FCC REPORT

Applicant:	Nebra Ltd
Address of Applicant:	Unit 4 Bells Yew Green Business Court, Bells Yew Green, Tunbridge Wells TN3 9BJ

Equipment Under Test (EUT)

Product Name:	Nebra Smart Indoor LoRa Gateway / Nebra HNT Indoor Hotspot Miner
Model No.:	HNTIN-470-G, HNTIN-868-G, HNTIN-915-G,HNTIN-433-G, HNTIN-470,HNTIN-868, HNTIN-915,HNTIN-433
FCC ID:	2AZDM-HNTIN
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B
Date of sample receipt:	12 Mar., 2021
Date of Test:	13 Mar., to 19 Apr., 2021
Date of report issued:	26 Apr., 2021
Test Result:	PASS *

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

Authorized Signature:

Bruce Zhang
Laboratory Manager

2 Version

Version No.	Date	Description
00	*23 Apr., 2021*	*Original*
01	*26 Apr., 2021*	*Update internal photos*

Tested by: Yoyo Wu ***Date:*** *26 Apr., 2021*

Test Engineer

Reviewed by: Winner Zhang ***Date:*** *26 Apr., 2021*

Project Engineer

3 Contents

Page

4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part 15.107	Pass
Radiated Emission	Part 15.109	Pass

Remark:

1. Pass: The EUT complies with the essential requirements in the standard.

2. N/A: The EUT not applicable of the test item.

Test Method:	*ANSI C63.4:2014*

5 General Information

5.1 Client Information

Applicant:	Nebra Ltd
Address:	Unit 4 Bells Yew Green Business Court, Bells Yew Green, Tunbridge Wells TN3 9BJ
Manufacturer:	Nebra Ltd
Address:	Unit 4 Bells Yew Green Business Court, Bells Yew Green, Tunbridge Wells TN3 9BJ
Factory:	SUNSOAR TECH CO., LIMITED
Address:	4/F, Block E, Fengze Building, Huafeng No.2 Industrial Park, Hangkong Road, XiXiang Town, BaoAn District, Shenzhen, China

5.2 General Description of E.U.T.

Product Name:	Nebra Smart Indoor LoRa Gateway / Nebra HNT Indoor Hotspot Miner
Model No.:	HNTIN-470-G, HNTIN-868-G, HNTIN-915-G,HNTIN-433-G, HNTIN-470,HNTIN-868, HNTIN-915,HNTIN-433
AC adapter:	Model: TM-K018VP-01201500PE-Z Input: AC100-240V, 50/60Hz, 0.45A Output: DC 12.0V, 1.5A
Remark:	Model No.: Model: HNTIN-470-G, HNTIN-868-G, HNTIN-915-G, HNTIN-433-G, HNTIN-470, HNTIN-868, HNTIN-915, HNTIN-433 has the same internal circuit design, layout, components and internal wiring. The difference is that the ones with the -G suffix have GPS function, while those without the suffix do not. Each model has two appearances, except for the appearance, the interior is exactly the same. In addition, the corresponding frequency of each model of LoRa module is different, as follows: The Nebra HNT Indoor Hotspot is available in 4 variants to support multiple regions. It is available in the following frequency variants: • 433 MHz (HNTIN-433) • 470 Mhz (HNTIN-470) • 868 Mhz (HNTIN-868) • 915 Mhz (HNTIN-915)
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

5.3 Test Mode and test samples plans

Operating mode	Detail description
Working mode	Keep the EUT in Working mode
The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.	

5.4 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.16 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±3.20 dB (k=2)

5.5 Description of Support Units

Manufacturer	Description	Model	S/N	FCC ID/DoC
LENOVO	Laptop	SL510	2847A65	DoC

5.6 Related Submittal(s) / Grant (s)

This is an original grant, no related submittals and grants.

5.7 Description of Cable Used

N/A

5.8 Additions to, deviations, or exclusions from the method

No

5.9 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.10 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

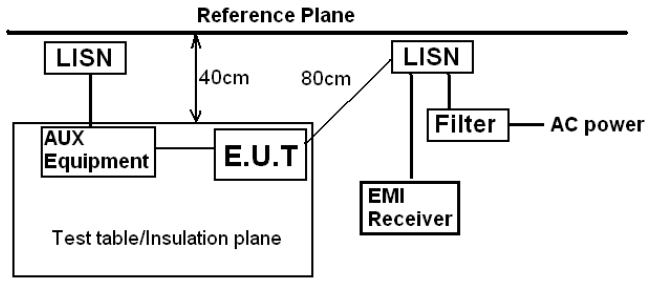
5.11 Test Instruments list

Radiated Emission:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
3m SAC	ETS	9m*6m*6m	966	01-19-2021	01-18-2024
Loop Antenna	SCHWARZBECK	FMZB1519B	00044	03-07-2020	03-06-2021
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-03-2021	03-02-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-03-2021	03-02-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-18-2020	06-17-2021
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-18-2020	11-17-2021
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Pre-amplifier	HP	8447D	2944A09358	03-03-2021	03-02-2022
Pre-amplifier	CD	PAP-1G18	11804	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-18-2020	11-17-2021
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-03-2021	03-02-2022
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-03-2021	03-02-2022
Cable	MICRO-COAX	MFR64639	K10742-5	03-03-2021	03-02-2022
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-03-2021	03-02-2022

Conducted Emission:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	03-03-2021	03-02-2022
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-03-2021	03-02-2022
LISN	CHASE	MN2050D	1447	03-03-2021	03-02-2022
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	06-18-2020	06-17-2021
Cable	HP	10503A	N/A	03-03-2021	03-02-2022
EMI Test Software	AUDIX	E3	Version: 6.110919b		

6 Test results and Measurement Data

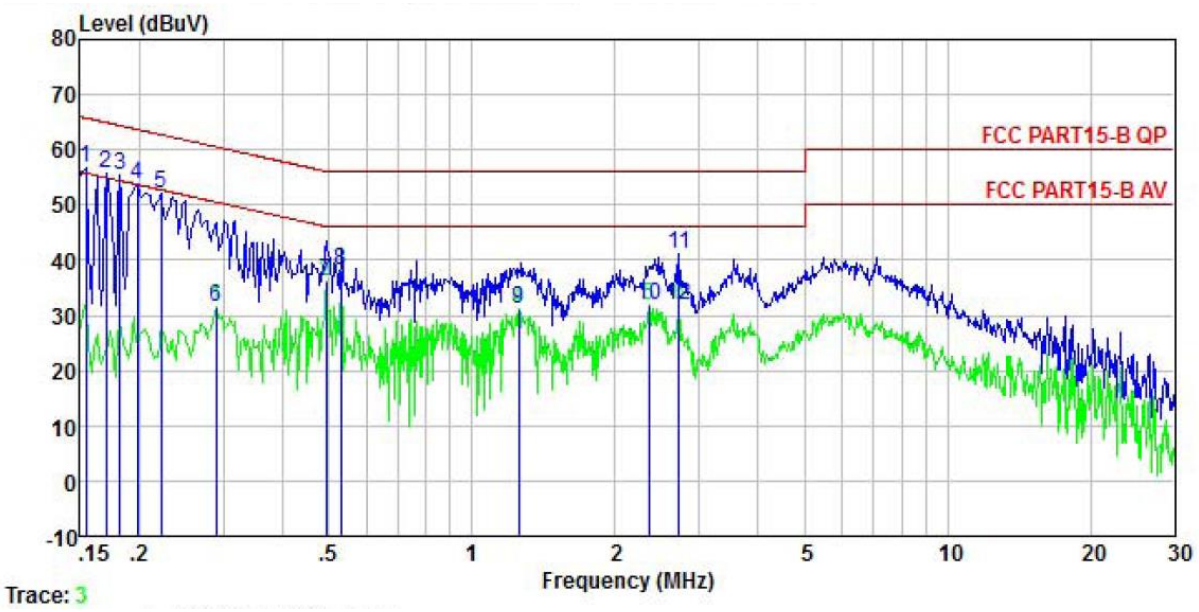
6.1 Conducted Emission

<table>
<tr><td>Test Requirement:</td><td colspan="3">FCC Part 15 B Section 15.107</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="3">150kHz to 30MHz</td></tr>
<tr><td>Class / Severity:</td><td colspan="3">Class B</td></tr>
<tr><td>Receiver setup:</td><td colspan="3">RBW=9kHz, VBW=30kHz</td></tr>
<tr><td>Limit:</td><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBµV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td></td><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td></td><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td></td><td>0.5-30</td><td>60</td><td>50</td></tr>
<tr><td></td><td colspan="3">* Decreases with the logarithm of the frequency.</td></tr>
<tr><td>Test setup:</td><td colspan="3"> 

Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m</td></tr>
<tr><td>Test procedure</td><td colspan="3">1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4(latest version) on conducted measurement.</td></tr>
<tr><td>Test Instruments:</td><td colspan="3">Refer to section 5.11 for details</td></tr>
<tr><td>Test mode:</td><td colspan="3">Refer to section 5.3 for details</td></tr>
<tr><td>Test results:</td><td colspan="3">Pass</td></tr>
</table>

Measurement data:

Product name:	Nebra Smart Indoor LoRa Gateway / Nebra HNT Indoor Hotspot Miner	**Product model:**	HNTIN-915-G
Test by:	Yaro	**Test mode:**	Working mode
Test frequency:	150 kHz ~ 30 MHz	**Phase:**	Line
Test voltage:	AC 120 V/60 Hz	**Environment:**	Temp: 22.5℃ Huni: 55%

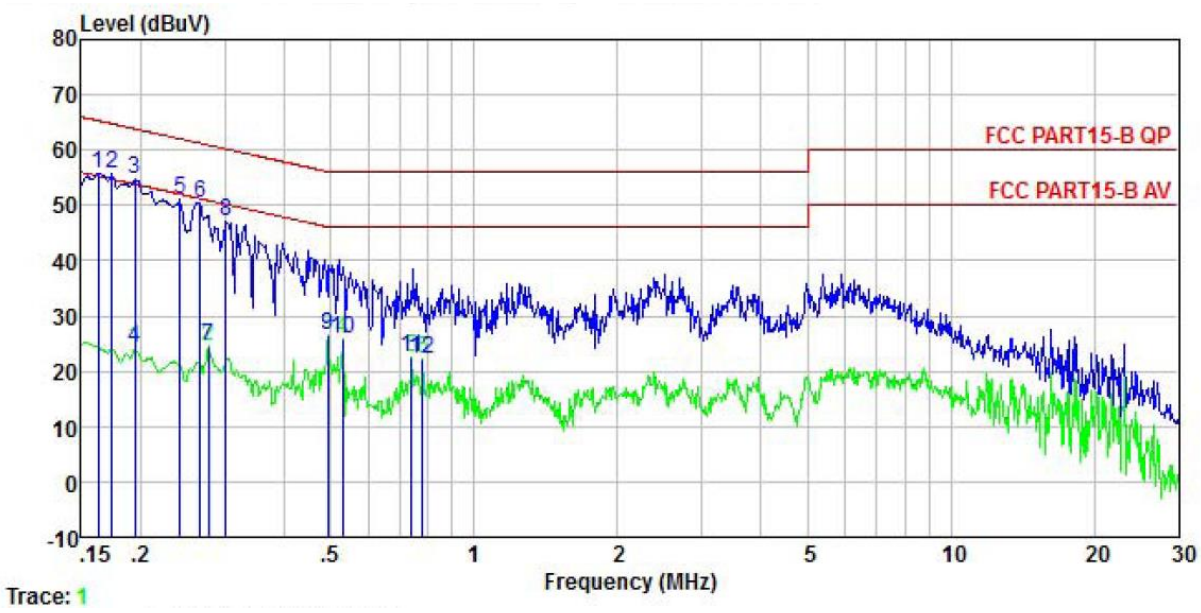


	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.154	46.58	10.20	0.01	0.01	56.80	65.78	-8.98	QP
2	0.170	45.39	10.20	0.01	0.01	55.61	64.94	-9.33	QP
3	0.182	45.32	10.20	0.00	0.01	55.53	64.42	-8.89	QP
4	0.198	43.63	10.20	0.00	0.04	53.87	63.71	-9.84	QP
5	0.222	41.75	10.20	0.00	0.03	51.98	62.74	-10.76	QP
6	0.289	21.22	10.20	0.01	0.03	31.46	50.54	-19.08	Average
7	0.494	25.98	10.20	0.03	0.03	36.24	46.10	-9.86	Average
8	0.529	27.92	10.20	0.03	0.03	38.18	46.00	-7.82	Average
9	1.255	20.79	10.22	0.11	0.10	31.22	46.00	-14.78	Average
10	2.358	21.13	10.27	0.23	0.15	31.78	46.00	-14.22	Average
11	2.721	30.60	10.30	0.28	0.10	41.28	56.00	-14.72	QP
12	2.721	21.03	10.30	0.28	0.10	31.71	46.00	-14.29	Average

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Cable Loss.*

Product name:	Nebra Smart Indoor LoRa Gateway / Nebra HNT Indoor Hotspot Miner	Product model:	HNTIN-915-G
Test by:	Yaro	Test mode:	Working mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Neutral
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5℃ Huni: 55%

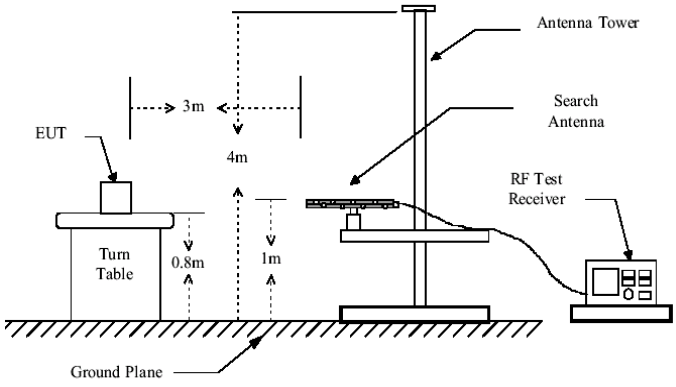


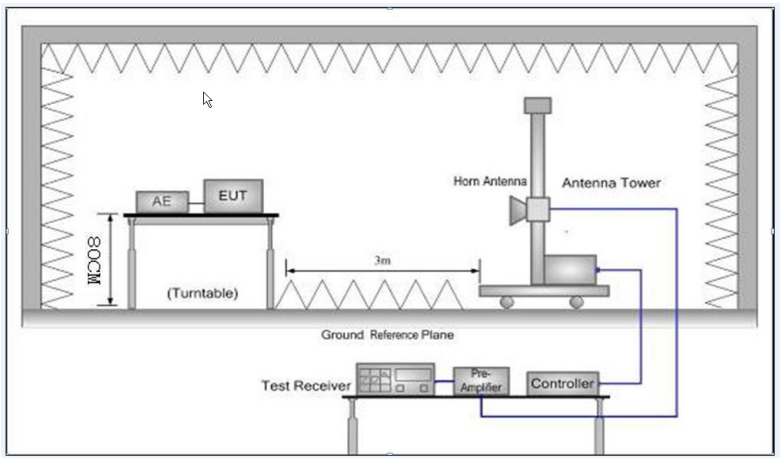
	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.162	45.66	10.20	0.01	0.01	55.88	65.34	-9.46	QP
2	0.174	45.39	10.20	0.00	0.01	55.60	64.77	-9.17	QP
3	0.194	44.50	10.20	0.00	0.03	54.73	63.84	-9.11	QP
4	0.194	14.10	10.20	0.00	0.03	24.33	53.84	-29.51	Average
5	0.242	40.85	10.20	0.00	0.01	51.06	62.04	-10.98	QP
6	0.266	40.36	10.20	0.01	0.02	50.59	61.25	-10.66	QP
7	0.277	14.46	10.20	0.01	0.02	24.69	50.90	-26.21	Average
8	0.302	36.90	10.20	0.01	0.03	47.14	60.19	-13.05	QP
9	0.494	16.43	10.20	0.03	0.03	26.69	46.10	-19.41	Average
10	0.529	15.69	10.20	0.03	0.03	25.95	46.00	-20.05	Average
11	0.739	12.40	10.20	0.05	0.03	22.68	46.00	-23.32	Average
12	0.779	11.80	10.20	0.05	0.03	22.08	46.00	-23.92	Average

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Cable Loss.*

6.2 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td colspan="5">FCC Part 15 B Section 15.109</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="5">30MHz to 6000MHz</td></tr>
<tr><td>Test site:</td><td colspan="5">Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td rowspan="5">Receiver setup:</td><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>RMS</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="8">Limit:</td><td colspan="2">Frequency</td><td colspan="2">Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td colspan="2">30MHz-88MHz</td><td colspan="2">40.0</td><td>Quasi-peak Value</td></tr>
<tr><td colspan="2">88MHz-216MHz</td><td colspan="2">43.5</td><td>Quasi-peak Value</td></tr>
<tr><td colspan="2">216MHz-960MHz</td><td colspan="2">46.0</td><td>Quasi-peak Value</td></tr>
<tr><td colspan="2">960MHz-1GHz</td><td colspan="2">54.0</td><td>Quasi-peak Value</td></tr>
<tr><td colspan="2" rowspan="2">Above 1GHz</td><td colspan="2">54.0</td><td>Average Value</td></tr>
<tr><td colspan="2">74.0</td><td>Peak Value</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Test setup:</td><td colspan="5">Below 1GHz
 

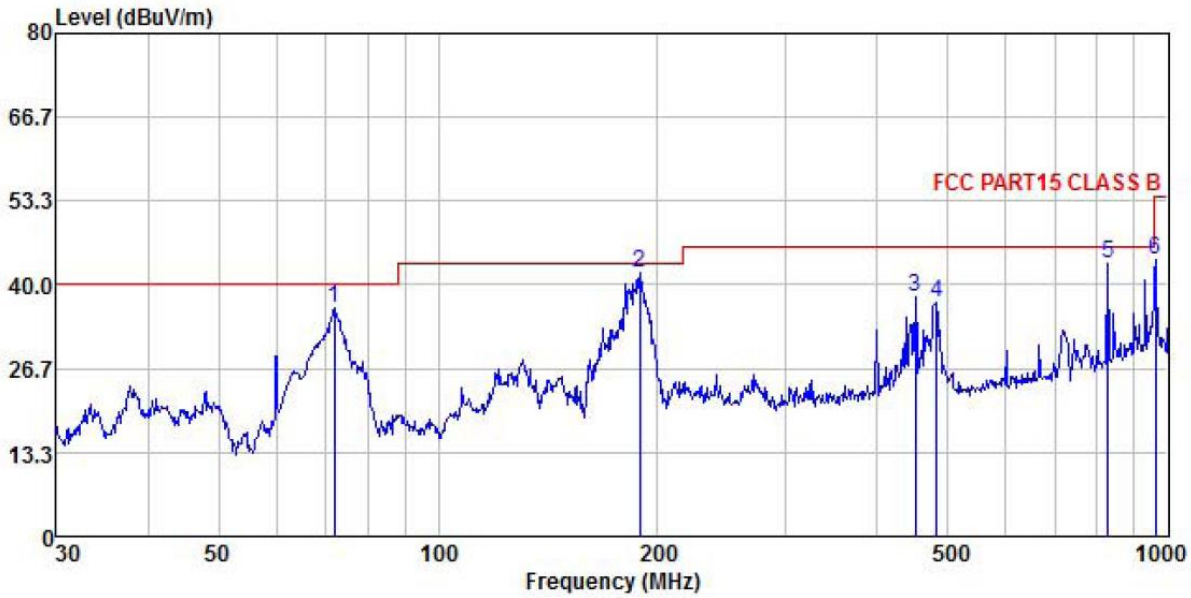
Above 1GHz
 
</td></tr>
<tr><td>Test Procedure:</td><td colspan="5">1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</td></tr>
</table>

	4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 5.11 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	All of the observed value above 6GHz ware the niose floor , which were no recorded

Measurement Data:

Below 1GHz:

Product Name:	Nebra Smart Indoor LoRa Gateway / Nebra HNT Indoor Hotspot Miner	Product Model:	HNTIN-915-G
Test By:	Yaro	Test mode:	Working mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%

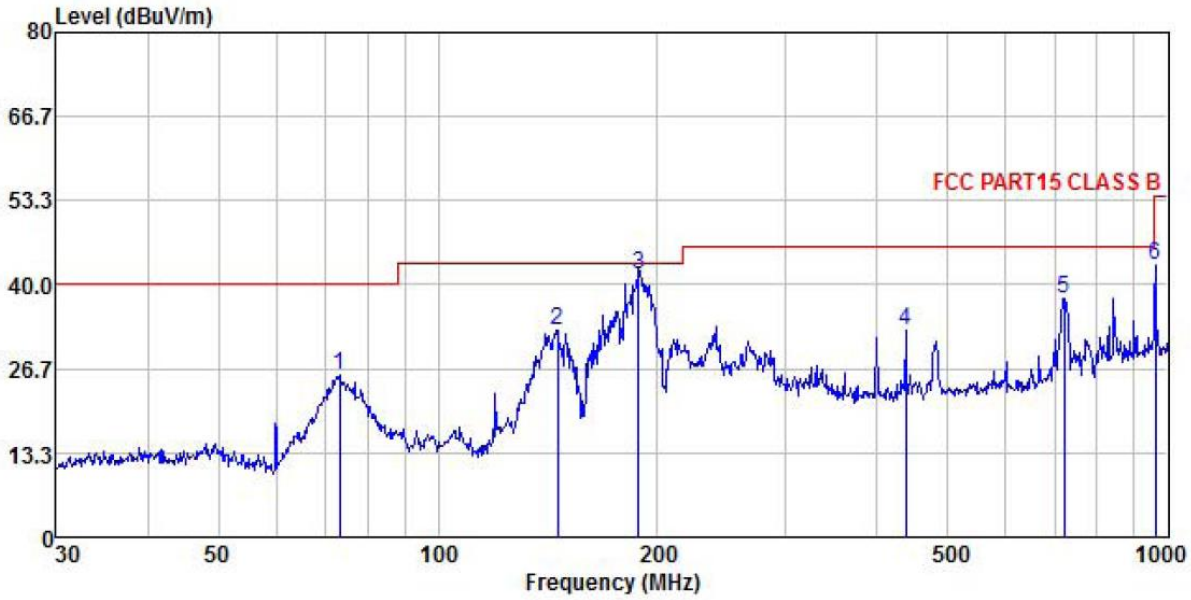


	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	72.084	54.71	10.69	0.66	29.70	36.36	40.00	-3.64	QP
2	189.074	52.01	17.37	1.35	28.91	41.82	43.50	-1.68	QP
3	451.135	45.48	19.21	2.18	28.87	38.00	46.00	-8.00	QP
4	482.216	44.58	19.33	2.32	28.92	37.31	46.00	-8.69	QP
5	827.493	47.21	21.18	3.16	28.09	43.46	46.00	-2.54	QP
6	962.162	45.28	22.88	3.53	27.65	44.04	54.00	-9.96	QP

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *The Aux Factor is a notch filter switch box loss, this item is not used.*

Product Name:	Nebra Smart Indoor LoRa Gateway / Nebra HNT Indoor Hotspot Miner	Product Model:	HNTIN-915-G
Test By:	Yaro	Test mode:	Working mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%



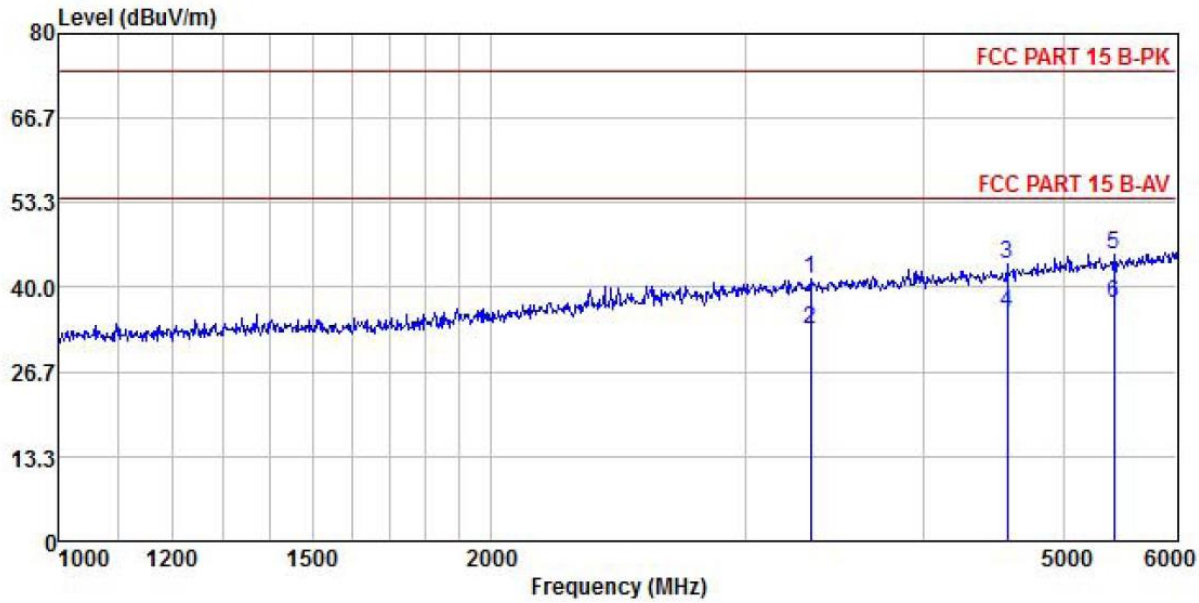
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	73.359	43.71	11.06	0.66	29.69	25.74	40.00	-14.26	QP
2	145.861	47.05	13.98	1.01	29.24	32.80	43.50	-10.70	QP
3	188.413	51.84	17.34	1.35	28.91	41.62	43.50	-1.88	QP
4	437.120	40.29	19.18	2.14	28.85	32.76	46.00	-13.24	QP
5	721.726	42.97	20.55	2.90	28.58	37.84	46.00	-8.16	QP
6	962.162	44.31	22.88	3.53	27.65	43.07	54.00	-10.93	QP

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *The Aux Factor is a notch filter switch box loss, this item is not used.*

Above 1GHz:

Product Name:	Nebra Smart Indoor LoRa Gateway / Nebra HNT Indoor Hotspot Miner	**Product Model:**	HNTIN-915-G
Test By:	Yaro	**Test mode:**	Working mode
Test Frequency:	1 GHz ~ 6 GHz	**Polarization:**	Vertical
Test Voltage:	AC 120/60Hz	**Environment:**	Temp: 24℃ Huni: 57%

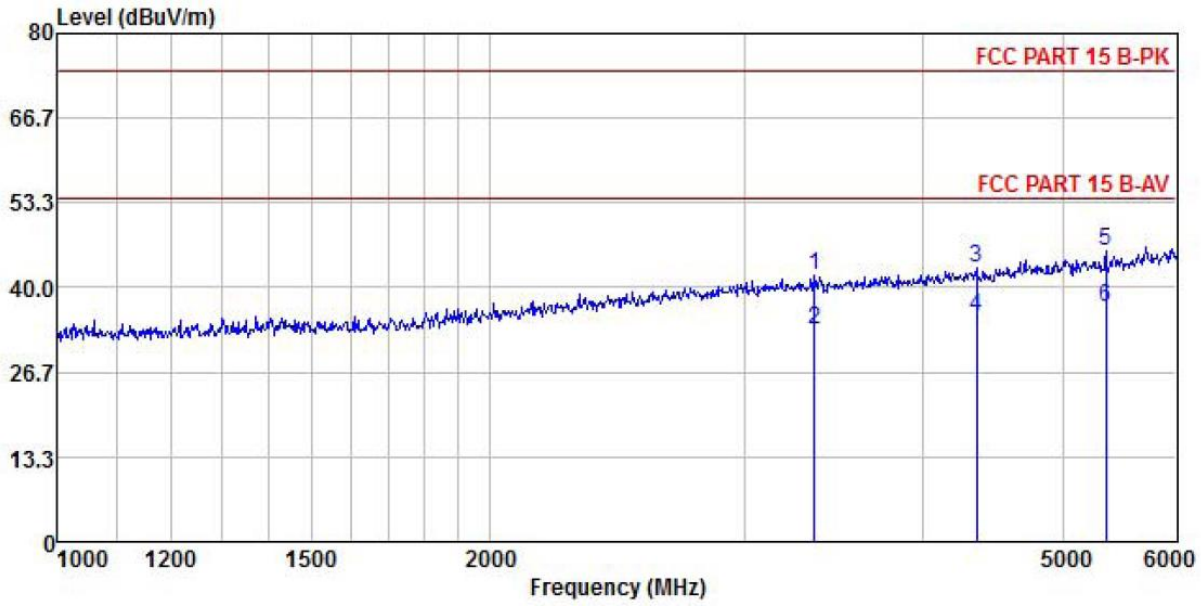


	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	3333.632	58.09	28.61	9.00	54.51	41.19	74.00	-32.81	Peak
2	3333.632	50.22	28.61	9.00	54.51	33.32	54.00	-20.68	Average
3	4569.538	57.31	30.28	10.48	54.34	43.73	74.00	-30.27	Peak
4	4569.538	49.66	30.28	10.48	54.34	36.08	54.00	-17.92	Average
5	5427.187	56.82	32.13	10.68	54.33	45.30	74.00	-28.70	Peak
6	5427.187	49.04	32.13	10.68	54.33	37.52	54.00	-16.48	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Product Name:	Nebra Smart Indoor LoRa Gateway / Nebra HNT Indoor Hotspot Miner	Product Model:	HNTIN-915-G
Test By:	Yaro	Test mode:	Working mode
Test Frequency:	1 GHz ~ 6 GHz	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Huni: 57%



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	3357.610	58.66	28.62	9.04	54.51	41.81	74.00	-32.19	Peak
2	3357.610	50.17	28.62	9.04	54.51	33.32	54.00	-20.68	Average
3	4353.737	57.37	29.88	10.21	54.37	43.09	74.00	-30.91	Peak
4	4353.737	49.67	29.88	10.21	54.37	35.39	54.00	-18.61	Average
5	5359.542	57.30	32.00	10.73	54.32	45.71	74.00	-28.29	Peak
6	5359.542	48.52	32.00	10.73	54.32	36.93	54.00	-17.07	Average

Remark:

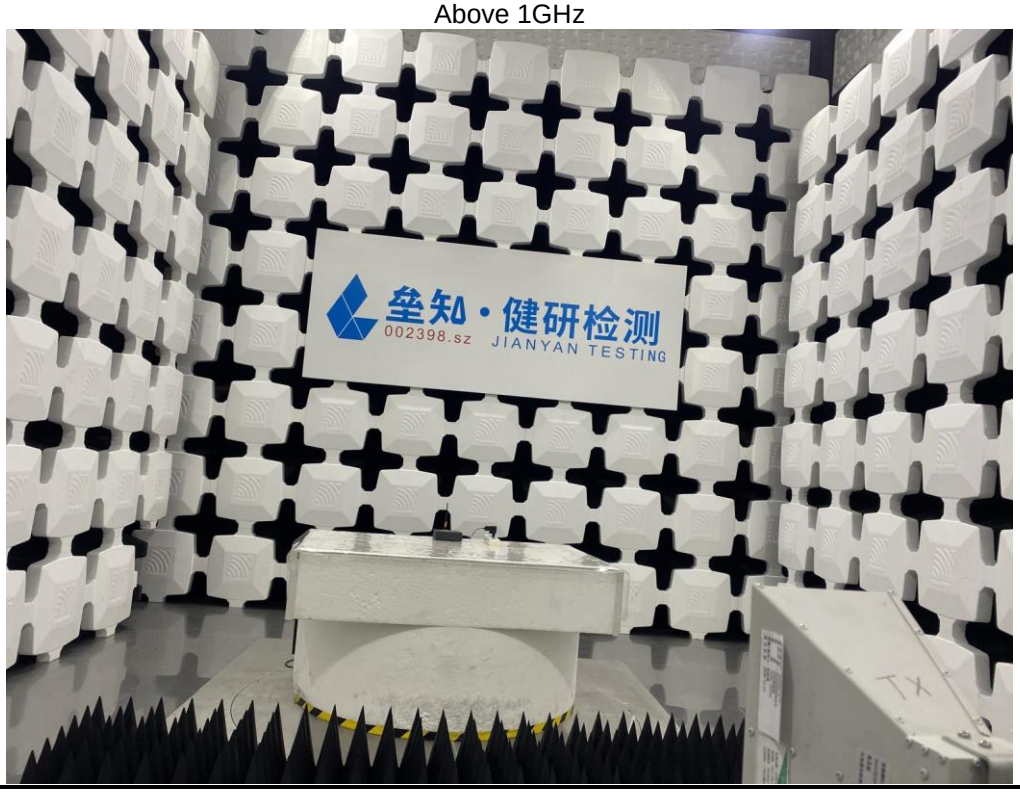
1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

7 Test Setup Photo

Radiated Emission

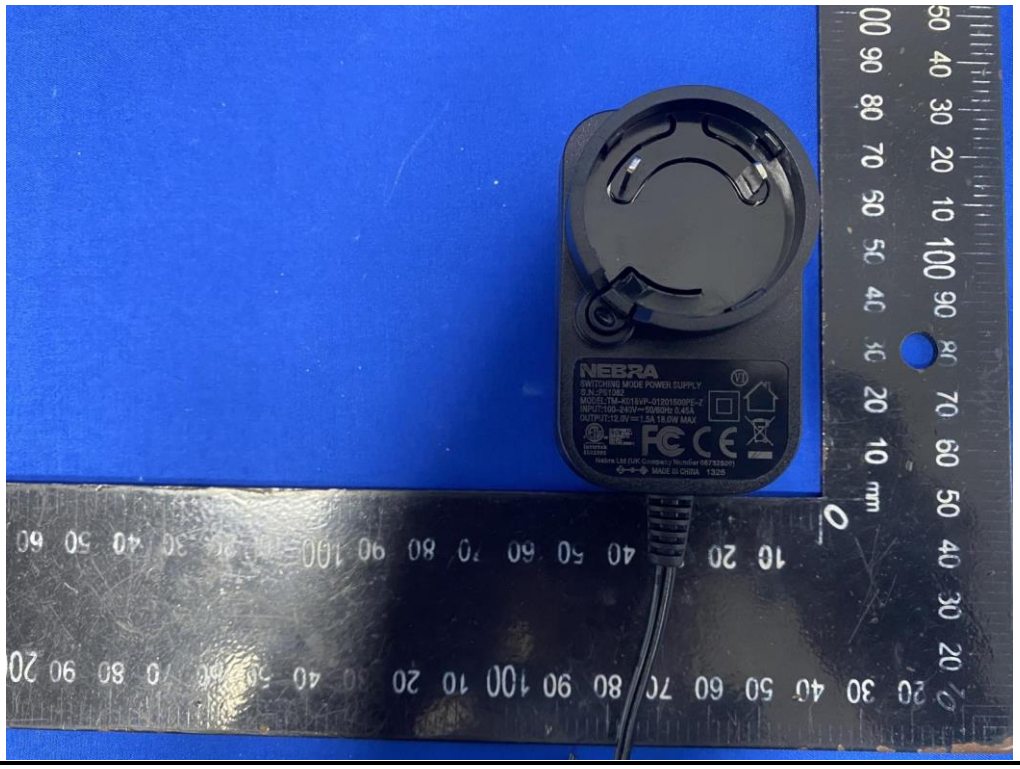
Below 1GHz

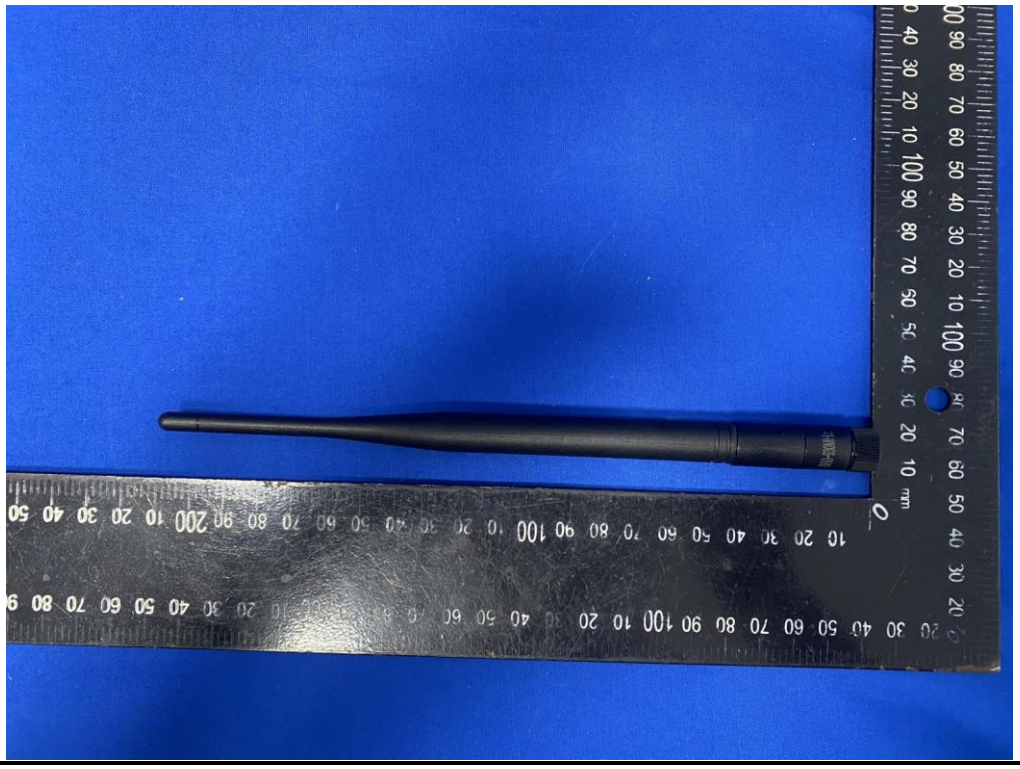
Above 1GHz

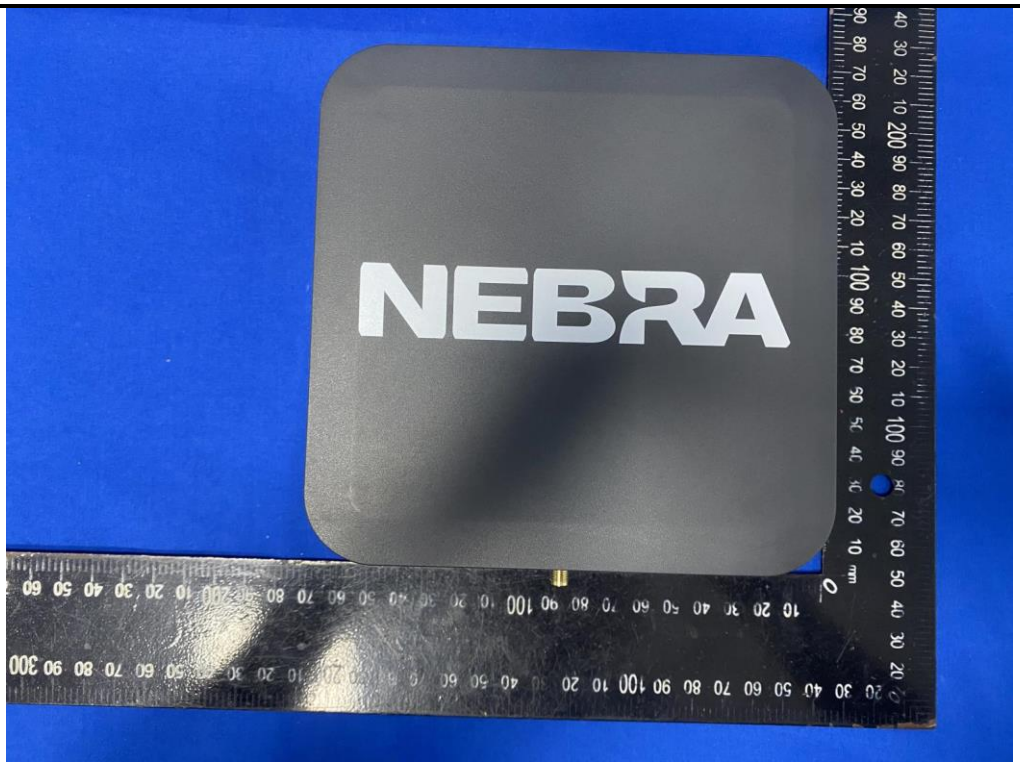


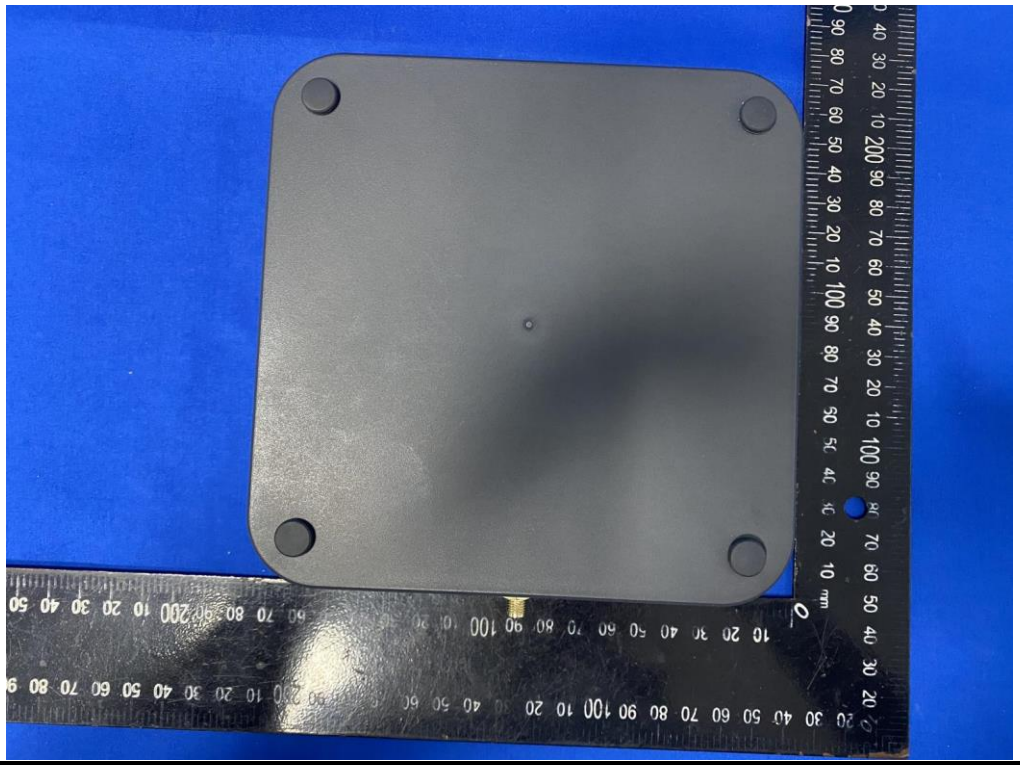
Conducted Emission

8 EUT Constructional Details

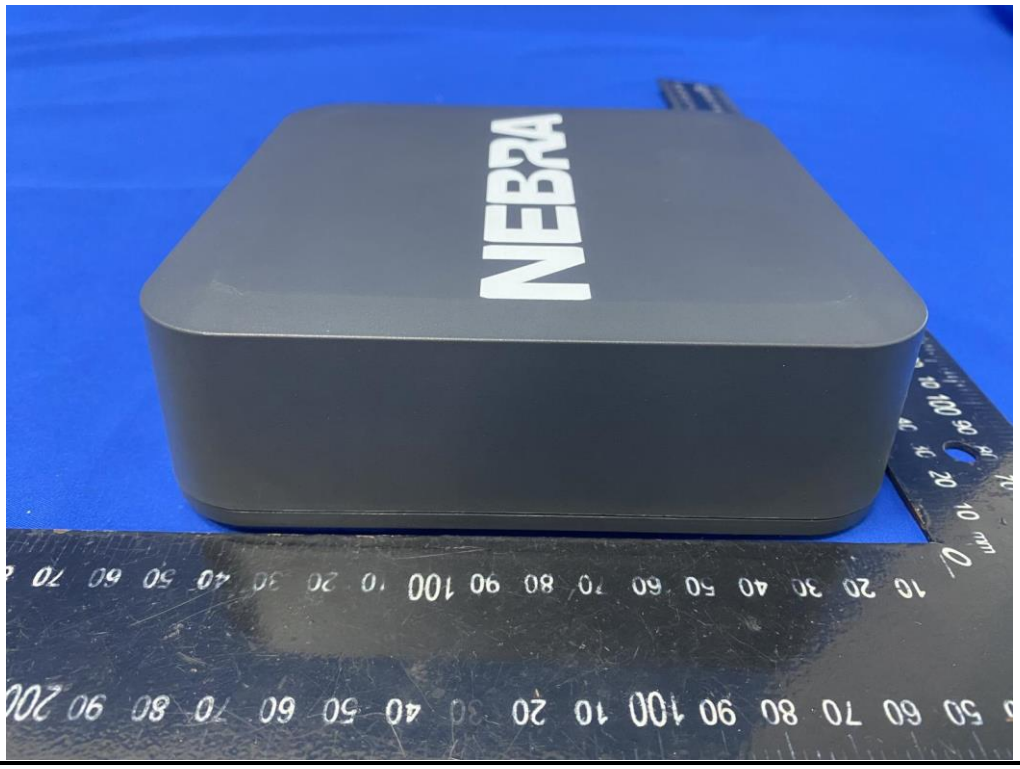





NEBRA

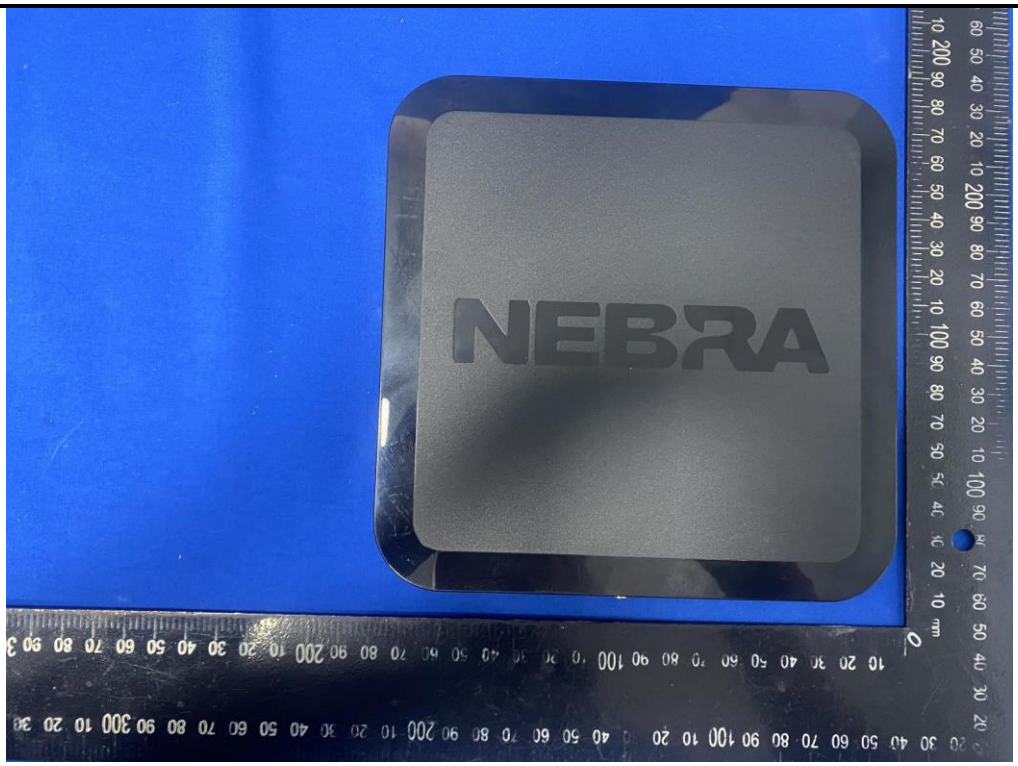


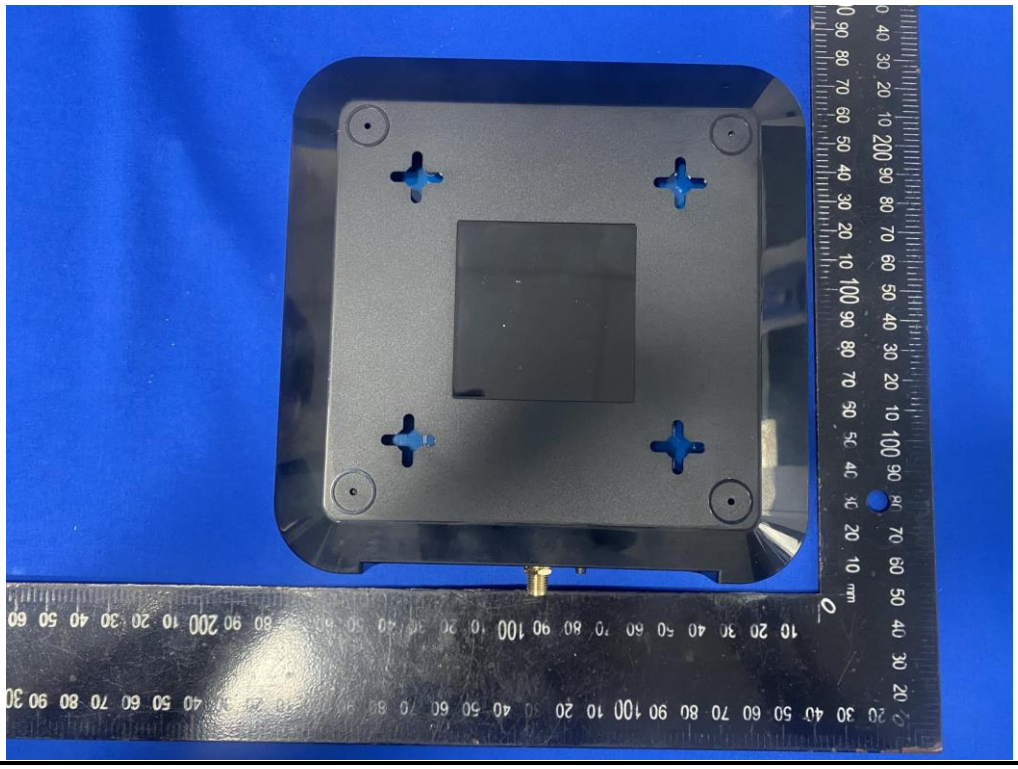

NEBRA


NEBRA


NEBRA


NEBRA


NEBRA

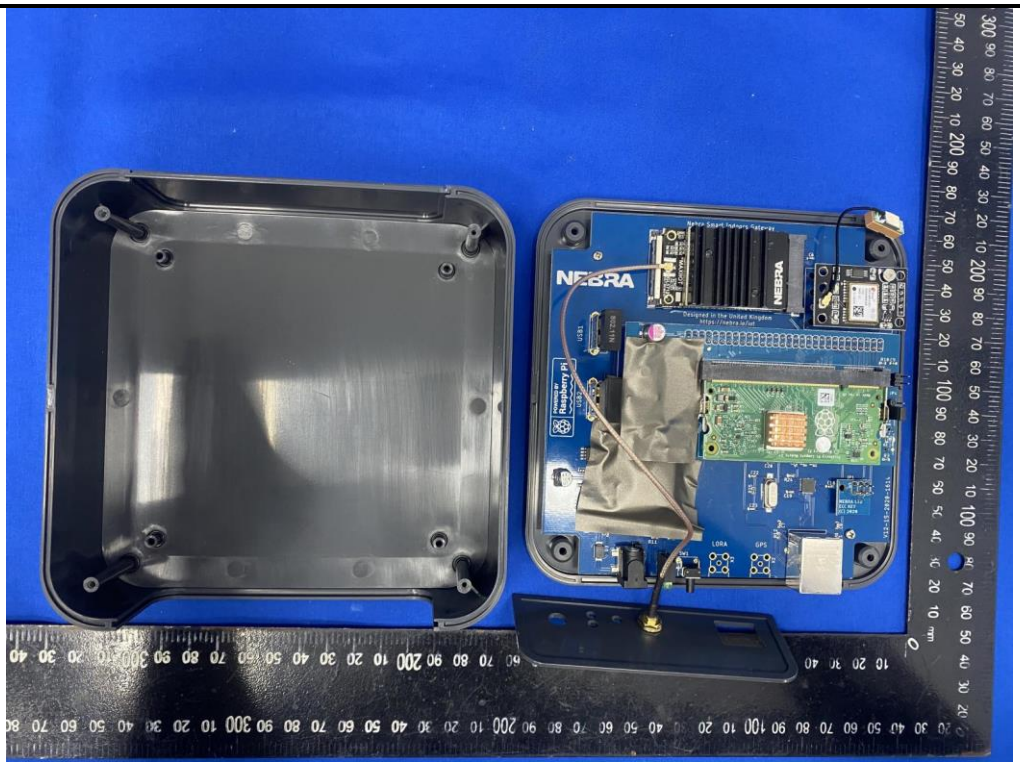


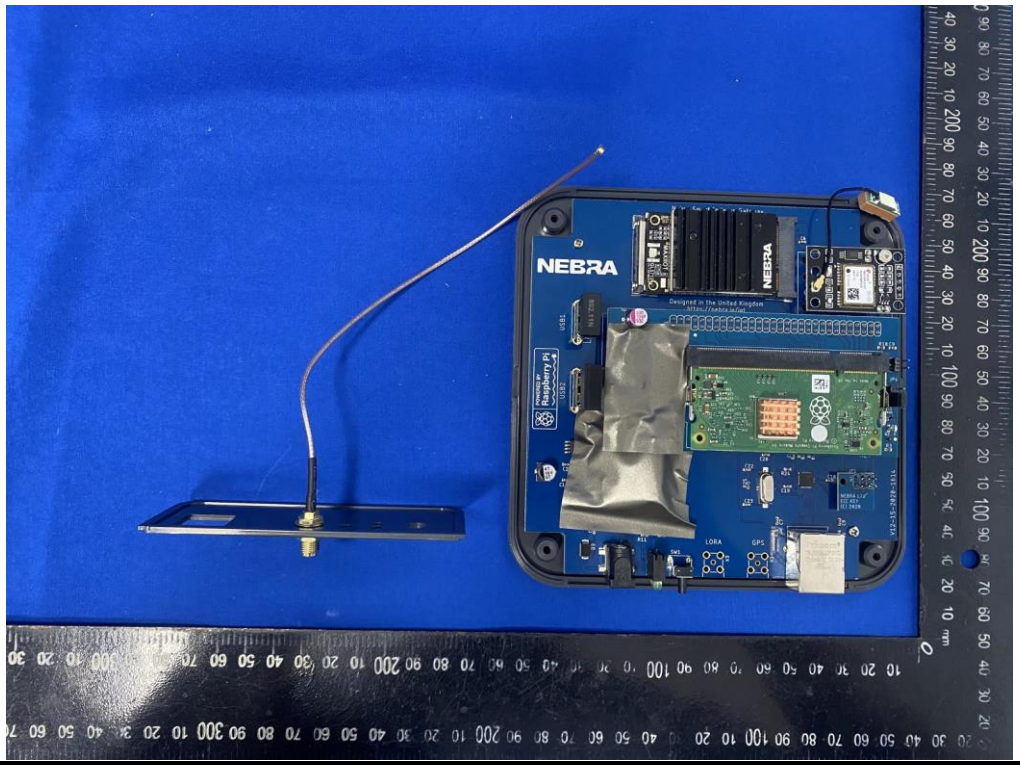

NEBRA

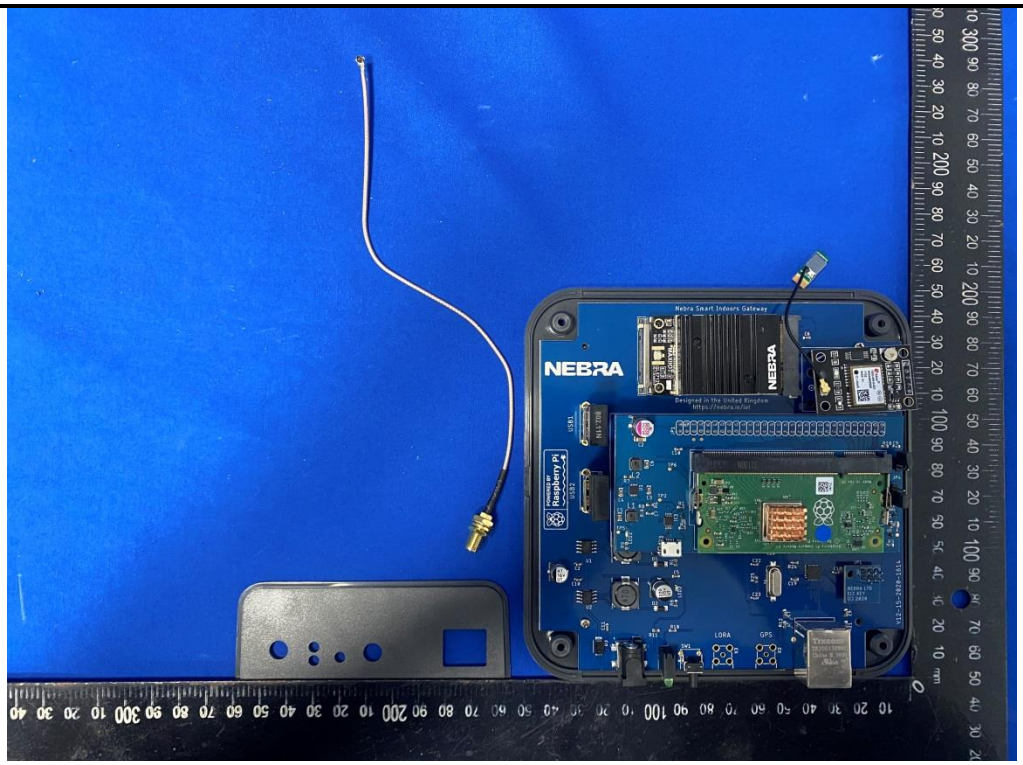

NEBRA


NEBRA

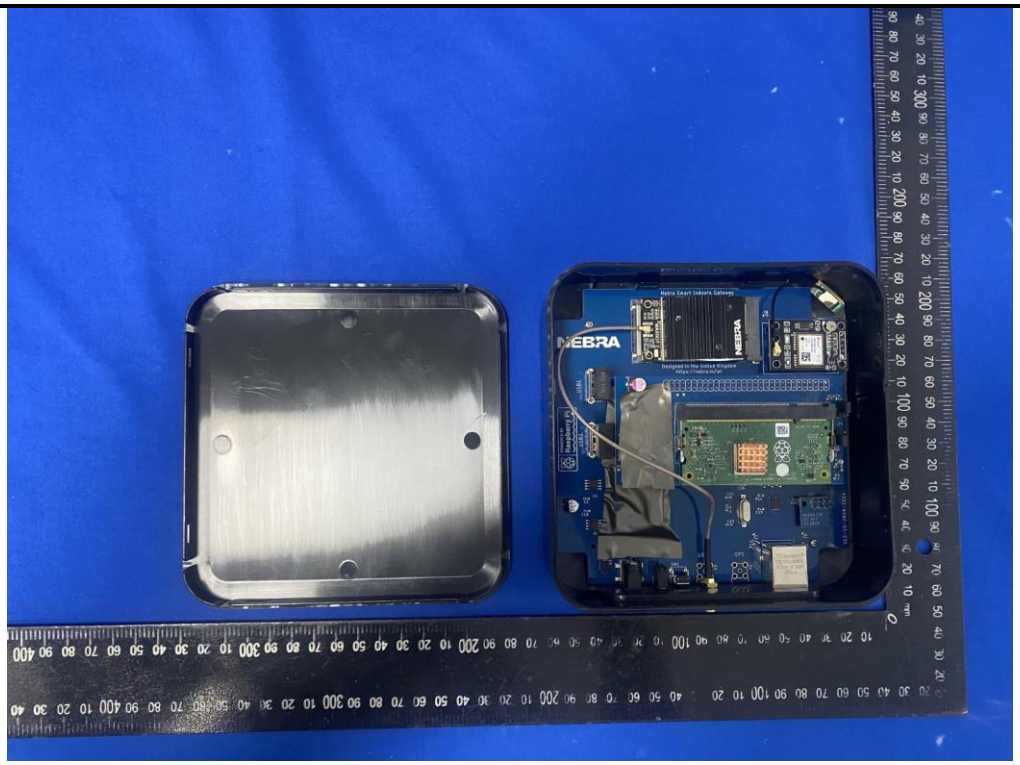

NEBRA

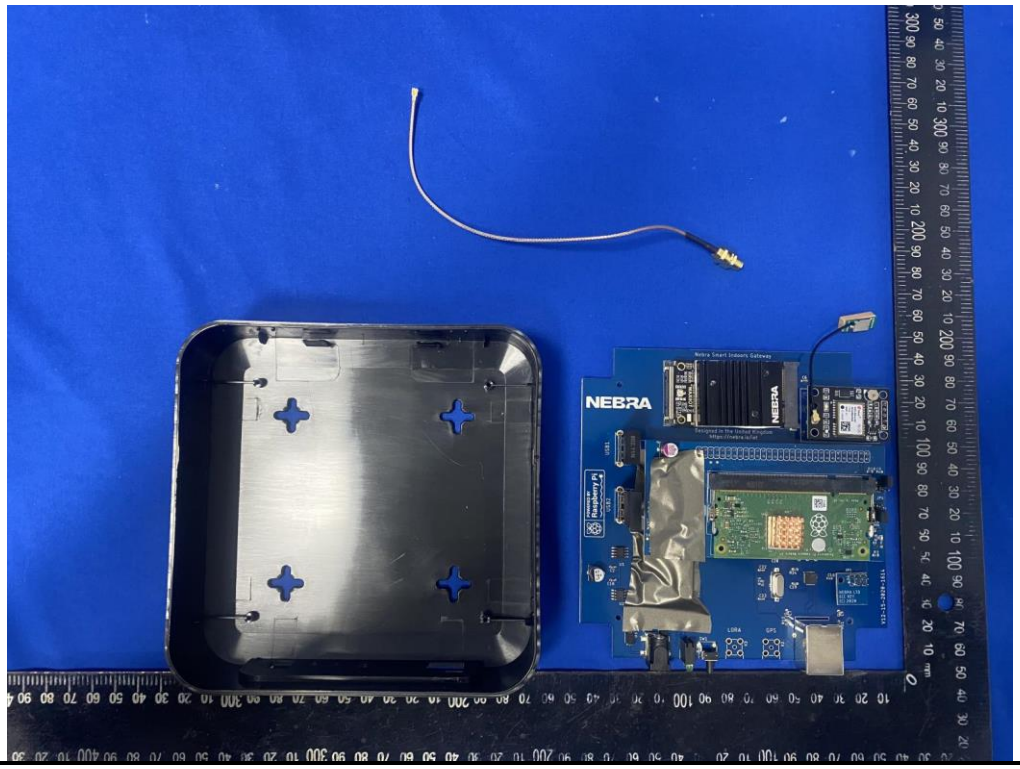

NEBRA

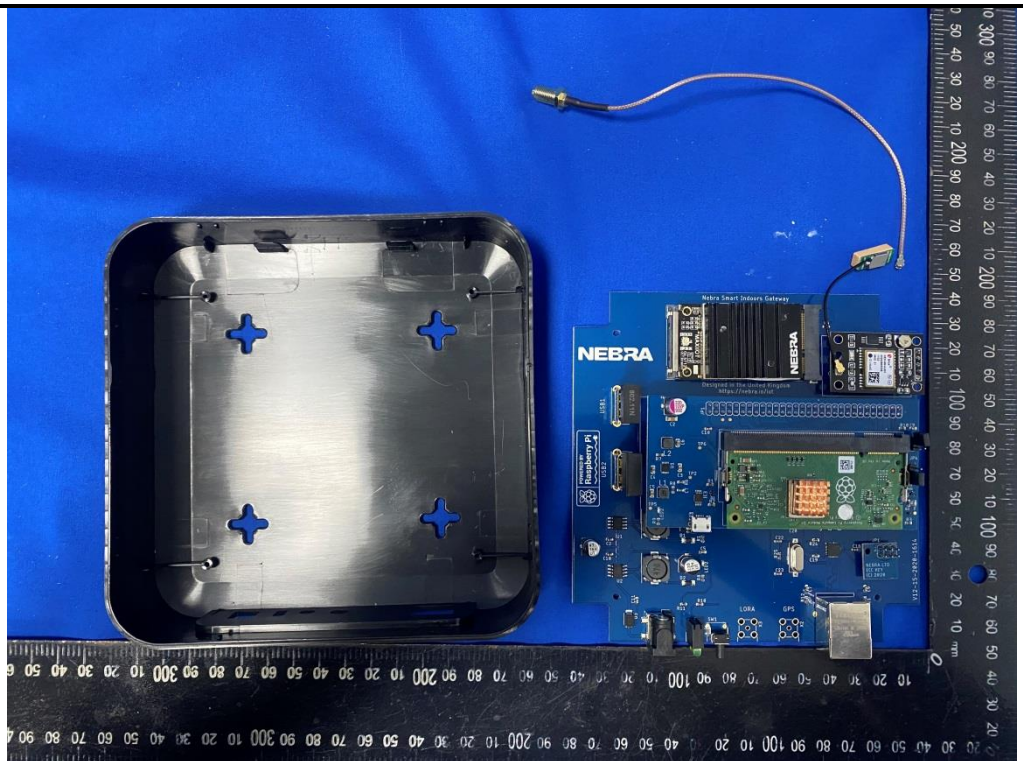

NEBRA

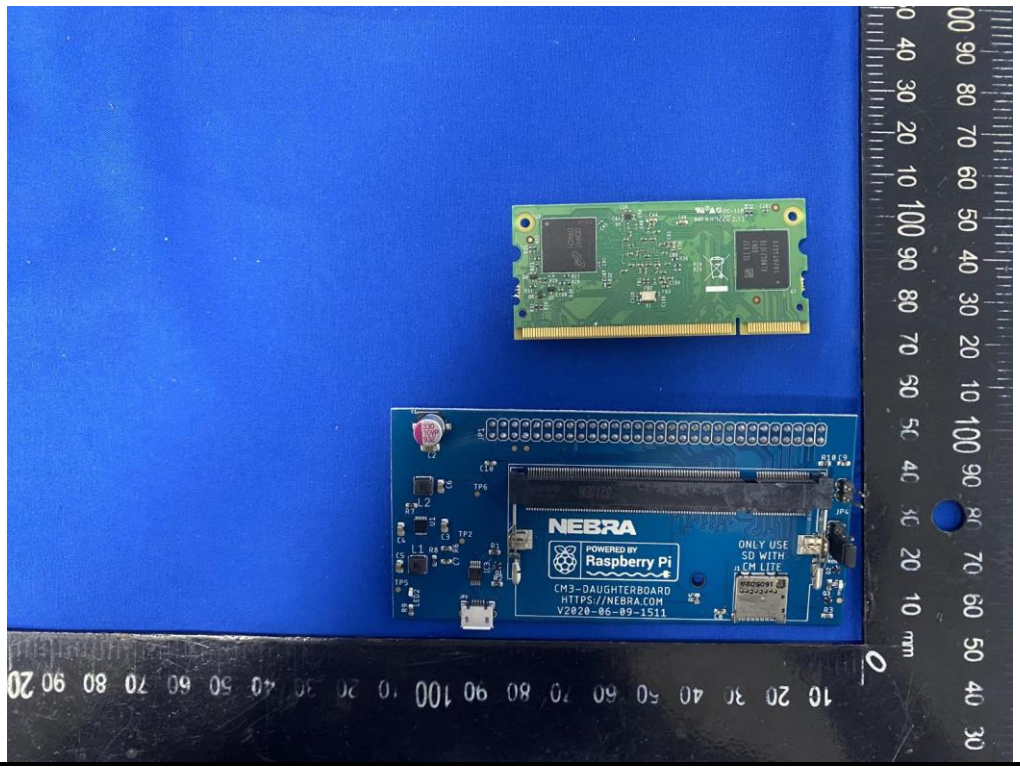

NEBRA
Nebra Smart Indoors Gateway
Designed in the United Kingdom
https://nebra.io/iot
Powered by Raspberry Pi
LORA
GPS

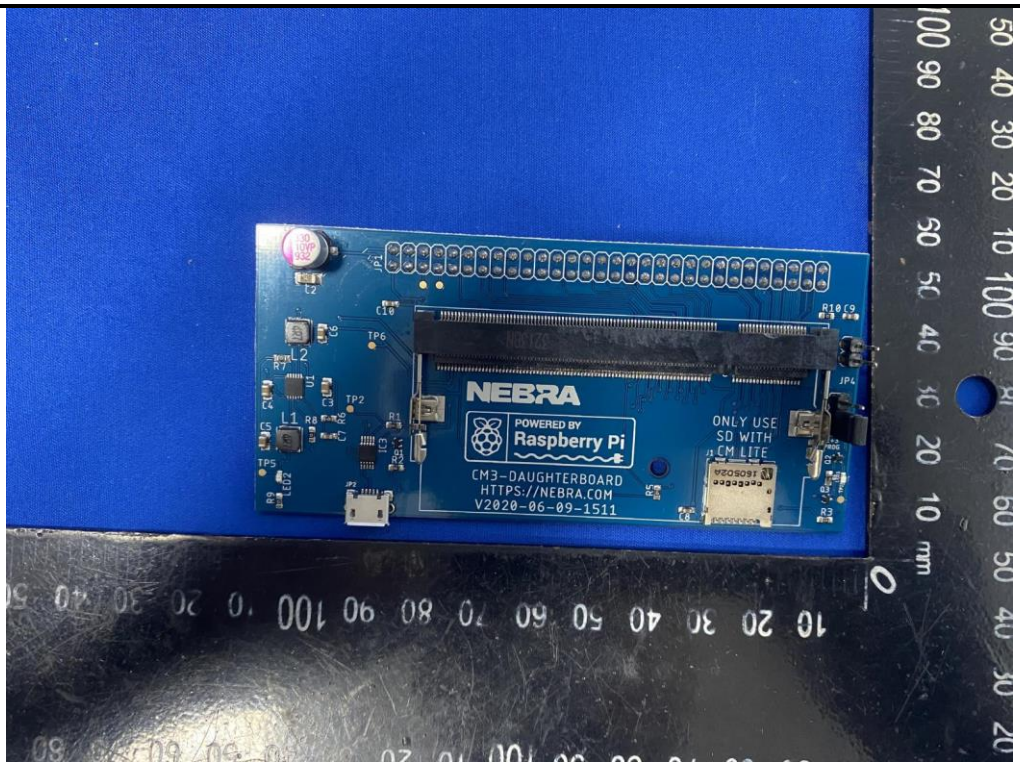

NEBRA
Nebra Smart Indoors Gateway
Designed in the United Kingdom
https://nebra.io/iot
Powered by Raspberry Pi
LORA
GPS

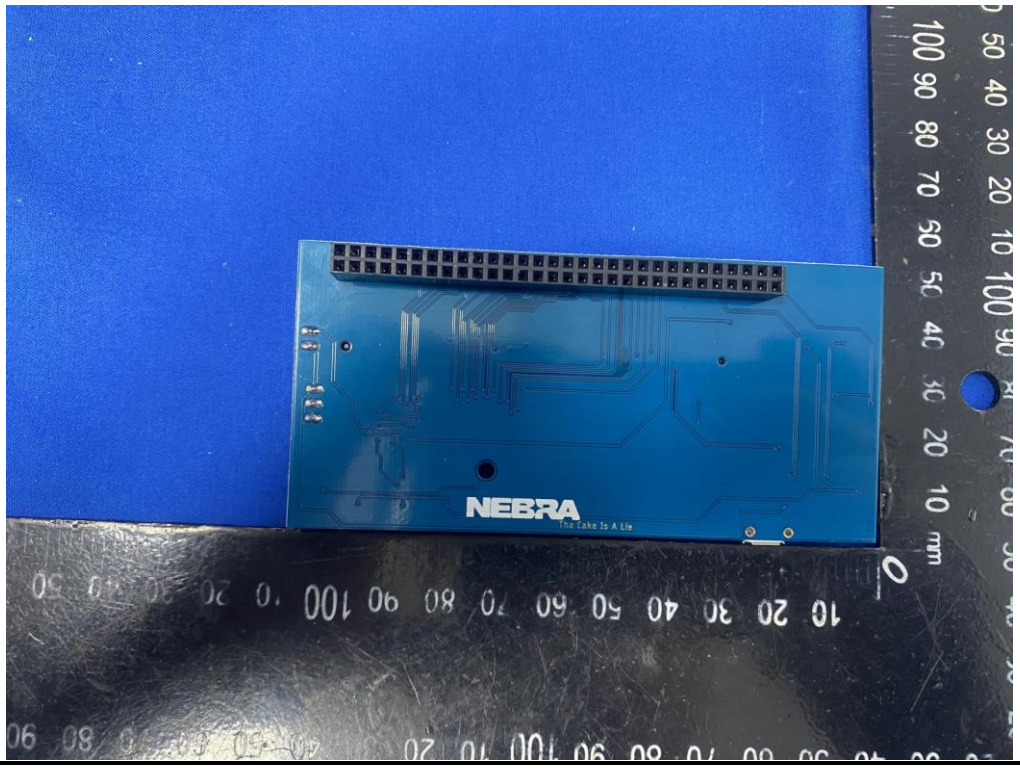

NEBRA

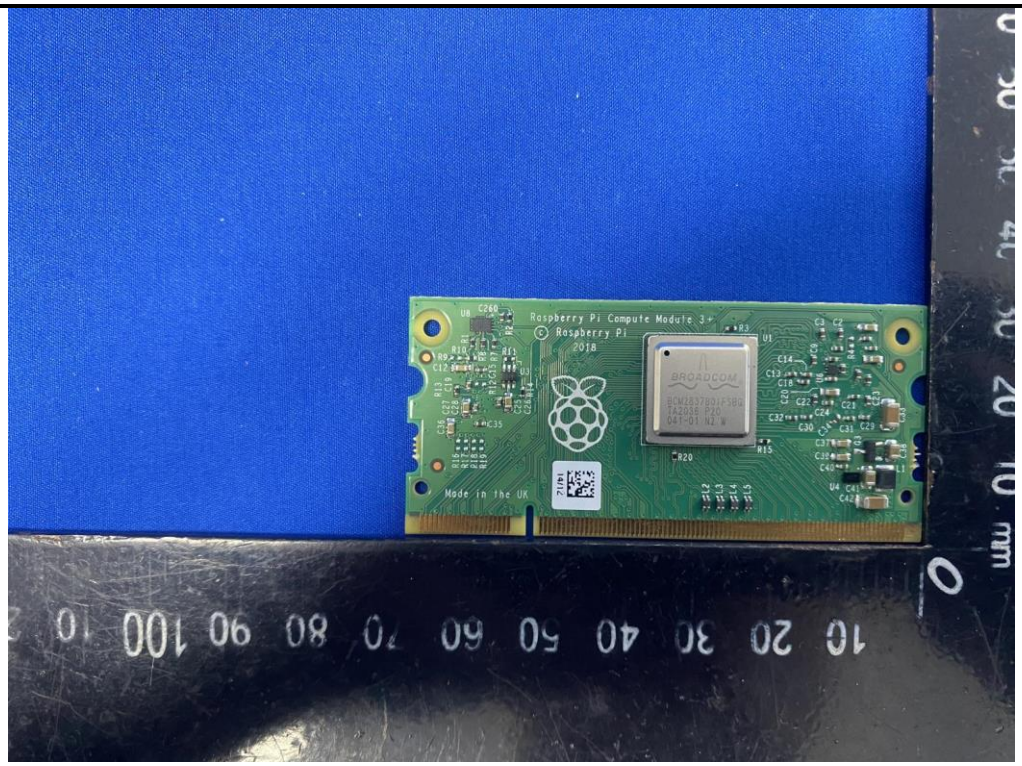

NEBRA

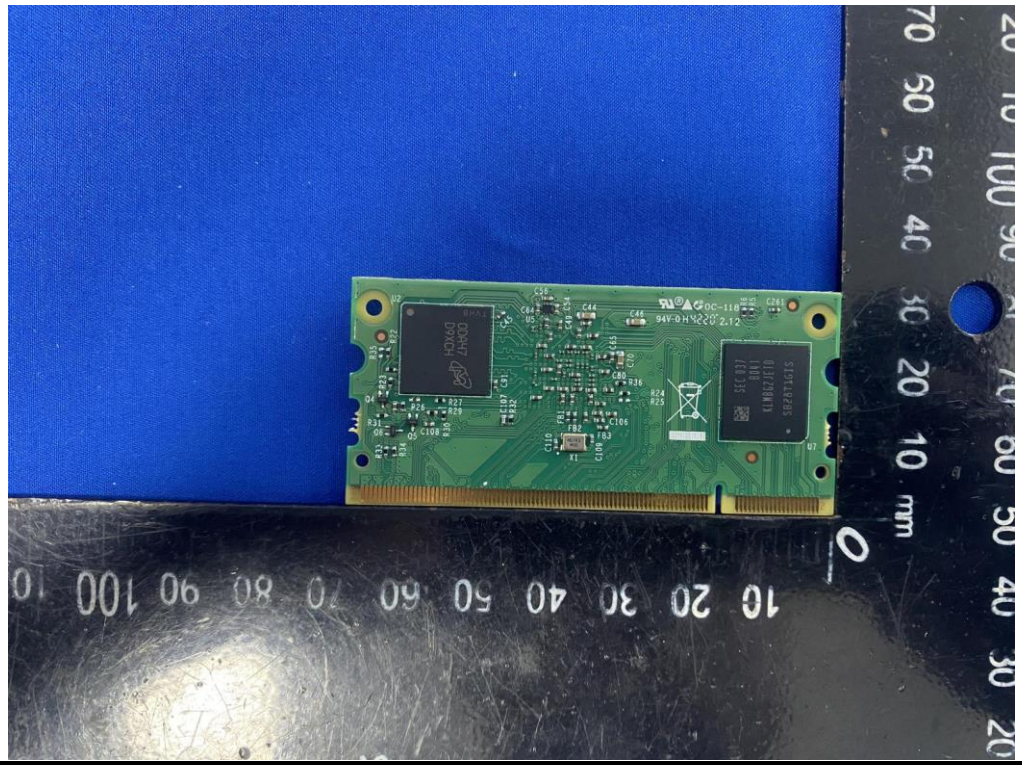

NEBRA
Nebra Smart Indoors Gateway
Designed in the United Kingdom
https://nebra.io/iot
Powered by Raspberry Pi

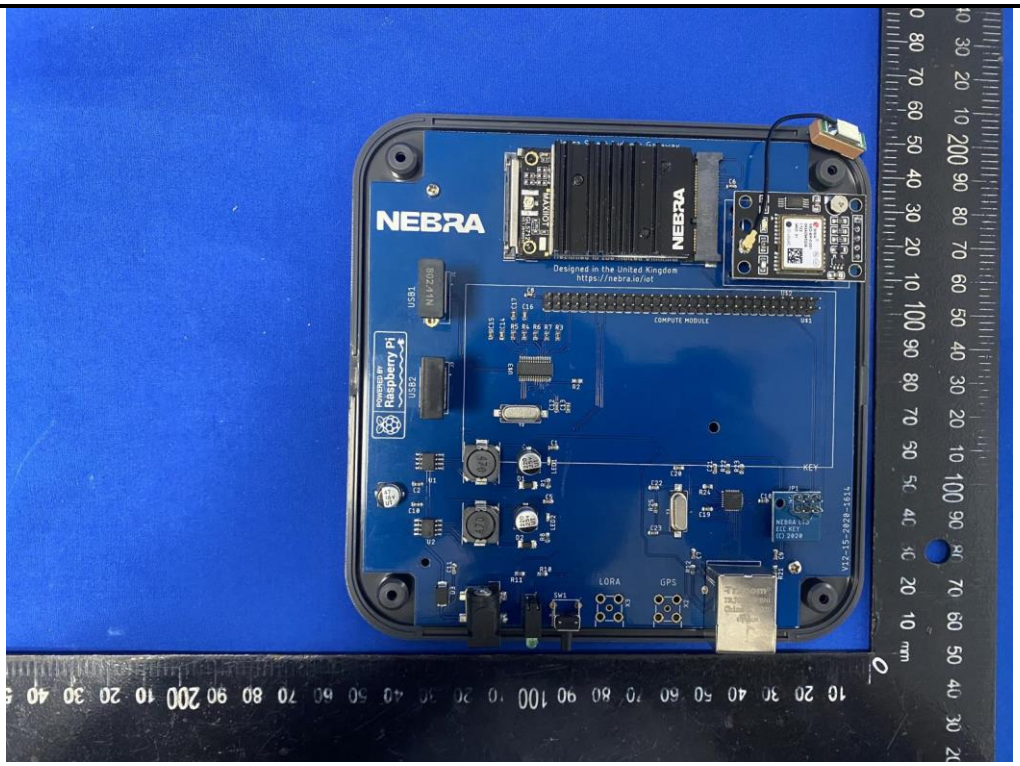

NEBRA
POWERED BY Raspberry Pi
CM3-DAUGHTERBOARD
HTTPS://NEBRA.COM
V2020-06-09-1511
ONLY USE SD WITH CM LITE

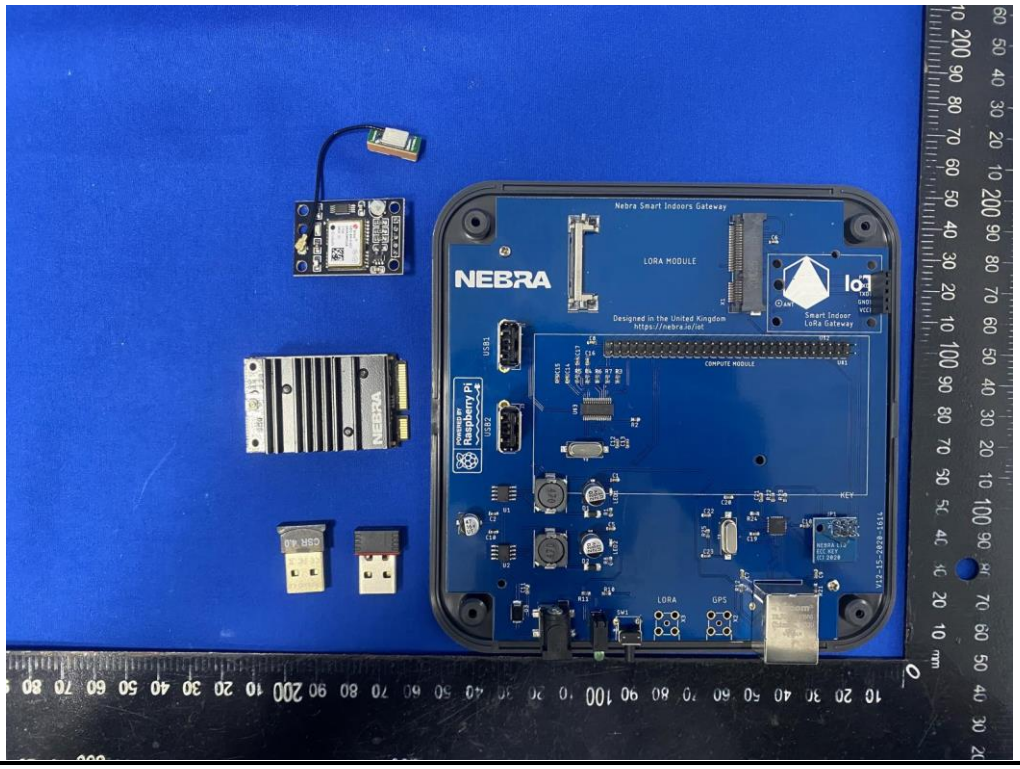

NEBRA
POWERED BY
Raspberry Pi
ONLY USE
SD WITH
CM LITE
CM3-DAUGHTERBOARD
HTTPS://NEBRA.COM
V2020-06-09-1511

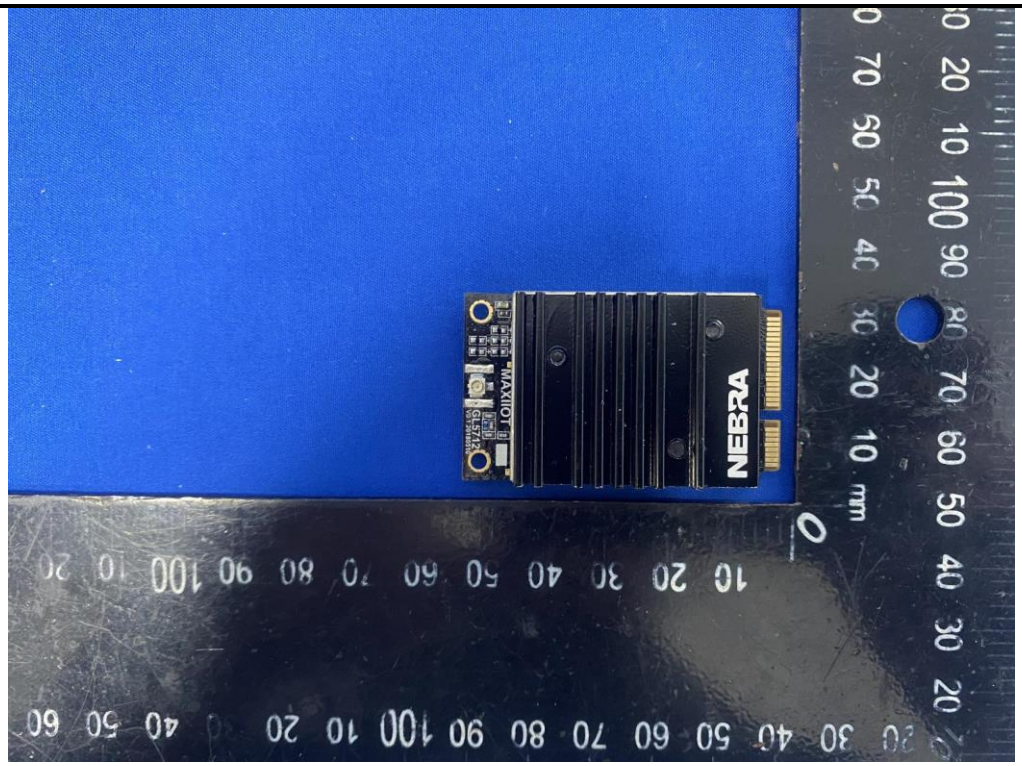

NEBRA

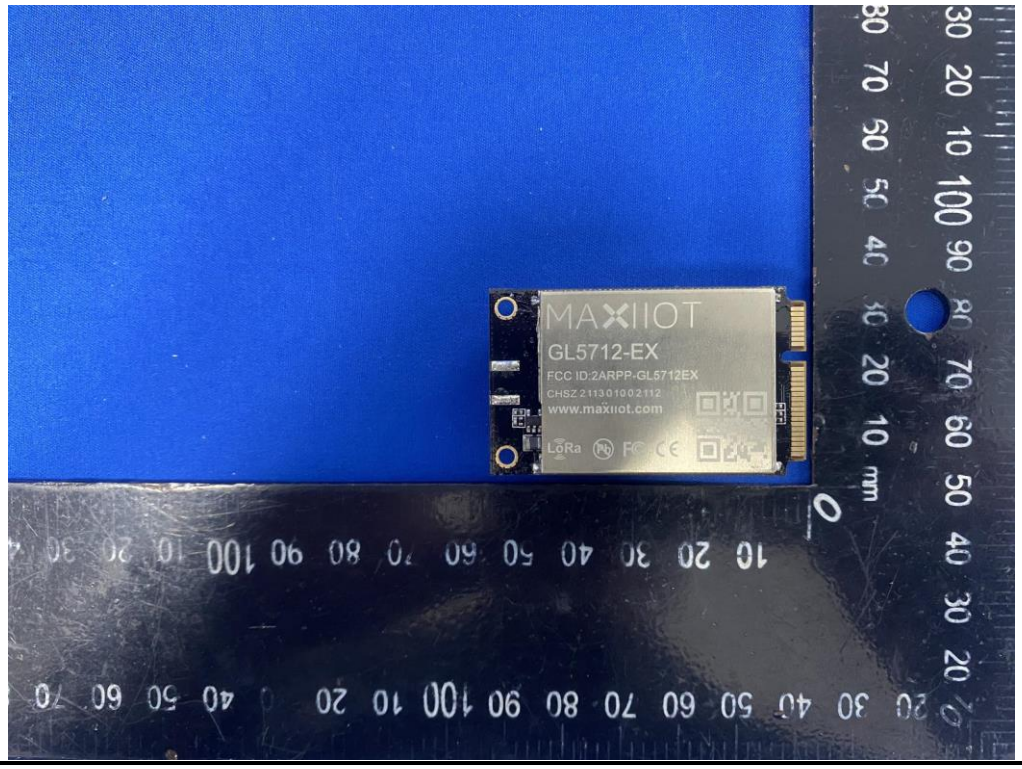

Raspberry Pi Compute Module 3+
Raspberry Pi
2018
BROADCOM
Made in the UK

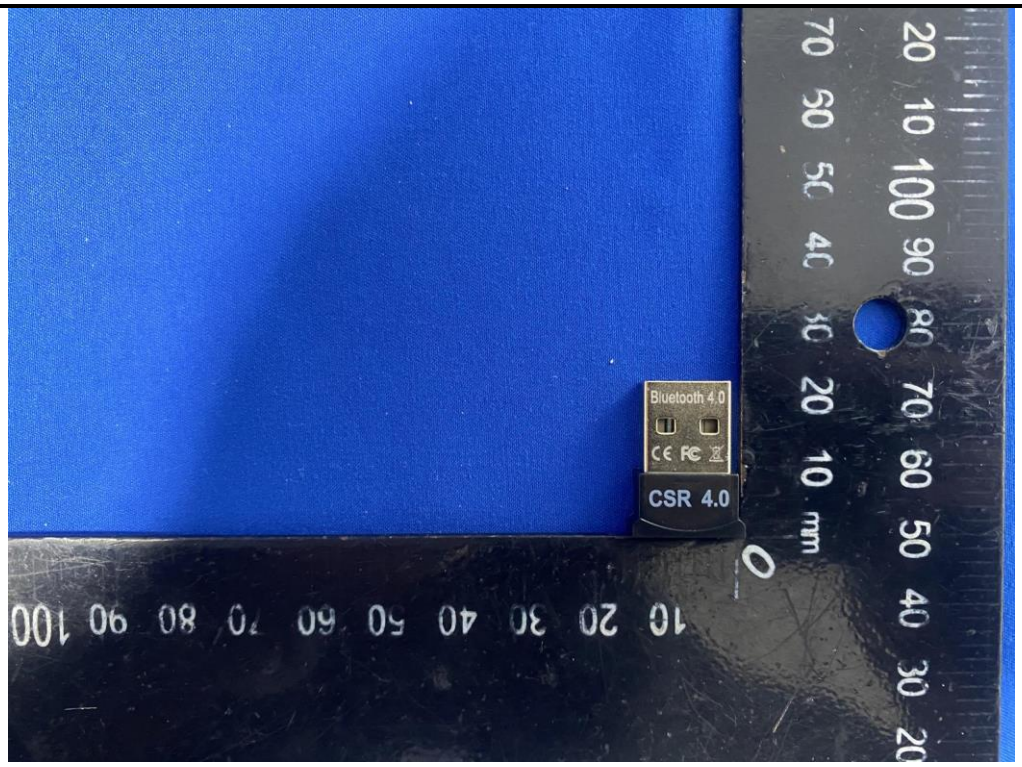


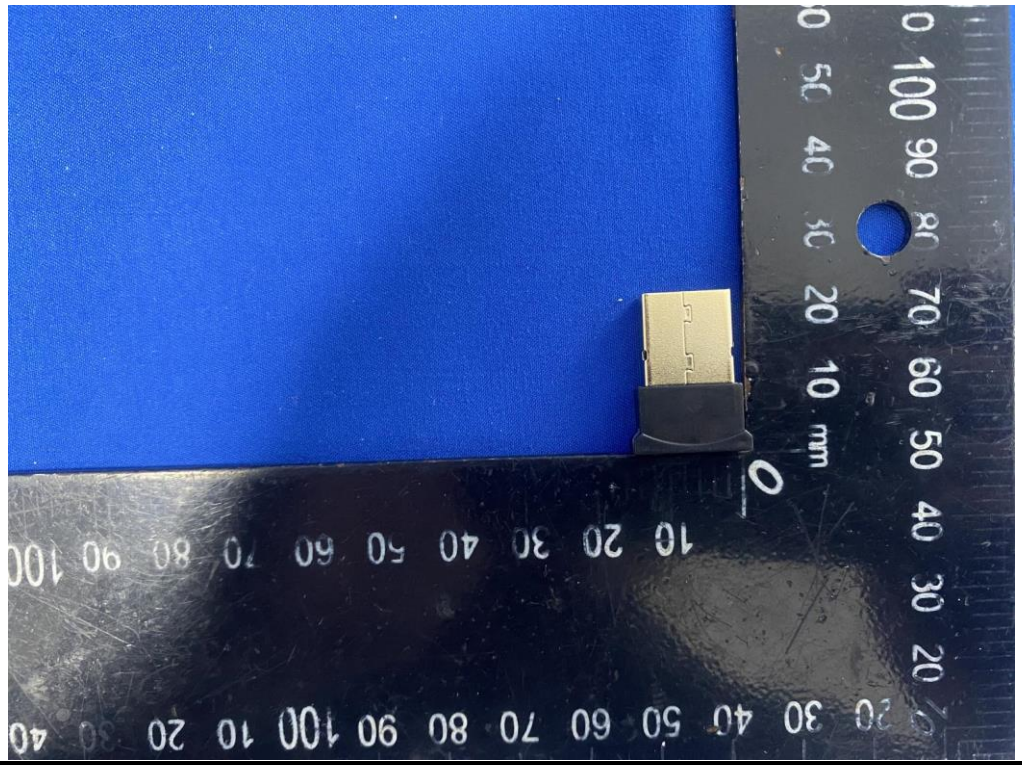

NEBRA
Designed in the United Kingdom
https://nebra.io/iot
COMPUTE MODULE
LORA
GPS
KEY

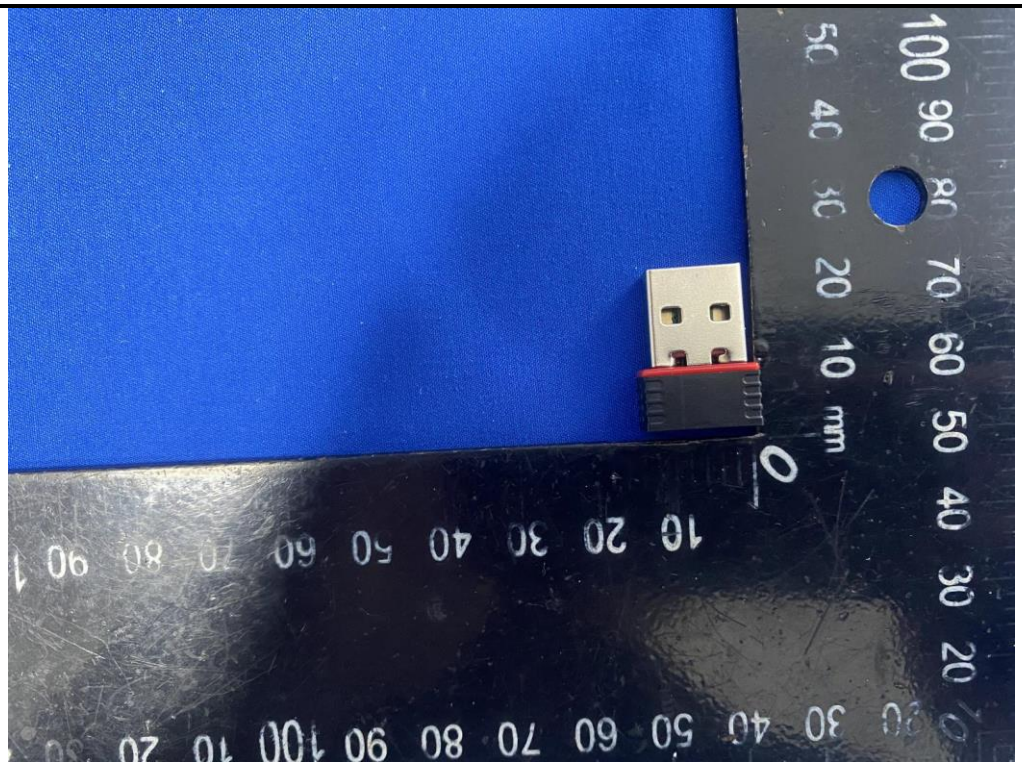

Nebra Smart Indoors Gateway
NEBRA
LORA MODULE
Designed in the United Kingdom
https://nebra.io/iot
Smart Indoor
LoRa Gateway
COMPUTE MODULE
LORA
GPS
KEY

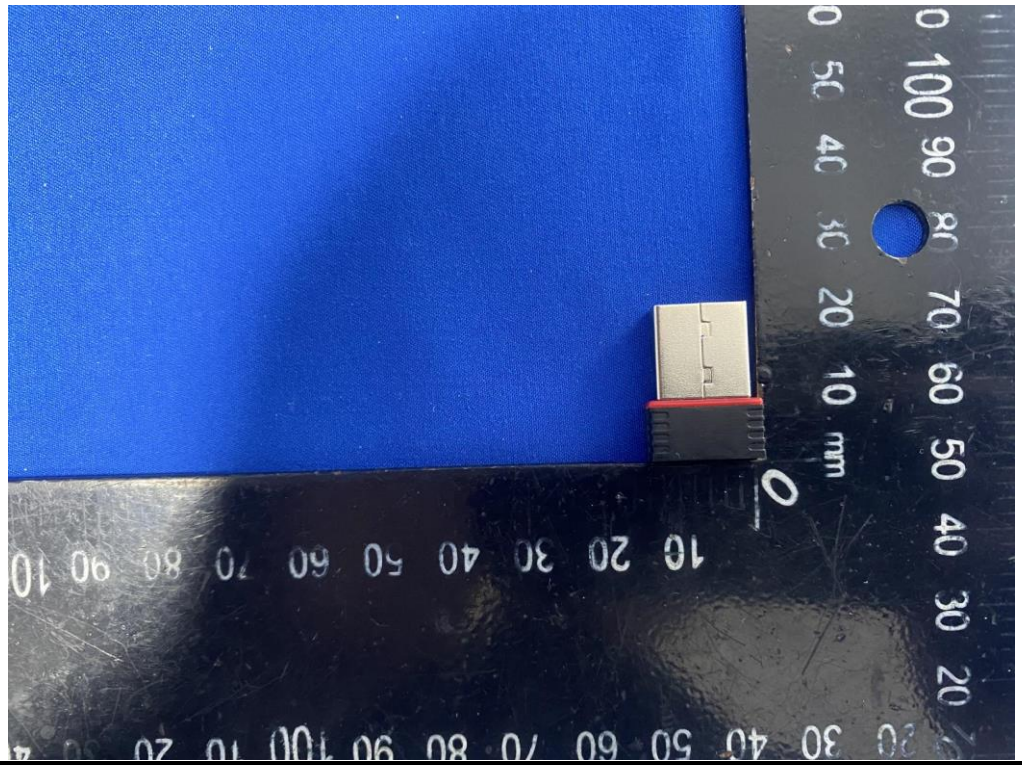

MAXIIOT
NEBRA

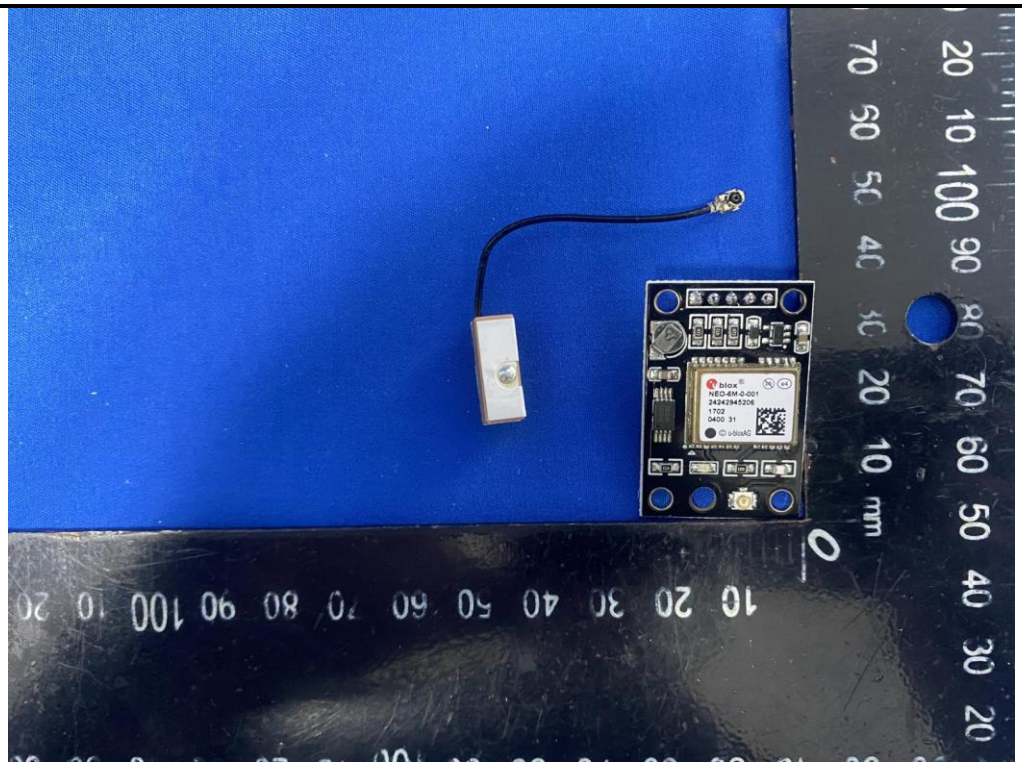

MAXIIOT
GL5712-EX
FCC ID:2ARPP-GL5712EX
CHSZ21130100212
www.maxiiot.com

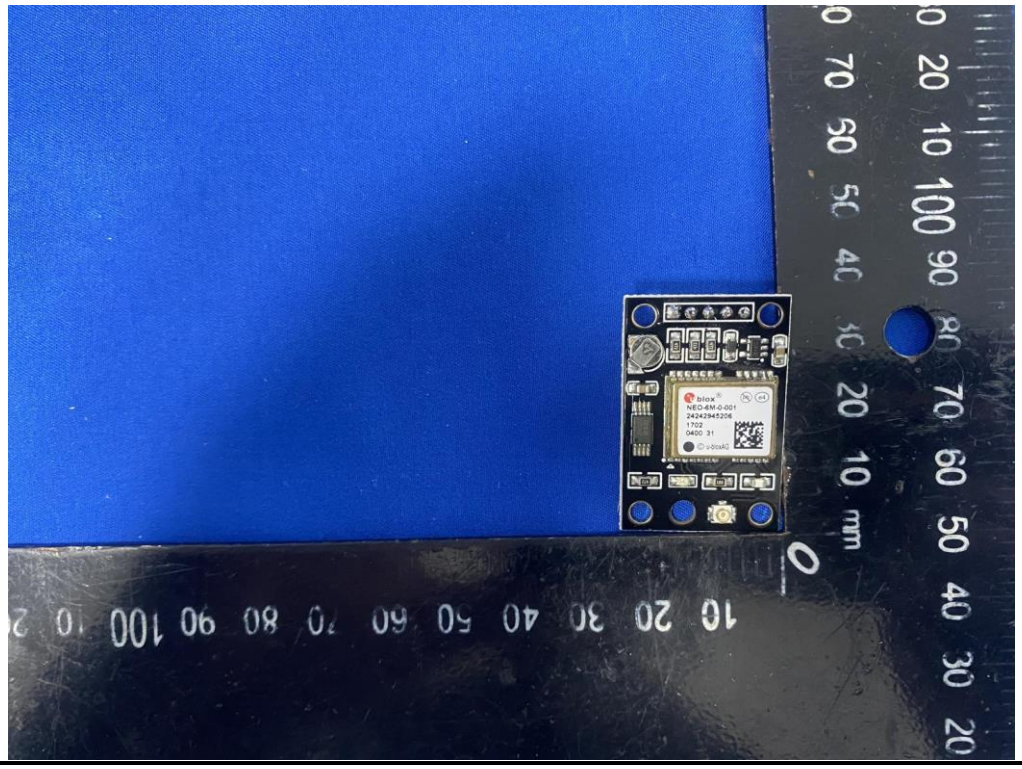

Bluetooth 4.0
CSR 4.0

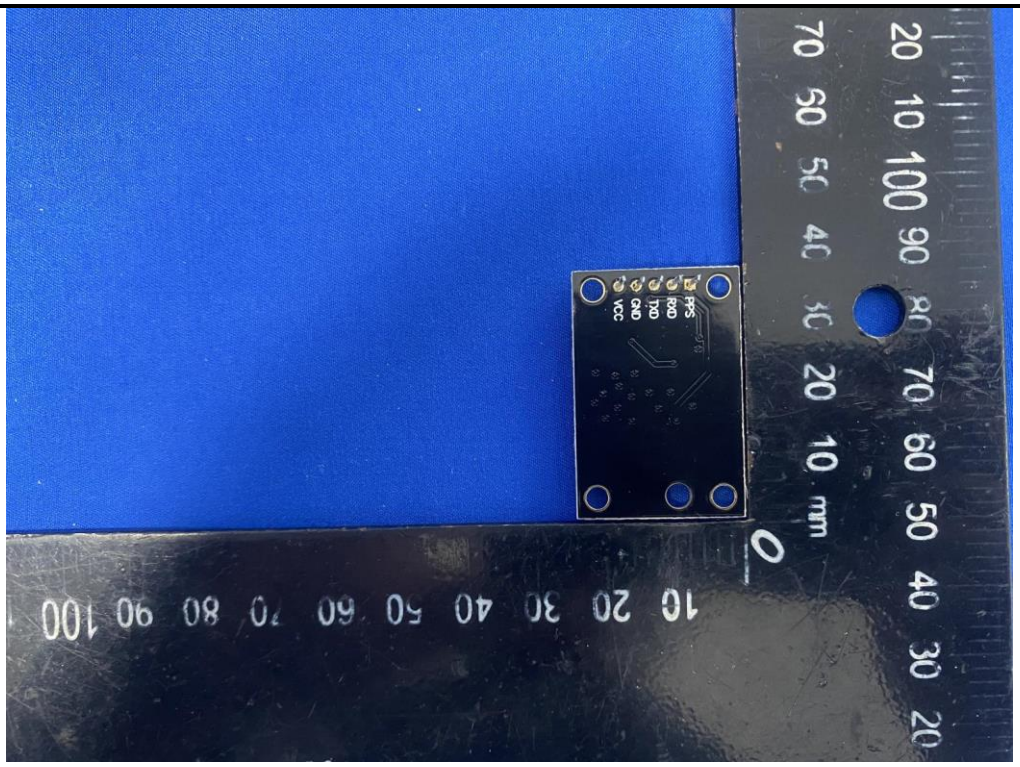


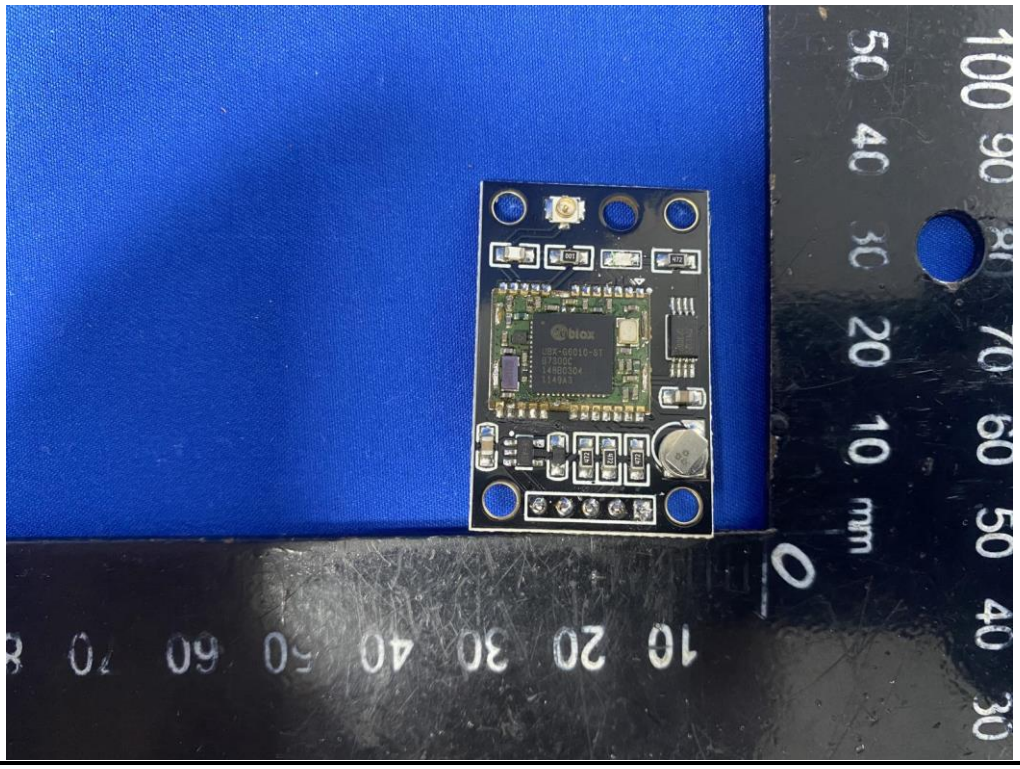






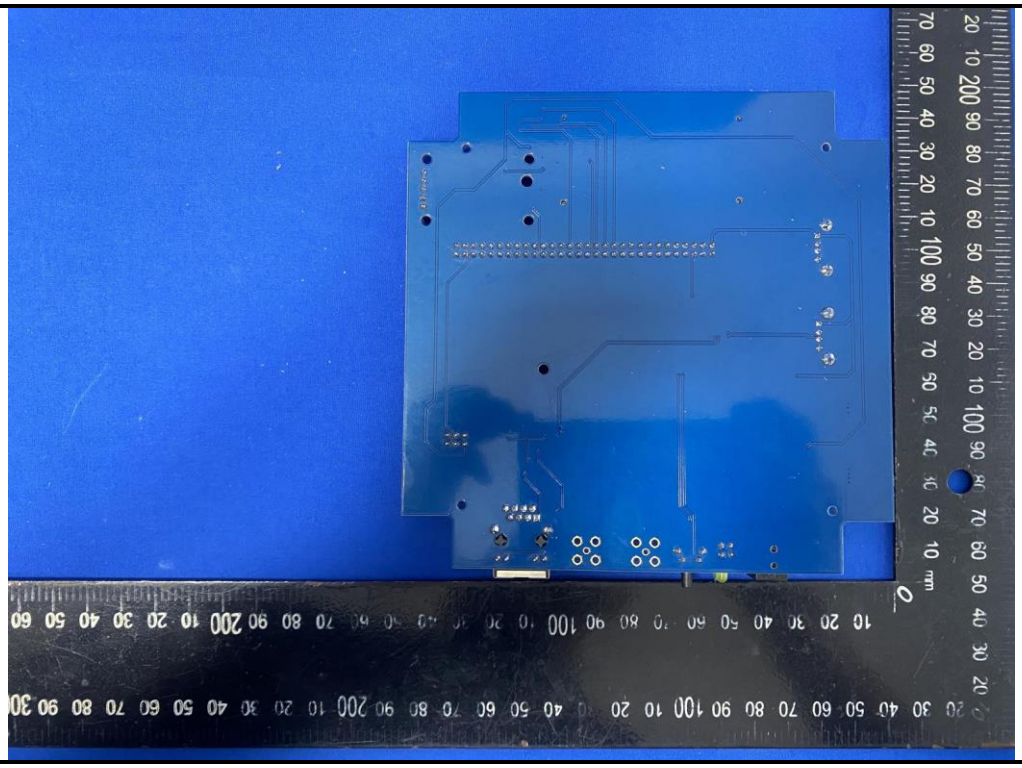



VCC
GND
TXD
RXD
PPS
mm


mm


NEBRA
Nebra Smart Indoors Gateway
LORA MODULE
Designed in the United Kingdom
https://nebra.io/iot
Smart Indoor
LoRa Gateway
COMPUTE MODULE
LORA
GPS


NEBRA
Nebra Smart Indoors Gateway
LORA MODULE
Designed in the United Kingdom
https://nebra.io/iot
Smart Indoor
LoRa Gateway
COMPUTE MODULE
LORA
GPS



------End of report------