

RF TEST REPORT



Report No.: FCC_RF_SL15080301-ZBR-026_DTS_Rev. 3.0

Supersede Report No.: FCC_RF_SL15080301-ZBR-026_DTS_Rev. 2.0

Applicant	:	Zebra Technologies Corporation
Host Product Name	:	Retransfer Card Printer
Host Model No.	:	ZXP Sereis 9
Wifi Module Model Name	:	802.11 b/g module
Wifi Module Model Number	:	W2SW0001
Test Standard	:	47 CFR 15.247 RSS 247 Iss.1 : May 2015
Test Method	:	ANSI C63.4: 2014 RSS-Gen Issue 4, Nov 2014 558074 D01 DTS Meas Guidance v03r02
FCC ID	:	I28-W2WLAN11G
IC ID	:	3798B-W2WLAN11G
Dates of test	:	08/12/2015
Issue Date	:	12/02/2015
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:

Teody Manansala	Nima Molaei
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:
SIEMIC Laboratories
775 Montague Expressway, Milpitas, 95035 CA



775 Montague Expressway, Milpitas, CA 95035, USA • Phone: (+1) 408 526 1188 • Facsimile (+1) 408 526 1088

Visit us at: www.siemic.com; Follow us at:



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	EMC, RF/Wireless, Telecom, Safety
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 & R&TTE Directive
Japan	MIC (RCB 208)	RF, Telecom
Hong Kong	OFTA (US002)	RF, Telecom

CONTENTS

1	REPORT REVISION HISTORY.....	4
2	EXECUTIVE SUMMARY	5
3	CUSTOMER INFORMATION	5
4	TEST SITE INFORMATION.....	5
5	MODIFICATION.....	5
6	EUT INFORMATION.....	6
6.1	EUT Description	6
6.2	Radio Description	6
6.3	EUT Photos-External	7
6.4	EUT Photos-Internal	8
6.5	EUT Test Setup Photos.....	11
7	SUPPORTING EQUIPMENT/SOFTWARE AND CABLING DESCRIPTION	12
7.1	Supporting Equipment.....	12
7.2	Cabling Description.....	12
7.3	Test Software Description.....	12
8	TEST SUMMARY	13
9	MEASUREMENT UNCERTAINTY	14
10	MEASUREMENTS, EXAMINATION AND DERIVED RESULTS.....	15
10.1	Radiated Emissions below 1GHz.....	15
10.2	Radiated Spurious Emissions above 1GHz	18
ANNEX A. TEST INSTRUMENT		23
ANNEX B. SIEMIC ACCREDITATION		24

1 Report Revision History

Report No.	Report Version	Description	Issue Date
FCC_RF_SL15080301-ZBR-026_DTS	None	Original	09/28/2015
FCC_RF_SL15080301-ZBR-026_DTS_Rev. 1.0	1.0	Change model name	10/07/2015
FCC_RF_SL15080301-ZBR-026_DTS_Rev. 2.0	2.0	Add wifi module name and model number	10/14/2015
		Replace WLAN Radio Board picture	
FCC_RF_SL15080301-ZBR-026_DTS_Rev. 3.0	3.0	Add remarks in the test summary table of DTS band requirement	12/02/2015

2 Executive Summary

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

Company: Zebra Technologies Corporation
Product: 802.11 b/g module
Model: W2SW0001

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	:	Zebra Technologies Corporation
Applicant Address	:	333 Corporate Woods, Vernon Hills, IL, 60061, USA
Manufacturer Name	:	Zebra Technologies Corporation
Manufacturer Address	:	333 Corporate Woods, Vernon Hills, IL, 60061, USA

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

Host Product Name	:	Retransfer Card Printer
Host Model No.	:	ZXP Series 9
Trade Name	:	Zebra
Serial No.	:	N/A
Wifi Module Model Name	:	802.11 b/g module
Wifi Module Model Number	:	W2SW0001
Input Power	:	100-240VAC, 50/60Hz, 4A
Power Supply Manufacturer	:	N/A
Power Adapter SN	:	N/A
Radio Hardware version (WLAN)	:	V 1.7.4
Radio Software version (WLAN)	:	V 9.70.20
Test Software version	:	5.00.00
RF power setting in TEST SW	:	802.11b: 2412MHz:16.0dBm; 2437MHz:16.0dBm; 2462MHz: 16.0dBm 802.11g: 2412MHz:16.0dBm; 2437MHz:16.0dBm; 2462MHz: 16dBm
Date of EUT received	:	08/01/2015
Equipment Class/ Category	:	DTS
Port/Connectors	:	Ethernet, USB

6.2 Radio Description

Radio Type	802.11b	802.11g
Operating Frequency	2412-2462MHz	2412-2462MHz
Modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (BPSK, QPSK, 16QAM, 64QAM)
Channel Spacing	5MHz	5MHz
Number of Channels	11	11
Antenna Type	Monopole Antenna	
Antenna Gain (Peak)	2dBi (2.4GHz)	
Antenna Connector Type	Reverse SMA	

6.3 EUT Photos-External



EUT – Front View



EUT – Rear View



EUT – Left View



EUT – Right View



EUT – Top View

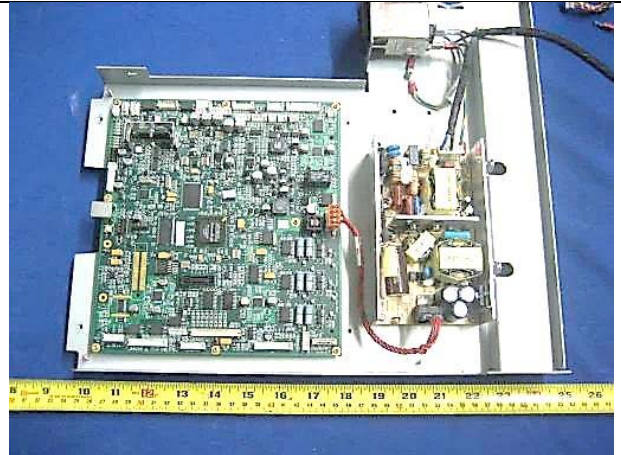


EUT – Bottom View

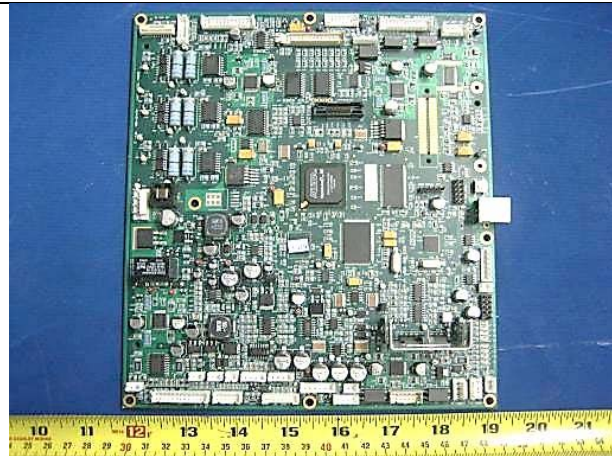
EUT Photos-Internal



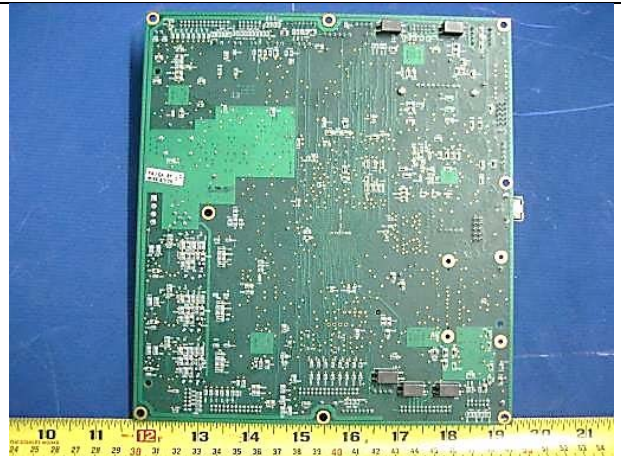
EUT Cover Off View 1



EUT Cover Off View 2



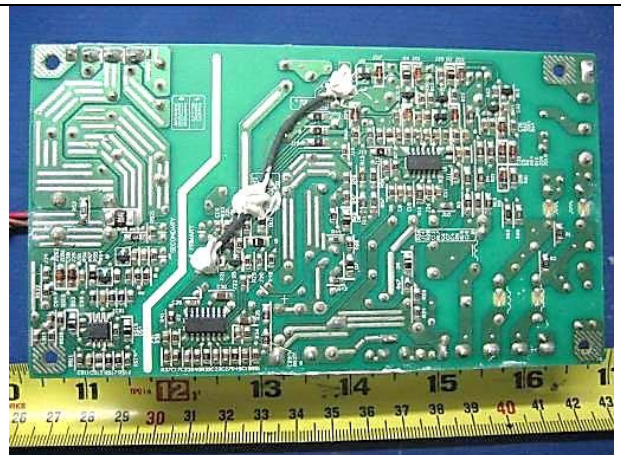
PCBA1 Top View



PCBA1 Bottom View



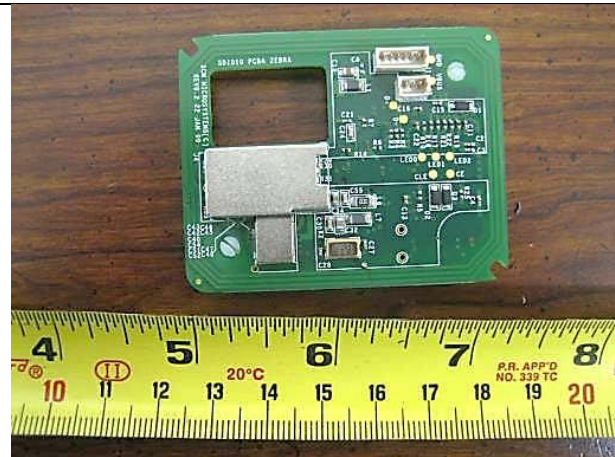
PCBA2 Top View



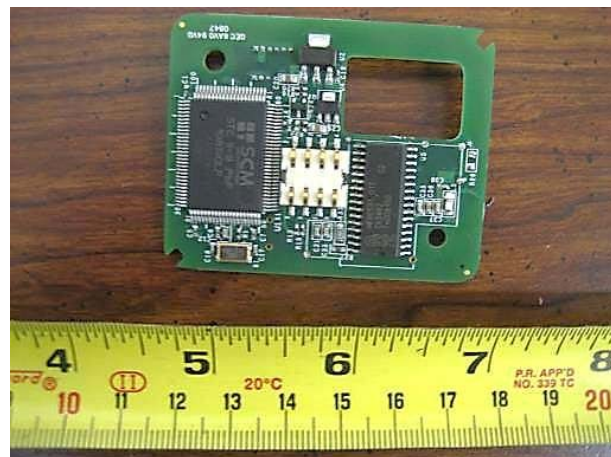
PCBA2 Bottom View



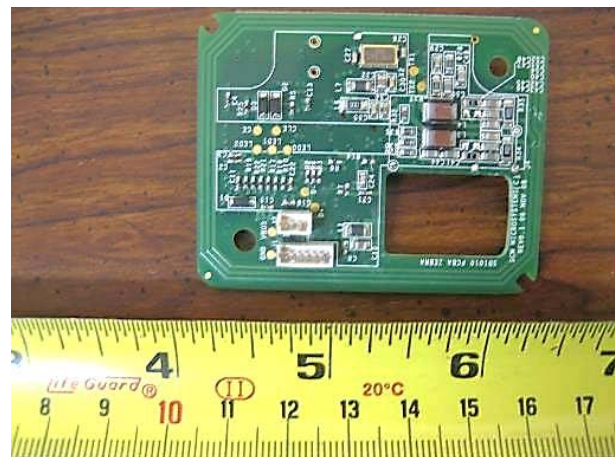
PCBA6 with Shielding Top View



PCBA6 with Shielding Bottom View



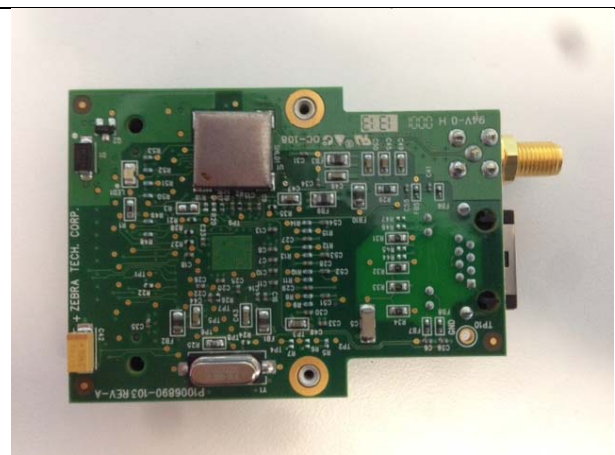
PCBA6 without Shielding Top View



PCBA6 without Shielding Bottom View 1



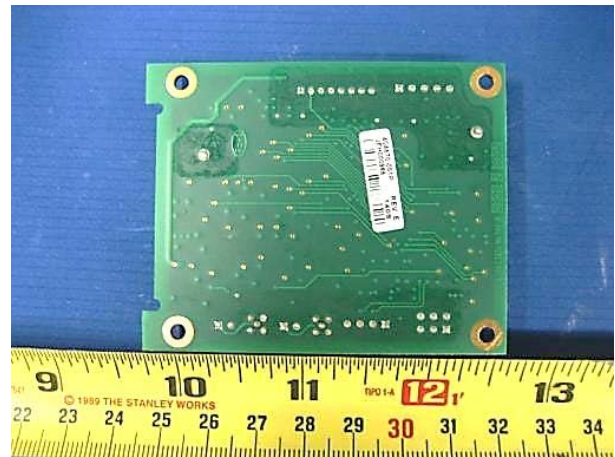
WLAN Radio Board Top View



WLAN Radio Board Bottom View



RFID Radio Board Top View



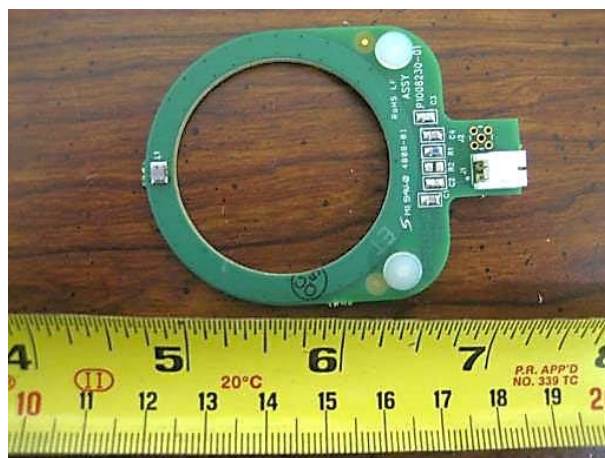
RFID Radio Board Bottom View



Antenna 1 Top View



Antenna 1 Bottom View

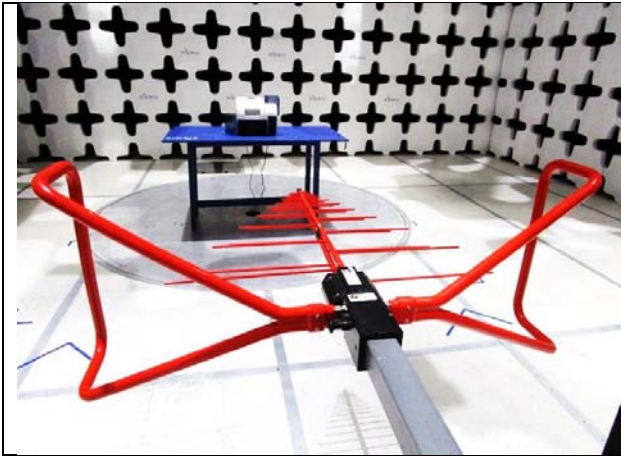


Antenna 2 Top View

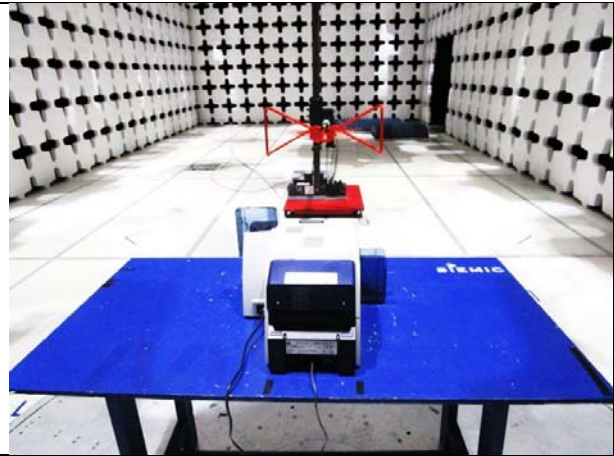


Antenna 2 Bottom View

6.4 EUT Test Setup Photos



Radiated Emissions (<1GHz) – Front View



Radiated Emissions (<1GHz) – Rear View



Radiated Emissions (>1GHz) – Front View



Radiated Emissions (>1GHz) – Rear View

7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Item	Supporting Equipment Description	Model	Serial Number	Manufacturer	Note
1	Laptop	Thinkpad	R9-NP0D4 12/04	Lenovo	-

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	I/O	Laptop	USB	1m	No	-

7.3 Test Software Description

Test Item	Software	Description
RF Testing	ZXP Toolbox	Load firmware to printer for compliance testing

8 Test Summary

Test Item	Test standard		Test Method/Procedure		Pass / Fail
Restricted Band of Operation	FCC	15.205	FCC	ANSI C63.10:2013	☒ Pass
	IC	RSS Gen 8.10	IC	558074 D01 DTS Meas Guidance v03r02	☐ N/A
AC Conducted Emissions	FCC	15.207(a)	FCC	ANSI C63.10:2013	☐ Pass
	IC	RSS Gen 8.8	IC	RSS Gen Issue 4: 2014	☒ N/A

DTS band Requirement

Test Item	Test standard		Test Method/Procedure		Pass / Fail
99% Occupied Bandwidth	FCC	15.247(a)(1)	FCC	-	☐ Pass
	IC	RSS Gen 6.6	IC	RSS Gen Issue 4: 2014 -	☒ N/A
6dB Bandwidth	FCC	15.247(a)(2)	FCC	558074 D01 DTS Meas Guidance v03r01	☐ Pass
	IC	RSS247 (5.2.1)	IC		☒ N/A
Band Edge and Radiated Spurious Emissions	FCC	15.247(d)	FCC	ANSI C63.10:2013	☒ Pass
	IC	RSS247 (5.5)	IC	558074 D01 DTS Meas Guidance v03r02	☐ N/A
Output Power	FCC	15.247(b)	FCC	558074 D01 DTS Meas Guidance v03r02	☐ Pass
	IC	RSS247 (5.4.4)	IC		☒ N/A
Receiver Spurious Emissions	IC	RSS Gen (4.8)	IC	RSS Gen Issue 4: 2014	☐ Pass ☒ N/A
Antenna Gain > 6 dBi	FCC	15.247(e)	FCC	-	☐ Pass
	IC	-	IC	-	☒ N/A
Power Spectral Density	FCC	15.247(e)	FCC	558074 D01 DTS Meas Guidance v03r02	☐ Pass
	IC	RSS247 (5.2.2)	IC		☒ N/A
RF Exposure requirement	FCC	15.247(i)	FCC	-	☐ Pass
	IC	RSS Gen(5.5)	IC	RSS Gen Issue 4: 2014	☒ N/A
Remark	- All measurement uncertainties do not take into consideration for all presented test results. - 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. - N/A: Please refer to original radio report SL11020403-ZBR-006(15.247)_FCC,IC Rev1.0 , FCC ID - I28-W2WLAN11G , IC ID 3798B- W2WLAN11G				

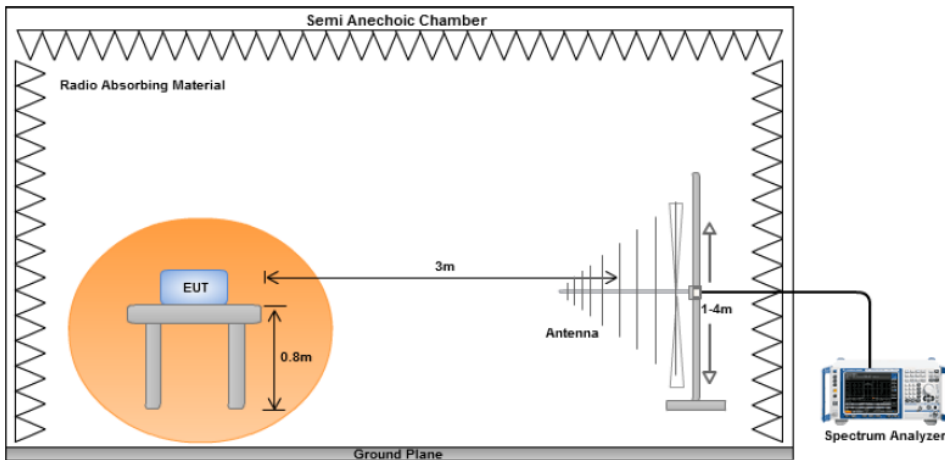
9 Measurement Uncertainty

Emissions			
Test Item	Frequency Range	Description	Uncertainty
Band Edge and 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)	+5.6dB/-4.5dB
Band Edge and 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)	+4.3dB/-4.1dB

10 Measurements, Examination and Derived Results

10.1 Radiated Emissions below 1GHz

Requirement(s):

Spec	Item	Requirement	Applicable										
47CFR§15.247(d), RSS210(A8.5)	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	☒										
		<table><tr><th>Frequency range (MHz)</th><th>Field Strength (uV/m)</th></tr><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></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											

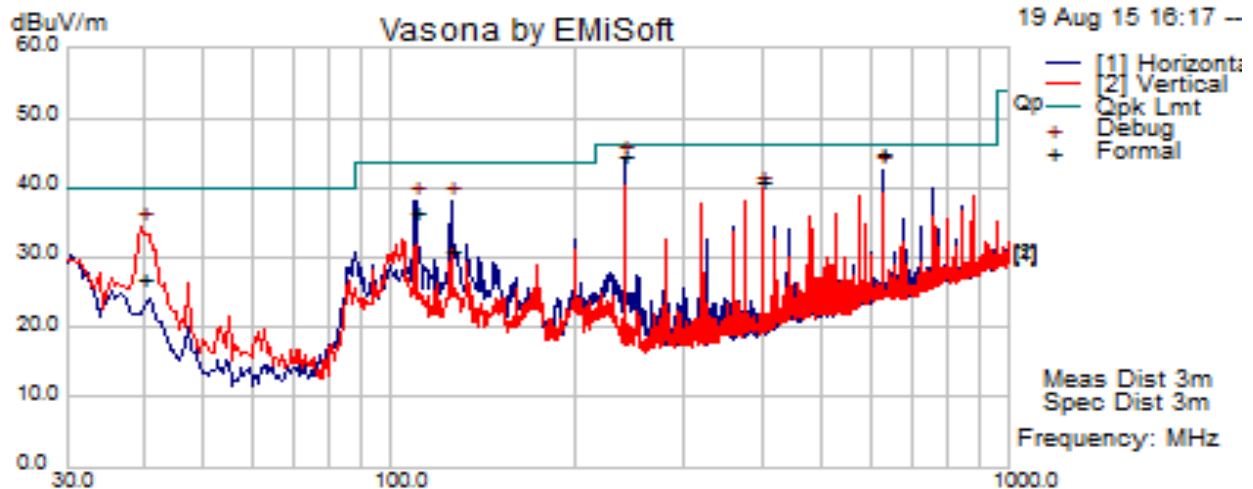
Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

\

Radiated Emission Test Results (Below 1GHz)

Test specification	below 1GHz			
Environmental Conditions:	Temp (°C):	26.1	Result	Pass
	Humidity (%)	47.5		
	Atmospheric (mbar):	1020		
Mains Power:	120VAC, 60Hz			
Tested by:	Teody Manansala			
Test Date:	August 19, 2015			
Remarks:	2.4GHz 11b 2437MHz			

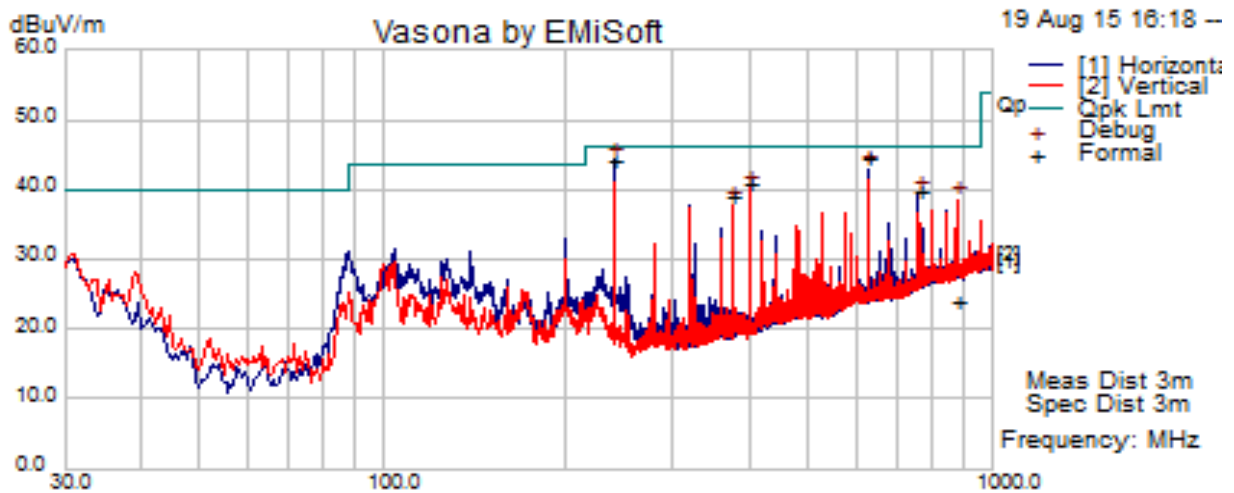


Quasi Max Measurement

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
239.99	68.94	3.07	-27.55	44.45	Quasi Max	H	124.00	112.00	46.02	-1.57	Pass
624.99	59.54	4.88	-19.52	44.90	Quasi Max	H	137.00	233.00	46.02	-1.12	Pass
109.95	60.40	2.00	-26.11	36.29	Quasi Max	H	155.00	323.00	43.52	-7.23	Pass
125.70	53.98	2.19	-25.26	30.91	Quasi Max	V	260.00	46.00	43.52	-12.61	Pass
39.72	48.32	1.26	-22.83	26.74	Quasi Max	V	137.00	62.00	40.00	-13.26	Pass
400.00	60.25	3.90	-23.47	40.68	Quasi Max	V	115.00	10.00	46.02	-5.34	Pass

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

Test specification	below 1GHz			
Environmental Conditions:	Temp (°C):	26.1	Result	Pass
	Humidity (%)	47.5		
	Atmospheric (mbar):	1020		
Mains Power:	120VAC, 60Hz			
Tested by:	Teody Manansala			
Test Date:	August 19, 2015			
Remarks:	2.4GHz 11g 2437MHz			



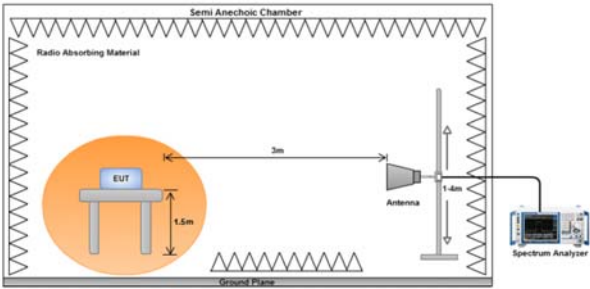
Quasi Max Measurement

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
240.00	68.56	3.07	-27.55	44.08	Quasi Max	H	123.00	139.00	46.02	-1.94	Pass
624.99	59.07	4.88	-19.52	44.43	Quasi Max	H	128.00	234.00	46.02	-1.59	Pass
400.00	60.36	3.90	-23.47	40.79	Quasi Max	V	111.00	347.00	46.02	-5.23	Pass
755.98	52.55	5.49	-18.27	39.76	Quasi Max	V	119.00	109.00	46.02	-6.26	Pass
875.73	35.08	5.87	-16.88	24.07	Quasi Max	V	191.00	156.00	46.02	-21.95	Pass
375.01	58.88	3.77	-23.80	38.86	Quasi Max	V	134.00	348.00	46.02	-7.16	Pass

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

10.2 Radiated Spurious Emissions above 1GHz

Requirement(s):

Spec	Item	Requirement	Applicable
47CFR§15.247(d), RSS210(A8.5)	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	- 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.		
Test Date	08/12/2015	Environmental condition	Temperature 23°C Relative Humidity 42% Atmospheric Pressure 1021mbar
Remark	The EUT was scanned up to 25GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case. For spurious emission measurement, if the peak emission is below 54 dBuV/m average limit, the average value is not be measured. Both horizontal and vertical polarization have been verified.		
Result	☒ Pass ☐ Fail		

Equipment Setting

TEST	RBW	VBW	SPAN	Detector	SWEEP	Trace	NOTES
Radiated Spurious Emission	1MHz	3MHz	1GHz - 18 GHz	Peak	Auto	Max hold	PK Measurement
Radiated Spurious Emission	1MHz	10Hz	1GHz - 18 GHz	Peak	Auto	Max hold	Ave Measurement

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

Radiated Spurious Emission Test Results (Above 1GHz)

Above 1GHz – 802.11b – 2412MHz

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
1016.78	44.89	2.45	9.65	56.99	Peak Max	H	226.00	166.00	74.00	-17.01	Pass
3980.94	39.31	5.82	12.16	57.29	Peak Max	H	259.00	156.00	74.00	-16.71	Pass
17419.32	39.61	12.84	10.16	62.60	Peak Max	H	181.00	298.00	74.00	-11.40	Pass
9651.58	40.35	12.18	7.41	59.94	Peak Max	V	215.00	276.00	74.00	-14.06	Pass
1016.78	31.94	2.45	9.65	44.04	Average Max	H	226.00	166.00	54.00	-9.96	Pass
3980.94	26.42	5.82	12.16	44.40	Average Max	H	259.00	0.00	54.00	-9.60	Pass
17419.32	26.67	12.84	10.16	49.66	Average Max	H	181.00	298.00	54.00	-4.34	Pass
9651.58	27.67	12.18	7.41	47.26	Average Max	V	215.00	276.00	54.00	-6.74	Pass

Above 1GHz – 802.11b – 2437MHz

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
4067.10	40.26	5.89	11.93	58.08	Peak Max	H	151.00	119.00	74.00	-15.92	Pass
1001.67	45.16	2.44	9.68	57.28	Peak Max	H	159.00	352.00	74.00	-16.72	Pass
17708.97	40.42	13.00	10.61	64.03	Peak Max	V	187.00	195.00	74.00	-9.97	Pass
14748.11	42.53	13.54	7.76	63.83	Peak Max	H	173.00	166.00	74.00	-10.17	Pass
4067.10	26.98	5.89	11.93	44.80	Average Max	H	151.00	119.00	54.00	-9.20	Pass
1001.67	32.24	2.44	9.68	44.36	Average Max	H	159.00	352.00	54.00	-9.64	Pass
17708.97	27.21	13.00	10.61	50.83	Average Max	V	187.00	195.00	54.00	-3.17	Pass
14748.11	29.12	13.54	7.76	50.41	Average Max	H	173.00	166.00	54.00	-3.59	Pass

Above 1GHz – 802.11b – 2462MHz

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
1000.23	44.75	2.44	9.68	56.87	Peak Max	H	118.00	318.00	74.00	-17.13	Pass
2106.02	43.15	3.74	11.14	58.03	Peak Max	V	151.00	319.00	74.00	-15.97	Pass
4135.76	40.10	5.95	11.63	57.68	Peak Max	V	142.00	288.00	74.00	-16.32	Pass
17897.61	39.73	13.00	10.80	63.54	Peak Max	H	198.00	64.00	74.00	-10.46	Pass
1000.23	32.39	2.44	9.68	44.51	Average Max	H	118.00	318.00	54.00	-9.49	Pass
2106.02	30.11	3.74	11.14	44.99	Average Max	V	151.00	319.00	54.00	-9.01	Pass
4135.76	27.10	5.95	11.63	44.68	Average Max	V	142.00	288.00	54.00	-9.32	Pass
17897.61	26.90	13.00	10.80	50.71	Average Max	H	198.00	64.00	54.00	-3.29	Pass

Above 1GHz – 802.11g – 2412MHz

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
1016.96	45.29	2.45	9.65	57.39	Peak Max	V	290.00	238.00	74.00	-16.61	Pass
4033.32	40.10	5.86	12.08	58.04	Peak Max	H	167.00	343.00	74.00	-15.96	Pass
17558.46	39.50	13.00	10.46	62.96	Peak Max	H	262.00	333.00	74.00	-11.04	Pass
14892.52	41.97	13.79	7.38	63.15	Peak Max	V	106.00	154.00	74.00	-10.85	Pass
1016.96	32.05	2.45	9.65	44.15	Average Max	V	290.00	238.00	54.00	-9.85	Pass
4033.32	27.00	5.86	12.08	44.94	Average Max	H	167.00	343.00	54.00	-9.06	Pass
17558.46	26.56	13.00	10.46	50.02	Average Max	H	262.00	333.00	54.00	-3.98	Pass
14892.52	29.38	13.79	7.38	50.55	Average Max	V	106.00	154.00	54.00	-3.45	Pass

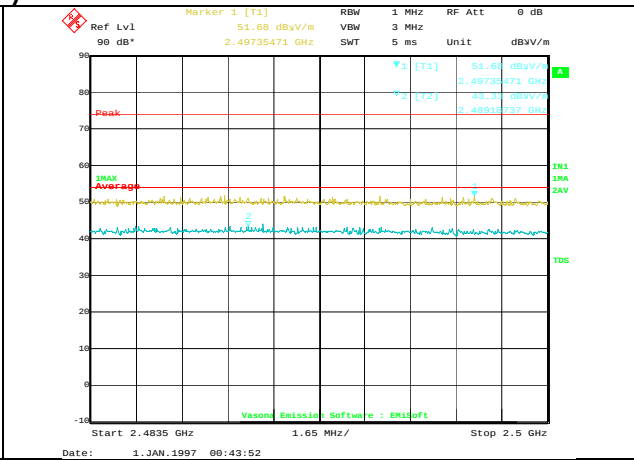
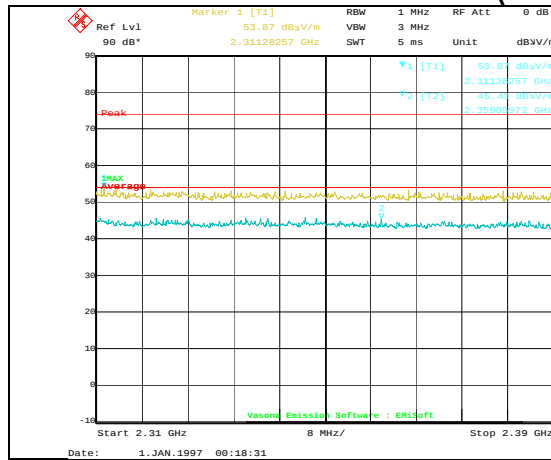
Above 1GHz – 802.11g – 2437MHz

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
1000.49	45.29	2.44	9.68	57.41	Peak Max	V	281.00	204.00	74.00	-16.59	Pass
17709.71	40.15	13.00	10.61	63.76	Peak Max	H	272.00	150.00	74.00	-10.24	Pass
4013.60	40.33	5.84	12.17	58.34	Peak Max	V	100.00	250.00	74.00	-15.66	Pass
14507.44	42.49	13.11	8.40	64.00	Peak Max	H	102.00	187.00	74.00	-10.00	Pass
1000.49	32.32	2.44	9.68	44.43	Average Max	V	281.00	204.00	54.00	-9.57	Pass
17709.71	27.22	13.00	10.61	50.83	Average Max	H	272.00	150.00	54.00	-3.17	Pass
4013.60	26.98	5.84	12.17	44.99	Average Max	V	100.00	250.00	54.00	-9.01	Pass
14507.44	29.15	13.11	8.40	50.66	Average Max	H	102.00	187.00	54.00	-3.34	Pass

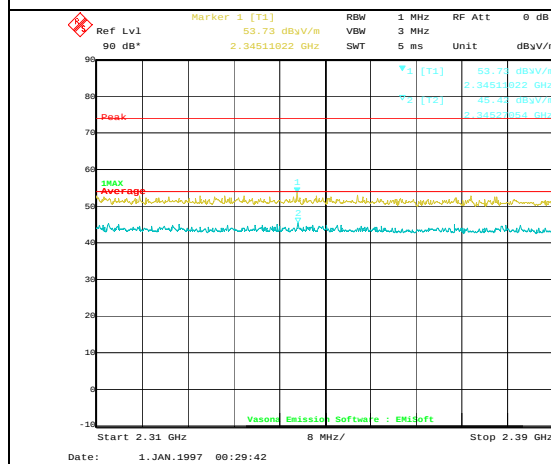
Above 1GHz – 802.11g – 2462MHz

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
1018.02	45.03	2.45	9.65	57.13	Peak Max	H	105.00	52.00	74.00	-16.87	Pass
3025.63	39.82	5.50	10.04	55.37	Peak Max	H	273.00	211.00	74.00	-18.63	Pass
4100.47	39.87	5.92	11.79	57.57	Peak Max	V	154.00	71.00	74.00	-16.43	Pass
2006.04	41.87	3.35	11.46	56.69	Peak Max	H	212.00	0.00	74.00	-17.31	Pass
1018.02	32.11	2.45	9.65	44.21	Average Max	H	105.00	52.00	54.00	-9.79	Pass
3025.63	27.10	5.50	10.04	42.65	Average Max	H	273.00	211.00	54.00	-11.35	Pass
4100.47	26.93	5.92	11.79	44.63	Average Max	V	154.00	71.00	54.00	-9.37	Pass
2006.04	29.28	3.35	11.46	44.09	Average Max	H	212.00	0.00	54.00	-9.91	Pass

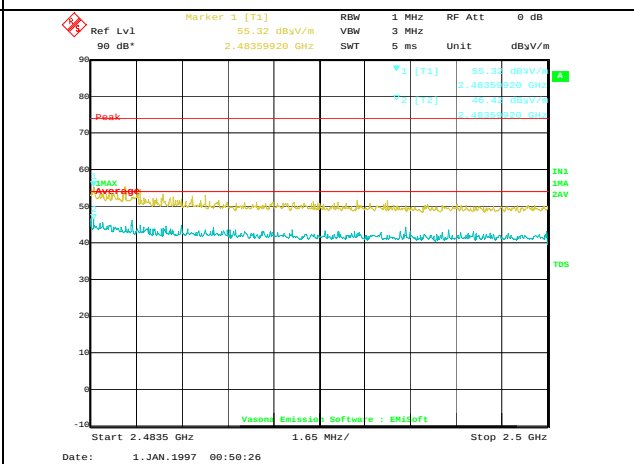
Radiated Restrcted Band Test Results (Above 1GHz)



Lower Band (802.11b-2412MHz)



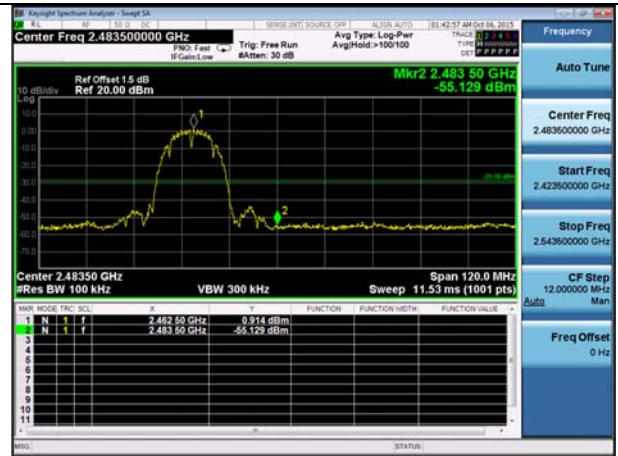
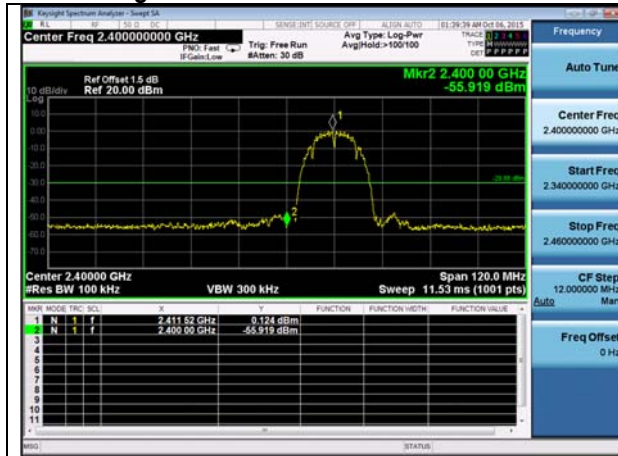
Higher Band (802.11b-2462MHz)



Lower Band (802.11g-2412MHz)

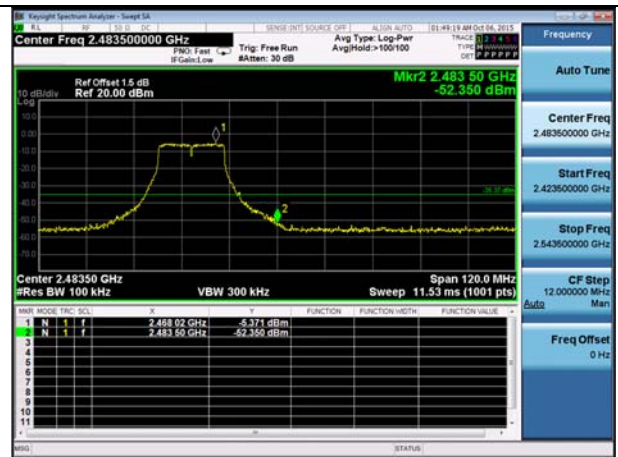
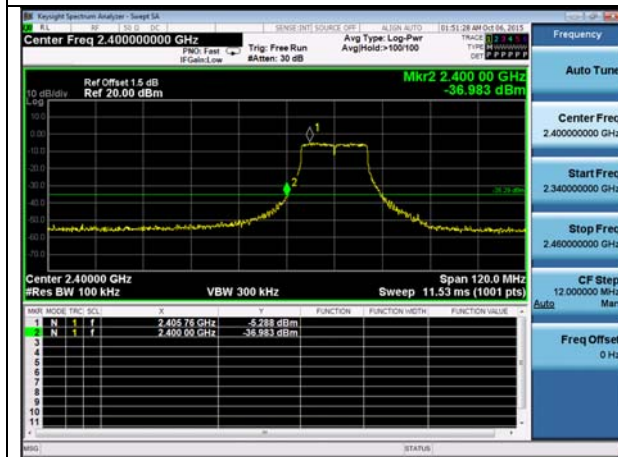
Higher Band (802.11g-2462MHz)

Band Edge Test Plot



Lower Band (802.11b-2412MHz)

Higher Band (802.11b-2462MHz)



Lower Band (802.11g-2412MHz)

Higher Band (802.11g-2462MHz)

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Cycle	Cal Due	In use
Radiated Emissions						
R & S Receiver	ESL6	100178	05/27/2015	1 Year	05/27/2016	☒
R & S Receiver	ESIB 40	100179	05/24/2015	1 Year	05/24/2016	☒
Bi-Log antenna (30MHz~2GHz)	JB1	A030702	08/12/2014	1 Year	08/20/2016	☒
Horn Antenna (1-26.5GHz)	3115	10SL0059	08/11/2015	1 Year	08/11/2016	☒
Horn Antenna (18-40 GHz)	AH-840	101013	08/11/2014	1 Year	02/19/2016	☐
Pre-Amplifier (100KHz-7GHz)	LPA-6-30	11140711	02/19/2015	1 Year	02/19/2016	☒
Microwave Preamplifier (18-40 GHz)	PA-840	181251	02/19/2015	1 Year	02/19/2016	☒
3 Meters SAC	3M	N/A	03/04/2015	1 Year	03/04/2016	☒
10 Meters SAC	10M	N/A	09/05/2015	1 Year	09/05/2016	☒
Spectrum Analyzer	N9020A	MY50210206	08/20/2015	1 Year	08/20/2016	☒

Test Software Version

Test Item	Vendor	Software	Version
Radiated Emission	EMISoft	EMISoft Vasona	V5.0

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