



# FCC RADIO TEST REPORT

**FCC ID** : GKRRMLV1  
**Equipment** : 5G LGA Module  
**Brand Name** : COMPAL  
**Model Name** : RML-N1v  
**Marketing Name** : 5G LGA Module  
**Applicant** : Compal Electronics, Inc.  
 No.581 & 581-1, Ruiguang Rd., Neihu District, Taipei, (114) Taiwan  
**Manufacturer** : Compal Electronics, Inc.  
 No.581 & 581-1, Ruiguang Rd., Neihu District, Taipei, (114) Taiwan  
**Standard** : FCC 47 CFR Part 2, 22(H), 24(E), 27  
 FCC 47 CFR Part 2, 96

The product was received on Jan. 04, 2022 and testing was performed from Jan. 28, 2022 to Feb. 25, 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 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.

*Louis Wu*

Approved by: Louis Wu

**Sporton International Inc. Wensan Laboratory**

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)



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### Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	§22.913 (a)(5)	Effective Radiated Power (Band 5)	Not Required	-
	§27.50 (b)(10)	Effective Radiated Power (Band 13)		
	§24.232 (c)	Equivalent Isotropic Radiated Power (Band 2)		
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power (Band 66)		
	§96.41	Effective Isotropic Radiated Power (Band 48)		
-	§24.232 (d) §27.50 (d)(5) §96.41	Peak-to-Average Ratio	Not Required	-
-	§2.1049 §96.41	Occupied Bandwidth	Not Required	-
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (c)(2)(4) §27.53 (h) §96.41	Conducted Band Edge Measurement (Band 2) (Band 5) (Band 13) (Band 66) (Band 48)	Not Required	-
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (c)(2) §27.53 (h) §96.41	Conducted Spurious Emission (Band 2) (Band 5) (Band 13) (Band 66) (Band 48)	Not Required	-
-	§2.1055 §22.355 §24.235 §27.54	Frequency Stability Temperature & Voltage	Not Required	-



Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1053 §22.917 (a) §24.238 (a) §27.53 (c)(2) §27.53 (f) §27.53 (h)	Radiated Spurious Emission (Band 2) (Band 5) (Band 13) (Band 66)	Pass	Under limit 1.80 dB at 14462.000 MHz
	§2.1051 §96.41	Radiated Spurious Emission (Band 48)		

Remark: Not required means after assessing, test items are not necessary to carry out.

**Declaration of Conformity:**

1. 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 this 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: Keven Cheng

Report Producer: Tina Chuang



# 1 General Description

## 1.1 Product Feature of Equipment Under Test

LTE/5G NR/GNSS

Product Specification subjective to this standard	
Test Antenna Type	Monopole Antenna
Test Antenna Gain	<p><b>&lt;Ant. 0&gt;:</b>            LTE Band 5: 2.14 dBi            LTE Band 13: 1.17 dBi</p> <p><b>&lt;Ant. 2&gt;:</b>            LTE Band 2: 3.39 dBi            LTE Band 66: 1.35 dBi</p> <p><b>&lt;Ant. 3&gt;:</b>            LTE Band 13: 3.4 dBi</p> <p><b>&lt;Ant. 4&gt;:</b>            LTE Band 2: 3.66 dBi            LTE Band 66: 3.19 dBi</p> <p><b>&lt;Ant. 5&gt;:</b>            LTE Band 48: -3.27 dBi</p> <p><b>&lt;Ant. 6&gt;:</b>            LTE Band 48: -2.99 dBi</p>

**Remark:**

1. The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.
2. The above antenna information was declared by manufacturer and used for Radiated Spurious Emission test.

## 1.2 Modification of EUT

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



### 1.3 Testing Location

<b>Test Site</b>	Sporton International Inc. Wensan Laboratory
<b>Test Site Location</b>	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
<b>Test Site No.</b>	<b>Sporton Site No.</b> 03CH12-HY
<b>Test Engineer</b>	Jack Cheng , Lance Chiang, Chuan Chu
<b>Temperature (°C)</b>	21.2~24.2
<b>Relative Humidity (%)</b>	58.2~68.8

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

FCC Designation No.: TW3786

### 1.4 Applicable Standards

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

- ♦ ANSI C63.26-2015
- ♦ ANSI / TIA-603-E
- ♦ FCC 47 CFR Part 2, 22(H), 24(E), 27
- ♦ FCC 47 CFR Part 2, 96
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ 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. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
3. The TAF code is not including all the FCC KDB listed without accreditation.



## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

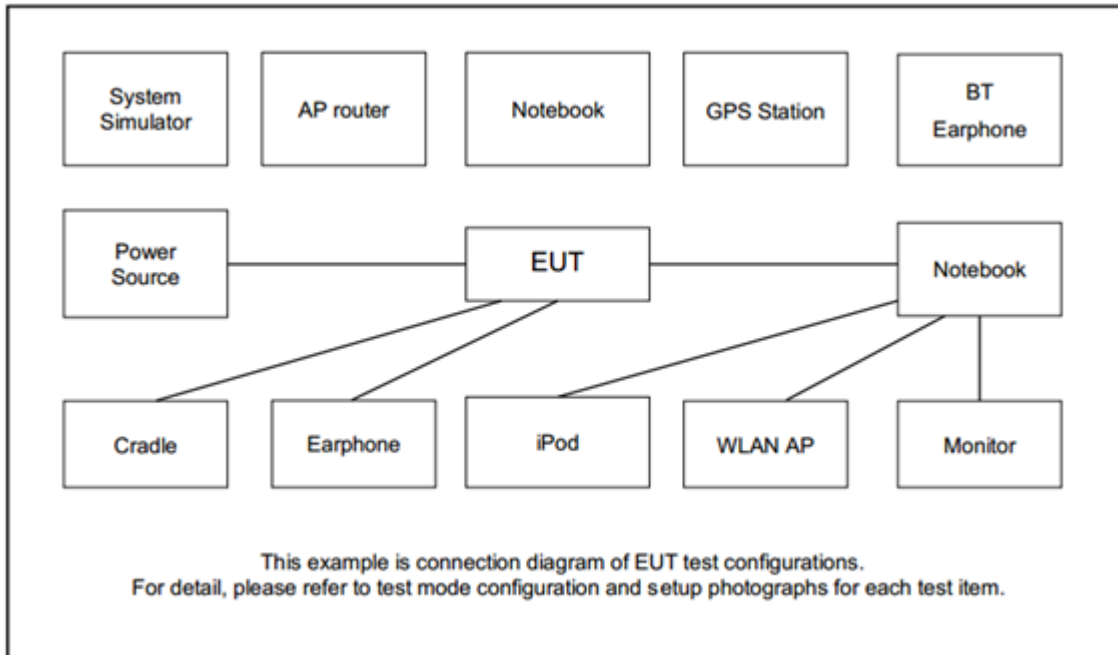
Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases were recorded in this report.

Test Items	Antenna combination	Band	Bandwidth (MHz)		Modulation	RB #	Test Channel			Worse Plane
			20+20	10+20			QPSK	1	L	
Radiated Spurious Emission	Ant. 4+5	2A+48A	v	-	v	v	-	v	-	Y
	Ant. 0+5	5A+48A	-	v	v	v	-	v	-	Y
	Ant. 0+5	13A+48A	-	v	v	v	-	v	-	Y
	Ant. 5+4	48A+66A	v	-	v	v	-	v	-	Y
Remark	<ol style="list-style-type: none"> <li>The mark "v " means that this configuration is chosen for testing</li> <li>The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.</li> </ol>									



## 2.2 Connection Diagram of Test System



## 2.3 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Radio Communication Analyzer	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
2.	Fixture	Compal	ZM32	N/A	N/A	N/A

## 2.4 Measurement Results Explanation Example

### For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

*Offset = RF cable loss + attenuator factor.*

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example :

$$\begin{aligned} \text{Offset}(dB) &= \text{RF cable loss}(dB) + \text{attenuator factor}(dB). \\ &= 4.2 + 10 = 14.2 \text{ (dB)} \end{aligned}$$



### 2.5 Frequency List of Low/Middle/High Channels

LTE Band 2 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	18700	18900	19100
	Frequency	1860	1880	1900
15	Channel	18675	18900	19125
	Frequency	1857.5	1880	1902.5
10	Channel	18650	18900	19150
	Frequency	1855	1880	1905
5	Channel	18625	18900	19175
	Frequency	1852.5	1880	1907.5
3	Channel	18615	18900	19185
	Frequency	1851.5	1880	1908.5
1.4	Channel	18607	18900	19193
	Frequency	1850.7	1880	1909.3

LTE Band 5 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	20450	20525	20600
	Frequency	829	836.5	844
5	Channel	20425	20525	20625
	Frequency	826.5	836.5	846.5
3	Channel	20415	20525	20635
	Frequency	825.5	836.5	847.5
1.4	Channel	20407	20525	20643
	Frequency	824.7	836.5	848.3



<b>LTE Band 13 Channel and Frequency List</b>				
<b>BW [MHz]</b>	<b>Channel/Frequency(MHz)</b>	<b>Lowest</b>	<b>Middle</b>	<b>Highest</b>
10	Channel	-	23230	-
	Frequency	-	782	-
5	Channel	23205	23230	23255
	Frequency	779.5	782	784.5

<b>LTE Band 66 Channel and Frequency List</b>				
<b>BW [MHz]</b>	<b>Channel/Frequency(MHz)</b>	<b>Lowest</b>	<b>Middle</b>	<b>Highest</b>
20	Channel	132072	132322	132572
	Frequency	1720	1745	1770
15	Channel	132047	132322	132597
	Frequency	1717.5	1745	1772.5
10	Channel	132022	132322	132622
	Frequency	1715	1745	1775
5	Channel	131997	132322	132647
	Frequency	1712.5	1745	1777.5
3	Channel	131987	132322	132657
	Frequency	1711.5	1745	1778.5
1.4	Channel	131979	132322	132665
	Frequency	1710.7	1745	1779.3

<b>LTE Band 48 Channel and Frequency List</b>				
<b>BW [MHz]</b>	<b>Channel/Frequency(MHz)</b>	<b>Lowest</b>	<b>Middle</b>	<b>Highest</b>
20	Channel	55340	55990	56640
	Frequency	3560.0	3625.0	3690.0
15	Channel	55315	55990	56665
	Frequency	3557.5	3625.0	3692.5
10	Channel	55290	55990	56690
	Frequency	3555.0	3625.0	3695.0
5	Channel	55265	55990	56715
	Frequency	3552.5	3625.0	3697.5

### 3 Radiated Test Items

#### 3.1 Measuring Instruments

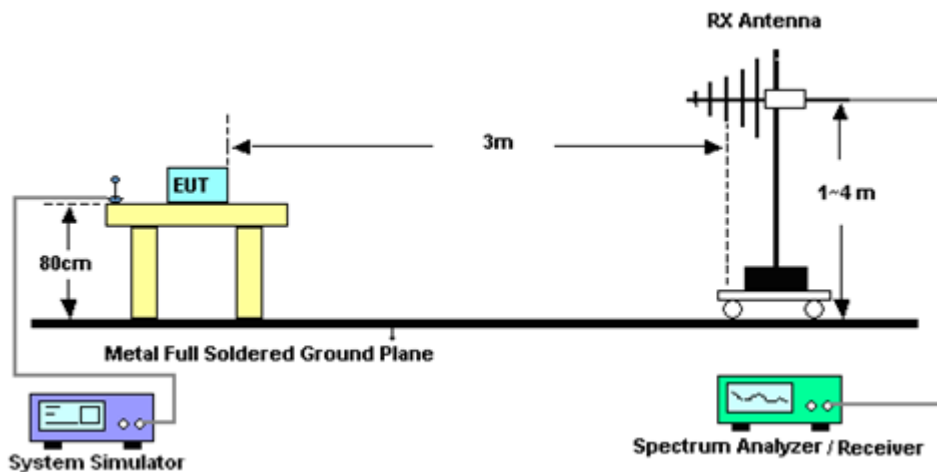
See list of measuring instruments of this test report.

##### 3.1.1 Test Setup

For radiated test below 30MHz



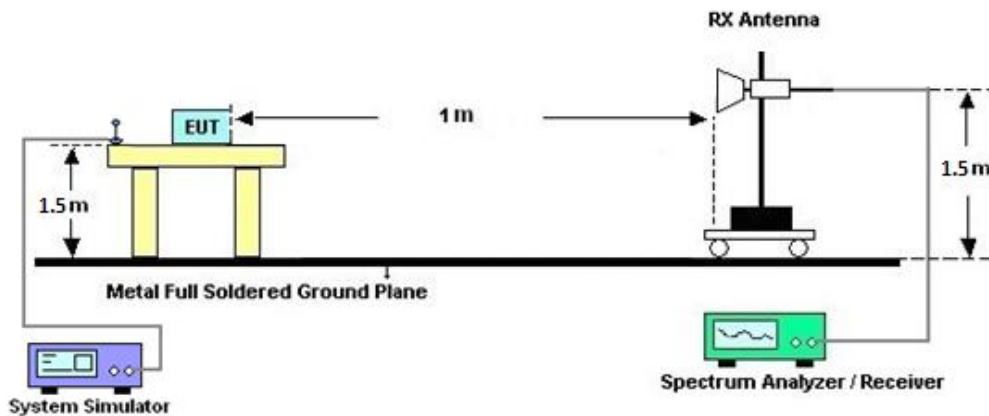
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



### 3.1.2 Test Result of Radiated Test

Please refer to Appendix A.

**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.



## 3.2 Radiated Spurious Emission Measurement

### 3.2.1 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  $43 + 10 \log (P)$  dB.

For LTE Band 13

For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to  $-70$  dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and  $-80$  dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

For LTE Band 48

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  $-40$  dBm / MHz .

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

### 3.2.2 Test Procedures

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

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna, which was 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 one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.

For LTE Band 48

$EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$

$ERP \text{ (dBm)} = EIRP - 2.15$

8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from  $43 + 10\log(P)$ dB below the transmitter power P(Watts)



## 4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	37059 & 01	30MHz~1GHz	Oct. 09, 2021	Jan. 28, 2022~ Feb. 25, 2022	Oct. 08, 2022	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 09, 2021	Jan. 28, 2022~ Feb. 25, 2022	Oct. 08, 2022	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1326	1GHz~18GHz	Oct. 25, 2021	Jan. 28, 2022~ Feb. 25, 2022	Oct. 24, 2022	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1212	1GHz~18GHz	May 18, 2021	Jan. 28, 2022~ Feb. 25, 2022	May 17, 2022	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	18GHz~40GHz	Nov. 30, 2021	Jan. 28, 2022~ Feb. 25, 2022	Nov. 29, 2022	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170576	18GHz~40GHz	May 21, 2021	Jan. 28, 2022~ Feb. 25, 2022	May 20, 2022	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 24, 2021	Jan. 28, 2022~ Feb. 25, 2022	Mar. 23, 2022	Radiation (03CH12-HY)
Preamplifier	Aglient	8449B	3008A02375	1GHz~26.5GHz	May 25, 2021	Jan. 28, 2022~ Feb. 25, 2022	May 24, 2022	Radiation (03CH12-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-100M-18G-56-01-A70	EC1900270	1GHz-18GHz	Dec. 27, 2021	Jan. 28, 2022~ Feb. 25, 2022	Dec. 26, 2022	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	Jan. 28, 2022~ Feb. 25, 2022	Jun. 21, 2022	Radiation (03CH12-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 15, 2021	Jan. 28, 2022~ Feb. 25, 2022	Oct. 14, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 10, 2021	Jan. 28, 2022~ Feb. 25, 2022	Dec. 09, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 22, 2021	Jan. 28, 2022~ Feb. 20, 2022	Feb. 21, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 21, 2022	Feb. 21, 2022~ Feb. 25, 2022	Feb. 20, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 22, 2021	Jan. 28, 2022~ Feb. 20, 2022	Feb. 21, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 21, 2022	Feb. 21, 2022~ Feb. 25, 2022	Feb. 20, 2023	Radiation (03CH12-HY)
Filter	Wainwright	WLKS1200-12SS	SN2	1.2GHz Low Pass Filter	Mar. 17, 2021	Jan. 28, 2022~ Feb. 25, 2022	Mar. 16, 2022	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-1080-1200-15000-60SS	SN1	1.2GHz High Pass Filter	Mar. 17, 2021	Jan. 28, 2022~ Feb. 25, 2022	Mar. 16, 2022	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60ST	SN2	3GHz High Pass Filter	Jul. 12, 2021	Jan. 28, 2022~ Feb. 25, 2022	Jul. 11, 2022	Radiation (03CH12-HY)
Filter	Wainwright	WHKX8-5872.5-6750-18000-40ST	SN2	6.75GHz High Pass Filter	Mar. 17, 2021	Jan. 28, 2022~ Feb. 25, 2022	Mar. 16, 2022	Radiation (03CH12-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303B	TP140349	N/A	Sep. 30, 2021	Jan. 28, 2022~ Feb. 25, 2022	Sep. 29, 2022	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Jan. 28, 2022~ Feb. 25, 2022	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jan. 28, 2022~ Feb. 25, 2022	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jan. 28, 2022~ Feb. 25, 2022	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Jan. 28, 2022~ Feb. 25, 2022	N/A	Radiation (03CH12-HY)





## 5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	3.10 dB
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### Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	3.39 dB
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### Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.34 dB
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# Appendix A. Test Results of Radiated Test

<ANT 4+ANT 5>

## LTE Band 2A+48

LTE Band 2 / 20MHz / 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	3744	-48.86	-13	-35.86	-66.62	-60.08	1.42	12.65	H
	5616	-49.71	-13	-36.71	-72.02	-61.27	1.74	13.30	H
	7482	-45.85	-13	-32.85	-71.95	-55.00	1.98	11.13	H
									H
									H
									H
									H
	3744	-42.63	-13	-29.63	-60.59	-53.85	1.42	12.65	V
	5616	-49.78	-13	-36.78	-71.74	-61.34	1.74	13.30	V
	7482	-45.82	-13	-32.82	-71.86	-54.97	1.98	11.13	V
									V
									V
									V
									V



LTE Band 48 / 20MHz / 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	7230	-59.97	-40	-19.97	-55.59	-69.66	1.84	11.53	H
	10850	-57.70	-40	-17.70	-55.55	-66.03	2.57	10.90	H
	14462	-55.52	-40	-15.52	-58.22	-63.76	2.85	11.09	H
	18080	-52.95	-40	-12.95	-71.09	-69.18	1.76	17.98	H
	21696	-53.72	-40	-13.72	-75.36	-70.51	1.99	18.78	H
	25312	-52.98	-40	-12.98	-78.32	-69.58	2.14	18.74	H
									H
	7230	-60.26	-40	-20.26	-55.62	-69.95	1.84	11.53	V
	10850	-58.02	-40	-18.02	-55.66	-66.35	2.57	10.90	V
	14462	-56.36	-40	-16.36	-58.24	-64.60	2.85	11.09	V
	18080	-53.93	-40	-13.93	-71.14	-70.16	1.76	17.98	V
	21696	-53.74	-40	-13.74	-75.37	-70.53	1.99	18.78	V
	25312	-52.19	-40	-12.19	-78.79	-68.79	2.14	18.74	V
									V

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



<ANT 0+ANT 5>

**LTE Band 5A+48**

LTE Band 5 / 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	1664	-60.63	-13	-47.63	-70.32	-66.28	0.93	8.72	H
	2496	-53.02	-13	-40.02	-66.97	-60.42	1.15	10.69	H
	3328	-55.01	-13	-42.01	-71.02	-63.62	1.33	12.09	H
									H
									H
									H
									H
	1664	-61.31	-13	-48.31	-70.41	-66.96	0.93	8.72	V
	2496	-55.25	-13	-42.25	-69.41	-62.65	1.15	10.69	V
	3328	-54.26	-13	-41.26	-70.73	-62.87	1.33	12.09	V
									V
									V
									V
									V



LTE Band 48 / 20MHz / 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	7230	-59.99	-40	-19.99	-55.61	-69.68	1.84	11.53	H
	10850	-57.59	-40	-17.59	-55.44	-65.92	2.57	10.90	H
	14462	-55.30	-40	-15.30	-58	-63.53	2.85	11.09	H
	18080	-52.75	-40	-12.75	-70.89	-68.98	1.76	17.98	H
	21696	-53.45	-40	-13.45	-75.09	-70.24	1.99	18.78	H
	25312	-53.54	-40	-13.54	-78.88	-70.14	2.14	18.74	H
									H
	7230	-60.35	-40	-20.35	-55.71	-70.04	1.84	11.53	V
	10850	-57.82	-40	-17.82	-55.46	-66.15	2.57	10.90	V
	14462	-56.32	-40	-16.32	-58.2	-64.56	2.85	11.09	V
	18080	-53.69	-40	-13.69	-70.9	-69.92	1.76	17.98	V
	21696	-53.82	-40	-13.82	-75.45	-70.61	1.99	18.78	V
	25312	-51.27	-40	-11.27	-77.87	-67.87	2.14	18.74	V
									V

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



<ANT 0+ANT 5>

**LTE Band 13A+48**

LTE Band 13 / 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	1408	-58.81	-13	-45.81	-69.69	-63.49	0.85	7.68	H
	2112	-56.25	-13	-43.25	-70	-63.19	1.06	10.16	H
	2812	-55.62	-13	-42.62	-70.49	-63.32	1.22	11.07	H
									H
									H
									H
									H
	1408	-60.29	-13	-47.29	-69.95	-64.97	0.85	7.68	V
	2112	-57.33	-13	-44.33	-69.96	-64.27	1.06	10.16	V
	2812	-55.89	-13	-42.89	-70.7	-63.59	1.22	11.07	V
									V
									V
									V
									V



LTE Band 48 / 20MHz / 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	7230	-60.11	-40	-20.11	-55.73	-69.80	1.84	11.53	H
	10850	-57.71	-40	-17.71	-55.56	-66.04	2.57	10.90	H
	14462	-55.46	-40	-15.46	-58.16	-63.70	2.85	11.09	H
	18080	-52.78	-40	-12.78	-70.92	-69.01	1.76	17.98	H
	21696	-53.65	-40	-13.65	-75.29	-70.44	1.99	18.78	H
	25312	-53.04	-40	-13.04	-78.38	-69.64	2.14	18.74	H
									H
	7230	-60.17	-40	-20.17	-55.53	-69.86	1.84	11.53	V
	10850	-57.62	-40	-17.62	-55.26	-65.95	2.57	10.90	V
	14462	-56.39	-40	-16.39	-58.27	-64.63	2.85	11.09	V
	18080	-53.94	-40	-13.94	-71.15	-70.17	1.76	17.98	V
	21696	-53.68	-40	-13.68	-75.31	-70.47	1.99	18.78	V
	25312	-51.80	-40	-11.80	-78.4	-68.40	2.14	18.74	V
									V

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



<ANT 5+ANT 4>

**LTE Band 48A+66**

LTE Band 66 / 20MHz / 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	3472	-52.66	-13	-39.66	-70.01	-63.74	1.35	12.43	H
	5208	-50.20	-13	-37.20	-71.84	-61.43	1.66	12.89	H
	6944	-46.15	-13	-33.15	-72.08	-56.40	1.73	11.98	H
									H
									H
									H
									H
	3472	-52.57	-13	-39.57	-70.3	-63.65	1.35	12.43	V
	5208	-50.52	-13	-37.52	-71.99	-61.75	1.66	12.89	V
	6944	-46.64	-13	-33.64	-72.11	-56.89	1.73	11.98	V
									V
									V
									V
									V





LTE Band 48 / 20MHz / 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	7230	-52.39	-40	-12.39	-48.01	-62.08	1.84	11.53	H
	10850	-48.53	-40	-8.53	-46.38	-56.86	2.57	10.90	H
	14462	-42.45	-40	-2.45	-45.15	-50.69	2.85	11.09	H
	18080	-52.89	-40	-12.89	-71.03	-69.12	1.76	17.98	H
	21696	-53.48	-40	-13.48	-75.12	-70.27	1.99	18.78	H
	25312	-53.21	-40	-13.21	-78.55	-69.81	2.14	18.74	H
									H
	7230	-53.97	-40	-13.97	-49.33	-63.66	1.84	11.53	V
	10850	-53.76	-40	-13.76	-51.4	-62.09	2.57	10.90	V
	14462	-41.80	-40	-1.80	-43.68	-50.04	2.85	11.09	V
	18080	-53.74	-40	-13.74	-70.95	-69.97	1.76	17.98	V
	21696	-53.87	-40	-13.87	-75.5	-70.66	1.99	18.78	V
	25312	-52.02	-40	-12.02	-78.62	-68.62	2.14	18.74	V
									V

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