RF TEST REPORT

SIEMIC
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Report No.: **SL13070201-EQU-001-BT_Rev1.0**
Supersede Report No.: **SL13070201-EQU-001-BT**

Applicant	:	Equinox Payments LLC
Product Name	:	Electronic POS Terminal
Model No.	:	CFD, AIO
Test Standard	:	FCC 15.247: 2012 RSS 210 Issue8: 2010
Test Method	:	ANSI C63.4:2009 FCC Public Notice DA 00-705
FCC ID	:	NVA00008
IC ID	:	N/A
Dates of test	:	Agust 6th - August 10th , 2013
Issue Date	:	9/11/2013
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:	
Nima Molaei	David Zhang
Test Engineer	Engineer Reviewer

Issued By:

SIEMIC Laboratories
775 Montague Expressway, Milpitas, 95035 CA

ilac-MRA
ACCREDITED
TESTING CERT # 2742-01

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Test result presented in this test report is applicable to the representative sample only.

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

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
HongKong	OFTA (US002)	RF , Telecom

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1 Report Revision History

Report No.	Report Version	Description	Issue Date
SL13070201-EQU-001-BT	Original	-	09/04/2013
SL13070201-EQU-001-BT_Rev1.0	1.0	Correct model number and channel separation results	09/11/2013

2 Executive Summary

The purpose of this test programme was to demonstrate compliance of the FCC, IC certified radio module, Electronic POS Terminal (FCC ID: NVA00008, IC ID: N/A), from Equinox Payments LLC, and Model: CFD, AIO, to be installed inside portable host unit of Abbott POC DragonFly Hand-held Blood Analyzer, against the current Stipulated Standards.

3 Customer information

Applicant Name	:	Equinox Payments LLC
Applicant Address	:	8901 E Raintree Dr., Suit 400, Scottsdale, AZ 85260
Manufacturer Name	:	Equinox Payments LLC
Manufacturer Address	:	8901 E Raintree Dr., Suit 400, Scottsdale, AZ 85260

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	:	Electronic POS Terminal
Model No.	:	CFD, AIO
Trade Name	:	Equinox
Serial No.	:	B0232700061, B02133100003
Input Power	:	9VDC
Power Adapter Manu/Model	:	Equinox/MC28-09V 3.0A
Power Adapter SN	:	870082-001E
Hardware version	:	-
Software version	:	-
Date of EUT received	:	August 4th, 2013
Equipment Class/ Category	:	DXX, DSS
Clock Frequencies	:	26 MHz
Port/Connectors	:	-
Difference Between two models	:	• Slightly different dimensions for AIO to accommodate integral printer • AIO has printing capability and CFD does not have printing capability

6.2 Radio Description

Spec for Radio -

Radio Type	Normal Mode	EDR Mode
Operating Frequency	2402-2480 MHz	2402-2480 MHz
Modulation	GFSK	8-DPSK
Channel Spacing	1MHz	1MHz
Number of Channels	79 Ch.	79 Ch.
Antenna Type	Embedded antenna- Ethertronics	
Antenna Gain	Embedded antenna: 1.39 dBi (2.4GHz)	
Antenna Connector Type	Surface Mount	

6.3 EUT test modes/configuration Description

Mode	Note
Normal	1 Mbps, PN9
EDR	3 Mbps, PN9
Note:	

Test Item	Operating mode	Tested antenna port	Test frequencies (MHz)
Channel Separation	Normal and EDR Mode	-	2402-2480
Occupied Bandwidth	Normal and EDR Mode	-	2402-2480
Bandwidth	Normal and EDR Mode	-	2402-2480
Number of Hopping Channels	Normal and EDR Mode	-	2402-2480
Band Edge and Radiated Spurious Emissions	Normal and EDR Mode	-	2402-2480
Time of Occupancy	Normal and EDR Mode	-	2402-2480
Output Power	Normal and EDR Mode	-	2402-2480
Receiver Spurious Emissions	Normal and EDR Mode	-	2402-2480

6.4 EUT Photos – External for CFD model

Top

Bottom

Front

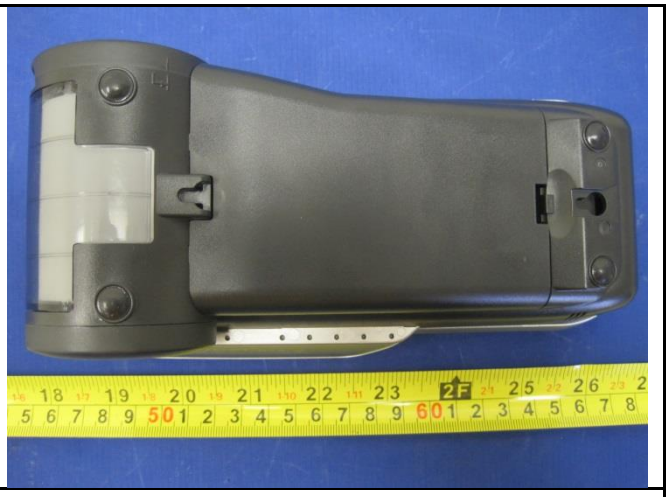
Rear

Left Side

Right Side

6.5 EUT Photos – External for AIO model

Top



Bottom

Front

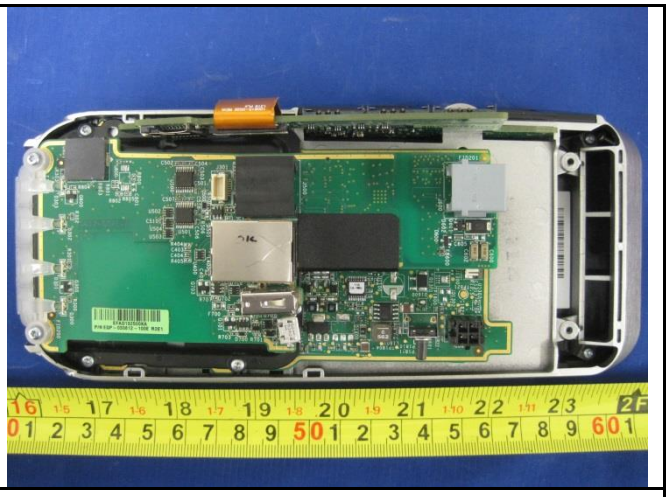
Rear

Left Side

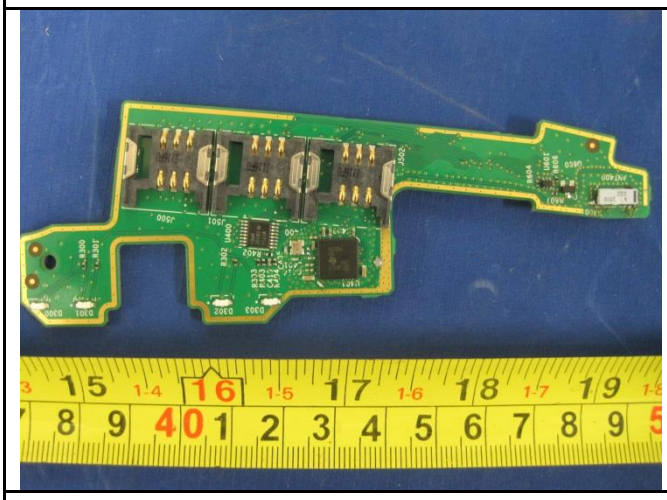
Right Side

6.6 EUT Photos – Internal for CFD model

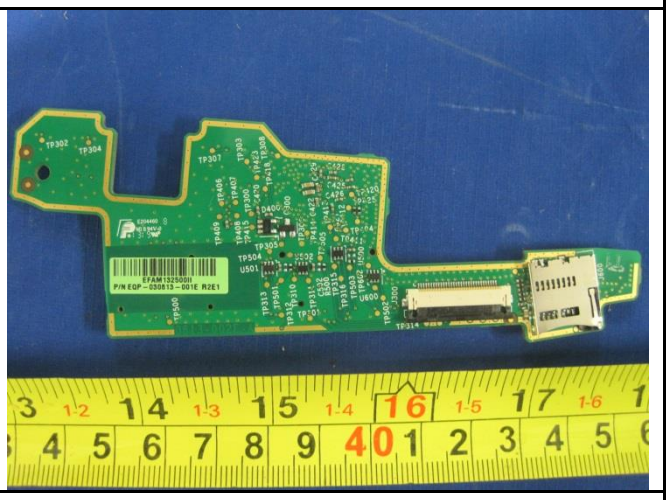
EUT - Cover off



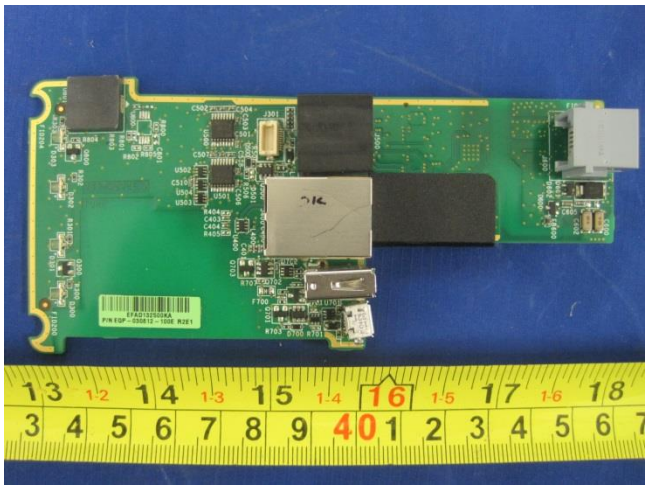
EUT- Mainborad without Cover



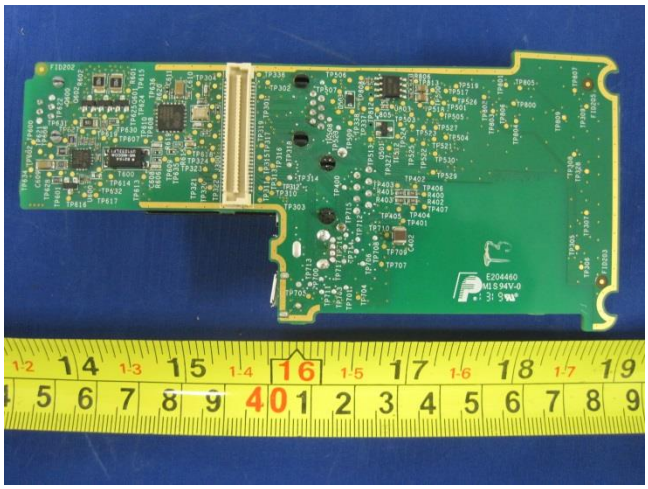
Radio Module – top view



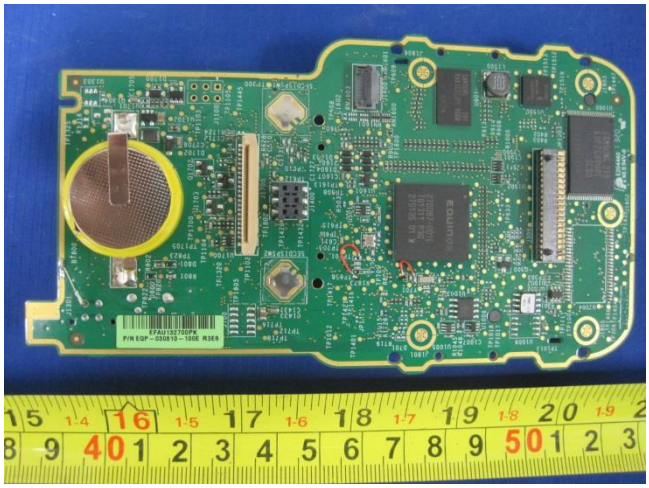
Radio Module – bottom view



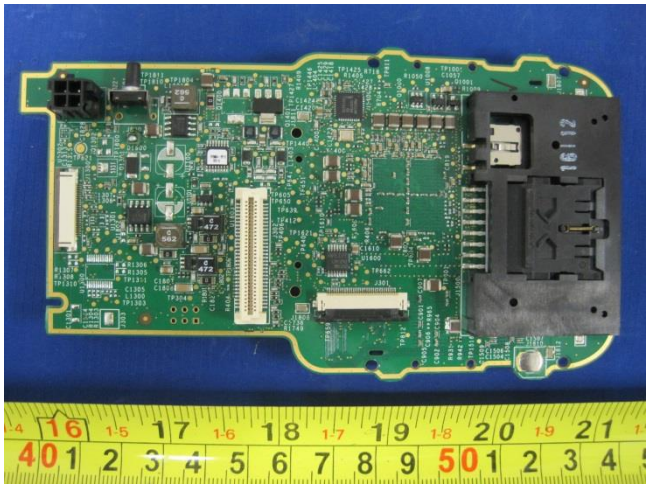
PCB 1 – Top view



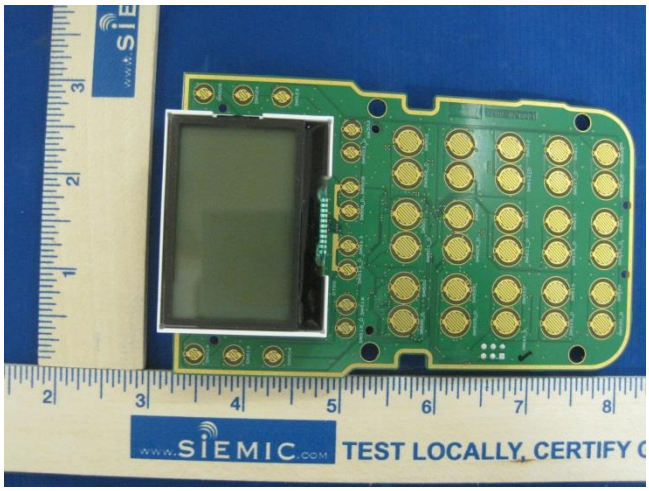
PCB 1 – Bottom view



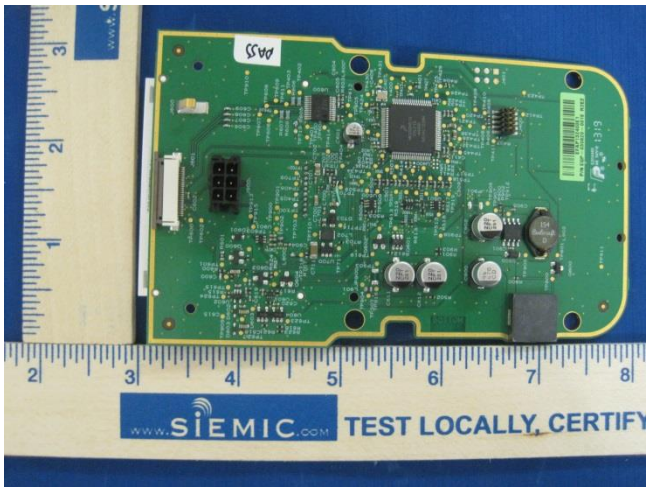
PCB 2 – Top view



PCB 2 – Bottom view



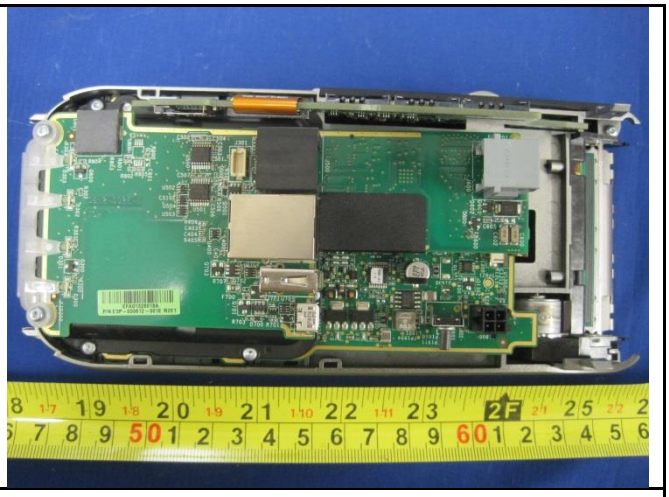
Keypad Mainboard Top View



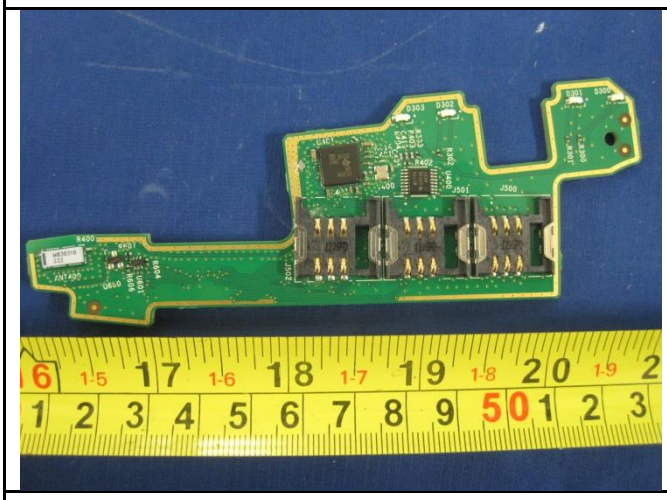
Keypad Mainboard Bottom View

6.7 EUT Photos – Internal for AIO model

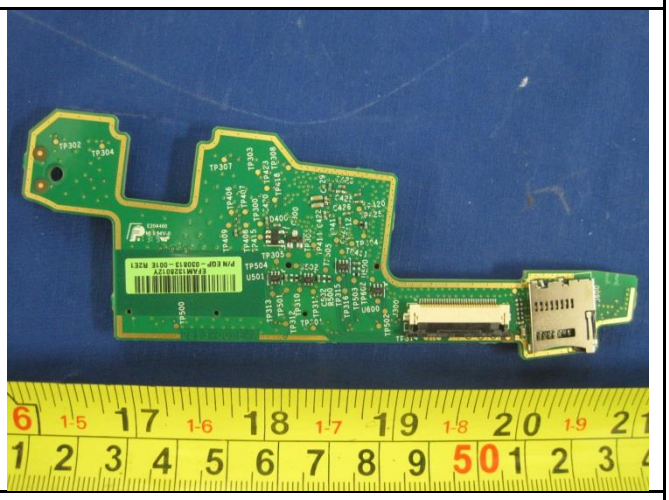
EUT - Cover off



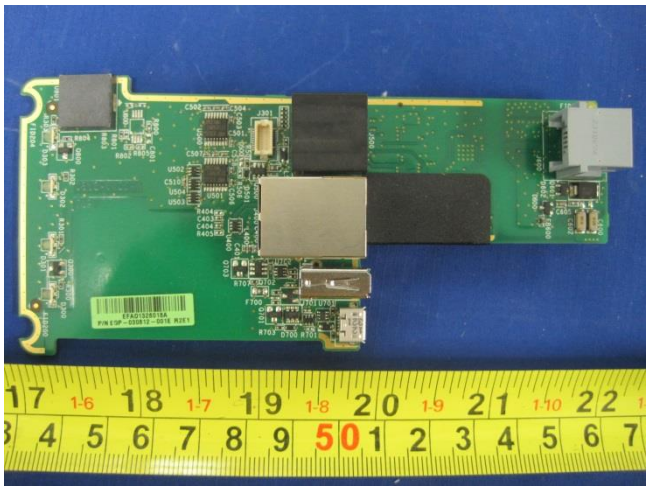
EUT- Mainborad without Cover



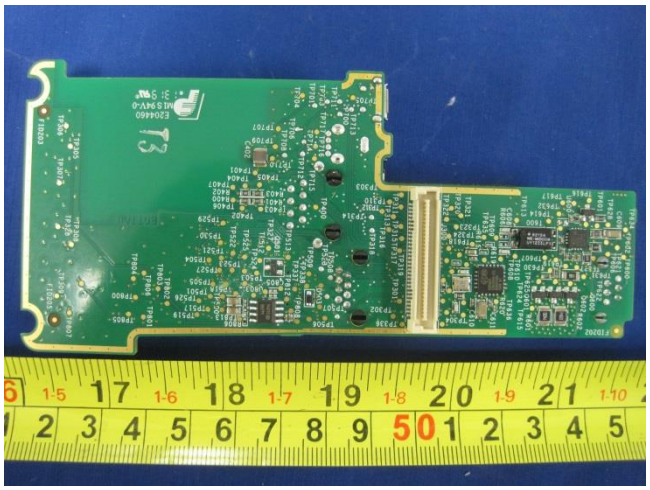
Radio Module – top view



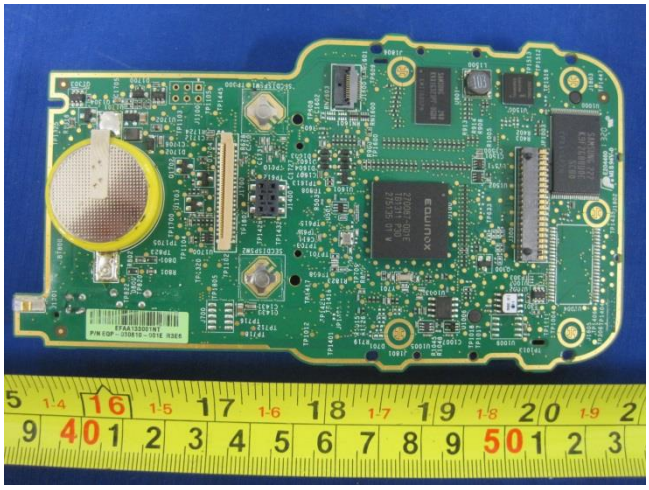
Radio Module – Bottom view



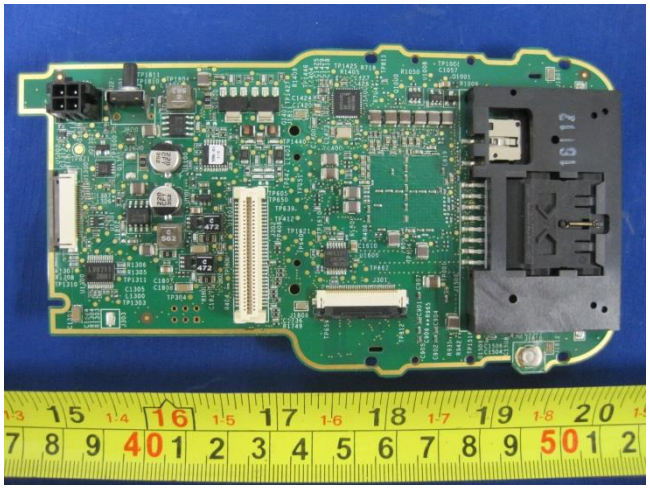
PCB 1 – Top view



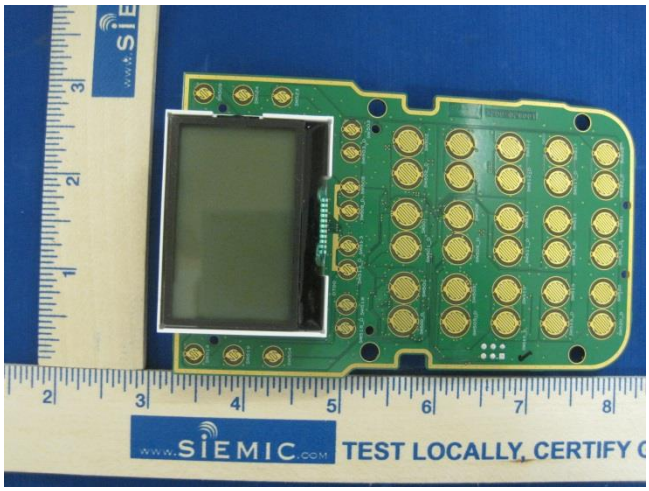
PCB 1 – Bottom view



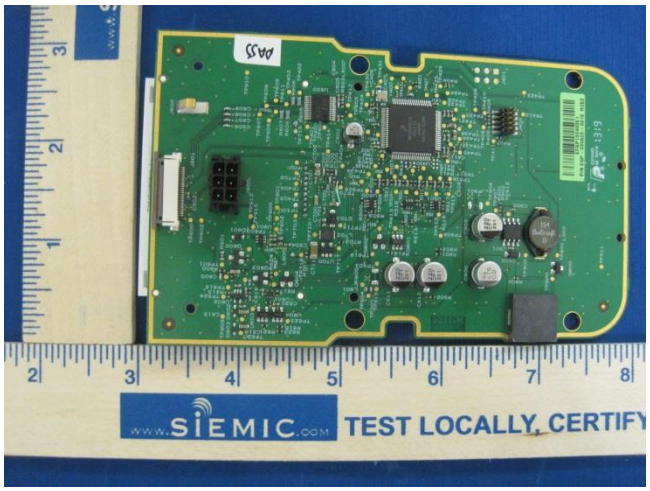
PCB 2 – Top view



PCB 2 – Bottom view



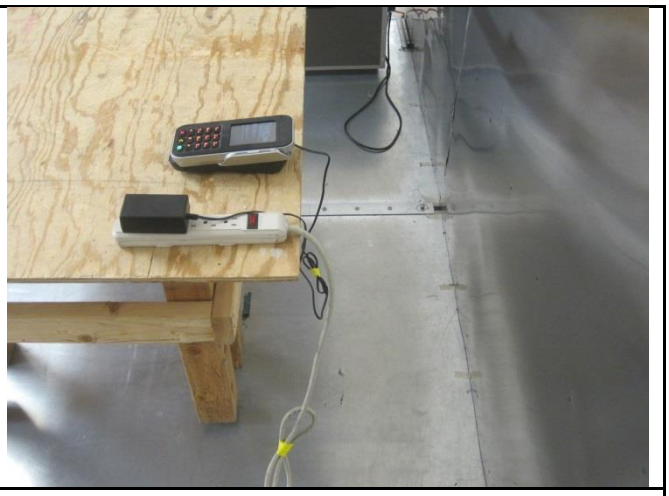
Keypad Board- Top view



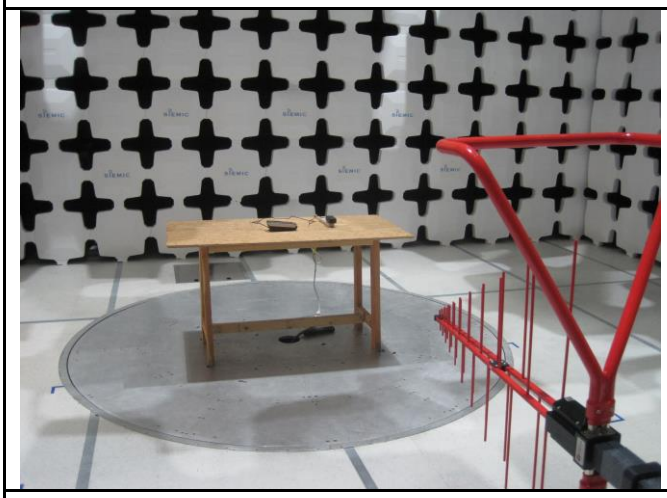
Keypad Board- Bottom View

6.8 EUT Test Setup Photos for CFD model

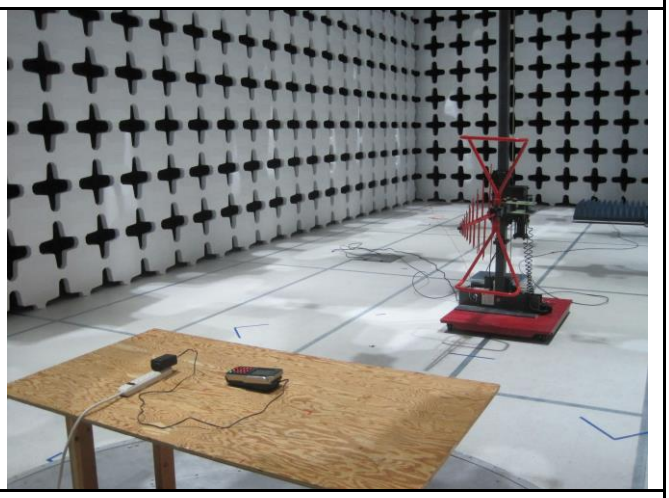
Conducted Emission - Front



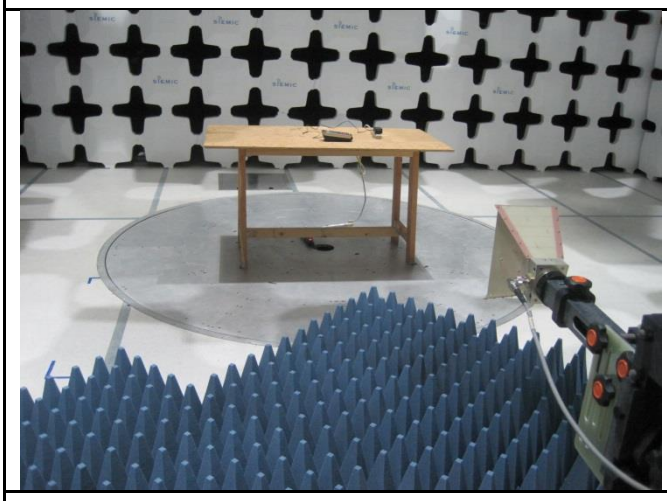
Conducted Emission - Rear



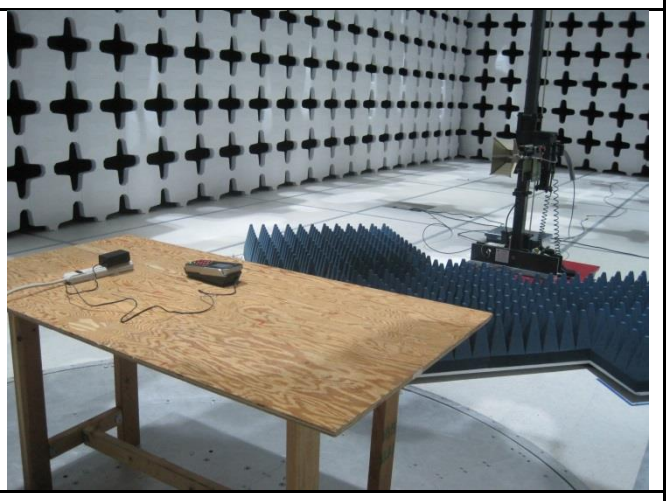
Test setup at 3 meter distance (<1GHz) - Front



Test setup at 3 meter distance (<1GHz) - Rear

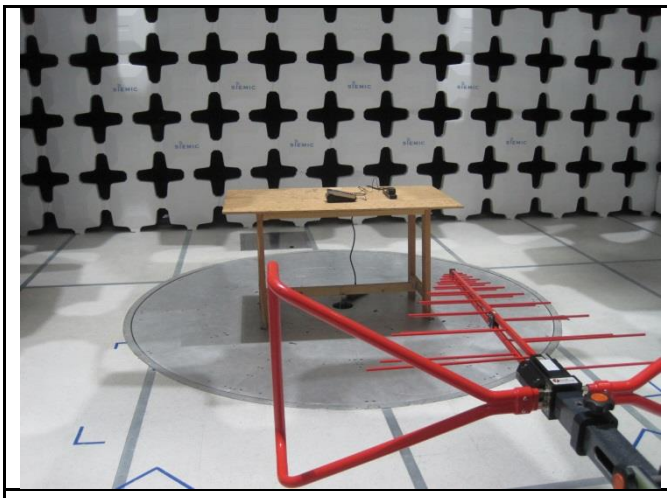


Test setup at 3 meter distance (>1GHz) - Front

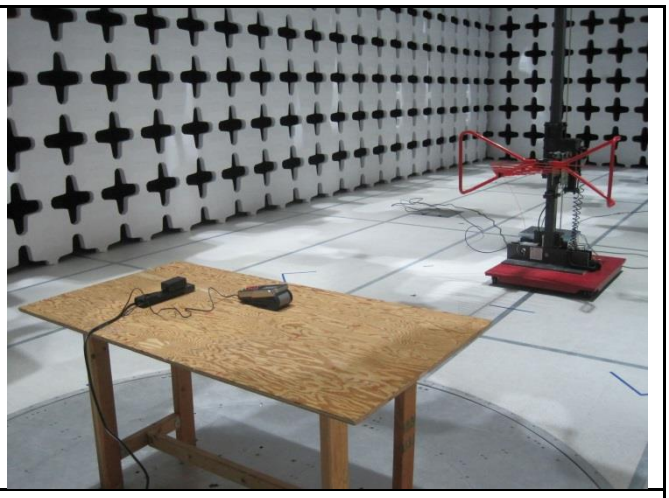


Test setup at 3 meter distance (>1GHz) - Rear

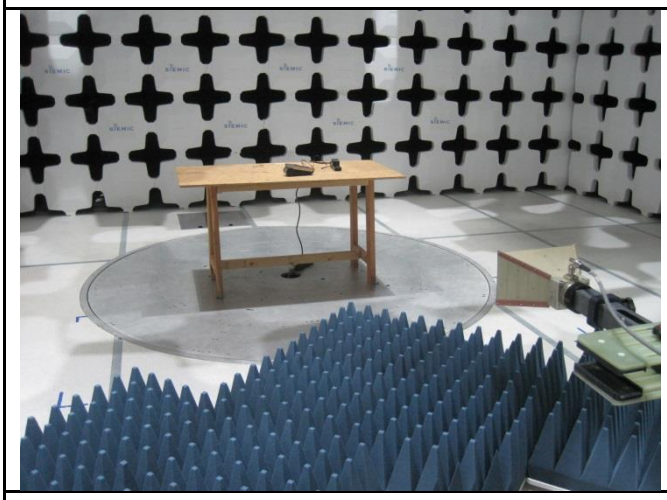
6.9 EUT Test Setup Photos for AIO model



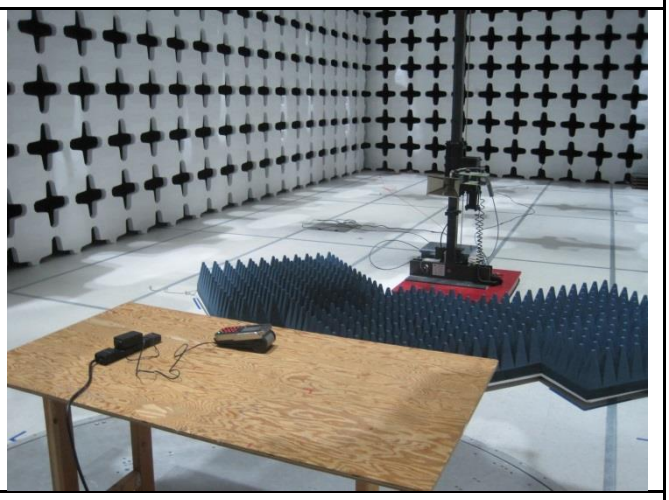
Test setup at 3 meter distance (<1GHz) - Front



Test setup at 3 meter distance (<1GHz) - Rear



Test setup at 3 meter distance (>1GHz) - Front



Test setup at 3 meter distance (>1GHz) - Rear

7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Index	Supporting Equipment Description	Model	Serial No.	Manu	Note
1	AC/DC Adaptor	MC28	870082-001E	EQUINOX	-

7.2 Cabling Description

Name	Connection Start		Connection Stop		Length / shielding Info		Note
	From	I/O Port	To	I/O Port	Length (m)	Shielding	
Cable	EUT	AC/DC	Supply	AC/DC	1.2	Unshielded	-

7.3 Test Software Description

Test Item	Software	Description
Radiated Testing	TTE test software	Set the EUT to different modulation and channel

8 Test Summary

Test Item	Test standard		Test Method/Procedure		Pass / Fail
Restricted Band of Operation	FCC	15.205	FCC	Public Notice DA 00-705	☐ Pass ☒ N/A
	IC	RSS 210 (2.2)	IC	-	
AC Conducted Emissions Voltage	FCC	15.207(a)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS Gen (7.2.2)	IC	-	

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	RSS210 (A8.1)	IC	-	
Occupied Bandwidth	FCC	15.247(a)(1)	FCC	-	☒ Pass ☐ N/A
	IC	RSS Gen(4.6.1)	IC	-	
Bandwidth	FCC	15.247(a)(2)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS210 (A8.2)	IC	-	
Number of Hopping Channels	FCC	15.247(a)(1)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS210(A8.1)	IC	-	
Band Edge and Radiated Spurious Emissions	FCC	15.247(d)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS210(A8.5)	IC	-	
Time of Occupancy	FCC	15.247(a)(1)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS210(A8.1)	IC	-	
Output Power	FCC	15.247(b)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS210 (A8.4)	IC	-	
Receiver Spurious Emissions	FCC	15.247(d)		Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS Gen (4.8)		-	
Antenna Gain > 6 dBi	FCC	15.247(e)	FCC	Public Notice DA 00-705	☐ Pass ☒ N/A
	IC	RSS210(A8.4)	IC	-	
Power Spectral Density	FCC	15.247(e)	FCC	Public Notice DA 00-705	☐ Pass ☒ N/A
	IC	RSS210(A8.3)	IC	-	
Hybrid System Requirement	FCC	15.247(f)	FCC	Public Notice DA 00-705	☐ Pass ☒ N/A
	IC	RSS210(A8.3)	IC	-	
Hopping Capability	FCC	15.247(g)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS210(A8.1)	IC	-	
Hopping Coordination Requirement	FCC	15.247(h)	FCC	Public Notice DA 00-705	☐ Pass ☒ N/A
	IC	RSS210(A8.1)	IC	-	
RF Exposure requirement	FCC	15.247(i)	FCC	Public Notice DA 00-705	☒ Pass ☐ N/A
	IC	RSS Gen(5.5)	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

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	1Hz – 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

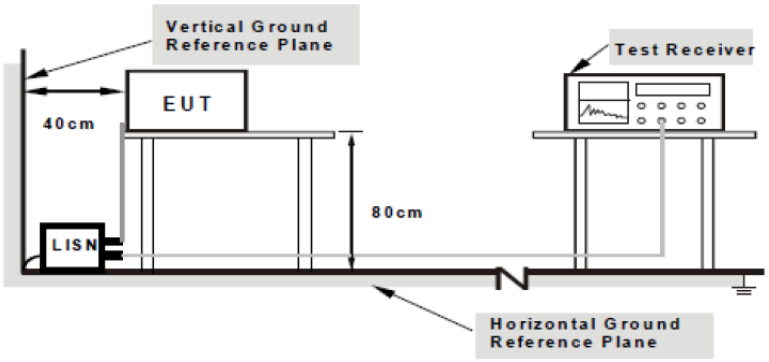
10.1 Antenna Requirement

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) Antenna must use a unique type of connector to attach to the device. c) Device must be professionally installed. Installer shall be responsible for ensuring that the correct antenna is employed with the device.	☒
Remark	The BT antenna is integral to the PCB board permanently to the device which meets the requirement (See Internal Photographs submitted as another Exhibit).	
Result	☒ PASS ☐ FAIL	

10.2 Conducted Emission Test Result

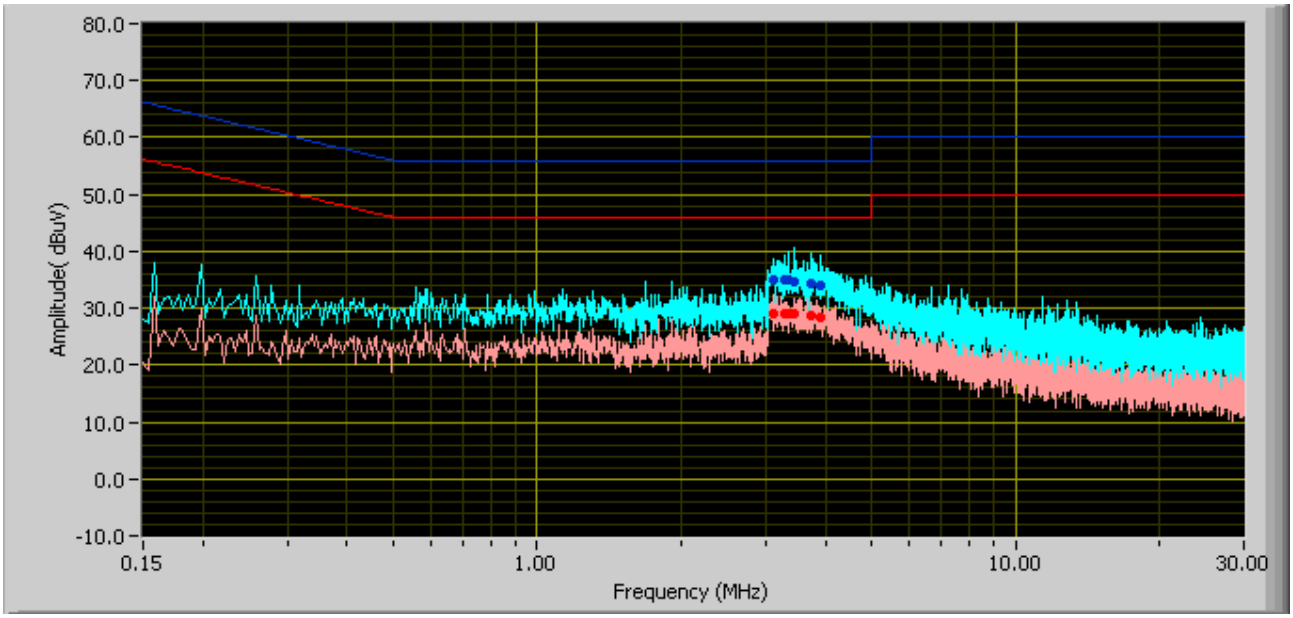
Conducted Emission Limit

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

Spec	Requirement	Applicable
§ 15.207, RSS210(A8.1)	For an intentional radiator 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 set in § 15.207, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). AC Line conducted emission within the band 150KHz to 30MHz	☒
Test Setup	 Note: 1.Support units were connected to second LISN. 2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.	
Procedure	- The EUT and supporting equipment was set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic ta+6ble, 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 equipments were powered separately from another main supply.	
Test Date	07/29/2013	Environmental condition: Temperature 23oC; Relative Humidity 47%; Atmospheric Pressure 1019mbar
Remark		
Result	☒ Pass ☐ Fail	

Test Data ☒ Yes ☐ N/A

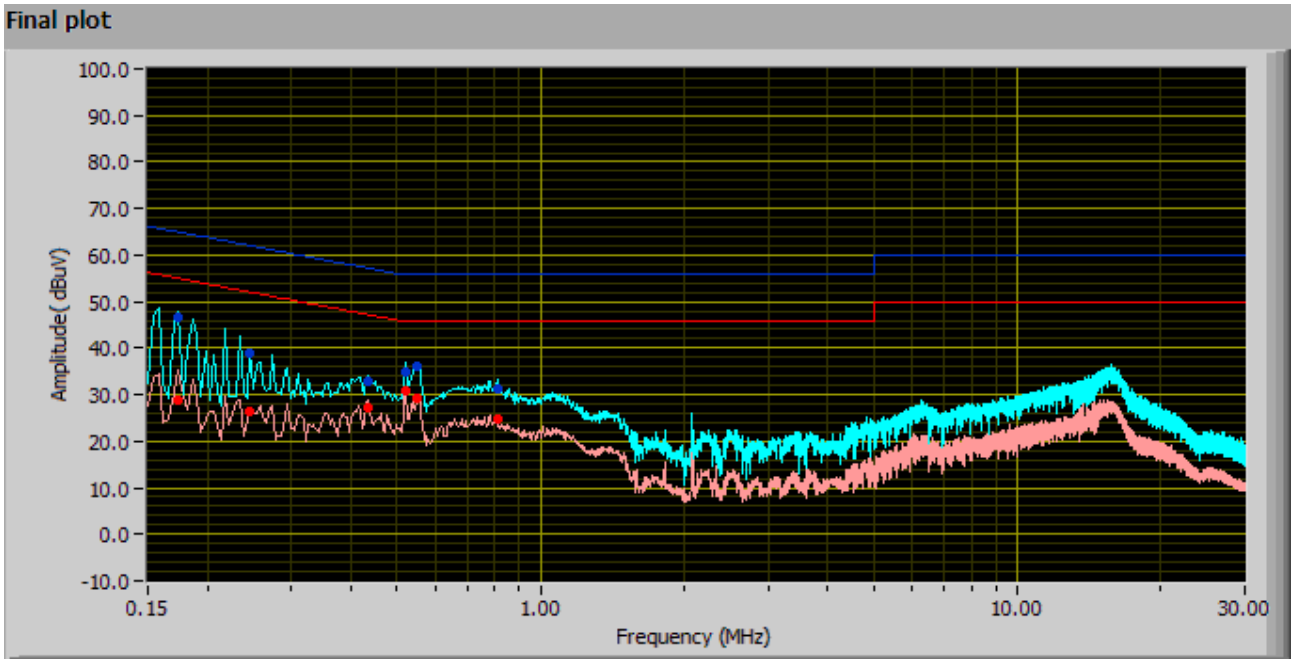
Test Plot ☒ Yes ☐ N/A



Quasi-Peak Limit Average Limit

Phase Line Plot at 120Vac, 60Hz

Frequency (MHz)	QP Value (dBµV)	Class B Limit (dB)	Margin (dB)	Avg Value (dBµV)	Class B Limit (dB)	Margin (dB)	Line
0.17	48.407	65.129	-16.722	32.107	55.129	-23.022	Phase
0.266	38.015	61.339	-23.324	27.995	51.339	-23.344	Phase
0.518	36.625	56	-19.375	32.485	46	-13.515	Phase
15.601	35.461	60	-24.539	29.201	50	-20.799	Phase
15.681	35.404	60	-24.596	29.264	50	-20.736	Phase
15.701	35.465	60	-24.535	29.365	50	-20.635	Phase



Quasi-Peak Limit Average Limit

Neutral Line Plot at 120Vac, 60Hz

Frequency (MHz)	QP Value (dBµV)	Class B Limit (dB)	Margin (dB)	Avg Value (dBµV)	Class B Limit (dB)	Margin (dB)	Line
0.174	46.57	64.933	-18.363	28.84	54.933	-26.093	Neutral
0.246	38.887	62.001	-23.114	26.227	52.001	-25.774	Neutral
0.434	32.925	57.194	-24.269	27.365	47.194	-19.829	Neutral
0.522	34.798	56	-21.202	30.728	46	-15.272	Neutral
0.55	35.921	56	-20.079	29.171	46	-16.829	Neutral
0.81	31.222	56	-24.778	24.942	46	-21.058	Neutral

10.3 Channel Separation

Requirement(s):

Spec	Requirement	Applicable
47 CFR §15.247 (e) RSS-210 (A2.6)	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or 2/3 of 20 dB bandwidth of the hopping channel, whichever is greater.	☒
Test Setup	Spectrum Analyzer — EUT	
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	07/30/2013	Environmental condition: Temperature 23oC; Relative Humidity 47%; Atmospheric Pressure 1019mbar
Remark	-	
Result	☒ Pass ☐ Fail	

Test Data ☒ Yes (See below) ☐ N/A

Configuration : Bluetooth Mode , Basic Data Rate, 1Mbps

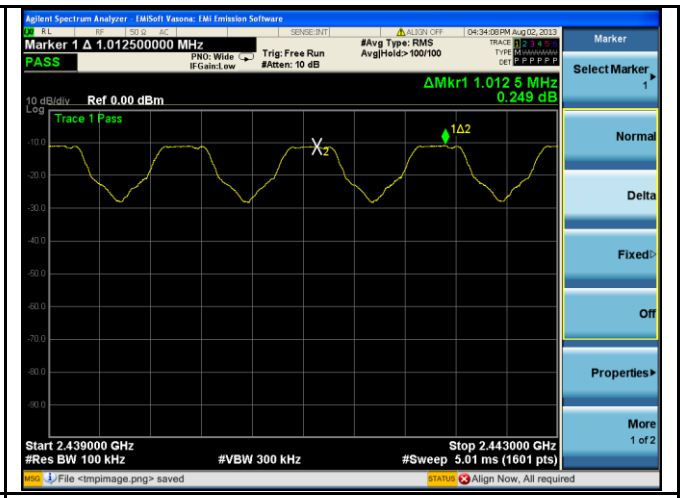
Channel	Channel Frequency (MHz)	Channel Separation (MHz)	2/3 20dB Bandwidth (MHz)	Pass/Fail
Low	2402	1.005	0.729	Pass
Mid	2441	1.012	0.727	Pass
High	2480	1.015	0.734	Pass

Configuration : Bluetooth Mode , EDR 3Mbps

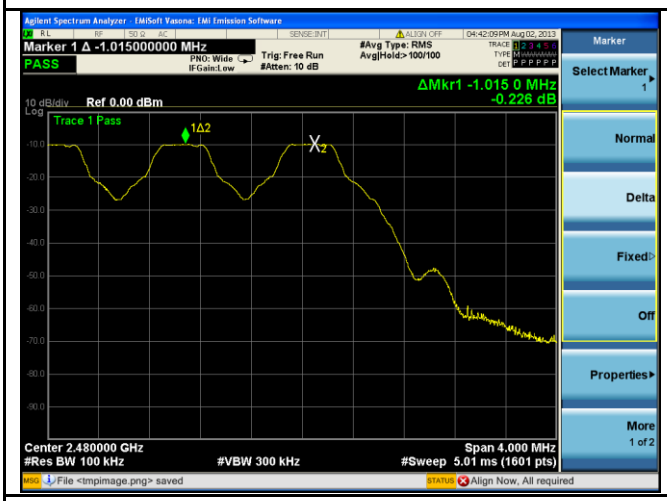
Channel	Channel Frequency (MHz)	Channel Separation (MHz)	2/3 20dB Bandwidth (MHz)	Pass/Fail
Low	2402	1.007	0.945	Pass
Mid	2441	1.007	0.945	Pass
High	2480	1.007	0.952	Pass

Test Plot ☒ Yes (See below) ☐ N/A

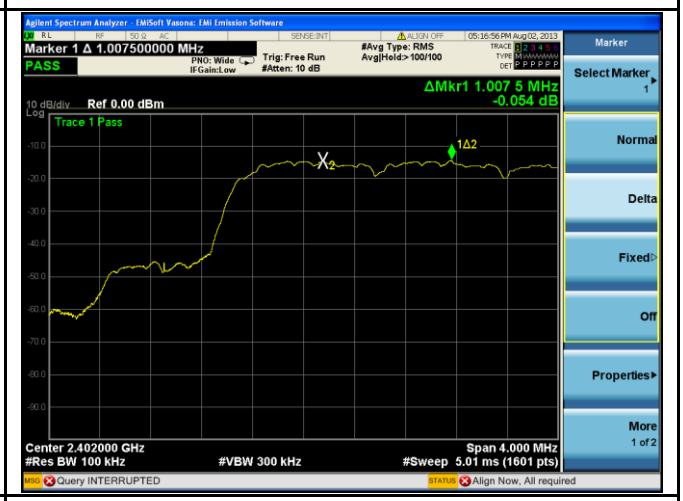
Channel Separation-Low Channel-Normal Mode



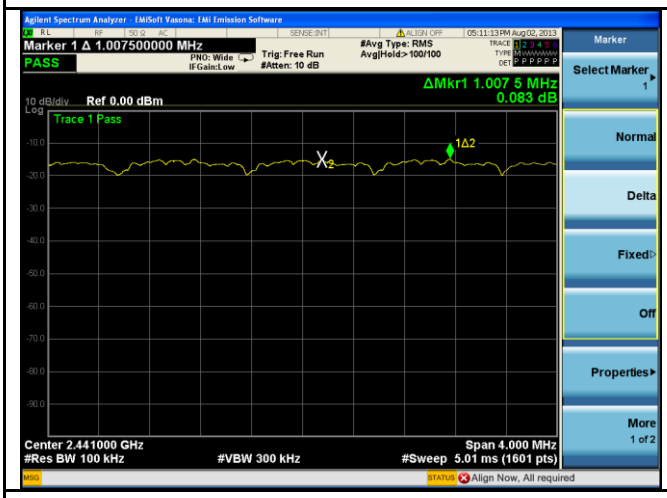
Channel Separation-Mid Channel-Normal Mode



Channel Separation-High Channel-Normal Mode



Channel Separation-Low Channel-EDR Mode



Channel Separation-Mid Channel-EDR Mode

Channel Separation-High Channel-EDR Mode

10.4 99% Occupied Bandwidth

Requirement(s):

Spec	Requirement	Applicable
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	Spectrum Analyzer — EUT	
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	07/30/2013	Environmental condition: Temperature 23oC; Relative Humidity 47%; Atmospheric Pressure 1019mbar
Remark	-	
Result	☒ Pass ☐ Fail	

Test Data ☒ Yes (See below) ☐ N/A

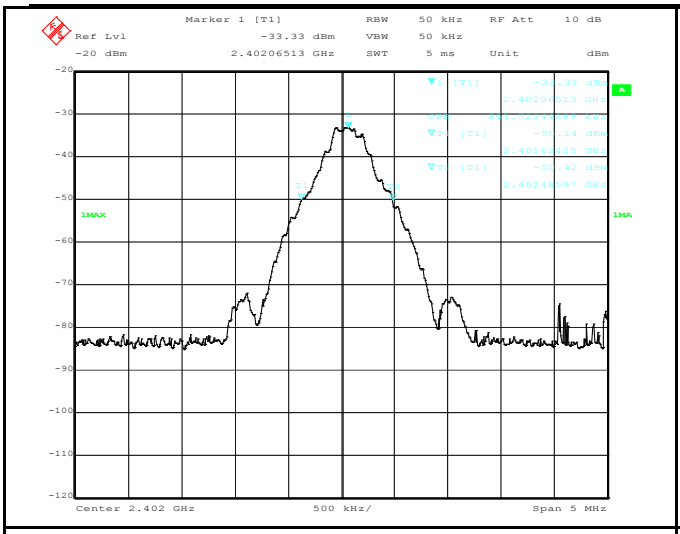
Test Plot ☒ Yes (See below) ☐ N/A

Configuration : Bluetooth Mode , Basic Data Rate, 1Mbps

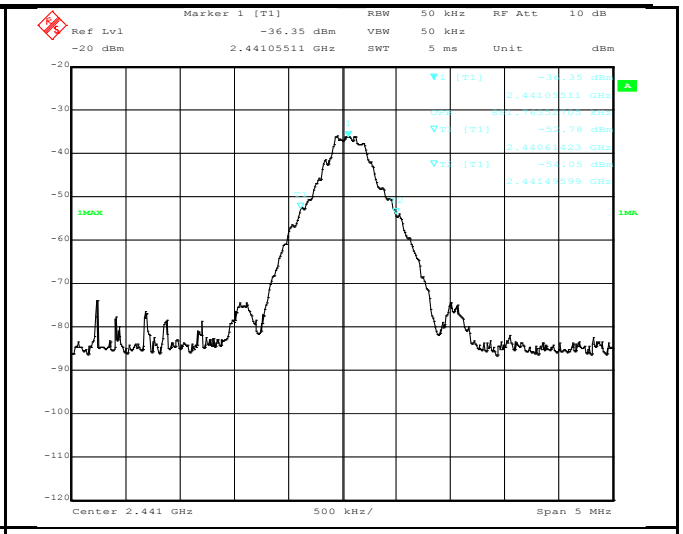
Channel	Channel Frequency (MHz)	99% Occupied Bandwidth (KHz)
Low	2402	861.72
Mid	2441	881.76
High	2480	881.76

Configuration : Bluetooth Mode , EDR 3Mbps

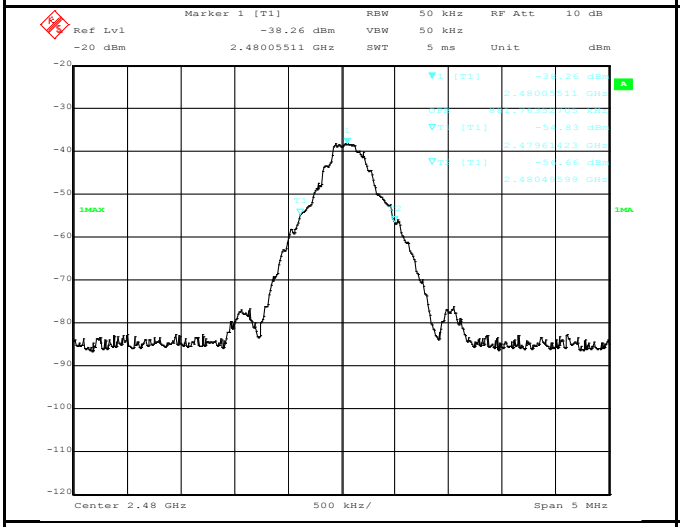
Channel	Channel Frequency (MHz)	99% Occupied Bandwidth (KHz)
Low	2402	1252.50
Mid	2441	1252.50
High	2480	1272.54



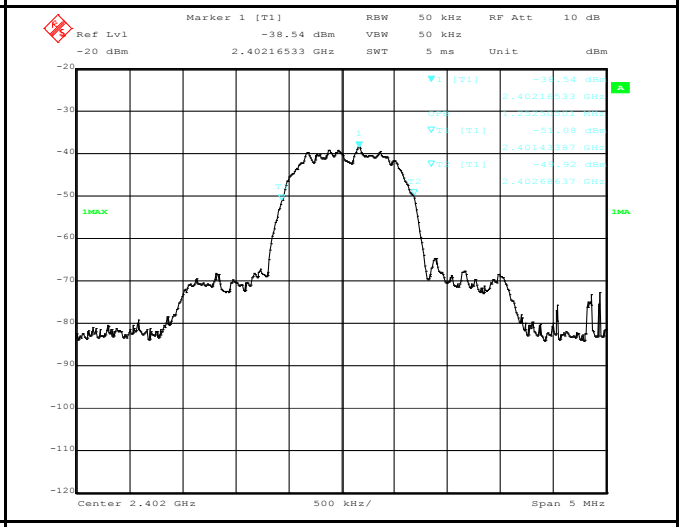
99% Occupied Bandwidth-Low Channel-Normal Mode



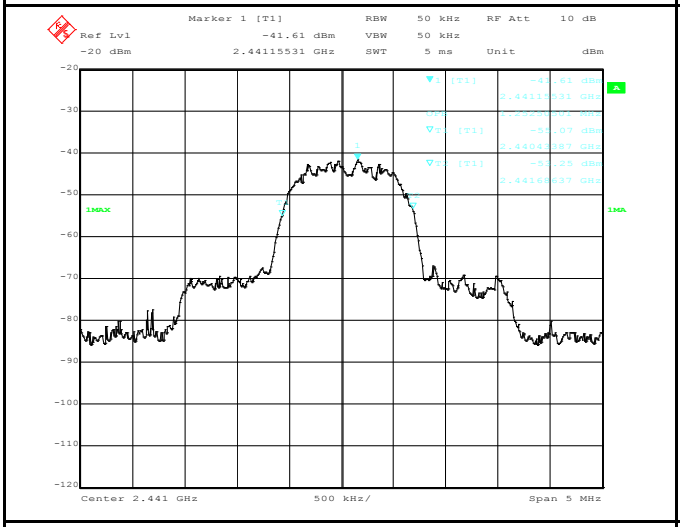
99% Occupied Bandwidth-Mid Channel-Normal Mode



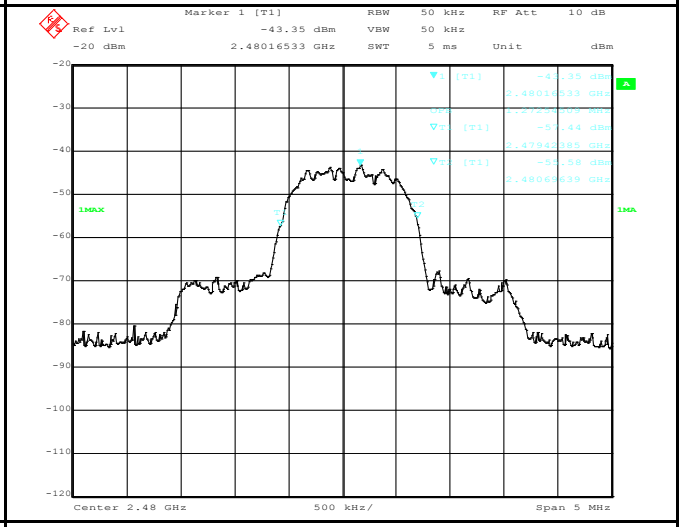
99% Occupied Bandwidth-High Channel-Normal Mode



99% Occupied Bandwidth-Low Channel-EDR Mode



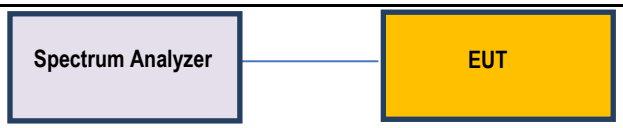
99% Occupied Bandwidth-Mid Channel-EDR Mode



99% Occupied Bandwidth-High Channel-EDR Mode

10.5 20dB Occupied Bandwidth

Requirement(s):

Spec	Requirement			Applicable
47 CFR §15.247 RSS-210 (A2.6)	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.			☒
Test Setup				
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	07/30/2013	Environmental condition	Temperature Relative Humidity Atmospheric Pressure	23oC 47% 1019mbar
Remark	-			
Result	☐ Pass ☐ Fail			

Test Data ☒ Yes (See below) ☐ N/A

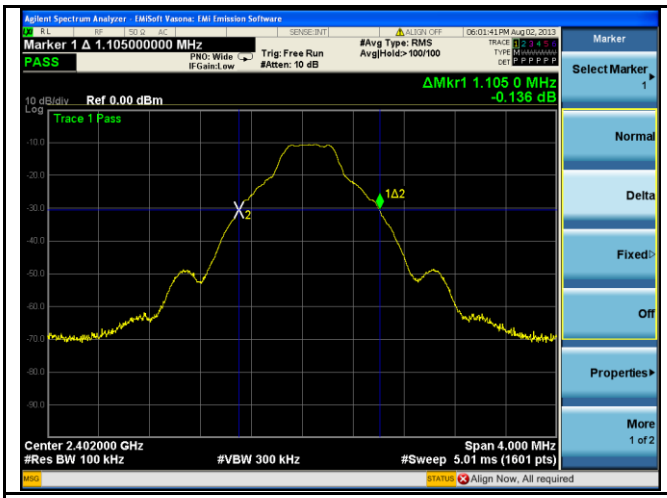
Configuration : Bluetooth mode , Basic Rate

Channel	Channel Frequency (MHz)	20 dB Bandwidth (MHz)	2/3 20dB Bandwidth (MHz)
Low	2402	1.1050	0.729
Mid	2441	1.1025	0.727
High	2480	1.1125	0.734

Configuration : Bluetooth mode , EDR mode

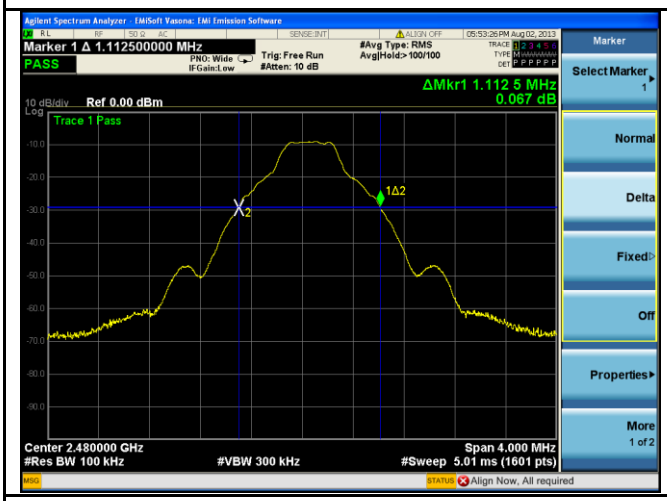
Channel	Channel Frequency (MHz)	20 dB Bandwidth (MHz)	2/3 20dB Bandwidth (MHz)
Low	2402	1.4325	0.945
Mid	2441	1.4325	0.945
High	2480	1.4425	0.952

Test Plot ☒ Yes (See below) ☐ N/A



20dB Occupied Bandwidth-Low Channel-Normal Mode

20dB Occupied Bandwidth-Normal Channel-Normal Mode



20dB Occupied Bandwidth-High Channel-Normal Mode

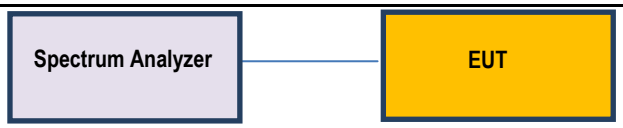
20dB Occupied Bandwidth-Low Channel-EDR Mode

20dB Occupied Bandwidth-Mid Channel-EDR Mode

20dB Occupied Bandwidth-High Channel-EDR Mode

10.6 Number of Hopping Channel

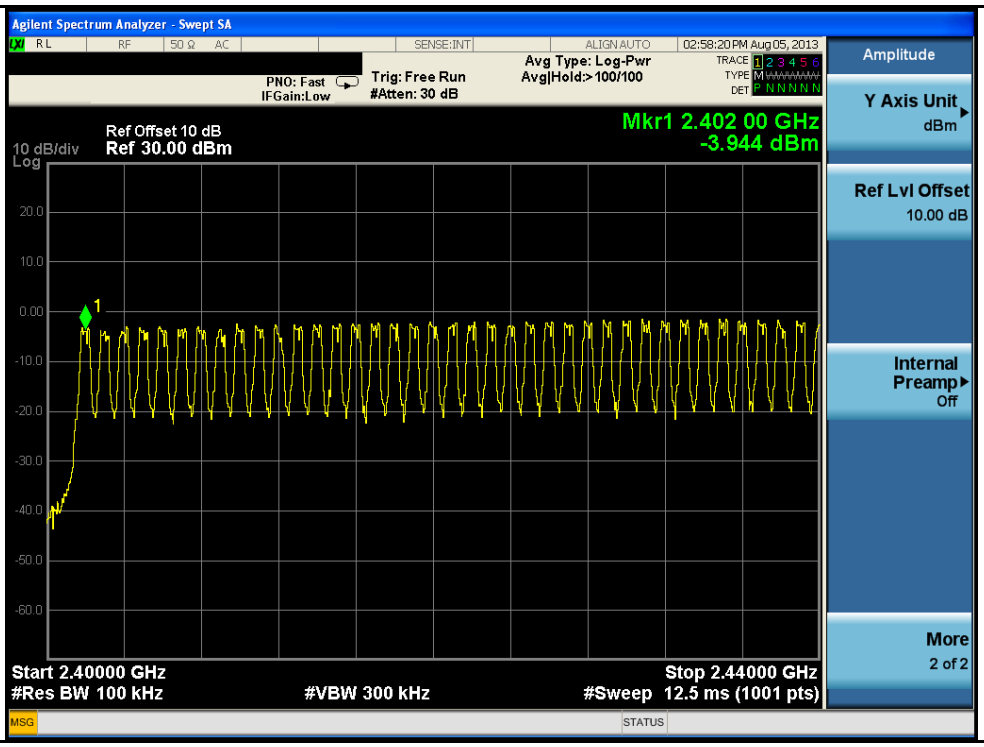
Requirement(s):

Spec	Requirement	Applicable
47 CFR §15.247 RSS-210 (A2.6)	Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.	☒
Test Setup		
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. 3. RBW=100 KHz, VBW > RBW	
Test Date	07/30/2013	Environmental condition: Temperature 23oC; Relative Humidity 47%; Atmospheric Pressure 1019mbar
Remark	-	
Result	☒ Pass ☐ Fail	

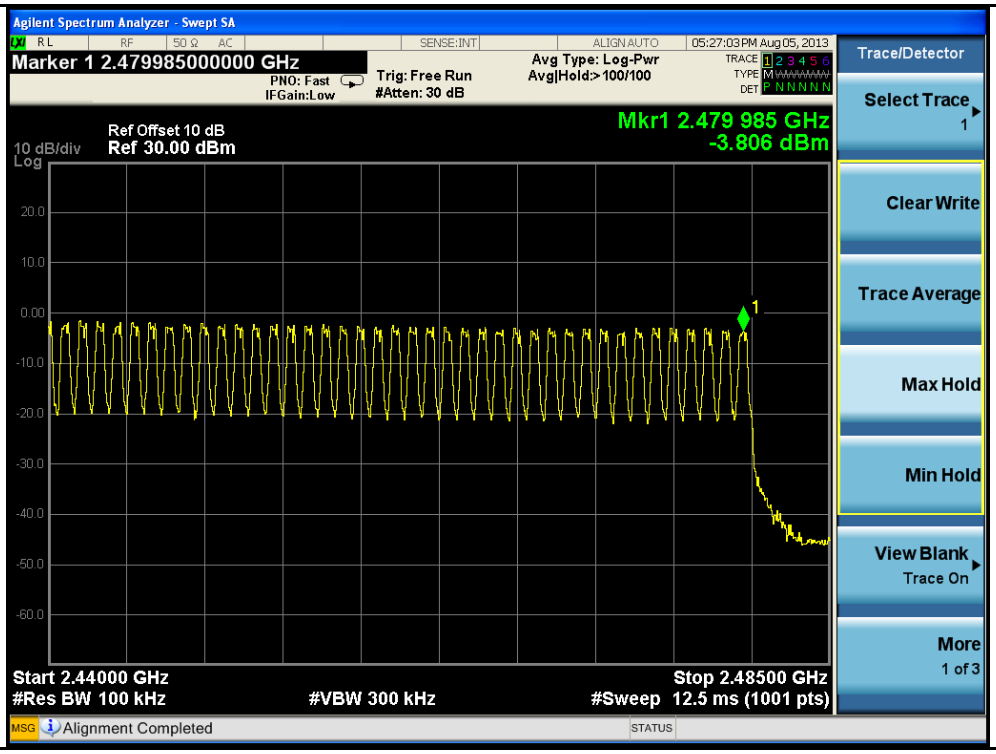
Test Data ☒ Yes (See below) ☐ N/A

Channel Number	Limit	Pass/Fail
79	15	Pass

Test Plot ☒ Yes (See below) ☐ N/A



Graph1-39 Channels



Graph2-40 Channels

10.7 Time of Occupancy

Requirement(s):

Spec	Requirement	Applicable
47 CFR §15.247 RSS-210 (A2.6)	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 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 may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.	☒
Test Setup	Spectrum Analyzer — EUT	
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	08/07/2013	Environmental condition: Temperature 24oC; Relative Humidity 47%; Atmospheric Pressure 1019mbar
Remark	-	
Result	☒ Pass ☐ Fail	

Test Data ☒ Yes (See below) ☐ N/A

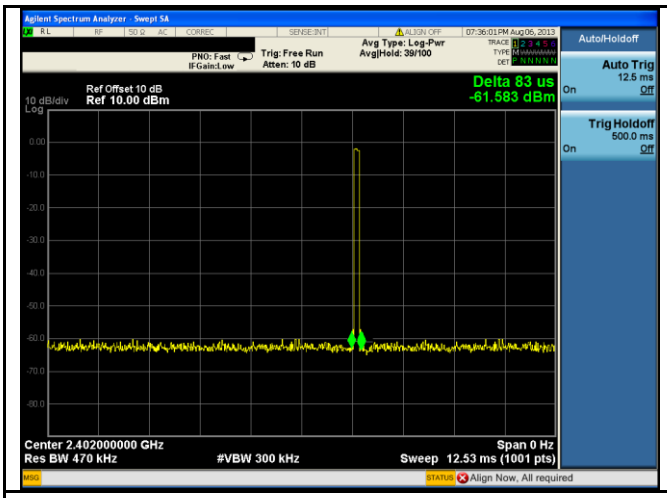
Bluetooth Basic Rate Test Mode (1Mpbs)

Channel	Channel Frequency (MHz)	Dwell Time (Sec)	Limit (Sec)
Low	2402	0.2098	0.4
Mid	2441	0.2098	0.4
High	2480	0.2098	0.4

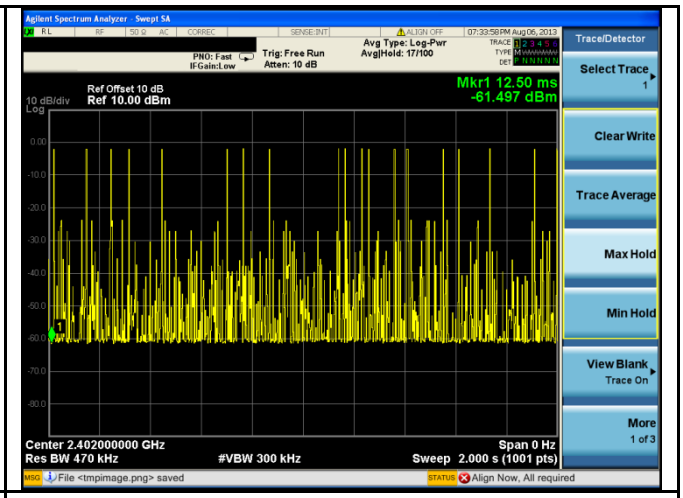
Bluetooth EDR Test Mode (3Mpbs)

Channel	Channel Frequency (MHz)	Dwell Time (Sec)	Limit (Sec)
Low	2402	0.2098	0.4
Mid	2441	0.2098	0.4
High	2480	0.2098	0.4

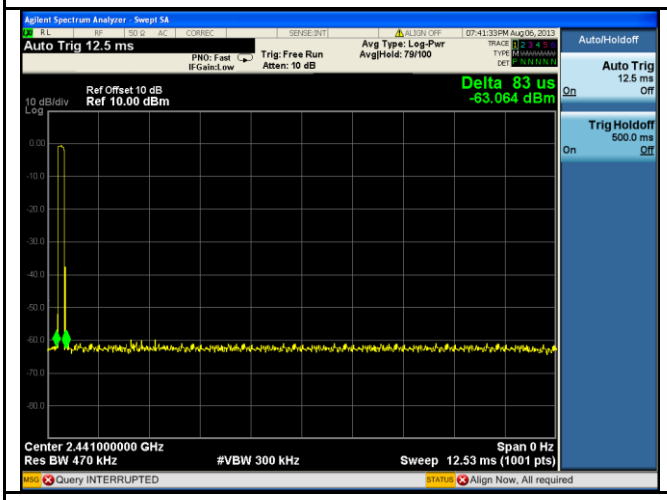
Test Plot ☒ Yes (See below) ☐ N/A



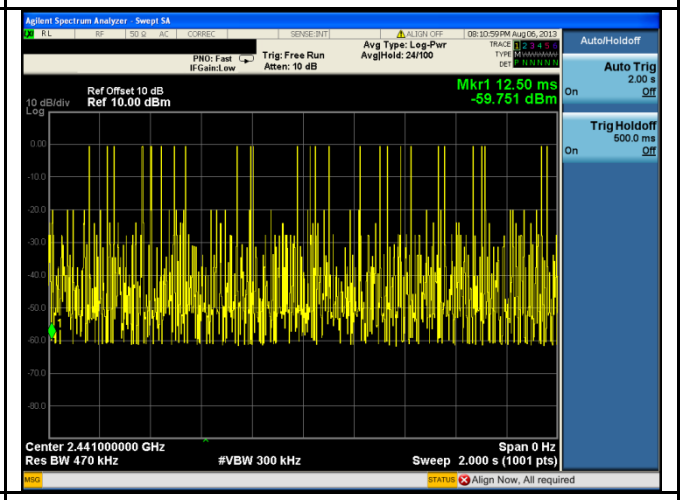
Low Channel (Sweep in 12.5msec)



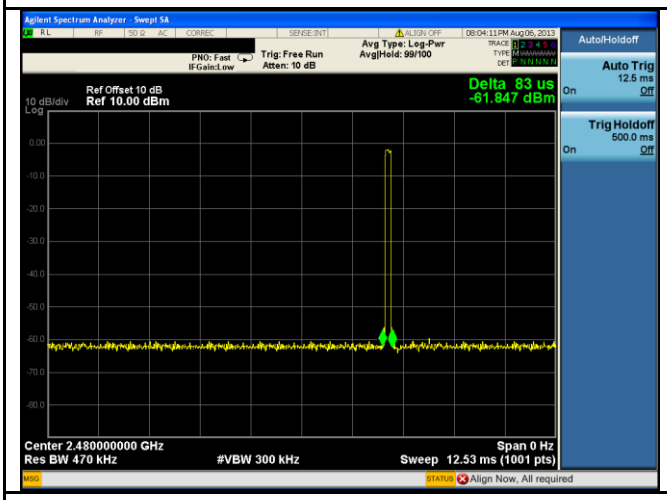
Low Channel (Sweep in 2sec)



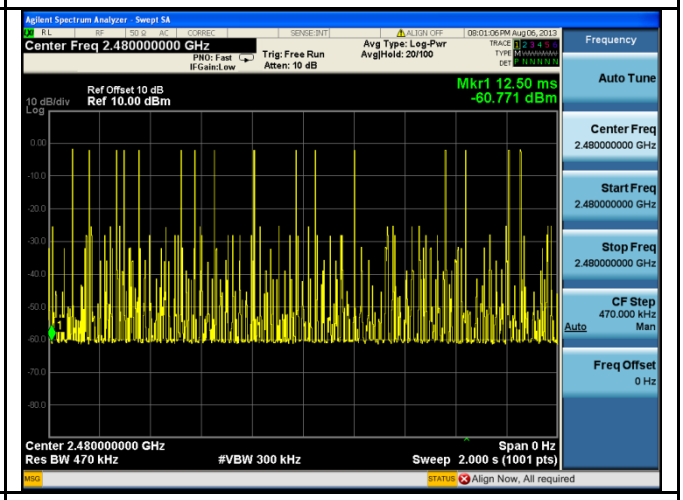
Middle Channel (Sweep in 12.5msec)



Mid Channel (Sweep in 2sec)



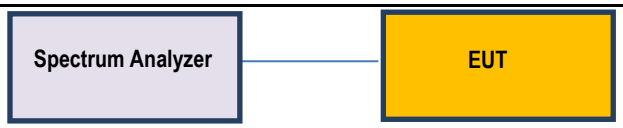
High Channel (Sweep in 12.5msec)



High Channel (Sweep in 2sec)

10.8 Peak Spectral Density

Requirement(s):

Spec	Requirement	Applicable
47 CFR §15.247 RSS-210 (A2.6)	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission	☐
Test Setup		
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. 3. RBW=3 KHz, VBW > RBW, Sweep time: atuo	
Test Date	N/A	Environmental condition: Temperature N/A; Relative Humidity N/A; Atmospheric Pressure N/A
Remark	-	
Result	☐ Pass ☐ Fail	

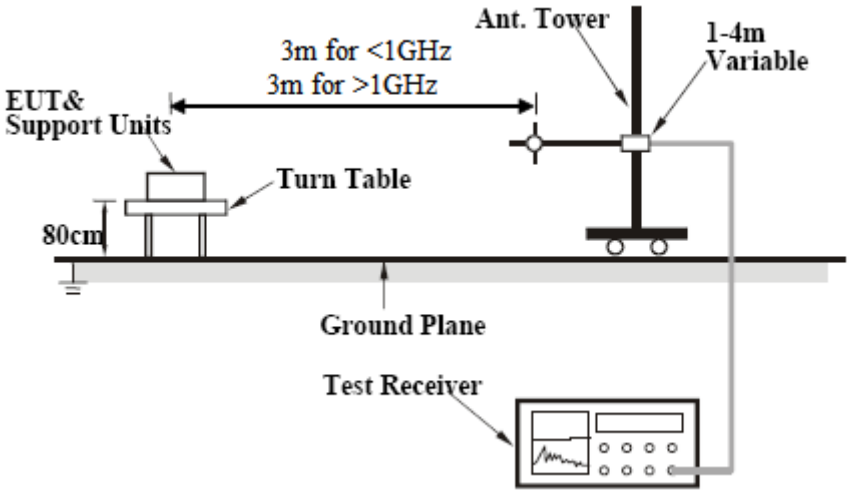
Test Data ☐ Yes (See below) ☒ N/A

Test Plot ☐ Yes (See below) ☒ N/A

Note: Peak Spectral Density only applied to digital modulated devices.

10.9 Peak Output Power

Requirement(s):

Spec	Requirement	Applicable
47 CFR §15.247 (b) RSS-210 (A2.6)	For all other frequency hopping systems in the 2400-2483.5band: 0.125 Watt. The power is converted from watt to dBm, therefore, 1 watt = 30 dBm.	☒
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. Steps 2 was repeated for the next frequency point, until all selected frequency points were measured.	
Test Date	08/07/2013	Environmental condition: Temperature 24oC; Relative Humidity 47%; Atmospheric Pressure 1019mbar
Remark	-	
Result	☒ Pass ☐ Fail	

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

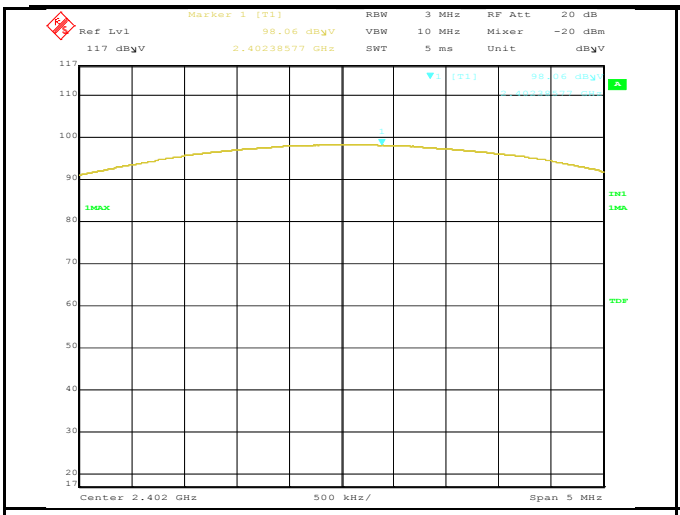
Test Results:

Measurement Result (Bluetooth Mode, Basic Rate)

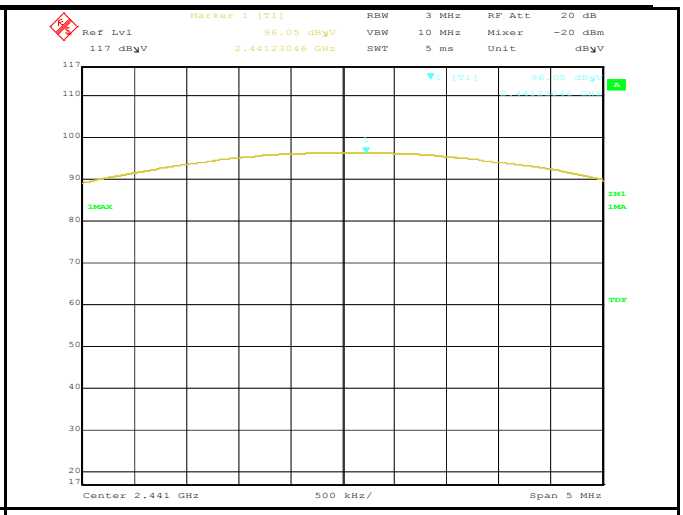
Channel	Channel Frequency (MHz)	Amplifier (dB)	Antenna Gain (dB)	Cable Loss (dB)	Field Strength (dBuV/m) at 3 m	Converted Output Power (dBm)	EUT Antenna Gain (dBm)	Final Output Power (dBm)	Output Power Limit (dBm)
Low	2402	32.08	28.8	4.93	99.71	4.48	1.39	3.09	20.969
Mid	2441	32.08	28.8	4.93	97.70	2.47	1.39	1.08	20.969
High	2480	32.08	28.8	4.93	96.31	1.08	1.39	-0.31	20.969

Measurement Result (Bluetooth Mode , EDR Mode, 3Mbps)

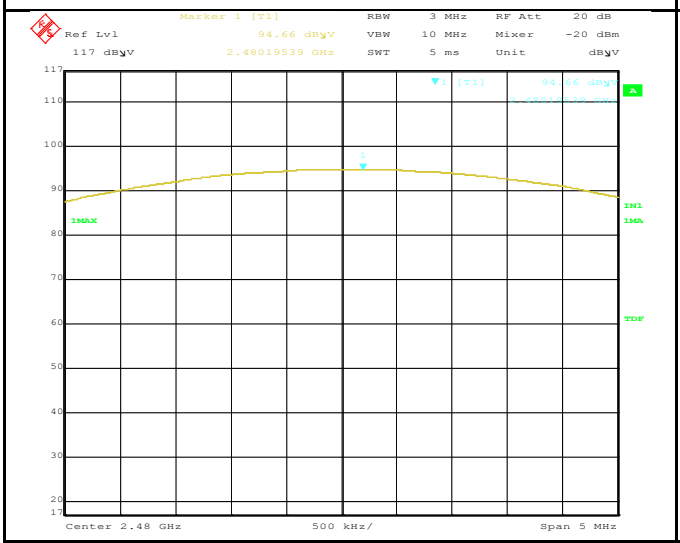
Channel	Channel Frequency (MHz)	Amplifier (dB)	Antenna Gain (dB)	Cable Loss (dB)	Field Strength (dBuV/m) at 3 m	Converted Output Power (dBm)	EUT Antenna Gain (dBm)	Final Output Power (dBm)	Output Power Limit (dBm)
Low	2402	32.08	28.8	4.93	99.46	4.23	1.39	2.84	20.969
Mid	2441	32.08	28.8	4.93	98.22	2.99	1.39	1.60	20.969
High	2480	32.08	28.8	4.93	97.43	2.20	1.39	0.81	20.969



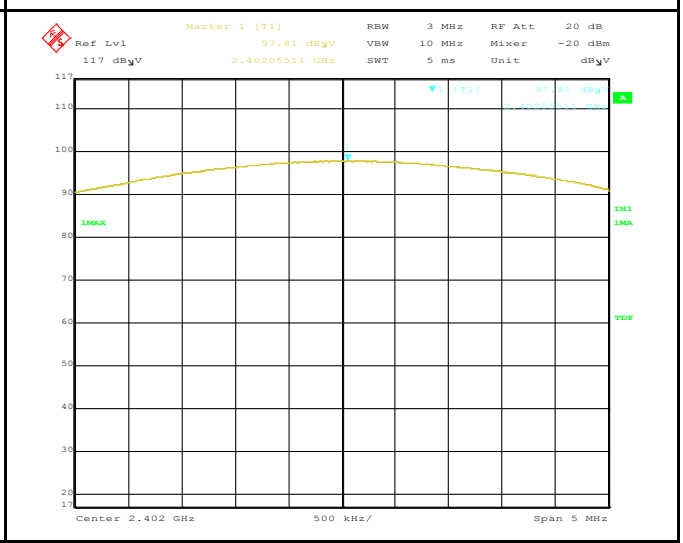
Field Strength-Low Channel-Normal Mode



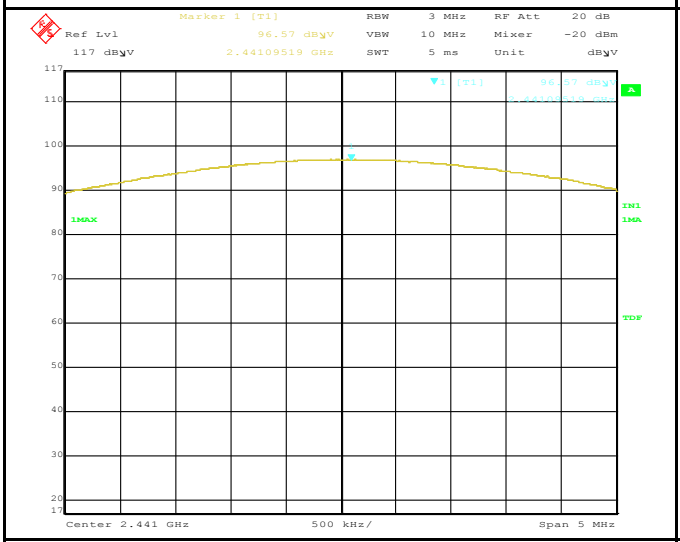
Field Strength -Mid Channel-Normal Mode



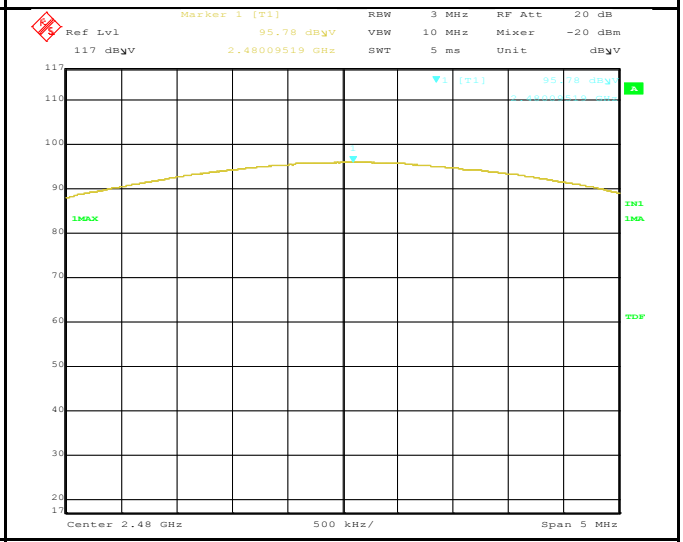
Field Strength -High Channel-Normal Mode



Field Strength -Low Channel-EDR Mode



Field Strength -Mid Channel-EDR Mode



Field Strength -High Channel-EDR Mode

10.10 Radiated Measurement

Receiver/Spectrum analyzer setting

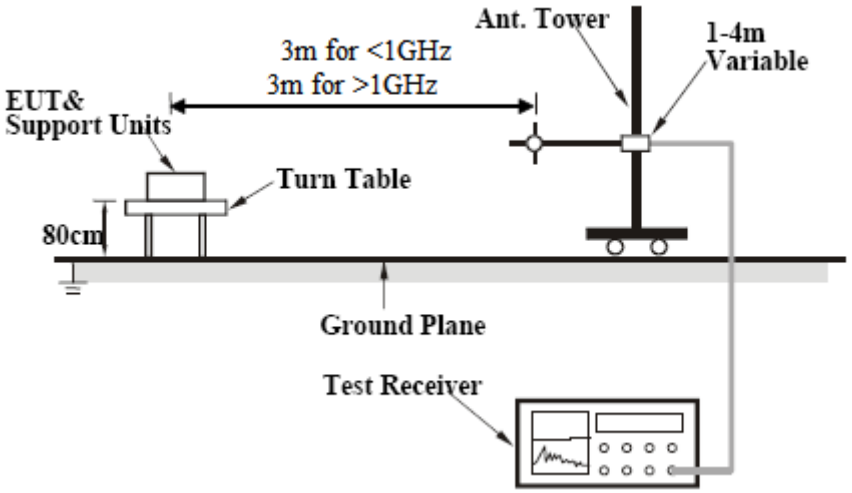
TEST	Detector	RBW	VBW	Test Distance	NOTES
Radiated Emission < 1GHz (30MHz – 1GHz)	PK/QP	100 KHz	300 KHz	3m	-
Radiated Emission > 1GHz (1GHz – 40GHz)	PK/AV	1 MHz	3 MHz / 10 Hz	3m	-
Band Edge	PK/AV	1 MHz	3 MHz	3m	-

10.10.1 Radiated Measurement below 1GHz

Requirement(s):

Spec	Item	Requirement	Applicable
§ 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(a)	☒

Test Setup



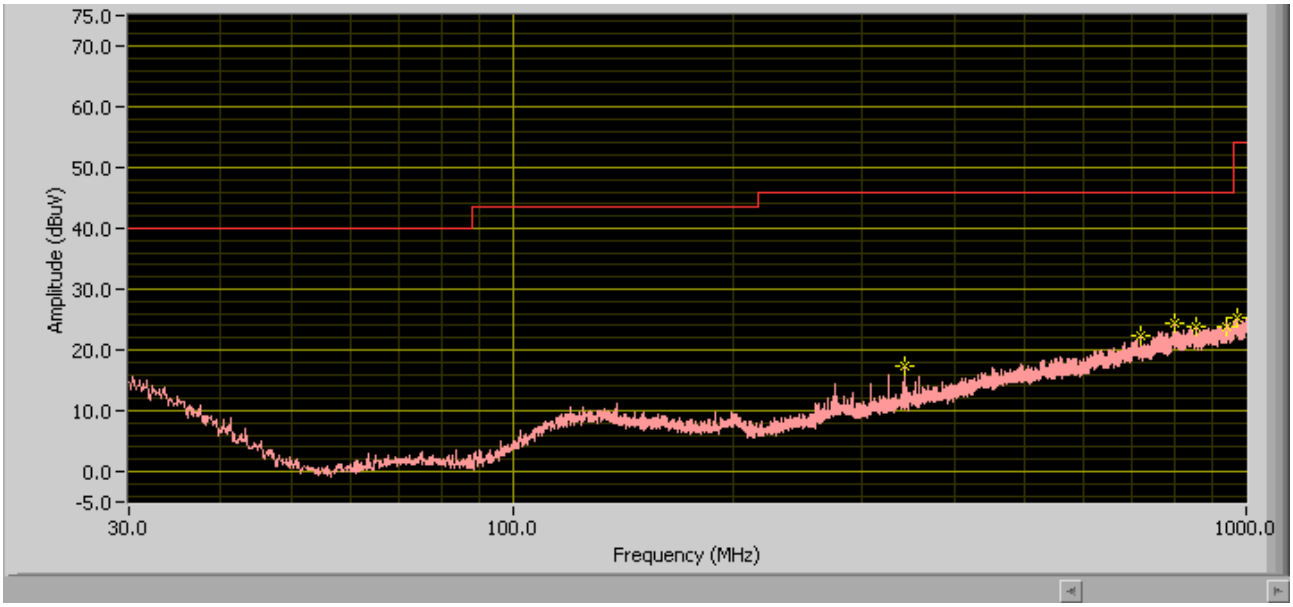
Procedure

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.

Test Date	08/12/2013	Environmental condition	Temperature 24oC Relative Humidity 49% Atmospheric Pressure 1019mbar
Remark	-		
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes (See below) ☐ N/A
Test Plot ☒ Yes (See below) ☐ N/A

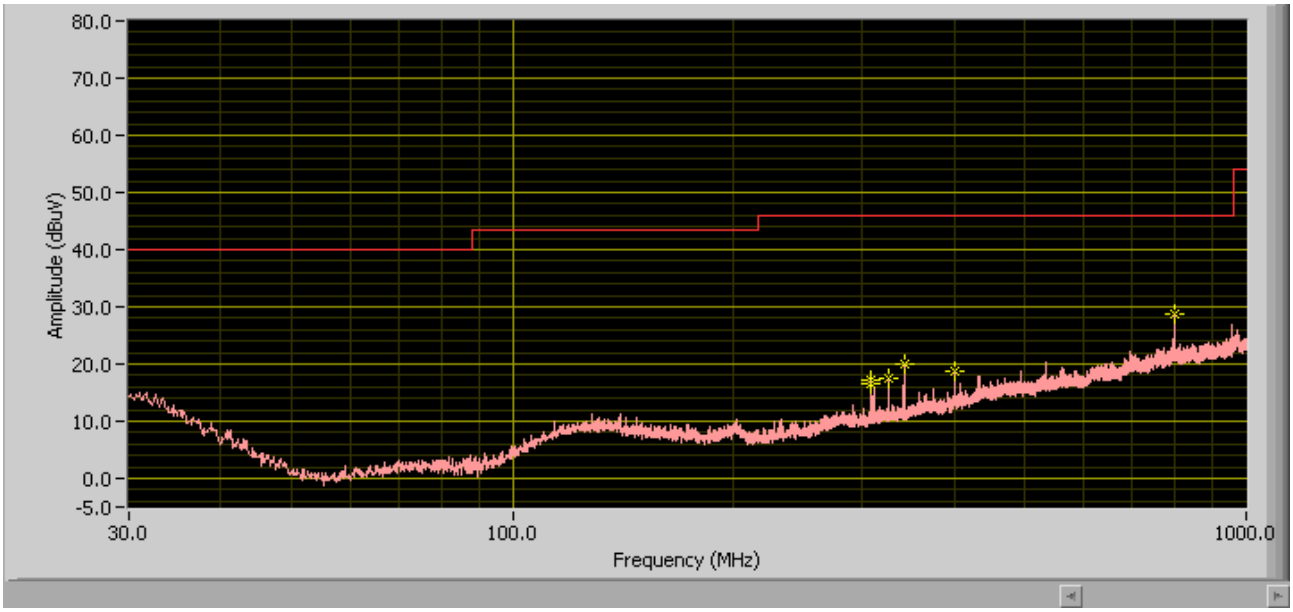
Results & Graph for CFD Model:



Test Data

Frequency (MHz)	Reading (dBuV)	Azimuth	Polarity (H/V)	Height (cm)	Cable Loss(dB)	Antenna Factor (dB)	Amplifier (dB)	Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)
970.59	31.31	221	H	280	5.7	23.1	31.2	28.91	54.00	-25.09
799.99	33.08	0	H	100	5.2	21.1	31.4	27.98	46.00	-18.01
939.14	31.28	1	H	354	5.6	21.9	31.3	27.48	46.00	-18.52
718.89	31.26	63	H	301	4.9	19.6	31.4	24.36	46.00	-21.64
854.17	31.21	18	V	185	5.3	21	31.3	26.21	46.00	-19.73
341.66	34.22	263	H	100	3	14	31.7	19.52	46.00	-26.48

Results & Graph for AIO Model:

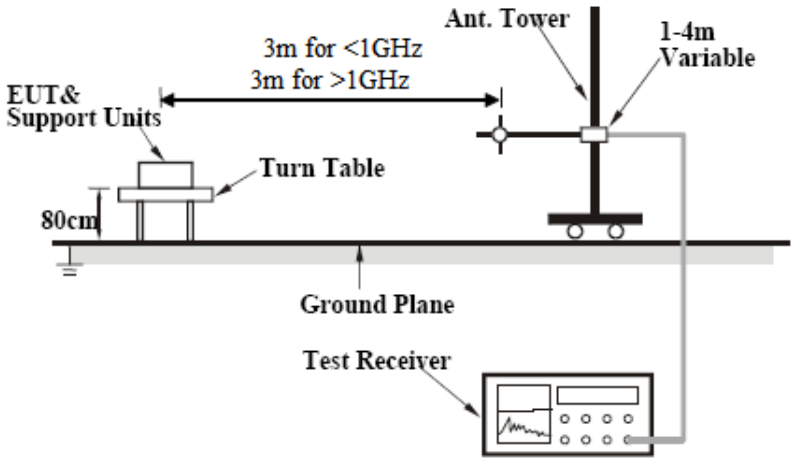


Test Data

Frequency (MHz)	Reading (dBuV)	Azimuth	Polarity (H/V)	Height (cm)	Cable Loss(dB)	Antenna Factor (dB)	Amplifier (dB)	Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)
800.00	31.59	281	H	381	5.2	21.1	31.4	26.49	46.00	-19.51
324.99	31.36	145	H	400	2.9	13.7	31.8	16.16	46.00	-29.84
308.32	32.90	204	H	133	2.8	13.2	31.8	17.11	46.00	-28.90
341.66	35.52	145	H	111	3	14	31.7	20.82	46.00	-25.18
308.34	35.20	129	H	100	2.8	13.2	31.8	19.40	46.00	-26.60
400.01	32.35	356	V	210	3.2	15.3	31.7	19.15	46.00	-26.85

10.10.2 Radiated Spurious Emissions > 1GHz & Band Edge

Requirement(s):

Spec	Item	Requirement	Applicable
§ 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(a)	☒
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 characterization. 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.		
Test Date	08/06/2013	Environmental condition	Temperature 24oC Relative Humidity 48% Atmospheric Pressure 1019mbar
Remark	-		
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test Results for CFD Model:

Normal Mode - Radiated Spurious Emissions

Low Channel @ 2402MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
4803.8	173	1.05	V	32.9	3.76	32.55	58.16	74	-15.84	PK
4803.8	173	1.05	V	32.9	3.76	32.55	49.93	54	-4.07	AV
7206.5	183	1.00	H	35.10	3.18	32.39	63.60	74	-10.4	PK
7206.5	183	1.00	H	35.10	3.18	32.39	50.32	54	-3.68	AV
Remark	Emission was scanned up to 40GHz; no emissions were detected above the noise floor which was at least 20dB below the specification limit; both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

Mid Channel @ 2441MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
4882.3	170	1.00	V	32.9	3.76	32.55	55.14	74	-18.86	PK
4882.3	170	1.00	V	32.9	3.76	32.55	48.41	54	-5.59	AV
7322.7	193	1.05	H	35.10	3.18	32.39	62.83	74	-11.7	PK
7322.7	193	1.05	H	35.10	3.18	32.39	49.37	54	-4.63	AV
Remark	Emission was scanned up to 40GHz; no emissions were detected above the noise floor which was at least 20dB below the specification limit; both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

High Channel @ 2480MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
4960.3	135	1.00	V	32.9	3.76	32.55	54.06	74	-19.94	PK
4960.3	135	1.00	V	32.9	3.76	32.55	47.14	54	-6.86	AV
7440.5	133	1.05	H	35.10	3.18	32.39	61.20	74	-12.80	PK
7440.5	133	1.05	H	35.10	3.18	32.39	48.13	54	-5.87	AV
Remark	Emission was scanned up to 40GHz; no emissions were detected above the noise floor which was at least 20dB below the specification limit; both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

Normal mode - Band Edge

2400MHz-2483.5MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
2390	263	1.00	V	28.8	2.52	32.08	42.32	74	-31.68	PK
2390	263	1.00	V	28.8	2.52	32.08	29.63	54	-24.37	AV
2483.5	217	1.05	V	30.3	2.52	32.34	49.53	74	-24.47	PK
2483.5	217	1.05	V	30.3	2.52	32.34	39.98	54	-14.02	AV
Remark	Both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

EDR Mode - Radiated Spurious Emissions

Low Channel @ 2402MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
4804.3	166	1.00	V	32.9	3.76	32.55	59.20	74	-14.8	PK
4804.3	166	1.00	V	32.9	3.76	32.55	48.48	54	-5.52	AV
7206.6	190	1.00	H	35.10	3.18	32.39	63.44	74	-10.56	PK
7206.6	190	1.00	H	35.10	3.18	32.39	50.78	54	-3.22	AV
Remark	Emission was scanned up to 40GHz; no emissions were detected above the noise floor which was at least 20dB below the specification limit; both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

Mid Channel @ 2441MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
4882.2	169	1.05	V	32.9	3.76	32.55	54.19	74	-19.81	PK
4882.2	169	1.05	V	32.9	3.76	32.55	44.43	54	-9.51	AV
7323.1	190	1.05	H	35.10	3.18	32.39	62.13	74	-11.87	PK
7323.1	190	1.05	H	35.10	3.18	32.39	49.15	54	-4.85	AV
Remark	Emission was scanned up to 40GHz; no emissions were detected above the noise floor which was at least 20dB below the specification limit; both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

High Channel @ 2480MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
4960.9	208	1.00	V	32.9	3.76	32.55	52.01	74	-21.99	PK
4960.9	208	1.00	V	32.9	3.76	32.55	42.83	54	-11.17	AV
7440.2	134	1.00	V	35.10	3.18	32.39	60.95	74	-13.05	PK
7440.2	134	1.00	V	35.10	3.18	32.39	49.02	54	-4.98	AV
Remark	Emission was scanned up to 40GHz; no emissions were detected above the noise floor which was at least 20dB below the specification limit; both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

EDR mode - Band Edge

2400MHz-2483.5MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
2390	262	1.00	V	28.8	2.52	32.08	50.44	74	-23.56	PK
2390	262	1.00	V	28.8	2.52	32.08	30.27	54	-23.73	AV
2483.5	244	1.00	V	30.3	2.52	32.34	51.54	74	-22.46	PK
2483.5	244	1.00	V	30.3	2.52	32.34	41.48	54	-12.52	AV
Remark	Both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

Test Results for AIO Model:

Normal Mode - Radiated Spurious Emissions

Low Channel @ 2402MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
4804.6	190	1.00	V	32.9	3.76	32.55	60.39	74	-13.61	PK
4804.6	190	1.00	V	32.9	3.76	32.55	49.56	54	-4.44	AV
7206.3	171	1.00	H	35.10	3.18	32.39	64.22	74	-9.78	PK
7206.3	171	1.00	H	35.10	3.18	32.39	50.97	54	-3.03	AV
Remark	Emission was scanned up to 40GHz; no emissions were detected above the noise floor which was at least 20dB below the specification limit; both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

Mid Channel @ 2441MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
4881.8	182	1.00	V	32.9	3.76	32.55	58.17	74	-15.83	PK
4881.8	182	1.00	V	32.9	3.76	32.55	50.32	54	-3.68	AV
7322.8	211	1.05	H	35.10	3.18	32.39	64.54	74	-9.46	PK
7322.8	211	1.05	H	35.10	3.18	32.39	52.69	54	-1.31	AV
Remark	Emission was scanned up to 40GHz; no emissions were detected above the noise floor which was at least 20dB below the specification limit; both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

High Channel @ 2480MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
4959.8	160	1.00	V	32.9	2.38	32.55	57.01	74	-16.99	PK
4959.8	160	1.00	V	32.9	2.38	32.55	47.67	54	-6.33	AV
7440.2	210	1.00	H	35.10	2.59	32.39	64.16	74	-9.84	PK
7440.2	210	1.00	H	35.10	2.59	32.39	53.07	54	-0.93	AV
Remark	Emission was scanned up to 40GHz; no emissions were detected above the noise floor which was at least 20dB below the specification limit; both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

Normal mode - Band Edge

2400MHz-2483.5MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
2390	264	1.00	V	28.8	2.52	32.08	48.64	74	-25.36	PK
2390	264	1.00	V	28.8	2.52	32.08	35.36	54	-18.64	AV
2483.5	258	1.00	H	30.3	2.52	32.34	53.19	74	-20.81	PK
2483.5	258	1.00	H	30.3	2.52	32.34	46.42	54	-7.58	AV
Remark	Both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

EDR Mode - Radiated Spurious Emissions

Low Channel @ 2402MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
4804.1	166	1.00	V	32.9	3.76	32.55	59.20	74	-14.8	PK
4804.1	166	1.00	V	32.9	3.76	32.55	48.48	54	-5.52	AV
7206.1	190	1.00	H	35.10	3.18	32.39	63.44	74	-10.56	PK
7206.1	190	1.00	H	35.10	3.18	32.39	50.78	54	-3.22	AV
Remark	Emission was scanned up to 40GHz; no emissions were detected above the noise floor which was at least 20dB below the specification limit; both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

Mid Channel @ 2441MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
4882.2	169	1.05	V	32.9	3.76	32.55	54.19	74	-19.81	PK
4882.2	169	1.05	V	32.9	3.76	32.55	44.43	54	-9.51	AV
7323.1	190	1.05	H	35.10	3.18	32.39	62.13	74	-11.87	PK
7323.1	190	1.05	H	35.10	3.18	32.39	49.15	54	-4.85	AV
Remark	Emission was scanned up to 40GHz; no emissions were detected above the noise floor which was at least 20dB below the specification limit; both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

High Channel @ 2480MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
4960.9	208	1.00	V	32.9	3.76	32.55	52.01	74	-21.99	PK
4960.9	208	1.00	V	32.9	3.76	32.55	42.83	54	-11.17	AV
7440.2	134	1.00	V	35.10	3.18	32.39	60.95	74	-13.05	PK
7440.2	134	1.00	V	35.10	3.18	32.39	49.02	54	-4.98	AV
Remark	Emission was scanned up to 40GHz; no emissions were detected above the noise floor which was at least 20dB below the specification limit; both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

EDR mode - Band Edge

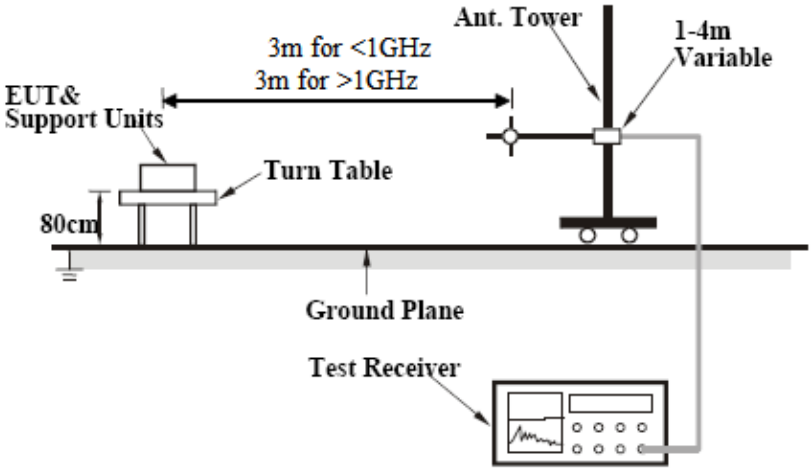
2400MHz-2483.5MHz @ 3 Meter

Frequency (MHz)	Direction (degree)	Height (m)	Polarity (H/V)	Antenna Loss (dB)	Cable Loss (dB)	Amplifier (dB)	Corrected Reading @ 3m (dBuV/m)	15.247 Limit @ 3m (dBuV/m)	Margin (dBuV/m)	Detector (pk/avg)
2390	262	1.00	V	28.8	2.52	32.08	50.44	74	-23.56	PK
2390	262	1.00	V	28.8	2.52	32.08	30.27	54	-23.73	AV
2483.5	244	1.00	V	30.3	2.52	32.34	51.54	74	-22.46	PK
2483.5	244	1.00	V	30.3	2.52	32.34	41.48	54	-12.52	AV
Remark	Both horizontal and vertical polarization had been verified. Both hopping mode and single channel continuous transmit mode had been verified.									

10.10.3 Receiver Spurious Emissions

Requirement(s):

Spec	Item	Requirement	Applicable
§ 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(a)	☐

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.

Test Date	N/A	Environmental condition	Temperature N/A Relative Humidity N/A Atmospheric Pressure N/A
Remark	-		
Result	☒ Pass ☐ Fail		

Test Data ☐ Yes (See below) ☒ N/A

Test Plot ☐ Yes (See below) ☒ N/A

Note: Only noise floor was detected. There's no outstanding emission.

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Cycle	Cal Due	In use
Conducted Emissions						
R & S Receiver	ESIB 40	100179	04/20/2012	1 Year	04/20/2013	
R&S LISN	ESH2-Z5	861741/013	05/18/2012	1 Year	05/18/2013	☐
CHASE LISN	MN2050B	1018	07/24/2012	1 Year	07/24/2013	☐
Sekonic Hygro Hermograph	ST-50	HE01-000092	05/25/2012	1 Year	05/25/2013	☐
Radiated Emissions						
R & S Receiver	ESL6	100178	03/01/2013	1 Year	03/01/2014	☑
R & S Receiver	ESIB 40	100179	04/20/2013	1 Year	04/20/2014	☑
Bi-Log antenna (30MHz~2GHz)	JB1	A030702	02/09/2013	1 Year	02/09/2014	☑
Horn Antenna (1-26.5GHz)	3115	10SL0059	04/26/2013	1 Year	04/26/2014	☑
Horn Antenna (18-40 GHz)	AH-840	101013	04/23/2012	1 Year	04/23/2013	☐
Pre-Amplifier (1-26.5GHz)	8449B	3008A00715	05/30/2012	1 Year	05/30/2013	☑
Microwave Preamplifier (18-40 GHz)	PA-840	181251	05/30/2012	1 Year	05/30/2013	☐
3 Meters SAC	3M	N/A	10/13/2011	1 Year	10/13/2012	☐
10 Meters OATS	10M	N/A	06/05/2013	1 Year	06/05/2014	☑
Sekonic Hygro Hermograph	ST-50	HE01-000092	05/25/2013	1 Year	05/25/2014	☑
Sekonic Hygro Hermograph	ST-50	HE01-000092	05/25/2013	1 Year	05/25/2014	☑
Power Analyzer	PACS-1	72394	5/19/2013	1 Year	05/19/2014	☐
Sekonic Hygro Hermograph	ST-50	HE01-000092	05/25/2013	1 Year	05/25/2014	☑

Annex B. USER MANUAL, BLOCK & CIRCUIT DIAGRAM

Please see attachment

Annex C. 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
HongKong 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 Measuremet
Australia CAB Regocnition		**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

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