



RF TEST REPORT

Applicant ZTE Corporation

FCC ID SRQ-ZTEA2022PG

Product 5G NR/LTE/WCDMA/GSM(GPRS)
Multi-Mode Digital Mobile Phone

Marketing ZTE Axon 30 Ultra 5G

Model ZTE A2022PG

Report No. R2103A0263-R1

Issue Date April 26, 2021

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2019)/ FCC CFR 47 Part 22H (2019)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Prepared by: Peng Tao

Approved by: Kai Xu

TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000



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Summary of measurement results

No.	Test Case	Clause in FCC rules	Verdict
1	RF Power Output and Effective Radiated Power	2.1046 22.913(a)(5)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	2.1051 / 22.917(a)	PASS
4	Peak-to-Average Power Ratio	22.913(d)/ KDB 971168 D01(5.7)	PASS
5	Frequency Stability	2.1055 / 22.355	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 / 22.917(a)	PASS
7	Radiates Spurious Emission	2.1053 / 22.917 (a)	PASS

Date of Testing: March 19, 2021~ April 23, 2021

Date of Sample Received: March 18, 2021

Note: PASS: The EUT complies with the essential requirements in the standard.

FAIL: The EUT does not comply with the essential requirements in the standard.

All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.



1. Test Laboratory

1.1. Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City: Shanghai
Post code: 201201
Country: P. R. China
Contact: Xu Kai
Telephone: +86-021-50791141/2/3
Fax: +86-021-50791141/2/3-8000
Website: <http://www.ta-shanghai.com>
E-mail: xukai@ta-shanghai.com

2. General Description of Equipment under Test

2.3. Applicant and Manufacturer Information

Applicant	ZTE Corporation
Applicant address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
Manufacturer	ZTE Corporation
Manufacturer address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

2.4. General Information

EUT Description		
Model	ZTE A2022PG	
IMEI	IMEI 1:861959050001059 IMEI 2:861959050002059	
Hardware Version	ZTE A2022PGHW1.0	
Software Version 1	MyOS11.0.0_A2022PG_GLB	
Software Version 2	MyOS11.0.0_A2022PG_TEL	
Power Supply	Battery / AC adapter	
Antenna Type	Internal Antenna	
Antenna Gain	-2.14 dBi	
Test Mode(s)	GSM 850; WCDMA Band V; LTE Band 5/26;	
Test Modulation	(GSM/GPRS)GMSK, (EGPRS) GMSK/ 8PSK; (WCDMA) BPSK, QPSK; (LTE) QPSK, 16QAM, 64QAM;	
GPRS Multislot Class	12	
EGPRS Multislot Class	12	
HSDPA UE Category	24	
HSUPA UE Category	6	
LTE Category	13	
Maximum E.R.P.	GSM 850:	28.95 dBm
	WCDMA Band V:	20.05 dBm
	LTE Band 5:	20.53 dBm
	LTE Band 26:	20.79 dBm
Rated Power Supply Voltage	3.85V	
Operating Voltage	Minimum: 3.4V Maximum: 4.2V	
Operating Temperature	Lowest: -10°C Highest: +45°C	
Extreme Temperature	Lowest: -30°C Highest: +50°C	
FLASH	8+128G,12+256G	



Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM850	824 ~ 849	869 ~ 894
	WCDMA Band V	824 ~ 849	869 ~ 894
	LTE Band 5	824 ~ 849	869 ~ 894
	LTE Band 26	824 ~ 849	869 ~ 894
EUT Accessory			
Adapter 1	Manufacturer: ShenZhen KunXing Technology Co., Ltd. Model: STC-A59152050AC-Z		
Adapter 2	Manufacturer: ShenZhen KunXing Technology Co., Ltd. Model: STC-A59152050AC-A		
Earphone	Manufacturer: Shen zhen FDC Electronic Co.,Ltd. Model: DEM-9A		
Battery	Manufacturer: Zhuhai CosMX Battery Co., Ltd. Model: Li3941T44P8h826453		
USB Cable	Manufacturer: Shenzhen Luxshare Precision Industry Co.,Ltd. Model: TC20-TC20-W-100-M-6A-HSF		
Type-C to 3.5 mm Headphone Jack Adapter	Manufacture: HUIZHOU JUWEI ELECTRONICS CO. ,LTD Model: JWUB1389-Z01		
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. 2. There is more than one FLASH/Adapter, each one should be applied throughout the compliance test respectively, and however, only the worst case (12+256G/Adapter 1) will be recorded in this report. 3.The two different software versions are for different market requirement.			



3. Applied Standards

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

Test standards:

FCC CFR 47 Part 22H (2019)

ANSI C63.26 (2015)

Reference standard:

FCC CFR47 Part 2 (2019)

KDB 971168 D01 Power Meas License Digital Systems v03r01

4. Test Configuration

There is more than one SIM card slot, each one should be applied throughout the compliance test respectively, and however, only the worst case (SIM 1) will be recorded in this report.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (Z axis, horizontal polarization) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated.

Subsequently, only the worst case emissions are reported.

The following testing in GSM/WCDMA/LTE is set based on the maximum RF Output Power.

Test modes are chosen to be reported as the worst case configuration below:

Test items	Modes/Modulation	
	GSM 850	WCDMA Band V
RF Power Output and Effective Radiated power	GSM GPRS EGPRS	RMC HSDPA/HSUPA
Occupied Bandwidth	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Band Edge Compliance	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Peak-to-Average Power Ratio	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Frequency Stability	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Spurious Emissions at Antenna Terminals	GSM	RMC
Radiates Spurious Emission	GSM	RMC



Test modes are chosen as the worst case configuration below for LTE Band 5/26

Test items	Modes	Bandwidth (MHz)					Modulation		RB			Test Channel		
		1.4	3	5	10	15	QPSK	16QAM/ 64QAM	1	50%	100%	L	M	H
RF power output and Effective Radiated power	LTE 5	O	O	O	O	-	O	O	O	O	O	O	O	O
	LTE 26	O	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	LTE 5	O	O	O	O	-	O	O	-	-	O	O	O	O
	LTE 26	O	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	LTE 5	O	O	O	O	-	O	O	O	-	O	O	-	O
	LTE 26	O	O	O	O	-	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	LTE 5	O	O	O	O	-	O	O	-	-	O	O	O	O
	LTE 26	O	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	LTE 5	O	O	O	O	-	O	O	O	-	-	-	O	-
	LTE 26	O	O	O	O	O	O	O	O	-	-	-	O	-
Spurious Emissions at Antenna Terminals	LTE 5	O	O	O	O	-	O	-	O	-	-	O	O	O
	LTE 26	O	O	O	O	O	O	-	O	-	-	O	O	O
Radiates Spurious Emission	LTE 5	O	-	O	O	-	O	-	O	-	-	-	O	-
	LTE 26	O	-	O	-	O	O	-	O	-	-	-	O	-
Note	1. The mark "O" means that this configuration is chosen for testing. 2. The mark "-" means that this configuration is not testing.													

5. Test Case Results

5.1. RF Power Output and Effective Radiated Power

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

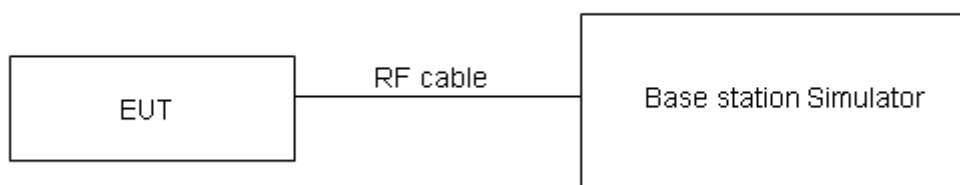
ERP can then be calculated as follows:

$EIRP \text{ (dBm)} = \text{Output Power (dBm)} - \text{Losses (dB)} + \text{Antenna Gain (dBi)}$

where:dBd refers to gain relative to an ideal dipole.

$EIRP \text{ (dBm)} = ERP \text{ (dBm)} + 2.15 \text{ (dB)}$.

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 22.913(a)(5) specifies that "Mobile/portable stations are limited to 7 watts ERP".

Limit	$\leq 7 \text{ W}$ (38.45 dBm)
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4 \text{ dB}$ for RF power output, $k = 2$, $U = 1.19 \text{ dB}$ for ERP.

Test Results

GSM 850		Maximum Output Power (dBm)			ERP (dBm)		
		Channel 128	Channel 190	Channel 251	Channel 128	Channel 190	Channel 251
		824.2 (MHz)	836.6 (MHz)	848.8 (MHz)	824.2 (MHz)	836.6 (MHz)	848.8 (MHz)
GSM(GMSK)	Results	32.98	32.89	33.06	28.69	28.60	28.77
GPRS/EGPRS (GMSK)	1TXslot	33.06	33.18	33.17	28.77	28.89	28.88
	2TXslots	30.85	31.08	31.01	26.56	26.79	26.72
	3TXslots	28.77	29.04	28.87	24.48	24.75	24.58
	4TXslots	26.80	26.56	26.73	22.51	22.27	22.44
EGPRS (8PSK)	1TXslot	33.11	33.24	33.06	28.82	28.95	28.77
	2TXslots	31.00	31.05	30.93	26.71	26.76	26.64
	3TXslots	28.78	28.87	28.90	24.49	24.58	24.61
	4TXslots	26.83	26.76	26.77	22.54	22.47	22.48

WCDMA Band V		Maximum Output Power (dBm)			ERP (dBm)		
		Channel 4132	Channel 4183	Channel 4233	Channel 4132	Channel 4183	Channel 4233
		826.4 (MHz)	836.6 (MHz)	846.6 (MHz)	826.4 (MHz)	836.6 (MHz)	846.6 (MHz)
RMC		24.28	24.32	24.34	19.99	20.03	20.05
AMR		24.12	24.15	24.19	19.83	19.86	19.90
HSDPA	Sub - Test 1	23.70	23.74	23.76	19.41	19.45	19.47
	Sub - Test 2	23.69	23.73	23.75	19.40	19.44	19.46
	Sub - Test 3	23.18	23.22	23.24	18.89	18.93	18.95
	Sub - Test 4	23.17	23.21	23.23	18.88	18.92	18.94
HSUPA	Sub - Test 1	23.66	23.70	23.72	19.37	19.41	19.43
	Sub - Test 2	22.65	22.69	22.71	18.36	18.40	18.42
	Sub - Test 3	23.13	23.18	23.20	18.84	18.89	18.91
	Sub - Test 4	22.62	22.67	22.69	18.33	18.38	18.40



LTE Band 5				Maximum Output Power(dBm)			ERP (dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20407 /824.7	20525 /836.5	20643 /848.3	20407 /824.7	20525 /836.5	20643 /848.3
1.4MHz	QPSK	1	0	24.59	24.70	24.61	20.30	20.41	20.32
		1	2	24.52	24.77	24.49	20.23	20.48	20.20
		1	5	24.65	24.74	23.96	20.36	20.45	19.67
		3	0	24.58	24.74	24.68	20.29	20.45	20.39
		3	2	24.61	24.82	24.72	20.32	20.53	20.43
		3	3	24.53	24.82	24.58	20.24	20.53	20.29
		6	0	23.65	23.89	23.59	19.36	19.60	19.30
	16QAM	1	0	23.62	23.58	23.56	19.33	19.29	19.27
		1	2	23.60	23.58	23.62	19.31	19.29	19.33
		1	5	23.40	23.34	23.41	19.11	19.05	19.12
		3	0	23.66	23.56	23.63	19.37	19.27	19.34
		3	2	23.58	23.53	23.61	19.29	19.24	19.32
		3	3	23.67	23.64	23.70	19.38	19.35	19.41
		6	0	22.65	22.64	22.74	18.36	18.35	18.45
	64QAM	1	0	23.90	23.88	23.85	19.61	19.59	19.56
		1	2	23.82	23.78	23.80	19.53	19.49	19.51
		1	5	23.90	23.94	23.89	19.61	19.65	19.60
		3	0	23.70	23.64	23.67	19.41	19.35	19.38
		3	2	23.81	23.77	23.78	19.52	19.48	19.49
		3	3	23.65	23.62	23.60	19.36	19.33	19.31
		6	0	22.75	22.73	22.74	18.46	18.44	18.45
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20415 /825.5	20525 /836.5	20635 /847.5	20415 /825.5	20525 /836.5	20635 /847.5
3MHz	QPSK	1	0	24.60	24.73	24.63	20.31	20.44	20.34
		1	7	24.51	24.81	24.54	20.22	20.52	20.25
		1	14	24.67	24.78	23.99	20.38	20.49	19.70
		8	0	23.68	23.86	23.81	19.39	19.57	19.52
		8	4	23.74	23.93	23.83	19.45	19.64	19.54
		8	7	23.63	23.95	23.69	19.34	19.66	19.40
		15	0	23.69	23.94	23.64	19.40	19.65	19.35
	16QAM	1	0	24.44	24.39	24.38	20.15	20.10	20.09



		1	7	24.43	24.40	24.46	20.14	20.11	20.17
		1	14	24.22	24.18	24.23	19.93	19.89	19.94
		8	0	23.08	23.00	23.06	18.79	18.71	18.77
		8	4	22.98	22.95	23.02	18.69	18.66	18.73
		8	7	23.07	23.06	23.13	18.78	18.77	18.84
		15	0	22.99	22.99	23.06	18.70	18.70	18.77
		1	0	23.92	23.89	23.87	19.63	19.60	19.58
	64QAM	1	7	23.85	23.80	23.82	19.56	19.51	19.53
		1	14	23.92	23.93	23.91	19.63	19.64	19.62
		8	0	22.82	22.78	22.80	18.53	18.49	18.51
		8	4	22.91	22.89	22.89	18.62	18.60	18.60
		8	7	22.75	22.74	22.73	18.46	18.45	18.44
		15	0	22.79	22.78	22.76	18.50	18.49	18.47
		15	0	22.79	22.78	22.76	18.50	18.49	18.47
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20425 /826.5	20525 /836.5	20625 /846.5	20425 /826.5	20525 /836.5	20625 /846.5
5MHz	QPSK	1	0	24.59	24.69	24.61	20.30	20.40	20.32
		1	13	24.49	24.80	24.51	20.20	20.51	20.22
		1	24	24.64	24.73	23.95	20.35	20.44	19.66
		12	0	23.66	23.82	23.78	19.37	19.53	19.49
		12	6	23.71	23.88	23.79	19.42	19.59	19.50
		12	13	23.60	23.92	23.65	19.31	19.63	19.36
		25	0	23.67	23.90	23.59	19.38	19.61	19.30
	16QAM	1	0	24.39	24.37	24.36	20.10	20.08	20.07
		1	13	24.41	24.37	24.44	20.12	20.08	20.15
		1	24	24.19	24.14	24.20	19.90	19.85	19.91
		12	0	23.05	22.98	23.03	18.76	18.69	18.74
		12	6	22.95	22.90	22.98	18.66	18.61	18.69
		12	13	23.05	23.02	23.10	18.76	18.73	18.81
		25	0	22.96	22.94	23.02	18.67	18.65	18.73
	64QAM	1	0	23.87	23.87	23.85	19.58	19.58	19.56
		1	13	23.83	23.77	23.80	19.54	19.48	19.51
		1	24	23.93	23.92	23.92	19.64	19.63	19.63
		12	0	22.81	22.80	22.81	18.52	18.51	18.52
		12	6	22.89	22.86	22.88	18.60	18.57	18.59
		12	13	22.73	22.70	22.70	18.44	18.41	18.41
		25	0	22.76	22.73	22.72	18.47	18.44	18.43



BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20450 /829	20525 /836.5	20600 /844	20450 /829	20525 /836.5	20600 /844
10MHz	QPSK	1	0	24.56	24.65	24.58	20.27	20.36	20.29
		1	25	24.48	24.76	24.49	20.19	20.47	20.20
		1	49	24.62	24.72	23.92	20.33	20.43	19.63
		25	0	23.63	23.77	23.74	19.34	19.48	19.45
		25	13	23.69	23.84	23.76	19.40	19.55	19.47
		25	25	23.57	23.87	23.61	19.28	19.58	19.32
		50	0	23.64	23.85	23.55	19.35	19.56	19.26
	16QAM	1	0	24.29	24.33	24.31	20.00	20.04	20.02
		1	25	24.37	24.35	24.40	20.08	20.06	20.11
		1	49	24.17	24.11	24.18	19.88	19.82	19.89
		25	0	23.02	22.94	23.00	18.73	18.65	18.71
		25	13	22.92	22.88	22.95	18.63	18.59	18.66
		25	25	23.02	22.97	23.06	18.73	18.68	18.77
		50	0	22.94	22.90	22.99	18.65	18.61	18.70
	64QAM QPSK	1	0	23.85	23.83	23.80	19.56	19.54	19.51
		1	25	23.79	23.75	23.76	19.50	19.46	19.47
		1	49	23.87	23.86	23.86	19.58	19.57	19.57
		25	0	22.76	22.72	22.74	18.47	18.43	18.45
		25	13	22.85	22.82	22.82	18.56	18.53	18.53
		25	25	22.70	22.65	22.66	18.41	18.36	18.37
		50	0	22.74	22.69	22.69	18.45	18.40	18.40

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	ERP (dBm)	Verdict
LTE Band26	1.4	26797	1	#0	QPSK	24.78	20.49	PASS
LTE Band26	1.4	26797	1	#Mid	QPSK	24.95	20.66	PASS
LTE Band26	1.4	26797	1	#Max	QPSK	24.82	20.53	PASS
LTE Band26	1.4	26797	3	#0	QPSK	24.75	20.46	PASS
LTE Band26	1.4	26797	3	#Mid	QPSK	24.74	20.45	PASS
LTE Band26	1.4	26797	3	#Max	QPSK	24.74	20.45	PASS
LTE Band26	1.4	26797	6	#0	QPSK	23.87	19.58	PASS
LTE Band26	1.4	26797	1	#0	QAM16	23.87	19.58	PASS
LTE Band26	1.4	26797	1	#Mid	QAM16	24.03	19.74	PASS
LTE Band26	1.4	26797	1	#Max	QAM16	23.90	19.61	PASS
LTE Band26	1.4	26797	3	#0	QAM16	24.01	19.72	PASS



LTE Band26	1.4	26797	3	#Mid	QAM16	24.00	19.71	PASS
LTE Band26	1.4	26797	3	#Max	QAM16	24.06	19.77	PASS
LTE Band26	1.4	26797	6	#0	QAM16	22.88	18.59	PASS
LTE Band26	1.4	26915	1	#0	QPSK	24.76	20.47	PASS
LTE Band26	1.4	26915	1	#Mid	QPSK	24.88	20.59	PASS
LTE Band26	1.4	26915	1	#Max	QPSK	24.78	20.49	PASS
LTE Band26	1.4	26915	3	#0	QPSK	24.78	20.49	PASS
LTE Band26	1.4	26915	3	#Mid	QPSK	24.80	20.51	PASS
LTE Band26	1.4	26915	3	#Max	QPSK	24.80	20.51	PASS
LTE Band26	1.4	26915	6	#0	QPSK	24.01	19.72	PASS
LTE Band26	1.4	26915	1	#0	QAM16	24.06	19.77	PASS
LTE Band26	1.4	26915	1	#Mid	QAM16	24.25	19.96	PASS
LTE Band26	1.4	26915	1	#Max	QAM16	24.10	19.81	PASS
LTE Band26	1.4	26915	3	#0	QAM16	23.89	19.60	PASS
LTE Band26	1.4	26915	3	#Mid	QAM16	23.86	19.57	PASS
LTE Band26	1.4	26915	3	#Max	QAM16	23.91	19.62	PASS
LTE Band26	1.4	26915	6	#0	QAM16	22.94	18.65	PASS
LTE Band26	1.4	27033	1	#0	QPSK	24.84	20.55	PASS
LTE Band26	1.4	27033	1	#Mid	QPSK	24.87	20.58	PASS
LTE Band26	1.4	27033	1	#Max	QPSK	24.76	20.47	PASS
LTE Band26	1.4	27033	3	#0	QPSK	24.79	20.50	PASS
LTE Band26	1.4	27033	3	#Mid	QPSK	24.80	20.51	PASS
LTE Band26	1.4	27033	3	#Max	QPSK	24.71	20.42	PASS
LTE Band26	1.4	27033	6	#0	QPSK	23.86	19.57	PASS
LTE Band26	1.4	27033	1	#0	QAM16	23.78	19.49	PASS
LTE Band26	1.4	27033	1	#Mid	QAM16	23.80	19.51	PASS
LTE Band26	1.4	27033	1	#Max	QAM16	23.68	19.39	PASS
LTE Band26	1.4	27033	3	#0	QAM16	23.84	19.55	PASS
LTE Band26	1.4	27033	3	#Mid	QAM16	23.85	19.56	PASS
LTE Band26	1.4	27033	3	#Max	QAM16	23.77	19.48	PASS
LTE Band26	1.4	27033	6	#0	QAM16	22.88	18.59	PASS
LTE Band26	3	26805	1	#0	QPSK	24.82	20.53	PASS
LTE Band26	3	26805	1	#Mid	QPSK	24.91	20.62	PASS
LTE Band26	3	26805	1	#Max	QPSK	24.84	20.55	PASS
LTE Band26	3	26805	8	#0	QPSK	23.94	19.65	PASS
LTE Band26	3	26805	8	#Mid	QPSK	23.95	19.66	PASS
LTE Band26	3	26805	8	#Max	QPSK	23.97	19.68	PASS
LTE Band26	3	26805	15	#0	QPSK	23.95	19.66	PASS
LTE Band26	3	26805	1	#0	QAM16	24.21	19.92	PASS
LTE Band26	3	26805	1	#Mid	QAM16	24.28	19.99	PASS
LTE Band26	3	26805	1	#Max	QAM16	24.24	19.95	PASS
LTE Band26	3	26805	8	#0	QAM16	22.94	18.65	PASS
LTE Band26	3	26805	8	#Mid	QAM16	22.98	18.69	PASS



LTE Band26	3	26805	8	#Max	QAM16	22.97	18.68	PASS
LTE Band26	3	26805	15	#0	QAM16	22.96	18.67	PASS
LTE Band26	3	26915	1	#0	QPSK	24.89	20.60	PASS
LTE Band26	3	26915	1	#Mid	QPSK	25.00	20.71	PASS
LTE Band26	3	26915	1	#Max	QPSK	24.93	20.64	PASS
LTE Band26	3	26915	8	#0	QPSK	24.03	19.74	PASS
LTE Band26	3	26915	8	#Mid	QPSK	24.03	19.74	PASS
LTE Band26	3	26915	8	#Max	QPSK	24.01	19.72	PASS
LTE Band26	3	26915	15	#0	QPSK	24.02	19.73	PASS
LTE Band26	3	26915	1	#0	QAM16	24.18	19.89	PASS
LTE Band26	3	26915	1	#Mid	QAM16	24.22	19.93	PASS
LTE Band26	3	26915	1	#Max	QAM16	24.17	19.88	PASS
LTE Band26	3	26915	8	#0	QAM16	23.05	18.76	PASS
LTE Band26	3	26915	8	#Mid	QAM16	23.04	18.75	PASS
LTE Band26	3	26915	8	#Max	QAM16	23.02	18.73	PASS
LTE Band26	3	26915	15	#0	QAM16	22.96	18.67	PASS
LTE Band26	3	27025	1	#0	QPSK	24.99	20.70	PASS
LTE Band26	3	27025	1	#Mid	QPSK	24.91	20.62	PASS
LTE Band26	3	27025	1	#Max	QPSK	24.81	20.52	PASS
LTE Band26	3	27025	8	#0	QPSK	24.00	19.71	PASS
LTE Band26	3	27025	8	#Mid	QPSK	24.01	19.72	PASS
LTE Band26	3	27025	8	#Max	QPSK	23.97	19.68	PASS
LTE Band26	3	27025	15	#0	QPSK	23.92	19.63	PASS
LTE Band26	3	27025	1	#0	QAM16	23.87	19.58	PASS
LTE Band26	3	27025	1	#Mid	QAM16	23.84	19.55	PASS
LTE Band26	3	27025	1	#Max	QAM16	23.79	19.50	PASS
LTE Band26	3	27025	8	#0	QAM16	23.02	18.73	PASS
LTE Band26	3	27025	8	#Mid	QAM16	23.03	18.74	PASS
LTE Band26	3	27025	8	#Max	QAM16	22.95	18.66	PASS
LTE Band26	3	27025	15	#0	QAM16	23.00	18.71	PASS
LTE Band26	5	26815	1	#0	QPSK	24.85	20.56	PASS
LTE Band26	5	26815	1	#Mid	QPSK	24.90	20.61	PASS
LTE Band26	5	26815	1	#Max	QPSK	24.94	20.65	PASS
LTE Band26	5	26815	12	#0	QPSK	23.94	19.65	PASS
LTE Band26	5	26815	12	#Mid	QPSK	23.91	19.62	PASS
LTE Band26	5	26815	12	#Max	QPSK	23.95	19.66	PASS
LTE Band26	5	26815	25	#0	QPSK	23.93	19.64	PASS
LTE Band26	5	26815	1	#0	QAM16	24.20	19.91	PASS
LTE Band26	5	26815	1	#Mid	QAM16	24.28	19.99	PASS
LTE Band26	5	26815	1	#Max	QAM16	24.26	19.97	PASS
LTE Band26	5	26815	12	#0	QAM16	22.92	18.63	PASS
LTE Band26	5	26815	12	#Mid	QAM16	22.93	18.64	PASS
LTE Band26	5	26815	12	#Max	QAM16	22.91	18.62	PASS



LTE Band26	5	26815	25	#0	QAM16	22.96	18.67	PASS
LTE Band26	5	26915	1	#0	QPSK	24.96	20.67	PASS
LTE Band26	5	26915	1	#Mid	QPSK	25.02	20.73	PASS
LTE Band26	5	26915	1	#Max	QPSK	25.01	20.72	PASS
LTE Band26	5	26915	12	#0	QPSK	24.05	19.76	PASS
LTE Band26	5	26915	12	#Mid	QPSK	24.05	19.76	PASS
LTE Band26	5	26915	12	#Max	QPSK	24.03	19.74	PASS
LTE Band26	5	26915	25	#0	QPSK	24.07	19.78	PASS
LTE Band26	5	26915	1	#0	QAM16	24.21	19.92	PASS
LTE Band26	5	26915	1	#Mid	QAM16	24.19	19.90	PASS
LTE Band26	5	26915	1	#Max	QAM16	24.22	19.93	PASS
LTE Band26	5	26915	12	#0	QAM16	23.03	18.74	PASS
LTE Band26	5	26915	12	#Mid	QAM16	22.99	18.70	PASS
LTE Band26	5	26915	12	#Max	QAM16	23.01	18.72	PASS
LTE Band26	5	26915	25	#0	QAM16	23.03	18.74	PASS
LTE Band26	5	27015	1	#0	QPSK	24.95	20.66	PASS
LTE Band26	5	27015	1	#Mid	QPSK	24.89	20.60	PASS
LTE Band26	5	27015	1	#Max	QPSK	24.62	20.33	PASS
LTE Band26	5	27015	12	#0	QPSK	24.07	19.78	PASS
LTE Band26	5	27015	12	#Mid	QPSK	24.05	19.76	PASS
LTE Band26	5	27015	12	#Max	QPSK	23.92	19.63	PASS
LTE Band26	5	27015	25	#0	QPSK	23.96	19.67	PASS
LTE Band26	5	27015	1	#0	QAM16	24.30	20.01	PASS
LTE Band26	5	27015	1	#Mid	QAM16	24.23	19.94	PASS
LTE Band26	5	27015	1	#Max	QAM16	23.97	19.68	PASS
LTE Band26	5	27015	12	#0	QAM16	23.11	18.82	PASS
LTE Band26	5	27015	12	#Mid	QAM16	23.10	18.81	PASS
LTE Band26	5	27015	12	#Max	QAM16	23.01	18.72	PASS
LTE Band26	5	27015	25	#0	QAM16	23.00	18.71	PASS
LTE Band26	10	26840	1	#0	QPSK	24.86	20.57	PASS
LTE Band26	10	26840	1	#Mid	QPSK	24.86	20.57	PASS
LTE Band26	10	26840	1	#Max	QPSK	24.67	20.38	PASS
LTE Band26	10	26840	25	#0	QPSK	23.96	19.67	PASS
LTE Band26	10	26840	25	#Mid	QPSK	23.98	19.69	PASS
LTE Band26	10	26840	25	#Max	QPSK	24.01	19.72	PASS
LTE Band26	10	26840	50	#0	QPSK	24.05	19.76	PASS
LTE Band26	10	26840	1	#0	QAM16	24.20	19.91	PASS
LTE Band26	10	26840	1	#Mid	QAM16	24.16	19.87	PASS
LTE Band26	10	26840	1	#Max	QAM16	24.19	19.90	PASS
LTE Band26	10	26840	25	#0	QAM16	23.08	18.79	PASS
LTE Band26	10	26840	25	#Mid	QAM16	23.08	18.79	PASS
LTE Band26	10	26840	25	#Max	QAM16	23.03	18.74	PASS
LTE Band26	10	26840	50	#0	QAM16	23.03	18.74	PASS



LTE Band26	10	26915	1	#0	QPSK	25.00	20.71	PASS
LTE Band26	10	26915	1	#Mid	QPSK	24.90	20.61	PASS
LTE Band26	10	26915	1	#Max	QPSK	24.86	20.57	PASS
LTE Band26	10	26915	25	#0	QPSK	24.01	19.72	PASS
LTE Band26	10	26915	25	#Mid	QPSK	24.03	19.74	PASS
LTE Band26	10	26915	25	#Max	QPSK	24.00	19.71	PASS
LTE Band26	10	26915	50	#0	QPSK	24.08	19.79	PASS
LTE Band26	10	26915	1	#0	QAM16	24.30	20.01	PASS
LTE Band26	10	26915	1	#Mid	QAM16	24.16	19.87	PASS
LTE Band26	10	26915	1	#Max	QAM16	24.17	19.88	PASS
LTE Band26	10	26915	25	#0	QAM16	23.06	18.77	PASS
LTE Band26	10	26915	25	#Mid	QAM16	23.05	18.76	PASS
LTE Band26	10	26915	25	#Max	QAM16	23.07	18.78	PASS
LTE Band26	10	26915	50	#0	QAM16	23.05	18.76	PASS
LTE Band26	10	26990	1	#0	QPSK	25.08	20.79	PASS
LTE Band26	10	26990	1	#Mid	QPSK	25.01	20.72	PASS
LTE Band26	10	26990	1	#Max	QPSK	24.96	20.67	PASS
LTE Band26	10	26990	25	#0	QPSK	24.06	19.77	PASS
LTE Band26	10	26990	25	#Mid	QPSK	24.05	19.76	PASS
LTE Band26	10	26990	25	#Max	QPSK	23.96	19.67	PASS
LTE Band26	10	26990	50	#0	QPSK	23.98	19.69	PASS
LTE Band26	10	26990	1	#0	QAM16	23.96	19.67	PASS
LTE Band26	10	26990	1	#Mid	QAM16	23.84	19.55	PASS
LTE Band26	10	26990	1	#Max	QAM16	23.76	19.47	PASS
LTE Band26	10	26990	25	#0	QAM16	23.01	18.72	PASS
LTE Band26	10	26990	25	#Mid	QAM16	23.03	18.74	PASS
LTE Band26	10	26990	25	#Max	QAM16	22.99	18.70	PASS
LTE Band26	10	26990	50	#0	QAM16	22.99	18.70	PASS
LTE Band26	15	26865	1	#0	QPSK	24.77	20.48	PASS
LTE Band26	15	26865	1	#Mid	QPSK	24.82	20.53	PASS
LTE Band26	15	26865	1	#Max	QPSK	24.85	20.56	PASS
LTE Band26	15	26865	36	#0	QPSK	24.02	19.73	PASS
LTE Band26	15	26865	36	#Mid	QPSK	24.02	19.73	PASS
LTE Band26	15	26865	36	#Max	QPSK	24.00	19.71	PASS
LTE Band26	15	26865	75	#0	QPSK	23.95	19.66	PASS
LTE Band26	15	26865	1	#0	QAM16	24.24	19.95	PASS
LTE Band26	15	26865	1	#Mid	QAM16	24.30	20.01	PASS
LTE Band26	15	26865	1	#Max	QAM16	24.23	19.94	PASS
LTE Band26	15	26865	36	#0	QAM16	23.03	18.74	PASS
LTE Band26	15	26865	36	#Mid	QAM16	23.06	18.77	PASS
LTE Band26	15	26865	36	#Max	QAM16	23.03	18.74	PASS
LTE Band26	15	26865	75	#0	QAM16	23.00	18.71	PASS
LTE Band26	15	26915	1	#0	QPSK	24.88	20.59	PASS



LTE Band26	15	26915	1	#Mid	QPSK	24.85	20.56	PASS
LTE Band26	15	26915	1	#Max	QPSK	24.86	20.57	PASS
LTE Band26	15	26915	36	#0	QPSK	23.99	19.70	PASS
LTE Band26	15	26915	36	#Mid	QPSK	24.00	19.71	PASS
LTE Band26	15	26915	36	#Max	QPSK	23.99	19.70	PASS
LTE Band26	15	26915	75	#0	QPSK	23.93	19.64	PASS
LTE Band26	15	26915	1	#0	QAM16	24.19	19.90	PASS
LTE Band26	15	26915	1	#Mid	QAM16	23.54	19.25	PASS
LTE Band26	15	26915	1	#Max	QAM16	23.74	19.45	PASS
LTE Band26	15	26915	36	#0	QAM16	23.04	18.75	PASS
LTE Band26	15	26915	36	#Mid	QAM16	23.03	18.74	PASS
LTE Band26	15	26915	36	#Max	QAM16	23.02	18.73	PASS
LTE Band26	15	26915	75	#0	QAM16	22.95	18.66	PASS
LTE Band26	15	26965	1	#0	QPSK	24.95	20.66	PASS
LTE Band26	15	26965	1	#Mid	QPSK	24.88	20.59	PASS
LTE Band26	15	26965	1	#Max	QPSK	24.80	20.51	PASS
LTE Band26	15	26965	36	#0	QPSK	24.02	19.73	PASS
LTE Band26	15	26965	36	#Mid	QPSK	24.03	19.74	PASS
LTE Band26	15	26965	36	#Max	QPSK	23.89	19.60	PASS
LTE Band26	15	26965	75	#0	QPSK	23.97	19.68	PASS
LTE Band26	15	26965	1	#0	QAM16	24.01	19.72	PASS
LTE Band26	15	26965	1	#Mid	QAM16	24.03	19.74	PASS
LTE Band26	15	26965	1	#Max	QAM16	23.87	19.58	PASS
LTE Band26	15	26965	36	#0	QAM16	23.01	18.72	PASS
LTE Band26	15	26965	36	#Mid	QAM16	23.01	18.72	PASS
LTE Band26	15	26965	36	#Max	QAM16	22.96	18.67	PASS
LTE Band26	15	26965	75	#0	QAM16	22.97	18.68	PASS
LTE Band26	1.4	26797	1	#0	QAM64	23.32	19.03	PASS
LTE Band26	1.4	26797	1	#Mid	QAM64	23.43	19.14	PASS
LTE Band26	1.4	26797	1	#Max	QAM64	23.36	19.07	PASS
LTE Band26	1.4	26797	3	#0	QAM64	23.58	19.29	PASS
LTE Band26	1.4	26797	3	#Mid	QAM64	23.56	19.27	PASS
LTE Band26	1.4	26797	3	#Max	QAM64	23.58	19.29	PASS
LTE Band26	1.4	26797	6	#0	QAM64	22.48	18.19	PASS
LTE Band26	1.4	26915	1	#0	QAM64	23.49	19.20	PASS
LTE Band26	1.4	26915	1	#Mid	QAM64	23.61	19.32	PASS
LTE Band26	1.4	26915	1	#Max	QAM64	23.53	19.24	PASS
LTE Band26	1.4	26915	3	#0	QAM64	23.44	19.15	PASS
LTE Band26	1.4	26915	3	#Mid	QAM64	23.44	19.15	PASS
LTE Band26	1.4	26915	3	#Max	QAM64	23.53	19.24	PASS
LTE Band26	1.4	26915	6	#0	QAM64	22.51	18.22	PASS
LTE Band26	1.4	27033	1	#0	QAM64	23.14	18.85	PASS
LTE Band26	1.4	27033	1	#Mid	QAM64	23.20	18.91	PASS



LTE Band26	1.4	27033	1	#Max	QAM64	23.11	18.82	PASS
LTE Band26	1.4	27033	3	#0	QAM64	23.47	19.18	PASS
LTE Band26	1.4	27033	3	#Mid	QAM64	23.50	19.21	PASS
LTE Band26	1.4	27033	3	#Max	QAM64	23.40	19.11	PASS
LTE Band26	1.4	27033	6	#0	QAM64	22.46	18.17	PASS
LTE Band26	3	26805	1	#0	QAM64	23.76	19.47	PASS
LTE Band26	3	26805	1	#Mid	QAM64	23.84	19.55	PASS
LTE Band26	3	26805	1	#Max	QAM64	23.76	19.47	PASS
LTE Band26	3	26805	8	#0	QAM64	22.53	18.24	PASS
LTE Band26	3	26805	8	#Mid	QAM64	22.55	18.26	PASS
LTE Band26	3	26805	8	#Max	QAM64	22.54	18.25	PASS
LTE Band26	3	26805	15	#0	QAM64	22.58	18.29	PASS
LTE Band26	3	26915	1	#0	QAM64	23.58	19.29	PASS
LTE Band26	3	26915	1	#Mid	QAM64	23.66	19.37	PASS
LTE Band26	3	26915	1	#Max	QAM64	23.61	19.32	PASS
LTE Band26	3	26915	8	#0	QAM64	22.61	18.32	PASS
LTE Band26	3	26915	8	#Mid	QAM64	22.65	18.36	PASS
LTE Band26	3	26915	8	#Max	QAM64	22.64	18.35	PASS
LTE Band26	3	26915	15	#0	QAM64	22.56	18.27	PASS
LTE Band26	3	27025	1	#0	QAM64	23.27	18.98	PASS
LTE Band26	3	27025	1	#Mid	QAM64	23.25	18.96	PASS
LTE Band26	3	27025	1	#Max	QAM64	23.20	18.91	PASS
LTE Band26	3	27025	8	#0	QAM64	22.62	18.33	PASS
LTE Band26	3	27025	8	#Mid	QAM64	22.59	18.30	PASS
LTE Band26	3	27025	8	#Max	QAM64	22.55	18.26	PASS
LTE Band26	3	27025	15	#0	QAM64	22.61	18.32	PASS
LTE Band26	5	26815	1	#0	QAM64	23.89	19.60	PASS
LTE Band26	5	26815	1	#Mid	QAM64	23.93	19.64	PASS
LTE Band26	5	26815	1	#Max	QAM64	23.88	19.59	PASS
LTE Band26	5	26815	12	#0	QAM64	22.55	18.26	PASS
LTE Band26	5	26815	12	#Mid	QAM64	22.56	18.27	PASS
LTE Band26	5	26815	12	#Max	QAM64	22.52	18.23	PASS
LTE Band26	5	26815	25	#0	QAM64	22.57	18.28	PASS
LTE Band26	5	26915	1	#0	QAM64	23.66	19.37	PASS
LTE Band26	5	26915	1	#Mid	QAM64	23.73	19.44	PASS
LTE Band26	5	26915	1	#Max	QAM64	23.69	19.40	PASS
LTE Band26	5	26915	12	#0	QAM64	22.62	18.33	PASS
LTE Band26	5	26915	12	#Mid	QAM64	22.60	18.31	PASS
LTE Band26	5	26915	12	#Max	QAM64	22.61	18.32	PASS
LTE Band26	5	26915	25	#0	QAM64	22.67	18.38	PASS
LTE Band26	5	27015	1	#0	QAM64	23.85	19.56	PASS
LTE Band26	5	27015	1	#Mid	QAM64	23.71	19.42	PASS
LTE Band26	5	27015	1	#Max	QAM64	23.45	19.16	PASS



LTE Band26	5	27015	12	#0	QAM64	22.73	18.44	PASS
LTE Band26	5	27015	12	#Mid	QAM64	22.73	18.44	PASS
LTE Band26	5	27015	12	#Max	QAM64	22.61	18.32	PASS
LTE Band26	5	27015	25	#0	QAM64	22.64	18.35	PASS
LTE Band26	10	26840	1	#0	QAM64	23.77	19.48	PASS
LTE Band26	10	26840	1	#Mid	QAM64	23.72	19.43	PASS
LTE Band26	10	26840	1	#Max	QAM64	23.76	19.47	PASS
LTE Band26	10	26840	25	#0	QAM64	22.68	18.39	PASS
LTE Band26	10	26840	25	#Mid	QAM64	22.71	18.42	PASS
LTE Band26	10	26840	25	#Max	QAM64	22.70	18.41	PASS
LTE Band26	10	26840	50	#0	QAM64	22.65	18.36	PASS
LTE Band26	10	26915	1	#0	QAM64	23.73	19.44	PASS
LTE Band26	10	26915	1	#Mid	QAM64	23.61	19.32	PASS
LTE Band26	10	26915	1	#Max	QAM64	23.57	19.28	PASS
LTE Band26	10	26915	25	#0	QAM64	22.68	18.39	PASS
LTE Band26	10	26915	25	#Mid	QAM64	22.69	18.40	PASS
LTE Band26	10	26915	25	#Max	QAM64	22.64	18.35	PASS
LTE Band26	10	26915	50	#0	QAM64	22.66	18.37	PASS
LTE Band26	10	26990	1	#0	QAM64	23.36	19.07	PASS
LTE Band26	10	26990	1	#Mid	QAM64	23.21	18.92	PASS
LTE Band26	10	26990	1	#Max	QAM64	23.11	18.82	PASS
LTE Band26	10	26990	25	#0	QAM64	22.65	18.36	PASS
LTE Band26	10	26990	25	#Mid	QAM64	22.64	18.35	PASS
LTE Band26	10	26990	25	#Max	QAM64	22.60	18.31	PASS
LTE Band26	10	26990	50	#0	QAM64	22.60	18.31	PASS
LTE Band26	15	26865	1	#0	QAM64	23.83	19.54	PASS
LTE Band26	15	26865	1	#Mid	QAM64	23.84	19.55	PASS
LTE Band26	15	26865	1	#Max	QAM64	23.78	19.49	PASS
LTE Band26	15	26865	36	#0	QAM64	22.68	18.39	PASS
LTE Band26	15	26865	36	#Mid	QAM64	22.65	18.36	PASS
LTE Band26	15	26865	36	#Max	QAM64	22.64	18.35	PASS
LTE Band26	15	26865	75	#0	QAM64	22.64	18.35	PASS
LTE Band26	15	26915	1	#0	QAM64	23.65	19.36	PASS
LTE Band26	15	26915	1	#Mid	QAM64	23.54	19.25	PASS
LTE Band26	15	26915	1	#Max	QAM64	23.61	19.32	PASS
LTE Band26	15	26915	36	#0	QAM64	22.67	18.38	PASS
LTE Band26	15	26915	36	#Mid	QAM64	22.63	18.34	PASS
LTE Band26	15	26915	36	#Max	QAM64	22.61	18.32	PASS
LTE Band26	15	26915	75	#0	QAM64	22.59	18.30	PASS
LTE Band26	15	26965	1	#0	QAM64	23.02	18.73	PASS
LTE Band26	15	26965	1	#Mid	QAM64	23.46	19.17	PASS
LTE Band26	15	26965	1	#Max	QAM64	22.41	18.12	PASS
LTE Band26	15	26965	36	#0	QAM64	22.65	18.36	PASS



LTE Band26	15	26965	36	#Mid	QAM64	22.62	18.33	PASS
LTE Band26	15	26965	36	#Max	QAM64	22.59	18.30	PASS
LTE Band26	15	26965	75	#0	QAM64	22.60	18.31	PASS

5.2. Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.

RBW is set to 6.2kHz, VBW is set to 20kHz for GSM 850,

RBW is set to 51kHz, VBW is set to 160kHz for WCDMA Band V,

RBW is set to 30 kHz, VBW is set to 91kHz for LTE Band 5/26 (1.4MHz),

RBW is set to 62 kHz, VBW is set to 180kHz for LTE Band 5/26 (3MHz),

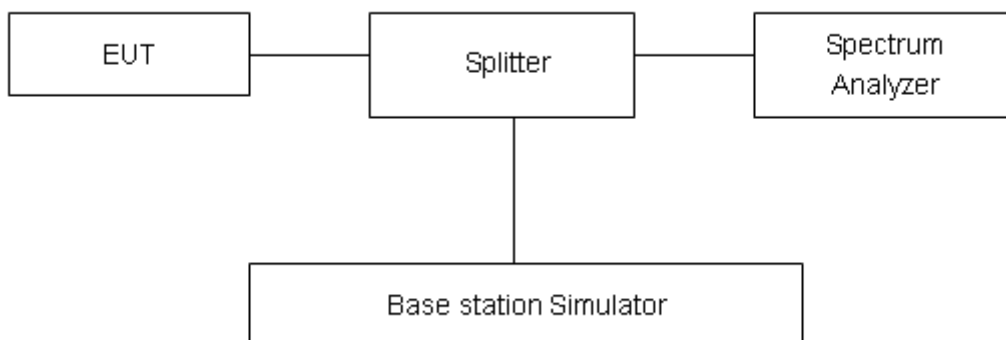
RBW is set to 100 kHz, VBW is set to 300kHz for LTE Band 5/26 (5MHz),

RBW is set to 200 kHz, VBW is set to 620kHz for LTE Band 5/26 (10MHz),

RBW is set to 300kHz,VBW is set to 910kHz for LTE Band 26 (15MHz).

99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 624\text{Hz}$.

Test Result

Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
GSM 850 (GMSK)	128	824.2	0.2461	0.3018
	190	836.6	0.2461	0.3127
	251	848.8	0.2392	0.3095
GPRS 850 (GMSK)	128	824.2	0.2436	0.3174
	190	836.6	0.2446	0.3166
	251	848.8	0.2465	0.3066
EGPRS 850 (8PSK)	128	824.2	0.2474	0.3175
	190	836.6	0.2385	0.2935
	251	848.8	0.2460	0.2987
WCDMA Band V (RMC)	4132	826.4	4.1471	4.686
	4183	836.6	4.1505	4.706
	4233	846.6	4.1575	4.712



LTE Band 5						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	20407	824.7	1.1021	1.234
			20525	836.5	1.0877	1.238
			20643	848.3	1.0913	1.230
		3	20415	825.5	2.7028	3.003
			20525	836.5	2.7019	2.999
			20635	847.5	2.7009	3.017
		5	20425	826.5	4.5015	4.936
			20525	836.5	4.5182	4.954
			20625	846.5	4.5106	4.905
		10	20450	829	8.9764	9.756
			20525	836.5	8.9918	9.749
			20600	844	8.9676	9.761
	16QAM	1.4	20407	824.7	1.0970	1.246
			20525	836.5	1.0903	1.222
			20643	848.3	1.0897	1.223
		3	20415	825.5	2.6975	2.992
			20525	836.5	2.7038	2.978
			20635	847.5	2.7005	3.029
		5	20425	826.5	4.5027	4.952
			20525	836.5	4.5206	4.961
			20625	846.5	4.5181	4.917
		10	20450	829	8.9805	9.751
			20525	836.5	8.9784	9.682
			20600	844	8.9652	9.649
	64QAM	1.4	20407	824.7	1.0946	1.237
			20525	836.5	1.0968	1.237
			20643	848.3	1.0905	1.214
		3	20415	825.5	2.6889	3.001
			20525	836.5	2.7036	2.978
			20635	847.5	2.698	3.024
		5	20425	826.5	4.4989	4.918



			20525	836.5	4.5272	4.948
			20625	846.5	4.5117	4.904
		10	20450	829	8.9375	9.711
			20525	836.5	9.0024	9.662
			20600	844	8.9815	9.697



LTE Band 26						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	26797	824.7	1.0894	1.242
			26915	836.5	1.0882	1.245
			27033	848.5	1.0851	1.202
		3	26805	825.5	2.7041	2.959
			26915	836.5	2.6998	2.983
			27025	847.5	2.7060	2.986
		5	26815	826.5	4.5124	5.007
			26915	836.5	4.5178	4.936
			27015	846.5	4.5134	4.968
		10	26840	829	8.9498	9.751
			26915	836.5	8.9771	9.811
			26990	844	8.9967	9.687
		15	26865	831.5	13.4590	14.540
			26915	836.5	13.4330	14.560
			26965	841.5	13.4470	14.690
	16QAM	1.4	26797	824.7	1.0947	1.239
			26915	836.5	1.0847	1.213
			27033	848.5	1.0980	1.242
		3	26805	825.5	2.7032	3.055
			26915	836.5	2.7022	2.997
			27025	847.5	2.6964	3.004
		5	26815	826.5	4.4974	4.915
			26915	836.5	4.5204	4.918
			27015	846.5	4.5205	4.921
		10	26840	829	9.0101	9.741
			26915	836.5	8.9694	9.677
			26990	844	8.9753	9.776
		15	26865	831.5	13.4870	14.360
			26915	836.5	13.4970	14.590
			26965	841.5	13.4680	14.480



	64QAM	1.4	26797	824.7	1.0925	1.247
			26915	836.5	1.0941	1.230
			27033	848.5	1.0925	1.235
		3	26805	825.5	2.6869	2.975
			26915	836.5	2.7012	2.972
			27025	847.5	2.6981	2.979
		5	26815	826.5	4.4945	4.960
			26915	836.5	4.5180	4.921
			27015	846.5	4.4995	4.925
		10	26840	829	9.0012	9.742
			26915	836.5	8.9639	9.744
			26990	844	8.9718	9.718
		15	26865	831.5	13.4360	14.580
			26915	836.5	13.4510	14.620
			26965	841.5	13.4500	14.490

GSM 850 CH-Low



GSM 850 GPRS CH-Low



GSM 850 CH-Middle



GSM 850 GPRS CH-Middle



GSM 850 CH-High



GSM 850 GPRS CH-High



GSM 850 EGPRS CH-Low



WCDMA Band V CH-Low



GSM 850 EGPRS CH-Middle



WCDMA Band V CH-Middle



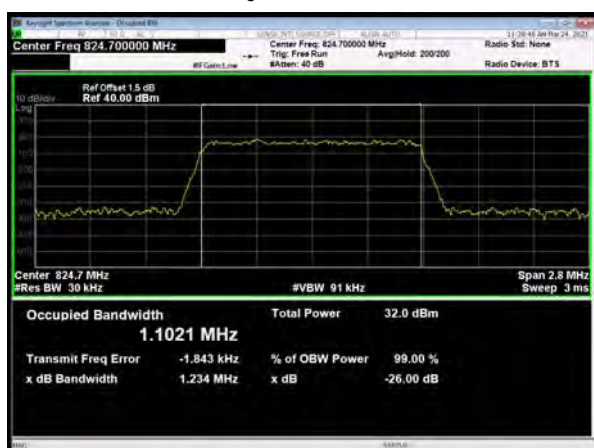
GSM 850 EGPRS CH-High



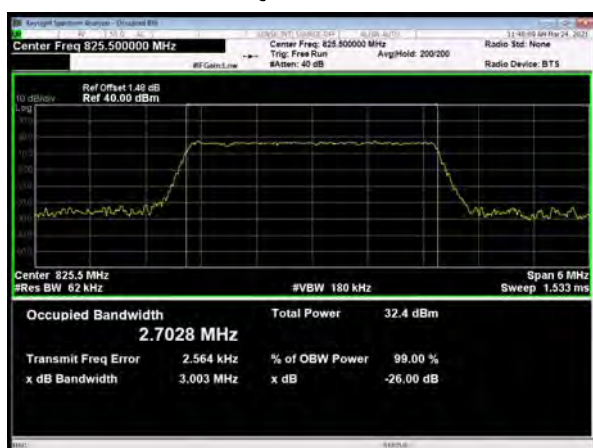
WCDMA Band V CH-High



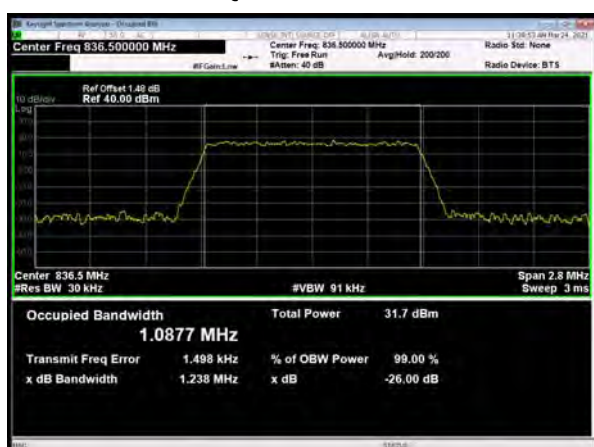
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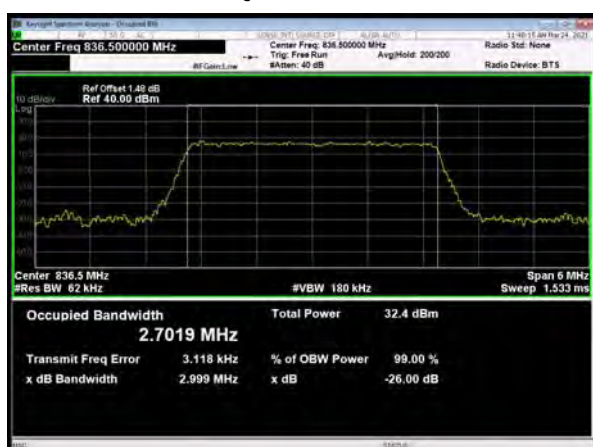
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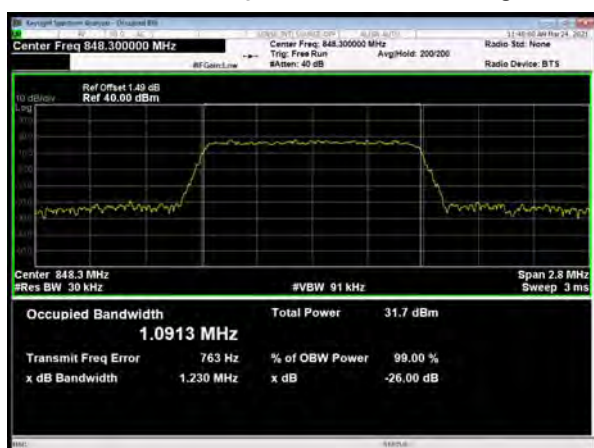
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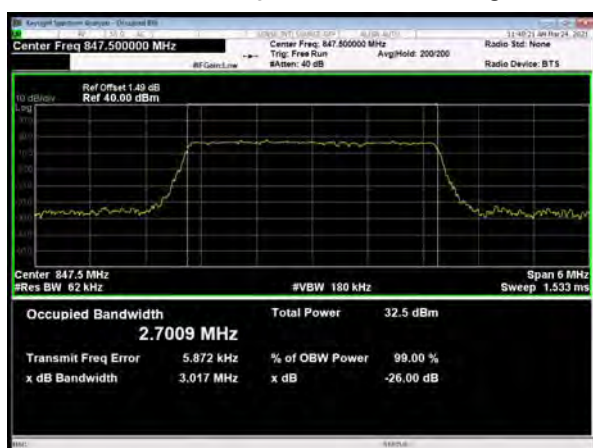
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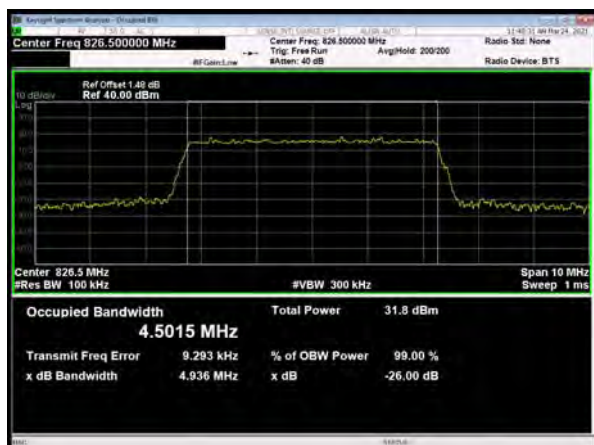
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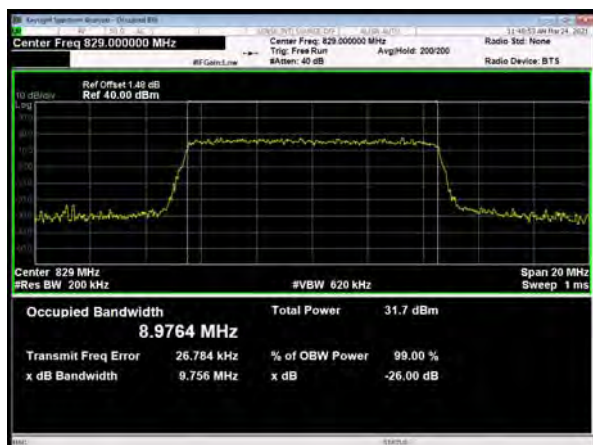
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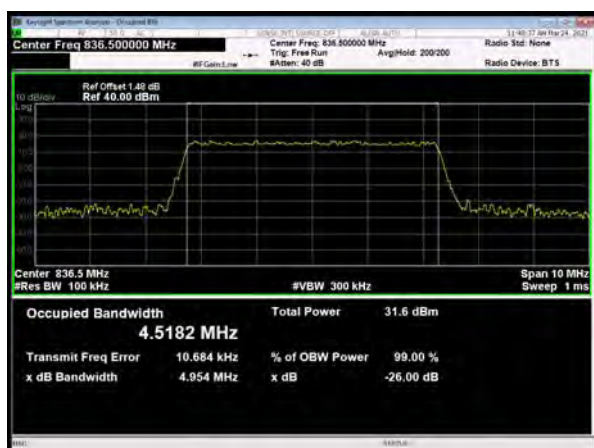
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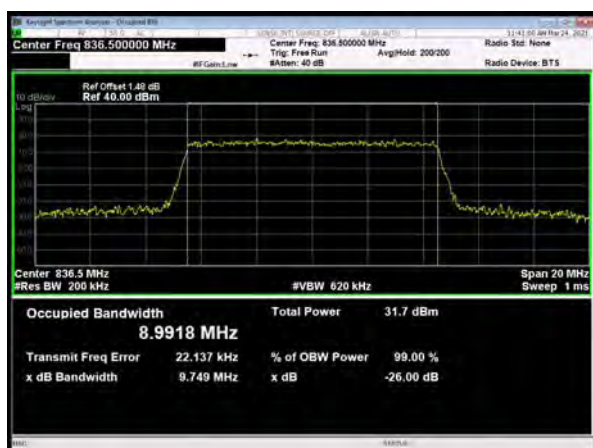
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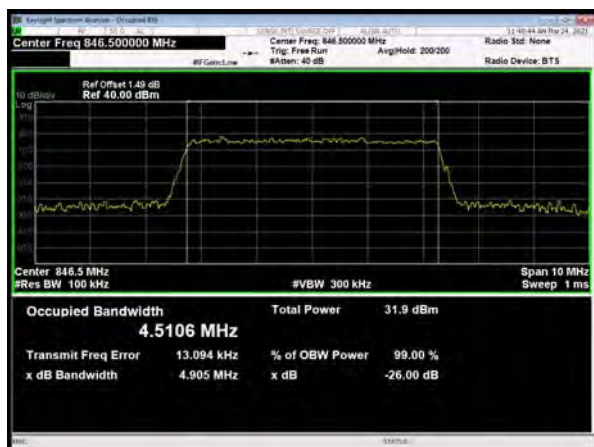
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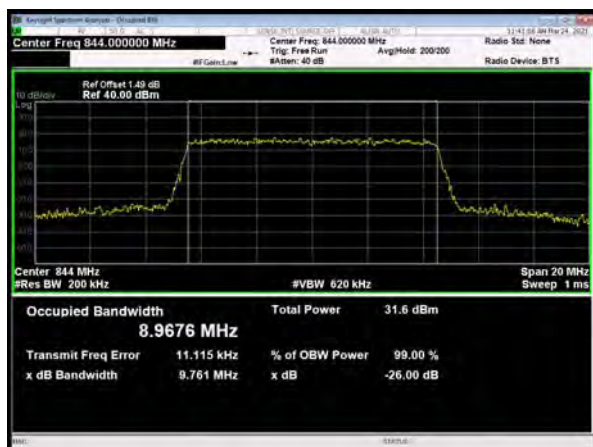
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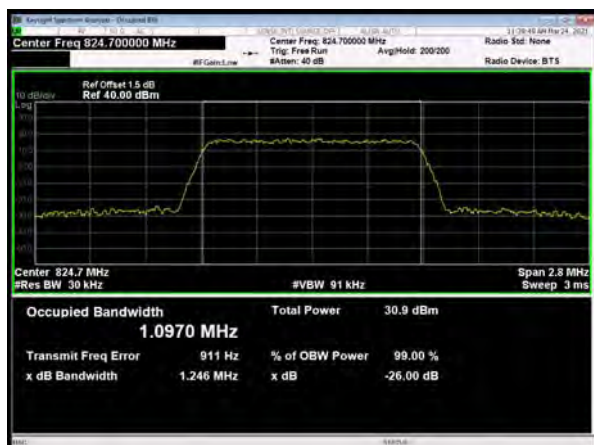
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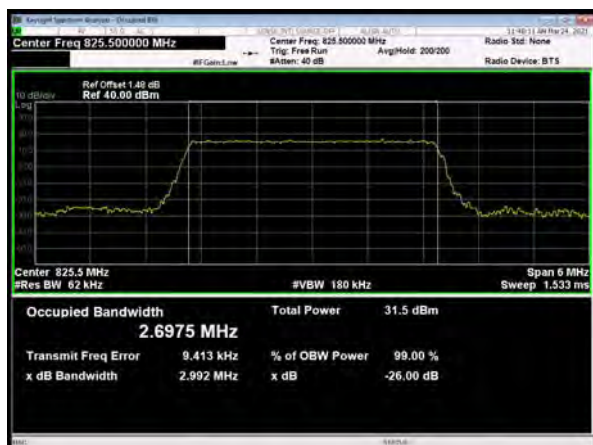
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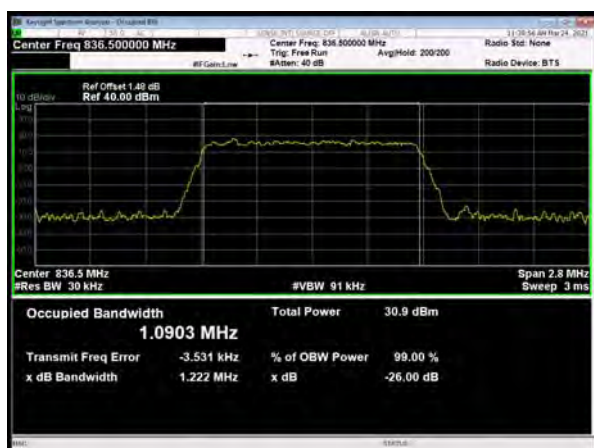
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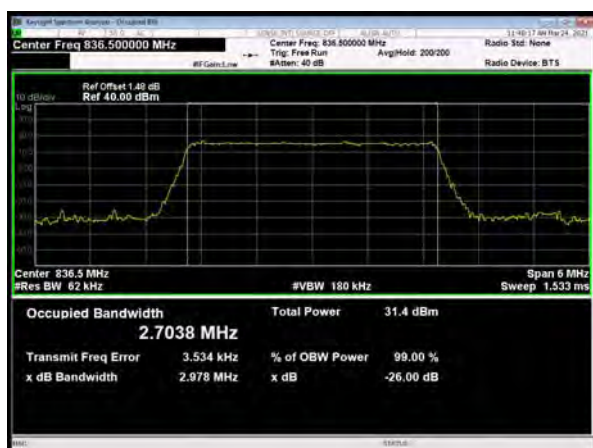
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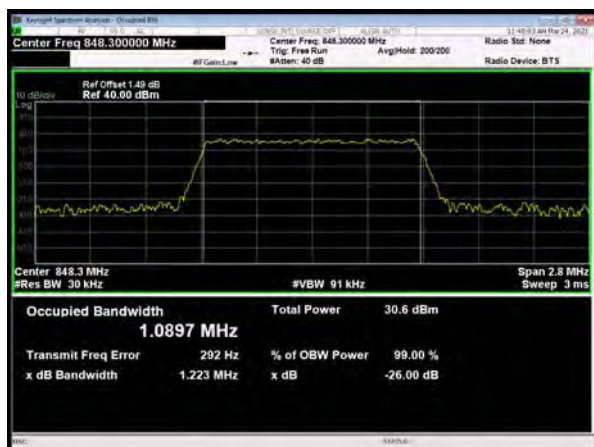
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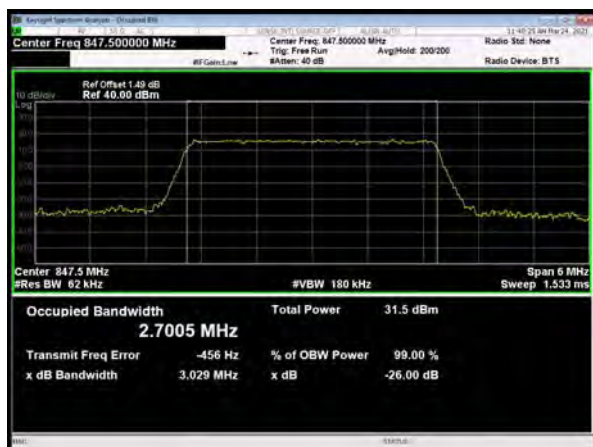
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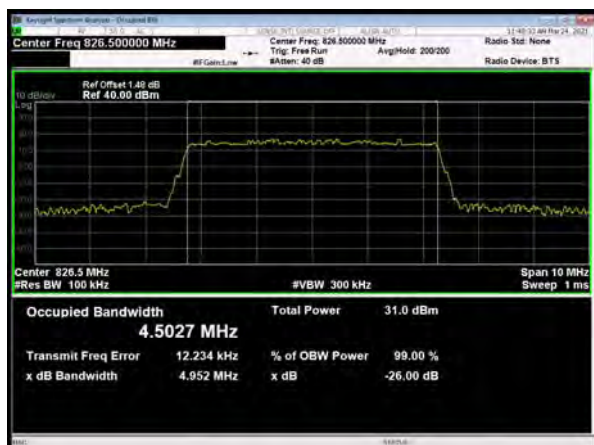
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LTE Band 5 16QAM 3MHz CH-High



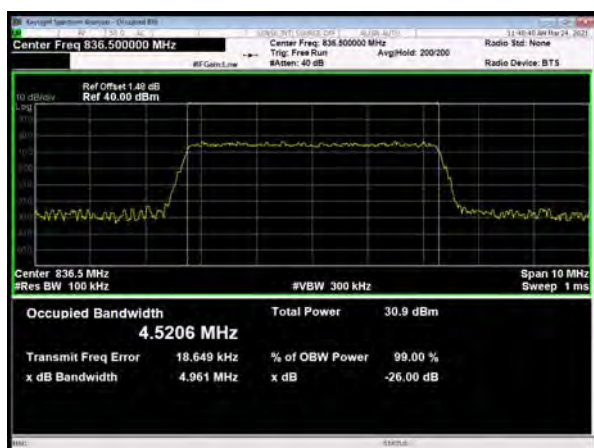
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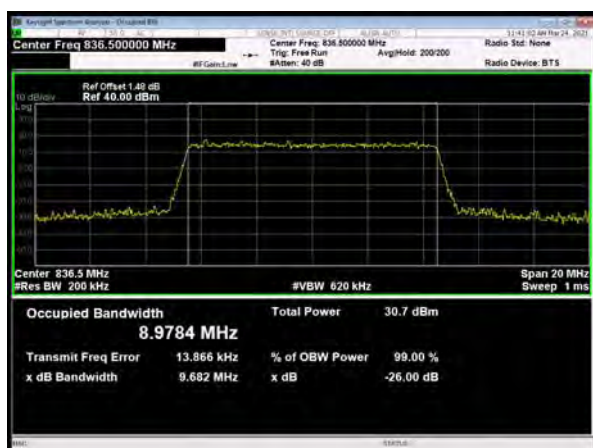
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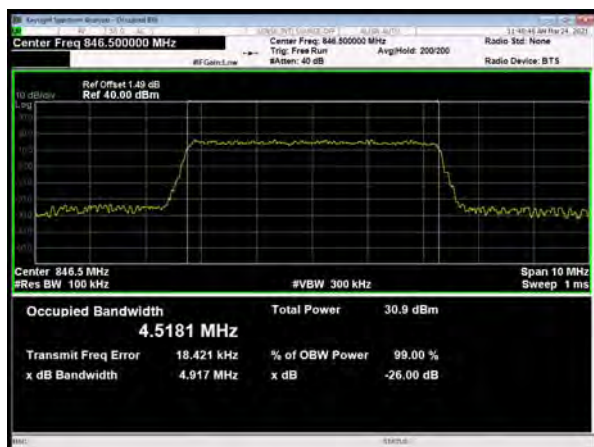
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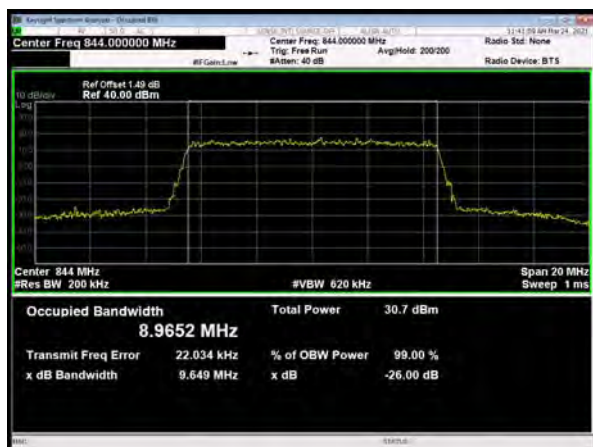
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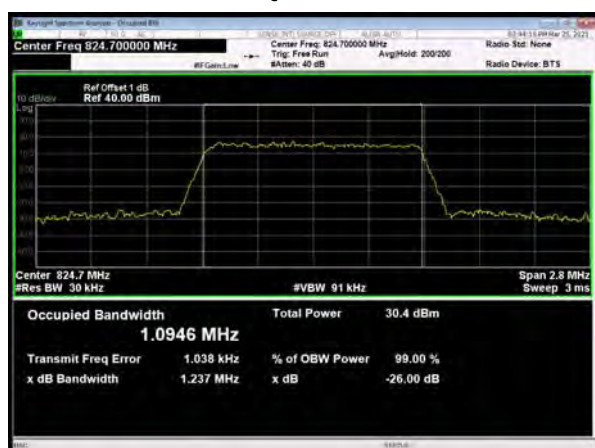
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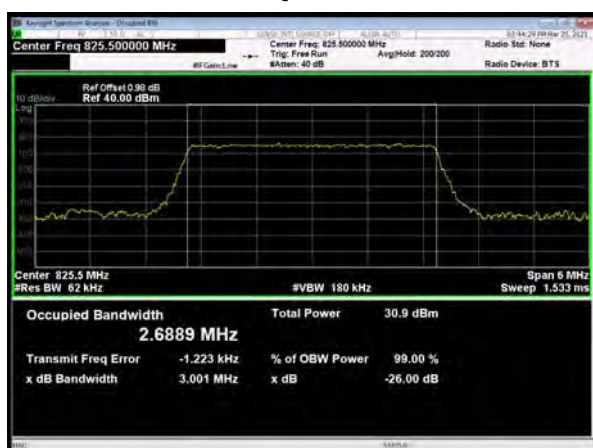
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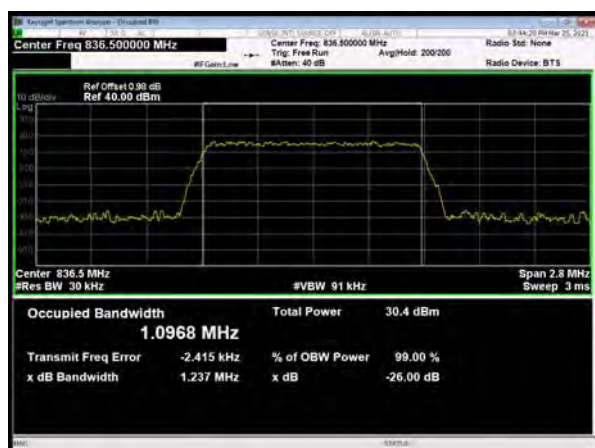
LTE Band 5 64QAM 1.4MHz CH-Low



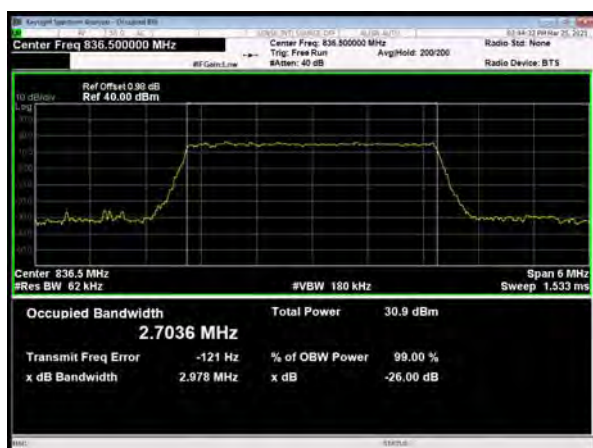
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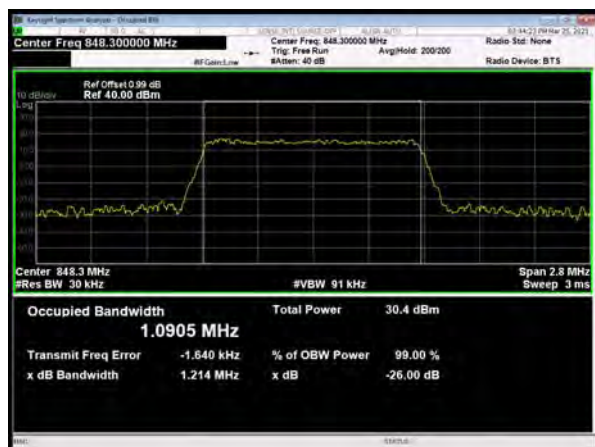
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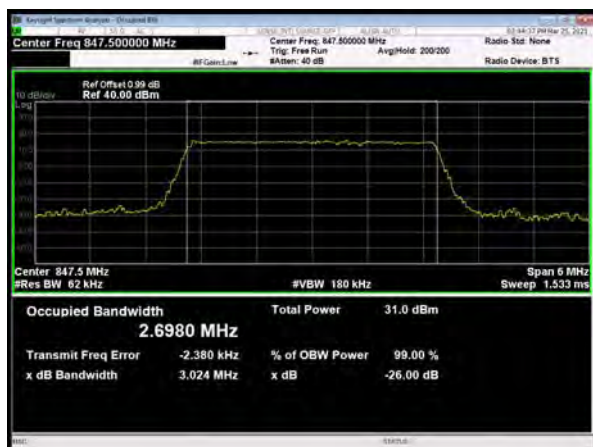
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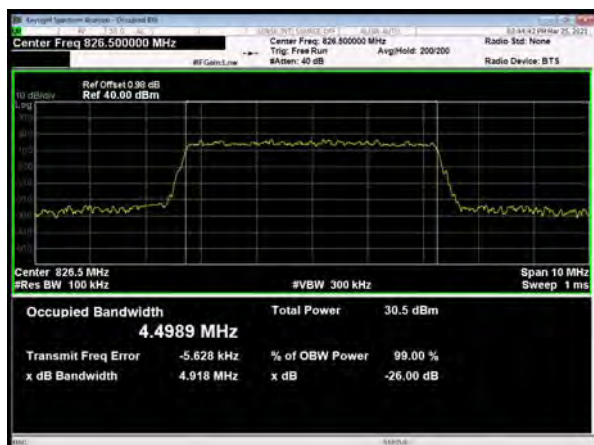
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LTE Band 5 64QAM 3MHz CH-High



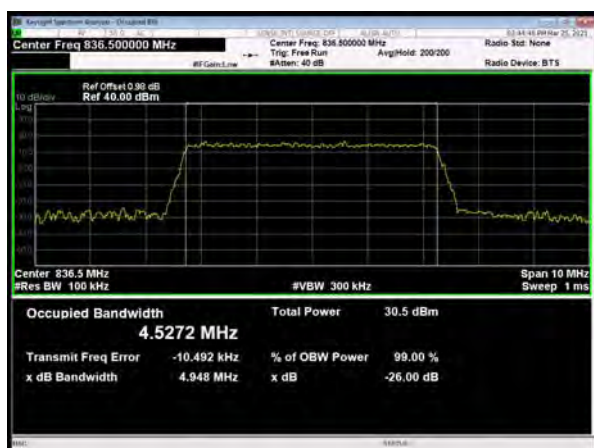
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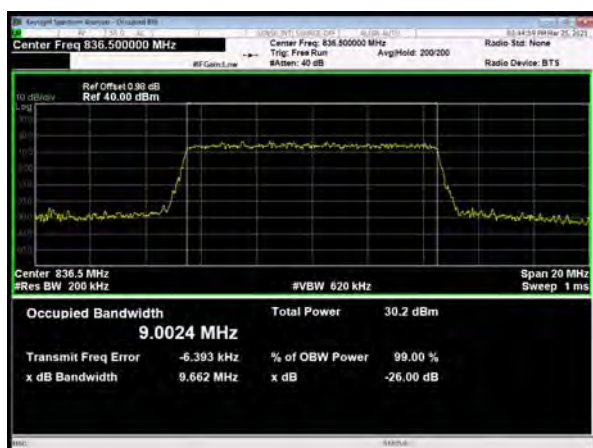
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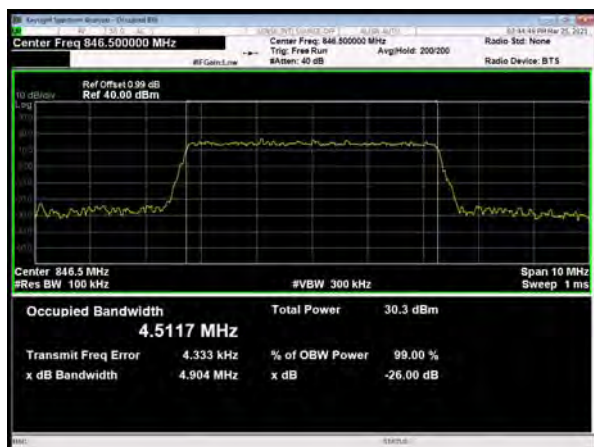
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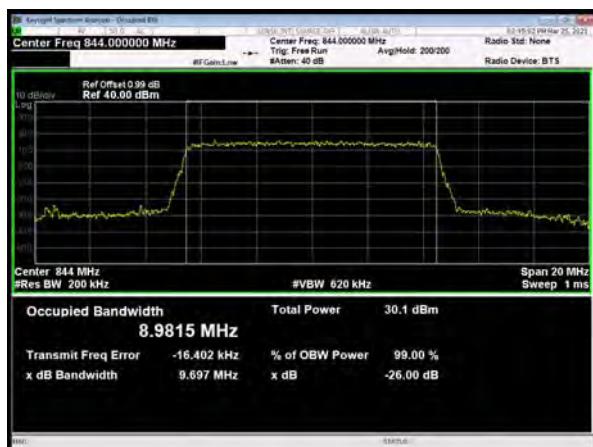
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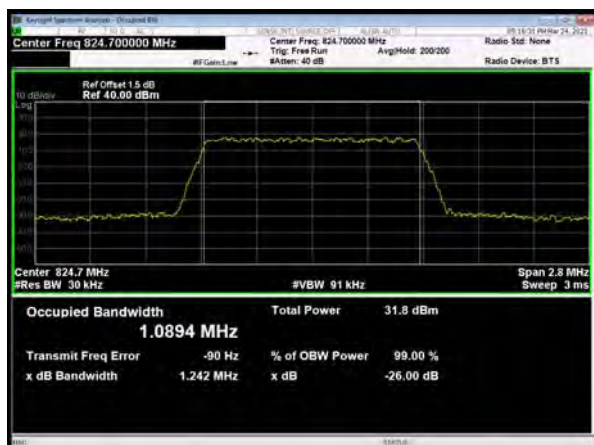
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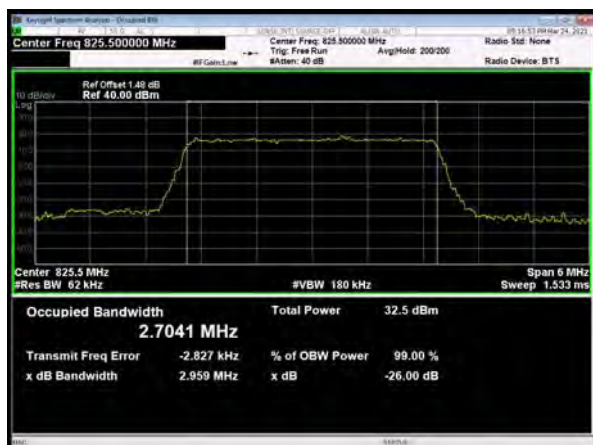
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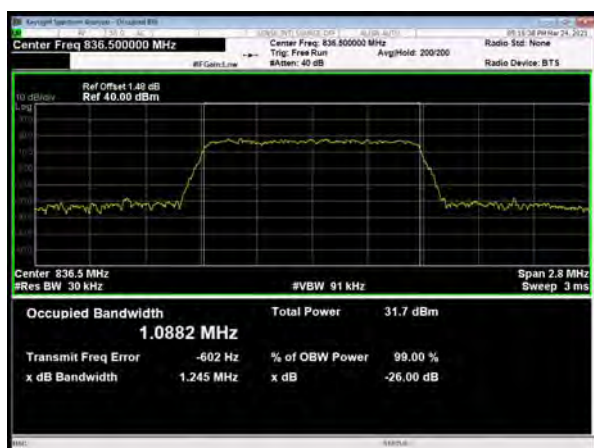
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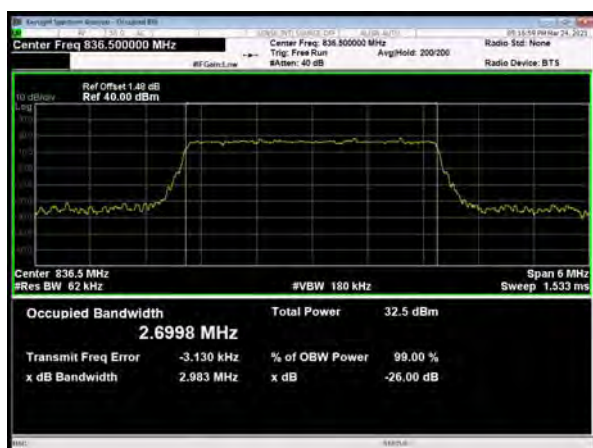
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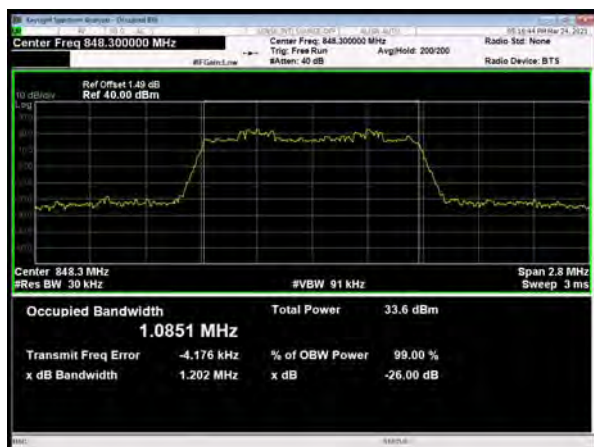
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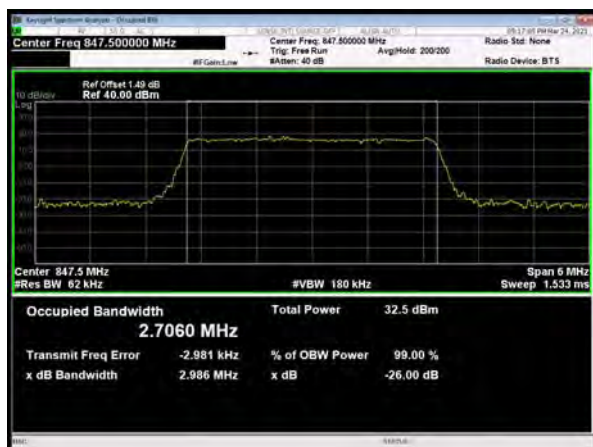
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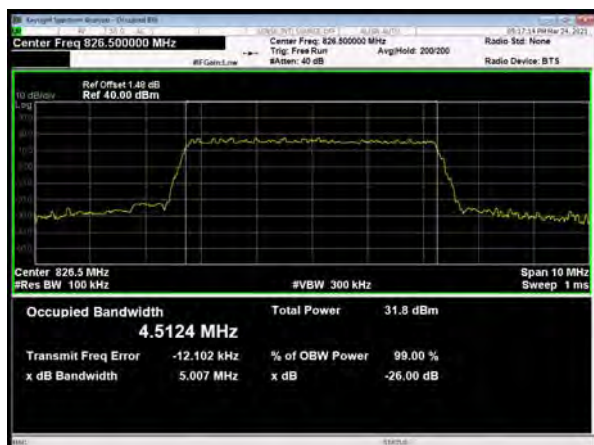
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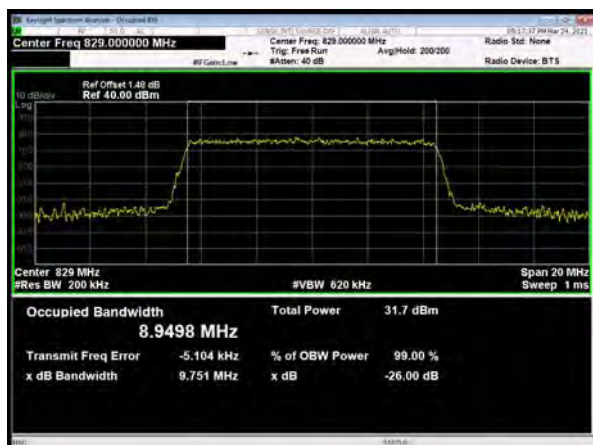
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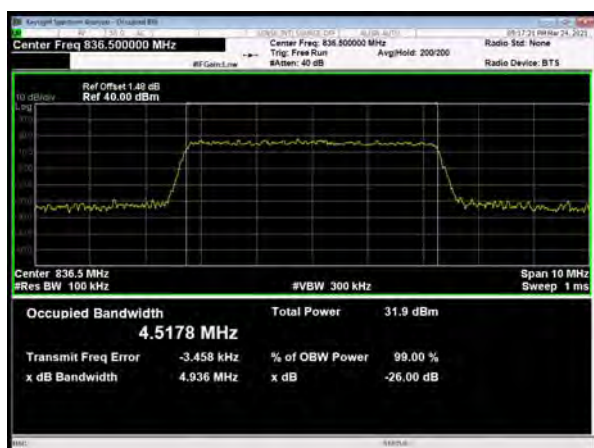
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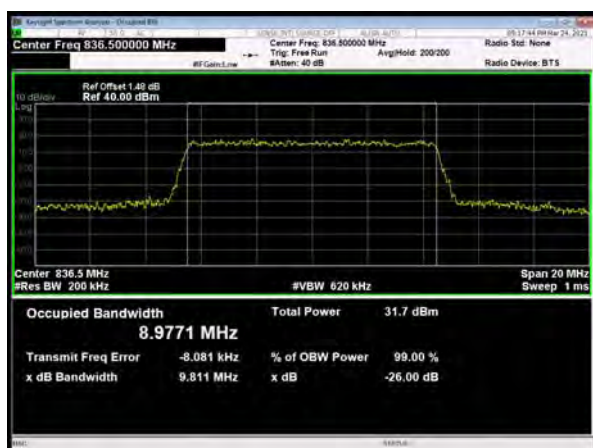
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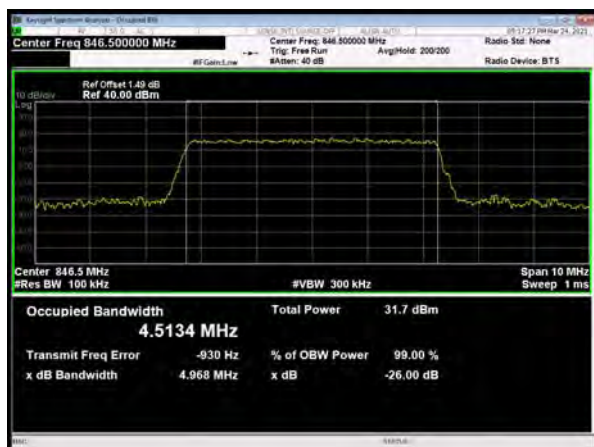
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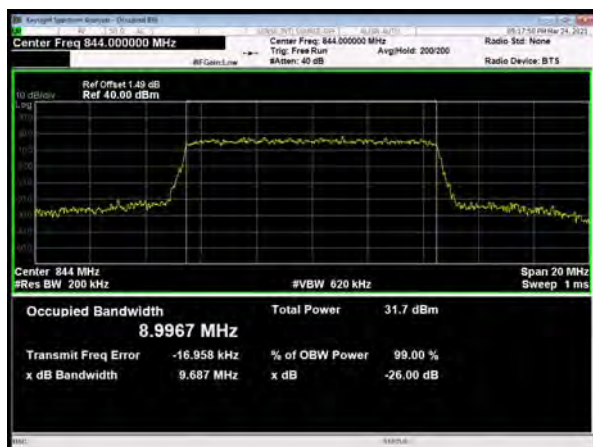
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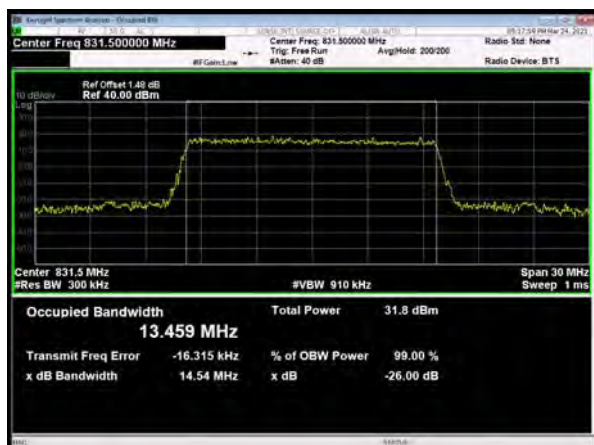
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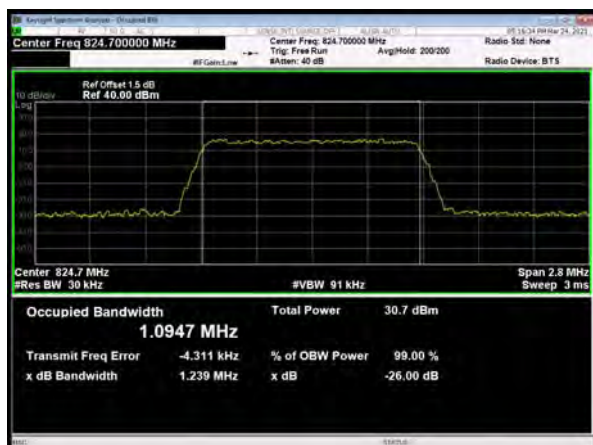
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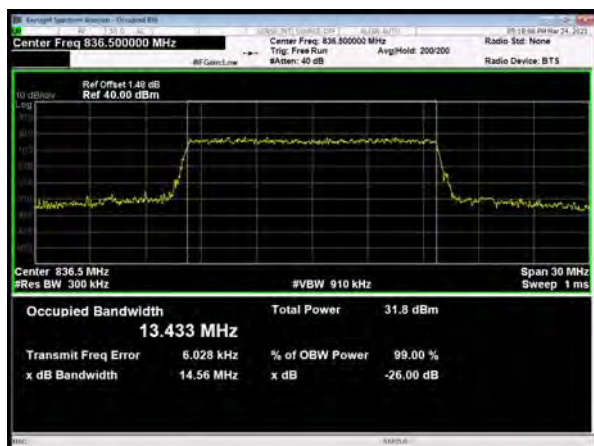
LTE Band 26 QPSK 15MHz CH-Low



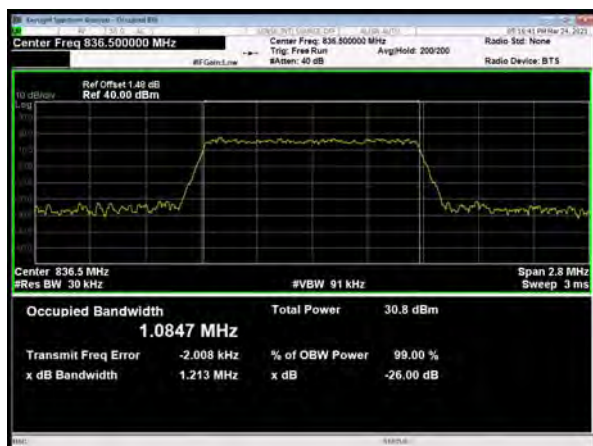
LTE Band 26 16QAM 1.4MHz CH-Low



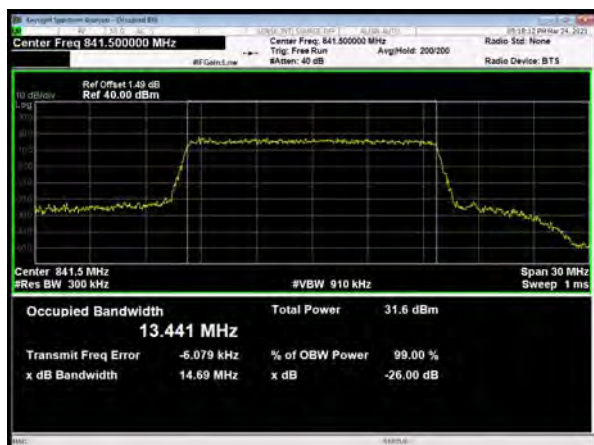
LTE Band 26 QPSK 15MHz CH-Middle



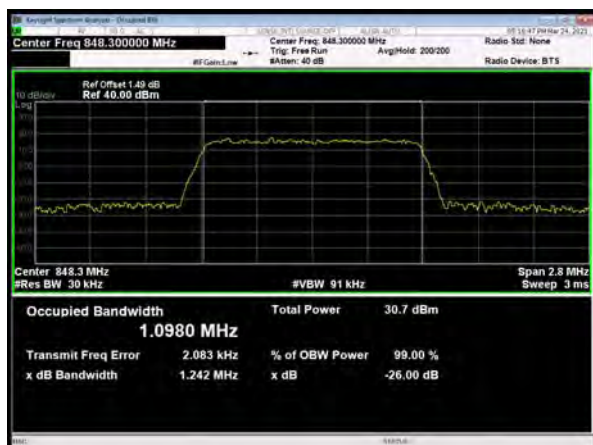
LTE Band 26 16QAM 1.4MHz CH-Middle



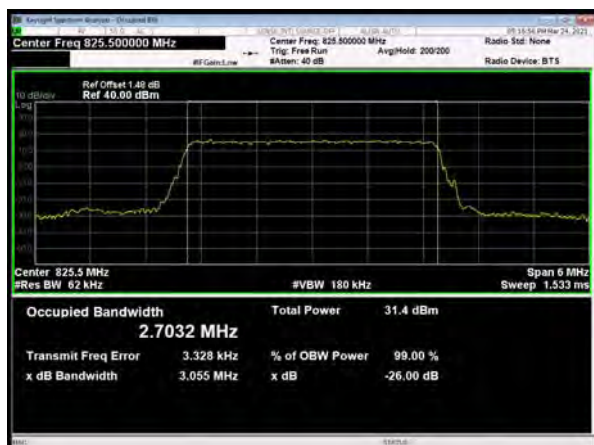
LTE Band 26 QPSK 15MHz CH-High



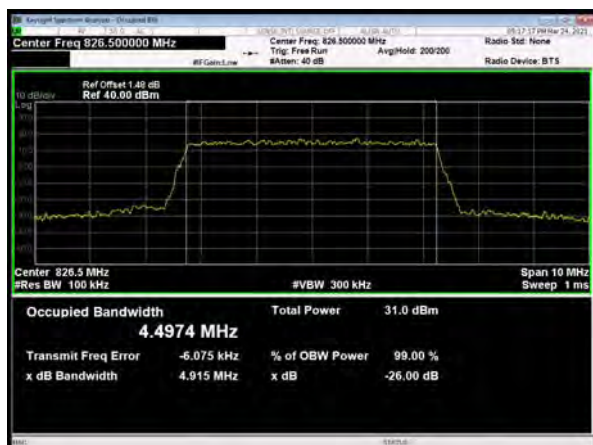
LTE Band 26 16QAM 1.4MHz CH-High



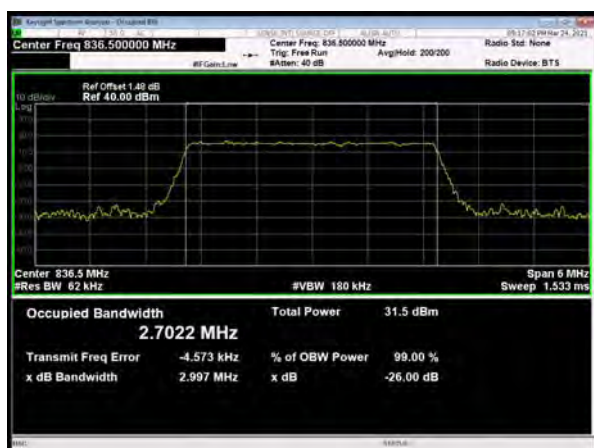
LTE Band 26 16QAM 3MHz CH-Low



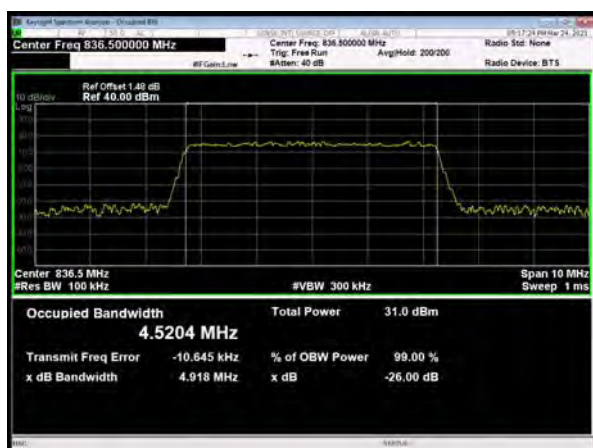
LTE Band 26 16QAM 5MHz CH-Low



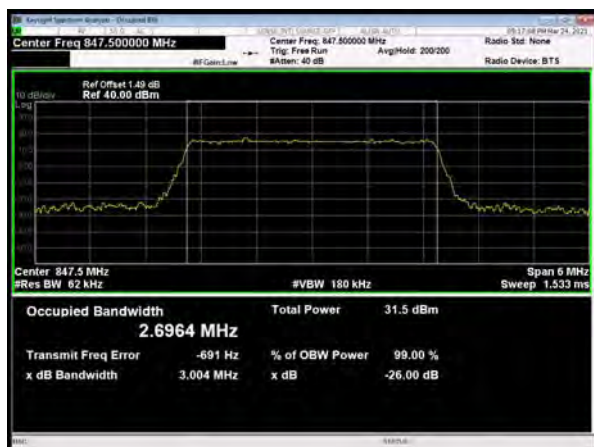
LTE Band 26 16QAM 3MHz CH-Middle



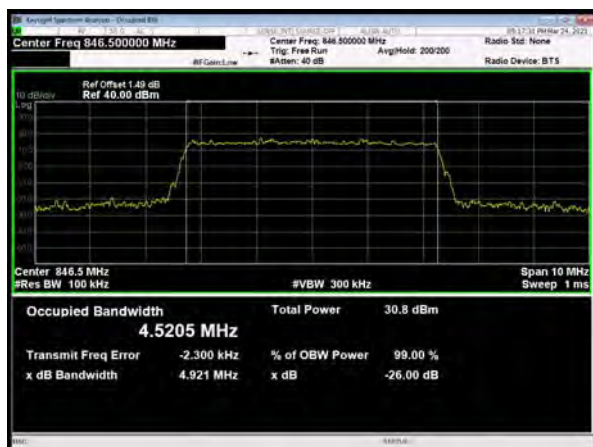
LTE Band 26 16QAM 5MHz CH-Middle



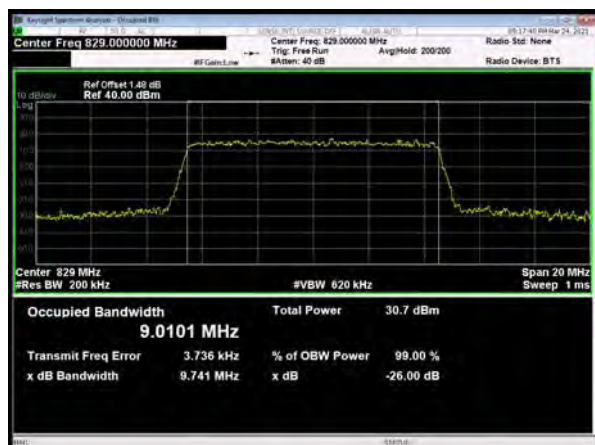
LTE Band 26 16QAM 3MHz CH-High



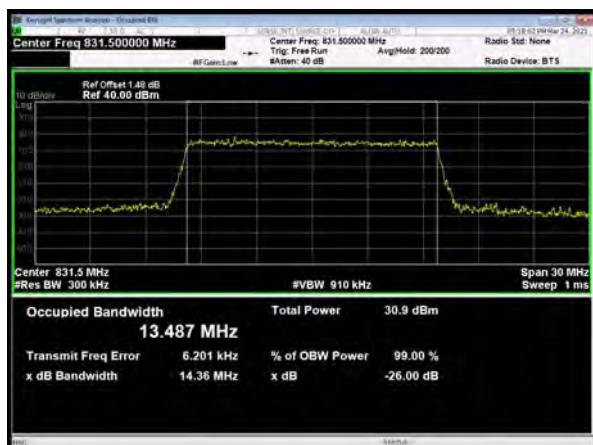
LTE Band 26 16QAM 5MHz CH-High



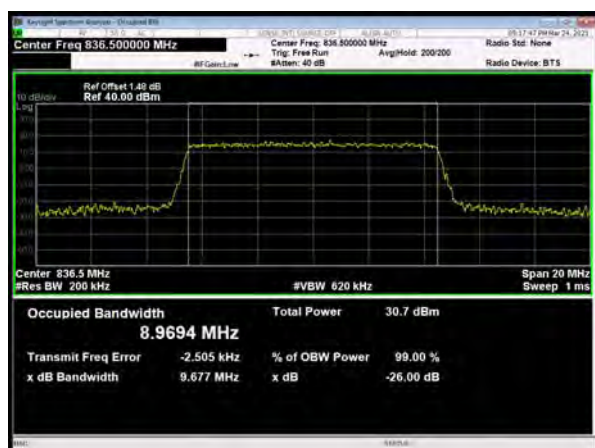
LTE Band 26 16QAM 10MHz CH-Low



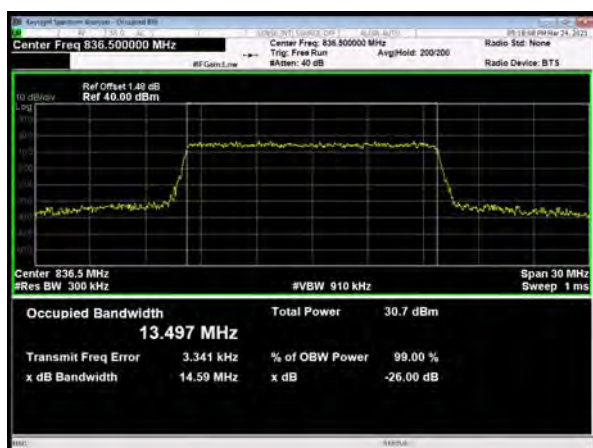
LTE Band 26 16QAM 15MHz CH-Low



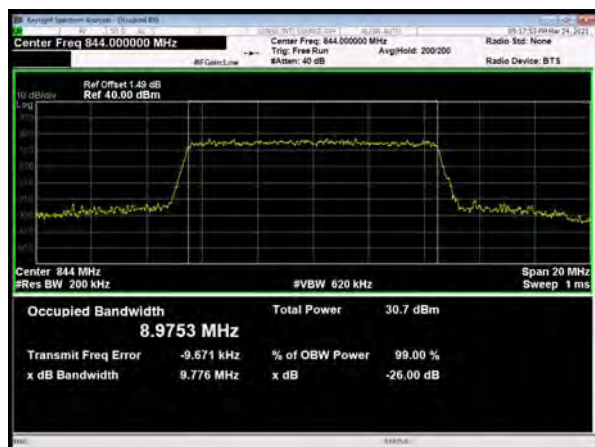
LTE Band 26 16QAM 10MHz CH-Middle



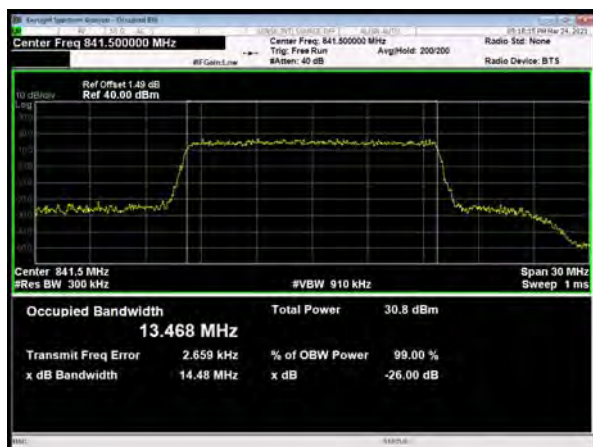
LTE Band 26 16QAM 15MHz CH-Middle



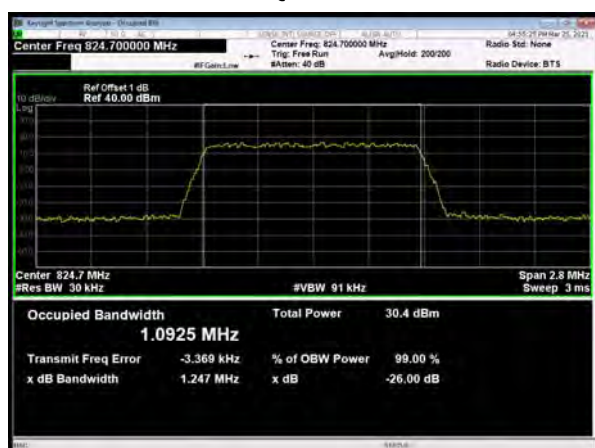
LTE Band 26 16QAM 10MHz CH-High



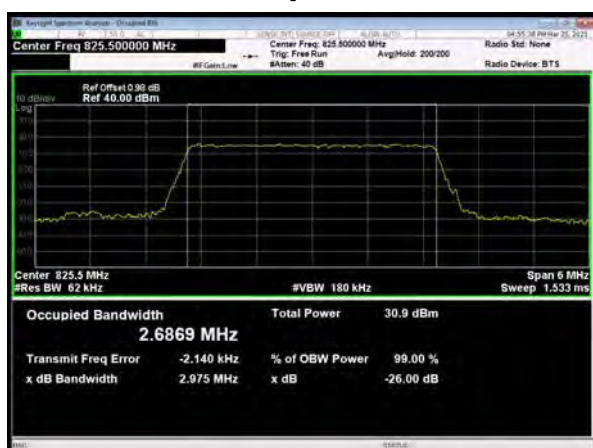
LTE Band 26 16QAM 15MHz CH-High



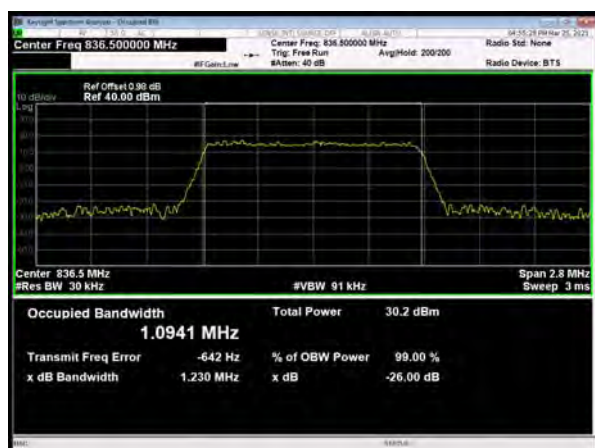
LTE Band 26 64QAM 1.4MHz CH-Low



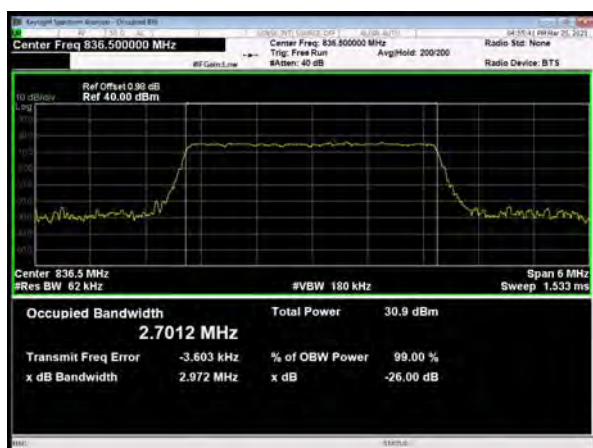
LTE Band 26 64QAM 3MHz CH-Low



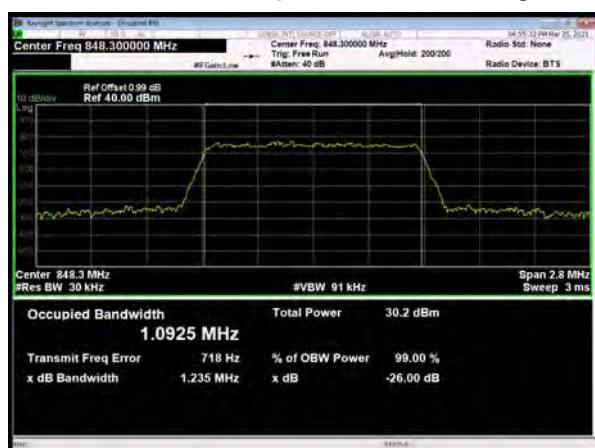
LTE Band 26 64QAM 1.4MHz CH-Middle



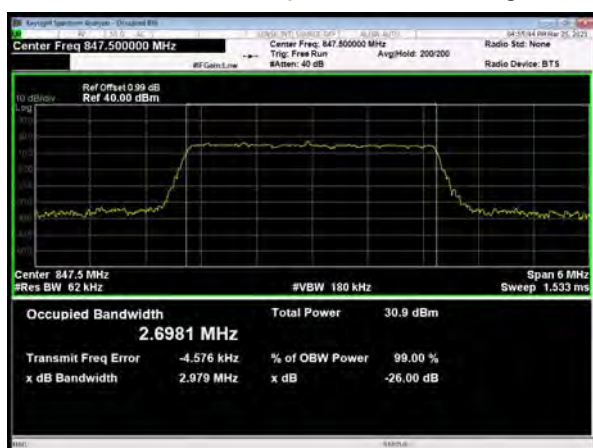
LTE Band 26 64QAM 3MHz CH-Middle



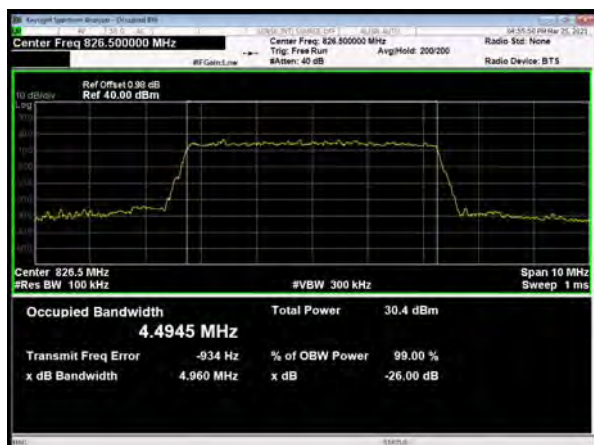
LTE Band 26 64QAM 1.4MHz CH-High



LTE Band 26 64QAM 3MHz CH-High



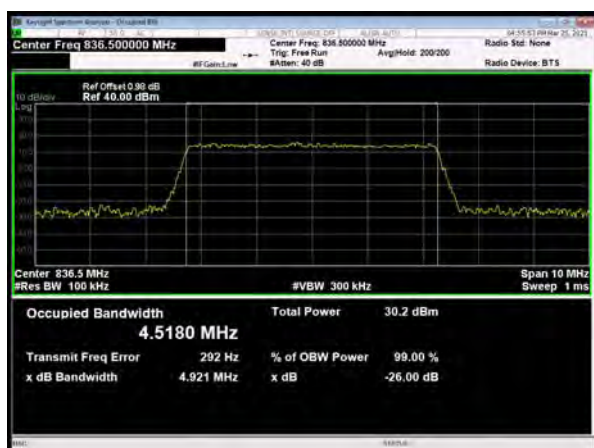
LTE Band 26 64QAM 5MHz CH-Low



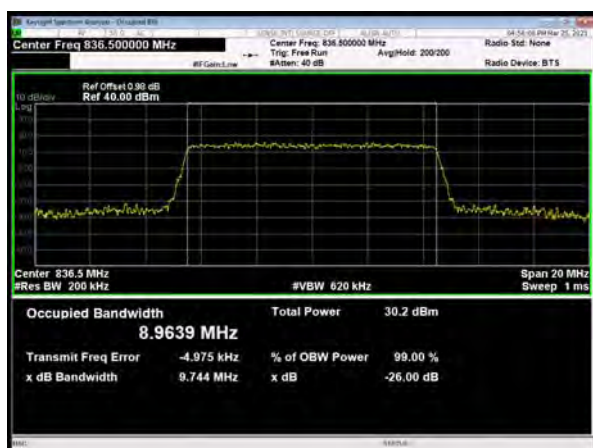
LTE Band 26 64QAM 10MHz CH-Low



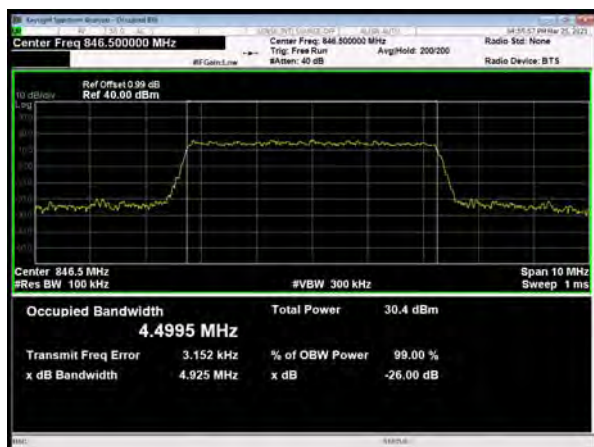
LTE Band 26 64QAM 5MHz CH-Middle



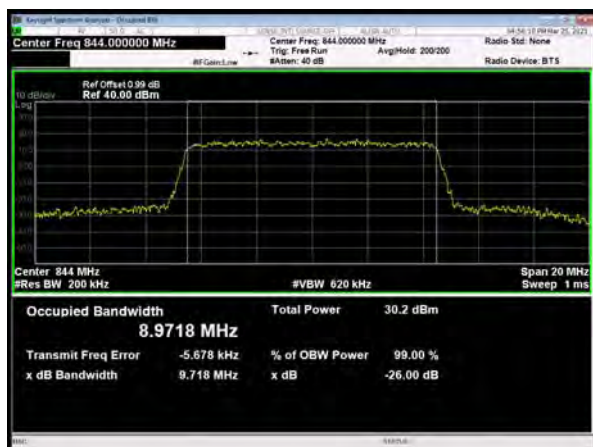
LTE Band 26 64QAM 10MHz CH-Middle



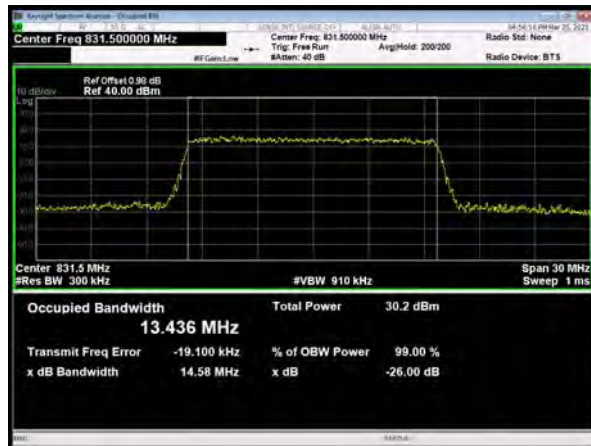
LTE Band 26 64QAM 5MHz CH-High



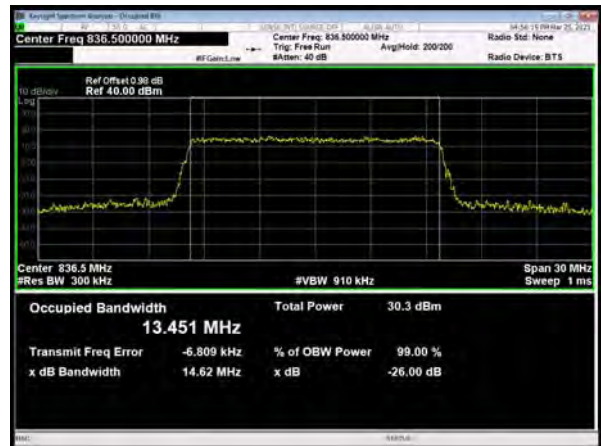
LTE Band 26 64QAM 10MHz CH-High



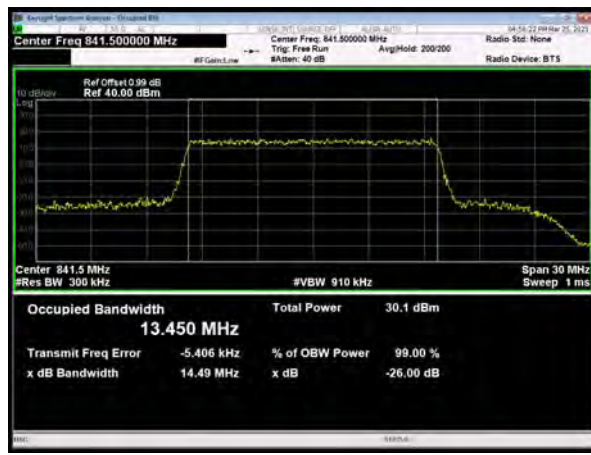
LTE Band 26 64QAM 15MHz CH-Low



LTE Band 26 64QAM 15MHz CH-Middle



LTE Band 26 64QAM 15MHz CH-High



5.3. Band Edge Compliance

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The average detector is used.

RBW is set to 3kHz,VBW is set to 10kHz for GSM 850,

RBW is set to 51kHz,VBW is set to 160kHz for WCDMA Band V,

RBW is set to 15kHz, VBW is set to 43kHz for LTE Band 5/26 (1.4MHz),

RBW is set to 30kHz,VBW is set to 91kHz for LTE Band 5/26 (3MHz),

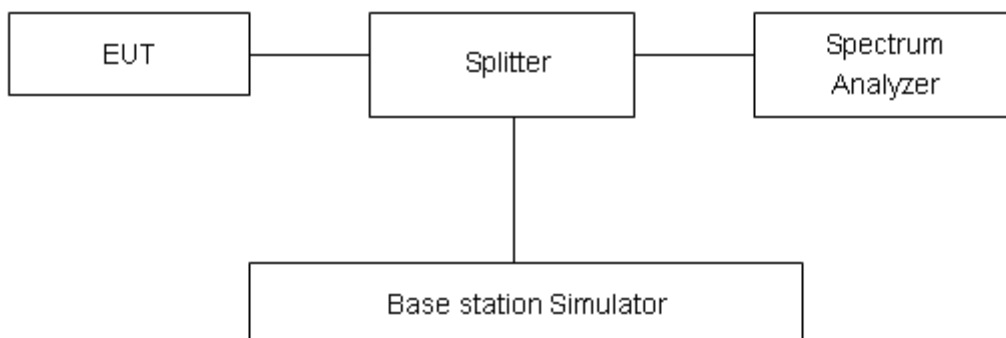
RBW is set to 51kHz,VBW is set to 150kHz for LTE Band 5/26 (5MHz),

RBW is set to 100kHz,VBW is set to 300kHz for LTE Band 5/26 (10MHz),

RBW is set to 150kHz,VBW is set to 470kHz for LTE Band 26 (15MHz),

Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.”

Limit	-13 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U=0.684$ dB.

Test Result:

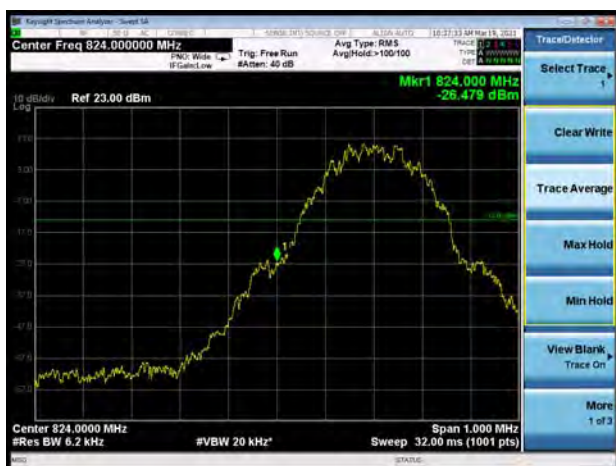
GSM 850 CH-Low



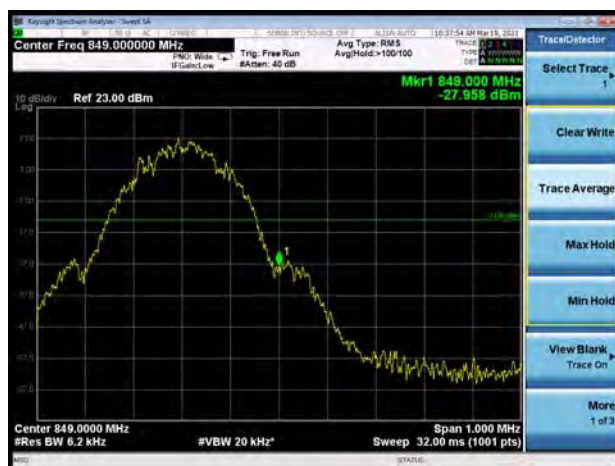
GSM 850 CH-High



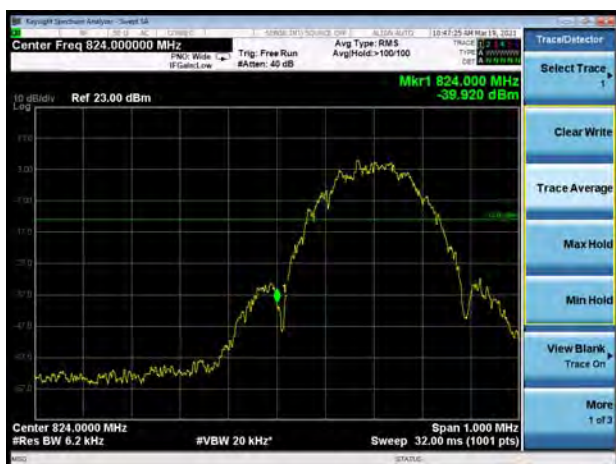
GSM 850 GPRS CH-Low



GSM 850 GPRS CH-High



GSM 850 EGPRS CH-Low



GSM 850 EGPRS CH-High



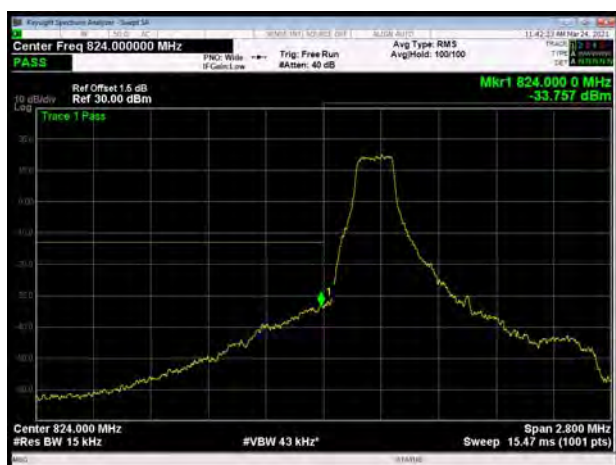
WCDMA Band V CH-Low



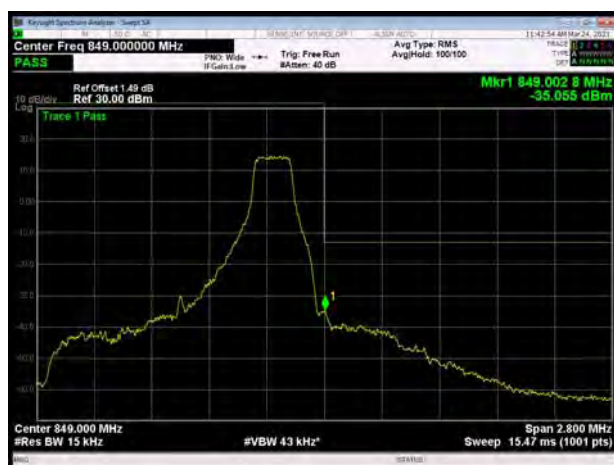
WCDMA Band V CH-High



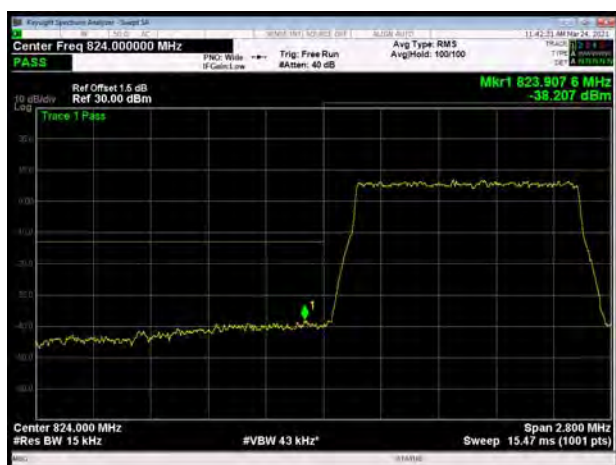
LTE Band 5 QPSK 1.4MHz CH-Low 1RB



LTE Band 5 QPSK 1.4MHz CH-High 1RB



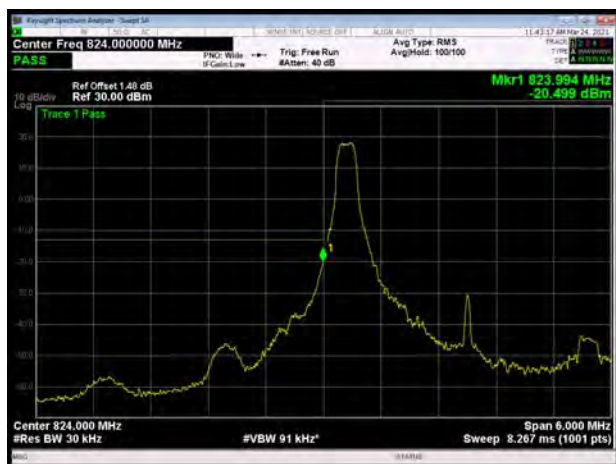
LTE Band 5 QPSK 1.4MHz CH-Low 100%RB



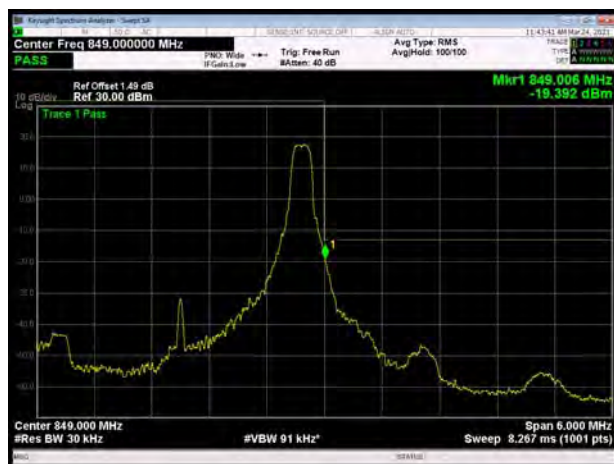
LTE Band 5 QPSK 1.4MHz CH-High 100%RB



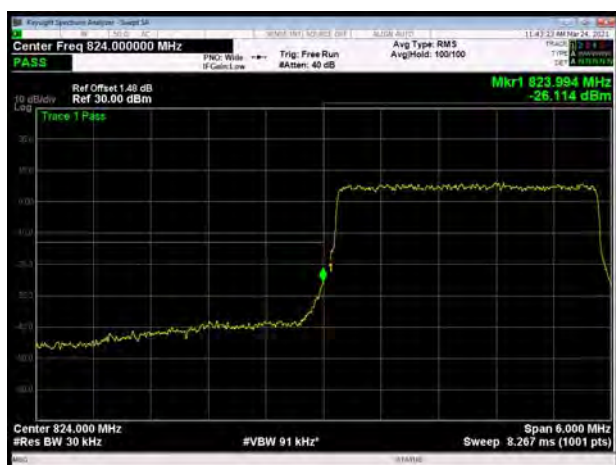
LTE Band 5 QPSK 3MHz CH-Low 1RB



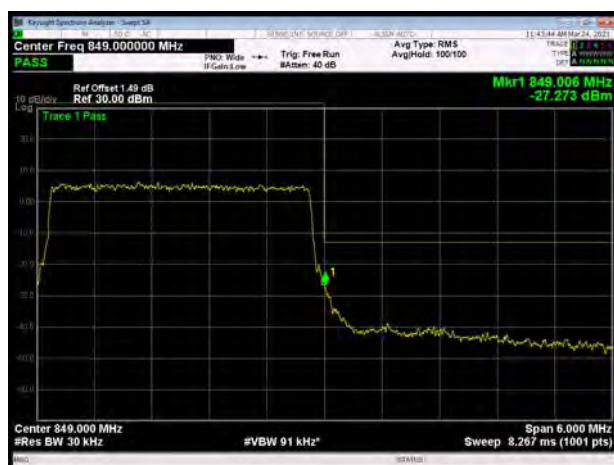
LTE Band 5 QPSK 3MHz CH-High 1RB



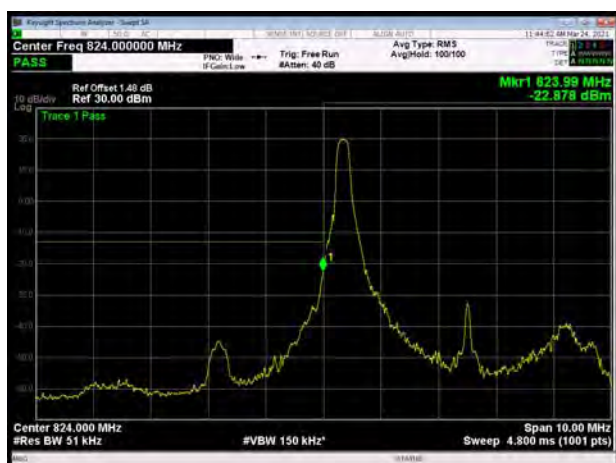
LTE Band 5 QPSK 3MHz CH-Low 100%RB



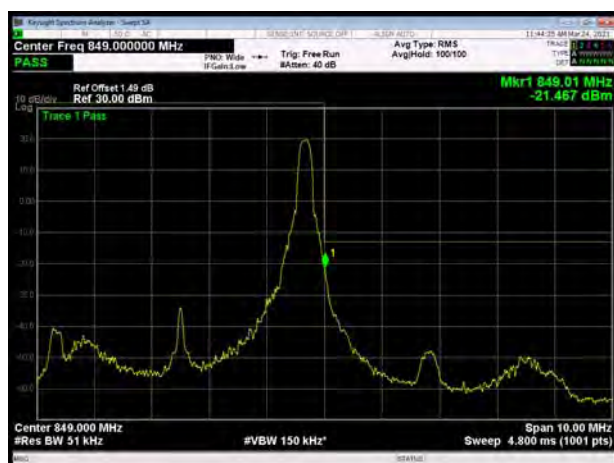
LTE Band 5 QPSK 3MHz CH-High 100%RB



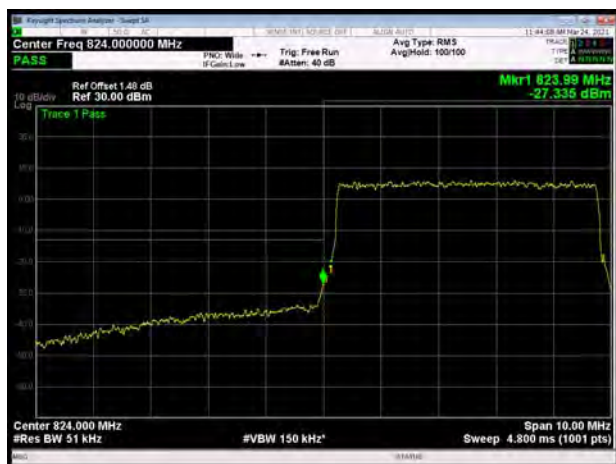
LTE Band 5 QPSK 5MHz CH-Low 1RB



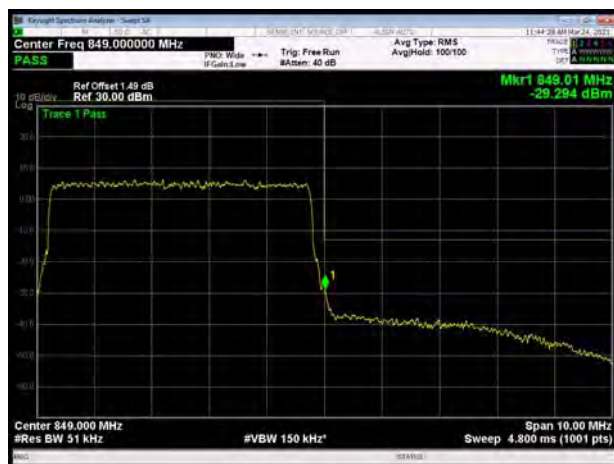
LTE Band 5 QPSK 5MHz CH-High 1RB



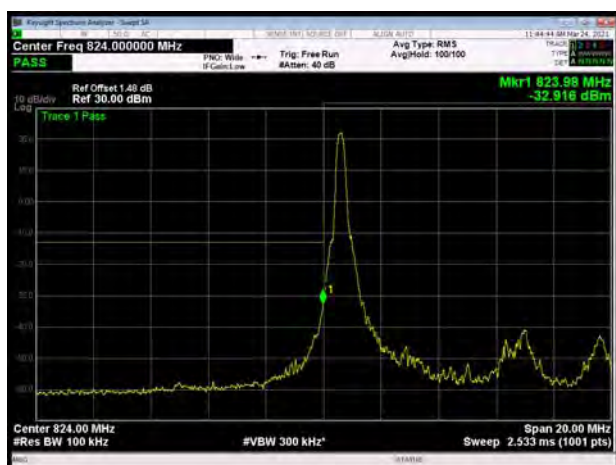
LTE Band 5 QPSK 5MHz CH-Low 100%RB



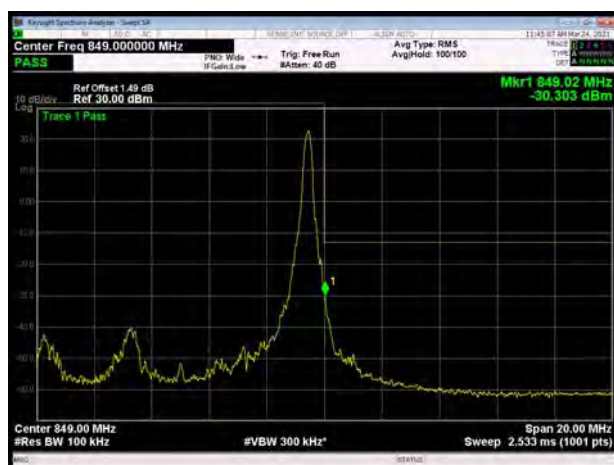
LTE Band 5 QPSK 5MHz CH-High 100%RB



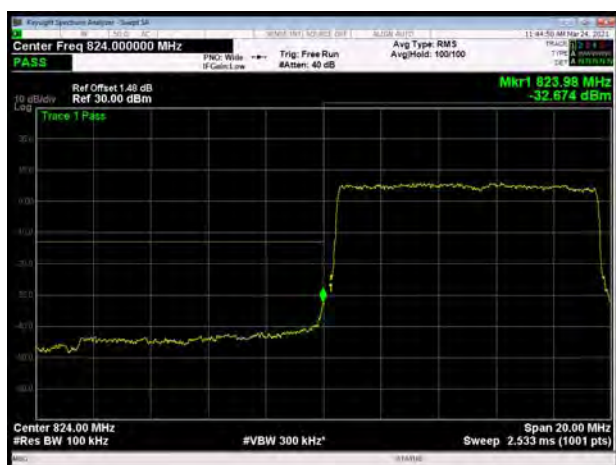
LTE Band 5 QPSK 10MHz CH-Low 1RB



LTE Band 5 QPSK 10MHz CH-High 1RB



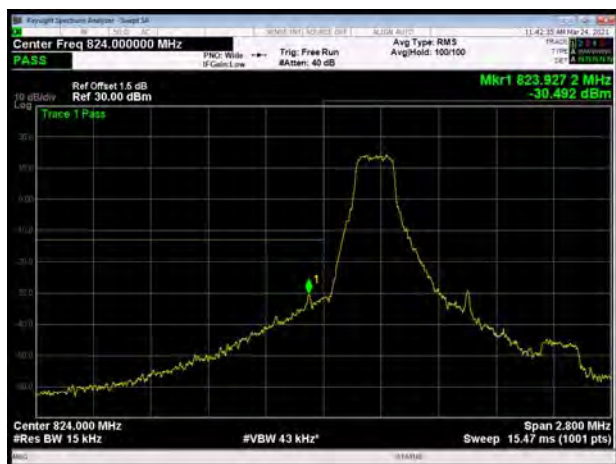
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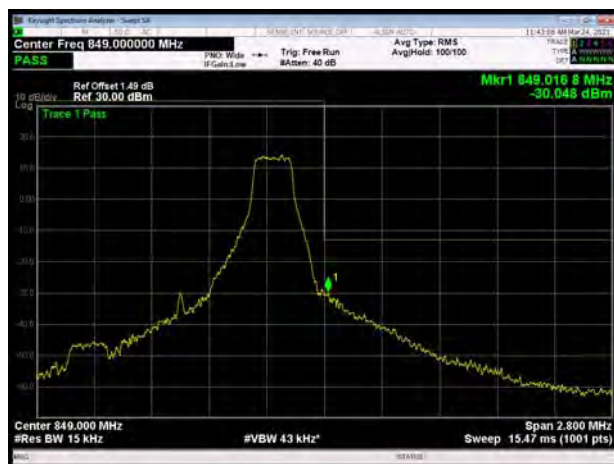
LTE Band 5 QPSK 10MHz CH-High 100%RB



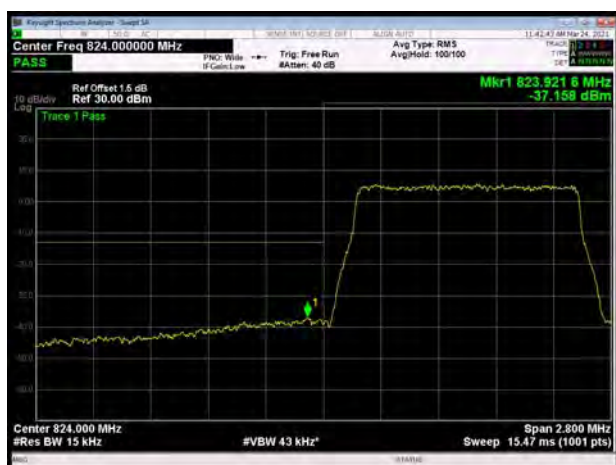
LTE Band 5 16QAM 1.4MHz CH-Low 1RB



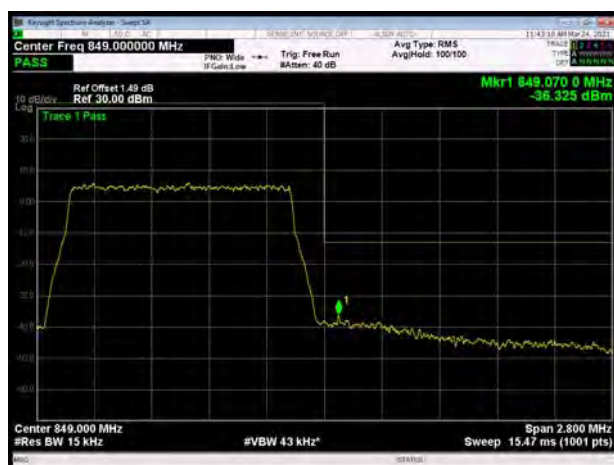
LTE Band 5 16QAM 1.4MHz CH-High 1RB



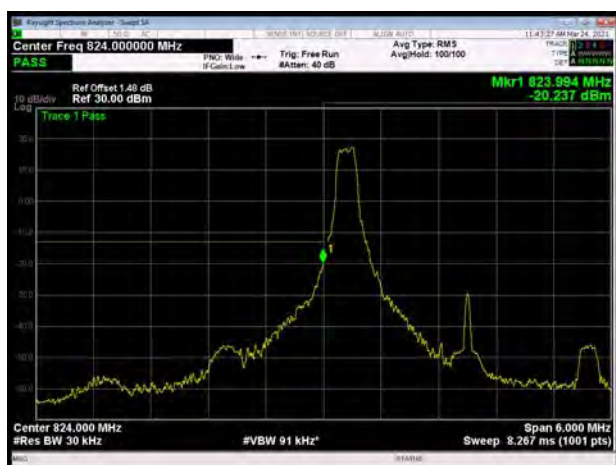
LTE Band 5 16QAM 1.4MHz CH-Low 100%RB



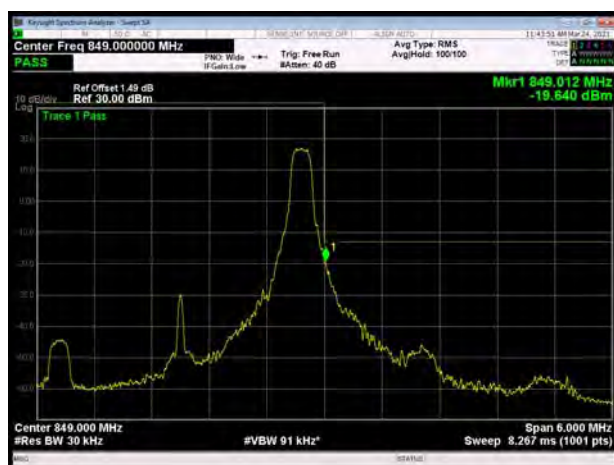
LTE Band 5 16QAM 1.4MHz CH-High 100%RB



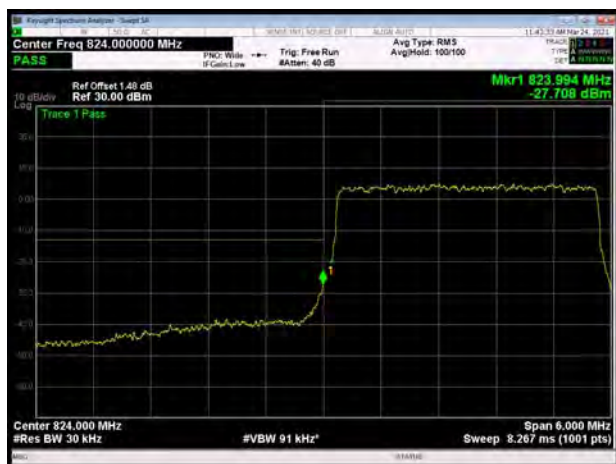
LTE Band 5 16QAM 3MHz CH-Low 1RB



LTE Band 5 16QAM 3MHz CH-High 1RB



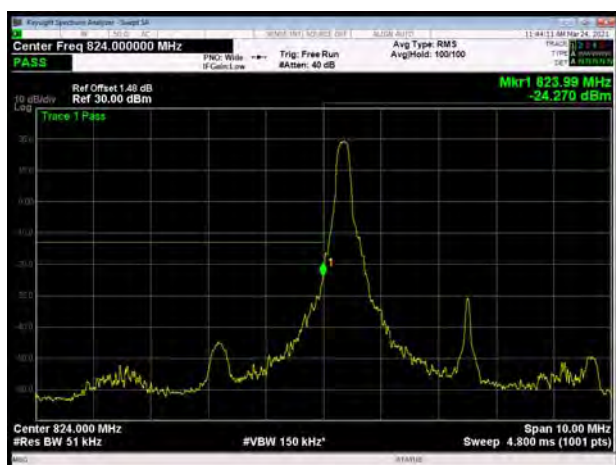
LTE Band 5 16QAM 3MHz CH-Low 100%RB



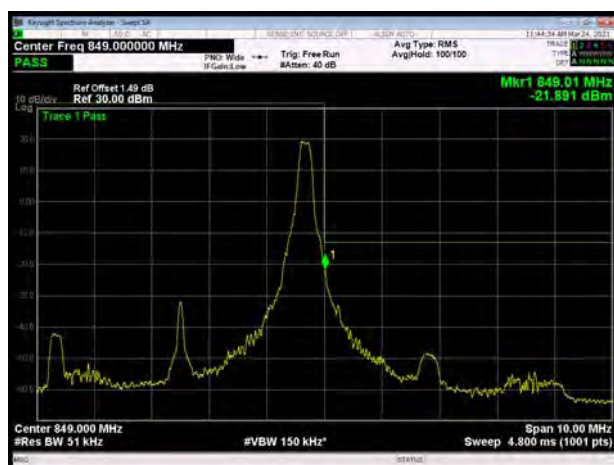
LTE Band 5 16QAM 3MHz CH-High 100%RB



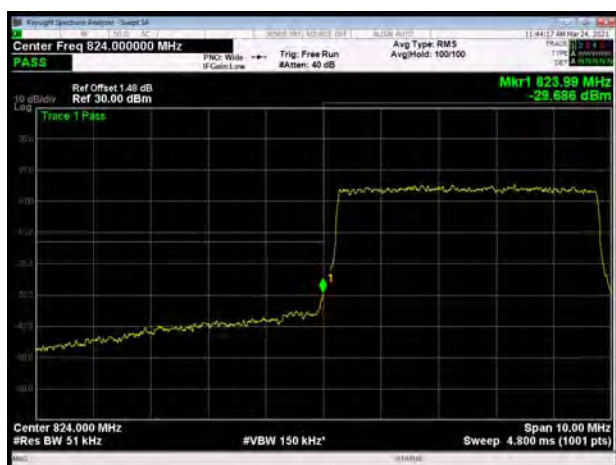
LTE Band 5 16QAM 5MHz CH-Low 1RB



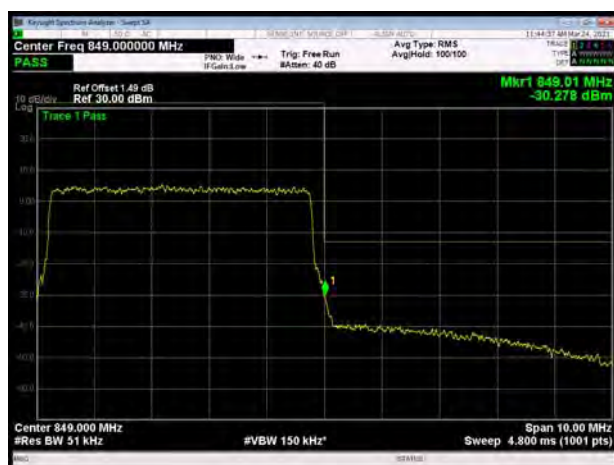
LTE Band 5 16QAM 5MHz CH-High 1RB



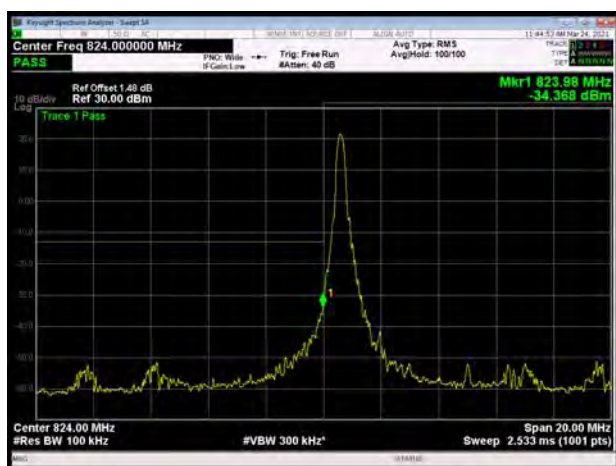
LTE Band 5 16QAM 5MHz CH-Low 100%RB



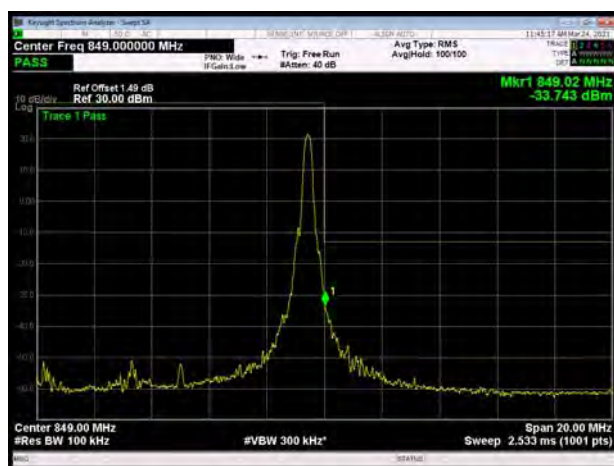
LTE Band 5 16QAM 5MHz CH-High 100%RB



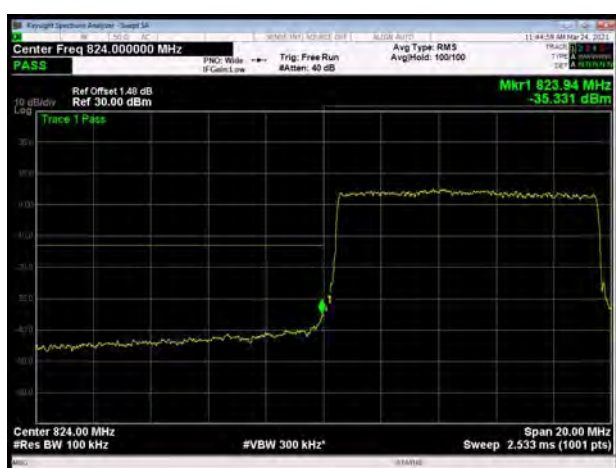
LTE Band 5 16QAM 10MHz CH-Low 1RB



LTE Band 5 16QAM 10MHz CH-High 1RB



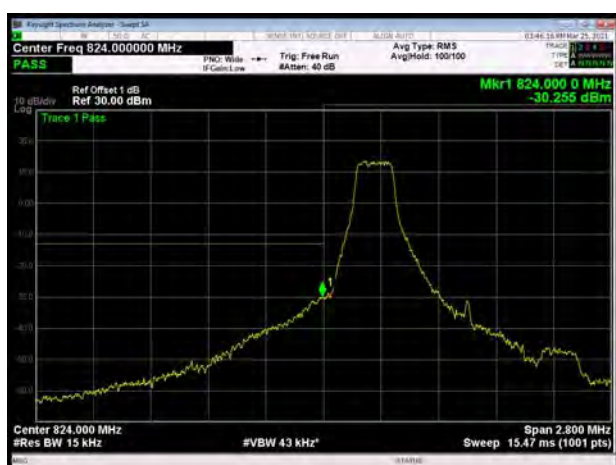
LTE Band 5 16QAM 10MHz CH-Low 100%RB



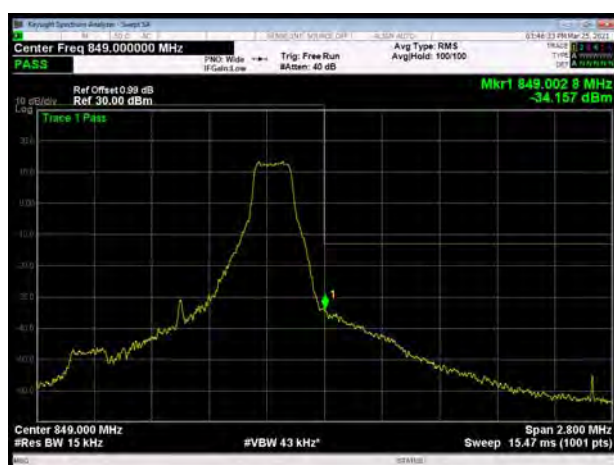
LTE Band 5 16QAM 10MHz CH-High 100%RB



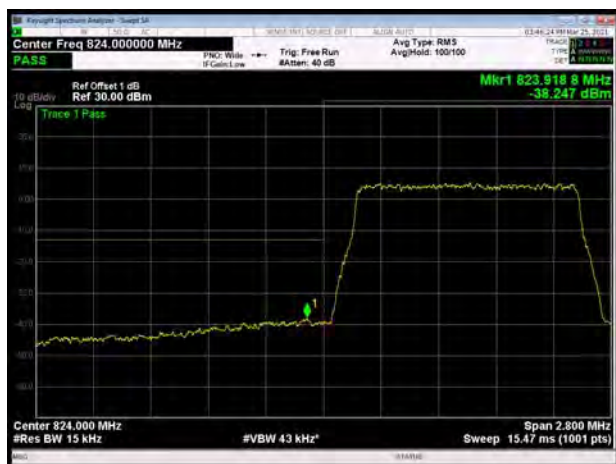
LTE Band 5 64QAM 1.4MHz CH-Low 1RB



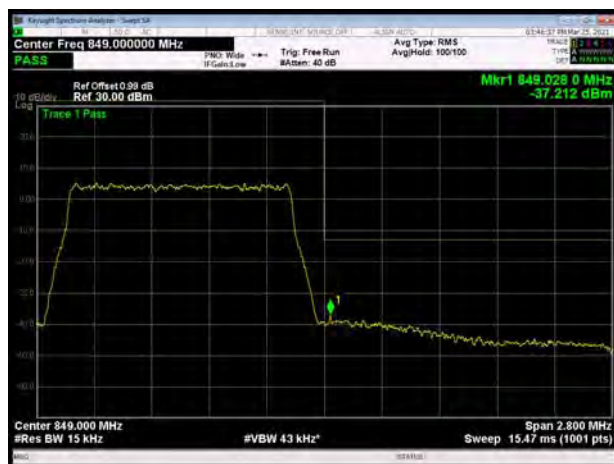
LTE Band 5 64QAM 1.4MHz CH-High 1RB



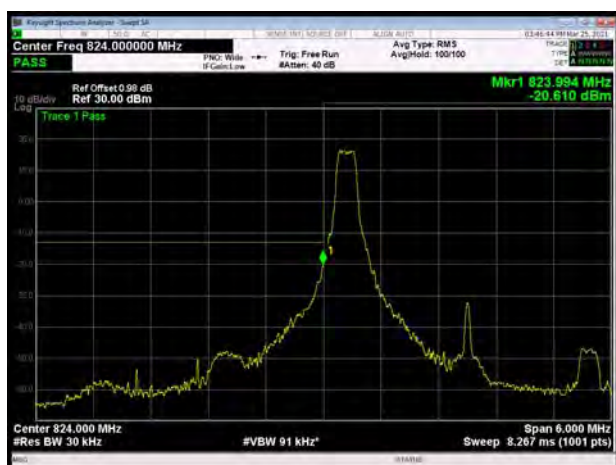
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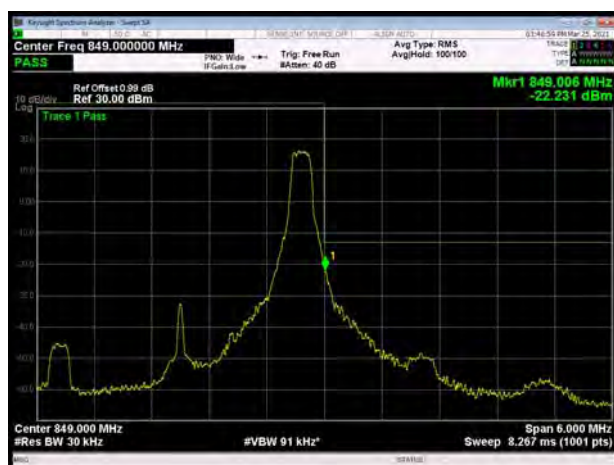
LTE Band 5 64QAM 1.4MHz CH-High 100%RB



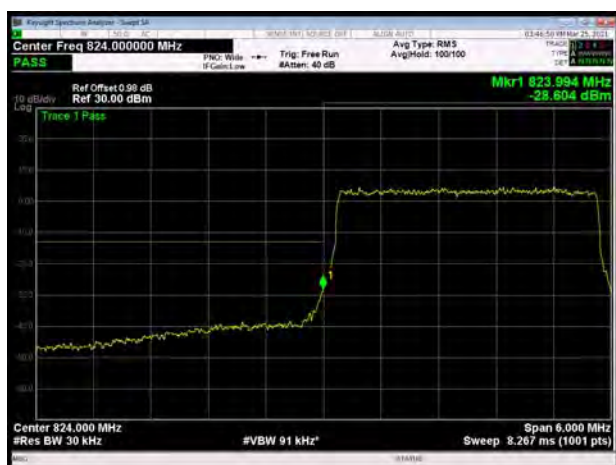
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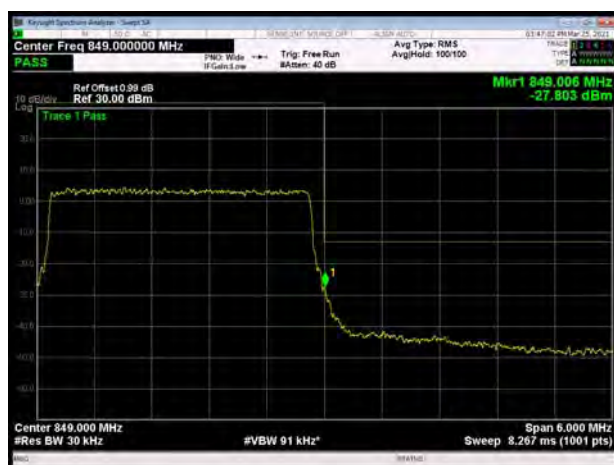
LTE Band 5 64QAM 3MHz CH-High 1RB



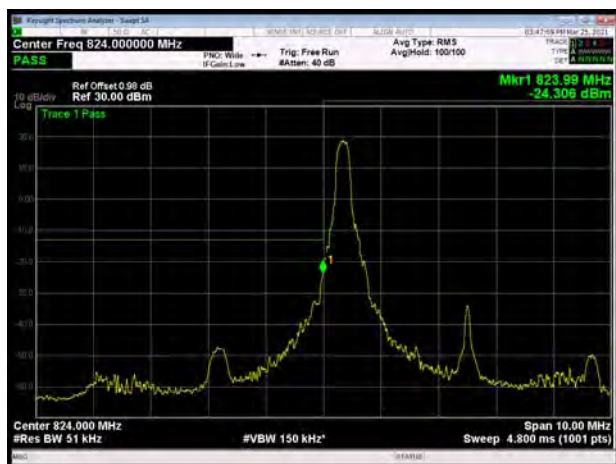
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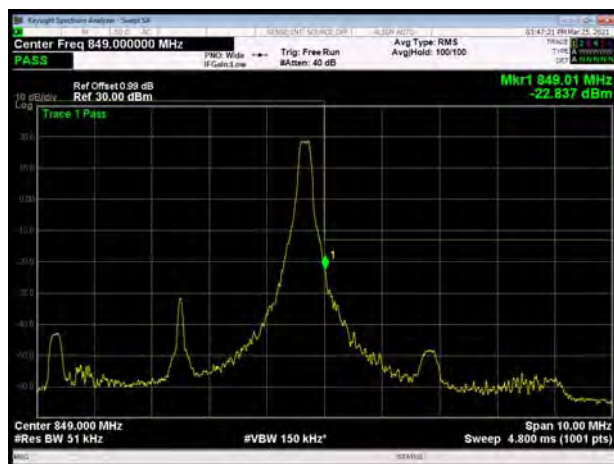
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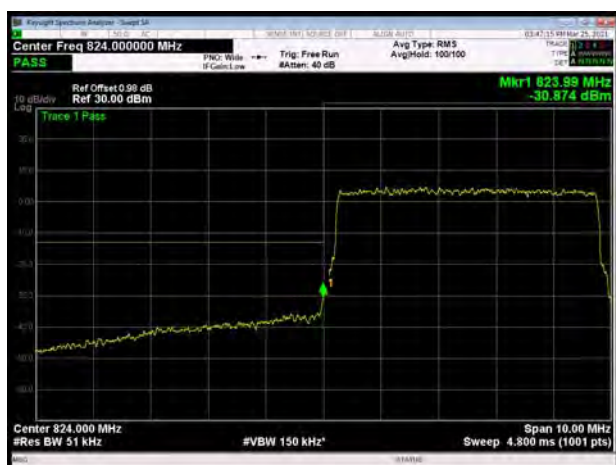
LTE Band 5 16QAM 5MHz CH-Low 1RB



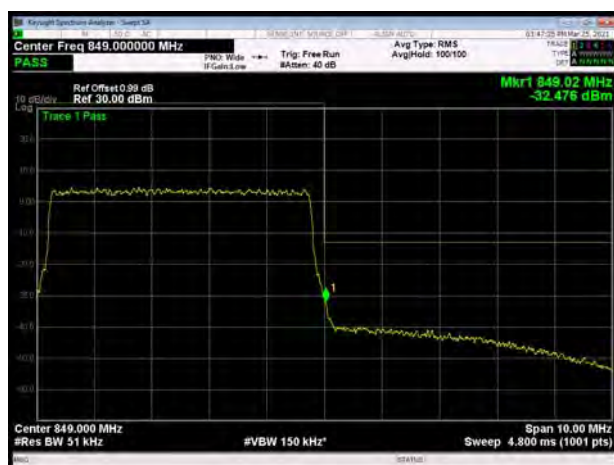
LTE Band 5 64QAM 5MHz CH-High 1RB



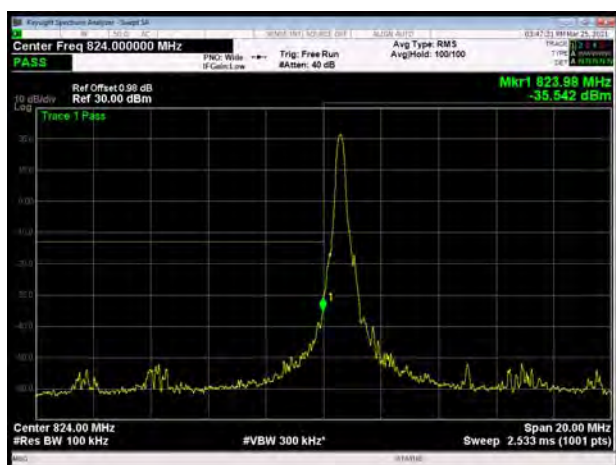
LTE Band 5 64QAM 5MHz CH-Low 100%RB



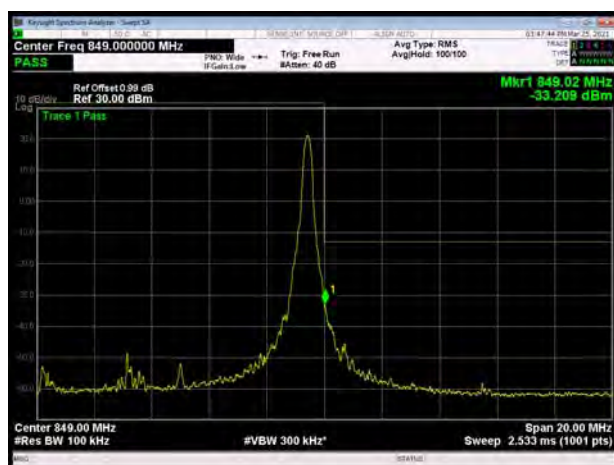
LTE Band 5 64QAM 5MHz CH-High 100%RB



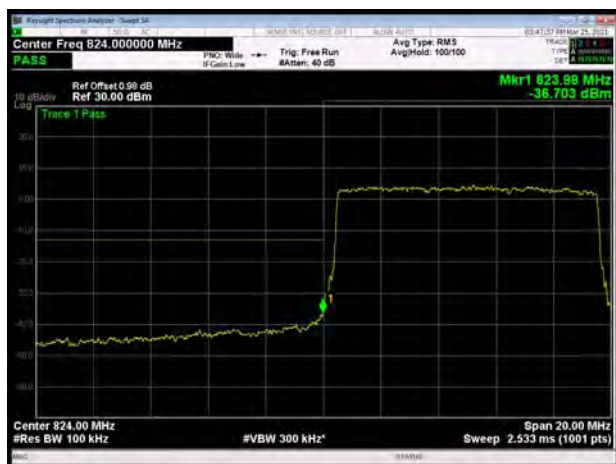
LTE Band 5 64QAM 10MHz CH-Low 1RB



LTE Band 5 64QAM 10MHz CH-High 1RB



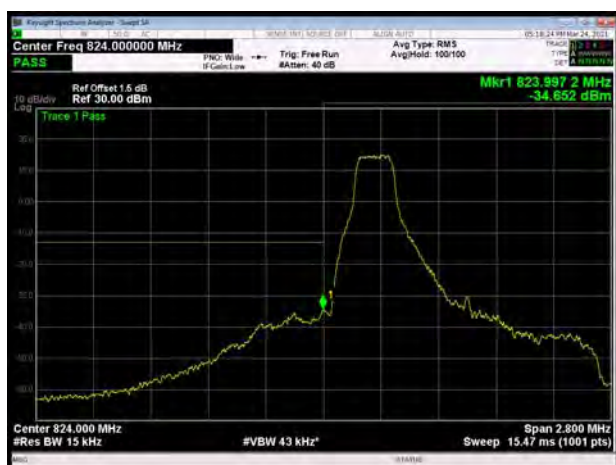
LTE Band 5 64QAM 10MHz CH-Low 100%RB



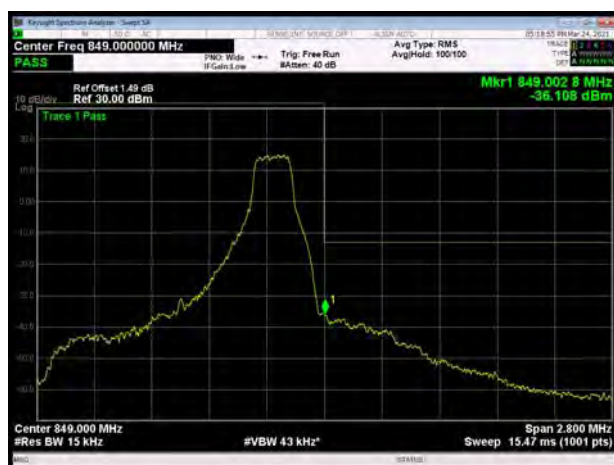
LTE Band 5 64QAM 10MHz CH-High 100%RB



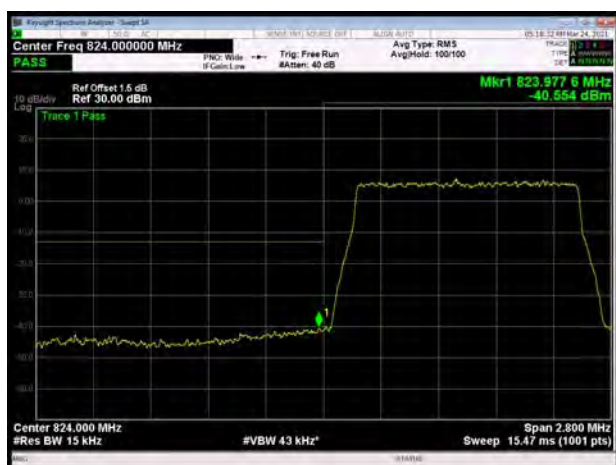
LTE Band 26 QPSK 1.4MHz CH-Low 1RB



LTE Band 26 QPSK 1.4MHz CH-High 1RB



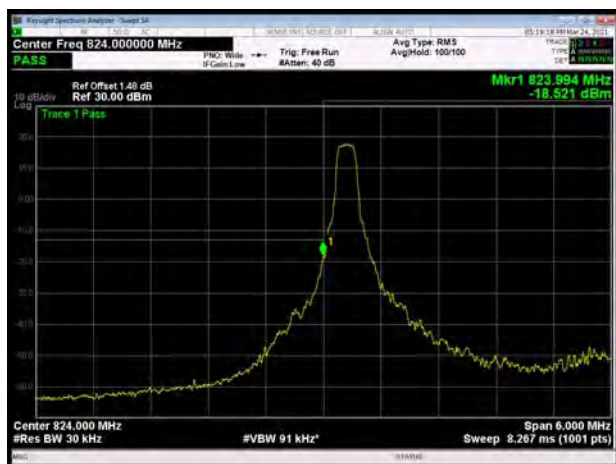
LTE Band 26 QPSK 1.4MHz CH-Low 100%RB



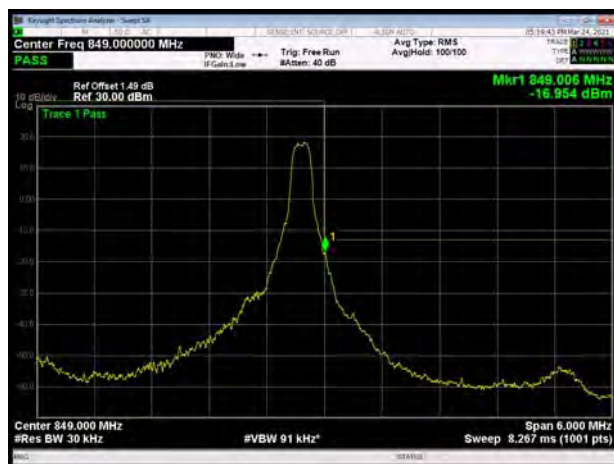
LTE Band 26 QPSK 1.4MHz CH-High 100%RB



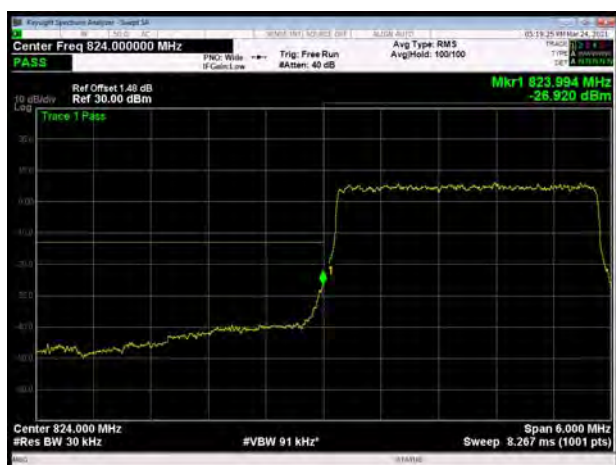
LTE Band 26 QPSK 3MHz CH-Low 1RB



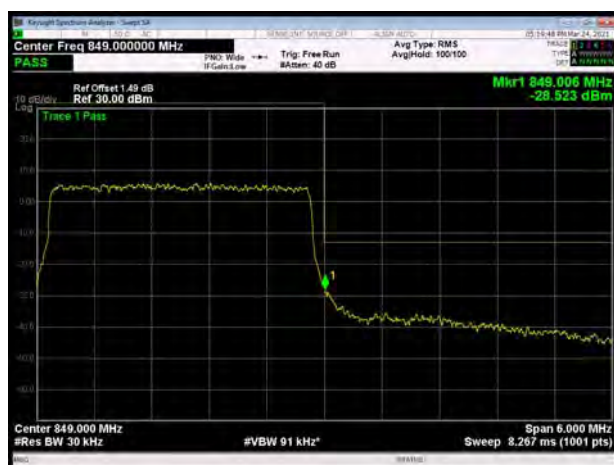
LTE Band 26 QPSK 3MHz CH-High 1RB



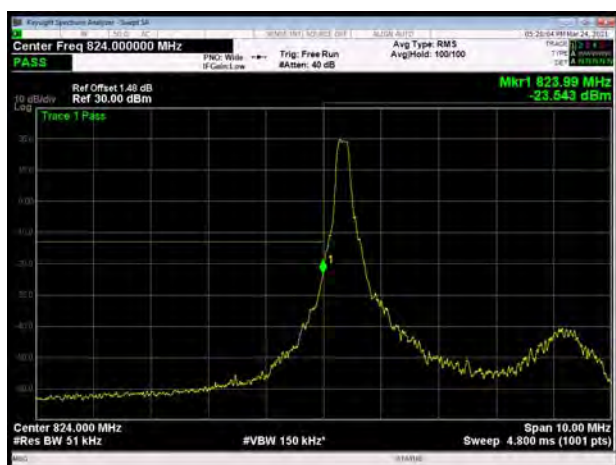
LTE Band 26 QPSK 3MHz CH-Low 100%RB



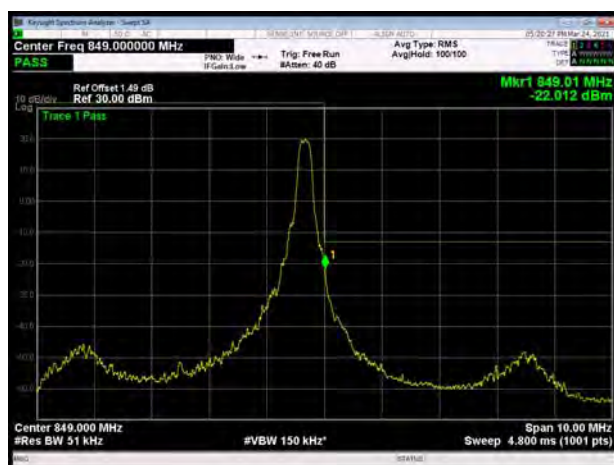
LTE Band 26 QPSK 3MHz CH-High 100%RB



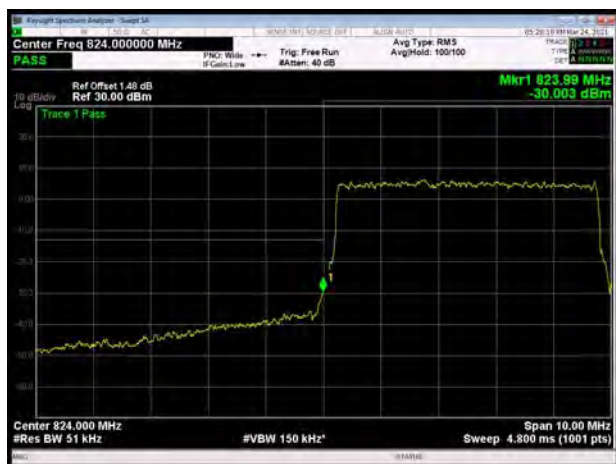
LTE Band 26 QPSK 5MHz CH-Low 1RB



LTE Band 26 QPSK 5MHz CH-High 1RB



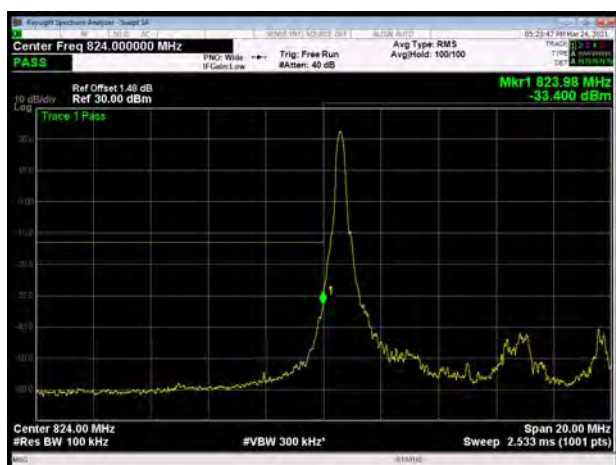
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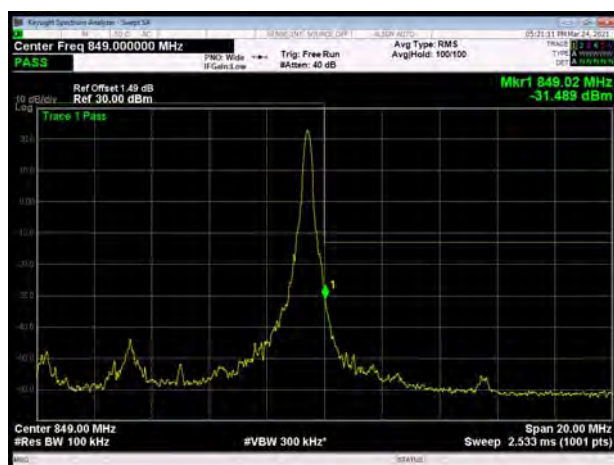
LTE Band 26 QPSK 5MHz CH-High 100%RB



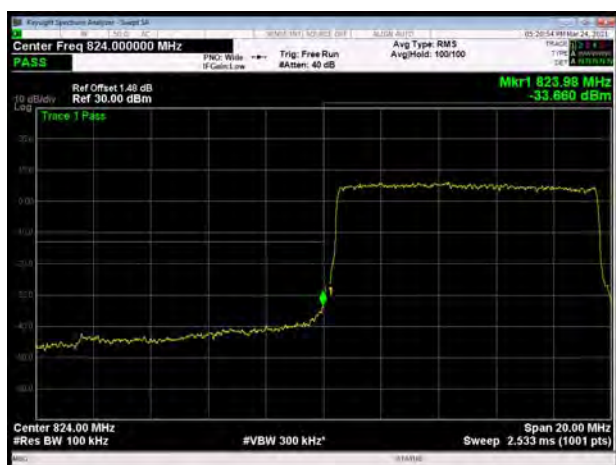
LTE Band 26 QPSK 10MHz CH-Low 1RB



LTE Band 26 QPSK 10MHz CH-High 1RB



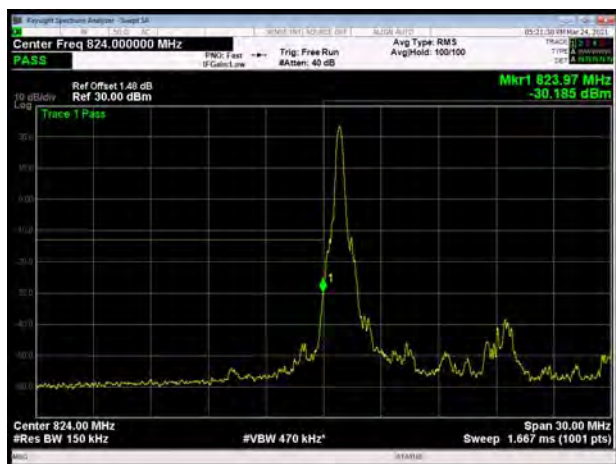
LTE Band 26 QPSK 10MHz CH-Low 100%RB



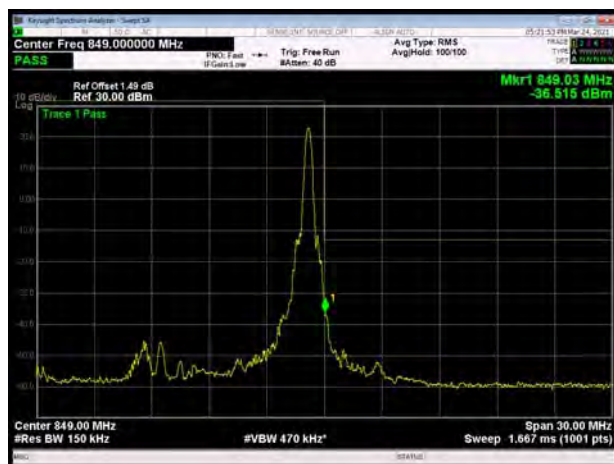
LTE Band 26 QPSK 10MHz CH-High 100%RB



LTE Band 26 QPSK 15MHz CH-Low 1RB



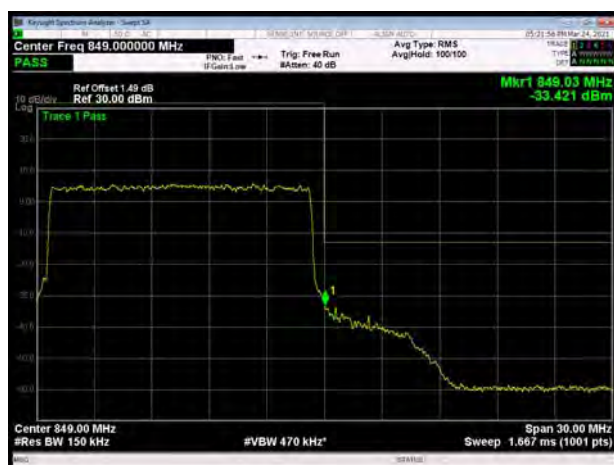
LTE Band 26 QPSK 15MHz CH-High 1RB



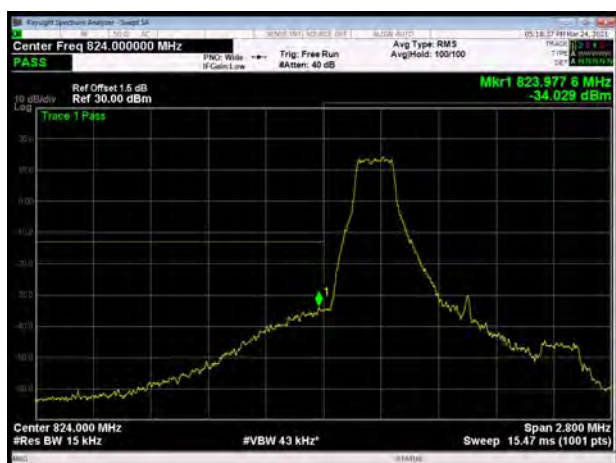
LTE Band 26 QPSK 15MHz CH-Low 100%RB



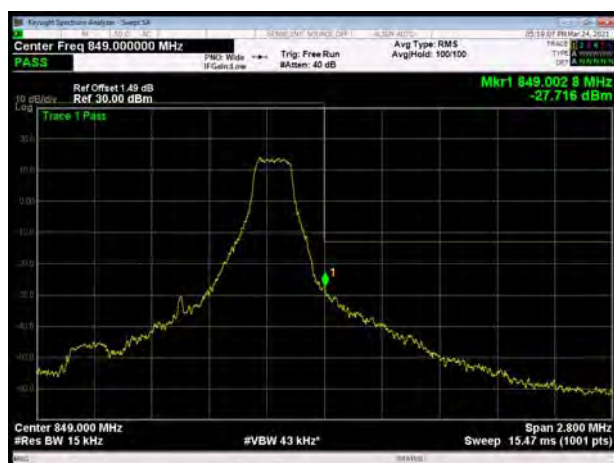
LTE Band 26 QPSK 15MHz CH-High 100%RB



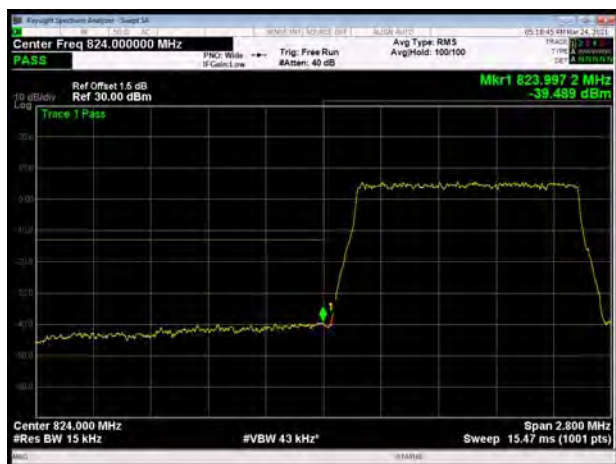
LTE Band 26 16QAM 1.4MHz CH-Low 1RB



LTE Band 26 16QAM 1.4MHz CH-High 1RB



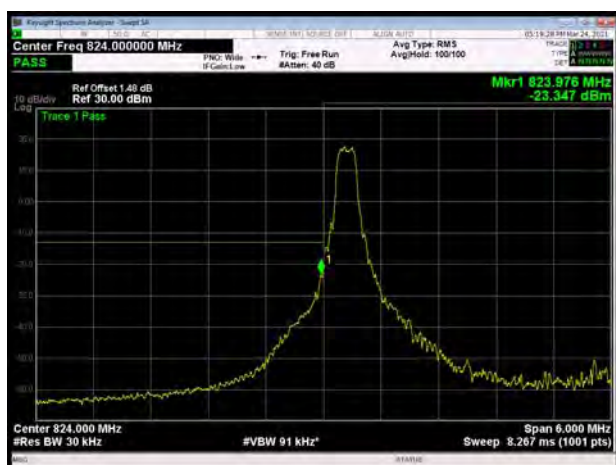
LTE Band 26 16QAM 1.4MHz CH-Low 100%RB



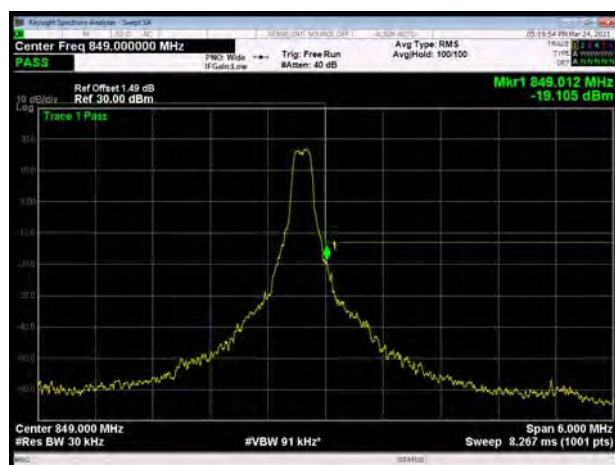
LTE Band 26 16QAM 1.4MHz CH-High 100%RB



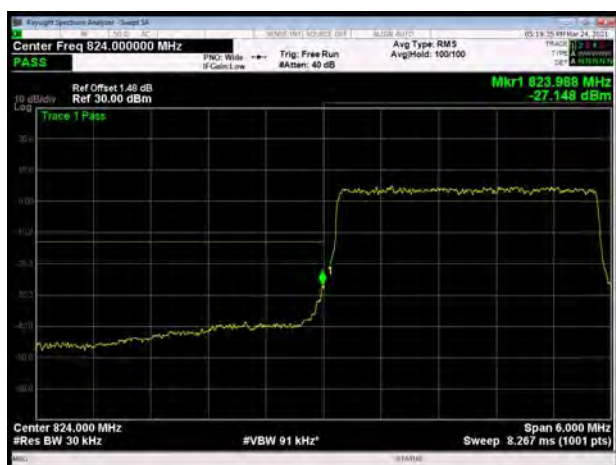
LTE Band 26 16QAM 3MHz CH-Low 1RB



LTE Band 26 16QAM 3MHz CH-High 1RB



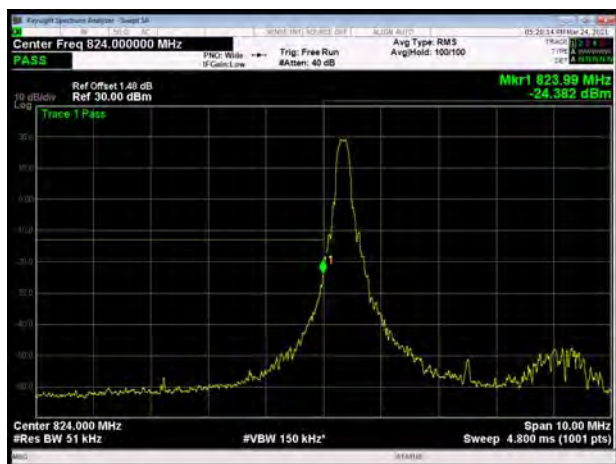
LTE Band 26 16QAM 3MHz CH-Low 100%RB



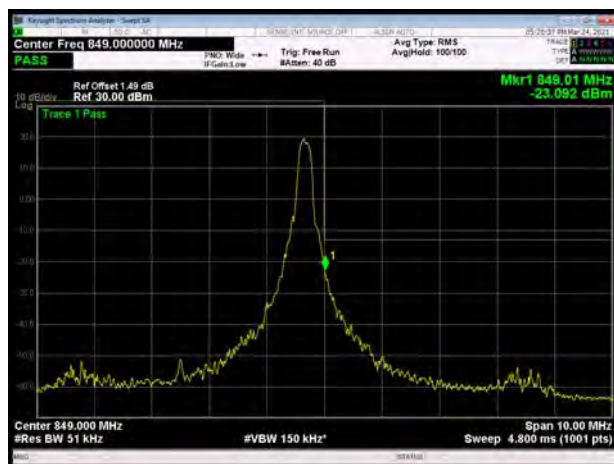
LTE Band 26 16QAM 3MHz CH-High 100%RB



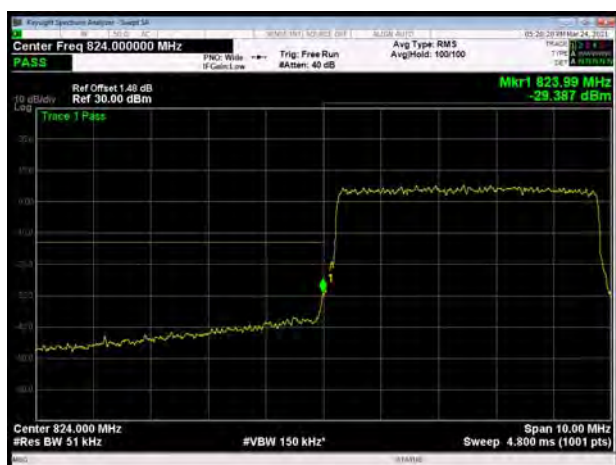
LTE Band 26 16QAM 5MHz CH-Low 1RB



LTE Band 26 16QAM 5MHz CH-High 1RB



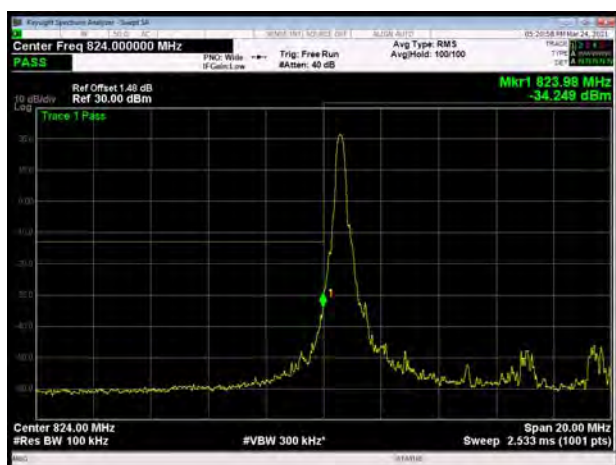
LTE Band 26 16QAM 5MHz CH-Low 100%RB



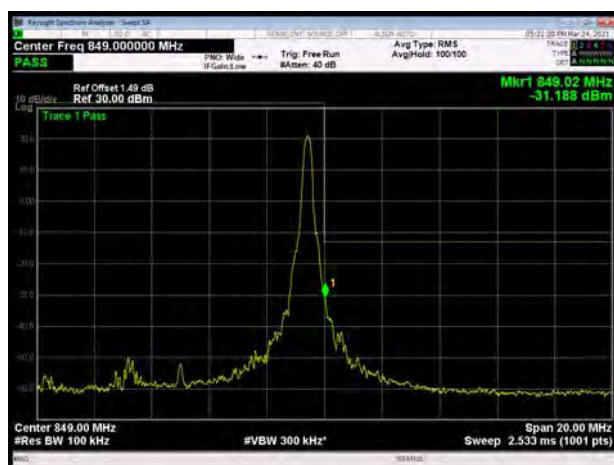
LTE Band 26 16QAM 5MHz CH-High 100%RB



LTE Band 26 16QAM 10MHz CH-Low 1RB



LTE Band 26 16QAM 10MHz CH-High 1RB



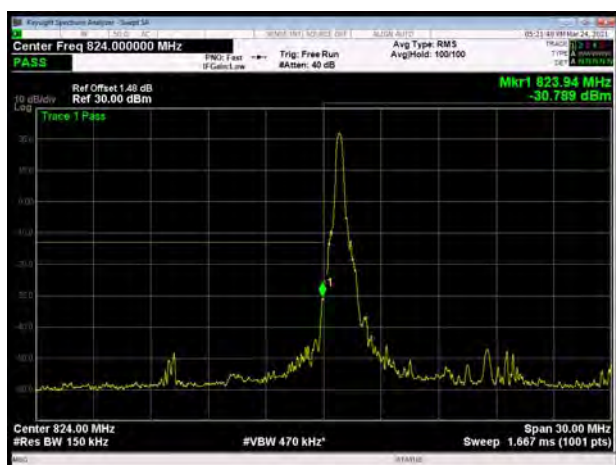
LTE Band 26 16QAM 10MHz CH-Low 100%RB



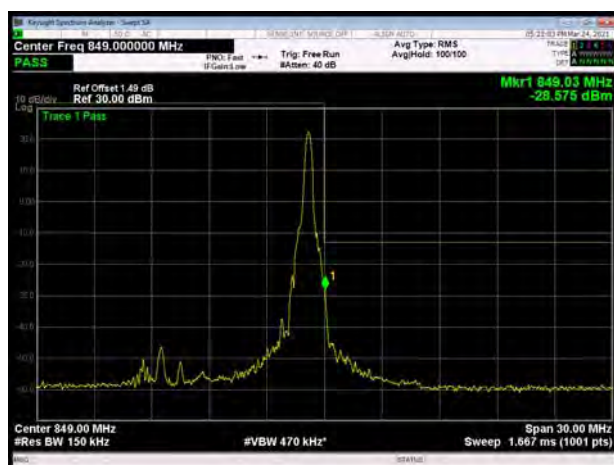
LTE Band 26 16QAM 10MHz CH-High 100%RB



LTE Band 26 16QAM 15MHz CH-Low 1RB



LTE Band 26 16QAM 15MHz CH-High 1RB



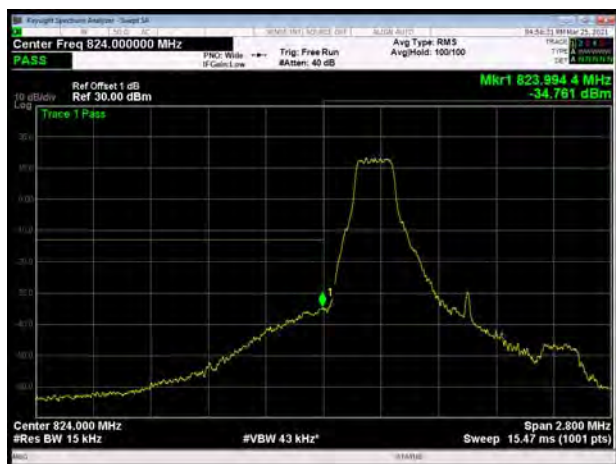
LTE Band 26 16QAM 15MHz CH-Low 100%RB



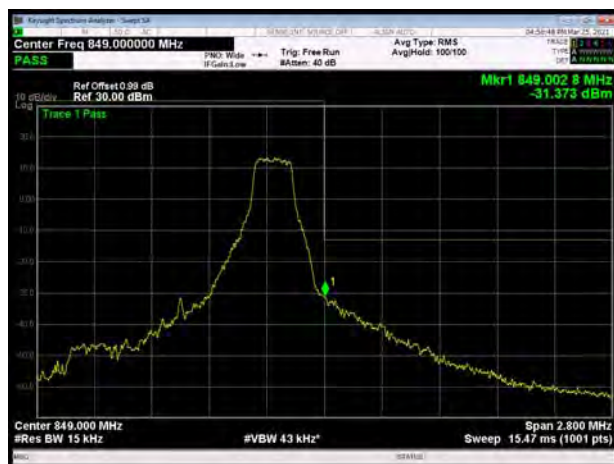
LTE Band 26 16QAM 15MHz CH-High 100%RB



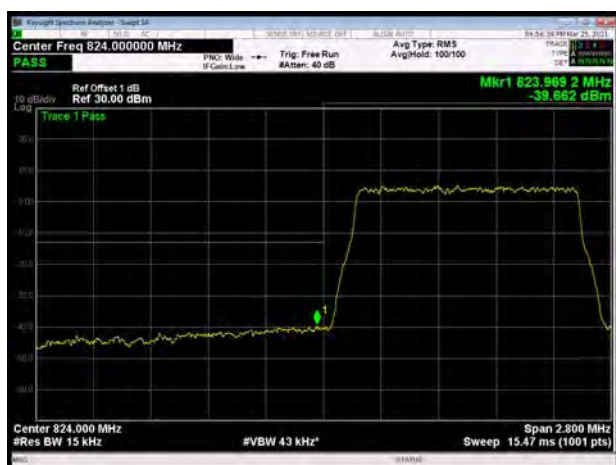
LTE Band 26 64QAM 1.4MHz CH-Low 1RB



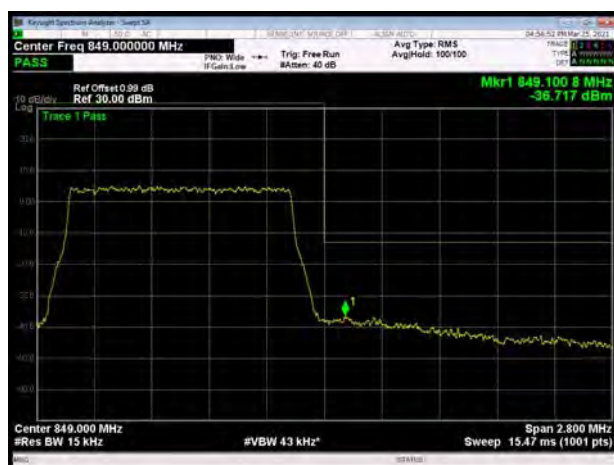
LTE Band 26 64QAM 1.4MHz CH-High 1RB



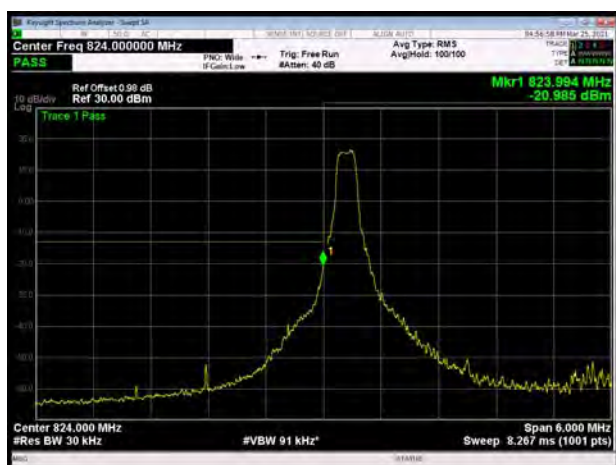
LTE Band 26 64QAM 1.4MHz CH-Low 100%RB



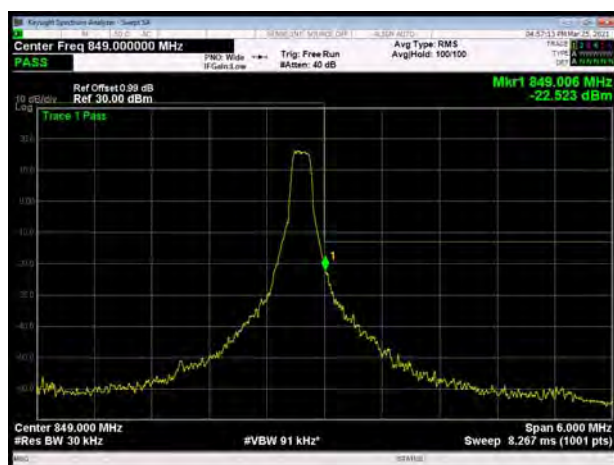
LTE Band 26 64QAM 1.4MHz CH-High 100%RB



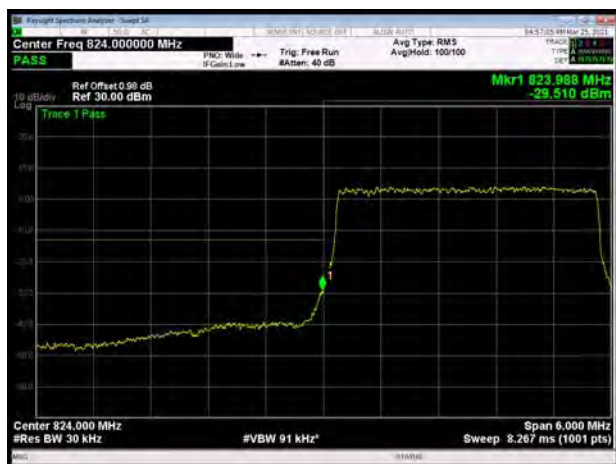
LTE Band 26 64QAM 3MHz CH-Low 1RB



LTE Band 26 64QAM 3MHz CH-High 1RB



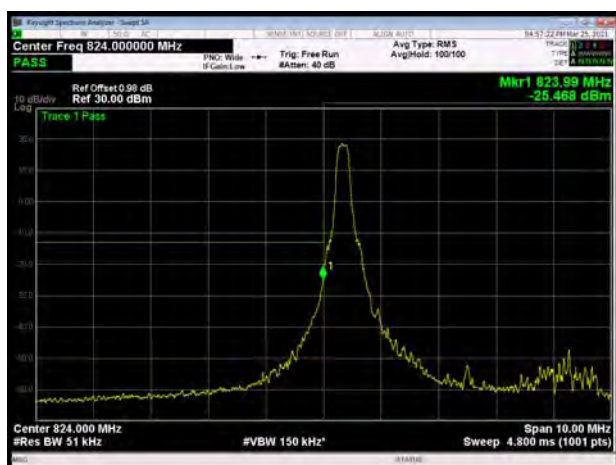
LTE Band 26 64QAM 3MHz CH-Low 100%RB



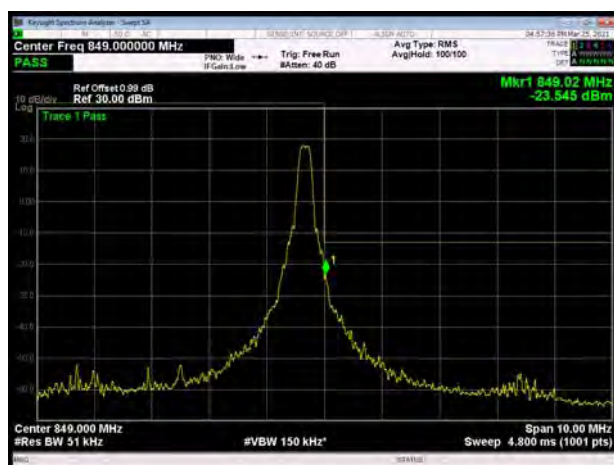
LTE Band 26 64QAM 3MHz CH-High 100%RB



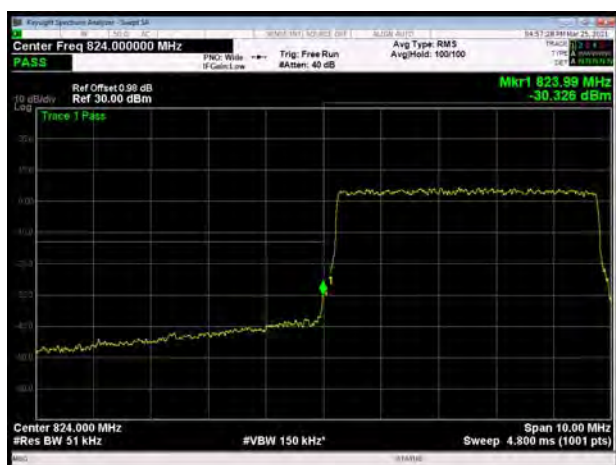
LTE Band 26 64QAM 5MHz CH-Low 1RB



LTE Band 26 64QAM 5MHz CH-High 1RB



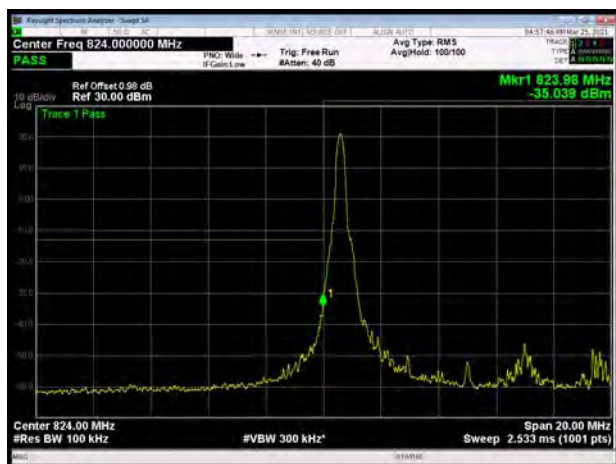
LTE Band 26 64QAM 5MHz CH-Low 100%RB



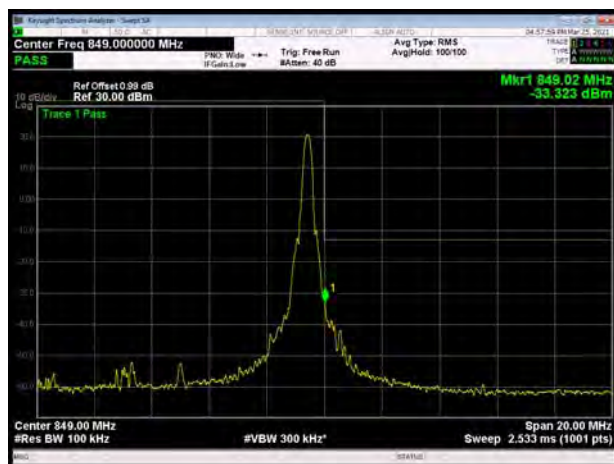
LTE Band 26 64QAM 5MHz CH-High 100%RB



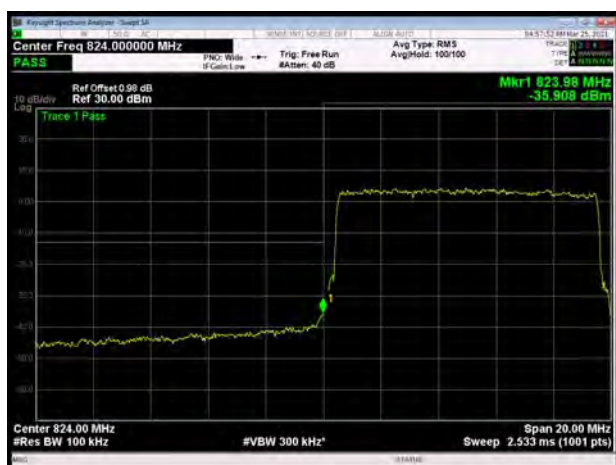
LTE Band 26 64QAM 10MHz CH-Low 1RB



LTE Band 26 64QAM 10MHz CH-High 1RB



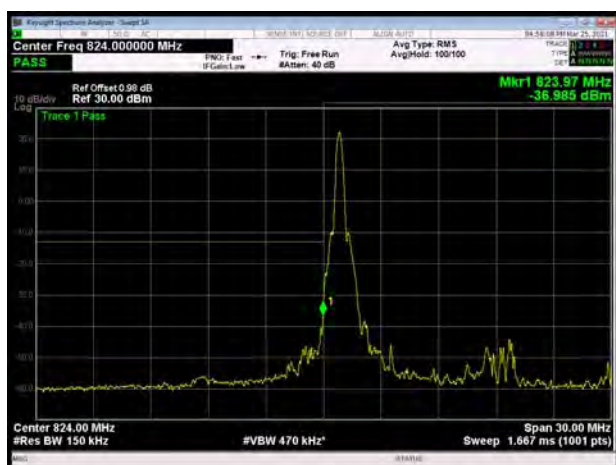
LTE Band 26 64QAM 10MHz CH-Low 100%RB



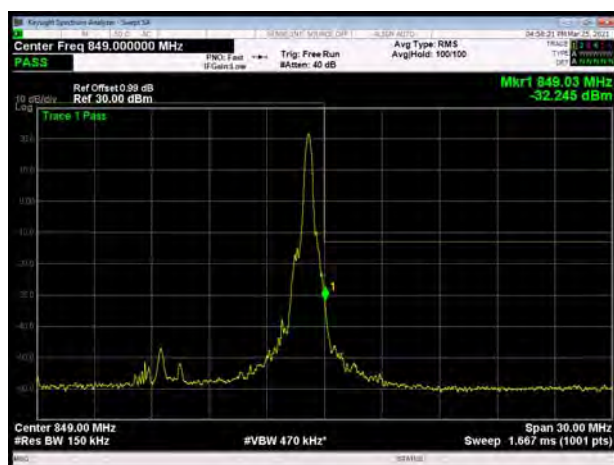
LTE Band 26 64QAM 10MHz CH-High 100%RB



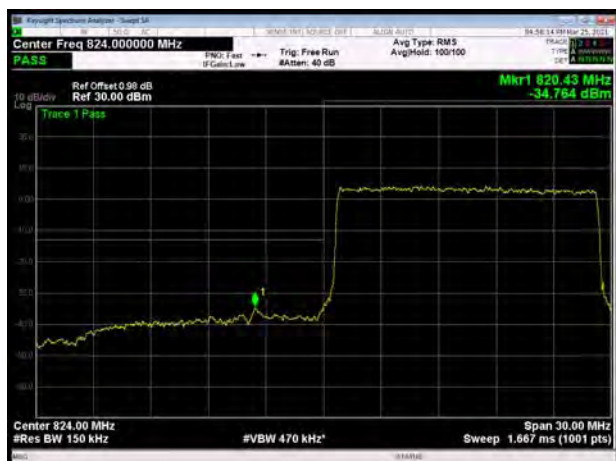
LTE Band 26 64QAM 15MHz CH-Low 1RB



LTE Band 26 64QAM 15MHz CH-High 1RB



LTE Band 26 64QAM 15MHz CH-Low 100%RB



LTE Band 26 64QAM 15MHz CH-High 100%RB



5.4. Peak-to-Average Power Ratio (PAPR)

Ambient condition

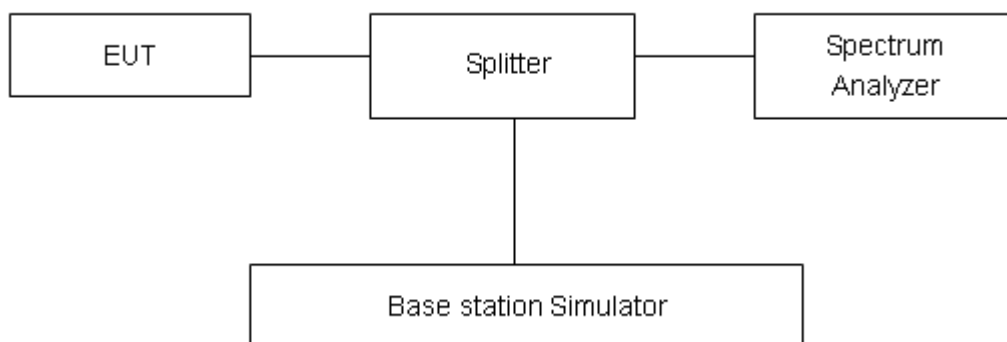
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

Measure the total peak power and record as P_{Pk} . And measure the total average power and record as P_{Avg} . Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm).$$

Test Setup



Limits

According to the Sec. 22.913(d), The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB.

Test Results

Mode	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
GSM 850 (GMSK)	128	824.2	32.52	29.66	2.86	≤13	PASS
	190	836.6	32.78	29.93	2.85	≤13	PASS
	251	848.8	32.62	29.78	2.84	≤13	PASS
GPRS 850 (GMSK)	128	824.2	32.54	29.67	2.87	≤13	PASS
	190	836.6	32.78	29.94	2.84	≤13	PASS
	251	848.8	32.62	29.79	2.83	≤13	PASS
EGPRS 850 (8PSK)	128	824.2	29.45	23.51	5.94	≤13	PASS
	190	836.6	29.79	23.89	5.90	≤13	PASS
	251	848.8	29.44	23.54	5.90	≤13	PASS
WCDMA Band V (RMC)	4132	826.4	26.53	23.82	2.71	≤13	PASS
	4183	836.6	26.57	23.89	2.68	≤13	PASS
	4233	846.6	26.59	23.86	2.73	≤13	PASS



LTE Band 5								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	20407	824.7	28.73	23.86	4.87	≤13	PASS
		20525	836.5	29.02	23.81	5.21	≤13	PASS
		20643	848.3	28.61	23.83	4.78	≤13	PASS
	3	20415	825.5	28.63	23.91	4.72	≤13	PASS
		20525	836.5	28.94	23.85	5.09	≤13	PASS
		20635	847.5	28.59	23.92	4.67	≤13	PASS
	5	20425	826.5	28.44	23.94	4.50	≤13	PASS
		20525	836.5	28.80	23.86	4.94	≤13	PASS
		20625	846.5	28.59	23.89	4.70	≤13	PASS
	10	20450	829	29.09	23.94	5.15	≤13	PASS
		20525	836.5	28.93	23.89	5.04	≤13	PASS
		20600	844	28.85	23.88	4.97	≤13	PASS
16QAM	1.4	20407	824.7	28.82	22.83	5.99	≤13	PASS
		20525	836.5	28.97	22.78	6.19	≤13	PASS
		20643	848.3	28.76	22.88	5.88	≤13	PASS
	3	20415	825.5	28.71	22.95	5.76	≤13	PASS
		20525	836.5	28.87	22.89	5.98	≤13	PASS
		20635	847.5	28.67	22.94	5.73	≤13	PASS
	5	20425	826.5	28.43	22.93	5.50	≤13	PASS
		20525	836.5	28.85	22.89	5.96	≤13	PASS
		20625	846.5	28.66	22.91	5.75	≤13	PASS
	10	20450	829	28.91	22.92	5.99	≤13	PASS
		20525	836.5	28.84	22.89	5.95	≤13	PASS
		20600	844	28.77	22.89	5.88	≤13	PASS
64QAM	1.4	20407	824.7	28.34	22.31	6.03	≤13	PASS
		20525	836.5	28.29	22.24	6.05	≤13	PASS
		20643	848.3	28.22	22.28	5.94	≤13	PASS
	3	20415	825.5	28.22	22.40	5.82	≤13	PASS
		20525	836.5	28.32	22.38	5.94	≤13	PASS
		20635	847.5	28.15	22.37	5.78	≤13	PASS
	5	20425	826.5	27.97	22.40	5.57	≤13	PASS
		20525	836.5	28.35	22.37	5.98	≤13	PASS
		20625	846.5	28.13	22.36	5.77	≤13	PASS
	10	20450	829	28.40	22.42	5.98	≤13	PASS
		20525	836.5	28.33	22.36	5.97	≤13	PASS
		20600	844	28.23	22.34	5.89	≤13	PASS



LTE Band 26								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	26797	824.7	29.08	23.78	5.30	≤13	PASS
		26915	836.5	28.48	23.83	4.65	≤13	PASS
		27033	848.3	28.07	23.71	4.36	≤13	PASS
	3	26805	825.5	28.95	23.79	5.16	≤13	PASS
		26915	836.5	28.38	23.88	4.50	≤13	PASS
		27025	847.5	28.03	23.81	4.22	≤13	PASS
	5	26815	826.5	29.02	23.83	5.19	≤13	PASS
		26915	836.5	28.22	23.89	4.33	≤13	PASS
		27015	846.5	28.11	23.80	4.31	≤13	PASS
	10	26840	829	28.91	23.90	5.01	≤13	PASS
		26915	836.5	28.52	23.92	4.60	≤13	PASS
		26990	844	28.55	23.80	4.75	≤13	PASS
	15	26865	831.5	28.87	23.79	5.08	≤13	PASS
		26915	836.5	28.74	23.78	4.96	≤13	PASS
		26965	841.5	28.92	23.80	5.12	≤13	PASS
16QAM	1.4	26797	824.7	28.71	22.77	5.94	≤13	PASS
		26915	836.5	28.62	22.86	5.76	≤13	PASS
		27033	848.3	28.17	22.71	5.46	≤13	PASS
	3	26805	825.5	28.82	22.83	5.99	≤13	PASS
		26915	836.5	28.48	22.93	5.55	≤13	PASS
		27025	847.5	28.21	22.86	5.35	≤13	PASS
	5	26815	826.5	28.84	22.85	5.99	≤13	PASS
		26915	836.5	28.42	22.92	5.50	≤13	PASS
		27015	846.5	28.24	22.87	5.37	≤13	PASS
	10	26840	829	28.79	22.92	5.87	≤13	PASS
		26915	836.5	28.51	22.93	5.58	≤13	PASS
		26990	844	28.56	22.84	5.72	≤13	PASS
	15	26865	831.5	28.71	22.81	5.90	≤13	PASS
		26915	836.5	28.64	22.79	5.85	≤13	PASS
		26965	841.5	28.63	22.82	5.81	≤13	PASS
64QAM	1.4	26797	824.7	28.25	22.12	6.13	≤13	PASS
		26915	836.5	28.09	22.32	5.77	≤13	PASS
		27033	848.3	27.68	22.13	5.55	≤13	PASS
	3	26805	825.5	28.27	22.28	5.99	≤13	PASS
		26915	836.5	28.02	22.38	5.64	≤13	PASS



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		27025	847.5	27.71	22.32	5.39	≤13	PASS
	5	26815	826.5	28.26	22.29	5.97	≤13	PASS
		26915	836.5	28.00	22.36	5.64	≤13	PASS
		27015	846.5	27.58	22.30	5.28	≤13	PASS
	10	26840	829	28.22	22.36	5.86	≤13	PASS
		26915	836.5	28.08	22.39	5.69	≤13	PASS
		26990	844	27.94	22.26	5.68	≤13	PASS
	15	26865	831.5	28.18	22.28	5.90	≤13	PASS
		26915	836.5	28.19	22.26	5.93	≤13	PASS
		26965	841.5	27.79	22.15	5.64	≤13	PASS

5.5. Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size,

(1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

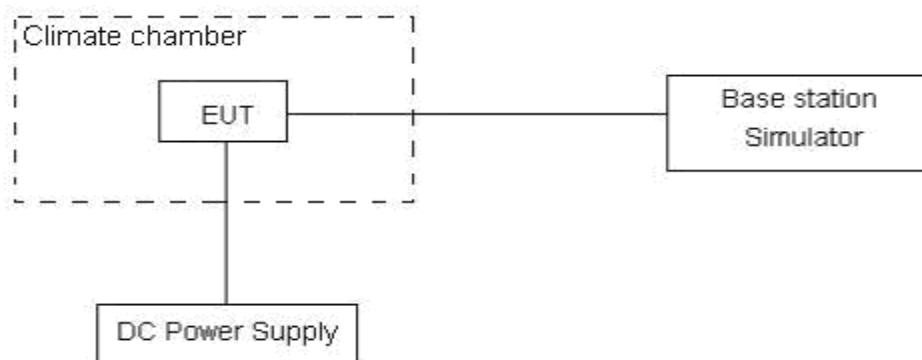
(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements. Frequency Stability (Voltage Variation)

The frequency stability shall be measured with variation of primary supply voltage as follows:

Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.4V and 4.2V, with a nominal voltage of 3.85V.

Test setup



Limits

According to the Sec. 22.355, the frequency stability of the carrier shall be accurate to within 2.5 ppm of the received frequency for mobile stations.

Limits	≤ 2.5 ppm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 3$, $U = 0.01\text{ppm}$.



Test Result

GSM 850						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	GMSK	8PSK	GMSK	8PSK	
Normal (25℃)	Normal	6.75	7.62	0.00359	0.00405	PASS
Extreme (50℃)		9.38	4.14	0.00499	0.00220	PASS
Extreme (40℃)		1.38	1.97	0.00073	0.00105	PASS
Extreme (30℃)		3.45	2.05	0.00183	0.00109	PASS
Extreme (20℃)		11.29	7.24	0.00601	0.00385	PASS
Extreme (10℃)		9.78	1.93	0.00520	0.00103	PASS
Extreme (0℃)		6.32	15.05	0.00336	0.00800	PASS
Extreme (-10℃)		16.40	8.42	0.00872	0.00448	PASS
Extreme (-20℃)		9.14	12.27	0.00486	0.00652	PASS
Extreme (-30℃)		14.29	3.15	0.00760	0.00168	PASS
25℃	LV	6.06	2.29	0.00322	0.00122	PASS
	HV	15.71	14.15	0.00836	0.00753	PASS

WCDMA Band 5						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	BPSK	QPSK	BPSK	QPSK	
Normal (25℃)	Normal	10.41	12.97	0.00554	0.00690	PASS
Extreme (50℃)		1.63	14.30	0.00087	0.00761	PASS
Extreme (40℃)		12.29	6.58	0.00654	0.00350	PASS
Extreme (30℃)		12.35	16.28	0.00657	0.00866	PASS
Extreme (20℃)		17.89	15.78	0.00952	0.00839	PASS
Extreme (10℃)		17.50	5.67	0.00931	0.00302	PASS
Extreme (0℃)		3.93	3.08	0.00209	0.00164	PASS
Extreme (-10℃)		5.24	11.28	0.00279	0.00600	PASS
Extreme (-20℃)		5.12	3.41	0.00272	0.00182	PASS
Extreme (-30℃)		17.41	1.83	0.00926	0.00098	PASS
25℃	LV	17.83	15.19	0.00948	0.00808	PASS
	HV	4.66	4.29	0.00248	0.00228	PASS



LTE Band 5								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	2.42	11.90	17.80	0.00129	0.00633	0.00947	PASS
Extreme (50℃)		4.22	13.91	17.29	0.00225	0.00740	0.00920	PASS
Extreme (40℃)		7.84	2.53	5.94	0.00417	0.00135	0.00316	PASS
Extreme (30℃)		16.79	11.49	7.10	0.00893	0.00611	0.00378	PASS
Extreme (20℃)		10.99	13.99	16.41	0.00584	0.00744	0.00873	PASS
Extreme (10℃)		17.55	11.58	6.61	0.00934	0.00616	0.00352	PASS
Extreme (0℃)		5.13	6.36	12.39	0.00273	0.00338	0.00659	PASS
Extreme (-10℃)		13.74	6.04	13.50	0.00731	0.00321	0.00718	PASS
Extreme (-20℃)		16.52	12.83	1.43	0.00879	0.00683	0.00076	PASS
Extreme (-30℃)		9.59	15.64	12.47	0.00510	0.00832	0.00663	PASS
25℃	LV	13.23	8.16	1.77	0.00704	0.00434	0.00094	PASS
	HV	12.86	13.19	6.15	0.00684	0.00702	0.00327	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	6.98	5.83	10.58	0.00371	0.00310	0.00563	PASS
Extreme (50℃)		4.86	3.07	2.09	0.00258	0.00164	0.00111	PASS
Extreme (40℃)		8.60	4.30	8.09	0.00458	0.00229	0.00430	PASS
Extreme (30℃)		2.65	15.25	2.68	0.00141	0.00811	0.00143	PASS
Extreme (20℃)		10.49	2.26	11.69	0.00558	0.00120	0.00622	PASS
Extreme (10℃)		17.24	11.52	6.09	0.00917	0.00613	0.00324	PASS
Extreme (0℃)		11.74	17.97	16.66	0.00624	0.00956	0.00886	PASS
Extreme (-10℃)		2.79	4.40	17.19	0.00149	0.00234	0.00915	PASS
Extreme (-20℃)		13.77	2.74	5.85	0.00732	0.00146	0.00311	PASS
Extreme (-30℃)		15.54	5.42	15.87	0.00826	0.00288	0.00844	PASS
25℃	LV	9.93	5.45	4.95	0.00528	0.00290	0.00263	PASS
	HV	10.17	12.11	12.46	0.00541	0.00644	0.00663	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	11.91	17.69	17.74	0.00634	0.00941	0.00944	PASS
Extreme (50℃)		1.70	10.62	5.55	0.00091	0.00565	0.00295	PASS



Extreme (40℃)		13.90	4.46	4.09	0.00739	0.00237	0.00217	PASS
Extreme (30℃)		15.85	6.38	5.89	0.00843	0.00339	0.00313	PASS
Extreme (20℃)		17.57	16.64	2.07	0.00935	0.00885	0.00110	PASS
Extreme (10℃)		7.10	7.74	10.66	0.00378	0.00412	0.00567	PASS
Extreme (0℃)		13.20	6.34	3.35	0.00702	0.00337	0.00178	PASS
Extreme (-10℃)		9.38	7.31	9.88	0.00499	0.00389	0.00526	PASS
Extreme (-20℃)		13.29	7.27	13.73	0.00707	0.00386	0.00730	PASS
Extreme (-30℃)		15.90	1.34	9.86	0.00846	0.00071	0.00525	PASS
25℃	LV	17.64	2.49	8.39	0.00938	0.00132	0.00446	PASS
	HV	3.97	17.07	11.63	0.00211	0.00908	0.00619	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	4.53	6.80	8.45	0.00241	0.00362	0.00449	PASS
Extreme (50℃)		10.75	9.72	8.25	0.00572	0.00517	0.00439	PASS
Extreme (40℃)		2.58	5.53	7.73	0.00137	0.00294	0.00411	PASS
Extreme (30℃)		15.05	10.50	5.64	0.00801	0.00559	0.00300	PASS
Extreme (20℃)		15.35	10.10	2.90	0.00817	0.00537	0.00154	PASS
Extreme (10℃)		5.10	1.36	14.10	0.00271	0.00072	0.00750	PASS
Extreme (0℃)		11.09	16.67	11.12	0.00590	0.00886	0.00592	PASS
Extreme (-10℃)		4.18	3.27	16.08	0.00223	0.00174	0.00855	PASS
Extreme (-20℃)		1.86	17.48	9.12	0.00099	0.00930	0.00485	PASS
Extreme (-30℃)		2.32	15.46	10.69	0.00123	0.00822	0.00569	PASS
25℃	LV	7.09	15.88	1.35	0.00377	0.00845	0.00072	PASS
	HV	4.24	10.23	2.73	0.00226	0.00544	0.00145	PASS

LTE Band 26								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	4.85	16.92	12.33	0.00258	0.00900	0.00656	PASS
Extreme (50℃)		1.03	8.82	7.21	0.00055	0.00469	0.00384	PASS
Extreme (40℃)		1.97	11.98	14.85	0.00105	0.00637	0.00790	PASS
Extreme (30℃)		11.31	6.53	14.44	0.00601	0.00348	0.00768	PASS
Extreme (20℃)		3.78	15.73	13.93	0.00201	0.00836	0.00741	PASS
Extreme (10℃)		10.24	5.43	6.85	0.00545	0.00289	0.00365	PASS
Extreme (0℃)		7.94	15.22	3.88	0.00423	0.00810	0.00206	PASS
Extreme (-10℃)		4.58	11.67	8.93	0.00243	0.00621	0.00475	PASS



Extreme (-20℃)		3.60	8.47	14.71	0.00191	0.00450	0.00782	PASS
Extreme (-30℃)		7.36	8.11	16.24	0.00392	0.00431	0.00864	PASS
25℃	LV	3.49	7.40	13.35	0.00186	0.00394	0.00710	PASS
	HV	6.22	13.15	11.35	0.00331	0.00700	0.00604	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	17.08	12.72	4.40	0.00909	0.00677	0.00234	PASS
Extreme (50℃)		2.73	13.58	17.85	0.00145	0.00722	0.00949	PASS
Extreme (40℃)		15.39	8.15	8.82	0.00819	0.00433	0.00469	PASS
Extreme (30℃)		11.09	4.77	1.06	0.00590	0.00254	0.00057	PASS
Extreme (20℃)		7.62	4.60	15.13	0.00405	0.00245	0.00805	PASS
Extreme (10℃)		9.42	9.38	9.34	0.00501	0.00499	0.00497	PASS
Extreme (0℃)		11.91	3.83	2.74	0.00634	0.00204	0.00146	PASS
Extreme (-10℃)		13.60	5.17	12.22	0.00723	0.00275	0.00650	PASS
Extreme (-20℃)		8.67	16.63	8.73	0.00461	0.00884	0.00464	PASS
Extreme (-30℃)		12.74	17.73	14.08	0.00678	0.00943	0.00749	PASS
25℃	LV	12.73	15.21	12.89	0.00677	0.00809	0.00686	PASS
	HV	11.75	4.21	1.69	0.00625	0.00224	0.00090	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	13.75	9.73	1.14	0.00731	0.00518	0.00061	PASS
Extreme (50℃)		5.71	6.43	11.00	0.00304	0.00342	0.00585	PASS
Extreme (40℃)		11.34	3.15	3.69	0.00603	0.00168	0.00197	PASS
Extreme (30℃)		10.20	10.94	15.70	0.00543	0.00582	0.00835	PASS
Extreme (20℃)		16.25	4.23	1.54	0.00864	0.00225	0.00082	PASS
Extreme (10℃)		4.00	11.52	8.42	0.00213	0.00613	0.00448	PASS
Extreme (0℃)		1.55	14.03	12.28	0.00082	0.00746	0.00653	PASS
Extreme (-10℃)		10.47	15.75	11.62	0.00557	0.00838	0.00618	PASS
Extreme (-20℃)		16.54	9.41	13.17	0.00880	0.00500	0.00701	PASS
Extreme (-30℃)		11.25	1.13	7.14	0.00598	0.00060	0.00380	PASS
25℃	LV	4.21	15.72	5.43	0.00224	0.00836	0.00289	PASS
	HV	6.14	12.41	3.11	0.00326	0.00660	0.00165	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	



RF Test Report

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Normal (25℃)	Normal	7.76	13.26	10.05	0.00413	0.00705	0.00535	PASS
Extreme (50℃)		6.92	8.01	12.92	0.00368	0.00426	0.00687	PASS
Extreme (40℃)		16.67	3.78	13.70	0.00887	0.00201	0.00729	PASS
Extreme (30℃)		6.44	3.35	12.36	0.00343	0.00178	0.00657	PASS
Extreme (20℃)		16.44	2.23	14.45	0.00874	0.00119	0.00768	PASS
Extreme (10℃)		11.06	8.24	7.83	0.00589	0.00438	0.00417	PASS
Extreme (0℃)		7.91	12.40	8.88	0.00421	0.00659	0.00472	PASS
Extreme (-10℃)		4.08	13.16	15.15	0.00217	0.00700	0.00806	PASS
Extreme (-20℃)		16.21	9.81	17.55	0.00862	0.00522	0.00934	PASS
Extreme (-30℃)		10.70	3.44	5.70	0.00569	0.00183	0.00303	PASS
25℃	LV	1.15	8.66	1.06	0.00061	0.00461	0.00056	PASS
	HV	11.89	2.13	3.58	0.00633	0.00113	0.00190	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	6.59	17.13	2.13	0.00351	0.00911	0.00113	PASS
Extreme (50℃)		3.43	12.09	13.74	0.00182	0.00643	0.00731	PASS
Extreme (40℃)		9.71	4.87	16.61	0.00517	0.00259	0.00883	PASS
Extreme (30℃)		15.11	17.03	17.97	0.00804	0.00906	0.00956	PASS
Extreme (20℃)		10.10	17.12	5.75	0.00537	0.00911	0.00306	PASS
Extreme (10℃)		16.31	9.31	16.97	0.00868	0.00495	0.00903	PASS
Extreme (0℃)		2.43	17.09	1.38	0.00129	0.00909	0.00073	PASS
Extreme (-10℃)		13.74	1.37	6.66	0.00731	0.00073	0.00354	PASS
Extreme (-20℃)		11.19	11.45	13.83	0.00595	0.00609	0.00735	PASS
Extreme (-30℃)		15.37	17.38	9.48	0.00818	0.00925	0.00504	PASS
25℃	LV	9.83	15.50	4.55	0.00523	0.00825	0.00242	PASS
	HV	9.89	4.88	15.52	0.00526	0.00259	0.00826	PASS

5.6. Spurious Emissions at Antenna Terminals

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier.

The peak detector is used. RBW are set to 100 kHz and VBW are set to 300 kHz for below 1G, RBW are set to 1MHz and VBW are set to 3MHz for above 1G, Sweep is set to ATUO.

RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),

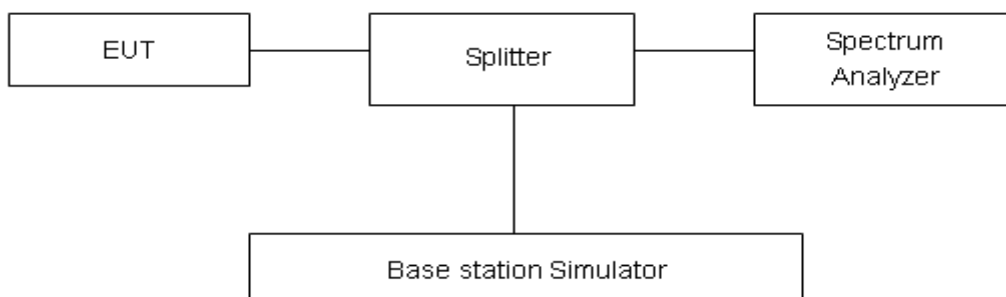
RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

RBW is set to 100 kHz (30MHz~1000 MHz)

RBW is set to 1000 kHz (above 1000MHz)

The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.”

Limit	-13 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

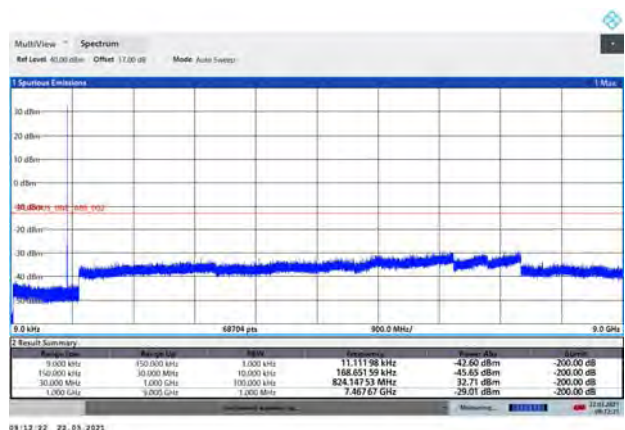
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-18GHz	1.407 dB

Test Result

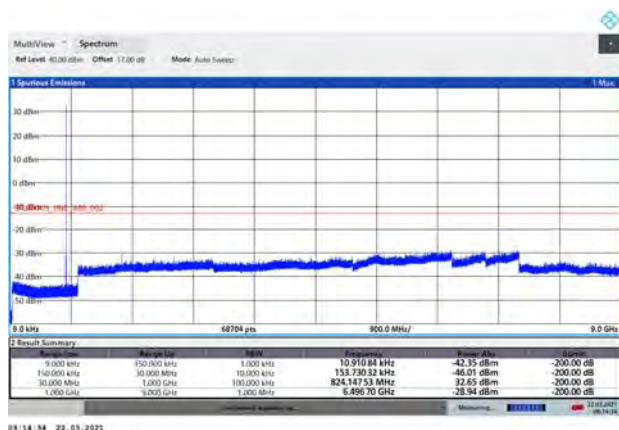
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

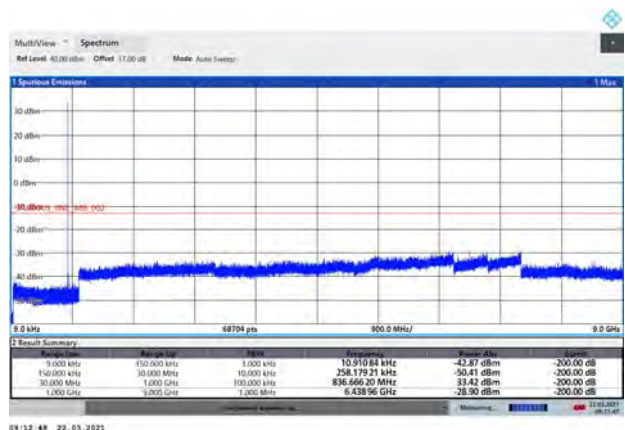
GSM 850 CH-Low 9kHz ~ 9GHz



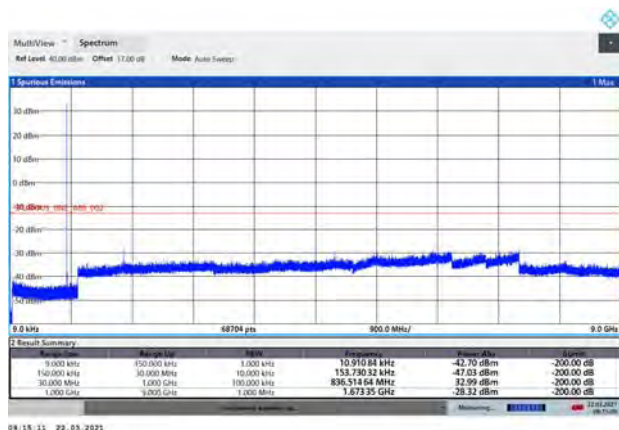
GPRS 850 CH-Low 9kHz ~ 9GHz



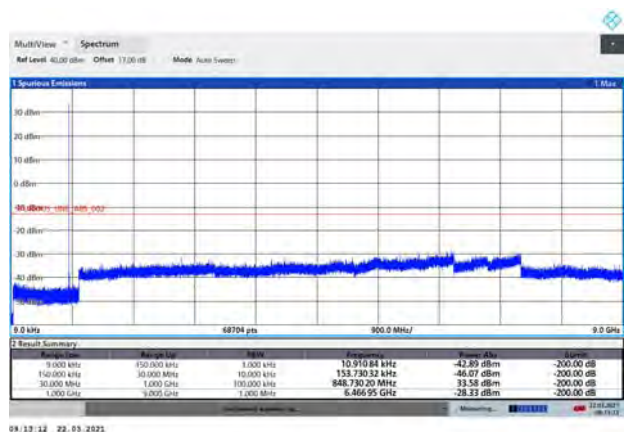
GSM 850 CH-Middle 9kHz ~ 9GHz



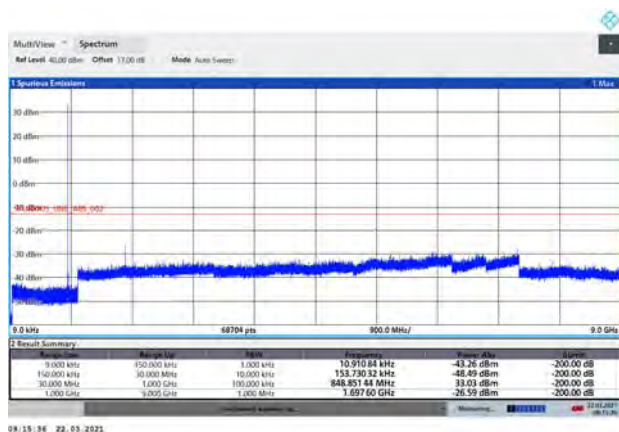
GPRS 850 CH-Middle 9kHz ~ 9GHz



GSM 850 CH-High 9kHz ~ 9GHz

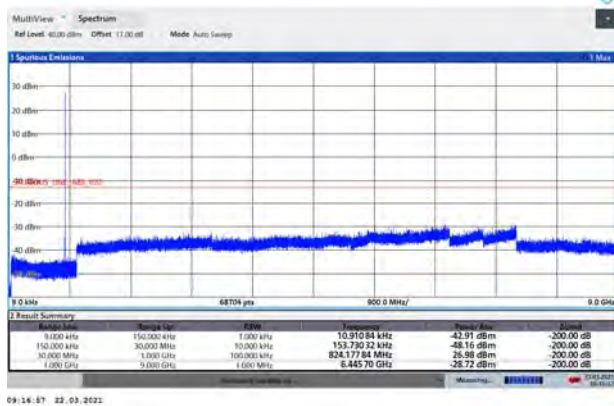


GPRS 850 CH-High 9kHz ~ 9GHz



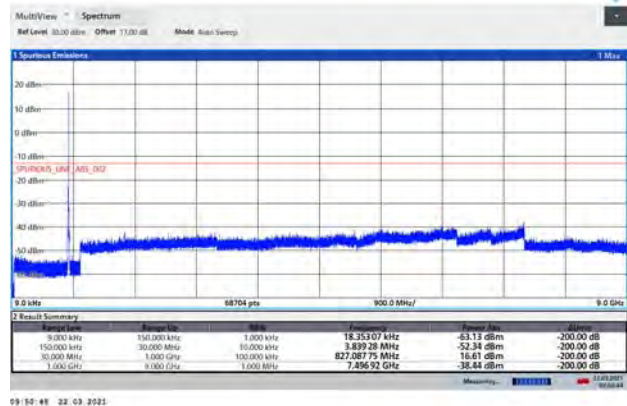


EGPRS 850 CH-Low 9kHz ~ 9GHz



09:14:57 22.03.2022

WCDMA BAND V CH-Low 9kHz ~ 9GHz



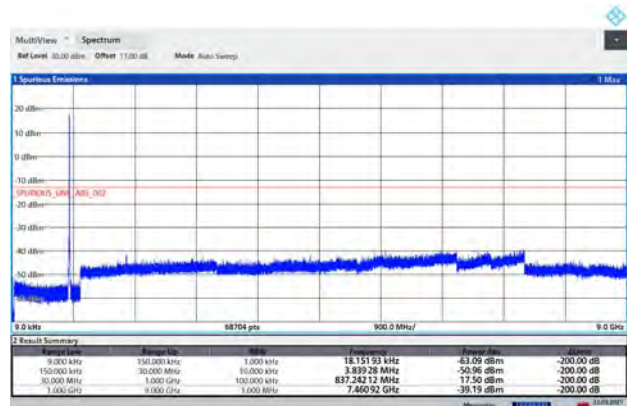
09:14:48 22.03.2022

EGPRS 850 CH-Middle 9kHz ~ 9GHz



09:19:02 22.03.2022

WCDMA BAND V CH-Middle 9kHz ~ 9GHz



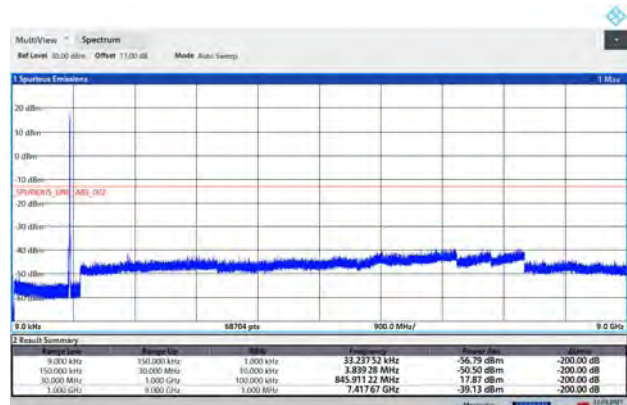
09:19:01 22.03.2022

EGPRS 850 CH-High 9kHz ~ 9GHz



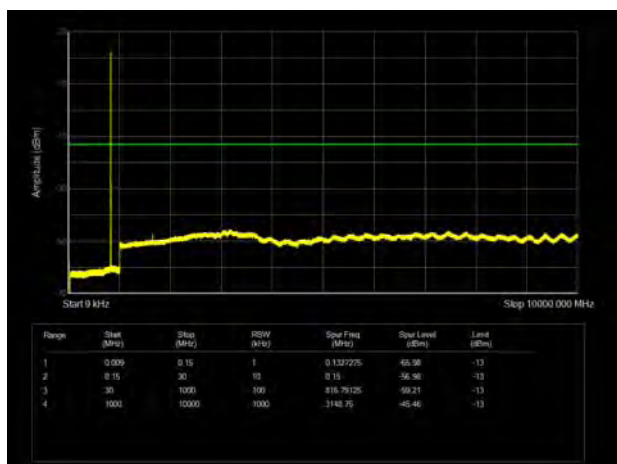
09:19:34 22.03.2022

WCDMA BAND V CH-High 9kHz ~ 9GHz

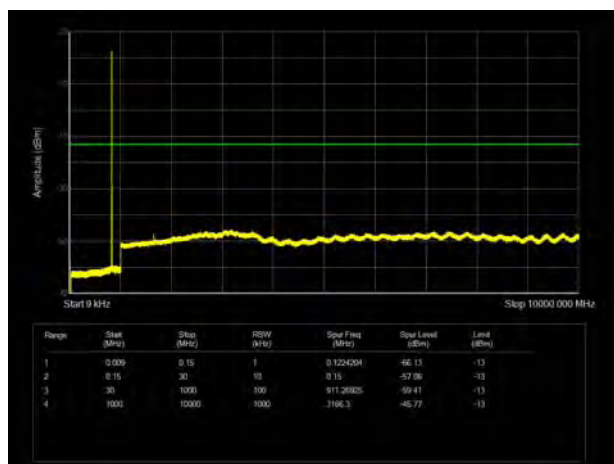


09:19:33 22.03.2022

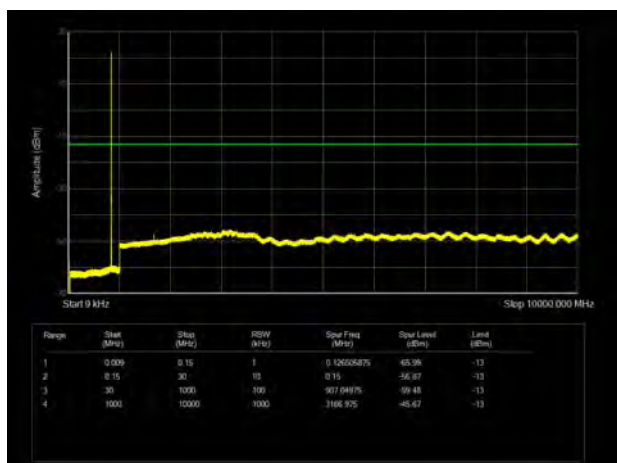
LTE Band 5 1.4MHz CH-Low 9kHz~10GHz



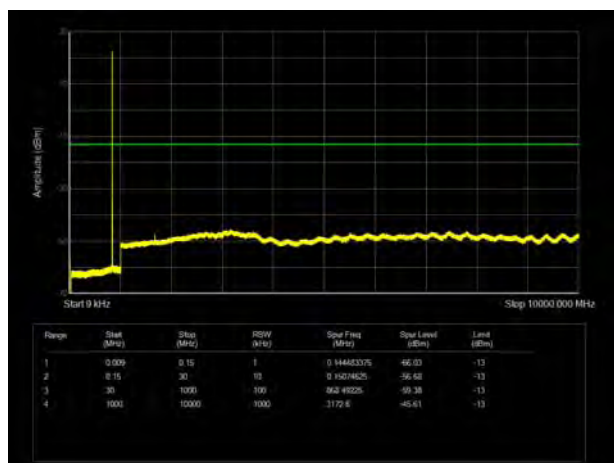
LTE Band 5 3MHz CH-Low 9kHz~10GHz



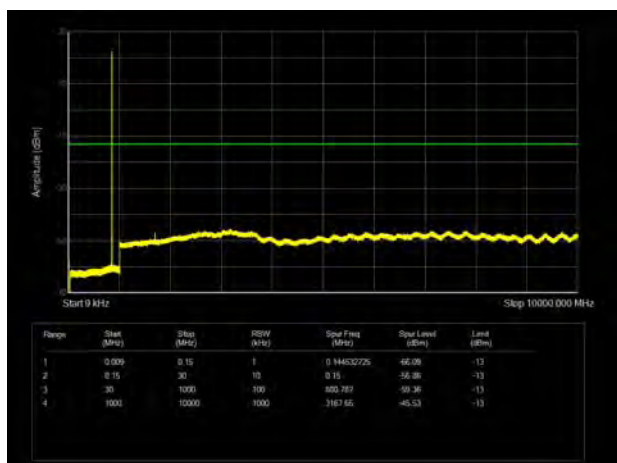
LTE Band 5 1.4MHz CH-Middle 9kHz~10GHz



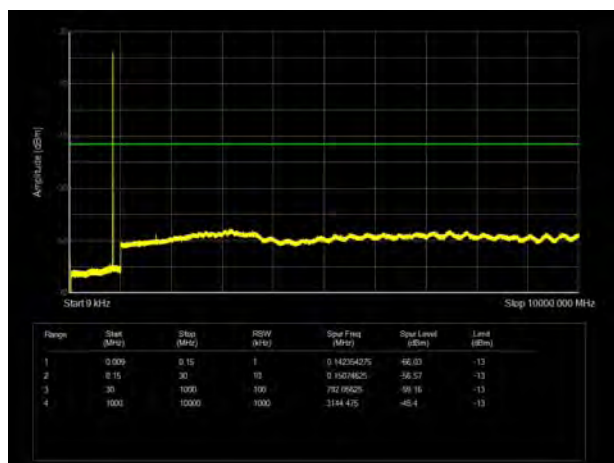
LTE Band 5 3MHz CH-Middle 9kHz~10GHz



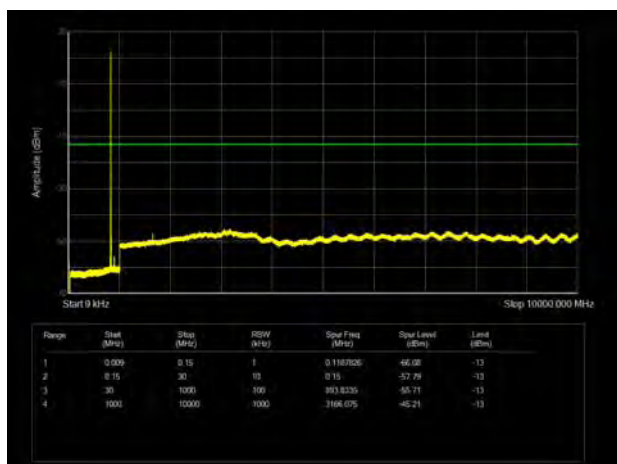
LTE Band 5 1.4MHz CH-High 9kHz~10GHz



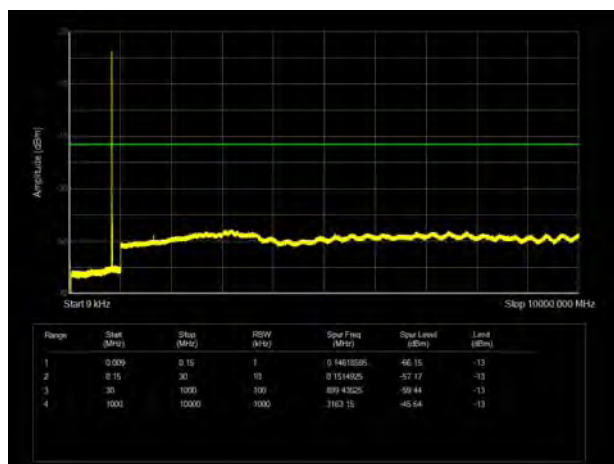
LTE Band 5 3MHz CH-High 9kHz~10GHz



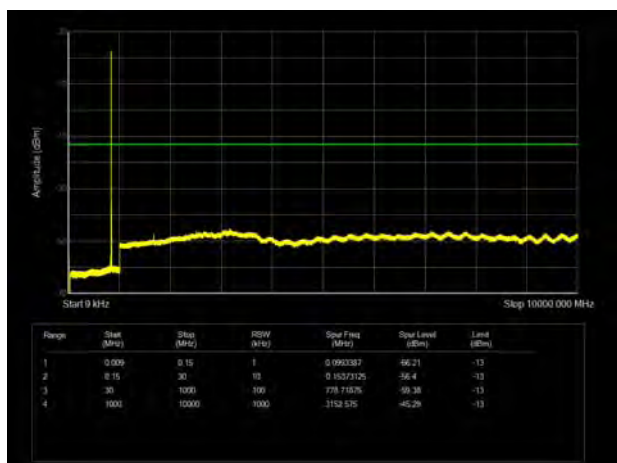
LTE Band 5 5MHz CH-Low 9kHz~10GHz



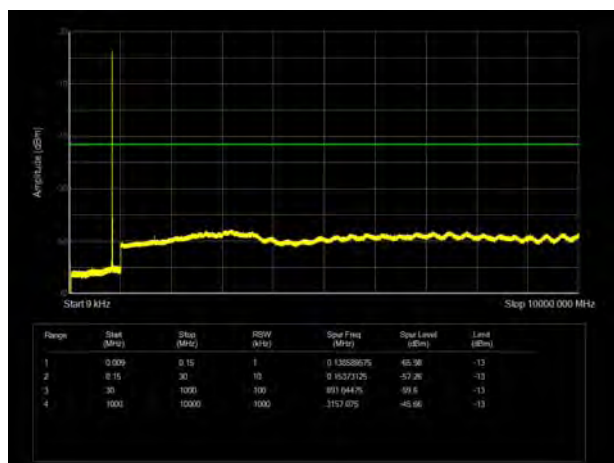
LTE Band 5 10MHz CH-Low 9kHz~10GHz



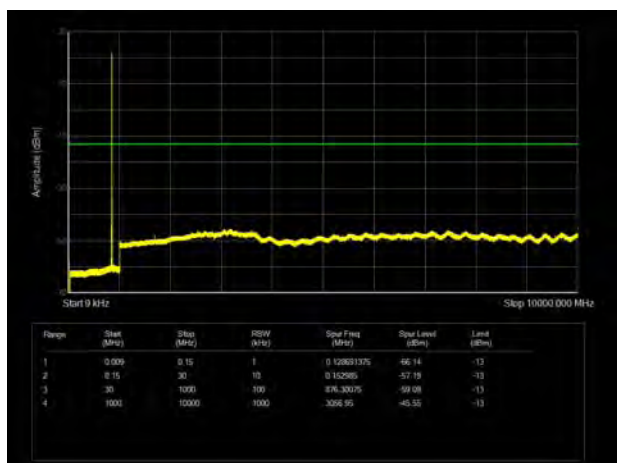
LTE Band 5 5MHz CH-Middle 9kHz~10GHz



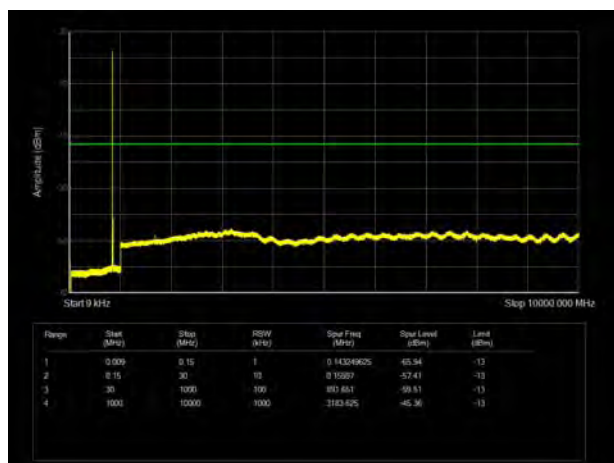
LTE Band 5 10MHz CH-Middle 9kHz~10GHz



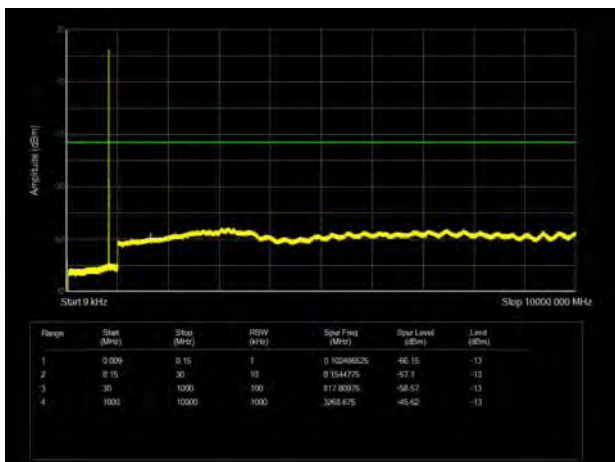
LTE Band 5 5MHz CH-High 9kHz~10GHz



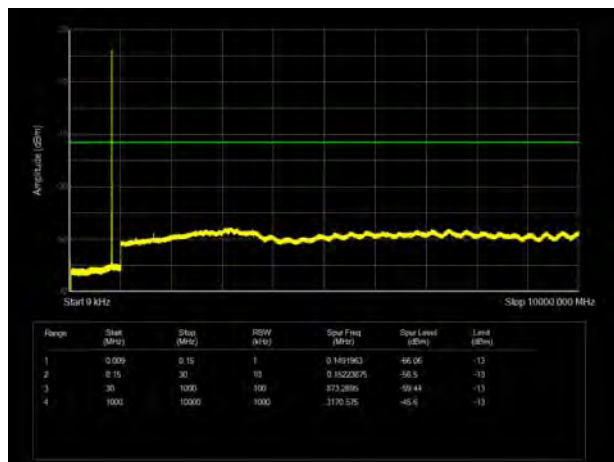
LTE Band 5 10MHz CH-High 9kHz~10GHz



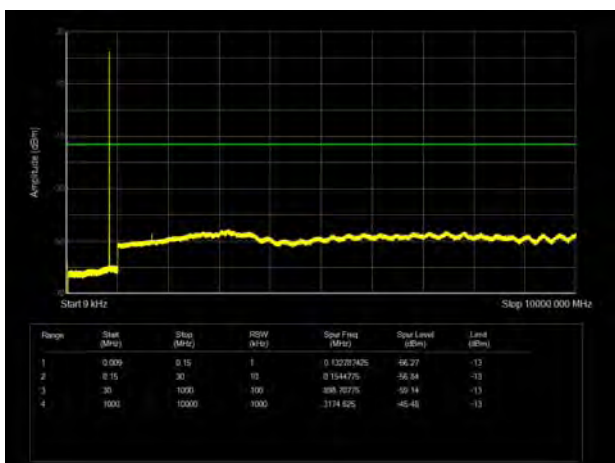
LTE Band 26 1.4MHz CH-Low 9kHz~10GHz



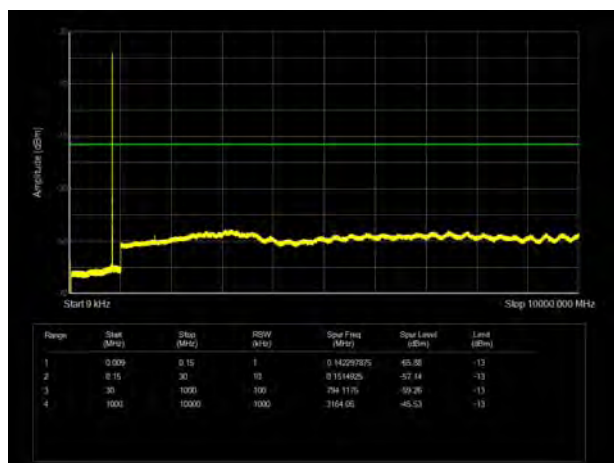
LTE Band 26 3MHz CH-Low 9kHz~10GHz



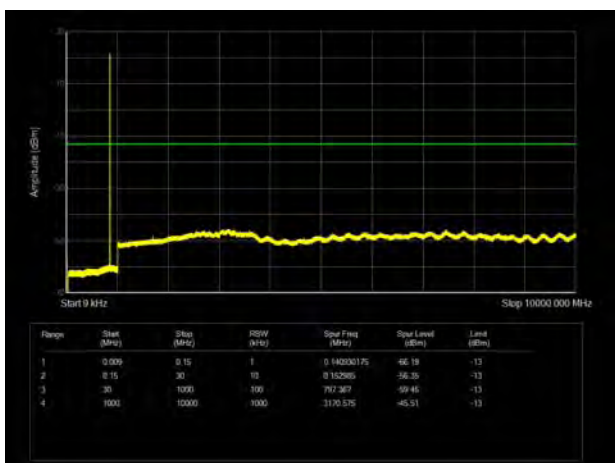
LTE Band 26 1.4MHz CH-Middle 9kHz~10GHz



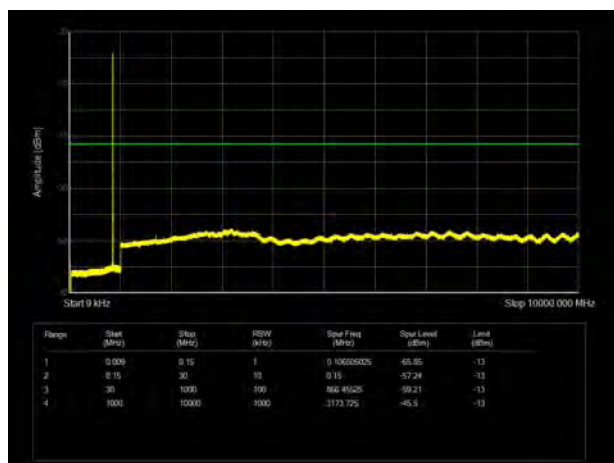
LTE Band 26 3MHz CH-Middle 9kHz~10GHz



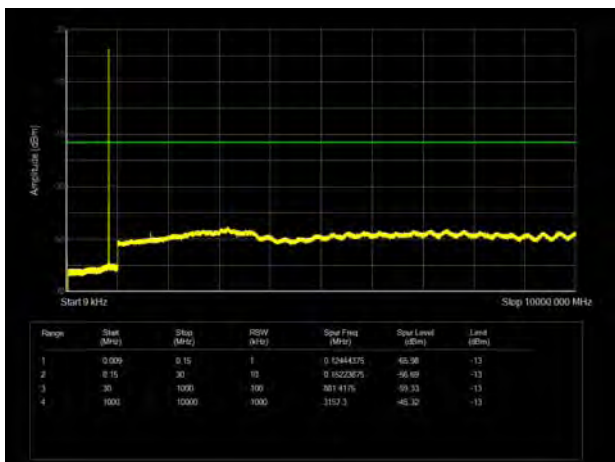
LTE Band 26 1.4MHz CH-High 9kHz~10GHz



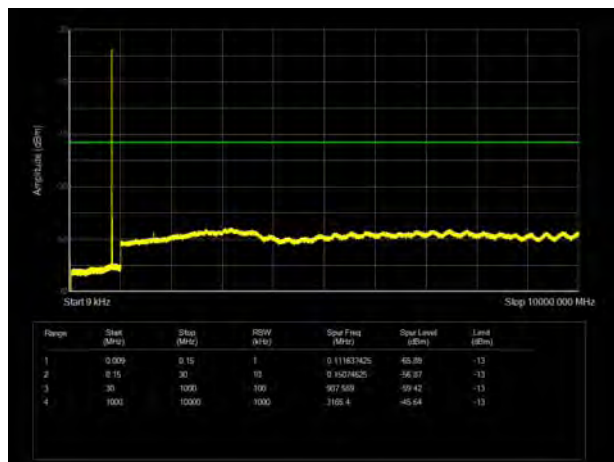
LTE Band 26 3MHz CH-High 9kHz~10GHz



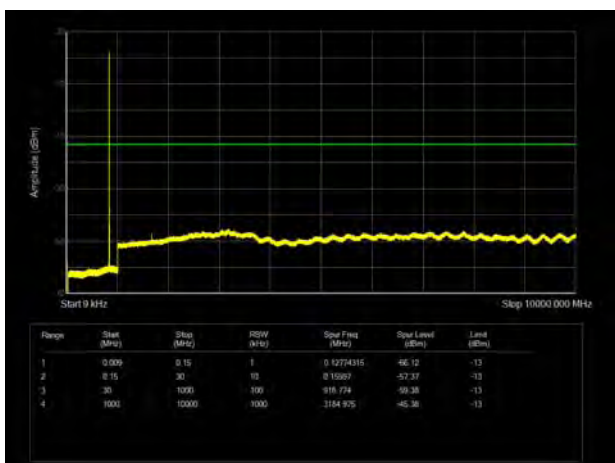
LTE Band 26 5MHz CH-Low 9kHz~10GHz



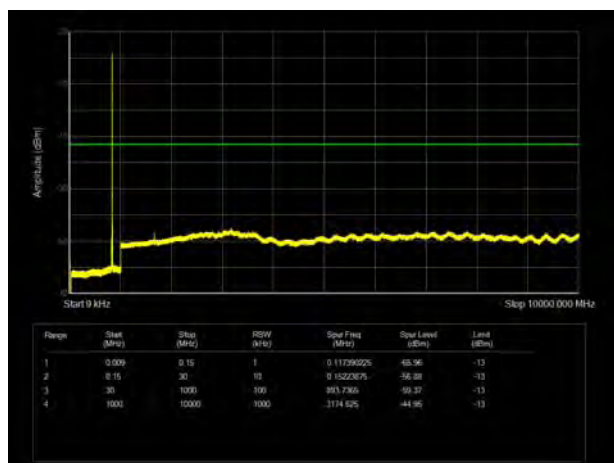
LTE Band 26 10MHz CH-Low 9kHz~10GHz



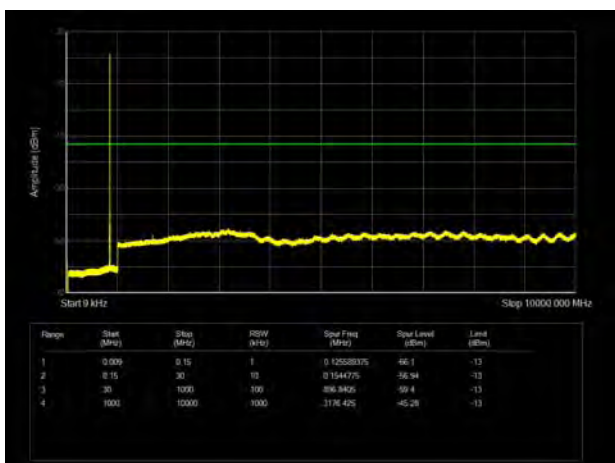
LTE Band 26 5MHz CH-Middle 9kHz~10GHz



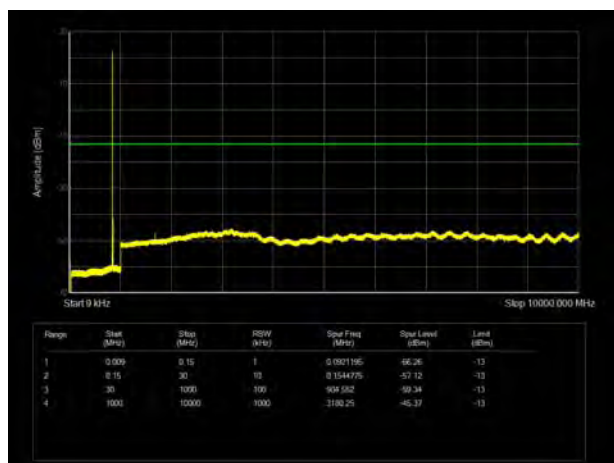
LTE Band 26 10MHz CH-Middle 9kHz~10GHz



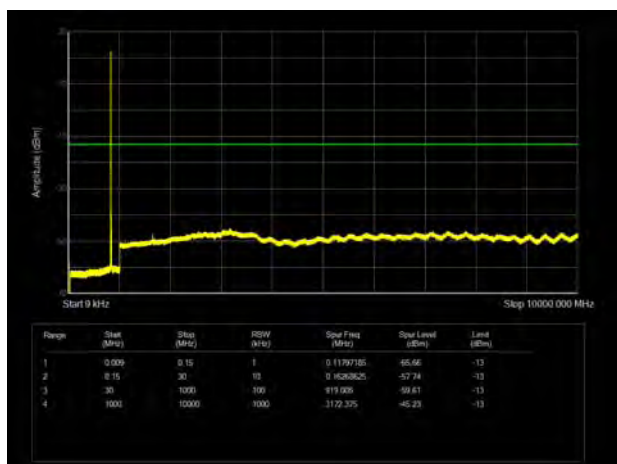
LTE Band 26 5MHz CH-High 9kHz~10GHz



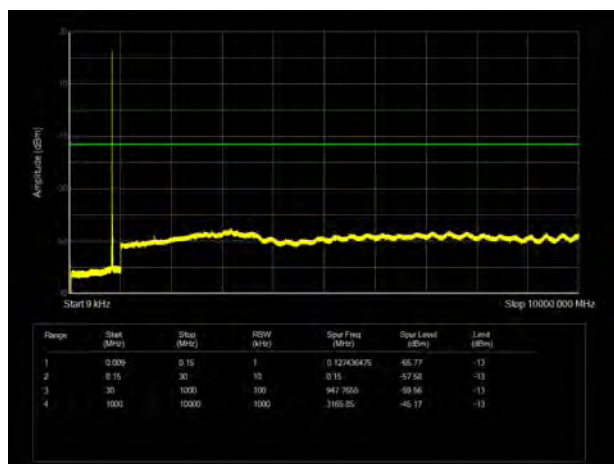
LTE Band 26 10MHz CH-High 9kHz~10GHz



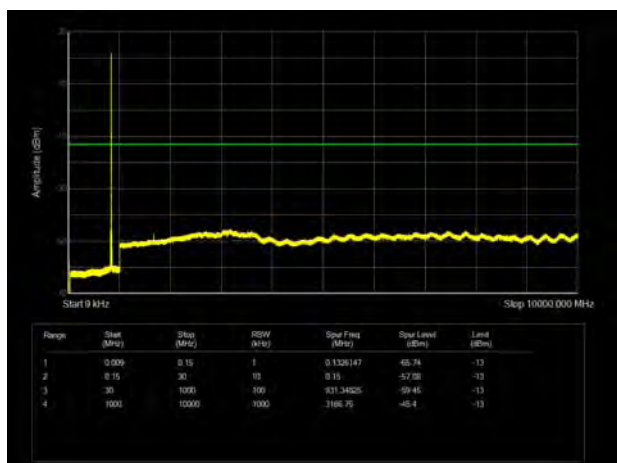
LTE Band 26 15MHz CH-Low 9kHz~10GHz



LTE Band 26 15MHz CH-Middle 9kHz~10GHz



LTE Band 26 15MHz CH-High 9kHz~10GHz



5.7. Radiates Spurious Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=200Hz,VBW=600Hz for 9kHz-150kHz , RBW=10kHz, VBW=30kHz 150kHz-30MHz , RBW=100kHz,VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAG) should be recorded after test.
7. The measurement results are obtained as described below:

$$\text{Power(EIRP)} = \text{PMea} - \text{PAG} - \text{Pcl} + \text{Ga}$$
The measurement results are amend as described below:

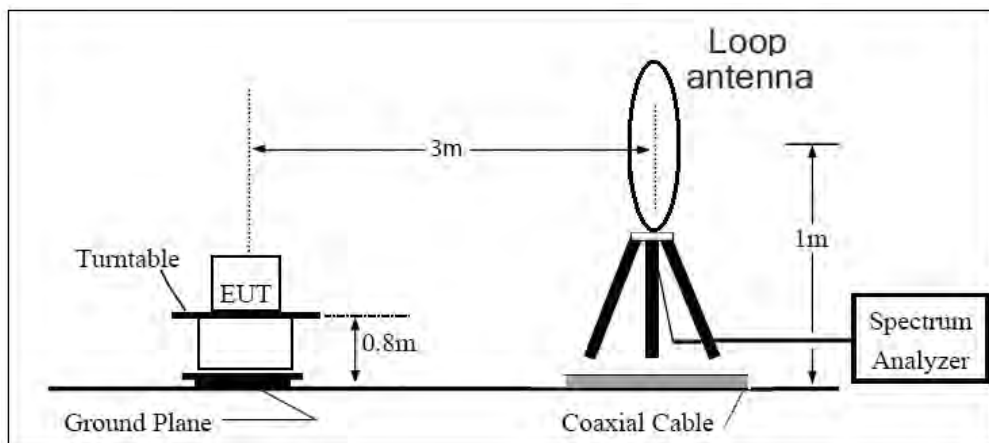
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi)

and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15\text{dBi}$.

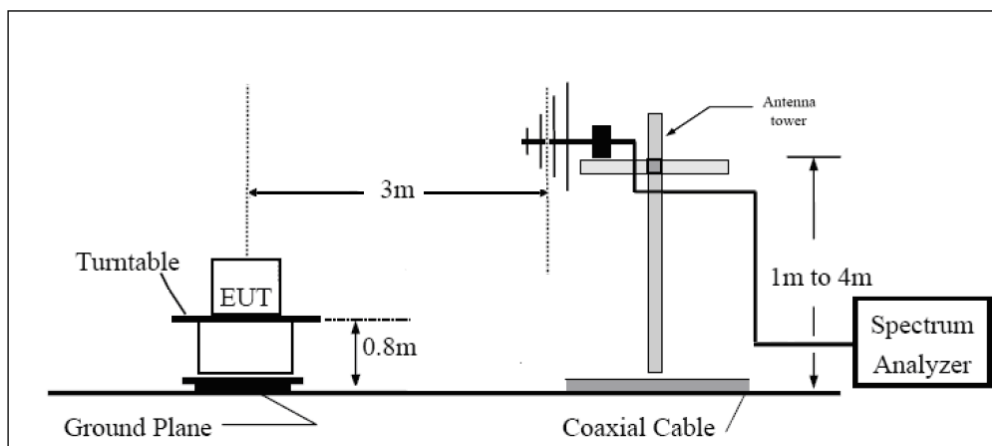
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

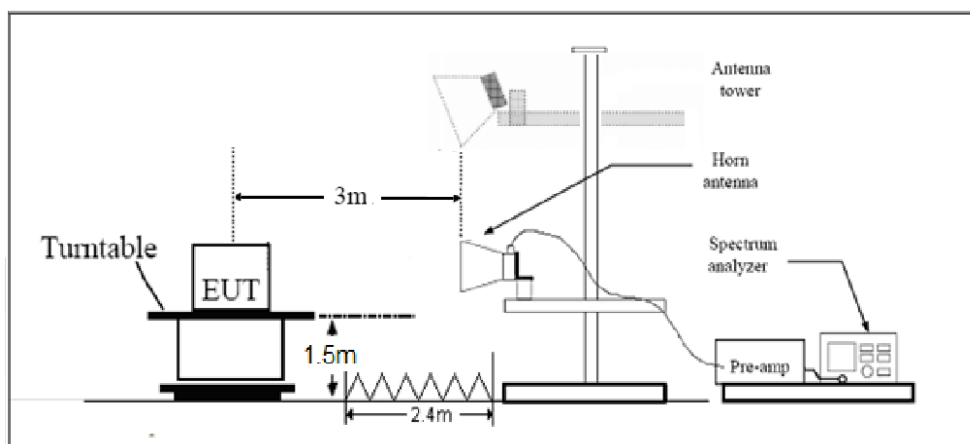
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.”

Limit	-13 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U = 3.55$ dB.

**Test Result**

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

GSM 850 CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.20	-54.57	1.70	8.70	Horizontal	-49.72	-13.00	36.72	0
3	2509.80	-46.66	2.30	12.00	Horizontal	-39.11	-13.00	26.11	0
4	3346.40	-64.92	2.70	12.70	Horizontal	-57.07	-13.00	44.07	0
5	4183.00	-60.26	3.00	12.50	Horizontal	-52.91	-13.00	39.91	45
6	5019.60	-57.59	3.40	12.50	Horizontal	-50.64	-13.00	37.64	225
7	5856.20	-58.85	3.40	12.80	Horizontal	-51.60	-13.00	38.60	90
8	6692.80	-55.54	4.10	11.50	Horizontal	-50.29	-13.00	37.29	45
9	7529.40	-53.60	4.20	12.20	Horizontal	-47.75	-13.00	34.75	315
10	8366.00	-54.80	4.30	12.50	Horizontal	-48.75	-13.00	35.75	180

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2.The worst emission was found in the antenna is Horizontal position.

WCDMA Band V CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.20	-66.40	1.70	8.70	Horizontal	-61.55	-13.00	48.55	45
3	2509.80	-62.07	2.30	12.00	Horizontal	-54.52	-13.00	41.52	315
4	3346.40	-65.00	2.70	12.70	Horizontal	-57.15	-13.00	44.15	90
5	4183.00	-61.13	3.00	12.50	Horizontal	-53.78	-13.00	40.78	0
6	5019.60	-57.00	3.40	12.50	Horizontal	-50.05	-13.00	37.05	180
7	5856.20	-57.92	3.40	12.80	Horizontal	-50.67	-13.00	37.67	90
8	6692.80	-55.87	4.10	11.50	Horizontal	-50.62	-13.00	37.62	45
9	7529.40	-53.75	4.20	12.20	Horizontal	-47.90	-13.00	34.90	315
10	8366.00	-54.90	4.30	12.50	Horizontal	-48.85	-13.00	35.85	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2.The worst emission was found in the antenna is Horizontal position.



LTE Band 5 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1415.00	-63.66	1.70	8.70	Horizontal	-58.81	-13.00	45.81	0
3	2122.50	-54.73	2.30	12.00	Horizontal	-47.18	-13.00	34.18	45
4	2830.00	-64.47	2.70	12.70	Horizontal	-56.62	-13.00	43.62	45
5	3537.50	-64.54	3.00	12.50	Horizontal	-57.19	-13.00	44.19	90
6	4245.00	-61.70	3.40	12.50	Horizontal	-54.75	-13.00	41.75	45
7	4952.50	-59.85	3.40	12.80	Horizontal	-52.60	-13.00	39.60	135
8	5660.00	-57.89	4.10	11.50	Horizontal	-52.64	-13.00	39.64	45
9	6367.50	-59.28	4.20	12.20	Horizontal	-53.43	-13.00	40.43	0
10	7075.00	-55.57	4.30	12.50	Horizontal	-49.52	-13.00	36.52	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is Horizontal position.

LTE Band 5 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1410.60	-63.03	1.70	8.70	Horizontal	-58.18	-13.00	45.18	315
3	2115.90	-53.90	2.30	12.00	Horizontal	-46.35	-13.00	33.35	180
4	2821.20	-63.94	2.70	12.70	Horizontal	-56.09	-13.00	43.09	90
5	3537.50	-63.22	3.00	12.50	Horizontal	-55.87	-13.00	42.87	45
6	4245.00	-62.24	3.40	12.50	Horizontal	-55.29	-13.00	42.29	0
7	4952.50	-59.65	3.40	12.80	Horizontal	-52.40	-13.00	39.40	315
8	5660.00	-57.49	4.10	11.50	Horizontal	-52.24	-13.00	39.24	90
9	6367.50	-57.70	4.20	12.20	Horizontal	-51.85	-13.00	38.85	90
10	7075.00	-54.38	4.30	12.50	Horizontal	-48.33	-13.00	35.33	135

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is Horizontal position.



LTE Band 5 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1406.40	-62.53	1.70	8.70	Horizontal	-57.68	-13.00	44.68	135
3	2109.60	-54.16	2.30	12.00	Horizontal	-46.61	-13.00	33.61	135
4	2812.80	-65.67	2.70	12.70	Horizontal	-57.82	-13.00	44.82	0
5	3537.50	-62.83	3.00	12.50	Horizontal	-55.48	-13.00	42.48	90
6	4245.00	-60.66	3.40	12.50	Horizontal	-53.71	-13.00	40.71	0
7	4952.50	-59.53	3.40	12.80	Horizontal	-52.28	-13.00	39.28	0
8	5660.00	-57.76	4.10	11.50	Horizontal	-52.51	-13.00	39.51	45
9	6367.50	-57.72	4.20	12.20	Horizontal	-51.87	-13.00	38.87	315
10	7075.00	-53.64	4.30	12.50	Horizontal	-47.59	-13.00	34.59	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is Horizontal position.

LTE Band 26 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.00	-66.21	1.70	8.70	Horizontal	-61.36	-13.00	48.36	45
3	2509.50	-59.13	2.30	12.00	Horizontal	-51.58	-13.00	38.58	135
4	3346.00	-67.30	2.70	12.70	Horizontal	-59.45	-13.00	46.45	135
5	4182.50	-63.86	3.00	12.50	Horizontal	-56.51	-13.00	43.51	45
6	5019.00	-59.89	3.40	12.50	Horizontal	-52.94	-13.00	39.94	0
7	5855.50	-60.10	3.40	12.80	Horizontal	-52.85	-13.00	39.85	0
8	6692.00	-56.26	4.10	11.50	Horizontal	-51.01	-13.00	38.01	90
9	7528.50	-54.76	4.20	12.20	Horizontal	-48.91	-13.00	35.91	135
10	8365.00	-55.82	4.30	12.50	Horizontal	-49.77	-13.00	36.77	45

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is Horizontal position.



LTE Band 26 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.00	-66.33	1.70	8.70	Horizontal	-61.48	-13.00	48.48	45
3	2509.50	-59.21	2.30	12.00	Horizontal	-51.66	-13.00	38.66	135
4	3346.00	-65.83	2.70	12.70	Horizontal	-57.98	-13.00	44.98	135
5	4182.50	-62.35	3.00	12.50	Horizontal	-55.00	-13.00	42.00	0
6	5019.00	-58.32	3.40	12.50	Horizontal	-51.37	-13.00	38.37	0
7	5855.50	-60.17	3.40	12.80	Horizontal	-52.92	-13.00	39.92	90
8	6692.00	-56.76	4.10	11.50	Horizontal	-51.51	-13.00	38.51	90
9	7528.50	-54.22	4.20	12.20	Horizontal	-48.37	-13.00	35.37	45
10	8365.00	-54.09	4.30	12.50	Horizontal	-48.04	-13.00	35.04	135

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is Horizontal position.



LTE Band 26 15MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.00	-64.58	1.70	8.70	Horizontal	-59.73	-13.00	46.73	45
3	2509.50	-60.18	2.30	12.00	Horizontal	-52.63	-13.00	39.63	180
4	3346.00	-65.61	2.70	12.70	Horizontal	-57.76	-13.00	44.76	45
5	4182.50	-61.24	3.00	12.50	Horizontal	-53.89	-13.00	40.89	135
6	5019.00	-59.80	3.40	12.50	Horizontal	-52.85	-13.00	39.85	0
7	5855.50	-59.55	3.40	12.80	Horizontal	-52.30	-13.00	39.30	0
8	6692.00	-55.71	4.10	11.50	Horizontal	-50.46	-13.00	37.46	0
9	7528.50	-54.56	4.20	12.20	Horizontal	-48.71	-13.00	35.71	45
10	8365.00	-54.93	4.30	12.50	Horizontal	-48.88	-13.00	35.88	180

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is Horizontal position.



6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113824	2020-05-18	2021-05-17
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2020-05-18	2021-05-17
Universal Radio Communication Tester	Key sight	E5515C	MY48367192	2020-05-27	2021-05-26
Signal Analyzer	R&S	FSV30	100815	2020-12-13	2021-12-12
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	391	2019-12-16	2021-12-15
Horn Antenna	R&S	HF907	102723	2018-08-11	2021-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2021-06-19
Signal generator	R&S	SMB 100A	102594	2020-05-18	2021-05-17
Climatic Chamber	ESPEC	SU-242	93000506	2020-12-13	2021-12-12
Preamplifier	R&S	SCU18	102327	2020-05-18	2021-05-17
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2020-05-18	2021-05-17
RF Cable	Agilent	SMA 15cm	0001	2020-12-12	2021-06-11
Software	R&S	EMC32	9.26.0	/	/

*****END OF REPORT *****



ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.



ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.