TEST REPORT

This laboratory is accredited by National Radio Research Agency Laboratory and National Voluntary Laboratory Accreditation Program.
The tests reported herein have been performed in accordance with its terms of accreditation.

Test Report No.	**:**	**LR500112001I**
Issue Date	**:**	**January 20, 2020**
Applied Standard	**:**	**FCC Part 15, Subpart B and ICES-003**
Trade Name	**:**	**Hanwha Techwin Co., Ltd.**
Equipment Name	**:**	**NVR**
Model Name	**:**	**QRN-1620S**
Serial Number	**:**	**Identification**

Revision history

Revision	Date of issue	Test report No.	Description
0	20.01.2020	LR500112001I	Initial

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LTA Certification

Applicant / Manufacture

Company name	:	Hanwha Techwin Co., Ltd.
Address	:	6, Pangyo-ro 319beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do
Telephone / Facsimile	:	+82-70-7147-8361 / -

Factory #1

Company name	:	Hanwha Techwin(Tianjin) Co., Ltd.
Address	:	No.11 Weiliu Rd,Micro-Electronic Industrial Park,TEDA,Tianjin,300385,People's Republic of China

Factory #2

Company name	:	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.
Address	:	Lot O-2, Que Vo Industrial Zone extended area ,Nam Son commune, Bac Ninh city,Bac Ninh province, Vietnam

Factory #3

Company name	:	D-TECH CO.,LTD.
Address	:	173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, Korea (Suwon Industrial Complex)

Equipment Under Test (EUT)

Equipment Name	:	NVR
Model name	:	QRN-1620S
Serial number	:	Identification
Intended environment	:	Industrial area
Date of receipt	:	December 30, 2019
EUT condition	:	Pre-production, not damaged
Interface ports	:	DC IN, GND, VIWER, HDMI, VGA, USB, PoE CAMERA, HDD, ALARM IN, ALARM OUT, AUDIO OUT
Power rating	:	AC 120 V, 60 Hz
Test Mode	:	REC mode
Test Voltage	:	AC 120 V, 60 Hz

Model Description

- NONE

Model Specification

- NONE

*** To be continued next page ***

LTA Certification –cont.-

Test Performed

Test started & completed	:	January 13 - 17, 2020
Location	:	LTA Co., Ltd.

Test Specification

Purpose of the test	:	Compliance test to the following standard
Applied standard	:	FCC Part 15, Subpart B and ICES-003
Classification	:	Class A
Deviations from Standard Test Method	:	N/A

Test Results

Measurement	Results*	Test method
Conducted disturbance	Complies	ANSI C 63.4-2014
Radiated disturbance	Complies	ANSI C 63.4-2014

* : The compliance statement is based on nominal value only.

Modification performed by the lab.;

- N.A

Laboratory's Certificate

Report number	:	LR500112001I
Issue date	:	January 20, 2020

This test report is issued under the authority of:

Young Kyu Shin, Technical Manager

The test was supervised by:

Jun Hwan Park, Test Engineer

The results in this report apply only to the sample(s) tested.

It is not allowed to copy this report even partly without the allowance of the test laboratory.

General information's

Purpose

This document is based on the Electromagnetic Interference (EMI) tests performed on the **"QRN-1620S"**. The measurements were performed according to the measurement procedure described in ANSI C 63.4-2014.The tests were carried out in order to confirm whether the electromagnetic emissions from the EUT(Equipment Under Test), are within the Class A limits defined in FCC Part 15, Subpart B- "Section 15.107- Conducted limits" and "Section 15.109-Radiated emission limits".

Test Performed

Company name	:	**LTA Co., Ltd**
Address	:	4, Songju-ro 236beon-gil, Yangji-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do, 17159, Korea
Telephone	:	+82-31-323-6008
Facsimile		+82-31-323-6010

Measurement uncertainty

Conducted disturbance	(0.15 to 30 MHz) :	±2.80 [dB] (k=2)	
Radiated disturbance	(30 to 1,000 MHz) :	H : ±4.84 [dB] (k=2)	V : ±4.92 [dB] (k=2)
	(1 GHz to 6 GHz) :	H : ±5.97 [dB] (k=2)	V : ±5.96 [dB] (k=2)
	(6 GHz to 18 GHz) :	H : ±6.20 [dB] (k=2)	V : ±6.20 [dB] (k=2)

The coverage factor k=2 yields approx. a 95% level of confidence for near-normal distribution typical of most measurement results.

Accredited agencies

LTA Co., Ltd. Is approved to perform EMC testing by the following agencies:

Agency	Country	Accreditation No.	Validity	Reference
NVLAP	U.S.A	200723-0	2020-09-30	ECT accredited Lab.
RRA	KOREA	KR0049	-	EMC accredited Lab.
FCC	U.S.A	649054	2021-04-11	FCC CAB
VCCI	JAPAN	C-4948, T-2416, R-4483(10 m), G-10847	2020-09-10 2020-09-10 2020-10-15 2022-06-13	VCCI registration
IC	CANADA	5799A	2021-06-16	IC filing
KOLAS	KOREA	NO.KT551	2021-08-20	KOLAS accredited Lab.

1- Brief Information

1-1 Test Summary

Parameter	Applied Standard	Status (note 1)
I. Emission		
Conducted disturbance	FCC Part 15.107 / ICES-003 Clause 6.1	C
Radiated disturbance	FCC Part 15.109 / ICES-003 Clause 6.2	C
Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable * The data in this test report are traceable to the national or international standards.		

Frequency range to be scanned:

0.15 MHz - 30 MHz as conducted measurement

30 MHz to 5th harmonic of the highest frequency or 40 GHz, whichever is lower as radiated measurement.

Bandwidth:

Measured by the CISPR quasi-peak function Bandwidth is 9 kHz in the frequency 0.15 MHz to 30 MHz and 120 kHz in the frequency 30 MHz to 1,000 MHz.

Measured by the Peak function Bandwidth is 1 MHz in the frequency 1 GHz to 40 GHz.

A sample calculation:

COR. F (correction factor)= Antenna factor + Cable loss- Amp.gain- Distance correction

Emission Level= meter reading + COR.F

1-2 Test mode of the EUT

The tests have been conducted with the following operational mode(s) of the EUT.

REC mode

1-3 Modification

- NONE

1-4 List of EUT and accessory

EUT				
Equipment Name	**Model Name**	**Serial No.**	**Manufacturer**	**Remarks**
NVR	**QRN-1620S**	**N/A**	**Hanwha Techwin(Tianjin) Co., Ltd. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD. D-TECH CO.,LTD.**	-
Mouse	**MOKJUO**	**N/A**	**Primax Electronics Ltd.**	-
Remote Controller	**N/A**	**N/A**	**N/A**	-
ACCESSORY				
Equipment Name	**Model Name**	**Serial No.**	**Manufacturer**	**Remarks**
Notebook	P56	N/A	HANSUNG	-
Notebook Adapter	A10-090P3A	N/A	Chicony	-
Network Camera	QNV-6032R	N/A	HANWHA TECHWIN(TIANJIN) CO., LTD	-
Smart Phone	IM-A900S	N/A	PANTECH	-
Monitor #1	24MA53D	N/A	LG	-
Monitor #1 Adapter	A11-120P1A	N/A	Chicony	-
Monitor #2	24BK550YW	902NTFA7P563	LG	-
IP Router #1	X5007	N/A	IPTIME	-
IP Router #1 Adapter	RS-AB02J00-K	N/A	Dongguan Jinhuasheng Power Technology Co., Ltd	-
IP Router #2	H608	N/A	IPTIME	-
IP Router #2 Adapter	DCP015A050600K	N/A	ZIONCOM (VIETNAM) Co., LTD	-
Speaker	N/A	N/A	N/A	-
Door Sensor	N/A	N/A	N/A	-
Alarm	DS-360	N/A	DMCALL	-
USB Memory Stick	Ultra Flair CZ73	N/A	SanDisk	16 GB
HDD	771945	WCC4MOLLX NEJ	Western Digital	2 TB

1-5 Cable List

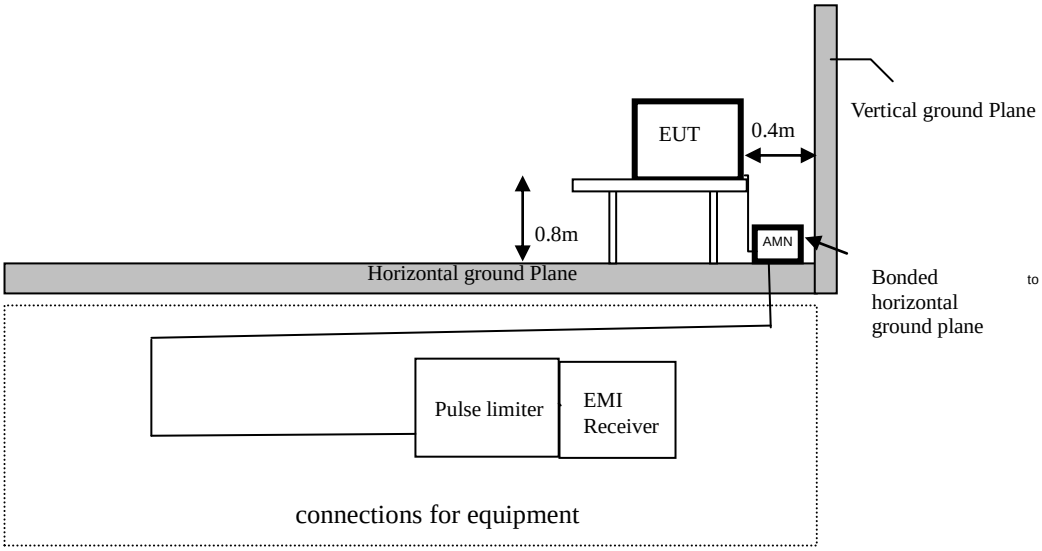
Cable List						
From		To		Length	Shielding	
Type	I/O Port	Type	I/O Port	(m)	Cable	backshell
EUT	AC IN	AC Power Source	3 Pin AC Line	1.5	NO	Plastic
	GND	GND	-	1.0	NO	-
	VIWER	Notebook	LAN	3.0	YES	Plastic
	HDMI	Monitor #1	HDMI	1.5	YES	Plastic
	VGA	Monitor #2	VGA	1.4	YES	Plastic
	USB #1	USB Memory Stick	-	-	-	Metal
	USB #2	Mouse	-	1.0	NO	Plastic
	HDD	HDD	-	-	-	-
	PoE CAMERA #1	Network Camera	PoE	3.0	YES	Plastic
	PoE CAMERA #2 ~ #8	IP Router #1	LAN	1.0	YES	Plastic
	PoE CAMERA #9 ~ #16	IP Router #2	LAN	1.0	YES	Plastic
	ALARM IN #1 ~ #4	Door Sensor	ALARM OUT	3.0	NO	Plastic
	ALARM OUT #1, #2	Alarm	ALARM IN	3.0	NO	Plastic
	AUDIO OUT	Speaker	AUDIO IN	1.0	NO	Plastic
Network Camera	AUDIO IN	Smart Phone	AUX	1.0	NO	Plastic
Remote Controller	DC IN	Battery	DC OUT	-	-	-
Smart Phone	DC IN	Battery	DC OUT	-	-	-
Alarm	DC IN	Battery	DC OUT	-	-	-
Monitor #1	DC IN	Monitor #1 Adapter	DC OUT	1.4	NO	Plastic
Notebook	DC IN	Notebook Adapter	DC OUT	1.3	NO	Plastic
IP Router #1	DC IN	IP Router Adapter #1	DC OUT	2.0	NO	Plastic
IP Router #2	DC IN	IP Router Adapter #2	DC OUT	1.5	NO	Plastic
Monitor #1 Adapter	AC IN	AC Power Source	3 Pin AC Line	1.5	NO	Plastic
Monitor #2	AC IN	AC Power Source	3 Pin AC Line	1.5	NO	Plastic
Notebook Adapter	AC IN	AC Power Source	3 Pin AC Line	1.0	NO	Plastic
IP Router #1 Adapter	AC IN	AC Power Source	2 Pin AC Line	-	-	-
IP Router #2 Adapter	AC IN	AC Power Source	2 Pin AC Line	-	-	-

2- Test Site Description

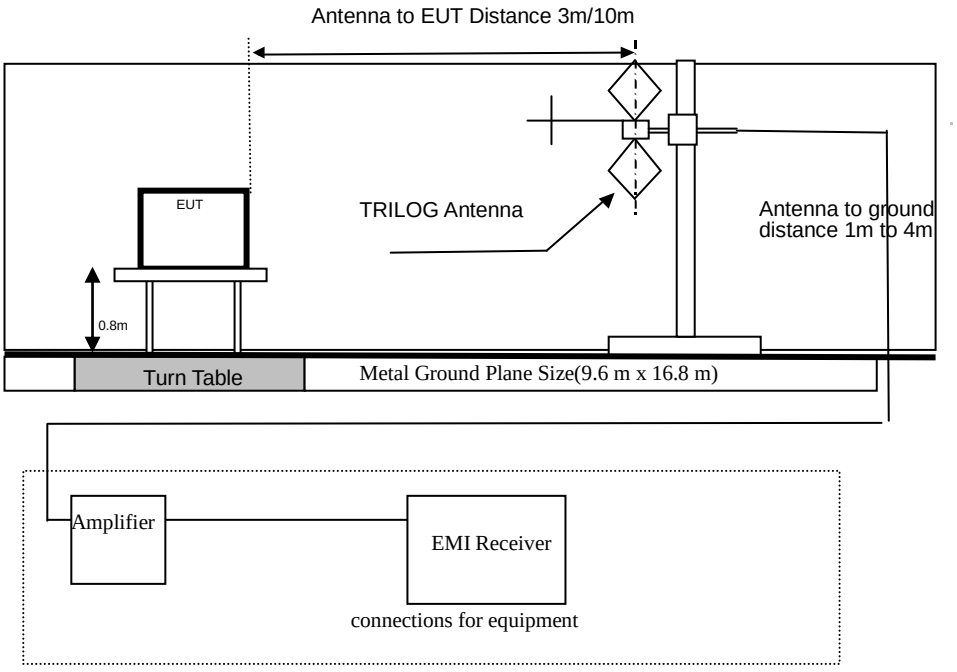
1-Facility

All the testing facilities are periodically serviced as a daily check for equipment and cables systems, an every 6 months facility check for the facilities and a monthly check and annual calibration for testing equipment according to ISO/IEC 17025. All the testing facilities are used as the same specifications shown below. There are descriptions both for radiated disturbance measurement and conducted disturbance measurement conformed by ANSI C 63.4-2014.
The NSA measurement of the 10 m chamber was performed on February 05, 2018 according to ANSI C 63.4:2014
The SVSWR measurement of the 10 m chamber was performed on February 03, 2018 according to ANSI C 63.4:2014

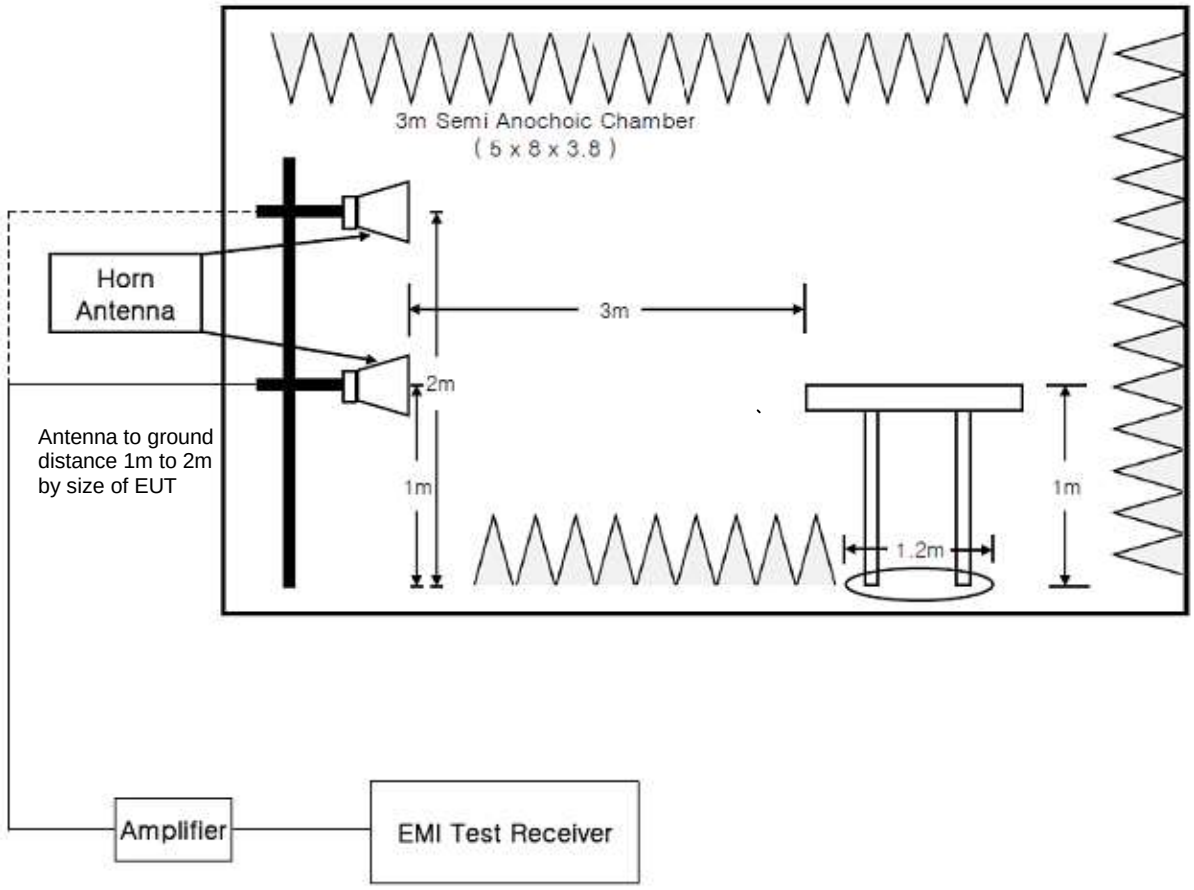
2-1 Conducted Disturbance Measurement



2-2 Radiated Disturbance Measurement – Below 1 GHz



2-3 Radiated Disturbance Measurement – Above 1 GHz



3- Test Procedure

3-1 Conducted Disturbance Measurements

- The measurement is carried out on an open site with horizontal and metallic ground plane.
- An AMN(Artificial Mains Network) with a nominal impedance (50 Ω/50 μH) as defined in ANSI C 63.4-2014., shall be utilized.
- The AMN is grounded on a horizontal metal ground plane.
- Measurement is carried out using an EMI receiver with quasi-peak detectors and average detector. (Refer to the List of test equipment used for the test.)
- The shortest distance between the EUT and the AMN is 0.8 m.
- The EUT is placed on the non-conducting table with 0.8 m height.
- A remote switch is used for changing phases between Line (L) and Neutral (N).
- Refer to "Brief Information"(page 7-9) about details of the EUT and configuration of the cables.

- Measurement is carried out as manual operation.

-detecting the maximized emission level using the maxhold function after setting the spectrum analyzer bandwidth 1 kHz and the frequency range from 150 kHz to 1 MHz , 1 MHz to 5 MHz and 5 MHz to 30 MHz.

–searching the maximum frequency point of the disturbance wave in each frequency range.

–reading the disturbance level of quasi-peak, average and Line (L) and Neutral (N) in 9 kHz bandwidth by the EMI receiver.

–calculating the measurement result with the following formula or equation.

(Result = Reading + Cor.F.(LISN Factor + Cable Loss + Pulse Limiter)

(ex) = 13.23 dBμV + (9.63 dB + 0.01 dB + 9.86 dB)

= 32.73 dBμV

3-2 Radiated Disturbance Measurements – Below 1 GHz

- Test site is met the requirements of ANSI C 63.4-2014 and the distance between the EUT and the antenna is adjusted 3 m/10 m.
- The turntable can be rotated 360 degrees.
- The antenna can be adjusted between 1m and 4m in height above the ground.
- The EUT is placed on the non-conducting table with 0.8 m height on the turntable.
- Measurements are carried out using a EMI test receiver with peak detectors (100 kHz bandwidth) and an EMI receiver with quasi-peak detectors (120 kHz bandwidth).
- Refer to the list of test equipment used for the test.
- TRILOG antenna are used as wideband antenna.
- The TRILOG antenna is used in the frequency range of 30 MHz to 1 000 MHz.
- A variable attenuator is used for verifying amplifier's linearity.
- Rotating the turntable and adjusting the height of the antenna are carried out by control buttons on the console.
- Refer to "Brief Information"(page 7-9) about details of the EUT and configuration of the cables.

- Measurement is carried out by a LTA operator as manual operation.

–searching for some of High disturbance frequency points than the other points with the following settings; bandwidth 100 kHz, frequency range 10 MHz between 30 MHz and 300 MHz and frequency range 50 MHz between 300 MHz and 1 GHz.

–searching the worst direction with the maximum level of the disturbance wave in rotating the turntable 360 degrees at each searched frequency point.

–setting the height of the antenna with the maximum level of the disturbance wave from 1m to 4m.

–reading the disturbance level by the EMI receiver with quasi-peak detectors (120 kHz bandwidth) according to ANSI C 63.4-2014.

–measuring to vertical and horizontal polarization.

–calculating the measurement result with the following formula or equation:

(Result = Reading +Cor.F (antenna factor + cable loss – PreAmp Gain)

(ex) = 50.6 dBμV/m + (11.08 dB(1/m) + 1.31 dB -27.32 dB)

= 35.67 dBμV/m

3-3 Radiated Disturbance Measurements – Above 1 GHz

・Test site is met the requirements of ANSI C 63.4-2014 and the distance between the EUT and the antenna is adjusted 3 m.

・The turntable can be rotated 360 degrees.

・The antenna can be adjusted between 1m and 4 m in height above the ground.

・The EUT is placed on the non-conducting table with 1 m height on the turntable.

・Measurements are carried out using a EMI test receiver with peak detectors (1 MHz bandwidth) and an EMI receiver with peak and average detectors(1 MHz bandwidth).

・Refer to the list of test equipment used for the test.

・HORN antenna are used as wideband antenna.

・The HORN antenna is used in the frequency range of 1 GHz to 18 GHz.

・A variable attenuator is used for verifying amplifier's linearity.

・Rotating the turntable and adjusting the height of the antenna are carried out by control buttons on the console.

・Refer to "Brief Information"(page 7-9) about details of the EUT and configuration of the cables.

・Measurement is carried out by a LTA operator as manual operation.

–searching the worst direction with the maximum level of the disturbance wave in rotating the turntable 360 degrees at each searched frequency point.

–setting the height of the antenna with the maximum level of the disturbance wave from 1 m to 4 m

–reading the disturbance level by the EMI receiver with peak and average detectors (1 MHz bandwidth) according to ANSI C 63.4-2014.

–measuring to vertical and horizontal polarization.

–calculating the measurement result with the following formula or equation:

(Result = Reading +Cor.F (antenna factor + cable loss – PreAmp Gain)

(ex) = 35.9 dBμV/m + (23.92 dB(1/m) + 7.01 dB - 38.33 dB)

= 28.5 dBμV/m

4- List of Equipment Used For the Tests

Conducted emissions

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESR	Rohde & Schwarz	101499	2020.07.04	1 year
☒	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	100710	2020.03.16	1 year
☐	LISN	ESH3-Z6	Rohde & Schwarz	100378	2020.09.05	1 year
☐	LISN	ESH3-Z6	Rohde & Schwarz	101468	2020.09.05	1 year
☒	LISN(main)	ENV216	Rohde & Schwarz	101222	2020.09.06	1 year
☒	LISN(sub)	LT32C/10	AFJ	32031518210	2020.09.05	1 year
☒	TEST PROGRAM	e3_ce 20181212a (V9)	AUDIX	-	-	-

Radiated Emission – Below 1 GHz

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESU	Rohde & Schwarz	100092	2020.09.05	1 year
☒	Amplifier (25 ㏈)	8447D	HP	2944A07684	2020.03.16	1 year
☐	BILOG Antenna	VULB 9168	SCHWARZBECK	775	2021.03.26 (KOLAS)	2 year
☒	BILOG Antenna	VULB 9168	SCHWARZBECK	775	2021.11.12 (RRA)	2 year
☒	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-

Radiated Emission – Above 1 GHz

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESU	Rohde & Schwarz	100092	2020.09.05	1 year
☒	Amplifier	8449B	HP	3008A00671	2020.09.05	1 year
☐	Amplifier	PAM-840A	COM-POWER	461314	2020.03.18	2 year
☐	HORN ANTENNA	3116B	ETS	133350	2020.05.10	2 year
☐	HORN ANTENNA	3116B	ETS	81109	2020.05.10	2 year
☐	HORN ANTENNA	3115	ETS	114105	2021.09.17 (KOLAS)	2 year
☒	HORN ANTENNA	3115	ETS	114105	2021.11.11 (RRA)	2 year
☒	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-

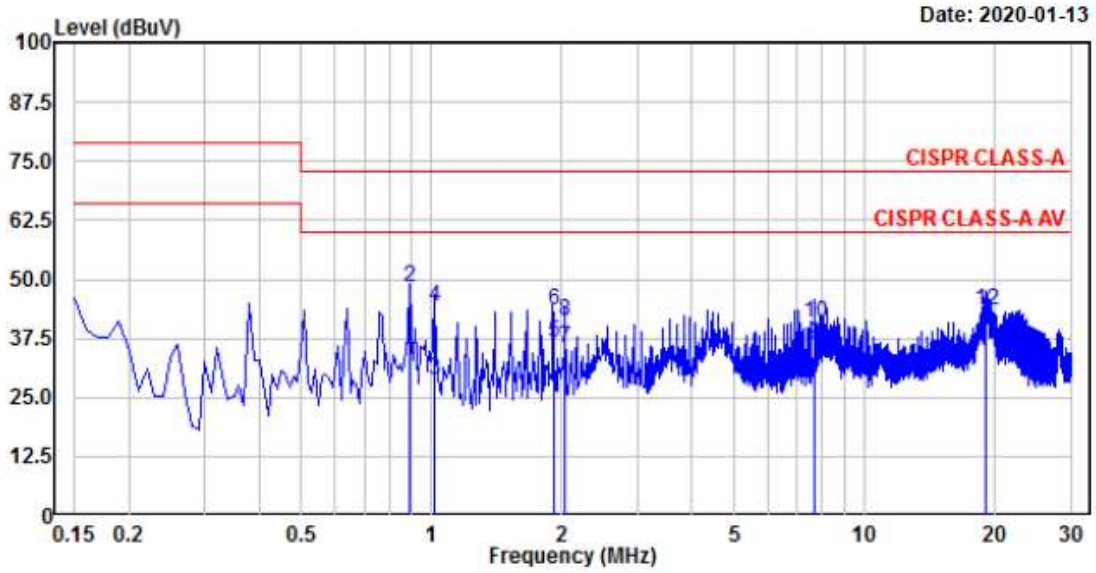
5- EMISSION

5-1 Conducted Disturbance Measurements

(LINE)

4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel:+82-31-3236008,9
Fax:+82-31-3236010

EUT /Model No.	: QRN-1620S	Phase	: Line
Test Mode	: REC mode	Test Power	: 120 V / 60 Hz
Temp./ Humi.	: 21 'C / 36 % R.H.	Test Engineer	: PARK J H



No.	Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV	Phase
	MHz	dBµV	dBµV	dB	dBµV	dBµV	dBµV	dBµV	dB	dB	
2.	0.891	28.60	13.27	19.53	48.13	32.80	73.00	60.00	24.87	27.20	Line
4.	1.020	24.59	9.19	19.54	44.13	28.73	73.00	60.00	28.87	31.27	Line
6.	1.913	23.74	17.21	19.56	43.30	36.77	73.00	60.00	29.70	23.23	Line
8.	2.039	21.71	15.83	19.56	41.27	35.39	73.00	60.00	31.73	24.61	Line
10.	7.651	21.04	16.36	19.79	40.83	36.15	73.00	60.00	32.17	23.85	Line
12.	19.112	23.28	14.72	20.07	43.35	34.79	73.00	60.00	29.65	25.21	Line

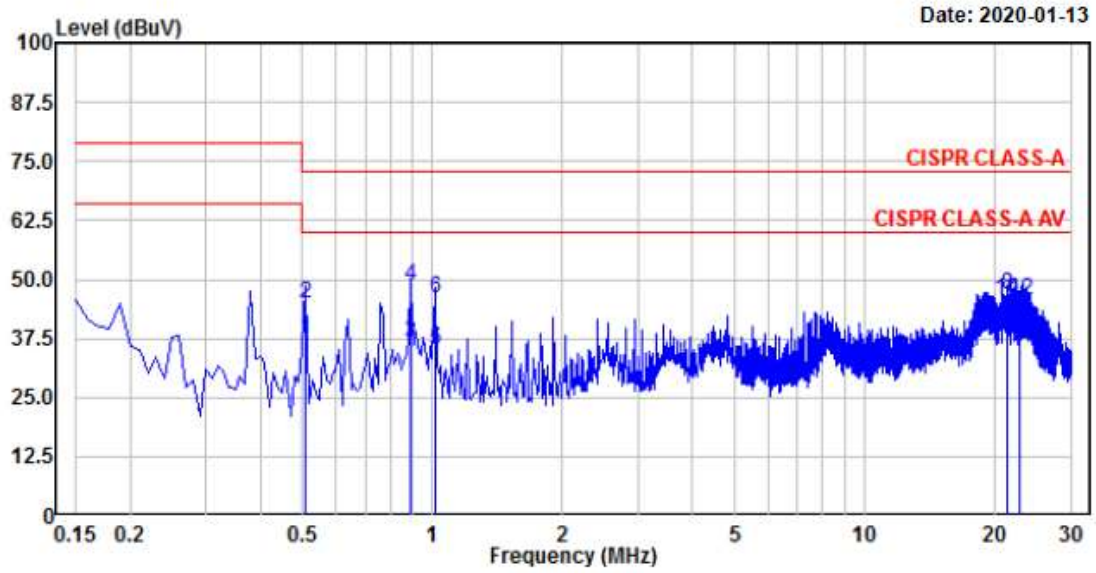
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

-Continue

(NEUTRAL)

4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel:+82-31-3236008,9
Fax:+82-31-3236010

EUT /Model No.	: QRN-1620S	Phase	: Neutral
Test Mode	: REC mode	Test Power	: 120 V / 60 Hz
Temp./ Humi.	: 21 'C / 36 % R.H.	Test Engineer	: PARK J H



No.	Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV	Phase
	MHz	dBµV	dBµV	dB	dBµV	dBµV	dBµV	dBµV	dB	dB	
2.	0.509	25.36	17.86	19.54	44.90	37.40	73.00	60.00	28.10	22.60	neutral
4.	0.892	29.08	17.09	19.57	48.65	36.66	73.00	60.00	24.35	23.34	neutral
6.	1.019	26.33	15.60	19.58	45.91	35.18	73.00	60.00	27.09	24.82	neutral
8.	21.270	26.74	21.53	20.18	46.92	41.71	73.00	60.00	26.08	18.29	neutral
10.	21.271	25.44	19.88	20.18	45.62	40.06	73.00	60.00	27.38	19.94	neutral
12.	22.794	25.55	20.51	20.23	45.78	40.74	73.00	60.00	27.22	19.26	neutral

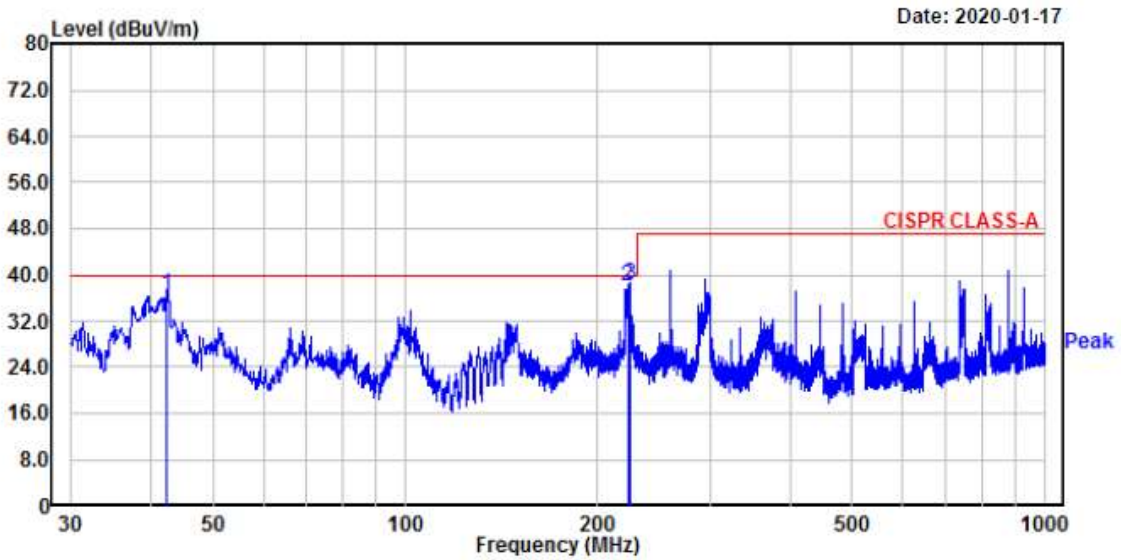
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

5-2 Radiated Disturbance Measurements

(Below 1GHz) / V

4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
Tel : +82-31-3236008,9
Fax : +82-31-3236010
www.ltalab.com

EUT/Model No.: QRN-1620S Temp/Humi: 22 'C / 38 % R.H.
Test Mode : REC mode Tested by: PARJ J H
Power : 120 V / 60 Hz



No.	Freq	Reading	C.F	Result QP	Limit	Margin	Height	Angle	Polarity
	MHz	dBµV	dB	dBµV/m	dBµV/m	dB	cm	deg	
1.	42.25	49.81	-13.40	36.41	40.00	3.59	100	116	vertical
2.	222.67	51.95	-13.91	38.04	40.00	1.96	100	174	vertical
3.	224.12	52.15	-13.84	38.31	40.00	1.69	100	206	vertical

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

-Continue

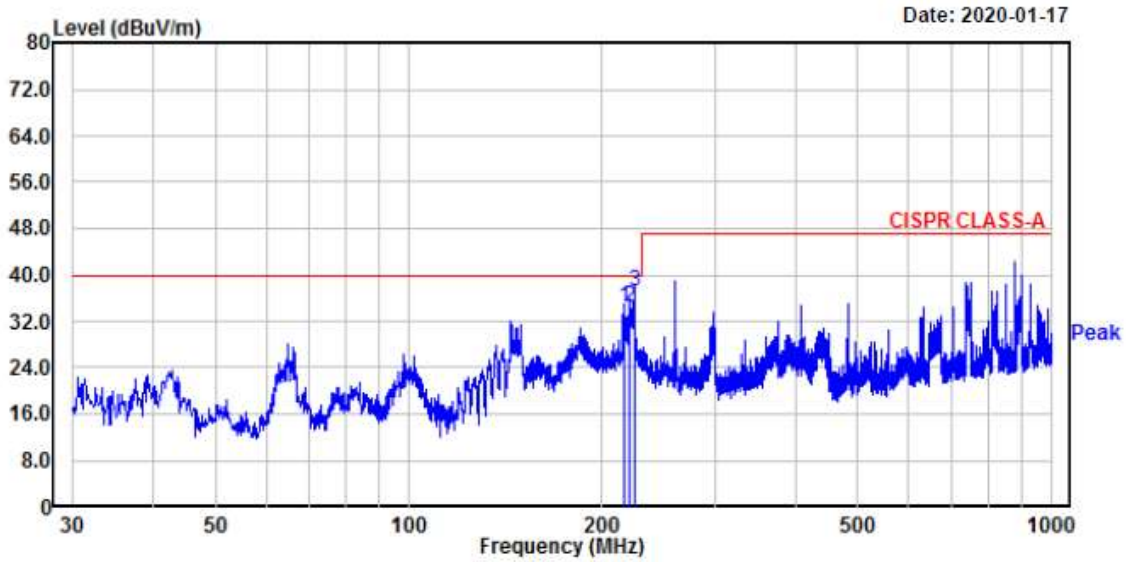
(Below 1 GHz) / H

4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
Tel : +82-31-3236008,9
Fax : +82-31-3236010
www.ltalab.com

EUT/Model No.: QRN-1620S Temp/Humi: 22 'C / 38 % R.H.

Test Mode : REC mode Tested by: PARJ J H

Power : 120 V / 60 Hz



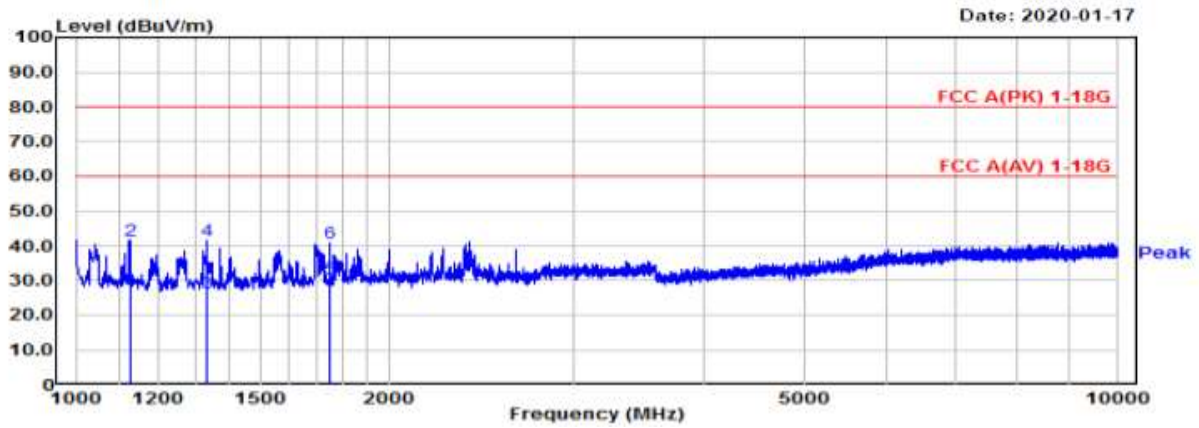
No.	Freq	Reading	C.F	Result QP	Limit	Margin	Height	Angle	Polarity
	MHz	dBµV	dB	dBµV/m	dBµV/m	dB	cm	deg	
1.	216.00	48.60	-14.27	34.33	40.00	5.67	400	174	horizontal
2.	220.97	48.51	-14.00	34.51	40.00	5.49	400	268	horizontal
3.	224.61	50.96	-13.81	37.15	40.00	2.85	400	280	horizontal

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

-Continue

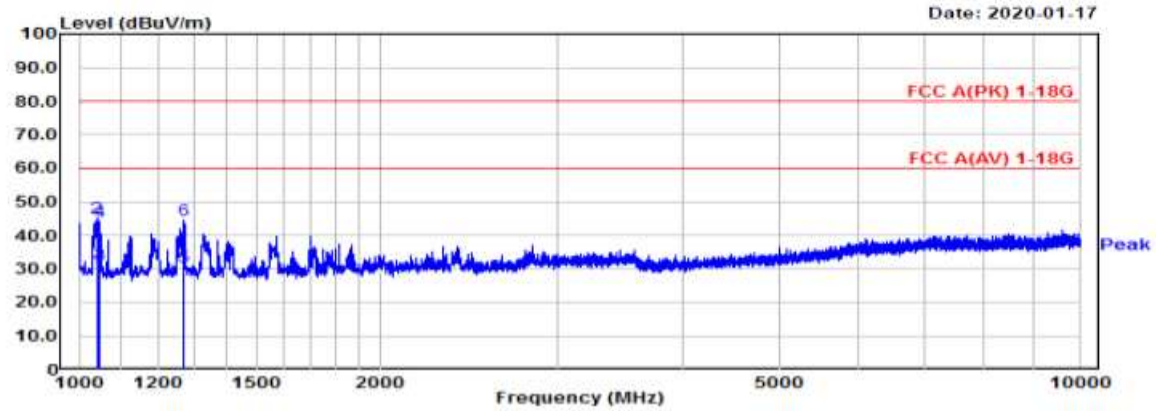
(Above 1 GHz) / V

EUT/Model No.: QRN-1620S Temp/Humi: 22 'C / 38 % R.H.
Test Mode : REC mode Tested by: PARK J H
Power : 120 V / 60 Hz



(Above 1 GHz) / H

EUT/Model No.: QRN-1620S Temp/Humi: 22 'C / 38 % R.H.
Test Mode : REC mode Tested by: PARK J H
Power : 120 V / 60 Hz



Manufacture : Hanwha Techwin(Tianjin) Co., Ltd. Test Date Temp.: [℃] Humidity : [%] Distance (m)
Model : QRN-1620S 2020-01-17 22.00 38.00 3.8
TEST mode : REC mode

Frequency MHz	Reading(PK) dBuV	Reading(AV) dBuV	C.F dB	Result(PK) dBuV/m	Result(AV) dBuV/m	Limit(PK) dBuV/m	Limit(AV) dBuV/m	Margin(PK) dB	Margin(AV) dB	Height cm	Angle deg	Polarity H/V
1039.38	43.63	43.63	-11.66	31.97	31.97	80.00	60.00	48.03	28.03	358	150	H
1045.00	44.94	44.94	-11.60	33.34	33.34	80.00	60.00	46.66	26.66	165	196	H
1270.00	43.57	43.57	-10.85	32.72	32.72	80.00	60.00	47.28	27.28	298	138	H
1124.88	55.03	40.58	-11.37	43.66	29.21	80.00	60.00	36.34	30.79	354	268	V
1333.00	54.20	39.19	-10.62	43.58	28.57	80.00	60.00	36.42	31.43	215	341	V
1749.25	51.05	40.66	-8.10	42.95	32.56	80.00	60.00	37.05	27.44	154	93	V

Conclusions

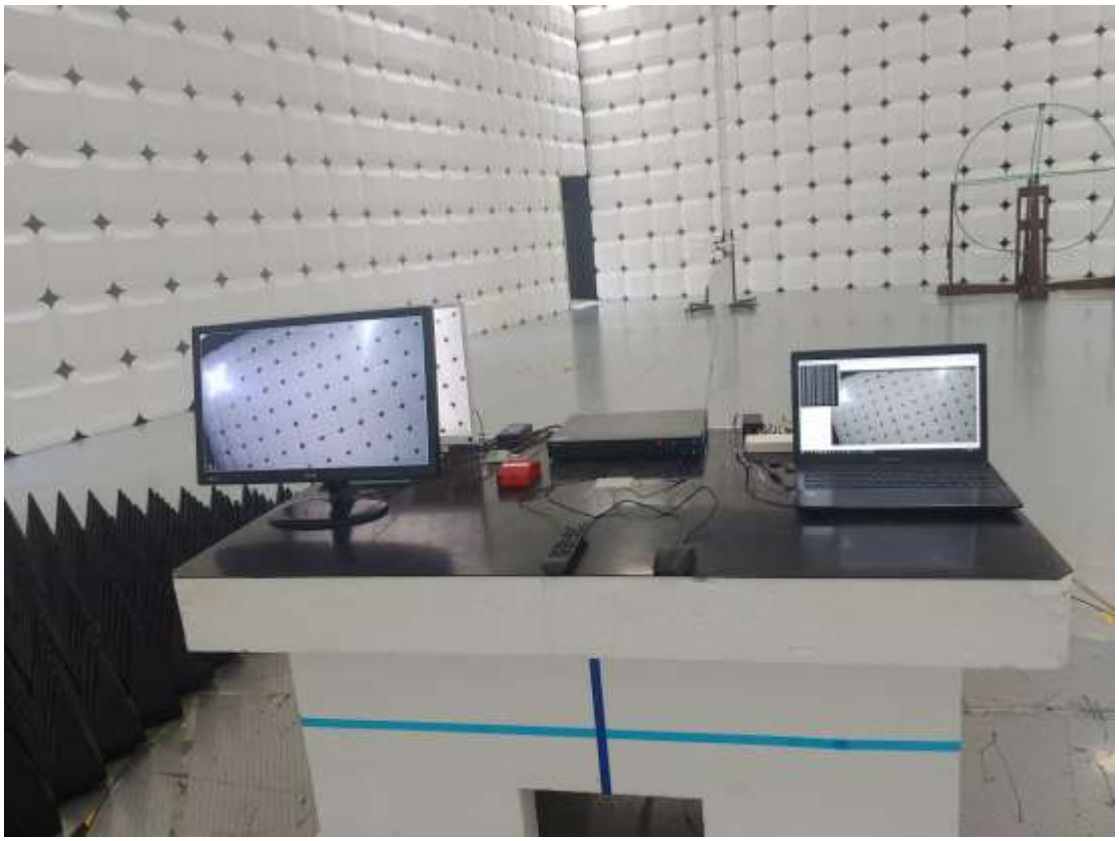
Product models **"QRN-1620S"** meets all of the Class A requirements of the FCC Part 15, Subpart B. Limits of radio disturbance characteristics of ITE).
(Refer to Test Specification and Test Results in the "LTA certification", page 4 and 5)

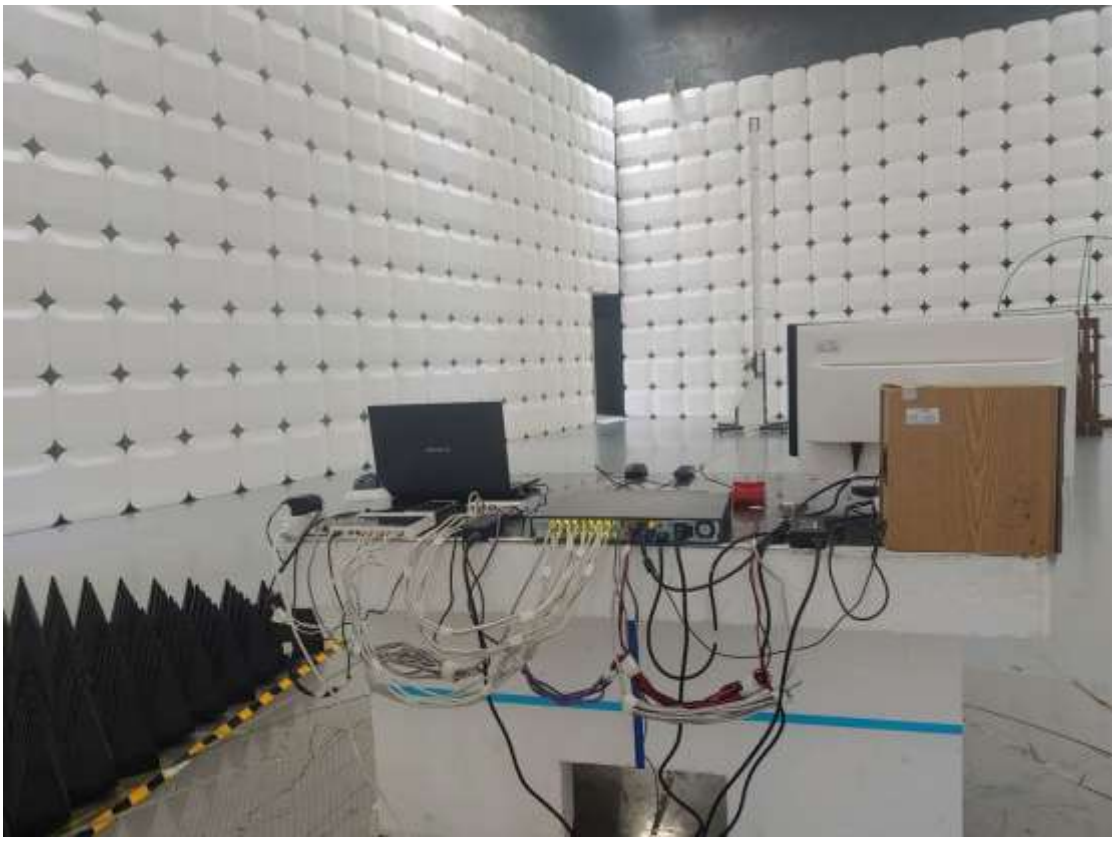
- The highest internal source of an EUT is higher than 108 MHz, the measurement shall be made up to 10 GHz.
(The highest internal source of an EUT : 1.8 GHz)

Photograph of the measurements

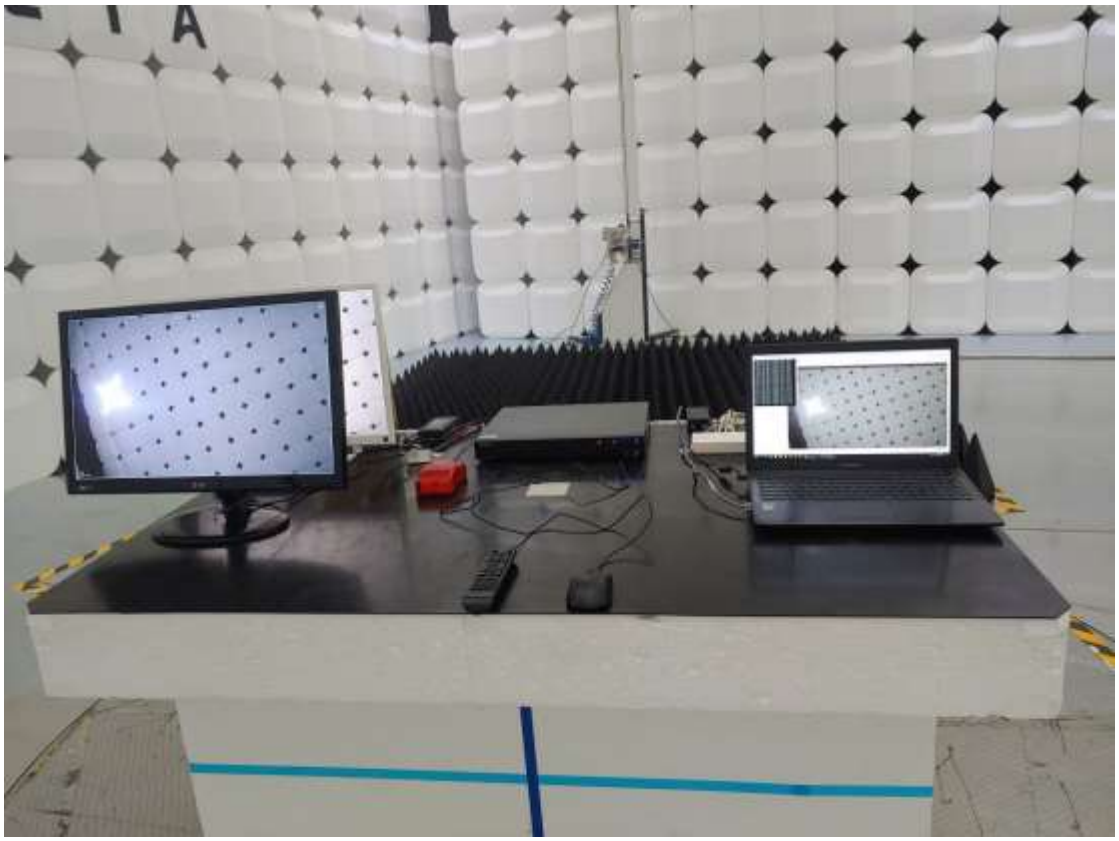
Photograph of the Conducted Disturbance Measurements

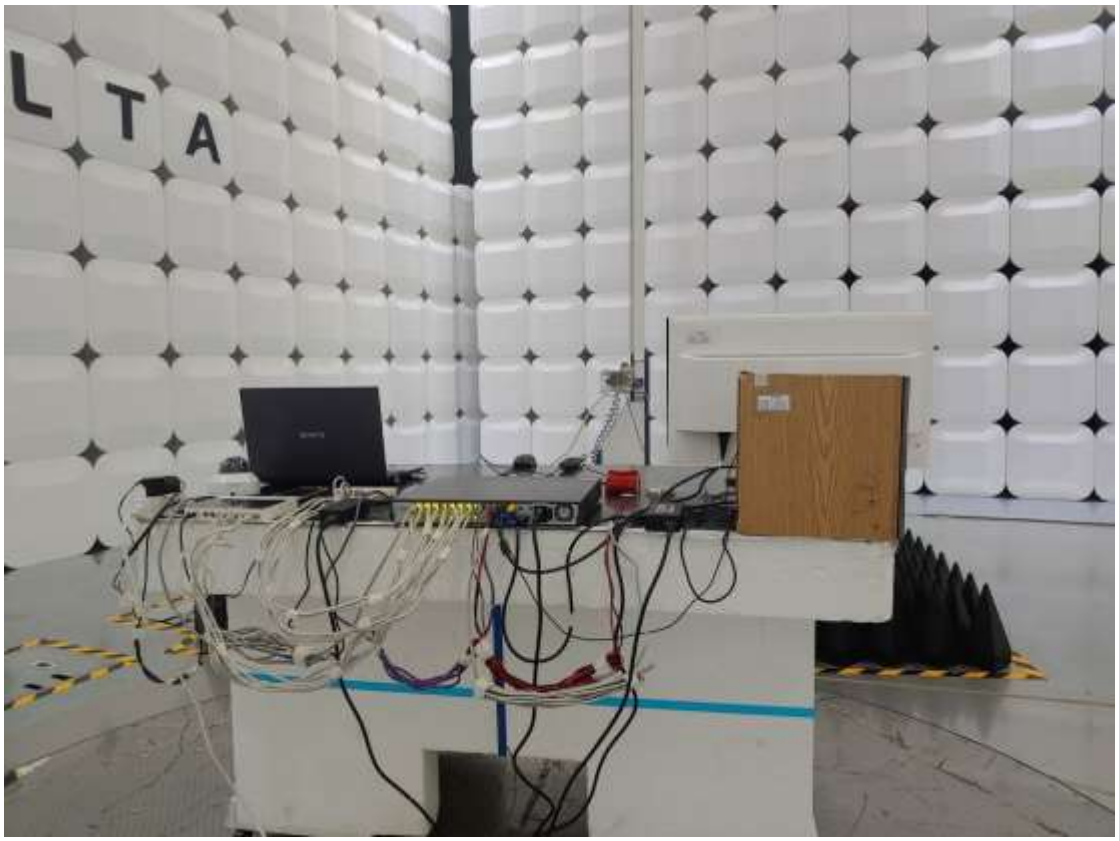
Photograph of the Radiated Disturbance Measurements (Below 1GHz)





Photograph of the Radiated Disturbance Measurements (Above 1GHz)





Photograph of the EUT

Photograph of the Equipment Under Test

Photograph of the Equipment Under Test