RF Test Report

Report Number : 6128625082101

Applicant : K.S. TERMINALS INC.

Product : 315MHz Wireless EV Charge Port Opener Module for Charging Gun

Model : RYGA315, RYGD315

FCC ID : 2BF7W-VCNB1

IC : 32387-VCNB1

In accordance with

FCC rule part §15.231

ISED RSS-210

RESPONSIBLE FOR	NAME	SIGNATURE	DATE
Approved By	**Jack Chang**		**2025.12.31**
Prepared By	**Ariel Hsu**		**2025.12.31**

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service control rules.

EXECUTIVE SUMMARY

TÜV SÜD Asia Ltd., reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Asia Ltd. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Asia Ltd. issued reports.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.

Contents

1 General Information

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

History of this test report

Issue	Description of Change	Date of Issue
1	Initial Issue	2025.12.31

1.2 Introduction

The information contained in this report is intended to show verification of RF qualification approval. The testing requirements of the standards for the tests listed in Section 1.5.

Applicant	:	K.S. TERMINALS INC.
Address	:	No. 8, Zhangbin E. 3rd Road., Xianxi Township, Changhua County, 507 Taiwan
Manufacturer	:	GERSHIN ELECTRONICS CO., LTD.
Product Name	:	315MHz Wireless EV Charge Port Opener Module for Charging Gun
Model Number(s)	:	RYGA315, RYGD315
HVIN	:	RYGA315, RYGD315
Date of Receipt of EUT	:	2025-12-03
Start of Test	:	2025-12-15
Finish of Test	:	2025-12-18
Test Laboratory	:	TÜV SÜD Asia Ltd., Taiwan Branch
Address	:	7F., No. 37, Sec. 2, Zhongyang S. Rd., Beitou District, Taipei City 11270, R.O.C. Taiwan
Test Location	:	TÜV SÜD Asia Ltd., Taiwan Branch, Guishan Laboratory
Address	:	No. 31, Dinghu Road, Guishan District, Taoyuan City, TAIWAN (R.O.C.)

The test facility is accredited by TAF (member of ILAC), under number 2573 according to ISO/IEC 17025: 2017.

FCC Designation Number No.: TW2573

ISED CAB identifier No./ Company Number: TW2573 / 32030

1.3 Applied Standard

FCC rule part §15.231 ISED RSS-210
Deviation from standards FCC Part 15, Subpart C §15.231 RSS-210 issue 11 June 2024 RSS-Gen, Issue 5 April 2018 (Amendment 2 February 2021) ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024

1.4 Deviation from standards

None

1.5 List of applied test(s) of the EUT

FCC rule part §15.231 ISED RSS-210				
FCC Rules	**ISED Rules**	**Test item**	**Result**	**Remark**
§15.203		Antenna Requirement	Compliant	
§15.207	RSS-Gen § 8.8	AC Power Line Conducted Emission	Not applicable	
§15.231(b), §15.209	RSS-210 A1.3, RSS-Gen 8.9, 8.2	Spurious Emission	Compliant	
§15.231(a)(1)	RSS-210 A1.2(a)	Periodic Operation	Compliant	
§15.231(c)	RSS-210 A1.4	Emission Bandwidth	Compliant	

2 General EUT Information

All information in this chapter was provided by the applicant.

2.1 Variation of family model(s)

2.1.1 List of family model(s)

Brand	Type Identification	Difference
REYAX	RYGA315(AC)	The difference between the two models resides solely in the Proximity Pilot (PP) control interface to support different charging standards (AC vs. DC charging applications)
	RYGD315(DC)	

2.2 Technical Specification of EUT

Items	EUT information
Operating Frequency	315 MHz
Channel number	1
Field Strength of Fundamental	69.94dBuV/m @3m
Operation Voltage	10mA 5V ~ 12V DC
Modulation	OOK
Product Type	Manually Operation Device
Test Software Version	V2.2

Note:

1: The transmitter and receiver of the low-power radio-frequency device are sold in one set

2.3 Antenna List

Antenna Type	Brand	Model	Frequency (MHz)	Connector
PCB	REYAX	RYGx315 On board antenna	315	Permanently attached antenna

Note:

1: The applicant provides antenna information.

2.4 Accessory of EUT

Not applicable

3 Configuration of Equipment

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

An engineering test mode (software/firmware) that applicant provided was utilized to ma-nipulate the EUT into transmit, selection of the test channel, and modulation scheme.

Numbers assigned to equipment on the diagram in “3.3 System configuration” correspond to the list in “3.1 Equipment used” and “3.2 Cable(s) used”.

This test configuration is based on the manufacture’s instruction.

Cabling and setup(s) were taken into consideration and test data was taken under worse case condition.

The EUT has been tested as an independent unit with other necessary accessories or support units.

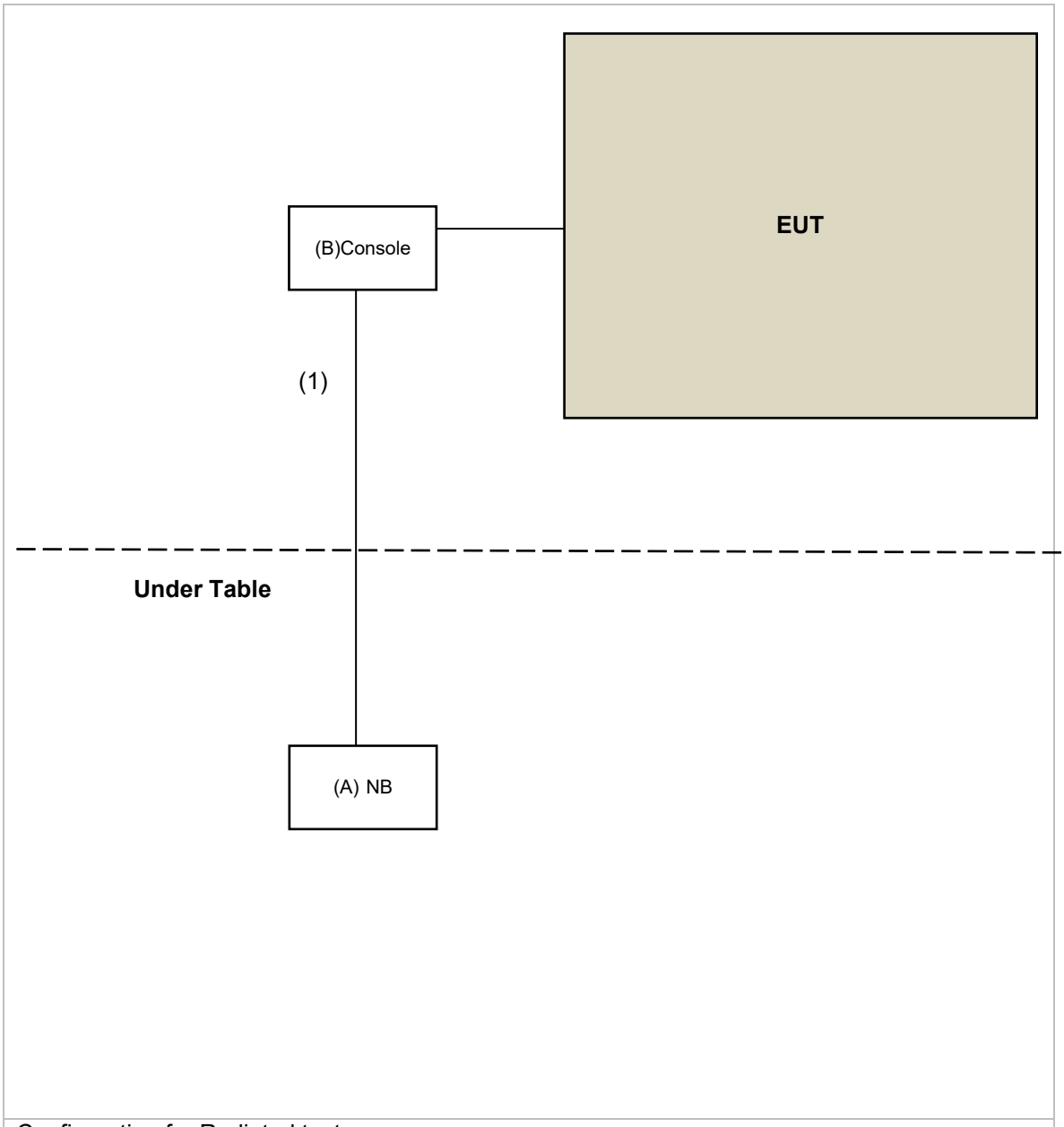
3.1 Equipment used

No.	Product	Brand	Model	Serial No.	Remarks
A	Laptop	Lenovo	TP00048A	PC-00NQMT	Provided by Lab
B	USB Console	REYAX	RYLS135	N/A	Provided by Client
C	Adapter	Lenovo	ADLX65YAC3E	8SGX21J75549A1WH	Provided by Lab

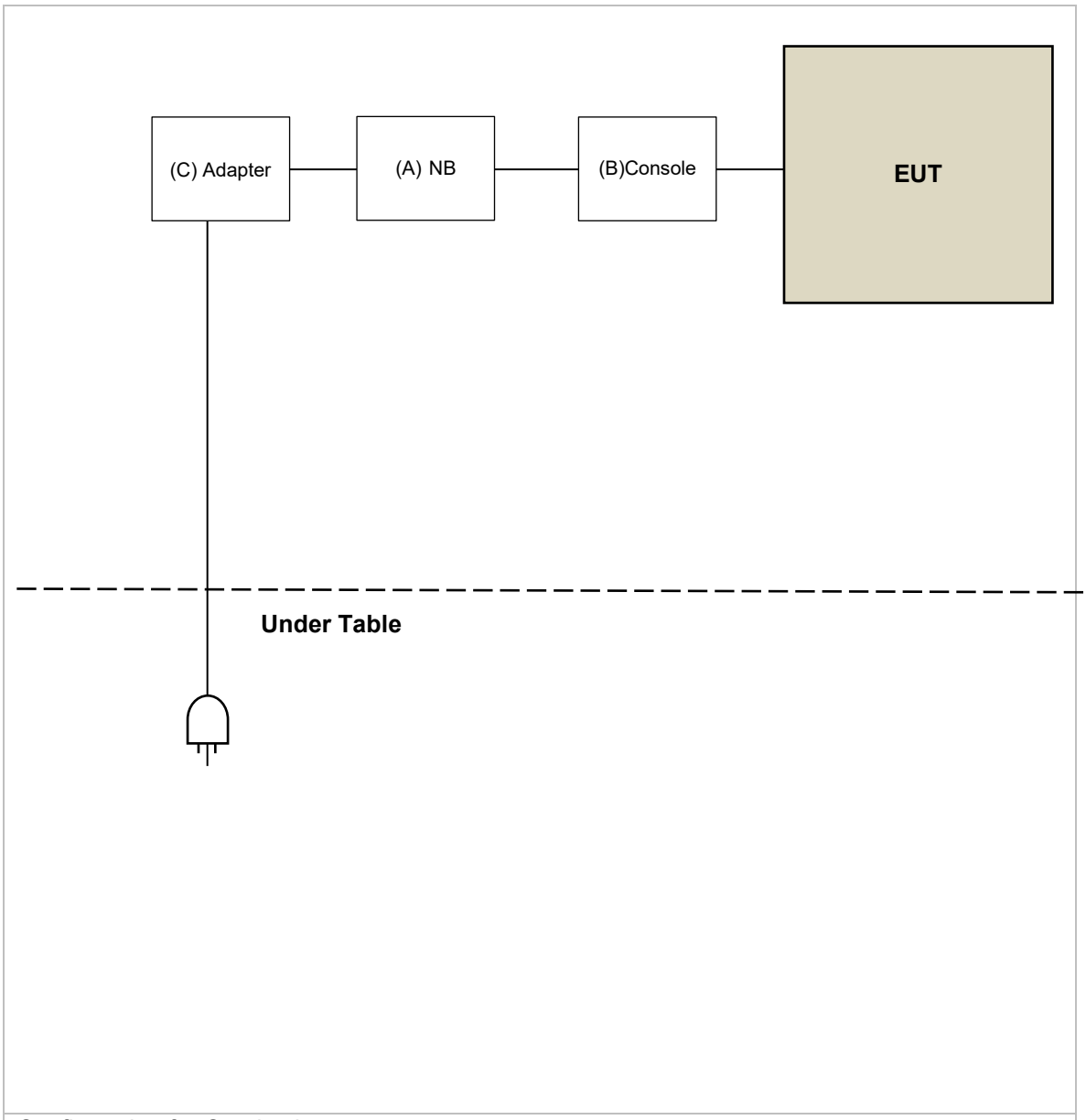
3.2 Cable(s) used

No.	Cable Descriptions	Brand	Model	Length(m)	Remarks
1	Extension cable	Benevo	BUSB0300AMF	5	Provided by Lab

3.3 System configuration



Configuration for Radiated test



Configuration for Conduction test

4 General Test Configurations

The equipment under test (EUT) was configured to measure its maximum emission level. The test modes were adapted accordingly in reference to the instructions for use.

4.1 Description of test mode

1. The EUT has been tested under continuous transmission mode.
2. The frequency 433.92 MHz is the default channel to test, where it is the only manipulative channel as this application supports.
3. The field strength of radiation emission was measured as the EUT positioned in different orthogonal planes (X/Y/Z) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.
4. Only one configuration is supported/applicable as follows.

Radiated Spurious Emissions

☐ Pre-scan full test was applied on all test modes, but only the worst case was shown.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)
-	315	315

Emission Bandwidth

☐ Pre-scan full test was applied on all test modes, but only the worst case was shown.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)
-	315	315

Pulse Width / TX Gap

☐ Pre-scan full test was applied on all test modes, but only the worst case was shown.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)
-	315	315

Field Strength of Fundamental

☐ Pre-scan full test was applied on all test modes, but only the worst case was shown.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)
-	315	315

4.2 Test Condition

Test Item	Ambient Temperature	Relative Humidity	Tested by
Radiated Spurious Emissions	22-26 °C	50-68 %	Sam Huang
Field Strength of Fundamental	22-26 °C	50-68 %	Sam Huang
Emission Bandwidth	22-26 °C	50-68 %	Sam Huang
Time for Ceasing Tranmission	22-26 °C	50-68 %	Sam Huang
AC Mains Conducted Emission	22-26 °C	50-68 %	Sam Huang

5 Test Result

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

Low-power radio frequency transmitter or transceiver(receiver) shall utilize a permanently, semi-permanently attached antenna or uses a unique coupling of the antenna and at any cable connector between the transmitter and the antenna. The antenna shall be an omni-directional type. 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 or other than authorized is prohibited. Such standard connectors are for example: BNC, F type, N type, M type, UG type, RCA, SMA, SMB, and other standard type antenna connectors.

Refer to EUT photo for details.

5.2 Field Strength of Fundamental Emissions

5.2.1 Measurement procedure

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL – AG

Where FS = Field Strength
RA = Reading Amplitude
AF = Antenna Factor
CL = Cable Attenuation Factor (Cable Loss)
AG = Amplifier Gain

Notes:

1. Distance extrapolation factor = 40 log (required distance/ test distance) (dB)
2. The lower limit shall apply at the transition frequencies.
3. KDB 414788 D01 OATS and 3m semi-anechoic chamber Justification:
   Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. OATS and 3m SAC chamber testing had been performed and 3m SAC measured test result is the worst case test result.

   Actual FS (dBμV/m) = Spectrum. Reading level(dBμV) + Factor(dB)
   Below 30 MHz of Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Distance Factor (dB)
   Above 30 MHz of Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre_Amp Gain (dB)
   The trace on RE (radiation emission) plot is as colored blue, and the detection manner we've employed is peak detector.

5.2.2 Measurement procedure

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3-meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. Parallel (OPEN), perpendicular (CLOSE), and ground-parallel (GROUND) orientations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

   Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.

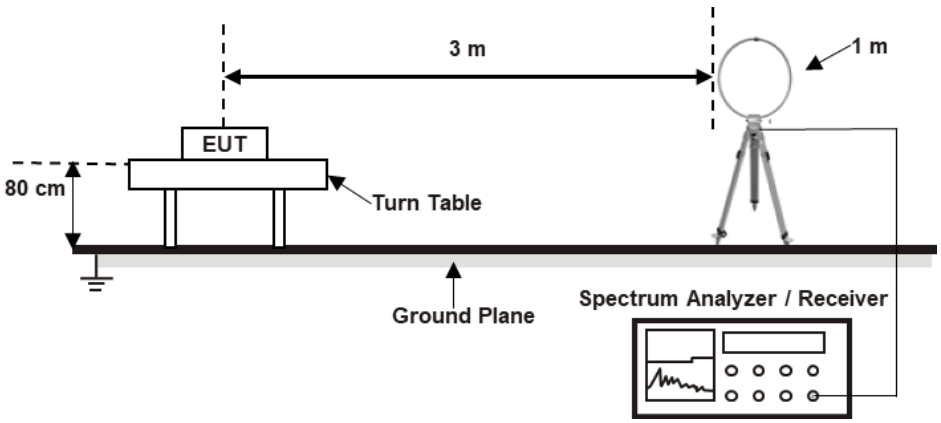
Test Results

Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)

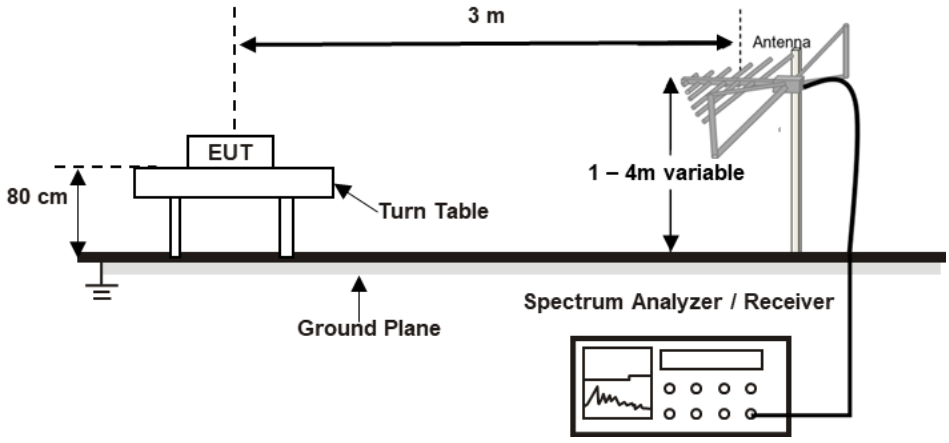
Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

5.2.3 Test Setup

<Radiated Emissions below 30 MHz>



<Radiated Emissions 30 MHz to 1 GHz>



5.2.4 Limit

15.231(b) and RSS-210 A1.2

Frequency (MHz)	Field strength of fundamental emissions (microvolts/meter)	Unwanted emissions (microvolts/meter)
40.66≤ f ≤40.70	2250	225
70< f ≤130	1250	125
130< f ≤174	1250～3750(Note 1, 2)	125～375(Note 1, 2)
174< f ≤260	3750	375
260< f ≤470	3750～12500(Note 1, 2)	375～1250(Note 1, 2)
470< f	12500	1250

Note:

1 With linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths shall be as follows:

130 MHz～174MHz, μV/m at 3 meters = 56.81818 x (frequency bands, MHz) -6136.3636

260 MHz～470MHz, μV/m at 3 meters = 41.6667 x (frequency bands, MHz) -7083.3333

2 The maximum permitted unwanted emission level shall be 20dB below the maximum permitted fundamental level, or meets the requirement of §15.231, whichever is less.

3 41.6667*315-7083.3333=6041.6772uV/m

20log (6041.6772) =75.62dBuV/m (Average limit)

75.62+20=85.62dBuV/m (Peak limit)

4 Frequency bands 225-328.6 MHz and 335.4-399.9 MHz are designated for the exclusive use of the Government of Canada. Manufacturers should be aware of possible harmful interference and degradation of their licence-exempt radio equipment in these frequency bands.

5.2.5 Measurement result

Please refer to Appendix E

5.3 Radiated Spurious Emissions

5.3.1 Measurement procedure

For Radiated Emissions below 30 MHz

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. Parallel (OPEN), perpendicular (CLOSE), and ground-parallel (GROUND) orientations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated Emissions above 30 MHz

1. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
6. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.
3. The Radiated Emissions testing was performed in the X, Y and Z axis orientation. The worst-case Axis orientation is recorded in this test report.

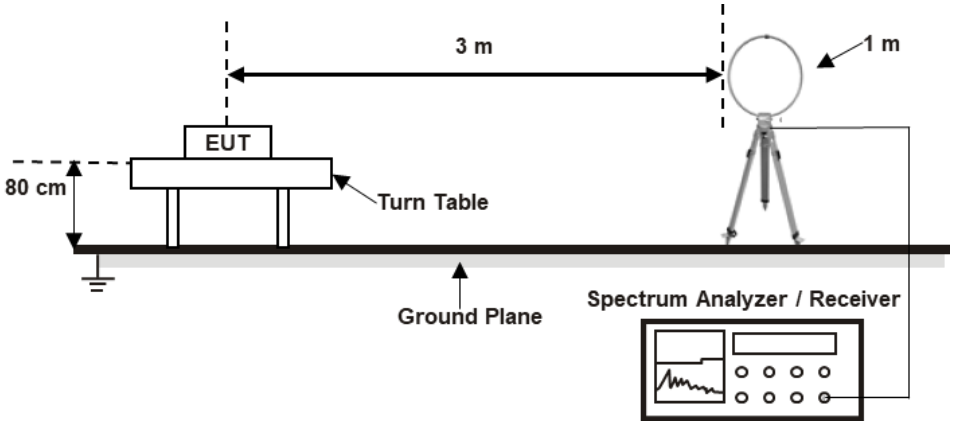
Test Results

Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)

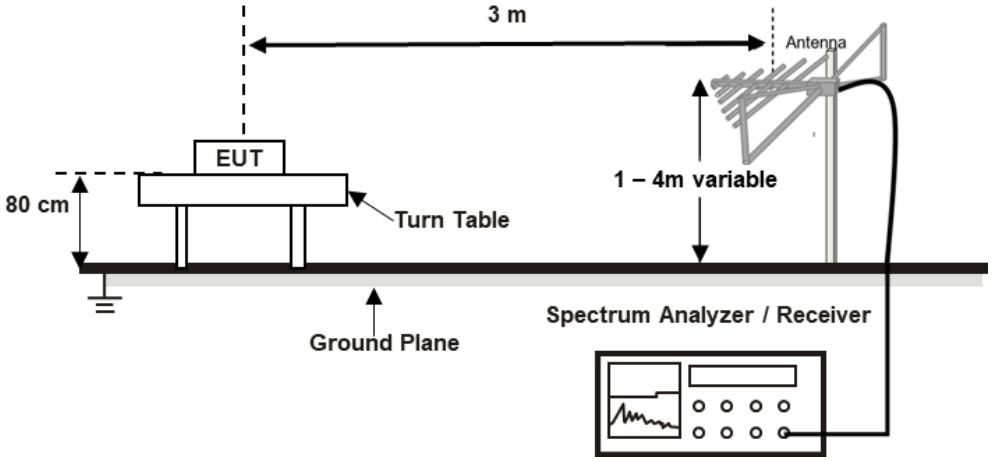
Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

5.3.2 Test Setup

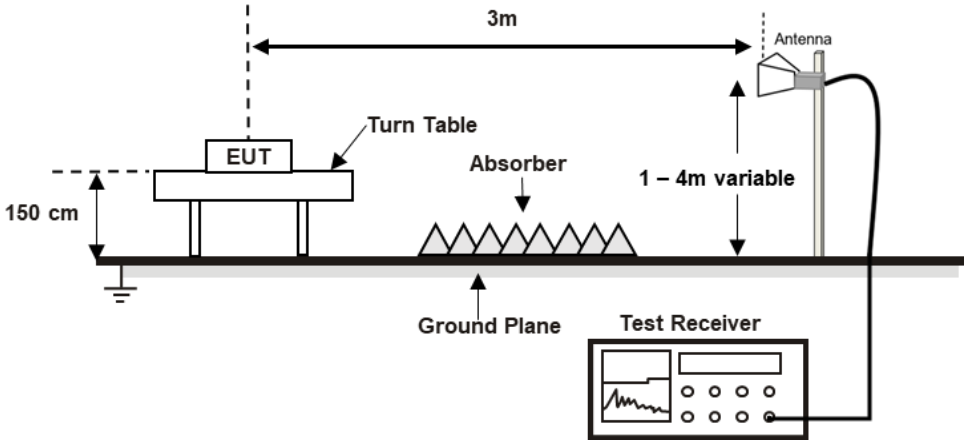
<Radiated Emissions below 30 MHz>



<Radiated Emissions 30 MHz to 1 GHz>



<Radiated Emissions above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

5.3.3 Limit

The field strength of any emissions appearing outside of the above 70MHz shall not exceed the general radiated emission limits according to 15.231(b) and RSS-210 A1.2 as below.

Frequency (MHz)	Field strength of fundamental emissions (microvolts/meter)	Unwanted emissions (microvolts/meter)
40.66≤ f ≤40.70	2250	225
70< f ≤130	1250	125
130< f ≤174	1250～3750(Note 1, 2)	125～375(Note 1, 2)
174< f ≤260	3750	375
260< f ≤470	3750～12500(Note 1, 2)	375～1250(Note 1, 2)
470< f	12500	1250

Frequency (MHz)	Field strength (μV/m)	Distance (meters)
0.009~0.490	2400/f(kHz)	300
0.490~1.705	24000/f(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Notes:

1. Emission level in dBμV/m=20 log (μV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of § 15.205 and RSS-Gen §8.10
4. Emission spurious frequency which appearing within the Restricted Bands specified in provision of §15.205 and RSS-Gen §8.10, then the general radiated emission limits in § 15.209 and RSS-Gen §8.9 Table 5 apply.
5. For the band 130-174MHz, uV/m at 3meters = 56.81818(F) – 6136.3636;
   For the band 260-470MHz uV/m at 3meters = 41.6667(F) – 7083.3333;
   Where F is the frequency in MHz.

5.3.4 Measurement result

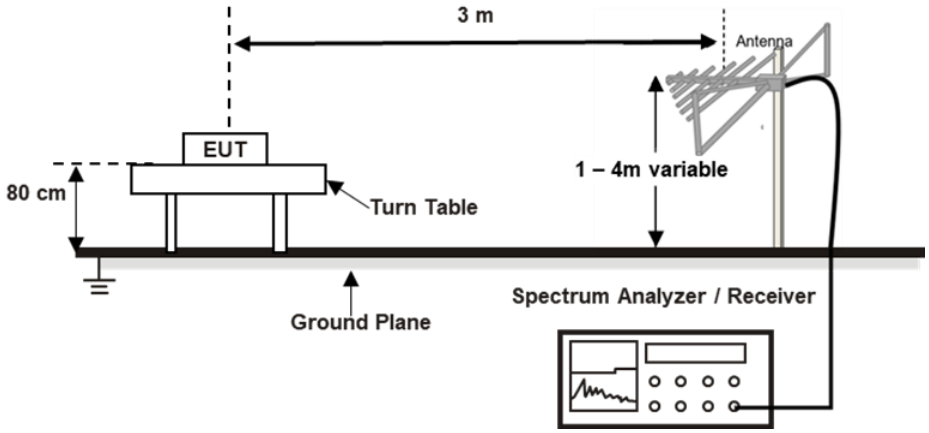
Please refer to Appendix F

5.4 Emission Bandwidth

5.4.1 Measurement procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as transmitting mode.
3. Set SPA Center Frequency = fundamental frequency, RBW=1% to 5% OBW, VBW= 3 x RBW, Span = large enough to capture all products of the modulation process.
4. Set SPA -20dB Occupied bandwidth. (FCC)
5. Set SPA 99% Occupied bandwidth.(ISED)

5.4.2 Test Setup



5.4.3 Limit

According to 15.231 (c), The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

According RSS-Gen §6.7: The 99% bandwidth of momentarily operated devices shall be less or equal to 0.25% of the centre frequency for devices operating between 70 MHz and 900 MHz. For devices operating above 900 MHz, the 99% bandwidth shall be less or equal to 0.5% of the centre frequency.

5.4.4 Measurement result

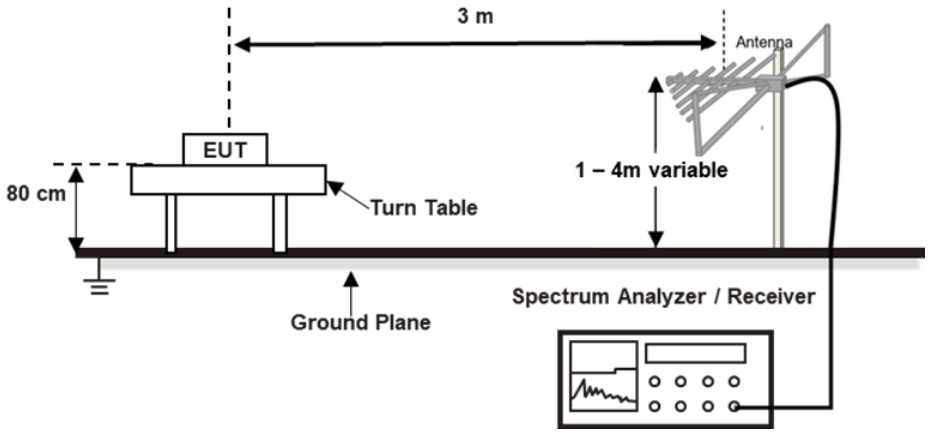
Please refer to Appendix C

5.5 Time for Ceasing Tranmission（Optional for manually Transmitter）

5.5.1 Measurement procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set SPA Center Frequency = fundamental frequency, RBW=100kHz, VBW= 300kHz, Span =0Hz. Sweep Time= 5s.
3. Set EUT as normal operation and press Transmitter bottom for 1 time
4. Set SPA Max hold. Delta Mark.

5.5.2 Test Setup



5.5.3 Limit

According to 15.231 (a) (1) and RSS-210 Annex A.1.1 A a manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being selected

5.5.4 Measurement result

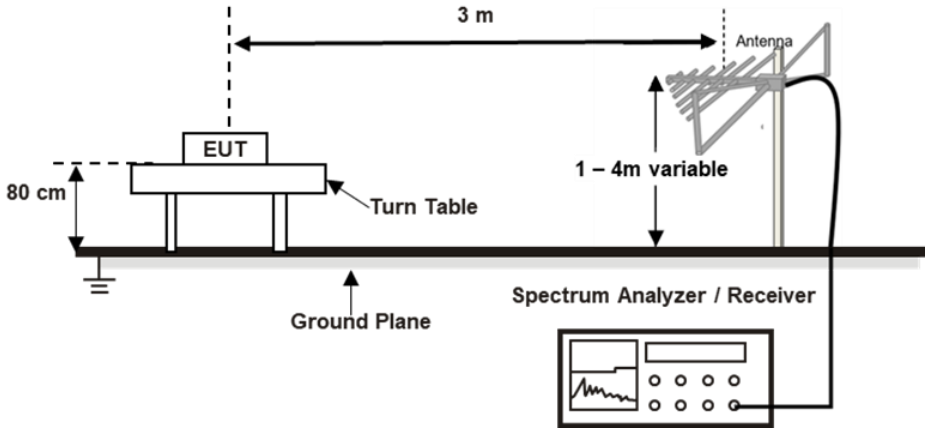
Please refer to Appendix D

5.6 Duty cycle

5.6.1 Measurement procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT normal operating mode
3. Set SPA Center Frequency = fundamental frequency, RBW, VBW= 100kHz, Span =0 Hz. Adjacent sweep.
4. Set SPA single sweep. Delta Mark.

5.6.2 Test Setup



5.6.3 Limit

According to 15. 35(c) and RSS-Gen §8.2, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value. The exact method of calculating the average field strength shall be submitted with any application for certification

5.6.4 Measurement result

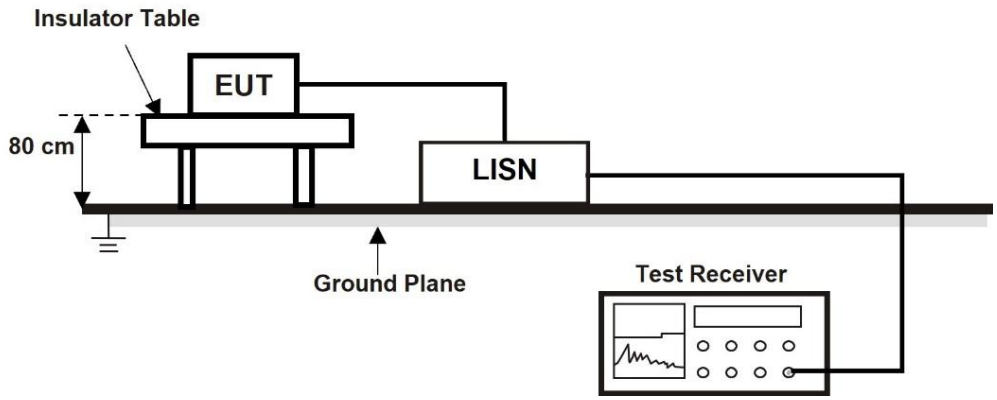
Please refer to Appendix B

5.7 AC Mains Conducted Emission

5.7.1 Measurement procedure

1. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50μH of coupling impedance for the measuring instrument.
2. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
3. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.
   Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz – 30 MHz.

5.7.2 Test Setup



5.7.3 Limit

According to §15.207 and RSS-Gen §8.8, frequency within 150 kHz to 30MHz shall not exceed the limit table as below.

Frequency range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

5.7.4 Measurement result

Please refer to Appendix G

6 Measurement Uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

Radiated Spurious Emission Measurement Uncertainty		
Frequency	**Polarization**	**Measurement uncertainty**
9kHz~30MHz	**Vertical**	± 2.8 dB
30MHz - 1000MHz		± 4.82 dB
1GHz - 18GHz		± 4.37 dB
18GHz - 40GHz		± 4.21 dB
9kHz~30MHz	**Horizontal**	± 2.8 dB
30MHz - 1000MHz		± 4.54 dB
1GHz - 18GHz		± 4.37 dB
18GHz - 40GHz		± 4.21 dB

Test Items	**Measurement uncertainty**
AC Power Line Conducted Emission	± 2.32 dB
Emission Bandwidth	± 1.53 Hz
Undesignable radiated emission measurement	± 1.68 dB
Temperature	± 0.7 °C
Humidity	± 3 %
DC / AC Power Source	± 1 %

7 Photographs of the Test Set-Up

RYGA315
Set-up for Spurious Emissions
Front View

Set-up for Spurious Emissions
Rear View

Set-up for Spurious Emissions
Front View

Set-up for Spurious Emissions
Rear View

RYGD315
Set-up for Spurious Emissions
Front View

Set-up for Spurious Emissions
Rear View

RYGA315
Set-up for Conduction
Front View

Set-up for Conduction
Rear View

RYGD315
Set-up for Conduction
Front View

Set-up for Conduction
Rear View

Appendix A. Test Equipment

Test Software	Manufacturer	Model No.	Version	Remark
Test Software	Audix	e3	V9	Radiation

Test Equipment Used (Field Strength of Fundamental Emissions / spurious emission)

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSV3044	101346	Jul. 29, 2025	Jul. 28, 2026
Spectrum Analyzer	R&S	ESR	102601	Jul. 09, 2025	Jul. 08, 2026
Horn(1-18G)	RF SPIN	DRH18-E	211218A18EN	Nov. 05, 2025	Nov. 04, 2026
Bi-log	Schwarzbeck&EMEC	VULB9168&EM-ATT3000-6-NN	01498	Jan. 03, 2025	Jan. 02, 2026
Preamplifier(1-18G)	SGH	SGH118-HS	20230214-5	Apr. 10, 2025	Apr. 09, 2026
Preamplifier(30M-1G)	SGH	SGH0301	20221230-1	Apr. 11, 2025	Apr. 10, 2026
Loop Antenna	TESEQ	HLA-6121	64165	Mar. 27, 2025	Mar. 26, 2026

Test Equipment Used (Pulse Width / TX Gap, DCCF, Emission Bandwidth)

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	Keysight	N9010B	MY63440384	Jul. 11, 2025	Jul. 10, 2026

Test Equipment Used (Mains conduction)

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
EMI Receiver	R&S	ESR 7	102600	Aug. 22, 2025	Aug. 21, 2026
LISN	R&S	ENV216	101517	Oct. 31, 2025	Oct. 30, 2026

*: The calibrations of the above equipment are traceable to NIST or equivalent standards of the reference organizations.

Appendix B. Duty cycle

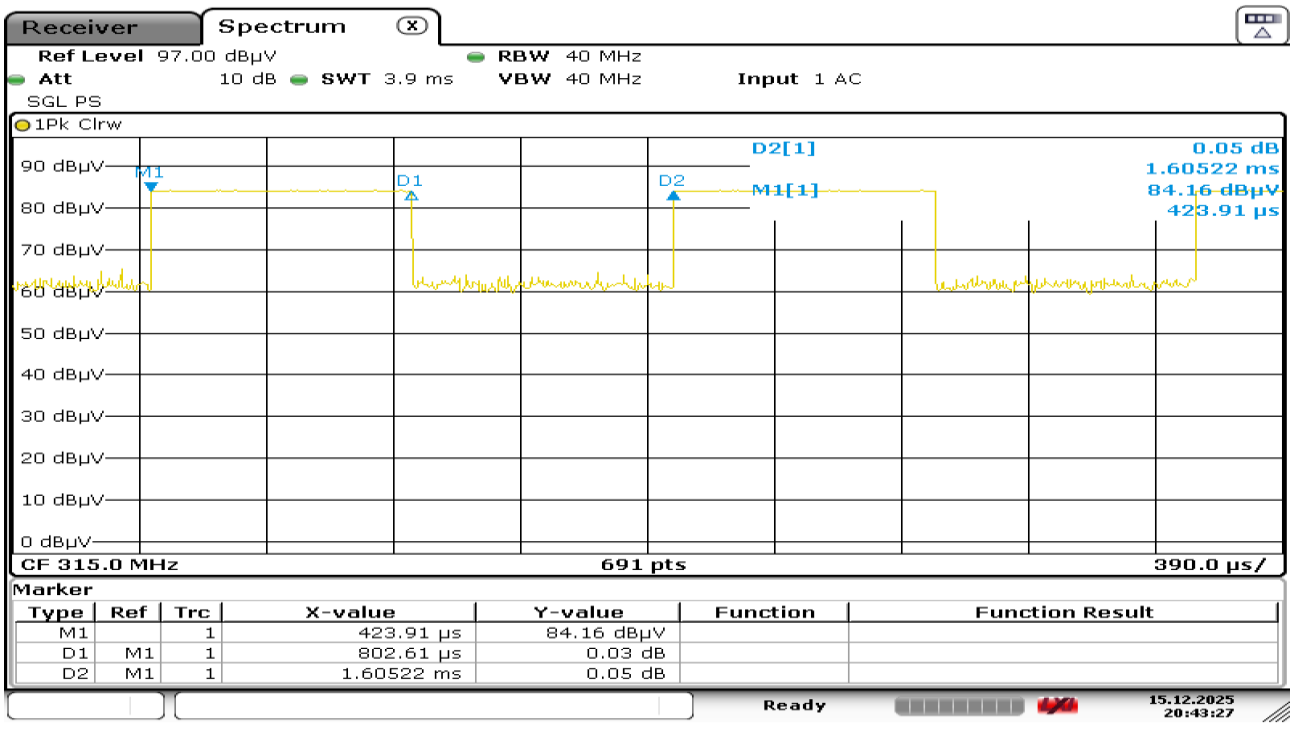
DUTY

315MHz		
Duty On (ms):	0.8026	Duty Cycle = Ton / (Ton + Toff)
Duty OnOff (ms):	1.6052	
Duty Cycle (%):	50	
VBW (Hz):	2k	

***Duty cycle = 0.8026ms/1.6052ms = 0.5**

***If duty cycle of test signal is ≥ 98%, duty factor is not required.**

***If duty cycle of test signal is < 98%, duty factor shall be considered**

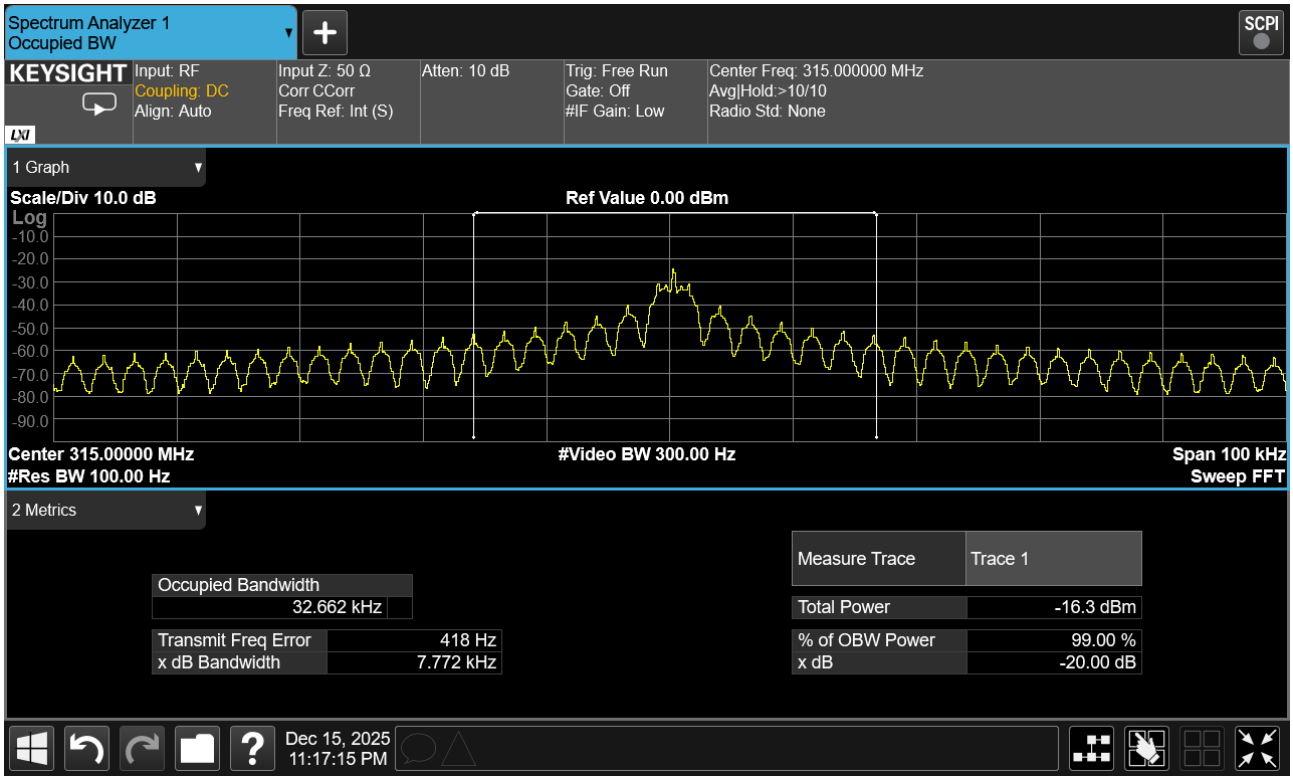


Appendix C. Emission Bandwidth

20dB Bandwidth

<315MHz>

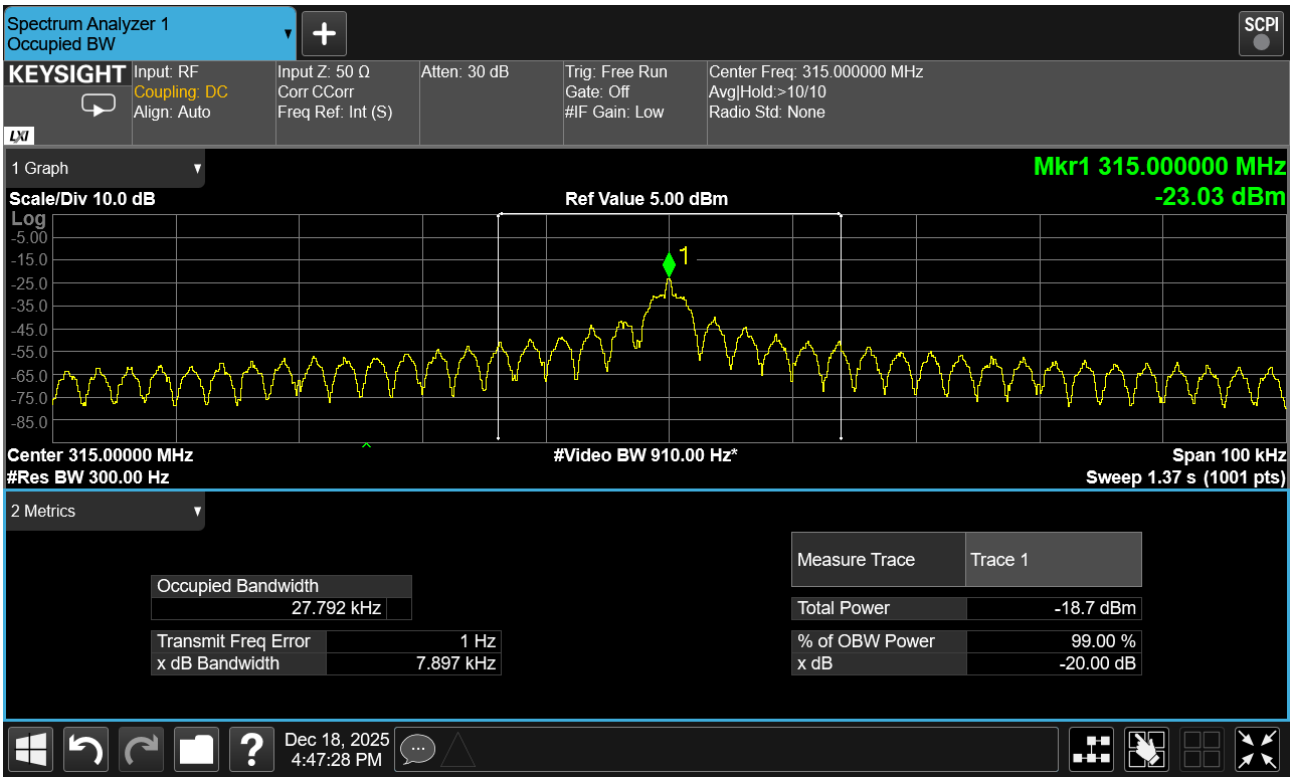
Channel Frequency (MHz)	20dB Bandwidth (kHz)	Limit (kHz)
315	7.772	787.5



99% Bandwidth

<315MHz>

Channel Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)
315	27.792	787.5

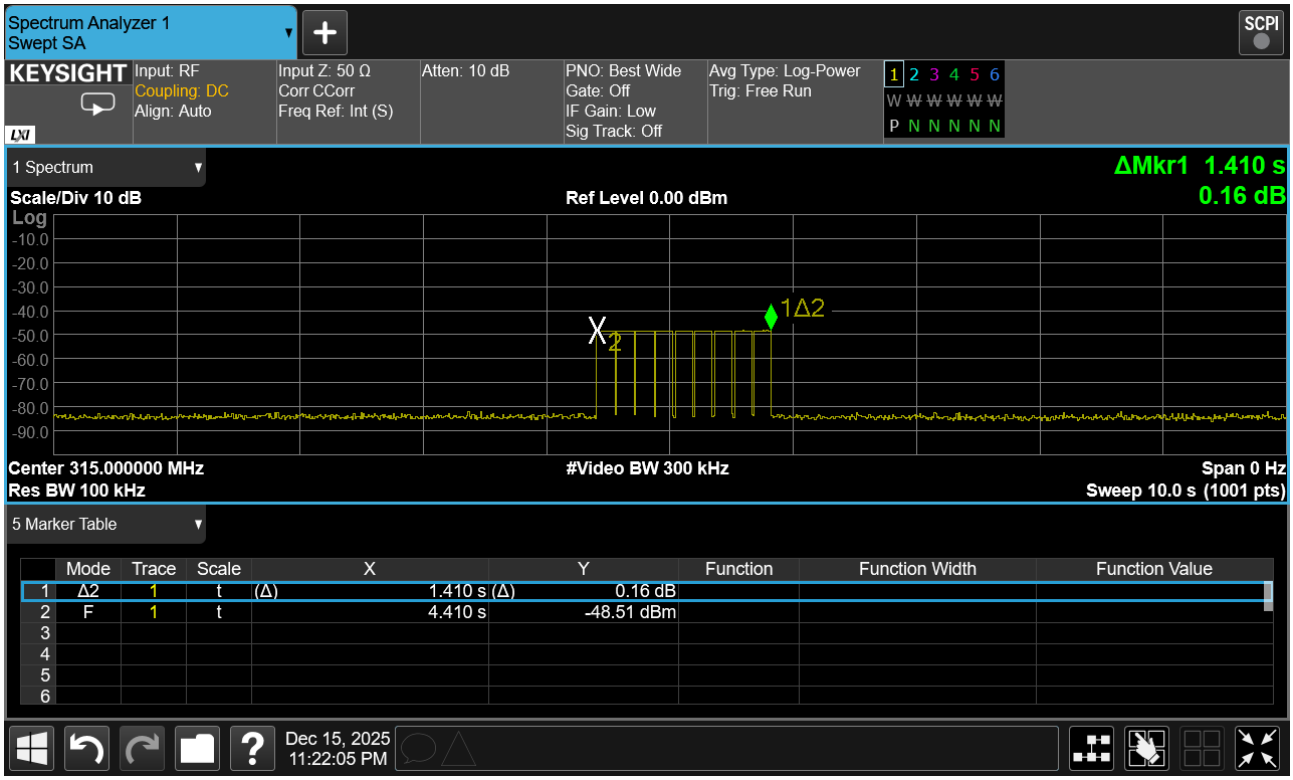


Appendix D. Time for Ceasing Tranmission

發射時間

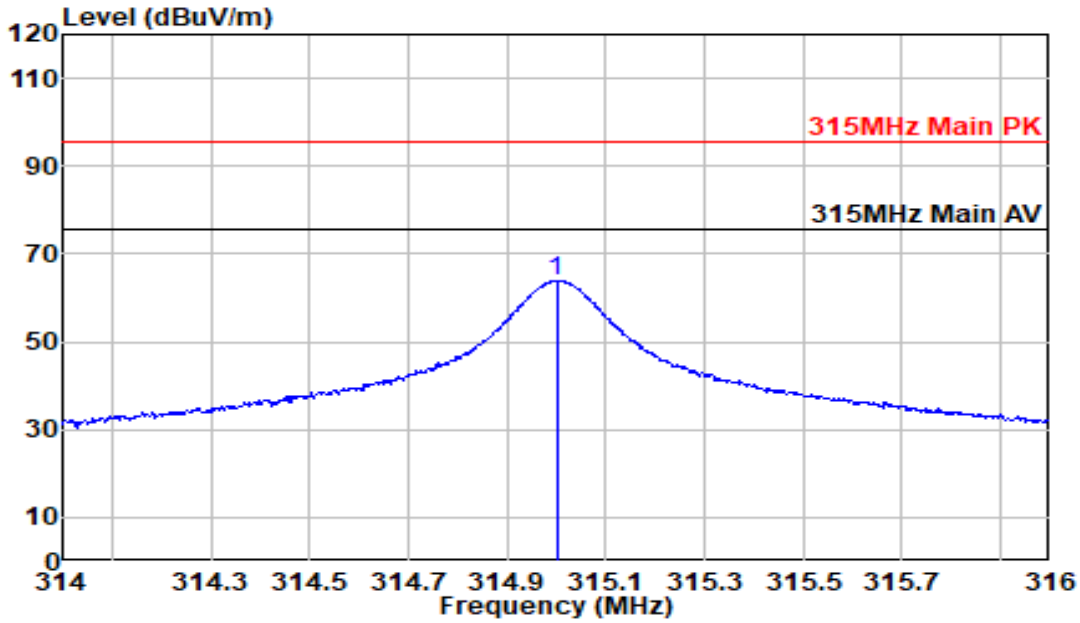
<315MHz>

Channel Frequency (MHz)	Transmission Time (ms)	Limit (ms)
315	1410	<5000



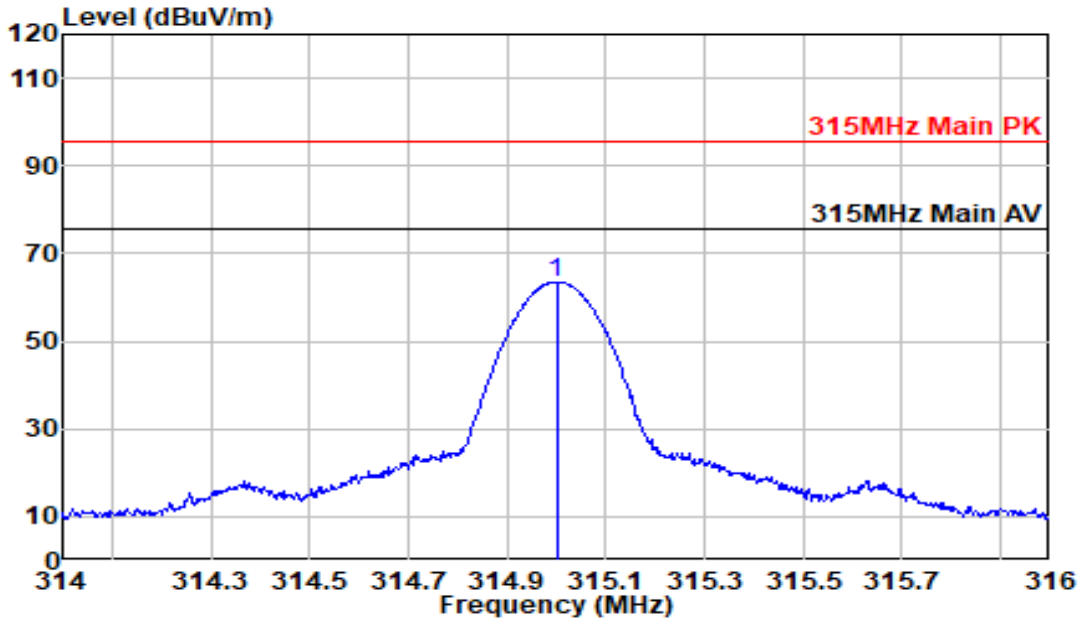
Appendix E. Field Strength of Fundamental

Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGA315**
Operation Band	**:315MHz**	**Temp/Humi**	**:21.8C/58%**
Channel	**:315MHz**	**Antenna Pol**	**:Vertical**
Mode	**:Main**	**Test Engineer**	**:Sam Huang**
Power Setting	**:default**	**Test Site**	**:chamber B**
Plane	**:Y Plane**	**Voltage**	**:5Vdc From Testkit**
Note	**:**		



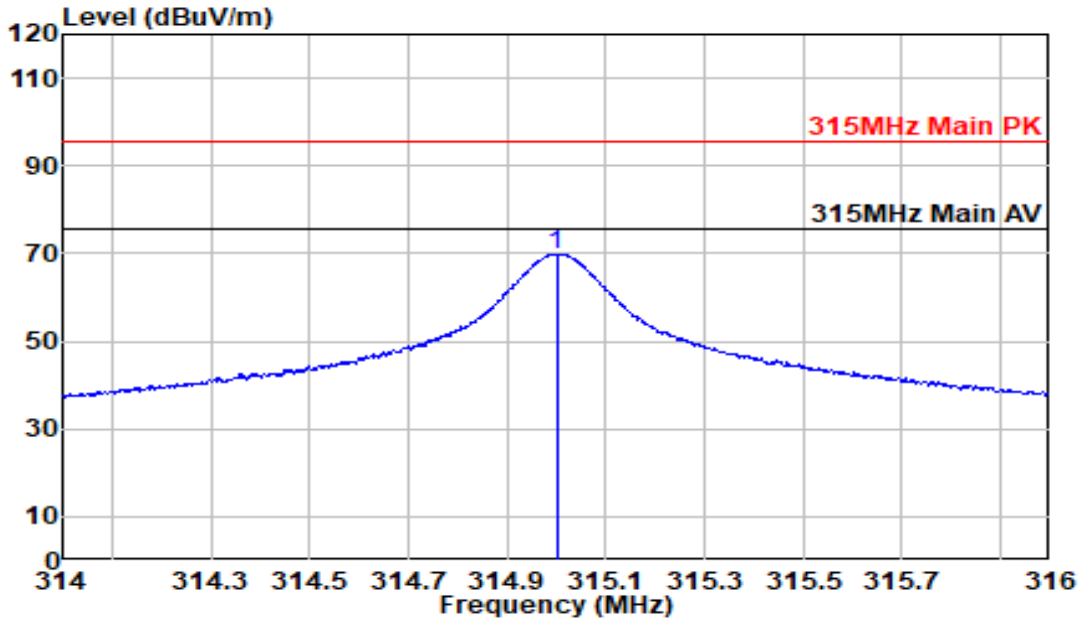
Freq	Read LV.	Factor	Emission LV	Limit	Margin	Detector	Apos	TPos
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	PK/QP/AV	CM	DEG
315.000	86.62	-22.72	63.90	95.62	-31.72	Peak	135	191

Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGA315**
Operation Band	**:315MHz**	**Temp/Humi**	**:21.8C/58%**
Channel	**:315MHz**	**Antenna Pol**	**:Vertical**
Mode	**:Main**	**Test Engineer**	**:Sam Huang**
Power Setting	**:default**	**Test Site**	**:chamber B**
Plane	**:Y Plane**	**Voltage**	**:5Vdc From Testkit**
Note	**:**		



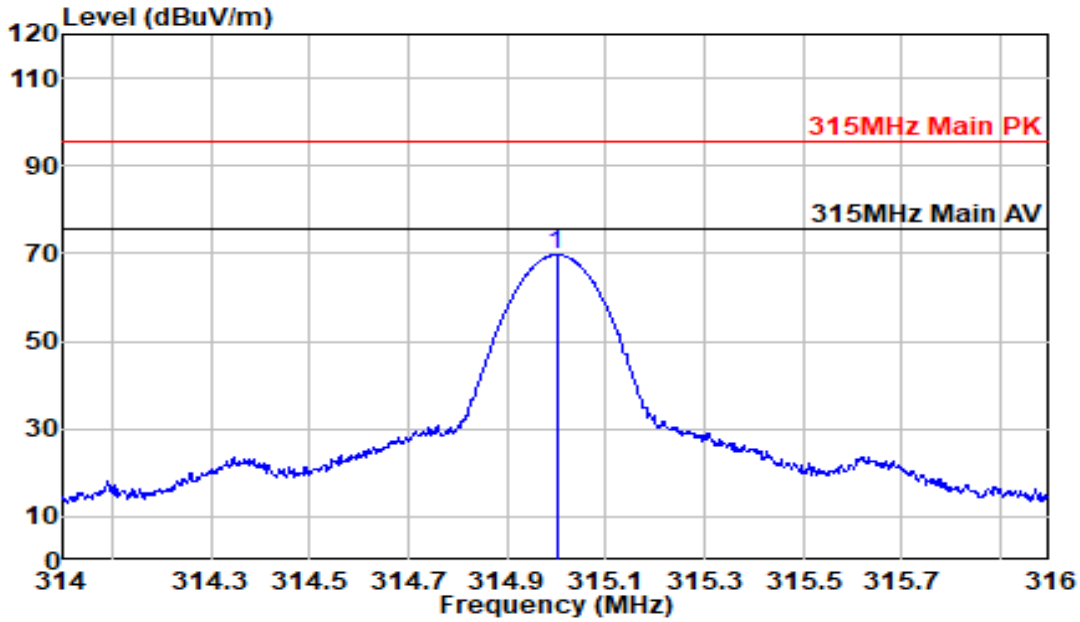
Freq	Read LV.	Factor	Emission LV	Limit	Margin	Detector	Apos	TPos
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	PK/QP/AV	CM	DEG
315.000	86.33	-22.72	63.61	75.62	-12.01	Average	135	191

Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGA315**
Operation Band	**:315MHz**	**Temp/Humi**	**:21.8C/58%**
Channel	**:315MHz**	**Antenna Pol**	**:Horizontal**
Mode	**:Main**	**Test Engineer**	**:Sam Huang**
Power Setting	**:default**	**Test Site**	**:chamber B**
Plane	**:Y Plane**	**Voltage**	**:5Vdc From Testkit**
Note	**:**		



Freq	Read LV.	Factor	Emission LV	Limit	Margin	Detector	Apos	TPos
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	PK/QP/AV	CM	DEG
315.000	92.66	-22.72	69.94	95.62	-25.68	Peak	100	152

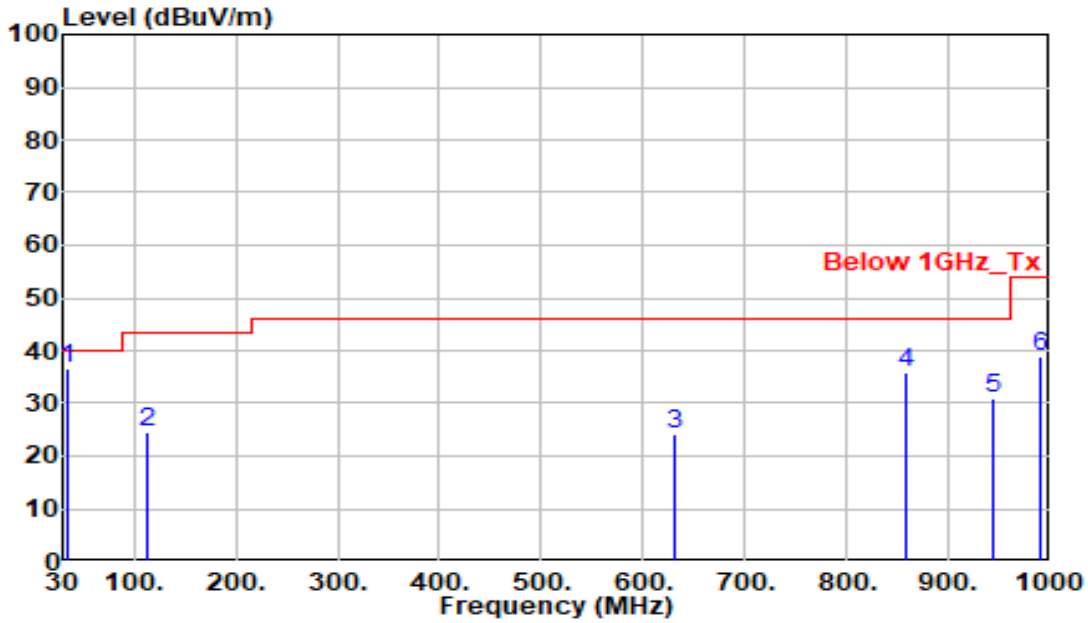
Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGA315**
Operation Band	**:315MHz**	**Temp/Humi**	**:21.8C/58%**
Channel	**:315MHz**	**Antenna Pol**	**:Horizontal**
Mode	**:Main**	**Test Engineer**	**:Sam Huang**
Power Setting	**:default**	**Test Site**	**:chamber B**
Plane	**:Y Plane**	**Voltage**	**:5Vdc From Testkit**
Note	**:**		



Freq	Read LV.	Factor	Emission LV	Limit	Margin	Detector	Apos	TPos
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	PK/QP/AV	CM	DEG
315.000	92.45	-22.72	69.73	75.62	-5.89	Average	100	152

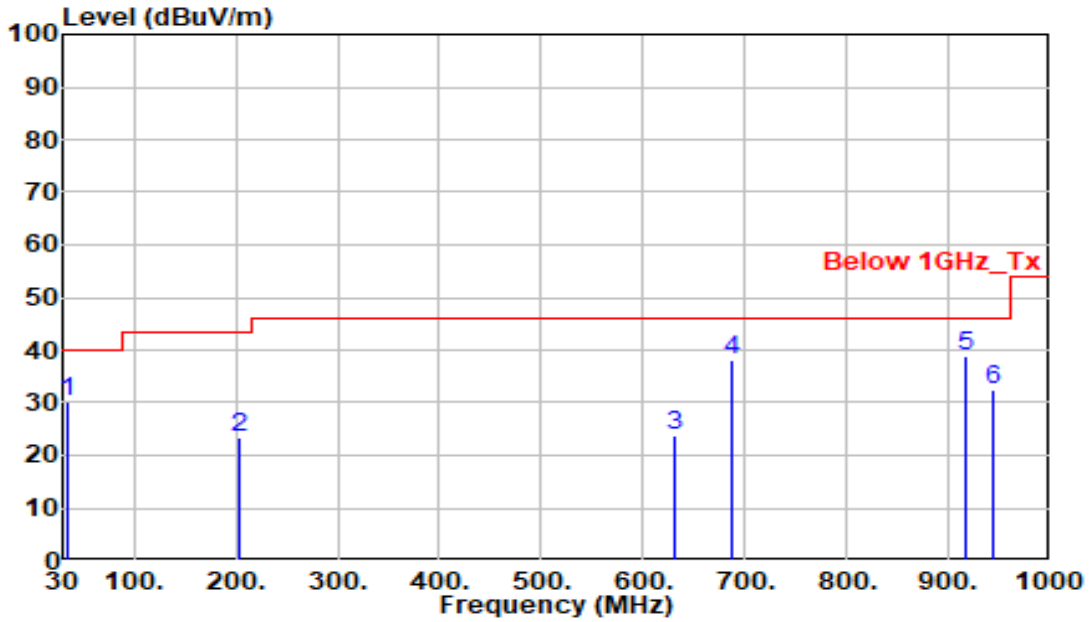
Appendix F.Radiated Spurious Emissions

Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGA315**
Operation Band	**:315MHz**	**Temp/Humi**	**:21.8C/58%**
Channel	**:315MHz**	**Antenna Pol**	**:Vertical**
Mode	**:Tx**	**Test Engineer**	**:Sam Huang**
Power Setting	**:default**	**Test Site**	**:chamber B**
Plane	**:Y Plane**	**Voltage**	**:5Vdc From Testkit**
Note	**:**		



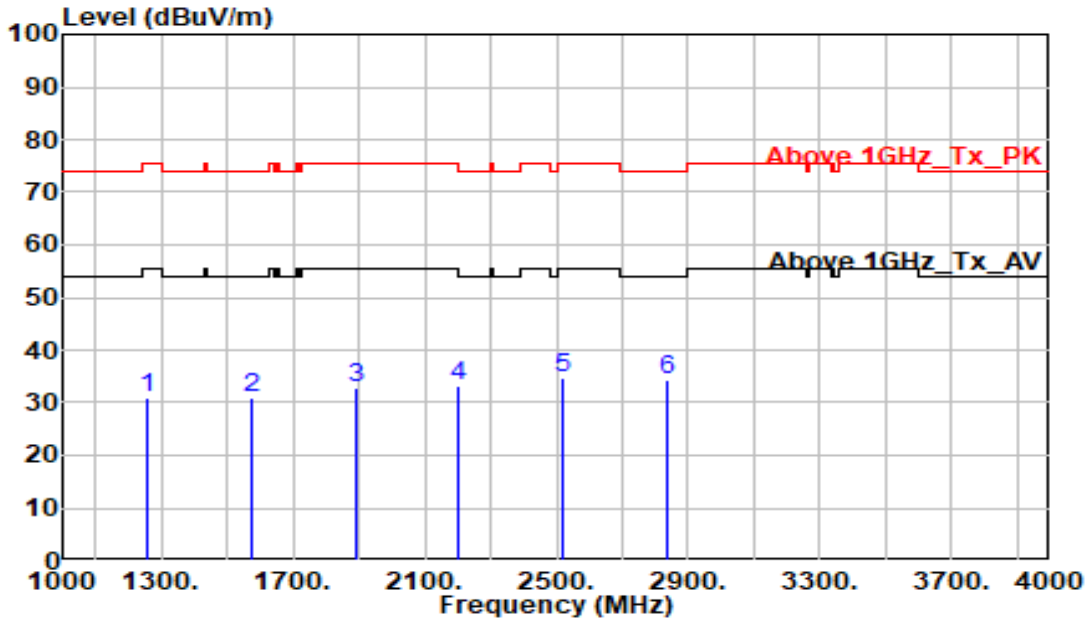
Freq MHz	Read LV. dBuV	Factor dB/m	Emission LV dBuV/m	Limit dBuV/m	Margin dB	Detector PK/QP/AV	Apos CM	TPos DEG
34.850	61.20	-24.77	36.43	40.00	-3.57	QP	132	168
113.420	51.19	-26.82	24.37	43.50	-19.13	Peak	178	256
630.000	39.14	-15.00	24.14	46.00	-21.86	Peak	275	207
857.410	47.54	-11.73	35.81	46.00	-10.19	Peak	180	351
945.000	41.30	-10.52	30.78	46.00	-15.22	Peak	100	218
989.330	49.07	-10.08	38.99	54.00	-15.01	Peak	181	215

Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGA315**
Operation Band	**:315MHz**	**Temp/Humi**	**:21.8C/58%**
Channel	**:315MHz**	**Antenna Pol**	**:Horizontal**
Mode	**:Tx**	**Test Engineer**	**:Sam Huang**
Power Setting	**:default**	**Test Site**	**:chamber B**
Plane	**:Y Plane**	**Voltage**	**:5Vdc From Testkit**
Note	**:**		



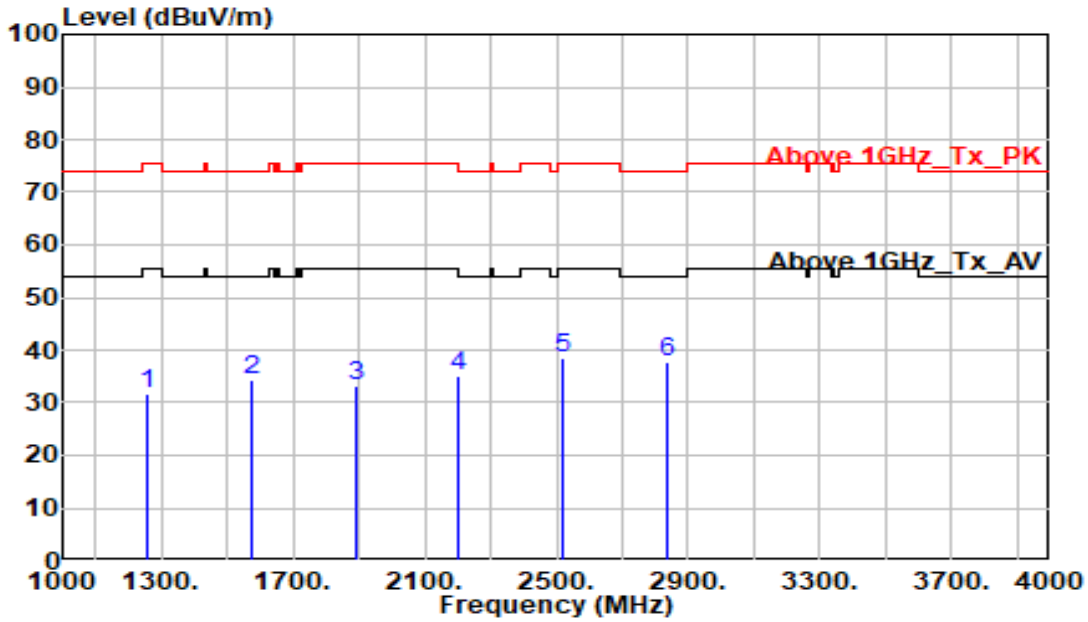
Freq MHz	Read LV. dBuV	Factor dB/m	Emission LV dBuV/m	Limit dBuV/m	Margin dB	Detector PK/QP/AV	Apos CM	TPos DEG
34.850	54.83	-24.77	30.06	40.00	-9.94	Peak	127	145
204.600	50.31	-26.86	23.45	43.50	-20.05	Peak	248	64
630.000	38.79	-15.00	23.79	46.00	-22.21	Peak	212	347
687.660	52.13	-14.04	38.09	46.00	-7.91	Peak	151	289
916.580	49.80	-10.92	38.88	46.00	-7.12	QP	213	103
945.000	42.81	-10.52	32.29	46.00	-13.71	Peak	100	105

Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGA315**
Operation Band	**:315MHz**	**Temp/Humi**	**:21.8C/58%**
Channel	**:315MHz**	**Antenna Pol**	**:Vertical**
Mode	**:Tx**	**Test Engineer**	**:Sam Huang**
Power Setting	**:default**	**Test Site**	**:chamber B**
Plane	**:Y Plane**	**Voltage**	**:5Vdc From Testkit**
Note	**:**		



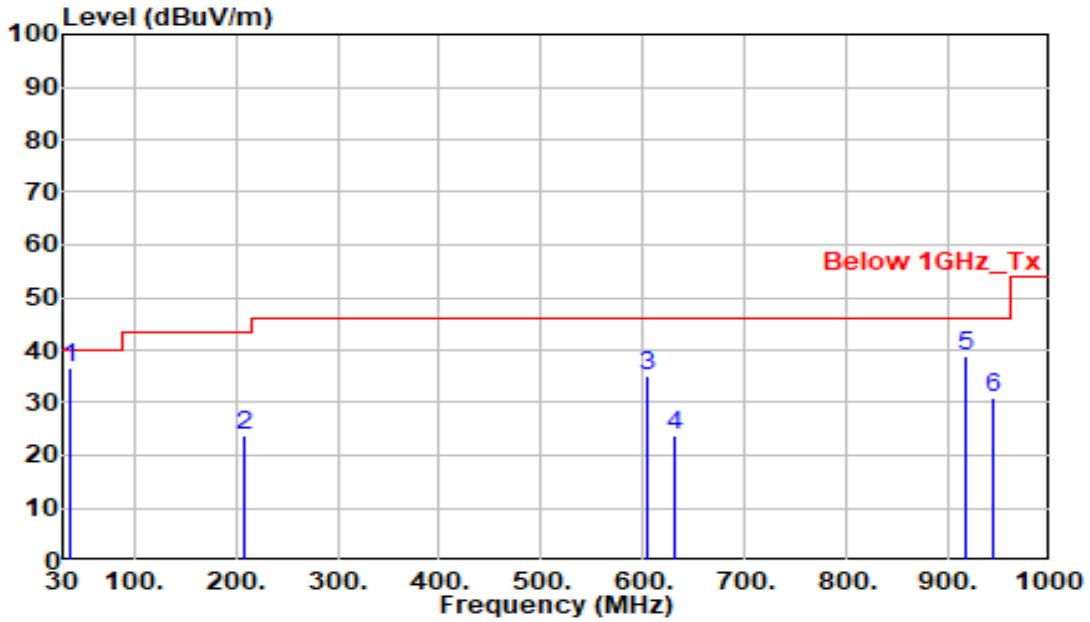
Freq MHz	Read LV. dBuV	Factor dB/m	Emission LV dBuV/m	Limit dBuV/m	Margin dB	Detector PK/QP/AV	Apos CM	TPos DEG
1260.000	46.74	-15.72	31.02	75.62	-44.60	Peak	292	84
1575.000	45.51	-14.44	31.07	74.00	-42.93	Peak	335	38
1890.000	45.64	-12.86	32.78	75.62	-42.84	Peak	201	62
2205.000	45.11	-11.87	33.24	74.00	-40.76	Peak	211	148
2520.000	45.89	-11.14	34.75	75.62	-40.87	Peak	180	251
2835.000	44.12	-9.76	34.36	74.00	-39.64	Peak	334	77

Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGA315**
Operation Band	**:315MHz**	**Temp/Humi**	**:21.8C/58%**
Channel	**:315MHz**	**Antenna Pol**	**:Horizontal**
Mode	**:Tx**	**Test Engineer**	**:Sam Huang**
Power Setting	**:default**	**Test Site**	**:chamber B**
Plane	**:Y Plane**	**Voltage**	**:5Vdc From Testkit**
Note	**:**		



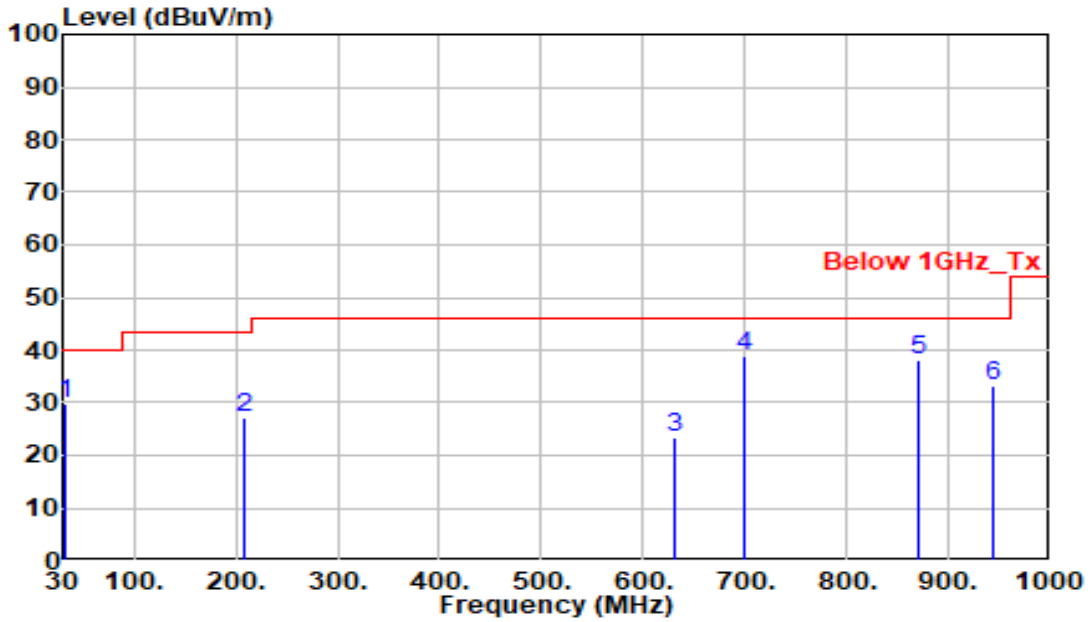
Freq MHz	Read LV. dBuV	Factor dB/m	Emission LV dBuV/m	Limit dBuV/m	Margin dB	Detector PK/QP/AV	Apos CM	TPos DEG
1260.000	47.41	-15.72	31.69	75.62	-43.93	Peak	309	174
1575.000	48.88	-14.44	34.44	74.00	-39.56	Peak	247	80
1890.000	46.00	-12.86	33.14	75.62	-42.48	Peak	234	66
2205.000	46.87	-11.87	35.00	74.00	-39.00	Peak	109	254
2520.000	49.64	-11.14	38.50	75.62	-37.12	Peak	186	183
2835.000	47.45	-9.76	37.69	74.00	-36.31	Peak	115	343

Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGD315**
Operation Band	**:315MHz**	**Temp/Humi**	**:21.8C/58%**
Channel	**:315MHz**	**Antenna Pol**	**:Vertical**
Mode	**:Tx**	**Test Engineer**	**:Sam Huang**
Power Setting	**:default**	**Test Site**	**:chamber B**
Plane	**:Y Plane**	**Voltage**	**:5Vdc From Testkit**
Note	**:**		



Freq MHz	Read LV. dBuV	Factor dB/m	Emission LV dBuV/m	Limit dBuV/m	Margin dB	Detector PK/QP/AV	Apos CM	TPos DEG
36.790	61.31	-24.57	36.74	40.00	-3.26	QP	324	124
207.510	50.50	-26.89	23.61	43.50	-19.89	Peak	234	159
603.270	50.66	-15.42	35.24	46.00	-10.76	Peak	196	14
630.000	38.68	-15.00	23.68	46.00	-22.32	Peak	212	342
917.550	49.80	-10.90	38.90	46.00	-7.10	Peak	219	257
945.000	41.31	-10.52	30.79	46.00	-15.21	Peak	100	172

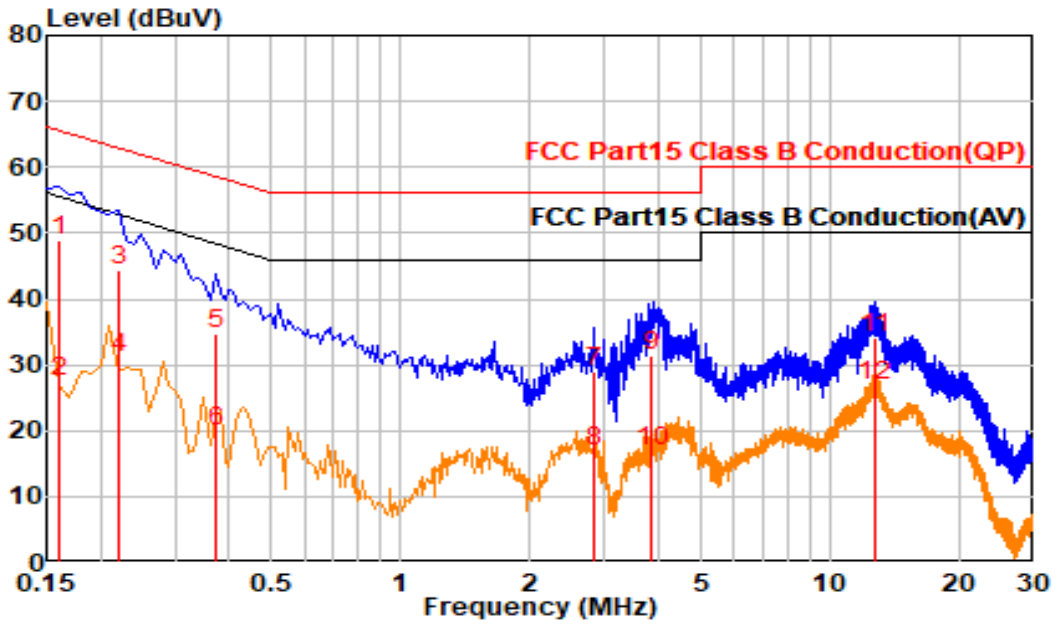
Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGD315**
Operation Band	**:315MHz**	**Temp/Humi**	**:21.8C/58%**
Channel	**:315MHz**	**Antenna Pol**	**:Horizontal**
Mode	**:Tx**	**Test Engineer**	**:Sam Huang**
Power Setting	**:default**	**Test Site**	**:chamber B**
Plane	**:Y Plane**	**Voltage**	**:5Vdc From Testkit**
Note	**:**		



Freq MHz	Read LV. dBuV	Factor dB/m	Emission LV dBuV/m	Limit dBuV/m	Margin dB	Detector PK/QP/AV	Apos CM	TPos DEG
31.940	54.96	-25.06	29.90	40.00	-10.10	Peak	243	40
207.510	54.23	-26.89	27.34	43.50	-16.16	Peak	282	63
630.000	38.53	-15.00	23.53	46.00	-22.47	Peak	334	239
700.270	52.61	-13.82	38.79	46.00	-7.21	Peak	327	167
870.020	49.75	-11.56	38.19	46.00	-7.81	QP	318	179
945.000	43.62	-10.52	33.10	46.00	-12.90	Peak	100	193

Appendix G.AC Mains Conducted Emission

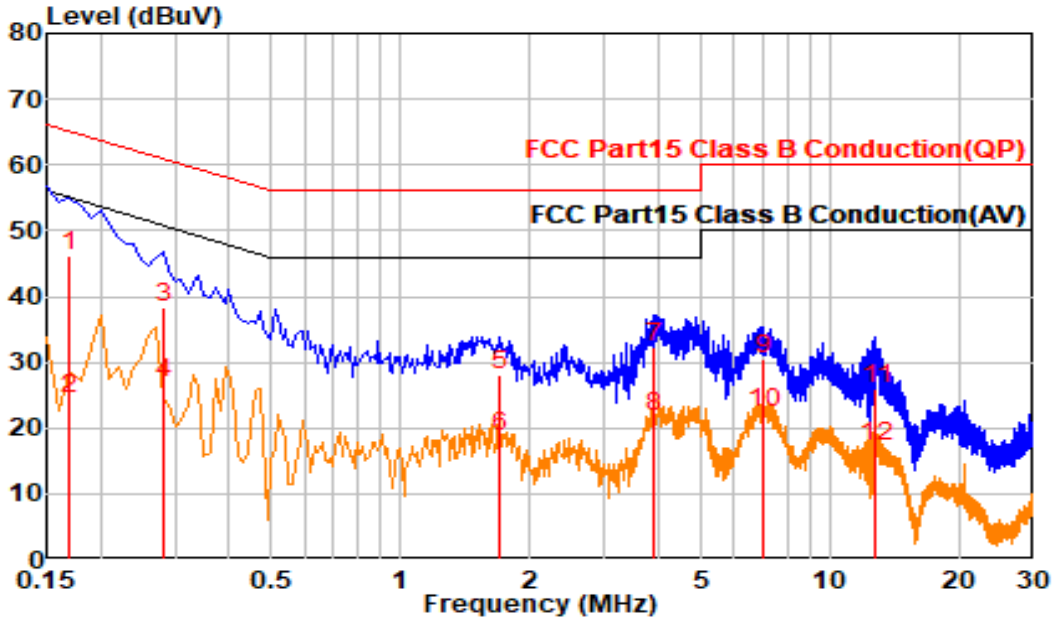
Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGA315**
Operation Band	**:315MHz**	**Temp/Humi**	**:20.3C/51%**
Mode	**:Tx**	**Test Engineer**	**:Sam Huang**
Power	**:120V/60Hz**	**Test Site**	**:Shielded Room A**
Condition	**:Line**	**Note**	**:**



Trace: 1

Freq	Read LV.	Factor	Cable Loss	LISN Factor	Emission LV	Limit	Margin	Detect
MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	QP/AV
0.160	39.27	9.63	0.01	9.62	48.90	65.46	-16.56	QP
0.160	17.79	9.63	0.01	9.62	27.41	55.46	-28.04	Average
0.220	34.89	9.62	0.01	9.61	44.51	62.83	-18.32	QP
0.220	21.37	9.62	0.01	9.61	30.99	52.83	-21.85	Average
0.370	25.23	9.62	0.01	9.61	34.85	58.50	-23.65	QP
0.370	10.19	9.62	0.01	9.61	19.81	48.50	-28.69	Average
2.820	19.20	9.66	0.03	9.63	28.86	56.00	-27.14	QP
2.820	7.31	9.66	0.03	9.63	16.97	46.00	-29.03	Average
3.867	21.68	9.67	0.03	9.64	31.36	56.00	-24.64	QP
3.867	7.38	9.67	0.03	9.64	17.05	46.00	-28.95	Average
12.694	24.27	9.70	0.06	9.64	33.97	60.00	-26.03	QP
12.694	17.12	9.70	0.06	9.64	26.82	50.00	-23.18	Average

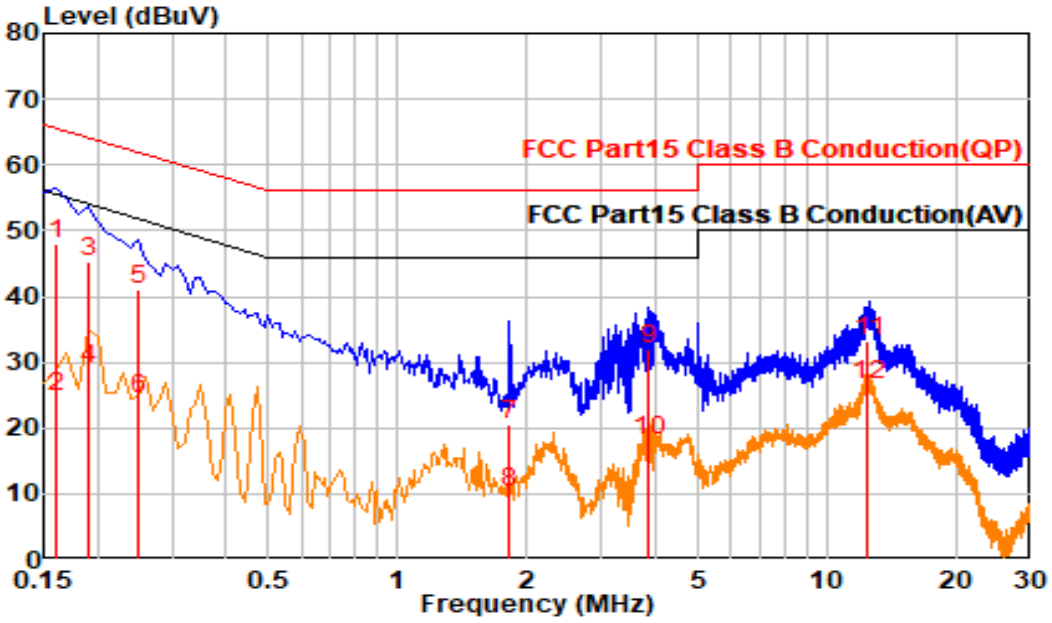
Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGA315**
Operation Band	**:315MHz**	**Temp/Humi**	**:20.3C/51%**
Mode	**:Tx**	**Test Engineer**	**:Sam Huang**
Power	**:120V/60Hz**	**Test Site**	**:Shielded Room A**
Condition	**:Neutral**	**Note**	**:**



Trace: 1

Freq	Read LV.	Factor	Cable Loss	LISN Factor	Emission LV	Limit	Margin	Detect
MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	QP/AV
0.170	36.59	9.63	0.01	9.62	46.22	64.95	-18.73	QP
0.170	14.77	9.63	0.01	9.62	24.40	54.95	-30.55	Average
0.280	28.66	9.62	0.01	9.61	38.28	60.80	-22.52	QP
0.280	17.19	9.62	0.01	9.61	26.81	50.80	-23.99	Average
1.708	18.48	9.64	0.02	9.62	28.12	56.00	-27.88	QP
1.708	8.93	9.64	0.02	9.62	18.57	46.00	-27.43	Average
3.903	22.67	9.66	0.03	9.63	32.33	56.00	-23.67	QP
3.903	12.03	9.66	0.03	9.63	21.69	46.00	-24.31	Average
7.001	20.87	9.70	0.04	9.65	30.57	60.00	-29.43	QP
7.001	12.63	9.70	0.04	9.65	22.33	50.00	-27.67	Average
12.836	16.34	9.73	0.06	9.67	26.07	60.00	-33.93	QP
12.836	7.46	9.73	0.06	9.67	17.19	50.00	-32.81	Average

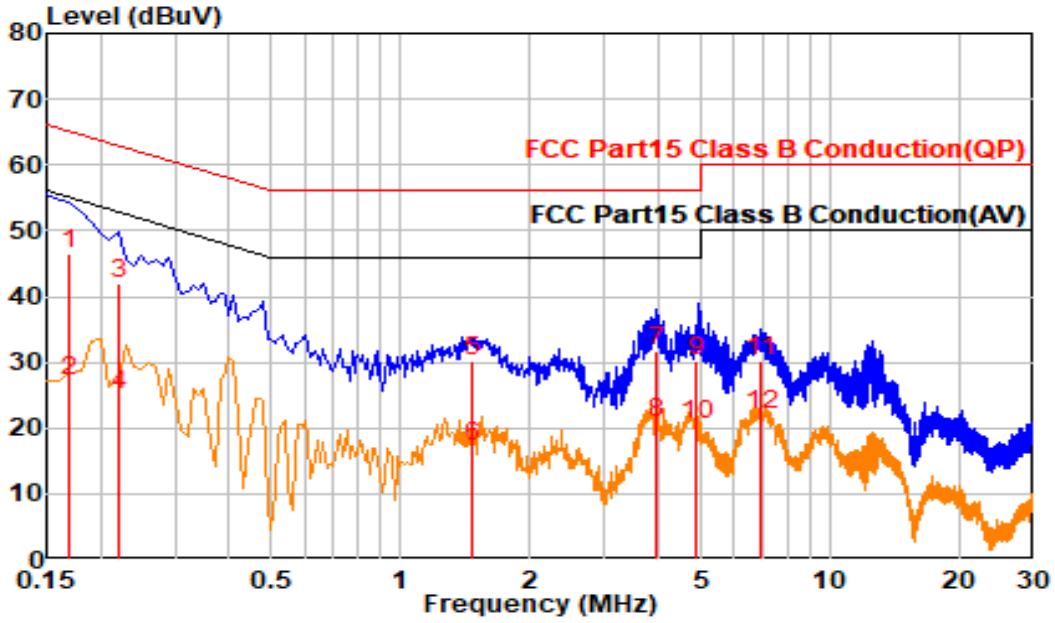
Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGD315**
Operation Band	**:315MHz**	**Temp/Humi**	**:20.3C/51%**
Mode	**:Tx**	**Test Engineer**	**:Sam Huang**
Power	**:120V/60Hz**	**Test Site**	**:Shielded Room A**
Condition	**:Line**	**Note**	**:**



Trace: 1

Freq	Read LV.	Factor	Cable Loss	LISN Factor	Emission LV	Limit	Margin	Detect
MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	QP/AV
0.160	38.36	9.63	0.01	9.62	47.98	65.47	-17.48	QP
0.160	15.25	9.63	0.01	9.62	24.88	55.47	-30.59	Average
0.190	35.54	9.62	0.01	9.61	45.16	64.02	-18.86	QP
0.190	19.33	9.62	0.01	9.61	28.95	54.02	-25.07	Average
0.250	31.32	9.62	0.01	9.61	40.94	61.77	-20.84	QP
0.250	14.85	9.62	0.01	9.61	24.47	51.77	-27.30	Average
1.821	10.75	9.65	0.02	9.63	20.41	56.00	-35.59	QP
1.821	0.57	9.65	0.02	9.63	10.23	46.00	-35.77	Average
3.860	22.30	9.67	0.03	9.64	31.98	56.00	-24.02	QP
3.860	8.32	9.67	0.03	9.64	17.99	46.00	-28.01	Average
12.513	23.61	9.70	0.06	9.64	33.31	60.00	-26.69	QP
12.513	16.73	9.70	0.06	9.64	26.43	50.00	-23.57	Average

Report No.	**:6128625082101**	**Test Date**	**:2025-12-15**
Product Name	**:315MHz Wireless EV Charge Port Opener Module for Charging Gun**	**Model Name**	**:RYGD315**
Operation Band	**:315MHz**	**Temp/Humi**	**:20.3C/51%**
Mode	**:Tx**	**Test Engineer**	**:Sam Huang**
Power	**:120V/60Hz**	**Test Site**	**:Shielded Room A**
Condition	**:Neutral**	**Note**	**:**



Trace: 1

Freq	Read LV.	Factor	Cable Loss	LISN Factor	Emission LV	Limit	Margin	Detect
MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	QP/AV
0.170	37.00	9.63	0.01	9.62	46.63	64.96	-18.33	QP
0.170	17.61	9.63	0.01	9.62	27.24	54.96	-27.72	Average
0.220	32.44	9.62	0.01	9.61	42.06	62.82	-20.76	QP
0.220	15.58	9.62	0.01	9.61	25.20	52.82	-27.63	Average
1.477	20.55	9.64	0.02	9.62	30.19	56.00	-25.81	QP
1.477	7.69	9.64	0.02	9.62	17.33	46.00	-28.67	Average
3.954	22.13	9.66	0.03	9.63	31.80	56.00	-24.20	QP
3.954	11.10	9.66	0.03	9.63	20.77	46.00	-25.23	Average
4.916	20.63	9.68	0.04	9.64	30.31	56.00	-25.69	QP
4.916	10.89	9.68	0.04	9.64	20.57	46.00	-25.43	Average
6.886	20.52	9.70	0.04	9.65	30.21	60.00	-29.79	QP
6.886	12.31	9.70	0.04	9.65	22.00	50.00	-28.00	Average