FCC TEST REPORT

For

NUUO INC.

Network Video Recorder

Model No.: NC-2xx0, NVC-2xx0 (xx = 00, 02, 04, 06, 08, 10, 12, 14, 16)

Test Report Number : ESTSZ141201203F

SHENZHEN EXACT STANDARD TESTING TECHNOLOGY CO., LTD.
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1 GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	**NUUO INC.**
Address of applicant:	B1, No. 207-1, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231,Taiwan
Manufacturer:	**SHENZHEN BAICHUAN SECURITY TECHNOLOGY CO., LTD**
Address of manufacturer:	5th Floor, Building 7, Tangtou 3rd Industrial Area, Shiyan Town, Bao'an District, Shenzhen City, China

General Description of E.U.T

EUT Description:	Network Video Recorder
Trade Name:	NUUO
Model No.:	NC-2xx0, NVC-2xx0 (xx = 00, 02, 04, 06, 08, 10, 12, 14, 16)
Test Model No.:	NVC-2080
Power Supply:	DC 12V via Adapter
Test Power Supply:	AC 120V, 60Hz

1.2 Test Standards

The following Declaration of Conformity report of EUT is prepared in accordance with

FCC Rules and Regulations Part 15 Subpart B

The objective of the manufacturer is to demonstrate compliance with the described above standards.

Date of Test : Dec. 02 ~ 05, 2014

Prepared by : Yoyo Deng

(Engineer: Yoyo Deng)

Reviewer :

(Project Manager: Charles Liu)

Approved & Authorized Signer :

(Manager: Ronnie Liu)

1.3 Test Summary

For the EUT described above. The standards used were FCC Part 15 Subpart B for Emissions

Table 1: Tests Carried Out Under FCC Part 15 Subpart B

Standard	Test Items	Status
FCC Part 15 Subpart B	Conduction Emission, 0.15MHz to 30MHz	√
FCC Part 15 Subpart B	Radiation Emission, 30MHz to 1000MHz	√

√ Indicates that the test is applicable
× Indicates that the test is not applicable

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2009, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

The maximum emission levels emanating from the device are compared to the FCC Part 15 Subpart B limits for radiation emissions and the measurement results contained in this test report show that EUT is to be technically compliant with FCC requirements.

1.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC – Registration No.: 600491

Global United Technology Service Co., Ltd has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 600491

1.6 Test Equipment List and Details

Test equipments list of GTS Standards Technical Services Co., Ltd.

Equipment	Manufacturer	Model#	Serial #	Data of Cal.	Due Data
3m Semi-Anechoic Chamber	ZhongYu Electron	N/A	N/A	Apr.28, 2014	Apr.27, 2015
EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Dec. 12, 2013	Dec. 11, 2014
EMI Test Software	AUDIX	E3	N/A	N/A	N/A
Coaxial cable	GTS	N/A	GTS400	Mar. 18, 2014	Mar. 17, 2015
BiConiLog Antenna (26-3000MHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS204	Mar. 12, 2014	Mar. 11, 2015
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	Mar. 18, 2014	Mar. 17, 2015
Double-ridged horn (1-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS205	Mar. 12, 2014	Mar. 11, 2015
Pre-amplifier (1-18GHz)	Rohde & Schwarz	AFS42-00101800-25-S-42	SEL0081	Mar. 18, 2014	Mar. 17, 2015
Band filter	Amindeon	82346	SEL0094	Mar. 18, 2014	Mar. 17, 2015
Shielding Room	Zhong Yu Electron	N/A	GTS206	N/A	N/A
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS207	Mar. 18, 2014	Mar. 17, 2015
ISN	Rohde & Schwarz	ENY221109	EMC0114	Mar. 18, 2014	Mar. 17, 2015
ISN	Rohde & Schwarz	ENY411110	EMC0115	Mar. 18, 2014	Mar. 17, 2015
EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Mar. 18, 2014	Mar. 17, 2015
Coaxial Cable	GTS	N/A	GTS400	Mar. 18, 2014	Mar. 17, 2015
AC Power Source	EMTEST	ACS500	GTS218	Mar. 27, 2014	Mar. 26, 2015
Power Analyzer	EMTEST	DPA500	GTS217	Mar. 27, 2014	Mar. 26, 2015
CTS3.0 Software	California Instruments	N/A	SEL0087	N/A	N/A

2 TEST CONFIGURATION

2.1 Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

2.2 EUT Exercise Software

The EUT exercising program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The software offered by manufacture, can let the EUT being normal operation.

2.3 Special Accessories

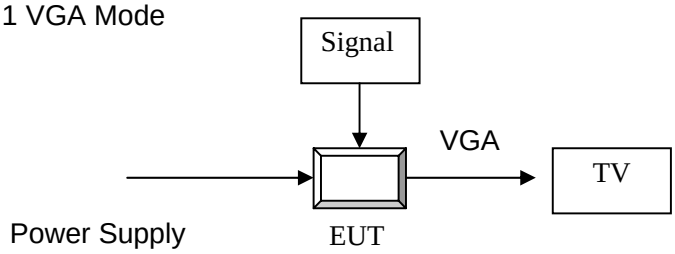
As shown in section 2.5, interface cable used for compliance testing is shielded as normally supplied by **NUUO INC.** and its respective support equipment manufacturers.

2.4 Equipment Modifications

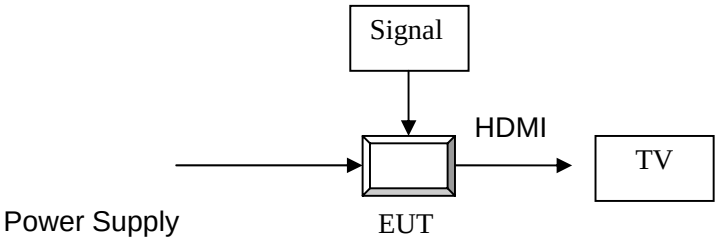
The EUT tested was not modified by EST.

2.5 Basic Test Setup Block Diagram

2.5.1 VGA Mode



2.5.2 HDMI Mode



3 DISTURBANCE VOLTAGE AT THE MAINS TERMINALS

3.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ±2.4 dB.

3.2 Limit of Disturbance Voltage at The Mains Terminals (FCC PART15 Subpart B Class B)

Frequency Range (MHz)	Limits (dBuV)	
	Quasi-Peak	Average
0.150～0.500	66-56	56-46
0.500-5.000	56	46
5.000～30.00	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

3.3 EUT Setup

The setup of EUT is according with ANSI C63.4-2009 measurement procedure. The specification used was the FCC Rules and Regulations Part 15 Subpart B limits.

The EUT was placed center and the back edge of the test table.

The AV cables were draped along the test table and bundled to 30-40cm in the middle.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

3.4 Instrument Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range……150 KHz to 30 MHz
Detector……Peak & Quasi-Peak & Average
Sweep Speed……Auto
IF Band Width……9 KHz

3.5 Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the peak detection mode. Quasi-peak and Average readings were only performed when an emission was found to be marginal (within -10 dBμV of specification limits). Quasi-peak readings are distinguished with a "**QP**". Average readings are distinguished with a "**AV**".

3.6 Disturbance Voltage Test Data

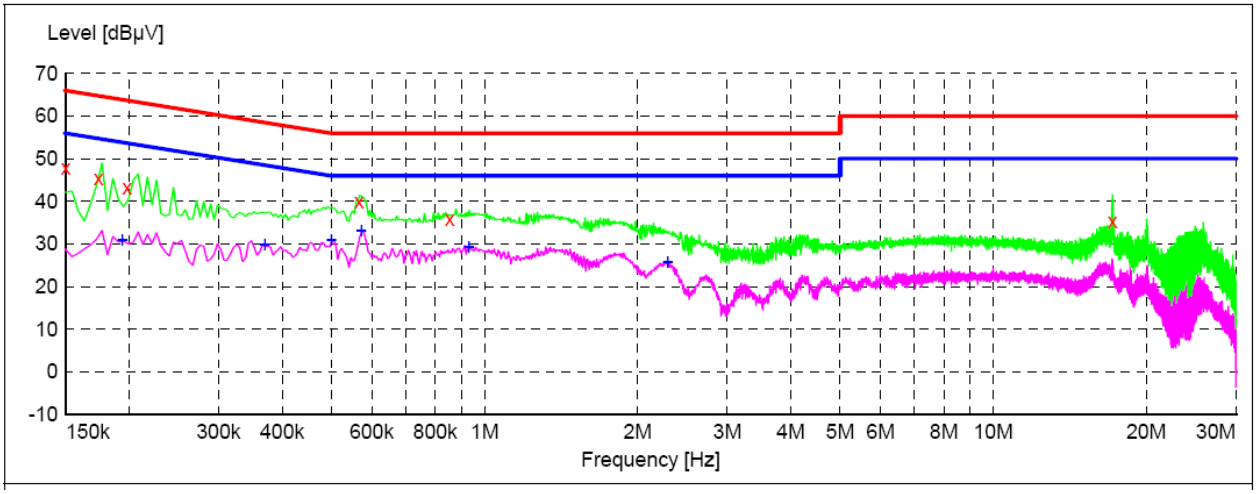
Temperature (℃)	26
Humidity (%RH)	58
Barometric Pressure (mbar)	1001.1
EUT	Network Video Recorder
M/N	NVC-2080
Operating Mode	ON
Test Result	Pass

Test data see following pages.

Remark: (1) When PK reading is less than relevant limit 20dB, the QP reading and AV reading will not be recorded.
(2) Where QP reading is less than relevant AV limit, the AV reading will not be measured

Conduction Emission Test Data	
EUT	Network Video Recorder
M/N	NVC-2080
Operating Condition	ON
Test Site	Shielding Room
Operator	HAPPY
Test Specification	AC 120V, 60Hz

SCAN TABLE: "Voltage (9K-30M) FIN"
Short Description: 150K-30M Voltage

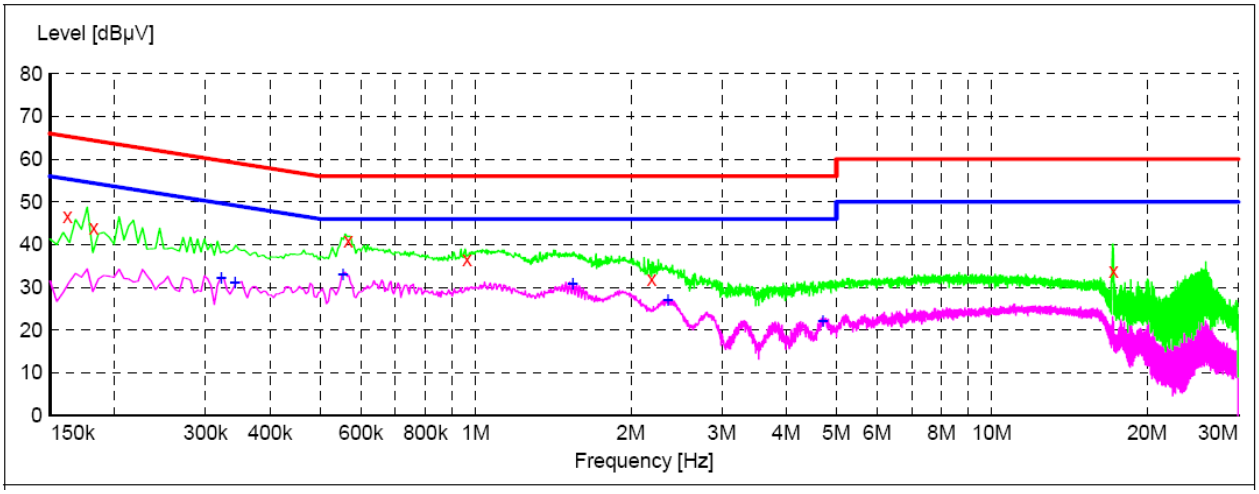


Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	47.80	10.2	66	18.2	QP	L1	GND
0.174000	45.30	10.2	65	19.5	QP	L1	GND
0.198000	43.10	10.2	64	20.6	QP	L1	GND
0.566000	40.00	10.2	56	16.0	QP	L1	GND
0.854000	35.70	10.2	56	20.3	QP	L1	GND
17.150000	35.40	10.8	60	24.6	QP	L1	GND

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.194000	30.80	10.2	54	23.1	AV	L1	GND
0.370000	29.90	10.2	49	18.6	AV	L1	GND
0.500000	30.80	10.2	46	15.2	AV	L1	GND
0.572000	33.10	10.2	46	12.9	AV	L1	GND
0.932000	29.30	10.3	46	16.7	AV	L1	GND
2.288000	25.80	10.4	46	20.2	AV	L1	GND

Conduction Emission Test Data	
EUT	Network Video Recorder
M/N	NVC-2080
Operating Condition	ON
Test Site	Shielding Room
Operator	HAPPY
Test Specification	AC 120V, 60Hz

SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.162000	46.60	10.2	65	18.8	QP	N	GND
0.182000	43.80	10.2	64	20.6	QP	N	GND
0.566000	40.80	10.2	56	15.2	QP	N	GND
0.962000	36.60	10.3	56	19.4	QP	N	GND
2.192000	32.00	10.4	56	24.0	QP	N	GND
17.192000	33.70	10.8	60	26.3	QP	N	GND

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.322000	32.30	10.2	50	17.4	AV	N	GND
0.342000	31.10	10.2	49	18.1	AV	N	GND
0.554000	33.00	10.2	46	13.0	AV	N	GND
1.544000	30.90	10.3	46	15.1	AV	N	GND
2.360000	27.10	10.4	46	18.9	AV	N	GND
4.712000	22.10	10.4	46	23.9	AV	N	GND

4 RADIATED DISTURBANCES

4.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ±4.0 dB.

4.2 Limit of Radiated Disturbances (Subpart B Class B)

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dBμV/m)
30 ~ 88	3	40
88 ~216	3	43.5
216 ~ 960	3	46
960~1000	3	49.5

Note: (1) The tighter limit shall apply at the edge between two frequency bands.
(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

4.3 EUT Setup

The radiated emission tests were performed in the in the 3-meter anechoic chamber, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC Part 15 Subpart B limits.

The EUT was placed on the center of the test table.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

4.4 Test Receiver Setup

According to FCC Part 15 rule, the frequency was investigated from 30 to 1000 MHz. During the radiated emission test, the test receiver was set with the following configurations:

Test Receiver Setting:

Detector……..Peak & Quasi-Peak
IF Band Width……120 KHz
Frequency Range……30MHz to 1000MHz
Turntable Rotated……0 to 360 degrees

Antenna Position:

Height……1m to 4m
Polarity……....Horizontal and Vertical

4.5 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the peak detection mode. Quasi-peak readings performed only when an emission was found to be marginal (within -10 dBμV of specification limits), and are distinguished with a "**QP**" in the data table.

4.6 Radiated Emissions Test Result

Temperature (℃)	26
Humidity (%RH)	56
Barometric Pressure (mbar)	1001.1
EUT	Network Video Recorder
M/N	NVC-2080
Operating Mode	VGA & HDMI Mode
Test Result	Pass

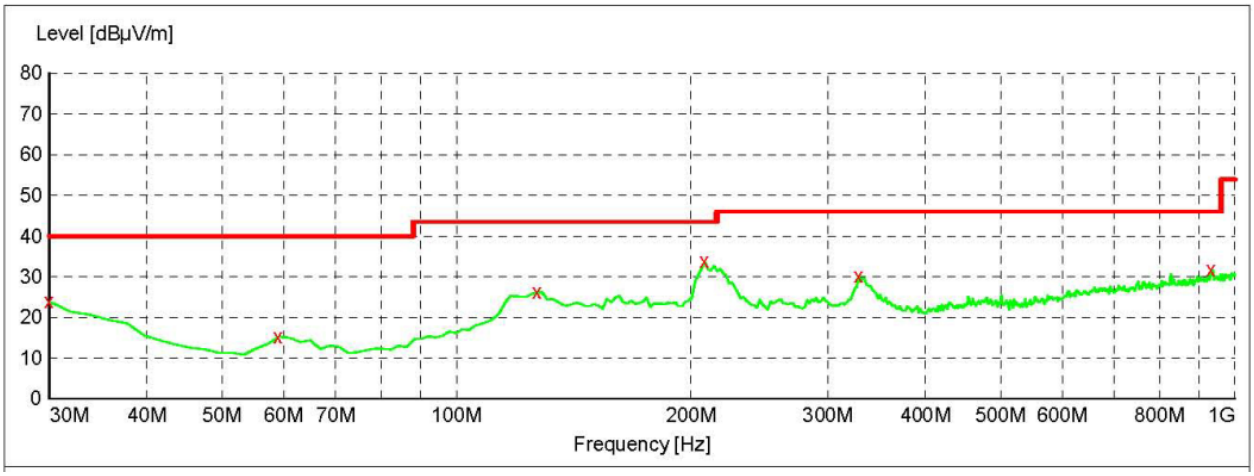
Test data see following pages.

Remark: (1) When PK reading is less than relevant limit 20dB, the QP reading and AV reading will not be recorded.
(2) Where QP reading is less than relevant AV limit, the AV reading will not be measured

Radiated Emission Test Data	
EUT	Network Video Recorder
M/N	NVC-2080
Operating Condition	VGA Mode
Test Site	3m Chamber
Operator	SAM
Test Specification	AC 120V, 60Hz

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	JB1



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	23.90	21.1	40.0	16.1	---	0.0	0.00	HORIZONTAL
59.100000	15.20	8.3	40.0	24.8	---	0.0	0.00	HORIZONTAL
127.000000	26.20	15.0	43.5	17.3	---	0.0	0.00	HORIZONTAL
208.480000	33.80	14.3	43.5	9.7	---	0.0	0.00	HORIZONTAL
328.760000	30.20	16.2	46.0	15.8	---	0.0	0.00	HORIZONTAL
932.100000	31.80	26.4	46.0	14.2	---	0.0	0.00	HORIZONTAL

Radiated Emission Test Data	
EUT	Network Video Recorder
M/N	NVC-2080
Operating Condition	VGA Mode
Test Site	3m Chamber
Operator	SAM
Test Specification	AC 120V, 60Hz

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
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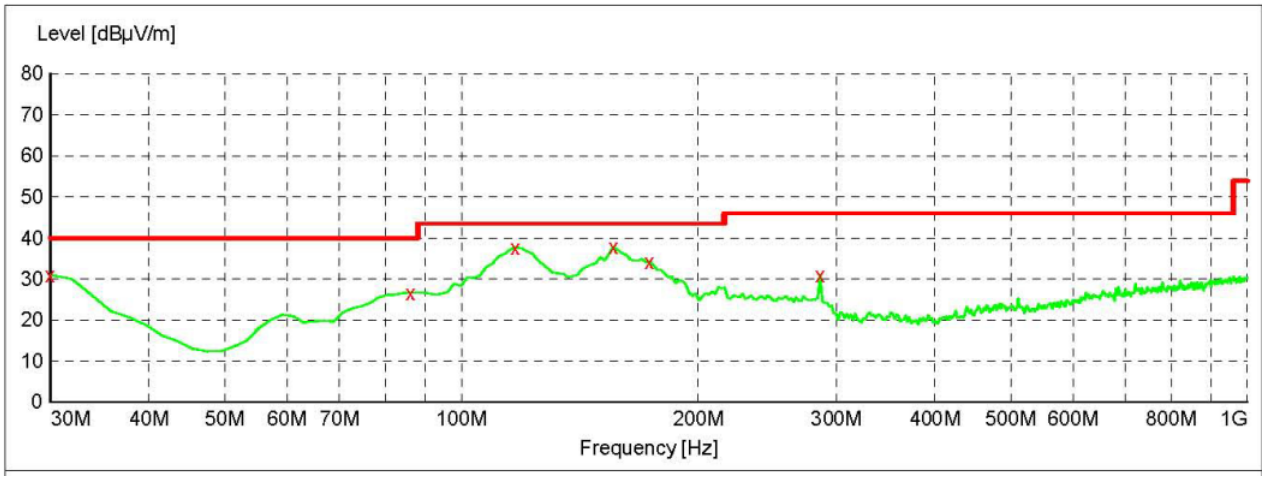
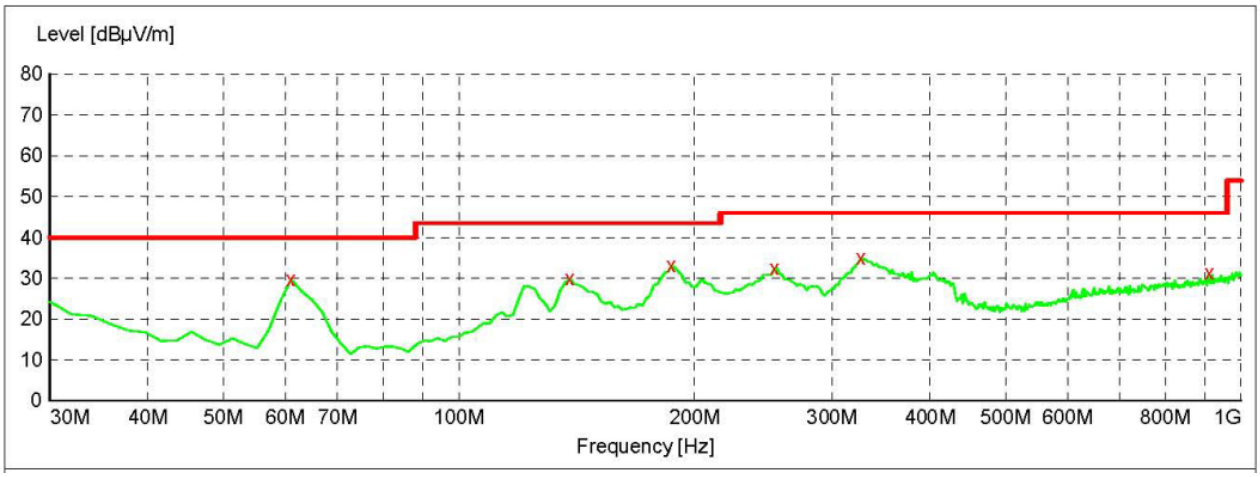


Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	31.00	21.1	40.0	9.0	---	0.0	0.00	VERTICAL
86.260000	26.60	9.3	40.0	13.4	---	0.0	0.00	VERTICAL
117.300000	37.70	15.1	43.5	5.8	---	0.0	0.00	VERTICAL
156.100000	37.80	14.0	43.5	5.7	---	0.0	0.00	VERTICAL
173.560000	34.20	13.3	43.5	9.3	---	0.0	0.00	VERTICAL
286.080000	31.00	15.4	46.0	15.0	---	0.0	0.00	VERTICAL

Radiated Emission Test Data	
EUT	Network Video Recorder
M/N	NVC-2080
Operating Condition	HDMI Mode
Test Site	3m Chamber
Operator	SAM
Test Specification	AC 120V, 60Hz

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	JB1

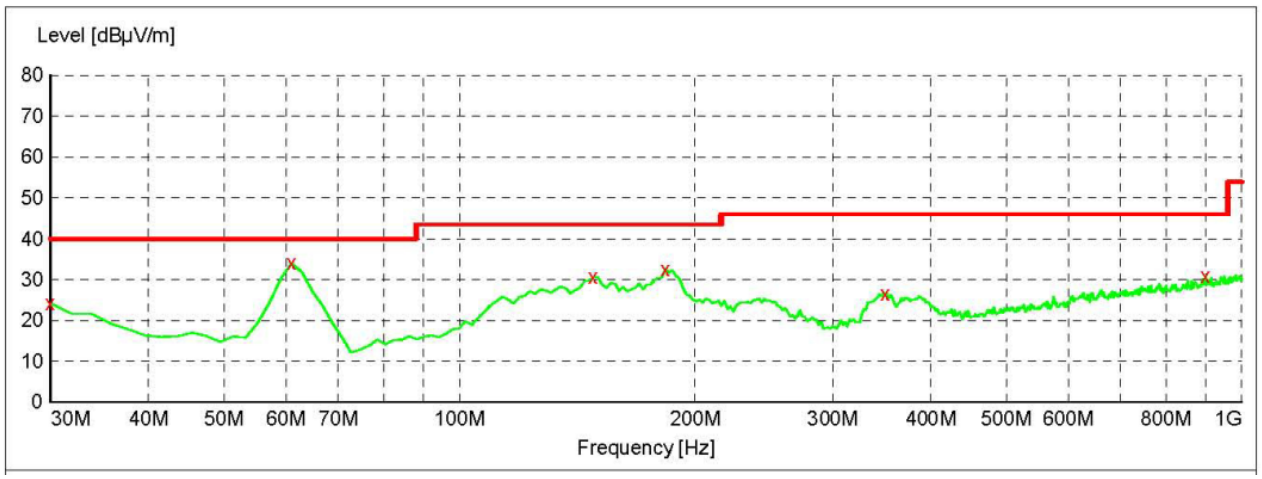


Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
61.040000	29.70	8.4	40.0	10.3	---	0.0	0.00	HORIZONTAL
138.640000	29.90	14.7	43.5	13.6	---	0.0	0.00	HORIZONTAL
187.140000	33.10	13.4	43.5	10.4	---	0.0	0.00	HORIZONTAL
253.100000	32.50	14.4	46.0	13.5	---	0.0	0.00	HORIZONTAL
326.820000	35.00	16.2	46.0	11.0	---	0.0	0.00	HORIZONTAL
910.760000	31.30	26.2	46.0	14.7	---	0.0	0.00	HORIZONTAL

Radiated Emission Test Data	
EUT	Network Video Recorder
M/N	NVC-2080
Operating Condition	HDMI Mode
Test Site	3m Chamber
Operator	SAM
Test Specification	AC 120V, 60Hz

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	JB1



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	24.20	21.1	40.0	15.8	---	0.0	0.00	VERTICAL
61.040000	34.10	8.4	40.0	5.9	---	0.0	0.00	VERTICAL
148.340000	30.60	14.2	43.5	12.9	---	0.0	0.00	VERTICAL
183.260000	32.60	13.3	43.5	10.9	---	0.0	0.00	VERTICAL
350.100000	26.60	16.9	46.0	19.4	---	0.0	0.00	VERTICAL
899.120000	30.90	26.1	46.0	15.1	---	0.0	0.00	VERTICAL

APPENDIX A. EUT PHOTOGRAPHS

EUT - Front View

EUT - Back View

EUT - Inside View

EUT - Inside View

EUT - Inside View

EUT - Inside View

APPENDIX B - TEST SETUP PHOTOGRAPHS

Conducted Emission

Radiated Emission