

Prüfbericht-Nr.: <i>Test report no.:</i>	NN204TLC 001	Auftrags-Nr.: <i>Order no.:</i>	168283743	Seite 1 von 18 <i>Page 1 of 18</i>
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2020-09-24	
Auftraggeber: <i>Client:</i>	Hangzhou Hikvision Digital Technology Co.,Ltd. No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China			
Prüfgegenstand: <i>Test item:</i>	Wireless Magnet Shock Detector			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	DS-PDMCK-EG2-WB, DS-PDMCK-EG2-WBUHK, DS-PDMCK-EG2-WBCKV, DS-PDMCK-EG2-WBUVS, DS-PDMCK-EG2-WBKVO, DS-PDMCK-EG2-WBHUN			
Auftrags-Inhalt: <i>Order content:</i>	FCC approval			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.231 CFR47 FCC Part 15: Subpart C Section 15.209 CFR47 FCC Part 2: Subpart J Section 2.1093			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2020-09-25			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A002908557-001 to 008			
Prüfzeitraum: <i>Testing period:</i>	2020-09-26 - 2020-10-19			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	<u>Bell Hu</u>	genehmigt von: <i>authorized by:</i>	<u>Winnie Hou</u>	
Datum: <i>Date:</i>	2020-10-20	Ausstellungsdatum: <i>Issue date:</i>	2020-10-20	
Stellung / Position	Project Manager	Stellung / Position	Technical Certifier	
Sonstiges / Other: FCC ID: 2ADTD-D1343091				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged:</i>		
* 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 specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

V05

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 DEACTIVATION OF THE TRANSMISSION

RESULT: Pass

5.1.3 20dB BANDWIDTH

RESULT: Pass

5.1.4 99% BANDWIDTH

RESULT: Pass

5.1.5 FIELD STRENGTH OF FUNDAMENTAL AND UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

RESULT: Pass

Contents

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 DEACTIVATION OF THE TRANSMISSION

RESULT: Pass

5.1.3 20dB BANDWIDTH

RESULT: Pass

5.1.4 99% BANDWIDTH

RESULT: Pass

5.1.5 FIELD STRENGTH OF FUNDAMENTAL AND UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

RESULT: Pass

Contents

1	GENERAL REMARKS	5
1.1	COMPLEMENTARY MATERIALS	5
2	TEST SITES	6
2.1	TEST FACILITIES	6
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS.....	6
2.3	TRACEABILITY	7
2.4	CALIBRATION	7
2.5	MEASUREMENT UNCERTAINTY.....	7
2.6	LOCATION OF ORIGINAL DATA.....	7
2.7	STATUS OF FACILITY USED FOR TESTING.....	7
3	GENERAL PRODUCT INFORMATION	8
3.1	PRODUCT FUNCTION AND INTENDED USE.....	8
3.2	RATINGS AND SYSTEM DETAILS	8
3.3	INDEPENDENT OPERATION MODES	9
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	9
3.5	SUBMITTED DOCUMENTS.....	9
4	TEST SET-UP AND OPERATION MODES	10
4.1	PRINCIPLE OF CONFIGURATION SELECTION	10
4.2	TEST OPERATION AND TEST SOFTWARE	10
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	10
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	10
4.5	TEST SETUP DIAGRAM	11
5	TEST RESULTS	13
5.1	TRANSMITTER REQUIREMENT & TEST SUITES	13
5.1.1	<i>Antenna Requirement</i>	<i>13</i>
5.1.2	<i>Deactivation of the Transmission</i>	<i>14</i>
5.1.3	<i>20dB Bandwidth</i>	<i>15</i>
5.1.4	<i>99% Bandwidth</i>	<i>16</i>
5.1.5	<i>Field strength of fundamental and Unwanted Emissions in the Spurious Domain</i>	<i>17</i>
6	PHOTOGRAPHS OF THE TEST SET-UP	18
7	LIST OF TABLES.....	18

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: Photographs of the Test Set-Up

Appendix B: Test Results.

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China

FCC Registration No.: 694916

ISED wireless device testing laboratory: 25069

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

TÜV Rheinland (Shenzhen) Co., Ltd.

Unwanted Emission Testing (TS9975)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	2021-08-11
Signal Analyzer	R&S	FSV 40	101439	2021-08-10
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	2021-08-10
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2021-08-10
Amplifier	R&S	SCU-18F	180070	2021-08-10
Amplifier	R&S	SCU40A	100475	2021-09-10
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2022-08-08
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2022-08-08
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2022-08-08
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2022-09-13
Wideband Ridged Horn Antenna (12-18 GHz)	Steatite	QMS-00208	18313	2021-09-02
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	2021-07-06

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 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 basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Item		Extended Uncertainty
Conducted Emission		± 2.68 dB
Radiated Emission (30-1000MHz)	Field strength (dBµV/m)	± 5.16 dB
Radiated Emission (above 1000MHz)	Field strength (dBµV/m)	± 2.22 dB
Radio Spectrum		± 4.51 dB

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B 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. Test facility located at 362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of 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 Magnet Shock Detector.

According to the declaration of the applicant, the electrical circuit design, PCB layout and construction Design are identical for all models, only the model No. are different.

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

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	Wireless Magnet Shock Detector
Type Designation	DS-PDMCK-EG2-WB, DS-PDMCK-EG2-WBUHK, DS-PDMCK-EG2-WBCKV, DS-PDMCK-EG2-WBUVS, DS-PDMCK-EG2-WBKVO, DS-PDMCK-EG2-WBHUN
FCC ID	2ADTD-D1343091
Extreme Temperature Range	-10°C - +55°C
Operating Voltage	DC 3V (Battery)
Testing Voltage	Fully charged battery
Technical Specification	
Frequency Range	433.1 MHz
Type of Modulation	FSK
Channel Number	1 channel
Antenna Type	Integral Antenna
Antenna Gain	-10.7 dBi

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Transmitting mode
- B. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

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.

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.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5&6. All testing were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model DS-PDMCK-EG2-WB in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 3: List of Accessories and Auxiliary Equipment

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

4.4 Countermeasures to Achieve EMC 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 (Below 1GHz)

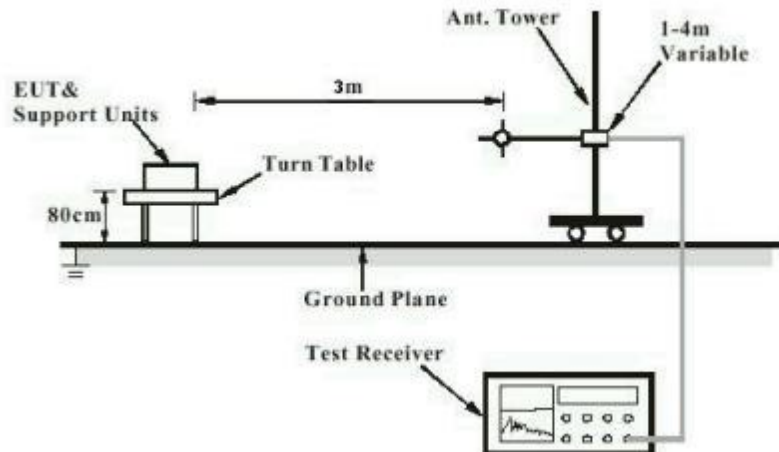


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

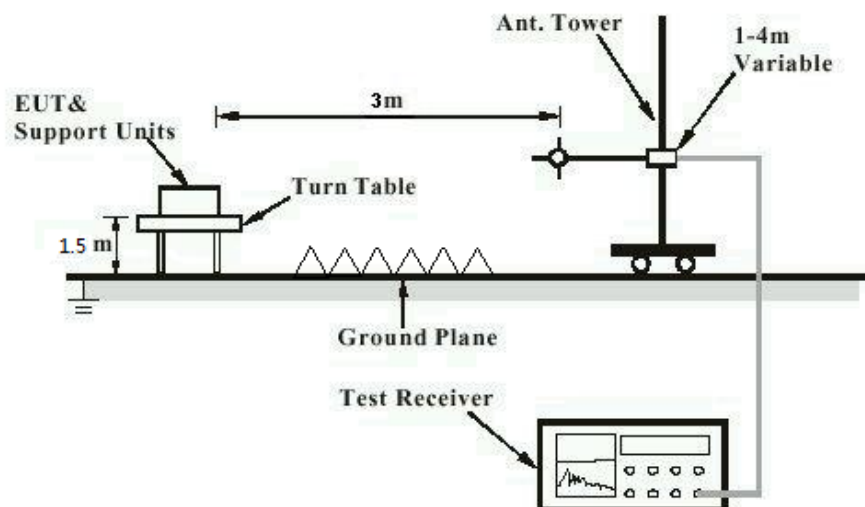
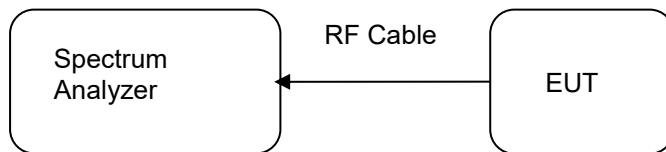


Diagram of Measurement Equipment Configuration for Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:**Pass****Test Specification**

Test standard	:	Part 15.203
	:	RSS-Gen Clause 6.7
Limit	:	the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declared, the EUT has an integral antenna, the directional gain of antenna is -10.7 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

5.1.2 Deactivation of the Transmission

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.31(a)(1) RSS-210 Issue 9 Table B
Basic standard	: ANSI C63.10: 2013
Limit	: A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of after released.
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2020-10-19
Input voltage	: Fully charged battery
Operation mode	: A
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

5.1.3 20dB Bandwidth

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.231(c)
RSS-Gen Issue 5
Basic standard : ANSI C63.10: 2013
Limit : FCC Part 15.231(c)
Kind of test site : Shielded Room

Test Setup

Date of testing : 2020-10-16
Input voltage : Fully charged battery
Operation mode : A
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Prüfbericht - Nr.: NN204TLC 001
Test Report No.

Seite 16 von 18
Page 16 of 18

5.1.4 99% Bandwidth

RESULT:

Pass

Test Specification

Test standard : RSS-Gen Clause 6.6
Basic standard : ANSI C63.10: 2013
Kind of test site : Shielded Room

Test Setup

Date of testing : 2020-10-16
Input voltage : Fully charged battery
Operation mode : A
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

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

RESULT:**Pass****Test Specification**

Test standard	FCC Part 15.231(b) (1)(2)(3) FCC Part 15.205 FCC Part 15.209 RSS-Gen Issue 5 RSS-210 Issue 9
Basic standard	ANSI C63.10: 2013
Limits	FCC Part 15.231(b)
Kind of test site	3m Semi-anechoic Chamber

Test Setup

Date of testing	2020-10-19
Input voltage	Fully charged battery
Operation mode	A
Ambient temperature	Refer to test result
Relative humidity	Refer to test result
Atmospheric pressure	101 kPa

For the measurement records, refer to the appendix B.

6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

7 List of Tables

Table 1: List of Test and Measurement Equipment.....	6
Table 2: Technical Specification of EUT	8
Table 3: List of Accessories and Auxiliary Equipment.....	10