Prüfbericht-Nr.: *Test report no.:*	**CN22JRLV 001**	**Auftrags-Nr.:** *Order no.*:	**168382588**	**Seite 1 von 17** *Page 1 of* 17
Kunden-Referenz-Nr.: *Client reference no.:*	N/A	**Auftragsdatum:** *Order date:*	2022-07-19	
Auftraggeber: *Client:*	**Hangzhou Hikvision Digital Technology Co., Ltd.** No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China			
Prüfgegenstand: *Test item:*	Wireless Double PIR Detector			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	DS-PDP18-HM-WB, DS-PDP18-HM-WBUHK, DS-PDP18-HM-WBCKV, DS-PDP18-HM-WBUVS, DS-PDP18-HM-WBKVO, DS-PDP18-HM-WBHUN			
Auftrags-Inhalt: *Order content*:	Test Report			
Prüfgrundlage: *Test specification:*	FCC 47 CFR Part 15.203 FCC 47 CFR Part 15.231 FCC 47 CFR Part 2.1093			

Wareneingangsdatum: *Date of sample receipt:*	2022-07-22	Refer to Photo Documentation
Prüfmuster-Nr.: *Test sample no:*	A003305349-002	
Prüfzeitraum: *Testing period:*	2022-08-12 to 2022-08-19	
Ort der Prüfung: *Place of testing:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüfergebnis*: *Test result*:*	Pass	

geprüft von: *tested by:*	X Bell Hu	**genehmigt von:** *authorized by:*	X Hardy Suo
Datum: *Date:* 2022-08-24		**Ausstellungsdatum:** *Issue date:* 2022-08-24	
Stellung / *Position:*	Sachverständige(r) / Expert	**Stellung** / *Position:*	Sachverständige(r) / Expert

Sonstiges / *Other:* FCC ID: 2ADTD-D2818071

FCC 47 CFR Part 2.1093 is not in the A2LA accreditation scope, because the product complies with requirements of test standard FCC 47 CFR Part 2.1093 by calculated method, not involves testing.

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
** Legend:*	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

TEST SUMMARY

5.1.1 Antenna Requirement
RESULT: Pass
5.1.2 Deactivation of the Transmission
RESULT: Pass
5.1.3 Periodic Transmissions
RESULT: Pass
5.1.4 20dB Emission Bandwidth
RESULT: Pass
5.1.5 Field strength of fundamental and Unwanted Emissions in the Spurious Domain
RESULT: Pass
5.1.6 Radio Frequency Exposure Compliance
RESULT: Pass

CONTENTS

1. GENERAL REMARKS

1.1 COMPLEMENTARY MATERIALS

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of radio spectrum

Appendix B: Photographs of the Test Set-Up

1.2 TEST STANDARD(S)

Applied Rules:	FCC 47 CFR Part 15.203 FCC 47 CFR Part 15.231 FCC 47 CFR Part 2.1093
Test Method:	ANSI C63.10:2013

2. TEST SITES

2.1 TEST FACILITIES

Test Facilities: TÜV Rheinland (Shenzhen) Co., Ltd.

Address:
No. 362 Huanguan Road Middle, Longhua District, Shenzhen 518110, P.R. China

2.2 TEST DATE

Date: 2022-08-12 to 2022-08-19

2.3 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing (TS8997)				
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
Signal Analyzer	R&S	FSV 40	101441	2023-08-01
OSP	R&S	OSP 150	101017	2022-12-02
Control PC	DELL	OptiPlex 7050	FTJZ9P2	N/A
Test Software	R&S	WMS32 (V11.00.00)	N/A	N/A
Power Meter	R&S	NRP2	107105	2022-12-02
Wideband Power Sensor	R&S	NRP-Z81	105677	2023-08-01
Shielding Room 8#	Albatross	SR8	APC17151-SR8	2024-06-22
Unwanted Emission Testing (TS9975)				
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
EMI Test Receiver	R&S	ESR 7	102021	2023-08-02
Signal Analyzer	R&S	FSV 40	101439	2023-08-01
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	2023-08-01
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2023-08-02
Amplifier	R&S	SCU-18F	180070	2023-08-02
Amplifier	R&S	SCU40A	100475	2023-08-02
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2023-08-06
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2023-08-06
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2023-08-08
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2023-08-06
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2024-06-22

2.4 TRACEABILITY

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.5 CALIBRATION

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.6 LOCATION OF ORIGINAL DATA

The original copies of all test data taken during actual testing were attached at Appendix A of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 STATUS OF FACILITY USED FOR TESTING

The TÜV Rheinland (Shenzhen) Co., Ltd. facility located at No. 362 Huanguan Road Middle, Longhua District, Shenzhen 518110, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3. GENERAL PRODUCT INFORMATION

3.1 PRODUCT FUNCTION AND INTENDED USE

The EUT is a Wireless Double PIR Detector.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 RATINGS AND SYSTEM DETAILS

Table 2: Technical Characteristics of EUT

General Information of EUT	Description
Kind of Equipment:	Wireless Double PIR Detector
Type Designation:	DS-PDP18-HM-WB, DS-PDP18-HM-WBUHK, DS-PDP18-HM-WBCKV, DS-PDP18-HM-WBUVS, DS-PDP18-HM-WBKVO, DS-PDP18-HM-WBHUN
FCC ID:	2ADTD-D2818071
Operating Frequency Band:	433.05 - 433.75MHz
Operating Frequencies:	433.1MHz, 433.2MHz, 433.3MHz, 433.4MHz, 433.5MHz, 433.6MHz, 433.7MHz
Modulation Type:	2GFSK
Antenna Type:	Integral Antenna
Antenna Number and Gain:	Antenna number: 1 Antenna Gain: -2.95dBi
Operating Voltage:	DC 3V, Battery (CR123A x 2)
Operating Temperature Range:	-25°C ~ +60°C
*Remark: 1) As declared by manufacturer, DS-PDP18-HM-WB, DS-PDP18-HM-WBUHK, DS-PDP18-HM-WBCKV, DS-PDP18-HM-WBUVS, DS-PDP18-HM-WBKVO, DS-PDP18-HM-WBHUN are identical in electronics/electrical designs, including software & firmware, PCB layout .The only difference are model name. Hence the product with model DS-PDP18-HM-WB is chosen for testing. 2) According to ANSI C63.10 section 5.6, the frequency range is less than 1MHz, hence middle operating frequency 433.4MHz located in middle range is set for testing.	

3.3 INDEPENDENT OPERATION MODES

The basic operation modes are:

A. Transmitting with operating frequency 433.4MHz
B. Idle

3.4 NOISE GENERATING AND NOISE SUPPRESSING PARTS

Refer to the Circuit Diagram.

3.5 SUBMITTED DOCUMENTS

☒ User Manual
☒ Circuit Diagram
☒ Block Diagram
☒ Schematics
☐ Model Difference Letter
☒ Rating Label
☐ PCB Layout
☒ Photo Document
☒ Parts List

4. TEST SET-UP AND OPERATION MODES

4.1 PRINCIPLE OF CONFIGURATION SELECTION

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 TEST OPERATION AND TEST SOFTWARE

Test operation refers to test setup in chapter 5.

Table 3: Test Environments

Environment Parameter	Selected Values During Tests		
	Temperature	Voltage (Battery)	Relative Humidity
Normal (NTNV)	24.6°C	3V	Ambient
LTLV	-	-	-
LTHV	-	-	-
HTLV	-	-	-
HTHV	-	-	-

4.3 SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT

The EUT was tested together with the following accessories:

Table 4: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N
--	--	--	--

4.4 COUNTERMEASURES TO ACHIEVE ERM COMPLIANCE

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF). No additional measures were employed to achieve compliance.

4.5 TEST SETUP DIAGRAM

Diagram of Measurement Configuration for Radiation Test

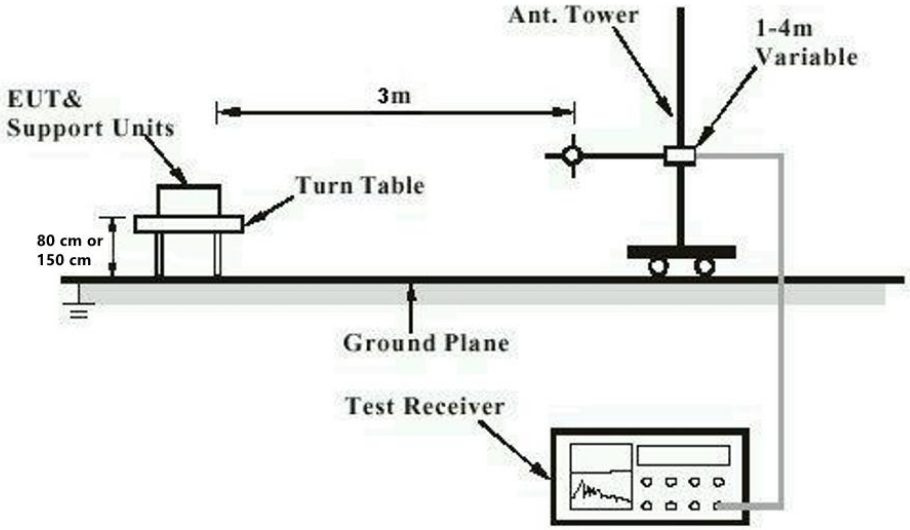
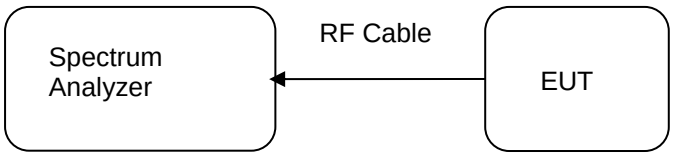


Diagram of Measurement Equipment Configuration for Transmitter Measurement



5. TEST RESULTS

5.1 Essential Requirements of Standard

5.1.1 Antenna Requirement

RESULT: **Pass**

Test standard	:	CFR47 FCC Part 15.203
Limit	:	CFR47 FCC Part 15.203
Kind of test site	:	Shielding Room

Test Setup

Date of testing	:	2022-08-12 to 2022-08-19
Input voltage	:	3V
Test environment	:	Normal test conditions
Operation mode	:	A
Ambient temperature	:	24.6°C
Relative humidity	:	55%
Atmospheric pressure	:	101.0 kPa

According to the manufacturer declared, the EUT has an integral antenna, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to compliance the provision.

Refer to EUT photo for details.

5.1.2 Deactivation of the Transmission

RESULT: **Pass**

Test Specification

Test standard	:	CFR47 FCC Part 15.231
Basic standard	:	ANSI C 63.10:2013
Test requirement	:	CFR47 FCC Part 15.231 (a)(1)
Limit	:	A transmitter activated automatically shall cease transmission within 5 seconds after activation.
Test suite	:	Shielding Room

Test Setup

Date of testing	:	2022-08-12
Test environment:	:	Normal test conditions
Operation mode	:	A
Ambient temperature	:	24.6°C
Relative humidity	:	55%
Atmospheric pressure	:	101kPa

Conclusion:

Refer to attached Appendix A for details of test results.

5.1.3 Periodic Transmissions

RESULT: **Pass**

Test Specification

Test standard	:	CFR47 FCC Part 15.231
Basic standard	:	ANSI C 63.10:2013
Test requirement	:	CFR47 FCC Part 15.231 (a)(3)
Limit	:	Total duration of transmissions does not exceed more than two seconds per hour.
Test suite	:	Shielding Room

Test Setup

Date of testing	:	2022-08-12
Test environment:	:	Normal test conditions
Operation mode	:	B
Ambient temperature	:	24.6°C
Relative humidity	:	55%
Atmospheric pressure	:	101kPa

Conclusion:

Refer to attached Appendix A for details of test results.

5.1.4 20dB Emission Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	CFR47 FCC Part 15.231
Basic standard	:	ANSI C 63.10:2013
Test requirement	:	CFR47 FCC Part 15.231 (c)
Limit	:	CFR47 FCC Part 15.231 (c)
Test suite	:	3m Semi Anechoic Room

Test Setup

Date of testing	:	2022-08-18
Test environment:	:	Normal test conditions
Operation mode	:	A
Ambient temperature	:	24.6°C
Relative humidity	:	55%
Atmospheric pressure	:	101kPa

Conclusion:

Refer to attached Appendix A for details of test results.

5.1.5 Field strength of fundamental and Unwanted Emissions in the Spurious Domain

RESULT: **Pass**

Test Specification

Test standard	:	CFR47 FCC Part 15.231 CFR47 FCC Part 15.205 CFR47 FCC Part 15.209
Basic standard	:	ANSI C 63.10:2013
Test requirement	:	CFR47 FCC Part 15.231 (b)(1)(2)(3)
Limit	:	CFR47 FCC Part 15.231 (b)
Test suite	:	3m Semi Anechoic Room

Test Setup

Date of testing	:	2022-08-17 to 2022-08-19
Test environment:	:	Normal test conditions
Operation mode	:	A
Ambient temperature	:	Refer to test data
Relative humidity	:	Refer to test data
Atmospheric pressure	:	101kPa

Conclusion:

Refer to attached Appendix A for details of test results.

5.1.6 Radio Frequency Exposure Compliance

RESULT: **Pass**

Test Specification

Test standard	:	CFR47 FCC Part 2.1093
Limit	:	FCC KDB Publication 447498 D01 v06

Measurement Record for CFR47 FCC Part 2.1093

The minimum distance for the EUT is less than 5mm.

The maximum specified e.r.p.: 62.38dBuV/m@3m=-32.85dBm=0.00052mW

According to KDB 447498 D01 v06 appendix A

Exempted Power for this device: 22mW, hence the EUT is compliance with the RF exposure.

6. System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

Table 5: System Measurement Uncertainty

Items		Extended Uncertainty
RE	Radiated emission 9 kHz - 30 MHz	±3.97 dB
	Radiated emission 30 MHz - 1 GHz	±4.30 dB
Remark: 95% Confidence Levels, K=2.		

7. LIST OF TABLES

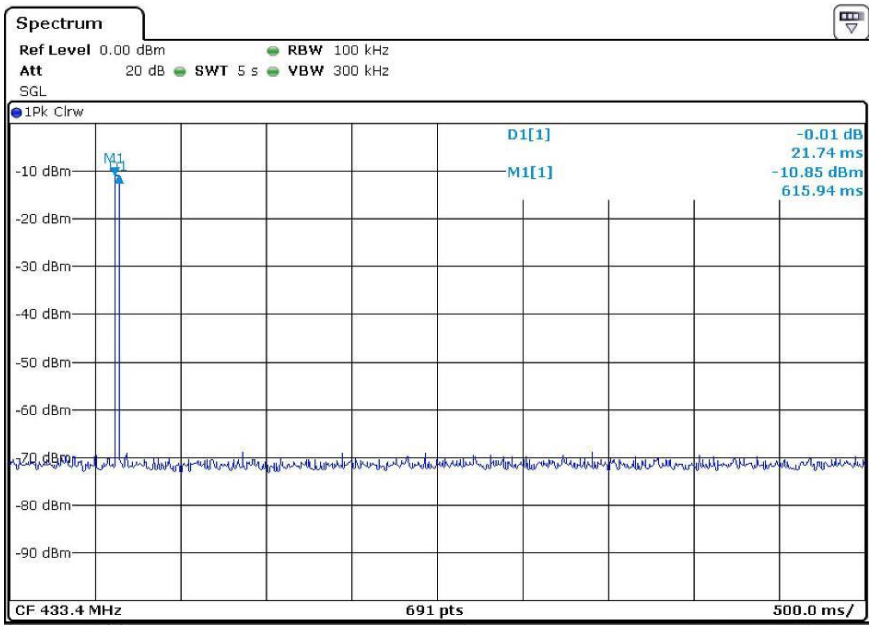
Appendix A

Test Results

APPENDIX A.1: TEST RESULTS OF DEACTIVATION OF THE TRANSMISSION

Test Results

Operation Mode	Duration Time (S)	Limit (S)	Result
A	0.0022	5	Pass

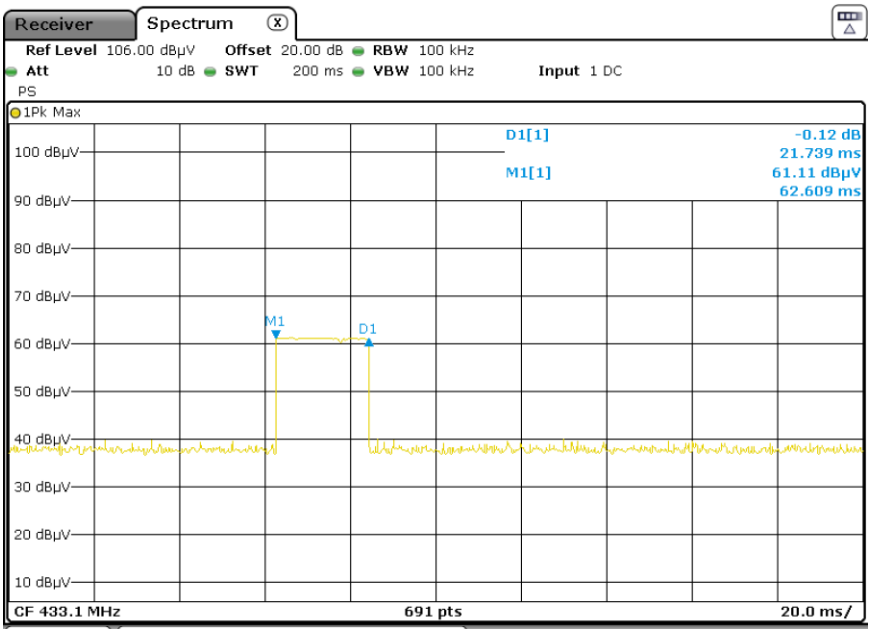


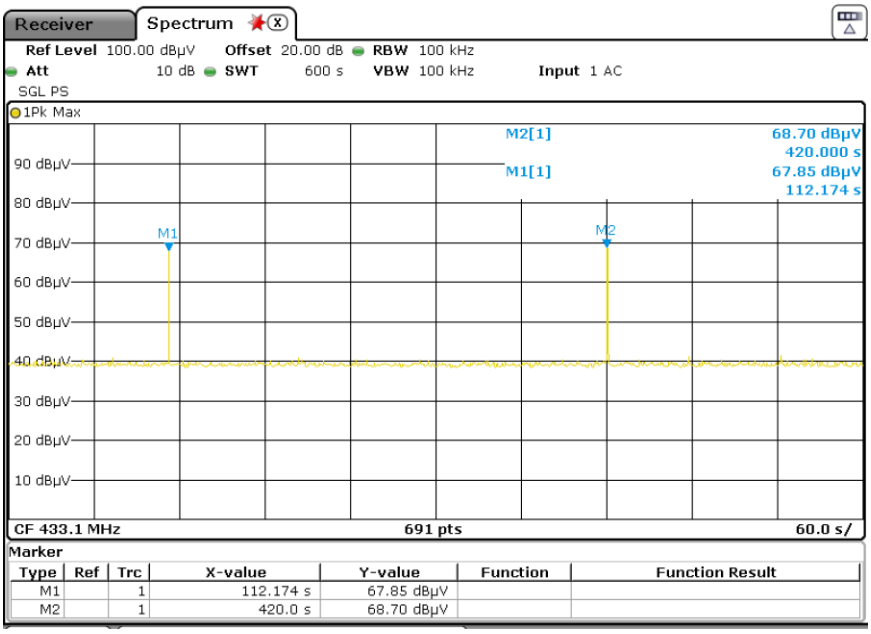
APPENDIX A.2: TEST RESULTS OF PERIODIC TRANSMISSIONS

Test Results

Operation Mode	Duration Time (S)	Limit	Result
B	0.261	2s / 1 Hour	Pass

As declared by manufacturer, the EUT transmits an identical data package to the Host per 5 minutes, hence in one hour, the EUT transmits 12 data packages to the Host, and the duration time = 21.739ms * 12 = 0.261s.

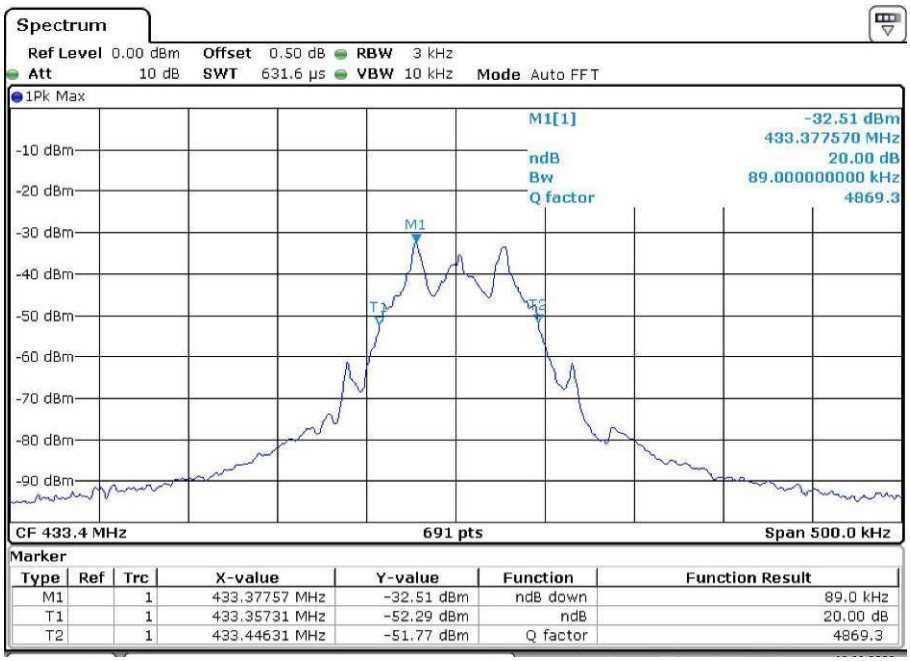




APPENDIX A.3: TEST RESULTS OF 20DB EMISSION BANDWIDTH

Test Results

Operation Freqnency (MHz)	20dB Emission Bandwidth (MHz)	Limit (MHz)	Result
433.4	0.089	1.084	Pass

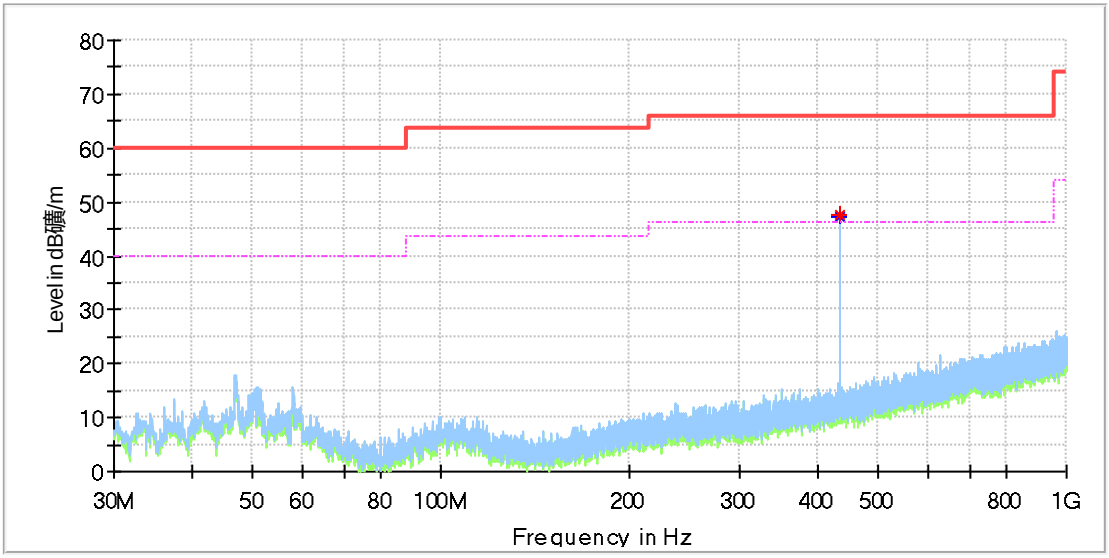


APPENDIX A.4: TEST RESULTS OF FIELD STRENGTH OF FUNDAMENTAL AND UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

A.4.1 Below 1GHz

EUT Information

EUT Name:	Wireless Double PIR Detector
Model:	DS-PDP18-HM-WB
Test Mode:	433.4MHz
Order No/Sample No:	168382588/A03305349-002
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC Part 15C
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

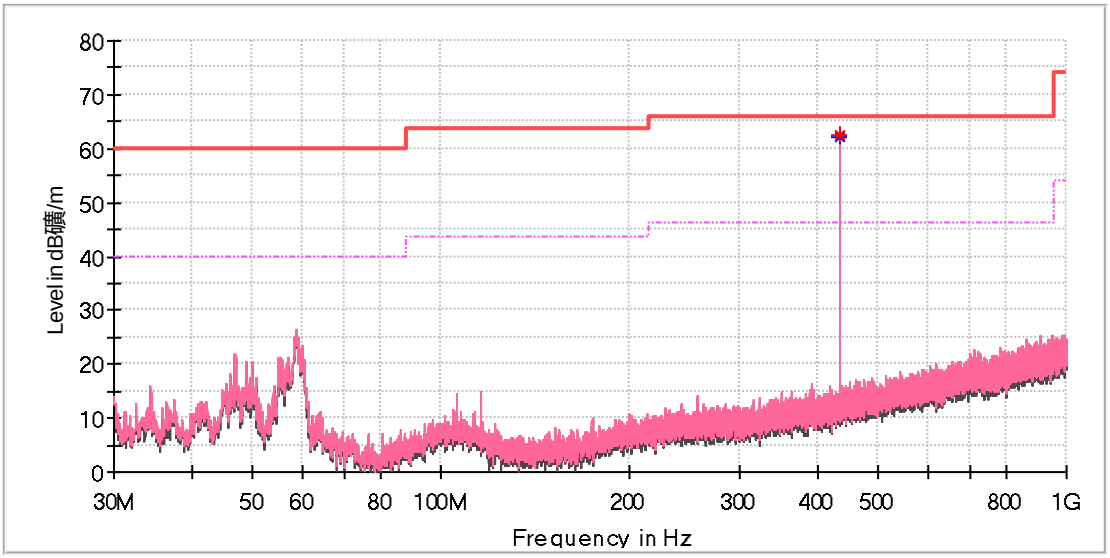
Frequency (MHz)	MaxPeak	Average (dBµV/	Limit (dBµV/m	Margin	Height	Pol	Azimuth	Corr. (dB/
433.408077	47.73	---	100.82	53.09	100.0	H	98.0	-13.5
433.408077	---	47.39	80.82	33.43	100.0	H	98.0	-13.5

Final_Result

Frequency (MHz)	QuasiPeak	Limit (dBµV/m	Margin	Height	Pol	Azimuth	Corr. (dB/
---	---	---	---	---		---	---

EUT Information

EUT Name:	Wireless Double PIR Detector
Model:	DS-PDP18-HM-WB
Test Mode:	433.4MHz
Order No/Sample No:	168382588/A03305349-002
Test Voltage::	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC Part 15C
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

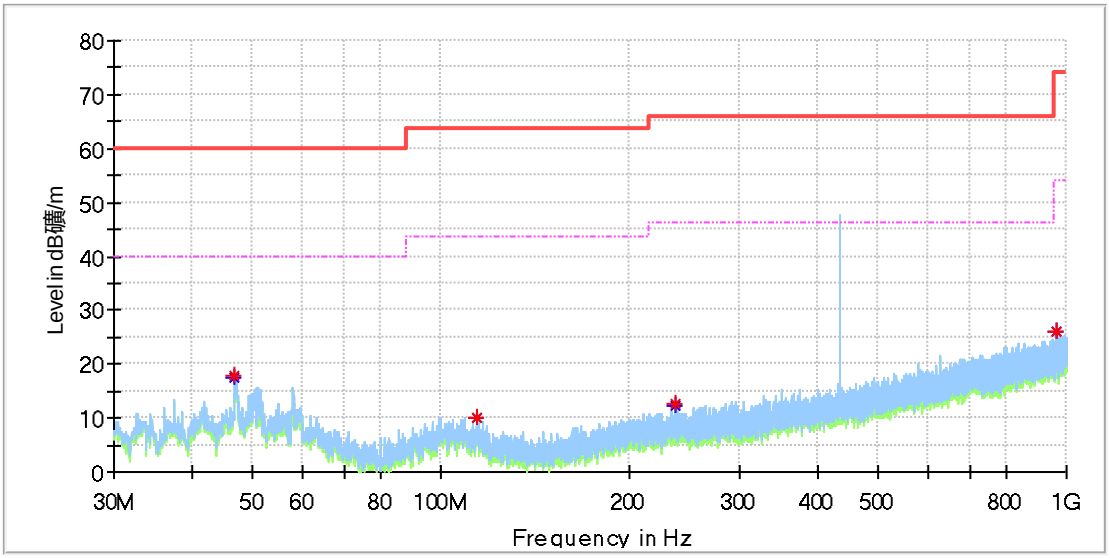
Frequency (MHz)	MaxPeak	Average (dBµV/m	Limit (dBµV/m	Margin	Height	Pol	Azimuth	Corr. (dB/
433.445385	---	62.03	80.82	18.79	100.0	V	19.0	-13.5
433.445385	62.38	---	100.82	38.44	100.0	V	19.0	-13.5

Final_Result

Frequency (MHz)	QuasiPeak	Limit (dBµV/m	Margin	Height	Pol	Azimuth	Corr. (dB/
---	---	---	---	---		---	---

EUT Information

EUT Name:	Wireless Double PIR Detector
Model:	DS-PDP18-HM-WB
Test Mode:	433.4MHz
Order No/Sample No:	168382588/A03305349-002
Test Voltage:	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC Part 15C
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

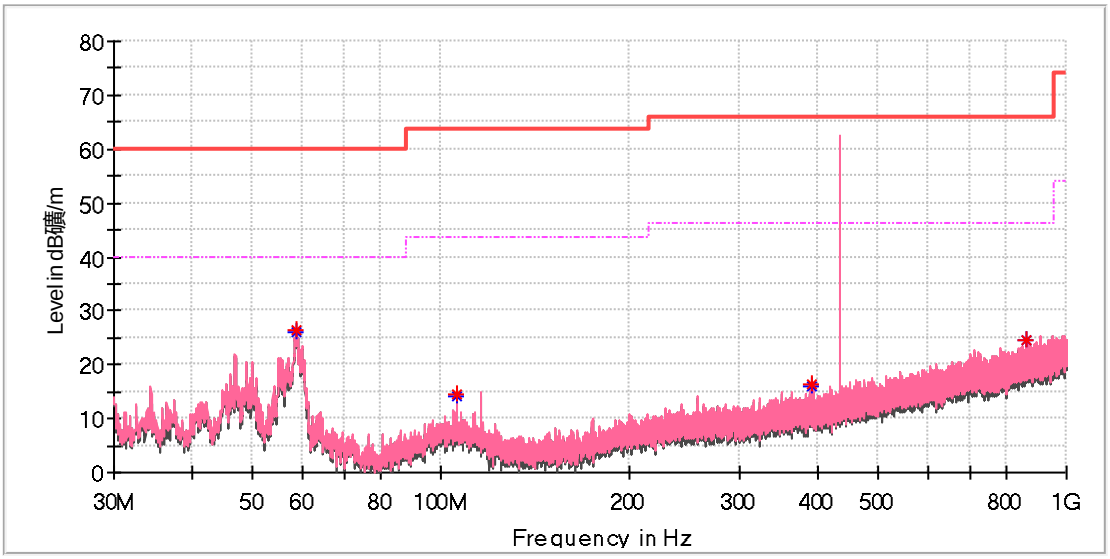
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
46.863077	17.91	---	60.00	42.09	100.0	H	6.0	-18.9
46.863077	---	17.54	40.00	22.46	100.0	H	6.0	-18.9
113.755769	10.08	---	63.50	53.42	100.0	H	121.0	-19.9
113.755769	---	9.92	43.50	33.58	100.0	H	121.0	-19.9
236.423462	---	12.19	46.00	33.81	100.0	H	46.0	-18.2
236.460769	12.75	---	66.00	53.25	100.0	H	46.0	-18.2
967.094615	26.10	---	74.00	47.90	100.0	H	193.0	-4.6
967.094615	---	25.97	54.00	28.03	100.0	H	193.0	-4.6

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

EUT Information

EUT Name:	Wireless Double PIR Detector
Model:	DS-PDP18-HM-WB
Test Mode:	433.4MHz
Order No/Sample No:	168382588/A03305349-002
Test Voltage:	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC Part 15C
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
58.652308	26.26	---	60.00	33.74	100.0	V	300.0	-19.1
58.652308	---	26.22	40.00	13.78	100.0	V	300.0	-19.1
106.219615	14.69	---	63.50	48.81	100.0	V	278.0	-19.2
106.256923	---	14.20	43.50	29.30	100.0	V	278.0	-19.2
390.728077	16.39	---	66.00	49.61	100.0	V	151.0	-14.3
390.728077	---	16.00	46.00	30.00	100.0	V	151.0	-14.3
864.759615	24.49	---	66.00	41.51	100.0	V	45.0	-5.7
864.759615	---	24.4	46.00	21.60	100.0	V	45.0	-5.7

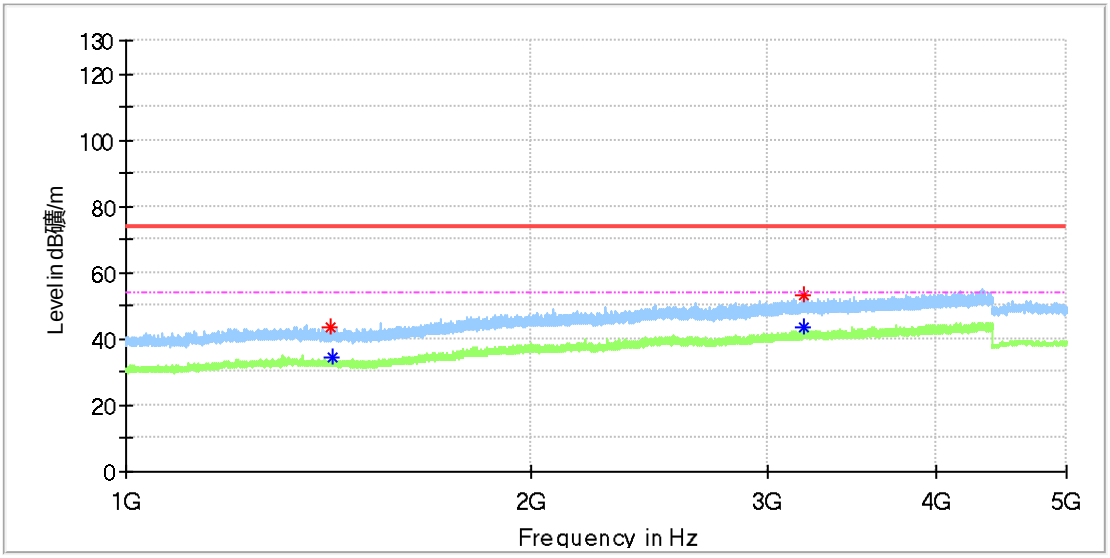
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---		---	---

A.4.2 Above 1GHz

EUT Information

EUT Name:	Wireless Double PIR Detector
Model:	DS-PDP18-HM-WB
Test Mode:	433.4MHz
Order No/Sample No:	168382588/A03305349-002
Test Voltage:	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC Part 15C
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1418.880000	43.49	---	74.00	30.51	150.0	H	0.0	1.6
1426.020000	---	34.26	54.00	19.74	150.0	H	356.0	1.6
3187.390000	53.43	---	74.00	20.57	150.0	H	253.0	8.6
3188.920000	---	43.47	54.00	10.53	150.0	H	253.0	8.6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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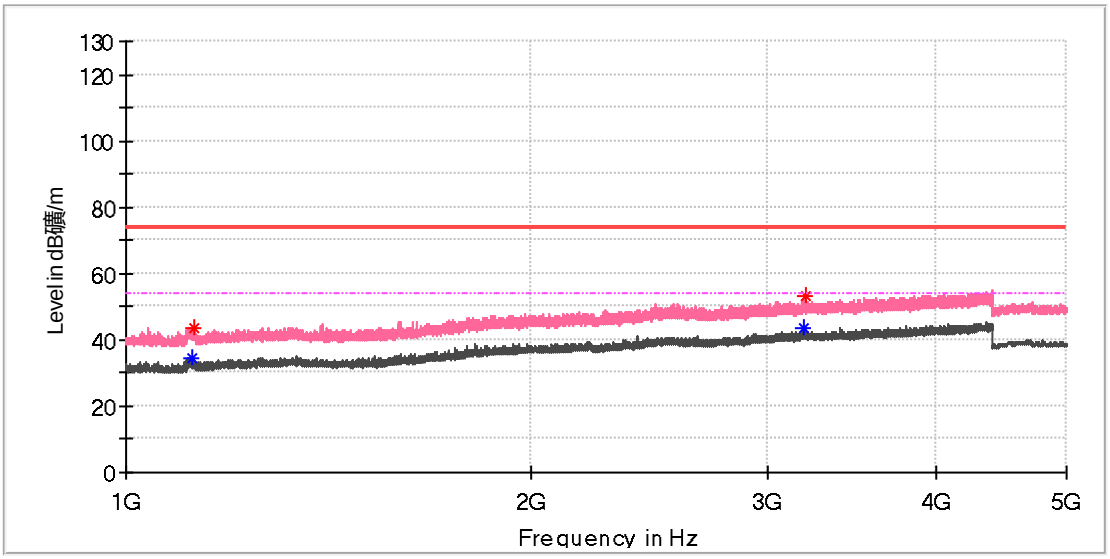
EUT Information

EUT Name:	Wireless Double PIR Detector
Model:	DS-PDP18-HM-WB
Test Mode:	433.4MHz
Order No/Sample No:	168382588/A03305349-002
Test Voltage:	Battery
Remark:	Temp 23 Humi:53%
Test Standard:	FCC Part 15C
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1120.190000	---	34.59	54.00	19.41	150.0	V	203.0	0.2
1122.230000	43.76	---	74.00	30.24	150.0	V	203.0	0.2
3191.810000	---	43.78	54.00	10.22	150.0	V	158.0	8.6
3199.630000	52.99	---	74.00	21.01	150.0	V	256.0	8.6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
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