

RF TEST REPORT



Report No.: FCC IC_RF_SL19010903-CSC-001_UNII
Supersede Report No.: None

Applicant	:	Cisco Systems Inc
Product Name	:	Cisco Wireless Router
FCC Host Model No.	:	C1121X-8PLTEPWB
IC Host Model No.	:	C1121X-8PLTEPWA
Test Standard	:	47 CFR 15.407 RSS-247 Issue 2, February 2017
Test Method	:	ANSI C63.10: 2013 RSS-Gen Issue 5, April 2018
Module FCC ID	:	LDKC11011757
Module IC	:	2461N-11011757
Dates of test	:	03/01/2019 – 03/13/2019
Issue Date	:	03/22/2019
Test Result	:	☒ Pass ☐ Fail
Equipment complied with the specification ☒		
Equipment did not comply with the specification ☐		

This Test Report is Issued Under the Authority of:

Deon Dai	Chen Ge
Test Engineer	Engineer Reviewer
This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only	

Issued By:
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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 & Radio Equipment Directive (RED)
Japan	MIC (RCB 208)	RF, Telecom
Hong Kong	OFTA (US002)	RF, Telecom

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1 Report Revision History

Report No.	Report Version	Description	Issue Date
FCC IC_RF_SL19010903-CSC-001_UNII	None	Original	03/22/2019

2 Executive Summary

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

Company:	Cisco Systems, Inc.
Product:	Cisco Wireless Router
FCC Host Model:	C1121X-8PLTEPWB
IC Host Model:	C1121X-8PLTEPWA

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1st page. This test report covers the radiated emissions requirements of the standards referenced in the report to allow system level approval of the module in specified Hosts.

3 Customer information

Applicant Name	Cisco Systems, Inc.
Applicant Address	125 West Tasman Dr. San Jose, CA 95134
Manufacturer Name	Cisco Systems, Inc.
Manufacturer Address	125 West Tasman Dr. San Jose, CA 95134

4 Test site information

Lab performing tests	SIEMIC Inc.
Lab Address	775 Montague Expressway, Milpitas, CA 95035
FCC Test Site No.	540430
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	Cisco Wireless Router
FCC Host Model No.	C1121X-8PLTEPWB
IC Host Model No.	C1121X-8PLTEPWA
Trade Name	Cisco
Serial No.	FGL224410BU
Input Power	12V AC/DC 6A
Power Adapter Manu/Model	DELTA ELECTRONICS, INC / ADP-150BR B
Power Adapter SN	N/A
Date of EUT received	01/14/2019
Equipment Class/ Category	UNII
Clock Frequencies	N/A
Port/Connectors	Power Port, Lan Port, USB Port, Micro-USB Port

6.2 Radio Description

Radio Type	802.11a/n(20MHz)	802.11ac(20MHz)	802.11a/n(40MHz)	802.11ac(40MHz)	802.11a/n/ac (80MHz)
Operating Frequency	5180-5240MHz 5260-5320MHz 5500-5720MHz 5745-5825MHz		5190-5310MHz 5510-5710MHz 5755-5795MHz		5210MHz, 5290MHz 5530MHz, 5610MHz, 5775MHz
Modulation	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM,256QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM,256QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel BW	20MHz		40MHz		80MHz
Antenna Type	Internal PIFA Antenna				
Antenna Gain (Peak)	5GHz: 4dBi				
Antenna Connector Type	U.FL Connector				
Note	-				

7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Item	Supporting Equipment Description	Model	Serial Number	Manufacturer	Note
1	Laptop	ThinkPad T420s	N/A	Lenovo	-
2	Console Cable	USB to RJ45 Cable	-	Moyina	-
3	Power Adapter	ADP-150BR B	-	DELTA ELECTRONICS, INC	-

7.2 Cabling Description

Name	Connection Start		Connection Stop		Length / shielding Info		Note
	From	I/O Port	To	I/O Port	Length (m)	Shielding	
Console Cable	EUT	Micro-USB Port	Laptop	USB	1.8	Unshielded	-

7.3 Test Software Description

Test Item	Software	Description
RF Testing	Tera Term	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	ANSI C63.10 – 2013 558074 D01 DTS Meas. Guidance v05r01	☒ Pass ☐ N/A
	IC	-	IC		
Restricted Band of Operation	FCC	15.205	FCC	ANSI C63.4 – 2014 789033 D02 General UNII Test Procedures New Rules v02r01	☒ Pass* ☐ N/A
	IC	RSS 247 (2.2)	IC		
AC Conducted Emissions Voltage	FCC	15.207(a)	FCC	ANSI C63.4 – 2014	☒ Pass* ☐ N/A
	IC	RSS Gen 8.8	IC	RSS Gen Issue 5.0, April 2018 (8.8)	

Test Item	Test standard		Test Method/Procedure		Pass / Fail
99% Bandwidth	FCC	-	FCC	-	☒ Pass* ☐ N/A
	IC	RSS 247 (A6.2)	IC	RSS Gen Issue 5.0, April 2018 (6.6)	
26 & 6 dB Emission Bandwidth	FCC	15.407 (a) (2)	FCC	789033 D02 General UNII Test Procedures New Rules v02r01	☒ Pass* ☐ N/A
	IC	RSS 247 (A6.2)	IC		
Maximum conducted Output Power	FCC	15.407 (a) (2)	FCC	789033 D02 General UNII Test Procedures New Rules v02r01	☒ *Pass ☐ N/A
	IC	RSS247 (5.4.4)	IC		
	IC		IC		
Band Edge and Radiated Spurious Emissions	FCC	15.407(b)(2), 15.407(b)(6)	FCC	ANSI C63.4 – 2014 789033 D02 General UNII Test Procedures New Rules v02r01	☒ Pass ☐ N/A
	IC	RSS 247(A6.3)	IC		
Power Spectral Density	FCC	15.407 (a) (2)	FCC	789033 D02 General UNII Test Procedures New Rules v02r01	☒ Pass* ☐ N/A
	IC	RSS 247 (A6.2)	IC		

Remark

- All measurement uncertainties are not taken into consideration for all presented test result.
- 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.
- Only Band Edge and Radiated Spurious Emissions was testing for specific host in this test report.
- Pass* : Please refer to original filing test reports:
 - EDCS -12062325
 - EDCS -12062326
 - EDCS -12062328
 - EDCS -12062329

9 Measurement Uncertainty

Emissions			
Test Item	Frequency Range	Description	Uncertainty
AC Conducted Emissions	150KHz – 30MHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2	±3.5dB
RF conducted measurement	150KHz – 40GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2	±0.95dB
Radiated Spurious Emissions	30MHz – 1GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	±6dB
Radiated Spurious Emissions	1GHz – 40GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	±6dB

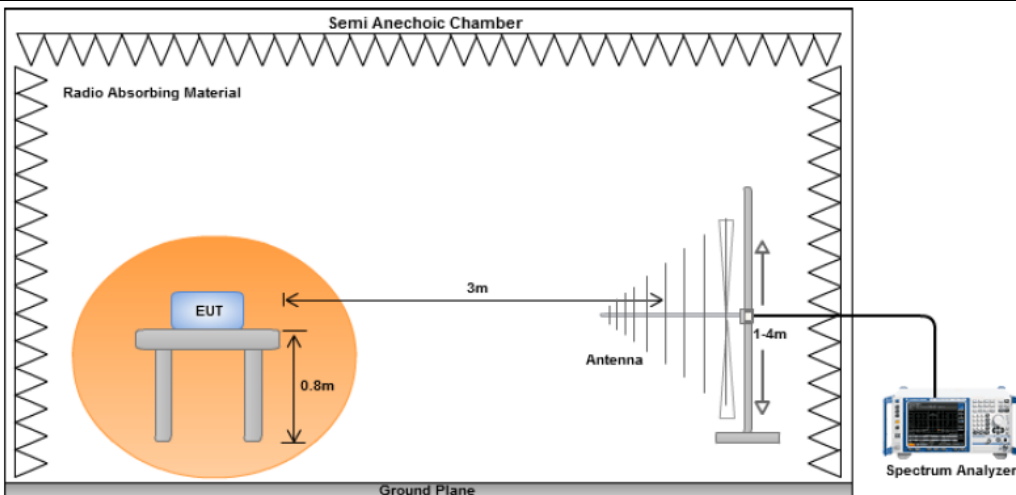
10 Measurements, Examination and Derived Results

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 Radiated Emissions below 1GHz

Requirement(s):

Spec	Requirement	Applicable										
47CFR§ 15.407(b) 15.209 (a) RSS Gen	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 <table><thead><tr><th>Frequency range (MHz)</th><th>Field Strength (uV/m)</th></tr></thead><tbody><tr><td>30 – 88</td><td>100</td></tr><tr><td>88 – 216</td><td>150</td></tr><tr><td>216 960</td><td>200</td></tr><tr><td>Above 960</td><td>500</td></tr></tbody></table>	Frequency range (MHz)	Field Strength (uV/m)	30 – 88	100	88 – 216	150	216 960	200	Above 960	500	☒
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											

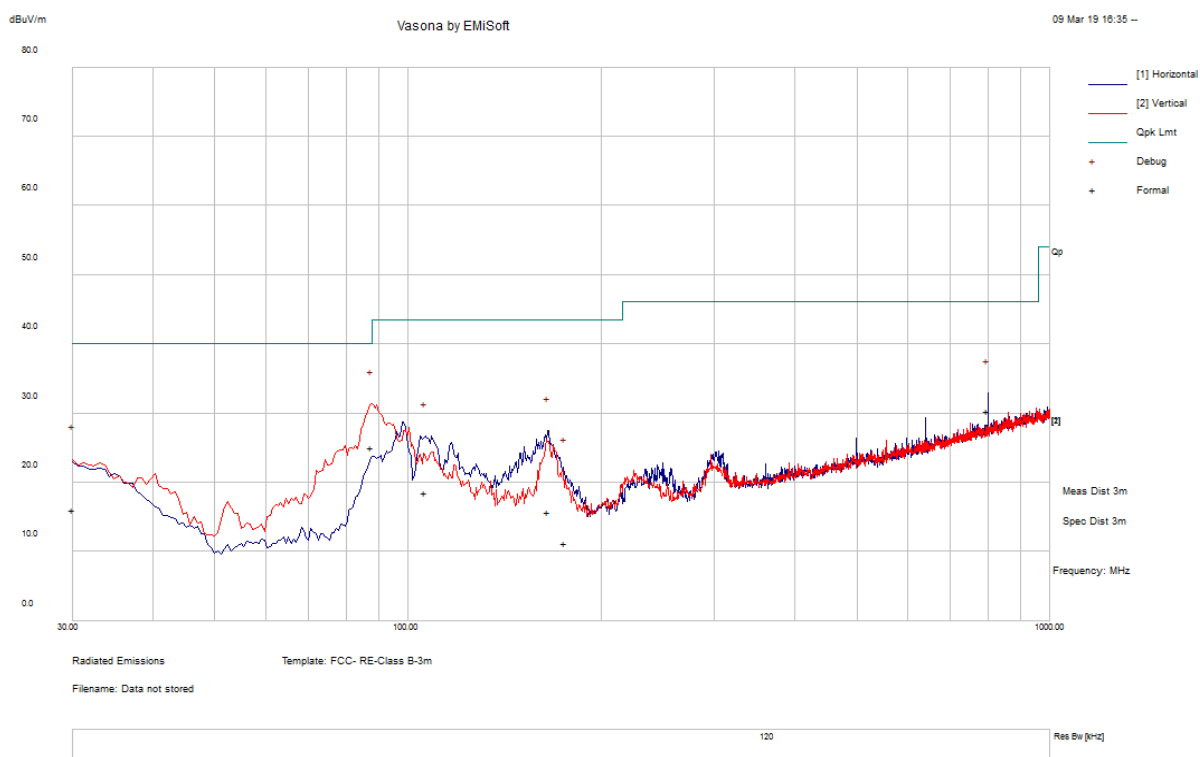
Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by Deon Dai at 10m chamber.

Radiated Emission Test Results (Below 1GHz)

Test specification	Below 1GHz			
Environmental Conditions:	Temp (°C):	23	Result	Pass
	Humidity (%)	46		
	Atmospheric (mbar):	1017		
Mains Power:	120VAC, 60Hz			
Tested by:	Deon Dai			
Test Date:	03/09/2019			
Remarks:	Worst case - 802.11ac-5210			



Quasi Max Measurement

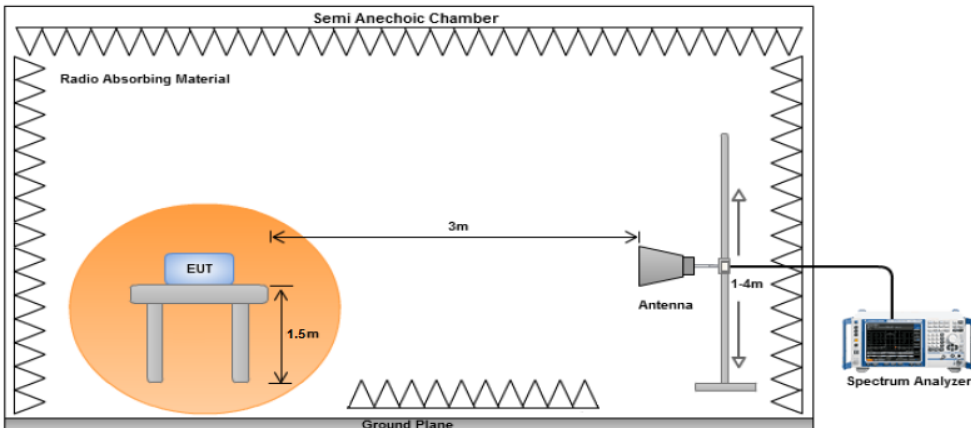
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
87.76	41.08	11.76	-27.69	25.15	Quasi Max	V	157	205	40	-14.85	Pass
799.97	29.17	15.47	-14.27	30.36	Quasi Max	H	101	65	46	-15.64	Pass
165.29	26.85	12.32	-23.46	15.7	Quasi Max	H	249	233	43.5	-27.8	Pass
30.01	17.01	11.12	-12.1	16.03	Quasi Max	V	265	68	40	-23.97	Pass
106.31	30.8	11.92	-24.17	18.56	Quasi Max	H	211	84	43.5	-24.94	Pass
175.41	23.43	12.39	-24.61	11.21	Quasi Max	H	215	357	43.5	-32.29	Pass

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

10.3 Radiated Spurious Emissions above 1GHz

Requirement(s):

Spec	Item	Requirement	Applicable
47CFR§ 15.407(b) RSS 247 Issue 2, 2017	(1)	For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.	☒
	(2)	For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.	☒
	(3)	For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.	☒
	(4)	For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.	☒
	(5)	Restricted band, emission must also comply with the radiated emission limits specified in 15.209	☒

Test Setup	
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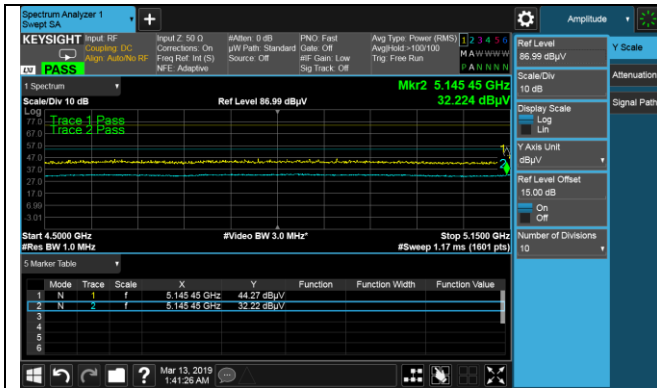
Procedure	- The EUT was switched on and allowed to warm up to its normal operating condition. - The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: - Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. - The EUT was then rotated to the direction that gave the maximum emission. - Finally, the antenna height was adjusted to the height that gave the maximum emission. - An average measurement was then made for that frequency point. - 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 40GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case.
Result	☒ Pass ☐ Fail

Test Data ☐ Yes (See below) ☒ N/A

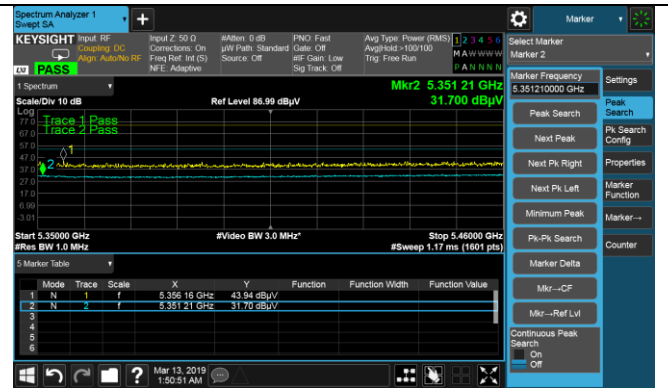
Test Plot ☒ Yes (See below) ☐ N/A

Test was done by Deon Dai at 10m chamber.

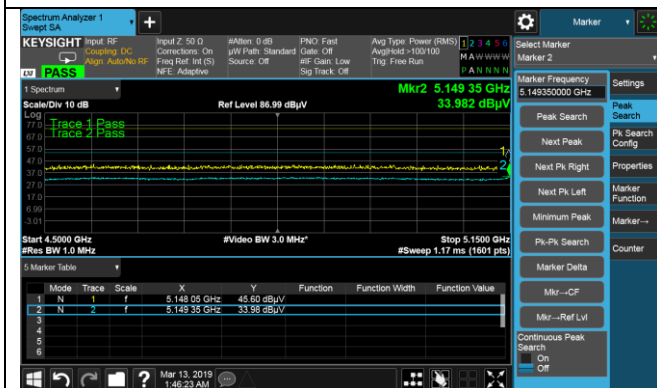
Radiated Restricted band and Band Edge Measurement Plots:



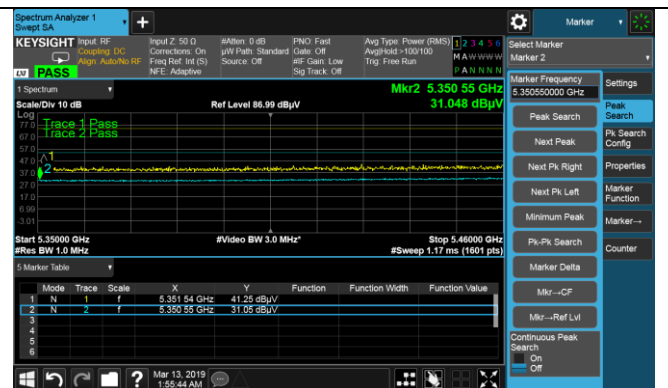
802.11a 5180MHz



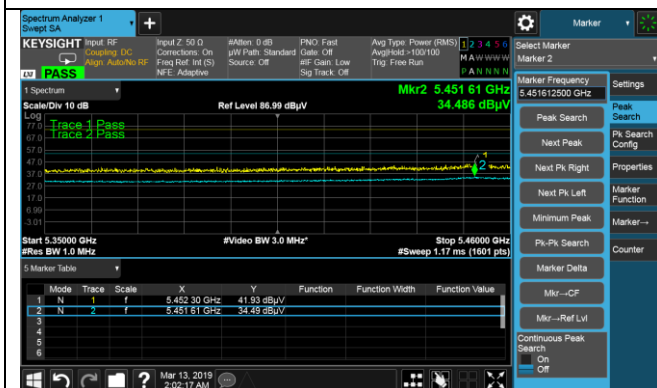
802.11a 5320MHz



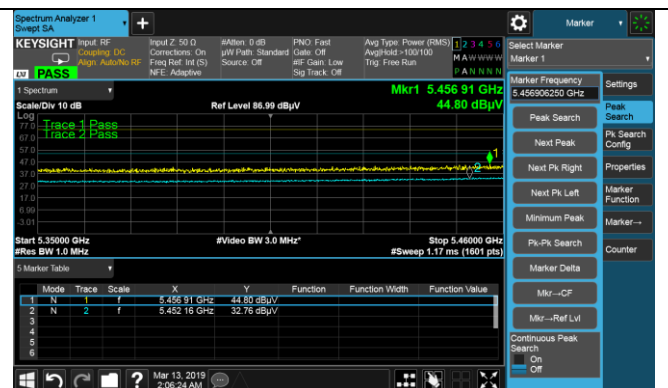
802.11n-HT20 5180MHz



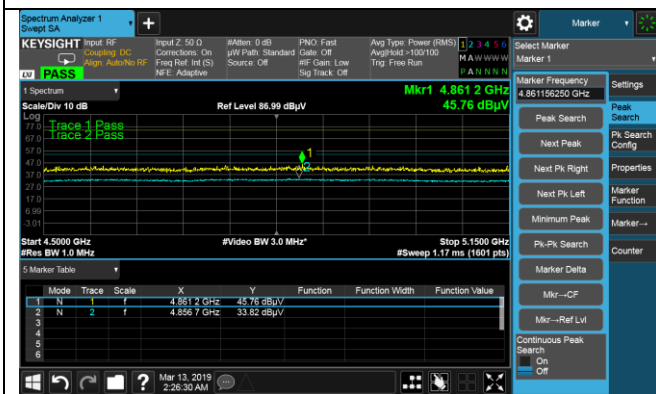
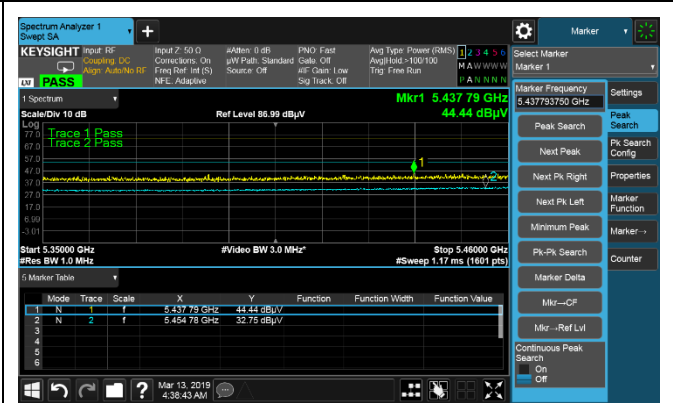
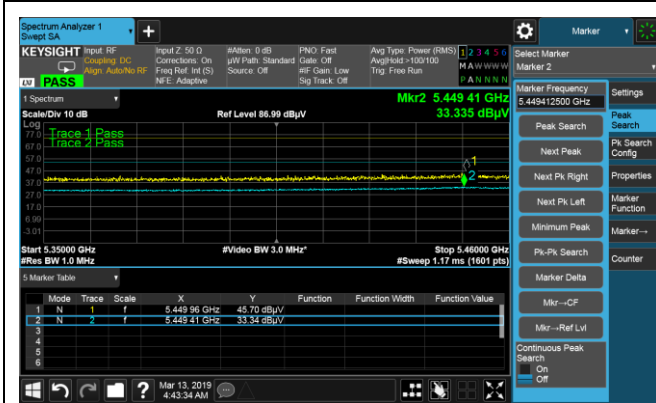
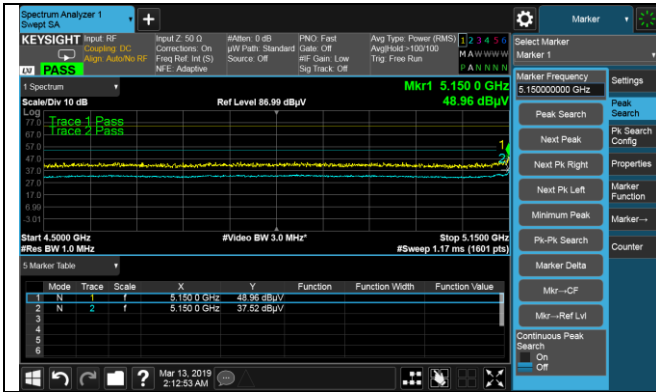
802.11n-HT20 5320MHz



802.11a 5500MHz



802.11n-HT20 5500MHz



Radiated Emission Test Results (Above 1GHz)

1GHz-40GHz – 802.11a – 5180MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7991.09	50.38	5.42	-7.04	48.76	Peak Max	V	211	299	74	-25.24	Pass
10360.95	52.19	6	-3.87	54.32	Peak Max	V	221	33	74	-19.68	Pass
13004.52	54.91	6.9	-1.56	60.25	Peak Max	V	166	149	74	-13.75	Pass
7991.09	44.39	5.42	-7.04	42.77	Average Max	V	211	299	54	-11.23	Pass
10360.95	40.69	6	-3.87	42.82	Average Max	V	221	33	54	-11.18	Pass
13004.52	43.08	6.9	-1.56	48.42	Average Max	V	166	149	54	-5.58	Pass

1GHz-40GHz – 802.11a – 5200MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7674.44	49.89	5.19	-7.3	47.78	Peak Max	H	206	299	74	-26.22	Pass
10399.05	52.65	6.02	-3.85	54.82	Peak Max	V	222	28	74	-19.18	Pass
13172.97	54.56	6.97	-1.89	59.64	Peak Max	H	170	151	74	-14.36	Pass
7674.44	44.14	5.19	-7.3	42.03	Average Max	H	206	299	54	-11.97	Pass
10399.05	41.08	6.02	-3.85	43.25	Average Max	V	222	28	54	-10.75	Pass
13172.97	42.99	6.97	-1.89	48.07	Average Max	H	170	151	54	-5.93	Pass

1GHz-40GHz – 802.11a – 5240MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7018.04	49.91	5.09	-7.8	47.2	Peak Max	H	211	301	74	-26.8	Pass
10480.85	52.56	6.07	-3.82	54.81	Peak Max	V	221	33	74	-19.19	Pass
13050.94	54.02	6.92	-1.69	59.25	Peak Max	V	163	148	74	-14.75	Pass
7018.04	44.3	5.09	-7.8	41.59	Average Max	H	211	301	54	-12.41	Pass
10480.85	41.21	6.07	-3.82	43.46	Average Max	V	221	33	54	-10.54	Pass
13050.94	42.88	6.92	-1.69	48.11	Average Max	V	163	148	54	-5.89	Pass

1GHz-40GHz – 802.11a – 5260MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7055.01	49.42	5.1	-7.79	46.73	Peak Max	V	212	293	74	-27.27	Pass
10520.90	52.96	6.09	-3.77	55.28	Peak Max	V	220	27	74	-18.72	Pass
13284.61	54	7.01	-1.82	59.19	Peak Max	H	169	153	74	-14.81	Pass
7055.01	43.63	5.1	-7.79	40.94	Average Max	V	212	293	54	-13.06	Pass
10520.90	41.5	6.09	-3.77	43.82	Average Max	V	220	27	54	-10.18	Pass
13284.61	42.55	7.01	-1.82	47.74	Average Max	H	169	153	54	-6.26	Pass

1GHz-40GHz – 802.11a – 5280MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7209.64	49.2	5.15	-7.73	46.62	Peak Max	H	213	299	74	-27.38	Pass
10559.02	52.9	6.1	-3.71	55.29	Peak Max	V	223	27	74	-18.71	Pass
13822.96	54.73	7.17	-1.69	60.21	Peak Max	H	163	154	74	-13.79	Pass
7209.64	43.1	5.15	-7.73	40.52	Average Max	H	213	299	54	-13.48	Pass
10559.02	41.18	6.1	-3.71	43.57	Average Max	V	223	27	54	-10.43	Pass
13822.96	43.46	7.17	-1.69	48.94	Average Max	H	163	154	54	-5.06	Pass

1GHz-40GHz – 802.11a – 5320MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7530.92	48.96	5.14	-7.51	46.59	Peak Max	V	207	300	74	-27.41	Pass
10640.37	53.22	6.14	-3.61	55.75	Peak Max	H	223	34	74	-18.25	Pass
13799.65	54.43	7.15	-1.72	59.86	Peak Max	V	165	145	74	-14.14	Pass
7530.92	43.56	5.14	-7.51	41.19	Average Max	V	207	300	54	-12.81	Pass
10640.37	41.84	6.14	-3.61	44.37	Average Max	H	223	34	54	-9.63	Pass
13799.65	42.92	7.15	-1.72	48.35	Average Max	V	165	145	54	-5.65	Pass

1GHz-40GHz – 802.11a – 5500MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7796.11	49.19	5.26	-7.21	47.24	Peak Max	H	205	301	74	-26.76	Pass
11000.97	52.32	6.13	-3.08	55.37	Peak Max	V	224	29	74	-18.63	Pass
13092.06	54.98	6.94	-1.8	60.12	Peak Max	H	168	146	74	-13.88	Pass
7796.11	44.1	5.26	-7.21	42.15	Average Max	H	205	301	54	-11.85	Pass
11000.97	40.32	6.13	-3.08	43.37	Average Max	V	224	29	54	-10.63	Pass
13092.06	43.6	6.94	-1.8	48.74	Average Max	H	168	146	54	-5.26	Pass

1GHz-40GHz – 802.11a – 5580MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7260.10	48.58	5.16	-7.7	46.04	Peak Max	H	209	299	74	-27.96	Pass
11159.11	52.92	6.07	-3.12	55.87	Peak Max	H	218	30	74	-18.13	Pass
13687.13	54.27	7.1	-1.54	59.83	Peak Max	V	166	153	74	-14.17	Pass
7260.10	42.2	5.16	-7.7	39.66	Average Max	H	209	299	54	-14.34	Pass
11159.11	41.11	6.07	-3.12	44.06	Average Max	H	218	30	54	-9.94	Pass
13687.13	43.23	7.1	-1.54	48.79	Average Max	V	166	153	54	-5.21	Pass

1GHz-40GHz – 802.11a – 5700MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7786.22	50.52	5.25	-7.22	48.55	Peak Max	V	210	300	74	-25.45	Pass
11400.99	52.73	6.05	-2.88	55.9	Peak Max	H	217	25	74	-18.1	Pass
13749.92	54.18	7.12	-1.61	59.69	Peak Max	V	163	154	74	-14.31	Pass
7786.22	43.68	5.25	-7.22	41.71	Average Max	V	210	300	54	-12.29	Pass
11400.99	41.37	6.05	-2.88	44.54	Average Max	H	217	25	54	-9.46	Pass
13749.92	43.15	7.12	-1.61	48.66	Average Max	V	163	154	54	-5.34	Pass

1GHz-40GHz – 802.11n20 – 5180MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7005.17	48.69	5.08	-7.81	45.96	Peak Max	H	213	300	74	-28.04	Pass
10360.43	52.15	6	-3.87	54.28	Peak Max	V	224	30	74	-19.72	Pass
13692.80	54.91	7.1	-1.54	60.47	Peak Max	V	163	148	74	-13.53	Pass
7005.17	42.46	5.08	-7.81	39.73	Average Max	H	213	300	54	-14.27	Pass
10360.43	41.08	6	-3.87	43.21	Average Max	V	224	30	54	-10.79	Pass
13692.80	43.34	7.1	-1.54	48.9	Average Max	V	163	148	54	-5.1	Pass

1GHz-40GHz – 802.11n20 – 5200MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7524.93	48.9	5.14	-7.51	46.53	Peak Max	H	210	292	74	-27.47	Pass
10399.70	52.55	6.02	-3.85	54.72	Peak Max	H	224	31	74	-19.28	Pass
13698.45	54.11	7.11	-1.55	59.67	Peak Max	V	161	153	74	-14.33	Pass
7524.93	43.13	5.14	-7.51	40.76	Average Max	H	210	292	54	-13.24	Pass
10399.70	40.82	6.02	-3.85	42.99	Average Max	H	224	31	54	-11.01	Pass
13698.45	42.35	7.11	-1.55	47.91	Average Max	V	161	153	54	-6.09	Pass

1GHz-40GHz – 802.11n20 – 5240MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7921.95	49.7	5.36	-7.1	47.96	Peak Max	H	210	297	74	-26.04	Pass
10480.06	52.58	6.07	-3.82	54.83	Peak Max	H	221	31	74	-19.17	Pass
13276.71	53.33	7.01	-1.83	58.51	Peak Max	V	163	148	74	-15.49	Pass
7921.95	43.27	5.36	-7.1	41.53	Average Max	H	210	297	54	-12.47	Pass
10480.06	40.97	6.07	-3.82	43.22	Average Max	H	221	31	54	-10.78	Pass
13276.71	41.93	7.01	-1.83	47.11	Average Max	V	163	148	54	-6.89	Pass

1GHz-40GHz – 802.11n20 – 5260MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7399.67	48.98	5.14	-7.6	46.52	Peak Max	V	209	297	74	-27.48	Pass
10520.69	52.97	6.09	-3.78	55.28	Peak Max	H	223	29	74	-18.72	Pass
13743.26	54.17	7.12	-1.6	59.69	Peak Max	V	162	149	74	-14.31	Pass
7399.67	42.71	5.14	-7.6	40.25	Average Max	V	209	297	54	-13.75	Pass
10520.69	40.99	6.09	-3.78	43.3	Average Max	H	223	29	54	-10.7	Pass
13743.26	42.43	7.12	-1.6	47.95	Average Max	V	162	149	54	-6.05	Pass

1GHz-40GHz – 802.11n20 – 5280MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7946.81	49.04	5.39	-7.08	47.35	Peak Max	V	213	300	74	-26.65	Pass
10559.09	52.89	6.1	-3.71	55.28	Peak Max	H	219	31	74	-18.72	Pass
13299.90	54.69	7.01	-1.78	59.92	Peak Max	V	162	153	74	-14.08	Pass
7946.81	42.84	5.39	-7.08	41.15	Average Max	V	213	300	54	-12.85	Pass
10559.09	41.35	6.1	-3.71	43.74	Average Max	H	219	31	54	-10.26	Pass
13299.90	43.6	7.01	-1.78	48.83	Average Max	V	162	153	54	-5.17	Pass

1GHz-40GHz – 802.11n20 – 5320MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7614.48	49.83	5.17	-7.42	47.58	Peak Max	V	210	299	74	-26.42	Pass
10640.63	53.23	6.14	-3.61	55.76	Peak Max	H	218	32	74	-18.24	Pass
13774.69	55.24	7.14	-1.66	60.72	Peak Max	H	162	147	74	-13.28	Pass
7614.48	43.51	5.17	-7.42	41.26	Average Max	V	210	299	54	-12.74	Pass
10640.63	42.05	6.14	-3.61	44.58	Average Max	H	218	32	54	-9.42	Pass
13774.69	43.29	7.14	-1.66	48.77	Average Max	H	162	147	54	-5.23	Pass

1GHz-40GHz – 802.11n20 – 5500MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7536.46	49.52	5.14	-7.5	47.16	Peak Max	V	204	292	74	-26.84	Pass
11000.25	52.27	6.13	-3.08	55.32	Peak Max	H	221	34	74	-18.68	Pass
13811.43	53.88	7.16	-1.71	59.33	Peak Max	H	163	151	74	-14.67	Pass
7536.46	43.35	5.14	-7.5	40.99	Average Max	V	204	292	54	-13.01	Pass
11000.25	41.25	6.13	-3.08	44.3	Average Max	H	221	34	54	-9.7	Pass
13811.43	42.42	7.16	-1.71	47.87	Average Max	H	163	151	54	-6.13	Pass

1GHz-40GHz – 802.11n20 – 5580MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7805.88	50.04	5.27	-7.2	48.11	Peak Max	V	209	292	74	-25.89	Pass
11159.15	52.91	6.07	-3.12	55.86	Peak Max	V	218	30	74	-18.14	Pass
13913.61	54.89	7.23	-1.62	60.5	Peak Max	H	167	148	74	-13.5	Pass
7805.88	43.76	5.27	-7.2	41.83	Average Max	V	209	292	54	-12.17	Pass
11159.15	41.23	6.07	-3.12	44.18	Average Max	V	218	30	54	-9.82	Pass
13913.61	43.66	7.23	-1.62	49.27	Average Max	H	167	148	54	-4.73	Pass

1GHz-40GHz – 802.11n20 – 5700MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7748.54	50.23	5.22	-7.25	48.2	Peak Max	V	212	301	74	-25.8	Pass
11400.77	52.74	6.05	-2.88	55.91	Peak Max	H	220	26	74	-18.09	Pass
13187.14	54.73	6.97	-1.9	59.8	Peak Max	V	168	151	74	-14.2	Pass
7748.54	44.17	5.22	-7.25	42.14	Average Max	V	212	301	54	-11.86	Pass
11400.77	41.35	6.05	-2.88	44.52	Average Max	H	220	26	54	-9.48	Pass
13187.14	42.92	6.97	-1.9	47.99	Average Max	V	168	151	54	-6.01	Pass

1GHz-40GHz – 802.11n40 – 5190MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7647.44	49.85	5.18	-7.33	47.7	Peak Max	H	210	298	74	-26.3	Pass
10379.29	51.78	6.01	-3.86	53.93	Peak Max	V	219	32	74	-20.07	Pass
13410.64	54.29	7.03	-1.63	59.69	Peak Max	V	165	154	74	-14.31	Pass
7647.44	44.28	5.18	-7.33	42.13	Average Max	H	210	298	54	-11.87	Pass
10379.29	40.1	6.01	-3.86	42.25	Average Max	V	219	32	54	-11.75	Pass
13410.64	43.09	7.03	-1.63	48.49	Average Max	V	165	154	54	-5.51	Pass

1GHz-40GHz – 802.11n40 – 5230MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7033.92	48.7	5.09	-7.8	45.99	Peak Max	V	212	301	74	-28.01	Pass
10460.76	52.76	6.06	-3.83	54.99	Peak Max	H	218	25	74	-19.01	Pass
13324.92	53.96	7.01	-1.74	59.23	Peak Max	V	165	147	74	-14.77	Pass
7033.92	42.79	5.09	-7.8	40.08	Average Max	V	212	301	54	-13.92	Pass
10460.76	41.51	6.06	-3.83	43.74	Average Max	H	218	25	54	-10.26	Pass
13324.92	42.6	7.01	-1.74	47.87	Average Max	V	165	147	54	-6.13	Pass

1GHz-40GHz – 802.11n40 – 5190MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7647.44	49.85	5.18	-7.33	47.7	Peak Max	V	206	292	74	-26.3	Pass
10379.29	51.78	6.01	-3.86	53.93	Peak Max	H	217	33	74	-20.07	Pass
13410.64	54.29	7.03	-1.63	59.69	Peak Max	H	163	151	74	-14.31	Pass
7647.44	43.33	5.18	-7.33	41.18	Average Max	V	206	292	54	-12.82	Pass
10379.29	40.73	6.01	-3.86	42.88	Average Max	H	217	33	54	-11.12	Pass
13410.64	43.02	7.03	-1.63	48.42	Average Max	H	163	151	54	-5.58	Pass

1GHz-40GHz – 802.11n40 – 5310MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7232.57	49.57	5.15	-7.72	47	Peak Max	H	212	301	74	-27	Pass
10620.62	52.6	6.13	-3.62	55.11	Peak Max	H	218	34	74	-18.89	Pass
13251.72	55.01	7	-1.9	60.11	Peak Max	H	170	148	74	-13.89	Pass
7232.57	43.19	5.15	-7.72	40.62	Average Max	H	212	301	54	-13.38	Pass
10620.62	40.62	6.13	-3.62	43.13	Average Max	H	218	34	54	-10.87	Pass
13251.72	43.7	7	-1.9	48.8	Average Max	H	170	148	54	-5.2	Pass

1GHz-40GHz – 802.11n40 – 5510MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7108.09	49.36	5.11	-7.77	46.7	Peak Max	H	210	293	74	-27.3	Pass
11019.83	53.17	6.12	-3.08	56.21	Peak Max	V	220	27	74	-17.79	Pass
13765.72	55.07	7.13	-1.65	60.55	Peak Max	H	163	150	74	-13.45	Pass
7108.09	42.81	5.11	-7.77	40.15	Average Max	H	210	293	54	-13.85	Pass
11019.83	41.5	6.12	-3.08	44.54	Average Max	V	220	27	54	-9.46	Pass
13765.72	43.9	7.13	-1.65	49.38	Average Max	H	163	150	54	-4.62	Pass

1GHz-40GHz – 802.11n40 – 5550MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7597.27	50.28	5.17	-7.46	47.99	Peak Max	V	211	296	74	-26.01	Pass
11100.25	52.62	6.09	-3.1	55.61	Peak Max	V	216	34	74	-18.39	Pass
13823.13	54.73	7.17	-1.69	60.21	Peak Max	V	168	149	74	-13.79	Pass
7597.27	44.22	5.17	-7.46	41.93	Average Max	V	211	296	54	-12.07	Pass
11100.25	41.56	6.09	-3.1	44.55	Average Max	V	216	34	54	-9.45	Pass
13823.13	43.25	7.17	-1.69	48.73	Average Max	V	168	149	54	-5.27	Pass

1GHz-40GHz – 802.11n40 – 5670MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7538.01	49.74	5.14	-7.5	47.38	Peak Max	V	212	300	74	-26.62	Pass
11340.58	52.55	6.04	-3.01	55.58	Peak Max	H	217	27	74	-18.42	Pass
13295.09	54.57	7.01	-1.79	59.79	Peak Max	V	167	148	74	-14.21	Pass
7538.01	44.24	5.14	-7.5	41.88	Average Max	V	212	300	54	-12.12	Pass
11340.58	41.16	6.04	-3.01	44.19	Average Max	H	217	27	54	-9.81	Pass
13295.09	42.86	7.01	-1.79	48.08	Average Max	V	167	148	54	-5.92	Pass

1GHz-40GHz – 802.11ac80 – 5210MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7490.42	49.4	5.13	-7.54	46.99	Peak Max	V	209	295	74	-27.01	Pass
10419.05	52.05	6.03	-3.84	54.24	Peak Max	H	219	30	74	-19.76	Pass
13216.71	54.92	6.99	-1.9	60.01	Peak Max	V	166	147	74	-13.99	Pass
7490.42	42.78	5.13	-7.54	40.37	Average Max	V	209	295	54	-13.63	Pass
10419.05	41.01	6.03	-3.84	43.2	Average Max	H	219	30	54	-10.8	Pass
13216.71	43.63	6.99	-1.9	48.72	Average Max	V	166	147	54	-5.28	Pass

1GHz-40GHz – 802.11ac80 – 5290MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7923.90	49.74	5.37	-7.1	48.01	Peak Max	V	206	295	74	-25.99	Pass
10579.80	52.31	6.11	-3.67	54.75	Peak Max	H	217	28	74	-19.25	Pass
13985.60	55.43	7.28	-1.56	61.15	Peak Max	V	169	152	74	-12.85	Pass
7923.90	43.9	5.37	-7.1	42.17	Average Max	V	206	295	54	-11.83	Pass
10579.80	41.23	6.11	-3.67	43.67	Average Max	H	217	28	54	-10.33	Pass
13985.60	44.32	7.28	-1.56	50.04	Average Max	V	169	152	54	-3.96	Pass

1GHz-40GHz – 802.11ac80 – 5530MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7995.36	49.77	5.43	-7.03	48.17	Peak Max	V	213	296	74	-25.83	Pass
11059.08	53.44	6.11	-3.09	56.46	Peak Max	H	220	33	74	-17.54	Pass
13474.74	53.81	7.04	-1.6	59.25	Peak Max	H	165	153	74	-14.75	Pass
7995.36	43.66	5.43	-7.03	42.06	Average Max	V	213	296	54	-11.94	Pass
11059.08	41.74	6.11	-3.09	44.76	Average Max	H	220	33	54	-9.24	Pass
13474.74	42.68	7.04	-1.6	48.12	Average Max	H	165	153	54	-5.88	Pass

1GHz-40GHz – 802.11ac80 – 5610MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol (V/H)	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7150.04	48.78	5.13	-7.75	46.16	Peak Max	V	213	295	74	-27.84	Pass
11219.55	53.02	6.04	-3.13	55.93	Peak Max	H	224	31	74	-18.07	Pass
13072.92	55.18	6.93	-1.76	60.35	Peak Max	V	163	150	74	-13.65	Pass
7150.04	42.72	5.13	-7.75	40.1	Average Max	V	213	295	54	-13.9	Pass
11219.55	41.35	6.04	-3.13	44.26	Average Max	H	224	31	54	-9.74	Pass
13072.92	43.84	6.93	-1.76	49.01	Average Max	V	163	150	54	-4.99	Pass

1GHz-40GHz – 802.11a – 5745MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7155.43	49.41	5.13	-7.75	46.79	Peak Max	H	213	293	74	-27.21	Pass
11490.88	53	6.07	-2.79	56.28	Peak Max	V	218	27	74	-17.72	Pass
13724.06	53.83	7.11	-1.57	59.37	Peak Max	H	162	147	74	-14.63	Pass
7155.43	34.65	5.13	-7.75	32.03	Average Max	H	213	293	54	-21.97	Pass
11490.88	38.2	6.07	-2.79	41.48	Average Max	V	218	27	54	-12.52	Pass
13724.06	39.78	7.11	-1.57	45.32	Average Max	H	162	147	54	-8.68	Pass

1GHz-40GHz - 802.11a- 5785MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7696.03	51.21	5.2	-7.29	49.12	Peak Max	H	205	296	74	-24.88	Pass
11569.98	52.35	6.13	-2.68	55.8	Peak Max	H	215	25	74	-18.2	Pass
13320.23	54.5	7.01	-1.75	59.76	Peak Max	V	165	153	74	-14.24	Pass
7696.03	36.68	5.2	-7.29	34.59	Average Max	H	205	296	54	-19.41	Pass
11569.98	37.91	6.13	-2.68	41.36	Average Max	H	215	25	54	-12.64	Pass
13320.23	39.65	7.01	-1.75	44.91	Average Max	V	165	153	54	-9.09	Pass

1GHz-40GHz - 802.11a - 5825MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7889.60	48.49	5.34	-7.13	46.7	Peak Max	V	209	298	74	-27.3	Pass
11650.49	53.37	6.2	-2.52	57.05	Peak Max	V	216	26	74	-16.95	Pass
13296.70	54.61	7.01	-1.78	59.84	Peak Max	V	169	149	74	-14.16	Pass
7889.60	33.49	5.34	-7.13	31.7	Average Max	V	209	298	54	-22.3	Pass
11650.49	38.72	6.2	-2.52	42.4	Average Max	V	216	26	54	-11.6	Pass
13296.70	39.81	7.01	-1.78	45.04	Average Max	V	169	149	54	-8.96	Pass

1GHz-40GHz – 802.11ac20 – 5745MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7623.85	49.47	5.17	-7.39	47.25	Peak Max	H	210	293	74	-26.75	Pass
11490.52	53.04	6.07	-2.79	56.32	Peak Max	V	215	34	74	-17.68	Pass
13617.23	54.42	7.08	-1.52	59.98	Peak Max	V	164	152	74	-14.02	Pass
7623.85	35.08	5.17	-7.39	32.86	Average Max	H	210	293	54	-21.14	Pass
11490.52	38.15	6.07	-2.79	41.43	Average Max	V	215	34	54	-12.57	Pass
13617.23	40.21	7.08	-1.52	45.77	Average Max	V	164	152	54	-8.23	Pass

1GHz-40GHz - 802.11ac20 – 5785MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7345.27	49.15	5.15	-7.64	46.66	Peak Max	V	207	294	74	-27.34	Pass
11569.92	52.35	6.13	-2.68	55.8	Peak Max	H	222	28	74	-18.2	Pass
13465.53	53.8	7.04	-1.61	59.23	Peak Max	V	161	153	74	-14.77	Pass
7345.27	34.94	5.15	-7.64	32.45	Average Max	V	207	294	54	-21.55	Pass
11569.92	37.53	6.13	-2.68	40.98	Average Max	H	222	28	54	-13.02	Pass
13465.53	39.23	7.04	-1.61	44.66	Average Max	V	161	153	54	-9.34	Pass

1GHz-40GHz - 802.11ac20 - 5825MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7199.98	49.36	5.14	-7.73	46.77	Peak Max	H	205	301	74	-27.23	Pass
11650.48	53.37	6.2	-2.52	57.05	Peak Max	H	224	28	74	-16.95	Pass
13646.86	54.38	7.09	-1.53	59.94	Peak Max	V	168	146	74	-14.06	Pass
7199.98	35.22	5.14	-7.73	32.63	Average Max	H	205	301	54	-21.37	Pass
11650.48	39.24	6.2	-2.52	42.92	Average Max	H	224	28	54	-11.08	Pass
13646.86	39.57	7.09	-1.53	45.13	Average Max	V	168	146	54	-8.87	Pass

1GHz-40GHz – 802.11ac40 – 5755MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7628.23	50.12	5.18	-7.38	47.92	Peak Max	H	205	292	74	-26.08	Pass
11509.75	53.23	6.08	-2.77	56.54	Peak Max	V	223	29	74	-17.46	Pass
13249.19	54.7	7	-1.9	59.8	Peak Max	H	166	145	74	-14.2	Pass
7628.23	35.43	5.18	-7.38	33.23	Average Max	H	205	292	54	-20.77	Pass
11509.75	38.79	6.08	-2.77	42.1	Average Max	V	223	29	54	-11.9	Pass
13249.19	39.89	7	-1.9	44.99	Average Max	H	166	145	54	-9.01	Pass

1GHz-40GHz - 802.11ac40 – 5795MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7225.94	50.1	5.15	-7.72	47.53	Peak Max	H	208	295	74	-26.47	Pass
11590.58	54.18	6.15	-2.65	57.68	Peak Max	V	222	29	74	-16.32	Pass
13869.71	54.07	7.2	-1.66	59.61	Peak Max	H	165	146	74	-14.39	Pass
7225.94	35.61	5.15	-7.72	33.04	Average Max	H	208	295	54	-20.96	Pass
11590.58	40.1	6.15	-2.65	43.6	Average Max	V	222	29	54	-10.4	Pass
13869.71	40.03	7.2	-1.66	45.57	Average Max	H	165	146	54	-8.43	Pass

1GHz-40GHz - 802.11ac80 - 5775MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
7045.25	49.96	5.09	-7.79	47.26	Peak Max	H	206	299	74	-26.74	Pass
11549.65	52.85	6.11	-2.71	56.25	Peak Max	V	220	27	74	-17.75	Pass
13516.93	55.06	7.05	-1.57	60.54	Peak Max	V	165	146	74	-13.46	Pass
7045.25	35.62	5.09	-7.79	32.92	Average Max	H	206	299	54	-21.08	Pass
11549.65	38.48	6.11	-2.71	41.88	Average Max	V	220	27	54	-12.12	Pass
13516.93	40.29	7.05	-1.57	45.77	Average Max	V	165	146	54	-8.23	Pass

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

10.4 Receiver Spurious Emissions

Requirement(s):

Spec	Item	Requirement	Applicable										
RSS GEN 7.3	a)	Radiated emission measurements shall be performed with the receiver antenna connected to the receiver antenna ports. The search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is higher, to at least five times the highest tunable or local oscillator frequency, whichever is higher, without exceeding 40 GHz. Spurious emissions from receivers shall not exceed the radiated emissions limits shown in table 3 <table><thead><tr><th>Frequency range (MHz)</th><th>Field Strength (uV/m)</th></tr></thead><tbody><tr><td>30 – 88</td><td>100</td></tr><tr><td>88 – 216</td><td>150</td></tr><tr><td>216 – 960</td><td>200</td></tr><tr><td>Above 960</td><td>500</td></tr></tbody></table>	Frequency range (MHz)	Field Strength (uV/m)	30 – 88	100	88 – 216	150	216 – 960	200	Above 960	500	☒
		Frequency range (MHz)	Field Strength (uV/m)										
30 – 88	100												
88 – 216	150												
216 – 960	200												
Above 960	500												
Test Setup		Semi Anechoic Chamber Radio Absorbing Material EUT 3m Antenna 0.8m 1-4m Ground Plane Spectrum Analyzer											
Test Setup		Semi Anechoic Chamber Radio Absorbing Material EUT 3m Antenna 1.5m 1-4m Ground Plane Spectrum Analyzer											

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	
Result	☒ Pass ☐ Fail

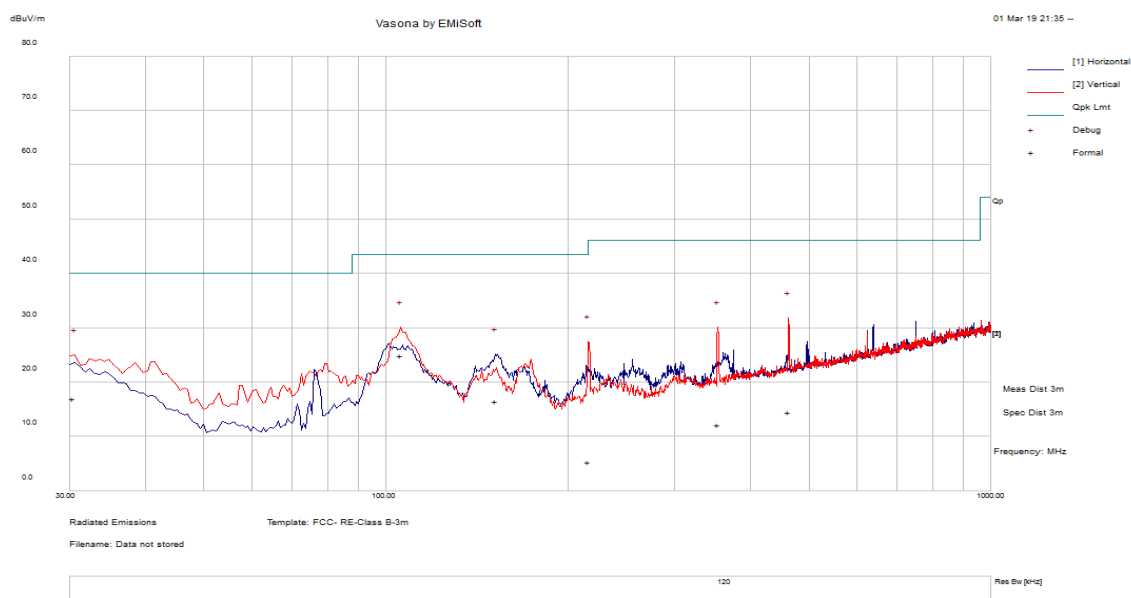
Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by Deon Dai at 10m chamber.

Radiated Emission Test Results (Below 1GHz)

Test specification	below 1GHz				
Environmental Conditions:	Temp (°C):	26	Result	Pass	
	Humidity (%)	47			
	Atmospheric (mbar):	1020			
Mains Power:	120VAC, 60Hz				
Tested by:	Deon Dai				
Test Date:	03/01/2019				
Remarks:	Receiver mode				



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
105.92	37.23	11.92	-24.25	24.91	Quasi Max	V	110	219	43.5	-18.59	Pass
462.82	19.21	14.13	-18.84	14.49	Quasi Max	V	249	137	46	-31.51	Pass
30.39	18.42	11.12	-12.46	17.07	Quasi Max	V	101	112	40	-22.93	Pass
353.65	19.49	13.54	-20.8	12.23	Quasi Max	V	121	173	46	-33.78	Pass
151.88	27.62	12.21	-23.33	16.5	Quasi Max	H	133	253	43.5	-27	Pass
215.97	17.49	12.77	-24.96	5.3	Quasi Max	V	130	91	43.5	-38.2	Pass

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

Radiated Emission Test Results (Above 1GHz)

Receiver mode

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1595.52	46.58	2.43	-6.03	42.98	Peak Max	H	190	305	74	-31.02	Pass
3189.59	44.46	3.42	-1.49	46.39	Peak Max	V	180	178	74	-27.62	Pass
1064.40	57.56	1.94	-7.85	51.65	Peak Max	V	120	201	74	-22.35	Pass
1944.44	48.18	2.7	-2.76	48.12	Peak Max	V	102	208	74	-25.88	Pass
1595.52	29.75	2.43	-6.03	26.16	Average Max	H	190	305	54	-27.84	Pass
3189.59	29.16	3.42	-1.49	31.08	Average Max	V	180	178	54	-22.92	Pass
1064.40	32.88	1.94	-7.85	26.97	Average Max	V	120	201	54	-27.03	Pass
1944.44	29.96	2.7	-2.76	29.9	Average Max	V	102	208	54	-24.1	Pass

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Cycle	Cal Due	In use
Radiated Emissions						
Keysight EXA 44GHz Spectrum Analyzer	N9030B(PXA)	MY57140374	08/20/2018	1 Year	08/20/2019	☒
Bi-Log antenna (30MHz~6GHz)	JB6	A111717	08/12/2018	1 Year	08/12/2019	☒
Horn Antenna (1GHz~26GHz)	3115	100059	01/26/2019	1 Year	01/26/2020	☒
Horn Antenna (26GHz~40GHz)	AH-840	101013	08/28/2018	1 Year	08/28/2019	☒
Pre-Amplifier(0.3MHz-6.5GHz)	LPA-6-30	11170602	02/06/2019	1 Year	02/06/2020	☒
Pre-Amplifier (1-26.5GHz)	8449B	3008A00715	08/16/2018	1 Year	08/16/2019	☒
Pre-Amp (10MHz~50GHz)	RAMP00M50GA	17032300047	02/10/2019	1 Year	02/10/2020	☒

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 Equipment: EN45011: EN ISO/IEC 17065
		Electromagnetic Compatibility: EN45011 – EN ISO/IEC 17065
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 Radiocommunications: 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