Test mode:	LTE Band 4(1.4MHz)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3421.40	Vertical	-36.89	-13.00	Pass
5132.10	V	-35.23		
6842.80	V	-40.66		
8553.50	V	-42.21		
10264.20	V	---		
3421.40	Horizontal	-38.66	-13.00	Pass
5132.10	H	-42.51		
6842.80	H	-43.43		
8553.50	H	-48.26		
10264.20	H	---		
Test mode:	**LTE Band 4(1.4MHz)**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3465.00	Vertical	-35.33	-13.00	Pass
5197.50	V	-35.20		
6930.00	V	-37.81		
8662.50	V	-41.06		
10395.00	V	---		
3465.00	Horizontal	-41.50	-13.00	Pass
5197.50	H	-42.58		
6930.00	H	-42.49		
8662.50	H	-47.10		
10395.00	H	---		
Test mode:	**LTE Band 4(1.4MHz)**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3508.60	Vertical	-35.24	-13.00	Pass
5262.90	V	-35.37		
7017.20	V	-37.94		
8771.50	V	-41.52		
10525.80	V	---		
3508.60	Horizontal	-41.35	-13.00	Pass
5262.90	H	-42.59		
7017.20	H	-42.31		
8771.50	H	-47.58		
10525.80	H	---		

Remark：

1 The emission behaviour belongs to narrowband spurious emission, all modes investigated and only worst case is reported.

2 Remark"---" means that the emission level is too low (20dB lower than the limit) to be measured

3 The emission levels of below 1 GHz are very lower (20dB lower than the limit) than the limit and not show in test report.

Test mode:	LTE Band 5(1.4MHz)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1649.40	Vertical	-35.84	-13.00	Pass
2474.10	V	-35.04		
3298.80	V	-37.97		
4123.50	V	-41.16		
4948.20	V	---		
1649.40	Horizontal	-40.79	-13.00	Pass
2474.10	H	-42.30		
3298.80	H	-42.56		
4123.50	H	-46.77		
4948.20	H	---		
Test mode:	**LTE Band 5(1.4MHz)**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.00	Vertical	-33.10	-13.00	Pass
2509.50	V	-35.45		
3346.00	V	-39.99		
4182.50	V	-41.17		
5019.00	V	---		
1673.00	Horizontal	-38.84	-13.00	Pass
2509.50	H	-42.01		
3346.00	H	-43.76		
4182.50	H	-45.89		
5019.00	H	---		
Test mode:	**LTE Band 5(1.4MHz)**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1696.60	Vertical	-35.28	-13.00	Pass
2544.90	V	-38.29		
3393.20	V	-40.43		
4241.50	V	-41.17		
5089.80	V	---		
1696.60	Horizontal	-40.87	-13.00	Pass
2544.90	H	-44.83		
3393.20	H	-45.56		
4241.50	H	-47.01		
5089.80	H	---		

Remark：

1 The emission behaviour belongs to narrowband spurious emission, all modes investigated and only worst case is reported.
2 Remark"---" means that the emission level is too low (20dB lower than the limit) to be measured
3 The emission levels of below 1 GHz are very lower (20dB lower than the limit) than the limit and not show in test report.

Test mode:	LTE Band 12 (1.4MHz)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3701.40	Vertical	-35.14	-13.00	Pass
5552.10	V	-37.77		
7402.80	V	-41.23		
9253.50	V	-40.81		
11104.20	V	---		
3701.40	Horizontal	-40.67	-13.00	Pass
5552.10	H	-44.68		
7402.80	H	-45.53		
9253.50	H	-47.10		
11104.20	H	---		
Test mode:	**LTE Band 12 (1.4MHz)**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-35.00	-13.00	Pass
5640.00	V	-38.03		
7520.00	V	-40.79		
9400.00	V	-41.11		
11280.00	V	---		
3760.00	Horizontal	-40.52	-13.00	Pass
5640.00	H	-45.29		
7520.00	H	-45.37		
9400.00	H	-46.80		
11280.00	H	---		
Test mode:	**LTE Band 12 (1.4MHz)**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3818.60	Vertical	-35.40	-13.00	Pass
5727.90	V	-37.35		
7637.20	V	-40.76		
9546.50	V	-41.13		
11455.80	V	---		
3818.60	Horizontal	-40.56	-13.00	Pass
5727.90	H	-45.09		
7637.20	H	-44.89		
9546.50	H	-47.39		
11455.80	H	---		

Remark：

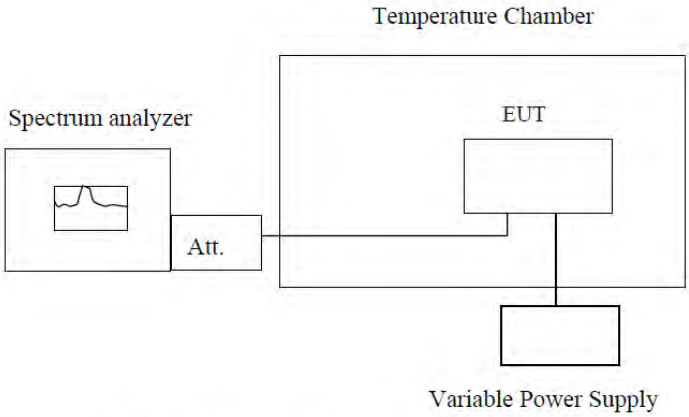
1 The emission behaviour belongs to narrowband spurious emission, all modes investigated and only worst case is reported.
2 Remark”---“ means that the emission level is too low (20dB lower than the limit) to be measured
3 The emission levels of below 1 GHz are very lower (20dB lower than the limit) than the limit and not show in test report.

Test mode:	LTE Band 13 (5MHz)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3701.40	Vertical	-34.54	-13.00	Pass
5552.10	V	-37.40		
7402.80	V	-41.00		
9253.50	V	-41.01		
11104.20	V	---		
3701.40	Horizontal	-40.69	-13.00	Pass
5552.10	H	-45.00		
7402.80	H	-45.06		
9253.50	H	-46.74		
11104.20	H	---		
Test mode:	**LTE Band 13 (5MHz)**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-35.37	-13.00	Pass
5640.00	V	-37.72		
7520.00	V	-40.43		
9400.00	V	-40.67		
11280.00	V	---		
3760.00	Horizontal	-40.96	-13.00	Pass
5640.00	H	-45.56		
7520.00	H	-45.61		
9400.00	H	-46.54		
11280.00	H	---		
Test mode:	**LTE Band 13 (5MHz)**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3818.60	Vertical	-35.23	-13.00	Pass
5727.90	V	-37.50		
7637.20	V	-41.10		
9546.50	V	-41.07		
11455.80	V	---		
3818.60	Horizontal	-41.14	-13.00	Pass
5727.90	H	-45.38		
7637.20	H	-44.95		
9546.50	H	-47.26		
11455.80	H	---		

Remark :

1 The emission behaviour belongs to narrowband spurious emission, all modes investigated and only worst case is reported.
2 Remark"---" means that the emission level is too low (20dB lower than the limit) to be measured
3 The emission levels of below 1 GHz are very lower (20dB lower than the limit) than the limit and not show in test report.

4.10 Frequency stability V.S. Temperature measurement

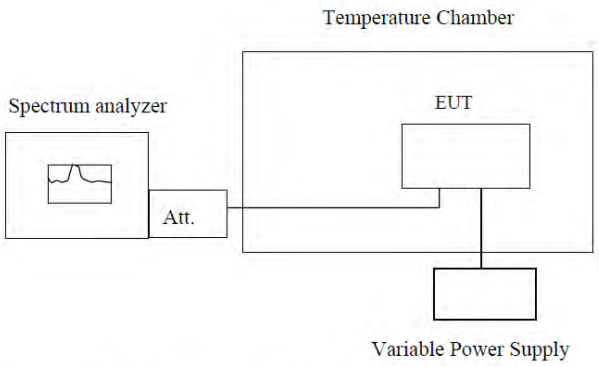
Test Requirement:	FCC Part2.1055(a)(1)(b)
Test Method:	ANSI C63.26:2015
Limit:	2.5ppm(Part 22) Within the authorized bands of operation(Part 24, Part 27)
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test procedure:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25℃ operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to –20℃ . After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached.
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass
Remark:	If all frequencies stability are comply with the lower limit, then all results can be considered qualified

Measurement Data

Reference Frequency: LTE Band 2 Middle channel=18900 channel=1880MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.7	-20	23	0.0122	Within the authorized bands	Pass
	-10	22	0.0117		
	0	-29	-0.0154		
	10	20	0.0106		
	20	17	0.0092		
	30	-2	-0.0009		
	40	12	0.0064		
	50	16	0.0087		
	55	23	0.0122		
Reference Frequency: LTE Band 4 Middle channel=20175 channel=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.7	-20	19	0.0113	2.5	Pass
	-10	23	0.0133		
	0	23	0.0131		
	10	-22	-0.0128		
	20	16	0.0091		
	30	18	0.0103		
	40	-6	-0.0037		
	50	13	0.0075		
	55	6	0.0035		
Reference Frequency: LTE Band 5 Middle channel=20175 channel=836.5MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.7	-20	15	0.0184	2.5	Pass
	-10	23	0.0275		
	0	23	0.0272		
	10	-21	-0.0257		
	20	18	0.0210		
	30	18	0.0212		
	40	-7	-0.0086		
	50	12	0.0143		
	55	6	0.0077		

Reference Frequency: LTE Band 12 Middle channel=20175 channel=1732.5MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.7	-20	19	0.0112	2.5	Pass
	-10	23	0.0133		
	0	28	0.0162		
	10	-21	-0.0119		
	20	15	0.0087		
	30	17	0.0096		
	40	-8	-0.0045		
	50	12	0.0068		
	55	6	0.0034		
Reference Frequency: LTE Band 13 Middle channel=20175 channel=836.5MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.7	-20	27	0.0319	2.5	Pass
	-10	23	0.0275		
	0	11	0.0127		
	10	-28	-0.0336		
	20	20	0.0236		
	30	14	0.0168		
	40	16	0.0189		
	50	-23	-0.0274		
	55	15	0.0177		

4.11 Frequency stability V.S. Voltage measurement

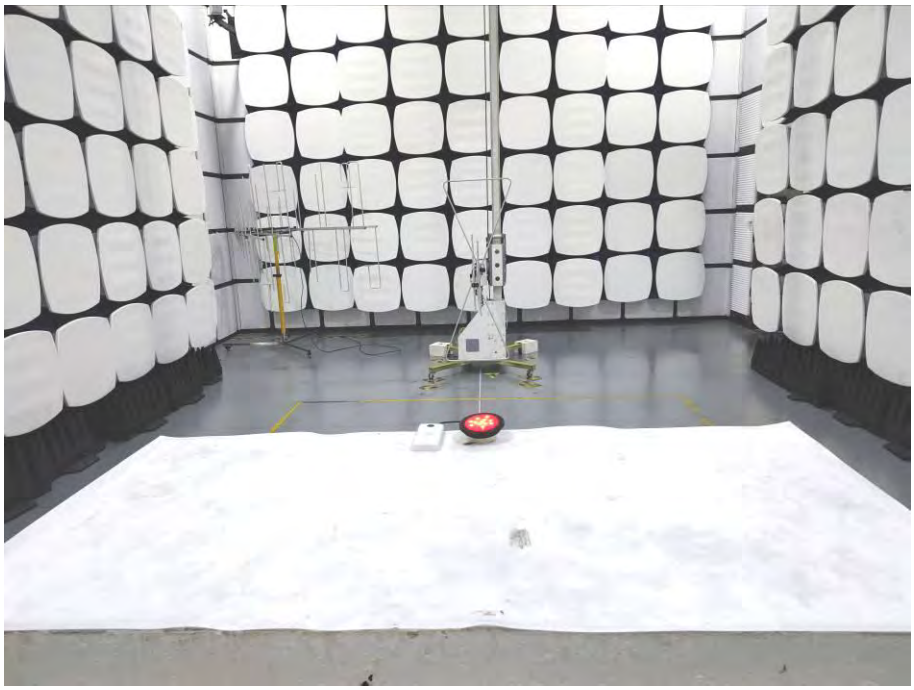
Test Requirement:	FCC Part2.1055(d)(1)(2)
Test Method:	ANSI C63.26:2015
Limit:	2.5ppm Band II & Band VII should be within authorized band.
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test procedure:	1. Set chamber temperature to 20℃ . Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass
Remark:	1. Manufacturer specified the battery operating end point voltage is 3.32VDC, max voltage is 4.37VDC. 2. If all frequencies stability are comply with the lower limit, then all results can be considered qualified

Measurement Data

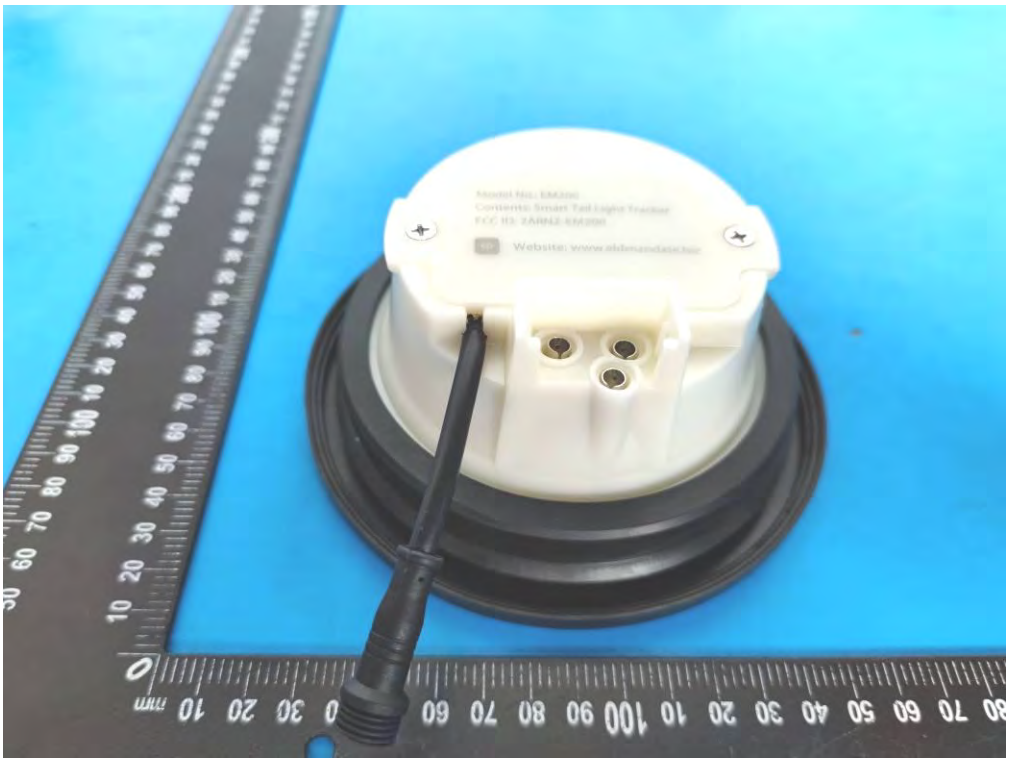
Reference Frequency: LTE Band 2 Middle channel=18900 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.37	24	0.0127	within authorized band	Pass
	3.70	23	0.0122		
	3.23	-7	-0.0038		
Reference Frequency: LTE Band 4 Middle channel=20175 channel=1732.5MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.37	20	0.0116	2.5	Pass
	3.70	23	0.0133		
	3.33	11	0.0062		
Reference Frequency: LTE Band 5 Middle channel=20175 channel=836.5MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.37	19	0.0225	2.5	Pass
	3.70	23	0.0275		
	3.23	11	0.0136		
Reference Frequency: LTE Band 12 Middle channel=18900 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.37	9	0.0047	within authorized band	Pass
	3.70	-21	-0.0112		
	3.23	21	0.0110		
Reference Frequency: LTE Band 13 Middle channel=20175 channel=1732.5MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.37	8	0.0046	2.5	Pass
	3.80	-22	-0.0126		
	3.70	22	0.0126		
	3.50	8	0.0047		
	3.23	-22	-0.0130		

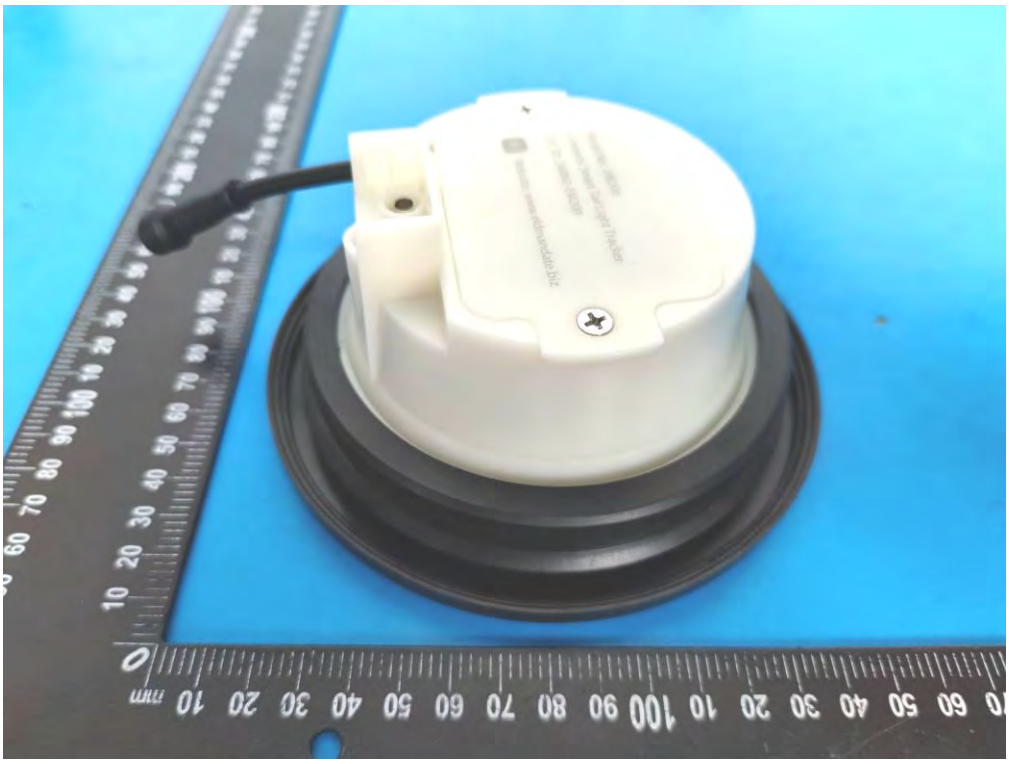
4.12 Test Setup Photo

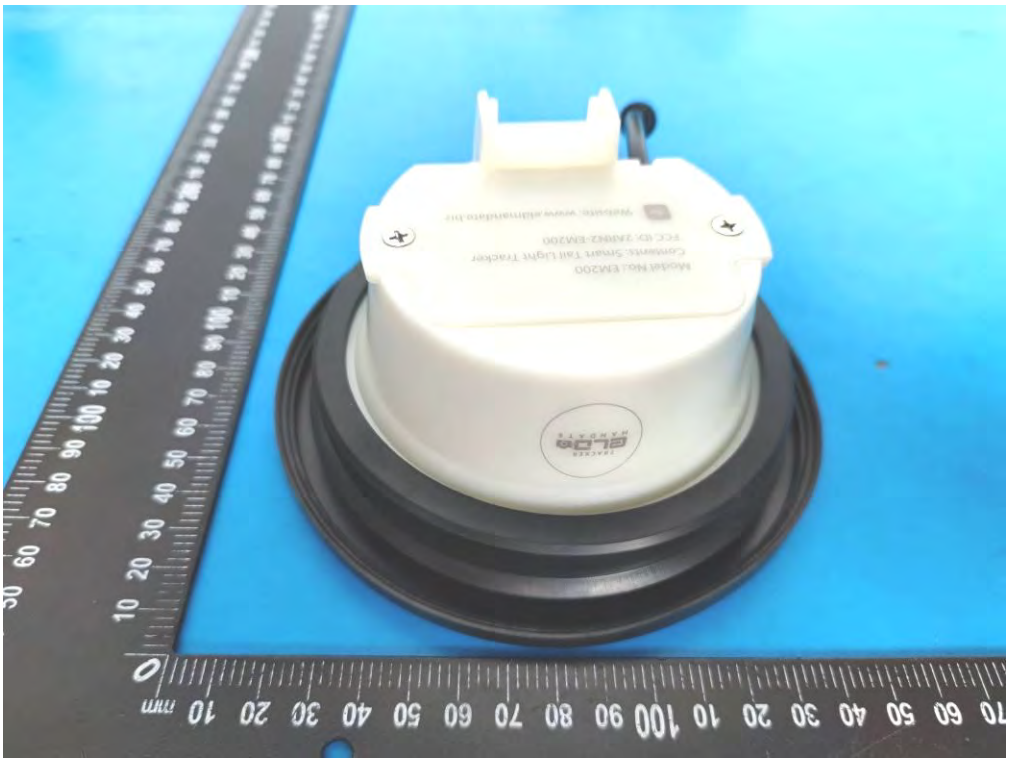
Radiated Emission

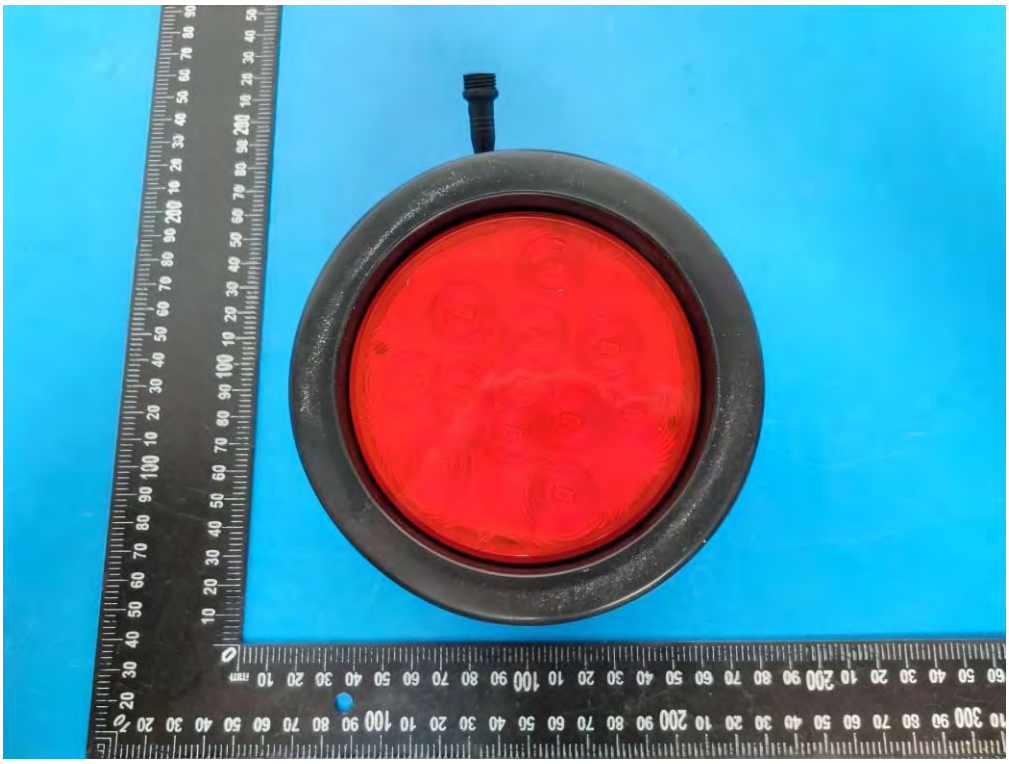


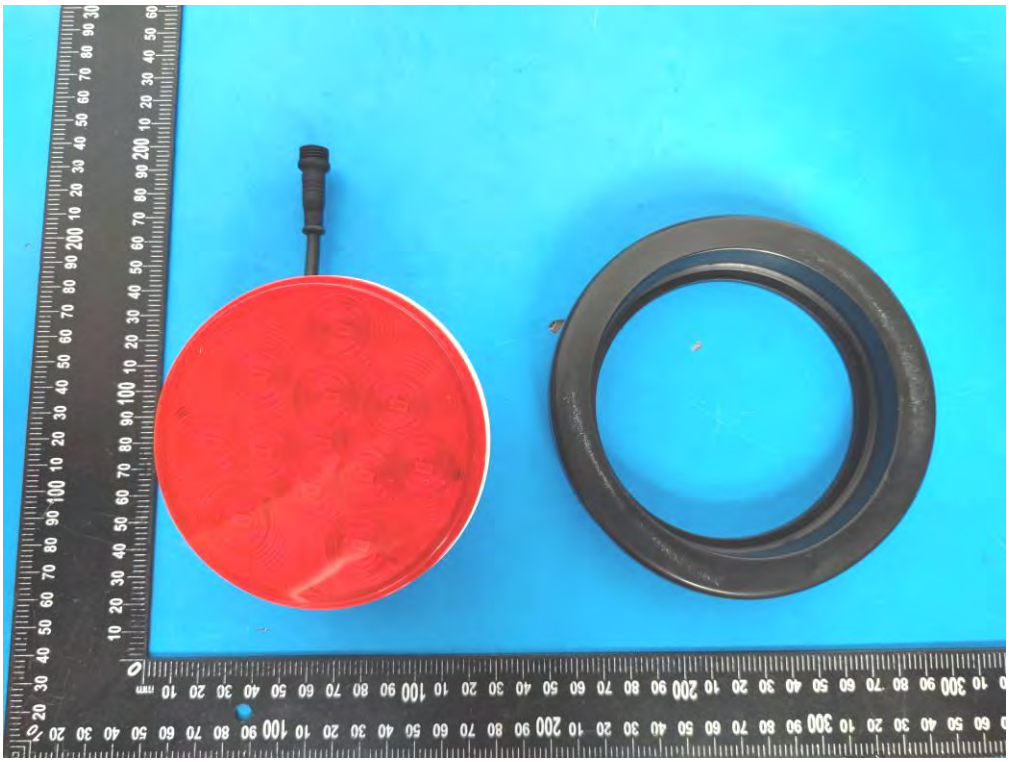
4.13 EUT photos

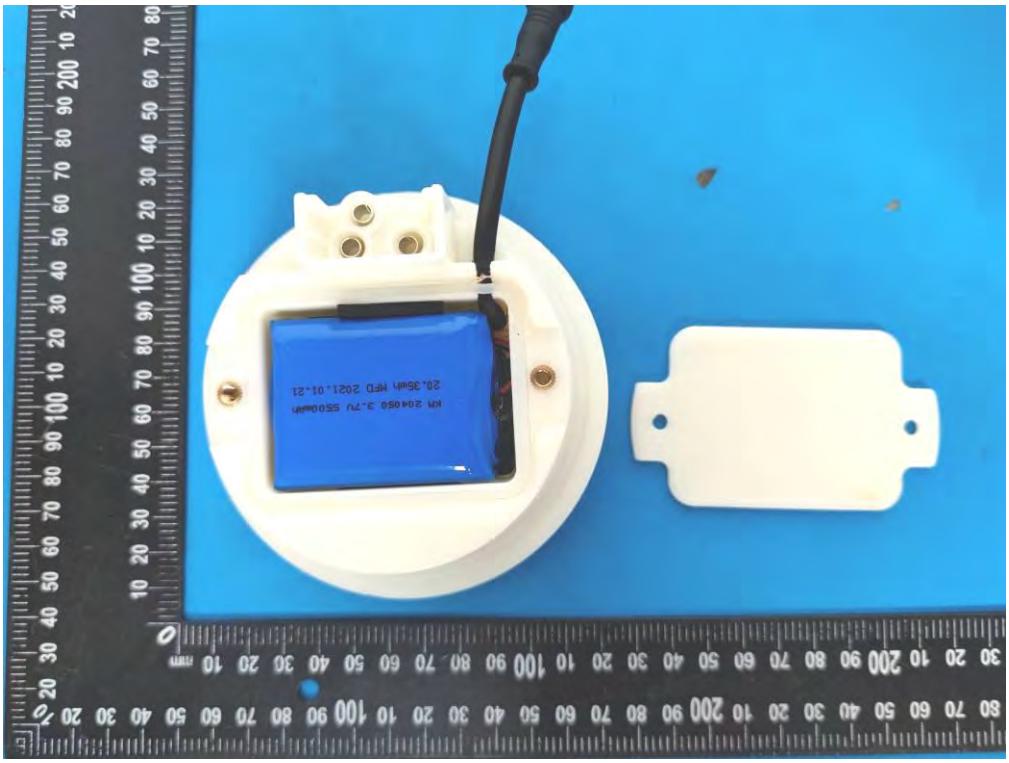


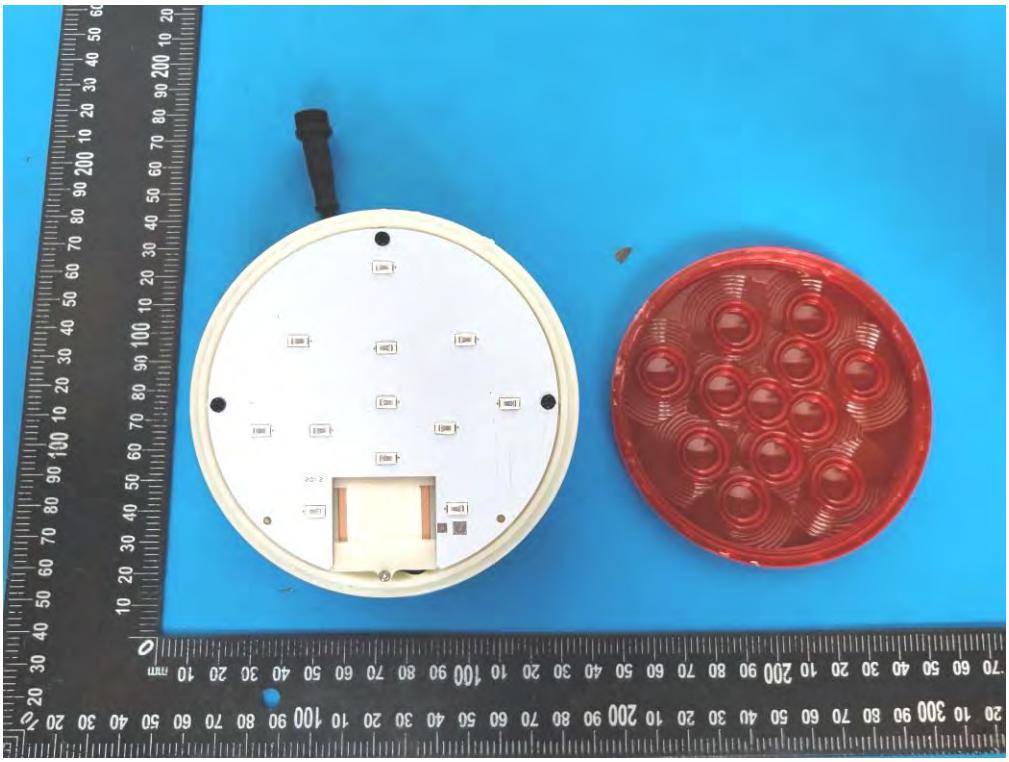


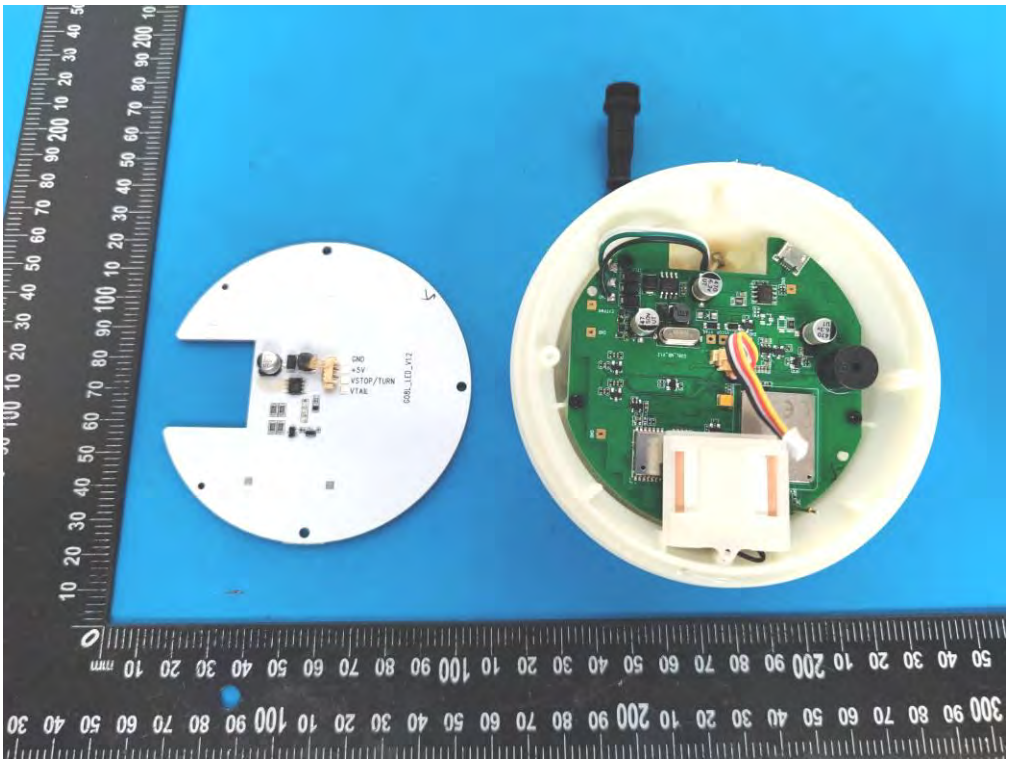


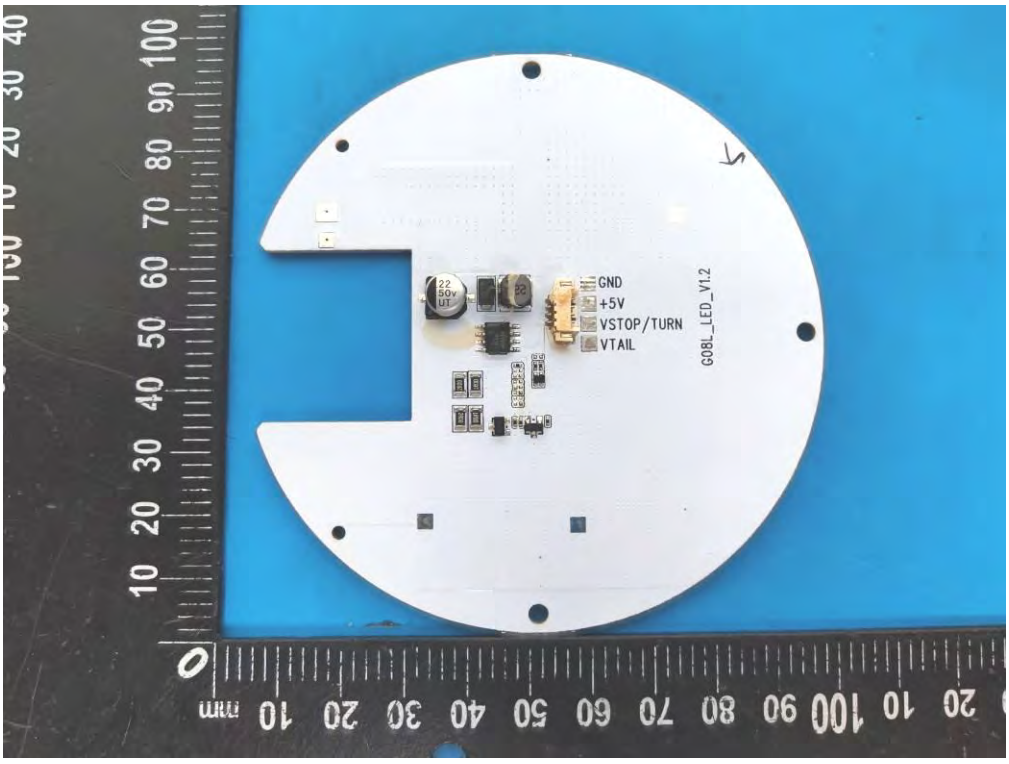


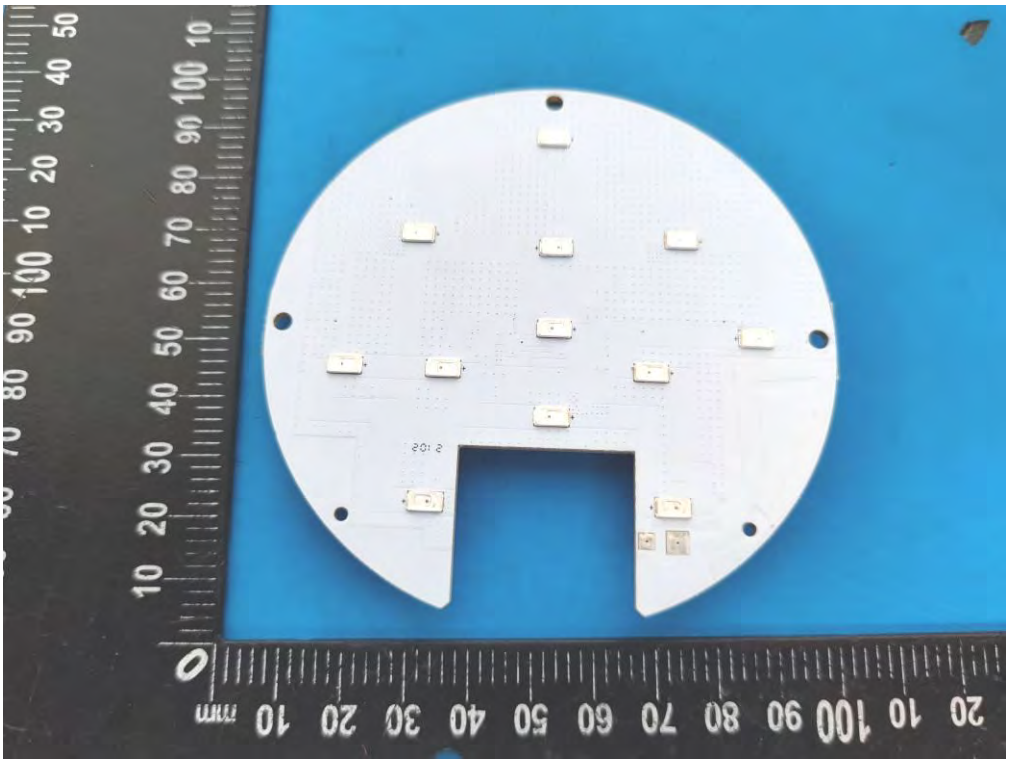


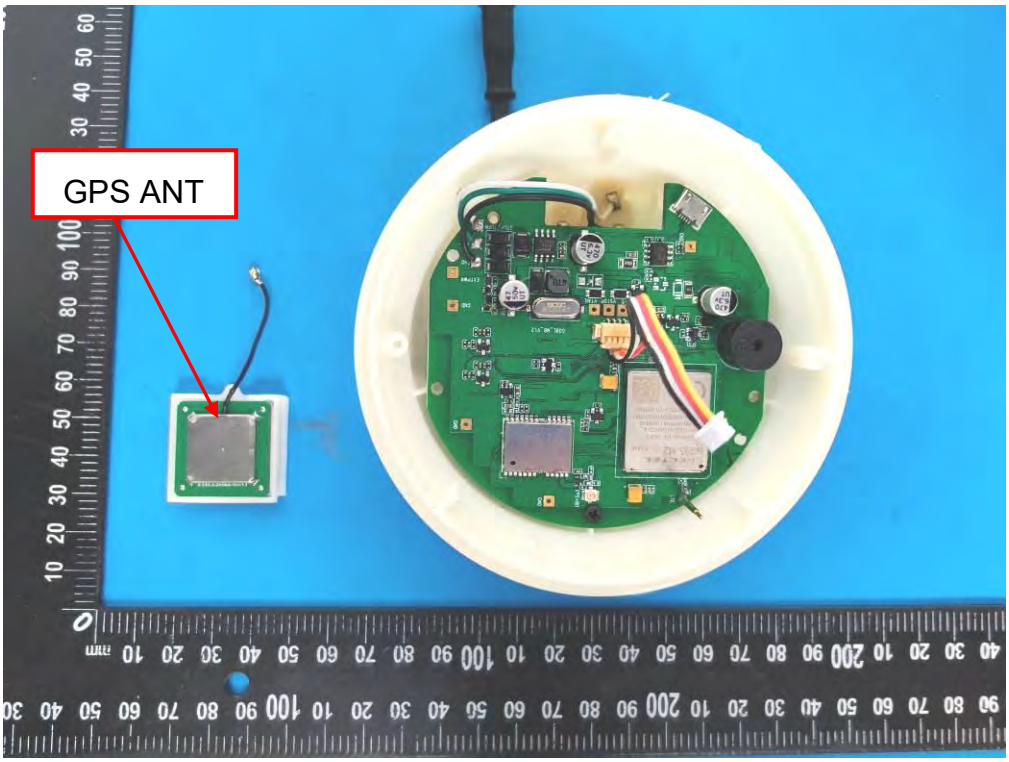


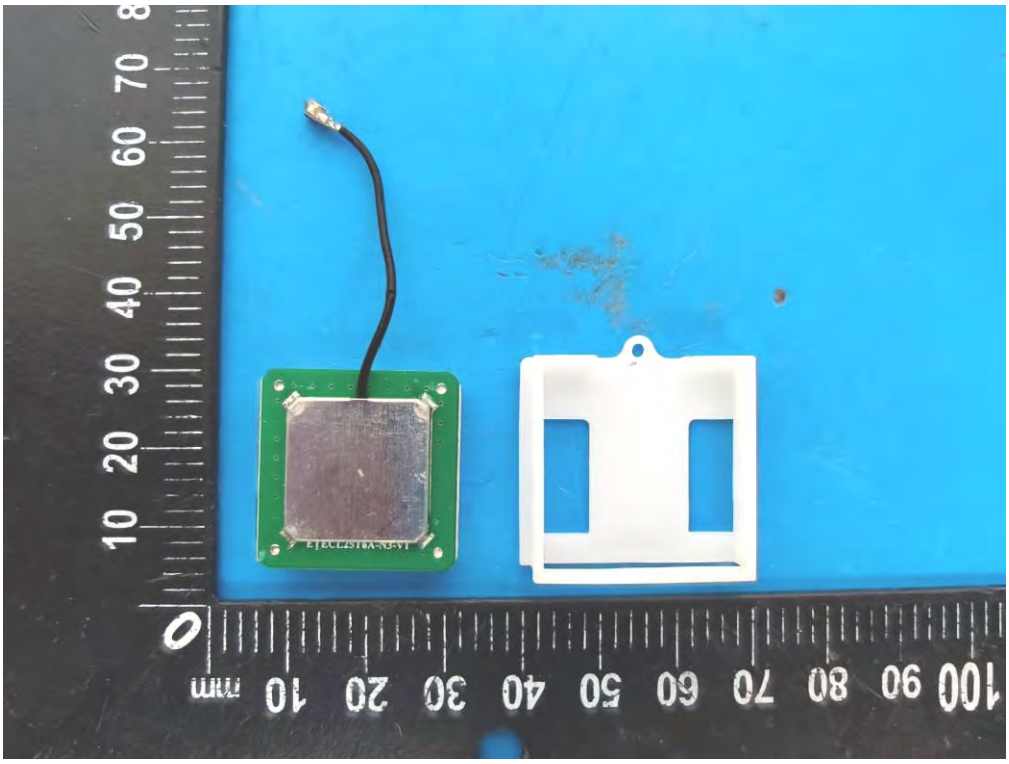


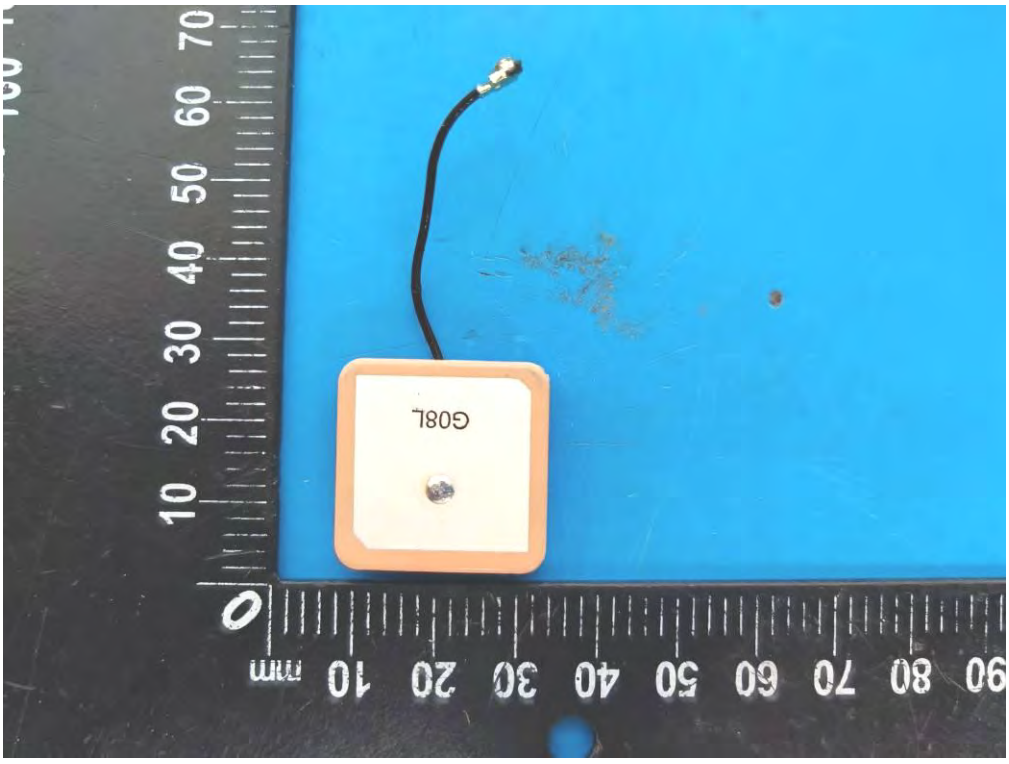


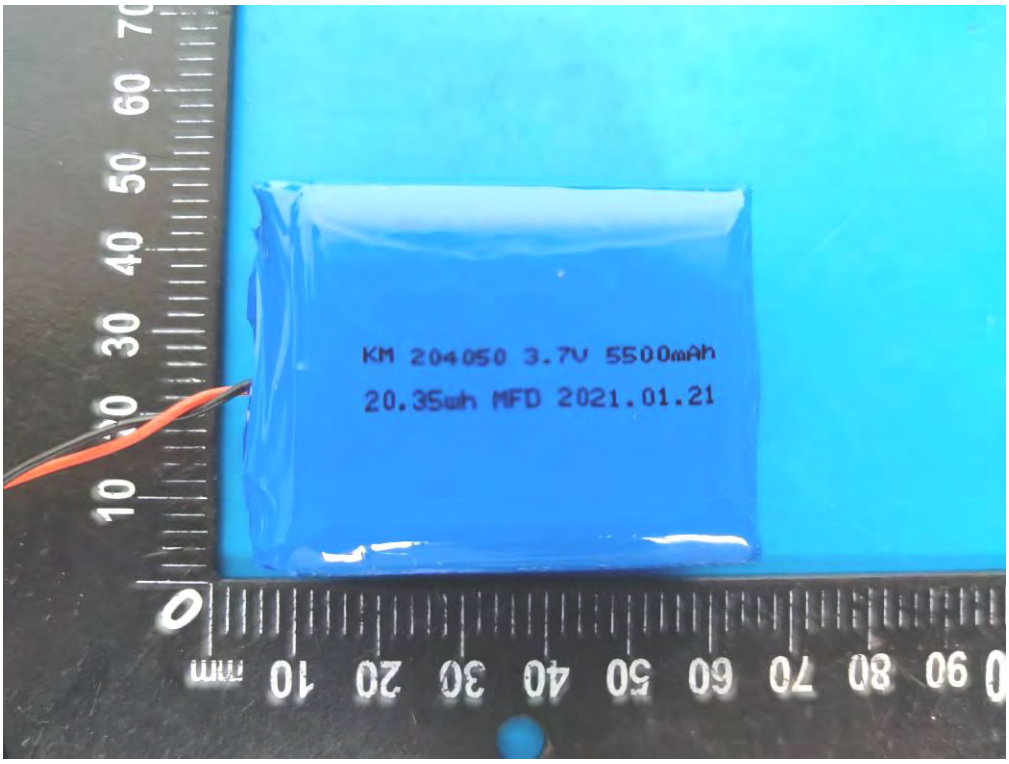

GND
+5V
VSTOP/TURN
VTAIL
G08L_LED_V1.2

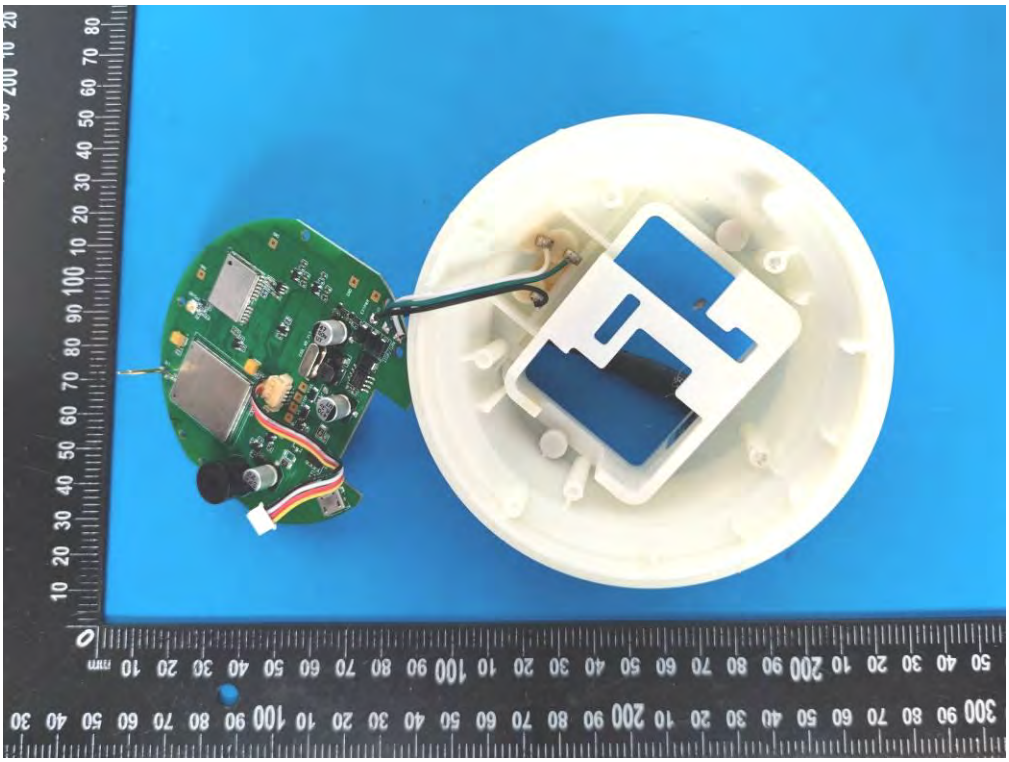


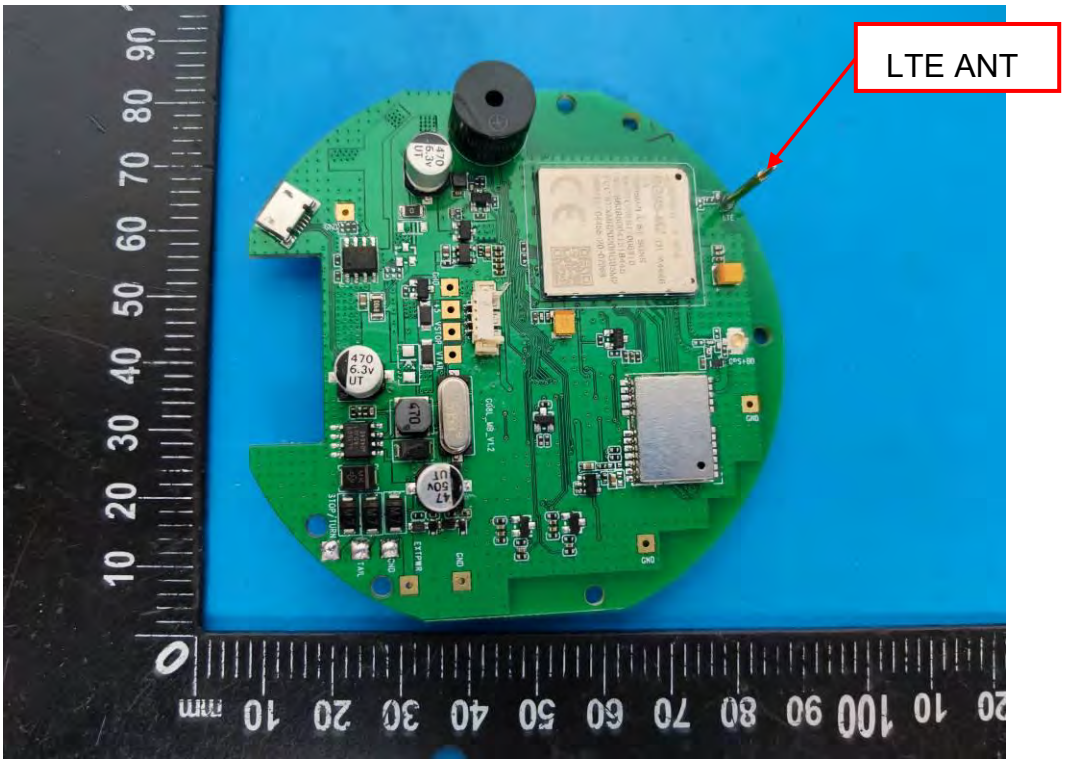

GPS ANT

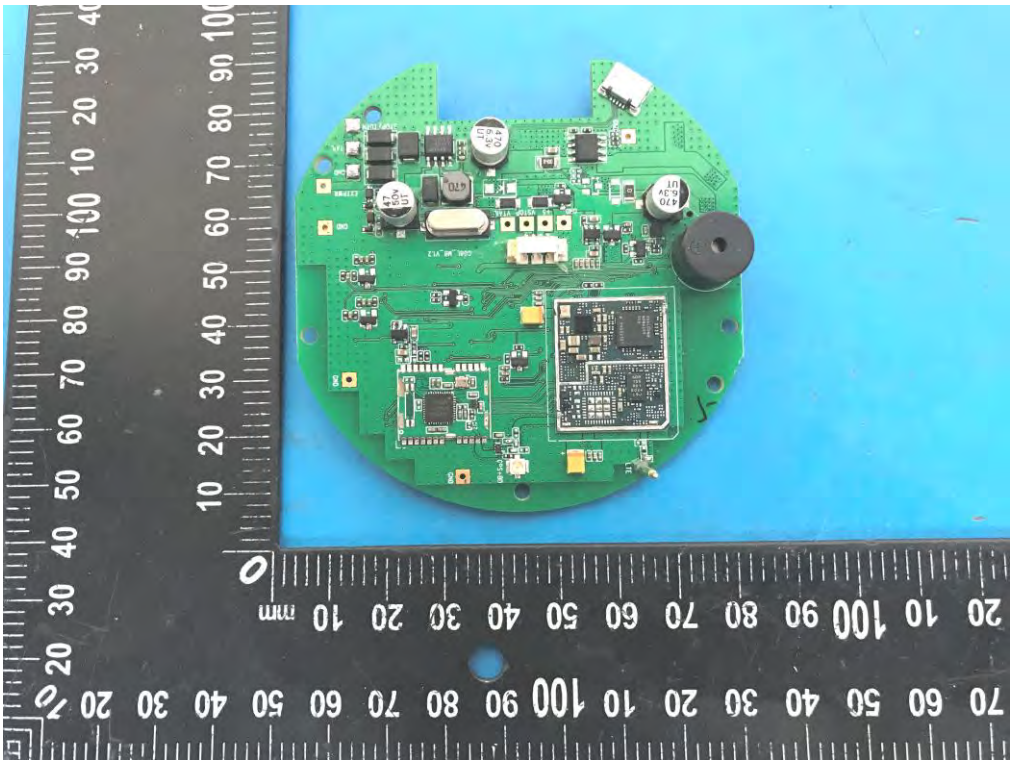


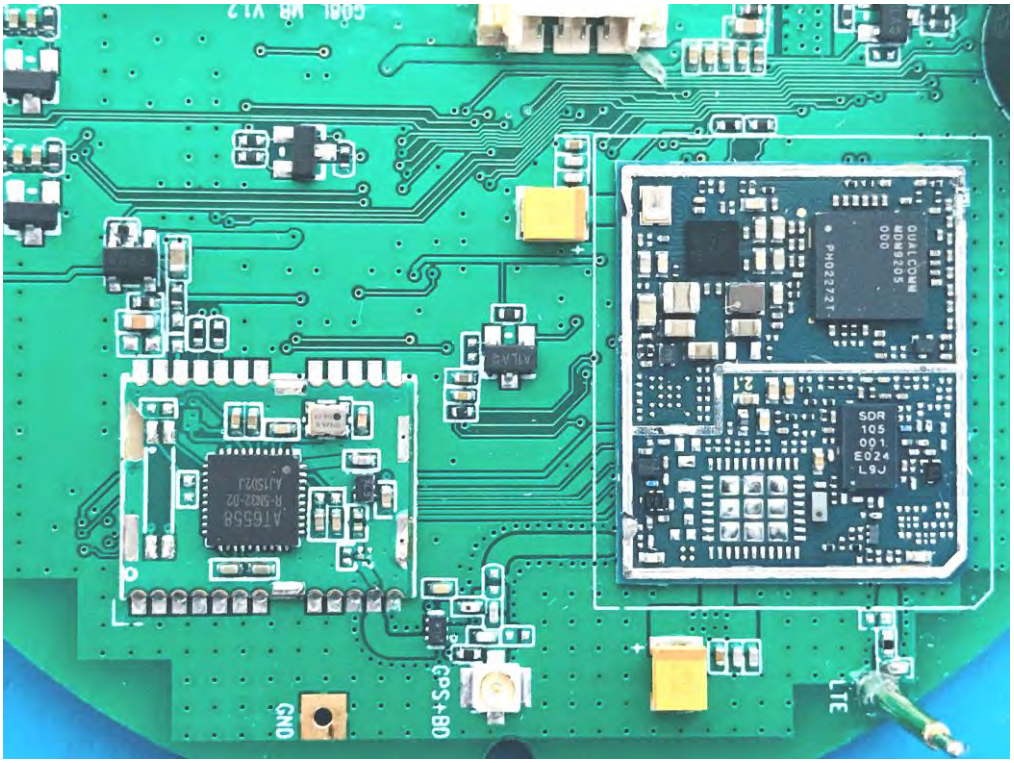


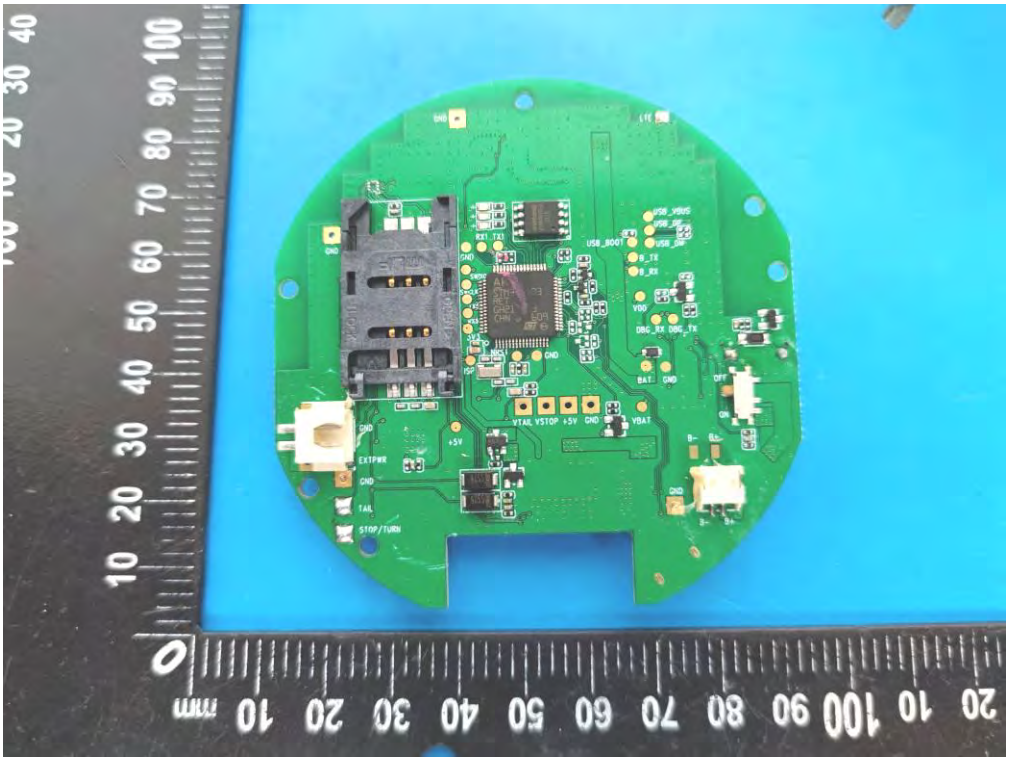

KM 204050 3.7V 5500mAh
20.35wh MFD 2021.01.21




LTE ANT







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