FCC Test Report

Report No.: AGC11034230802FR02A

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 E §15.407
REPORT VERSION	:	V1.0

Attestation of Global Compliance (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 AGC11034230802FR02 (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-5G WLAN-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	☐ Outdoor access points ☐ Indoor access points ☐ Fixed P2P access points ☒ Client devices
Operation Frequency	☒ U-NII 1:5150MHz~5250MHz ☒ U-NII 2A: 5250MHz~5350MHz ☒ U-NII 2C:5470MHz~5725MHz ☒ U-NII 3: 5725MHz~5850MHz
DFS Design Type	☐ Master ☐ Slave with radar detection ☒ Slave without radar detection
TPC Function	☐ Yes ☒ No
Hardware Version	M38C01-V100
Software Version	2577_23081100
Test Frequency Range	For 802.11a/n-HT20/ac-VHT20/ax-HE20: 5180~5240MHz, 5260~5320MHz, 5500~5720MHz, 5745~5825MHz For 802.11n-HT40/ac-VHT40/ax-HE40: 5190~5230MHz, 5270~5310MHz, 5510~5710MHz, 5755~5795MHz For 802.11ac-VHT80/ax-HE80: 5210MHz, 5290MHz, 5530~5690MHz, 5775MHz
RF Output Power	IEEE 802.11a(HT20):11.29dBm; IEEE 802.11n(HT20):10.30dBm; IEEE802.11n(HT40):10.24dBm; IEEE 802.11ac(VHT20):10.29dBm; IEEE802.11ac(VHT40):10.28dBm; IEEE802.11ac(VHT80):10.09dBm; IEEE802.11ax(HE20):10.33dBm; IEEE802.11ax(HE40):10.29dBm; IEEE802.11ax(HE80):10.22dBm
RF Output Power_MIMO	IEEE 802.11nHT(20):13.04dBm;IEEE802.11n(HT40):12.93dBm IEEE 802.11ac(VHT20):12.90dBm; IEEE802.11ac(VHT40):12.89dBm; IEEE802.11ac(VHT80):12.72dBm;IEEE802.11ax(HE20):12.90dBm; IEEE802.11ax(HE40):12.98dBm;IEEE802.11ax(HE80):12.95dBm
Modulation	802.11a/n:(64-QAM, 16-QAM, QPSK, BPSK) OFDM 802.11ac :(256-QAM, 64-QAM, 16-QAM, QPSK, BPSK) OFDM 802.11ax :(1024-QAM,256-QAM, 64-QAM, 16-QAM, QPSK, BPSK) OFDMA
Data Rate	802.11a:6/9/12/18/24/36/48/54Mbps; 802.11n:up to 300Mbps; 802.11ac:up to 866.6Mbps; 802.11ax:up to 1201Mbps
Number of channels	7 channels of U-NII-1 Band; 7 channels of U- NII-2A Band 18 channels of U-NII-2C Band; 8 channels of U- NII 3 Band
Antenna Designation	Refer to Chapter 2.9 of the report. (Comply with requirements of the FCC part 15.203)
Antenna Gain	Refer to Chapter 2.9 of the report.
Power Supply	DC 12V

2.2 Table of Carrier Frequency

For 5180~5240MHz:

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80), 802.11ax (VHT80):

Channel	Frequency	Channel	Frequency
42	5210 MHz	--	--

For 5260~5320MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20) , 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40) , 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
58	5290 MHz	--	--

For 5500~5720MHz:

11 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz	--	--

5 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz	--	--

2 channel is provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz

For 5745~5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20) , 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz	--	--

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
155	5775 MHz	--	--

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 the FCC Part 15 requirements.

2.5 Test Methodology

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	662911 D01 Multiple Transmitter Output v02r01
5	KDB 789033	789033 D02 General U-NII Test Procedures New Rules v02r01

2.6 Special Accessories

Refer to section 4.4.

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.
EUT Antenna:
The non-detachable antenna inside the device cannot be replaced by the user at will. The gain of the antenna refer to Section 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	
5G WIFI SMA Antenna List (5GHz 2*2 MIMO)						
SMA Antenna	5150 ~ 5250	2	20,40,80	3.46	3.46	6.47
	5250 ~ 5350	2	20,40,80	3.46	3.46	6.47
	5470 ~ 5725	2	20,40,80	4.27	4.27	7.28
	5725 ~ 5850	2	20,40,80	3.93	3.93	6.94

Note 1: The EUT supports Cyclic Delay Diversity (CDD) technology for 802.11n/ac/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 $N_{ANT} \geq 5$.

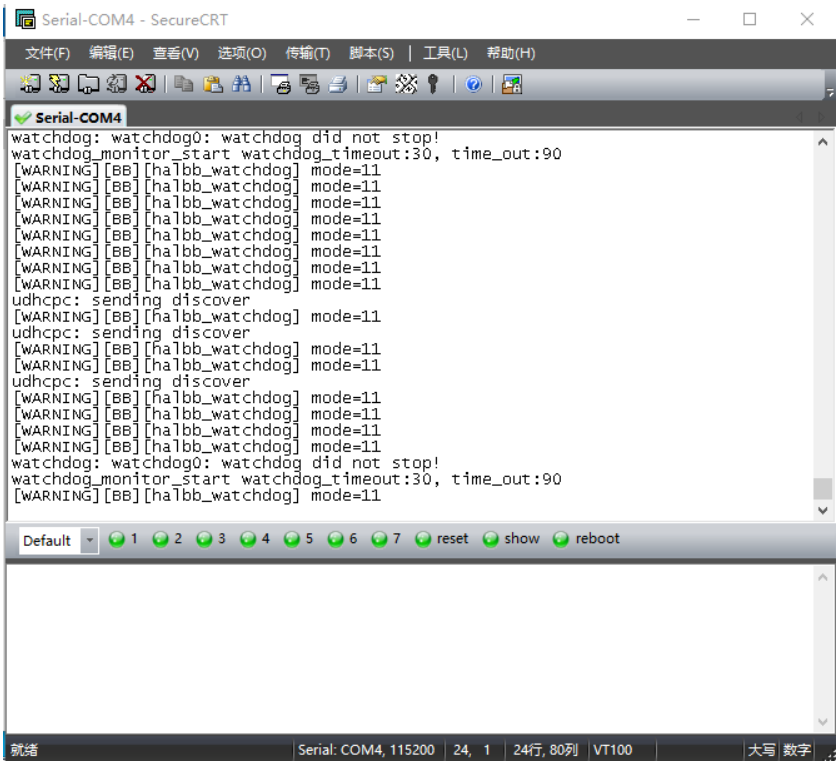
If antenna gains are not equal, Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

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



Mode (5150-5250MHz)	Channel	Power Index	
		Chain 1	Chain 2
802.11a	L/M/H	12	12
802.11n(HT20)	L/M/H	11	11
802.11n(HT40)	L/M/H	11	11
802.11ac(VHT20)	L/M/H	11	11
802.11ac(VHT40)	L/M/H	11	11
802.11ac(VHT80)	L/M/H	11	11
802.11ax(HE20)	L/M/H	11	11
802.11ax(HE40)	L/M/H	11	11
802.11ax(HE80)	L/M/H	11	11
Mode (5150-5250MHz)	Channel	Power Index	
		Chain 1	Chain 2
802.11a	L/M/H	12	12
802.11n(HT20)	L/M/H	11	11
802.11n(HT40)	L/M/H	11	11
802.11ac(VHT20)	L/M/H	11	11
802.11ac(VHT40)	L/M/H	11	11
802.11ac(VHT80)	L/M/H	11	11
802.11ax(HE20)	L/M/H	11	11
802.11ax(HE40)	L/M/H	11	11
802.11ax(HE80)	L/M/H	11	11
Mode (5150-5250MHz)	Channel	Power Index	
		Chain 1	Chain 2
802.11a	L/M/H	12	12
802.11n(HT20)	L/M/H	11	11
802.11n(HT40)	L/M/H	11	11
802.11ac(VHT20)	L/M/H	11	11
802.11ac(VHT40)	L/M/H	11	11
802.11ac(VHT80)	L/M/H	11	11
802.11ax(HE20)	L/M/H	11	11
802.11ax(HE40)	L/M/H	11	11
802.11ax(HE80)	L/M/H	11	11
Mode (5150-5250MHz)	Channel	Power Index	
		Chain 1	Chain 2
802.11a	L/M/H	12	12
802.11n(HT20)	L/M/H	11	11
802.11n(HT40)	L/M/H	11	11
802.11ac(VHT20)	L/M/H	11	11
802.11ac(VHT40)	L/M/H	11	11
802.11ac(VHT80)	L/M/H	11	11
802.11ax(HE20)	L/M/H	11	11
802.11ax(HE40)	L/M/H	11	11
802.11ax(HE80)	L/M/H	11	11

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
Power supply	DC 12V
Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.	

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 = ±2.7 %

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-A118	5G Filter	SongYi	BRM50716	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

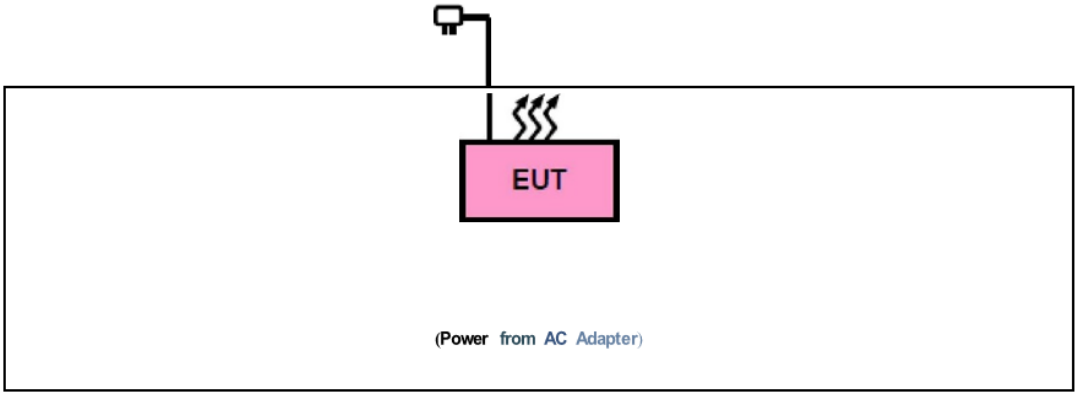
4.1 EUT Configuration

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 Emission	Pass
2	§15.207	AC Power Line Conducted Emission	Pass

5. Description of Test Modes

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE > 1G	RE < 1G	PLC	APCM	
A	☒	☒	☒	☒	Powered by Adapter with WIFI(5G) Link
B	--	--	--	--	Powered by Battery with WIFI(5G) Link
C	--	--	--	--	Powered by USB with WIFI(5G) Link

Where, **RE＞IG: Radiated Emission above 1GHz** **PLC: Power Line Conducted Emission**
RE＜1G: Radiated Emission below 1GHz **APCM: Antenna Port Conducted Measurement**

NOTE 1: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on X-plane.

NOTE 2: "--"means no effect.

NOTE 3: The radiation part tests the dual-antenna MIMO as the worst combination.

Radiated Emission Test (Above 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations be Meen available modulations, data rates and antenna ports (IF EUT with antenna diversity architecture).
☒ Support 802.11ax, device debugging is tested in Full RU state
☒ The equipment under test has multiple antennas, and only the MIMO mode is recorded as the worst.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)
A	802.11n (20MHz)	5180-5240	36 to 48	36, 40, 48	OFDM	6.5
A	802.11n (20MHz)	5260-5320	52 to 64	52, 60, 64	OFDM	6.5
A	802.11n (20MHz)	5500-5700	100 to 140	100, 120, 140	OFDM	6.5
A	802.11n (20MHz)	5745-5825	149 to 165	149, 157, 165	OFDM	6.5

Radiated Emission Test (Below 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations be Meen available modulations, data rates and antenna ports (If EUT with antenna diversity architecture).
☒ Support 802.11ax, device debugging is tested in Full RU state
☒ The equipment under test has multiple antennas, and only the MIMO mode is recorded as the worst.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)
A	802.11n(20MHz)	5180-5240	36 to 48	36	OFDM	6.5

Power Line Conducted Emission Test:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations be Meen available modulations, data rates and antenna ports (If EUT with antenna diversity architecture).
☒ Support 802.11ax, device debugging is tested in Full RU state
☒ The equipment under test has multiple antennas, and only the MIMO mode is recorded as the worst.
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)
A	802.11n(20MHz)	5180-5240	36 to 48	36	OFDM	6.5

6. Radiated Spurious Emission

6.1 Measurement Limit

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Restricted bands	Applicable to	Limit	
	789033 D02 General UNII Test Procedures New Rules v02r01	Field strength at 3m (dBuV/m)	
		PK: 74	AV: 54
Out of the restricted bands	Applicable to	EIRP Limit (dBm/MHz)	Equivalent field Strength at 3m (dBuV/m)
	FCC 15.407(b)(1)	PK: -27	PK: 68.2
	15.407(b)(2)		
	15.407(b)(3)		
	15.407(b)(4)	See Note 2	

Note 1: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000 \quad \sqrt{30\ P}}{3}$$ μV/m, where P is the eirp (Watts).

Note 2: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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.

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

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.Section G) Unwanted emissions measurement.

◆ **Procedure for Unwanted Emissions Measurements Below 1000MHz:**

- RBW = 120 kHz
- VBW = 300 kHz
- Detector = Peak
- Trace mode = max hold

◆ **Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz:**

- RBW = 1 MHz
- VBW ≥ 3 MHz
- Detector = Peak
- Sweep time = auto
- Trace mode = max hold

◆ **Procedures for Average Unwanted Emissions Measurements Above 1000MHz:**

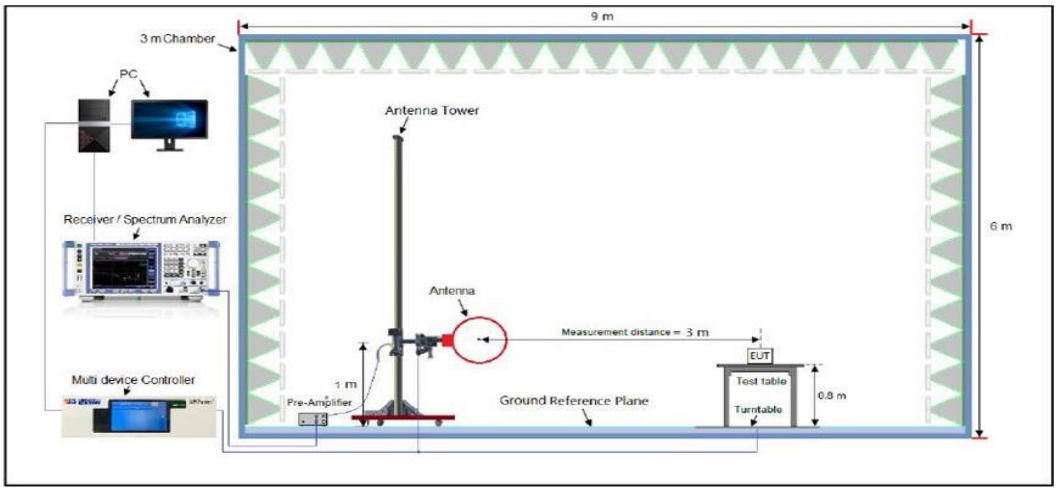
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

◆ **Procedures for Average Unwanted Emissions Measurements Above 1000MHz:**

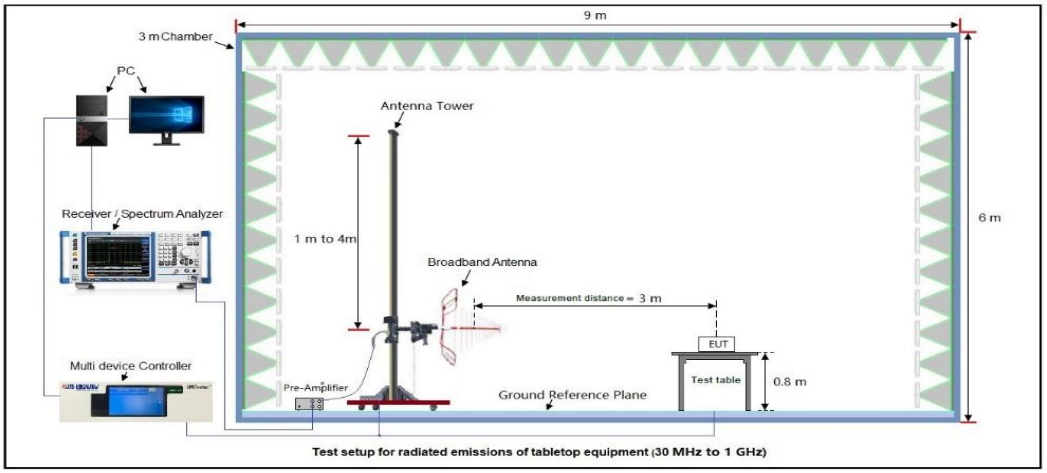
- RBW = 1 MHz
- VBW = 3 MHz • Detector = power averaging (rms), set span/(# of points in sweep) ≥ RBW/2.
- Averaging type = power averaging (RMS)
- The correction factor shall be offset is 10 log (1/x), where x is the duty cycle.

6.3 Measurement Setup (Block Diagram of Configuration)

Radiated Emission Test Setup 9kHz-30MHz

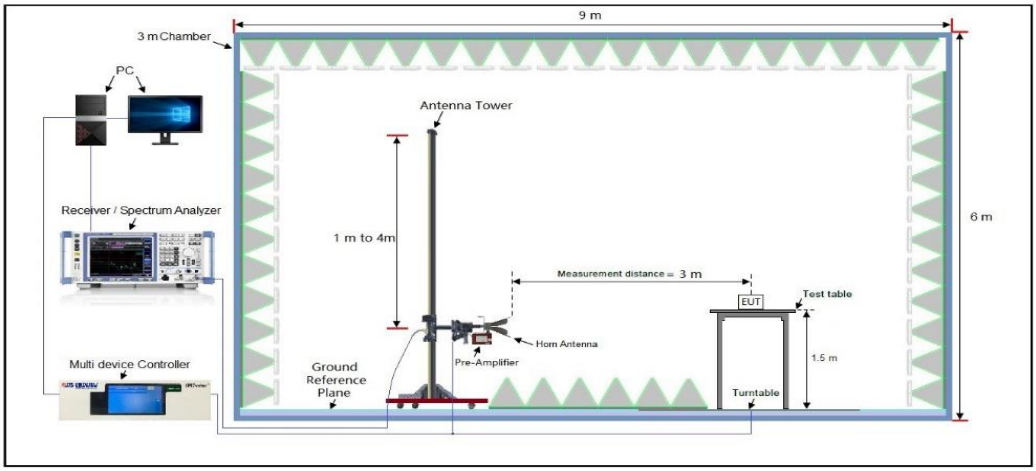


Radiated Emission Test Setup 30MHz-1000MHz



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

Radiated Emission Test Setup Above 1000MHz

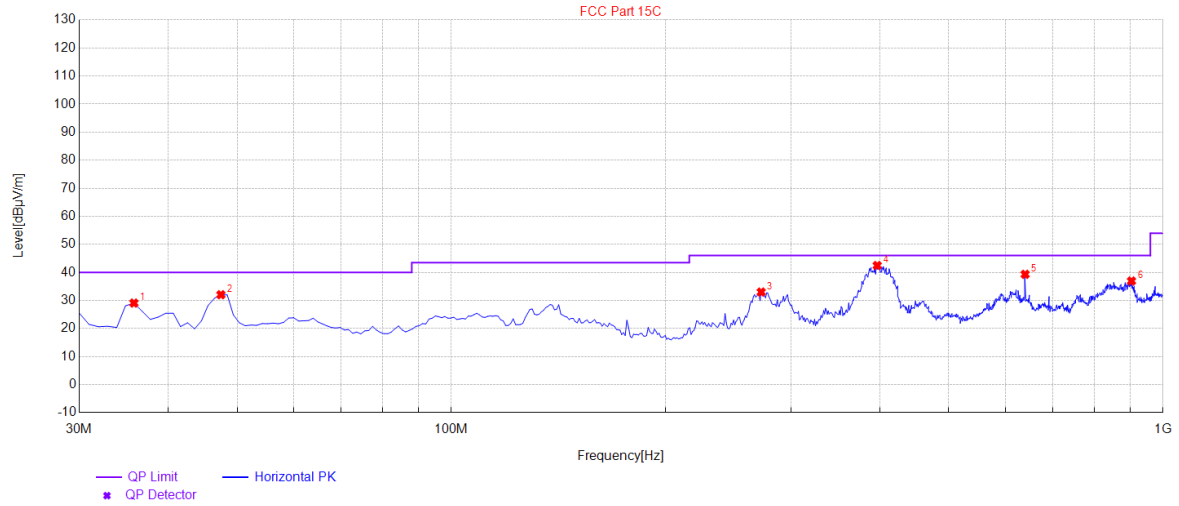


6.4 Measurement Result

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	802.11n(20MHz)_5180MHz	**Polarity:**	Horizontal

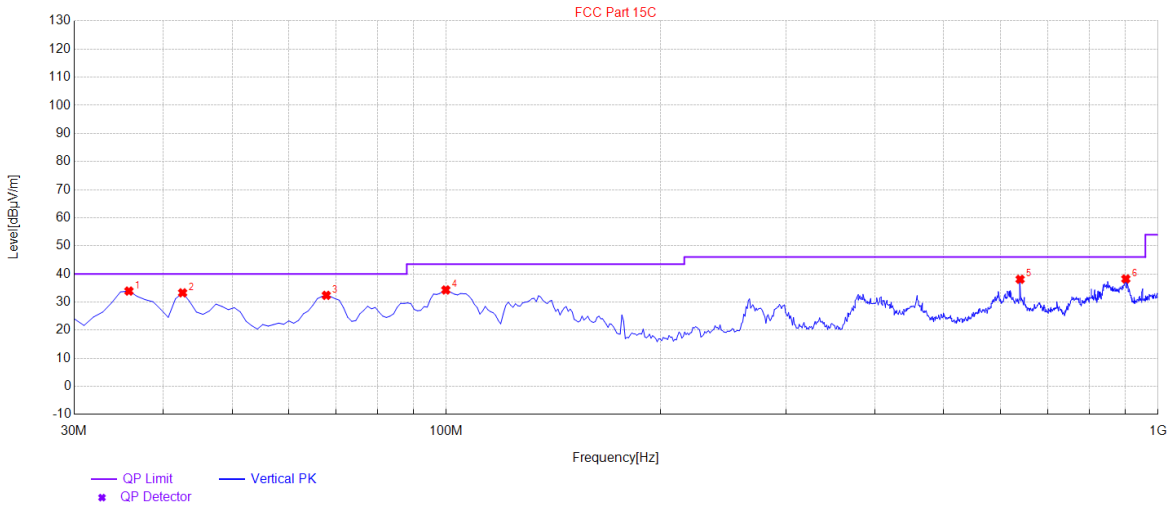


Final Data List

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.82	29.08	11.52	40.00	10.92	100	335	Horizontal
2	47.46	32.05	13.96	40.00	7.95	100	142	Horizontal
3	272.5	33.00	10.90	46.00	13.00	100	72	Horizontal
4	396.66	42.47	16.14	46.00	3.53	100	261	Horizontal
5	640.13	39.32	23.03	46.00	6.68	100	216	Horizontal
6	903	36.94	29.44	46.00	9.06	100	150	Horizontal

Result: Pass

Radiated Emission Test Results at 30MHz-1GHz			
EUT Name	IP Camera	**Model Name**	B800W
Temperature	25°C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11n(20MHz)_5180MHz	**Polarity:**	Vertical



Peak Data List

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.82	33.92	11.52	40.00	6.08	100	353	Vertical
2	42.61	33.29	11.55	40.00	6.71	100	174	Vertical
3	67.83	32.39	15.36	40.00	7.61	100	211	Vertical
4	99.84	34.31	17.03	43.50	9.19	100	26	Vertical
5	640.13	38.11	23.03	46.00	7.89	100	120	Vertical
6	901.06	38.23	30.00	46.00	7.77	100	289	Vertical

Result: Pass

Note:

1. Factor=Antenna Factor + Cable loss, Margin=Limit-Level.
2. All test modes had been pre-tested, refer to chapter 5 of the report for details.

Radiated Emissions Test Results Above 1GHz

EUT Name	IP Camera	**Model Name**	B800W
Temperature	25°C	**Relative Humidity**	60%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11n20_5180MHz	**Antenna**	Horizontal/Vertical

Radiated Emission Above 1GHz–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10360.042	47.61	9.14	56.75	68.20	-11.45	peak
15540.063	40.35	10.22	50.57	74.00	-23.43	peak
15540.063	32.49	10.22	42.71	54.00	-11.29	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated Emission Above 1GHz–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10360.042	47.69	9.14	56.83	68.20	-11.37	peak
15540.063	41.68	10.22	51.90	74.00	-22.10	peak
15540.063	32.45	10.22	42.67	54.00	-11.33	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Result: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20_5200MHz	Antenna	Horizontal/Vertical

Radiated Emission Above 1GHz–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10400.042	48.65	9.14	57.79	68.20	-10.41	peak
15600.063	32.45	10.22	42.67	74.00	-31.33	peak
15600.063	33.19	10.22	43.41	54.00	-10.59	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated Emission Above 1GHz–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10400.042	48.64	9.14	57.78	68.20	-10.42	peak
15600.063	40.56	10.22	50.78	74.00	-23.22	peak
15600.063	31.26	10.22	41.48	54.00	-12.52	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Result: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20_5240MHz	Antenna	Horizontal/Vertical

Radiated Emission Above 1GHz–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10480.042	48.65	9.27	57.92	68.20	-10.28	peak
15720.063	42.35	10.38	52.73	74.00	-21.27	peak
15720.063	31.26	10.38	41.64	54.00	-12.36	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated Emission Above 1GHz–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10480.042	48.65	9.27	57.92	68.20	-10.28	peak
15720.063	41.26	10.38	51.64	74.00	-22.36	peak
15720.063	32.69	10.38	43.07	54.00	-10.93	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Result: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20_5260MHz	Antenna	Horizontal/Vertical

Radiated Emission Above 1GHz–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10520.022	48.65	9.14	57.79	68.20	-10.41	peak
15780.054	42.34	10.22	52.56	74.00	-21.44	peak
15780.054	31.59	10.22	41.81	54.00	-12.19	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated Emission Above 1GHz–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10520.022	48.65	9.14	57.79	68.20	-10.41	peak
15780.054	42.19	10.22	52.41	74.00	-21.59	peak
15780.054	31.26	10.22	41.48	54.00	-12.52	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Result: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20_5300MHz	Antenna	Horizontal/Vertical

Radiated Emission Above 1GHz–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10600.022	48.62	9.14	57.76	74.00	-16.24	peak
10600.022	37.54	9.14	46.68	54.00	-7.32	AVG
15900.045	42.16	10.22	52.38	74.00	-21.62	peak
15900.045	31.28	10.22	41.50	54.00	-12.50	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated Emission Above 1GHz–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10600.022	47.91	9.14	57.05	74.00	-16.95	peak
10600.022	37.54	9.14	46.68	54.00	-7.32	AVG
15900.045	41.05	10.22	51.27	74.00	-22.73	peak
15900.045	30.36	10.22	40.58	54.00	-13.42	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Result: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20_5320MHz	Antenna	Horizontal/Vertical

Radiated Emission Above 1GHz–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10640.015	48.34	9.14	57.48	74.00	-16.52	peak
10640.015	37.94	9.14	47.08	54.00	-6.92	AVG
15900.045	42.54	10.22	52.76	74.00	-21.24	peak
15900.045	31.26	10.22	41.48	54.00	-12.52	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated Emission Above 1GHz–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10640.015	48.65	9.14	57.79	74.00	-16.21	peak
10640.015	37.53	9.14	46.67	54.00	-7.33	AVG
15900.045	42.15	10.22	52.37	74.00	-21.63	peak
15900.045	31.26	10.22	41.48	54.00	-12.52	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Result: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20_5500MHz	Antenna	Horizontal/Vertical

Radiated Emission Above 1GHz–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11000.056	48.65	9.14	57.79	74.00	-16.21	peak
11000.056	37.42	9.14	46.56	54.00	-7.44	AVG
16500.023	42.06	10.22	52.28	68.20	-15.92	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated Emission Above 1GHz–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11000.056	48.64	9.14	57.78	74.00	-16.22	peak
11000.056	37.42	9.14	46.56	54.00	-7.44	AVG
16500.023	42.06	10.22	52.28	68.20	-15.92	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Result: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20_5580MHz	Antenna	Horizontal/Vertical

Radiated Emission Above 1GHz–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11200.022	48.64	9.14	57.78	74.00	-16.22	peak
11200.022	37.53	9.14	46.67	54.00	-7.33	AVG
16800.025	42.16	10.22	52.38	68.20	-15.82	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated Emission Above 1GHz–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11200.022	48.65	9.14	57.79	74.00	-16.21	peak
11200.022	37.42	9.14	46.56	54.00	-7.44	AVG
16800.025	42.16	10.22	52.38	68.20	-15.82	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Result: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.1n20_5700MHz	Antenna	Horizontal/Vertical

Radiated Emission Above 1GHz–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11400.025	48.62	9.14	57.76	74.00	-16.24	peak
11400.025	37.42	9.14	46.56	54.00	-7.44	AVG
17100.056	42.16	10.22	52.38	68.20	-15.82	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated Emission Above 1GHz–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11400.025	48.64	9.14	57.78	74.00	-16.22	peak
11400.025	37.21	9.14	46.35	54.00	-7.65	AVG
17100.056	41.69	10.22	51.91	68.20	-16.29	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Result: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20_5745MHz	Antenna	Horizontal/Vertical

Radiated Emission Above 1GHz–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11490.042	48.62	9.42	58.04	74.00	-15.96	peak
11490.042	37.53	9.42	46.95	54.00	-7.05	AVG
17235.063	42.16	10.51	52.67	68.20	-15.53	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated Emission Above 1GHz–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11490.042	47.68	9.42	57.10	74.00	-16.90	peak
11490.042	37.42	9.42	46.84	54.00	-7.16	AVG
17235.063	41.06	10.51	51.57	68.20	-16.63	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Result: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20_5785MHz	Antenna	Horizontal/Vertical

Radiated Emission Above 1GHz–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11570.042	47.69	9.42	57.11	74.00	-16.89	peak
11570.042	38.54	9.42	47.96	54.00	-6.04	AVG
17355.063	41.06	10.51	51.57	68.20	-16.63	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated Emission Above 1GHz–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11570.042	48.62	9.42	58.04	74.00	-15.96	peak
11570.042	37.95	9.42	47.37	54.00	-6.63	AVG
17355.063	42.55	10.51	53.06	68.20	-15.14	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Result: Pass

EUT Name	IP Camera	Model Name	B800W
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n20_5825MHz	Antenna	Horizontal/Vertical

Radiated Emission Above 1GHz–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11650.042	48.91	9.62	58.53	74.00	-15.47	peak
11650.042	37.56	9.62	47.18	54.00	-6.82	AVG
17475.063	42.16	10.75	52.91	68.20	-15.29	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Radiated Emission Above 1GHz–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11650.042	47.69	9.62	57.31	74.00	-16.69	peak
11650.042	37.14	9.62	46.76	54.00	-7.24	AVG
17475.063	40.35	10.75	51.10	68.20	-17.10	peak
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Result: Pass

Note:

1. The amplitude of other spurious emissions from 1GHz to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.
2. Factor = Antenna Factor + Cable loss - Amplifier gain, Margin=Emission Level-Limit.
3. The “Factor” value can be calculated automatically by software of measurement system.
4. All test modes had been pre-tested. Refer to chapter 5 of the report for details.

7. AC Power Line Conducted Emission Test

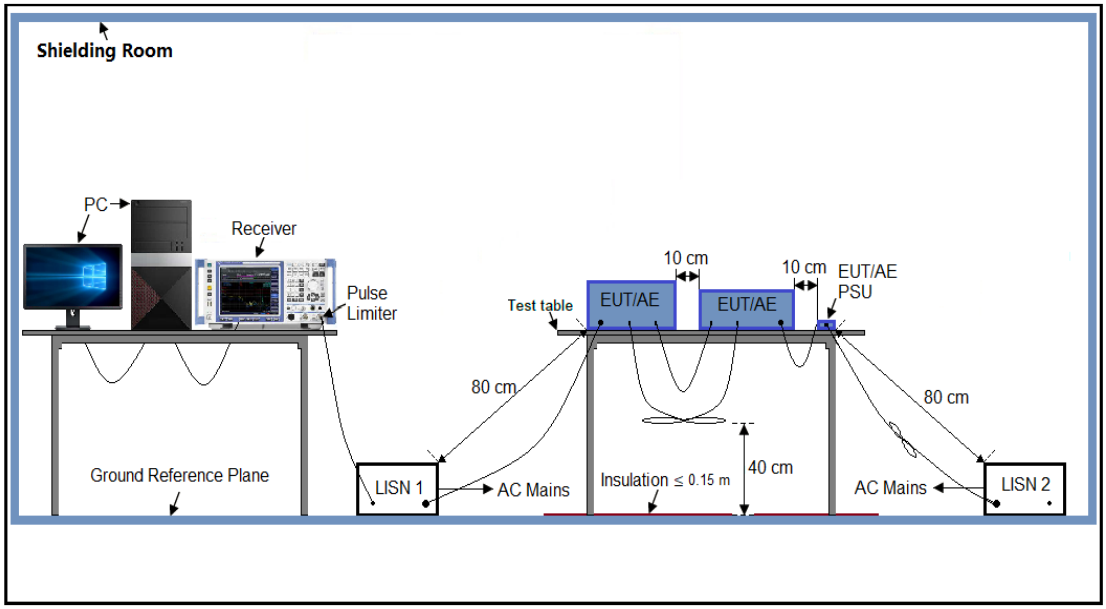
7.1 Measurement limit

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 0.50MHz.

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 charging voltage by adapter which received 120V/60Hzpower by a LISN.
6. The test program was started. Emissions were measured on each current carrying line of the EUT using 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.

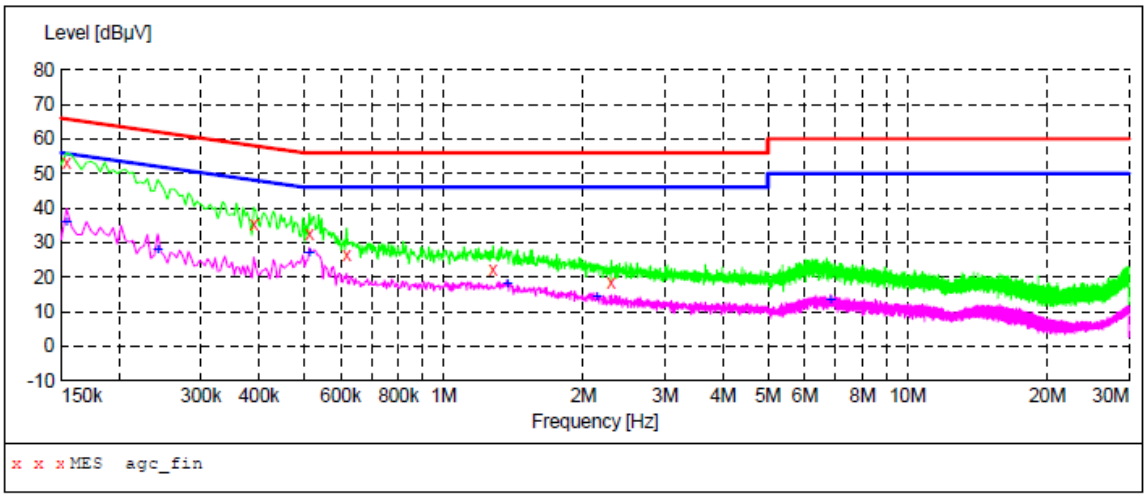
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

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.
4. All test modes had been pre-tested, refer to chapter 5 of the report for details.

12.5 Test Result of Line Conducted Emission Test

AC Power Line Conducted Emission Test			
Test Mode	802.11n(20MHz)5180MHz	LISN Line	Hot Side



MEASUREMENT RESULT: "agc_fin"

2024/5/28 20:58

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.154000	53.10	6.1	66	12.7	QP	L1
0.390000	35.40	6.1	58	22.7	QP	L1
0.514000	32.30	6.2	56	23.7	QP	L1
0.618000	26.40	6.2	56	29.6	QP	L1
1.278000	22.40	6.2	56	33.6	QP	L1
2.298000	18.40	6.3	56	37.6	QP	L1

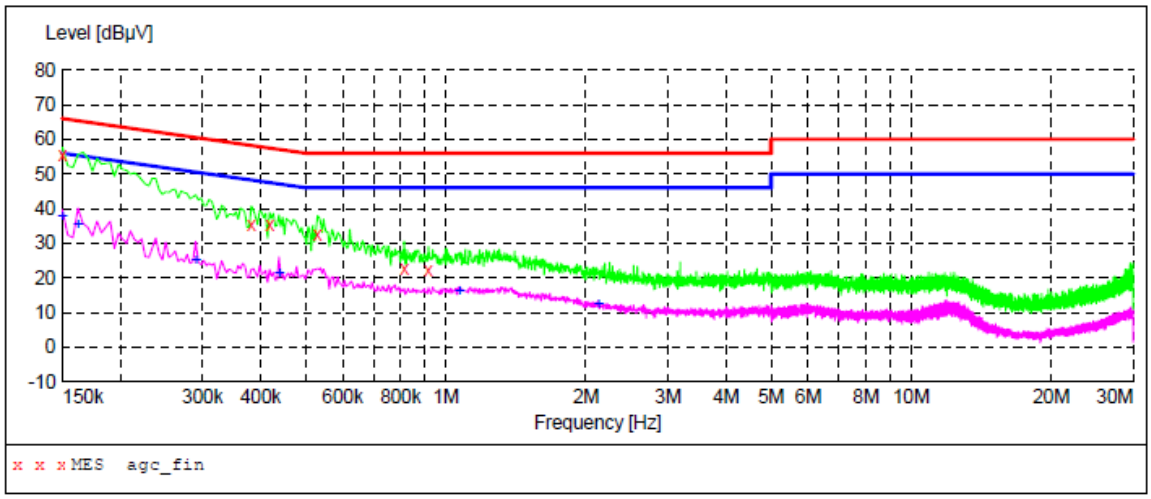
MEASUREMENT RESULT: "agc_fin2"

2024/5/28 20:58

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.154000	35.70	6.1	56	20.1	AV	L1
0.242000	28.00	6.1	52	24.0	AV	L1
0.514000	26.90	6.2	46	19.1	AV	L1
1.370000	18.00	6.2	46	28.0	AV	L1
2.138000	14.00	6.2	46	32.0	AV	L1
6.826000	13.10	6.5	50	36.9	AV	L1

Result: Pass

AC Power Line Conducted Emission Test			
Test Mode	802.11n(20MHz)5180MHz	LISN Line	Neutral Side



MEASUREMENT RESULT: "agc_fin"

2024/5/28 20:55

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000	55.40	6.1	66	10.6	QP	N
0.382000	35.50	6.1	58	22.7	QP	N
0.418000	35.20	6.1	58	22.3	QP	N
0.530000	32.60	6.2	56	23.4	QP	N
0.814000	22.70	6.2	56	33.3	QP	N
0.918000	22.40	6.2	56	33.6	QP	N

MEASUREMENT RESULT: "agc_fin2"

2024/5/28 20:55

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000	37.50	6.1	56	18.5	AV	N
0.162000	35.20	6.1	55	20.2	AV	N
0.290000	25.10	6.1	51	25.4	AV	N
0.438000	21.30	6.1	47	25.8	AV	N
1.070000	16.20	6.2	46	29.8	AV	N
2.130000	12.30	6.2	46	33.7	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----

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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").

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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.