



# FCC RADIO TEST REPORT

**FCC ID** : GKRRMLN1T  
**Equipment** : 5G LGA Module  
**Brand Name** : COMPAL  
**Model Name** : RML-N1t  
**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, 96

The product was received on Mar. 01, 2024 and testing was performed from Mar. 08, 2024 to Apr. 08, 2024. We, Sporton International Inc. EMC & Wireless Communications 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 variant report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

*Louis Wu*

Approved by: Louis Wu

**Sporton International Inc. EMC & Wireless Communications Laboratory**

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



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### History of this test report

Report No.	Version	Description	Issue Date
FG422012C	01	Initial issue of report	Apr. 19, 2024



### Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
-	§96.41	Peak-to-Average Ratio	Not Required	-
3.3	§96.41	Effective Isotropic Radiated Power	Pass	-
-	§2.1049 §96.41	Occupied Bandwidth	Not Required	-
-	§2.1051 §96.41	Conducted Band Edge Measurement	Not Required	-
-	§2.1051 §96.41	Conducted Spurious Emission	Pass	-
-	§2.1055	Frequency Stability for Temperature & Voltage	Not Required	-
4.4	§2.1051 §96.41	Radiated Spurious Emission	Pass	9.00 dB under the limit at 14237.00 MHz

**Remark:**

1. Not required means after assessing, test items are not necessary to carry out.
2. This is a variant report by changing module trace design. All the test cases were performed on original report which can be referred to Sporton Report Number FG2N2501-01E. Based on the original report, only worst case was verified.

**Conformity Assessment Condition:**

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

**Disclaimer:**

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

**Reviewed by: Keven Cheng**

**Report Producer: Michelle Chen**



# 1 General Description

## 1.1 Product Feature of Equipment Under Test

Product Feature
<b>General Specs</b> LTE/5G NR and GNSS

The following antennas were provided to the EUT

RF Exposure Max Antenna Gain information(dBi)		
Band	Ant 5	Main Ant. #
B48	2.5	5

Support band and evaluated information	
<b>Supported band</b>	B48, B48B,B48C
<b>Evaluated and Tested band</b>	B48, B48B,B48C

TDD band Power Class		
	PC3	PC2
<b>B48/ B48B/B48C</b>	V	

**Remark:** The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

## 1.2 Modification of EUT

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



### 1.3 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	<b>Sporton Site No.</b> TH03-HY
Test Engineer	Ekko You
Temperature (°C)	21.3~22.9
Relative Humidity (%)	48.8~54.6

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	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
Test Site No.	<b>Sporton Site No.</b> 03CH12-HY (TAF Code: 3786)
Test Engineer	Jesse Fan, Tim Lee and Wilson Wu
Temperature (°C)	20~25
Relative Humidity (%)	50~60
Remark	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.

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

FCC Designation No.: TW1190 and TW3786

### 1.4 Applied 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, 96
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 940660 D01 Part 96 CBRS Eqpt v03
- ♦ 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.



## 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, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and only the worst case emissions were reported in this report..

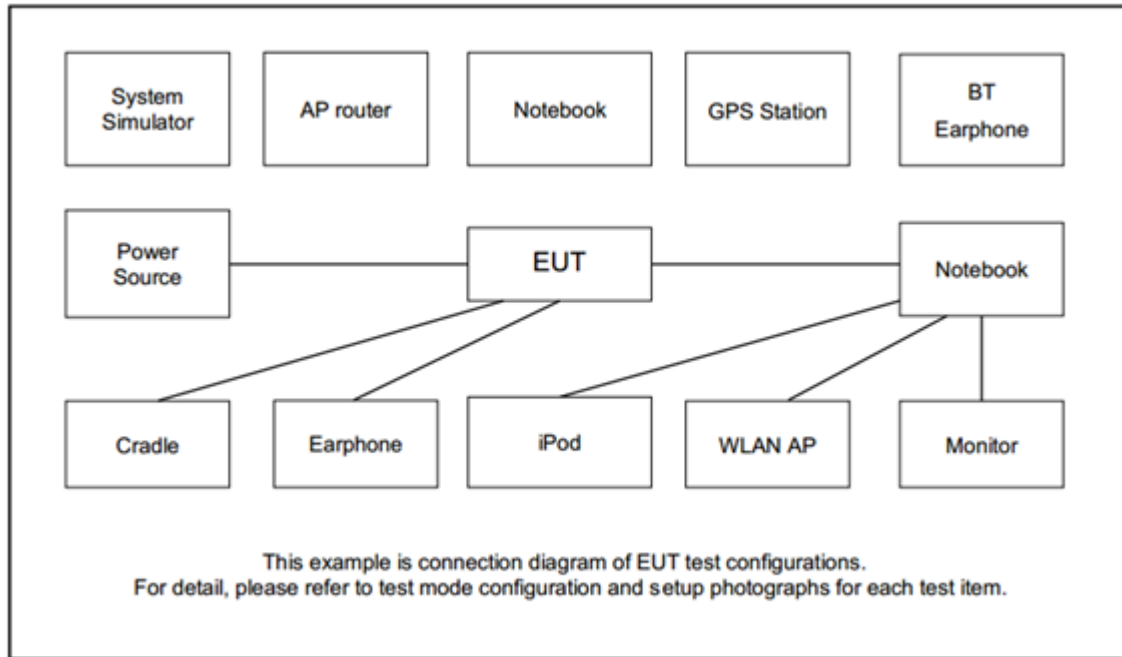
Modulation Type	Modulation
A	QPSK
B	16QAM
C	64QAM
D	256QAM

Test Item	Modulation Type	Bandwidth	RB Size	Channel
Conducted Power	A, B	All	1, Half, Full	L, M, H
EIRP	A, B	All	1, Half, Full	L, M, H
RSE	A	20MHz	1RB	L, M, H

**Remark:**

1. Evaluated all the transmitter signal and reporting worst-case configuration among all modulation types.
2. 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.
3. Output Conducted Power was spot checks Original models worse case Modulation

## 2.2 Connection Diagram of Test System



## 2.3 Support Unit used in test configuration

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
2.	5G Wireless Test Platform	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m
3.	Fixture	Compal	ZM29	N/A	N/A	N/A
4.	Antenna	Inpaq	ANT5	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 :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).
= 4.2 + 10 = 14.2 (dB)

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

Table with 5 columns: BW [MHz], Channel/Frequency(MHz), Lowest, Middle, Highest. Rows include LTE Band 48 Channel and Frequency List for BW values 20, 15, 10, and 5.

Table with 5 columns: BW [MHz], Channel/Frequency(MHz), Lowest, Middle, Highest. Rows include LTE Band 48B Channel and Frequency List\_CA for BW values 10 + 10, categorized by PCC and SCC.



LTE Band 48C Channel and Frequency List_CA					
BW [MHz]	Channel/Frequency(MHz)		Lowest	Middle	Highest
5 + 20	PCC	Channel	55273	55898	56523
		Frequency	3553.3	3615.8	3678.3
	SCC	Channel	55390	56015	56640
		Frequency	3565	3627.5	3690
20 + 5	PCC	Channel	55340	55965	56590
		Frequency	3560	3622.5	3685
	SCC	Channel	55457	56082	56707
		Frequency	3571.7	3634.2	3696.7
10 + 20	PCC	Channel	55295	55896	56496
		Frequency	3555.5	3615.6	3675.6
	SCC	Channel	55439	56040	56640
		Frequency	3569.9	3630	3690
20 + 10	PCC	Channel	55340	55941	56541
		Frequency	3560	3620.1	3680.1
	SCC	Channel	55484	56085	56685
		Frequency	3574.4	3634.5	3694.5
15 + 20	PCC	Channel	55318	55893	56469
		Frequency	3557.8	3615.3	3672.9
	SCC	Channel	55489	56064	56640
		Frequency	3574.9	3632.4	3690
20 + 15	PCC	Channel	55340	55916	56491
		Frequency	3560	3617.6	3675.1
	SCC	Channel	55511	56087	56662
		Frequency	3577.1	3634.7	3692.2
20 + 20	PCC	Channel	55340	55891	56442
		Frequency	3560	3615.1	3670.2
	SCC	Channel	55538	56089	56640
		Frequency	3579.8	3634.9	3690

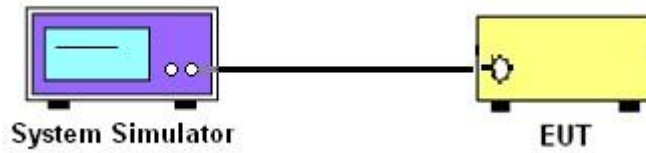
### 3 Conducted Test Items

#### 3.1 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.1 Test Setup

##### 3.1.2 Conducted Output Power



##### 3.1.3 Test Result of Conducted Test

Please refer to Appendix A.



## **3.2 Conducted Output Power**

### **3.2.1 Description of the Conducted Output Power Measurement**

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

### **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.



### 3.3 EIRP

#### 3.3.1 Description of the EIRP Measurement

The EIRP of mobile transmitters must not exceed 23 dBm /10 megahertz for LTE Band 48.

The testing follows ANSI C63.26-2015 Section 5.2.5.5

According to KDB 412172 D01 Power Approach,

$EIRP = PT + GT - LC$ , where

PT = transmitter output power in dBm

GT = gain of the transmitting antenna in dBi

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

Device	Maximum EIRP (dBm/10 MHz)	Maximum PSD (dBm/MHz)
End User Device	23	n/a

**Remark:** Total channel power is complied with EIRP limit 23dBm/10MHz.

#### 3.3.2 Test Procedures

The testing follows procedure in Section 5.2 of ANSI C63.26-2015 and KDB 940660 D01 Part 96 CBRS Eqpt v03 Section 3.2(b)(2)

Determine the EIRP by adding the effective antenna gain to the measured average conducted power level.

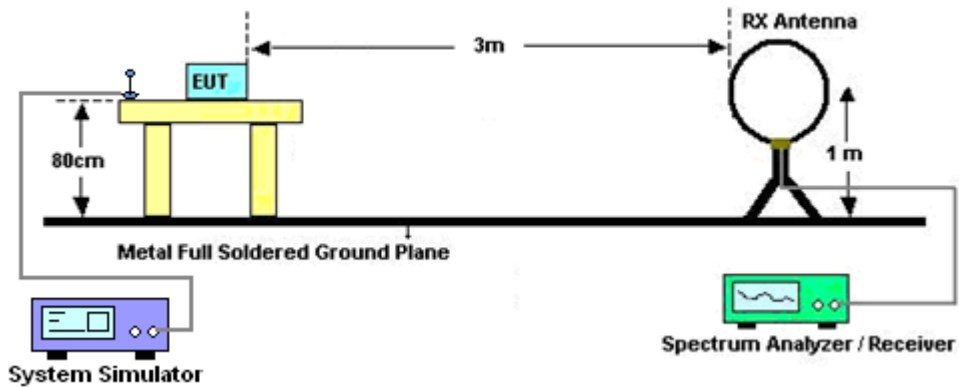
## 4 Radiated Test Items

### 4.1 Measuring Instruments

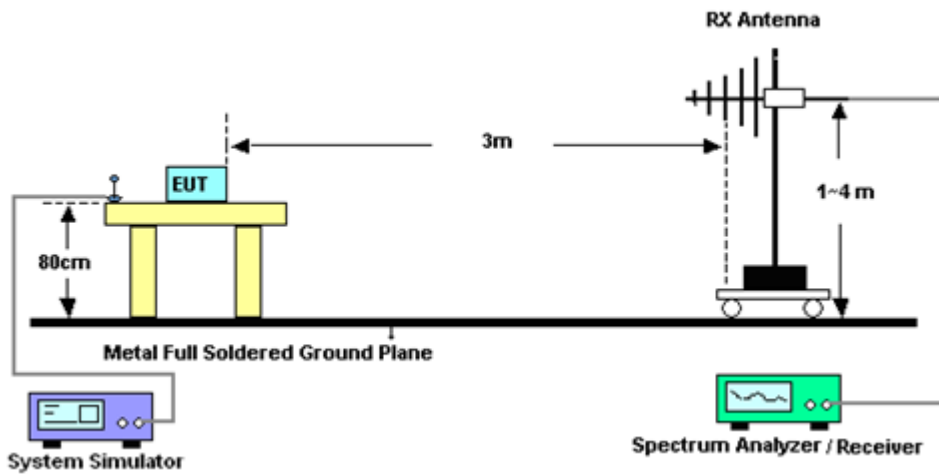
See list of measuring instruments of this test report.

### 4.2 Test Setup

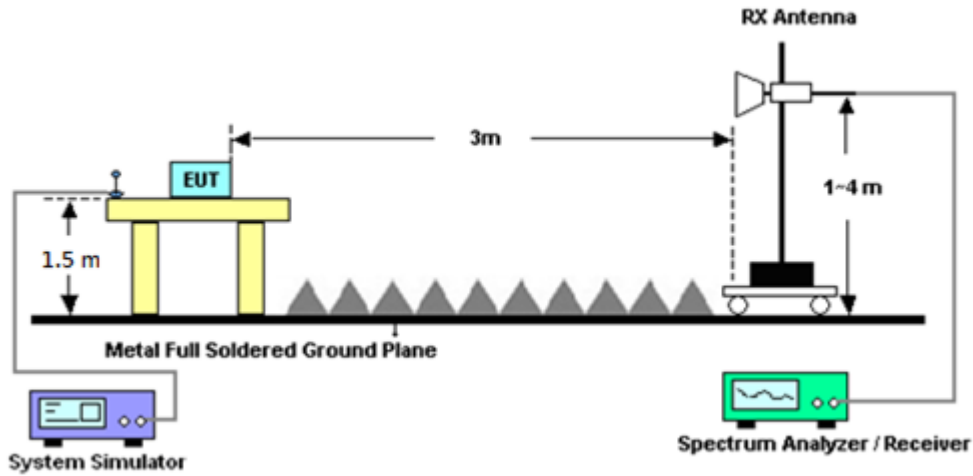
For radiated emissions below 30MHz



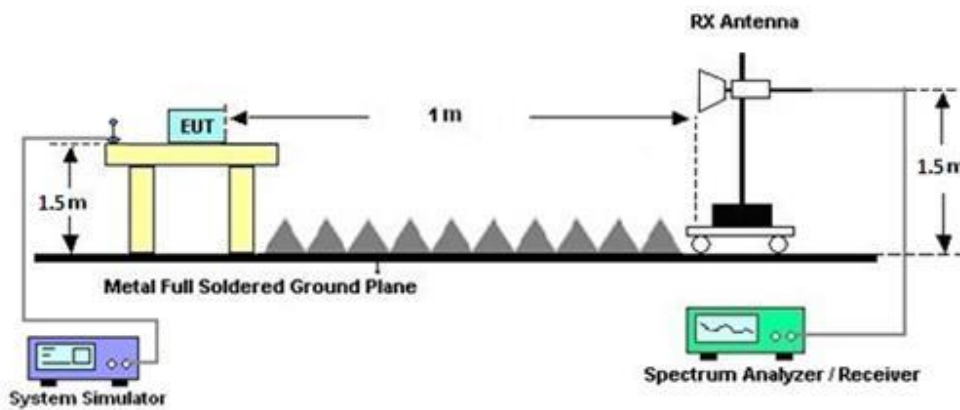
For radiated emissions from 30MHz to 1GHz



For radiated emissions from 1GHz to 18GHz



For radiated emissions above 18GHz



### 4.3 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.



## 4.4 Radiated Spurious Emission

### 4.4.1 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 -40dBm / MHz .

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

### 4.4.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI C63.26-2015 section 5.5.4 Radiated measurement using the field strength method.

1. 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. To convert spectrum reading E(dBuV/m) to EIRP(dBm)  
 $EIRP(dBm) = Level (dBuV/m) + 20\log(d) - 104.77$ , where d is the distance at which field strength limit is specified in the rules.
7. Field Strength Level (dBm) = Spectrum Reading (dBm) + Antenna Factor + Cable Loss + Read Level - Preamp Factor.
8. ERP (dBm) = EIRP (dBm) - 2.15
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.





## 5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Radio Communication Analyzer	Anritsu	MT8821C	6272278356	LTE FDD/TDD DLCA/ULCA	Aug. 24, 2023	Mar. 08, 2024~ Mar. 21, 2024	Aug. 23, 2024	Conducted (TH03-HY)
DC Power Supply	GW Instek	GPP-2323	GES906037	0V~64V ; 0A~6A	Nov. 28, 2023	Mar. 08, 2024~ Mar. 21, 2024	Nov. 27, 2024	Conducted (TH03-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#B	1-18GHz	Jan. 08, 2024	Mar. 08, 2024~ Mar. 21, 2024	Jan. 07, 2025	Conducted (TH03-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Feb. 23, 2024	Mar. 26, 2024~ Apr. 08, 2024	Feb. 22, 2025	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	37059 & 01	30MHz~1GHz	Nov. 3, 2023	Mar. 26, 2024~ Apr. 08, 2024	Nov. 02, 2024	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02114	1GHz~18GHz	Jul. 31, 2023	Mar. 26, 2024~ Apr. 08, 2024	Jul. 30, 2024	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00993	18GHz~40GHz	Nov. 24, 2023	Mar. 26, 2024~ Apr. 08, 2024	Nov. 23, 2024	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103A	161075	10MHz~1GHz	Mar. 20, 2024	Mar. 26, 2024~ Apr. 08, 2024	Mar. 19, 2025	Radiation (03CH12-HY)
Preamplifier	Agilent	8449B	3008A02375	1GHz~26.5GHz	May 23, 2023	Mar. 26, 2024~ Apr. 08, 2024	May 22, 2024	Radiation (03CH12-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-100M-18G-5 6-01-A70	EC1900249	1GHz-18GHz	Dec. 20, 2023	Mar. 26, 2024~ Apr. 08, 2024	Dec. 19, 2024	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 07, 2023	Mar. 26, 2024~ Apr. 08, 2024	Dec. 06, 2024	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Jan. 10, 2024	Mar. 26, 2024~ Apr. 08, 2024	Jan. 09, 2025	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-900-100 0-15000-60SS	SN11	1GHz High Pass Filter	Nov. 02, 2023	Mar. 26, 2024~ Apr. 08, 2024	Nov. 01, 2024	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60SS	SN2	3GHz High Pass Filter	Jul. 10, 2023	Mar. 26, 2024~ Apr. 08, 2024	Jul. 09, 2024	Radiation (03CH12-HY)
Filter	Wainwright	WHKX8-5872.5-6 750-18000-40ST	SN5	6.75GHz High Pass Filter	Mar. 08, 2024	Mar. 26, 2024~ Apr. 08, 2024	Mar. 07, 2025	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9kHz~30MHz	Mar. 06, 2024	Mar. 26, 2024~ Apr. 08, 2024	Mar. 05, 2025	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 18, 2023	Mar. 26, 2024~ Apr. 08, 2024	Dec. 17, 2024	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Dec. 18, 2023	Mar. 26, 2024~ Apr. 08, 2024	Dec. 17, 2024	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803953/2	30MHz~40GHz	Dec. 18, 2023	Mar. 26, 2024~ Apr. 08, 2024	Dec. 17, 2024	Radiation (03CH12-HY)
Hygrometer	TECEPEL	DTM-303B	TP210117	N/A	Oct. 19, 2023	Mar. 26, 2024~ Apr. 08, 2024	Oct. 18, 2024	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Mar. 26, 2024~ Apr. 08, 2024	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Mar. 26, 2024~ Apr. 08, 2024	N/A	Radiation (03CH12-HY)
Radio Communication Test Station	Anritsu	NT8000A	6272337370	N/A	Nov. 14, 2023	Mar. 26, 2024~ Apr. 08, 2024	Nov. 13, 2024	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Mar. 26, 2024~ Apr. 08, 2024	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Mar. 26, 2024~ Apr. 08, 2024	N/A	Radiation (03CH12-HY)



## 6 Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	3.07 dB
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### Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	3.63 dB
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### Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.14 dB
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## Appendix A. Test Results of Conducted Test

### Conducted Output Power(Average power & EIRP)

LTE Band 48 Maximum Average Power [dBm] (GT - LC = 2.5 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
20	1	0	QPSK	20.09	19.90	20.32	22.82	0.1914
20	1	49		20.25	19.98	20.22		
20	1	99		20.26	20.05	20.24		
20	50	0		19.18	18.97	19.38		
20	50	24		19.17	18.97	19.34		
20	50	50		19.22	19.00	19.34		
20	100	0		19.17	18.92	19.34		
20	1	0	16-QAM	19.19	19.01	19.42	21.92	0.1556
20	1	49		19.35	19.03	19.41		
20	1	99		19.35	19.09	19.41		
20	50	0		18.21	17.98	18.37		
20	50	24		18.19	17.97	18.31		
20	50	50		18.23	17.98	18.36		
20	100	0		18.17	17.94	18.34		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

LTE Band 48 Maximum Average Power [dBm] (GT - LC = 2.5 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
15	1	0	QPSK	20.03	19.84	20.31	22.81	0.1910
15	1	37		20.21	19.91	20.12		
15	1	74		20.21	20.04	20.22		
15	36	0		19.16	18.96	19.30		
15	36	20		19.14	18.90	19.26		
15	36	39		19.14	18.95	19.30		
15	75	0		19.12	18.83	19.28		
15	1	0	16-QAM	19.13	19.01	19.40	21.90	0.1549
15	1	37		19.30	19.03	19.35		
15	1	74		19.33	19.05	19.40		
15	36	0		18.16	17.94	18.28		
15	36	20		18.17	17.88	18.28		
15	36	39		18.16	17.93	18.29		
15	75	0		18.07	17.90	18.30		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



LTE Band 48 Maximum Average Power [dBm] (GT - LC = 2.5 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
10	1	0	QPSK	20.03	19.82	20.30	22.80	0.1905
10	1	25		20.23	19.90	20.15		
10	1	49		20.18	19.96	20.22		
10	25	0		19.18	18.90	19.35		
10	25	12		19.09	18.87	19.31		
10	25	25		19.13	18.90	19.27		
10	50	0		19.08	18.92	19.25		
10	1	0	16-QAM	19.14	18.94	19.36	21.87	0.1538
10	1	25		19.35	19.02	19.37		
10	1	49		19.31	19.02	19.31		
10	25	0		18.20	17.94	18.33		
10	25	12		18.18	17.89	18.21		
10	25	25		18.23	17.92	18.28		
10	50	0		18.12	17.89	18.33		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

LTE Band 48 Maximum Average Power [dBm] (GT - LC = 2.5 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
5	1	0	QPSK	19.99	19.89	20.27	22.77	0.1892
5	1	12		20.20	19.96	20.12		
5	1	24		20.16	19.98	20.16		
5	12	0		19.18	18.87	19.31		
5	12	7		19.16	18.89	19.34		
5	12	13		19.21	19.00	19.26		
5	25	0		19.09	18.82	19.33		
5	1	0	16-QAM	19.15	19.01	19.33	21.87	0.1538
5	1	12		19.30	18.95	19.37		
5	1	24		19.33	18.99	19.36		
5	12	0		18.19	17.93	18.35		
5	12	7		18.12	17.92	18.31		
5	12	13		18.21	17.94	18.28		
5	25	0		18.13	17.93	18.27		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



LTE Band 48C_CA Maximum Average Power [dBm] (GT - LC = 2.5 dB)										
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
	RB Size	RB Offset	RB Size	RB Offset						
20+20	100	0	100	0	QPSK	17.61	17.41	17.40	21.42	0.1387
20+20	1	0	1	99		10.89	10.69	10.68		
20+20	1	99	1	0		18.92	18.85	18.81		
20+20	100	0	100	0	16-QAM	16.63	16.45	16.45	20.89	0.1227
20+20	1	0	1	99		10.99	10.84	10.81		
20+20	1	99	1	0		18.39	18.26	18.26		
20+15	100	0	75	0	QPSK	17.77	17.45	17.35	21.44	0.1393
20+15	1	0	1	74		11.15	10.70	10.59		
20+15	1	74	1	0		18.94	18.83	18.86		
20+15	100	0	75	0	16-QAM	16.81	16.47	16.44	21.00	0.1259
20+15	1	0	1	74		11.25	10.85	10.73		
20+15	1	74	1	0		18.50	18.34	18.27		
15+20	75	0	100	0	QPSK	17.66	17.37	17.39	21.41	0.1384
15+20	1	0	1	99		10.98	10.77	10.62		
15+20	1	74	1	0		18.91	18.87	18.89		
15+20	75	0	100	0	16-QAM	16.66	16.46	16.42	20.93	0.1239
15+20	1	0	1	99		11.03	10.90	10.77		
15+20	1	74	1	0		18.43	18.34	18.26		
Limit	EIRP < 23dBm/10MHz					Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



LTE Band 48C_CA Maximum Average Power [dBm] (GT - LC = 2.5 dB)										
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
	RB Size	RB Offset	RB Size	RB Offset						
20+10	100	0	50	0	QPSK	17.79	17.43	17.33	21.43	0.1390
20+10	1	0	1	49		10.95	10.65	10.50		
20+10	1	99	1	0		18.93	18.83	18.89		
20+10	100	0	50	0	16-QAM	16.65	16.48	16.39	20.92	0.1236
20+10	1	0	1	49		11.05	10.78	10.61		
20+10	1	99	1	0		18.42	18.28	18.13		
10+20	50	0	100	0	QPSK	17.80	17.41	17.39	21.45	0.1396
10+20	1	0	1	99		10.88	10.61	10.48		
10+20	1	49	1	0		18.95	18.88	18.93		
10+20	50	0	100	0	16-QAM	16.70	16.44	16.42	20.93	0.1239
10+20	1	0	1	99		11.05	10.75	10.63		
10+20	1	49	1	0		18.43	18.27	18.18		
20+5	100	0	25	0	QPSK	17.61	17.24	17.17	21.45	0.1396
20+5	1	0	1	24		10.53	10.28	10.26		
20+5	1	99	1	0		18.95	18.94	18.83		
20+5	100	0	25	0	16-QAM	16.65	16.28	16.19	20.75	0.1189
20+5	1	0	1	24		10.62	10.39	10.33		
20+5	1	99	1	0		18.25	18.04	17.99		
Limit	EIRP < 23dBm/10MHz					Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



LTE Band 48C_CA Maximum Average Power [dBm] (GT - LC = 2.5 dB)										
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
	RB Size	RB Offset	RB Size	RB Offset						
5+20	25	0	100	0	QPSK	17.43	17.27	17.26	21.44	0.1393
5+20	1	0	1	99		10.42	10.19	10.19		
5+20	1	24	1	0		18.93	18.94	18.91		
5+20	25	0	100	0	16-QAM	16.48	16.29	16.37	20.79	0.1199
5+20	1	0	1	99		10.54	10.26	10.23		
5+20	1	24	1	0		18.29	17.96	17.99		
Limit	EIRP < 23dBm/10MHz				Result			Pass		

LTE Band 48B_CA Maximum Average Power [dBm] (GT - LC = 2.5 dB)										
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
	RB Size	RB Offset	RB Size	RB Offset						
10+10	50	0	50	0	QPSK	17.74	17.51	17.41	21.38	0.1374
10+10	1	0	1	49		10.83	10.70	10.61		
10+10	1	49	1	0		18.87	18.88	18.85		
10+10	50	0	50	0	16-QAM	16.79	16.52	16.49	20.94	0.1242
10+10	1	0	1	49		11.05	10.71	10.81		
10+10	1	49	1	0		18.44	18.20	18.25		
Limit	EIRP < 23dBm/10MHz				Result			Pass		

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



## Appendix B. Test Results of Radiated Test

### B1. Summary of each worse mode

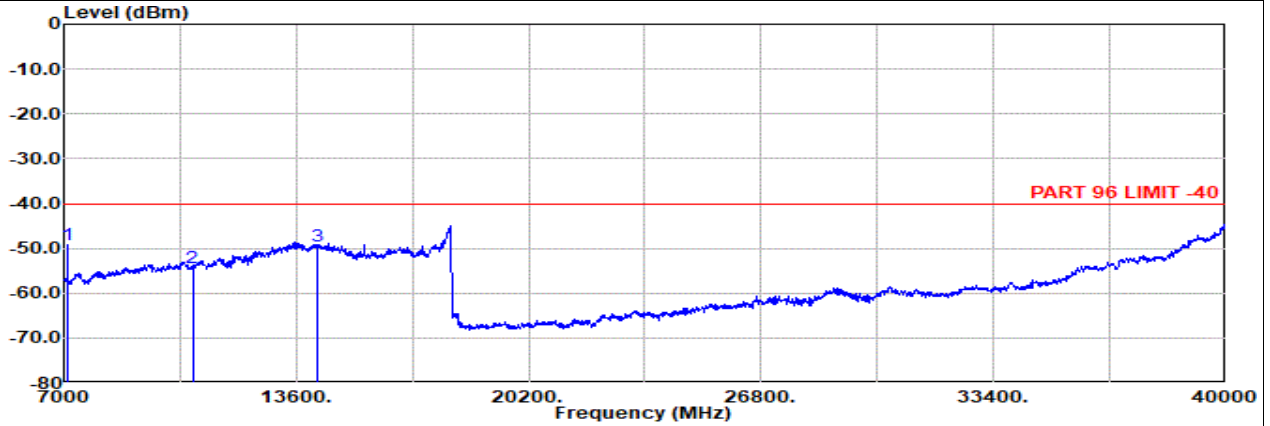
Mode	Part	Band	Ch	Freq (MHz)	Level (dBm)	Det	Ant Factor (dB)	Amp\Cbl (dB)	Filter (dB)	EIRPCF (dB)	Reading (dBuV)	Limit (dBm)	Margin (dB)	Pol	Ant
1	Part 96	LTE B48	L	7102	-49.22	RMS	36.52	-51.91	0.90	-95.23	60.50	-40.00	-9.22	H	ANT 5
2	Part 96	LTE CA B48B	L	14237	-49.00	RMS	41.03	-45.84	0.45	-95.23	50.59	-40.00	-9.00	V	ANT 5
3	Part 96	LTE CA B48C	M	14496	-51.02	RMS	40.80	-45.40	0.44	-95.23	48.37	-40.00	-11.02	H	ANT 5





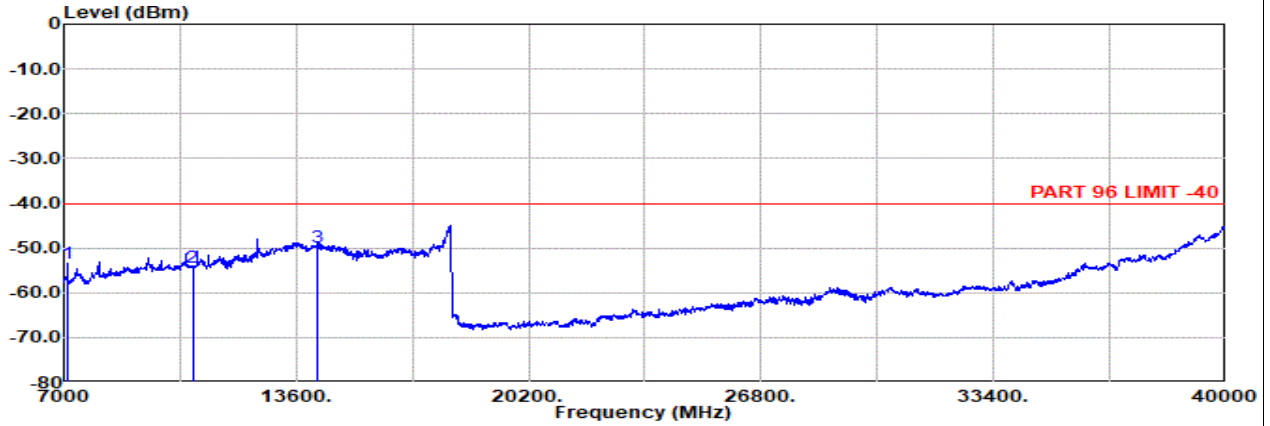
ANT 5

**Part 96 Mode 1**  
**LTE B48 20M Ch55340 1RB0 QPSK**  
**L**



Site : 03CH12-HY  
Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Horizontal  
: LTE Band 48 20M Ch55340 1RB0 QPSK

1	2	3	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit dBm	Margin dB	Pol
						Factor	1					



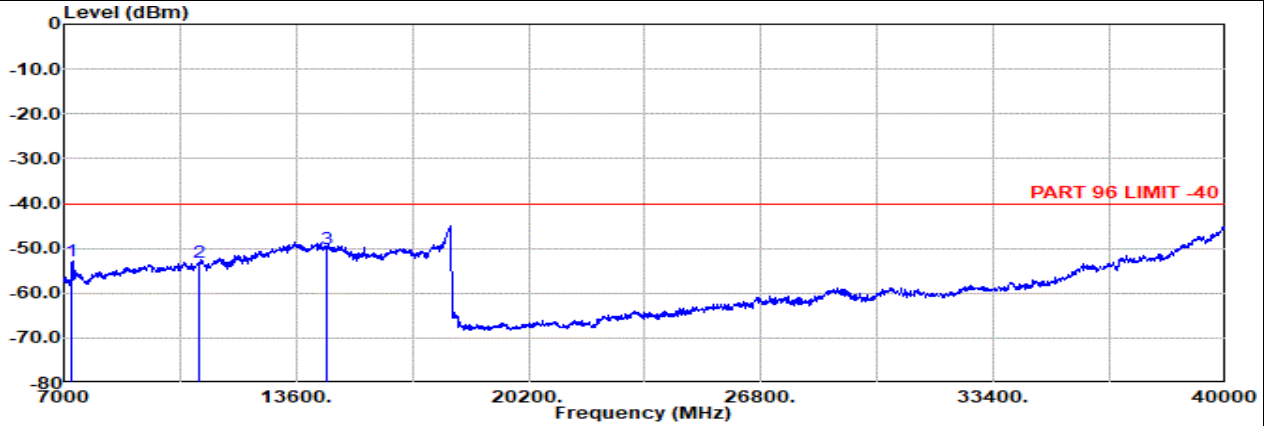
Site : 03CH12-HY  
Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Vertical  
: LTE Band 48 20M Ch55340 1RB0 QPSK

1	2	3	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit dBm	Margin dB	Pol
						Factor	1					



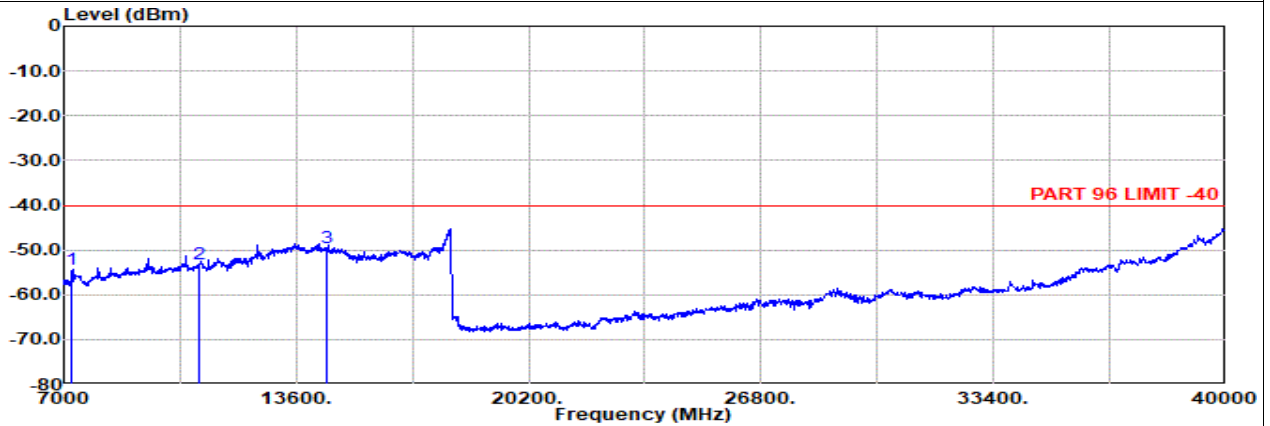
ANT 5

**Part 96 Mode 1**  
**LTE B48 20M Ch55990 1RB0 QPSK**  
**M**



Site : 03CH12-HY  
 Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Horizontal  
 : LTE Band 48 20M Ch55990 1RB0 QPSK

1	2	3	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit dBm	Margin dB	Pol
						Factor	1					



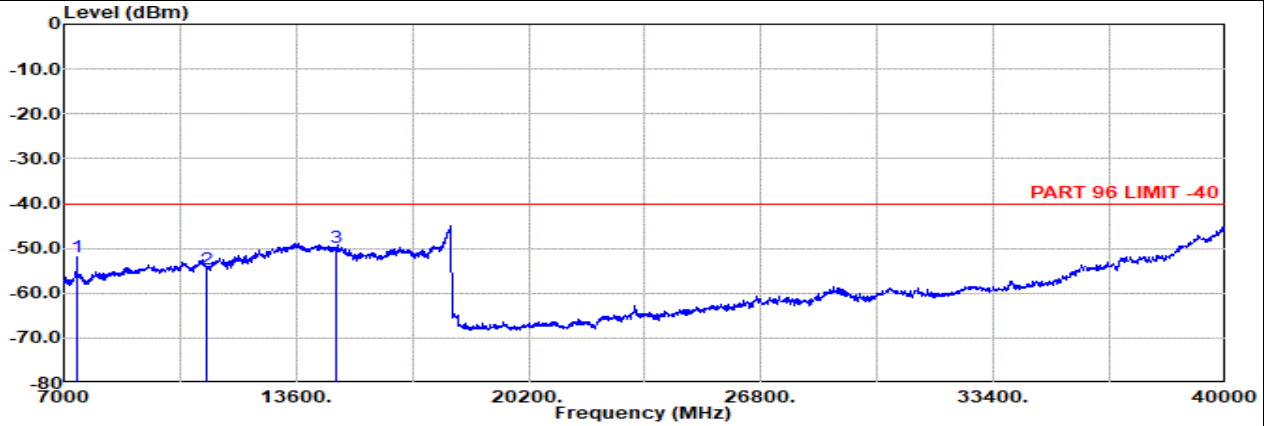
Site : 03CH12-HY  
 Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Vertical  
 : LTE Band 48 20M Ch55990 1RB0 QPSK

1	2	3	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit dBm	Margin dB	Pol
						Factor	1					



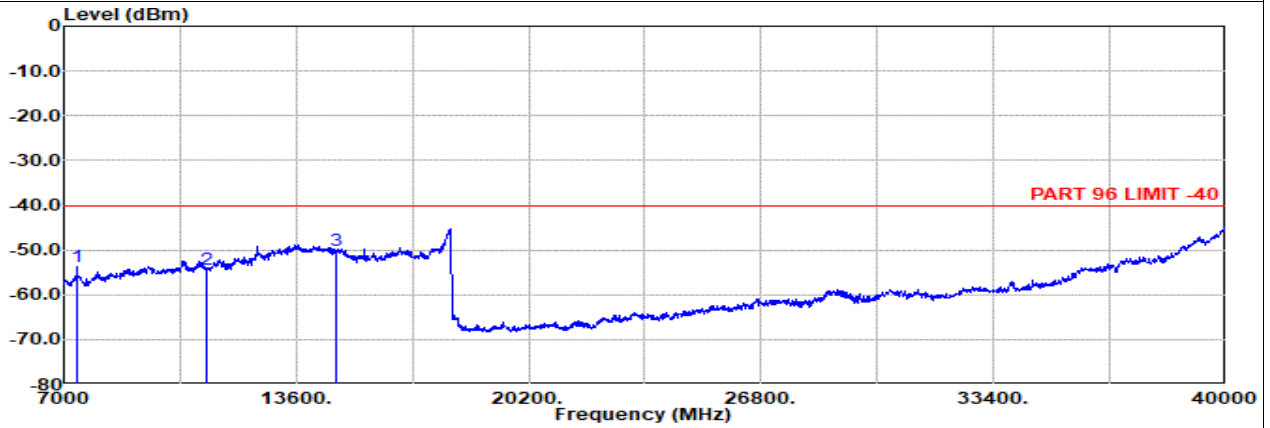
ANT 5

**Part 96 Mode 1**  
**LTE B48 20M Ch56640 1RB0 QPSK**  
**H**



Site : 03CH12-HY  
Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Horizontal  
: LTE Band 48 20M Ch56640 1RB0 QPSK

1	2	3	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit dBm	Margin dB	Pol
						Factor	1					



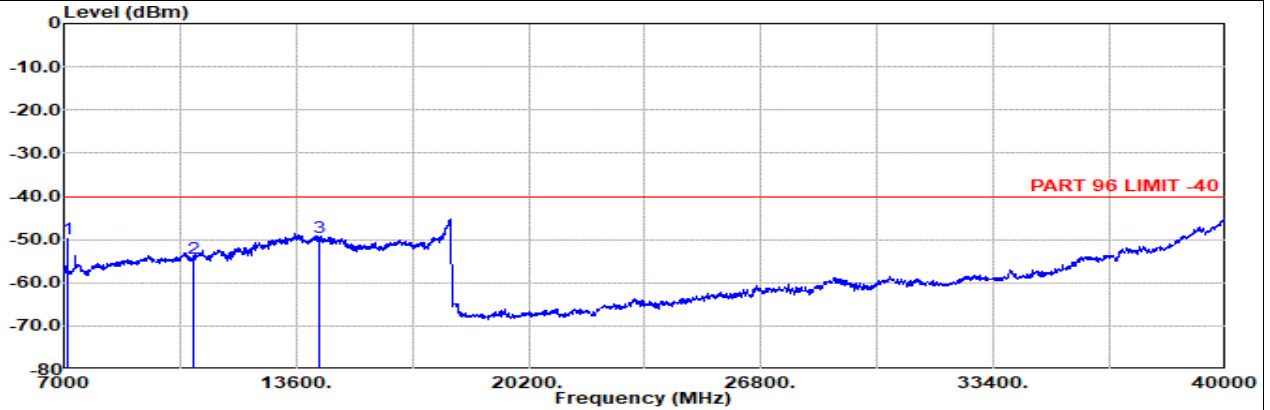
Site : 03CH12-HY  
Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Vertical  
: LTE Band 48 20M Ch56640 1RB0 QPSK

1	2	3	Freq MHz	Level dBm	Detector	Ant Amp\Cb Filter		EIRPCF	Readin g	Limit dBm	Margin dB	Pol
						Factor	1					



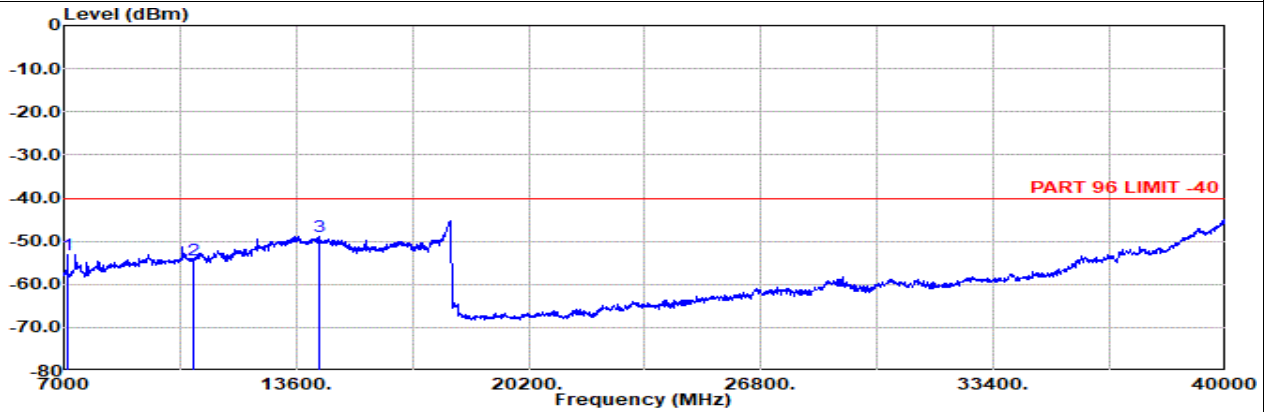
ANT 5

**Part 96 Mode 2**  
**LTE CA B48B 10M + 10M Ch55290 1RB49 QPSK + Ch55389 1RB0 QPSK**  
**L**



Site : 03CH12-HY  
 Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Horizontal  
 : LTE Band 48 10M Ch55290 1RB49 QPSK  
 : LTE Band 48 10M Ch55389 1RB0 QPSK

Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin	Pol	
			Factor	l						g
MHz	dBm		dB/m	dB	dB	dBuV	dBm	dB		
1 7119.00	-49.90	RMS	36.65	-51.92	0.90	-95.23	59.70	-40.00	-9.90	Horizontal
2 10678.00	-54.37	RMS	39.30	-50.03	0.26	-95.23	51.33	-40.00	-14.37	Horizontal
3 14237.00	-49.49	RMS	41.03	-45.84	0.45	-95.23	50.10	-40.00	-9.49	Horizontal

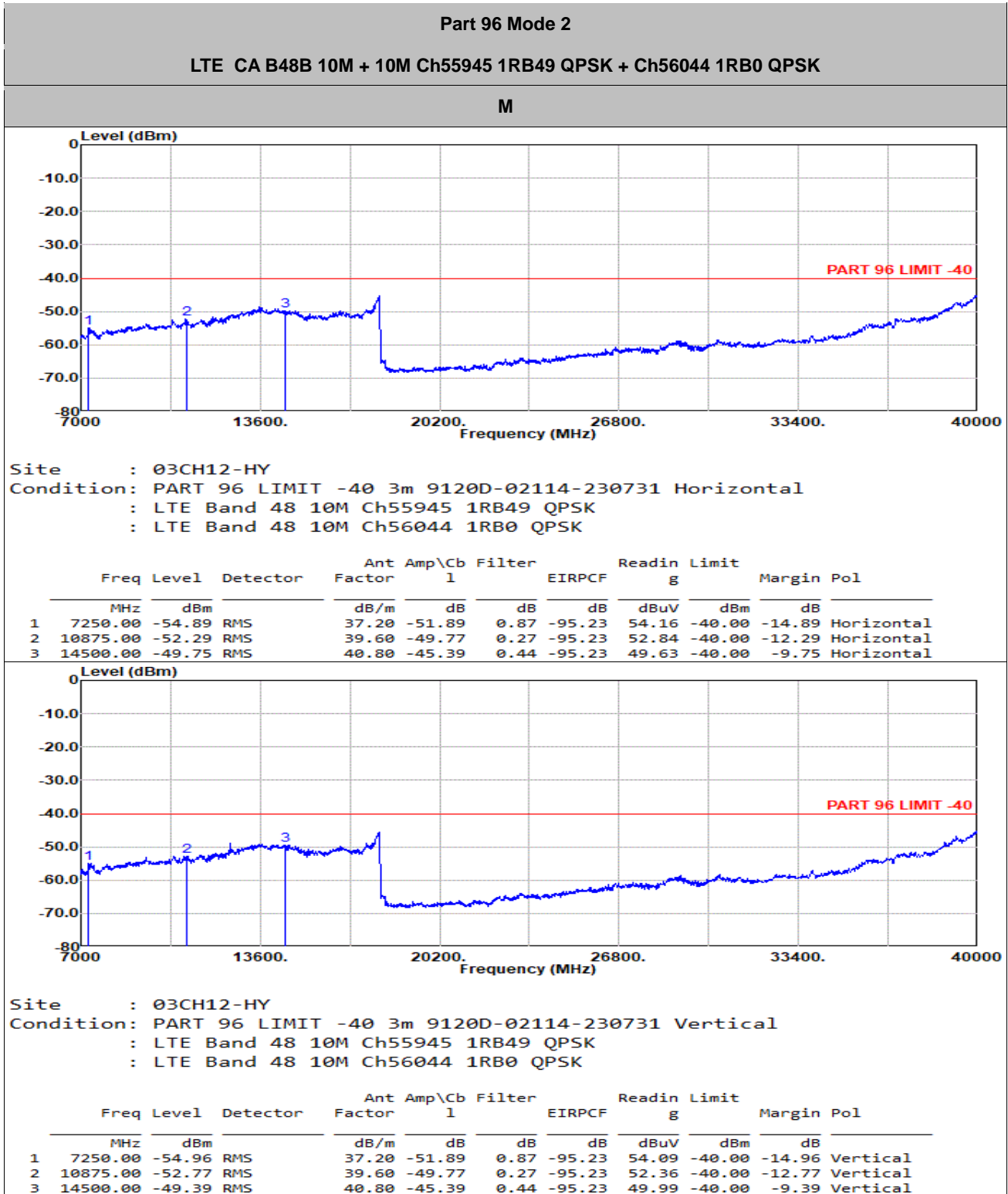


Site : 03CH12-HY  
 Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Vertical  
 : LTE Band 48 10M Ch55290 1RB49 QPSK  
 : LTE Band 48 10M Ch55389 1RB0 QPSK

Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin	Pol	
			Factor	l						g
MHz	dBm		dB/m	dB	dB	dBuV	dBm	dB		
1 7119.00	-53.16	RMS	36.65	-51.92	0.90	-95.23	56.44	-40.00	-13.16	Vertical
2 10678.00	-54.27	RMS	39.30	-50.03	0.26	-95.23	51.43	-40.00	-14.27	Vertical
3 14237.00	-49.00	RMS	41.03	-45.84	0.45	-95.23	50.59	-40.00	-9.00	Vertical



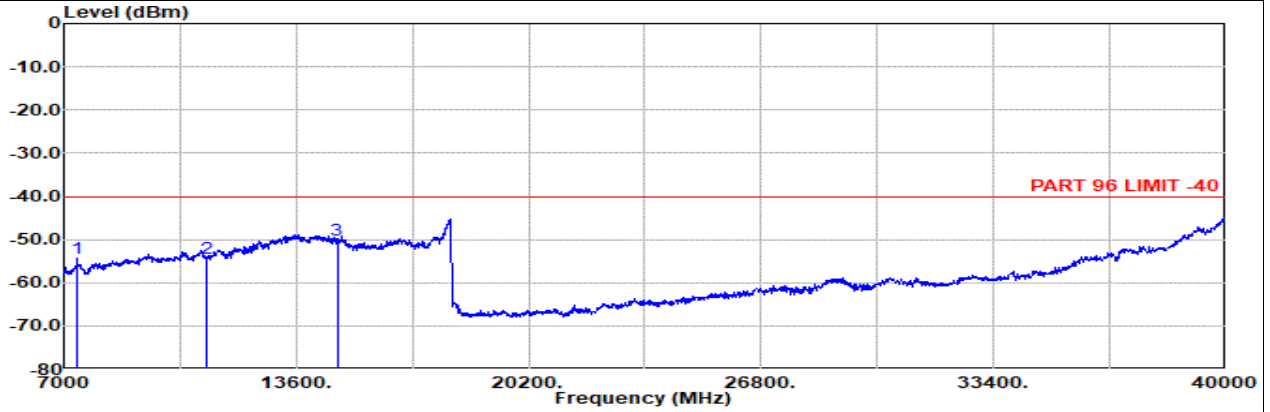
ANT 5





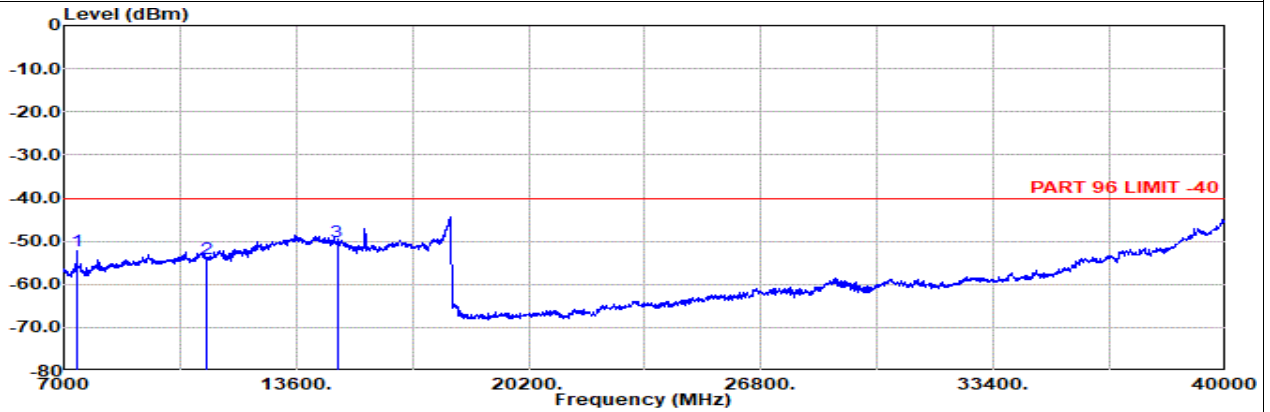
ANT 5

**Part 96 Mode 2**  
**LTE CA B48B 10M + 10M Ch56591 1RB49 QPSK + Ch56690 1RB0 QPSK**  
**H**



Site : 03CH12-HY  
 Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Horizontal  
 : LTE Band 48 10M Ch56591 1RB49 QPSK  
 : LTE Band 48 10M Ch56690 1RB0 QPSK

Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Reading	Limit	Margin	Pol		
			Factor	l						dB	dB
1	7379.00	-54.21	RMS	36.83	-51.64	0.83	-95.23	55.00	-40.00	-14.21	Horizontal
2	11068.00	-54.29	RMS	38.94	-49.41	0.28	-95.23	51.13	-40.00	-14.29	Horizontal
3	14758.00	-50.21	RMS	40.60	-45.58	0.42	-95.23	49.58	-40.00	-10.21	Horizontal



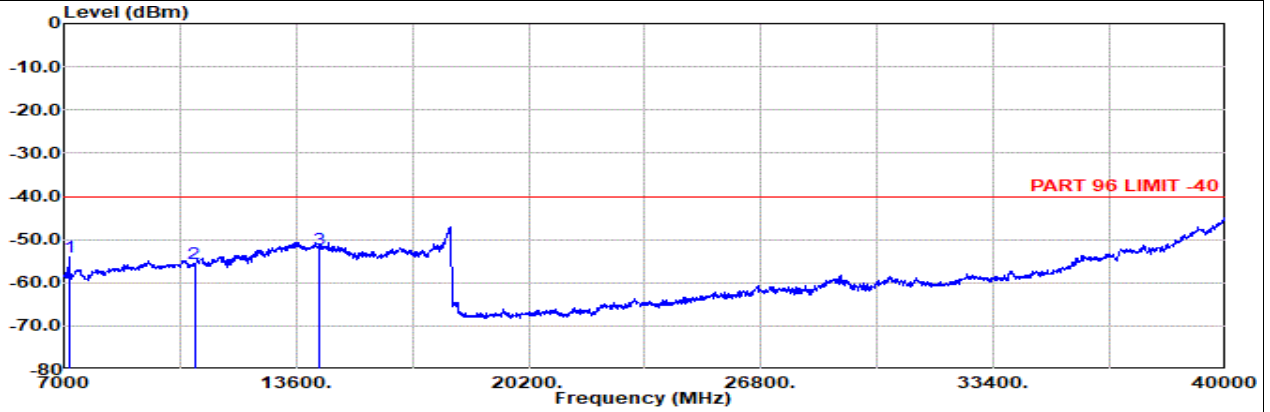
Site : 03CH12-HY  
 Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Vertical  
 : LTE Band 48 10M Ch56591 1RB49 QPSK  
 : LTE Band 48 10M Ch56690 1RB0 QPSK

Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Reading	Limit	Margin	Pol		
			Factor	l						dB	dB
1	7379.00	-52.18	RMS	36.83	-51.64	0.83	-95.23	57.03	-40.00	-12.18	Vertical
2	11068.00	-54.15	RMS	38.94	-49.41	0.28	-95.23	51.27	-40.00	-14.15	Vertical
3	14758.00	-50.14	RMS	40.60	-45.58	0.42	-95.23	49.65	-40.00	-10.14	Vertical



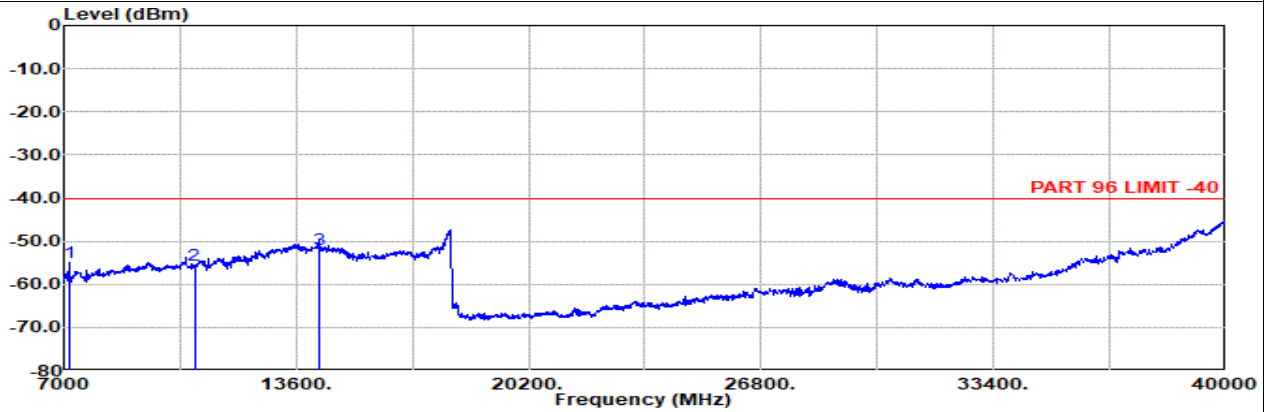
ANT 5

**Part 96 Mode 3**  
**LTE CA B48C 20M + 20M Ch55340 1RB99 QPSK + Ch55538 1RB0 QPSK**  
**L**



Site : 03CH12-HY  
 Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Horizontal  
 : LTE Band 48 20M Ch55340 1RB99 QPSK  
 : LTE Band 48 20M Ch55538 1RB0 QPSK

Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol		
			Factor	l				g	dB	
MHz	dBm		dB/m	dB	dB	dBuV	dBm	dB		
1 7138.00	-54.12	RMS	36.80	-51.94	0.90	-95.23	55.35	-40.00	-14.12	Horizontal
2 10707.00	-55.52	RMS	39.29	-49.99	0.26	-95.23	50.15	-40.00	-15.52	Horizontal
3 14276.00	-52.08	RMS	40.95	-45.77	0.45	-95.23	47.52	-40.00	-12.08	Horizontal



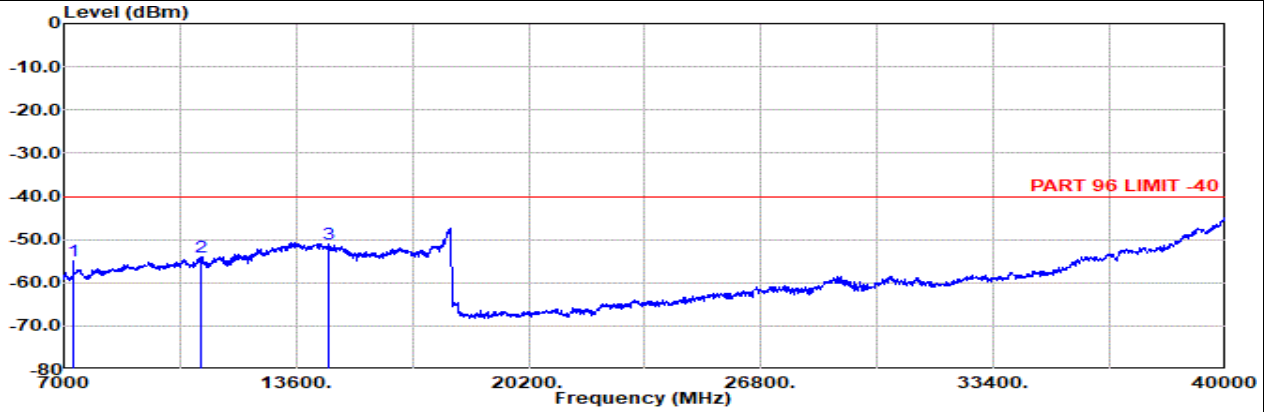
Site : 03CH12-HY  
 Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Vertical  
 : LTE Band 48 20M Ch55340 1RB99 QPSK  
 : LTE Band 48 20M Ch55538 1RB0 QPSK

Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol		
			Factor	l				g	dB	
MHz	dBm		dB/m	dB	dB	dBuV	dBm	dB		
1 7138.00	-55.03	RMS	36.80	-51.94	0.90	-95.23	54.44	-40.00	-15.03	Vertical
2 10707.00	-55.62	RMS	39.29	-49.99	0.26	-95.23	50.05	-40.00	-15.62	Vertical
3 14276.00	-51.97	RMS	40.95	-45.77	0.45	-95.23	47.63	-40.00	-11.97	Vertical



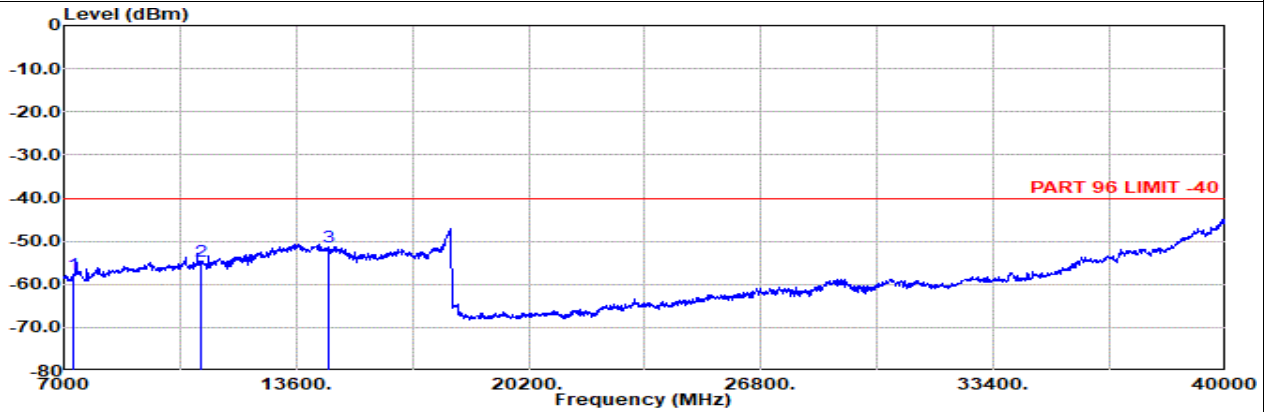
ANT 5

**Part 96 Mode 3**  
**LTE CA B48C 20M + 20M Ch55891 1RB99 QPSK + Ch56089 1RB0 QPSK**  
**M**



Site : 03CH12-HY  
 Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Horizontal  
 : LTE Band 48 20M Ch55891 1RB99 QPSK  
 : LTE Band 48 20M Ch56089 1RB0 QPSK

Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Reading	Limit	Margin Pol	
			Factor	l				g	dB
MHz	dBm		dB/m	dB	dB	dBuV	dBm	dB	
1 7248.00	-54.98	RMS	37.20	-51.89	0.87 -95.23	54.07	-40.00	-14.98	Horizontal
2 10872.00	-54.12	RMS	39.56	-49.78	0.27 -95.23	51.06	-40.00	-14.12	Horizontal
3 14496.00	-51.02	RMS	40.80	-45.40	0.44 -95.23	48.37	-40.00	-11.02	Horizontal



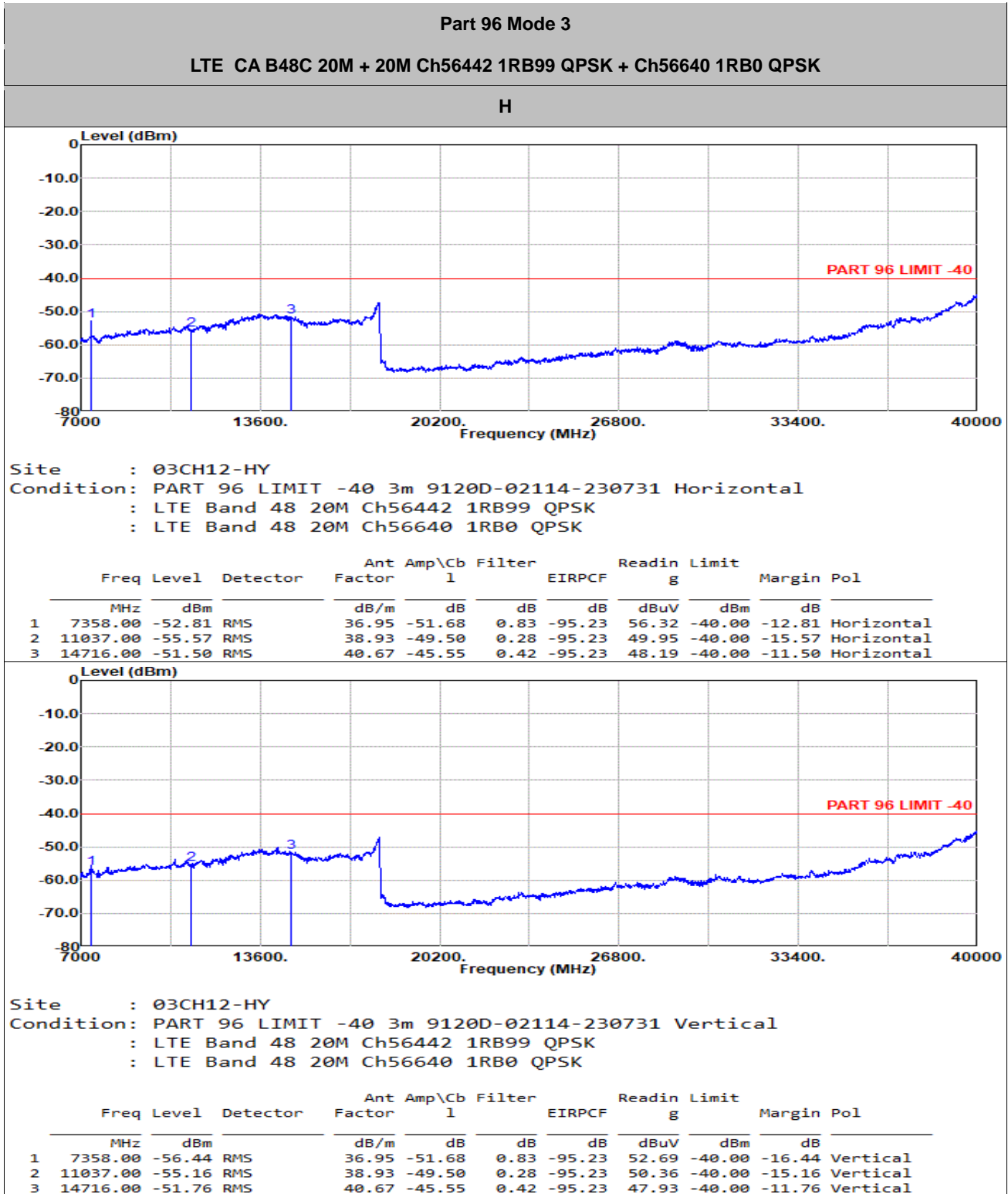
Site : 03CH12-HY  
 Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Vertical  
 : LTE Band 48 20M Ch55891 1RB99 QPSK  
 : LTE Band 48 20M Ch56089 1RB0 QPSK

Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Reading	Limit	Margin Pol	
			Factor	l				g	dB
MHz	dBm		dB/m	dB	dB	dBuV	dBm	dB	
1 7248.00	-57.61	RMS	37.20	-51.89	0.87 -95.23	51.44	-40.00	-17.61	Vertical
2 10872.00	-54.73	RMS	39.56	-49.78	0.27 -95.23	50.45	-40.00	-14.73	Vertical
3 14496.00	-51.22	RMS	40.80	-45.40	0.44 -95.23	48.17	-40.00	-11.22	Vertical





ANT 5



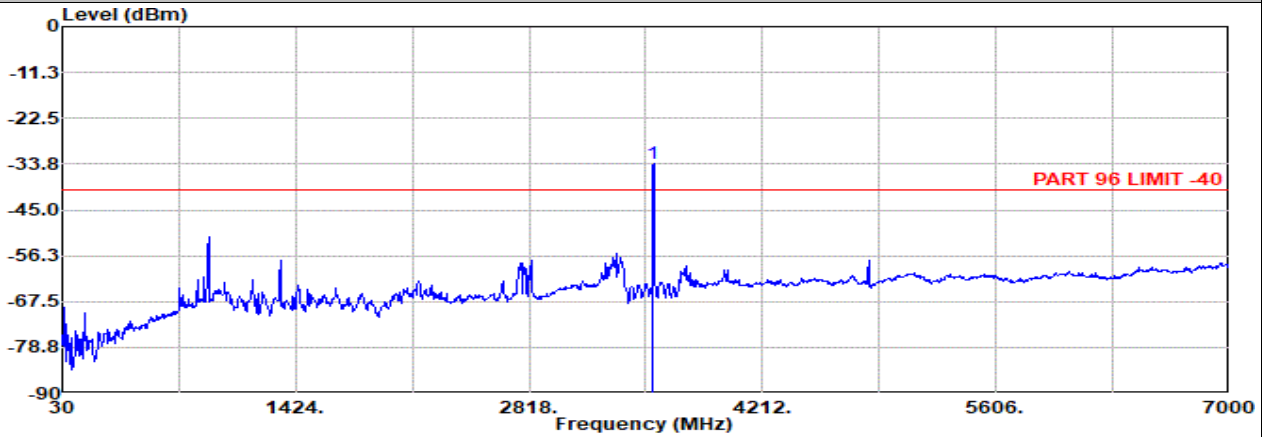


ANT 5

Part 96 Mode 2

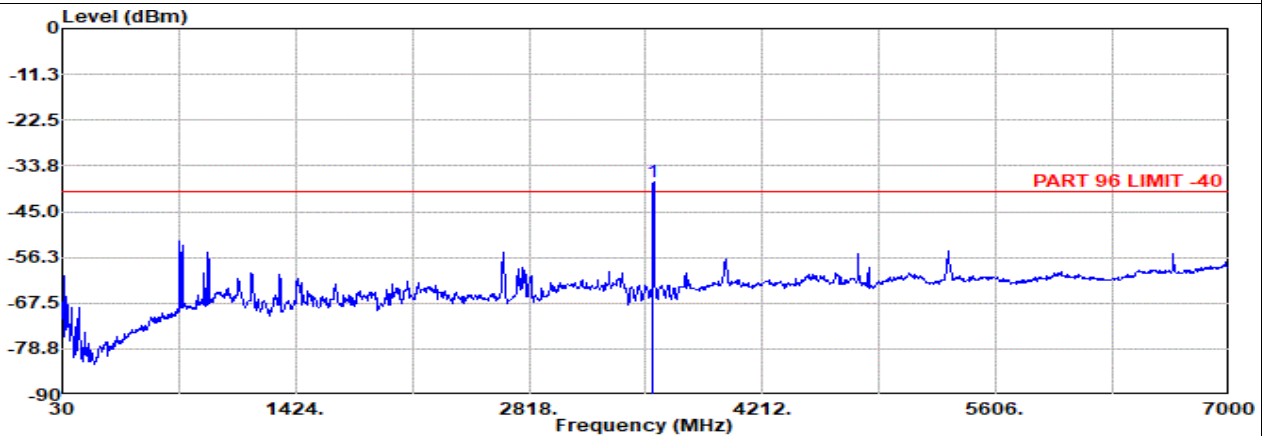
LTE CA B48B 10M + 10M Ch55290 1RB49 QPSK + Ch55389 1RB0 QPSK

L



Site : 03CH12-HY  
 Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Horizontal  
 : LTE Band 48 10M Ch55290 1RB49 QPSK  
 : LTE Band 48 10M Ch55389 1RB0 QPSK

Freq	Level	Detector	Ant Factor	Amp	\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
MHz	dBm		dB/m	dB	dB	dB	dB	dBuV	dBm	dB	
1 3559.00	-33.59	RMS	29.62	-57.15	0.54	-95.23	88.63	-----	-----	-----	Horizontal



Site : 03CH12-HY  
 Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Vertical  
 : LTE Band 48 10M Ch55290 1RB49 QPSK  
 : LTE Band 48 10M Ch55389 1RB0 QPSK

Freq	Level	Detector	Ant Factor	Amp	\Cb	Filter	EIRPCF	Readin	Limit	Margin	Pol
MHz	dBm		dB/m	dB	dB	dB	dB	dBuV	dBm	dB	
1 3559.00	-37.68	RMS	29.62	-57.15	0.54	-95.23	84.54	-----	-----	-----	Vertical

Remark: The over limit signal #1 is fundamental signal which can be ignored.