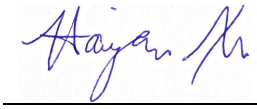
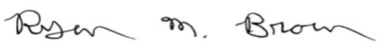
Test Report

Bureau Veritas Consumer Products Services Inc.

Report No	EV0448-1 Issue 3
Client	FISHMAN
Address	3 Riverside Drive Andover, MA 01810
Phone	978-988-9199
Items tested	RTX1290 Audio Wireless Module
FCC ID	RMU-351540036
IC	10812A-351540036
FRN	0022326151
Equipment Type	Digital Transmission System
Equipment Code	DTS
Emission Designator	1M05F1D
FCC/IC Rule Parts	CFR Title 47 FCC Part 15.247, RSS-247 Issue 2
Test Dates	April 12, 2021 – March 4, 2022
Results	As detailed within this report
Prepared by	 Haiyan XU– EMC Engineer
Authorized by	 Ryan M. Brown – EMC Engineer
Issue Date	2022-04-26
Conditions of Issue	This Test Report is issued subject to the conditions stated in the '*Conditions of Testing*' section on page 84 of this report.

Contents

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	REVISED BY	DATE ISSUED
EV0448-1	Original release	N/A	July 7, 2021
EV0448-1 Issue 2	Update summary and provide additional product details and sample numbers, update support equipment, add block diagram, add operating conditions for tests; in statement of conformity, add 99% bandwidth reference in RSS-GEN, add references to standard sections for radiated spurious emissions; add block diagrams for all tests; add instrumentation settings for all tests; remove unnecessary data for peak output power; retest conducted band edges and update all items in test section; retest conducted spurious emissions and update all items in test section; remove unnecessary data in AC line conducted emissions test	HX/RB	February 28, 2022
EV0448-1 Issue 3	Add data for Maximum Conducted Average Power test (p30); Add FCC/IC ID, FRN (p1); Add ferrite part numbers to EUT configuration (p6); Add ferrite part numbers and spacing to block diagram (p6); Remove inapplicable tests from measurement uncertainty table, add statement saying that uncertainty is calculated per ETSI TR 100 028 (2001) (p83)	HX/YF	April 26, 2022

Summary

This test report supports an application for certification of a transmitter operating pursuant to CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2.

The EUT is RTX1290 Audio Wireless Module (Model: RTX1290). This is a radio module using RTX proprietary protocol, operating in the 2402 – 2480MHz frequency range. The EUT is not a frequency hopping device.

Modulation type : GFSK
Channels: 79
Data rate: 1Mbps
Bandwidth: 1MHz

Antenna type and gain:
Antenna 1: meandered inverted-F antenna (MIFA) 1.19 dBi
Antenna 2: meandered inverted-F antenna (MIFA) -0.06 dBi

The EUT offers antenna diversity and channel diversity. The EUT transmits on two RF channels alternately. If interference degrades one RF channel, the other RF channel provides the full data. The degradation will be sensed by the receiver, and the receiver provides this information to the transmitter. The transmitter will then relocate both RF channels to unoccupied channels.

Radiated tests were conducted using sample #1 (transmit). Conducted tests were conducted using sample #3.

The motherboard was powered with a Lithium-ion battery (3.7VDC nominal).

The transmit power was set to +8.5dBm with the use of a 15Ω configuration resistor. This is the maximum allowed power for all applications using this module. The units were set to transmit at 100% continuous transmission.

The EUT is DC-powered, and an AC power adapter is not supplied with the device. The power adapter is connected to the motherboard support board through a USB-C port, and provides power to charge the battery. An “off-the-shelf” unmodified AC power adapter connected to 120Vac/60Hz was used for the AC line conducted emissions test (Apple 10W USB Power Adapter Model No. A1357).

We found that the product met the above requirements without modification. Test samples were received in good condition.

Test Methodology

All testing was performed according to the following rules/procedures/documents:
CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2, ISED Canada RSS-Gen Issue 5, FCC KDB 558074 D01 15.247 Measurement Guidance v05r02 and ANSI C63.10-2013.

Radiated emissions were measured by rotating the device around three orthogonal planes, as well as varying the test antenna's height and polarity. Worst case results are presented in this report. AC line conducted emissions testing was performed with a 50Ω/50µH LISN. EUT operating voltage was 3.7Vdc.

RF measurements were performed on 2 antenna ports on 3 channels as follows:
Low channel = 2402 MHz
Mid channel = 2441 MHz
High channel = 2480 MHz

Following bandwidths were used during radiated spurious and AC line conducted emissions tests:

Frequency	RBW	VBW
150kHz-30MHz	9kHz	30kHz
30-1000MHz	120kHz	1MHz
1-25GHz	1MHz	3MHz

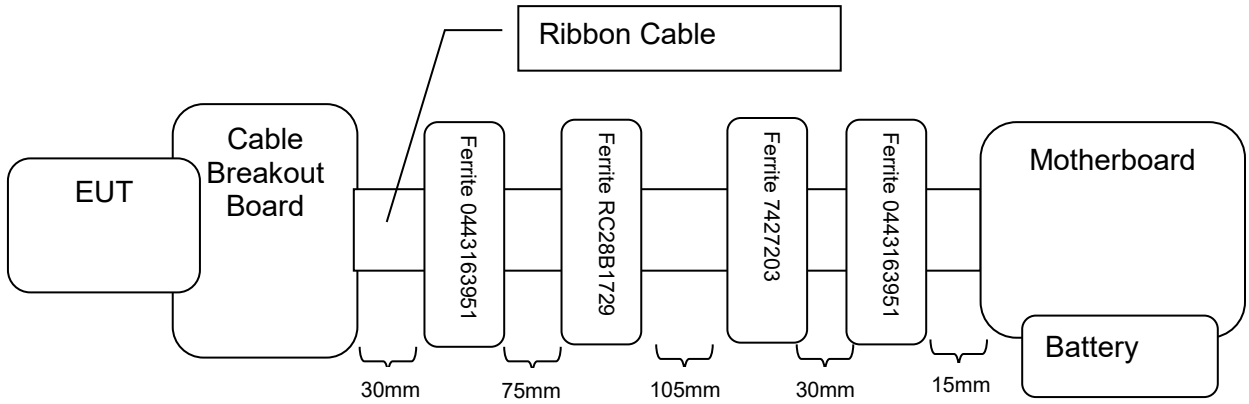
Product Tested - Configuration Documentation

EUT Configuration			
Work Order:	V0448		
Company:	Fishman		
Company Address:	3 Riverside Drive		
	Andover, MA, 01810		
Contact:	Vlad Kratik		
	MN	**PN**	**SN**
EUT:	RTX1290 Audio Wireless Module		Sample #1, Sample #3
EUT Description:	Audio Wireless Module		
EUT Max Frequency:	2480 MHz		
EUT Min Frequency:	20.736 MHz		

Support Equipment	**MN**	**SN**
Motherboard		
Ribbon Cable Breakout Board		
Ferrites	Fair-Rite 0443163951 (2x) LeaderTech RC28B1729 Wurth Elektronik 7427203	
Apple 10W USB Power Adapter	A1357	

Clock Frequencies	
frequencies (MHz)	2480, 32, 20.736

Block Diagram



For all tests, the EUT was mounted onto a cable breakout board in order to connect the EUT connections to a ribbon cable, which was then connected to the motherboard that has additional circuitry, including the on/off switch, programming connector, battery connector, input jack, and USB-C jack for configuring the device and providing input power to charge the battery.

Statement of Conformity

Test Method and Description		*Requirement Clause*		*Applicable to this equipment*	*Result / Note*
		RSS	*47CFR15*		
Radiated spurious emissions (restricted bands of operation and cabinet radiation)		247, 3.3 247, 5.5 Gen, 8.9 Gen, 8.10	15.247 (d)	☒	Pass
AC power line conducted emissions		Gen, 8.8	15.207	☒	Pass
Occupied bandwidth		247, 5.2 (a)	15.247(a)(2)	☒	Pass
99% Bandwidth		Gen, 6.7	N/A	☒	Pass
Conducted carrier power	Peak	247, 5.4 (d)	15.247(b)(3)	☒	Pass
	Max.			☐	
Conducted / radiated RF power out-of-band		247, 5.5	15.247(d)	☒	Pass
Power spectral density, conducted		247, 5.2 (b)	15.247(e)	☒	Pass

Notes:

The results contained in this report relate only to the items tested, in the condition at time of test, and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

The apparatus was set up and exercised using the configurations, modes of operation and arrangements defined in this report only. Any modifications made are identified in this report.

There were no deviations from the test standard.

Client Supplied Data

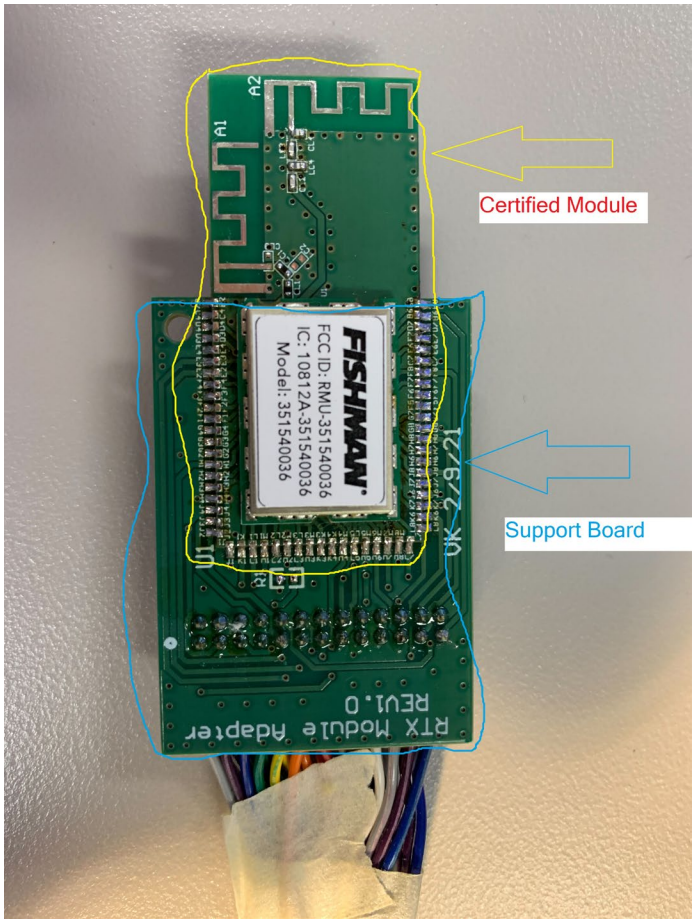


Figure 1: EUT module - top view

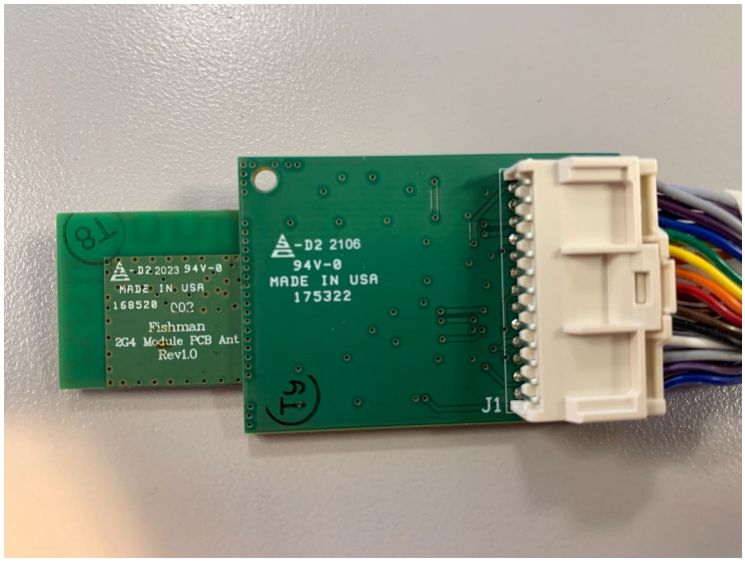


Figure 2: EUT module - bottom view

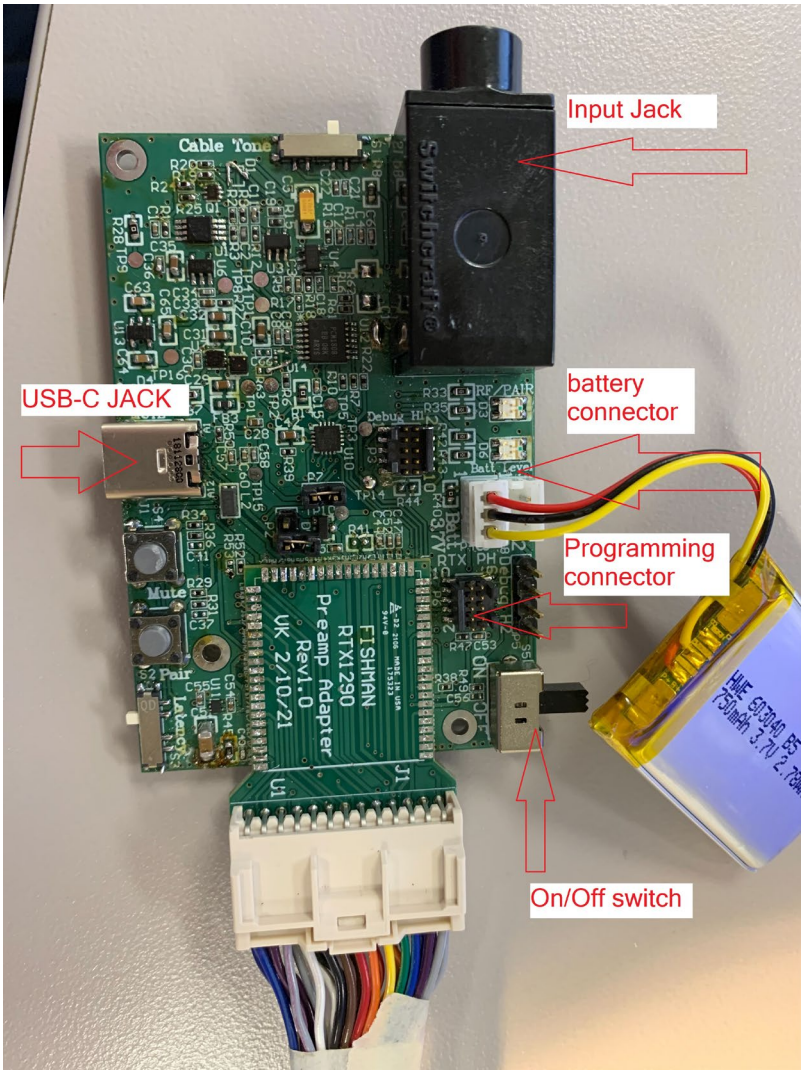


Figure 3: motherboard support board

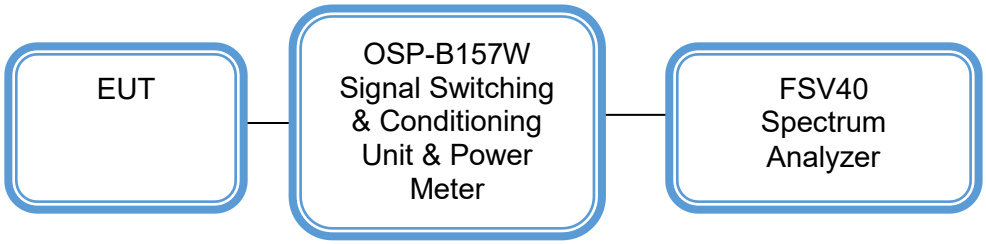
Modifications Required for Compliance

None.

Test Results

DTS (6dB) Bandwidth

TEST SETUP



LIMIT

The minimum 6 dB bandwidth shall be at least 500 kHz. [15.247(a) (2)]

MEASUREMENTS / RESULTS

Antenna port 1

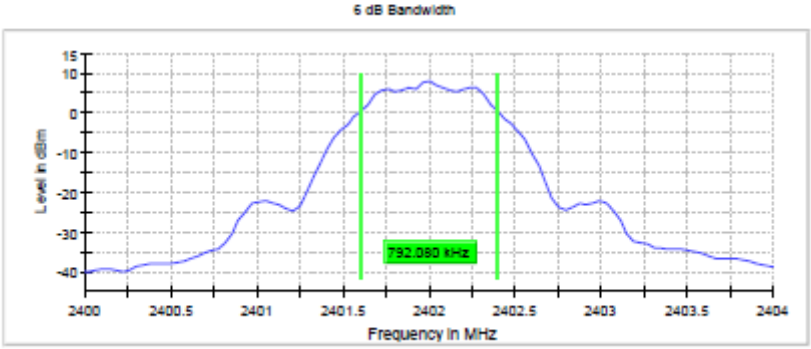
Low channel

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.792080	0.500000	—	2401.603960	2402.396040

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.40400 GHz	2.40400 GHz
Span	4.000 MHz	4.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 80
Sweeptime	18.938 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	0.15 dB	0.50 dB

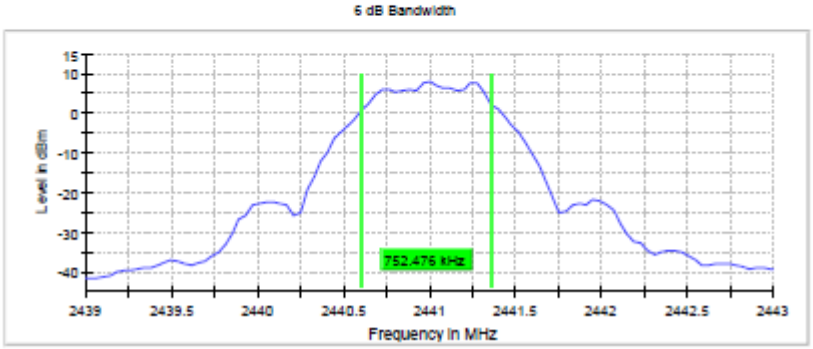
Mid channel

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	0.752476	0.500000	---	2440.603960	2441.356436

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2441.000000	6.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43900 GHz	2.43900 GHz
Stop Frequency	2.44300 GHz	2.44300 GHz
Span	4.000 MHz	4.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 80
Sweeptime	18.938 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	5 / 5	5
Max Stable Difference	0.20 dB	0.50 dB

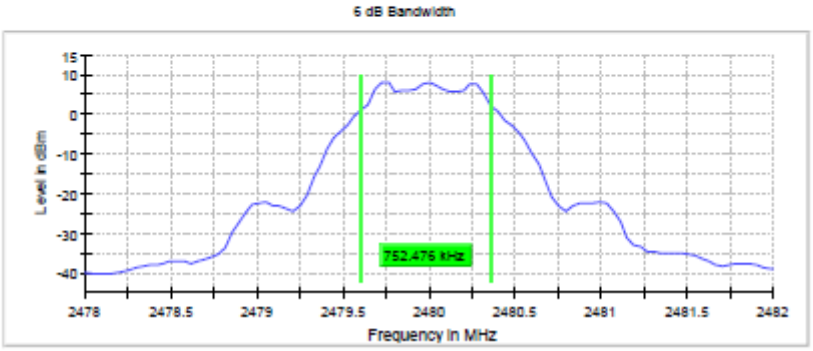
High channel

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.752476	0.500000	---	2479.603960	2480.356436

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	8.1	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47800 GHz	2.47800 GHz
Stop Frequency	2.48200 GHz	2.48200 GHz
Span	4.000 MHz	4.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 80
Sweeptime	18.938 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	0.31 dB	0.50 dB

Antenna port 2

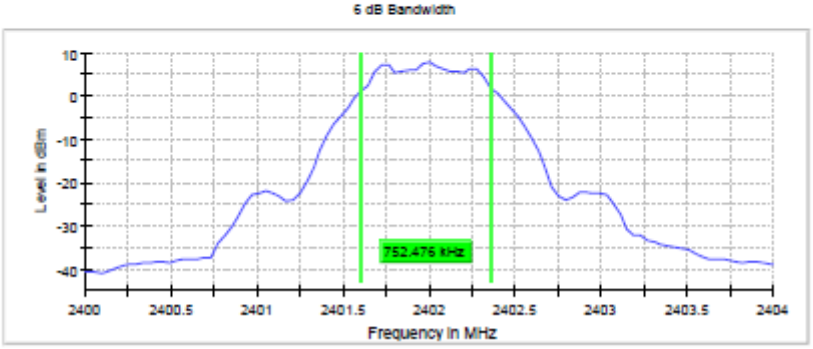
Low channel

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.752476	0.500000	---	2401.603960	2402.356436

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	7.9	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.40400 GHz	2.40400 GHz
Span	4.000 MHz	4.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 80
Sweeptime	18.938 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	17 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.09 dB	0.50 dB

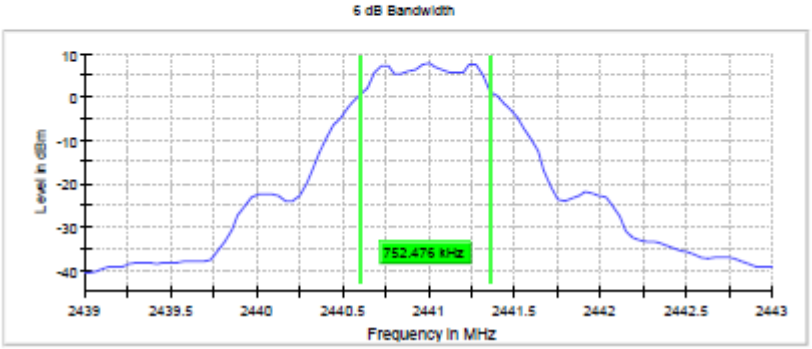
Mid Channel

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	0.752476	0.500000	---	2440.603960	2441.356436

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2441.000000	7.8	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43900 GHz	2.43900 GHz
Stop Frequency	2.44300 GHz	2.44300 GHz
Span	4.000 MHz	4.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 80
Sweeptime	18.938 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	0.33 dB	0.50 dB

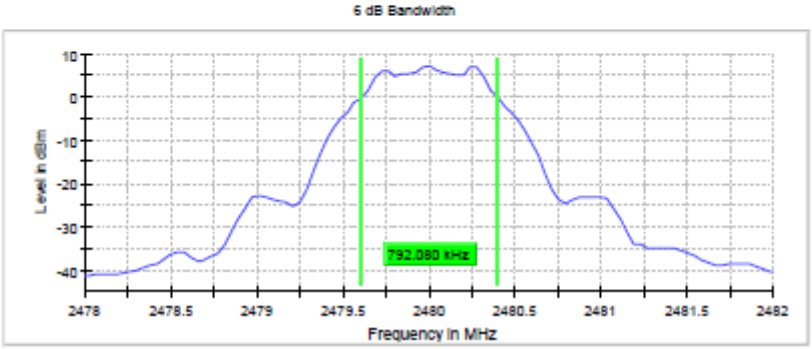
High channel

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.792080	0.500000	---	2479.603960	2480.396040

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	7.2	PASS

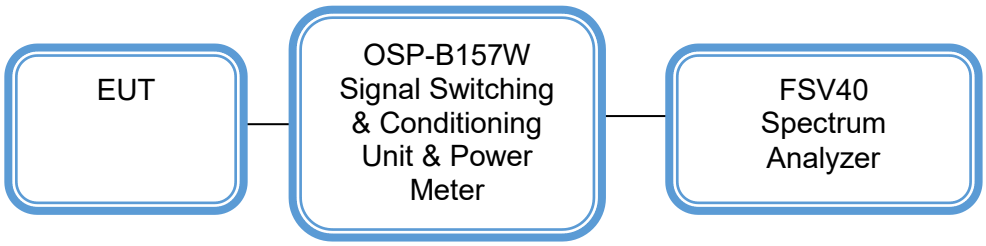


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47800 GHz	2.47800 GHz
Stop Frequency	2.48200 GHz	2.48200 GHz
Span	4.000 MHz	4.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 80
Sweeptime	18.938 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	5 / 5	5
Max Stable Difference	0.44 dB	0.50 dB

99% Occupied Bandwidth

TEST SETUP



LIMIT

When an occupied bandwidth is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is its 99% emission bandwidth, as calculated or measured.
[RSS-GEN Issue 5 Section 6.7]

MEASUREMENTS / RESULTS

Antenna port 1

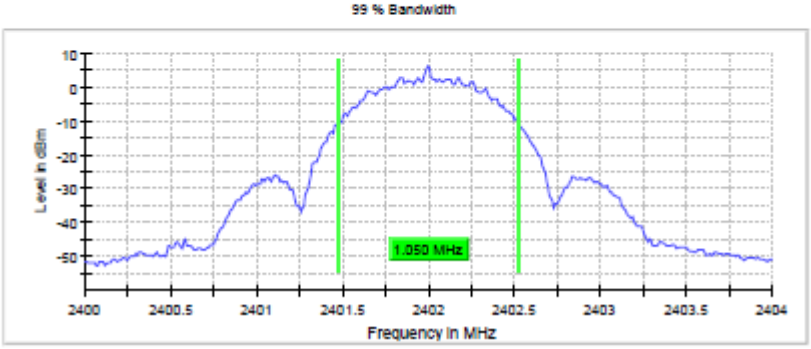
Low channel

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.050000	---	---	2401.475000	2402.525000

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.40400 GHz	2.40400 GHz
Span	4.000 MHz	4.000 MHz
RBW	20.000 kHz	>= 20.000 kHz
VBW	100.000 kHz	>= 60.000 kHz
SweepPoints	400	~ 400
Sweeptime	94.824 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	43 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.04 dB	0.30 dB

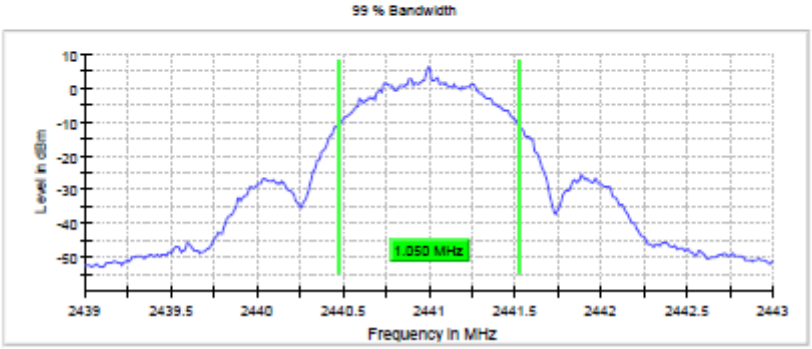
Mid channel

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	1.050000	---	---	2440.475000	2441.525000

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43900 GHz	2.43900 GHz
Stop Frequency	2.44300 GHz	2.44300 GHz
Span	4.000 MHz	4.000 MHz
RBW	20.000 kHz	>= 20.000 kHz
VBW	100.000 kHz	>= 60.000 kHz
SweepPoints	400	~ 400
Sweeptime	94.824 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	23 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.22 dB	0.30 dB

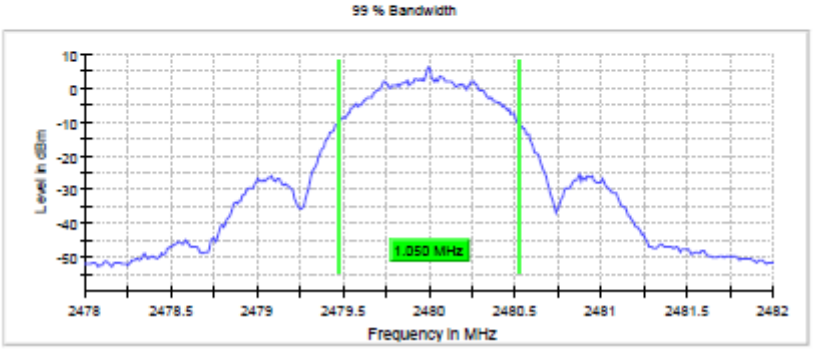
High channel

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.050000	---	---	2479.475000	2480.525000

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47800 GHz	2.47800 GHz
Stop Frequency	2.48200 GHz	2.48200 GHz
Span	4.000 MHz	4.000 MHz
RBW	20.000 kHz	>= 20.000 kHz
VBW	100.000 kHz	>= 60.000 kHz
SweepPoints	400	~ 400
Sweeptime	94.824 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	53 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.29 dB	0.30 dB

Antenna port 2

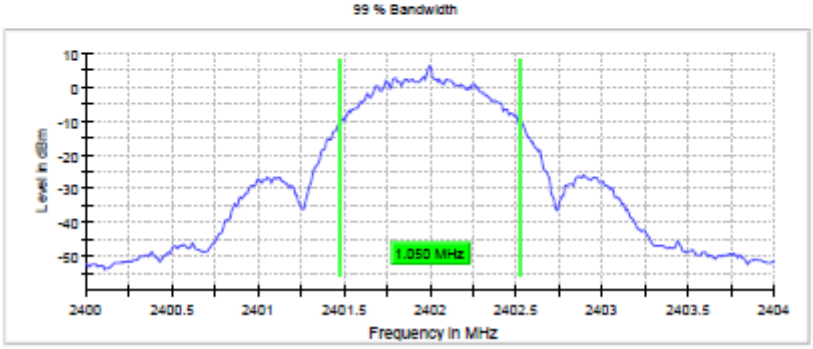
Low channel

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.050000	---	---	2401.475000	2402.525000

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.40400 GHz	2.40400 GHz
Span	4.000 MHz	4.000 MHz
RBW	20.000 kHz	>= 20.000 kHz
VBW	100.000 kHz	>= 60.000 kHz
SweepPoints	400	~ 400
Sweeptime	94.824 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	40 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.30 dB

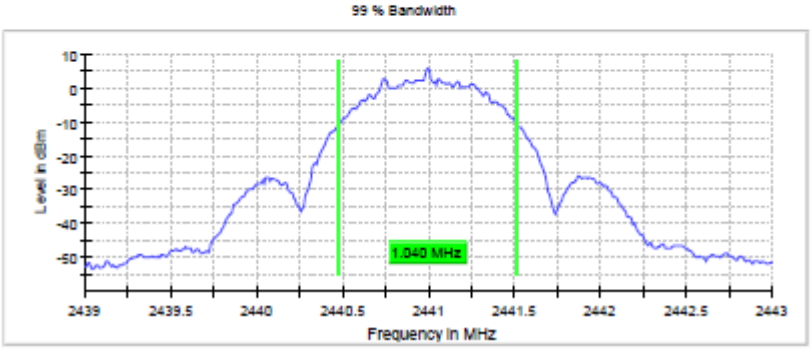
Mid channel

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	1.040000	---	---	2440.475000	2441.515000

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43900 GHz	2.43900 GHz
Stop Frequency	2.44300 GHz	2.44300 GHz
Span	4.000 MHz	4.000 MHz
RBW	20.000 kHz	>= 20.000 kHz
VBW	100.000 kHz	>= 60.000 kHz
SweepPoints	400	~ 400
Sweeptime	94.824 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	39 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.30 dB

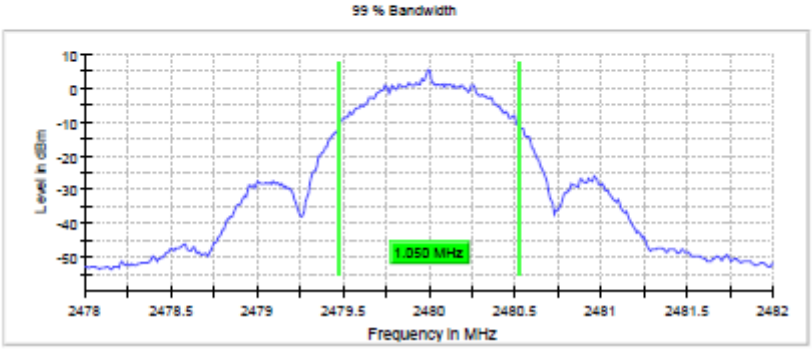
High channel

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.050000	---	---	2479.475000	2480.525000

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

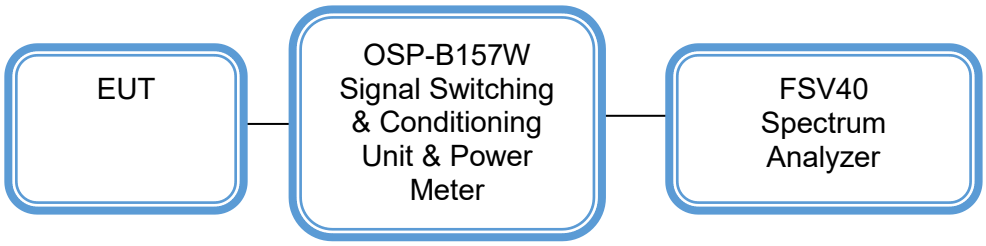


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47800 GHz	2.47800 GHz
Stop Frequency	2.48200 GHz	2.48200 GHz
Span	4.000 MHz	4.000 MHz
RBW	20.000 kHz	>= 20.000 kHz
VBW	100.000 kHz	>= 60.000 kHz
SweepPoints	400	~ 400
Sweeptime	94.824 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	47 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.30 dB

Peak Output Power

TEST SETUP



LIMIT

Conducted Output Power: 1 Watt per [15.247(b) (3)]

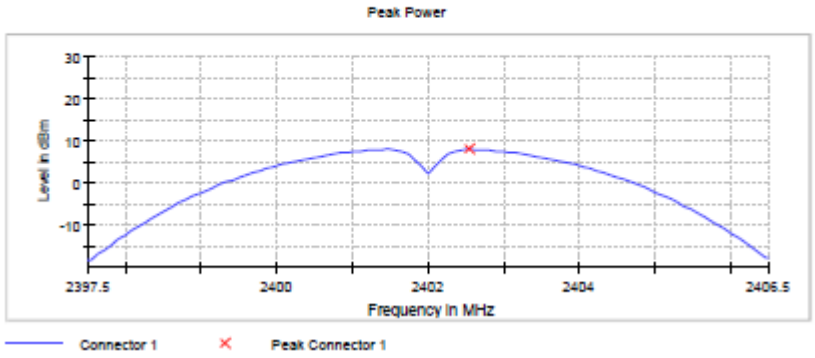
MEASUREMENTS / RESULTS

Antenna port 1

Low channel

Result

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2402.000000	8.0	30.0	PASS



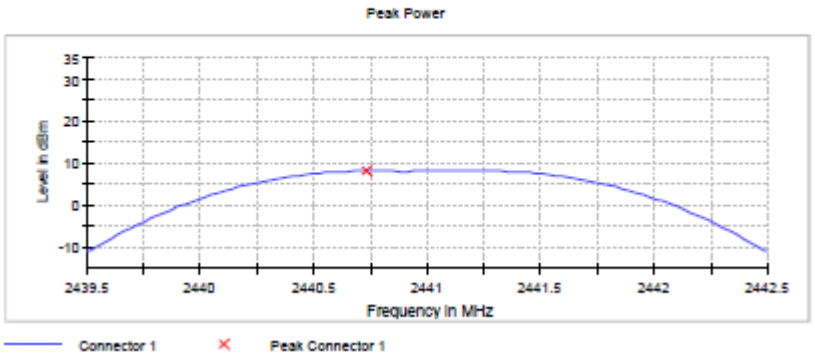
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.39750 GHz	2.39750 GHz
Stop Frequency	2.40650 GHz	2.40650 GHz
Span	9.000 MHz	9.000 MHz
RBW	3.000 MHz	>= 2.000 MHz
VBW	10.000 MHz	>= 9.000 MHz
SweepPoints	101	~ 101
Sweeptime	1.271 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 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	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.07 dB	0.50 dB

Mid channel

Result

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2441.000000	8.1	30.0	PASS



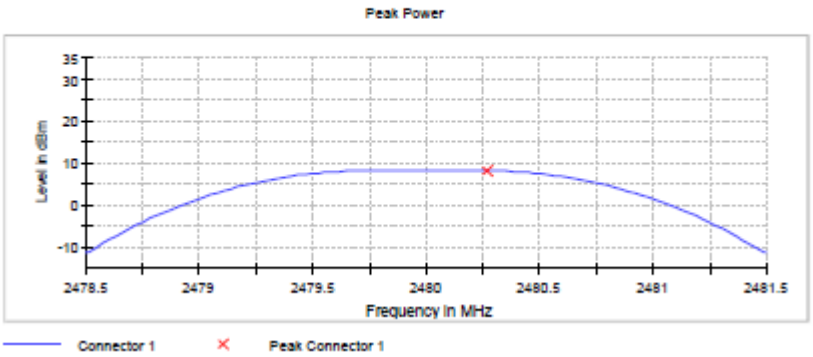
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43950 GHz	2.43950 GHz
Stop Frequency	2.44250 GHz	2.44250 GHz
Span	3.000 MHz	3.000 MHz
RBW	1.000 MHz	>= 792.081 kHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	101	~ 101
Sweeptime	1.907 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 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	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.02 dB	0.50 dB

High channel

Result

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2480.000000	8.1	30.0	PASS



Measurement

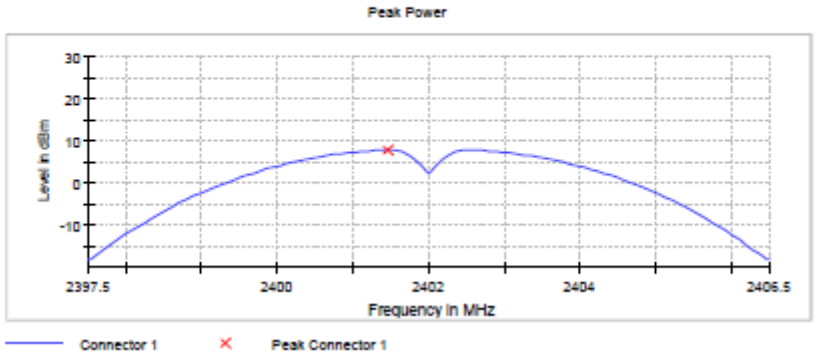
Setting	Instrument Value	Target Value
Start Frequency	2.47850 GHz	2.47850 GHz
Stop Frequency	2.48150 GHz	2.48150 GHz
Span	3.000 MHz	3.000 MHz
RBW	1.000 MHz	>= 792.081 kHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	101	~ 101
Sweeptime	1.907 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 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	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.01 dB	0.50 dB

Antenna port 2

Low channel

Result

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2402.000000	7.9	30.0	PASS



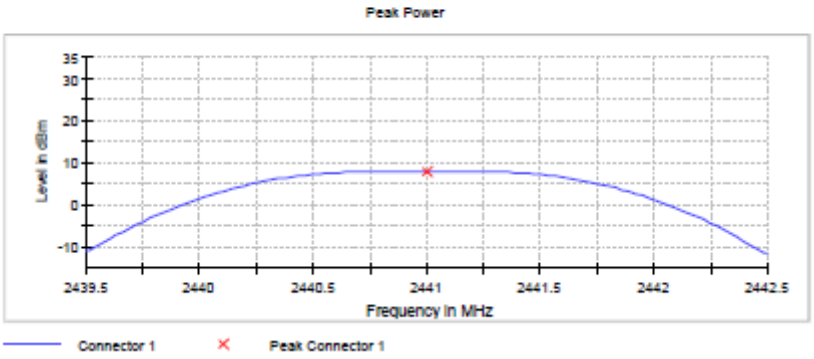
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.39750 GHz	2.39750 GHz
Stop Frequency	2.40650 GHz	2.40650 GHz
Span	9.000 MHz	9.000 MHz
RBW	3.000 MHz	>= 2.000 MHz
VBW	10.000 MHz	>= 9.000 MHz
SweepPoints	101	~ 101
Sweeptime	1.271 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 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	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.03 dB	0.50 dB

Mid channel

Result

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2441.000000	7.8	30.0	PASS



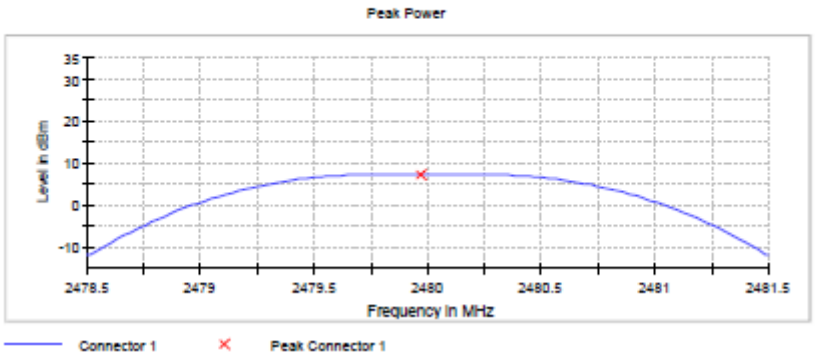
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43950 GHz	2.43950 GHz
Stop Frequency	2.44250 GHz	2.44250 GHz
Span	3.000 MHz	3.000 MHz
RBW	1.000 MHz	>= 752.477 kHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	101	~ 101
Sweeptime	1.907 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 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	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.01 dB	0.50 dB

High channel

Result

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2480.000000	7.3	30.0	PASS



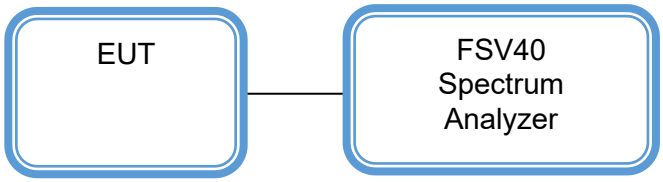
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47850 GHz	2.47850 GHz
Stop Frequency	2.48150 GHz	2.48150 GHz
Span	3.000 MHz	3.000 MHz
RBW	1.000 MHz	>= 752.477 kHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	101	~ 101
Sweeptime	1.907 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 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	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.12 dB	0.50 dB

Maximum Conducted Average Power (for reference only)

This test is for reference only. This test was performed per ANSI C63.10 clause 11.9.2.2.3. Sweep triggering was set to monitor the EUT channel only when the channel was transmitting at full power.

TEST SETUP

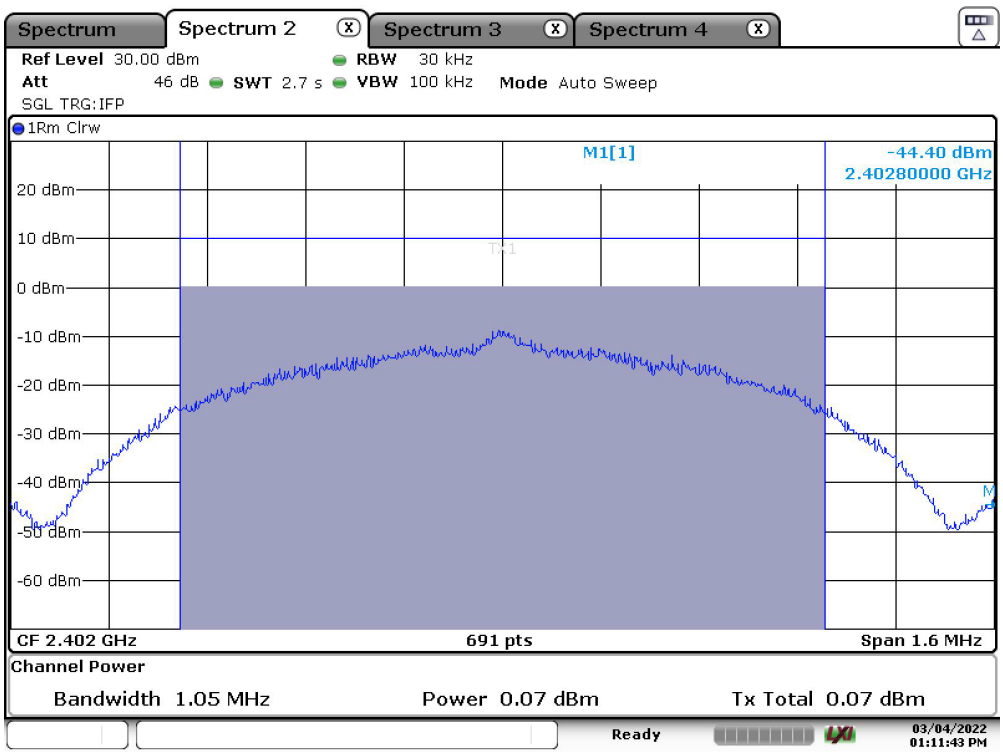


LIMIT

This test is for reference only.

MEASUREMENTS / RESULTS

Antenna	2402 MHz	2441 MHz	2480 MHz
Antenna 1	0.07 dBm	0.14 dBm	0.21 dBm
Antenna 2	0.03 dBm	0.00 dBm	-0.45 dBm

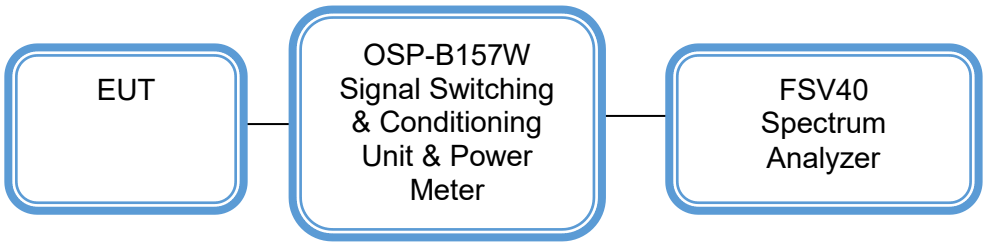


Measurement Settings:

Setting	Value
Span	1.6 MHz
RBW	30 kHz
VBW	100 kHz
Sweep Points	691
Transmission Symbol Period	380 us
Sweep Time	2.7 s
Detector	RMS

Peak Power Spectral Density

TEST SETUP



LIMIT

…the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission. [15.247(e)]

MEASUREMENTS / RESULTS

Antenna port 1

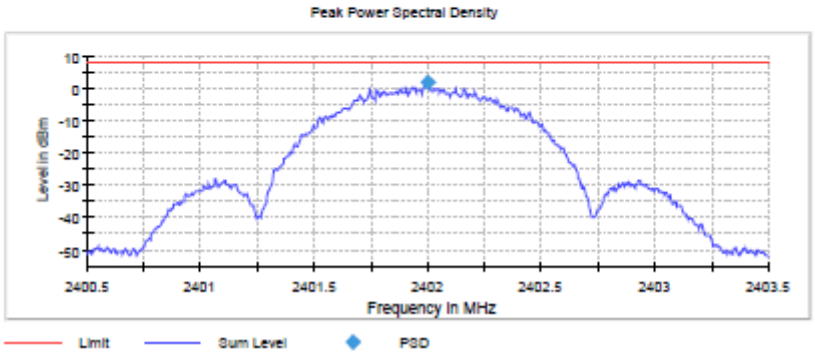
Low channel

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	2401.997500	1.922	8.0	PASS

Ports

Port	State
1	used



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40050 GHz	2.40050 GHz
Stop Frequency	2.40350 GHz	2.40350 GHz
Span	3.000 MHz	3.000 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	600	~ 600
Sweeptime	3.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	30 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.08 dB	0.50 dB

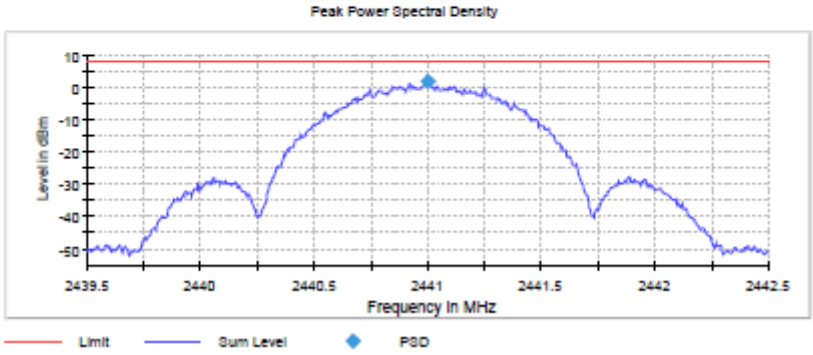
Mid channel

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2441.000000	2440.997500	1.965	8.0	PASS

Ports

Port	State
1	used



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43950 GHz	2.43950 GHz
Stop Frequency	2.44250 GHz	2.44250 GHz
Span	3.000 MHz	3.000 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	600	~ 600
Sweeptime	3.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	66 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.00 dB	0.50 dB

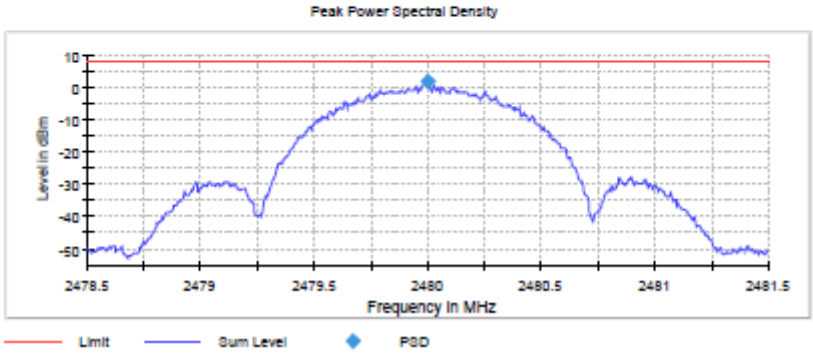
High channel

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2480.000000	2479.397500	1.975	8.0	PASS

Ports

Port	State
1	used



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47850 GHz	2.47850 GHz
Stop Frequency	2.48150 GHz	2.48150 GHz
Span	3.000 MHz	3.000 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	600	~ 600
Sweeptime	3.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	33 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.00 dB	0.50 dB

Antenna port 2

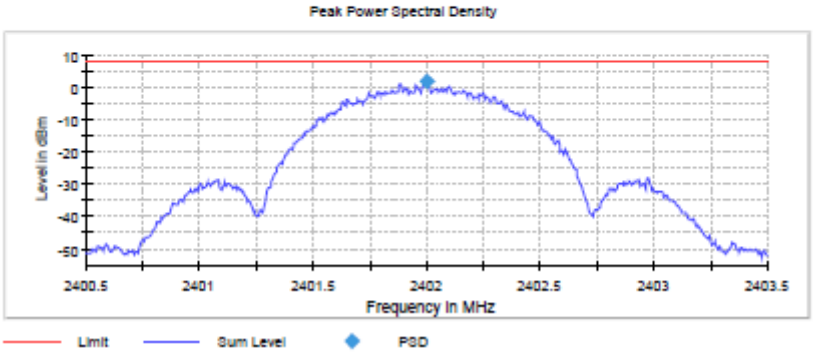
Low channel

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	2401.997500	1.816	8.0	PASS

Ports

Port	State
1	used



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40050 GHz	2.40050 GHz
Stop Frequency	2.40350 GHz	2.40350 GHz
Span	3.000 MHz	3.000 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	600	~ 600
Sweeptime	3.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	34 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.24 dB	0.50 dB

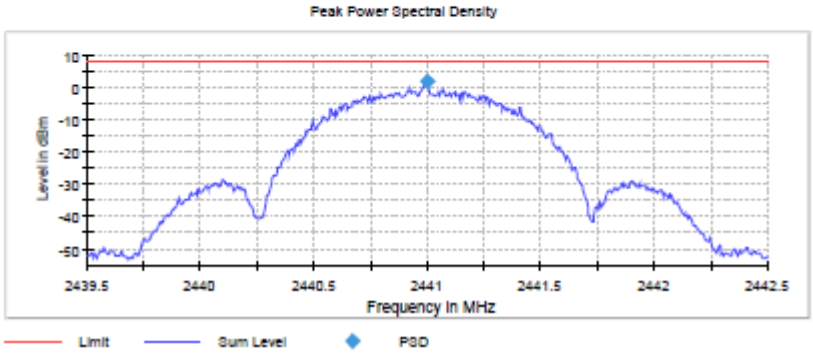
Mid channel

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2441.000000	2440.997500	1.684	8.0	PASS

Ports

Port	State
1	used



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.43950 GHz	2.43950 GHz
Stop Frequency	2.44250 GHz	2.44250 GHz
Span	3.000 MHz	3.000 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	600	~ 600
Sweeptime	3.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	15 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.39 dB	0.50 dB

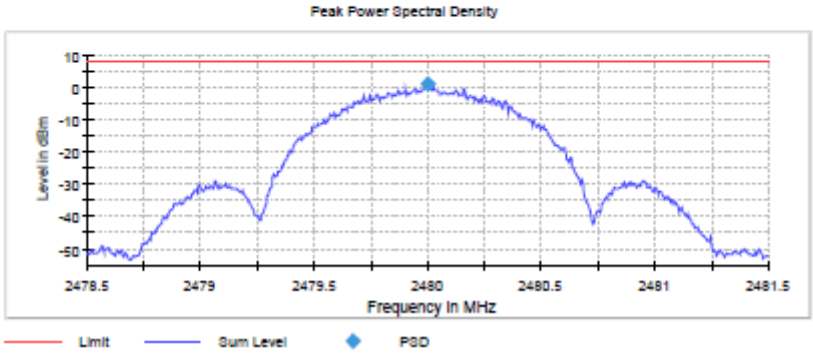
High channel

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2480.000000	2479.997500	1.155	8.0	PASS

Ports

Port	State
1	used

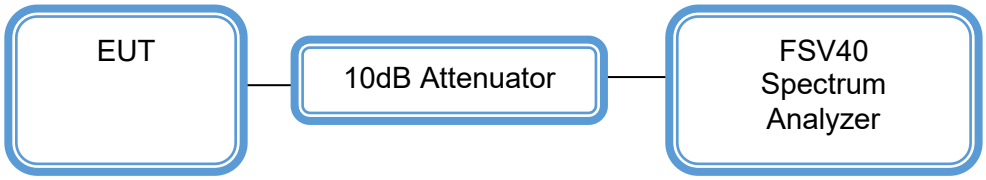


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47850 GHz	2.47850 GHz
Stop Frequency	2.48150 GHz	2.48150 GHz
Span	3.000 MHz	3.000 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	600	~ 600
Sweeptime	3.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 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	39 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.42 dB	0.50 dB

Conducted Band Edges

TEST SETUP



LIMIT

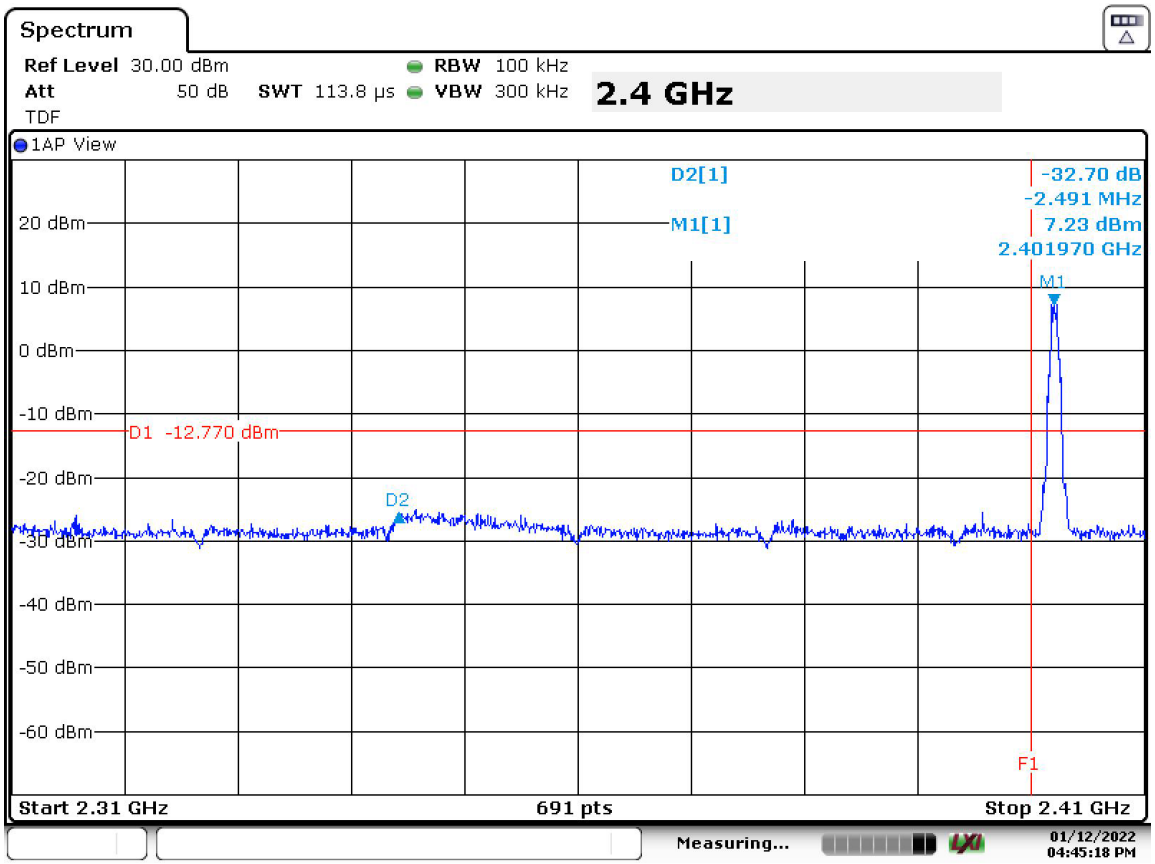
Band edges must be more than 20dB below fundamental.

MEASUREMENTS / RESULTS

Antenna port 1

Low band edge

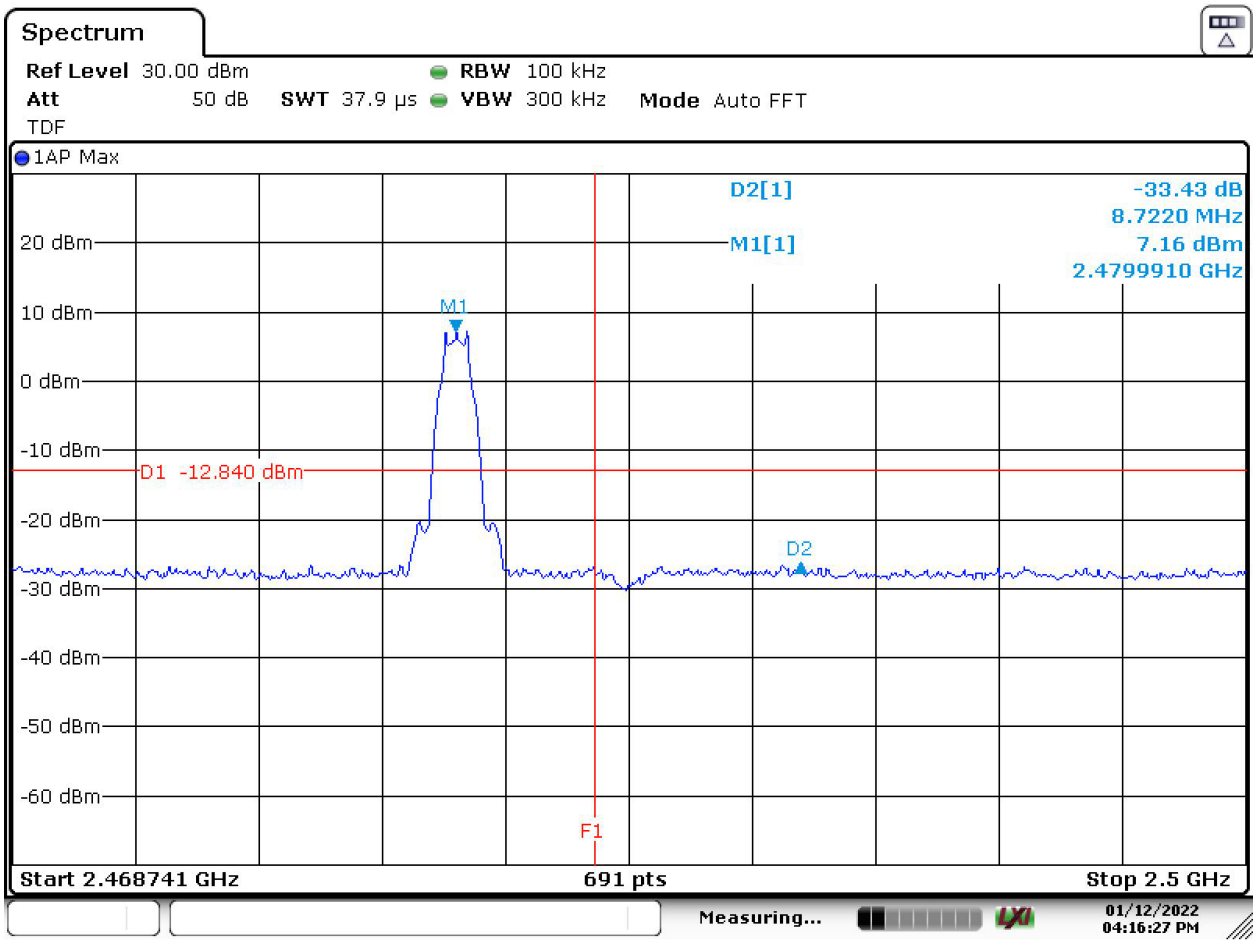
Fundamental measurement: 7.23 dBm
F1 frequency: 2400 MHz



Date: 12.JAN.2022 16:45:18

High band edge

Fundamental measurement: 7.16 dBm
F1 frequency: 2483.5 MHz

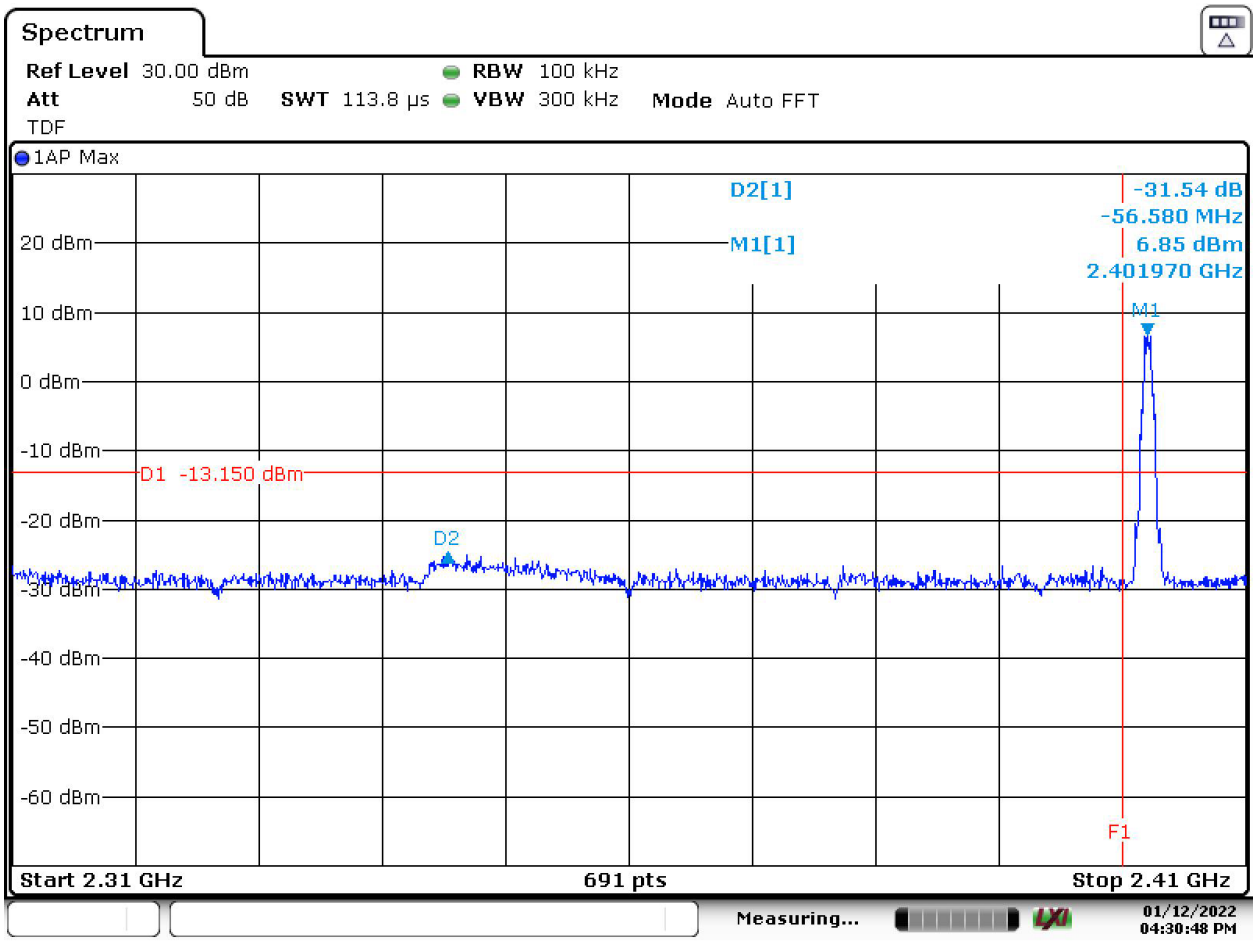


Date: 12.JAN.2022 16:16:27

Antenna port 2

Low band edge

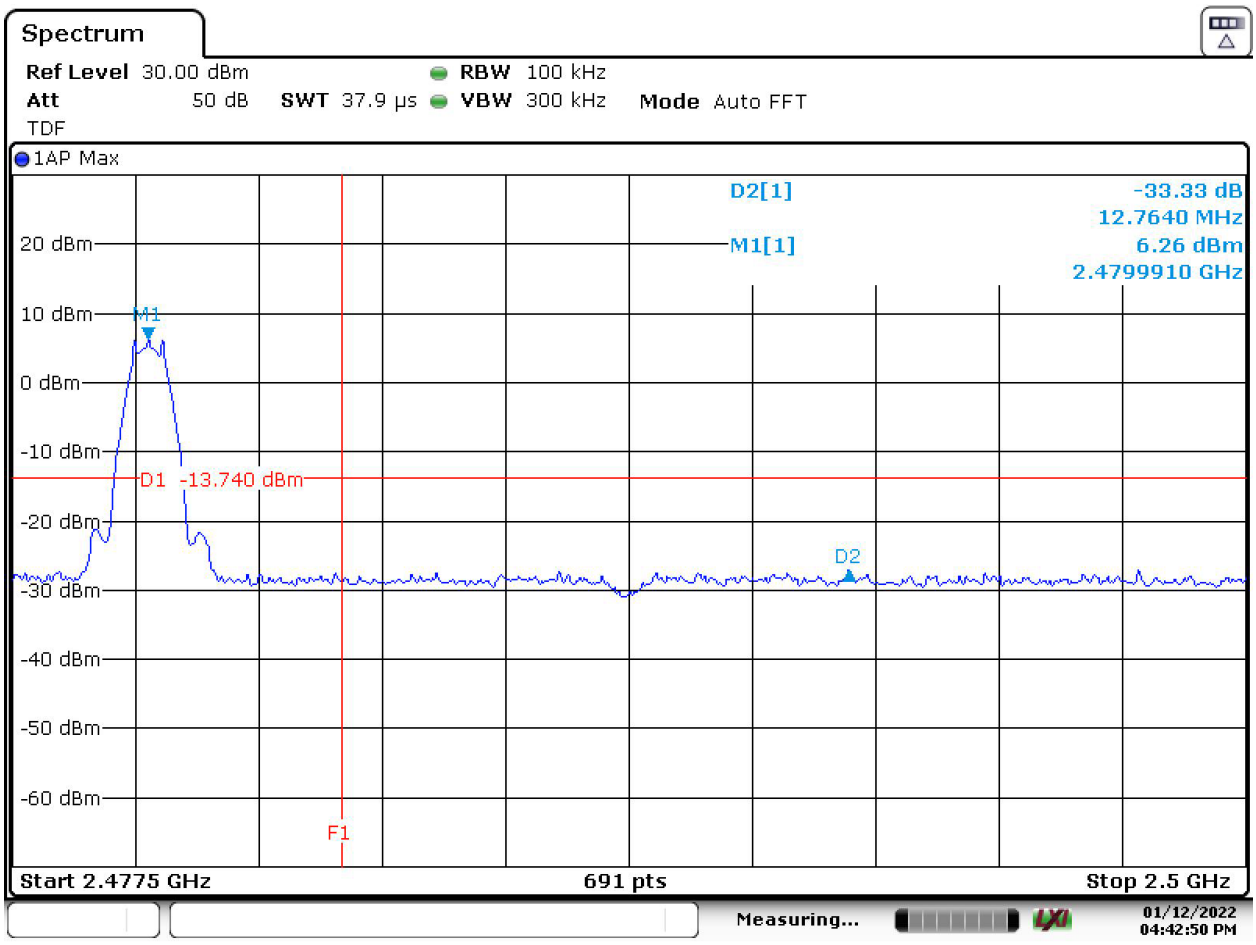
Fundamental measurement: 6.85 dBm
F1 frequency: 2400 MHz



Date: 12.JAN.2022 16:30:49

High band edge

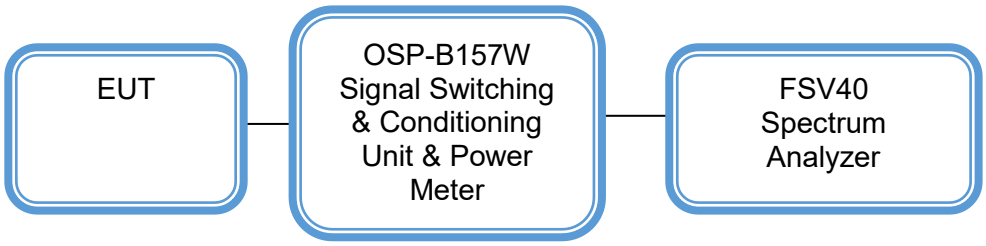
Fundamental measurement: 6.26 dBm
F1 frequency: 2483.5 MHz



Date: 12.JAN.2022 16:42:50

Conducted Spurious Emissions

TEST SETUP



LIMITS

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 20dB below that in the 100kHz bandwidth that contains the highest level of desired power based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. [15.247(d)]

Conducted spurious emissions at the antenna port were measured in accordance with ANSI C63.10-2013 Section 11.11.

Frequency range up to 25GHz was investigated for all 3 channels (low, middle and high) at the EUT antenna port. No emissions within 20dB of their corresponding fundamental were found.

MEASUREMENTS / RESULTS

Antenna port 1

Low channel

Result

DUT Frequency (MHz)	Result
2402.000000	PASS

Final measurements

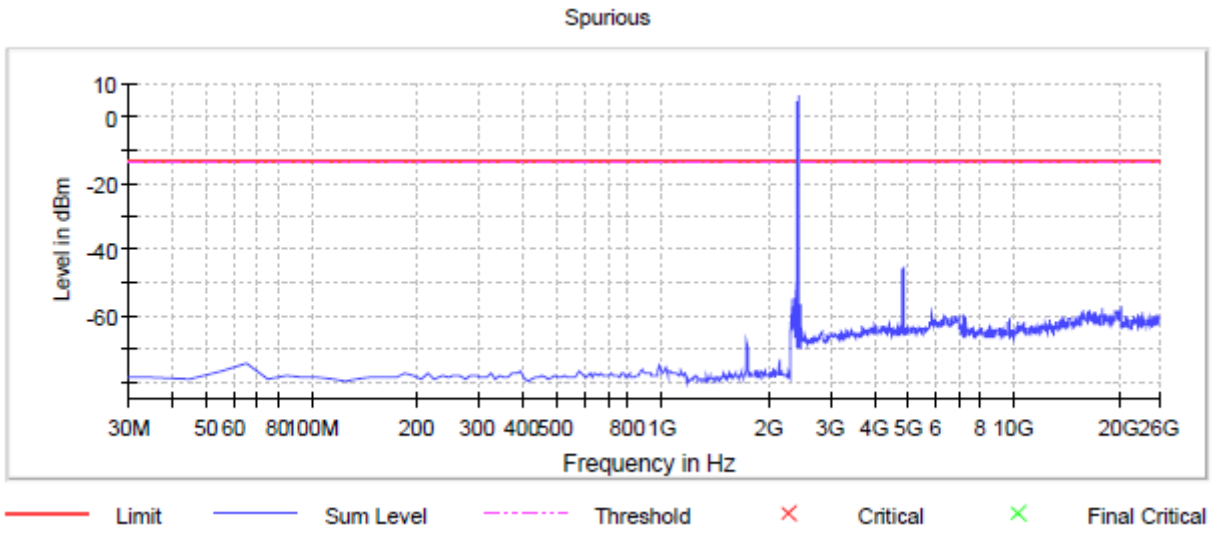
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4877.125903	-45.3	31.5	-13.8
4807.166065	-46.1	32.3	-13.8
4887.120166	-46.3	32.5	-13.8
2395.021008	-49.1	35.4	-13.8
2335.273109	-54.8	41.1	-13.8
20218.319061	-56.9	43.2	-13.8
20258.296111	-57.1	43.4	-13.8
17849.678814	-57.5	43.7	-13.8
20238.307586	-57.5	43.8	-13.8
20288.278899	-57.8	44.1	-13.8
20208.324798	-58.0	44.2	-13.8
19548.703464	-58.0	44.3	-13.8
19498.732150	-58.1	44.4	-13.8
20268.290374	-58.1	44.4	-13.8
15800.854972	-58.2	44.4	-13.8

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2400.000000	1	1
2400.000000	2483.500000	1	1
2483.500000	26000.000000	1	1



Pre Measurement 1

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	-20.000 dBm	-30.000 dBm
Attenuation	10.000 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	6 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Mid channel

Result

DUT Frequency (MHz)	Result
2441.000000	PASS

Final measurements

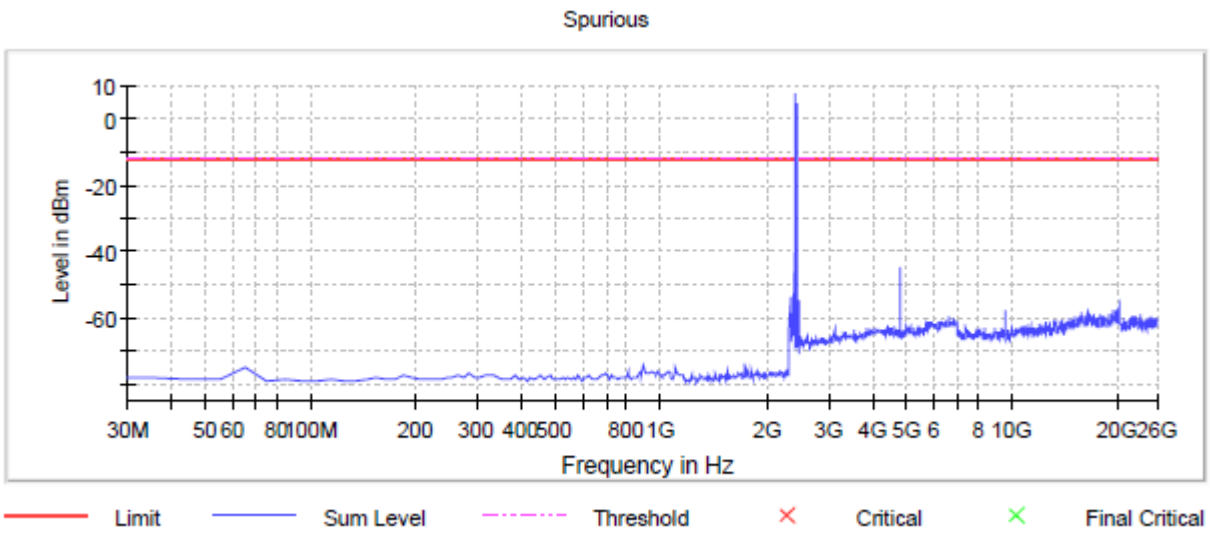
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2395.021008	-39.3	27.2	-12.2
4807.166065	-44.5	32.4	-12.2
2335.273109	-53.4	41.2	-12.2
20138.364960	-56.5	44.4	-12.2
20238.307586	-57.1	45.0	-12.2
19528.714938	-57.5	45.4	-12.2
20148.359222	-57.6	45.4	-12.2
20208.324798	-57.6	45.5	-12.2
19748.588717	-57.7	45.5	-12.2
9604.412133	-57.7	45.6	-12.2
20118.376434	-57.9	45.7	-12.2
2345.231092	-57.9	45.7	-12.2
19568.691989	-57.9	45.8	-12.2
20278.284637	-58.0	45.9	-12.2
20098.387909	-58.1	45.9	-12.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2400.000000	1	1
2400.000000	2483.500000	1	1
2483.500000	26000.000000	1	1



Pre Measurement 1

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	-20.000 dBm	-30.000 dBm
Attenuation	10.000 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	13 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

High channel

Result

DUT Frequency (MHz)	Result
2480.000000	PASS

Final measurements

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

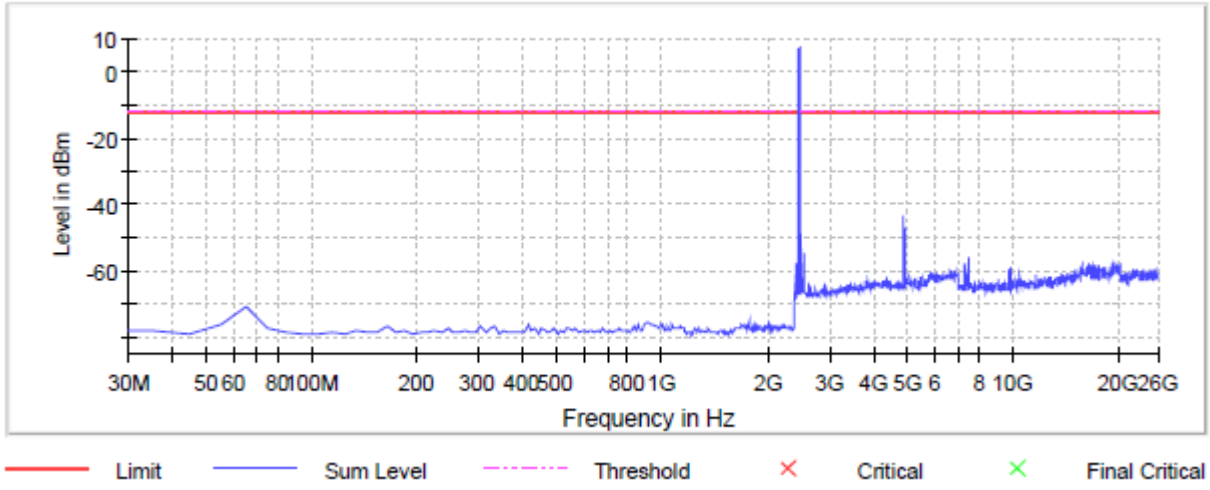
Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4877.125903	-43.6	31.4	-12.2
2488.497131	-46.8	34.6	-12.2
4957.080004	-47.1	34.9	-12.2
4887.120166	-47.4	35.2	-12.2
2548.462707	-54.7	42.5	-12.2
7445.651402	-56.2	44.0	-12.2
7435.657140	-56.5	44.3	-12.2
20218.319061	-57.5	45.3	-12.2
20248.301849	-57.5	45.3	-12.2
7325.720251	-57.5	45.3	-12.2
20168.347748	-57.8	45.6	-12.2
16380.522206	-57.8	45.6	-12.2
20228.313323	-57.9	45.7	-12.2
19498.732150	-58.0	45.8	-12.2
19458.755100	-58.1	45.9	-12.2

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2400.000000	1	1
2400.000000	2483.500000	1	1
2483.500000	26000.000000	1	1

Spurious



Pre Measurement 1

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	-20.000 dBm	-30.000 dBm
Attenuation	10.000 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	10 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Antenna port 2

Low channel

Result

DUT Frequency (MHz)	Result
2402.000000	PASS

Final measurements

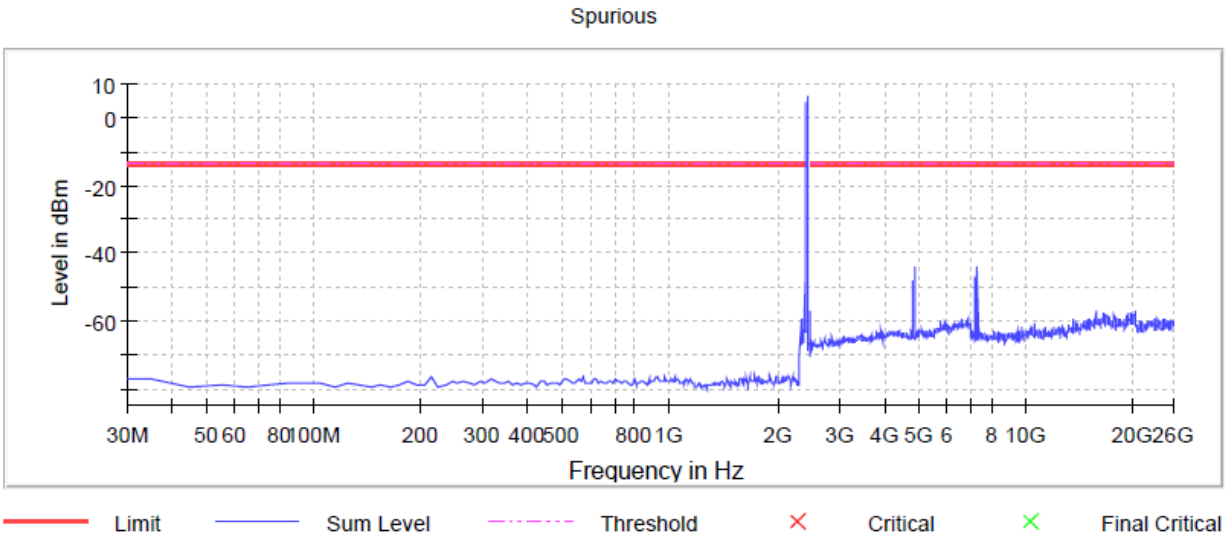
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4877.125903	-43.9	30.4	-13.5
7325.720251	-44.2	30.7	-13.5
4887.120166	-45.3	31.8	-13.5
2395.021008	-45.8	32.3	-13.5
7205.789099	-47.2	33.7	-13.5
4807.166065	-48.3	34.7	-13.5
20238.307586	-56.8	43.3	-13.5
20148.359222	-56.9	43.4	-13.5
15700.912346	-57.2	43.7	-13.5
19518.720676	-57.6	44.1	-13.5
20198.330535	-57.6	44.1	-13.5
19838.537080	-57.6	44.1	-13.5
16400.510731	-57.7	44.2	-13.5
16500.453357	-57.9	44.4	-13.5
20208.324798	-58.0	44.5	-13.5

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2400.000000	1	1
2400.000000	2483.500000	1	1
2483.500000	26000.000000	1	1



Pre Measurement 1

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	-20.000 dBm	-30.000 dBm
Attenuation	10.000 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	4 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Mid channel

Result

DUT Frequency (MHz)	Result
2441.000000	PASS

Final measurements

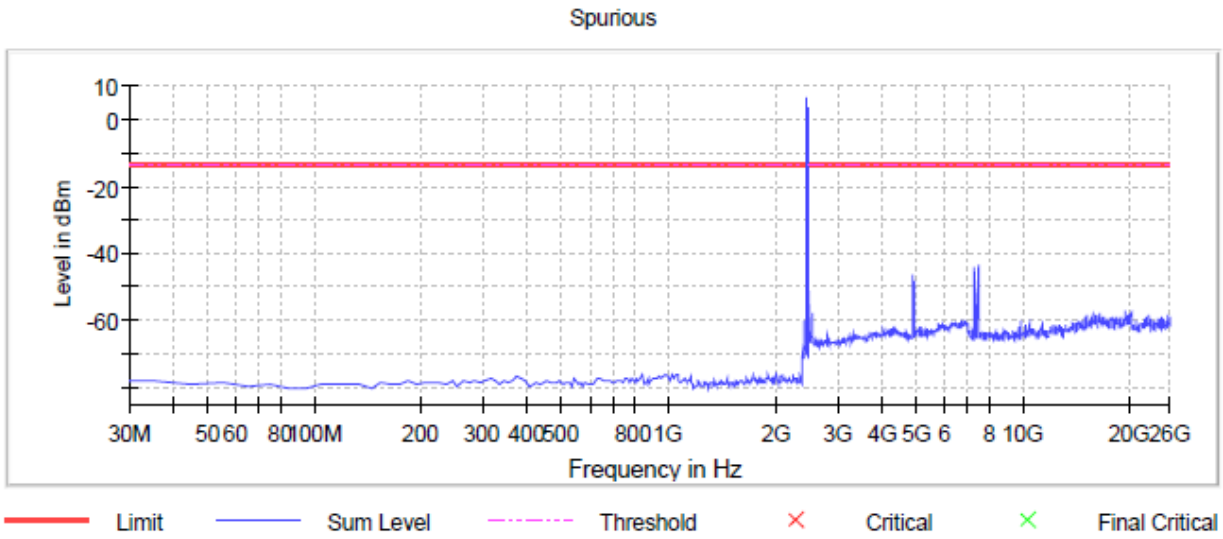
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
7435.657140	-43.2	29.5	-13.6
7325.720251	-43.8	30.1	-13.6
7445.651402	-45.6	32.0	-13.6
4877.125903	-46.2	32.6	-13.6
4957.080004	-48.3	34.7	-13.6
4887.120166	-48.6	35.0	-13.6
2488.497131	-48.8	35.2	-13.6
19528.714938	-57.0	43.4	-13.6
19478.743625	-57.5	43.9	-13.6
20268.290374	-57.5	43.9	-13.6
20218.319061	-57.5	43.9	-13.6
20238.307586	-57.6	44.0	-13.6
2548.462707	-57.7	44.0	-13.6
20168.347748	-57.7	44.1	-13.6
16400.510731	-57.8	44.1	-13.6

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2400.000000	1	1
2400.000000	2483.500000	1	1
2483.500000	26000.000000	1	1



Pre Measurement 1

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	-20.000 dBm	-30.000 dBm
Attenuation	10.000 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	4 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

High channel

Result

DUT Frequency (MHz)	Result
2480.000000	PASS

Final measurements

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

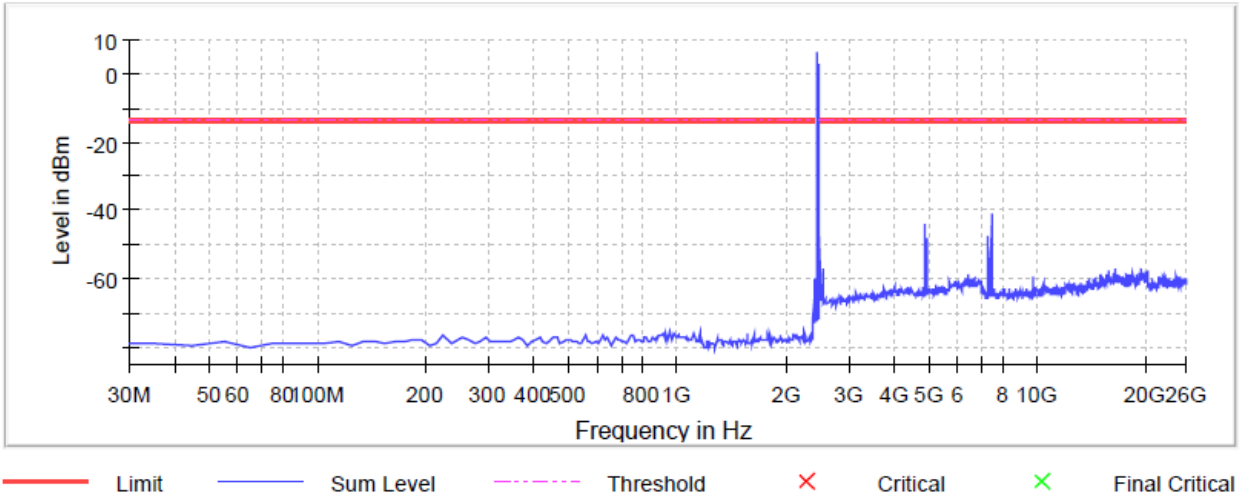
Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
7435.657140	-41.1	27.6	-13.5
4877.125903	-44.1	30.6	-13.5
7445.651402	-44.8	31.2	-13.5
4887.120166	-44.9	31.3	-13.5
2488.497131	-47.3	33.8	-13.5
7325.720251	-47.6	34.1	-13.5
4957.080004	-48.1	34.5	-13.5
16520.441883	-56.9	43.4	-13.5
2548.462707	-56.9	43.4	-13.5
19538.709201	-57.2	43.6	-13.5
20238.307586	-57.5	43.9	-13.5
20228.313323	-57.6	44.0	-13.5
19528.714938	-57.6	44.0	-13.5
15760.877922	-57.7	44.1	-13.5
15740.889397	-57.8	44.3	-13.5

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2400.000000	1	1
2400.000000	2483.500000	1	1
2483.500000	26000.000000	1	1

Spurious

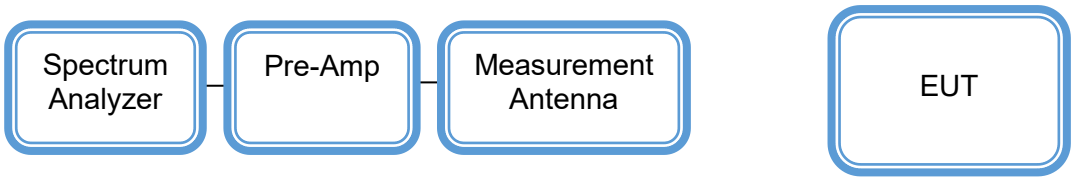


Pre Measurement 1

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	-20.000 dBm	-30.000 dBm
Attenuation	10.000 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

Radiated Band Edges

TEST SETUP



LIMITS

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)).
[15.247(d)]

MEASUREMENTS / RESULTS

Antenna port 1

Radiated Emissions Table

Date: 17-May-21 **Company:** Fishman **Work Order:** V0448
Engineer: XZ **EUT Desc:** RTX1290 Audio Wireless Module **EUT Operating Voltage/Frequency:** 3.7VDC
Temp: 23.4°c **Humidity:** 35% **Pressure:** 1017mBar
Frequency Range: 2310 - 2390MHz 2483.5 - 2500MHz **Measurement Distance:** 3 m
Notes: Antenna port 1 **EUT Max Freq:** 2400MHz

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
H	2387.0	51.012	34.9	38.8	28.0	2.6	42.8	26.7	74.0	-31.2	Pass	54.0	-27.3	Pass
H	2390.0	54.65	35.4	38.8	28.0	2.6	46.4	27.2	74.0	-27.6	Pass	54.0	-26.8	Pass
V	2387.0	51.155	35.3	38.8	28.0	2.6	42.9	27.1	74.0	-31.1	Pass	54.0	-26.9	Pass
V	2390.0	52.785	35.7	38.8	28.0	2.6	44.6	27.4	74.0	-29.4	Pass	54.0	-26.6	Pass
				---	---	---	---	---	---	---	---	---	---	---
H	2483.5	64.949	38.6	38.8	28.2	2.6	56.9	30.6	74.0	-17.1	Pass	54.0	-23.4	Pass
H	2484.8	59.925	37.4	38.8	28.2	2.6	51.9	29.4	74.0	-22.1	Pass	54.0	-24.6	Pass
V	2483.5	66.608	40.1	38.8	28.2	2.6	58.6	32.1	74.0	-15.4	Pass	54.0	-21.9	Pass
V	2484.8	62.936	38.8	38.8	28.2	2.6	54.9	30.8	74.0	-19.1	Pass	54.0	-23.2	Pass
				---	---	---	---	---	---	---	---	---	---	---

Table Result: Pass by -21.9 dB ***Worst Freq:*** 2483.5 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2467 **Cable 2:** Asset #2456 **Cable 3:** #2583
Analyzer: MXE 2093 **Preamp:** 8449B **Antenna:** Orange Horn **Preselector:** ---
CSoft Radiated Emissions Calculator v 1.017.217

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Antenna port 2

Radiated Emissions Table

Date: 17-May-21 **Company:** Fishman **Work Order:** V0448
Engineer: XZ **EUT Desc:** RTX1290 Audio Wireless Module **EUT Operating Voltage/Frequency:** 3.7VDC
Temp: 23.4°c **Humidity:** 35% **Pressure:** 1017mBar
Frequency Range: 2310 - 2390MHz 2483.5 - 2500MHz **Measurement Distance:** 3 m
Notes: Antenna port 2 **EUT Max Freq:** 2400MHz

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
H	2387.0	47.554	34.9	38.8	28.0	2.6	39.3	26.7	74.0	-34.7	Pass	54.0	-27.3	Pass
H	2390.0	49.982	35.3	38.8	28.0	2.6	41.8	27.0	74.0	-32.2	Pass	54.0	-27.0	Pass
V	2387.0	50.17	35.3	38.8	28.0	2.6	42.0	27.1	74.0	-32.1	Pass	54.0	-26.9	Pass
V	2390.0	50.971	35.7	38.8	28.0	2.6	42.8	27.5	74.0	-31.2	Pass	54.0	-26.5	Pass
				---	---	---	---	---	---	---	---	---	---	---
H	2483.5	61.256	36.6	38.8	28.2	2.6	53.3	28.6	74.0	-20.7	Pass	54.0	-25.4	Pass
H	2484.8	56.359	35.9	38.8	28.2	2.6	48.4	27.9	74.0	-25.6	Pass	54.0	-26.1	Pass
V	2483.5	61.383	36.2	38.8	28.2	2.6	53.4	28.2	74.0	-20.6	Pass	54.0	-25.8	Pass
V	2484.8	57.727	35.6	38.8	28.2	2.6	49.7	27.6	74.0	-24.3	Pass	54.0	-26.4	Pass
				---	---	---	---	---	---	---	---	---	---	---

Table Result: Pass by -25.4 dB ***Worst Freq:*** 2483.5 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2467 **Cable 2:** Asset #2456 **Cable 3:** #2583
Analyzer: MXE 2093 **Preamp:** 8449B **Antenna:** Orange Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.217

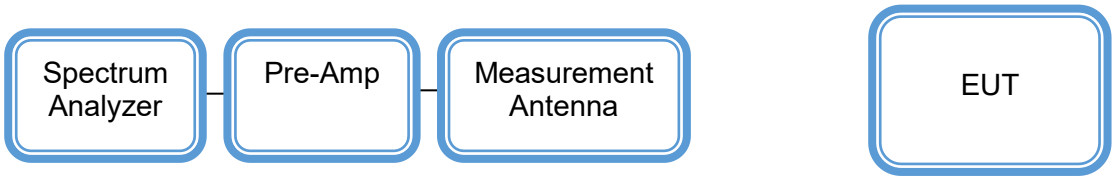
Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

MEASUREMENT SETTINGS

RBW	1MHz
VBW	3MHz
Detector Type	Peak/AVG

Radiated Spurious Emissions

TEST SETUP



LIMITS

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)).
[15.247(d)]

MEASUREMENTS / RESULTS

Measurements have been taken at DUT's worst case orientation: Z axis.

18-26.5GHz is scanned manually by the test engineer by moving the Antenna by hand around all sides of the EUT in the Vertical and Horizontal antenna polarity at a distance of 10cm worst case Emissions are recorded.

Antenna port 1

9 – 150kHz

Bureau Veritas Consumer Product Services Inc. Radiated Emissions, Electric Field, 3m Measurement Top Peaks Parallel 9-150kHz Notes: Antenna 1, low & mid channel, TX mode	Work Order - V0448 EUT Power Input - 3.7VDC Test Site - CH1 Conditions - 23.4°C; 31%RH; 1008mBar Test Engineer - XZ Date of Test - 4/27/2021 EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim: FCC_pt15_209_dBµV/m (dBµV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.036826	40.7	12.7	53.4	116.3	-62.8	PASS		15
0.079824	36.3	10.5	46.8	109.6	-62.8	PASS		90
0.093561	36.9	10.4	47.3	108.2	-60.9	PASS	-60.9	75
0.122343	34	10.1	44.1	105.9	-61.7	PASS		30
0.13327	32.2	10.1	42.3	105.1	-62.8	PASS		0
0.147846	31.5	10.1	41.6	104.2	-62.6	PASS		135

Bureau Veritas Consumer Product Services Inc. Radiated Emissions, Electric Field, 3m Measurement Top Peaks Perpendicular 9-150kHz Notes: Antenna 1, low & mid channel, TX mode	Work Order - V0448 EUT Power Input - 3.7VDC Test Site - CH1 Conditions - 23.4°C; 31%RH; 1008mBar Test Engineer - XZ Date of Test - 4/27/2021 EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim: FCC_pt15_209_dBµV/m (dBµV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.036068	42.3	12.8	55.1	116.5	-61.3	PASS	-61.3	240
0.083014	37.1	10.5	47.5	109.2	-61.7	PASS		345
0.093431	35.6	10.4	46	108.2	-62.2	PASS		15
0.114954	34.4	10.1	44.6	106.4	-61.8	PASS		135
0.12578	33.1	10.1	43.2	105.6	-62.4	PASS		165
0.149397	31.8	10.1	41.9	104.1	-62.2	PASS		135

Low and Mid Channel

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions, Electric Field, 3m Measurement
Top Peaks Parallel 9-150kHz
Notes:
Antenna 1, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim: FCC_pt15_209_dBµV/m (dBµV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.045191	40.8	11.7	52.5	114.6	-62.1	PASS		240
0.078108	37.3	10.5	47.7	109.8	-62	PASS		210
0.106974	35.5	10.1	45.6	107	-61.4	PASS	-61.4	0
0.123485	33.4	10.1	43.5	105.8	-62.3	PASS		345
0.134197	32.4	10.1	42.5	105.1	-62.6	PASS		0
0.147014	31.5	10.1	41.6	104.3	-62.7	PASS		270

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions, Electric Field, 3m Measurement
Top Peaks Perpendicular 9-150kHz
Notes:
Antenna 1, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim: FCC_pt15_209_dBµV/m (dBµV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.036079	42	12.8	54.8	116.5	-61.7	PASS	-61.7	135
0.072157	37.8	10.5	48.3	110.5	-62.2	PASS		330
0.090297	35.1	10.5	45.7	108.5	-62.8	PASS		150
0.105151	35.3	10.1	45.4	107.2	-61.8	PASS		315
0.119202	33.6	10.1	43.8	106.1	-62.3	PASS		45
0.140835	32.5	10.1	42.6	104.6	-62	PASS		60

High Channel

150k – 1MHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Parallel 150-1000kHz
Notes:
Antenna 1, low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.497	38.9	10.2	49.1	73.7	-24.6	PASS		150
0.61	37.4	10.4	47.8	71.9	-24.1	PASS		285
0.738	35.8	10.5	46.3	70.3	-23.9	PASS	-23.9	330
0.823	33.6	10.5	44.1	69.3	-25.2	PASS		150
0.916	33.1	10.6	43.7	68.4	-24.7	PASS		210
0.997	30.7	10.8	41.5	67.6	-26.1	PASS		180

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Perpendicular 150-1000kHz
Notes:
Antenna 1, low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.531	39.1	10.3	49.3	73.1	-23.8	PASS		105
0.647	37.7	10.4	48.1	71.4	-23.3	PASS	-23.3	300
0.719	35.2	10.5	45.6	70.5	-24.9	PASS		300
0.801	33.9	10.5	44.4	69.5	-25.1	PASS		300
0.895	32.4	10.6	43	68.6	-25.6	PASS		225
0.959	31.3	10.7	42.1	68	-25.9	PASS		330

Low and Mid Channel

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Parallel 150-1000kHz
Notes:
Antenna 1, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.516	39.2	10.3	49.5	73.4	-23.9	PASS		135
0.586	39	10.3	49.3	72.3	-22.9	PASS	-22.9	90
0.648	36.9	10.4	47.3	71.4	-24.1	PASS		0
0.795	34.5	10.5	45	69.6	-24.6	PASS		135
0.898	33.4	10.6	44	68.5	-24.5	PASS		45
0.953	31.5	10.7	42.2	68	-25.9	PASS		0

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Perpendicular 150-1000kHz
Notes:
Antenna 1, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.515	40.8	10.3	51.1	73.4	-22.3	PASS	-22.3	165
0.596	37.5	10.3	47.8	72.1	-24.3	PASS		345
0.653	36.3	10.4	46.7	71.3	-24.7	PASS		90
0.721	35.4	10.5	45.8	70.5	-24.6	PASS		75
0.798	34.5	10.5	45	69.6	-24.5	PASS		300
0.872	34	10.6	44.6	68.8	-24.2	PASS		300

High Channel

1 – 30MHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Parallel 1-30MHz
Notes:
Antenna 1, low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
1.065	29.4	10.9	40.4	67.1	-26.7	PASS		75
1.825	25	10.8	35.8	69.5	-33.7	PASS		150
2.418	21.5	10.8	32.3	69.5	-37.3	PASS		105
4.021	18.8	10.9	29.6	69.5	-39.9	PASS		45
4.682	16.8	10.8	27.7	69.5	-41.9	PASS		195
30	11.4	8.4	19.8	40	-20.2	PASS	-20.2	345

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Perpendicular 1-30MHz
Notes:
Antenna 1, low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
1.039	30.2	10.9	41.1	67.3	-26.1	PASS		270
1.686	25.2	10.8	36	63.1	-27	PASS		30
2.239	23	10.8	33.8	69.5	-35.8	PASS		45
2.748	21.4	10.8	32.2	69.5	-37.4	PASS		0
3.498	19.2	10.8	30	69.5	-39.5	PASS		135
30	11.9	8.4	20.3	40	-19.7	PASS	-19.7	165

Low and Mid Channel

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Parallel 1-30MHz
Notes:
Antenna 1, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
1.078	29.9	10.9	40.8	67	-26.1	PASS		30
1.776	25.1	10.8	35.8	69.5	-33.7	PASS		345
2.582	21.9	10.8	32.6	69.5	-36.9	PASS		315
3.277	19.4	10.8	30.2	69.5	-39.4	PASS		60
4.1	18.1	10.9	29	69.5	-40.6	PASS		300
30	10.3	8.4	18.7	40	-21.3	PASS	-21.3	120

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Perpendicular 1-30MHz
Notes:
Antenna 1, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
1.425	27.5	10.8	38.4	64.5	-26.2	PASS		255
2.09	24.3	10.8	35.1	69.5	-34.5	PASS		270
2.979	21.3	10.7	32.1	69.5	-37.5	PASS		30
3.667	18.3	10.8	29.1	69.5	-40.4	PASS		0
4.418	17	10.9	27.9	69.5	-41.7	PASS		195
30	12	8.4	20.4	40	-19.6	PASS	-19.6	90

High Channel

30MHz – 1GHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 30-1000MHz
Notes:
Antenna 1, low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.6°C; 31%RH; 1002mBar
Test Engineer - XZ
Date of Test - 4/20/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
30.97	28.6	-3.8	24.8	40	-15.2	PASS		100	0
46.514	41.8	-14.8	27	40	-13	PASS		100	0
48.309	41.8	-15.6	26.1	40	-13.9	PASS		100	180
49.788	42.7	-16.2	26.5	40	-13.5	PASS		100	180
949.851	29.9	4.1	34	46	-12	PASS	-12	150	270
997.89	29.5	5.6	35.1	54	-18.9	PASS		200	270

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 30-1000MHz
Notes:
Antenna 1, low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.6°C; 31%RH; 1002mBar
Test Engineer - XZ
Date of Test - 4/20/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
31.649	28.9	-4.4	24.5	40	-15.5	PASS		200	270
139.804	30.9	-10.2	20.7	43.5	-22.8	PASS		150	0
201.811	30.1	-10	20.1	43.5	-23.4	PASS		150	0
944.031	29.9	4.1	34.1	46	-11.9	PASS	-11.9	250	315
982.443	29.7	5.2	35	54	-19	PASS		100	0

Low and Mid Channel

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 30-1000MHz
Notes:
Antenna 1, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.6°C; 31%RH; 1002mBar
Test Engineer - XZ
Date of Test - 4/20/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
43.483	38.5	-13	25.5	40	-14.5	PASS		150	0
46.587	43.2	-14.8	28.4	40	-11.6	PASS		150	0
48.188	42.5	-15.6	26.9	40	-13.1	PASS		100	135
49.449	45.1	-16.1	29	40	-11	PASS	-11	150	180
944.686	30	4.1	34.2	46	-11.8	PASS		150	90
994.98	30	5.6	35.6	54	-18.4	PASS		150	135

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 30-1000MHz
Notes:
Antenna 1, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.6°C; 31%RH; 1002mBar
Test Engineer - XZ
Date of Test - 4/20/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
30.558	29.6	-3.5	26.1	40	-13.9	PASS		200	180
138.98	32.7	-10.1	22.5	43.5	-21	PASS		200	45
155.251	32.3	-11.1	21.3	43.5	-22.2	PASS		250	315
223.297	32.5	-11.6	20.9	46	-25.1	PASS		150	135
905.643	30.5	3.4	33.9	46	-12.1	PASS	-12.1	250	225
994.059	29.1	5.6	34.6	54	-19.4	PASS		100	45

High Channel

1 – 6GHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
1-6GHz Vertical Data
Notes:
Antenna 1, low and mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.7°C; 35%RH; 1004mBar
Test Engineer - XZ
Date of Test - 4/28/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2144.1	43.5	34.9	2.2	45.7	74	-28.3	PASS		37.1	54	-16.9	PASS		125	186
2902.9	42.6	34.1	6.4	49	74	-25	PASS		40.5	54	-13.5	PASS		287	247
4685.5	42.3	33.8	9.5	51.9	74	-22.1	PASS		43.3	54	-10.7	PASS		125	43
5584.3	42.3	33.1	11.5	53.8	74	-20.2	PASS	-20.2	44.6	54	-9.4	PASS	-9.4	275	258

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
1-6GHz Horizontal Data
Notes:
Antenna 1, low and mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.7°C; 35%RH; 1004mBar
Test Engineer - XZ
Date of Test - 4/28/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Average Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2100	44.4	35.3	2.1	46.5	74	-27.5	PASS		37.4	54	-16.6	PASS		105	72
4694.4	42	33.7	9.6	51.5	74	-22.5	PASS		43.3	54	-10.7	PASS		300	241
5584.6	41.9	33.1	11.5	53.4	74	-20.6	PASS	-20.6	44.6	54	-9.4	PASS	-9.4	275	286

Low and Middle Channel

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
1-6GHz Vertical Data
Notes:
Antenna 1, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.7°C; 35%RH; 1004mBar
Test Engineer - XZ
Date of Test - 4/28/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2136.9	44.1	34.9	2.2	46.3	74	-27.7	PASS		37.1	54	-16.9	PASS		284	328
4678	41.9	33.7	9.5	51.4	74	-22.6	PASS		43.3	54	-10.7	PASS		125	203
5487.6	42.9	32.9	11.5	54.4	74	-19.6	PASS	-19.6	44.4	54	-9.6	PASS	-9.6	275	76

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
1-6GHz Horizontal Data
Notes:
Antenna 1, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.7°C; 35%RH; 1004mBar
Test Engineer - XZ
Date of Test - 4/28/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Average Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2090.4	44.7	35	2	46.7	74	-27.3	PASS		37.1	54	-16.9	PASS		119	166
4677.4	43.5	33.8	9.5	53.1	74	-20.9	PASS	-20.9	43.3	54	-10.7	PASS		225	288
5285.3	41.1	32.2	11.3	52.5	74	-21.5	PASS		43.5	54	-10.5	PASS	-10.5	195	22

High Channel

6 – 18GHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 1m Distance
6-18GHz Vertical Data
Notes:
Antenna 1, low and mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.3°C; 36%RH; 983mBar
Test Engineer - XZ
Date of Test - 4/30/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
7205.3	42.4	33.2	5.7	48.1	83.5	-35.4	PASS		39	63.5	-24.5	PASS		200	193
7324	41.6	33.1	6.3	47.9	83.5	-35.6	PASS		39.3	63.5	-24.2	PASS		168	168
12011	43.8	32.7	10.5	54.3	83.5	-29.2	PASS		43.3	63.5	-20.2	PASS		200	289
12206	40.8	32.2	11.9	52.6	83.5	-30.9	PASS		44.1	63.5	-19.4	PASS		100	27
17947	43	34	19.4	62.4	83.5	-21.1	PASS	-21.1	53.5	63.5	-10	PASS	-10	100	46

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 1m Distance
6-18GHz Horizontal Data
Notes:
Antenna 1, low and mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.3°C; 36%RH; 983mBar
Test Engineer - XZ
Date of Test - 4/30/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Test Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
8229.8	43	33	5.5	48.6	83.5	-34.9	PASS		38.6	63.5	-24.9	PASS		150	281
8777	42.1	32.4	6.1	48.2	83.5	-35.3	PASS		38.5	63.5	-25	PASS		125	218
11608.7	44.7	33.3	8.4	53	83.5	-30.5	PASS		41.7	63.5	-21.8	PASS		175	244
13957.8	40.6	32.3	11.7	52.3	83.5	-31.2	PASS		44.1	63.5	-19.4	PASS		185	121
17886.3	42.5	34.1	19.2	61.8	83.5	-21.7	PASS	-21.7	53.4	63.5	-10.1	PASS	-10.1	175	1

Low and Middle Channel

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 1m Distance
6-18GHz Vertical Data
Notes:
Antenna 1, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.3°C; 36%RH; 983mBar
Test Engineer - XZ
Date of Test - 4/30/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
7322.8	41.8	32.9	4.4	46.2	83.5	-37.3	PASS		37.3	63.5	-26.2	PASS		199	234
12203.9	41.7	32.5	8.8	50.5	83.5	-33	PASS		41.4	63.5	-22.1	PASS		100	19
12401.9	42.9	33.2	9.4	52.3	83.5	-31.2	PASS		42.6	63.5	-20.9	PASS		100	0
14648.3	41.7	33	10.8	52.5	83.5	-31	PASS		43.8	63.5	-19.7	PASS		194	244
14881.5	42.8	32.9	9.9	52.8	83.5	-30.7	PASS		42.8	63.5	-20.7	PASS		100	46
17959.4	41.9	34	19.4	61.3	83.5	-22.2	PASS	-22.2	53.4	63.5	-10.1	PASS	-10.1	200	243

Bureau Veritas Consumer Product Services Inc.	Work Order - V0448
Radiated Emissions Electric Field 1m Distance	EUT Power Input - 3.7VDC
6-18GHz Horizontal Data	Test Site - CH1
Notes:	Conditions - 23.3°C; 36%RH; 983mBar
Antenna 1, high channel, TX mode	Test Engineer - XZ
	Date of Test - 4/30/2021
	EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Test Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
8229.6	43.8	33.2	5.5	49.4	83.5	-34.1	PASS		38.8	63.5	-24.7	PASS		200	71
9877.8	44.3	34	6.6	50.8	83.5	-32.7	PASS		40.5	63.5	-23	PASS		200	90
11594.3	42.5	33	8.4	50.9	83.5	-32.6	PASS		41.5	63.5	-22	PASS		200	96
12840.6	43.5	32.4	10.9	54.3	83.5	-29.2	PASS		43.3	63.5	-20.2	PASS		153	179
17908.8	41.8	33.8	19.3	61.1	83.5	-22.4	PASS	-22.4	53.1	63.5	-10.4	PASS	-10.4	169	87

High Channel

18 – 26.5GHz

Radiated Emissions Table

Date: 03-May-21 **Company:** Fishman **Work Order:** V0448

Engineer: Xiaoyu Zhu **EUT Desc:** RTX1290 Audio Wireless Module **EUT Operating Voltage/Frequency:** 3.7VDC

Temp: 23.3°C **Humidity:** 36% **Pressure:** 983mBar

Frequency Range: 18 - 26.5GHz **Measurement Distance:** 0.1 m

Notes: Antenna 1, low, mid and high channels **EUT Max Freq:** 2.4GHz
Average readings are taken from peak readings.

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
H	19048.0	51.74	51.7	41.1	40.3	7.1	58.0	58.0	103.5	-45.5	Pass	83.5	-25.5	Pass
H	19962.0	51.58	51.6	41.8	40.2	7.3	57.3	57.3	103.5	-46.2	Pass	83.5	-26.2	Pass
H	20652.0	53.44	53.4	42.1	40.1	7.6	59.0	59.0	103.5	-44.5	Pass	83.5	-24.5	Pass
V	23676.0	52.71	52.7	41.1	40.3	8.3	60.2	60.2	103.5	-43.3	Pass	83.5	-23.3	Pass
V	25132.0	53.59	53.6	41.1	40.4	8.4	61.3	61.3	103.5	-42.2	Pass	83.5	-22.2	Pass
V	25184.0	53.09	53.1	40.9	40.4	8.5	61.1	61.1	103.5	-42.4	Pass	83.5	-22.4	Pass
				---	---	---	---	---	---	---	---	---	---	---

Table Result: Pass by -22.2 dB ***Worst Freq:*** 25132.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2324 **Cable 2:** --- **Cable 3:** ---

Analyzer: Gold **Preamp:** 18-26.5GHz **Antenna:** 18-26.5GHz Horn **Preselector:** ---

CSsoft Radiated Emissions Calculator v 1.017.217

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Antenna port 2

9 – 150kMHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions, Electric Field, 3m Measurement
Top Peaks Parallel 9-150kHz
Notes:
Antenna 2,low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim: FCC_pt15_209_dBµV/m (dBµV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.02175	44.9	14	58.8	120.9	-62	PASS		255
0.038406	41	12.6	53.6	115.9	-62.3	PASS		105
0.095673	35.7	10.3	46	108	-62	PASS		135
0.117919	33.9	10.1	44	106.2	-62.2	PASS		225
0.132192	33.2	10.1	43.3	105.2	-61.9	PASS	-61.9	300
0.146761	32.2	10.1	42.3	104.3	-62	PASS		345

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions, Electric Field, 3m Measurement
Top Peaks Perpendicular 9-150kHz
Notes:
Antenna 2,low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim: FCC_pt15_209_dBµV/m (dBµV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.040707	41.7	12.3	54	115.4	-61.4	PASS		345
0.072133	38.9	10.5	49.3	110.5	-61.2	PASS	-61.2	345
0.095172	34.8	10.3	45.1	108	-62.9	PASS		60
0.108148	34.7	10.1	44.8	106.9	-62.1	PASS		120
0.119946	33.6	10.1	43.7	106	-62.3	PASS		60
0.140821	32.4	10.1	42.5	104.6	-62.1	PASS		315

Low and Middle Channel

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions, Electric Field, 3m Measurement
Top Peaks Parallel 9-150kHz
Notes:
Antenna 2, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim: FCC_pt15_209_dBµV/m (dBµV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.036442	41.7	12.8	54.5	116.4	-61.8	PASS		345
0.055114	38.9	10.9	49.8	112.8	-63	PASS		285
0.092289	35.2	10.5	45.7	108.3	-62.7	PASS		195
0.12241	34.3	10.1	44.4	105.9	-61.4	PASS	-61.4	330
0.133573	32.5	10.1	42.6	105.1	-62.4	PASS		240
0.143979	31.8	10.1	41.9	104.4	-62.6	PASS		285

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions, Electric Field, 3m Measurement
Top Peaks Perpendicular 9-150kHz
Notes:
Antenna 2, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim: FCC_pt15_209_dBµV/m (dBµV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.022028	44.5	13.9	58.5	120.7	-62.3	PASS		345
0.035716	42.2	12.9	55	116.5	-61.5	PASS		150
0.055861	39.6	10.9	50.5	112.7	-62.2	PASS		90
0.083043	37.4	10.5	47.9	109.2	-61.4	PASS	-61.4	330
0.130479	32.9	10.1	43	105.3	-62.3	PASS		180
0.149323	32.1	10.1	42.2	104.1	-61.9	PASS		225

High Channel

150k – 1MHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Parallel 150-1000kHz
Notes:
Antenna 2, low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.519	38.9	10.3	49.2	73.3	-24.1	PASS		60
0.605	37.3	10.4	47.7	72	-24.3	PASS		15
0.713	36.1	10.5	46.5	70.6	-24	PASS	-24	330
0.775	34.6	10.5	45.1	69.8	-24.7	PASS		255
0.838	33.9	10.5	44.5	69.1	-24.7	PASS		180
0.892	33.1	10.6	43.7	68.6	-24.9	PASS		75

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Perpendicular 150-1000kHz
Notes:
Antenna 2, low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.513	39.1	10.3	49.4	73.4	-24	PASS		315
0.595	37.8	10.3	48.2	72.1	-24	PASS	-24	195
0.663	36.7	10.4	47.1	71.2	-24.1	PASS		15
0.725	35.2	10.5	45.6	70.4	-24.8	PASS		90
0.852	33.5	10.6	44	69	-25	PASS		135
0.998	31.8	10.8	42.6	67.6	-25.1	PASS		345

Low and Middle Channel

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Parallel 150-1000kHz
Notes:
Antenna 2, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.517	39	10.3	49.3	73.4	-24.1	PASS		255
0.611	37.4	10.4	47.8	71.9	-24.1	PASS		150
0.71	36	10.5	46.5	70.6	-24.1	PASS		285
0.789	34.6	10.5	45.1	69.7	-24.6	PASS		300
0.892	34.1	10.6	44.7	68.6	-23.9	PASS	-23.9	240
0.956	31.9	10.7	42.6	68	-25.4	PASS		210

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Perpendicular 150-1000kHz
Notes:
Antenna 2, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
0.525	39.5	10.3	49.7	73.2	-23.5	PASS	-23.5	285
0.586	38.2	10.3	48.5	72.3	-23.7	PASS		45
0.68	36.7	10.4	47.1	71	-23.8	PASS		195
0.783	35	10.5	45.5	69.7	-24.3	PASS		30
0.933	32.7	10.7	43.3	68.2	-24.9	PASS		345
0.987	31.9	10.8	42.7	67.7	-25	PASS		45

High Channel

1 – 30MHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Parallel 1-30MHz
Notes:
Antenna 2, low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
1.008	30.1	10.9	41	67.5	-26.6	PASS		315
1.579	25.8	10.8	36.7	63.6	-27	PASS		195
2.082	23.5	10.8	34.2	69.5	-35.3	PASS		30
2.723	21.1	10.8	31.9	69.5	-37.7	PASS		300
3.268	20.8	10.8	31.6	69.5	-38	PASS		330
30	12.2	8.4	20.6	40	-19.4	PASS	-19.4	135

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Perpendicular 1-30MHz
Notes:
Antenna 2, low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
1.107	29.3	10.9	40.2	66.7	-26.6	PASS		15
2.325	22.5	10.8	33.3	69.5	-36.3	PASS		180
3.16	19.6	10.8	30.3	69.5	-39.2	PASS		285
3.98	19.3	10.8	30.2	69.5	-39.4	PASS		0
6.667	16.6	11	27.6	69.5	-41.9	PASS		0
30	11.9	8.4	20.3	40	-19.7	PASS	-19.7	15

Low and Middle Channel

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Parallel 1-30MHz
Notes:
Antenna 2, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
1.201	28.1	10.9	39	66	-27	PASS		345
1.803	24.5	10.8	35.3	69.5	-34.3	PASS		60
3.704	18.7	10.8	29.5	69.5	-40.1	PASS		120
4.385	16.9	10.9	27.8	69.5	-41.8	PASS		330
4.952	16.7	10.8	27.6	69.5	-42	PASS		300
30	11.4	8.4	19.9	40	-20.1	PASS	-20.1	150

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Magnetic Field 3m Distance
Top Peaks Perpendicular 1-30MHz
Notes:
Antenna 2, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.4°C; 31%RH; 1008mBar
Test Engineer - XZ
Date of Test - 4/27/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Correction Factor (dB/s)	Adjusted Peak Amplitude (dBµA/m)	Lim: FCC_pt15_209_dBµV/m (dBµA/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Margin (dB)	EUT Azimuth (degrees)
1.016	30.2	10.9	41.1	67.5	-26.4	PASS		15
1.592	25.8	10.8	36.6	63.6	-27	PASS		300
2.144	23.3	10.8	34.1	69.5	-35.5	PASS		345
3.421	20	10.8	30.8	69.5	-38.8	PASS		195
3.943	17.7	10.8	28.5	69.5	-41	PASS		165
30	12.4	8.4	20.9	40	-19.1	PASS	-19.1	330

High Channel

30MHz – 1GHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 30-1000MHz
Notes:
Antenna 2, low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.6°C; 31%RH; 1002mBar
Test Engineer - XZ
Date of Test - 4/20/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
30.8	28.1	-3.7	24.4	40	-15.6	PASS		200	0
46.733	42.5	-14.9	27.6	40	-12.4	PASS		100	0
48.09	41.4	-15.5	25.9	40	-14.1	PASS		100	45
49.739	42	-16.2	25.8	40	-14.2	PASS		100	90
51.049	40.1	-16.6	23.5	40	-16.5	PASS		100	135
953.513	30.3	4.2	34.5	46	-11.5	PASS	-11.5	200	90

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 30-1000MHz
Notes:
Antenna 2, low & mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.6°C; 31%RH; 1002mBar
Test Engineer - XZ
Date of Test - 4/20/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
30.17	27.8	-3.2	24.6	40	-15.4	PASS		200	315
140.386	31.8	-10.3	21.5	43.5	-22	PASS		200	0
212.942	33.5	-12.1	21.4	43.5	-22.1	PASS		150	180
226.91	32.6	-11.4	21.2	46	-24.8	PASS		100	0
944.104	30.2	4.1	34.3	46	-11.7	PASS	-11.7	100	135
991.246	29.8	5.5	35.3	54	-18.7	PASS		250	225

Low and Middle Channel

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Vertical 30-1000MHz
Notes:
Antenna 2, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.6°C; 31%RH; 1002mBar
Test Engineer - XZ
Date of Test - 4/20/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Antenna Height (cm)	Turntable Azimuth (degrees)
30.097	28.9	-3.2	25.7	40	-14.3	PASS		150	180
46.514	40.6	-14.8	25.8	40	-14.2	PASS		100	0
48.357	42.5	-15.7	26.9	40	-13.1	PASS		100	90
49.497	43.4	-16.1	27.3	40	-12.7	PASS		100	180
944.783	29.8	4.1	33.9	46	-12.1	PASS	-12.1	100	225
981.327	30.2	5.1	35.3	54	-18.7	PASS		100	135

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
Top Peaks Horizontal 30-1000MHz
Notes:
Antenna 2, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.6°C; 31%RH; 1002mBar
Test Engineer - XZ
Date of Test - 4/20/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Peak Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Lim1: FCC_pt15_209 (dBµV/m)	Lim1 Margin (dB)	Lim1 Test Results (Pass/Fail)	Worst Margin Lim1 (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
32.086	29.9	-4.8	25.2	40	-14.8	PASS		200	315
137.791	32	-10	22	43.5	-21.5	PASS		200	0
154.936	34.8	-11.1	23.8	43.5	-19.7	PASS		200	315
202.175	31.7	-10.1	21.7	43.5	-21.8	PASS		150	180
905.304	31	3.4	34.4	46	-11.6	PASS	-11.6	200	225
998.909	29.1	5.7	34.9	54	-19.1	PASS		100	225

High channel

1 – 6GHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
1-6GHz Vertical Data
Notes:
Antenna 2, low and mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.7°C; 35%RH; 1004mBar
Test Engineer - XZ
Date of Test - 4/28/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2099.7	43.9	35.2	2.1	45.9	74	-28.1	PASS		37.3	54	-16.7	PASS		225	275
5118.2	41.2	33.2	10.9	52	74	-22	PASS		44	54	-10	PASS	-10	299	294
5795.5	41.1	32.2	11.5	52.6	74	-21.4	PASS	-21.4	43.7	54	-10.3	PASS		125	157

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
1-6GHz Horizontal Data
Notes:
Antenna 2, low and mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.7°C; 35%RH; 1004mBar
Test Engineer - XZ
Date of Test - 4/28/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Average Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2141	43.4	34.9	2.2	45.6	74	-28.4	PASS		37.1	54	-16.9	PASS		185	230
4213.3	40.6	32.9	9.3	50	74	-24	PASS		42.3	54	-11.7	PASS		294	90
5588.7	41.2	33.1	11.5	52.7	74	-21.3	PASS	-21.3	44.6	54	-9.4	PASS	-9.4	225	39

Low and Middle Channel

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
1-6GHz Vertical Data
Notes:
Antenna 2, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.7°C; 35%RH; 1004mBar
Test Engineer - XZ
Date of Test - 4/28/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2129.4	43.4	35.1	2.2	45.5	74	-28.5	PASS		37.3	54	-16.7	PASS		292	132
4697.5	42.3	33.7	9.6	51.9	74	-22.1	PASS		43.3	54	-10.7	PASS		100	254
5998.6	40.2	32.3	12.2	52.4	74	-21.6	PASS	-21.6	44.5	54	-9.5	PASS	-9.5	225	153

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 3m Distance
1-6GHz Horizontal Data
Notes:
Antenna 2, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.7°C; 35%RH; 1004mBar
Test Engineer - XZ
Date of Test - 4/28/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Average Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
2104.5	44	35.2	2.1	46.1	74	-27.9	PASS		37.3	54	-16.7	PASS		125	169
3803.4	42.1	33	9.1	51.2	74	-22.8	PASS		42.1	54	-11.9	PASS		283	288
5263.2	41	32.4	11.2	52.3	74	-21.7	PASS	-21.7	43.6	54	-10.4	PASS	-10.4	171	134

High Channel

6 – 18GHz

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 1m Distance
6-18GHz Vertical Data
Notes:
Antenna 2, low and mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.3°C; 36%RH; 983mBar
Test Engineer - XZ
Date of Test - 4/30/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
7205.6	40.9	32.1	4.7	45.6	83.5	-37.9	PASS		36.8	63.5	-26.7	PASS		124	159
7323.9	41.5	32.8	4.4	45.9	83.5	-37.6	PASS		37.2	63.5	-26.3	PASS		100	22
12011.6	41.8	33.4	8.6	50.4	83.5	-33.1	PASS		42	63.5	-21.5	PASS		100	46
12202.5	41.3	32.4	8.8	50.2	83.5	-33.3	PASS		41.2	63.5	-22.3	PASS		100	21
14644.9	40.9	32.9	10.8	51.7	83.5	-31.8	PASS		43.7	63.5	-19.8	PASS		200	335
17964.2	42.2	34	19.3	61.5	83.5	-22	PASS	-22	53.3	63.5	-10.2	PASS	-10.2	147	145

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 1m Distance
6-18GHz Horizontal Data
Notes:
Antenna 2, low and mid channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.3°C; 36%RH; 983mBar
Test Engineer - XZ
Date of Test - 4/30/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Test Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
10536.6	42.1	33	7.1	49.2	83.5	-34.3	PASS		40	63.5	-23.5	PASS		150	218
11605	42.9	33.3	8.4	51.3	83.5	-32.2	PASS		41.6	63.5	-21.9	PASS		194	95
12743.4	41.4	32.5	10.6	52	83.5	-31.5	PASS		43.1	63.5	-20.4	PASS		142	20
17861.7	45.3	34.3	19.1	64.4	83.5	-19.1	PASS	-19.1	53.4	63.5	-10.1	PASS	-10.1	143	120

Low and Middle Channel

Bureau Veritas Consumer Product Services Inc.
Radiated Emissions Electric Field 1m Distance
6-18GHz Vertical Data
Notes:
Antenna 2, high channel, TX mode

Work Order - V0448
EUT Power Input - 3.7VDC
Test Site - CH1
Conditions - 23.3°C; 36%RH; 983mBar
Test Engineer - XZ
Date of Test - 4/30/2021
EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
7320.6	42.7	32.8	4.4	47.1	83.5	-36.4	PASS		37.2	63.5	-26.3	PASS		188	158
12202.5	42.2	32.4	8.8	51.1	83.5	-32.4	PASS		41.2	63.5	-22.3	PASS		100	315
12402.1	42.3	33.1	9.4	51.7	83.5	-31.8	PASS		42.5	63.5	-21	PASS		123	52
13968.2	42.5	32.2	11.8	54.3	83.5	-29.2	PASS		44	63.5	-19.5	PASS		100	34
17860.6	44	34.2	19.1	63.1	83.5	-20.4	PASS	-20.4	53.3	63.5	-10.2	PASS	-10.2	113	70

Bureau Veritas Consumer Product Services Inc.	Work Order - V0448
Radiated Emissions Electric Field 1m Distance	EUT Power Input - 3.7VDC
6-18GHz Horizontal Data	Test Site - CH1
Notes:	Conditions - 23.3°C; 36%RH; 983mBar
Antenna 2, high channel, TX mode	Test Engineer - XZ
	Date of Test - 4/30/2021
	EUT Maximum Frequency - 2.4GHz

Frequency (MHz)	Raw Peak Reading (dBµV)	Raw Avg Reading (dBµV)	Correction Factor (dB/m)	Adjusted Peak Amplitude (dBµV/m)	Pk Lim: FCC_pt15_209_Peak (dBµV/m)	Peak Margin (dB)	Peak Test Results (Pass/Fail)	Worst Peak Margin (dB)	Adjusted Avg Amplitude (dBµV/m)	Av Lim: FCC_pt15_209_Average (dBµV/m)	Avg Margin (dB)	Avg Test Results (Pass/Fail)	Worst Avg Margin (dB)	Antenna Height (cm)	EUT Azimuth (degrees)
8229	43.3	33.2	5.5	48.8	83.5	-34.7	PASS		38.7	63.5	-24.8	PASS		100	172
10532.8	42	32.9	7.1	49	83.5	-34.5	PASS		40	63.5	-23.5	PASS		188	0
12141.9	41.2	32.9	8.8	50	83.5	-33.5	PASS		41.7	63.5	-21.8	PASS		165	289
14649.7	42.6	32.9	10.8	53.4	83.5	-30.1	PASS		43.7	63.5	-19.8	PASS		168	119
17923	42.6	33.7	19.4	61.9	83.5	-21.6	PASS	-21.6	53.1	63.5	-10.4	PASS	-10.4	196	70

High Channel

18 – 26.5GHz

Radiated Emissions Table

Date: 03-May-21 **Company:** Fishman **Work Order:** V0448

Engineer: Xiaoyu Zhu **EUT Desc:** RTX1290 Audio Wireless Module **EUT Operating Voltage/Frequency:** 3.7VDC

Temp: 23.3°C **Humidity:** 36% **Pressure:** 983mBar

Frequency Range: 18 - 26.5GHz **Measurement Distance:** 0.1 m

Notes: Antenna 2, low, mid and high channels **EUT Max Freq:** 2.4GHz
Average readings are taken from peak readings.

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
H	19214.0	59.9	59.9	41.5	40.3	7.1	65.8	65.8	103.5	-37.7	Pass	83.5	-17.7	Pass
H	19524.0	61.77	61.8	41.2	40.3	7.3	68.2	68.2	103.5	-35.3	Pass	83.5	-15.3	Pass
H	19530.0	59.18	59.2	41.2	40.3	7.3	65.6	65.6	103.5	-37.9	Pass	83.5	-17.9	Pass
H	19840.0	58.58	58.6	41.5	40.3	7.3	64.7	64.7	103.5	-38.8	Pass	83.5	-18.8	Pass
V	21616.0	60.2	60.2	42.9	40.3	7.8	65.4	65.4	103.5	-38.1	Pass	83.5	-18.1	Pass
V	21966.0	64.36	64.4	42.3	40.5	8.0	70.6	70.6	103.5	-32.9	Pass	83.5	-12.9	Pass
V	21968.0	62.3	62.3	42.3	40.5	8.0	68.5	68.5	103.5	-35.0	Pass	83.5	-15.0	Pass
V	22316.0	63.05	63.1	42.4	40.5	8.1	69.3	69.3	103.5	-34.2	Pass	83.5	-14.2	Pass
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Table Result: Pass by -12.9 dB ***Worst Freq:*** 21966.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2324 **Cable 2:** --- **Cable 3:** ---

Analyzer: Gold **Preamp:** 18-26.5GHz **Antenna:** 18-26.5GHz Horn **Preselector:** ---

CSsoft Radiated Emissions Calculator v 1.017.217

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

TEU

Rev. 4/30/2021

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Gold	100Hz-26.5 GHz	E4407B	Agilent	MY45113816	1284	I	12/2/2021	12/2/2020
2093 MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	1/14/2022	1/14/2021
Rental MXE EMI Receiver(1170725)	20Hz-26.5GHz	N9038A	Agilent	MY51210151	1170725	I	12/7/2021	12/7/2020

Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Asset	Cat	Calibration Due	Calibrated on
EMI Chamber 1	719150	2762A-6	A-0015	30-1000MHz	1685	I	12/6/2022	12/6/2020
EMI Chamber 1	719150	2762A-6	A-0015	1-18GHz	1685	I	12/8/2022	12/8/2020
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz	1686	I	12/5/2022	12/5/2020
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz	1686	I	12/8/2022	12/8/2020

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
8449B HF Preamp	1-18GHz	8449B	Agilent	1149055		II	11/8/2021	11/8/2020
185710 Rental PA	9KHz-1GHz	310	SONOMA INSTRUMENT	185710		II	2/21/2022	2/21/2021
HF (Yellow)	18-26.5GHz	AFS4-18002650-60-8P-4	CS	467559	1266	II	10/18/2021	10/18/2020
2116 BRF	0.009-18000MHz	BRM50702	Micro-Tronics	G226	2116	II	11/7/2021	11/7/2020

Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	I	9/11/2021	9/11/2019
Red-Black Bilog	30-2000MHz	JB1	Sunol	A091604-2	1106	I	5/26/2021	4/26/2019
Orange Horn	1-18GHz	3115	EMCO	0004-6123	390	I	11/17/2022	11/17/2020
HF (White) Horn	18-26.5GHz	801-WLM	Waveline	758	758	III	5/1/2021	4/30/2021
Large Loop	20Hz-5MHz	6511	EMCO	9704-1154	67	I	8/21/2022	8/21/2020
2615 Active Loop Antenna	9KHz-30MHz	6502	EMCO	2049	2615	I	11/23/2022	11/23/2020

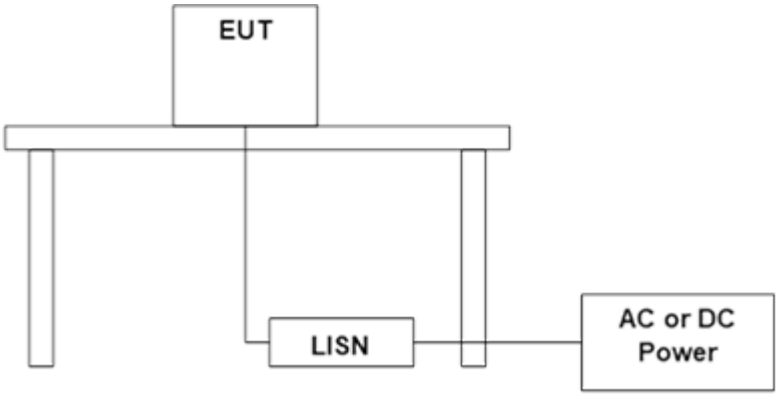
Meteorological Meters/Chambers		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	11/23/2022	11/23/2020
Asset #2653		1235C97	Control Company	200435382	2653	I	8/3/2022	8/3/2020
Asset #2654		1235C97	Control Company	200477432	2654	I	8/3/2022	8/3/2020

Cables	Range	Mfr	Cat	Calibration Due	Calibrated on
Asset #2456	9KHz-18GHz	MegaPhase	II	11/7/2021	11/7/2020
Asset #2464	9KHz-18GHz	MegaPhase	II	11/7/2021	11/7/2020
Asset #2467	9KHz-18GHz	MegaPhase	II	11/7/2021	11/7/2020
Asset #2580	9KHz-18GHz	Pasternack	II	1/17/2022	1/17/2021
Asset #2682	9KHz-18GHz	Pasternack	II	1/23/2022	1/23/2021

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

AC Line Conducted Emissions

TEST SETUP



The unit was tested with the motherboard connected to the Apple power adapter that was provided by the client. The ac power adapter is not supplied with the device, so this power adapter represents an “off-the-shelf” unmodified AC power adapter.

LIMITS

Frequency of emission (MHz)	Quasi-peak limit (dBµV)	Average limit (dBµV)
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.

[47 CFR 15.207(a)]

MEASUREMENTS / RESULTS

120V 60Hz

Bureau Veritas Consumer Product Services Inc.
Conducted Emissions per CISPR 16-2-1
Peak Detector Data
Notes:
EUT Line tested: Line Phase
EUT Mode of Operation: Tx and Rx are paired.

Work Order # - V0448
EUT Power Input - 120VAC/ 60Hz
Test Site - CEMI-6
Conditions: - 23.3°C; 33%RH; 1005mBar
Test Engineer - XZ
Date of Test - 5-3-2021

Frequency (MHz)	Raw Pk Reading (dBµV)	Correction Factor (dB)	Adjusted Pk Amplitude (dBµV)	QP Lim: Mains_FCC&CISPR_QP_Class_B (dBµV)	Margin to the QP Limit (dB)	Pk to QP Limit Results (Pass/Fail)	Worst Margin (QP Limit) (dB)
0.163	33.5	19.9	53.4	65.3	-11.8	PASS	-11.8
0.208	30.1	19.9	50	63.3	-13.2	PASS	
0.272	28.9	19.9	48.8	61	-12.2	PASS	
0.301	26.8	19.9	46.7	60.2	-13.5	PASS	
0.34	26.3	19.9	46.2	59.2	-13	PASS	
0.369	24	19.9	43.9	58.5	-14.6	PASS	

Bureau Veritas Consumer Product Services Inc.
Conducted Emissions per CISPR 16-2-1, CISPR Average Detector
Final Average Detector Data
Notes:
EUT Line tested: Line Phase
EUT Mode of Operation: Tx and Rx are paired.

Work Order # - V0448
EUT Power Input - 120VAC/ 60Hz
Test Site - CEMI-6
Conditions: - 23.3°C; 33%RH; 1005mBar
Test Engineer - XZ
Date of Test - 5-3-2021

Data Taken at 02:05:45 PM, Monday, May 03, 2021

Frequency (MHz)	Raw Avg Reading (dBµV)	Correction Factor (dB)	Adjusted Avg Amplitude (dBµV)	Av Lim: Mains_FCC&CISPR_Avg_Class_B (dBµV)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)
0.152	13.6	19.9	33.5	55.9	-22.4	PASS	
0.153	13.6	19.9	33.5	55.9	-22.4	PASS	
0.159	13.6	19.9	33.5	55.5	-22	PASS	
0.206	12.4	19.9	32.3	53.4	-21	PASS	
0.29	14.4	19.9	34.3	50.5	-16.3	PASS	-16.3
0.579	9.8	19.9	29.7	46	-16.3	PASS	

Bureau Veritas Consumer Product Services Inc.
Conducted Emissions per CISPR 16-2-1
Peak Detector Data
Notes:
EUT Line tested: Neutral Phase
EUT Mode of Operation: Tx and Rx are paired.

Work Order # - V0448
EUT Power Input - 120VAC/ 60Hz
Test Site - CEMI-6
Conditions: - 23.3°C; 33%RH; 1005mBar
Test Engineer - XZ
Date of Test - 5-3 -2021

Frequency (MHz)	Raw Pk Reading (dBµV)	Correction Factor (dB)	Adjusted Pk Amplitude (dBµV)	QP Lim: Mains_FCC&CISPR_QP_Class_B (dBµV)	Margin to the QP Limit (dB)	Pk to QP Limit Results (Pass/Fail)	Worst Margin (QP Limit) (dB)
0.15	33.3	19.9	53.2	66	-12.8	PASS	
0.171	33.8	19.9	53.7	64.9	-11.2	PASS	-11.2
0.222	30.5	19.9	50.5	62.7	-12.3	PASS	
0.251	29.8	19.9	49.7	61.7	-12	PASS	
0.313	26.7	19.9	46.6	59.9	-13.3	PASS	
12.288	27.5	20.1	47.6	60	-12.4	PASS	

Bureau Veritas Consumer Product Services Inc.
Conducted Emissions per CISPR 16-2-1, CISPR Average Detector
Final Average Detector Data
Notes:
EUT Line tested: Neutral Phase
EUT Mode of Operation: Tx and Rx are paired.

Work Order # - V0448
EUT Power Input - 120VAC/ 60Hz
Test Site - CEMI-6
Conditions: - 23.3°C; 33%RH; 1005mBar
Test Engineer - XZ
Date of Test - 5-3 -2021

Data Taken at 01:45:32 PM, Monday, May 03, 2021

Frequency (MHz)	Raw Avg Reading (dBµV)	Correction Factor (dB)	Adjusted Avg Amplitude (dBµV)	Av Lim: Mains_FCC&CISPR_Avg_Class_B (dBµV)	Avg Margin (dB)	Avg Results (Pass/Fail)	Worst Avg Margin (dB)
0.157	13.4	19.9	33.3	55.6	-22.3	PASS	
0.167	13.4	19.9	33.3	55.1	-21.8	PASS	
0.596	11	19.9	30.9	46	-15.1	PASS	
3.073	18.2	19.9	38.2	46	-7.8	PASS	
9.215	18.3	20	38.4	50	-11.6	PASS	
12.288	26.8	20.1	46.9	50	-3.1	PASS	-3.1

Test Equipment Used

Rev. 4/30/2021

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Rental MXE EMI Receiver(1168255)	20Hz-8.4GHz	N9038A	Agilent	MY53290009	1168255	I	10/8/2021	10/8/2020
LISNs/Measurement Probes	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
LISN Asset 2092	9KHz-30MHz	NNLK 8121	Schwarzbeck	NNLK 8121-662	2092	I	9/29/2021	9/29/2020
Conducted Test Sites (Mains / Telco)	**FCC Code**		**VCCI Code**			**Cat**	**Calibration Due**	**Calibrated on**
CEMI 6	719150		A-0015			III	NA	N/A
Meteorological Meters/Chambers		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	11/23/2022	11/23/2020
Asset #2657		1235C97	Control Company	200435391	2657	I	8/3/2022	8/3/2020
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
CEMI-02	9kHz - 2GHz		C-S			II	2/21/2022	2/21/2021
Attenuators	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
20dB20W Attenuator(A#2499)	9KHz-4GHz	766-20	Narda	8710	2499	II	11/28/2021	11/28/2020

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Instrument Settings

RBW	9KHz
VBW	30KHz
Detector	Peak
Sweep Time	1sec
Sweep Points	40001

RBW	200Hz
VBW	1KHz
Span	10KHz
Sweep Time	10sec
Detector	AVG

Measurement Uncertainty

The listed uncertainties are the worst-case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results. Values for measurement uncertainty are calculated per ETSI TR 100 028 (2001).

Measurement	Expanded Uncertainty k=2	Maximum allowable uncertainty
Conducted Emissions NIST CISPR	 3.9dB 3.6dB	 N/A 3.6dB (Ucispr)
Radio frequency (@ 2.4GHz)	3.23×10^{-8}	1×10^{-7}
RF power, conducted	0.40dB	0.75dB
Maximum frequency deviation: • Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency	 3.4% 0.3dB	 5% 3dB
Adjacent channel power	1.9dB	3dB
Conducted spurious emission of transmitter, valid up to 12.75GHz	2.39dB	3dB
Conducted emission of receivers	1.3dB	3dB
Radiated emission of transmitter, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of transmitter, valid up to 80GHz	3.3dB	6dB
Radiated emission of receiver, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of receiver, valid up to 80GHz	3.3dB	6dB
Humidity	2.37%	5%
Temperature	0.7°C	1.0°C
Time	4.1%	10%
RF Power Density, Conducted	0.4dB	3dB
DC and low frequency voltages	1.3%	3%
Voltage (AC, <10kHz)	1.3%	2%
Voltage (DC)	0.62%	1%
The above reflects a 95% confidence level		

Conditions of Testing

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the "Company") will conduct, at the request of the Submitter ("Client"), the tests specified on the submitted Test Request Form or equivalent in accordance with, and subject to, the following terms and conditions (collectively, "Conditions"):

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("Test Report") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.
2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.
3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.
4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.
5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "BUREAU VERITAS," "BUREAU VERITAS CONSUMER PRODUCTS SERVICES," "BVCPS", "MTL", "ACTS", "MTL-ACTS" and CURTIS-STRAUS (collectively, the "Marks") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.
6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon.
7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.
8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.
9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.
10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.
11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only were such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.
12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or

different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.

13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.

14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN OR IN ANY TEST REPORT, NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, IS MADE.

15. (A) IN NO EVENT WHATSOEVER SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE TEST REPORT OR THE SERVICES PROVIDED BY THE COMPANY HEREUNDER, INCLUDING WITHOUT LIMITATION LOSS OF OR DAMAGE TO PROPERTY; LOSS OF INCOME, PROFIT OR USE; OR ANY CLAIMS OR DEMANDS MADE AGAINST CLIENT OR ANY OTHER PERSON BY ANY THIRD PARTY IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE SERVICES PROVIDED BY THE COMPANY HEREUNDER.

(B)NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.$10,000, WHICHEVER IS THE LESSER AMOUNT.

16. The Company shall not be liable for any loss or damage resulting from any delay or failure in performance of its obligations hereunder resulting directly or indirectly from any event of force majeure or any event outside the control of the Company. If any such event occurs, the Company may immediately cancel or suspend its performance hereunder without incurring any liability whatsoever to Client.

Company's services, including these Conditions, shall be governed by, and construed in accordance with, the local laws of the country where the Company performs the tests or, in the case of tests performed in the United States of America, the laws of Massachusetts without regard to conflicts of laws principles. If any aspect(s) of these Conditions is found to be illegal or unenforceable, the validity, legality and enforceability of all remaining aspects of these Conditions shall not in any way be affected or impaired thereby. Any proceeding related to the subject matter hereof shall be brought, if at all, in the courts of the country where the Company performs the tests or, in the case of tests performed in the United States of America, in the courts of Massachusetts. Client waives the right to interpose any counterclaim or setoffs of any nature in any litigation arising hereunder.

The complete list of the Approved Subcontractors Bureau Veritas Consumer Products Services Inc. may use to delegate the performance of work can be provided upon request.

END OF REPORT