

ANTENNA INFORMATION

OEM	Lenovo
ODM	HuaQin
Platform model name	LVN CB Duet 11M889, LVN Chrome Duet EDU G2
Intel platform (ex: Yes, No or NA)	No
Platform type (ex: regular NB, convertible PC, AIO...etc)	Detachable
SAR minimum separation (mm)	0.8mm

Antenna manufacturer	Company name	INNOWAVE
	Address	Building H, Jintu Zhizao Garden, No. 55 Shengchuang Road, Yushan Town, Kunshan City, Jiangsu Province
Test location	Company name	INNOWAVE
	Address	Building H, Jintu Zhizao Garden, No. 55 Shengchuang Road, Yushan Town, Kunshan City, Jiangsu Province
Test Personnel	Name(Full name)	Liming Peng
	E-mail	pengliming@innowave.cn
	Tel/Mobile	13451693817
Testing date		2024/5/10

Antenna Part number	Main	F001E4101990001
	Aux	F001E4111910001
Antenna type (ex: PIFA, Dipole...etc)		PIFA

Antenna Peak gain w/ cable loss (dBi)*										
	2.4GHz 2400-2483.5 MHz	5.2GHz 5150-5250MHz	5.3GHz 5250-5350MHz	5.6GHz 5470-5725MHz	5.8GHz 5725-5850MHz	5.9GHz 5850-5895MHz	6.2GHz 5925-6425MHz	6.5GHz 6425-6525MHz	6.7GHz 6525-6875MHz	7.0 GHz 6875-7125MHz
Main	2.53	1.95	1.45	2.86	3	2.73				
Aux	1.77	1.72	1.72	1.94	2.04	1.86				

Cable Assembly Part Number and Information					
	Cable PN	Cable length(mm)	Cable diameter(mm)	Impedance(ohm)	Connector type
Main	DSTZX1.13-B	79.33	1.13	50	Kangshuo-MHF-B13L-N-01
Aux	T014D129	195	1.13	50	Kangshuo-MHF-B13L-N-01

* 3D Antenna Peak Gain required being test in system basis.

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1. Intel Reference Gain and Type**NA**

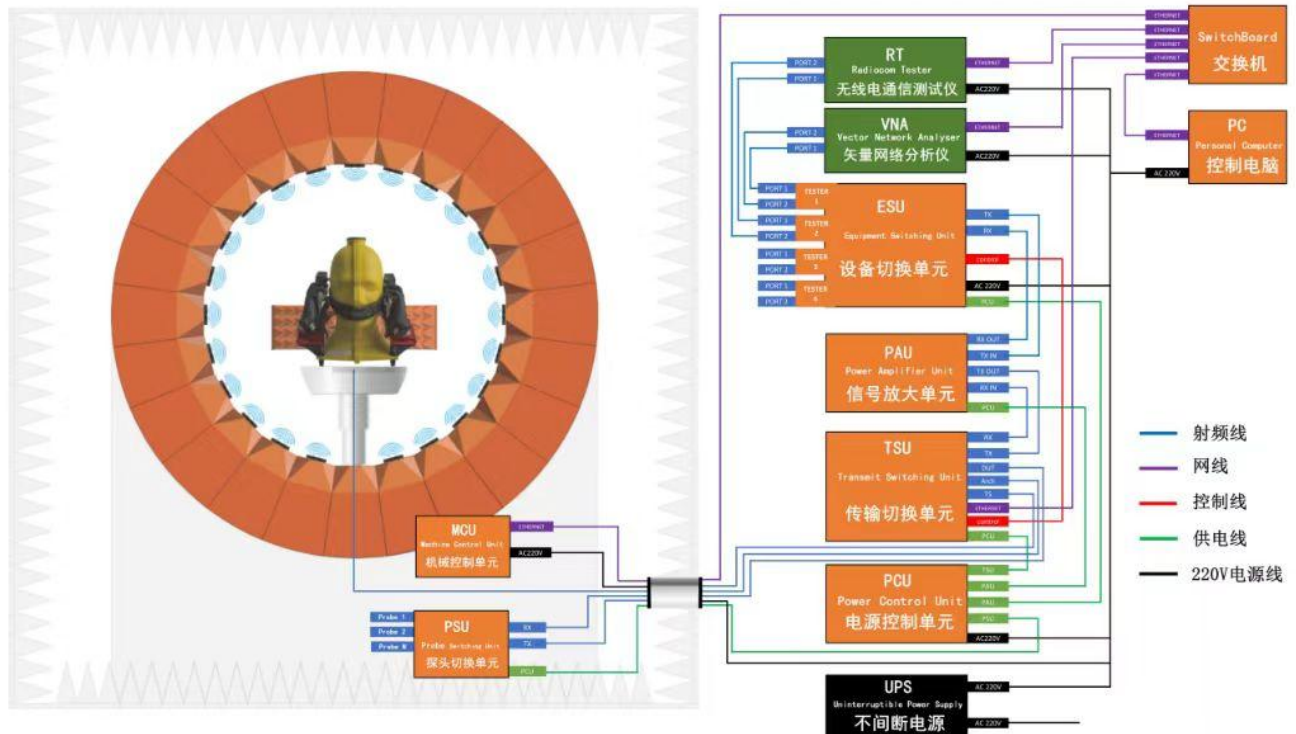
Revision #	Revision Details	Issued Date
Rev. 00	First Issue	2024.05.10

2. Document Revision History

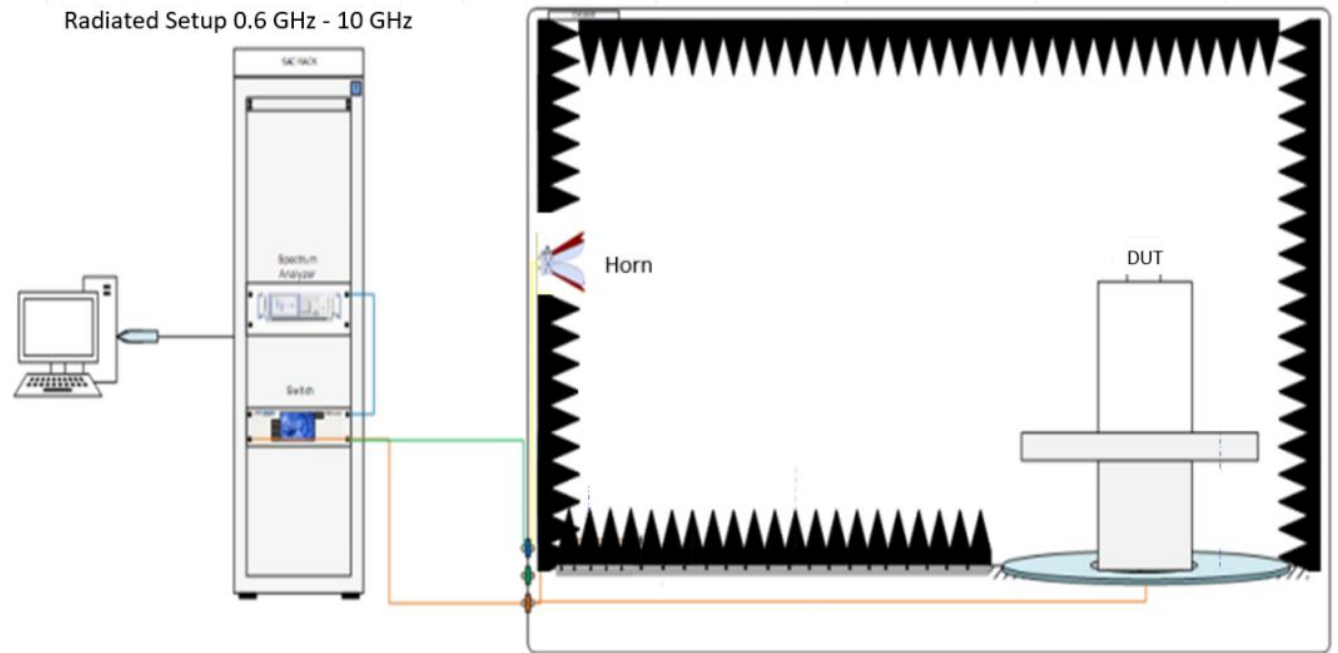
3. Test & System Description

3.1 Measurement Method and System

This test report is prepared by testing in a dark room that is completely silenced and shielded from external signals.



3.2 Test setup



3.3 Equipment list

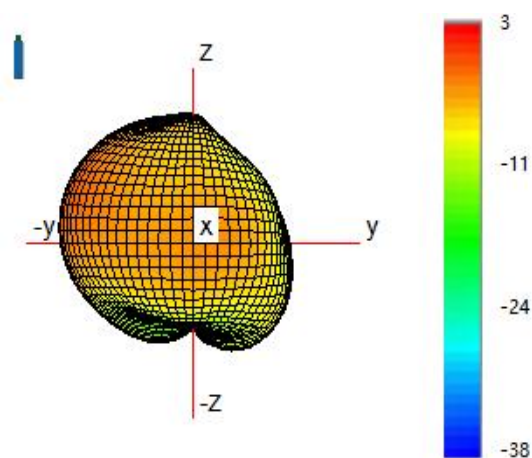
Number	Device	Type/Model	Serial	Manufacturer	Cal. Date	Cal. due. Date
1	Chamber	FATC3	5720	ETS-Lindgren	2024/4/25	2025/4/24
2	Turn table control box	ETS	—	ETS-Lindgren	N/A	N/A
3	Turn table control computer	Desktop	LPTPTOP-JQTOKRA	LENOVO	N/A	N/A
4	Network Analyzer	5071C	5071C	Keysight	2024/4/25	2025/4/24
5	Horn Antenna	3117	E00157734	Bwant	2024/4/23	2025/4/22
6	Test system host	EMC Center	159757	ETS-Lindgren	N/A	N/A
7	RF Line TX	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2024/4/20	2025/4/19
8	RF Line RX	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2024/4/20	2025/4/19
9	Cable 2m 1GHz-8.5GHz	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2024/4/20	2025/4/19
10	Optical fiber line	RXY-00727-1603	—	Jmtt	N/A	N/A
11	Cable 2.5m 1GHz-8.5GHz	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2023/8/21	2024/8/20
12	Cable 1.2m 1GHz-8.5GHz	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2023/8/21	2024/8/20
13	Cable 1m 1GHz-8.5GHz	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2023/8/21	2024/8/20
14	Cable 2m 1GHz-8.5GHz	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2023/8/21	2024/8/20
15	Cable 1m 1GHz-8.5GHz	UFA147A-0-0480-200200	MFR64639223720	Micro-coax	2023/9/13	2024/9/12
16	Temp&Humidity Logger	RA12E-TH1-RAS	RA12-D0EB1A	Avtech	2024/3/20	2025/3/19

4. Radiation characteristics of antenna loaded in Host Platform

Main Antenna

Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.53

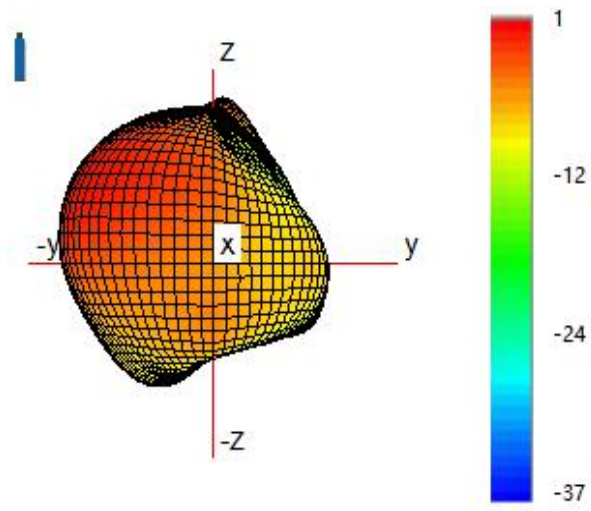


Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
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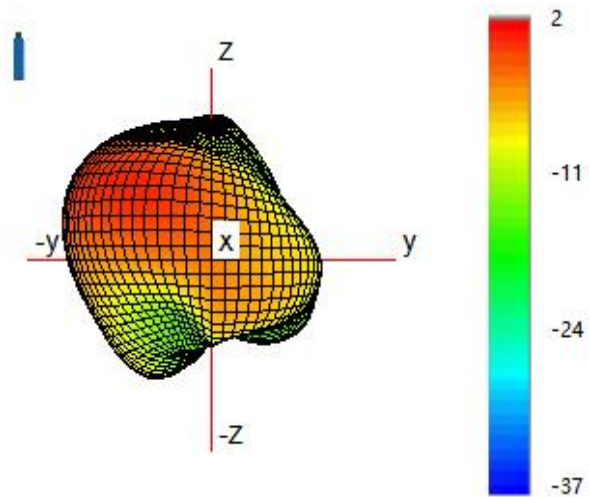
5150-5250

1.95



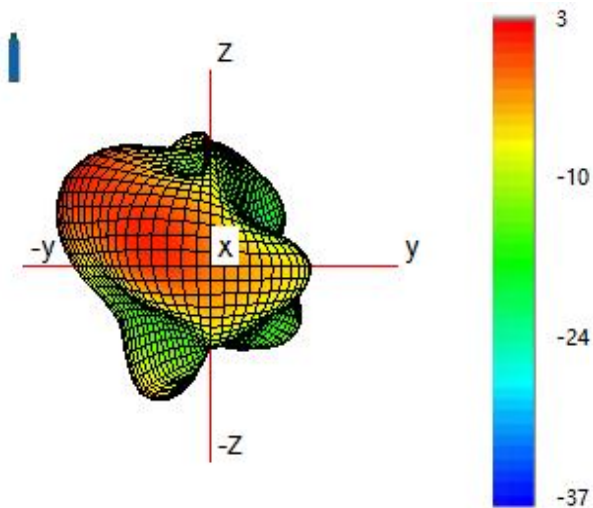
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	1.45



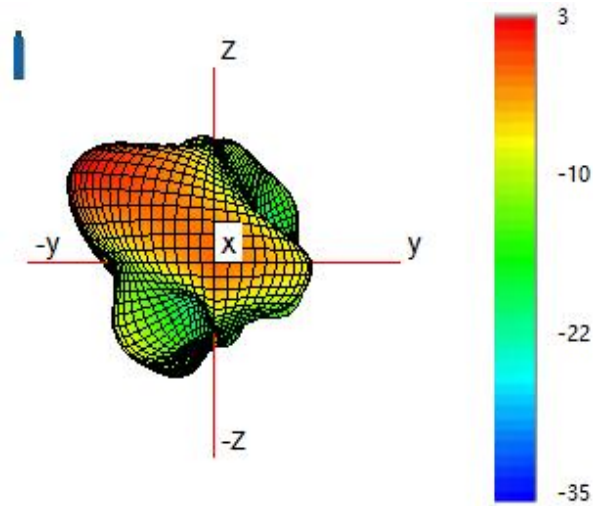
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.86



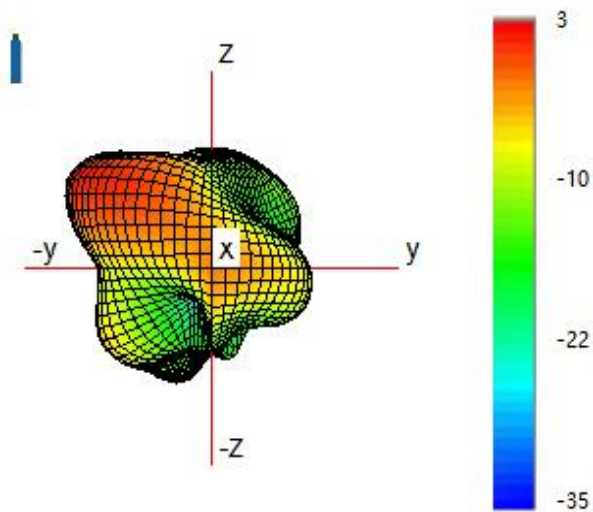
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	3



Max Antenna 3D Radiation Pattern 5850-5895 MHz

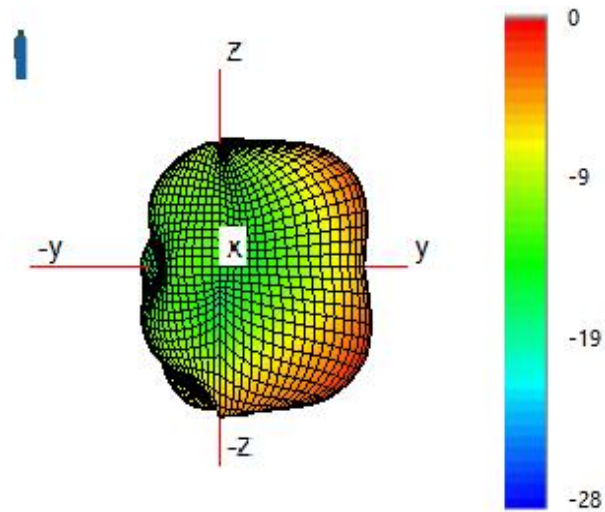
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	2.73



Auxiliary Antenna

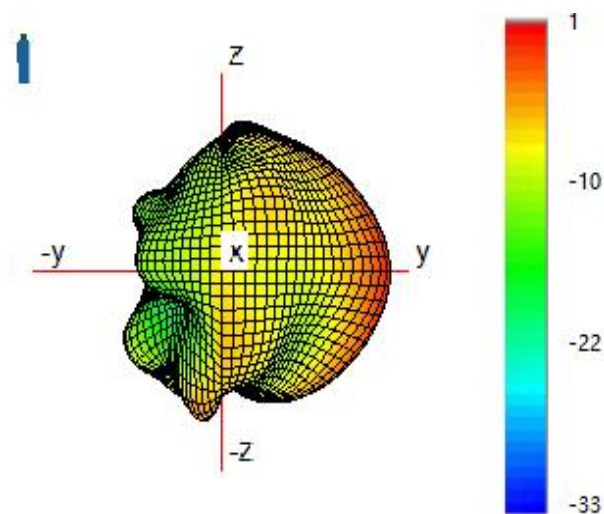
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	1.77



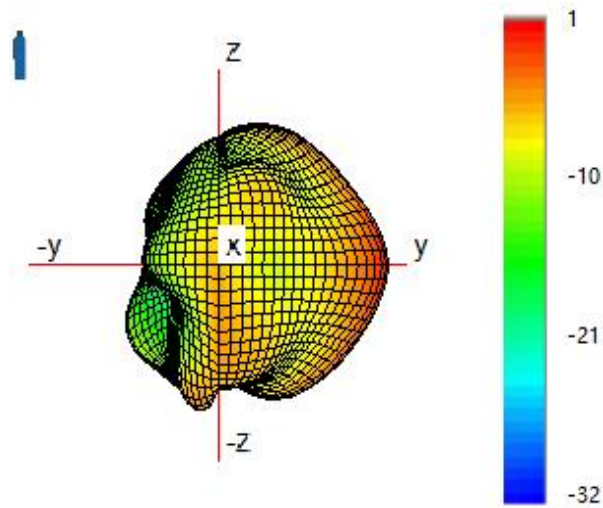
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.72



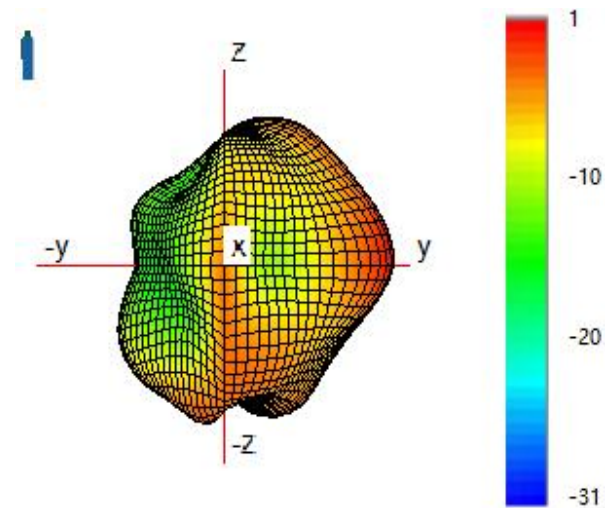
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	1.72



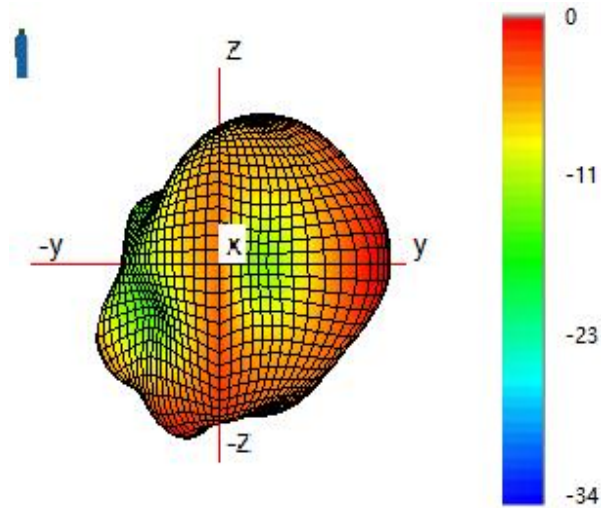
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	1.94



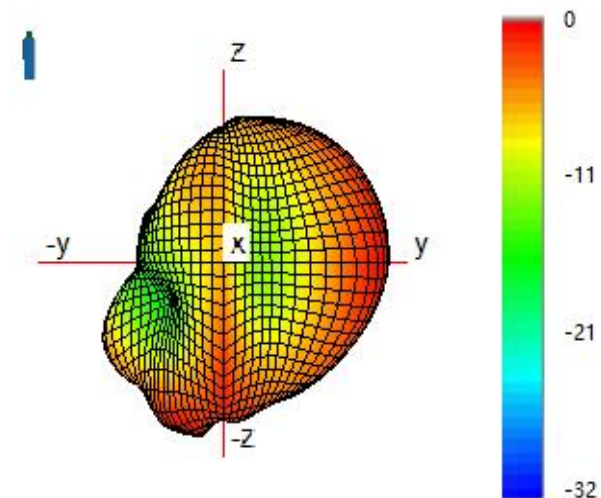
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	2.04



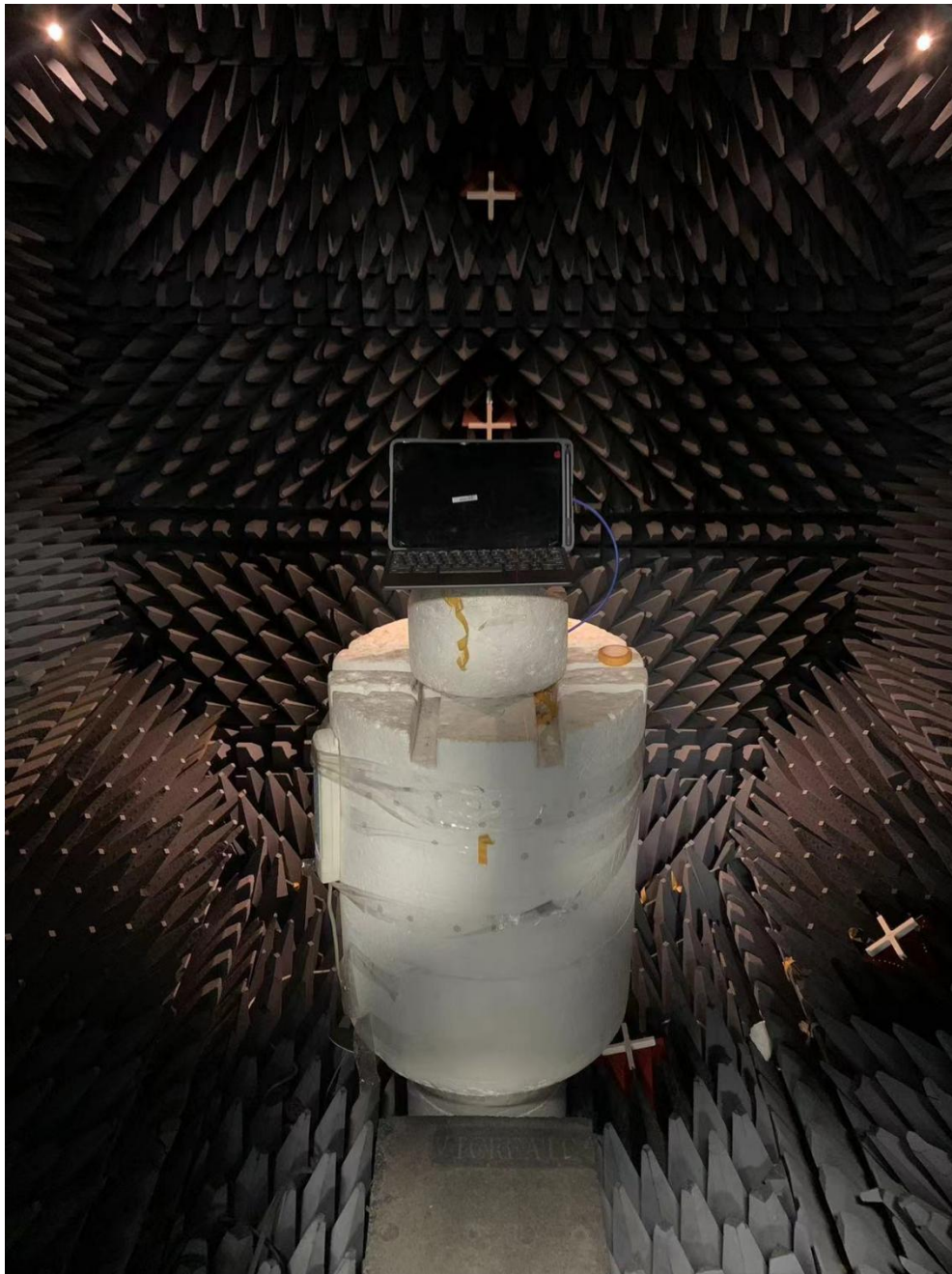
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	1.86



Annex A. Photographs

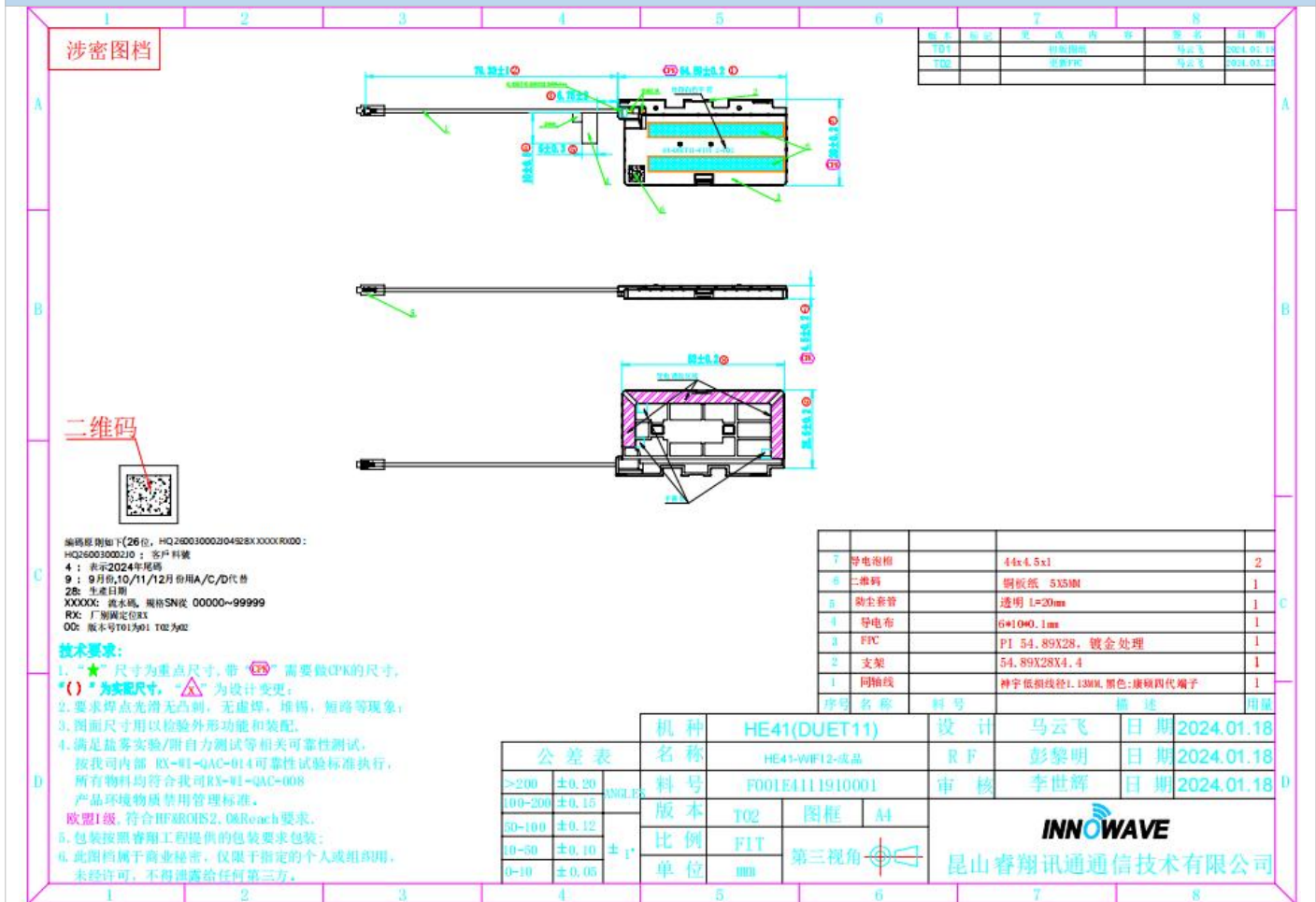
A.1 Setup Photo



A.2 Test sample

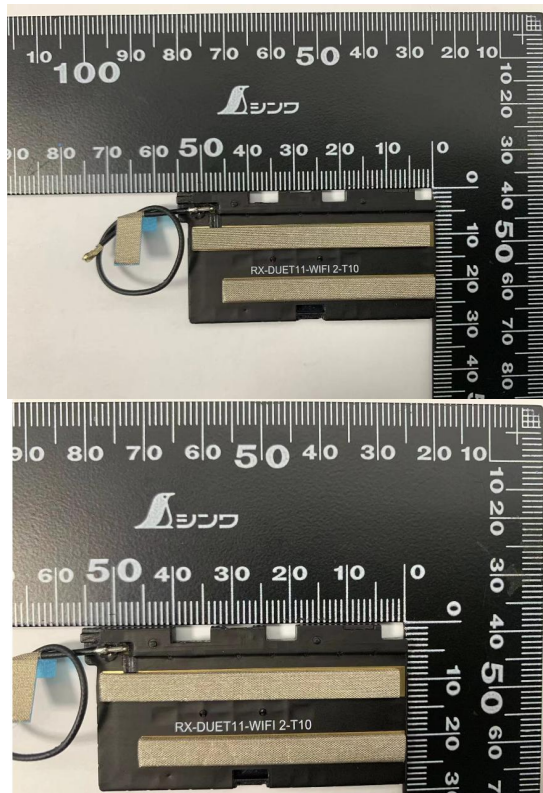
Main Antenna

Antenna Drawing

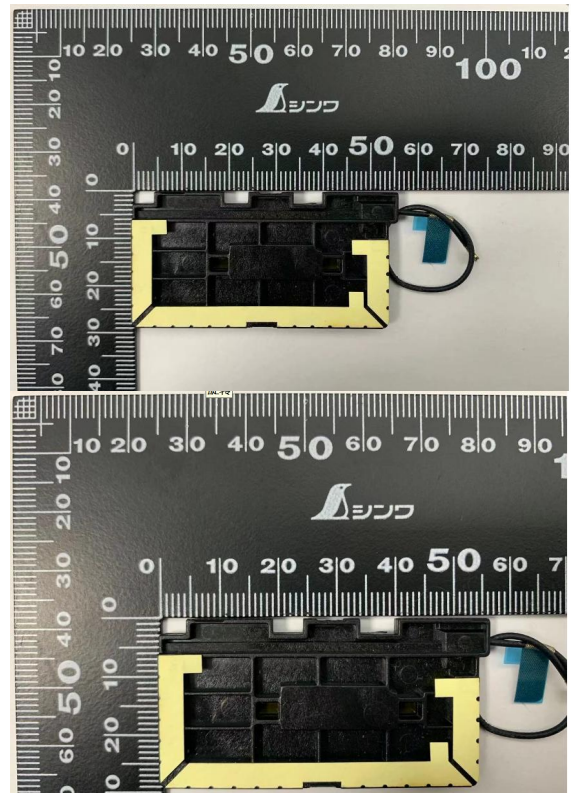


Antenna Photo

Front



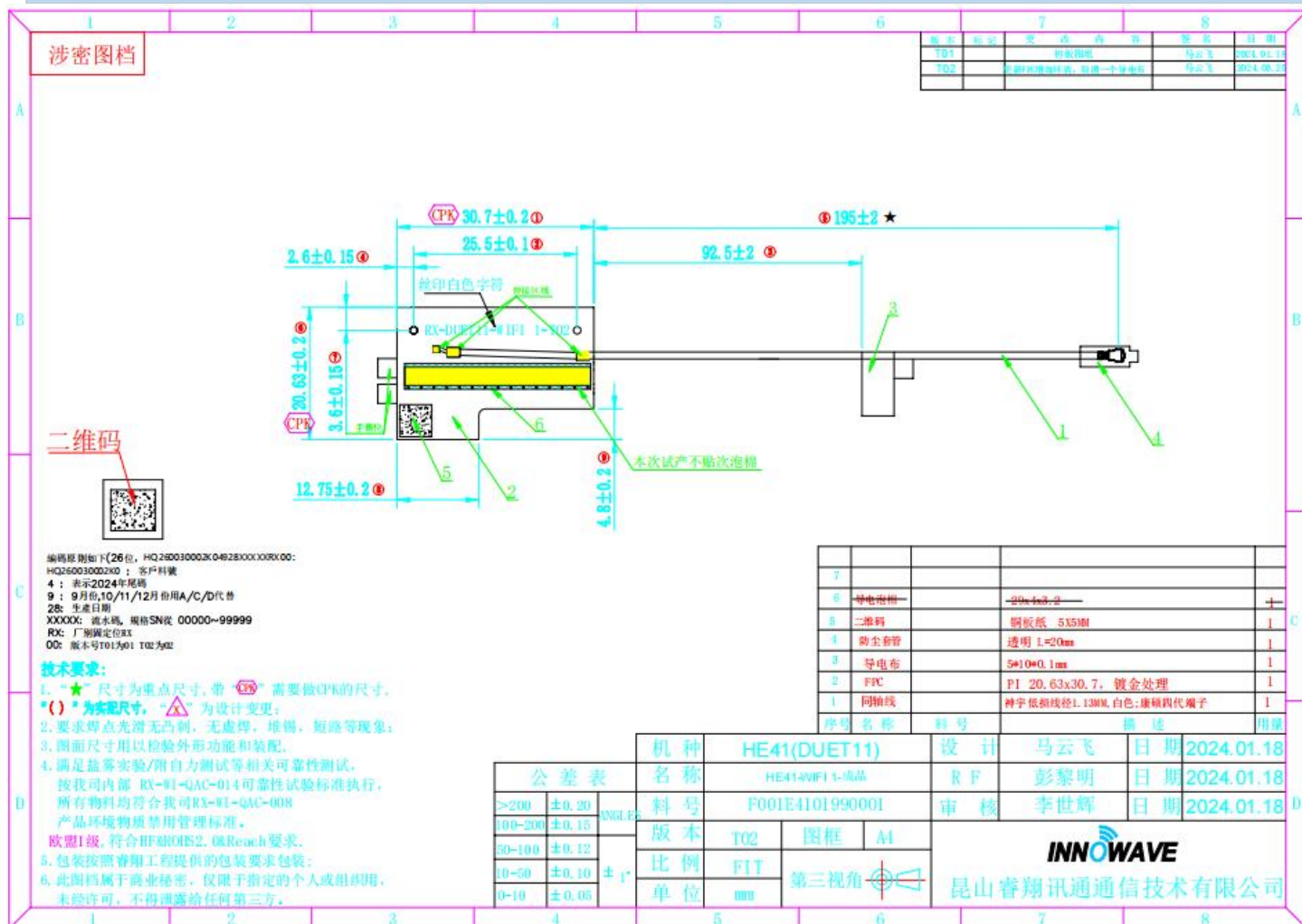
Back



Note: antenna photo should include L type ruler

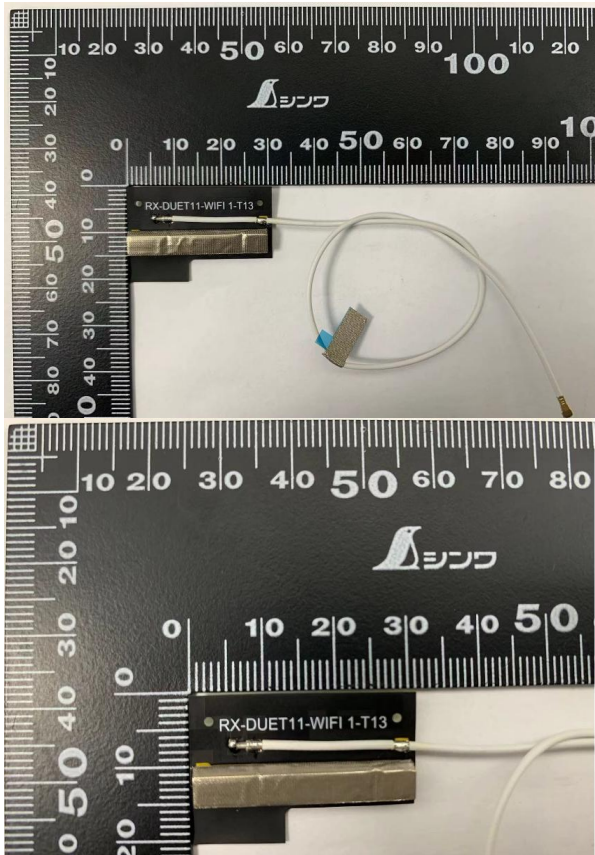
Aux Antenna

Antenna Drawing

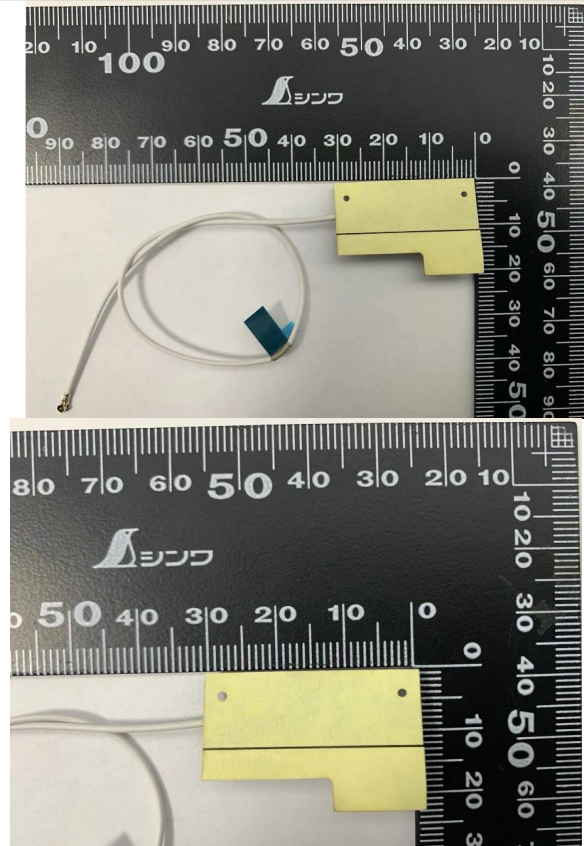


Antenna Photo

Front



Back



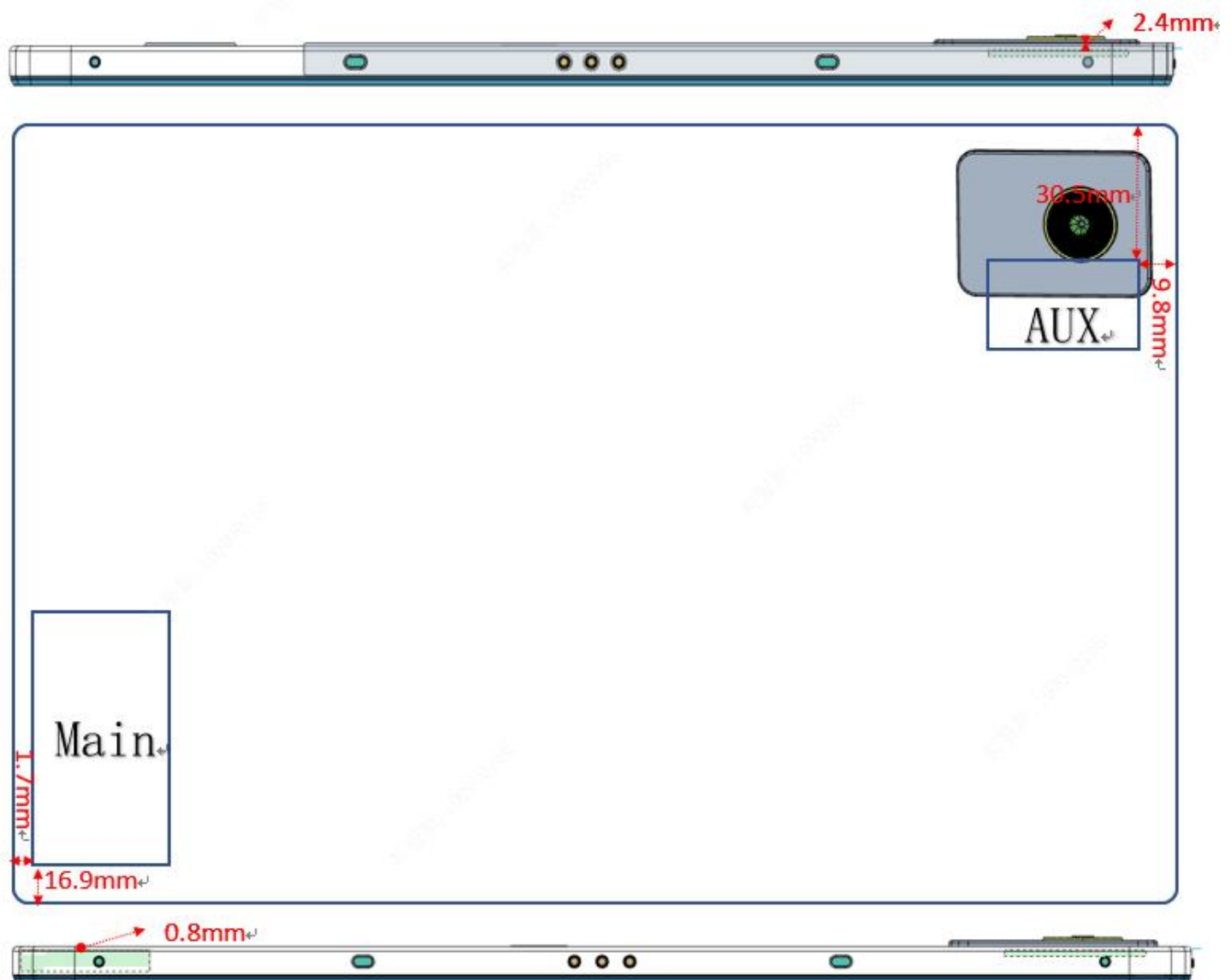
Note: antenna photo should include L type ruler

Annex B. Antenna Location

B.1 Antenna Host Platform Location Information

Include a dimensioned photo(s) or dimensioned drawing(s) of Main and Aux antenna placements (measurements are not required for receive-only antenna).

Any antenna that transmits must show dimensions to bottom of laptop. Provide a description of the materials that are used for supporting or surrounding transmit antennas; for example, non-conductive plastics vs. conductive coated plastic or metallic materials.



B.2 Antenna dimensional information for SAR evaluation

Include a dimensioned photo(s) or dimensioned drawing(s) showing the distance (mm) between the transmit antennas and the user. For notebook/laptop hosts show lapheld position (example below). For tablet hosts show all orientations including lapheld, primary & secondary portrait, primary & secondary landscape positions. Include a description of any proximity sensors or power throttling implementations that limit or exclude use of any host orientation.

