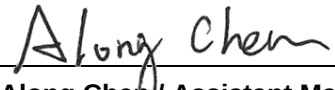


FCC Test Report

FCC ID : P27LORAAAREAV2
Equipment : MachineQ Area 8C V2 LoRaWAN Gateway
Model No. : GII-AD-B
Brand Name : Sercomm, Comcast, MachineQ
(For marketing purpose.)
Applicant : Sercomm Corporation
Address : 8F, No. 3-1, YuanQu St., NanKang, Taipei 115,
Taiwan, R.O.C.
Standard : 47 CFR FCC Part 15.247
Received Date : May 15, 2024
Tested Date : May 20 ~ Jun. 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:


Along Chen / Assistant Manager

Approved by:

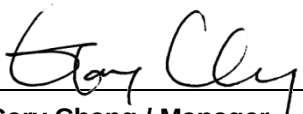

Gary Chang / Manager

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Release Record

Report No.	Version	Description	Issued Date
FR451502LR-1	Rev. 01	Initial issue	Jul. 19, 2024

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emission	[dBuV]: 0.402MHz 42.93 (Margin -4.88dB) - AV	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 42.61MHz 33.72 (Margin -6.28dB) - PK	Pass
15.247(b)(3)	Conducted Output Power	Max Power [dBm]: 27.15	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.

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	Ch. Frequency (MHz)	Channel Number	Physical bit rate (bit/sec)	Spread Factor	Channel Spacing (kHz)
902 ~ 928	903.0 ~ 914.2	64 ~ 71 [8]	21.9-980kbps	7 ~ 12	500
902 ~ 928	923.3 ~ 927.5	0 ~ 7 [8]	21.9-980kbps	7 ~ 12	500
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.					
Note 2: The device uses DTS modulation.					

1.1.2 Antenna Details

Brand	Model	Type	Connector	Gain (dBi)	Remarks
Sercomm	61723000SG	Dipole	R-SMA	0.70	External Antenna
Sercomm	61720009WA	PIFA	NA	2.30	Internal Antenna

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	48Vdc from adapter 54Vdc from PoE
--------------------------	--------------------------------------

Note: The above PoE power supply is not bundled in market.

1.1.4 Accessories

Accessories		
No.	Equipment	Description
1	Adapter	Brand: MASS POWER Model: S024-1E480050VU-H I/P: 100-240Vac, 50/60Hz, 0.6A O/P: 48.0Vdc, 0.5A Power Line: 2.95m non-shielded without core
2	RJ45 cable	3m non-shielded without core

1.1.5 Channel List

Frequency Range (MHz)	903.0 ~ 914.2
Channel	Frequency (MHz)
64	903.0
65	904.6
66	906.2
67	907.8
68	909.4
69	911.0
70	912.6
71	914.2

Frequency Range (MHz)	923.3 ~ 927.5
Channel	Frequency (MHz)
0	923.3
1	923.9
2	924.5
3	925.1
4	925.7
5	926.3
6	926.9
7	927.5

1.1.6 Test Tool and Duty Cycle

Test Tool	Tera Term, V4.66	
Duty Cycle and Duty Factor	Duty Cycle (%)	Duty Factor (dB)
	100.00%	0.00

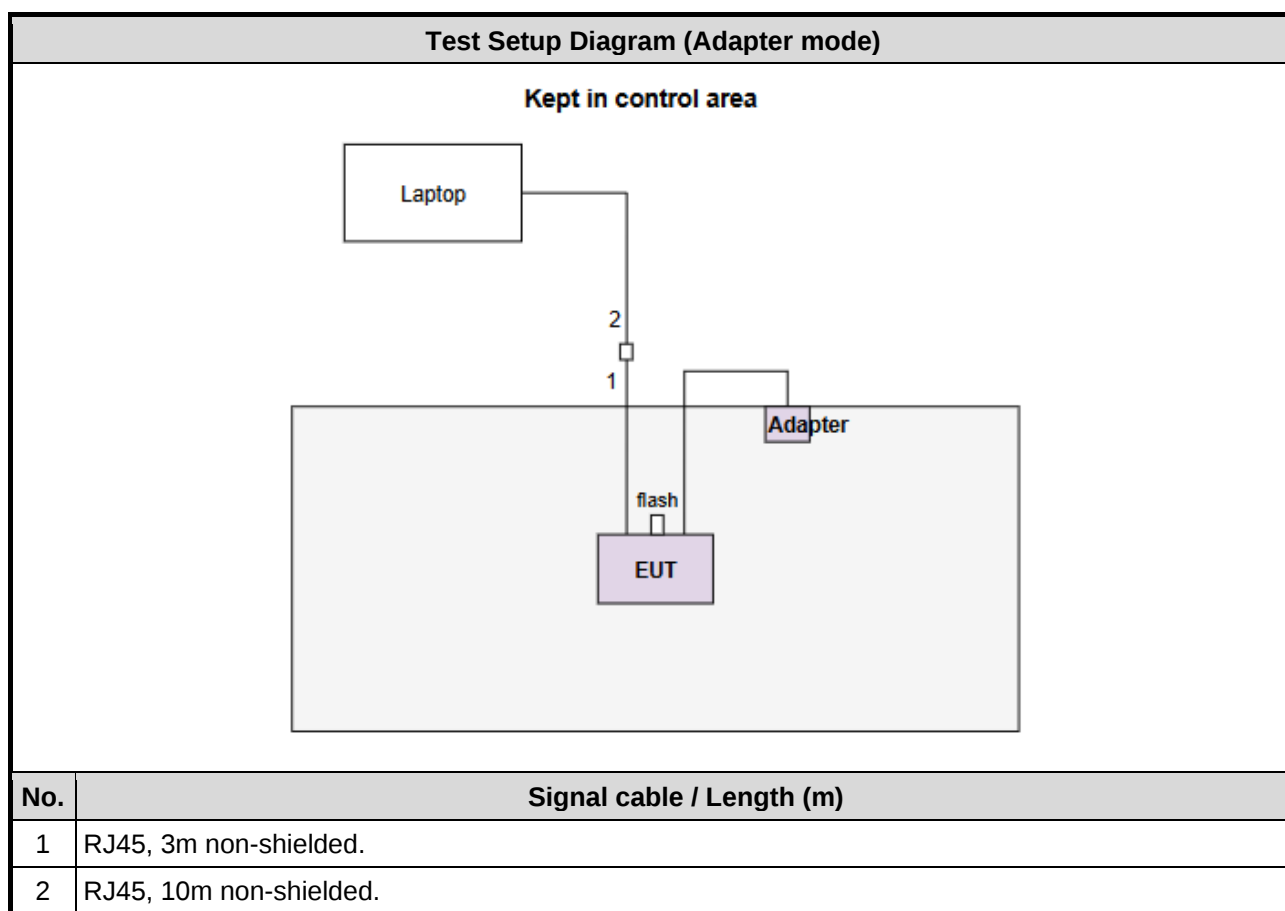
1.1.7 Power Index of Test Tool

Mode	Test Frequency (MHz)	Power Index
500kHz	903.0	pa 1 -- pwid 12
500kHz	907.8	pa 1 -- pwid 12
500kHz	914.2	pa 1 -- pwid 12
500kHz	923.3	pa 1 -- pwid 11
500kHz	927.5	pa 1 -- pwid 11

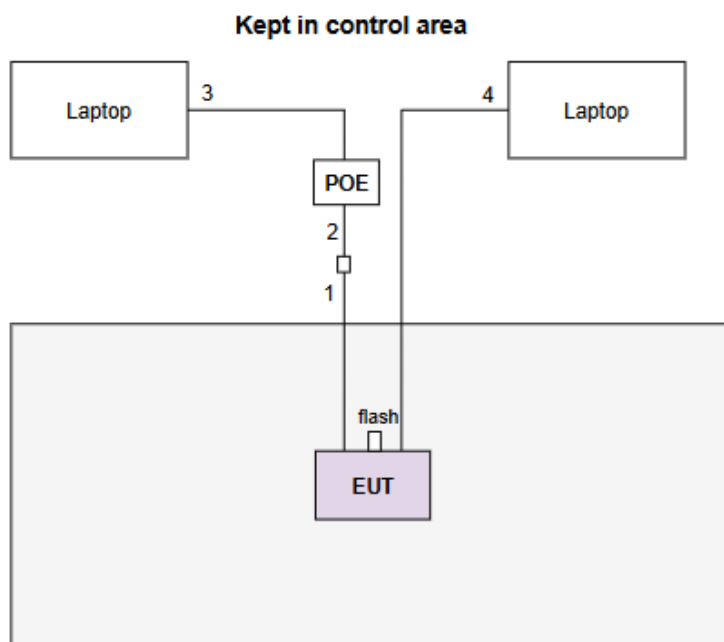
1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Laptop	DELL	Latitude 3440	DoC	---
2	Laptop	DELL	Latitude 5400	DoC	---
3	USB 3.1 Type-C OTG Flash	pqi	Connect 313	---	---
4	PoE	UBIQUITI	POE-54V-80W	---	Provided by applicant.

1.3 Test Setup Chart



Test Setup Diagram (PoE mode)



No.	Signal cable / Length (m)
1	RJ45, 3m non-shielded.
2	RJ45, 10m non-shielded.
3	RJ45, 1.3m non-shielded.
4	RJ45, 10m non-shielded.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Jun. 04, 2024				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Feb. 23, 2024	Feb. 22, 2025
LISN	R&S	ENV216	101579	May 09, 2024	May 08, 2025
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 11, 2023	Oct. 10, 2024
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127666	Mar. 05, 2024	Mar. 04, 2025
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	May 20 ~ May 21, 2024				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Mar. 05, 2024	Mar. 04, 2025
Spectrum Analyzer	R&S	FSV40	101499	Apr. 02, 2024	Apr. 01, 2025
Loop Antenna	R&S	HFH2-Z2	100330	Oct. 31, 2023	Oct. 30, 2024
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. 14, 2023	Dec. 13, 2024
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 30, 2023	Oct. 29, 2024
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. 03, 2023	Oct. 02, 2024
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Sep. 22, 2023	Sep. 21, 2024
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Sep. 22, 2023	Sep. 21, 2024
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Sep. 22, 2023	Sep. 21, 2024
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Sep. 22, 2023	Sep. 21, 2024
RF cable-8M	EMC	EMC104-SM-SM-8000	181107	Sep. 22, 2023	Sep. 21, 2024
Attenuator	Pasternack	PE7005-10	10-3	Sep. 27, 2023	Sep. 26, 2024
HIGHPASS FILTER	WI	WHK3.1-18G-10SS	43	Sep. 27, 2023	Sep. 26, 2024
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	Jun. 03, 2024				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV3044	101516	Jun. 27, 2023	Jun. 26, 2024
Spectrum Analyzer	R&S	FSV40	101910	Apr. 18, 2024	Apr. 17, 2025
Power Meter	Anritsu	ML2495A	1241002	Nov. 21, 2023	Nov. 20, 2024
Power Sensor	Anritsu	MA2411B	1207366	Nov. 21, 2023	Nov. 20, 2024
Attenuator	Pasternack	PE7005-20	20-1	Oct. 05, 2023	Oct. 04, 2024
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
Power density	± 0.583 dB
Conducted emission	± 2.715 dB
AC conducted emission	± 2.92 dB
Unwanted Emission ≤ 1 GHz	± 3.96 dB
Unwanted Emission > 1 GHz	± 4.51 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
- ISSED#: 10807C
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Test item	Channel Bandwidth (kHz)	Test Frequency (MHz)	Separating Factor	Test Configuration
AC Power Line Conducted Emission	500kHz 500kHz	903.0 / 907.8 / 914.2 923.3 / 927.5	SF12 SF12	1, 2
Unwanted Emissions ≤ 1GHz	500kHz 500kHz	903.0 / 907.8 / 914.2 923.3 / 927.5	SF12 SF12	1, 2, 3, 4
Unwanted Emissions > 1GHz	500kHz 500kHz	903.0 / 907.8 / 914.2 923.3 / 927.5	SF12 SF12	2, 4
Conducted Output Power 6dB bandwidth Power spectral density	500kHz 500kHz	903.0 / 907.8 / 914.2 923.3 / 927.5	SF12 SF12	2

NOTE:

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Z-plane** results were found as the worst case and were shown in this report.
2. Test Configurations are listed as below:
 - 1) Test Configuration 1: External antenna, adapter mode
 - 2) Test Configuration 2: External antenna, POE mode
 - 3) Test Configuration 3: Internal antenna, adapter mode
 - 4) Test Configuration 4: Internal antenna, POE mode

3 Transmitter Test Results

3.1 6dB and Occupied Bandwidth

3.1.1 Limit of 6dB Bandwidth

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

3.1.2 Test Procedures

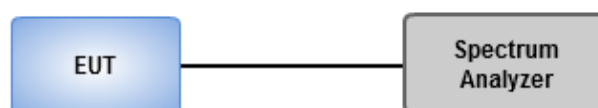
6dB Bandwidth

1. Set resolution bandwidth (RBW) = 1% to 5% of the anticipated emission, Video bandwidth = 3x the RBW.
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) = 10kHz, Video bandwidth = 30kHz.
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.

3.1.3 Test Setup



3.1.4 Test Results

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

3.2 Conducted Output Power

3.2.1 Limit of Conducted Output Power

Conducted power shall not exceed 1Watt.

Antenna gain $\leq 6\text{dBi}$, no any corresponding reduction is in output power limit.

3.2.2 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.

3.2.3 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 Power Spectral Density

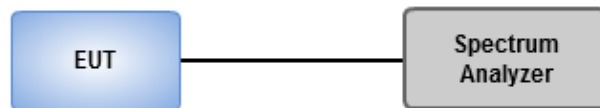
3.3.1 Limit of Power Spectral Density

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

3.3.2 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.

3.3.3 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 Unwanted Emissions into Restricted Frequency Bands

3.4.1 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:
Quasi-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.

3.4.2 Test Procedures

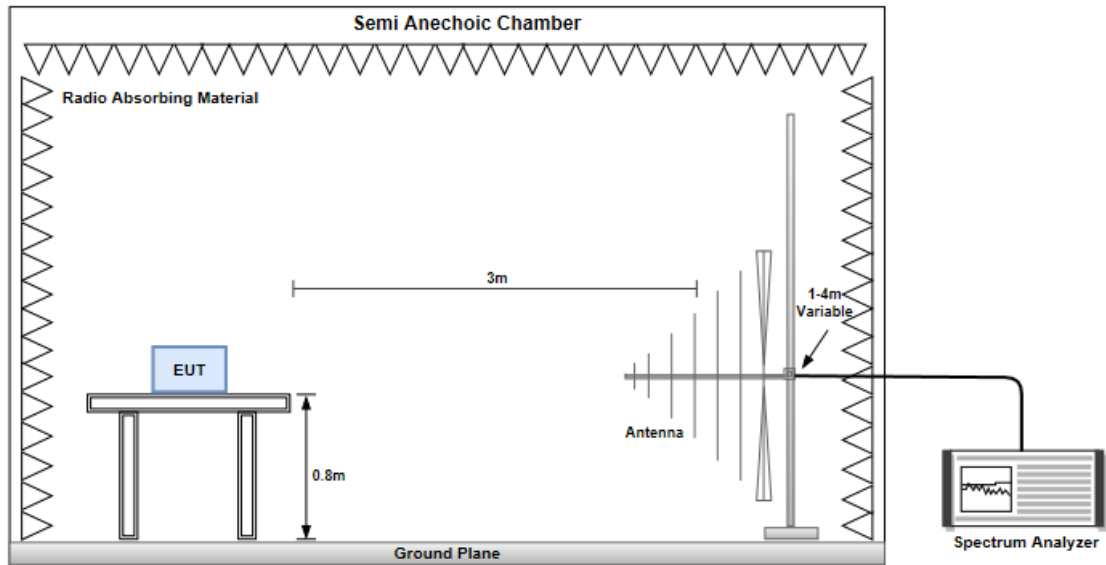
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

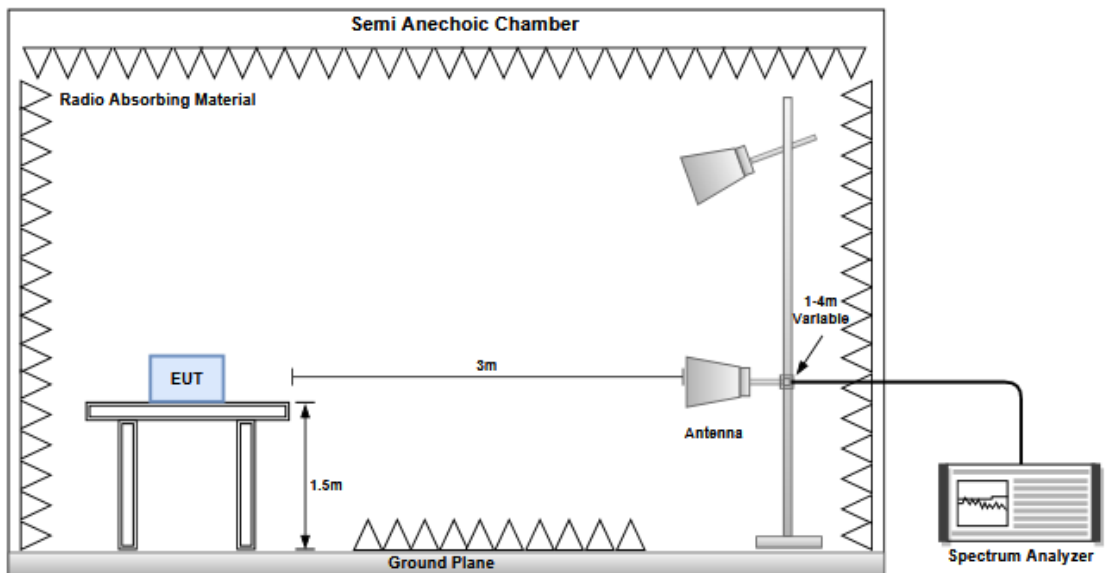
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.4.3 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



3.4.4 Test Results

Refer to Appendix D.

3.5 Emissions in Non-Restricted Frequency Bands

3.5.1 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.

3.5.2 Test Procedures

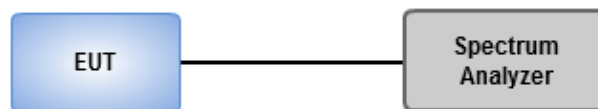
Reference level measurement

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

3.5.3 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

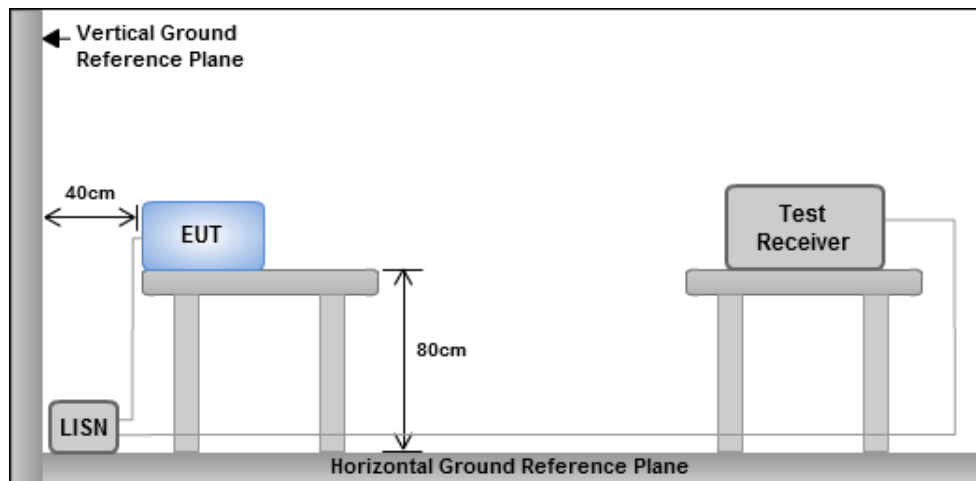
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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 Results

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	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
902-928MHz	-	-	-	-	-
LoRa (500kHz)	637.5k	494.714k	495KF1D	632.5k	494.571k

Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
LoRa (500kHz)	-	-	-	-
903MHz	Pass	500k	632.5k	494.571k
907.8MHz	Pass	500k	637.5k	494.714k
914.2MHz	Pass	500k	636.25k	494.698k

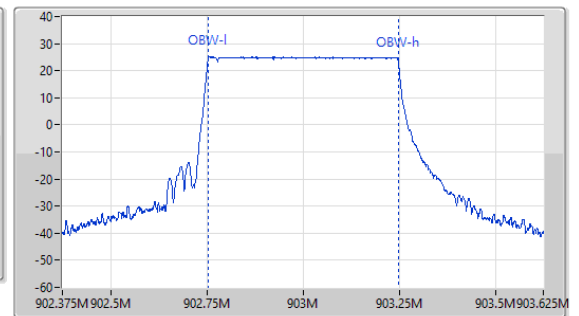
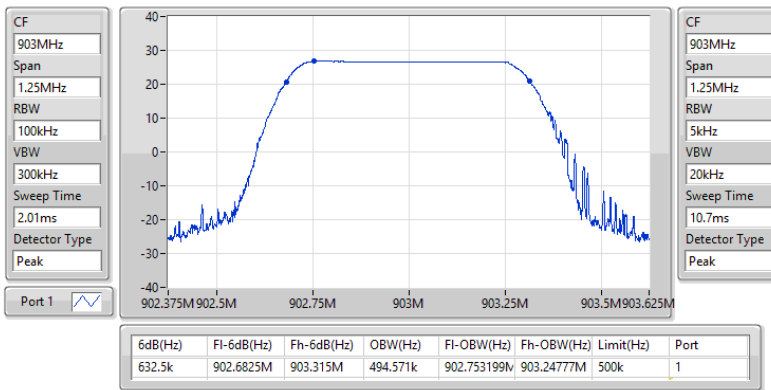
Port X-N dB = Port X 6dB down bandwidth;

Port X-OBW = Port X 99% occupied bandwidth

902-928MHz_LoRa (500kHz)

EBW-DTS

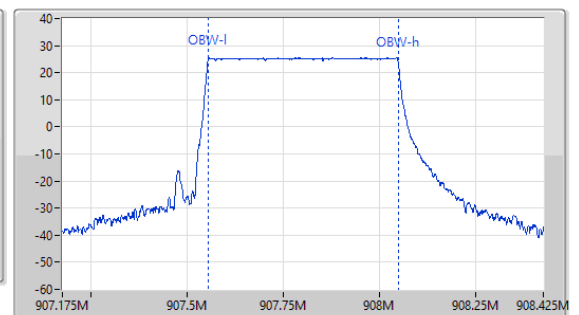
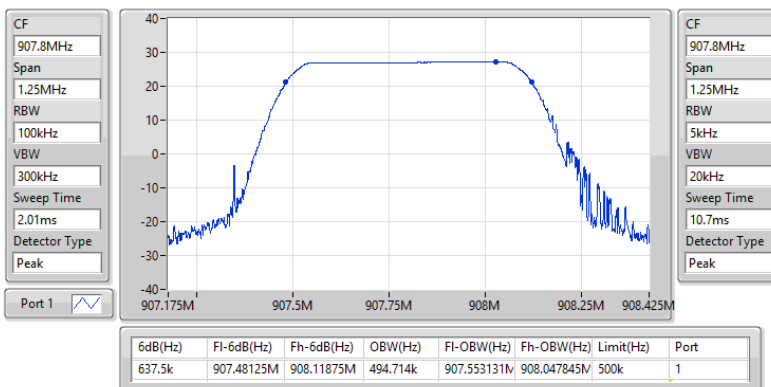
903MHz



902-928MHz_LoRa (500kHz)

EBW-DTS

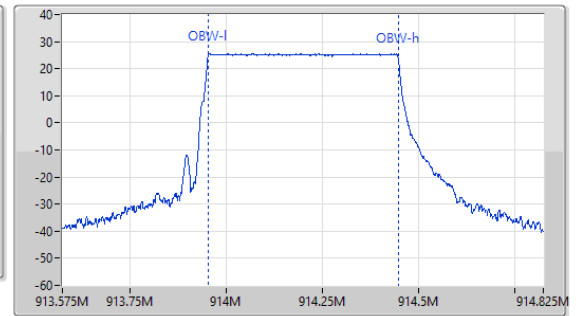
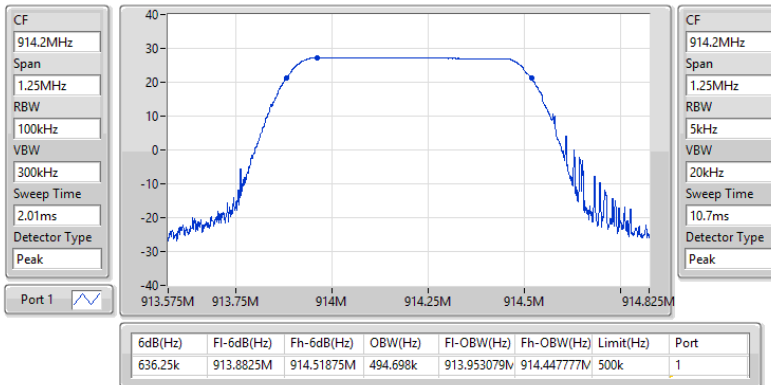
907.8MHz



902-928MHz_LoRa (500kHz)

EBW-DTS

914.2MHz



**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
902-928MHz	-	-	-	-	-
LoRa (500kHz)	637.5k	494.449k	494KF1D	635.625k	493.778k

Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
LoRa (500kHz)	-	-	-	-
923.3MHz	Pass	500k	637.5k	494.449k
927.5MHz	Pass	500k	635.625k	493.778k

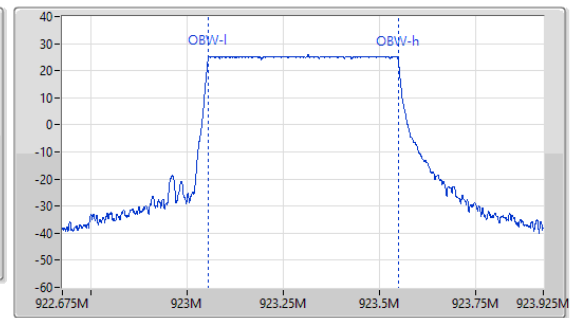
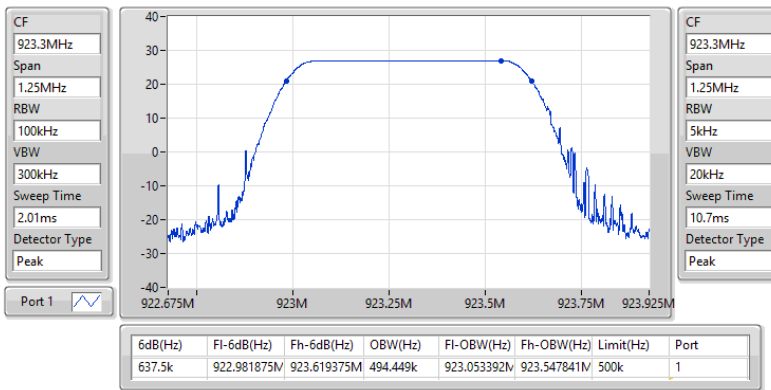
Port X-N dB = Port X 6dB down bandwidth;

Port X-OBW = Port X 99% occupied bandwidth

902-928MHz_LoRa (500kHz)

EBW-DTS

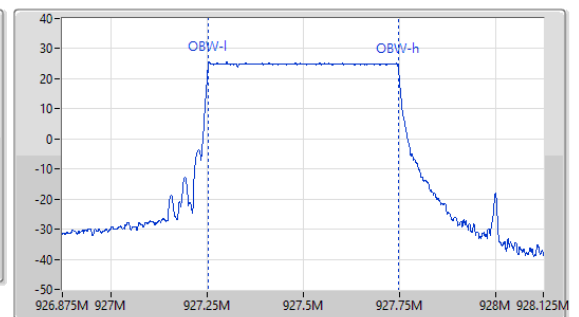
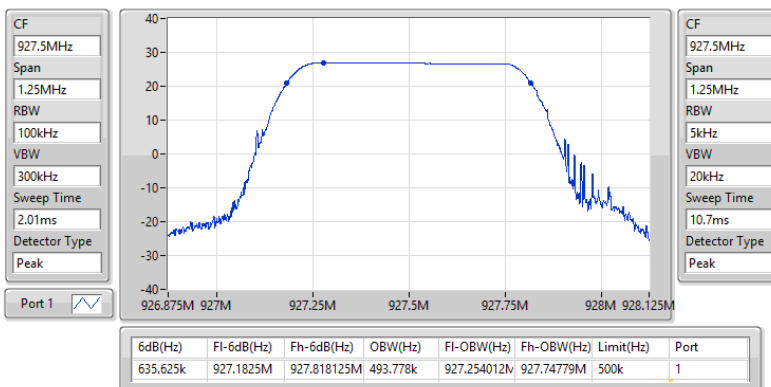
923.3MHz



902-928MHz_LoRa (500kHz)

EBW-DTS

927.5MHz





Conducted Output Power (Average)

Appendix B.1

Summary

Mode	Total Power (dBm)	Power (W)
902-928MHz	-	-
LoRa (500kHz)	27.15	0.51880

Result

Mode	Result	Antenna Gain (dBi)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
LoRa (500kHz)	-	-	-	-	-	-
903MHz	Pass	2.30	27.11	30.00	29.41	36.00
907.8MHz	Pass	2.30	27.15	30.00	29.45	36.00
914.2MHz	Pass	2.30	27.13	30.00	29.43	36.00



Conducted Output Power (Average)

Appendix B.2

Summary

Mode	Total Power (dBm)	Power (W)
902-928MHz	-	-
LoRa (500kHz)	27.12	0.51523

Result

Mode	Result	Antenna Gain (dBi)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
LoRa (500kHz)	-	-	-	-	-	-
923.3MHz	Pass	2.30	27.11	30.00	29.41	36.00
927.5MHz	Pass	2.30	27.12	30.00	29.42	36.00

**Summary**

Mode	PD (dBm/RBW)
902-928MHz	-
LoRa (500kHz)	7.85

Result

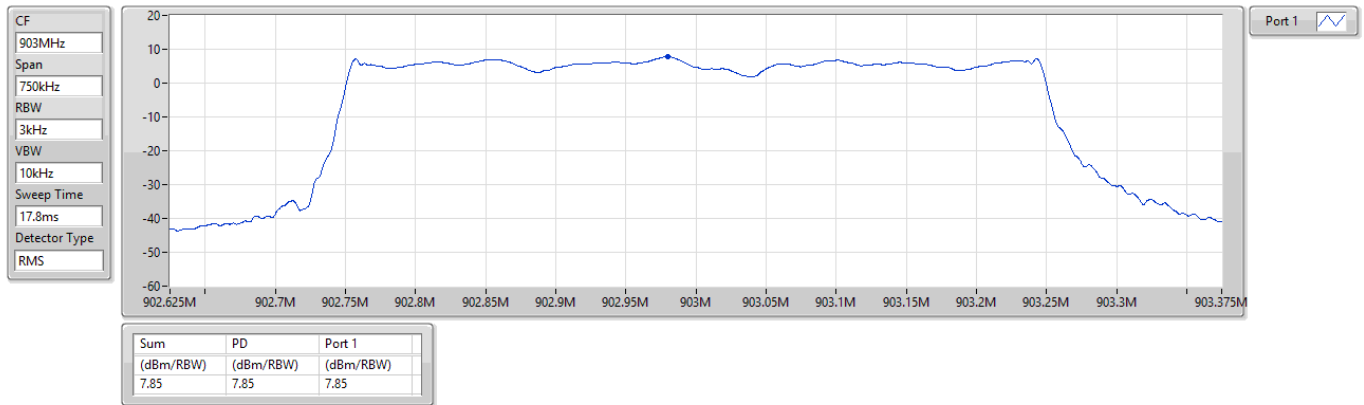
Mode	Result	Antenna Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
LoRa (500kHz)	-	-	-	-
903MHz	Pass	2.30	7.85	8.00
907.8MHz	Pass	2.30	7.75	8.00
914.2MHz	Pass	2.30	7.77	8.00



902-928MHz_LoRa (500kHz)

PSD

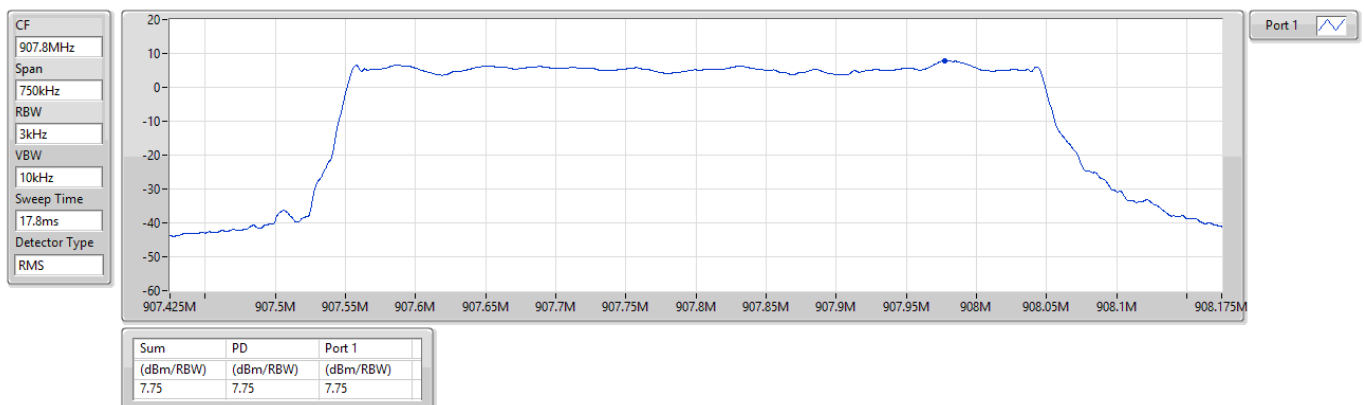
903MHz



902-928MHz_LoRa (500kHz)

PSD

907.8MHz



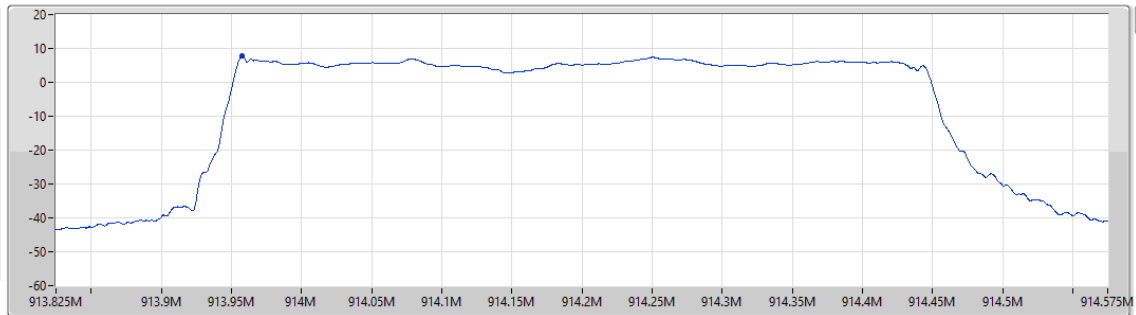


902-928MHz_LoRa (500kHz)

PSD

914.2MHz

CF
914.2MHz
Span
750kHz
RBW
3kHz
VBW
10kHz
Sweep Time
17.8ms
Detector Type
RMS



Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
7.77	7.77	7.77

**Summary**

Mode	PD (dBm/RBW)
902-928MHz	-
LoRa (500kHz)	7.54

Result

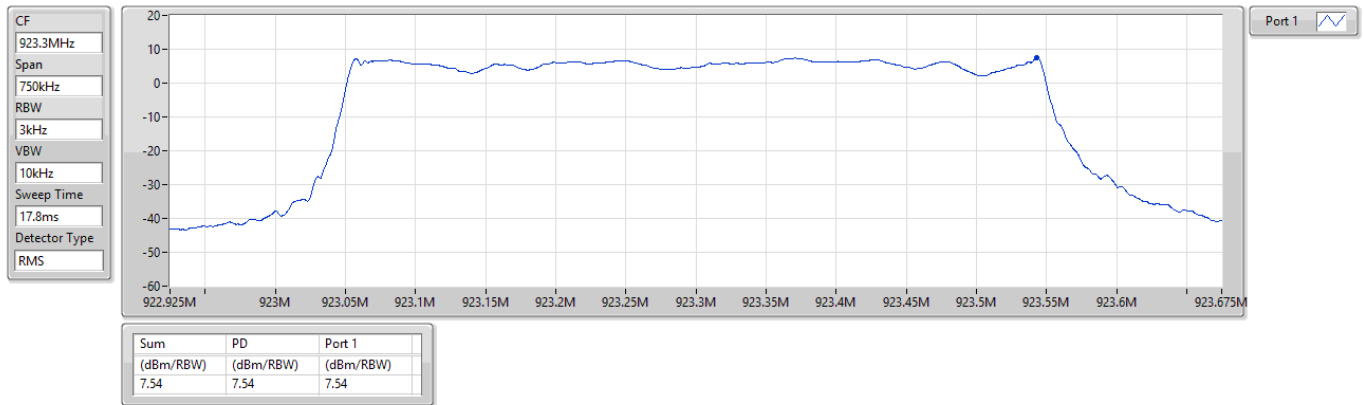
Mode	Result	Antenna Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
LoRa (500kHz)	-	-	-	-
923.3MHz	Pass	2.30	7.54	8.00
927.5MHz	Pass	2.30	7.41	8.00



902-928MHz_LoRa (500kHz)

PSD

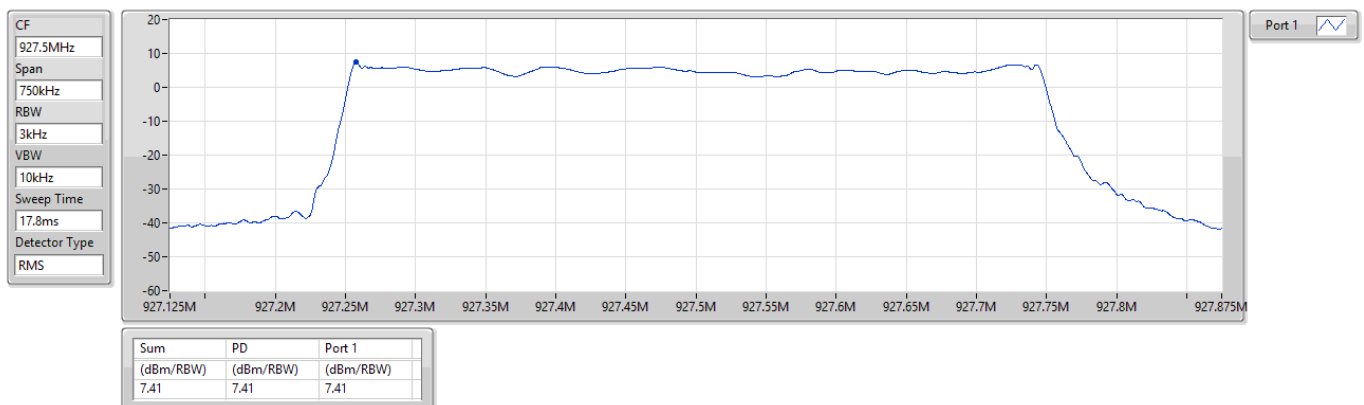
923.3MHz



902-928MHz_LoRa (500kHz)

PSD

927.5MHz





Test configuration 1: External antenna, adapter mode
Unwanted Emissions (Below 1GHz)

Mode	LoRa (500kHz)	Test Freq. (MHz)	903.0
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m)			



Mode	LoRa (500kHz)	Test Freq. (MHz)	903.0
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	907.8
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m)			



Mode	LoRa (500kHz)		Test Freq. (MHz)		907.8				
Polarization	Vertical								
Test By :Sean Yu Temperature(°C):22 Humidity(%):66									
Level (dBuV/m) </									



Mode	LoRa (500kHz)	Test Freq. (MHz)	914.2
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	914.2
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	923.3
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	923.3
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	927.5
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	927.5
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) </			

Test configuration 2: External antenna, POE mode
Unwanted Emissions (Below 1GHz)

Mode	LoRa (500kHz)	Test Freq. (MHz)	903.0
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m)			



Mode	LoRa (500kHz)	Test Freq. (MHz)	903.0
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	907.8
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	907.8
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m)			



Mode	LoRa (500kHz)	Test Freq. (MHz)	914.2
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	914.2
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	923.3
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m)			



Mode	LoRa (500kHz)	Test Freq. (MHz)	923.3
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	927.5
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m)			



Mode	LoRa (500kHz)	Test Freq. (MHz)	927.5
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) </			



Unwanted Emissions (Above 1GHz)

Mode	LoRa (500kHz)	Test Freq. (MHz)	903.0
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m)			



Mode	LoRa (500kHz)	Test Freq. (MHz)	903.0
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	907.8
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	907.8
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	914.2
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	914.2
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	923.3
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	923.3
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	927.5
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m)			



Mode	LoRa (500kHz)	Test Freq. (MHz)	927.5
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) <			

**Test configuration 3: Internal antenna, adapter mode**
Unwanted Emissions (Below 1GHz)

Mode	LoRa (500kHz)	Test Freq. (MHz)	903.0
Polarization	Horizontal		

Test By :Sean Yu

Temperature(°C):22

Humidity(%):66

	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	62.98	22.68	40.00	-17.32	32.11	-9.43	Peak	---	---
2	116.33	21.38	43.50	-22.12	32.70	-11.32	Peak	---	---
3	163.86	24.25	43.50	-19.25	32.91	-8.66	Peak	---	---
4	194.90	24.47	43.50	-19.03	36.13	-11.66	Peak	---	---
5	244.37	25.17	46.00	-20.83	35.04	-9.87	Peak	---	---
6	279.29	24.09	46.00	-21.91	32.60	-8.51	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	LoRa (500kHz)	Test Freq. (MHz)	903.0
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	907.8
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	907.8
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m)			



Mode	LoRa (500kHz)	Test Freq. (MHz)	914.2
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	914.2
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	923.3
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	923.3
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	927.5
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m)			



Mode	LoRa (500kHz)	Test Freq. (MHz)	927.5
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) </			

**Test configuration 4: Internal antenna, POE mode**
Unwanted Emissions (Below 1GHz)

Mode	LoRa (500kHz)	Test Freq. (MHz)	903.0
Polarization	Horizontal		

Test By :Sean Yu

Temperature(°C):22

Humidity(%):66

The graph displays the emission level in dBUV/m on the y-axis (0 to 90) against frequency in MHz on the x-axis (30 to 1000). A red step-like line represents the CLASS-B limit, starting at 40 dBUV/m from 30 MHz to 100 MHz, rising to 45 dBUV/m at 100 MHz, and then to 55 dBUV/m at 900 MHz. Six blue vertical lines indicate measured peaks at 48.43, 119.24, 151.25, 166.77, 222.06, and 294.81 MHz. The peak at 294.81 MHz is the highest, reaching approximately 24 dBUV/m.

	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	48.43	24.99	40.00	-15.01	32.91	-7.92	Peak	---	---
2	119.24	22.87	43.50	-20.63	33.93	-11.06	Peak	---	---
3	151.25	26.77	43.50	-16.73	35.19	-8.42	Peak	---	---
4	166.77	26.14	43.50	-17.36	34.98	-8.84	Peak	---	---
5	222.06	28.16	46.00	-17.84	40.30	-12.14	Peak	---	---
6	294.81	24.19	46.00	-21.81	32.19	-8.00	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	LoRa (500kHz)	Test Freq. (MHz)	903.0
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	907.8
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	907.8
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	914.2
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	914.2
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBuV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	923.3
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	923.3
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	927.5
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) <			



Mode	LoRa (500kHz)	Test Freq. (MHz)	927.5
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):66			
Level (dBUV/m) </			

Unwanted Emissions (Above 1GHz)

Mode	LoRa (500kHz)	Test Freq. (MHz)	903.0
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBUV/m)			



Mode	LoRa (500kHz)	Test Freq. (MHz)	903.0																																																																						
Polarization	Vertical																																																																								
Test By :Akun Chung Temperature(°C):23 Humidity(%):66																																																																									
<table><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>2709.00</td><td>35.84</td><td>54.00</td><td>-18.16</td><td>39.30</td><td>-3.46</td><td>Average</td><td>258</td><td>294</td></tr><tr><td>2</td><td>2709.00</td><td>45.68</td><td>74.00</td><td>-28.32</td><td>49.14</td><td>-3.46</td><td>Peak</td><td>258</td><td>294</td></tr><tr><td>3</td><td>4515.00</td><td>37.40</td><td>54.00</td><td>-16.60</td><td>37.83</td><td>-0.43</td><td>Average</td><td>100</td><td>233</td></tr><tr><td>4</td><td>4515.00</td><td>47.58</td><td>74.00</td><td>-26.42</td><td>48.01</td><td>-0.43</td><td>Peak</td><td>100</td><td>233</td></tr><tr><td>5</td><td>8127.00</td><td>42.41</td><td>54.00</td><td>-11.59</td><td>36.42</td><td>5.99</td><td>Average</td><td>215</td><td>229</td></tr><tr><td>6</td><td>8127.00</td><td>54.76</td><td>74.00</td><td>-19.24</td><td>48.77</td><td>5.99</td><td>Peak</td><td>215</td><td>229</td></tr></table>					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	2709.00	35.84	54.00	-18.16	39.30	-3.46	Average	258	294	2	2709.00	45.68	74.00	-28.32	49.14	-3.46	Peak	258	294	3	4515.00	37.40	54.00	-16.60	37.83	-0.43	Average	100	233	4	4515.00	47.58	74.00	-26.42	48.01	-0.43	Peak	100	233	5	8127.00	42.41	54.00	-11.59	36.42	5.99	Average	215	229	6	8127.00	54.76	74.00	-19.24	48.77	5.99	Peak	215	229
	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	2709.00	35.84	54.00	-18.16	39.30	-3.46	Average	258	294																																																																
2	2709.00	45.68	74.00	-28.32	49.14	-3.46	Peak	258	294																																																																
3	4515.00	37.40	54.00	-16.60	37.83	-0.43	Average	100	233																																																																
4	4515.00	47.58	74.00	-26.42	48.01	-0.43	Peak	100	233																																																																
5	8127.00	42.41	54.00	-11.59	36.42	5.99	Average	215	229																																																																
6	8127.00	54.76	74.00	-19.24	48.77	5.99	Peak	215	229																																																																
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	LoRa (500kHz)	Test Freq. (MHz)	907.8
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Mode	LoRa (500kHz)	Test Freq. (MHz)	907.8
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	914.2
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Mode	LoRa (500kHz)	Test Freq. (MHz)	914.2
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	923.3
Polarization	Horizontal		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			

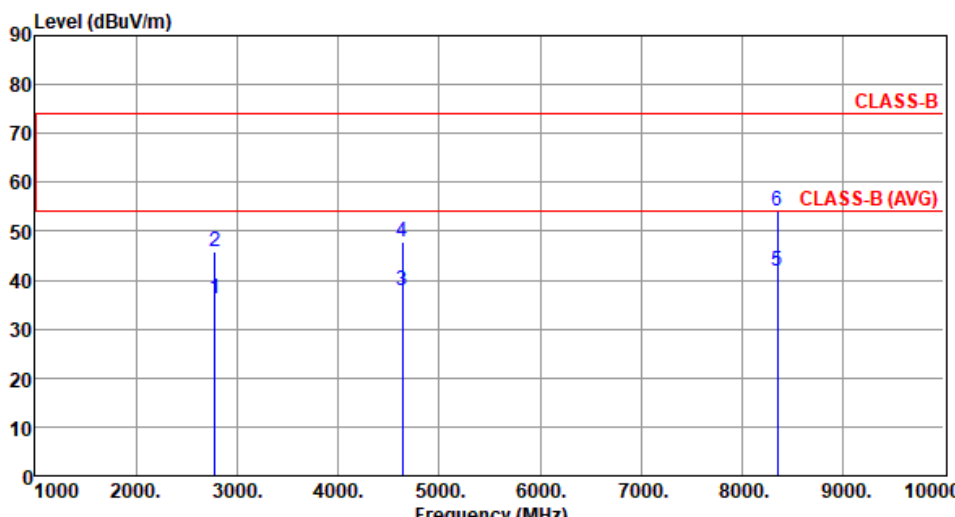


Mode	LoRa (500kHz)	Test Freq. (MHz)	923.3
Polarization	Vertical		
Test By :Akun Chung Temperature(°C):23 Humidity(%):66			
Level (dBuV/m) </			



Mode	LoRa (500kHz)	Test Freq. (MHz)	927.5																																																																						
Polarization	Horizontal																																																																								
Test By :Akun Chung Temperature(°C):23 Humidity(%):66																																																																									
<table><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>2782.50</td><td>35.53</td><td>54.00</td><td>-18.47</td><td>38.75</td><td>-3.22</td><td>Average</td><td>111</td><td>238</td></tr><tr><td>2</td><td>2782.50</td><td>44.90</td><td>74.00</td><td>-29.10</td><td>48.12</td><td>-3.22</td><td>Peak</td><td>111</td><td>238</td></tr><tr><td>3</td><td>4637.50</td><td>38.10</td><td>54.00</td><td>-15.90</td><td>38.21</td><td>-0.11</td><td>Average</td><td>113</td><td>226</td></tr><tr><td>4</td><td>4637.50</td><td>48.44</td><td>74.00</td><td>-25.56</td><td>48.55</td><td>-0.11</td><td>Peak</td><td>113</td><td>226</td></tr><tr><td>5</td><td>8347.50</td><td>41.55</td><td>54.00</td><td>-12.45</td><td>36.25</td><td>5.30</td><td>Average</td><td>100</td><td>231</td></tr><tr><td>6</td><td>8347.50</td><td>53.84</td><td>74.00</td><td>-20.16</td><td>48.54</td><td>5.30</td><td>Peak</td><td>100</td><td>231</td></tr></table>					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	2782.50	35.53	54.00	-18.47	38.75	-3.22	Average	111	238	2	2782.50	44.90	74.00	-29.10	48.12	-3.22	Peak	111	238	3	4637.50	38.10	54.00	-15.90	38.21	-0.11	Average	113	226	4	4637.50	48.44	74.00	-25.56	48.55	-0.11	Peak	113	226	5	8347.50	41.55	54.00	-12.45	36.25	5.30	Average	100	231	6	8347.50	53.84	74.00	-20.16	48.54	5.30	Peak	100	231
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																
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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).																																																																									



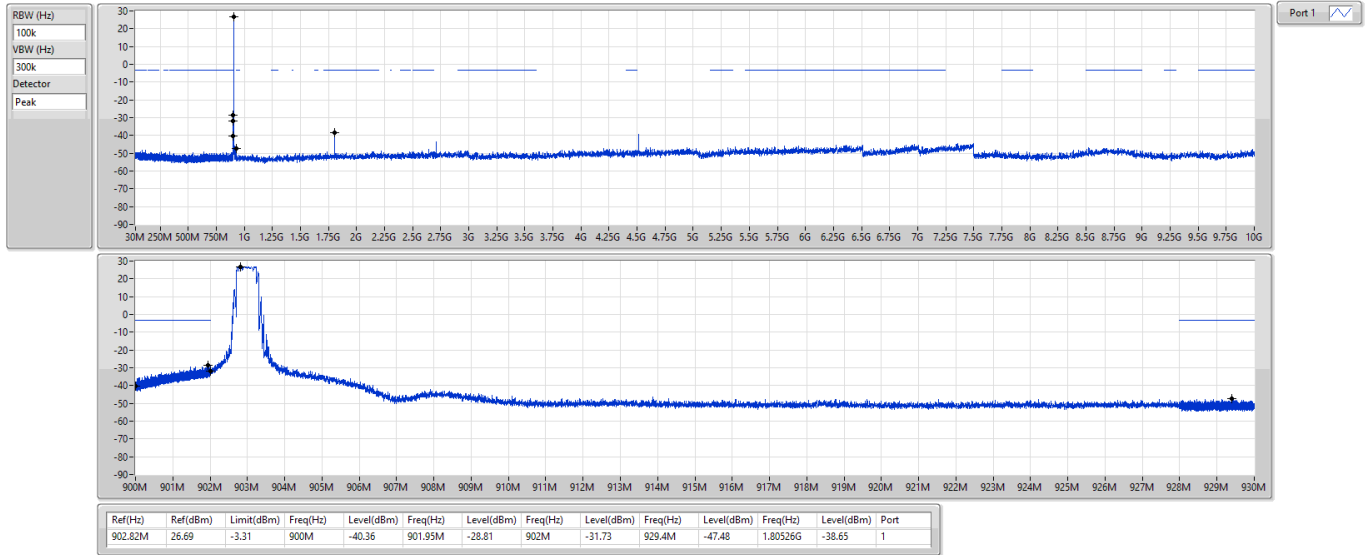
Mode	LoRa (500kHz)	Test Freq. (MHz)	927.5						
Polarization	Vertical								
Test By :Akun Chung Temperature(°C):23 Humidity(%):66									
									
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	2782.50	36.04	54.00	-17.96	39.26	-3.22	Average	257	297
2	2782.50	45.92	74.00	-28.08	49.14	-3.22	Peak	257	297
3	4637.50	37.70	54.00	-16.30	37.81	-0.11	Average	100	236
4	4637.50	47.91	74.00	-26.09	48.02	-0.11	Peak	100	236
5	8347.50	41.68	54.00	-12.32	36.38	5.30	Average	214	224
6	8347.50	53.99	74.00	-20.01	48.69	5.30	Peak	214	224

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).

902-928MHz LoRa (500kHz)

CSEndB-DTS

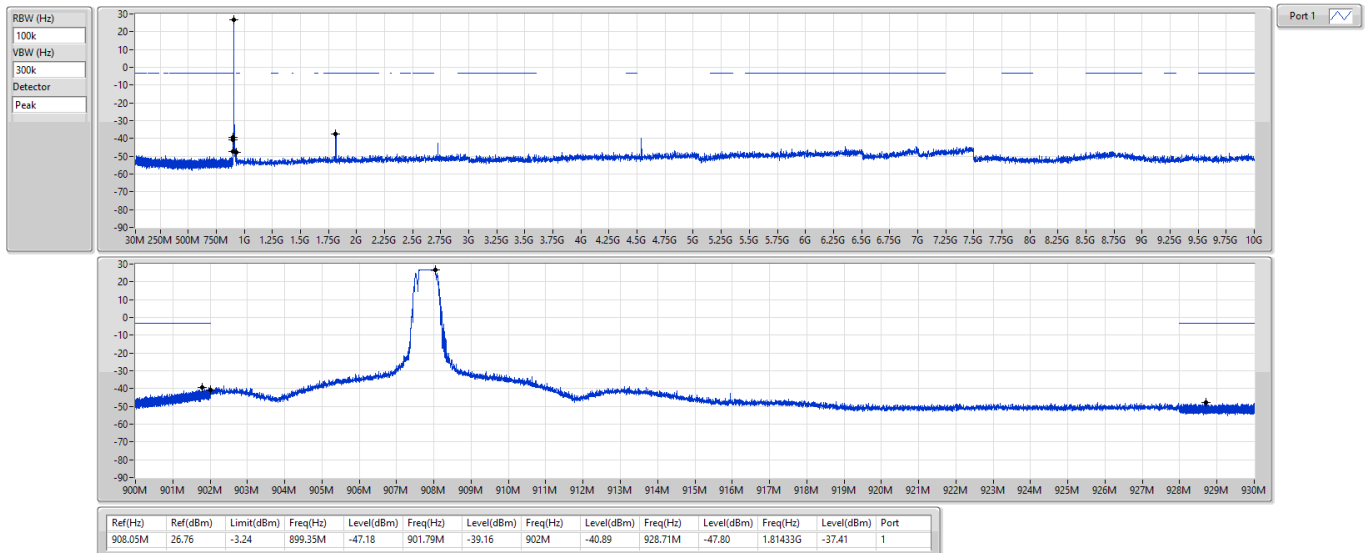
903MHz



902-928MHz LoRa (500kHz)

CSEndB-DTS

907.8MHz

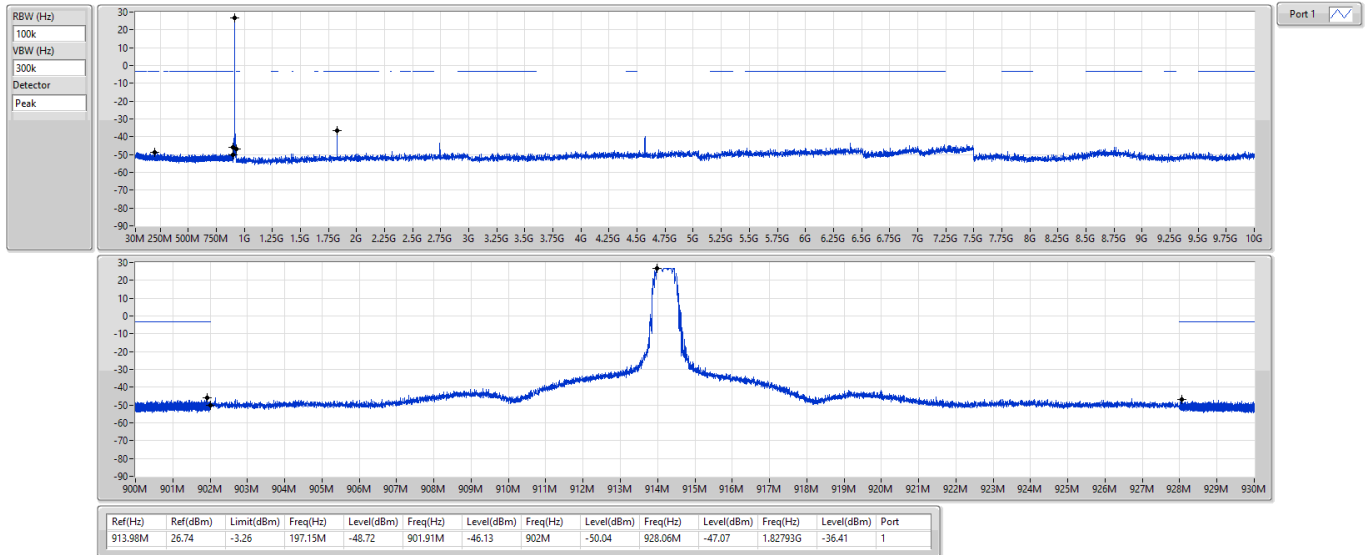




902-928MHz_LoRa (500kHz)

CSEndB-DTS

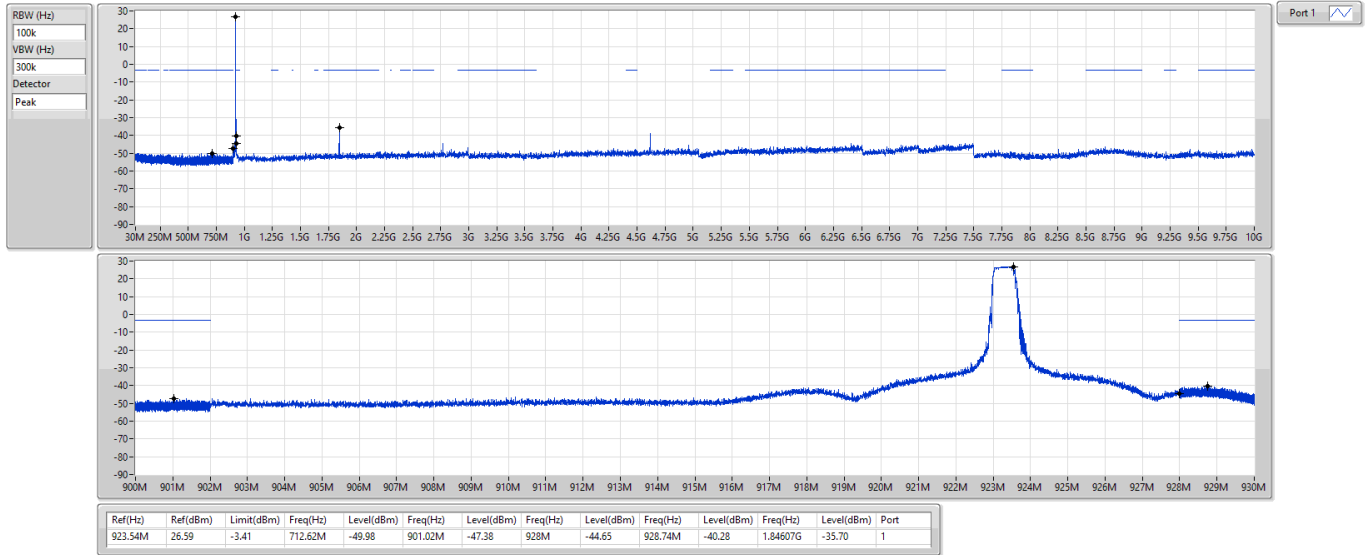
914.2MHz



902-928MHz LoRa (500kHz)

CSEndB-DTS

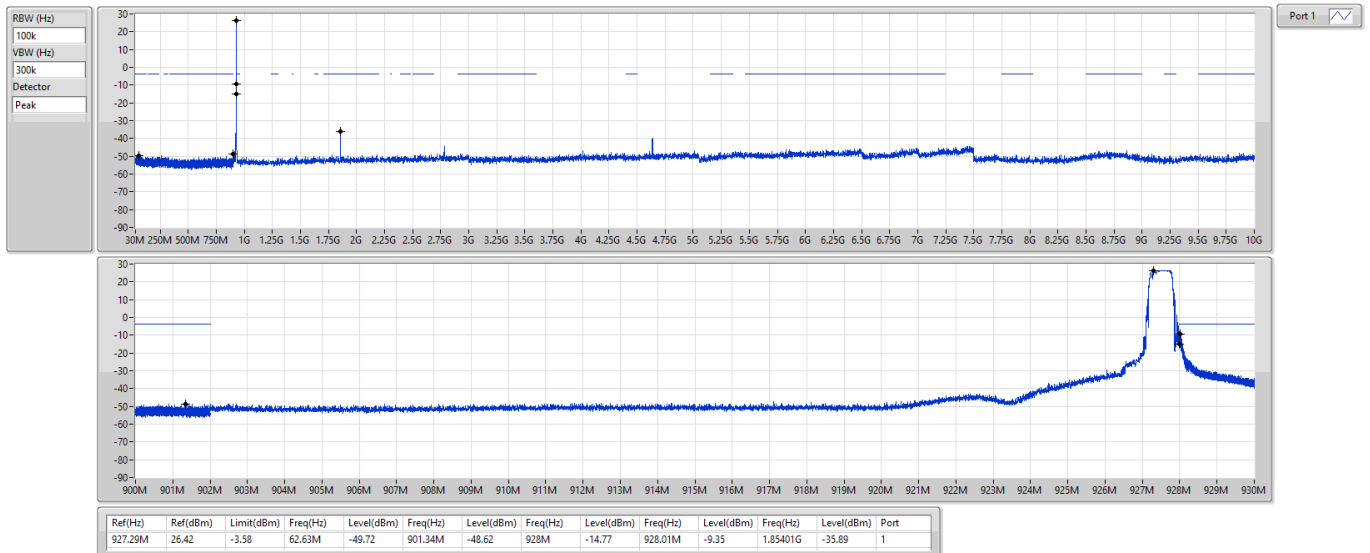
923.3MHz



902-928MHz LoRa (500kHz)

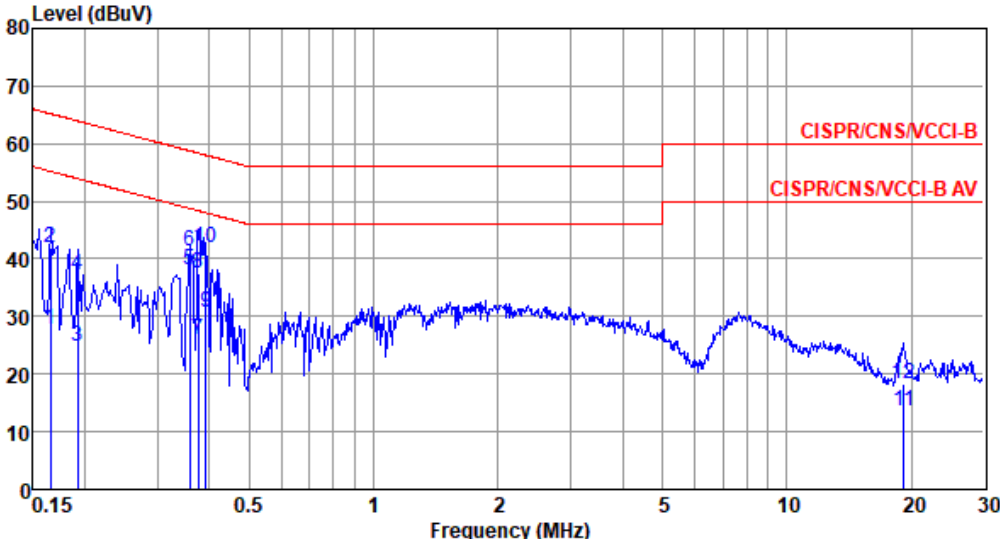
CSEndB-DTS

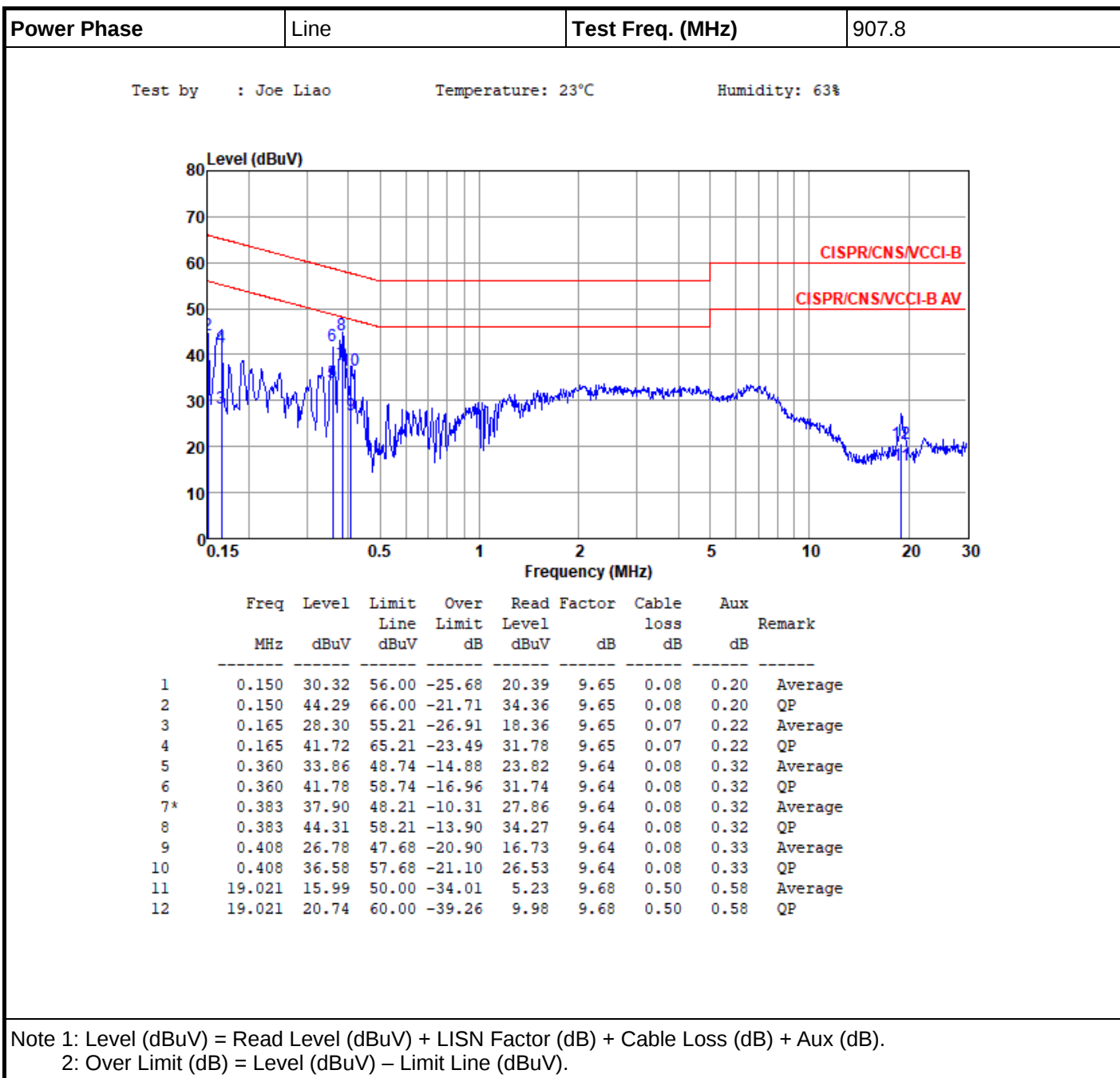
927.5MHz



Test configuration 1: External antenna, adapter mode

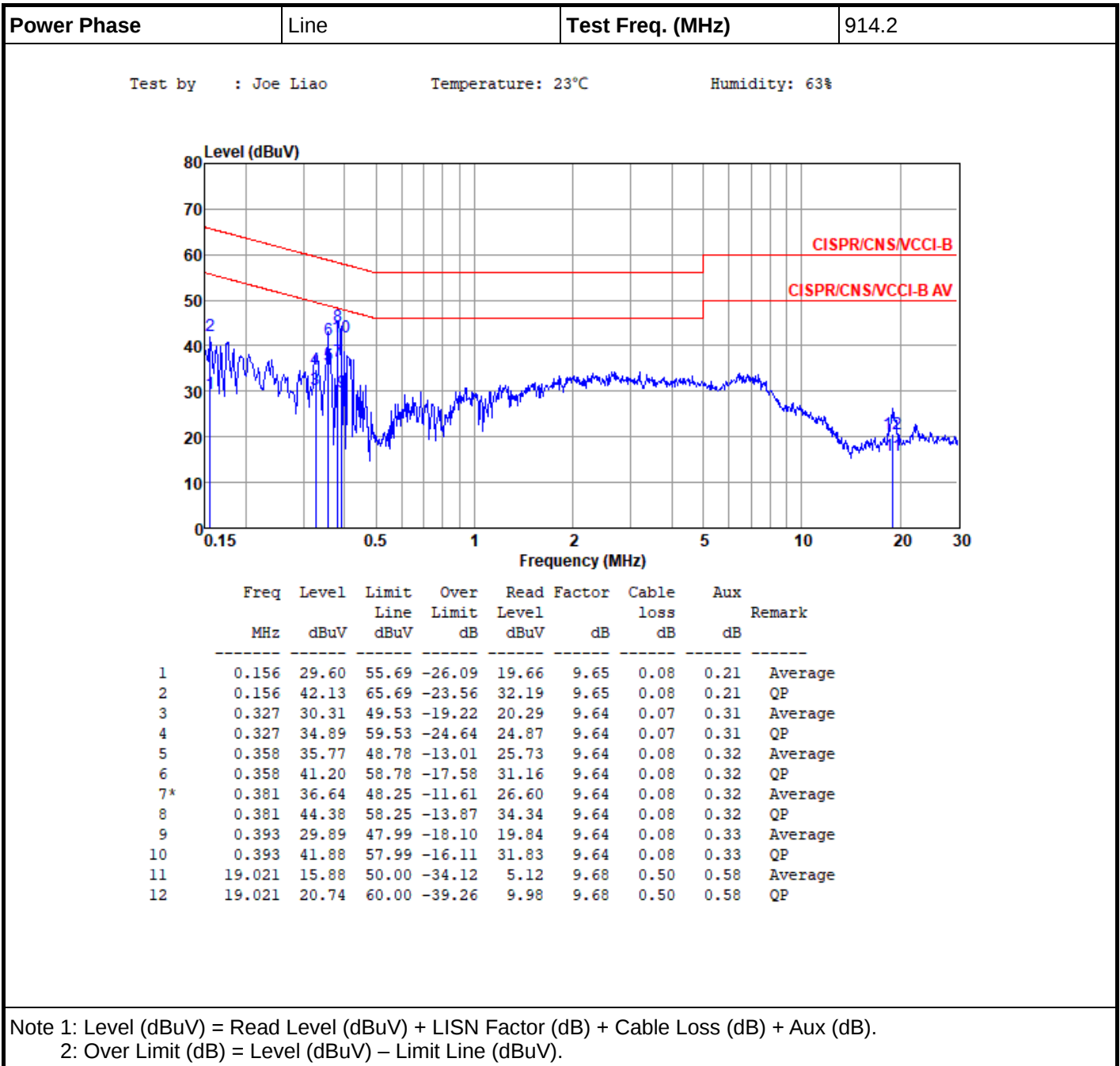
Power Phase	Line	Test Freq. (MHz)	903																																																																																																																																										
Test by : Joe Liao Temperature: 23°C Humidity: 63%																																																																																																																																													
Level (dBuV) Frequency (MHz) <table><thead><tr><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>Factor</th><th>Cable</th><th>Aux</th><th>Remark</th></tr><tr><th>MHz</th><th>dBuV</th><th>Line</th><th>Limit</th><th>Level</th><th>dB</th><th>loss</th><th>dB</th><th></th></tr></thead><tbody><tr><td>1</td><td>0.150</td><td>31.35</td><td>56.00</td><td>-24.65</td><td>21.42</td><td>9.65</td><td>0.08</td><td>0.20</td><td>Average</td></tr><tr><td>2</td><td>0.150</td><td>45.00</td><td>66.00</td><td>-21.00</td><td>35.07</td><td>9.65</td><td>0.08</td><td>0.20</td><td>QP</td></tr><tr><td>3</td><td>0.156</td><td>29.31</td><td>55.69</td><td>-26.38</td><td>19.37</td><td>9.65</td><td>0.08</td><td>0.21</td><td>Average</td></tr><tr><td>4</td><td>0.156</td><td>42.37</td><td>65.69</td><td>-23.32</td><td>32.43</td><td>9.65</td><td>0.08</td><td>0.21</td><td>QP</td></tr><tr><td>5</td><td>0.330</td><td>33.14</td><td>49.44</td><td>-16.30</td><td>23.12</td><td>9.64</td><td>0.07</td><td>0.31</td><td>Average</td></tr><tr><td>6</td><td>0.330</td><td>36.25</td><td>59.44</td><td>-23.19</td><td>26.23</td><td>9.64</td><td>0.07</td><td>0.31</td><td>QP</td></tr><tr><td>7</td><td>0.360</td><td>35.79</td><td>48.74</td><td>-12.95</td><td>25.75</td><td>9.64</td><td>0.08</td><td>0.32</td><td>Average</td></tr><tr><td>8</td><td>0.360</td><td>41.31</td><td>58.74</td><td>-17.43</td><td>31.27</td><td>9.64</td><td>0.08</td><td>0.32</td><td>QP</td></tr><tr><td>9*</td><td>0.387</td><td>37.38</td><td>48.12</td><td>-10.74</td><td>27.33</td><td>9.64</td><td>0.08</td><td>0.33</td><td>Average</td></tr><tr><td>10</td><td>0.387</td><td>43.72</td><td>58.12</td><td>-14.40</td><td>33.67</td><td>9.64</td><td>0.08</td><td>0.33</td><td>QP</td></tr><tr><td>11</td><td>19.122</td><td>15.88</td><td>50.00</td><td>-34.12</td><td>5.12</td><td>9.68</td><td>0.50</td><td>0.58</td><td>Average</td></tr><tr><td>12</td><td>19.122</td><td>20.98</td><td>60.00</td><td>-39.02</td><td>10.22</td><td>9.68</td><td>0.50</td><td>0.58</td><td>QP</td></tr></tbody></table>				Freq	Level	Limit	Over	Read	Factor	Cable	Aux	Remark	MHz	dBuV	Line	Limit	Level	dB	loss	dB		1	0.150	31.35	56.00	-24.65	21.42	9.65	0.08	0.20	Average	2	0.150	45.00	66.00	-21.00	35.07	9.65	0.08	0.20	QP	3	0.156	29.31	55.69	-26.38	19.37	9.65	0.08	0.21	Average	4	0.156	42.37	65.69	-23.32	32.43	9.65	0.08	0.21	QP	5	0.330	33.14	49.44	-16.30	23.12	9.64	0.07	0.31	Average	6	0.330	36.25	59.44	-23.19	26.23	9.64	0.07	0.31	QP	7	0.360	35.79	48.74	-12.95	25.75	9.64	0.08	0.32	Average	8	0.360	41.31	58.74	-17.43	31.27	9.64	0.08	0.32	QP	9*	0.387	37.38	48.12	-10.74	27.33	9.64	0.08	0.33	Average	10	0.387	43.72	58.12	-14.40	33.67	9.64	0.08	0.33	QP	11	19.122	15.88	50.00	-34.12	5.12	9.68	0.50	0.58	Average	12	19.122	20.98	60.00	-39.02	10.22	9.68	0.50	0.58	QP
Freq	Level	Limit	Over	Read	Factor	Cable	Aux	Remark																																																																																																																																					
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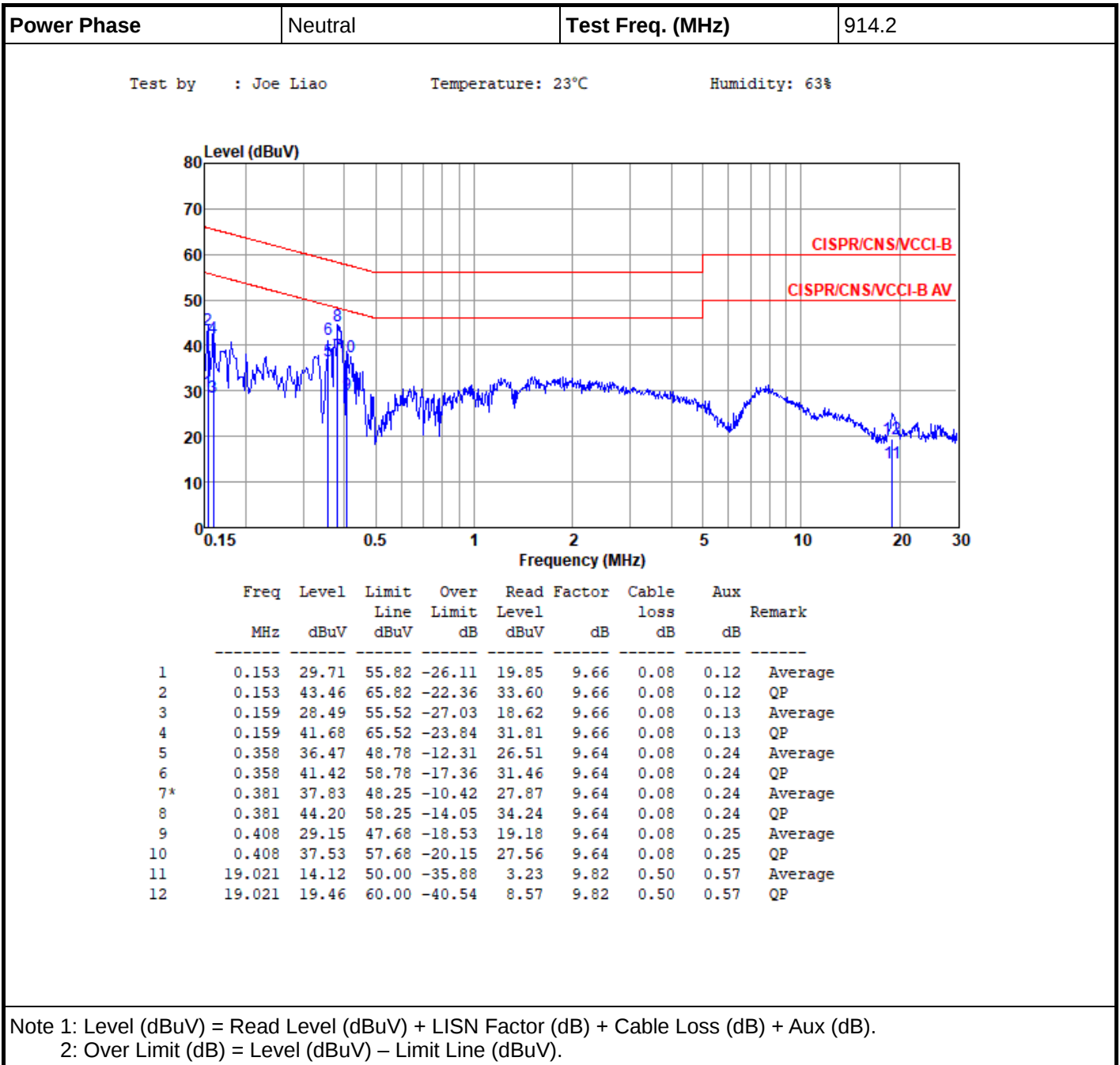
Power Phase	Neutral	Test Freq. (MHz)	903																																																																																																																																												
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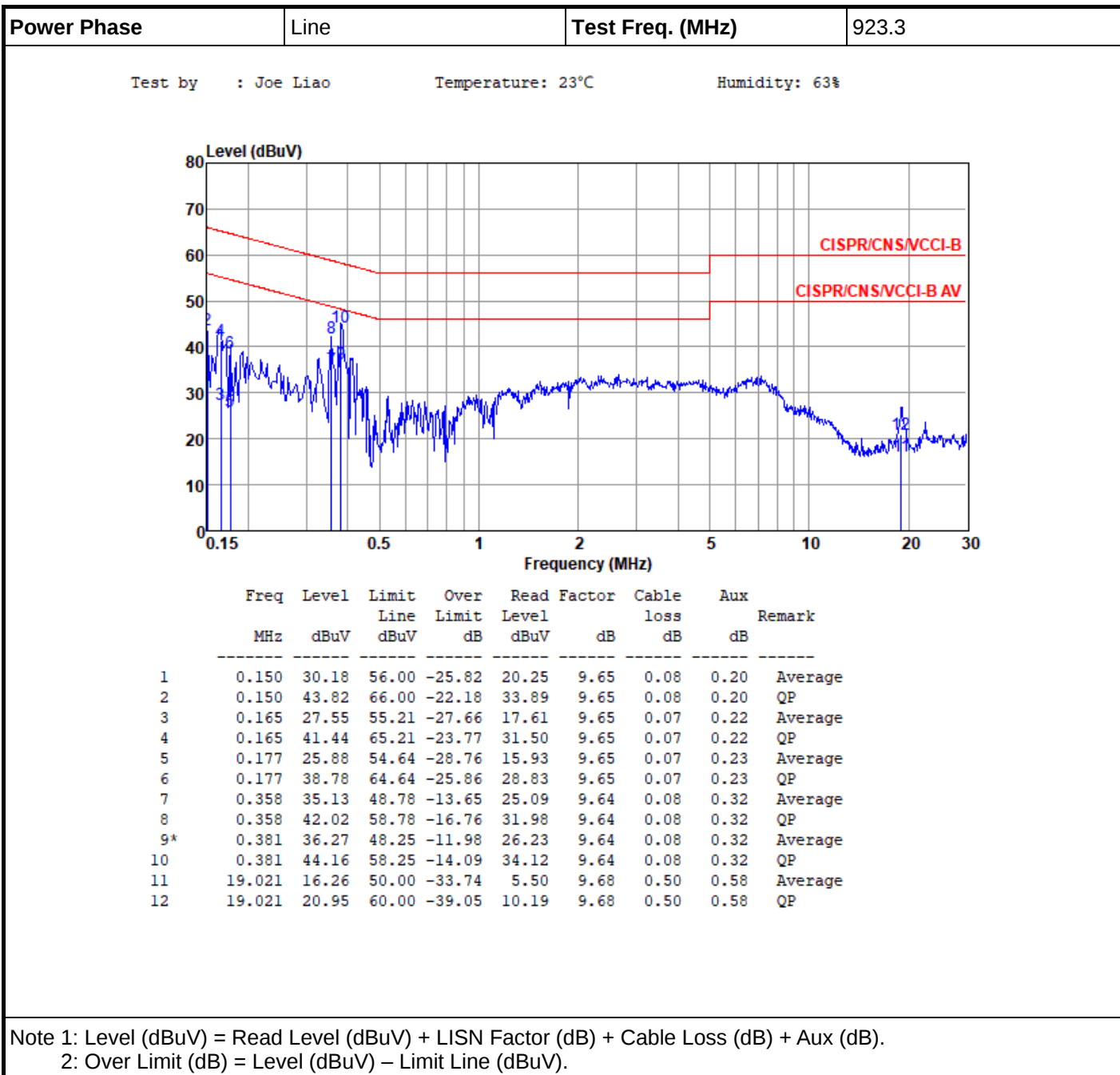


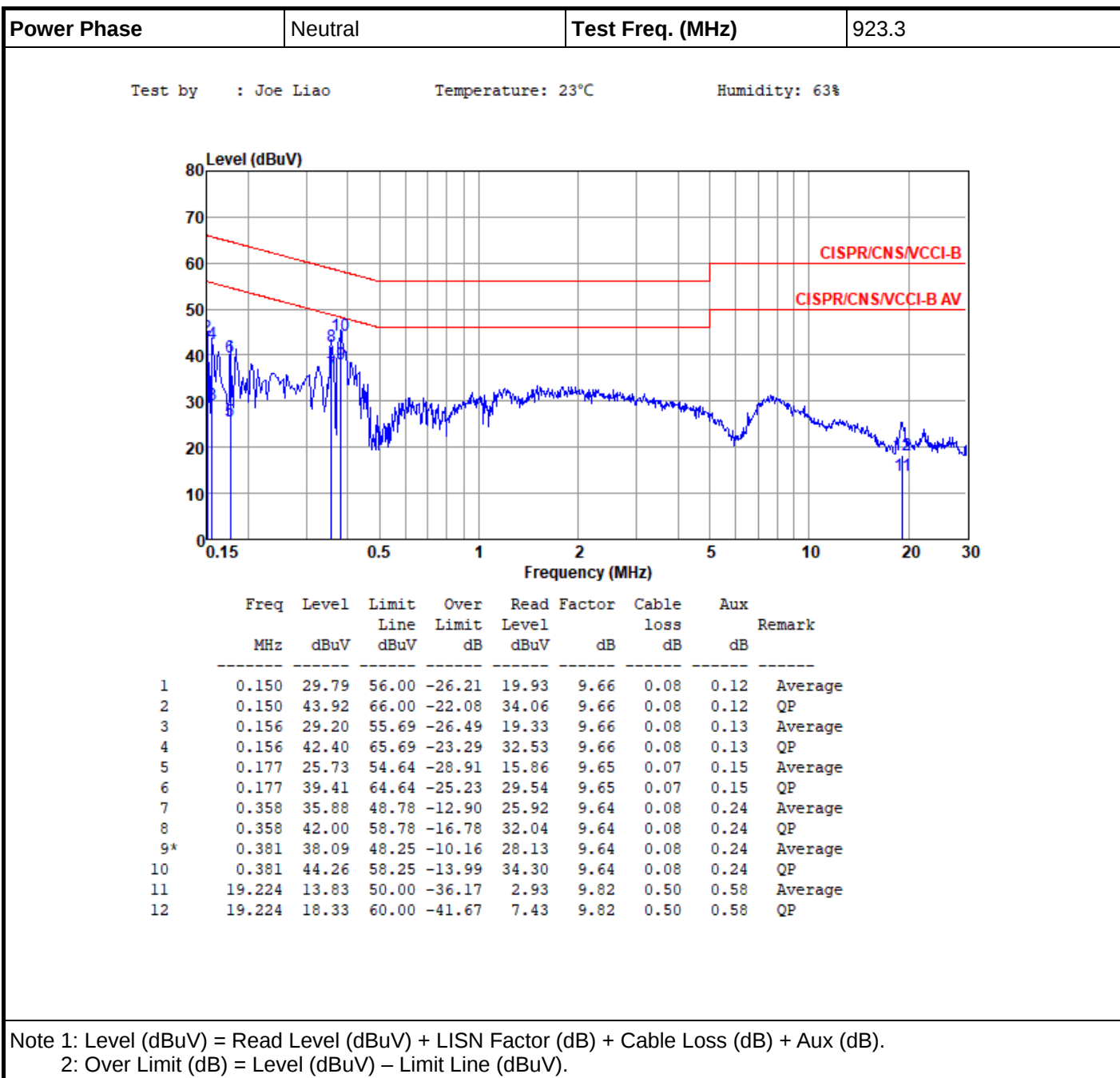


Power Phase	Neutral	Test Freq. (MHz)	907.8																																																																																																																																		
Test by : Joe Liao Temperature: 23°C Humidity: 63%																																																																																																																																					
Level (dBuV) Frequency (MHz) <table><tr><th></th><th>Freq MHz</th><th>Level dBuV</th><th>Limit Line dBuV</th><th>Over Limit dB</th><th>Read Level dBuV</th><th>Factor dB</th><th>Cable loss dB</th><th>Aux dB</th><th>Remark</th></tr><tr><td>1</td><td>0.153</td><td>29.40</td><td>55.82</td><td>-26.42</td><td>19.54</td><td>9.66</td><td>0.08</td><td>0.12</td><td>Average</td></tr><tr><td>2</td><td>0.153</td><td>43.31</td><td>65.82</td><td>-22.51</td><td>33.45</td><td>9.66</td><td>0.08</td><td>0.12</td><td>QP</td></tr><tr><td>3</td><td>0.162</td><td>28.62</td><td>55.34</td><td>-26.72</td><td>18.76</td><td>9.66</td><td>0.07</td><td>0.13</td><td>Average</td></tr><tr><td>4</td><td>0.162</td><td>42.74</td><td>65.34</td><td>-22.60</td><td>32.88</td><td>9.66</td><td>0.07</td><td>0.13</td><td>QP</td></tr><tr><td>5</td><td>0.358</td><td>36.53</td><td>48.78</td><td>-12.25</td><td>26.57</td><td>9.64</td><td>0.08</td><td>0.24</td><td>Average</td></tr><tr><td>6</td><td>0.358</td><td>41.49</td><td>58.78</td><td>-17.29</td><td>31.53</td><td>9.64</td><td>0.08</td><td>0.24</td><td>QP</td></tr><tr><td>7*</td><td>0.387</td><td>38.10</td><td>48.12</td><td>-10.02</td><td>28.13</td><td>9.64</td><td>0.08</td><td>0.25</td><td>Average</td></tr><tr><td>8</td><td>0.387</td><td>43.74</td><td>58.12</td><td>-14.38</td><td>33.77</td><td>9.64</td><td>0.08</td><td>0.25</td><td>QP</td></tr><tr><td>9</td><td>0.408</td><td>29.39</td><td>47.68</td><td>-18.29</td><td>19.42</td><td>9.64</td><td>0.08</td><td>0.25</td><td>Average</td></tr><tr><td>10</td><td>0.408</td><td>37.53</td><td>57.68</td><td>-20.15</td><td>27.56</td><td>9.64</td><td>0.08</td><td>0.25</td><td>QP</td></tr><tr><td>11</td><td>19.122</td><td>13.82</td><td>50.00</td><td>-36.18</td><td>2.93</td><td>9.82</td><td>0.50</td><td>0.57</td><td>Average</td></tr><tr><td>12</td><td>19.122</td><td>18.22</td><td>60.00</td><td>-41.78</td><td>7.33</td><td>9.82</td><td>0.50</td><td>0.57</td><td>QP</td></tr></table>					Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark	1	0.153	29.40	55.82	-26.42	19.54	9.66	0.08	0.12	Average	2	0.153	43.31	65.82	-22.51	33.45	9.66	0.08	0.12	QP	3	0.162	28.62	55.34	-26.72	18.76	9.66	0.07	0.13	Average	4	0.162	42.74	65.34	-22.60	32.88	9.66	0.07	0.13	QP	5	0.358	36.53	48.78	-12.25	26.57	9.64	0.08	0.24	Average	6	0.358	41.49	58.78	-17.29	31.53	9.64	0.08	0.24	QP	7*	0.387	38.10	48.12	-10.02	28.13	9.64	0.08	0.25	Average	8	0.387	43.74	58.12	-14.38	33.77	9.64	0.08	0.25	QP	9	0.408	29.39	47.68	-18.29	19.42	9.64	0.08	0.25	Average	10	0.408	37.53	57.68	-20.15	27.56	9.64	0.08	0.25	QP	11	19.122	13.82	50.00	-36.18	2.93	9.82	0.50	0.57	Average	12	19.122	18.22	60.00	-41.78	7.33	9.82	0.50	0.57	QP
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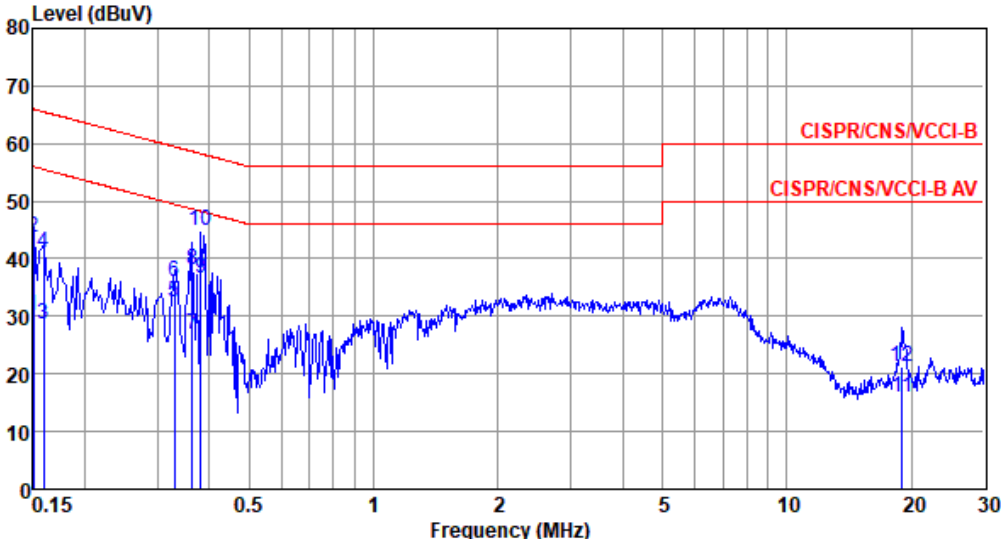


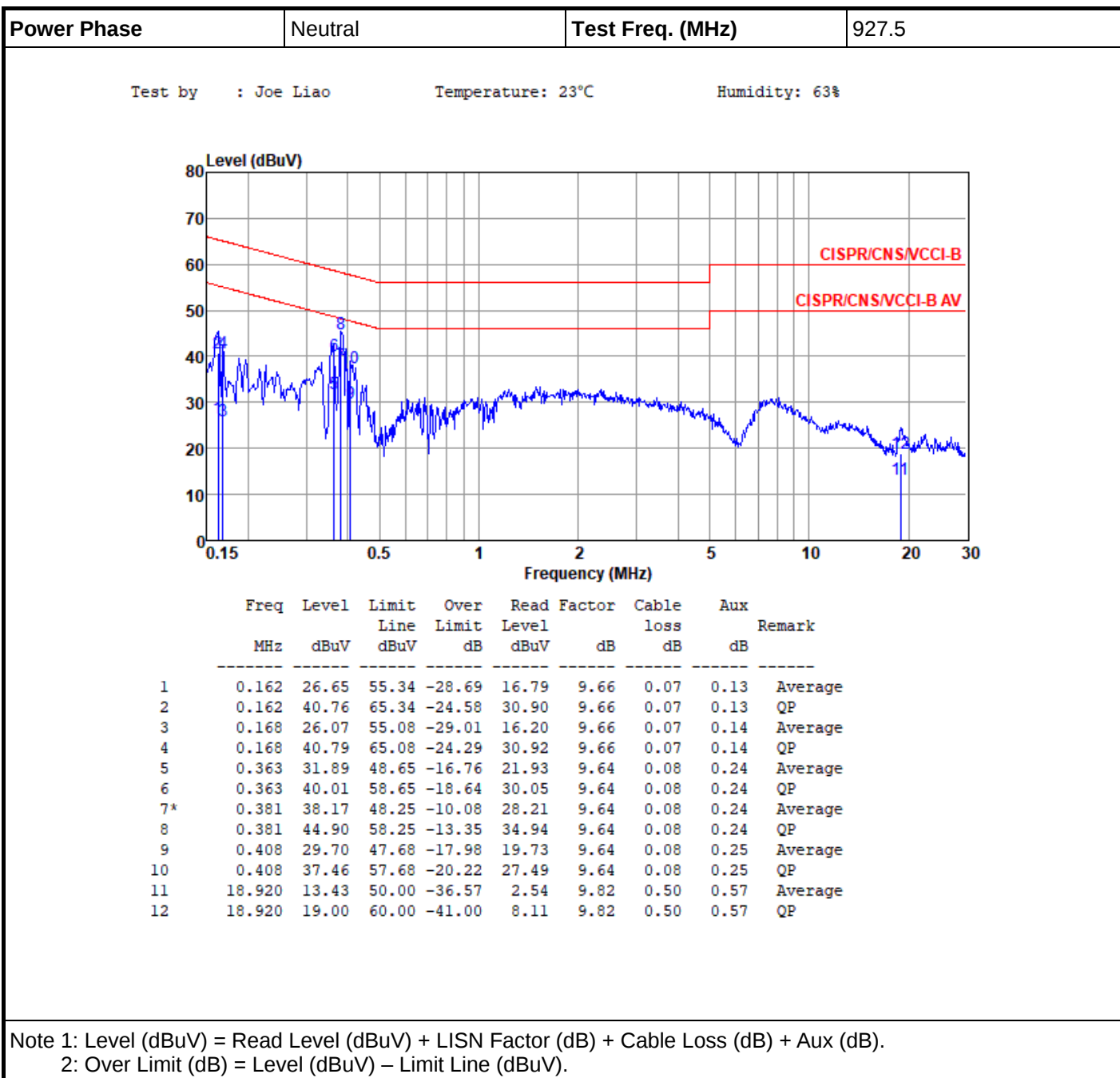




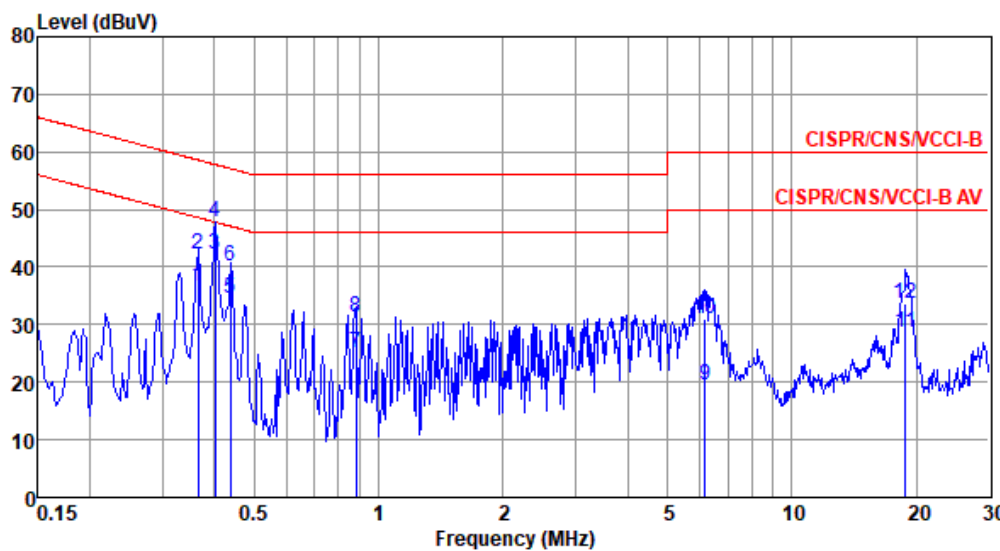


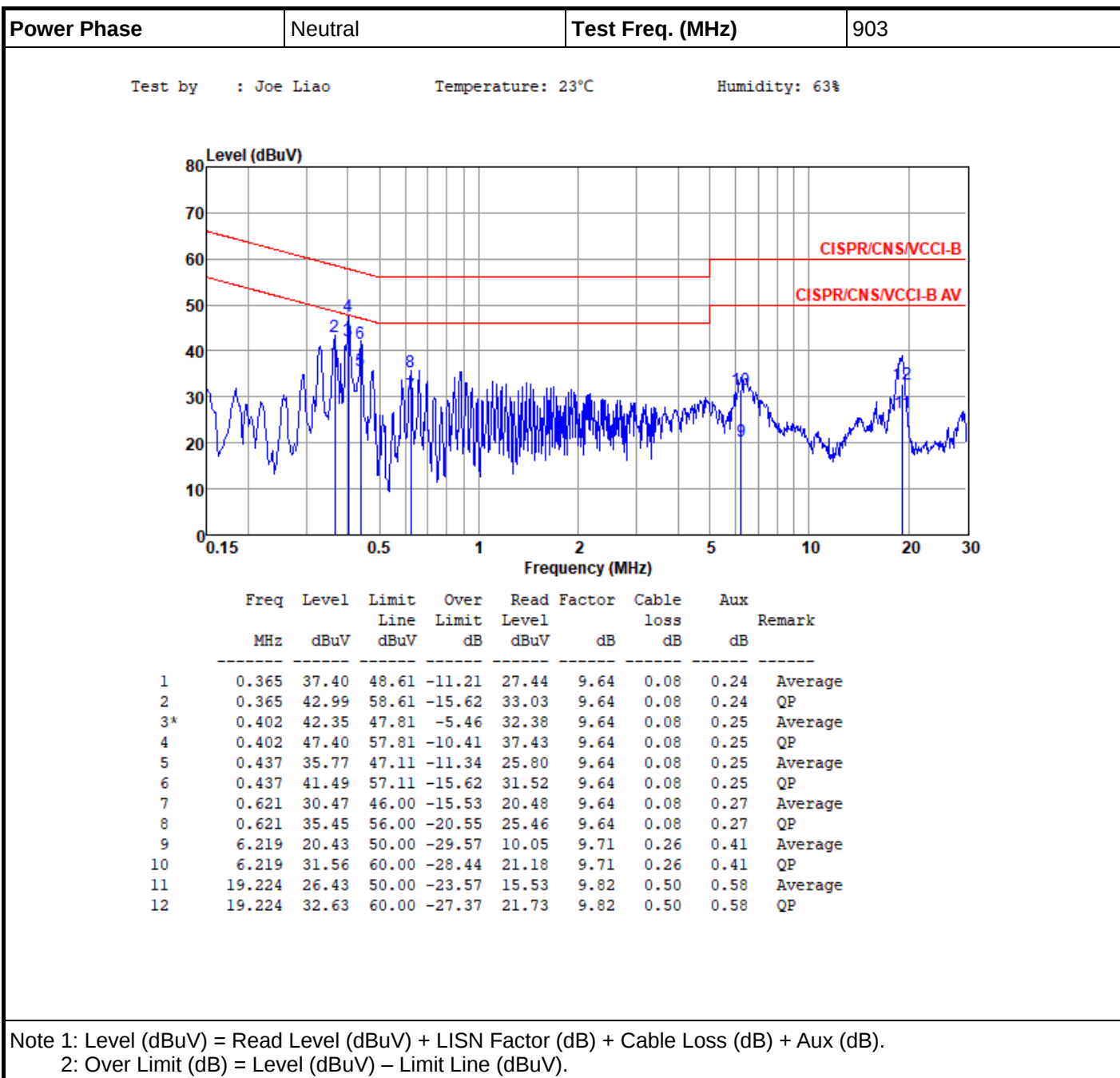


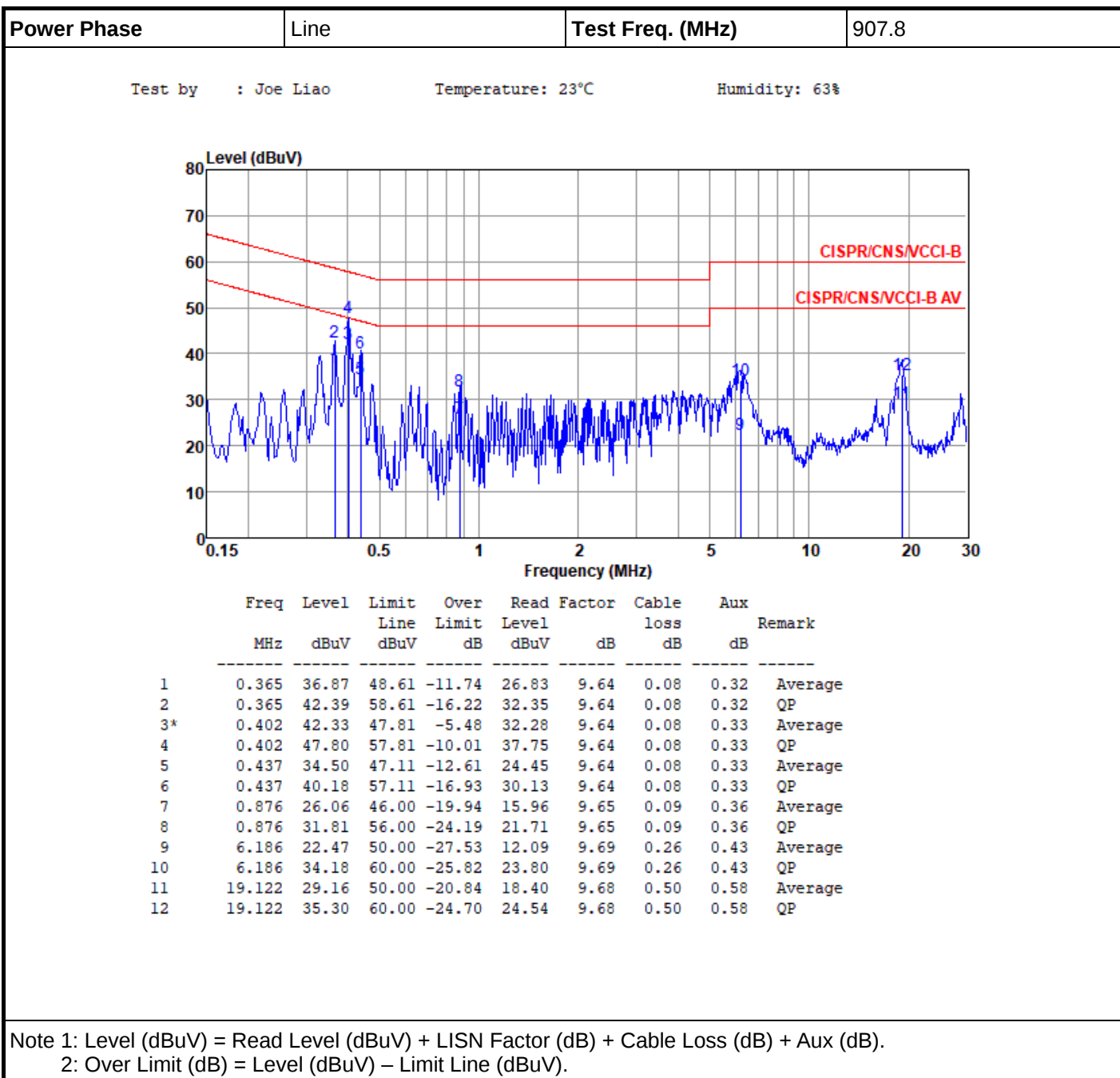
Power Phase	Line	Test Freq. (MHz)	927.5																																																																																																																																												
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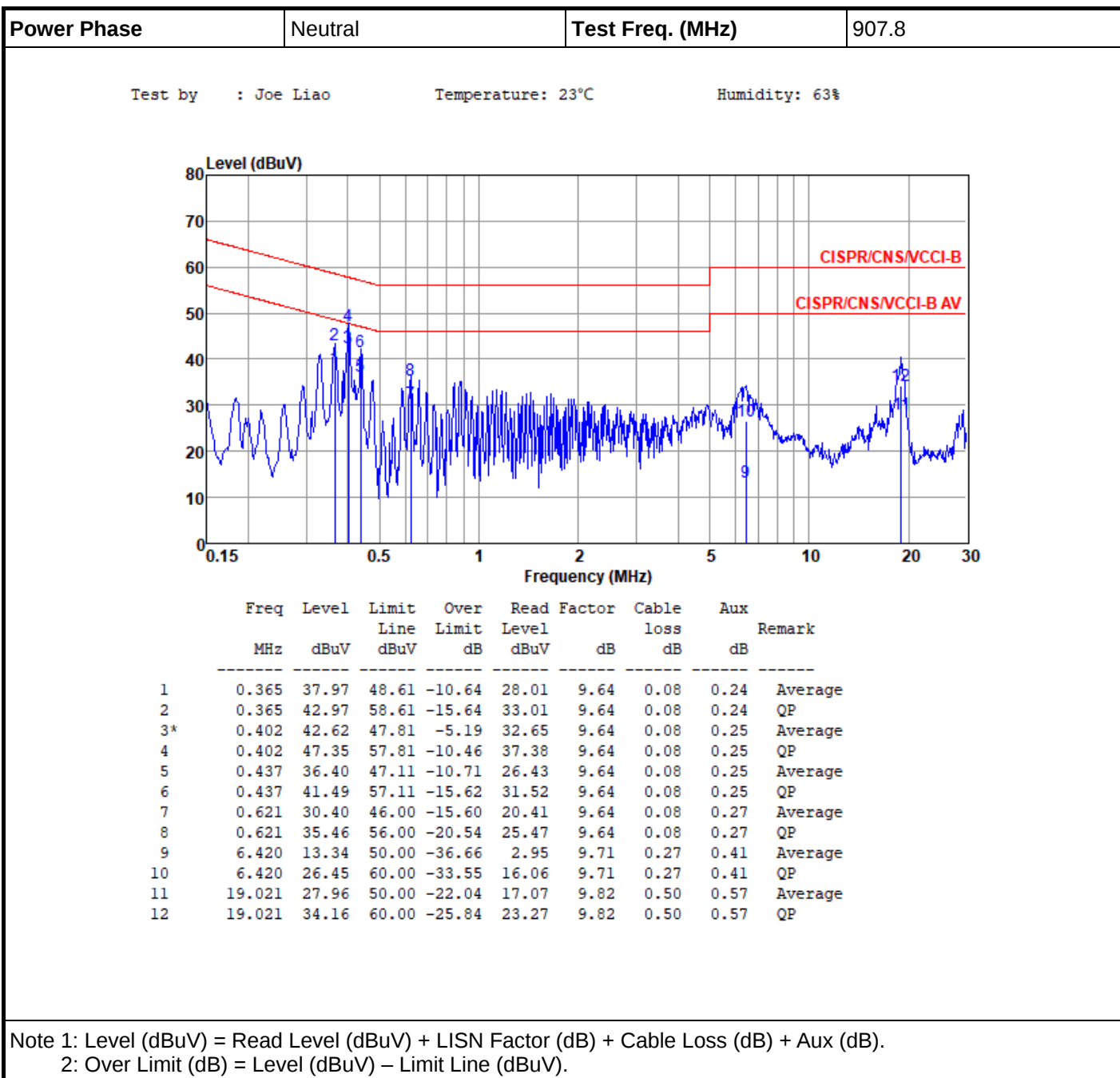


Test configuration 2: External antenna, POE mode

Power Phase	Line	Test Freq. (MHz)	903																																																																																																																																																						
Test by : Joe Liao Temperature: 23°C Humidity: 63%																																																																																																																																																									
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<table><thead><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>Factor</th><th>Cable</th><th>Aux</th><th>Remark</th></tr><tr><th></th><th>MHz</th><th>dBuV</th><th>Line</th><th>Limit</th><th>Level</th><th>dB</th><th>loss</th><th>dB</th><th></th></tr><tr><th></th><th></th><th></th><th>dBuV</th><th>dB</th><th>dBuV</th><th></th><th>dB</th><th></th><th></th></tr></thead><tbody><tr><td>1</td><td>0.365</td><td>36.71</td><td>48.61</td><td>-11.90</td><td>26.67</td><td>9.64</td><td>0.08</td><td>0.32</td><td>Average</td></tr><tr><td>2</td><td>0.365</td><td>42.34</td><td>58.61</td><td>-16.27</td><td>32.30</td><td>9.64</td><td>0.08</td><td>0.32</td><td>QP</td></tr><tr><td>3*</td><td>0.402</td><td>42.36</td><td>47.81</td><td>-5.45</td><td>32.31</td><td>9.64</td><td>0.08</td><td>0.33</td><td>Average</td></tr><tr><td>4</td><td>0.402</td><td>47.74</td><td>57.81</td><td>-10.07</td><td>37.69</td><td>9.64</td><td>0.08</td><td>0.33</td><td>QP</td></tr><tr><td>5</td><td>0.437</td><td>34.43</td><td>47.11</td><td>-12.68</td><td>24.38</td><td>9.64</td><td>0.08</td><td>0.33</td><td>Average</td></tr><tr><td>6</td><td>0.437</td><td>40.08</td><td>57.11</td><td>-17.03</td><td>30.03</td><td>9.64</td><td>0.08</td><td>0.33</td><td>QP</td></tr><tr><td>7</td><td>0.880</td><td>25.15</td><td>46.00</td><td>-20.85</td><td>15.05</td><td>9.65</td><td>0.09</td><td>0.36</td><td>Average</td></tr><tr><td>8</td><td>0.880</td><td>31.33</td><td>56.00</td><td>-24.67</td><td>21.23</td><td>9.65</td><td>0.09</td><td>0.36</td><td>QP</td></tr><tr><td>9</td><td>6.153</td><td>19.47</td><td>50.00</td><td>-30.53</td><td>9.09</td><td>9.69</td><td>0.26</td><td>0.43</td><td>Average</td></tr><tr><td>10</td><td>6.153</td><td>30.89</td><td>60.00</td><td>-29.11</td><td>20.51</td><td>9.69</td><td>0.26</td><td>0.43</td><td>QP</td></tr><tr><td>11</td><td>18.820</td><td>28.52</td><td>50.00</td><td>-21.48</td><td>17.76</td><td>9.68</td><td>0.50</td><td>0.58</td><td>Average</td></tr><tr><td>12</td><td>18.820</td><td>33.57</td><td>60.00</td><td>-26.43</td><td>22.81</td><td>9.68</td><td>0.50</td><td>0.58</td><td>QP</td></tr></tbody></table>					Freq	Level	Limit	Over	Read	Factor	Cable	Aux	Remark		MHz	dBuV	Line	Limit	Level	dB	loss	dB					dBuV	dB	dBuV		dB			1	0.365	36.71	48.61	-11.90	26.67	9.64	0.08	0.32	Average	2	0.365	42.34	58.61	-16.27	32.30	9.64	0.08	0.32	QP	3*	0.402	42.36	47.81	-5.45	32.31	9.64	0.08	0.33	Average	4	0.402	47.74	57.81	-10.07	37.69	9.64	0.08	0.33	QP	5	0.437	34.43	47.11	-12.68	24.38	9.64	0.08	0.33	Average	6	0.437	40.08	57.11	-17.03	30.03	9.64	0.08	0.33	QP	7	0.880	25.15	46.00	-20.85	15.05	9.65	0.09	0.36	Average	8	0.880	31.33	56.00	-24.67	21.23	9.65	0.09	0.36	QP	9	6.153	19.47	50.00	-30.53	9.09	9.69	0.26	0.43	Average	10	6.153	30.89	60.00	-29.11	20.51	9.69	0.26	0.43	QP	11	18.820	28.52	50.00	-21.48	17.76	9.68	0.50	0.58	Average	12	18.820	33.57	60.00	-26.43	22.81	9.68	0.50	0.58	QP
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Power Phase	Line	Test Freq. (MHz)	914.2																																																																																																																																																						
Test by : Joe Liao Temperature: 23°C Humidity: 63%																																																																																																																																																									
<table><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>Factor</th><th>Cable</th><th>Aux</th><th>Remark</th></tr><tr><th></th><th>MHz</th><th>dBuV</th><th>Line</th><th>Limit</th><th>Level</th><th></th><th>loss</th><th></th><th></th></tr><tr><th></th><th></th><th></th><th>dBuV</th><th>dB</th><th>dBuV</th><th>dB</th><th>dB</th><th>dB</th><th></th></tr><tr><td>1</td><td>0.365</td><td>37.45</td><td>48.61</td><td>-11.16</td><td>27.41</td><td>9.64</td><td>0.08</td><td>0.32</td><td>Average</td></tr><tr><td>2</td><td>0.365</td><td>42.38</td><td>58.61</td><td>-16.23</td><td>32.34</td><td>9.64</td><td>0.08</td><td>0.32</td><td>QP</td></tr><tr><td>3*</td><td>0.402</td><td>42.42</td><td>47.81</td><td>-5.39</td><td>32.37</td><td>9.64</td><td>0.08</td><td>0.33</td><td>Average</td></tr><tr><td>4</td><td>0.402</td><td>47.79</td><td>57.81</td><td>-10.02</td><td>37.74</td><td>9.64</td><td>0.08</td><td>0.33</td><td>QP</td></tr><tr><td>5</td><td>0.437</td><td>35.04</td><td>47.11</td><td>-12.07</td><td>24.99</td><td>9.64</td><td>0.08</td><td>0.33</td><td>Average</td></tr><tr><td>6</td><td>0.437</td><td>40.16</td><td>57.11</td><td>-16.95</td><td>30.11</td><td>9.64</td><td>0.08</td><td>0.33</td><td>QP</td></tr><tr><td>7</td><td>0.876</td><td>26.63</td><td>46.00</td><td>-19.37</td><td>16.53</td><td>9.65</td><td>0.09</td><td>0.36</td><td>Average</td></tr><tr><td>8</td><td>0.876</td><td>31.88</td><td>56.00</td><td>-24.12</td><td>21.78</td><td>9.65</td><td>0.09</td><td>0.36</td><td>QP</td></tr><tr><td>9</td><td>6.121</td><td>12.10</td><td>50.00</td><td>-37.90</td><td>1.72</td><td>9.69</td><td>0.26</td><td>0.43</td><td>Average</td></tr><tr><td>10</td><td>6.121</td><td>23.72</td><td>60.00</td><td>-36.28</td><td>13.34</td><td>9.69</td><td>0.26</td><td>0.43</td><td>QP</td></tr><tr><td>11</td><td>19.122</td><td>28.67</td><td>50.00</td><td>-21.33</td><td>17.91</td><td>9.68</td><td>0.50</td><td>0.58</td><td>Average</td></tr><tr><td>12</td><td>19.122</td><td>35.30</td><td>60.00</td><td>-24.70</td><td>24.54</td><td>9.68</td><td>0.50</td><td>0.58</td><td>QP</td></tr></table>					Freq	Level	Limit	Over	Read	Factor	Cable	Aux	Remark		MHz	dBuV	Line	Limit	Level		loss						dBuV	dB	dBuV	dB	dB	dB		1	0.365	37.45	48.61	-11.16	27.41	9.64	0.08	0.32	Average	2	0.365	42.38	58.61	-16.23	32.34	9.64	0.08	0.32	QP	3*	0.402	42.42	47.81	-5.39	32.37	9.64	0.08	0.33	Average	4	0.402	47.79	57.81	-10.02	37.74	9.64	0.08	0.33	QP	5	0.437	35.04	47.11	-12.07	24.99	9.64	0.08	0.33	Average	6	0.437	40.16	57.11	-16.95	30.11	9.64	0.08	0.33	QP	7	0.876	26.63	46.00	-19.37	16.53	9.65	0.09	0.36	Average	8	0.876	31.88	56.00	-24.12	21.78	9.65	0.09	0.36	QP	9	6.121	12.10	50.00	-37.90	1.72	9.69	0.26	0.43	Average	10	6.121	23.72	60.00	-36.28	13.34	9.69	0.26	0.43	QP	11	19.122	28.67	50.00	-21.33	17.91	9.68	0.50	0.58	Average	12	19.122	35.30	60.00	-24.70	24.54	9.68	0.50	0.58	QP
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Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB). 2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).																																																																																																																																																									

