiated measurements

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV005'	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
145108'	EMI Test Receiver (20Hz - 40GHz)	Rohde & Schwarz	ESIB40	100209	06/22/2020	06/22/2022
IW001'	2 meter cable	Insulated Wire	2801-NPS	001	10/07/2020	10/07/2021
HS001'	DC-18GHz cable 1.5m long	Huber & Suhner	SucoFlex 106A	HS001	10/07/2020	10/07/2021
IW003'	8.4 meter cable	Insulated Wire	2800-NPS	003	10/08/2020	10/08/2021
ETS005'	1-18GHz horn antenna	ETS-Lindgren	3117	00218279	09/28/2020	09/28/2021

Software Utilized:

Name	Manufacturer	Version
None	--	--

9.3 Results:

The sample tested was found to Comply.

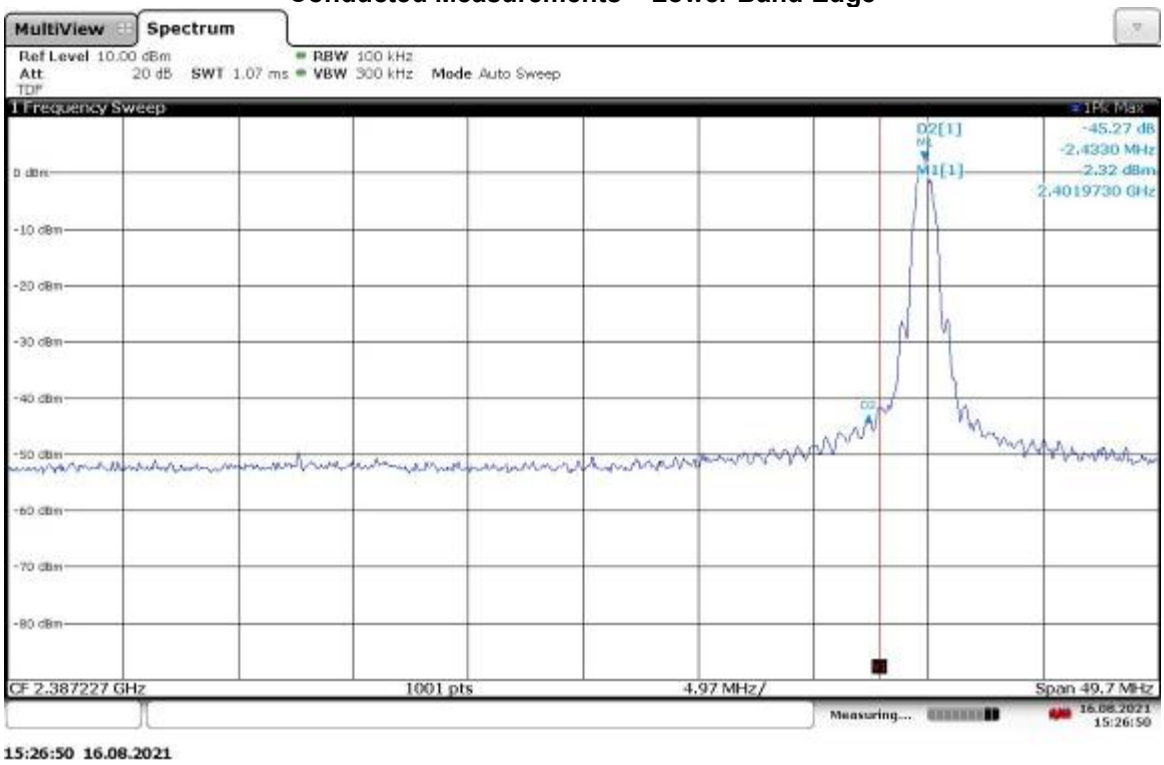
15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that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

9.4 Setup Photographs:

Not included in this report

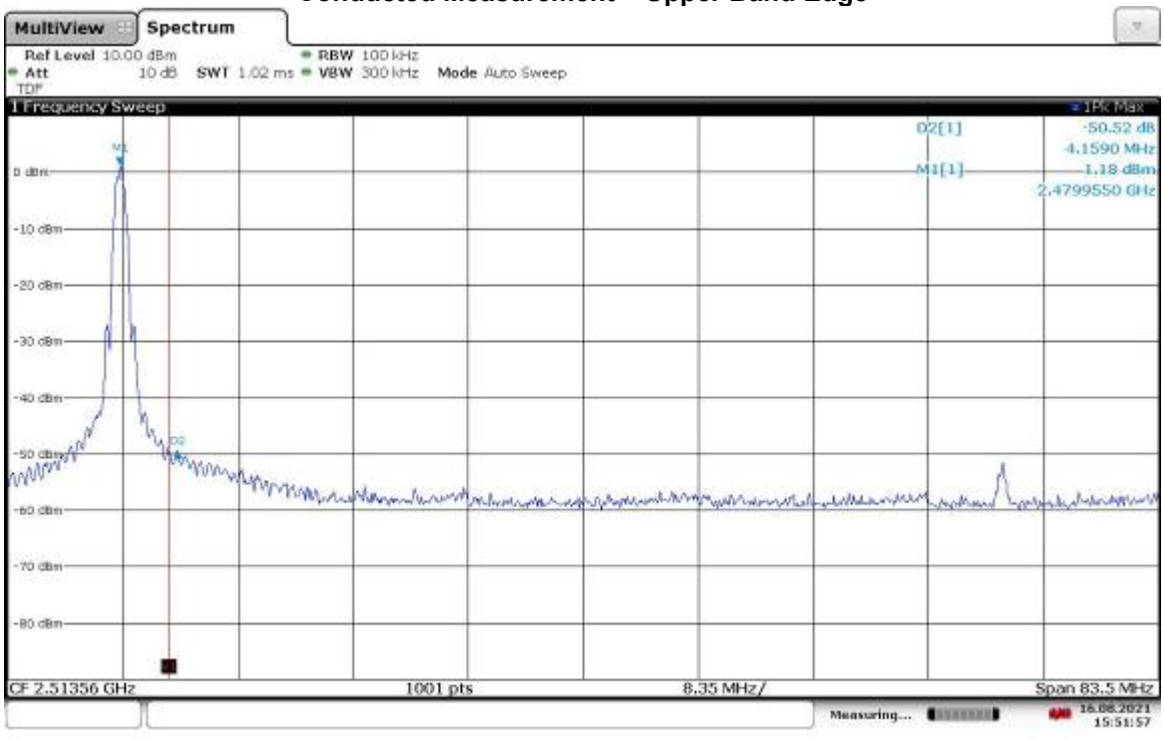
9.5 Test Data:

Conducted Measurements – Lower Band Edge



15:26:50 16.08.2021

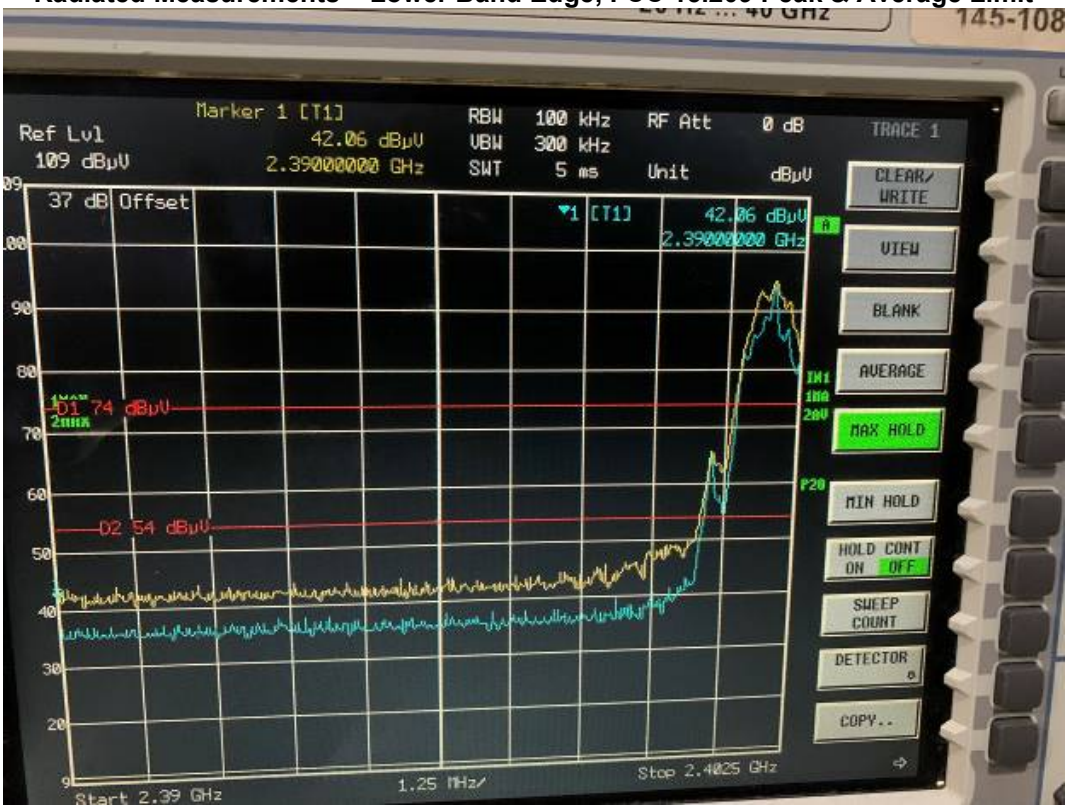
Conducted Measurement – Upper Band Edge



15:51:58 16.08.2021

Note: Attenuator and cable factors were internally compensated as TDF.

Radiated Measurements – Lower Band Edge, FCC 15.209 Peak & Average Limit



Radiated Measurement – Upper Band Edge, FCC 15.209 Peak & Average Limit

Note: Antenna and cable factors were internally compensated as Ref Offset.

Test Personnel:	Kouma Sinn KPS Vathana Ven VJV	Test Date:	08/18/2021
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	CFR47 FCC Part 15.247, RSS-247	Limit Applied:	See report section 9.3
Input Voltage:	Battery Powered	Ambient Temperature:	22 ºC
Pretest Verification w/ Ambient Signals or BB Source:	N/A	Relative Humidity:	12 %
		Atmospheric Pressure:	1017 mbars

Notes:
Worst-case orientation and antenna polarity from output power measurements were used for all testing.

Deviations, Additions, or Exclusions: None

10 Transmitter spurious emissions

10.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C 15.247, FCC Part 15 Subpart B, RSS 247 ICES 003, ANSI C 63.10, and ANSI C 63.4.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
Radiated Emissions, 10m	30-1000 MHz	4.6dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	5.3 dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.5 dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	5.2 dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	5.0 dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	5.0 dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG
Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 52.0 dBμV
AF = 7.4 dB/m
CF = 1.6 dB
AG = 29.0 dB
FS = 32 dBμV/m

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV
NF = Net Reading in dBμV

Example:

FS = RA + AF + CF – AG = 52.0 + 7.4 + 1.6 – 29.0 = 32.0
$UF = 10^{(32\ dB\mu V / 20)}$ = 39.8 μV/m

Alternately, when BAT-EMC Emission Software is used, the “Level” includes all losses and gains and is compared directly in the “Margin” column to the “Limit”. The “Correction” includes Antenna Factor, Preamp, and Cable Loss. These are already accounted for in the “Level” column.

10.2 Test Equipment Used:

Test equipment used for conducted measurements

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV005	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
DAV005'	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	10/27/2020	10/27/2021
CEN001'	DC-40GHz attenuator 20dB	Centric RF	C411-20	CEN001	01/22/2021	01/22/2022
CBLSHF204'	Cable, SMA - SMA, 9kHz -40GHz, (Cable Kit 5)	Huber + Suhner	Sucoflex 102EA	234714001	02/03/2021	02/03/2022

Test equipment used for radiated measurements

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV005'	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
145108'	EMI Test Receiver (20Hz - 40GHz)	Rohde & Schwarz	ESIB40	100209	06/22/2020	06/22/2022
PRE10'	30-1000MHz pre-amp	ITS	PRE10	PRE10	02/17/2021	02/17/2022
145145'	Broadband Hybrid Antenna 30 MHz - 3 GHz	Sunol Sciences Corp.	JB3	A122313	06/09/2021	06/09/2022
IW001'	2 meter cable	Insulated Wire	2801-NPS	001	10/07/2020	10/07/2021
HS001'	DC-18GHz cable 1.5m long	Huber & Suhner	SucoFlex 106A	HS001	10/07/2020	10/07/2021
IW003'	8.4 meter cable	Insulated Wire	2800-NPS	003	10/08/2020	10/08/2021
145-422'	10Amp Pre-amp to under floor	Utiflex	UFB311A-0-2756-70070	145-422	02/17/2021	02/17/2022
HS003'	10m under floor cable	Huber-Schuner	10m-1	HS003	02/17/2021	02/17/2022
ETS005'	1-18GHz horn antenna	ETS-Lindgren	3117	00218279	09/28/2020	09/28/2021
CBLHF2012-5M-2'	5m 9kHz-40GHz Coaxial Cable - SET2	Huber & Suhner	SF102	252676002	02/19/2021	02/19/2022
REA004'	3GHz High Pass Filter	Reactel, Inc	7HSX-3G/18G-S11	06-1	02/19/2021	02/19/2022
ROS005-2'	Vector Signal Generator	Rohde & Schwartz	SMB-100A	178319	10/23/2020	10/23/2021
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	10/27/2020	10/27/2021
145019'	Active Loop Antenna (9 KHz to 30 MHz)	EMCO	6502/1	9902-3267	02/17/2021	02/17/2022
PRE12'	Pre-amplifier	Com Power	PAM-118A	18040117	12/07/2020	12/07/2021
EMC04'	ANTENNA, RIDGED GUIDE, 18-40 GHZ	EMCO	3116	2090	01/28/2021	01/28/2022
PRE8'	PREAMPLFIER 1- 40 GHz	MITEQ	NSP4000-NF	507145	11/25/2020	11/25/2021

Software Utilized:

Name	Manufacturer	Version
EMI Boxborough.xls	Intertek	08/27/2010
BAT-EMC	Nexio	3.18.0.16

10.3 Results:

The sample tested was found to Comply.

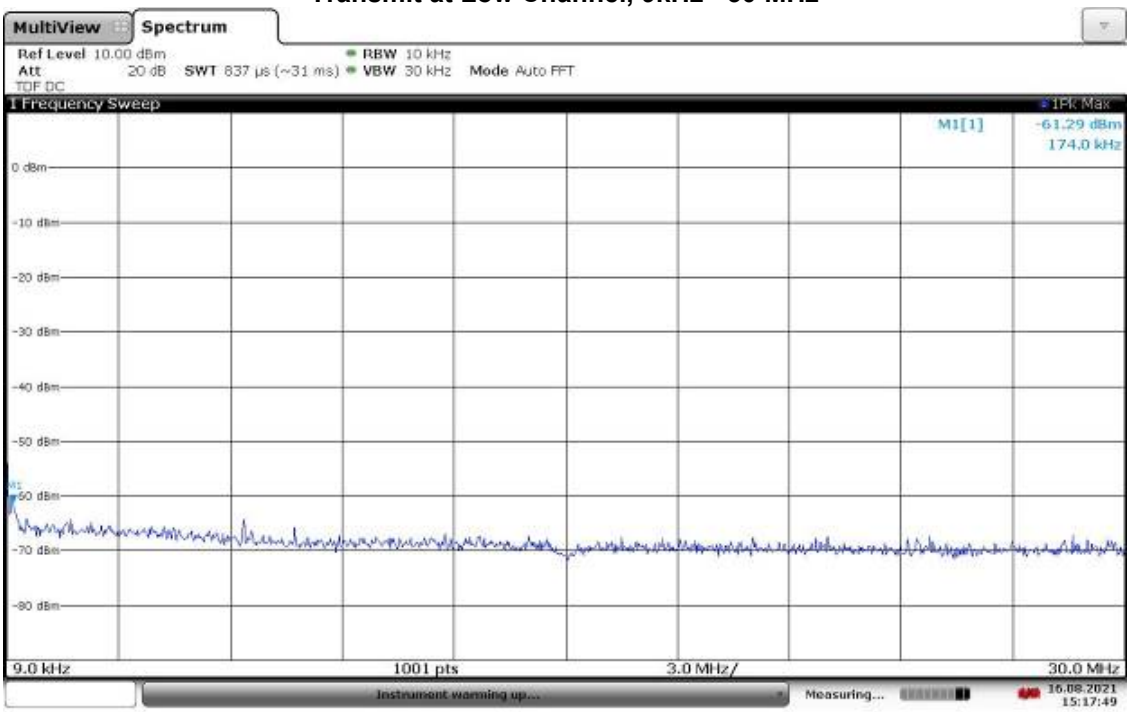
15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that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

10.4 Setup Photographs:

Not included in this report

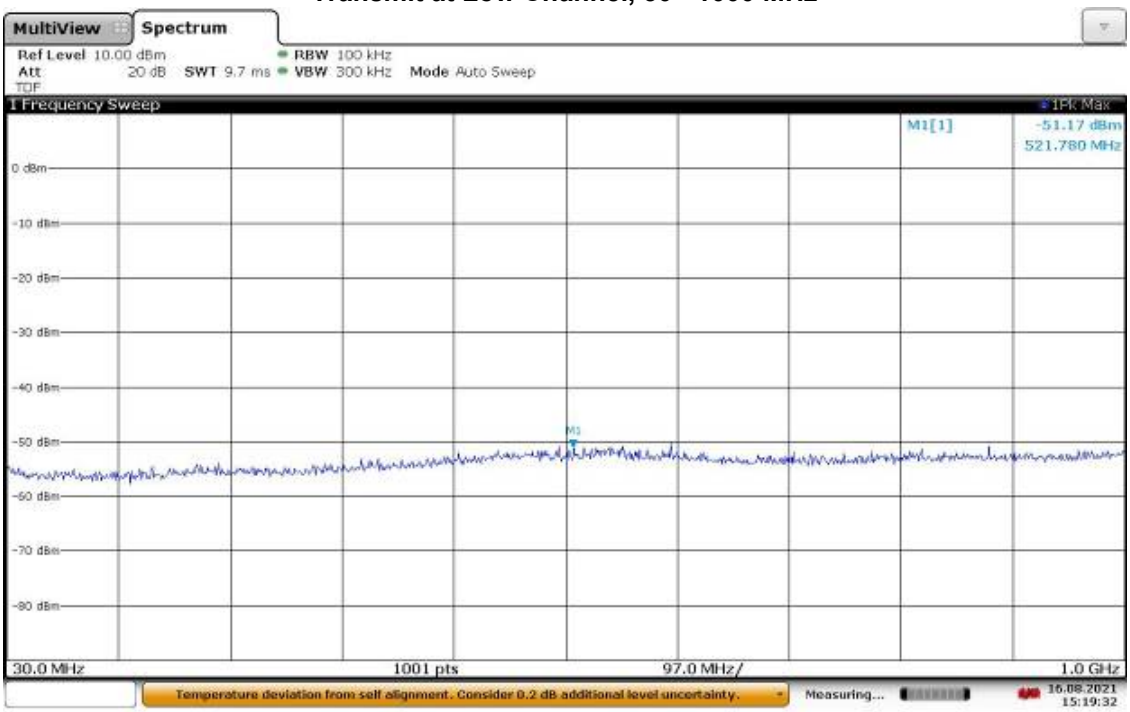
10.5 Plots/Data:

Antenna port conducted measurements
Transmit at Low Channel, 9kHz - 30 MHz



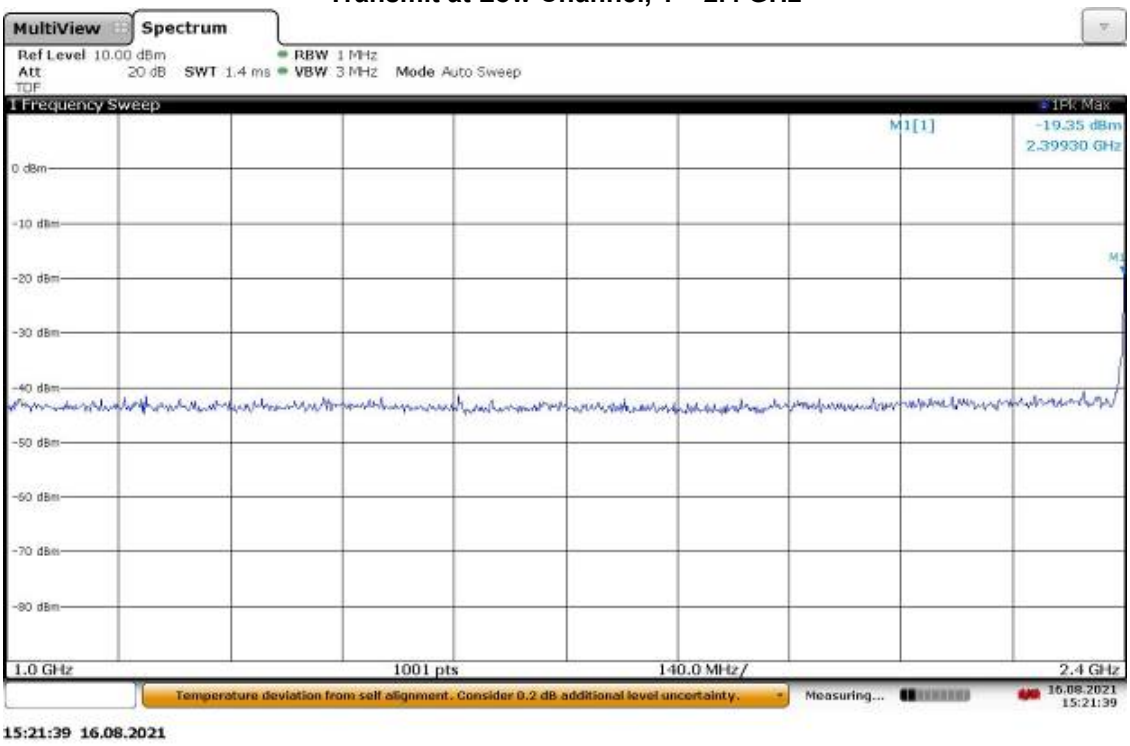
15:17:49 16.08.2021

Antenna port conducted measurements
Transmit at Low Channel, 30 - 1000 MHz



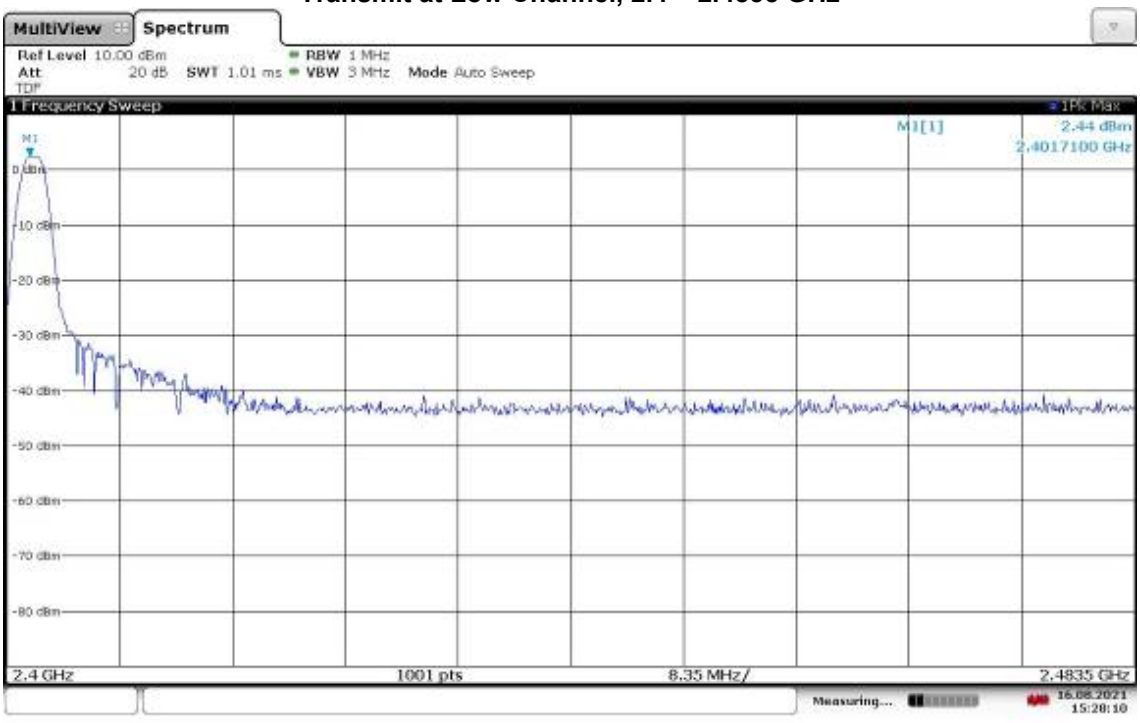
15:19:33 16.08.2021

Antenna port conducted measurements
Transmit at Low Channel, 1 – 2.4 GHz



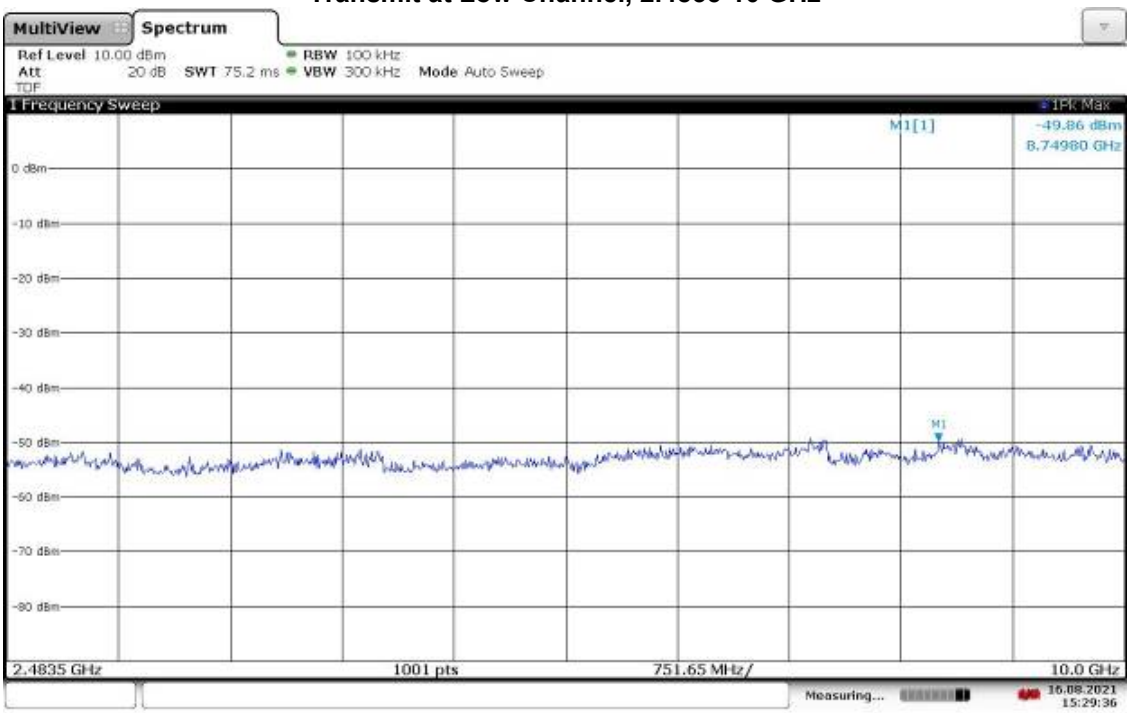
15:21:39 16.08.2021

Antenna port conducted measurements
Transmit at Low Channel, 2.4 – 2.4835 GHz



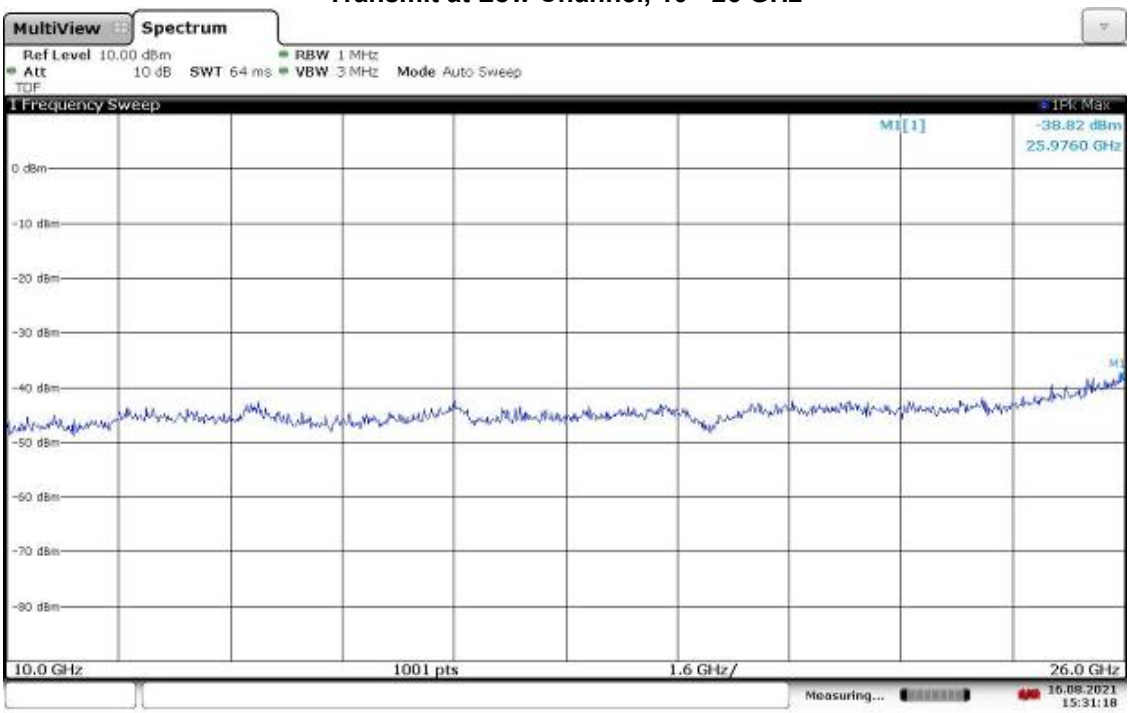
15:28:10 16.08.2021

Antenna port conducted measurements
Transmit at Low Channel, 2.4835-10 GHz



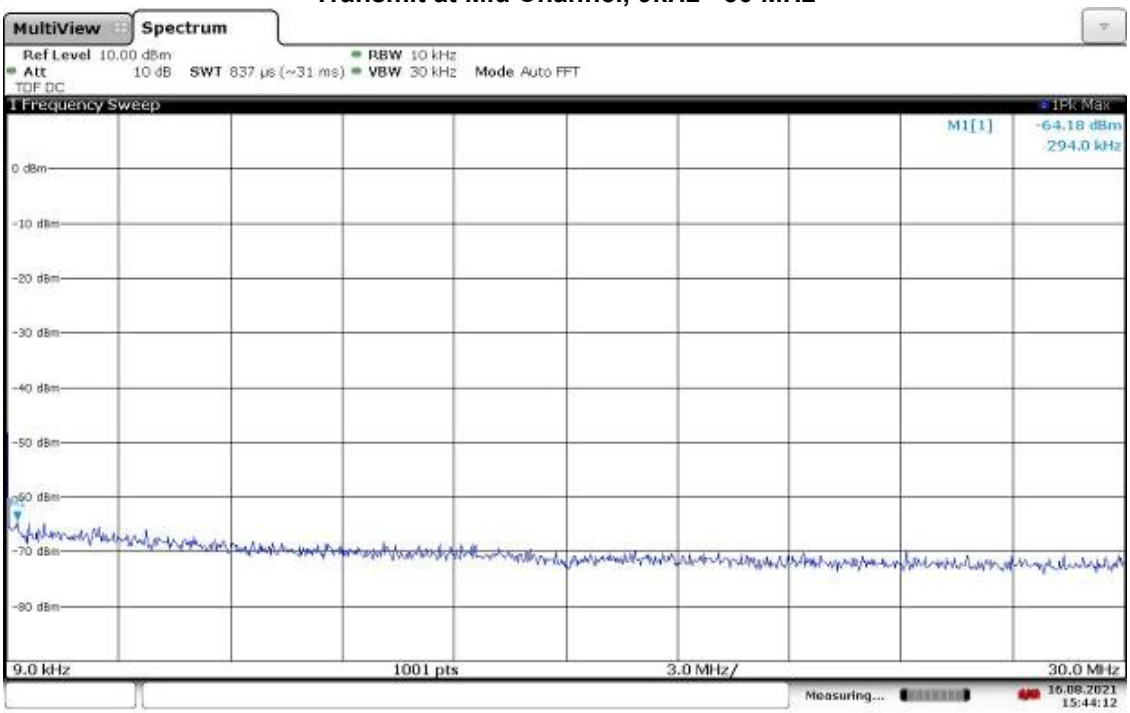
15:29:37 16.08.2021

Antenna port conducted measurements
Transmit at Low Channel, 10 - 26 GHz



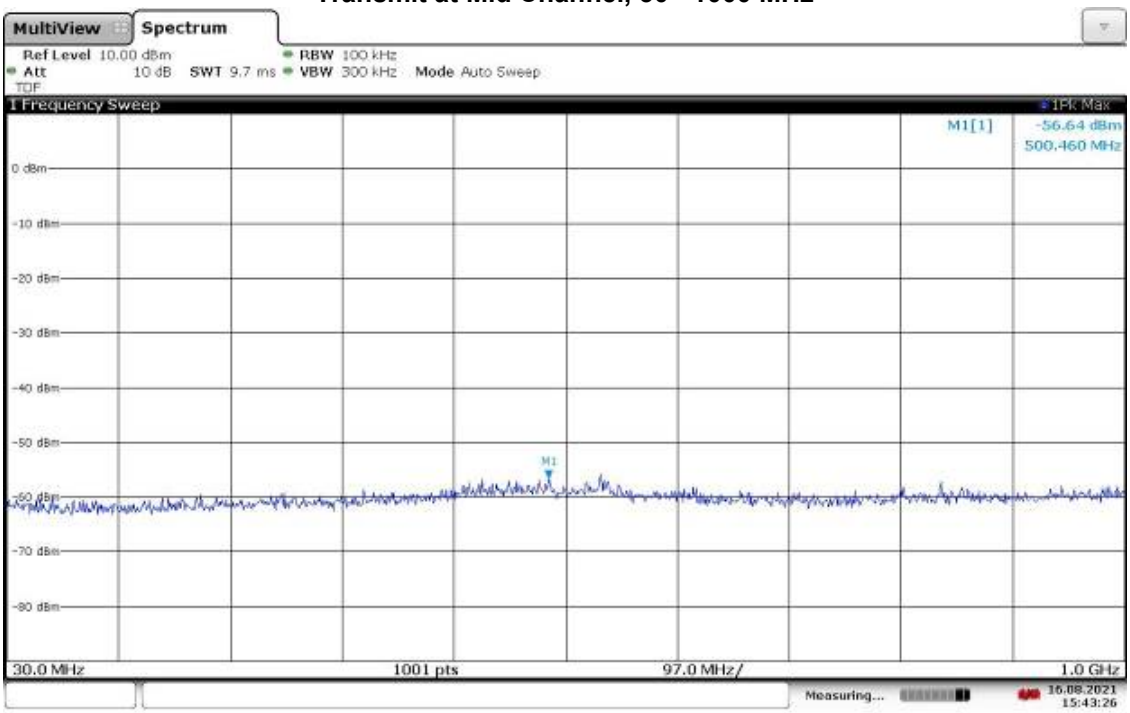
15:31:18 16.08.2021

Antenna port conducted measurements
Transmit at Mid Channel, 9kHz - 30 MHz



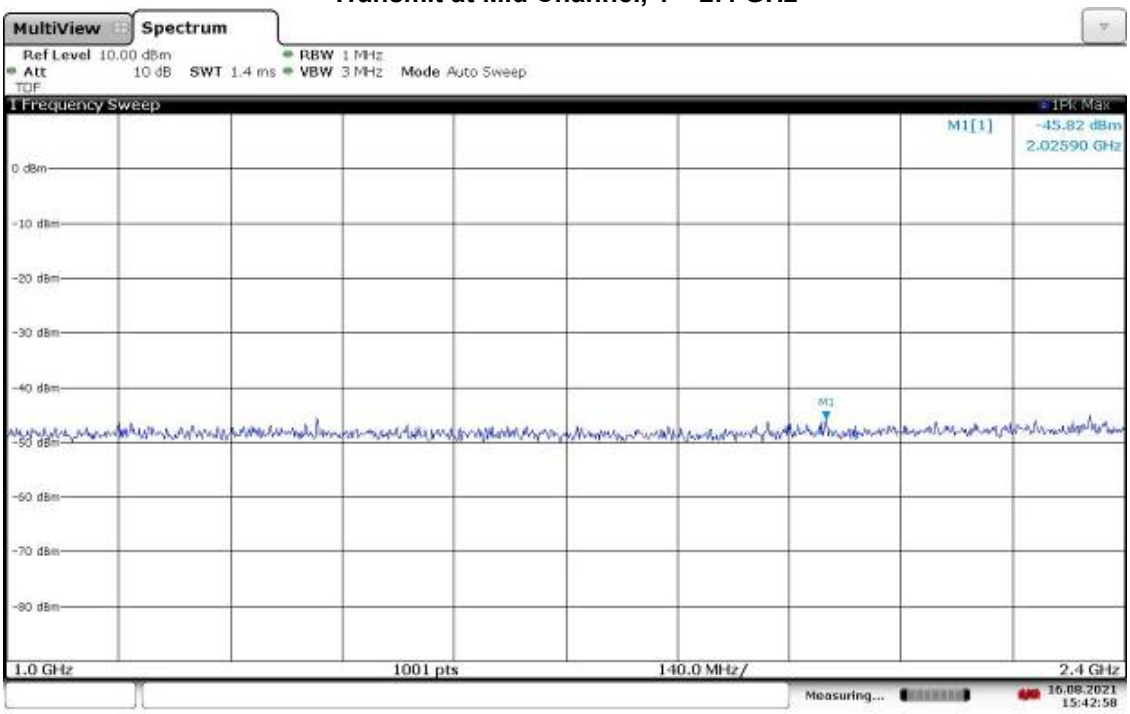
15:44:12 16.08.2021

Antenna port conducted measurements
Transmit at Mid Channel, 30 - 1000 MHz



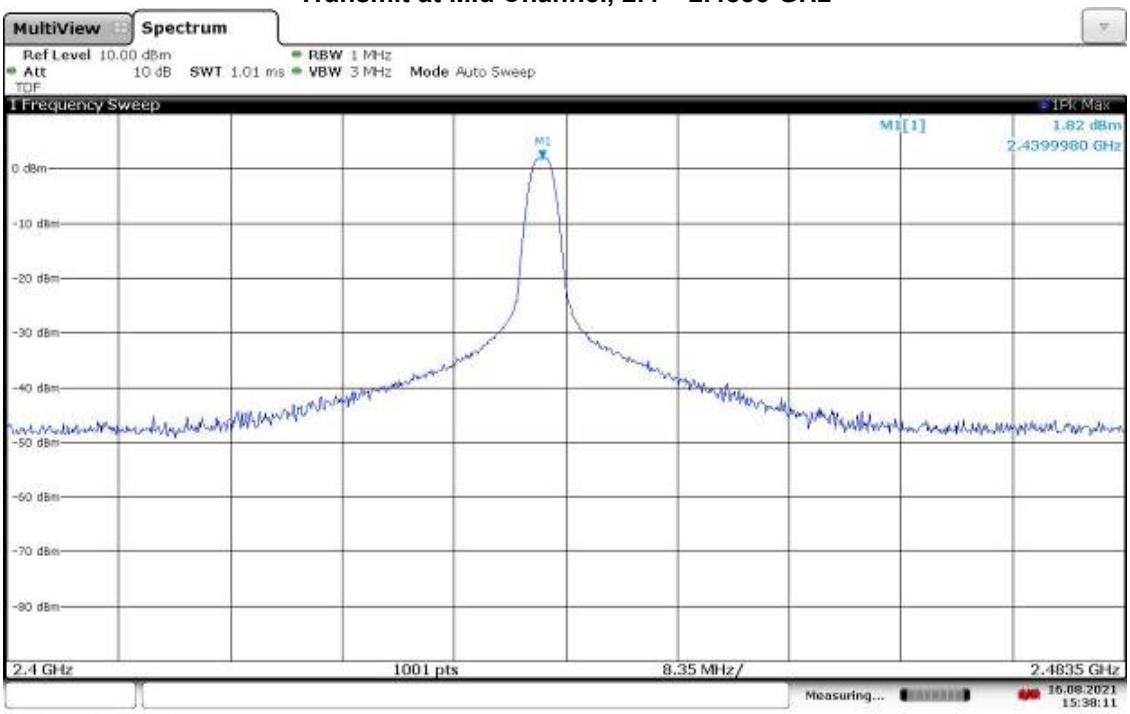
15:43:27 16.08.2021

Antenna port conducted measurements
Transmit at Mid Channel, 1 – 2.4 GHz



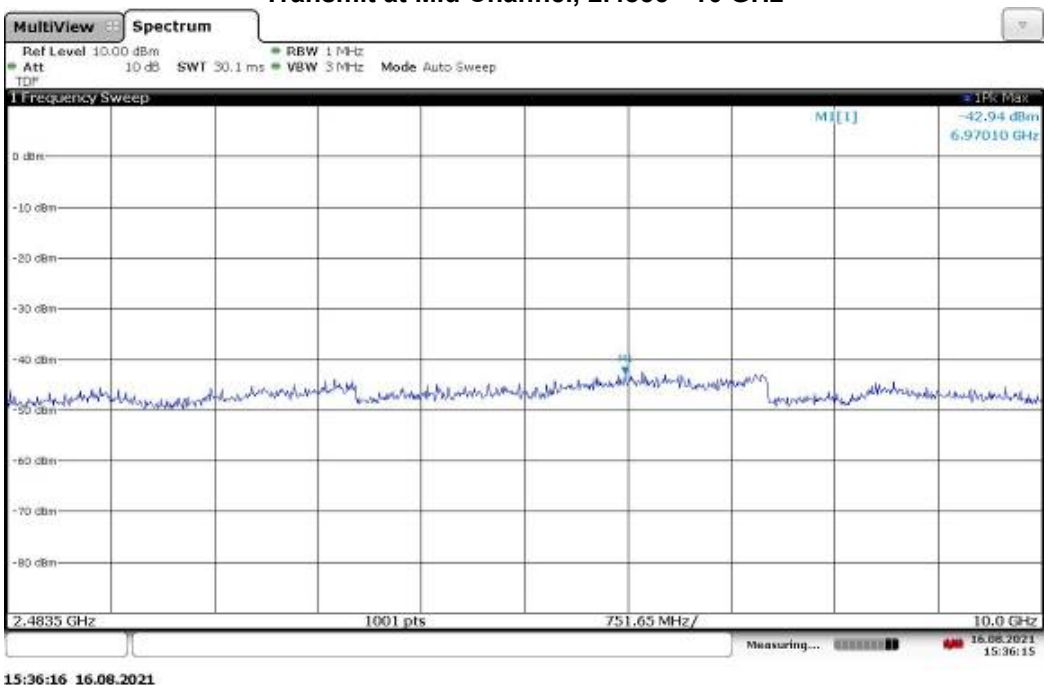
15:42:58 16.08.2021

Antenna port conducted measurements
Transmit at Mid Channel, 2.4 – 2.4835 GHz



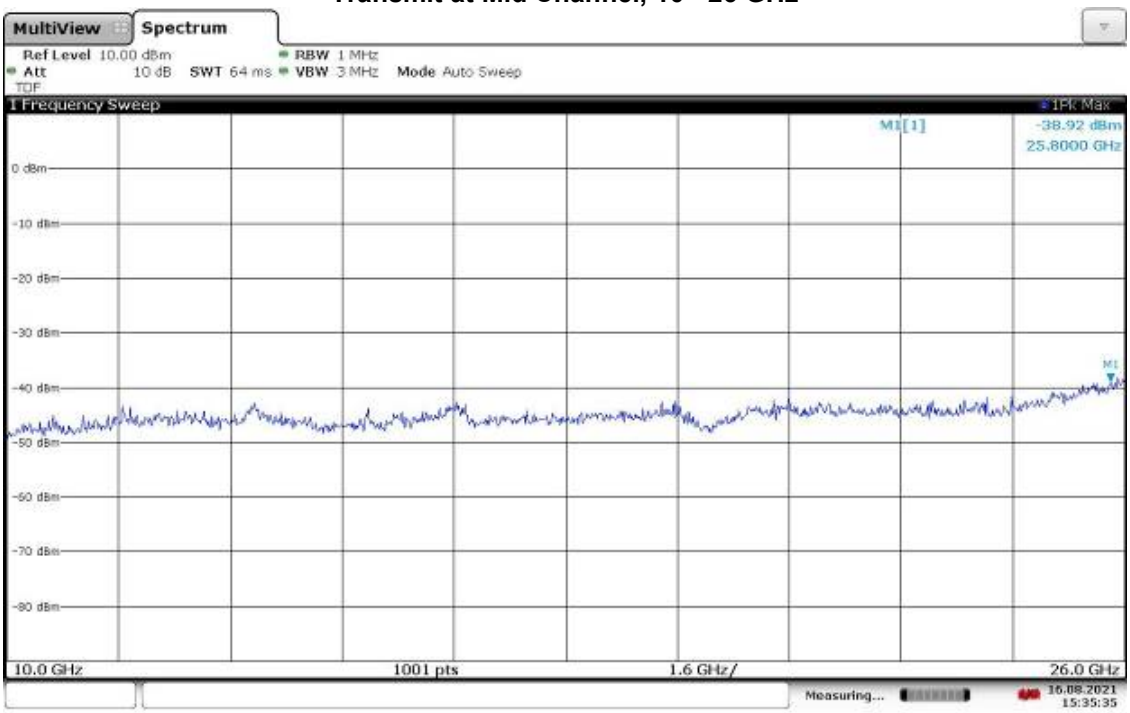
15:38:11 16.08.2021

Antenna port conducted measurements
Transmit at Mid Channel, 2.4835 - 10 GHz



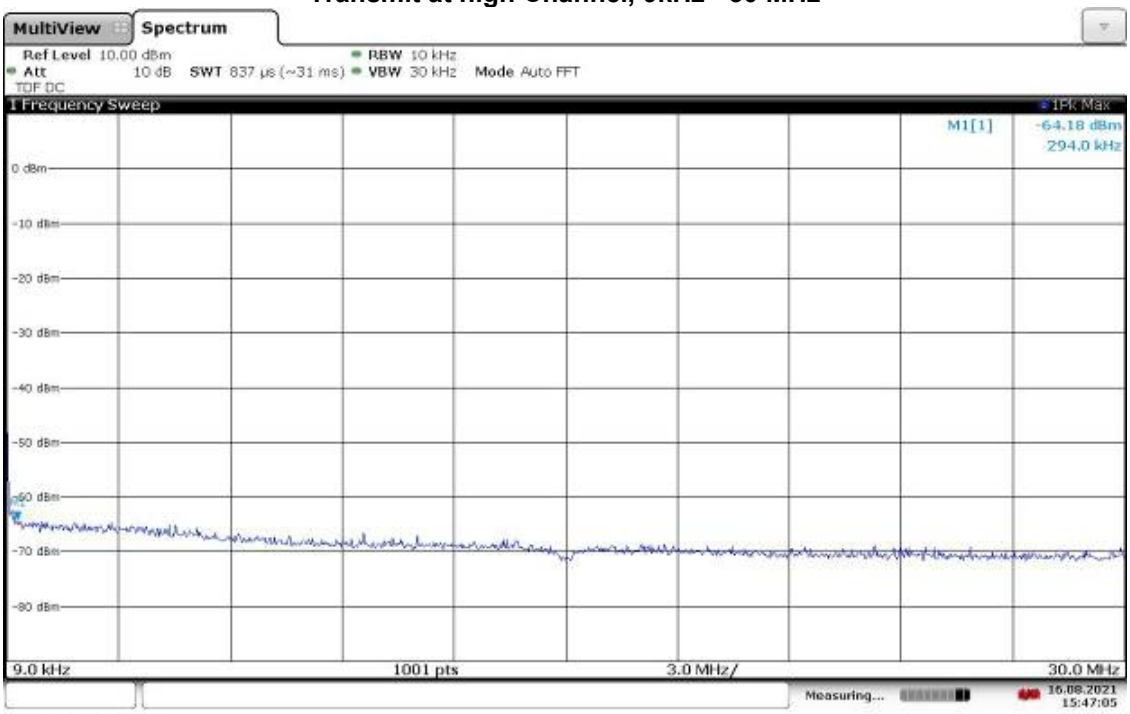
15:36:16 16.08.2021

Antenna port conducted measurements
Transmit at Mid Channel, 10 - 26 GHz



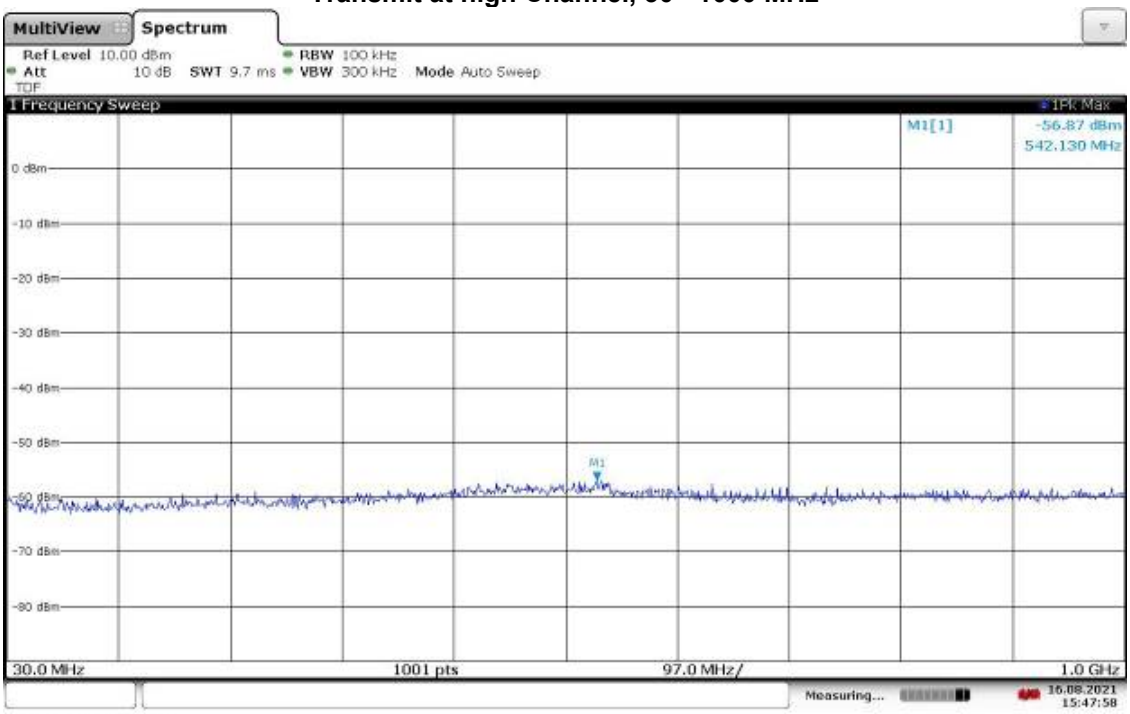
15:35:35 16.08.2021

Antenna port conducted measurements
Transmit at high Channel, 9kHz - 30 MHz



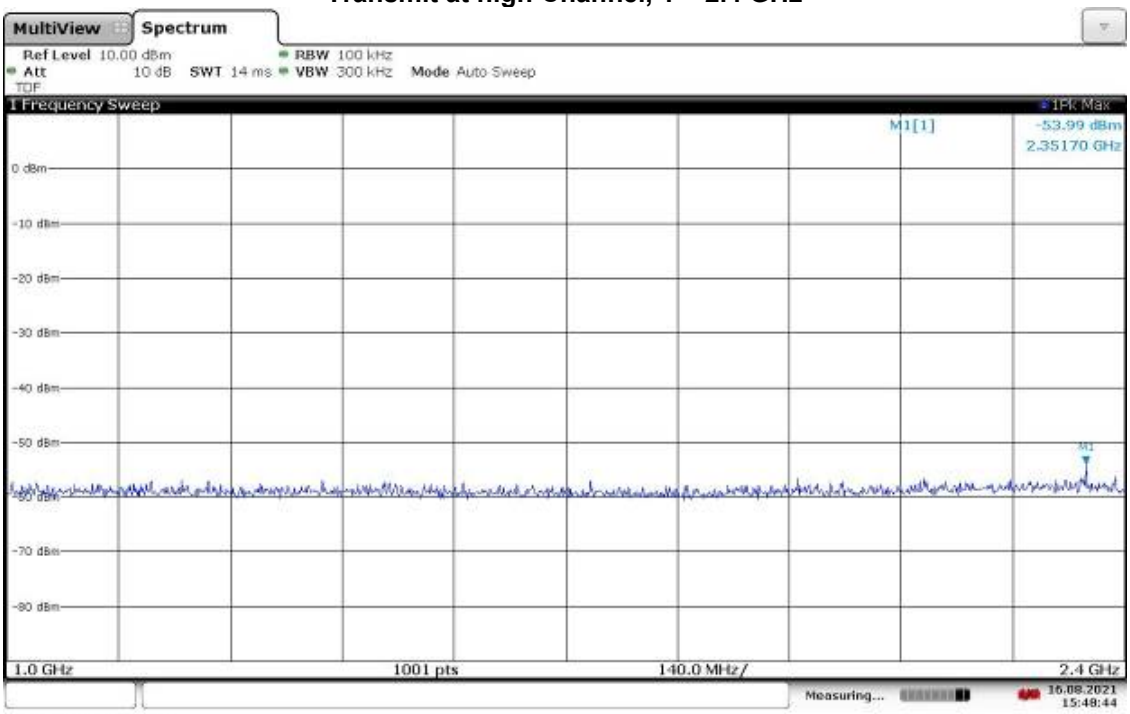
15:47:05 16.08.2021

Antenna port conducted measurements
Transmit at high Channel, 30 - 1000 MHz



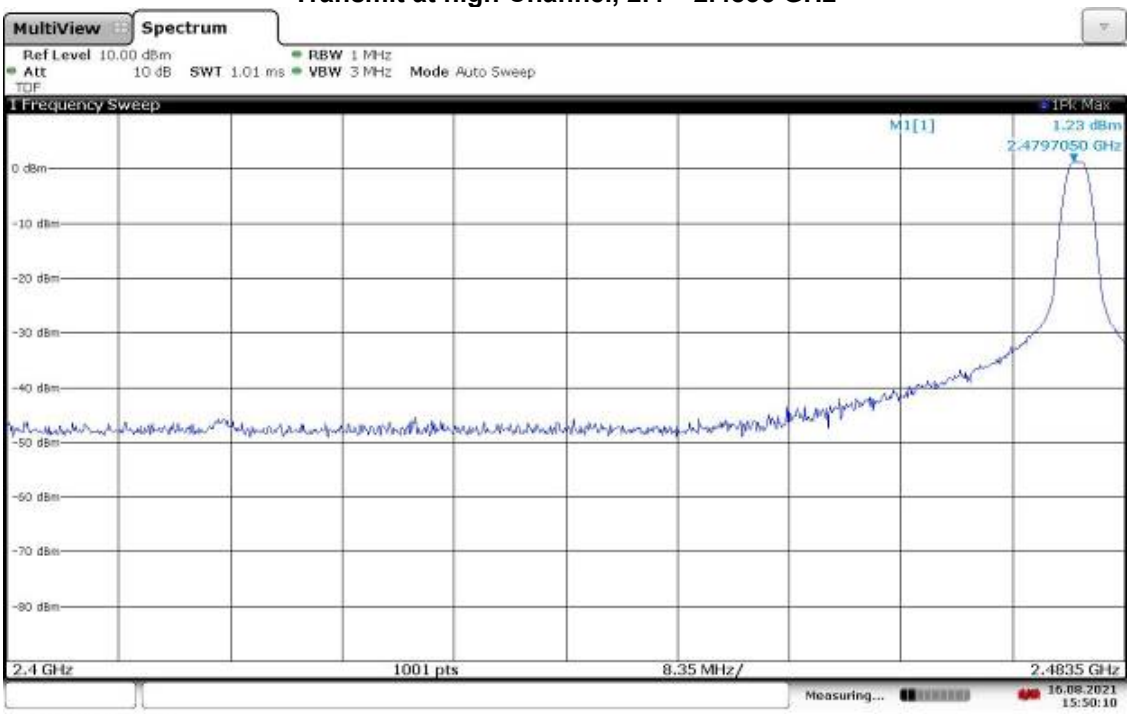
15:47:58 16.08.2021

Antenna port conducted measurements
Transmit at high Channel, 1 – 2.4 GHz



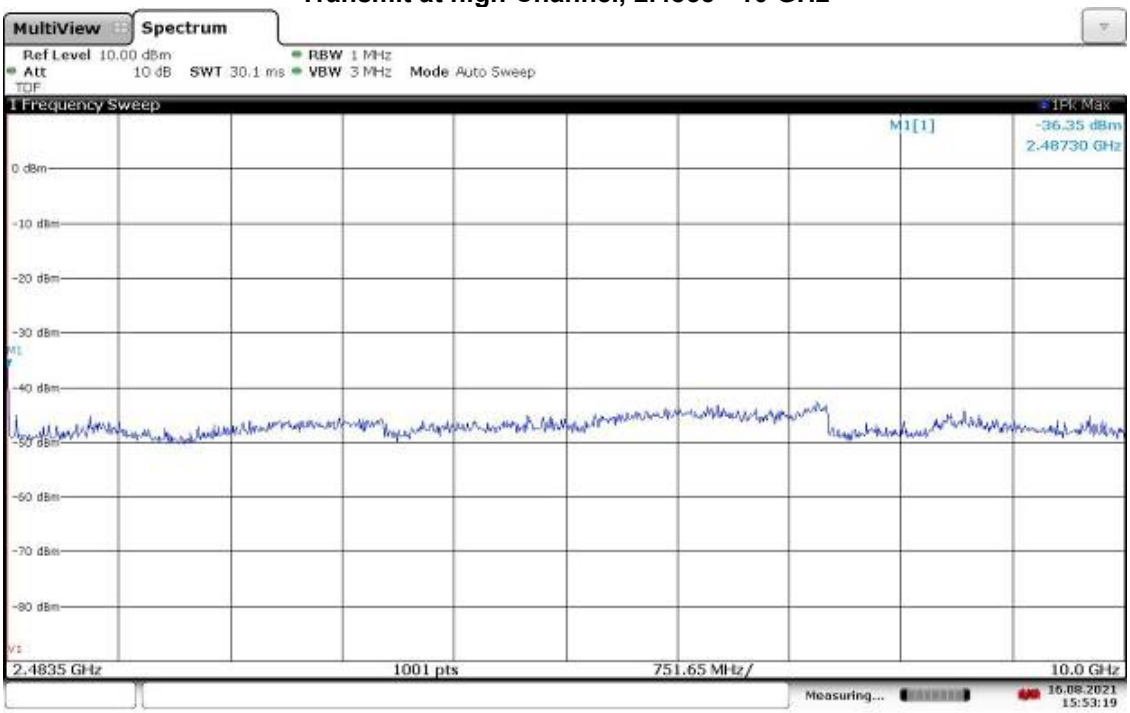
15:48:44 16.08.2021

Antenna port conducted measurements
Transmit at high Channel, 2.4 – 2.4835 GHz



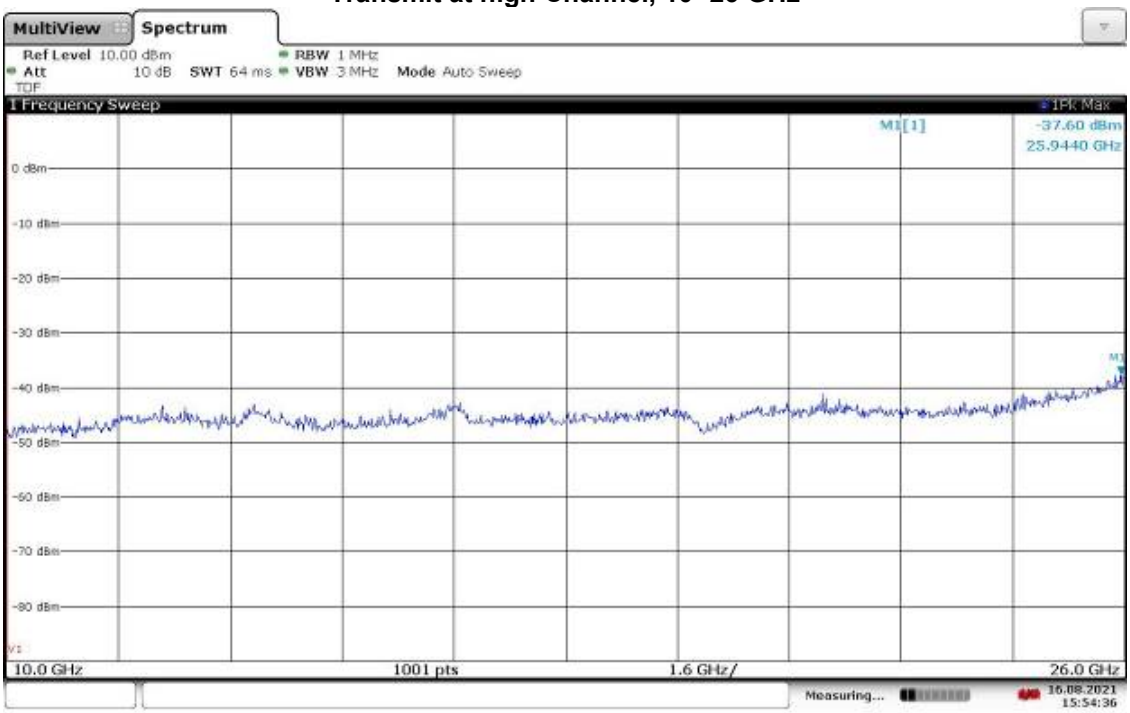
15:50:10 16.08.2021

Antenna port conducted measurements
Transmit at high Channel, 2.4835 - 10 GHz



15:53:20 16.08.2021

Antenna port conducted measurements
Transmit at high Channel, 10 -26 GHz



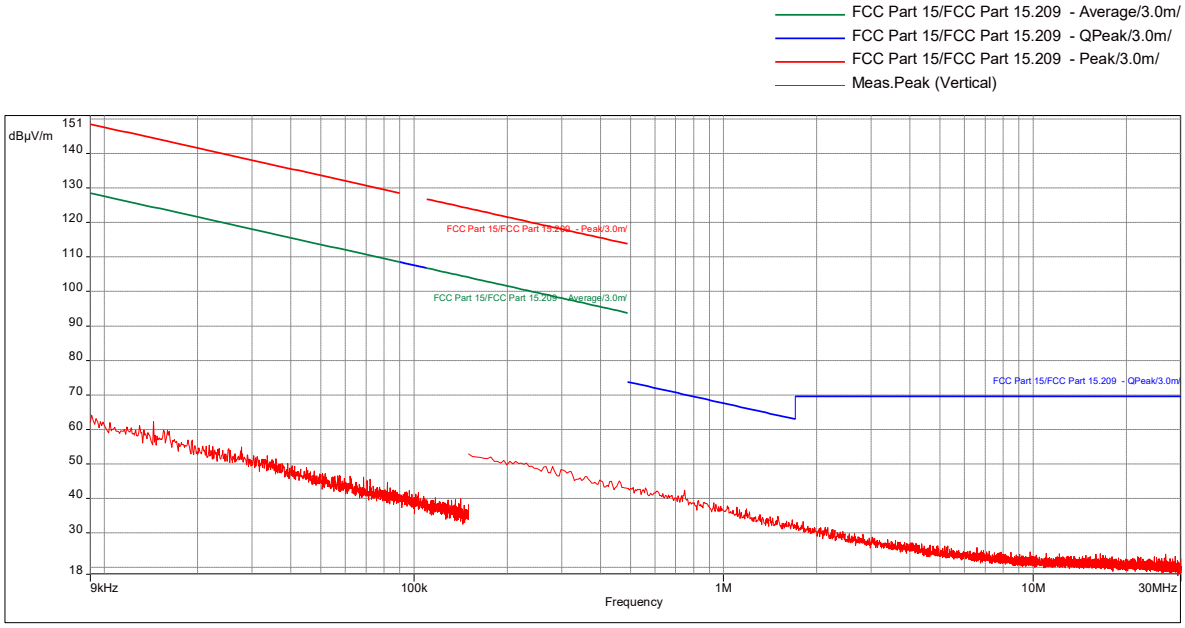
15:54:36 16.08.2021

Transmit at Low Channel (X-axis), 9kHz - 30 MHz

Test Information:

Date and Time	8/14/2021 12:00:19 AM
Client and Project Number	Velentium_G104664086
Engineer	Vathana Ven
Temperature	28 deg C
Humidity	43%
Atmospheric Pressure	1006 mB
Comments	RE 9kHz-30MHz Loop antenna, Electric Field, 3M Location (FCC 15.209)_Battery power_Tx mode_Low CH_X-Axis (EUT flat)

Graph:



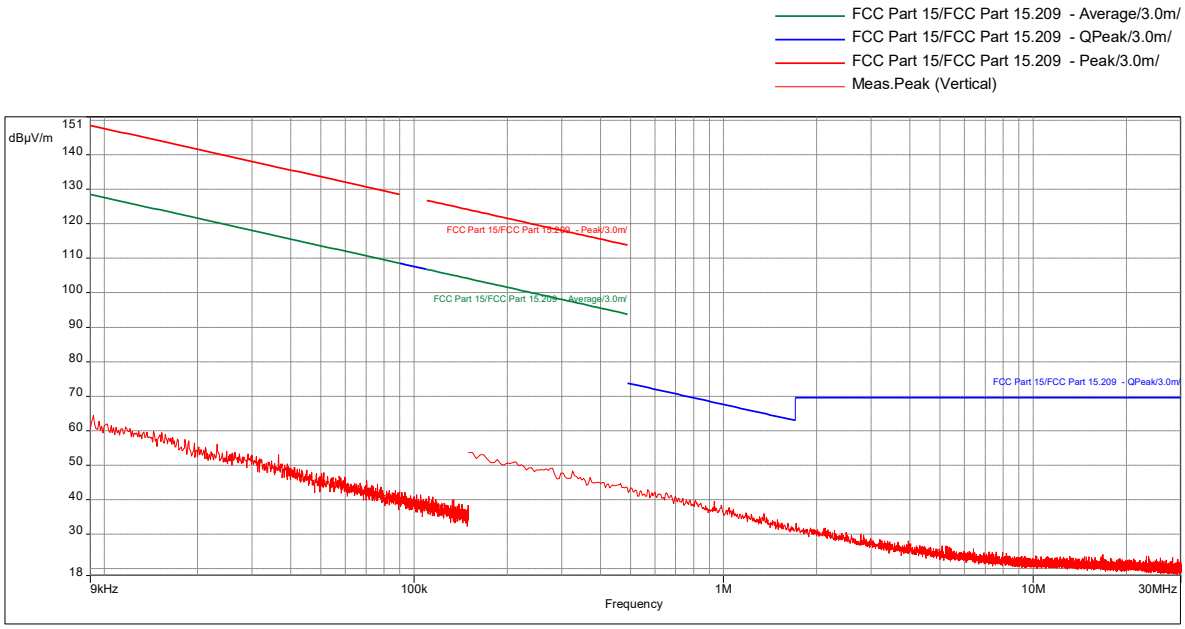
Results: No emissions were detected.

Transmit at Low Channel (Y- axis), 9kHz - 30 MHz

Test Information:

Date and Time	8/14/2021 12:32:12 AM
Client and Project Number	Velentium_G104664086
Engineer	Vathana Ven
Temperature	28 deg C
Humidity	43%
Atmospheric Pressure	1006 mB
Comments	RE 9kHz-30MHz Loop antenna, Electric Field, 3M Location (FCC 15.209)_Battery power_Tx mode_Low CH_Y-Axis (EUT is on long side))

Graph:



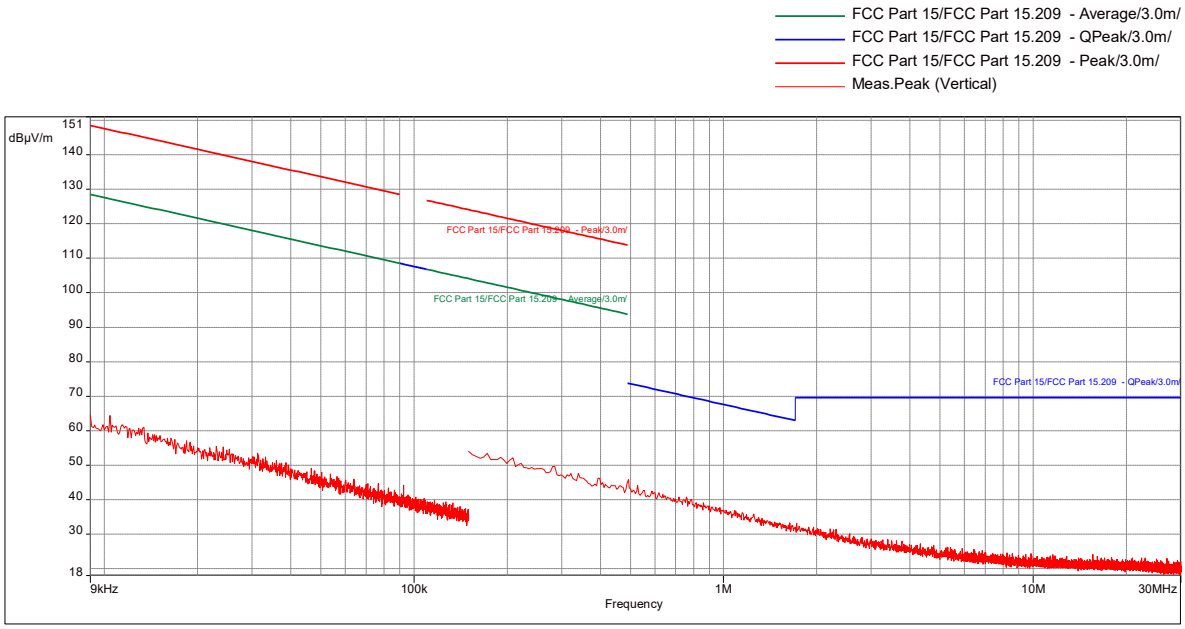
Results: No emissions were detected

Transmit at Low Channel (Z-axis), 9kHz - 30 MHz

Test Information:

Date and Time	8/14/2021 1:05:30 AM
Client and Project Number	Velentium_G104664086
Engineer	Vathana Ven
Temperature	28 deg C
Humidity	43%
Atmospheric Pressure	1006 mB
Comments	RE 9kHz-30MHz Loop antenna, Electric Field, 3M Location (FCC 15.209)_Battery power_Tx mode_Low CH_Z-Axis (EUT on short side)

Graph:



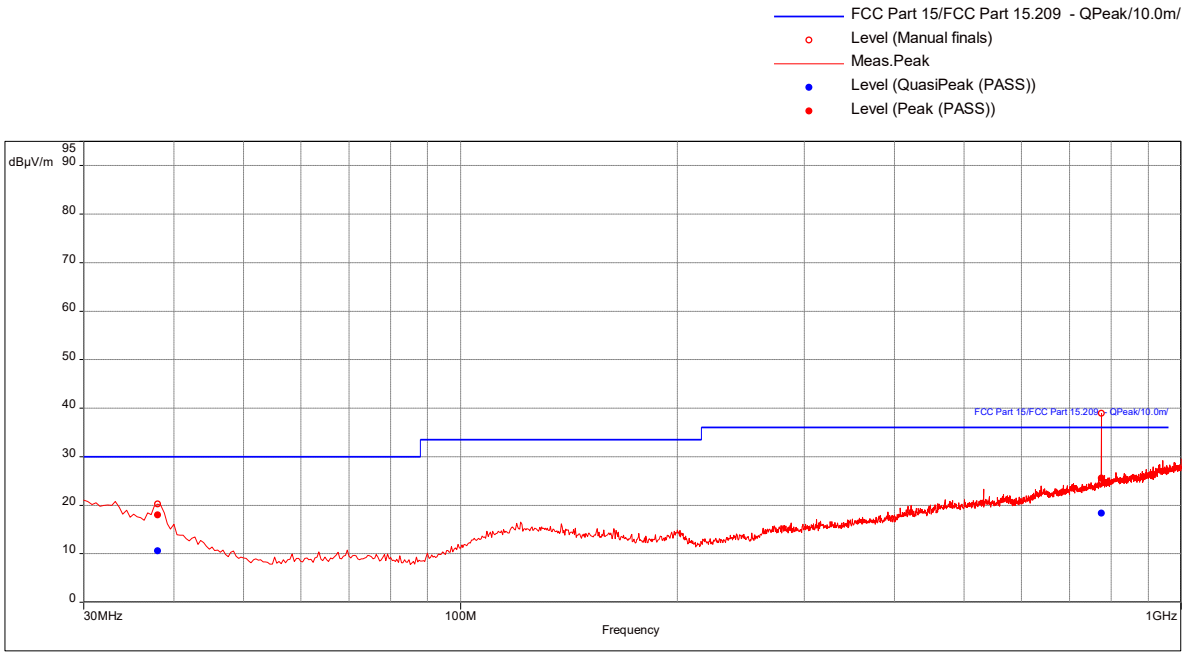
Results: No emissions were detected.

Transmit at Low Channel (X-axis), 30-1000 MHz

Test Information:

Date and Time	8/13/2021 9:40:22 PM
Client and Project Number	Velentium_G104664086
Engineer	Vathana Ven
Temperature	28 deg C
Humidity	43%
Atmospheric Pressure	1006 mB
Comments	RE 30-1000MHz_battery power_Tx mode_Low CH_X-Axis (EUT flat)

Graph:



Results:

QuasiPeak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
37.93684211	10.59	30.00	-19.41	288.00	1.74	Vertical	120000.00	-18.14
774.6421053	18.38	36.00	-17.62	178.00	2.18	Horizontal	120000.00	-8.47

Transmit at Low Channel (0), (X-Axis), RE 1-3 GHz

Test Information:

Date and Time	8/16/2021 7:26:47 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	27 C
Humidity	36 %
Atmospheric Pressure	1013 mbar
Comments	Tx at Low Ch 0, EUT on its back, RE 1-3 GHz SA mode

Graph:

Results:

Peak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
1851.842105	39.26	74.00	-34.74	272.00	1.00	Horizontal	1000000.00	-4.84
1866.052632	38.95	74.00	-35.05	193.00	1.25	Horizontal	1000000.00	-4.77

Average (PASS) (2)

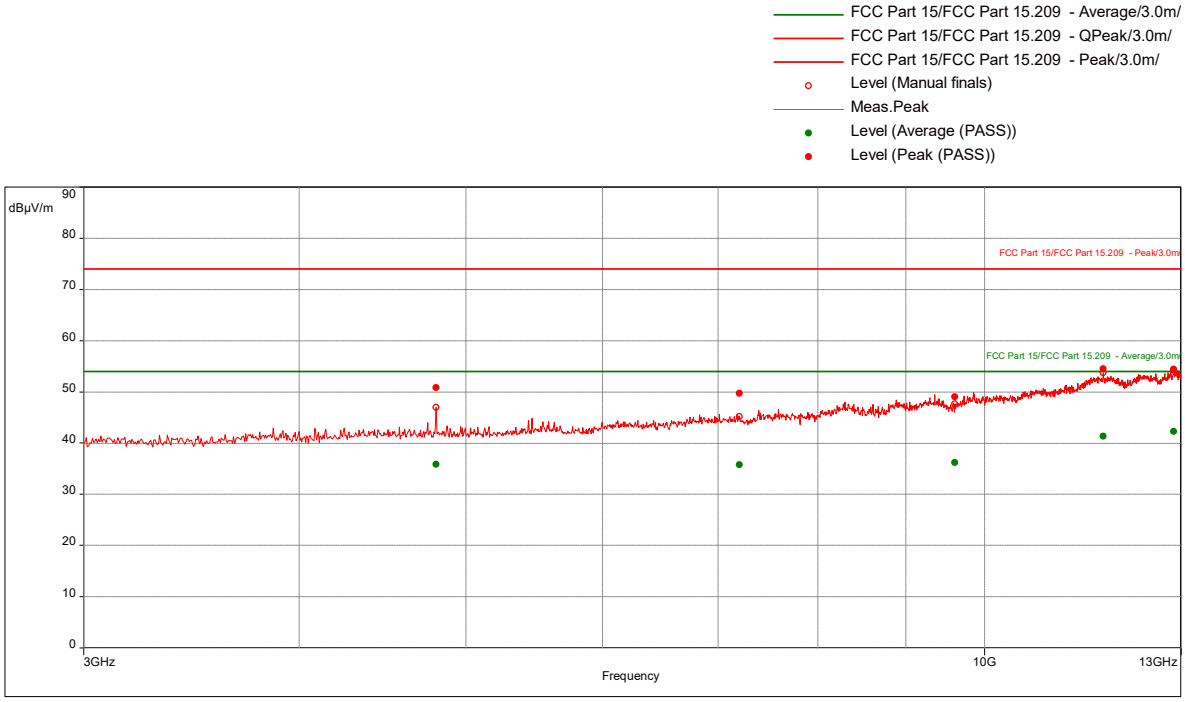
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
1851.842105	26.63	54.00	-27.37	272.00	1.00	Horizontal	1000000.00	-4.84
1866.052632	26.15	54.00	-27.85	193.00	1.25	Horizontal	1000000.00	-4.77

Transmit at Low Channel (0), (X-Axis), RE 3-18 GHz

Test Information:

Date and Time	8/16/2021 8:25:39 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	27 C
Humidity	36 %
Atmospheric Pressure	1013 mbar
Comments	Tx at Low Ch 0, EUT on its back, RE 3-18 GHz SA mode

Graph:



Results:

Peak (PASS) (5)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4803.947368	50.85	74.00	-23.15	288.00	1.65	Horizontal	1000000.00	0.65
7205.263158	49.70	74.00	-24.30	134.00	1.80	Horizontal	1000000.00	4.77
9611.578947	49.04	74.00	-24.96	157.00	1.00	Horizontal	1000000.00	7.80
11714.21053	54.52	74.00	-19.48	68.00	2.05	Vertical	1000000.00	13.16
12875.26316	54.41	74.00	-19.59	91.00	3.59	Vertical	1000000.00	14.94

Average (PASS) (5)

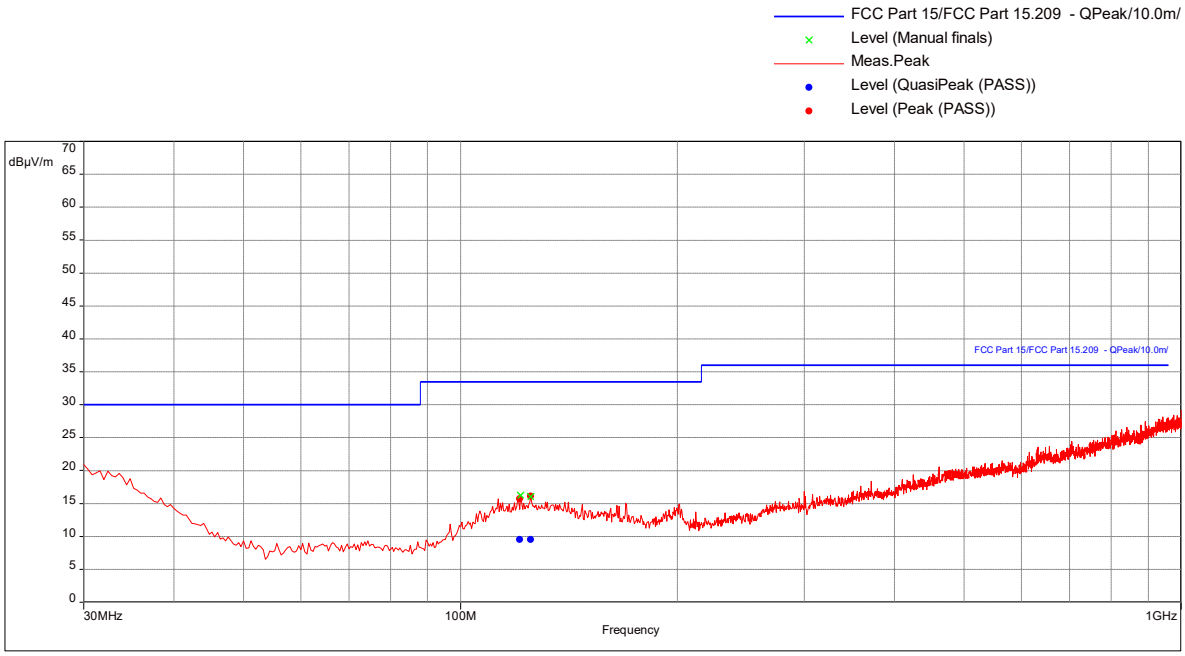
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4803.947368	35.81	54.00	-18.19	288.00	1.65	Horizontal	1000000.00	0.65
7205.263158	35.81	54.00	-18.19	134.00	1.80	Horizontal	1000000.00	4.77
9611.578947	36.21	54.00	-17.79	157.00	1.00	Horizontal	1000000.00	7.80
11714.21053	41.28	54.00	-12.72	68.00	2.05	Vertical	1000000.00	13.16
12875.26316	42.29	54.00	-11.71	91.00	3.59	Vertical	1000000.00	14.94

Transmit at Low Channel (Y-axis), 30-1000 MHz

Test Information:

Date and Time	8/13/2021 10:18:17 PM
Client and Project Number	Velentium_G104664086
Engineer	Vathana Ven
Temperature	28 deg C
Humidity	43%
Atmospheric Pressure	1006 mB
Comments	RE 30-1000MHz_battery power_Tx mode_Low CH_Y-Axis (EUT on long side)

Graph:



Results:

QuasiPeak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
120.9157895	15.72	33.50	-17.78	200.00	3.28	Vertical	120000.00	-18.76
125.1368421	16.10	33.50	-17.40	171.00	3.99	Horizontal	120000.00	-18.65

Transmit at Low Channel (Y-axis) 1-3 GHz

Test Information:

Date and Time	8/16/2021 7:40:40 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	27 C
Humidity	36 %
Atmospheric Pressure	1013 mbar
Comments	Tx at Low Ch 0, EUT on its long side, RE 1-3 GHz SA mode

Graph:

Results:

Peak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
1853.684211	44.06	74.00	-29.94	354.00	1.25	Horizontal	1000000.00	-4.83
1869.210526	38.96	74.00	-35.04	304.00	1.90	Horizontal	1000000.00	-4.76

Average (PASS) (2)

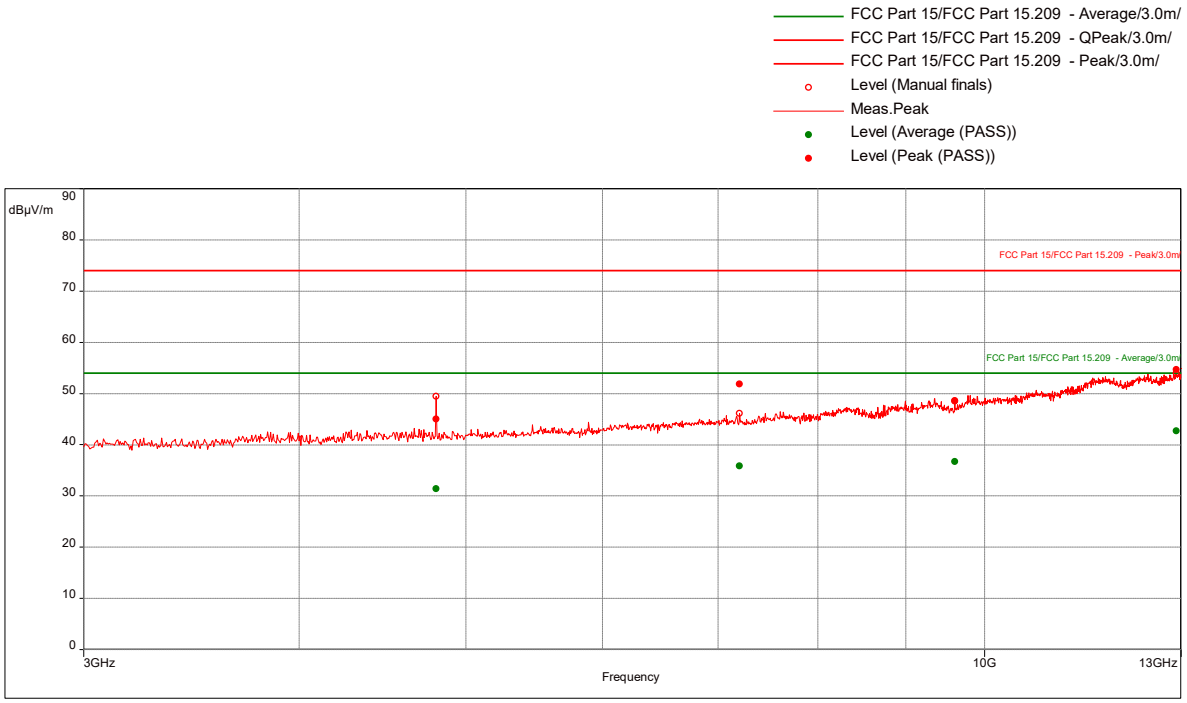
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
1853.684211	26.33	54.00	-27.67	354.00	1.25	Horizontal	1000000.00	-4.83
1869.210526	26.20	54.00	-27.80	304.00	1.90	Horizontal	1000000.00	-4.76

Transmit at Low Channel (Y-axis) 3-18 GHz

Test Information:

Date and Time	8/16/2021 7:56:05 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	27 C
Humidity	36 %
Atmospheric Pressure	1013 mbar
Comments	Tx at Low Ch 0, EUT on its long side, RE 3-18 GHz SA mode

Graph:



Results:

Peak (PASS) (4)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4804.473684	45.03	74.00	-28.97	91.00	3.05	Vertical	1000000.00	0.65
7206.842105	51.87	74.00	-22.13	358.00	2.60	Vertical	1000000.00	4.77
9610.526316	48.51	74.00	-25.49	39.00	3.59	Horizontal	1000000.00	7.81
12915.78947	54.69	74.00	-19.31	149.00	2.30	Vertical	1000000.00	15.05

Average (PASS) (4)

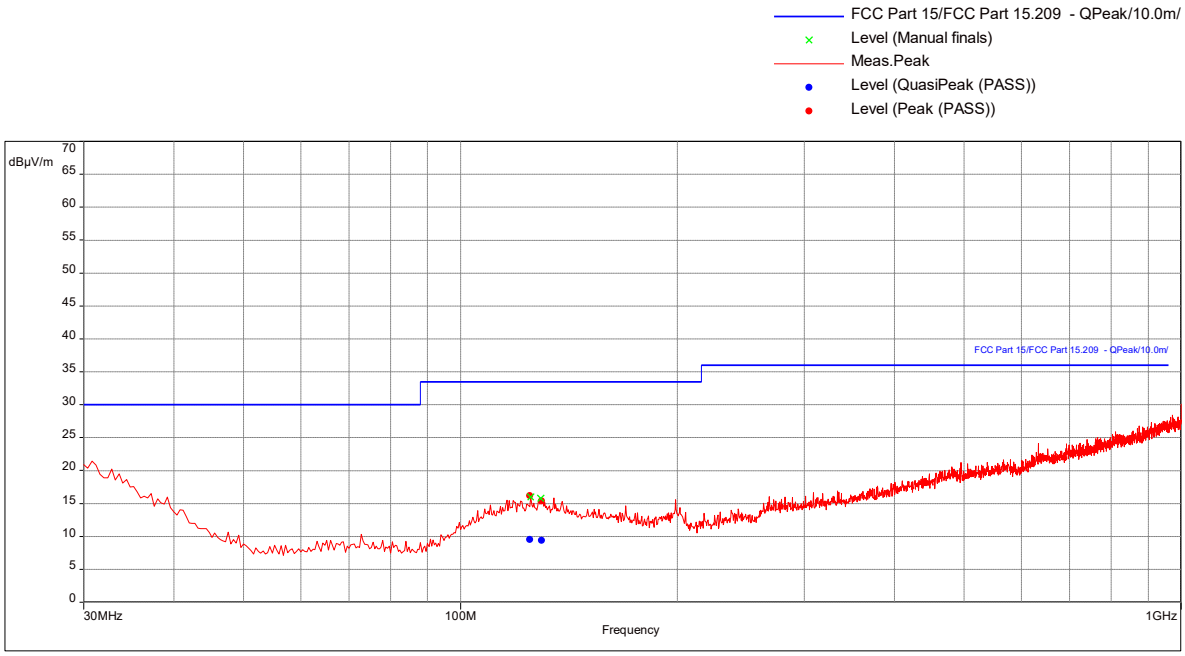
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4804.473684	31.40	54.00	-22.60	91.00	3.05	Vertical	1000000.00	0.65
7206.842105	35.81	54.00	-18.19	358.00	2.60	Vertical	1000000.00	4.77
9610.526316	36.69	54.00	-17.31	39.00	3.59	Horizontal	1000000.00	7.81
12915.78947	42.71	54.00	-11.29	149.00	2.30	Vertical	1000000.00	15.05

Transmit at Low Channel (Z-axis), 30-1000 MHz

Test Information:

Date and Time	8/13/2021 10:34:32 PM
Client and Project Number	Velentium_G104664086
Engineer	Vathana Ven
Temperature	28 deg C
Humidity	43%
Atmospheric Pressure	1006 mB
Comments	RE 30-1000MHz_battery power_Tx mode_Low CH_Z-Axis (EUT on short side)

Graph:



Results:

QuasiPeak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
124.9473684	9.54	33.50	-23.96	0.00	2.40	Vertical	120000.00	-18.65
129.4842105	9.40	33.50	-24.10	332.00	1.36	Horizontal	120000.00	-18.73

Transmit at Low Channel (Z-axis) 1-3 GHz

Test Information:

Date and Time	8/16/2021 7:26:47 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	27 C
Humidity	36 %
Atmospheric Pressure	1013 mbar
Comments	Tx at Low Ch 0, EUT on its back, RE 1-3 GHz SA mode

Graph:

Results:

Peak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
1851.842105	39.26	74.00	-34.74	272.00	1.00	Horizontal	1000000.00	-4.84
1866.052632	38.95	74.00	-35.05	193.00	1.25	Horizontal	1000000.00	-4.77

Average (PASS) (2)

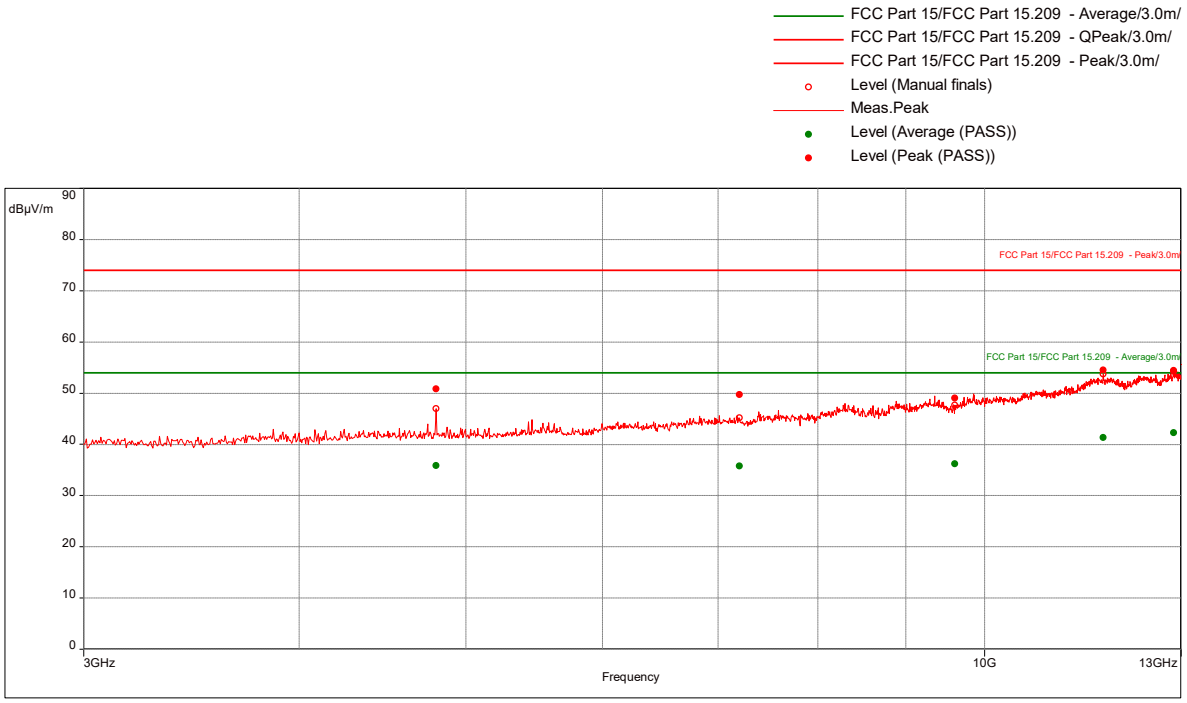
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
1851.842105	26.63	54.00	-27.37	272.00	1.00	Horizontal	1000000.00	-4.84
1866.052632	26.15	54.00	-27.85	193.00	1.25	Horizontal	1000000.00	-4.77

Transmit at Low Channel (Z-axis) 3-18 GHz

Test Information:

Date and Time	8/16/2021 8:25:39 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	27 C
Humidity	36 %
Atmospheric Pressure	1013 mbar
Comments	Tx at Low Ch 0, EUT on its back, RE 3-18 GHz SA mode

Graph:



Results:

Peak (PASS) (5)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4803.947368	50.85	74.00	-23.15	288.00	1.65	Horizontal	1000000.00	0.65
7205.263158	49.70	74.00	-24.30	134.00	1.80	Horizontal	1000000.00	4.77
9611.578947	49.04	74.00	-24.96	157.00	1.00	Horizontal	1000000.00	7.80
11714.21053	54.52	74.00	-19.48	68.00	2.05	Vertical	1000000.00	13.16
12875.26316	54.41	74.00	-19.59	91.00	3.59	Vertical	1000000.00	14.94

Average (PASS) (5)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4803.947368	35.81	54.00	-18.19	288.00	1.65	Horizontal	1000000.00	0.65
7205.263158	35.81	54.00	-18.19	134.00	1.80	Horizontal	1000000.00	4.77
9611.578947	36.21	54.00	-17.79	157.00	1.00	Horizontal	1000000.00	7.80
11714.21053	41.28	54.00	-12.72	68.00	2.05	Vertical	1000000.00	13.16
12875.26316	42.29	54.00	-11.71	91.00	3.59	Vertical	1000000.00	14.94

Transmit at Mid Channel (X-axis), 1-3 GHz

Test Information:

Date and Time	8/16/2021 10:44:39 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	27 C
Humidity	36 %
Atmospheric Pressure	1013 mbar
Comments	Tx at Mid Ch 19, EUT on its back, RE 1-3 GHz SA mode

Graph:

Results:

Peak (PASS) (1)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
2312.105263	48.90	74.00	-25.10	121.00	1.80	Vertical	1000000.00	-3.66

Average (PASS) (1)

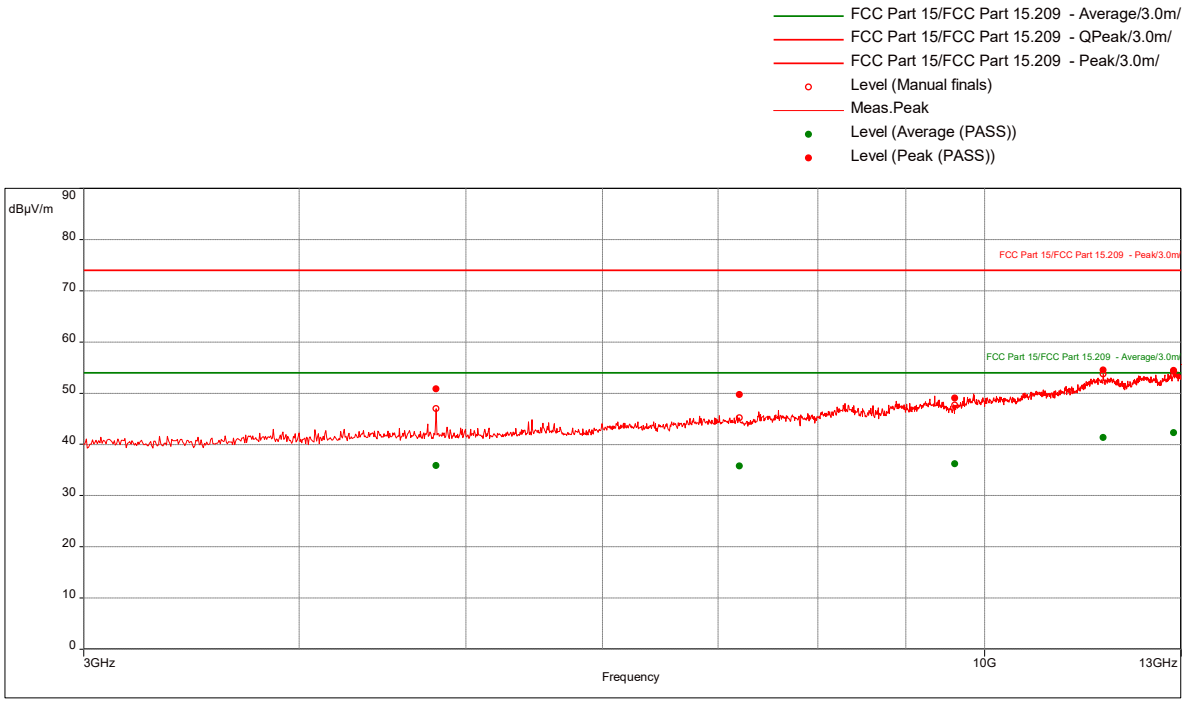
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
2312.105263	31.18	54.00	-22.82	121.00	1.80	Vertical	1000000.00	-3.66

Transmit at Mid Channel (X-axis), 3-18 GHz

Test Information:

Date and Time	8/16/2021 8:25:39 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	27 C
Humidity	36 %
Atmospheric Pressure	1013 mbar
Comments	Tx at Low Ch 0, EUT on its back, RE 3-18 GHz SA mode

Graph:



Results:

Peak (PASS) (5)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4803.947368	50.85	74.00	-23.15	288.00	1.65	Horizontal	1000000.00	0.65
7205.263158	49.70	74.00	-24.30	134.00	1.80	Horizontal	1000000.00	4.77
9611.578947	49.04	74.00	-24.96	157.00	1.00	Horizontal	1000000.00	7.80
11714.21053	54.52	74.00	-19.48	68.00	2.05	Vertical	1000000.00	13.16
12875.26316	54.41	74.00	-19.59	91.00	3.59	Vertical	1000000.00	14.94

Average (PASS) (5)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4803.947368	35.81	54.00	-18.19	288.00	1.65	Horizontal	1000000.00	0.65
7205.263158	35.81	54.00	-18.19	134.00	1.80	Horizontal	1000000.00	4.77
9611.578947	36.21	54.00	-17.79	157.00	1.00	Horizontal	1000000.00	7.80
11714.21053	41.28	54.00	-12.72	68.00	2.05	Vertical	1000000.00	13.16
12875.26316	42.29	54.00	-11.71	91.00	3.59	Vertical	1000000.00	14.94

Transmit at Mid Channel (Y-axis), 1-3 GHz

Test Information:

Date and Time	8/16/2021 7:40:40 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	27 C
Humidity	36 %
Atmospheric Pressure	1013 mbar
Comments	Tx at Low Ch 0, EUT on its long side, RE 1-3 GHz SA mode

Graph:

Results:

Peak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
1853.684211	44.06	74.00	-29.94	354.00	1.25	Horizontal	1000000.00	-4.83
1869.210526	38.96	74.00	-35.04	304.00	1.90	Horizontal	1000000.00	-4.76

Average (PASS) (2)

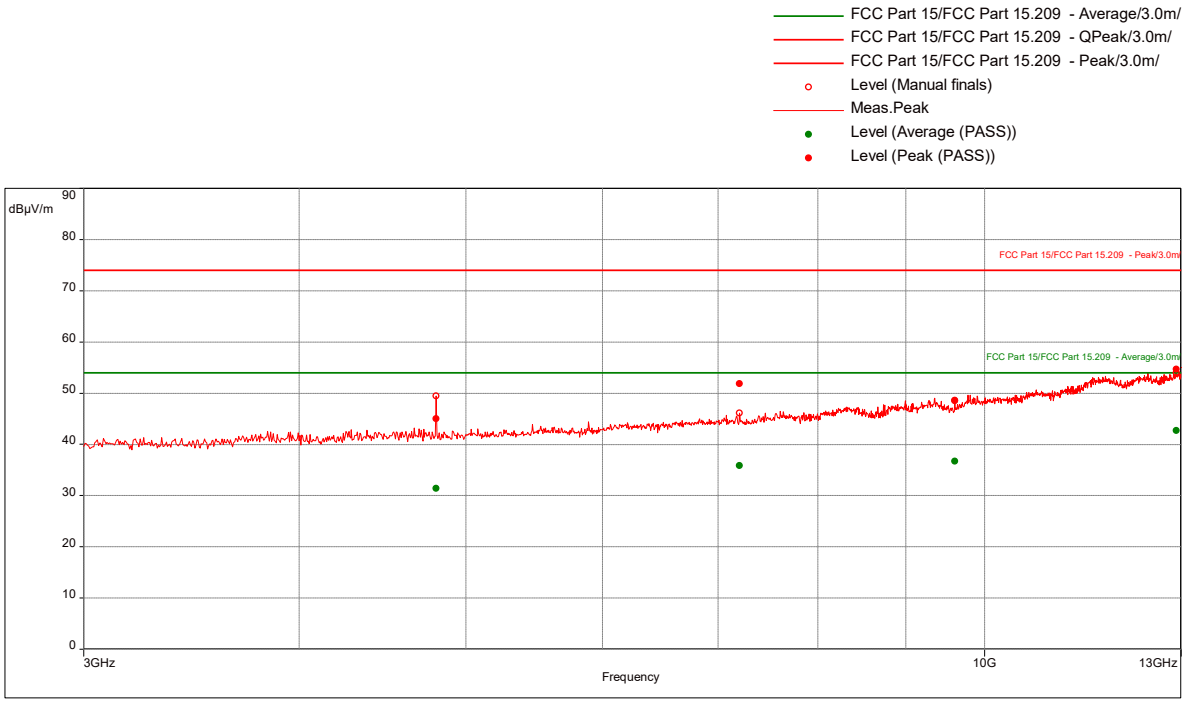
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
1853.684211	26.33	54.00	-27.67	354.00	1.25	Horizontal	1000000.00	-4.83
1869.210526	26.20	54.00	-27.80	304.00	1.90	Horizontal	1000000.00	-4.76

Transmit at Mid Channel (Y-axis), 3-18 GHz

Test Information:

Date and Time	8/16/2021 7:56:05 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	27 C
Humidity	36 %
Atmospheric Pressure	1013 mbar
Comments	Tx at Low Ch 0, EUT on its long side, RE 3-18 GHz SA mode

Graph:



Results:

Peak (PASS) (4)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4804.473684	45.03	74.00	-28.97	91.00	3.05	Vertical	1000000.00	0.65
7206.842105	51.87	74.00	-22.13	358.00	2.60	Vertical	1000000.00	4.77
9610.526316	48.51	74.00	-25.49	39.00	3.59	Horizontal	1000000.00	7.81
12915.78947	54.69	74.00	-19.31	149.00	2.30	Vertical	1000000.00	15.05

Average (PASS) (4)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4804.473684	31.40	54.00	-22.60	91.00	3.05	Vertical	1000000.00	0.65
7206.842105	35.81	54.00	-18.19	358.00	2.60	Vertical	1000000.00	4.77
9610.526316	36.69	54.00	-17.31	39.00	3.59	Horizontal	1000000.00	7.81
12915.78947	42.71	54.00	-11.29	149.00	2.30	Vertical	1000000.00	15.05

Transmit at Mid Channel (Z-axis), 1-3 GHz

Test Information:

Date and Time	8/16/2021 7:16:02 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	27 C
Humidity	36 %
Atmospheric Pressure	1013 mbar
Comments	Tx at Low Ch 0, EUT on its short side, RE 1-3 GHz SA mode

Graph:

Results:

Peak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
1853.421053	47.43	74.00	-26.57	162.00	2.25	Horizontal	1000000.00	-4.84
1868.947368	40.03	74.00	-33.97	324.00	1.65	Horizontal	1000000.00	-4.76

Average (PASS) (2)

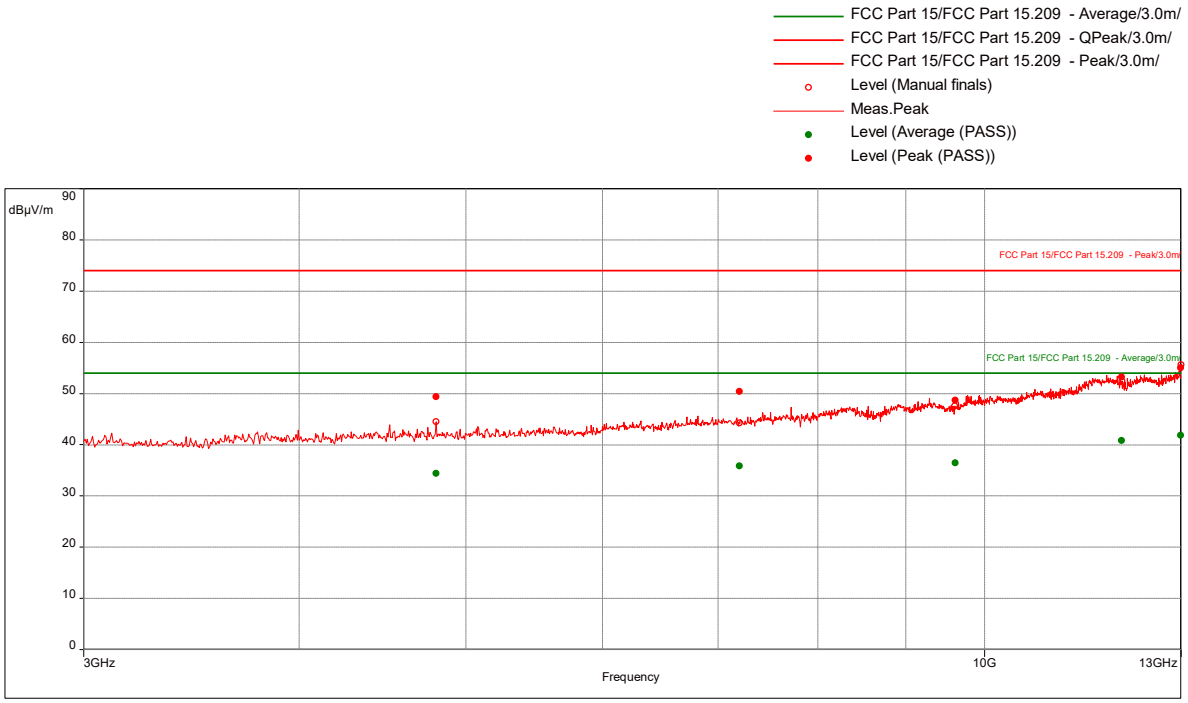
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
1853.421053	29.31	54.00	-24.69	162.00	2.25	Horizontal	1000000.00	-4.84
1868.947368	26.20	54.00	-27.80	324.00	1.65	Horizontal	1000000.00	-4.76

Transmit at Mid Channel (Z-axis), 3-18 GHz

Test Information:

Date and Time	8/16/2021 8:52:56 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	27 C
Humidity	36 %
Atmospheric Pressure	1013 mbar
Comments	Tx at Low Ch 0, EUT on its short side, RE 3-18 GHz SA mode

Graph:



Results:

Peak (PASS) (5)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4803.947368	49.40	74.00	-24.60	76.00	2.50	Horizontal	1000000.00	0.65
7206.578947	50.37	74.00	-23.63	0.00	2.05	Vertical	1000000.00	4.77
9613.421053	48.64	74.00	-25.36	245.00	1.40	Horizontal	1000000.00	7.80
12006.05263	53.22	74.00	-20.78	69.00	3.54	Vertical	1000000.00	13.15
12997.5	55.00	74.00	-19.00	98.00	3.79	Horizontal	1000000.00	15.20

Average (PASS) (5)

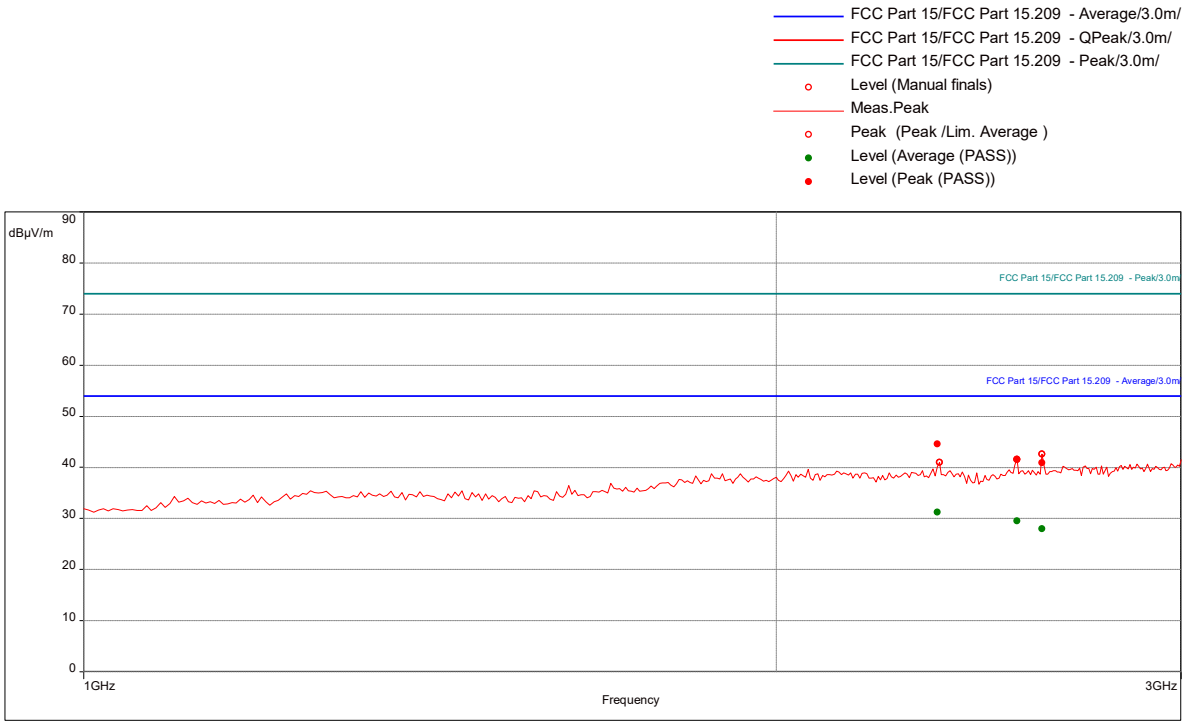
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4803.947368	34.39	54.00	-19.61	76.00	2.50	Horizontal	1000000.00	0.65
7206.578947	35.81	54.00	-18.19	0.00	2.05	Vertical	1000000.00	4.77
9613.421053	36.43	54.00	-17.57	245.00	1.40	Horizontal	1000000.00	7.80
12006.05263	40.81	54.00	-13.19	69.00	3.54	Vertical	1000000.00	13.15
12997.5	41.84	54.00	-12.16	98.00	3.79	Horizontal	1000000.00	15.20

Transmit at High Channel (X-axis), 1-3 GHz

Test Information:

Date and Time	8/18/2021 6:27:57 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	28 C
Humidity	40 %
Atmospheric Pressure	1012 mbar
Comments	Tx at Hi Ch 39, EUT on its back side, RE 1-3 GHz SA mode

Graph:



Results:

Peak (PASS) (3)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
2352.105263	44.60	74.00	-29.40	90.00	1.55	Vertical	1000000.00	-3.34
2544.210526	41.51	74.00	-32.49	97.00	1.50	Vertical	1000000.00	-3.15
2610.263158	40.92	74.00	-33.08	119.00	1.40	Vertical	1000000.00	-2.93

Average (PASS) (3)

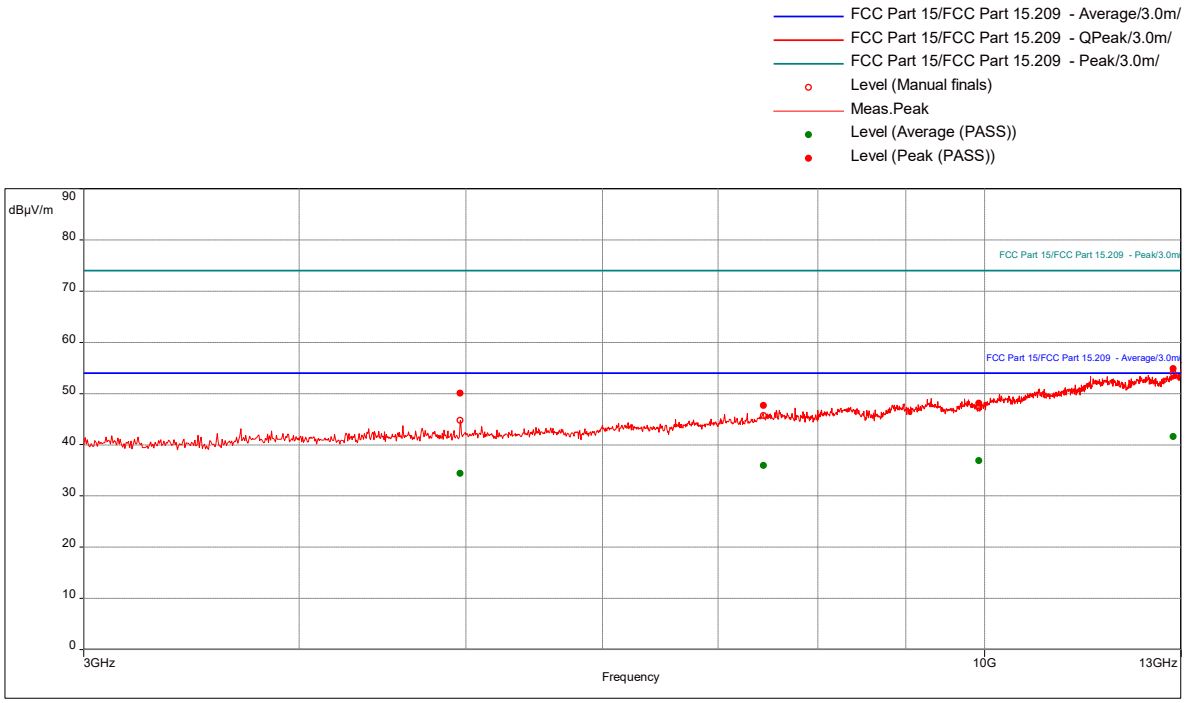
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
2352.105263	31.25	54.00	-22.75	90.00	1.55	Vertical	1000000.00	-3.34
2544.210526	29.55	54.00	-24.45	97.00	1.50	Vertical	1000000.00	-3.15
2610.263158	27.95	54.00	-26.05	119.00	1.40	Vertical	1000000.00	-2.93

Transmit at High Channel (X-axis), 3-18 GHz

Test Information:

Date and Time	8/18/2021 4:49:24 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	28 C
Humidity	40 %
Atmospheric Pressure	1012 mbar
Comments	Tx at Hi Ch 39, EUT on its back, RE 3-18 GHz SA mode

Graph:



Results:

Peak (PASS) (4)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4960	50.02	74.00	-23.98	83.00	3.84	Horizontal	1000000.00	0.88
7438.684211	47.69	74.00	-26.31	192.00	1.95	Vertical	1000000.00	5.30
9919.736842	48.09	74.00	-25.91	0.00	3.05	Vertical	1000000.00	8.36
12864.73684	54.88	74.00	-19.12	339.00	3.94	Vertical	1000000.00	14.90

Average (PASS) (4)

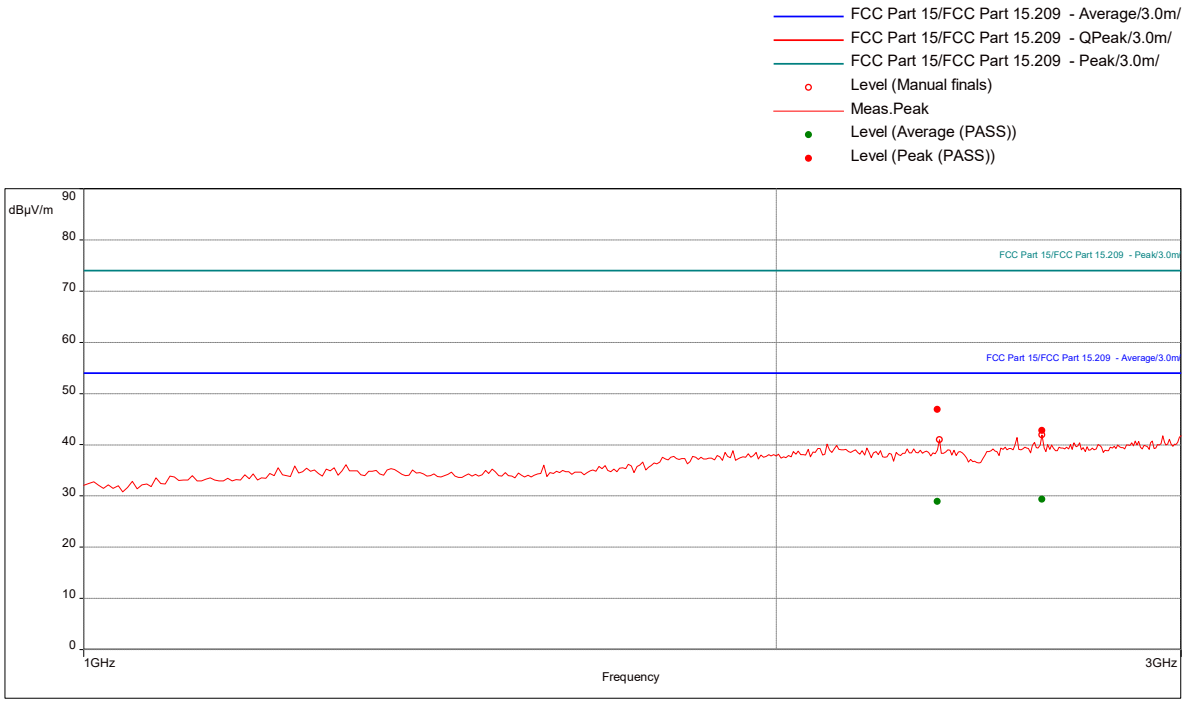
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4960	34.38	54.00	-19.62	83.00	3.84	Horizontal	1000000.00	0.88
7438.684211	35.92	54.00	-18.08	192.00	1.95	Vertical	1000000.00	5.30
9919.736842	36.87	54.00	-17.13	0.00	3.05	Vertical	1000000.00	8.36
12864.73684	41.62	54.00	-12.38	339.00	3.94	Vertical	1000000.00	14.90

Transmit at High Channel (Y-axis), 1-3 GHz

Test Information:

Date and Time	8/18/2021 6:15:42 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	28 C
Humidity	40 %
Atmospheric Pressure	1012 mbar
Comments	Tx at Hi Ch 39, EUT on its long side, RE 1-3 GHz SA mode

Graph:



Results:

Peak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
2351.578947	46.86	74.00	-27.14	149.00	1.45	Horizontal	1000000.00	-3.34
2608.421053	42.80	74.00	-31.20	120.00	3.79	Horizontal	1000000.00	-2.93

Average (PASS) (2)

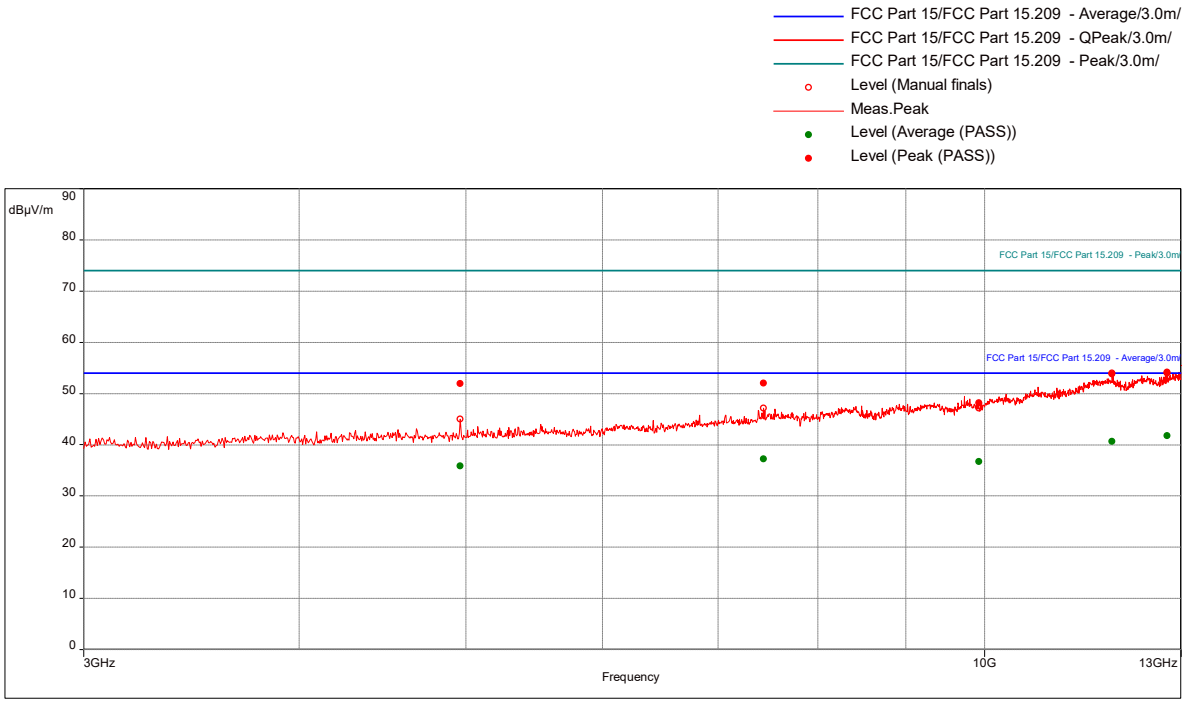
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
2351.578947	28.95	54.00	-25.05	149.00	1.45	Horizontal	1000000.00	-3.34
2608.421053	29.32	54.00	-24.68	120.00	3.79	Horizontal	1000000.00	-2.93

Transmit at High Channel (Y-axis), 3-18 GHz

Test Information:

Date and Time	8/18/2021 5:14:30 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	28 C
Humidity	40 %
Atmospheric Pressure	1012 mbar
Comments	Tx at Hi Ch 39, EUT on its long side, RE 3-13 GHz SA mode

Graph:



Results:

Peak (PASS) (5)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4960	51.95	74.00	-22.05	229.00	2.95	Vertical	1000000.00	0.88
7439.210526	51.99	74.00	-22.01	309.00	2.70	Horizontal	1000000.00	5.30
9918.157895	48.16	74.00	-25.84	11.00	3.54	Vertical	1000000.00	8.35
11852.63158	53.79	74.00	-20.21	257.00	1.90	Vertical	1000000.00	13.08
12760.52632	54.17	74.00	-19.83	0.00	3.34	Vertical	1000000.00	14.60

Average (PASS) (5)

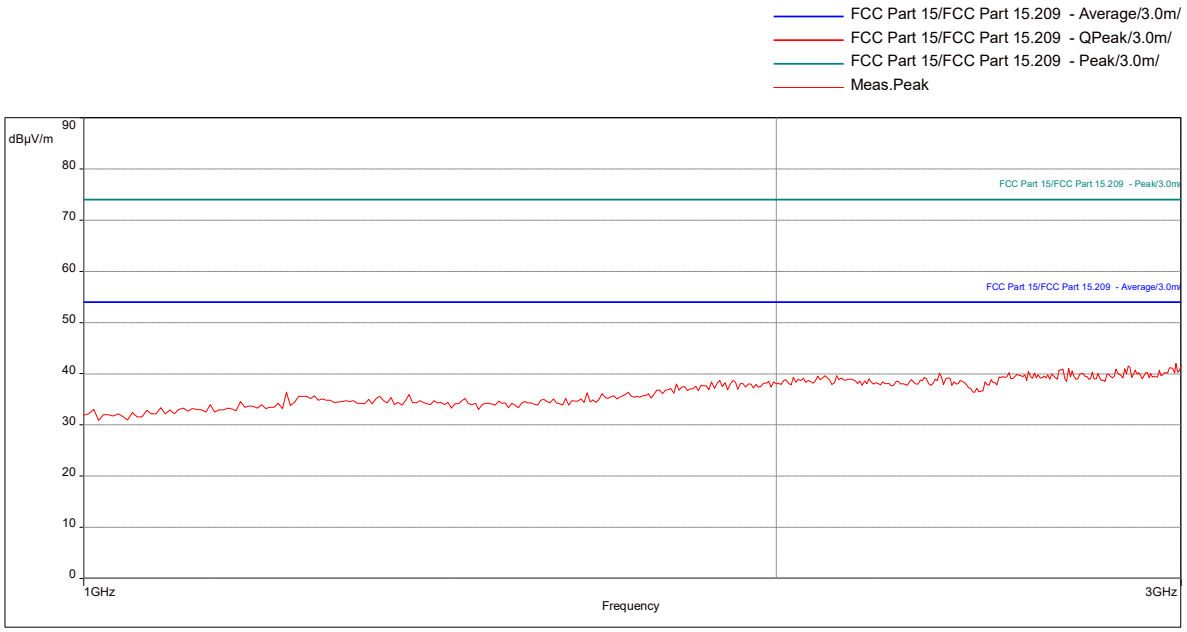
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4960	35.87	54.00	-18.13	229.00	2.95	Vertical	1000000.00	0.88
7439.210526	37.26	54.00	-16.74	309.00	2.70	Horizontal	1000000.00	5.30
9918.157895	36.70	54.00	-17.30	11.00	3.54	Vertical	1000000.00	8.35
11852.63158	40.62	54.00	-13.38	257.00	1.90	Vertical	1000000.00	13.08
12760.52632	41.77	54.00	-12.23	0.00	3.34	Vertical	1000000.00	14.60

Transmit at High Channel (Z-axis), 1-3 GHz

Test Information:

Date and Time	8/18/2021 6:10:27 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	28 C
Humidity	40 %
Atmospheric Pressure	1012 mbar
Comments	Tx at Hi Ch 39, EUT on its short side, RE 1-3 GHz SA mode

Graph:



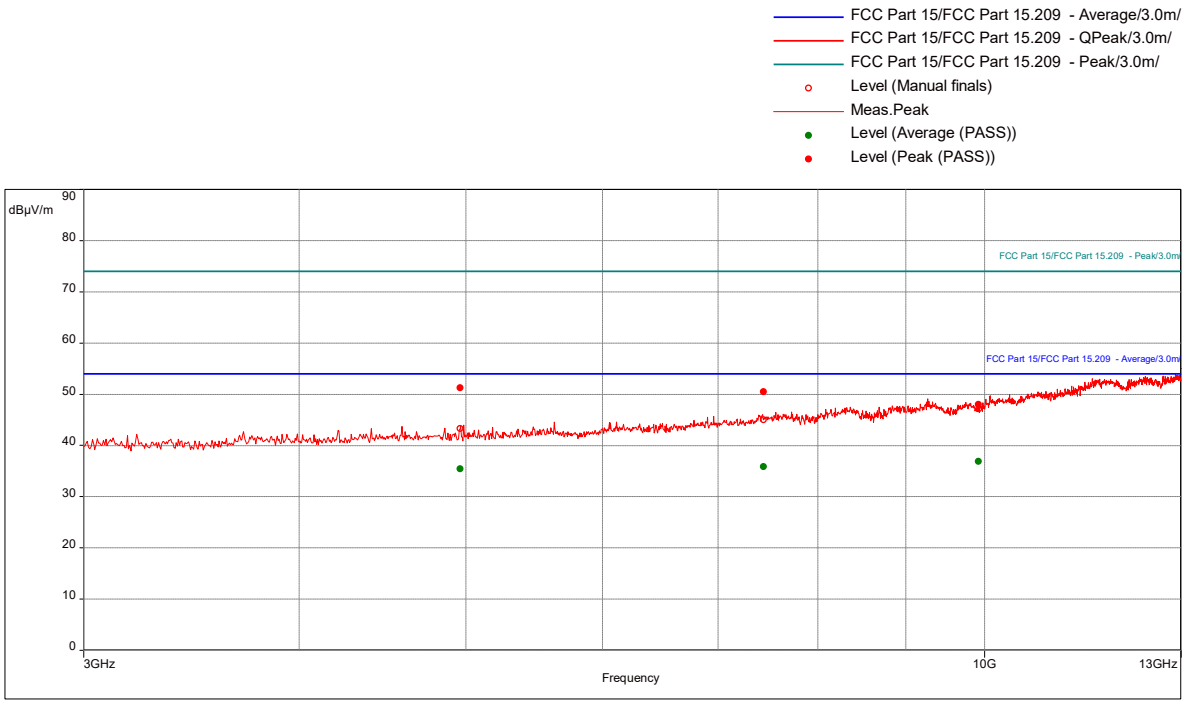
Results: No emissions were detected.

Transmit at High Channel (Z-axis), 3-18 GHz

Test Information:

Date and Time	8/18/2021 5:44:39 PM
Client and Project Number	Velentium
Engineer	Kouma Sinn
Temperature	28 C
Humidity	40 %
Atmospheric Pressure	1012 mbar
Comments	Tx at Hi Ch 39, EUT on its short side, RE 3-13 GHz SA mode

Graph:



Results:

Peak (PASS) (3)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4960	51.23	74.00	-22.77	201.00	2.55	Horizontal	1000000.00	0.88
7439.210526	50.50	74.00	-23.50	163.00	3.05	Vertical	1000000.00	5.30
9916.052632	47.99	74.00	-26.01	4.00	1.70	Horizontal	1000000.00	8.34

Average (PASS) (3)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
4960	35.45	54.00	-18.55	201.00	2.55	Horizontal	1000000.00	0.88
7439.210526	35.84	54.00	-18.16	163.00	3.05	Vertical	1000000.00	5.30
9916.052632	36.91	54.00	-17.09	4.00	1.70	Horizontal	1000000.00	8.34

Transmit at Low, Mid, and High Channels on all three axis, 18-25 GHz

Radiated Emissions

Company: Velentium
Model #: M3000
Serial #: 3250834
Engineers: Kouma Sinn
Project #: G104228375
Standard: 15.247/RSS-247
Receiver: ROS005-1
PreAmp: PRE8

Location: 10M
Date(s): 08/19/21

Antenna & Cables: LF — Bands: N, LF, HF, SHF
Antenna: EMC04 — EMC04
Cable(s): CBLHF2021-2M-2 — CBLHF2012-2M-1
Barometer: DAV005 — Filter: REA006 REA004
Temp/Humidity/Pressure: 23C 25% 983mbar

Limit Distance (m): 3
Test Distance (m): 0.1

PreAmp Used? (Y or N): Y — Voltage/Frequency: Internal Battery — Frequency Range: 13-25 GHz

Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)

Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth	FCC	IC
Manually scan was performed at a distance of 10 cm with no emissions were detected above the measuring equipment noise floor.													

Test Personnel: Vathana F. Ven VFV — Test Date: 08/13/2021, 08/14/2021

Kouma Sinn KPS — 08/16/2021, 08/18/2021, 08/19/2021

Supervising/Reviewing Engineer: (Where Applicable) N/A

Product Standard: CFR47 FCC Part 15.247 RSS-247 — Limit Applied: See report section 10.3

Input Voltage: Battery Powered

Pretest Verification w/ Ambient Signals or BB Source: BB Source

Ambient Temperature: 28, 28, 27, 28, 23 ºC

Relative Humidity: 43, 43, 36, 40, 25 %

Atmospheric Pressure: 1006, 1006, 1013, 1012, 983 mbars

Deviations, Additions, or Exclusions: None

11 Digital Device and Receiver Radiated Spurious Emissions

11.1 Method

Tests are performed in accordance with FCC Part 15 Subpart B, ICES 003, and ANSI C 63.4.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
Radiated Emissions, 10m	30-1000 MHz	4.6dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	5.3 dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.5 dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	5.2 dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	5.0 dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	5.0 dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG
Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 52.0 dBμV
AF = 7.4 dB/m
CF = 1.6 dB
AG = 29.0 dB
FS = 32 dBμV/m

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV
NF = Net Reading in dBμV

Example:

FS = RA + AF + CF – AG = 52.0 + 7.4 + 1.6 – 29.0 = 32.0
$UF = 10^{(32\ dB\mu V / 20)}$ = 39.8 μV/m

Alternately, when BAT-EMC Emission Software is used, the “Level” includes all losses and gains and is compared directly in the “Margin” column to the “Limit”. The “Correction” includes Antenna Factor, Preamp, and Cable Loss. These are already accounted for in the “Level” column.

11.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV005'	Weather Station	Davis	6250	MS191218083	02/07/2021	02/07/2022
145108'	EMI Test Receiver (20Hz - 40GHz)	Rohde & Schwarz	ESIB40	100209	06/22/2020	06/22/2022
PRE10'	30-1000MHz pre-amp	ITS	PRE10	PRE10	02/17/2021	02/17/2022
145145'	Broadband Hybrid Antenna 30 MHz - 3 GHz	Sunol Sciences Corp.	JB3	A122313	06/09/2021	06/09/2022
IW001'	2 meter cable	Insulated Wire	2801-NPS	001	10/07/2020	10/07/2021
HS001'	DC-18GHz cable 1.5m long	Huber & Suhner	SucoFlex 106A	HS001	10/07/2020	10/07/2021
IW003'	8.4 meter cable	Insulated Wire	2800-NPS	003	10/08/2020	10/08/2021
145-422'	10Amp Pre-amp to under floor	Utiflex	UFB311A-0-2756-70070	145-422	02/17/2021	02/17/2022
HS003'	10m under floor cable	Huber-Schuner	10m-1	HS003	02/17/2021	02/17/2022
ETS005'	1-18GHz horn antenna	ETS-Lindgren	3117	00218279	09/28/2020	09/28/2021
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	10/27/2020	10/27/2021
145019'	Active Loop Antenna (9 KHz to 30 MHz)	EMCO	6502/1	9902-3267	02/17/2021	02/17/2022
PRE12'	Pre-amplifier	Com Power	PAM-118A	18040117	12/07/2020	12/07/2021
REA008'	band reject filter 2.4GHz	Reactel, Inc	12RX7-2441.75-x140 S	17-01	07/28/2021	07/28/2022
REA004'	3GHz High Pass Filter	Reactel, Inc	7HSX-3G/18G-S11	06-1	02/19/2021	02/19/2022

Software Utilized:

Name	Manufacturer	Version
BAT-EMC	Nexio	3.18.0.16

11.3 Results:

The sample tested was found to Comply.

§15.109 Radiated emission limits.

The field strength of radiated emissions form unintentional radiators at a distance of 3 meters shall not exceed the following values.

Frequency of emission (MHz)	Field strength (microvolts/meter)	Field strength (dBµV/m)
30-88	100	40.00
88-216	150	43.52
216-960	200	46.02
Above 960	500	54.00

11.4 Setup Photograph:

Not included in this report

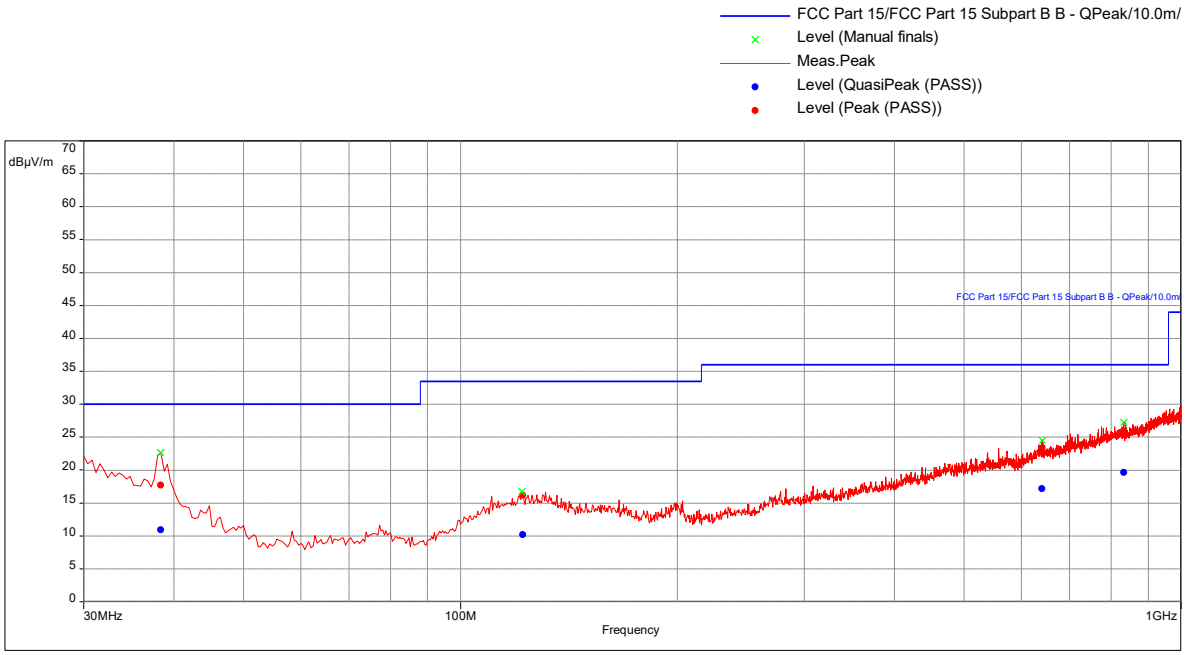
11.5 Plots/Data:

30-1000 MHz

Test Information:

Date and Time	9/6/2021 9:19:22 AM
Client and Project Number	Velentium_G104664086
Engineer	Vathana Ven
Temperature	23 deg C
Humidity	47%
Atmospheric Pressure	998 mB
Comments	RE 30-1000MHz_Battery power_Rx mode_Low CH

Graph:



Results:

QuasiPeak (PASS) (4)

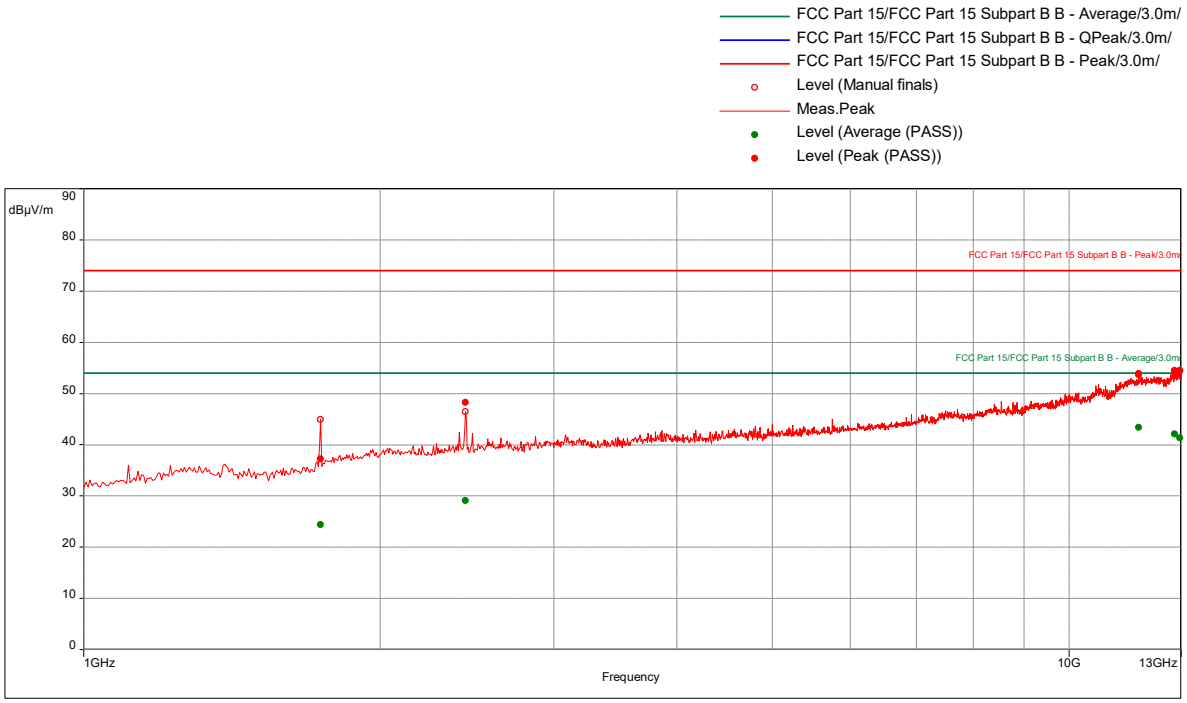
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
38.24210526	10.95	30.00	-19.05	274.00	3.51	Vertical	120000.00	-18.30
121.9473684	10.19	33.50	-23.31	345.00	1.34	Horizontal	120000.00	-18.60
641.3789474	17.15	36.00	-18.85	47.00	2.89	Vertical	120000.00	-10.21
832.4947368	19.65	36.00	-16.35	73.00	2.95	Horizontal	120000.00	-7.19

1-13 GHz

Test Information:

Date and Time	9/6/2021 10:31:30 AM
Client and Project Number	Velentium_G104664086
Engineer	Vathana Ven
Temperature	23 deg C
Humidity	47%
Atmospheric Pressure	998 mB
Comments	RE 1 to 13GHz_Battery power

Graph:



Results:

Peak (PASS) (5)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
1739.473684	37.19	74.00	-36.81	149.00	2.15	Horizontal	1000000.00	-6.38
2441.052632	48.28	74.00	-25.72	0.00	1.20	Horizontal	1000000.00	-3.35
11777.36842	53.91	74.00	-20.09	339.00	3.60	Vertical	1000000.00	13.15
12806.31579	54.31	74.00	-19.69	4.00	3.20	Vertical	1000000.00	14.78
12955.26316	54.49	74.00	-19.51	0.00	1.25	Horizontal	1000000.00	15.13

Average (PASS) (5)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
1739.473684	24.42	54.00	-29.58	149.00	2.15	Horizontal	1000000.00	-6.38
2441.052632	29.11	54.00	-24.89	0.00	1.20	Horizontal	1000000.00	-3.35
11777.36842	43.39	54.00	-10.61	339.00	3.60	Vertical	1000000.00	13.15
12806.31579	42.07	54.00	-11.93	4.00	3.20	Vertical	1000000.00	14.78
12955.26316	41.36	54.00	-12.64	0.00	1.25	Horizontal	1000000.00	15.13

Test Personnel:	Vathana F. Ven VFV	Test Date:	09/06/2021
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	FCC Part 15 Subpart B, ISED ICES-003	Limit Applied:	See report section 11.3
Input Voltage:	Battery power	Ambient Temperature:	23 ºC
Pretest Verification w/ Ambient Signals or BB Source:	BB Source	Relative Humidity:	47 %
		Atmospheric Pressure:	998 mbars

Deviations, Additions, or Exclusions: None

12 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	09/22/2021	104664086BOX-011	VFV	KPS	Original Issue
1	10/13/2021	104664086BOX-011	VFV	KPS	Corrected typo on page 30
2	10/19/2021	104664086BOX-011	VFV	KPS	Removed test setup photos