RF TEST REPORT

SIEMIC
A Bureau Veritas Group Company

Report No.: FCC_ IC_RF_SL18101502-JPS-003_DSS
Supersede Report No.:

Applicant	:	Juniper Systems, Inc.
Product Name	:	Ultra-rugged Handheld computer
Model No.	:	AG3
Test Standard	:	47 CFR 15.247 RSS-247 Issue 2, May 2017
Test Method	:	ANSI C63.10: 2013 RSS-Gen Issue 4, Nov 2014 FCC Public Notice DA 00-705
FCC ID	:	VSF-AG3
IC ID	:	7980A-AG3
Dates of test	:	10/23/2018-10/25/2018
Issue Date	:	10/30/2018
Test Result	:	☒ Pass ☐ Fail
Equipment complied with the specification [X] Equipment did not comply with the specification [ ]		

This Test Report is Issued Under the Authority of:	
Cipher	**Chen Ge**
Test Engineer	Engineer Reviewer

Issued By:
SIEMIC Laboratories
775 Montague Expressway, Milpitas, 95035 CA

ilac-MRA
ACCREDITED
TESTING CERT # 2742-01

Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC, RF/Wireless, Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless, Telecom
Taiwan	BSMI, NCC, NIST	EMC, RF, Telecom, Safety
Hong Kong	OFTA, NIST	RF/Wireless, Telecom
Australia	NATA, NIST	EMC, RF, Telecom, Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF, Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC, RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom, Safety
Israel	MOC, NIST	EMC, RF, Telecom, Safety

Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC, RF, Telecom
Canada	IC FCB, NIST	EMC, RF, Telecom
Singapore	iDA, NIST	EMC, RF, Telecom
EU	NB	EMC & RED
Japan	MIC (RCB 208)	RF, Telecom
Hong Kong	OFTA (US002)	RF, Telecom

CONTENTS

1 Report Revision History

Report No.	Report Version	Description	Issue Date
FCC_ IC_RF_SL18101502-JPS-003_DSS	None	Original	10/30/2018

2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company: Juniper Systems, Inc.
Product: Ultra-rugged Handheld computer
Model: AG3

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1st page.

3 Customer information

Applicant Name	:	Juniper Systems, Inc.
Applicant Address	:	1132 1700 N, Logan, UT 84321
Manufacturer Name	:	Juniper Systems, Inc.
Manufacturer Address	:	1132 1700 N, Logan, UT 84321

4 Test site information

Lab performing tests	SIEMIC Laboratories
Lab Address	775 Montague Expressway, Milpitas, CA 95035
FCC Test Site No.	881796
IC Test Site No.	4842D-2
VCCI Test Site No.	A0133

5 Modification

Index	Item	Description	Note
-	-	-	-

6 EUT Information

6.1 EUT Description

Product Name	:	Ultra-rugged Handheld computer
Model No.	:	AG3
Trade Name	:	Juniper Systems, Inc.
Serial No.	:	AG3E106
Input Power	:	100-240VAC, 50-60Hz 0.5A
Power Adapter Manu/Model	:	PSAA20R-120L6
Power Adapter SN	:	N/A
Date of EUT received	:	10/16/2018
Equipment Class/ Category	:	DSSS
Port/Connectors	:	USB,Micro-USB, Serial

6.2 Spec for BT Radio

Radio Type	Bluetooth (Ver4.0+EDR)
Operating Frequency	2402MHz-2480MHz
Modulation	FHSS (BDR, EDR)
Channel Spacing	1MHz (BDR, EDR)
Antenna Type	PCB
Antenna Gain	2.28 dBi
Antenna Connector Type	SMA

Channel List

Type	Channel No.	Frequency (MHz)	Power Setting
Bluetooth(BRD) 2402-2480MHz	0	2402	8
	39	2441	8
	78	2480	8
Bluetooth(EDR) 2402-2480MHz	0	2402	8
	39	2441	8
	78	2480	8

6.3 EUT test modes/configuration Description

Mode	Note
Bluetooth	BDR (GFSK)
Bluetooth	EDR (8-DPSK)

7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Item	Supporting Equipment Description	Model	Serial Number	Manufacturer	Note
1	Laptop	LATITUDE E6530	N/A	Dell	-

7.2 Cabling Description

Name	Connection Start		Connection Stop		Length / shielding Info		Note
	From	I/O Port	To	I/O Port	Length (m)	Shielding	
USB	EUT	Micro USB	Laptop	USB	1	Unshielded	-
USB to Serial	EUT	Serial	Laptop	USB	1	Unshielded	-
USB to Ethernet	EUT	USB	Laptop	Ethernet	1	Unshielded	-

7.3 Test Software Description

Test Item	Software	Description
RF Testing	QRCT	Set the EUT to transmit continuously in diferent test mode

8 Test Summary

Test Item	Test standard		Test Method/Procedure		Pass / Fail
Antenna Requirement	FCC	15.203	FCC	-	☒ Pass ☐ N/A
	IC	-	IC		
Restricted Band of Operation	FCC	15.205	FCC	ANSI C63.10: 2013 Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS Gen 8.10	IC	RSS Gen Issue 4: 2014	
AC Conducted Emissions Voltage	FCC	15.207(a)	FCC	ANSI C63.10: 2013	☒ Pass ☐ N/A
	IC	RSS Gen 8.8	IC	RSS Gen Issue 4: 2014	

DSS Band Requirement

Test Item	Test standard		Test Method/Procedure		Pass / Fail
Channel Separation	FCC	15.247 (a)(1)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS247 (5.1.5)	IC	-	
20dB Occupied Bandwidth	FCC	15.247(a)(1)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS247 (5.1.2)	IC	-	
99% Occupied Bandwidth	FCC	15.247(a)(2)	FCC		☒ Pass ☐ N/A
	IC	RSS Gen 6.6	IC	RSS Gen Issue 4: 2014 -	
Number of Hopping Channels	FCC	15.247(a)(1)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS247 (5.1.5)	IC	-	
Band Edge and Radiated Spurious Emissions	FCC	15.247(d)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS247(5.5)	IC	-	
Time of Occupancy	FCC	15.247(a)(1)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS247 (5.1.5)	IC	-	
Output Power	FCC	15.247(b)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS247 (5.4.2)	IC	-	
Receiver Spurious Emissions	FCC	15.247(d)	FCC	-	☐ Pass ☒ N/A
	IC	RSS Gen (7.1)	IC	RSS Gen (7.1)	
Antenna Gain > 6 dBi	FCC	15.247(e)	FCC	Public Notice DA 00-705	☐ Pass ☒ N/A
	IC	RSS247 (5.4.6)	IC	-	
Power Spectral Density	FCC	15.247(e)	FCC	Public Notice DA 00-705	☐ Pass ☒ N/A
	IC	RSS247 (5.2.2)	IC	-	
Hybrid System Requirement	FCC	15.247(f)	FCC	Public Notice DA 00-705	☐ Pass ☒ N/A
	IC	RSS247 (5.3)	IC	-	
Hopping Capability	FCC	15.247(g)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS247 (5.1.5)	IC	-	
RF Exposure requirement	FCC	15.247(i)	FCC	Public Notice DA 00-705	☐ Pass ☒ N/A
	IC	RSS Gen(3.2)	IC	-	
Remark	1. All measurement uncertainties are not taken into consideration for all presented test result. 2. The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual.				

9 Measurement Uncertainty

9.1 Conducted Emissions

The test is to measure the conducted emissions to the mains port of the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the receiver
- Uncertainty of the LISN
- Uncertainty of cables
- Uncertainty due to the mismatches
- Etc, see the below table for details

Source of Uncertainty	Value (dB)	Probability Distribution	Division	Sensitivity Coefficient	Expanded Uncertainty
Receiver Reading	0.12	Rectangular	1.732	1	0.069284
Cable Insertion Loss	0.21	Normal	2	1	0.105
Filter Insertion Loss	0.25	Normal	2	1	0.125
LISN Insertion Loss	0.40	Normal	2	1	0.20
Receiver CW accuracy	0.5	Rectangular	1.732	1	0.2886836
Pulse Amplitude Response	1.5	Rectangular	1.732	1	0.86605081
PRF Response	1.5	Rectangular	1.732	1	0.86605081
Mismatch LISN - Receiver	0.25	U-Shape	1.414	1	0.1768033
LISN Impedance	2.5	Triangular	2.449	1	1.0208248
Combined Standard Uncertainty					1.928133
Expanded Uncertainty (K=2)					**3.856266**

The total derived measurement uncertainty is +/- 3.86 dB.

9.2 Radiated Emissions (30MHz to 1GHz)

The test is to measure the radiated emissions of the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the receiver
- Uncertainty of the antenna
- Uncertainty of cables
- Uncertainty due to the mismatches
- NSA Calibration
- Etc., details see the below table

Source of Uncertainty	Value (dB)	Probability Distribution	Division	Sensitivity Coefficient	Expanded Uncertainty
Receiver Reading	0.12	Rectangular	1.732	1	0.069284
Cable Insertion Loss	0.21	Normal	2	1	0.105
Filter Insertion Loss	0.25	Normal	2	1	0.125
Antenna Factor	0.65	Normal	2	1	0.325
Receiver CW accuracy	0.5	Rectangular	1.732	1	0.2886836
Pulse Amplitude Response	1.5	Rectangular	1.732	1	0.86605081
PRF Response	1.5	Rectangular	1.732	1	0.86605081
Mismatch Filter - Receiver	0.25	U-Shape	1.414	1	0.1768033
NSA Calibration	4.0	U-Shape	1.414	1	2.8288543
Combined Standard Uncertainty					3.0059131
Expanded Uncertainty (K=2)					**6.0118262**

The total derived measurement uncertainty is +/- 6.00 dB.

9.3 Radiated Emissions (1GHz to 40GHz)

The test is to measure the radiated emissions of the EUT.

Some error sources that can contribute to the total uncertainty:
- Uncertainty of the receiver
- Uncertainty of the antenna
- Uncertainty of cables
- Uncertainty due to the mismatches
- VSWR Calibration
- Etc., details see the below table

Source of Uncertainty	Value (dB)	Probability Distribution	Division	Sensitivity Coefficient	Expanded Uncertainty
Receiver Reading	0.12	Rectangular	1.732	1	0.0692840
Cable Insertion Loss	0.21	Normal	2	1	0.1050000
Filter Insertion Loss	0.25	Normal	2	1	0.1250000
Antenna Factor	0.65	Normal	2	1	0.3250000
Receiver CW accuracy	0.5	Rectangular	1.732	1	0.2886836
Pulse Amplitude Response	1.5	Rectangular	1.732	1	0.8660508
PRF Response	1.5	Rectangular	1.732	1	0.8660508
Mismatch Filter - Receiver	0.25	U-Shape	1.414	1	0.1768033
VSWR Calibration	2.0	U-Shape	1.414	1	1.4144272
Combined Standard Uncertainty					4.2363
Expanded Uncertainty (K=2)					**8.4726**

The total derived measurement uncertainty is +/- 8.47 dB.

9.4 RF conducted measurement

The test is to measure the RF output power from the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the Reference Level Uncertainty
- Uncertainty of variable attenuators
- Uncertainty of cables
- Uncertainty due to the mismatches

Source of Uncertainty	Value (dB)	Probability Distribution	Division	Sensitivity Coefficient	Expanded Uncertainty
Reference Level	0.12	Rectangular	1.732	1	0.069284
Cable Insertion Loss	0.21	Normal	2	1	0.105
Attenuator	0.25	Normal	2	1	0.125
Mismatch	0.25	U-Shape	1.414	1	0.1768033
Combined Standard Uncertainty					0.476087
Expanded Uncertainty (K=2)					**0.952174**

The total derived measurement uncertainty is +/- 0.95 dB.

10 Measurements, Examination and Derived Results

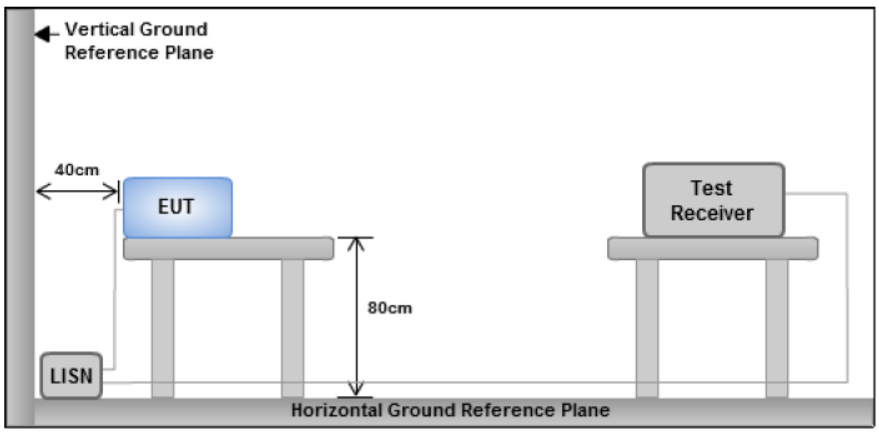
10.1 Antenna Requirement

Spec	Requirement	Applicable
§15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. Antenna requirement must meet at least one of the following: a) Antenna must be permanently attached to the device. b) The antenna must use a unique type of connector to attach to the device. c) Device must be professionally installed. The installer shall be responsible for ensuring that the correct antenna is employed by the device.	☒
Remark	The EUT uses a u.fl connector for antenna connection which meet the requirement.	
Result	☒ PASS ☐ FAIL	

10.2 Conducted Emissions

Conducted Emission Limit

Frequency ranges (MHz)	Limit (dBuV)	
	QP	Average
0.15 ~ 0.5	66 – 56	56 – 46
0.5 ~ 5	56	46
5 ~ 30	60	50

Spec	Item	Requirement	Applicable
47CFR§15.207 RSS Gen 8.8	a)	For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequency ranges.	☒
Test Setup	 Note: 1. Support units were connected to second LISN. 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes		
Procedure	- The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table, as shown in Annex B. - The power supply for the EUT was fed through a 50Ω/50µH EUT LISN, connected to filtered mains. - The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. - All other supporting equipment was powered separately from another main supply.		
Remark	EUT tested with AC 120V 60Hz		
Result	☒ Pass ☐ Fail		

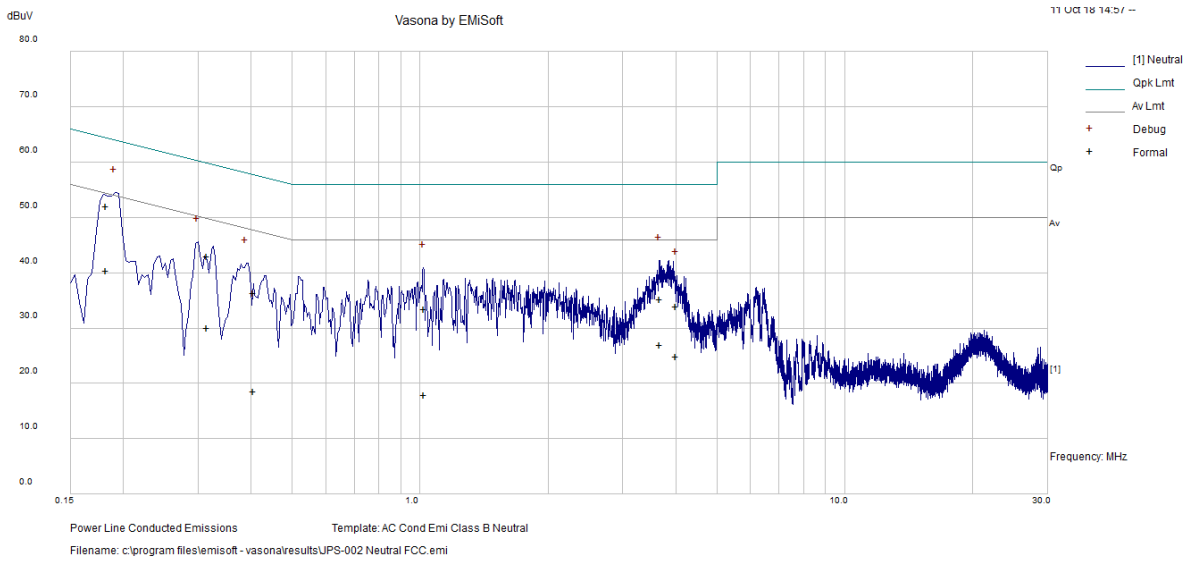
Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by George Hsu at Conducted Emission Test Site.

Conducted Emission Test Results

Test specification:	Conducted Emissions			
Environmental Conditions:	Temp(°C):	21	Result:	☒ Pass ☐ Fail
	Humidity (%):	42		
	Atmospheric(mbar):	1021		
Mains Power:	120Vac, 60Hz			
Tested by:	George Hsu			
Test Date:	10/11/2018			
Remarks	AC Line @ Neutral			



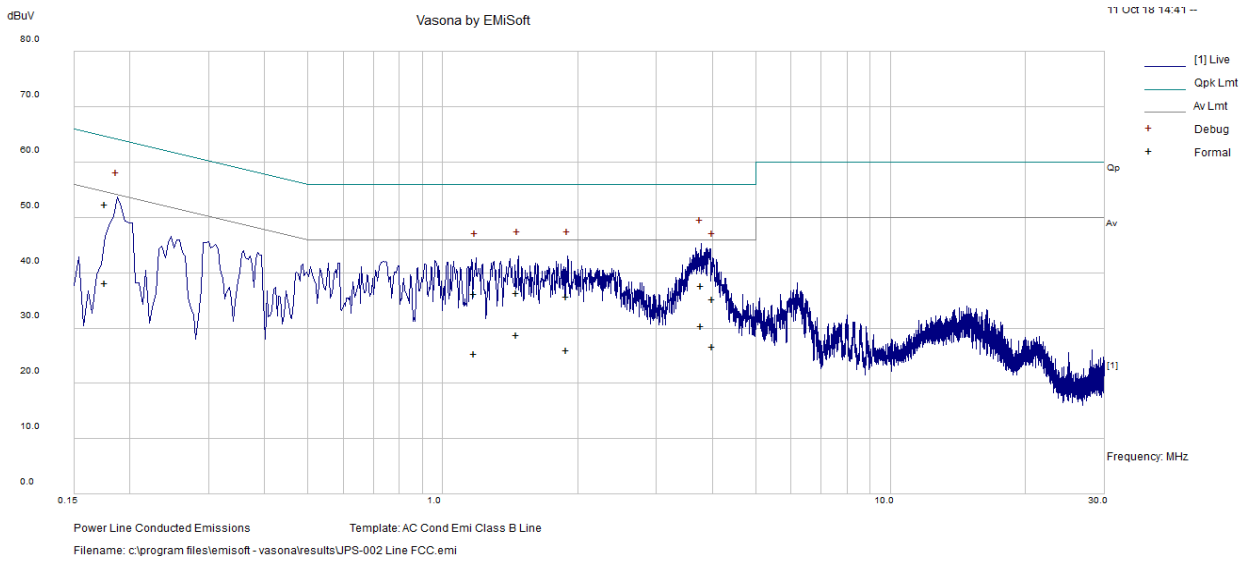
Neutral Plot at 120Vac, 60Hz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Measurement Type	Line	Limit (dBuV)	Margin (dB)	Pass /Fail
0.183018	31.04	9.32	0.04	40.41	Average	Neutral	54.35	-13.94	Pass
0.315415	20.71	9.32	0.03	30.07	Average	Neutral	49.83	-19.76	Pass
0.407038	9.28	9.33	0.03	18.64	Average	Neutral	47.71	-29.07	Pass
1.023799	8.62	9.33	0.04	17.99	Average	Neutral	46	-28.01	Pass
3.676108	17.59	9.34	0.07	27	Average	Neutral	46	-19	Pass
4.019325	15.56	9.34	0.07	24.97	Average	Neutral	46	-21.03	Pass
0.183018	42.74	9.32	0.04	52.11	Quasi Peak	Neutral	64.35	-12.24	Pass
0.315415	33.66	9.32	0.03	43.02	Quasi Peak	Neutral	59.83	-16.81	Pass
0.407038	27.07	9.33	0.03	36.42	Quasi Peak	Neutral	57.71	-21.29	Pass
1.023799	24.15	9.33	0.04	33.52	Quasi Peak	Neutral	56	-22.48	Pass
3.676108	25.81	9.34	0.07	35.22	Quasi Peak	Neutral	56	-20.78	Pass
4.019325	24.52	9.34	0.07	33.94	Quasi Peak	Neutral	56	-22.06	Pass

Note: The results above show only the worst case.

Conducted Emission Test Results

Test specification:	Conducted Emissions			
Environmental Conditions:	Temp(°C):	21	Result:	☒ Pass ☐ Fail
	Humidity (%):	42		
	Atmospheric(mbar):	1021		
Mains Power:	120Vac, 60Hz			
Tested by:	George Hsu			
Test Date:	10/11/2018			
Remarks	AC Line @ Line			



Line Plot at 120Vac, 60Hz

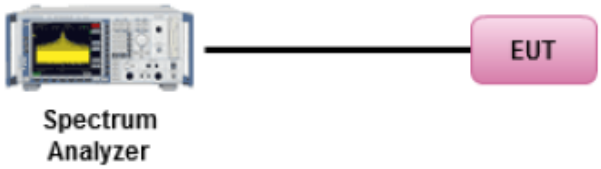
Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Measurement Type	Line	Limit (dBuV)	Margin (dB)	Pass /Fail
0.176177	28.73	9.33	0.05	38.1	Average	Line	54.66	-16.56	Pass
1.17974	15.97	9.33	0.05	25.35	Average	Line	46	-20.65	Pass
1.467031	19.45	9.34	0.06	28.84	Average	Line	46	-17.16	Pass
1.890794	16.57	9.34	0.07	25.98	Average	Line	46	-20.02	Pass
3.779706	21.03	9.34	0.07	30.44	Average	Line	46	-15.56	Pass
4.01205	17.34	9.34	0.07	26.76	Average	Line	46	-19.24	Pass
0.176177	43.06	9.33	0.05	52.43	Quasi Peak	Line	64.66	-12.23	Pass
1.17974	26.88	9.33	0.05	36.26	Quasi Peak	Line	56	-19.74	Pass
1.467031	27.07	9.34	0.06	36.46	Quasi Peak	Line	56	-19.54	Pass
1.890794	26.4	9.34	0.07	35.81	Quasi Peak	Line	56	-20.19	Pass
3.779706	28.32	9.34	0.07	37.73	Quasi Peak	Line	56	-18.27	Pass
4.01205	25.86	9.34	0.07	35.27	Quasi Peak	Line	56	-20.73	Pass

Note: The results above show only the worst case.

10.3 Channel Separation (Bluetooth BDR/EDR)

Requirement(s):

Spec	Item	Requirement	Applicable
47 CFR §15.247 (e) RSS-247 (A2.6)	a)	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.	☒

Test Setup				
Test Procedure	DA 00-705 Measurement Guidelines for Frequency Hopping Spread Spectrum Systems Channel Separation procedure - The EUT must have its hopping function enabled. - Span = wide enough to capture the peaks of two adjacent channels - Resolution (or IF) Bandwidth (RBW) ≥ 1% of the span - Video (or Average) Bandwidth (VBW) ≥ RBW. - Detector = Peak. - Trace mode = max hold. - Use the marker-delta function to determine the separation between the peaks of the adjacent channels.			
Test Date	10/23/2018	Environmental condition	Temperature Relative Humidity Atmospheric Pressure	21°C 46% 1019mbar
Remark	NONE			
Result	☒ Pass ☐ Fail			

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by *Rachana Khanduri* at *RF Test Site*.

Configuration : Bluetooth Mode , BDR Mode

Channel	Channel Frequency (MHz)	Channel Separation (MHz)	>2/3 20dB Bandwidth (MHz)	Pass/Fail
Low	2402	1.008	>0.613	Pass
Mid	2441	1.034	>0.614	Pass
High	2480	1.002	>0.613	Pass

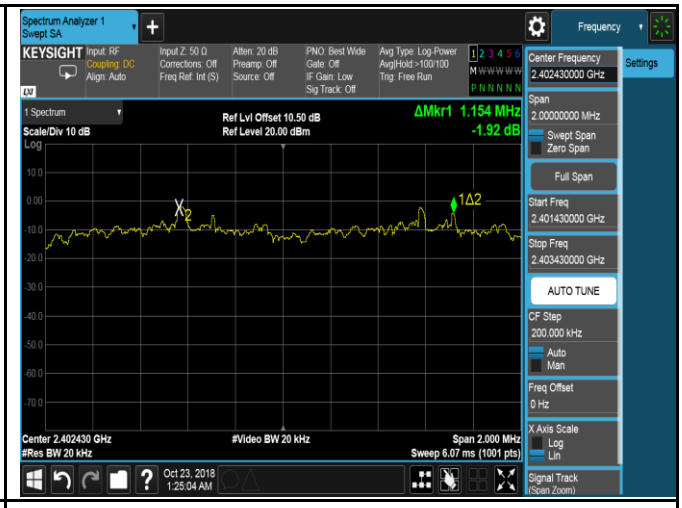
Configuration : Bluetooth Mode , EDR Mode

Channel	Channel Frequency (MHz)	Channel Separation (MHz)	>2/3 20dB Bandwidth (MHz)	Pass/Fail
Low	2402	1.154	>0.831	Pass
Mid	2441	1.026	>0.832	Pass
High	2480	1.014	>0.833	Pass

Note: The results of 20dB BW can be found in section 10.3.

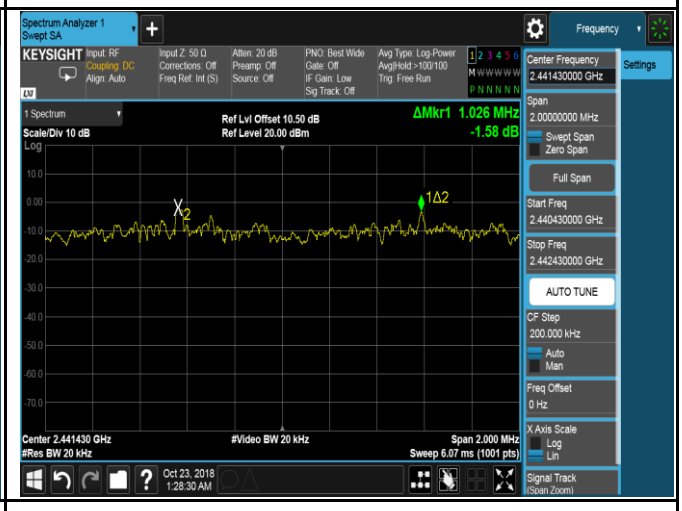
Channel Separation Test Plot (Bluetooth BDR/EDR)

Channel Separation-BDR 2402MHz



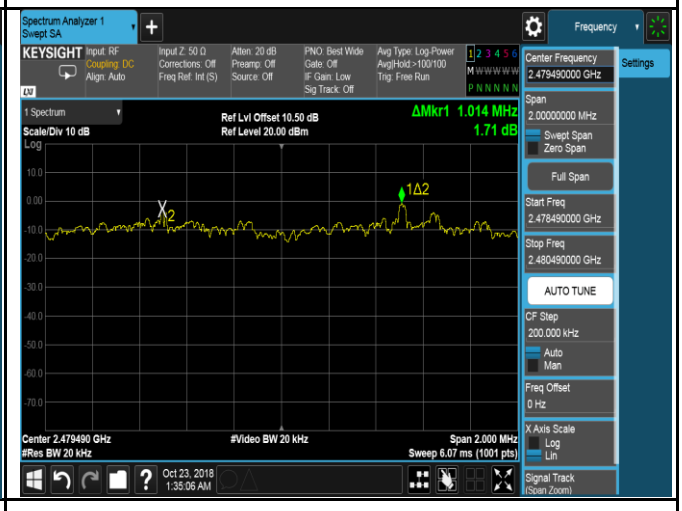
Channel Separation-EDR 2402MHz

Channel Separation-BDR 2441MHz



Channel Separation-EDR 2441MHz

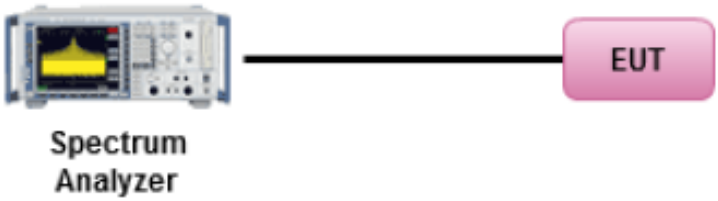
Channel Separation-BDR 2480MHz



Channel Separation-EDR 2480MHz

10.4 20dB and 99% Occupied Bandwidth (Bluetooth BDR/EDR)

Requirement(s):

Spec	Requirement	Applicable
47 CFR §15.247	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 2/3 of 20 dB bandwidth of the hopping channel, whichever is greater.	☒
RSS Gen 4.6.1	The transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual. The trace data points are recovered and directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth	☒
Test Setup		
Procedure	20dB Emission bandwidth measurement procedure - Set RBW ≥ 1% of 20dB Bandwidth - Set the video bandwidth (VBW) ≥ RBW. - Detector = Peak. - Trace mode = max hold. - Sweep = auto couple. - Allow the trace to stabilize. - Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. 99% bandwidth measurement procedure 1. EUT was set for low , mid, high channel with modulated mode and highest RF output power. 2. The spectrum analyzer was connected to the antenna terminal.	

Test Date	10/23/2018	Environmental condition	Temperature	23oC
			Relative Humidity	47%
			Atmospheric Pressure	1019mbar
Remark	-			
Result	☐ Pass ☐ Fail			

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by *Rachana Khanduri* at *RF Test Site*.

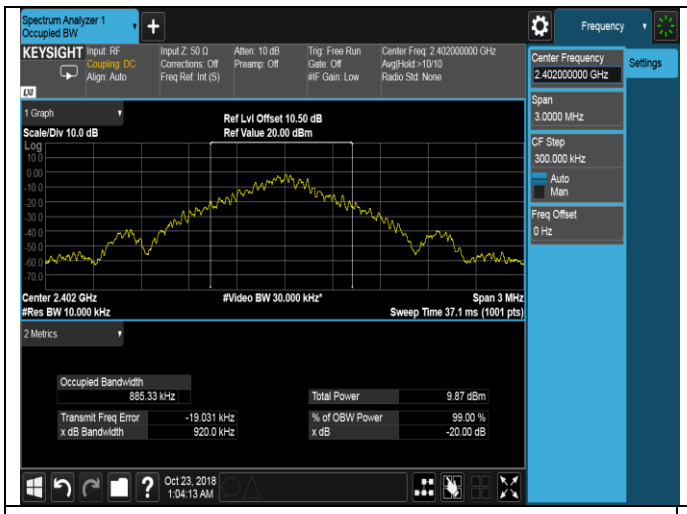
Configuration : Bluetooth mode , BDR Mode

Channel	Channel Frequency (MHz)	OBW		2/3 20dB Bandwidth (KHz)
		99% (KHz)	20dB(KHz)	
Low	2402	885.33	920.00	613.33
Mid	2441	881.26	920.80	613.87
High	2480	884.93	919.70	613.13

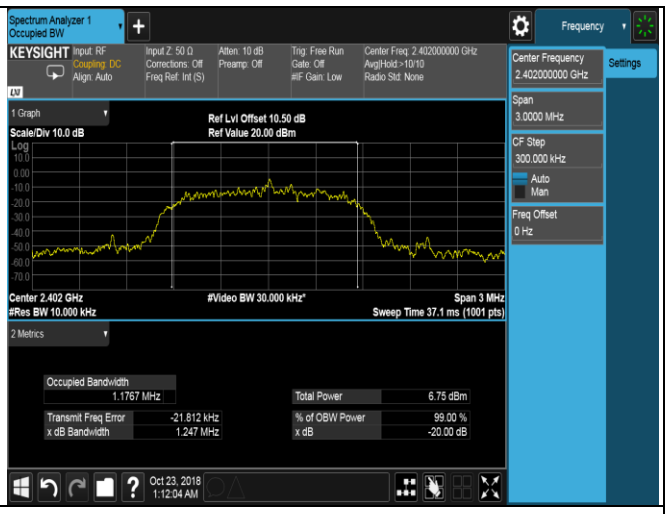
Configuration : Bluetooth mode , EDR mode

Channel	Channel Frequency (MHz)	OBW		2/3 20dB Bandwidth (MHz)
		99%(MHz)	20dB(MHz)	
Low	2402	1.177	1.247	0.831
Mid	2441	1.180	1.248	0.832
High	2480	1.180	1.250	0.833

99% & 20dB Bandwidth Test Plots(Bluetooth BDR, EDR)

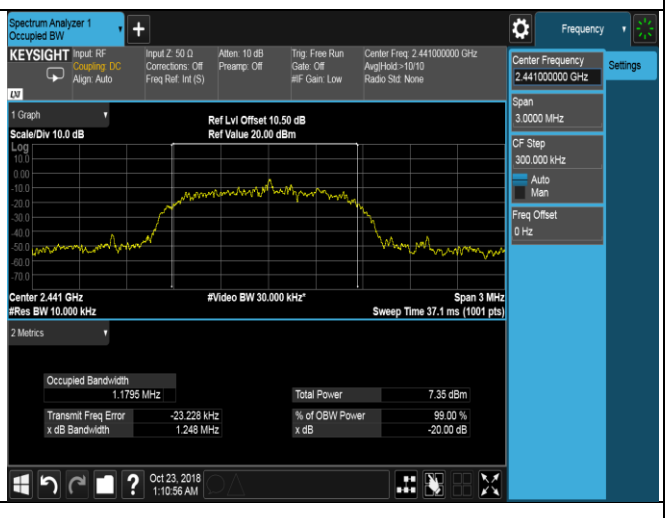


99% and 20dB BW –Bluetooth BDR 2402MHz

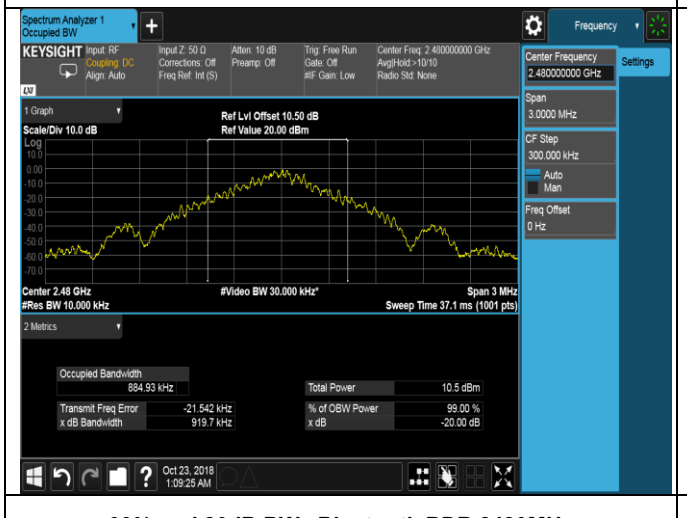


99% and 20dB BW –Bluetooth EDR 2402MHz

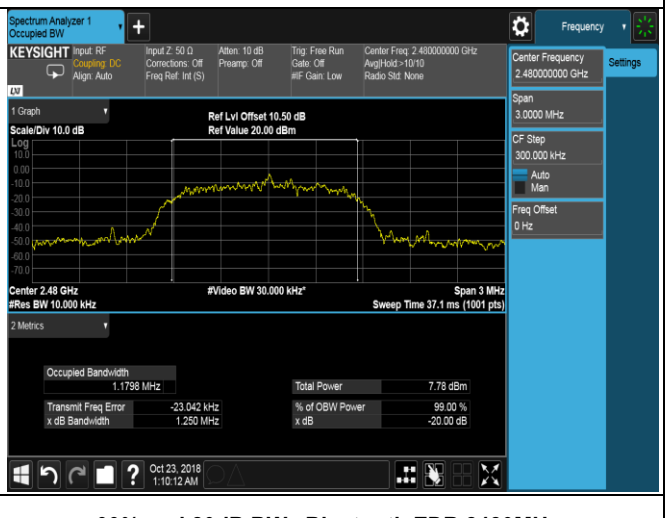
99% and 20dB BW –Bluetooth BDR 2441MHz



99% and 20dB BW –Bluetooth EDR 2441MHz



99% and 20dB BW –Bluetooth BDR 2480MHz

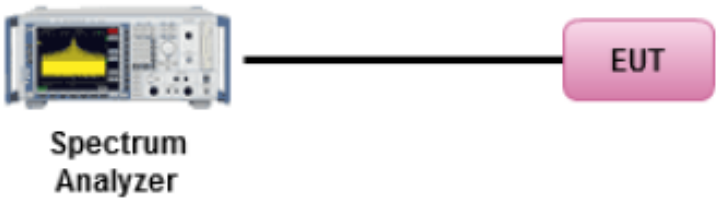


99% and 20dB BW –Bluetooth EDR 2480MHz

10.5 Number of Hopping Channel (Bluetooth BDR/EDR)

Requirement(s):

Spec	Requirement	Applicable
47 CFR §15.247 RSS247 (5.1.5)	For frequency hopping systems in the 2400-2483.5MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850MHz band: below 1 Watt (inclusive).	☒

Test Setup			
Procedure	Number of hopping frequencies procedure 1. The EUT must have its hopping function enabled 2. Span = the frequency band of operation. 3. Resolution (or IF) Bandwidth (RBW) ≥ 1% of the span. 4. Video (or Average) Bandwidth (VBW) ≥ RBW. 5. Detector = peak. 6. Sweep time = auto couple. 7. Trace mode = max hold. 8. Allow trace to fully stabilize. 9. Save the plot		
Test Date	10/23/2018	Environmental condition	Temperature 23oC Relative Humidity 47% Atmospheric Pressure 1019mbar
Remark	-		
Result	☒ Pass ☐ Fail		

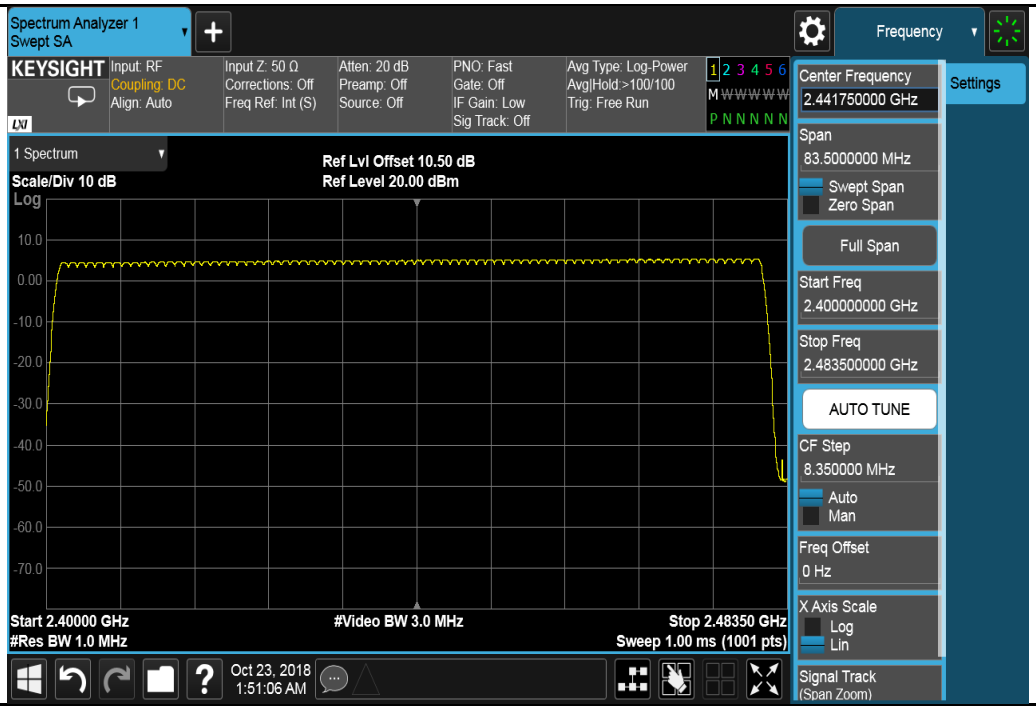
Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

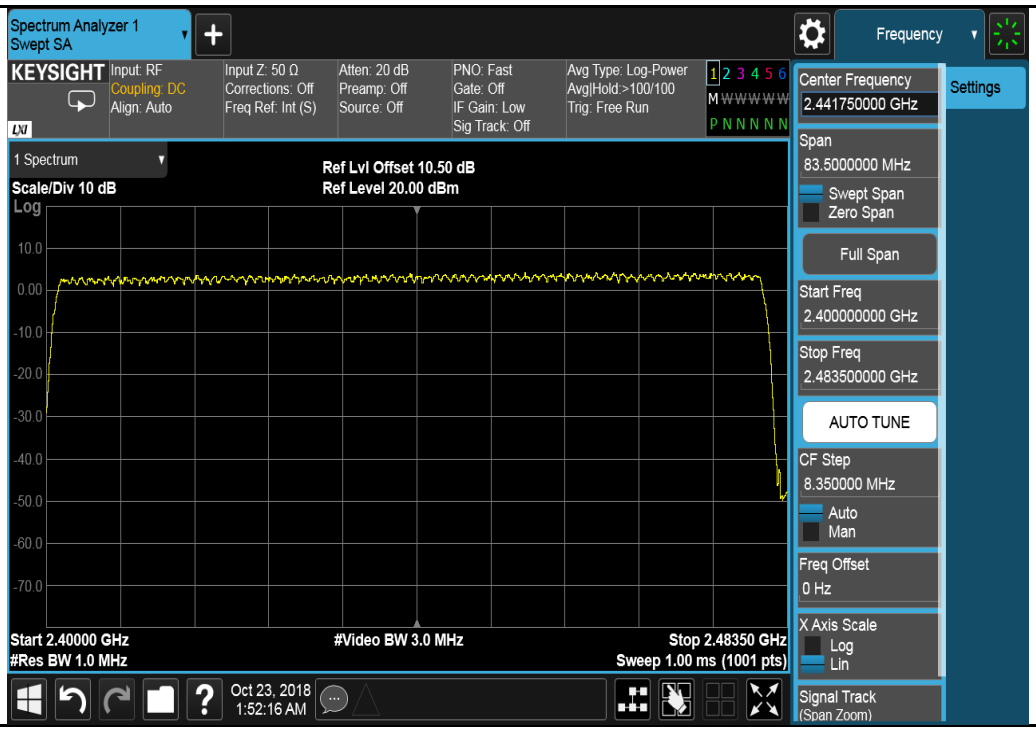
Test was done by *Rachana Khanduri* at *RF Test Site*.

Channel Number	Limit	Pass/Fail
79	>15	Pass

Hopping Channel Test Plots(Bluetooth BDR, EDR)



BDR – 79 Channels

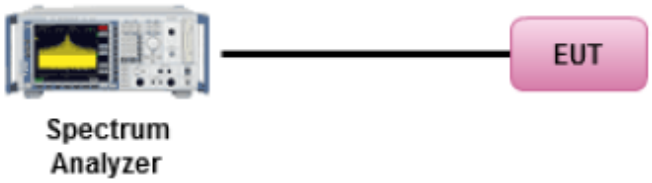


EDR – 79 Channels

10.6 Time of Occupancy (Bluetooth BDR/EDR)

Requirement(s):

Spec	Requirement	Applicable
47 CFR §15.247 RSS247 (5.1.5)	Frequency hopping systems in the 2400-2483.5MHz band shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems which use fewer than 75 hopping frequencies may employ intelligent hopping techniques to avoid interference to other transmissions.	☒

Test Setup			
Test Procedure	DA 00-705 Measurement Guidelines for Frequency Hopping Spread Spectrum Systems Channel Separation procedure - The EUT must have its hopping function enabled. - Span = zero span - centered on a hopping channel - RBW = 1 MHz; VBW ≥ RBW - Sweep = as necessary to capture the entire dwell time per hopping channel. - Detector = Peak. - Trace mode = max hold. - If possible, use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation.		
Test Date	10/23/2018	Environmental condition	Temperature 21ºC Relative Humidity 46% Atmospheric Pressure 1019mbar
Remark	Dwell Time=Pulse time*(1600/6/79)*31.6s		
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes (See below) ☐ N/A

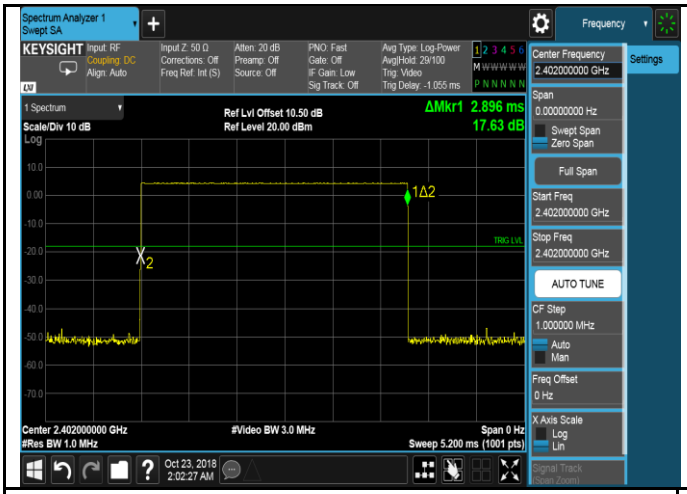
Test Plot ☒ Yes (See below) ☐ N/A

Test was done by *Rachana Khanduri* at *RF Test Site*.

Bluetooth-BDR-EDR Dwell Time Measurements:

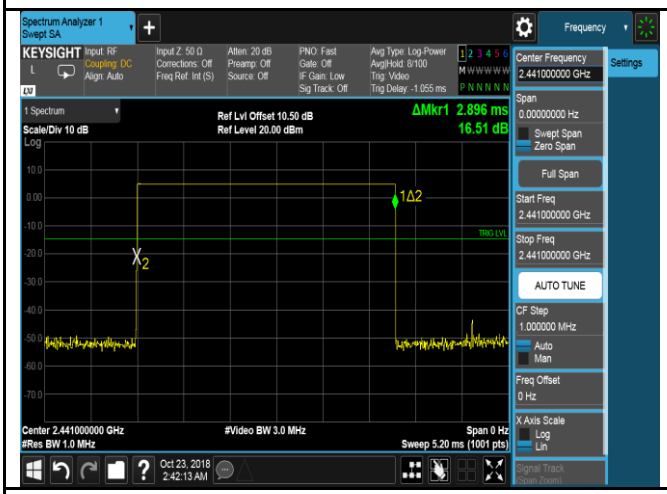
Type	Channel Frequency (MHz)	Number of Hopping	Number of Transmission in a period (Channel Number X 0.4 Sec)				Length of transmission on- time (Sec)	Dwell Time (Sec)	Limit (Sec)	Result
			Period (Sec)	Sweep Time (Sec)	Times in a sweep	Times in a period				
BDR	2402 MHz	79	31.6	4	12	94.80	0.0029	0.27	≤0.4	Pass
BDR	2441 MHz	79	31.6	4	13	102.70	0.0029	0.30	≤0.4	Pass
BDR	2480 MHz	79	31.6	4	9	71.10	0.0029	0.21	≤0.4	Pass
EDR	2402 MHz	79	31.6	4	7	55.30	0.0029	0.16	≤0.4	Pass
EDR	2441 MHz	79	31.6	4	8	63.20	0.0029	0.18	≤0.4	Pass
EDR	2480 MHz	79	31.6	4	7	55.30	0.0029	0.16	≤0.4	Pass

Time of Occupancy Test Plot (Bluetooth BDR/EDR)

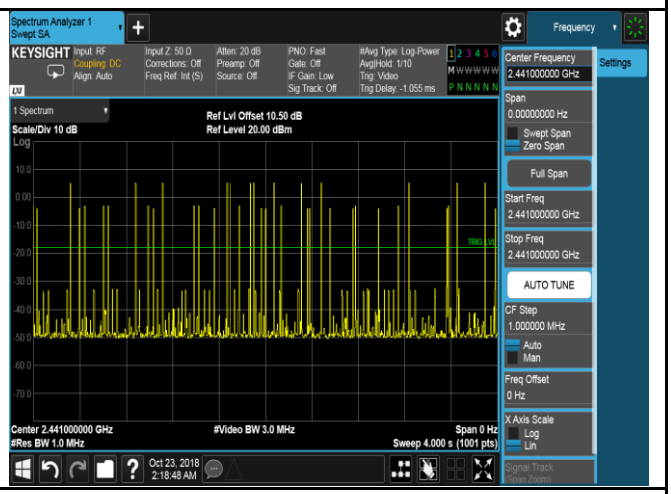


BDR Low Channel (On-Time)

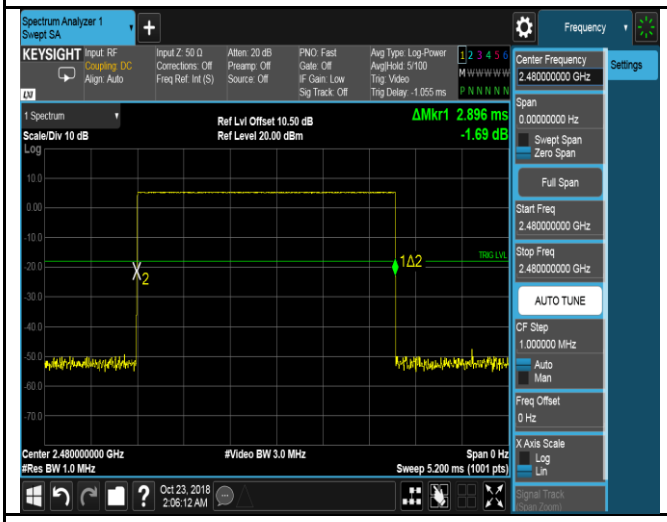
BDR Low Dwell Time-Number of Hopping



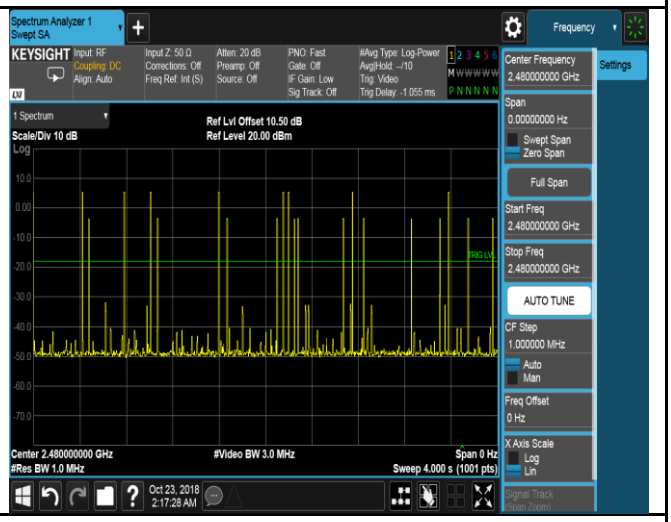
BDR Middle Channel (On-Time)



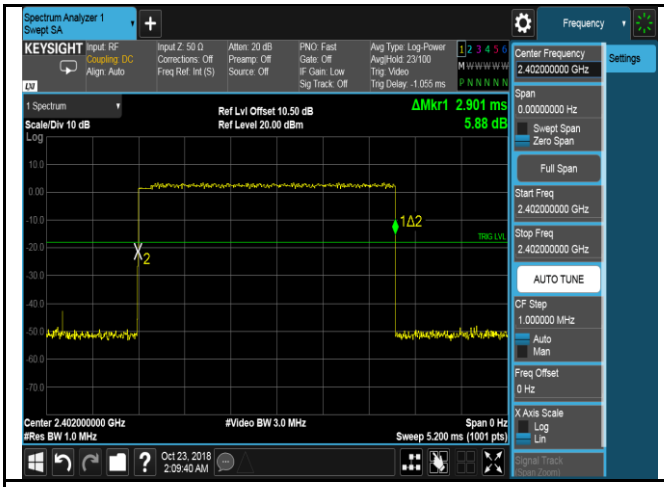
BDR Middle Dwell Time-Number of Hopping



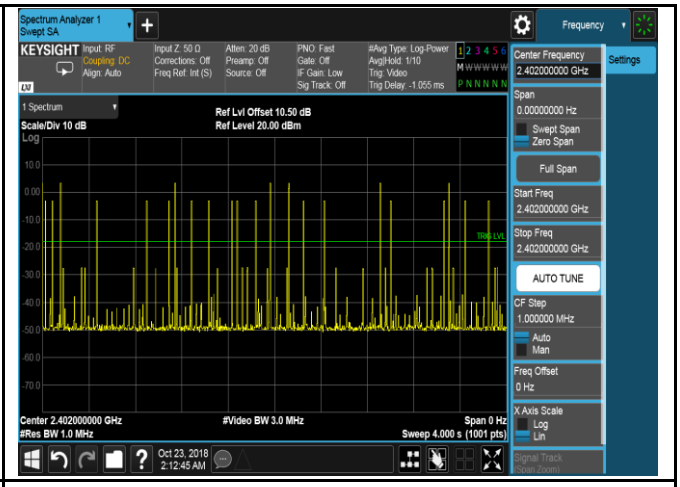
BDR High Channel (On-Time)



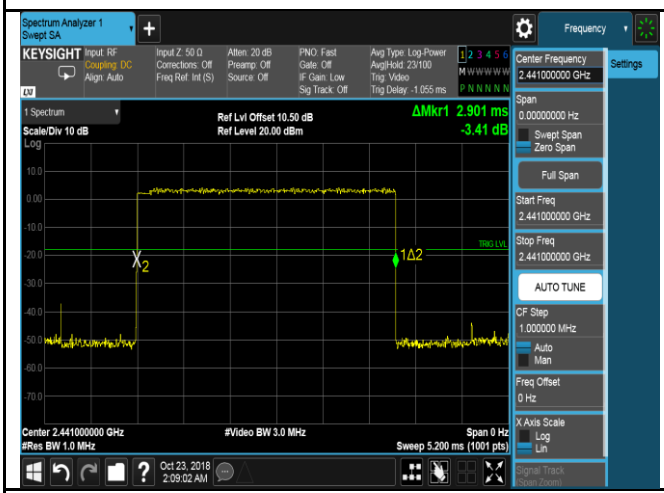
BDR High Dwell Time-Number of Hopping



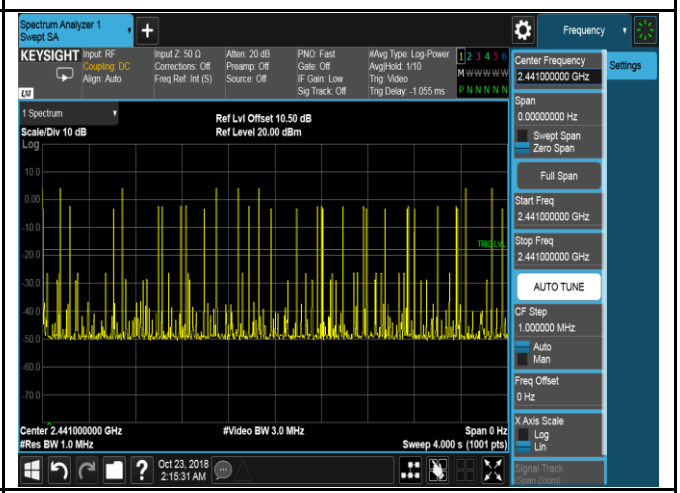
EDR Low Channel (On-Time)



EDR Low Dwell Time-Number of Hopping

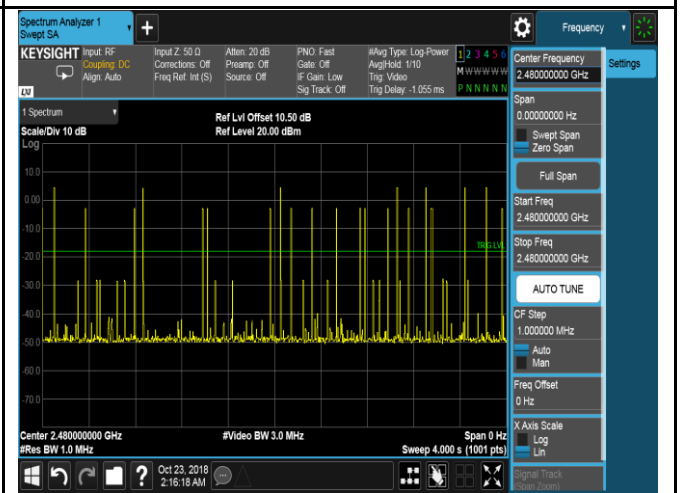


EDR Middle Channel (On-Time)



EDR Middle Dwell Time-Number of Hopping

EDR High Channel (On-Time)

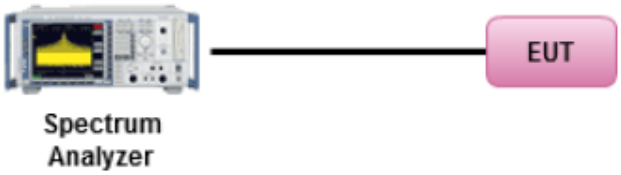


EDR High- Dwell Time-Number of Hopping

Note: The results above show only the worst case. DH5 used for testing.

10.7 Peak Output Power (Bluetooth BDR/EDR)

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.247	a)	For frequency hopping systems in the 2400-2483.5MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850MHz band: below 1 Watt (inclusive).	☒
	b)	Power reduction (antenna gain > 6dBi)	☐
§ 15.247		Frequency hopping systems operated in 2400-2483.5MHz with output power not greater than 125mW, the intervals of hopping channel carrier frequencies shall not be less than 25kHz or two thirds of the 20dB bandwidth of the hopping channel, whichever is greater.	☐
Test Setup			
Test Procedure	Maximum output power measurement procedure - Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel. - RBW > 20 dB bandwidth of the emission being measured; - VBW ≥ RBW. - Detector = peak. - Sweep time = auto couple. - Trace mode = max hold. - Allow trace to fully stabilize. - Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power.		
Test Date	10/23/2018	Environmental condition	Temperature 21°C Relative Humidity 46% Atmospheric Pressure 1019mbar
Remark	NONE		
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes ☐ N/A

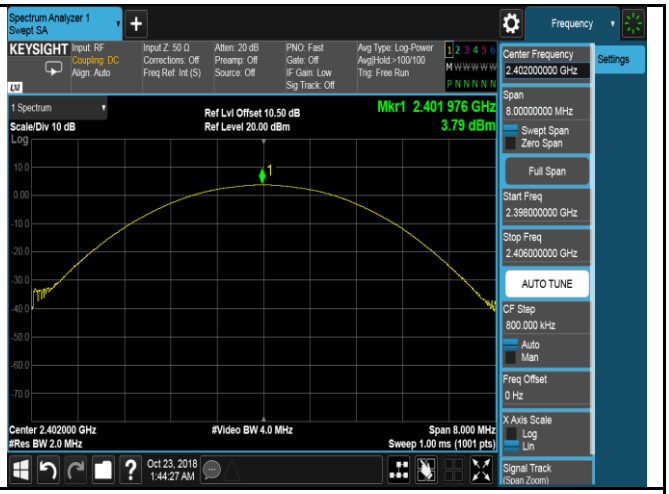
Test was done by *Rachana Khanduri* at *RF Test Site*.

Output Power measurement results

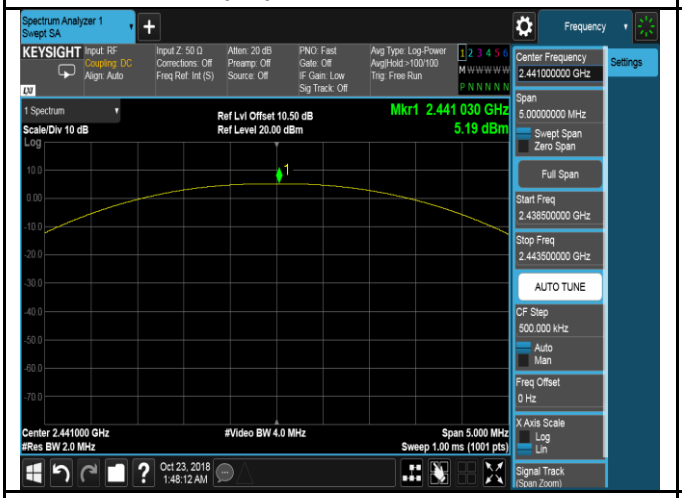
Type	Freq (MHz)	Test mode	CH	Conducted Power (dBm)	Limit (dBm)	Result
Output power	2402	Bluetooth BDR	Low	4.53	≤30	Pass
	2441	Bluetooth BDR	Mid	5.19	≤30	Pass
	2480	Bluetooth BDR	High	5.42	≤30	Pass
	2402	Bluetooth EDR	Low	3.79	≤30	Pass
	2441	Bluetooth EDR	Mid	4.44	≤30	Pass
	2480	Bluetooth EDR	High	4.81	≤30	Pass

Peak Output Power Test Plot (Bluetooth BDR/EDR)

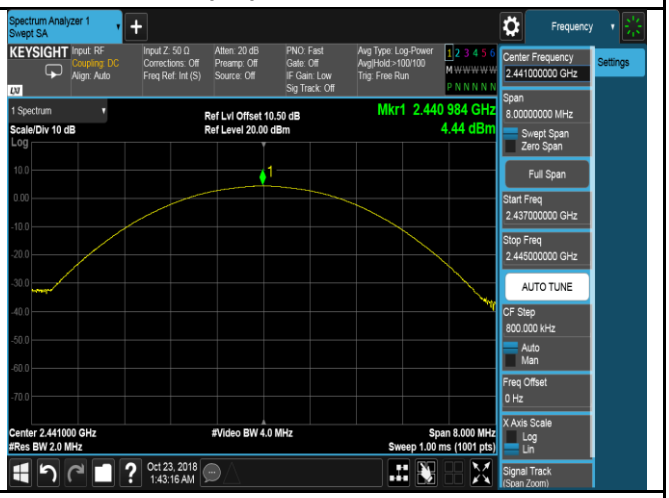
Output power - BDR 2402MHz



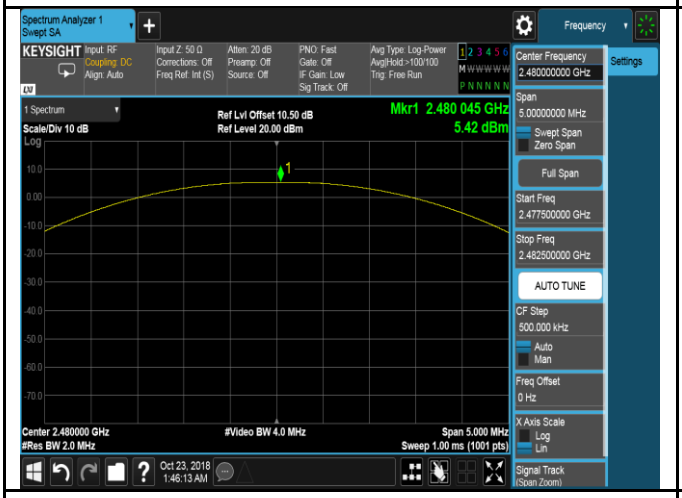
Output power - EDR 2402MHz



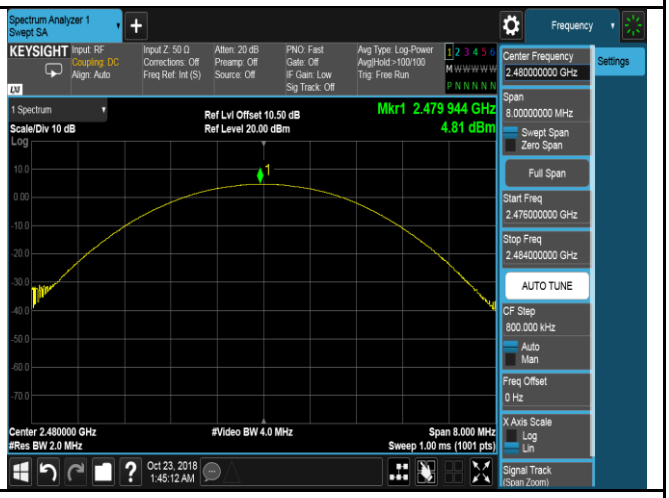
Output power - BDR 244MHz



Output power - EDR 2441MHz



Output power - BDR 2480MHz

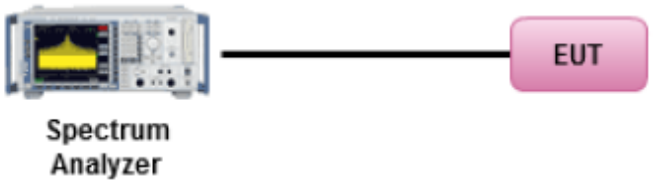


Output power - EDR 2480MHz

10.8 Band Edge (Bluetooth BDR/EDR)

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.247	d)	For non-restricted band, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB or 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, determined by the measurement method on output power to be used. Attenuation below the general limits specified in § 15.209 (a) is not required ☒ 20 dB down ☐ 30 dB down	☒

Test Setup				
Test Procedure	Band Edge measurement procedure 1. Set the EUT to maximum power setting and enable the EUT transmit continuously. 2. Band edge emissions must be at least 30 dB down from the highest emission level within the authorized band as a measured. The attenuation shall be be 30 dB instead of 20 dB when Peak conducted output power procedure is used. 3. Change modulation and channel bandwidth then repeat step 1 to 2. 4. Measured and record the results in the test report.			
Test Date	10/23/2018	Environmental condition	Temperature Relative Humidity Atmospheric Pressure	22ºC 46% 1020mbar
Remark	N/A			
Result	☒ Pass ☐ Fail			

Test Data ☐ Yes ☒ N/A

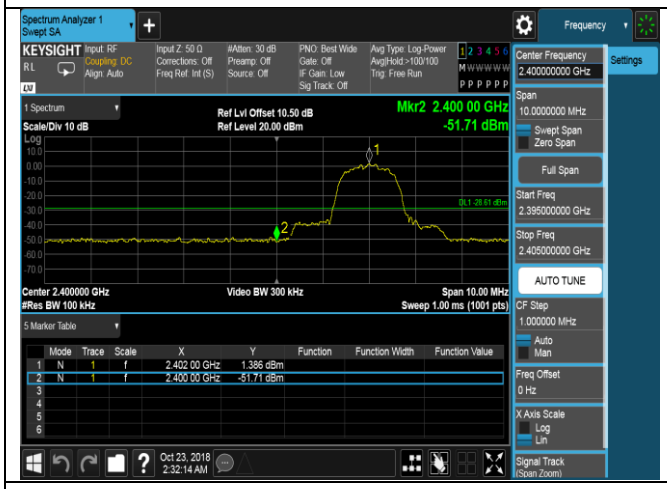
Test Plot ☒ Yes (See below) ☐ N/A

Test was done by *Rachana Khanduri* at *RF Test Site*.

Band Edge Test Plots (Bluetooth)

Band Edge -BDR 2402MHz

Band Edge -BDR 2480MHz



Band Edge -EDR 2402MHz

Band Edge -EDR 2480MHz

Band Edge Hopping Test Plots (Bluetooth)

Band Edge-Hopping-BDR 2402MHz

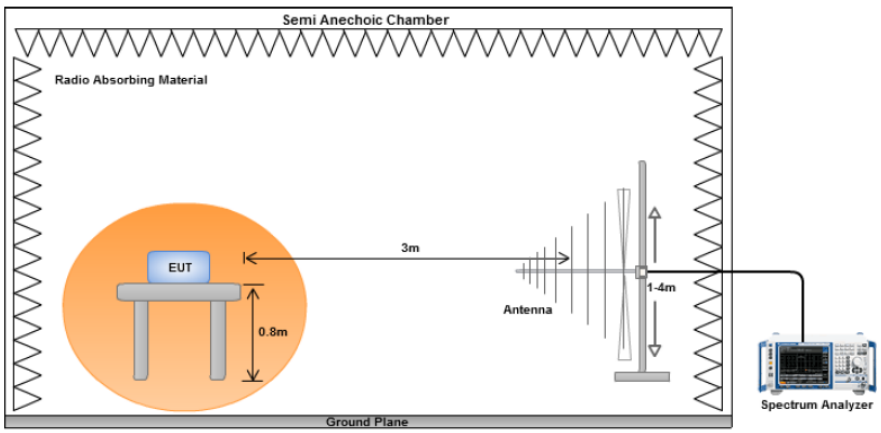
Band Edge- Hopping-BDR 2480MHz

Band Edge- Hopping-EDR 2402MHz

Band Edge- Hopping-EDR 2480MHz

10.9 Transmitter Radiated Spurious Emissions Below 1GHz

Requirement(s):

Spec	Item	Requirement	Applicable
47CFR§15.247(d), RSS247(5.5)	a)	Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges **Frequency range (MHz) / Field Strength (uV/m)** 30 – 88 / 100 88 – 216 / 150 216 960 / 200 Above 960 / 500	☒
Test Setup			
Procedure		1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. A Quasi-peak measurement was then made for that frequency point. 4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.	
Remark		The EUT was scanned up to 1GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case.	
Result		☒ Pass ☐ Fail	

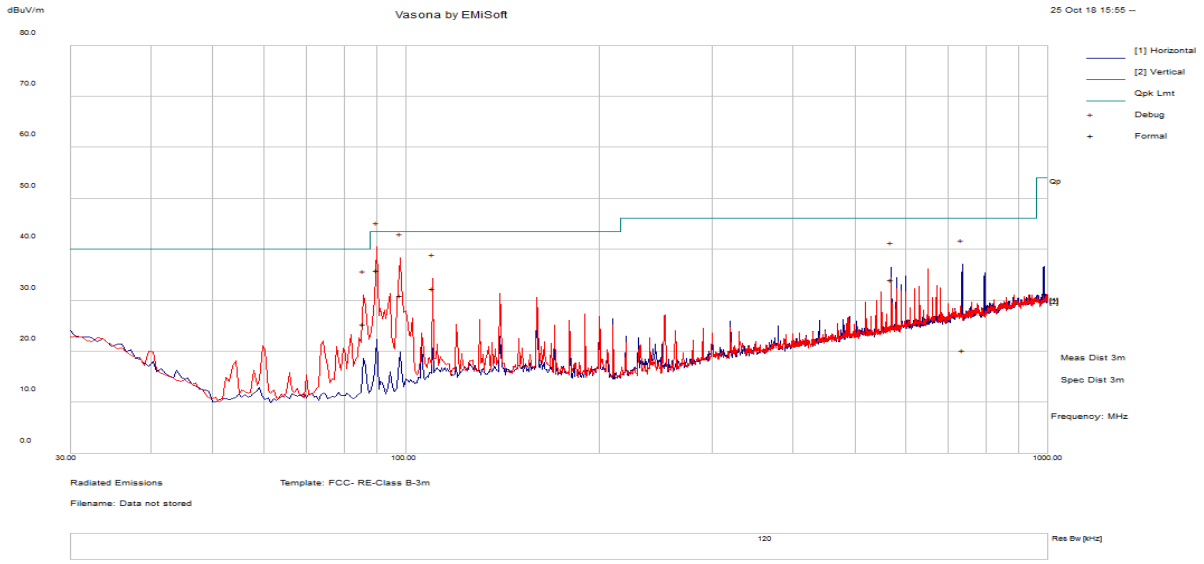
Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by *Cipher* at *10m Chamber.*

Radiated Emission Test Results (Below 1GHz)

Test specification:	Radiated Spurious Emissions (30MHz – 1000MHz)			
Environmental Conditions:	Temp(°C):	22	Result :	☒ Pass ☐ Fail
	Humidity (%):	37		
	Atmospheric(mbar):	1021		
Mains Power:	120VAC, 60Hz			
Tested by:	Cipher			
Test Date:	10/25/2018			
Remarks:	BDR 2480MHz			



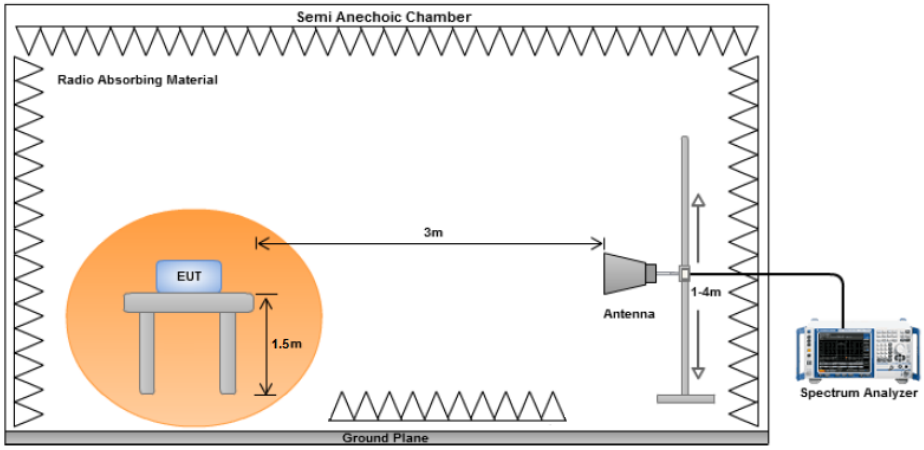
Quasi Max Measurement

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	Pol (V/H)	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
90.01	51.79	11.79	-27.68	35.9	Quasi Max	V	100	174	43.5	-7.6	Pass
97.98	45.09	11.86	-25.9	31.05	Quasi Max	V	117	18	43.5	-12.45	Pass
735.77	20.22	15.17	-15.08	20.3	Quasi Max	H	114	289	46	-25.7	Pass
86.01	41.31	11.74	-27.7	25.35	Quasi Max	V	105	129	40	-14.65	Pass
110.00	43.89	11.96	-23.39	32.47	Quasi Max	V	102	168	43.5	-11.03	Pass
569.97	37.04	14.55	-17.42	34.17	Quasi Max	H	190	216	46	-11.83	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

10.10 Transmitter Radiated Spurious Emissions > 1GHz & Restricted band & non-restricted band emission

Requirement(s):

Spec	Item	Requirement	Applicable
47CFR§15.247(d), RSS247(5.5)	a)	For non-restricted band, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB or 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, determined by the measurement method on output power to be used. Attenuation below the general limits specified in § 15.209(a) is not required ☒ 20 dB down ☐ 30 dB down	☒
	b)	or restricted band, emission must also comply with the radiated emission limits specified in 15.209	☒
Test Setup			
Procedure		1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. An average measurement was then made for that frequency point. 4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.	
Remark		The EUT was scanned up to 26GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case.	
Result		☒ Pass ☐ Fail	

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

Test was done by *Cipher* at *3m Chamber.*

Radiated Emission Test Results

Bluetooth BDR – 2402MHz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	Pol (V/H)	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
1683.49	68.02	2.92	-14.13	56.82	Peak Max	H	184	40	74	-17.19	Pass
17983.90	38.19	9.15	8.17	55.5	Peak Max	V	291	136	74	-18.5	Pass
4804.37	39.85	4.71	-4.97	39.58	Peak Max	H	225	88	74	-34.42	Pass
1683.49	48.03	2.92	-14.13	36.82	Average Max	H	184	40	54	-17.18	Pass
17983.90	26.11	9.15	8.17	43.43	Average Max	V	291	136	54	-10.57	Pass
4804.37	27.89	4.71	-4.97	27.63	Average Max	H	225	88	54	-26.37	Pass

Bluetooth BDR – 2441MHz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	Pol (V/H)	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
1683.64	66.98	2.92	-14.13	55.78	Peak Max	H	197	70	74	-18.22	Pass
17899.18	37.78	9.13	8.60	55.51	Peak Max	H	340	305	74	-18.49	Pass
4837.06	40.05	4.67	-5.03	39.69	Peak Max	V	302	119	74	-34.31	Pass
1683.64	47.17	2.92	-14.13	35.97	Average Max	H	197	70	54	-18.04	Pass
17899.18	25.98	9.13	8.60	43.71	Average Max	H	340	305	54	-10.29	Pass
4837.06	28.37	4.67	-5.03	28.01	Average Max	V	302	119	54	-25.99	Pass

Bluetooth BDR – 2480MHz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	Pol (V/H)	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
1641.34	66.31	2.87	-14.6	54.59	Peak Max	H	218	34	74	-19.42	Pass
17734.28	39.13	9.09	8.17	56.39	Peak Max	H	180	222	74	-17.61	Pass
4888.87	41.33	4.61	-5.12	40.82	Peak Max	V	400	258	74	-33.18	Pass
1641.34	41.52	2.87	-14.6	29.80	Average Max	H	218	34	54	-24.20	Pass
17734.28	26.11	9.09	8.17	43.37	Average Max	H	180	222	54	-10.63	Pass
4888.87	28.89	4.61	-5.12	28.38	Average Max	V	400	258	54	-25.62	Pass

Bluetooth EDR – 2402MHz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	Pol (V/H)	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
17904.74	38.23	9.13	8.59	55.95	Peak Max	V	216	80	74	-18.05	Pass
1683.56	70.52	2.92	-14.13	59.31	Peak Max	H	164	21	74	-14.69	Pass
4937.95	39.69	4.55	-5.13	39.11	Peak Max	V	165	74	74	-34.89	Pass
17904.74	26.20	9.13	8.59	43.92	Average Max	V	216	80	54	-10.08	Pass
1683.56	50.30	2.92	-14.13	39.09	Average Max	H	164	21	54	-14.91	Pass
4937.95	28.04	4.55	-5.13	27.46	Average Max	V	165	74	54	-26.54	Pass

Bluetooth EDR – 2441MHz

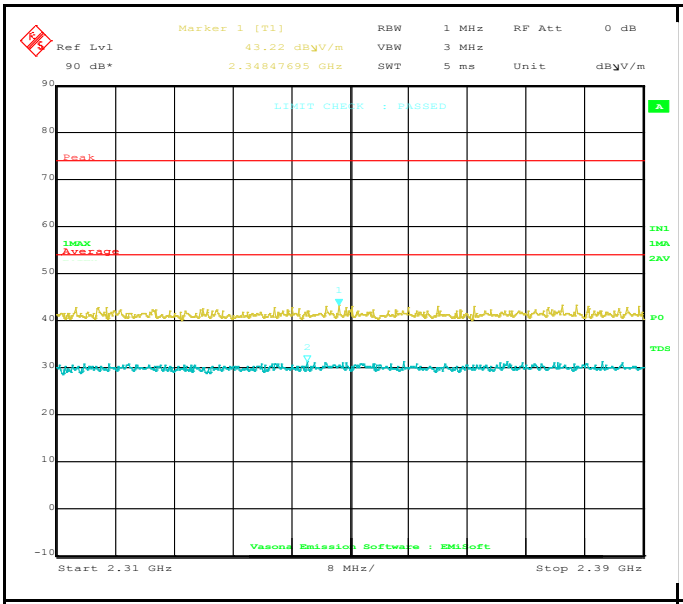
Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	Pol (V/H)	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
1683.47	69.05	2.92	-14.13	57.84	Peak Max	H	135	16	74	-16.16	Pass
17978.13	37.89	9.15	8.20	55.24	Peak Max	H	130	356	74	-18.76	Pass
4873.22	40.94	4.63	-5.09	40.47	Peak Max	V	388	44	74	-33.53	Pass
1683.47	48.83	2.92	-14.13	37.62	Average Max	H	135	16	54	-16.38	Pass
17978.13	26.21	9.15	8.20	43.55	Average Max	H	130	356	54	-10.45	Pass
4873.22	28.97	4.63	-5.09	28.51	Average Max	V	388	44	54	-25.49	Pass

Bluetooth EDR – 2480MHz

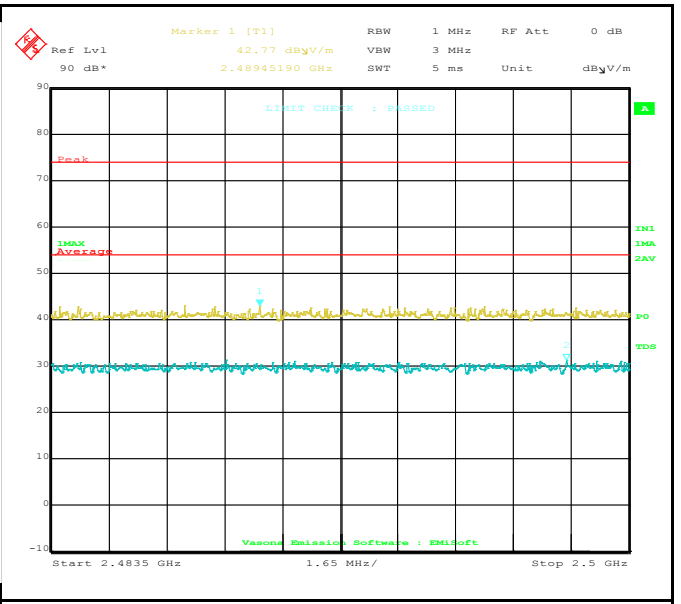
Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	Pol (V/H)	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
1683.60	69.40	2.92	-14.13	58.19	Peak Max	H	162	32	74	-15.81	Pass
17889.70	37.50	9.13	8.51	55.13	Peak Max	H	108	311	74	-18.87	Pass
4886.39	41.54	4.61	-5.11	41.04	Peak Max	V	353	226	74	-32.97	Pass
1683.60	49.44	2.92	-14.13	38.23	Average Max	H	162	32	54	-15.77	Pass
17889.70	26.12	9.13	8.51	43.76	Average Max	H	108	311	54	-10.24	Pass
4886.39	29.13	4.61	-5.11	28.63	Average Max	V	353	226	54	-25.38	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

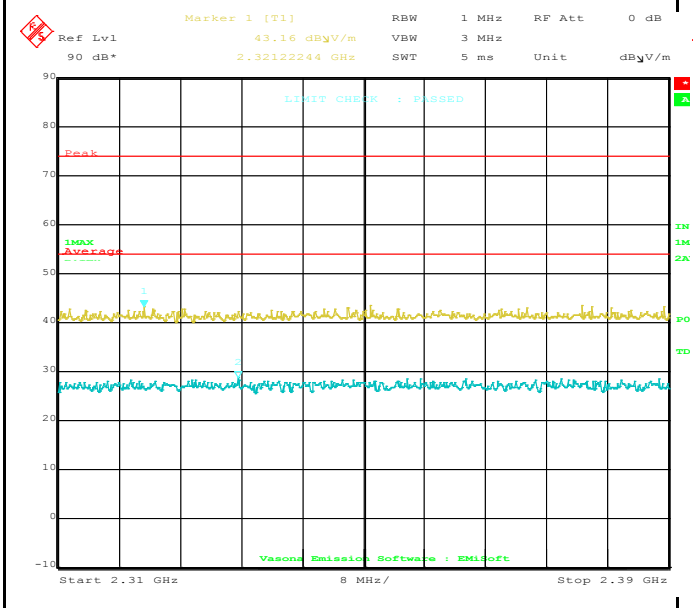
Restricted Band Test plot (Bluetooth BDR/EDR)



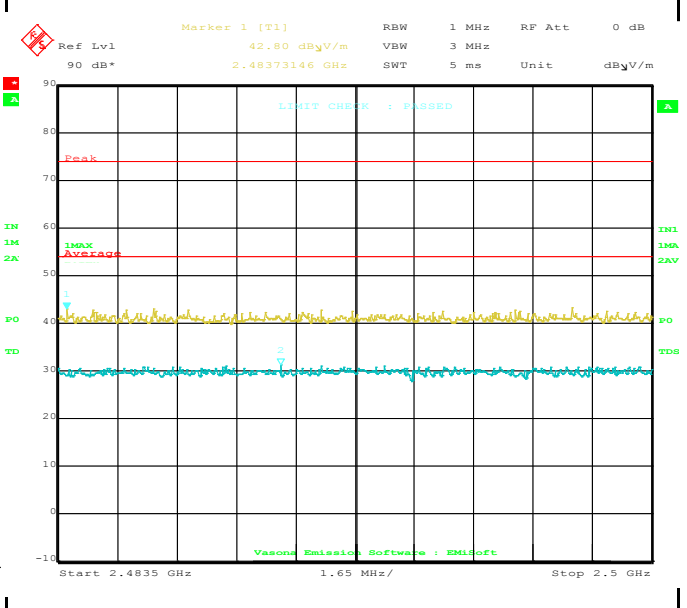
Restricted Band BDR 2402MHz



Restricted Band BDR 2480MHz



Restricted Band EDR 2402MHz



Restricted Band EDR 2480MHz

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Cycle	Cal Due	In use
Conducted Emissions						
R & S Receiver	ESIB 40	100179	06/08/2018	1 Year	06/08/2019	☑
LISN (9kHz - 30MHz)	3816/2NM	214372	09/27/2018	1 Year	09/27/2019	☑
Radiated Emissions						
Keysight EXA 44GHz Spectrum Analyzer	N9010A	MY51440112	11/16/2017	1 Year	11/16/2018	☑
Bi-Log antenna (30MHz~2GHz)	JB1	A030702	03/09/2018	2 Year	03/09/2020	☑
Horn Antenna (1GHz~26GHz)	3115	100059	11/09/2017	1 Year	11/09/2018	☑
Horn Antenna (26GHz~40GHz)	AH-840	101013	08/27/2018	1 Year	08/28/2019	☑
Pre-Amp (30MHz~40GHz)	LPA-6-30	11140711	02/09/2018	1 Year	02/10/2019	☑
RF Conducted Measurement						
Spectrum Analyzer	N9010A	10SL0219	11/07/2017	1 Year	11/08/2018	☑

Annex B. SIEMIC Accreditation

Accreditations	Document	Scope / Remark
ISO 17025 (A2LA)		Please see the documents for the detailed scope
ISO Guide 65 (A2LA)		Please see the documents for the detailed scope
TCB Designation		A1, A2, A3, A4, B1, B2, B3, B4, C
FCC DoC Accreditation		FCC Declaration of Conformity Accreditation
FCC Site Registration		3 meter site
FCC Site Registration		10 meter site
IC Site Registration		3 meter site
IC Site Registration		10 meter site
EU NB		**Radio & Telecommunications Terminal Equipment:** EN45001 – EN ISO/IEC 17025
		Electromagnetic Compatibility: EN45001 – EN ISO/IEC 17025
Singapore iDA CB(Certification Body)		Phase I, Phase II
Vietnam MIC CAB Accreditation		Please see the document for the detailed scope
Hong Kong OFCA		**(Phase II)** OFCA Foreign Certification Body for Radio and Telecom
		(Phase I) Conformity Assessment Body for Radio and Telecom
Industry Canada CAB		**Radio:** Scope A – All Radio Standard Specification in Category I
		Telecom: CS-03 Part I, II, V, VI, VII, VIII

Japan Recognized Certification Body Designation		**Radio**: A1. Terminal equipment for purpose of calling **Telecom**: B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law
Korea CAB Accreditation		**EMI:** KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMI **EMS:** KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS KN24, KN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS
		Radio: RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10, RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21, RRL Notice 2007-80, RRL Notice 2004-68
		Telecom: President Notice 20664, RRL Notice 2007-30, RRL Notice 2008-7 with attachments 1, 3, 5, 6; President Notice 20664, RRL Notice 2008-7 with attachment 4
Taiwan NCC CAB Recognition		LP0002, PSTN01, ADSL01, ID0002, IS6100, CNS14336, PLMN07, PLMN01, PLMN08
Taiwan BSMI CAB Recognition		CNS 13438
Japan VCCI		R-3083: Radiation 3 meter site C-3421: Main Ports Conducted Interference Measurement T-1597: Telecommunication Ports Conducted Interference Measurement
Australia CAB Recognition		**EMC:** AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4
		Radio communications: AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771
		Telecommunications: AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06 AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/ACIF S60950.1
Australia NATA Recognition		AS/ACIF S002, AS/ACIF S003, AS/ACIF S004, AS/ACIF S006, AS/ACIF S016,AS/ACIF S031, AS/ACIF S038, AS/ACIF S040, AS/ACIF S041, AS/ACIF S043.2