TEST REPORT

Reference No.	:	WTS20S03010650W V1
FCC ID	:	2AS92-GT-100S
Applicant	:	Ablegrid Corp
Address	:	240 Goddard, Irvine, CA 92618, United States
Manufacturer	:	Ablegrid Corp
Address	:	240 Goddard, Irvine, CA 92618, United States
Product	:	GPS Tracker
Model(s)	:	GT-100S, GT-300S
Brand Name	:	Ablegrid
Standards	:	FCC CFR47 Part 24 Subpart E: 2018 FCC CFR47 Part 27 Subpart L: 2018
Date of Receipt sample	:	2020-03-17
Date of Test	:	2020-03-19 to 2020-04-28
Date of Issue	:	2020-05-15
Test Result	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS20S03010650W	2020-03-17	2020-03-19 to 2020-04-28	2020-04-30	original	-	Replaced
WTS20S03010650W V1	2020-03-17	2020-03-19 to 2020-04-28	2020-05-15	Version 1	Updated	Valid

4 General Information

4.1 General Description of E.U.T.

Product:	GPS Tracker
Model(s):	GT-100S, GT-300S
Model Description:	Only the model names, product shell size, battery and the antenna are different.
LTE Cat M1 Band(s):	Band 2/4/12
Hardware Version:	OC-03_V05
Software Version:	OC-03-V2.02

4.2 Details of E.U.T.

Operation Frequency:	Band 2: 1850~1910MHz Band 4: 1710~1755MHz Band 12: 699~716MHz
Max. RF output power:	Band 2: 23.87dBm Band 4: 22.40dBm Band 12: 23.40dBm
Type of Modulation:	QPSK, 16QAM
Antenna installation:	internal permanent antenna
Antenna Gain:	GT-100S: Band 2: 0.51dBi Band 4: 1.22dBi Band 12: -2.32dBi GT-300S: Band 2: -1.38dBi Band 4: -1.96dBi Band 12: -2.197dBi
Ratings:	GT-100S: Battery DC 3.7V, 3000mAh DC 5V charging from USB GT-300S: Battery DC 3.7V, 5800mAh DC 5V charging from USB
Type of Emission:	LTE Band 2 1.4MHz: 1M11G7D(QPSK), 9K48W7D(16QAM) LTE Band 2 3MHz: 1M16G7D(QPSK), 9K85W7D(16QAM) LTE Band 2 5MHz: 1M17G7D(QPSK), 1M01W7D(16QAM) LTE Band 2 10 MHz: 1M19G7D(QPSK), 1M19W7D(16QAM) LTE Band 2 15MHz: 1M22G7D(QPSK), 1M90W7D(16QAM) LTE Band 2 20MHz: 1M25G7D(QPSK), 1M15W7D(16QAM) LTE Band 4 1.4MHz: 1M12G7D(QPSK), 9K39W7D(16QAM)

LTE Band 4 3MHz: 1M15G7D(QPSK), 9K81W7D(16QAM)
LTE Band 4 5MHz: 1M13G7D(QPSK), 1M02W7D(16QAM)
LTE Band 4 10 MHz: 1M18G7D(QPSK), 1M07W7D(16QAM)
LTE Band 4 15MHz: 1M20G7D(QPSK), 1M06W7D(16QAM)
LTE Band 4 20MHz: 1M21G7D(QPSK), 1M11W7D(16QAM)
LTE Band 12 1.4MHz: 1M11G7D(QPSK), 9K39W7D(16QAM)
LTE Band 12 3MHz: 1M15G7D(QPSK), 9K85W7D(16QAM)
LTE Band 12 5MHz: 1M14G7D(QPSK), 9K76W7D(16QAM)
LTE Band 12 10MHz: 1M21G7D(QPSK), 1M08W7D(16QAM)

4.3 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Support Band	Test Mode BW(MHz)	Channel Frequency	Channel Number
LTE Band 2	1.4	1850.7 MHz	18607
		1880.0 MHz	18900
		1909.3 MHz	19193
	3	1851.5 MHz	18615
		1880.0 MHz	18900
		1908.5 MHz	19185
	5	1852.5 MHz	18625
		1880.0 MHz	18900
		1907.5 MHz	19175
	10	1855.0 MHz	18650
		1880.0 MHz	18900
		1905.0 MHz	19150
	15	1857.5 MHz	18675
		1880.0 MHz	18900
		1902.5 MHz	19125
	20	1860.0 MHz	18700
		1880.0 MHz	18900
		1900.0 MHz	19100
LTE Band 4	1.4	1710.7 MHz	19957
		1732.5 MHz	20175
		1754.3 MHz	20393
	3	1711.5 MHz	19965
		1732.5 MHz	20175
		1753.5 MHz	20385
	5	1712.5 MHz	19975
		1732.5 MHz	20175
		1752.5 MHz	20375
	10	1715.0 MHz	20000
		1732.5 MHz	20175
		1750.0 MHz	20350
	15	1717.5 MHz	20025
		1732.5 MHz	20175
		1747.5 MHz	20325
	20	1720.0 MHz	20050
		1732.5 MHz	20175
		1745.0 MHz	20300
LTE Band 12	1.4	699.7 MHz	23017
		707.5 MHz	23095
		715.3 MHz	23173

	3	700.5 MHz	23025
		707.5 MHz	23095
		714.5 MHz	23165
	5	701.5 MHz	23035
		707.5 MHz	23095
		713.5 MHz	23155
	10	704.0 MHz	23060
		707.5 MHz	23095
		711.0 MHz	23130
Remark: All mode(s) were tested and the worst data was recorded.			

4.4 Test Facility

The test facility has a test site registered with the following organizations:

ISED CAB identifier: CN0013. Test Firm Registration No.: 7760A.

Waltek Services(Shenzhen) Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A, October 15, 2016.

FCC Designation No.: CN1201. Test Firm Registration No.: 523476.

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration number 523476, September 10, 2019.

5 Test Summary

Test Items	Test Requirement	Result
Field Strength of Spurious Radiation	2.1053 24.238 (a) 27.53(h) 27.53(g)	PASS
Maximum Permissible Exposure (SAR)	1.1307 2.1093	PASS

Note: All test items, including RF power output, EIRP, Occupied bandwidth, Band Edge, Peak-to-Average Power Ratio, Frequency Stability and Spurious Emissions at Antenna Terminals, refer to module test report of FCC ID: XMR201707BG96.

6 Equipment Used during Test

6.1 Equipments List

3m Semi-anechoic Chamber for Radiation Emissions Test site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Spectrum Analyzer	R&S	FSP30	100091	2020-04-20	2021-04-19
2	Amplifier	Agilent	8447D	2944A10178	2020-04-20	2021-04-19
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2019-08-11	2020-08-10
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2020-04-20	2021-04-19
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2020-04-20	2021-04-19
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2020-04-20	2021-04-19
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2020-04-20	2021-04-19
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	2020-04-20	2021-04-19
9	Signal Generator	R&S	SMP22	100102	2019-07-12	2020-07-11
10	Smart Antenna	SCHWARZBECK	HA08	-	2020-04-20	2021-04-19
3m Semi-anechoic Chamber for Radiation Emissions Test site 2#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	2020-04-20	2021-04-19
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2020-04-25	2021-04-24
3	Amplifier	Compliance pirection systems inc	PAP-0203	22024	2020-04-20	2021-04-19
4	Cable	HUBER+SUHNER	CBL2	525178	2020-04-20	2021-04-19

6.2 Measurement Uncertainty

Parameter	**Uncertainty**
Radiated Spurious Emissions	± 5.08 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)
Confidence interval：95%. Confidence factor:k=2	

6.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

7 RF OUTPUT POWER(ERP/EIRP)

Test Requirement:	FCC Part 2.1046, 22.913 (a), 24.232 (c), 27.50(h.2); 27.50(d.4)
Test Method:	ANSI C63.26:2015
	ANSI/TIA-603-E:2016
Test Mode:	TX transmitting

7.1 EUT Operation

Operating Environment **:**

Temperature:	22.5 °C
Humidity:	52.1 % RH
Atmospheric Pressure:	101.2kPa

7.2 Test Procedure

Radiated method:

1. The setup of EUT is according with per TIA/EIA Standard 603D:2010.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

7.3 Test Result

Remark: Test performed with low/middle/high channels for all bandwidth and two model , only the worst data for GT-100S were recorded.

ERP and EIRP

LTE Band 2

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Part 24E	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE Band 2 Channel 18607 – 1.4MHz – QPSK										
1850.70	86.71	3	1.3	H	12.74	0.31	10.40	22.83	33	-10.17
1850.70	86.74	153	2.1	V	13.46	0.31	10.40	23.55	33	-9.45
LTE Band 2 Channel 18900 – 1.4MHz – QPSK										
1880.00	86.94	139	2.0	H	13.09	0.31	10.40	23.18	33	-9.82
1880.00	86.81	335	2.3	V	13.69	0.31	10.40	23.78	33	-9.22
LTE Band 2 Channel 19193 – 1.4MHz – QPSK										
1909.30	86.67	166	1.5	H	12.94	0.32	10.40	23.02	33	-9.98
1909.30	86.75	80	1.5	V	13.79	0.32	10.40	23.87	33	-9.13
LTE Band 2 Channel 18607 – 1.4MHz – 16QAM										
1850.70	86.71	354	2.2	H	12.74	0.31	10.40	22.83	33	-10.17
1850.70	86.45	296	2.0	V	13.17	0.31	10.40	23.26	33	-9.74
LTE Band 2 Channel 18900 – 1.4MHz – 16QAM										
1880.00	86.51	273	1.5	H	12.66	0.31	10.40	22.75	33	-10.25
1880.00	86.90	138	2.2	V	13.78	0.31	10.40	23.87	33	-9.13
LTE Band 2 Channel 19193 – 1.4MHz – 16QAM										
1909.30	86.84	323	1.1	H	13.11	0.32	10.40	23.19	33	-9.81
1909.30	86.59	276	2.0	V	13.63	0.32	10.40	23.71	33	-9.29
LTE Band 2 Channel 18615 – 3MHz – QPSK										
1851.50	86.82	103	2.0	H	12.85	0.31	10.40	22.94	33	-10.06
1851.50	86.72	290	1.5	V	13.44	0.31	10.40	23.53	33	-9.47
LTE Band 2 Channel 18900 – 3MHz – QPSK										
1880.00	86.69	42	1.5	H	12.84	0.31	10.40	22.93	33	-10.07
1880.00	86.93	243	1.6	V	13.81	0.31	10.40	23.90	33	-9.10
LTE Band 2 Channel 19185 – 3MHz – QPSK										
1908.50	86.66	275	1.1	H	12.93	0.32	10.40	23.01	33	-9.99
1908.50	86.78	153	1.4	V	13.82	0.32	10.40	23.90	33	-9.10
LTE Band 2 Channel 18615 – 3MHz – 16QAM										
1851.50	86.53	207	1.3	H	12.56	0.31	10.40	22.65	33	-10.35
1851.50	86.87	332	1.2	V	13.59	0.31	10.40	23.68	33	-9.32
LTE Band 2 Channel 18900 – 3MHz – 16QAM										
1880.00	86.92	65	1.1	H	13.07	0.31	10.40	23.16	33	-9.84
1880.00	86.63	260	1.4	V	13.51	0.31	10.40	23.60	33	-9.40
LTE Band 2 Channel 19185 – 3MHz – 16QAM										
1908.50	86.70	176	1.4	H	12.97	0.32	10.40	23.05	33	-9.95
1908.50	86.45	313	2.0	V	13.49	0.32	10.40	23.57	33	-9.43
LTE Band 2 Channel 18625 – 5MHz – QPSK										
1852.50	86.68	318	1.1	H	12.71	0.31	10.40	22.80	33	-10.20
1852.50	86.72	105	2.4	V	13.44	0.31	10.40	23.53	33	-9.47
LTE Band 2 Channel 18900 – 5MHz – QPSK										
1880.00	86.74	358	2.4	H	12.89	0.31	10.40	22.98	33	-10.02

1880.00	86.71	156	1.7	V	13.59	0.31	10.40	23.68	33	-9.32
LTE Band 2 Channel 19175 – 5MHz – QPSK										
1907.50	86.27	224	1.1	H	12.54	0.32	10.40	22.62	33	-10.38
1907.50	86.87	311	2.1	V	13.91	0.32	10.40	23.99	33	-9.01
LTE Band 2 Channel 18625 – 5MHz – 16QAM										
1852.50	86.31	163	1.9	H	12.34	0.31	10.40	22.43	33	-10.57
1852.50	86.62	87	2.2	V	13.34	0.31	10.40	23.43	33	-9.57
LTE Band 2 Channel 18900 – 5MHz – 16QAM										
1880.00	86.75	288	1.1	H	12.90	0.31	10.40	22.99	33	-10.01
1880.00	86.33	284	1.8	V	13.21	0.31	10.40	23.30	33	-9.70
LTE Band 2 Channel 19175 – 5MHz – 16QAM										
1907.50	86.64	353	2.4	H	12.91	0.32	10.40	22.99	33	-10.01
1907.50	86.95	328	1.4	V	13.99	0.32	10.40	24.07	33	-8.93
LTE Band 2 Channel 18650 – 10MHz – QPSK										
1855.00	86.66	109	1.0	H	12.69	0.31	10.40	22.78	33	-10.22
1855.00	86.45	262	2.4	V	13.17	0.31	10.40	23.26	33	-9.74
LTE Band 2 Channel 18900 – 10MHz – QPSK										
1880.00	87.05	190	2.1	H	13.20	0.31	10.40	23.29	33	-9.71
1880.00	86.85	206	1.8	V	13.73	0.31	10.40	23.82	33	-9.18
LTE Band 2 Channel 19150 – 10MHz – QPSK										
1905.00	86.51	252	2.4	H	12.78	0.32	10.40	22.86	33	-10.14
1905.00	87.01	130	2.0	V	14.05	0.32	10.40	24.13	33	-8.87
LTE Band 2 Channel 18650 – 10MHz – 16QAM										
1855.00	87.04	271	1.9	H	13.07	0.31	10.40	23.16	33	-9.84
1855.00	86.68	93	2.2	V	13.40	0.31	10.40	23.49	33	-9.51
LTE Band 2 Channel 18900 – 10MHz – 16QAM										
1880.00	86.34	353	1.1	H	12.49	0.31	10.40	22.58	33	-10.42
1880.00	87.01	283	1.3	V	13.89	0.31	10.40	23.98	33	-9.02
LTE Band 2 Channel 19150 – 10MHz – 16QAM										
1905.00	86.33	54	1.1	H	12.60	0.32	10.40	22.68	33	-10.32
1905.00	86.60	109	2.5	V	13.64	0.32	10.40	23.72	33	-9.28
LTE Band 2 Channel 18675 – 15MHz – QPSK										
1857.50	86.61	351	2.1	H	12.64	0.31	10.40	22.73	33	-10.27
1857.50	86.31	182	2.5	V	13.03	0.31	10.40	23.12	33	-9.88
LTE Band 2 Channel 18900 – 15MHz – QPSK										
1880.00	86.27	157	1.9	H	12.42	0.31	10.40	22.51	33	-10.49
1880.00	86.83	331	2.0	V	13.71	0.31	10.40	23.80	33	-9.20
LTE Band 2 Channel 19125 – 15MHz – QPSK										
1902.50	86.61	133	2.4	H	12.88	0.32	10.40	22.96	33	-10.04
1902.50	86.63	309	1.8	V	13.67	0.32	10.40	23.75	33	-9.25
LTE Band 2 Channel 18675 – 15MHz – 16QAM										
1857.50	86.66	25	2.2	H	12.69	0.31	10.40	22.78	33	-10.22
1857.50	86.80	255	2.2	V	13.52	0.31	10.40	23.61	33	-9.39
LTE Band 2 Channel 18900 – 15MHz – 16QAM										
1880.00	86.38	139	2.2	H	12.53	0.31	10.40	22.62	33	-10.38
1880.00	86.37	309	2.1	V	13.25	0.31	10.40	23.34	33	-9.66
LTE Band 2 Channel 19125 – 15MHz – 16QAM										

1902.50	86.65	320	2.3	H	12.92	0.32	10.40	23.00	33	-10.00
1902.50	86.51	123	1.0	V	13.55	0.32	10.40	23.63	33	-9.37
LTE Band 2 Channel 18700 – 20MHz – QPSK										
1860.00	86.67	212	1.9	H	12.70	0.31	10.40	22.79	33	-10.21
1860.00	86.75	25	2.1	V	13.47	0.31	10.40	23.56	33	-9.44
LTE Band 2 Channel 18900 – 20MHz – QPSK										
1880.00	86.37	132	1.5	H	12.52	0.31	10.40	22.61	33	-10.39
1880.00	86.65	30	2.1	V	13.53	0.31	10.40	23.62	33	-9.38
LTE Band 2 Channel 19100 – 20MHz – QPSK										
1900.00	86.62	149	2.2	H	12.89	0.32	10.40	22.97	33	-10.03
1900.00	86.54	309	1.8	V	13.58	0.32	10.40	23.66	33	-9.34
LTE Band 2 Channel 18670 – 20MHz – 16QAM										
1860.00	86.83	158	2.2	H	12.86	0.31	10.40	22.95	33	-10.05
1860.00	86.79	153	2.5	V	13.51	0.31	10.40	23.60	33	-9.40
LTE Band 2 Channel 18900 – 20MHz – 16QAM										
1880.00	86.91	56	1.8	H	13.06	0.31	10.40	23.15	33	-9.85
1880.00	86.76	20	1.5	V	13.64	0.31	10.40	23.73	33	-9.27
LTE Band 2 Channel 19100 – 20MHz – 16QAM										
1900.00	86.62	18	1.2	H	12.89	0.32	10.40	22.97	33	-10.03
1900.00	87.12	62	2.4	V	14.16	0.32	10.40	24.24	33	-8.76

LTE Band 4

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Part 27	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE Band 4 Channel 19957 – 1.4MHz – QPSK										
1710.70	87.21	164	1.1	H	13.10	0.30	9.40	22.20	30	-7.80
1710.70	87.15	3	2.4	V	13.62	0.30	9.40	22.72	30	-7.28
LTE Band 4 Channel 20175 – 1.4MHz – QPSK										
1732.50	87.44	188	2.4	H	13.33	0.30	9.40	22.43	30	-7.57
1732.50	87.52	155	1.6	V	13.99	0.30	9.40	23.09	30	-6.91
LTE Band 4 Channel 20393 – 1.4MHz – QPSK										
1754.30	87.16	170	1.2	H	13.05	0.30	9.40	22.15	30	-7.85
1754.30	86.83	48	1.7	V	13.30	0.30	9.40	22.40	30	-7.60
LTE Band 4 Channel 19957 – 1.4MHz – 16QAM										
1710.70	87.43	252	1.4	H	13.32	0.30	9.40	22.42	30	-7.58
1710.70	87.22	307	1.6	V	13.69	0.30	9.40	22.79	30	-7.21
LTE Band 4 Channel 20175 – 1.4MHz – 16QAM										
1732.50	87.28	325	1.3	H	13.17	0.30	9.40	22.27	30	-7.73
1732.50	87.23	152	2.1	V	13.70	0.30	9.40	22.80	30	-7.20
LTE Band 4 Channel 20393 – 1.4MHz – 16QAM										
1754.30	86.97	147	1.4	H	12.86	0.30	9.40	21.96	30	-8.04
1754.30	87.13	194	2.4	V	13.60	0.30	9.40	22.70	30	-7.30
LTE Band 4 Channel 19965 – 3MHz – QPSK										
1711.50	87.48	317	1.6	H	13.37	0.30	9.40	22.47	30	-7.53
1711.50	87.31	274	1.5	V	13.78	0.30	9.40	22.88	30	-7.12

LTE Band 4 Channel 20175 – 3MHz – QPSK										
1732.50	87.22	115	2.3	H	13.11	0.30	9.40	22.21	30	-7.79
1732.50	87.12	43	2.2	V	13.59	0.30	9.40	22.69	30	-7.31
LTE Band 4 Channel 20385 – 3MHz – QPSK										
1753.50	87.43	231	1.2	H	13.32	0.30	9.40	22.42	30	-7.58
1753.50	87.11	74	1.2	V	13.58	0.30	9.40	22.68	30	-7.32
LTE Band 4 Channel 19965 – 3MHz – 16QAM										
1711.50	87.32	192	1.8	H	13.21	0.30	9.40	22.31	30	-7.69
1711.50	87.19	36	2.3	V	13.66	0.30	9.40	22.76	30	-7.24
LTE Band 4 Channel 20175 – 3MHz – 16QAM										
1732.50	87.39	177	1.3	H	13.28	0.30	9.40	22.38	30	-7.62
1732.50	87.15	117	1.9	V	13.62	0.30	9.40	22.72	30	-7.28
LTE Band 4 Channel 20385 – 3MHz – 16QAM										
1753.50	87.05	29	1.3	H	12.94	0.30	9.40	22.04	30	-7.96
1753.50	87.53	246	2.2	V	14.00	0.30	9.40	23.10	30	-6.90
LTE Band 4 Channel 19975 – 5MHz – QPSK										
1712.50	87.26	257	1.2	H	13.15	0.30	9.40	22.25	30	-7.75
1712.50	87.38	358	2.4	V	13.85	0.30	9.40	22.95	30	-7.05
LTE Band 4 Channel 20175 – 5MHz – QPSK										
1732.50	87.44	282	1.3	H	13.33	0.30	9.40	22.43	30	-7.57
1732.50	87.30	6	1.1	V	13.77	0.30	9.40	22.87	30	-7.13
LTE Band 4 Channel 20375 – 5MHz – QPSK										
1752.50	87.51	109	1.9	H	13.40	0.30	9.40	22.50	30	-7.50
1752.50	87.03	215	2.3	V	13.50	0.30	9.40	22.60	30	-7.40
LTE Band 4 Channel 19975 – 5MHz – 16QAM										
1712.50	86.86	291	1.1	H	12.75	0.30	9.40	21.85	30	-8.15
1712.50	87.31	41	1.6	V	13.78	0.30	9.40	22.88	30	-7.12
LTE Band 4 Channel 20175 – 5MHz – 16QAM										
1732.50	86.96	187	2.0	H	12.85	0.30	9.40	21.95	30	-8.05
1732.50	86.90	61	2.0	V	13.37	0.30	9.40	22.47	30	-7.53
LTE Band 4 Channel 20375 – 5MHz – 16QAM										
1752.50	87.19	274	1.7	H	13.08	0.30	9.40	22.18	30	-7.82
1752.50	86.92	267	1.2	V	13.39	0.30	9.40	22.49	30	-7.51
LTE Band 4 Channel 20000 – 10MHz – QPSK										
1715.00	86.95	192	2.2	H	12.84	0.30	9.40	21.94	30	-8.06
1715.00	87.66	284	1.6	V	14.13	0.30	9.40	23.23	30	-6.77
LTE Band 4 Channel 20175 – 10MHz – QPSK										
1732.50	87.04	152	1.4	H	12.93	0.30	9.40	22.03	30	-7.97
1732.50	87.40	38	2.4	V	13.87	0.30	9.40	22.97	30	-7.03
LTE Band 4 Channel 20350 – 10MHz – QPSK										
1750.00	86.96	357	1.2	H	12.85	0.30	9.40	21.95	30	-8.05
1750.00	87.35	97	1.2	V	13.82	0.30	9.40	22.92	30	-7.08
LTE Band 4 Channel 20000 – 10MHz – 16QAM										
1715.00	87.16	246	1.4	H	13.05	0.30	9.40	22.15	30	-7.85
1715.00	87.23	102	1.1	V	13.70	0.30	9.40	22.80	30	-7.20
LTE Band 4 Channel 20175 – 10MHz – 16QAM										
1732.50	87.17	357	2.0	H	13.06	0.30	9.40	22.16	30	-7.84

1732.50	87.25	314	2.2	V	13.72	0.30	9.40	22.82	30	-7.18
LTE Band 4 Channel 20350 – 10MHz – 16QAM										
1750.00	87.14	86	1.3	H	13.03	0.30	9.40	22.13	30	-7.87
1750.00	87.17	317	1.7	V	13.64	0.30	9.40	22.74	30	-7.26
LTE Band 4 Channel 20025 – 15MHz – QPSK										
1717.50	87.31	342	2.2	H	13.20	0.30	9.40	22.30	30	-7.70
1717.50	87.10	183	1.6	V	13.57	0.30	9.40	22.67	30	-7.33
LTE Band 4 Channel 20175 – 15MHz – QPSK										
1732.50	86.85	48	2.2	H	12.74	0.30	9.40	21.84	30	-8.16
1732.50	87.07	291	2.1	V	13.54	0.30	9.40	22.64	30	-7.36
LTE Band 4 Channel 20325 – 15MHz – QPSK										
1747.50	87.27	320	2.4	H	13.16	0.30	9.40	22.26	30	-7.74
1747.50	87.18	304	1.6	V	13.65	0.30	9.40	22.75	30	-7.25
LTE Band 4 Channel 20025 – 15MHz – 16QAM										
1717.50	87.46	210	1.4	H	13.35	0.30	9.40	22.45	30	-7.55
1717.50	87.30	336	1.6	V	13.77	0.30	9.40	22.87	30	-7.13
LTE Band 4 Channel 20175 – 15MHz – 16QAM										
1732.50	87.44	11	1.2	H	13.33	0.30	9.40	22.43	30	-7.57
1732.50	86.86	223	1.9	V	13.33	0.30	9.40	22.43	30	-7.57
LTE Band 4 Channel 20325 – 15MHz – 16QAM										
1747.50	87.13	178	2.3	H	13.02	0.30	9.40	22.12	30	-7.88
1747.50	87.29	42	1.2	V	13.76	0.30	9.40	22.86	30	-7.14
LTE Band 4 Channel 20050 – 20MHz – QPSK										
1720.00	87.38	311	1.5	H	13.27	0.30	9.40	22.37	30	-7.63
1720.00	87.26	291	2.3	V	13.73	0.30	9.40	22.83	30	-7.17
LTE Band 4 Channel 20175 – 20MHz – QPSK										
1732.50	87.03	87	1.2	H	12.92	0.30	9.40	22.02	30	-7.98
1732.50	87.32	95	2.2	V	13.79	0.30	9.40	22.89	30	-7.11
LTE Band 4 Channel 20300 – 20MHz – QPSK										
1745.00	87.45	232	1.6	H	13.34	0.30	9.40	22.44	30	-7.56
1745.00	87.19	64	1.0	V	13.66	0.30	9.40	22.76	30	-7.24
LTE Band 4 Channel 20050 – 20MHz – 16QAM										
1720.00	87.14	273	1.5	H	13.03	0.30	9.40	22.13	30	-7.87
1720.00	87.44	20	2.4	V	13.91	0.30	9.40	23.01	30	-6.99
LTE Band 4 Channel 20175 – 20MHz – 16QAM										
1732.50	87.06	234	2.3	H	12.95	0.30	9.40	22.05	30	-7.95
1732.50	87.43	288	1.4	V	13.90	0.30	9.40	23.00	30	-7.00
LTE Band 4 Channel 20300 – 20MHz – 16QAM										
1745.00	87.18	64	1.5	H	13.07	0.30	9.40	22.17	30	-7.83
1745.00	87.64	57	2.5	V	14.11	0.30	9.40	23.21	30	-6.79

LTE Band 12

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Part 27	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE Band 12 Channel 23017 – 1.4MHz – QPSK										
699.70	93.11	74	2.2	H	22.11	0.20	0.00	21.91	34.77	-12.86
699.70	93.29	74	1.8	V	21.01	0.20	0.00	20.81	34.77	-13.96
LTE Band 12 Channel 23095 – 1.4MHz – QPSK										
707.50	93.61	2	2.1	H	22.61	0.20	0.00	22.41	34.77	-12.36
707.50	92.91	307	2.1	V	20.63	0.20	0.00	20.43	34.77	-14.34
LTE Band 12 Channel 23173 – 1.4MHz – QPSK										
715.30	93.58	1	1.7	H	22.58	0.20	0.00	22.38	34.77	-12.39
715.30	93.18	215	2.2	V	20.90	0.20	0.00	20.70	34.77	-14.07
LTE Band 12 Channel 23017 – 1.4MHz – 16QAM										
699.70	93.26	336	2.0	H	22.26	0.20	0.00	22.06	34.77	-12.71
699.70	92.81	93	2.2	V	20.53	0.20	0.00	20.33	34.77	-14.44
LTE Band 12 Channel 23095 – 1.4MHz – 16QAM										
707.50	93.26	116	2.2	H	22.26	0.20	0.00	22.06	34.77	-12.71
707.50	93.00	331	1.5	V	20.72	0.20	0.00	20.52	34.77	-14.25
LTE Band 12 Channel 23173 – 1.4MHz – 16QAM										
715.30	92.87	239	1.7	H	21.87	0.20	0.00	21.67	34.77	-13.10
715.30	93.12	191	1.3	V	20.84	0.20	0.00	20.64	34.77	-14.13
LTE Band 12 Channel 23025 – 3MHz – QPSK										
700.50	92.94	288	1.9	H	21.94	0.20	0.00	21.74	34.77	-13.03
700.50	92.78	237	1.7	V	20.50	0.20	0.00	20.30	34.77	-14.47
LTE Band 12 Channel 23095 – 3MHz – QPSK										
707.50	93.36	226	1.4	H	22.36	0.20	0.00	22.16	34.77	-12.61
707.50	92.72	99	1.2	V	20.44	0.20	0.00	20.24	34.77	-14.53
LTE Band 12 Channel 23165 – 3MHz – QPSK										
714.50	92.98	85	2.3	H	21.98	0.20	0.00	21.78	34.77	-12.99
714.50	93.18	283	1.1	V	20.90	0.20	0.00	20.70	34.77	-14.07
LTE Band 12 Channel 23025 – 3MHz – 16QAM										
700.50	93.00	89	1.3	H	22.00	0.20	0.00	21.80	34.77	-12.97
700.50	93.16	249	1.2	V	20.88	0.20	0.00	20.68	34.77	-14.09
LTE Band 12 Channel 23095 – 3MHz – 16QAM										
707.50	93.13	157	1.3	H	22.13	0.20	0.00	21.93	34.77	-12.84
707.50	93.09	12	2.3	V	20.81	0.20	0.00	20.61	34.77	-14.16
LTE Band 12 Channel 23165 – 3MHz – 16QAM										
714.50	93.09	328	1.1	H	22.09	0.20	0.00	21.89	34.77	-12.88
714.50	93.16	341	1.7	V	20.88	0.20	0.00	20.68	34.77	-14.09
LTE Band 12 Channel 23035 – 5MHz – QPSK										
701.50	93.37	48	2.5	H	22.37	0.20	0.00	22.17	34.77	-12.60
701.50	93.25	224	1.4	V	20.97	0.20	0.00	20.77	34.77	-14.00
LTE Band 12 Channel 23095 – 5MHz – QPSK										
707.50	93.16	80	2.3	H	22.16	0.20	0.00	21.96	34.77	-12.81

707.50	93.30	74	1.5	V	21.02	0.20	0.00	20.82	34.77	-13.95
LTE Band 12 Channel 23155 – 5MHz – QPSK										
713.50	93.04	342	1.7	H	22.04	0.20	0.00	21.84	34.77	-12.93
713.50	93.26	225	2.5	V	20.98	0.20	0.00	20.78	34.77	-13.99
LTE Band 12 Channel 23035 – 5MHz – 16QAM										
701.50	93.13	97	1.5	H	22.13	0.20	0.00	21.93	34.77	-12.84
701.50	92.93	334	1.1	V	20.65	0.20	0.00	20.45	34.77	-14.32
LTE Band 12 Channel 23095 – 5MHz – 16QAM										
707.50	93.05	75	1.1	H	22.05	0.20	0.00	21.85	34.77	-12.92
707.50	93.15	317	1.4	V	20.87	0.20	0.00	20.67	34.77	-14.10
LTE Band 12 Channel 23155 – 5MHz – 16QAM										
713.50	93.04	165	2.2	H	22.04	0.20	0.00	21.84	34.77	-12.93
713.50	93.13	203	1.5	V	20.85	0.20	0.00	20.65	34.77	-14.12
LTE Band 12 Channel 23060 – 10MHz – QPSK										
704.00	93.33	77	2.2	H	22.33	0.20	0.00	22.13	34.77	-12.64
704.00	93.01	54	1.6	V	20.73	0.20	0.00	20.53	34.77	-14.24
LTE Band 12 Channel 23095 – 10MHz – QPSK										
707.50	93.23	295	1.6	H	22.23	0.20	0.00	22.03	34.77	-12.74
707.50	93.15	122	2.3	V	20.87	0.20	0.00	20.67	34.77	-14.10
LTE Band 12 Channel 23130 – 10MHz – QPSK										
711.00	93.55	326	1.3	H	22.55	0.20	0.00	22.35	34.77	-12.42
711.00	93.04	15	2.0	V	20.76	0.20	0.00	20.56	34.77	-14.21
LTE Band 12 Channel 23060 – 10MHz – 16QAM										
704.00	93.07	246	1.5	H	22.07	0.20	0.00	21.87	34.77	-12.90
704.00	92.86	338	1.7	V	20.58	0.20	0.00	20.38	34.77	-14.39
LTE Band 12 Channel 23095 – 10MHz – 16QAM										
707.50	93.30	4	2.1	H	22.30	0.20	0.00	22.10	34.77	-12.67
707.50	93.16	260	2.4	V	20.88	0.20	0.00	20.68	34.77	-14.09
LTE Band 12 Channel 23130 – 10MHz – 16QAM										
711.00	93.15	334	2.5	H	22.15	0.20	0.00	21.95	34.77	-12.82
711.00	93.14	347	2.1	V	20.86	0.20	0.00	20.66	34.77	-14.11

8 SPURIOUS RADIATED EMISSIONS

Test Requirement:	FCC Part 2.1053, 22.917, 24.238, 27.53(h), 27.53(m)(4)
Test Method:	ANSI C63.26:2015
	KDB971168 D01 v03r01
Test Mode:	TX transmitting

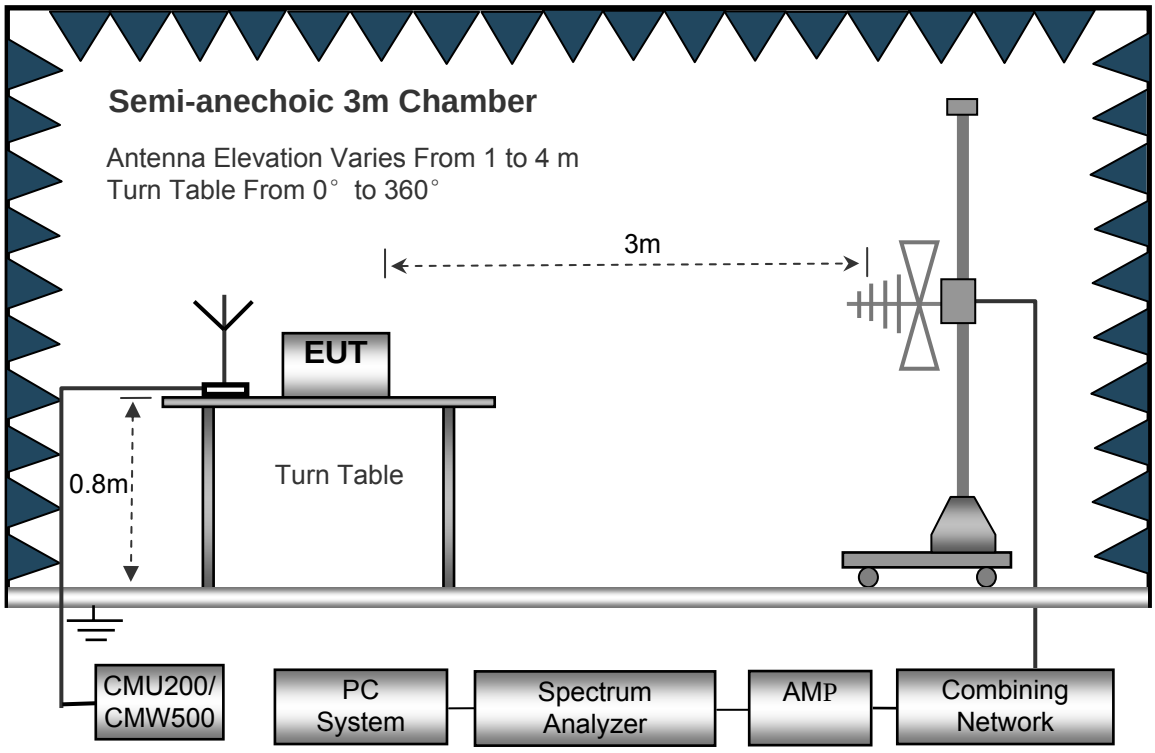
8.1 EUT Operation

Operating Environment **:**

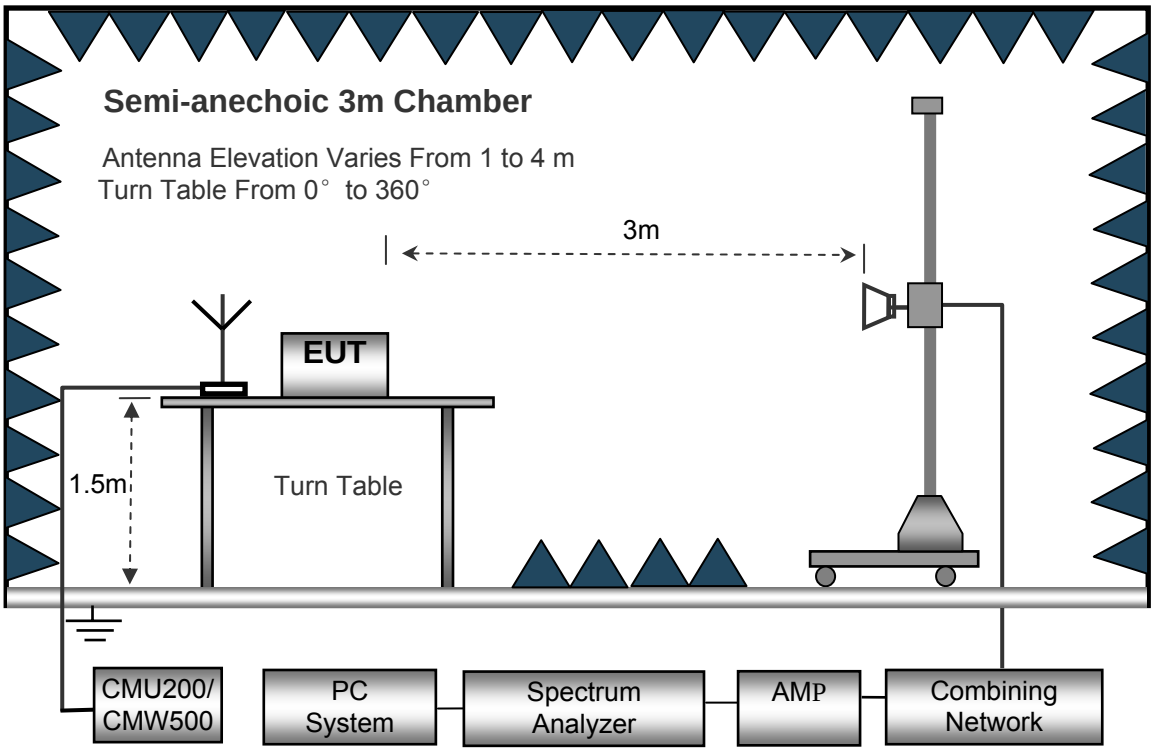
Temperature:	25.5 °C
Humidity:	52.3 % RH
Atmospheric Pressure:	101.4kPa

8.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site. The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



8.3 Spectrum Analyzer Setup

30MHz ~ 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth 100kHz
Video Bandwidth 300kHz

Above 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth 1MHz
Video Bandwidth 3MHz
Detector ..... Ave.
Resolution Bandwidth 1MHz
Video Bandwidth 10Hz

8.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m for below 1GHz and 1.5m for above 1GHz above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from 30MHz up to the tenth harmonic of the highest fundamental frequency.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the Z position. So the data shown was the Z position only.
7. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.
   Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level
   Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts)
8. Repeat above procedures until the measurements for all frequencies are completed.

8.5 Summary of Test Results

Remark: Test performed from 30MHz to 10th harmonics with low/middle/high channels for all bandwidth and two model , only the worst data for GT-100S were recorded.

LTE Band 2

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE BAND 2 Channel 18607										
243.68	45.40	356	1.7	H	-65.11	0.15	0.00	-65.26	-13.00	-52.26
243.68	39.19	134	1.8	V	-68.40	0.15	0.00	-68.55	-13.00	-55.55
3701.40	65.95	120	1.3	H	-45.59	2.37	12.50	-35.46	-13.00	-22.46
3701.40	59.98	43	1.1	V	-49.83	2.37	12.50	-39.70	-13.00	-26.70
5552.10	53.58	71	1.6	H	-56.03	2.86	12.90	-45.99	-13.00	-32.99
5552.10	44.73	108	1.7	V	-64.15	2.86	12.90	-54.11	-13.00	-41.11
LTE BAND 2 Channel 18900										
243.68	44.41	234	1.7	H	-66.10	0.15	0.00	-66.25	-13.00	-53.25
243.68	38.31	143	1.9	V	-69.28	0.15	0.00	-69.43	-13.00	-56.43
3760.00	59.42	125	1.8	H	-52.12	2.37	12.50	-41.99	-13.00	-28.99
3760.00	53.79	203	1.7	V	-56.02	2.37	12.50	-45.89	-13.00	-32.89
5640.00	45.58	261	1.9	H	-64.03	2.86	12.90	-53.99	-13.00	-40.99
5640.00	38.04	70	1.6	V	-70.84	2.86	12.90	-60.80	-13.00	-47.80
LTE BAND 2 Channel 19193										
243.68	45.18	142	2.2	H	-65.33	0.15	0.00	-65.48	-13.00	-52.48
243.68	37.95	153	1.8	V	-69.64	0.15	0.00	-69.79	-13.00	-56.79
3818.60	51.73	334	1.1	H	-59.12	2.37	12.60	-48.89	-13.00	-35.89
3818.60	47.14	254	1.2	V	-62.17	2.37	12.60	-51.94	-13.00	-38.94
5727.90	37.64	118	1.6	H	-71.71	2.86	12.90	-61.67	-13.00	-48.67
5727.90	30.44	81	1.1	V	-78.06	2.86	12.90	-68.02	-13.00	-55.02

LTE Band 4

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE BAND 4 Channel 19957										
243.68	38.22	15	1.4	H	-72.29	0.15	0.00	-72.44	-13.00	-59.44
243.68	30.23	142	1.0	V	-77.36	0.15	0.00	-77.51	-13.00	-64.51
3421.40	65.95	351	1.3	H	-47.10	2.34	12.40	-37.04	-13.00	-24.04
3421.40	59.98	168	2.0	V	-51.17	2.34	12.40	-41.11	-13.00	-28.11
5132.10	53.58	308	1.7	H	-55.83	2.79	12.70	-45.92	-13.00	-32.92
5132.10	44.73	165	1.6	V	-64.04	2.79	12.70	-54.13	-13.00	-41.13
LTE BAND 4 Channel 20175										
243.68	37.64	211	2.1	H	-72.87	0.15	0.00	-73.02	-13.00	-60.02
243.68	31.09	124	1.6	V	-76.50	0.15	0.00	-76.65	-13.00	-63.65
3465.00	59.93	149	1.8	H	-53.12	2.37	12.50	-42.99	-13.00	-29.99
3465.00	53.90	79	1.1	V	-57.25	2.37	12.50	-47.12	-13.00	-34.12
5197.50	47.33	27	1.6	H	-62.08	2.79	12.70	-52.17	-13.00	-39.17
5197.50	37.97	332	1.7	V	-70.80	2.79	12.70	-60.89	-13.00	-47.89
LTE BAND 4 Channel 20393										
243.68	38.42	124	1.1	H	-72.09	0.15	0.00	-72.24	-13.00	-59.24
243.68	31.35	318	1.8	V	-76.24	0.15	0.00	-76.39	-13.00	-63.39
3508.60	52.75	155	1.7	H	-59.89	2.37	12.50	-49.76	-13.00	-36.76
3508.60	46.74	31	1.7	V	-63.99	2.37	12.50	-53.86	-13.00	-40.86
5262.90	39.53	100	1.4	H	-70.05	2.81	12.80	-60.06	-13.00	-47.06
5262.90	30.94	276	1.7	V	-77.86	2.81	12.80	-67.87	-13.00	-54.87

LTE Band 12

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE BAND 12 Channel 23017										
243.68	52.81	41	1.6	H	-57.70	0.15	0.00	-57.85	-13.00	-44.85
243.68	45.41	137	1.8	V	-62.18	0.15	0.00	-62.33	-13.00	-49.33
1399.40	65.95	351	1.0	H	-47.10	2.34	12.40	-37.04	-13.00	-24.04
1399.40	59.98	96	1.3	V	-51.17	2.34	12.40	-41.11	-13.00	-28.11
2099.10	53.58	228	1.8	H	-55.83	2.79	12.70	-45.92	-13.00	-32.92
2099.10	44.73	53	1.9	V	-64.04	2.79	12.70	-54.13	-13.00	-41.13
LTE BAND 12 Channel 23095										
243.68	52.43	164	2.1	H	-58.08	0.15	0.00	-58.23	-13.00	-45.23
243.68	45.83	340	2.0	V	-61.76	0.15	0.00	-61.91	-13.00	-48.91
1415.00	59.65	169	1.2	H	-53.40	2.37	12.50	-43.27	-13.00	-30.27
1415.00	52.40	38	2.1	V	-58.75	2.37	12.50	-48.62	-13.00	-35.62
2122.50	46.03	183	1.9	H	-63.38	2.79	12.70	-53.47	-13.00	-40.47
2122.50	37.86	59	1.9	V	-70.91	2.79	12.70	-61.00	-13.00	-48.00
LTE BAND 12 Channel 23173										
243.68	53.36	111	1.2	H	-57.15	0.15	0.00	-57.30	-13.00	-44.30
243.68	46.69	300	1.6	V	-60.90	0.15	0.00	-61.05	-13.00	-48.05
1430.60	53.57	163	1.1	H	-59.07	2.37	12.50	-48.94	-13.00	-35.94
1430.60	44.86	178	1.4	V	-65.87	2.37	12.50	-55.74	-13.00	-42.74
2145.90	39.30	349	1.1	H	-70.28	2.81	12.80	-60.29	-13.00	-47.29
2145.90	30.73	2	1.8	V	-78.07	2.81	12.80	-68.08	-13.00	-55.08

9 RF Exposure

Remark: refer to SAR test report: WTS20S03010651W.

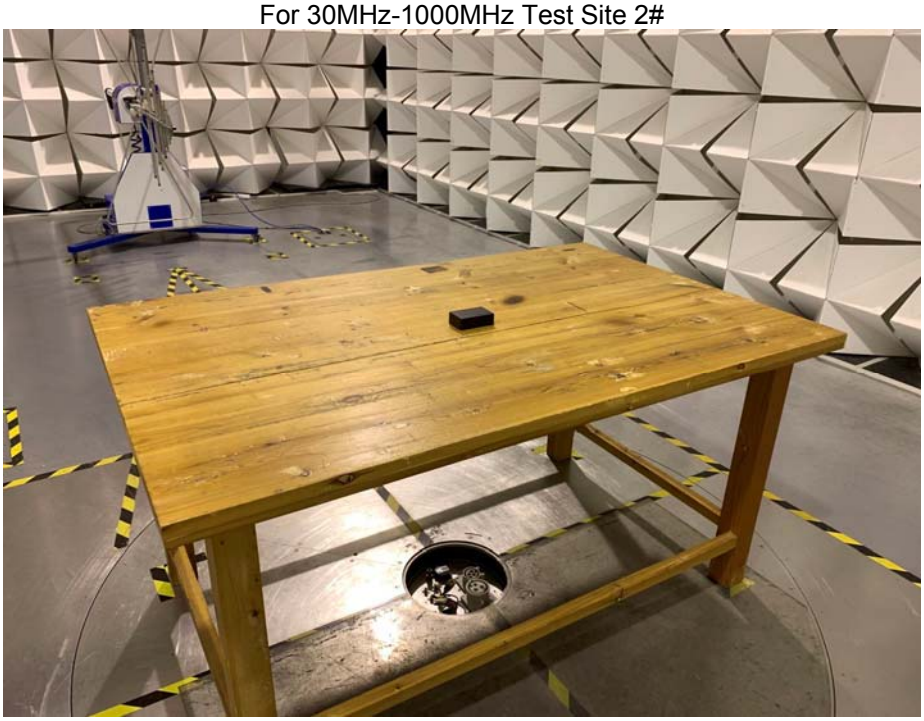
10 Photographs of test setup and EUT.

Photograph - Spurious Emissions Radiated Test Setup

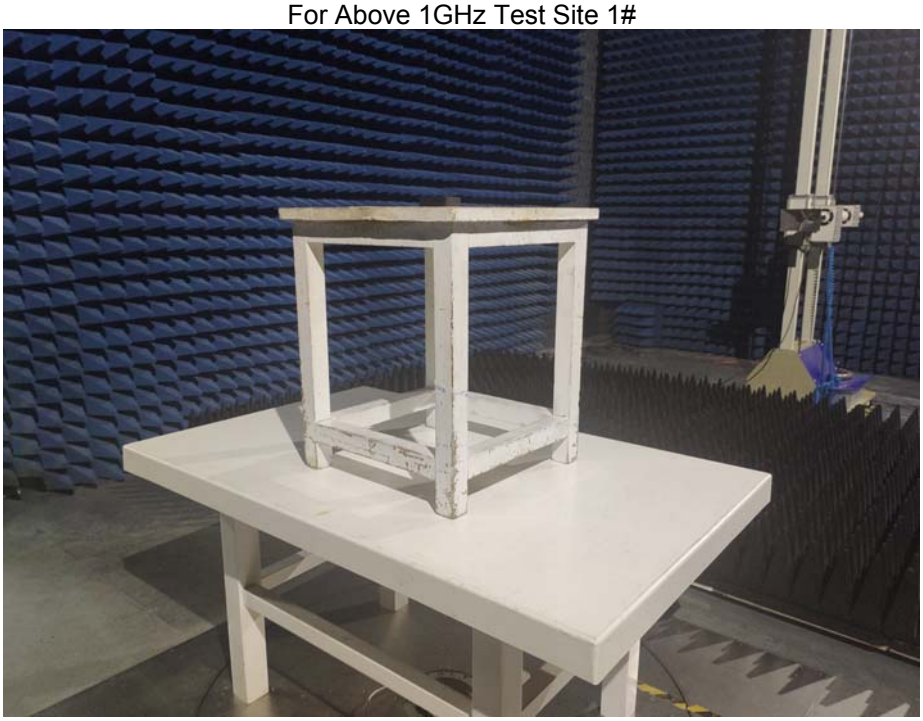
GT-100S
For 30MHz-1000MHz Test Site 2#

For Above 1GHz Test Site 1#

GT-300S
For 30MHz-1000MHz Test Site 2#

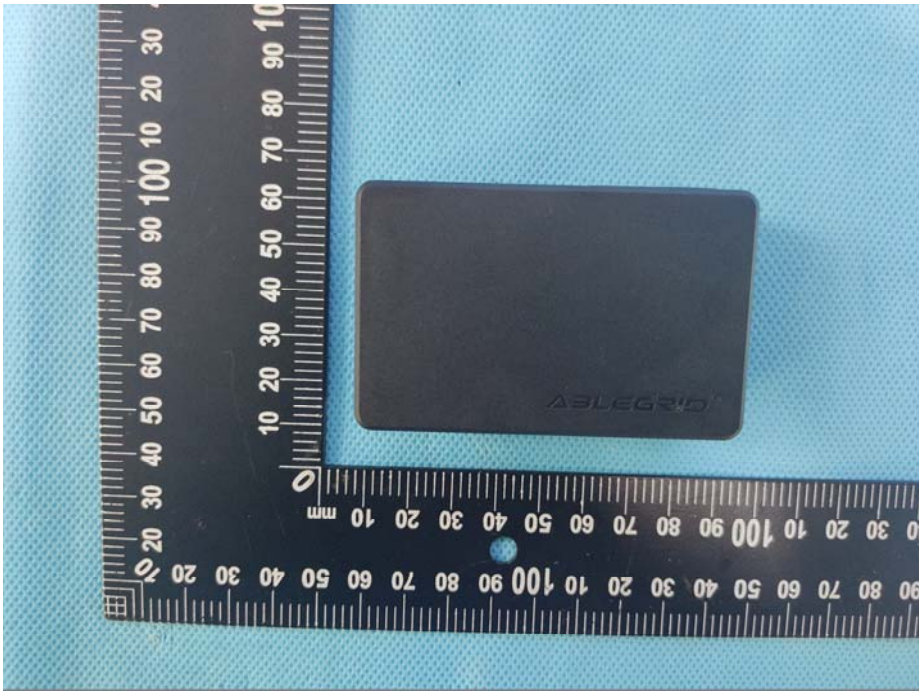


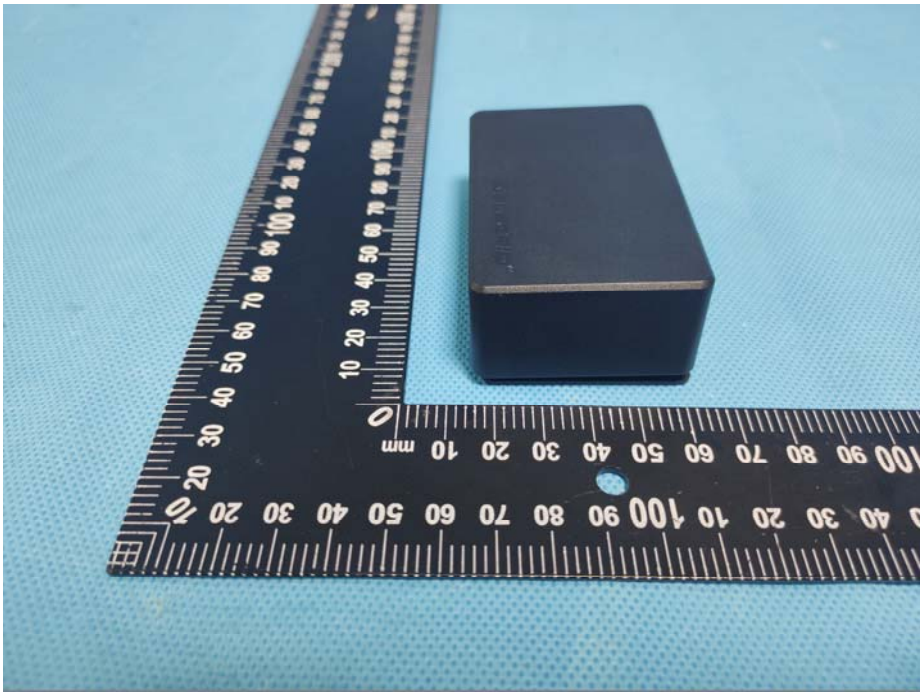
For Above 1GHz Test Site 1#

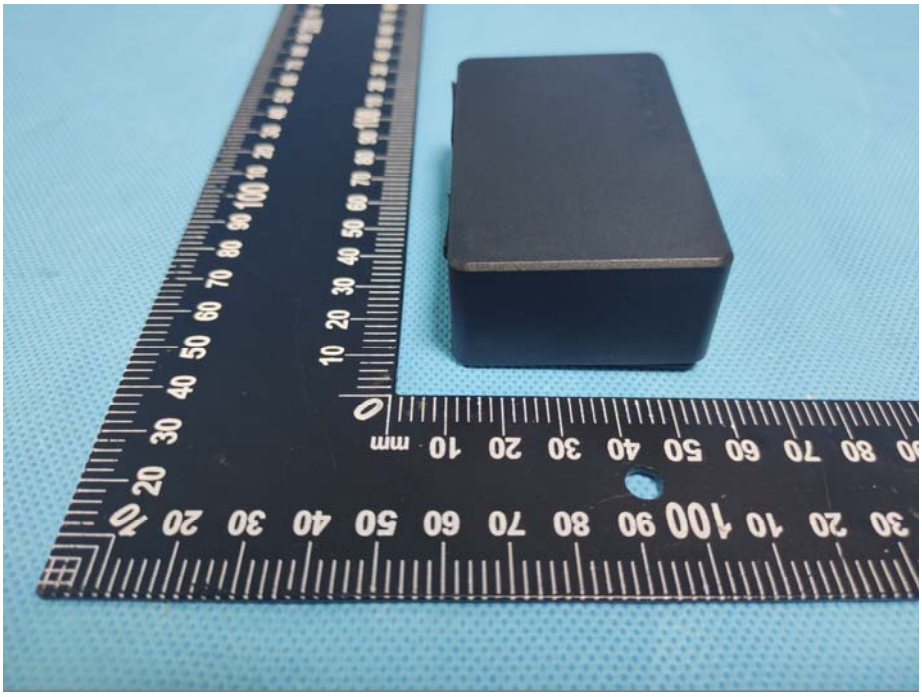


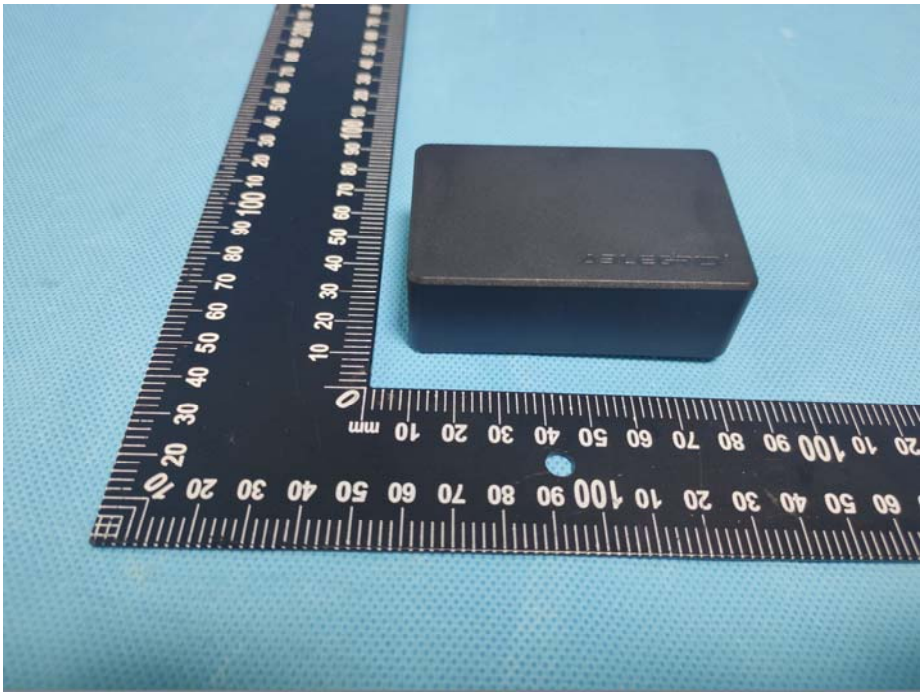
EUT – External View

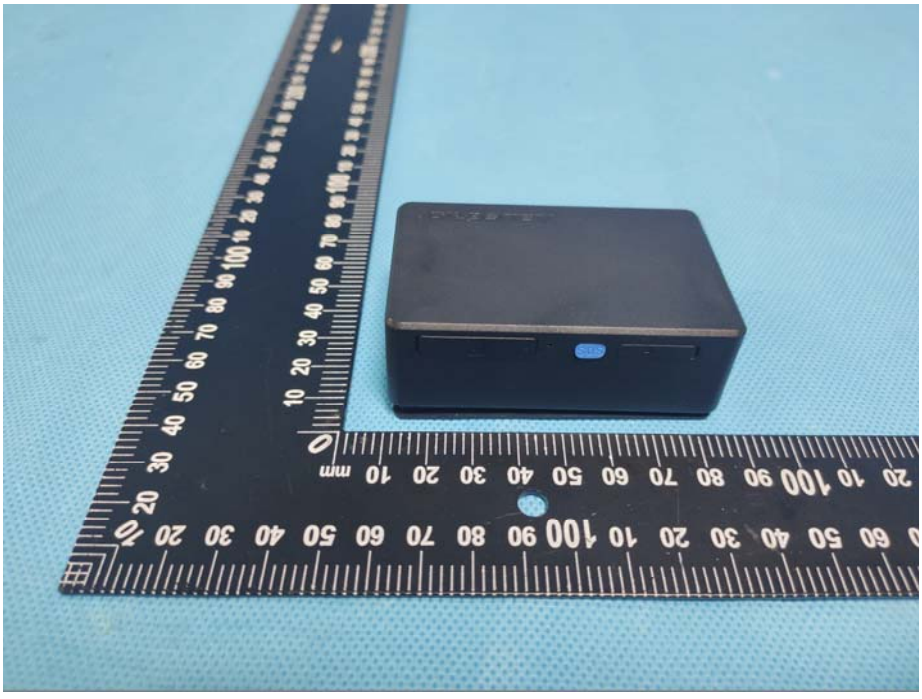
GT-100S



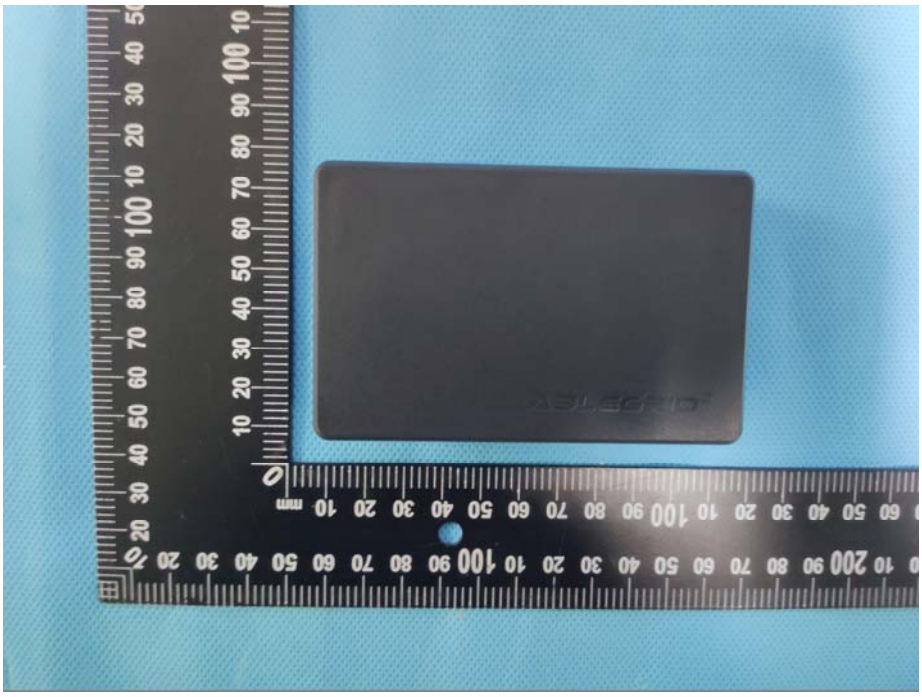


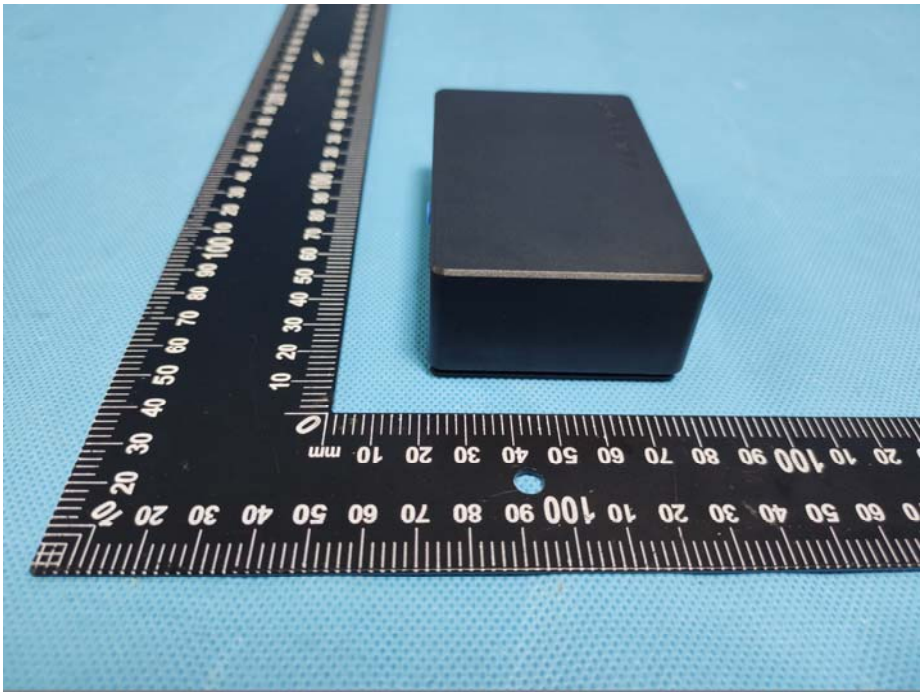


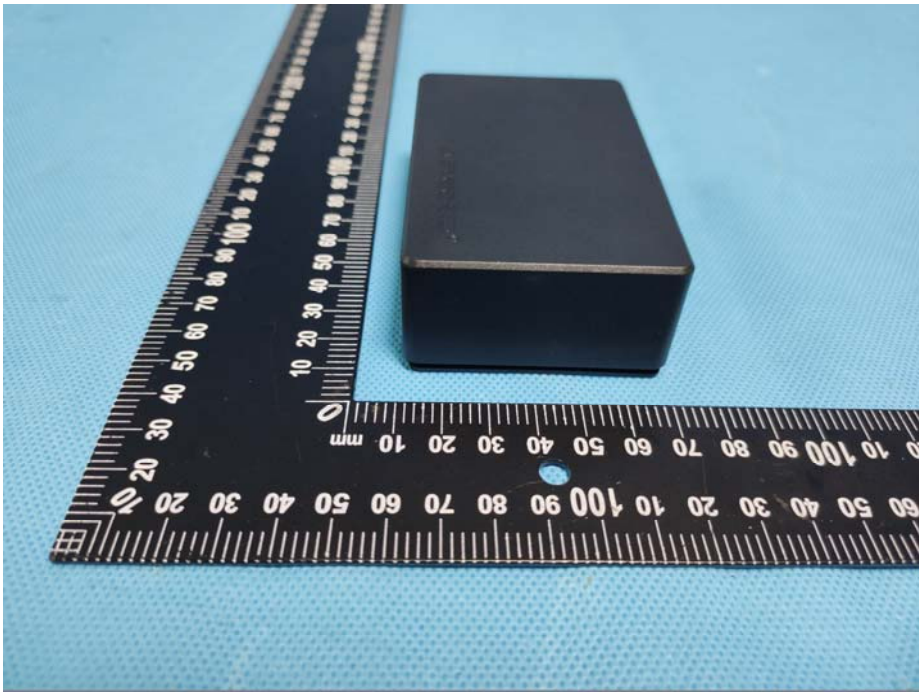


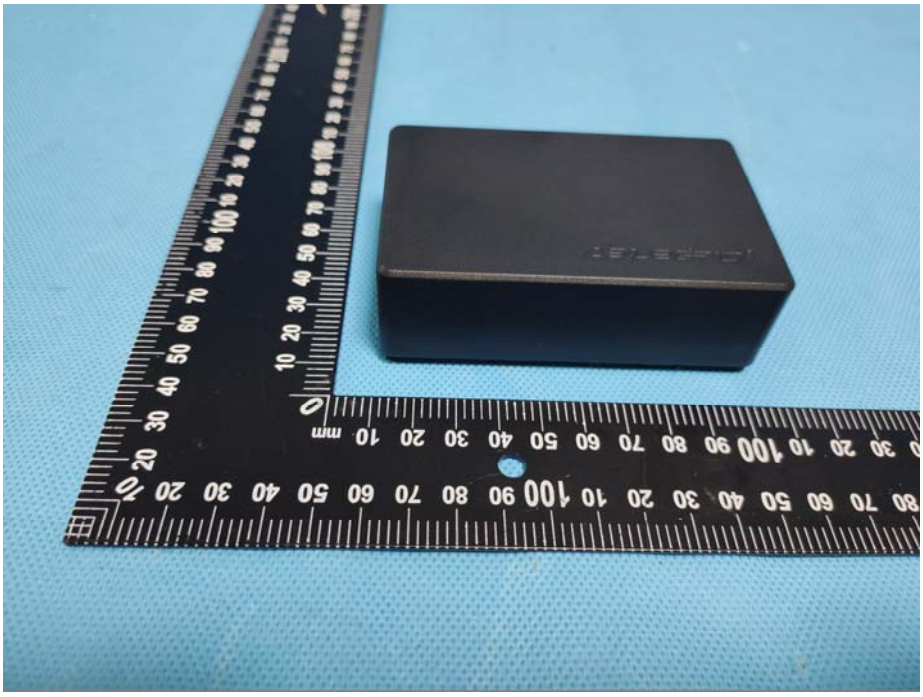


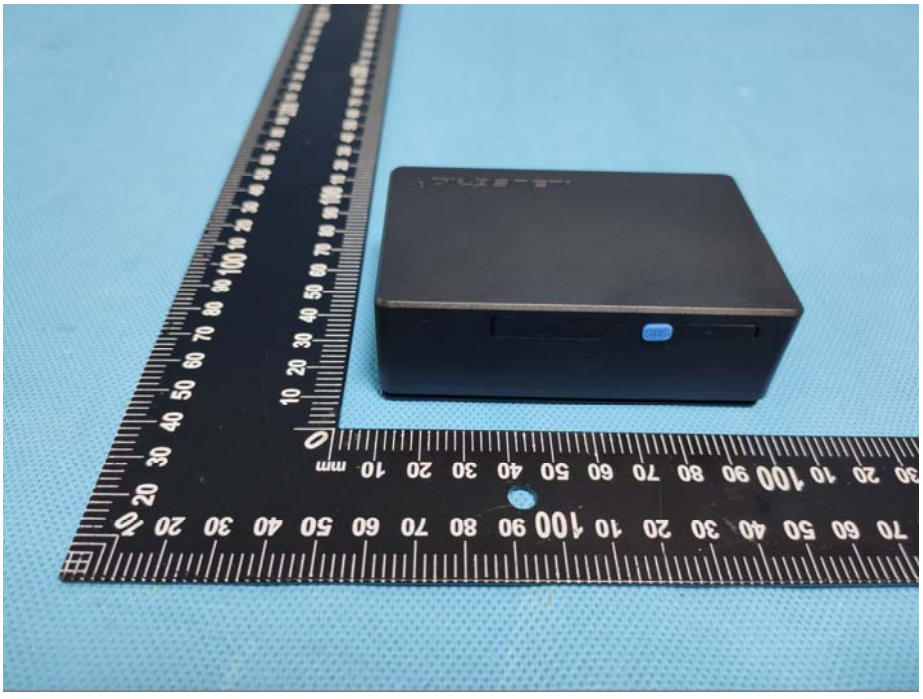
GT-300S





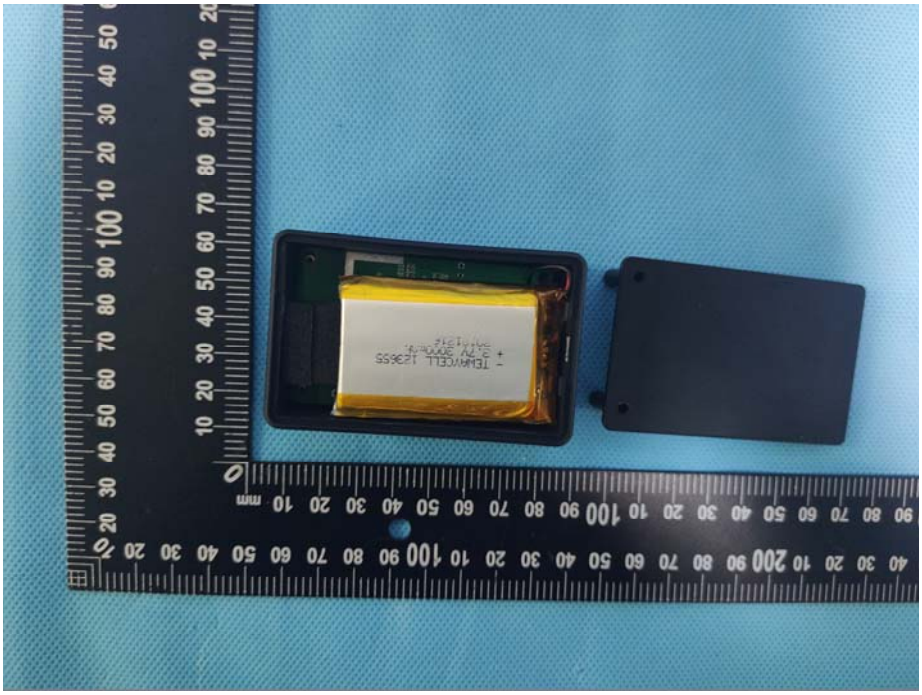


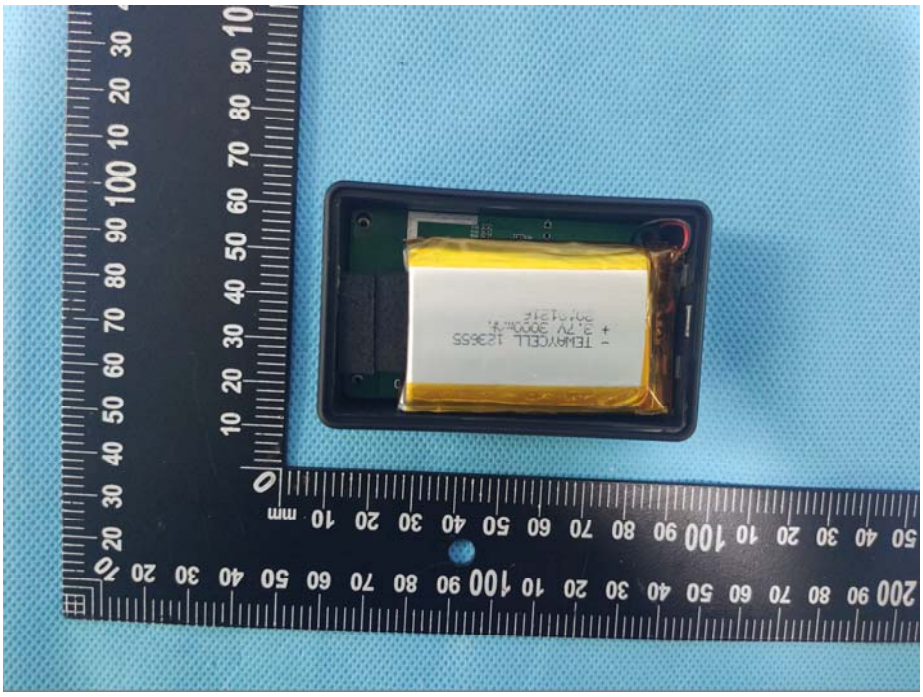


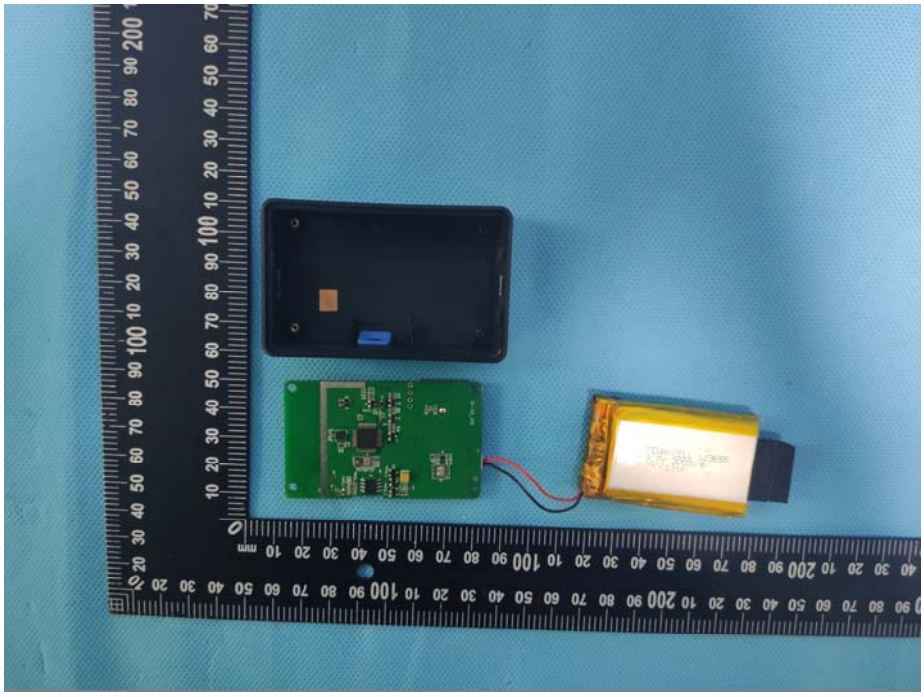


EUT – Internal View

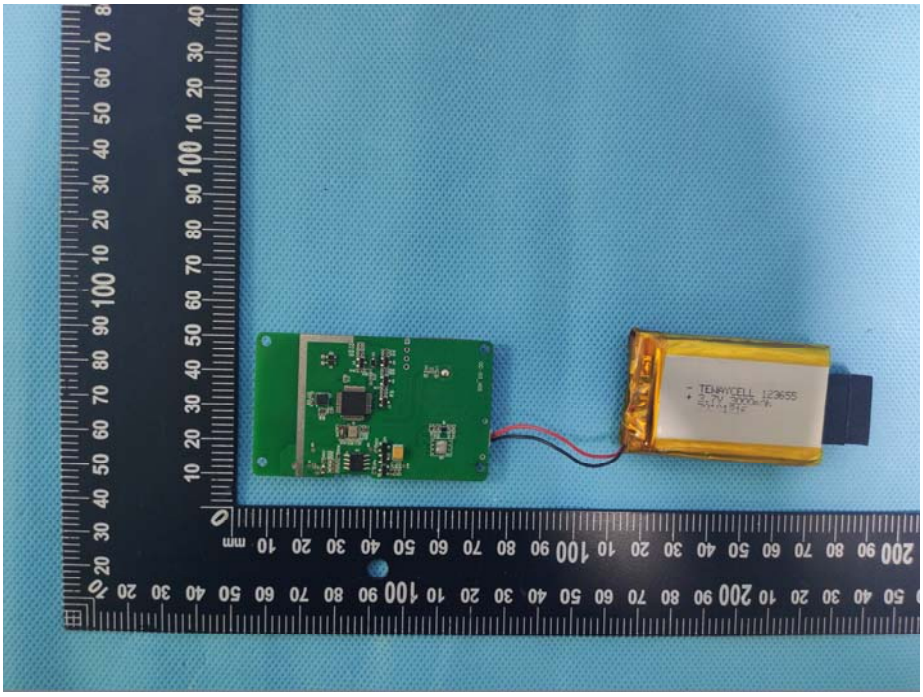
GT-100S

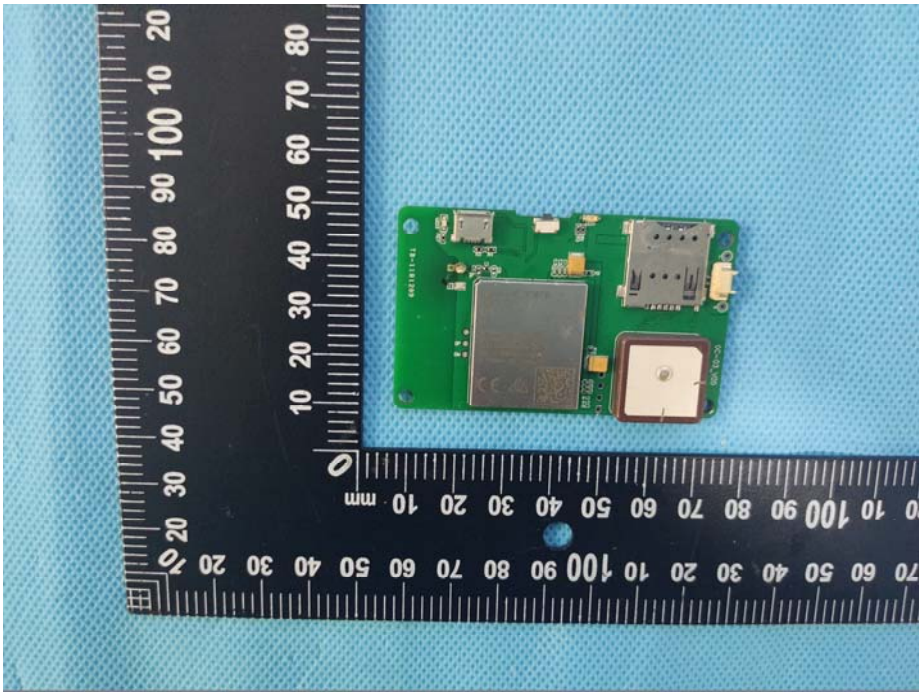


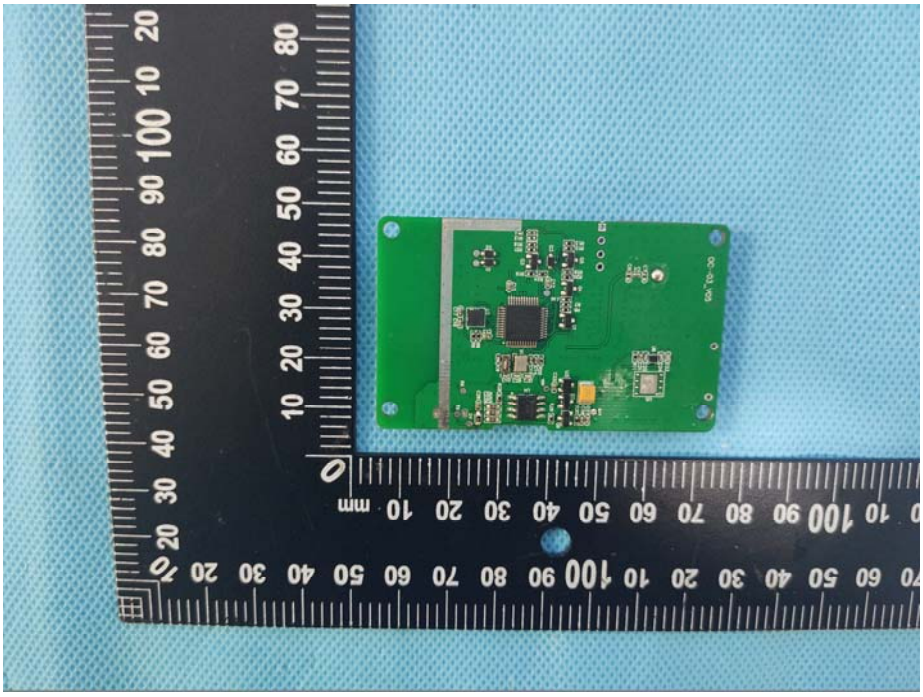


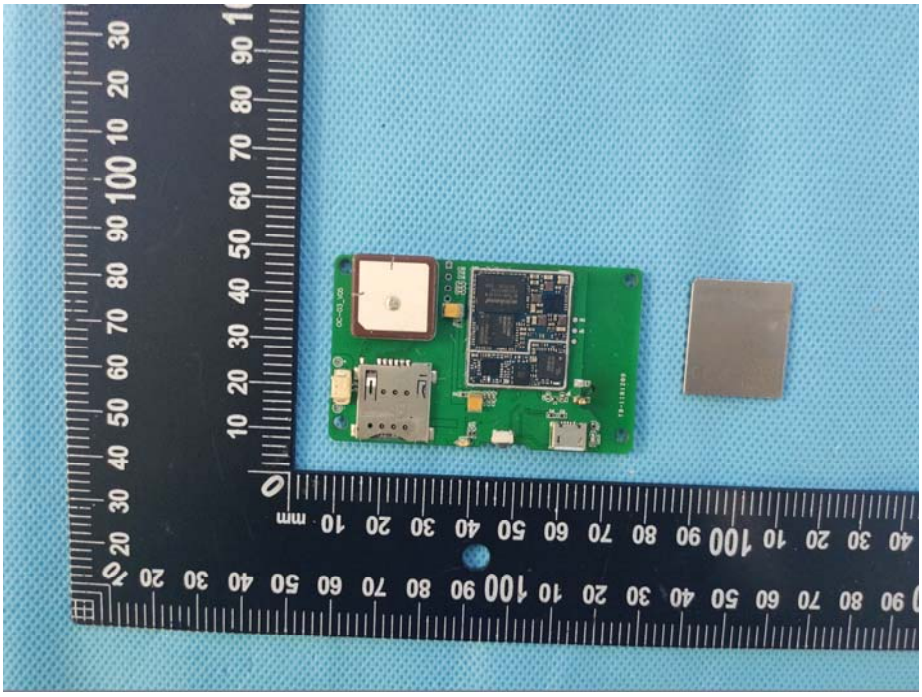


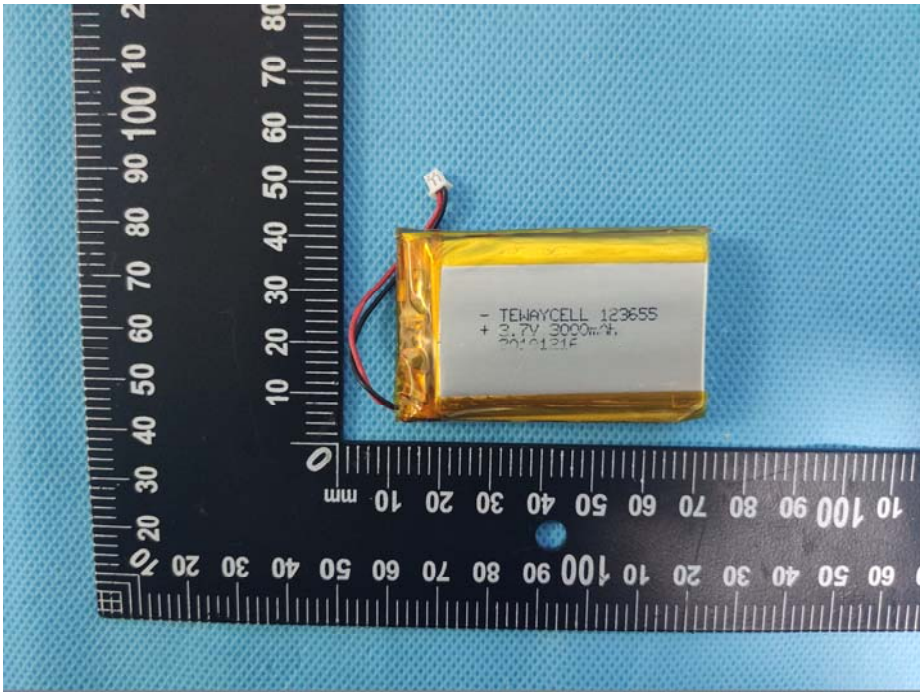

ANT.
GT.100S

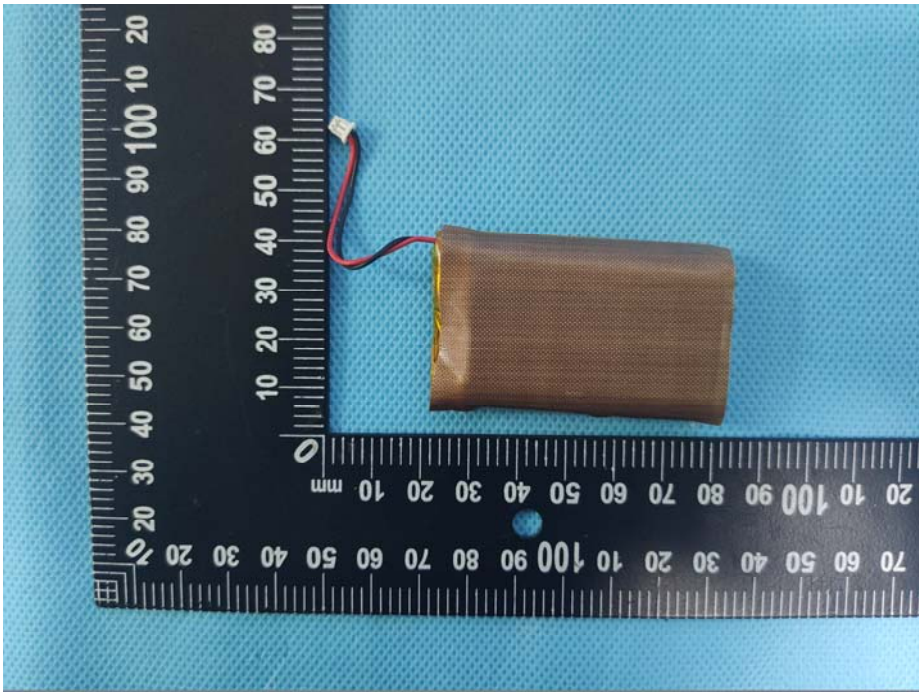




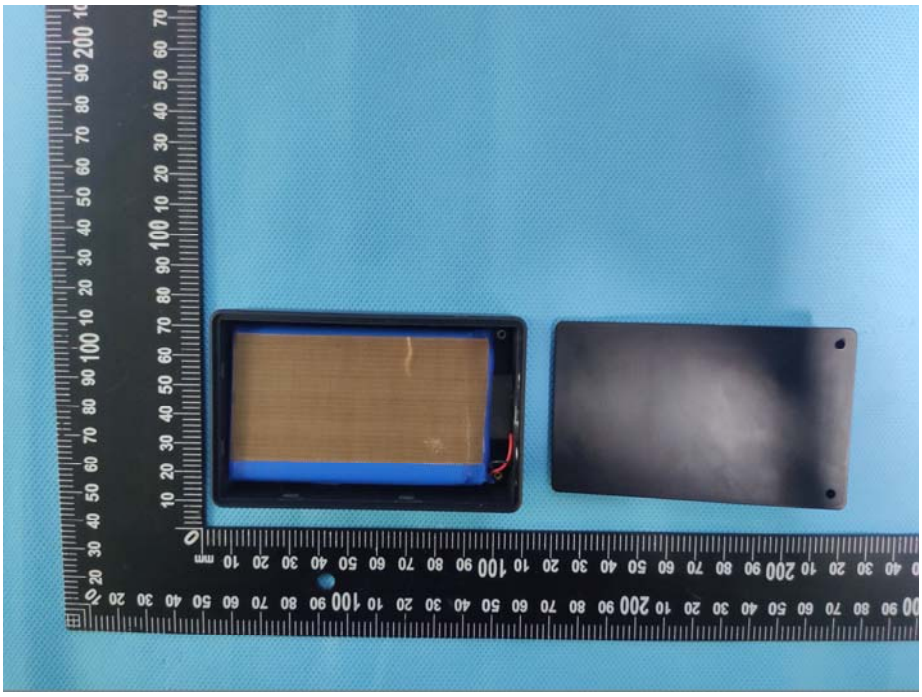


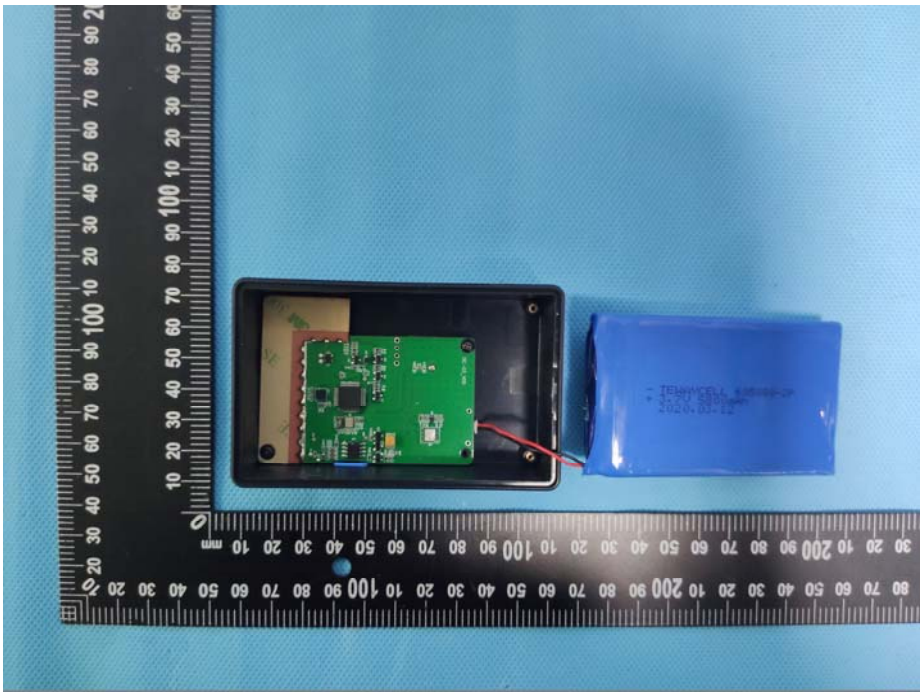


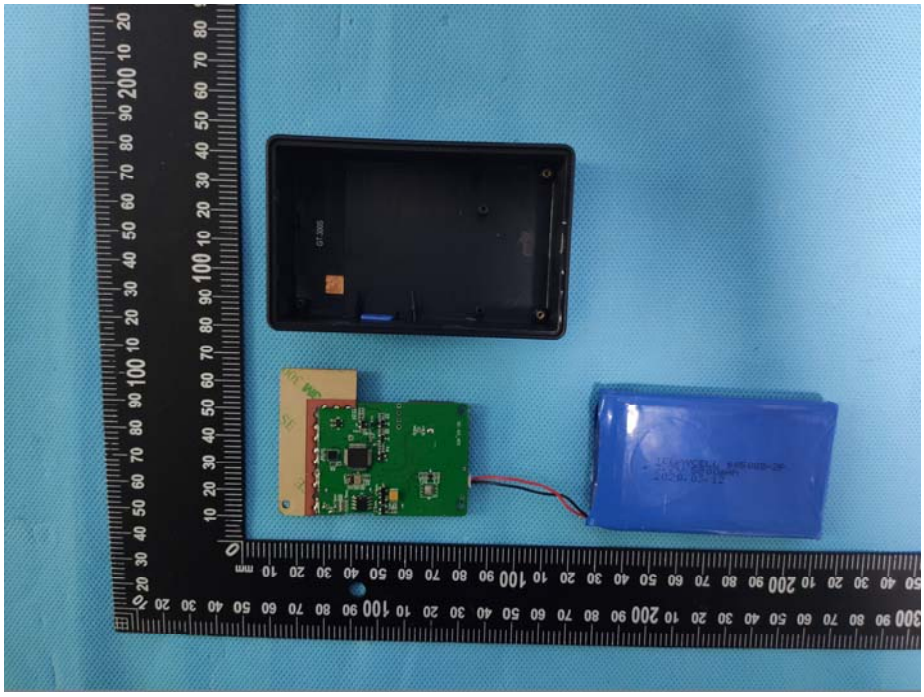

- TEWAYCELL 123655
+ 3.7V 3000mAh

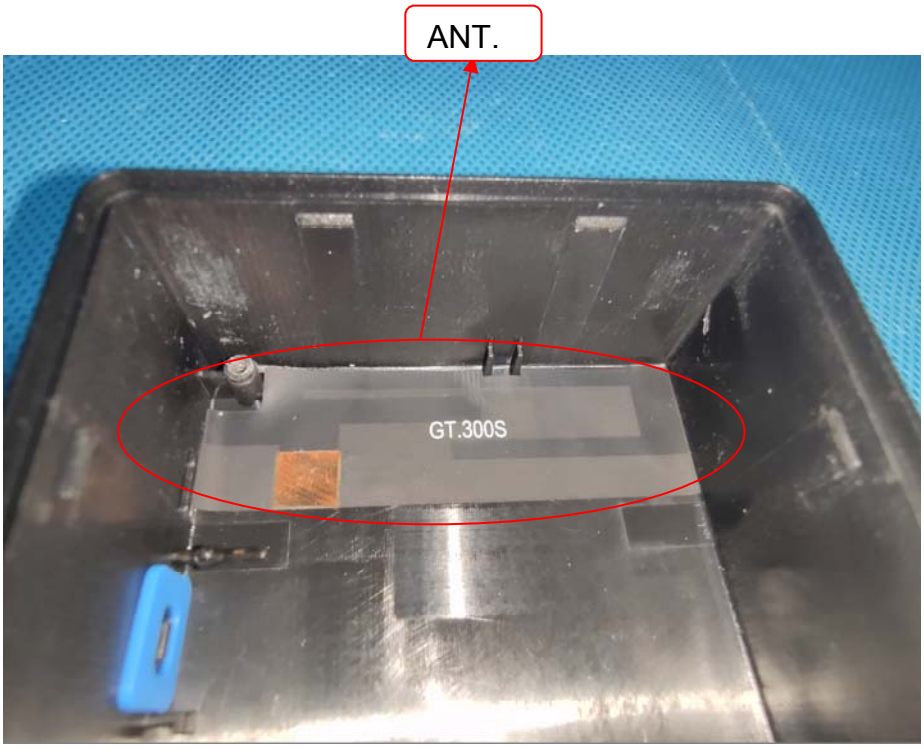


GT-300S





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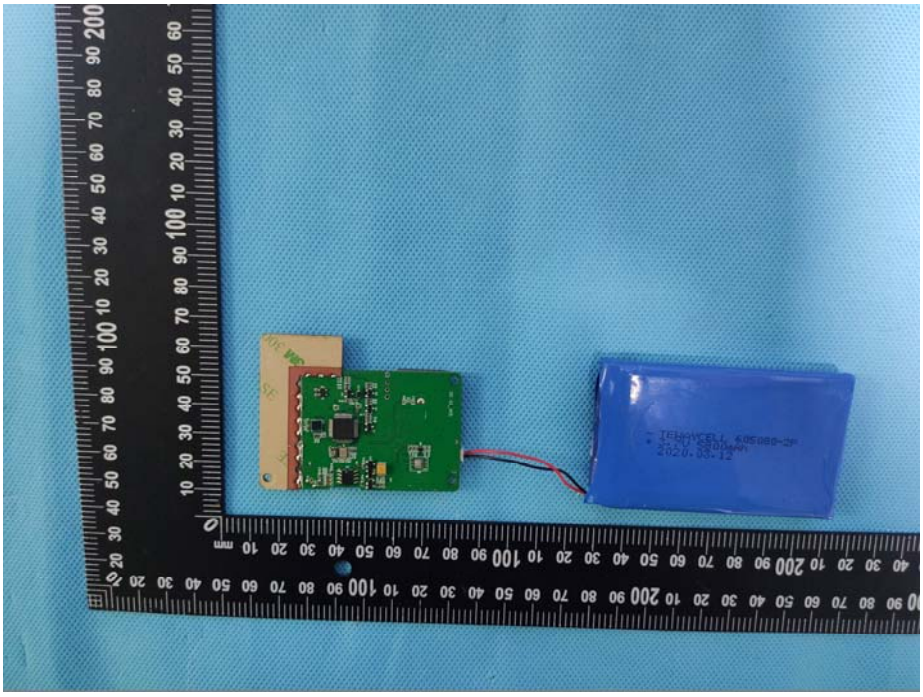

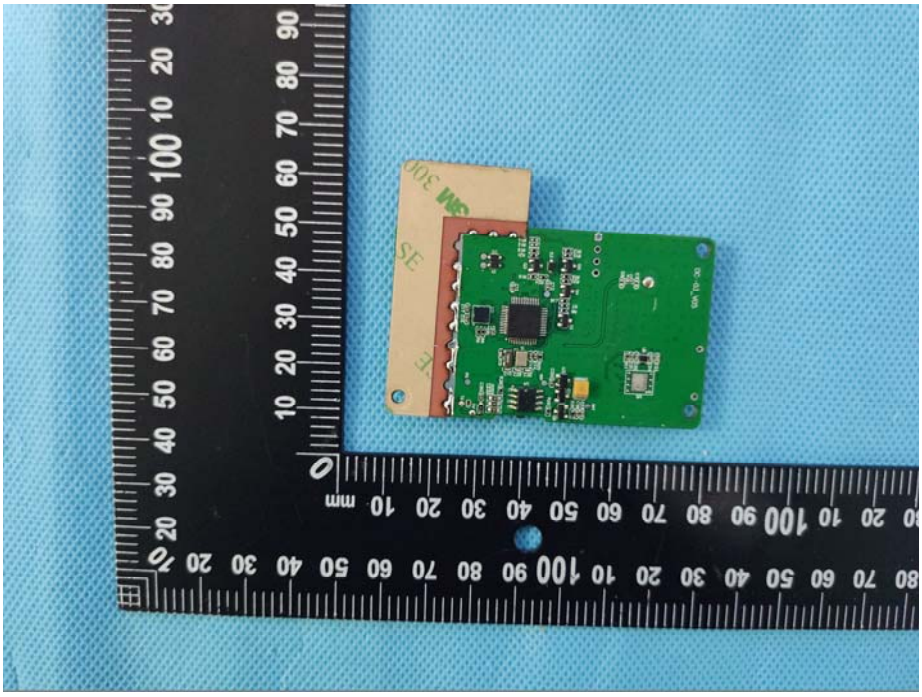

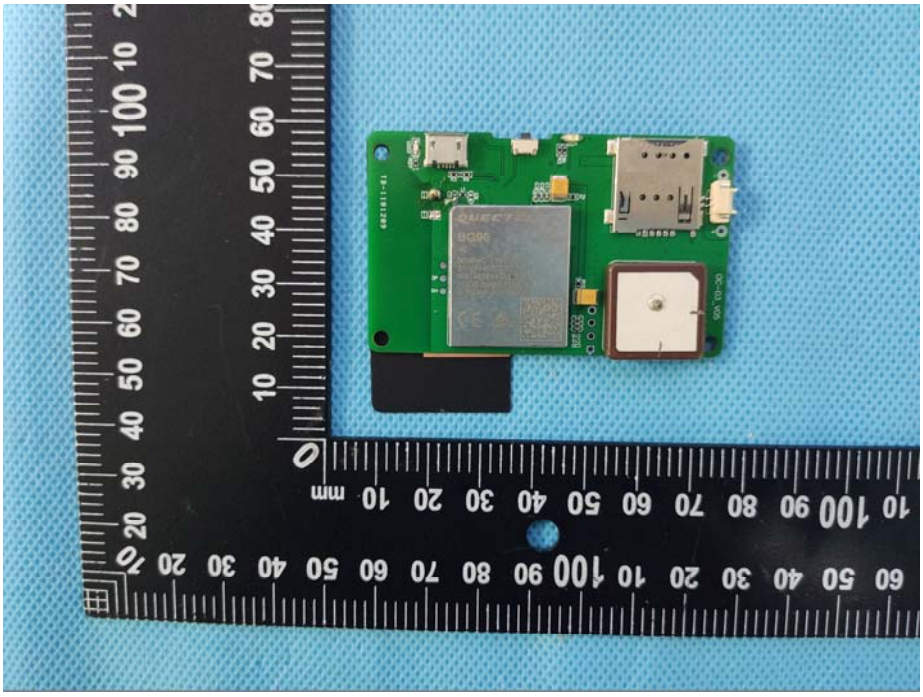

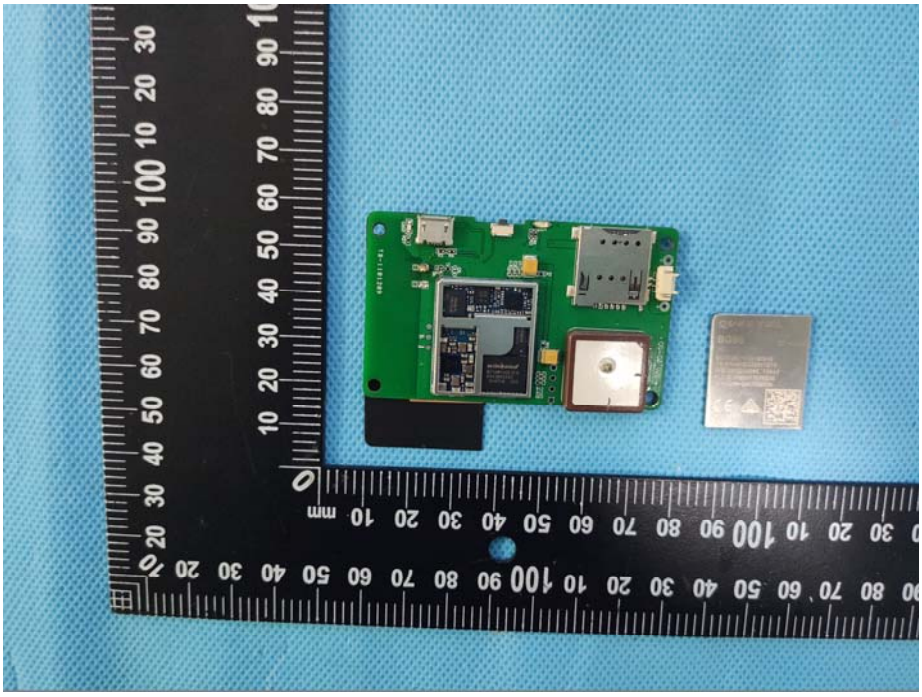

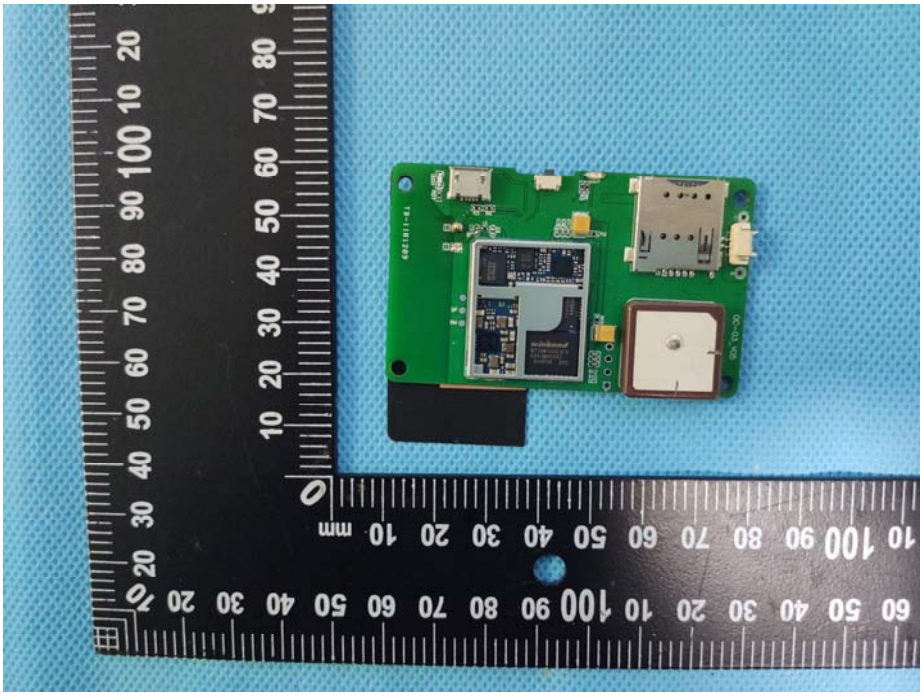

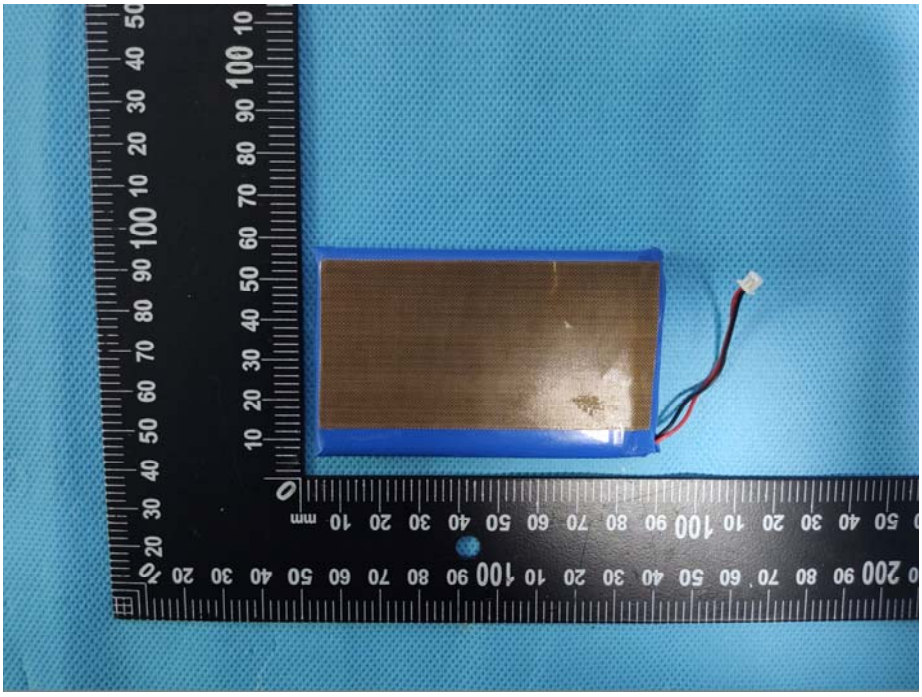

====== End of Report ======