TEST REPORT

Application No.:	KSEM2407001948AT
Applicant:	Qingdao MicroSense Intelligent Technology Co.,Ltd
Address of Applicant:	Room 803, Floor 8, Building F, Innovation Park II, No.1, Keyuan Wei 1st Road, Laoshan District, Qingdao, Shandong, China
Manufacturer:	Qingdao MicroSense Intelligent Technology Co.,Ltd
Address of Manufacturer:	Room 803, Floor 8, Building F, Innovation Park II, No.1, Keyuan Wei 1st Road, Laoshan District, Qingdao, Shandong, China
Factory:	Qingdao MicroSense Intelligent Technology Co.,Ltd
Address of Factory:	Room 803, Floor 8, Building F, Innovation Park II, No.1, Keyuan Wei 1st Road, Laoshan District, Qingdao, Shandong, China
Equipment Under Test (EUT):	
EUT Name:	3D TOF CAMERA
Model No.:	NYX650,NYX650S,NYX650L,NYX650N,NYX650H, NYX660,NYX660S,NYX660L,NYX660N,NYX660H ♣
♣	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark:	Vzense
Standard(s) :	ICES-003: Issue 7 October 2020
Date of Receipt:	2024-07-29
Date of Test:	2024-08-13 to 2024-08-16
Date of Issue:	2024-08-21
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Revision Record			
Version	**Description**	***Date***	***Remark***
00	Original	2024-08-21	/

Authorized for issue by:				
Tested By		Lee Li **Lee Li /Project Engineer**		
Approved By		Terry Hou **Terry Hou /Reviewer**		

2 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Radiated Emissions (30MHz-1GHz)	ICES-003: Issue 7 October 2020	ANSI C63.4:2014	Class A	Pass
Radiated Emissions (Above 1GHz)		ANSI C63.4:2014	Class A	Pass

Declaration of EUT Family Grouping:

There are series models mentioned in this report and they are the Identical in electrical and electronic characters. Only the model NYX650, NYX660 was tested since their differences were the model number and appearance.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	DC 12-24V

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
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The EUT has been tested as an independent unit.			

4.3 Measurement Uncertainty & Decision Rule

Measurement Uncertainty:

No.	Item	Measurement Uncertainty (U_{LAB}) *	U_{CISPR}
1	Conducted Emission at mains port using AMN	2.4dB (9kHz to 150kHz)	3.8dB (9kHz to 150kHz)
		2.2dB (150kHz to 30MHz)	3.4dB (150kHz to 30MHz)
2	Conducted Emission at telecommunication port using AAN	4.0 dB (150kHz to 30MHz)	5.0dB (150kHz to 30MHz)
3	Radiated Power	3.2dB	4.5dB (30MHz to 300MHz)
4	Radiated Emission (10m)	4.1 dB	6.3dB (30MHz-1GHz)
5	Radiated Emission (3m)	4.6 dB (30MHz-1GHz)	6.3dB (30MHz-1GHz)
		5.0dB (1GHz-6GHz)	5.2dB (1GHz-6GHz)
		5.2dB (6GHz-18GHz)	5.5dB (6GHz-18GHz)
		5.3dB (18GHz-40GHz)	N/A

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Decision Rule:

• CISPR 16-4-2 for emission measurements is as below described.
Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

U_{LAB} less than U_{CISPR}, therefore:

– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit.

– non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

• For immunity testing no decision rule is applicable.

4.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1.SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).

2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

3. Sample source: sent by customer.

4.5 Test Facility

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

• A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

• VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Radiated Emissions (30MHz-1GHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	R&S	ESCI	KS301196	08/24/2023	08/23/2024
Antenna	TESEQ	CBL 6112D	KUS1806E006	03/23/2024	03/22/2025
Spectrum Analyzer	R&S	FSU26	KS301206	03/19/2024	03/18/2025
Preamplifier	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-2	01/15/2024	01/14/2025
Horn-antenna	SCHWARZBECK	BBHA9120D	KS301111	01/15/2024	01/14/2025
Signal Analyzer	R&S	FSV40	KUS1806E003	08/24/2023	08/23/2024
Amplifier	COM-POWER	PAM-840A	KUS1710E001	01/15/2024	01/14/2025
Broad-Band Horn Antenna	SCHWARZBECK	BBHA 9170	CZ301058	01/15/2024	01/14/2025
Software	Faratronic	EZ_EMC v 3A1	N/A	N/A	N/A

Radiated Emissions (Above 1GHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Spectrum Analyzer	R&S	FSU26	KS301206	03/19/2024	03/18/2025
Preamplifier	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-2	01/15/2024	01/14/2025
Horn-antenna	SCHWARZBECK	BBHA9120D	KS301079	03/19/2024	03/18/2025
Antenna	SCHAFFNER	CBL6143	CZ301091	10/25/2022	10/24/2024
Software	Faratronic	EZ_EMC-v 3A1	N/A	N/A	N/A

General used equipment					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Digital Pressure Meter	Mengde	DYM3	CZ750023	01/15/2024	01/14/2025
Temperature & Humidity Recorder	JDRK	RS-WS-N01-6J	KSEM024-1 KSEM024-2 KSEM024-3 KSEM024-6 KSEM024-7 KSEM024--8 KSEM024--9	03/19/2024	03/18/2025

6 Emission Test Results

6.1 Radiated Emissions (30MHz-1GHz)

Test Requirement: ICES-003: Issue 7 October 2020
Test Method: ANSI C63.4:2014

Limit:

	Class A
Test Distance:	3m
30MHz -88MHz:	49.4(dBμV/m) quasi-peak
88MHz-216MHz:	54.0(dBμV/m) quasi-peak
216MHz-230MHz:	56.9(dBμV/m) quasi-peak
230MHz-960MHz:	57.0(dBμV/m) quasi-peak
960MHz-1000MHz:	60.0(dBμV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

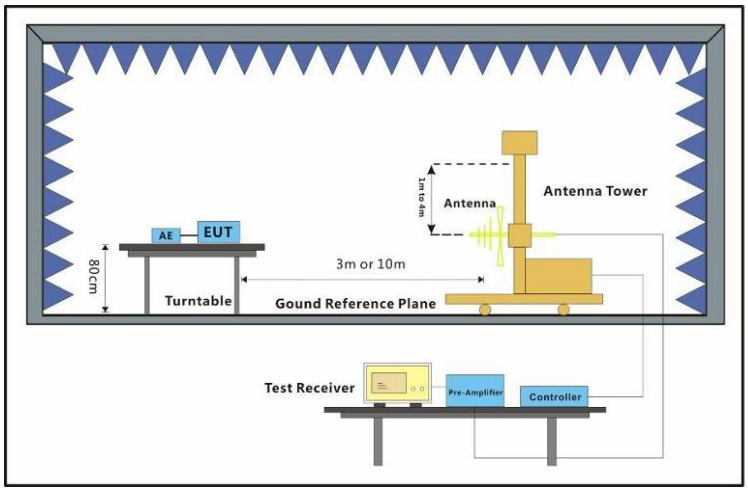
6.1.1 E.U.T. Operation

Operating Environment:
Temperature: 23.1 °C Humidity: 54.7 % RH Atmospheric Pressure: 1010 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(NYX660) working continuously with Auxiliary equipment
Final test	01	Keep EUT2_(NYX650) working continuously with Auxiliary equipment

6.1.3 Test Setup Diagram

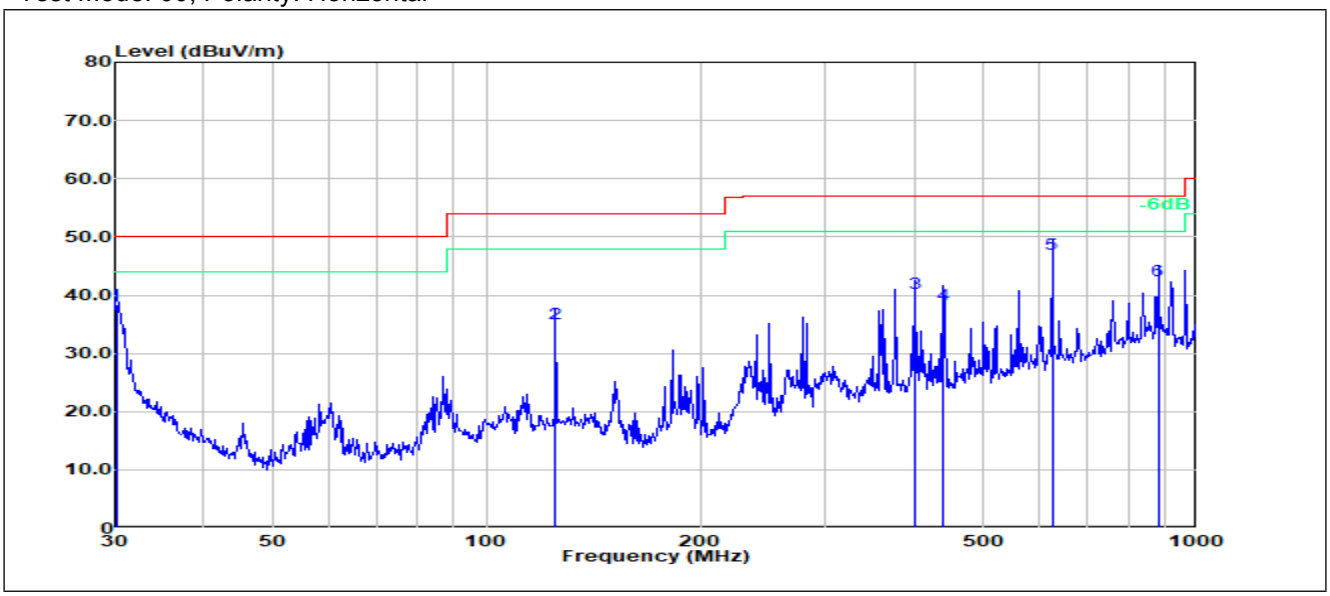


6.1.4 Measurement Procedure and Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

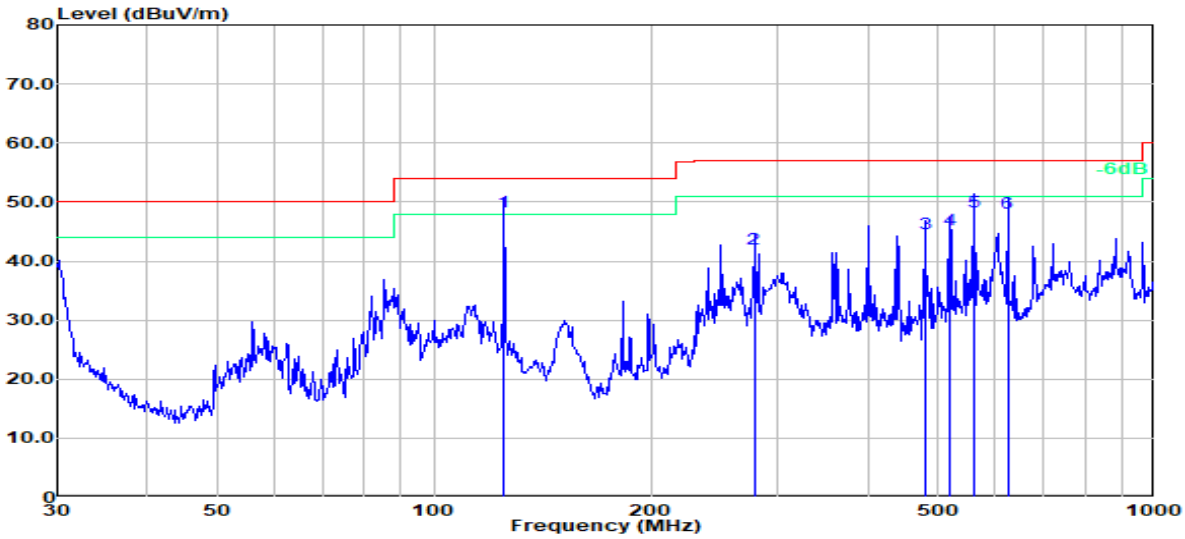
Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Test Mode: 00; Polarity: Horizontal



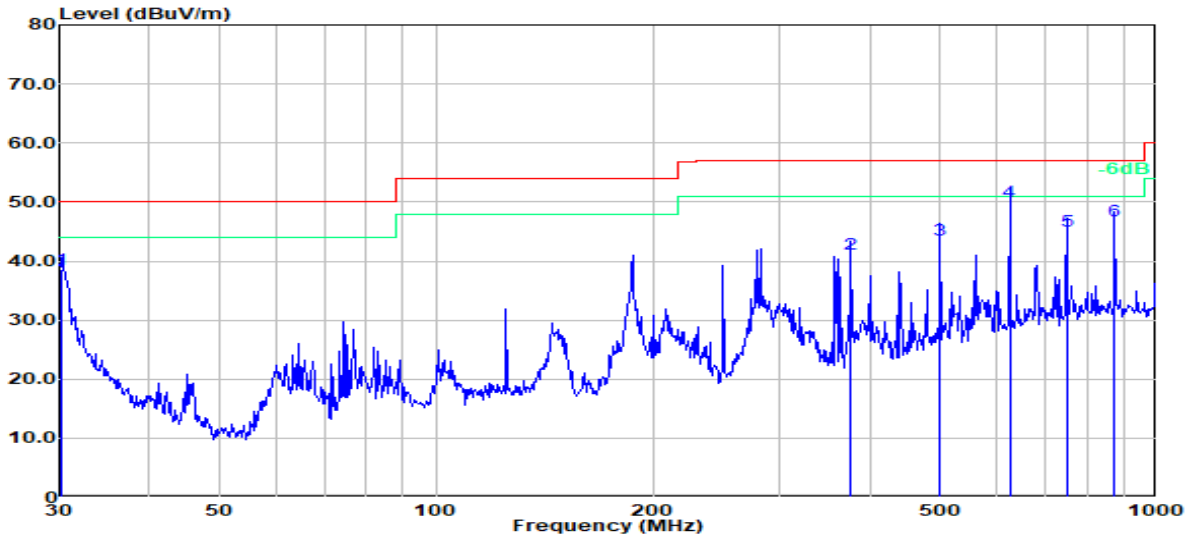
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	30.1054	19.08	19.34	38.42	50.00	-11.58	100	0	QP
2	125.0066	20.49	14.70	35.19	54.00	-18.81	100	359	QP
3	400.4319	22.33	17.98	40.31	57.00	-16.69	100	1	QP
4	438.6554	19.26	19.16	38.42	57.00	-18.58	100	1	QP
5	625.0781	24.20	22.91	47.11	57.00	-9.89	100	206	QP
6	881.4067	16.97	25.58	42.55	57.00	-14.45	200	350	QP

Test Mode: 00; Polarity: Vertical



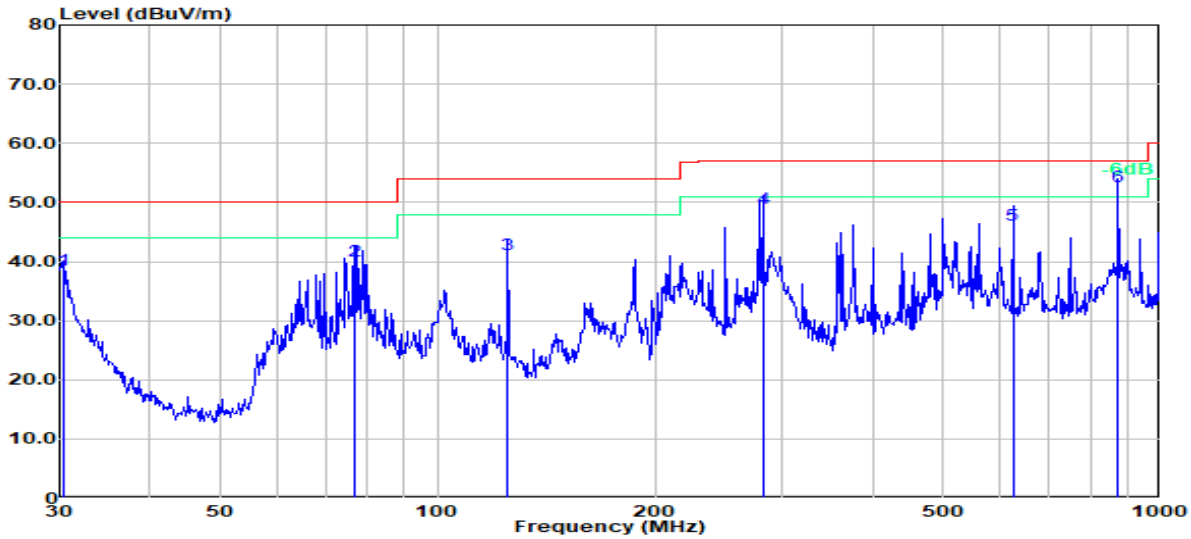
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	125.0070	33.62	14.70	48.32	54.00	-5.68	100	292	QP
2	278.0670	26.67	15.38	42.05	57.00	-14.95	100	59	QP
3	480.5280	24.44	20.18	44.62	57.00	-12.38	100	360	QP
4	519.0650	23.76	21.47	45.23	57.00	-11.77	100	31	QP
5	560.6930	25.97	22.40	48.37	57.00	-8.63	200	3	QP
6	625.0780	25.20	22.91	48.11	57.00	-8.89	100	272	QP

Test Mode: 01; Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	30.2110	19.41	19.25	38.66	50.00	-11.34	100	13	QP
2	375.9390	24.31	16.99	41.30	57.00	-15.70	200	347	QP
3	501.1790	22.71	20.91	43.62	57.00	-13.38	100	293	QP
4	625.0780	27.21	22.91	50.12	57.00	-6.88	100	69	QP
5	750.1080	20.81	24.29	45.10	57.00	-11.90	100	283	QP
6	875.2470	21.56	25.26	46.82	57.00	-10.18	100	41	QP

Test Mode: 01; Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	30.4240	19.54	19.08	38.62	50.00	-11.38	100	65	QP
2	76.7810	30.59	9.62	40.21	50.00	-9.79	100	18	QP
3	125.0070	26.41	14.70	41.11	54.00	-12.89	100	8	QP
4	281.9950	33.48	15.48	48.96	57.00	-8.04	100	167	QP
5	625.0780	23.37	22.91	46.28	57.00	-10.72	100	253	QP
6	875.2470	27.35	25.26	52.61	57.00	-4.39	100	28	QP

6.2 Radiated Emissions (Above 1GHz)

Test Requirement: ICES-003: Issue 7 October 2020
Test Method: ANSI C63.4:2014

Limit:

Test Distance:	3m
Above 1GHz:	80(dBμV/m) peak, 60(dBμV/m) average
Detector:	Peak for pre-scan (1MHz resolution bandwidth) 1GHz to 40GHz

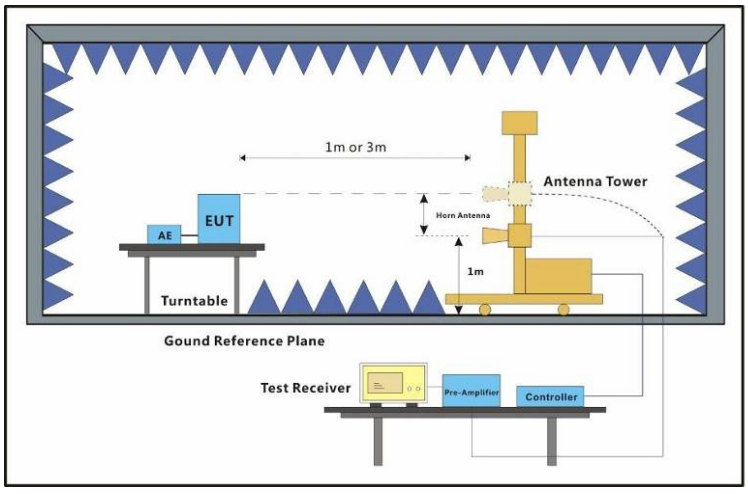
6.2.1 E.U.T. Operation

Operating Environment:
Temperature: 24.5 °C Humidity: 51.2 % RH Atmospheric Pressure: 1010 mbar

6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Keep EUT1_(NYX660) working continuously with Auxiliary equipment
Final test	01	Keep EUT2_(NYX650) working continuously with Auxiliary equipment

6.2.3 Test Setup Diagram

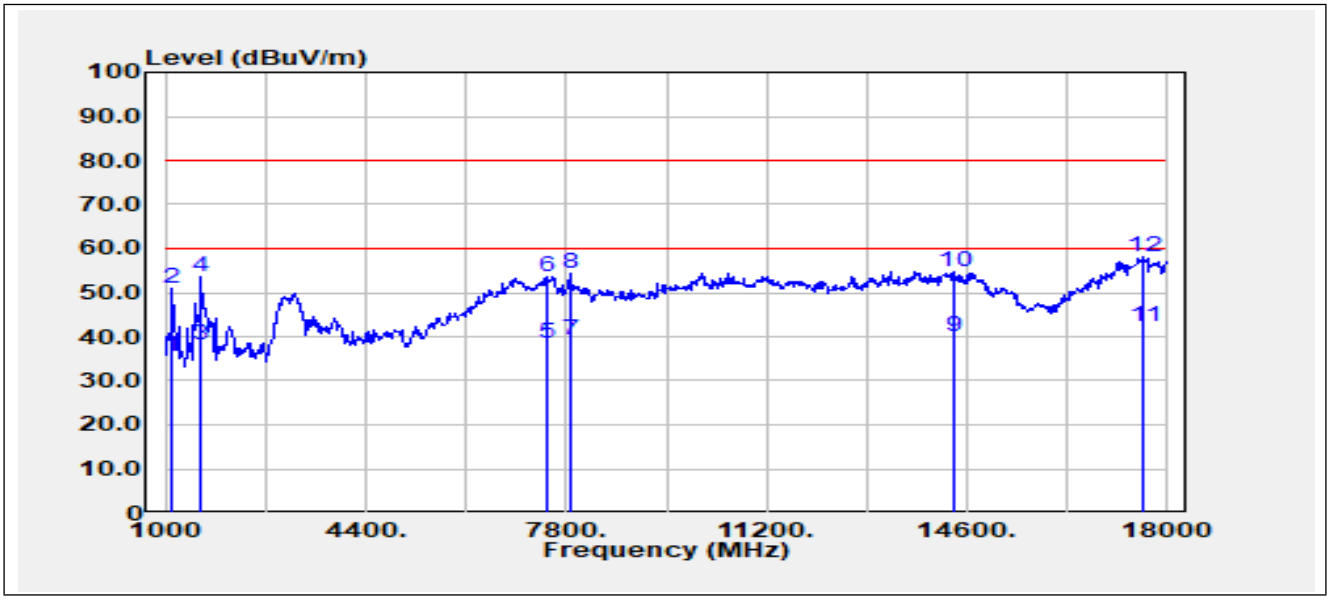


6.2.4 Measurement Procedure and Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

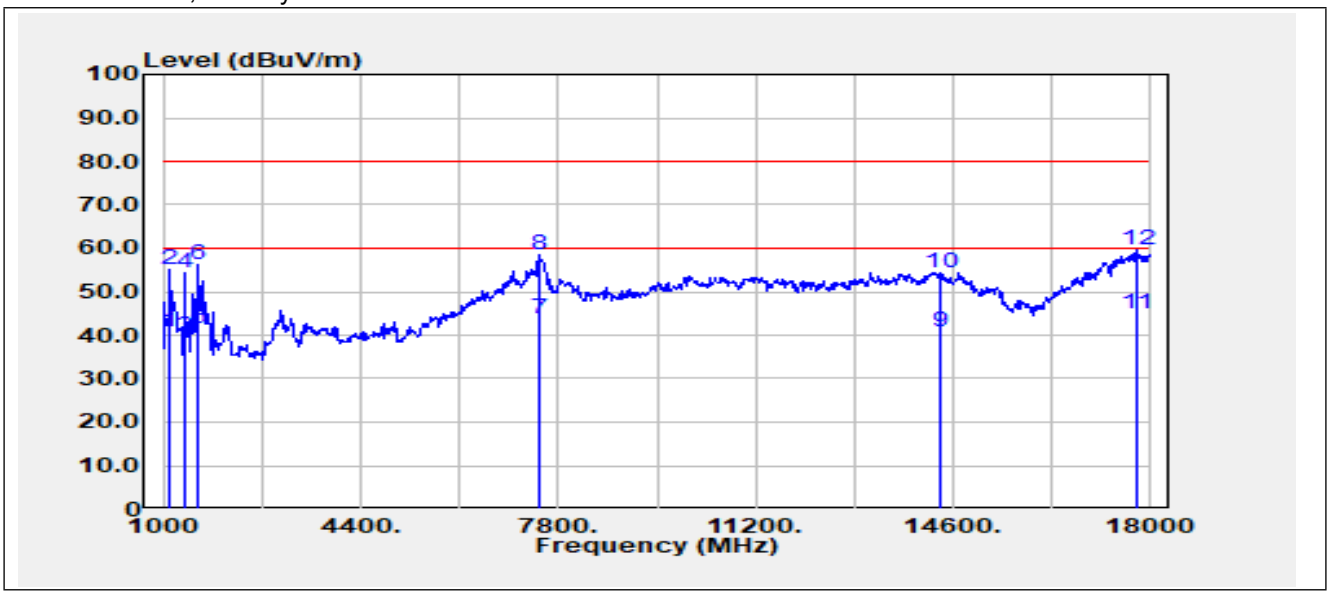
Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Test Mode: 00; Polarity: Horizontal



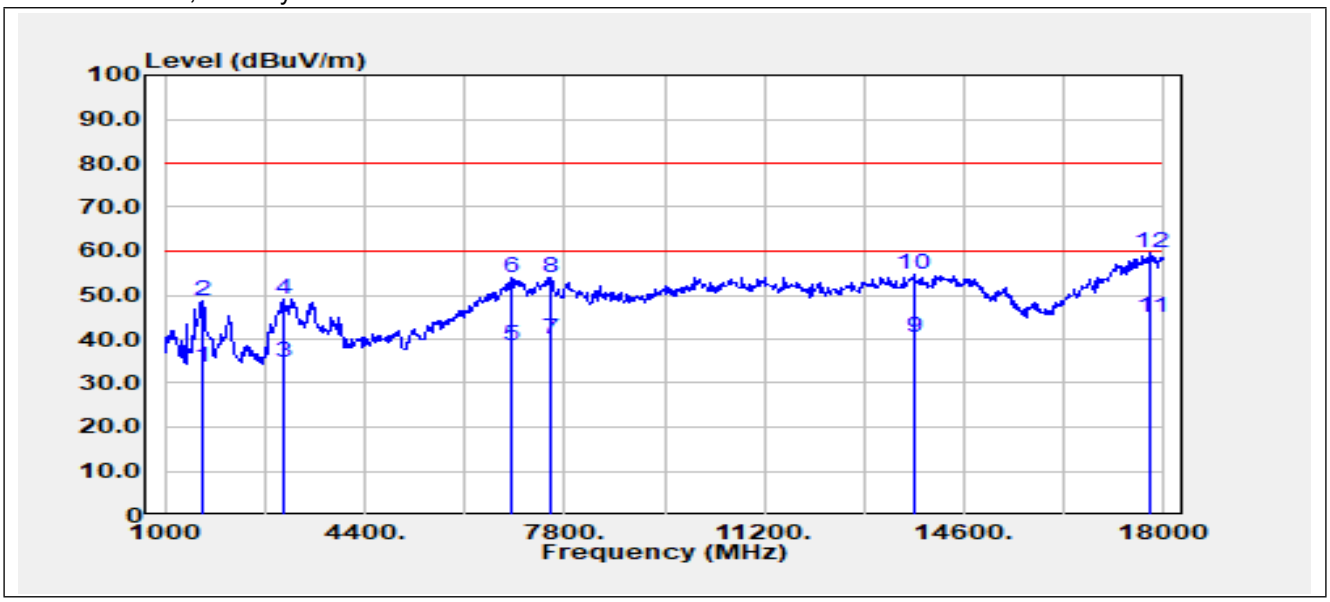
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	1119.00	58.30	-22.64	35.66	60.00	-24.34	100	242	Average
2	1119.00	73.49	-22.64	50.85	80.00	-29.15	100	242	Peak
3	1612.00	58.73	-20.56	38.17	60.00	-21.83	200	197	Average
4	1612.00	74.08	-20.56	53.52	80.00	-26.48	200	197	Peak
5	7460.00	39.35	-0.88	38.47	60.00	-21.53	100	57	Average
6	7460.00	54.48	-0.88	53.60	80.00	-26.40	100	57	Peak
7	7868.00	40.71	-1.40	39.31	60.00	-20.69	100	158	Average
8	7868.00	55.57	-1.40	54.17	80.00	-25.83	100	158	Peak
9	14362.00	36.05	3.83	39.88	60.00	-20.12	300	256	Average
10	14362.00	50.81	3.83	54.64	80.00	-25.36	300	256	Peak
11	17592.00	33.89	8.31	42.20	60.00	-17.80	100	319	Average
12	17592.00	49.68	8.31	57.99	80.00	-22.01	100	319	Peak

Test Mode: 00; Polarity: Vertical



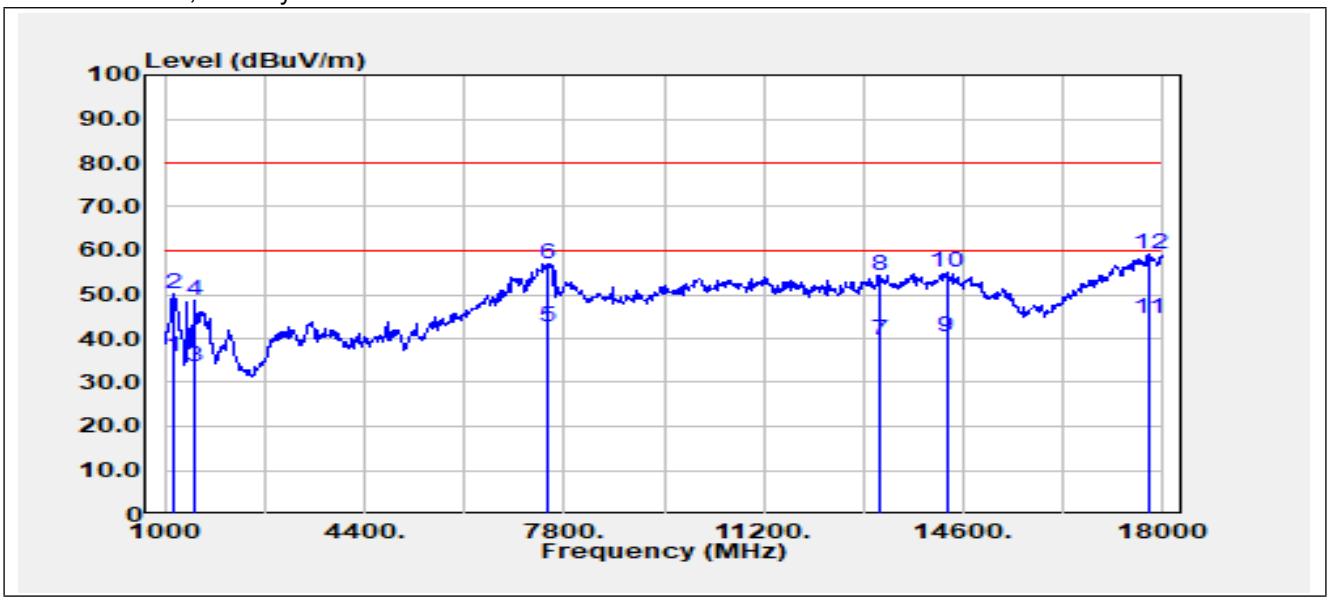
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	1119.00	63.33	-22.64	40.69	60.00	-19.31	100	242	Average
2	1119.00	77.58	-22.64	54.94	80.00	-25.06	100	242	Peak
3	1374.00	61.18	-21.40	39.78	60.00	-20.22	100	80	Average
4	1374.00	75.68	-21.40	54.28	80.00	-25.72	100	80	Peak
5	1612.00	61.89	-20.56	41.33	60.00	-18.67	200	256	Average
6	1612.00	76.95	-20.56	56.39	80.00	-23.61	200	256	Peak
7	7460.00	44.57	-0.88	43.69	60.00	-16.31	100	90	Average
8	7460.00	59.48	-0.88	58.60	80.00	-21.40	100	90	Peak
9	14362.00	37.02	3.83	40.85	60.00	-19.15	300	282	Average
10	14362.00	50.66	3.83	54.49	80.00	-25.51	300	282	Peak
11	17745.00	35.08	9.77	44.85	60.00	-15.15	100	95	Average
12	17745.00	49.78	9.77	59.55	80.00	-20.45	100	95	Peak

Test Mode: 01; Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1629.00	54.22	-20.53	33.69	60.00	-26.31	100	170	Average
2	1629.00	69.13	-20.53	48.60	80.00	-31.40	100	170	Peak
3	3040.00	50.45	-15.67	34.78	60.00	-25.22	200	347	Average
4	3040.00	64.78	-15.67	49.11	80.00	-30.89	200	347	Peak
5	6882.00	39.91	-1.52	38.39	60.00	-21.61	100	130	Average
6	6882.00	55.43	-1.52	53.91	80.00	-26.09	100	130	Peak
7	7579.00	41.12	-0.99	40.13	60.00	-19.87	100	157	Average
8	7579.00	55.10	-0.99	54.11	80.00	-25.89	100	157	Peak
9	13733.00	37.76	2.79	40.55	60.00	-19.45	300	285	Average
10	13733.00	51.89	2.79	54.68	80.00	-25.32	300	285	Peak
11	17779.00	34.68	10.09	44.77	60.00	-15.23	100	215	Average
12	17779.00	49.37	10.09	59.46	80.00	-20.54	100	215	Peak

Test Mode: 01; Polarity: Vertical

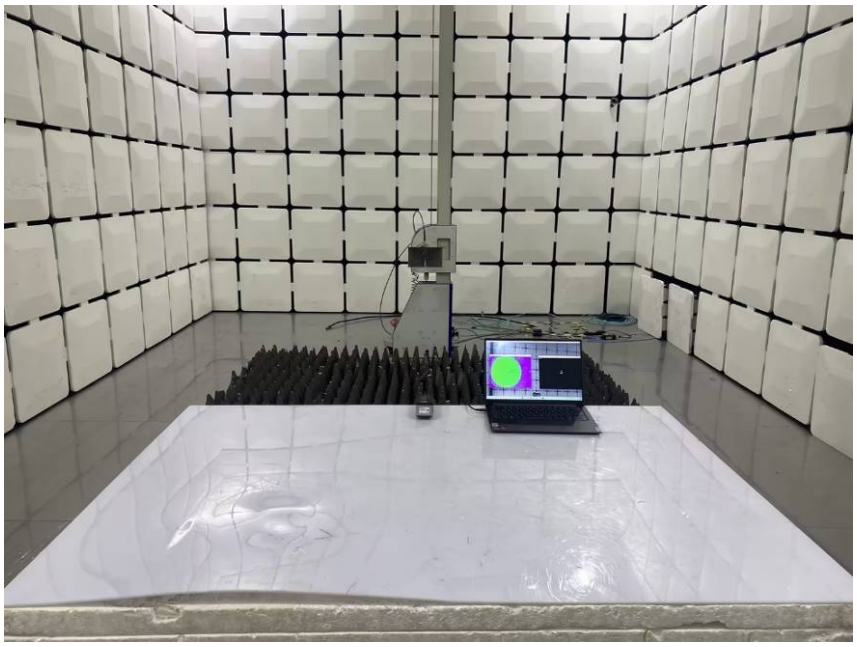


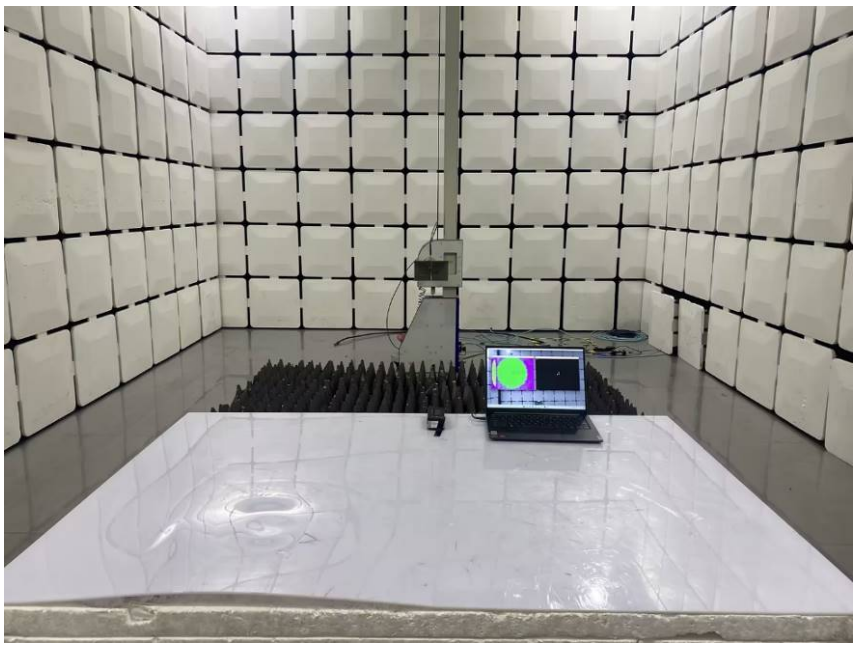
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1170.00	58.37	-22.39	35.98	60.00	-24.02	100	353	Average
2	1170.00	72.75	-22.39	50.36	80.00	-29.64	100	353	Peak
3	1510.00	54.24	-20.77	33.47	60.00	-26.53	300	4	Average
4	1510.00	69.44	-20.77	48.67	80.00	-31.33	300	4	Peak
5	7528.00	43.61	-0.92	42.69	60.00	-17.31	100	89	Average
6	7528.00	58.01	-0.92	57.09	80.00	-22.91	100	89	Peak
7	13189.00	37.04	2.43	39.47	60.00	-20.53	100	2	Average
8	13189.00	51.97	2.43	54.40	80.00	-25.60	100	2	Peak
9	14311.00	36.81	3.72	40.53	60.00	-19.47	200	248	Average
10	14311.00	51.47	3.72	55.19	80.00	-24.81	200	248	Peak
11	17745.00	34.85	9.77	44.62	60.00	-15.38	100	121	Average
12	17745.00	49.31	9.77	59.08	80.00	-20.92	100	121	Peak

7 Test Setup Photo

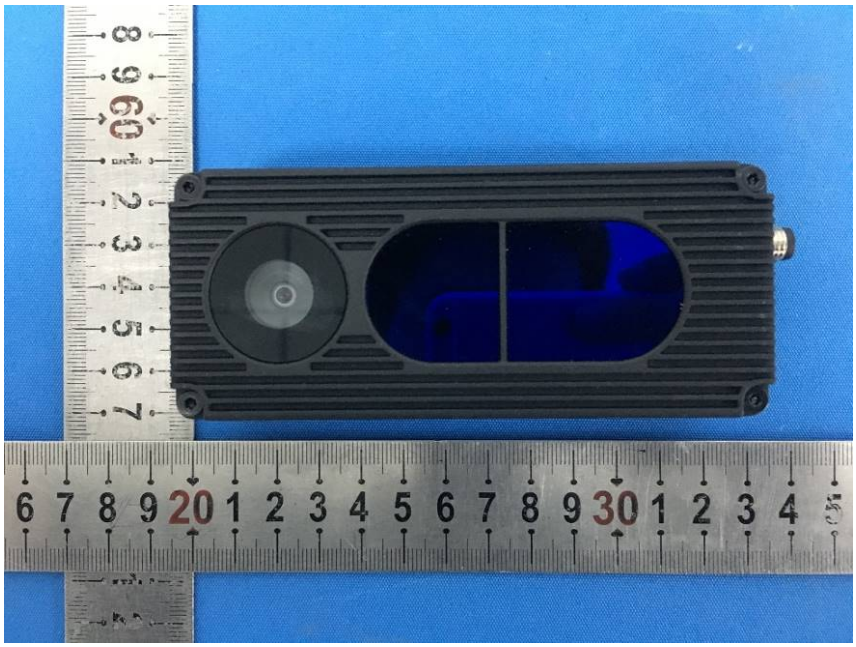
Radiated Emissions (30MHz-1GHz)

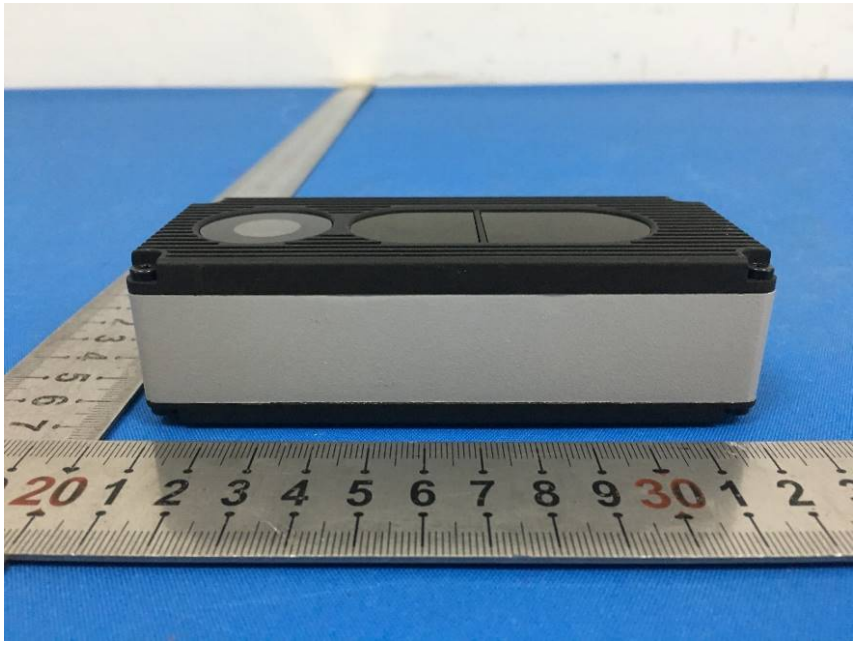
Radiated Emissions (Above 1GHz)

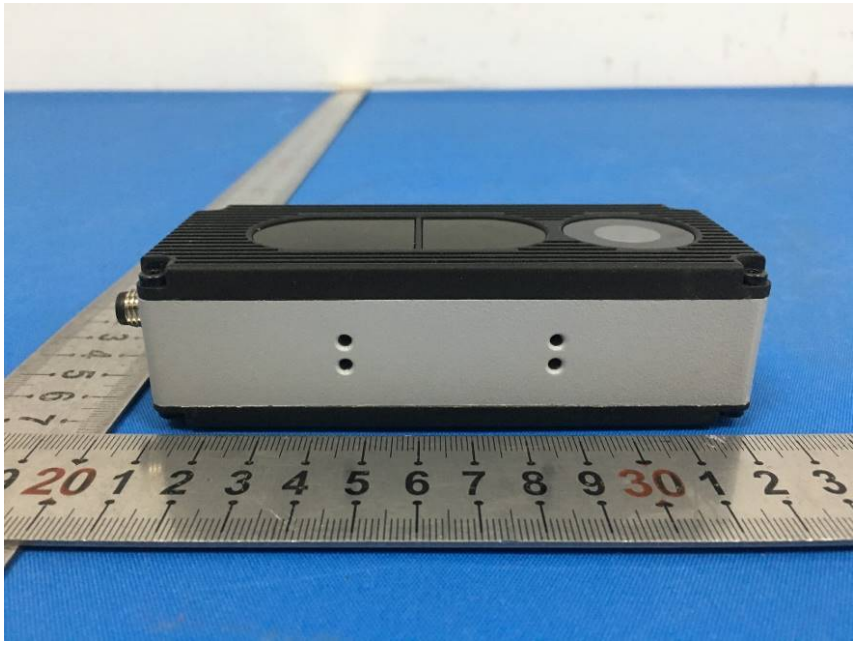


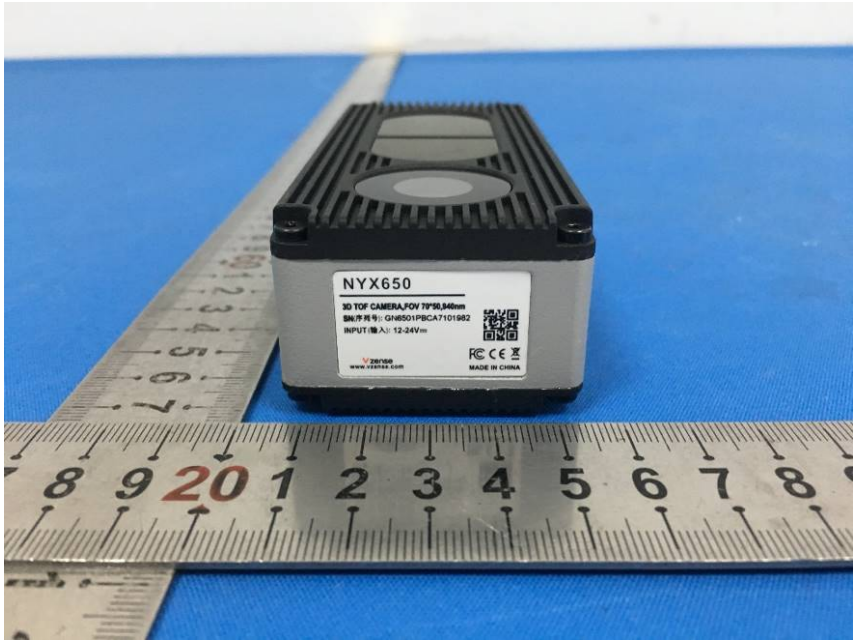


8 EUT Constructional Details (EUT Photos)








NYX650


NYX650
3D TOF CAMERA,FOV 70*50,940nm
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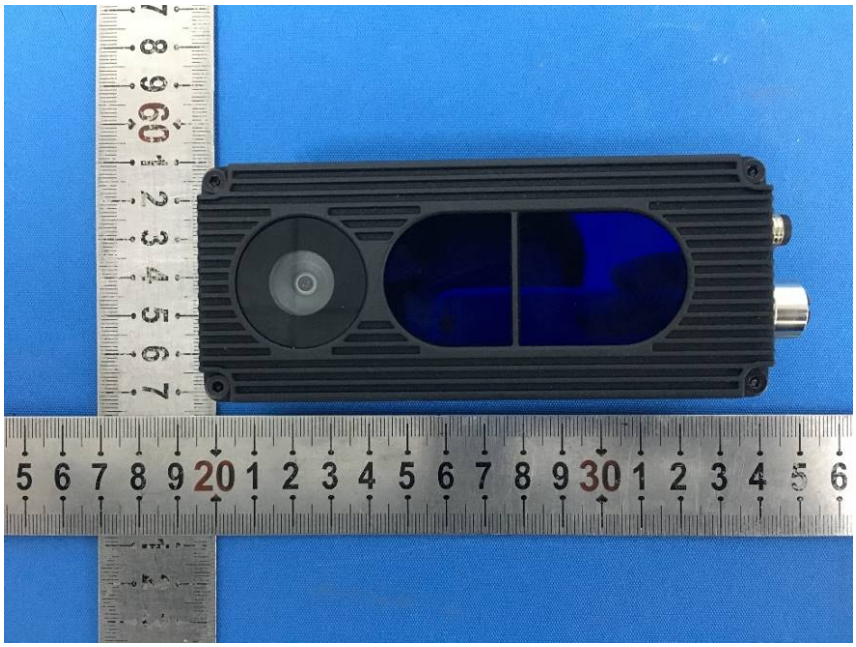
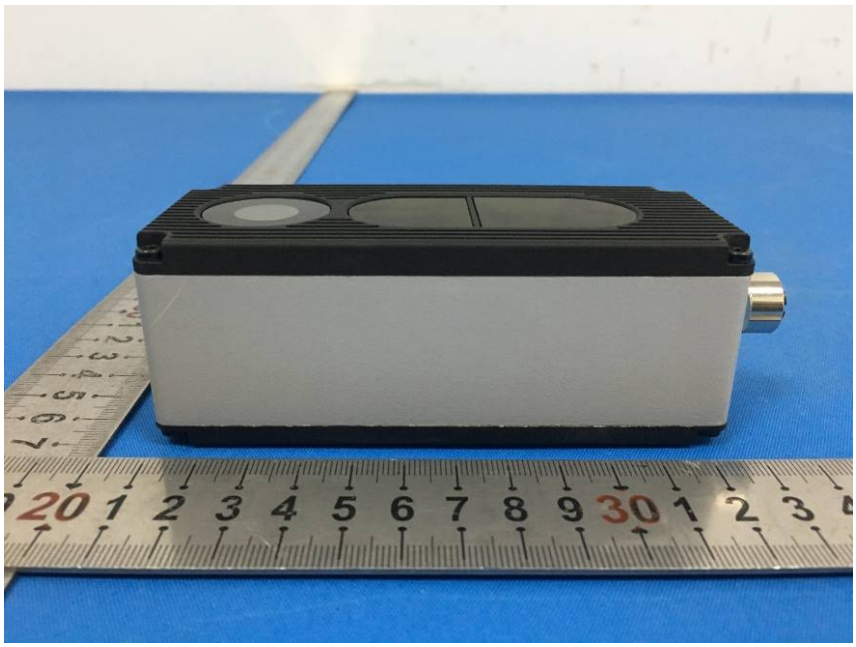
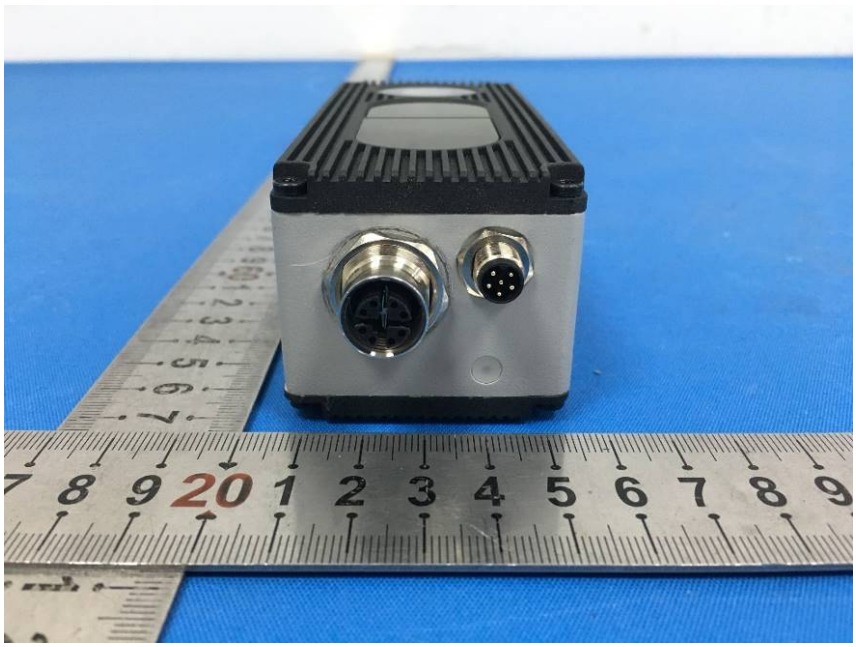
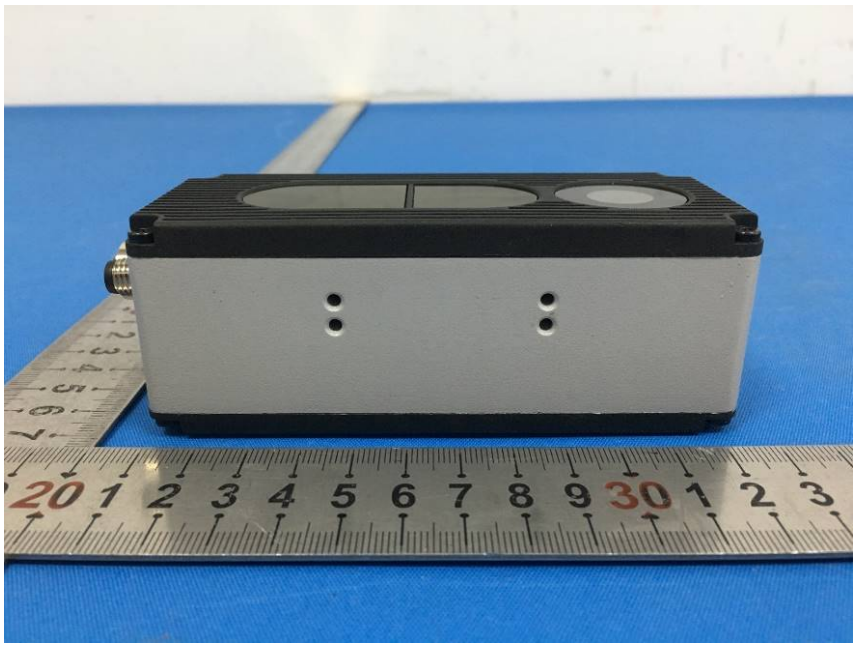
INPUT(输入): 12-24V
Vzense
www.vzense.com
MADE IN CHINA

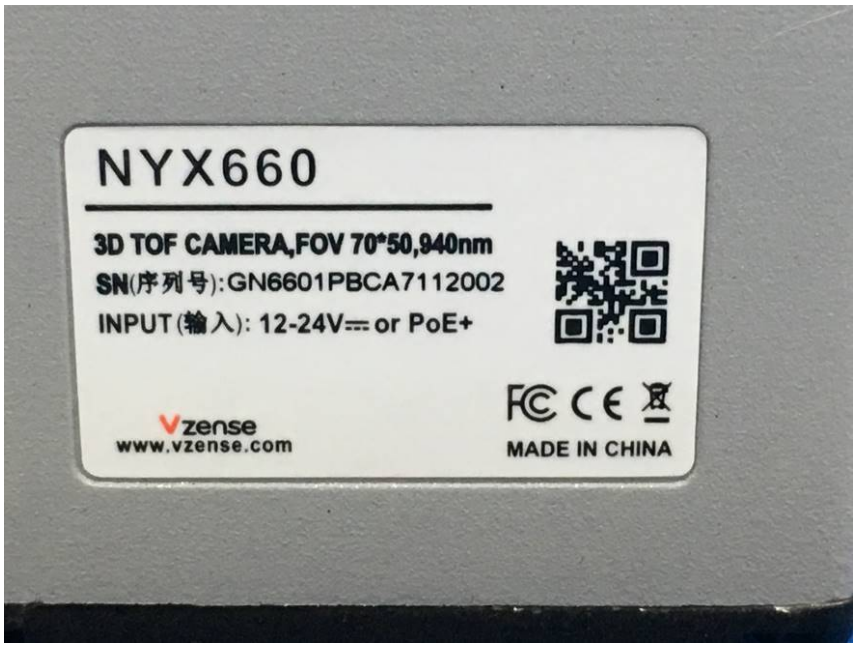









NYX660
3D TOF CAMERA,FOV 70*50,940nm
MADE IN CHINA



- End of the Report -