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FCC RADIO TEST REPORT

Applicant's company	**Wistron NeWeb Corporation**
Applicant Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308 Taiwan
FCC ID	**NKR-SWA52**
Manufacturer's company	**Wistron NeWeb Corporation**
Manufacturer Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308 Taiwan

Product Name	Wireless Audio Module
Brand Name	WNC
Model No.	SWA52
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5725 ~ 5850 MHz
Received Date	Nov. 24, 2015
Final Test Date	Dec. 26, 2015
Submission Type	Original Equipment

Statement

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013**, **47 CFR FCC Part 15 Subpart E, KDB789033 D02 v01.**

The test equipment used to perform the test is calibrated and traceable to NML/ROC.

Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR5N2023	Rev. 01	Initial issue of report	Jan. 05, 2016

1. VERIFICATION OF COMPLIANCE

Product Name	:	Wireless Audio Module
Brand Name	:	WNC
Model No.	:	SWA52
Applicant	:	Wistron NeWeb Corporation
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Nov. 24, 2015 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	30.41 dB
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.3	15.407(e)	6dB Spectrum Bandwidth	Complies	-
4.4	15.407(a)	Maximum Conducted Output Power	Complies	17.61 dB
4.5	15.407(a)	Power Spectral Density	Complies	24.56 dB
4.6	15.407(b)	Radiated Emissions	Complies	2.30 dB
4.7	15.407(b)	Band Edge Emissions	Complies	8.01 dB
4.8	15.407(g)	Frequency Stability	Complies	-
4.9	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	1TX, 1RX
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation type	pi/4-DQPSK
Data Rate (Mbps)	3Mbps
Frequency Range	5725 ~ 5850 MHz
Channel Number	46
Channel Spacing	2.0MHz
Channel Band Width (99%)	1.95 MHz
Maximum Conducted Output Power	12.39 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Communication Mode	☒ IP Based (Load Based)	☐ Frame Based
Beamforming Function	☐ With beamforming	☒ Without beamforming

3.2. Accessories

N/A

3.3. Table for Filed Antenna

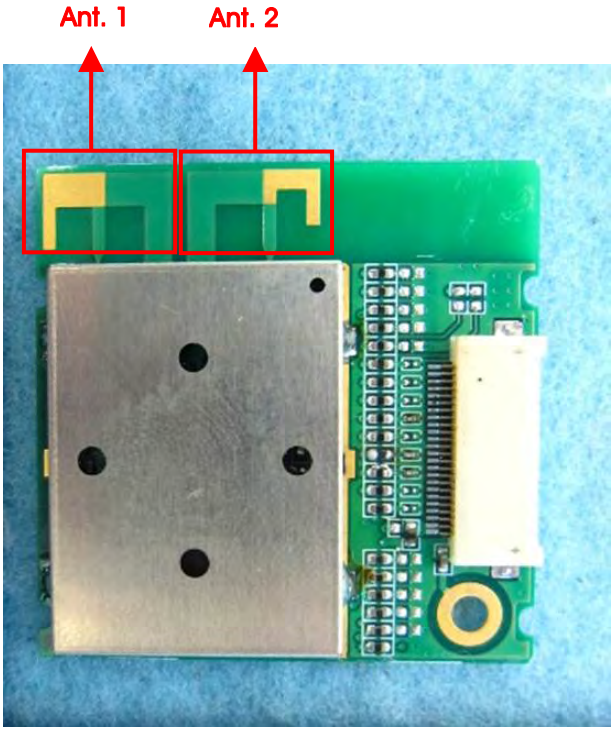
Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	WNC	SWA52	Printed Antenna	N/A	4.9
2	WNC	SWA52	Printed Antenna	N/A	3.5

Note: The EUT has two antennas.

The EUT supports the antenna with TX and RX diversity functions.

Both Ant.1 and Ant.2 support transmit and receive functions, but only one of them will be used at one time.

The Ant.1 generated the worst case, so it was selected to test and record in the report.



3.4. Table for Carrier Frequencies

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5725~5850 MHz Band 4	2	5730.35 MHz	26	5778.35 MHz
	3	5732.35 MHz	:	:
	:	:	46	5818.35 MHz
	24	5774.35 MHz	47	5820.35 MHz
	25	5776.35 MHz	-	-

3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode		Data Rate	Channel	Antenna
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	pi/4-DQPSK	Band 4	3Mbps	2/25/47	1
Power Spectral Density	pi/4-DQPSK	Band 4	3Mbps	2/25/47	1
26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	pi/4-DQPSK	Band 4	3Mbps	2/25/47	1
6dB Spectrum Bandwidth Measurement	pi/4-DQPSK	Band 4	3Mbps	2/25/47	1
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	pi/4-DQPSK	Band 4	3Mbps	2/25/47	1
Band Edge Emission	pi/4-DQPSK	Band 4	3Mbps	2/25/47	1
Frequency Stability	pi/4-DQPSK	Band 4	-	2/25/47	1

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1: Normal Link

For Radiated Emission test (Below 1GHz):

Mode 1: Normal Link

For Radiated Emission test (Above 1GHz):

Radiated Emissions above 1GHz test was performed at its 3-axis (X-axis, Y-axis and Z-axis). Z-axis was the worst case, so it's recorded in this report.

Mode 1: CTX - in Z axis

3.6. Table for Testing Locations

Test Site Location					
Address:	No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.				
TEL:	886-3-656-9065				
FAX:	886-3-656-9085				
Test Site No.	**Site Category**	**Location**	**FCC Reg. No.**	**IC File No.**	**VCCI Reg. No**
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D	-
CO01-CB	Conduction	Hsin Chu	262045	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC).

3.7. Table for Supporting Units

For Test Site No: CO01-CB and 03CH01-CB (Below 1GHz)

Support Unit	Brand	Model	FCC ID
Fixture*2	WNC	AVTF0206-01C	N/A
Earphone	e-Power	S90W	N/A
iPod	Apple	A1136	DoC
Power adapter	N/A	CAD1005C	N/A
Power adapter	OEM	ADS10-W 050200	N/A
Wireless Audio Module (RX Device)	WNC	SWA52	NKR-SWA52

For Test Site No: 03CH01-CB (Above 1GHz)

Support Unit	Brand	Model	FCC ID
Fixture	WNC	AVTF0206-01C	N/A
Notebook	DELL	E4300	DoC
Power adapter	N/A	CAD1005C	N/A

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC
Fixture	WNC	AVTF0206-01C	N/A
Adapter	OEM	ADS10-W 050200	N/A

3.8. Table for Parameters of Test Software Setting

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Test Software Version	vmxui.exe		
Mode	Test Frequency (MHz)		
	5730.35 MHz	5776.35 MHz	5820.35 MHz
pi/4-DQPSK	Default	Default	Default

3.9. EUT Operation during Test

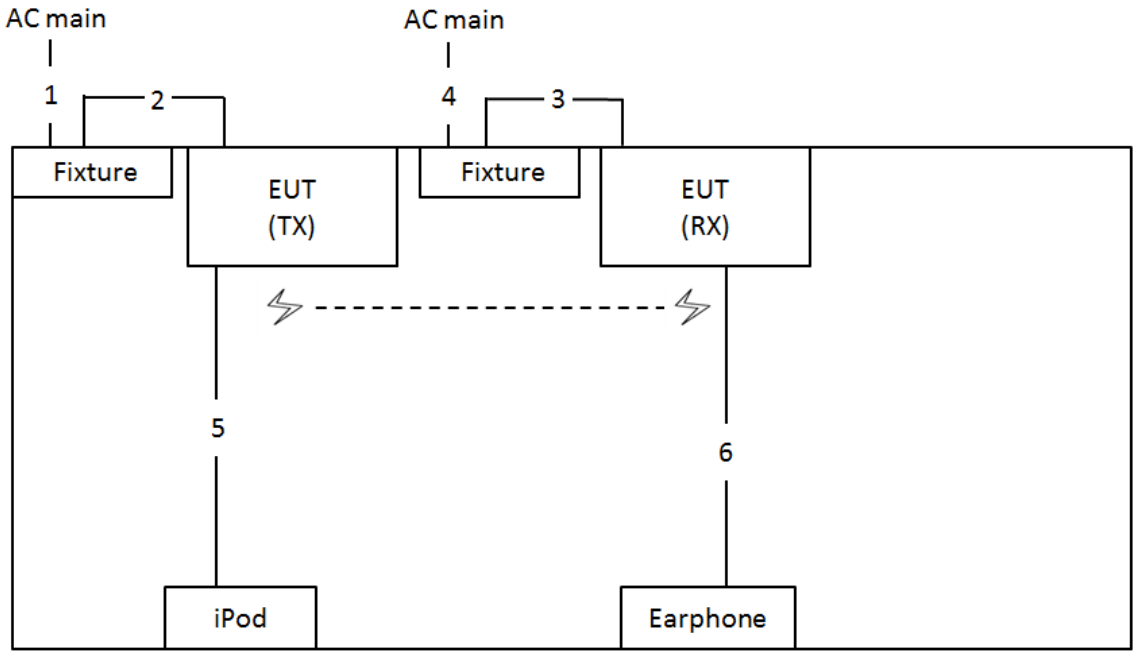
The EUT was programmed to be in continuously transmitting mode.

3.10. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
pi/4-DQPSK	1.000	1.000	100.00	0.00	0.01

3.11. Test Configurations

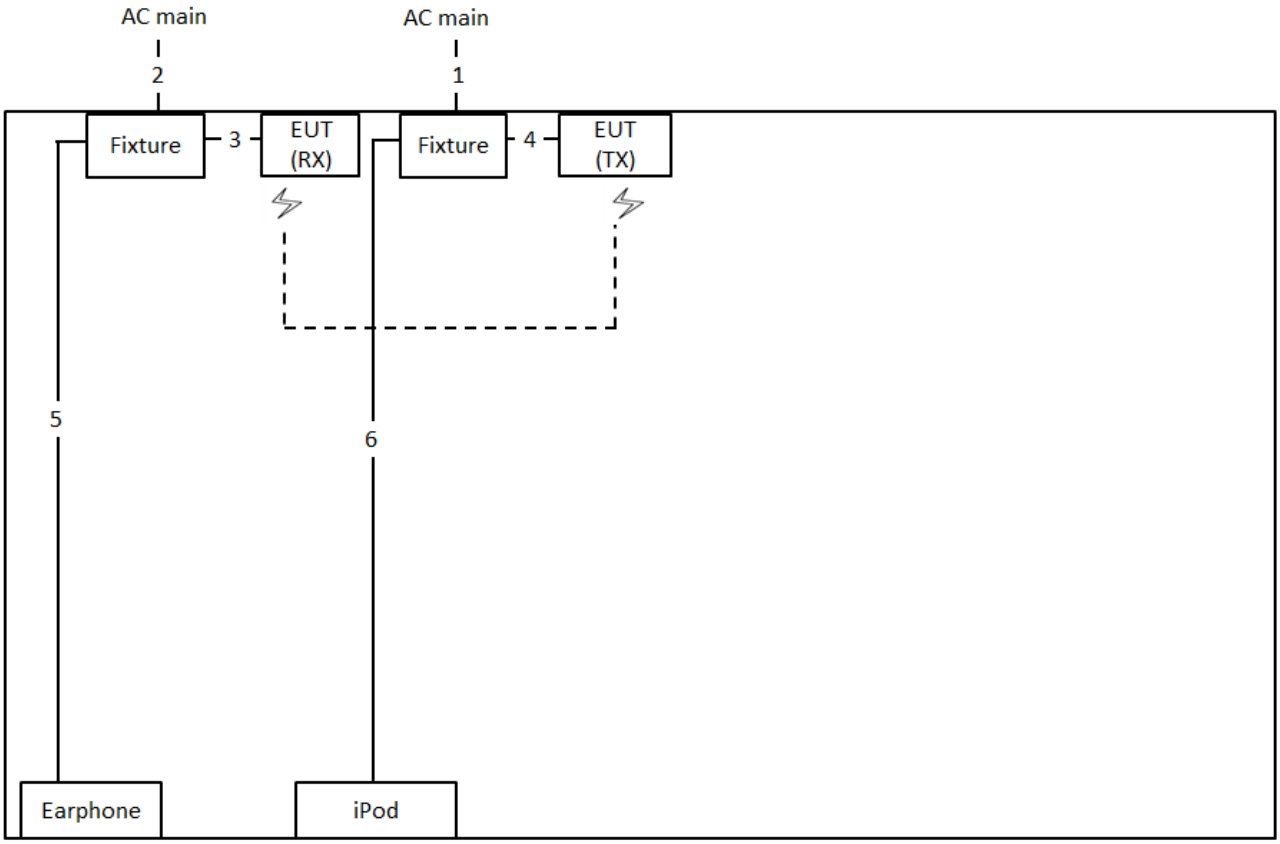
3.11.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	1.4m
2	Computer bus cable	No	0.1m
3	Computer bus cable	No	0.1m
4	Power cable	No	1.4m
5	USB cable	Yes	1m
6	Audio cable	No	1.4m

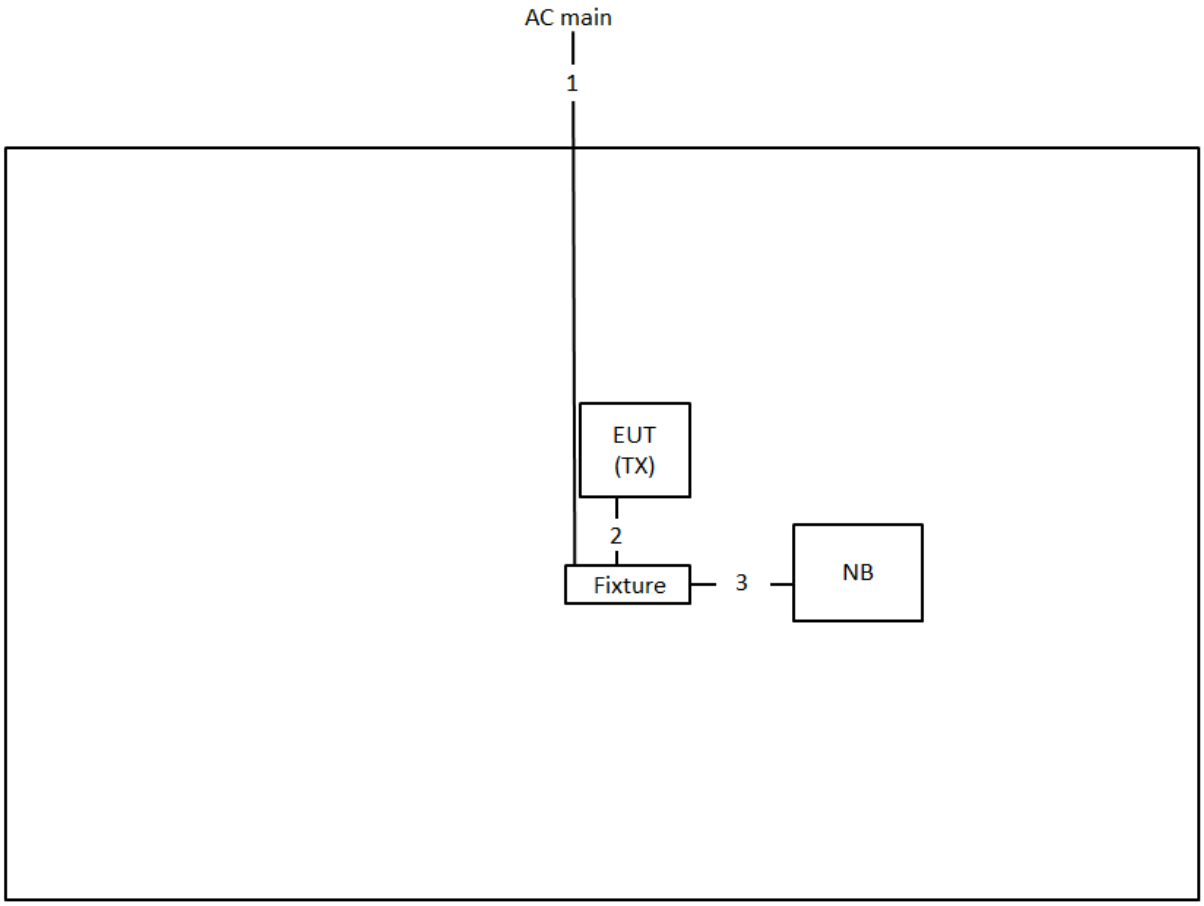
3.11.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz ~1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.4m
2	Power cable	No	1.4m
3	Computer bus cable	No	0.1m
4	Computer bus cable	No	0.1m
5	Audio cable	No	1.4m
6	USB cable	Yes	1m

Test Configuration: above 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.4m
2	Computer bus cable	No	0.1m
3	USB cable	Yes	1m

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For this product that is designed to connect to the 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 below limits table.

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

4.1.2. Measuring Instruments and Setting

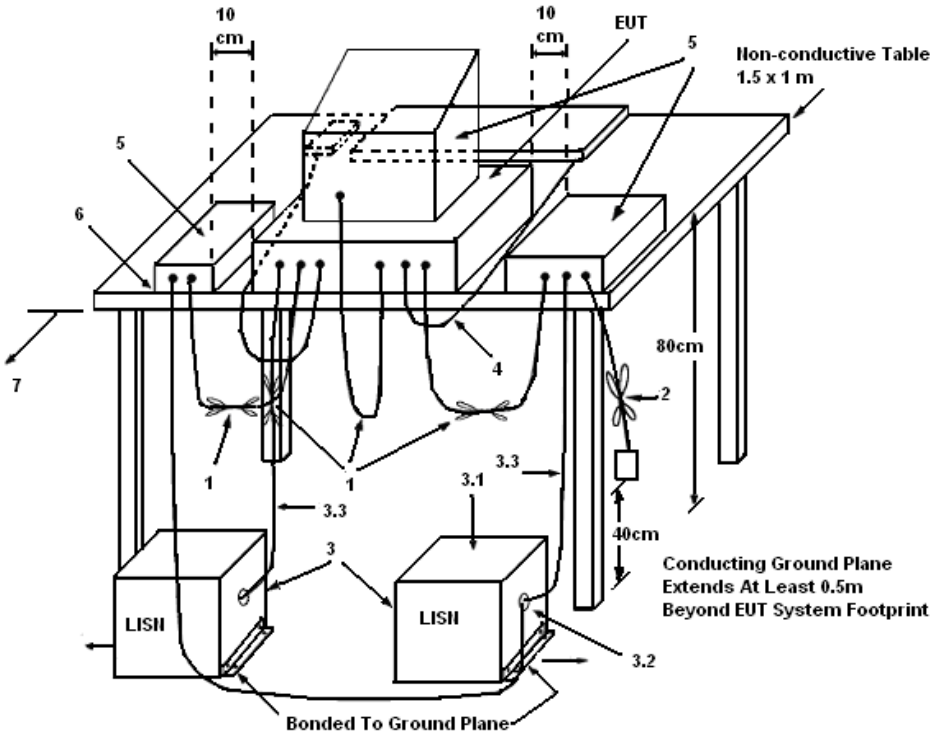
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.4. Test Setup Layout



LEGEND:

(1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

(2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

(3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.

(3.1) All other equipment powered from additional LISN(s).

(3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.

(3.3) LISN at least 80 cm from nearest part of EUT chassis.

(4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

(5) Non-EUT components of EUT system being tested.

(6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

(7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.5. Test Deviation

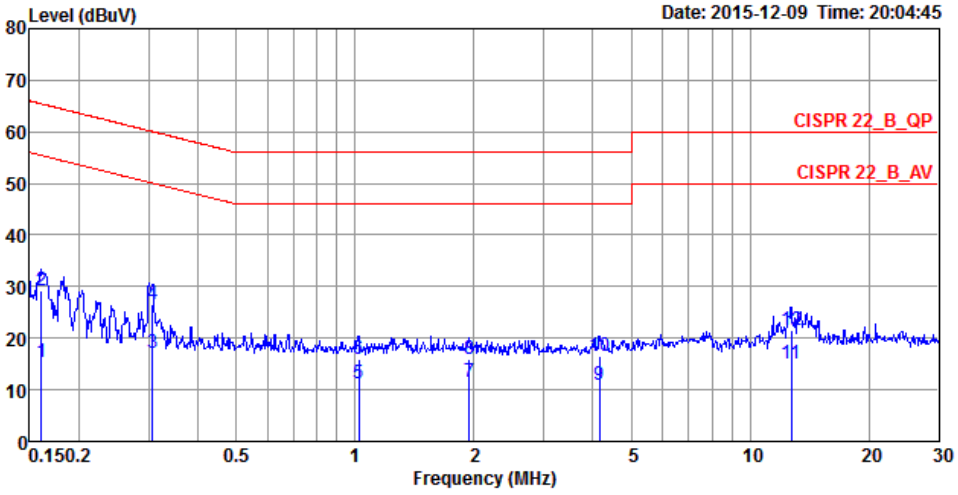
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

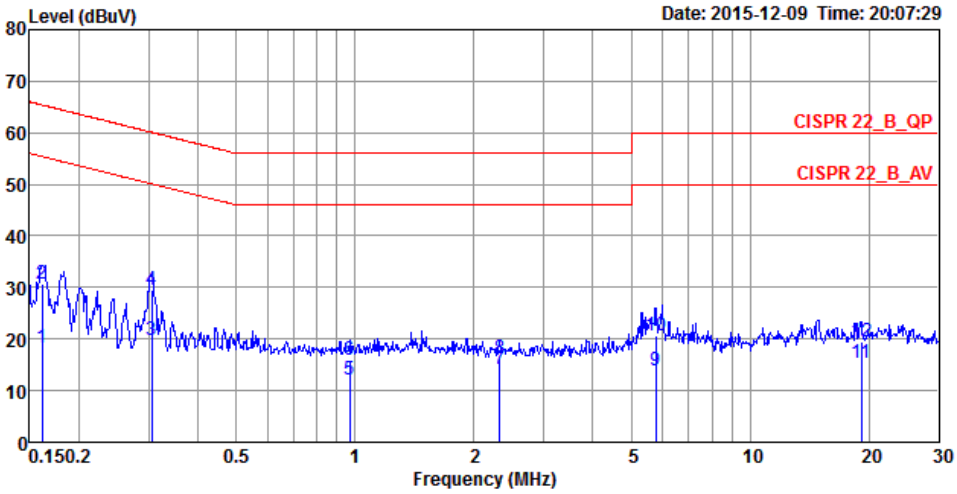
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25°C	Humidity	58%
Test Engineer	Parody Lin	Phase	Line
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1607	15.49	-39.94	55.43	5.54	9.93	0.02	LINE	Average
2	0.1607	29.35	-36.08	65.43	19.40	9.93	0.02	LINE	QP
3	0.3067	17.09	-32.97	50.06	7.12	9.93	0.04	LINE	Average
4	0.3067	26.49	-33.57	60.06	16.52	9.93	0.04	LINE	QP
5	1.0211	11.08	-34.92	46.00	1.07	9.96	0.05	LINE	Average
6	1.0211	15.81	-40.19	56.00	5.80	9.96	0.05	LINE	QP
7	1.9489	11.54	-34.46	46.00	1.49	9.99	0.06	LINE	Average
8	1.9489	15.98	-40.02	56.00	5.93	9.99	0.06	LINE	QP
9	4.1575	10.98	-35.02	46.00	0.88	10.03	0.07	LINE	Average
10	4.1575	16.40	-39.60	56.00	6.30	10.03	0.07	LINE	QP
11	12.7161	15.00	-35.00	50.00	4.48	10.27	0.25	LINE	Average
12	12.7161	21.40	-38.60	60.00	10.88	10.27	0.25	LINE	QP

Temperature	25°C	Humidity	58%
Test Engineer	Parody Lin	Phase	Neutral
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1616	18.23	-37.15	55.38	8.43	9.78	0.02	NEUTRAL	Average
2	0.1616	30.81	-34.57	65.38	21.01	9.78	0.02	NEUTRAL	QP
3	0.3051	19.69	-30.41	50.10	9.86	9.79	0.04	NEUTRAL	Average
4	0.3051	29.39	-30.71	60.10	19.56	9.79	0.04	NEUTRAL	QP
5	0.9684	12.12	-33.88	46.00	2.26	9.81	0.05	NEUTRAL	Average
6	0.9684	16.03	-39.97	56.00	6.17	9.81	0.05	NEUTRAL	QP
7	2.3213	14.05	-31.95	46.00	4.14	9.85	0.06	NEUTRAL	Average
8	2.3213	16.09	-39.91	56.00	6.18	9.85	0.06	NEUTRAL	QP
9	5.7743	13.83	-36.17	50.00	3.78	9.93	0.12	NEUTRAL	Average
10	5.7743	20.63	-39.37	60.00	10.58	9.93	0.12	NEUTRAL	QP
11	19.1220	15.39	-34.61	50.00	4.96	10.17	0.26	NEUTRAL	Average
12	19.1220	19.42	-40.58	60.00	8.99	10.17	0.26	NEUTRAL	QP

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits.

4.2.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

26dB Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 26dB Bandwidth
RBW	Approximately 1% of the emission bandwidth
VBW	VBW > RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto
99% Occupied Bandwidth	
Spectrum Parameters	**Setting**
Span	1.5 times to 5.0 times the OBW
RBW	1 % to 5 % of the OBW
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold

4.2.3. Test Procedures

For Radiated 26dB Bandwidth and 99% Occupied Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.2.4. Test Setup Layout

For Radiated 26dB Bandwidth and 99% Occupied Bandwidth Measurement:

This test setup layout is the same as that shown in section 4.6.4.

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

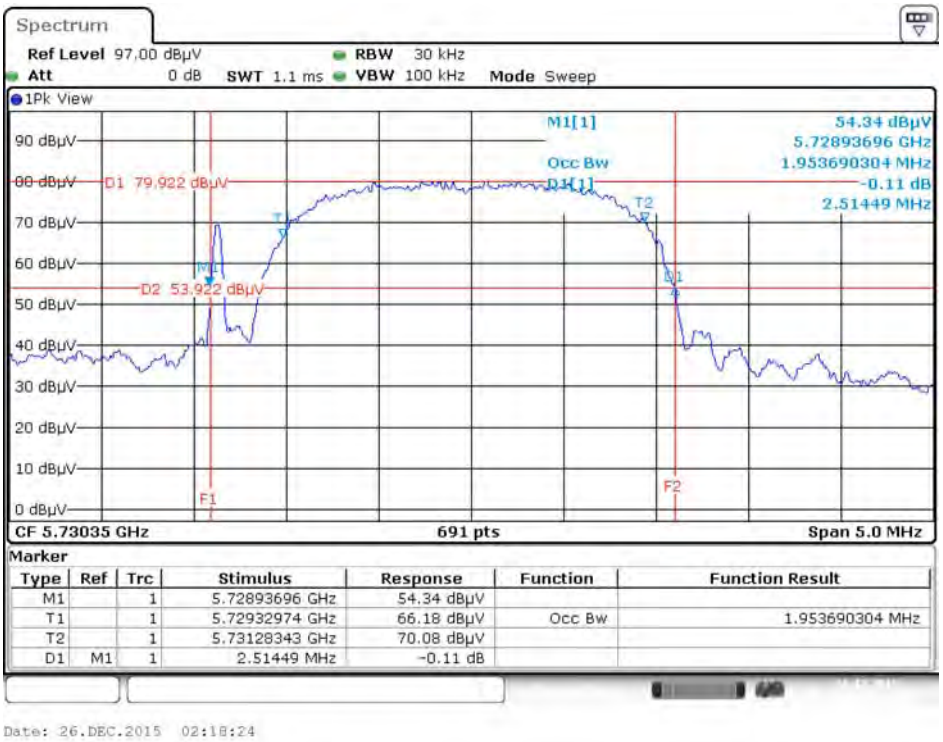
The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of 26dB Bandwidth and 99% Occupied Bandwidth

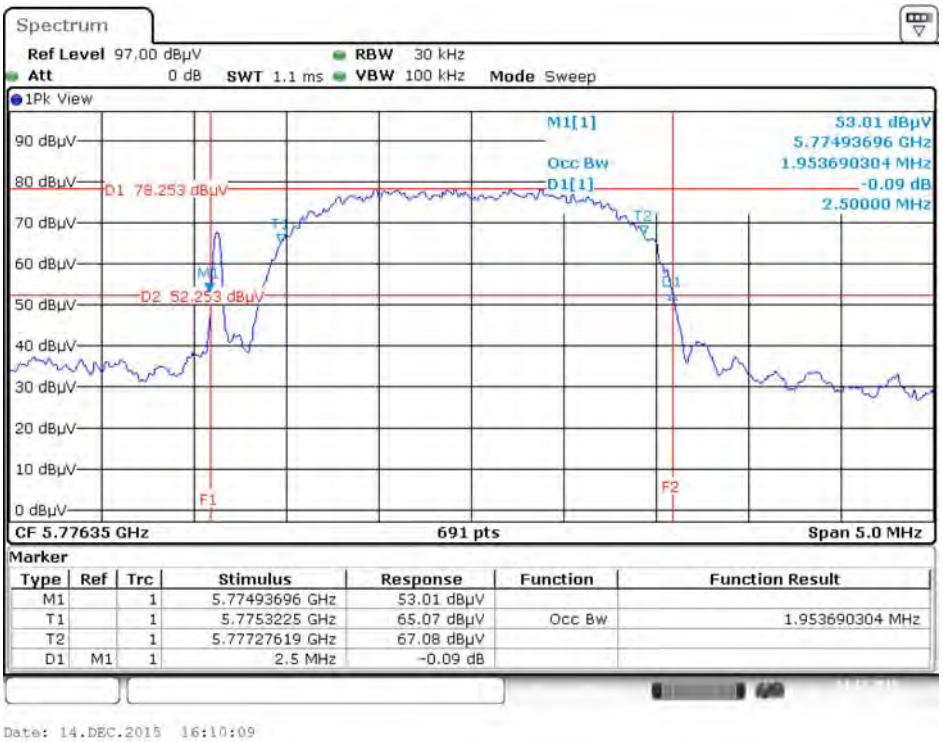
Temperature	24°C	Humidity	60%
Test Engineer	Clemens Fang / Roki Liu		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
pi/4-DQPSK	5730.35 MHz	2.51	1.95
	5776.35 MHz	2.50	1.95
	5820.35 MHz	2.49	1.95

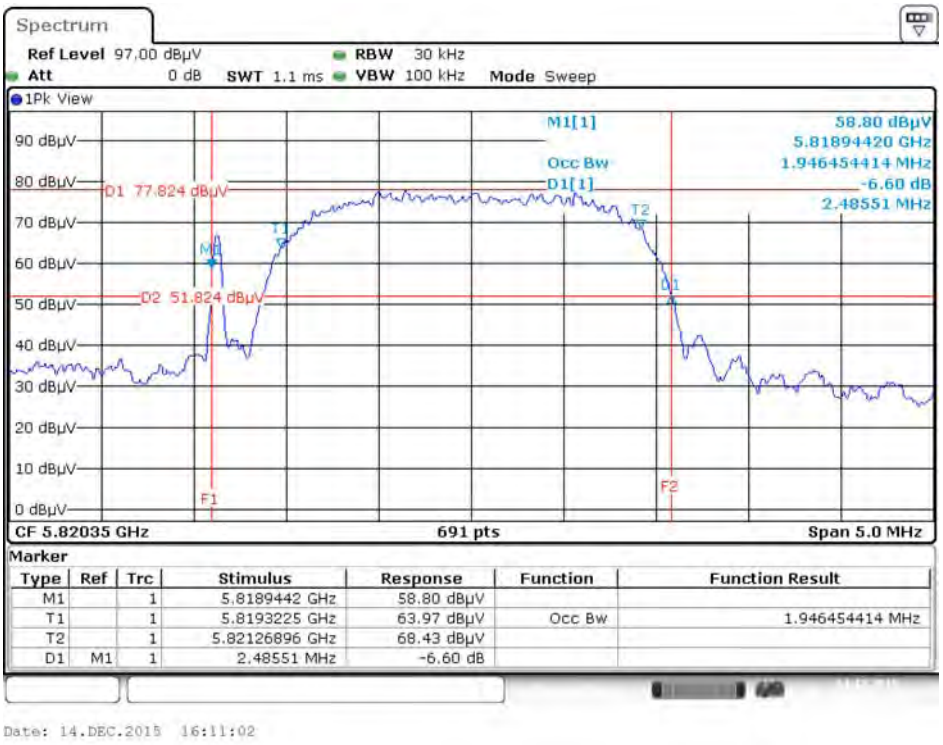
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration pi/4-DQPSK / Antenna 1 / 5730.35 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration pi/4-DQPSK / Antenna 1 / 5776.35 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration pi/4-DQPSK / Antenna 1 / 5820.35 MHz



4.3. 6dB Spectrum Bandwidth Measurement

4.3.1. Limit

For digital modulation systems, the minimum 6dB bandwidth shall be at least 500 kHz.

4.3.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer.

6dB Spectrum Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.3.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (C) Emission Bandwidth.
3. Measured the spectrum width with power higher than 6dB below carrier.

4.3.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

This test setup layout is the same as that shown in section 4.6.4.

4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of 6dB Spectrum Bandwidth

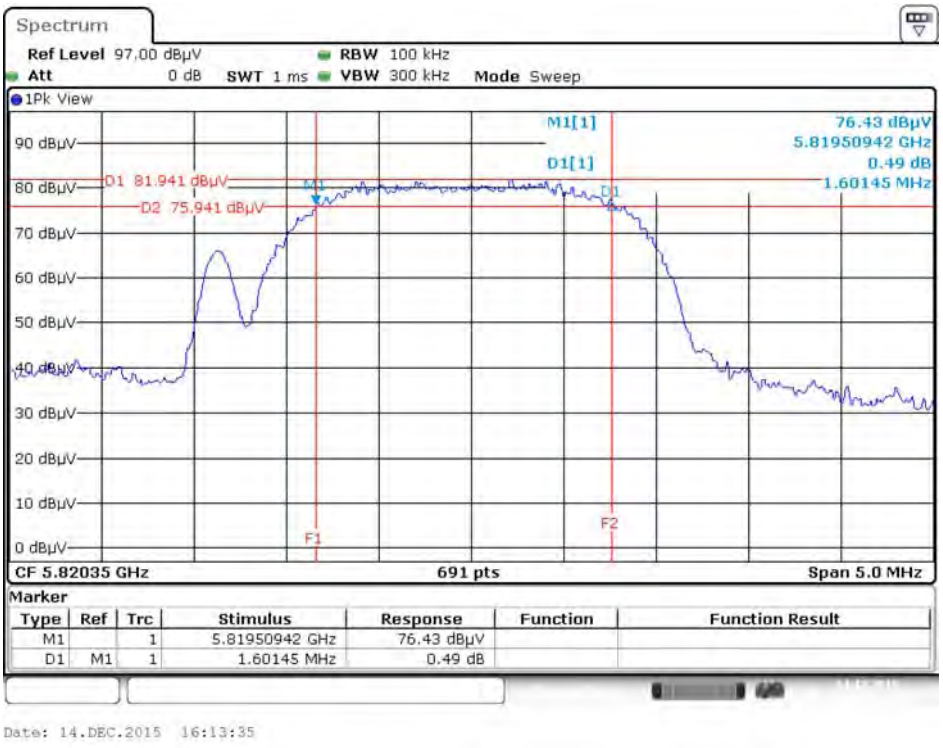
Temperature	24°C	Humidity	60%
Test Engineer	Clemens Fang / Roki Liu		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
pi/4-DQPSK	5730.35 MHz	1.67	500	Complies
	5776.35 MHz	1.68	500	Complies
	5820.35 MHz	1.60	500	Complies

Note: All the test values were listed in the report.

For plots, only the channel with worse result was shown.

6 dB Bandwidth Plot on Configuration pi/4-DQPSK / Antenna 1 / 5820.35 MHz



4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

Frequency Band		Limit
☒	5.725~5.85 GHz	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

4.4.2. Measuring Instruments and Setting

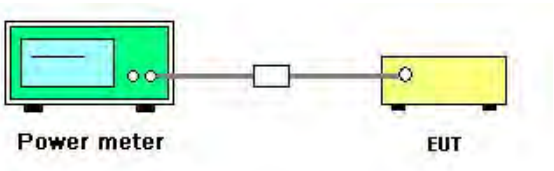
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	AVERAGE

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power Meter (PM) =>b) Method PM-G (Measurement using a gated RF average power meter).
3. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Maximum Conducted Output Power

Temperature	24°C	Humidity	60%
Test Engineer	Clemens Fang / Roki Liu	Test Date	Dec. 14, 2015~Dec. 26, 2015

Mode	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
		Antenna 1		
pi/4-DQPSK	5730.35 MHz	12.39	30.00	Complies
	5776.35 MHz	12.01	30.00	Complies
	5820.35 MHz	11.98	30.00	Complies

4.5. Power Spectral Density Measurement

4.5.1. Limit

The following table is power spectral density limits and decrease power density limit rule refer to section 4.4.1.

Frequency Band		Limit
☒	5.725~5.85 GHz	30 dBm/500kHz

4.5.2. Measuring Instruments and Setting

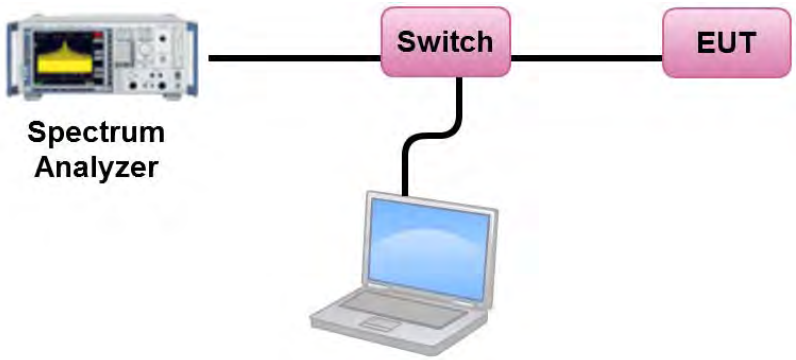
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1000 kHz
VBW	3000 kHz
Detector	RMS
Trace	AVERAGE
Sweep Time	Auto
Trace Average	100 times
Note: If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.	

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.
4. For 5.725~5.85 GHz, the measured result of PSD level must add 10log(500kHz/RBW) and the final result should ≤ 30 dBm.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Power Spectral Density

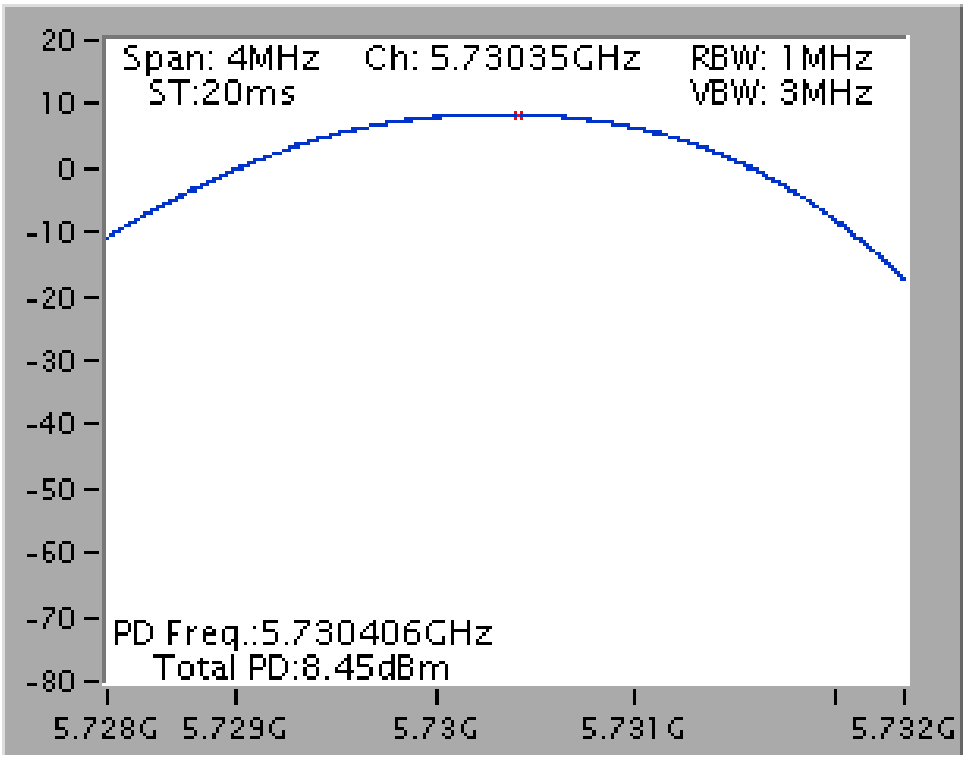
Temperature	24°C	Humidity	60%
Test Engineer	Clemens Fang / Roki Liu		

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
2	5730.35 MHz	8.45	-3.01	5.44	30.00	Complies
25	5776.35 MHz	8.08	-3.01	5.07	30.00	Complies
47	5820.35 MHz	7.36	-3.01	4.35	30.00	Complies

Note: All the test values were listed in the report.

For plots, only the channel with worse result was shown.

Power Density Plot on Configuration pi/4-DQPSK / Antenna 1 / 5730.35 MHz



4.6. Radiated Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.725-5.85 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 e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.6.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	40 GHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (Emission in non-restricted band)	1MHz / 3MHz for peak

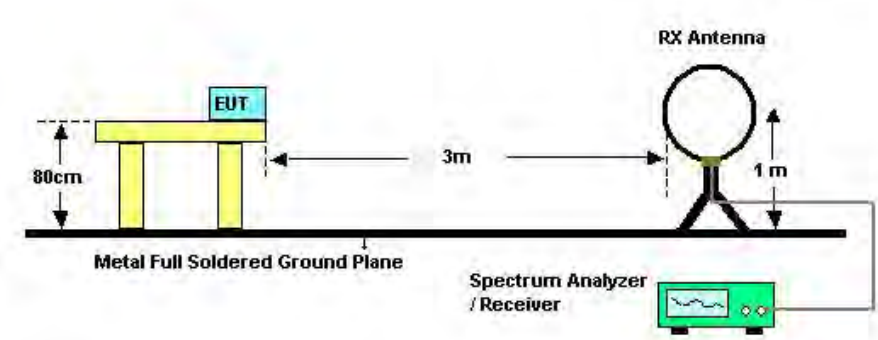
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

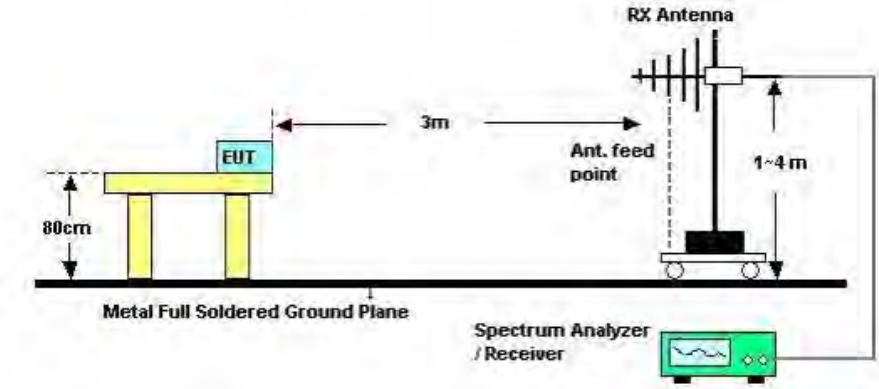
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 1/T VBW for average reading in spectrum analyzer.
7. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
8. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
9. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.6.4. Test Setup Layout

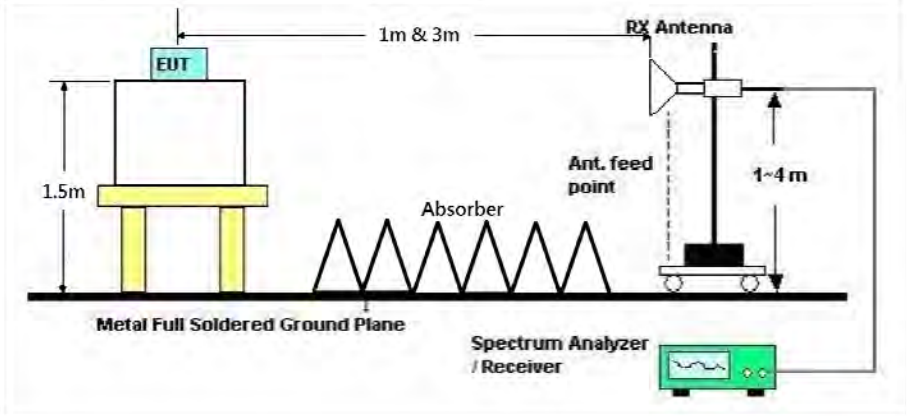
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Results of Radiated Emissions (9kHz~30MHz)

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung	Configurations	Normal Link
Test Date	Nov. 27, 2015		

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

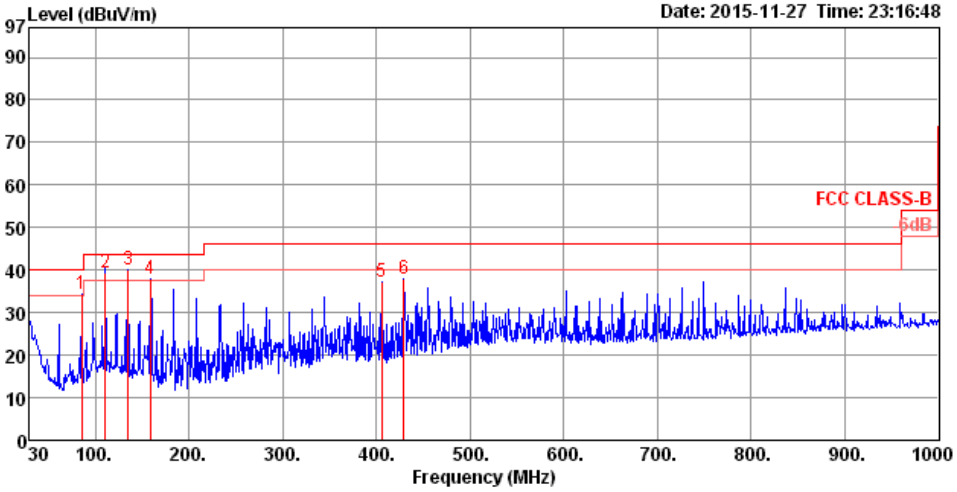
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

4.6.8. Results of Radiated Emissions (30MHz~1GHz)

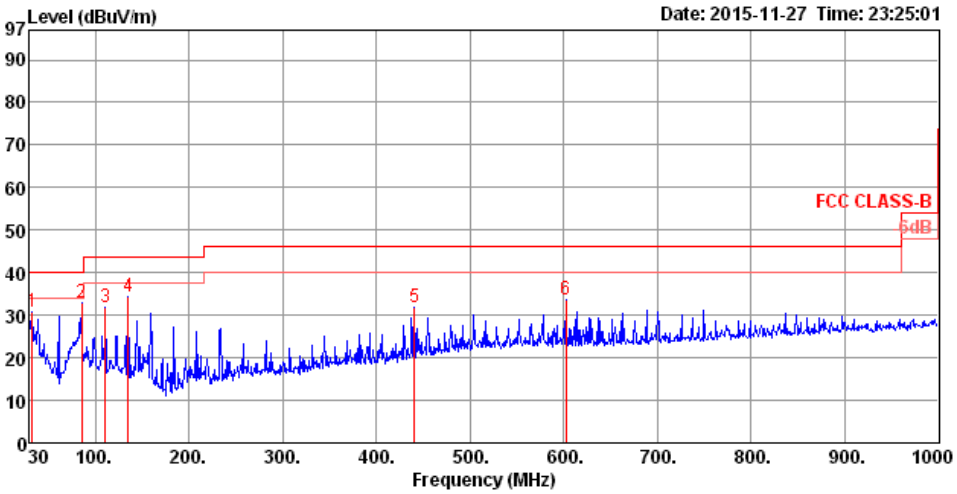
Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung	Configurations	Normal Link

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	85.29	34.31	40.00	-5.69	50.82	0.75	8.43	25.69	400	0	HORIZONTAL	Peak
2	110.51	39.47	43.50	-4.03	52.88	0.87	12.41	26.69	112	236	HORIZONTAL	QP
3	134.76	40.26	43.50	-3.24	54.99	0.92	12.31	27.96	400	0	HORIZONTAL	Peak
4	159.01	38.07	43.50	-5.43	55.47	1.01	10.63	29.04	400	0	HORIZONTAL	Peak
5	405.39	37.11	46.00	-8.89	47.24	1.55	16.57	28.25	400	0	HORIZONTAL	Peak
6	429.64	37.99	46.00	-8.01	47.42	1.61	16.86	27.90	400	0	HORIZONTAL	Peak

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	32.91	30.91	40.00	-9.09	37.04	0.53	18.13	24.79	100	0	VERTICAL	Peak
2	85.29	33.08	40.00	-6.92	49.59	0.75	8.43	25.69	100	0	VERTICAL	Peak
3	110.51	31.71	43.50	-11.79	45.12	0.87	12.41	26.69	100	0	VERTICAL	Peak
4	134.76	34.34	43.50	-9.16	49.07	0.92	12.31	27.96	100	0	VERTICAL	Peak
5	440.31	31.71	46.00	-14.29	40.84	1.63	16.99	27.75	100	0	VERTICAL	Peak
6	602.30	33.72	46.00	-12.28	40.72	1.93	19.02	27.95	100	0	VERTICAL	Peak

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4.6.9. Results for Radiated Emissions (1GHz~40GHz)

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung	Configurations	pi/4-DQPSK Band 4 CH 2 / Antenna 1
Test Date	Dec. 26, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11457.66	60.08	74.00	-13.92	42.41	12.89	35.23	40.01	HORIZONTAL	165	150	Peak
2	11457.98	49.41	54.00	-4.59	31.74	12.89	35.23	40.01	HORIZONTAL	165	150	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11457.94	51.70	54.00	-2.30	34.03	12.89	35.23	40.01	VERTICAL	41	100	Average
2	11457.98	61.72	74.00	-12.28	44.05	12.89	35.23	40.01	VERTICAL	41	100	Peak

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung	Configurations	pi/4-DQPSK Band 4 CH 25 / Antenna 1
Test Date	Dec. 04, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11552.68	61.06	74.00	-12.94	43.48	12.94	35.23	39.87	HORIZONTAL	126	150	Peak
2	11553.82	46.95	54.00	-7.05	29.37	12.94	35.23	39.87	HORIZONTAL	126	150	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11550.60	46.80	54.00	-7.20	29.22	12.94	35.23	39.87	VERTICAL	233	150	Average
2	11553.29	59.96	74.00	-14.04	42.38	12.94	35.23	39.87	VERTICAL	233	150	Peak

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung	Configurations	pi/4-DQPSK Band 4 CH 47 / Antenna 1
Test Date	Dec. 04, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	PreampFactor	AntennaFactor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11638.74	46.56	54.00	-7.44	29.08	12.97	35.22	39.73	HORIZONTAL	200	150	Average
2	11641.65	60.74	74.00	-13.26	43.26	12.97	35.22	39.73	HORIZONTAL	200	150	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	PreampFactor	AntennaFactor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11638.49	46.65	54.00	-7.35	29.17	12.97	35.22	39.73	VERTICAL	152	150	Average
2	11641.43	60.24	74.00	-13.76	42.76	12.97	35.22	39.73	VERTICAL	152	150	Peak

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4.7. Band Edge Emissions Measurement

4.7.1. Limit

For transmitters operating in the 5.725-5.85 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 e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.7.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (Emission in non-restricted band)	1MHz / 3MHz for Peak

4.7.3. Test Procedures

1. The test procedure is the same as section 4.6.3.

4.7.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.6.4.

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung	Configurations	pi/4-DQPSK Band 4 CH 2, 25, 47 / Antenna 1
Test Date	Dec. 04, 2015~Dec. 26, 2015		

Channel 2

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	5692.69	60.19	68.20	-8.01	52.20	8.95	33.00	32.04	HORIZONTAL	111	100	Peak
2	5724.52	61.86	78.20	-16.34	53.86	8.92	33.00	32.08	HORIZONTAL	111	100	Peak
3	5730.19	105.88			97.89	8.92	33.01	32.08	HORIZONTAL	111	100	Peak
4	5730.35	100.99			93.00	8.92	33.01	32.08	HORIZONTAL	111	100	Average

Item 3, 4 are the fundamental frequency at 5730.35 MHz.

Channel 25

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	5694.62	59.12	68.20	-9.08	51.13	8.95	33.00	32.04	VERTICAL	91	120	Peak
2	5718.59	58.03	78.20	-20.17	50.04	8.93	33.00	32.06	VERTICAL	91	120	Peak
3	5776.35	96.10			88.11	8.88	33.03	32.14	VERTICAL	91	120	Average
4	5776.67	101.13			93.14	8.88	33.03	32.14	VERTICAL	91	120	Peak
5	5854.81	58.39	78.20	-19.81	50.31	8.91	33.05	32.22	VERTICAL	91	120	Peak
6	5860.64	57.62	68.20	-10.58	49.51	8.93	33.06	32.24	VERTICAL	91	120	Peak

Item 3, 4 are the fundamental frequency at 5776.35 MHz.

Channel 47

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	5820.35	103.75			95.73	8.88	33.04	32.18	HORIZONTAL	47	100	Average
2	5820.51	108.47			100.45	8.88	33.04	32.18	HORIZONTAL	47	100	Peak
3	5856.57	61.53	78.20	-16.67	53.41	8.93	33.05	32.24	HORIZONTAL	47	100	Peak
4	5864.10	59.88	68.20	-8.32	51.77	8.93	33.06	32.24	HORIZONTAL	47	100	Peak

Item 1, 2 are the fundamental frequency at 5820.35 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

4.8. Frequency Stability Measurement

4.8.1. Limit

In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification).

4.8.2. Measuring Instruments and Setting

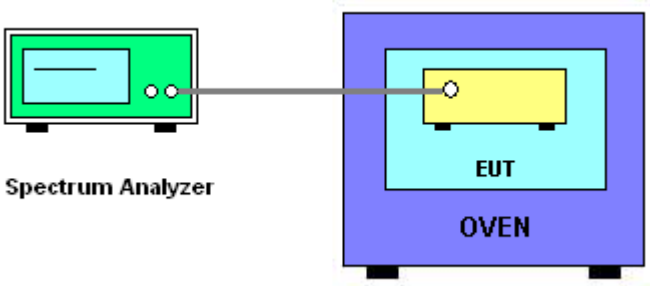
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	10 kHz
Sweep Time	Auto

4.8.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
6. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
7. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
8. Extreme temperature is 0°C~55°C.

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

The EUT was programmed to be in continuously un-modulation transmitting mode.

4.8.7. Test Result of Frequency Stability

Temperature	24°C	Humidity	60%
Test Engineer	Clemens Fang / Roki Liu	Test Date	Dec. 14, 2015~Dec. 26, 2015

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5730.35 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5730.3430	5730.3416	5730.3398	5730.3377
110.00	5730.3418	5730.3405	5730.3389	5730.3370
93.50	5730.3404	5730.3393	5730.3381	5730.3359
Max. Deviation (MHz)	0.0096	0.0107	0.0119	0.0141
Max. Deviation (ppm)	1.68	1.87	2.08	2.46
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5730.35 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5730.3511	5730.3499	5730.3483	5730.3464
10	5730.3497	5730.3485	5730.3466	5730.3444
20	5730.3484	5730.3471	5730.3456	5730.3438
30	5730.3472	5730.3459	5730.3443	5730.3424
40	5730.3458	5730.3447	5730.3433	5730.3417
50	5730.3442	5730.3427	5730.3411	5730.3391
55	5730.3425	5730.3413	5730.3398	5730.3371
Max. Deviation (MHz)	0.0058	0.0073	0.0089	0.0109
Max. Deviation (ppm)	1.01	1.27	1.55	1.90
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5776.35 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5776.3269	5776.3255	5776.3237	5776.3216
110.00	5776.3257	5776.3244	5776.3228	5776.3209
93.50	5776.3243	5776.3232	5776.3220	5776.3198
Max. Deviation (MHz)	0.0257	0.0268	0.0280	0.0302
Max. Deviation (ppm)	4.45	4.64	4.85	5.23
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5776.35 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5776.3282	5776.3270	5776.3251	5776.3229
10	5776.3269	5776.3256	5776.3241	5776.3223
20	5776.3257	5776.3244	5776.3228	5776.3209
30	5776.3243	5776.3232	5776.3218	5776.3202
40	5776.3227	5776.3212	5776.3196	5776.3176
50	5776.3210	5776.3198	5776.3183	5776.3156
55	5776.3203	5776.3188	5776.3175	5776.3148
Max. Deviation (MHz)	0.0290	0.0302	0.0317	0.0344
Max. Deviation (ppm)	5.02	5.23	5.49	5.96
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5820.35 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5820.3265	5820.3251	5820.3233	5820.3212
110.00	5820.3253	5820.3240	5820.3224	5820.3205
93.50	5820.3239	5820.3228	5820.3216	5820.3194
Max. Deviation (MHz)	0.0261	0.0272	0.0284	0.0306
Max. Deviation (ppm)	4.48	4.67	4.88	5.26
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5820.35 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5820.3278	5820.3266	5820.3247	5820.3225
10	5820.3265	5820.3252	5820.3237	5820.3219
20	5820.3253	5820.3240	5820.3224	5820.3205
30	5820.3239	5820.3228	5820.3214	5820.3198
40	5820.3223	5820.3208	5820.3192	5820.3172
50	5820.3206	5820.3194	5820.3179	5820.3152
55	5820.3200	5820.3184	5820.3166	5820.3145
Max. Deviation (MHz)	0.0294	0.0306	0.0321	0.0348
Max. Deviation (ppm)	5.05	5.26	5.51	5.98
Result	Complies			

4.9. Antenna Requirements

4.9.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

4.9.2. Antenna Connector Construction

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100355	9kHz ~ 2.75GHz	Apr. 22, 2015	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 08, 2015	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 13, 2015	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May. 25, 2015	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	37880	20MHz ~ 2GHz	Sep. 03, 2015	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 22, 2015	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 21, 2015	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 12, 2015*	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Feb. 24, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 12, 2015	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Feb.10, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
EMI Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8.4GHz	Jan. 21, 2015	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz ~ 1 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 09, 2015	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 02, 2015	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one year.

"*" Calibration Interval of instruments listed above is two years.

N.C.R means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%