



TEST REPORT

Application No.: SHEM1906014402AT
Applicant: ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD.
Address of Applicant: No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China
Manufacturer: ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD.
Address of Manufacturer: No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China
Equipment Under Test (EUT):
EUT Name: Digital Video Recorder
Model No.: DH-XVR5104H-I, XVR5104H-I; ☐
☐ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standard(s) : EN 55032:2015 (Class A)
EN 55024:2010 +A1:2015
EN 50130-4:2011 +A1:2014
EN 55035:2017
EN 61000-3-2:2014,
EN 61000-3-3:2013
Date of Receipt: 2019-06-21
Date of Test: 2019-06-21 to 2019-06-24
Date of Issue: 2019-11-06

Test Result:	Pass*
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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



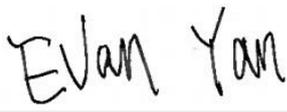
The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant 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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Revision Record			
Version	Description	Date	Remark
00	Add models and test	2019-11-06	Based on SHEM180700598901

Authorized for issue by:			
			
		<hr/>	
		Evan Yan / Project Engineer	
			
		<hr/>	
		Bruce Tang / Reviewer	

2 Test Summary

Based on SHEM180700598901, and additional test for model DH-XVR5104H-I as below:

Emission Part				
Item	Standard	Method	Requirement	Result
Radiated Emissions (30MHz-1GHz)	EN 55032:2015	EN 55032:2015	Class A	Pass
Radiated Emissions (above 1GHz)	EN 55032:2015	EN 55032:2015	Class A	Pass

Immunity Part				
Item	Standard	Method	Requirement	Result
Electrostatic Discharge	EN 55024:2010 +A1:2015	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass
Electrostatic Discharge	EN 50130-4:2011 +A1:2014	EN 61000-4-2:2009	6kV Contact Discharge 2,4,8kV Air Discharge	Pass
Electrostatic Discharge	EN 55035:2017	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass
Radiated Immunity (80MHz-1GHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz)	EN 55035:2017	EN 61000-4-3:2006 +A1:2008+A2:2010	3V/m, 80%, 1kHz Amp. Mod.	Pass
Radiated Immunity (80MHz-2.7GHz)	EN 50130-4:2011 +A1:2014	EN 61000-4-3:2006 +A1:2008+A2:2010	10V/m, 80%, 1kHz sinusoidal Amp. Mod.	Pass
Radiated Immunity (80MHz-1GHz)	EN 55024:2010 +A1:2015	EN 61000-4-3:2006 +A1:2008+A2:2010	3V/m, 80%, 1kHz Amp. Mod.	Pass

Internal Source	Upper Frequency
Below 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5 times the highest frequency or 6 GHz, whichever is less

Remark:

There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Their differences are model number and appearance.

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4 General Information

4.1 Details of E.U.T.

Power supply: DC12V 1.5A
 Adapter: ADS-26FSG-12 12018EPG, input: AC100-240V 50/60Hz Max 0.7A, output: DC12V 1.5A

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
AC Adapter	HOIOTO	ADS-25FSG-12	/
Hard disk	HGST	HTS541010A9E680	/
Headset	HYUNDAI	HY-R362	/
Laptop	LENOVO	R400	/
Monitor	DELL	ST2220Lb	/
Network Camera	/	DS-2CD893PF-E	/
USB Disk	SanDisk	Cruzer Blade 8GB	/
USB Mouse	3D Optical Mouse	--	/

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: work status and video quality

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	CLAVIO	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	CLAVIO	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-1GHz,1800MHz,2600MHz,3500MHz,5000MHz)					
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

Radiated Immunity(80MHz-2.7GHz)					
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
Antenna	SCHWARZBECK	STLP9149	SHEM131-1	N/A	N/A
Amplifier	MILMEGA	80RF1000-250	SHEM132-1	2018-12-20	2019-12-19
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
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21

Radiated Immunity (80MHz-1GHz)					
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
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21

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 55032:2015
Test Method:	EN 55032:2015
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Limit:	
30MHz-230MHz	50 dB(μ V/m) quasi-peak
230MHz-1GHz	57 dB(μ V/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

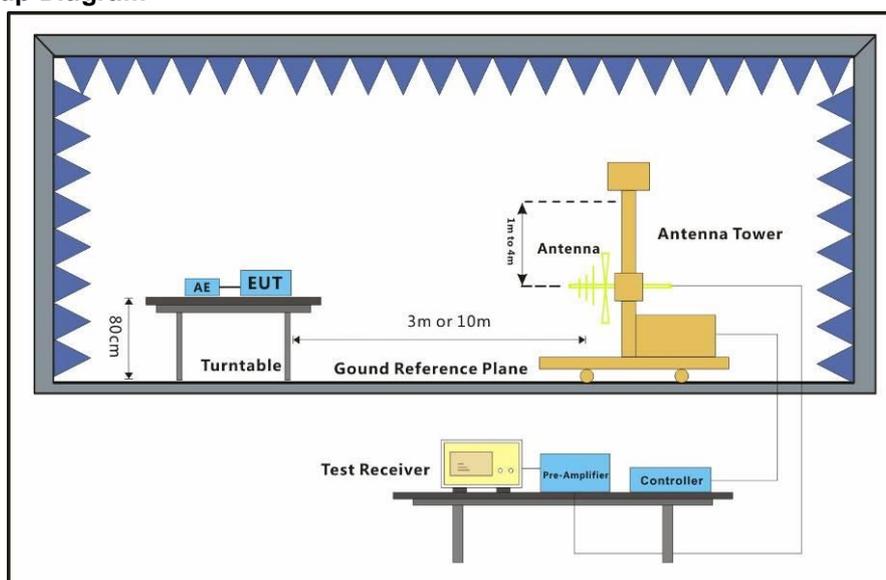
6.1.1 E.U.T. Operation

Operating Environment:

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

Test mode a: keep EUT monitoring and data running continually.

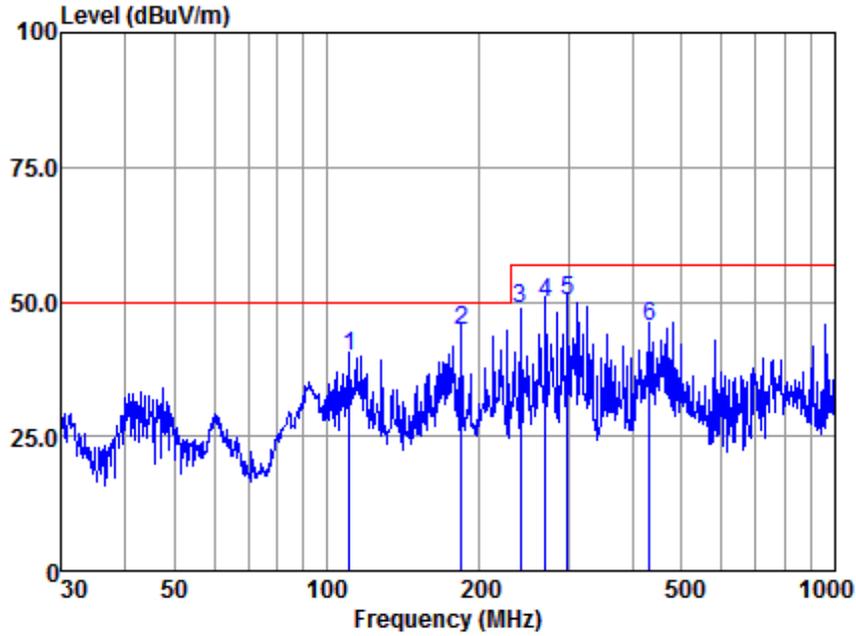
6.1.2 Test Setup Diagram



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

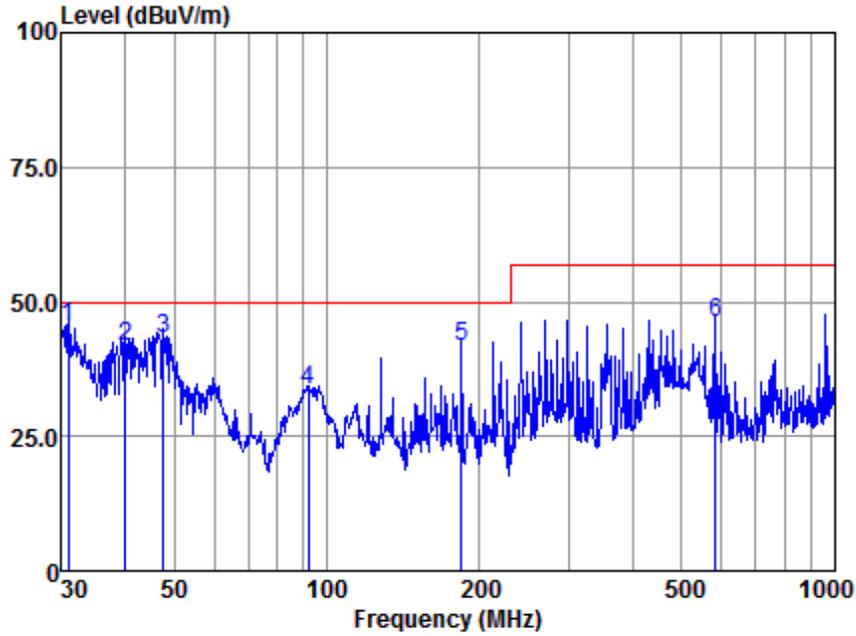


Antenna Polarity :HORIZONTAL
EUT/Project :14402AT
Test mode :a

	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	110.957	71.15	9.64	1.21	42.30	39.70	50.00	-10.30	QP
2	184.490	73.98	11.23	1.68	42.19	44.70	50.00	-5.30	QP
3	240.830	77.35	11.13	2.18	42.12	48.54	57.00	-8.46	QP
4	269.428	77.47	12.21	2.21	42.11	49.78	57.00	-7.22	QP
5	298.268	76.85	13.16	2.39	42.12	50.28	57.00	-6.72	QP
6	432.546	68.06	15.83	3.12	41.81	45.20	57.00	-11.80	QP

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

Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL
EUT/Project :14402AT
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	30.962	71.82	15.41	0.50	42.37	45.36	50.00	-4.64	QP
2	40.135	67.41	16.18	0.31	42.33	41.57	50.00	-8.43	QP
3	47.659	73.29	11.76	0.44	42.33	43.16	50.00	-6.84	QP
4	91.816	66.39	8.35	1.02	42.29	33.47	50.00	-16.53	QP
5	184.490	71.14	11.23	1.68	42.19	41.86	50.00	-8.14	QP
6	582.743	65.06	19.01	3.73	41.67	46.13	57.00	-10.87	QP

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

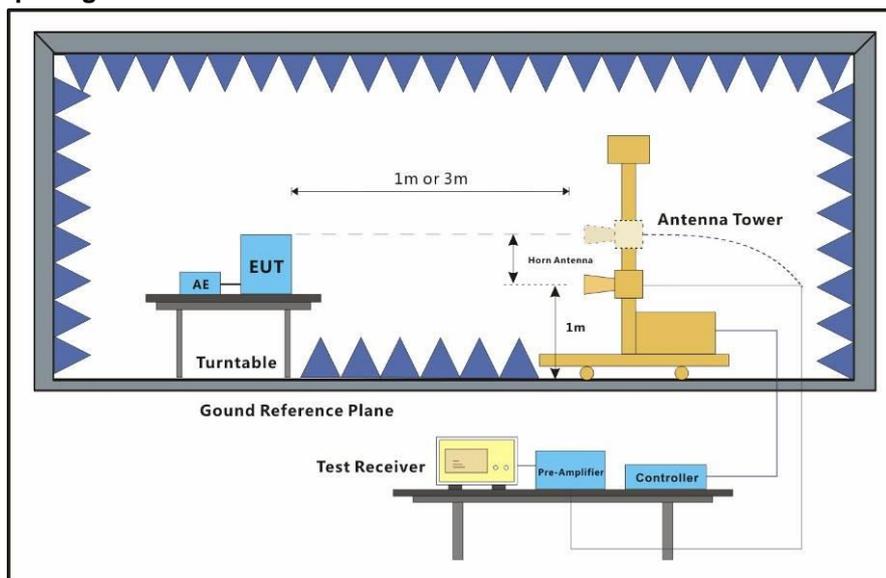
6.2 Radiated Emissions (above 1GHz)

Test Requirement:	EN 55032:2015
Test Method:	EN 55032:2015
Frequency Range:	Above 1GHz
Measurement Distance:	3m
Limit:	
1GHz-3GHz	76 dB(μV/m) peak, 56 dB(μV/m) average
3GHz-6GHz	80 dB(μV/m) peak, 60dB(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
Test mode	a: keep EUT monitoring and data running continually.		

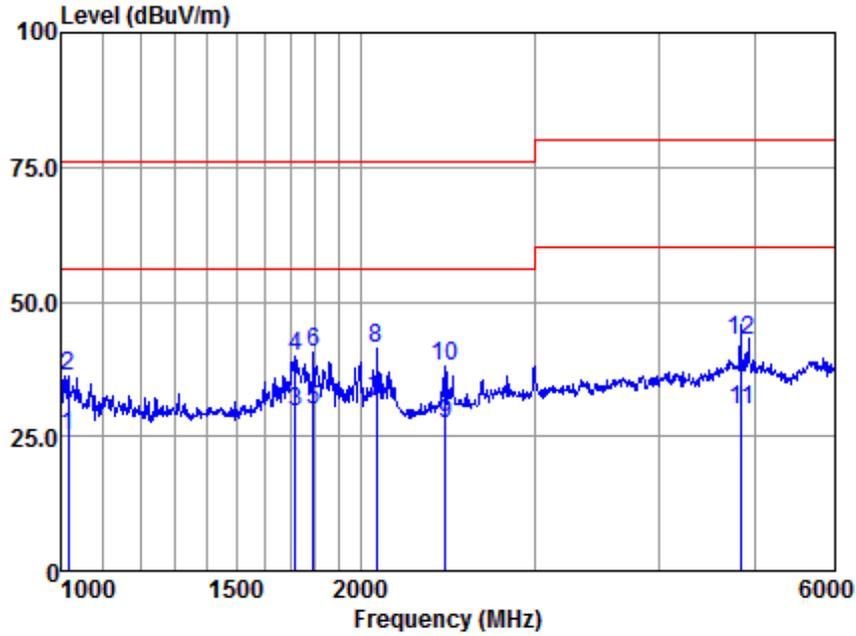
6.2.2 Test Setup Diagram



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

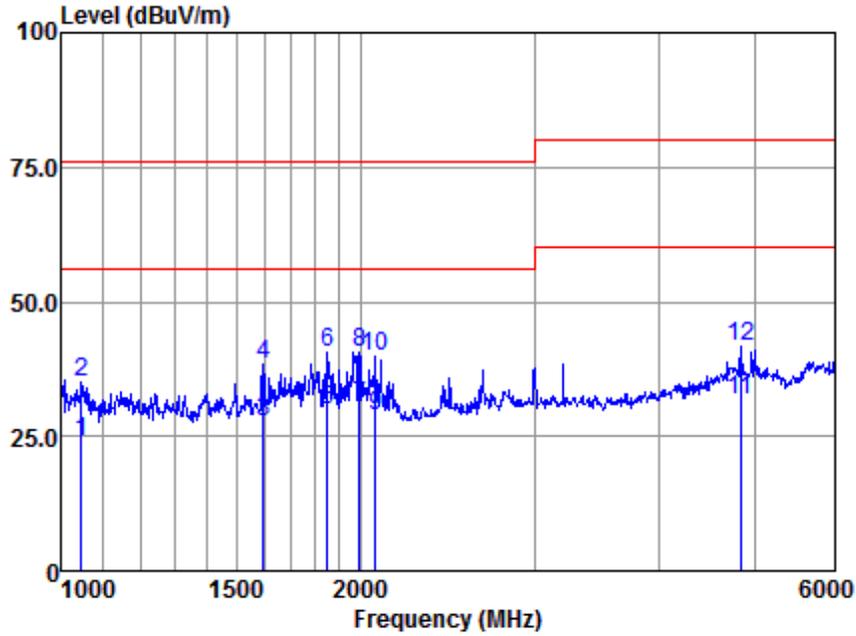


Antenna Polarity :HORIZONTAL
 EUT/Project :14402AT
 Test mode :a

	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	1016.257	38.95	24.15	4.47	42.50	25.07	56.00	-30.93	Average
2	1016.257	49.92	24.15	4.47	42.50	36.04	76.00	-39.96	Peak
3	1720.996	40.17	25.58	6.21	42.40	29.56	56.00	-26.44	Average
4	1720.996	50.44	25.58	6.21	42.40	39.83	76.00	-36.17	Peak
5	1793.401	40.06	25.70	6.45	42.39	29.82	56.00	-26.18	Average
6	1793.401	50.93	25.70	6.45	42.39	40.69	76.00	-35.31	Peak
7	2077.235	40.16	26.24	7.18	42.37	31.21	56.00	-24.79	Average
8	2077.235	50.30	26.24	7.18	42.37	41.35	76.00	-34.65	Peak
9	2436.358	34.68	27.24	7.70	42.34	27.28	56.00	-28.72	Average
10	2436.358	45.43	27.24	7.70	42.34	38.03	76.00	-37.97	Peak
11	4839.195	28.13	31.30	12.83	42.49	29.77	60.00	-30.23	Average
12	4839.195	41.27	31.30	12.83	42.49	42.91	80.00	-37.09	Peak

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

Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL
 EUT/Project :14402AT
 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	1047.688	37.45	24.23	4.68	42.49	23.87	56.00	-32.13	Average
2	1047.688	48.81	24.23	4.68	42.49	35.23	76.00	-40.77	Peak
3	1596.237	38.74	25.38	5.94	42.41	27.65	56.00	-28.35	Average
4	1596.237	49.52	25.38	5.94	42.41	38.43	76.00	-37.57	Peak
5	1852.184	40.16	25.78	6.42	42.39	29.97	56.00	-26.03	Average
6	1852.184	50.67	25.78	6.42	42.39	40.48	76.00	-35.52	Peak
7	1996.946	40.17	25.99	6.69	42.37	30.48	56.00	-25.52	Average
8	1996.946	50.35	25.99	6.69	42.37	40.66	76.00	-35.34	Peak
9	2069.805	37.62	26.22	7.18	42.37	28.65	56.00	-27.35	Average
10	2069.805	48.76	26.22	7.18	42.37	39.79	76.00	-36.21	Peak
11	4830.532	30.12	31.28	12.83	42.49	31.74	60.00	-28.26	Average
12	4830.532	40.03	31.28	12.83	42.49	41.65	80.00	-38.35	Peak

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

7 Immunity Test Results

7.1 Performance Criteria Description in EN 55024:2010 +A1:2015

- Criterion A** The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
- Criterion B** After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.
During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test.
If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
- Criterion C** 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.
Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

7.2 Performance Criteria Description in EN 50130-4:2011 +A1:2014

There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of the discharges is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

For further details, please refer to Clause 7.4, 8.4, 9.4, 10.4, 11.4, 12.4 and 13.4, of EN 50130-4.

7.3 Performance Criteria Description in EN 55035:2017

Criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test.

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

Criterion C

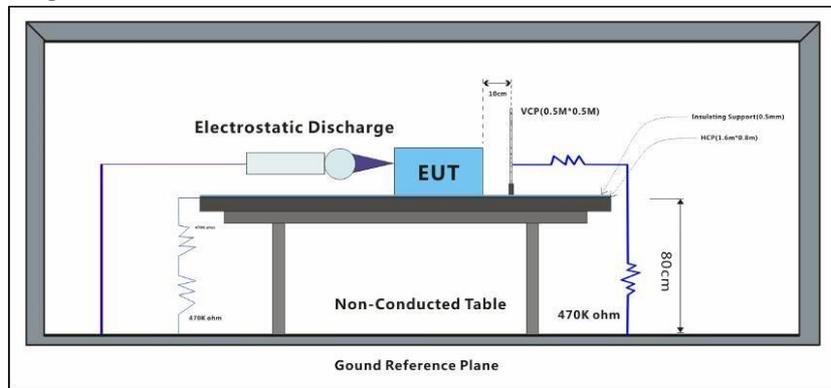
Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

7.4 Electrostatic Discharge

Test Requirement: EN 55024:2010 +A1:2015
 Test Method: EN 61000-4-2:2009
 Performance Criterion: B
 Discharge Impedance: 330Ω/150pF
 Number of Discharge: Minimum of four test points (a minimum of 50 discharges at each point)
 Discharge Mode: Single Discharge
 Discharge Period: 1 second minimum

7.4.1 Test Setup Diagram



7.4.2 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar
 Test mode: a: keep EUT monitoring and data running continually.

7.4.3 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

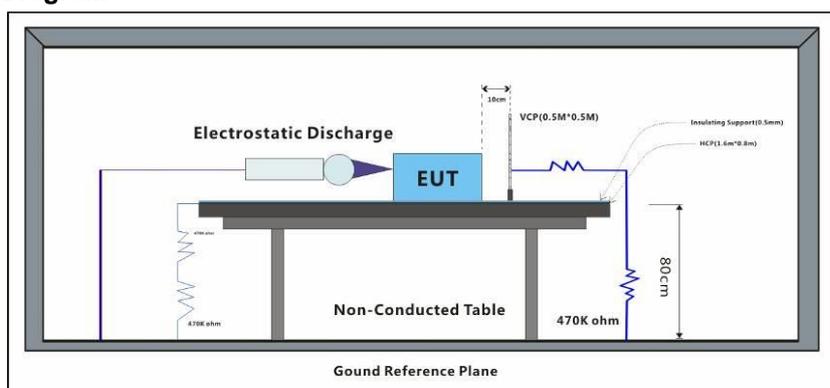
Results:

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

7.5 Electrostatic Discharge

Test Requirement: EN 50130-4:2011 +A1:2014
 Test Method: EN 61000-4-2:2009
 Number of Discharge: Minimum 10 times at each test point for Air Discharge
 Minimum 50 times at each test point for Contact or VCP & HCP Discharge
 Discharge Mode: Single Discharge
 Discharge Period: 1 second minimum
 Criteria for compliance: There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the application of the discharges is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

7.5.1 Test Setup Diagram



7.5.2 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar
 Test mode: a: keep EUT monitoring and data running continually.

7.5.3 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	6	+	2	A
Contact Discharge	6	-	2	A
Horizontal Coupling	6	+	3	A
Horizontal Coupling	6	-	3	A
Vertical Coupling	6	+	3	A
Vertical Coupling	6	-	3	A

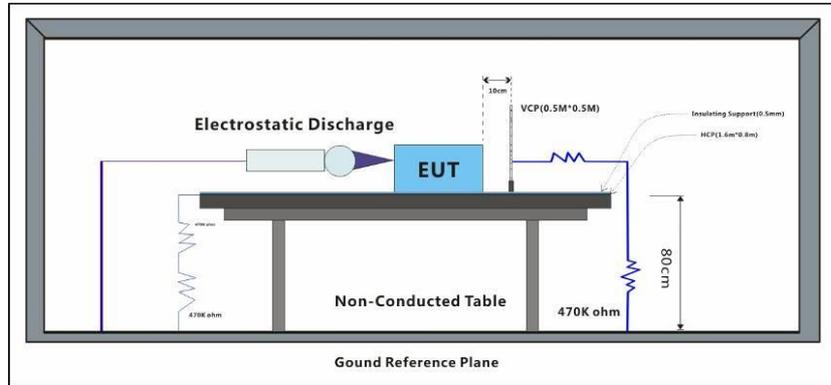
Results:

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

7.6 Electrostatic Discharge

Test Requirement:	EN 55035:2017
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

7.6.1 Test Setup Diagram



7.6.2 E.U.T. Operation

Operating Environment:

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

Test mode: a: keep EUT monitoring and data running continually.

7.6.3 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

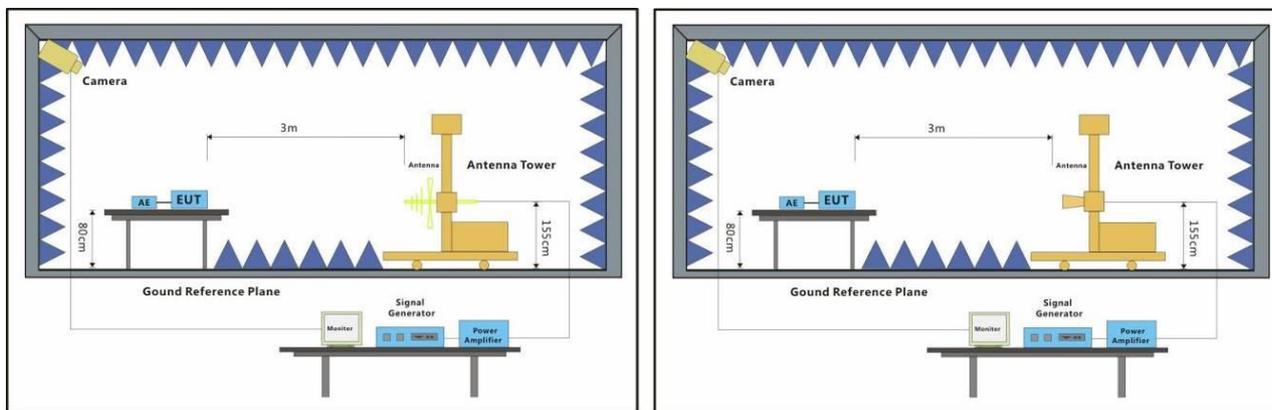
Results:

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

7.7 Radiated Immunity (80MHz-1GHz,1800MHz,2600MHz,3500MHz,5000MHz)

Test Requirement: EN 55035:2017
 Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010
 Performance Criterion: A
 Frequency Range: 80MHz to 1GHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz
 Antenna Polarisation: Vertical and Horizontal
 Modulation: 1kHz,80% Amp. Mod,1% increment

7.7.1 Test Setup Diagram



7.7.2 E.U.T. Operation

Operating Environment:

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

Test mode: a: keep EUT monitoring and data running continually.

7.7.3 Test Results:

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	3	Front	3s	A
80MHz-1GHz	3	Back	3s	A
80MHz-1GHz	3	Left	3s	A
80MHz-1GHz	3	Right	3s	A
80MHz-1GHz	3	Top	3s	A
80MHz-1GHz	3	Underside	3s	A
1800MHz	3	Front	3s	A
1800MHz	3	Back	3s	A
1800MHz	3	Left	3s	A
1800MHz	3	Right	3s	A
1800MHz	3	Top	3s	A
1800MHz	3	Underside	3s	A
2600MHz	3	Front	3s	A
2600MHz	3	Back	3s	A
2600MHz	3	Left	3s	A
2600MHz	3	Right	3s	A
2600MHz	3	Top	3s	A
2600MHz	3	Underside	3s	A
3500MHz	3	Front	3s	A
3500MHz	3	Back	3s	A



3500MHz	3	Left	3s	A
3500MHz	3	Right	3s	A
3500MHz	3	Top	3s	A
3500MHz	3	Underside	3s	A
5000MHz	3	Front	3s	A
5000MHz	3	Back	3s	A
5000MHz	3	Left	3s	A
5000MHz	3	Right	3s	A
5000MHz	3	Top	3s	A
5000MHz	3	Underside	3s	A

Results:

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

7.8 Radiated Immunity(80MHz-2.7GHz)

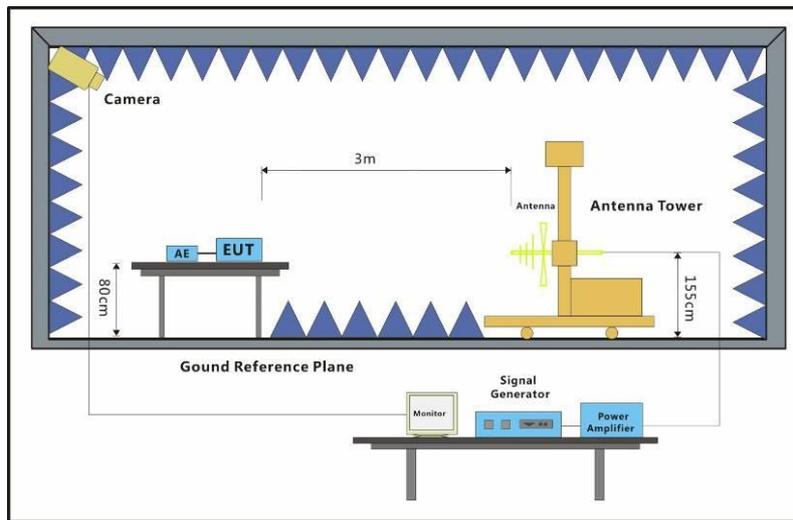
Test Requirement: EN 50130-4:2011 +A1:2014
 Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010
 Modulation: 80%, 1 kHz Amplitude Modulation & 0.5s ON 0.5s OFF Pulse Modulation

Criteria for compliance: There shall be no damage, malfunction or change of status due to the conditioning. Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change, and no such flickering of indicators occurs at a field strength of 3 V/m.

For components of CCTV systems, where the status is monitored by observing the TV picture, then deterioration of the picture is allowed at 10 V/m, providing.

- a) there is no permanent damage or change to the EUT (e.g. no corruption of memory or changes to programmable settings etc.);
- b) at 3 V/m, any deterioration of the picture is so minor that the system could still be used; and
- c) there is no observable deterioration of the picture at 1 V/m.

7.8.1 Test Setup Diagram



7.8.2 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar
 Test mode: a: keep EUT monitoring and data running continually.

7.8.3 Test Results:

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-2.7GHz	10	Front	3s	A
80MHz-2.7GHz	10	Back	3s	A
80MHz-2.7GHz	10	Left	3s	A
80MHz-2.7GHz	10	Right	3s	A
80MHz-2.7GHz	10	Top	3s	A
80MHz-2.7GHz	10	Underside	3s	A

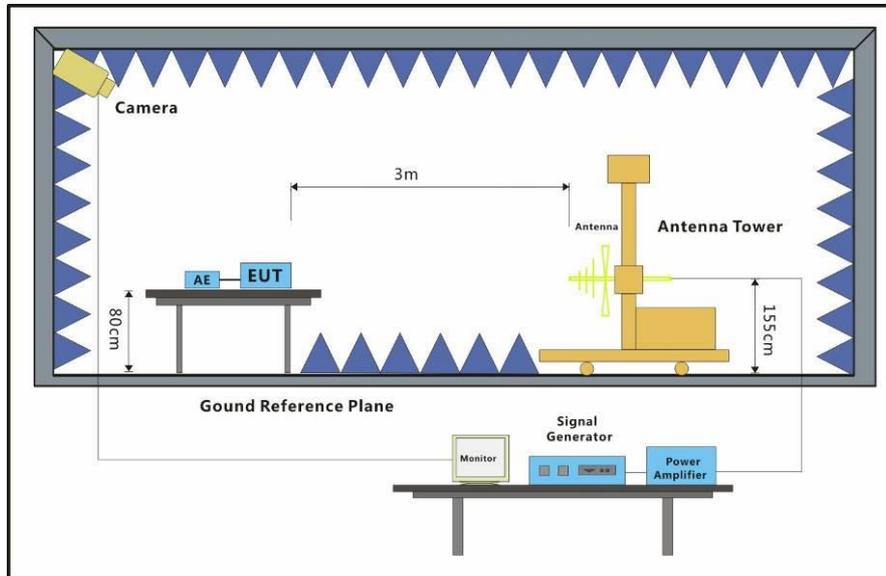
Results:

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

7.9 Radiated Immunity (80MHz-1GHz)

Test Requirement: EN 55024:2010 +A1:2015
 Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010
 Performance Criterion: A
 Frequency Range: 80MHz to 1GHz
 Antenna Polarisation: Vertical and Horizontal
 Modulation: 1kHz,80% Amp. Mod,1% increment

7.9.1 Test Setup Diagram



7.9.2 E.U.T. Operation

Operating Environment:

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

Test mode: a: keep EUT monitoring and data running continually.

7.9.3 Test Results:

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	3	Front	3s	A
80MHz-1GHz	3	Back	3s	A
80MHz-1GHz	3	Left	3s	A
80MHz-1GHz	3	Right	3s	A
80MHz-1GHz	3	Top	3s	A
80MHz-1GHz	3	Underside	3s	A

Results:

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

8 Photographs

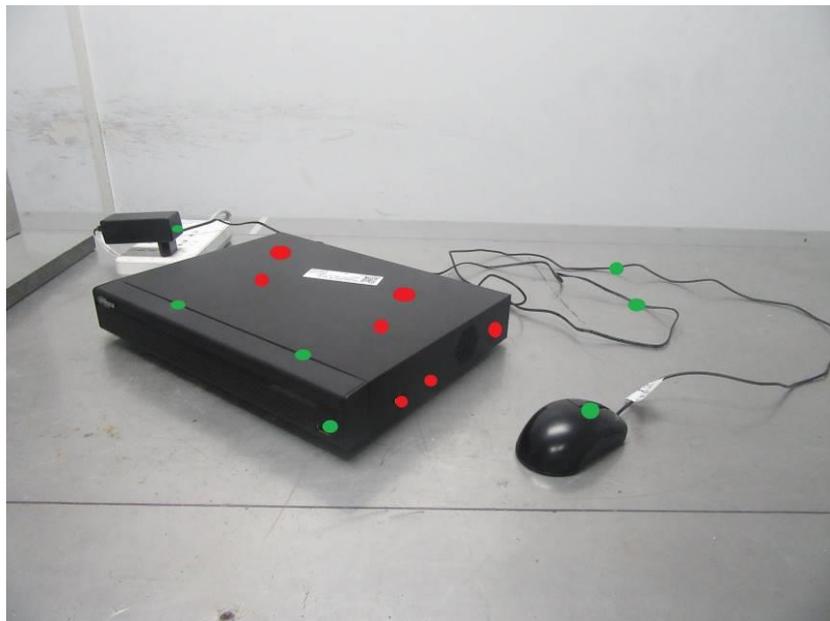
8.1 Radiated Emissions (30MHz-1GHz) Test Setup

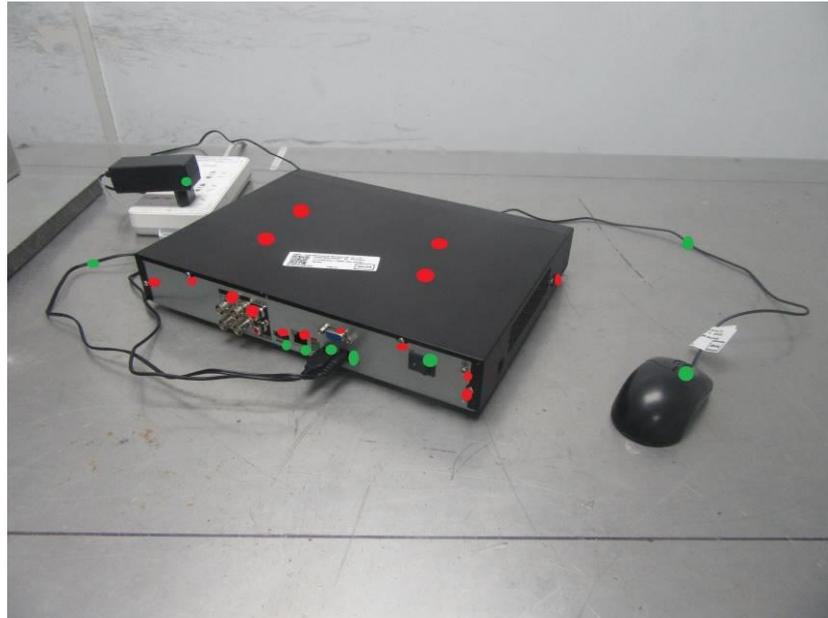


8.2 Radiated Emissions (above 1GHz) Test Setup



8.3 Electrostatic Discharge Test Setup





8.4 Radiated Immunity (80MHz-1GHz,1800MHz,2600MHz,3500MHz,5000MHz) Test Setup



8.5 Radiated Immunity(80MHz-2.7GHz) Test Setup

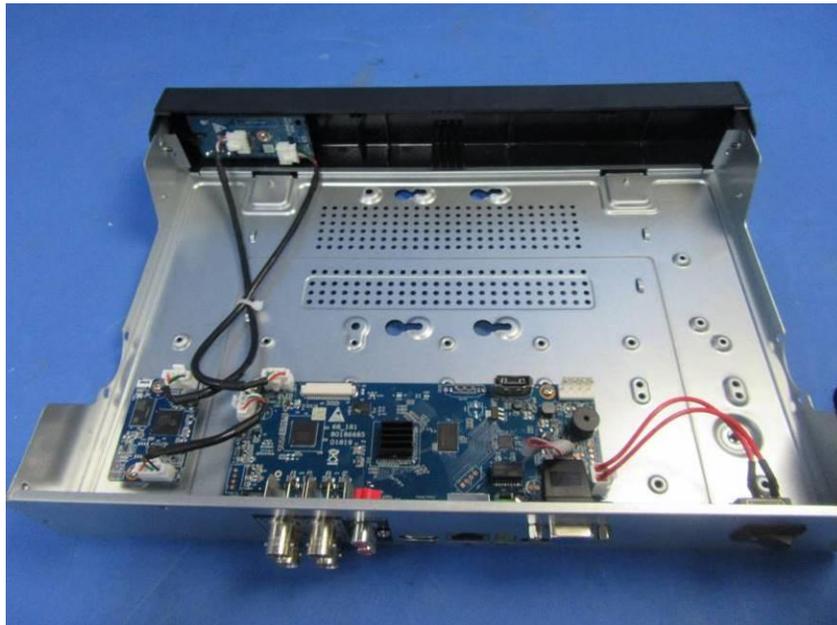


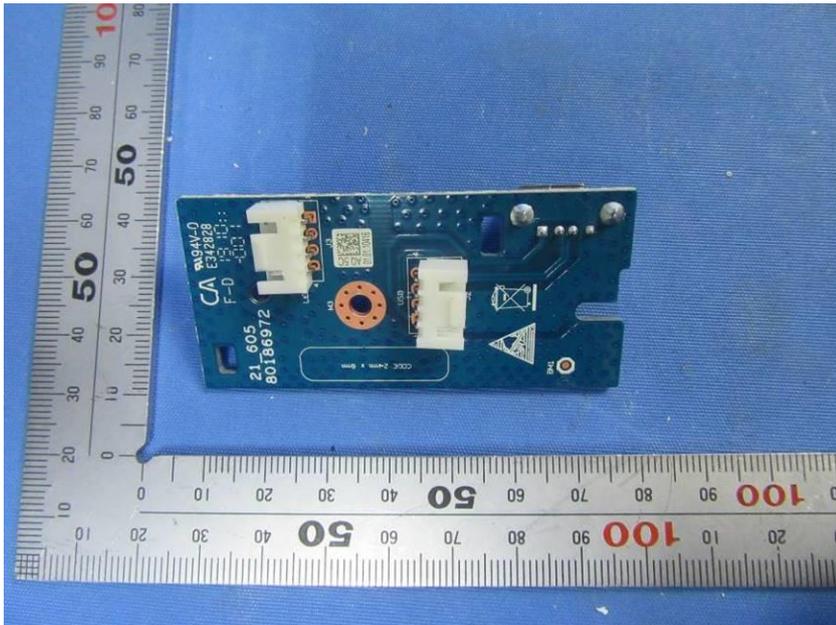
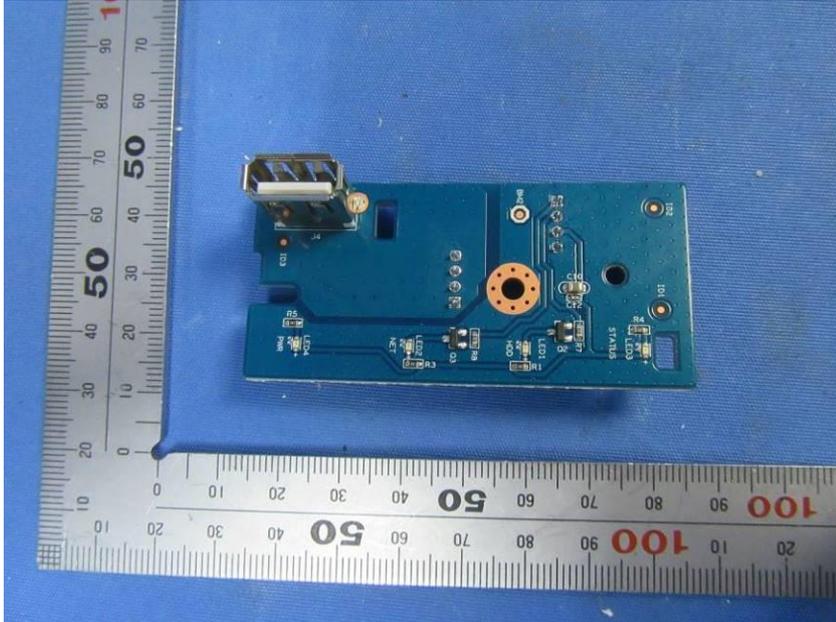
8.6 Radiated Immunity (80MHz-1GHz) Test Setup

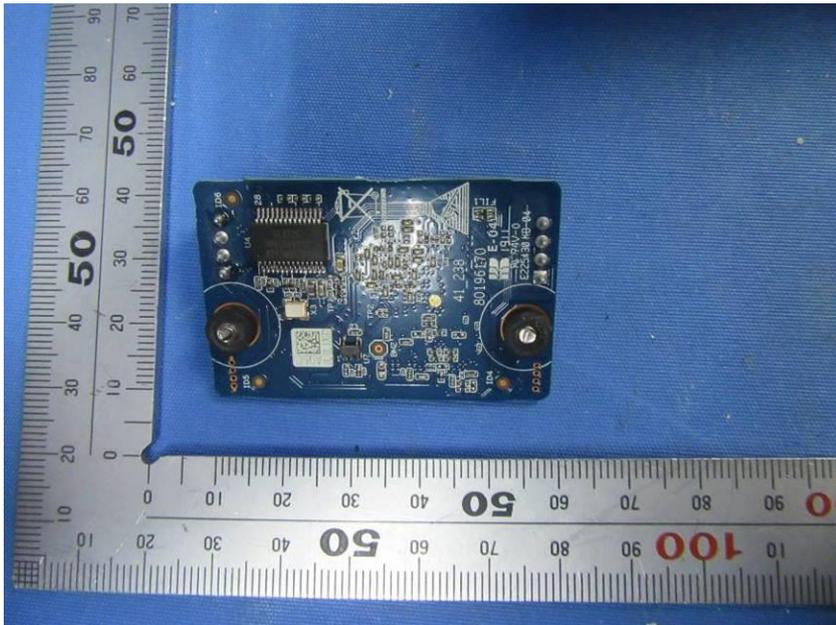
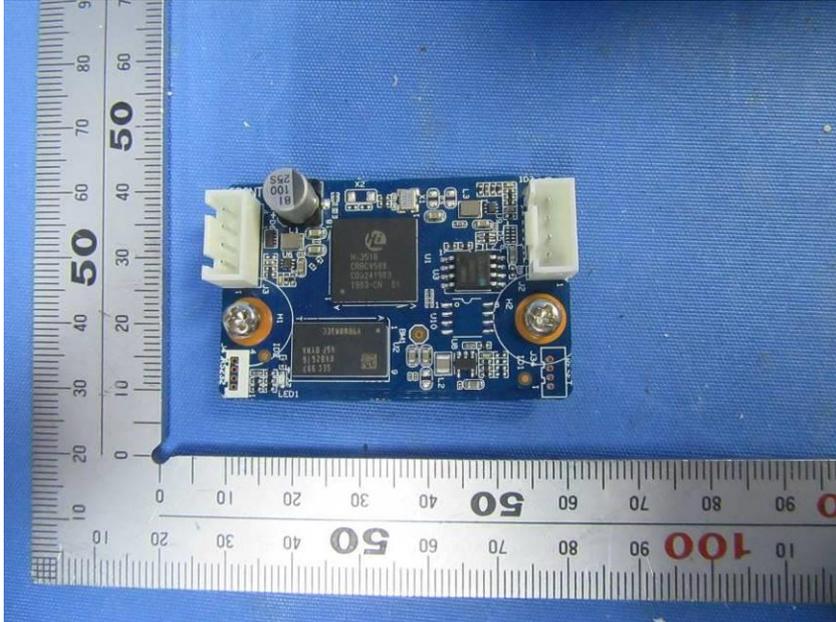


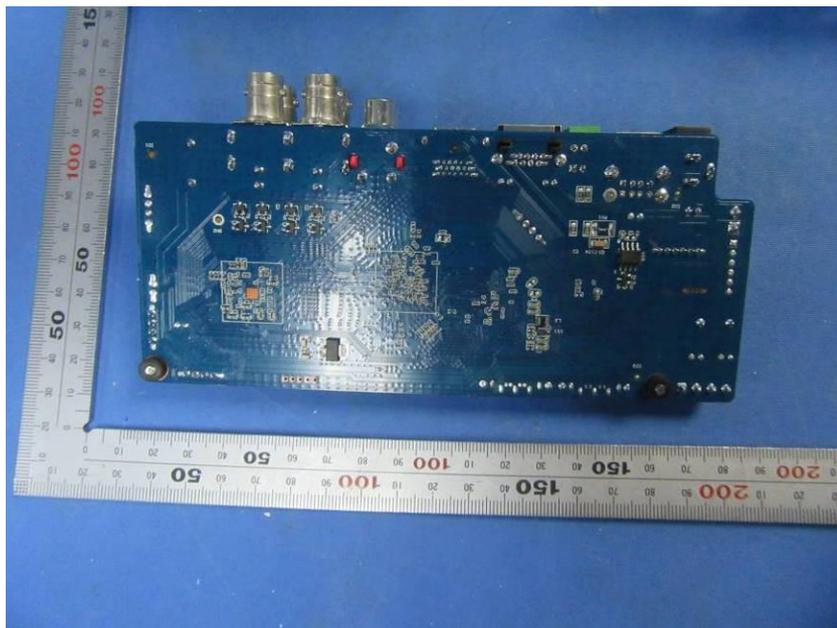
8.7 EUT Constructional Details (EUT Photos)















- End of the Report -