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EMC TEST REPORT

Dates of Tests: April 22 - 23, 2019
Test Report S/N: LR500122108L
Test Site : LTA Co., Ltd.

Model No.

QND-6032R

APPLICANT

Hanwha Techwin Co., Ltd.

Equipment Name : NETWORK CAMERA
Manufacturer : HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.
Model name : QND-6032R
Additional Model name : QND-6022R, QND-6012R, QND-6012R1, QND-6022R1, QND-6032R1
Test Device Serial No.: : Identification
Rule Part(s) : AS/NZS CISPR 32:2015
CISPR 32 Ed2.0
Date of issue : August 10, 2021

This test report is issued under the authority of:

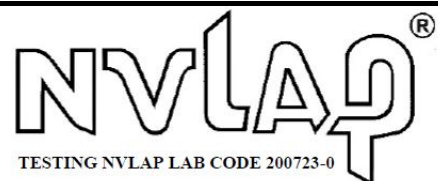
The test was supervised by:

Young Kyu Shin, Technical Manager

Joo Hyung Cho, Test Engineer

This test result only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the test laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

This test report is not related to KS Q ISO/IEC 17025 and KOLAS accreditation.



Revision	Date of issue	Test report No.	Description
0	26.04.2019	LR500121904BA	Initial
1	10.08.2021	LR500122108L	Delete China Factory, Add Additional Models (QND-6012R1, QND-6022R1, QND-6032R1)

HAWKHA TECHNOLOGY

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1. General information's

1-1 Test Performed

Company name : LTA Co., Ltd
 Address : 4, Songju-ro 236beon-gil, Yangji-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do, 17159, Korea
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Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the “General requirements for the competents of calibration and testing laboratory”.

1-2 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	2021-09-30	ECT accredited Lab.
	KOREA		-	
RRA	U.S.A	KR0049	2023-04-08	RRA accredited Lab.
	CANADA		2022-10-18	
		C-14948	2023-09-10	
VCCI	JAPAN	T-12416	2023-09-10	VCCI registration
		R-14483	2023-10-15	
		G-10847	2021-12-13	
KOLAS	KOREA	KT551	2021-08-20	KOLAS accredited Lab.

2. Information's about test item

2-1 Client / Manufacturer

Company name : Hanwha Techwin Co., Ltd.
 Address : 6, Pangyo-ro 319 Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488, KOREA
 Telephone /Facsimile : +82-70-7147-8753(http://hanhwa-security.com)

Factory #1

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 #2

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

2-2 Equipment Under Test (EUT)

Class : A
 Category : NETWORK CAMERA
 Model name : QND-6032R
 Additional Model name : QND-6022R, QND-6012R, QND-6012R1, QND-6022R1, QND-6032R1
 Additional Models are different only lens specification.
 Serial number : Identification
 Date of receipt : April 09, 2019
 EUT condition : Pre-production, not damaged
 Interface Ports : DC IN, LAN, Alarm IN, Alarm OUT, Alarm Ground, Micro SD Card
 Video OUT Port is a management Port.
 Power rating : DC 12 V (Adapter), DC 48 V (PoE)

2-3 Modification

-NONE

2-4 Test conditions

Temp. / Humid. / Pressure : (21 - 23) °C / (36) % R.H.
 Tested Model : QND-6032R
 Test mode : REC mode (DC), REC mode (POE)
 Test Voltage : AC 240 V, 50 Hz (Adapter, PoE)

2-5 EUT

Equipment	Model No.	Serial No.	Manufacturer
NETWORK CAMERA	QND-6032R	N/A	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD. D-TECH CO.,LTD.

2-6 Accessary / REC mode (DC)

Equipment	Model No.	Serial No.	Manufacturer
Alarm	N/A	N/A	N/A
Sensor	SPL-0030	N/A	SECOM
Notebook PC	TFG13	N/A	HANSUNG
Notebook PC Adapter	A13-040N3A	F186921708004182	Chicony
SD Card	KTJD8K9	N/A	N/A
NETWORK CAMERA Adapter	KSASB0241200200M2	N/A	Kuantech (Belhai) CO., Ltd

/ REC mode (POE)

Equipment	Model No.	Serial No.	Manufacturer
POE Injector	PSE305	N/A	Gigabit
Alarm	N/A	N/A	N/A
Sensor	SPL-0030	N/A	SECOM
Notebook PC	TFG13	N/A	HANSUNG
Notebook PC Adapter	A13-040N3A	F186921708004182	Chicony
SD Card	KTJD8K9	N/A	N/A

2-8 Cable List / REC mode (DC)

From		To		Length (m)	Shielding	
Type	I/O Port	Type	I/O Port		Cable	backshell
EUT	DC IN	NETWORK CAMERA Adapter	DC OUT	1.2	NO	Plastic
	LAN	Notebook PC	LAN	3.0	NO	Plastic
	Alarm IN	Alarm	Alarm OUT	1.0	NO	Plastic
	Alarm OUT	Sensor	Sensor OUT	1.0	NO	Plastic
	Alarm Ground	Alarm	Alarm Ground	1.0	NO	Plastic
	Alarm Ground	Sensor	Sensor Ground	1.0	NO	Plastic
	SD Card	SD Card	-	-	-	-
Notebook PC	DC IN	Notebook PC Adapter	DC OUT	1.8	NO	Plastic

/ REC mode (POE)

From		To		Length (m)	Shielding	
Type	I/O Port	Type	I/O Port		Cable	backshell
EUT	LAN	POE Injector	P+D / OUT	3.0	NO	Plastic
	Alarm IN	Alarm	Alarm OUT	1.0	NO	Plastic
	Alarm OUT	Sensor	Sensor OUT	1.0	NO	Plastic
	Alarm Ground	Alarm	Alarm Ground	1.0	NO	Plastic
	Alarm Ground	Sensor	Sensor Ground	1.0	NO	Plastic
	SD Card	SD Card	-	-	-	-
Notebook PC	LAN	POE Injector	Data/IN	1.5	NO	Plastic
	DC IN	Notebook PC Adapter	DC OUT	1.8	NO	Plastic
POE Injector	AC IN	AC Power Source	3 Pin AC Line	1.5	NO	Plastic

3. Test Report

3.1 Summary of tests

Parameter	Applied Standard	Status
I. Emission		
Conducted Emission	AS/NZS CISPR32:2015	C
Radiated Emission	AS/NZS CISPR32:2015	C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

HANNA TECHNOLOGY

3.2 EMISSION

3.2.1 Conducted emissions

Definition:

The test assesses the ability of the EUT to limit its internal noise from being present on the AC mains Power In/Output/Telecommunication ports.

We were performed the test according to LTA procedure LTA-QI-04.

Test method	: AS/NZS CISPR32:2015
Measurement Frequency range	: 150 kHz - 30 MHz
Measurement RBW	: 9 kHz
Test mode	: REC mode (DC), REC mode (POE)
Result	: Complies

Measurement Data:

- Refer to the Next page (Maximum emission configuration)

A sample calculation:

COR. F (correction factor)= LISN Insertion loss + Cable loss + Pulse Limiter Factor

Emission Level= meter reading + COR.F

Limits for conducted disturbance at the mains ports of class A ITE

Frequency Range	Quasi-peak	Average
(0.15 - 0.5) MHz	79 dBuV	66 dBuV
(0.5 - 30) MHz	73 dBuV	60 dBuV

Note: The limits will decrease with the frequency logarithmically within 0.15MHz to 0.5MHz

Limits for conducted disturbance at the mains ports of class B ITE

Frequency Range	Quasi-peak	Average
(0.15 - 0.5) MHz	(66 - 56) dBuV	(56 - 46) dBuV
(0.5 - 5) MHz	56 dBuV	46 dBuV
(5 - 30) MHz	60 dBuV	50 dBuV

Note: The limits will decrease with the frequency logarithmically within 0.15 MHz to 0.5 MHz

Limits of conducted common mode (asymmetric mode) disturbance at telecommunication ports in the frequency range 0.15 MHz to 30 MHz for class A equipment

Frequency Range	Voltage limits		Current limits	
	Quasi-peak	Average	Quasi-peak	Average
(0.15 - 0.5) MHz	(97 - 87) dBuV	(84 - 74) dBuV	(53 - 43) dBuV	(40 - 30) dBuV
(0.5 - 30) MHz	87 dBuV	74 dBuV	43 dBuV	30 dBuV

Note 1: The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Note 2: The current and voltage disturbance limits are derived for use with an impedance stabilization network (ISN) which presents a common mode (asymmetric mode) impedance of 150Ω to the telecommunication port under test (conversion factor is $20 \log_{10} 150/I = 44$ dB)

Limits of conducted common mode (asymmetric mode) disturbance at telecommunication ports in the frequency range 0.15 MHz to 30 MHz for class B equipment

Frequency Range	Voltage limits		Current limits	
	Quasi-peak	Average	Quasi-peak	Average
(0.15 - 0.5) MHz	(84 - 74) dBuV	(74 - 64) dBuV	(40 - 30) dBuV	(30 - 20) dBuV
(0.5 - 30) MHz	74 dBuV	64 dBuV	30 dBuV	20 dBuV

Note 1: The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Note 2: The current and voltage disturbance limits are derived for use with an impedance stabilization network (ISN) which presents a common mode (asymmetric mode) impedance of 150Ω to the telecommunication port under test (conversion factor is $20 \log_{10} 150/I = 44$ dB)

Conducted emissions (LINE) / REC mode (DC)



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EUT /Model No. : QND-6032R

Phase : LINE

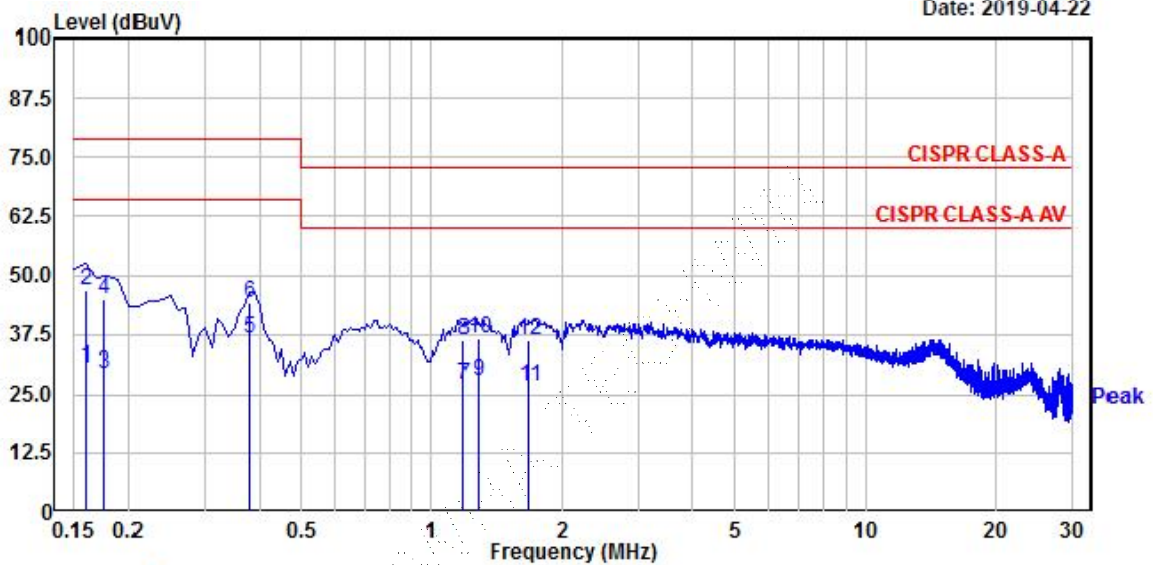
Test Mode : REC mode (DC)

Test Power : 240 / 50

Temp./ Humi. : 21'C / 35% R.H.

Test Engineer : PARK J H

Date: 2019-04-22



Trace: 1

Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB
0.160	27.32	11.28	19.43	46.75	30.71	79.00	66.00	32.25	35.29
0.175	25.65	10.11	19.43	45.08	29.54	79.00	66.00	33.92	36.46
0.381	24.62	17.07	19.46	44.08	36.53	79.00	66.00	34.92	29.47
1.181	16.90	7.75	19.51	36.41	27.26	73.00	60.00	36.59	32.74
1.274	17.03	8.37	19.51	36.54	27.88	73.00	60.00	36.46	32.12
1.670	16.75	7.24	19.52	36.27	26.76	73.00	60.00	36.73	33.24

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

Conducted emissions (NEUTRAL) / REC mode (DC)



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EUI /Model No. : QND-6032R

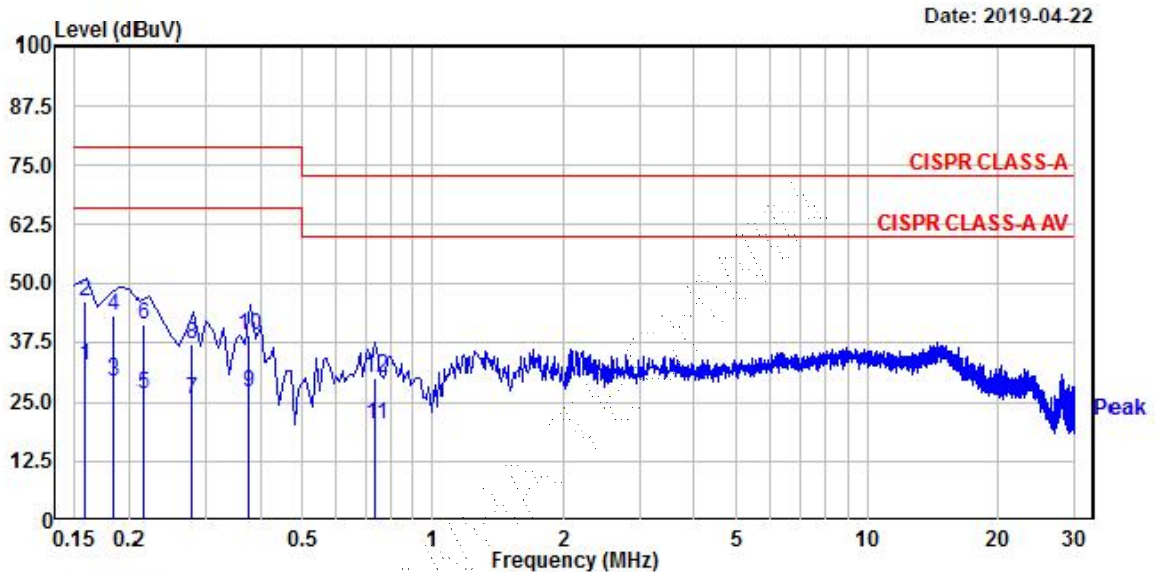
Phase : NEUTRAL

Test Mode : REC mode (DC)

Test Power : 240 / 50

Temp./ Humi. : 21°C / 35% R.H.

Test Engineer : PARK J H



Trace: 1

Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB
0.158	26.61	13.19	19.44	46.05	32.63	79.00	66.00	32.95	33.37
0.185	23.55	9.99	19.44	42.99	29.43	79.00	66.00	36.01	36.57
0.216	21.56	7.19	19.44	41.00	26.63	79.00	66.00	38.00	39.37
0.277	17.40	6.17	19.46	36.86	25.63	79.00	66.00	42.14	40.37
0.375	19.52	7.72	19.46	38.98	27.18	79.00	66.00	40.02	38.82
0.740	10.57	0.94	19.47	30.04	20.41	73.00	60.00	42.96	39.59

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

Conducted emissions (TEL_100 M) / REC mode (DC)



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EUT /Model No. : QND-6032R

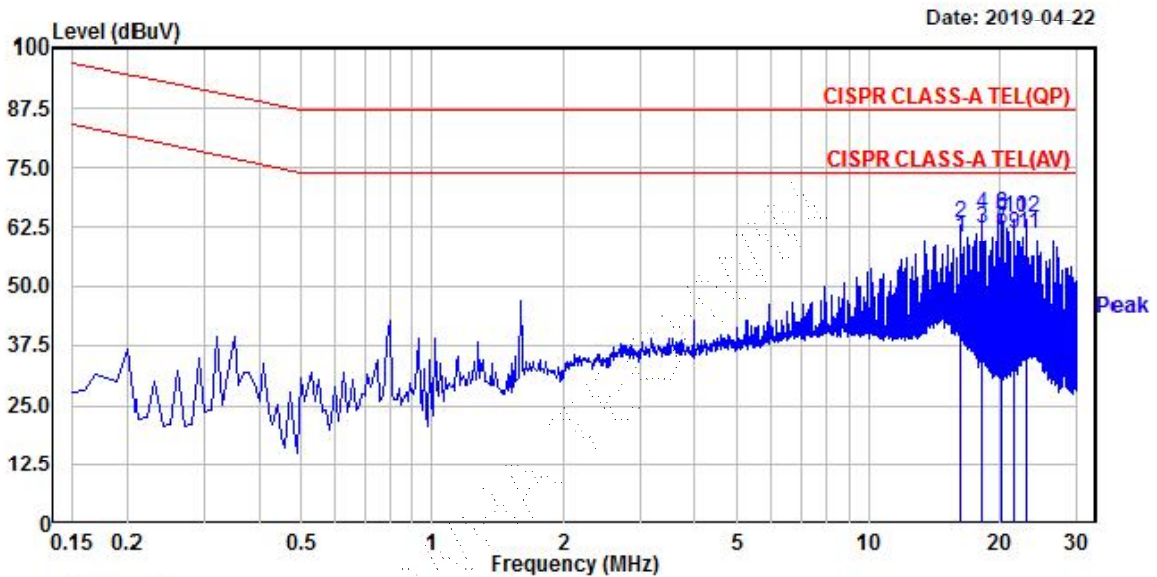
Phase : TEL_100M

Test Mode : REC mode (DC)

Test Power : 240 / 50

Temp./ Humi. : 22'C / 36% R.H.

Test Engineer : PARK J H



Trace: 1

Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV		QP	AV	QP	AV	QP	AV
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB
16.229	43.54	40.61	19.76	63.30	60.37	87.00	74.00	23.70	13.63
18.243	45.31	42.27	19.81	65.12	62.08	87.00	74.00	21.88	11.92
20.257	45.34	42.19	19.88	65.22	62.07	87.00	74.00	21.78	11.93
20.258	45.40	42.28	19.88	65.28	62.16	87.00	74.00	21.72	11.84
21.662	44.77	41.38	19.93	64.70	61.31	87.00	74.00	22.30	12.69
23.128	44.51	41.02	19.97	64.48	60.99	87.00	74.00	22.52	13.01

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

Conducted emissions (TEL_100 M) / REC mode (POE)



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EUT /Model No. : QND-6032R

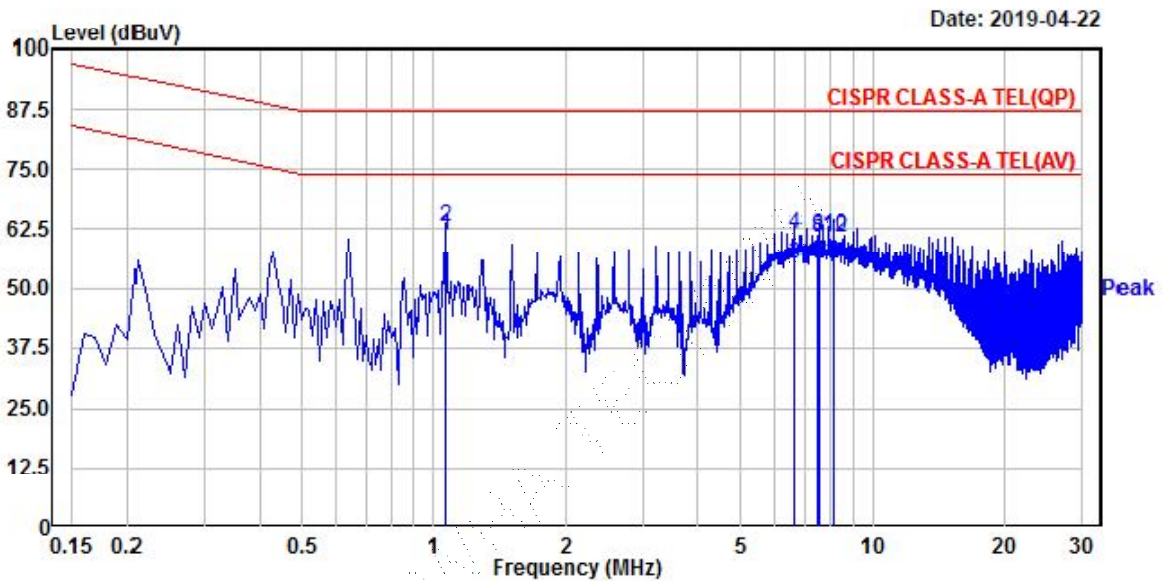
Phase : TEL_100M

Test Mode : REC mode (POE)

Test Power : 240 / 50

Temp./ Humi. : 22°C / 36% R.H.

Test Engineer : PARK J H



Trace: 1

Freq MHz	RD QP dBuV	RD AV dBuV	C.F dB	Result QP dBuV	Result AV dBuV	Limit QP dBuV	Limit AV dBuV	Margin QP dB	Margin AV dB
1.070	43.46	41.86	19.43	62.89	61.29	87.00	74.00	24.11	12.71
6.633	42.03	35.62	19.52	61.55	55.14	87.00	74.00	25.45	18.86
7.489	41.68	36.06	19.55	61.23	55.61	87.00	74.00	25.77	18.39
7.490	41.28	35.55	19.55	60.83	55.10	87.00	74.00	26.17	18.90
8.129	41.40	35.83	19.57	60.97	55.40	87.00	74.00	26.03	18.60
8.130	41.28	35.83	19.57	60.85	55.40	87.00	74.00	26.15	18.60

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

3.2.2 Radiated Emission

Definition:

The test assesses the ability of ancillary equipment to limit their internal noise from being radiated from the enclosure.

We were performed the test according to LTA procedure LTA-QI-04.

Test method	: AS/NZS CISPR32:2013
Measuring Distance	: 10 m for below 1 GHz
Measurement Frequency range	: 30 MHz – 1 000 MHz
Measurement RBW	: 120 kHz @ 10 m
Test mode	: REC mode (DC), REC mode (POE)
Result	: Complies

Measurement Data:

- Refer to the Next page (Maximum emission configuration)
- The highest internal source of an EUT is higher than 108 MHz, the measurement shall only be made up to 6 GHz.
(The highest internal source of an EUT : higher than 108 MHz)

A sample calculation:

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

Emission Level= meter reading + COR.F

Limit of 10 m for below 1 GHz

CLASS A

Frequency Range	Quasi-peak
(30 – 230) MHz	40 dBuV/m
(230 – 1 000) MHz	47 dBuV/m

CLASS B

Frequency Range	Quasi-peak
(30 – 230) MHz	30 dBuV/m
(230 – 1 000) MHz	37 dBuV/m

Limit of 3m for above 1 GHz

CLASS A

Frequency Range	Average Limit @ 3m (dB μ V/m)	Peak limit @ 3m (dB μ V/m)
(1 000 – 3 000) MHz	56	76
(3 000 – 6 000) MHz	60	80
NOTE:	The lower limit applies at the transition frequency.	

CLASS B

Frequency Range	Average Limit @ 3m (dB μ V/m)	Peak limit @ 3m (dB μ V/m)
(1 000 – 3 000) MHz	50	70
(3 000 – 6 000) MHz	54	74
NOTE:	The lower limit applies at the transition frequency.	

Radiated Emission (Below 1 GHz) / V _ REC mode (DC)



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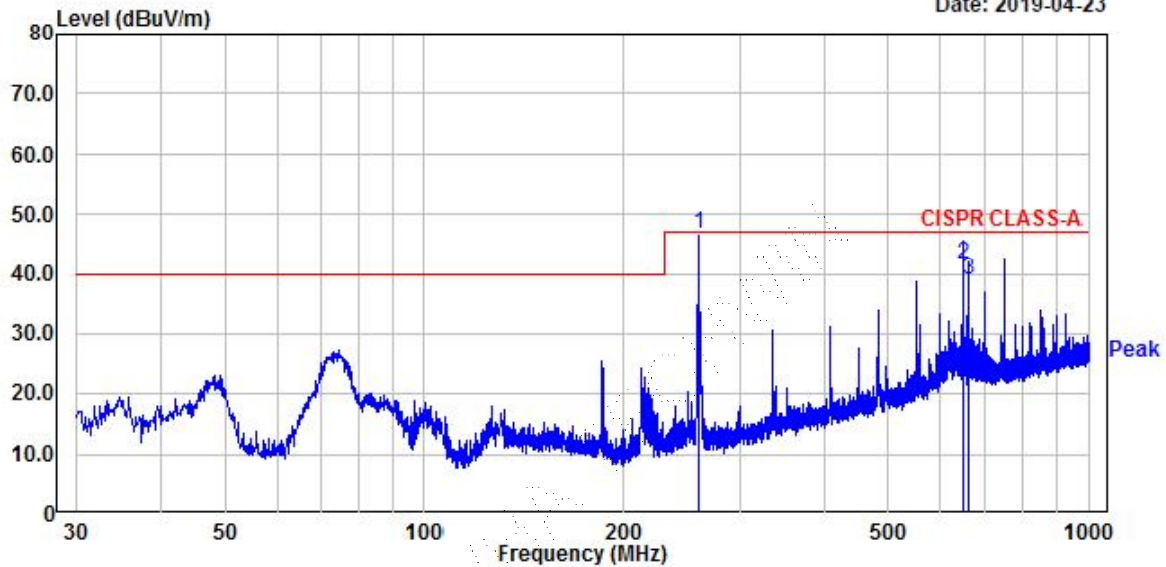
EUT/Model No.: QND-6032R

Temp/Humi: 23 / 31

Test Mode : REC mode(DC)

Tested by: PARK J H

Date: 2019-04-23



Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	QP dBuV/m	dBuV/m	dB	cm	deg	
259.89	59.20	-12.51	46.69	47.00	0.31	100	150	vertical
650.07	45.19	-3.46	41.73	47.00	5.27	282	351	vertical
660.02	42.15	-3.32	38.83	47.00	8.17	385	265	vertical

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

Radiated Emission (Below 1 GHz) / H _ REC mode (DC)



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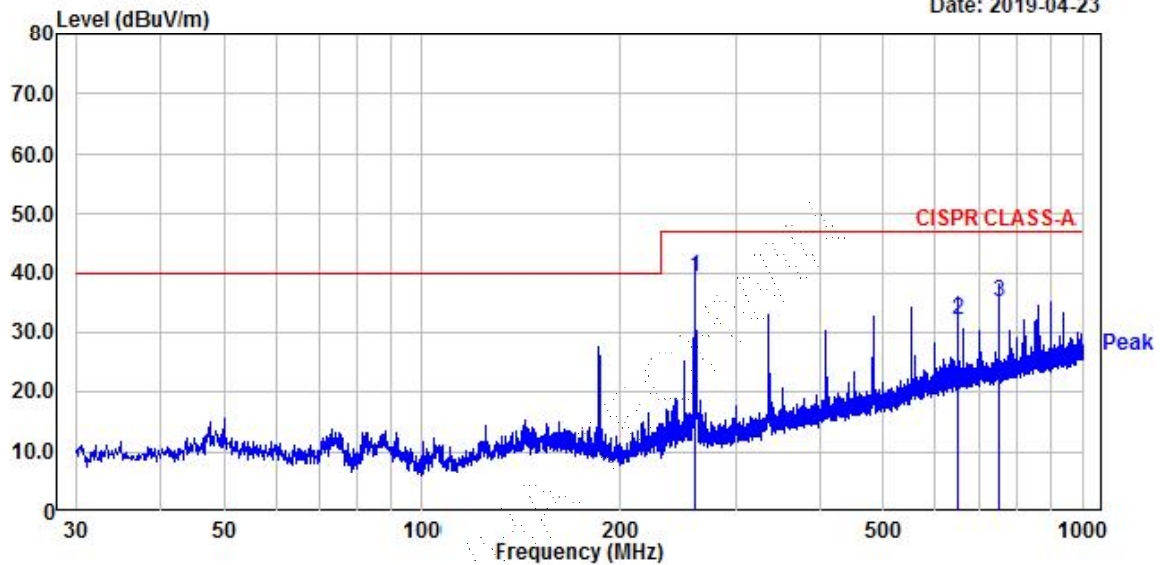
EUT/Model No.: QND-6032R

Temp/Humi: 23 / 31

Test Mode : REC mode(DC)

Tested by: PARK J H

Date: 2019-04-23



Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	QP dBuV/m	dBuV/m	dB	cm	deg	
259.89	51.86	-12.51	39.35	47.00	7.65	395	51	horizontal
650.07	35.47	-3.46	32.01	47.00	14.99	374	125	horizontal
749.98	36.85	-1.81	35.04	47.00	11.96	386	114	horizontal

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

Radiated Emission (Below 1 GHz) / V _ REC mode (POE)



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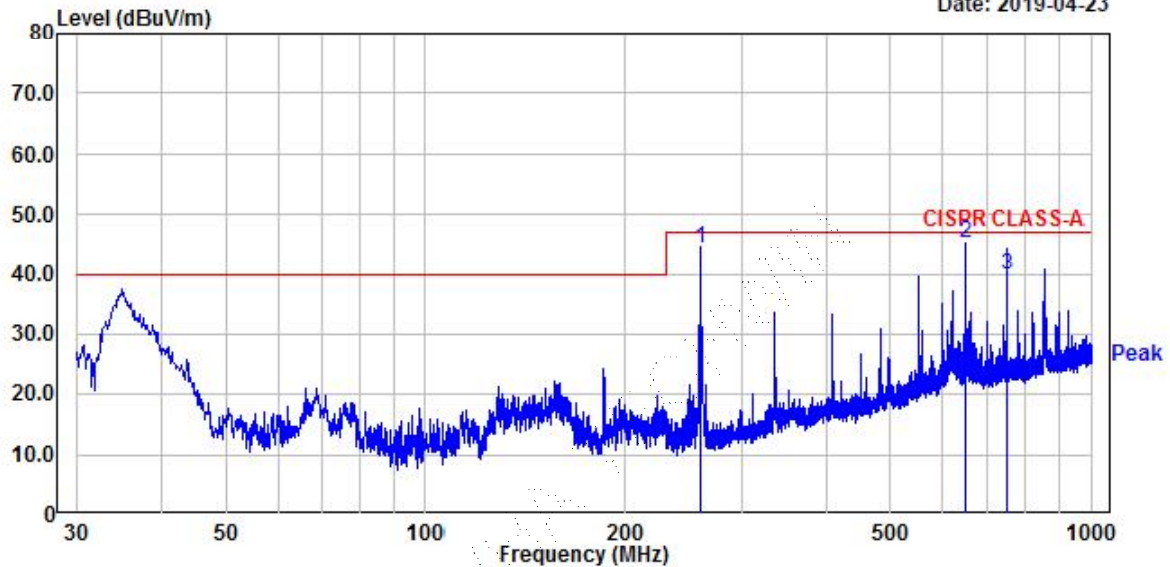
EUT/Model No.: QND-6032R

Temp/Humi: 23 / 31

Test Mode : REC mode(POE)

Tested by: PARK J H

Date: 2019-04-23



Freq MHz	Reading dBuV	C.F dB	Result QP dBuV/m	Limit dBuV/m	Margin dB	Height cm	Angle deg	Polarity
259.87	56.80	-12.51	44.29	47.00	2.71	100	112	vertical
649.99	48.91	-3.48	45.43	47.00	1.57	268	359	vertical
750.00	41.71	-1.81	39.90	47.00	7.10	137	351	vertical

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

Radiated Emission (Below 1 GHz) / H _ REC mode (POE)



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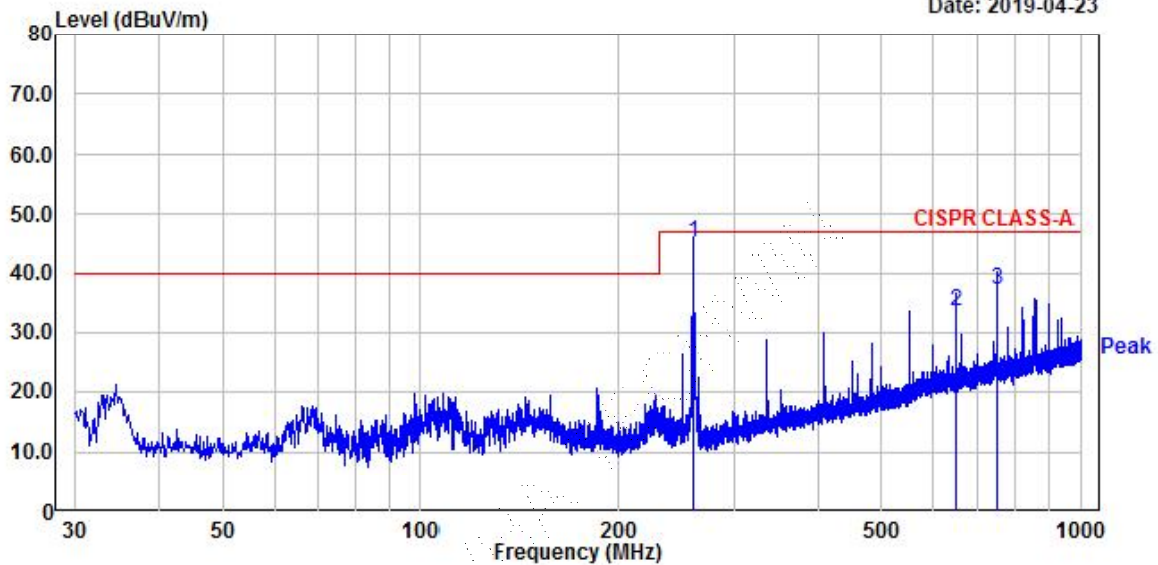
EUT/Model No.: QND-6032R

Temp/Humi: 23 / 31

Test Mode : REC mode(POE)

Tested by: PARK J H

Date: 2019-04-23



Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	QP dBuV/m	dBuV/m	dB	cm	deg	
259.89	57.90	-12.51	45.39	47.00	1.61	341	354	horizontal
650.07	36.94	-3.46	33.48	47.00	13.52	384	24	horizontal
749.98	38.83	-1.81	37.02	47.00	9.98	374	131	horizontal

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

Radiated Emission (Above 1 GHz) / REC mode (DC)

(Above 1 GHz) / H

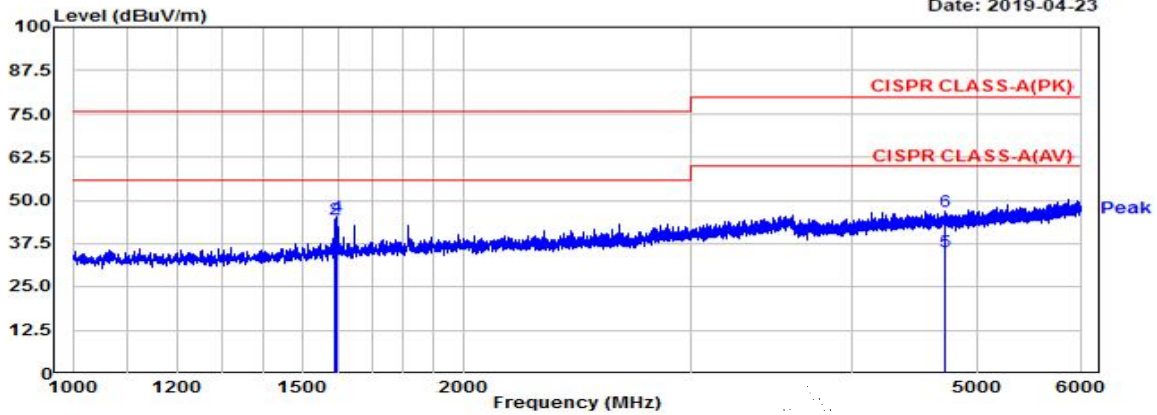
EUT/Model No.: QND-6032R

Temp/Humi: 23 / 31

Test Mode : REC mode(DC)

Tested by: PARK J H

Date: 2019-04-23



(Above 1 GHz) / V

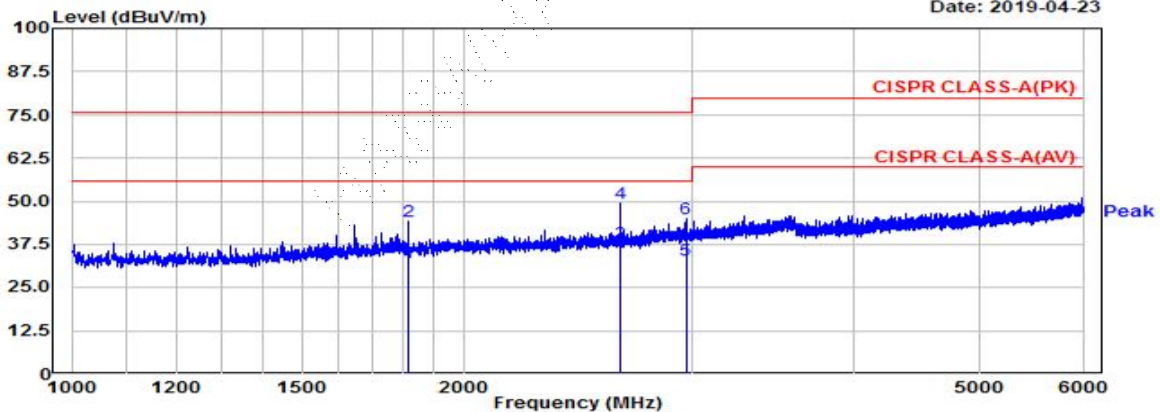
EUT/Model No.: QND-6032R

Temp/Humi: 23 / 31

Test Mode : REC mode(DC)

Tested by: PARK J H

Date: 2019-04-23



Manufacture : HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.

Test Date

Temp.:

Humidity:

Distance

Model : QND-6032R

2019-04-23

23

31

3.8

TEST mode : REC mode(DC)

Freq.(MHz)	Reading(PK)	Reading(AV)	C.F	Result(PK)	Result(AV)	Limit(PK)	Limit(AV)	Margin(PK)	Margin(AV)	Height	Angle	Polarity
MHz	dBuV	dBuV	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	cm	deg	Hor/Ver
1592.50	49.7	36.7	-3.14	46.53	33.53	76.0	56.0	29.47	22.47	100	87	H
1598.75	50.4	38.4	-3.08	47.27	35.27	76.0	56.0	28.73	20.73	100	15	H
4726.25	36.7	24.7	12.31	48.98	36.98	80.0	60.0	31.02	23.02	100	340	H
1814.38	47.4	35.4	-1.19	46.16	34.16	76.0	56.0	29.84	21.84	100	117	V
2640.00	48.8	36.8	2.87	51.62	39.62	76.0	56.0	24.38	16.38	100	278	V
2969.38	42.4	30.4	4.55	46.93	34.93	76.0	56.0	29.07	21.07	100	291	V

Radiated Emission / REC mode (POE)

(Above 1 GHz) / H

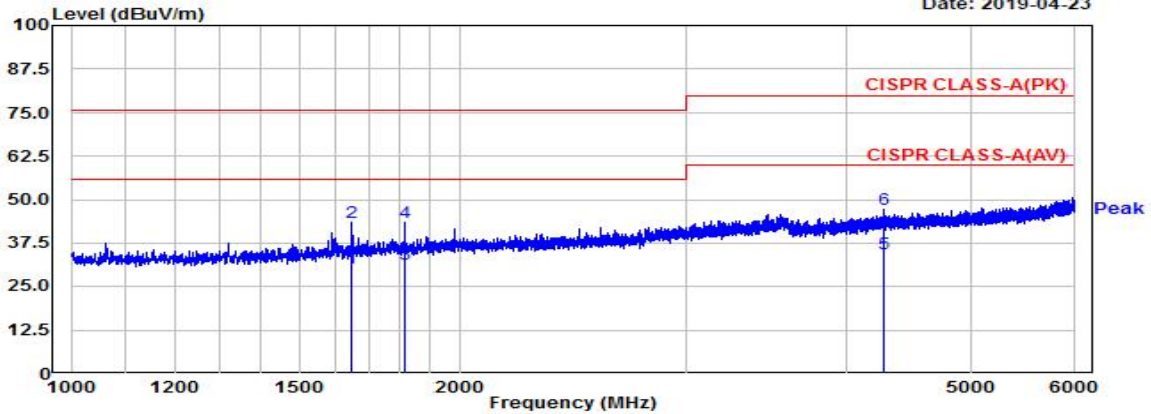
EUT/Model No.: QND-6032R

Temp/Humi: 23 / 31

Test Mode : REC mode(POE)

Tested by: PARK J H

Date: 2019-04-23



(Above 1 GHz) / V

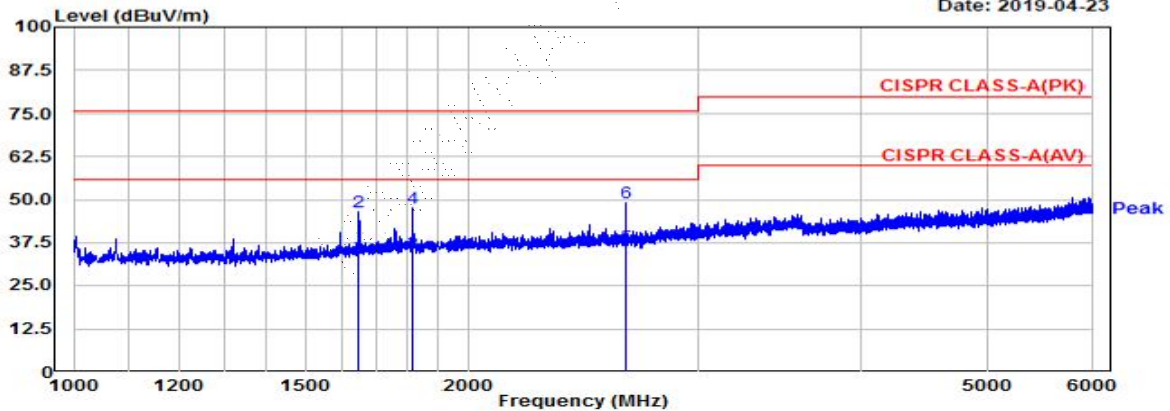
EUT/Model No.: QND-6032R

Temp/Humi: 23 / 31

Test Mode : REC mode(POE)

Tested by: PARK J H

Date: 2019-04-23



Manufacture : HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.

Test Date

Temp.:

Humidity:

Distance

Model : QND-6032R

2019-04-23

23

31

3.8

TEST mode : REC mode(POE)

Freq.(MHz)	Reading(PK)	Reading(AV)	C.F	Result(PK)	Result(AV)	Limit(PK)	Limit(AV)	Margin(PK)	Margin(AV)	Height	Angle	Polarity
MHz	dBuV	dBuV	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	cm	deg	Hor/Ver
1650.00	48.0	35.0	-2.64	45.40	32.40	76.0	56.0	30.60	23.60	100	58	H
1815.00	46.6	34.6	-1.19	45.44	33.44	76.0	56.0	30.56	22.56	100	152	H
4278.75	38.4	25.4	10.79	49.21	36.21	80.0	60.0	30.79	23.79	100	248	H
1650.00	51.3	38.3	-2.64	48.62	35.62	76.0	56.0	27.38	20.38	100	334	V
1814.38	50.6	37.6	-1.19	49.43	36.43	76.0	56.0	26.57	19.57	100	93	V
2640.00	48.3	35.3	2.87	51.13	38.13	76.0	56.0	24.87	17.87	100	334	V

APPENDIX A

TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

HAWMHA TECHNOLOGY

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment are identified by the Test Laboratory.

Conducted Disturbance Measurements

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESR	Rohde & Schwarz	101499	2019.07.11	1 year
☒	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	100710	2020.03.16	1 year
☐	LISN	ESH3-Z6	Rohde & Schwarz	100378	2019.09.07	1 year
☐	LISN	ESH3-Z6	Rohde & Schwarz	101468	2019.09.07	1 year
☒	LISN(main)	ENV216	Rohde & Schwarz	100408	2019.10.10	1 year
☒	LISN(sub)	LT32C/10	AFJ	32031518210	2019.09.06	1 year
☒	TEST PROGRAM	e3_ce 20181212a (V9)	AUDIX	-	-	-
☒	ISN	ISN T800	TESEQ	27109	2019.09.12	1 year
☐	ISN	ENY81-CA6	Rohde & Schwarz	101565	2019.09.12	1 year
☐	CURRENT PROBE	EZ-17	Rohde & Schwarz	100508	2019.09.06	1 year

Radiated Emission – Below 1 GHz

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESU	Rohde & Schwarz	100092	2019.09.06	1 year
☒	Amplifier (25 dB)	8447D	HP	2944A07684	2019.09.06	1 year
☒	BILOG Antenna	VULB9168	SCHWARZBECK	775	2020.03.16 (KOLAS)	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	2019.09.06	1 year
☒	Amplifier	8449B	HP	3008A00671	2019.09.06	1 year
☒	HORN ANTENNA	3115	ETS	114105	2019.11.03 (KOLAS)	2 year
☒	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-

APPENDIX B

PERFORMANCE CRITERIA

HANWHA TECHWIN

Performance criterion A:

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

Performance criterion B:

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as untended.

Performance criterion C:

Loss of function is allowed, provided the function is self-recoverable or can be restored by the operating of the controls by the user In accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

APPENDIX C

PHOTOGRAPHS

HANWHA TECHWIN

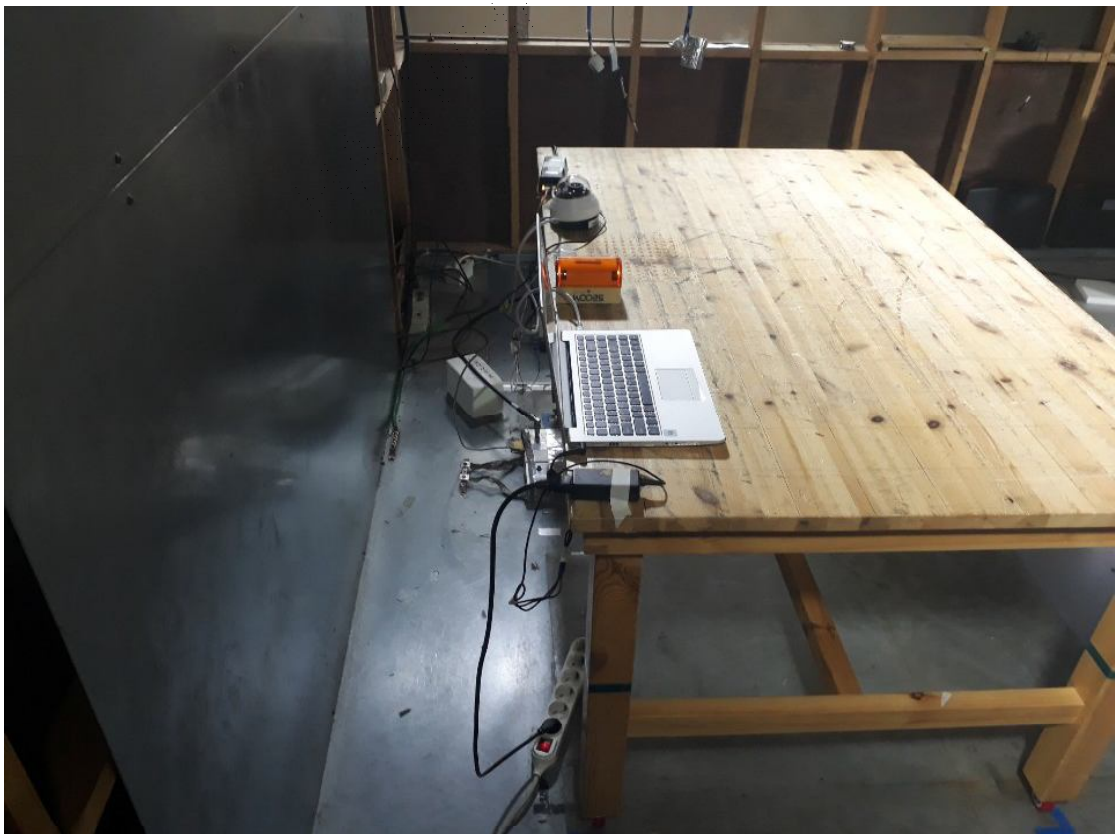
Conducted emissions / REC mode (DC)



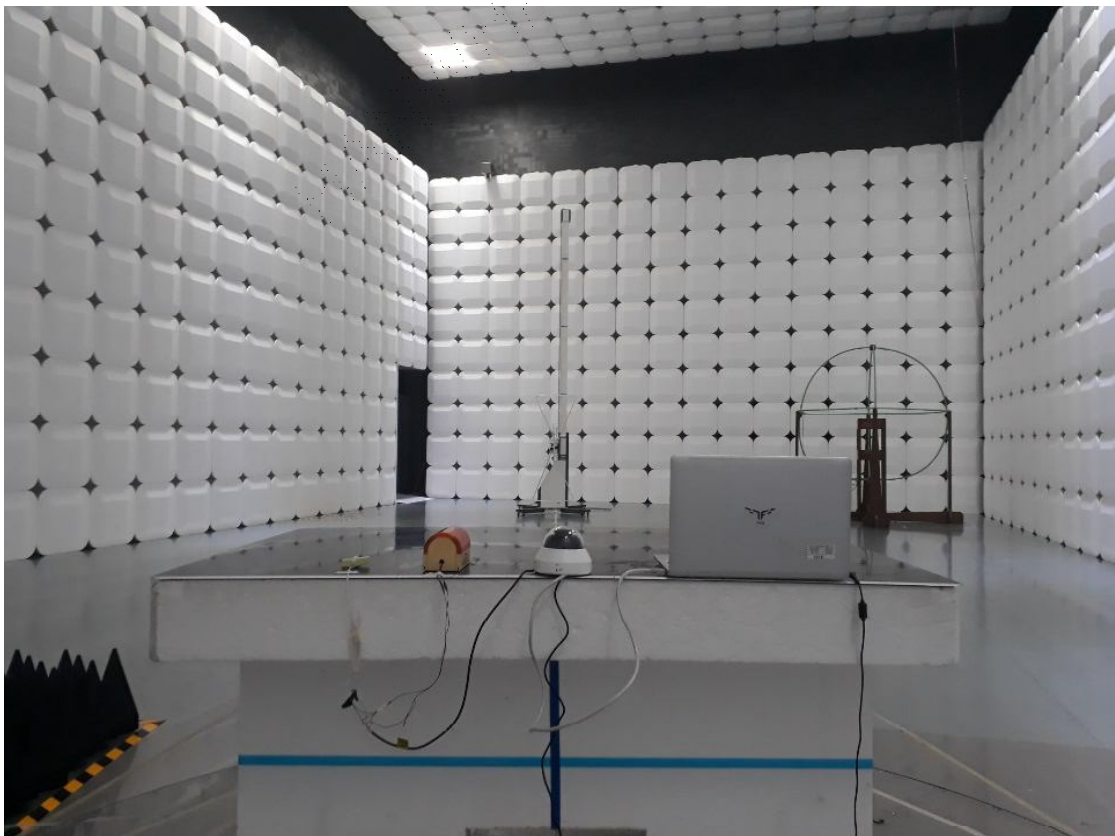
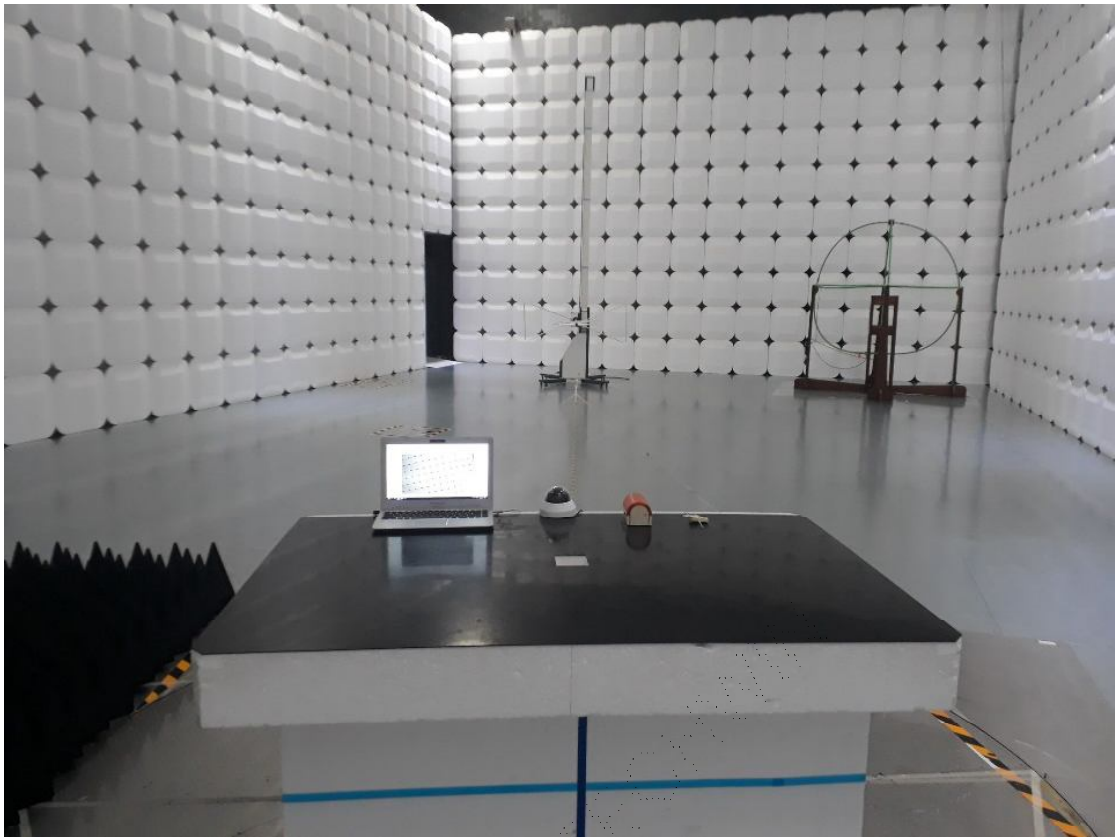
Conducted emissions (TEL) / REC mode (DC)



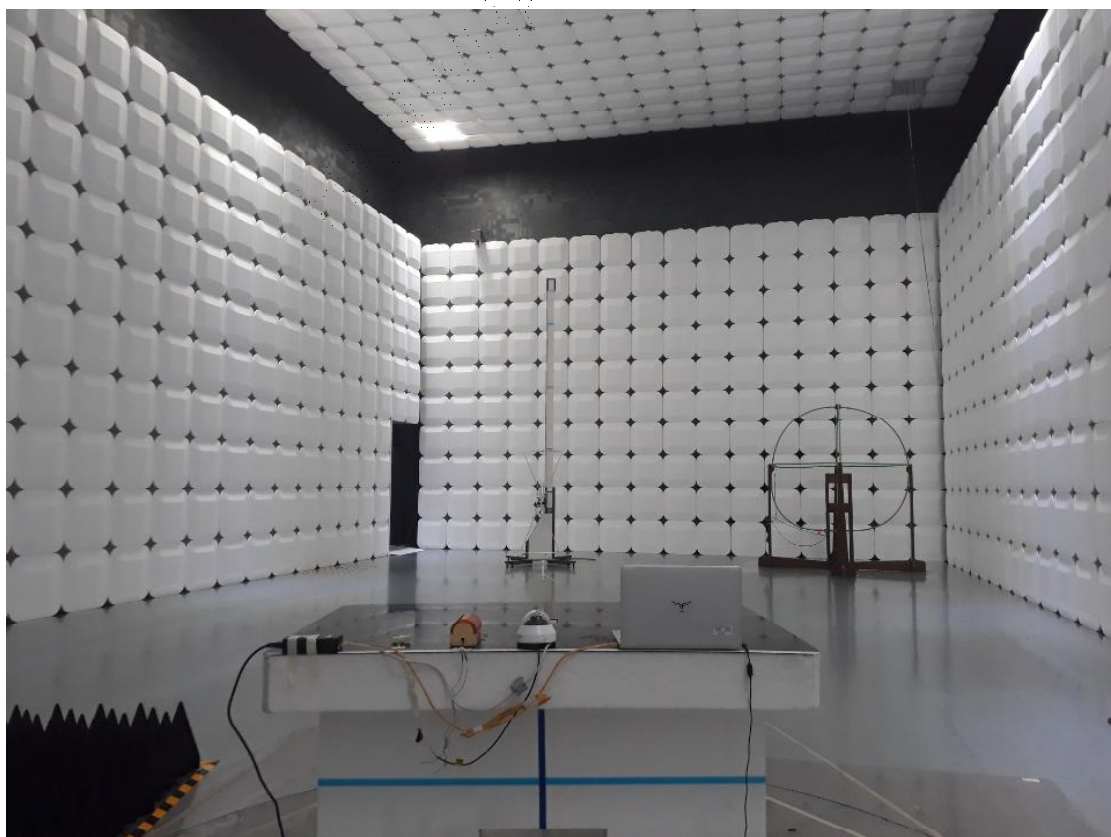
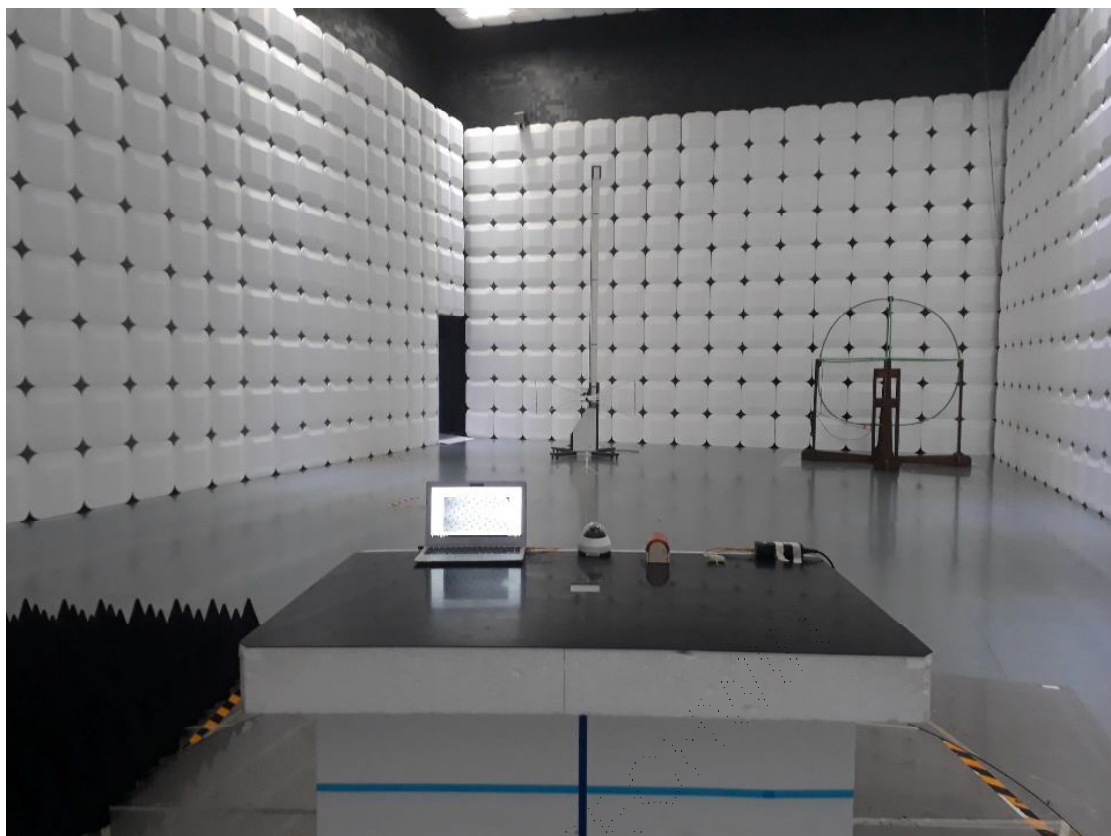
Conducted emissions (TEL) / REC mode (POE)



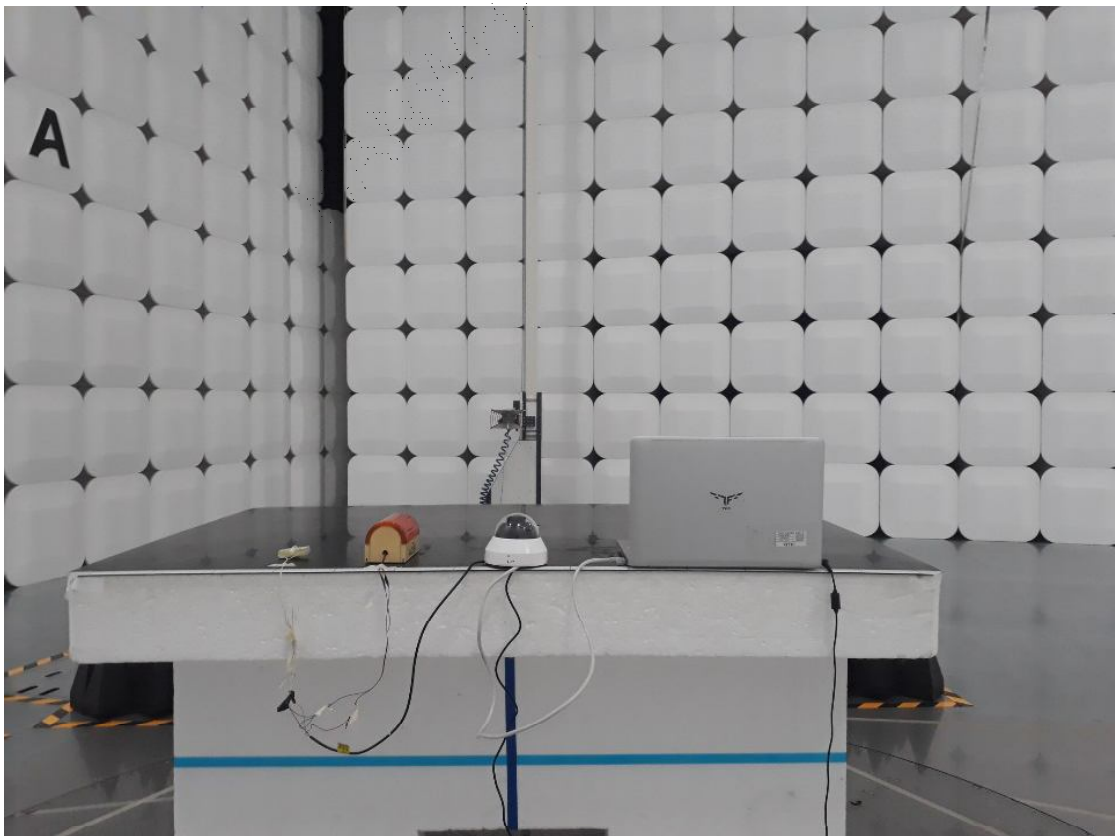
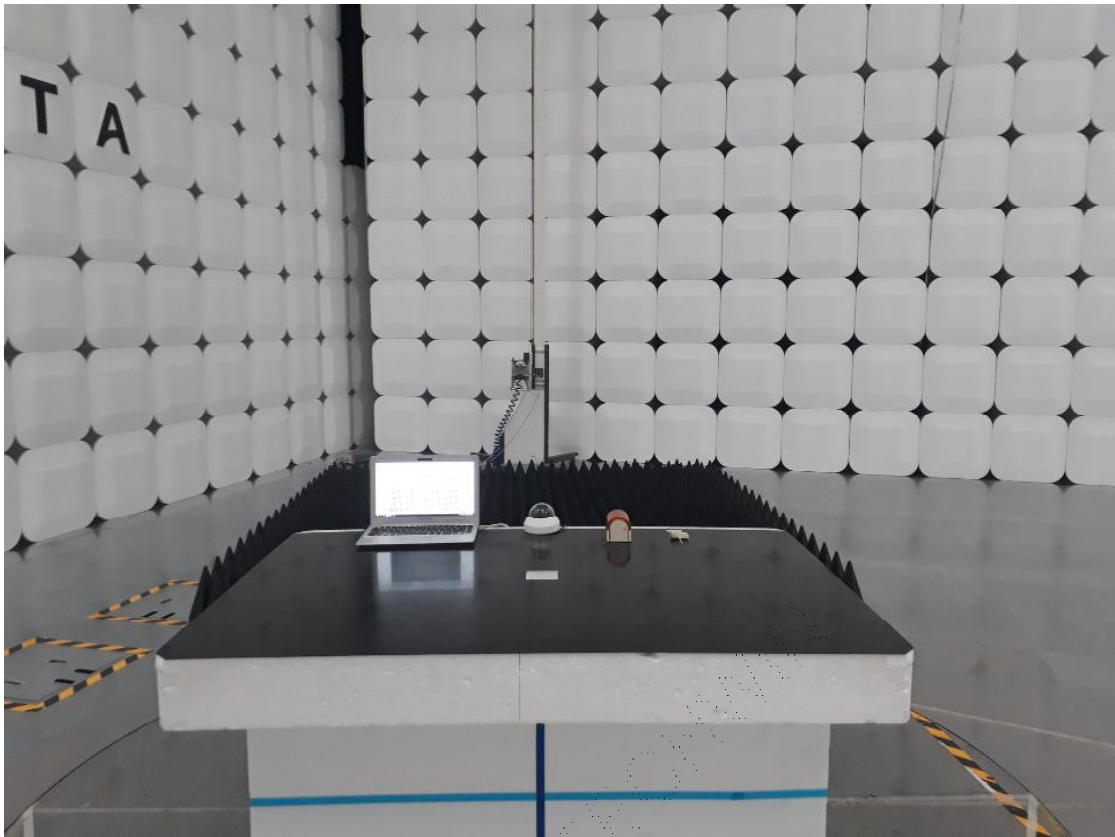
Radiated emission (Maximum emission configuration)-Below 1 GHz / REC mode (DC)



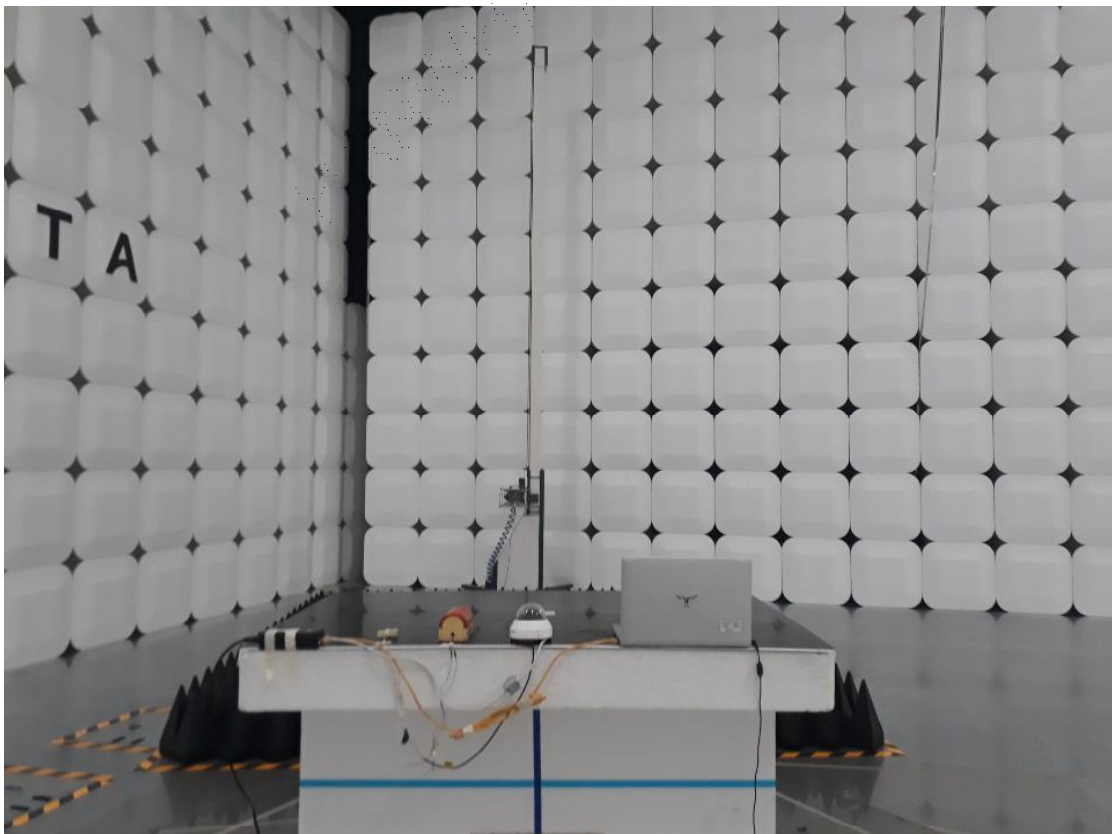
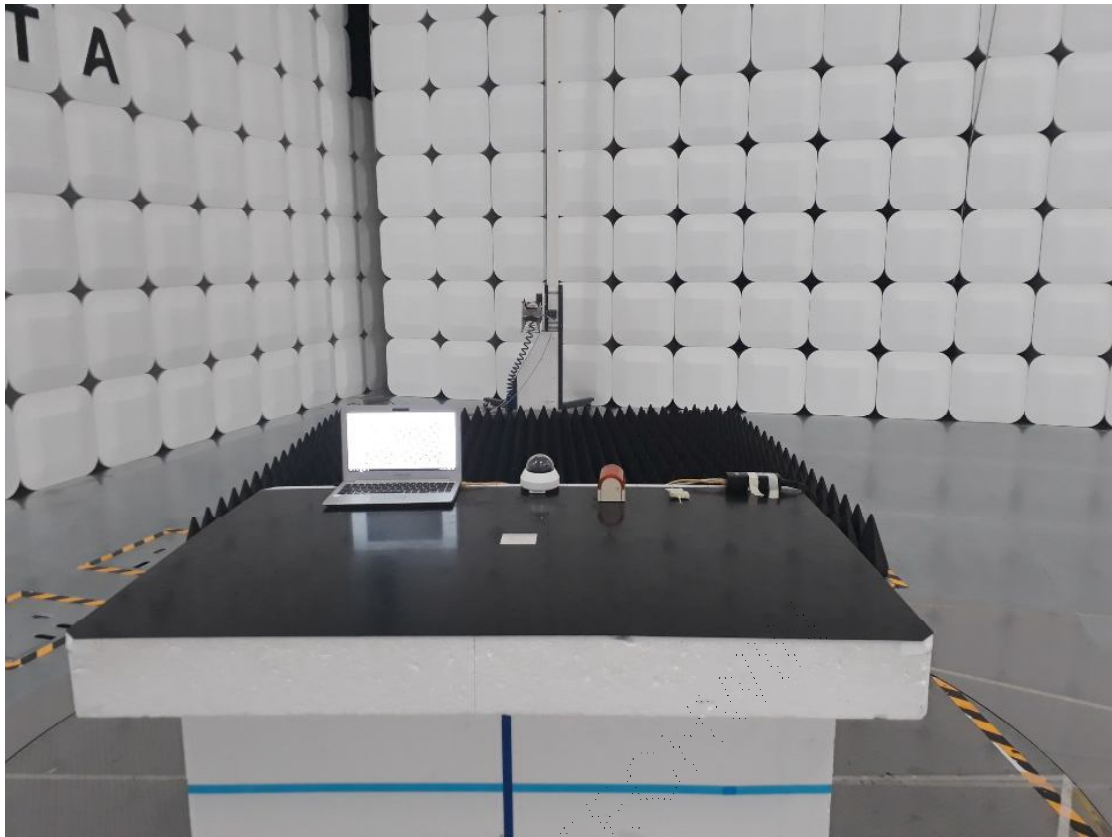
Radiated emission (Maximum emission configuration)-Below 1 GHz / REC mode (POE)



Radiated emission (Maximum emission configuration)-Above 1 GHz / REC mode (DC)



Radiated emission (Maximum emission configuration)-Above 1 GHz / REC mode (POE)



EUT



EUT

