

FCC Test Report

FCC ID : 2AQ68-GME840U-915U

Equipment : Wireless Gateway

Model No. : GME840U-915U

Multiple Listing : Refer to item 1.1.1 for more details.

Applicant : HON LIN TECHNOLOGY CO., LTD.

Address : 11F, No.32, Jihu Rd., Neihu Dist., Taipei

City, Taiwan 114

Standard : 47 CFR FCC Part 15.247

Received Date : Sep. 04, 2020

Tested Date : Oct. 20 ~ Oct. 23, 2020

We, International Certification Corp., 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 may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: Approved by:

Along Chen / Assistant Manager Gary Chang / Manager

Testing Laboratory 2732

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Release Record

Report No.	Version	Description	Issued Date
FR970401-04	Rev. 01	Initial issue	Nov. 10, 2020

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Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.437MHz 43.57 (Margin -3.54dB) - AV	Pass
15.247(d)	Radiated Emissions	[dBuV/m at 3m]: 7420.00MHz	Pass
15.209	Natiated Liffissions	53.70 (Margin -0.30dB) - AV	r ass
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: 25.97	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e)	Power Spectral Density	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	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

1.1.1 Product Details

The following models are provided to this EUT.

Model Name	Description	Remark
GME840U-915U		PCB is identical to each model. Difference between both models
GML840U-915U	with LTE function	is only certified LTE module (FCC ID: ZMOL850GL) is embed or not.

1.1.2 Specification of the Equipment under Test (EUT)

RF General Information					
Operating Frequency (MHz)	Channel Number	Data Rate	Spread Factor	Channel Bandwidth	
923.3 ~ 927.5	8	980 ~ 21.9 kbps	7 ~ 12	500 kHz	

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

Note 2: The device uses CSS modulation.

1.1.3 Antenna Details

Ant. No.	Brand	Model	Туре	Connector	Gain (dBi)	Jumper cable
1	WHA YU	C107-511326-A	Dipole	N-type plug standard	-0.79	X
2	WHA YU	C107-511380-A	Dipole	N-type plug standard	2.88	Х
3	WHA YU	C107-821521-A	Dipole	N-type Jack standard	1.17	0
4	WHA YU	C107-821527-A	Dipole	N-type Jack female	7.04	0
5	TESSWAVE	TOF-900R-8V	Dipole	N-type Jack female	6.5	0

Note: Ant. No. 4 with highest gain was chosen for final test.

1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type 1	I/P: 100-240Vac, 50/60Hz, 1.5A max.
(PoE)	O/P: 50Vdc, 1.2A
Power Supply Type 2 (DC power source)	I/P: 11-57Vdc O/P: 10.8Vdc, 2.36A

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1.1.5 Accessories

	Accessories				
No.	Description				
1	POE	Brand: Gospell Model: G0566-500-120 Power Rating: I/P: 100-240Vac, 50/60Hz, 1.5A max. O/P: 50Vdc, 1.2A Power Line: 0.67m non-shielded without core			
2 Ground cable 1m non-shielded without core		1m non-shielded without core			
3 Jumper cable for Lora 0.609m non-shielded without core 4 GPS Antenna Brand: INPAQ Model: GPSGLONASS08H-S6-1510		0.609m non-shielded without core			

1.1.6 Channel List

Frequency (MHz)	Frequency (MHz)
923.3	925.7
923.9	926.3
924.5	926.9
925.1	927.5

1.1.7 Test Tool and Duty Cycle

Test Tool	Putty command, V0.6	
Duty Cycle and Duty Factor	Duty Cycle (%)	Duty Factor (dB)
Duty Cycle and Duty Factor	100.00%	0.00

1.1.8 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index
CSS	923.3	16
CSS	927.5	15

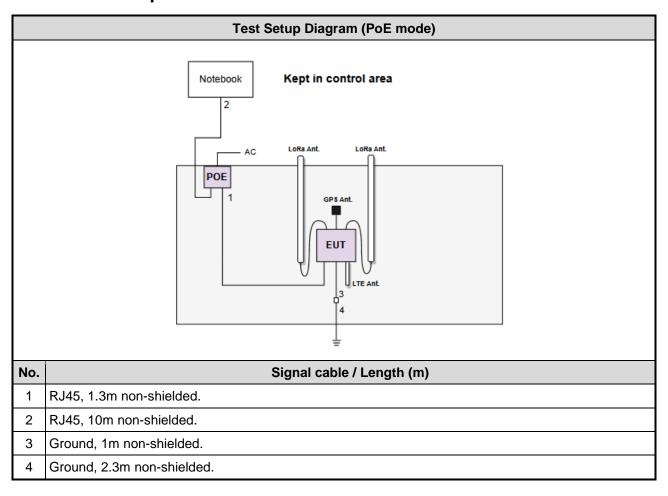
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1.2 Local Support Equipment List

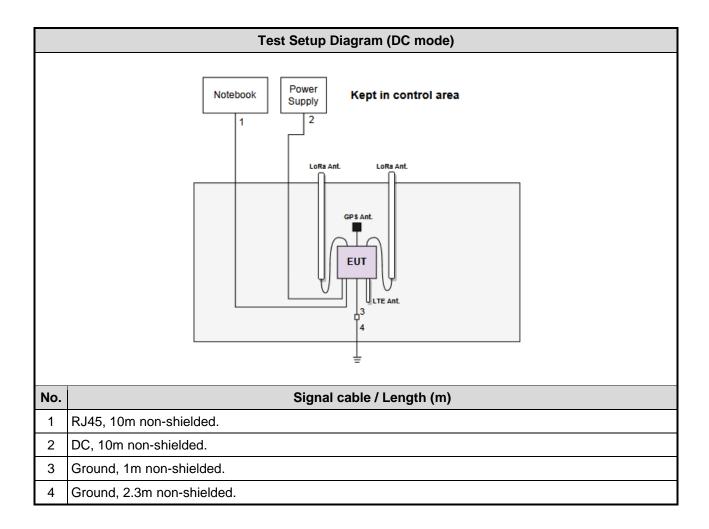
	Support Equipment List					
No. Equipment Brand		Brand	Model	FCC ID	Remarks	
1	Notebook	DELL	Latitude E5420	DoC		

1.3 Test Setup Chart



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1.4 The Equipment List

duction room 1 / (0	2004 14/0)					
Conduction room 1 / (CO01-WS)						
Oct. 23, 2020						
lanufacturer	Model No.	Serial No.	Calibration Date	Calibration Until		
R&S	ESR3	101658	Dec. 12, 2019	Dec. 11, 2020		
R&S	ENV216	101579	Mar. 12, 2020	Mar. 11, 2021		
Woken	CFD200-NL	CFD200-NL-001	Oct. 21, 2020	Oct. 20, 2021		
AUDIX	e3	6.120210k	NA	NA		
	R&S R&S Woken	Interest of the control of t	Manufacturer Model No. Serial No. R&S ESR3 101658 R&S ENV216 101579 Woken CFD200-NL CFD200-NL-001	Manufacturer Model No. Serial No. Calibration Date R&S ESR3 101658 Dec. 12, 2019 R&S ENV216 101579 Mar. 12, 2020 Woken CFD200-NL CFD200-NL-001 Oct. 21, 2020		

Test Item	Radiated Emission						
Test Site	966 chamber3 / (03CH03-WS)						
Tested Date	Oct. 20 ~ Oct. 21, 2020						
Instrument	Manufacturer Model No. Serial No. Calibration Date Calibration						
Spectrum Analyzer	R&S	FSV40	101499	Jan. 09, 2020	Jan. 08, 2021		
Receiver	R&S	ESR3	101657	Feb. 14, 2020	Feb. 13, 2021		
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Apr. 29, 2020	Apr. 28, 2021		
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Dec. 27, 2019	Dec. 26, 2020		
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 15, 2019	Nov. 14, 2020		
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2019	Nov. 12, 2020		
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 06, 2020	Oct. 05, 2021		
Preamplifier	EMC	EMC02325	980187	Aug. 05, 2020	Aug. 04, 2021		
Preamplifier	Agilent	83017A	MY39501309	Sep. 02, 2020	Sep. 01, 2021		
Preamplifier	EMC	EMC184045B	980192	Jul. 21, 2020	Jul. 20, 2021		
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/ 4	Sep. 26, 2020	Sep. 25, 2021		
RF cable-8M	EMC	EMC104-SM-SM-8000	181107	Sep. 26, 2020	Sep. 25, 2021		
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Sep. 26, 2020	Sep. 25, 2021		
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800 -001	Sep. 26, 2020	Sep. 25, 2021		
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Sep. 26, 2020	Sep. 25, 2021		
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Sep. 26, 2020	Sep. 25, 2021		
Measurement Software	AUDIX	e3	6.120210g	NA	NA		
Note: Calibration Inter	Note: Calibration Interval of instruments listed above is one year.						

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Test Item	RF Conducted	RF Conducted						
Test Site	(TH01-WS)							
Tested Date	Oct. 21, 2020	Oct. 21, 2020						
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until			
Spectrum Analyzer	R&S	FSV40	101063	Apr. 30, 2020	Apr. 29, 2021			
Power Meter	Anritsu	ML2495A	1241002	Oct. 23, 2019	Oct. 22, 2020			
Power Sensor	Anritsu	MA2411B	1207366	Oct. 23, 2019	Oct. 22, 2020			
DC POWER SOURCE	GW INSTEK	GPC-6030D	GES855395	Oct. 29, 2019	Oct. 28, 2020			
AC POWER SOURCE	APC	AFC-500W	F312060012	Dec. 02, 2019	Dec. 01, 2020			
Measurement Software	ICC	SENSE-15247_DTS	V5.10.7	NA	NA			
Note: Calibration Inte	Note: Calibration Interval of instruments listed above is one year.							

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

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			
Bandwidth	±34.130 Hz			
Conducted power	±0.808 dB			
Power density	±0.583 dB			
Conducted emission	±2.715 dB			
AC conducted emission	±2.92 dB			
Radiated emission ≤ 1GHz	±3.96 dB			
Radiated emission > 1GHz	±4.51 dB			

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2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corp.
Test Site	CO01-WS, TH01-WS
Address of Test Site	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.
Test Site	03CH03-WS
Address of Test Site	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

FCC Designation No.: TW0009FCC site registration No.: 207696

➤ ISED#: 10807A

➤ CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Separating Factor	Test Configuration
Conducted Emissions	CSS	923.3 / 927.5	SF12	1, 2
Radiated Emissions ≤1GHz	000	323.37 321.3	01 12	1, 2
Maximum Output Power				
6dB bandwidth	CSS	923.3 / 927.5	SF12	1
Power spectral density	CSS	923.37 927.5	SF 12	'
Radiated Emissions >1GHz				

NOTE:

1. This device consumes power from POE or DC power source. Each power supply was selected for final testing as below configuration.

Test configurations are listed as below:

1) Test Configuration 1: POE mode

2) Test Configuration 2: DC mode

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3 Transmitter Test Results

3.1 Conducted Emissions

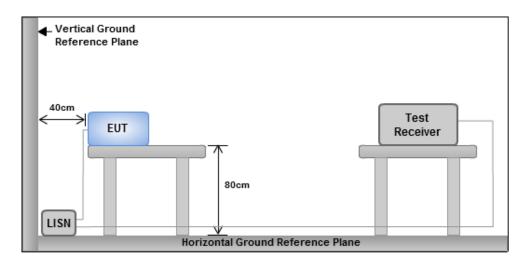
3.1.1 Limit of Conducted Emissions

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.					

3.1.2 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.

3.1.3 Test Setup



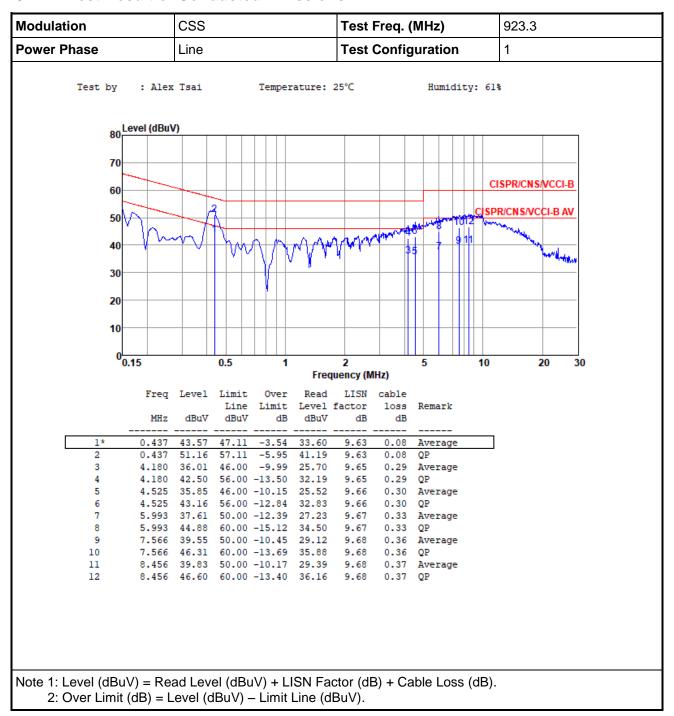
Note: 1. Support units were connected to second LISN.

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

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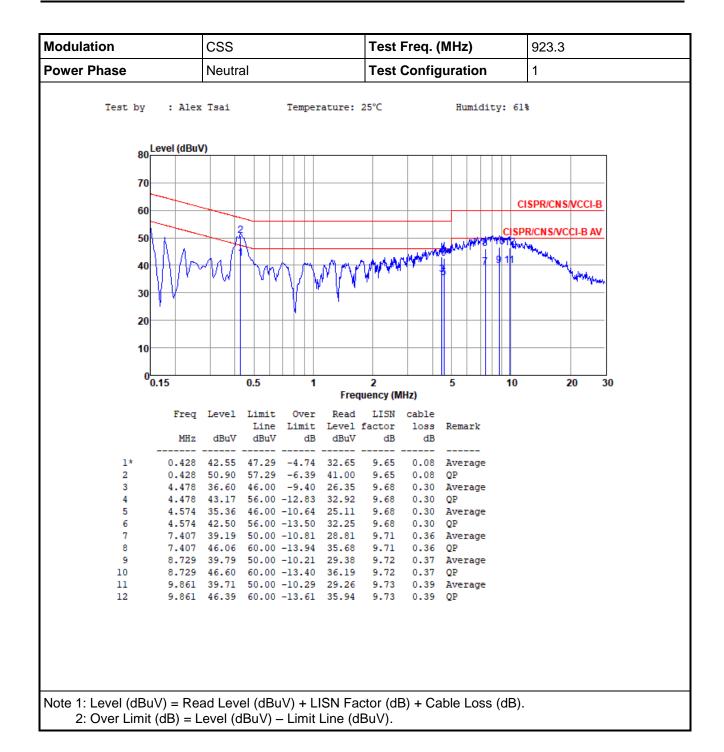


3.1.4 Test Result of Conducted Emissions



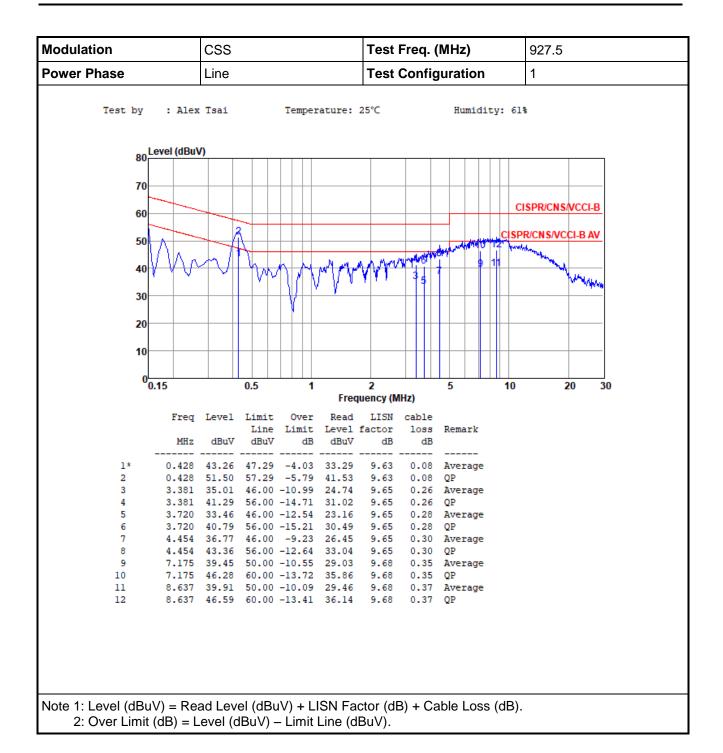
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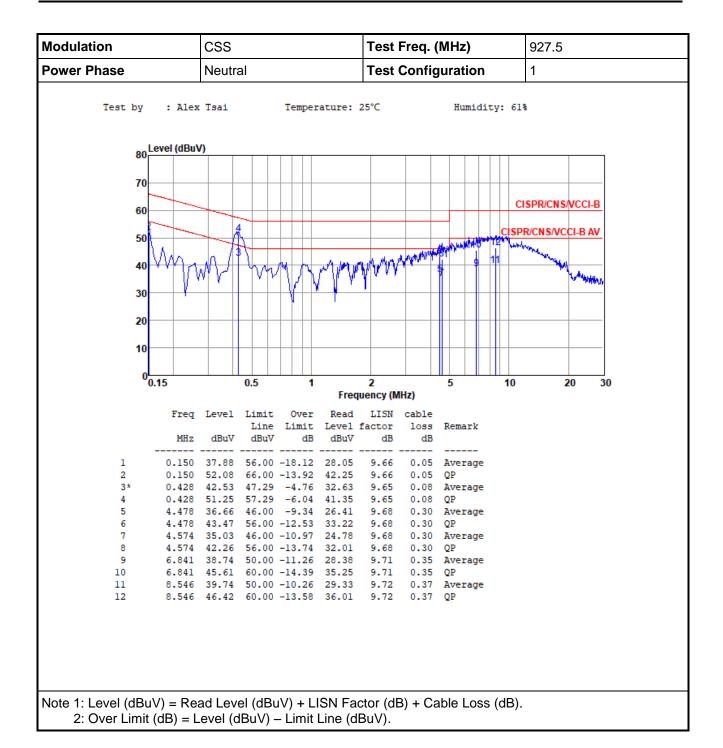
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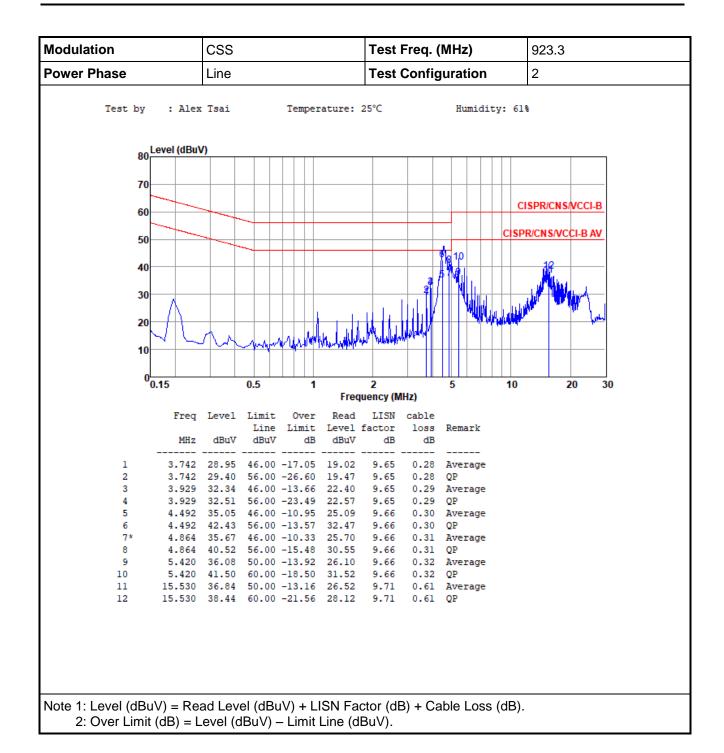
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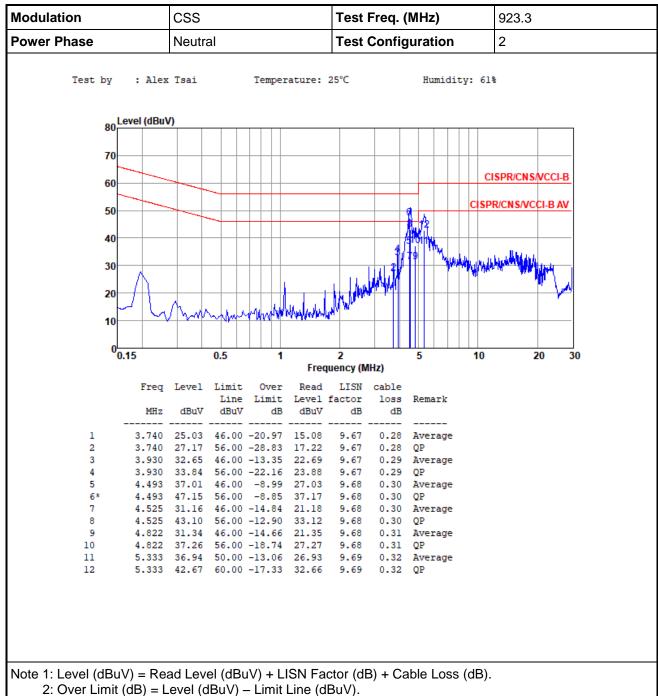
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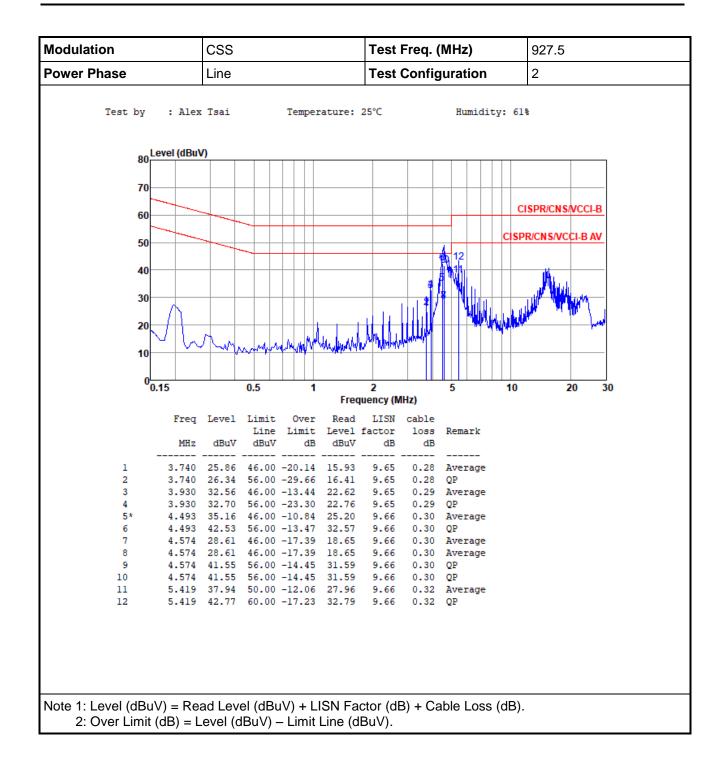
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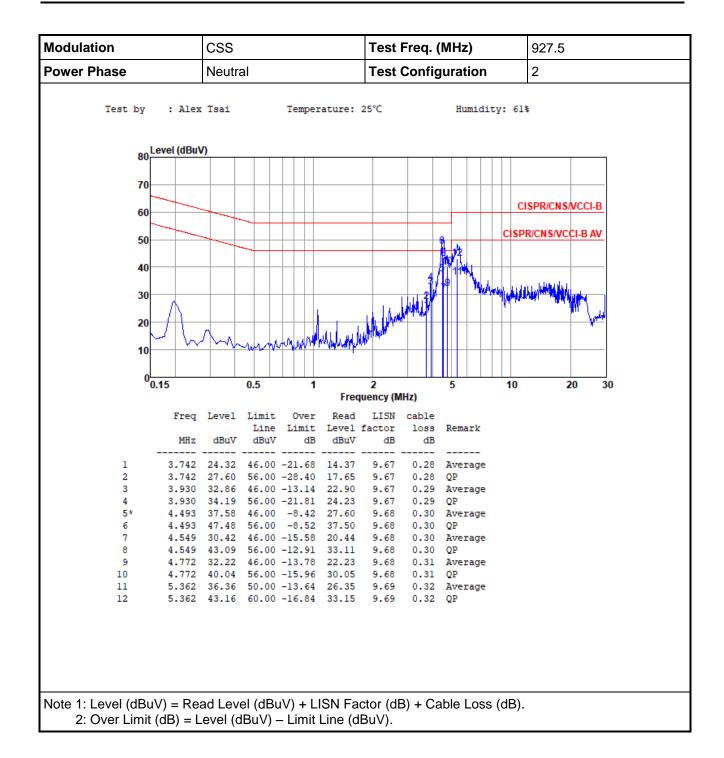
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3.2 6dB and Occupied Bandwidth

3.2.1 Limit of 6dB Bandwidth

The minimum 6dB bandwidth shall be at least 500 kHz.

3.2.2 Test Procedures

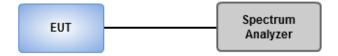
6dB Bandwidth

- 1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
- 2. Detector = Peak, Trace mode = max hold.
- 3. Sweep = auto couple, Allow the trace to stabilize.
- 4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

Occupied Bandwidth

- 1. Set resolution bandwidth (RBW) = 1% ~ 5 % of OBW, Video bandwidth = 3 x RBW
- 2. Detector = Sample, Trace mode = max hold.
- 3 Sweep = auto couple, Allow the trace to stabilize.
- 4. Use the OBW measurement function of spectrum analyzer to measure the occupied bandwidth.

3.2.3 Test Setup



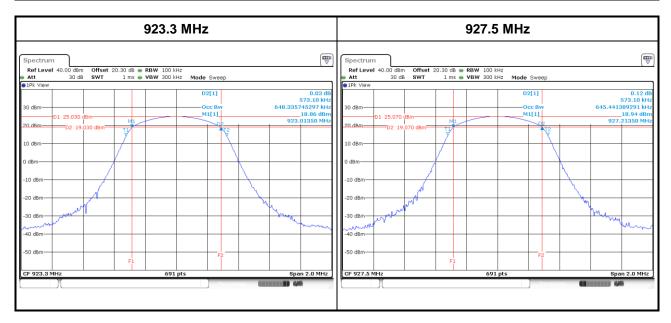
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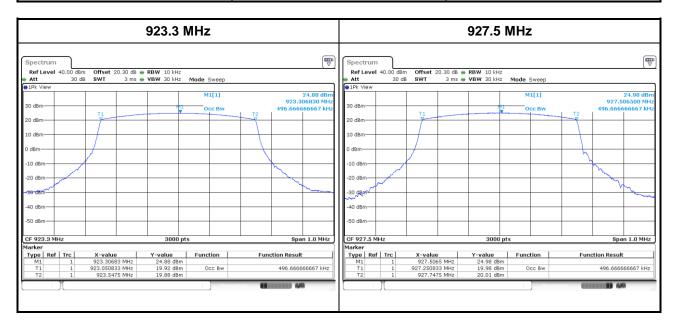
3.2.4 Test Result of 6dB and Occupied Bandwidth

Ambient Condition 23°C / 66% rested by Brad wu	Ī	Ambient Condition	23°C / 66%	Tested By	Brad Wu
--	---	-------------------	------------	-----------	---------

Modulation / SF	Freq. (MHz)	6dB Bandwidth (kHz)	Limit (kHz)
CSS / 12	923.3	573.1	500
CSS / 12	927.5	573.1	500



Modulation / SF	Freq. (MHz)	Occupied Bandwidth (MHz)
CSS / 12	923.3	0.497
CSS / 12	927.5	0.497



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3.3 RF Output Power

3.3.1 Limit of RF Output Power

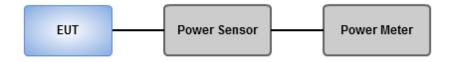
Conducted power shall not exceed 1Watt.

Antenna gain <= 6dBi, no any corresponding reduction is in output power limit.

3.3.2 Test Procedures

A broadband RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.

3.3.3 Test Setup



3.3.4 Test Result of Maximum Output Power

Ambient Condition	23°C / 66%	Tested By	Brad Wu
		_	

Modulation / SF	Freq. (MHz)	AV Power (mW)	AV Power (dBm)	Limit (dBm)
CSS / 12	923.3	364.75	25.62	28.96
CSS / 12	927.5	395.37	25.97	28.96

Note: The maximum antenna gain 7.04dBi is higher than 6dBi, so the limit shall be reduced 30dBm - (7.04dBi-6dBi) = 28.96dBm.

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3.4 Power Spectral Density

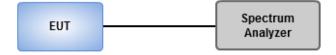
3.4.1 Limit of Power Spectral Density

Power spectral density shall not be greater than 8 dBm in any 3 kHz band.

3.4.2 Test Procedures

- 1. Set the RBW = 3 kHz, VBW = 10 kHz.
- 2. Detector = RMS, Sweep time = auto couple.
- 3. Sweep time = auto couple.
- 4. Employ trace averaging (RMS) mode over a minimum of 100 traces.
- 5. Use the peak marker function to determine the maximum amplitude level.

3.4.3 Test Setup



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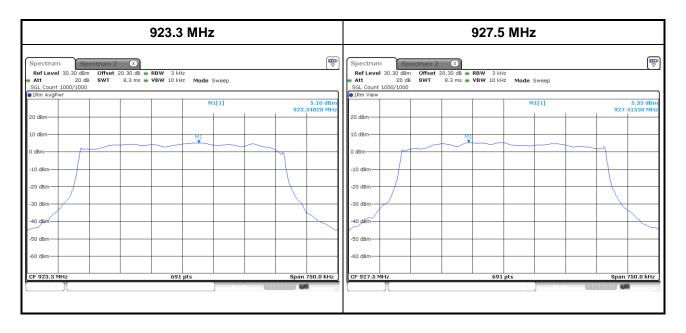


3.4.4 Test Result of Power Spectral Density

	î		
Ambient Condition	23°C / 66%	Tested By	Brad Wu

Modulation / SF	Freq. (MHz)	PSD (mW)	PSD (dBm)	Limit (dBm)
CSS / 12	923.3	3.2	5.10	6.96
CSS / 12	927.5	3.4	5.33	6.96

Note: The maximum antenna gain 7.04dBi is higher than 6dBi, so the limit shall be reduced 8dBm - (7.04dBi-6dBi) = 6.96dBm.



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3.5 Unwanted Emissions into Restricted Frequency Bands

3.5.1 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.

3.5.2 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.

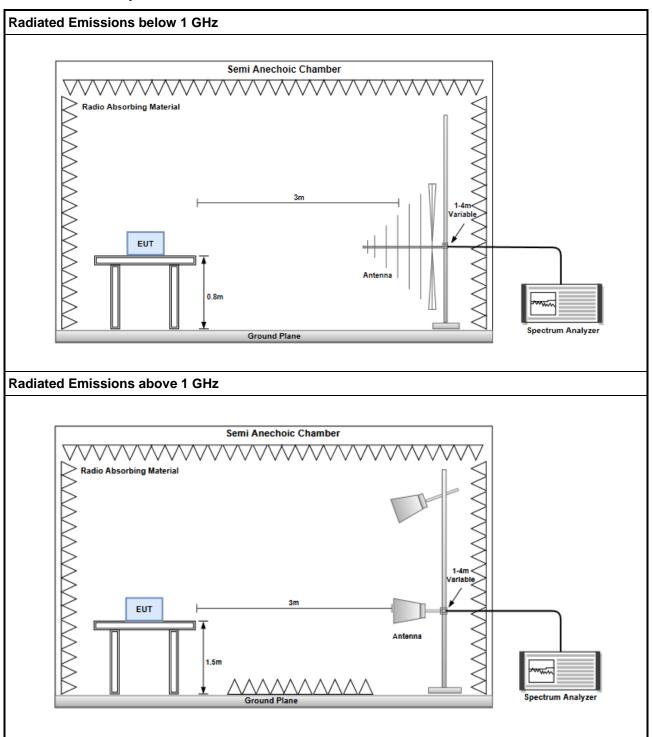
Note:

- 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.
- RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

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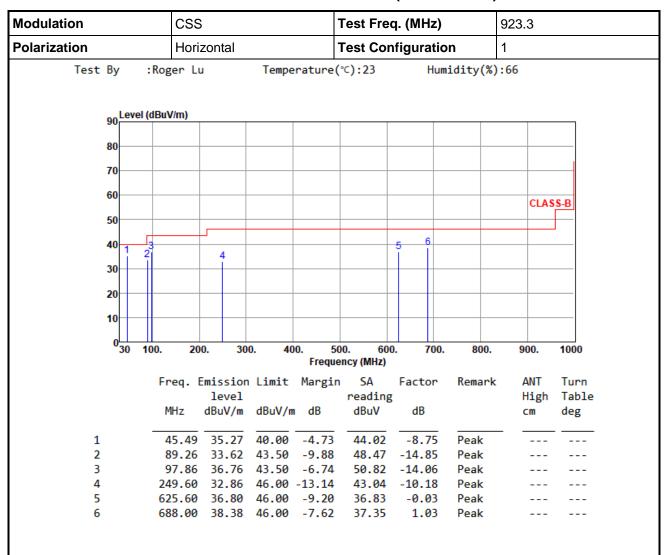
3.5.3 Test Setup



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3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)



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

*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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Modulation	CSS	•	Test Fred	ą. (MHz)		923.3		
Polarization	Vertical		Test Con	figuratio	ion 1			
Test By :Ro	ger Lu	Temperature(°C):23	Humi	idity(%)	:66		
90 Level (dBu	V/m)							
80								
70								
60						CLAS	S-B	
50								
				6				
40 1 234				Ť				
30		5						
30								
20								
10								
030 100.	200. 300.	400. 50	00. 600). 700.	800.	900.	1000	
30 100.	200. 300.		ncy (MHz)	. 700.	800.	900.	1000	
F	req. Emission L	imit Margin	SA	Factor	Remark	ANT	Turn	
	level	J	reading			High	Table	
I	MHz dBuV/m d	BuV/m dB	dBuV	dB		cm	deg	
1 -	46.15 37.95 4	0.00 -2.05	46.63	-8.68	QP .	188	316	
		0.00 -4.25	45.48	-9.73	QP	100	256	
	70.79 36.22 4		47.31	-11.09	QР	100	18	
4	85.56 36.67 4	0.00 -3.33	51.12	-14.45	QΡ	100	345	
5 3	99.20 32.55 4	6.00 -13.45	38.30	-5.75	Peak			
6 6	88.00 40.67 4	6.00 -5.33	39.64	1.03	Peak			

*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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Modulation	CSS				q. (MHz)		927.5		
Polarization	Horizon	ıtal		Test Con	figuratio	n	1		
Test By :	Roger Lu	Tempe	erature	(°⊂):23	Hum	idity(%)	:66		
Level (c	dBuV/m)								
90									
80									
70									
60									
							CLAS	S-B	
50									
40					5 1				
2	4				Ī II				
30									
20									
10									
030 10		200		00 000	700	000	000	4000	
30 10	00. 200.	300. 40		00. 600 ency (MHz)). 700.	800.	900.	1000	
	Freq. Fmi	ssion Limit			Factor	Remark	ANT	Turn	
		evel	1101 821	reading		ricinar it	High	Table	
		uV/m dBuV/r	n dB	dBuV	dB		cm	deg	
1		5.45 40.00			-8.76	Peak			
2		4.11 43.50			-14.85	Peak			
3 4		7.18 43.50 2.33 46.00			-14.06 -12.36	Peak Peak			
5		5.38 46.00			-0.03	Peak			
6		9.68 46.00			1.03	Peak			

*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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Modulation	CSS		Test Fred	q. (MHz)	927.5		
Polarization	Vertical		Test Con	figuratio	1		
Test By :Ro	ger Lu	Temperature	(℃):23	Hum	idity(%)	:66	
90 Level (dB	uV/m)						
80							
60							
70							
60						01.55	
50						CLAS	S-B
50				6			
40 1 234				- il			
30	5						
20							
10							
0							
0 100.	200. 30		00. 600 ency (MHz)). 700.	800.	900.	1000
F	reg. Emission	n Limit Margi	n SA	Factor	Remark	ANT	Turn
	level	Ü	reading			High	Table
	MHz dBuV/m	dBuV/m dB	dBuV	dB		cm	deg
1 -	46.13 37.99	40.00 -2.01	46.67	-8.68	QP	185	312
2	62.48 36.10			-9.74	QP	100	251
3	70.79 36.22			-11.09	Q̈́Ρ	100	18
		40.00 -3.05			QP	100	345
	220.00 31.53			-12.36	Peak		
6 6	88.00 40.94	46.00 -5.06	39.91	1.03	Peak		

*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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Modulation	C	CSS				Test Fre	q. (MHz	est Freq. (MHz)			
Polarization	F	Horizon	tal			Test Co	nfigura	tion	2		
Test By	:BRAD	WU		Tempe	erature((℃):23	Н	umidity(%	5):66		
90 Leve	el (dBuV/n	n)			1						
80											
80											
70											
60									0.1		
50									CLA	88-B	
										١ ١	
40			6								
30	2 3 4	5									
20											
10											
030	100.	200.	300	. 40	00. 5	00. 60	0. 70	00. 800.	900.	1000	
					Freque	ency (MHz)					
	Fred	•		Limit	Margin		Factor	r Remar		Turn	
			evel	ID 144	ID.	reading	_		High		
	MH	z dBu	ıV/m	dBuV/n	n dB	dBuV	dB		CM	deg	
1	35.	.82 25	5.68	40.00	-14.32	35.28	-9.60	Peak			
2	71.	.71 24	1.14	40.00	-15.86	35.27	-11.1	B Peak			
3	101.	.78 23	3.48	43.50	-20.02	36.84	-13.3	6 Peak			
4					-18.17						
5					-18.06						
6	249.	.22 33	3.60	46.00	-12.40	43.79	-10.19	9 Peak			

*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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Modulation	CSS		Test Free	q. (MHz)		923.3	
Polarization	Vertical		Test Con	figuratio	n	2	
Test By :B	BRAD WU	Temperature	(℃):23	Hum	idity(%)	:66	
90 Level (di	BuV/m)						
80							
70							
60						CLAC	6.0
50						CLAS	3-B
50							
40 4							
30 23	5 6						
	ĭl I						
20							
10							
030 100							
30 100). 200. 30		00. 600 ency (MHz)). 700.	800.	900.	1000
	Freq. Emission	n Limit Margi	n SA	Factor	Remark	ANT	Turn
	level		reading			High	Table
	MHz dBuV/m	dBuV/m dB	dBuV	dB		cm	deg
1	30.64 33.45	40.00 -6.55	43.59	-10.14	QР	100	24
2	60.07 32.44		41.65	-9.21	Peak		
3	73.65 30.12	40.00 -9.88	42.01	-11.89	Peak		
		43.50 -8.44		-13.26	Peak		
		43.50 -18.06		-11.54	Peak		
6	249.22 27.13	46.00 -18.87	37.32	-10.19	Peak		

*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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Modulation		CSS				Test Fre	q. (MHz	927.5		
Polarization		Horiz	zontal			Test Cor	nfigurat	ion	2	
Test By	:BRA	D WU		Tempe	erature((℃):23	Н	umidity(%):66	
90 Lev	/el (dBu\	//m)								
80										
70—										
60—										
									CLAS	SS-B
50										
40			5							
30			Ĭ		5					
ĺ	2 3	4								
20										
10										
0 30	100						. 70		200	4000
30	100.	20	0. 30	U. 40		00. 600 ency (MHz)	0. 70	00. 800.	900.	1000
	Fr	eq. E	mission	Limit	Margir	s SA	Factor	Remark	c ANT	Turn
			level			reading	-		High	Table
	M	Hz	dBuV/m	dBuV/r	n dB	dBuV	dB		cm	deg
1		1.94	26.33	40.00	-13.67	36.39	-10.06	Peak		
2	6	8.80			-15.81	35.03				
3	10	3.72			-18.96		-13.11			
4	19	1.99	25.25	43.50	-18.25	37.18	-11.93	B Peak		
5			34.54				-10.19	9 Peak		
6	39	9.57	29.05	46.00	-16.95	34.79	-5.74	1 Peak		

*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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Modulation	CSS	3		-	Test Fre	q. (MHz)	927.5				
Polarization	Vert	ical			Test Cor	nfiguratio	n	2			
Test By :E	BRAD WU		Tempe	erature(℃):23	Hum	idity(%)	:66			
90 Level (di	BuV/m)										
00											
80											
70											
60											
00								CLAS	S-B		
50											
40											
1 _{2 3} 4			_ (6							
30			5 '								
20											
10											
030 100	0 00			20 5		700	000	000	4000		
30 100	0. 20	0. 30	U. 40		00. 600 ency (MHz)	0. 700.	800.	900.	1000		
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		
		level			reading			High	Table		
	MHz	dBuV/m	dBuV/r	n dB	dBuV	dB		cm	deg		
1	30.56	33.62	40.00	-6.38	43.78	-10.16	QP .	100	21		
2	39.70				42.08	-9.19	Peak				
3	61.04	30.90	40.00	-9.10	40.39	-9.49	Peak				
4		33.38			47.55		Peak				
5		29.30				-7.93	Peak				
6	399.57	31.12	46.00	-14.88	36.86	-5.74	Peak				

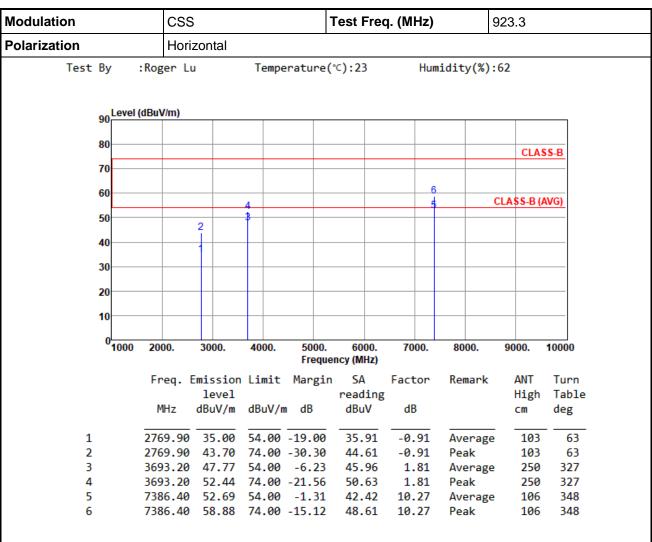
*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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

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3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz)



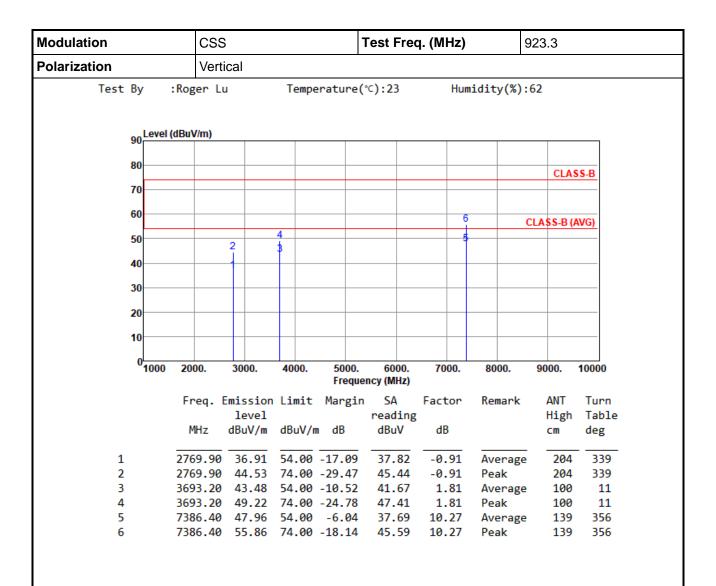
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

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

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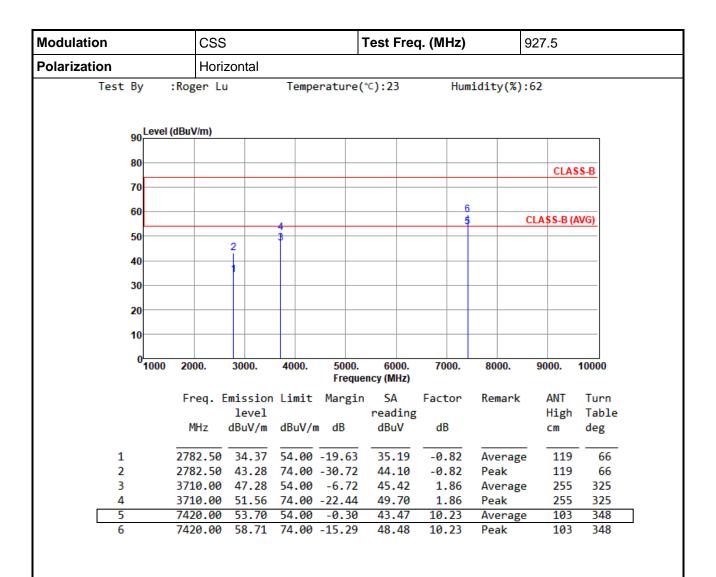


*Factor includes antenna factor, cable loss and amplifier gain

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

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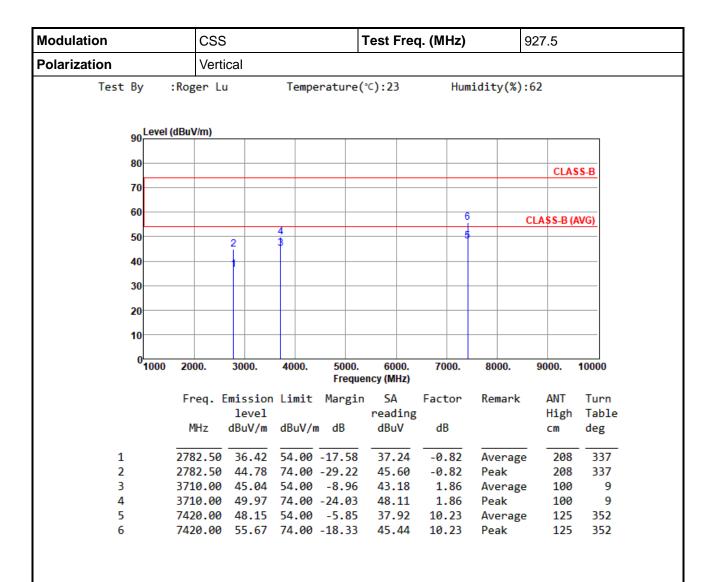


*Factor includes antenna factor, cable loss and amplifier gain

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

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*Factor includes antenna factor, cable loss and amplifier gain

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

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3.6 Emissions in Non-Restricted Frequency Bands

3.6.1 Emissions in Non-Restricted Frequency Bands Limit

Peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz.

3.6.2 Test Procedures

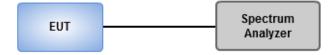
Reference level measurement

- 1. Set RBW=100kHz, VBW = 300kHz, Detector = Peak, Sweep time = Auto
- 2. Trace = max hold, Allow Trace to fully stabilize
- 3. Use the peak marker function to determine the maximum PSD level

Emission level measurement

- 1. Set RBW=100kHz, VBW = 300kHz, Detector = Peak, Sweep time = Auto
- 2. Trace = max hold, Allow Trace to fully stabilize
- 3. Scan Frequency range is up to 25GHz
- 4. Use the peak marker function to determine the maximum amplitude level

3.6.3 Test Setup

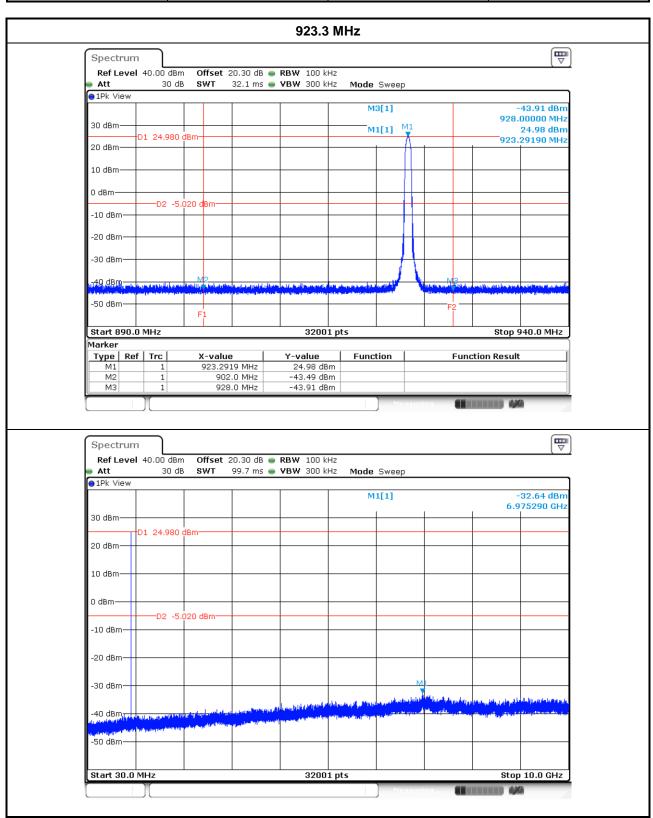


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3.6.4 Unwanted Emissions into Non-Restricted Frequency Bands

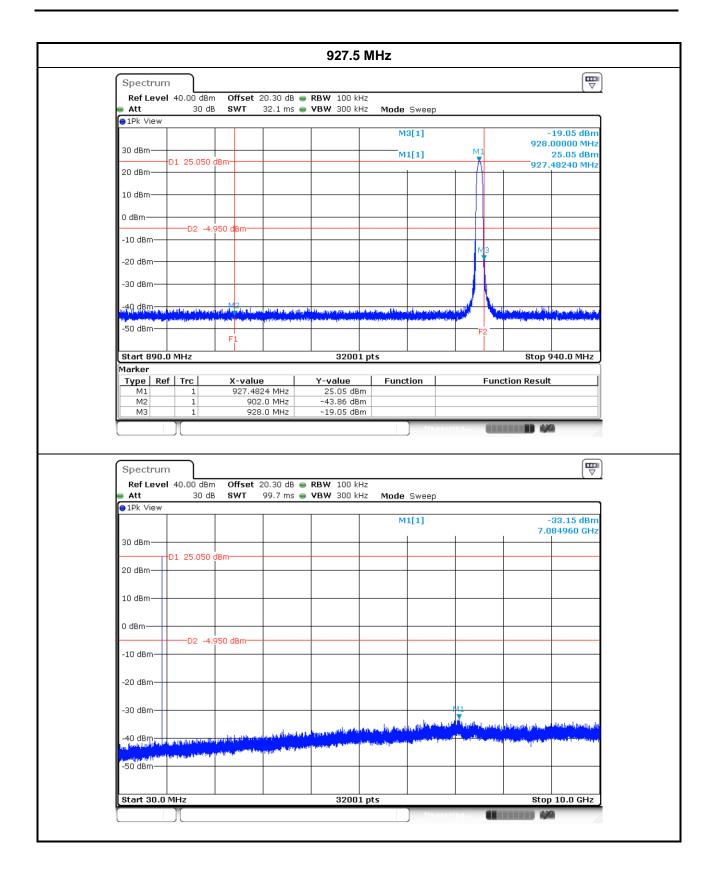
Ambient Condition23°C / 66%Tested ByBrad Wu



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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 Corp (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 District, Tao Yuan City 333, Taiwan, R.O.C.

Kwei Shan Site II

Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, 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

==END==

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