



FCC RADIO TEST REPORT

FCC ID : 2AJN7-TP00152A
Equipment : Notebook Computer
Brand Name : Lenovo
Model Name : TP00152A, TP00152B
Applicant : LC Future Center Limited Taiwan Branch
7F., No.780, Beian Rd., Zhongshan Dist., Taipei 104, Taiwan
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, 96

Equipment: Quectel RM520N-GL tested inside of Lenovo Notebook Computer.

The product was received on Nov. 23, 2023 and testing was performed from Dec. 01, 2023 to Jan. 03, 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 partial report apply exclusively to the tested model / sample. Without written approval from 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



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 Product Feature of Equipment Under Test	5
1.2 Product Specification of Equipment Under Test	6
1.3 Modification of EUT	6
1.4 Testing Location	6
1.5 Applied Standards	7
2 Test Configuration of Equipment Under Test	8
2.1 Test Mode.....	8
2.2 Connection Diagram of Test System	9
2.3 Support Unit used in test configuration	9
2.4 Frequency List of Low/Middle/High Channels.....	9
3 Conducted Test Items.....	11
3.1 Measuring Instruments.....	11
3.2 Conducted Output Power	12
3.3 EIRP	13
4 Radiated Test Items	14
4.1 Measuring Instruments.....	14
4.2 Test Setup	14
4.3 Test Result of Radiated Test.....	15
4.4 Radiated Spurious Emission	16
5 List of Measuring Equipment.....	17
6 Measurement Uncertainty	18
Appendix A. Test Results of Conducted Test	
Appendix B. Test Results of Radiated Test	
Appendix C. Test Setup Photographs	



History of this test report

Report No.	Version	Description	Issue Date
FG3N2403D	01	Initial issue of report	Feb. 01, 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	-
-	-	Peak-to-Average Ratio	-	See Note
3.3	§96.41	Effective Isotropic Radiated Power	Pass	-
-	§2.1049 RSS-197 3.1	Occupied Bandwidth	-	See Note
-	§2.1051 §96.41	Conducted Band Edge Measurement	-	See Note
-	§2.1051 §96.41	Conducted Spurious Emission	-	See Note
-	§2.1055	Frequency Stability for Temperature & Voltage	-	See Note
4.4	§2.1051 §96.41	Radiated Spurious Emission	Pass	9.82 dB under the limit at 14716.00 MHz

Remark:

- For host device, Radiated Spurious Emission and Equivalent Isotropic Radiated Power are verified and complies with the limit in this test report.
- For host device, the Conducted Output Power is no difference after compared to module (Model: RM520N-GL)

Conformity Assessment Condition:

- 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/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
- 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.
- The purpose of different model name is for marketing segmentation.

Reviewed by: Sheng Kuo

Report Producer: Michelle Chen

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Notebook Computer
Brand Name	Lenovo
Model Name	TP00152A, TP00152B
FCC ID	2AJN7-TP00152A
Sample 1	EUT with Amphenol Taiwan Corporation Antenna
Sample 2	EUT with Luxshare-ICT Antenna
EUT supports Radios application	WCDMA/HSPA/LTE/5G NR/GNSS/NFC WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 WLAN 11ax HE20/HE40/HE80/HE160 WLAN 11be EHT20/EHT40/EHT80/EHT160 Bluetooth BR/EDR/LE
EUT Stage	Production Unit

Remark:

- The above EUT's information was declared by manufacturer.
- Equipment: Quectel RM520N-GL tested inside of Lenovo Notebook Computer.

Support band and evaluated information	
Supported band	B48
Evaluated and Tested band	B48
MIMO 2 Antenna	B48

TDD band Power Class				
	PC3	PC2		
B48	V	-		

WWAN Antenna Information for Host				
MIMO 2 Antenna	Manufacturer	Amphenol Taiwan Corporation	Peak gain (dBi)	LTE Band 48 : 0.89
	Part number	DC330022430	Type	PIFA
	Manufacturer	Luxshare-ICT	Peak gain (dBi)	LTE Band 48 : 0.89
	Part number	DC330022530	Type	PIFA

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

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx Frequency	3552.5 MHz ~ 3697.5 MHz
Rx Frequency	3552.5 MHz ~ 3697.5 MHz
Bandwidth	5 MHz / 10 MHz / 15 MHz / 20 MHz
Maximum Output Power to Antenna	LTE Band 48: 20.56 dBm LTE Band 48C: 21.78 dBm
Type of Modulation	QPSK / 16QAM / 64QAM / 256QAM

1.3 Modification of EUT

No modifications made to the EUT during the testing.

1.4 Testing Location

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.
	TH03-HY
Test Engineer	Diego Huang
Temperature (°C)	21.7~23.8
Relative Humidity (%)	50.7~52.9

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.
	03CH21HY (TAF Code: 3786)
Test Engineer	Jack Cheng, Ray Lung and Sky Chang
Temperature (°C)	18~26
Relative Humidity (%)	50~70
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



1.5 Applied Standards

According to the specifications declared by 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 the test items were validated and recorded in accordance with the standards without any modification during the testing.
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.

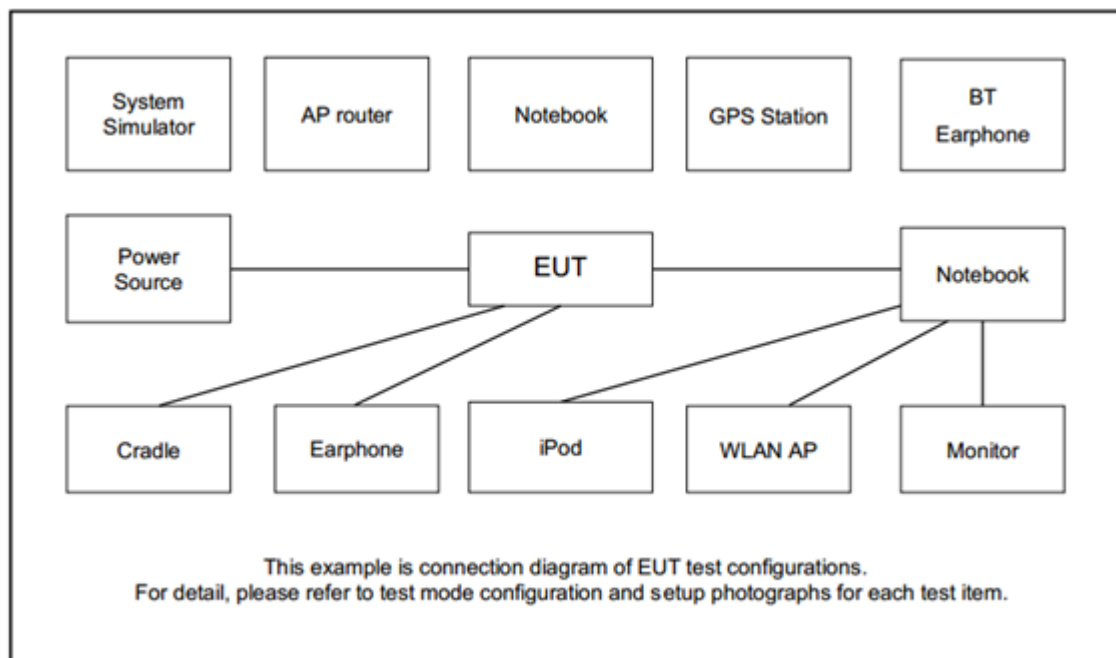
Modulation Type	Modulation
A	QPSK
B	16QAM
C	64QAM
D	256QAM

Test Item	Modulation Type	Bandwidth	RB Size	Channel
Conducted Power	A, B, C, D	All	1, Half, Full	L, M, H
EIRP	A, B, C, D	All	1, Half, Full	L, M, H
RSE	A	20 MHz or less	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. During the RSE preliminary test, the standalone mode and charging modes were verified. It is determined that the charging modes is the worst case for the official test.
4. All the radiated test cases were performed with Sample 1.

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.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A

2.4 Frequency List of Low/Middle/High Channels

LTE Band 48 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	55340	55990	56640
	Frequency	3560.0	3625	3690
15	Channel	55315	55990	56665
	Frequency	3557.5	3625	3692.5
10	Channel	55290	55990	56690
	Frequency	3555.0	3625	3695
5	Channel	55265	55990	56715
	Frequency	3552.5	3625	3697.5

LTE Band 48C Channel and Frequency List_CA					
BW [MHz]	Channel/Frequency(MHz)		Lowest	Middle	Highest
20 + 20	PCC	Channel	55340	55641	55942
		Frequency	3560	3590.1	3620.2
	SCC	Channel	55538	55839	56140
		Frequency	3579.8	3609.9	3640
20 + 15	PCC	Channel	55340	55667	55994
		Frequency	3560	3592.7	3625.4
	SCC	Channel	55511	55838	56165
		Frequency	3577.1	3609.8	3642.5
15 + 20	PCC	Channel	55315	55642	55969
		Frequency	3557.5	3590.2	3622.9
	SCC	Channel	55486	55813	56140
		Frequency	3574.6	3607.3	3640
20 + 10	PCC	Channel	55340	55693	56046
		Frequency	3560	3595.3	3630.6
	SCC	Channel	55484	55837	56190
		Frequency	3574.4	3609.7	3645
10 + 20	PCC	Channel	55290	55643	55996
		Frequency	3555	3590.3	3625.6
	SCC	Channel	55434	55787	56140
		Frequency	3569.4	3604.7	3640
20 + 5	PCC	Channel	55340	55719	56098
		Frequency	3560	3597.9	3635.8
	SCC	Channel	55457	55836	56215
		Frequency	3571.7	3609.6	3647.5
5 + 20	PCC	Channel	55265	55644	56023
		Frequency	3552.5	3590.4	3628.3
	SCC	Channel	55382	55761	56140
		Frequency	3564.2	3602.1	3640

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.

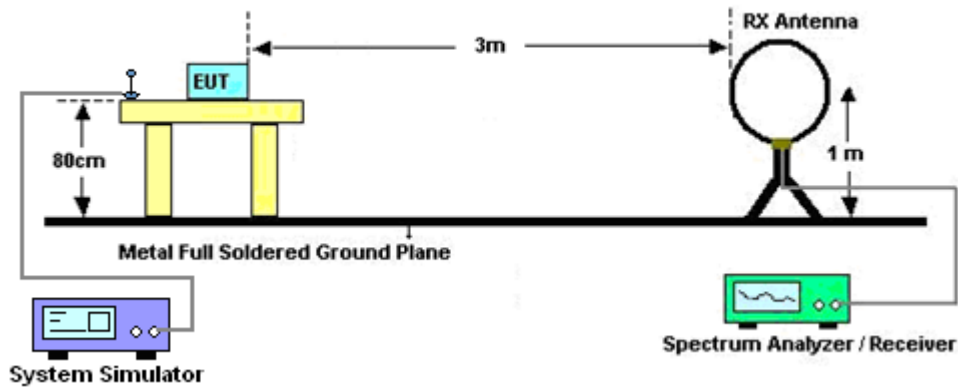
4 Radiated Test Items

4.1 Measuring Instruments

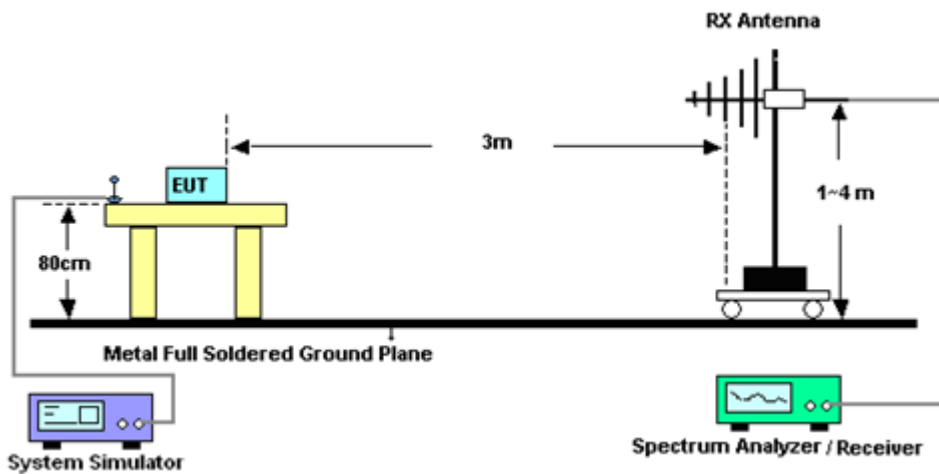
See list of measuring instruments of this test report.

4.2 Test Setup

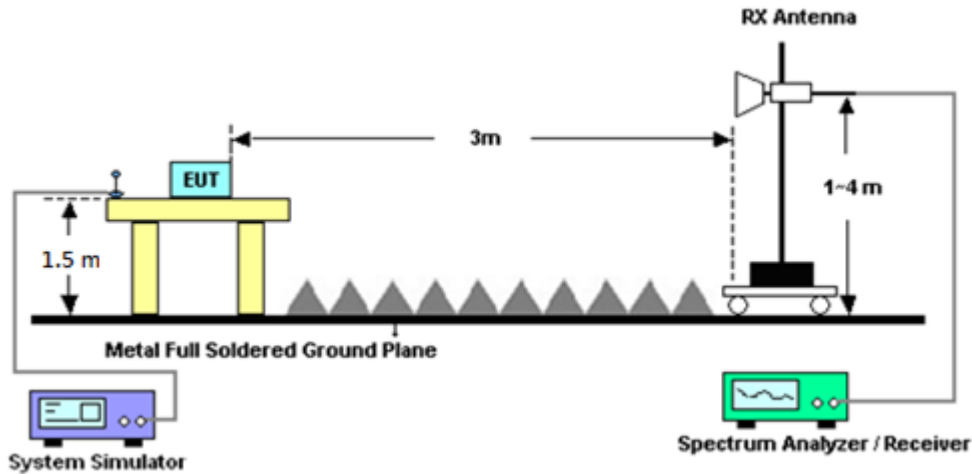
For radiated emissions below 30MHz



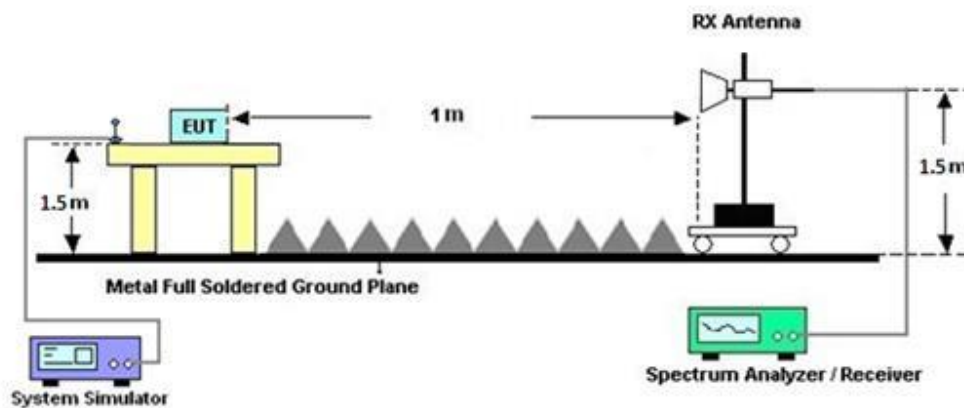
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test 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)
$$\text{EIRP(dBm)} = \text{Level (dBuV/m)} + 20\log(d) - 104.77$$
, where d is the distance at which field strength limit is specified in the rules.
7.
$$\text{Field Strength Level (dBm)} = \text{Spectrum Reading (dBm)} + \text{Antenna Factor} + \text{Cable Loss} + \text{Read Level} - \text{Preamp Factor}.$$
8.
$$\text{ERP (dBm)} = \text{EIRP (dBm)} - 2.15$$
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	6262025353	LTE FDD/TDD LTE-2CC DLCA/ULCA	Oct. 03, 2023	Dec. 01, 2023~ Dec. 19, 2023	Oct. 02, 2024	Conducted (TH03-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#B	1-18GHz	Jan. 06, 2023	Dec. 01, 2023~ Dec. 19, 2023	Jan. 05, 2024	Conducted (TH03-HY)
LOOP Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 12, 2023	Dec. 20, 2023~ Jan. 03, 2024	Sep. 11, 2024	Radiation (03CH21-HY)
Bilog Antenna	TESEQ	CBL 6111D&00802N1D 01N-06	55606 & 08	30MHz~1GHz	Oct. 15, 2023	Dec. 20, 2023~ Jan. 03, 2024	Oct. 14, 2024	Radiation (03CH21-HY)
Double Ridged Guide Horn Antenna	RFSPIN	DRH18-E	LE2C03A18EN	1GHz~18GHz	Jul. 12, 2023	Dec. 20, 2023~ Jan. 03, 2024	Jul. 11, 2024	Radiation (03CH21-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	1223	18GHz~40GHz	Jul. 10, 2023	Dec. 20, 2023~ Jan. 03, 2024	Jul. 09, 2024	Radiation (03CH21-HY)
Amplifier	SONOMA	310N	421580	30MHz~1GHz	Jul. 15, 2023	Dec. 20, 2023~ Jan. 03, 2024	Jul. 14, 2024	Radiation (03CH21-HY)
Amplifier	EMEC	EM01G18GA	060876	1GHz~18GHz	Sep. 28, 2023	Dec. 20, 2023~ Jan. 03, 2024	Sep. 27, 2024	Radiation (03CH21-HY)
Preamplifier	EMEC	EM18G40G	060871	18GHz~40GHz	Aug. 30, 2023	Dec. 20, 2023~ Jan. 03, 2024	Aug. 29, 2024	Radiation (03CH21-HY)
Spectrum Analyzer	Keysight	N9010B	MY62170358	10Hz~44GHz	Aug. 28, 2023	Dec. 20, 2023~ Jan. 03, 2024	Aug. 27, 2024	Radiation (03CH21-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9K~30M	Mar. 07, 2023	Dec. 20, 2023~ Jan. 03, 2024	Mar. 06, 2024	Radiation (03CH21-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804397/2,8046 12/2,804614/2	30MHz~40GHz	Oct. 24, 2023	Dec. 20, 2023~ Jan. 03, 2024	Oct. 23, 2024	Radiation (03CH21-HY)
Hygrometer	TECPEL	DTM-303A	TP211568	N/A	Oct. 30, 2023	Dec. 20, 2023~ Jan. 03, 2024	Oct. 29, 2024	Radiation (03CH21-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Dec. 20, 2023~ Jan. 03, 2024	N/A	Radiation (03CH21-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Dec. 20, 2023~ Jan. 03, 2024	N/A	Radiation (03CH21-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Dec. 20, 2023~ Jan. 03, 2024	N/A	Radiation (03CH21-HY)
Software	Audix	E3 6.2009-8-24	RK-001053	N/A	N/A	Dec. 20, 2023~ Jan. 03, 2024	N/A	Radiation (03CH21-HY)

6 Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	3.04 dB
---	---------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	3.33 dB
---	---------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	3.68 dB
---	---------



Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power & EIRP)

LTE Band 48 Maximum Average Power [dBm] (GT - LC = 0.89 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
20	1	0	QPSK	20.55	20.56	20.48	21.45	0.1396
20	1	49		20.28	20.40	20.20		
20	1	99		20.28	20.43	20.23		
20	50	0		19.16	19.34	19.19		
20	50	24		19.21	19.41	19.25		
20	50	50		19.20	19.37	19.20		
20	100	0		19.16	19.36	19.21		
20	1	0	16-QAM	19.26	19.42	19.28	20.34	0.1081
20	1	49		19.30	19.41	19.24		
20	1	99		19.25	19.45	19.34		
20	50	0		18.17	18.34	18.17		
20	50	24		18.23	18.43	18.32		
20	50	50		18.17	18.36	18.21		
20	100	0		18.18	18.38	18.28		
20	1	0	64-QAM	18.18	18.35	18.22	19.24	0.0839
20	1	49		18.15	18.30	18.17		
20	1	99		18.17	18.33	18.13		
20	50	0		17.17	17.32	17.19		
20	50	24		17.18	17.32	17.17		
20	50	50		17.25	17.35	17.21		
20	100	0		17.17	17.34	17.15		
20	1	0	256-QAM	15.36	15.48	15.37	16.41	0.0438
20	1	49		15.28	15.46	15.36		
20	1	99		15.42	15.52	15.33		
20	50	0		15.23	15.43	15.25		
20	50	24		15.35	15.45	15.30		
20	50	50		15.26	15.38	15.27		
20	100	0		15.29	15.46	15.30		
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 = 0.89 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
15	1	0	QPSK	20.37	20.37	20.35	21.26	0.1337
15	1	37		20.10	20.29	20.01		
15	1	74		20.17	20.26	20.08		
15	36	0		19.00	19.23	19.05		
15	36	20		19.07	19.22	19.15		
15	36	39		19.04	19.23	19.06		
15	75	0		19.00	19.17	19.06		
15	1	0	16-QAM	19.12	19.23	19.09	20.20	0.1047
15	1	37		19.20	19.31	19.06		
15	1	74		19.15	19.31	19.22		
15	36	0		18.05	18.14	18.03		
15	36	20		18.06	18.26	18.15		
15	36	39		18.01	18.20	18.08		
15	75	0		18.03	18.22	18.14		
15	1	0	64-QAM	18.00	18.22	18.02	19.11	0.0815
15	1	37		18.00	18.11	18.07		
15	1	74		18.05	18.17	18.00		
15	36	0		17.06	17.19	17.07		
15	36	20		17.02	17.15	17.02		
15	36	39		17.12	17.25	17.02		
15	75	0		17.06	17.14	17.02		
15	1	0	256-QAM	15.25	15.36	15.27	16.31	0.0428
15	1	37		15.14	15.36	15.20		
15	1	74		15.25	15.42	15.14		
15	36	0		15.13	15.24	15.08		
15	36	20		15.20	15.29	15.13		
15	36	39		15.14	15.20	15.09		
15	75	0		15.19	15.26	15.14		
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 = 0.89 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
10	1	0	QPSK	20.43	20.38	20.32	21.32	0.1355
10	1	25		20.18	20.25	20.07		
10	1	49		20.12	20.25	20.12		
10	25	0		19.00	19.14	19.03		
10	25	12		19.08	19.24	19.08		
10	25	25		19.04	19.17	19.02		
10	50	0		19.00	19.25	19.05		
10	1	0	16-QAM	19.07	19.23	19.18	20.20	0.1047
10	1	25		19.14	19.25	19.13		
10	1	49		19.06	19.31	19.19		
10	25	0		18.07	18.23	18.01		
10	25	12		18.04	18.30	18.22		
10	25	25		18.05	18.16	18.09		
10	50	0		18.04	18.25	18.13		
10	1	0	64-QAM	18.03	18.19	18.09	19.09	0.0811
10	1	25		18.07	18.16	18.06		
10	1	49		18.09	18.20	18.03		
10	25	0		17.01	17.21	17.00		
10	25	12		17.07	17.19	17.00		
10	25	25		17.05	17.19	17.05		
10	50	0		17.02	17.16	17.04		
10	1	0	256-QAM	15.18	15.38	15.23	16.27	0.0424
10	1	25		15.12	15.32	15.22		
10	1	49		15.26	15.37	15.21		
10	25	0		15.12	15.29	15.12		
10	25	12		15.21	15.34	15.20		
10	25	25		15.09	15.26	15.11		
10	50	0		15.17	15.28	15.18		
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 = 0.89 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
5	1	0	QPSK	20.38	20.44	20.36	21.33	0.1358
5	1	12		20.14	20.27	20.03		
5	1	24		20.14	20.26	20.13		
5	12	0		19.03	19.21	19.02		
5	12	7		19.01	19.21	19.15		
5	12	13		19.03	19.20	19.09		
5	25	0		19.00	19.26	19.03		
5	1	0	16-QAM	19.06	19.29	19.12	20.21	0.1050
5	1	12		19.19	19.22	19.04		
5	1	24		19.10	19.32	19.16		
5	12	0		18.00	18.24	18.00		
5	12	7		18.12	18.25	18.19		
5	12	13		18.01	18.19	18.07		
5	25	0		18.00	18.23	18.10		
5	1	0	64-QAM	18.06	18.21	18.11	19.11	0.0815
5	1	12		18.05	18.11	18.06		
5	1	24		18.00	18.22	18.02		
5	12	0		17.06	17.17	17.03		
5	12	7		17.06	17.22	17.00		
5	12	13		17.15	17.23	17.04		
5	25	0		17.01	17.20	17.00		
5	1	0	256-QAM	15.16	15.31	15.21	16.27	0.0424
5	1	12		15.10	15.26	15.16		
5	1	24		15.24	15.38	15.13		
5	12	0		15.05	15.24	15.11		
5	12	7		15.25	15.30	15.10		
5	12	13		15.14	15.24	15.13		
5	25	0		15.16	15.34	15.18		
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 = 0.89 dB)										
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
	RB Size	RB Offset	RB Size	RB Offset						
20+20	1	99	1	0	QPSK	21.67	21.66	21.54	22.56	0.1803
20+20	1	99	1	0	16-QAM	21.22	21.16	21.15	22.11	0.1626
20+15	1	74	1	0	QPSK	21.74	21.55	21.41	22.63	0.1832
20+15	1	74	1	0	16-QAM	21.42	21.32	21.12	22.31	0.1702
15+20	1	74	1	0	QPSK	21.70	21.54	21.44	22.59	0.1816
15+20	1	74	1	0	16-QAM	21.49	21.25	21.21	22.38	0.1730
Limit	EIRP < 23dBm/10MHz					Result			Pass	

LTE Band 48C_CA Maximum Average Power [dBm] (GT - LC = 0.89 dB)										
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
	RB Size	RB Offset	RB Size	RB Offset						
20+10	1	99	1	0	QPSK	21.69	21.65	21.54	22.58	0.1811
20+10	1	99	1	0	16-QAM	21.45	21.39	21.12	22.34	0.1714
10+20	1	49	1	0	QPSK	21.78	21.65	21.57	22.67	0.1849
10+20	1	49	1	0	16-QAM	21.46	21.41	21.21	22.35	0.1718
20+5	1	99	1	0	QPSK	21.67	21.65	21.48	22.56	0.1803
20+5	1	99	1	0	16-QAM	21.46	21.32	21.19	22.35	0.1718
Limit	EIRP < 23dBm/10MHz					Result			Pass	

LTE Band 48C_CA Maximum Average Power [dBm] (GT - LC = 0.89 dB)										
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
	RB Size	RB Offset	RB Size	RB Offset						
5+20	1	24	1	0	QPSK	21.75	21.65	21.54	22.64	0.1837
5+20	1	24	1	0	16-QAM	21.30	21.23	21.15	22.19	0.1656
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

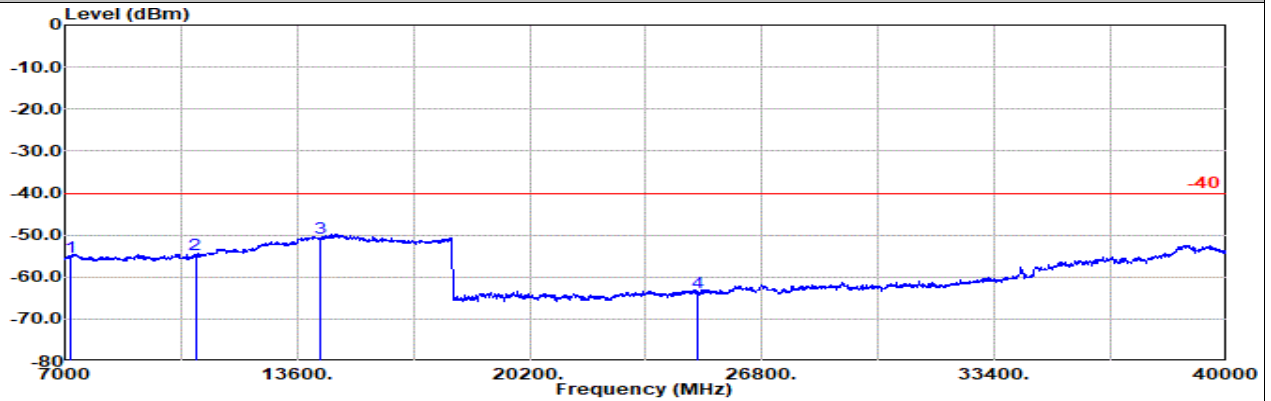
Mode	Part	Band	Ch	Freq (MHz)	Level (dBm)	Det	Ant Factor (dB)	Amp\Cbl (dB)	Filter (dB)	EIRPCF (dB)	Reading (dBuV)	Limit (dBm)	Margin (dB)	Pol	Ant
1	Part 96	LTE CA B48C	H	14716	-49.82	RMS	41.67	-22.99	0.42	-95.23	26.31	-40.00	-9.82	V	MIMO2

MIMO2

Part 96 Mode 1

LTE CA B48C Ch55340 + Ch55538

L



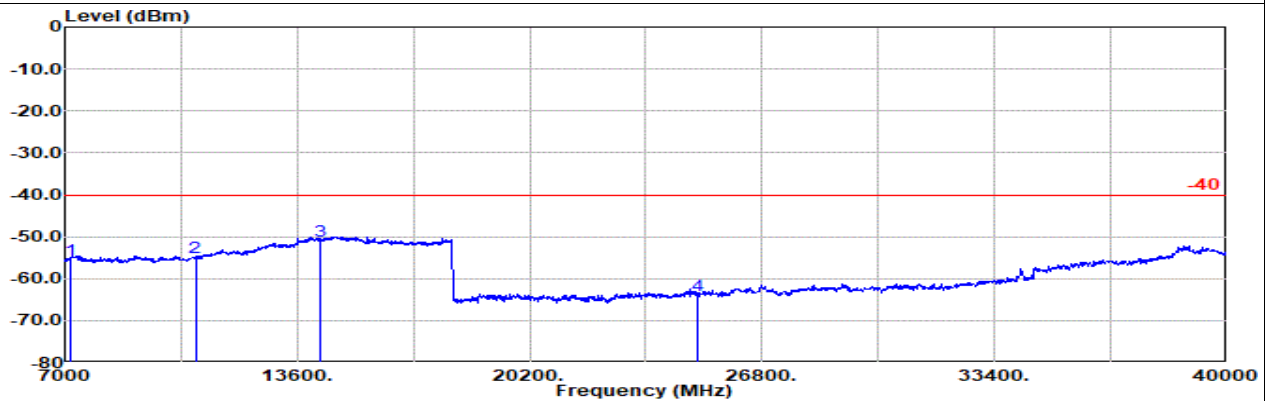
Site : 03CH21-HY

Condition: -40 3m DRH18-E_LE2C03A18EN_230712 Horizontal

: LTE B48 20M Ch55340 1RB99 QPSK

: LTE B48 20M Ch55538 1RB0 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb 1	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	7138.00	-55.17	RMS	36.48	-21.40	1.17	-95.23	23.81	-40.00	-15.17	Horizontal
2	10707.00	-54.70	RMS	37.50	-21.67	0.44	-95.23	24.26	-40.00	-14.70	Horizontal
3	14276.00	-50.82	RMS	40.95	-22.45	0.41	-95.23	25.50	-40.00	-10.82	Horizontal
4	24982.00	-63.84	RMS	39.43	-31.42	-9.54	-95.23	32.92	-40.00	-23.84	Horizontal



Site : 03CH21-HY

Condition: -40 3m DRH18-E_LE2C03A18EN_230712 Vertical

: LTE B48 20M Ch55340 1RB99 QPSK

: LTE B48 20M Ch55538 1RB0 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb 1	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	7138.00	-55.46	RMS	36.48	-21.40	1.17	-95.23	23.52	-40.00	-15.46	Vertical
2	10707.00	-55.02	RMS	37.50	-21.67	0.44	-95.23	23.94	-40.00	-15.02	Vertical
3	14276.00	-50.91	RMS	40.95	-22.45	0.41	-95.23	25.41	-40.00	-10.91	Vertical
4	24982.00	-64.03	RMS	39.43	-31.42	-9.54	-95.23	32.73	-40.00	-24.03	Vertical

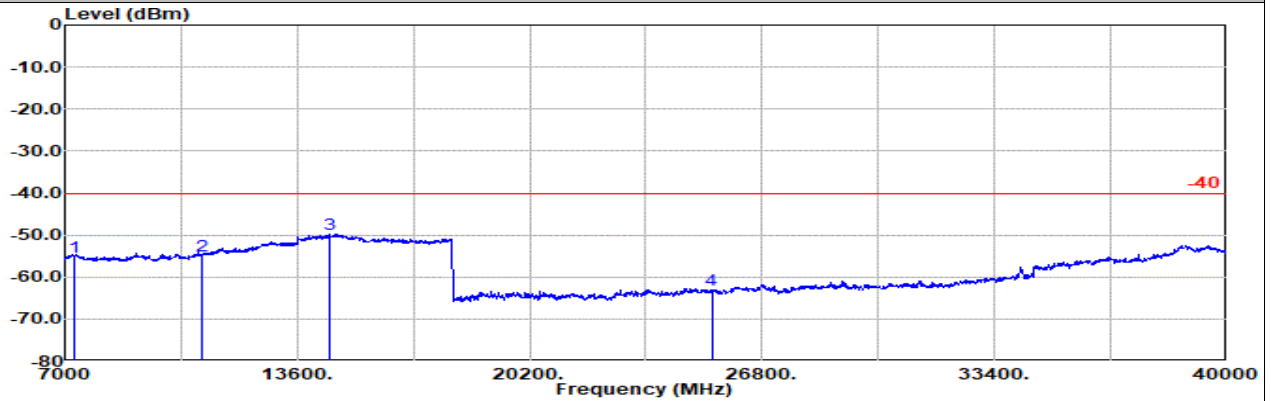


MIMO2

Part 96 Mode 1

LTE CA B48C Ch55891 + Ch56089

M



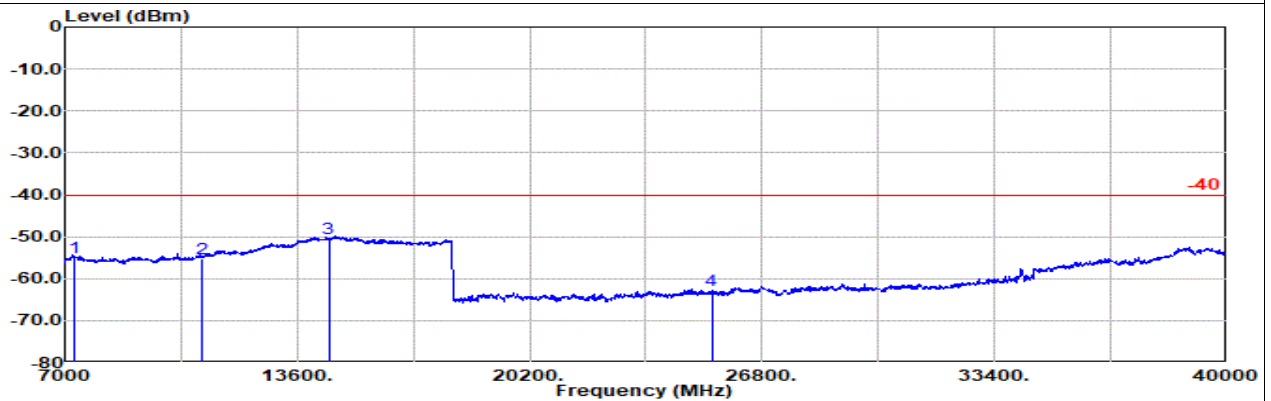
Site : 03CH21-HY

Condition: -40 3m DRH18-E_LE2C03A18EN_230712 Horizontal

: LTE B48 20M Ch55891 1RB99 QPSK

: LTE B48 20M Ch56089 1RB0 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb 1	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	7253.00	-55.14	RMS	36.91	-21.33	1.12	-95.23	23.39	-40.00	-15.14	Horizontal
2	10872.00	-54.97	RMS	37.54	-21.64	0.44	-95.23	23.92	-40.00	-14.97	Horizontal
3	14496.00	-49.87	RMS	41.28	-22.78	0.42	-95.23	26.44	-40.00	-9.87	Horizontal
4	25368.00	-63.12	RMS	39.36	-31.32	-9.54	-95.23	33.61	-40.00	-23.12	Horizontal



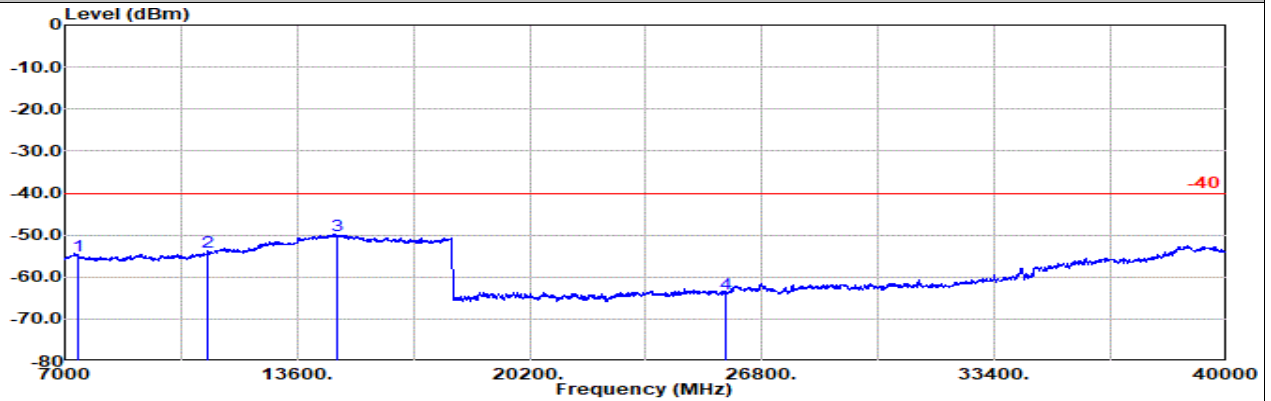
Site : 03CH21-HY

Condition: -40 3m DRH18-E_LE2C03A18EN_230712 Vertical

: LTE B48 20M Ch55891 1RB99 QPSK

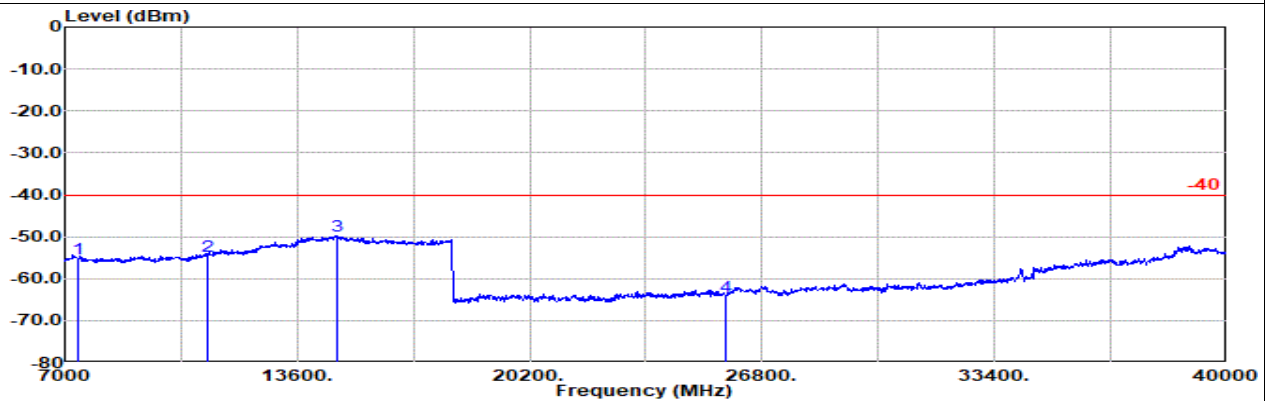
: LTE B48 20M Ch56089 1RB0 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb 1	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	7248.00	-54.96	RMS	36.90	-21.33	1.12	-95.23	23.58	-40.00	-14.96	Vertical
2	10872.00	-55.11	RMS	37.54	-21.64	0.44	-95.23	23.78	-40.00	-15.11	Vertical
3	14491.00	-50.40	RMS	41.26	-22.77	0.42	-95.23	25.92	-40.00	-10.40	Vertical
4	25368.00	-62.89	RMS	39.36	-31.32	-9.54	-95.23	33.84	-40.00	-22.89	Vertical

MIMO2
Part 96 Mode 1
LTE CA B48C Ch56442 + Ch56640
H


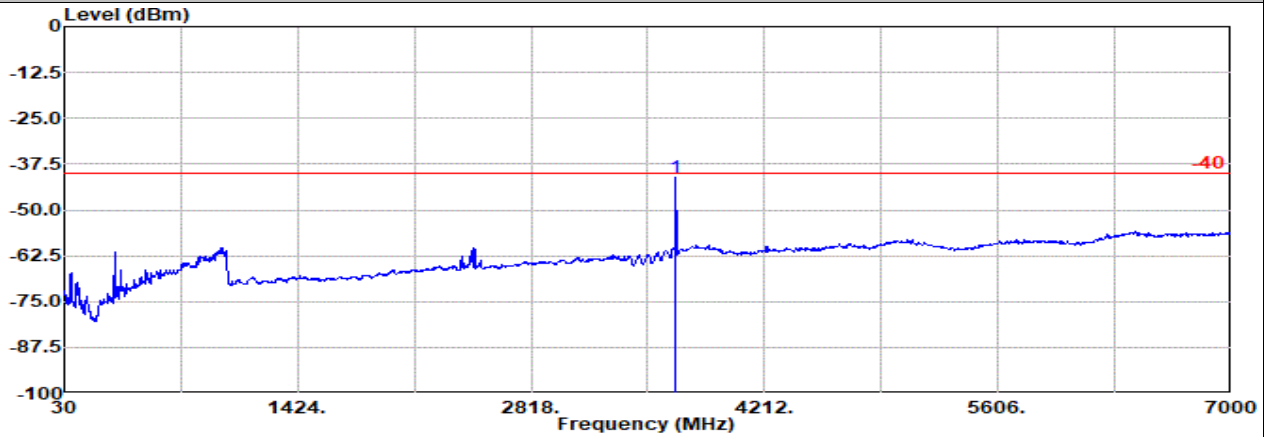
Site : 03CH21-HY
Condition: -40 3m DRH18-E_LE2C03A18EN_230712 Horizontal
: LTE B48 20M Ch56442 1RB99 QPSK
: LTE B48 20M Ch56640 1RB0 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb 1	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	7358.00	-55.02	RMS	36.98	-21.28	1.06	-95.23	23.45	-40.00	-15.02	Horizontal
2	11037.00	-54.05	RMS	37.95	-21.61	0.44	-95.23	24.40	-40.00	-14.05	Horizontal
3	14711.00	-49.99	RMS	41.68	-22.99	0.42	-95.23	26.13	-40.00	-9.99	Horizontal
4	25752.00	-64.10	RMS	39.00	-31.07	-9.54	-95.23	32.74	-40.00	-24.10	Horizontal



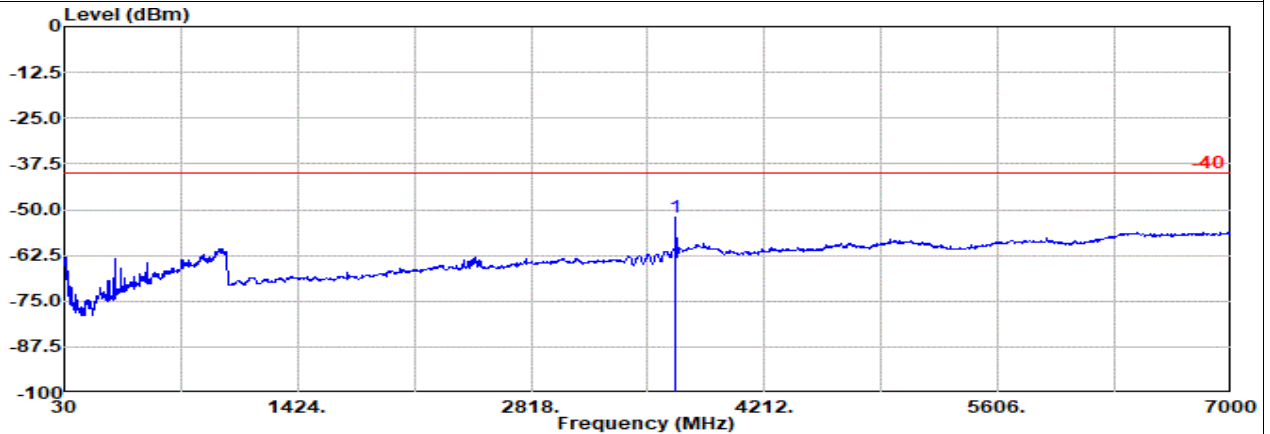
Site : 03CH21-HY
Condition: -40 3m DRH18-E_LE2C03A18EN_230712 Vertical
: LTE B48 20M Ch56442 1RB99 QPSK
: LTE B48 20M Ch56640 1RB0 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb 1	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	7363.00	-55.12	RMS	36.97	-21.28	1.05	-95.23	23.37	-40.00	-15.12	Vertical
2	11037.00	-54.55	RMS	37.95	-21.61	0.44	-95.23	23.90	-40.00	-14.55	Vertical
3	14716.00	-49.82	RMS	41.67	-22.99	0.42	-95.23	26.31	-40.00	-9.82	Vertical
4	25752.00	-64.25	RMS	39.00	-31.07	-9.54	-95.23	32.59	-40.00	-24.25	Vertical

MIMO2
Part 96 Mode 1
LTE CA B48C Ch56442 + Ch56640
H


Site : 03CH21-HY
Condition: -40 3m DRH18-E_LE2C03A18EN_230712 Horizontal
: LTE B48 20M Ch56442 1RB99 QPSK
: LTE B48 20M Ch56640 1RB0 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm									
1	3682.00	-41.19	RMS	29.80	-23.24	0.56	-95.23	0.00	-40.00	-1.19	Horizontal



Site : 03CH21-HY
Condition: -40 3m DRH18-E_LE2C03A18EN_230712 Vertical
: LTE B48 20M Ch56442 1RB99 QPSK
: LTE B48 20M Ch56640 1RB0 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb	Filter 1	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm									
1	3682.00	-52.00	RMS	29.80	-23.24	0.56	-95.23	36.11	-40.00	-12.00	Vertical

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