

Test Report

Product Name : Network Camera

Model No. : MD9561-H, MD9581-H, MD9581-HTPM

Applicant : VIVOTEK INC.

Address : 6F, No.192, Lien-Cheng Rd., Chung-Ho, New Taipei City,
Taiwan, R.O.C.

Date of Receipt : 2019/04/02

Issued Date : 2019/11/14

Report No. : 1940043R-ITCEP26V00

Report Version : V2.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

Test Report

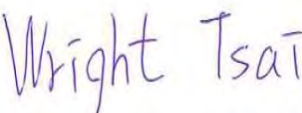
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Product Name : Network Camera
Applicant : VIVOTEK INC.
Address : 6F, No.192, Lien-Cheng Rd., Chung-Ho, New Taipei City,
Taiwan, R.O.C.
Manufacturer : VIVOTEK INC.
Model No. : MD9561-H, MD9581-H, MD9581-HTPM
EUT Rated Voltage : By PoE
EUT Test Voltage : By PoE
Trade Name : VIVOTEK
Applicable Standard : EN 50155: 2017, for EMC, Electric service condition and
Environmental test
EN 50121-3-2: 2016 for EMC test
IEC 60571 Ed 3.0, for EMC
EN 60068-2-1: 2007 for Environmental test
EN 60068-2-2: 2007 for Environmental test
EN 61373: 2010 for Environmental test
Test Result : Complied
Performed Location : DEKRA Testing and Certification Co., Ltd.
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1 General Information

1.1 EUT Description

Product Name	Network Camera
Trade Name	VIVOTEK
Model No.	MD9561-H, MD9581-H, MD9581-HTPM

Note: The different of the each model is shown as below:

Model Number	Description
MD9561-H	2M sensor.
MD9581-H	5M sensor.
MD9581-HTPM	5M sensor. Waterproof membrane design on PCB.

1.2 Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

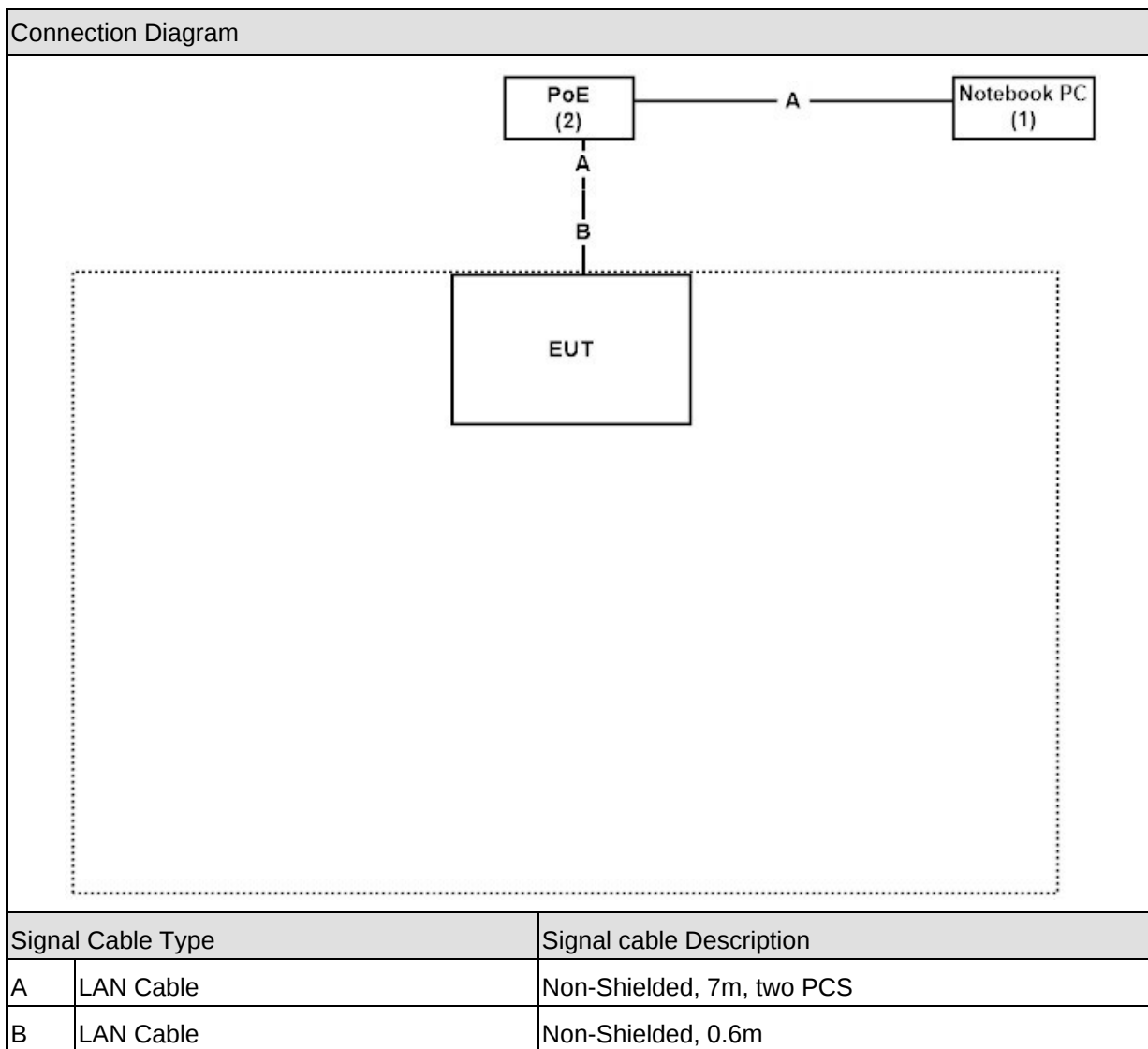
Pre-Test Mode	
Mode 1: MD9561-H , PoE Mode 2: MD9581-H , PoE	
Final Test Mode	
Emission	Mode 1: MD9561-H , PoE Mode 2: MD9581-H , PoE
Immunity	Mode 1: MD9561-H , PoE Mode 2: MD9581-H , PoE
Note: According to pre-test data, we choose the worst case mode 1, 2 as the final and full testing.	

1.3 Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	Latitude 5491	BJ746S2	Non-Shielded, 0.8m
2	PoE	N/A	N/A	N/A	Non-Shielded, 1.8m

1.4 Configuration of Tested System



1.5 EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	All the features of the EUT operation normally.

2 Technical Test

2.1 Summary of Test Result

Report Clause	Test	EN 50155 Reference Clause	Reference Standard	Result
3.	Visual inspection	13.4.1	—	Pass
4.	Insulation test	13.4.9	—	Pass
5.	Electromagnetic compatibility test			
5.1	Radiated Emission	13.4.8	EN 50121-3-2 EN 55011	Pass
5.2	Electrostatic Discharge	13.4.8	EN 50121-3-2 EN 61000-4-2	Pass
5.3	Radiated Susceptibility	13.4.8	EN 50121-3-2 EN 61000-4-3	Pass
5.4	Transient Burst Susceptibility	13.4.8	EN 50121-3-2 EN 61000-4-4	Pass
5.5	Conducted Susceptibility	13.4.8	EN 50121-3-2 EN 61000-4-6	Pass
6.Environmental Tests				
Appendix A	Product Environmental Test Report	--	--	Pass

2.2 List of Test Equipment

Radiated Emission / Site7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Broadband Antenna	Schwarzbeck	VULB 9168	0852	2019/02/02
EMI Test Receiver	R&S	ESCI	100649	2018/07/20
Coaxial Cable	DEKRA	RG 214	LC007-RG	2018/06/18
Pre-Amplifier	DEKRA	AP/0100A	CHM/1009094	2018/06/18
Site7 NSA	DEKRA	N/A	N/A	2018/06/18

Radiated Emission / CB7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESU26	100433	2018/11/13
Horn Antenna	ETS-Lindgren	3117	00202723	2018/08/08
Horn Antenna	SCHWARZBECK	9120D	576	2018/12/18
Pre-Amplifier	EMCI	EMC051845SE	980359	2018/10/24
CB7 VSWR	DEKRA	N/A	N/A	2018/06/25

Electrostatic Discharge / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
ESD Simulator System	Noiseken	ESS-B3011	ESS1233479	2018/05/16
ESD GUN	Noiseken	GT-30R	ESS1233499	2018/05/16
Horizontal Coupling Plane(HCP)	QuieTek	HCP AL50	N/A	N/A
Vertical Coupling Plane(VCP)	QuieTek	VCP AL50	N/A	N/A

Radiated susceptibility / CB9

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Signal Generator	Keysight	N5171B	MY53051650	2019/03/03
Power Sensor	Keysight	N1912A	MY55480006	2019/03/05
Stacked double Log.-Per.-Broadband Antenna	SCHWARZBECK	STLP 9129	9129 011	N/A
Power Amplifier	MILMEGA	80RF1000-300	1071481	N/A
Power Amplifier	MILMEGA	AS0860B-50/50	1071482	N/A
uniform field calibration	Dekra	N/A	N/A	2018/06/15

Electrical fast transient/burst / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMS TEST System	TESEQ	NSG 3060	1685	2018/09/02

Conducted susceptibility / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
TESEQ RF-Generator	TESEQ	NSG 4070B-30	37490	2018/05/29

2.3 Measurement Uncertainty

Radiated Emission

The measurement uncertainty is evaluated as ± 4.22 dB.

Radiated Emission Above 1GHz

The measurement uncertainty is evaluated as ± 5.08 dB.

Electrostatic Discharge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in ESD testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant ESD standards. The immunity test signal from the ESD system meet the required specifications in IEC 61000-4-2 through the calibration report with the calibrated uncertainty for the waveform of voltage, current and timing as being 1.5 %, 4.6% and 6.7%.

Radiated susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in RS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant RS standards. The immunity test signal from the RS system meet the required specifications in IEC 61000-4-3 through the calibration for the uniform field strength and monitoring for the test level with the uncertainty evaluation report for the electrical field strength as being 3.57 dB.

Electrical fast transient/burst

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in EFT/Burst testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant EFT/Burst standards. The immunity test signal from the EFT/Burst system meet the required specifications in IEC 61000-4-4 through the calibration report with the calibrated uncertainty for the waveform of voltage, frequency and timing as being 6.3 %,5.1% and 5.3%.

Conducted susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025, the requirements for measurement uncertainty in CS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant CS standards. The immunity test signal from the CS system meet the required specifications in IEC 61000-4-6 through the calibration for unmodulated signal and monitoring for the test level with the uncertainty evaluation report for the injected modulated signal level through CDN and EM Clamp/Direct Injection as being 2.15 dB and 3.3 dB.

2.4 Test Environment

Performed Item	Items	Required	Actual
Radiated Emission	Temperature (°C)	15-35	25.2
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Electrostatic Discharge	Temperature (°C)	15-35	20
	Humidity (%RH)	30-60	50
	Barometric pressure (mbar)	860-1060	900-1000
Radiated susceptibility	Temperature (°C)	15-35	21
	Humidity (%RH)	25-75	53
	Barometric pressure (mbar)	860-1060	950-1000
Electrical fast transient/burst	Temperature (°C)	15-35	20
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Conducted susceptibility	Temperature (°C)	15-35	20
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000

3 Visual Inspection

Inspection Requirement

The visual inspection shall be carried out to ensure that the equipment is of sound construction and meets its specified requirements.

Inspection Procedures

Reference to EN 50155 Clause 13.4.1

Inspection Result

Pass.

4 Insulation test

Test Instrument

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Dielectric Analyzer	EXTECH	7410	1270708	2019/2/12

Test Procedure

- ☐ According to EN 50155: 2007/AC: 2010 clause 12.2.9

Test requirement

12.2.9.1 Insulation measurement test

The insulation resistance test shall be carried out at 500 V d.c. and the values recorded.

The test shall then be repeated after the voltage withstand test

Test acceptance requirements:

There shall be no fundamental deterioration from the initial measurement.

12.2.9.2 Voltage withstand test

- 500 V for nominal battery voltages below 72 V (or 50 volts a.c.)
- 1000 V for nominal battery voltages from 72 V up to 125 V, (or from 50 to 90 V a.c.), and
- 1500 V for nominal battery voltages above 125 V and up to 315 V, (or from 90 to 225 V a.c.)

Test acceptance requirements:

Neither disruptive discharge nor flashover shall occur.

☒ According to EN 50155:2017 clause 13.4.9

13.4.9.1 General

The test comprises two parts, an insulation measurement test (carried out before and after the voltage withstand test), and the voltage withstand test. All measured values shall be recorded in the test report.

Test requirement

12.2.9.2 Insulation measurement test

The insulation resistance measurement test shall be carried out at 500 V DC and the values shall be recorded for all the equipotential areas defined for the insulation test. During the test, the equipment shall not be powered on.

The insulation of each equipotential area shall be tested and measured against mechanical earth and against all surrounding equipotential areas.

Test acceptance requirements:

The minimum value of the insulation resistance after the withstand test shall be higher than 20 M Ω . The equipment shall work as intended and within its specified limits after the insulation test.

12.2.9.3 Voltage withstand test

The test shall be performed with AC (50 Hz or 60 Hz) or DC test voltage according to Table 14. The test voltage shall be applied by gradually increasing the voltage amplitude to the test voltage, and maintained at the specified level for:

- a) Type test: 1 min;
- b) Routine test: 10 s.

Each equipotential area shall be defined and tested against mechanical earth and against all surrounding equipotential areas.

An insulation test is not required for internal electronic 0 V potential electrically connected to the mechanical earth.

During the test the equipment shall not be powered on. The insulation measurement shall be carried out after the voltage withstand test. Significant difference shall be analysed and justified in the test report.

The nominal battery voltage and/or I/O voltage of each equipotential area is the controlling factor for determining the test voltage.

The value of the test voltage shall be according to Table 14. For equipment powered by

Table 14 — Test voltages of voltage withstand test

Nominal battery voltage and/or I/O voltage	Test voltage
< 72 V DC or 50 V AC rms	500 V AC or 750 V DC
72 V DC $\leq$ V DC < 125 V DC or from 50 to 90 V AC rms	1 000 V AC or 1 500 V DC
125 V DC $\leq$ V DC < 315 V DC or from 90 to 225 V AC rms	1 500 V AC or 2 200 V DC

voltage not covered by this standard, see the applicable standards (e.g. EN 61287-1, EN 60077-1).

Where part of the electronic equipment is galvanically connected to a power circuit, then this part of the equipment shall be subject to the same dielectric tests as that circuit.

NOTE For battery referenced port, a higher impulse withstand voltage is applicable, in respect of EN 50121-3-2 surge requirements.

Test acceptance requirements:

Neither disruptive discharge nor flashover shall occur. After the withstand test, the equipment shall work as intended and within its specified limits.

Model No:

MD9561-H, MD9581-H, MD9581-HTPM

Test Results**Insulation measurement test before voltage withstand test: 500VDC**

Test Item	Resistance		Result
Test with EUT(MD9561-H)			
--	Before ¹⁾	After ²⁾	--
Chassis to LAN	>9999MΩ	>9999MΩ	Pass
Chassis to 2P connect	2721MΩ	6414MΩ	Pass
Chassis to 4P connect	6339MΩ	8980MΩ	Pass
Test with EUT(MD9581-H)			
Chassis to LAN	>9999MΩ	>9999MΩ	Pass
Chassis to 2P connect	2883MΩ	7281MΩ	Pass
Chassis to 4P connect	8833MΩ	>9999MΩ	Pass
Supplementary information:			

1) Normal status**2) After Voltage withstand test**

Voltage withstand test: ☐ 500VAC ☒ 750VDC

Test was performed after initial insulation measurement

Test Item	Current (μ A)	Result
Test with EUT(MD9561-H)		
Chassis to LAN	0.0 μ A	Pass
Chassis to 2P connect	0.2 μ A	Pass
Chassis to 4P connect	0.1 μ A	Pass
Test with EUT(MD9581-H)		
Chassis to LAN	0.0 μ A	Pass
Chassis to 2P connect	0.1 μ A	Pass
Chassis to 4P connect	0.1 μ A	Pass
Supplementary information:		

PHOTO



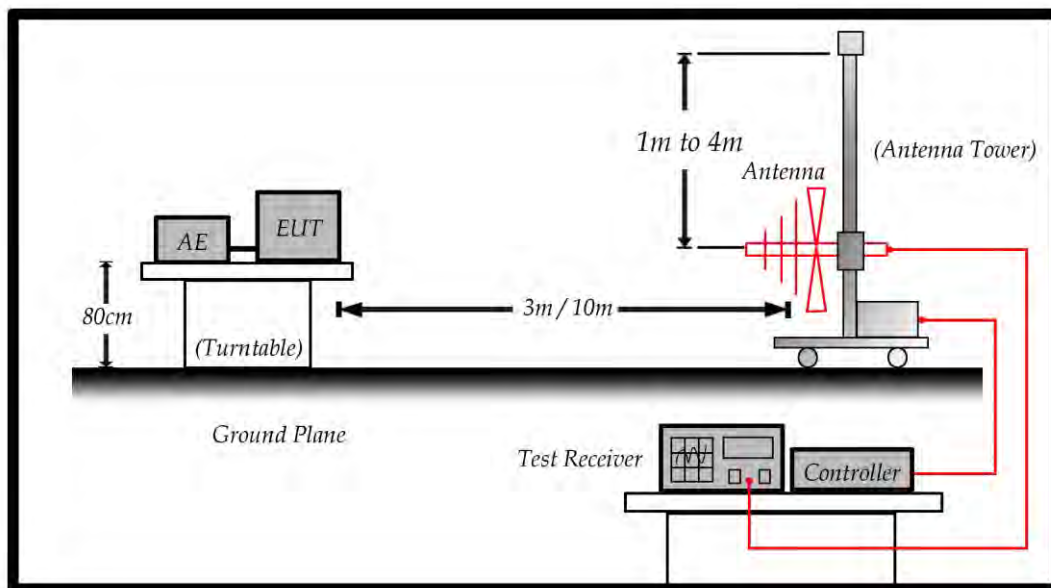
5 Electromagnetic Compatibility test

5.1. Radio frequency interference emission test (Radiated Emission)

Test Specification

According to EN 50121-3-2 standard.

Test Setup



Limit

Limits		
Frequency MHz	Distance (m)	dBuV/m
30 – 230	10	40
230 – 1000	10	47

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Test Procedure

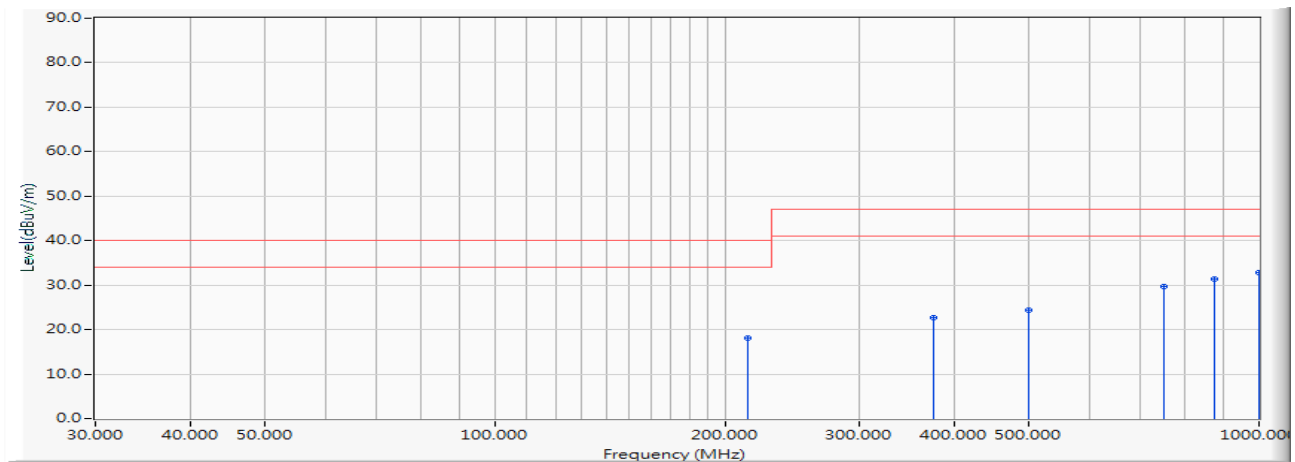
According to EN 55011 basic standard.

Deviation from Test Standard

No deviation.

Test Result

Site : SITE7	Time : 2019/04/03 - 14:57
Limit : CISPR_A_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site7_VULB9168_10m_1804 - HORIZONTAL
Power : POE	Note : Mode 1

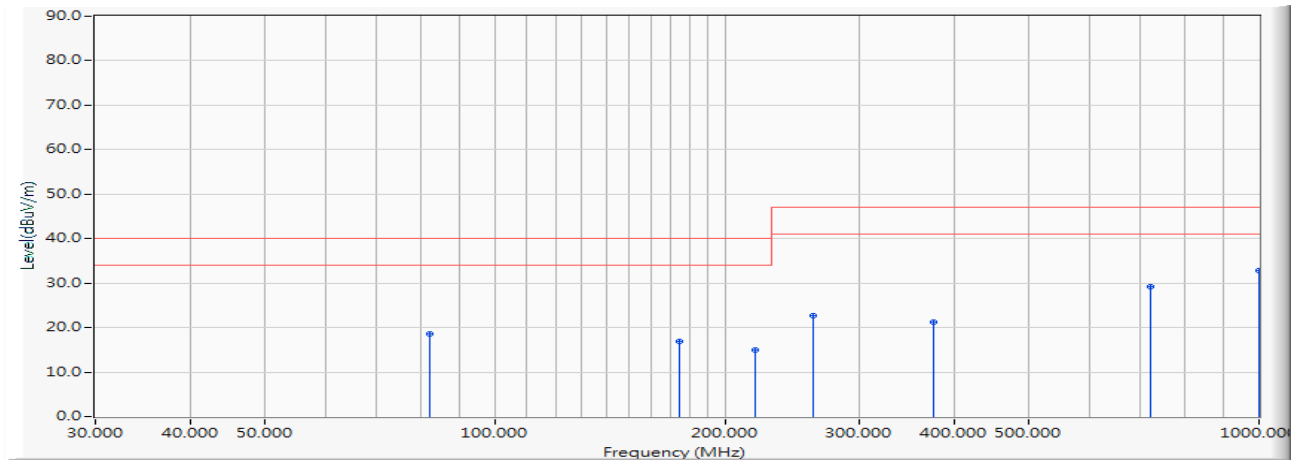


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		214.600	-12.601	30.600	17.999	-22.001	40.000	QUASIPeAK	380.000	66.000
2		375.000	-5.843	28.600	22.757	-24.243	47.000	QUASIPeAK	300.000	-85.000
3		500.000	-1.909	26.200	24.291	-22.709	47.000	QUASIPeAK	200.000	-48.000
4		750.000	4.566	25.200	29.765	-17.235	47.000	QUASIPeAK	115.000	31.000
5		875.000	6.091	25.300	31.391	-15.609	47.000	QUASIPeAK	100.000	-49.000
6	*	1000.000	7.730	25.200	32.930	-14.070	47.000	QUASIPeAK	165.000	31.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor(Probe+Cable-Amp).

Site : SITE7	Time : 2019/04/03 - 14:57
Limit : CISPR_A_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site7_VULB9168_10m_1804 - VERTICAL
Power : POE	Note : Mode 1

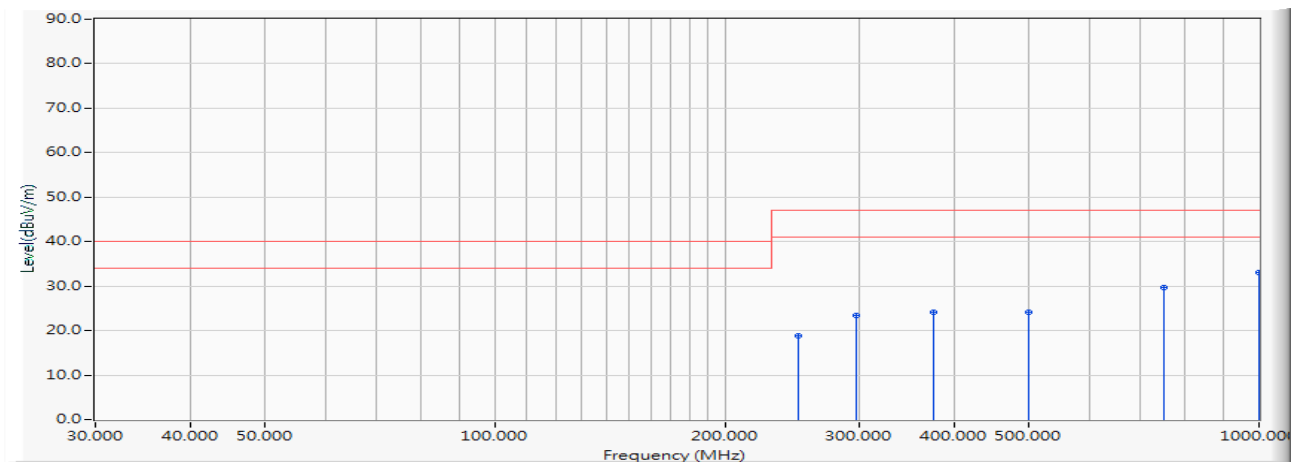


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		82.100	-15.961	34.600	18.639	-21.361	40.000	QUASIPeAK	100.000	-139.000
2		174.190	-10.765	27.600	16.835	-23.165	40.000	QUASIPeAK	100.000	-94.000
3		219.200	-12.458	27.500	15.042	-24.958	40.000	QUASIPeAK	100.000	62.000
4		261.400	-9.886	32.500	22.613	-24.387	47.000	QUASIPeAK	100.000	-99.000
5		375.000	-5.843	27.000	21.157	-25.843	47.000	QUASIPeAK	100.000	-94.000
6		720.000	3.653	25.600	29.254	-17.746	47.000	QUASIPeAK	260.000	-39.000
7	*	1000.000	7.730	25.200	32.930	-14.070	47.000	QUASIPeAK	165.000	31.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor(Probe+Cable-Amp).

Site : SITE7	Time : 2019/04/03 - 15:04
Limit : CISPR_A_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site7_VULB9168_10m_1804 - HORIZONTAL
Power : POE	Note : Mode 2

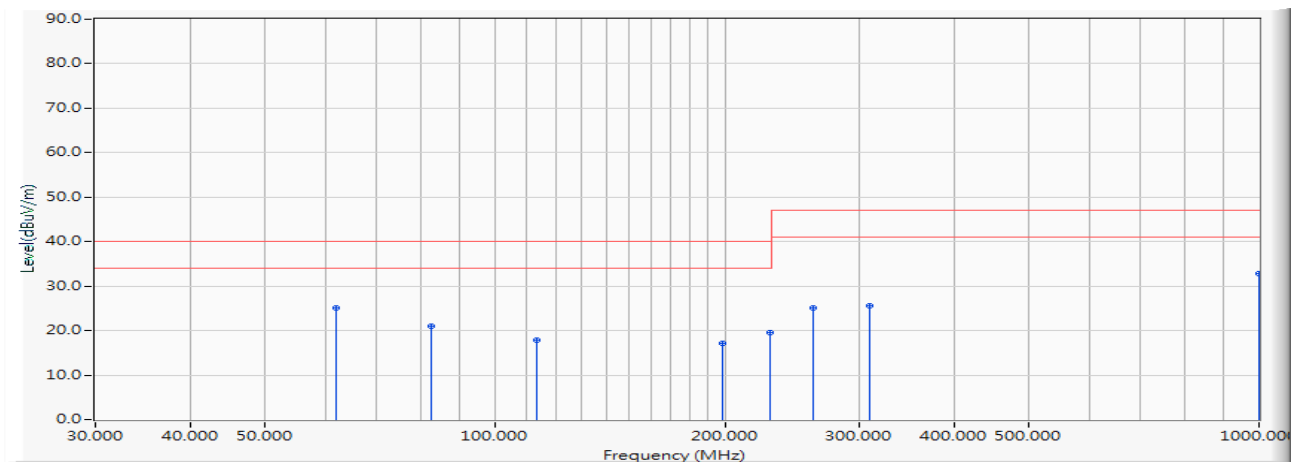


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		250.000	-10.388	29.300	18.912	-28.088	47.000	QUASIPeAK	365.000	32.000
2		297.000	-8.171	31.500	23.328	-23.672	47.000	QUASIPeAK	385.000	-88.000
3		375.000	-5.843	30.000	24.157	-22.843	47.000	QUASIPeAK	280.000	-41.000
4		500.000	-1.909	26.000	24.091	-22.909	47.000	QUASIPeAK	200.000	36.000
5		750.000	4.566	25.000	29.565	-17.435	47.000	QUASIPeAK	100.000	39.000
6	*	1000.000	7.730	25.300	33.030	-13.970	47.000	QUASIPeAK	100.000	-49.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor(Probe+Cable-Amp).

Site : SITE7	Time : 2019/04/03 - 15:04
Limit : CISPR_A_10M_QP	Margin : 6
EUT : Network Camera	Probe : Site7_VULB9168_10m_1804 - VERTICAL
Power : POE	Note : Mode 2

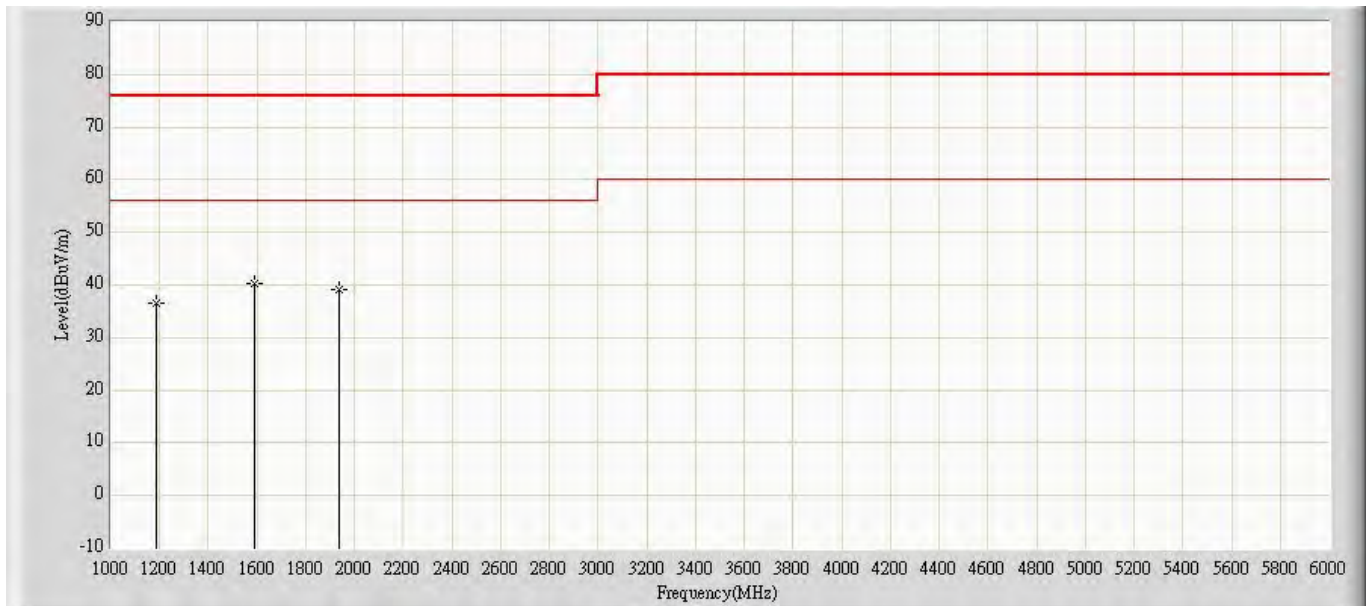


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Ant Pos (cm)	Table Pos (deg)
1		62.000	-11.978	37.000	25.022	-14.978	40.000	QUASIPeAK	100.000	45.000
2		82.645	-16.020	37.000	20.980	-19.020	40.000	QUASIPeAK	100.000	84.000
3		113.250	-13.628	31.600	17.972	-22.028	40.000	QUASIPeAK	100.000	94.000
4		198.500	-12.809	30.000	17.192	-22.808	40.000	QUASIPeAK	100.000	-53.000
5		228.700	-12.155	31.600	19.445	-20.555	40.000	QUASIPeAK	100.000	96.000
6		261.000	-9.912	35.000	25.089	-21.911	47.000	QUASIPeAK	100.000	97.000
7		309.600	-7.823	33.500	25.677	-21.323	47.000	QUASIPeAK	100.000	12.000
8	*	1000.000	7.730	25.100	32.830	-14.170	47.000	QUASIPeAK	1650.000	21.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor(Probe+Cable-Amp).

Site: CB7	Time: 2019/04/08 - 14:50
Limit: CISPR_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1808	Polarity: Horizontal
EUT : Network Camera	Power: POE
Note: Mode 1	

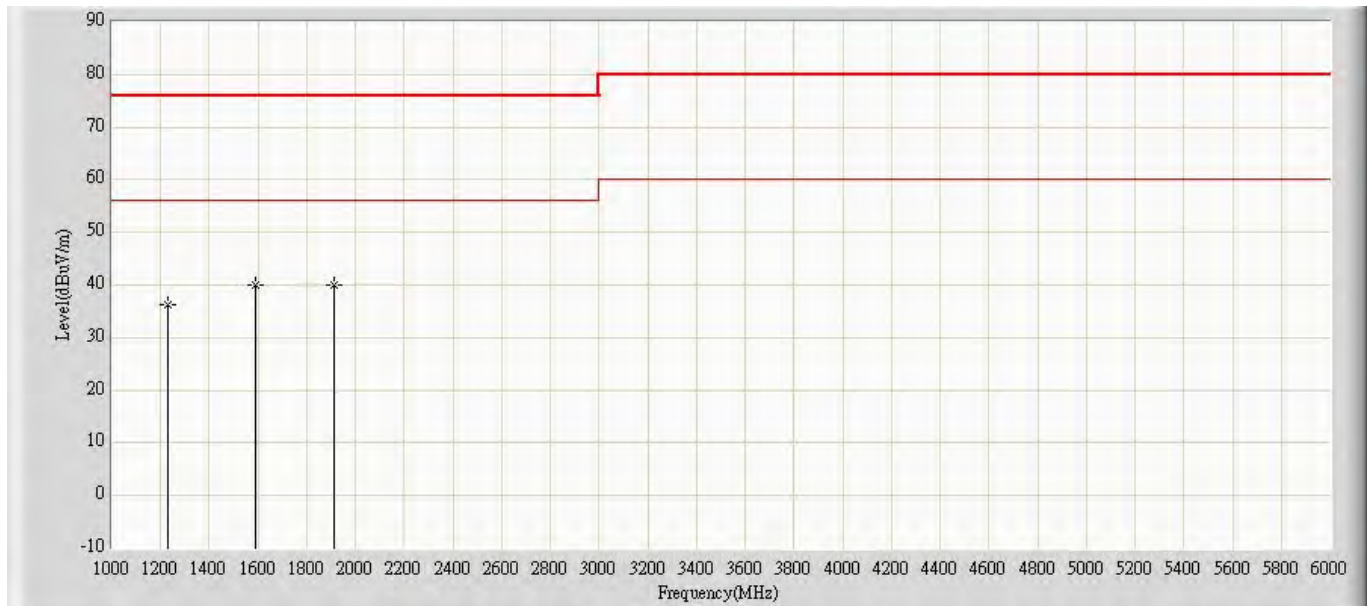


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Ant Pos (cm)	Table Pos (deg)	Type
1			1189.000	36.574	50.760	-39.426	76.000	-14.186	100	200	PK
2		*	1590.000	40.181	53.610	-35.819	76.000	-13.429	100	170	PK
3			1934.000	39.102	49.300	-36.898	76.000	-10.198	100	130	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	Time: 2019/04/08 - 14:51
Limit: CISPR_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1808	Polarity: Vertical
EUT : Network Camera	Power: POE
Note: Mode 1	

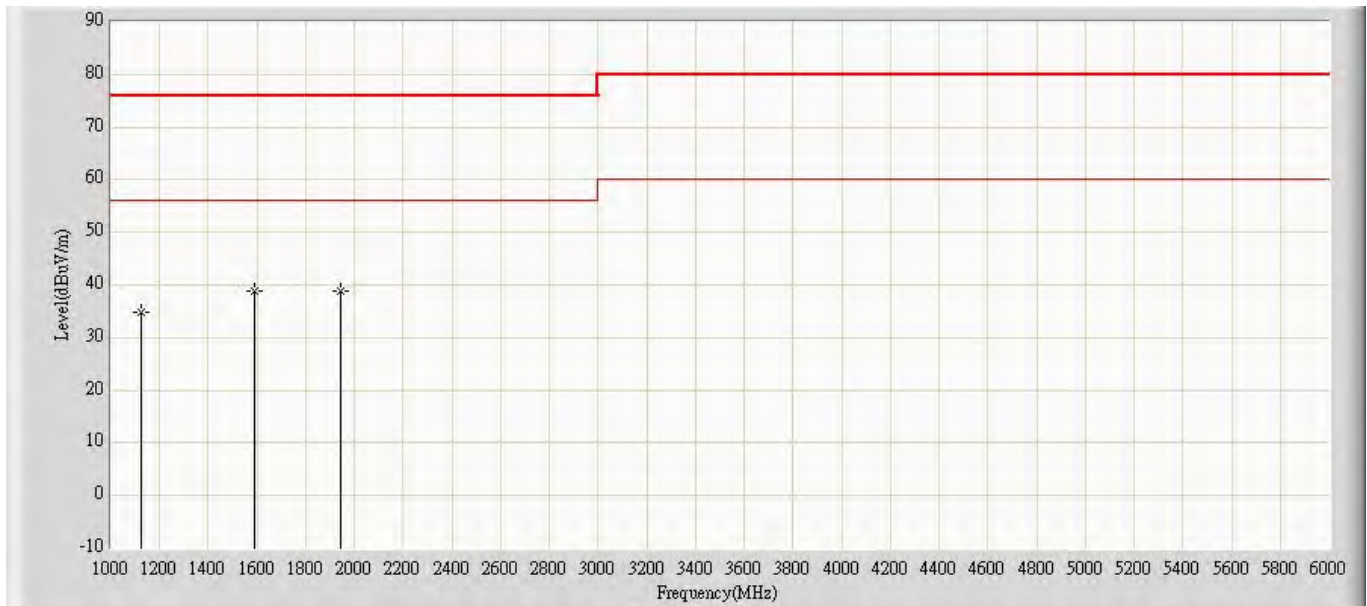


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Ant Pos (cm)	Table Pos (deg)	Type
1			1229.000	36.338	50.510	-39.662	76.000	-14.172	100	190	PK
2		*	1590.000	40.021	53.450	-35.979	76.000	-13.429	100	32	PK
3			1910.000	39.901	50.290	-36.099	76.000	-10.390	100	200	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	Time: 2019/04/08 - 14:40
Limit: CISPR_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1808	Polarity: Horizontal
EUT : Network Camera	Power: POE
Note: Mode 2	

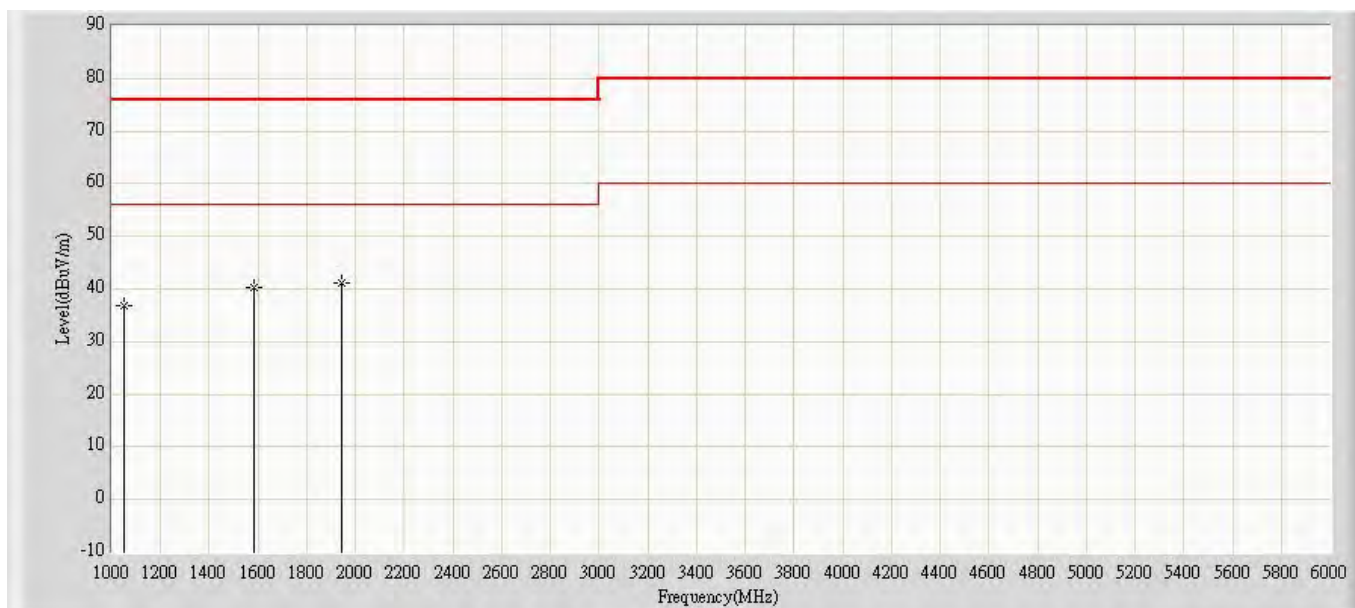


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Ant Pos (cm)	Table Pos (deg)	Type
1			1125.000	34.963	49.560	-41.037	76.000	-14.596	100	120	PK
2		*	1590.000	38.981	52.410	-37.019	76.000	-13.429	100	160	PK
3			1942.000	38.795	48.940	-37.205	76.000	-10.145	100	170	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: CB7	Time: 2019/04/08 - 14:41
Limit: CISPR_A_(Above_1G)	Margin: 0
Probe: CB7_Horn_3117_1808	Polarity: Vertical
EUT : Network Camera	Power: POE
Note: Mode 2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Ant Pos (cm)	Table Pos (deg)	Type
1			1050.000	36.963	52.300	-39.037	76.000	-15.337	100	130	PK
2			1586.000	40.219	53.700	-35.781	76.000	-13.481	100	190	PK
3		*	1940.000	41.042	51.200	-34.958	76.000	-10.158	100	188	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Test Photograph

Test Mode : Mode 1: MD9561-H , PoE

Description : Front View of Radiated Test



Test Mode : Mode 1: MD9561-H , PoE

Description : Back View of Radiated Test



Test Mode : Mode 1: MD9561-H , PoE

Description : Front View of High Frequency Radiated Test



Test Mode : Mode 2: MD9581-H , PoE

Description : Front View of Radiated Test



Test Mode : Mode 2: MD9581-H , PoE

Description : Back View of Radiated Test



Test Mode : Mode 2: MD9581-H , PoE

Description : Front View of High Frequency Radiated Test



Test Procedure

Direct application of discharges to the EUT:

Contact discharge was applied only to conductive surfaces of the EUT.

Air discharges were applied only to non-conductive surfaces of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges will be keep longer 1 second. It was at least ten single discharges with positive and negative at the same selected point.

The selected point, which was performed with electrostatic discharge, was marked on the red label of the EUT.

Indirect application of discharges to the EUT:

Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

Deviation from Test Standard

No deviation.

Test Result

Product	Network Camera		
Test Item	Electrostatic Discharge		
Test Mode	Mode 1: MD9561-H , PoE		
Date of Test	2019/04/17	Test Site	No.6 Shielded Room

Item	Voltage / Complied to Criteria	
Air Discharge	±2kV, ±4kV, ±8kV	
Performance criterion	☒ A, ☐ B, ☐ C, ☐ D	PASS
Contact Discharge	±2kV, ±4kV, ±6kV	
Performance criterion	☒ A, ☐ B, ☐ C, ☐ D	PASS
Indirect Discharge(HCP)	±2kV, ±4kV, ±6kV	
Performance criterion	☒ A, ☐ B, ☐ C, ☐ D	PASS
Indirect Discharge(VCP)	±2kV, ±4kV, ±6kV	
Performance criterion	☒ A, ☐ B, ☐ C, ☐ D	PASS

Note:

NR: No Requirement

- ☒ Meet criteria A: Operate as intended during and after the test
- ☐ Meet criteria B: Operate as intended after the test
- ☐ Meet criteria C: Loss/Error of function
- ☐ Additional Information
 - ☐ EUT stopped operation and could / could not be reset by operator at ____ kV.
 - ☒ No false alarms or other malfunctions were observed during or after the test.

Remark:

The Contact discharges were applied at least total 200 discharges at a minimum of four test points.

Product	Network Camera		
Test Item	Electrostatic Discharge		
Test Mode	Mode 2: MD9581-H , PoE		
Date of Test	2019/04/17	Test Site	No.6 Shielded Room

Item	Voltage / Complied to Criteria	
Air Discharge	±2kV, ±4kV, ±8kV	
Performance criterion	☒ A, ☐ B, ☐ C, ☐ D	PASS
Contact Discharge	±2kV, ±4kV, ±6kV	
Performance criterion	☒ A, ☐ B, ☐ C, ☐ D	PASS
Indirect Discharge(HCP)	±2kV, ±4kV, ±6kV	
Performance criterion	☒ A, ☐ B, ☐ C, ☐ D	PASS
Indirect Discharge(VCP)	±2kV, ±4kV, ±6kV	
Performance criterion	☒ A, ☐ B, ☐ C, ☐ D	PASS

Note:

NR: No Requirement

- ☒ Meet criteria A: Operate as intended during and after the test
- ☐ Meet criteria B: Operate as intended after the test
- ☐ Meet criteria C: Loss/Error of function
- ☐ Additional Information
 - ☐ EUT stopped operation and could / could not be reset by operator at ____ kV.
 - ☒ No false alarms or other malfunctions were observed during or after the test.

Remark:

The Contact discharges were applied at least total 200 discharges at a minimum of four test points.

Test Photograph

Test Mode : Mode 1: MD9561-H , PoE

Description : ESD Test Setup



Test Mode : Mode 2: MD9581-H , PoE

Description : ESD Test Setup



EUT to dot photo for ESD test

Test dot: (Contact Discharge) (M/N: MD9561-H)



Test dot: (Contact Discharge) (M/N: MD9561-H)



Test dot: (Contact Discharge) (M/N: MD9561-H)



Test dot: (Contact Discharge) (M/N: MD9561-H)



Test dot: (Contact Discharge) (M/N: MD9561-H)



Test dot: (Contact Discharge) (M/N: MD9561-H)



Test dot: (Contact Discharge) (M/N: MD9561-H)



Test dot: (Contact Discharge) (M/N: MD9581-H)



Test dot: (Contact Discharge) (M/N: MD9581-H)



Test dot: (Contact Discharge) (M/N: MD9581-H)



Test dot: (Contact Discharge) (M/N: MD9581-H)



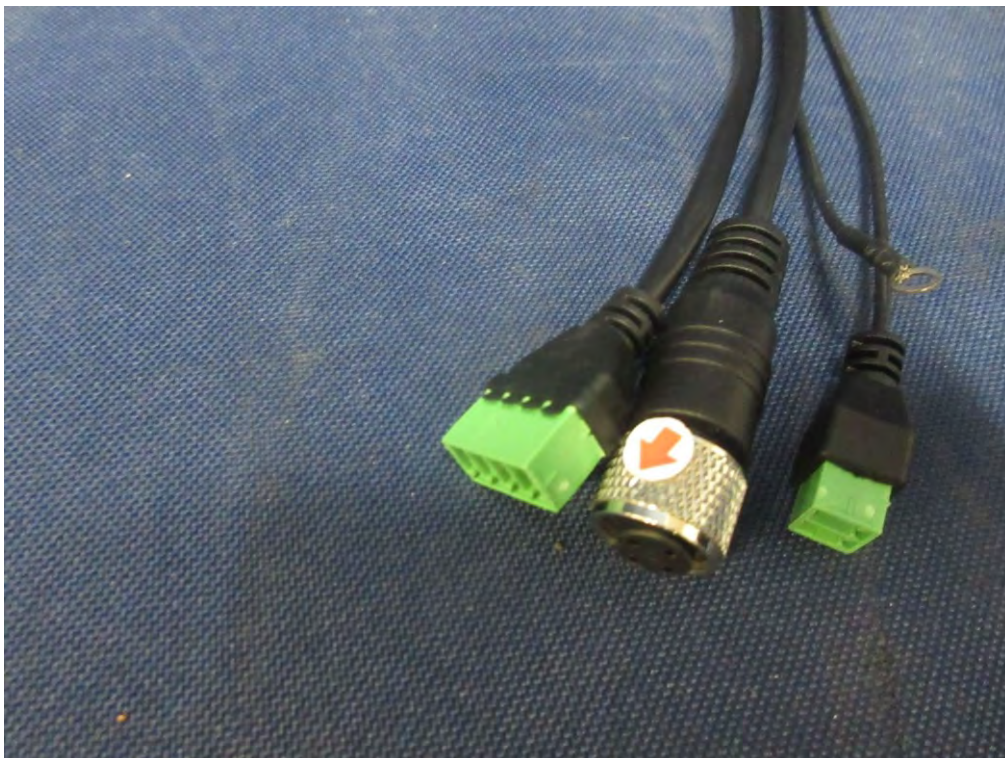
Test dot: (Contact Discharge) (M/N: MD9581-H)



Test dot: (Contact Discharge) (M/N: MD9581-H)



Test dot: (Contact Discharge) (M/N: MD9581-H)

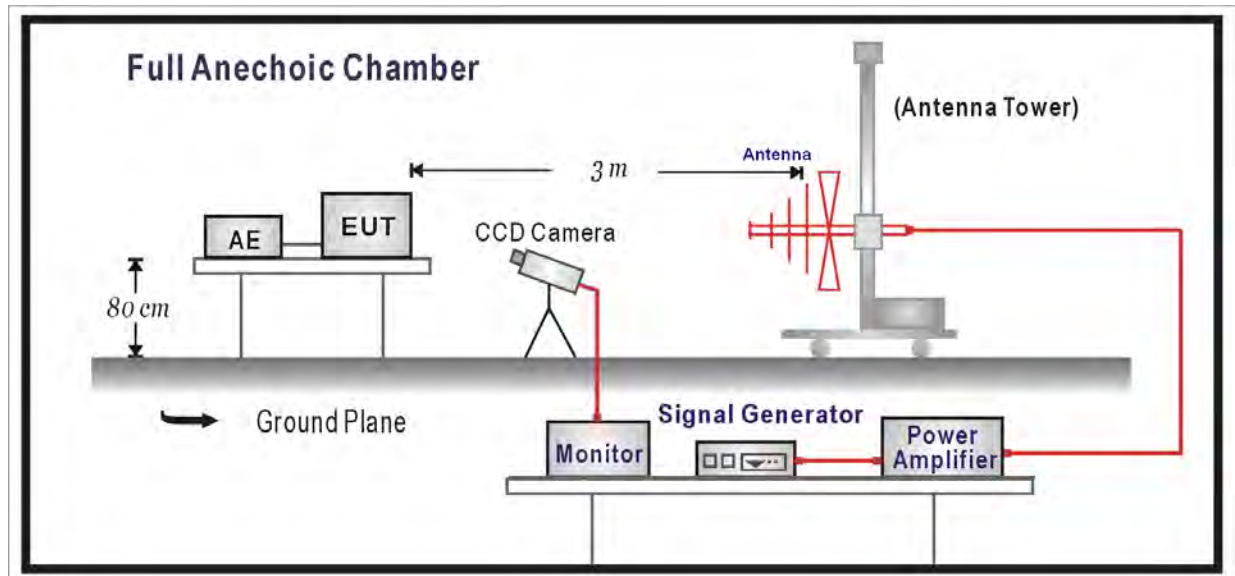


5.3. Radio frequency interference susceptibility test (Radiated Susceptibility)

Test Specification

According to EN 50121-3-2 standard

Test Setup



Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
Radio-Frequency Electromagnetic Field Amplitude Modulated		MHz	80-1000	A
		V/m(Un-modulated, rms)	20	
		% AM (1kHz)	80	
Radio-Frequency Electromagnetic Field Amplitude Modulated		MHz	1400-2000	A
		V/m(Un-modulated, rms)	10	
		% AM (1kHz)	80	
Radio-Frequency Electromagnetic Field Amplitude Modulated		MHz	2000-2700	A
		V/m(Un-modulated, rms)	5	
		% AM (1kHz)	80	
Radio-Frequency Electromagnetic Field Amplitude Modulated		MHz	5100-6000	A
		V/m(Un-modulated, rms)	3	
		% AM (1kHz)	80	

Test Procedure

The EUT and load, which are placed on a table that is 0.8 meter above ground, are placed with one coincident with the calibration plane such that the distance from antenna to the EUT was 3 meters.

Both horizontal and vertical polarization of the antenna and four sides of the EUT are set on measurement.

In order to judge the EUT performance, a CCD camera is used to monitor EUT screen.

All the scanning conditions are as follows:

Condition of Test	Remarks
1. Field Strength	5,10,20V/m
2. Radiated Signal	AM 80% Modulated with 1kHz
3. Scanning Frequency	80MHz-1000MHz for 20V/m 1400MHz-2000MHz for 10V/m 2000MHz-2700MHz for 5V/m 5100MHz-6000MHz for 3V/m
4 Dwell Time	3 Seconds

Deviation from Test Standard

No deviation.

Test Result

Product	Network Camera		
Test Item	Radiated susceptibility		
Test Mode	Mode 1: MD9561-H , PoE		
Date of Test	2019/04/21	Test Site	Chamber9

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0°	H	20	A	A	PASS
80-1000	0°	V	20	A	A	PASS
80-1000	90°	H	20	A	A	PASS
80-1000	90°	V	20	A	A	PASS
80-1000	180°	H	20	A	A	PASS
80-1000	180°	V	20	A	A	PASS
80-1000	270°	H	20	A	A	PASS
80-1000	270°	V	20	A	A	PASS
1400-2000	0°	H	10	A	A	PASS
1400-2000	0°	V	10	A	A	PASS
1400-2000	90°	H	10	A	A	PASS
1400-2000	90°	V	10	A	A	PASS
1400-2000	180°	H	10	A	A	PASS
1400-2000	180°	V	10	A	A	PASS
1400-2000	270°	H	10	A	A	PASS
1400-2000	270°	V	10	A	A	PASS
2000-2700	0°	H	5	A	A	PASS
2000-2700	0°	V	5	A	A	PASS
2000-2700	90°	H	5	A	A	PASS
2000-2700	90°	V	5	A	A	PASS
2000-2700	180°	H	5	A	A	PASS
2000-2700	180°	V	5	A	A	PASS
2000-2700	270°	H	5	A	A	PASS
2000-2700	270°	V	5	A	A	PASS
5100-6000	0°	H	3	A	A	PASS
5100-6000	0°	V	3	A	A	PASS
5100-6000	90°	H	3	A	A	PASS
5100-6000	90°	V	3	A	A	PASS
5100-6000	180°	H	3	A	A	PASS
5100-6000	180°	V	3	A	A	PASS
5100-6000	270°	H	3	A	A	PASS
5100-6000	270°	V	3	A	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- ☒ Meet criteria A: Operate as intended during and after the test
- ☐ Meet criteria B: Operate as intended after the test
- ☐ Meet criteria C: Loss/Error of function
- ☐ Additional Information
 - ☐ There was no observable degradation in performance.
 - ☐ EUT stopped operation and could / could not be reset by operator at _____ V/m at frequency _____MHz.
- ☒ No false alarms or other malfunctions were observed during or after the test.

Product	Network Camera		
Test Item	Radiated susceptibility		
Test Mode	Mode 2: MD9581-H , PoE		
Date of Test	2019/04/21	Test Site	Chamber9

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0°	H	20	A	A	PASS
80-1000	0°	V	20	A	A	PASS
80-1000	90°	H	20	A	A	PASS
80-1000	90°	V	20	A	A	PASS
80-1000	180°	H	20	A	A	PASS
80-1000	180°	V	20	A	A	PASS
80-1000	270°	H	20	A	A	PASS
80-1000	270°	V	20	A	A	PASS
1400-2000	0°	H	10	A	A	PASS
1400-2000	0°	V	10	A	A	PASS
1400-2000	90°	H	10	A	A	PASS
1400-2000	90°	V	10	A	A	PASS
1400-2000	180°	H	10	A	A	PASS
1400-2000	180°	V	10	A	A	PASS
1400-2000	270°	H	10	A	A	PASS
1400-2000	270°	V	10	A	A	PASS
2000-2700	0°	H	5	A	A	PASS
2000-2700	0°	V	5	A	A	PASS
2000-2700	90°	H	5	A	A	PASS
2000-2700	90°	V	5	A	A	PASS
2000-2700	180°	H	5	A	A	PASS
2000-2700	180°	V	5	A	A	PASS
2000-2700	270°	H	5	A	A	PASS
2000-2700	270°	V	5	A	A	PASS
5100-6000	0°	H	3	A	A	PASS
5100-6000	0°	V	3	A	A	PASS
5100-6000	90°	H	3	A	A	PASS
5100-6000	90°	V	3	A	A	PASS
5100-6000	180°	H	3	A	A	PASS
5100-6000	180°	V	3	A	A	PASS
5100-6000	270°	H	3	A	A	PASS
5100-6000	270°	V	3	A	A	PASS

Note:

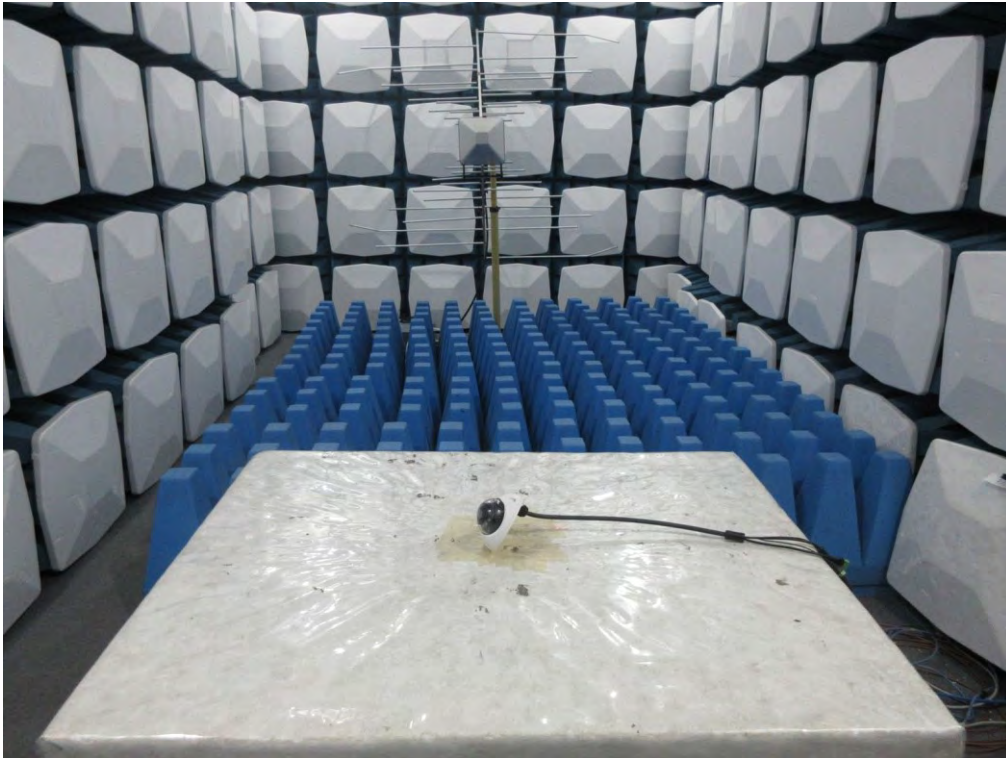
The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- ☒ Meet criteria A: Operate as intended during and after the test
- ☐ Meet criteria B: Operate as intended after the test
- ☐ Meet criteria C: Loss/Error of function
- ☐ Additional Information
 - ☐ There was no observable degradation in performance.
 - ☐ EUT stopped operation and could / could not be reset by operator at _____ V/m at frequency _____MHz.
- ☒ No false alarms or other malfunctions were observed during or after the test.

Test Photograph

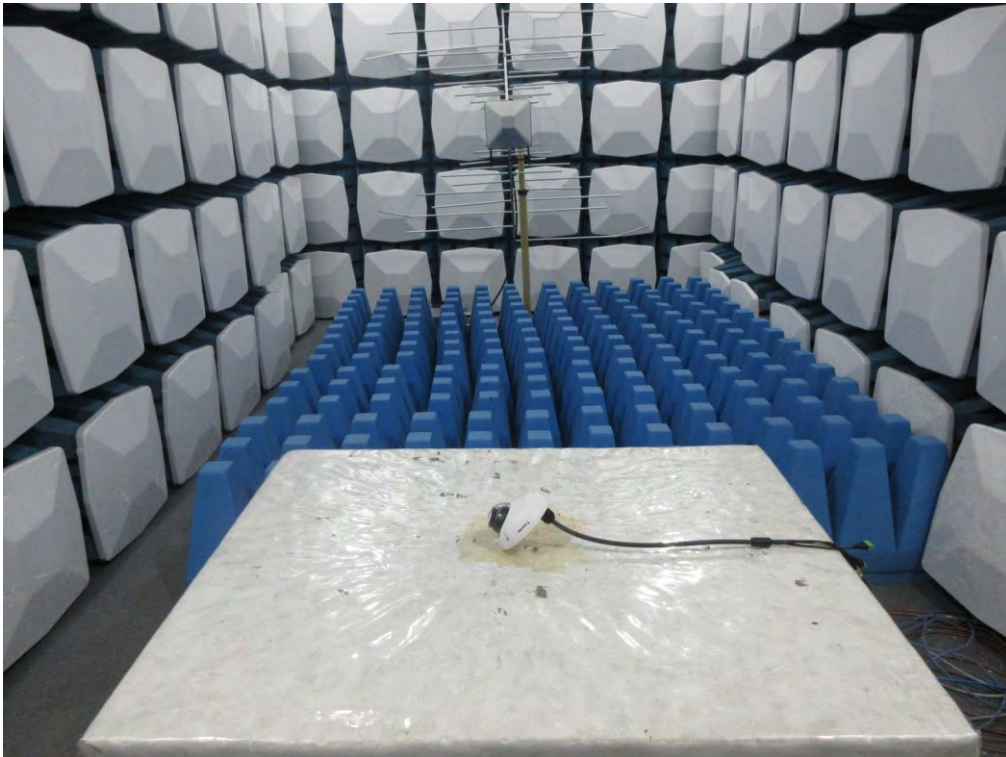
Test Mode : Mode 1: MD9561-H , PoE

Description : Radiated Susceptibility Test Setup



Test Mode : Mode 1: MD9561-H , PoE

Description : Radiated Susceptibility Test Setup



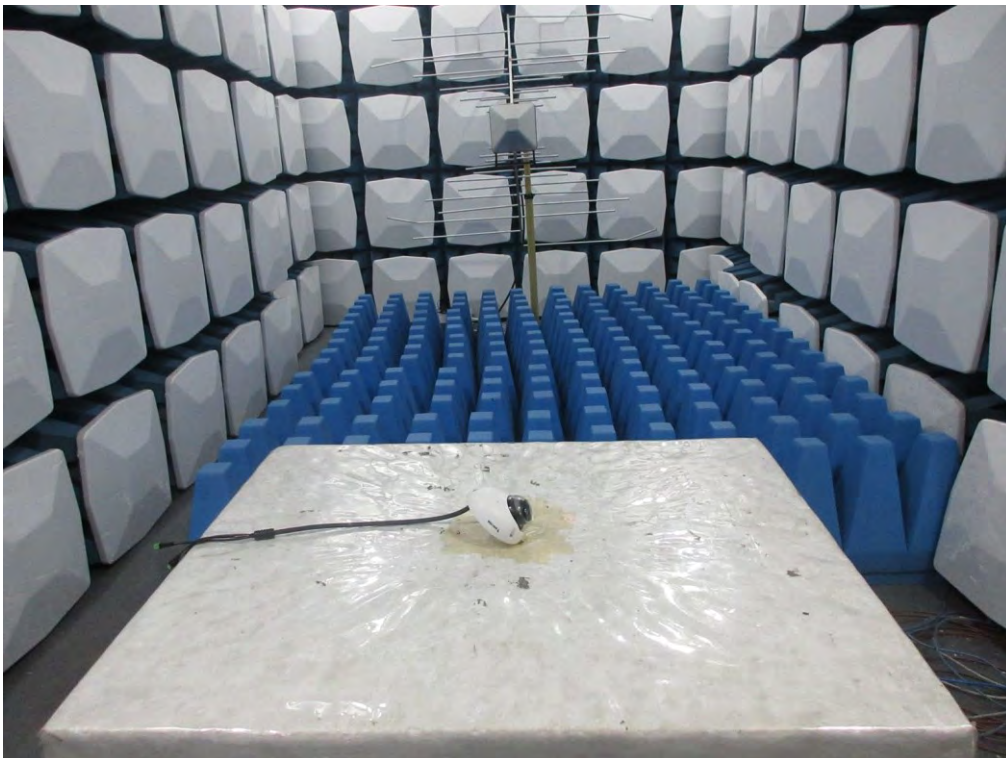
Test Mode : Mode 1: MD9561-H , PoE

Description : Radiated Susceptibility Test Setup



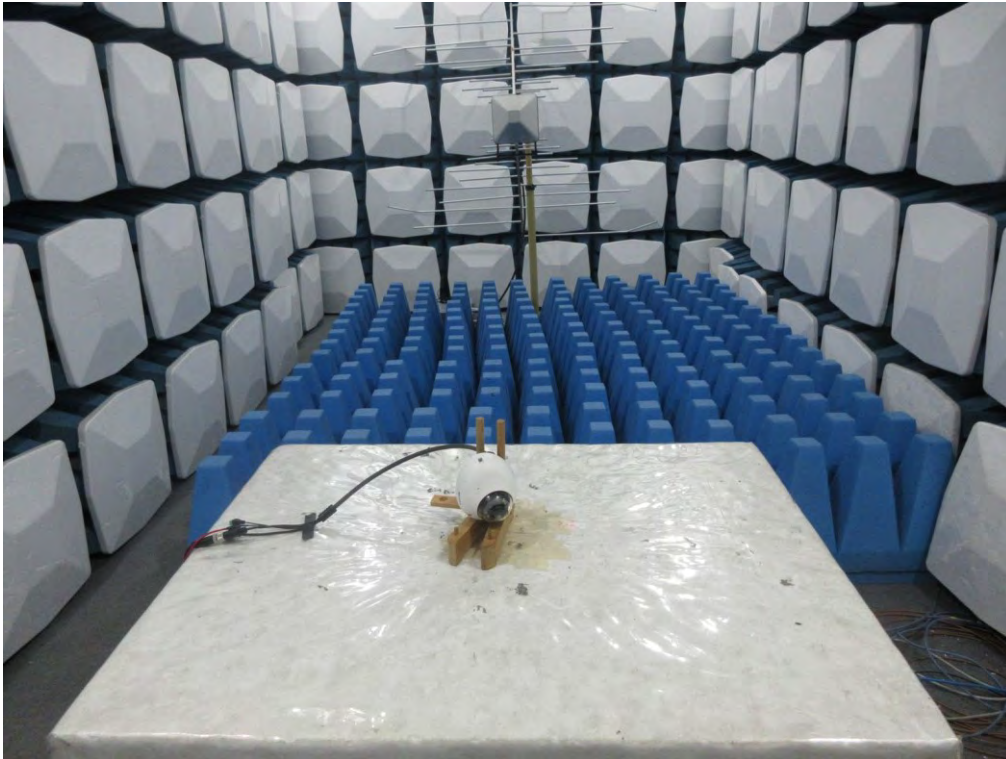
Test Mode : Mode 1: MD9561-H , PoE

Description : Radiated Susceptibility Test Setup



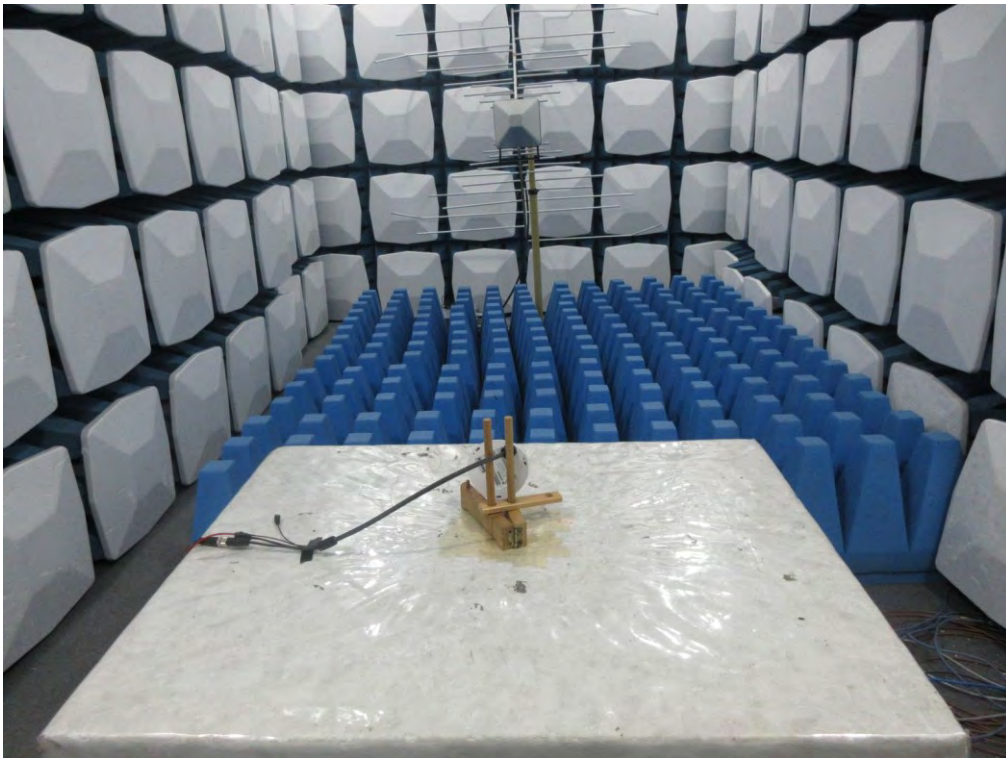
Test Mode : Mode 1: MD9561-H , PoE

Description : Radiated Susceptibility Test Setup



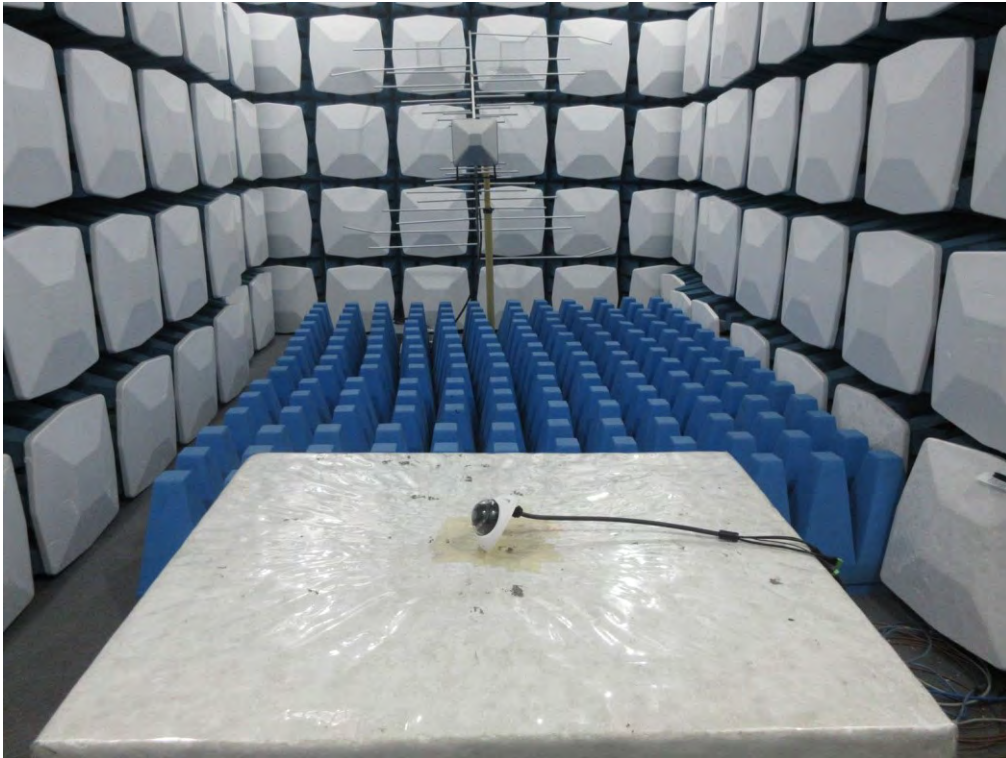
Test Mode : Mode 1: MD9561-H , PoE

Description : Radiated Susceptibility Test Setup



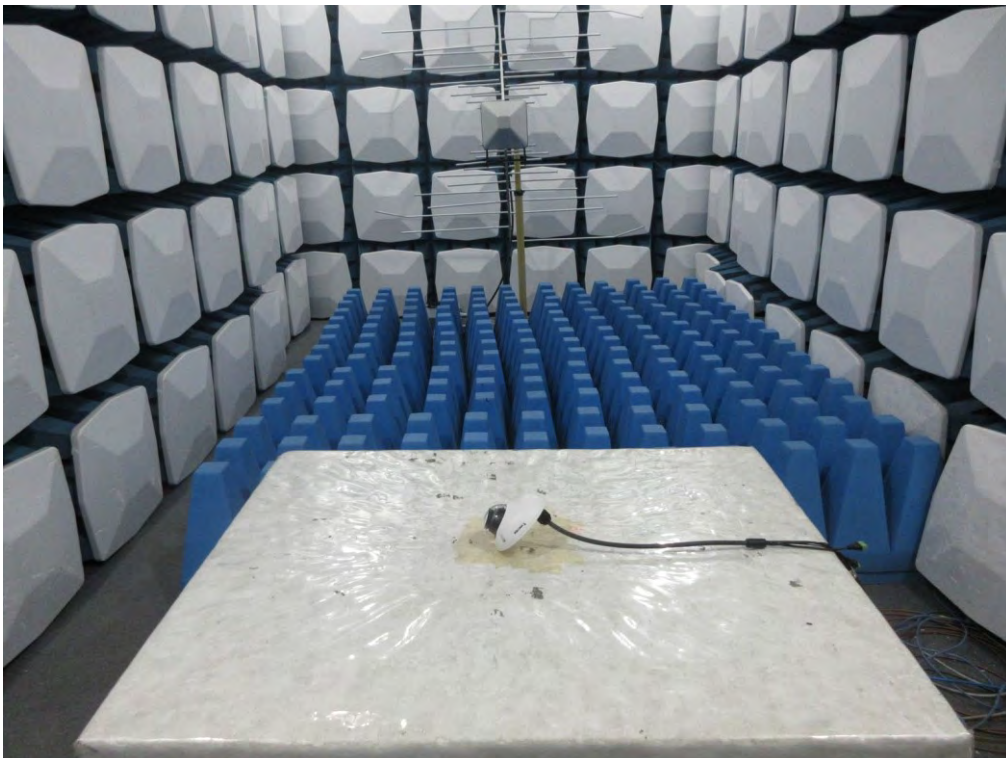
Test Mode : Mode 2: MD9581-H , PoE

Description : Radiated Susceptibility Test Setup



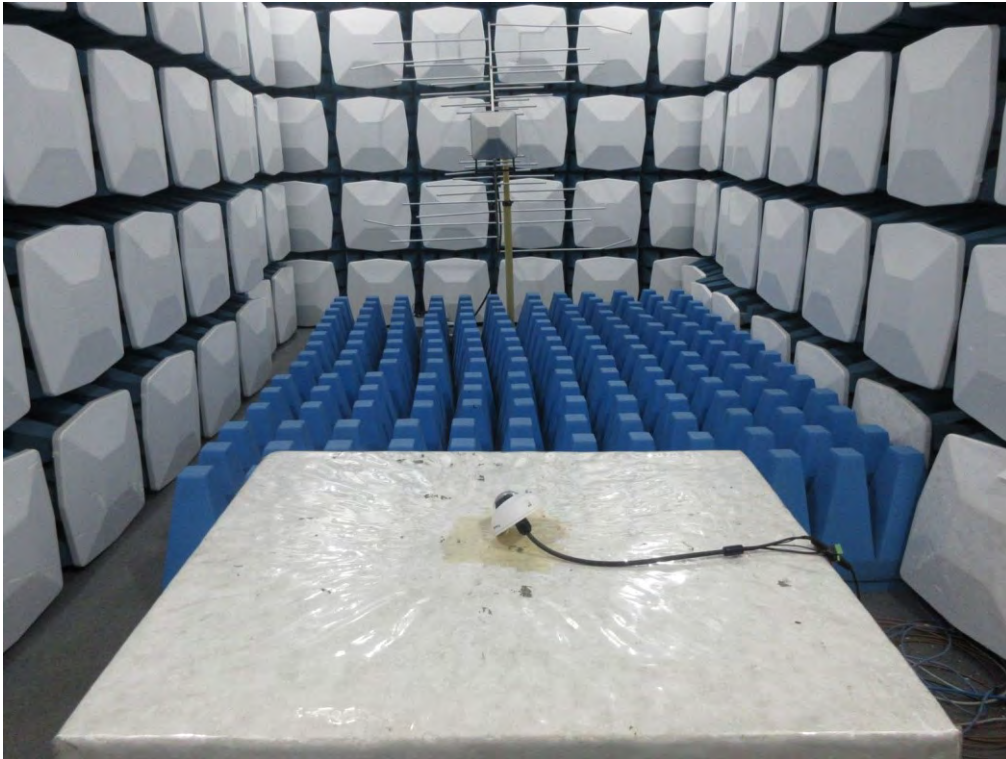
Test Mode : Mode 2: MD9581-H , PoE

Description : Radiated Susceptibility Test Setup



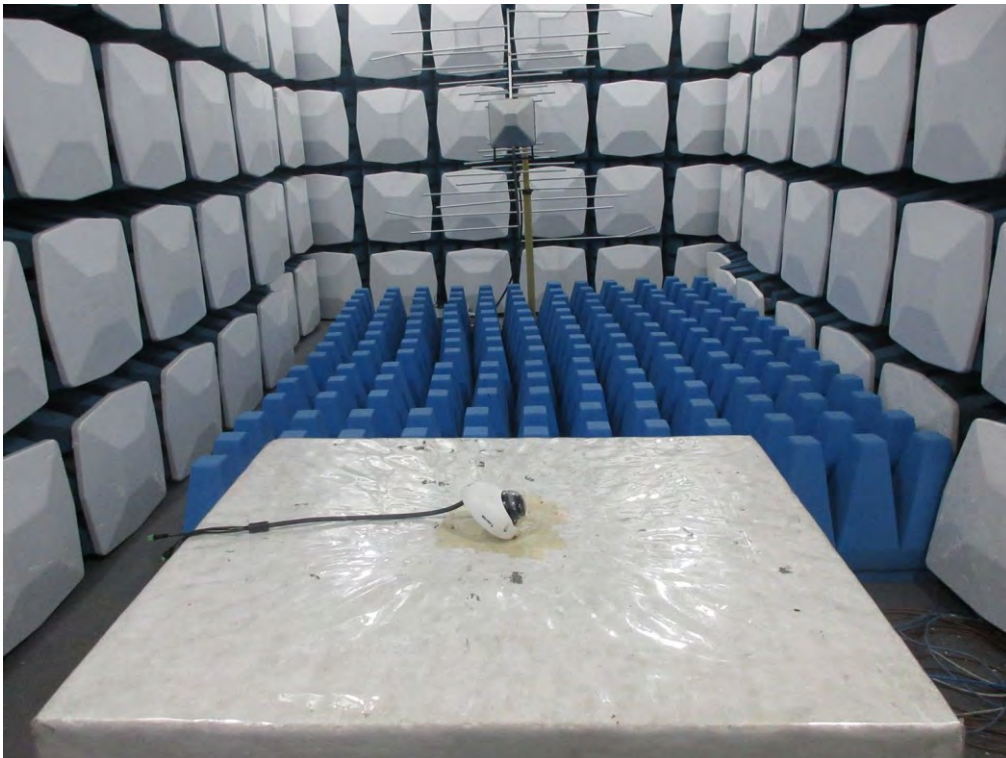
Test Mode : Mode 2: MD9581-H , PoE

Description : Radiated Susceptibility Test Setup



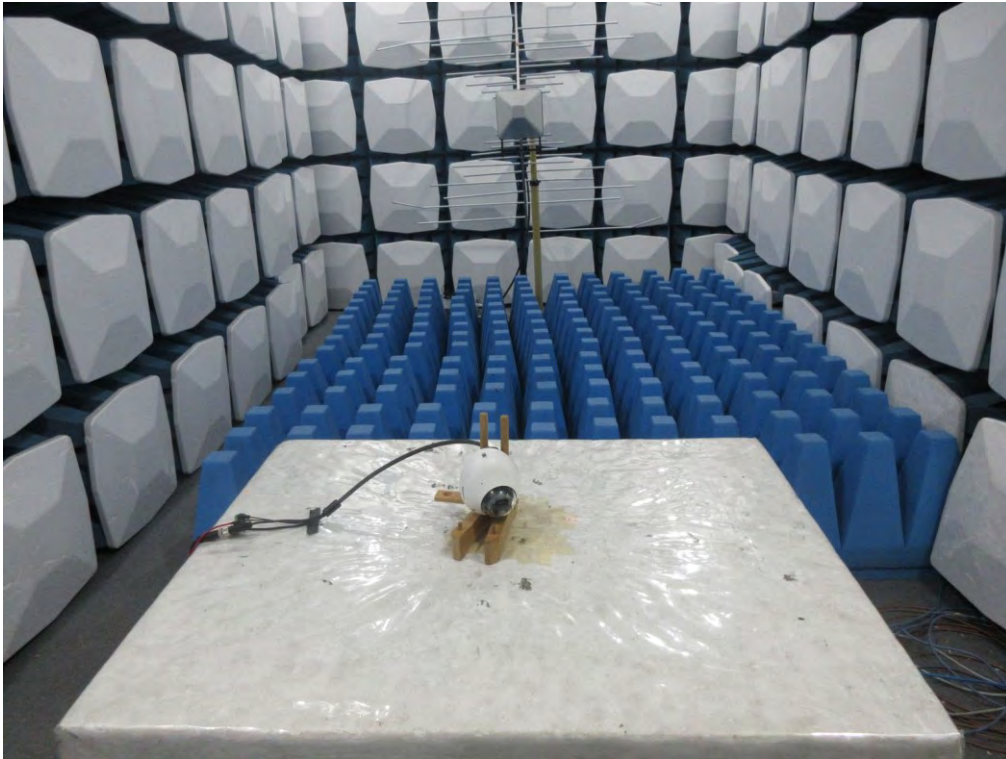
Test Mode : Mode 2: MD9581-H , PoE

Description : Radiated Susceptibility Test Setup



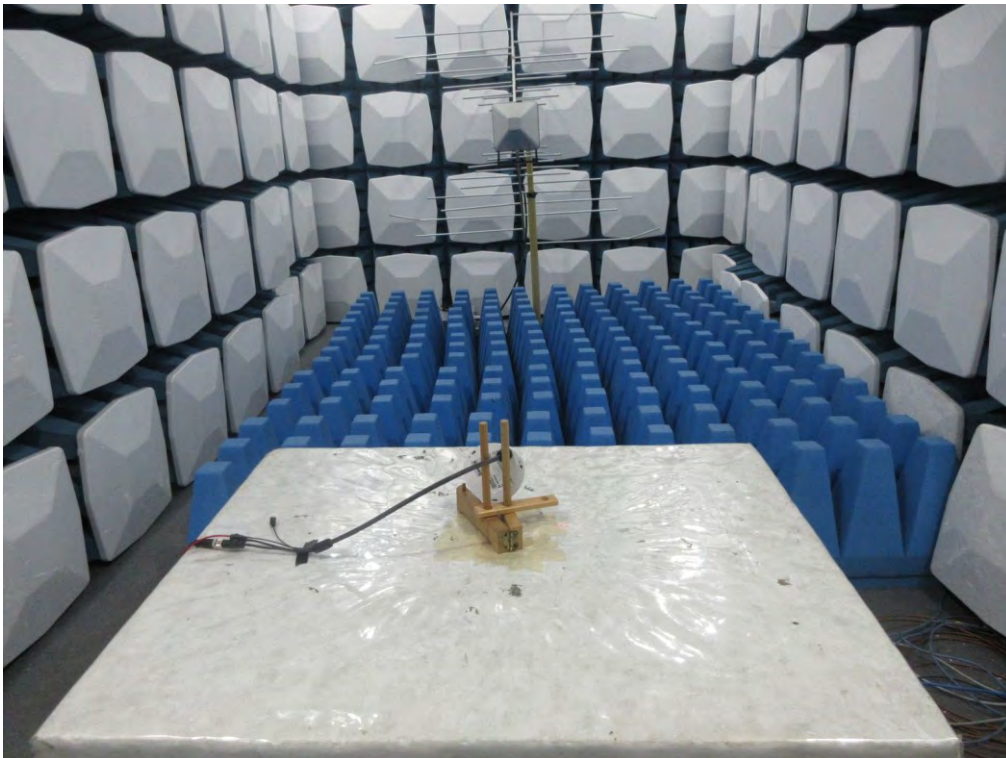
Test Mode : Mode 2: MD9581-H , PoE

Description : Radiated Susceptibility Test Setup



Test Mode : Mode 2: MD9581-H , PoE

Description : Radiated Susceptibility Test Setup

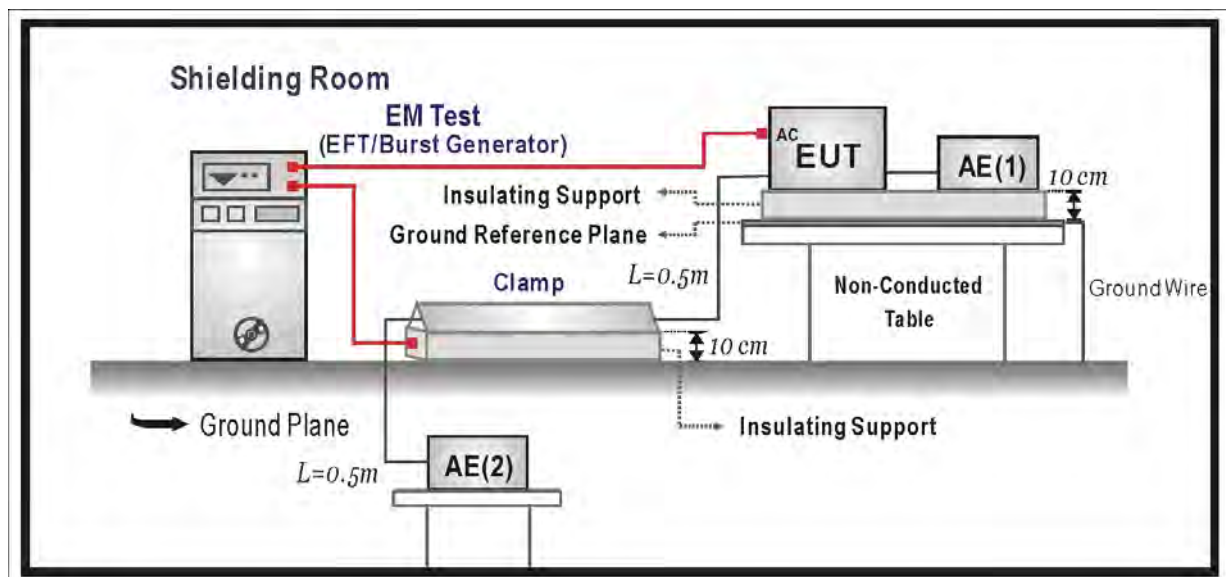


5.4. Transient Burst

Test Specification

According to EN 50121-3-2 standard.

Test Setup



Limit

Item	Environmental Phenomena	Units	Test Specificatio	Performance Criteria
Signal and Telecommunication Ports				
Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	± 2 5/50 5	A	
Input DC Power Ports				
Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	± 2 5/50 5	A	
Input AC Power Ports				
Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	± 2 5/50 5	A	

Test Procedure

According to EN 61000-4-4 basic standard Clause 8.

Deviation from Test Standard

No deviation.

Test Result

Product	Network Camera		
Test Item	Transient Burst		
Test Mode	Mode 1: MD9561-H , PoE		
Date of Test	2019/04/17	Test Site	No.6 Shielded Room

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
LAN	±	2 kV	60	Clamp	A	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- ☒ Meet criteria A : Operate as intended during and after the test
- ☐ Meet criteria B : Operate as intended after the test
- ☐ Meet criteria C : Loss/Error of function
- ☐ Additional Information
 - ☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.
- ☒ No false alarms or other malfunctions were observed during or after the test.

Product	Network Camera		
Test Item	Transient Burst		
Test Mode	Mode 2: MD9581-H , PoE		
Date of Test	2019/04/17	Test Site	No.6 Shielded Room

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
LAN	±	2 kV	60	Clamp	A	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- ☒ Meet criteria A : Operate as intended during and after the test
- ☐ Meet criteria B : Operate as intended after the test
- ☐ Meet criteria C : Loss/Error of function
- ☐ Additional Information
 - ☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.
- ☒ No false alarms or other malfunctions were observed during or after the test.

Test Photograph

Test Mode : Mode 1: MD9561-H , PoE

Description : Transient Burst Test Setup-Clamp



Test Mode : Mode 2: MD9581-H , PoE

Description : Transient Burst Test Setup-Clamp



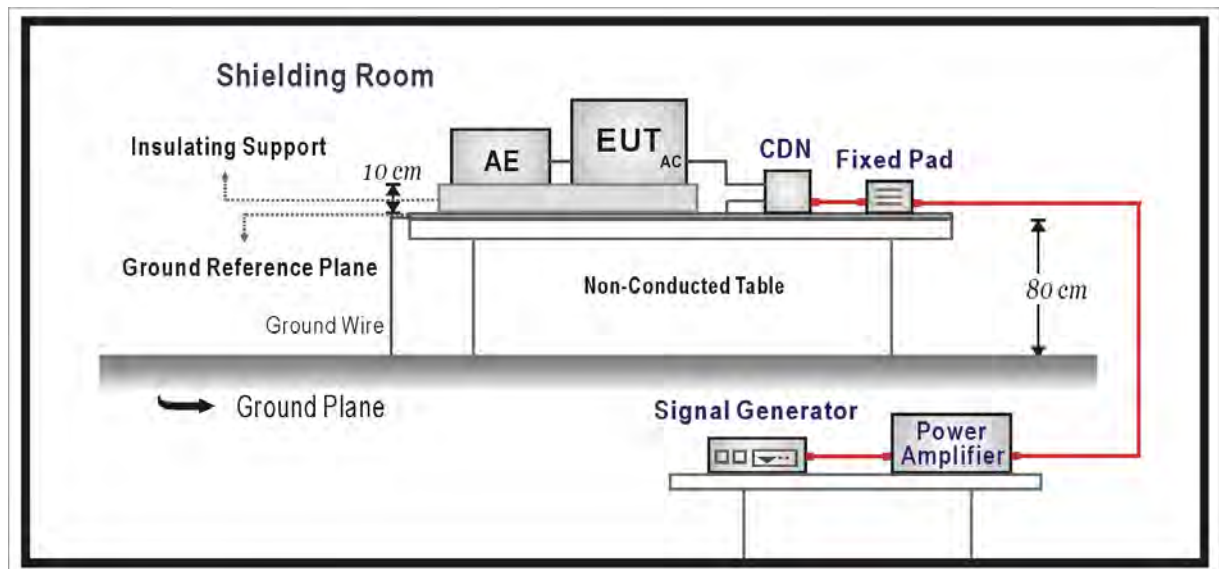
5.5. Radio frequency interference susceptibility test (Conducted susceptibility)

Test Specification

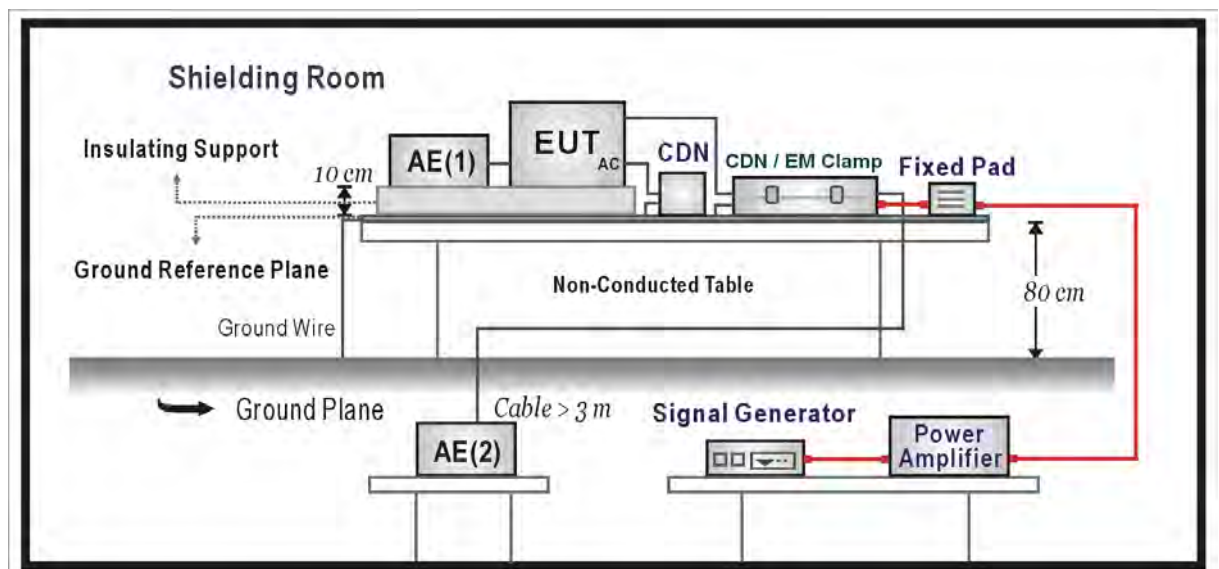
According to EN 50121-3-2 standard.

Test Setup

CDN Test Mode



EM Clamp Test Mode



Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunication Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 10 80	A
Input DC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 10 80	A
Input AC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 10 80	A

Test Procedure

The EUT are placed on a table that is 0.8 meter height, and a Ground reference plane on the table, EUT are placed upon table and use a 10cm insulation between the EUT and Ground reference plane.

For Signal Ports and Telecommunication Ports

The disturbance signal is through a coupling and decoupling networks (CDN) or EM-clamp device couples to the signal and Telecommunication lines of the EUT.

For Input DC and AC Power Ports

The EUT is connected to the power mains through a coupling and decoupling networks for power supply lines. And directly couples the disturbances signal into EUT.

Used CDN-M2 for two wires or CDN-M3 for three wires.

All the scanning conditions are as follows:

Condition of Test	Remarks
1. Field Strength	140dBuV(10V) Level 3
2. Radiated Signal	AM 80% Modulated with 1kHz
3. Scanning Frequency	0.15MHz – 80MHz
4. Dwell Time	3 Seconds

Deviation from Test Standard

No deviation.

Test Result

Product	Network Camera		
Test Item	Conducted susceptibility		
Test Mode	Mode 1: MD9561-H , PoE		
Date of Test	2019/04/17	Test Site	No.6 Shielded Room

Frequency Range (MHz)	Voltage Applied dBuV(V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	140 (10V)	CDN	LAN	A	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- ☒ Meet criteria A : Operate as intended during and after the test
- ☐ Meet criteria B : Operate as intended after the test
- ☐ Meet criteria C : Loss/Error of function
- ☐ Additional Information
 - ☐ EUT stopped operation and could / could not be reset by operator at _____ dBuV(V) at frequency _____MHz.
 - ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Network Camera		
Test Item	Conducted susceptibility		
Test Mode	Mode 2: MD9581-H , PoE		
Date of Test	2019/04/17	Test Site	No.6 Shielded Room

Frequency Range (MHz)	Voltage Applied dBuV(V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	140 (10V)	CDN	LAN	A	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- ☒ Meet criteria A : Operate as intended during and after the test
- ☐ Meet criteria B : Operate as intended after the test
- ☐ Meet criteria C : Loss/Error of function
- ☐ Additional Information
 - ☐ EUT stopped operation and could / could not be reset by operator at _____ dBuV(V) at frequency _____MHz.
 - ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

6 Attachment

➤ EUT Photograph

(1) EUT Photo (M/N: MD9561-H)



(2) EUT Photo (M/N: MD9561-H)



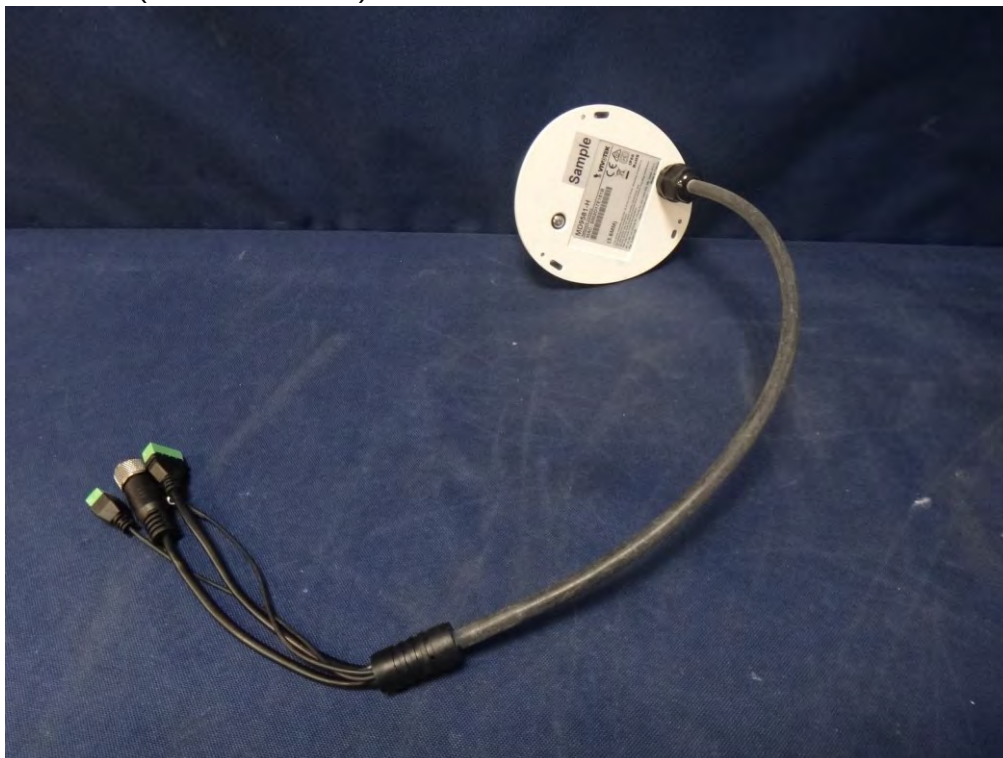
(3) EUT Photo (M/N: MD9561-H)



(4) EUT Photo (M/N: MD9581-H)



(5) EUT Photo (M/N: MD9581-H)



(6) EUT Photo (M/N: MD9581-H)



(7) EUT Photo



7 Environmental Tests (See Section 2.1)

- **Appendix A**

C5.01-V17021_可靠度試驗報告-MD9561-H,MD9581-H-cover

Project: G0. 品質工程組

By QA_RuRu.Tsai(蔡雅如), 6/10/2019 10:48 AM

Model No.	MD9561-H,MD9581-H				
Report No.	QRP-1924	Project No.	V17021	Ver.	V01
Author	Ruru.Tsai		Approved by	Maggie.Wang	

1 Purpose:

1.1 Verify mainly the operation status of DUT under the temperature environment.

1.2 Simulating the whole structure of DUT on the transit environment.

2 Summary.

NO.	Test Item	Reference	Result	Page	Remark
1	Operational Damp Heat Steady State Test	IEC-60068-2-78:2012	Passed	1	
2	Operational Temperature Cycles Test	IEC-60068-2-14:2009	Passed	6	
3	Operational Cold Test	IEC-60068-2-1:2007, test A	Passed	11	
4	Non-Operational Random Vibration Test(IEC-61373)	IEC-61373:2010,category 1 Class b	Passed	16	
5	Operational Random Vibration Test(IEC-61373)	IEC-61373:2010,category 1 Class b	Passed	22	
6	Operational Shock Test (IEC-61373)	IEC-61373:2010,category 1 Class b	Passed	28	
7	Dry Heat Test(EN50155)	IEC-60068-2-2:2007/EN50155:2017	Passed	35	
8	Damp Heat Cyclic Test(EN50155)	IEC-60068-2-30:2005/EN50155:2017	Passed	40	
9	Low Temperature Storage Test(EN50155)	IEC-60068-2-1:2007/EN50155:2017	Passed	45	
10	Low Temperature start-up Test(EN50155)	IEC-60068-2-1:2007/EN50155:2017	Passed	50	

C5.01-V17021_可靠度試驗報告-MD9561-H,MD9581-H

Project: G0. 品質工程組

By QA_RuRu.Tsai(蔡雅如), 6/10/2019 10:33 AM

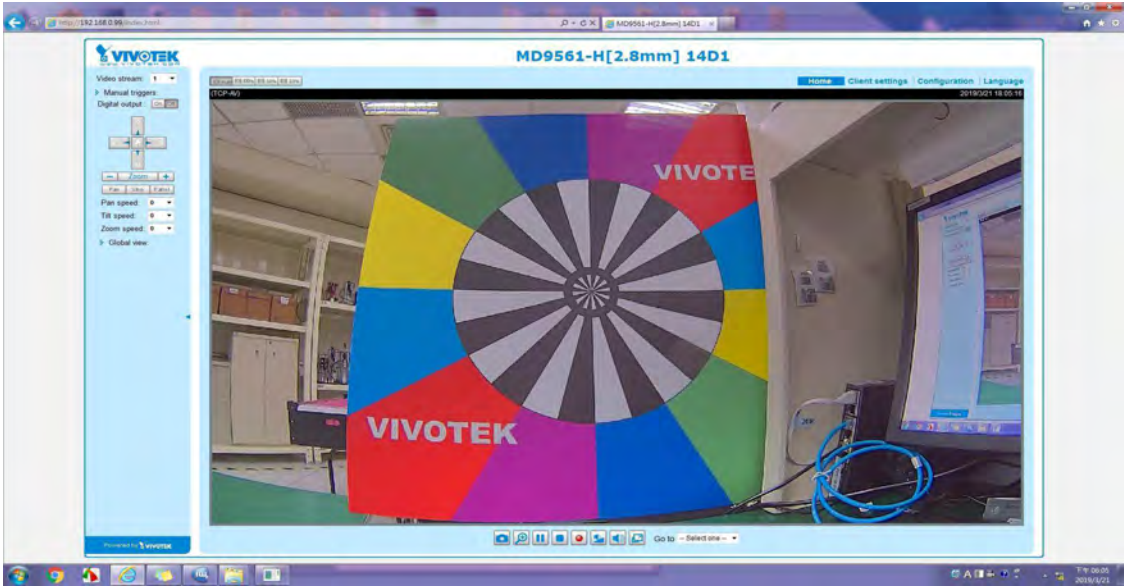
Test item	Operational Damp Heat Steady State Test		Duration	2/18/2019 ~2/20/2019
Place	Laboratory of Quality Assurance in			VIVOTEK
Except Report No.		N/A		
Equipment				
Temperature & Humidity Chamber	Brand	TAICHY TECHNOLOGY LTD		
	Model	MHK-408NK		
	S/N	1030309		
Personal Computer	Operation System	Microsoft Windows	7	
	Browser	Microsoft Internet Explorer	9.050123	
PoE Switch	Brand	VIVOTEK		
	Model	AW-GEV-264A-370		
Test Condition & Pocedure				
1. Humidity: 98%RH. 2. Power the camera on. 3. Increase to 60 °C. Dwell for 48 hours. Run Ping test. 4. Decrease to 25 °C .Dwell for 2 hours. Leave product in the chamber, Run Function test.				
Power Supply	PoE+ Switch			
Specimens	0002D17E14D1	0002D17E14E7	0002D17E150C	0002D17E151E
Judgment Criteria	1. It doesn't have a bad image, fogging, discoloration or reboot...etc. during the test. 2. Wire Ping loss is less than 1%; wireless Ping loss is less than 10%. 3. The specimen's electrical function is normal. (Please see Function test list) 4. The specimen doesn't have deformation of the housing.			
Result	Passed			

Environment

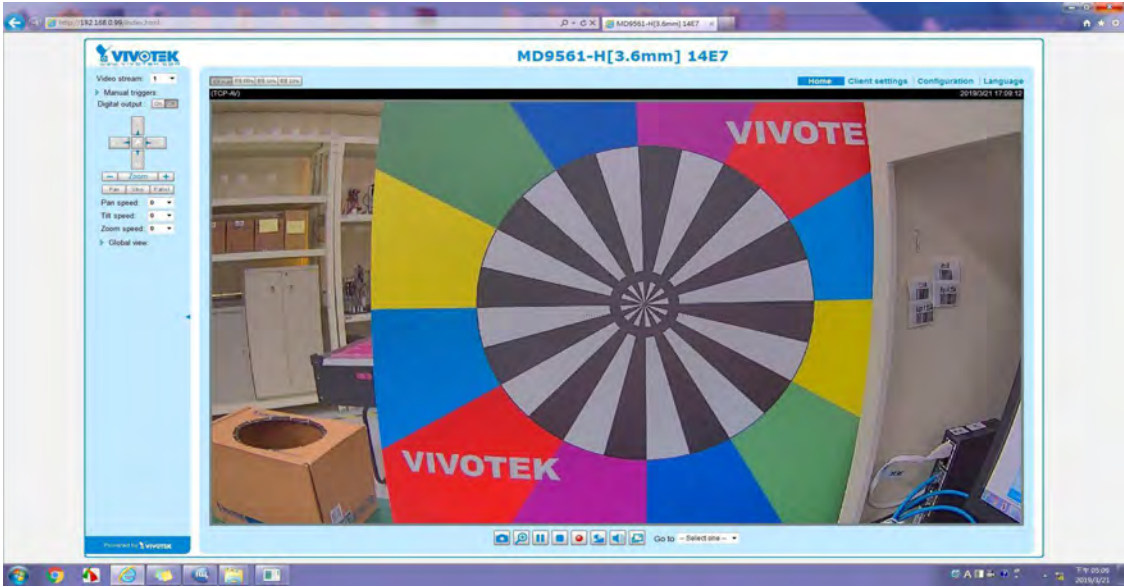


Test Image

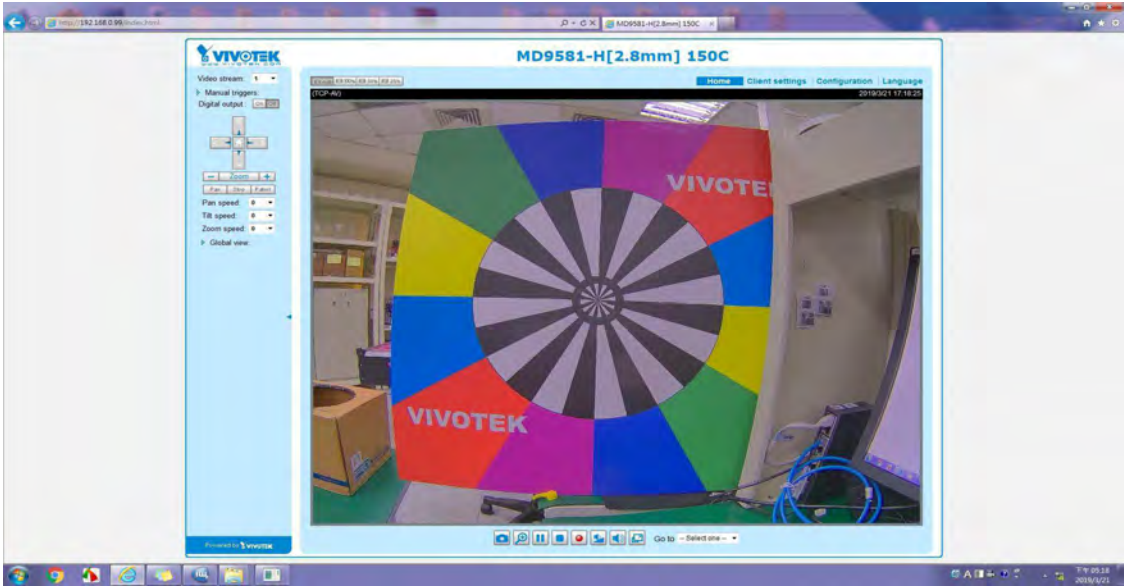
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0002D17E14E7



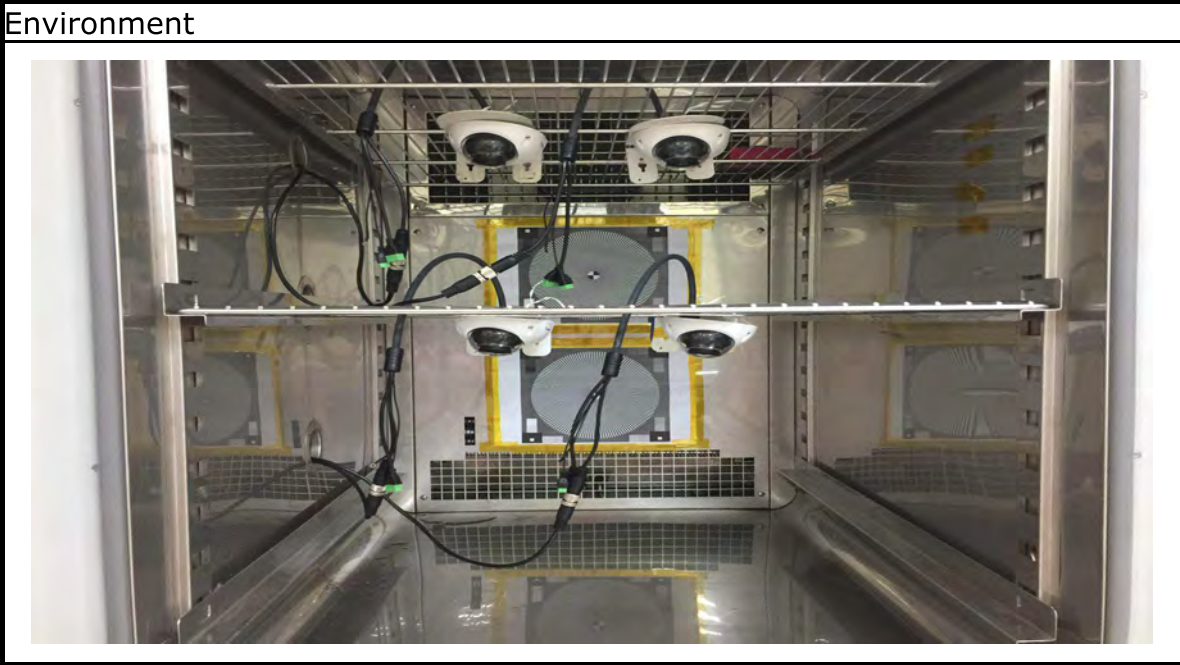
0002D17E150C



0002D17E151E

Function Test Item	Judgment	Remark
Appearance(check Peel,deformation,Dust)	Passed	
Network	Passed	
Update server setting	Passed	
Light Sensor Night	Passed	
Storage card	Passed	
DIDO	Passed	
Status LED	Passed	
Reset button	Passed	
Light Sensor Day	Passed	
Video	Passed	
IR-Cut	Passed	
IR-LED	Passed	
PoE Switch	Passed	
MICIN Audio	Passed	
LINEIN Audio	Passed	

Test item	Operational Temperature Cycles Test		Duration	2/12/2019 ~2/14/2019
Place	Laboratory of Quality Assurance in			VIVOTEK
Except Report No.		N/A		
Equipment				
Temperature & Humidity Chamber	Brand	TAICHY TECHNOLOGY LTD		
	Model	MHK-408NK		
	S/N	1030308		
Personal Computer	Operation System	Microsoft Windows	7	
	Browser	Microsoft Internet Explorer	9.050123	
PoE Switch	Brand	NETGEER		
	Model	GSM7224P-100PRS		
Test Condition & Pocedure				
1. Humidity: Uncontrolled. 2. Power the camera on. 3. Decrease to -40 °C. Dwell for 4 hours. 4. Increase to 60 °C. Dwell for 4 hours. 5. Repeat cycles 5 times. 6. Decrease to 25 °C .Dwell for 2 hours. Leave product in the chamber, Run Function test.				
Power Supply	PoE+ Switch			
Specimens	0002D17E14D0	0002D17E14D5	0002D17E150D	0002D17E151D
Judgment Criteria	1. It doesn't have bad image, fogging, discoloration or reboot..etc. in during this test. 2. Wire Ping loss is less than 1%; wireless Ping loss is less than 10%. 3. The specimens electrical function are normal.(Please see Function test list) 4. The specimen doesn't have deformation of the housing.			
Result	Passed			

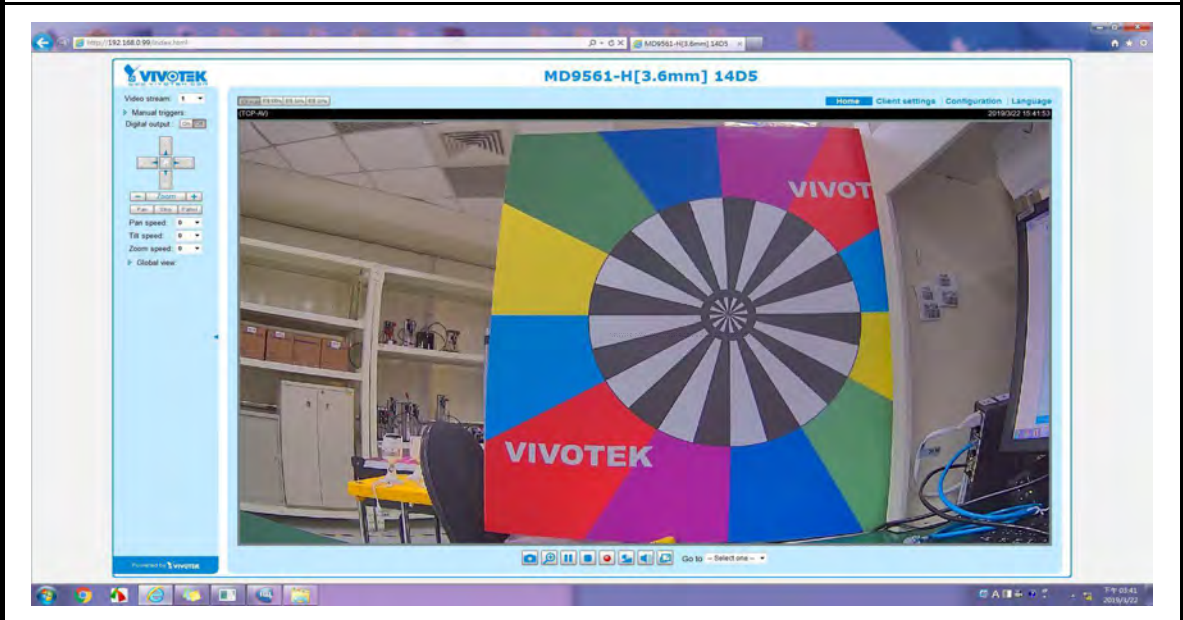


Test Image

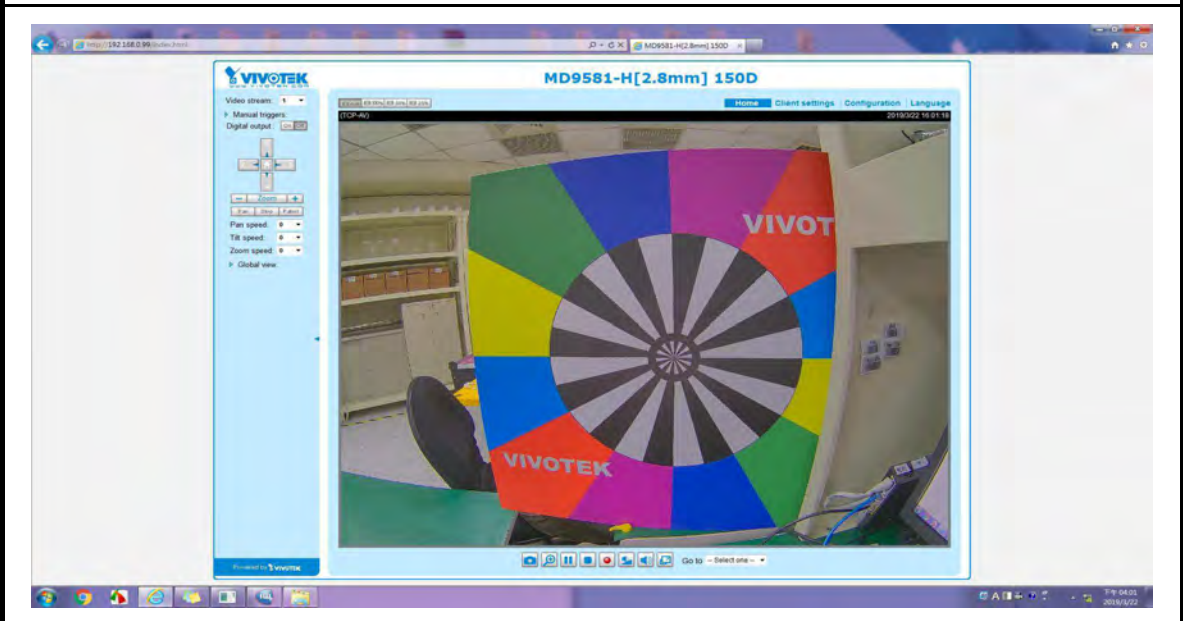
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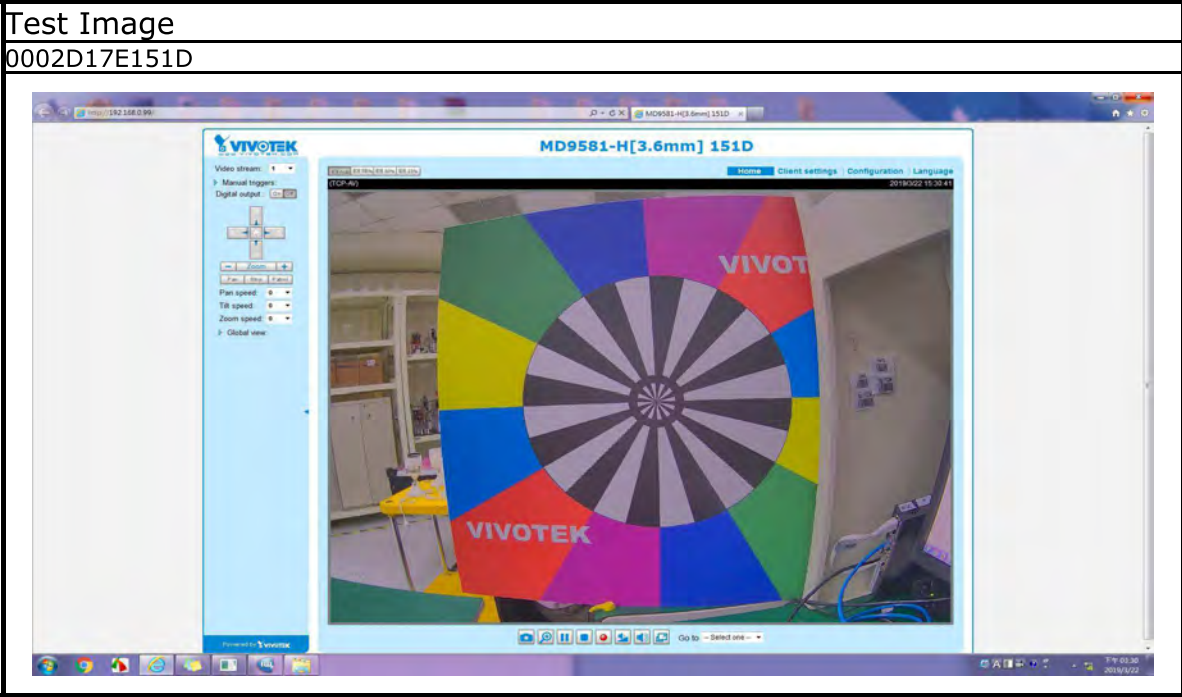


0002D17E14D5



0002D17E150D

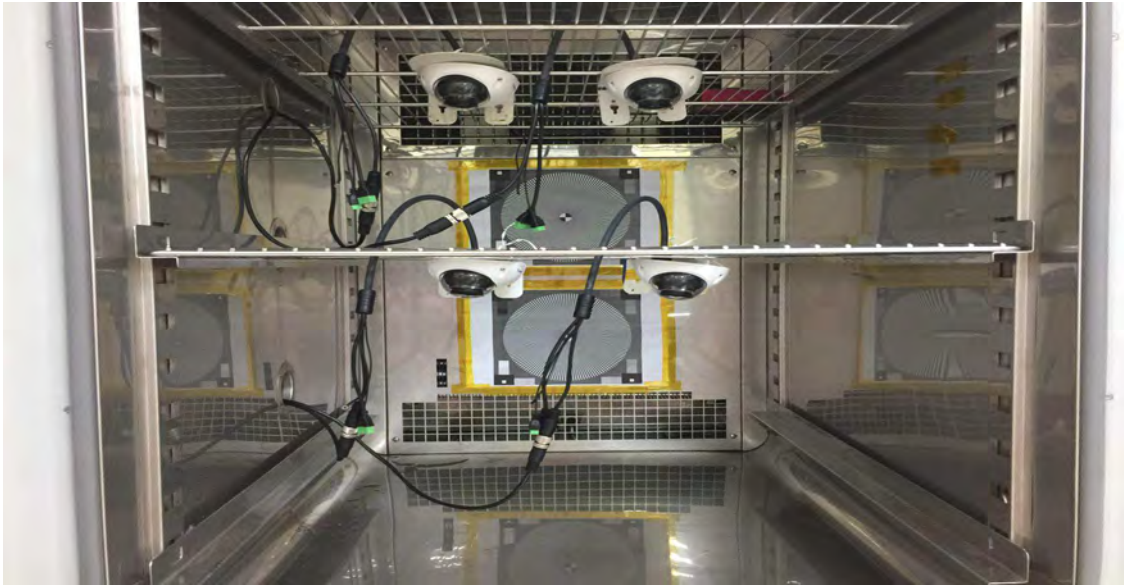




Function Test Item	Judgment	Remark
Appearance(check Peel,deformation,Dust)	Passed	
Network	Passed	
Update server setting	Passed	
Light Sensor Night	Passed	
Storage card	Passed	
DIDO	Passed	
Status LED	Passed	
Reset button	Passed	
Light Sensor Day	Passed	
Video	Passed	
IR-Cut	Passed	
IR-LED	Passed	
PoE Switch	Passed	
MICIN Audio	Passed	
LINEIN Audio	Passed	

Test item	Operational Cold Test	Duration	2/17/2019 ~2/20/2019	
Place	Laboratory of Quality Assurance in		VIVOTEK	
Except Report No.		N/A		
Equipment				
Temperature & Humidity Chamber	Brand	TAICHY TECHNOLOGY LTD		
	Model	MHK-408NK		
	S/N	1030308		
Personal Computer	Operation System	Microsoft Windows	7	
	Browser	Microsoft Internet Explorer	9.050123	
PoE Switch	Brand	NETGEER		
	Model	GSM7224P-100PRS		
Test Condition & Pocedure				
1. Humidity: Uncontrolled. 2. After cold start test, Power the camera on. 3. Decrease to -40 °C .Dwell for 72 hours. Run Ping test. 4. Increase to 25 °C .Dwell for 2 hours. Leave product in the chamber, Run Function test.				
Power Supply	PoE+ Switch			
Specimens	0002D17E14D0	0002D17E14D5	0002D17E150D	0002D17E151D
Judgment Criteria	1. It doesn't have a bad image, fogging, discoloration or reboot...etc. during the test. 2. Wire Ping loss is less than 1%; wireless Ping loss is less than 10%. 3. The specimen's electrical function is normal. (Please see Function test list) 4. The specimen doesn't have deformation of the housing.			
Result	Passed			

Environment

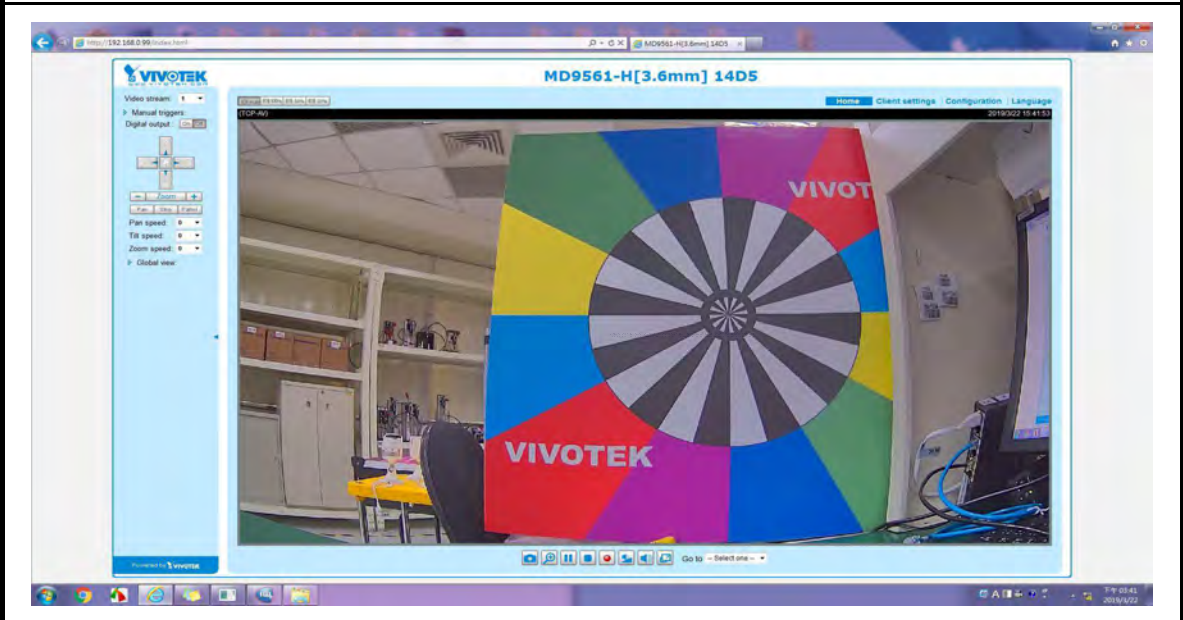


Test Image

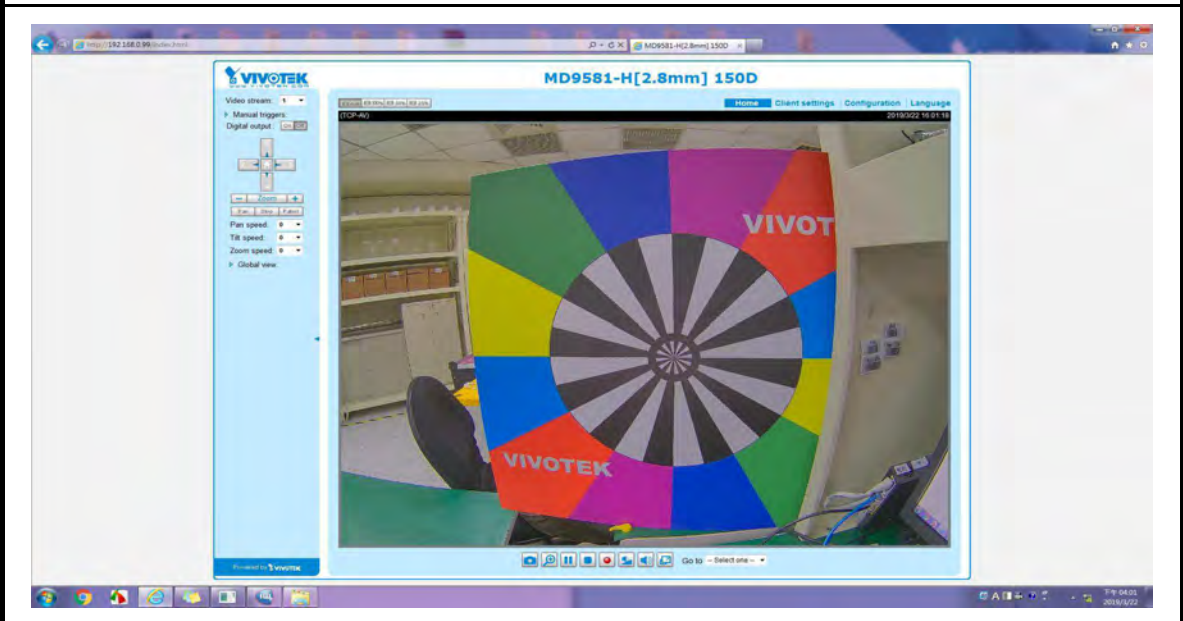
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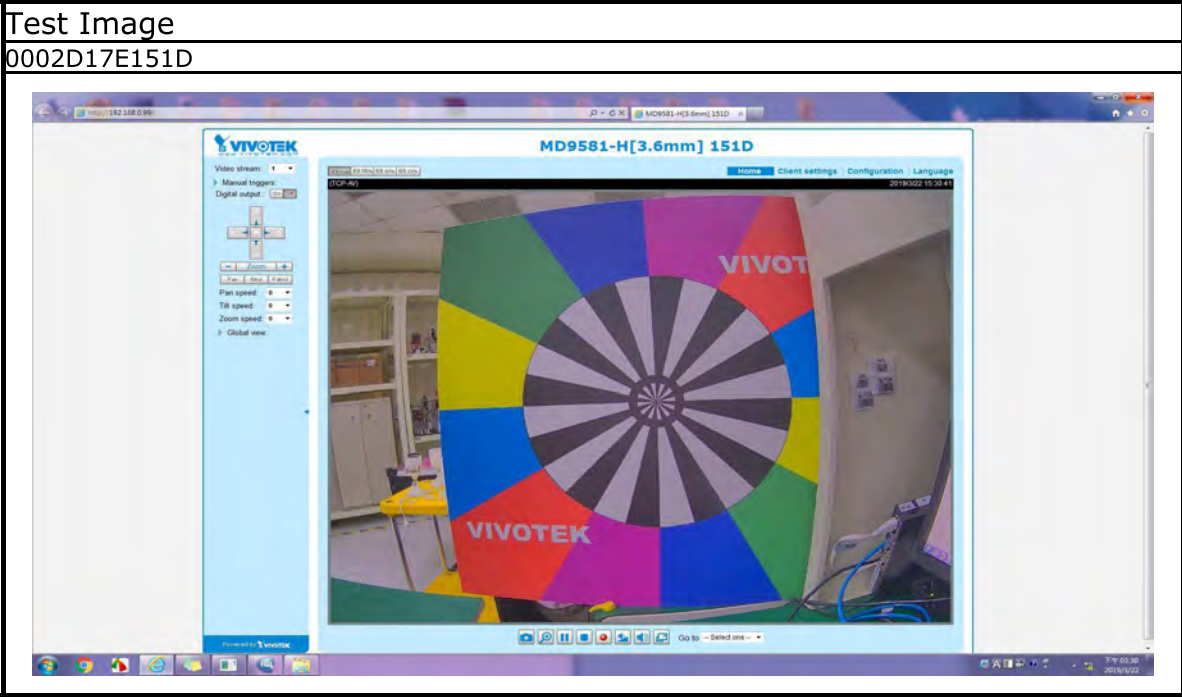


0002D17E14D5



0002D17E150D





Function Test Item	Judgment	Remark
Appearance(check Peel,deformation,Dust)	Passed	
Network	Passed	
Update server setting	Passed	
Light Sensor Night	Passed	
Storage card	Passed	
DIDO	Passed	
Status LED	Passed	
Reset button	Passed	
Light Sensor Day	Passed	
Video	Passed	
IR-Cut	Passed	
IR-LED	Passed	
PoE Switch	Passed	
MICIN Audio	Passed	
LINEIN Audio	Passed	

Test item	Non-Operational Random Vibration Test	Duration	3/15/2019 ~3/19/2019																																				
Place	Laboratory of Quality Assurance in	KING DESIGN																																					
Except Report No.	VT-190319-3																																						
Equipment																																							
Vibration Test System	Brand	KING DESIGN																																					
	Model	KD-9363EM-600F2K-50N120																																					
	S/N	KDS11054986																																					
Controller	Brand	KING DESIGN																																					
	Model	VCS-913+																																					
	S/N	1312384																																					
Control Accelerometer	Brand	WILCOXON RESEARCH																																					
	Model	WR-777																																					
	S/N	4207																																					
Personal Computer	Operation System	Microsoft Windows	7																																				
	Browser	Microsoft Internet Explorer	9.050123																																				
Test Condition & Pcedure																																							
<table border="1"> <tr> <td colspan="3">Vertical</td> </tr> <tr> <td>Frequency</td> <td>Spectral Break Point</td> <td>Slope</td> </tr> <tr> <td>5-20 Hz</td> <td>5.72 rms m/s²</td> <td></td> </tr> <tr> <td>20-150 Hz</td> <td></td> <td>-6 db/octave</td> </tr> <tr> <td colspan="3">Transverse</td> </tr> <tr> <td>Frequency</td> <td>Spectral Break Point</td> <td>Slope</td> </tr> <tr> <td>5-20 Hz</td> <td>2.55rms m/s²</td> <td></td> </tr> <tr> <td>20-150 Hz</td> <td></td> <td>-6 db/octave</td> </tr> <tr> <td colspan="3">Longitudinal</td> </tr> <tr> <td>Frequency</td> <td>Spectral Break Point</td> <td>Slope</td> </tr> <tr> <td>5-20 Hz</td> <td>3.96 rms m/s²</td> <td></td> </tr> <tr> <td>20-150 Hz</td> <td></td> <td>-6 db/octave</td> </tr> </table> 1. Temperature: 25±10℃. 2. Humidity: 50±25%RH. 3. Test Axis: Vertical, Transverse, Longitudinal axis. 4. Test Time: 5 hours (Each axis).				Vertical			Frequency	Spectral Break Point	Slope	5-20 Hz	5.72 rms m/s ²		20-150 Hz		-6 db/octave	Transverse			Frequency	Spectral Break Point	Slope	5-20 Hz	2.55rms m/s ²		20-150 Hz		-6 db/octave	Longitudinal			Frequency	Spectral Break Point	Slope	5-20 Hz	3.96 rms m/s ²		20-150 Hz		-6 db/octave
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20-150 Hz		-6 db/octave																																					
Specimens	0002D17E14C1	0002D17E14E6	0002D17E150D	0002D17E151C																																			
Judgment Criteria	1. It doesn't have a bad image, fogging, discoloration or reboot...etc. 2. The specimen's electrical function is normal.(Please see Function test list) 3. The specimen doesn't have deformation of the housing.																																						
Result	Passed																																						

Environment

Testing photos

Tester



Vertical



Longitudinal

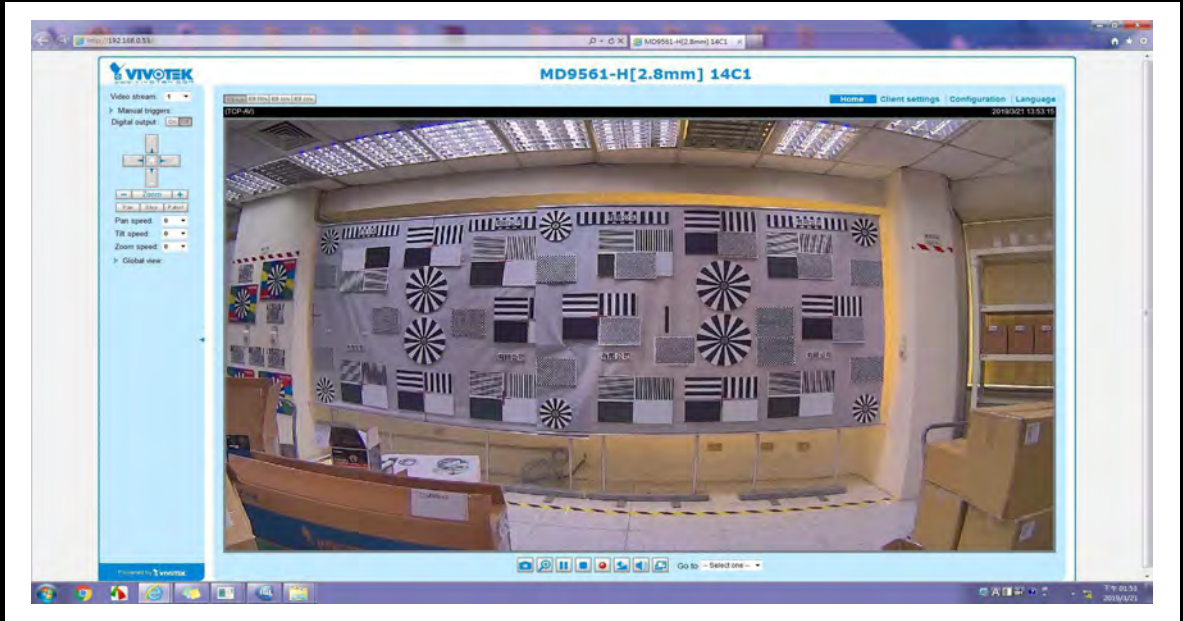


Transverse

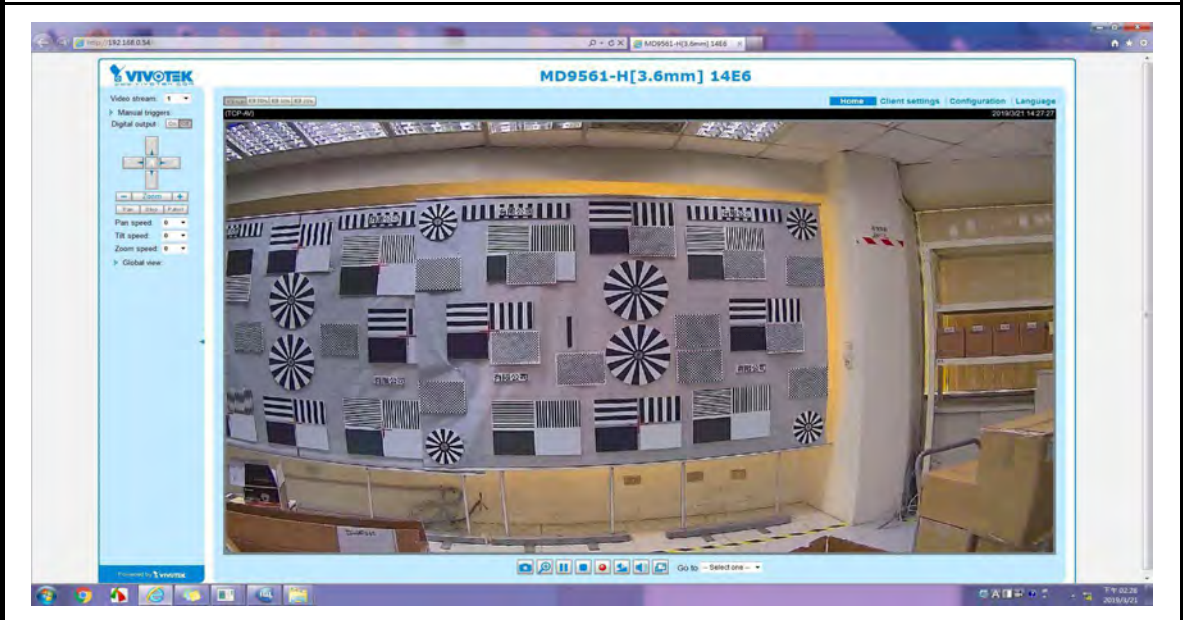


Test Image

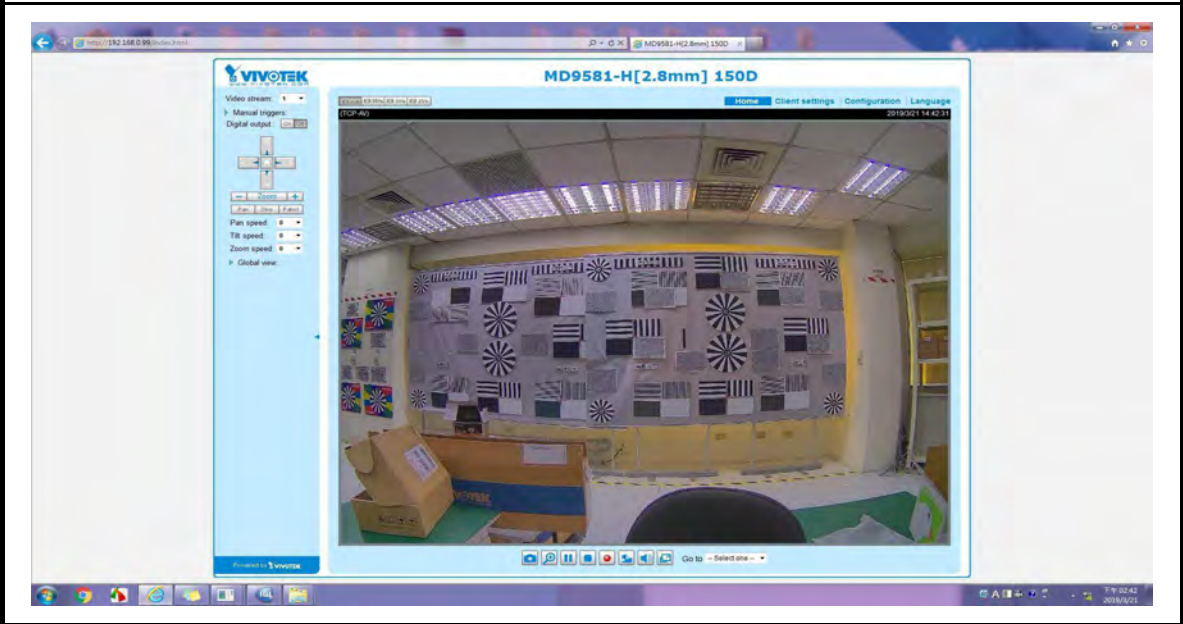
0002D17E14C1



0002D17E14E6

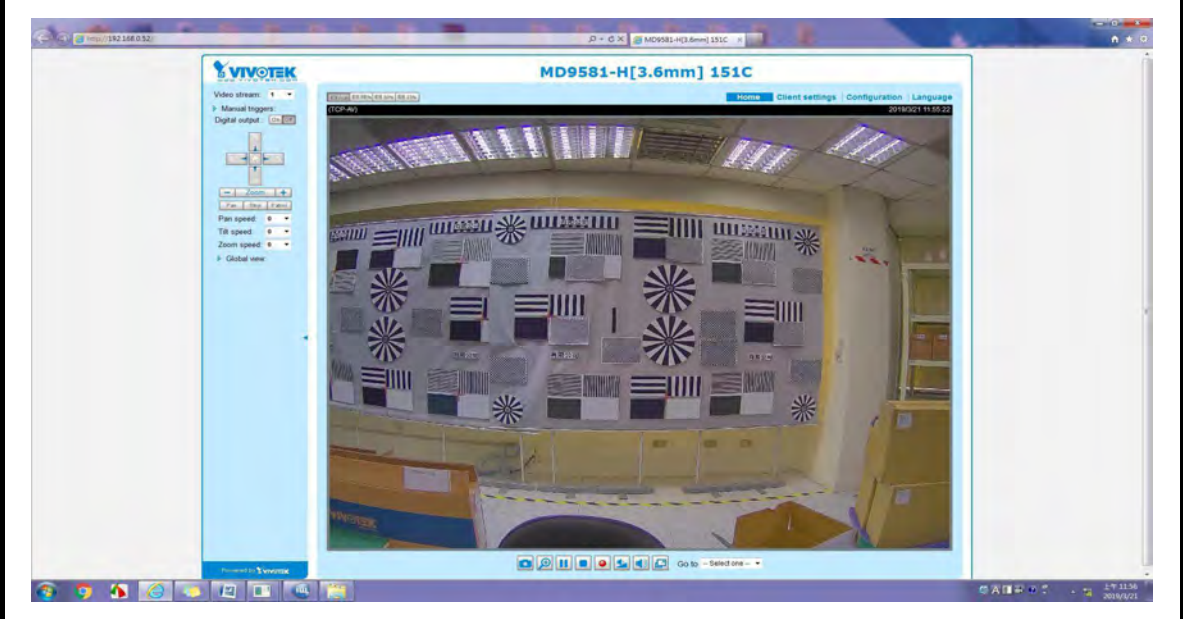


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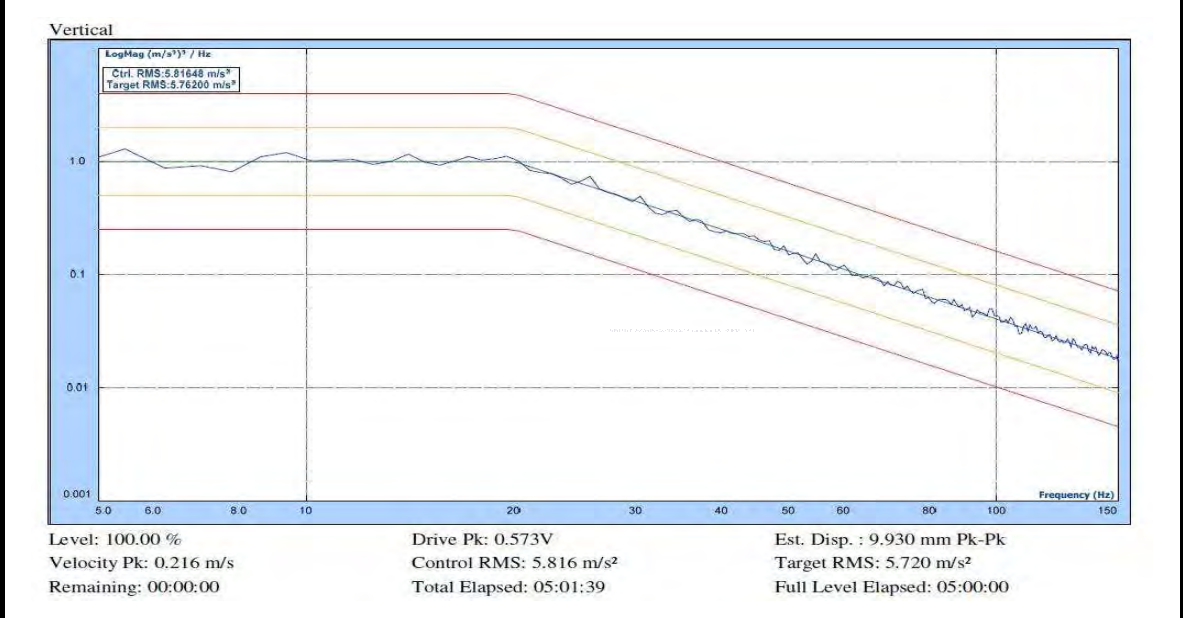


Test Image

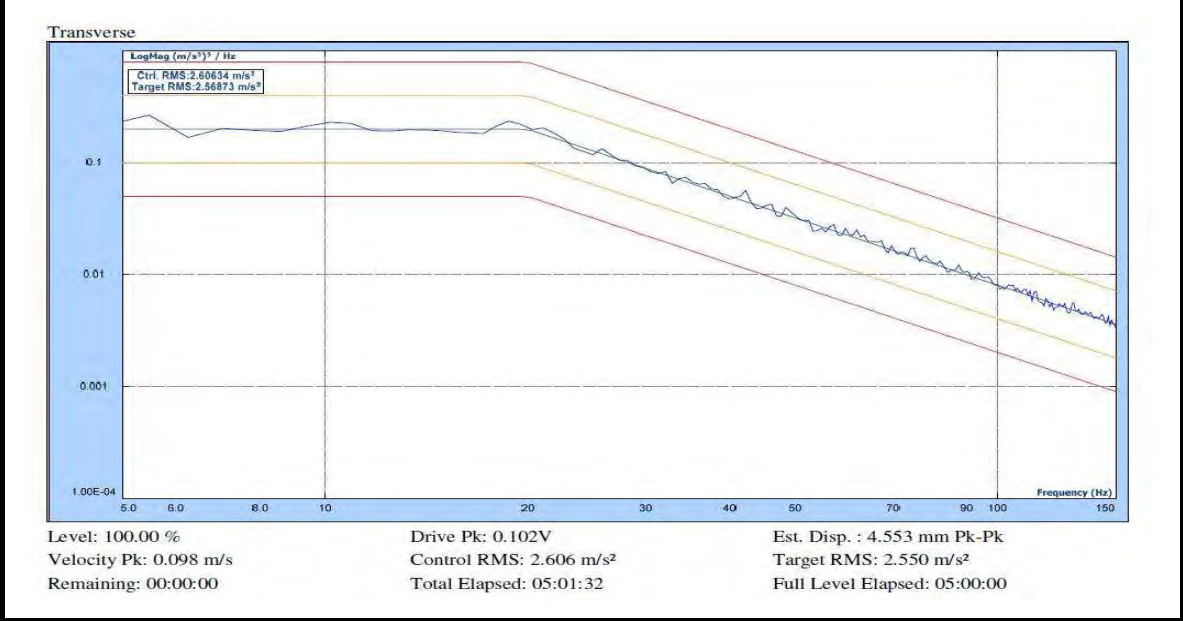
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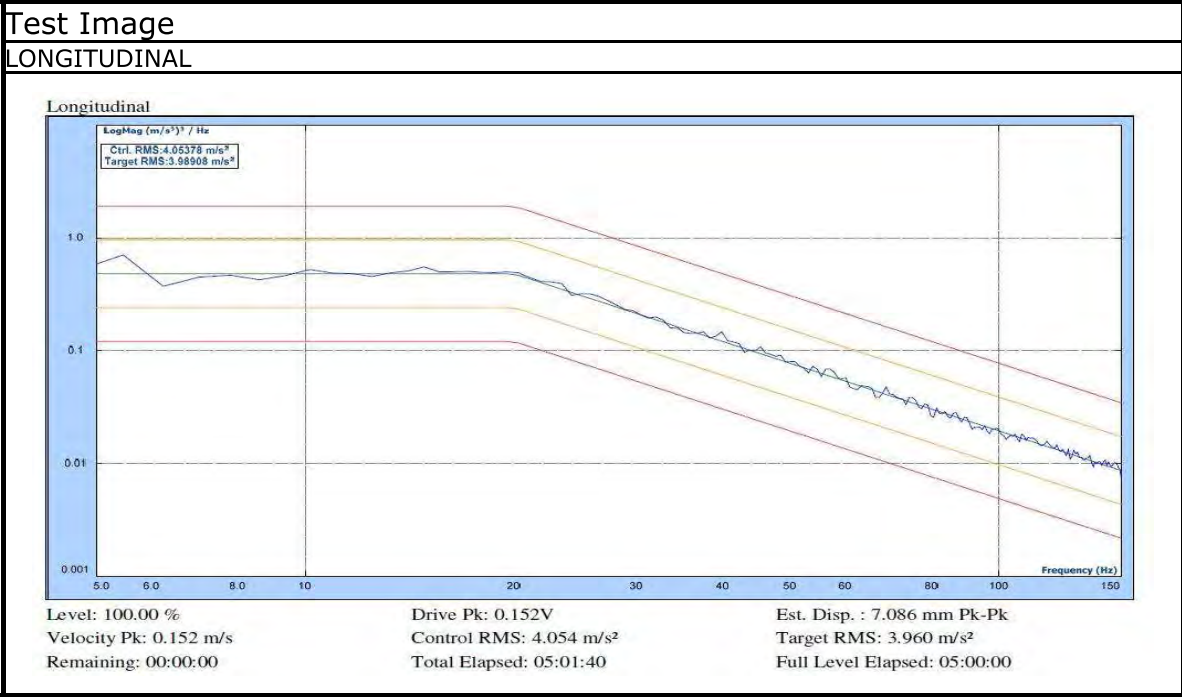


VERTICAL



TRANSVERSE





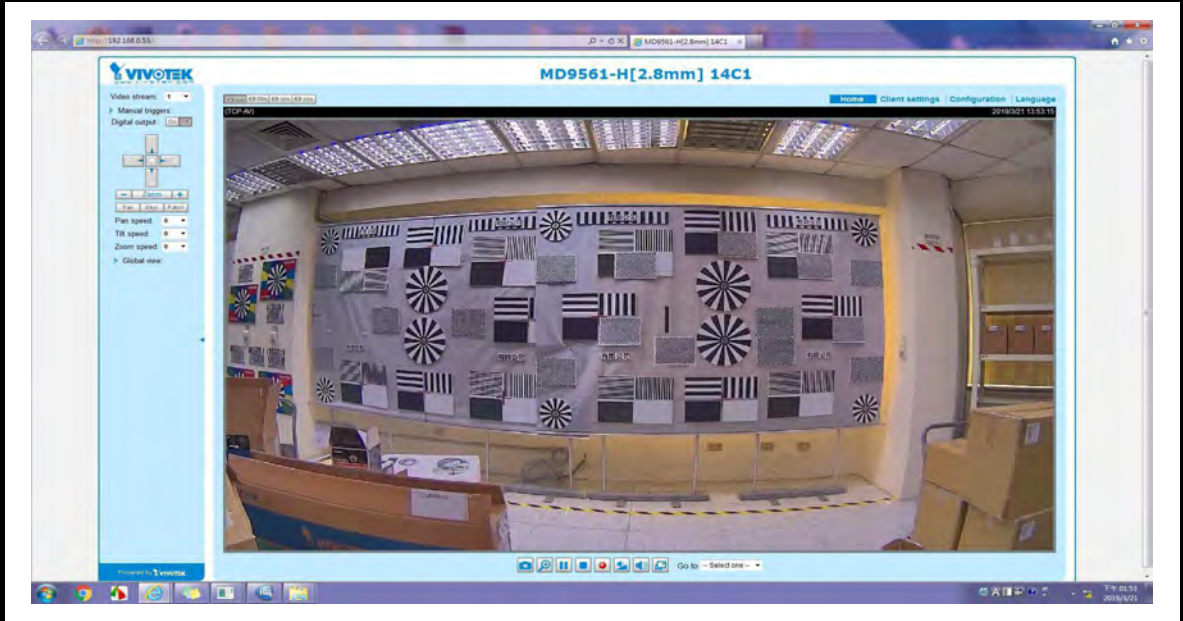
Function Test Item	Judgment	Remark
Appearance(check Peel,deformation,Dust)	Passed	
Network	Passed	
Update server setting	Passed	
Light Sensor Night	Passed	
Storage card	Passed	
DIDO	Passed	
Status LED	Passed	
Reset button	Passed	
Light Sensor Day	Passed	
Video	Passed	
IR-Cut	Passed	
IR-LED	Passed	
PoE Switch	Passed	
MICIN Audio	Passed	
LINEIN Audio	Passed	

Test item	Operational Random Vibration Test	Duration	3/15/2019 ~3/19/2019																																				
Place	Laboratory of Quality Assurance in	KING DESIGN																																					
Except Report No.	VT-190319-2																																						
Equipment																																							
Vibration Test System	Brand	KING DESIGN																																					
	Model	KD-9363EM-600F2K-50N120																																					
	S/N	KDS11054986																																					
Controller	Brand	KING DESIGN																																					
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	Browser	Microsoft Internet Explorer	9.050123																																				
Test Condition & Pocedure																																							
<table border="1"> <tr> <td colspan="3">Vertical</td></tr> <tr> <td>Frequency</td><td>Spectral Break Point</td><td>Slope</td></tr> <tr> <td>5-20 Hz</td><td>1.01 rms m/s²</td><td></td></tr> <tr> <td>20-150 Hz</td><td></td><td>-6 db/octave</td></tr> <tr> <td colspan="3">Transverse</td></tr> <tr> <td>Frequency</td><td>Spectral Break Point</td><td>Slope</td></tr> <tr> <td>5-20 Hz</td><td>0.450 rms m/s²</td><td></td></tr> <tr> <td>20-150 Hz</td><td></td><td>-6 db/octave</td></tr> <tr> <td colspan="3">Longitudinal</td></tr> <tr> <td>Frequency</td><td>Spectral Break Point</td><td>Slope</td></tr> <tr> <td>5-20 Hz</td><td>0.700 rms m/s²</td><td></td></tr> <tr> <td>20-150 Hz</td><td></td><td>-6 db/octave</td></tr> </table> 1. Temperature: 25±10°C. 2. Humidity: 50±25%RH. 3. Test Axis: Vertical, Transverse, Longitudinal axis. 4. Test Time: 1 hours (Each axis).Run Ping test.				Vertical			Frequency	Spectral Break Point	Slope	5-20 Hz	1.01 rms m/s ²		20-150 Hz		-6 db/octave	Transverse			Frequency	Spectral Break Point	Slope	5-20 Hz	0.450 rms m/s ²		20-150 Hz		-6 db/octave	Longitudinal			Frequency	Spectral Break Point	Slope	5-20 Hz	0.700 rms m/s ²		20-150 Hz		-6 db/octave
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Longitudinal																																							
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Specimens	0002D17E14C1	0002D17E14E6	0002D17E150D	0002D17E151C																																			
Judgment Criteria	1. It doesn't have bad image, fogging, discoloration or reboot..etc 2. The specimens electrical function are normal.(Please see Function test list) 3. The specimen doesn't have deformation of the housing. 4. Wire Ping loss is less than 1%; wireless Ping loss is less than 10%.																																						
Result	Passed																																						

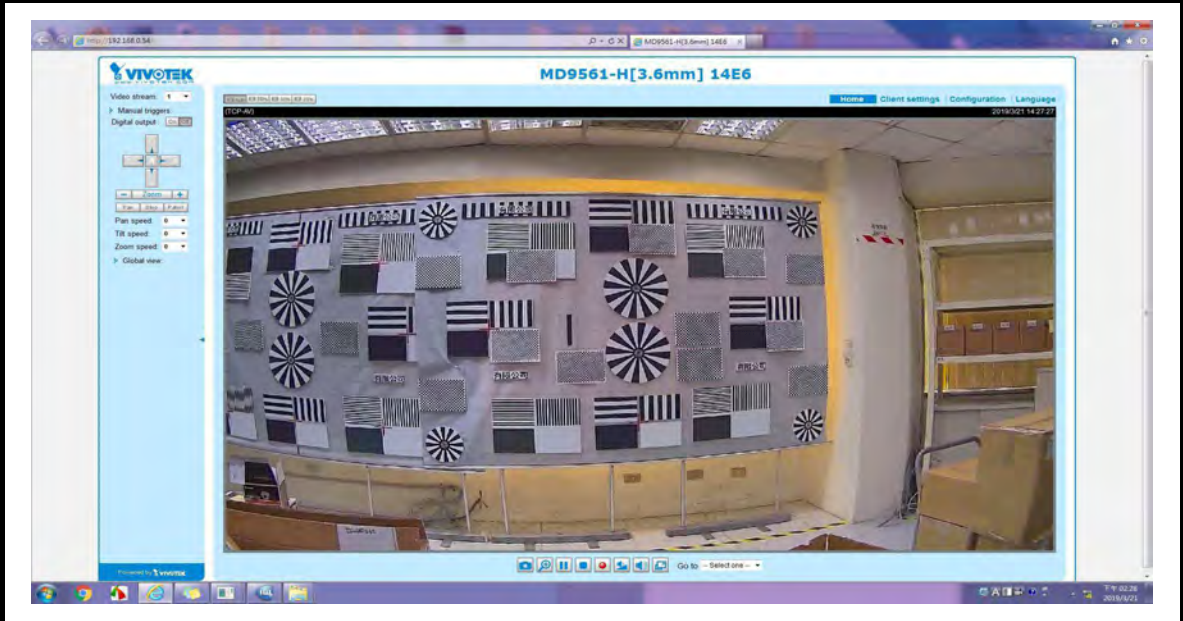
Testing photos			
Tester		Vertical	
			
Longitudinal		Transverse	
			

Test Image

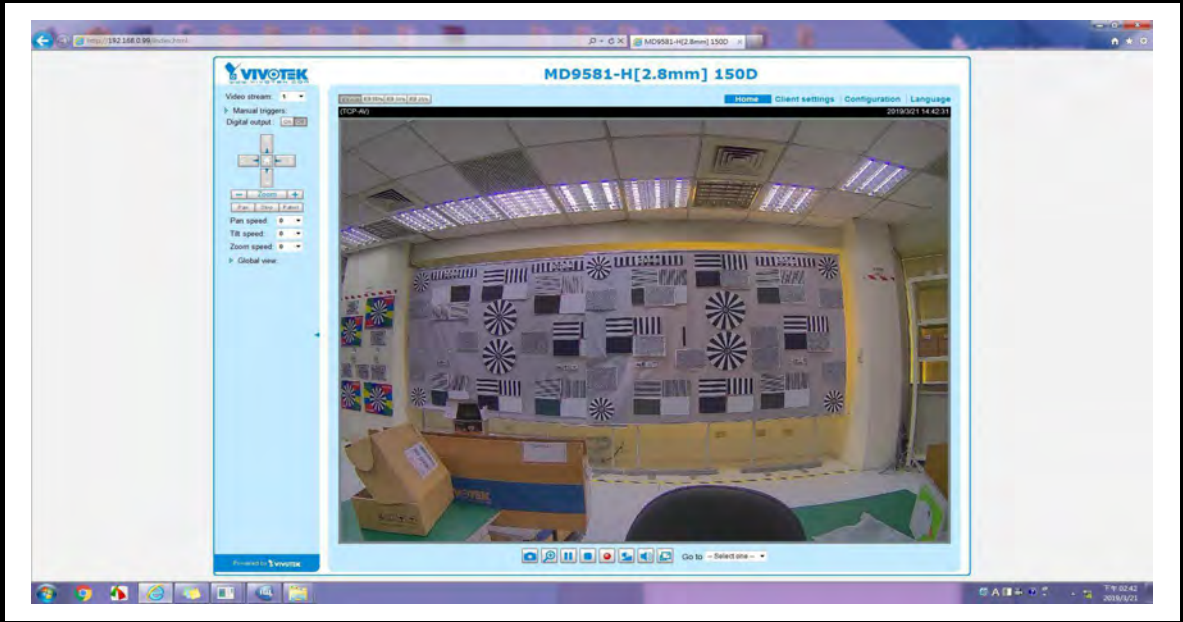
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0002D17E14E6

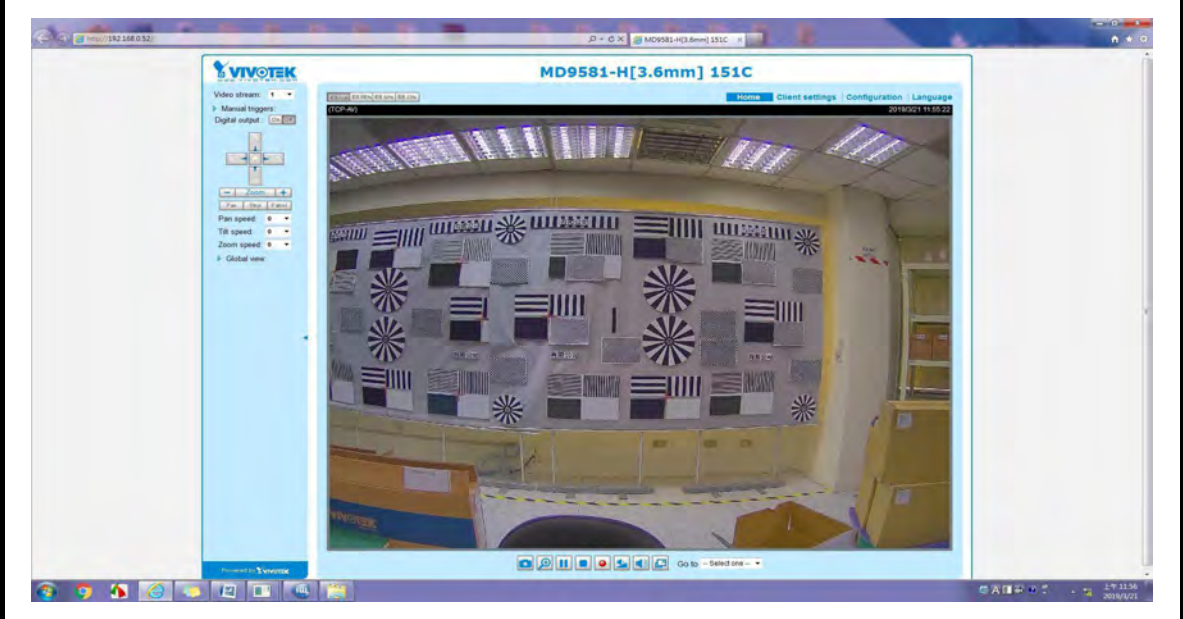


0002D17E150D

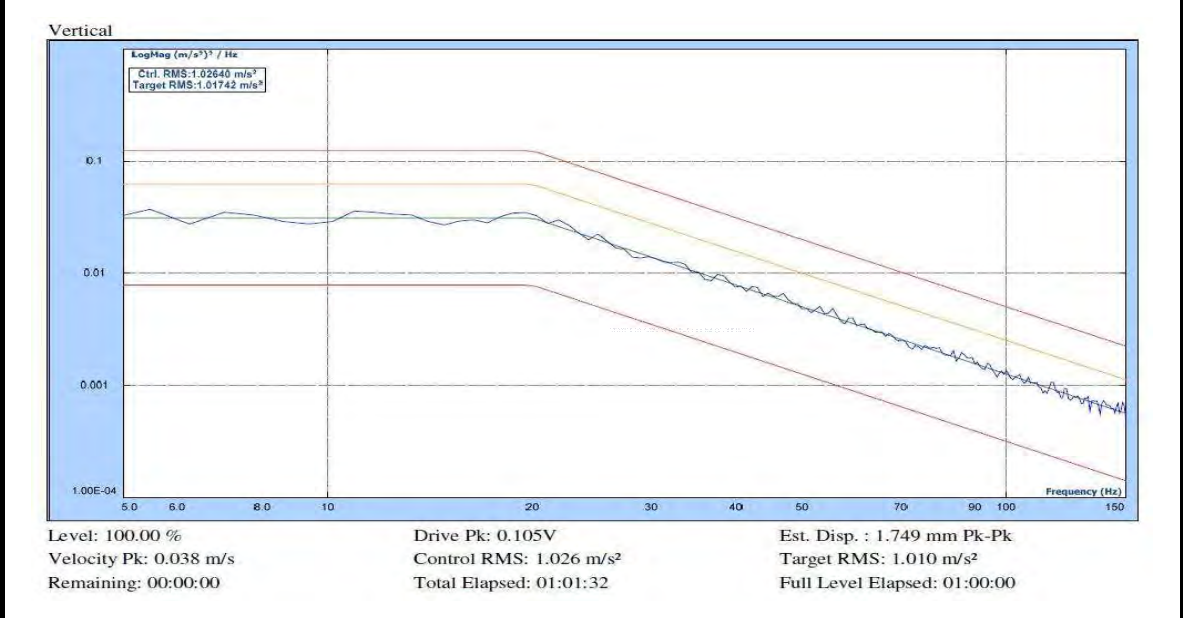


Test Image

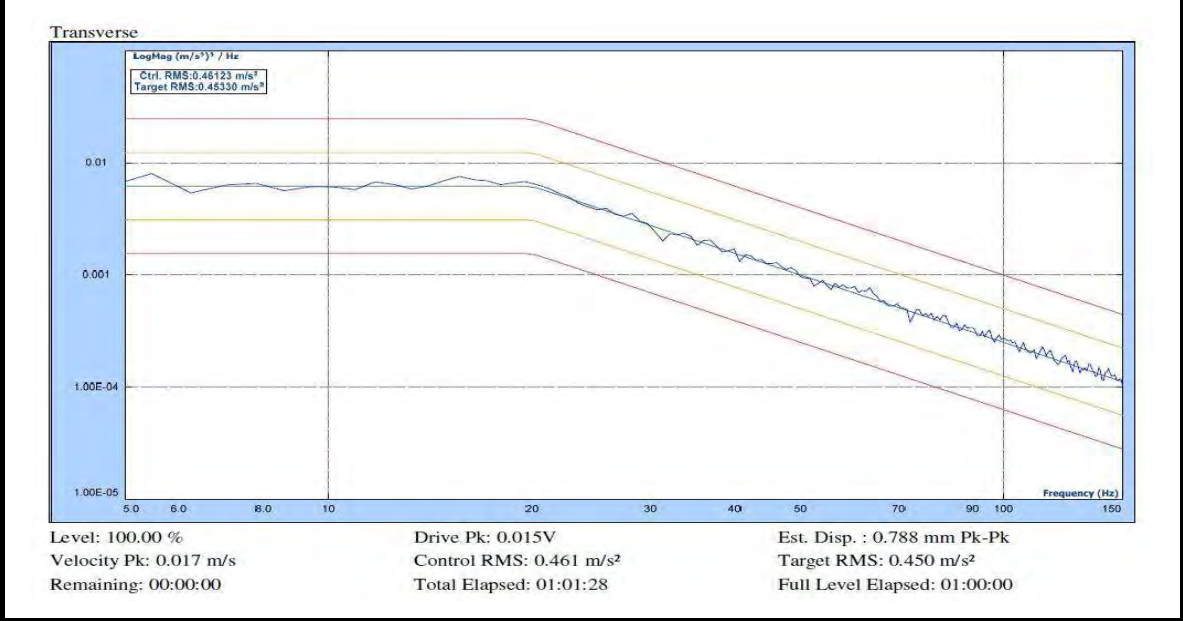
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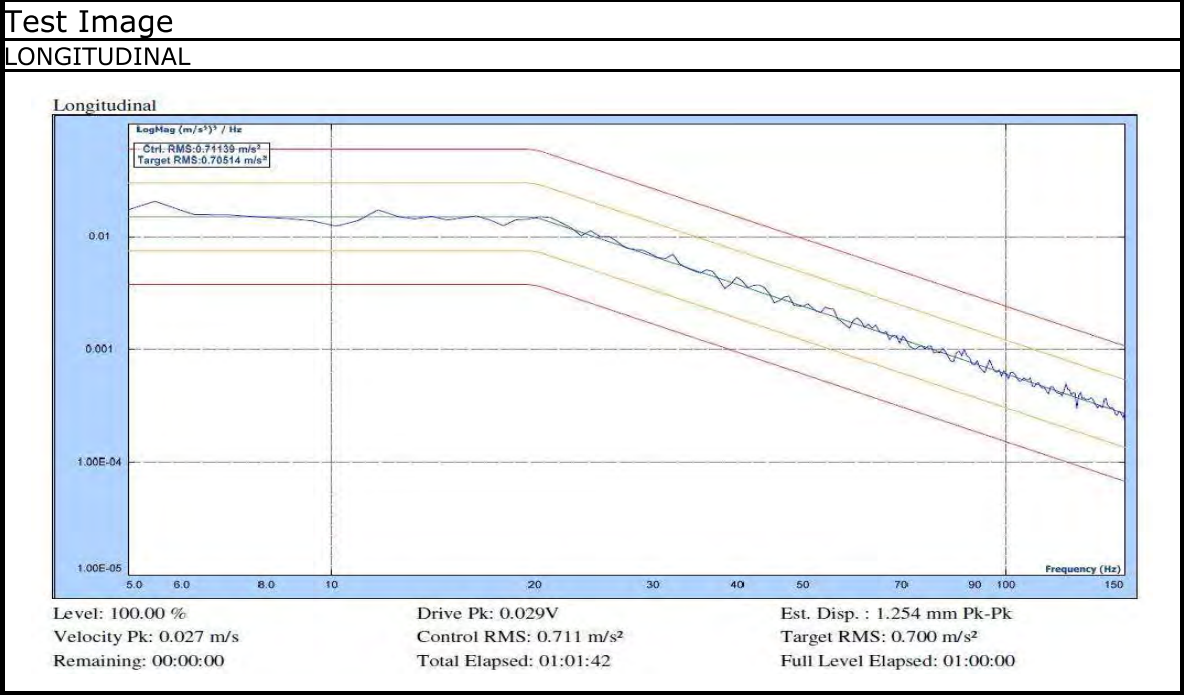


VERTICAL



TRANSVERSE





Function Test Item	Judgment	Remark
Appearance(check Peel,deformation,Dust)	Passed	
Network	Passed	
Update server setting	Passed	
Light Sensor Night	Passed	
Storage card	Passed	
DIDO	Passed	
Status LED	Passed	
Reset button	Passed	
Light Sensor Day	Passed	
Video	Passed	
IR-Cut	Passed	
IR-LED	Passed	
PoE Switch	Passed	
MICIN Audio	Passed	
LINEIN Audio	Passed	

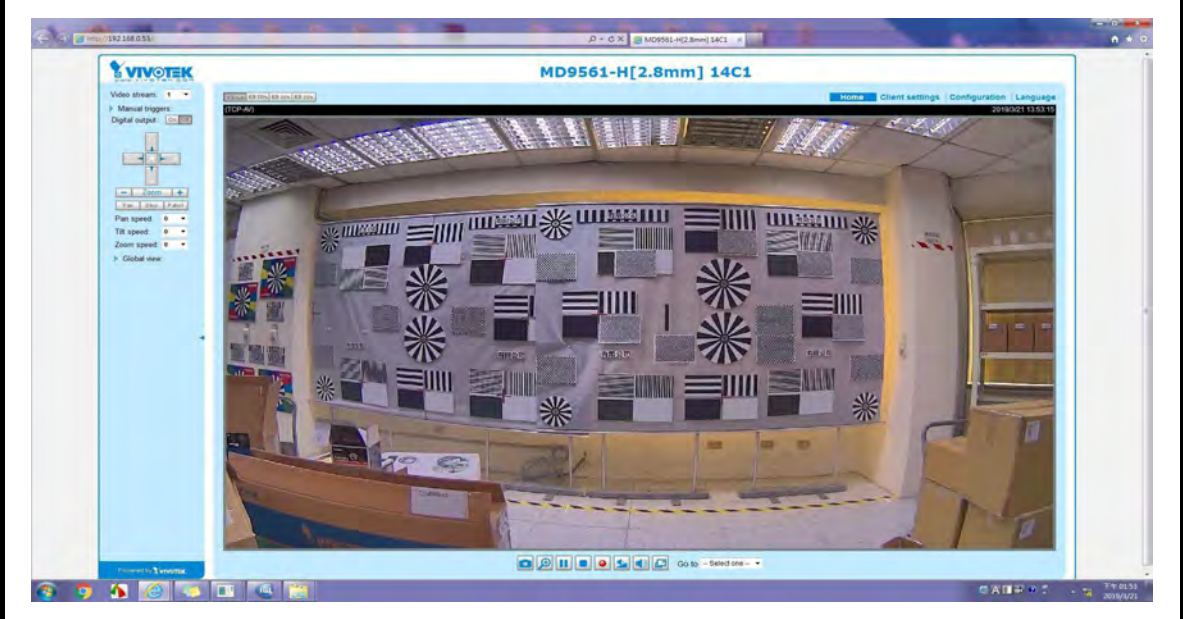
Test item	Operational Shock Test	Duration	3/15/2019 ~3/19/2019						
Place	Laboratory of Quality Assurance in	KING DESIGN							
Except Report No.	ST-190319-1								
Equipment									
Vibration Test System	Brand	KING DESIGN							
	Model	KD-9363EM-600F2K-50N120							
	S/N	KDS11054986							
Controller	Brand	KING DESIGN							
	Model	VCS-913+							
	S/N	1312384							
Control Accelerometer	Brand	WILCOXON RESEARCH							
	Model	WR-777							
	S/N	4207							
Personal Computer	Operation System	Microsoft Windows	7						
	Browser	Microsoft Internet Explorer	9.050123						
Test Condition & Pocedure									
<table border="1"> <thead> <tr> <th>System/UUTWeight</th><th>Weight</th><th>Target Min G Level and Duration</th></tr> </thead> <tbody> <tr> <td>3,23 lb</td><td><4.5Kg(<10lb.)</td><td>3 ot 5 G, 3 ms</td></tr> </tbody> </table>				System/UUTWeight	Weight	Target Min G Level and Duration	3,23 lb	<4.5Kg(<10lb.)	3 ot 5 G, 3 ms
System/UUTWeight	Weight	Target Min G Level and Duration							
3,23 lb	<4.5Kg(<10lb.)	3 ot 5 G, 3 ms							
1. Power test unit on. Run Pin test. 2. The test unit shall be subjected to one each Half Sine impact for each direction (positive and negative) in each of 3 axes. at the testing specified table below. 3. Acceleration:30m/s ² (for ±vertical and ±transverse);50m/s ² (for ± longitudinal) 4. Duration D:30m/s									
Specimens	0002D17E14C1	0002D17E14E6	0002D17E150D	0002D17E151C					
Judgment Criteria	1. It doesn't have bad image, fogging, discoloration or reboot..etc 2. The specimens electrical function are normal.(Please see Function test list) 3. The specimen doesn't have deformation of the housing. 4. Wire Ping loss is less than 1%; wireless Ping loss is less than 10%.								
Result	Passed								

Environment

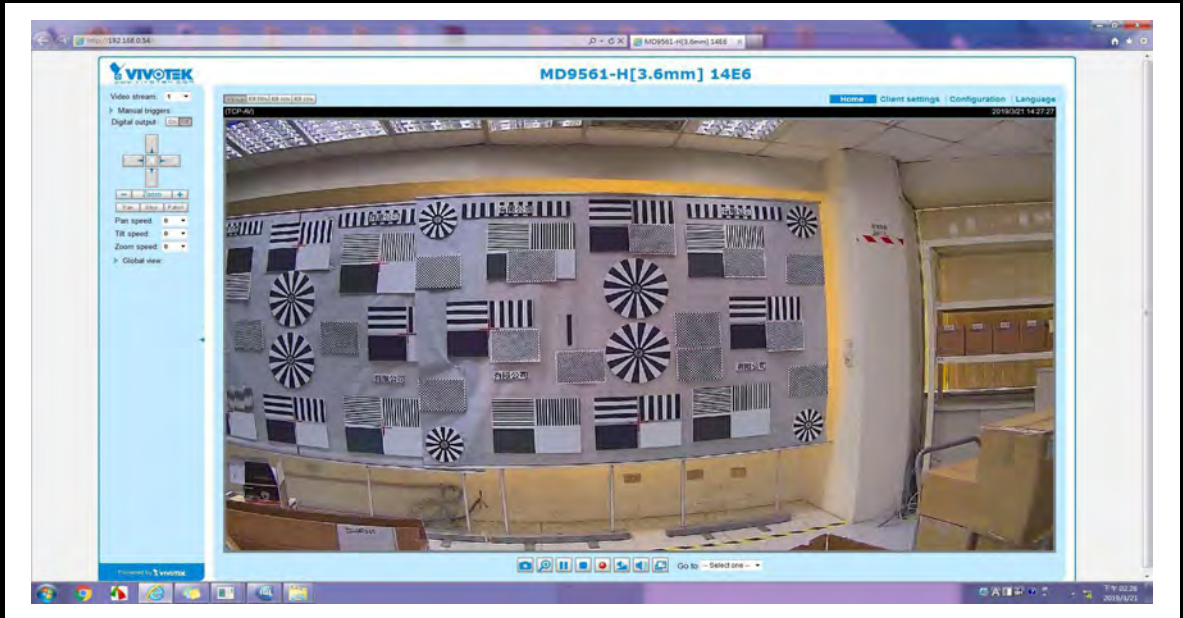
Testing photos			
Tester		±Vertical	
			
±Longitudinal		±Transverse	
			

Test Image

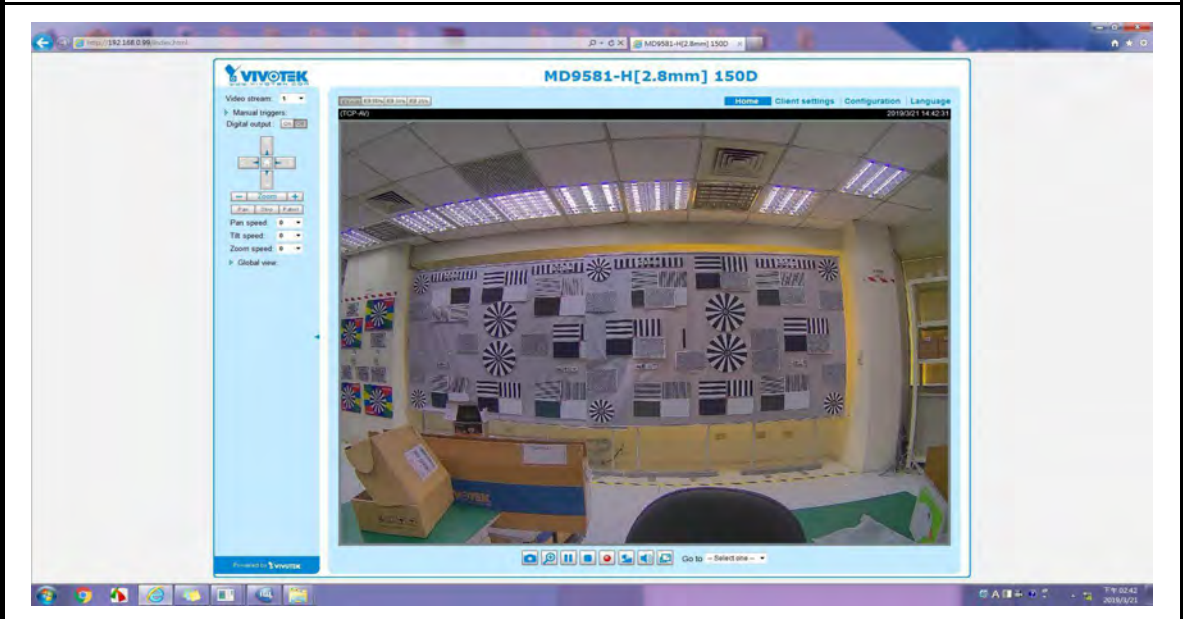
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0002D17E14E6

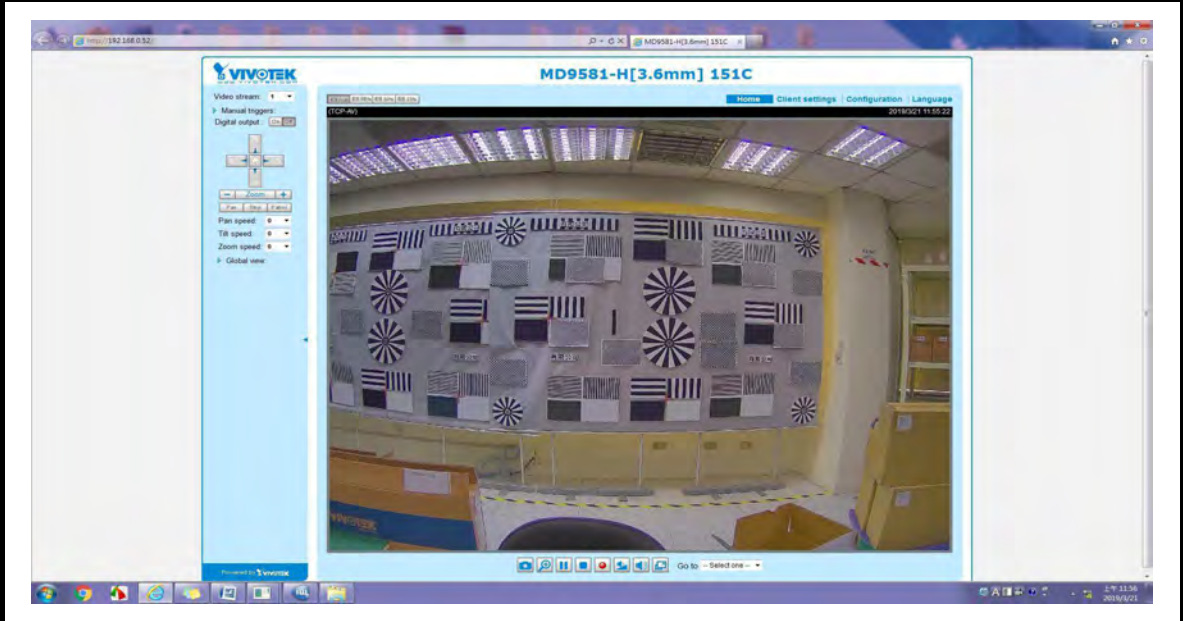


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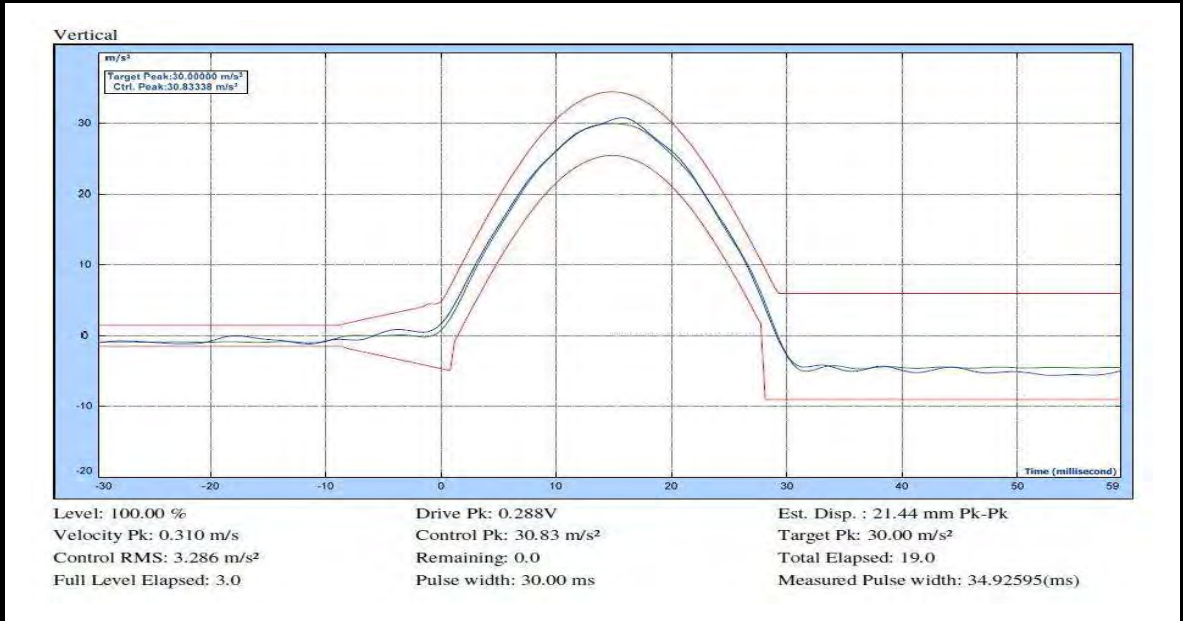


Test Image

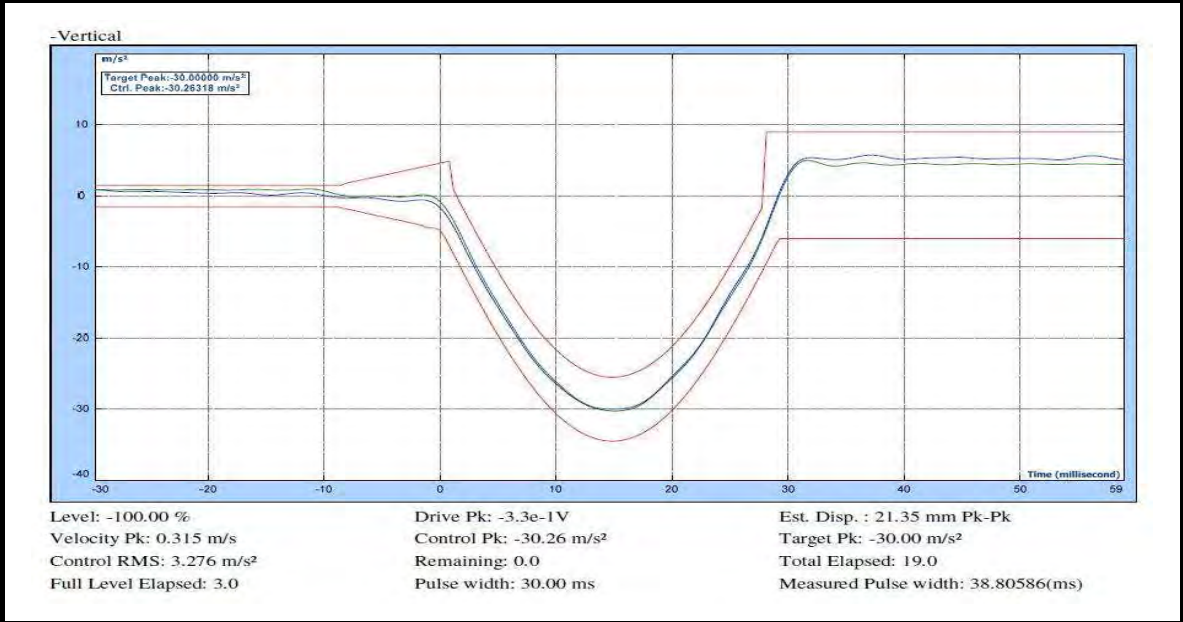
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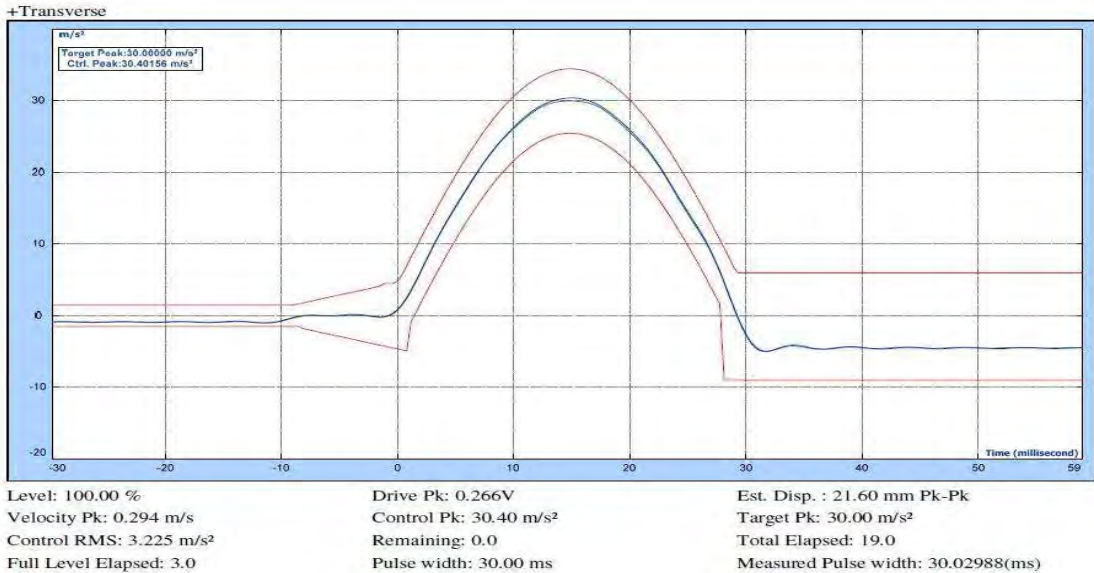


VERTICAL

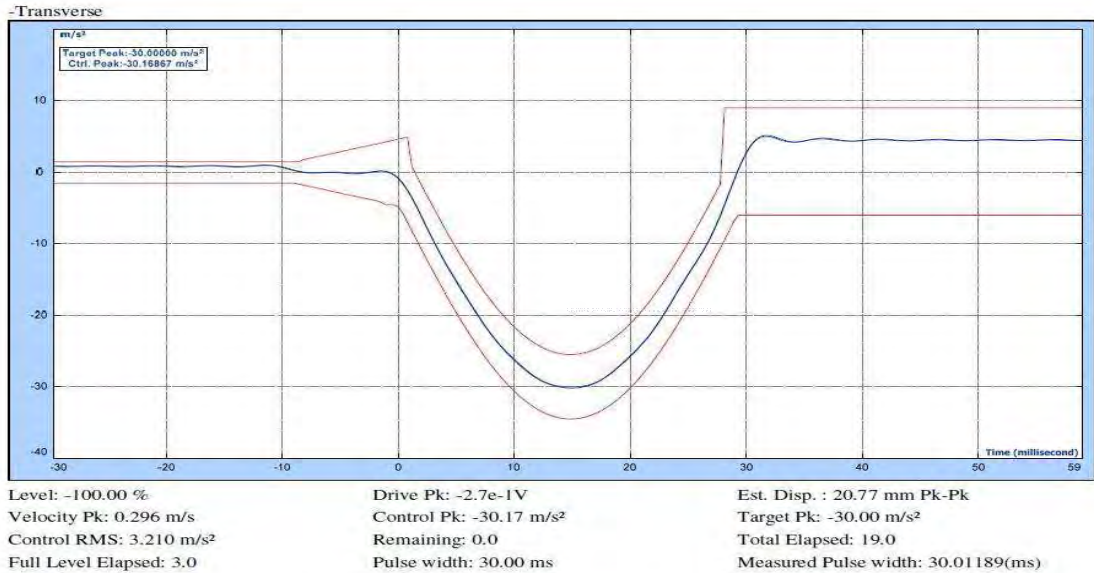


Test Image

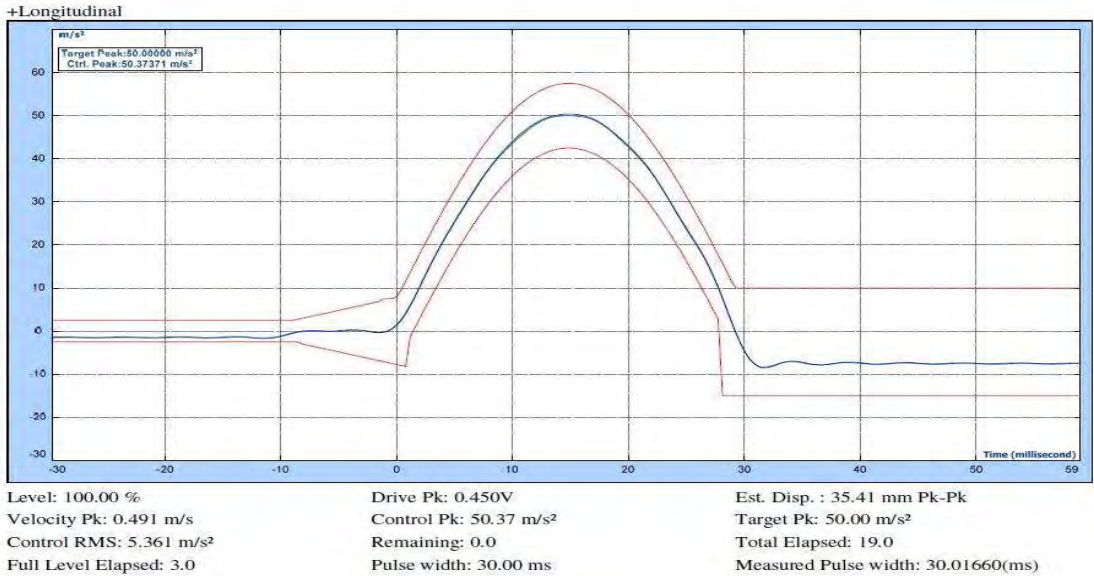
TRANSVERSE

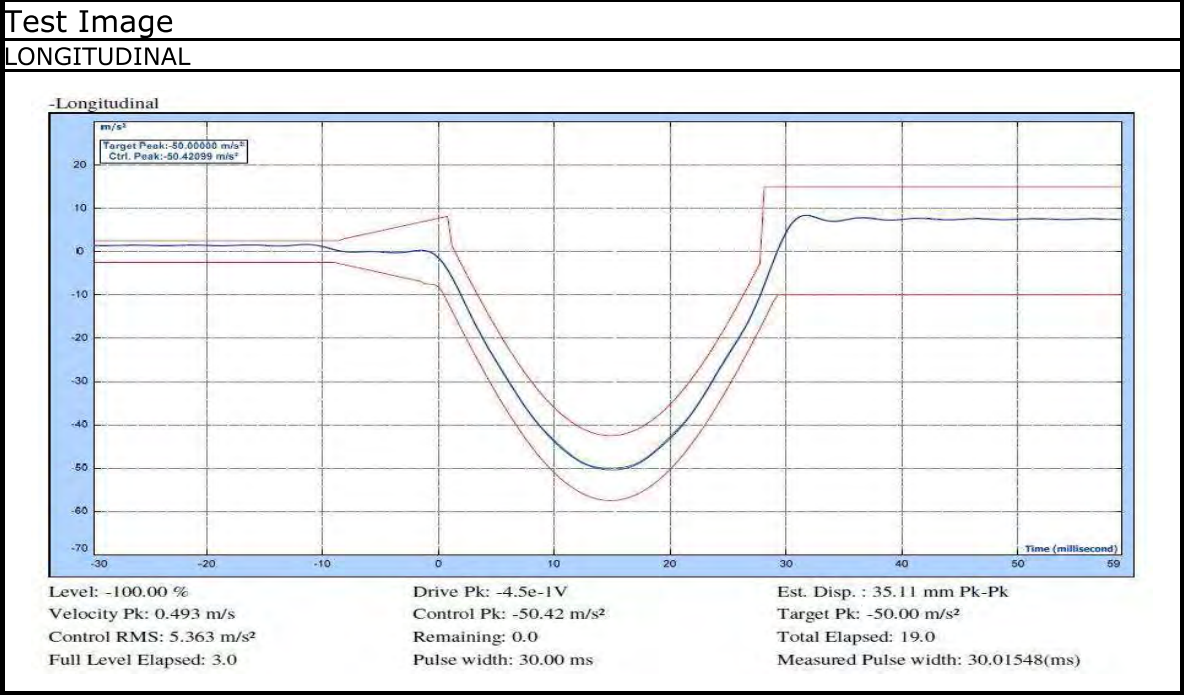


TRANSVERSE



LONGITUDINAL





Function Test Item	Judgment	Remark
Appearance(check Peel,deformation,Dust)	Passed	
Network	Passed	
Update server setting	Passed	
Light Sensor Night	Passed	
Storage card	Passed	
DIDO	Passed	
Status LED	Passed	
Reset button	Passed	
Light Sensor Day	Passed	
Video	Passed	
IR-Cut	Passed	
IR-LED	Passed	
PoE Switch	Passed	
MICIN Audio	Passed	
LINEIN Audio	Passed	

Test item	Dry Heat Test	Duration	2/15/2019 ~2/18/2019
Place	Laboratory of Quality Assurance in		VIVOTEK
Except Report No.	N/A		
Equipment			
Temperature & Humidity Chamber	Brand	TAICHY TECHNOLOGY LTD	
	Model	MHK-408NK	
	S/N	1030309	
Personal Computer	Operation System	Microsoft Windows	7
	Browser	Microsoft Internet Explorer	9.050123
PoE Switch	Brand	VIVOTEK	
	Model	AW-GEV-264A-370	

Test Condition & Pcedure			
Table 1 — Operating temperature classes			
Class	Equipment operating temperature range (°C)		
OT1	−25 to +55		
OT2	−40 to +55		
OT3	−25 to +70		
OT4	−40 to +70		
OT5	−25 to +85		
OT6	−40 to +85		
Table 2 — Switch-on extended Operating temperature classes			
Class	Switch-on extended operating temperature (duration: 10 min)	Thermal test cycle See 13.4.5	
ST0	No switch-on extended operating temperature	Test cycle A	
ST1	OTx +15 °C	Test cycle B	
ST2	OTx +15 °C	Test cycle C	

NOTE "OTx +15 °C" corresponds to (maximum temperature of "OTx" operating temperature range of Table 1) + (15 °C) and only for "OTx" with "x" = 1, 2, 3 or 4.

Class ST1 and ST2 do not apply to classes OT5 and OT6.

Unless otherwise specified, the requirements of class ST1 apply.

Temperature

$T_{TEST} + 15^{\circ}\text{C}$

T_{TEST}

$+ 25^{\circ}\text{C}$

1°C/min

Stabilization time

Duration time

10 min

1°C/min

$\geq 1\text{ h}$

Time

ON

OFF

ON

ON

OFF

ON

Performance test

Equipment switched ON

Equipment switched OFF

1. Humidity: Uncontrolled.

2. To setup temperature 55 °C. Duration of 74 hours. (see table 1)

3. To boot the IP camera off.

4. The temperature stabilized 2hours, then boot up and time period of 72 hours with continuous operational. (see temperature diagram)

5. Once this test is complete, then the Switched off the product.

6. Increase to 70 °C.

7. boot up the equipment and continuous operational checks are carried out at this extended operating temperature value for 10 minutes. (see table 2, Class ST1)

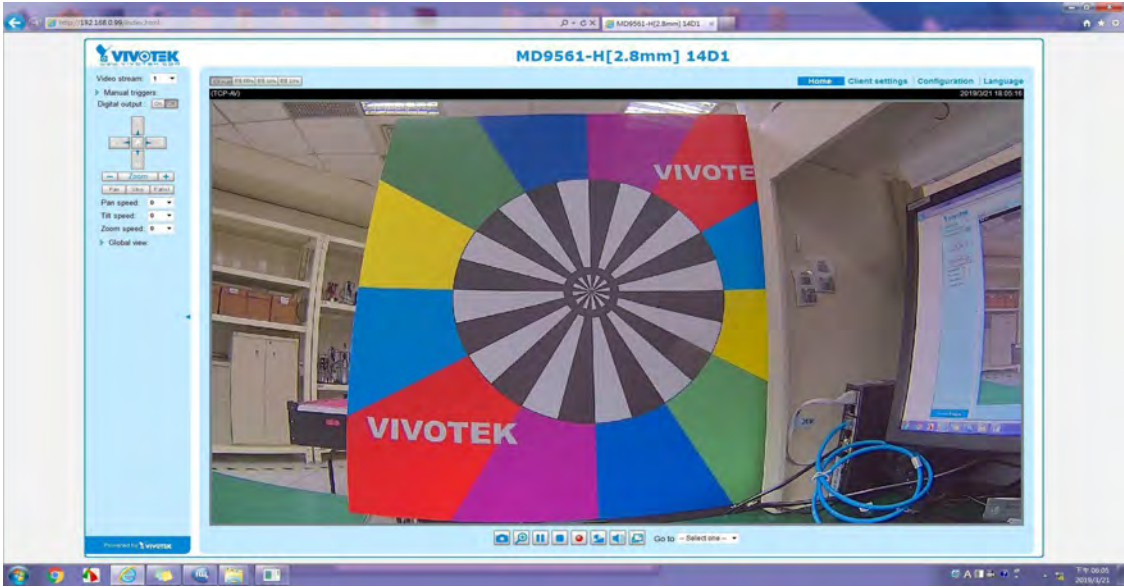
Power Supply	PoE+ Switch			
Specimens	0002D17E14D1	0002D17E14E7	0002D17E150C	0002D17E151E
Judgment Criteria	1. It doesn't have a bad image, fogging, discoloration or reboot...etc. during the test. 2. Wire Ping loss is less than 1%; wireless Ping loss is less than 10%. 3. The specimen's electrical function is normal. (Please see Function test list) 4. The specimen doesn't have deformation of the housing.			
Result	Passed			

Environment

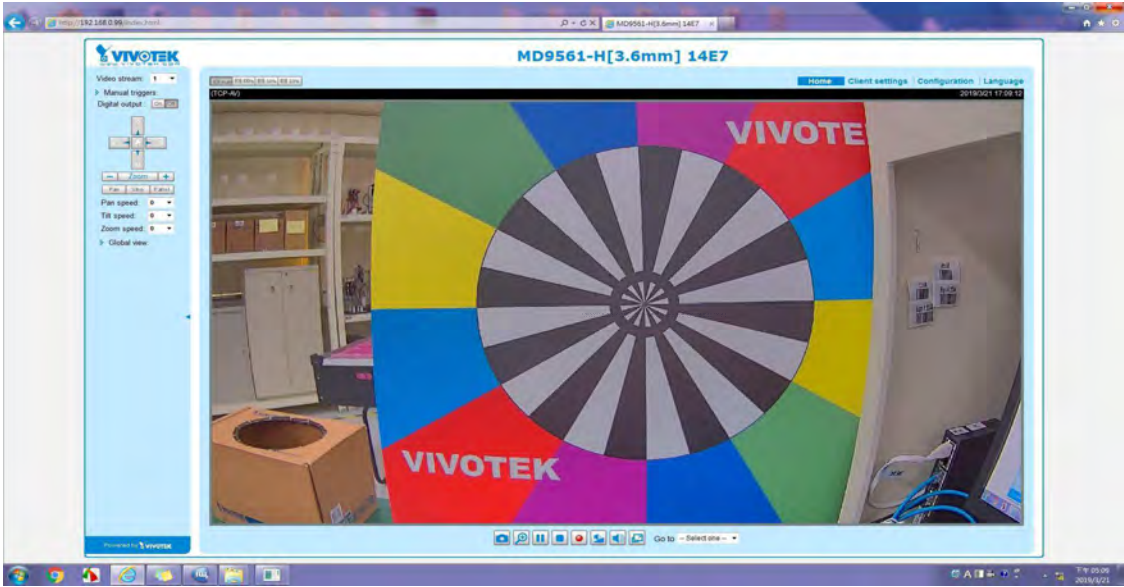


Test Image

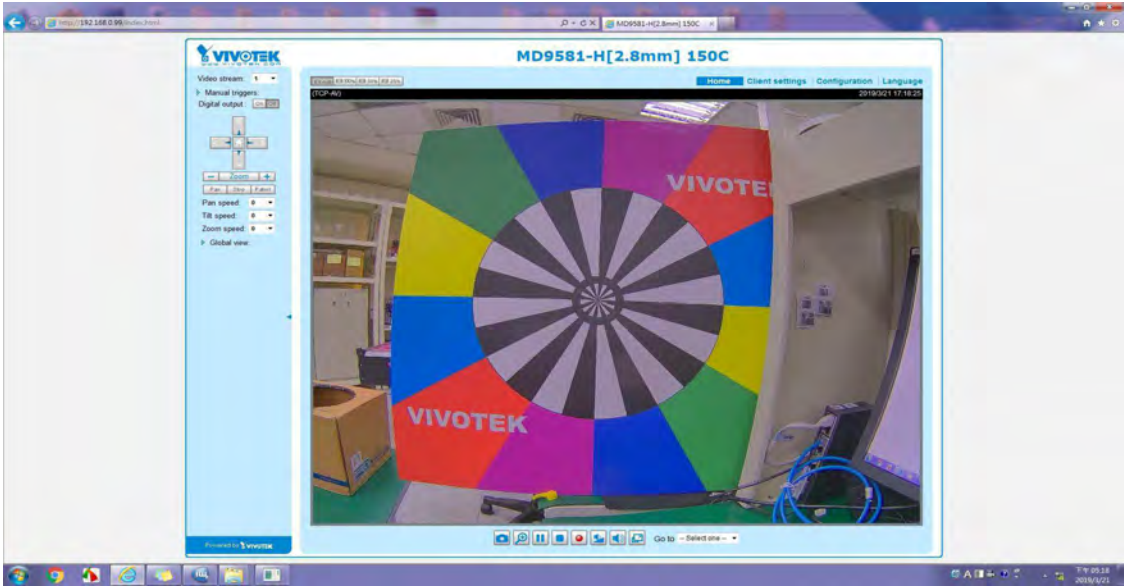
0002D17E14D1

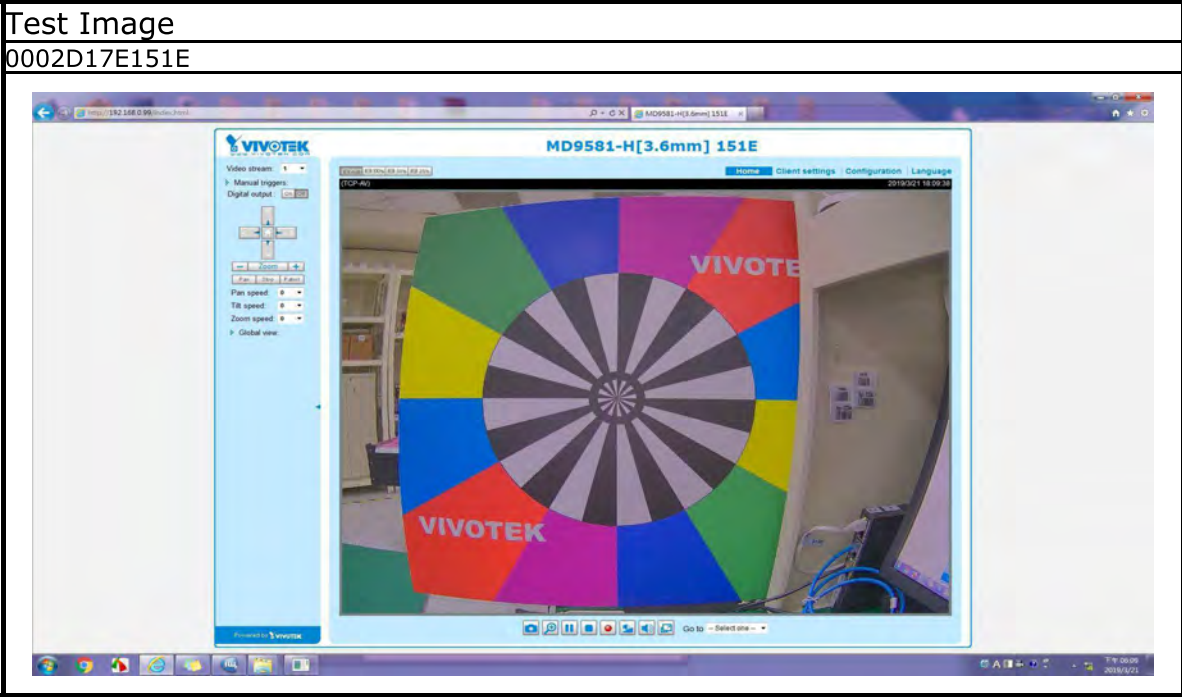


0002D17E14E7

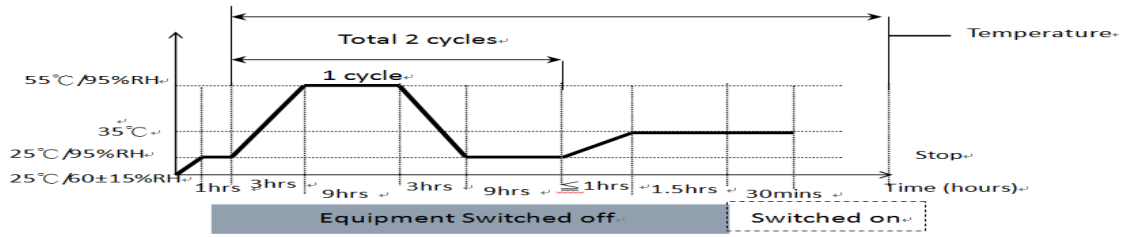


0002D17E150C



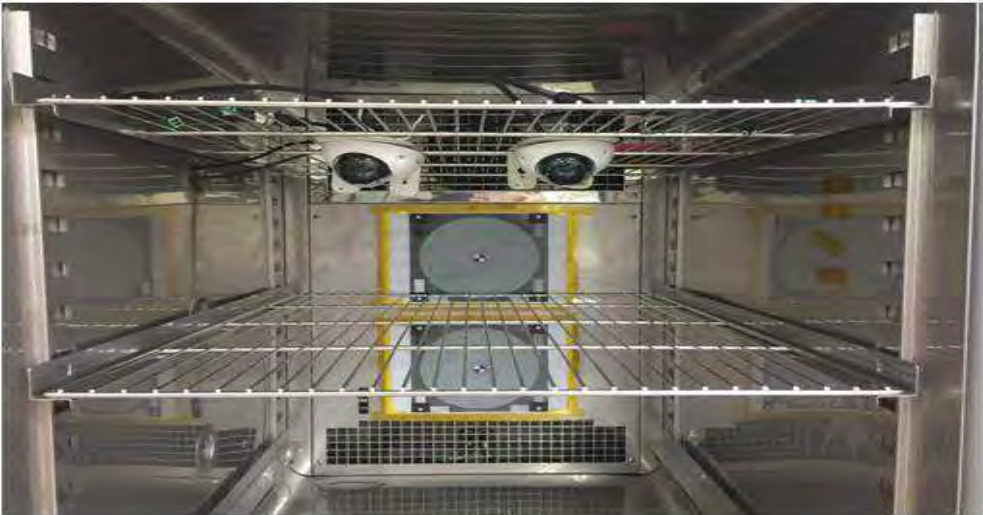


Function Test Item	Judgment	Remark
Appearance(check Peel,deformation,Dust)	Passed	
Network	Passed	
Update server setting	Passed	
Light Sensor Night	Passed	
Storage card	Passed	
DIDO	Passed	
Status LED	Passed	
Reset button	Passed	
Light Sensor Day	Passed	
Video	Passed	
IR-Cut	Passed	
IR-LED	Passed	
PoE Switch	Passed	
MICIN Audio	Passed	
LINEIN Audio	Passed	

Test item	Damp Heat Cyclic Test		Duration	2/22/2019 ~2/25/2019
Place	Laboratory of Quality Assurance in			VIVOTEK
Except Report No.		N/A		
Equipment				
Temperature & Humidity Chamber	Brand	TAICHY TECHNOLOGY LTD		
	Model	MHK-408NK		
	S/N	1030308		
Personal Computer	Operation System	Microsoft Windows	7	
	Browser	Microsoft Internet Explorer	9.050123	
PoE Switch	Brand	NETGEER		
	Model	GSM7224P-100PRS		
Test Condition & Pocedure				
				
Table 14 — Test voltages of voltage withstand test				
Nominal battery voltage and/or I/O voltage		Test voltage		
< 72 V DC or 50 V AC rms		500 V AC or 750 V DC		
72 V DC ≤ V DC < 125 V DC or from 50 to 90 V AC rms		1 000 V AC or 1 500 V DC		
125 V DC ≤ V DC < 315 V DC or from 90 to 225 V AC rms		1 500 V AC or 2 200 V DC		
1. This test is carried out in accordance with EN60068-2-30, test Db variant 2. 2. The Switched off equipment is placed in a chamber. 3. Increase to 55°C/95%RH 3 hours. Dwell for 9 hours 4. Decrease to 25°C/ 95%RH 3hours. Dwell for 9 hours 5. total: 2cycles 6. Increase 35 °C . Dwell for 1.5 hours. After temperature stabilization for 1.5 hours, then boot up and the continuous operational check last for a time period of 30 minutes. 7. Before and after test with damp heat test, measure insulation resistance test lead to shall be of the sample applied 500 VDC by insulation resistance meter. 8. The test comprises two parts, an insulation measurement test (carried out before and after the voltage withstand test), and the voltage withstands testing. 9. The voltage withstand test shall be performed with AC(50Hz or 60 Hz) or DC test voltage according to Table 14.				
Power Supply	PoE+ Switch			
Specimens	0002D17E14D1	0002D17E151E		
Judgment Criteria	1. It doesn't have a bad image, fogging, discoloration or reboot...etc. during the test. 2. Wire Ping loss is less than 1%; wireless Ping loss is less than 10%. 3. The specimen's electrical function is normal. (Please see Function test list) 4. The specimen doesn't have deformation of the housing. 5. The minimum value of the insulation resistance after the withstand test shall be higher than 20 MΩ. 6. After insulation resistance test and withstand test, the test specimen shall work as intended within its specified limits.			
Result	Passed			

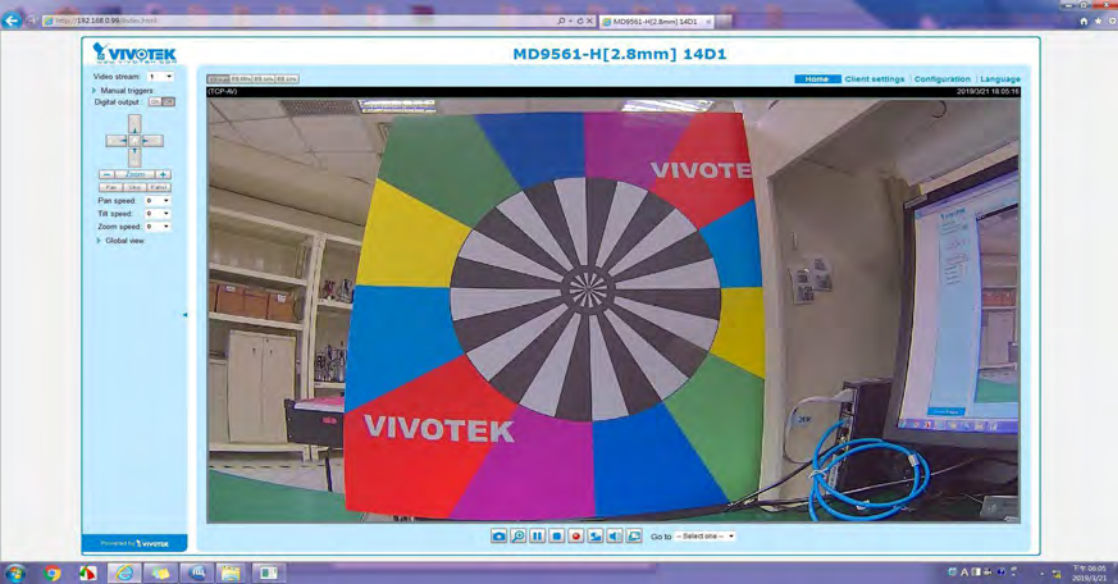
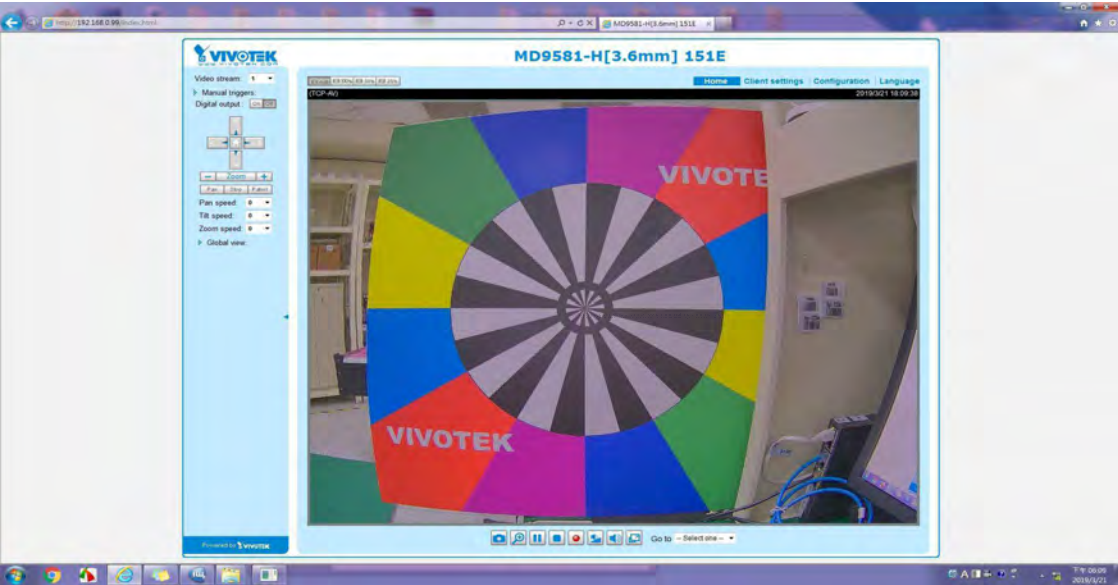
Environment

Temperautre Environment



Insulation measuement test and Voltage withstand test Environment



Test Image	
0002D17E14D1	
	
0002D17E151E	
	
INSULATION MEASUEMENT TEST IMAGE	
MD9561-H 0002D17E14D1	
	
Insulation measurement test (Before Damp test Damp Heat Cyclic)	Insulation measurement test (After Damp test Damp Heat Cyclic)
MD9581-H 0002D17E151E	
	
Insulation measurement test (Before Damp test Damp Heat Cyclic)	Insulation measurement test (After Damp test Damp Heat Cyclic)

Test Image	
VOLTAGE WITHSTAND TEST IMAGE	
MD9561-H 0002D17E14D1	
	
Volatge withstand test (test 500V AC) (Before Damp test Damp Heat Cyclic)	Volatge withstand test (test 500V AC) (After Damp test Damp Heat Cyclic)
MD9581-H 0002D17E151E	
	
Volatge withstand test (test 500V AC) (Before Damp test Damp Heat Cyclic)	Volatge withstand test (test 500V AC) (After Damp test Damp Heat Cyclic)

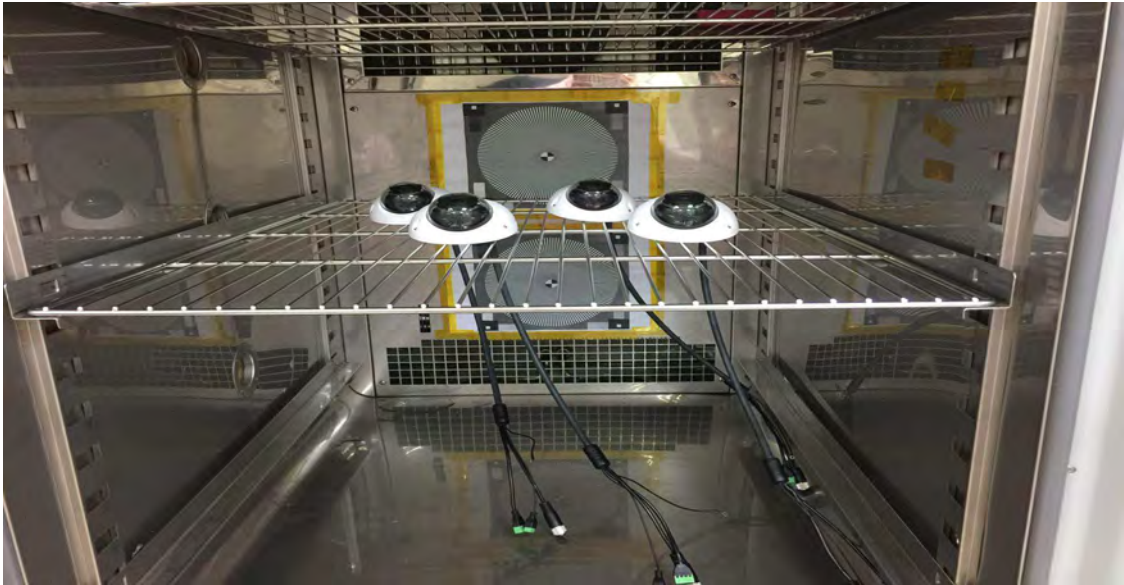
INSULATION AND VOLATGE WITHSTAND TEST			
Test Item MAC address	Insulation measuement test		
	Test Voltage	Initial Resistance	Final Resistance
0002D17E14D1	500V d.c.	> 20 G Ω	> 20 G Ω
0002D17E151E	500V d.c.	> 20 G Ω	> 20 G Ω

Test Item MAC address	Voltage withstand test		
	Test Voltage	No disruptive discharge	No flashover
0002D17E14D1	500V A.C	Pass	Pass
0002D17E151E	500V A.C	Pass	Pass

Function Test Item	Judgment	Remark
Appearance(check Peel,deformation,Dust)	Passed	
Network	Passed	
Update server setting	Passed	
Light Sensor Night	Passed	
Storage card	Passed	
DIDO	Passed	
Status LED	Passed	
Reset button	Passed	
Light Sensor Day	Passed	
Video	Passed	
IR-Cut	Passed	
IR-LED	Passed	
PoE Switch	Passed	
MICIN Audio	Passed	
LINEIN Audio	Passed	

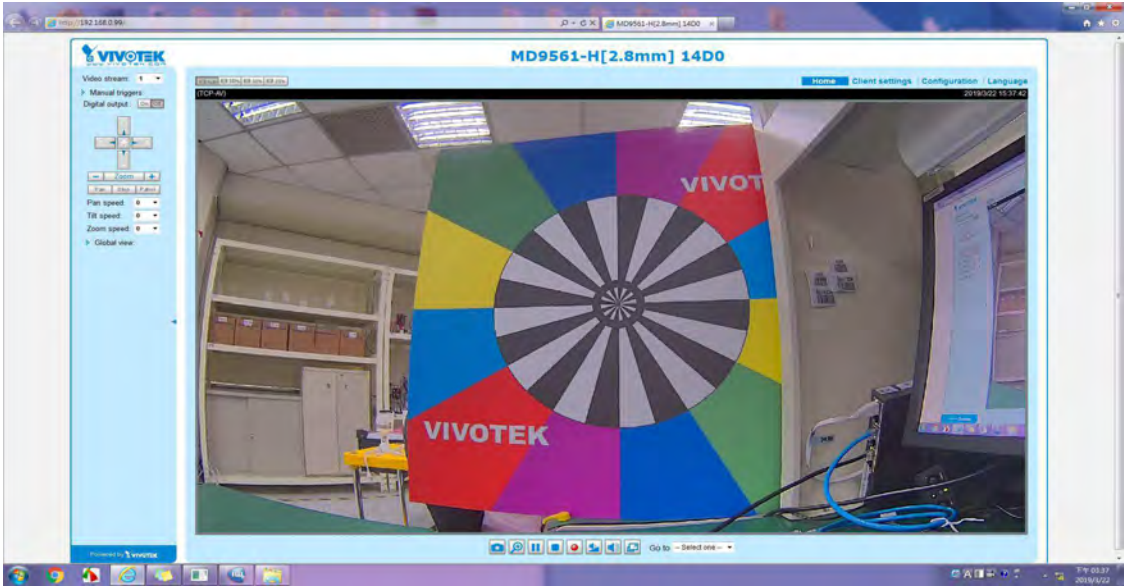
Test item	Low Temperature Storage Test	Duration	2/20/2019 ~2/21/2019	
Place	Laboratory of Quality Assurance in		VIVOTEK	
Except Report No.	N/A			
Equipment				
Temperature & Humidity Chamber	Brand	TAICHY TECHNOLOGY LTD		
	Model	MHK-408NK		
	S/N	1030308		
Personal Computer	Operation System	Microsoft Windows	7	
	Browser	Microsoft Internet Explorer	9.050123	
Test Condition & Pcedure				
1. Humidity: Uncontrolled. 2. Decrease to -40°C within 2 hours. 3. Dwell for 16 hours. 4. Sample Condition: Non-Operating.				
Specimens	0002D17E14D0	0002D17E14D5	0002D17E150D	0002D17E151D
Judgment Criteria	1. It doesn't have a bad image, fogging, discoloration or reboot...etc. 2. The specimen's electrical function is normal.(Please see Function test list) 3. The specimen doesn't have deformation of the housing.			
Result	Passed			

Environment

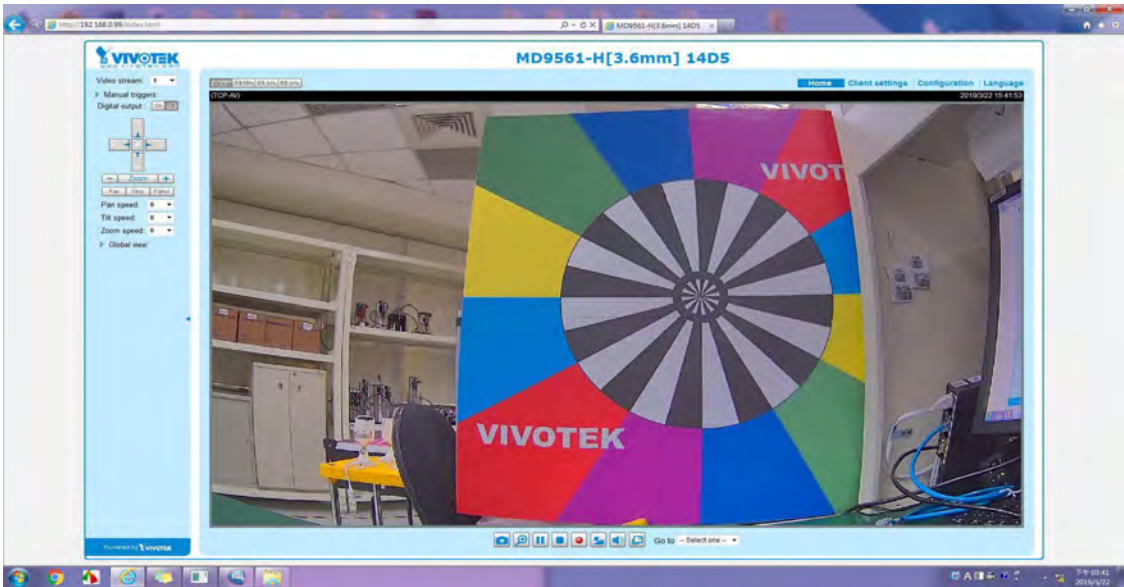


Test Image

0002D17E14D0

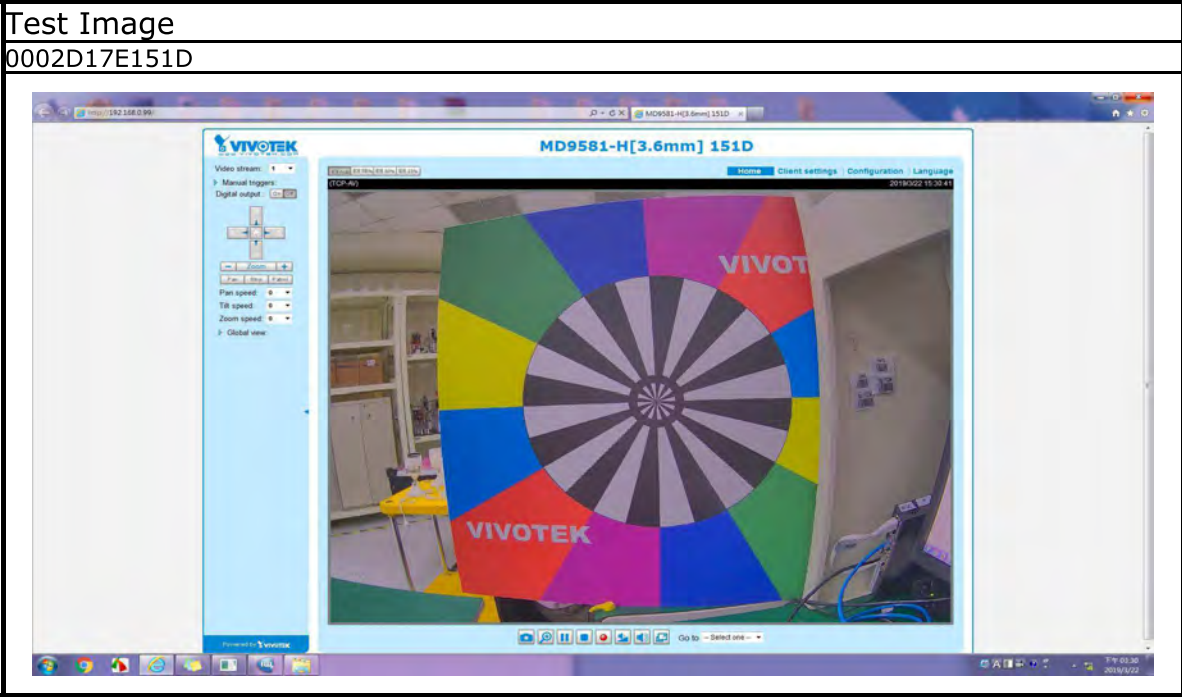


0002D17E14D5



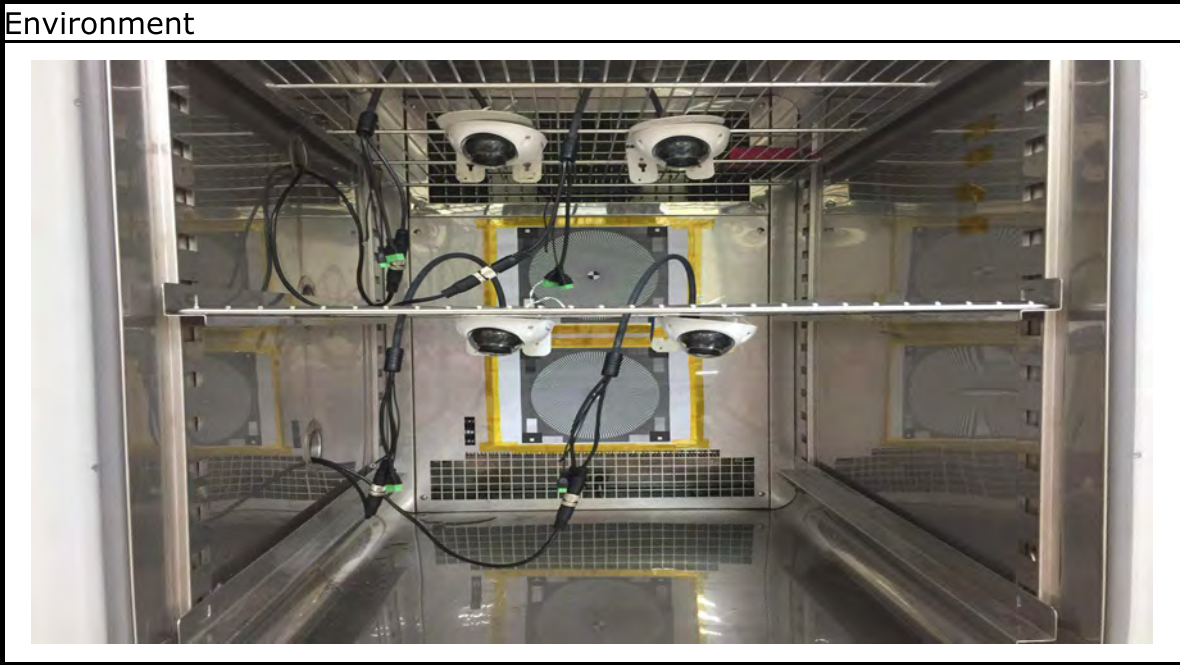
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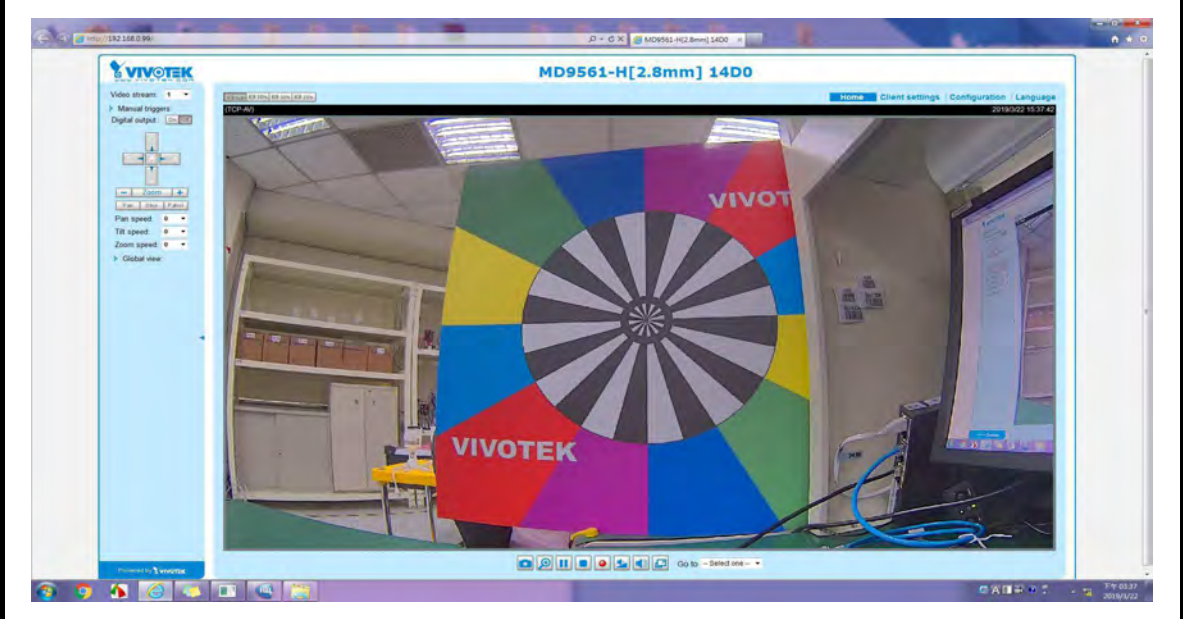
Function Test Item	Judgment	Remark
Appearance(check Peel,deformation,Dust)	Passed	
Network	Passed	
Update server setting	Passed	
Light Sensor Night	Passed	
Storage card	Passed	
DIDO	Passed	
Status LED	Passed	
Reset button	Passed	
Light Sensor Day	Passed	
Video	Passed	
IR-Cut	Passed	
IR-LED	Passed	
PoE Switch	Passed	
MICIN Audio	Passed	
LINEIN Audio	Passed	

Test item	Low Temperature start-up Test	Duration	2/16/2019 ~2/17/2019														
Place	Laboratory of Quality Assurance in	VIVOTEK															
Except Report No.	N/A																
Equipment																	
Temperature & Humidity Chamber	Brand	TAICHY TECHNOLOGY LTD															
	Model	MHK-408NK															
	S/N	1030308															
Personal Computer	Operation System	Microsoft Windows	7														
	Browser	Microsoft Internet Explorer	9.050123														
PoE Switch	Brand	NETGEER															
	Model	GSM7224P-100PRS															
Test Condition & Pcedure																	
Table 1 — Operating temperature classes <table border="1"> <thead> <tr> <th>Class</th><th>Equipment operating temperature range (°C)</th></tr> </thead> <tbody> <tr> <td>OT1</td><td>-25 to +55</td></tr> <tr> <td>OT2</td><td>-40 to +55</td></tr> <tr> <td>OT3</td><td>-25 to +70</td></tr> <tr> <td>OT4</td><td>-40 to +70</td></tr> <tr> <td>OT5</td><td>-25 to +85</td></tr> <tr> <td>OT6</td><td>-40 to +85</td></tr> </tbody> </table>				Class	Equipment operating temperature range (°C)	OT1	-25 to +55	OT2	-40 to +55	OT3	-25 to +70	OT4	-40 to +70	OT5	-25 to +85	OT6	-40 to +85
Class	Equipment operating temperature range (°C)																
OT1	-25 to +55																
OT2	-40 to +55																
OT3	-25 to +70																
OT4	-40 to +70																
OT5	-25 to +85																
OT6	-40 to +85																
1. Humidity: Uncontrolled. 2. Cold start condition: -40 °C. Dwell for 24 hours. (Low operating temperature start-up shall be taken from Table 1 of this EN50155:2017 standard.) 3. After thermal stabilization of the chamber 4. At the end of this period, the equipment shall be switched on, keeping the equipment at the low temperature. 5. Repeat 3 times power on/off test. (use timer set power off 4 hours and power on 1 hour to do cold start testing.) 6. After recover, this operational check shall be repeated at normal room temperature.																	
Power Supply	PoE+ Switch																
Specimens	0002D17E14D0	0002D17E14D5	0002D17E150D	0002D17E151D													
Judgment Criteria	1. It doesn't have a bad image, fogging, discoloration or reboot...etc. during the test. 2. Wire Ping loss is less than 1%; wireless Ping loss is less than 10%. 3. The specimen's electrical function is normal. (Please see Function test list) 4. The specimen doesn't have deformation of the housing. 5. The apparatus shall continue to operate as intended during and after the test/event. No degradation of performance or loss of function is allowed.																
Result	Passed																
Note	Under -40 degree Celsius environment, MD9561-H, MD9581-H power type boot up within 2 minutes.																

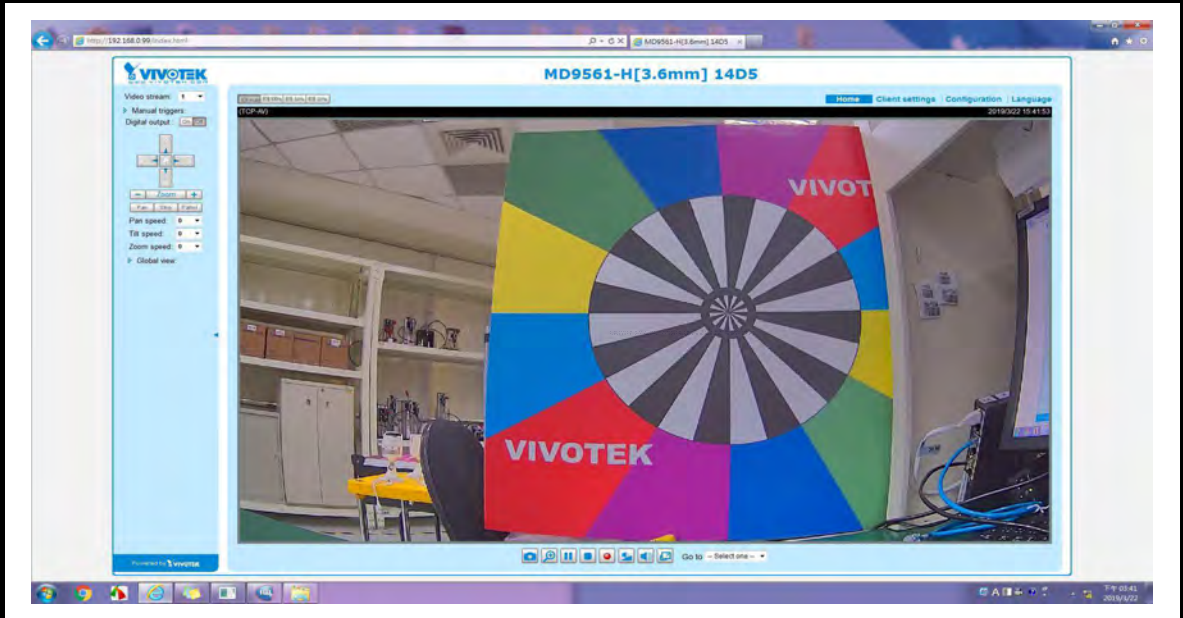


Test Image

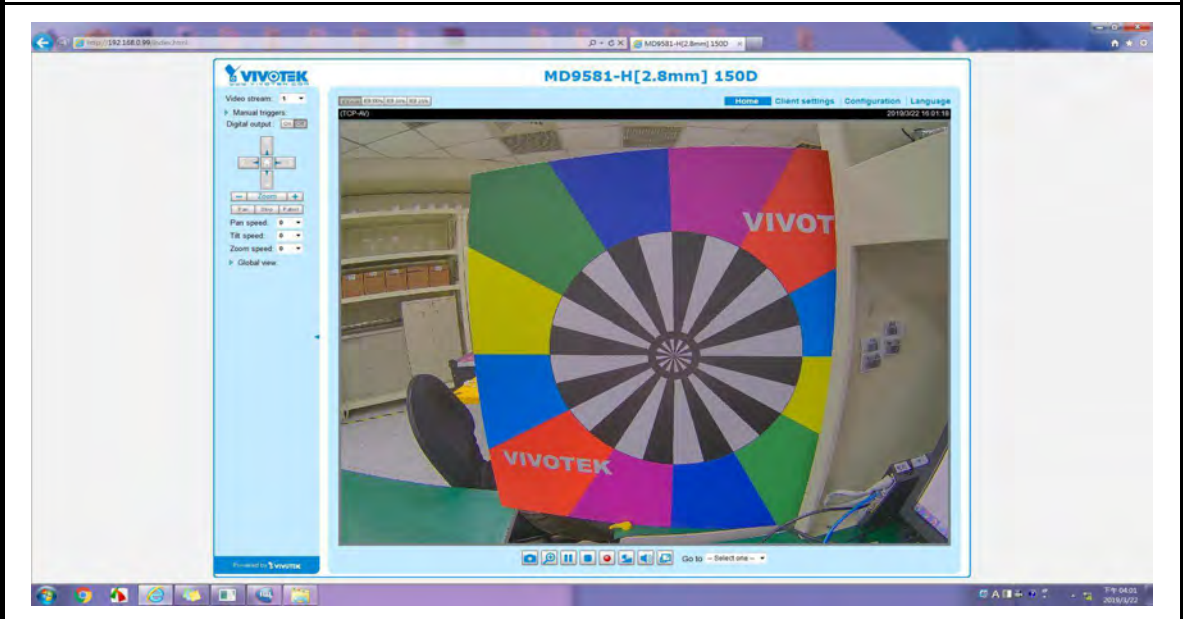
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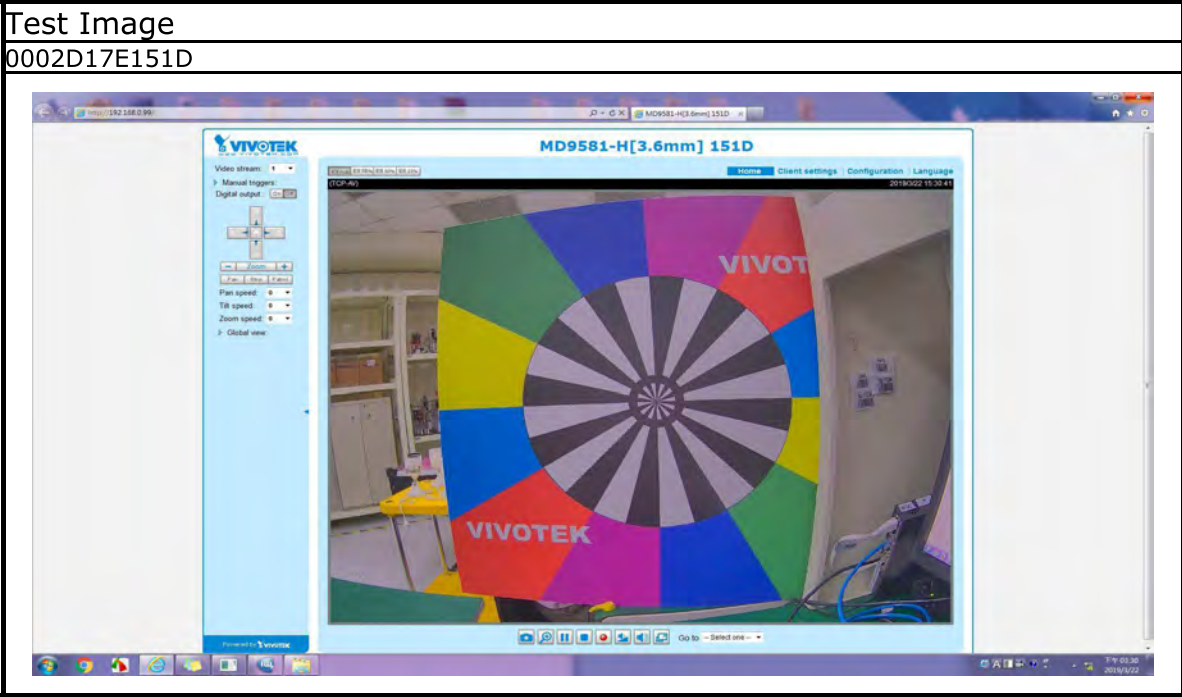


0002D17E14D5



0002D17E150D





Function Test Item	Judgment	Remark
Appearance(check Peel,deformation,Dust)	Passed	
Network	Passed	
Update server setting	Passed	
Light Sensor Night	Passed	
Storage card	Passed	
DIDO	Passed	
Status LED	Passed	
Reset button	Passed	
Light Sensor Day	Passed	
Video	Passed	
IR-Cut	Passed	
IR-LED	Passed	
PoE Switch	Passed	
MICIN Audio	Passed	
LINEIN Audio	Passed	

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Report: Reliability Test Report (QA reports), by Kenji Tsai (Version 1)

TestRail Report - 2019/6/10