



Report No.: FG2O2026E

FCC RADIO TEST REPORT

FCC ID : ZMOFM350GLG

Equipment : 5G Module

Brand Name : Fibocom Wireless Inc.

Model Name : FM350-GL

Applicant : Fibocom Wireless Inc.

1101, Tower A, Building 6, Shenzhen International, Innovation

Valley, Dashi 1st Rd, Nanshan, ShenZhen, China

Manufacturer : LCFC (HeFei) Electronics Technology Co., Ltd.

No. 3188-1, Yungu Road (Hefei Export Processing Zone), Hefei Economics & Technology Development Area, Anhui, CHINA

Standard : FCC 47 CFR Part 2, Part 27(D)

Equipment: Fibocom FM350-GL tested inside of Lenovo Notebook Computer.

The product was received on Oct. 20, 2022 and testing was performed from Nov. 05, 2022 to Nov. 17, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

Approved by: Louis Wu

Louis Wu

Sporton International Inc. Wensan Laboratory

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FAX: 886-3-327-0855 Issue Date : Dec. 28, 2022

E-mail: Alex@sporton.com.tw Report Version : 01

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History of this test report

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Report No.	Version	Description	Issue Date
FG2O2026E	01	Initial issue of report	Dec. 28, 2022

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Summary of Test Result

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Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
-	-	Peak-to-Average Ratio	-	See Note
3.3	§27.50 (a)(3)	Effective Isotropic Radiated Power	Pass	-
-	§2.1049	Occupied Bandwidth	-	See Note
-	§2.1051 §27.53 (a)(4)	Conducted Band Edge Measurement	-	See Note
-	§2.1051 §27.53 (a)(4)	Conducted Spurious Emission	-	See Note
-	§2.1055 §27.54	Frequency Stability Temperature & Voltage	-	See Note
4.2	\$2 1053		Pass	0.66 dB under limit at 6918.000 MHz

Note: The certified module (model: FM350-GL) which supports normal mode and TX switching mode being integrated into a notebook computer. Spot check on both modes were performed and no degradation occur. Thus additionally reporting the spot check results in this report.

Declaration of Conformity:

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
 It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
- 2. The measurement uncertainty please refer to report "Uncertainty of Evaluation".

Comments and Explanations:

The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sheng Kuo Report Producer: Clio Lo

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General Description 1

1.1 Product Feature of Equipment Under Test

	Product Feature
Equipment	5G Module
Brand Name	Fibocom Wireless Inc.
Model Name	FM350-GL
FCC ID	ZMOFM350GLG
Sample 1	EUT with Host 1
Sample 2	EUT with Host 2
EUT supports Radios application	WCDMA/HSPA/LTE/5G NR/GNSS
EUT Stage	Production Unit

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Remark:

- 1. The above EUT's information was declared by manufacturer.
- Equipment: Fibocom FM350-GL tested inside of Lenovo Notebook Computer.

The product was installed into Notebook Computer (Brand Name: Lenovo, Model Name: TP00129C) during test, and the host information was recorded in the following table.

Host Information					
Host 1	EUT with Amphenol Antenna				
Host 2	EUT with Novocomms/JYT Antenna				

	Normal mode	TX switching mode
	TX/RX	TX/RX
	WCDMA: 2/4/5	WCDMA: 5
Ant_0 (Main)	LTE: 2/4/5/7/12/13/14/17/25/26/30/38/66/71	LTE: 5/12/13/14/17/26/41/48/71
	NR: 2/5/7/25/30/38/66/71	NR : 5/41/71/77/78
	 TE - 44/40	WCDMA : 2/4
Ant_2 (MIMO2)	LTE : 41/48 NR : 41/77/78	LTE: 2/4/7/25/30/38/66
		NR: 2/7/25/30/38/66

WWAN Antenna Information for Host								
	Manufacturer	Amphenol	Peak gain (dBi)	0.97				
Main Antenna	Part number	TKC116-16-000-C	Туре	PIFA				
wain Antenna	Manufacturer	Novocomms/JYT	Peak gain (dBi)	0.08				
	Part number	JYAAE0150HR	Туре	PIFA				
	Manufacturer	Amphenol	Peak gain (dBi)	0.99				
MIMO 2 Antonno	Part number	TKC115-16-000-C	Туре	PIFA				
MIMO 2 Antenna	Manufacturer	Novocomms/JYT	Peak gain (dBi)	1.17				
	Part number	JYAAE0151HR	Туре	PIFA				

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

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1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard						
Tx Frequency	2307.5 MHz ~ 2312.5 MHz					
Rx Frequency	2352.5 MHz ~ 2357.5 MHz					
Bandwidth	5MHz / 10MHz					
Maximum Output Power to Antenna	Main Antenna: 22.25 dBm					
Maximum Output Power to Antenna	MIMO 2 Antenna: 21.98 dBm					
Type of Modulation	QPSK / 16QAM / 64QAM / 256QAM					

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1.3 Modification of EUT

No modifications are made to the EUT during all test items.

1.4 Testing Site

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory				
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333				
Test Site No.	Sporton Site No.				
rest site No.	TH03-HY (TAF Code: 1190)				
Test Engineer	Ivy Yeh				
Temperature (°C)	20~24				
Relative Humidity (%)	50~52				
Remark	The Conducted test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory				

Test Site	Sporton International Inc. Wensan Laboratory			
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010			
Test Site No.	Sporton Site No.			
rest site No.	03CH11-HY			
Test Engineer	Yuan Lee, Fu Chen and Troye Hsieh			
Temperature (°C)	19.8~22.2			
Relative Humidity (%)	57.2~58.5			

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW3786

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1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

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- + ANSI C63.26-2015
- FCC 47 CFR Part 2, Part 27(D)
- ANSI / TIA-603-E
- FCC KDB 971168 Power Meas License Digital Systems D01 v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- FCC KDB 414788 D01 Radiated Test Site v01r01

Remark:

- 1. All test items were verified and recorded according to the standards and without any deviation during the test.
- 2. The TAF code is not including all the FCC KDB listed without accreditation.

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2 Test Configuration of Equipment Under Test

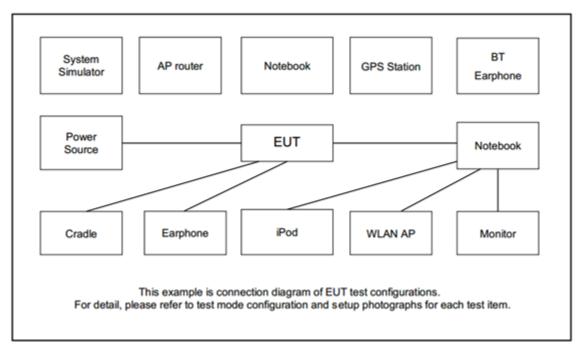
2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

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					-											
D d		Ва	andwid	dth (Mi	Hz)			Modu	ılation			RB#		Tes	t Cha	nnel
Band	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	М	Н
tput 30		-	v	v	-	-	v	v			>			>	v	v
30	-	-	v	٧	-	-	v	v			Max. Power					
30	-	-	v	v	-	-	v				v			v	v	v
2. Th 3. Th di re 4. Fo	ne mark free device fferent R ported. or modulation	f-" mea e is inve B size/ ation of n(QPSI	estigate offset a f 64QA 16QA</th <th>t this based from and mo M/2560 M), the</th> <th>andwid n 30MH odulatio QAM, t erefore</th> <th>th is not lz to 10 ns in e he max, accor</th> <th>ot support of times of times of times of the control of the contro</th> <th>fundament fundam</th> <th>ntal signa osequentl QAM/256</th> <th>ly, only the</th> <th colspan="2">worst case emissions are</th>	t this based from and mo M/2560 M), the	andwid n 30MH odulatio QAM, t erefore	th is not lz to 10 ns in e he max, accor	ot support of times of times of times of the control of the contro	fundament fundam	ntal signa osequentl QAM/256	ly, only the	worst case emissions are					
	30 1. Th 2. Th 3. Th diff re 4. Fo	30 - 30 - 30 - 1. The mark ' 2. The mark ' 3. The device different R reported. 4. For modulation	Band 1.4 3 30 - 30 - 30 - 30 - 1. The mark "v " me 2. The mark "-" mea 3. The device is invidifferent RB size/reported. 4. For modulation o modulation(QPSI	1.4 3 5 30 - v 30 - v 30 - v 1. The mark "v " means that 2. The mark "-" means that different RB size/offset a reported. 4. For modulation of 64QA modulation(QPSK/16QA)	1.4 3 5 10 30 v v 30 v v 1. The mark "v" means that this bear of the device is investigated from different RB size/offset and more reported. 4. For modulation of 64QAM/256 modulation(QPSK/16QAM), the	1.4 3 5 10 15 30 v v - 30 v v - 30 v v - 1. The mark "v" means that this configuration and the standard and t	1.4 3 5 10 15 20 30 v v 30 v v 1. The mark "v" means that this configuration is 2. The mark "-" means that this bandwidth is not 3. The device is investigated from 30MHz to 10 different RB size/offset and modulations in experted. 4. For modulation of 64QAM/256QAM, the max modulation(QPSK/16QAM), therefore, according to the control of the contro	30 v v v 30 v v v 30 v v v 1. The mark "v" means that this configuration is chosen that this bandwidth is not support of the device is investigated from 30MHz to 10 times of different RB size/offset and modulations in exploratory reported. 4. For modulation of 64QAM/256QAM, the maximum pormodulation(QPSK/16QAM), therefore, according to explore the content of the con	1.4 3 5 10 15 20 QPSK 16QAM 30 v v v v 30 v v v v 1. The mark "v" means that this configuration is chosen for testing the mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundament different RB size/offset and modulations in exploratory test. Substraported. 4. For modulation of 64QAM/256QAM, the maximum power of 64	1.4 3 5 10 15 20 QPSK 16QAM 64QAM 30 v v v v 30 v v v 1. The mark "v" means that this configuration is chosen for testing The mark "-" means that this bandwidth is not supported. The device is investigated from 30MHz to 10 times of fundamental signar different RB size/offset and modulations in exploratory test. Subsequent reported. For modulation of 64QAM/256QAM, the maximum power of 64QAM/256 modulation(QPSK/16QAM), therefore, according to engineering evaluation	1.4 3 5 10 15 20 QPSK 16QAM 64QAM 256QAM 30 v v v v 30 v v v v 1. The mark "v" means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiate different RB size/offset and modulations in exploratory test. Subsequently, only the reported. 4. For modulation of 64QAM/256QAM, the maximum power of 64QAM/256QAM is low modulation(QPSK/16QAM), therefore, according to engineering evaluation, we change the state of the state o	1.4 3 5 10 15 20 QPSK 16QAM 64QAM 256QAM 1 30 v v v v v 30 v v v v v 1. The mark "v" means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spreadifferent RB size/offset and modulations in exploratory test. Subsequently, only the worst reported. 4. For modulation of 64QAM/256QAM, the maximum power of 64QAM/256QAM is lower the modulation(QPSK/16QAM), therefore, according to engineering evaluation, we choose the support of	1.4 3 5 10 15 20 QPSK 16QAM 64QAM 256QAM 1 Half 30 v v v v v 30 v v v v v v 1. The mark "v" means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious different RB size/offset and modulations in exploratory test. Subsequently, only the worst case reported. 4. For modulation of 64QAM/256QAM, the maximum power of 64QAM/256QAM is lower than oth modulation(QPSK/16QAM), therefore, according to engineering evaluation , we choose higher	1.4 3 5 10 15 20 QPSK 16QAM 64QAM 256QAM 1 Half Full 30 v v v v v Max. F 30 v v v v v v Max. F 30 v v v v v v Max. F 31 The mark "v" means that this configuration is chosen for testing 32 The mark "-" means that this bandwidth is not supported. 33 The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emiss different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissi reported. 4. For modulation of 64QAM/256QAM, the maximum power of 64QAM/256QAM is lower than other modulation(QPSK/16QAM), therefore, according to engineering evaluation , we choose higher power	1.4 3 5 10 15 20 QPSK 16QAM 64QAM 256QAM 1 Half Full L 30 v v v v v Max. Power 30 v v v v v v w w w w w w w w w w	1.4 3 5 10 15 20 QPSK 16QAM 64QAM 256QAM 1 Half Full L M 30 v v v v W Max. Power 30 v v v v v W Max. Power 1. The mark "v" means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test und different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 4. For modulation of 64QAM/256QAM, the maximum power of 64QAM/256QAM is lower than other modulation(QPSK/16QAM), therefore, according to engineering evaluation , we choose higher power

2.2 Connection Diagram of Test System



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2.3 Support Unit used in test configuration and system

I	ltem	Equipment Brand Name		Equipment Brand Name Model No.		Model No.	FCC ID	Data Cable	Power Cord		
	1.	iPod Earphone Apple		N/A	Verification	Unshielded, 1.0 m	N/A				
ſ	2.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m				

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2.4 Frequency List of Low/Middle/High Channels

	LTE Band 30 Ch	annel and Frequen	cy List	
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	-	27710	-
10	Frequency	-	2310	-
E	Channel	27685	27710	27735
5	Frequency	2307.5	2310	2312.5

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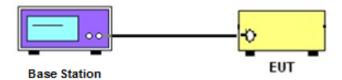
Conducted Test Items 3

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.1.1 Test Setup

3.1.2 Conducted Output Power



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3.1.3 Test Result of Conducted Test

Please refer to Appendix A.

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3.2 Conducted Output Power Measurement

3.2.1 Description of the Conducted Output Power Measurement

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals shall be reported.

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3.2.2 Test Procedures

- 1. The transmitter output port was connected to the system simulator.
- 2. Set EUT at maximum power through the system simulator.
- 3. Select lowest, middle, and highest channels for each band and different modulation.
- 4. Measure and record the power level from the system simulator.

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3.3 Effective Isotropic Radiated Power

3.3.1 Description of Effective Isotropic Radiated Power

For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

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Remark: EIRP use worst case measure the total power to cover per 5MHz Power.

According to KDB 412172 D01 Power Approach,

 $EIRP = P_T + G_T - L_C$, where

 P_T = transmitter output power in dBm

 G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.3.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.2.4.5

1. Determine the EIRP by adding the effective antenna gain to the adjusted power level.

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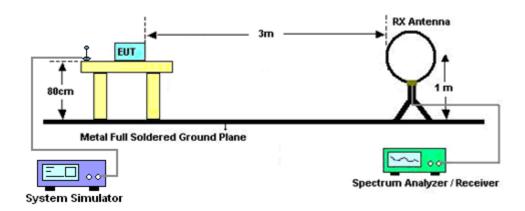
4 Radiated Test Items

4.1 Measuring Instruments

See list of measuring instruments of this test report.

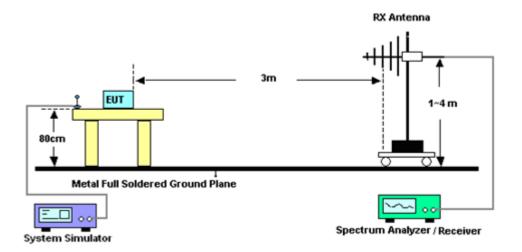
4.1.1 Test Setup

For radiated test below 30MHz



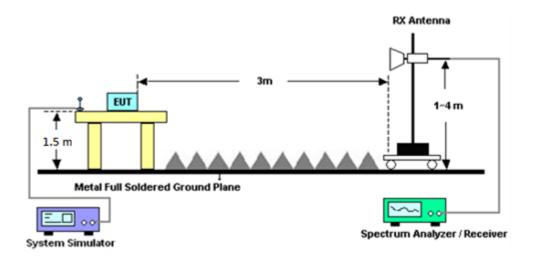
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For radiated test from 30MHz to 1GHz



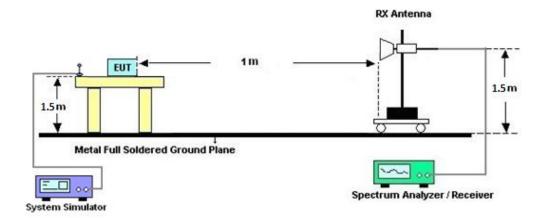
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For radiated test from 1GHz to 18GHz



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For radiated test above 18GHz



4.1.2 Test Result of Radiated Test

Please refer to Appendix B.

Note:

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

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4.2 Radiated Spurious Emission Measurement

4.2.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA-603-E The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 70 + 10 log (P) dB.

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The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.2.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI / TIA-603-E Section 2.2.12.

- The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
- 2. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
- 4. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
- 5. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
- 6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
- 7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
- 8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.

```
EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain ERP (dBm) = EIRP - 2.15
```

The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from 70 + 10log(P)dB below the transmitter power P(Watts)

- = P(W) [70 + 10log(P)] (dB)
- = [30 + 10log(P)] (dBm) [70 + 10log(P)] (dB)
- = -40 dBm.

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5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration	Test Date	Due Date	Pomark
Instrument		woder No.	Seriai No.	Characteristics	Date		Due Date	Remark
LOOP Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 20, 2022	Nov. 05, 2022~ Nov. 17, 2022	Sep. 19, 2023	(03611-11)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 08, 2022	Nov. 05, 2022~ Nov. 17, 2022	Oct. 07, 2023	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	41912 & 05	30MHz~1GHz	Feb. 06, 2022	Nov. 05, 2022~ Nov. 17, 2022	Feb. 05, 2023	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1212	1GHz ~ 18GHz	Mar. 10, 2022	Nov. 05, 2022~ Nov. 17, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1326	1GHz ~ 18GHz	Aug. 24, 2022	Nov. 05, 2022~ Nov. 17, 2022	Aug. 23, 2023	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	00991	18GHz~40GHz	May 14, 2022	Nov. 05, 2022~ Nov. 17, 2022	May 13, 2023	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	00993	18GHz~40GHz	Nov. 30, 2021	Nov. 05, 2022~ Nov. 17, 2022	Nov. 29, 2022	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 10, 2021	Nov. 05, 2022~ Nov. 17, 2022	Dec. 09, 2022	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 10, 2021	Nov. 05, 2022~ Nov. 08, 2022	Nov. 09, 2022	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 09, 2022	Nov. 09, 2022~ Nov. 17, 2022	Nov. 08, 2023	Radiation (03CH11-HY)
Preamplifier	Jet-Power	JPA0118-55-303	17100018000 55007	1GHz~18GHz	Jun. 15, 2022	Nov. 05, 2022~ Nov. 17, 2022	Jun. 14, 2023	Radiation (03CH11-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 28, 2022	Nov. 05, 2022~ Nov. 17, 2022	Jun. 27, 2023	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 07, 2022	Nov. 05, 2022~ Nov. 17, 2022	Oct. 06, 2023	Radiation (03CH11-HY)
Signal Generator	Rohde & Schwarz	SMF100A	101107	100kHz~40GHz	Dec. 08, 2021	Nov. 05, 2022~ Nov. 17, 2022	Dec. 07, 2022	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Nov. 05, 2022~ Nov. 17, 2022	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Nov. 05, 2022~ Nov. 17, 2022	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Nov. 05, 2022~ Nov. 17, 2022	N/A	Radiation (03CH11-HY)
Software	Audix	E3 6.2009-8-24	RK-001053	N/A	N/A	Nov. 05, 2022~ Nov. 17, 2022	N/A	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz-40GHz	Mar. 10, 2022	Nov. 05, 2022~ Nov. 17, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz-30MHz	Mar. 10, 2022	Nov. 05, 2022~ Nov. 17, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	30MHz-18GHz	Mar. 10, 2022	Nov. 05, 2022~ Nov. 17, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	811852/4	30MHz-18GHz	Mar. 10, 2022	Nov. 05, 2022~ Nov. 17, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-2700-30 00-18000-60SS	SN3	3GHz High Pass Filter	Sep. 12, 2022	Nov. 05, 2022~ Nov. 17, 2022	Sep. 11, 2023	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-900-100 0-15000-60SS	SN12	1GHz High Pass Filter	Sep. 12, 2022	Nov. 05, 2022~ Nov. 17, 2022	Sep. 11, 2023	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP140325	N/A	Nov. 26, 2021	Nov. 05, 2022~ Nov. 17, 2022	Nov. 25, 2022	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP200886	NA	Mar. 21, 2022	Nov. 05, 2022~ Nov. 17, 2022	Mar. 20, 2023	Conducted (TH03-HY)
Base Station (Measure)	Anritsu	MT8000A	6262012917	FR1	Feb. 11, 2022	Nov. 05, 2022~ Nov. 17, 2022	Feb. 10, 2023	Conducted
Radio Communication Analyzer	Anritsu	MT8821C	6201664755	LTE FDD/TDD LTE-2CC DLCA/ULCA	Aug. 01, 2022	Nov. 05, 2022~ Nov. 17, 2022	Jul. 31, 2023	Conducted (TH03-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#B	1-18GHz	Jan. 07, 2022	Nov. 05, 2022~ Nov. 17, 2022	Jan. 06, 2023	Conducted (TH03-HY)

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 E-mail: Alex@sporton.com.tw
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6 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of	3.15 dB
Confidence of 95% (U = 2Uc(y))	3.13 db

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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of	3.41 dB
Confidence of 95% (U = 2Uc(y))	3.41 dB

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

	-
Measuring Uncertainty for a Level of	4.45 dB
Confidence of 95% (U = 2Uc(y))	4.45 dB

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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power & EIRP)

<Main Antenna>

	LTE Band 30 Maximum Average Power [dBm] (GT - LC = 0.97 dB)											
BW [MHz]	RB Size	RB Offset	Mod Lowest Middle Highest EIRP (dBm) EIRP									
10	1	0	QPSK		22.25		23.22	0.2099				
10	1	0	16-QAM	-	21.82	-	22.79	0.1901				
Limit	it EIRP < 250mW/5MHz			Result			Pass					

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	LTE Band 30 Maximum Average Power [dBm] (GT - LC = 0.97 dB)										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)			
5	1	0	QPSK	22.24	22.19	22.15	23.21	0.2094			
5	1	0	16-QAM	21.53	21.32	21.35	22.50	0.1778			
Limit	t EIRP < 250mW/5MHz			Result			Pass				

Total EIRP power is less than partial EIRP limit 250 mW/5MHz.

<MIMO2 Antenna>

	LTE Band 30 Maximum Average Power [dBm] (GT - LC = 1.17 dB)										
BW [MHz]	RB Size	RB Offset	Mod Lowest Middle Highest EIRP (dBm) EIRP (
10	1	0	QPSK		21.98	-	23.15	0.2065			
10	1	0	16-QAM	-	20.86		22.03	0.1596			
Limit	EIRP < 250mW/5MHz			Result			Pass				

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	LTE Band 30 Maximum Average Power [dBm] (GT - LC = 1.17 dB)											
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)				
5	1	0	QPSK	21.97	21.92	21.93	23.14	0.2061				
5	1	0	16-QAM	20.88	20.79	20.75	22.05	0.1603				
Limit	Limit EIRP < 250mW/5MHz			Result			Pass					

Total EIRP power is less than partial EIRP limit 250 mW/5MHz.

Appendix B. Test Results of Radiated Test

LTE Band 30 (Ant. Main)

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			L	TE Band 30	/ 5MHz / QP	SK			
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
	4608	-51.77	-40	-11.77	-48.12	-57.71	6.73	12.67	Н
	6918	-43.54	-40	-3.54	-46.09	-47.01	8.49	11.96	Н
	9220.5	-57.59	-40	-17.59	-65.93	-58.7	9.71	10.82	Н
									Н
									Н
Lowest									Н
Lowest	4608	-53.33	-40	-13.33	-49.58	-59.27	6.73	12.67	V
	6918	-42.02	-40	-2.02	-45.1	-45.49	8.49	11.96	V
	9220.5	-58.89	-40	-18.89	-65.95	-60	9.71	10.82	V
									V
									V
									V
	4614	-51.55	-40	-11.55	-47.95	-57.45	6.74	12.64	Н
	6924	-42.81	-40	-2.81	-46.34	-46.27	8.50	11.95	Н
	9231	-58.28	-40	-18.28	-66.63	-59.34	9.72	10.78	Н
									Н
									Н
Middle									Н
Middle	4614	-52.61	-40	-12.61	-48.93	-58.51	6.74	12.64	V
	6924	-42.84	-40	-2.84	-46.95	-46.3	8.50	11.95	V
	9231	-59.86	-40	-19.86	-66.92	-60.92	9.72	10.78	V
									V
									V
									V

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	4620	-53.07	-40	-13.07	-49.52	-58.94	6.75	12.62	Н
	6930	-44.58	-40	-4.58	-48.07	-48.02	8.50	11.94	Н
	9241.5	-58.44	-40	-18.44	-66.79	-59.46	9.72	10.74	Н
									Н
									Н
Liberant									Н
Highest	4620	-52.02	-40	-12.02	-48.41	-57.89	6.75	12.62	V
	6930	-42.69	-40	-2.69	-46.81	-46.13	8.50	11.94	V
	9241.5	-59.99	-40	-19.99	-67.04	-61.01	9.72	10.74	V
									V
									V
									V

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Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

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	LTE Band 30 / 10MHz / QPSK											
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)			
	4614	-50.41	-40	-10.41	-46.81	-56.31	6.74	12.64	Н			
	6918	-41.14	-40	-1.14	-44.69	-44.61	8.49	11.96	Н			
	9220.5	-58.32	-40	-18.32	-66.66	-59.43	9.71	10.82	Н			
									Н			
									Н			
N 4: -I -II -									Н			
Middle	4614	-50.91	-40	-10.91	-47.23	-56.81	6.74	12.64	V			
	6918	-40.66	-40	-0.66	-44.74	-44.13	8.49	11.96	V			
	9220.5	-59.10	-40	-19.10	-66.16	-60.21	9.71	10.82	V			
									V			
									V			
									V			

Report No.: FG2O2026E

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

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LTE Band 30 (Ant. MIMO 2)

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LTE Band 30 / 10MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	4614	-66.68	-40	-26.68	-63.08	-72.58	6.74	12.64	Н
	6918	-61.70	-40	-21.70	-65.25	-65.17	8.49	11.96	Н
	9220.5	-58.24	-40	-18.24	-66.58	-59.35	9.71	10.82	Н
									Н
									Н
									Н
									Н
	4614	-67.07	-40	-27.07	-63.39	-72.97	6.74	12.64	V
	6918	-61.18	-40	-21.18	-65.26	-64.65	8.49	11.96	V
	9220.5	-59.63	-40	-19.63	-66.69	-60.74	9.71	10.82	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

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