



FCC Test Report

Report No.: AGC11034220801FE10

FCC ID : 2AYHE-2205A

PRODUCT DESIGNATION: Video Doorbell

BRAND NAME : Reolink

MODEL NAME : Reolink Video Doorbell PoE

APPLICANT: Reolink Innovation Limited

DATE OF ISSUE : Sep. 28, 2022

STANDARD(S) : FCC Part 15 Subpart C §15.231

REPORT VERSION: V 1.0

Attestation of Global Co., Ltd





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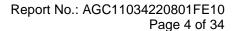
REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Sep. 28, 2022	Valid	Initial Release



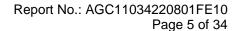
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1. GENERAL INFORMATION

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	Video Doorbell		
Brand Name	Reolink		
Test Model	Reolink Video Doorbell PoE		
Deviation from Standard	No any deviation from the test method		
Date of Test	Sep. 15, 2022 to Sep. 28, 2022		
Test Result	Pass		
Test Report Form No	AGCTR-ER-FCC-ID V1.0		

Prepared By	Bibo zhay		
	Bibo Zhang (Project Engineer)	Sep. 28, 2022	
Reviewed By	Calin Lin		
	Calvin Liu (Reviewer)	Sep. 28, 2022	
Approved By	Max Zhang		
	Max Zhang (Authorized Officer)	Sep. 28, 2022	



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2. PRODUCT INFORMATION

2.1 PRODUCT TECHNICAL DESCRIPTION

Hardware Version	PWR25 V120,N66C03 V110
Software Version	V1.0
Operation Frequency	433.92MHz
Modulation Type	ООК
Number of channels	1
Field Strength of Fundamental	433.92MHz: 85.47dBuV/m(PK)@3m 433.92MHz: 78.48dBuV/m(AV)@3m
Antenna Designation	FPC Antenna
Antenna Gain	-3dBi
Power Supply	DC 48V by POE

2.2 TEST FREQUENCY LIST

Frequency Band Channel Number		Frequency	
	01	433.92 MHz	

Note: According to manufacturer's requirements, periodic operation in the band 40.66-40.70 MHz and above 70 MHz



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2.3 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AYHE-2205A**, filing to comply with Part 2, Part 15 of the Federal Communication Commission rules.

2.4 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	

2.5 SPECIAL ACCESSORIES

Not available for this EUT intended for grant.

2.6 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.7 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 antennathat uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a brokenantenna 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 is 3 dBi.



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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 be in compliance with 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 be in compliance with 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.



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3.3 ENVIRONMENTAL CONDITIONS

NORMAL CONDITIONS	EXTREME CONDITIONS	
15 - 35	-20 - 50	
20 % - 75 %	20 % - 75 %	
86 - 106	86 - 106	
	15 - 35 20 % - 75 % 86 - 106	

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	$U_c = \pm 3.1 \text{ dB}$	
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 4.0 \text{ dB}$	
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.8 \text{ dB}$	
Uncertainty of total RF power, conducted	$U_c = \pm 0.8 \text{ dB}$	
Uncertainty of RF power density, conducted	$U_c = \pm 2.6 \text{ dB}$	
Uncertainty of spurious emissions, conducted	$U_c = \pm 2 \%$	
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2 \%$	



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3.5 LIST OF EQUIPMENTS USED

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Mar. 28, 2022	Mar. 27, 2023
LISN	R&S	ESH2-Z5	100086	Jun. 08, 2022	Jun. 07, 2023
Test software	R&S	ES-K1(Ver.V1.71)	N/A	N/A	N/A
TEST RECEIVER	R&S	ESCI	10096	Mar. 28, 2022	Mar. 27, 2023
EXA Signal Analyzer	Aglient	N9010A	MY5347050 4	Nov. 17, 2021	Nov. 16, 2022
2.4GHz Filter	EM Electronics	2400-2500MHz	N/A	Mar. 22, 2022	Mar. 21, 2024
Attenuator	ZHINAN	E-002	N/A	Aug. 03, 2022	Aug. 02, 2024
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 31, 2021	Oct. 30, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Mar. 12, 2022	Mar. 21, 2024
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Apr. 23, 2021	Apr. 22, 2023
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 08, 2020	Jan. 07, 2023
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A



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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

Radiated Emission Configure:

Conducted Emission Configure:

EUT	AE

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

Item	Equipment	Model No.	Identifier	Note
2	100M network cable	N/A	N/A	AE
3	adapter	GYS-A5010S1	N/A	AE
4	TF Card	SDSQUNC-032G-ZN6MA	N/A	AE

☐ Test Accessories Come From The Manufacturer

Item	Equipment	Model No.	Identifier	Note
1	Video Doorbell	Reolink Video Doorbell PoE	2AYHE-2205A	EUT



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4.5 SUMMARY OF TEST RESULTS

Item	FCC Rules	Description Of Test	Result
1	§15.203	Antenna Equipment	Pass
2	§15.231(a)	Transmission Time (Activated automatically)	Pass
3	§15.231	Field Strength of Fundamental	Pass
4	§15.209	Radiated Emission	Pass
5	§15.205(a)	Restricted Bands of Operation	Pass
6	§15.231(c)	20dB Bandwidth	Pass
7	§15.207	AC Power Line Conducted Emission	Pass



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5. DESCRIPTION OF TEST MODES

Summary table of Test Cases			
	Data Rate / Modulation		
Test Item Short-range equipment / OOK			
Radiated&Conducted Test Cases	Mode 1: Tx _433.92 MHz		
AC Conducted Emission	Mode 1: Tx _433.92 MHz		

Note:

- Only the result of the worst case was recorded in the report, if no other cases.
- The battery is full-charged during the test.
- For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- For Conducted Test method, a temporary antenna connector is provided by the manufacture.



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6. PROVISION FOR MOMENTARY OPERATION

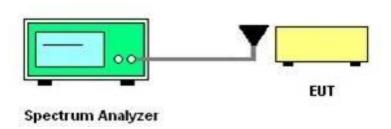
6.1 PROVISIONS APPLICABLE

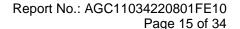
	(1)	A manually operated transmitter shall employ a switch that will automatically deactivate the
		transmitter within not more than 5 seconds of being released.
\boxtimes	(2)	A transmitter activated automatically shall cease transmission within 5 seconds after activation.
	(3)	Periodic transmissions at regular predetermined intervals are not permitted.
		However, polling or supervision transmissions, including data, to determine system integrity of
		transmitters used in security or safety applications are allowed if the total duration of transmissions
		does not exceed more than two seconds per hour for each transmitter. There is no limit on the
		number of individual transmissions, provided the total transmission time does not exceed two
		seconds per hour.
	(4)	Intentional radiators which are employed for radio control purposes during emergencies
		involving fire, security, and safety of life, when activated to signal an alarm, may operate during the
		pendency of the alarm condition.
	(5)	Transmission of set-up information for security systems may exceed the transmission duration
		limits in (1) and (2) above, provided such transmission are under the control of a professional
		installer and do not exceed ten seconds after a manually operated switch is released or a transmitter
		is activated automatically. Such set-up information may include data.

6.2 MEASUREMENT PROCEDURE

- 1. Set the parameters of SPA as below:
- 2. Centre frequency = Operation Frequency
- 3. RBW=1MHz, VBW=3MHz Span: 0Hz Sweep time: 10S
- 4. Set the EUT to transmit by manually operated. Use the "View" function of SPA to find the transmission time of being released.
- Record the data and Reported.

6.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)







6.4 MEASUREMENT RESULTS

Test Mode	Test Channel (MHz)	The time of stopping transmission after automatically activation by alarm sensor (s)	Limits	Pass or Fail
OOK	433.92	0.158	5s	Pass

Test Graphs Of Launch Operation Time Center Freq 433.920000 MHz
PN0: Fast
IFGain:Low Frequency Avg Type: Log-Pwr Trig: Free Run #Atten: 30 dB **Auto Tune** ΔMkr1 1.580 s 0.33 dB Ref 20.00 dBm Center Freq 433.920000 MHz Start Freq 433.920000 MHz Stop Freq 433.920000 MHz Center 433.920000 MHz Res BW 1.0 MHz Span 0 Hz Sweep 20.00 s (1001 pts) **CF Step** 1.000000 MHz #VBW 1.0 MHz Man FUNCTION FUNCTION WIDTH 0.33 dB -53.29 dBm Freq Offset STATUS



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7. DUTY CYCLE CORRECTION FACTOR

7.1 PROVISIONS APPLICABLE

According to FCC Part 15.231 (b)(2) and 15.35 (c), For pulse operation transmitter, the averaging pulsed emissions are calculated by peak value of measured emission plus duty cycle factor.

7.2 MEASUREMENT PROCEDURE

After the antenna of the EUT is connected, the output signal of the EUT is received by the connected test

To the spectrum analyzer. Set the center frequency to the actual working frequency of the EUT, and then set the spectrum analyzer to Zero Span for

Release time reading. During the test, the switch is released and the EUT is automatically closed

1. Set the parameters of SPA as below:

Centre frequency = Operation Frequency

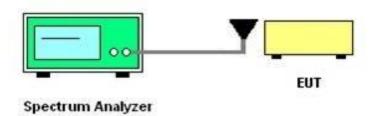
RBW=1MHz, VBW=3MHz

Span: 0Hz

Sweep time: more than two pulse trains or more than each type of pulse occupancy time

- 2. Set the EUT to transmit by manually operated. Use the "Delta mark" function of SPA to find the period time between two pulse trains and each type of pulse occupancy time.
- 3. Record the plots and Reported.

7.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)



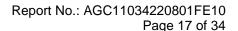
7.4 MEASUREMENT RESULTS

Type of Pules	Width of Pules (ms)	Quantity of Pules (pcs)	Transmission Time (ms)	Total Time (Ton) (ms)
Pules 1	0.965	14	13.51	17.36
Pules 2	0.350	11	3.850	17.30

Test Period (Tp)	Total Time (Ton)	Duty Cycle	Duty Cycle Correction Factor
(ms)	(ms) `	(%)	(dB)
38.80	17.36	44.74	-6.99

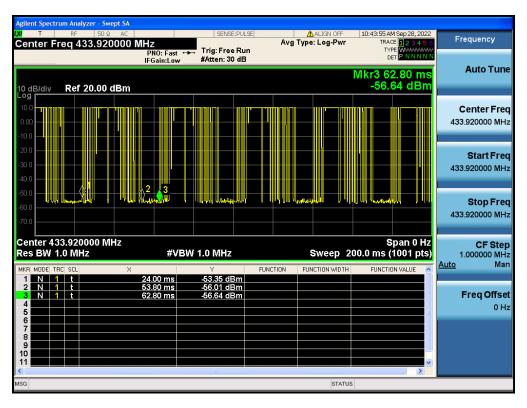
NOTE 1: Duty Cycle Factor=20 log (Duty Cycle) =-6.99

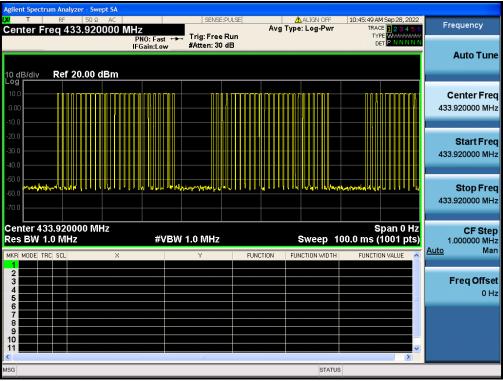
NOTE 2: The maximum reference value of the test cycle is 100ms.





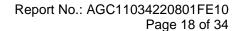
Test Graphs of Test Period



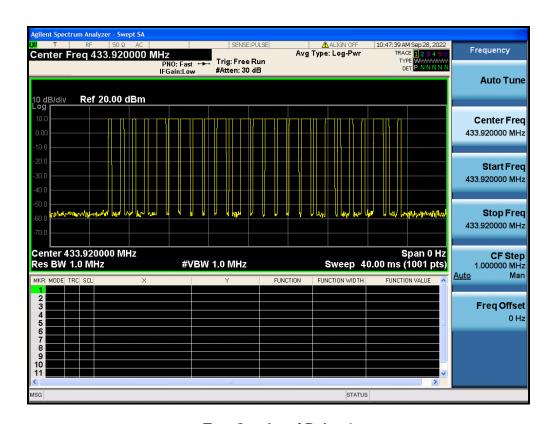


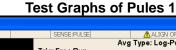
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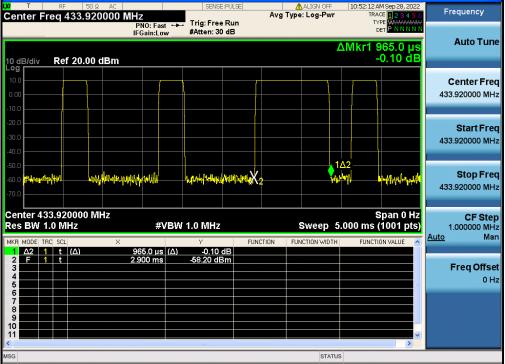
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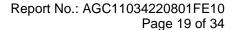






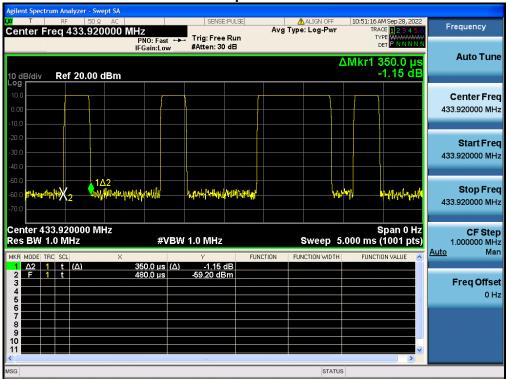












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8. 20 dB BANDWIDTH

8.1 PROVISIONS APPLICABLE

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

8.2 MEASUREMENT PROCEDURE

1. Set the parameters of SPA as below:

Centre frequency = Operation Frequency

RBW=10KHz

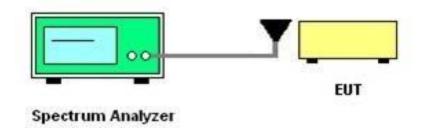
VBW=30KHz

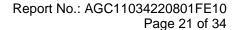
Span: 1MHz

Sweep time: Auto

- 2. Set the EUT to continue transmitting mode. Allow the trace to stabilize. Use the "N dB down" function of SPA to define the bandwidth.
- 3. Record the plots and Reported.

8.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)



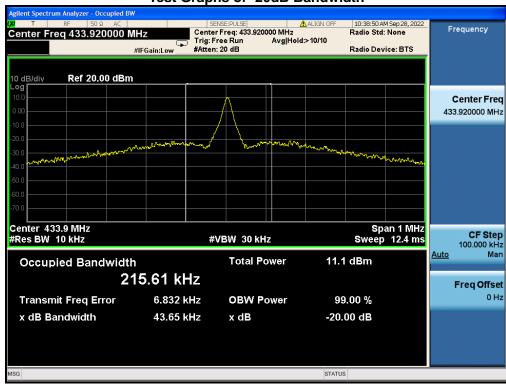




7.4 MEASUREMENT RESULTS

Test Data of Occupied Bandwidth and -20dB Bandwidth				
Test Mode	Test Channel (MHz)	-20dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
OOK	433.92	0.04365	N/A	Pass

Test Graphs of -20dB Bandwidth





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7. RADIATED EMISSION

7.1 LIMITS OF RADIATED EMISSION TEST

15.209 Limit in the below table has to be followed:

Frequency	Distance	Field Strengths Limit		
(MHz)	Meters	μ V/m	dB(μV)/m	
0.009 ~ 0.490	300	2400/F(kHz)		
0.490 ~ 1.705	30	24000/F(kHz)		
1.705 ~ 30	30	30		
30 ~ 88	3	100	40.0	
88 ~ 216	3	150	43.5	
216 ~ 960	3	200	46.0	
960 ~ 1000	3	500	54.0	
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)		

Remark:

- (1) Emission level dB μ V = 20 log Emission level μ V/m
- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

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

15.231(b) Limit in the below table has to be followed:

Fundamental Frequency	Field Strength of Fundamental (microvolts/meter)	Field Strength of Harmonics (microvolts/meter)
40.66-40.70MHz	2250	225
70-130MHz	1250	125
130-174MHz	1250 to 3750	125 to 375
174-260MHz	3750	375
260-470MHz	3750 to 12500	375 to 1250
Above 470MHz	12500	1250



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15.231(e) Limit in the below table has to be followed:

Fundamental Frequency	Field Strength of Fundamental (microvolts/meter)	Field Strength of Harmonics (microvolts/meter)		
40.66-40.70MHz	1000	225		
70-130MHz	1250	125		
130-174MHz	1250 to 3750	125 to 375		
174-260MHz	3750	375		
260-470MHz	3750 to 12500	375 to 1250		
Above 470MHz	12500	1250		

7.2 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.
- 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.



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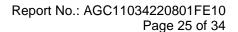
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured 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			

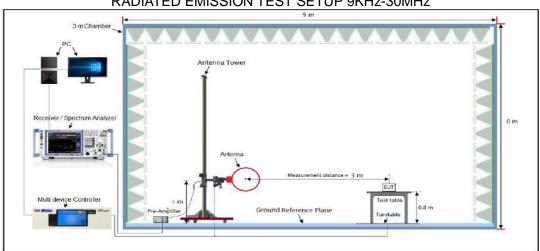
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP



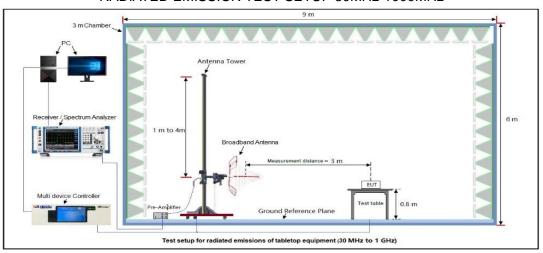


7.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

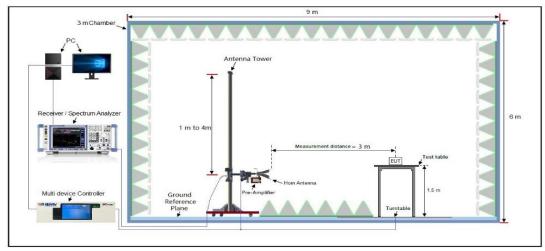
RADIATED EMISSION TEST SETUP 9KHz-30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz





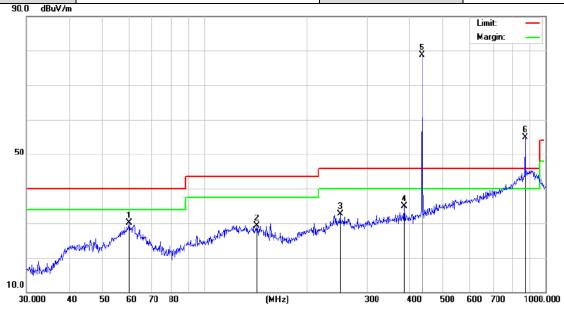
7.4 MEASUREMENT RESULT

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 FROM 30MHz ~1000MHz

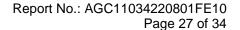
EUT	Video Doorbell	Model Name	Reolink Video Doorbell PoE				
Temperature	21° C	Relative Humidity	53%				
Pressure	960hPa	Test Voltage	Normal Voltage				
Test Mode	Mode 1	Antenna	Horizontal				



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		60.0691	13.72	16.44	30.16	40.00	-9.84	peak
2		141.8262	13.77	15.51	29.28	43.50	-14.22	peak
3		249.4250	14.29	18.50	32.79	46.00	-13.21	peak
4		383.9318	16.46	18.48	34.94	46.00	-11.06	peak
5	*	433.9200	58.93	19.81	78.74	100.82	-22.08	peak
6	X	869.1302	24.47	30.49	54.96	80.82	-25.86	peak

Final	Final data result_ Average Detection							
NO.	Freq. [MHz]	PK Level [dBµV/m]	Duty cycle factor(dB)	AV Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Polarity	
1	433.9200	78.74	-6.99	71.75	80.82	-9.07	Horizontal	
2	869.1302	54.96	-6.99	47.97	60.82	-12.85	Horizontal	

RESULT: PASS



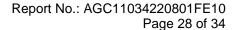


EUT		Vic	deo D	oorbel	l			Model	Name			Video Doorbell
Temperature		21	° C					Relativ	Relative Humidity 53%			
Pressure			OhPa					Test Vo		_		Voltage
Test Mode	N/m	IVIC	ode 1					Antenr	ıa		Vertical	
30.0 400.0									5 X		Limit: Margin:	
		_										
		_										
50												6 [
50												×
		\bot										44
		\perp	2		3				with appropriate the des	mlh./p ^{n/m/n}	Married Married	
	LLANGONIA.	ord Julio	pt, lith winds.	walkan ka	Photograph Andrews and Photograph	Manufactural participation of	White I	AND LANGE	served by My Man.			
and/objects.	Y .				- Apply		"MAN	W				
10.0 30.000	40	50	60	70 80		(MHz)		30	0 400	500 6	00 700	1000.000
					Reading			Measure		-		
	No.	Mk	. 1	req.	Level	Fac	tor	ment	Limit	Ove	er	
				MHz	dBuV	dE	3	dBu∀/m	dB/m	dB	Dete	ector
	1		40.	1347	13.16	16.0	07	29.23	40.00	-10.	77 pe	eak
	2		63.	5356	13.65	17.9	95	31.60	40.00	-8.4	10 pe	eak
	3		118.	1861	13.54	18.	52	32.06	43.50	-11.	44 pe	eak
	4		283.	9791	13.75	20.8	35	34.60	46.00	-11.	40 pe	eak
	5	_					24	0E 74	46.00	39.7	71 ne	eak
		*	433.	9200	65.70	20.0	וע	85.71	40.00	00.1	ri pe	an
		X	433. 869.		65.70 16.19	33.3		49.52	46.00	3.5		eak
Final data resu	6		869.	1301	16.19							
Final data results NO. Freq. [MHz]	6 I lt_Av		869. ge De	1301 etectio	16.19	33.0	33 AV			3.5		
NO Freq.	6 Ilt_Av PK [dE	eraç (Lev	869. ge De /el m]	1301 etectio	16.19 n	33.0	AV [dE	49.52 'Level	46.00 Limit	3.5	2 pe	eak

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Over=Measurement-Limit.

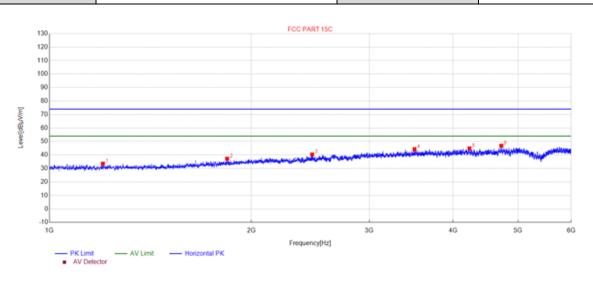
2. All test modes had been pre-tested. The mode 1 is the worst case and recorded in the report.





RADIATED EMISSION FROM ABOVE 1GHZ

EUT	Video Doorbell	Model Name	Reolink Video Doorbell PoE
Temperature	21° C	Relative Humidity	53%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1201.5202	33.55	-19.88	74.00	40.45	150	130	Horizontal
2	1840.5841	37.20	-17.27	74.00	36.80	150	70	Horizontal
3	2464.6465	40.34	-13.33	74.00	33.66	150	10	Horizontal
4	3503.7504	44.26	-9.69	74.00	29.74	150	220	Horizontal
5	4230.8231	44.84	-7.82	74.00	29.16	150	160	Horizontal
6	4720.8721	46.83	-6.98	74.00	27.17	150	320	Horizontal

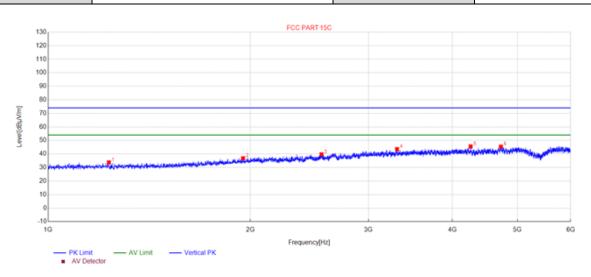
RESULT: PASS



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RADIATED EMISSION FROM ABOVE 1GHZ

EUT	Video Doorbell	Model Name	Reolink Video Doorbell PoE
Temperature	21° C	Relative Humidity	53%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1231.5232	33.77	-19.88	74.00	40.23	150	320	Vertical
2	1951.0951	36.79	-16.40	74.00	37.21	150	220	Vertical
3	2553.1553	39.70	-12.92	74.00	34.30	150	40	Vertical
4	3308.2308	43.57	-10.29	74.00	30.43	150	320	Vertical
5	4258.3258	45.57	-7.79	74.00	28.43	150	250	Vertical
6	4723.3723	45.40	-6.97	74.00	28.60	150	170	Vertical

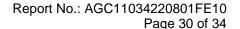
RESULT: PASS

Note:

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.

Factor = Antenna Factor + Cable loss - Amplifier gain, Margin=Limit-Level.

The "Factor" value can be calculated automatically by software of measurement system.





8. AC LINE CONDUCTED EMISSION TEST

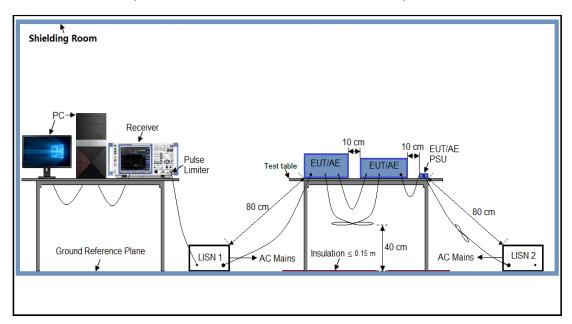
8.1 LIMITS OF LINE CONDUCTED EMISSION TEST

Francisco	Maximum RF Line Voltage					
Frequency	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.

8.2 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)





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8.3 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.

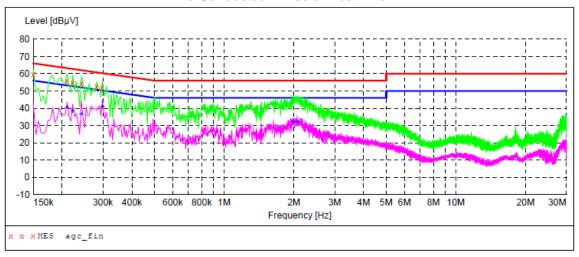
8.4 FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 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 condition(s) was reported on the Summary Data page.



8.5 MEASUREMENT RESULTS

Line Conducted Emission Test Line 1-L



MEASUREMENT RESULT: "agc fin"

2022/9/16 23:46

20	22/9/16 23:	46					
	Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
	0.150000	59.70	6.9	66	6.3	QP	L1
	0.210000	55.50	6.5	63	7.7	QP	L1
	0.222000	54.90	6.4	63	7.8	QP	L1
	0.242000	54.20	6.3	62	7.8	QP	L1
	0.282000	52.50	6.1	61	8.3	QP	L1
	0.298000	52.10	6.0	60	8.2	QP	L1

MEASUREMENT RESULT: "agc fin2"

2022/9/16 23:47

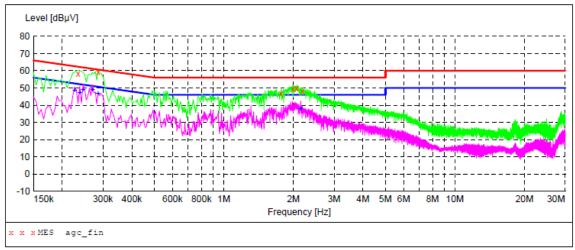
2022/3/10 20:17								
	Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	
	0.210000	40.30	6.5	53	12.9	AV	L1	
	0.222000	38.40	6.4	53	14.3	AV	L1	
	0.242000	36.70	6.3	52	15.3	AV	L1	
	0.298000	40.90	6.0	50	9.4	AV	L1	
	1.986000	32.00	6.5	46	14.0	AV	L1	
	2.066000	31.90	6.5	46	14.1	AV	L1	

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MEASUREMENT RESULT: "agc fin"

2022/9/16 23:50

/22/ 5/10 25.	50					
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.234000	58.20	6.3	62	4.1	QP	N
0.286000	58.90	6.1	61	1.7	QP	N
1.770000	46.80	6.3	56	9.2	QP	N
1.990000	49.50	6.5	56	6.5	QP	N
2.070000	49.70	6.5	56	6.3	QP	N
2.194000	47.90	6.5	56	8.1	QP	N
	Frequency MHz 0.234000 0.286000 1.770000 1.990000 2.070000	MHz dBμV 0.234000 58.20 0.286000 58.90 1.770000 46.80 1.990000 49.50 2.070000 49.70	Frequency MHz dBμV dB 0.234000 58.20 6.3 0.286000 58.90 6.1 1.770000 46.80 6.3 1.990000 49.50 6.5 2.070000 49.70 6.5	Frequency MHz dBμV dB dBμV 0.234000 58.20 6.3 62 0.286000 58.90 6.1 61 1.770000 46.80 6.3 56 1.990000 49.50 6.5 56 2.070000 49.70 6.5 56	Frequency MHz dBμV dB dBμV dB 0.234000 58.20 6.3 62 4.1 0.286000 58.90 6.1 61 1.7 1.770000 46.80 6.3 56 9.2 1.990000 49.50 6.5 56 6.5 2.070000 49.70 6.5 56 6.3	Frequency MHz dBμV dB dBμV dB Detector dBμV dB dBμV dB Detector dBμV dB dBμV dB Detector dB dBμV dB dBμV dB Detector dB dBμV dB dBμV dB dBμV dB dBμV dB dBμV dB dB dB dBμV dB dB dB dBμV dB dB dB dB dBμV dB dB dBμV dB dB dB dB dBμV dB

MEASUREMENT RESULT: "agc fin2"

2022/9/16 23:51

-	122/3/16 23.	JI					
	Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
	0.226000	48.40	6.4	53	4.2	AV	N
	0.238000	47.00	6.3	52	5.2	AV	N
	0.246000	49.10	6.3	52	2.8	AV	N
	0.270000	48.90	6.2	51	2.2	AV	N
	0.286000	46.90	6.1	51	3.7	AV	N
	2.150000	37.80	6.5	46	8.2	AV	N

RESULT: PASS

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



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APPENDIX I: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC11034220801AP03

APPENDIX II: PHOTOGRAPHS OF TEST EUT

Refer to the Report No.: AGC11034220801AP04

----END OF REPORT----



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