





FCC C2PC Test Report

FCC ID : MXF-W1701K

Equipment : Tri-Band AP

Model No. : W1701K

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

Received Date : Jun. 27, 2023 Tested Date : Jan. 04, 2024

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 Chely/ Assistant Manager Gary

Gary Chang / Manager

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Report Version: Rev. 01



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Appendix A. Unwanted Emissions into Restricted Frequency Bands Appendix B. AC Power Line Conducted Emissions



Release Record

Report No.	Version	Description	Issued Date
FR362701-01AC	Rev. 01	Initial issue	Mar. 18, 2024

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Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207		[dBuV]: 0.637MHz 37.10 (Margin -8.90dB) - AV	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 4874.00MHz 53.26 (Margin -0.74dB) - 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.

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1 General Description

1.1 Information

This report is issued as a Class II Permissive Change.

This report is issued as a supplementary report to original ICC report no. FR362701AC. The modification is the adding one Internal Power source. Therefore, all related test items had been tested and presented in the following sections.

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information						
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N⊤x)	Data Rate / MCS	
2400-2483.5	b	2412-2462	1-11 [11]	4	1-11 Mbps	
2400-2483.5	g	2412-2462	1-11 [11]	4	6-54 Mbps	
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	4	MCS 0-31	
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	4	MCS 0-31	
2400-2483.5	ax (HE20)	2412-2462	1-11 [11]	4	MCS 0-11	
2400-2483.5	ax (HE40)	2422-2452	3-9 [7]	4	MCS 0-11	
2400-2483.5	be (EHT20)	2412-2462	1-11 [11]	4	MCS 0-13	
2400-2483.5	be (EHT40)	2422-2452	3-9 [7]	4	MCS 0-13	

Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.

OFDM/OFDMA- BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM and 4096QAM modulation.

1.1.2 Antenna Details

Ant. No.	Brand Model		Туре	Connector	Gain (dBi)
1	Gemtek	WREM-129AX_Dual_Ant1	PIFA	NA	1.01
2	Gemtek	WREM-129AX_Dual_Ant2	PIFA	UFL	1.06
3	Gemtek	WREM-129AX_Dual_Ant3	PIFA	UFL	1.09
4	Gemtek	WREM-129AX_Dual_Ant4	PIFA	UFL	1.03

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type 12Vdc from Internal Power source
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Note 2: DSSS-DBPSK, DQPSK, CCK modulation



1.1.4 Accessories (Adding Internal Power source was marked in boldface.)

	Accessories					
No.	Equipment	Description				
1	Internal Power source	Brand: LUCENT TRANS ELECTRONICS CO., LTD. Model: 1A106-US1240 I/P: 100-120Vac, 50/60Hz, 1.4A max O/P: 12V=4.0A, 48.0W				
2	Internal Power source	Brand: LEADER ELECTRONICS INC. Model: SL42-1120350-3C I/P: 100-120Vac, 50-60Hz, 1.5A O/P: 12V=3.5A				
3	Internal Power source	Brand: Hunan Frecom electronics Co.,Ltd Model: FC042X02-120035 I/P: 100-120Vac, 50/60Hz, 1.2A O/P: 12V-3.5A				
4	Fan	Brand: SUNONWEALTH ELECTRIC MACHINE INDUSTRY CO LTD Model: EG75070S1-C395-S99				
5	Fan	Brand: Yingfan Model: NB801005HHT4B10001				

1.1.5 Channel List

Frequency	band (MHz)	2400~2483.5		
802.11 b / g / n HT20	/ ax HE20 / be EHT20	802.11n HT40 / ax HE40 / be EHT40		
Channel	Frequency(MHz)	Channel	Frequency(MHz)	
1	2412	3	2422	
2	2417	4	2427	
3	2422	5	2432	
4	2427	6	2437	
5	2432	7	2442	
6	2437	8	2447	
7	2442	9	2452	
8	2447			
9	2452			
10	2457			
11	2462			

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1.1.6 Test Tool and Duty Cycle

Test Tool	QATool, Version: 0.0.2.99				
Duty Cycle and Duty Footor	Mode	Duty Cycle (%)	Duty Factor (dB)		
Duty Cycle and Duty Factor	11b	99.79%	0.01		

1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index	
11b	2412	19.5	

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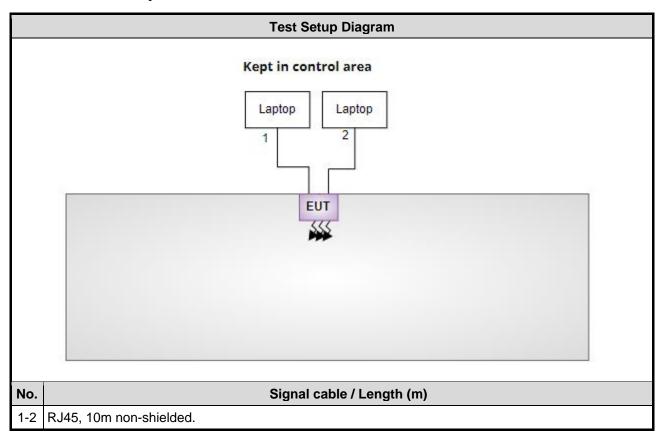


1.2 Local Support Equipment List

	Support Equipment List							
No.	Equipment	Brand	Model	FCC ID	Remarks			
1	Laptop	DELL	Latitude 5400	DoC				
2	Laptop	DELL	Latitude E5470	DoC				
3	Fixture							
4	Laptop	DELL	Latitude E5470					

Note: The fixture and laptop are disconnected from EUT and removed from test table when EUT is set to transmit continuously.

1.3 Test Setup Chart



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1.4 The Equipment List

Test Item Conducted Emission Test Site Conduction room 1 / (CO01-WS) Tested Date Jan. 04, 2024										
						Brand	Model No.	Serial No.	Calibration Date	Calibration Until
						R&S	Feb. 17, 2023	Feb. 16, 2024		
R&S	ENV216	101579	May 09, 2023	May 08, 2024						
Woken	CFD200-NL	CFD200-NL-001	Oct. 11, 2023	Oct. 10, 2024						
SCHWARZBECK	Schwarzbeck 8127	8127-666	Feb. 24, 2023	Feb. 23, 2024						
NA	50	01	Jun. 14, 2023	Jun. 13, 2024						
Measurement Software AUDIX e3 6.120210k NA										
	Conduction room 1 / (Jan. 04, 2024 Brand R&S R&S Woken SCHWARZBECK	Conduction room 1 / (CO01-WS) Jan. 04, 2024 Model No. R&S ESR3 R&S ENV216 Woken CFD200-NL SCHWARZBECK Schwarzbeck 8127 NA 50	Conduction room 1 / (CO01-WS) Jan. 04, 2024 Model No. Serial No. R&S ESR3 101658 R&S ENV216 101579 Woken CFD200-NL CFD200-NL-001 SCHWARZBECK Schwarzbeck 8127 8127-666 NA 50 01	Conduction room 1 / (CO01-WS) Jan. 04, 2024 Model No. Serial No. Calibration Date R&S ESR3 101658 Feb. 17, 2023 R&S ENV216 101579 May 09, 2023 Woken CFD200-NL CFD200-NL-001 Oct. 11, 2023 SCHWARZBECK Schwarzbeck 8127 8127-666 Feb. 24, 2023 NA 50 01 Jun. 14, 2023						

Test Item	Radiated Emission				
Test Site	966 chamber1 / (03CH01-WS)				
Tested Date	Jan. 04, 2024				
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. 23, 2023	Nov. 22, 2024
Loop Antenna	R&S	HFH2-Z2	100330	Oct. 31, 2023	Oct. 30, 2024
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. 27, 2023	Nov. 26, 2024
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 30, 2023	Oct. 29, 2024
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
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

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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 FCC KDB 662911 D01 Multiple Transmitter Output v02r01

1.7 Deviation from Test Standard and Measurement Procedure

None

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	
AC conducted emission	±2.92 dB	
Unwanted Emission ≤ 1GHz	±3.41 dB	
Unwanted Emission > 1GHz	±4.59 dB	

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2 Test Configuration

2.1 Testing Facility

Test Laboratory International Certification Corporation	
Test Site	CO01-WS, 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	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emission	11g	2437	6 Mbps	
Unwanted Emissions ≤ 1GHz	11g	2437	6 Mbps	
Unwanted Emissions >1GHz	11b	2412	1 Mbps	

NOTE:

- 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.
- Two Fans (SUNONWEALTH ELECTRIC MACHINE INDUSTRY CO LTD and Yingfan) had been covered during the
 pretest, and found that SUNONWEALTH ELECTRIC MACHINE INDUSTRY CO LTD was the worst case and was
 selected for final test.

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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.

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.

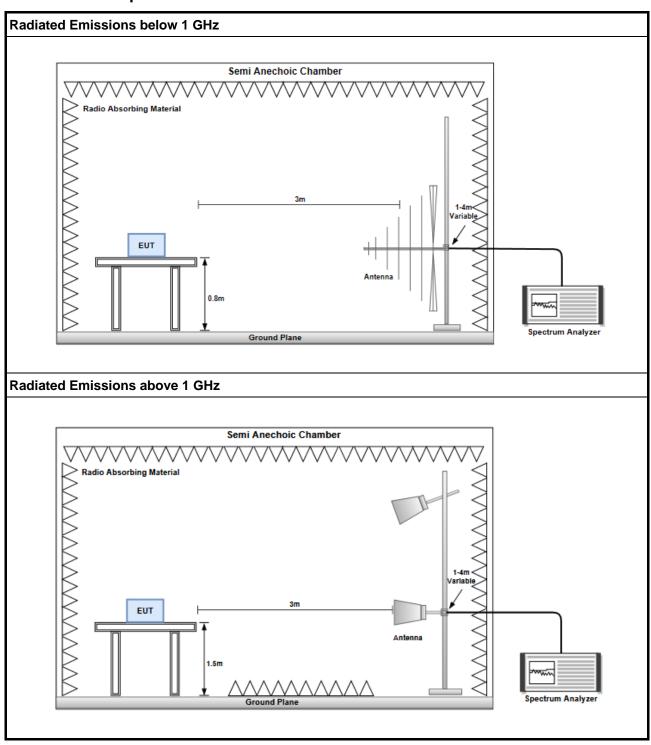
Note:

- 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.

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3.1.3 Test Setup



3.1.4 Test Results

Refer to Appendix A.

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3.2 AC Power Line Conducted Emissions

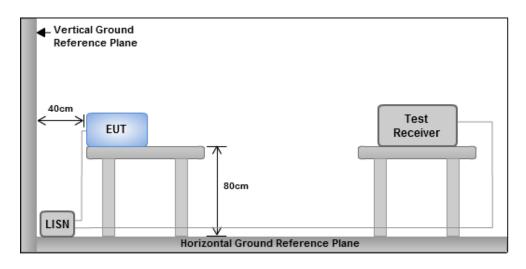
3.2.1 Limit of AC Power Line Conducted Emissions

Conducted Emissions Limit				
Frequency Emission (MHz)	Quasi-Peak	Average		
0.15-0.5	66 - 56 *	56 - 46 *		
0.5-5	56	46		
5-30	60	50		
Note 1: * Decreases with the logarithm of the frequency.				

3.2.2 Test Procedures

- 1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
- 2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
- 3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
- 4. This measurement was performed with AC 120V / 60Hz.

3.2.3 Test Setup



Note: 1. Support units were connected to second LISN.

Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.2.4 Test Results

Refer to Appendix B.

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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

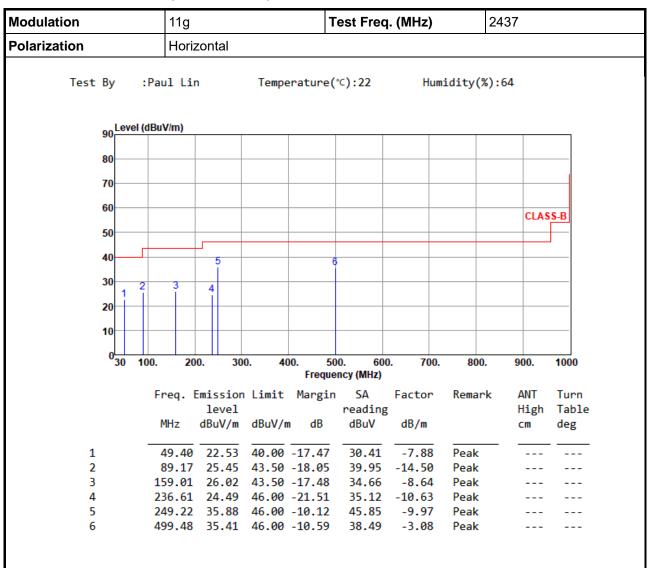
Email: ICC_Service@icertifi.com.tw

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Unwanted Emissions (Below 1GHz)



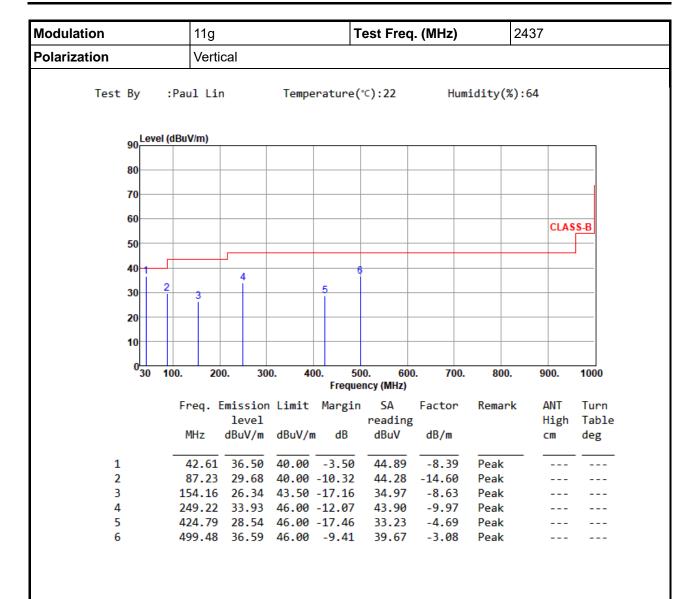
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*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.

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

*Factor includes antenna factor, cable loss and amplifier gain

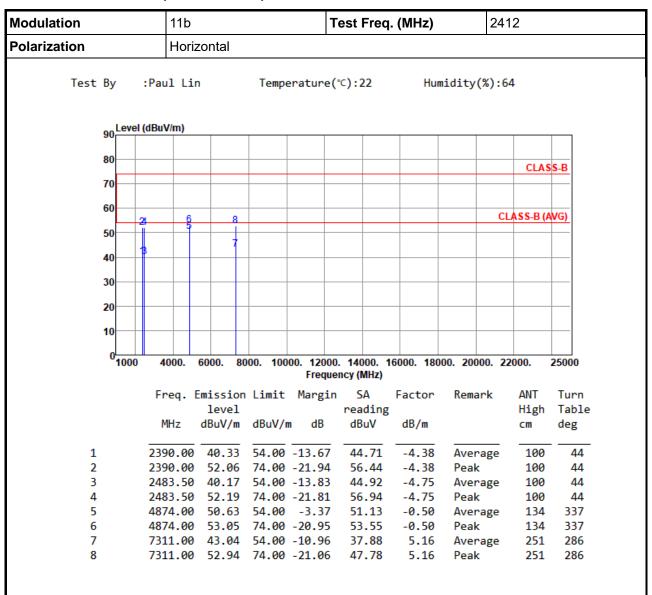
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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

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Unwanted Emission (Above 1GHz)

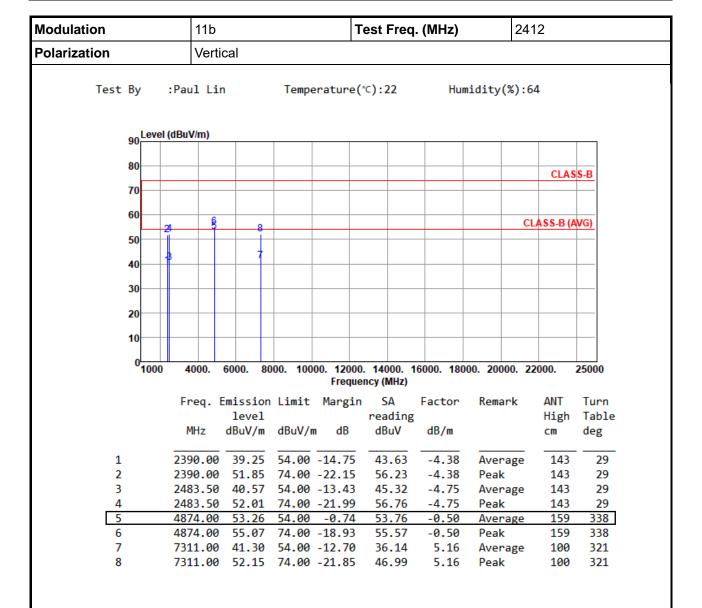


Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor , cable loss and amplifier gain

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

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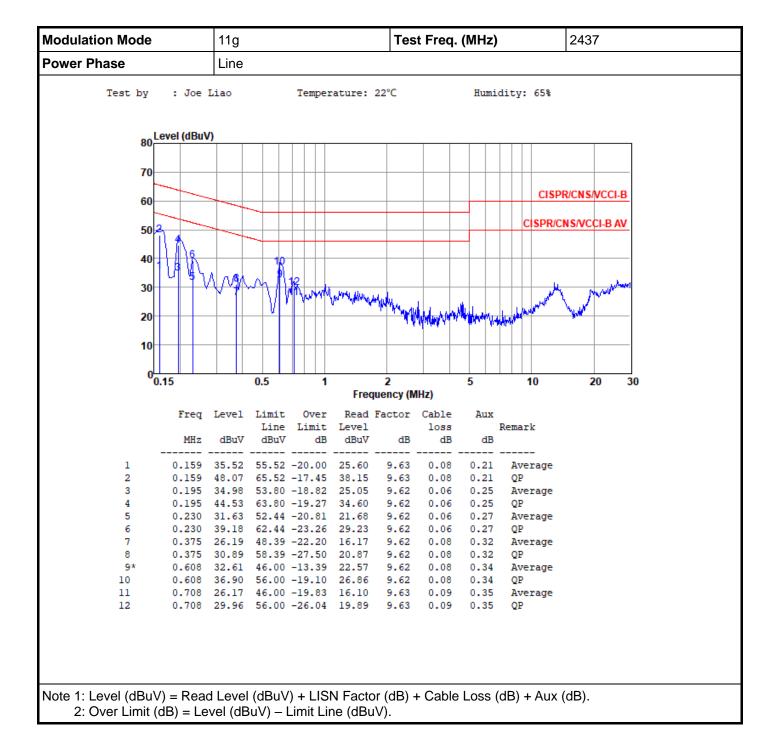


Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor , cable loss and amplifier gain

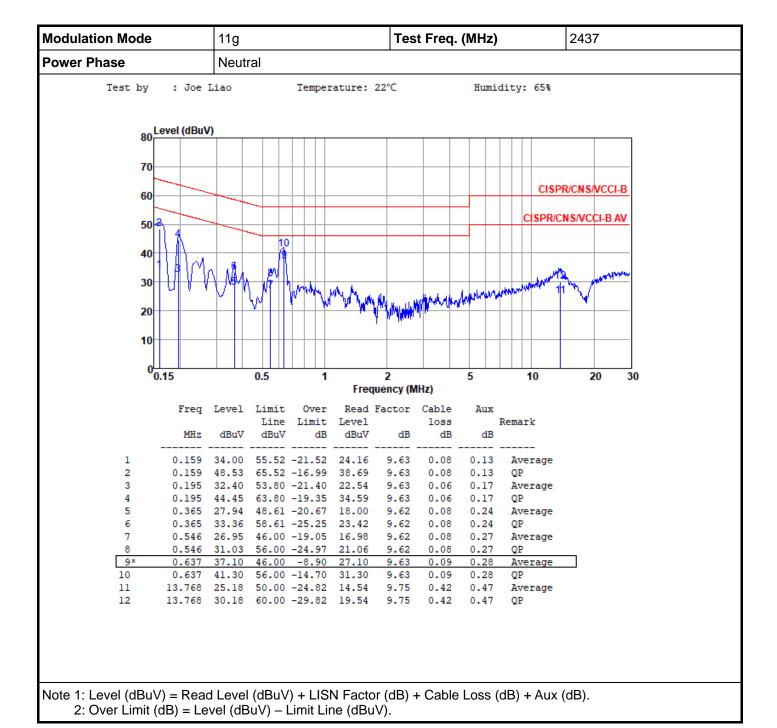
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).





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