

# **FCC Test Report**

Report No.: AGC01284220901FE02

FCC ID : BBOCBPT01

**APPLICATION PURPOSE**: Original Equipment

**PRODUCT DESIGNATION**: Wireless PTT

**BRAND NAME** : COBRA

**MODEL NAME** : CCBABTPT01

**APPLICANT** : Cobra Electronics Corporation

**DATE OF ISSUE** : Sep. 21, 2022

**STANDARD(S)** : FCC Part 15.247

**REPORT VERSION**: V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd





Page 2 of 44

## REPORT REVISE RECORD

Report Versi	on Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Sep. 21, 2022	Valid	Initial Release



Page 3 of 44

## **TABLE OF CONTENTS**

1. VERIFICATION OF COMPLIANCE	5
2. GENERAL INFORMATION	6
2.1. PRODUCT DESCRIPTION	6
2.2. TABLE OF CARRIER FREQUENCYS	6
2.3. RELATED SUBMITTAL(S)/GRANT(S)	
2.4. TEST METHODOLOGY	
2.5. SPECIAL ACCESSORIES	
2.6. EQUIPMENT MODIFICATIONS	7
2.7. ANTENNA REQUIREMENT	
3. MEASUREMENT UNCERTAINTY	8
4. DESCRIPTION OF TEST MODES	g
5. SYSTEM TEST CONFIGURATION	10
5.1. CONFIGURATION OF TESTED SYSTEM	10
5.2. EQUIPMENT USED IN TESTED SYSTEM	10
5.3. SUMMARY OF TEST RESULTS	10
6. TEST FACILITY	11
7. PEAK OUTPUT POWER	12
7.1. MEASUREMENT PROCEDURE	12
7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	12
7.3. LIMITS AND MEASUREMENT RESULT	13
8. BANDWIDTH	15
8.1. MEASUREMENT PROCEDURE	15
8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	15
8.3. LIMITS AND MEASUREMENT RESULTS	15
9. CONDUCTED SPURIOUS EMISSION	19
9.1. MEASUREMENT PROCEDURE	19
9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	
9.3. MEASUREMENT EQUIPMENT USED	
9.4. LIMITS AND MEASUREMENT RESULT	19
10. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY	26



Page 4 of 44

10.1. MEASUREMENT PROCEDURE	26
10.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	26
10.3. MEASUREMENT EQUIPMENT USED	26
10.4. LIMITS AND MEASUREMENT RESULT	26
11. RADIATED EMISSION	28
11.1. MEASUREMENT PROCEDURE	28
11.2. TEST SETUP	29
11.3. LIMITS AND MEASUREMENT RESULT	30
11.4. TEST RESULT	30
12. LINE CONDUCTED EMISSION TEST	40
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST	40
12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST	40
12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST	41
12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST	
12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST	42
APPENDIX A: PHOTOGRAPHS OF TEST SETUP	44
APPENDIX B: PHOTOGRAPHS OF EUT	44



Page 5 of 44

#### 1. VERIFICATION OF COMPLIANCE

Applicant	Cobra Electronics Corporation
Address	6500 West Cortland Street Chicago, IL 60707-4013 United States
Manufacturer	Cobra Electronics Corporation
Address	6500 West Cortland Street Chicago, IL 60707-4013 United States
Factory	Cobra Electronics Corporation
Address	6500 West Cortland Street Chicago, IL 60707-4013 United States
Product Designation	Wireless PTT
Brand Name	COBRA
Test Model	CCBABTPT01
Date of test	Sep. 01, 2022 to Sep. 21, 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.

Prepared By	Cool cheng		
	Cool Cheng (Project Engineer)	Sep. 21, 2022	
Reviewed By	Calin Lin		
	Calvin Liu (Reviewer)	Sep. 21, 2022	
Approved By	Max Zhang		
•	Max Zhang (Authorized Officer)	Sep. 21, 2022	



Page 6 of 44

### 2. GENERAL INFORMATION

## 2.1. PRODUCT DESCRIPTION

The EUT is designed as a "Wireless PTT". 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	4.839dBm (Max)
Bluetooth Version	V5.0
Modulation	BR □GFSK, EDR □π /4-DQPSK, □8DPSK BLE □GFSK 1Mbps □GFSK 2Mbps
Number of channels	40 Channels
Antenna Designation	PCB Antenna (Comply with requirements of the FCC part 15.203)
Antenna Gain	1.5dBi
Hardware Version	V1.0
Software Version	1.0
Power Supply	DC 3.7V by battery or DC 5V by adapter

## 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



Page 7 of 44

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

This submittal(s) (test report) is intended for **FCC ID: BBOCBPT01** 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.



Page 8 of 44

### 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 <sub>c</sub> = ±2 %	



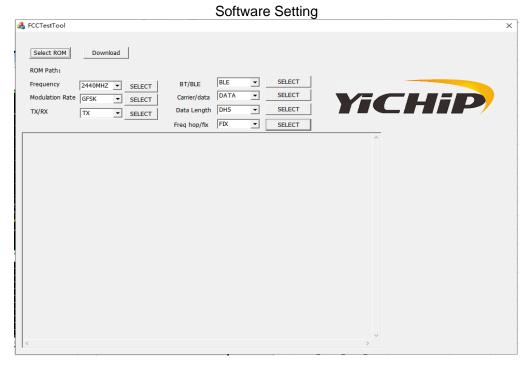
Page 9 of 44

### 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.



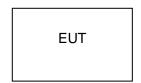


Page 10 of 44

## 5. SYSTEM TEST CONFIGURATION

#### **5.1. CONFIGURATION OF TESTED SYSTEM**

Radiated Emission Configure:



Conducted Emission Configure:

EUT	AE

## **5.2. EQUIPMENT USED IN TESTED SYSTEM**

Item	Equipment	Model No.	ID or Specification	Remark
1	Wireless PTT	CCBABTPT01	BBOCBPT01	EUT
2	Adapter	HW-050200C01	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	Compliant



Page 11 of 44

### 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 CONDUCTED EMISSION TEST**

	1201 24011 111211 01 00112 00122 21111001011 1201							
Equipment		Manufacturer	Model	S/N	Cal. Date	Cal. Due		
TES	ST RECEIVER	R&S	ESPI	101206	Mar.28, 2022	Mar.27, 2023		
LISN		R&S	ESH2-Z5	100086	Jun. 09, 2022	Jun. 08, 2023		
Test software		R&S	ES-K1(Ver.V1.71)	N/A	N/A	N/A		

#### **TEST EQUIPMENT OF RADIATED EMISSION TEST**

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Mar. 28, 2022	Mar. 27, 2023
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Nov. 17, 2021	Nov. 16, 2022
2.4GHz Filter	EM Electronics	2400-2500MHz	N/A	Mar. 23, 2022	Mar. 22, 2024
Attenuator	ZHINAN	E-002	N/A	Aug. 03, 2022	Aug. 02, 2024
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 31, 2021	Oct. 30, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Mar. 12, 2022	Mar. 11, 2024
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Aug. 03, 2022	Aug. 02, 2024
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 08, 2021	Jan. 07, 2023
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A



Page 12 of 44

### 7. PEAK OUTPUT POWER

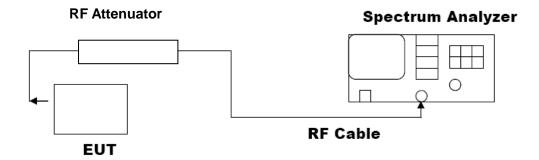
#### 7.1. MEASUREMENT PROCEDURE

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





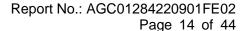
Page 13 of 44

#### 7.3. LIMITS AND MEASUREMENT RESULT

	Test Data of Conducted Output Power							
Test Mode	Test Channel (MHz)			Pass or Fail				
GFSK 1M	2402	4.839	≤30	Pass				
	2440	4.584	≤30	Pass				
	2480	3.882	≤30	Pass				

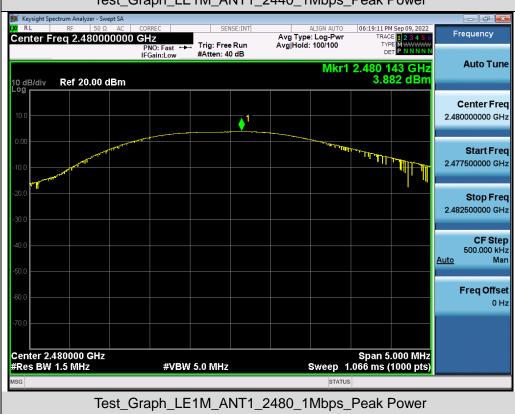
**Test Graphs of Conducted Output Power** 













Page 15 of 44

#### 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.

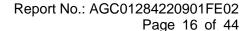
**Note:** The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

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

The same as described in section 7.2.

#### 8.3. LIMITS AND MEASUREMENT RESULTS

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	1.076	0.748	≥0.5	Pass		
GFSK 1M	2440	1.068	0.746	≥0.5	Pass		
	2480	1.068	0.745	≥0.5	Pass		



Freq Offset 0 Hz



**Test Graphs of Occupied Bandwidth** 06:06:59 PM Sep 09, 2022 Radio Std: None SENSE:INT Center Freq: 2.402000000 GHz
Trig: Free Run Avg|Hol
#Atten: 30 dB Frequency Center Freq 2.402000000 GHz Avg|Hold: 10/10 Ref 30.00 dBm Center Freq 2.402000000 GHz Center 2.402 GHz #Res BW 30 kHz Span 3 MHz Sweep 4.133 ms **CF Step #VBW 100 kHz** 300,000 kHz Man Auto 9.58 dBm **Total Power Occupied Bandwidth** 1.0760 MHz Frea Offset 0 Hz -6.999 kHz **OBW Power** 99.00 % **Transmit Freq Error** x dB Bandwidth 1.589 MHz x dB -26.00 dB Test\_Graph\_LE1M\_ANT1\_2402\_1Mbps\_OBW 06:14:18 PM Sep 09, 2022 Radio Std: None Center Freq: 2.440000000 GHz
Trig: Free Run Avg|Hol Frequency Center Freq 2.440000000 GHz Avg|Hold:>10/10 #IFGain:Low 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** <u>Auto</u> **Total Power** 10.7 dBm **Occupied Bandwidth** 1.0676 MHz

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**OBW Power** 

Test\_Graph\_LE1M\_ANT1\_2440\_1Mbps\_OBW

x dB

99.00 %

-26.00 dB

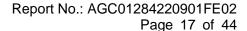
-7.785 kHz

1.331 MHz

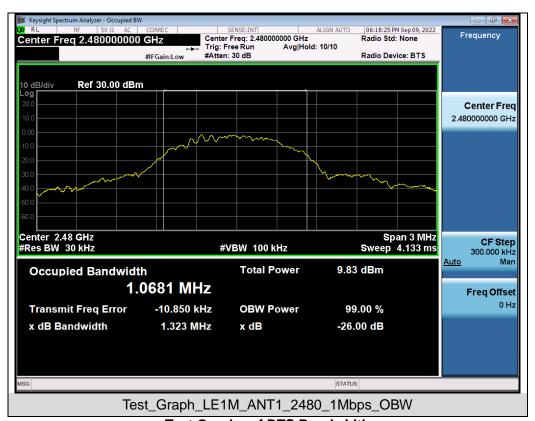
Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: http://www.agccert.com/

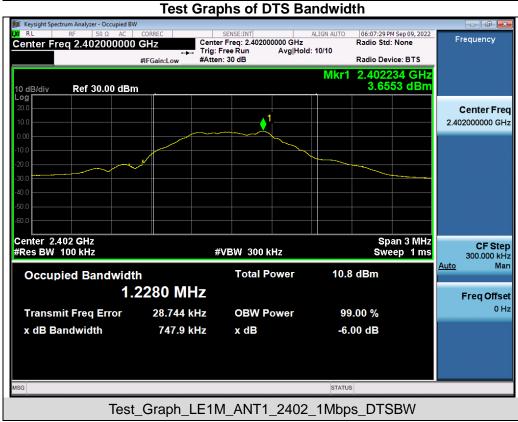
**Transmit Freq Error** 

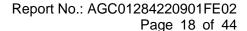
x dB Bandwidth



















Page 19 of 44

## 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)

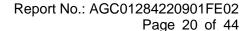
The same as described in section 7.2.

#### 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			



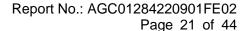


Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands



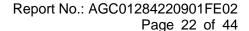
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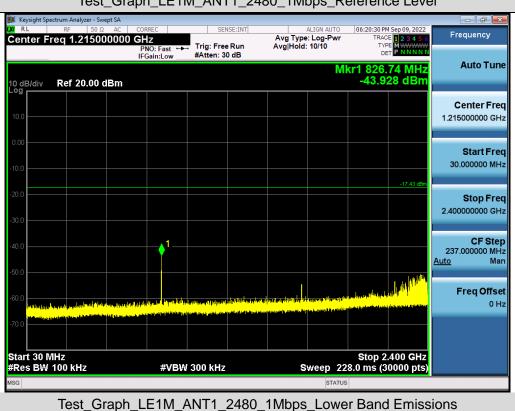


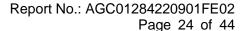






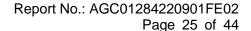




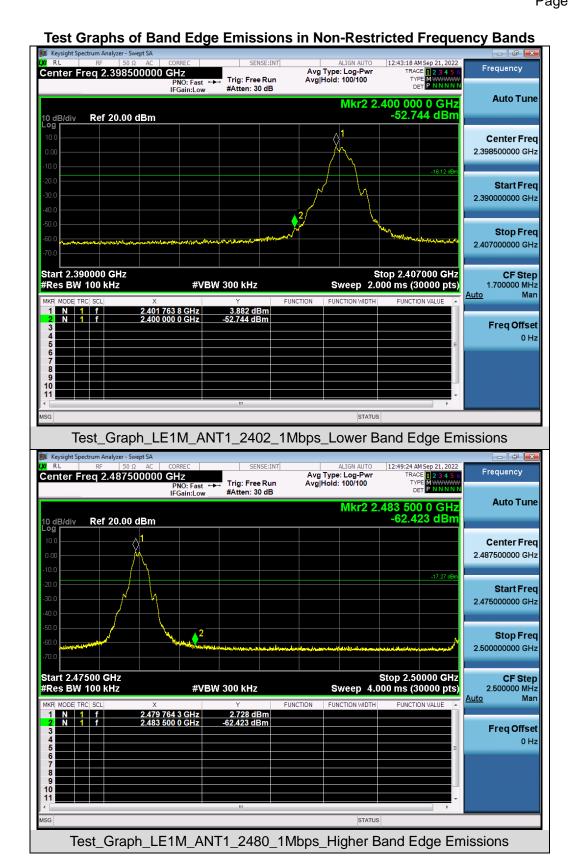














Page 26 of 44

### 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.

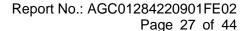
#### 10.4. LIMITS AND MEASUREMENT RESULT

Test Data of Conducted Output Power Spectral Density							
Test Mode	Test Channel (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail			
GFSK 1M	2402	-11.850	<b>≤8</b>	Pass			
	2440	-9.988	≤8	Pass			
	2480	-11.172	≪8	Pass			

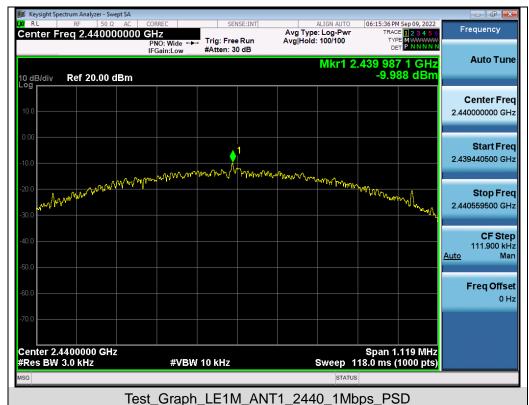
Test Graphs of Conducted Output Power Spectral Density



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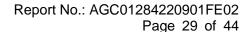


Page 28 of 44

### 11. RADIATED EMISSION

#### 11.1. MEASUREMENT PROCEDURE

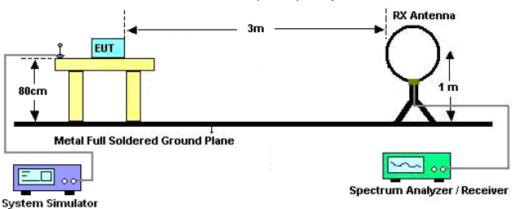
- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated 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.



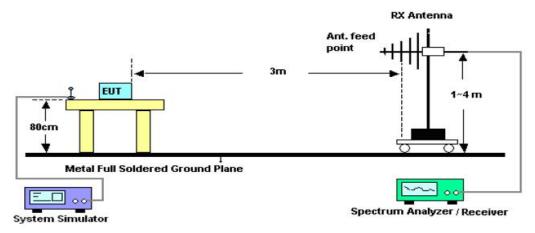


#### 11.2. TEST SETUP

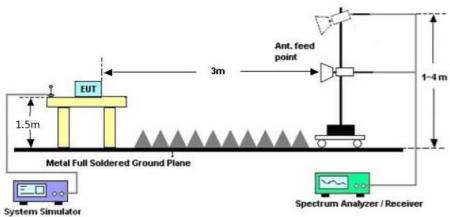
## Radiated Emission Test-Setup Frequency Below 30MHz



#### RADIATED EMISSION TEST SETUP 30MHz-1000MHz



### RADIATED EMISSION TEST SETUP ABOVE 1000MHz





Page 30 of 44

## 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

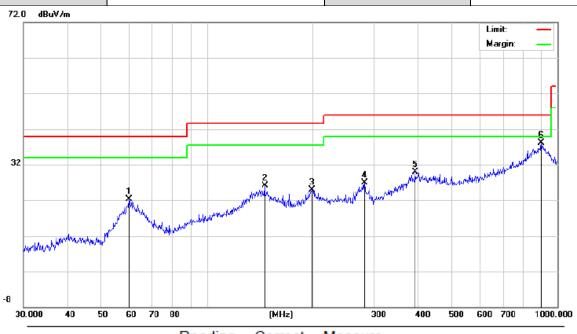
The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.



Page 31 of 44

## Radiated emission from 30MHz to 1000MHz

EUT	Wireless PTT	Model Name	CCBABTPT01
Temperature	23° C	Relative Humidity	56%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal



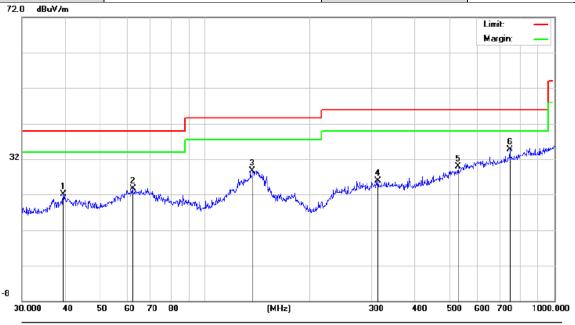
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		60.0691	5.96	16.44	22.40	40.00	-17.60	peak
2		146.3735	6.83	19.18	26.01	43.50	-17.49	peak
3		199.2855	4.95	19.95	24.90	43.50	-18.60	peak
4		281.9946	5.32	21.49	26.81	46.00	-19.19	peak
5	,	393.4723	6.57	23.27	29.84	46.00	-16.16	peak
6	*	900.1474	6.21	31.86	38.07	46.00	-7.93	peak

**RESULT: PASS** 



Page 32 of 44

EUT	Wireless PTT	Model Name	CCBABTPT01
Temperature	23° C	Relative Humidity	56%
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		39.4371	6.29	15.77	22.06	40.00	-17.94	peak
2		62.2128	5.85	17.92	23.77	40.00	-16.23	peak
3		136.9391	5.26	23.42	28.68	43.50	-14.82	peak
4	,	313.2760	5.44	20.40	25.84	46.00	-20.16	peak
5	ļ	530.1014	6.06	23.88	29.94	46.00	-16.06	peak
6	*	744.8660	7.62	27.16	34.78	46.00	-11.22	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.



Page 33 of 44

## Radiated emission above 1GHz

EUT	Wireless PTT	Model Name	CCBABTPT01
Temperature	23° C	Relative Humidity	56%
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	43.43	0.08	43.51	74	-30.49	peak
4804.000	35.35	0.08	35.43	54	-18.57	AVG
7206.000	38.68	2.21	40.89	74	-33.11	peak
7206.000	31.24	2.21	33.45	54	-20.55	AVG

Remark:

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

EUT	Wireless PTT	Model Name	CCBABTPT01
Temperature	23° C	Relative Humidity	56%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4804.000	44.29	0.08	44.37	74	-29.63	peak
4804.000	34.85	0.08	34.93	54	-19.07	AVG
7206.000	38.23	2.21	40.44	74	-33.56	peak
7206.000	30.67	2.21	32.88	54	-21.12	AVG

Remark

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



Page 34 of 44

EUT	Wireless PTT	Model Name	CCBABTPT01
Temperature	23° C	Relative Humidity	56%
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	44.67	0.14	44.81	74	-29.19	peak
4880.000	35.78	0.14	35.92	54	-18.08	AVG
7320.000	39.71	2.36	42.07	74	-31.93	peak
7320.000	31.56	2.36	33.92	54	-20.08	AVG
Remark:				•		•

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

EUT	Wireless PTT	Model Name	CCBABTPT01
Temperature	23° C	Relative Humidity	56%
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	45.15	0.14	45.29	74	-28.71	peak
4880.000	38.14	0.14	38.28	54	-15.72	AVG
7320.000	40.42	2.36	42.78	74	-31.22	peak
7320.000	32.47	2.36	34.83	54	-19.17	AVG

Remark:

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



Page 35 of 44

EUT	Wireless PTT	Model Name	CCBABTPT01
Temperature	23° C	Relative Humidity	56%
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	44.69	0.22	44.91	74	-29.09	peak
4960.000	35.37	0.22	35.59	54	-18.41	AVG
7440.000	38.75	2.64	41.39	74	-32.61	peak
7440.000	29.44	2.64	32.08	54	-21.92	AVG
Domorla						
Remark:						

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

EUT	Wireless PTT	Model Name	CCBABTPT01
Temperature	23° C	Relative Humidity	56%
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	42.97	0.22	43.19	74	-30.81	peak
4960.000	34.06	0.22	34.28	54	-19.72	AVG
7440.000	38.69	2.64	41.33	74	-32.67	peak
7440.000	29.75	2.64	32.39	54	-21.61	AVG
Remark:						

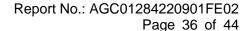
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

#### **RESULT: PASS**

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.

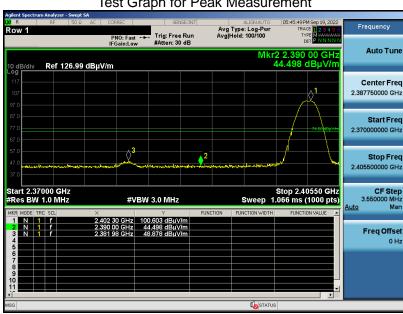


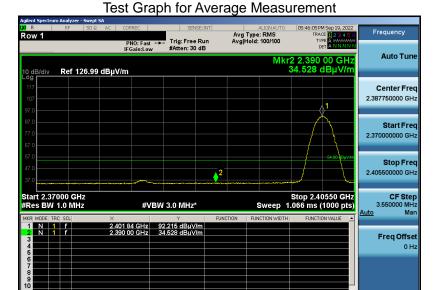


Test result for band edge emission at restricted bands

EUT	Wireless PTT	Model Name	CCBABTPT01
Temperature	23° C	Relative Humidity	56%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

Test Graph for Peak Measurement

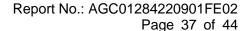




**RESULT: PASS** 

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

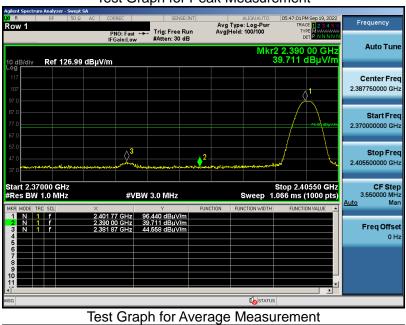


**Auto Tune** 

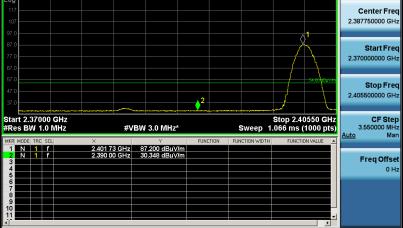


**EUT** Wireless PTT **Model Name** CCBABTPT01 23° C **Temperature Relative Humidity** 56% 960hPa **Test Voltage** Normal Voltage **Pressure Test Mode** Mode 1 **Antenna** Vertical

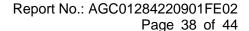
Test Graph for Peak Measurement







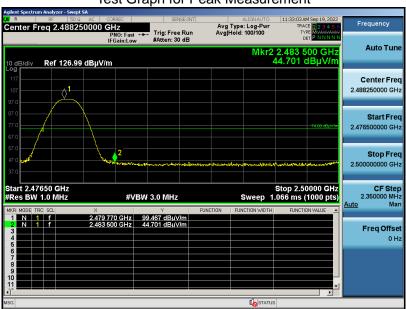
**RESULT: PASS** 

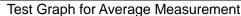


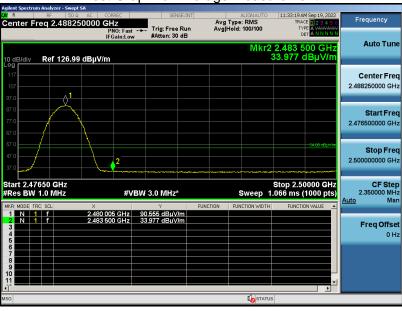


**EUT** Wireless PTT **Model Name** CCBABTPT01 23° C **Temperature Relative Humidity** 56% 960hPa **Test Voltage** Normal Voltage **Pressure Test Mode** Mode 3 **Antenna** Horizontal

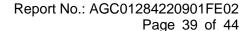
Test Graph for Peak Measurement







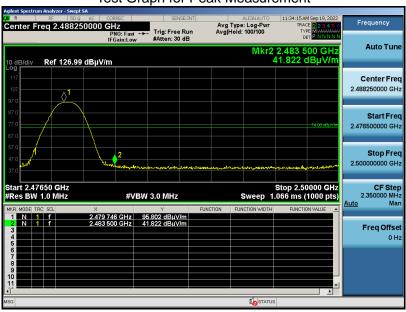
**RESULT: PASS** 



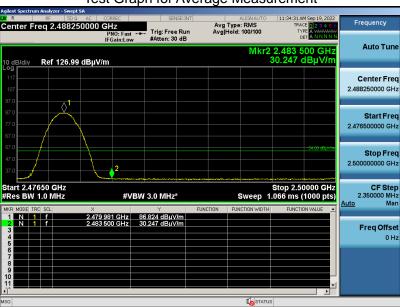


Wireless PTT **EUT** CCBABTPT01 **Model Name** 23° C **Temperature Relative Humidity** 56% 960hPa Normal Voltage **Pressure Test Voltage Test Mode** Mode 3 **Antenna** Vertical

Test Graph for Peak Measurement







#### **RESULT: PASS**

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



Page 40 of 44

### 12. LINE CONDUCTED EMISSION TEST

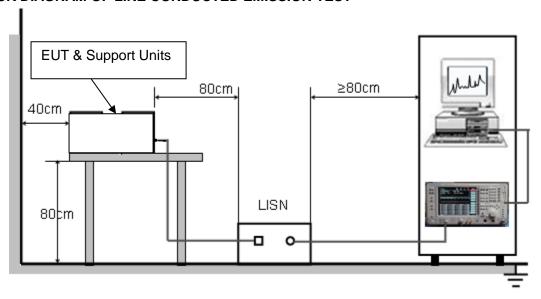
## 12.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Francisco	Maximum RF Line Voltage				
Frequency	Q.P.( dBuV)	Average( dBuV)			
150kHz~500kHz	66-56	56-46			
500kHz~5MHz	56	46			
5MHz~30MHz	60	50			

#### Note:

- 1. The lower limit shall apply at the transition frequency.
- 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

#### 12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST





Page 41 of 44

#### 12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

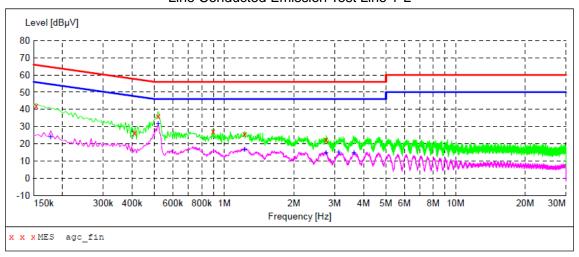
#### 12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- 2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case condition(s) was reported on the Summary Data page.



## 12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

#### Line Conducted Emission Test Line 1-L



## MEASUREMENT RESULT: "agc fin"

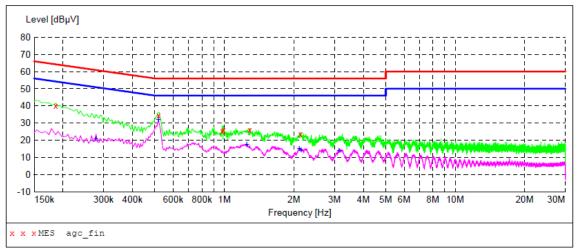
2022/9/13 23:	: 31					
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.154000	42.00	6.9	66	23.8	QP	L1
0.410000	26.60	5.7	58	31.0	QP	L1
0.518000	36.30	5.4	56	19.7	QP	L1
0.894000	27.40	5.4	56	28.6	QP	L1
1.222000	25.60	5.7	56	30.4	QP	L1
2.754000	22.60	6.5	56	33.4	OP	T.1

## MEASUREMENT RESULT: "agc fin2"

2022/9/13 23:	29					
Frequency MHz	Level dBµV		Limit dBµV	Margin dB	Detector	Line
0.178000	24.30	6.7	55	30.3	AV	L1
0.518000	31.70	5.4	46	14.3	AV	L1
1.226000	17.00	5.7	46	29.0	AV	L1
2.754000	14.90	6.5	46	31.1	AV	L1
3.126000	15.10	6.5	46	30.9	AV	L1
3.634000	14.80	6.5	46	31.2	AV	L1







## MEASUREMENT RESULT: "agc fin"

2022/	9/	13	23	:26	)
Fr	eq	uen	су		Le

 /22/ 5/ 15 25.	20					
Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line
0.186000	40.10	6.6	64		~	N
0.518000	34.70	5.4	56	21.3	QP	N
0.978000	25.30	5.4	56	30.7	QP	N
0.990000	25.90	5.4	56	30.1	QP	N
1.286000	25.90	5.8	56	30.1	QP	N
2.138000	23.80	6.5	56	32.2	QP	N

## MEASUREMENT RESULT: "agc fin2"

2022/9/13 23:23

4 U	22/9/13 23:	43					
	Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
	0.278000	20.90	6.1	51	30.0	ΑV	N
	0.518000	32.00	5.4	46	14.0	VA	N
	1.250000	17.50	5.8	46	28.5	VA	N
	2.110000	15.10	6.5	46	30.9	VA	N
	2.150000	14.60	6.5	46	31.4	VA	N
	3.142000	14.20	6.5	46	31.8	VA	N

## **RESULT: PASS**

All test modes had been pre-tested. The mode 1 is the worst case and recorded in the report.



Page 44 of 44

### APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC01284220901AP01

APPENDIX B: PHOTOGRAPHS OF EUT

Refer to the Report No.: AGC01284220901AP02

----END OF REPORT----



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- 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.
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- 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.