FCC Test Report

Report No.: AGC11034230802FR01A

FCC ID	:	2AYHE-2306B
APPLICATION PURPOSE	:	Class II Permissive Change
PRODUCT DESIGNATION	:	IP Camera
BRAND NAME	:	Reolink
MODEL NAME	:	B800W, W330C
APPLICANT	:	Reolink Innovation Limited
DATE OF ISSUE	:	Jun. 04, 2024
STANDARD(S)	:	FCC Part 15 Subpart C §15.247
REPORT VERSION	:	V1.0

*A*ttestation of *G*lobal *C*ompliance (Shenzhen) Co., Ltd

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jun. 04, 2024	Valid	Initial Release

Note: The original test report AGC11034230802FR01 (dated Sep. 14, 2023 and tested from Aug. 10, 2023~ Sep. 14, 2023) was modified on Jun. 04, 2024, including the following changes and additions:

- Replaced the model name;
- Replaced the adapter(Change model name, electricity and manufacturer, all other parameters are the same);
- Delete the SD card part of the circuit, card slot and SD card;
- For the above described change(s) the following tests was considered to be necessary:

Clause	Testing
§15.209	Radiated Spurious Emission
§15.207	AC Power Line Conducted Emission

Table of Contents

1. General Information

Applicant	Reolink Innovation Limited
Address	FLAT/RM 705 7/F FA YUEN COMMERCIAL BUILDING 75-77 FA YUEN STREET MONG KOK KL HONG KONG
Manufacturer	Reolink Innovation Limited
Address	FLAT/RM 705 7/F FA YUEN COMMERCIAL BUILDING 75-77 FA YUEN STREET MONG KOK KL HONG KONG
Factory	Shenzhen Reolink Technology Co., Ltd
Address	2-4th Floor, Building 2, Yuanling Industrial Park, ShangWu, Shiyan Street, Bao'an District, Shenzhen, China
Product Designation	IP Camera
Brand Name	Reolink
Test Model	B800W
Series Model(s)	W330C
Difference Description	All the series models are the same as the test model except for the model names.
Date of receipt of test item	Apr. 03, 2024
Date of Test	Apr. 03, 2024~ May 31, 2024
Deviation from Standard	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Test Report Form No	AGCER-FCC-2.4GWLAN-V1

Note: The test results of this report relate only to the tested sample identified in this report.

Prepared By	Bibo Zhang (Project Engineer)	Jun. 04, 2024
Reviewed By	Calvin Liu (Reviewer)	Jun. 04, 2024
Approved By	Max Zhang Authorized Officer	Jun. 04, 2024

2. Product Information

2.1 Product Technical Description

Equipment Type	WLAN 2.4G
Frequency Band	2400MHz ~ 2483.5MHz
Operation Frequency	2412MHz ~ 2462MHz
Output Power (Average)	IEEE 802.11b:12.41dBm; IEEE 802.11g:11.65dBm; IEEE 802.11n(HT20):11.64dBm; IEEE 802.11n(HT40):11.59dBm IEEE 802.11ax (HE20):11.68dBm; IEEE 802.11ax (HE40):11.48dBm
Output Power (Peak)	IEEE 802.11b:15.17dBm; IEEE 802.11g:19.47dBm; IEEE 802.11n(HT20):19.53dBm; IEEE 802.11n(HT40):19.55dBm IEEE 802.11ax (HE20):20.36dBm; IEEE 802.11ax (HE40):20.15dBm
Output Power (MIMO- Average)	IEEE 802.11n(HT20):14.37dBm; IEEE 802.11n(HT40):14.28dBm IEEE 802.11ax (HE20):14.33dBm; IEEE 802.11ax (HE40):14.25dBm
Output Power (MIMO- Peak)	IEEE 802.11n(HT20):22.29dBm; IEEE 802.11n(HT40):22.25dBm IEEE 802.11ax (HE20):23.14dBm; IEEE 802.11ax (HE40):22.91dBm
Modulation	802.11b:(DQPSK, DBPSK, CCK) DSSS 802.11g/n:(64-QAM,16-QAM, QPSK, BPSK) OFDM 802.11ax:(1024-QAM,256-QAM,64-QAM,16-QAM,QPSK,BPSK)OFDMA
Data Rate	802.11b:1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps 802.11ax: up to 574Mbps
Number of channels	11
Hardware Version	M38C01-V100
Software Version	2577_23081100
Antenna Designation	Please refer to report section 2.9 description
Antenna Gain	Please refer to report section 2.9 description
Number of transmit chain	2(802.11b/g/n all used two antennas, 802.11b/g support SISO, and 802.11n/ax support MIMO)
Power Supply	DC 12V

2.2 Table of Carrier Frequency

For 2412-2462MHz:

11 channels are provided for 802.11b/g/n(HT20)/ax(HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz
04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz
10	2457 MHz	11	2462 MHz		

7 channels are provided for 802.11n(HT40)/ax(HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	--	02	--	03	2422 MHz
04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz
10	--	11	--		

2.3 IEEE 802.11n Modulation Scheme

MCS Index	Nss	Modulation	R	N_{BPSC}	N_{CBPS}		N_{DBPS}		Data Rate(Mbps)	
									800nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0
6	1	64-QAM	3/4	6	312	648	234	489	58.5	121.5
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0

Symbol	Explanation
NSS	Number of spatial streams
R	Code rate
NBPSC	Number of coded bits per single carrier
NCBPS	Number of coded bits per symbol
NDBPS	Number of data bits per symbol
GI	Guard interval

2.4 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for FCC ID: 2AYHE-2306B**,** filing to comply with Part 2, Part 15 of the Federal Communication Commission rules.

2.5 Test Methodology

The tests were performed according to following standards:

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 15	Radio Frequency Devices
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
4	KDB 662911	KDB 662911 D01 Multiple Transmitter Output v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band (e.g., MIMO, Smart Antenna, etc)

2.6 Special Accessories

Refer to section 5.2.

2.7 Equipment Modifications

Not available for this EUT intended for grant.

2.8 Antenna Requirement

Standard Requirement
15.203 requirement: 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi
EUT Antenna:
The non-detachable antenna inside the device cannot be replaced by the user at will. For the antenna gain, please refer to the description in Chapter 2.9 of the report.

2.9 Description of Available Antennas

Antenna Type	Frequency Band (MHz)	TX Paths	Bandwidth (MHz)	Max Peak Gain (dBi)		Max Directional Gain (dBi)
				Ant 1	Ant 2	
2.4GWIFI SMA Antenna List (2.4GHz 2*2 MIMO)						
SMA Antenna	2400~2483.5	2	20, 40	3.95	3.95	6.96

Note 1: The EUT supports Cyclic Delay Diversity (CDD) technology for 802.11n/ax mode.

Note 2: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

If all antennas have the same gain, G_{ANT}, Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on devices:

  Array Gain = 10 log (N_{ANT}/ N_{SS}) dB = 3.01;

- For power measurements on IEEE 802.1devices:

  Array Gain = 0 dB for $N_{ANT} \leq 4$;

  Array Gain = 0 dB (i.e., no array gain) for channel widths ≥40 MHz for any N_{ANT};

  Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less, for 20 MHz channel widths with $N_{ANT} \geq 5$.

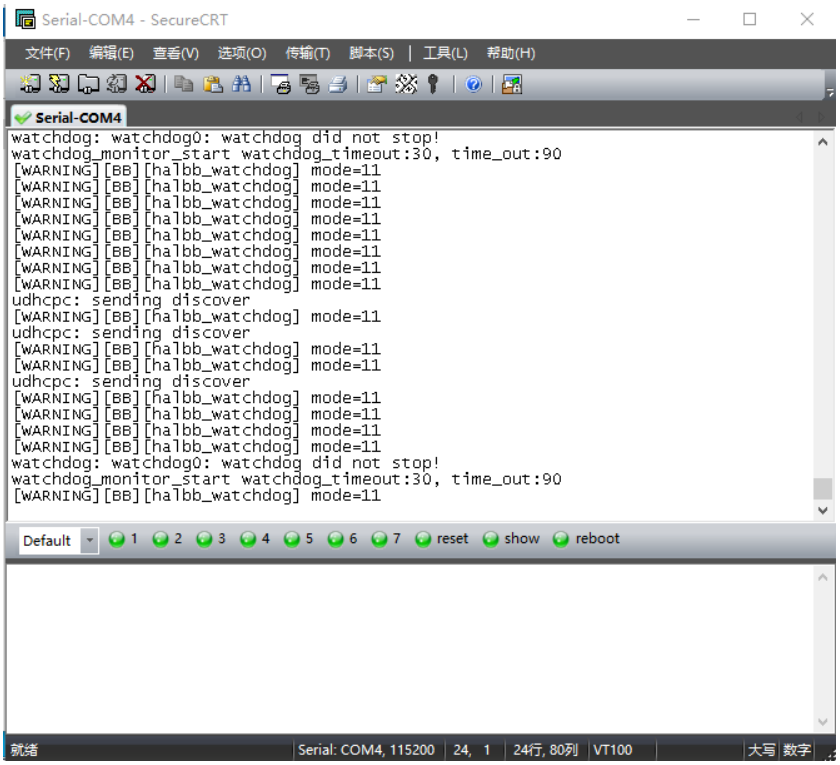
If antenna gains are not equal, Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

2.10 Description of Test Software

For IEEE 802.11 mode:

The test utility software used during testing was “SecureCRT”, and the version was “7.1.264”.

Software Setting Diagram



Test Mode	Channel	Power Index	
		Chain 1	Chain 2
802.11b	L/M/H	13	13
802.11g	L/M/H	12	12
802.11n-HT20	L/M/H	12	12
802.11ax-HE20	L/M/H	12	12
802.11n-HT40	L/M/H	12	12
802.11ax-HE40	L/M/H	12	12

3. Test Environment

3.1 Address of The Test Laboratory

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to follow CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories).

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to follow ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842 (CAB identifier: CN0063)

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.

3.3 Environmental Conditions

	NORMAL CONDITIONS
Temperature range (℃)	15 - 35
Relative humidity range	20 % - 75 %
Pressure range (kPa)	86 - 106

3.4 Measurement Uncertainty

The reported uncertainty of measurement y±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	U_c = ±2.9 dB
Uncertainty of Radiated Emission below 1GHz	U_c = ±3.9 dB
Uncertainty of Radiated Emission above 1GHz	U_c = ±4.9 dB
Uncertainty of total RF power, conducted	U_c = ±0.8 dB
Uncertainty of RF power density, conducted	U_c = ±2.6 dB
Uncertainty of spurious emissions, conducted	U_c = ±2 %
Uncertainty of Occupied Channel Bandwidth	U_c = ±2 %

3.5 List of Equipment Used

● RF Conducted Test System							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☐	AGC-ER-E036	Spectrum Analyzer	Agilent	N9020A	MY49100060	2023-06-01	2024-05-31
☐	AGC-ER-E062	Power Sensor	Agilent	U2021XA	MY54110007	2023-03-03	2024-03-02
☐	AGC-ER-E063	Power Sensor	Agilent	U2021XA	MY54110009	2023-03-03	2024-03-02
☐	AGC-EM-A152	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08
☐	AGC-ER-E083	Signal Generator	Agilent	E4421B	US39340815	2023-06-01	2024-05-31
☐	N/A	RF Connection Cable	N/A	1#	N/A	Each time	N/A
☐	N/A	RF Connection Cable	N/A	2#	N/A	Each time	N/A

● Radiated Spurious Emission							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☒	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	10096	2024-02-01	2025-01-31
☒	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2023-06-03	2024-06-02
☒	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2023-06-01	2024-05-31
☒	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2024-03-05	2026-03-04
☒	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	D69250	2023-05-11	2025-05-10
☒	AGC-EM-E029	Broadband Ridged Horn Antenna	ETS	3117	00034609	2024-03-31	2025-03-30
☐	AGC-EM-E082	Horn Antenna	SCHWARZBECK	BBHA 9170	#768	2023-09-24	2025-09-23
☒	AGC-EM-E146	Pre-amplifier	ETS	3117-PA	00246148	2022-08-04	2024-08-03
☒	AGC-EM-A119	2.4G Filter	SongYi	N/A	N/A	2023-06-01	2024-05-31
☒	AGC-EM-A138	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08
☐	AGC-EM-A139	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08

● AC Power Line Conducted Emission							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☒	AGC-EM-E045	EMI Test Receiver	R&S	ESPI	101206	2023-06-03	2024-06-02
☒	AGC-EM-E023	AMN	R&S	100086	ESH2-Z5	2023-06-03	2024-06-02
☒	AGC-EM-A130	6dB Attenuator	Eeatsheep	LM-XX-6-5W	DC-6GZ	2023-06-09	2024-06-08

● Test Software

Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Version Information
☒	AGC-EM-S001	CE Test System	R&S	ES-K1	V1.71
☒	AGC-EM-S003	RE-Test System	FARA	EZ-EMC	VRA-03A
☐	AGC-ER-S012	BT/WIFI-Test System	Tonscend	JS1120-2	2.6
☒	AGC-EM-S011	RSE Test System	Tonscend	TS+-Ver2.1(JS36-RSE)	4.0.0.0

4.System Test Configuration

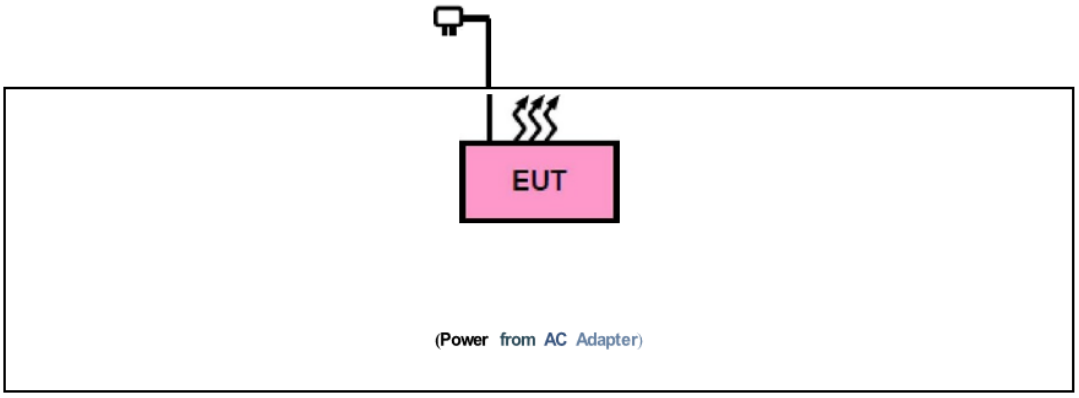
4.1 EUT Configuration

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

4.2 EUT Exercise

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

4.3 Configuration of Tested System



4.4 Equipment Used In Tested System

The following peripheral devices and interface cables were connected during the measurement:

☐ Test Accessories Come From The Laboratory

No.	Equipment	Model No.	Specification Information	Note
-	-	-	-	-

☒ Test Accessories Come From The Manufacturer

No.	Equipment	Model No.	Specification Information	Note
1	IP Camera	B800W	2AYHE-2306B	EUT
2	Adapter	DCT12W120100US-B0	Input: AC 100-240V 50/60Hz, 0.3A Max Output: DC 12V 1.0A	Test Peripheral

4.5 Summary of Test Results

Item	FCC Rules	Description of Test	Result
1	§15.209	Radiated Spurious Emission	Pass
2	§15.207	AC Power Line Conducted Emission	Pass

5. Description of Test Modes

Summary table of Test Cases	
Test Item	Data Rate / Modulation
	2.4G WLAN – 802.11b/g/n/ax (DSSS/OFDM/OFDMA)
Radiated & Conducted Test Cases	Mode 1: 802.11b_TX CH01_2412 MHz_1 Mbps Mode 2: 802.11b_TX CH06_2437 MHz_1 Mbps Mode 3: 802.11b_TX CH11_2462 MHz_1 Mbps Mode 4: 802.11g_TX CH01_2412 MHz_6 Mbps Mode 5: 802.11g_TX CH06_2437 MHz_6 Mbps Mode 6: 802.11g_TX CH11_2462 MHz_6 Mbps Mode 7: 802.11n-HT20_TX CH01_2412 MHz_MCS0 Mbps Mode 8: 802.11n-HT20_TX CH06_2437 MHz_ MCS0 Mbps Mode 9: 802.11n-HT20_TX CH11_2462 MHz_ MCS0 Mbps Mode 10: 802.11ax-HE20_TX CH01_2412 MHz_MCS0 Mbps Mode 11: 802.11ax-HE20_TX CH06_2437 MHz_ MCS0 Mbps Mode 12: 802.11ax-HE20_TX CH11_2462 MHz_ MCS0 Mbps Mode 13: 802.11n-HT40_TX CH03_2422 MHz_MCS0 Mbps Mode 14: 802.11n-HT40_TX CH06_2437 MHz_ MCS0 Mbps Mode 15: 802.11n-HT40_TX CH09_2452 MHz_ MCS0 Mbps Mode 16: 802.11ax-HE40_TX CH03_2422 MHz_MCS0 Mbps Mode 17: 802.11ax-HE40_TX CH06_2437 MHz_ MCS0 Mbps Mode 18: 802.11ax-HE40_TX CH09_2452 MHz_ MCS0 Mbps
AC Conducted Emission	Mode 1: 2.4G WLAN Link + Battery + USB Cable (Charging from AC Adapter)

Note:
1. The battery is full-charged during the test.
2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
3. For Conducted Test method, a temporary antenna connector is provided by the manufacture.
4. Support 802.11ax, device debugging is tested in Full RU state
5. All modes and antennas in the radiation spurious test are pre-scanned. When there is no MIMO technology mode, antenna 1 is evaluated. When there is MIMO technology mode, antenna 1 + antenna 2 are evaluated as the worst data.

6. Radiated Spurious Emission

6.1 Measurement Limits

15.209(a) Limit in the below table 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

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

6.2 Measurement Procedure

1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, 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 values.

8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

◆ The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz 1MHz/3MHz for Peak, 1MHz/3MHz for Average

Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

- **Quasi-Peak Measurements below 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as shown in the table above
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

- **Peak Measurements above 1GHz**

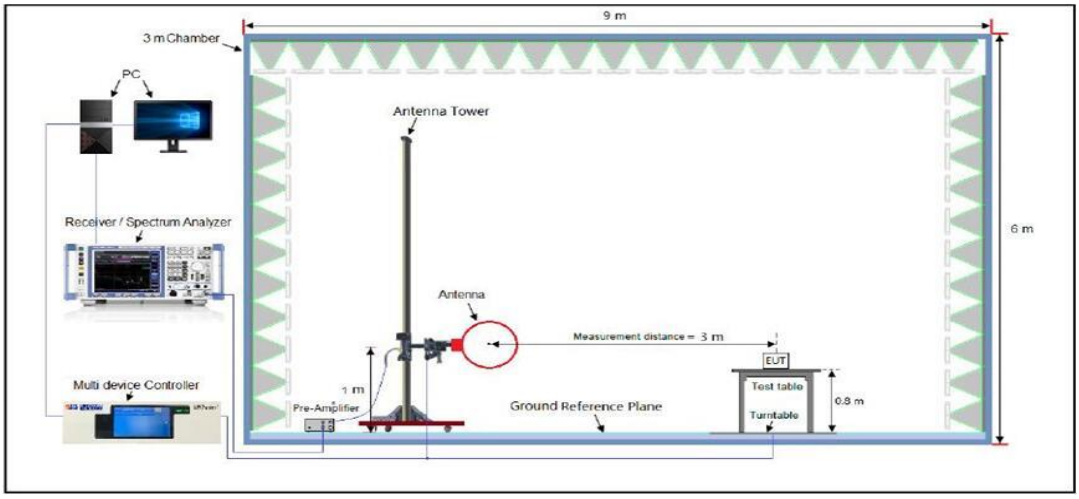
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

- **Average Measurements above 1GHz**

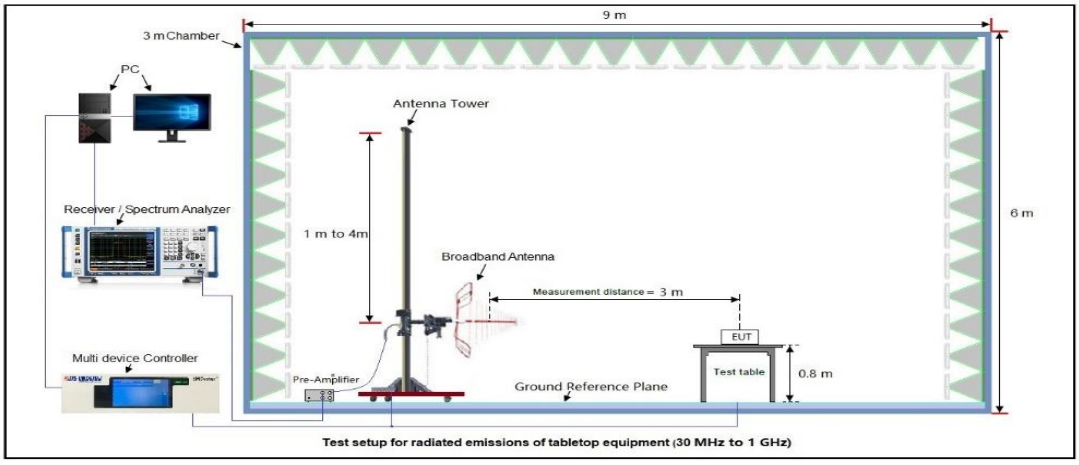
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW ≥ [3 × RBW]
4. Detector = Power averaging (rms)
5. Averaging type = power (i.e., rms)
6. Sweep time = auto
7. Perform a trace average of at least 100 traces.
8. The applicable correction factor is [10*log (1 / D)], where D is the duty cycle. The factor had been edited in the “Input Correction” of the Spectrum Analyzer.

6.3 Measurement Setup (Block Diagram of Configuration)

Radiated Emission Test Setup 9kHz-30MHz

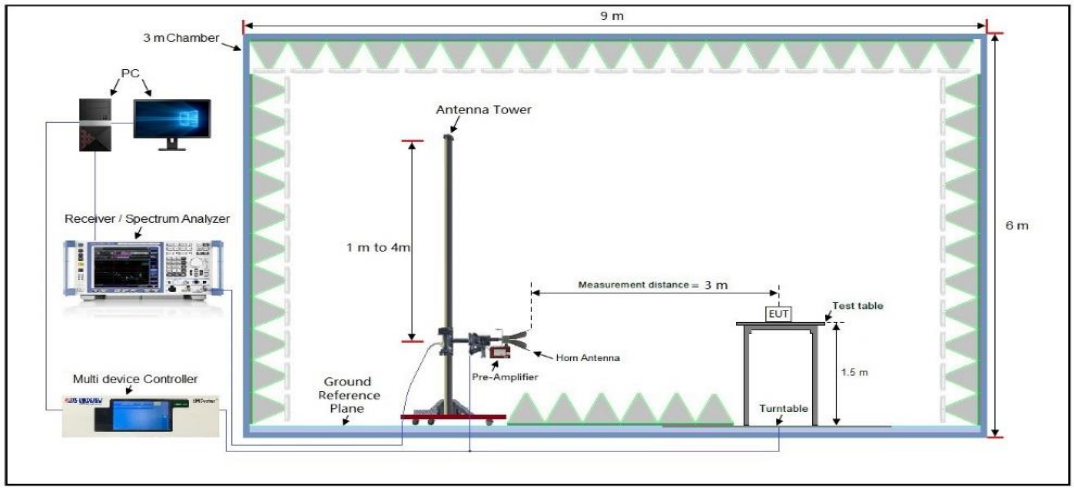


Radiated Emission Test Setup 30MHz-1000MHz



Test setup for radiated emissions of tabletop equipment (30 MHz to 1 GHz)

Radiated Emission Test Setup Above 1000MHz

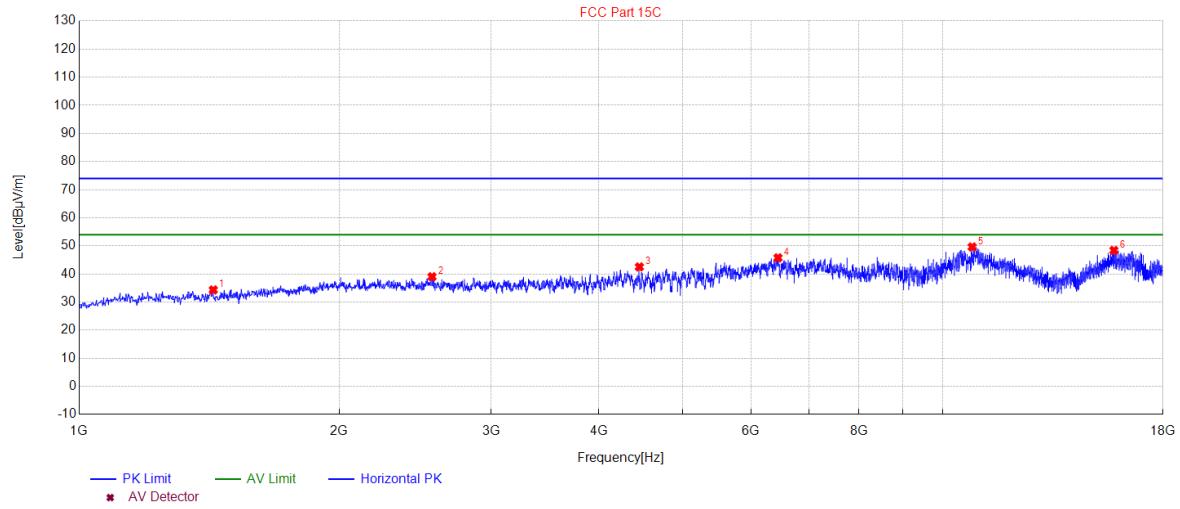


6.4 Measurement Result

Radiated Emission Below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

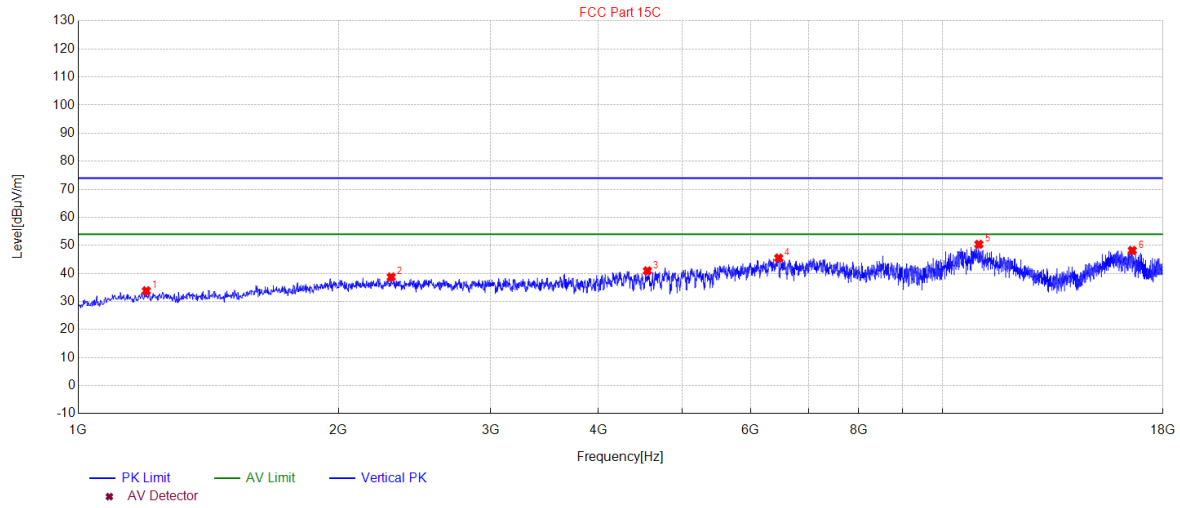
Radiated Emission Test Results at 30MHz-1GHz			
EUT Name	IP Camera	**Model Name**	B800W
Temperature	22.5°C	**Relative Humidity**	59.1%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 2	**Polarity:**	Horizontal



Final Data List

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1430.143	34.32	-17.65	74.00	39.68	150	330	Horizontal
2	2562.4562	39.02	-12.17	74.00	34.98	150	290	Horizontal
3	4454.7455	42.51	-8.07	74.00	31.49	150	50	Horizontal
4	6447.3447	45.75	-4.59	74.00	28.25	150	280	Horizontal
5	10820.182	49.61	2.07	74.00	24.39	150	310	Horizontal
6	15789.779	48.39	4.42	74.00	25.61	150	160	Horizontal

Radiated Emission Test Results at 30MHz-1GHz			
EUT Name	IP Camera	**Model Name**	B800W
Temperature	22.5°C	**Relative Humidity**	59.1%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 2	Polarity:	Vertical



Final Data List

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1198.9199	33.79	-18.02	74.00	40.21	150	260	Vertical
2	2302.3302	38.73	-12.68	74.00	35.27	150	290	Vertical
3	4556.7557	40.92	-7.87	74.00	33.08	150	160	Vertical
4	6466.0466	45.47	-4.55	74.00	28.53	150	140	Vertical
5	11020.8021	50.37	2.62	74.00	23.63	150	150	Vertical
6	16587.1587	48.19	5.72	74.00	25.81	150	210	Vertical

RESULT: Pass

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Limit-Level.

2. All test modes had been pre-tested. The Antenna 1 of mode 2 is the worst case and recorded in the report.

Radiated Emissions Test Results above 1 GHz

EUT Name	IP Camera	**Model Name**	B800W
Temperature	25°C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 1	**Antenna Polarity**	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4824.000	48.96	0.08	49.04	74	-24.96	peak
4824.000	37.49	0.08	37.57	54	-16.43	AVG
7236.000	42.15	2.21	44.36	74	-29.64	peak
7236.000	32.64	2.21	34.85	54	-19.15	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT Name	IP Camera	**Model Name**	B800W
Temperature	25°C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 1	**Antenna Polarity**	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4824.000	47.53	0.08	47.61	74	-26.39	peak
4824.000	37.54	0.08	37.62	54	-16.38	AVG
7236.000	42.35	2.21	44.56	74	-29.44	peak
7236.000	31.25	2.21	33.46	54	-20.54	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

RESULT: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna Polarity	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4874.000	47.56	0.14	47.7	74	-26.3	peak
4874.000	38.62	0.14	38.76	54	-15.24	AVG
7311.000	42.19	2.36	44.55	74	-29.45	peak
7311.000	31.26	2.36	33.62	54	-20.38	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna Polarity	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4874.000	48.21	0.14	48.35	74	-25.65	peak
4874.000	37.53	0.14	37.67	54	-16.33	AVG
7311.000	42.16	2.36	44.52	74	-29.48	peak
7311.000	31.25	2.36	33.61	54	-20.39	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

RESULT: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna Polarity	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4924.000	48.97	0.22	49.19	74	-24.81	peak
4924.000	37.64	0.22	37.86	54	-16.14	AVG
7386.000	42.16	2.64	44.8	74	-29.2	peak
7386.000	31.24	2.64	33.88	54	-20.12	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna Polarity	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4924.000	48.65	0.22	48.87	74	-25.13	peak
4924.000	37.54	0.22	37.76	54	-16.24	AVG
7386.000	42.53	2.64	45.17	74	-28.83	peak
7386.000	32.94	2.64	35.58	54	-18.42	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

RESULT: Pass

Note:

1. The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.
2. Factor = Antenna Factor + Cable loss – Pre-amplifier gain, Margin =Emission Level-Limit.
3. The “Factor” value can be calculated automatically by software of measurement system.

7. AC Power Line Conducted Emission

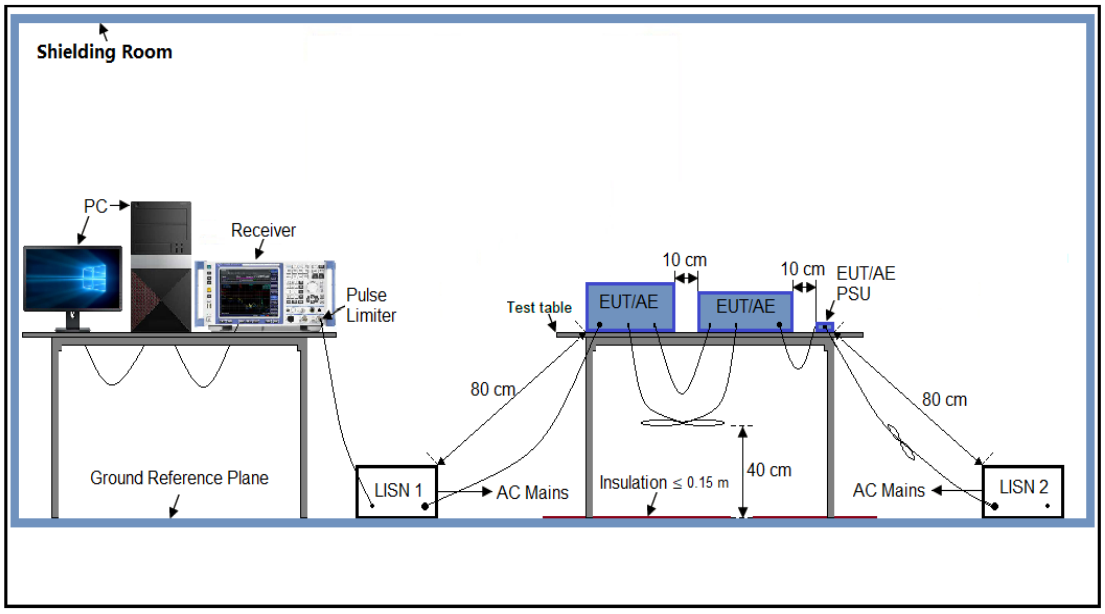
7.1 Measurement Limits

Frequency	Maximum RF Line Voltage	
	Q.P (dBμV)	Average (dBμV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

7.2 Block Diagram of Line Conducted Emission Test



7.3 Preliminary Procedure of Line Conducted Emission Test

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipment received AC120V/60Hz power from a LISN, if any.
5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from a LISN.
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 Ohm load; the second scan had Line 1 connected to a 50 Ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

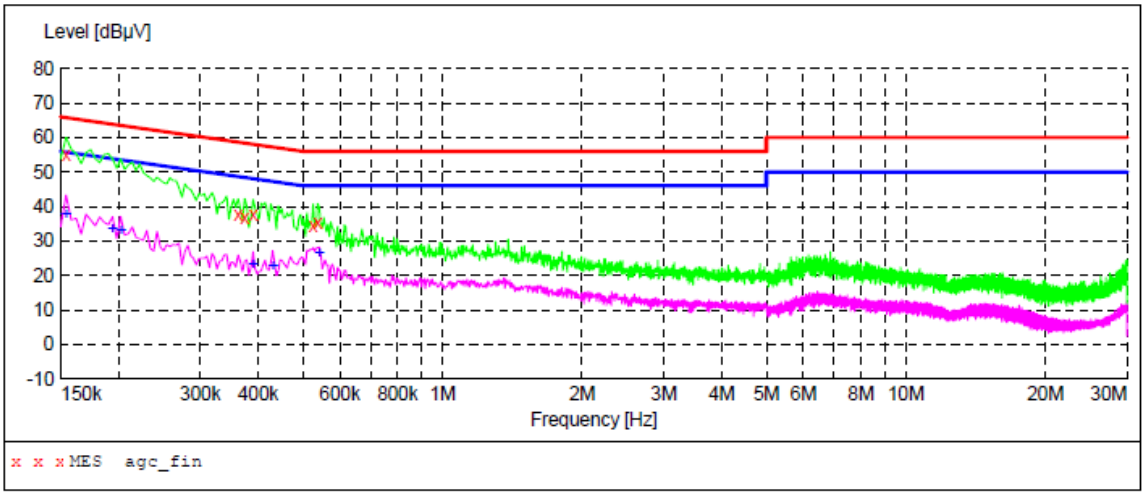
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

7.4 Final Procedure of Line Conducted Emission Test

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case was reported on the Summary Data page.

7.5 Test Result of Line Conducted Emission Test

AC Power Line Conducted Emission Test			
Test Mode	Mode 1	LISN line	Hot Side



MEASUREMENT RESULT: "agc_fin"

2024/5/28 20:46

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.154000	55.20	6.1	66	10.6	QP	L1
0.362000	37.70	6.1	59	21.0	QP	L1
0.374000	36.70	6.1	58	21.7	QP	L1
0.390000	37.40	6.1	58	20.7	QP	L1
0.526000	34.20	6.2	56	21.8	QP	L1
0.538000	35.50	6.2	56	20.5	QP	L1

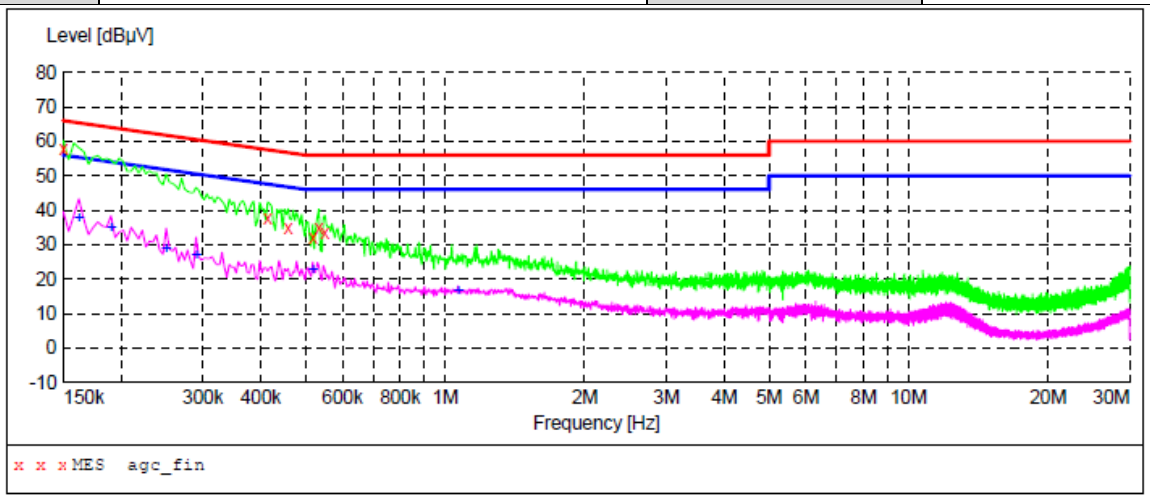
MEASUREMENT RESULT: "agc_fin2"

2024/5/28 20:46

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.154000	37.60	6.1	56	18.2	AV	L1
0.194000	33.40	6.1	54	20.5	AV	L1
0.202000	33.10	6.1	54	20.4	AV	L1
0.390000	23.00	6.1	48	25.1	AV	L1
0.430000	22.90	6.1	47	24.4	AV	L1
0.542000	26.40	6.2	46	19.6	AV	L1

RESULT: Pass

AC Power Line Conducted Emission Test			
Test Mode	Mode 1	LISN line	Neutral Side



MEASUREMENT RESULT: "agc_fin"

2024/5/28 20:43

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000	57.80	6.1	66	8.2	QP	N
0.414000	37.50	6.1	58	20.1	QP	N
0.458000	34.90	6.1	57	21.8	QP	N
0.518000	32.10	6.2	56	23.9	QP	N
0.534000	34.80	6.2	56	21.2	QP	N
0.550000	33.30	6.2	56	22.7	QP	N

MEASUREMENT RESULT: "agc_fin2"

2024/5/28 20:43

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.162000	37.50	6.1	55	17.9	AV	N
0.190000	34.90	6.1	54	19.1	AV	N
0.250000	28.80	6.1	52	23.0	AV	N
0.290000	26.80	6.1	51	23.7	AV	N
0.518000	22.90	6.2	46	23.1	AV	N
1.066000	16.40	6.2	46	29.6	AV	N

RESULT: Pass

Appendix I: Photographs of Test Setup

Refer to the Report No.: AGC11034230802AP02A

Appendix II: Photographs of EUT

Refer to the Report No.: AGC11034230802AP03A

----End of Report----

Conditions of Issuance of Test Reports

1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").

2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.

3.The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.

4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.

5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.

6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.

7.Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.

8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.

9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.