

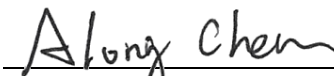
FCC C2PC Test Report

FCC ID : KQL-AC4490
Equipment : 902 - 928 MHz FHSS, 0 - 1 W, MMCX
902 - 928 MHz FHSS, 0 - 1 W, MMCX, Long Range
Model No. : AC4490-1000M
AC4790-1000M
AC4490LR-1000M
AC4790LR-1000M
Brand Name : Ezurio
Applicant : Ezurio LLC
Address : W66N220 Commerce Court, Cedarburg, WI 53012
United States Of America
Standard : 47 CFR FCC Part 15.247
Received Date : Aug. 24, 2023
Tested Date : Aug. 31 ~ Sep. 06, 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 Chen / Assistant Manager



Gary Chang / Manager

Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information.....	5
1.2	Local Support Equipment List	7
1.3	Test Setup Chart	7
1.4	The Equipment List	8
1.5	Test Standards	10
1.6	Reference Guidance	10
1.7	Deviation from Test Standard and Measurement Procedure.....	10
1.8	Measurement Uncertainty	10
2	TEST CONFIGURATION.....	11
2.1	Testing Facility	11
2.2	The Worst Test Modes and Channel Details	11
3	TRANSMITTER TEST RESULTS	12
3.1	Unwanted Emissions into Restricted Frequency Bands	12
3.2	Unwanted Emissions into Non-Restricted Frequency Bands	14
3.3	Conducted Output Power	15
3.4	20dB and Occupied Bandwidth.....	16
3.5	Channel Separation.....	17
3.6	AC Power Line Conducted Emissions	18
4	TEST LABORATORY INFORMATION	19
Appendix A. Unwanted Emissions into Restricted Frequency Bands		
Appendix B. Unwanted Emissions into Non-Restricted Frequency Bands		
Appendix C. Conducted Output Power		
Appendix D. 20dB and Occupied Bandwidth		
Appendix E. Channel Separation		
Appendix F. AC Power Line Conducted Emissions		

Release Record

Report No.	Version	Description	Issued Date
FR232902-01	Rev. 01	Initial issue	Mar. 07, 2024

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emission	[dBuV]: 0.168MHz 55.04 (Margin -10.04dB) - QP	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 4576.89MHz 43.96 (Margin -10.04dB) - AV	Pass
15.247(d)	Band Edge	Meet the requirement of limit	Pass
15.247(b)(2)(3)	Conducted Output Power	Power [dBm]: 27.82	Pass
15.247(a)(1)(i)	Number of Hopping Channels	Meet the requirement of limit	Pass
15.247(a)(1)	Hopping Channel Separation	Meet the requirement of limit	Pass
15.247(f)	Dwell Time	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.

1 General Description

1.1 Information

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

This report is issued as a supplementary report to the original project no. FR232902. The modification is concerned with following items:

- ✧ Change is power amplifier is replacing
- ✧ Relative PCB layout is modified
- ✧ Changing the brand and applicant name

Therefore, related test items had been performed and presented in the following sections.

1.1.1 Product Details

The following models are provided to this EUT.

Brand Name	Model Name	Product Name	Description
Ezurio	AC4490-1000M	902 - 928 MHz FHSS, 0 - 1 W, MMCX	---
	AC4790-1000M	902 - 928 MHz FHSS, 0 - 1 W, MMCX	Different FW
	AC4490LR-1000M	902 - 928 MHz FHSS, 0 - 1 W, MMCX, Long Range	Add LNA with Different FW
	AC4790LR-1000M	902 - 928 MHz FHSS, 0 - 1 W, MMCX, Long Range	Add LNA with Different FW

1.1.2 Specification of the Equipment under Test (EUT)

RF General Information				
Frequency Range (MHz)	Ch. Freq. (MHz)	Channel List	Data Rate (bit/sec)	Channel Bandwidth (kHz)
902 ~ 928	902.213~927.492	50 channels	76.8 kbps	145
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.				
Note 2: The device uses FSK modulation.				

1.1.3 Antenna Details

Ant. No.	Model	Laird Part #	Type	Connector	Gain (dBi)
1	S467FL-6-RMM-915S	0600-00019	Dipole	R/A MMCX Plug (male)	2
2	S467FL-5-RMM-915	0600-00025	Dipole	R/A MMCX Plug (male)(Swivel)	2
3	S467AH-915S	--	Dipole	RPSMA (female)	2
4	S467AH-915	0600-00024	Dipole	RPSMA (female)	2
5	S161AH-915R	0600-00028	Dipole	RPSMA	2.5
6	S161AH-915	0600-00029	Dipole	RPSMA (female)	2.5

1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	3.3Vdc from host
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1.1.5 Channel List

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	902.213	13	909.06	26	915.903	39	922.751
1	902.74	14	909.585	27	916.431	40	923.278
2	903.267	15	910.111	28	916.958	41	923.805
3	903.795	16	910.638	29	917.486	42	924.333
4	904.321	17	911.167	30	918.012	43	924.858
5	904.846	18	911.692	31	918.538	44	925.385
6	905.375	19	912.217	32	919.063	45	925.911
7	905.9	20	912.743	33	919.591	46	926.439
8	906.428	21	913.27	34	920.116	47	926.965
9	906.952	22	913.7	35	920.643	48	927.492
10	907.478	23	914.325	36	921.172	49	927.256
11	908.01	24	914.852	37	921.697	---	---
12	908.532	25	915.378	38	922.223	---	---

1.1.6 Test Tool and Duty Cycle

Test Tool	Laird Technologies Config, Version: V6.07	
Modulation Mode	Duty Cycle (%)	Duty Factor (dB)
FSK	100	0

1.1.7 Power Index of Test Tool

Channel Bandwidth: 145KHz	
Test Frequency (MHz)	Power Index
902.213	default
915.378	default
927.492	default

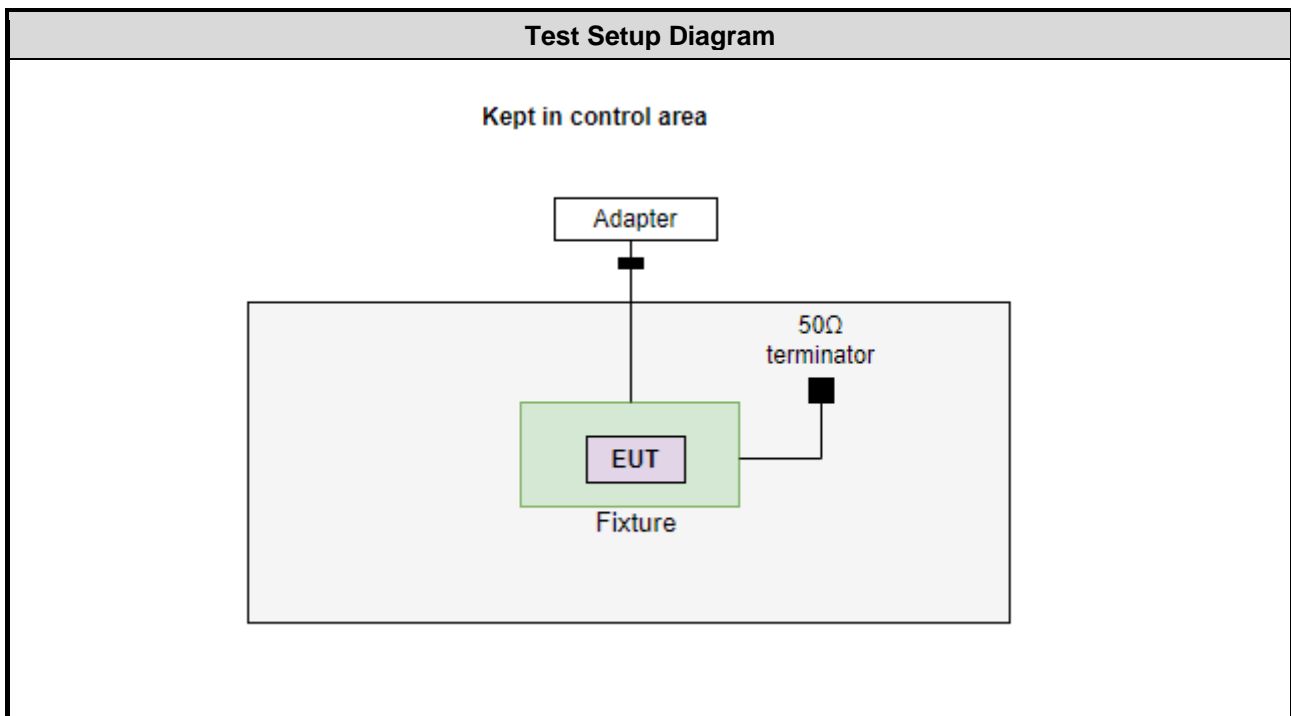
1.1.8 Test Sample Information

Serial Number of Test Sample	Radiated Emission: 005067C9E0FB AC Power Line Conducted Emission: 005067C9E0FB Antenna Port Conducted: AC4490LR : 005067C9E0FB AC4490 : 005067C9E0D1
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1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Adapter	GlobTek	GT-41052-1509-1.5	---	Provided by applicant.
2	Fixture	---	---	---	Provided by applicant.
3	RS232	Laird	Laird-1	---	Provided by applicant.
4	PC	MSI	Cubi B164	---	Provided by applicant.

1.3 Test Setup Chart



Note: The PC and RS232 cable are disconnected from EUT and removed from test table when EUT is set to transmit continuously.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Sep. 06, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Feb. 17, 2023	Feb. 16, 2024
LISN	R&S	ENV216	101579	May 09, 2023	May 08, 2024
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127667	Jan .03, 2023	Jan .02, 2024
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 17, 2022	Oct. 16, 2023
50 ohm terminal (Support Unit)	NA	50	01	Jun. 14, 2023	Jun. 13, 2024
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber3 / (03CH03-WS)				
Tested Date	Aug. 31, 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	101499	Mar. 16, 2023	Mar. 15, 2024
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 01, 2022	Oct. 31, 2023
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Jul. 04, 2023	Jul. 03, 2024
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Dec. 15, 2022	Dec. 14, 2023
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 27, 2022	Oct. 26, 2023
Preamplifier	EMC	EMC02325	980187	Jul. 10, 2023	Jul. 09, 2024
Preamplifier	EMC	EMC118A45SE	980897	Aug. 01, 2023	Jul. 31, 2024
Preamplifier	EMC	EMC184045SE	980903	Jul. 17, 2023	Jul. 16, 2024
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 04, 2022	Oct. 03, 2023
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800 -001	Sep. 23, 2022	Sep. 22, 2023
LF cable-3M	EMC	EMC8D-NM-NM-300 0	131103	Sep. 23, 2022	Sep. 22, 2023
LF cable-13M	EMC	EMC8D-NM-NM-130 00	131104	Sep. 23, 2022	Sep. 22, 2023
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Sep. 23, 2022	Sep. 22, 2023
RF cable-8M	EMC	EMC104-SM-SM-80 00	181107	Sep. 23, 2022	Sep. 22, 2023
Attenuator	Pasternack	PE7005-10	10-3	Oct. 14, 2022	Oct. 13, 2023
HIGHPASS FILTER	WI	WHK1.5/15G-10ST	21	Oct. 06, 2022	Oct. 05, 2023
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Sep. 01, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101910	Apr. 14, 2023	Apr. 13, 2024
Power Meter	Anritsu	ML2495A	1241002	Nov. 23, 2022	Nov. 22, 2023
Power Sensor	Anritsu	MA2411B	1207366	Nov. 23, 2022	Nov. 22, 2023
Attenuator	Pasternack	PE7005-20	20-1	Oct. 06, 2022	Oct. 05, 2023
BANDREJECT FILTER 800-1000	K&L	3TNF-800/1000-0.2-O/O	17	Oct. 11, 2022	Oct. 10, 2023
HIGHPASS FILTER 1.5-15G	WHK	WHK1.5/15G-10ST	21	Oct. 06, 2022	Oct. 05, 2023
Measurement Software	Sporton	SENSE-15247_FS	V5.10.8	NA	NA
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
Unwanted Emission ≤ 1 GHz	± 3.41 dB
Unwanted Emission > 1 GHz	± 4.59 dB

2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	CO01-WS, TH01-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.)
Test Site	03CH03-WS
Address of Test Site	No.14-1, Lane 19, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

- FCC Designation No.: TW0009
- FCC site registration No.: 207696
- ISED#: 10807C
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Channel Bandwidth (kHz)	Radiated / Conducted Measurement	Test Frequency (MHz)	Test model	Mode
AC Power Line Conducted Emission Unwanted Emissions Hopping Channel Separation 20dB and Occupied bandwidth	FSK	145	Conducted	902.213 915.378 927.492	AC4490LR-1000M	Tx
Unwanted Emissions	FSK	145	Radiated	902.213 915.378 927.492	AC4490LR-1000M	Tx
Conducted Output Power	FSK	145	Conducted	902.213 915.378 927.492	AC4490LR-1000M AC4490-1000M	Tx

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** result was found as the worst case and was shown in this report.
2. 50Ω terminators was connected to antenna port of EUT for radiated emission measurement.
3. Dipole antenna with highest gain was for conducted emission measurement.

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

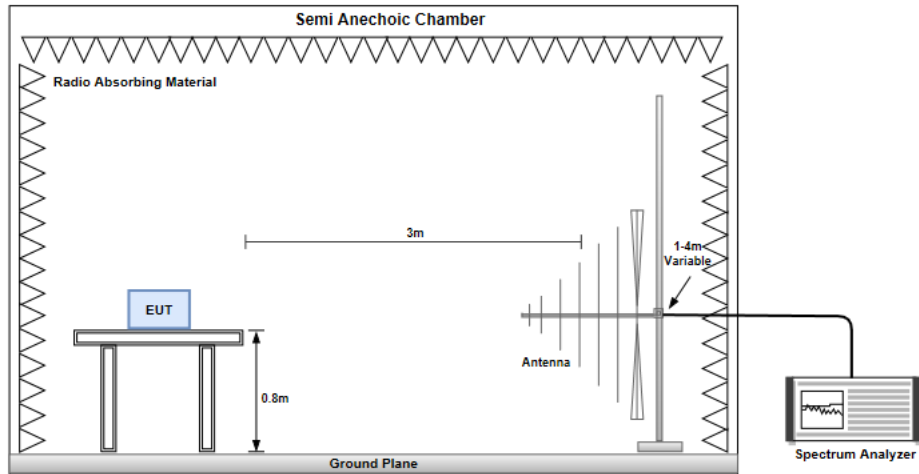
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission 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:

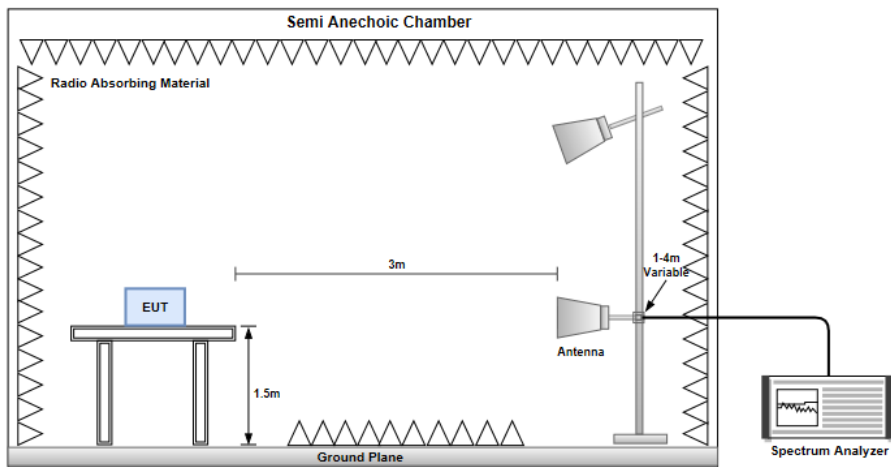
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.1.3 Test Setup

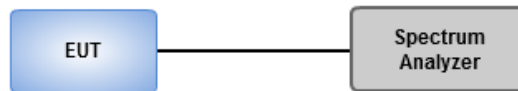
Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



Transmitter Conducted Unwanted Emissions



3.1.4 Test Results

Refer to Appendix A.

3.2 Unwanted Emissions into Non-Restricted Frequency Bands

3.2.1 Limit of Unwanted Emissions into Non-Restricted Frequency Bands

The peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz.

3.2.2 Test Procedures

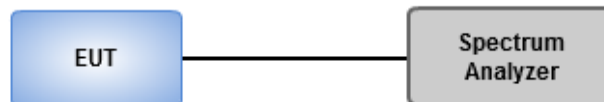
Reference Level Measurement

1. Set the RBW = 100 kHz, VBW = 300 kHz, Detector = peak.
2. Set Sweep time = auto couple, Trace mode = max hold.
3. Allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

Unwanted Emissions Level Measurement

1. Set RBW = 100 kHz, VBW = 300 kHz, Detector = peak.
2. Trace Mode = max hold, Sweep = auto couple.
3. Allow the trace to stabilize.
4. Use peak marker function to determine maximum amplitude of all unwanted emissions within any 100 kHz bandwidth.

3.2.3 Test Setup



3.2.4 Test Results

Ambient Condition	24°C / 65%	Tested By	Roger Lu
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Refer to Appendix B.

3.3 Conducted Output Power

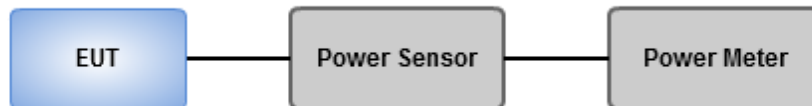
3.3.1 Limit of Conducted Output Power

1W

3.3.2 Test Procedures

1. A wideband power meter is used for power measurement. Bandwidth of power sensor and meter is 50MHz
2. 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 Results

Ambient Condition	24°C / 65%	Tested By	Roger Lu
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Refer to Appendix C.

3.4 20dB and Occupied Bandwidth

3.4.1 Test Procedures

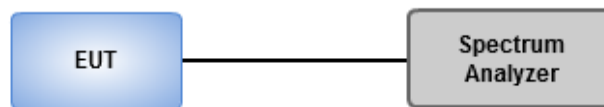
20dB Bandwidth

1. Set RBW=3kHz, VBW=10kHz, Sweep time=Auto, Detector=Peak Trace max hold.
2. Allow trace to stabilize.
3. 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 20 dB relative to the maximum level measured in the fundamental emission.

Occupied Bandwidth

1. Set RBW=3kHz, VBW=10kHz, Sweep time = Auto, Detector=Peak, Trace max hold
2. Allow trace to stabilize
3. Use Occupied bandwidth function of spectrum analyzer to measuring 99% occupied bandwidth

3.4.2 Test Setup



3.4.3 Test Results

Ambient Condition	24°C / 65%	Tested By	Roger Lu
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Refer to Appendix D.

3.5 Channel Separation

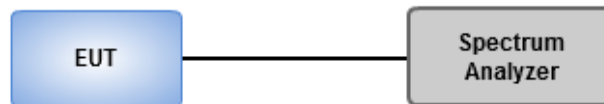
3.5.1 Limit of Channel Separation

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

3.5.2 Test Procedures

1. Set RBW=10kHz, VBW=30kHz, Sweep time=Auto, Detector=Peak Trace max hold.
2. Allow trace to stabilize.
3. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The EUT shall show compliance with the appropriate regulatory limit

3.5.3 Test Setup



3.5.4 Test Results

Ambient Condition	24°C / 65%	Tested By	Roger Lu
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Refer to Appendix E.

3.6 AC Power Line Conducted Emissions

3.6.1 Limit of AC Power Line Conducted Emissions

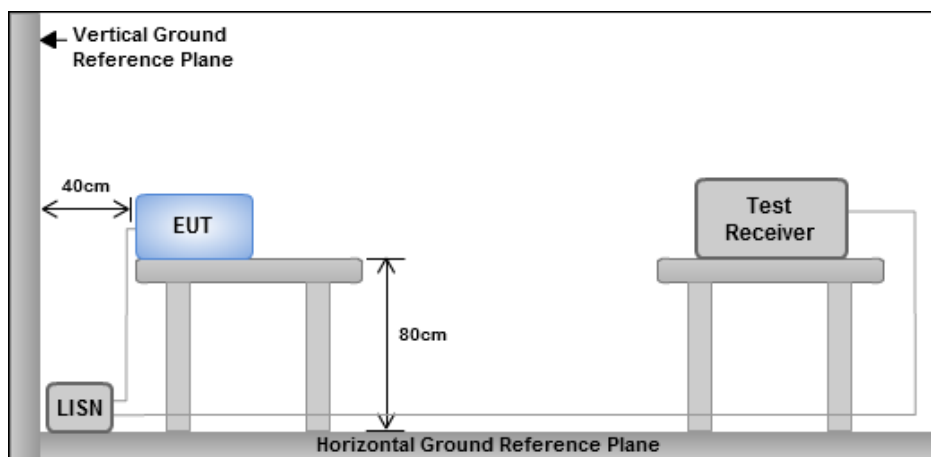
Conducted Emissions Limit		
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

3.6.2 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.

3.6.3 Test Setup



- Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.6.4 Test Result of Conducted Emissions

Refer to Appendix F.

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==



Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	GRF (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
902-928MHz	-	-	-	-	-	-	-	-	-	-	-
FSK-145k	Pass	30M	88M	PK	73.09M	2.50	-69.71	4.7	-62.51	-55.20	-7.31

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	GRF (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
FSK-145k	-	-	-	-	-	-	-	-	-	-	-
902.213MHz	Pass	1G	1.5G	AV	1.0015G	2.50	-68.81	0	-66.31	-41.20	-25.11
902.213MHz	Pass	30M	88M	PK	38.24M	2.50	-70.41	4.7	-63.21	-55.20	-8.01
902.213MHz	Pass	88M	216M	PK	126.53M	2.50	-70.47	4.7	-63.27	-51.70	-11.57
902.213MHz	Pass	216M	902M	PK	613.19M	2.50	-69.36	4.7	-62.16	-49.20	-12.96
902.213MHz	Pass	928M	1G	PK	961.23M	2.50	-58.90	4.7	-51.70	-41.20	-10.50
902.213MHz	Pass	1G	1.5G	PK	1.0055G	2.50	-57.39	0	-54.89	-21.20	-33.69
915.378MHz	Pass	1G	1.5G	AV	1.001G	2.50	-67.59	0	-65.09	-41.20	-23.89
915.378MHz	Pass	30M	88M	PK	73.09M	2.50	-69.71	4.7	-62.51	-55.20	-7.31
915.378MHz	Pass	88M	216M	PK	110.46M	2.50	-69.14	4.7	-61.94	-51.70	-10.24
915.378MHz	Pass	216M	902M	PK	611.48M	2.50	-68.27	4.7	-61.07	-49.20	-11.87
915.378MHz	Pass	928M	1G	PK	963.6M	2.50	-57.76	4.7	-50.56	-41.20	-9.36
915.378MHz	Pass	1G	1.5G	PK	1.0035G	2.50	-57.39	0	-54.89	-21.20	-33.69
927.492MHz	Pass	1G	1.5G	AV	1G	2.50	-66.31	0	-63.81	-41.20	-22.61
927.492MHz	Pass	30M	88M	PK	74.83M	2.50	-70.53	4.7	-63.33	-55.20	-8.13
927.492MHz	Pass	88M	216M	PK	117.63M	2.50	-69.65	4.7	-62.45	-51.70	-10.75
927.492MHz	Pass	216M	902M	PK	259.9M	2.50	-68.80	4.7	-61.60	-49.20	-12.40
927.492MHz	Pass	928M	1G	PK	966.88M	2.50	-56.75	4.7	-49.55	-41.20	-8.35
927.492MHz	Pass	1G	1.5G	PK	1.00125G	2.50	-56.45	0	-53.95	-21.20	-32.75

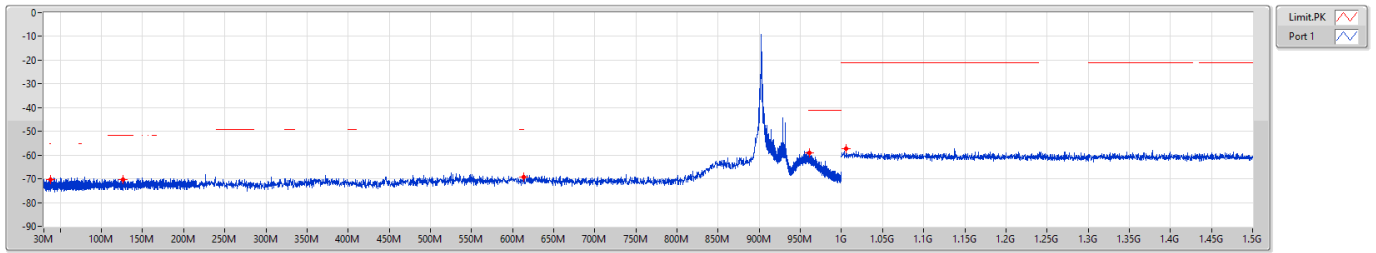
DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



902-928MHz_FSK-145k

CSE Other-FS [PK]

902.213MHz

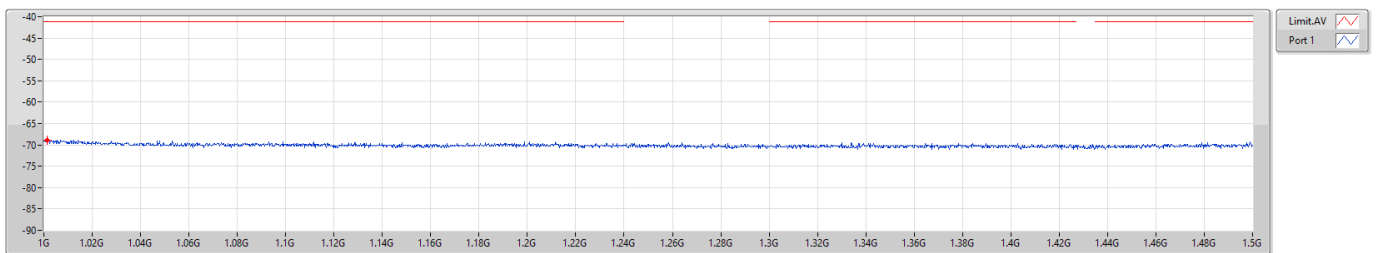


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
30M	88M	100k	PK	38.24M	-70.41	-70.41
88M	216M	100k	PK	126.53M	-70.47	-70.47
216M	902M	100k	PK	613.19M	-69.36	-69.36
928M	1G	100k	PK	961.23M	-58.90	-58.90
1G	1.5G	1M	PK	1.0055G	-57.39	-57.39

902-928MHz_FSK-145k

CSE Other-FS [AV]

902.213MHz



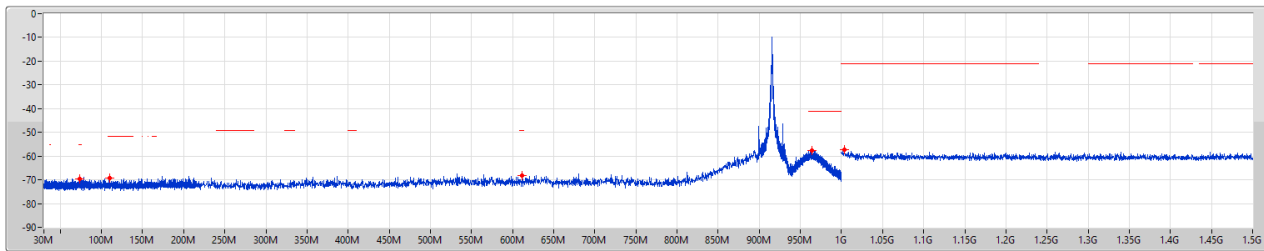
F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1G	1.5G	1M	AV	1.0015G	-68.81	-68.81



902-928MHz_FSK-145k

CSE Other-FS [PK]

915.378MHz



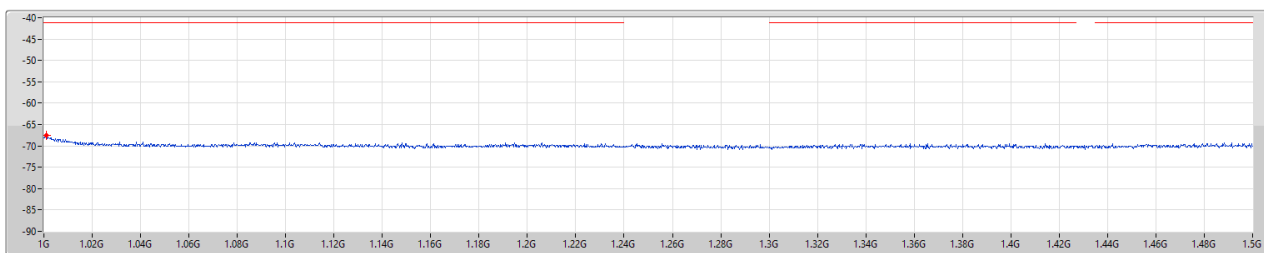
Limit.PK
Port 1

F.Start(Hz)	F.Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
30M	88M	100k	PK	73.09M	-69.71	-69.71
88M	216M	100k	PK	110.46M	-69.14	-69.14
216M	902M	100k	PK	611.48M	-68.27	-68.27
928M	1G	100k	PK	963.6M	-57.76	-57.76
1G	1.5G	1M	PK	1.0035G	-57.39	-57.39

902-928MHz_FSK-145k

CSE Other-FS [AV]

915.378MHz



Limit.AV
Port 1

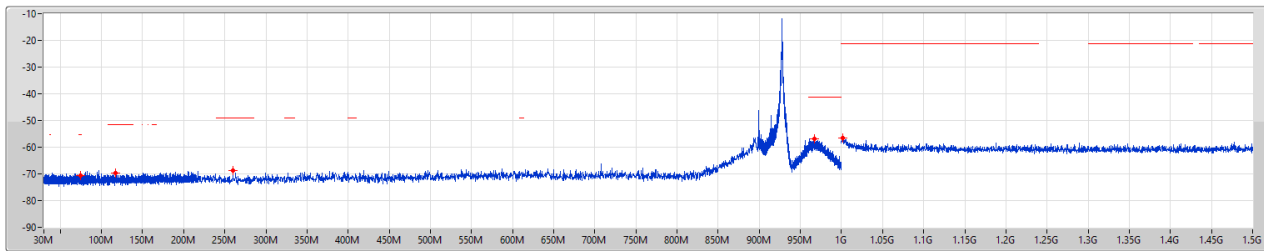
F.Start(Hz)	F.Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1G	1.5G	1M	AV	1.001G	-67.59	-67.59



902-928MHz_FSK-145k

CSE Other-FS [PK]

927.492MHz

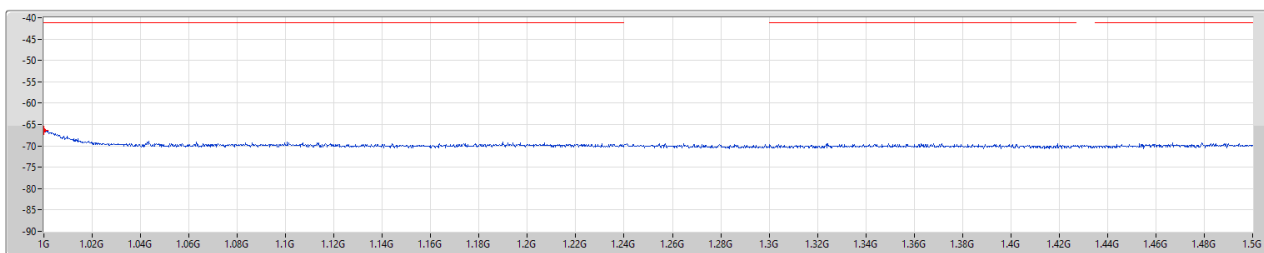


F.Start(Hz)	F.Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
30M	88M	100k	PK	74.83M	-70.53	-70.53
88M	216M	100k	PK	117.63M	-69.65	-69.65
216M	902M	100k	PK	259.91M	-68.00	-68.00
928M	1G	100k	PK	966.88M	-56.75	-56.75
1G	1.5G	1M	PK	1.00125G	-56.45	-56.45

902-928MHz_FSK-145k

CSE Other-FS [AV]

927.492MHz



F.Start(Hz)	F.Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1G	1.5G	1M	AV	1G	-66.31	-66.31



Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
902-928MHz	-	-	-	-	-	-	-	-	-	-
FSK-145k	Pass	4G	7G	AV	4.57713G	2.50	-51.43	-48.93	-41.20	-7.73

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
FSK-145k	-	-	-	-	-	-	-	-	-	-
902.213MHz	Pass	1.5G	4G	AV	3.60906G	2.50	-54.24	-51.74	-41.20	-10.54
902.213MHz	Pass	4G	7G	AV	4.51113G	2.50	-52.42	-49.92	-41.20	-8.72
902.213MHz	Pass	7G	10G	AV	8.1205G	2.50	-63.73	-61.23	-41.20	-20.03
902.213MHz	Pass	1.5G	4G	PK	3.60938G	2.50	-50.29	-47.79	-21.20	-26.59
902.213MHz	Pass	4G	7G	PK	4.5115G	2.50	-48.88	-46.38	-21.20	-25.18
902.213MHz	Pass	7G	10G	PK	9.1855G	2.50	-54.88	-52.38	-21.20	-31.18
915.378MHz	Pass	1.5G	4G	AV	3.66156G	2.50	-52.03	-49.53	-41.20	-8.33
915.378MHz	Pass	4G	7G	AV	4.57713G	2.50	-51.43	-48.93	-41.20	-7.73
915.378MHz	Pass	7G	10G	AV	7.32363G	2.50	-59.01	-56.51	-41.20	-15.31
915.378MHz	Pass	1.5G	4G	PK	3.66188G	2.50	-48.75	-46.25	-21.20	-25.05
915.378MHz	Pass	4G	7G	PK	4.5775G	2.50	-48.93	-46.43	-21.20	-25.23
915.378MHz	Pass	7G	10G	PK	7.32288G	2.50	-54.25	-51.75	-21.20	-30.55
927.492MHz	Pass	1.5G	4G	AV	3.71031G	2.50	-54.15	-51.65	-41.20	-10.45
927.492MHz	Pass	4G	7G	AV	4.6375G	2.50	-52.92	-50.42	-41.20	-9.22
927.492MHz	Pass	7G	10G	AV	7.41963G	2.50	-61.40	-58.90	-41.20	-17.70
927.492MHz	Pass	1.5G	4G	PK	3.71063G	2.50	-51.31	-48.81	-21.20	-27.61
927.492MHz	Pass	4G	7G	PK	4.6375G	2.50	-49.97	-47.47	-21.20	-26.27
927.492MHz	Pass	7G	10G	PK	7.73463G	2.50	-54.38	-51.88	-21.20	-30.68

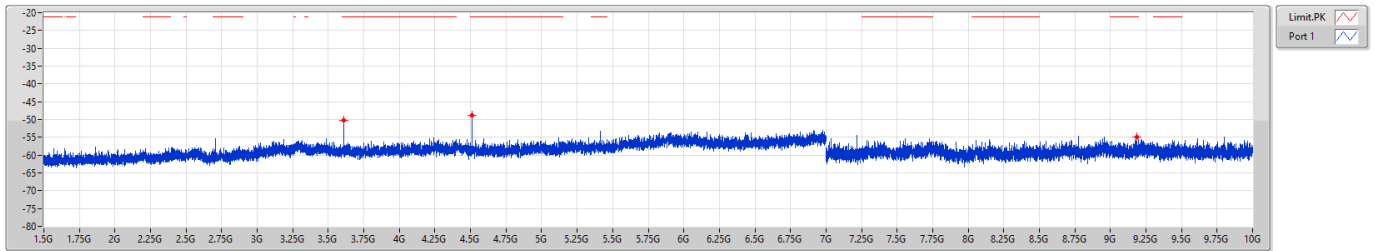
DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



902-928MHz_FSK-145k

CSE-FS [PK]

902.213MHz

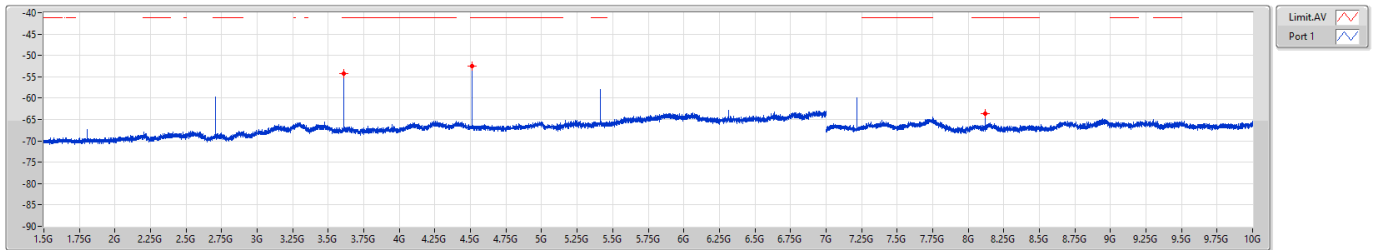


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1.5G	4G	1M	PK	3.60938G	-50.29	-50.29
4G	7G	1M	PK	4.51115G	-48.88	-48.88
7G	10G	1M	PK	9.1855G	-54.88	-54.88

902-928MHz_FSK-145k

CSE-FS [AV]

902.213MHz



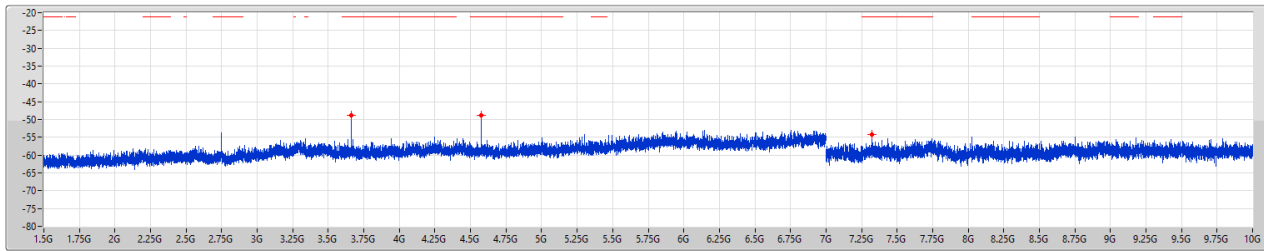
F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1.5G	4G	1M	AV	3.60906G	-54.24	-54.24
4G	7G	1M	AV	4.51113G	-52.42	-52.42
7G	10G	1M	AV	8.1205G	-63.73	-63.73



902-928MHz_FSK-145k

CSE-FS [PK]

915.378MHz



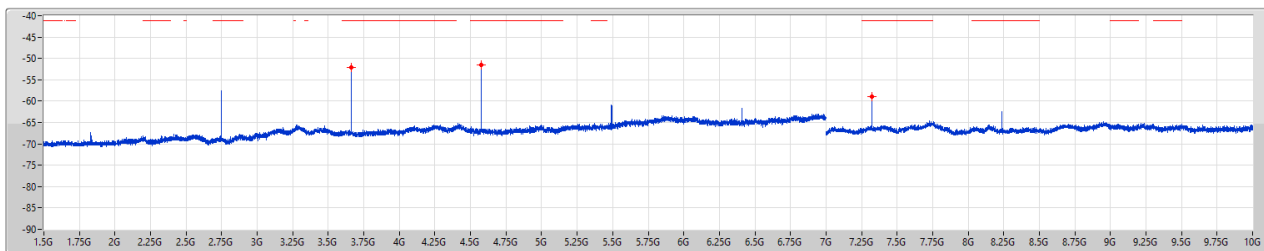
Limit:PK
Port 1

F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1.5G	4G	1M	PK	3.66188G	-48.75	-48.75
4G	7G	1M	PK	4.5775G	-48.93	-48.93
7G	10G	1M	PK	7.32286G	-54.25	-54.25

902-928MHz_FSK-145k

CSE-FS [AV]

915.378MHz



Limit:AV
Port 1

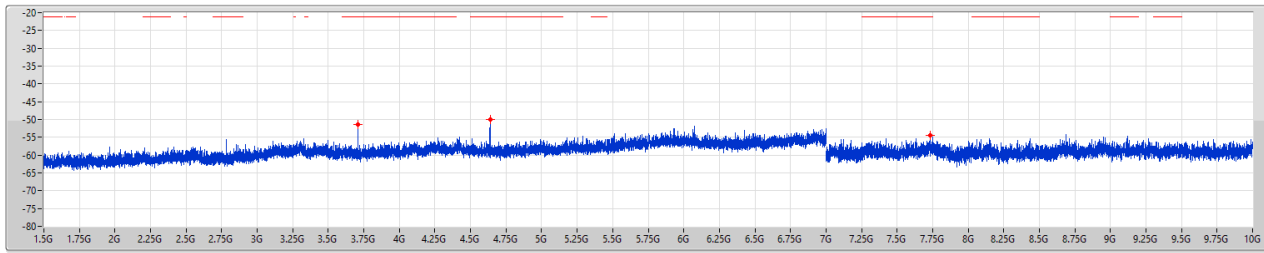
F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1.5G	4G	1M	AV	3.66156G	-52.03	-52.03
4G	7G	1M	AV	4.57713G	-51.43	-51.43
7G	10G	1M	AV	7.32265G	-59.01	-59.01



902-928MHz_FSK-145k

CSE-FS [PK]

927.492MHz



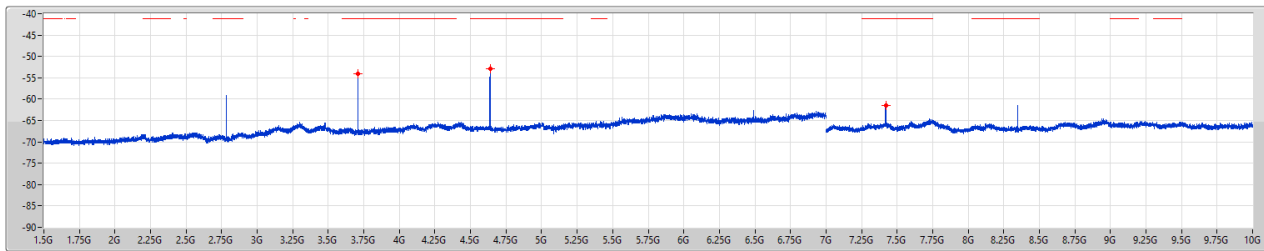
LimitPK
Port 1

F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1.5G	4G	1M	PK	3.71063G	-51.31	-51.31
4G	7G	1M	PK	4.6379G	-49.97	-49.97
7G	10G	1M	PK	7.73463G	-54.38	-54.38

902-928MHz_FSK-145k

CSE-FS [AV]

927.492MHz



LimitAV
Port 1

F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	Psum(dBm)	P1(dBm)
1.5G	4G	1M	AV	3.71031G	-54.15	-54.15
4G	7G	1M	AV	4.6379G	-52.92	-52.92
7G	10G	1M	AV	7.41963G	-61.40	-61.40



Emission below 1GHz

Mode	FSK-145k	Test Freq. (MHz)	902.213						
Polarization	Horizontal								
Test By :Paul Lin Temperature(°C):25 Humidity(%):62									
<p>The graph plots Level (dBuV/m) on the y-axis (0 to 90) against Frequency (MHz) on the x-axis (30 to 1000). A red step function represents the CLASS-B limit, starting at 40 dBuV/m, stepping up to 45 dBuV/m at 100 MHz, and to 55 dBuV/m at 960 MHz. Six blue vertical lines represent measured peaks at frequencies 118.27, 235.64, 323.91, 389.87, 613.94, and 960.23 MHz, with levels 23.21, 22.63, 24.78, 26.09, 27.62, and 34.55 dBuV/m respectively.</p>									
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	118.27	23.21	43.50	-20.29	34.48	-11.27	Peak	---	---
2	235.64	22.63	46.00	-23.37	33.08	-10.45	Peak	---	---
3	323.91	24.78	46.00	-21.22	31.75	-6.97	Peak	---	---
4	389.87	26.09	46.00	-19.91	31.21	-5.12	Peak	---	---
5	613.94	27.62	46.00	-18.38	26.97	0.65	Peak	---	---
6	960.23	34.55	54.00	-19.45	28.09	6.46	Peak	---	---

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).

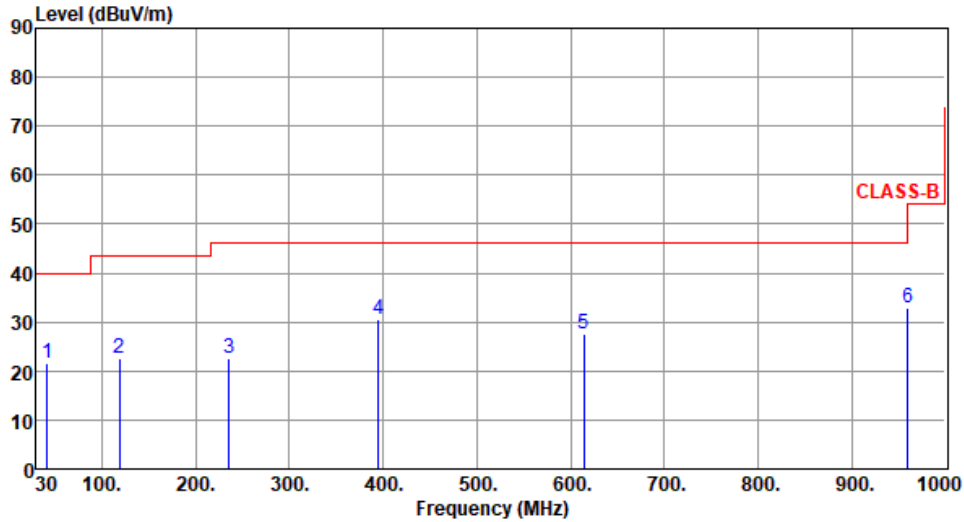


Mode	FSK-145k	Test Freq. (MHz)	902.213						
Polarization	Vertical								
Test By : Paul Lin Temperature(°C): 25 Humidity(%): 62									
<p>The graph plots Level (dBuV/m) on the y-axis (0 to 90) against Frequency (MHz) on the x-axis (30 to 1000). A red step function represents the CLASS-B emission limit. Six blue vertical lines indicate measured peaks at various frequencies, labeled 1 through 6. The peaks are significantly below the limit line.</p>									
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg
1	31.94	28.33	40.00	-11.67	37.91	-9.58	Peak	---	---
2	147.37	21.04	43.50	-22.46	29.53	-8.49	Peak	---	---
3	383.08	25.50	46.00	-20.50	30.85	-5.35	Peak	---	---
4	456.80	27.73	46.00	-18.27	30.88	-3.15	Peak	---	---
5	613.94	27.95	46.00	-18.05	27.30	0.65	Peak	---	---
6	960.23	34.03	54.00	-19.97	27.57	6.46	Peak	---	---
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).									



Mode	FSK-145k	Test Freq. (MHz)	915.378
Polarization	Horizontal		

Test By : Paul Lin Temperature(°C): 25 Humidity(%): 62



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	41.64	21.43	40.00	-18.57	29.92	-8.49	Peak	---	---
2	118.27	22.53	43.50	-20.97	33.80	-11.27	Peak	---	---
3	235.64	22.67	46.00	-23.33	33.12	-10.45	Peak	---	---
4	394.72	30.67	46.00	-15.33	35.77	-5.10	Peak	---	---
5	613.94	27.57	46.00	-18.43	26.92	0.65	Peak	---	---
6	960.23	32.90	54.00	-21.10	26.44	6.46	Peak	---	---

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).



Mode	FSK-145k	Test Freq. (MHz)	915.378						
Polarization	Vertical								
Test By : Paul Lin Temperature(°C): 25 Humidity(%): 62									
	Freq.	Emission level	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	dBuV/m	dBuV/m	dB	reading	dB/m		High	Table
								cm	deg
1	31.94	28.65	40.00	-11.35	38.23	-9.58	Peak	---	---
2	164.83	20.81	43.50	-22.69	29.60	-8.79	Peak	---	---
3	389.87	25.63	46.00	-20.37	30.75	-5.12	Peak	---	---
4	471.35	29.00	46.00	-17.00	31.86	-2.86	Peak	---	---
5	613.94	28.95	46.00	-17.05	28.30	0.65	Peak	---	---
6	960.23	32.34	54.00	-21.66	25.88	6.46	Peak	---	---
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).									



Mode	FSK-145k	Test Freq. (MHz)	927.492						
Polarization	Horizontal								
Test By : Paul Lin Temperature(°C): 25 Humidity(%): 62									
<p>The graph plots Level (dBuV/m) on the y-axis (0 to 90) against Frequency (MHz) on the x-axis (30 to 1000). A red step function represents the CLASS-B limit, starting at 40 dBuV/m and stepping up to 50 dBuV/m at 900 MHz. Six blue vertical lines indicate emission peaks at 118.27, 235.64, 323.91, 456.80, 613.94, and 960.23 MHz.</p>									
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	118.27	22.24	43.50	-21.26	33.51	-11.27	Peak	---	---
2	235.64	22.81	46.00	-23.19	33.26	-10.45	Peak	---	---
3	323.91	24.17	46.00	-21.83	31.14	-6.97	Peak	---	---
4	456.80	27.49	46.00	-18.51	30.64	-3.15	Peak	---	---
5	613.94	29.24	46.00	-16.76	28.59	0.65	Peak	---	---
6	960.23	32.74	54.00	-21.26	26.28	6.46	Peak	---	---
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).									



Mode	FSK-145k	Test Freq. (MHz)	927.492						
Polarization	Vertical								
Test By : Paul Lin Temperature(°C): 25 Humidity(%): 62									
<p>The graph displays the emission level in dBuV/m across a frequency range from 30 MHz to 1000 MHz. A red step function represents the CLASS-B limit, starting at 40 dBuV/m and stepping up to 54 dBuV/m at 960 MHz. Six blue vertical lines indicate measured peaks at various frequencies, labeled 1 through 6.</p>									
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg
1	31.94	28.97	40.00	-11.03	38.55	-9.58	Peak	---	---
2	162.89	20.87	43.50	-22.63	29.50	-8.63	Peak	---	---
3	235.64	21.25	46.00	-24.75	31.70	-10.45	Peak	---	---
4	471.35	28.64	46.00	-17.36	31.50	-2.86	Peak	---	---
5	613.94	28.40	46.00	-17.60	27.75	0.65	Peak	---	---
6	960.23	34.45	54.00	-19.55	27.99	6.46	Peak	---	---
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).									



Emission above 1GHz

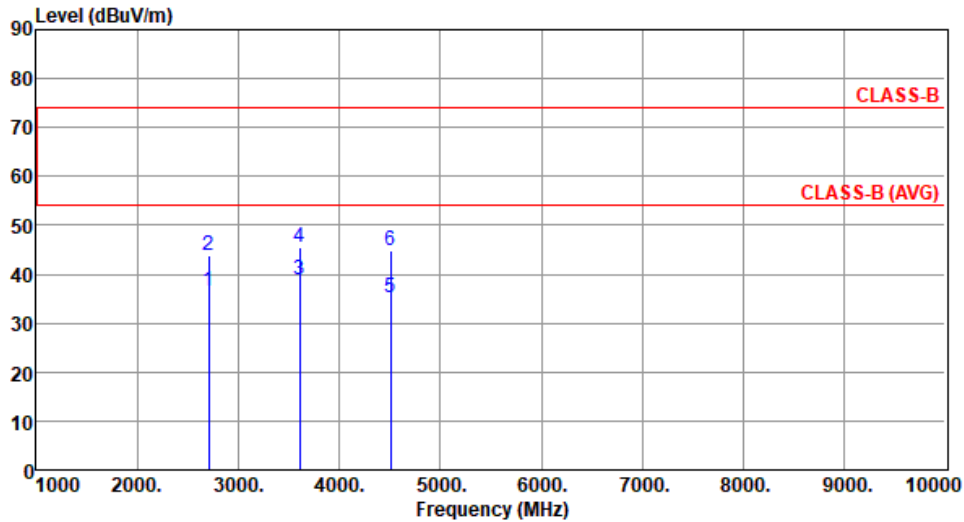
Mode	FSK-145k	Test Freq. (MHz)	902.213						
Polarization	Horizontal								
Test By :Paul Lin Temperature(°C):25 Humidity(%):62									
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2706.64	35.54	54.00	-18.46	39.07	-3.53	Average	100	327
2	2706.64	43.62	74.00	-30.38	47.15	-3.53	Peak	100	327
3	3608.85	39.79	54.00	-14.21	41.47	-1.68	Average	100	323
4	3608.85	46.06	74.00	-27.94	47.74	-1.68	Peak	100	323
5	4511.07	42.29	54.00	-11.71	42.75	-0.46	Average	100	10
6	4511.07	48.50	74.00	-25.50	48.96	-0.46	Peak	100	10

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).



Mode	FSK-145k	Test Freq. (MHz)	902.213
Polarization	Vertical		

Test By :Paul Lin Temperature(°C):25 Humidity(%):62



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2706.64	36.60	54.00	-17.40	40.13	-3.53	Average	201	13
2	2706.64	43.97	74.00	-30.03	47.50	-3.53	Peak	201	13
3	3608.85	38.97	54.00	-15.03	40.65	-1.68	Average	241	310
4	3608.85	45.52	74.00	-28.48	47.20	-1.68	Peak	241	310
5	4511.07	35.36	54.00	-18.64	35.82	-0.46	Average	100	316
6	4511.07	45.00	74.00	-29.00	45.46	-0.46	Peak	100	316

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

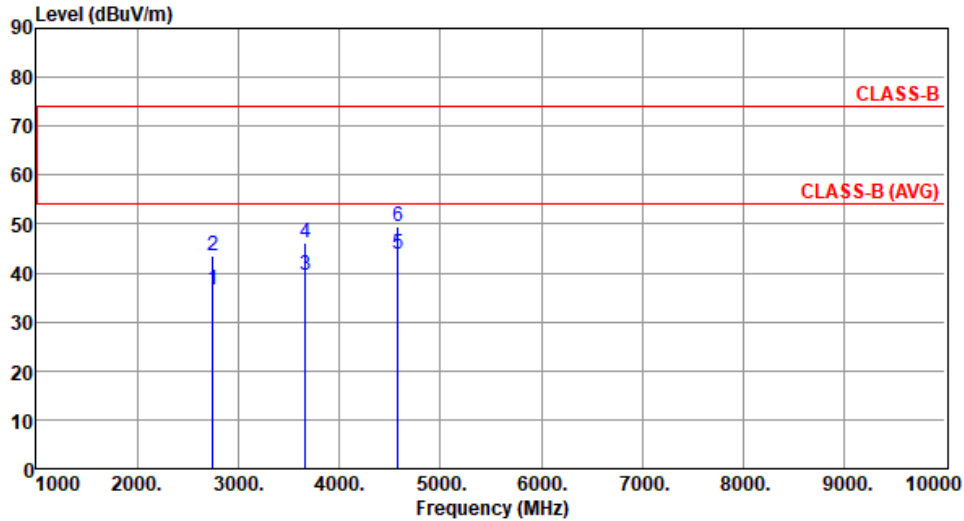
*Factor includes antenna factor , cable loss and amplifier gain

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



Mode	FSK-145k	Test Freq. (MHz)	915.378
Polarization	Horizontal		

Test By :Paul Lin Temperature(°C):25 Humidity(%):62



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2746.13	36.56	54.00	-17.44	39.80	-3.24	Average	100	334
2	2746.13	43.56	74.00	-30.44	46.80	-3.24	Peak	100	334
3	3661.51	39.65	54.00	-14.35	41.26	-1.61	Average	100	325
4	3661.51	46.09	74.00	-27.91	47.70	-1.61	Peak	100	325
5	4576.89	43.96	54.00	-10.04	44.15	-0.19	Average	100	6
6	4576.89	49.54	74.00	-24.46	49.73	-0.19	Peak	100	6

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

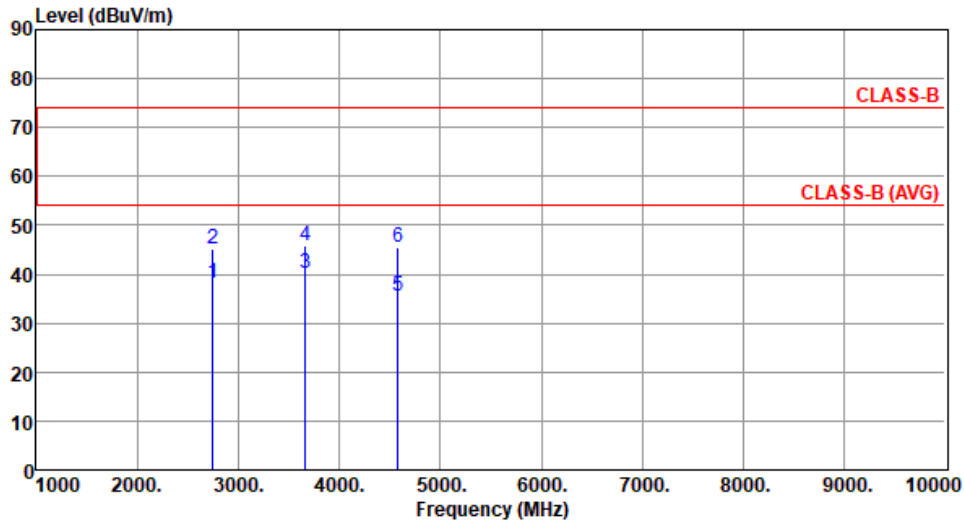
*Factor includes antenna factor , cable loss and amplifier gain

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



Mode	FSK-145k	Test Freq. (MHz)	915.378
Polarization	Vertical		

Test By : Paul Lin Temperature(°C): 25 Humidity(%): 62



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2746.13	38.26	54.00	-15.74	41.50	-3.24	Average	188	10
2	2746.13	45.06	74.00	-28.94	48.30	-3.24	Peak	188	10
3	3661.51	40.21	54.00	-13.79	41.82	-1.61	Average	229	314
4	3661.51	45.94	74.00	-28.06	47.55	-1.61	Peak	229	314
5	4576.89	35.55	54.00	-18.45	35.74	-0.19	Average	100	313
6	4576.89	45.56	74.00	-28.44	45.75	-0.19	Peak	100	313

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).

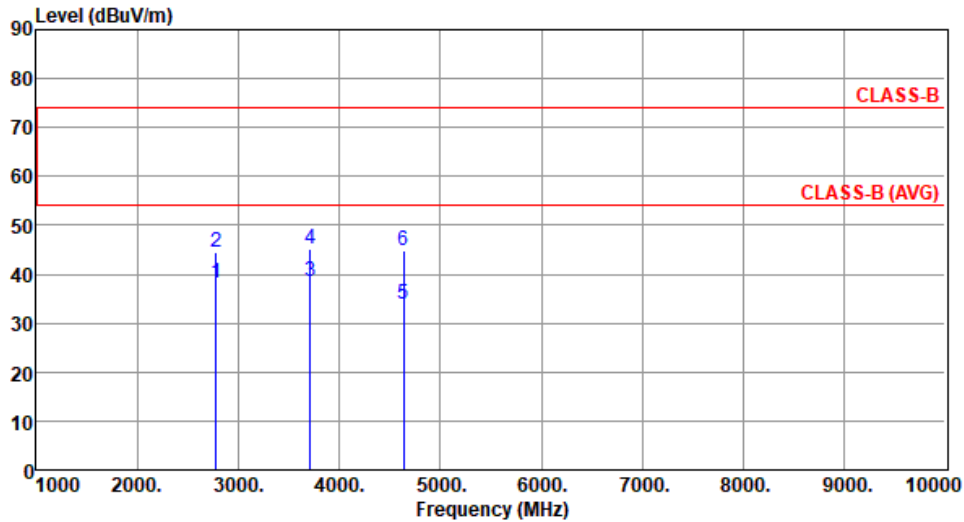


Mode	FSK-145k	Test Freq. (MHz)	927.492						
Polarization	Horizontal								
Test By : Paul Lin Temperature(°C): 25 Humidity(%): 62									
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2782.48	36.77	54.00	-17.23	39.76	-2.99	Average	100	324
2	2782.48	43.73	74.00	-30.27	46.72	-2.99	Peak	100	324
3	3709.97	38.21	54.00	-15.79	39.84	-1.63	Average	100	317
4	3709.97	45.71	74.00	-28.29	47.34	-1.63	Peak	100	317
5	4637.46	43.39	54.00	-10.61	43.40	-0.01	Average	100	2
6	4637.46	49.43	74.00	-24.57	49.44	-0.01	Peak	100	2
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).									



Mode	FSK-145k	Test Freq. (MHz)	927.492
Polarization	Vertical		

Test By :Paul Lin Temperature(°C):25 Humidity(%):62



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2782.48	38.07	54.00	-15.93	41.06	-2.99	Average	194	359
2	2782.48	44.42	74.00	-29.58	47.41	-2.99	Peak	194	359
3	3709.97	38.57	54.00	-15.43	40.20	-1.63	Average	203	315
4	3709.97	45.23	74.00	-28.77	46.86	-1.63	Peak	203	315
5	4637.46	33.72	54.00	-20.28	33.73	-0.01	Average	100	318
6	4637.46	44.67	74.00	-29.33	44.68	-0.01	Peak	100	318

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).

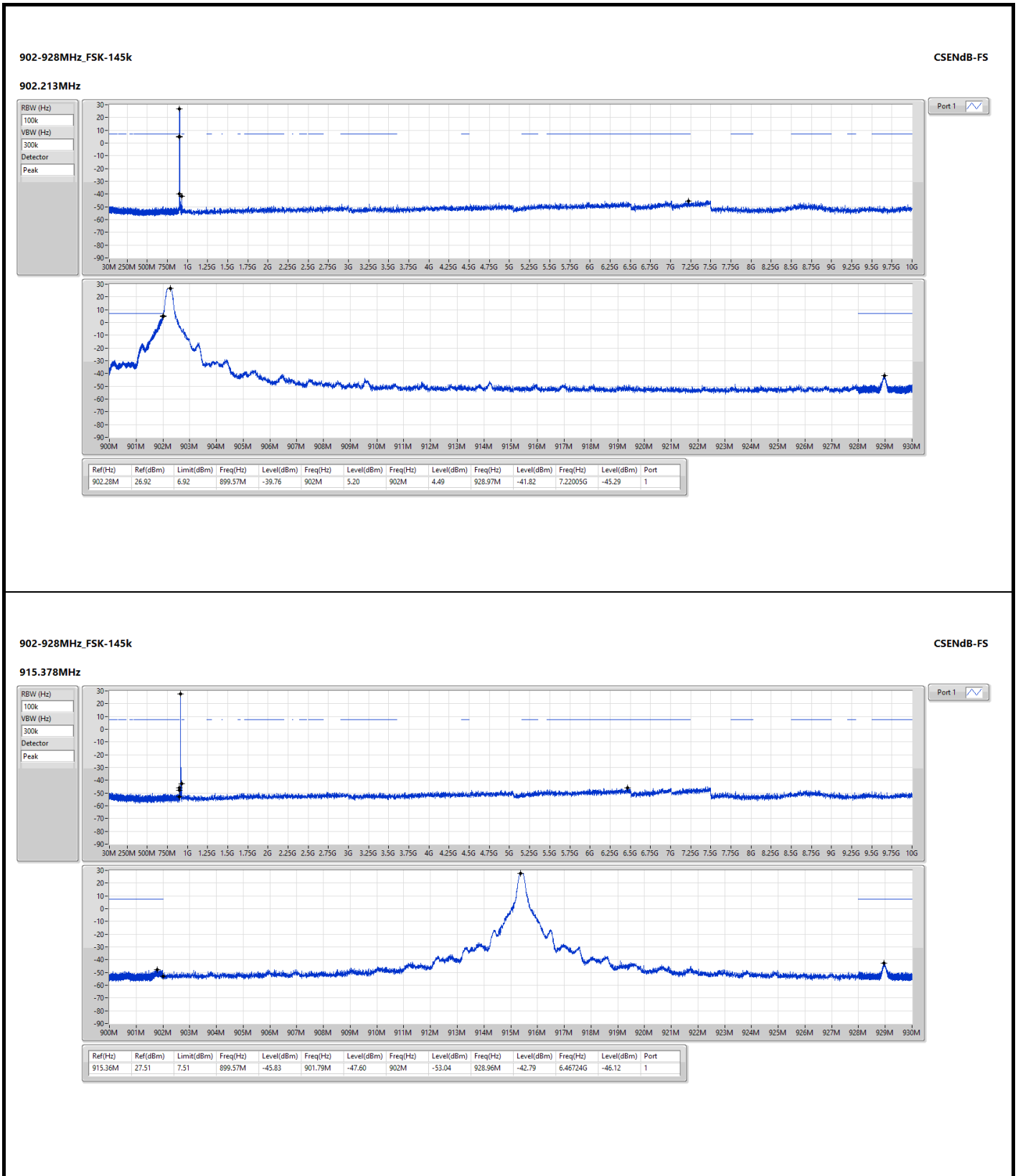


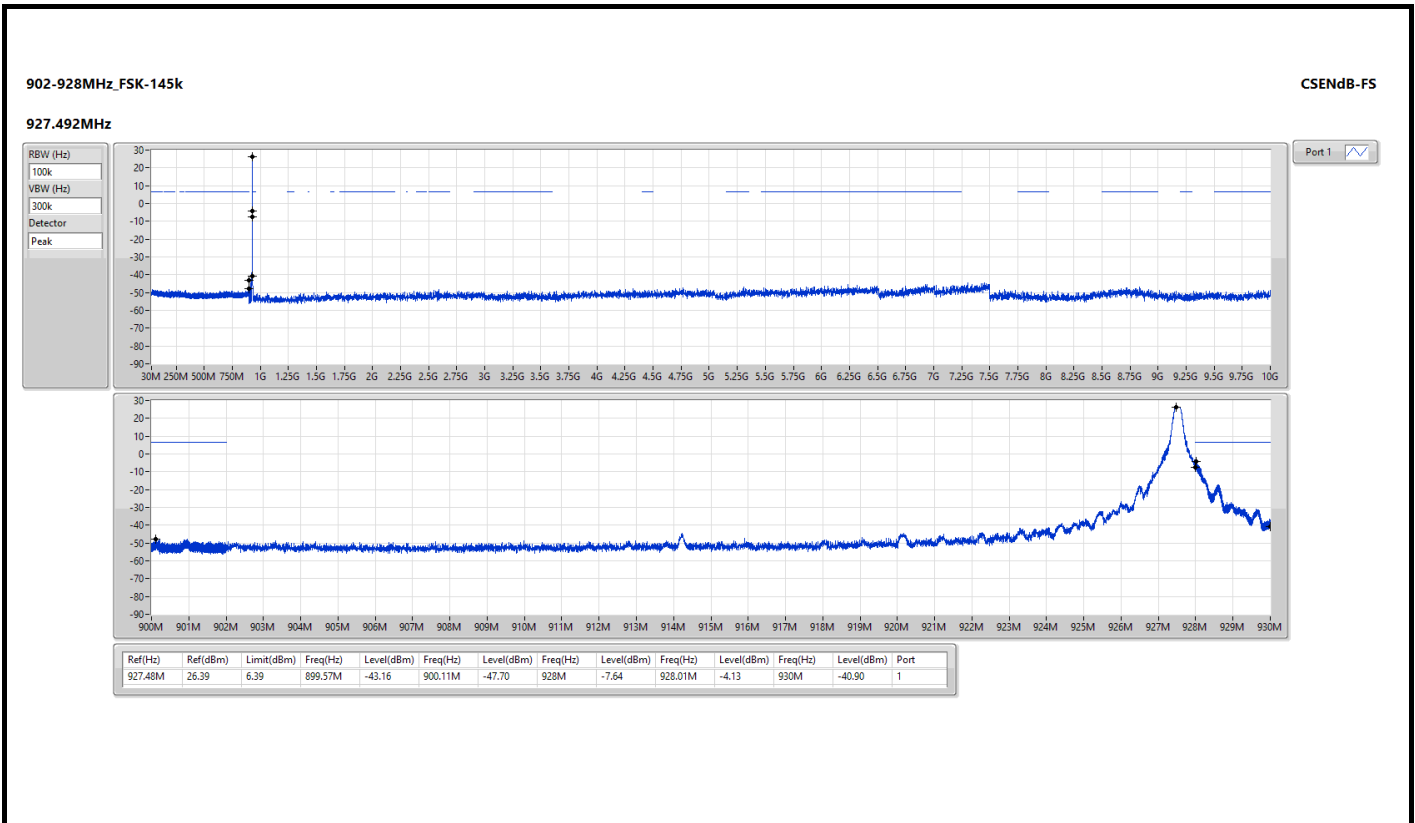
Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
902-928MHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FSK-145k	Pass	902.28M	26.92	6.92	899.57M	-39.76	902M	5.20	902M	4.49	928.97M	-41.82	7.22005G	-45.29	1

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
FSK-145k	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
902.213MHz	Pass	902.28M	26.92	6.92	899.57M	-39.76	902M	5.20	902M	4.49	928.97M	-41.82	7.22005G	-45.29	1
915.378MHz	Pass	915.36M	27.51	7.51	899.57M	-45.83	901.79M	-47.60	902M	-53.04	928.96M	-42.79	6.46724G	-46.12	1
927.492MHz	Pass	927.48M	26.39	6.39	899.57M	-43.16	900.11M	-47.70	928M	-7.64	928.01M	-4.13	930M	-40.90	1







Model: AC4790LR-1000M

Summary

Mode	Total Power (dBm)	Power (W)
902-928MHz	-	-
FSK-145k	27.71	0.59020

Result

Mode	Result	Antenna Gain (dBi)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
FSK-145k	-	-	-	-	-	-
902.213MHz	Pass	2.50	27.16	-	29.66	-
915.378MHz	Pass	2.50	27.71	-	30.21	-
927.492MHz	Pass	2.50	26.40	-	28.90	-

Note: Average power is for reference only.



Model: AC4490-1000M

Summary

Mode	Total Power (dBm)	Power (W)
902-928MHz	-	-
FSK-145k	27.61	0.57677

Result

Mode	Result	Antenna Gain (dBi)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
FSK-145k	-	-	-	-	-	-
902.213MHz	Pass	2.50	27.01	-	29.51	-
915.378MHz	Pass	2.50	27.61	-	30.11	-
927.492MHz	Pass	2.50	26.32	-	28.82	-

Note: Average power is for reference only.



Model: AC4790LR-1000M

Summary

Mode	Total Power (dBm)	Power (W)
902-928MHz	-	-
FSK-145k	27.82	0.60534

Result

Mode	Result	Antenna Gain (dBi)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
FSK-145k	-	-	-	-	-	-
902.213MHz	Pass	2.50	27.21	30.00	29.71	36.00
915.378MHz	Pass	2.50	27.82	30.00	30.32	36.00
927.492MHz	Pass	2.50	26.49	30.00	28.99	36.00



Model: AC4490-1000M

Summary

Mode	Total Power (dBm)	Power (W)
902-928MHz	-	-
FSK-145k	27.71	0.59020

Result

Mode	Result	Antenna Gain (dBi)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
FSK-145k	-	-	-	-	-	-
902.213MHz	Pass	2.50	27.10	30.00	29.60	36.00
915.378MHz	Pass	2.50	27.71	30.00	30.21	36.00
927.492MHz	Pass	2.50	26.42	30.00	28.92	36.00



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
902-928MHz	-	-	-	-	-
FSK-145k	219.375k	341.079k	341KF1D	170k	267.366k

Max-N dB = Maximum 20dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 20dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
FSK-145k	-	-	-	-
902.213MHz	Pass	500k	170k	267.366k
915.378MHz	Pass	500k	219.375k	341.079k
927.492MHz	Pass	500k	188.75k	316.092k

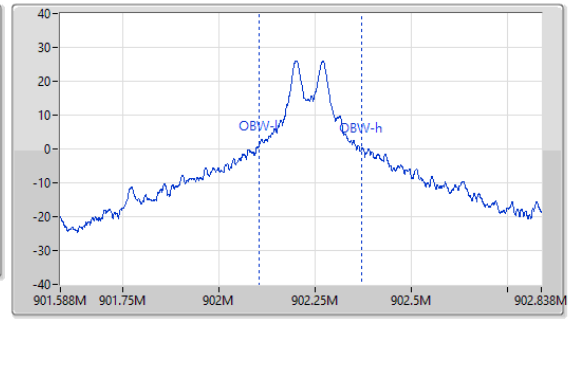
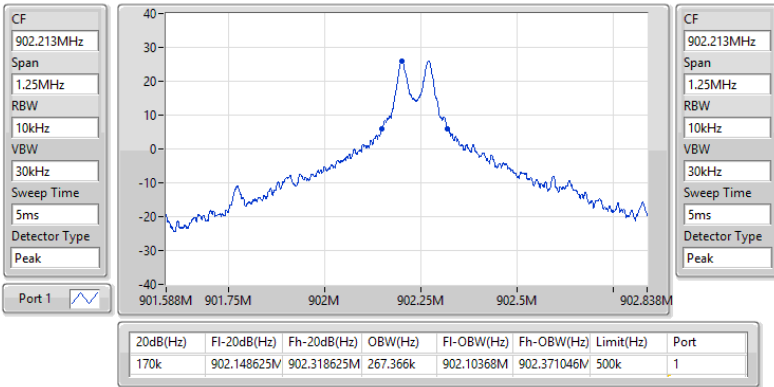
Port X-N dB = Port X 20dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth



902-928MHz_FSK-145k

EBW-FS

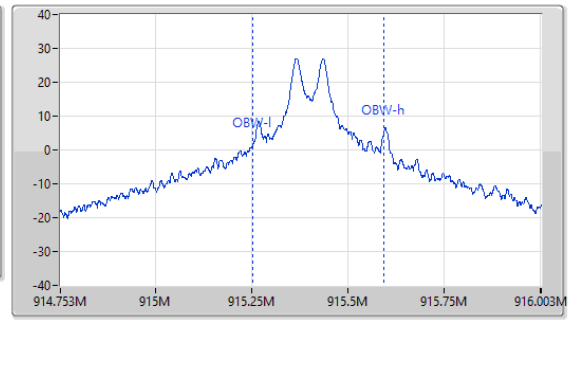
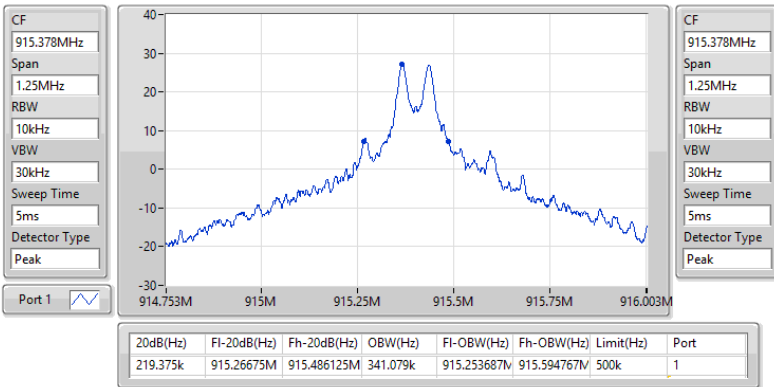
902.213MHz

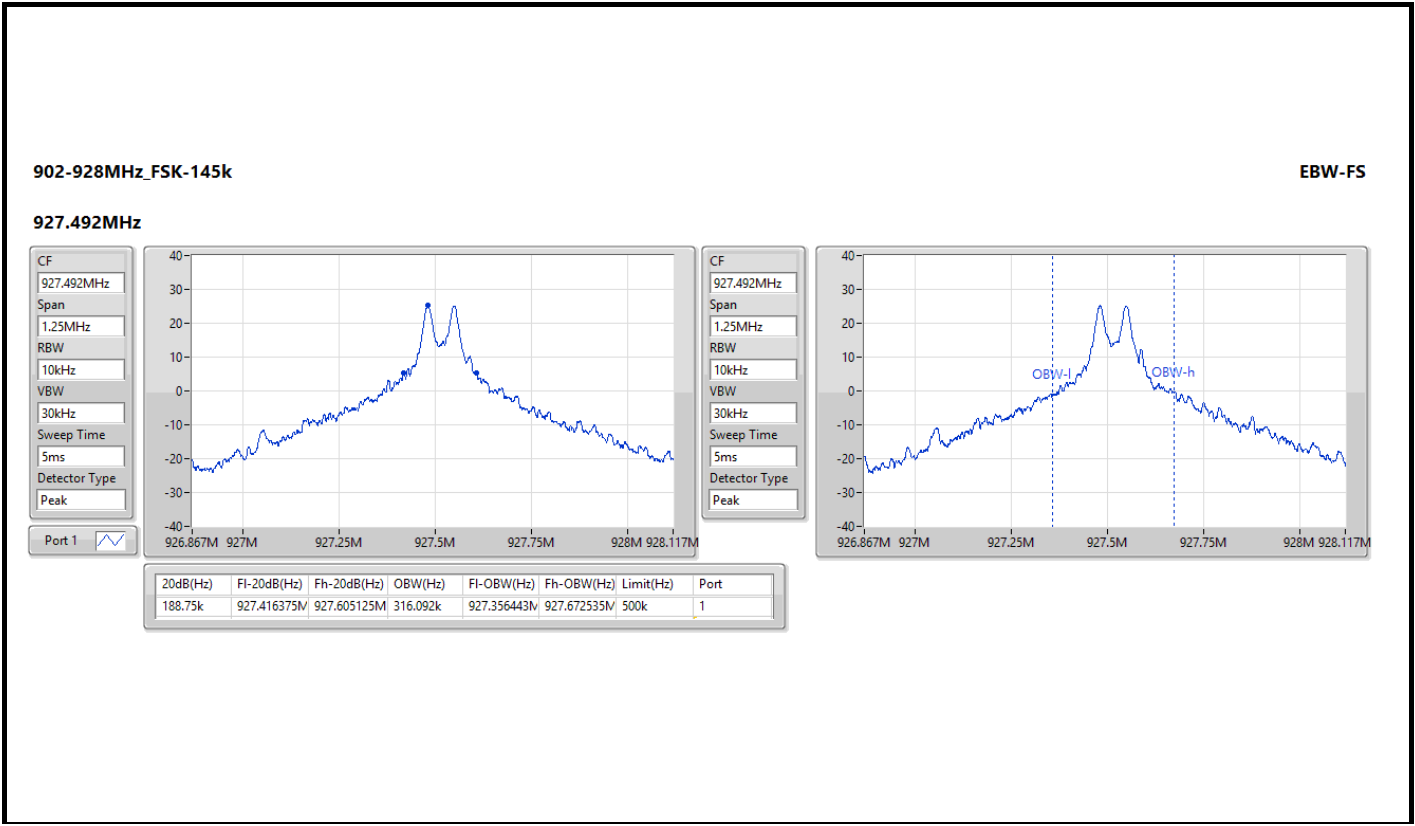


902-928MHz_FSK-145k

EBW-FS

915.378MHz





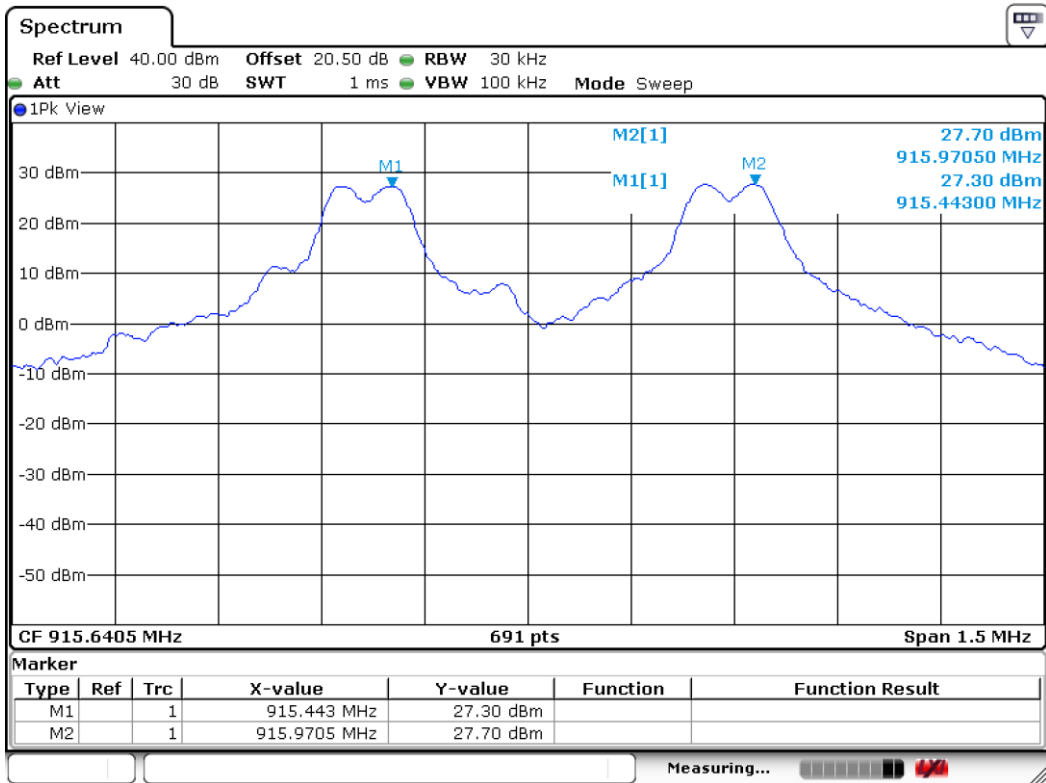
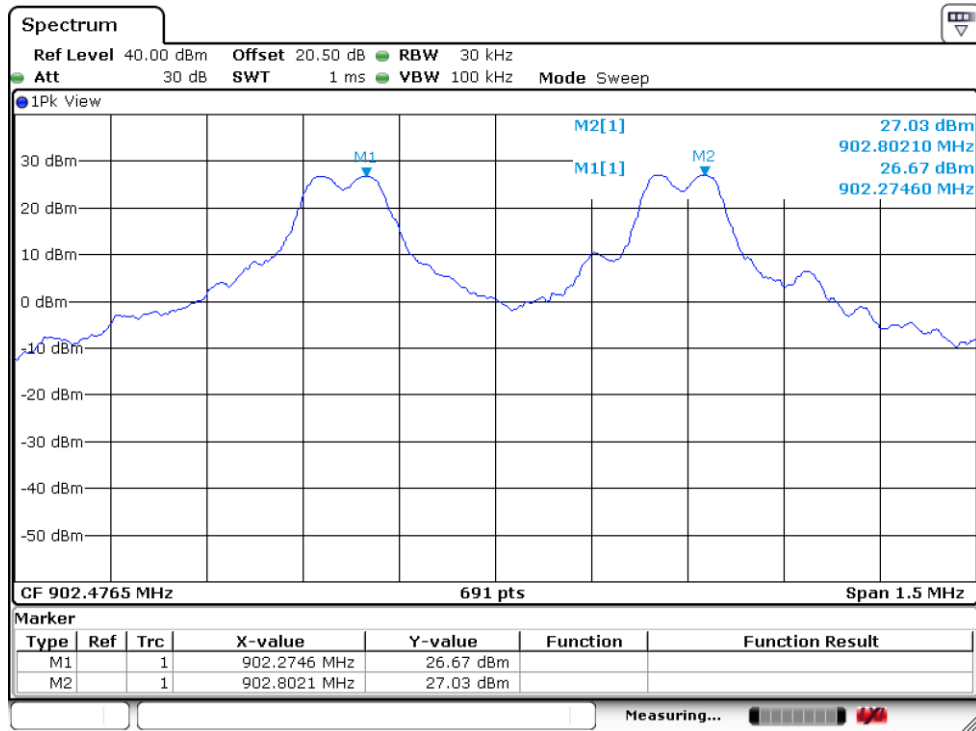


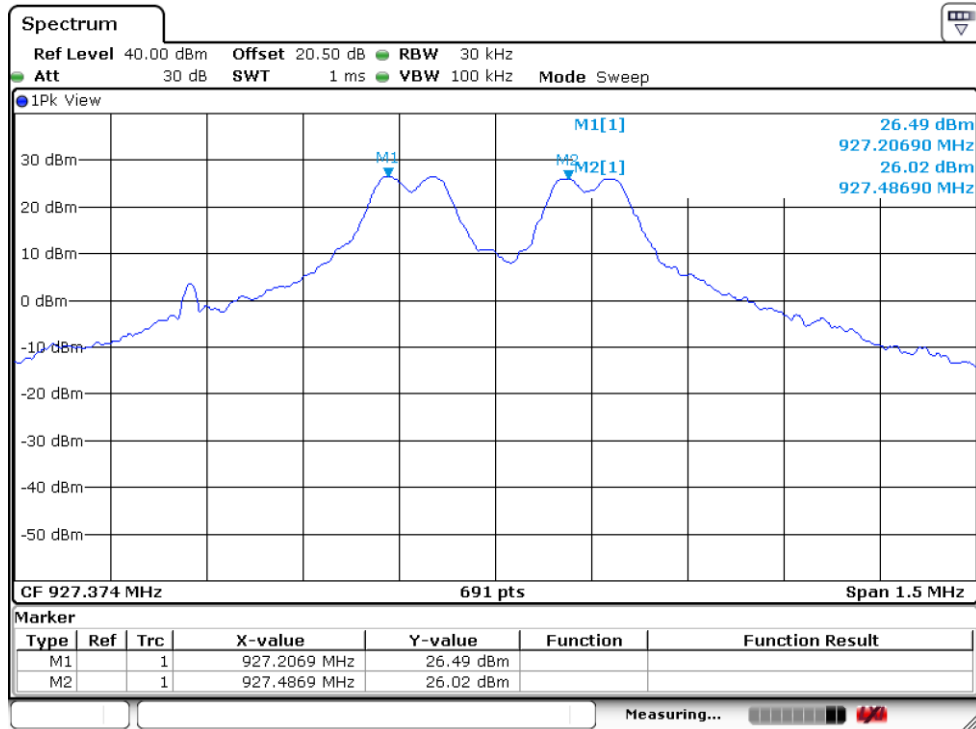
Summary

Mode	Max-Space (Hz)	Min-Space (Hz)
902-928MHz	-	-
FSK-145k	527.5k	280k

Result

Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
FSK-145k	-	-	-	-	-
902.213MHz	Pass	902.2746M	902.8021M	527.5k	170k
915.378MHz	Pass	915.4430M	915.9705M	527.5k	219.375k
927.492MHz	Pass	927.2069M	927.4869M	280k	188.75k

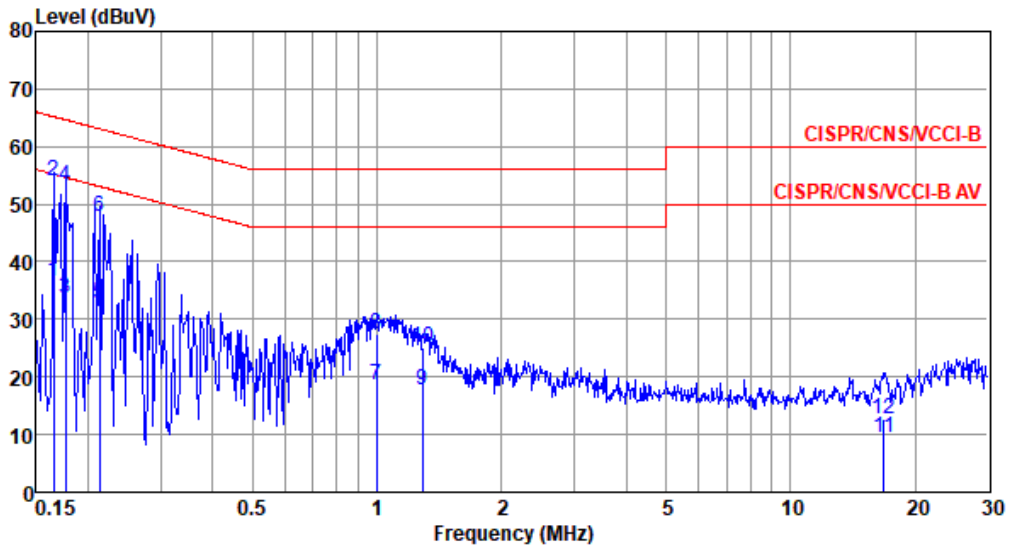






Power Phase	Line	Test Freq. (MHz)	902.213
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Test by : Joe Liao Temperature: 24°C Humidity: 63%



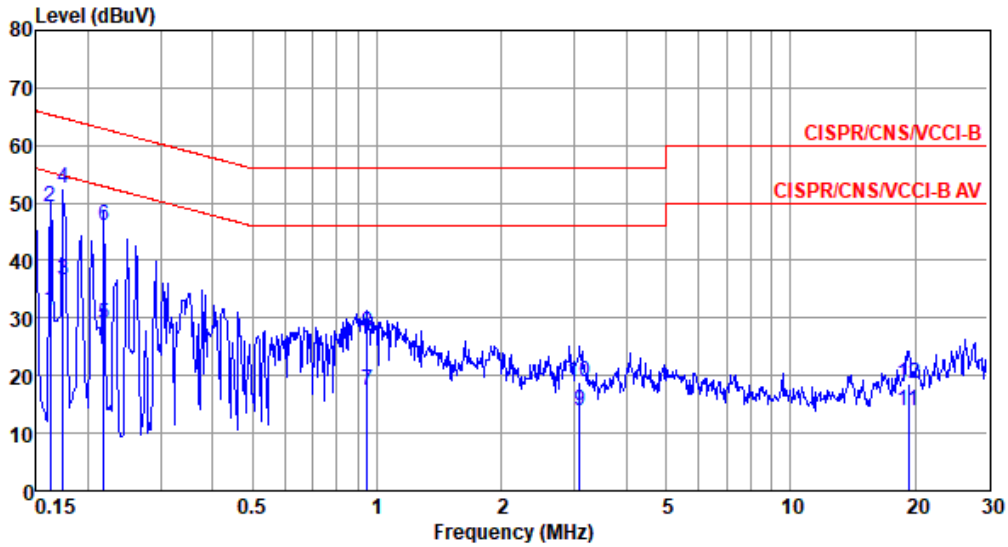
	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.165	36.64	55.21	-18.57	26.77	9.63	0.06	0.18	Average
2*	0.165	54.01	65.21	-11.20	44.14	9.63	0.06	0.18	QP
3	0.177	33.51	54.64	-21.13	23.64	9.62	0.06	0.19	Average
4	0.177	53.12	64.64	-11.52	43.25	9.62	0.06	0.19	QP
5	0.213	32.67	53.10	-20.43	22.79	9.62	0.06	0.20	Average
6	0.213	47.74	63.10	-15.36	37.86	9.62	0.06	0.20	QP
7	1.000	18.54	46.00	-27.46	8.47	9.63	0.11	0.33	Average
8	1.000	27.38	56.00	-28.62	17.31	9.63	0.11	0.33	QP
9	1.289	17.71	46.00	-28.29	7.62	9.63	0.12	0.34	Average
10	1.289	24.97	56.00	-31.03	14.88	9.63	0.12	0.34	QP
11	16.839	9.36	50.00	-40.64	-1.29	9.68	0.47	0.50	Average
12	16.839	12.65	60.00	-47.35	2.00	9.68	0.47	0.50	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).
 Note 2: Over Limit (dB) = Level (dBUV) - Limit Line (dBUV).



Power Phase	Neutral	Test Freq. (MHz)	902.213
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Test by : Joe Liao Temperature: 24°C Humidity: 63%



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.162	31.26	55.34	-24.08	21.39	9.63	0.06	0.18	Average
2	0.162	49.18	65.34	-16.16	39.31	9.63	0.06	0.18	QP
3	0.174	36.71	54.77	-18.06	26.83	9.63	0.06	0.19	Average
4*	0.174	52.63	64.77	-12.14	42.75	9.63	0.06	0.19	QP
5	0.219	28.85	52.88	-24.03	18.96	9.63	0.06	0.20	Average
6	0.219	45.96	62.88	-16.92	36.07	9.63	0.06	0.20	QP
7	0.948	17.55	46.00	-28.45	7.48	9.63	0.11	0.33	Average
8	0.948	27.44	56.00	-28.56	17.37	9.63	0.11	0.33	QP
9	3.090	13.81	46.00	-32.19	3.60	9.65	0.16	0.40	Average
10	3.090	18.99	56.00	-37.01	8.78	9.65	0.16	0.40	QP
11	19.326	13.87	50.00	-36.13	3.05	9.80	0.50	0.52	Average
12	19.326	18.68	60.00	-41.32	7.86	9.80	0.50	0.52	QP

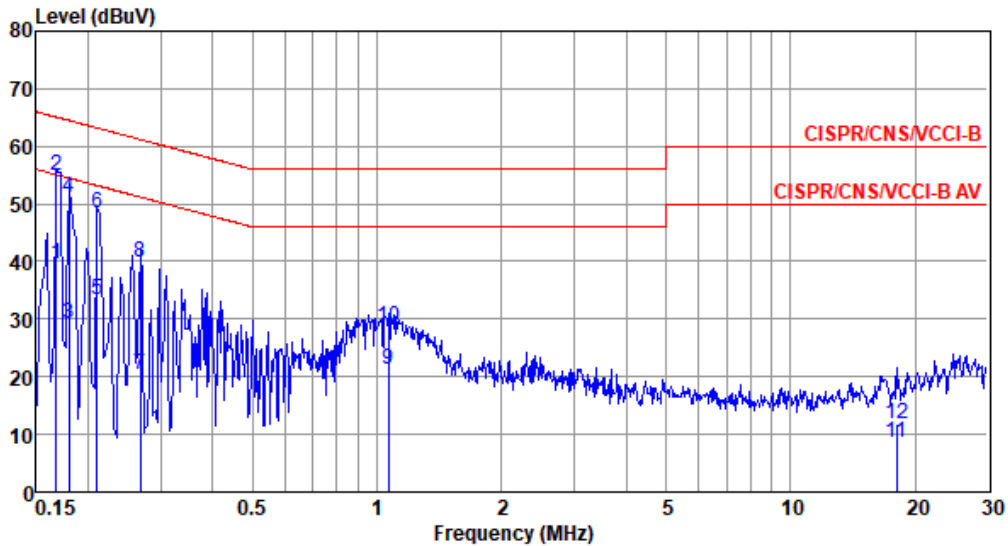
Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

Note 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).



Power Phase	Line	Test Freq. (MHz)	915.378
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Test by : Joe Liao Temperature: 24°C Humidity: 63%



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.168	39.45	55.08	-15.63	29.58	9.63	0.06	0.18	Average
2*	0.168	55.04	65.08	-10.04	45.17	9.63	0.06	0.18	QP
3	0.180	29.34	54.50	-25.16	19.47	9.62	0.06	0.19	Average
4	0.180	50.98	64.50	-13.52	41.11	9.62	0.06	0.19	QP
5	0.211	33.44	53.18	-19.74	23.56	9.62	0.06	0.20	Average
6	0.211	48.39	63.18	-14.79	38.51	9.62	0.06	0.20	QP
7	0.267	20.28	51.20	-30.92	10.36	9.62	0.06	0.24	Average
8	0.267	39.95	61.20	-21.25	30.03	9.62	0.06	0.24	QP
9	1.065	21.15	46.00	-24.85	11.08	9.63	0.11	0.33	Average
10	1.065	28.50	56.00	-27.50	18.43	9.63	0.11	0.33	QP
11	18.039	8.58	50.00	-41.42	-2.09	9.68	0.48	0.51	Average
12	18.039	11.85	60.00	-48.15	1.18	9.68	0.48	0.51	QP

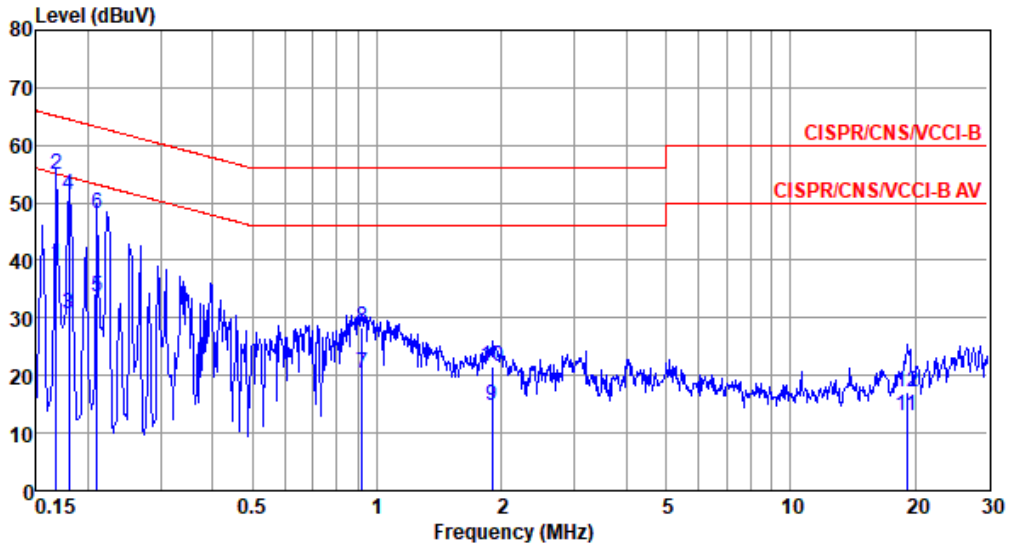
Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

Note 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).



Power Phase	Neutral	Test Freq. (MHz)	915.378
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Test by : Joe Liao Temperature: 24°C Humidity: 63%



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.168	39.16	55.08	-15.92	29.29	9.63	0.06	0.18	Average
2*	0.168	54.82	65.08	-10.26	44.95	9.63	0.06	0.18	QP
3	0.180	30.75	54.50	-23.75	20.87	9.63	0.06	0.19	Average
4	0.180	51.25	64.50	-13.25	41.37	9.63	0.06	0.19	QP
5	0.211	33.68	53.18	-19.50	23.79	9.63	0.06	0.20	Average
6	0.211	48.24	63.18	-14.94	38.35	9.63	0.06	0.20	QP
7	0.918	20.30	46.00	-25.70	10.23	9.63	0.11	0.33	Average
8	0.918	28.41	56.00	-27.59	18.34	9.63	0.11	0.33	QP
9	1.898	14.90	46.00	-31.10	4.77	9.64	0.13	0.36	Average
10	1.898	21.41	56.00	-34.59	11.28	9.64	0.13	0.36	QP
11	19.122	12.95	50.00	-37.05	2.14	9.79	0.50	0.52	Average
12	19.122	17.27	60.00	-42.73	6.46	9.79	0.50	0.52	QP

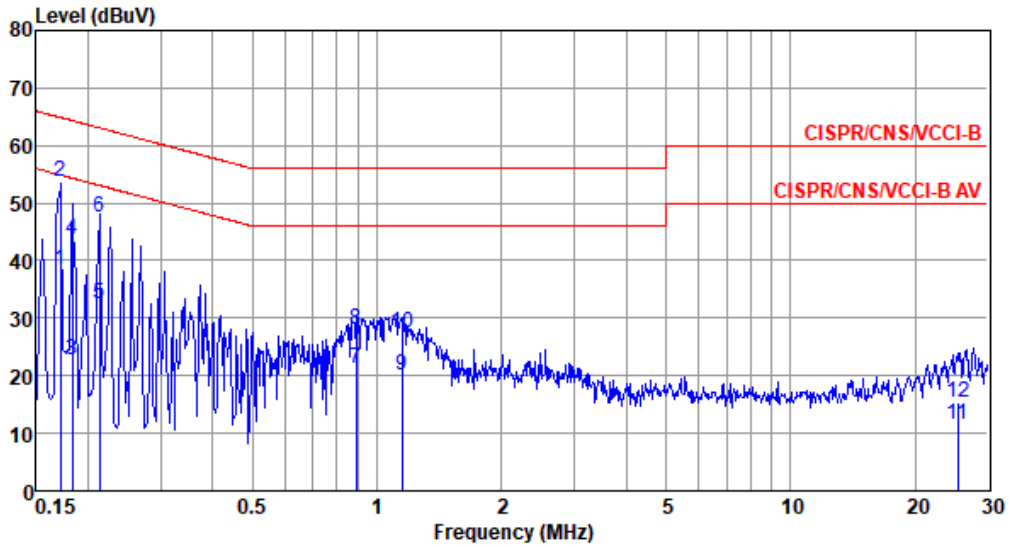
Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

Note 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).



Power Phase	Line	Test Freq. (MHz)	927.492
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Test by : Joe Liao Temperature: 24°C Humidity: 63%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.171	38.50	54.90	-16.40	28.63	9.63	0.06	0.18	Average
2*	0.171	53.68	64.90	-11.22	43.81	9.63	0.06	0.18	QP
3	0.183	22.66	54.33	-31.67	12.79	9.62	0.06	0.19	Average
4	0.183	43.78	64.33	-20.55	33.91	9.62	0.06	0.19	QP
5	0.213	32.39	53.10	-20.71	22.51	9.62	0.06	0.20	Average
6	0.213	47.55	63.10	-15.55	37.67	9.62	0.06	0.20	QP
7	0.890	21.21	46.00	-24.79	11.15	9.63	0.10	0.33	Average
8	0.890	28.13	56.00	-27.87	18.07	9.63	0.10	0.33	QP
9	1.147	20.05	46.00	-25.95	9.97	9.63	0.11	0.34	Average
10	1.147	27.40	56.00	-28.60	17.32	9.63	0.11	0.34	QP
11	25.321	11.53	50.00	-38.47	0.68	9.65	0.55	0.65	Average
12	25.321	15.44	60.00	-44.56	4.59	9.65	0.55	0.65	QP

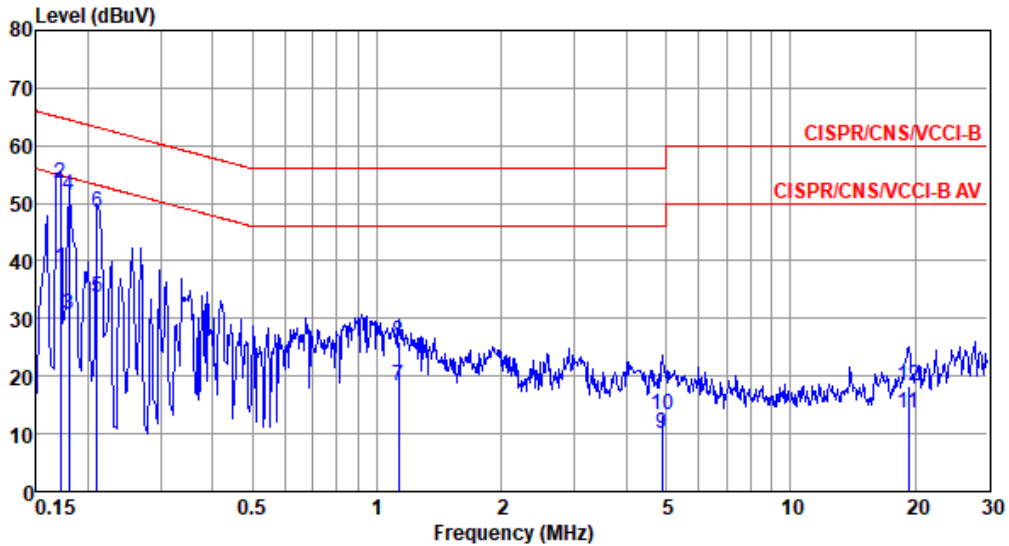
Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

Note 2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).



Power Phase	Neutral	Test Freq. (MHz)	927.492
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Test by : Joe Liao Temperature: 24°C Humidity: 63%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.171	38.80	54.90	-16.10	28.93	9.63	0.06	0.18	Average
2*	0.171	53.51	64.90	-11.39	43.64	9.63	0.06	0.18	QP
3	0.180	30.73	54.50	-23.77	20.85	9.63	0.06	0.19	Average
4	0.180	51.22	64.50	-13.28	41.34	9.63	0.06	0.19	QP
5	0.211	33.73	53.18	-19.45	23.84	9.63	0.06	0.20	Average
6	0.211	48.31	63.18	-14.87	38.42	9.63	0.06	0.20	QP
7	1.129	18.37	46.00	-27.63	8.29	9.63	0.11	0.34	Average
8	1.129	26.02	56.00	-29.98	15.94	9.63	0.11	0.34	QP
9	4.900	9.99	46.00	-36.01	-0.31	9.66	0.22	0.42	Average
10	4.900	13.23	56.00	-42.77	2.93	9.66	0.22	0.42	QP
11	19.326	13.64	50.00	-36.36	2.82	9.80	0.50	0.52	Average
12	19.326	18.40	60.00	-41.60	7.58	9.80	0.50	0.52	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

Note 2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).