





FCC C2PC Test Report

FCC ID : 2ASKHAQG01

Equipment : ArrowGVI-IP67

Model No. : 4-6201-10

(Please refer to section 1.1.1 for more details)

Brand Name : PHILLIPS CONNECT TECHNOLOGIES

Applicant : PHILLIPS CONNECT TECHNOLOGIES LLC

Address : 5231 California Avenue, Suite 110, Irvine,

California 92617, United States

Standard : 47 CFR FCC Part 15.247

Received Date : Mar. 30, 2022

Tested Date : Apr. 25 ~ Apr. 26, 2022

We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: Approved by:

Along Cheh// Assistant Manager Gary Chang / Manag

Report No.: FR233001AE Page: 1 of 12



Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information	5
1.2	Local Support Equipment List	
1.3	Test Setup Chart	
1.4	Test Equipment List and Calibration Data	7
1.5	Test Standards	7
1.6	Reference Guidance	7
1.7	Deviation from Test Standard and Measurement Procedure	7
1.8	Measurement Uncertainty	
2	TEST CONFIGURATION	g
2.1	Testing Facility	g
2.2	The Worst Test Modes and Channel Details	
3	TRANSMITTER TEST RESULTS	10
3.1	Unwanted Emissions in Restricted Frequency Bands	10
4	TEST LABORATORY INFORMATION	12

Appendix A. Unwanted Emissions into Restricted Frequency Bands



Release Record

Report No.	Version	Description	Issued Date
FR233001AE	Rev. 01	Initial issue	May 25, 2022

Report No.: FR233001AE Page: 3 of 12



Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.247(d)	Howanted Emissions	[dBuV/m at 3m]: 4804.00MHz	Door
15.209	Unwanted Emissions	43.48 (Margin -10.52dB) - AV	Pass

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Report No.: FR233001AE Page: 4 of 12



1 General Description

1.1 Information

This is a Class II Permissive Change report (C2PC).

Difference: different enclosure for adding O-ring, remove sim door, lens and connector with extension cable and replace user manual for C2PC.

1.1.1 Product Details

Brand Name	Model Name	Product Name	Product Description
PHILLIPS CONNECT TECHNOLOGIES	4-6201-10	ArrowGVI-IP67	LTE Cellular GPS Tracker

1.1.2 Specification of the Equipment under Test (EUT)

RF General Information						
Frequency Range (MHz) Bluetooth Ch. Freq. (MHz) Channel Number				Data Rate		
2400-2483.5	V5.0 LE	2402-2480	0.20 [40]	1 Mbps		
2400-2463.5	0-39 [40]	2 Mbps				
Note: Bluetooth LE (Low energy) uses GFSK modulation.						

1.1.3 Antenna Details

Ant. No.	Туре	Connector	Gain (dBi)
1	Chip	No	3.6

1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	DC 12V

1.1.5 Accessories

N/A

Report No.: FR233001AE Page: 5 of 12

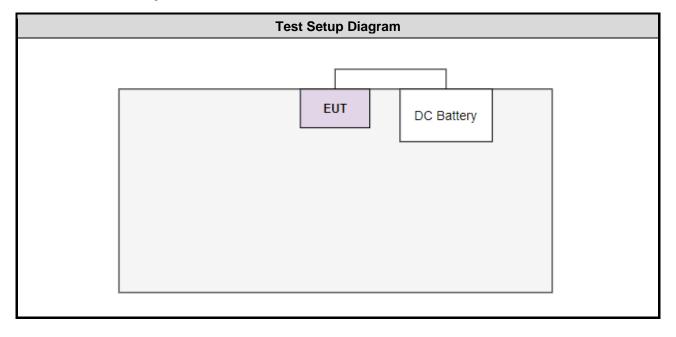


1.2 Local Support Equipment List

Support Equipment List							
No. Equipment Brand Model FCC ID Remarks							
1	Notebook	DELL	Latitude E5470	DoC			
2	DC Battery	YUASA	TX-46B24R				

Note: The support notebook was disconnected from EUT and was removed from test table after sending command from notebook to control EUT to transmit continuously.

1.3 Test Setup Chart



Report No.: FR233001AE Page: 6 of 12



1.4 Test Equipment List and Calibration Data

Test Item	Radiated Emission						
Test Site	966 chamber1 / (03CH01-WS)						
Tested Date	Apr. 25 ~ Apr. 26, 202	Apr. 25 ~ Apr. 26, 2022					
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until		
Receiver	R&S	ESR3	101657	Mar. 15, 2022	Mar. 14, 2023		
Spectrum Analyzer	R&S	FSV40	101498	Nov. 29, 2021	Nov. 28, 2022		
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 08, 2021	Nov. 07, 2022		
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jun. 30, 2021	Jun. 29, 2022		
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 03, 2021	Dec. 02, 2022		
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170508	Jan. 11, 2022	Jan. 10, 2023		
Preamplifier	EMC	EMC02325	980225	Jun. 29, 2021	Jun. 28, 2022		
Preamplifier	Agilent	83017A	MY39501308	Sep. 28, 2021	Sep. 27, 2022		
Preamplifier	EMC	EMC184045B	980192	Jul. 14, 2021	Jul. 13, 2022		
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 05, 2021	Oct. 04, 2022		
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 05, 2021	Oct. 04, 2022		
LF cable 11M	EMC	EMCCFD400-NW-N W-11000	200801	Oct. 05, 2021	Oct. 04, 2022		
LF cable 1M	EMC	EMCCFD400-NM-N M-1000	160502	Oct. 05, 2021	Oct. 04, 2022		
RF Cable	EMC	EMC104-35M-35M- 8000	210920	Oct. 05, 2021	Oct. 04, 2022		
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 05, 2021	Oct. 04, 2022		
Measurement Software	AUDIX	e3	6.120210g	NA	NA		

1.5 Test Standards

47 CFR FCC Part 15.247 ANSI C63.10-2013

1.6 Reference Guidance

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

1.7 Deviation from Test Standard and Measurement Procedure

None

Report No.: FR233001AE Page: 7 of 12



1.8 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Measurement Uncertainty		
Parameters	Uncertainty	
Unwanted Emission ≤ 1GHz	±3.41 dB	
Unwanted Emission > 1GHz	±4.59 dB	

Report No.: FR233001AE Page: 8 of 12



2 Test Configuration

2.1 Testing Facility

Test Laboratory International Certification Corporation		
Test Site	03CH01-WS	
Address of Test Site	No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)	

FCC Designation No.: TW2732FCC site registration No.: 181692

➤ ISED#: 10807A

➤ CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Test item	Mode	Test Frequency (MHz)	Test Configuration
Unwanted Emissions ≤ 1GHz	BLE	2480	
Unwanted Emissions > 1GHz	BLE	2402	

NOTE:

Report No.: FR233001AE Page: 9 of 12

^{1.} The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Y-plane** results were found as the worst case and were shown in this report.



3 Transmitter Test Results

3.1 Unwanted Emissions in Restricted Frequency Bands

3.1.1 Limit of Unwanted Emissions in Restricted Frequency Bands

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1

Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit **Note 2**:

Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

3.1.2 Test Procedures

- 1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
- 2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
- 3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

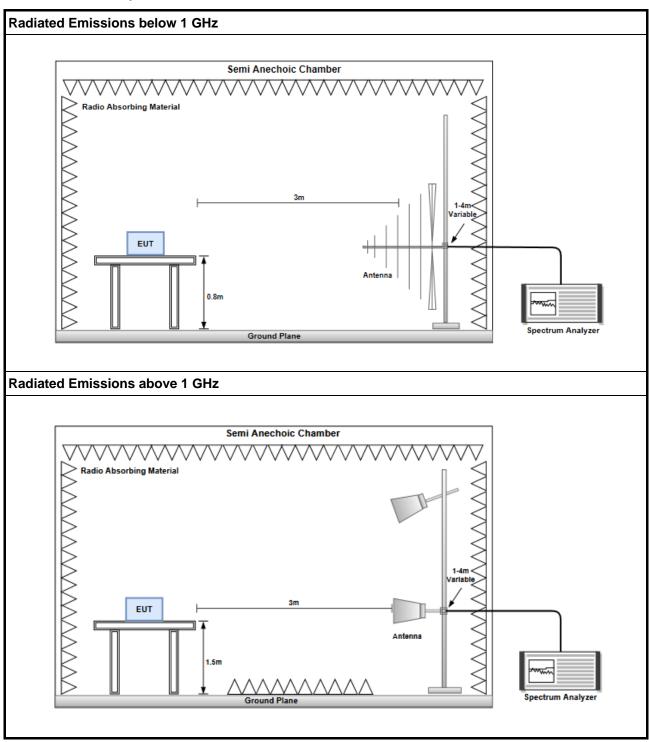
Note:

- 1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
- 2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
- 3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

Report No.: FR233001AE Page: 10 of 12



3.1.3 Test Setup



3.1.4 Test Results

Refer to Appendix A.

Report No.: FR233001AE Page: 11 of 12



4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corporation (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website http://www.icertifi.com.tw.

Linkou

Tel: 886-2-2601-1640 No.30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan (R.O.C.)

Kwei Shan

Tel: 886-3-271-8666
No.3-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)
No.2-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)

Kwei Shan Site II

Tel: 886-3-271-8640 No.14-1, Lane 19, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 333, Taiwan (R.O.C.)

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666 Fax: 886-3-318-0155

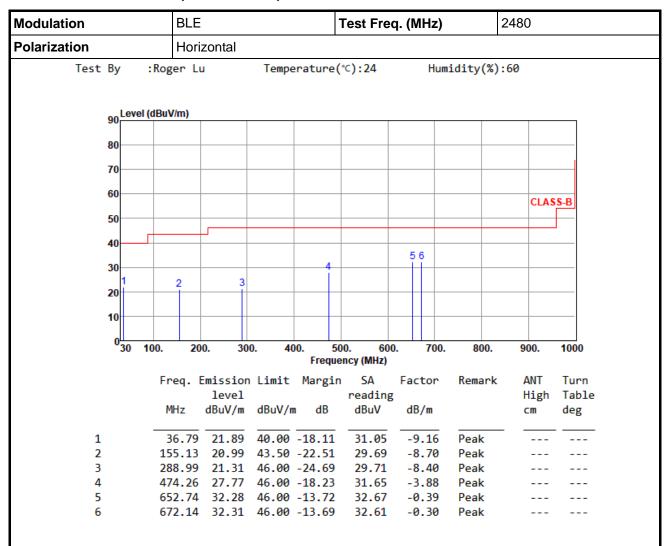
Email: ICC Service@icertifi.com.tw

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Report No.: FR233001AE Page: 12 of 12



Unwanted Emissions (Below 1GHz)



Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

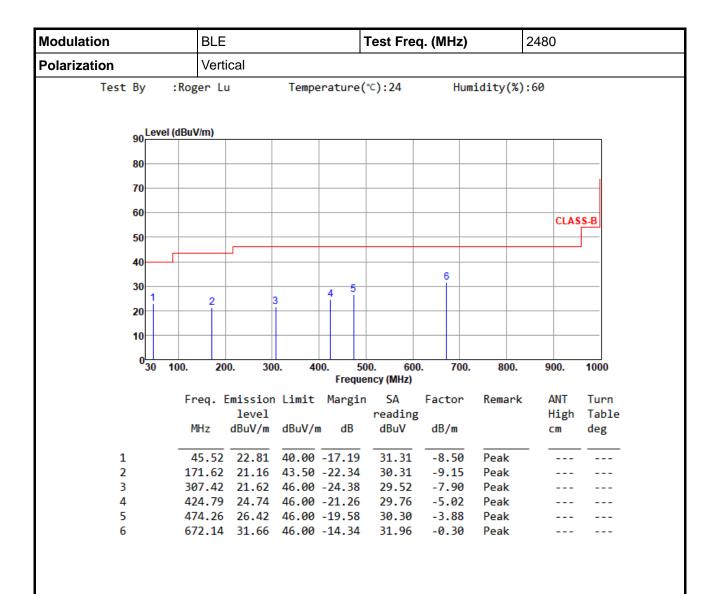
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Page No. : 1 of 4





Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

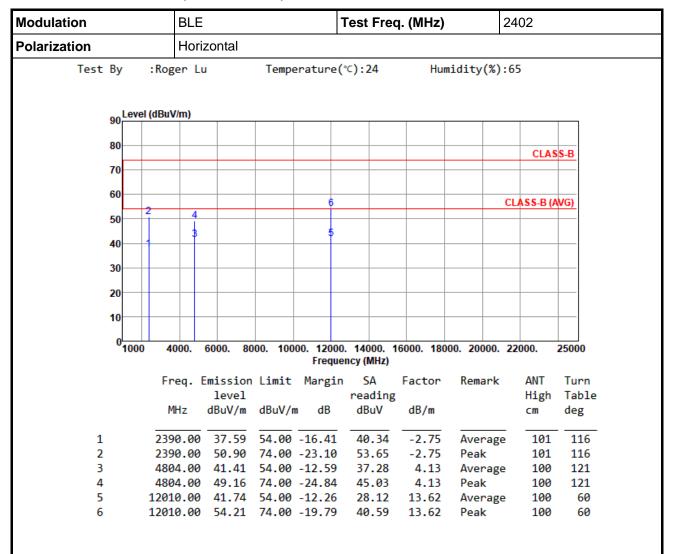
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.



Unwanted Emissions (Above 1GHz)

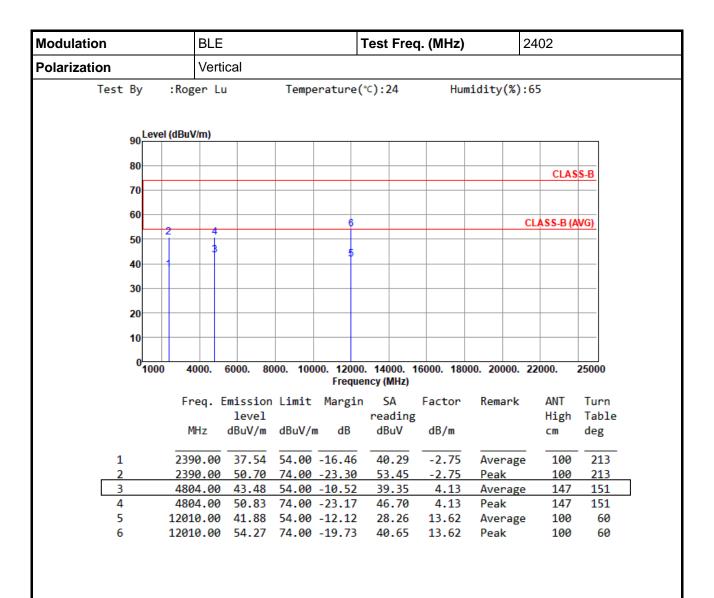


Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).





Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).