FCC RADIO TEST REPORT

FCC ID	:	WR974100118120
Equipment	:	SmartCamera with voice control
Brand Name	:	ecobee
Model Name	:	EBSCV01
Applicant	:	ecobee Incorporated 207 Queens Quay West, Suite 600, Toronto, Ontario, M5J 1A7, Canada
Manufacturer	:	Wistron Corporation 21F, No. 88, Sec. 1, Hsin Tai Wu Rd., Hsichih Dist, New Taipei City 221,Taiwan R.O.C
Standard	:	FCC Part 15 Subpart C §15.247

The product was received on Jul. 23, 2019 and testing was started from Jul. 31, 2019 and completed on Aug. 29, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

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History of this test report

Report No.	Version	Description	Issued Date
FR972333F	01	Initial issue of report	Oct. 24, 2019

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(1)(i)	Number of Channels	Pass	-
3.2	15.247(a)(1)(i)	Hopping Channel Separation	Pass	-
3.3	15.247(a)(1)(i) &15.247(f)	Dwell Time of Each Channel	Pass	-
3.4	15.247(a)(2)	6dB Bandwidth	Pass	-
3.5	15.247(a)(1)	20dB Bandwidth	Pass	-
3.5	2.1049	99% Occupied Bandwidth	Reporting Only	-
3.6	15.247(b)(3)	Output Power	Pass	-
3.7	15.247(f)	Power Spectral Density	Pass	-
3.8	15.247(d)	Conducted Band Edges	Pass	-
3.9	15.247(d)	Conducted Spurious Emission	Pass	-
3.10	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	Under limit 0.40 dB at 2760.000 MHz
3.11	15.207	AC Conducted Emission	Pass	Under limit 20.93 dB at 0.503 MHz
3.12	15.203 & 15.247(b)	Antenna Requirement	Pass	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Wii Chang

Report Producer: Yimin Ho

1 General Description

1.1 Product Feature of Equipment Under Test

Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n/ac, and Sub-gig

Product Specification subjective to this standard	
Antenna Type	WLAN: PIFA Antenna Bluetooth: PIFA Antenna Sub-gig: PIFA Antenna

1.2 Modification of EUT

No modifications are made to the EUT during all test items.

1.3 Testing Location

Test Site	SPORTON INTERNATIONAL INC., EMC & Wireless Communications Laboratory	
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	**Sporton Site No.**	
	TH05-HY	CO05-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

Test Site	SPORTON INTERNATIONAL INC., EMC & Wireless Communications Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH11-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW0007

1.4 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05r02
- FCC KDB 414788 D01 Radiated Test Site v01r01.
- ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
920.00-927.35 MHz	0	920.00	25	923.75
	1	920.15	26	923.90
	2	920.30	27	924.05
	3	920.45	28	924.20
	4	920.60	29	924.35
	5	920.75	30	924.50
	6	920.90	31	924.65
	7	921.05	32	924.80
	8	921.20	33	924.95
	9	921.35	34	925.10
	10	921.50	35	925.25
	11	921.65	36	925.40
	12	921.80	37	925.55
	13	921.95	38	925.70
	14	922.10	39	925.85
	15	922.25	40	926.00
	16	922.40	41	926.15
	17	922.55	42	926.30
	18	922.70	43	926.45
	19	922.85	44	926.60
	20	923.00	45	927.75
	21	923.15	46	926.90
	22	923.30	47	927.05
	23	923.45	48	927.20
	24	923.60	49	927.35

2.2 Test Mode

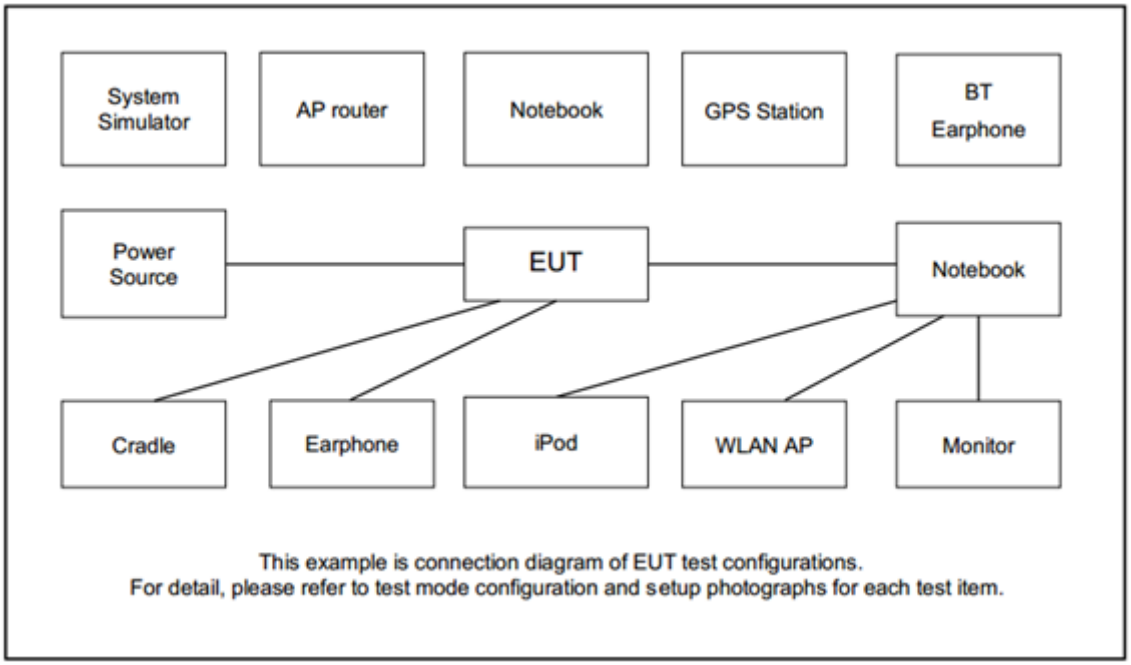
a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 10 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.

b. AC power line Conducted Emission was tested under maximum output power.

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases	
Test Item	**SUB-GIG**
Conducted Test Cases	Mode 1: Sub-gig Tx CH00_920.00 MHz Mode 2: Sub-gig Tx CH25_923.75 MHz Mode 3: Sub-gig Tx CH49_927.35 MHz
Radiated Test Cases	Mode 1: Sub-gig Tx CH00_920.00 MHz Mode 2: Sub-gig Tx CH25_923.75 MHz Mode 3: Sub-gig Tx CH49_927.35 MHz
AC Conducted Emission	Mode 1: Sub-gig Tx + Adapter

2.3 Connection Diagram of Test System



2.4 EUT Operation Test Setup

The RF test items, utility “adb cmd” was installed in EUT which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.5 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 Number of Channel Measurement

3.1.1 Limits of Number of Hopping Frequency

Frequency hopping systems in the 920.00-927.35 MHz band shall use at least 25 channels.

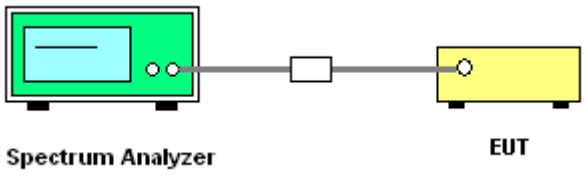
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedure

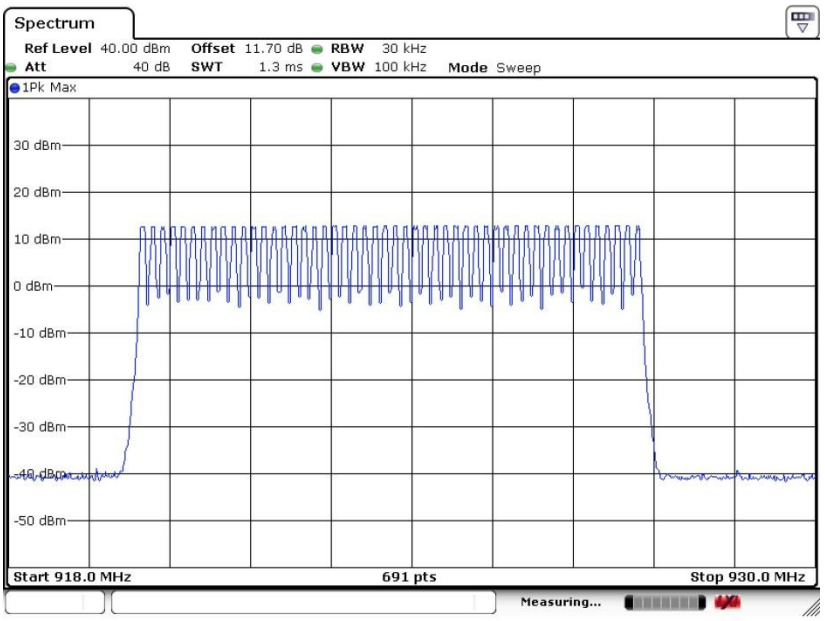
1. The testing follows ANSI C63.10-2013 clause 7.8.3.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings: Span = the frequency band of operation; RBW = 30kHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
6. The number of hopping frequency used is defined as the number of total channel.
7. Record the measurement data derived from spectrum analyzer.

3.1.4 Test Setup



3.1.5 Test Result of Number of Hopping Frequency

Number of Hopping Channel Plot on Channel 00 - 49



3.2 Hopping Channel Separation Measurement

3.2.1 Limit of Hopping Channel Separation

Frequency hopping systems operating in the 920.00-927.35 MHz band may have hopping channel carrier frequencies that are 20 dB bandwidth of the hopping channel, whichever is greater.

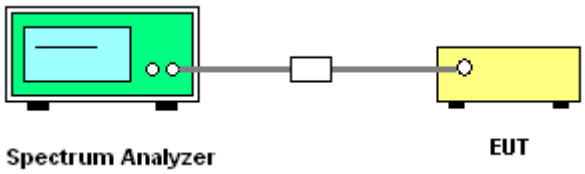
3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

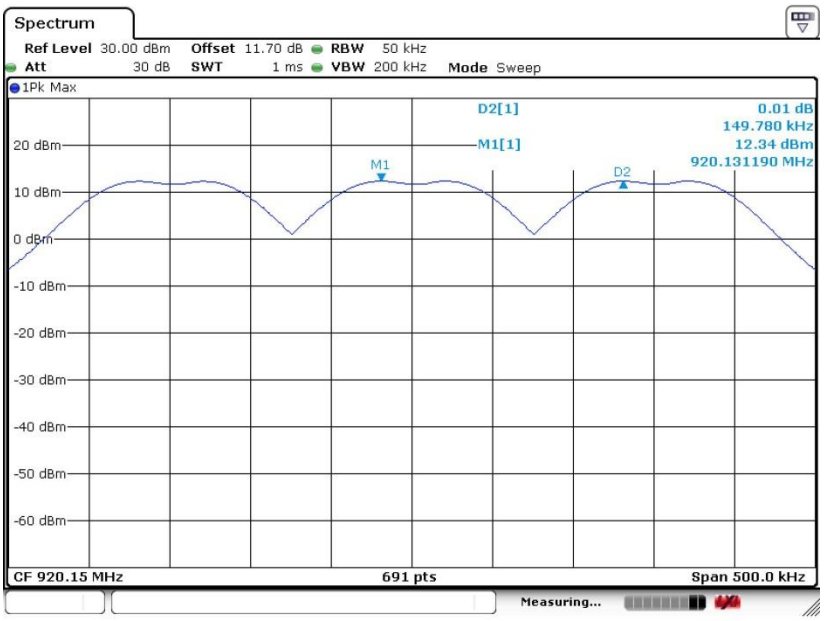
1. The testing follows ANSI C63.10-2013 clause 7.8.2.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peaks of two adjacent channels;
   RBW = 50kHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

3.2.4 Test Setup

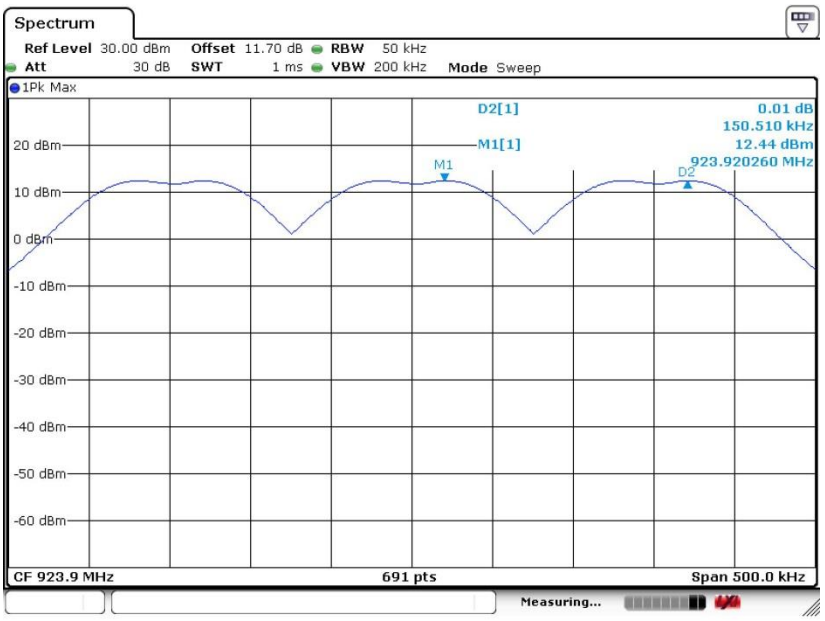


3.2.5 Test Result of Hopping Channel Separation

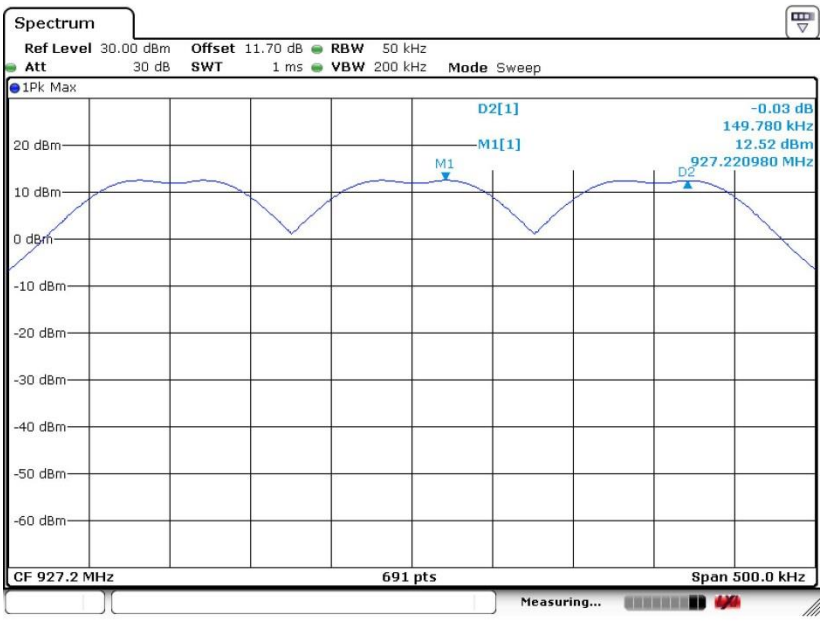
Channel Separation Plot on Channel 01-02



Channel Separation Plot on Channel 26-27



Channel Separation Plot on Channel 48-49



3.3 Dwell Time Measurement

3.3.1 Limit of Dwell Time

§ **15.247(a)(1)(i):** For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

§ **15.247(f):** For the purposes of this section, hybrid systems are those that employ a combination of both frequency hopping and digital modulation techniques. The frequency hopping operation of the hybrid system, with the direct sequence or digital modulation operation turned-off, shall have an average time of occupancy on any frequency not to exceed 0.4 seconds within a time period in seconds equal to the number of hopping frequencies employed multiplied by 0.4.

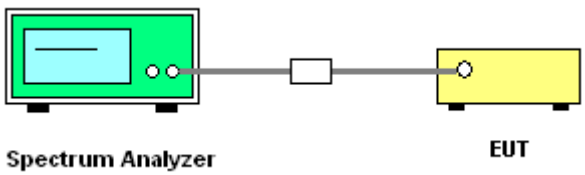
3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.4.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel; RBW = 100kHz; VBW ≥ RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

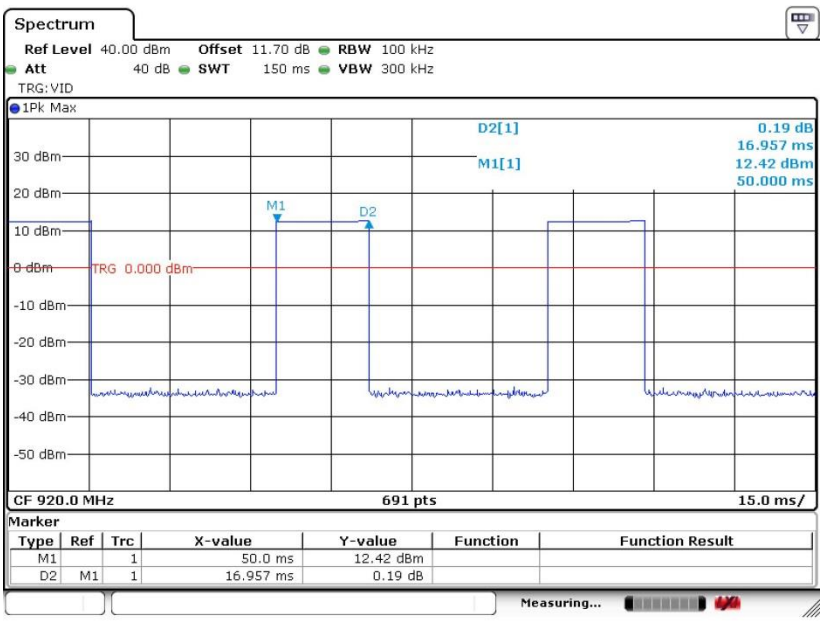
3.3.4 Test Setup

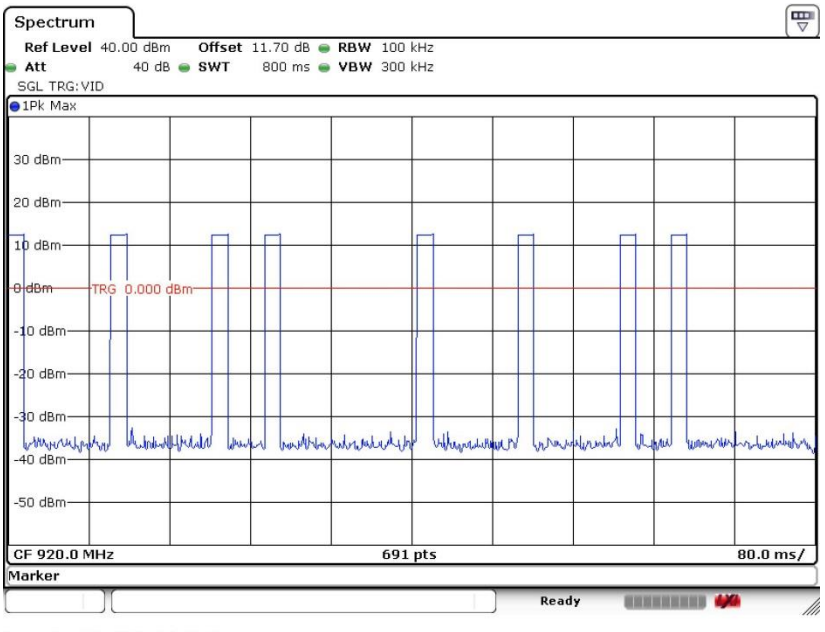


3.3.5 Test Result of Dwell Time

Package Transfer Time Plot

2 Hopping Frequencies

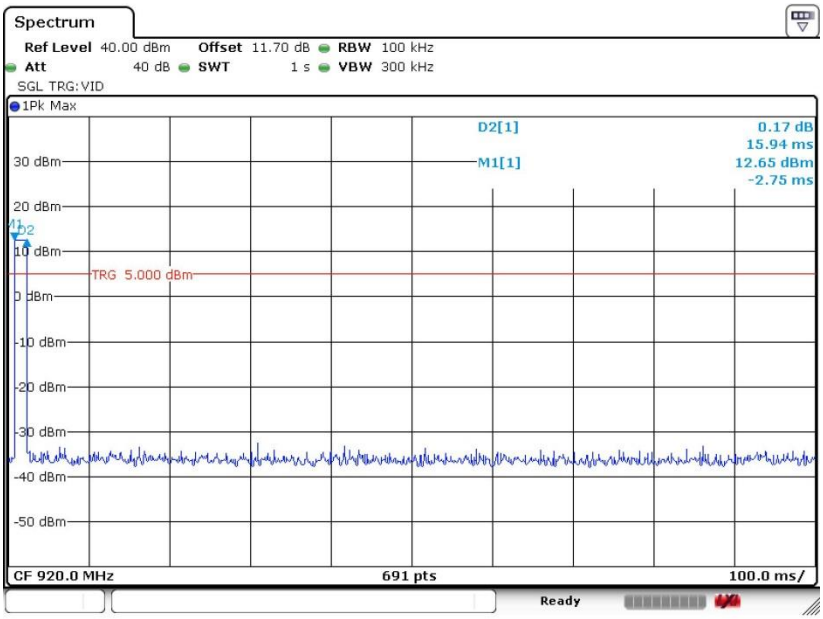




Remark: Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time

Package Transfer Time Plot

50 Hopping Frequencies



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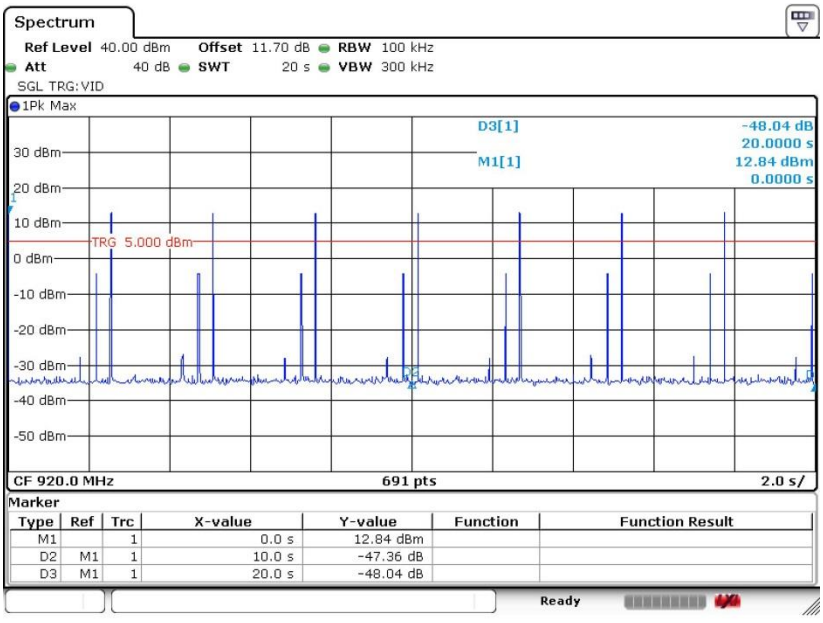

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3.4 6dB Bandwidth Measurement

3.4.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

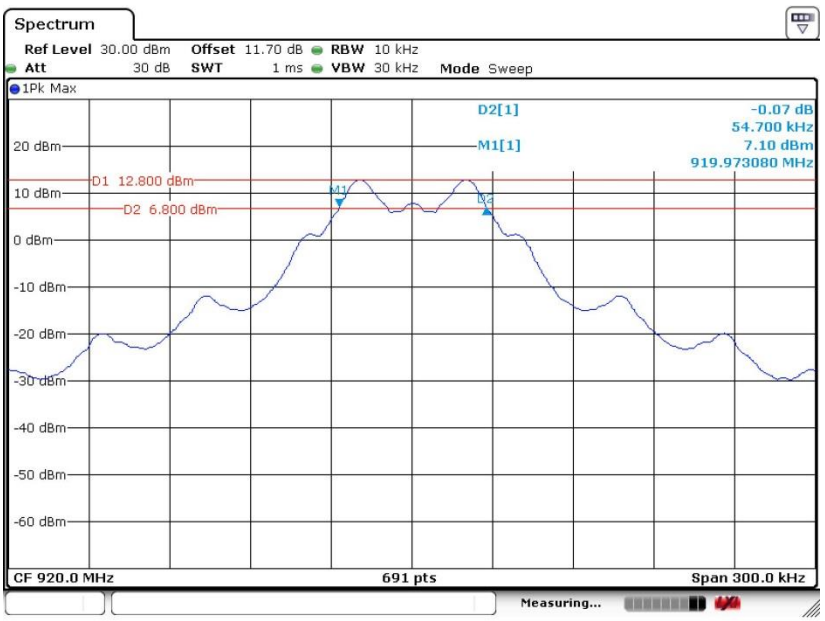
1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. Measure and record the results in the test report.

3.4.4 Test Setup

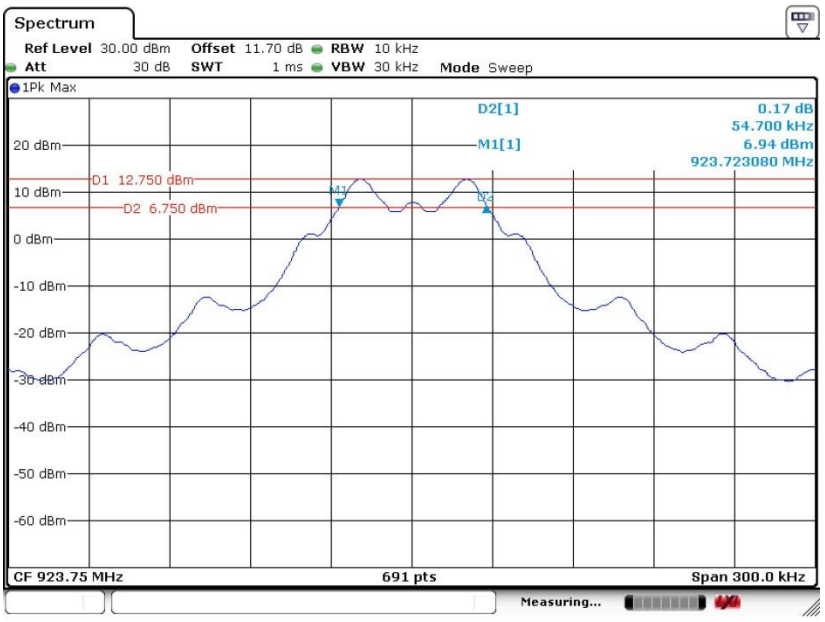
3.4.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

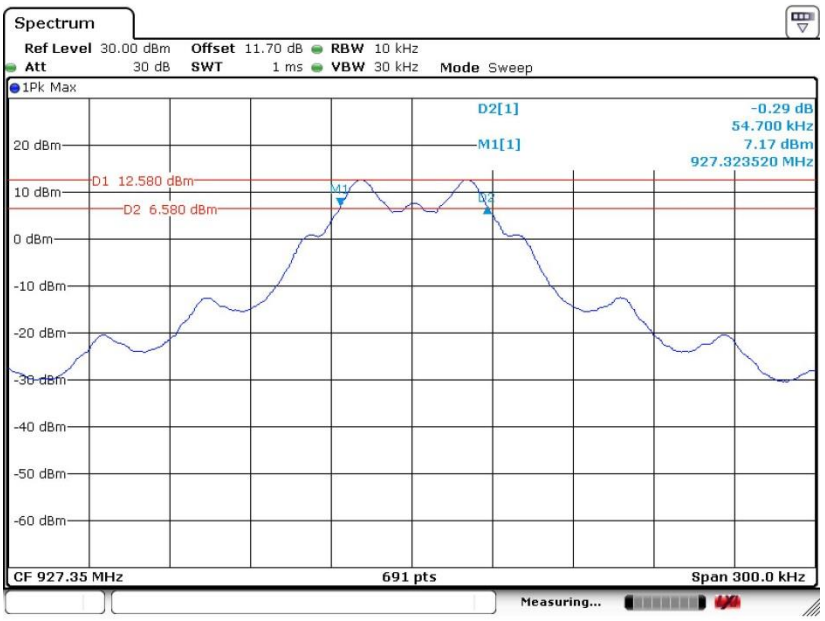
6 dB Bandwidth Plot on Channel 00



6 dB Bandwidth Plot on Channel 25



6 dB Bandwidth Plot on Channel 49



3.5 20dB and 99% Bandwidth Measurement

3.5.1 Limit of 20dB and 99% Bandwidth

Reporting only

3.5.2 Measuring Instruments

See list of measuring equipment of this test report.

3.5.3 Test Procedures

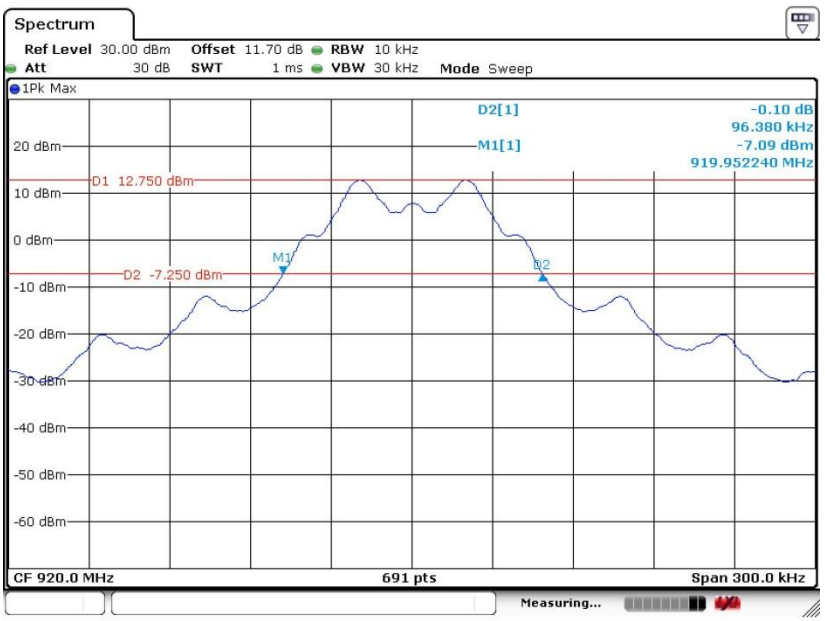
1. The testing follows ANSI C63.10-2013 clause 6.9.2 and 6.9.3.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Use the following spectrum analyzer settings for 20dB Bandwidth measurement.
   Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hopping channel;
   RBW ≥ 1% of the 20 dB bandwidth; VBW ≥ RBW; Sweep = auto; Detector function = peak;
   Trace = max hold.
5. Use the following spectrum analyzer settings for 99 % Bandwidth measurement.
   Span = approximately 1.5 to 5 times the 99% bandwidth, centered on a hopping channel;
   RBW ≥ 1-5% of the 99% bandwidth; VBW ≥ 3 * RBW; Sweep = auto; Detector function = peak;
   Trace = max hold.
6. Measure and record the results in the test report.

3.5.4 Test Setup

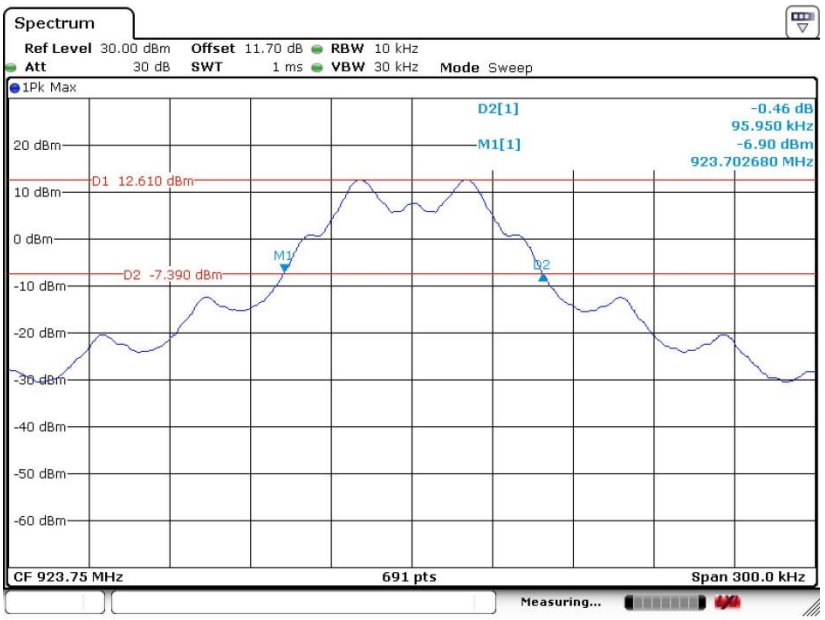
3.5.5 Test Result of 20dB Bandwidth

Please refer to Appendix A.

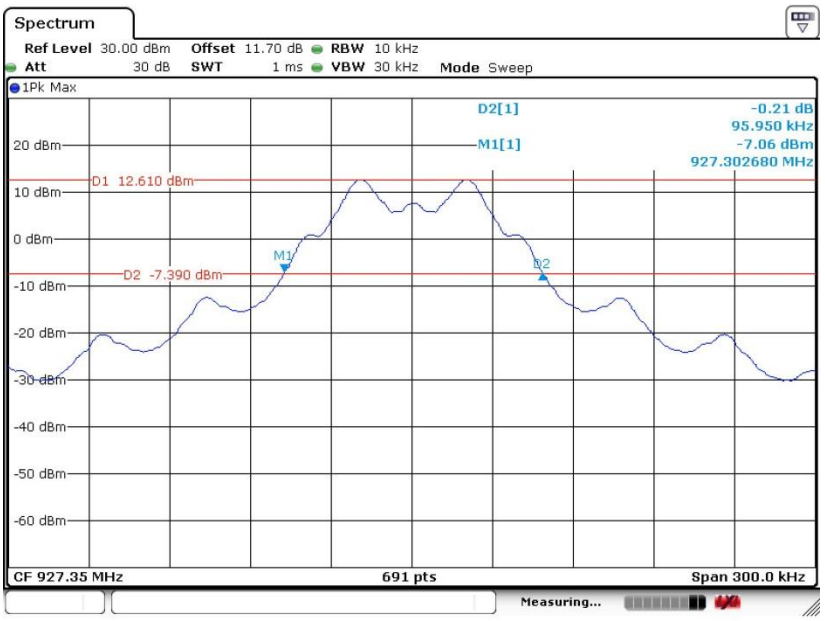
20 dB Bandwidth Plot on Channel 00



20 dB Bandwidth Plot on Channel 25



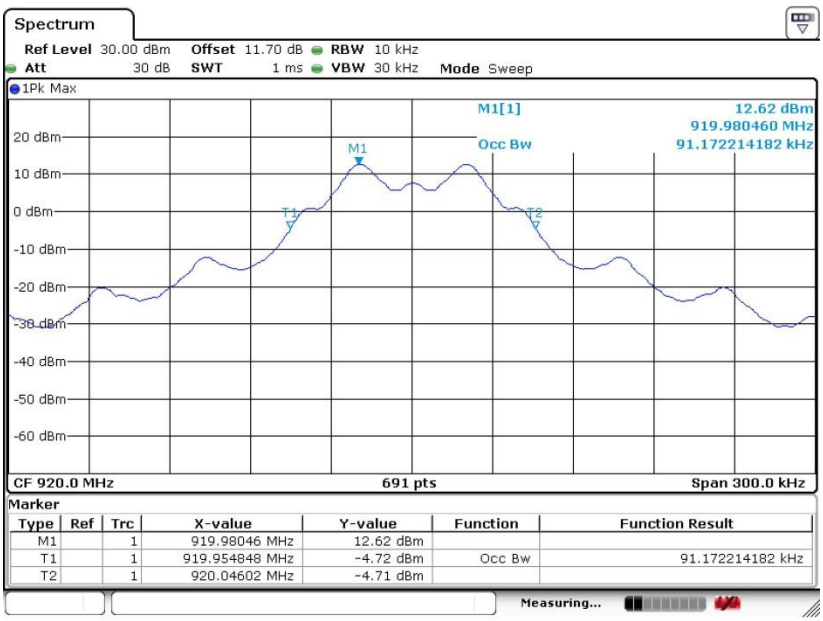
20 dB Bandwidth Plot on Channel 49



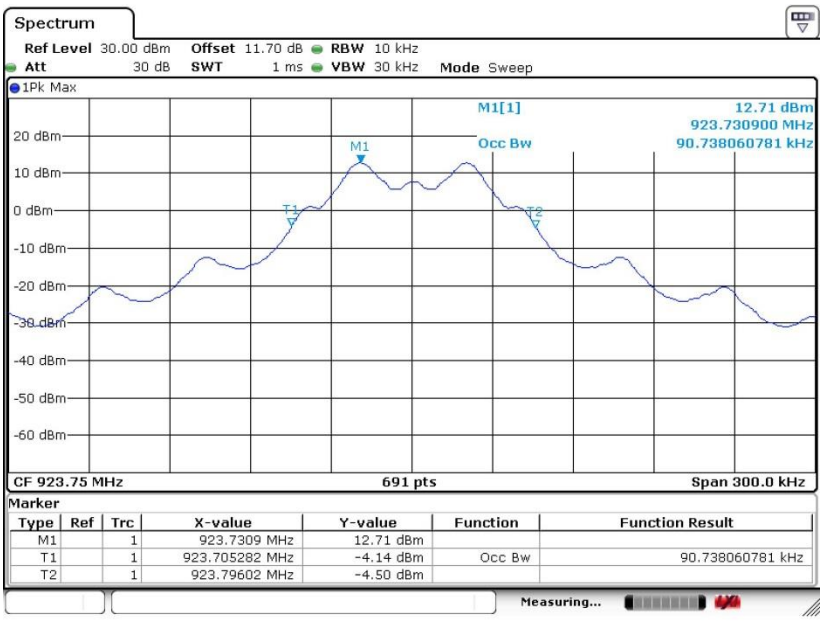
3.5.6 Test Result of 99% Occupied Bandwidth

Please refer to Appendix A.

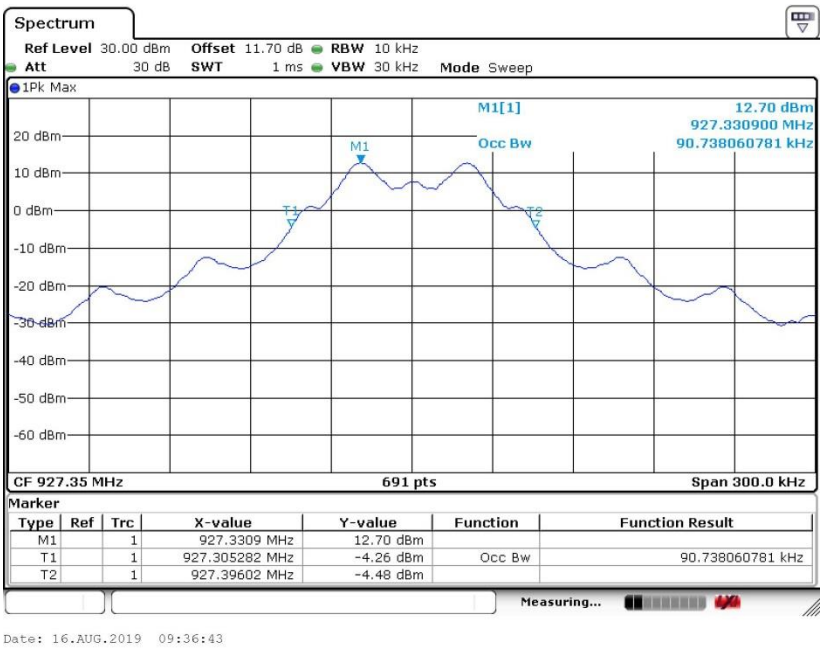
99% Occupied Bandwidth Plot on Channel 00



99% Occupied Bandwidth Plot on Channel 25



99% Occupied Bandwidth Plot on Channel 49



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.6 Output Power Measurement

3.6.1 Limit of Output Power

Section 15.247(b)(3) For systems using digital modulation in the 902-928 MHz, the limit for peak output power is 1 watt.

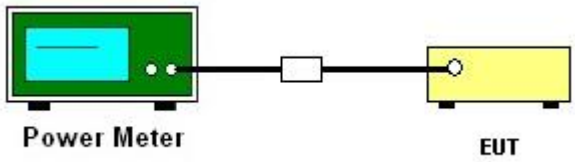
3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

3.6.3 Test Procedures

1. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power with cable loss and record the results in the test report.
5. Measure and record the results in the test report.

3.6.4 Test Setup



3.6.5 Test Result of Output Power

Please refer to Appendix A.

3.7 Power Spectral Density Measurement

3.7.1 Limit of Power Spectral Density

The peak power spectral density which due to the digital modulation operation of the hybrid system, with the frequency hopping operation turned off, shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

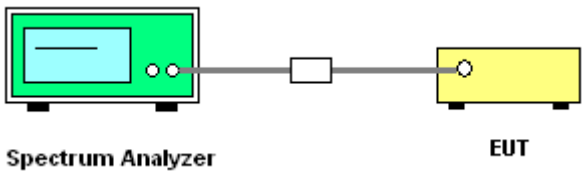
3.7.2 Measuring Instruments

See list of measuring equipment of this test report.

3.7.3 Test Procedures

1. The testing follows the ANSI C63.10-2013 Section 11.10.3 Method AVGPSD-1.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = power averaging (rms), Sweep time = auto couple, Trace mode = over a minimum of 100 traces. Use the peak marker function to determine the maximum amplitude level.
6. Measure and record the results in the test report.
7. The Measured power density (dBm)/ 100kHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

3.7.4 Test Setup

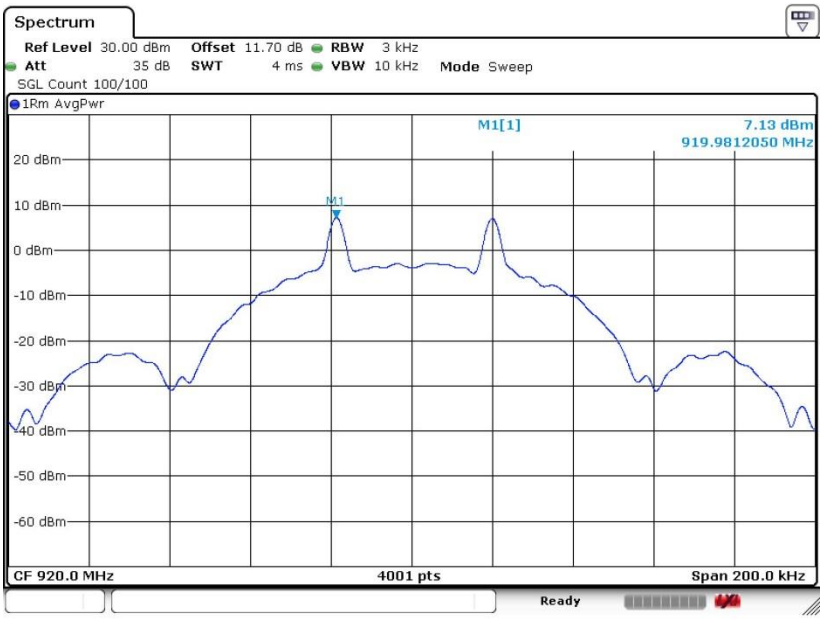


3.7.5 Test Result of Power Spectral Density

Please refer to Appendix A.

3.7.6 Test Result of Power Spectral Density Plots

PSD Plot on Channel 00



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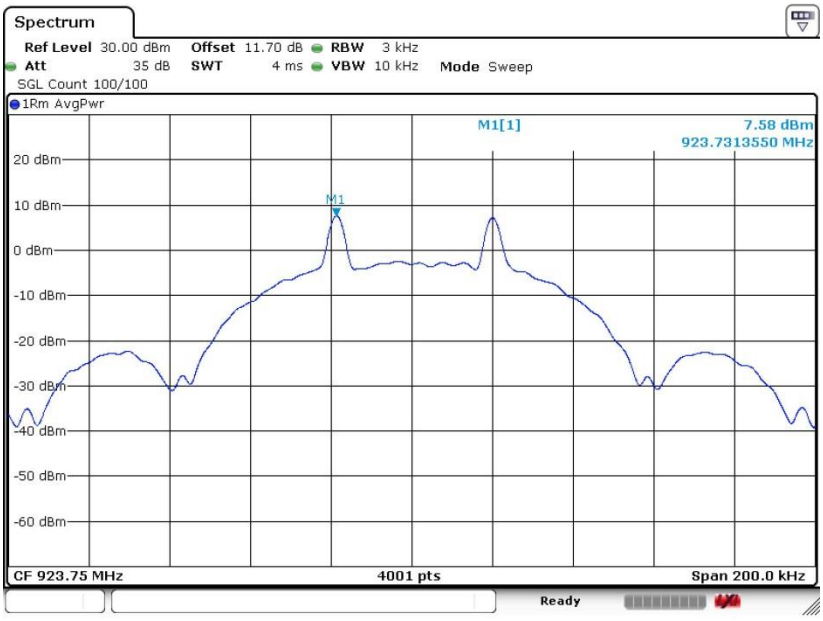
PSD Plot on Channel 25



Date: 16.AUG.2019 13:20:11

PSD Plot on Channel 49

3.8 Conducted Band Edges Measurement

3.8.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 30 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

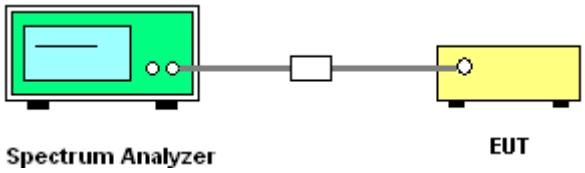
3.8.2 Measuring Instruments

See list of measuring equipment of this test report.

3.8.3 Test Procedures

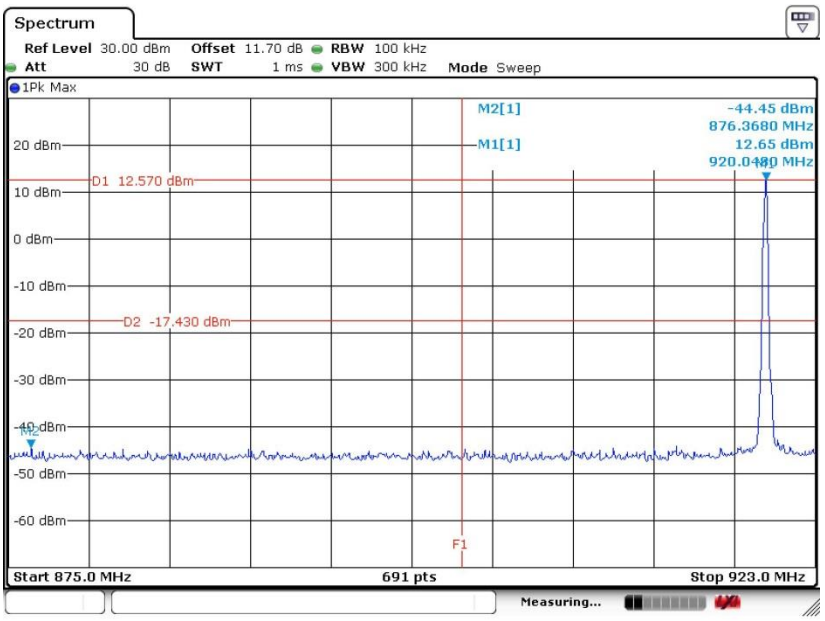
1. The testing follows ANSI C63.10-2013 clause 7.8.6.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Set RBW = 100kHz, VBW = 300kHz. Band edge emissions must be at least 30 dB down from the highest emission level within the authorized band as measured with a 100kHz RBW. The attenuation shall be 30 dB instead of 20 dB when RMS conducted output power procedure is used.
4. Enable hopping function of the EUT and then repeat step 2. and 3.
5. Measure and record the results in the test report.

3.8.4 Test Setup



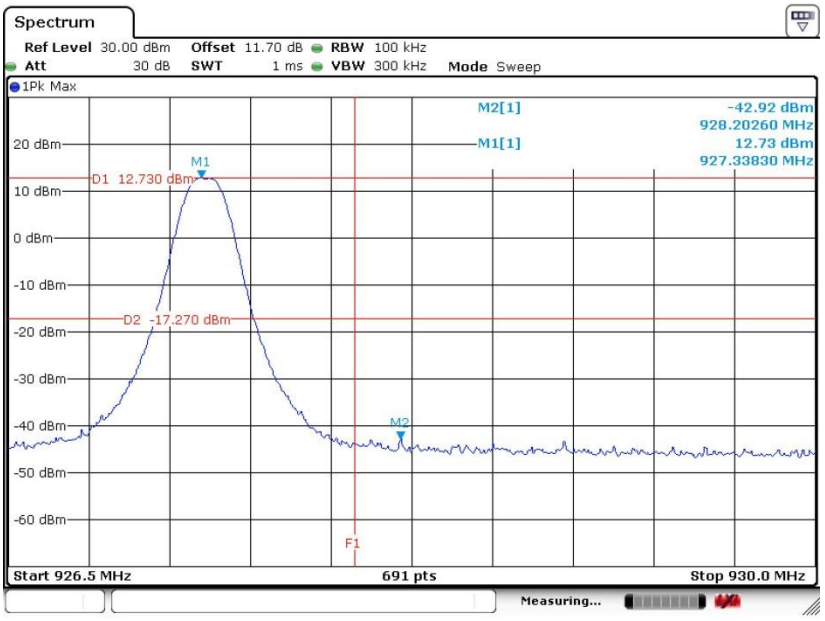
3.8.5 Test Result of Conducted Band Edges

Low Band Edge Plot on Channel 00



Date: 16.AUG.2019 12:36:27

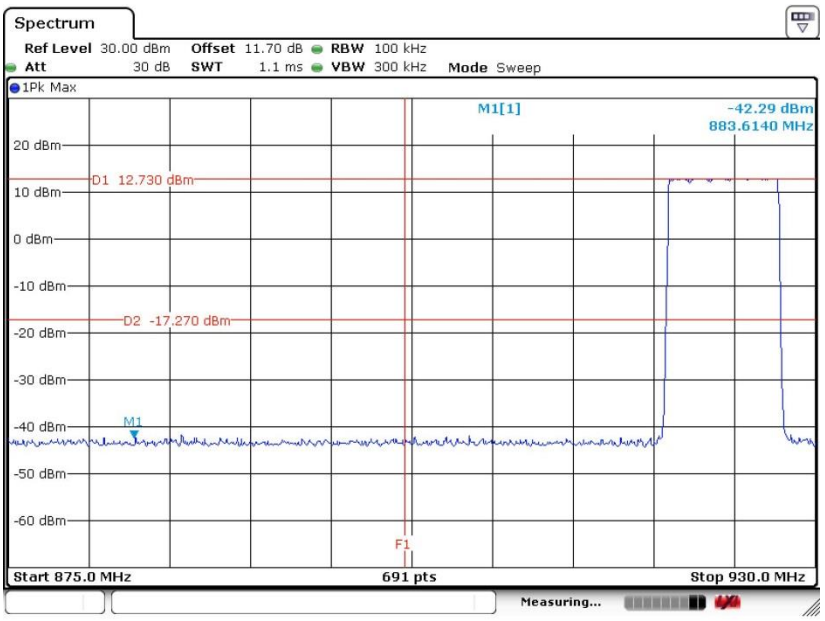
High Band Edge Plot on Channel 49



Date: 16.AUG.2019 12:39:02

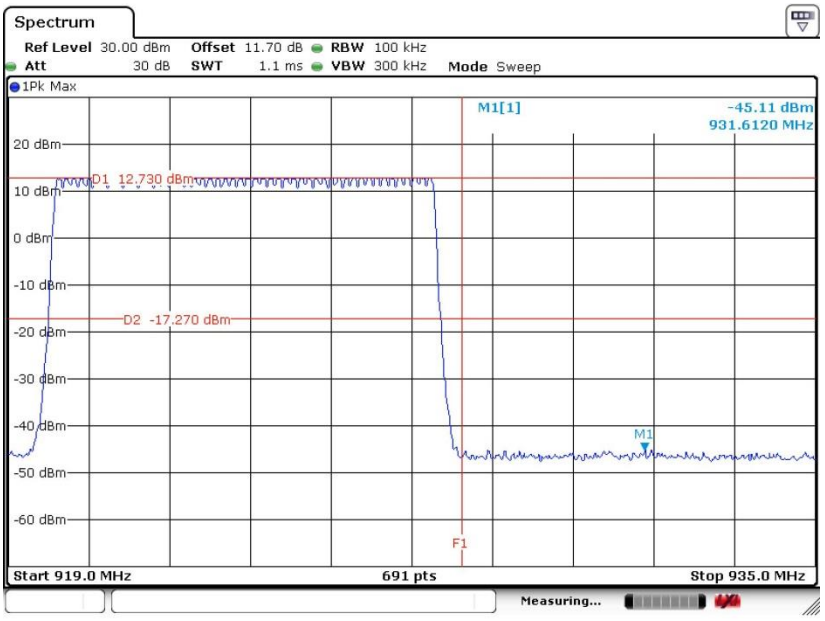
3.8.6 Test Result of Conducted Hopping Mode Band Edges

Hopping Mode Low Band Edge Plot



Date: 16.AUG.2019 12:44:43

Hopping Mode High Band Edge Plot



Date: 16.AUG.2019 12:47:49

3.9 Conducted Spurious Emission Measurement

3.9.1 Limit of Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 30 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

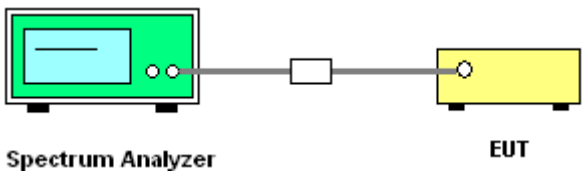
3.9.2 Measuring Instruments

See list of measuring equipment of this test report.

3.9.3 Test Procedure

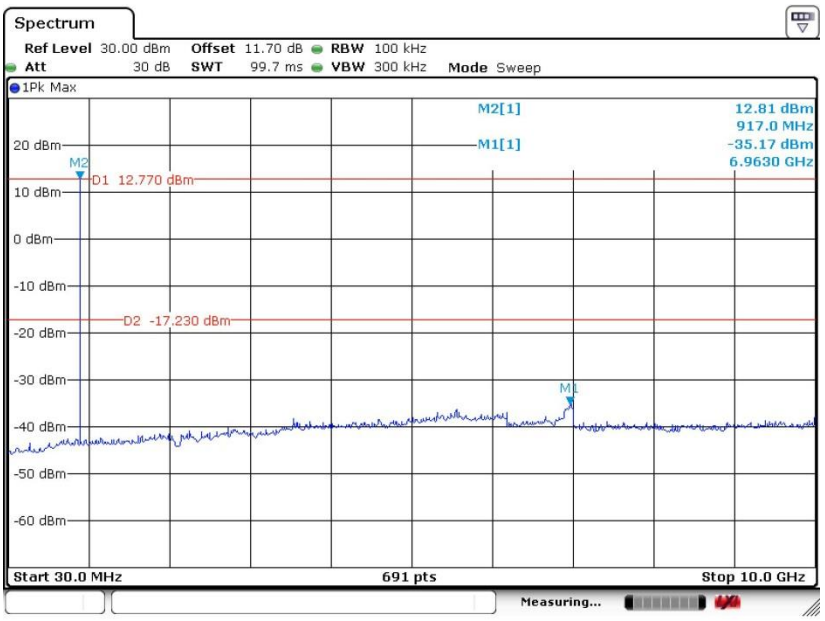
1. The testing follows ANSI C63.10-2013 clause 7.8.8.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW = 300kHz, scan up through 10th harmonic. All harmonics / spurs must be at least 30 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.9.4 Test Setup

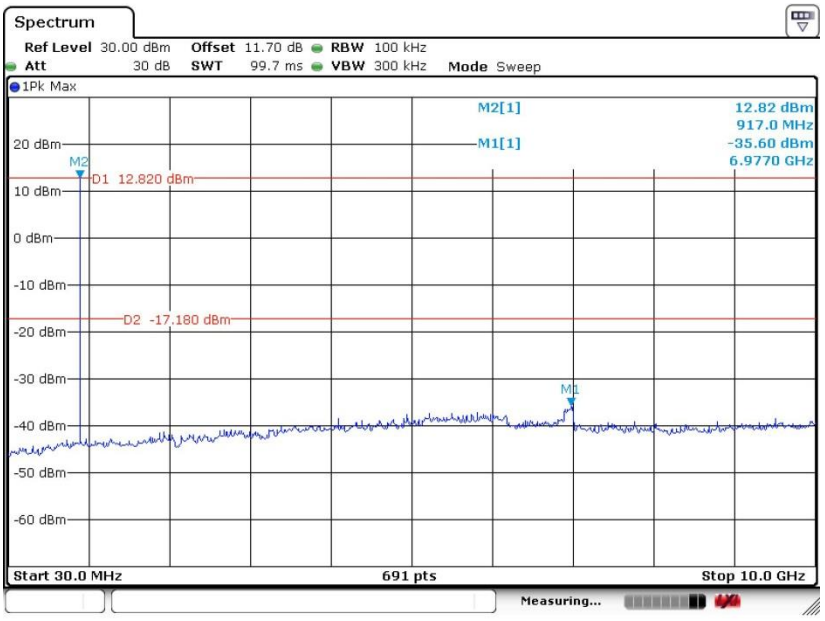


3.9.5 Test Result of Conducted Spurious Emission

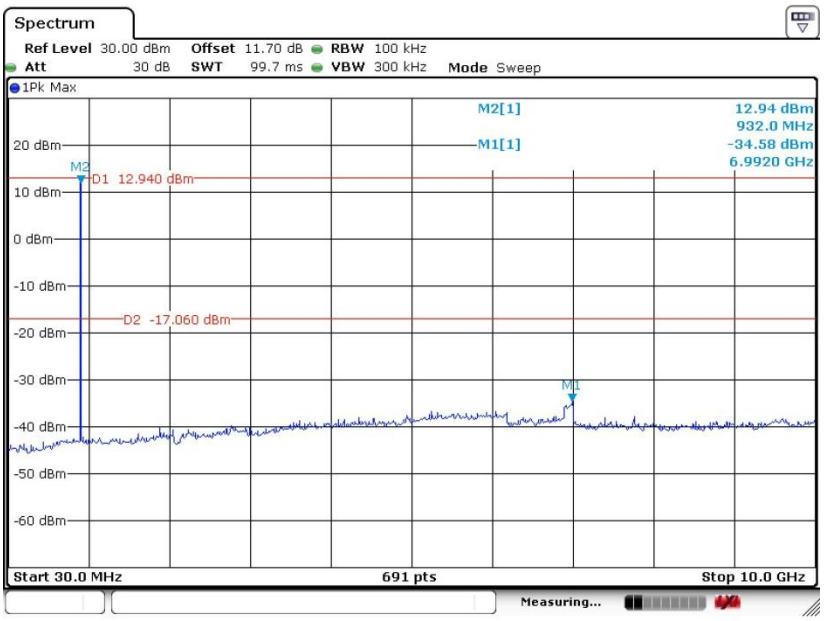
CSE Plot on Ch 00 between 30MHz ~ 10 GHz



CSE Plot on Ch 25 between 30MHz ~ 10 GHz



CSE Plot on Ch 49 between 30MHz ~ 10 GHz



3.10 Radiated Band Edges and Spurious Emission Measurement

3.10.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/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

3.10.2 Measuring Instruments

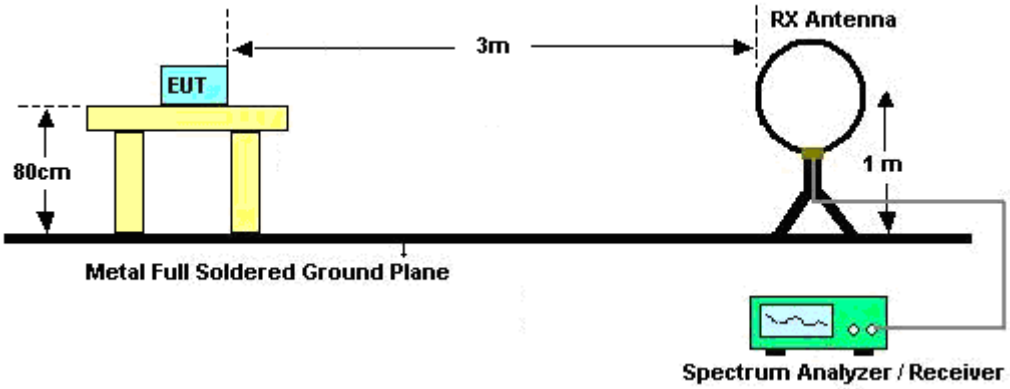
See list of measuring equipment of this test report.

3.10.3 Test Procedures

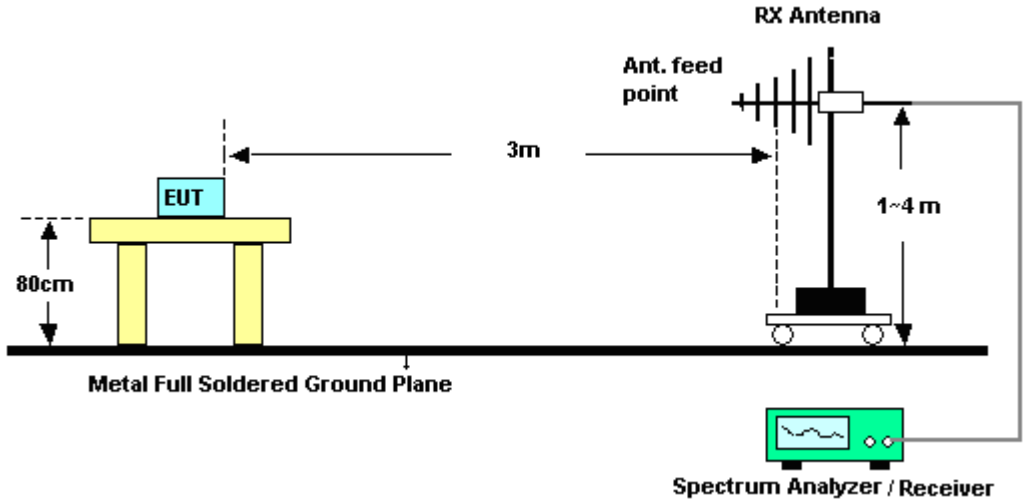
1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz, RBW=1MHz for f>1GHz ; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
   (3) For average measurement: use duty cycle correction factor method per 15.35(c).
   Duty cycle = On time/100 milliseconds
   On time = N1*L1+N2*L2+...+Nn-1*LNn-1+Nn*Ln
   Where N1 is number of type 1 pulses, L1 is length of type 1 pulses, etc.
   Average Emission Level = Peak Emission Level + 20*log(Duty cycle)
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.10.4 Test Setup

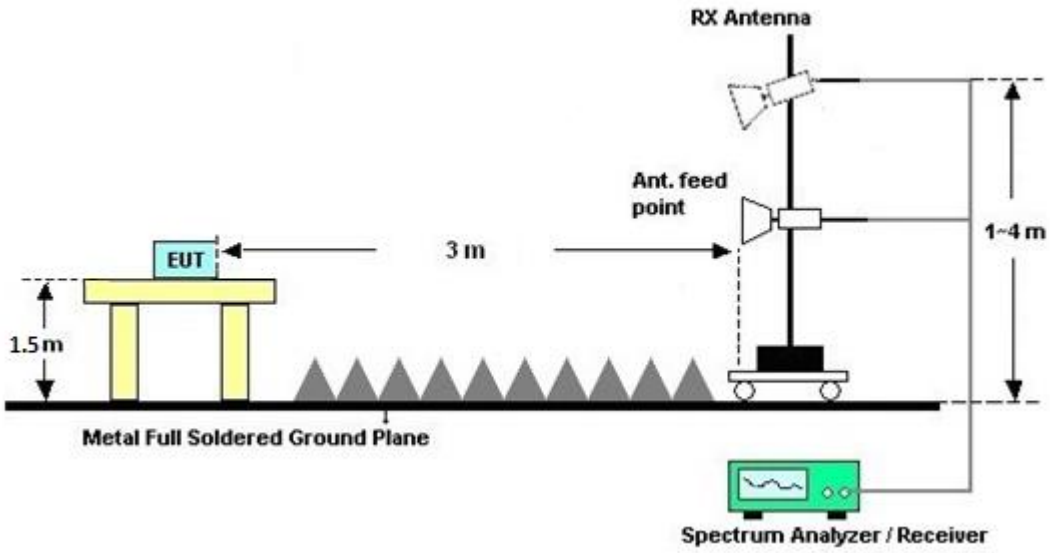
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.10.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

3.10.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.10.7 Duty Cycle

Please refer to Appendix E.

3.10.8 Test Result of Radiated Spurious Emission

Please refer to Appendix C and D.

3.11 AC Conducted Emission Measurement

3.11.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

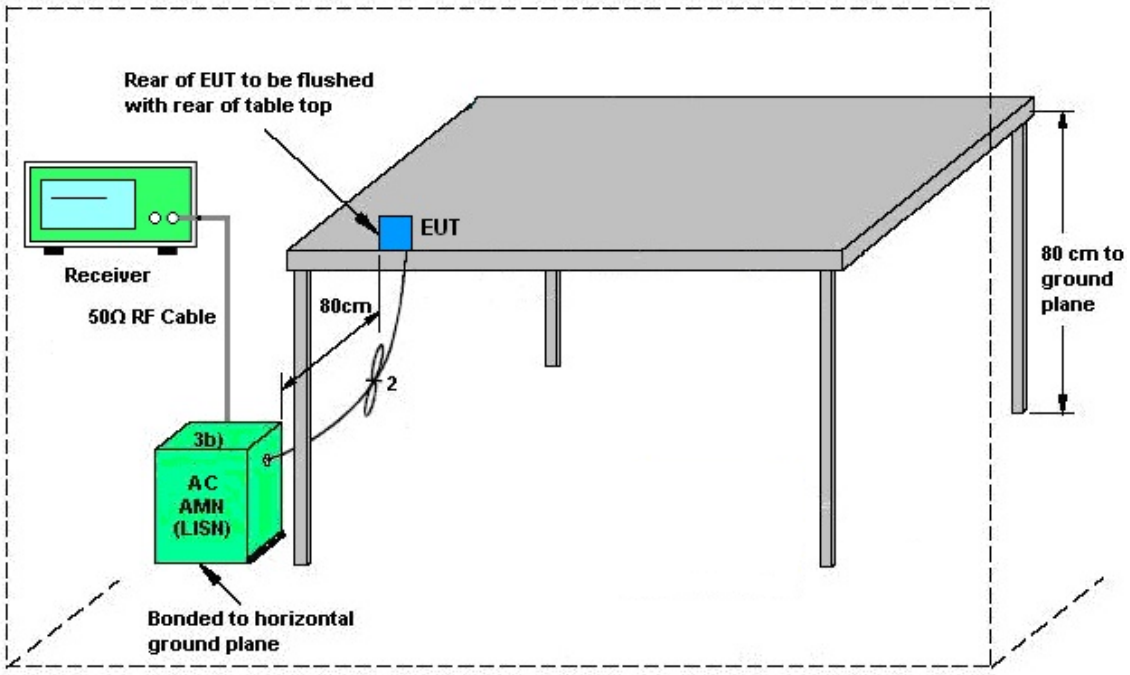
3.11.2 Measuring Instruments

See list of measuring equipment of this test report.

3.11.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.11.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.11.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.12 Antenna Requirements

3.12.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. 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 rule.

3.12.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.12.3 Antenna Gain

The antenna peak gain of EUT is 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Preamplifier	EMEC	EM18G40G	060715	18GHz ~ 40GHz	Dec. 06, 2018	Aug. 15, 2019~ Aug. 16, 2019	Dec. 05, 2019	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 04, 2018	Aug. 15, 2019~ Aug. 16, 2019	Dec. 03, 2019	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D&N -6-06	35414&AT-N0 602	30MHz~1GHz	Oct. 13, 2018	Aug. 15, 2019~ Aug. 16, 2019	Oct. 12, 2019	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1326	1GHz ~ 18GHz	Oct. 30, 2018	Aug. 15, 2019~ Aug. 16, 2019	Oct. 29, 2019	Radiation (03CH11-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Nov. 22, 2018	Aug. 15, 2019~ Aug. 16, 2019	Nov. 21, 2019	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 14, 2018	Aug. 15, 2019~ Aug. 16, 2019	Nov. 13, 2020	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz ~ 44GHz	Oct. 19, 2018	Aug. 15, 2019~ Aug. 16, 2019	Oct. 18, 2019	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Aug. 15, 2019~ Aug. 16, 2019	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Aug. 15, 2019~ Aug. 16, 2019	N/A	Radiation (03CH11-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590074	1GHz~18GHz	May 20, 2019	Aug. 15, 2019~ Aug. 16, 2019	May 19, 2020	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Dec. 05, 2018	Aug. 15, 2019~ Aug. 16, 2019	Dec. 04, 2019	Radiation (03CH11-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	N/A	Nov. 01, 2018	Aug. 15, 2019~ Aug. 16, 2019	Oct. 31, 2019	Radiation (03CH11-HY)
Software	Audix	E3 6.2009-8-24	RK-001042	N/A	N/A	Aug. 15, 2019~ Aug. 16, 2019	N/A	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz-30MHz	Mar. 13, 2019	Aug. 15, 2019~ Aug. 16, 2019	Mar. 12, 2020	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz-40GHz	Mar. 13, 2019	Aug. 15, 2019~ Aug. 16, 2019	Mar. 12, 2020	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	30M-18G	Mar. 13, 2019	Aug. 15, 2019~ Aug. 16, 2019	Mar. 12, 2020	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY4274/2	30MHz-40GHz	Mar. 13, 2019	Aug. 15, 2019~ Aug. 16, 2019	Mar. 12, 2020	Radiation (03CH11-HY)
Filter	Wainwright	WLK4-1000-15 30-8000-40SS	SN11	1.53GHz Low Pass Filter	Sep. 16, 2018	Aug. 15, 2019~ Aug. 16, 2019	Sep. 15, 2019	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-1080 -1200-15000-6 0SS	SN2	1.2GHz High Pass Filter	Sep. 16, 2018	Aug. 15, 2019~ Aug. 16, 2019	Sep. 15, 2019	Radiation (03CH11-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Aug. 29, 2019	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 12, 2018	Aug. 29, 2019	Nov. 11, 2019	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 14, 2018	Aug. 29, 2019	Nov. 13, 2019	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Aug. 29, 2019	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Dec. 31, 2018	Aug. 29, 2019	Dec. 30, 2019	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Dec. 31, 2018	Aug. 29, 2019	Dec. 30, 2019	Conduction (CO05-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	1218006	N/A	Oct. 08, 2018	Jul. 31, 2019~ Aug. 16, 2019	Oct. 07, 2019	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1207363	300MHz~40GHz	Oct. 08, 2018	Jul. 31, 2019~ Aug. 16, 2019	Oct. 07, 2019	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Nov. 13, 2018	Jul. 31, 2019~ Aug. 16, 2019	Nov. 12, 2019	Conducted (TH05-HY)
Switch Box & RF Cable	Burgeon	ETF-058	EC1208382	N/A	Mar. 27, 2019	Jul. 31, 2019~ Aug. 16, 2019	Mar. 26, 2020	Conducted (TH05-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.2**

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.9**

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.4**

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.3**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Tommy Lee	Temperature:	21~25	°C
Test Date:	2019/7/31~2019/8/16	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)
Sub-gig	1	0	920.00	0.092	0.055
Sub-gig	1	25	923.8	0.091	0.055
Sub-gig	1	49	927.4	0.091	0.055

TEST RESULTS DATA
Average Power Table

Mod.	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
FH	1	Hopping		19.00	-	1.00	20.00	-	-
Digital	1	0	920.00	12.47	30.00	1.00	13.47	36.00	Pass
Digital	1	25	923.8	12.70	30.00	1.00	13.70	36.00	Pass
Digital	1	49	927.4	12.76	30.00	1.00	13.76	36.00	Pass

TEST RESULTS DATA
Average Power Density

Mod.	NTX	CH.	Freq. (MHz)	Average PSD (dBm /3kHz)	DG (dBi)	Average PSD Limit (dBm /3kHz)	Pass/Fail	Pass/Fail
Sub-gig	1	0	920.00	7.13	1.00	8.00	Pass	Pass
Sub-gig	1	25	923.8	7.77	1.00	8.00	Pass	Pass
Sub-gig	1	49	927.4	7.90	1.00	8.00	Pass	Pass

Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 30dBc limit.

Sub-gig

Test Engineer:	Tommy Lee	Temperature:	21~25	°C
Test Date:	2019/7/31~2019/8/16	Relative Humidity:	51~54	%

TEST RESULTS DATA
20dB and 99% Occupied Bandwidth and Hopping Channel Separation

Mod.	NTX	CH.	Freq. (MHz)	20db BW (MHz)	Hopping Channel Separation Measurement (MHz)	Hopping Channel Separation Measurement Limit (MHz)	Pass/Fail
Sub-gig	1	0	920.00	0.096	0.150	0.0643	Pass
Sub-gig	1	25	923.8	0.096	0.151	0.0637	Pass
Sub-gig	1	49	927.4	0.096	0.150	0.0640	Pass

TEST RESULTS DATA
Dwell Time

Mod.	Package Transfer Time (msec)	Number of Hopping	Dwell Time (sec)	Limits (sec)	Pass/Fail
2-Channel	16.96	8	0.14	< 0.4s	Pass
50-Channe	15.94	8	0.13	< 0.4s	Pass

TEST RESULTS DATA
Number of Hopping Frequency

Number of Hopping (Channel)	Adaptive Frequency Hopping (Channel)	Limits (Channel)	Pass/Fail
50	50	> 25	Pass

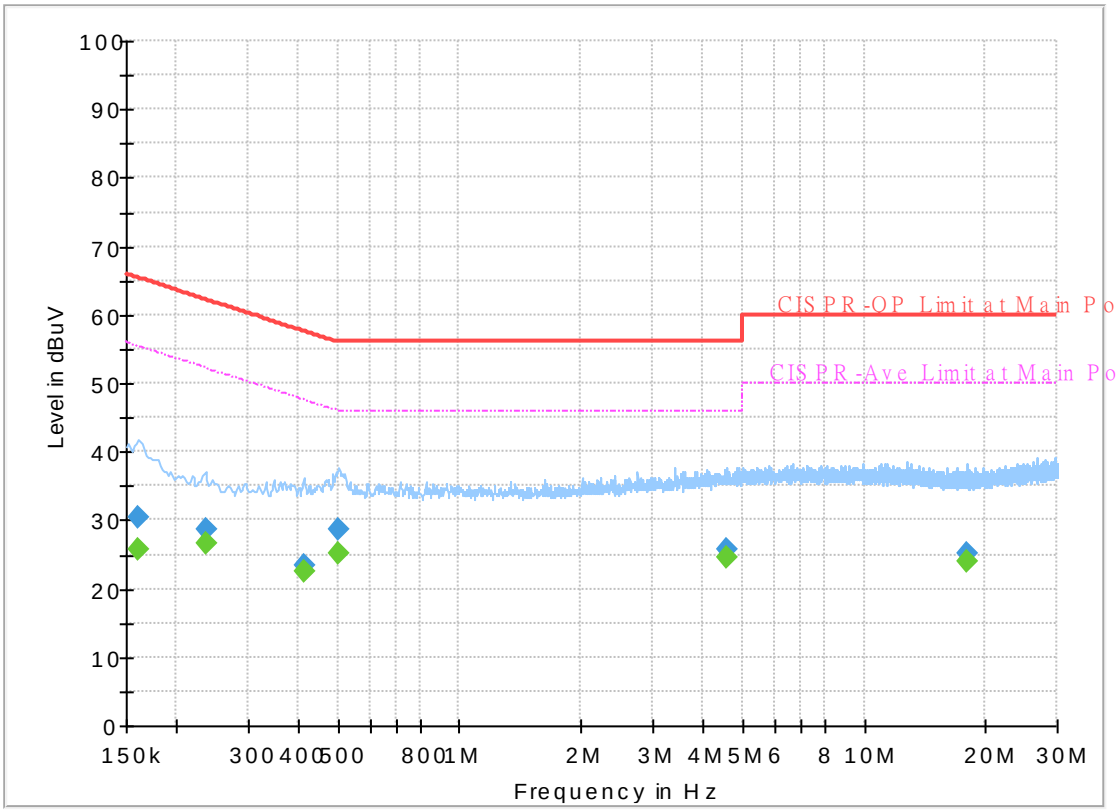
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Louis Chung	**Temperature :**	25.5~26.3℃
		Relative Humidity :	58~61%

EUT Information

Report NO :	972333
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



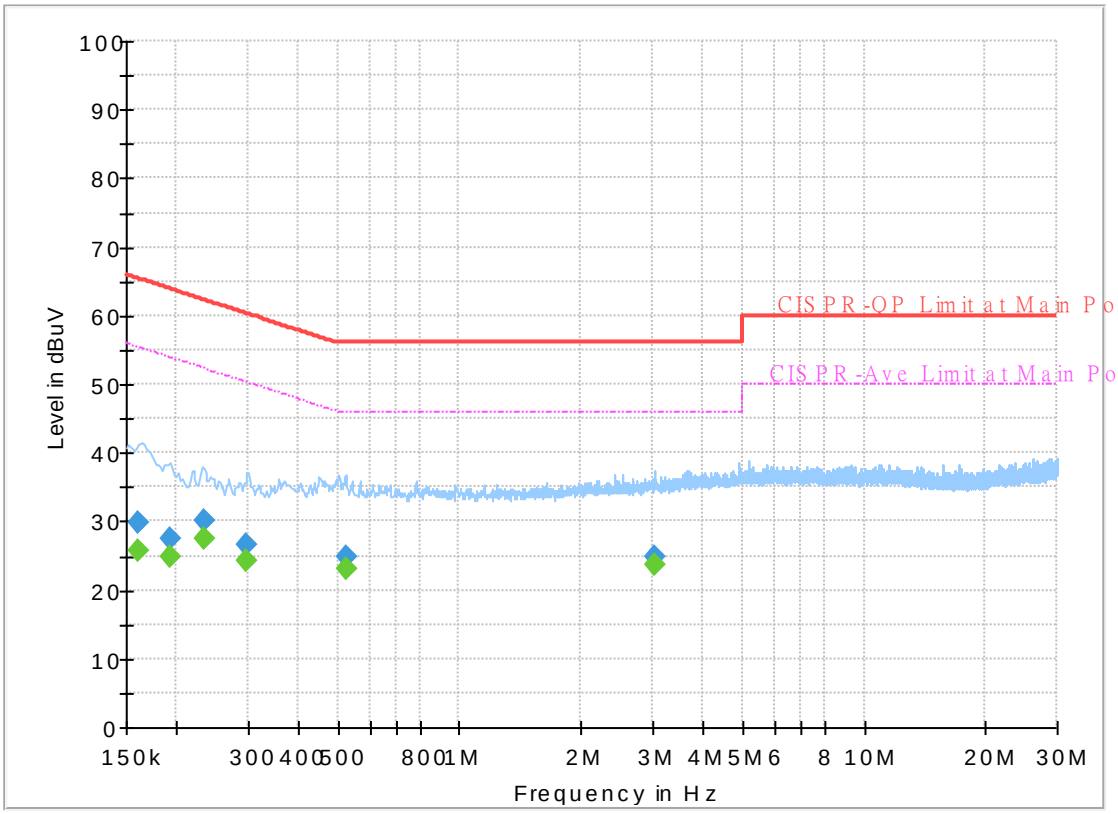
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.161250	---	25.60	55.40	29.80	L1	OFF	19.4
0.161250	30.28	---	65.40	35.12	L1	OFF	19.4
0.235500	---	26.55	52.25	25.70	L1	OFF	19.4
0.235500	28.78	---	62.25	33.47	L1	OFF	19.4
0.413250	---	22.37	47.58	25.21	L1	OFF	19.4
0.413250	23.43	---	57.58	34.15	L1	OFF	19.4
0.503250	---	25.07	46.00	20.93	L1	OFF	19.4
0.503250	28.73	---	56.00	27.27	L1	OFF	19.4
4.562250	---	24.56	46.00	21.44	L1	OFF	19.6
4.562250	25.74	---	56.00	30.26	L1	OFF	19.6
17.918250	---	23.98	50.00	26.02	L1	OFF	20.1
17.918250	25.18	---	60.00	34.82	L1	OFF	20.1

EUT Information

Report NO :	972333
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.161250	---	25.81	55.40	29.59	N	OFF	19.5
0.161250	29.93	---	65.40	35.47	N	OFF	19.5
0.192750	---	24.84	53.92	29.08	N	OFF	19.5
0.192750	27.47	---	63.92	36.45	N	OFF	19.5
0.233250	---	27.48	52.33	24.85	N	OFF	19.5
0.233250	30.10	---	62.33	32.23	N	OFF	19.5
0.298500	---	24.35	50.28	25.93	N	OFF	19.5
0.298500	26.69	---	60.28	33.59	N	OFF	19.5
0.523500	---	23.11	46.00	22.89	N	OFF	19.5
0.523500	24.82	---	56.00	31.18	N	OFF	19.5
3.036750	---	23.70	46.00	22.30	N	OFF	19.6
3.036750	24.96	---	56.00	31.04	N	OFF	19.6

Appendix C. Radiated Spurious Emission

Test Engineer :	Fu Chen	Temperature :	21.1~22.5°C
		Relative Humidity :	63.6~68.2%

902~928MHz

(1GHz ~ 10GHz @ 3m)

	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
3		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
920MHz		1840	47.89	-26.11	74	73.29	25.18	7.05	57.63	100	0	P	H
		2760	54.08	-19.92	74	75.66	27.76	8.03	57.37	112	89	P	H
		2760	53.6	-0.4	54	75.18	27.76	8.03	57.37	112	89	A	H
													H
													H
		1840	45.46	-28.54	74	70.86	25.18	7.05	57.63	100	0	P	V
		2760	51.21	-22.79	74	72.79	27.76	8.03	57.37	100	0	P	V
		2760	50.06	-3.94	54	71.64	27.76	8.03	57.37	100	0	A	V
													V
													V
923.75MHz		1847.5	47.2	-26.8	74	72.56	25.2	7.06	57.62	100	0	P	H
		2771.25	53.3	-20.7	74	74.81	27.83	8.03	57.37	120	85	P	H
		2771.25	52.65	-1.35	54	74.16	27.83	8.03	57.37	120	85	A	H
													H
													H
		1847.5	45.41	-28.59	74	70.77	25.2	7.06	57.62	100	0	P	V
		2771.25	49.95	-24.05	74	71.46	27.83	8.03	57.37	100	0	P	V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
3		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
927.35MHz		1854.7	46.55	-27.45	74	71.87	25.22	7.08	57.62	100	0	P	H
		2782.05	49.81	-24.19	74	71.25	27.89	8.05	57.38	100	0	P	H
													H
													H
													H
		1854.7	41.71	-32.29	74	67.03	25.22	7.64	57.62	100	0	P	V
		2782.05	47.9	-26.1	74	69.34	27.89	8.29	57.38	100	0	P	V
													V
													V
													V

Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.

902~928MHz

(30MHz ~ 1GH @3m)

	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
3		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
920MHz		33.88	19.93	-20.07	40	29.2	22.3	0.8	32.37	-	-	P	H
		106.63	22.1	-21.4	43.5	36.47	16.56	1.38	32.31	-	-	P	H
		143.49	32.92	-10.58	43.5	46.5	17.11	1.6	32.29	100	0	P	H
		745.86	30.13	-15.87	46	30.58	27.76	3.81	32.02	-	-	P	H
		850.62	32.68	-13.32	46	31.08	29.14	4.07	31.61	-	-	P	H
	*	920	110.22	-	-	108.03	29.12	4.24	31.17	-	-	P	H
		949.56	34.29	-11.71	46	30.32	30.55	4.31	30.89	-	-	P	H
													H
													H
		34.85	23.81	-16.19	40	33.49	21.88	0.81	32.37	-	-	P	V
		70.74	24.65	-15.35	40	43.76	12.09	1.15	32.35	-	-	P	V
		142.52	30.12	-13.38	43.5	43.7	17.11	1.6	32.29	-	-	P	V
		822.49	30.73	-15.27	46	30.3	28.2	3.99	31.76	-	-	P	V
		889.42	32.03	-13.97	46	30.23	29.05	4.16	31.41	-	-	P	V
	*	920	107.78	-	-	105.59	29.12	4.24	31.17	-	-	P	V
		949.56	33.79	-12.21	46	29.82	30.55	4.31	30.89	100	0	P	V
													V
													V

Remark	1. No other spurious found. 2. All results are PASS against limit line.

	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
3		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
923.75MHz		57.16	19.9	-20.1	40	39.41	11.84	1.01	32.36	-	-	P	H
		89.17	19.21	-24.29	43.5	35.74	14.51	1.29	32.33	-	-	P	H
		145.43	32.83	-10.67	43.5	46.41	17.08	1.62	32.28	-	-	P	H
		772.05	30.76	-15.24	46	30.96	27.89	3.86	31.95	-	-	P	H
		858.38	32.48	-13.52	46	30.68	29.28	4.09	31.57	-	-	P	H
	*	923.75	110.74	-	-	108.37	29.25	4.25	31.13	-	-	P	H
		953.44	35.78	-10.22	46	31.6	30.72	4.32	30.86	100	0	P	H
													H
													H
		52.31	29.5	-10.5	40	47.8	13.12	0.95	32.37	100	0	P	V
		69.77	26.84	-13.16	40	46.06	11.99	1.14	32.35	-	-	P	V
		145.43	31.36	-12.14	43.5	44.94	17.08	1.62	32.28	-	-	P	V
		765.26	30.53	-15.47	46	30.77	27.88	3.85	31.97	-	-	P	V
		849.65	32.08	-13.92	46	30.51	29.12	4.07	31.62	-	-	P	V
	*	923.75	105.84	-	-	103.47	29.25	4.25	31.13	-	-	P	V
		953.44	34.76	-11.24	46	30.58	30.72	4.32	30.86	-	-	P	V
													V
													V

Remark	1. No other spurious found. 2. All results are PASS against limit line.

	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
3		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
927.35MHz		115.36	23.37	-20.13	43.5	37.34	16.91	1.43	32.31	-	-	P	H
		145.43	33.87	-9.63	43.5	47.45	17.08	1.62	32.28	100	0	P	H
		183.26	23.51	-19.99	43.5	39.18	14.67	1.91	32.25	-	-	P	H
		748.77	30.27	-15.73	46	30.66	27.8	3.82	32.01	-	-	P	H
		840.92	31.6	-14.4	46	30.4	28.81	4.05	31.66	-	-	P	H
	*	927.35	111.24	65.24	46	108.71	29.38	4.25	31.1	-	-	P	H
		957.32	34.98	-11.02	46	30.57	30.89	4.34	30.82	-	-	P	H
													H
													H
		75.59	24.85	-15.15	40	43.39	12.61	1.19	32.34	-	-	P	V
		127.97	29.19	-14.31	43.5	42.67	17.32	1.5	32.3	-	-	P	V
		143.49	31.59	-11.91	43.5	45.17	17.11	1.6	32.29	-	-	P	V
		649.83	28.21	-17.79	46	30.68	26.18	3.52	32.17	-	-	P	V
		860.32	32.22	-13.78	46	30.38	29.31	4.09	31.56	-	-	P	V
	*	927.35	106.27	60.27	46	103.74	29.38	4.25	31.1	-	-	P	V
		949.56	34.92	-11.08	46	30.95	30.55	4.31	30.89	100	0	P	V
													V
													V

Remark	1. No other spurious found. 2. All results are PASS against limit line.

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is **over limit** line.
QP/P/A	Quasi Peak or Peak or Average
H/V	**H**orizontal or **V**ertical

A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

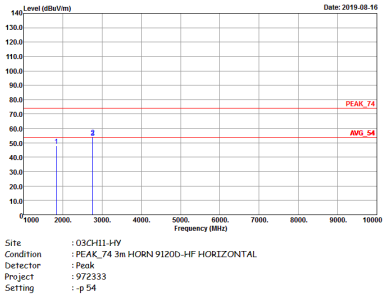
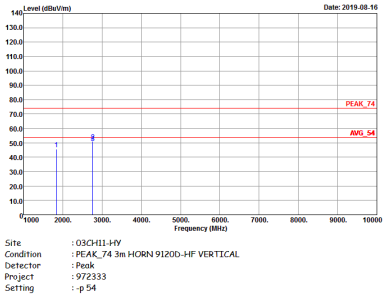
Both peak and average measured complies with the limit line, so test result is “PASS”.

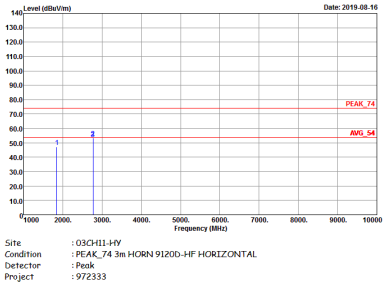
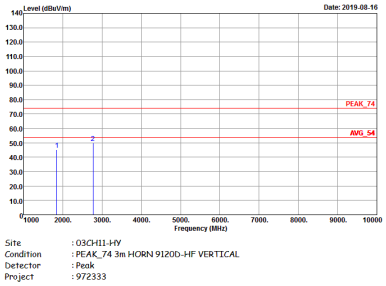
Appendix D. Radiated Spurious Emission Plots

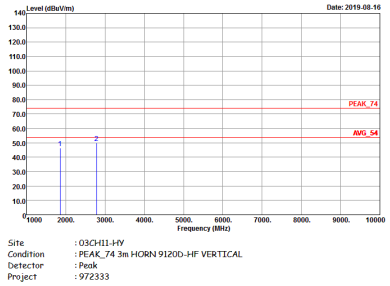
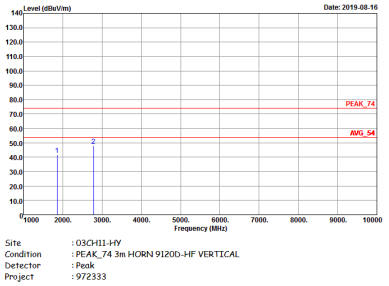
Test Engineer :	Fu Chen	Temperature :	21.1~22.5°C
		Relative Humidity :	63.6~68.2%

920~928MHz

(1GHz ~ 10GHz @ 3m)

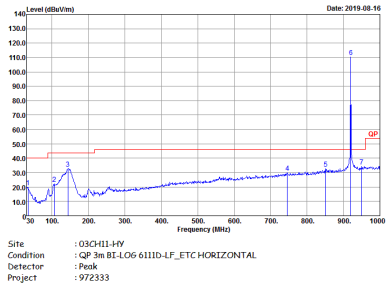
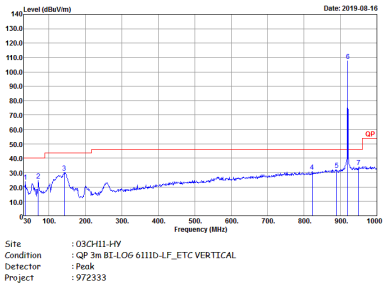
ANT	920MHz	
3	Horizontal	Vertical
Peak Avg.		

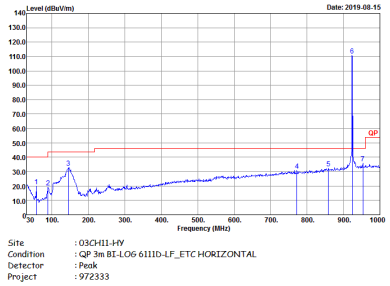
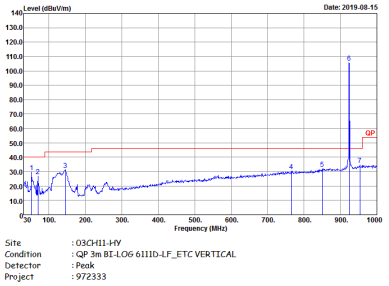
ANT	923.75MHz	
3	Horizontal	Vertical
Peak Avg.		

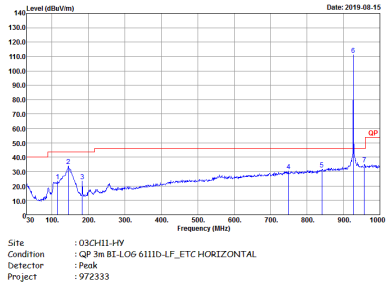
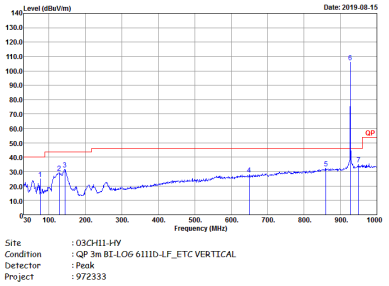
ANT	927.35MHz	
3	Horizontal	Vertical
Peak Avg.		

902~928MHz

(30MHz ~ 1GHz @ 3m)

ANT	920MHz	
3	Horizontal	Vertical
QP / Peak		

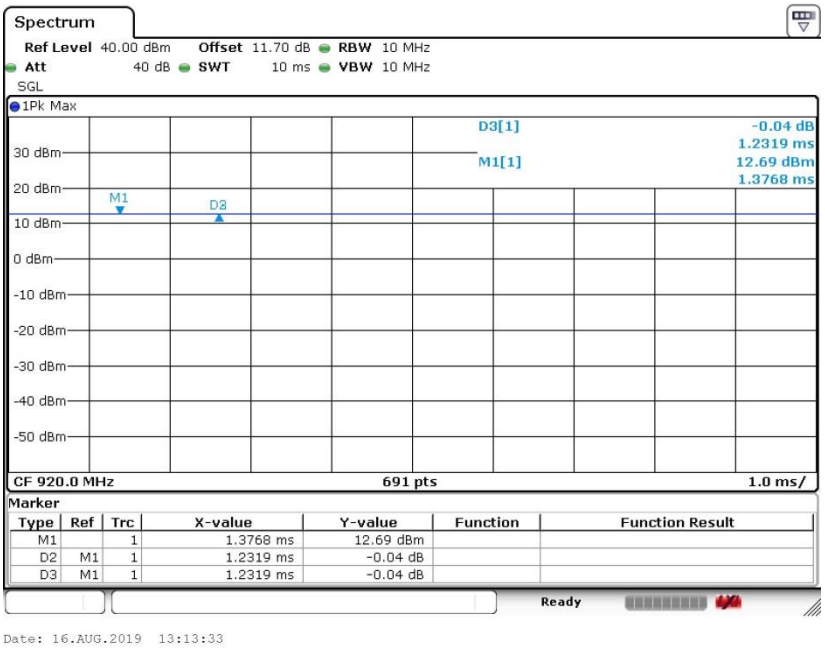
ANT	923.75MHz	
3	Horizontal	Vertical
QP / Peak		

ANT	927.35MHz	
3	Horizontal	Vertical
QP / Peak		

Appendix E. Single Frequency Mode of Duty Cycle

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
Sub-gig	100	-	-	10Hz	0.00

Sub-gig



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