

ANTENNA INFORMATION

OEM	Lenovo
ODM	HuaQin
Platform model name	LNV CB Duet 11M889, LNV 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.

Table of Contents

Cover page	1
1. Intel Reference Gain and Type	3
2. Document Revision History	3
3. Test & System Description	
3.1 Measurement Method and System.....	4
3.2 Test setup.....	4
3.3 Equipment list.....	5
4. Radiation characteristics of antenna loaded in Host Platform	6
Annex A. Photographs	
A.1 Setup Photo.....	12
A.2 Test sample.....	13
Annex B. Antenna Location	
B.1 Antenna Host Platform Location Information.....	17
B.2 Antenna dimensional information for SAR evaluation.....	18

1. Intel Reference Gain and Type

NA

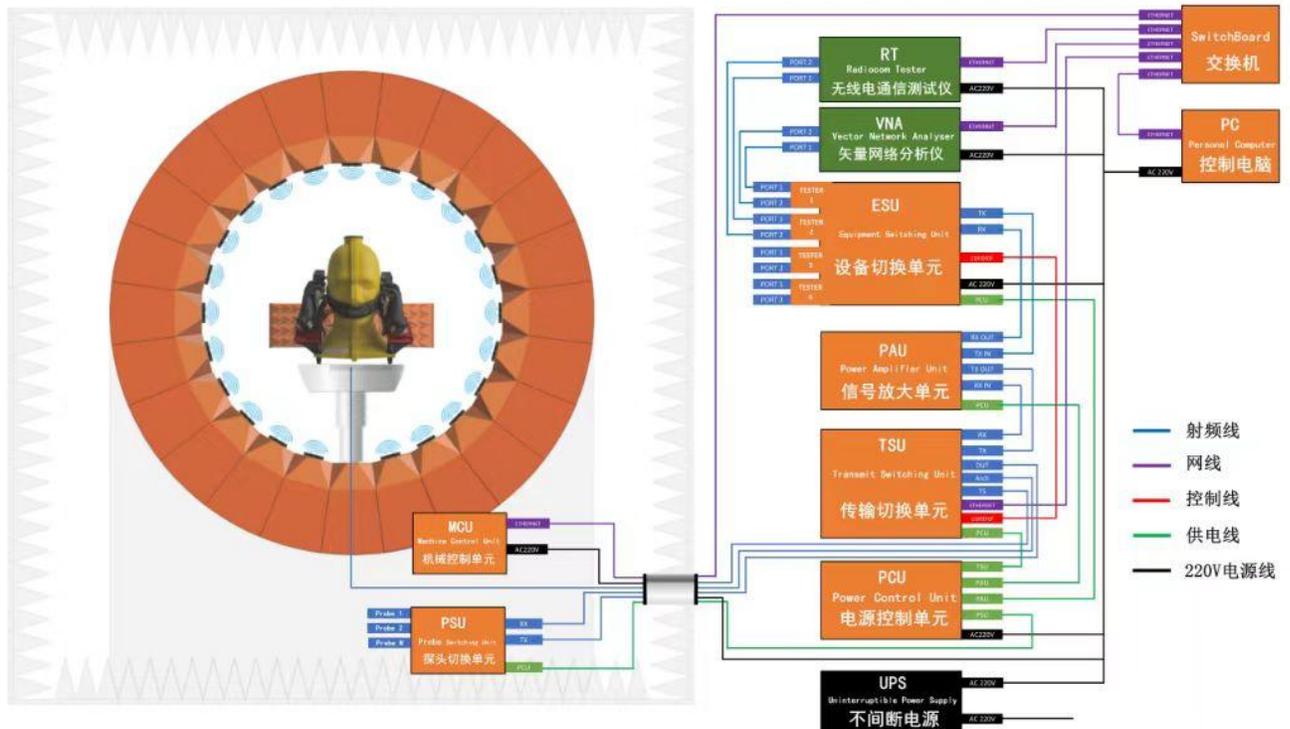
Revision #	Revision Details	Issued Date
Rev. 00	First Issue	2024.05.10

2. Document Revision History

3. Test & System Description

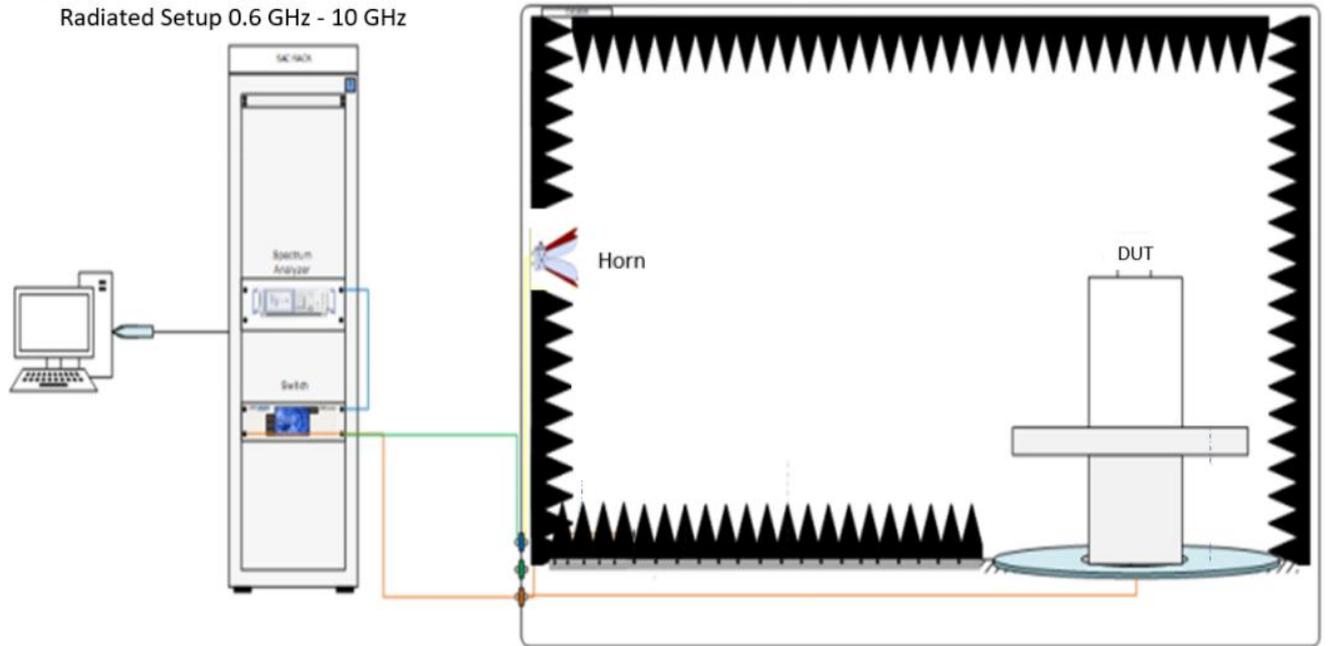
3.1 Measurement Method and System

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



3.2 Test setup

Radiated Setup 0.6 GHz - 10 GHz



3.3 Equipment list

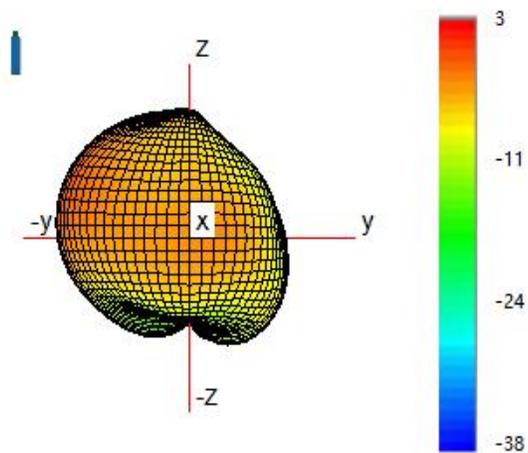
Number	Device	Type/Model	Serial	Manufacturer	Cal. Date	Cal. due. Date
1	Chamber	FATC3	5720	ETS-Lindgren	2024/4/25	2025/4/24
2	Turn table control box	ETS	-	ETS-Lindgren	N/A	N/A
3	Turn table control computer	Desktop	LPTPTOP-JQTOKRA	LENOVO	N/A	N/A
4	Network Analyzer	5071C	5071C	Keysight	2024/4/25	2025/4/24
5	Hron 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-DOEB1A	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

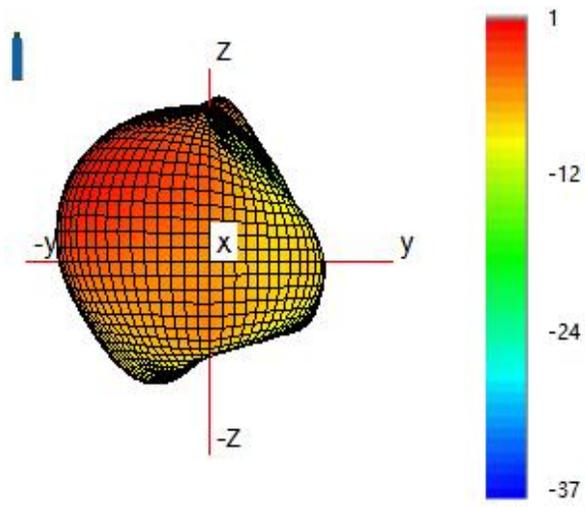
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	2.53



Max Antenna 3D Radiation Pattern 5150-5250 MHz

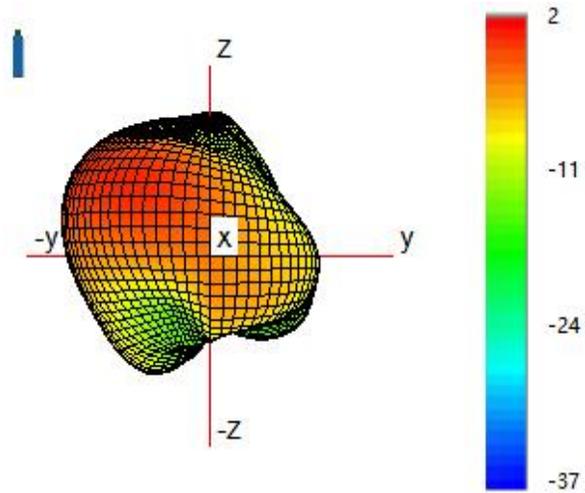
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
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5150-5250	1.95
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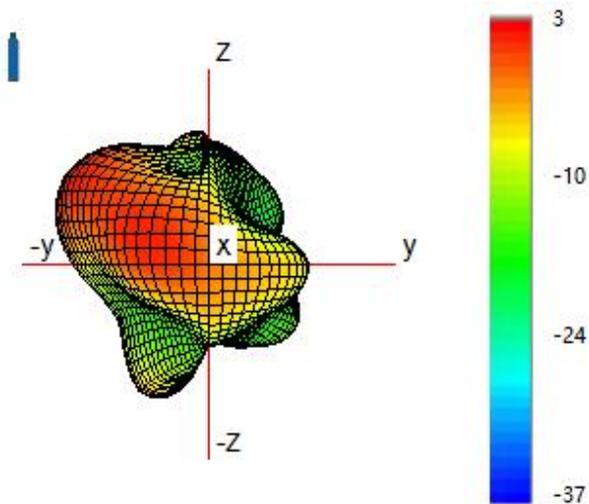
Max Antenna 3D Radiation Pattern 5250-5350 MHz

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



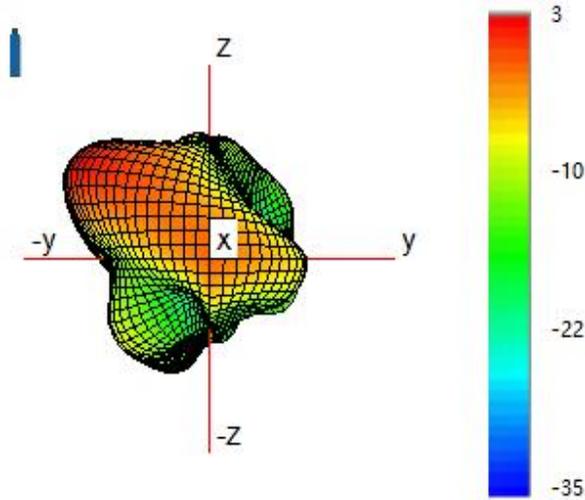
Max Antenna 3D Radiation Pattern 5470-5725 MHz

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



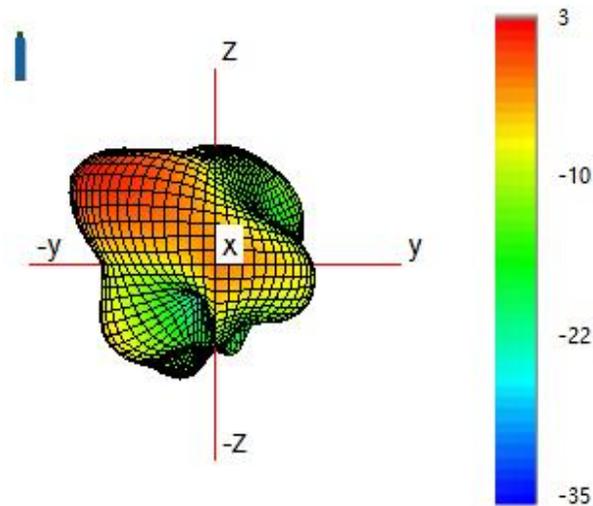
Max Antenna 3D Radiation Pattern 5725-5850 MHz

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



Max Antenna 3D Radiation Pattern 5850-5895 MHz

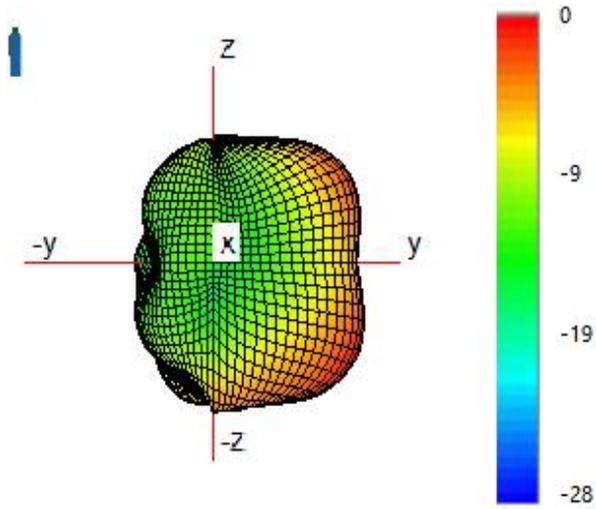
Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	2.73



Auxiliary Antenna

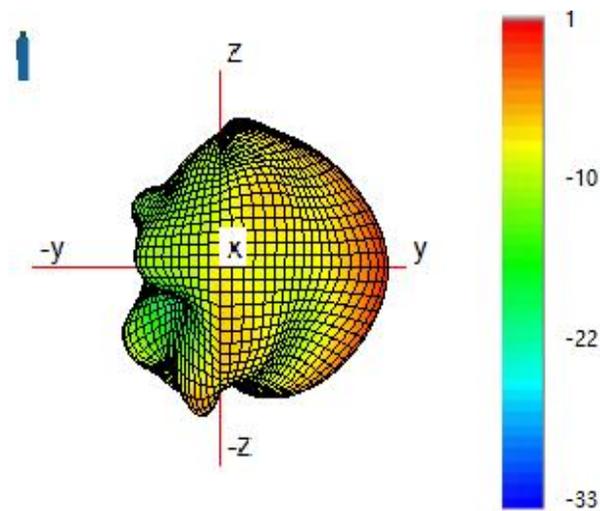
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

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



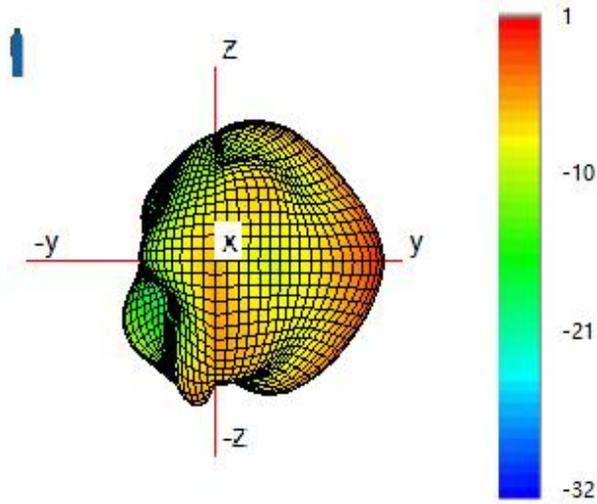
Max Antenna 3D Radiation Pattern 5150-5250 MHz

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



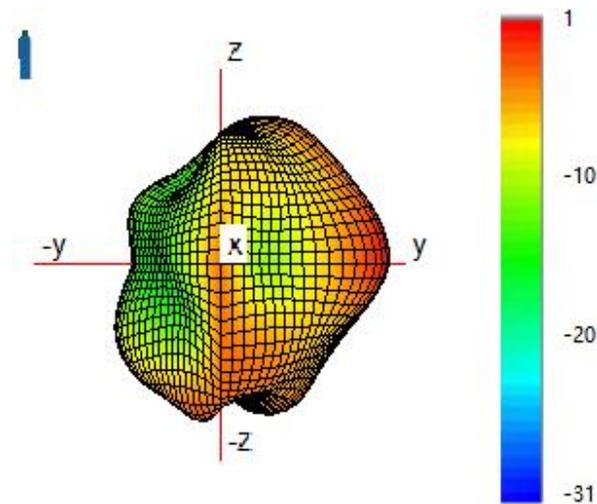
Max Antenna 3D Radiation Pattern 5250-5350 MHz

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



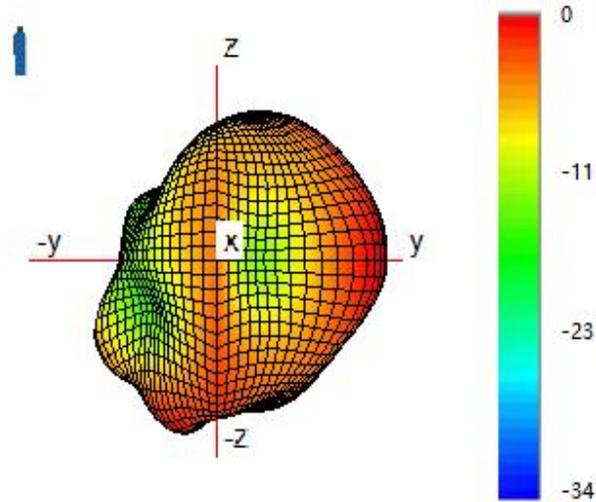
Max Antenna 3D Radiation Pattern 5470-5725 MHz

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



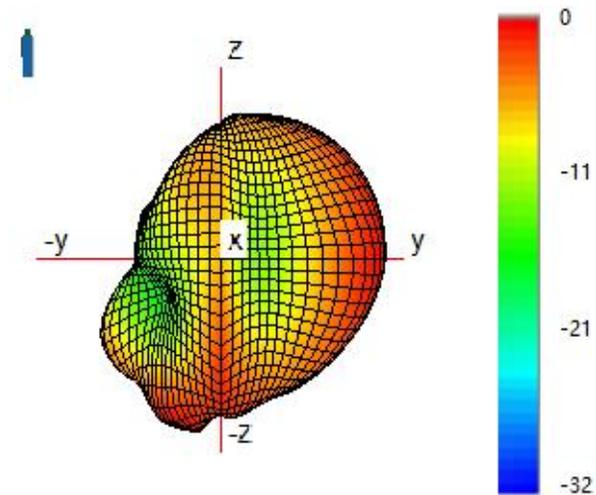
Max Antenna 3D Radiation Pattern 5725-5850 MHz

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



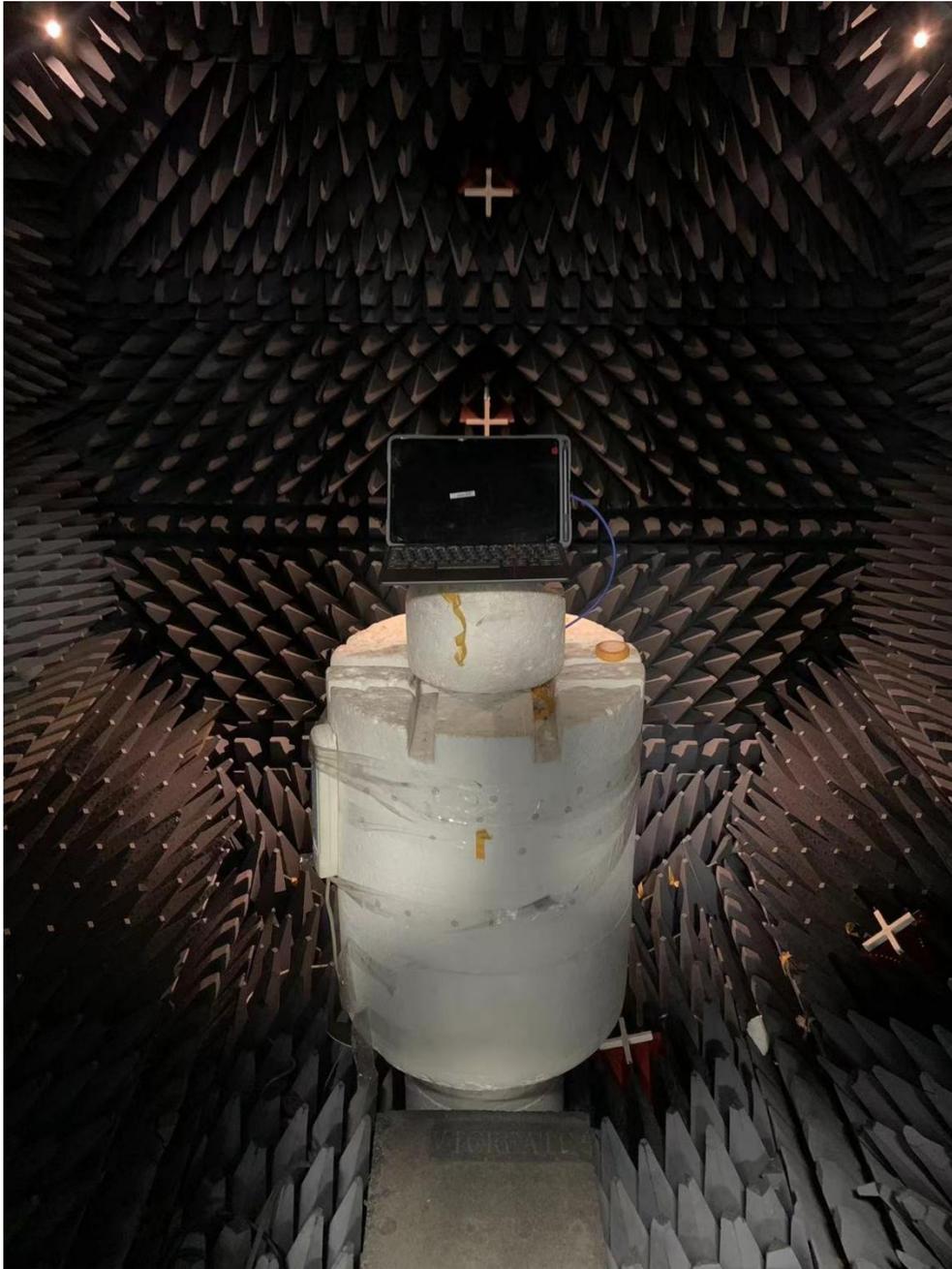
Max Antenna 3D Radiation Pattern 5850-5895 MHz

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

涉密图档

版本	修改内容	修改人	日期
T01	初始图档	马云飞	2024.01.18
T02	更新FPC	马云飞	2024.01.18

二维码

编码规则如下(26位, HQ240030002J04928X XXXX RX00):
 HQ260030002J0: 客户料号
 4: 表示2024年尾码
 9: 9月份,10/11/12月份用A/C/D代替
 28: 生产日期
 XXXXX: 流水码, 规格SN按 00000~99999
 RX: 厂牌固定位XX
 00: 版本号T01为01 T02为02

技术要求:

- "★" 尺寸为重点尺寸, 带 (EX) 需要做CPK的尺寸, (*) 为实数尺寸, (△) 为设计变更;
- 要求焊点光滑无凸刺, 无虚焊, 堆锡, 短路等现象;
- 图面尺寸用以检验外形功能和装配;
- 满足盐雾实验/附着力测试等相关可靠性测试, 按我司内部 EX-WI-QAC-014可靠性试验标准执行, 所有物料均符合我司EX-WI-QAC-008 产品环境物质禁用管理标准。
- 欧盟I级, 符合HFROHS2, 06Roach要求;
- 包装按照睿翔工程提供的包装要求包装;
- 此图档属于商业秘密, 仅限于指定的个人或组织使用, 未经许可, 不得泄露给任何第三方。

序号	名称	料号	数量
7	导电泡棉	44x4.5x1	2
6	二维码	铜板纸 5X5MM	1
8	防尘套管	透明 L=20mm	1
4	导电布	6*10*0.1mm	1
3	FPC	PI 54.89X28, 镀金处理	1
2	支架	54.89X28X4.4	1
1	同轴线	神宇低阻抗1.13MM, 黑色, 康铜四代端子	1

公差表	公差	单位
≥200	±0.20	mm
100-200	±0.15	mm
50-100	±0.12	mm
10-50	±0.10	mm
0-10	±0.05	mm

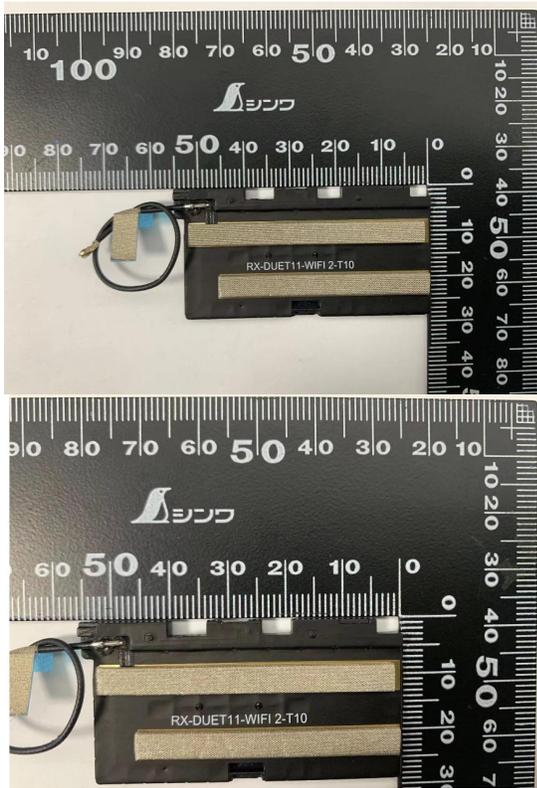
机种	名称	设计	日期
HE41(DUET11)	HE41-WF12-成品	RF	2024.01.18
料号	F001E4111910001	审核	2024.01.18
版本	T02	图框	A4
比例	FIT		
单位	mm		

INNOWAVE

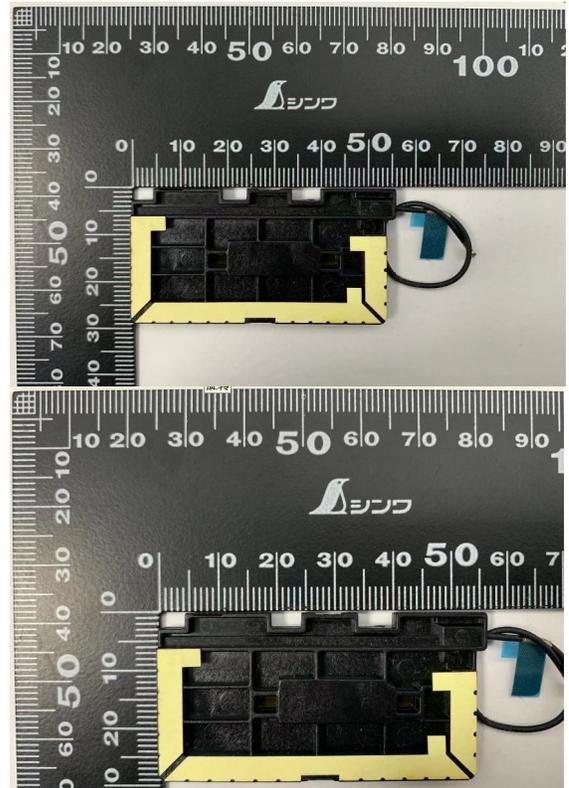
昆山睿翔讯通通信技术有限公司

Antenna Photo

Front



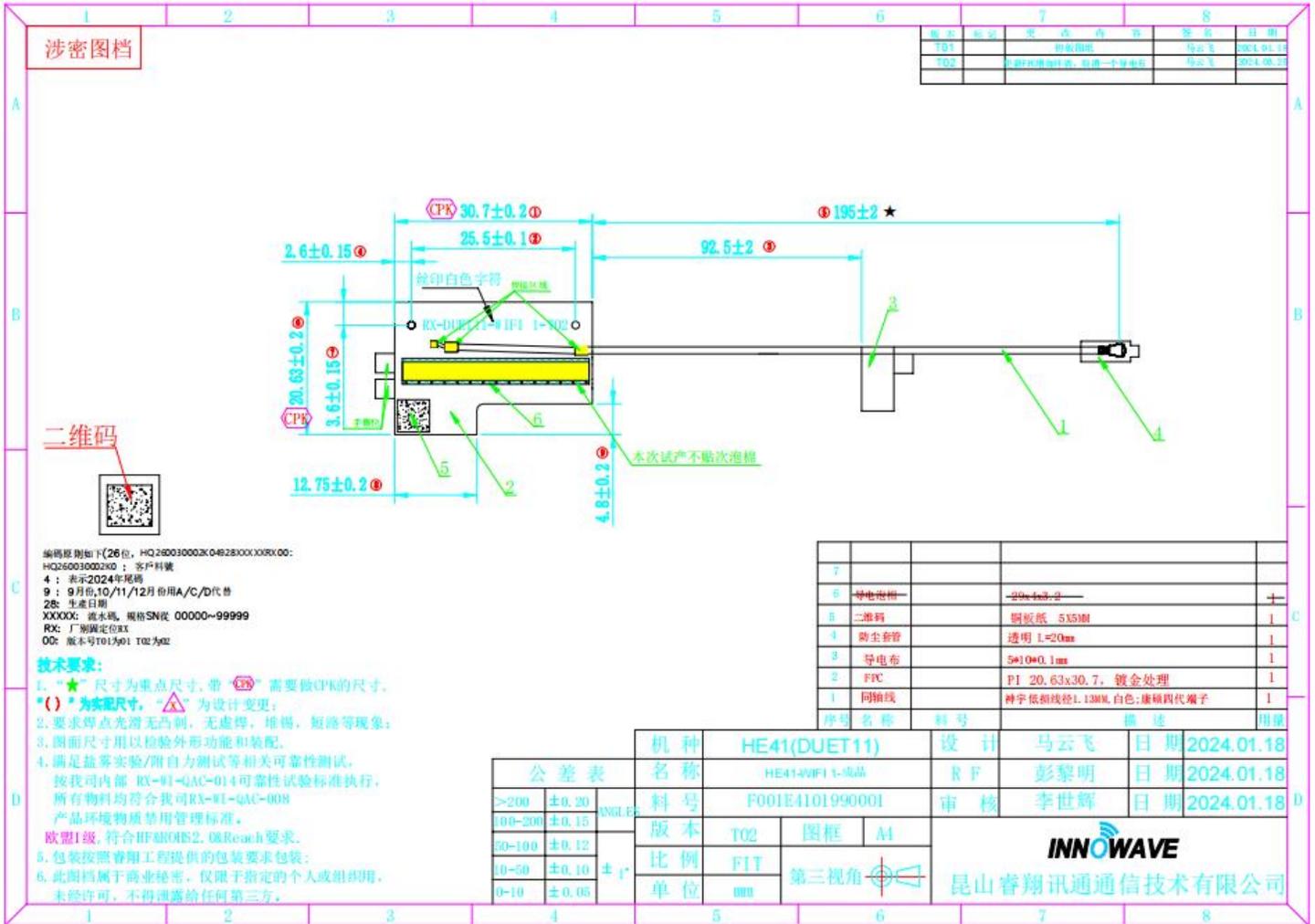
Back



Note: antenna photo should include L type ruler

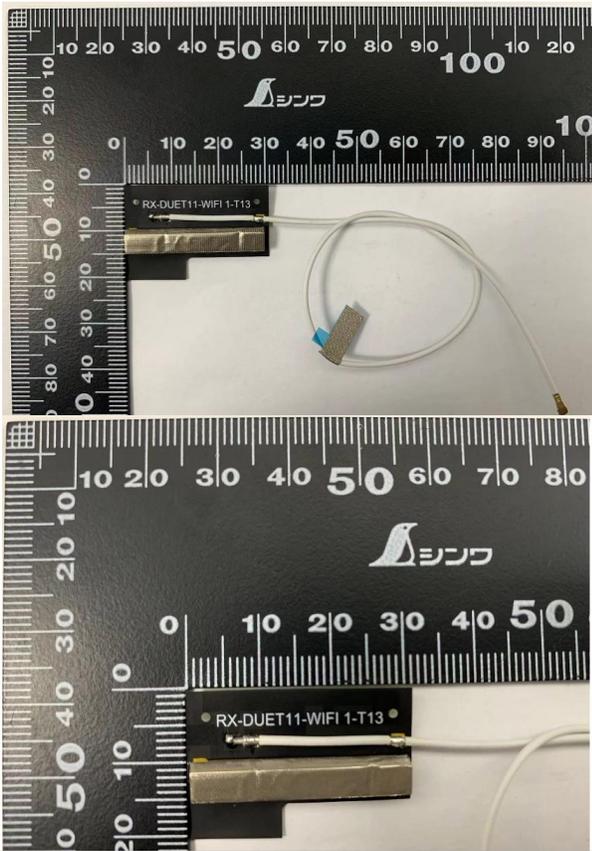
Aux Antenna

Antenna Drawing

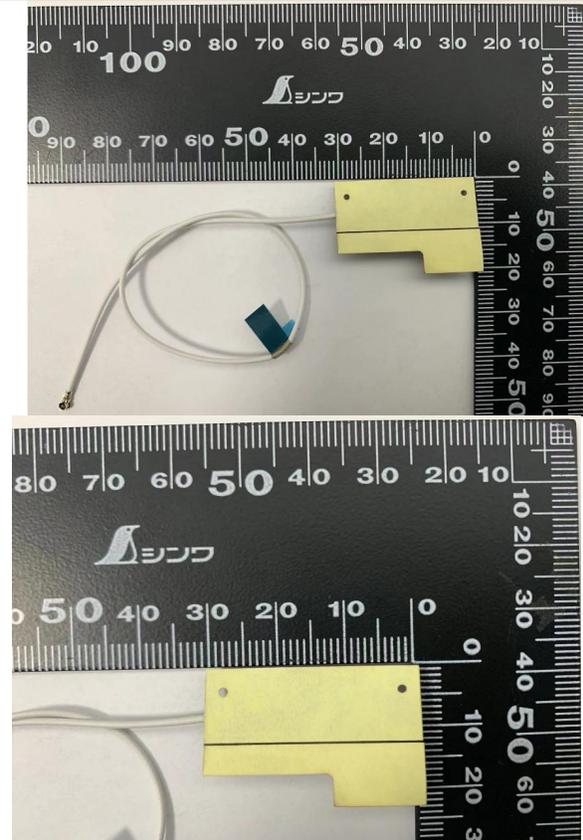


Antenna Photo

Front



Back



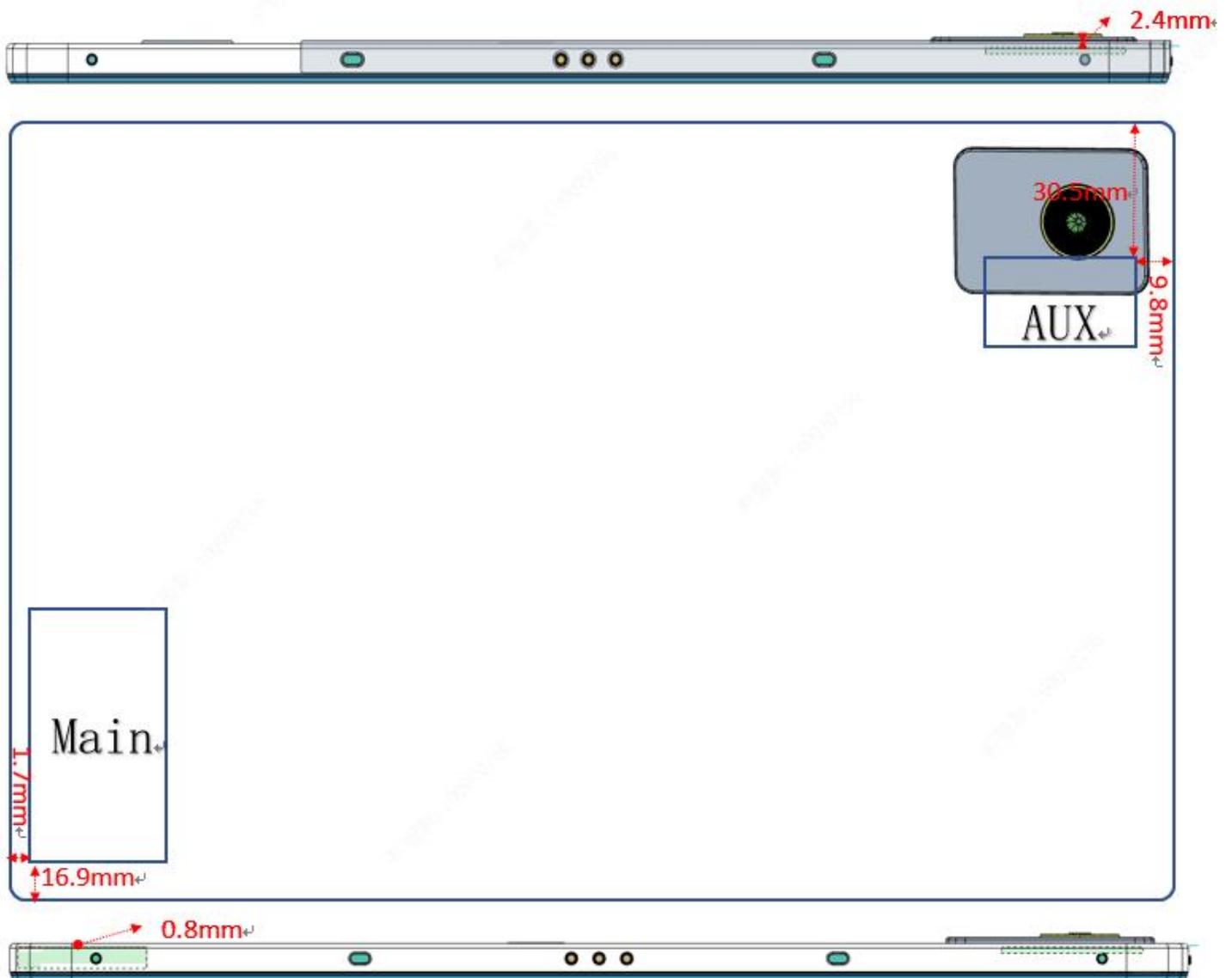
Note: antenna photo should include L type ruler

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.

