MEASUREMENT REPORT

FCC Part 15B / ICES-003

FCC ID:	2A2TS2021IG830
Application:	Honglink Wireless Solutions Co., Ltd.
Application Type:	Certification
Product:	LTE USB MODEM
Model No.:	IG830
Brand Name:	DJI
FCC Rule Part(s):	FCC Part 15 Subpart B: 2021
ISED Rule(s):	ICES-003 Issue 7 Class B October 2020
Test Procedure(s):	ANSI C63.4: 2014
Test Date:	June 23 ~ November 10, 2021

Reviewed By: Sunny Sun

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

The test results relate only to the samples tested.
This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2014. Test results reported herein relate only to the item(s) tested.
The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2106RSU002-U4	Rev. 01	Initial Report	10-26-2021	Invalid
2106RSU002-U4	Rev. 02	Added FCC ID	11-11-2021	Valid

CONTENTS

1. General Information

1.1. Applicant

Honglink Wireless Solutions Co., Ltd.

Room 611-390, R&D Center Building, China (Hefei) International Intelligent Voice Industrial Park, No.3333 Xiyou Road, High-tech Zone, Hefei

1.1. Manufacturer

Honglink Wireless Solutions Co., Ltd.

Room 611-390, R&D Center Building, China (Hefei) International Intelligent Voice Industrial Park, No.3333 Xiyou Road, High-tech Zone, Hefei

1.2. Testing Facility

☒	**Test Site – MRT Suzhou Laboratory**				
	Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China **Laboratory Location (Suzhou - SIP)** 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China				
	Laboratory Accreditations				
	A2LA: 3628.01		CNAS: L10551		
	FCC: CN1166		ISED: CN0001		
	VCCI:	☐R-20025	☐G-20034	☐C-20020	☐T-20020
		☐R-20141	☐G-20134	☐C-20103	☐T-20104
☐	**Test Site – MRT Shenzhen Laboratory**				
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China				
	Laboratory Accreditations				
	A2LA: 3628.02		CNAS: L10551		
	FCC: CN1284		ISED: CN0105		
☐	**Test Site – MRT Taiwan Laboratory**				
	Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)				
	Laboratory Accreditations				
	TAF: L3261-190725				
	FCC: 291082, TW3261		ISED: TW3261		

1.3. Product Information

Product Name	LTE USB MODEM
Model No.	IG830
Brand Name	DJI
IMEI	867914050004567
Operating Temperature	-20 ~ 55 °C
Supply Voltage	4.5 ~ 5.5Vdc, typical 5Vdc
GSM Band (s)	GSM 850, PCS 1900
UMTS Band	Band 2, 4, 5
E-UTRA Band	FDD Band: 2, 4, 5, 7, 12, 13, 25, 26, 66, 71 TDD Band: 38, 41
Antenna Information	Refer to section 1.6
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

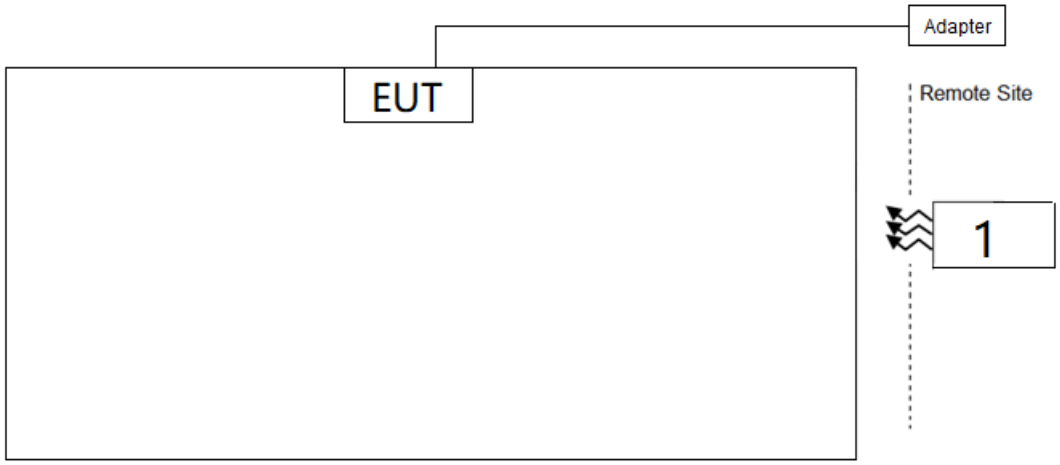
1.4. Test Mode

Test Mode
Mode 1: Power on EUT + GSM850 Traffic
Note: The other transmitter functions have been assessed in each RF test report.

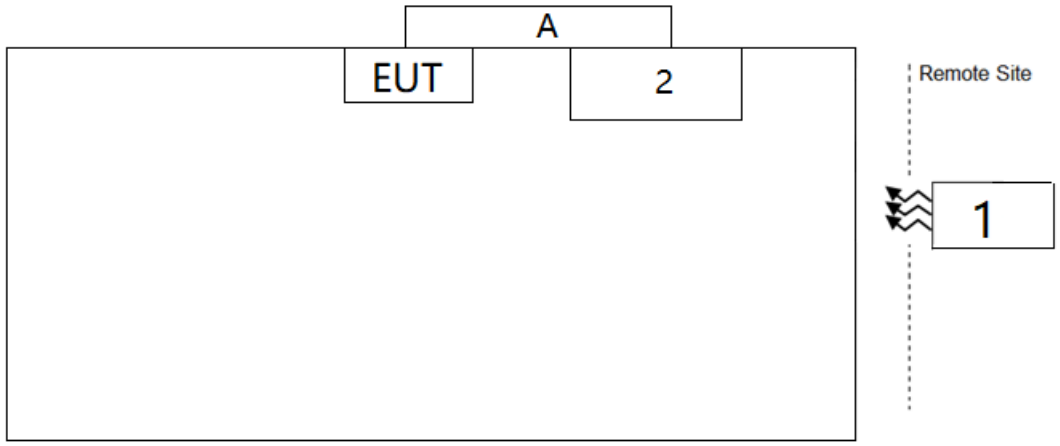
1.5. Configuration of Tested System

The measurement procedures and appropriate EUT setup described in the American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz (ANSI C63.4-2014) was used in the measurement.

Radiated Emission Connection Diagram (Mode 1)



Conducted Emission Connection Diagram (Mode 1)



Cable Type		Signal Cable Description
A	USB Cable	Shielding, > 10m

1.6. Test System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.
1	Wideband Radio Communication Tester	R&S	CMW 500
2	Notebook	Lenovo	X21

1.7. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2. TEST EQUIPMENT CALIBRATION DATE

Conducted Emission (WZ-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06909	1 year	2022/11/01
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2022/06/08
Thermal Hygrometer	testo	608-H1	MRTSUE06404	1 year	2022/06/28

Radiated Emission (SIP-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2022/06/24
MXA Signal Analyzer	Keysight	N9020B	MRTSUE06604	1 year	2021/09/26
MXA Signal Analyzer	Keysight	N9020B	MRTSUE06604	1 year	2022/09/25
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2022/03/09
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06646	1 year	2021/08/30
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06646	1 year	2022/08/29
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06648	1 year	2021/11/26
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06599	1 year	2021/11/26
Preamplifier	EMCI	EMC051845SE	MRTSUE06644	1 year	2021/11/09
Preamplifier	EMCI	EMC051845SE	MRTSUE06644	1 year	2022/11/08
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2021/10/12
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2022/10/11
Thermal Hygrometer	testo	608-H1	MRTSUE06624	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2021/12/24

Software	Version	Function
EMI Software	V3	EMI Test Software

3. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Conducted Emission Measurement
The maximum measurement uncertainty is evaluated as: 9kHz~150kHz: 3.74dB 150kHz~30MHz: 3.44dB
Radiated Emission Measurement
The maximum measurement uncertainty is evaluated as: Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB

4. TEST RESULT

4.1. Summary

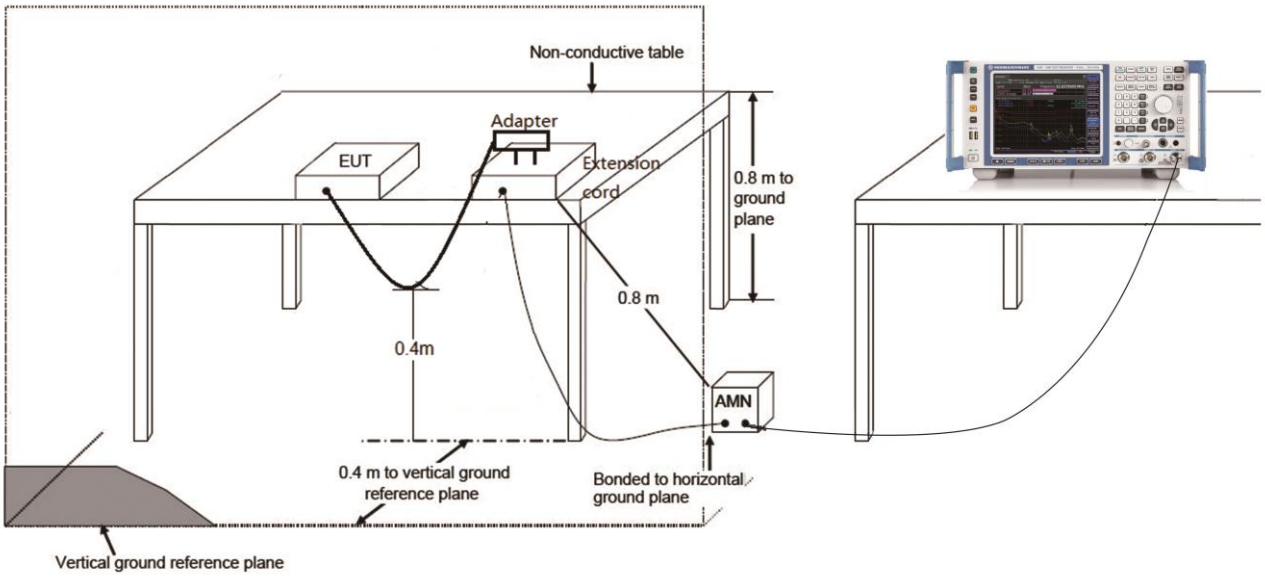
FCC Part Section(s)	ISED Part Section(s)	Test Description	Test Result
15.107	3.2.1	Conducted Emissions	Pass
15.109	3.2.2	Radiated Emissions	Pass

4.2. Conducted Emission Measurement

4.2.1.Test Limit

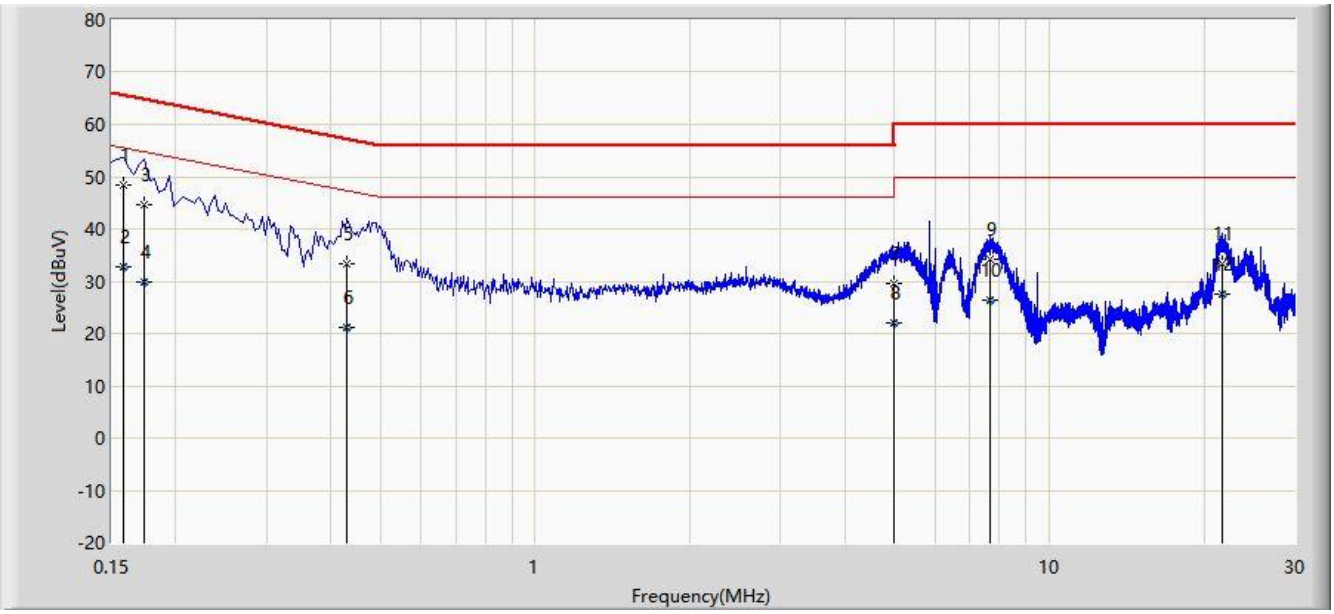
FCC Part 15.107 / ICES-003 Issue 7 Limit		
Frequency (MHz)	QP (dBμV)	AV (dBμV)
0.15 ~ 0.50	66 ~ 56	56 ~ 46
0.50 ~ 5.0	56	46
5.0 ~ 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

4.2.2.Test Setup



4.2.3.Test Result

Site: WZ-SR2	Time: 2021/11/10 - 10:06
Limit: FCC_Part15.107_CE_AC Power _ Class B	Engineer: Helen Han
Probe: ENV216_101683_Filter Off _ C	Polarity: Line
EUT: LTE USB MODEM	Power: AC 120V/60Hz
Test Mode 1	

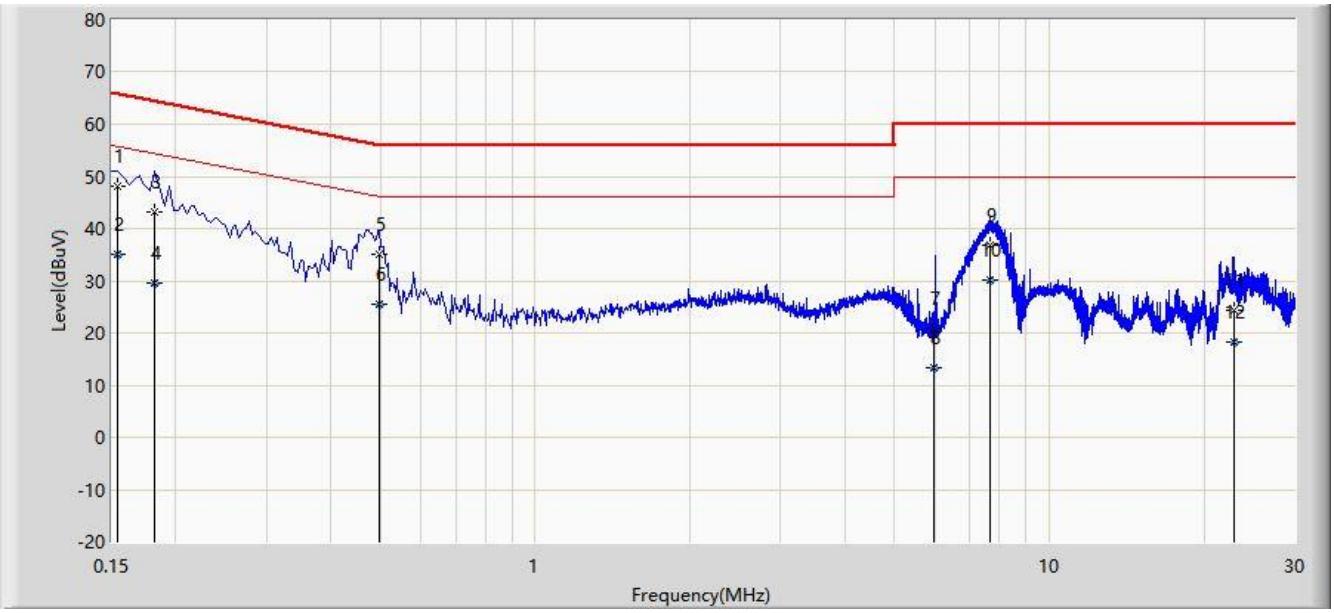


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.158	48.512	38.464	-17.056	65.568	10.048	QP
2			0.158	32.700	22.652	-22.868	55.568	10.048	AV
3			0.174	44.780	34.735	-19.987	64.767	10.045	QP
4			0.174	29.799	19.754	-24.968	54.767	10.045	AV
5			0.430	33.379	23.278	-23.874	57.253	10.101	QP
6			0.430	21.191	11.090	-26.061	47.253	10.101	AV
7			5.000	29.536	18.827	-26.464	56.000	10.709	QP
8			5.000	22.068	11.359	-23.932	46.000	10.709	AV
9			7.658	34.197	23.393	-25.803	60.000	10.804	QP
10			7.658	26.318	15.514	-23.682	50.000	10.804	AV
11			21.706	33.201	21.950	-26.799	60.000	11.250	QP
12			21.706	27.444	16.194	-22.556	50.000	11.250	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

Site: WZ-SR2	Time: 2021/11/10 - 16:27
Limit: FCC_Part15.107_CE_AC Power _ Class B	Engineer: Helen Han
Probe: ENV216_101683_Filter Off _ C	Polarity: Neutral
EUT: LTE USB MODEM	Power: AC 120V/60Hz
Test Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.154	48.109	37.739	-17.672	65.781	10.370	QP
2			0.154	35.065	24.694	-20.717	55.781	10.370	AV
3			0.182	43.221	32.877	-21.173	64.394	10.345	QP
4			0.182	29.459	19.115	-24.935	54.394	10.345	AV
5			0.498	34.952	24.572	-21.082	56.033	10.380	QP
6			0.498	25.562	15.182	-20.471	46.033	10.380	AV
7			5.979	20.796	9.800	-39.204	60.000	10.996	QP
8			5.979	13.296	2.300	-36.704	50.000	10.996	AV
9			7.686	36.713	25.659	-23.287	60.000	11.054	QP
10			7.686	30.274	19.220	-19.726	50.000	11.054	AV
11			22.854	24.300	12.807	-35.700	60.000	11.494	QP
12			22.854	18.396	6.903	-31.604	50.000	11.494	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

4.3. Radiated Emission Measurement

4.3.1.Test Limit

FCC Part 15.109 / ICES-003 Issue 7 Limit		
Frequency (MHz)	Distance (m)	Level (dBμV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 230	3	46
230 - 960	3	46 / 47 Note4
960 - 1000	3	54
Above 1000	3	54

Note 1: The lower limit shall apply at the transition frequency.

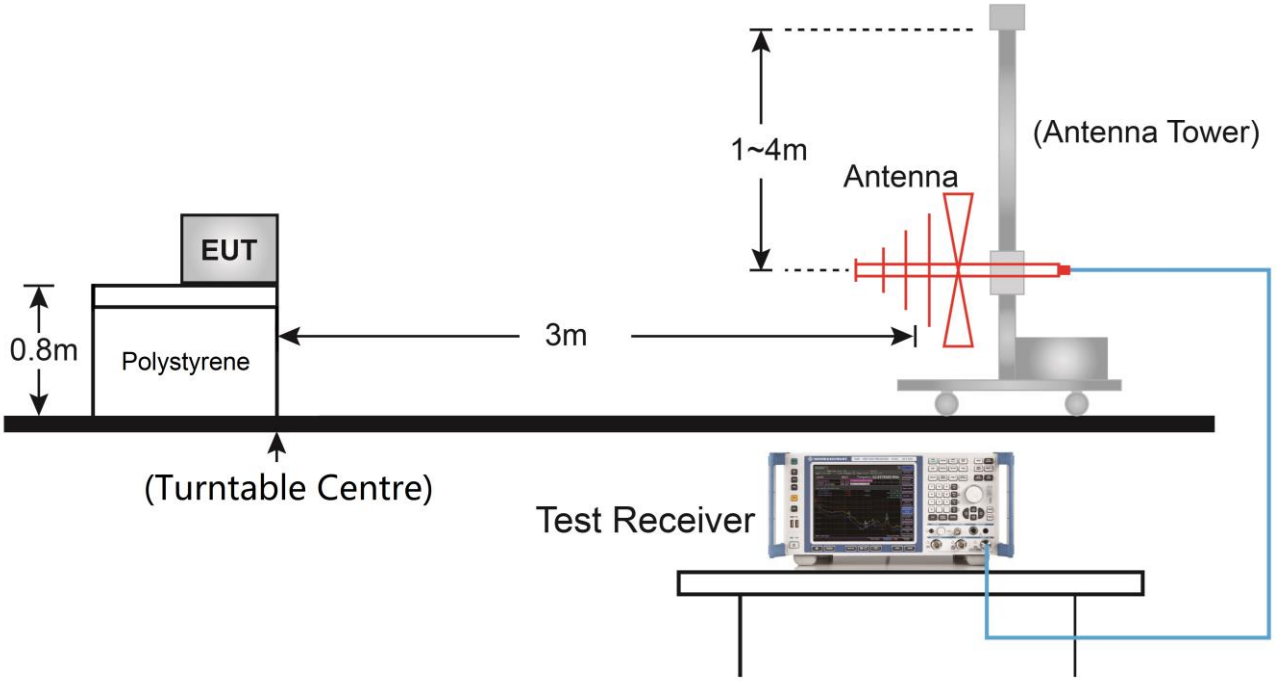
Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Note 3: E field strength (dBμV/m) = 20 log E field strength (uV/m)

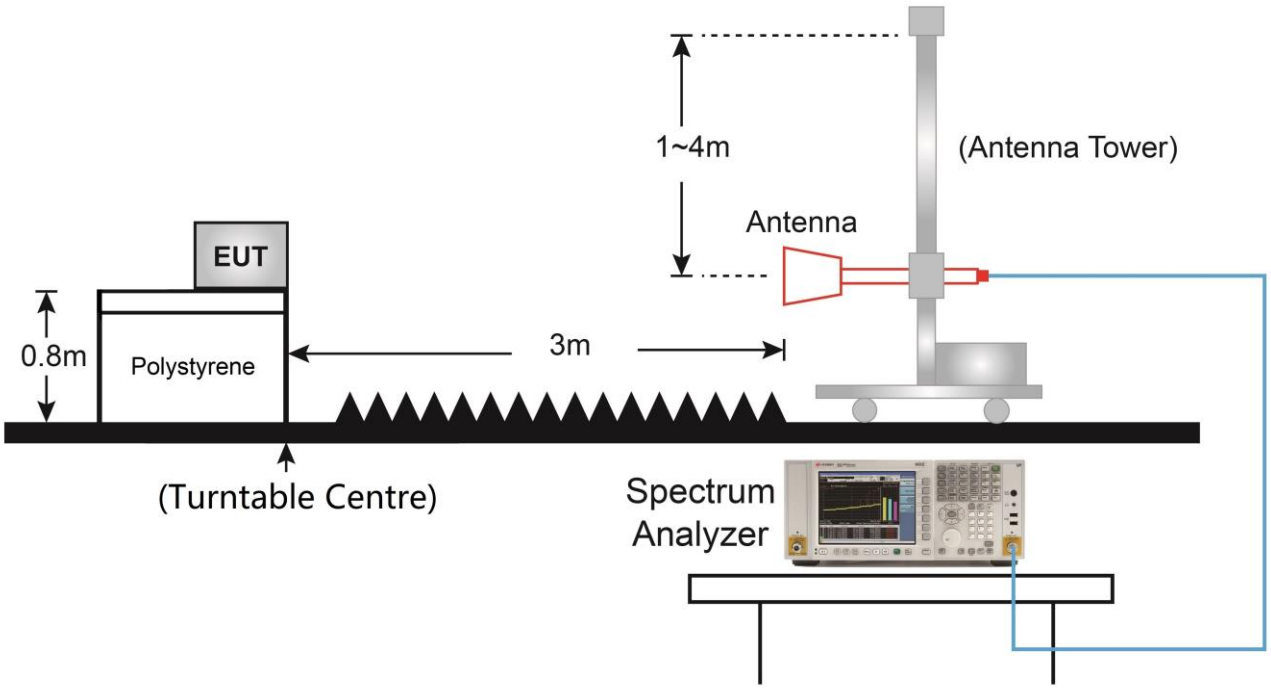
Note 4: For the range of 216MHz to 960MHz, the limit of FCC Part 15.109 is more stringent than the limit of ICES-003 Issue 7, so only the limit of FCC Part 15.109 is shown in the test data.

4.3.2.Test Setup

Below 1GHz Test Setup:

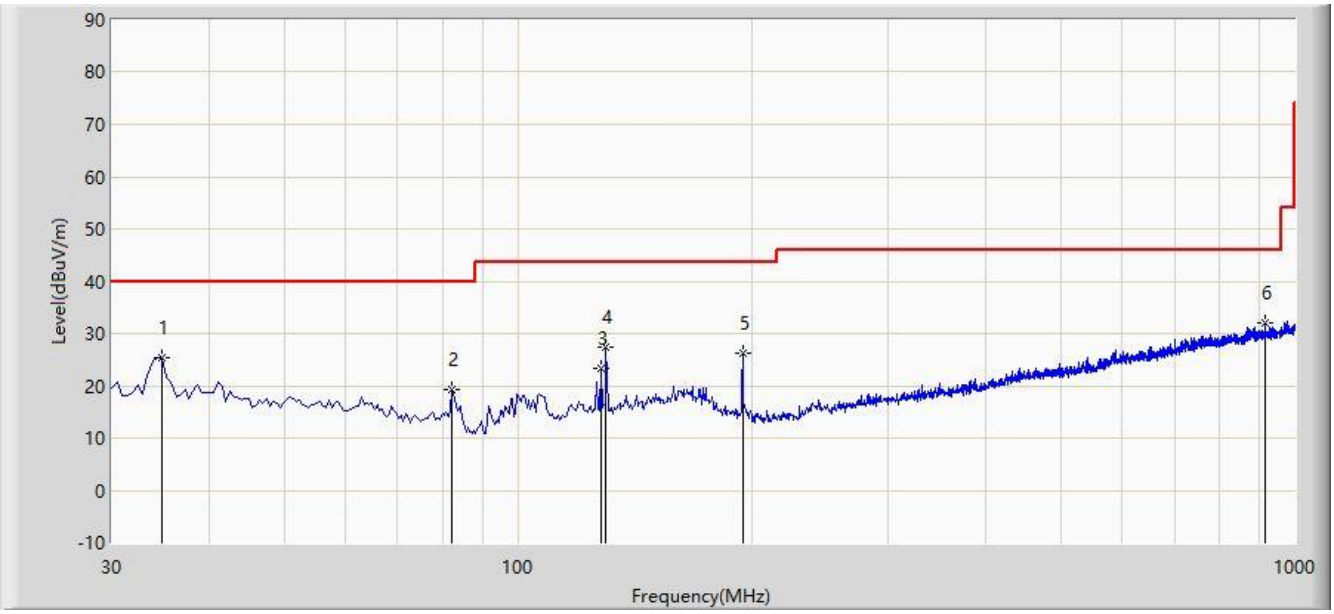


Above 1GHz Test Setup:



4.3.3.Test Result

Site: SIP-AC2	Time: 2021/06/23 - 00:30
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Edward Zhang
Probe: SIP-AC2_VULB 9168 _30-1000MHz	Polarity: Horizontal
EUT: LTE USB MODEM	Power: By USB
Test Mode 1	



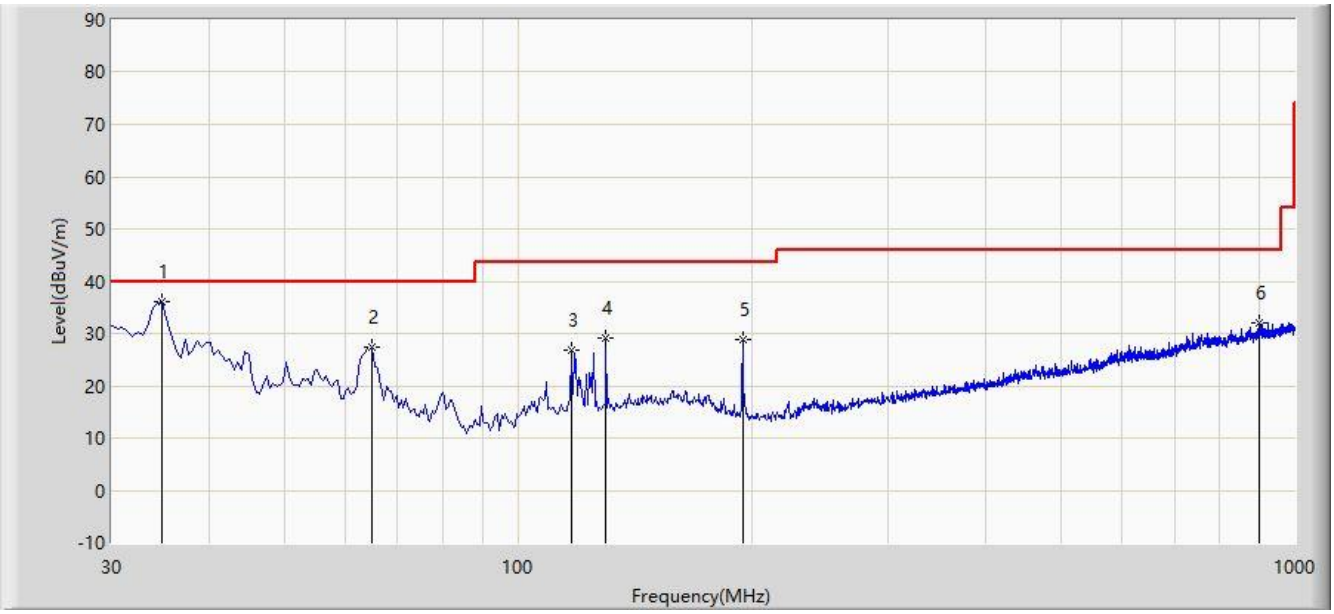
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			34.850	25.310	7.824	-14.690	40.000	17.486	PK
2			82.380	19.271	5.874	-20.729	40.000	13.397	PK
3			127.970	23.401	6.491	-20.099	43.500	16.910	PK
4			129.910	27.503	10.386	-15.997	43.500	17.117	PK
5			194.900	26.109	10.546	-17.391	43.500	15.563	PK
6		*	914.640	31.937	1.583	-14.063	46.000	30.354	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 2: QP measurement was not performed when peak measure level was lower than the QP limit.

Site: SIP-AC2	Time: 2021/06/23 - 00:36
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Edward Zhang
Probe: SIP-AC2_VULB 9168 _30-1000MHz	Polarity: Vertical
EUT: LTE USB MODEM	Power: By USB
Test Mode 1	



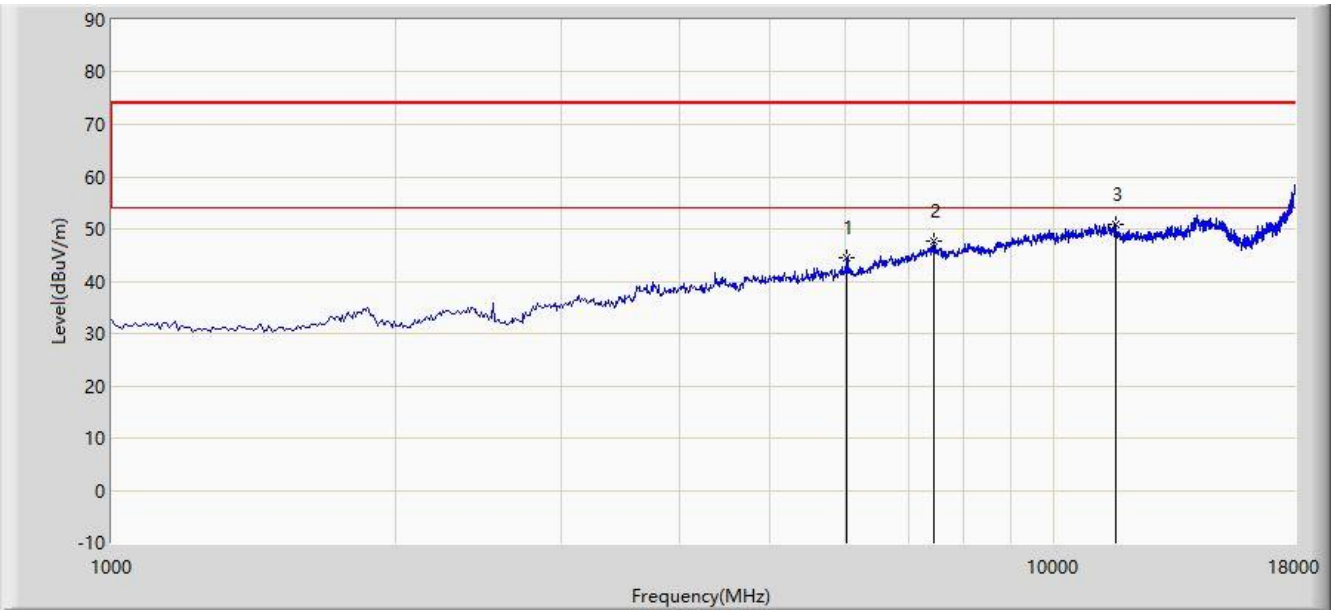
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	34.850	36.082	18.596	-3.918	40.000	17.486	PK
2			64.920	27.461	10.147	-12.539	40.000	17.314	PK
3			117.300	26.870	10.919	-16.630	43.500	15.951	PK
4			129.910	29.086	11.969	-14.414	43.500	17.117	PK
5			194.900	28.839	13.276	-14.661	43.500	15.563	PK
6			900.090	32.002	1.821	-13.998	46.000	30.181	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 2: QP measurement was not performed when peak measure level was lower than the QP limit.

Site: SIP-AC2	Time: 2021/06/23 - 00:56
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Edward Zhang
Probe: SIP-AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: LTE USB MODEM	Power: By USB
Test Mode 1	



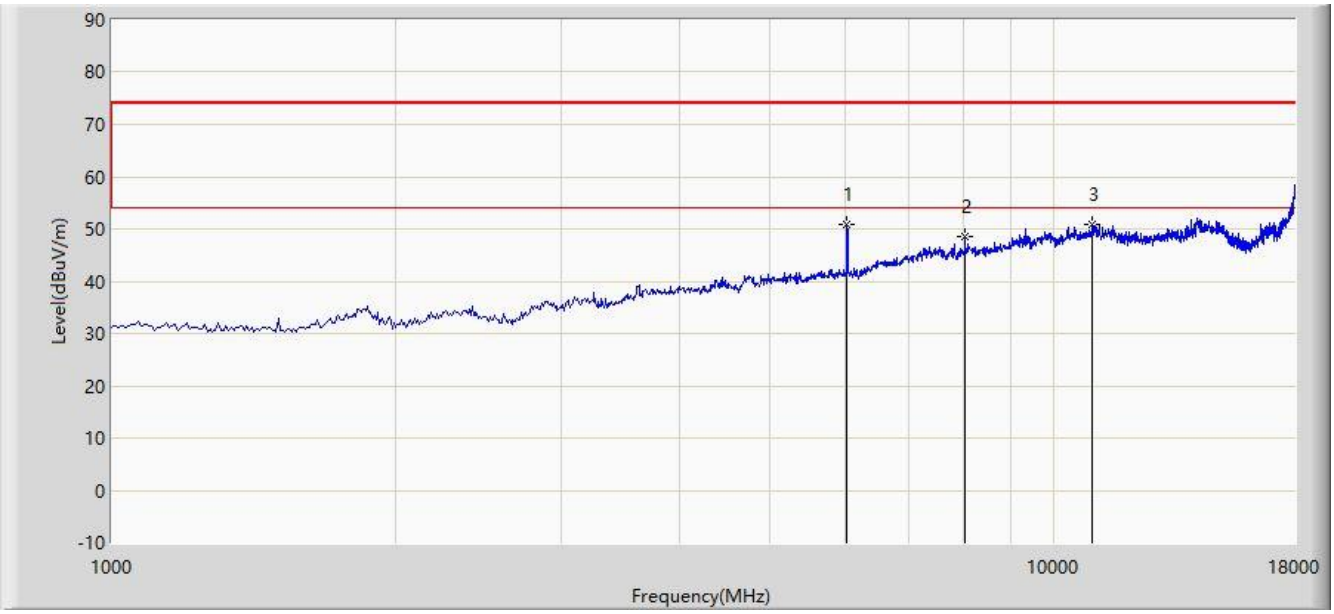
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			6032.000	44.553	51.455	-29.447	74.000	-6.902	PK
2			7460.000	47.661	48.692	-26.339	74.000	-1.031	PK
3		*	11616.500	50.887	45.764	-23.113	74.000	5.123	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Note 2: The amplitude of radiated emissions (frequency range from 18GHz to 40GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Site: SIP-AC2	Time: 2021/06/23 - 01:03
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Edward Zhang
Probe: SIP-AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: LTE USB MODEM	Power: By USB
Test Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	6032.000	50.964	57.866	-23.036	74.000	-6.902	PK
2			8046.500	48.419	48.844	-25.581	74.000	-0.425	PK
3			10987.500	50.805	45.970	-23.195	74.000	4.836	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Note 2: The amplitude of radiated emissions (frequency range from 18GHz to 40GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

5. CONCLUSION

The data collected relate only the item(s) tested and show that this device has been tested to comply with the requirements specified in §15.107 / §15.109 of the FCC Rules and ICES-003 of ISED Rules.

The End

Appendix A - Test Setup Photograph

Refer to ”2106RSU002-UT” file.

Appendix B - EUT Photograph

Refer to ”2106RSU002-UE” file.