

Report No.: SHEM190501367301

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TEST REPORT

Application No.: SHEM1905013673CR

Applicant: Hangzhou Hikvision Digital Technology Co., Ltd.

Address of Applicant: No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China

Manufacturer: Hangzhou Hikvision Digital Technology Co., Ltd.

Address of Manufacturer: No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China

Factory: 1, Hangzhou Hikvision Technology Co., Ltd.

2, Hangzhou Hikvision Electronics Co., Ltd.

Address of Factory: 1, No.700, Dongliu Road, Binjiang District, Hangzhou City, Zhejiang,

310052, China

2, No.299, Qiushi Road, Tonglu Economic Development Zone, Tonglu

County, Hangzhou, Zhejiang, 310052, China

Equipment Under Test (EUT):

¤

EUT Name: Wireless Siren

Model No.: DS-PSG-WO-868, DS-PSG-WO-868UHK, DS-PSG-WO-868CKV,

DS-PSG-WO-868UVS, DS-PSG-WO-868KVO, DS-PSG-WO-868HUN ¤

Please refer to section 2 of this report which indicates which model was

actually tested and which were electrically identical.

Trade mark: HIKVISION

Standard(s): EN 301 489-1 V2.1.1, EN 301 489-3 V2.1.1

Date of Receipt: 2019-05-30

Date of Test: 2019-06-04 to 2019-06-06

Date of Issue: 2019-06-27

Test Result: Pass*

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

parlan 2han

CE

Parlam Zhan E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443,

NO.588 West Jindu Road,Songjiang District,Shanghai,China 201612 中国・上海・松江区金都西路588号 邮编: 201612

^{*} In the configuration tested, the EUT complied with the standards specified above.



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Revision Record						
Version Description Date Rema						
00	Original	2019-06-27	1			

Authorized for issue by:		
	Vincent Zhu	
	Vincent Zhu / Project Engineer	
	Eddy Zong	
	Eddy Zong / Reviewer	



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2 Test Summary

Emission Part								
Item	Standard	Method	Requirement	Result				
Radiated Emissions (30MHz-1GHz)	EN 301 489-1 V2.1.1	EN 55032:2015	Class B	Pass				
Radiated Emissions (above 1GHz)	EN 301 489-1 V2.1.1	EN 55032:2015	Class B	Pass				

Immunity Part							
Item	Standard	Method	Requirement	Result			
Electrostatic Discharge	EN 301 489-1 V2.1.1	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass			
Radiated Immunity (80MHz-6GHz)	EN 301 489-1 V2.1.1	EN 61000-4-3:2006 +A1:2008+A2:2010	3V/m, 80%, 1kHz Amp. Mod.	Pass			

Declaration of EUT Family Grouping:

Note: There are series models mentioned in this report, and they are the identical in electrical and electronic characters. Only the model DS-PSG-WO-868 was tested since their differences were the model number and appearance.

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4 General Information

4.1 Details of E.U.T.

Power supply: DC 3V by 4* CR123A battery

Test voltage: DC 3V

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
4	Conducted Emission	±2.6dB (9kHz to 150kHz)
'	at mains port using AMN	±2.3dB (150kHz to 30MHz)
2	Conducted Emission	11 0 dB (0kHz to 20MHz)
	at mains port using VP	±1.9 dB (9kHz to 30MHz)
3	Conducted Emission	.4.4.dD (450kHz to 20MHz)
3	at telecommunication port using AAN	±4.1 dB (150kHz to 30MHz)
4	Radiated Power	±3.0dB
		±4.4dB (30MHz-1GHz)
5	Radiated emission	±4.8dB (1GHz-6GHz)
		±5.2dB (6GHz-18GHz)

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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4.4 Test Location

All tests were performed at:

 ${\tt SGS-CSTC\ Standards\ Technical\ Services\ (Shanghai)\ Co.,\ Ltd.\ E\&E\ Lab}$

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

4.5 Test Facility

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

CNAS (No. CNAS L0599)

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• NVLAP (Certificate No. 201034-0)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

• FCC -Designation Number: CN5033

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

IC Registration No.: 8617A-1. CAB identifier: CN0020.

• VCCI (Member No.: 3061)

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 Monitoring of EUT for All Immunity Test

Visual: Working status of EUT

Other: A support spectrum analyser and pick up antenna was used to monitor for any

unintentional transmission from the EUT.





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5 Equipment List

Radiated Emissions (30MHz-1GHz)								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2018-12-20	2019-12-19			
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A			
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A			
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A			
Broadband UHF-VHF ANTENNA	SCHWARZBECK	VULB9168	SHEM048-1	2017-02-28	2020-02-27			
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21			
Low Amplifier	CLAVIIO	BDLNA-0001- 412010	SHEM164-1	2018-08-13	2019-08-12			

Radiated Emissions (above 1GHz)							
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date		
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2018-12-20	2019-12-19		
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A		
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A		
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A		
Double ridged broadband horn ANTENNA	SCHWARZBECK	BBHA9120D	SHEM050-1	2017-01-14	2020-01-13		
High-amplifier	SCHWARZBECK	SCU-F0118- G40-BZ4-CS	SHEM050-2	2018-12-20	2019-12-19		
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21		
High Amplifier	CLAVIIO	BDLNA-0118- 352810	SHEM165-1	2018-08-13	2019-08-12		

Electrostatic Discharge					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Electrostatic Discharge Simulator	TESEQ	NSG 437	SHEM041-2	2018-08-13	2019-08-12

Radiated Immunity (80MHz-6GHz)								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2018-08-13	2019-08-12			
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2018-12-20	2019-12-19			
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2018-12-20	2019-12-19			
Antenna	SCHWARZBECK	STLP9128D	SHEM130-1	N/A	N/A			
Amplifier	MILMEGA	AS0840-55-55	SHEM133-1	2018-12-20	2019-12-19			
Power meter sensor	Rohde & Schwarz	NRP-Z22	SHEM136-1	2018-12-20	2019-12-19			
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6105	SHEM134-1	2018-12-11	2019-12-10			



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General used equipment							
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date		
Digital pressure meter	YONGZHI	DYM3-01	SHEM082-1	2018-01-25	2021-01-24		
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-1~6	2018-08-31	2019-08-30		
Digital Multimeter	FLUKE	17B	SHEM043-3	2018-09-03	2019-09-02		
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A		
Multi-purpose tong tester	FLUKE	316	SHEM001-1	2018-12-20	2019-12-19		





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6 Emission Test Results

6.1 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN 301 489-1 V2.1.1
Test Method: EN 55032:2015
Frequency Range: 30MHz to 1GHz

Measurement Distance: 3m

Limit:

30MHz-230MHz 40 dB(μ V/m) quasi-peak 230MHz-1GHz 47 dB(μ V/m) quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Pretest these a:Alarm mode_Establish communication between EUT and HUB via wireless

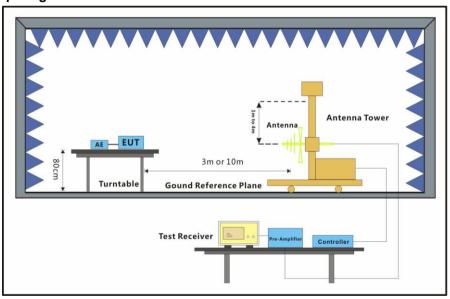
mode to find the function, and then keep EUT in monitoring mode.

worst case: b:Idle Keep the EUT standby.

The worst case a:Alarm mode_Establish communication between EUT and HUB via wireless

for final test: function, and then keep EUT in monitoring mode.

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

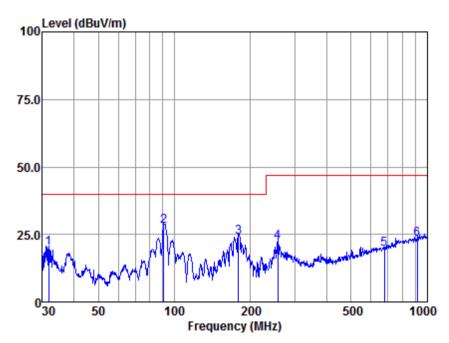
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Mode:a; Polarization:Horizontal



Antenna Polarity :HORIZONTAL EUT/Project :3673CR

Test mode :a

		Read	Antenna	Cable	Preamp	Emissio	n Limit	0ver	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	31.731	46.21	15.49	0.45	42.37	19.78	40.00	-20.22	QP
2	90.855	61.24	8.23	1.00	42.29	28.18	40.00	-11.82	QP
3	179.386	52.83	11.88	1.63	42.20	24.14	40.00	-15.86	QP
4	256.521	50.23	11.73	2.21	42.10	22.07	47.00	-24.93	QP
5	677.580	37.04	20.03	4.07	41.74	19.40	47.00	-27.60	QP
6	912.862	37.59	22.85	4.59	41.61	23.42	47.00	-23.58	QP

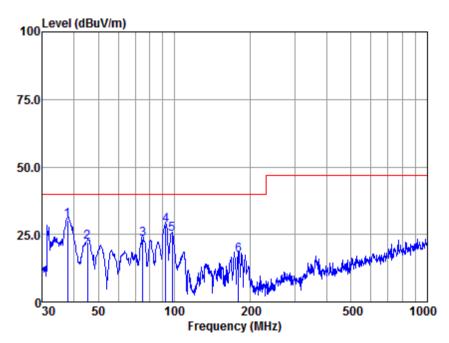
Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor





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Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL EUT/Project :3673CR

Test mode :a

		Read	Antenna	Cable	Preamp	Emission	ı Limit	0ver	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	37.812	56.11	16.11	0.49	42.34	30.37	40.00	-9.63	QP
2	45.375	51.02	13.04	0.41	42.33	22.14	40.00	-17.86	QP
3	74.919	55.34	9.64	0.67	42.26	23.39	40.00	-16.61	QP
4	92.462	61.27	8.42	1.05	42.30	28.44	40.00	-11.56	QP
5	97.798	56.93	9.25	1.10	42.31	24.97	40.00	-15.03	QP
6	179.386	46.19	11.88	1.63	42.20	17.50	40.00	-22.50	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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6.2 Radiated Emissions (above 1GHz)

Test Requirement: EN 301 489-1 V2.1.1
Test Method: EN 55032:2015
Frequency Range: Above 1GHz

Measurement Distance: 3m

Limit:

1GHz-3GHz 70 dB(μ V/m) peak, 50 dB(μ V/m) average 3GHz-6GHz 74 dB(μ V/m) peak, 54dB(μ V/m) average

Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to 6000MHz

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Pretest these a:Alarm mode_Establish communication between EUT and HUB via wireless

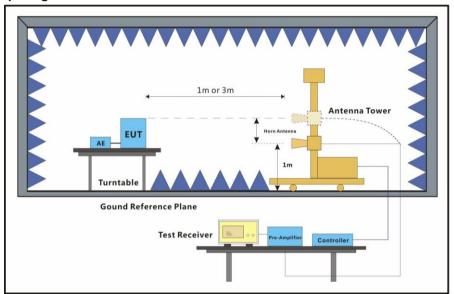
mode to find the function, and then keep EUT in monitoring mode.

worst case: b:ldle_Keep the EUT standby.

The worst case a:Alarm mode_Establish communication between EUT and HUB via wireless

for final test: function, and then keep EUT in monitoring mode.

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

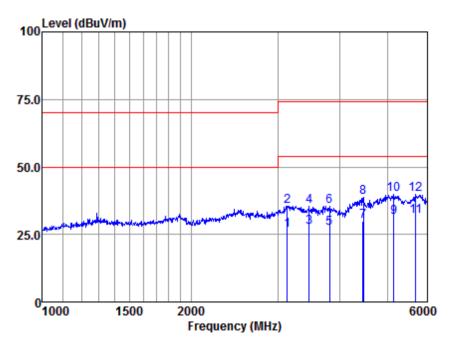
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.





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Mode:a; Polarization:Horizontal



Antenna Polarity :HORIZONTAL EUT/Project :3673CR

Test mode :a

		Read	Antenna	Cable	Preamp	Emission	Limit	0ver	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	3130.995	31.41	28.58	8.77	42.32	26.44	54.00	-27.56	Average
2	3130.995	40.55	28.58	8.77	42.32	35.58	74.00	-38.42	Peak
3	3461.456	31.68	28.78	9.54	42.36	27.64	54.00	-26.36	Average
4	3461.456	39.38	28.78	9.54	42.36	35.34	74.00	-38.66	Peak
5	3806.281	30.01	29.36	10.22	42.39	27.20	54.00	-26.80	Average
6	3806.281	38.39	29.36	10.22	42.39	35.58	74.00	-38.42	Peak
7	4456.338	30.39	30.53	11.56	42.45	30.03	54.00	-23.97	Average
8	4456.338	39.24	30.53	11.56	42.45	38.88	74.00	-35.12	Peak
9	5143.163	29.52	31.69	12.59	42.52	31.28	54.00	-22.72	Average
10	5143.163	38.25	31.69	12.59	42.52	40.01	74.00	-33.99	Peak
11	5696.195	28.64	32.18	13.52	42.61	31.73	54.00	-22.27	Average
12	5696.195	36.66	32.18	13.52	42.61	39.75	74.00	-34.25	Peak

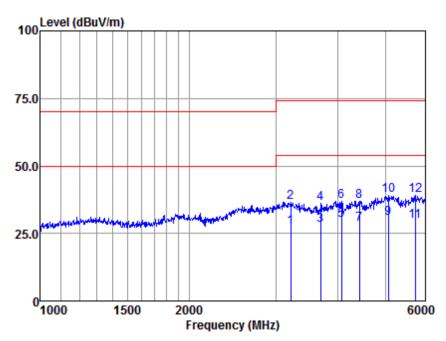
Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor





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Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL EUT/Project :3673CR

Test mode :a

		Read	Antenna	Cable	Preamp	Emission	n Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	3210.528	32.09	28.64	9.05	42.33	27.45	54.00	-26.55	Average
2	3210.528	41.11	28.64	9.05	42.33	36.47	74.00	-37.53	Peak
3	3692.090	30.56	29.16	10.69	42.38	28.03	54.00	-25.97	Average
4	3692.090	38.52	29.16	10.69	42.38	35.99	74.00	-38.01	Peak
5	4067.171	30.96	29.81	11.40	42.42	29.75	54.00	-24.25	Average
6	4067.171	38.11	29.81	11.40	42.42	36.90	74.00	-37.10	Peak
7	4416.593	29.28	30.47	11.10	42.45	28.40	54.00	-25.60	Average
8	4416.593	37.92	30.47	11.10	42.45	37.04	74.00	-36.96	Peak
9	5060.890	28.76	31.64	12.64	42.51	30.53	54.00	-23.47	Average
10	5060.890	37.27	31.64	12.64	42.51	39.04	74.00	-34.96	Peak
11	5737.167	26.36	32.23	13.52	42.62	29.49	54.00	-24.51	Average
12	5737.167	35.93	32.23	13.52	42.62	39.06	74.00	-34.94	Peak

Note: Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor





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7 **Immunity Test Results**

Performance Criteria Description in EN 301 489-1 V2.1.1

Performance criteria for continuous phenomena appl

During and after the test, the equipment shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer when the equipment is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance.

During the test, the EUT shall not unintentionally transmit or change its actual operating state and stored data.

If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deduced from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

Performance criteria for transient phenomena appli

For surges applied to symmetrically operated wired network ports intended to be connected directly to outdoor lines the following criteria applies:

a. For products with only one symmetrical port intended for connection to outdoor lines, loss of function is allowed, provided the function is selfrecoverable, or can be restored by the operation of the controls by the

user in accordance with the manufacturer's instructions. A SW reboot is not allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

b. For products with more than one symmetrical port intended for connection to outdoor lines, loss of function on the port under test is allowed, provided the function is self-recoverable. A SW reboot is not allowed. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

For all other ports the following applies:

- a. After the test, the equipment shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer, when the equipment is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance.
- b. During the EMC exposure to an electromagnetic phenomenon, a degradation of performance is, however, allowed. No change of the actual mode of operation (e.g. unintended transmission) or stored data is allowed.
- c. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deduced from the product description and documentation and what the user may

reasonably expect from the equipment if used as intended.

For radio equipment which does not provide a continuous communication link, the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation.

> If ancillary equipment is intended to be tested on a stand alone basis, the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation.

Performance criteria equipment which does not

Performance criteria for ancillary equipment teste



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7.2 Electrostatic Discharge

Test Requirement: EN 301 489-1 V2.1.1
Test Method: EN 61000-4-2:2009

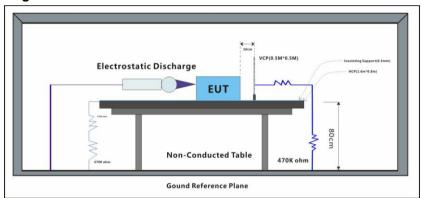
Performance Criterion: B

Discharge Impedance: 330Ω/150pF

Number of Discharge: Minimum 10 times at each test point

Discharge Mode: Single Discharge
Discharge Period: 1 second minimum

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a:Alarm mode Establish communication between EUT and HUB via wireless

function, and then keep EUT in monitoring mode.

b:Idle Keep the EUT standby.

7.2.3 Test Results:

Observations: Test Point:

1. All insulated enclosure and seams.

2. All accessible metal parts of the enclosure.

3. All side

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	A
Air Discharge	2,4,8	-	1	A
Contact Discharge	4	+	2	А
Contact Discharge	4	-	2	А
Horizontal Coupling	4	+	3	А
Horizontal Coupling	4	-	3	А
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A

Results:

A: No degradation in the performance of the EUT was observed.



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7.3 Radiated Immunity (80MHz-6GHz)

Test Requirement: EN 301 489-1 V2.1.1

Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010

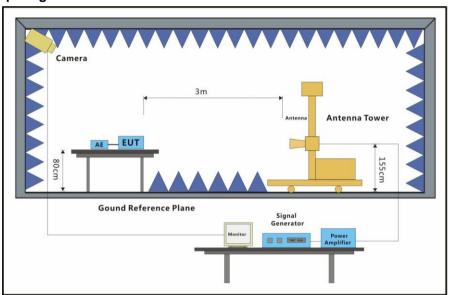
Performance Criterion: A

Frequency Range: 80MHz to 6GHz

Antenna Polarisation: Vertical and Horizontal

Modulation: 1kHz,80% Amp. Mod,1% increment

7.3.1 Test Setup Diagram



7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a:Alarm mode_Establish communication between EUT and HUB via wireless

function, and then keep EUT in monitoring mode.

b:Idle Keep the EUT standby.

7.3.3 Test Results:

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-6GHz	3	Front	2s	A
80MHz-6GHz	3	Back	2s	A
80MHz-6GHz	3	Left	2s	А
80MHz-6GHz	3	Right	2s	А
80MHz-6GHz	3	Тор	2s	Α
80MHz-6GHz	3	Underside	2s	А

Results:

A: No degradation in the performance of the EUT was observed.



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8 Photographs

Refer to the < Photographs >

- End of the Report -