

FCC Test Report

Report No.: AGC13165220303FE02

FCC ID : 2A26HTH-L12MH

APPLICATION PURPOSE: Original Equipment

PRODUCT DESIGNATION: Clip Pro

BRAND NAME: Trihear

MODEL NAME : TH-L12M

APPLICANT: Trihear Technology Co., Ltd.

DATE OF ISSUE : Apr. 18, 2022

STANDARD(S) : FCC Part 15.247

REPORT VERSION: V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd





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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 18, 2022	Valid	Initial Release



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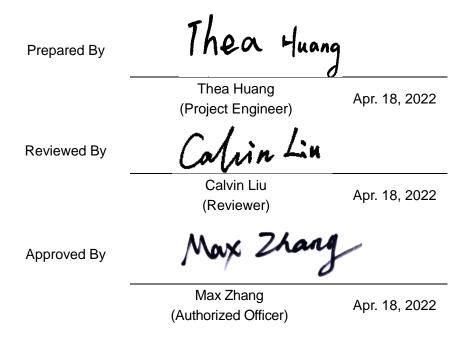
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1. VERIFICATION OF COMPLIANCE

Applicant	Trihear Technology Co., Ltd.		
Address	Room 704, Building 11, Phase II, Yungu, No. 2, Pingshan 1st Road, Taoyuan Street, Nanshan District, Shenzhen		
Manufacturer	Trihear Technology Co., Ltd.		
Address	Room 704, Building 11, Phase II, Yungu, No. 2, Pingshan 1st Road, Taoyuan Street, Nanshan District, Shenzhen		
Factory	Trihear Technology Co., Ltd.		
Address	Room 704, Building 11, Phase II, Yungu, No. 2, Pingshan 1st Road, Taoyuan Street, Nanshan District, Shenzhen		
Product Designation	Clip Pro		
Brand Name	Trihear		
Test Model	TH-L12M		
Date of test	Mar. 34, 2022 to Apr. 18, 2022		
Deviation	No any deviation from the test method		
Condition of Test Sample	Normal		
Test Result	Pass		
Report Template	AGCRT-US-BLE/RF		

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC part 15.247.



Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Tel: +86-755 2523 4088 E-mail: agc@agccert.com

ert.com Web: http://www.agccert.com/



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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as a "Clip Pro". It is designed by way of utilizing the GFSK technology to achieve the system operation.

A major technical description of EUT is described as following

Operation Frequency	2.402 GHz to 2.480GHz	
RF Output Power	GFSK 1Mbps: 5.612dBm (Max); GFSK 2Mbps: 7.914dBm (Max)	
Bluetooth Version	V5.2	
Modulation	BR □GFSK, EDR □π /4-DQPSK, □8DPSK BLE ☑GFSK 1Mbps ☑GFSK 2Mbps	
Number of channels	40 Channels	
Antenna Designation	Ceramic Antenna (Comply with requirements of the FCC part 15.203)	
Antenna Gain	0dBi	
Hardware Version	HKH931 PAU1806 V03_20220121	
Software Version	V1.0	
Power Supply	DC 3.7V by battery	

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency	
	0	2402 MHz	
	1	2404 MHz	
2400~2483.5MHz	:	:	
	38	2478 MHz	
	39	2480 MHz	



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2.3. RELATED SUBMITTAL(S)/GRANT(S)

This submittal(s) (test report) is intended for **FCC ID: 2A26HTH-L12MH** filing to comply with the FCC Part 15.247 requirements.

2.4. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

2.5. SPECIAL ACCESSORIES

Refer to section 5.2.

2.6. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.7. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device. For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.



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3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 3.1 \text{ dB}$
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 4.0 \text{ dB}$
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.8 \text{ dB}$
Uncertainty of total RF power, conducted	$U_c = \pm 0.8 \text{ dB}$
Uncertainty of RF power density, conducted	$U_c = \pm 2.6 \text{ dB}$
Uncertainty of spurious emissions, conducted	$U_c = \pm 2 \%$
Uncertainty of Occupied Channel Bandwidth	U _c = ±2 %



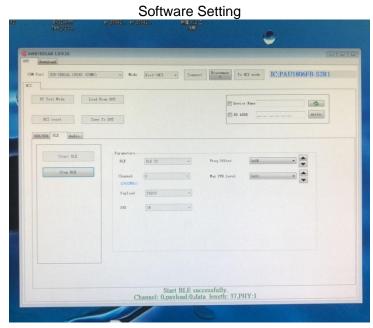
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4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel TX
2	Middle channel TX
3	High channel TX

Note:

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 3. For Conducted Test method, a temporary antenna connector is provided by the manufacture.



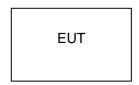


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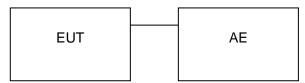
5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF TESTED SYSTEM

Radiated Emission Configure:



Conducted Emission Configure:



5.2. EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Clip Pro	TH-L12M	2A26HTH-L12MH	EUT
2	Control Box	USB-TTL	N/A	AE

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
15.247 (b)(3)	Peak Output Power	Compliant
15.247 (a)(2)	6 dB Bandwidth	Compliant
15.247 (d)	Conducted Spurious Emission	Compliant
15.247 (e)	Maximum Conducted Output Power Density	Compliant
15.209	Radiated Emission	Compliant
15.207	Conducted Emission	Not applicable

Note: The BT function cannot transmit when charging.



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6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd		
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China		
Designation Number	CN1259		
FCC Test Firm Registration Number	975832		
A2LA Cert. No.	5054.02		
Description	Attestation of Global Compliance (Shenzhen) Co., Ltd is accredited by A2LA		

TEST EQUIPMENT OF RADIATED EMISSION TEST

TEST EQUIPMENT OF RADIATED EMISSION TEST					
Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	May 15,2021	May 14,2022
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Nov. 17, 2021	Nov. 16, 2022
2.4GHz Filter	EM Electronics	2400-2500	N/A	Mar. 22, 2022	Mar. 21, 2024
Attenuator	ZHINAN	E-002	N/A	Sep. 03, 2020	Sep. 02, 2022
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 31, 2021	Oct. 30, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 08, 2021	Jan. 07, 2023
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A



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7. PEAK OUTPUT POWER

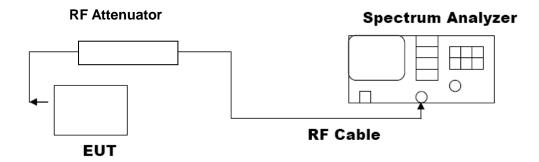
7.1. MEASUREMENT PROCEDURE

For peak power test:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. RBW ≥ DTS bandwidth
- 3. VBW≥3*RBW.
- 4. SPAN≥VBW.
- 5. Sweep: Auto.
- 6. Detector function: Peak.
- 7. Trace: Max hold.

Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) PEAK POWER TEST SETUP



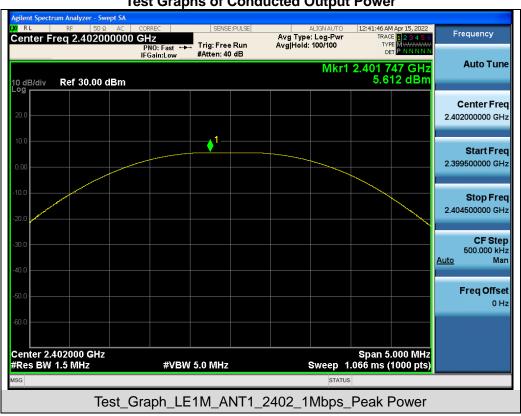


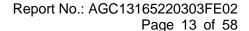
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7.3. LIMITS AND MEASUREMENT RESULT **BLE GFSK 1Mbps:**

Test Data of Conducted Output Power						
Test Mode Test Channel Peak Power Limits (MHz) (dBm) Pass or Fail						
	2402	5.612	≤30	Pass		
GFSK 1M	2440	5.432	≤30	Pass		
	2480	4.963	≤30	Pass		

Test Graphs of Conducted Output Power













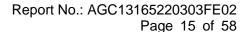
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BLE GFSK 2Mbps:

DEE OF OIL EMBP	v .				
Test Data of Conducted Output Power					
Test Mode	Test Channel (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail	
	2402	7.914	≤30	Pass	
GFSK 1M	2440	5.435	≤30	Pass	
	2480	4.992	≤30	Pass	

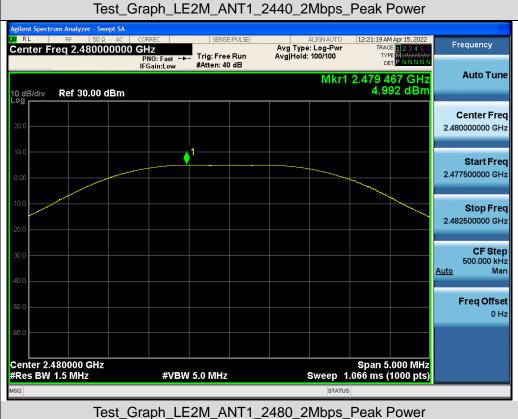














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8. BANDWIDTH

8.1. MEASUREMENT PROCEDURE

6dB bandwidth:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 kHz, VBW ≥ 3×RBW.
- 4. Set SPA Trace 1 Max hold, then View.

Occupied bandwidth:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hoping channel
 The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video
 bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
- 4. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

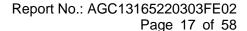
8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 7.2.

8.3. LIMITS AND MEASUREMENT RESULTS

BLE GFSK 1Mbps:

Test Data of Occupied Bandwidth and DTS Bandwidth					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-6dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
	2402	1.037	0.674	≥0.5	Pass
GFSK 1M	2440	1.038	0.678	≥0.5	Pass
	2480	1.036	0.672	≥0.5	Pass





Test Graphs of Occupied Bandwidth 05:51:58 AM Apr 14, 2022 Radio Std: None Frequency Center Freq: 2.402000000 GHz
Trig: Free Run Avg|Hold: 10/10 Center Freq 2.402000000 GHz Trig: Free Run #Atten: 30 dB #IFGain:Low Radio Device: BTS Ref 30.00 dBm 2.402000000 GHz Center 2.402 GHz #Res BW 30 kHz Span 3 MHz Sweep 4.133 ms CF Step 300.000 kHz **#VBW** 100 kHz <u>Auto</u> Man 14.8 dBm **Total Power** Occupied Bandwidth 1.0374 MHz Freq Offset 0 Hz **Transmit Freq Error** -289 Hz **OBW Power** 99.00 % x dB Bandwidth 1.231 MHz x dB -26.00 dB Test_Graph_LE1M_ANT1_2402_1Mbps_OBW 06:01:49 AM Apr 14, 20 Radio Std: None Center Freq: 2.440000000 GHz Trig: Free Run Avg|Ho Frequency Center Freq 2.440000000 GHz Avg|Hold: 10/10 #IFGain:Low #Atten: 30 dB Radio Device: BTS Ref 30.00 dBm Center Freq 2.440000000 GHz Span 3 MHz Sweep 4.133 ms Center 2.44 GHz #Res BW 30 kHz CF Step 300.000 kHz **#VBW 100 kHz** Auto Mar **Total Power** 14.8 dBm Occupied Bandwidth 1.0381 MHz Freq Offset Transmit Freq Error -275 Hz **OBW Power** 99.00 %

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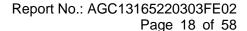
x dB

Test_Graph_LE1M_ANT1_2440_1Mbps_OBW

-26.00 dB

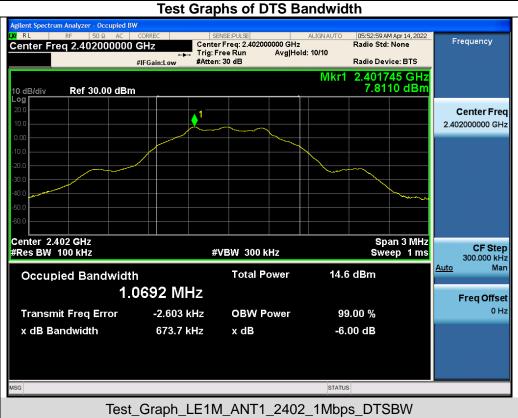
1.232 MHz

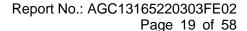
x dB Bandwidth















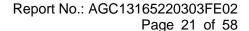




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BLE GFSK 2Mbps:

DEE OF OIL EMBPO	/ 1					
Test Data of Occupied Bandwidth and DTS Bandwidth						
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-6dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail	
	2402	2.012	1.209	≥0.5	Pass	
GFSK 1M	2440	2.014	1.218	≥0.5	Pass	
	2480	2.010	1.206	≥0.5	Pass	

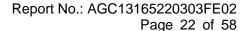




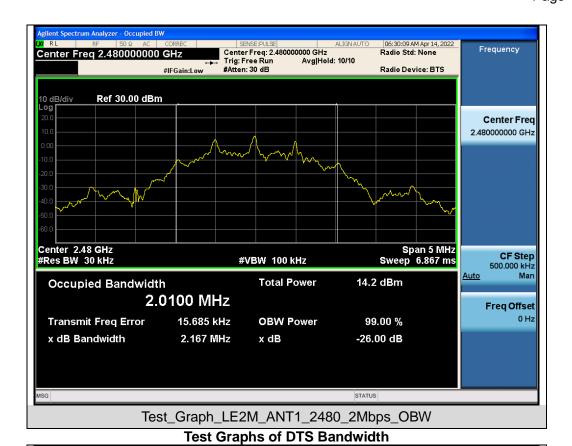
Test Graphs of Occupied Bandwidth 06:15:58 AM Apr 14, 2022 Radio Std: None Frequency Center Freq: 2.402000000 GHz
Trig: Free Run Avg|Hold: 10/10 Center Freq 2.402000000 GHz Trig: Free Run #Atten: 30 dB #IFGain:Low Radio Device: BTS Ref 30.00 dBm 2.402000000 GHz Center 2.402 GHz #Res BW 30 kHz Span 5 MHz Sweep 6.867 ms CF Step 500.000 kHz **#VBW** 100 kHz <u>Auto</u> Man 14.4 dBm **Total Power** Occupied Bandwidth 2.0119 MHz Freq Offset 0 Hz **Transmit Freq Error** 16.500 kHz **OBW Power** 99.00 % x dB Bandwidth -26.00 dB 2.168 MHz x dB Test_Graph_LE2M_ANT1_2402_2Mbps_OBW 06:24:04 AM Apr 14, 2 Radio Std: None Center Freq: 2.440000000 GHz Trig: Free Run Avg|Ho Frequency Center Freq 2.440000000 GHz Avg|Hold: 10/10 #IFGain:Low #Atten: 30 dB Radio Device: BTS Ref 30.00 dBm Center Freq 2.440000000 GHz Span 5 MHz Sweep 6.867 ms Center 2.44 GHz #Res BW 30 kHz CF Step 500.000 kHz **#VBW 100 kHz** Auto Mar **Total Power** 14.5 dBm Occupied Bandwidth 2.0140 MHz Freq Offset Transmit Freq Error 16.244 kHz **OBW Power** 99.00 % x dB Bandwidth 2.170 MHz x dB -26.00 dB

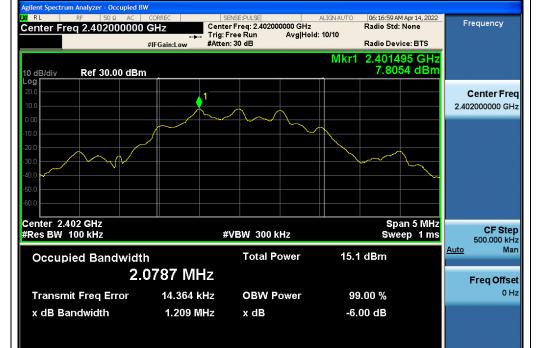
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Test_Graph_LE2M_ANT1_2440_2Mbps_OBW

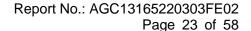








Test Graph LE2M ANT1 2402 2Mbps DTSBW











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9. CONDUCTED SPURIOUS EMISSION

9.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

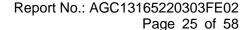
The same as described in section 7.2.

9.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6.

9.4. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT					
Annilla abda di insita	Measurement Result				
Applicable Limits	Test Data	Criteria			
In any 100 kHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.	At least -20dBc than the reference level	PASS			

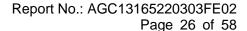




BLE GFSK 1Mbps:



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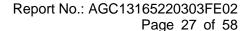


nt Spectrum Analyzer - Swept SA Frequency Avg Type: Log-Pwr Avg|Hold: 10/10 Center Freg 13.741750000 GHz IFGain:Low **Auto Tune** Mkr1 7.205 4 GHz -44.676 dBm I0 dB/div Ref 20.00 dBm Center Freq 13.741750000 GHz Start Freq 2 483500000 GHz Stop Freq 25.000000000 GHz **CF Step** 2.251650000 GHz Man <u>Auto</u> Freq Offset Start 2.48 GHz #Res BW 100 kHz Stop 25.00 GHz Sweep 2.152 s (30000 pts) #VBW 300 kHz

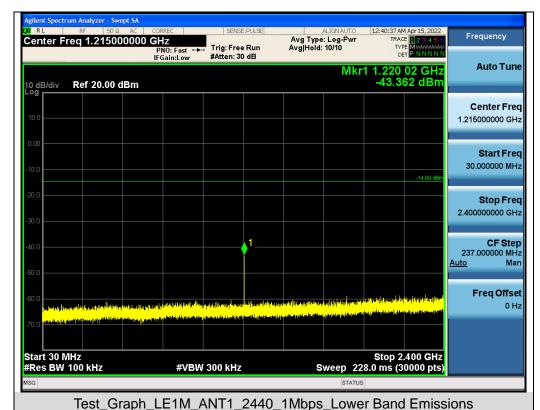
Test_Graph_LE1M_ANT1_2402_1Mbps_Higher Band Emissions



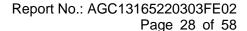
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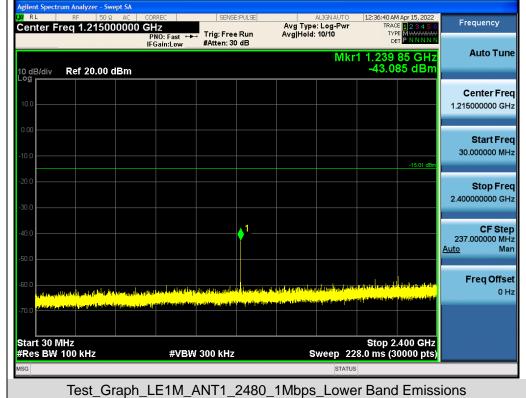
ilent Spectrum Analyzer - Swept SA Frequency Avg Type: Log-Pwi Avg|Hold: 10/10 Center Freq 13.741750000 GHz Trig: Free Run #Atten: 30 dB IFGain:Low **Auto Tune** Mkr1 7.320 2 GHz -40.825 dBm 10 dB/div Ref 20.00 dBm Center Freq 13.741750000 GHz Start Freq 2.483500000 GHz -14.60 d Stop Freq 25.000000000 GHz CF Step 2.251650000 GHz Man <u>Auto</u> Frea Offset 0 Hz Start 2.48 GHz #Res BW 100 kHz Stop 25.00 GHz Sweep 2.152 s (30000 pts) #VBW 300 kHz Test_Graph_LE1M_ANT1_2440_1Mbps_Higher Band Emissions



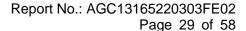


nt Spectrum Analyzer - Swept SA Frequency Center Freq 2.480000000 GHz Trig: Free Run IFGain:Low #Atten: 30 dB **Auto Tune** Mkr1 2.479 738 5 GHz 4.990 dBm I0 dB/div Ref 20.00 dBm Center Freq 2.480000000 GHz Start Freq 2 478500000 GHz Stop Freq 2.481500000 GHz CF Step 300.000 kHz Man Auto Freq Offset Center 2.480000 GHz #Res BW 100 kHz Span 3.000 MHz Sweep 2.000 ms (30000 pts) #VBW 300 kHz

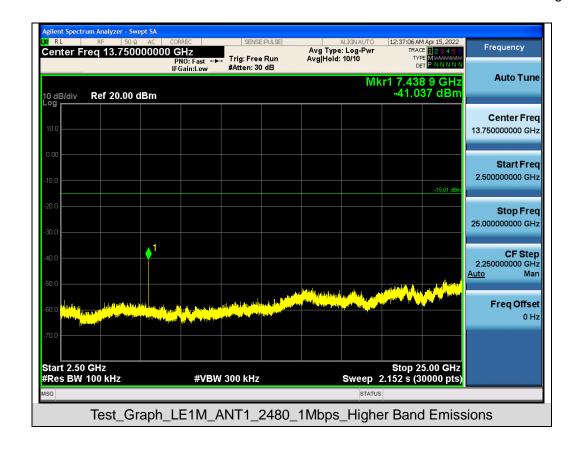
Test_Graph_LE1M_ANT1_2480_1Mbps_Reference Level

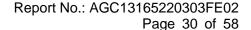


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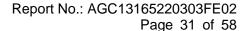
BLE GFSK 2Mbps:

Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands



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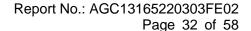
Web: http://www.agccert.com/







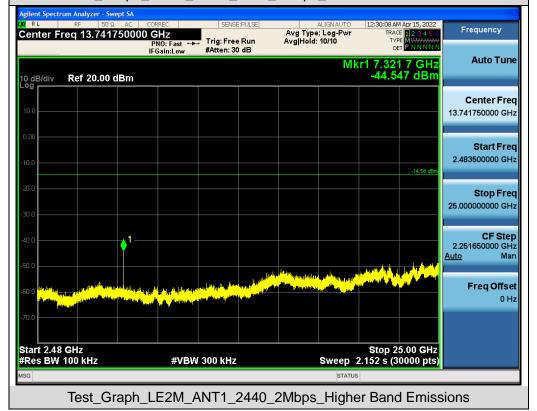




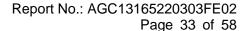


nt Spectrum Analyzer - Swept SA Frequency Avg Type: Log-Pwr Avg|Hold: 10/10 Center Freg 1.215000000 GHz Trig: Free Run IFGain:Low **Auto Tune** Mkr1 1.220 02 GHz -43.544 dBm I0 dB/div Ref 20.00 dBm Center Freq 1.215000000 GHz Start Freq 30.000000 MHz Stop Freq 2.400000000 GHz **CF Step** 237.000000 MHz Man Auto Freq Offset Start 30 MHz #Res BW 100 kHz Stop 2.400 GHz Sweep 228.0 ms (30000 pts) #VBW 300 kHz

Test_Graph_LE2M_ANT1_2440_2Mbps_Lower Band Emissions

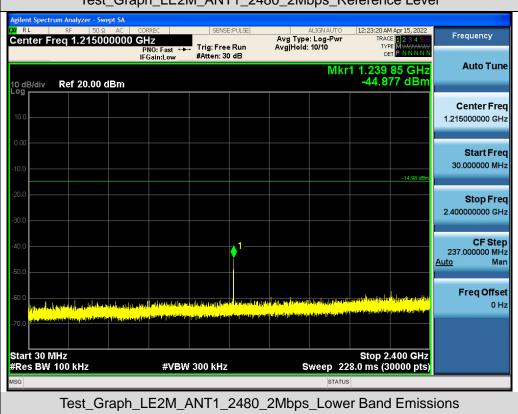


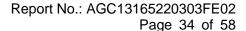
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.



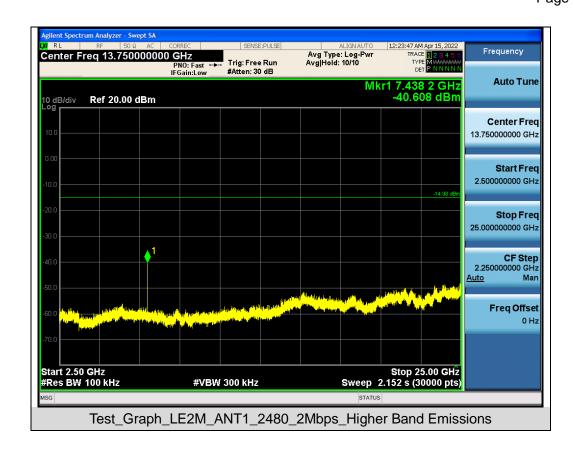


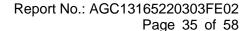








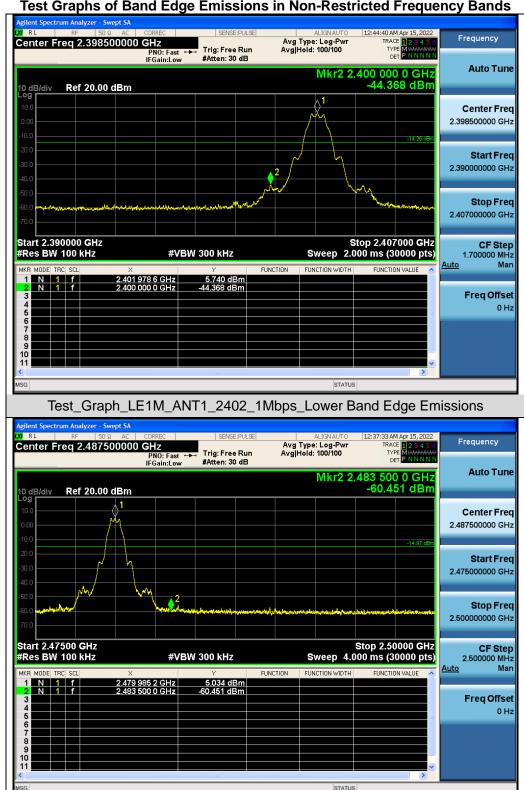






BLE GFSK 1Mbps:

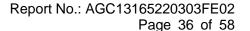
Test Graphs of Band Edge Emissions in Non-Restricted Frequency Bands



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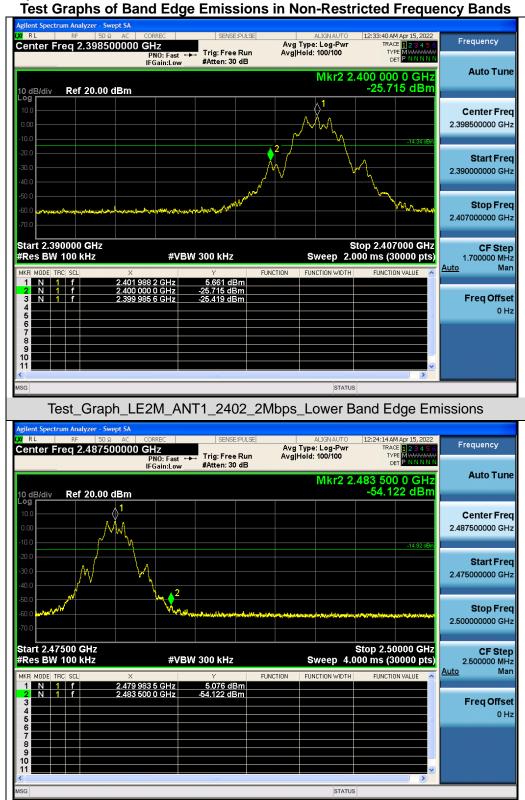
Test Graph LE1M ANT1 2480 1Mbps Higher Band Edge Emissions

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BLE GFSK 2Mbps:



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Test Graph LE2M ANT1 2480 2Mbps Higher Band Edge Emissions



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10. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY

10.1. MEASUREMENT PROCEDURE

- (1). Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- (2). Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- (3). Set the SPA Trace 1 Max hold, then View.

Note: The method of PKPSD in the KDB 558074 item 8.4 was used in this testing.

10.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

Refer to Section 7.2.

10.3. MEASUREMENT EQUIPMENT USED

Refer to Section 6.

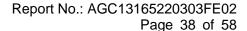
10.4. LIMITS AND MEASUREMENT RESULT

BLE GFSK 1Mbps:

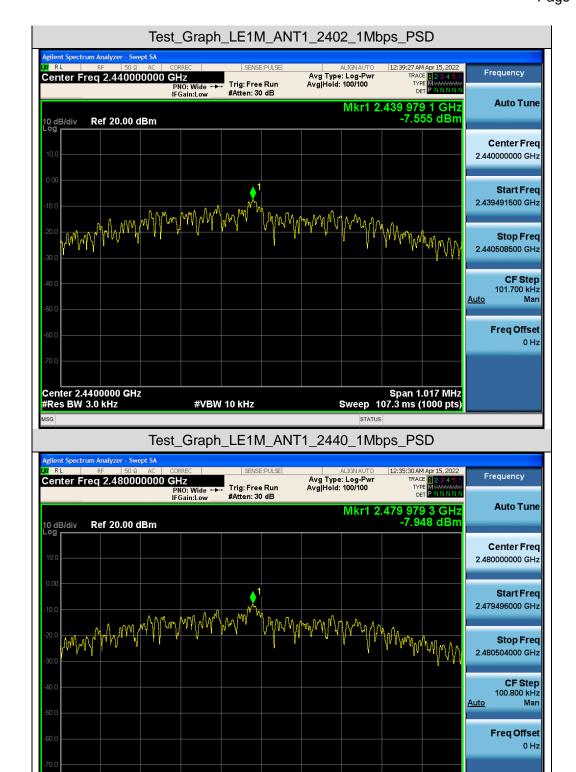
	~ :						
Test Data of Conducted Output Power Spectral Density							
Test Mode	Test Channel (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail			
	2402	-7.355	≪8	Pass			
GFSK 1M	2440	-7.555	≤8	Pass			
	2480	-7.948	≤8	Pass			

Test Graphs of Conducted Output Power Spectral Density









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Test Graph LE1M ANT1 2480 1Mbps PSD

#VBW 10 kHz

Span 1.008 MHz Sweep 106.3 ms (1000 pts)

Center 2.4800000 GHz #Res BW 3.0 kHz

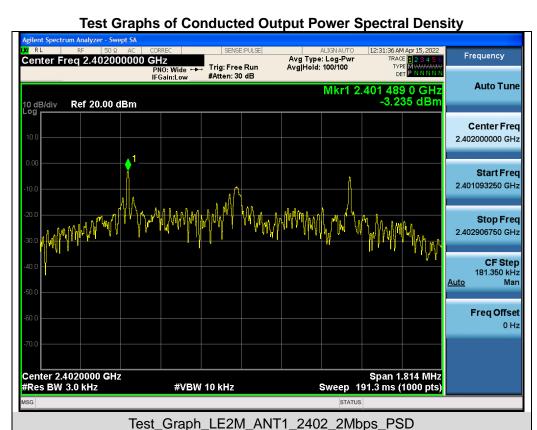
Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: http://www.agccert.com/

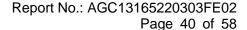


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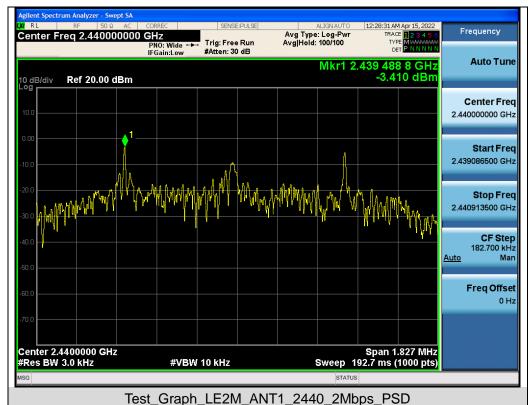
BLE GFSK 2Mbps:

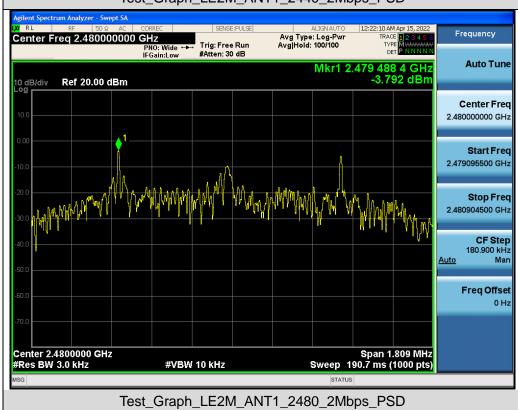
Test Data of Conducted Output Power Spectral Density							
Test Mode	Test Channel (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail			
	2402	-3.235	≤8	Pass			
GFSK 1M	2440	-3.410	≤8	Pass			
	2480	-3.792	≤8	Pass			











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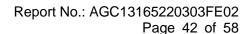


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11. RADIATED EMISSION

11.1. MEASUREMENT PROCEDURE

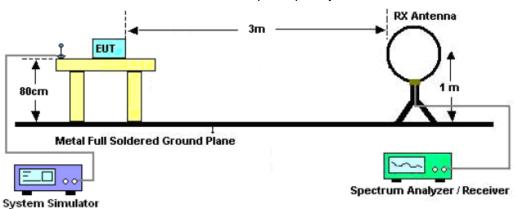
- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8.If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.



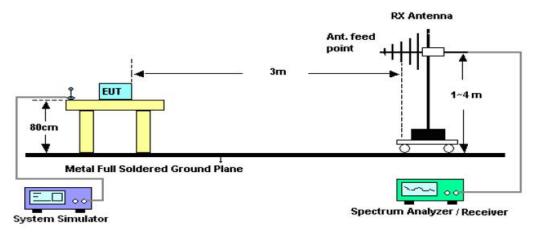


11.2. TEST SETUP

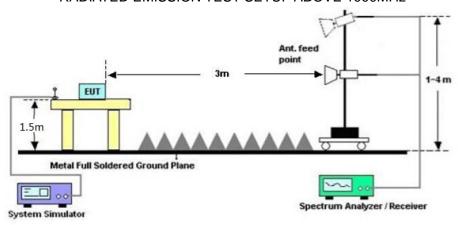
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz





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11.3. LIMITS AND MEASUREMENT RESULT

15.209 Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

11.4. TEST RESULT

Radiated emission below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

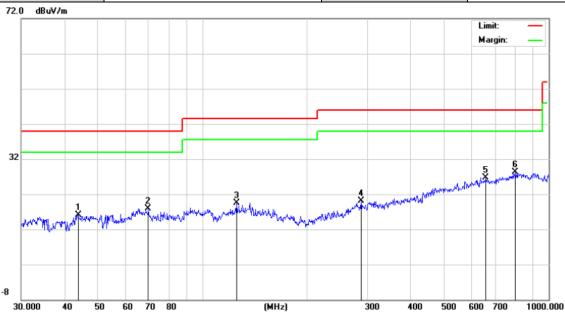


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BLE GFSK 1Mbps&BLE GFSK 2Mbps:

Radiated emission from 30MHz to 1000MHz

EUT	Clip Pro	Model Name	TH-L12M
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal



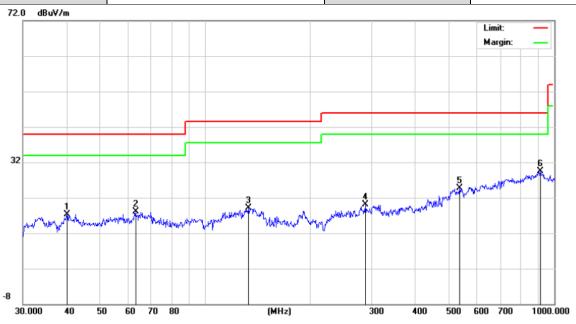
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		43.8119	6.73	9.43	16.16	40.00	-23.84	peak
2		69.8449	5.84	12.11	17.95	40.00	-22.05	peak
3	,	125.8863	6.47	13.05	19.52	43.50	-23.98	peak
4	2	286.9823	5.40	14.78	20.18	46.00	-25.82	peak
5	(658.8360	6.55	20.07	26.62	46.00	-19.38	peak
6	* (301.7862	5.93	22.41	28.34	46.00	-17.66	peak

RESULT: PASS



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EUT	Clip Pro	Model Name	TH-L12M
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		40.1347	7.21	10.07	17.28	40.00	-22.72	peak
2		63.0915	6.17	11.94	18.11	40.00	-21.89	peak
3		133.1511	5.98	13.14	19.12	43.50	-24.38	peak
4		286.9823	5.40	14.78	20.18	46.00	-25.82	peak
5		535.7073	6.72	18.05	24.77	46.00	-21.23	peak
6	*	912.8618	6.93	22.50	29.43	46.00	-16.57	peak

RESULT: PASS Note:

- 1. Factor=Antenna Factor + Cable loss, Over=Measurement-Limit.
- 2. All test modes had been tested. The mode 1 is the worst case and recorded in the report.



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BLE GFSK 1Mbps&BLE GFSK 2Mbps:

Radiated emission above 1GHz

EUT	Clip Pro	Model Name	TH-L12M
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4804.000	43.75	0.08	43.83	74	-30.17	peak
4804.000	35.54	0.08	35.62	54	-18.38	AVG
7206.000	38.62	2.21	40.83	74	-33.17	peak
7206.000	31.41	2.21	33.62	54	-20.38	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT	Clip Pro	Model Name	TH-L12M
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Tree	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type	
4804.000	44.68	0.08	44.76	74	-29.24	peak	
4804.000	34.95	0.08	35.03	54	-18.97	AVG	
7206.000	38.73	2.21	40.94	74	-33.06	peak	
7206.000	30.64	2.21	32.85	54	-21.15	AVG	

Remark:

Factor = Antenna Factor + Cable Loss - Pre-amplifier.



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EUT	Clip Pro	Model Name	TH-L12M
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4880.000	44.57	0.14	44.71	74	-29.29	peak
4880.000	35.62	0.14	35.76	54	-18.24	AVG
7320.000	39.48	2.36	41.84	74	-32.16	peak
7320.000	31.63	2.36	33.99	54	-20.01	AVG
Remark:						·

Factor = Antenna Factor + Cable Loss - Pre-amplifier.

EUT	Clip Pro	Model Name	TH-L12M
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4880.000	45.79	0.14	45.93	74	-28.07	peak
4880.000	38.52	0.14	38.66	54	-15.34	AVG
7320.000	40.33	2.36	42.69	74	-31.31	peak
7320.000	32.41	2.36	34.77	54	-19.23	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



Page 48 of 58

EUT	Clip Pro	Model Name	TH-L12M
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4960.000	44.89	0.22	45.11	74	-28.89	peak
4960.000	35.64	0.22	35.86	54	-18.14	AVG
7440.000	38.71	2.64	41.35	74	-32.65	peak
7440.000	29.52	2.64	32.16	54	-21.84	AVG
Remark:						

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT	Clip Pro	Model Name	TH-L12M
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4960.000	42.76	0.22	42.98	74	-31.02	peak
4960.000	34.35	0.22	34.57	54	-19.43	AVG
7440.000	38.41	2.64	41.05	74	-32.95	peak
7440.000	29.58	2.64	32.22	54	-21.78	AVG
Remark:	emark:					

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

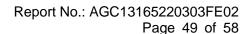
RESULT: PASS

Note

The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.

Factor = Antenna Factor + Cable loss - Amplifier gain, Margin=Level-Limit.

The "Factor" value can be calculated automatically by software of measurement system.



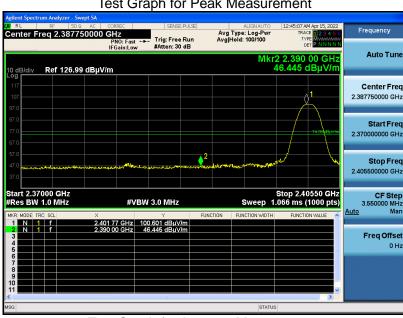


BLE GFSK 1Mbps:

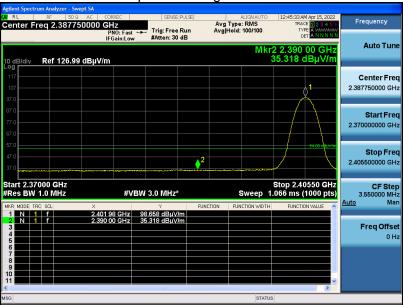
Test result for band edge emission at restricted bands

EUT	Clip Pro	Model Name	TH-L12M	
Temperature	25° C	Relative Humidity	55.4%	
Pressure	960hPa	Test Voltage	Normal Voltage	
Test Mode	Mode 1	Antenna	Horizontal	

Test Graph for Peak Measurement



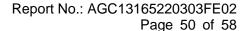




RESULT: PASS

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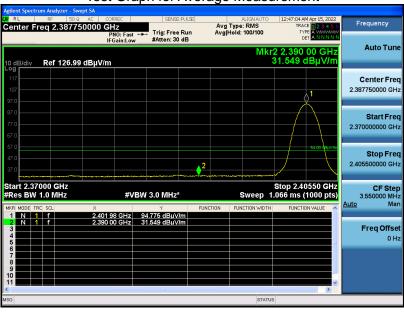




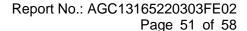
EUT	Clip Pro	Model Name	TH-L12M
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical



Test Graph for Average Measurement

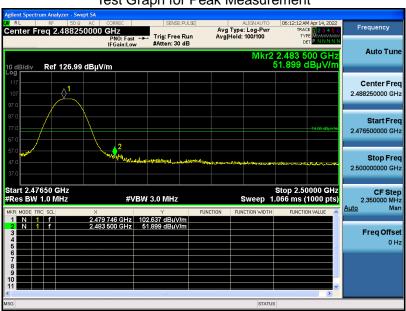


RESULT: PASS

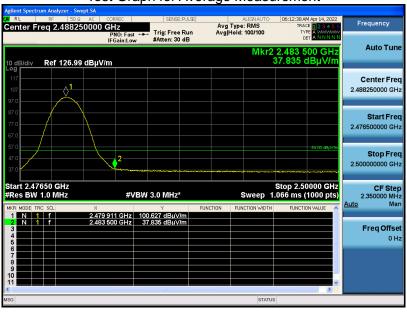




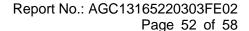
EUT	Clip Pro	Model Name	TH-L12M
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal



Test Graph for Average Measurement

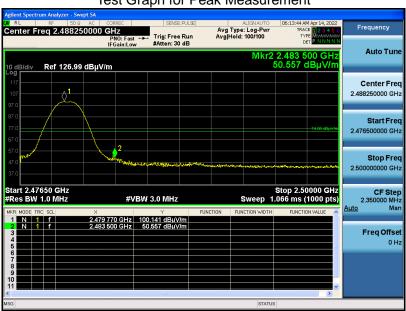


RESULT: PASS

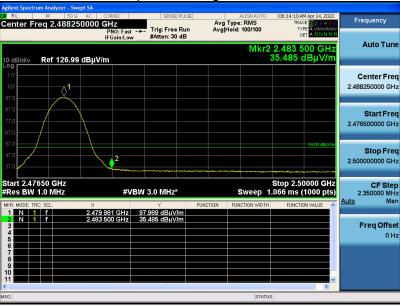




EUT	Clip Pro	Model Name	TH-L12M
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical







RESULT: PASS

Note: The factor had been edited in the "Input Correction" of the Spectrum Analyzer.



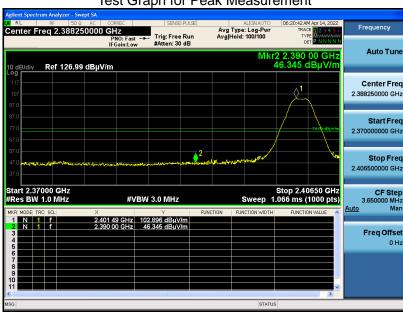


BLE GFSK 2Mbps:

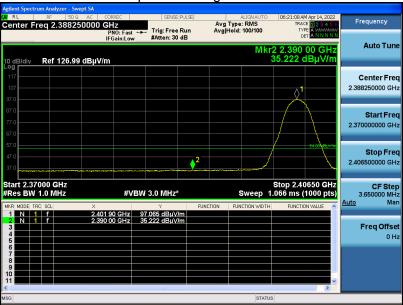
Test result for band edge emission at restricted bands

100t 100dit 10. Maria dago dimodion at 100tilotoa Mariao				
EUT	Clip Pro	Model Name	TH-L12M	
Temperature	25° C	Relative Humidity	55.4%	
Pressure	960hPa	Test Voltage	Normal Voltage	
Test Mode	Mode 1	Antenna	Horizontal	

Test Graph for Peak Measurement



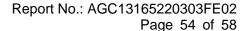




RESULT: PASS

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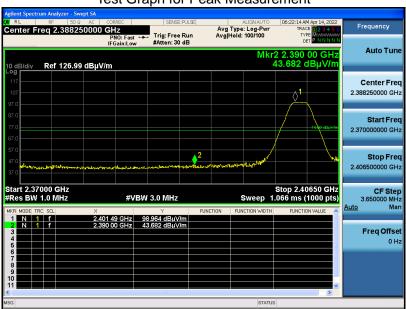
Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: http://www.agccert.com/



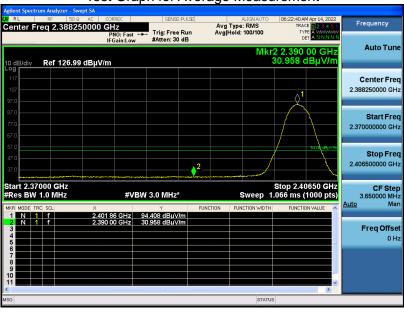


EUT Clip Pro **Model Name** TH-L12M 25° C **Temperature Relative Humidity** 55.4% 960hPa **Test Voltage** Normal Voltage **Pressure Test Mode** Mode 1 **Antenna** Vertical

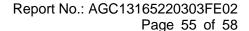
Test Graph for Peak Measurement



Test Graph for Average Measurement



RESULT: PASS

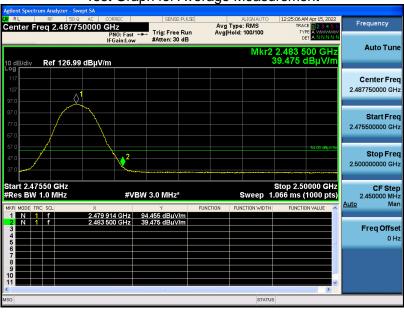




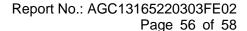
EUT	Clip Pro	Model Name	TH-L12M
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal



Test Graph for Average Measurement



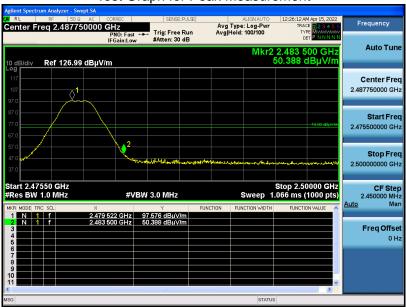
RESULT: PASS

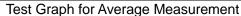


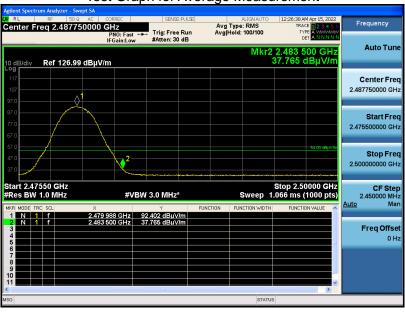


EUT Clip Pro TH-L12M **Model Name** 25° C **Temperature Relative Humidity** 55.4% 960hPa **Pressure Test Voltage** Normal Voltage **Test Mode** Mode 3 **Antenna** Vertical

Test Graph for Peak Measurement







RESULT: PASS

Note: The factor had been edited in the "Input Correction" of the Spectrum Analyzer.



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APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC13165220303AP01

APPENDIX B: PHOTOGRAPHS OF EUT Refer to the Report No.: AGC13165220303AP02

----END OF REPORT----



Conditions of Issuance of Test Reports

- 1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").
- 2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.
- 3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
- 4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
- 5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
- 6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
- 7.Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
- 8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
- 9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.