FCC TEST REPORT

FOR

Bird Home Automation GmbH

IP Access Control Device

Test Model: A1121

Prepared for	:	Bird Home Automation GmbH
Address	:	Uhlandstr. 165, 10719 Berlin, Germany

Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd
Address	:	101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China
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Date of receipt of test sample	:	December 26, 2025
Number of tested samples	:	2
Sample number	:	A251219075-1, A251219075-2
Sample number	:	Prototype
Date of Test	:	December 26, 2025 ~ March 19, 2026
Date of Report	:	March 19, 2026

FCC TEST REPORT
FCC CFR 47 PART 15 C

Report Reference No.	:	**LCSA12255050EC**
Date of Issue.....	:	March 19, 2026
Testing Laboratory Name.....	:	**Shenzhen LCS Compliance Testing Laboratory Ltd.**
Address.....	:	101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China
Testing Location/ Procedure.....	:	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name.....	:	**Bird Home Automation GmbH**
Address.....	:	Uhlandstr. 165, 10719 Berlin, Germany
Test Specification		
Standard.....	:	FCC CFR 47 PART 15 C / ANSI C63.10-2020
Test Report Form No.....	:	TRF-4-E-168 A/0
TRF Originator.....	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF.....	:	Dated 2011-03

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Test Item Description.....	:	IP Access Control Device
Trade Mark.....	:	DoorBird
Test Model.....	:	A1121
Ratings.....	:	Please Refer to Page 6
Result	:	Pass

Compiled by:	Supervised by:	Approved by:
Diamond Lu/ Administrators	Kevin Huang/ RF Manager	Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : **LCSA12255050EC**	March 19, 2026 Date of issue

Test Model.....	: A1121
EUT.....	: IP Access Control Device
Applicant.....	**: Bird Home Automation GmbH**
Address.....	: Uhlandstr. 165, 10719 Berlin, Germany
Telephone.....	: /
Fax.....	: /
Manufacturer.....	**: Bird Home Automation GmbH**
Address.....	: Uhlandstr. 165, 10719 Berlin, Germany
Telephone.....	: /
Fax.....	: /
Factory.....	**: Bird Home Automation GmbH**
Address.....	: Uhlandstr. 165, 10719 Berlin, Germany
Telephone.....	: /
Fax.....	: /

Test Result	**Pass**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Report Version	Issue Date	Revision Content	Revised By
000	March 19, 2026	Initial Issue	--

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1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	: IP Access Control Device
Test Model	: A1121
Ratings	: Inout: PoE 44-57V or 15VDC, max 15W
Hardware Version	: /
Software Version	: /
Bluetooth	:
Frequency Range	: 2402MHz~2480MHz
Channel Number	: 40 channels for Bluetooth V5.0 (DTS)
Channel Spacing	: 2MHz for Bluetooth V5.0 (DTS)
Modulation Type	: GFSK for Bluetooth V5.0 (DTS)
Bluetooth Version	: V5.0
Antenna Description	: FPC Antenna, 3.57dBi(Max.)
WIFI(2.4G Band)	:
Frequency Range	: 2412MHz~2462MHz
Channel Spacing	: 5MHz
Channel Number	: 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz)
Modulation Type	: IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: PCB Antenna, 2.0dBi(Max.)
NFC	:
Operating Frequency	: 13.56MHz
Modulation Type	: ASK
Antenna Description	: FPC Coil Antenna, 0dBi(Max.)
RFID	:
Operating Frequency	: 125kHz
Modulation Type	: ASK
Antenna Description	: Coil Antenna, 0dBi(Max.)

Note: For a more detailed antenna description, please refer to the antenna specifications or the antenna report provided by the customer.

1.2. Support Equipment List

Manufacturer	Description	Model	Serial Number	Certificate
Shenzhen Uniontop Electronic co., Ltd.	AC/DC Adapter	UT60S -570100I	--	FCC
Shenzhen Uniontop Electronic co., Ltd.	AC/DC Adapter	UT20-150100W	--	FCC

Adapter Ratings:

For Adapter Model: UT60S -570100I

Input: 100-240V~ 50/60Hz 2A

Output: 57V⎓1.0A

For Adapter Model: UT20-150100W

Input: 100-240V~ 50/60Hz 0.4A

Output: 15V⎓1.0A

1.3. External I/O

I/O Port Description	Quantity	Cable
DO D1GND Wiegand	4 pin	Wiegand jack
LAN/PoE Port	4 pin	RJ45 Adapter
R1/R1/R2/R2 Port	4 pin	N/A
E1/E1 Port	4 pin	N/A
15- Port	2 pin	Screw connection terminal
VDC+ Port	4 pin	N/A

1.4. Description of Test Facility

NVLAP Accreditation Code is 600167-0.
FCC Designation Number is CN5024.
CAB identifier is CN0071.
CNAS Registration Number is L4595.
Test Firm Registration Number: 254912.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4:2014 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.

1.5. Statement of the Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

1.6. Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	9KHz~30MHz	±3.10dB	(1)
		30MHz~200MHz	±2.96dB	(1)
		200MHz~1000MHz	±3.10dB	(1)
		1GHz~26.5GHz	±3.80dB	(1)
		26.5GHz~40GHz	±3.90dB	(1)
Conduction Uncertainty	:	150kHz~30MHz	±1.63dB	(1)
Power disturbance	:	30MHz~300MHz	±1.60dB	(1)
Occupied Channel Bandwidth	:	0.01MHz~26.5GHz	5%	(1)

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

1.7. Description of Test Modes

The EUT operates at 125 KHz. The following operating modes were applied for the related test items.

All test modes were tested, only the result of the worst case was recorded in the report.
It was pre-tested on the positioned of each 3 axis. The worst case was found positioned on X-plane.

Mode of Operations	Transmitting Frequency (KHz)
ASK	125
For Conducted Emission	
Test Mode	TX Mode
For Radiated Emission	
Test Mode	TX Mode

Worst-case mode and channel used for 150 KHz-30 MHz power line conducted emissions was the mode and channel with the highest output power.

Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/60Hz, recorded worst case.

***Note: Using a temporary antenna connector for the EUT when the conducted measurements are performed.

2. TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10-2020, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

The radiated testing was performed at an antenna-to-EUT distance of 3 meters. All radiated and conducted emissions measurement was performed at Shenzhen LCS Compliance Testing Laboratory Ltd.

2.1. EUT Configuration

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

2.2. EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.203, 15.205, 15.207, 15.209 and 15.201 under the FCC Rules Part 15 Subpart C.

2.3. General Test Procedures

2.3.1 Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2.1 of ANSI C63.10-2020 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using Quasi-peak and average detector modes.

2.3.2 Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 6.3 of ANSI C63.10-2020.

3. SYSTEM TEST CONFIGURATION

3.1. Justification

The system was configured for testing in a continuous transmits condition.

3.2. EUT Exercise Software

Powered on the EUT then the EUT will transmit at 125 KHz signal.

3.3. Special Accessories

N/A

3.4. Block Diagram/Schematics

Please refer to the related document

3.5. Equipment Modifications

Shenzhen LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

3.6. Test Setup

Please refer to the test setup photo.

4. SUMMARY OF TEST RESULTS

Applied Standard: FCC Part 15 Subpart C			
FCC Rules	Description of Test	Result	Remark
§15.203	Antenna Requirements	Compliant	Note 1
§15.207(a)	AC Conducted Emissions	Compliant	Note 1
§15.201(a), §15.205(a), §15.209(a), §15.215(a)	Radiated Emissions Measurement	Compliant	Note 1
§15.215	99% and 20dB Bandwidth	Compliant	Note 1
§2.1091	RF Exposure	Compliant	Note 2

Remark:
1. Note 1 – Test results inside test report;
2. Note 2 – Test results in other test report (RF Exposure Evaluation);

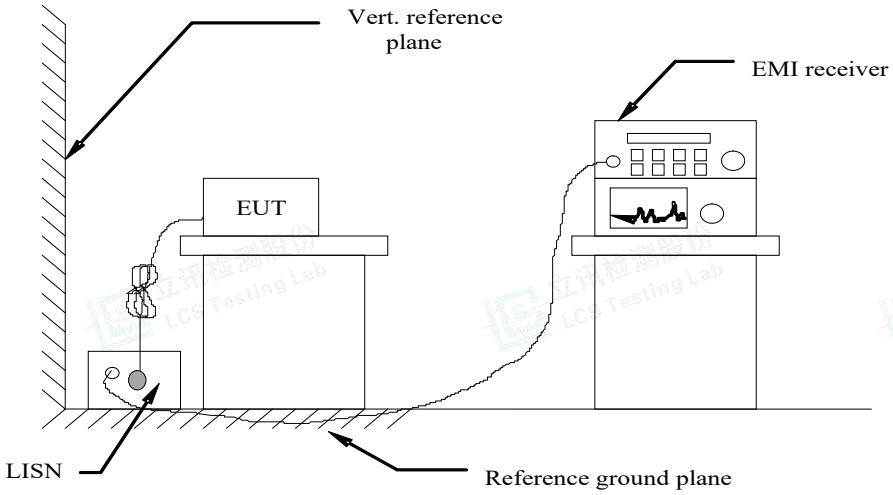
5. Power Line Conducted Emissions

5.1 Standard Applicable

According to §15.207 (a): For an intentional radiator which 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 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range are listed as follows:

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

5.2 Block Diagram of Test Setup



5.3 Disturbance Calculation

The AC mains conducted disturbance is calculated by adding the 10dB Pulse Limiter and Cable Factor and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

CD (dBuV) = RA (dBuV) + PL (dB) + CL (dB)

Where CD = Conducted Disturbance	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	PL = 10 dB Pulse Limiter Factor

5.4 Test Results

PASS.

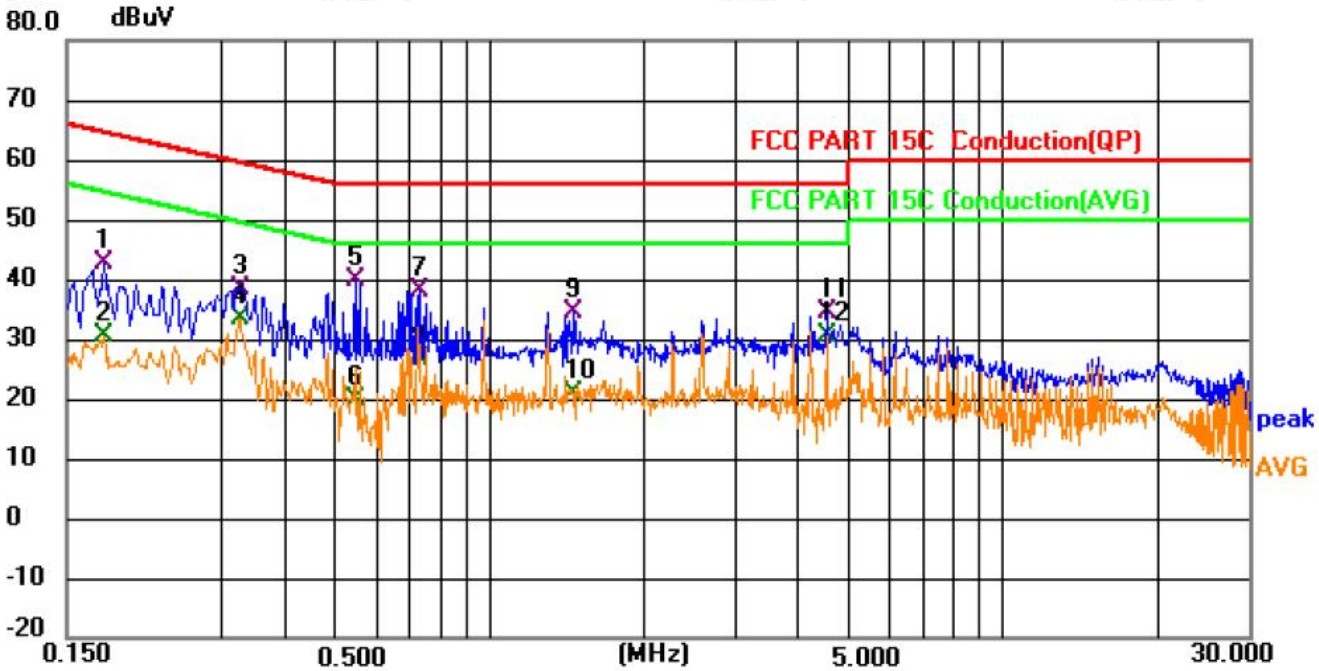
The test data please refer to following page.

Temperature	22.5℃	Humidity	53.7%
Test Engineer	Jerry Chu	Configurations	Transmit

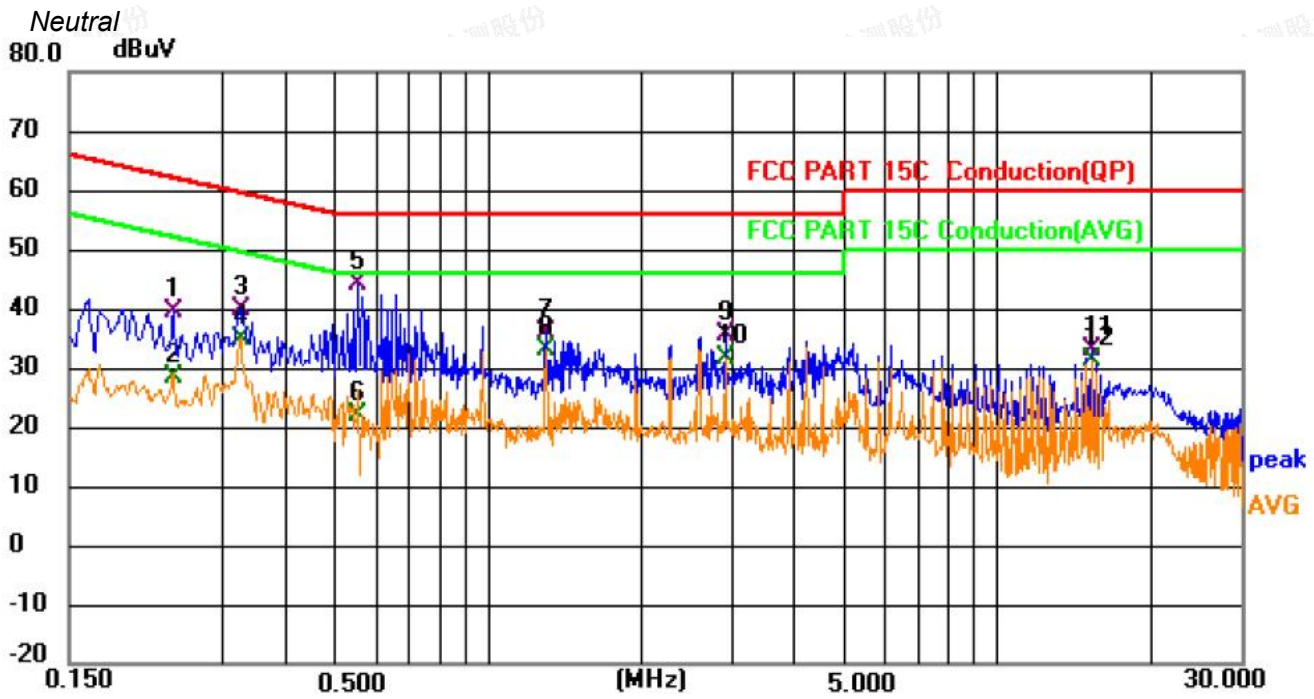
AC Conducted Emission @ AC 120V/60Hz(worst case)

POE power supply:

Line

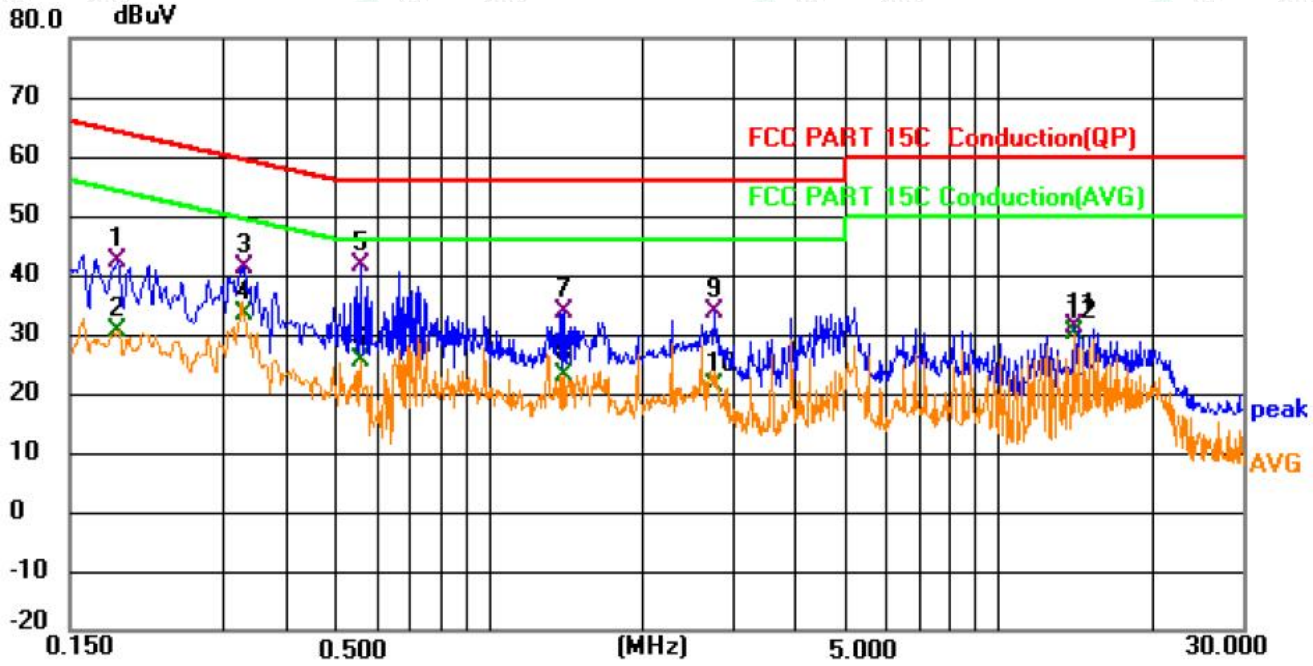


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.177	22.76	19.76	42.52	64.63	-22.11	QP
2		0.177	10.63	19.76	30.39	54.63	-24.24	AVG
3		0.326	18.65	19.86	38.51	59.55	-21.04	QP
4		0.326	13.38	19.86	33.24	49.55	-16.31	AVG
5		0.546	20.27	19.70	39.97	56.00	-16.03	QP
6		0.546	0.13	19.70	19.83	46.00	-26.17	AVG
7		0.731	18.74	19.18	37.92	56.00	-18.08	QP
8		0.731	7.47	19.18	26.65	46.00	-19.35	AVG
9		1.460	15.49	19.06	34.55	56.00	-21.45	QP
10		1.460	1.74	19.06	20.80	46.00	-25.20	AVG
11		4.542	15.55	19.05	34.60	56.00	-21.40	QP
12	*	4.542	11.61	19.05	30.66	46.00	-15.34	AVG



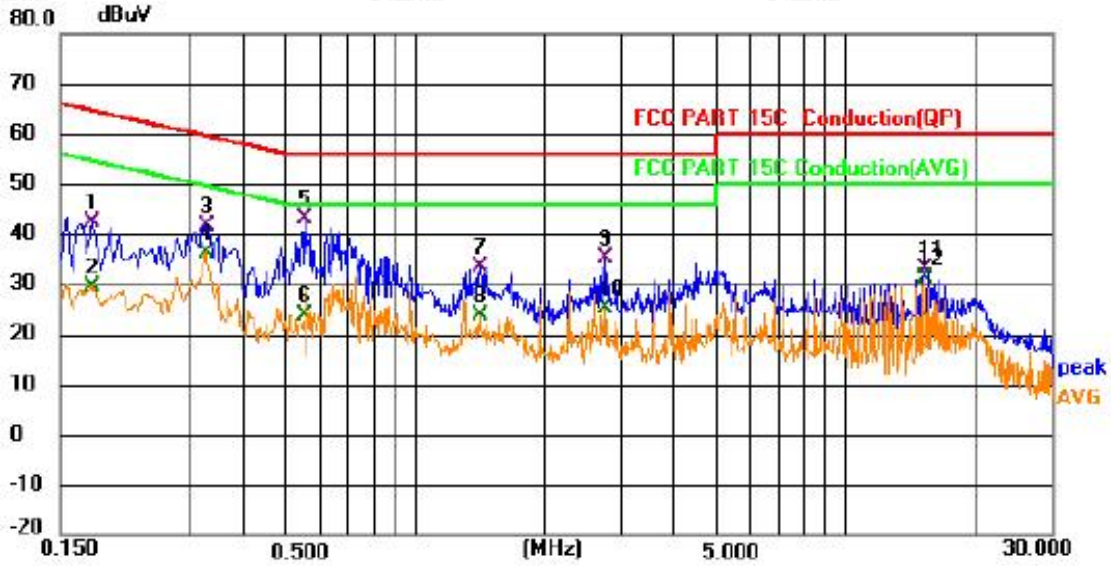
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.240	19.51	19.78	39.29	62.10	-22.81	QP
2		0.240	8.54	19.78	28.32	52.10	-23.78	AVG
3		0.326	20.16	19.80	39.96	59.55	-19.59	QP
4		0.326	15.14	19.80	34.94	49.55	-14.61	AVG
5	*	0.555	24.51	19.42	43.93	56.00	-12.07	QP
6		0.555	2.60	19.42	22.02	46.00	-23.98	AVG
7		1.298	16.95	18.90	35.85	56.00	-20.15	QP
8		1.298	14.01	18.90	32.91	46.00	-13.09	AVG
9		2.922	16.38	19.01	35.39	56.00	-20.61	QP
10		2.922	12.52	19.01	31.53	46.00	-14.47	AVG
11		15.248	13.31	19.71	33.02	60.00	-26.98	QP
12		15.248	11.70	19.71	31.41	50.00	-18.59	AVG

Adapter power supply:
Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.186	22.70	19.71	42.41	64.21	-21.80	QP
2		0.186	10.75	19.71	30.46	54.21	-23.75	AVG
3		0.330	21.55	19.87	41.42	59.45	-18.03	QP
4		0.330	13.53	19.87	33.40	49.45	-16.05	AVG
5	*	0.559	22.12	19.65	41.77	56.00	-14.23	QP
6		0.559	5.85	19.65	25.50	46.00	-20.50	AVG
7		1.405	14.81	19.06	33.87	56.00	-22.13	QP
8		1.405	4.07	19.06	23.13	46.00	-22.87	AVG
9		2.756	14.70	19.17	33.87	56.00	-22.13	QP
10		2.756	2.01	19.17	21.18	46.00	-24.82	AVG
11		14.014	11.55	19.85	31.40	60.00	-28.60	QP
12		14.014	10.19	19.85	30.04	50.00	-19.96	AVG

Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.177	22.57	19.69	42.26	64.63	-22.37	QP	
2		0.177	9.69	19.69	29.38	54.63	-25.25	AVG	
3		0.326	21.84	19.80	41.64	59.55	-17.91	QP	
4		0.326	16.46	19.80	36.26	49.55	-13.29	AVG	
5	*	0.555	23.69	19.42	43.11	56.00	-12.89	QP	
6		0.555	4.16	19.42	23.58	46.00	-22.42	AVG	
7		1.415	14.38	18.94	33.32	56.00	-22.68	QP	
8		1.415	4.86	18.94	23.80	46.00	-22.20	AVG	
9		2.764	16.17	19.03	35.20	56.00	-20.80	QP	
10		2.764	6.23	19.03	25.26	46.00	-20.74	AVG	
11		15.319	13.23	19.70	32.93	60.00	-27.07	QP	
12		15.319	11.44	19.70	31.14	50.00	-18.86	AVG	

****Note:*

1). Pre-scan all modes and recorded the worst case results in this report.

2). Measurement = Reading + Correct, Margin = Measurement – Limit.
Correct Factor=Lisn Factor+Cable Factor+Insertion loss of Pulse Limiter

6. RADIATED EMISSION MEASUREMENT

6.1. Standard Applicable

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation. 20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) and 15.215 limit in the table below has to be followed.

Fundamental Frequency	Field Strength of fundamental (millivolts/meter)	Field Strength of harmonics (microvolts/meter)
902-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

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

Frequencies (MHz)	Field Strength (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

6.2. Instruments Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/B kHz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/B kHz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB/VB 200Hz/1KHz for QP/AVG
Start ~ Stop Frequency	150kHz~30MHz / RB/VB 9kHz/30KHz for QP/AVG
Start ~ Stop Frequency	30MHz~1000MHz / RB/VB 120kHz/1MHz for QP

6.3. Test Procedure

1) Sequence of testing 9 kHz to 30 MHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions.

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna height is 1.0 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

--- Identified emissions during the premeasurement the software maximizes by rotating the turntable position (0° to 360°) and by rotating the elevation axes (0° to 360°).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

2) Sequence of testing 30 MHz to 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 3 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

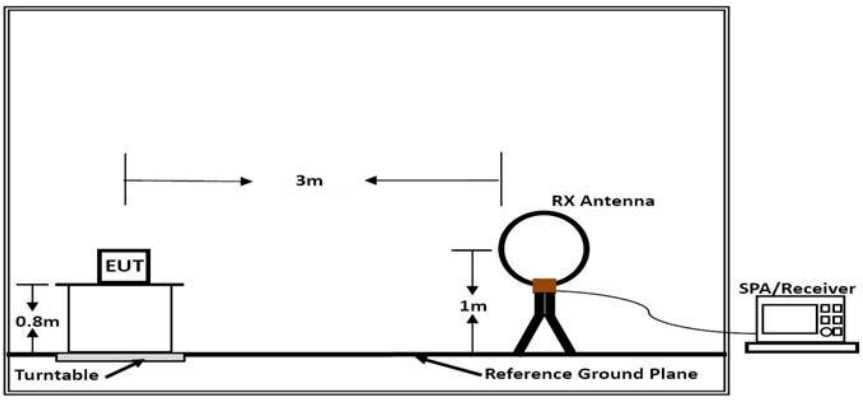
--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter.

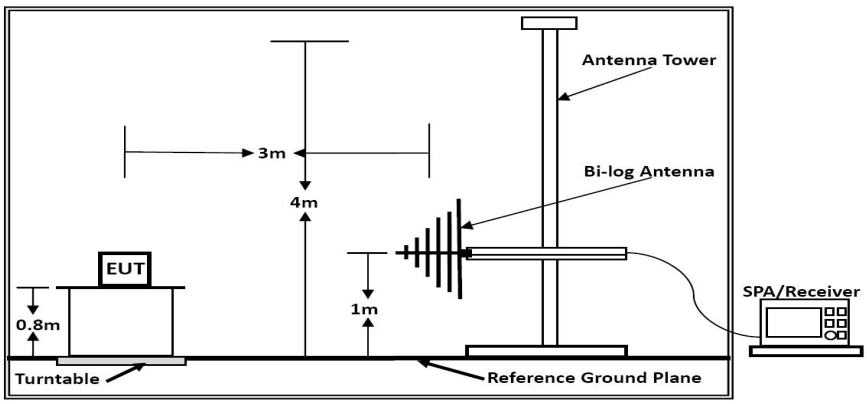
--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

6.4. Block Diagram of Test Setup



Below 30MHz



Below 1GHz

6.5. 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 (dBuV/m) = RA (dBuV) + AF (dB/m) + CL (dB) – AG (dB)

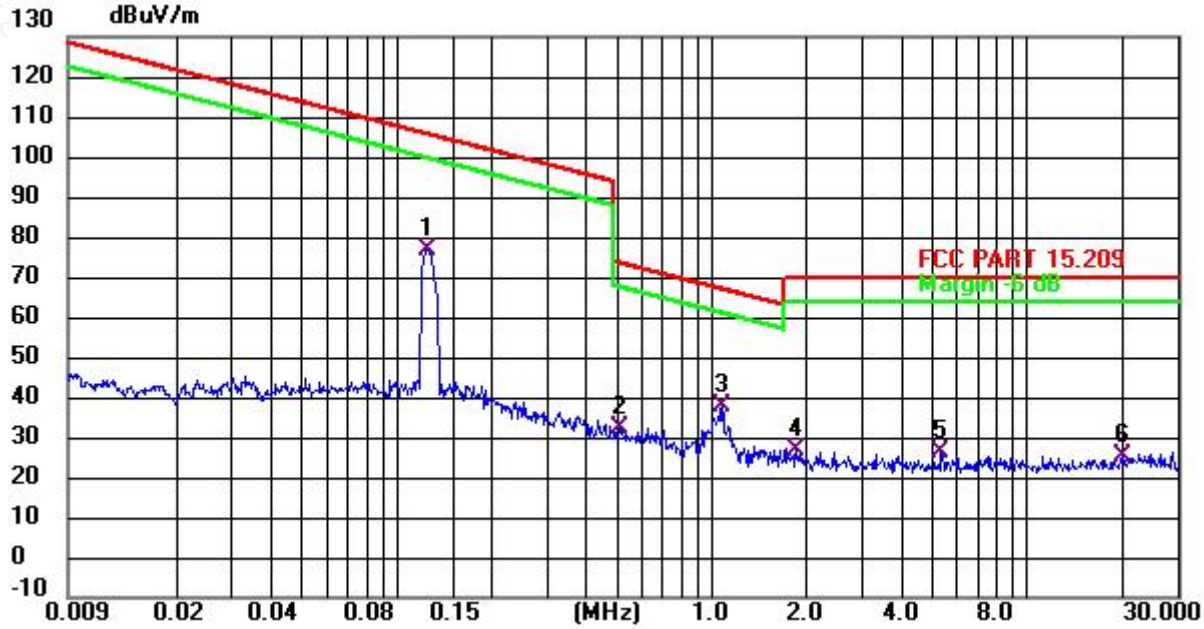
Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

6.6. Test Results

Results of Radiated Emissions (9 kHz~30MHz)

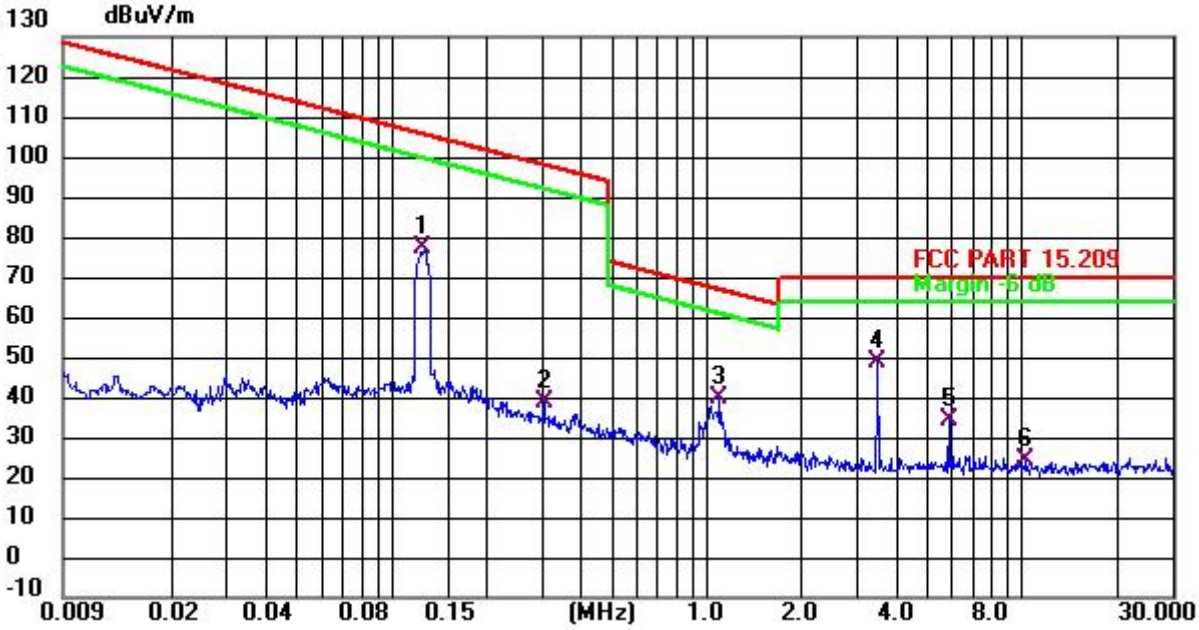
Temperature	23.6℃	Humidity	52.2%
Test Engineer	Jerry Chu	Configurations	Transmit

0 degree
POE power supply:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	0.1250	87.85	-10.87	76.98	105.67	-28.69	QP
2		0.5070	42.85	-10.79	32.06	73.50	-41.44	QP
3		1.0695	48.07	-10.36	37.71	67.02	-29.31	QP
4		1.8568	37.20	-10.46	26.74	69.54	-42.80	QP
5		5.3302	36.60	-10.54	26.06	69.54	-43.48	QP
6		19.9975	36.39	-11.05	25.34	69.54	-44.20	QP

Adapter power supply:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		0.1250	88.15	-10.87	77.28	105.67	-28.39	QP
2		0.3042	49.81	-10.84	38.97	97.94	-58.97	QP
3		1.0960	49.94	-10.36	39.58	66.81	-27.23	QP
4	*	3.4676	59.33	-10.58	48.75	69.54	-20.79	QP
5		5.8277	44.92	-10.54	34.38	69.54	-35.16	QP
6		10.2825	35.31	-11.10	24.21	69.54	-45.33	QP

Note:

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

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

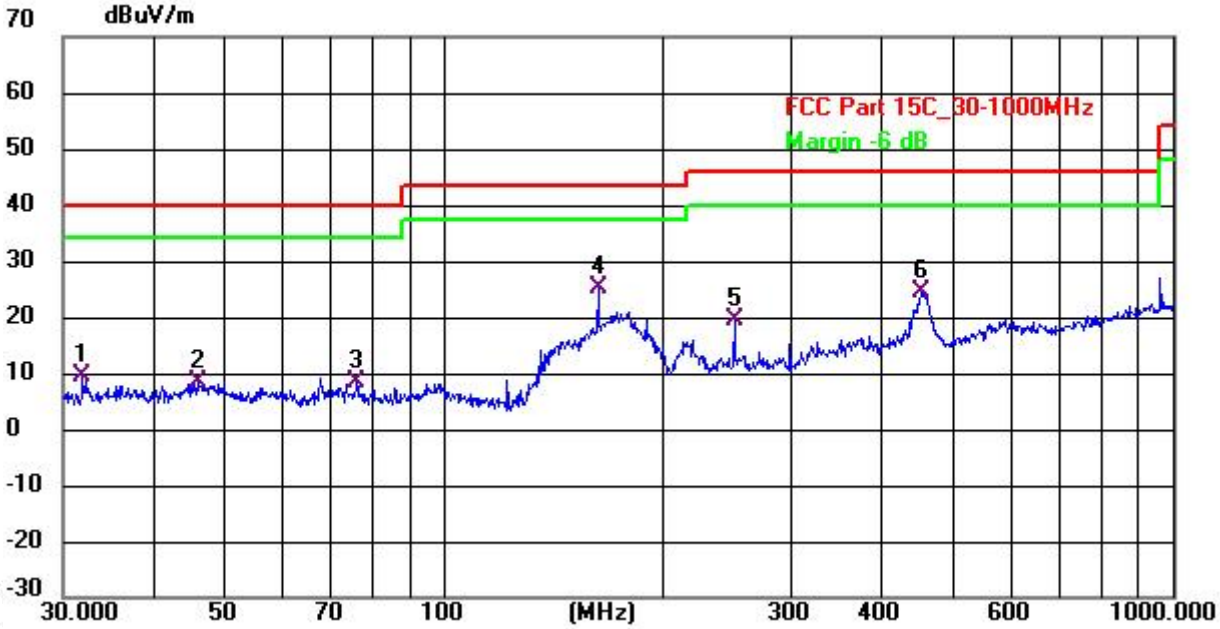
Limit line = specific limits (dBuV) + distance extrapolation factor.

Measured at both 90 degree and 0 degree, recorded worst case at 0 degree.

Results of Radiated Emissions (30MHz~1GHz)

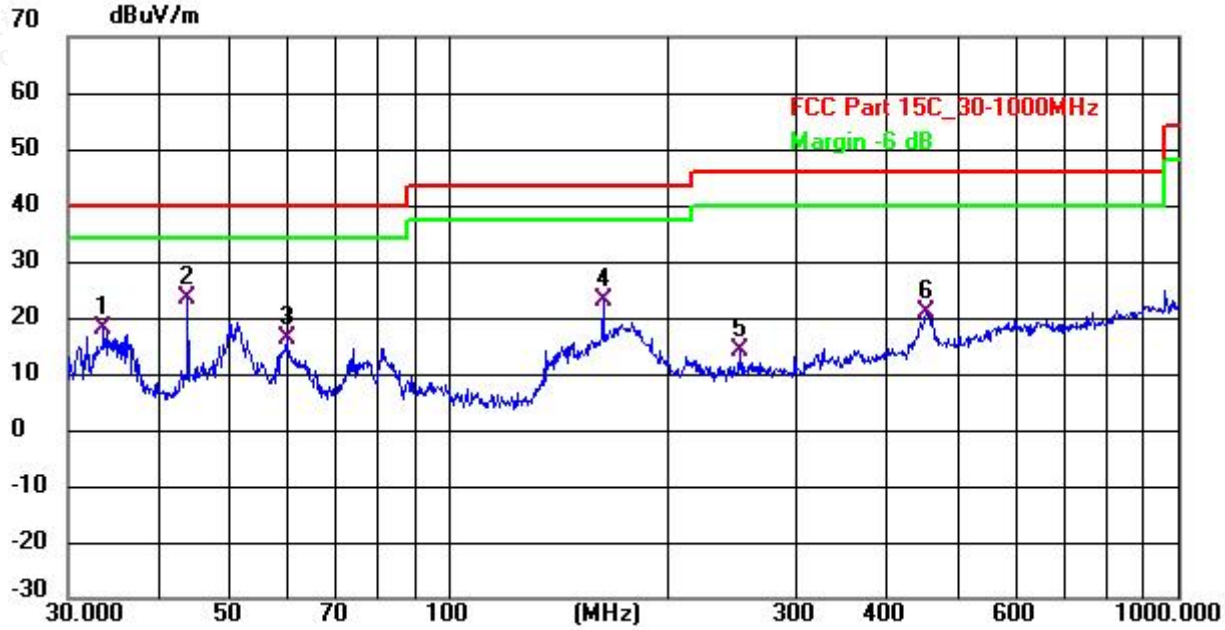
Temperature	23.8℃	Humidity	52.1%
Test Engineer	Jerry Chu	Configurations	Transmit

POE power supply:
Horizontal



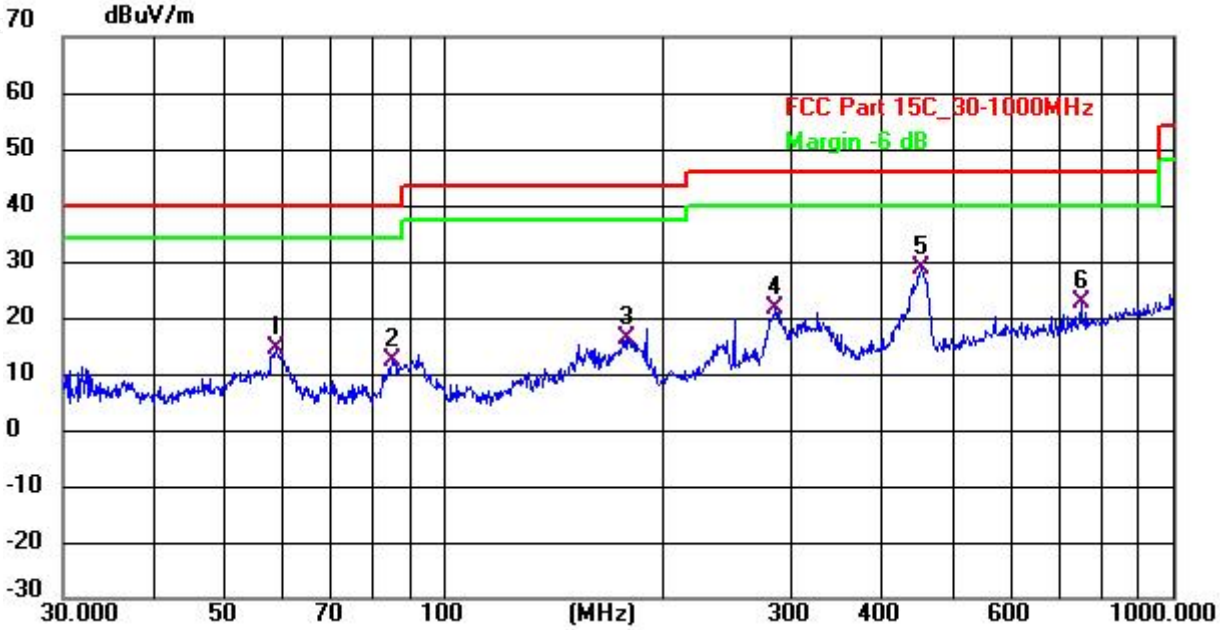
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		31.9545	29.05	-19.46	9.59	40.00	-30.41	QP
2		45.8553	26.25	-17.69	8.56	40.00	-31.44	QP
3		75.9773	29.24	-20.99	8.25	40.00	-31.75	QP
4	*	162.6105	46.86	-21.77	25.09	43.50	-18.41	QP
5		250.3011	37.31	-17.84	19.47	46.00	-26.53	QP
6		452.7197	37.32	-12.68	24.64	46.00	-21.36	QP

Vertical



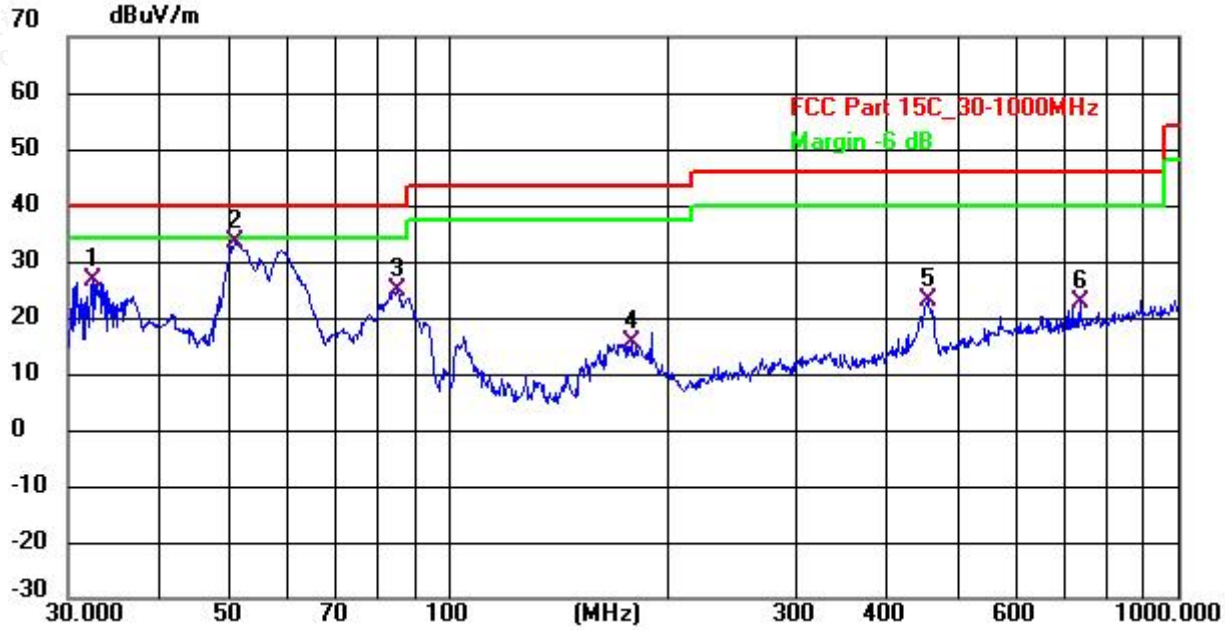
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		33.5624	37.14	-19.18	17.96	40.00	-22.04	QP
2	*	43.8120	41.80	-18.25	23.55	40.00	-16.45	QP
3		59.8588	36.31	-20.09	16.22	40.00	-23.78	QP
4		162.6105	43.84	-20.75	23.09	43.50	-20.41	QP
5		250.3011	30.73	-16.45	14.28	46.00	-31.72	QP
6		451.1350	34.95	-14.17	20.78	46.00	-25.22	QP

Adapter power supply:
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		59.0251	31.97	-17.67	14.30	40.00	-25.70	QP
2		84.9993	33.58	-21.16	12.42	40.00	-27.58	QP
3		178.7584	37.59	-21.31	16.28	43.50	-27.22	QP
4		284.9767	38.24	-16.81	21.43	46.00	-24.57	QP
5	*	452.7197	41.54	-12.68	28.86	46.00	-17.14	QP
6		747.4825	30.97	-8.18	22.79	46.00	-23.21	QP

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		32.5197	45.89	-19.32	26.57	40.00	-13.43	QP
2	*	50.7636	51.82	-18.39	33.43	40.00	-6.57	QP
3		84.9993	45.44	-20.76	24.68	40.00	-15.32	QP
4		178.1327	35.31	-19.91	15.40	43.50	-28.10	QP
5		454.3100	37.11	-14.16	22.95	46.00	-23.05	QP
6		734.4913	32.02	-9.31	22.71	46.00	-23.29	QP

Note:

1). Pre-scan all modes and recorded the worst case results in this report.

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

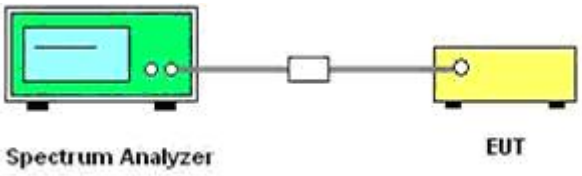
3). Corrected Reading: Antenna Factor + Cable Loss + Read Level = Level.

7. 99% and 20dB Bandwidth Measurement

7.1. Standard Applicable

According to §15.215, device must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

7.2. Block Diagram of Test Setup



7.3. Test Procedure

Use the following spectrum analyzer settings:

Span = 100Hz

RBW = 1Hz

VBW = 3Hz

Sweep = auto

Detector function = peak

Trace = max hold

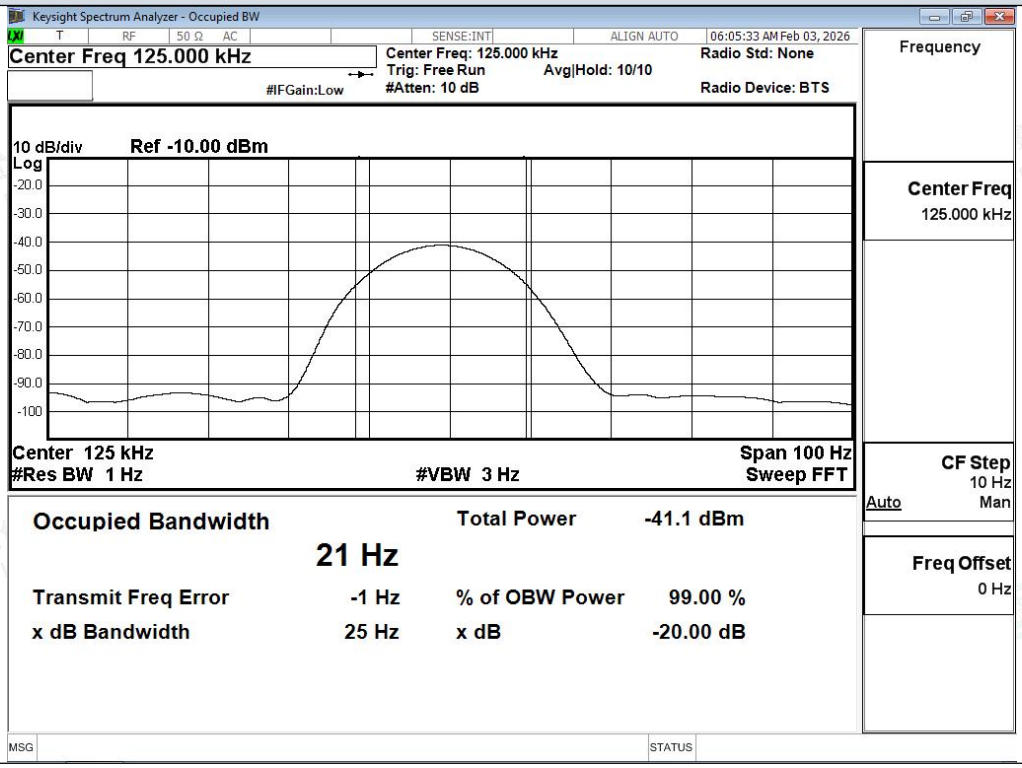
The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 20 dB bandwidth of the emission. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

7.4. Test Results

99% and 20dB Bandwidth Measurement			
Test Frequency (KHz)	99% Occupied Bandwidth (KHz)	20dB Bandwidth (KHz)	Limit (KHz)
125	0.021	0.025	No Limit

99% and 20dB Bandwidth

ASK



8. Antenna Requirements

8.1 Standard Applicable

According to antenna requirement of §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be re-placed by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

8.2 Antenna Connected Construction

8.2.1. Standard Applicable

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2.2. Antenna Connector Construction

The antenna used for transmitting is permanently attached and no consideration of replacement. Please see EUT photo for details.

8.3. Results: Compliance.

9. LIST OF MEASURING EQUIPMENTS

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	MXA Signal Analyzer	Agilent	N9020A	MY53300304	2025-05-22	2026-05-21
2	DC Power Supply	Agilent	E3642A	N/A	2025-09-27	2026-09-26
3	Temperature & Humidity Chamber	Baro	/	/	2025-06-04	2026-06-03
4	EMI Test Software	Farad	EZ-EMC	Ver.FARAD-3A1.1+	N/A	N/A
5	3m Semi Anechoic Chamber	Maorui	966	/	2023-10-12	2026-10-11
6	Positioning Controller	Max-Full	MF7802BS	MF780208586	N/A	N/A
7	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	00005	2024-07-13	2027-07-12
8	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2024-08-03	2027-08-02
9	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2024-07-13	2027-07-12
10	EMI Test Receiver	R&S	ESR 7	101181	2025-05-22	2026-05-21
11	RS SPECTRUM ANALYZER	R&S	FSP40	100503	2025-05-22	2026-05-21
12	Low-frequency amplifier	SchwarzZBECK	BBV9745	00253	2025-09-27	2026-09-26
13	High-frequency amplifier	JS Denki Pte	PA0118-43	JSPA21009	2025-09-27	2026-09-26
14	EMI Test Receiver	R&S	ESPI	101940	2025-05-22	2026-05-21
15	Artificial Mains	R&S	ENV216	101479	2025-05-23	2026-05-22
16	10dB Attenuator	SCHWARZBECK	MTS-IMP-136	261115-001-0032	2025-05-22	2026-05-21
17	EMI Test Software	Farad	EZ-EMC	Ver. EMC-CON 3A1.1+	N/A	N/A
18	Antenna Mast	Max-Full	MFA-515BSN	1308572	N/A	N/A
19	Pulse Limiter	R&S	ESH3-Z2	102750	2025-05-23	2026-05-22
20	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	791	2024-07-13	2027-07-12
21	Broadband Preamplifier	SCHWARZBECK	BBV9719	9719-025	2024-07-30	2027-07-29

10. TEST SETUP PHOTOGRAPHS OF EUT

Please refer to separated files for Test Setup Photos of the EUT.

11. EXTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for External Photos of the EUT.

12. INTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for Internal Photos of the EUT.

----------THE END OF TEST REPORT----------