FCC DOC TEST REPORT

According to

47 CFR, Part 2, Part 15, CISPR PUB. 22,
ICES 003 Issue 5:2012

Applicant	:	Zhejiang Dahua Vision Technology Co., Ltd.
Address	:	The 1st floor, building F, No.1199 Bin'an road, Changhe Street, Binjiang District, Hangzhou, P.R. China.
Equipment	:	HDCVI CAMERA
Model No.	:	HAC-HDW2120RP-VF, HAC-HDW2120RN-VF, DH-HAC-HDW2120RN-VF, DH-HAC-HDW2120RP-VF, HAC-HDW2220RP-VF, HAC-HDW2220RN-VF, DH-HAC-HDW2220RP-VF, DH-HAC-HDW2220RN-VF, DH-HAC-HDW1200RN-VF, DH-HAC-HDW1200RP-VF, HAC-HDW1200RN-VF, HAC-HDW1200RP-VF

I HEREBY CERTIFY THAT :

The sample was received on Mar. 23, 2015 and the testing was carried out on Apr. 14, 2015 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Hill Chen
EMC/RF B.U. Manager

FCC TEST REPORT

Issued by:

Cerpass Technology Co.,Ltd

No.10, Lane 2, Lianfu Street, Luzhu Township, Taoyuan County 33848, Taiwan(R.O.C.)

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The test record, data evaluation & Equipment. Under Test configurations represented herein are true and accurate accounts of the measurements of the samples EMC characteristics under the conditions specified in this report.

Laboratory Accreditation:

☒ Cerpass Technology Corporation Test Laboratory

NVLAP LAB Code:	**200954-0**
TAF LAB Code:	**1439**

Contents

History of this test report

☐ ORIGINAL.

■ Additional attachment as following record:

Report No	Version	Date	Description
SEFD1412139	Rev 01	Jan 15, 2015	Initial Issue
SEFD1412139-A	Rev 02	Apr 16, 2015	First edition (Add model names)

1. Summary of Test Procedure and Test Result

1.1. Applicable Standards

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.4 – 2009 and the energy emitted by this equipment was passed Part 2, Part 15, CISPR PUB. 22.

The energy emitted by this equipment was passed both Radiated and Conducted Emissions Class B limits.

Test Item	Normative References	Test Result	Remarks
Conducted Emission	ANSI C63.4-2009 FCC Part 15 Subpart B ICES 003 Issue 5:2012	PASS	Meets Class B Limit Minimum passing margin(QP) is -2.28dB at 0.3260MHz
Radiated Emission	ANSI C63.4-2009 FCC Part 15 Subpart B ICES 003 Issue 5:2012	PASS	Meets Class B Limit Minimum passing margin(QP) is -10.32dB at 31.9400MHz

2. Test Configuration of Equipment under Test

2.1. Manufacturer

Zhejiang Dahua Vision Technology Co., Ltd.

The 1st floor, building F, No.1199 Bin'an road, Changhe Street, Binjiang District, Hangzhou, P.R. China.

2.2. Feature of Equipment under Test

First edition:

HDCVI CAMERA	Model No.:	HAC-HDW2120RP-VF, HAC-HDW2120RN-VF, DH-HAC-HDW2120RN-VF, DH-HAC-HDW2120RP-VF, HAC-HDW2220RP-VF, HAC-HDW2220RN-VF, DH-HAC-HDW2220RP-VF, DH-HAC-HDW2220RN-VF, DH-HAC-HDW1200RN-VF, DH-HAC-HDW1200RP-VF, HAC-HDW1200RN-VF, HAC-HDW1200RP-VF
Remark	**DH-HAC-HDW1200RP-VF** was selected as the test model and its data have been recorded in this report.	
Adapter	Model No.:	ADS-12B-12 12012Gz
	Input:	100-240V~50/60Hz 0.3A Max.
	Output:	12V,1.0A

Models' Differences:

Model No	Differences
HAC-HDW2120RP-VF	These models are similar to DH-HAC-HDW2120RP-VF except for video standard, with or without DAHUA logo.
HAC-HDW2120RN-VF	
DH-HAC-HDW2120RN-VF	
DH-HAC-HDW2120RP-VF	different pixel (different motherboard)
HAC-HDW2220RP-VF	These models are similar to DH-HAC-HDW2220RP-VF except for video standard, with or without DAHUA logo.
HAC-HDW2220RN-VF	
DH-HAC-HDW2220RN-VF	
DH-HAC-HDW2220RP-VF	The main model
DH-HAC-HDW1200RN-VF, DH-HAC-HDW1200RP-VF, HAC-HDW1200RN-VF, HAC-HDW1200RP-VF	Appearance and specifications are the same, only internal motherboard is different.

Original:

HDCVI CAMERA	Model No.:	HAC-HDW2120RP-VF, HAC-HDW2120RN-VF, DH-HAC-HDW2120RN-VF, DH-HAC-HDW2120RP-VF, HAC-HDW2220RP-VF, HAC-HDW2220RN-VF, DH-HAC-HDW2220RP-VF, DH-HAC-HDW2220RN-VF
Remark	**DH-HAC-HDW2120RP-VF** and **DH-HAC-HDW2220RP-VF** were selected as the test model and their data have been recorded in this report.	
Adapter	Model No.:	ADS-12B-12 12012Gz
	Input:	100-240V~50/60Hz 0.3A Max.
	Output:	12V,1.0A

Models' Differences:

Model No	Differences
HAC-HDW2120RP-VF	These models are similar to DH-HAC-HDW2120RP-VF except for video standard, with or without DAHUA logo.
HAC-HDW2120RN-VF	
DH-HAC-HDW2120RN-VF	
DH-HAC-HDW2120RP-VF	different pixel (different motherboard)
HAC-HDW2220RP-VF	These models are similar to DH-HAC-HDW2220RP-VF except for video standard, with or without DAHUA logo.
HAC-HDW2220RN-VF	
DH-HAC-HDW2220RN-VF	
DH-HAC-HDW2220RP-VF	The main model

2.3. Test Manner

First edition:

Test Manner

a During testing, the interface cables and equipment positions were varied according to ANSI C63.4-2009

b Turn on the power of all equipment.

c The complete test system included LCD Monitor, DVR and EUT for EMI test.

d The maximum operating frequency is above 108MHz, the test frequency range is from 30MHz to 40GHz.

e The maximum operating frequency is under 108MHz, the test frequency range is from 30MHz to 1GHz.

The pre-test modes

Test Mode 1: Normal Operation

Select the worst case of the pre-test modes as the final test mode

Test Mode 1: Normal Operation

Original:

Test Manner

a During testing, the interface cables and equipment positions were varied according to ANSI C63.4-2009

b Turn on the power of all equipment.

c The complete test system included Monitor, DVR and EUT for EMI test.

d The maximum operating frequency is above 108MHz, the test frequency range is from 30MHz to 40GHz.

e The maximum operating frequency is under 108MHz, the test frequency range is from 30MHz to 1GHz.

The pre-test modes

Test Mode 1: Normal Operation With DH-HAC-HDW2120RP-VF

Test Mode 2: Normal Operation With DH-HAC-HDW2220RP-VF

Select the worst case of the pre-test modes as the final test mode

Test Mode 1: Normal Operation With DH-HAC-HDW2120RP-VF

Test Mode 2: Normal Operation With DH-HAC-HDW2220RP-VF

2.4. Description of Test System

First edition:

No.	Device	Manufacturer	Model No.	Description
1	LCD Monitor	DELL	SE198WFPT	Non-Shielded,1.8m(R43346)
2	DVR	DAHUA	DVR5208	Non-Shielded,1.5m

No.	Cable	Quantity	Description
A	VGA Cable	1	Non-Shielded, 1.5m
B	BNC Cable	1	Shielded, >3.0m

Original:

No.	Device	Manufacturer	Model No.	Description
1	Monitor	PINEER-TIMES	PNT-14A	Non-Shielded,1.8m
2	DVR	DAHUA	DVR5208	Non-Shielded,1.5m

No.	Cable	Quantity	Description
A	BNC Cable	1	Shielded, >3.0m
B	BNC Cable	1	Shielded, >3.0m

2.5. General Information of Test

Test Site :	**Cerpass Technology Corporation Test Laboratory** Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881 Address: No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C. Tel: +886-2-2663-8582
FCC Registration Number :	TW1079, TW1061,390316, 228391, 641184
IC Registration Number :	4934B-1, 4934E-1, 4934E-2
VCCI	T-2205 for Telecommunication Test C-4463 for Conducted emission test R-3428, R-4128 for Radiated emission test G-812, G-813 for radiated disturbance above 1GHz
Frequency Range Investigated :	Conducted Emission Test: from 150 kHz to 30 MHz Radiated Emission Test: from 30 MHz to 6,000 MHz
Test Distance :	The test distance of radiated emission below 1GHz from antenna to EUT is 10 M. The test distance of radiated emission above 1GHz from antenna to EUT is 3 M.

2.6. Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	LINE / NEUTRAL	3.25 dB
Radiated Emission	30 MHz ~ 1,000 MHz	Vertical / Horizontal	3.93 dB
	1,000 MHz ~ 18,000 MHz	Vertical / Horizontal	5.18 dB

Test results and Measurement uncertainty without any relationship in the test report.

3. Test of Conducted Emission

3.1. Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2009 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

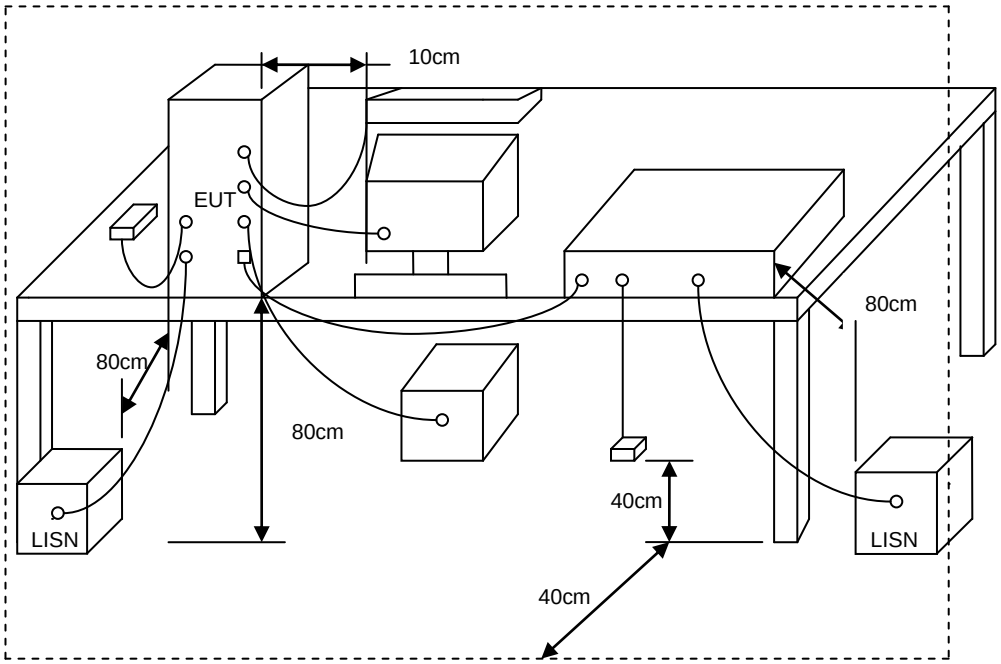
Conducted Emission Limits:

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

3.2. Test Procedures

a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was searched.
h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

3.3. Typical test Setup



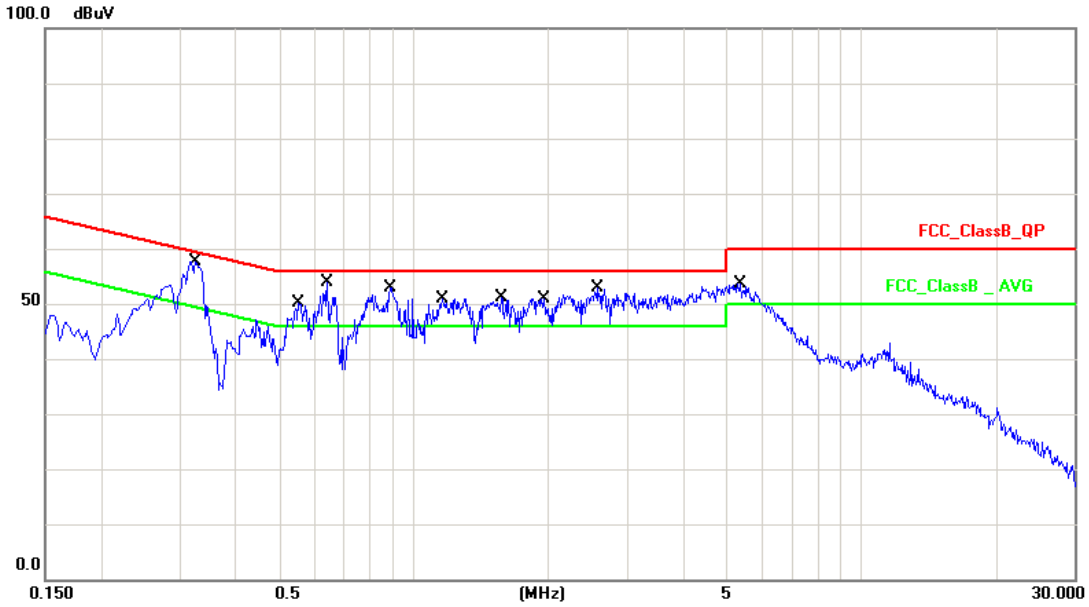
3.4. Measurement equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Test Receiver	R&S	ESCI	100565	2015.03.29	2016.03.28
AMN	R&S	ESH2-Z5	100182	2014.09.04	2015.09.03
Two-Line V-Network	R&S	ENV216	100325	/	/
ISN	FCC	FCC-TLISN-T2-02	20379	2015.03.29	2016.03.28
ISN	FCC	FCC-TLISN-T4-02	20380	2015.03.29	2016.03.28
ISN	FCC	FCC-TLISN-T8-02	20381	2015.03.29	2016.03.28
ISN	TESEQ	ISN ST08	30175	2015.03.29	2016.03.28
Current Probe	R&S	EZ-17	100303	2015.03.29	2016.03.28
Passive Voltage Probe	R&S	ESH2-Z3	100026	2015.03.29	2016.03.28
Pulse Limiter	R&S	ESH3-Z2	100529	2015.03.29	2016.03.28
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-004	2015.04.02	2016.04.01
EZ-EMC	Fala	Ver CT3A1	N/A	N/A	N/A

3.5. Test Result and Data

First edition:

Test Mode :	Mode 1: Normal Operation		
AC Power :	AC 120V/60Hz	Phase :	LINE
Equipment :	HDCVI CAMERA	Model No :	DH-HAC-HDW1200RP-VF
Temperature :	22℃	Humidity :	48%
Pressure(mbar) :	1002	Date :	2015/04/14

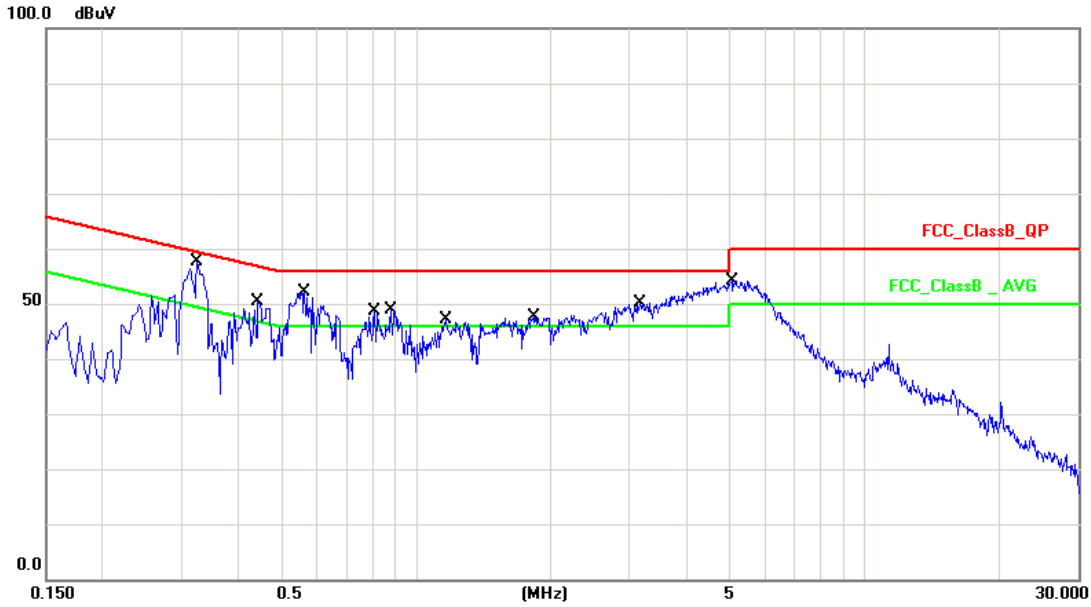


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3260	10.14	47.13	57.27	59.55	-2.28	QP
2	0.3260	10.14	36.63	46.77	49.55	-2.78	AVG
3	0.5540	10.16	43.20	53.36	56.00	-2.64	QP
4	0.5540	10.16	33.47	43.63	46.00	-2.37	AVG
5	0.6419	10.15	40.63	50.78	56.00	-5.22	QP
6	0.6419	10.15	28.48	38.63	46.00	-7.37	AVG
7	0.8860	10.15	42.08	52.23	56.00	-3.77	QP
8	0.8860	10.15	32.70	42.85	46.00	-3.15	AVG
9	1.1620	10.16	40.26	50.42	56.00	-5.58	QP
10	1.1620	10.16	31.30	41.46	46.00	-4.54	AVG
11	1.5740	10.17	39.34	49.51	56.00	-6.49	QP
12	1.5740	10.17	30.95	41.12	46.00	-4.88	AVG
13	1.9580	10.17	38.60	48.77	56.00	-7.23	QP

14	1.9580	10.17	29.78	39.95	46.00	-6.05	AVG
15	2.5780	10.18	39.13	49.31	56.00	-6.69	QP
16	2.5780	10.18	31.34	41.52	46.00	-4.48	AVG
17	5.3620	10.24	42.18	52.42	60.00	-7.58	QP
18	5.3620	10.24	32.83	43.07	50.00	-6.93	AVG

Note: Measurement Level = Reading Level + Correct Factor

Test Mode :	Mode 1: Normal Operation		
AC Power :	AC 120V/60Hz	Phase :	NEUTRAL
Equipment :	HDCVI CAMERA	Model No :	DH-HAC-HDW1200RP-VF
Temperature :	22℃	Humidity :	48%
Pressure(mbar) :	1002	Date :	2015/04/14



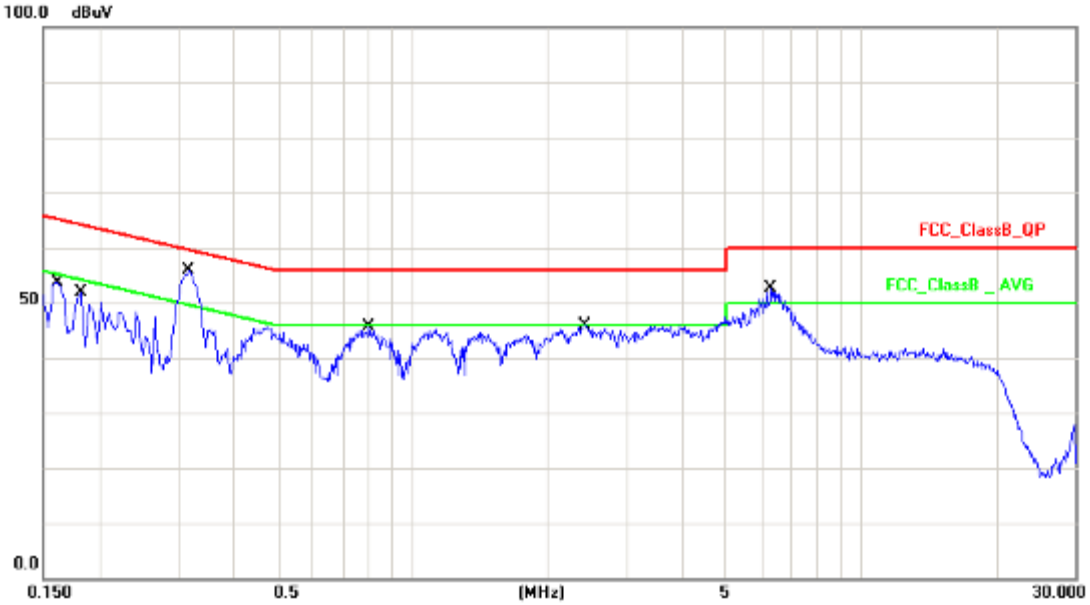
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3260	10.14	46.11	56.25	59.55	-3.30	QP
2	0.3260	10.14	36.63	46.77	49.55	-2.78	AVG
3	0.4460	10.15	39.28	49.43	56.95	-7.52	QP
4	0.4460	10.15	28.19	38.34	46.95	-8.61	AVG
5	0.5660	10.15	41.86	52.01	56.00	-3.99	QP
6	0.5660	10.15	31.17	41.32	46.00	-4.68	AVG
7	0.8100	10.16	38.49	48.65	56.00	-7.35	QP
8	0.8100	10.16	28.52	38.68	46.00	-7.32	AVG
9	0.8820	10.17	38.90	49.07	56.00	-6.93	QP
10	0.8820	10.17	28.92	39.09	46.00	-6.91	AVG
11	1.1660	10.18	37.07	47.25	56.00	-8.75	QP
12	1.1660	10.18	27.18	37.36	46.00	-8.64	AVG
13	1.8300	10.18	36.52	46.70	56.00	-9.30	QP
14	1.8300	10.18	26.82	37.00	46.00	-9.00	AVG
15	3.1660	10.20	37.26	47.46	56.00	-8.54	QP

16	3.1660	10.20	26.21	36.41	46.00	-9.59	AVG
17	5.0700	10.26	40.16	50.42	60.00	-9.58	QP
18	5.0700	10.26	28.25	38.51	50.00	-11.49	AVG

Note: Measurement Level = Reading Level + Correct Factor

Original:

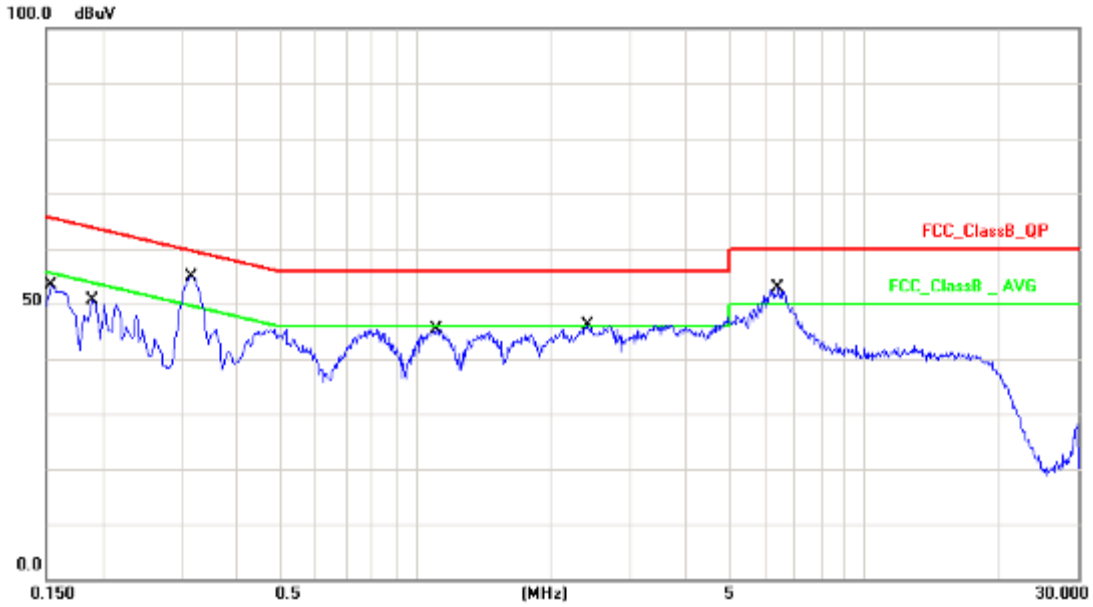
Test Mode :	Mode 1: Normal Operation With DH-HAC-HDW2120RP-VF		
AC Power :	AC 120V/60Hz	Phase :	LINE
Equipment :	HDCVI CAMERA	Model No :	DH-HAC-HDW2120RP-VF
Temperature :	22℃	Humidity :	48%
Pressure(mbar) :	1002	Date :	2015/01/12



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1620	10.13	40.08	50.21	65.36	-15.15	QP
2	0.1620	10.13	26.76	36.89	55.36	-18.47	AVG
3	0.1819	10.12	38.41	48.53	64.39	-15.86	QP
4	0.1819	10.12	26.96	37.08	54.39	-17.31	AVG
5	0.3180	10.14	44.18	54.32	59.76	-5.44	QP
6	0.3180	10.14	36.46	46.60	49.76	-3.16	AVG
7	0.7980	10.15	33.75	43.90	56.00	-12.10	QP
8	0.7980	10.15	26.81	36.96	46.00	-9.04	AVG
9	2.4219	10.18	33.01	43.19	56.00	-12.81	QP
10	2.4219	10.18	26.15	36.33	46.00	-9.67	AVG
11	6.3020	10.25	35.47	45.72	60.00	-14.28	QP
12	6.3020	10.25	28.64	38.89	50.00	-11.11	AVG

Note: Measurement Level = Reading Level + Correct Factor

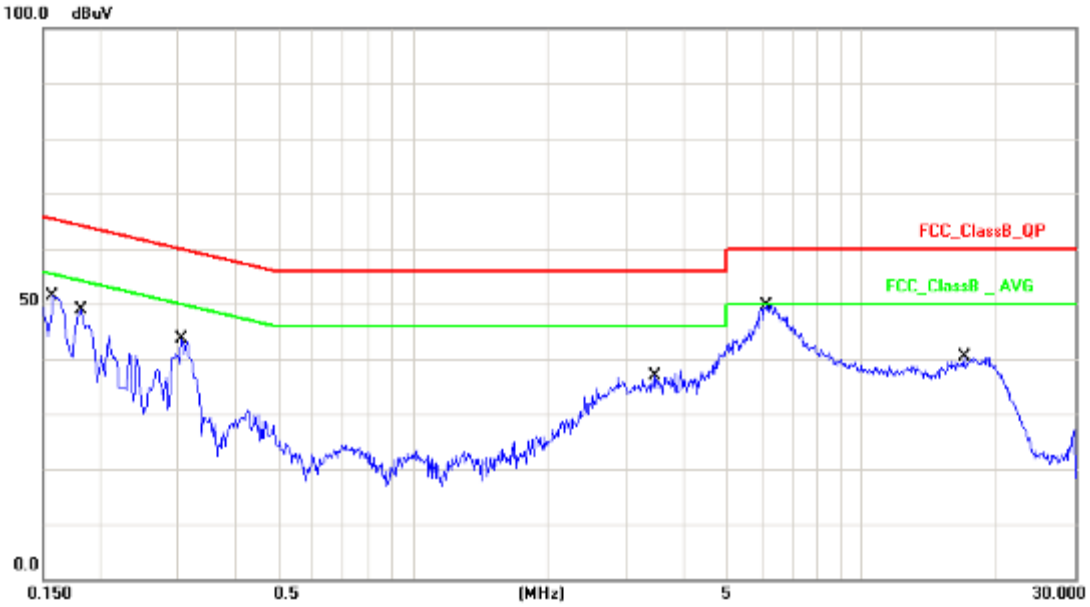
Test Mode :	Mode 1: Normal Operation With DH-HAC-HDW2120RP-VF		
AC Power :	AC 120V/60Hz	Phase :	NEUTRAL
Equipment :	HDCVI CAMERA	Model No :	DH-HAC-HDW2120RP-VF
Temperature :	22℃	Humidity :	48%
Pressure(mbar) :	1002	Date :	2015/01/12



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1539	10.13	39.48	49.61	65.78	-16.17	QP
2	0.1539	10.13	23.64	33.77	55.78	-22.01	AVG
3	0.1914	10.13	35.92	46.05	63.97	-17.92	QP
4	0.1914	10.13	24.69	34.82	53.97	-19.15	AVG
5	0.3180	10.14	43.59	53.73	59.76	-6.03	QP
6	0.3180	10.14	35.88	46.02	49.76	-3.74	AVG
7	1.1140	10.18	33.40	43.58	56.00	-12.42	QP
8	1.1140	10.18	26.02	36.20	46.00	-9.80	AVG
9	2.4180	10.19	33.24	43.43	56.00	-12.57	QP
10	2.4180	10.19	25.96	36.15	46.00	-9.85	AVG
11	6.4220	10.27	36.28	46.55	60.00	-13.45	QP
12	6.4220	10.27	29.74	40.01	50.00	-9.99	AVG

Note: Measurement Level = Reading Level + Correct Factor

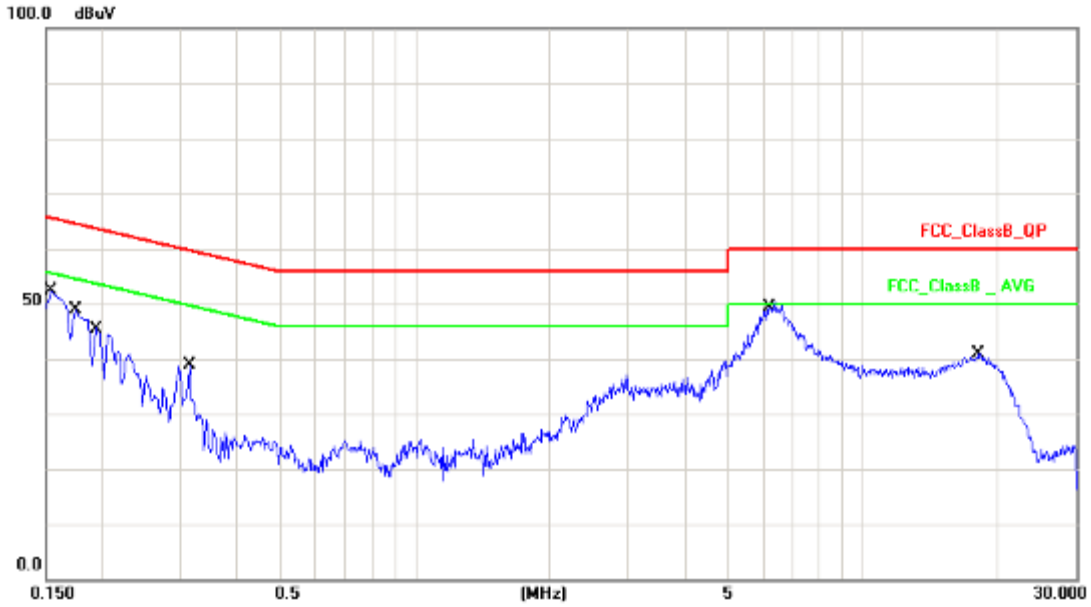
Test Mode :	Mode 2: Normal Operation With DH-HAC-HDW2220RP-VF		
AC Power :	AC 120V/60Hz	Phase :	LINE
Equipment :	HDCVI CAMERA	Model No :	DH-HAC-HDW2220RP-VF
Temperature :	22℃	Humidity :	48%
Pressure(mbar) :	1002	Date :	2015/01/12



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1580	10.13	39.02	49.15	65.56	-16.41	QP
2	0.1580	10.13	21.78	31.91	55.56	-23.65	AVG
3	0.1819	10.12	35.72	45.84	64.39	-18.55	QP
4	0.1819	10.12	20.05	30.17	54.39	-24.22	AVG
5	0.3060	10.14	30.07	40.21	60.08	-19.87	QP
6	0.3060	10.14	23.23	33.37	50.08	-16.71	AVG
7	3.4540	10.19	21.07	31.26	56.00	-24.74	QP
8	3.4540	10.19	10.95	21.14	46.00	-24.86	AVG
9	6.1740	10.25	33.62	43.87	60.00	-16.13	QP
10	6.1740	10.25	23.43	33.68	50.00	-16.32	AVG
11	16.9500	10.45	24.26	34.71	60.00	-25.29	QP
12	16.9500	10.45	18.86	29.31	50.00	-20.69	AVG

Note: Measurement Level = Reading Level + Correct Factor

Test Mode :	Mode 2: Normal Operation With DH-HAC-HDW2220RP-VF		
AC Power :	AC 120V/60Hz	Phase :	NEUTRAL
Equipment :	HDCVI CAMERA	Model No :	DH-HAC-HDW2220RP-VF
Temperature :	22℃	Humidity :	48%
Pressure(mbar) :	1002	Date :	2015/01/12



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1539	10.13	39.52	49.65	65.78	-16.13	QP
2	0.1539	10.13	18.12	28.25	55.78	-27.53	AVG
3	0.1740	10.13	35.19	45.32	64.76	-19.44	QP
4	0.1740	10.13	15.02	25.15	54.76	-29.61	AVG
5	0.1955	10.13	32.64	42.77	63.80	-21.03	QP
6	0.1955	10.13	13.19	23.32	53.80	-30.48	AVG
7	0.3140	10.14	22.87	33.01	59.86	-26.85	QP
8	0.3140	10.14	14.07	24.21	49.86	-25.65	AVG
9	6.1900	10.27	33.57	43.84	60.00	-16.16	QP
10	6.1900	10.27	24.34	34.61	50.00	-15.39	AVG
11	18.0740	10.47	25.37	35.84	60.00	-24.16	QP
12	18.0740	10.47	20.23	30.70	50.00	-19.30	AVG

Note: Measurement Level = Reading Level + Correct Factor

Test engineer: Dian

3.6. Test Photographs

First edition:

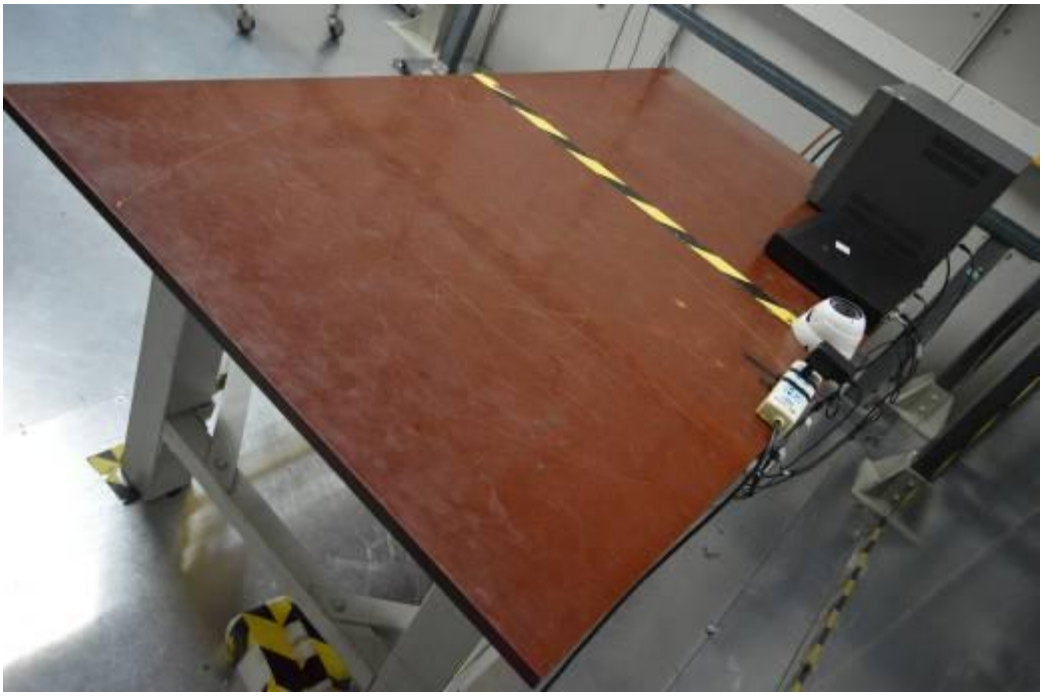
Front View

Rear View

Original:

Front View

Rear View



4. Test of Radiated Emission

4.1. Test Limit

Radiated emissions from 30 MHz to 15,000 MHz were measured with a bandwidth of 120 kHz according to the methods defines in ANSI C63.4-2009. The EUT was placed on a nonmetallic stand in the open-field site, 0.8 meter above the ground plane, as shown in section 3.2. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance Meters	Radiated (μ V / M)	Radiated (dB μ V/ M)
30-88	3	100	40.0
88-216	3	150	43.5
216-960	3	200	46.0
Above 960	3	500	54.0

For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the below table.

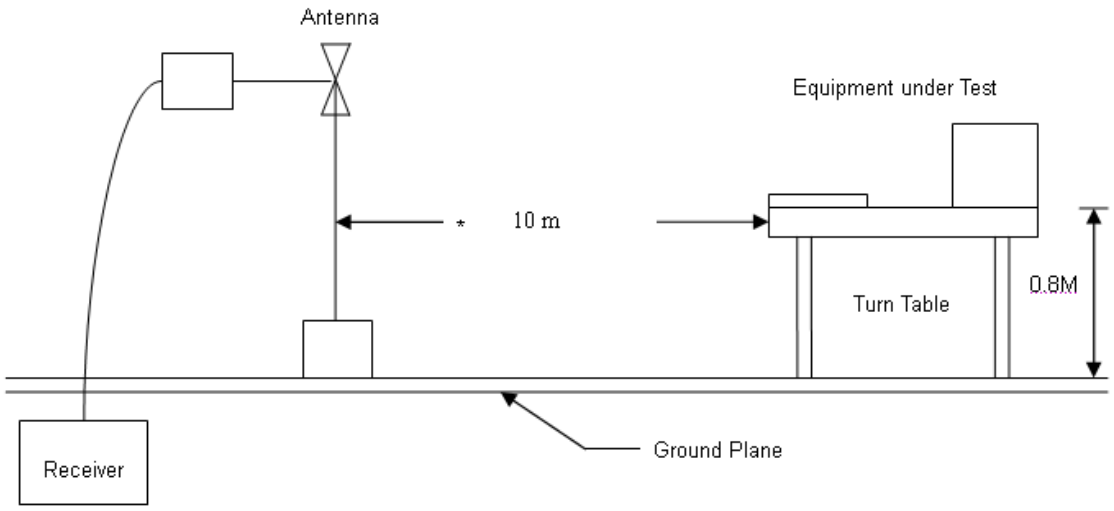
Frequency (MHz)	Distance Meters	Radiated (dB μ V/ M)
30-230	10	30
230-1000	10	37

4.2. Test Procedures

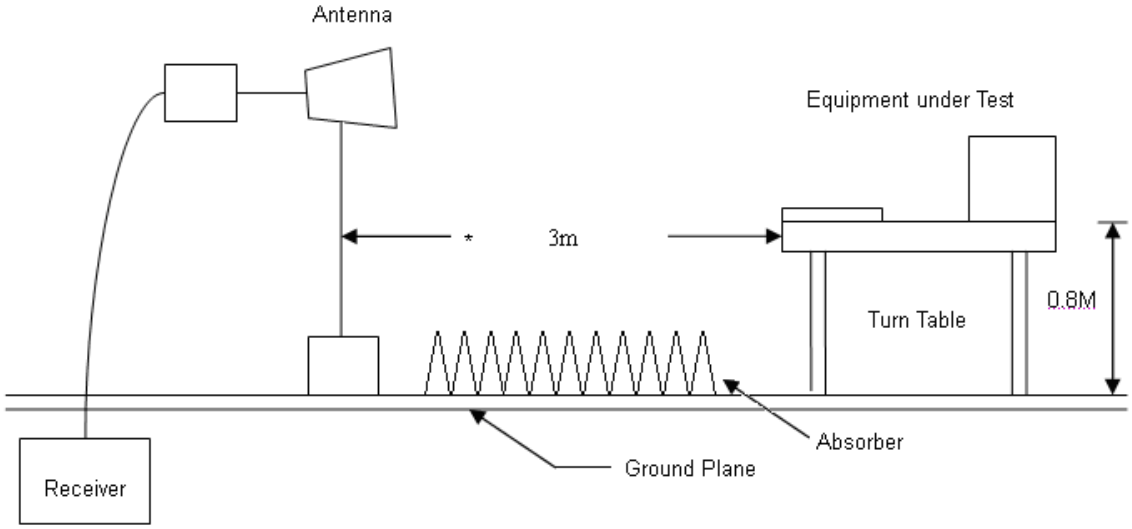
a. The EUT was placed on a Rota table top 0.8 meter above ground.
b. The EUT was set 3/10 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The antenna is a half wave dipole and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
f. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
g. If the emission level of the EUT in peak mode was 6 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 6 dB margin will be repeated one by one using the quasi-peak method and reported.

4.3. Typical test Setup

Below 1GHz Test Setup



Above 1GHz Test Setup



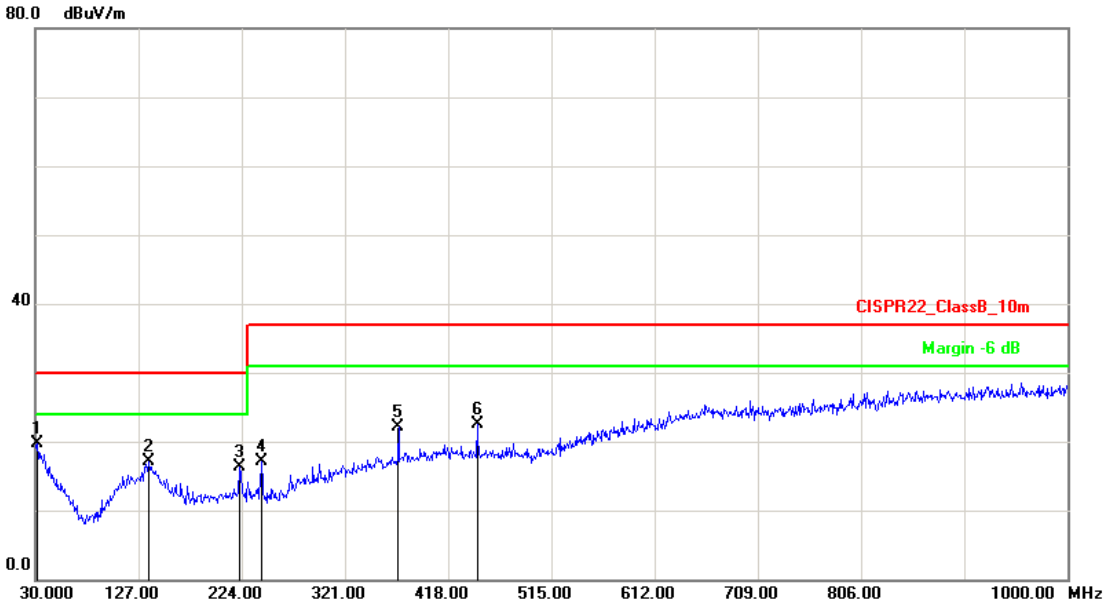
4.4. Measurement equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EMI Test Receiver	R&S	ESCI7	100968	2014.06.11	2015.06.10
Preamplifier	Agilent	87405B	My39500554	2015.03.29	2016.03.28
Preamplifier	Agilent	8449B	3008A02342	2015.03.29	2016.03.28
Bilog Antenna	Sunol Science	JB1	A072414-3	2014.08.05	2015.08.04
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2014.05.24	2015.05.23
Spectrum Analyzer	R&S	FSP40	100324	2015.03.29	2016.03.28
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-001	2015.04.02	2016.04.01
EZ-EMC	Fala	Ver CT3A1	N/A	N/A	N/A

4.5. Test Result and Data (30MHz ~ 1000MHz)

First edition:

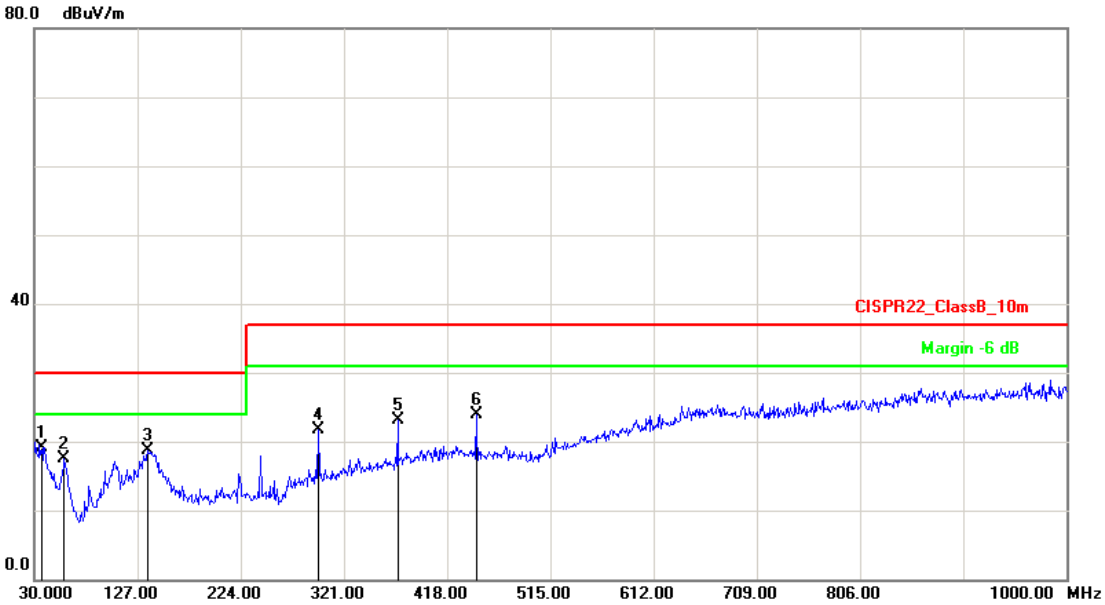
Test Mode :	Mode 1: Normal Operation		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Horizontal
Equipment :	HDCVI CAMERA	Model No :	DH-HAC-HDW1200RP-VF
Temp :	21℃	Humidity :	50%
Pressure(mbar) :	1002	Date :	2015/03/20



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	31.9400	-6.02	25.70	19.68	30.00	-10.32	QP	400	274
2	136.6999	-9.83	26.89	17.06	30.00	-12.94	QP	400	74
3	222.0600	-12.16	28.54	16.38	30.00	-13.62	QP	400	57
4	242.4300	-11.95	29.02	17.07	37.00	-19.93	QP	400	169
5	371.4399	-6.37	28.45	22.08	37.00	-14.92	QP	400	304
6	445.1600	-5.44	27.95	22.51	37.00	-14.49	QP	100	309

Note: Measurement Level = Reading Level + Correct Factor

Test Mode :	Mode 1: Normal Operation		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Vertical
Equipment :	HDCVI CAMERA	Model No :	DH-HAC-HDW1200RP-VF
Temp :	21℃	Humidity :	50%
Pressure(mbar) :	1002	Date :	2015/03/20

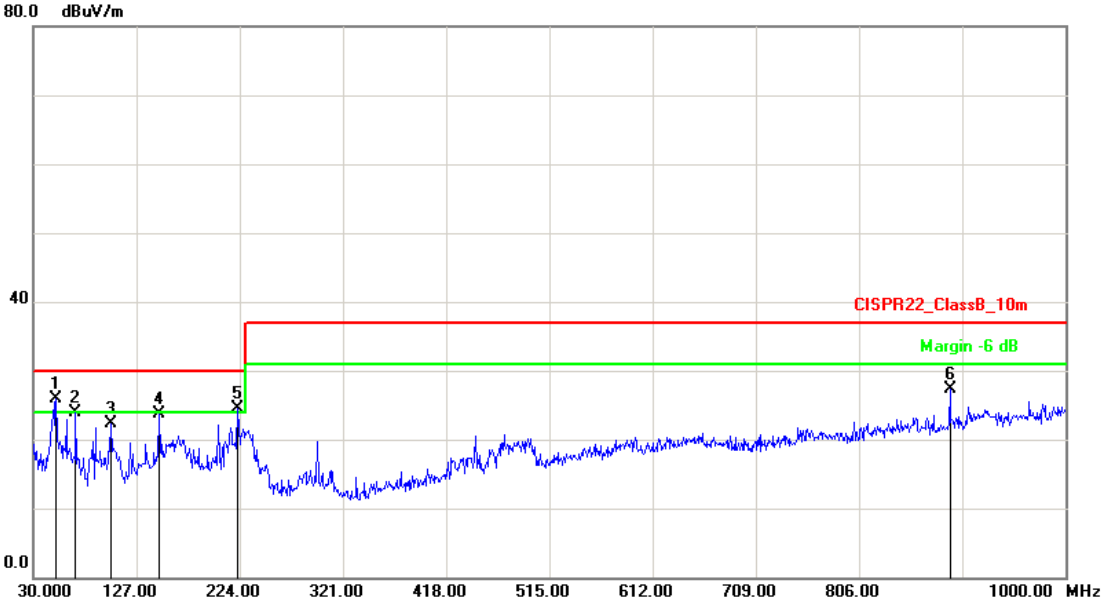


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	37.7599	-7.63	26.76	19.13	30.00	-10.87	QP	100	77
2	58.1300	-12.35	29.77	17.42	30.00	-12.58	QP	100	48
3	136.7000	-9.83	28.61	18.78	30.00	-11.22	QP	100	32
4	296.7500	-9.39	31.04	21.65	37.00	-15.35	QP	100	16
5	371.4400	-6.37	29.52	23.15	37.00	-13.85	QP	100	273
6	445.1600	-5.44	29.33	23.89	37.00	-13.11	QP	100	76

Note: Measurement Level = Reading Level + Correct Factor

Original:

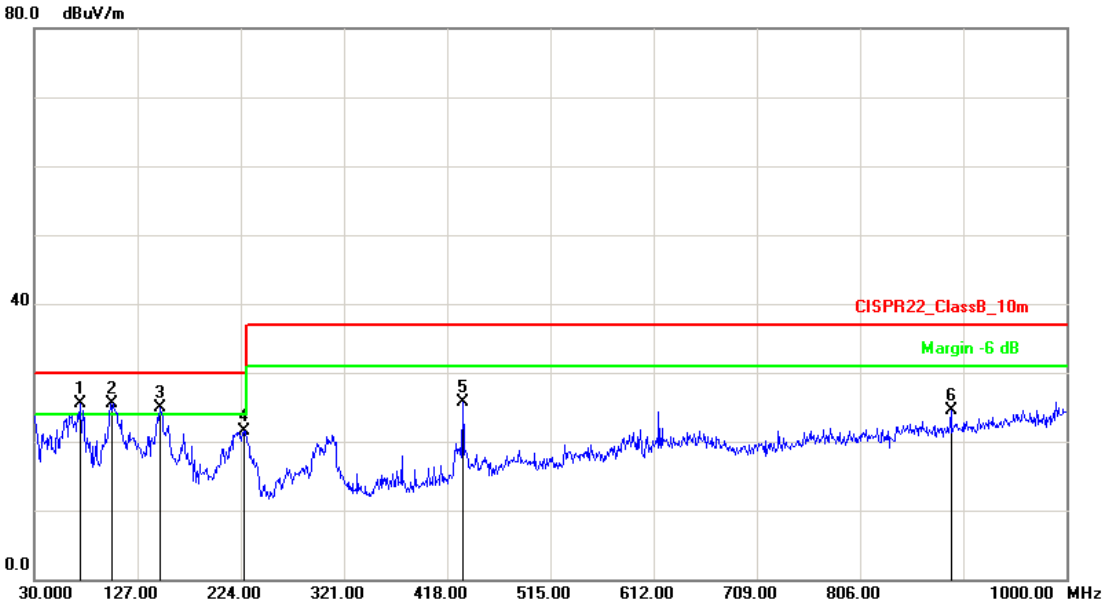
Test Mode :	Mode 1: Normal Operation With DH-HAC-HDW2120RP-VF		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Horizontal
Equipment :	COLOR CAMERA	Model No :	DH-HAC-HDW2120RP-VF
Temp :	22℃	Humidity :	50%
Pressure(mbar) :	1002	Date :	2014/12/17



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	51.3400	-9.91	35.77	25.86	30.00	-4.14	QP	200	98
2	69.7699	-13.64	37.62	23.98	30.00	-6.02	peak	100	225
3	102.7500	-14.19	36.53	22.34	30.00	-7.66	peak	400	339
4	148.3400	-13.64	37.35	23.71	30.00	-6.29	peak	140	262
5	222.0600	-14.79	39.24	24.45	30.00	-5.55	QP	114	41
6	891.3600	-2.53	29.86	27.33	37.00	-9.67	peak	382	88

Note: Measurement Level = Reading Level + Correct Factor

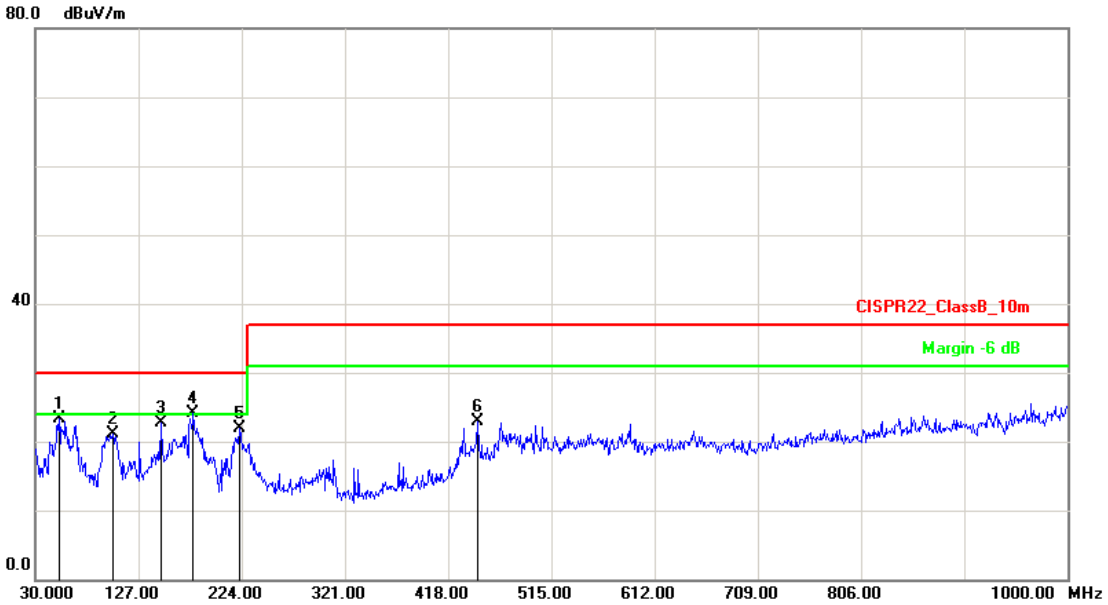
Test Mode :	Mode 1: Normal Operation With DH-HAC-HDW2120RP-VF		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Vertical
Equipment :	COLOR CAMERA	Model No :	DH-HAC-HDW2120RP-VF
Temp :	22℃	Humidity :	50%
Pressure(mbar) :	1002	Date :	2014/12/17



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	72.6800	-14.77	40.30	25.53	30.00	-4.47	QP	100	85
2	103.7198	-14.08	39.52	25.44	30.00	-4.56	QP	100	147
3	148.3400	-13.64	38.46	24.82	30.00	-5.18	QP	200	332
4	226.9098	-14.60	36.17	21.57	30.00	-8.43	peak	200	6
5	432.5500	-8.80	34.50	25.70	37.00	-11.30	peak	100	229
6	891.3600	-2.53	27.09	24.56	37.00	-12.44	peak	400	185

Note: Measurement Level = Reading Level + Correct Factor

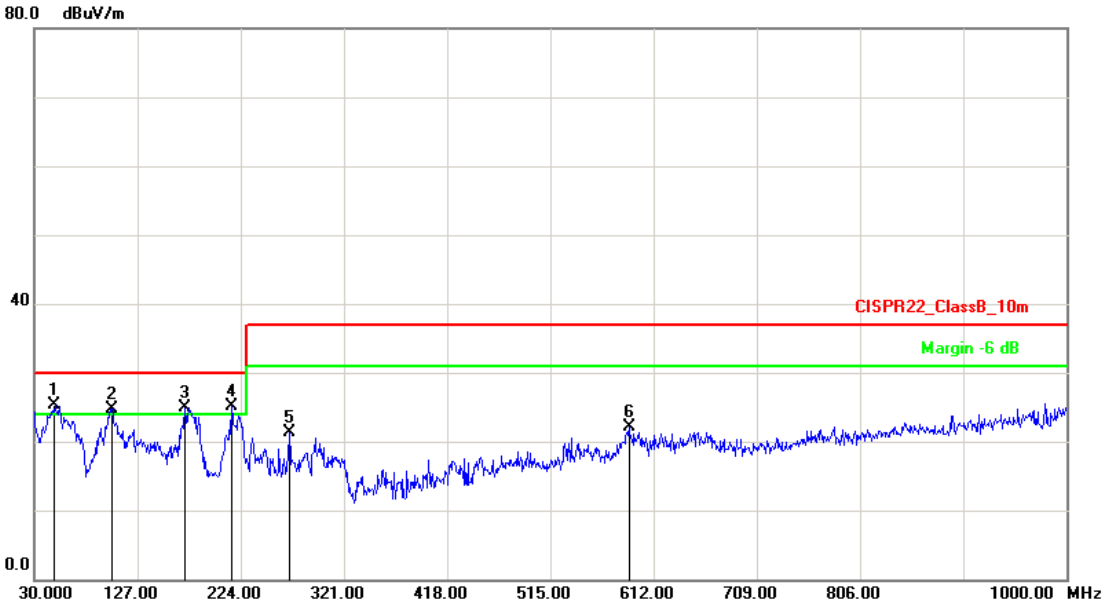
Test Mode :	Mode 2: Normal Operation With DH-HAC-HDW2220RP-VF		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Horizontal
Equipment :	COLOR CAMERA	Model No :	DH-HAC-HDW2220RP-VF
Temp :	22℃	Humidity :	50%
Pressure(mbar) :	1002	Date :	2014/12/17



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	52.3100	-9.92	33.18	23.26	30.00	-6.74	peak	200	221
2	102.7500	-14.19	35.37	21.18	30.00	-8.82	peak	117	74
3	148.3400	-13.64	36.41	22.77	30.00	-7.23	peak	200	221
4	178.4097	-14.83	38.90	24.07	30.00	-5.93	QP	100	360
5	222.0600	-14.79	36.73	21.94	30.00	-8.06	peak	100	226
6	445.1600	-8.50	31.50	23.00	37.00	-14.00	peak	400	185

Note: Measurement Level = Reading Level + Correct Factor

Test Mode :	Mode 2: Normal Operation With DH-HAC-HDW2220RP-VF		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Vertical
Equipment :	COLOR CAMERA	Model No :	DH-HAC-HDW2220RP-VF
Temp :	22℃	Humidity :	50%
Pressure(mbar) :	1002	Date :	2014/12/17



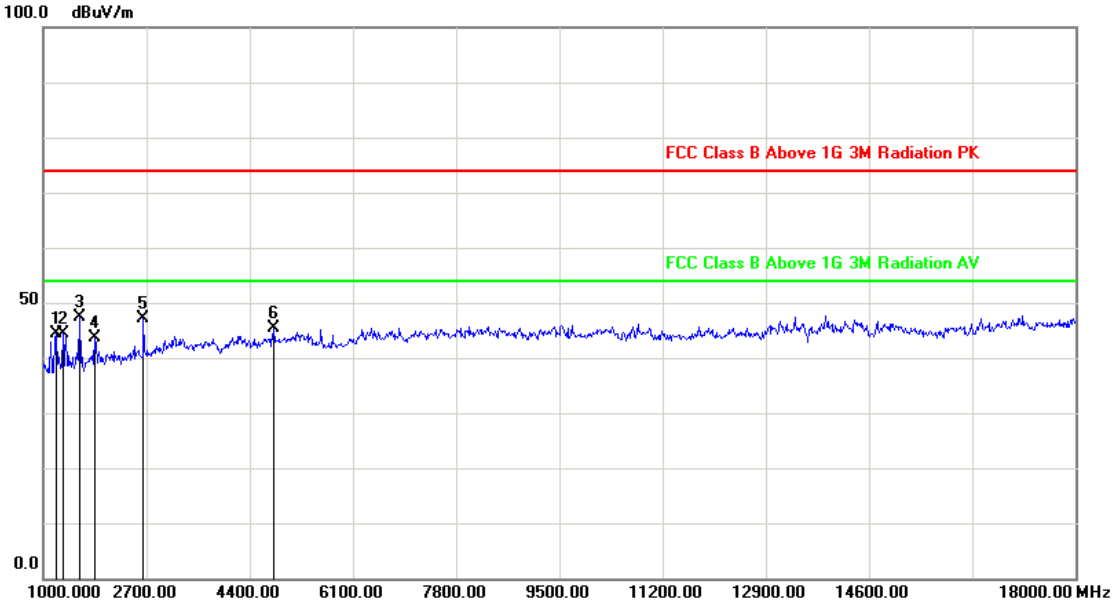
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	49.3999	-9.82	35.03	25.21	30.00	-4.79	QP	200	7
2	102.7500	-14.19	38.99	24.80	30.00	-5.20	QP	200	214
3	171.6200	-14.65	39.63	24.98	30.00	-5.02	QP	400	336
4	215.2700	-14.56	39.74	25.18	30.00	-4.82	QP	100	26
5	269.5899	-12.81	34.11	21.30	37.00	-15.70	peak	100	115
6	588.7200	-5.93	27.94	22.01	37.00	-14.99	peak	400	152

Note: Measurement Level = Reading Level + Correct Factor

4.6. Test Result and Data (1000MHz ~ 18000MHz)

First edition:

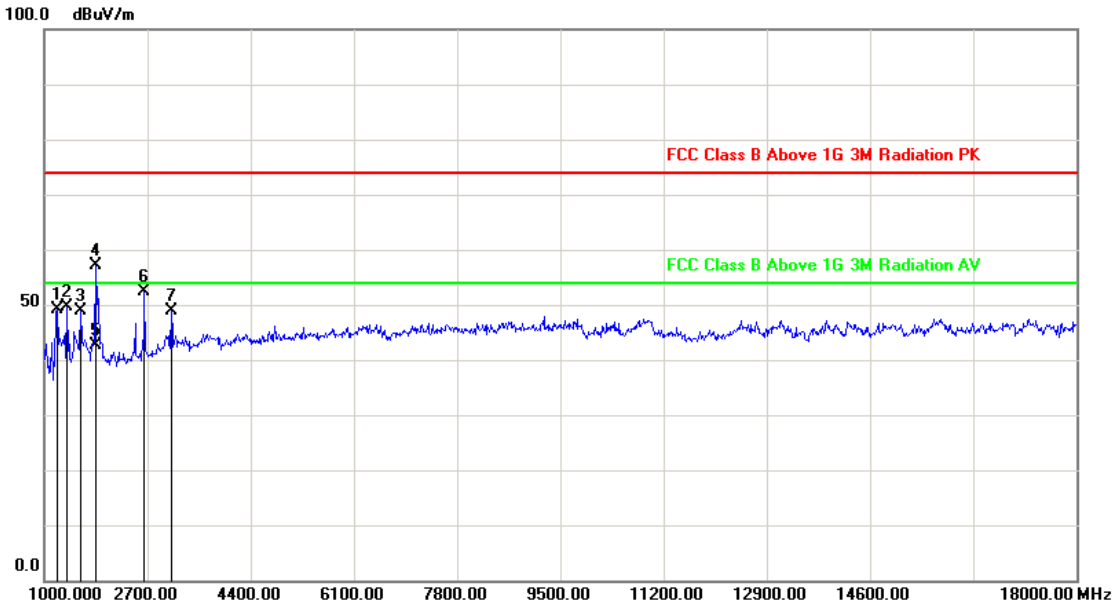
Test Mode :	Mode 1: Normal Operation		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Horizontal
Equipment :	HDCVI CAMERA	Model No :	DH-HAC-HDW1200RP-VF
Temp :	22℃	Humidity :	48%
Pressure(mbar) :	1002	Date :	2015/04/14



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	1204.000	-6.02	50.33	44.31	74.00	-29.69	peak	100	247
2	1323.000	-5.52	49.78	44.26	74.00	-29.74	peak	100	47
3	1595.000	-4.39	51.84	47.45	74.00	-26.55	peak	100	226
4	1850.000	-3.33	46.85	43.52	74.00	-30.48	peak	200	268
5	2649.000	-0.53	47.70	47.17	74.00	-26.83	peak	100	240
6	4791.000	6.33	39.06	45.39	74.00	-28.61	peak	100	141

Note: Measurement Level = Reading Level + Correct Factor

Test Mode :	Mode 1: Normal Operation		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Vertical
Equipment :	HDCVI CAMERA	Model No :	DH-HAC-HDW1200RP-VF
Temp :	22℃	Humidity :	48%
Pressure(mbar) :	1002	Date :	2015/04/14

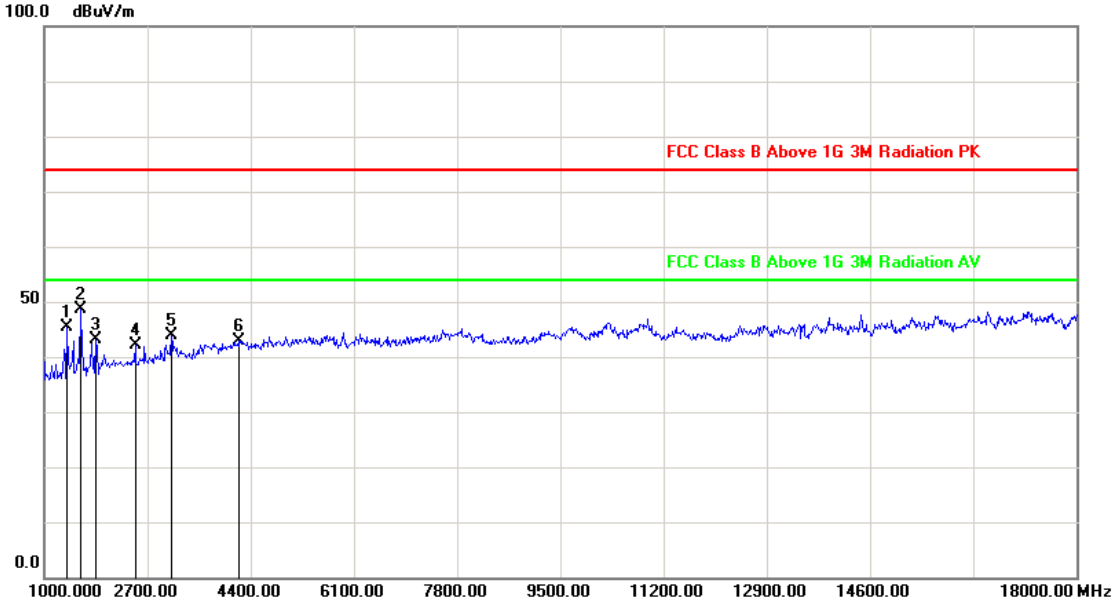


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	1221.000	-5.95	54.98	49.03	74.00	-24.97	peak	200	214
2	1374.000	-5.31	54.93	49.62	74.00	-24.38	peak	100	173
3	1595.000	-4.39	53.22	48.83	74.00	-25.17	peak	200	208
4	1850.000	-3.33	60.40	57.07	74.00	-16.93	peak	100	2
5	1850.000	-3.33	45.96	42.63	54.00	-11.37	AVG	100	2
6	2649.000	-0.53	52.87	52.34	74.00	-21.66	peak	100	43
7	3091.000	0.99	47.99	48.98	74.00	-25.02	peak	153	0

Note: Measurement Level = Reading Level + Correct Factor

Original:

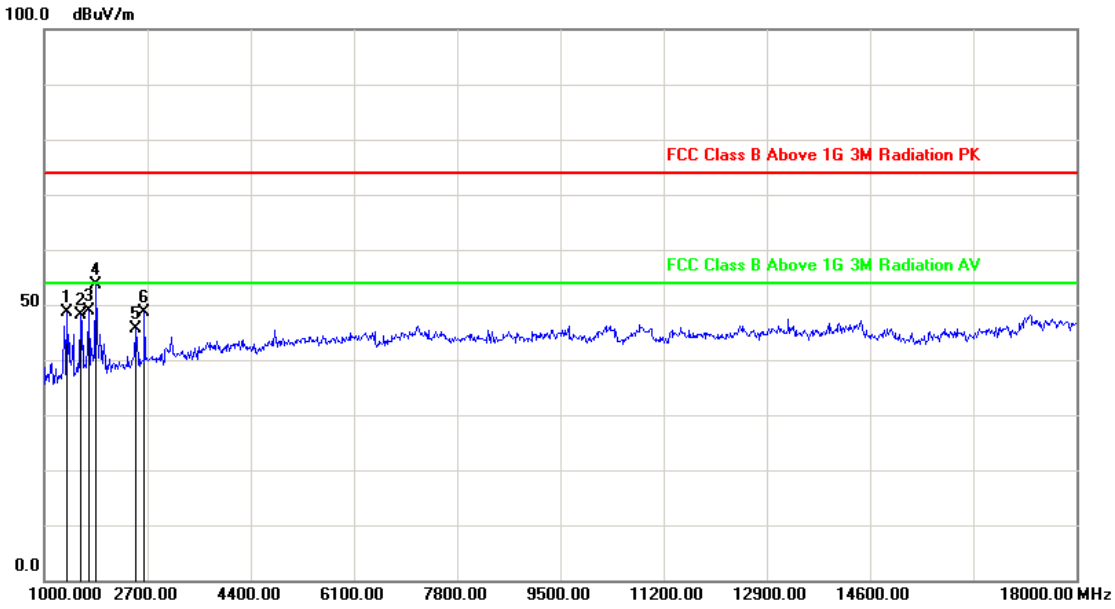
Test Mode :	Mode 1: Normal Operation With DH-HAC-HDW2120RP-VF		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Horizontal
Equipment :	COLOR CAMERA	Model No :	DH-HAC-HDW2120RP-VF
Temp :	22℃	Humidity :	48%
Pressure(mbar) :	1002	Date :	2015/01/12



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	1374.000	-5.31	50.58	45.27	74.00	-28.73	peak	100	321
2	1595.000	-4.39	52.93	48.54	74.00	-25.46	peak	100	343
3	1850.000	-3.33	46.34	43.01	74.00	-30.99	peak	100	343
4	2496.000	-1.04	43.16	42.12	74.00	-31.88	peak	100	146
5	3091.000	0.99	42.92	43.91	74.00	-30.09	peak	200	100
6	4196.000	4.85	38.13	42.98	74.00	-31.02	peak	100	3

Note: Measurement Level = Reading Level + Correct Factor

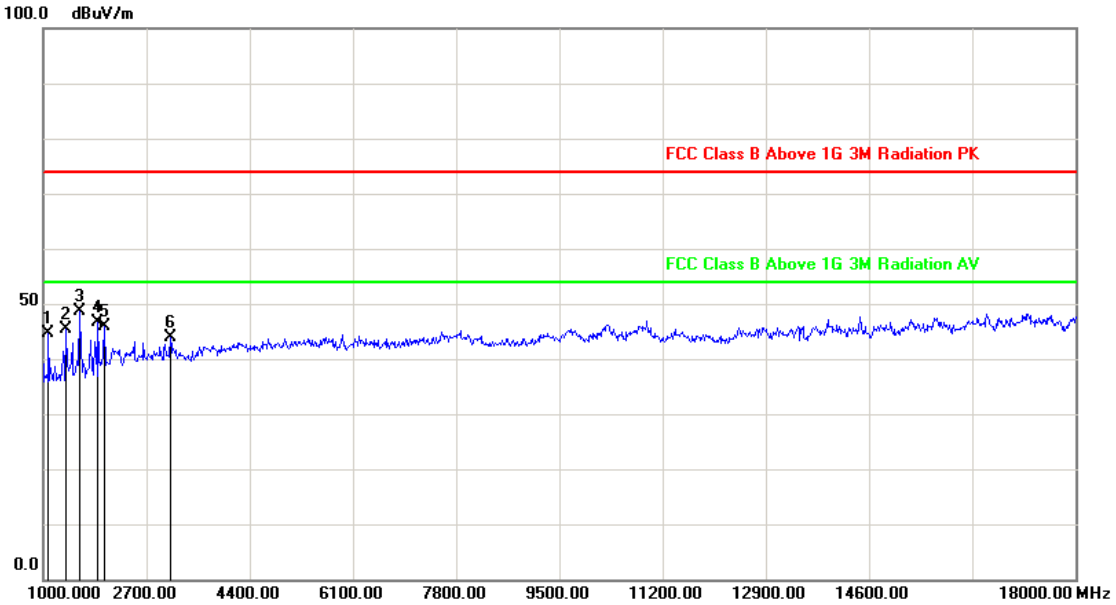
Test Mode :	Mode 1: Normal Operation With DH-HAC-HDW2120RP-VF		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Vertical
Equipment :	COLOR CAMERA	Model No :	DH-HAC-HDW2120RP-VF
Temp :	22℃	Humidity :	48%
Pressure(mbar) :	1002	Date :	2015/01/12



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	1374.000	-5.31	53.97	48.66	74.00	-25.34	peak	100	181
2	1595.000	-4.39	52.44	48.05	74.00	-25.95	peak	200	166
3	1731.000	-3.82	52.77	48.95	74.00	-25.05	peak	100	302
4	1850.000	-3.33	56.85	53.52	74.00	-20.48	peak	100	360
5	2496.000	-1.04	46.76	45.72	74.00	-28.28	peak	100	181
6	2649.000	-0.53	49.22	48.69	74.00	-25.31	peak	100	22

Note: Measurement Level = Reading Level + Correct Factor

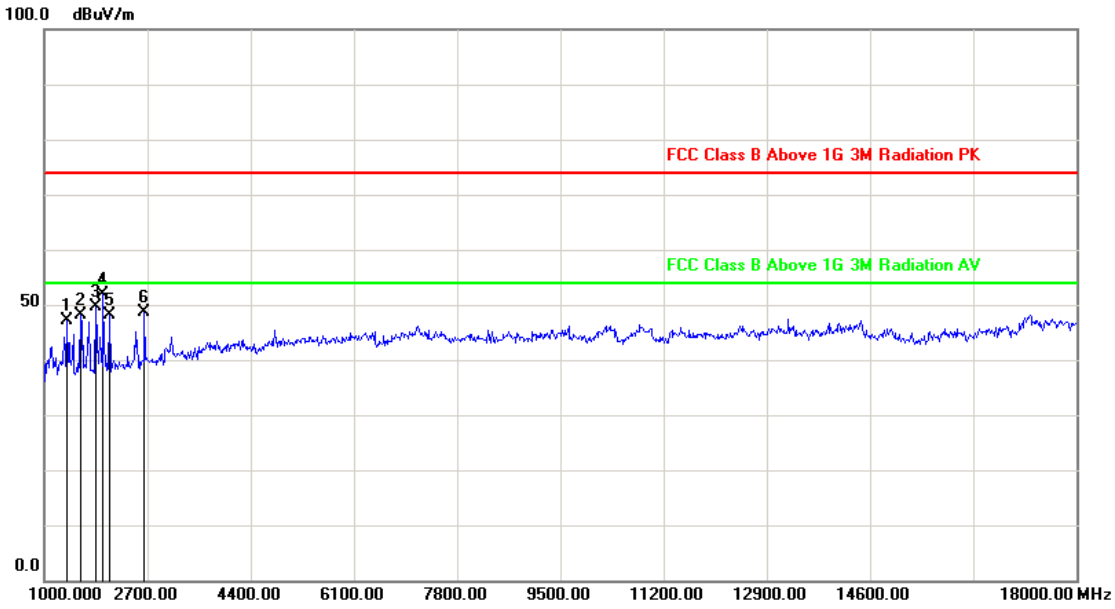
Test Mode :	Mode 2: Normal Operation With DH-HAC-HDW2220RP-VF		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Horizontal
Equipment :	COLOR CAMERA	Model No :	DH-HAC-HDW2220RP-VF
Temp :	22℃	Humidity :	48%
Pressure(mbar) :	1002	Date :	2015/01/12



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	1085.000	-6.52	51.25	44.73	74.00	-29.27	peak	100	283
2	1374.000	-5.31	50.58	45.27	74.00	-28.73	peak	200	75
3	1595.000	-4.39	52.93	48.54	74.00	-25.46	peak	200	262
4	1901.000	-3.11	49.65	46.54	74.00	-27.46	peak	198	114
5	2003.000	-2.69	48.54	45.85	74.00	-28.15	peak	100	332
6	3091.000	0.99	42.92	43.91	74.00	-30.09	peak	117	185

Note: Measurement Level = Reading Level + Correct Factor

Test Mode :	Mode 2: Normal Operation With DH-HAC-HDW2220RP-VF		
AC Power :	AC 120V/60Hz	Ant. Polarization:	Vertical
Equipment :	COLOR CAMERA	Model No :	DH-HAC-HDW2220RP-VF
Temp :	22℃	Humidity :	48%
Pressure(mbar) :	1002	Date :	2015/01/12



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	1374.000	-5.31	52.47	47.16	74.00	-26.84	peak	100	147
2	1595.000	-4.39	52.44	48.05	74.00	-25.95	peak	200	221
3	1850.000	-3.33	52.85	49.52	74.00	-24.48	peak	114	360
4	1969.000	-2.83	54.66	51.83	74.00	-22.17	peak	100	226
5	2071.000	-2.46	50.49	48.03	74.00	-25.97	peak	100	125
6	2649.000	-0.53	49.22	48.69	74.00	-25.31	peak	200	185

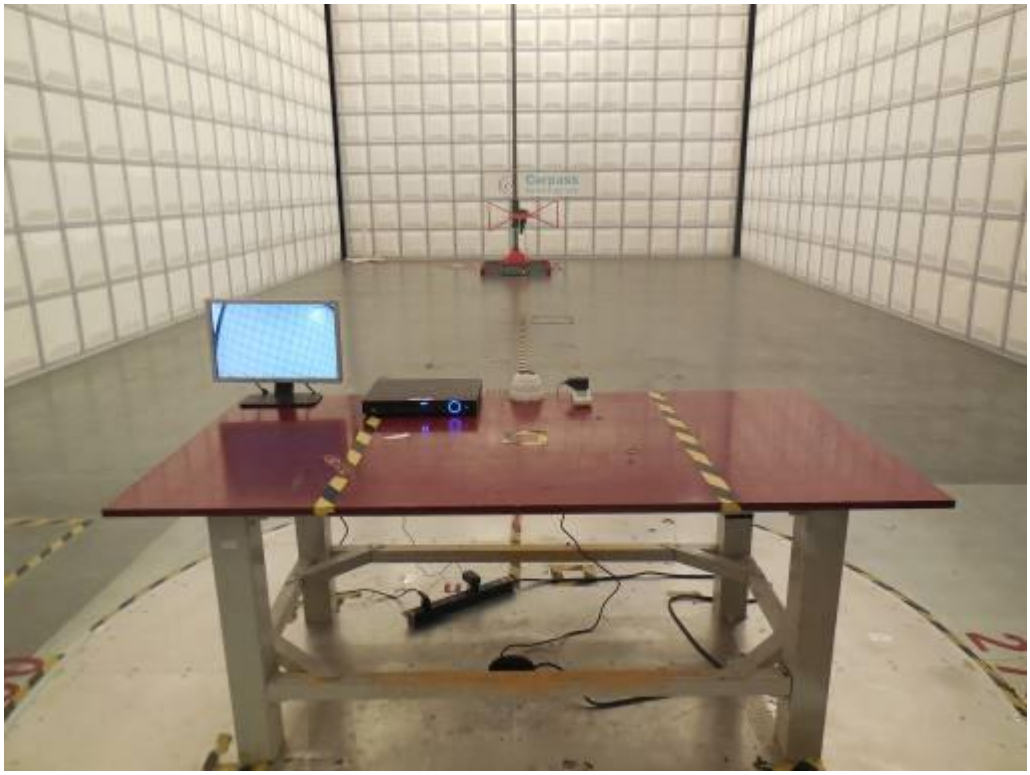
Note: Measurement Level = Reading Level + Correct Factor

Test engineer:

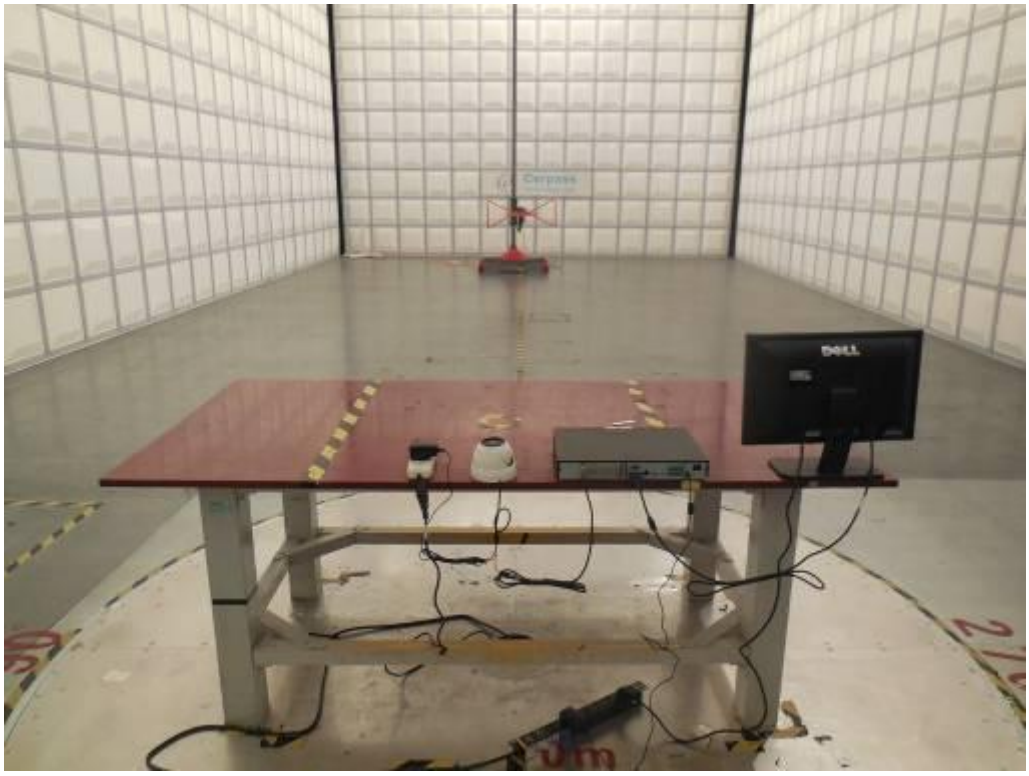
4.7. Test Photographs (30MHz ~ 1000MHz)

First edition:

Front View

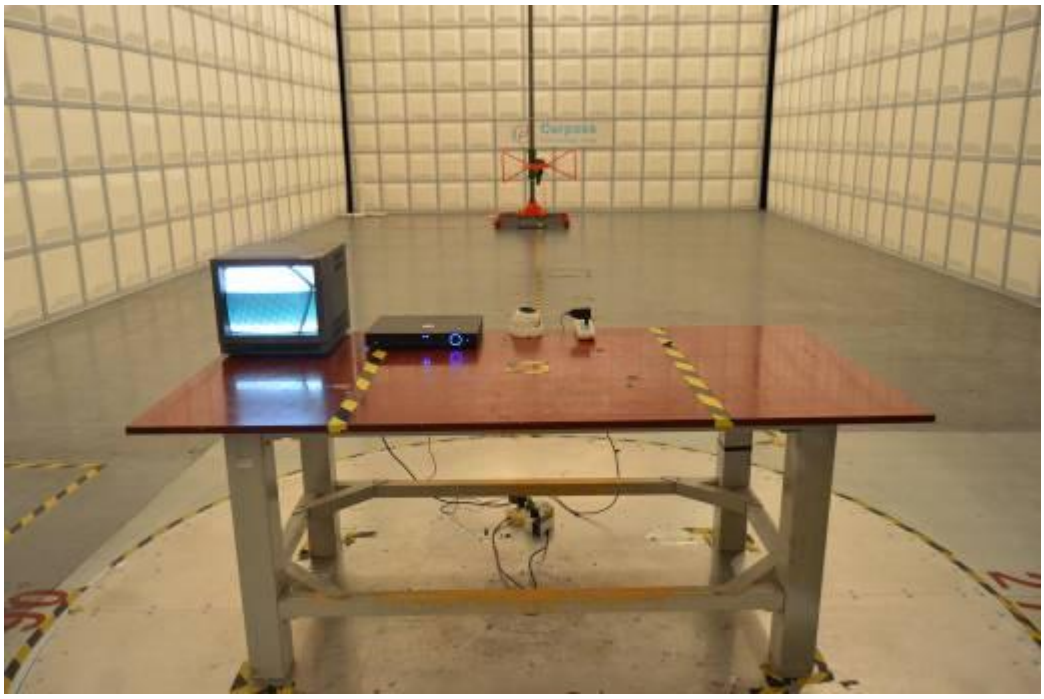


Rear View

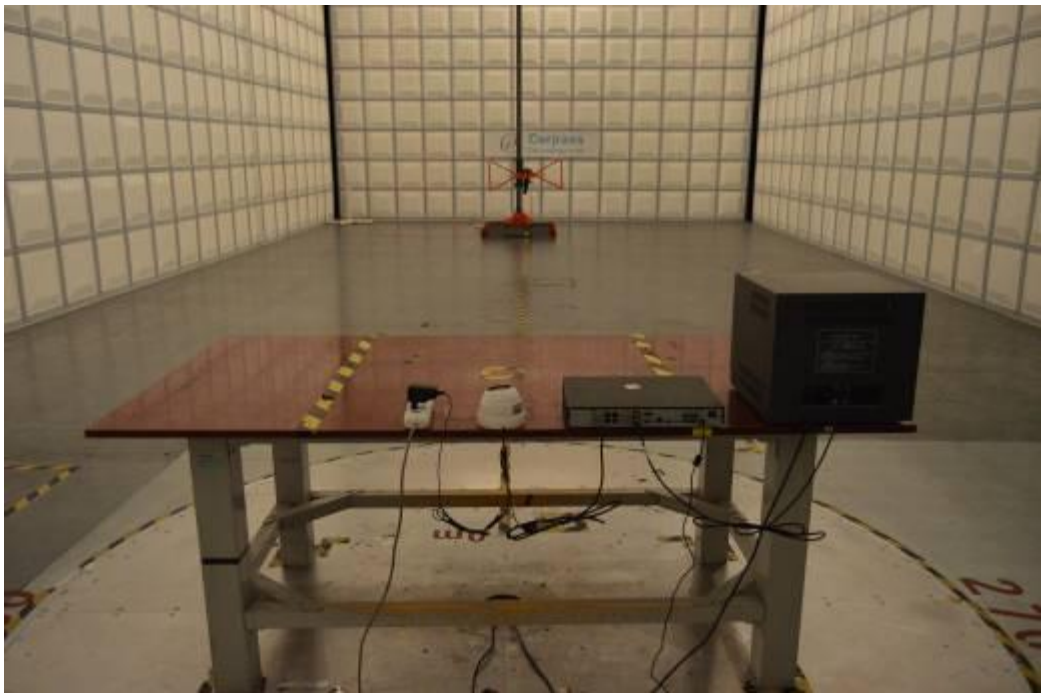


Original:

Front View



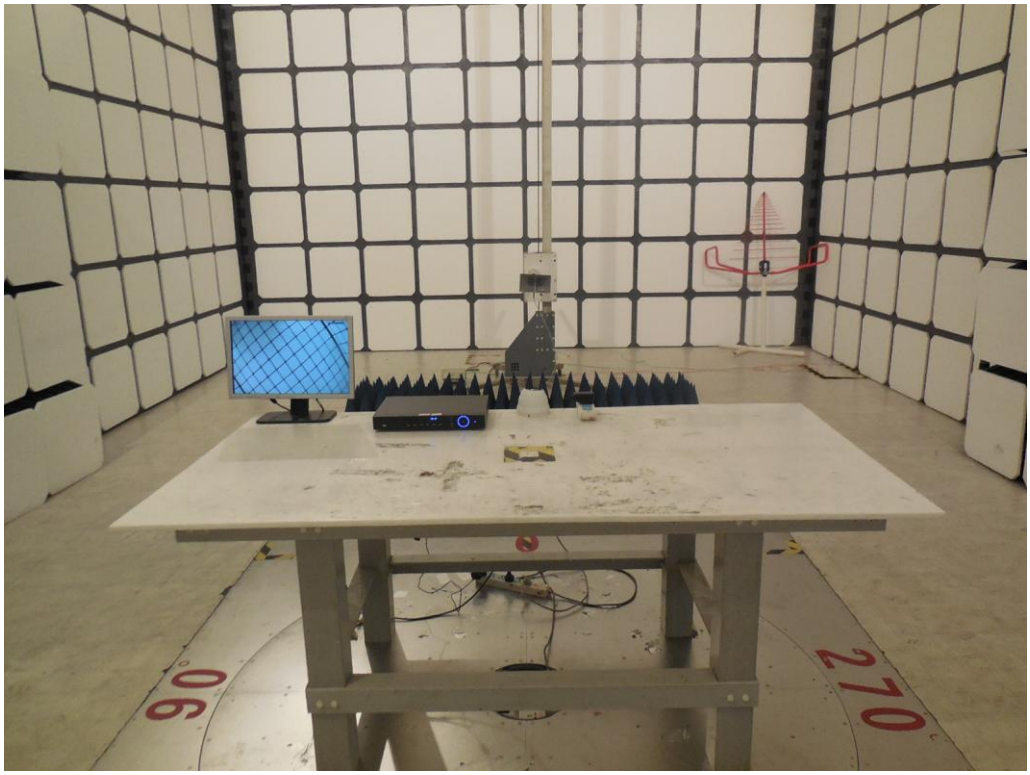
Rear View



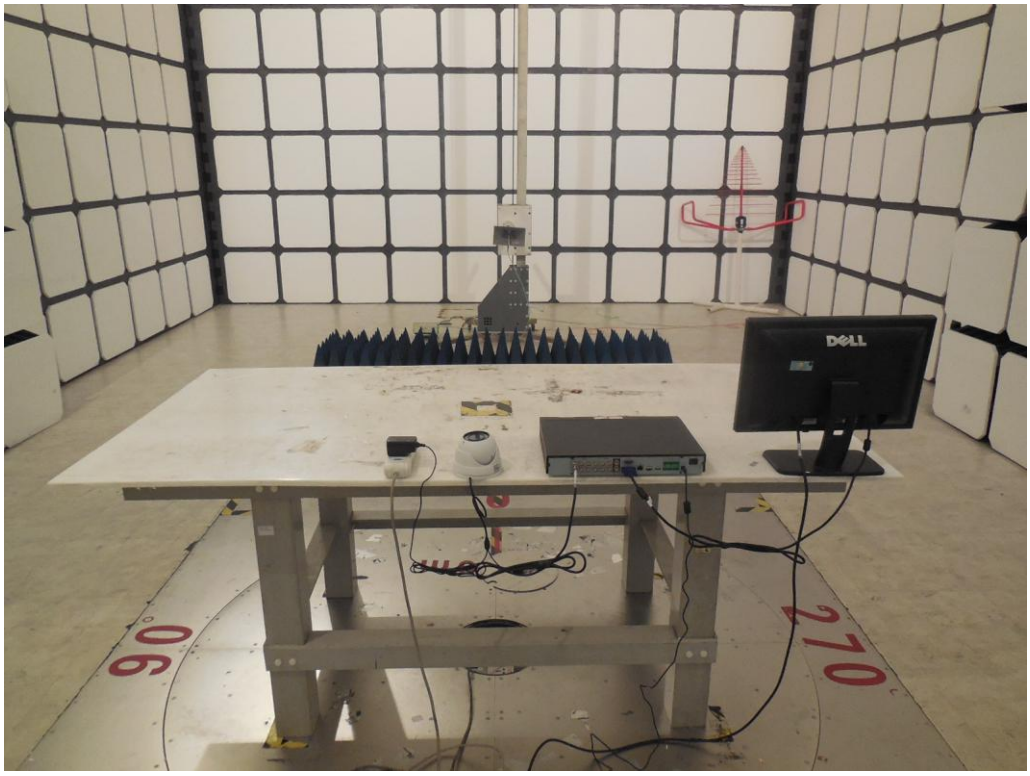
4.8. Test Photographs (1000MHz ~ 18000MHz)

First edition:

Front View

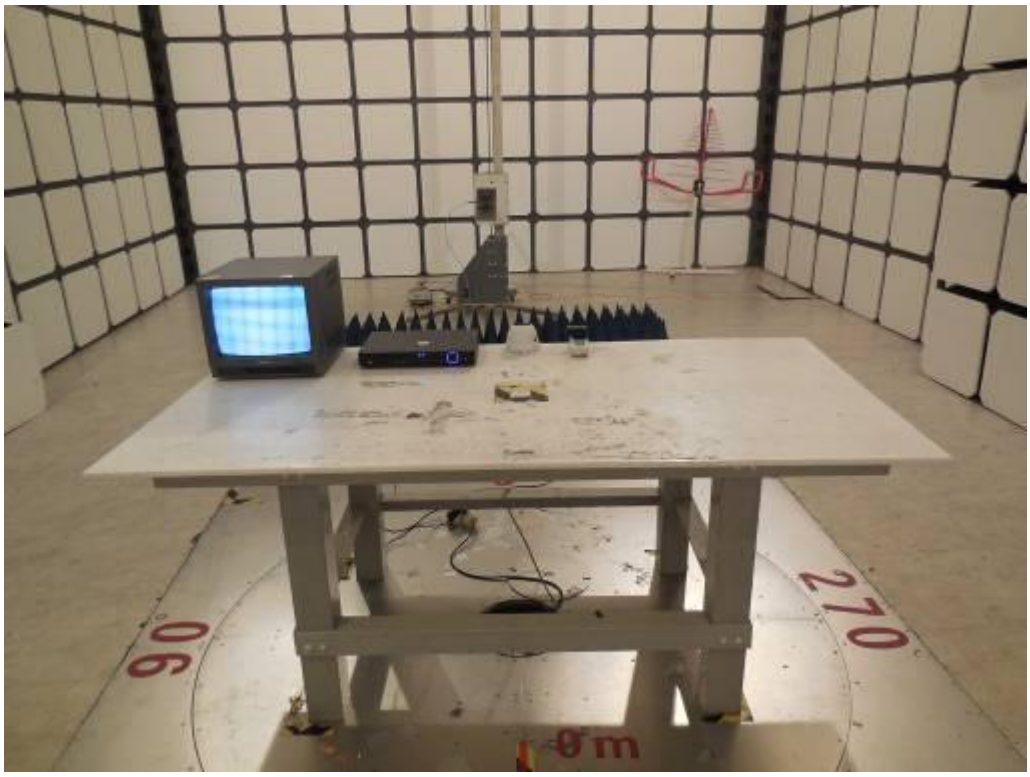


Rear View

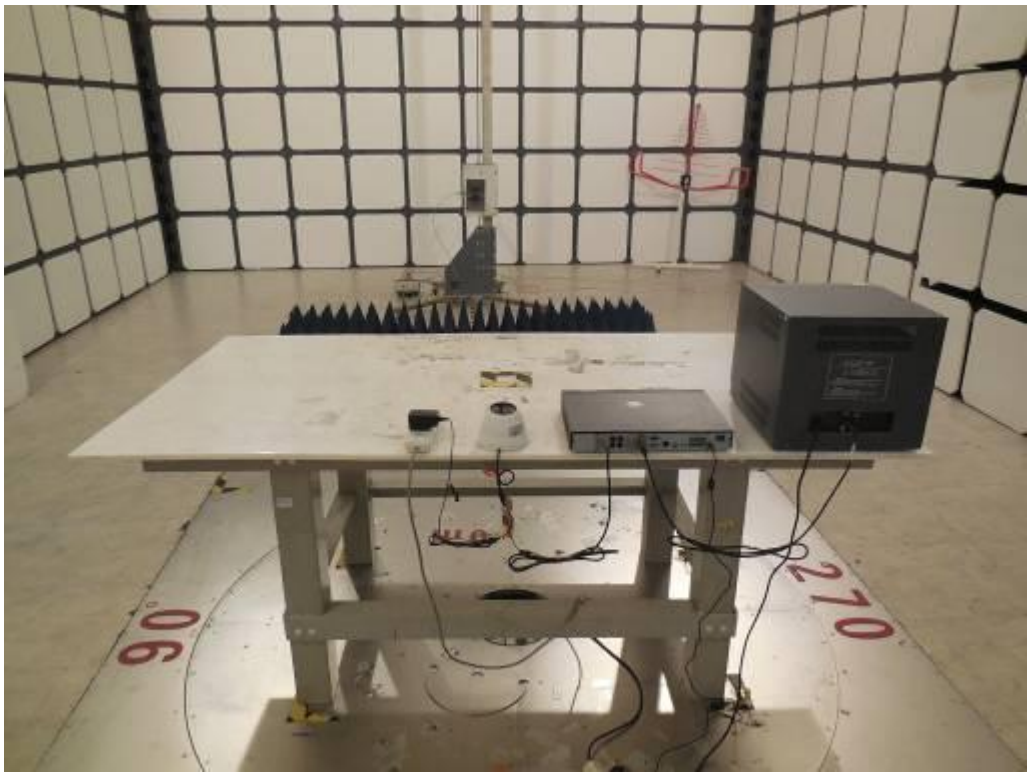


Original:

Front View



Rear View

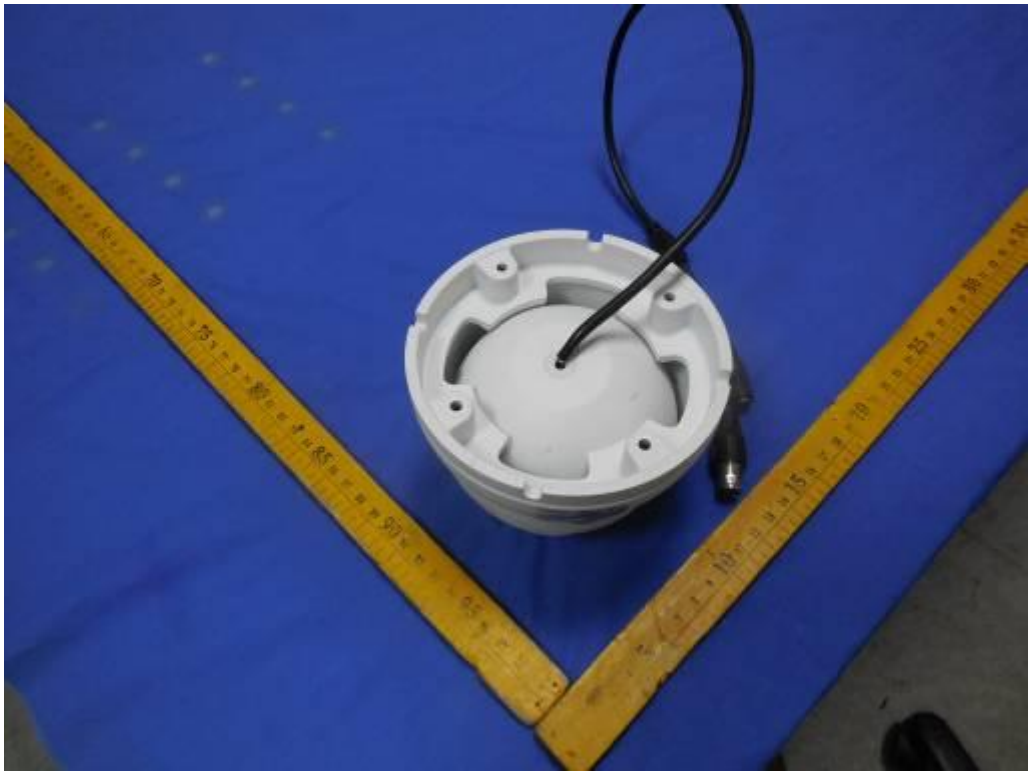


5. Photographs of EUT

First edition:

1) EUT Photo (DH-HAC-HDW1200RP-VF)

2) EUT Photo (DH-HAC-HDW1200RP-VF)



3) EUT Photo (DH-HAC-HDW1200RP-VF)

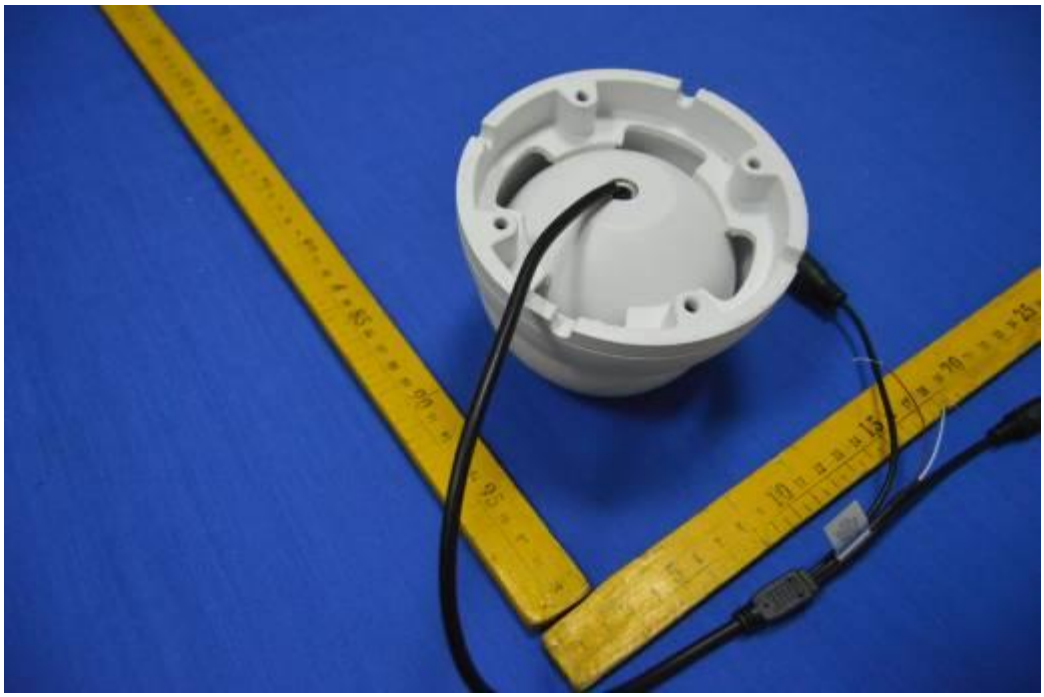
4) EUT Photo (DH-HAC-HDW1200RP-VF)

5) EUT Photo (DH-HAC-HDW1200RP-VF)

Original:

6) EUT Photo (DH-HAC-HDW2120RP-VF)

7) EUT Photo (DH-HAC-HDW2120RP-VF)

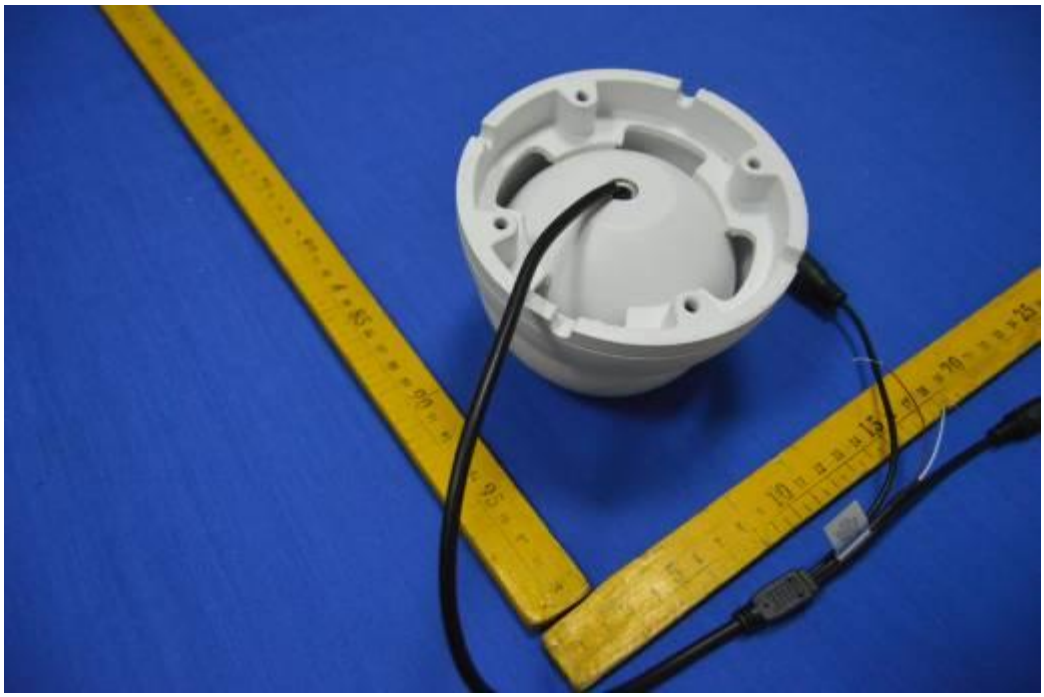


8) EUT Photo (DH-HAC-HDW2120RP-VF)

9) EUT Photo (DH-HAC-HDW2120RP-VF)

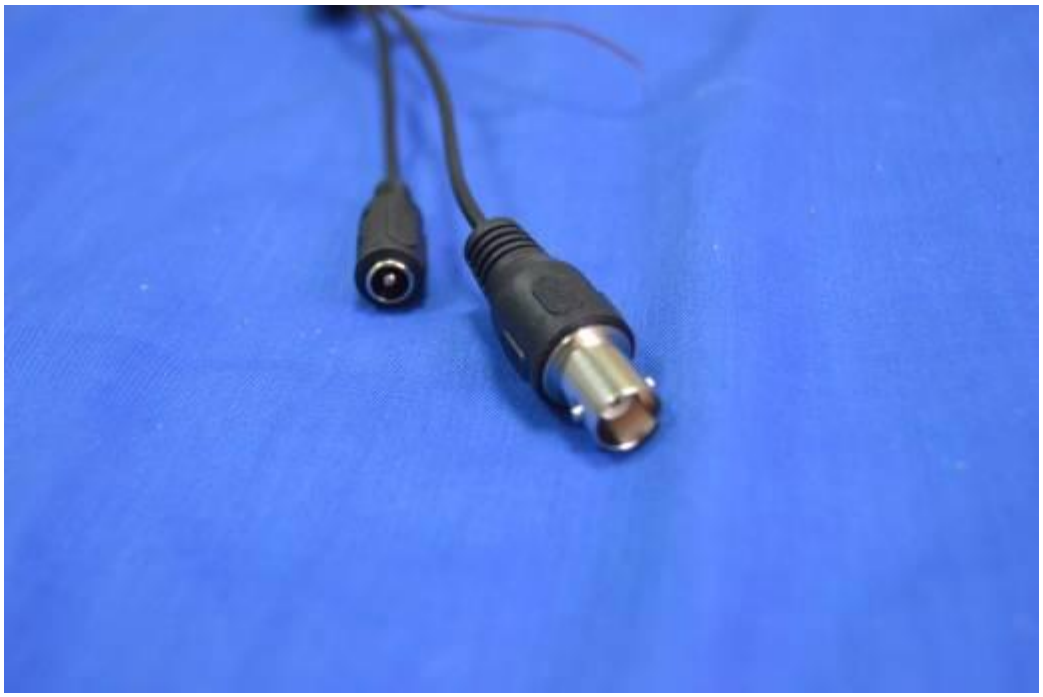
10) EUT Photo (DH-HAC-HDW2220RP-VF)

11) EUT Photo (DH-HAC-HDW2220RP-VF)

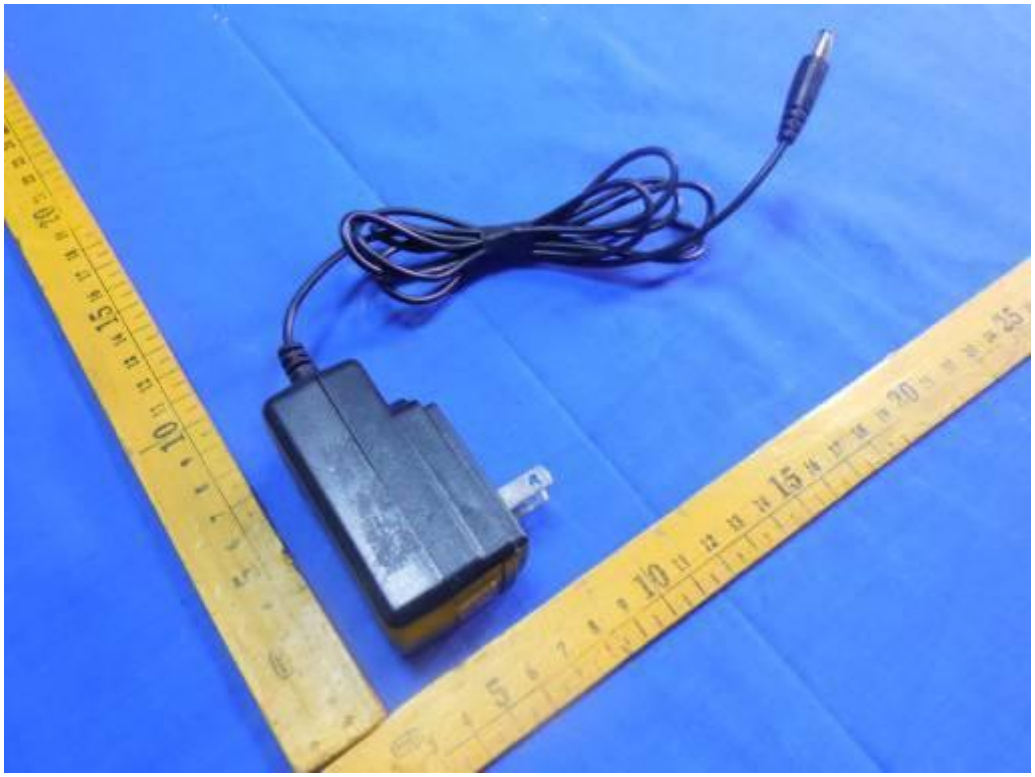


12) EUT Photo (DH-HAC-HDW2220RP-VF)

13) EUT Photo (DH-HAC-HDW2220RP-VF)



14) EUT Photo



15) EUT Photo

16) EUT Photo

17) EUT Photo