

# TEST REPORT

**Application No.:** SHEM1906013767CR  
**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:** LED Wireless Keypad  
**Model No.:** DS-PKA-WLM-868, DS-PKA-WLM-868UHK, DS-PKA-WLM-868CKV, DS-PKA-WLM-868UVS, DS-PKA-WLM-868KVO, DS-PKA-WLM-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:** 2019-06-03  
**Date of Test:** 2019-06-05 to 2019-06-07  
**Date of Issue:** 2019-07-03

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

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.

*Parlam Zhan*

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, or email: CN.Doccheck@sgs.com**



Revision Record			
Version	Description	Date	Remark
00	Original	2019-07-03	/

<b>Authorized for issue by:</b>			
			
		_____ <b>Vincent Zhu / Project Engineer</b>	
			
		_____ <b>Eddy Zong / Reviewer</b>	

## 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 similar in electrical and electronic characters. Only the model DS-PKA-WLM-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\*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
1	Conducted Emission at mains port using AMN	±2.6dB (9kHz to 150kHz)
		±2.3dB (150kHz to 30MHz)
2	Conducted Emission at mains port using VP	±1.9 dB (9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	±4.1 dB (150kHz to 30MHz)
4	Radiated Power	±3.0dB
5	Radiated emission	±4.4dB (30MHz-1GHz)
		±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.

#### 4.4 Test Location

All tests were performed at:

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.

## 5 Equipment List

<b>Radiated Emissions (30MHz-1GHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
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

<b>Radiated Emissions (above 1GHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
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

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

<b>Radiated Immunity (80MHz-6GHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
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



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



## 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( $\mu$ V/m) quasi-peak
230MHz-1GHz	47 dB( $\mu$ V/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

#### 6.1.1 E.U.T. Operation

Operating Environment:

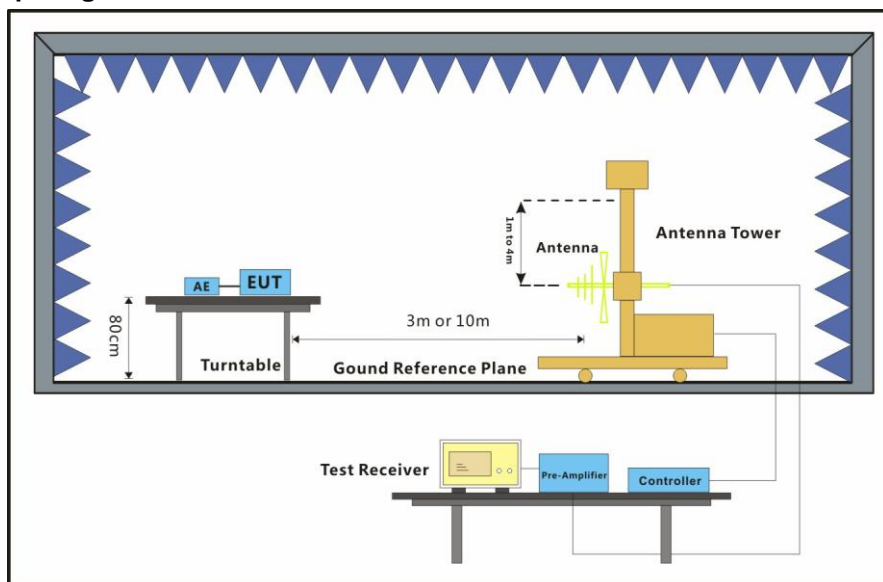
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Pretest these mode to find the worst case:  
 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.

The worst case for final test:  
 a: Alarm mode\_ Establish communication between EUT and HUB via wireless function, and then keep EUT in monitoring mode.

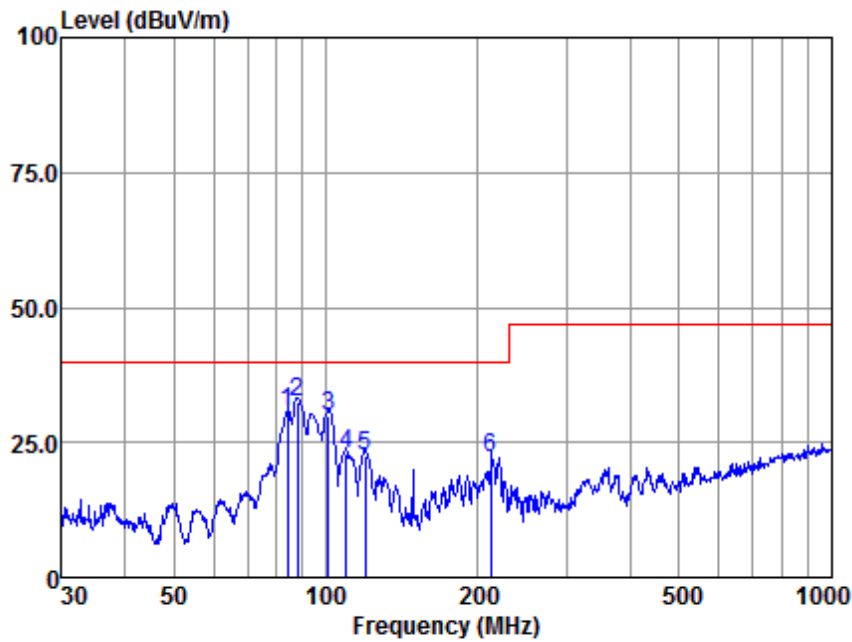
#### 6.1.2 Test Setup Diagram



#### 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.

Mode:a; Polarization:Horizontal

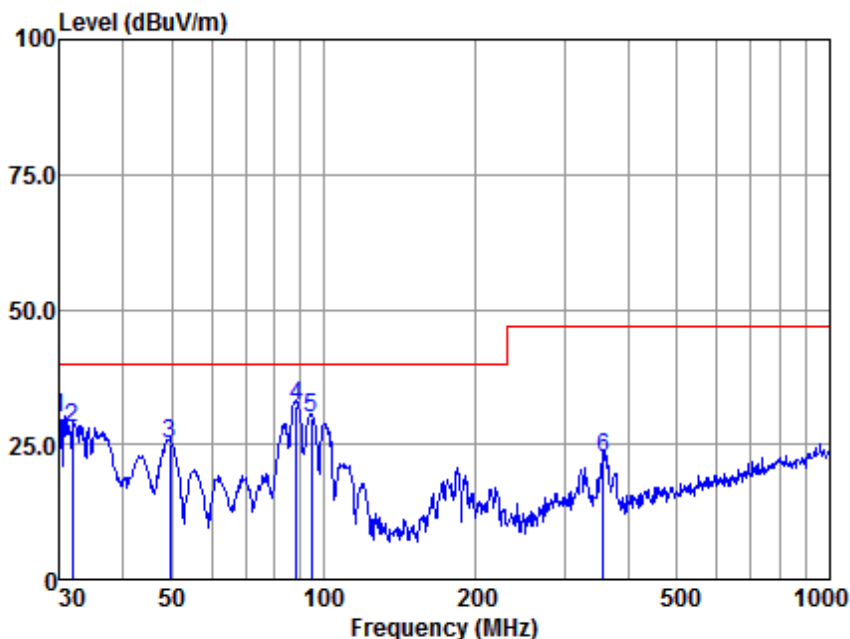


Antenna Polarity :HORIZONTAL  
EUT/Project :3767CR  
Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	84.110	64.06	8.04	0.86	42.28	30.68	40.00	-9.32	QP
2	87.725	65.64	8.08	0.94	42.29	32.37	40.00	-7.63	QP
3	100.934	61.54	9.51	1.13	42.32	29.86	40.00	-10.14	QP
4	109.796	54.36	9.60	1.21	42.30	22.87	40.00	-17.13	QP
5	119.856	53.46	10.00	1.33	42.28	22.51	40.00	-17.49	QP
6	212.270	52.57	9.96	1.86	42.16	22.23	40.00	-17.77	QP

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

Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL  
 EUT/Project :3767CR  
 Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	30.000	56.50	15.30	0.44	42.38	29.86	40.00	-10.14	QP
2	31.843	54.43	15.51	0.45	42.37	28.02	40.00	-11.98	QP
3	49.533	56.23	10.83	0.47	42.33	25.20	40.00	-14.80	QP
4	88.342	65.31	8.08	0.97	42.29	32.07	40.00	-7.93	QP
5	94.428	62.25	8.74	1.06	42.30	29.75	40.00	-10.25	QP
6	357.929	47.17	14.36	3.00	41.94	22.59	47.00	-24.41	QP

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

## 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(μV/m) peak, 50 dB(μV/m) average
3GHz-6GHz	74 dB(μV/m) peak, 54dB(μV/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

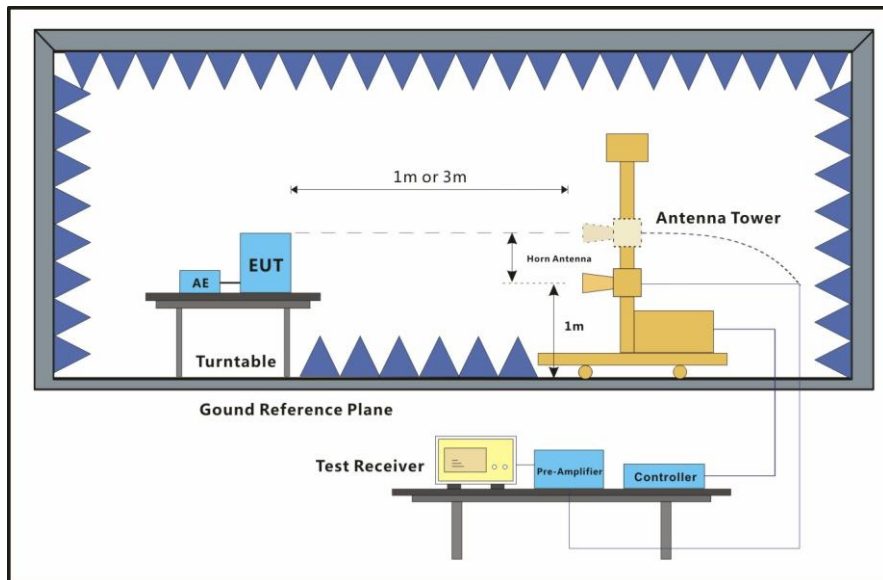
Pretest these mode to find the worst case:

- 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.

The worst case for final test:

- a: Alarm mode\_ Establish communication between EUT and HUB via wireless function, and then keep EUT in monitoring mode.

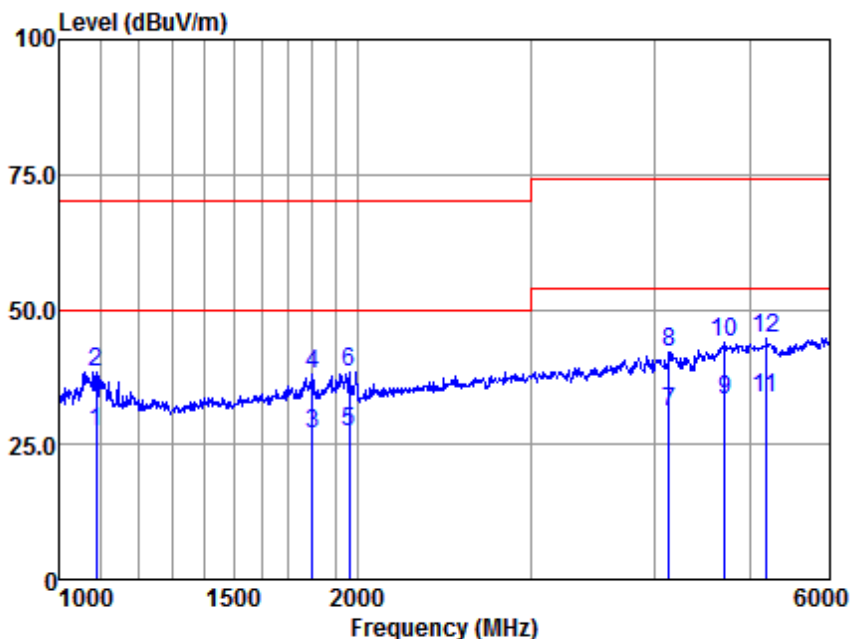
### 6.2.2 Test Setup Diagram



### 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.

Mode:a; Polarization:Horizontal

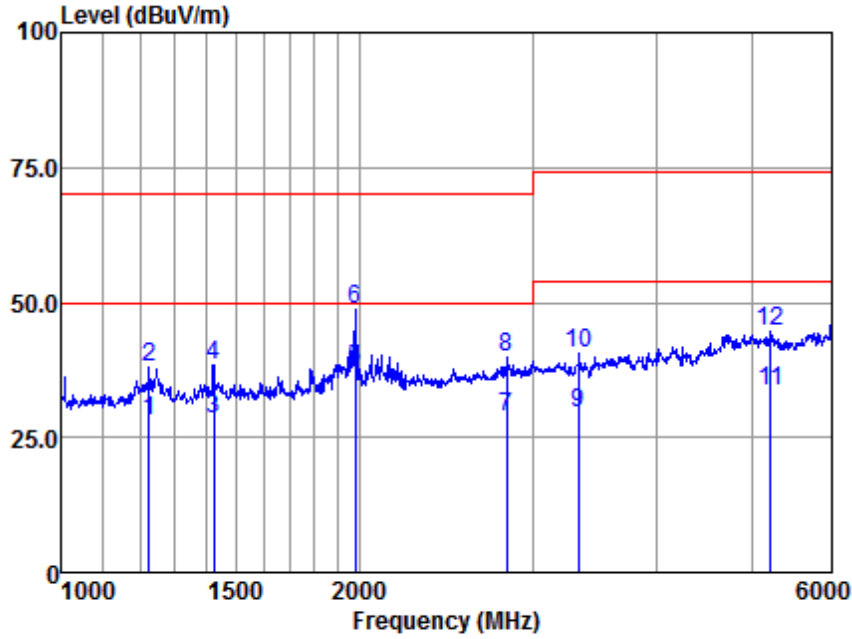


Antenna Polarity :HORIZONTAL  
 EUT/Project :3767CR  
 Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1089.811	40.68	24.34	4.72	42.48	27.26	50.00	-22.74	Average
2	1089.811	51.87	24.34	4.72	42.48	38.45	70.00	-31.55	Peak
3	1803.067	37.34	25.71	6.45	42.39	27.11	50.00	-22.89	Average
4	1803.067	48.31	25.71	6.45	42.39	38.08	70.00	-31.92	Peak
5	1965.002	37.06	25.95	6.56	42.38	27.19	50.00	-22.81	Average
6	1965.002	48.24	25.95	6.56	42.38	38.37	70.00	-31.63	Peak
7	4133.289	32.06	29.95	11.49	42.43	31.07	54.00	-22.93	Average
8	4133.289	43.13	29.95	11.49	42.43	42.14	74.00	-31.86	Peak
9	4702.434	31.55	31.03	13.10	42.48	33.20	54.00	-20.80	Average
10	4702.434	42.42	31.03	13.10	42.48	44.07	74.00	-29.93	Peak
11	5180.156	31.76	31.71	12.59	42.53	33.53	54.00	-20.47	Average
12	5180.156	42.73	31.71	12.59	42.53	44.50	74.00	-29.50	Peak

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

Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL  
EUT/Project :3767CR  
Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1226.618	40.61	24.66	5.25	42.46	28.06	50.00	-21.94	Average
2	1226.618	50.73	24.66	5.25	42.46	38.18	70.00	-31.82	Peak
3	1425.850	40.16	25.07	5.61	42.44	28.40	50.00	-21.60	Average
4	1425.850	50.26	25.07	5.61	42.44	38.50	70.00	-31.50	Peak
5	1979.136	47.35	25.97	6.69	42.38	37.63	50.00	-12.37	Average
6	1979.136	58.27	25.97	6.69	42.38	48.55	70.00	-21.45	Peak
7	2816.900	34.78	28.12	8.27	42.31	28.86	50.00	-21.14	Average
8	2816.900	45.71	28.12	8.27	42.31	39.79	70.00	-30.21	Peak
9	3333.632	33.95	28.71	9.30	42.34	29.62	54.00	-24.38	Average
10	3333.632	44.83	28.71	9.30	42.34	40.50	74.00	-33.50	Peak
11	5217.416	31.85	31.74	12.60	42.54	33.65	54.00	-20.35	Average
12	5217.416	42.76	31.74	12.60	42.54	44.56	74.00	-29.44	Peak

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

## 7 Immunity Test Results

### 7.1 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 self-recoverable, 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.

**Performance criteria for equipment which does not**

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.

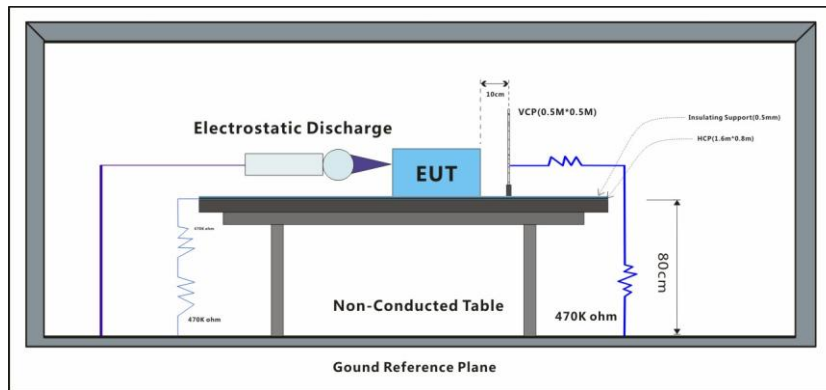
**Performance criteria for ancillary equipment teste**

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.

## 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	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A

### Results:

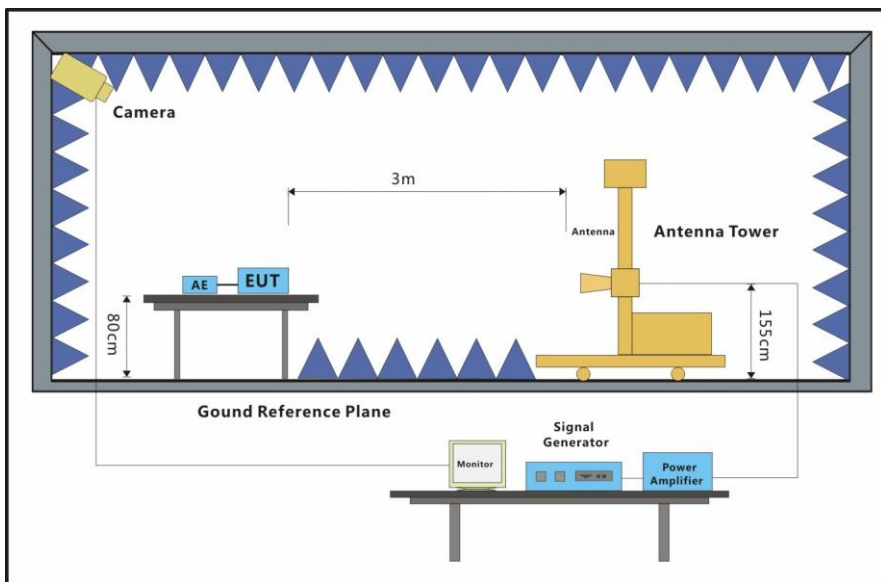
A: No degradation in the performance of the EUT was observed.



### 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	A
80MHz-6GHz	3	Right	2s	A
80MHz-6GHz	3	Top	2s	A
80MHz-6GHz	3	Underside	2s	A

#### Results:

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



## 8 Photographs

Refer to the < Photographs >

**- End of the Report -**