FCC RF Test Report

APPLICANT	: Motorola Mobility LLC
EQUIPMENT	: Mobile Cellular Phone
BRAND NAME	: Motorola
MODEL NAME	: XT2551-1,XT2551-2,XT2551-6
FCC ID	: IHDT56AU1
STANDARD	: 47 CFR Part 22(H), 27(F), 27(H), 27(N)
CLASSIFICATION	: PCS Licensed Transmitter Held to Ear (PCE)
TEST DATE(S)	: Dec. 03, 2024 ~ Dec. 31, 2024

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown 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. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG4N2802C	Rev. 01	Initial issue of report	Jan. 10, 2025

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	-	Report Only	-
	§22.913(a)(5)	Effective Radiated Power (Band 5) (Band 26)	ERP < 7 Watt	PASS	-
	§27.50(b)(10) §27.50(c)(10)	Effective Radiated Power (Band 12) (Band 13) (Band 17) (Band 71)	ERP < 3 Watt		-
3.5	N/A	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	-	Report Only	-
3.7	§2.1051 §22.917(a) §27.53(c)(2)(4) §27.53(g)	Conducted Band Edge Measurement (Band 5) (Band 12) (Band 13) (Band 17) (Band 26) (Band 71)	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §22.917(a) §27.53(c)(2) §27.53(g)	Conducted Spurious Emission (Band 5) (Band 12) (Band 13) (Band 17) (Band 26) (Band 71)	< 43+10log10(P[Watts])	PASS	-
3.9	§2.1055 §22.355	Frequency Stability Temperature & Voltage	< 2.5 ppm for Part 22	PASS	-
	§2.1055 §27.54		Within Authorized Band		
4.4	§2.1053 §22.917(a) §27.53(c)(2) §27.53(f) §27.53(g)	Radiated Spurious Emission (Band 5) (Band 12) (Band 13) (Band 17) (Band 26)(Band 71)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 21.98 dB at 1560.000 MHz

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.

1 General Description

1.1 Applicant

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2551-1,XT2551-2,XT2551-6
FCC ID	IHDT56AU1
IMEI Code	Conducted: 350086570034095/350086570034103 Radiation: 350086570035852/350086570035860
HW Version	DVT2
SW Version	V2VL35.5
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. The three model name XT2551-1,XT2551-2,XT2551-6 are the same product except model name different for market segment.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 12 : 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 17 : 704 MHz ~ 716 MHz LTE Band 26 : 824 MHz ~ 849 MHz LTE Band 71: 663 MHz ~ 698 MHz
Rx Frequency	LTE Band 5 : 869 MHz ~ 894 MHz LTE Band 12 : 729 MHz ~ 746 MHz LTE Band 13 : 746 MHz ~ 756 MHz LTE Band 17 : 734 MHz ~ 746 MHz LTE Band 26 : 869 MHz ~ 894 MHz LTE Band 71: 617 MHz ~ 652 MHz
Bandwidth	LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 12 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 13 : 5MHz / 10MHz LTE Band 17 : 5MHz / 10MHz LTE Band 26 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz LTE Band 71 : 5MHz / 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	<ANT0>: LTE Band 5 : 22.78 dBm LTE CA_5B : 22.78 dBm LTE Band 12 : 22.96 dBm LTE Band 13 : 22.07 dBm LTE Band 17 : 22.92 dBm LTE Band 26 : 22.85 dBm LTE Band 71 : 22.65 dBm <ANT1>: LTE Band 5 : 22.28 dBm LTE CA_5B : 22.70 dBm LTE Band 12 : 22.92 dBm LTE Band 13 : 22.28 dBm LTE Band 17 : 22.61 dBm LTE Band 26 : 22.46 dBm LTE Band 71 : 22.61 dBm
Antenna Gain	<ANT0>: LTE Band 5 : -6.1 dBi LTE Band 12 : -5.5 dBi LTE Band 13 : -5.7 dBi LTE Band 17 : -5.5 dBi LTE Band 26 : -5.7 dBi LTE Band 71 : -4.3 dBi <ANT1>: LTE Band 5 : -4.2 dBi LTE Band 12 : -3.5 dBi LTE Band 13 : -4.2 dBi LTE Band 17 : -3.5 dBi LTE Band 26 : -4.2 dBi LTE Band 71 : -4.4 dBi
Type of Modulation	QPSK / 16QAM / 64QAM / 256QAM

Note :

1. The maximum ERP is calculated from max output power and max antenna gain, so only the maximum ERP of Antenna 1 for LTEBand5/5B/12/13/17/26 and Antenna 0 for LTE Band71 are shown in the report.
2. LTE band 5/12/13/17/26/71 supports two paths, we chose higher power of 1st path to test.

1.5 Modification of EUT

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

1.6 Maximum ERP Power and Emission Designator

LTE Band 5		QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
1.4	824.7 ~ 848.3	0.0379	1M09G7D	0.0304	1M09W7D
3	825.5 ~ 847.5	0.0391	2M73G7D	0.0312	2M75W7D
5	826.5 ~ 846.5	0.0390	4M52G7D	0.0310	4M51W7D
10	829.0 ~ 844.0	0.0392	9M07G7D	0.0308	9M07W7D
LTE Band 12		QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
1.4	699.7 ~ 715.3	0.0527	1M09G7D	0.0422	1M10W7D
3	700.5 ~ 714.5	0.0525	2M73G7D	0.0423	2M74W7D
5	701.5 ~ 713.5	0.0525	4M49G7D	0.0417	4M49W7D
10	704.0 ~ 711.0	0.0533	9M01G7D	0.0425	9M05W7D
LTE Band 13		QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
5	779.5 ~ 784.5	0.0389	4M50G7D	0.0307	4M50W7D
10	782.0	0.0392	9M05G7D	0.0310	8M97W7D
LTE Band 17		QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
5	706.5 ~ 713.5	0.0491	4M49G7D	0.0394	4M49W7D
10	709.0 ~ 711.0	0.0497	9M01G7D	0.0396	9M05W7D

LTE Band 26		QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
1.4	824.7 ~ 848.3	0.0392	1M09G7D	0.0317	1M09W7D
3	825.5 ~ 847.5	0.0397	2M73G7D	0.0314	2M75W7D
5	826.5 ~ 846.5	0.0393	4M52G7D	0.0311	4M51W7D
10	829.0 ~ 844.0	0.0393	9M07G7D	0.0312	9M07W7D
15	831.5 ~ 841.5	0.0408	13M5G7D	0.0322	13M5W7D
CH26790	824.0	0.0396	13M4G7D	0.0316	13M5W7D
LTE Band 71		QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
5	665.5 ~ 695.5	0.0414	4M49G7D	0.0324	4M51W7D
10	668.0 ~ 693.0	0.0411	9M01G7D	0.0327	9M01W7D
15	670.5 ~ 690.5	0.0414	13M5G7D	0.0324	13M4W7D
20	673.0 ~ 688.0	0.0417	17M9G7D	0.0330	17M8W7D
LTE Band CA_5B		QPSK		16QAM/64QAM/256QAM	
BW (MHz)		Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
3MHz+5MHz		0.0419	7M61G7D	0.0324	7M58W7D
5MHz+3MHz		0.0419	7M58G7D	0.0324	7M58W7D
5MHz+10MHz		0.0413	14M0G7D	0.0325	13M9W7D
10MHz+5MHz		0.0414	13M9G7D	0.0324	14M0W7D
10MHz+10MHz		0.0432	18M7G7D	0.0344	18M8W7D

Note:

1. LTE Band 26 overlaps the entire frequency range of LTE Band 5. Therefore, the test results provided in this report covers Band 26 as well as Band 5.
2. LTE Band 12 overlaps the entire frequency range of LTE Band 17. Therefore, the test results provided in this report covers Band 12 as well as Band 17.
3. All modulations have been tested, and only the worst test results of PSK & QAM are shown in the report.

1.7 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH03-KS TH01-KS	CN1257	314309

1.8 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-KS	SPORTON	Part2224_Ver5.0 200330	5.0
2.	03CH03-KS	AUDIX	E3	210616

1.9 Applicable Standards

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

- 47 CFR Part 22(H), 27(F), 27(H), 27(N)
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP 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.

1.10 Specification of Accessory

Accessories Information				
AC Adapter 1(US)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-681N
AC Adapter 1(EU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-682N
AC Adapter 1(UK)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-683N
AC Adapter 1(AU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-685N
AC Adapter 1(AR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-686N
AC Adapter 1(BR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-687N
AC Adapter 1(Chile)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-689N
AC Adapter 2(US)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-681N
AC Adapter 2(EU)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-682N
AC Adapter 2(UK)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-683N
AC Adapter 2(AU)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-685N
AC Adapter 2(AR)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-686N
AC Adapter 2(BR)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-687N
Battery 1	**Brand Name**	Motorola(ATL)	**Model Name**	RS13
Battery 2	**Brand Name**	Motorola(ATL)	**Model Name**	RS35
USB Cable 1	**Brand Name**	Motorola(saibao)	**Model Name**	SC18D71644
USB Cable 2	**Brand Name**	Motorola(Luxshare)	**Model Name**	SC18E08104
USB Cable 3	**Brand Name**	Motorola(saibao)	**Model Name**	SC18D86731
USB Cable 4	**Brand Name**	Motorola(Luxshare)	**Model Name**	SC18E08103

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.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission. (X Plane)

The EUT is a folding phone, pretest the open status and closed status, only the worst status perform final test and record in the report. For the accessories, pretest standalone mode / Earphone mode / Adapter mode / Wireless charging mode, only the worst status perform final test and record in the report.

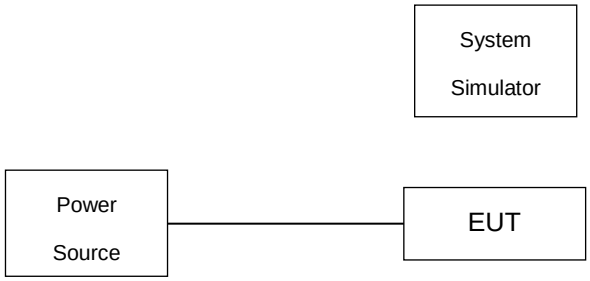
Test Items	Band	Bandwidth (MHz)						Modulation				RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	256 QAM	1	Half	Full	L	M	H
Max. Output Power	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	12	v	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	13	-	-	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	17	-	-	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	26	v	v	v	v	v	-	v	v	v	v	v	v	v	v	v	v
	71	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	12				v	-	-	v	v	v	v			v		v	
	13	-	-		v	-	-	v	v	v	v			v		v	
	26				v		-	v	v	v	v			v		v	
	71	-	-				v	v	v	v	v			v		v	
26dB and 99% Bandwidth	12	v	v	v	v	-	-	v	v					v		v	
	13	-	-	v	v	-	-	v	v					v		v	
	26	v	v	v	v	v	-	v	v					v		v	
	71	-	-	v	v	v	v	v	v					v		v	
Conducted Band Edge	12	v	v	v	v	-	-	v	v	v	v	v		v	v		v
	13	-	-	v	v	-	-	v	v	v	v	v		v	v		v
	26	v	v	v	v	v	-	v	v	v	v	v		v	v		v
	71	-	-	v	v	v	v	v	v	v	v	v		v	v		v
Conducted Spurious Emission	12	v	v	v	v	-	-	v				v			v	v	v
	13	-	-	v	v	-	-	v				v			v	v	v
	26	v	v	v	v	v	-	v				v			v	v	v
	71	-	-	v	v	v	v	v				v			v	v	v

Frequency Stability	12				v	-	-	v						v		v	
	13	-	-		v	-	-	v						v		v	
	26				v		-	v						v		v	
	71	-	-		v			v						v		v	

Test Items	Band	Bandwidth (MHz)						Modulation				RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	256 QAM	1	Half	Full	L	M	H
E.R.P	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	12	v	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	13	-	-	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	17	-	-	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	26	v	v	v	v	v	-	v	v	v	v	v	v	v	v	v	v
	71	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	12	Worst Case														v	
	13	Worst Case														v	
	26	Worst Case														v	
	71	Worst Case														v	
Note	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 under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.																

Test Items	Band	Bandwidth (MHz)								Modulation				RB #			Test Channel		
		10+10	15+5	5+15	10+5	5+10	5+5	5+3	3+5	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
Max. Output Power	5B_CA	v	-	-	v	v	-	v	v	v	v	v	v	v		v	v	v	v
26dB and 99% Bandwidth	5B_CA	v	-	-	v	v	-	v	v	v	v					v		v	
Conducted Band Edge	5B_CA	v	-	-	v	v	-	v	v	v	v	v	v	v		v	v		v
Conducted Spurious Emission	5B_CA	v	-	-	v	v	-	v	v	v				v			v	v	v
E.R.P.	5B_CA	v	-	-	v	v	-	v	v	v	v	v	v	v		v	v	v	v
Radiated Spurious Emission	5B_CA	Worst Case																v	
Note	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 under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 4. All test items are based on engineering evaluation.																		

2.2 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

. For detail, please refer to test mode configuration and setup photographs for each test item.

2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Power Supply	GWINSTEK	PSS-2002	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

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 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.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 4.6 dB.

Example :

Offset(dB) = RF cable loss(dB).

= 4.6 (dB)

2.5 Frequency List of Low/Middle/High Channels

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

LTE Band 12 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
10	Channel	23060	23095	23130
	Frequency	704	707.5	711
5	Channel	23035	23095	23155
	Frequency	701.5	707.5	713.5
3	Channel	23025	23095	23165
	Frequency	700.5	707.5	714.5
1.4	Channel	23017	23095	23173
	Frequency	699.7	707.5	715.3

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

LTE Band 17 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	23780	23790	23800
	Frequency	709	710	711
5	Channel	23755	23790	23825
	Frequency	706.5	710	713.5

LTE Band 26 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
15	Channel	26865	26915	26965
	Frequency	831.5	836.5	841.5
10	Channel	26840	26915	26990
	Frequency	829	836.5	844
5	Channel	26815	26915	27015
	Frequency	826.5	836.5	846.5
3	Channel	26805	26915	27025
	Frequency	825.5	836.5	847.5
1.4	Channel	26797	26915	27033
	Frequency	824.7	836.5	848.3

LTE Band 71 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	133222	133322	133372
	Frequency	673.0	680.5	688.0
15	Channel	133197	133297	133397
	Frequency	670.5	680.5	690.5
10	Channel	133172	133272	133422
	Frequency	668.0	678.0	693.0
5	Channel	133147	133247	133447
	Frequency	665.5	675.5	695.5

LTE Band 5B_CA Channel and Frequency List					
BW [MHz]	Channel/Frequency(MHz)		Lowest	Middle	Highest
3 + 5	PCC	Channel	20416	20501	20586
		Frequency	825.6	834.1	842.6
	SCC	Channel	20455	20540	20625
		Frequency	829.5	838.0	846.5
5 + 3	PCC	Channel	20425	20510	20595
		Frequency	826.5	835.0	843.5
	SCC	Channel	20464	20549	20634
		Frequency	830.4	838.9	847.4
5 + 10	PCC	Channel	20428	20478	20528
		Frequency	826.8	831.8	836.8
	SCC	Channel	20500	20550	20600
		Frequency	834	839	844
10 + 5	PCC	Channel	20450	20500	20550
		Frequency	829	834	839
	SCC	Channel	20522	20572	20622
		Frequency	836.2	841.2	846.2
10 + 10	PCC	Channel	20450	20476	20501
		Frequency	829	831.6	834.1
	SCC	Channel	20549	20575	20600
		Frequency	838.9	841.5	844

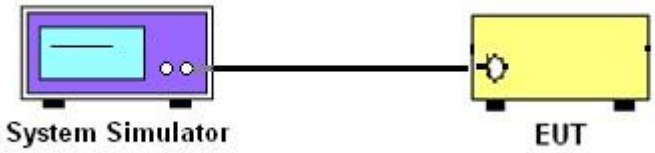
3 Conducted Test Items

3.1 Measuring Instruments

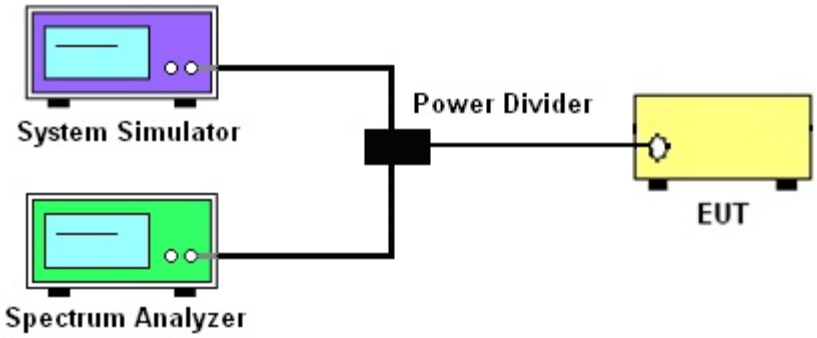
See list of measuring instruments of this test report.

3.2 Test Setup

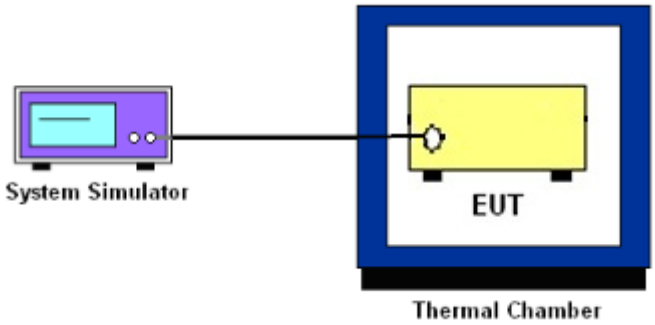
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied Bandwidth ,Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and ERP

3.4.1 Description of the Conducted Output Power Measurement and ERP 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.

The ERP of mobile transmitters must not exceed 7 Watts for LTE Band 5 and Band 26.

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 12, Band 13 and Band 17 and Band 71.

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T – L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

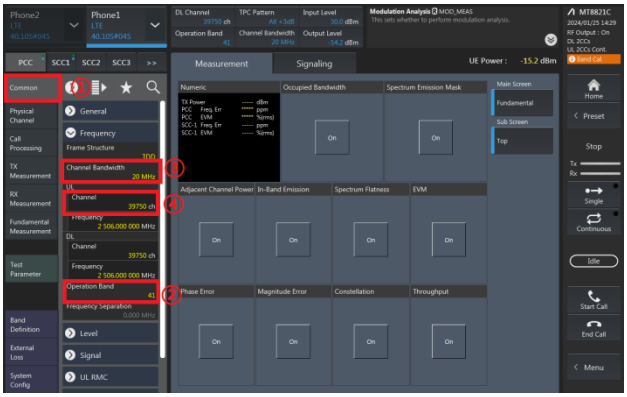
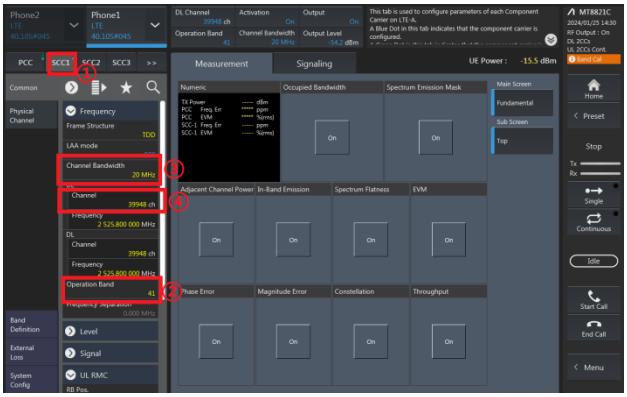
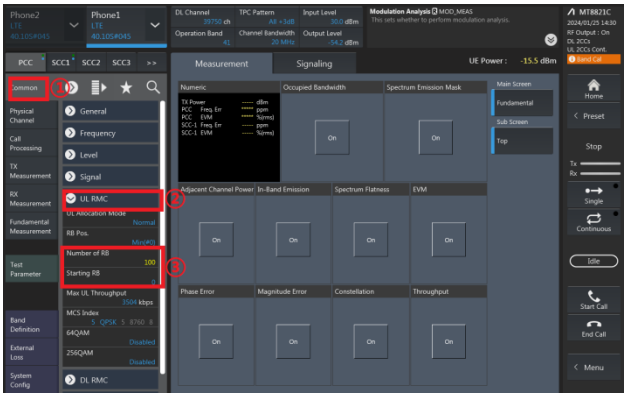
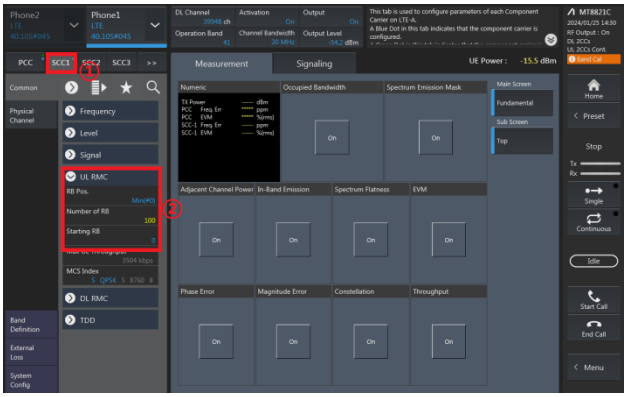
L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

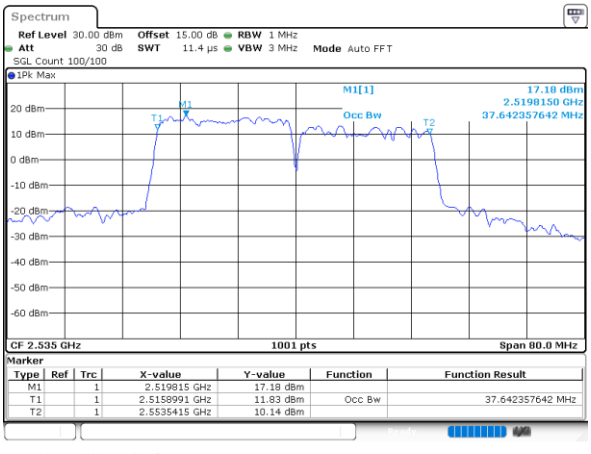
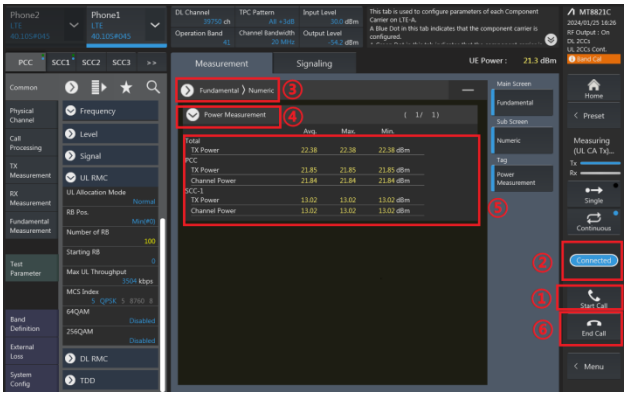
1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.4.3 Test Procedures for LTE ULCA

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter PCC & SCC output ports were connected to the system simulator.
3. Set EUT at maximum power, set the PCC/SCC CA band, channel, bandwidth and RB config.

PCC config_(Channel Bandwidth / Channel / Band)	SCC config_(Channel Bandwidth / Channel / Band)
	
PCC config_(Number of RB / Starting RB)	**SCC config_(Number of RB / Starting RB)**
	

4. Select lowest, middle, and highest channels for each ULCA band and different modulation.
5. Check the ULCA spectrum and record the total power from the system simulator.

Check the ULCA spectrum (eg. 20M+20M)	Read the Total UL CA output power (PCC+SCC)
	

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

3.5.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2.3.4 (CCDF).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

3.6 Occupied Bandwidth

3.6.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.4
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

22.917(a)

For operations in the 824 – 849 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 100kHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

27.53 (c)

For operations in the 776-788 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 100 kHz bandwidth. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed. In addition, the power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least 65 + 10 log10 p(watts), dB, for mobile and portable equipment.

27.53 (g)

For operations in the 600MHz band and 698 -746 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 100 kHz bandwidth. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.
   Example:
   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
9. When using the integration method, the starting frequency of the integration shall be centered at one-half of the RBW away from the band edge.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10^{th} harmonic.

3.8.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.9.2 Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5
2. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
4. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
5. The variation in frequency was measured for the worst case.

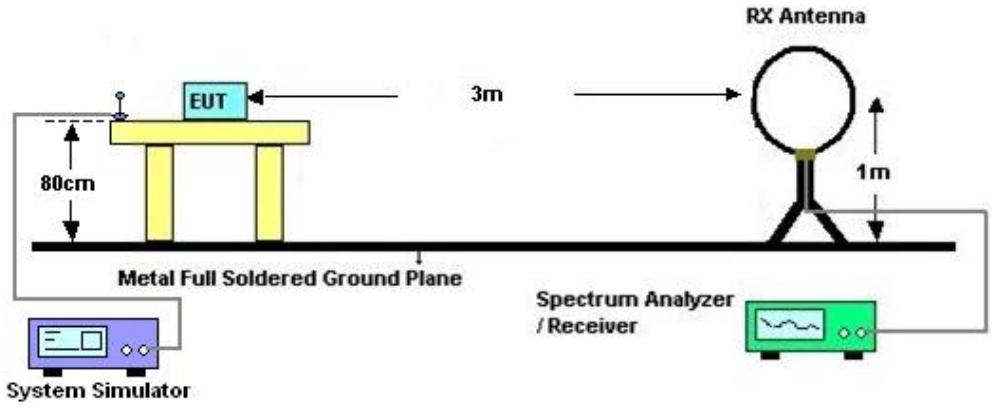
4 Radiated Test Items

4.1 Measuring Instruments

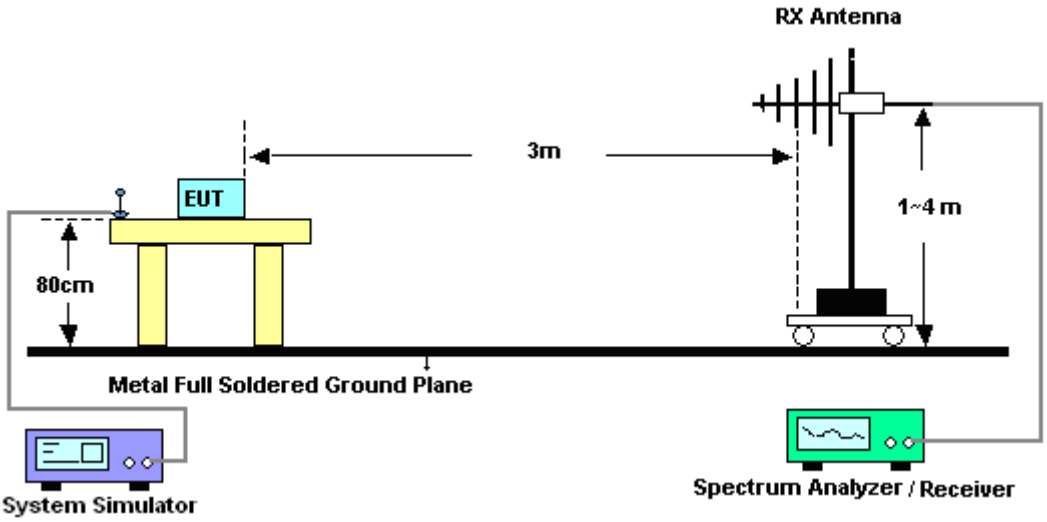
See list of measuring instruments of this test report.

4.2 Test Setup

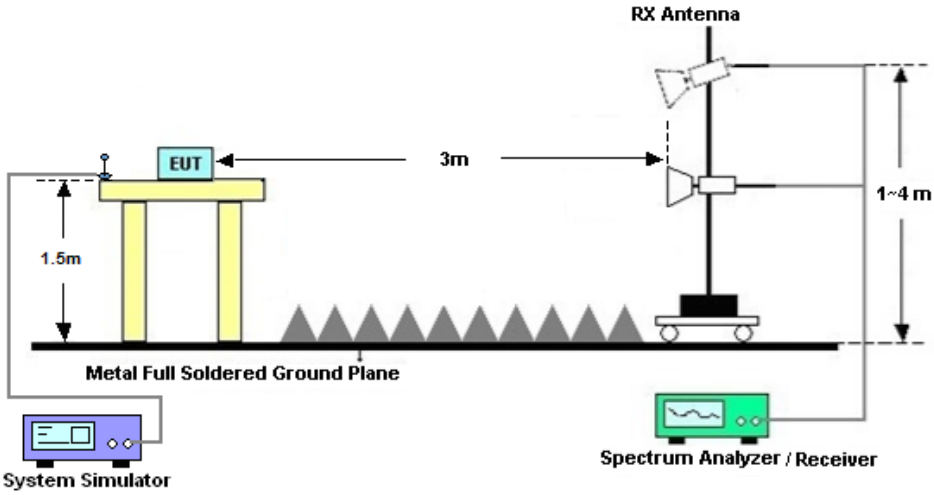
4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

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.

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26. 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.

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

4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. 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.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 10, 2024	Dec. 03, 2024~ Dec. 18, 2024	Oct. 09, 2025	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	NCR	Dec. 03, 2024~ Dec. 18, 2024	NCR	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 04, 2024	Dec. 03, 2024~ Dec. 18, 2024	Jul. 03, 2025	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 11, 2024	Dec. 31, 2024	Oct. 10, 2025	Radiation (03CH03-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44GHz	Apr. 18, 2024	Dec. 31, 2024	Apr. 17, 2025	Radiation (03CH03-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 08, 2024	Dec. 31, 2024	Sep. 07, 2025	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	23182	30MHz-1GHz	Dec. 05, 2024	Dec. 31, 2024	Dec. 04, 2025	Radiation (03CH03-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00251982	1GHz~18GHz	Aug. 16, 2024	Dec. 31, 2024	Aug. 15, 2025	Radiation (03CH03-KS)
SHF-EHF Horn	com-power	AH-840	101093	18GHz~40GHz	Jan. 06, 2024	Dec. 31, 2024	Jan. 05, 2025	Radiation (03CH03-KS)
Amplifier	SONOMA	310N	413740	30MHz ~1000MHz	Jan. 03, 2024	Dec. 31, 2024	Jan. 02, 2025	Radiation (03CH03-KS)
Amplifier	EM	EM18G40GA	060851	18~40GHz	Jan. 03, 2024	Dec. 31, 2024	Jan. 02, 2025	Radiation (03CH03-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2082394	1Ghz-18Ghz	Jan. 03, 2024	Dec. 31, 2024	Jan. 02, 2025	Radiation (03CH03-KS)
Amplifier	Keysight	83017A	MY53270319	1GHz~26.5GHz	Oct. 09, 2024	Dec. 31, 2024	Oct. 08, 2025	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Dec. 31, 2024	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Dec. 31, 2024	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Dec. 31, 2024	NCR	Radiation (03CH03-KS)

NCR: No Calibration Required

6 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Spurious Emission & Bandedge	±2.22 dB
Occupied Channel Bandwidth	±0.1%
Conducted Power	±0.50 dB
Peak to Average Ratio	±0.50 dB
Frequency Stability	±0.04 ppm

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.84 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.84 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.83 dB

---------- THE END ----------

Appendix A. Test Results of Conducted Test

Test Engineer :	Smile Wang	Temperature :	24~26℃
		Relative Humidity :	50~53%

Conducted Output Power(Average power) and ERP

LTE Band 5_ANT1:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel				20450	20525	20600			
Frequency (MHz)				829	836.5	844	L	M	H
10	QPSK	1	0	22.20	22.28	22.18	0.0385	0.0392	0.0383
10	QPSK	1	49	22.09	22.18	22.14	0.0375	0.0383	0.0379
10	QPSK	50	0	21.22	21.23	21.19	0.0307	0.0308	0.0305
10	16QAM	1	0	21.22	21.23	21.22	0.0307	0.0308	0.0307
10	64QAM	1	0	20.26	20.18	20.18	0.0246	0.0242	0.0242
10	256QAM	1	0	17.27	17.30	17.13	0.0124	0.0124	0.0120
Channel				20425	20525	20625	ERP(W)		
Frequency (MHz)				826.5	836.5	846.5	L	M	H
5	QPSK	1	0	22.18	22.26	22.22	0.0383	0.0390	0.0386
5	16QAM	1	0	21.26	21.20	21.17	0.0310	0.0305	0.0303
Channel				20415	20525	20635	ERP(W)		
Frequency (MHz)				825.5	836.5	847.5	L	M	H
3	QPSK	1	0	22.15	22.27	22.21	0.0380	0.0391	0.0385
3	16QAM	1	0	21.29	21.29	21.20	0.0312	0.0312	0.0305
Channel				20407	20525	20643	ERP(W)		
Frequency (MHz)				824.7	836.5	848.3	L	M	H
1.4	QPSK	1	0	22.09	22.14	22.11	0.0375	0.0379	0.0377
1.4	16QAM	1	0	21.18	21.14	21.17	0.0304	0.0301	0.0303

LTE Band 12_ANT1:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel				23060	23095	23130			
Frequency (MHz)				704	707.5	711	L	M	H
10	QPSK	1	0	22.89	22.92	22.85	0.0530	0.0533	0.0525
10	QPSK	1	49	22.86	22.85	22.75	0.0526	0.0525	0.0513
10	QPSK	50	0	21.86	21.88	21.80	0.0418	0.0420	0.0412
10	16QAM	1	0	21.93	21.87	21.80	0.0425	0.0419	0.0412
10	64QAM	1	0	20.92	20.88	20.76	0.0337	0.0333	0.0324
10	256QAM	1	0	17.84	17.94	17.90	0.0166	0.0169	0.0168
Channel				23035	23095	23155	ERP(W)		
Frequency (MHz)				701.5	707.5	713.5	L	M	H
5	QPSK	1	0	22.85	22.85	22.83	0.0525	0.0525	0.0522
5	16QAM	1	0	21.85	21.81	21.72	0.0417	0.0413	0.0405
Channel				23025	23095	23165	ERP(W)		
Frequency (MHz)				700.5	707.5	714.5	L	M	H
3	QPSK	1	0	22.79	22.85	22.78	0.0518	0.0525	0.0516
3	16QAM	1	0	21.91	21.80	21.77	0.0423	0.0412	0.0409
Channel				23017	23095	23173	ERP(W)		
Frequency (MHz)				699.7	707.5	715.3	L	M	H
1.4	QPSK	1	0	22.80	22.87	22.82	0.0519	0.0527	0.0521
1.4	16QAM	1	0	21.90	21.81	21.74	0.0422	0.0413	0.0406

LTE Band 13_ANT1:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel					23230				
Frequency (MHz)					782			M	
10	QPSK	1	0		22.28			0.0392	
10	QPSK	1	49		22.22			0.0386	
10	QPSK	50	0		21.29			0.0312	
10	16QAM	1	0		21.26			0.0310	
10	64QAM	1	0		20.32			0.0249	
10	256QAM	1	0		17.37			0.0126	
Channel				23205	23230	23255	ERP(W)		
Frequency (MHz)				779.5	782	784.5	L	M	H
5	QPSK	1	0	22.23	22.25	22.20	0.0387	0.0389	0.0385
5	16QAM	1	0	21.19	21.22	21.16	0.0305	0.0307	0.0303

LTE Band 17_ANT1:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel				23780	23790	23800			
Frequency (MHz)				709	710	711	L	M	H
10	QPSK	1	0	22.59	22.61	22.55	0.0494	0.0497	0.0490
10	QPSK	1	49	22.54	22.58	22.52	0.0489	0.0493	0.0486
10	QPSK	50	0	21.56	21.63	21.56	0.0390	0.0396	0.0390
10	16QAM	1	0	21.54	21.63	21.52	0.0388	0.0396	0.0386
10	64QAM	1	0	20.56	20.64	20.58	0.0310	0.0316	0.0311
10	256QAM	1	0	17.56	17.68	17.56	0.0155	0.0160	0.0155
Channel				23755	23790	23825	ERP(W)		
Frequency (MHz)				706.5	710	713.5	L	M	H
5	QPSK	1	0	22.49	22.56	22.41	0.0483	0.0491	0.0474
5	16QAM	1	0	21.48	21.61	21.49	0.0383	0.0394	0.0384

LTE Band 26_ANT1:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)			
Channel				26790	26865	26915	26965				
Frequency (MHz)				824	831.5	836.5	841.5	Straddle Ch	L	M	H
15	QPSK	1	0	22.33	22.46	22.39	22.38	0.0396	0.0408	0.0402	0.0401
15	QPSK	1	74	22.19	22.41	22.38	22.29	0.0384	0.0404	0.0401	0.0393
15	QPSK	75	0	21.34	21.46	21.44	21.38	0.0316	0.0324	0.0323	0.0318
15	16QAM	1	0	21.30	21.43	21.35	21.36	0.0313	0.0322	0.0316	0.0317
15	64QAM	1	0	20.29	20.46	20.37	20.33	0.0248	0.0258	0.0252	0.0250
15	256QAM	1	0	17.37	17.50	17.42	17.36	0.0126	0.0130	0.0128	0.0126
Channel				26790	26840	26915	26990	ERP(W)			
Frequency (MHz)				824	829	836.5	844	Straddle Ch	L	M	H
10	QPSK	1	0	22.25	22.24	22.21	22.29	0.0389	0.0388	0.0385	0.0393
10	16QAM	1	0	21.19	21.22	21.29	21.24	0.0305	0.0307	0.0312	0.0308
Channel				26790	26815	26915	27015	ERP(W)			
Frequency (MHz)				824	826.5	836.5	846.5	Straddle Ch	L	M	H
5	QPSK	1	0	22.25	22.26	22.24	22.29	0.0389	0.0390	0.0388	0.0393
5	16QAM	1	0	21.26	21.24	21.23	21.28	0.0310	0.0308	0.0308	0.0311
Channel				26790	26815	26915	27025	ERP(W)			
Frequency (MHz)				824	825.5	836.5	847.5	Straddle Ch	L	M	H
3	QPSK	1	0	22.31	22.30	22.32	22.34	0.0394	0.0394	0.0395	0.0397
3	16QAM	1	0	21.29	21.25	21.32	21.30	0.0312	0.0309	0.0314	0.0313
Channel				26790	26797	26915	27033	ERP(W)			
Frequency (MHz)				824	824.7	836.5	848.3	Straddle Ch	L	M	H
1.4	QPSK	1	0	22.30	22.27	22.26	22.28	0.0394	0.0391	0.0390	0.0392
1.4	16QAM	1	0	21.35	21.36	21.28	21.32	0.0316	0.0317	0.0311	0.0314

LTE Band 71_ANT0:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel				133222	133322	133372			
Frequency (MHz)				673	683	688	L	M	H
20	QPSK	1	0	22.61	22.65	22.59	0.0413	0.0417	0.0411
20	QPSK	1	99	22.55	22.59	22.53	0.0407	0.0411	0.0406
20	QPSK	100	0	21.59	21.63	21.56	0.0327	0.0330	0.0324
20	16QAM	1	0	21.58	21.60	21.63	0.0326	0.0327	0.0330
20	64QAM	1	0	20.59	20.62	20.67	0.0259	0.0261	0.0264
20	256QAM	1	0	17.60	17.67	17.52	0.0130	0.0132	0.0128
Channel				133197	133297	133397	EIRP(W)		
Frequency (MHz)				670.5	680.5	690.5	L	M	H
15	QPSK	1	0	22.57	22.62	22.51	0.0409	0.0414	0.0404
15	16QAM	1	0	21.47	21.56	21.52	0.0318	0.0324	0.0321
Channel				133172	133272	133422	EIRP(W)		
Frequency (MHz)				668	678	693	L	M	H
10	QPSK	1	0	22.59	22.55	22.54	0.0411	0.0407	0.0406
10	16QAM	1	0	21.51	21.56	21.60	0.0321	0.0324	0.0327
Channel				133147	133247	133447	EIRP(W)		
Frequency (MHz)				665.5	675.5	695.5	L	M	H
5	QPSK	1	0	22.47	22.62	22.54	0.0400	0.0414	0.0406
5	16QAM	1	0	21.55	21.53	21.54	0.0324	0.0322	0.0323

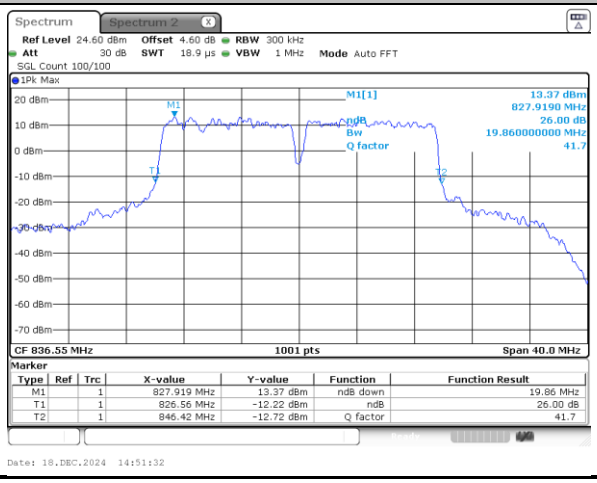
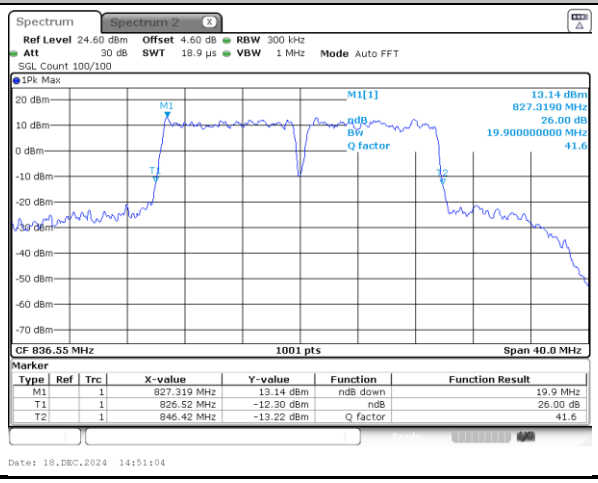
LTE CA_5B_ANT1:

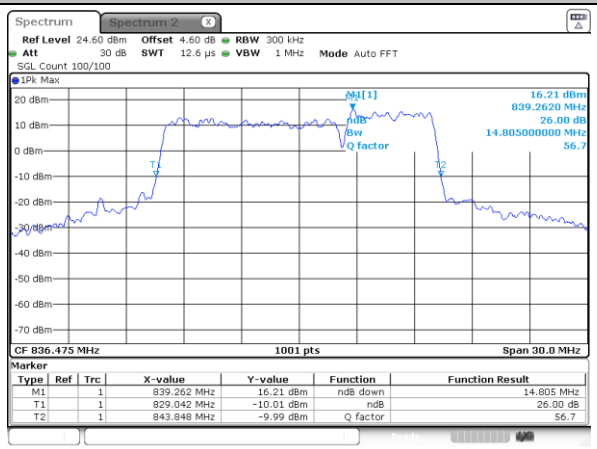
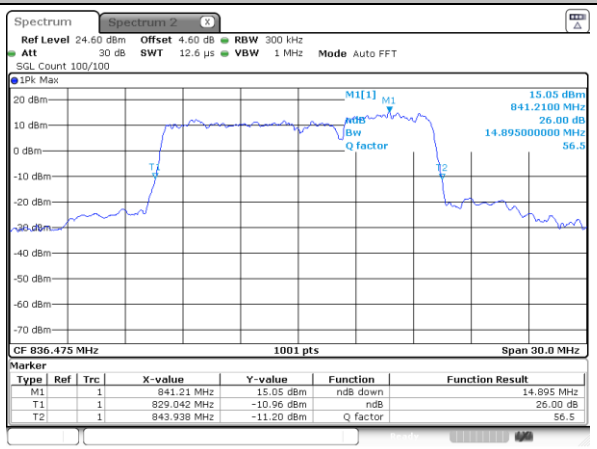
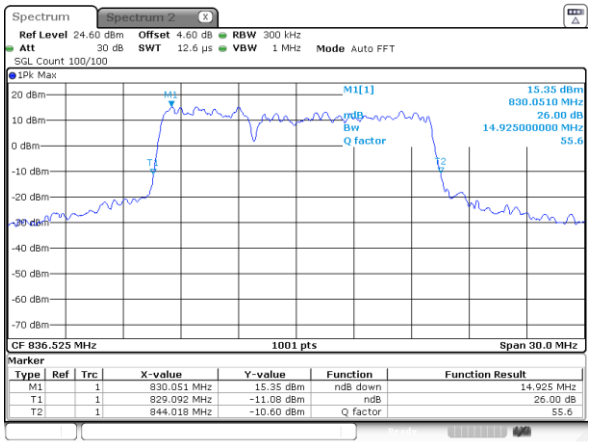
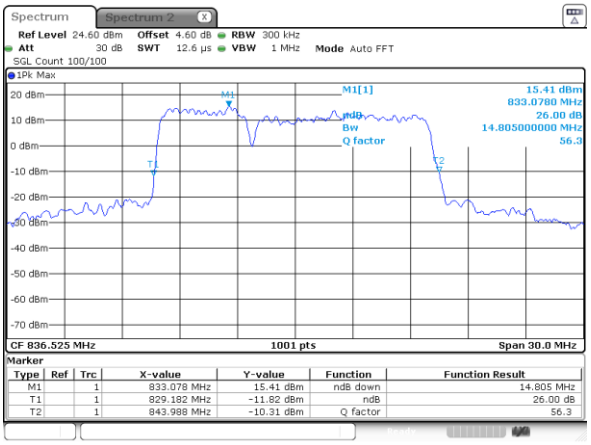
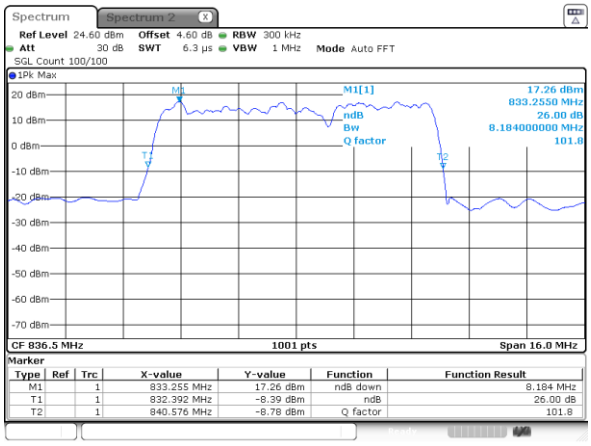
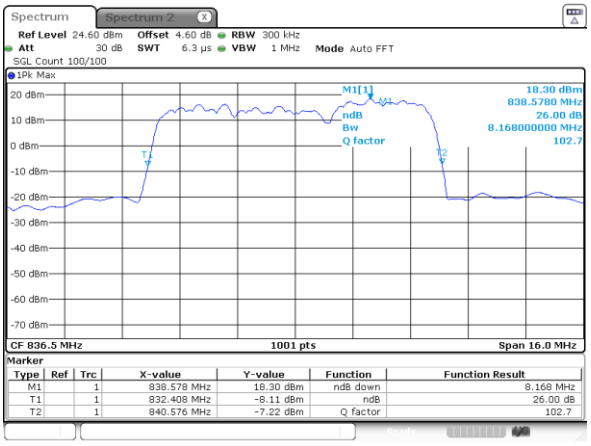
Combination 10MHz+10MHz (50RB+50RB)								
Channel	Modulation	PCC		SCC		Measured Power	ERP(W)	-
		RB Size	RB offset	RB Size	RB offset			
L	QPSK	1	Max	1	0	22.70	0.0432	-
M	QPSK	1	Max	1	0	22.62	0.0424	-
H	QPSK	1	Max	1	0	22.56	0.0418	-
L	16QAM	1	Max	1	0	21.72	0.0344	-
M	16QAM	1	Max	1	0	21.59	0.0334	-
H	16QAM	1	Max	1	0	21.52	0.0329	-
L	64QAM	1	Max	1	0	20.77	0.0277	-
M	64QAM	1	Max	1	0	20.53	0.0262	-
H	64QAM	1	Max	1	0	20.58	0.0265	-
L	256QAM	1	Max	1	0	17.72	0.0137	-
M	256QAM	1	Max	1	0	17.54	0.0132	-
H	256QAM	1	Max	1	0	17.51	0.0131	-
Combination 10MHz+5MHz (50RB+25RB)								
Channel	Modulation	PCC		SCC		Measured Power	ERP(W)	-
		RB Size	RB offset	RB Size	RB offset			
L	QPSK	1	Max	1	0	22.52	0.0414	-
L	16QAM	1	Max	1	0	21.46	0.0324	-
Combination 5MHz+10MHz (25RB+50RB)								
Channel	Modulation	PCC		SCC		Measured Power	ERP(W)	-
		RB Size	RB offset	RB Size	RB offset			
L	QPSK	1	Max	1	0	22.51	0.0413	-
L	16QAM	1	Max	1	0	21.47	0.0325	-
Combination 5MHz+3MHz (25RB+15RB)								
Channel	Modulation	PCC		SCC		Measured Power	ERP(W)	-
		RB Size	RB offset	RB Size	RB offset			
L	QPSK	1	Max	1	0	22.57	0.0419	-
L	16QAM	1	Max	1	0	21.46	0.0324	-
Combination 3MHz+5MHz (15RB+25RB)								
Channel	Modulation	PCC		SCC		Measured Power	ERP(W)	-
		RB Size	RB offset	RB Size	RB offset			
L	QPSK	1	Max	1	0	22.57	0.0419	-
L	16QAM	1	Max	1	0	21.45	0.0324	-

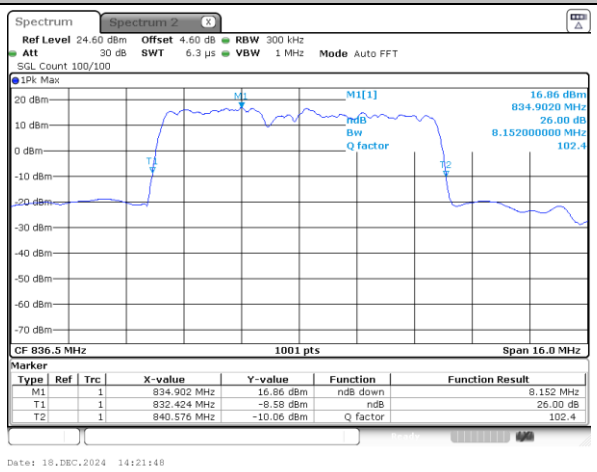
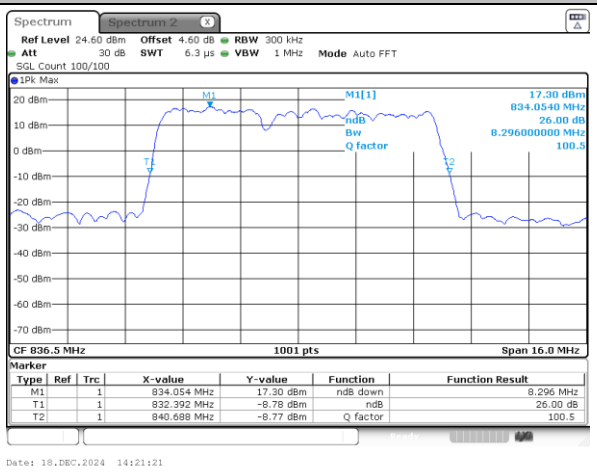
LTE Band 5B

26dB Bandwidth

Mode	LTE Band 5B : 26dB BW(MHz)	
Mod.	QPSK	16QAM
BW	10MHz+10MHz	
Middle CH	19.86	19.90
Mod.	QPSK	16QAM
BW	10MHz+5MHz	
Middle CH	14.81	14.90
Mod.	QPSK	16QAM
BW	5MHz+10MHz	
Middle CH	14.93	14.81
Mod.	QPSK	16QAM
BW	5MHz+3MHz	
Middle CH	8.18	8.17
Mod.	QPSK	16QAM
BW	3MHz+5MHz	
Middle CH	8.15	8.30

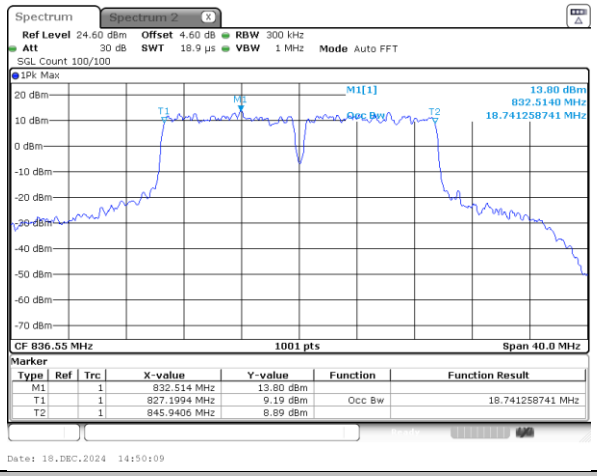
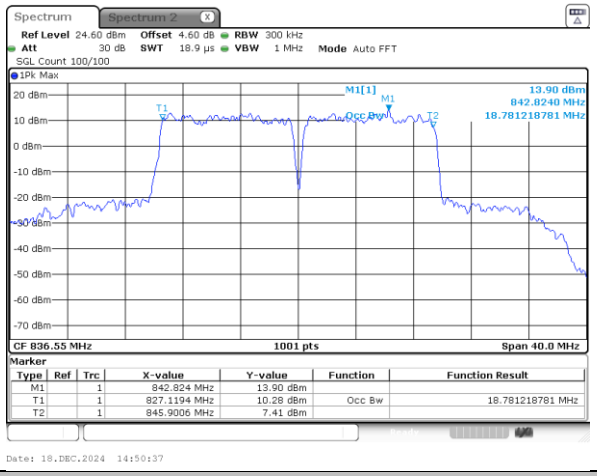
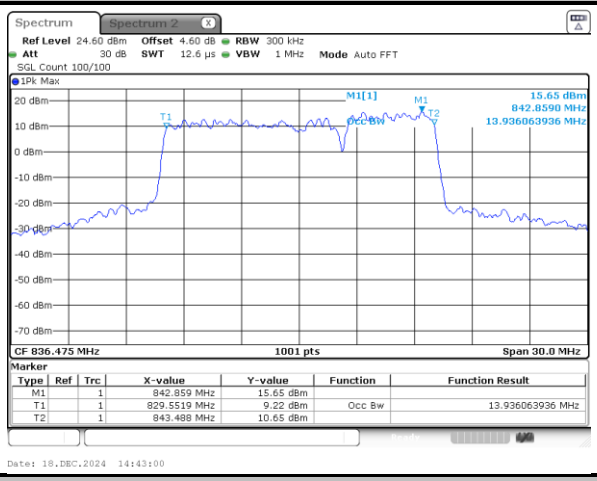
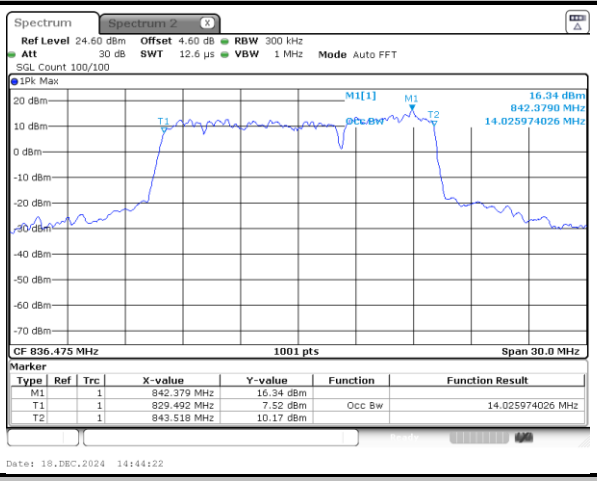
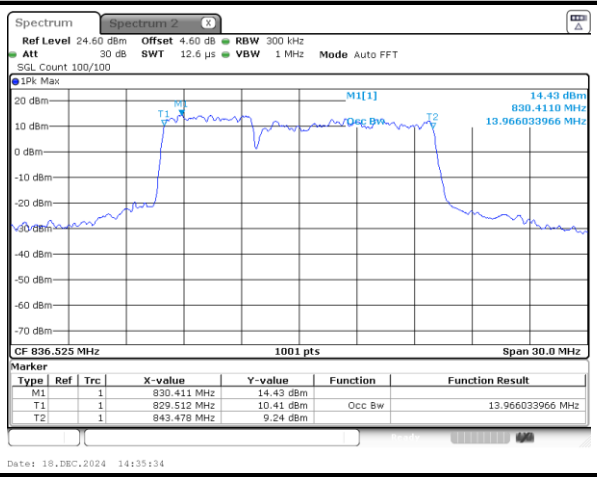
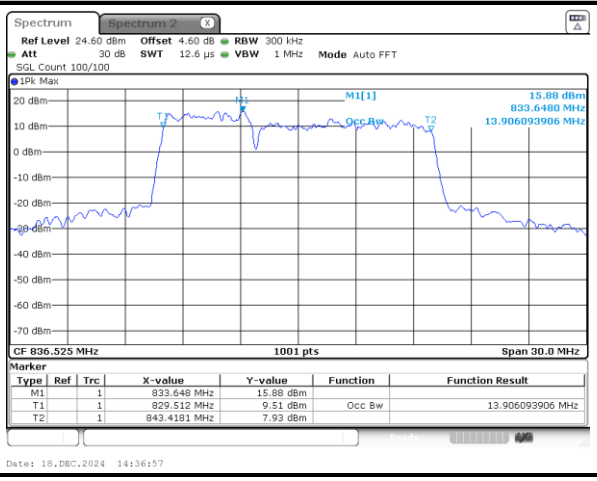
LTE Band 5B	
QPSK	16QAM
Middle Channel / 10MHz+10MHz / QPSK	Middle Channel / 10MHz+10MHz /16QAM
	

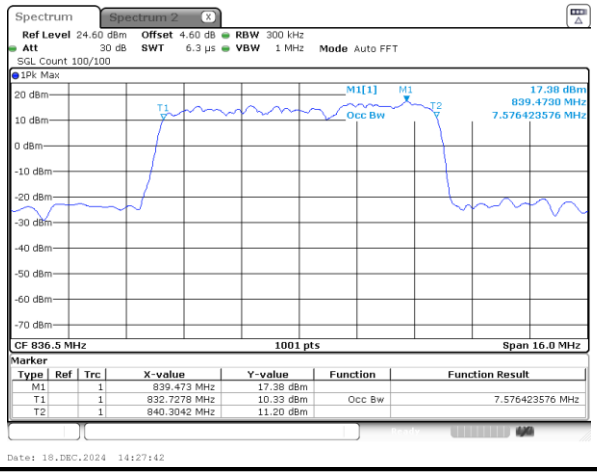
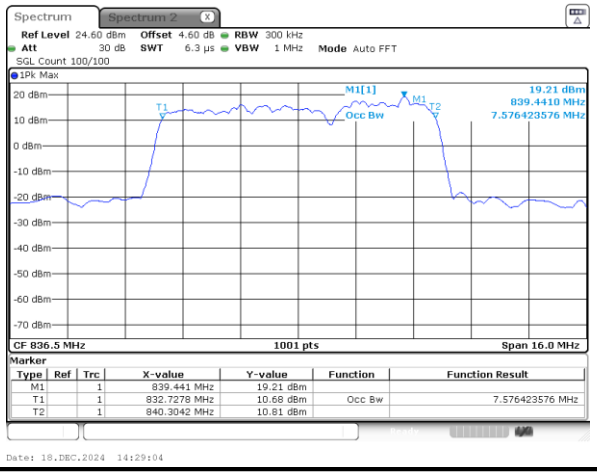
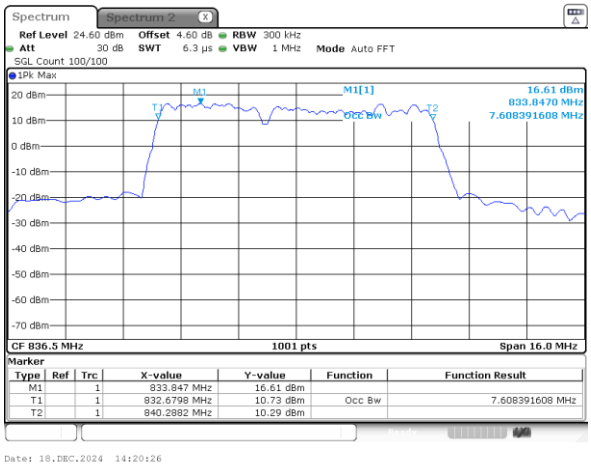
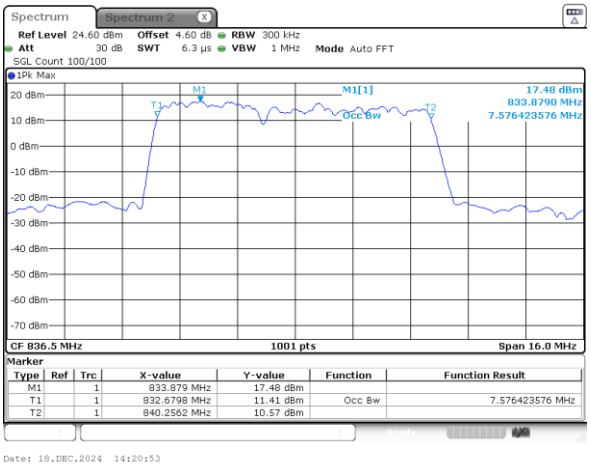
Middle Channel / 10MHz+5MHz / QPSK	Middle Channel / 10MHz+5MHz /16QAM
	
Middle Channel / 5MHz+10MHz / QPSK	Middle Channel / 5MHz+10MHz /16QAM
	
Middle Channel /5MHz+3MHz / QPSK	Middle Channel / 5MHz+3MHz /16QAM
	

Middle Channel / 3MHz+5MHz / QPSK	Middle Channel / 3MHz+5MHz /16QAM
	

Occupied Bandwidth

Mode	LTE Band 5B : 99%OBW(MHz)	
Mod.	QPSK	16QAM
BW	10MHz+10MHz	
Middle CH	18.74	18.78
Mod.	QPSK	16QAM
BW	10MHz+5MHz	
Middle CH	13.94	14.03
Mod.	QPSK	16QAM
BW	5MHz+10MHz	
Middle CH	13.97	13.91
Mod.	QPSK	16QAM
BW	5MHz+3MHz	
Middle CH	7.58	7.58
Mod.	QPSK	16QAM
BW	3MHz+5MHz	
Middle CH	7.61	7.58

LTE Band 5B	
Middle Channel / 10MHz+10MHz / QPSK	**Middle Channel / 10MHz+10MHz / 16QAM**
	
Middle Channel / 10MHz+5MHz / QPSK	**Middle Channel / 10MHz+5MHz / 16QAM**
	
Middle Channel / 5MHz+10MHz / QPSK	**Middle Channel / 5MHz+10MHz / 16QAM**
	

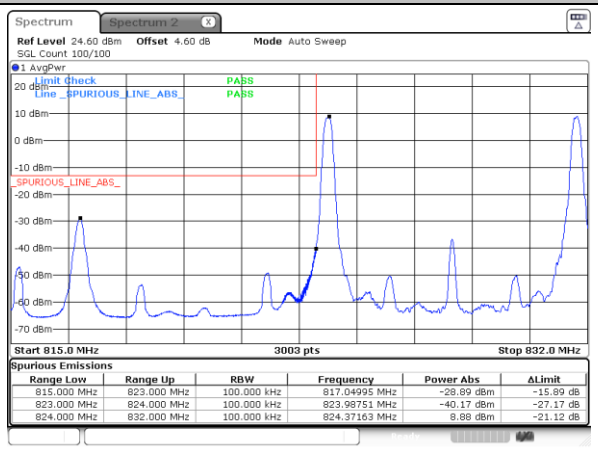
Middle Channel / 5MHz+3MHz / QPSK	Middle Channel / 5MHz+3MHz / 16QAM
	
Middle Channel / 3MHz+5MHz / QPSK	**Middle Channel / 3MHz+5MHz / 16QAM**
	

Conducted Band Edge

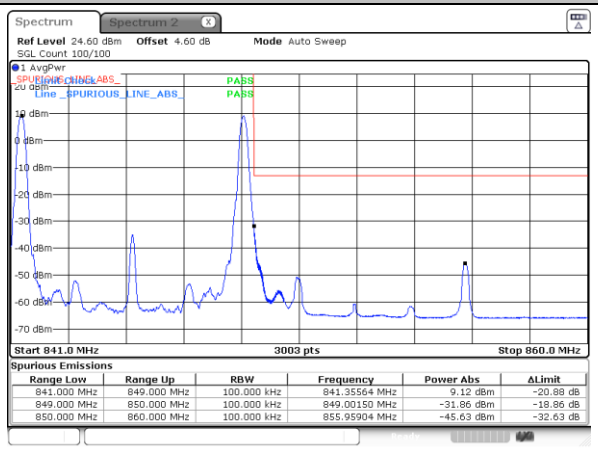
LTE Band 5B / 3MHz+5MHz

QPSK

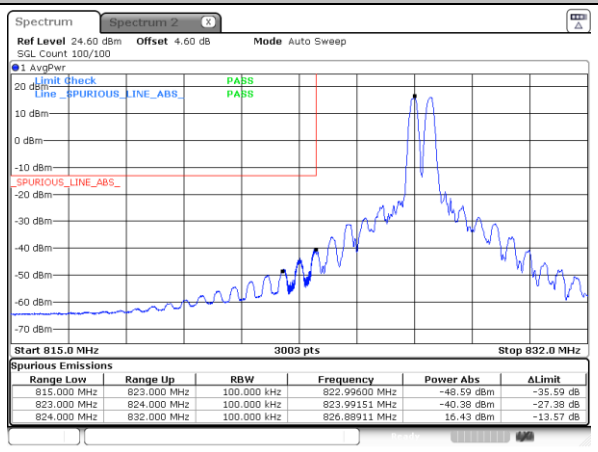
Lowest Band Edge / 1RB0 and 1RB24



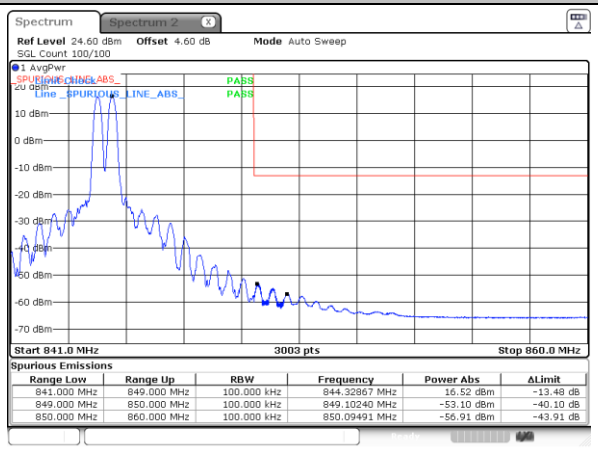
Highest Band Edge / 1RB0 and 1RB24

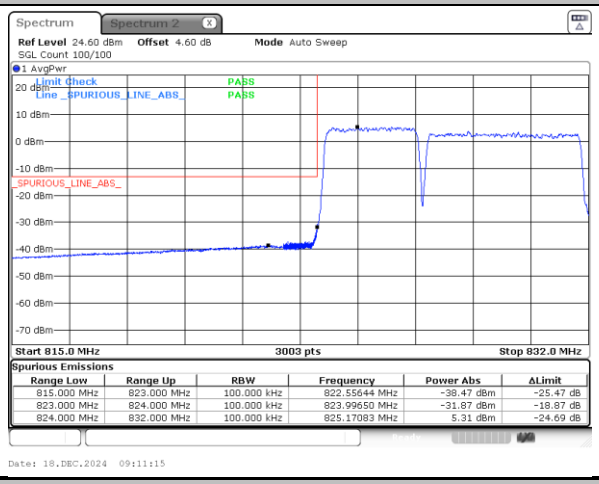
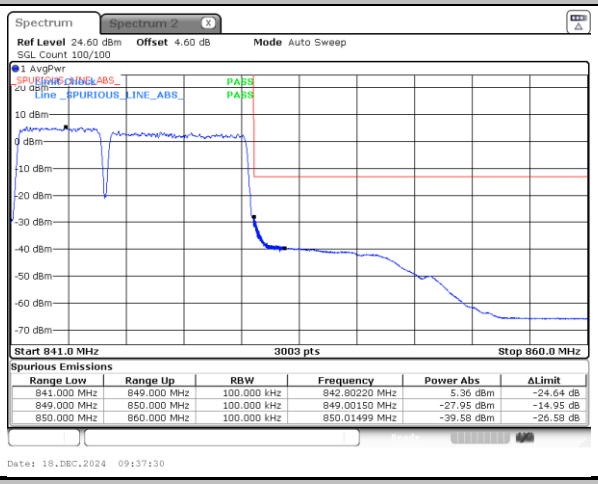


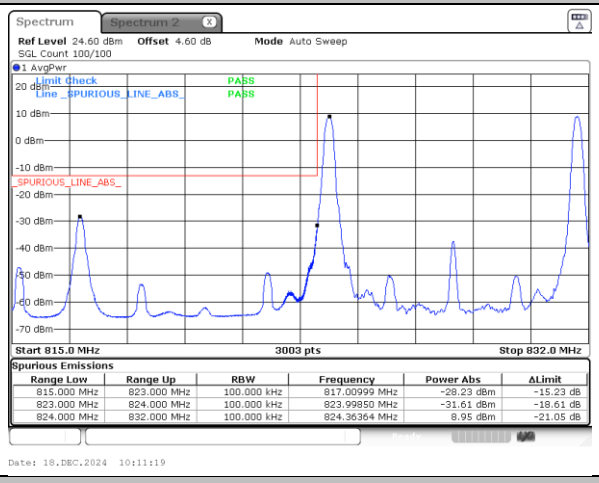
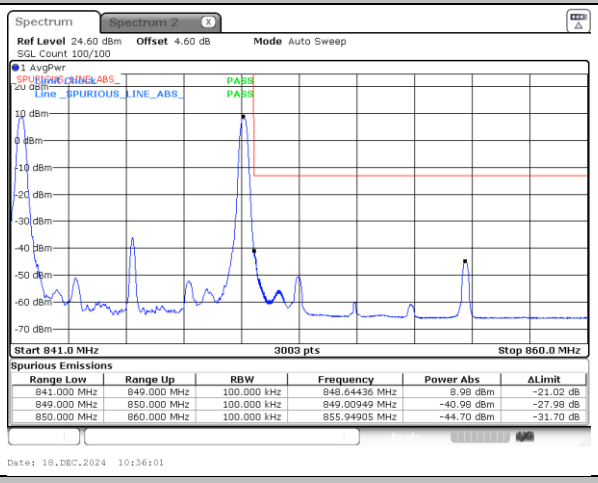
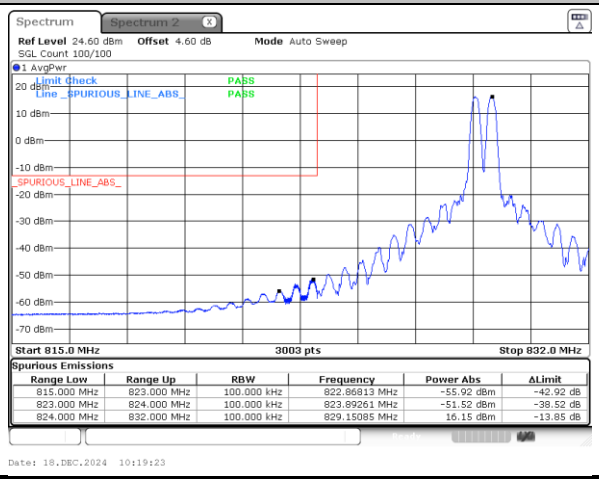
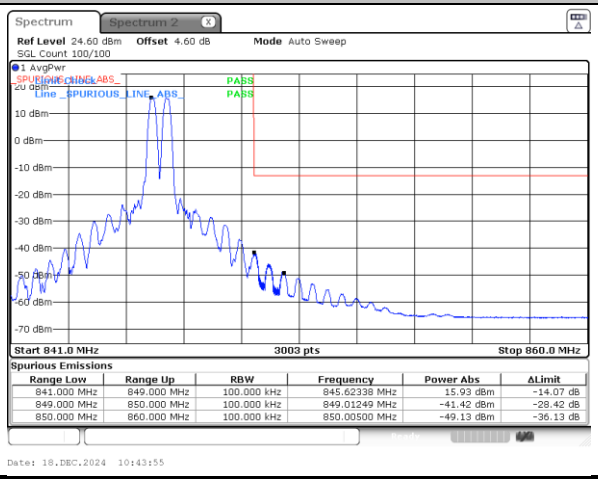
Lowest Band Edge / 1RB14 and 1RB0

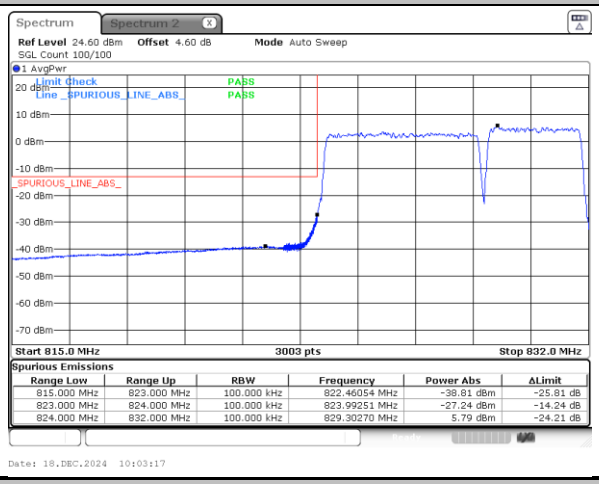
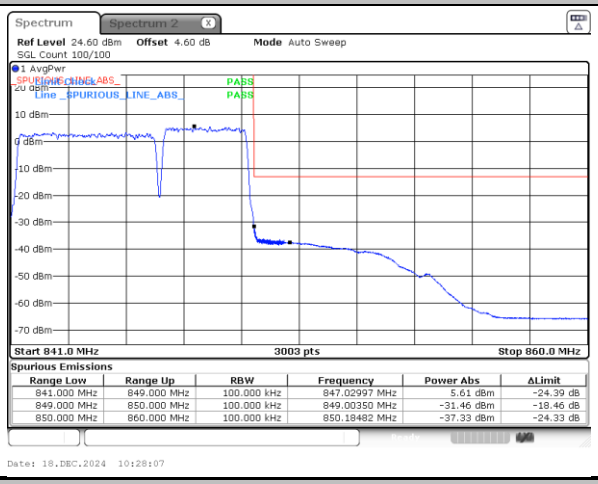


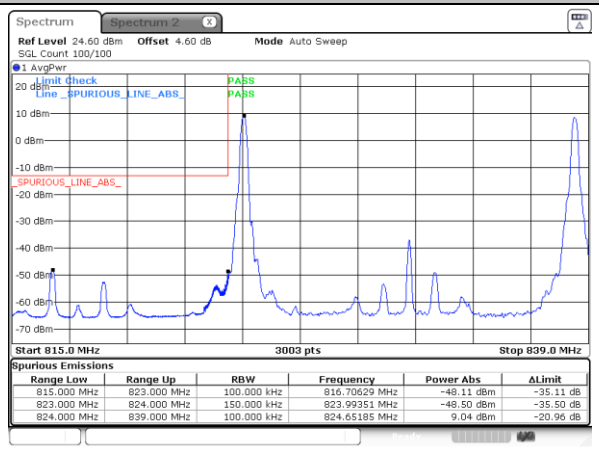
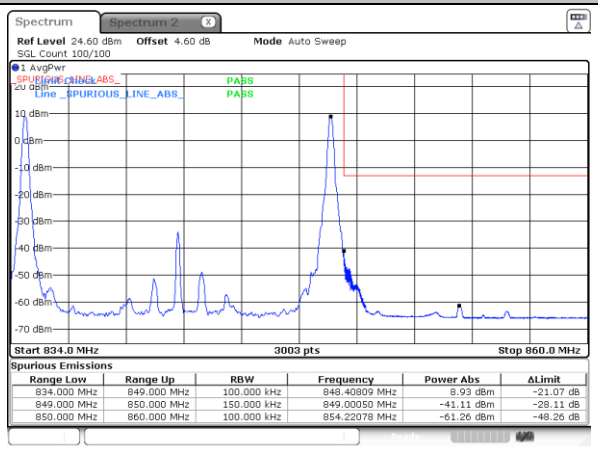
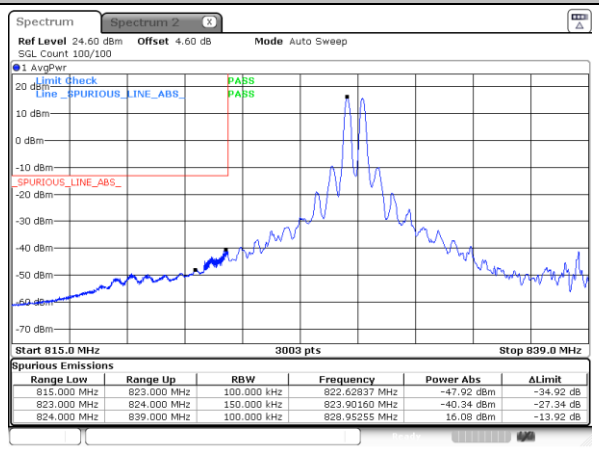
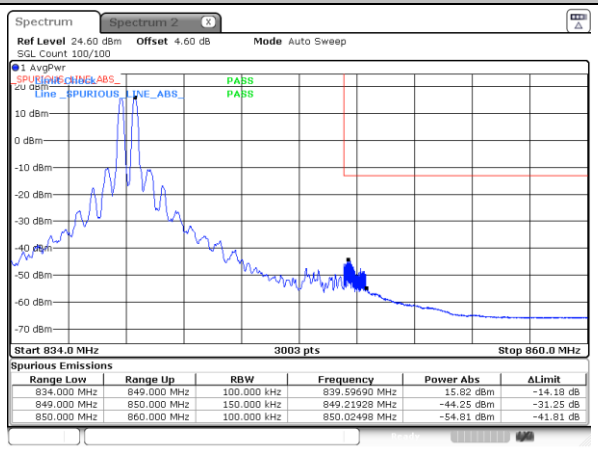
Highest Band Edge / 1RB14 and 1RB0

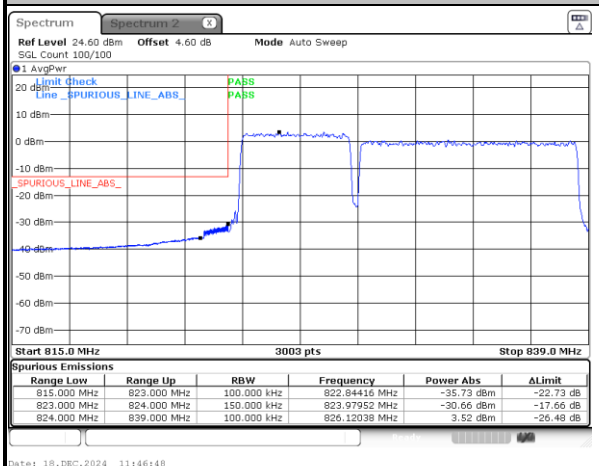
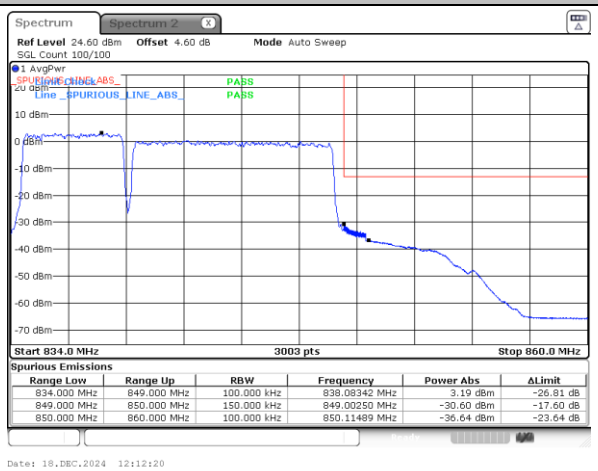


Lowest Band Edge / Full RB	Highest Band Edge / Full RB
	

LTE Band 5B / 5MHz+3MHz	
QPSK	
Lowest Band Edge / 1RB0 and 1RB14	Highest Band Edge / 1RB0 and 1RB14
	
Lowest Band Edge / 1RB24 and 1RB0	Highest Band Edge / 1RB24 and 1RB0
	

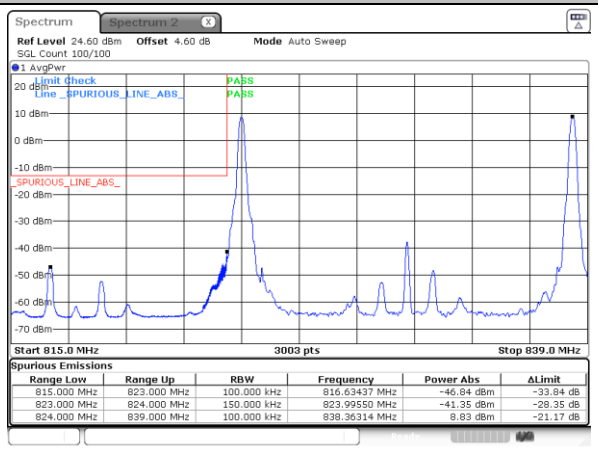
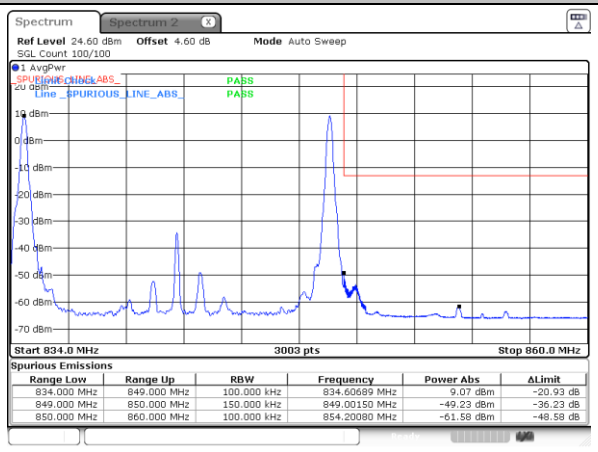
Lowest Band Edge / Full RB	Highest Band Edge / Full RB
	

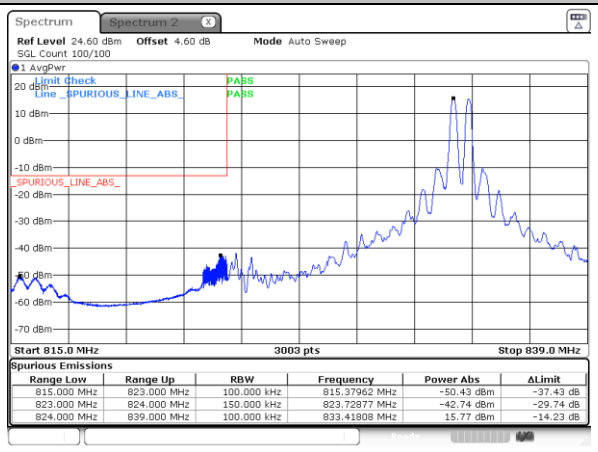
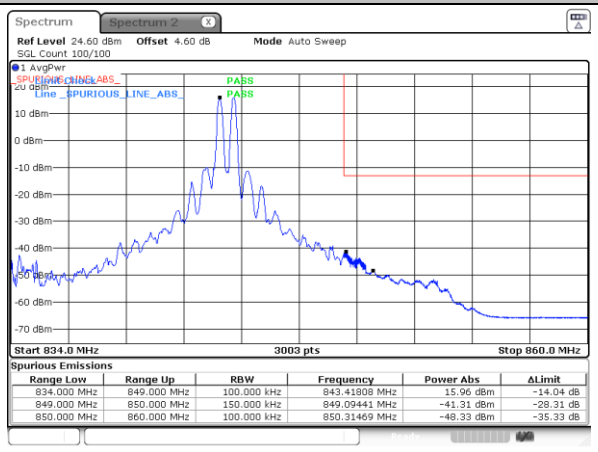
LTE Band 5B / 5MHz+10MHz	
QPSK	
Lowest Band Edge / 1RB0 and 1RB49	Highest Band Edge / 1RB0 and 1RB49
	
Lowest Band Edge / 1RB24 and 1RB0	Highest Band Edge / 1RB24 and 1RB0
	

Lowest Band Edge / Full RB	Highest Band Edge / Full RB
	

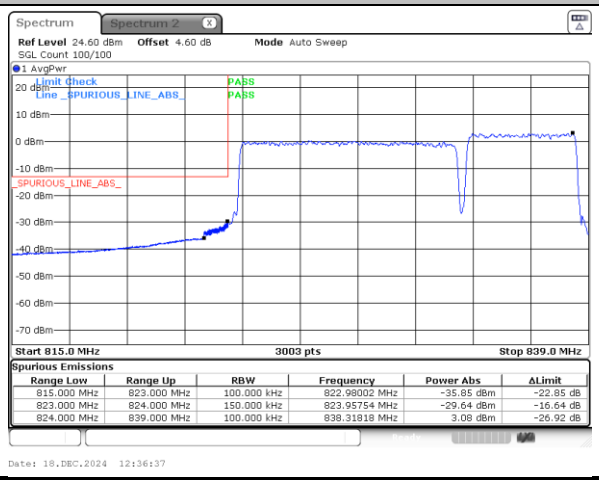
LTE Band 5B / 10MHz+5MHz

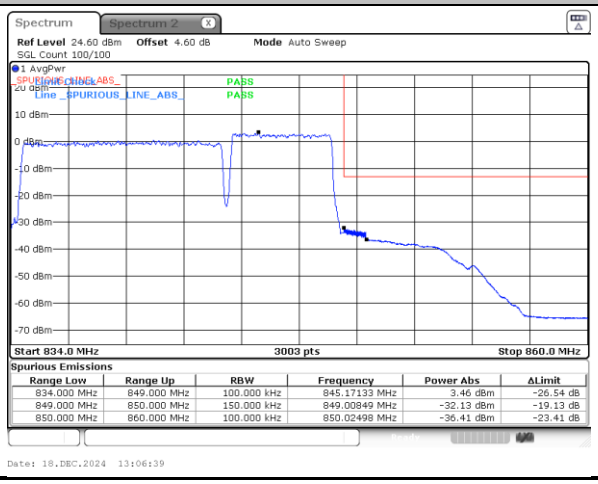
QPSK

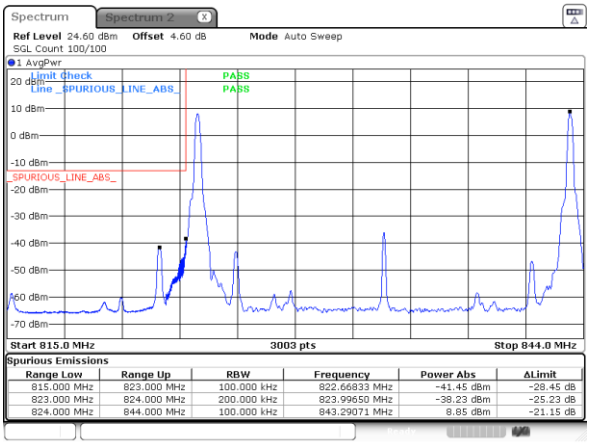
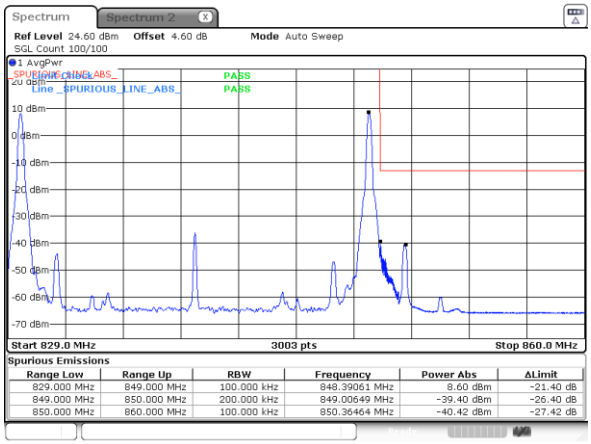
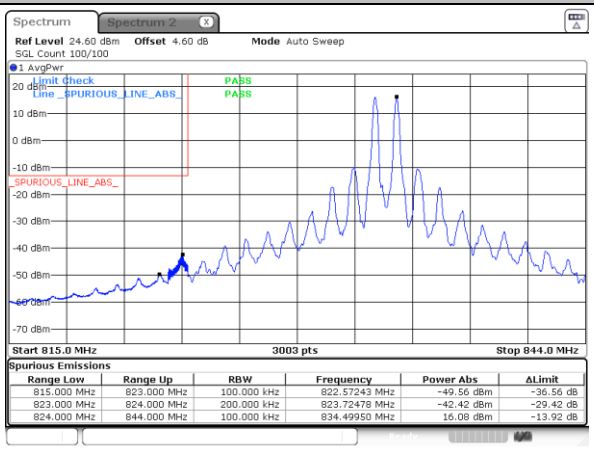
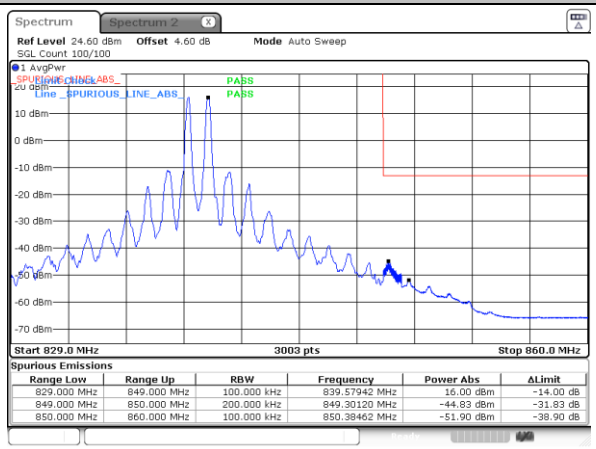
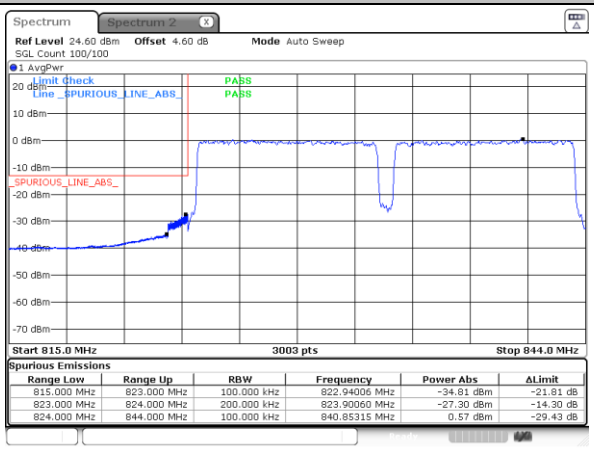
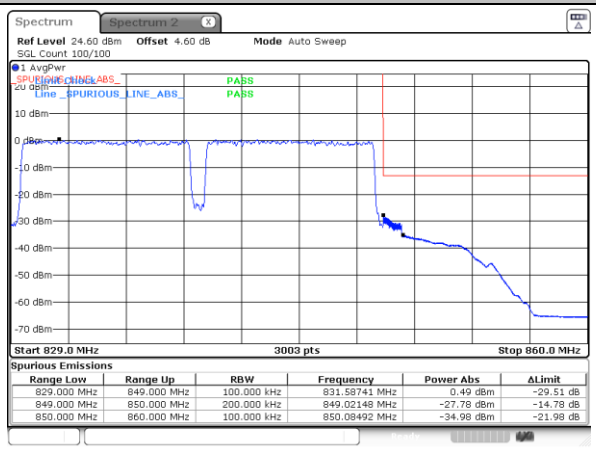
Lowest Band Edge / 1RB0 and 1RB24	Highest Band Edge / 1RB0 and 1RB24
	

Lowest Band Edge / 1RB49 and 1RB0	Highest Band Edge / 1RB49 and 1RB0
	

Lowest Band Edge / Full RB	Highest Band Edge / Full RB



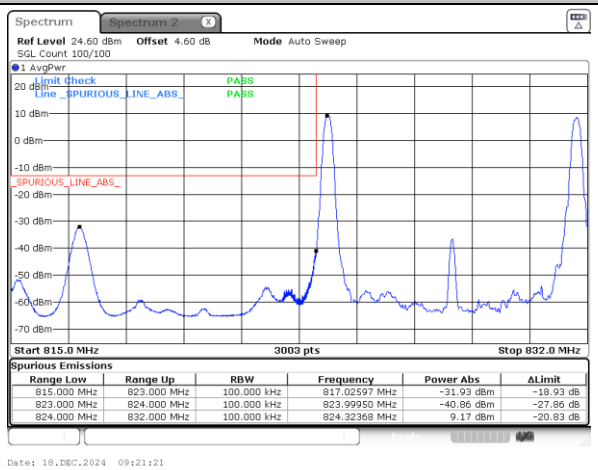


LTE Band 5B / 10MHz+10MHz	
QPSK	
Lowest Band Edge / 1RB0 and 1RB49	Highest Band Edge / 1RB0 and 1RB49
	
Lowest Band Edge / 1RB49 and 1RB0	Highest Band Edge / 1RB49 and 1RB0
	
Lowest Band Edge / Full RB	Highest Band Edge / Full RB
	

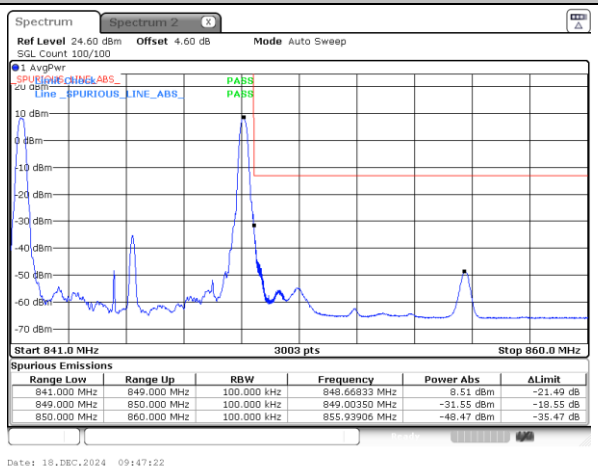
LTE Band 5B / 3MHz+5MHz

16QAM

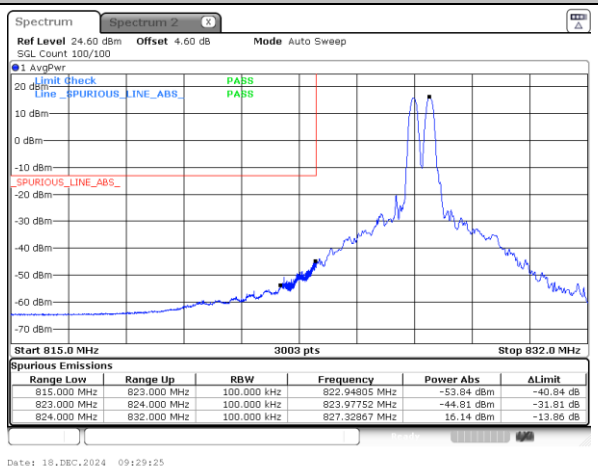
Lowest Band Edge / 1RB0 and 1RB24



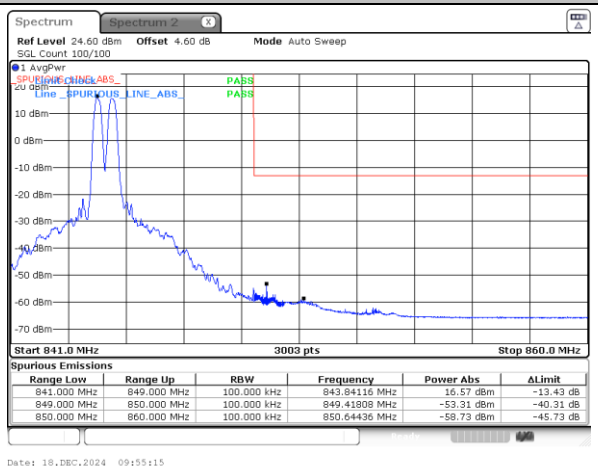
Highest Band Edge / 1RB0 and 1RB24



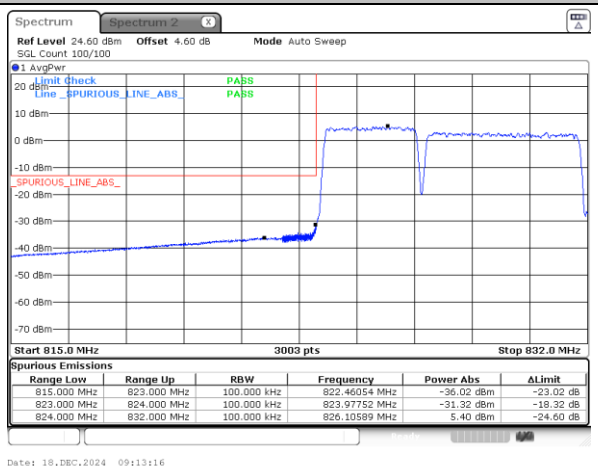
Lowest Band Edge / 1RB14 and 1RB0



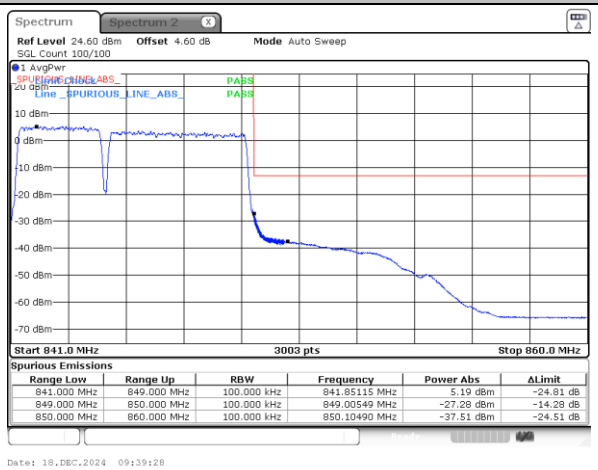
Highest Band Edge / 1RB14 and 1RB0



Lowest Band Edge / Full RB



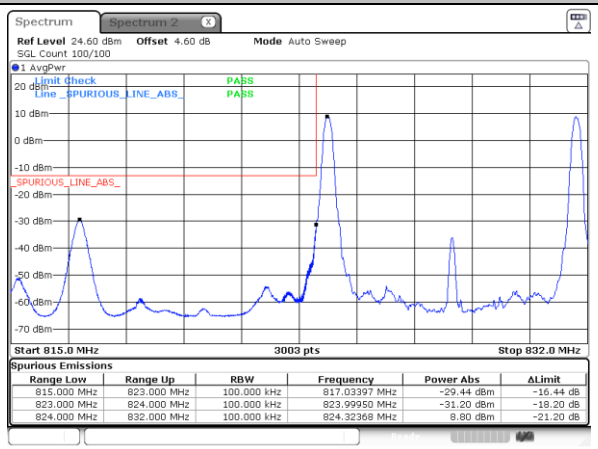
Highest Band Edge / Full RB



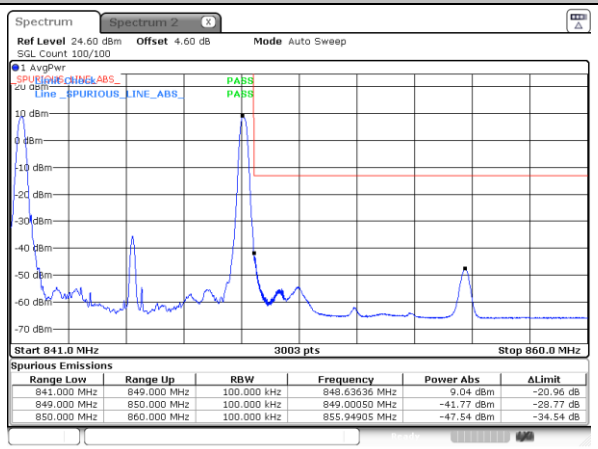
LTE Band 5B / 5MHz+3MHz

16QAM

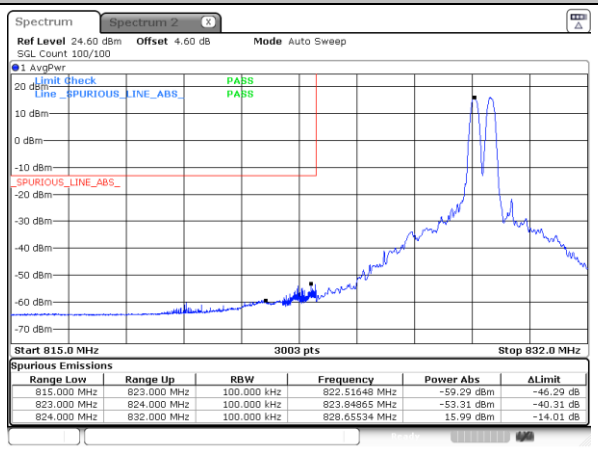
Lowest Band Edge / 1RB0 and 1RB14



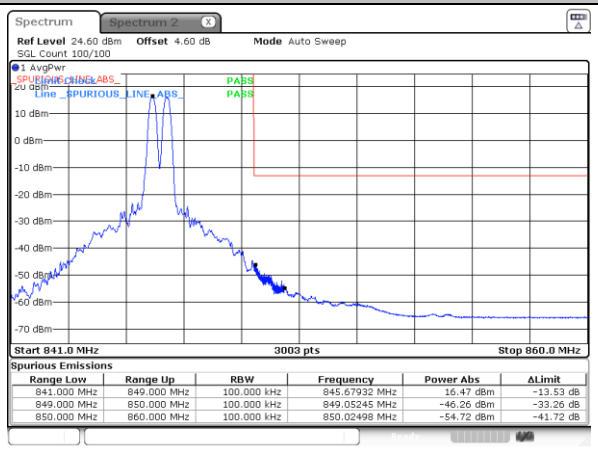
Highest Band Edge / 1RB0 and 1RB14



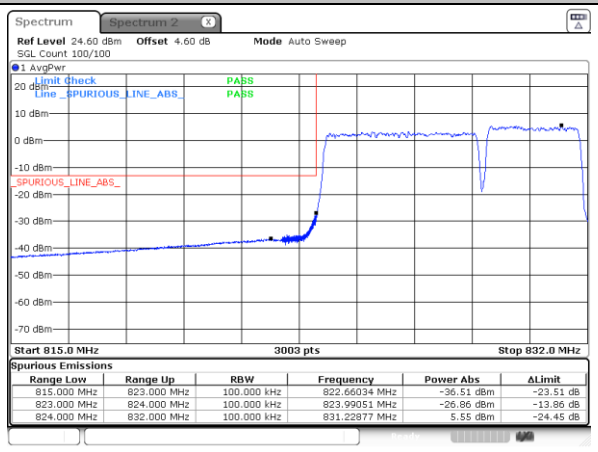
Lowest Band Edge / 1RB24 and 1RB0



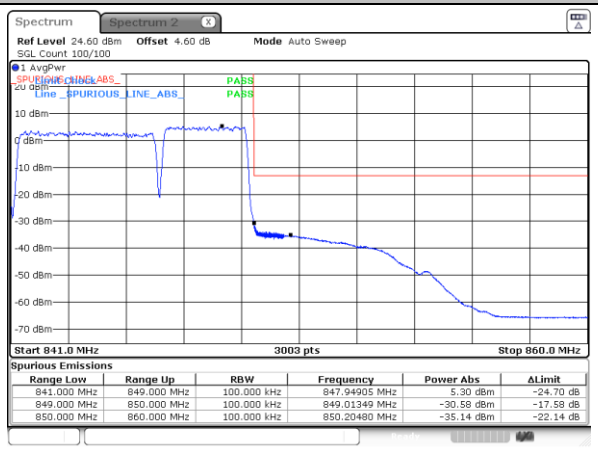
Highest Band Edge / 1RB24 and 1RB0

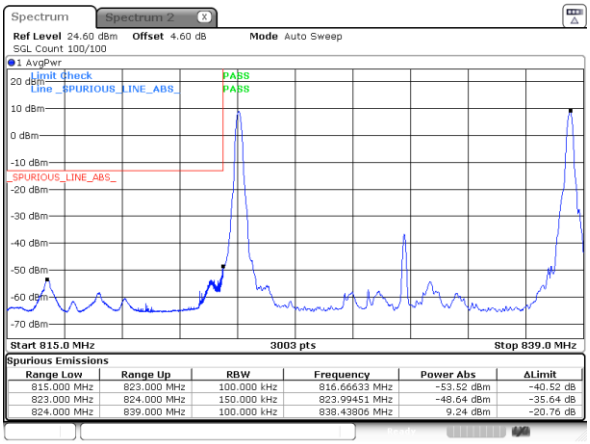
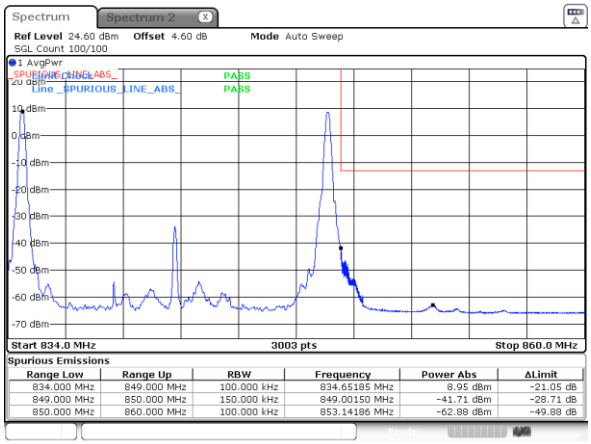
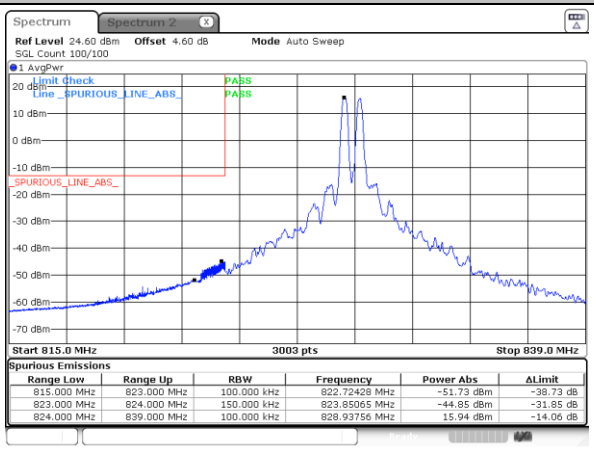
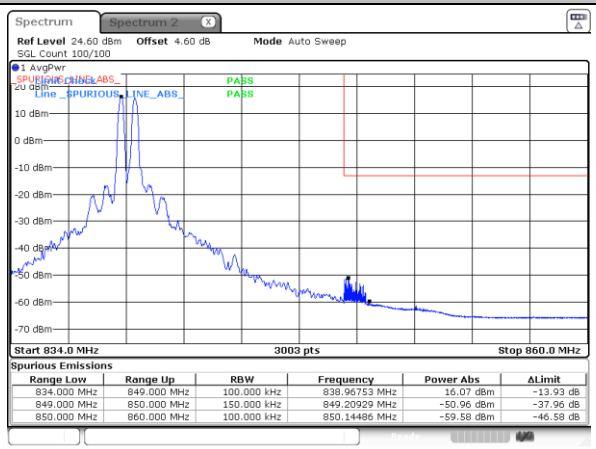
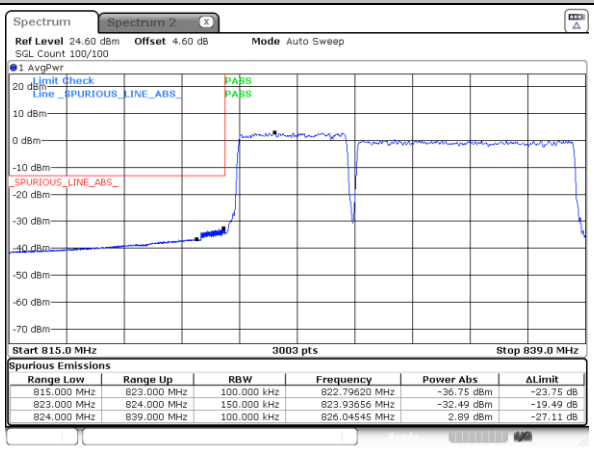
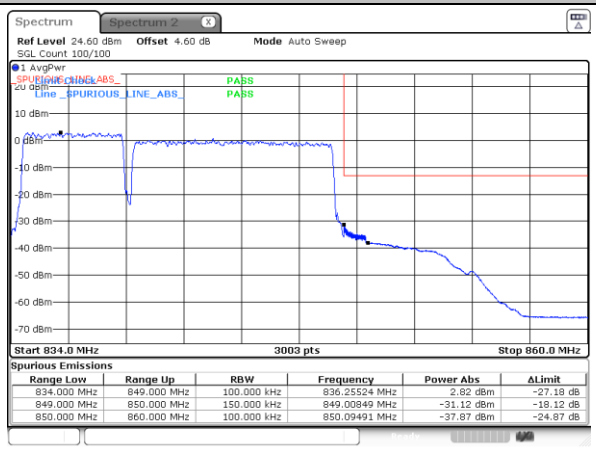


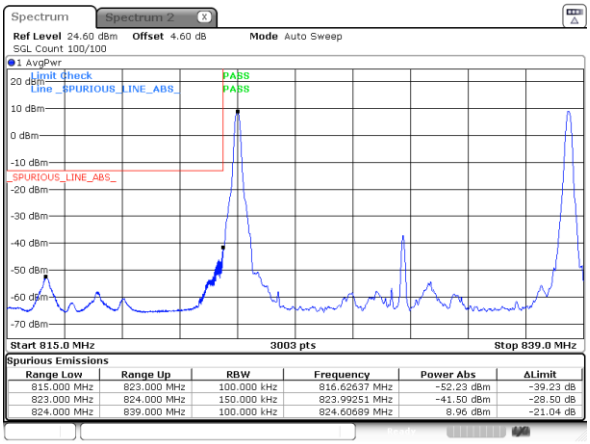
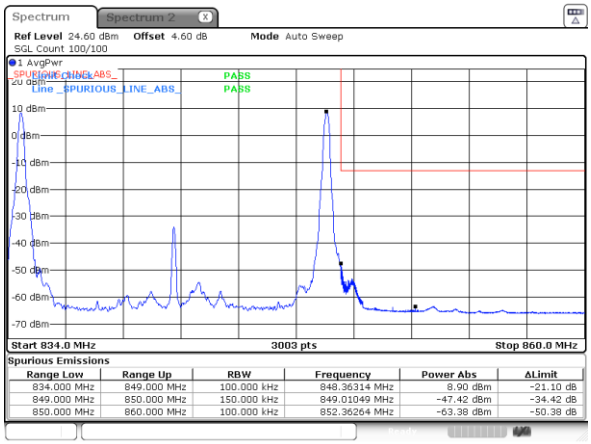
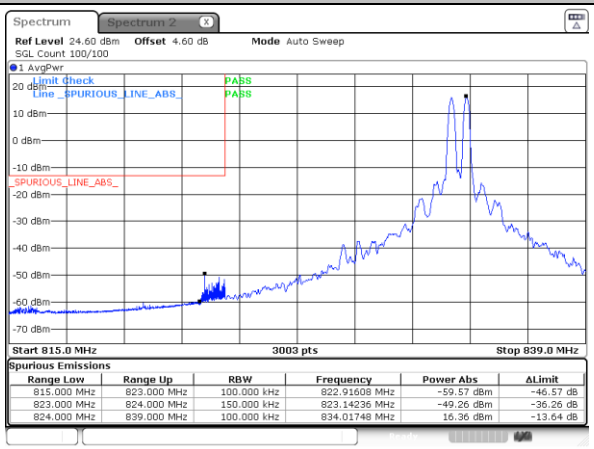
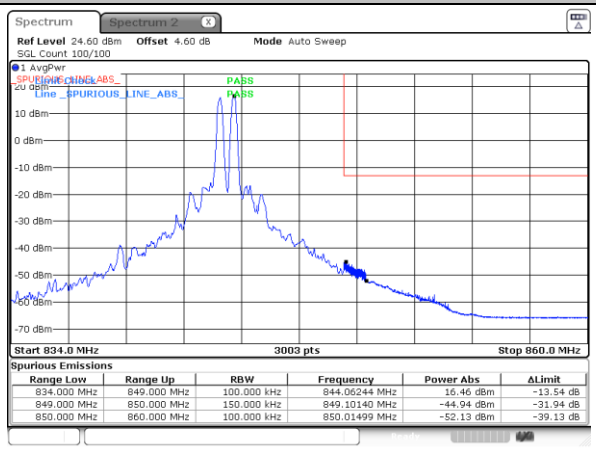
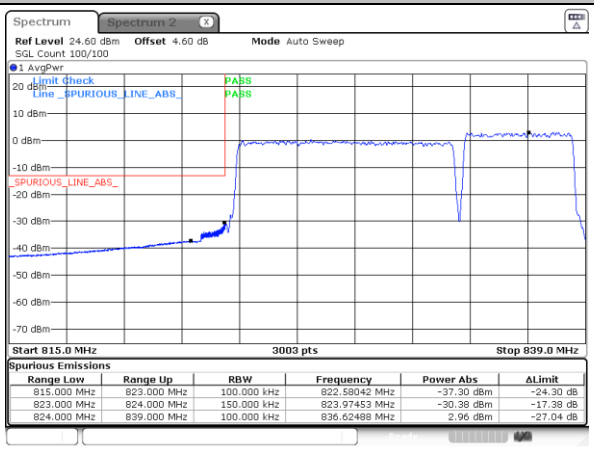
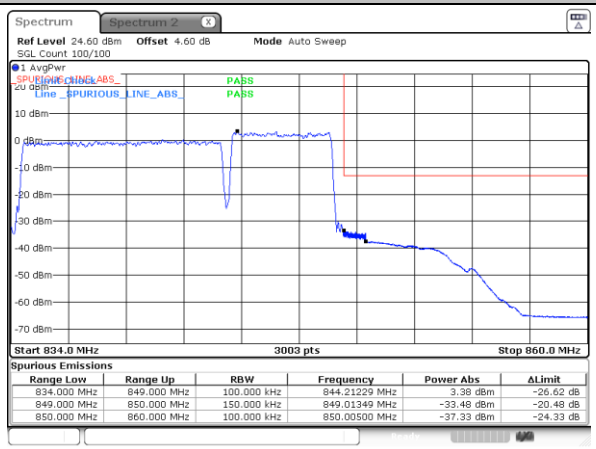
Lowest Band Edge / Full RB



Highest Band Edge / Full RB



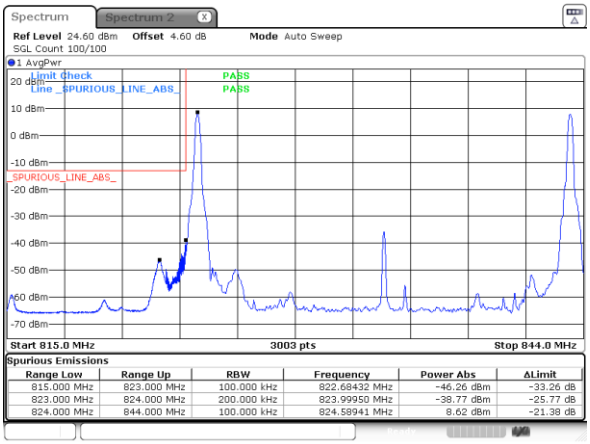
LTE Band 5B / 5MHz+10MHz	
16QAM	
Lowest Band Edge / 1RB0 and 1RB49	Highest Band Edge / 1RB0 and 1RB49
	
Lowest Band Edge / 1RB24 and 1RB0	Highest Band Edge / 1RB24 and 1RB0
	
Lowest Band Edge / Full RB	Highest Band Edge / Full RB
	

LTE Band 5B / 10MHz+5MHz	
16QAM	
Lowest Band Edge / 1RB0 and 1RB24	**Highest Band Edge / 1RB0 and 1RB24**
	
Lowest Band Edge / 1RB49 and 1RB0	**Highest Band Edge / 1RB49 and 1RB0**
	
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**
	

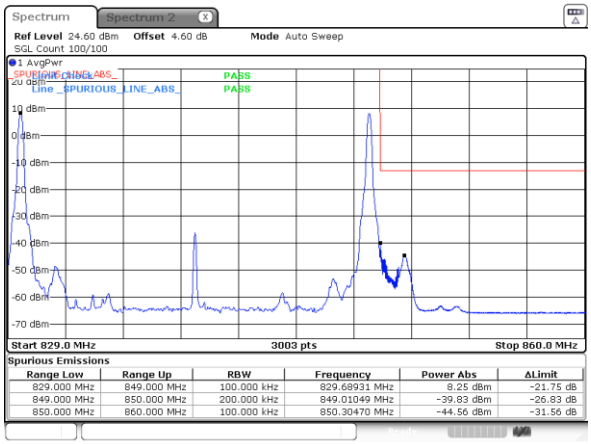
LTE Band 5B / 10MHz+10MHz

16QAM

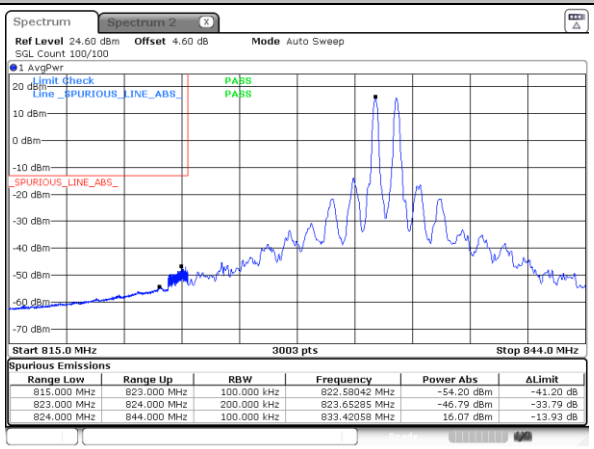
Lowest Band Edge / 1RB0 and 1RB49



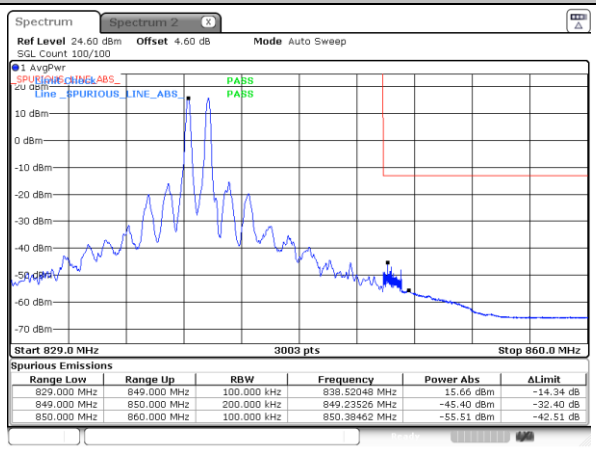
Highest Band Edge / 1RB0 and 1RB49



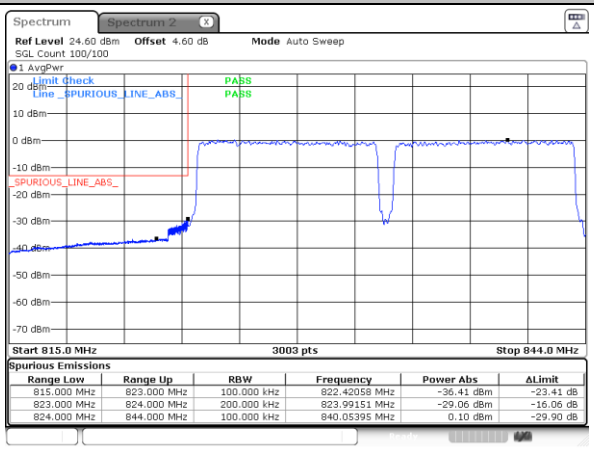
Lowest Band Edge / 1RB49 and 1RB0



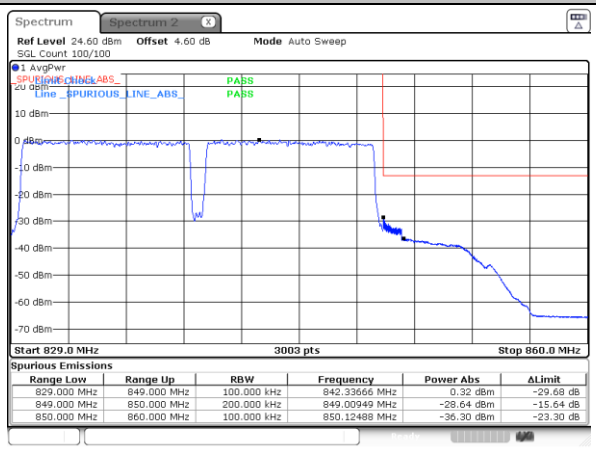
Highest Band Edge / 1RB49 and 1RB0

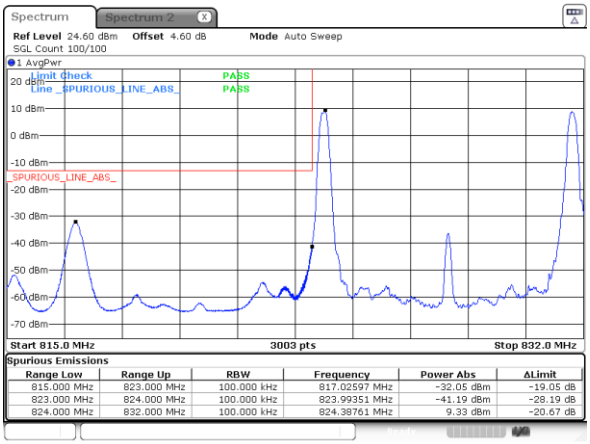
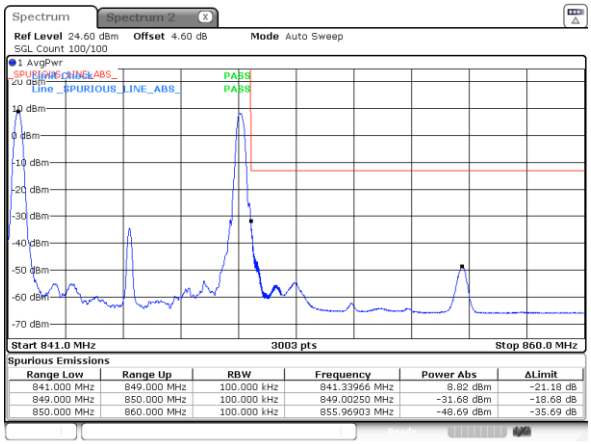
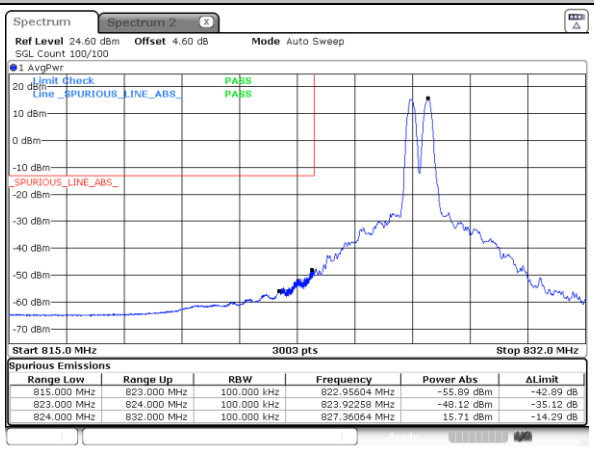
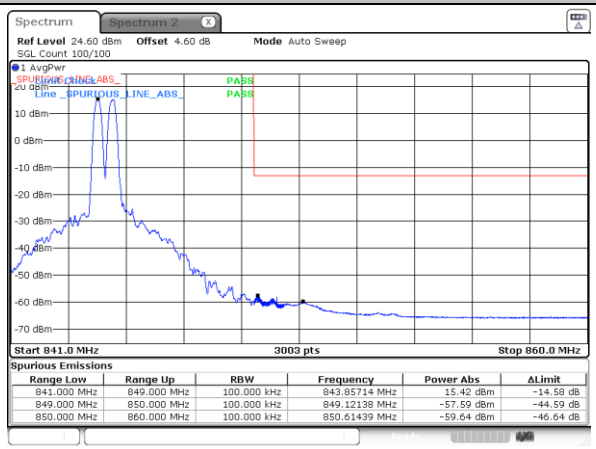
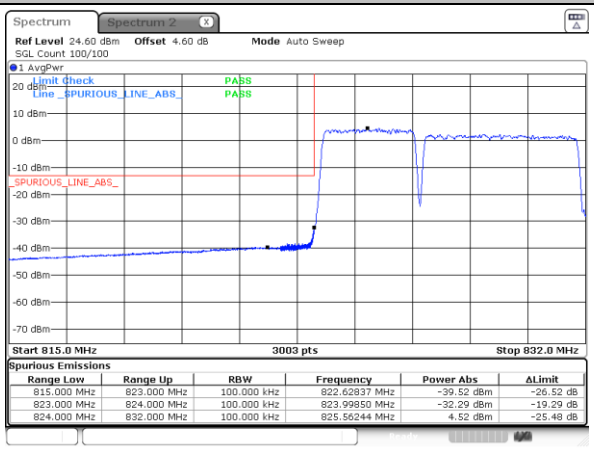
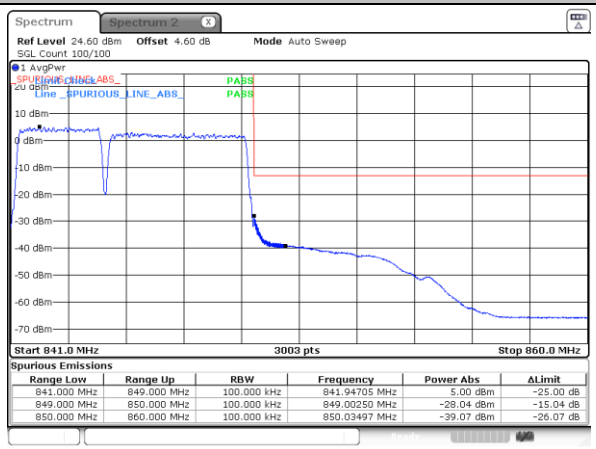


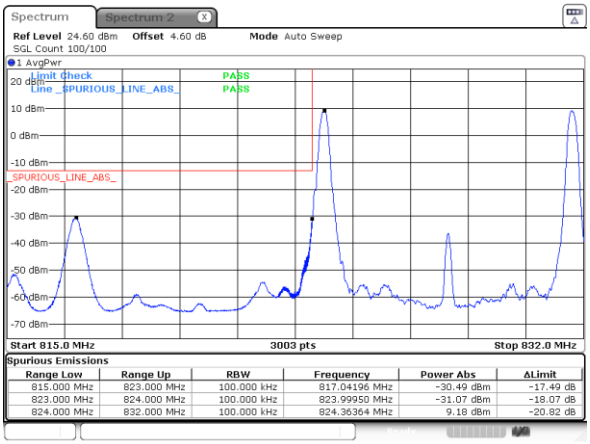
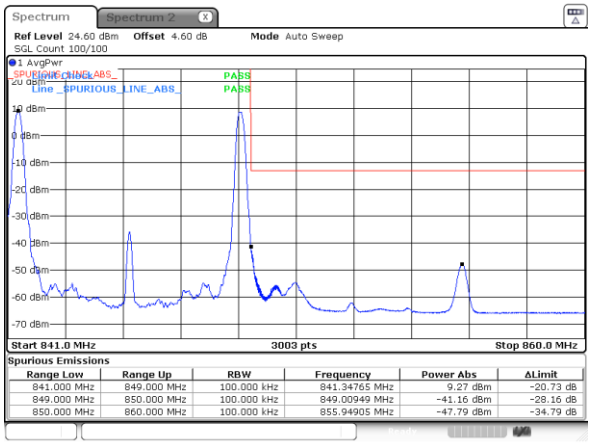
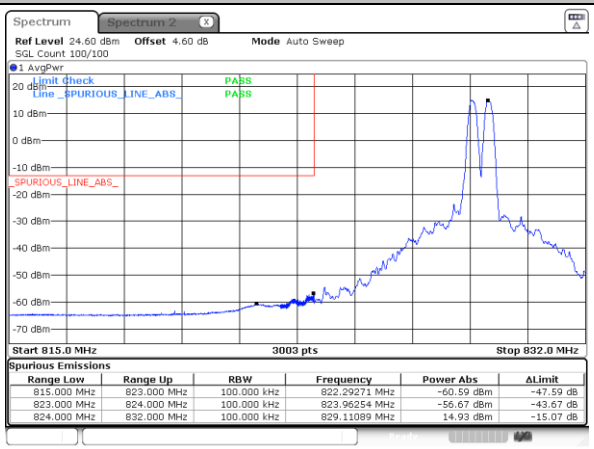
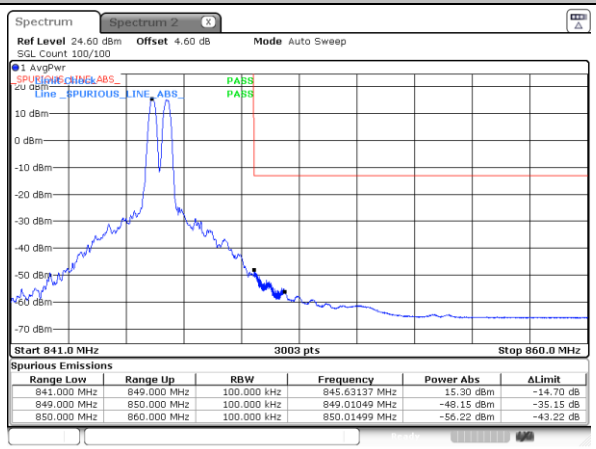
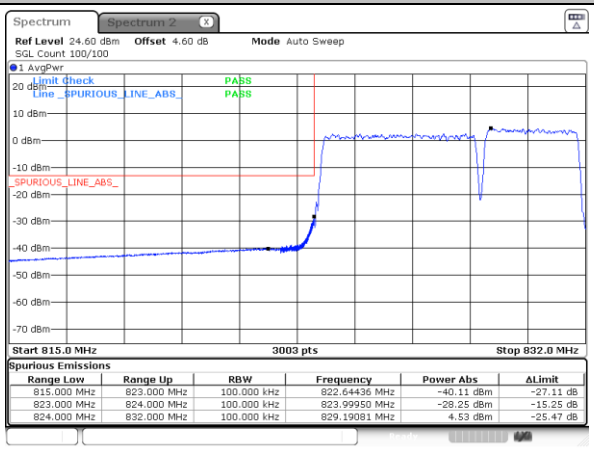
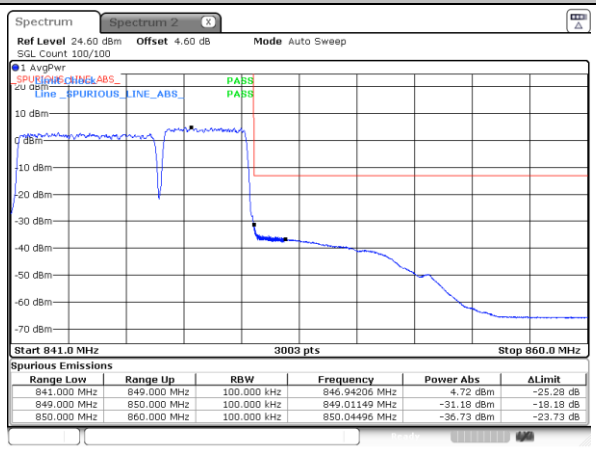
Lowest Band Edge / Full RB

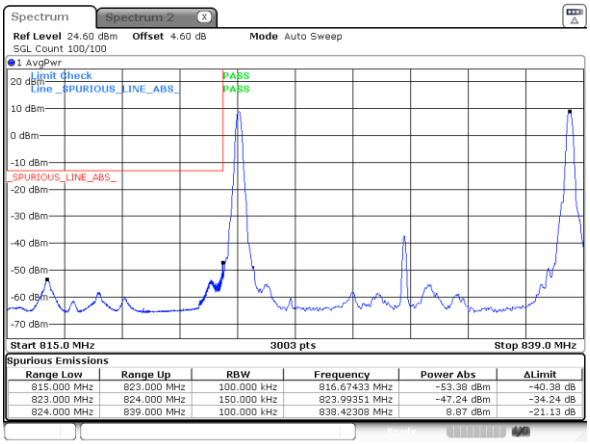
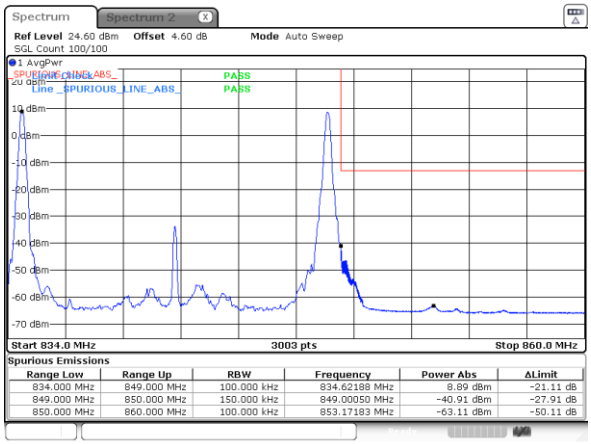
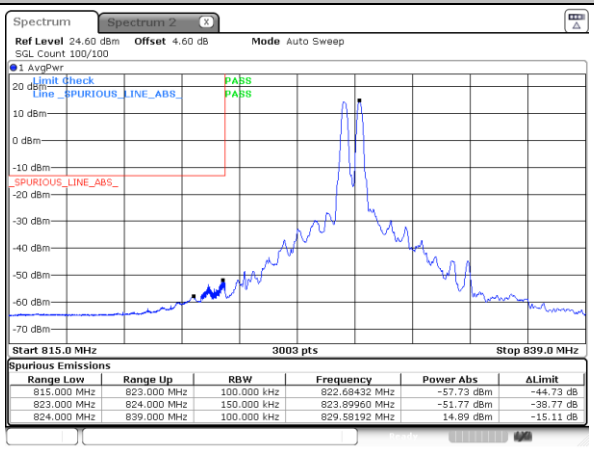
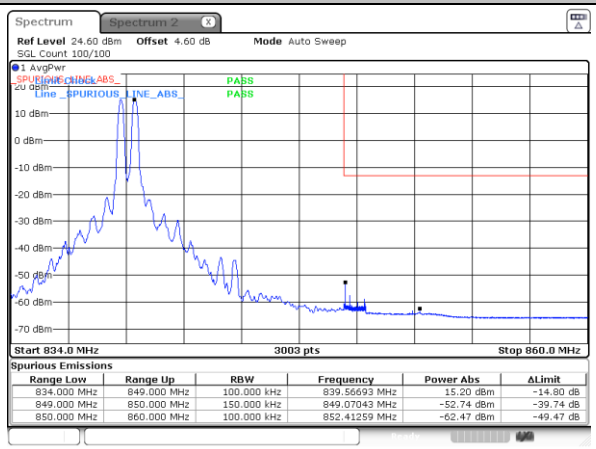


Highest Band Edge / Full RB



LTE Band 5B / 3MHz+5MHz	
64QAM	
Lowest Band Edge / 1RB0 and 1RB24	Highest Band Edge / 1RB0 and 1RB24
	
Lowest Band Edge / 1RB14 and 1RB0	Highest Band Edge / 1RB14 and 1RB0
	
Lowest Band Edge / Full RB	Highest Band Edge / Full RB
	

LTE Band 5B / 5MHz+3MHz	
64QAM	
Lowest Band Edge / 1RB0 and 1RB14	**Highest Band Edge / 1RB0 and 1RB14**
	
Lowest Band Edge / 1RB24 and 1RB0	**Highest Band Edge / 1RB24 and 1RB0**
	
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**
	

LTE Band 5B / 5MHz+10MHz	
64QAM	
Lowest Band Edge / 1RB0 and 1RB49	**Highest Band Edge / 1RB0 and 1RB49**
	
Lowest Band Edge / 1RB24 and 1RB0	**Highest Band Edge / 1RB24 and 1RB0**
	
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**