





FCC C2PC Co-Location Test Report

FCC ID : MXF-W1700K

Equipment : Wi-Fi 7 Router

Model No. : W1700K
Brand Name : Q Fiber

Applicant : Gemtek Technology Co., Ltd.

Address : No. 15-1 Zhonghua Road, Hsinchu Industrial

Park, Hukou, Hsinchu, Taiwan, 30352.

Standard : 47 CFR FCC Part 15.247

47 CFR FCC Part 15.407

Received Date : Jun. 27, 2023 Tested Date : Oct. 30, 2023

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 Cheld/ Assistant Manager Gary Chang / Manager

Report No.: FR362704-01CO Page: 1 of 13



Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information	5
1.2	The Equipment List	7
1.3	Test Standards	8
1.4	Reference Guidance	8
1.5	Deviation from Test Standard and Measurement Procedure	8
1.6	Measurement Uncertainty	8
2	TEST CONFIGURATION	9
2.1	Testing Facility	9
2.2	The Worst Test Modes and Channel Details	9
3	TRANSMITTER TEST RESULTS	10
3.1	Unwanted Emissions into Restricted Frequency Bands	10
4	TEST LABORATORY INFORMATION	13

Appendix A. Unwanted Emissions Into Restricted Frequency Bands



Release Record

Report No.	Version	Description	Issued Date
FR362704-01CO	Rev. 01	Initial issue	Mar. 18, 2024

Report No.: FR362704-01CO Page : 3 of 13



Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.247(d)			
15.407(b)	Radiated Emissions	[dBuV/m at 3m]: 53.39MHz 34.16 (Margin -5.84dB) - QP	Pass
15.209		(maigin ele lab) (al	

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.: FR362704-01CO Page: 4 of 13



1 General Description

1.1 Information

This report is issued as a Class II Permissive Change.

The modification is adding absorber and stainless steel antenna. Therefore, related test items had been performed and presented in the following sections.

1.1.1 Specification of the Equipment under Test (EUT)

WLAN						
Operating Frequency	802.11b/g/n/ax/be: 2412 MHz ~ 2462 MHz 802.11a/n/ac/ax/be: 5180 MHz ~ 5240 MHz, 5745 ~ 5825 MHz, 5925 MHz ~ 6425 MHz; 6425 MHz ~ 6525 MHz; 6525 MHz ~ 6875 MHz; 6875 MHz ~ 7125 MHz					
Modulation Type	802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n/ac/ax/be: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM / 4096QAM)					
ВТ						
Operating Frequency	2402 MHz ~ 2480 MHz					
Modulaton Type	Bluetooth LE: GFSK					

Report No.: FR362704-01CO Page : 5 of 13



1.1.2 Antenna Details

WiFi 2.4G / 5G

Ant.	Brand	Drand Madel	Time	ype Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)				
No.	Brand	Model	туре		2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850
1	Gemtek	WAPE-269BE_Dual_Ant1	PIFA	UFL	2.06	2.52	1.65	1.52	2.35
2	Gemtek	WAPE-269BE_Dual_Ant2	PIFA	UFL	1.82	2.02	2.25	1.38	1.2
3	Gemtek	WAPE-269BE_Dual_Ant3	PIFA	UFL	1.11	1.88	1.48	1.65	1.22
4	Gemtek	WAPE-269BE_Dual_Ant4	PIFA	UFL	3.1	3.3	2.63	2.13	2.54

WiFi 6G

	VIII TOC							
Ant.	Brand	Model	Туре	Connector	Operating Frequencies (MHz) / Gain (dBi)			
No.	Diana	model			5925~6425	6425~6525	6525~6875	6875~7125
1	Gemtek	WAPE-269BE_6E_Ant1	PIFA	UFL	1.93	1.63	2.07	1.37
2	Gemtek	WAPE-269BE_6E_Ant2	PIFA	UFL	3.15	2.11	3.23	1.68
3	Gemtek	WAPE-269BE_6E_Ant3	PIFA	UFL	3.26	2.19	3.36	2.12
4	Gemtek	WAPE-269BE_6E_Ant4	PIFA	UFL	1.93	1.52	1.12	1.21

BLE

Ant. No.	Туре	Connector	Gain (dBi)
1	PIFA	NA	2.94

1.1.3 Power Supply Type of Equipment under Test (EUT)

Report No.: FR362704-01CO Page: 6 of 13



1.2 The Equipment List

Test Item	Radiated Emission						
Test Site	966 chamber1 / (03CH01-WS)						
Tested Date	Oct. 30, 2023						
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until		
Receiver	R&S	ESR3	101657	Mar. 03, 2023	Mar. 02, 2024		
Spectrum Analyzer	R&S	FSV40	101498	Nov. 21, 2022	Nov. 20, 2023		
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 01, 2022	Oct. 31, 2023		
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 31, 2023	Jul. 30, 2024		
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Nov. 25, 2022	Nov. 24, 2023		
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170508	Dec. 30, 2022	Dec. 29, 2023		
Preamplifier	EMC	EMC02325	980225	Jun. 28, 2023	Jun. 27, 2024		
Preamplifier	EMC	EMC118A45SE	980898	Jul. 14, 2023	Jul. 13, 2024		
Preamplifier	EMC	EMC184045SE	980903	Jul. 17, 2023	Jul. 16, 2024		
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 03, 2023	Oct. 02, 2024		
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 03, 2023	Oct. 02, 2024		
LF cable 11M	EMC	EMCCFD400-NW-N W-11000	200801	Oct. 03, 2023	Oct. 02, 2024		
LF cable 1M EMC		EMCCFD400-NM-N M-1000	160502	Oct. 03, 2023	Oct. 02, 2024		
RF Cable	EMC	EMC104-35M-35M- 8000	210920	Oct. 03, 2023	Oct. 02, 2024		
RF Cable	EMC	EMC104-35M-35M- 3000	210922	Oct. 03, 2023	Oct. 02, 2024		
Attenuator	Pasternack	PE7005-10	10-1	Oct. 05, 2023	Oct. 04, 2024		
HIGHPASS FILTER 3.1-18G	WHK	WHK3.1/18G-10SS	39	Oct. 05, 2023	Oct. 04, 2024		
HIGHPASS FILTER 7-18G	K&L	11SH10-7000/T1800 0-O/OP	18	Oct. 05, 2023	Oct. 04, 2024		
HIGHPASS FILTER 7.5-18G	STI	STI15-9722	STI-HP7.5G-A	Oct. 05, 2023	Oct. 04, 2024		
Measurement Software	AUDIX	e3	6.120210g	NA	NA		

Report No.: FR362704-01CO Page: 7 of 13



1.3 Test Standards

47 CFR FCC Part 15.247 47 CFR FCC Part 15.407 ANSI C63.10-2013

1.4 Reference Guidance

FCC KDB 558074 D01 15.247 Meas Guidance v05r02
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
FCC KDB 412172 D01 Determining ERP and EIRP v01r01
FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01

1.5 Deviation from Test Standard and Measurement Procedure

None

1.6 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.: FR362704-01CO Page: 8 of 13



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 Modulation Mode				
Unwanted Emissions	Test Mode1: 2.4G 11be EHT20 CH6 + 5G 11a CH149 + 6G 11be EHT320 CH31 Test Mode2: BLE CH39 + 5G 11a CH149 + 6G 11be EHT320 CH31			
NOTE: The selected channel is the maximum power channel of Wi-Fi mode + BT.				

Report No.: FR362704-01CO Page: 9 of 13



3 Transmitter Test Results

3.1 Unwanted Emissions into Restricted Frequency Bands

3.1.1 Limit of Unwanted Emissions into 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.

Un-restricted band emissions above 1GHz Limit			
Operating Band	Limit		
5.15 - 5.25 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]		
5.25 - 5.35 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]		
5.47 - 5.725 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]		
5.725 - 5.850 GHz	All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Report No.: FR362704-01CO Page: 10 of 13



Un-restricted band emissions above 1GHz Limit				
Operating Band	PK Limit	AV Limit		
5.925 – 7.125 GHz	e.i.r.p7 dBm [88.2 dBuV/m@3m]	e.i.r.p27 dBm [68.2 dBuV/m@3m]		

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

3.1.2 Test Procedures

- 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.

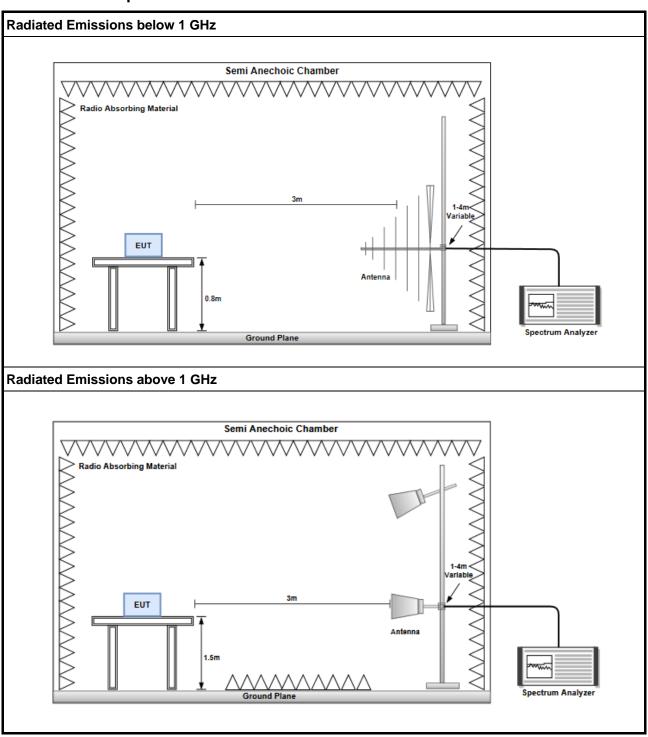
Note:

- 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.: FR362704-01CO Page: 11 of 13



3.1.3 Test Setup



3.1.4 Test Results

Refer to Appendix A.

Report No.: FR362704-01CO Page: 12 of 13



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 33381, Taiwan (R.O.C.)

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

Tel: 886-3-271-8666 Fax: 886-3-318-0345

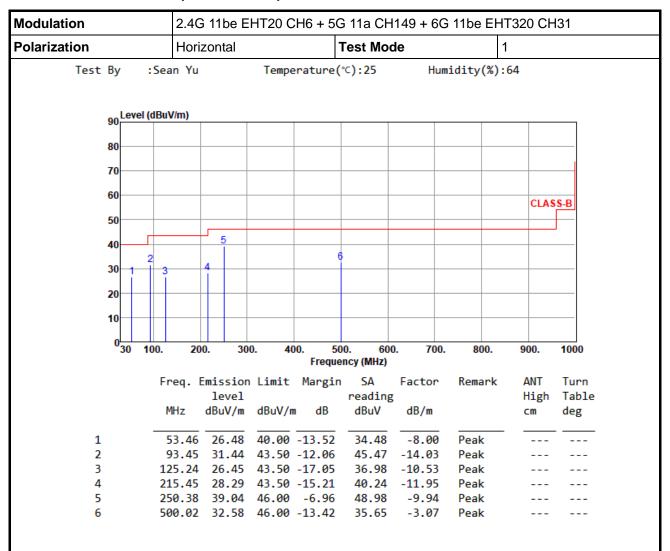
Email: ICC_Service@icertifi.com.tw

==END==

Report No.: FR362704-01CO Page: 13 of 13



Unwanted Emissions (Below 1GHz)



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

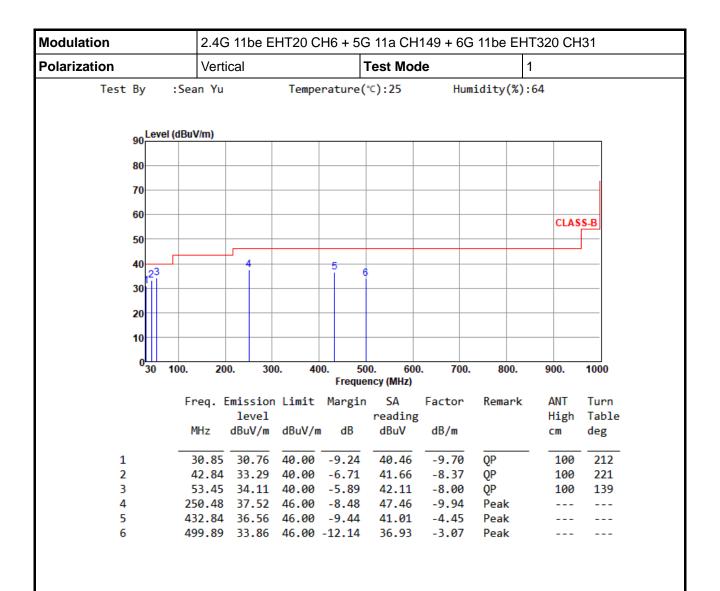
*Factor includes antenna factor, cable loss and amplifier gain

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.

Report No.: FR362704-01CO Page No. : 1 of 8





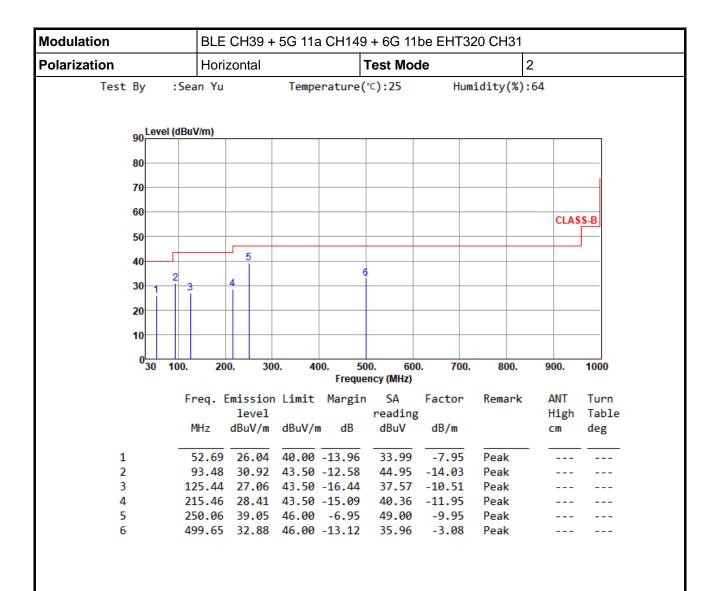
*Factor includes antenna factor, cable loss and amplifier gain

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.

Report No.: FR362704-01CO Page No. : 2 of 8





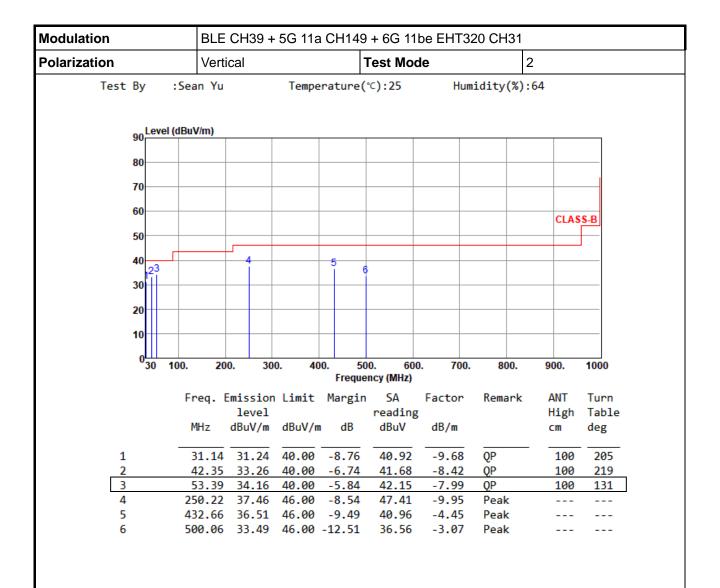
*Factor includes antenna factor, cable loss and amplifier gain

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.

Report No.: FR362704-01CO Page No. : 3 of 8





*Factor includes antenna factor, cable loss and amplifier gain

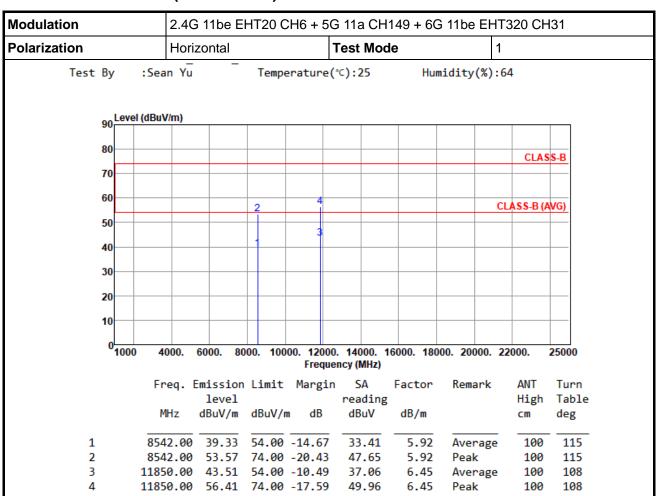
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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

Report No.: FR362704-01CO Page No. : 4 of 8



Unwanted Emissions (Above 1GHz)



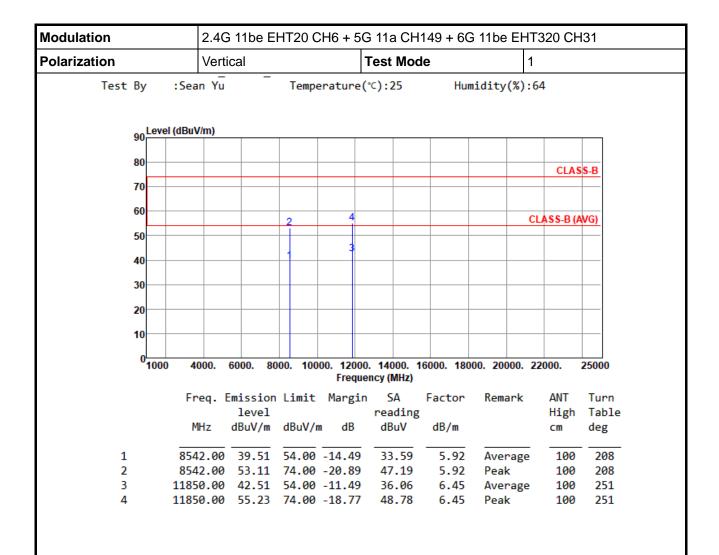
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB/m)

*Factor includes antenna factor, cable loss and amplifier gain

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

Report No.: FR362704-01CO Page No. : 5 of 8



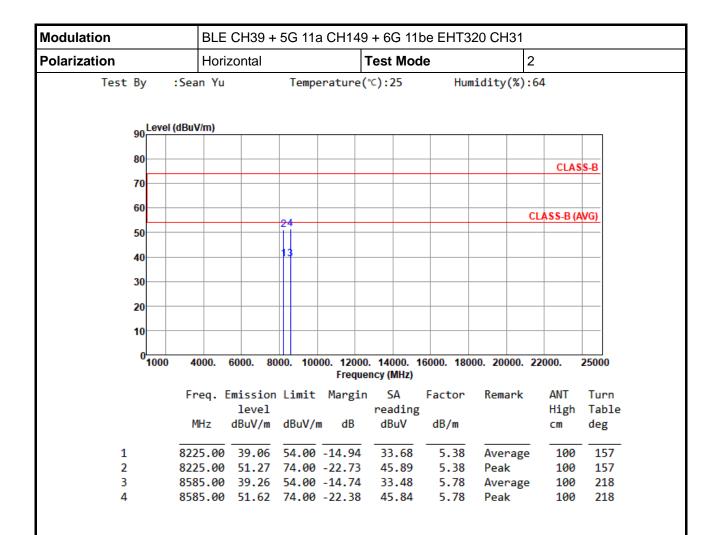


*Factor includes antenna factor, cable loss and amplifier gain

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

Report No.: FR362704-01CO Page No. : 6 of 8



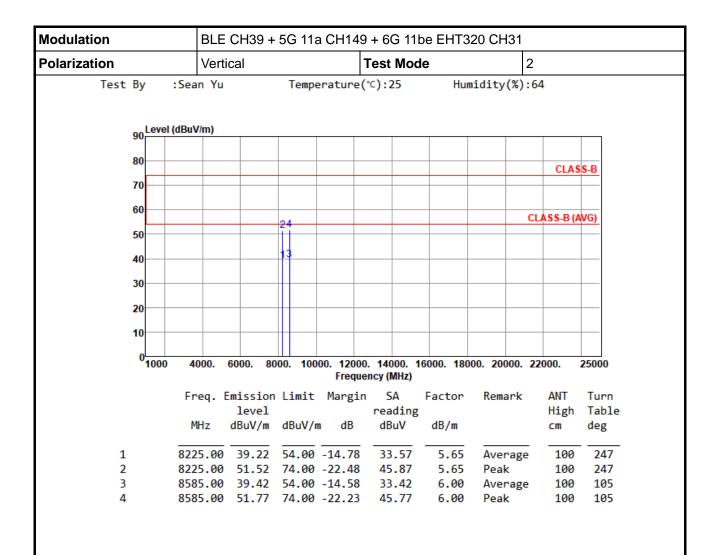


*Factor includes antenna factor, cable loss and amplifier gain

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

Report No.: FR362704-01CO Page No. : 7 of 8





*Factor includes antenna factor, cable loss and amplifier gain

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

Report No.: FR362704-01CO Page No. : 8 of 8