PCTEST
7185 Oakland Mills Road, Columbia, MD 21046 USA
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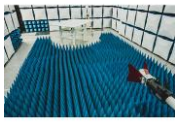

PART 22 MEASUREMENT REPORT

Applicant Name:
Samsung Electronics Co., Ltd.
129, Samsung-ro,
Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

Date of Testing:
03/26 – 06/05/2021
Test Site/Location:
PCTEST Lab. Columbia, MD, USA
Test Report Serial No.:
1M2104020031-022.A3L

FCC ID:	**A3LSMF926U**
Applicant Name:	**Samsung Electronics Co., Ltd.**

Application Type:	Certification
Model:	SM-F926U
Additional Model(s):	SM-F926U1
EUT Type:	Portable Handset
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part:	22
Test Procedure(s):	ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01, KDB 648474 D03 v01r04

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Randy Ortanez
President

ACCREDITED
CERT #2041.01

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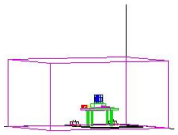
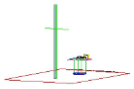


PART 22 MEASUREMENT REPORT



Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	ERP		EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	Max. Power [W]	Max. Power [dBm]	
GSM/GPRS	N/A	GMSK	824.2 - 848.8	0.530	27.24	0.869	29.39	247KGXW
EDGE	N/A	8-PSK	824.2 - 848.8	0.184	22.65	0.302	24.80	245KG7W
WCDMA	N/A	Spread Spectrum	826.4 - 846.6	0.076	18.80	0.125	20.95	4M16F9W
CDMA	N/A	Spread Spectrum	824.70 - 848.31	0.075	18.77	0.123	20.92	1M28F9W
LTE Band 26/5	15MHz (Band 26 only)	QPSK	831.5 - 841.5	0.069	18.40	0.113	20.55	13M5G7D
		16QAM	831.5 - 841.5	0.058	17.63	0.095	19.78	13M5W7D
	10 MHz	QPSK	829.0 - 844.0	0.072	18.56	0.118	20.71	9M01G7D
		16QAM	829.0 - 844.0	0.064	18.06	0.105	20.21	8M99W7D
	5 MHz	QPSK	826.5 - 846.5	0.072	18.58	0.118	20.73	4M53G7D
		16QAM	826.5 - 846.5	0.062	17.92	0.102	20.07	4M52W7D
	3 MHz	QPSK	825.5 - 847.5	0.075	18.74	0.123	20.89	2M71G7D
		16QAM	825.5 - 847.5	0.062	17.92	0.102	20.07	2M72W7D
	1.4 MHz	QPSK	824.7 - 848.3	0.073	18.61	0.119	20.76	1M10G7D
		16QAM	824.7 - 848.3	0.060	17.78	0.098	19.93	1M10W7D
NR Band n5	20 MHz	π/2 BPSK	834.0 - 839.0	0.091	19.60	0.150	21.75	18M0G7D
		QPSK	834.0 - 839.0	0.093	19.66	0.152	21.81	18M9G7D
		16QAM	834.0 - 839.0	0.069	18.40	0.114	20.55	19M0W7D
	15 MHz	π/2 BPSK	831.5 - 841.5	0.092	19.62	0.150	21.77	13M5G7D
		QPSK	831.5 - 841.5	0.090	19.54	0.148	21.69	13M5G7D
		16QAM	831.5 - 841.5	0.067	18.24	0.109	20.39	14M2W7D
	10 MHz	π/2 BPSK	829.0 - 844.0	0.088	19.46	0.145	21.61	9M00G7D
		QPSK	829.0 - 844.0	0.087	19.40	0.143	21.55	9M34G7D
		16QAM	829.0 - 844.0	0.069	18.41	0.114	20.56	9M31W7D
	5 MHz	π/2 BPSK	826.5 - 846.5	0.089	19.48	0.146	21.63	4M50G7D
		QPSK	826.5 - 846.5	0.089	19.52	0.147	21.67	4M49G7D
		16QAM	826.5 - 846.5	0.066	18.17	0.108	20.32	4M51W7D

1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.

- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).

- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID:A3LSMF926U**. The test data contained in this report pertains only to the emissions due to the EUT's licensed transmitters that operate under the provisions of Part 22.

Test Device Serial No.: *0224M, 0943M, 0994M, 0867M, 1121M, 1008M, 0131M, 0209M, 0113M, 0429M, 0405M*

2.2 Device Capabilities

This device contains the following capabilities:

800/850/1900 CDMA/EvDO Rev0/A, 1x Advanced (BC0, BC1, BC10), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR , 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII (5GHz and 6GHz), Bluetooth (1x, EDR, LE), NFC, Wireless Power Transfer, UWB

LTE Band 26 (814.7 – 849 MHz) overlaps the entire frequency range of LTE Band 5 (824 – 849 MHz). Therefore, test data provided in this report covers Band 5 and the portion of Band 26 subject to Part 22.

This device uses a tuner circuit that dynamically updates the antenna impedance parameters to optimize antenna performance for certain bands and modes of operation. The tuner for this device was set to simulate a "free space" condition where the transmit antenna is matched to the medium into which it is transmitting and, thus, the power is at its maximum level.

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 3 of this test report for a description of the radiated and antenna port conducted emissions tests.

This device supports two configurations: one is with screen open and one is with screen closed. Both configurations are tested, and the worst case radiated emissions data is shown in this report.

This device supports two additional antenna configurations for LTE/NR Low bands [AFS operation]: one is with two antennas transmitting from one feed, and one is with a singular antenna transmitting. Both configurations are tested, and the worst case radiated emissions data is shown in this report.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad(WCP) Model: EP-N5100 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

2.4 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-E-2016) and "Measurement Guidance for Certification of Licensed Digital Transmitters" (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

Deviation from Measurement Procedure……..None

3.2 Radiated Power and Radiated Spurious Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

For radiated power measurements, substitution method is used per the guidance of ANSI/TIA-603-E-2016. A half-wave dipole is substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_{d\ [dBm]} = P_{g\ [dBm]} - \text{cable loss}_{\ [dB]} + \text{antenna gain}_{\ [dBd/dBi]};$$

where P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_{g\ [dBm]}$ – cable loss $_{[dB]}$.

For radiated spurious emissions measurements and calculations, conversion method is used per the formulas in KDB 971168 Section 5.8.4. Field Strength (EIRP) is calculated using the following formulas:

$$E_{[dB\mu V/m]} = \text{Measured amplitude level}_{[dBm]} + 107 + \text{Cable Loss}_{[dB]} + \text{Antenna Factor}_{[dB/m]}$$

And

$$EIRP_{[dBm]} = E_{[dB\mu V/m]} + 20\log D - 104.8;$$ where D is the measurement distance in meters.

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 474788 D01.

Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI/TIA-603-E-2016.

4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (±dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	AP2	EMC Cable and Switch System	9/9/2020	Annual	9/9/2021	AP2
-	AP1	EMC Cable and Switch System	9/10/2020	Annual	9/10/2021	AP1
-	LTx1	Licensed Transmitter Cable Set	5/1/2020	Annual	5/1/2021	LTx1
-	LTx2	Licensed Transmitter Cable Set	9/16/2020	Annual	9/16/2021	LTx2
-	LTx3	LIcensed Transmitter Cable Set	8/28/2020	Annual	8/28/2021	LTx3
Keysight Technologies	N9020A	MXA Signal Analyzer	8/14/2020	Annual	8/14/2021	US46470561
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	8/17/2020	Annual	8/17/2021	MY52350166
Anritsu	MT8821C	Radio Communication Analyzer	N/A			6200901190
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2019	Biennial	10/10/2021	121034
Emco	3115	Horn Antenna (1-18GHz)	6/18/2020	Biennial	6/18/2022	9704-5182
Espec	ESX-2CA	Environmental Chamber	8/27/2020	Annual	8/27/2022	17620
Keysight Technologies	N9030B	PXA Signal Analyzer, Multi-touch	9/17/2020	Annual	9/17/2021	MY57141001
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11208010032
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11403100002
Rohde & Schwarz	CMU200	Base Station Simulator	N/A			836536/0005
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			100976
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			112347
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	7/15/2020	Annual	7/15/2021	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/9/2020	Annual	9/9/2021	100348
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/10/2020	Annual	8/10/2021	103200
Sunol	DRH-118	Horn Antenna (1-18GHz)	10/3/2019	Biennial	10/3/2021	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/27/2020	Biennial	7/27/2022	A051107

Table 5-1. Test Equipment

Notes:

1. For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

2. Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

6.0 SAMPLE CALCULATIONS

GSM Emission Designator

Emission Designator = 250KGXW
GSM BW = 250 kHz
G = Phase Modulation
X = Cases not otherwise covered
W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 250KG7W
EDGE BW = 250 kHz
G = Phase Modulation
7 = Quantized/Digital Info
W = Combination (Audio/Data)

CDMA Emission Designator

Emission Designator = 1M25F9W
CDMA BW = 1.25 MHz
F = Frequency Modulation
9 = Composite Digital Info
W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M16F9W
WCDMA BW = 4.16 MHz
F = Frequency Modulation
9 = Composite Digital Info
W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 8M62G7D
LTE BW = 8.62 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 8M45W7D
LTE BW = 8.45 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

Spurious Radiated Emission

Example: Spurious emission at 3700.40 MHz

The receive spectrum analyzer reading at 3 meters with the EUT on the turntable was –81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of –81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3700.40 MHz. So 6.1 dB is added to the signal generator reading of –30.9 dBm yielding –24.80 dBm. The fundamental EIRP was 25.50 dBm so this harmonic was 25.50 dBm – (-24.80) = 50.3 dBc.

7.0 TEST RESULTS

7.1 Summary

Company Name: Samsung Electronics Co., Ltd.

FCC ID: A3LSMF926U

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)

Mode(s): NR/GSM/GPRS/EDGE/WCDMA/CDMA/LTE

Test Condition	Test Description	FCC Part Section(s)	RSS Section(s)	Test Limit	Test Result	Reference
CONDUCTED	Transmitter Conducted Output Power	2.1046	RSS-132(5.4)	N/A	PASS	See RF Exposure Report
	Occupied Bandwidth	2.1049	RSS-Gen(6.7)	N/A	PASS	Section 7.2
	Conducted Band Edge / Spurious Emissions	2.1051, 22.917(a)	RSS-132(5.5)	> 43 + 10log10(P[Watts]) at Band Edge and for all out-of-band emissions	PASS	Sections 7.3, 7.4
	Frequency Stability	2.1055, 22.355	RSS-132(5.3)	Fundamental emissions stay within authorized frequency block	PASS	Section 7.8
RADIATED	Effective Radiated Power / Equivalent Isotropic Radiated Power	22.913(a)(5)	RSS-132(5.4)	< 7 Watts max. ERP	PASS	Section 7.6
	Radiated Spurious Emissions	2.1053, 22.917(a)	RSS-132(5.5)	> 43 + 10 log10 (P[Watts]) for all out-of-band emissions	PASS	Section 7.7

Table 7-1. Summary of Test Results

Notes:

1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
2) The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
4) All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST EMC Software Tool Beta 8

7.2 Occupied Bandwidth

Test Overview

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 4.2

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

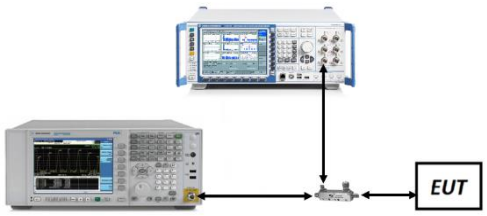
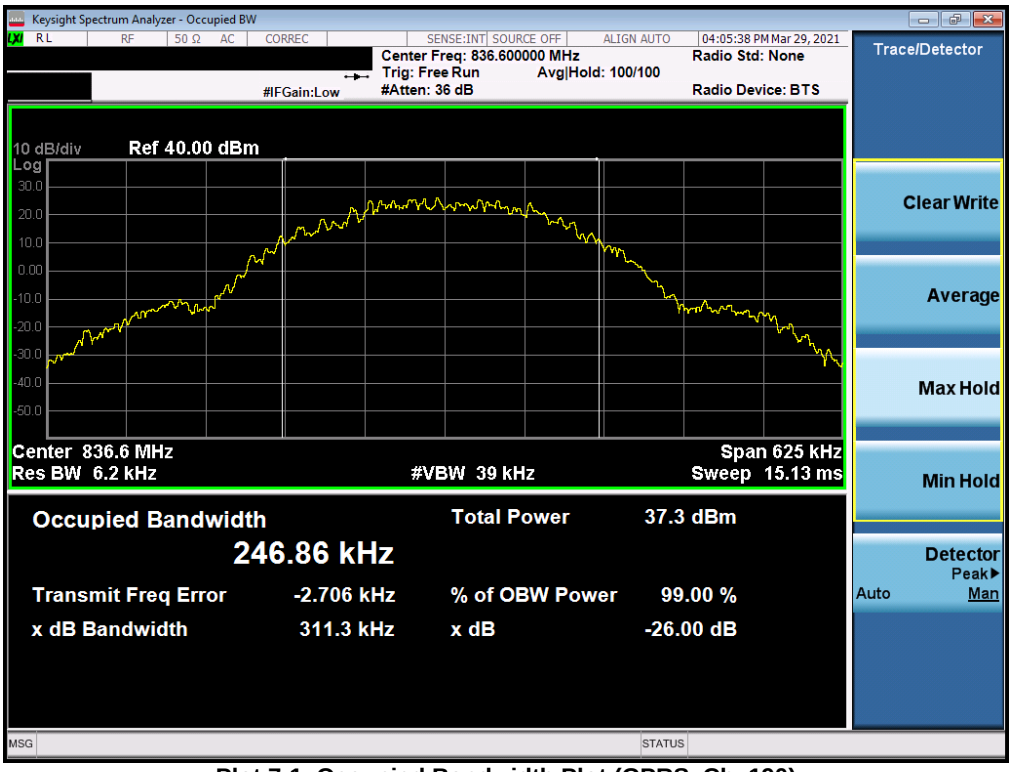


Figure 7-1. Test Instrument & Measurement Setup

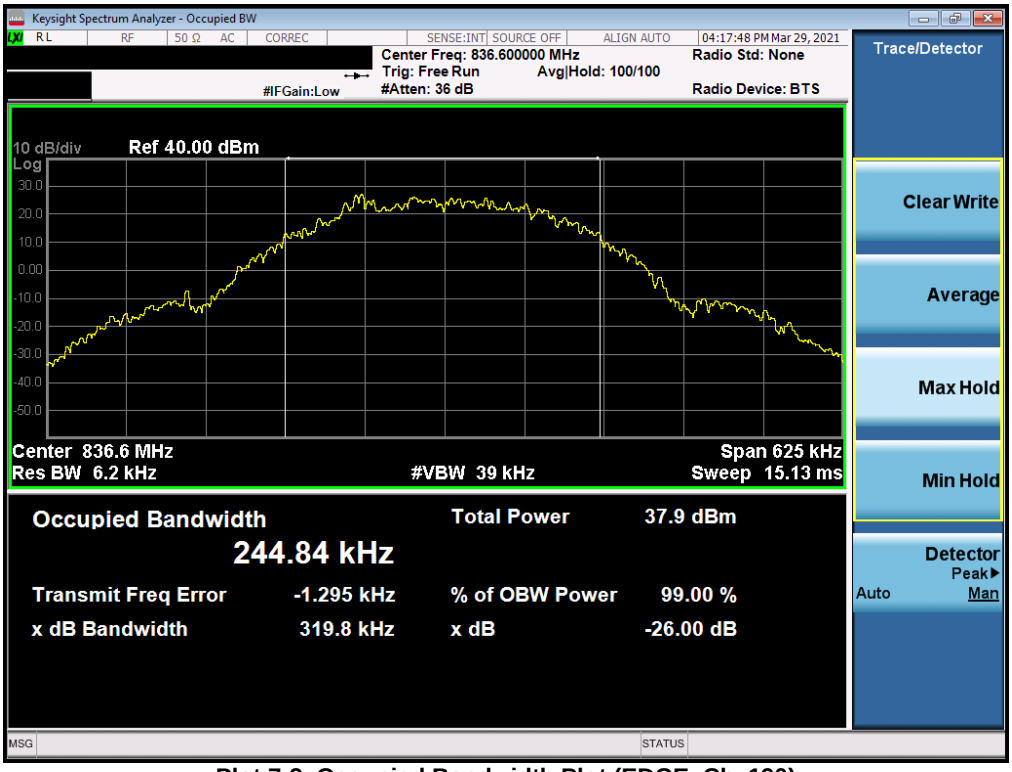
Test Notes

None.

GPRS Cell

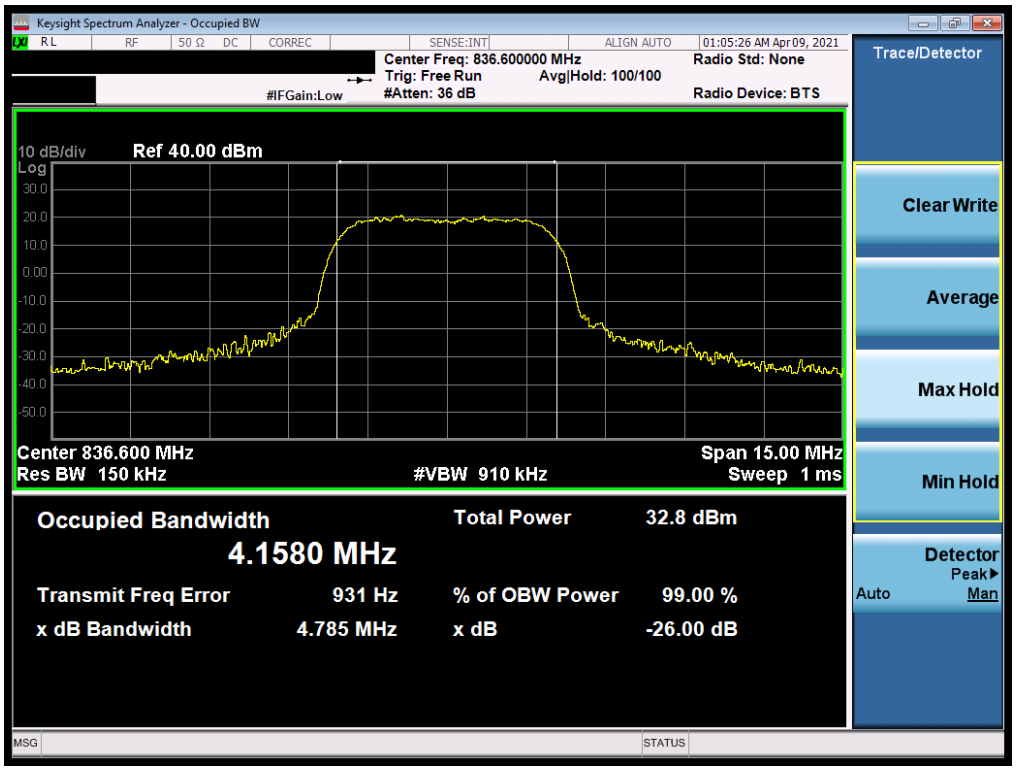


Plot 7-1. Occupied Bandwidth Plot (GPRS, Ch. 190)



Plot 7-2. Occupied Bandwidth Plot (EDGE, Ch. 190)

WCDMA Cell



Plot 7-3. Occupied Bandwidth Plot (WCDMA, Ch. 4183)

CDMA Cell

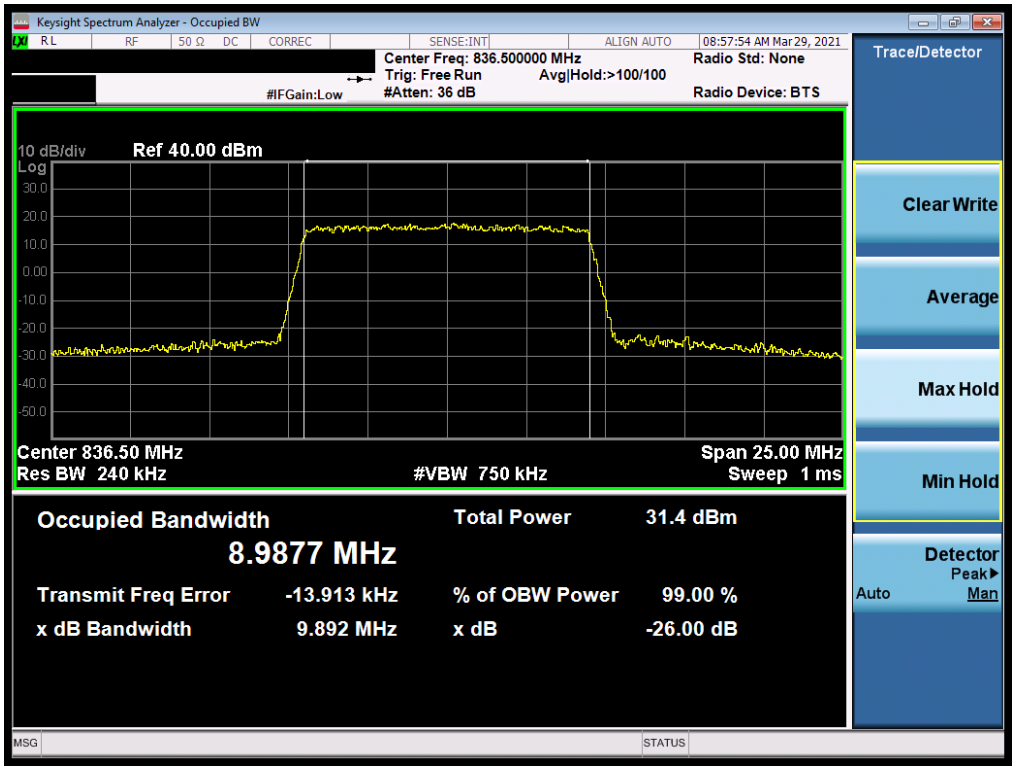
Plot 7-4. Occupied Bandwidth Plot (CDMA, Ch. 384)

LTE Band 26/5

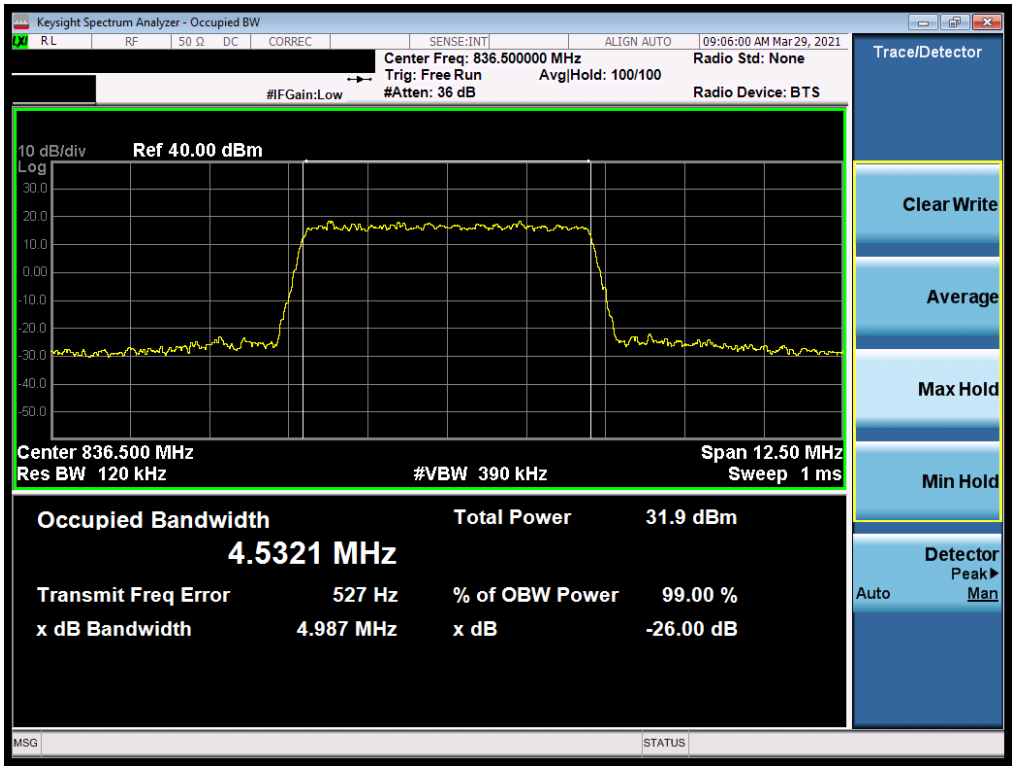
Plot 7-5. Occupied Bandwidth Plot (LTE Band 26 - 15MHz QPSK - Full RB)

Plot 7-6. Occupied Bandwidth Plot (LTE Band 26 - 15MHz 16-QAM - Full RB)

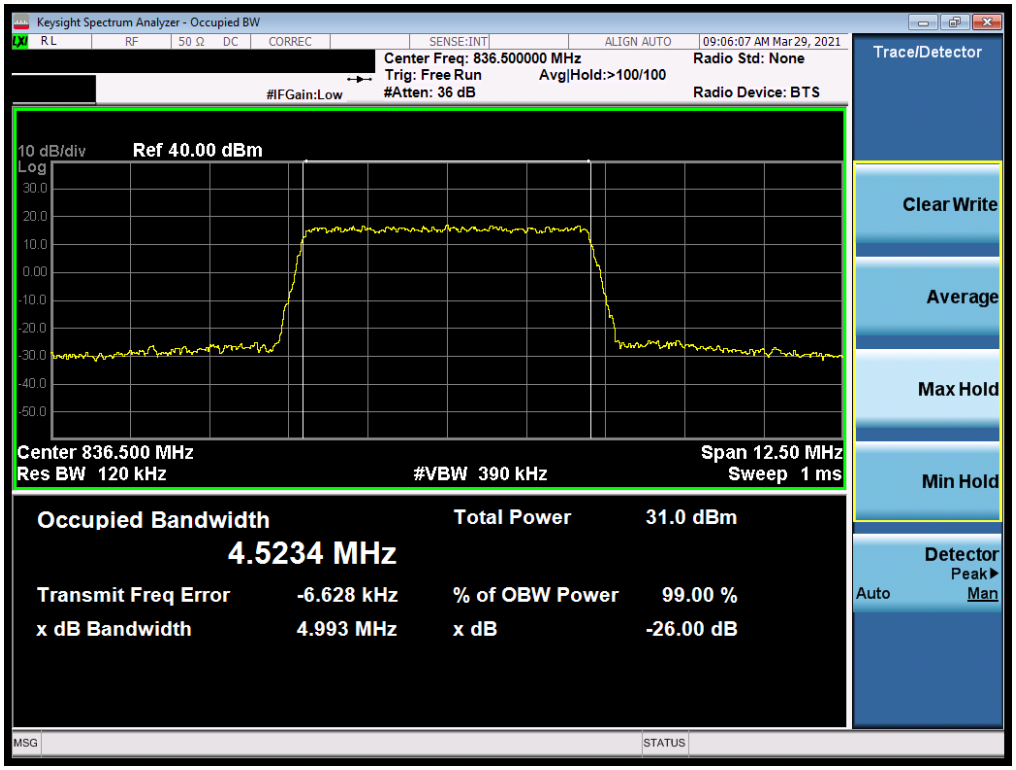
Plot 7-7. Occupied Bandwidth Plot (LTE Band 26/5 - 10MHz QPSK - Full RB)



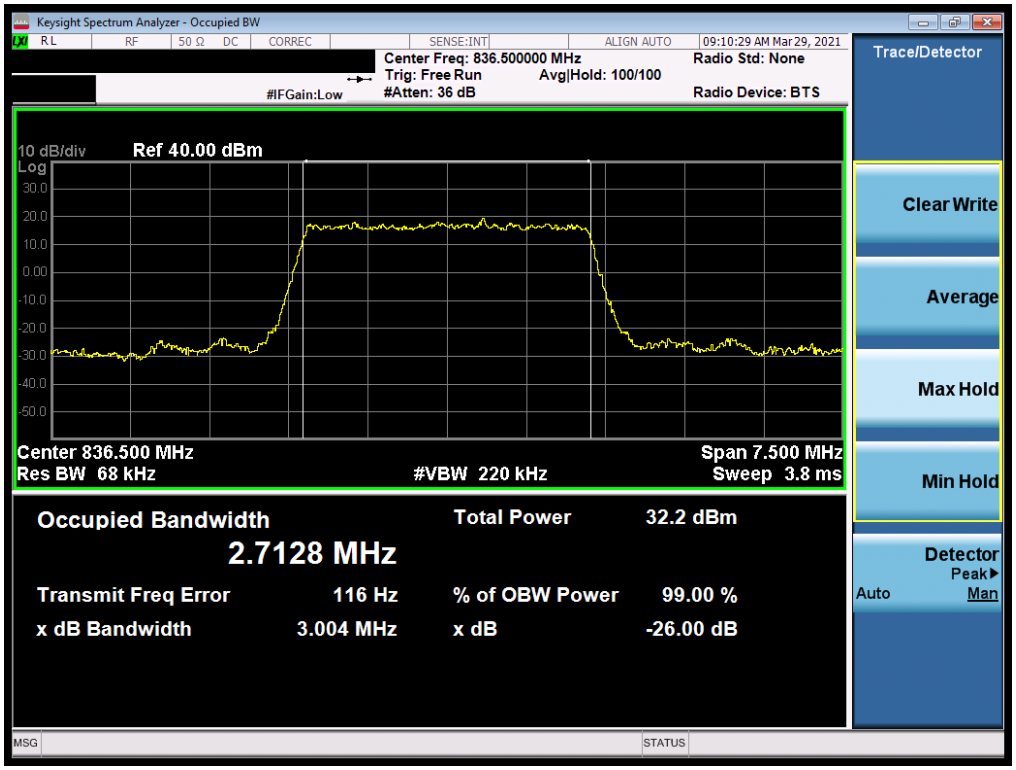
Plot 7-8. Occupied Bandwidth Plot (LTE Band 26/5 - 10MHz 16-QAM - Full RB)



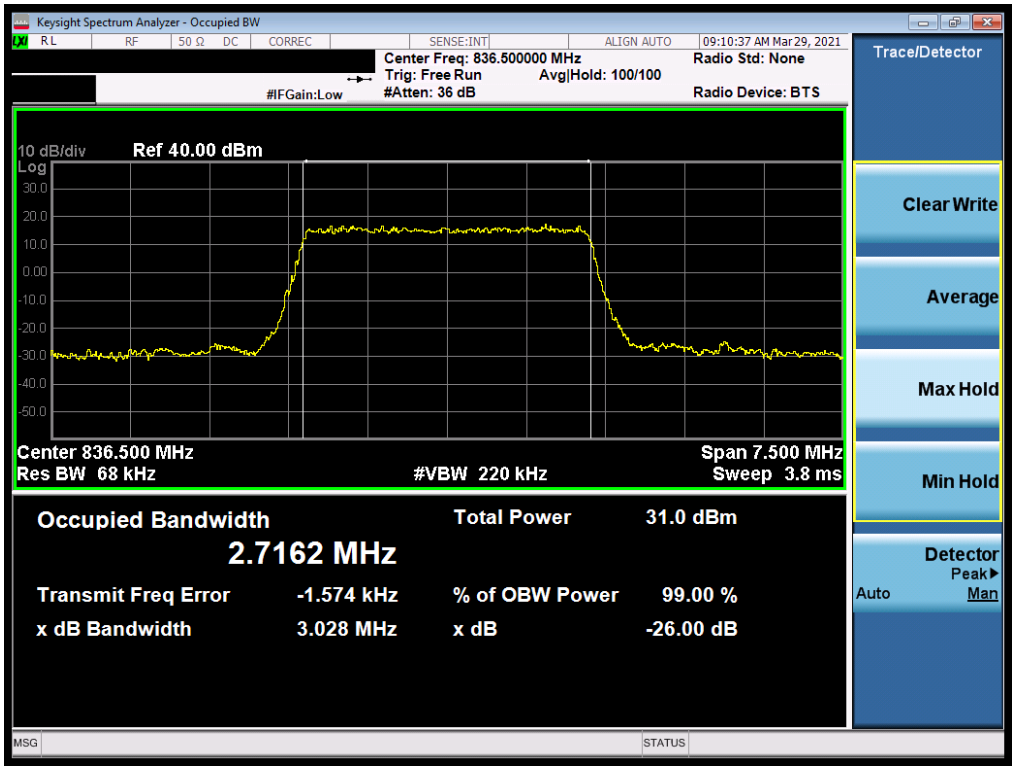
Plot 7-9. Occupied Bandwidth Plot (LTE Band 26/5 - 5MHz QPSK - Full RB)



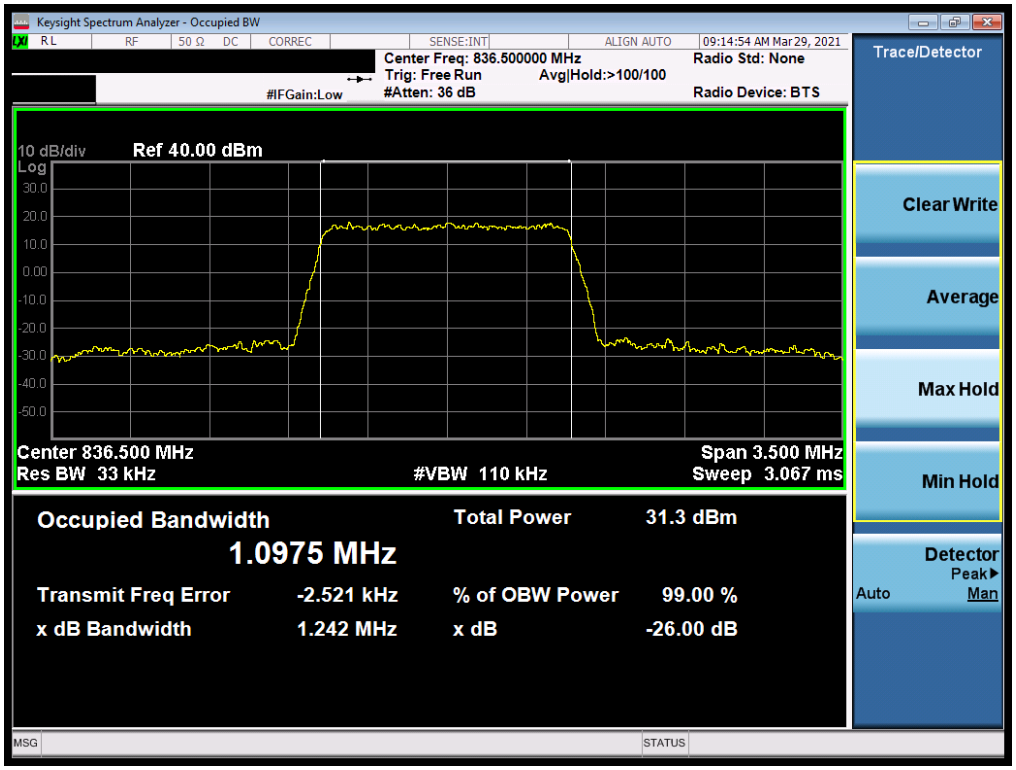
Plot 7-10. Occupied Bandwidth Plot (LTE Band 26/5 - 5MHz 16-QAM - Full RB)



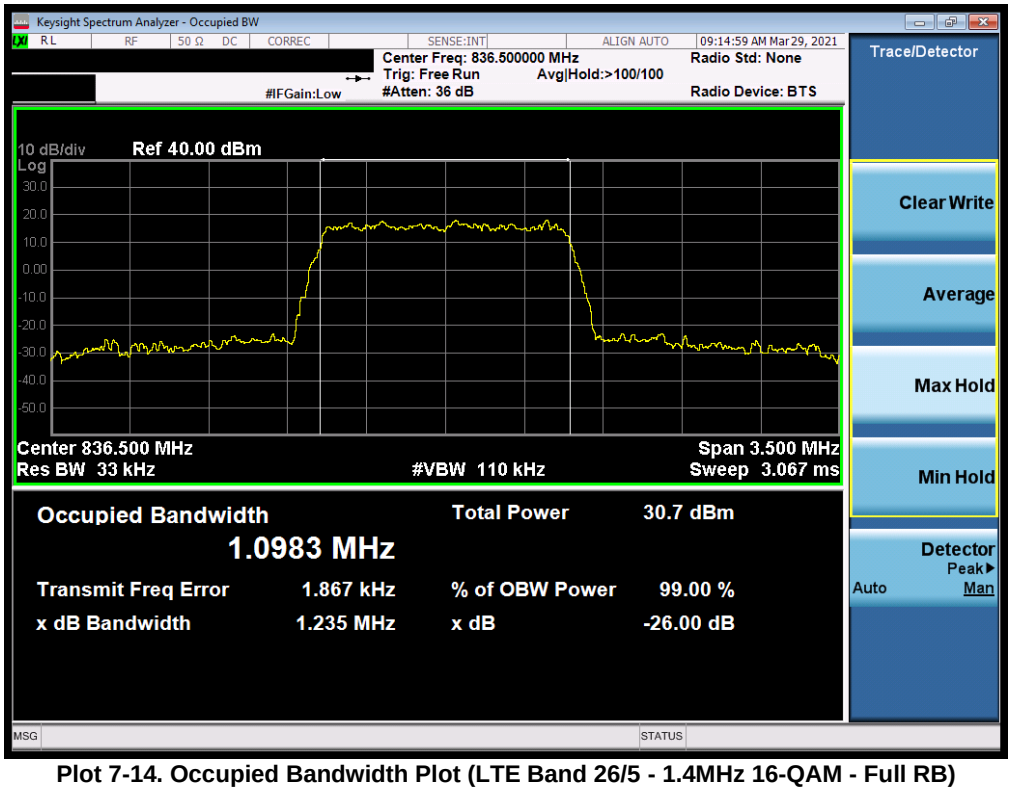
Plot 7-11. Occupied Bandwidth Plot (LTE Band 26/5 - 3MHz QPSK - Full RB)



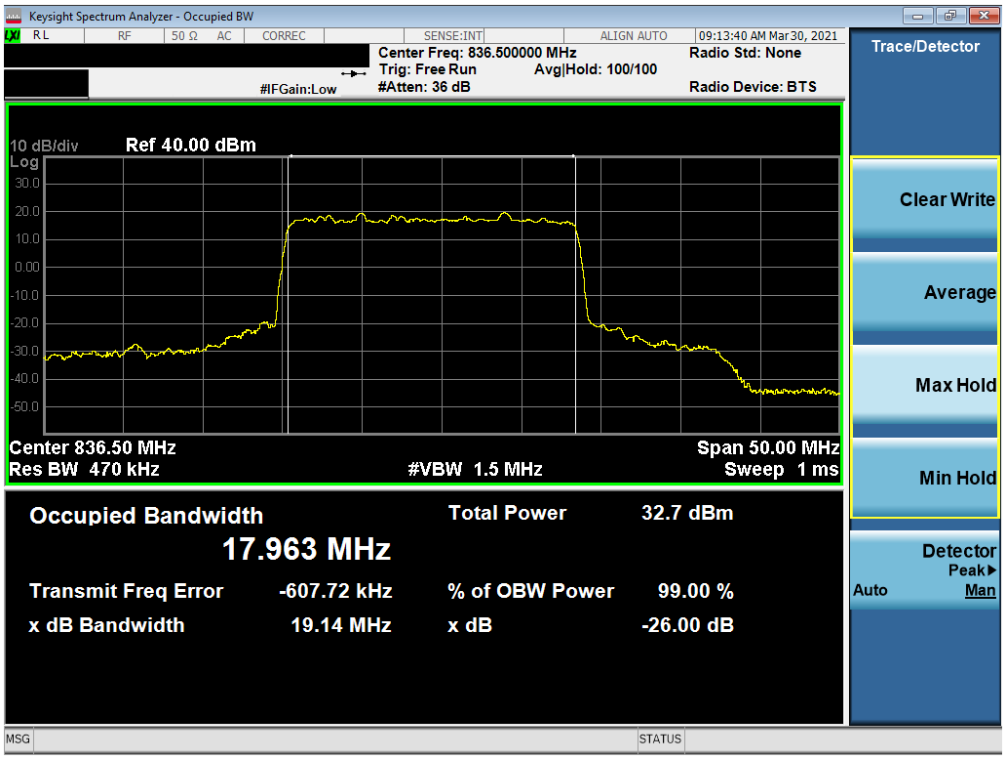
Plot 7-12. Occupied Bandwidth Plot (LTE Band 26/5 - 3MHz 16-QAM - Full RB)



Plot 7-13. Occupied Bandwidth Plot (LTE Band 26/5 - 1.4MHz QPSK - Full RB)

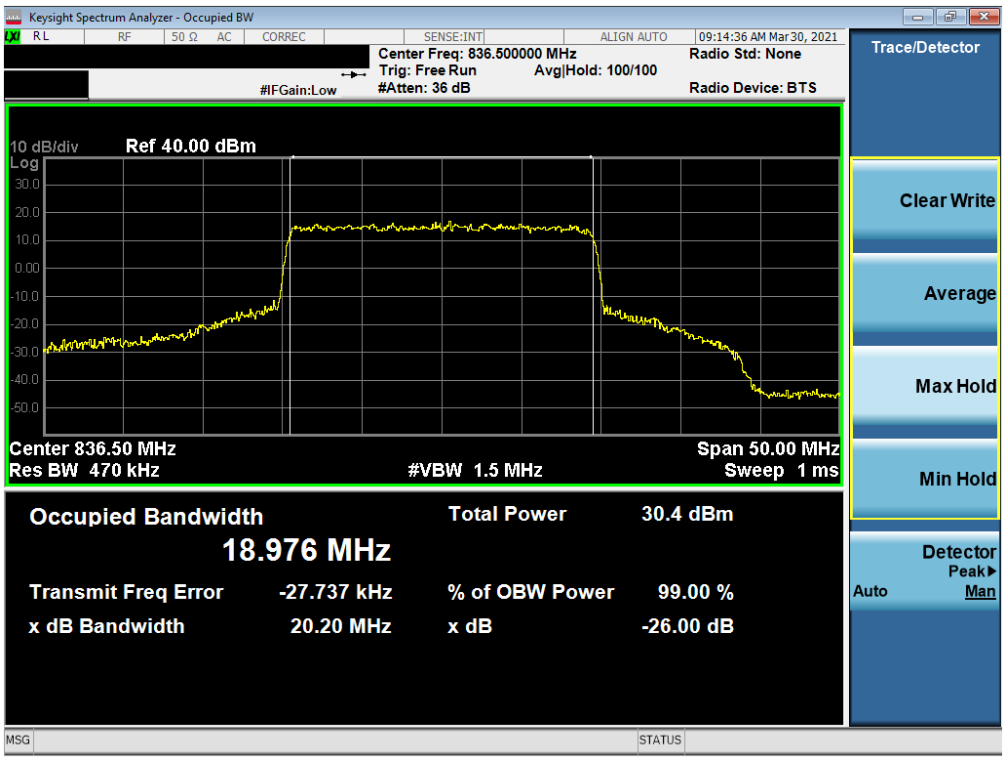


Plot 7-14. Occupied Bandwidth Plot (LTE Band 26/5 - 1.4MHz 16-QAM - Full RB)

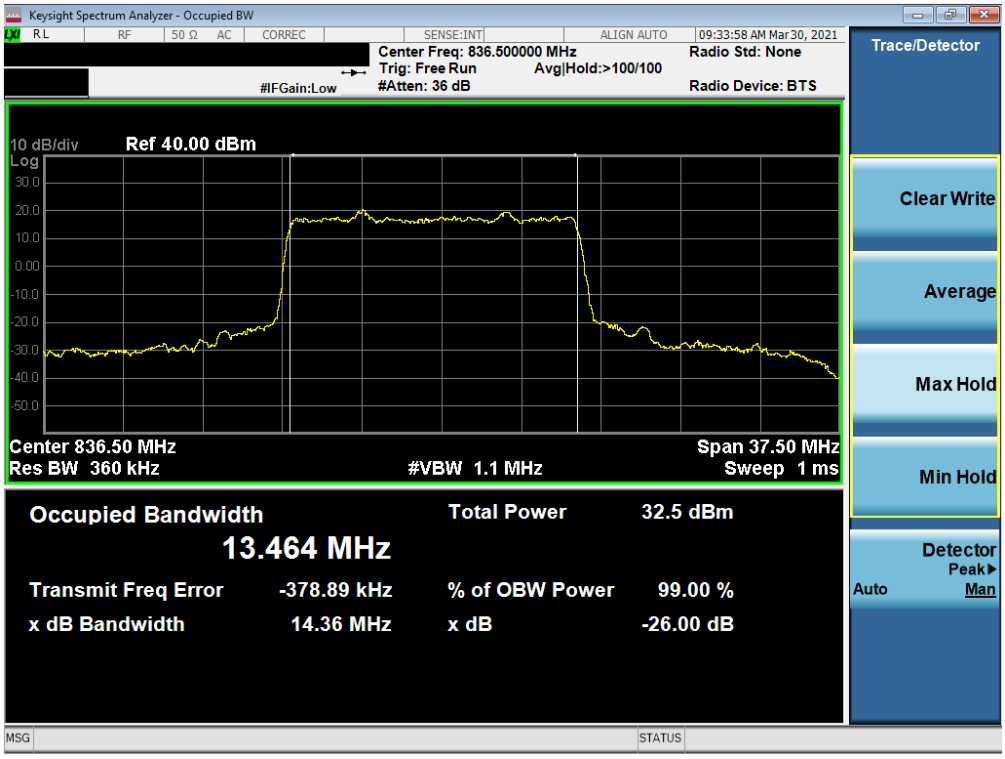


Plot 7-15. Occupied Bandwidth Plot (NR Band n5 - 20MHz π/2 BPSK - Full RB)

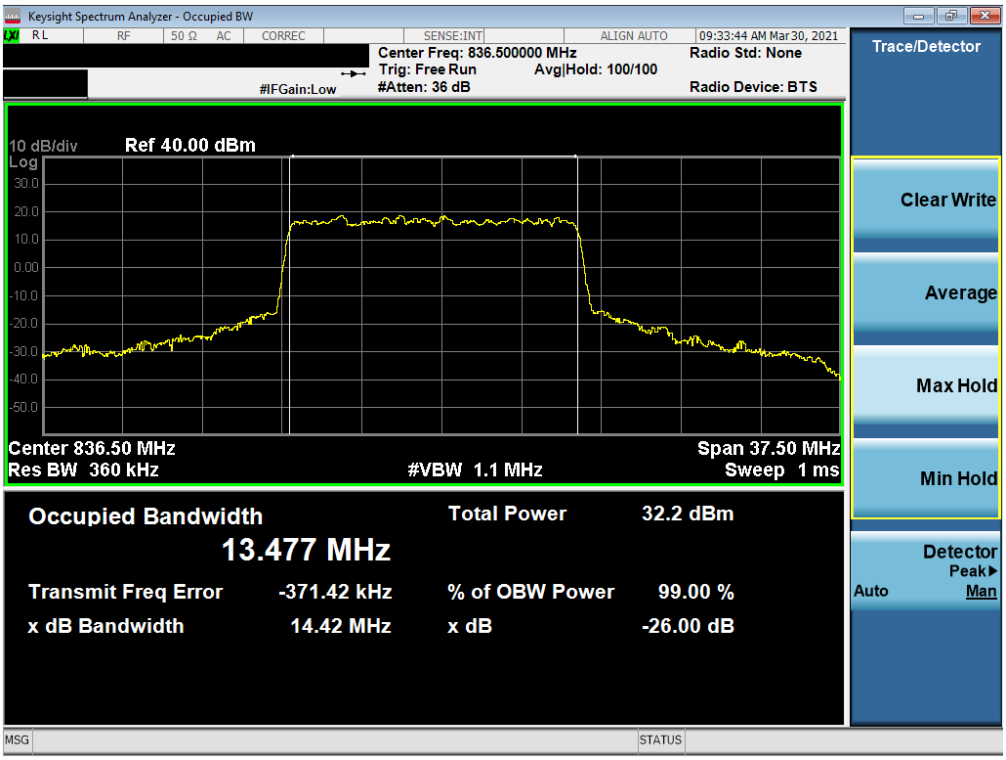
Plot 7-16. Occupied Bandwidth Plot (NR Band n5 - 20MHz QPSK - Full RB)



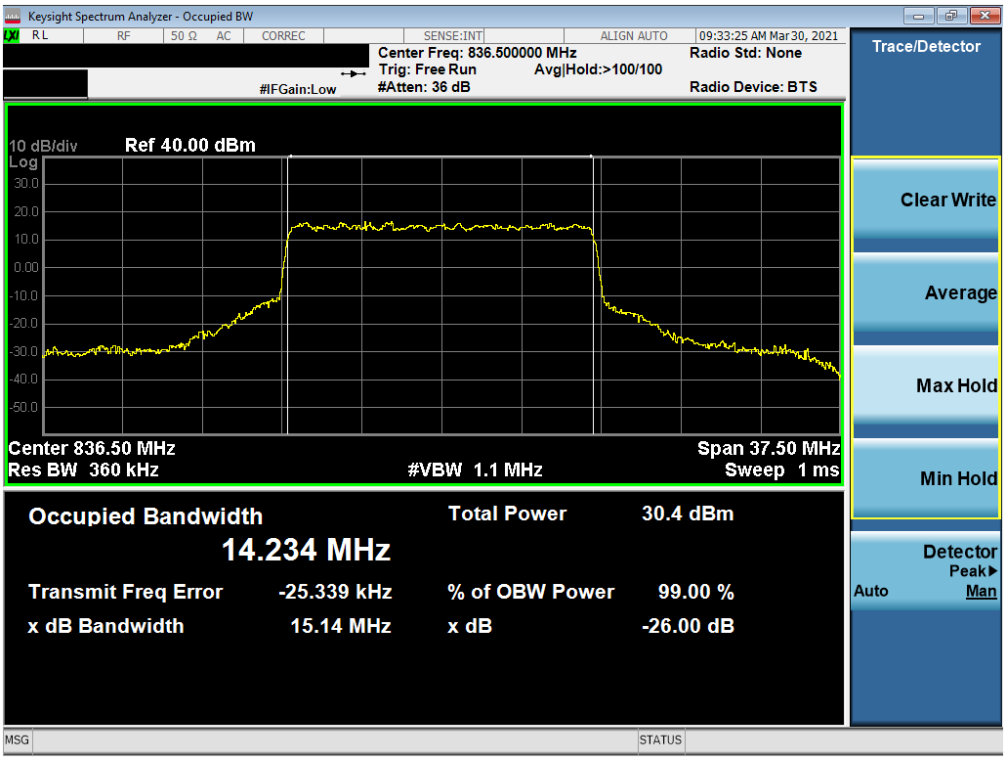
Plot 7-17. Occupied Bandwidth Plot (NR Band n5 - 20MHz 16-QAM - Full RB)



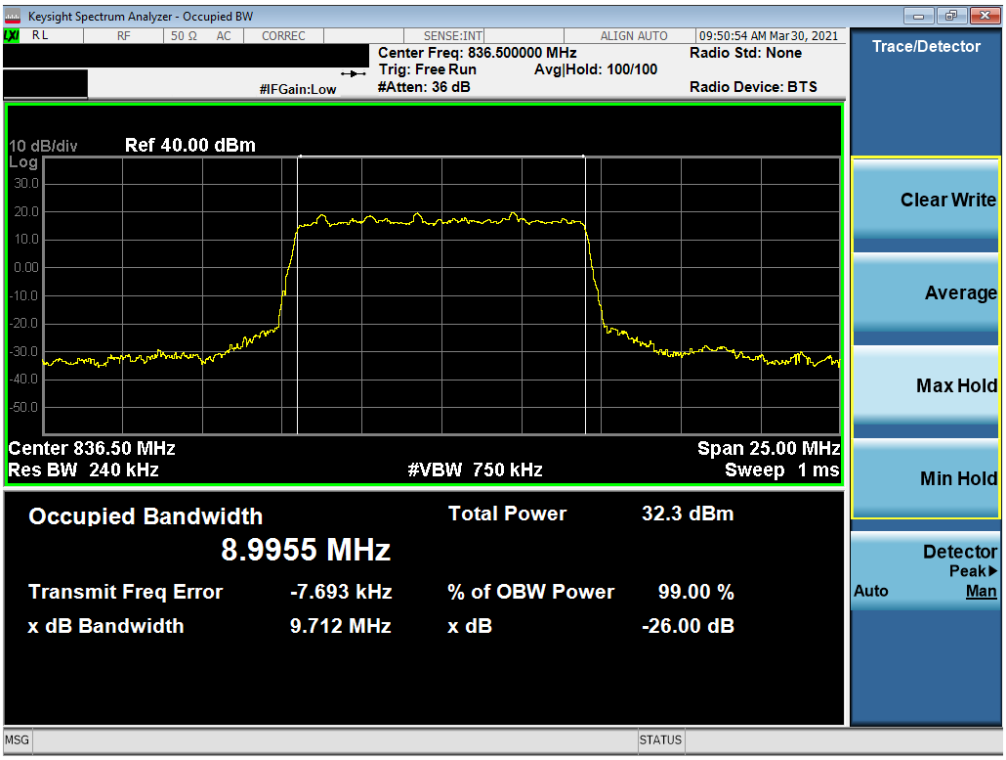
Plot 7-18. Occupied Bandwidth Plot (NR Band n5 - 15MHz π/2 BPSK - Full RB)



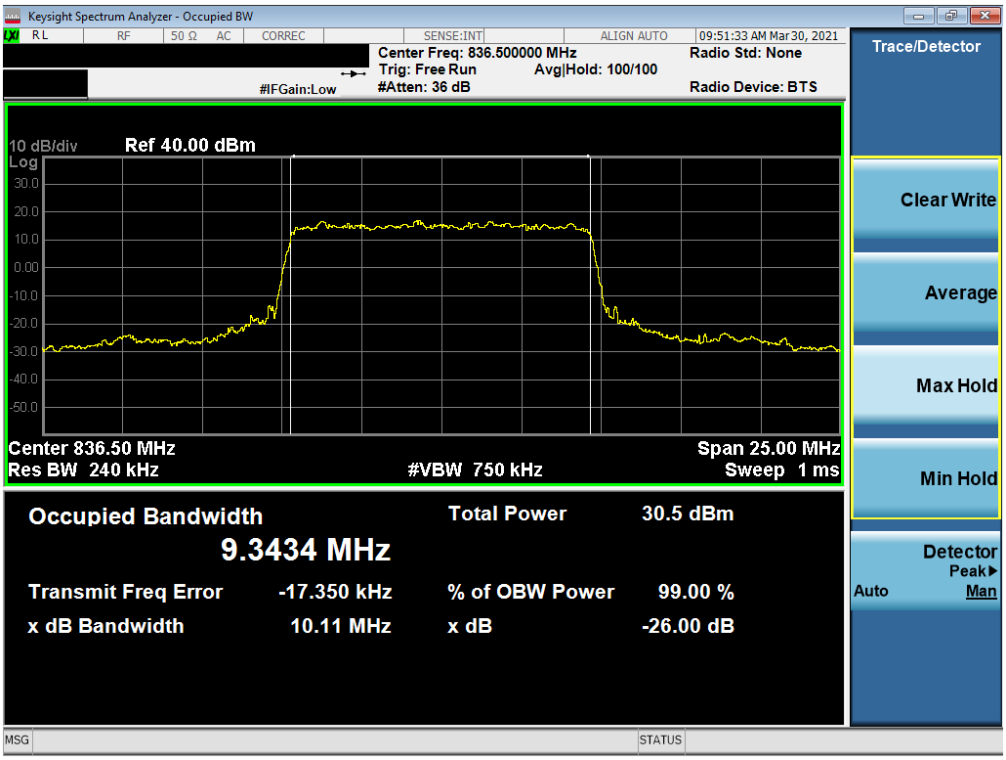
Plot 7-19. Occupied Bandwidth Plot (NR Band n5 - 15MHz QPSK - Full RB)



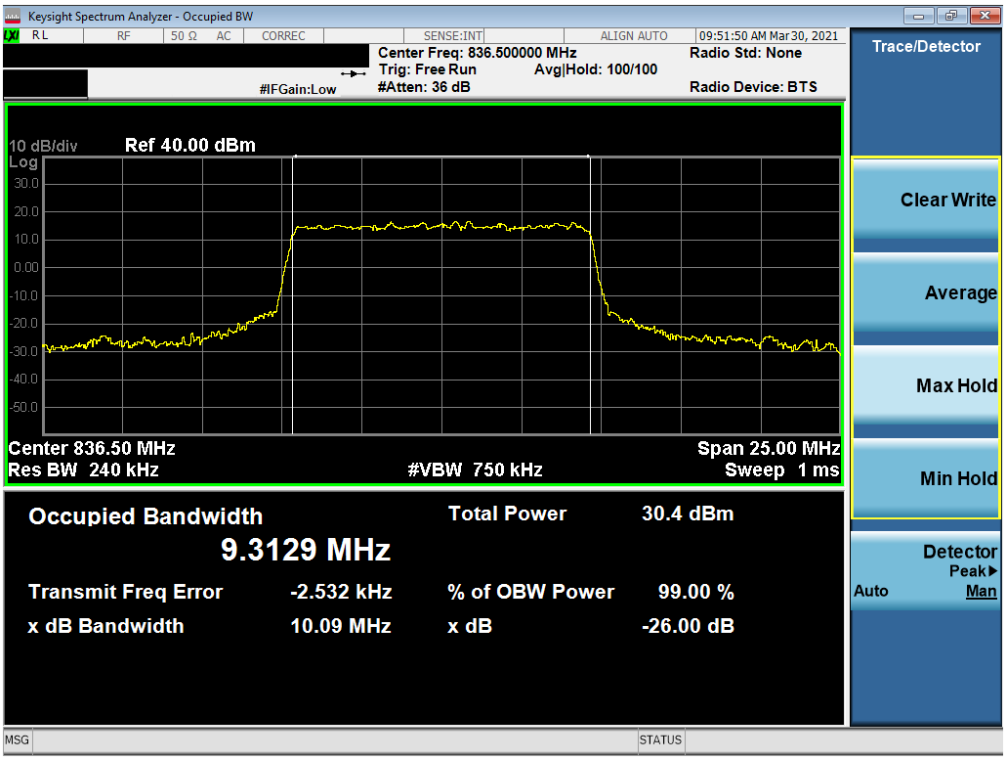
Plot 7-20. Occupied Bandwidth Plot (NR Band n5 - 15MHz 16-QAM - Full RB)



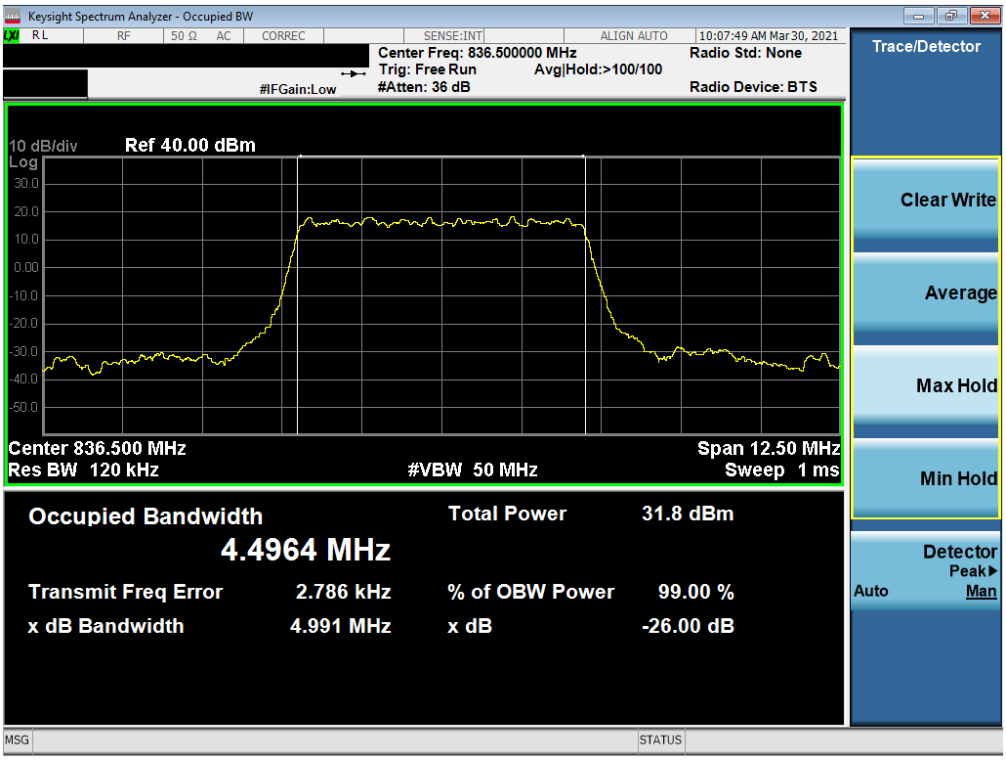
Plot 7-21. Occupied Bandwidth Plot (NR Band n5 - 10MHz π/2 BPSK - Full RB)



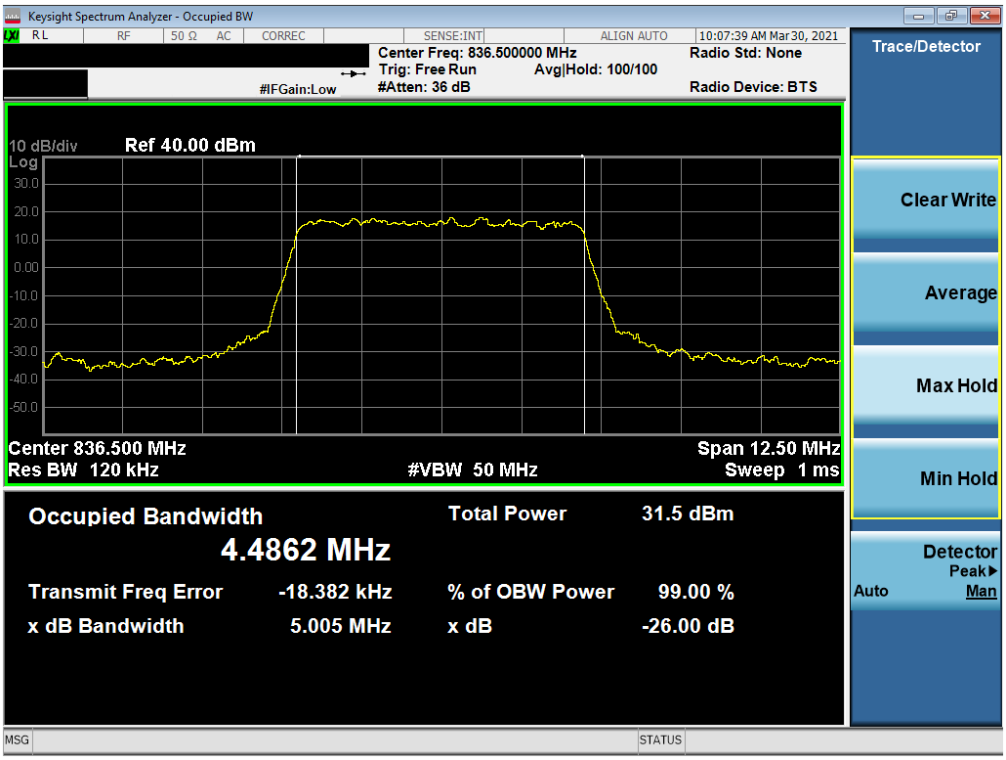
Plot 7-22. Occupied Bandwidth Plot (NR Band n5 - 10MHz QPSK - Full RB)



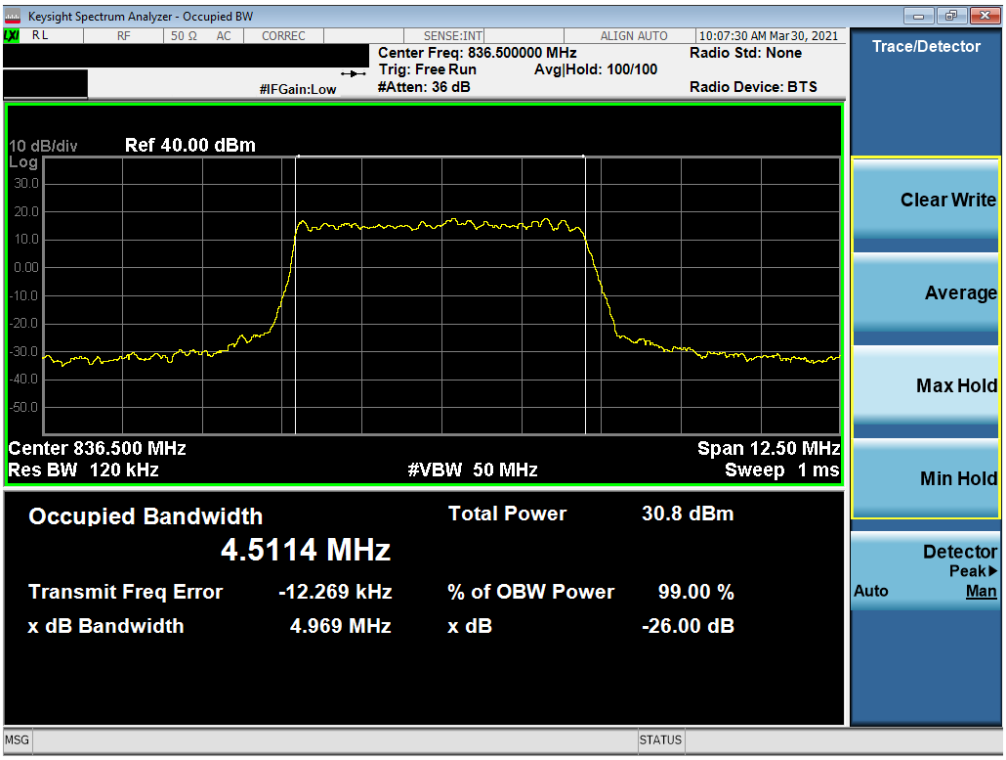
Plot 7-23. Occupied Bandwidth Plot (NR Band n5 - 10MHz 16-QAM - Full RB)



Plot 7-24. Occupied Bandwidth Plot (NR Band n5 - 5MHz π/2 BPSK - Full RB)



Plot 7-25. Occupied Bandwidth Plot (NR Band n5 - 5MHz QPSK - Full RB)



Plot 7-26. Occupied Bandwidth Plot (NR Band n5 - 5MHz 16-QAM - Full RB)

7.3 Spurious and Harmonic Emissions at Antenna Terminal

Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is 43 + 10 $log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 10GHz (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

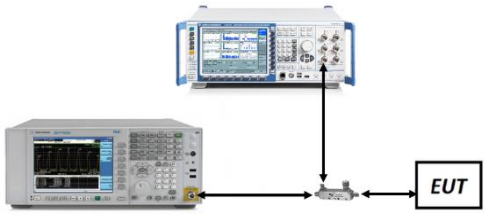
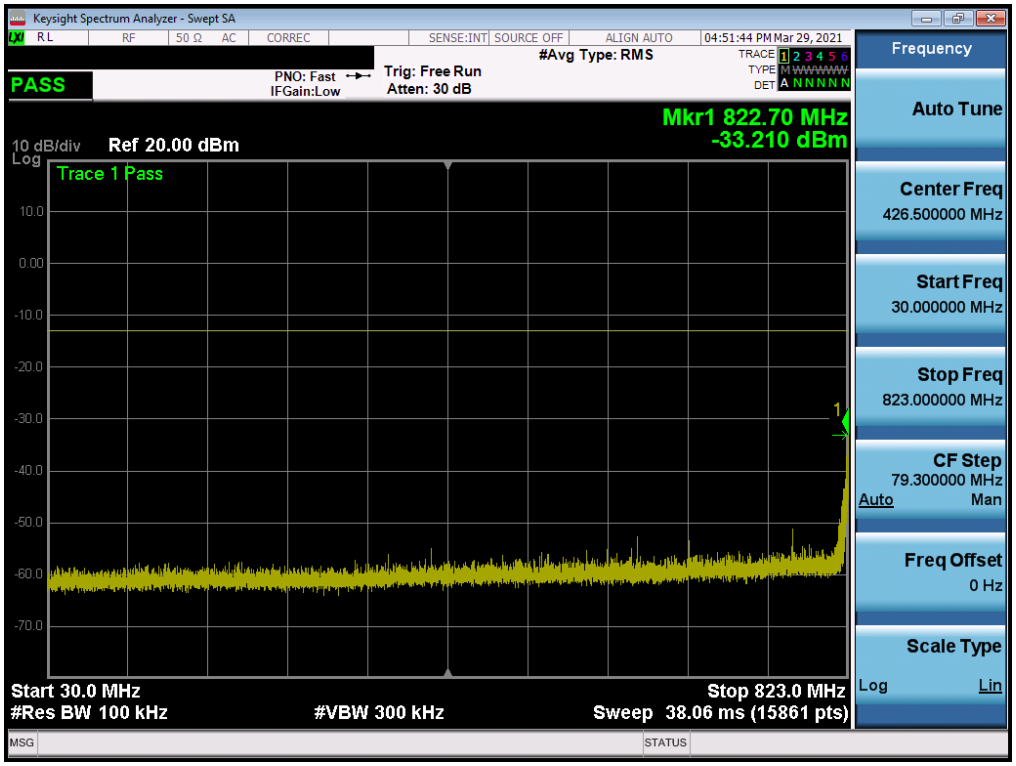


Figure 7-2. Test Instrument & Measurement Setup

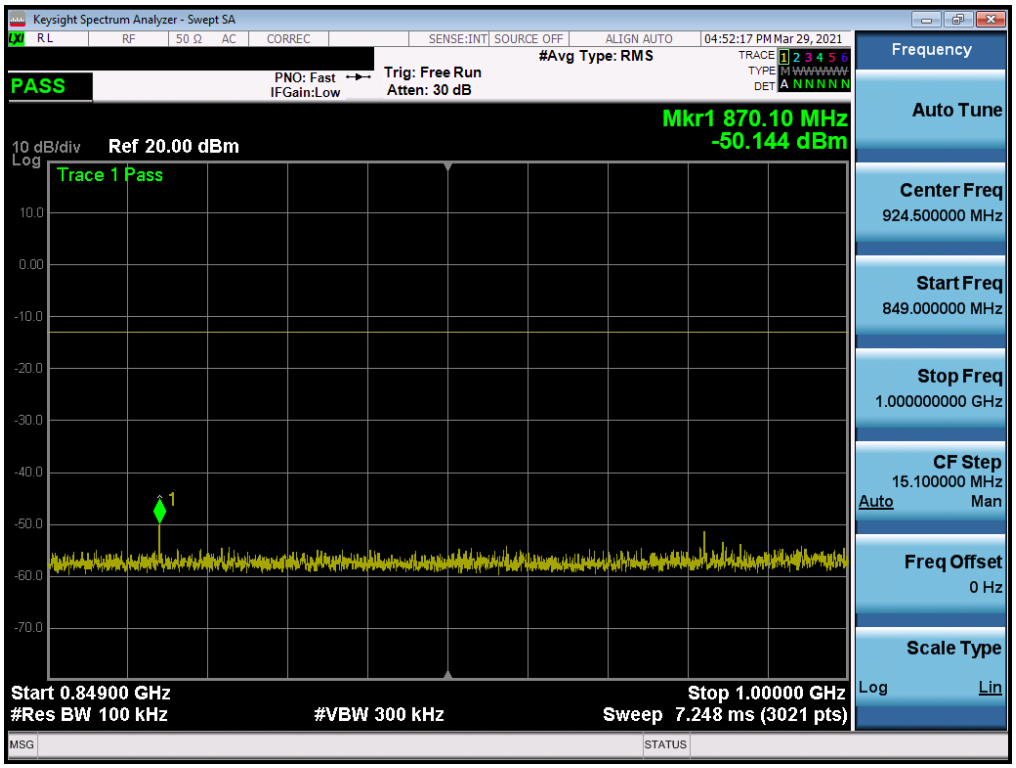
Test Notes

1. Per Part 22 and RSS-132, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100 kHz or greater for measurements below 1GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

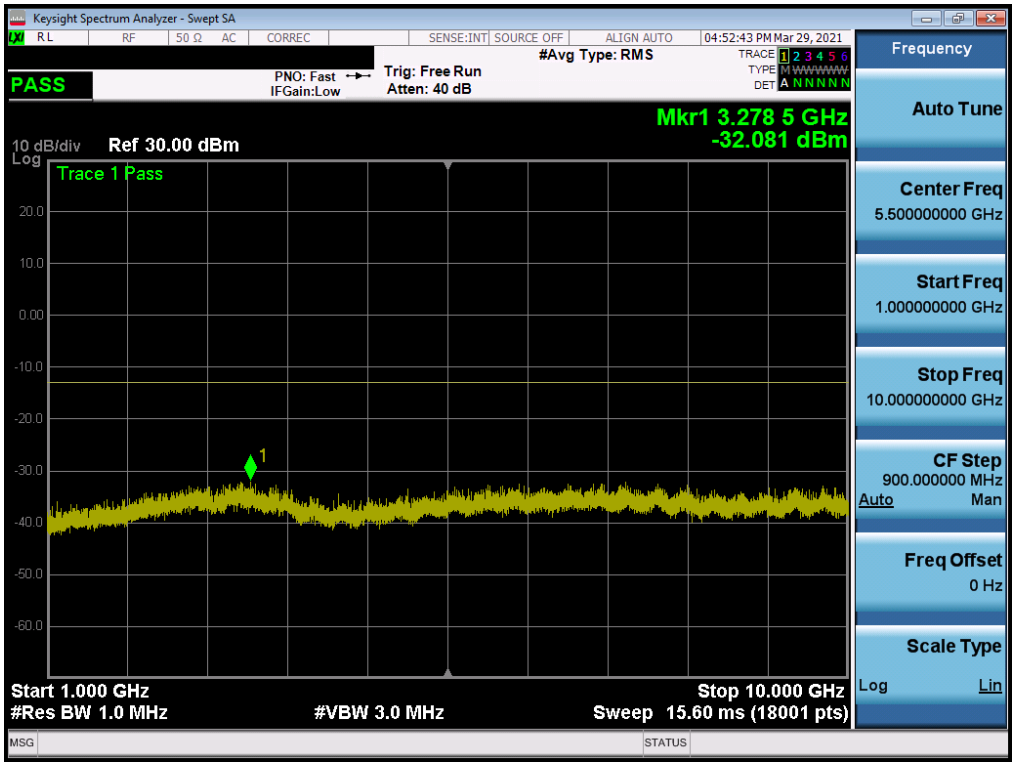
2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.



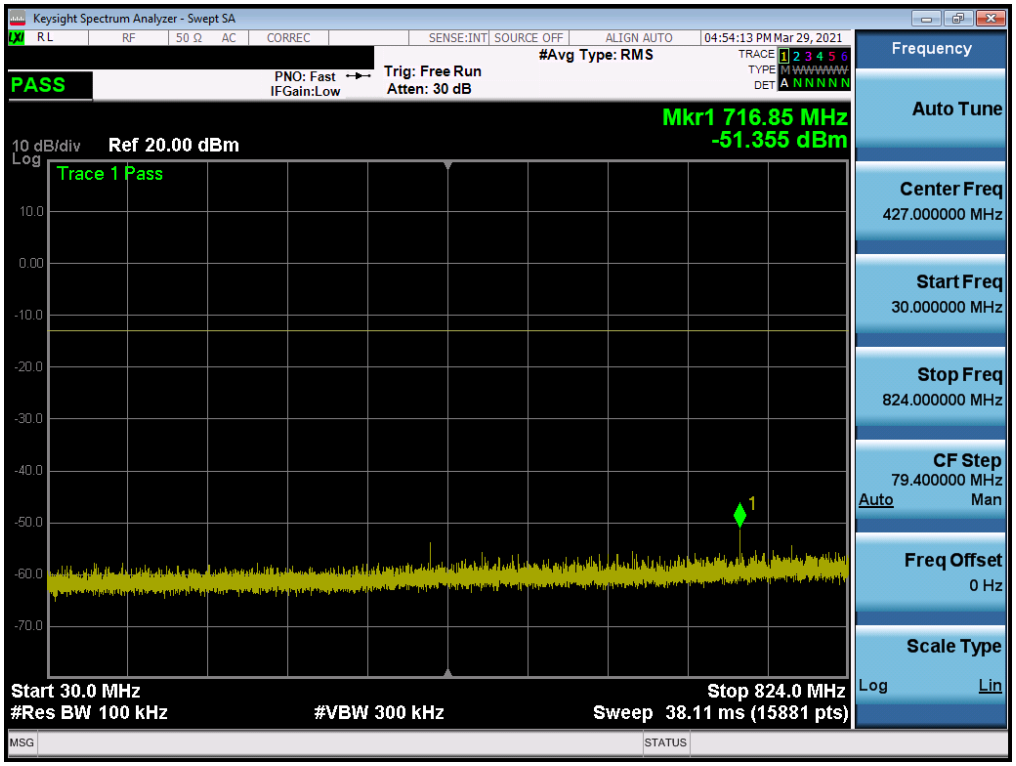
Plot 7-27. Conducted Spurious Plot (GPRS Ch. 128)



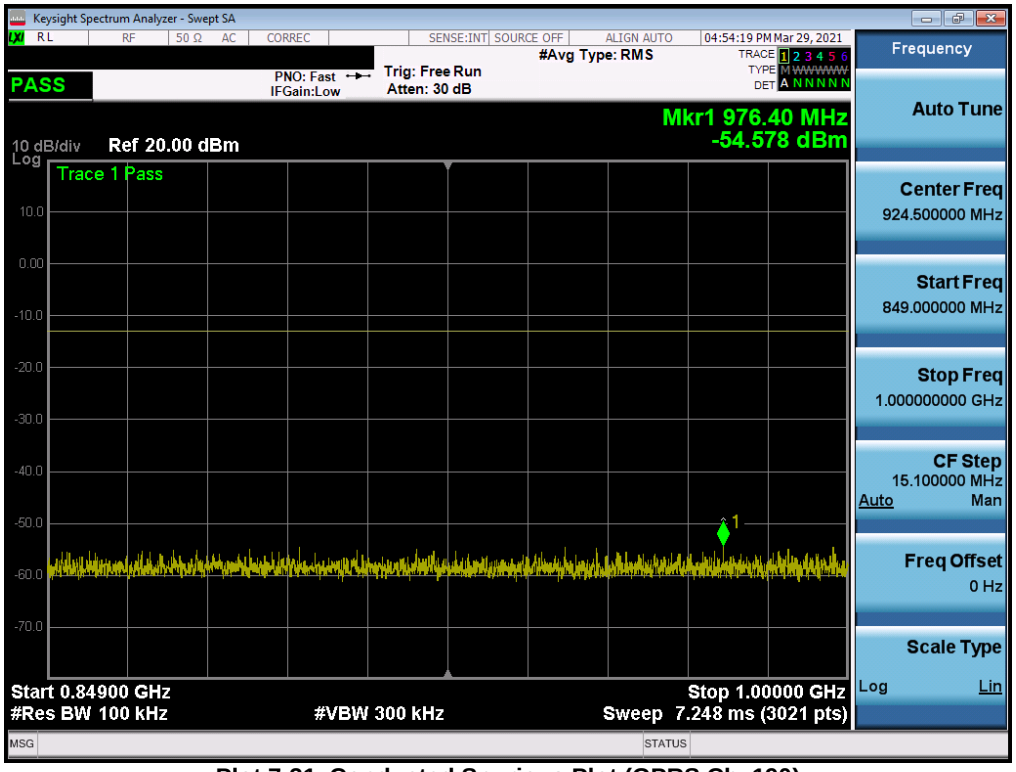
Plot 7-28. Conducted Spurious Plot (GPRS Ch. 128)



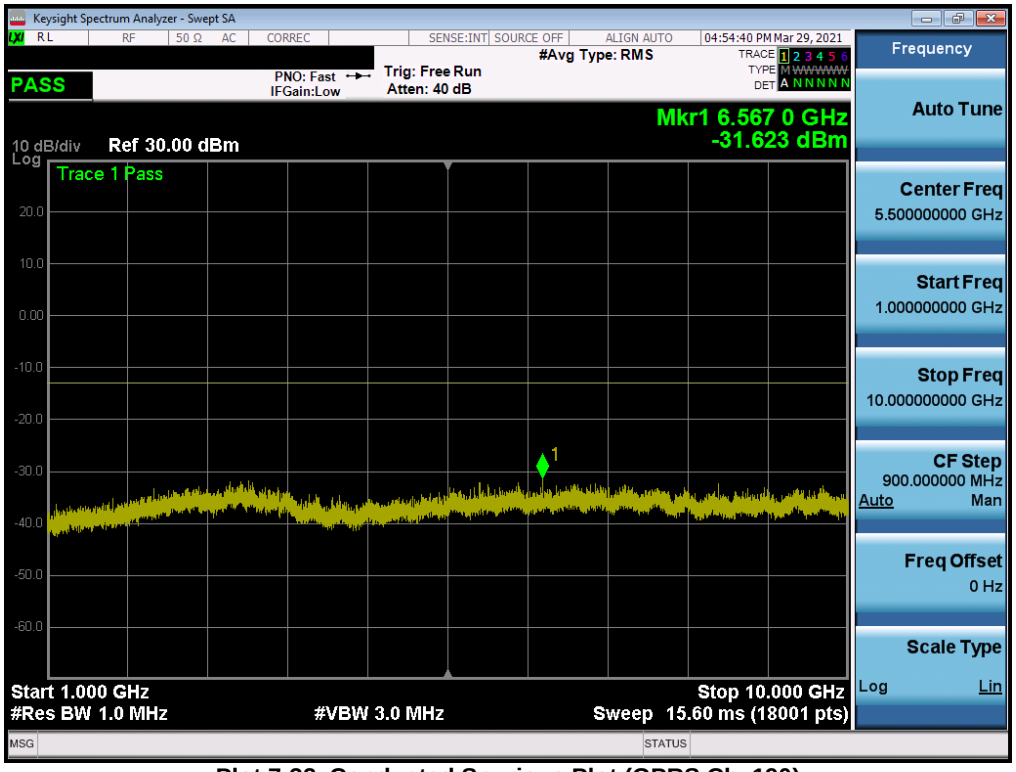
Plot 7-29. Conducted Spurious Plot (GPRS Ch. 128)



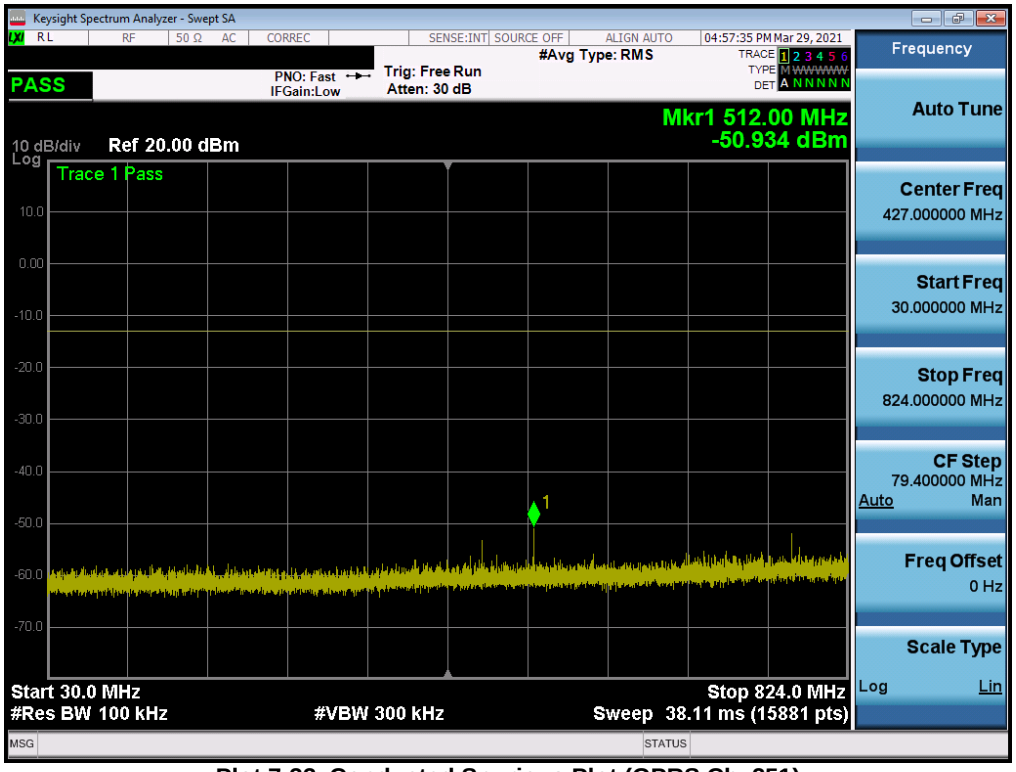
Plot 7-30. Conducted Spurious Plot (GPRS Ch. 190)



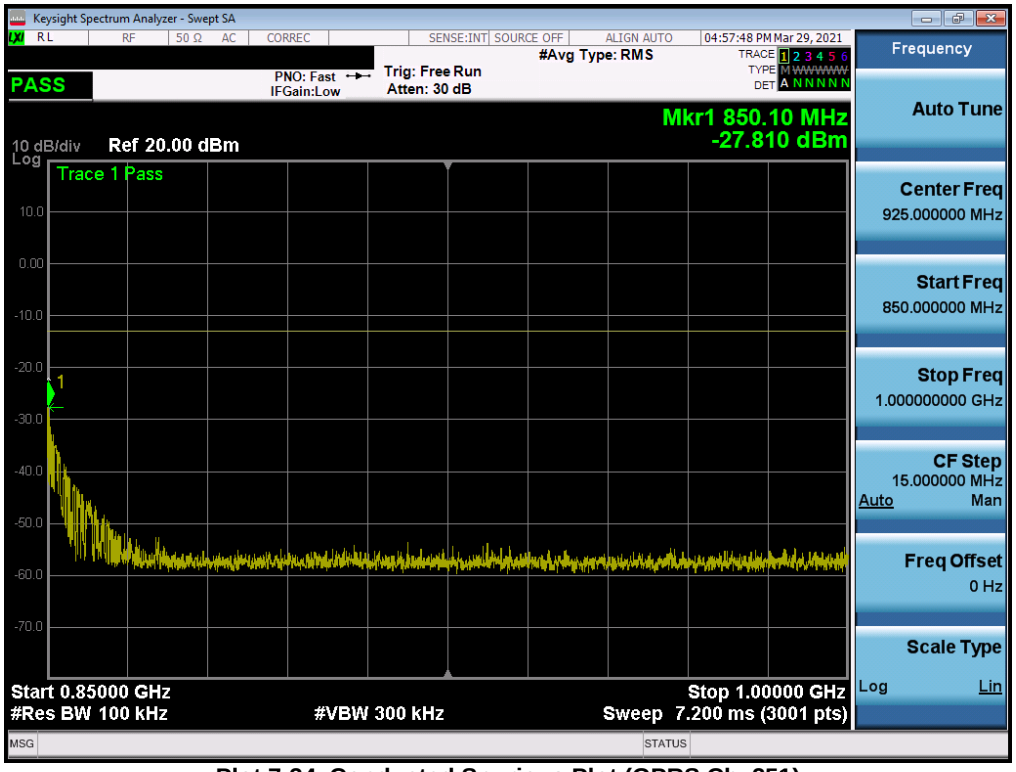
Plot 7-31. Conducted Spurious Plot (GPRS Ch. 190)



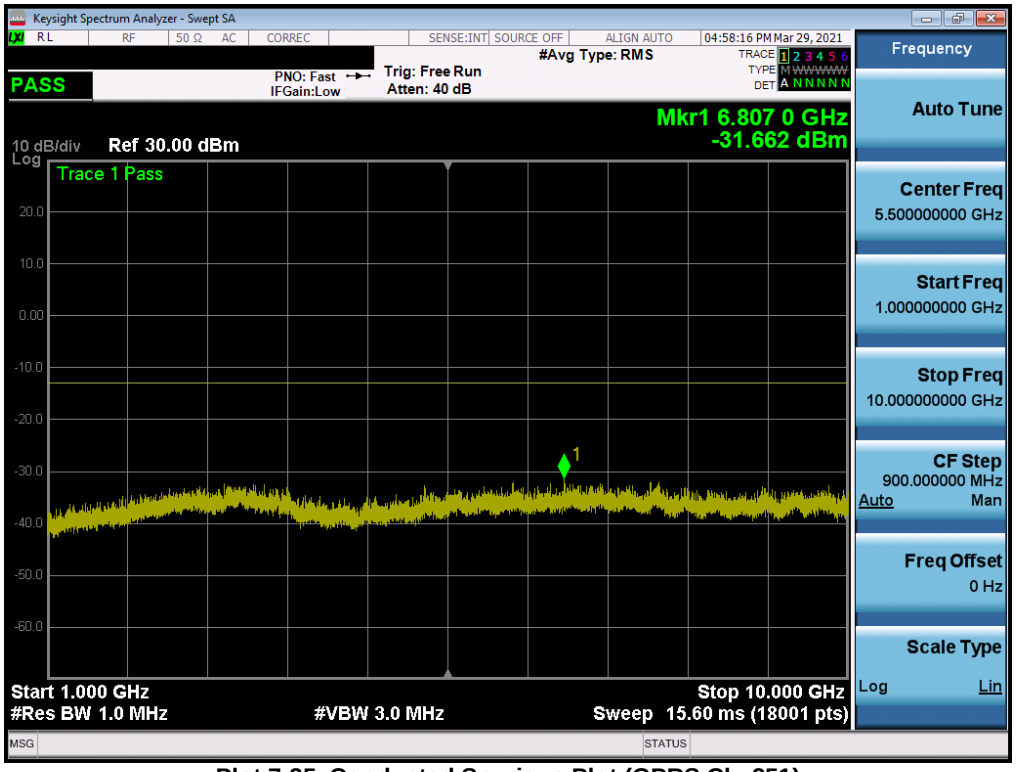
Plot 7-32. Conducted Spurious Plot (GPRS Ch. 190)



Plot 7-33. Conducted Spurious Plot (GPRS Ch. 251)

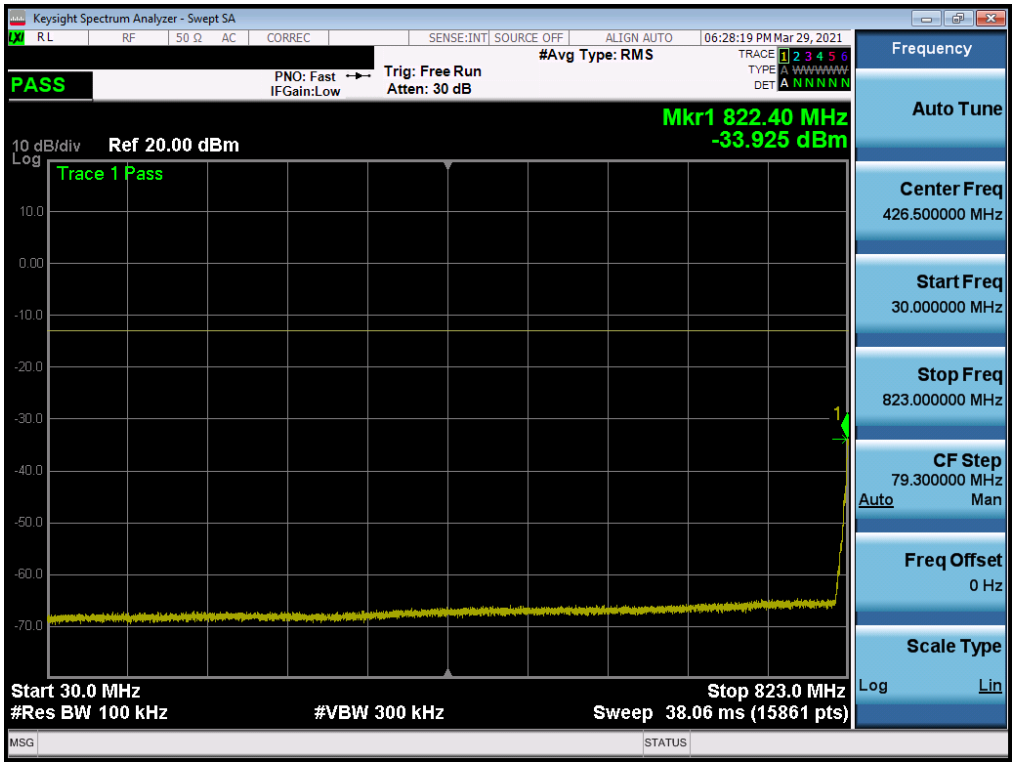


Plot 7-34. Conducted Spurious Plot (GPRS Ch. 251)

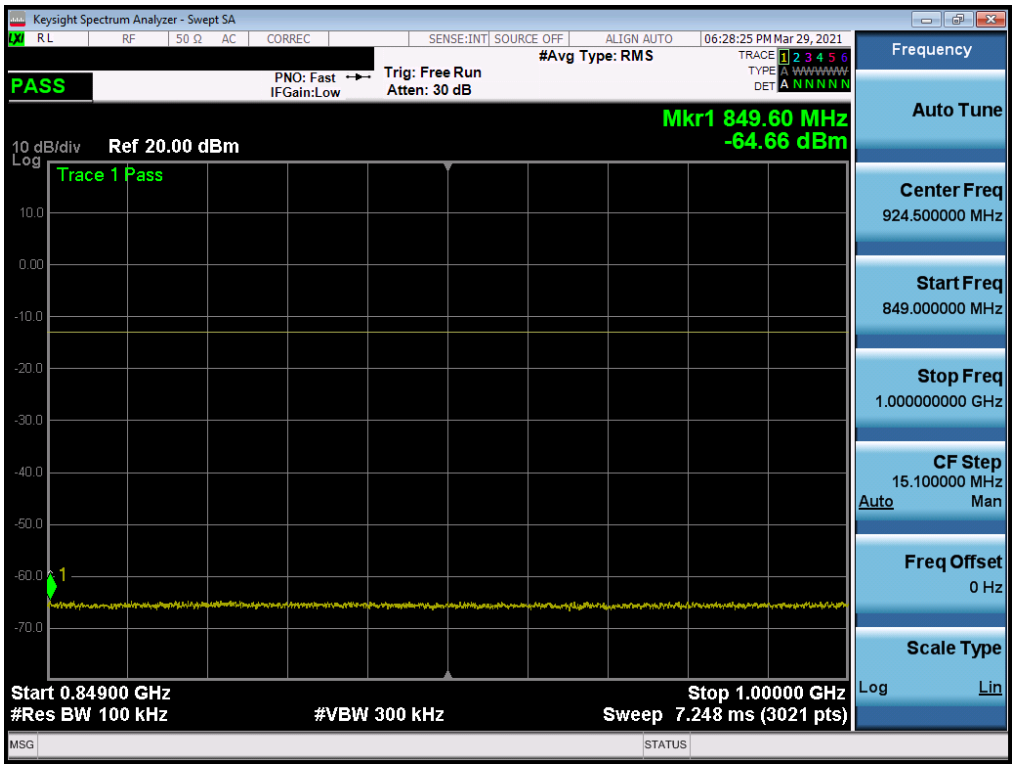


Plot 7-35. Conducted Spurious Plot (GPRS Ch. 251)

WCDMA Cell

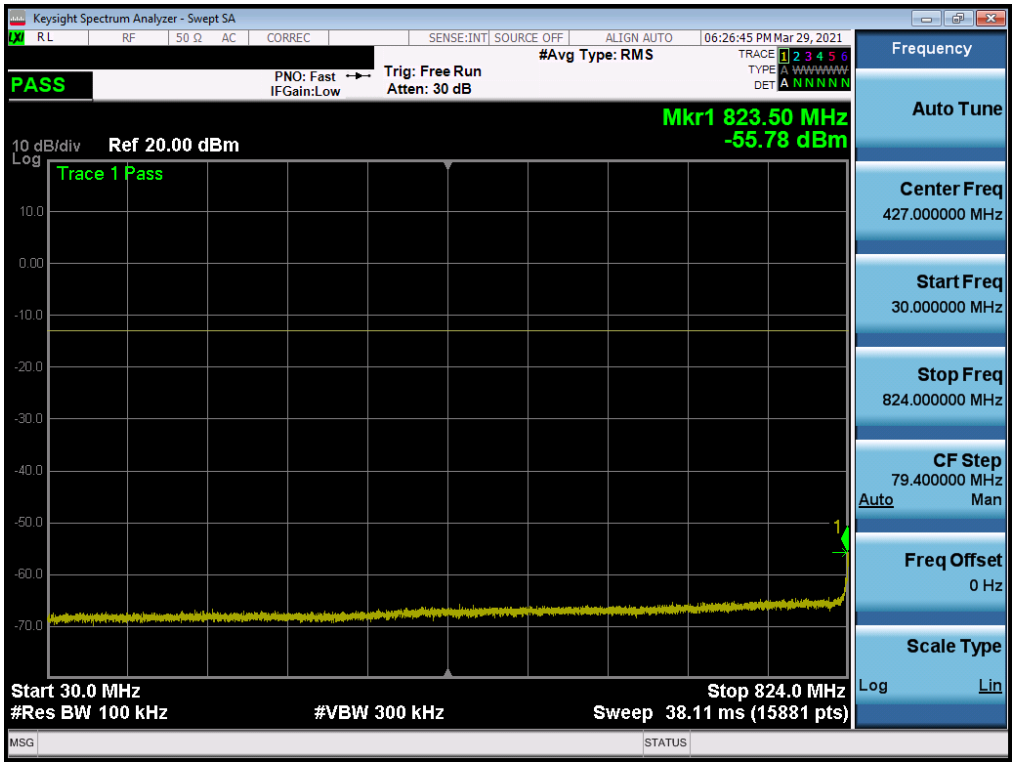


Plot 7-36. Conducted Spurious Plot (WCDMA Ch. 4132)

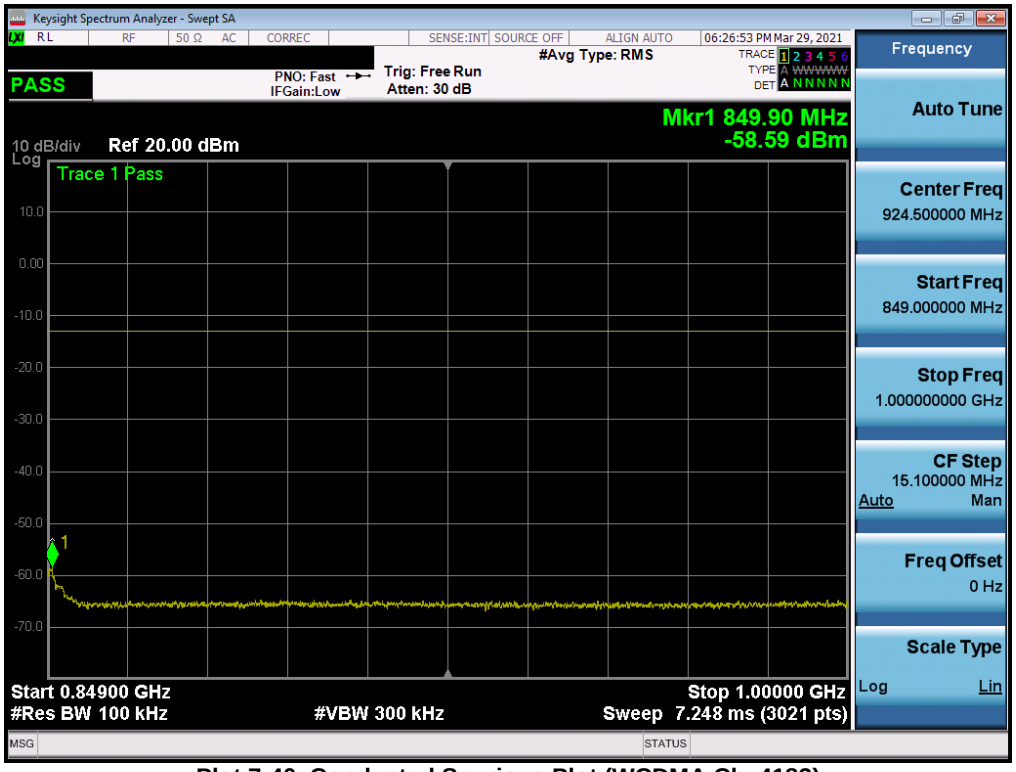


Plot 7-37. Conducted Spurious Plot (WCDMA Ch. 4132)

Plot 7-38. Conducted Spurious Plot (WCDMA Ch. 4132)

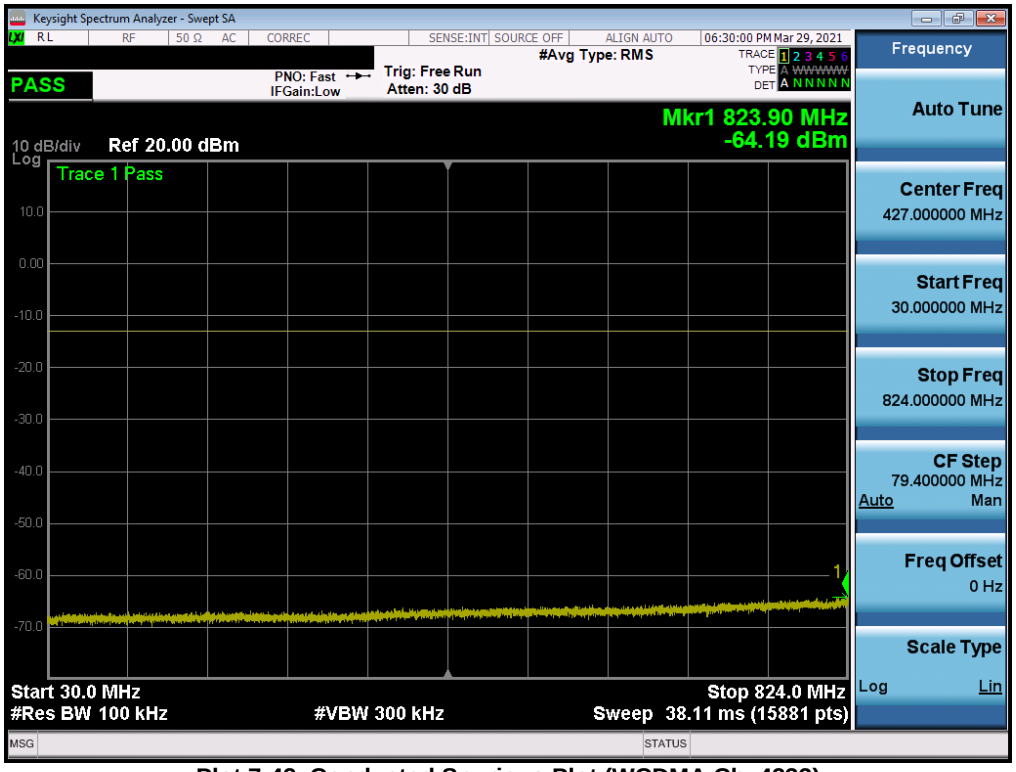


Plot 7-39. Conducted Spurious Plot (WCDMA Ch. 4183)

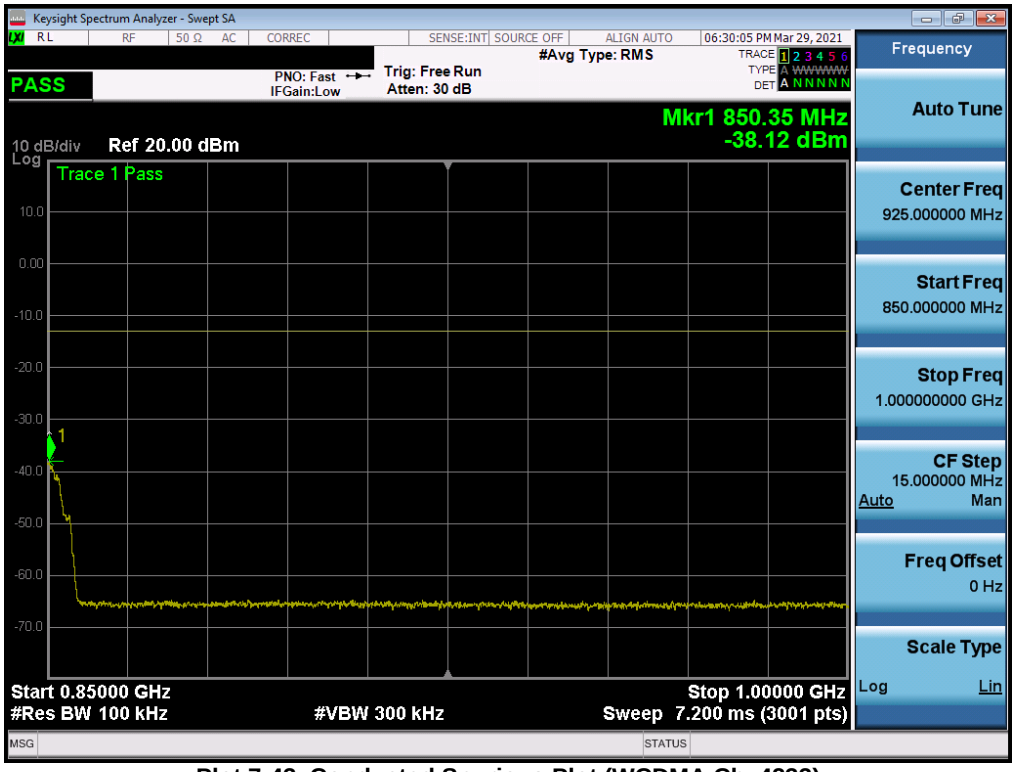


Plot 7-40. Conducted Spurious Plot (WCDMA Ch. 4183)

Plot 7-41. Conducted Spurious Plot (WCDMA Ch. 4183)

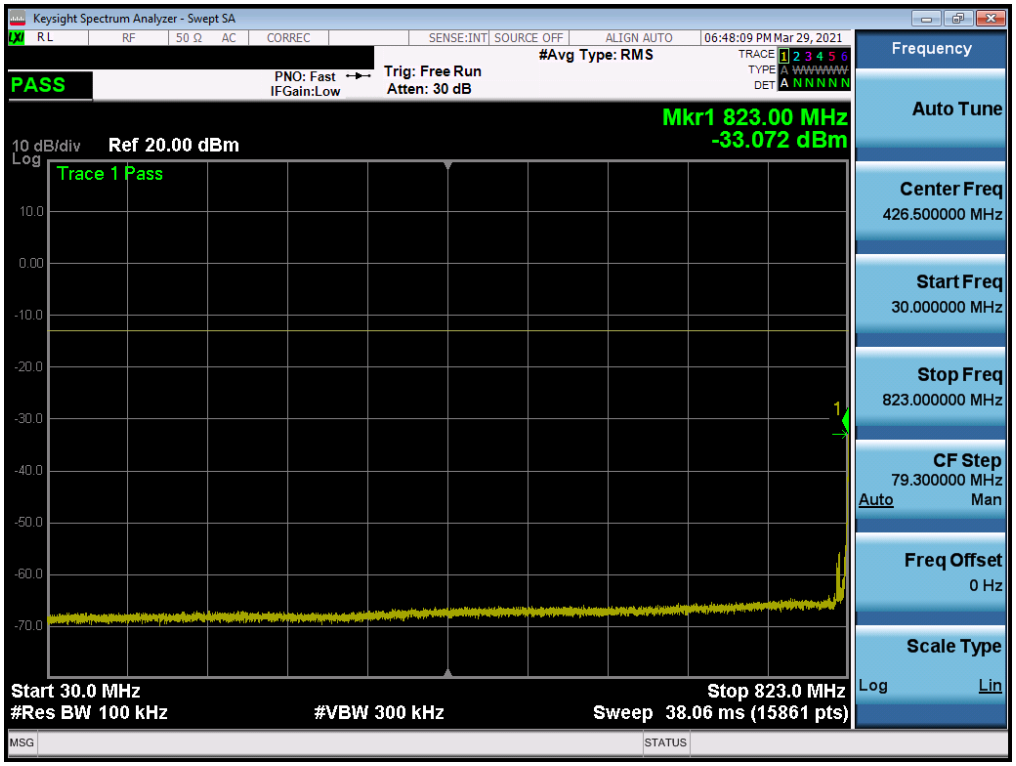


Plot 7-42. Conducted Spurious Plot (WCDMA Ch. 4233)

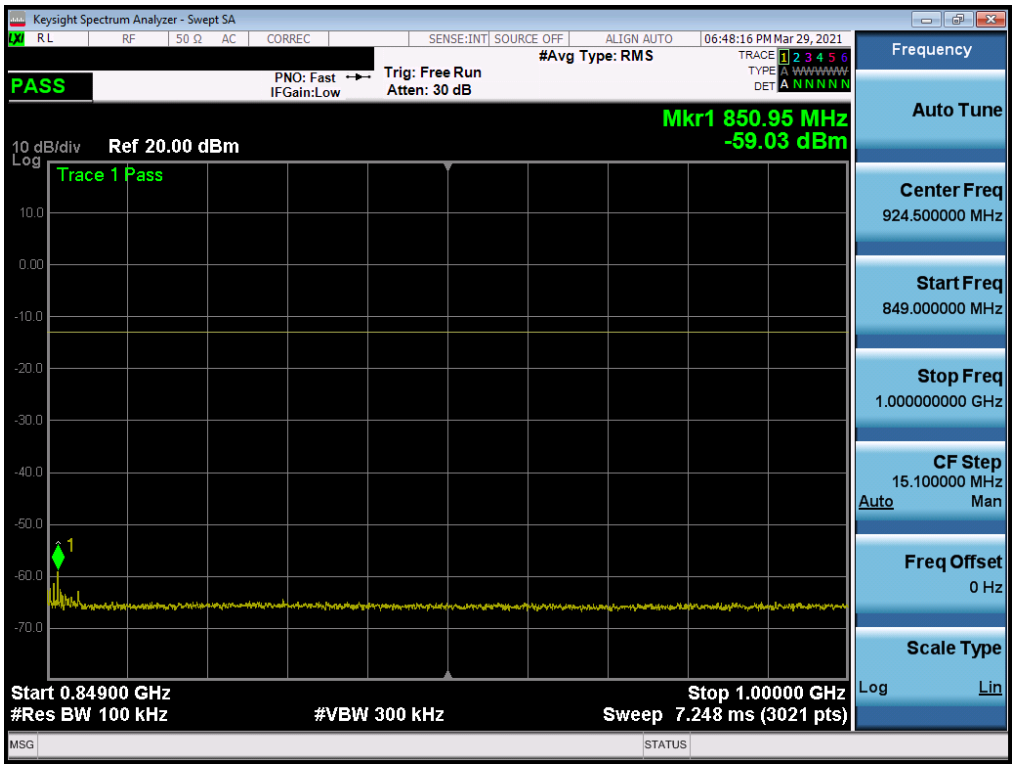


Plot 7-43. Conducted Spurious Plot (WCDMA Ch. 4233)

Plot 7-44. Conducted Spurious Plot (WCDMA Ch. 4233)

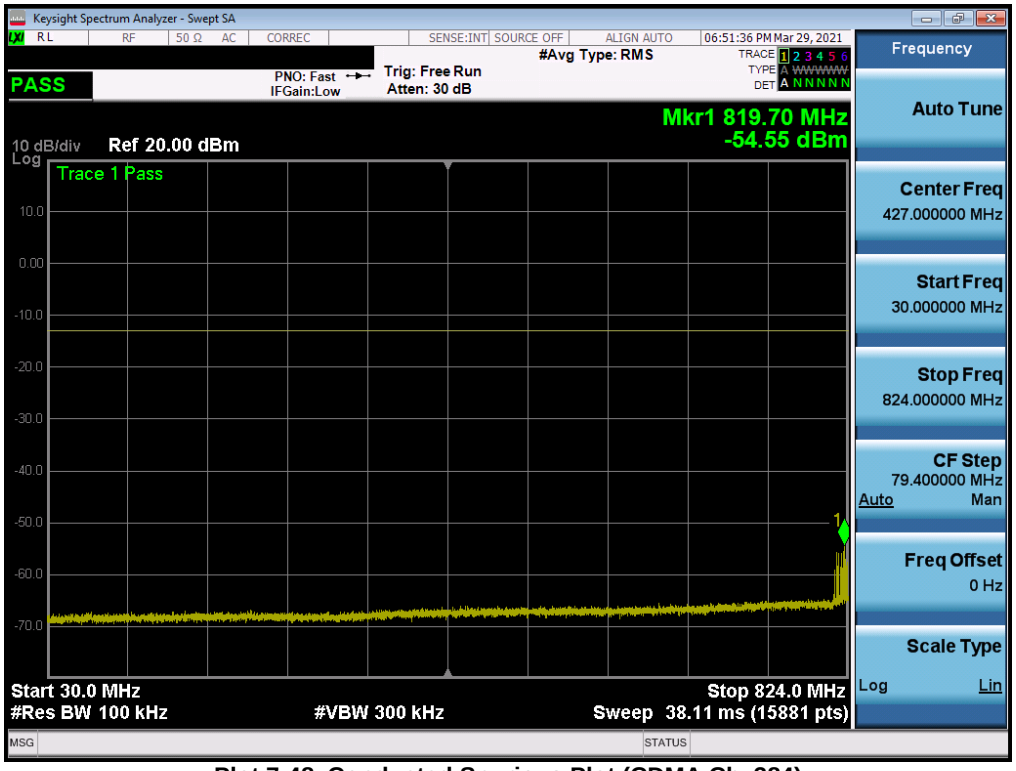


Plot 7-45. Conducted Spurious Plot (CDMA Ch. 1013)

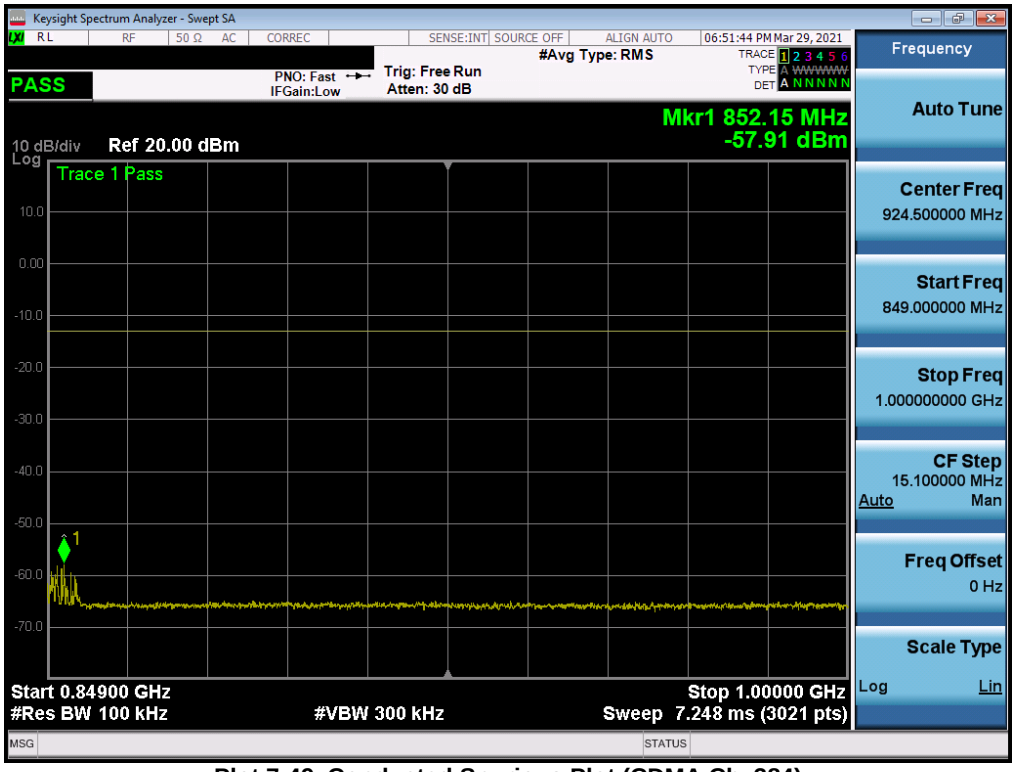


Plot 7-46. Conducted Spurious Plot (CDMA Ch. 1013)

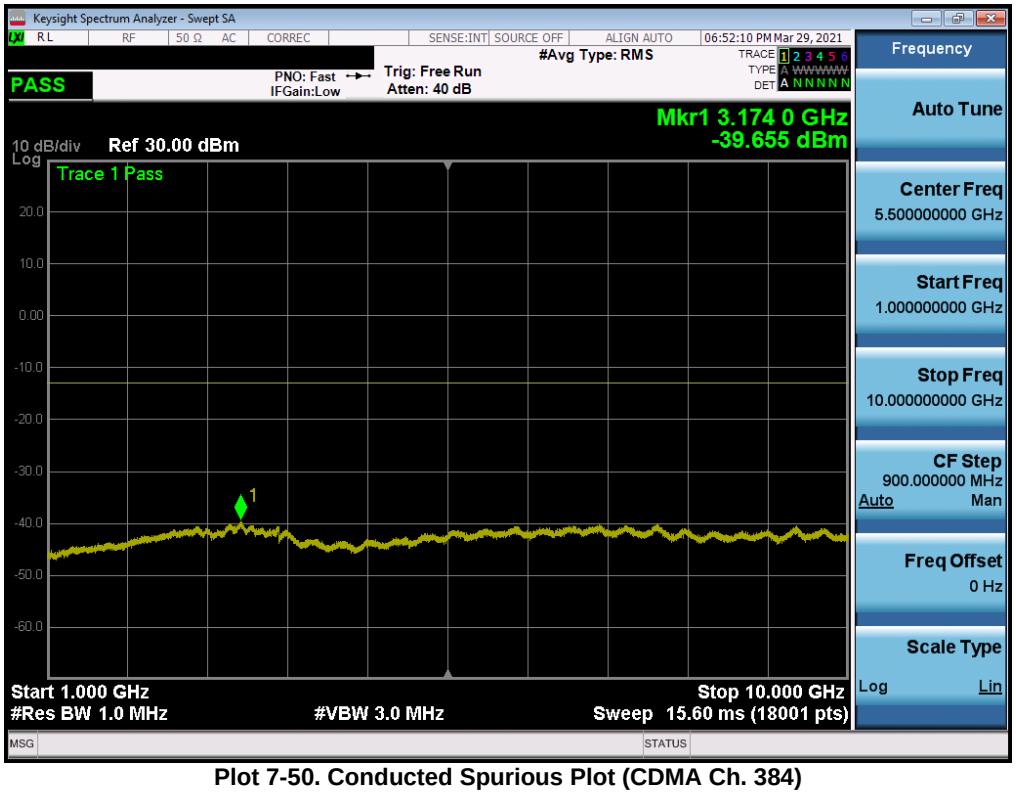
Plot 7-47. Conducted Spurious Plot (CDMA Ch. 1013)



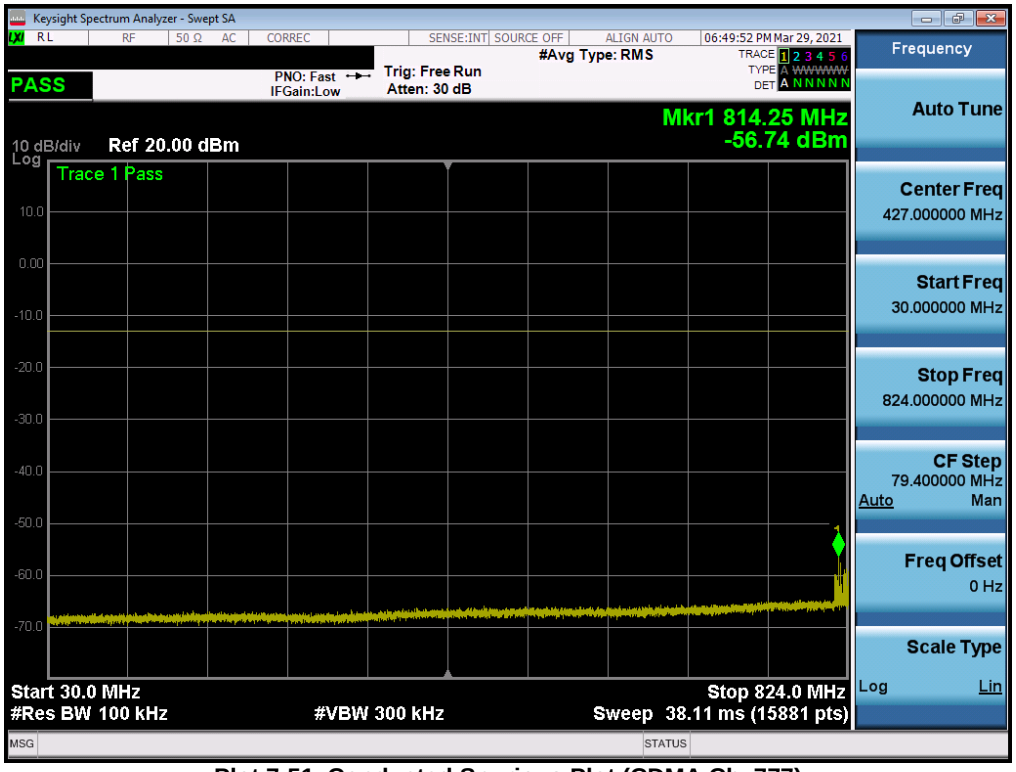
Plot 7-48. Conducted Spurious Plot (CDMA Ch. 384)



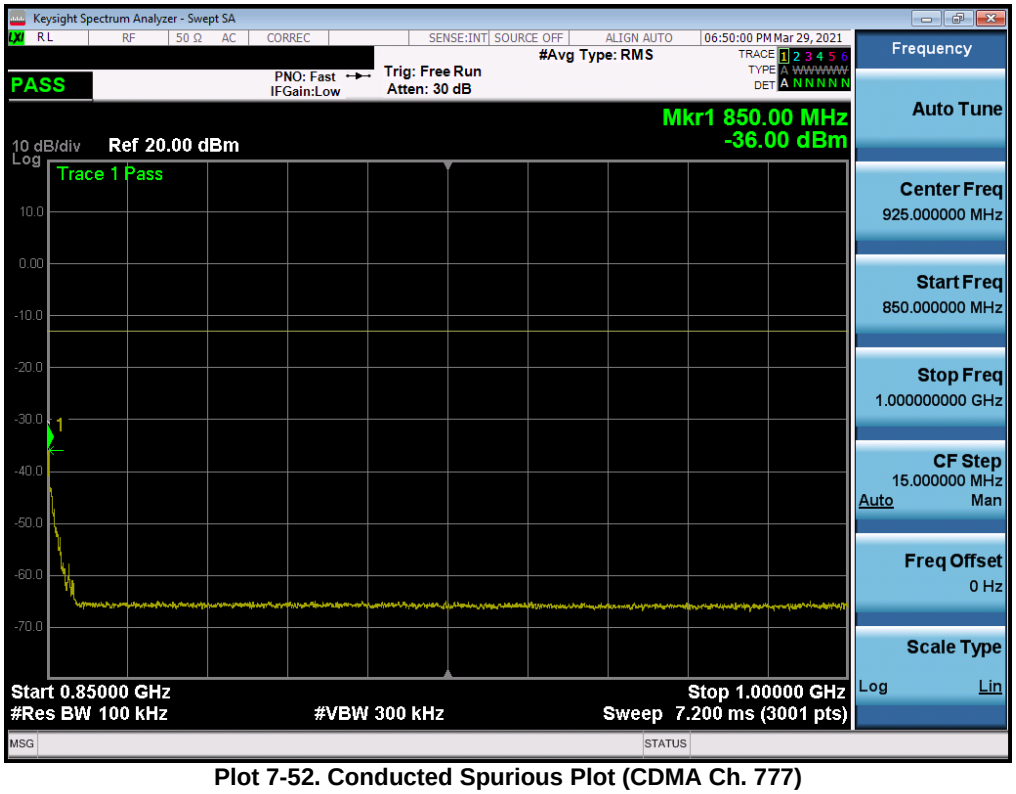
Plot 7-49. Conducted Spurious Plot (CDMA Ch. 384)



Plot 7-50. Conducted Spurious Plot (CDMA Ch. 384)



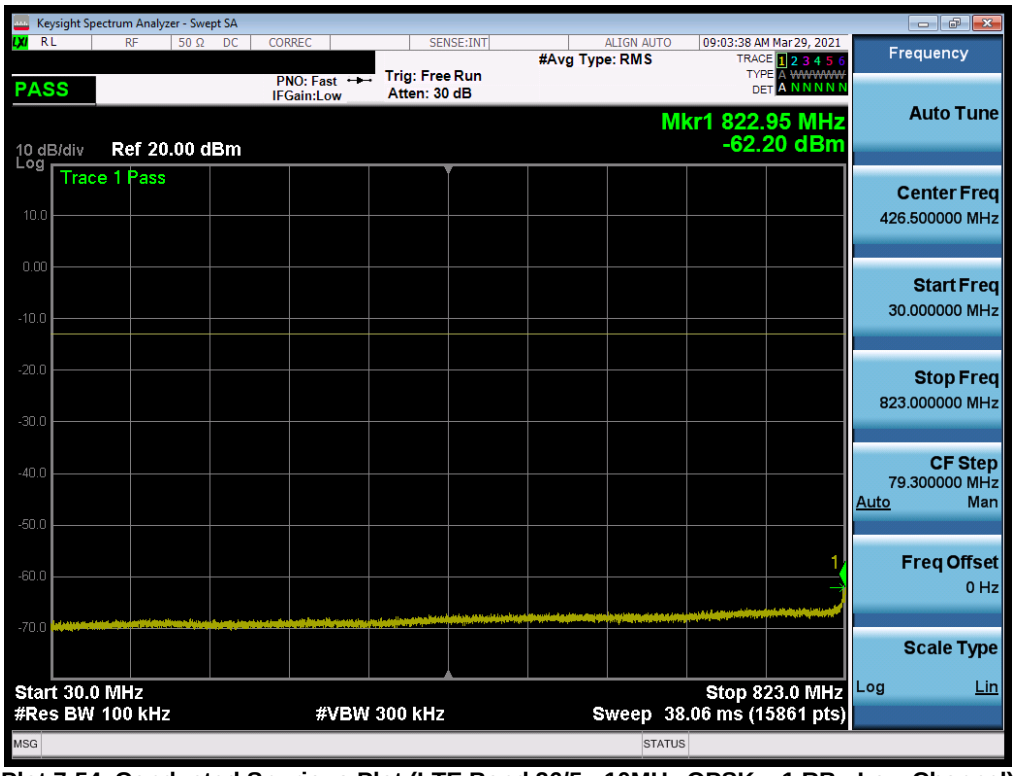
Plot 7-51. Conducted Spurious Plot (CDMA Ch. 777)



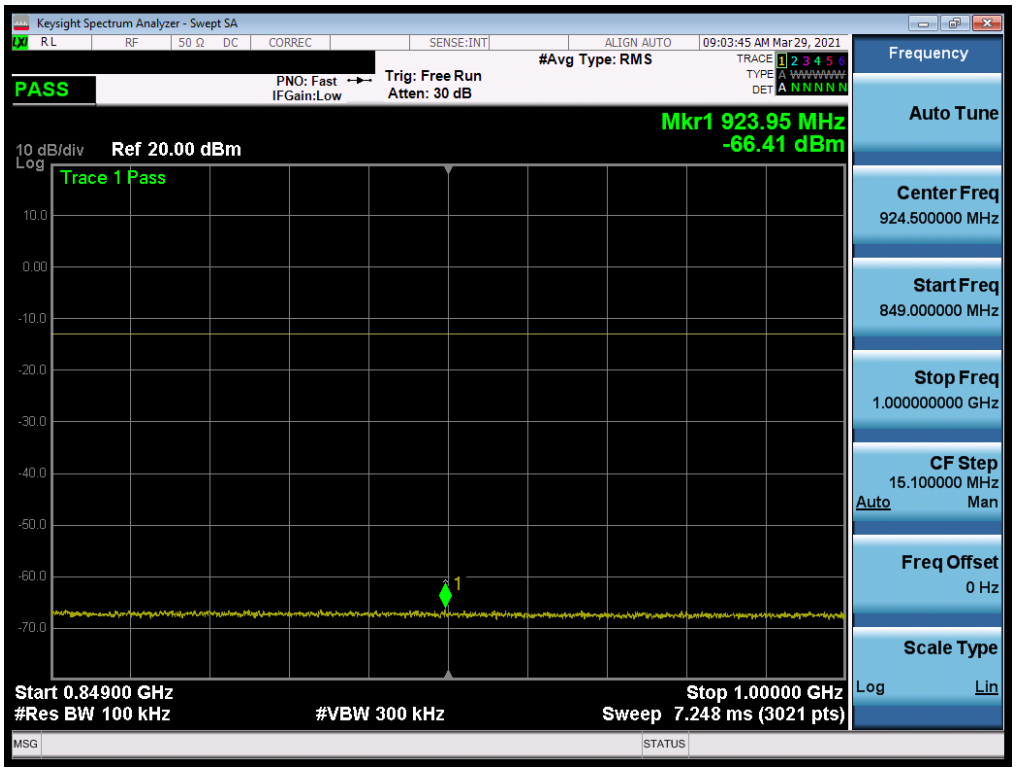
Plot 7-52. Conducted Spurious Plot (CDMA Ch. 777)

Plot 7-53. Conducted Spurious Plot (CDMA Ch. 777)

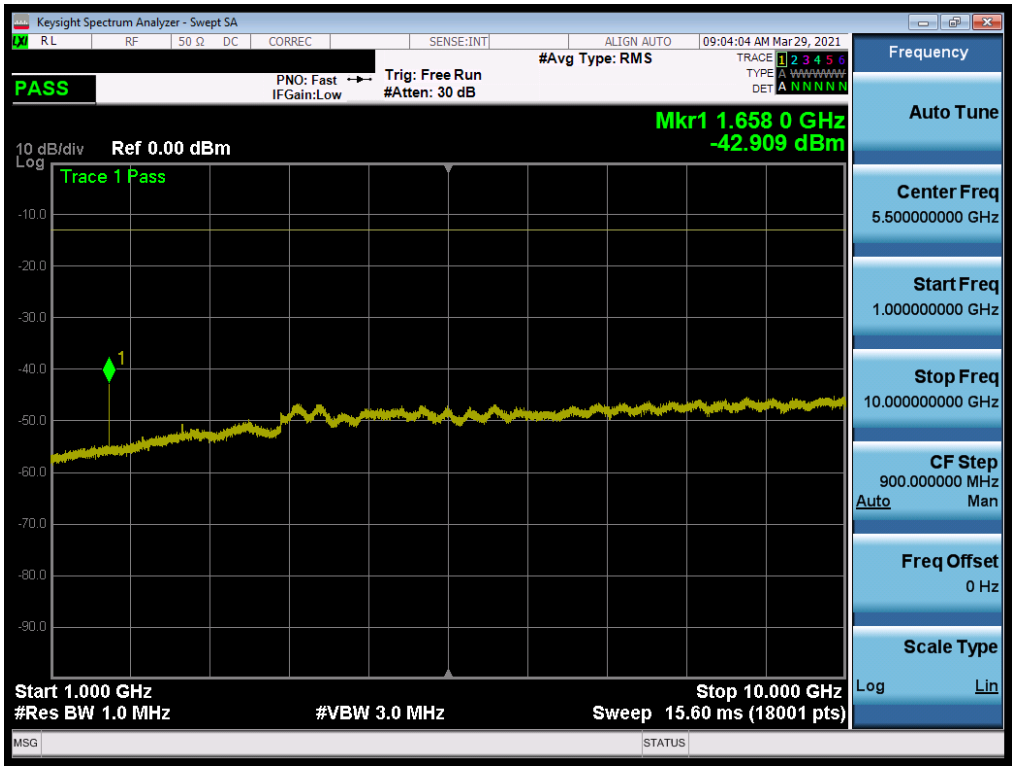
LTE Band 26/5



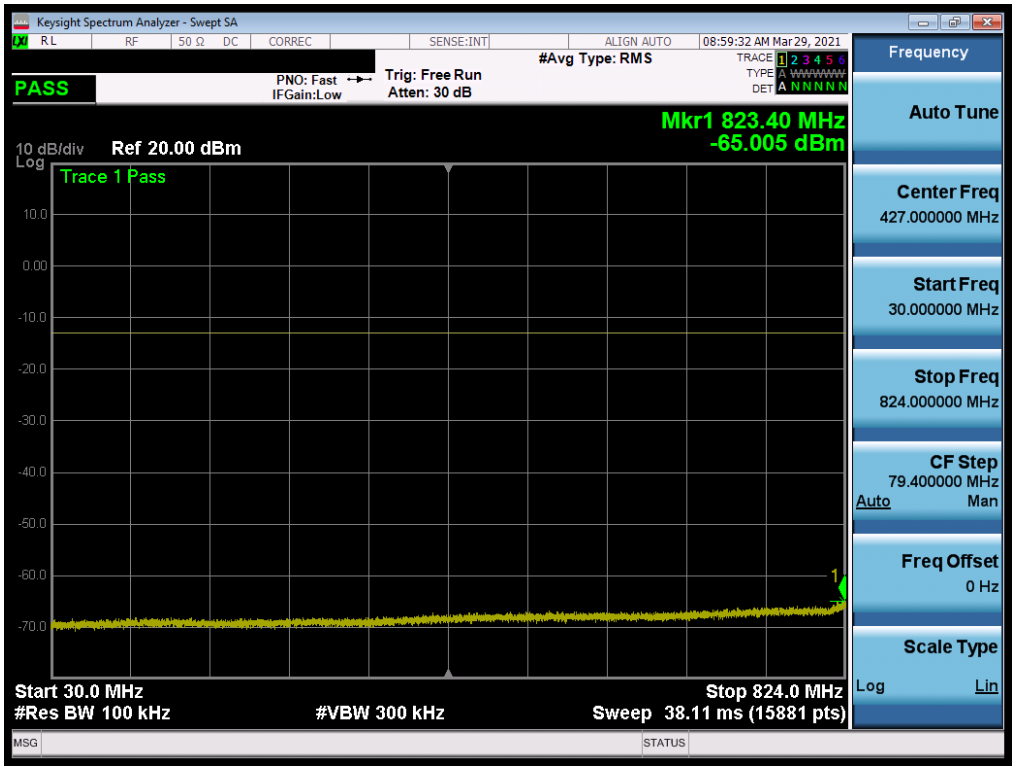
Plot 7-54. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK – 1 RB - Low Channel)



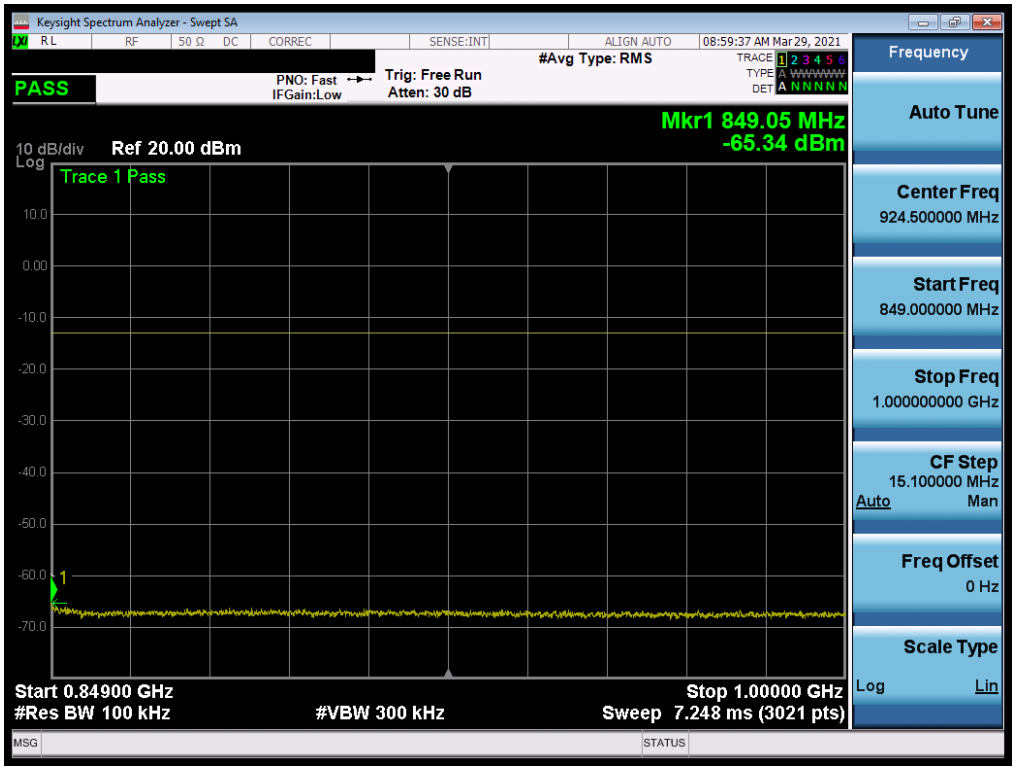
Plot 7-55. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - 1 RB - Low Channel)



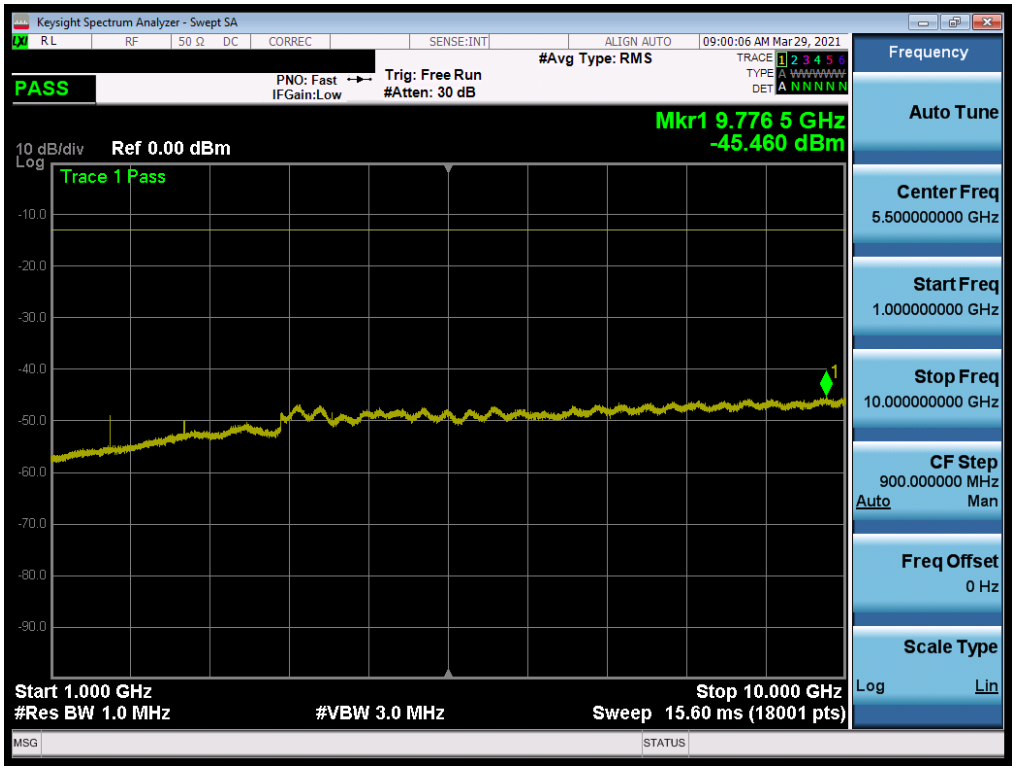
Plot 7-56. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - 1 RB - Low Channel)



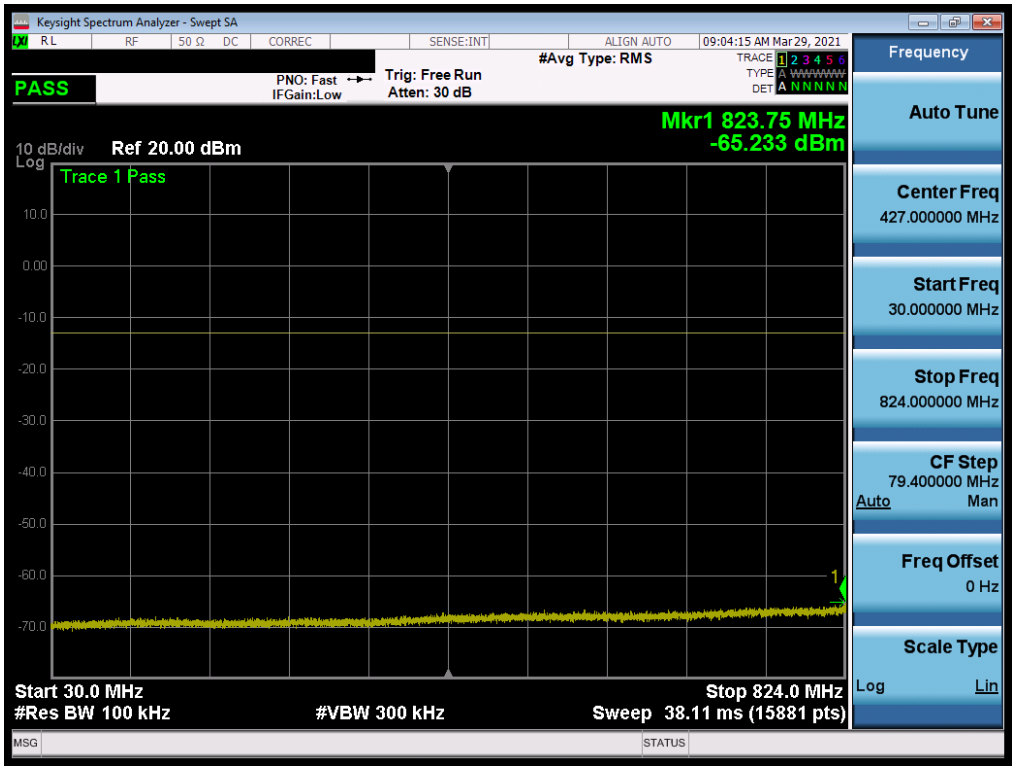
Plot 7-57. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - 1 RB - Mid Channel)



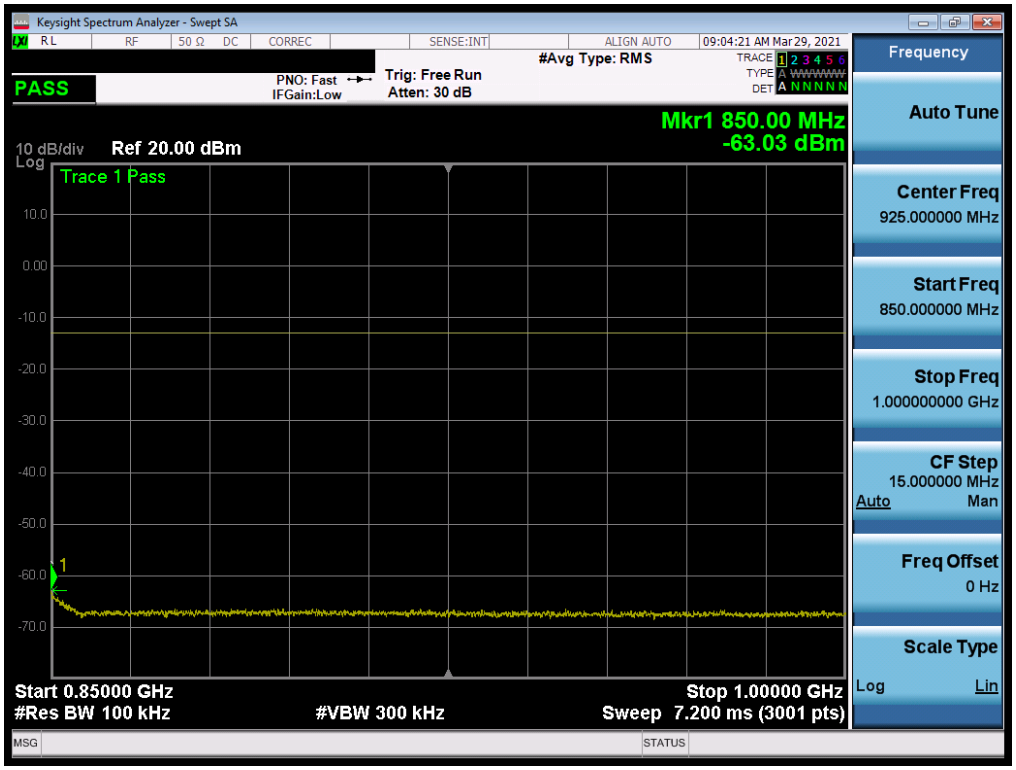
Plot 7-58. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - 1 RB - Mid Channel)



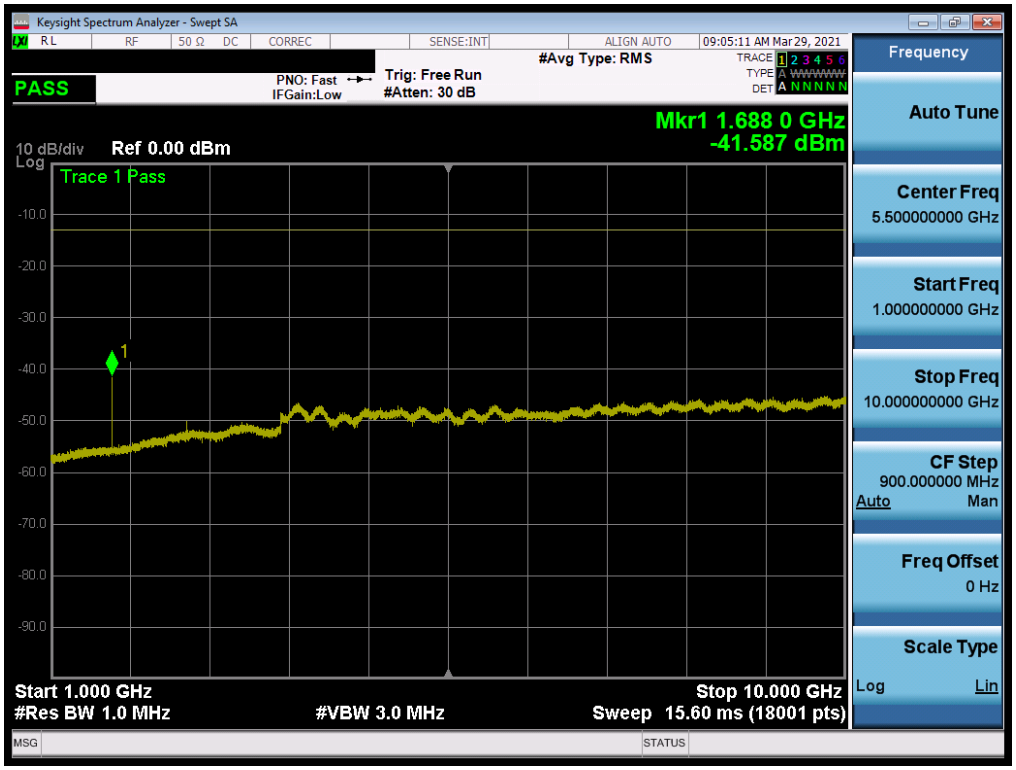
Plot 7-59. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - 1 RB - Mid Channel)



Plot 7-60. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - 1 RB - High Channel)

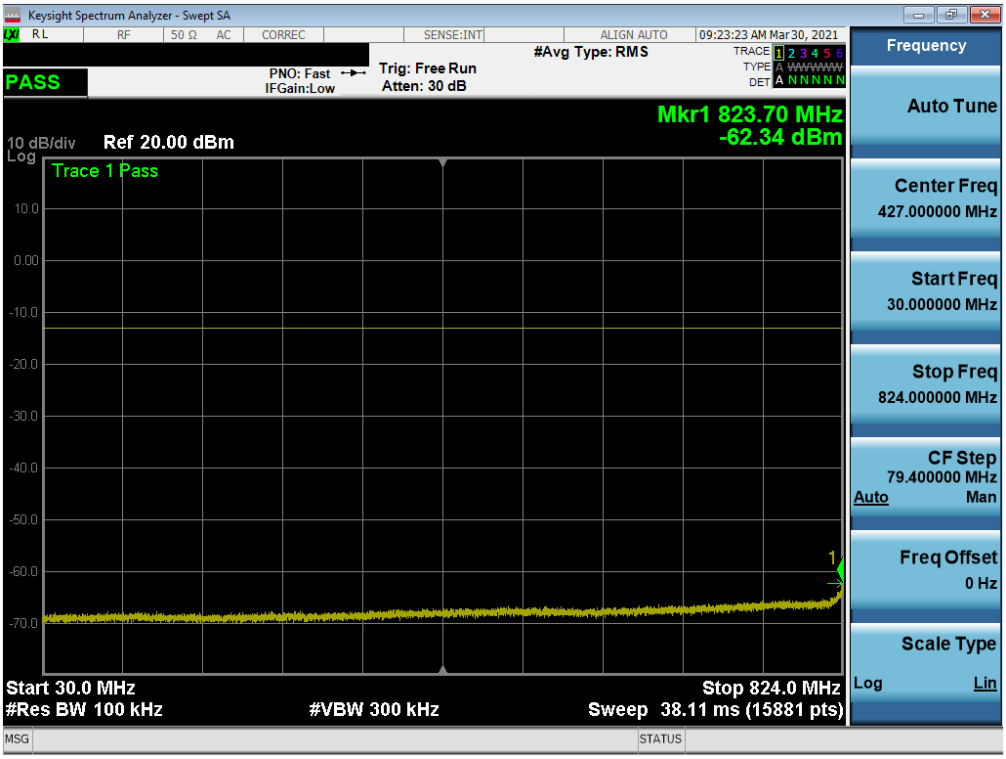


Plot 7-61. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - 1 RB - High Channel)

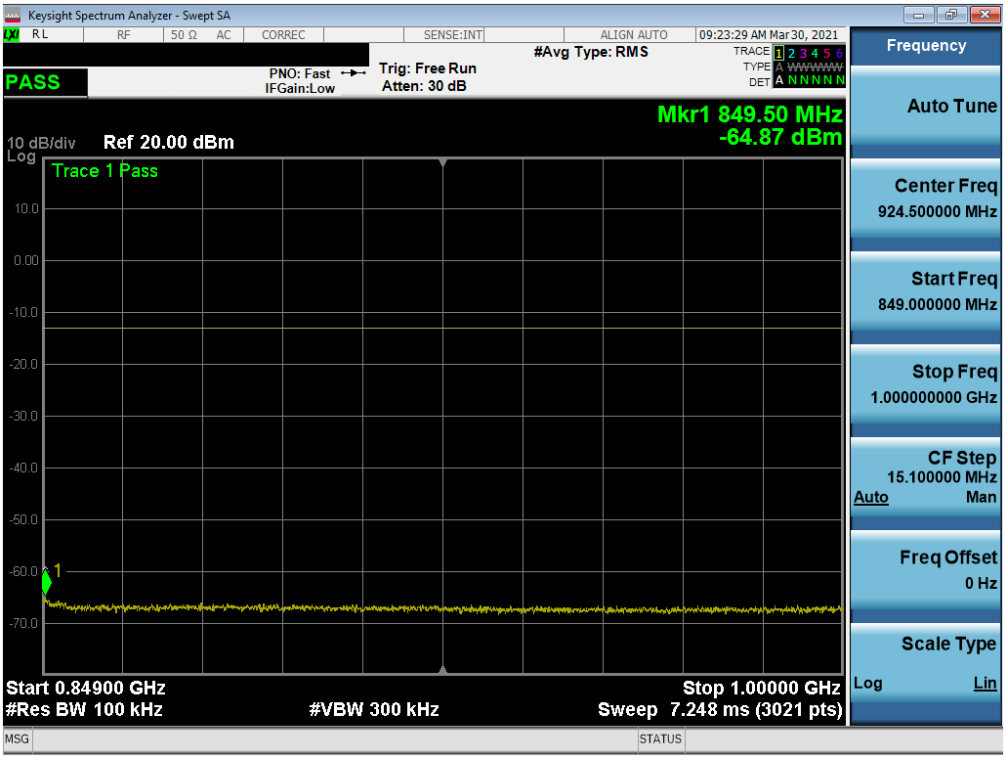


Plot 7-62. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - 1 RB - High Channel)

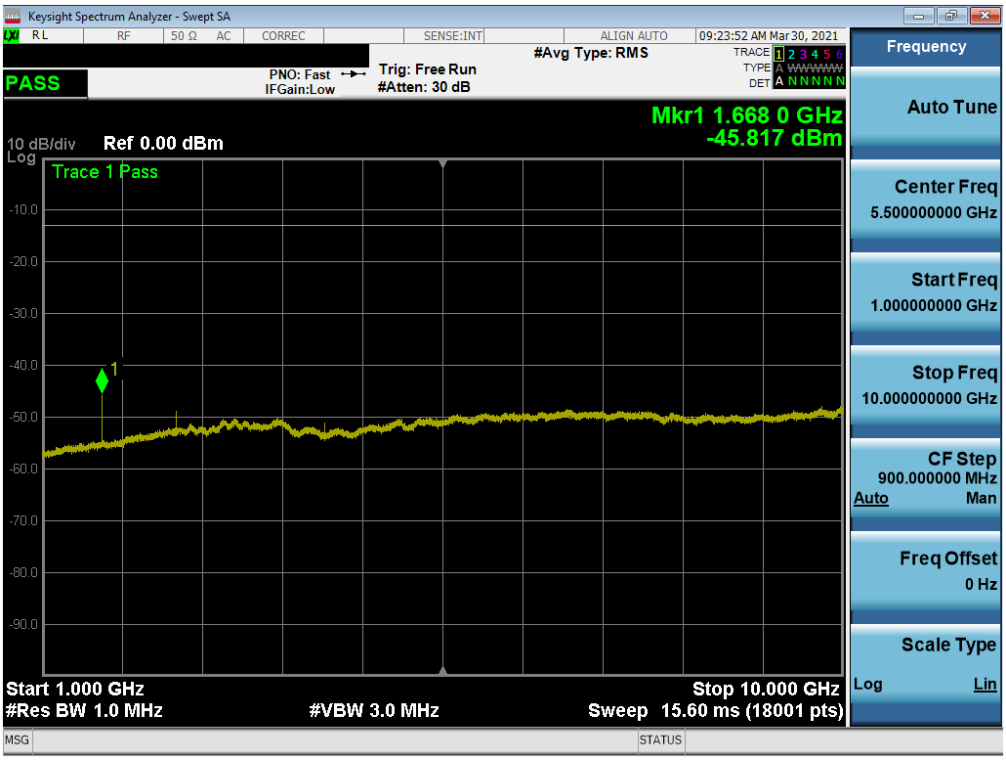
NR Band n5



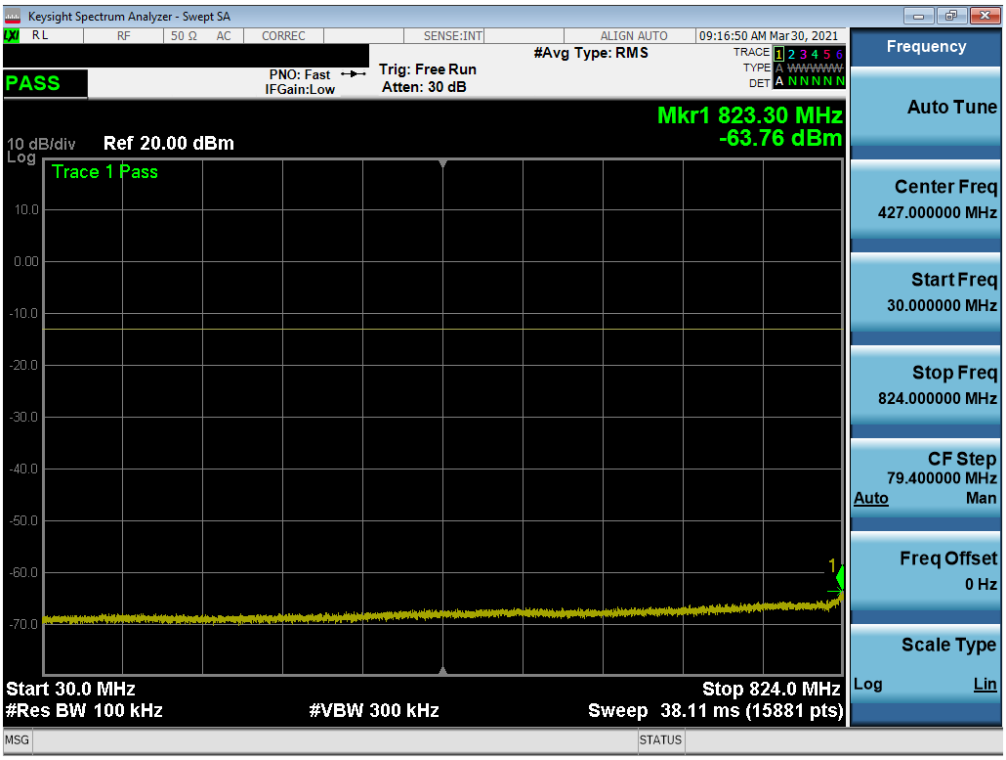
Plot 7-63. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Low Channel)



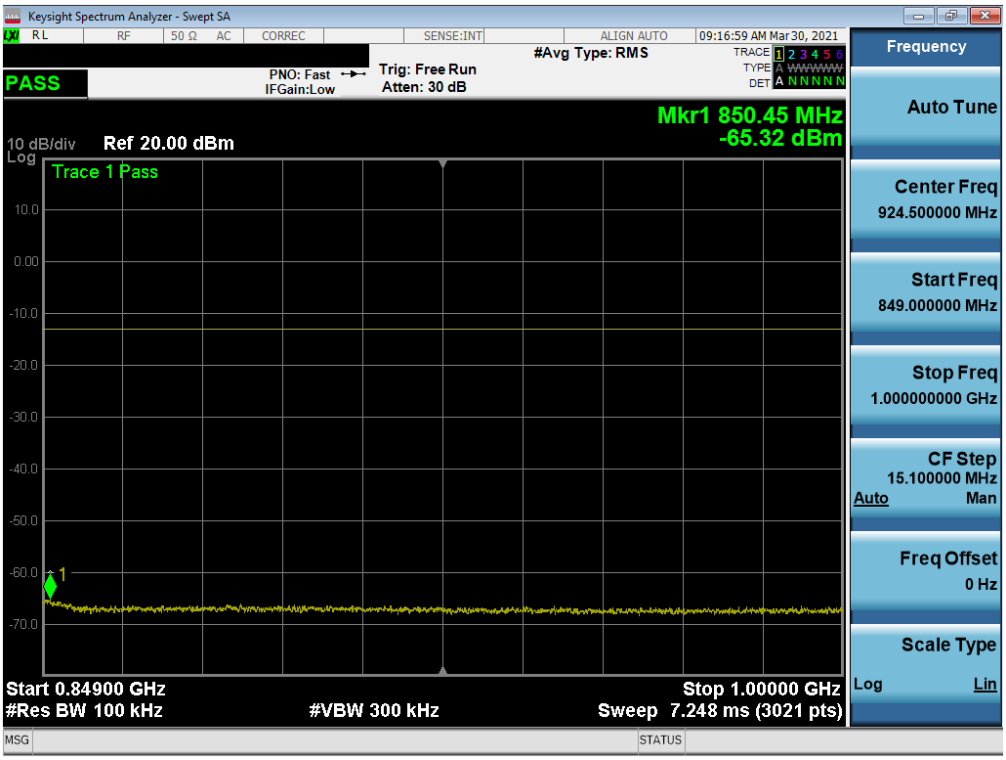
Plot 7-64. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Low Channel)



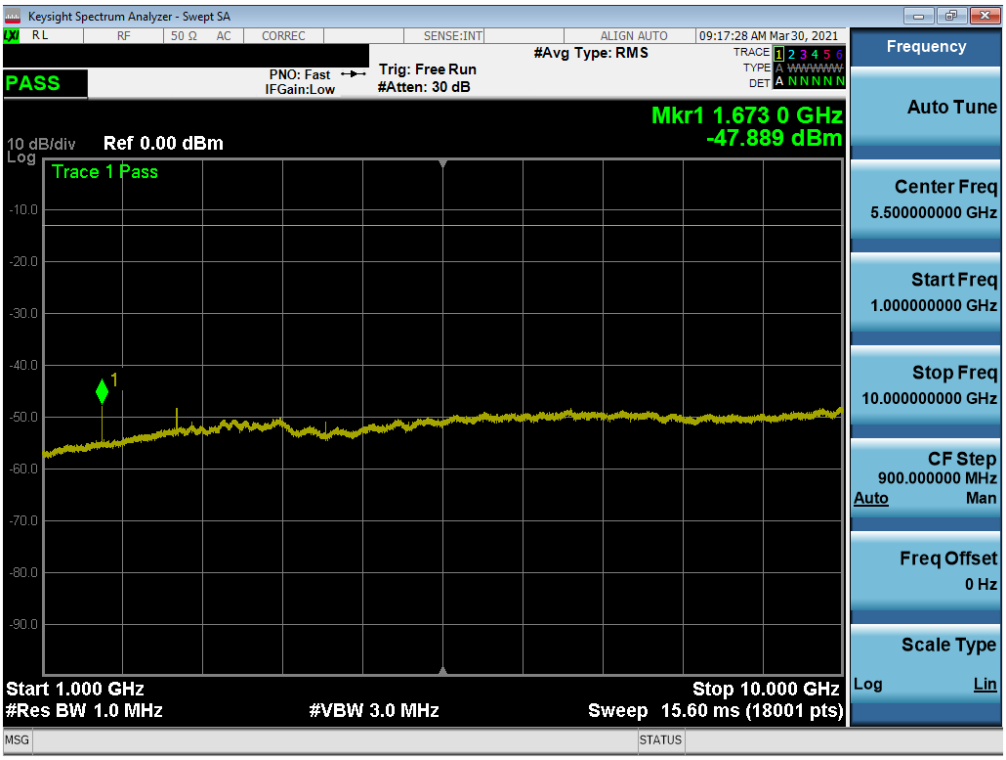
Plot 7-65. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Low Channel)



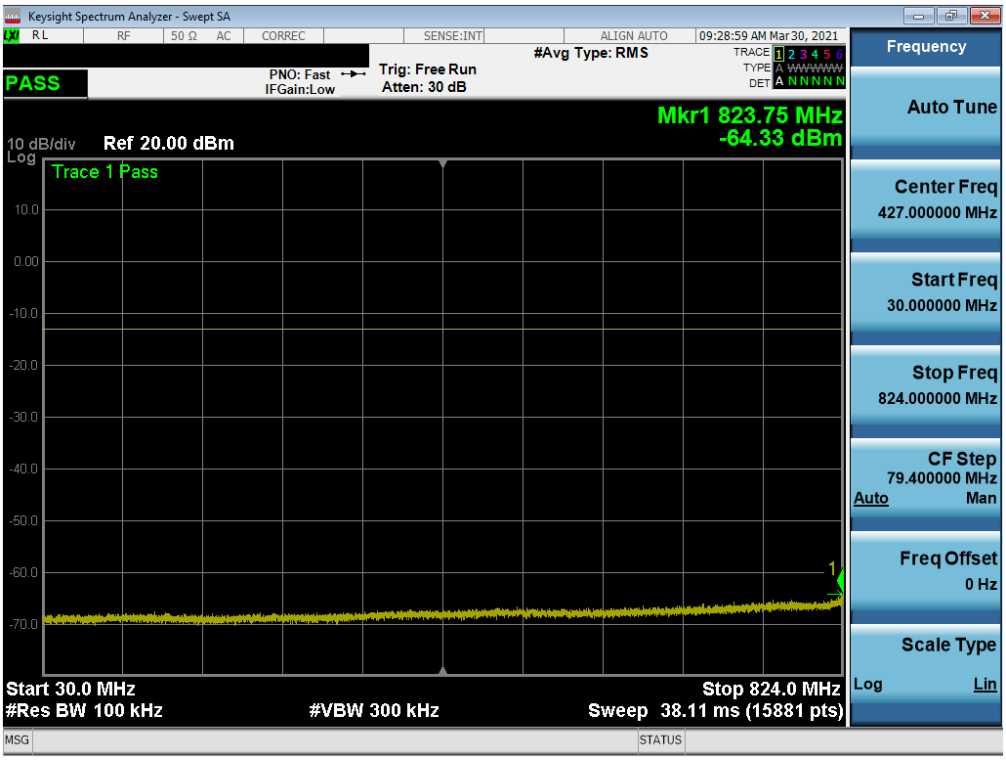
Plot 7-66. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Mid Channel)



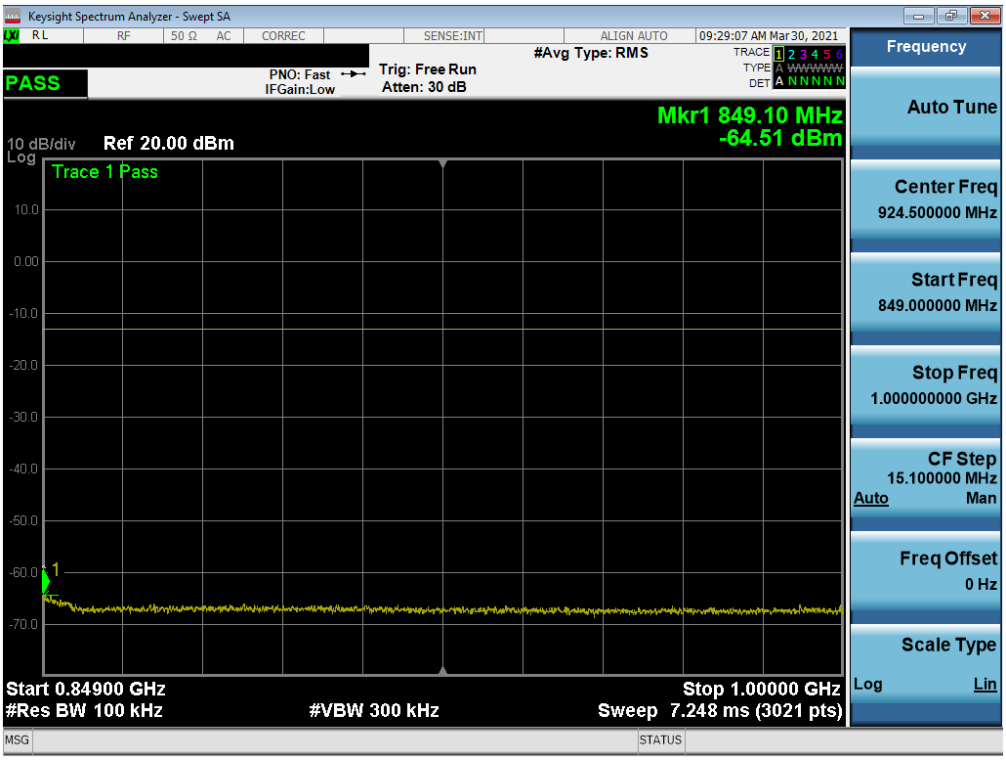
Plot 7-67. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Mid Channel)



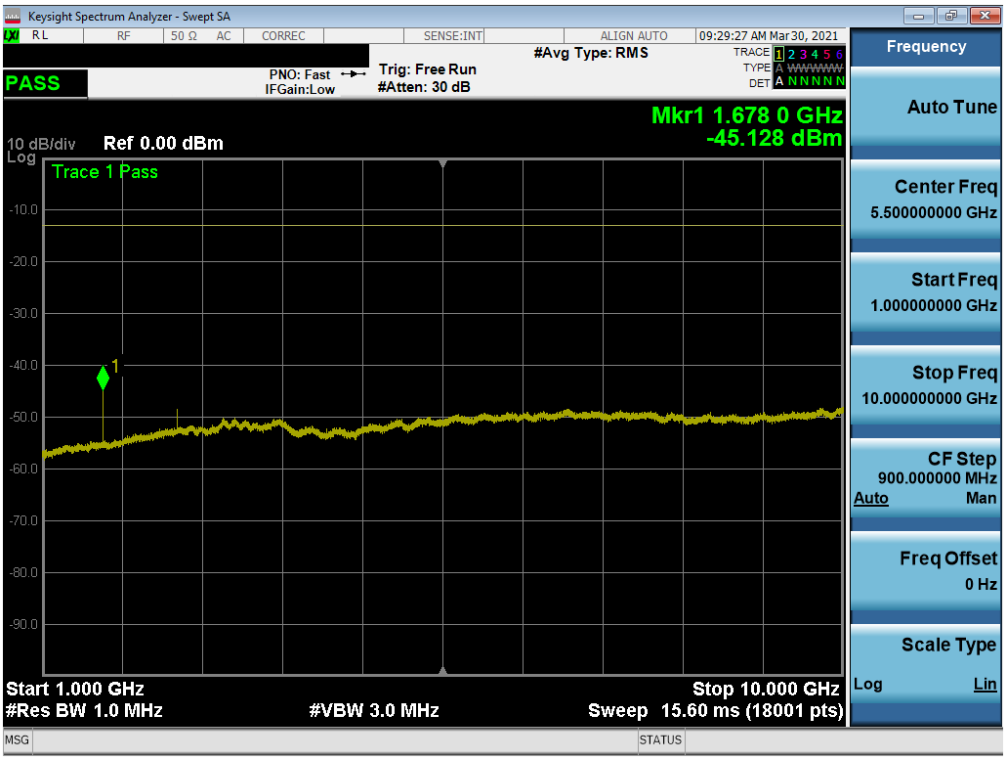
Plot 7-68. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Mid Channel)



Plot 7-69. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - High Channel)



Plot 7-70. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - High Channel)



Plot 7-71. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - High Channel)

7.4 Band Edge Emissions at Antenna Terminal

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is 43 + 10 $log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW ≥ 1% of the emission bandwidth
4. VBW ≥ 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

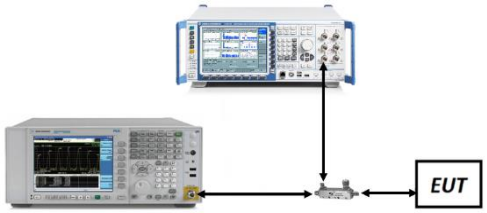
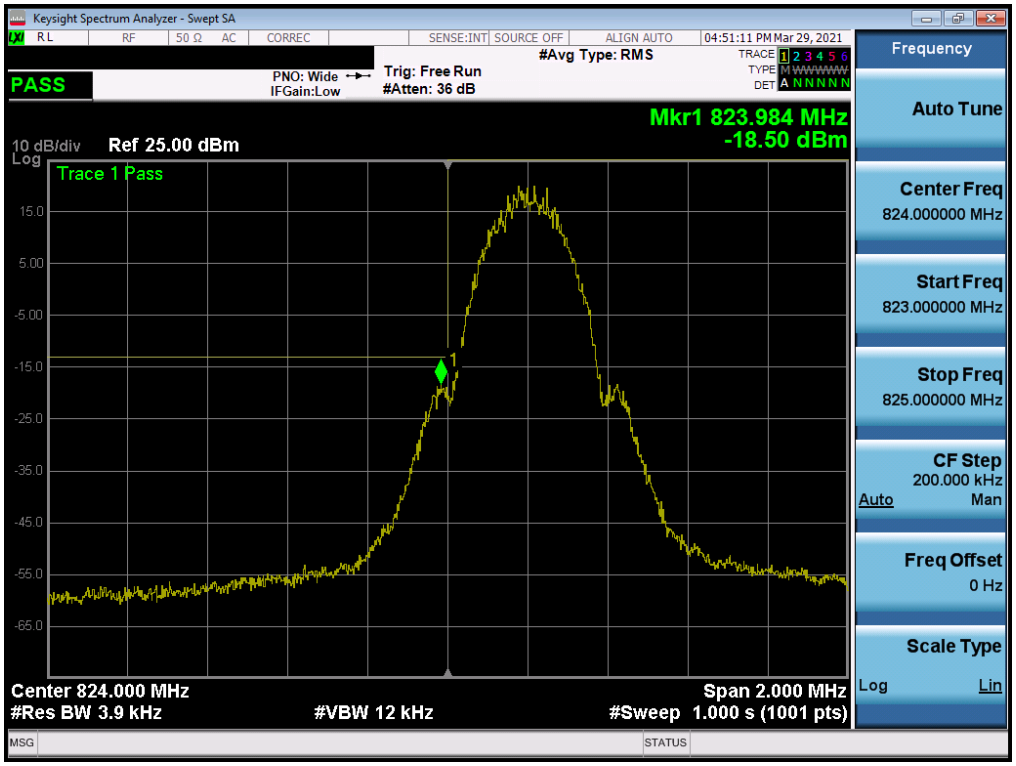


Figure 7-3. Test Instrument & Measurement Setup

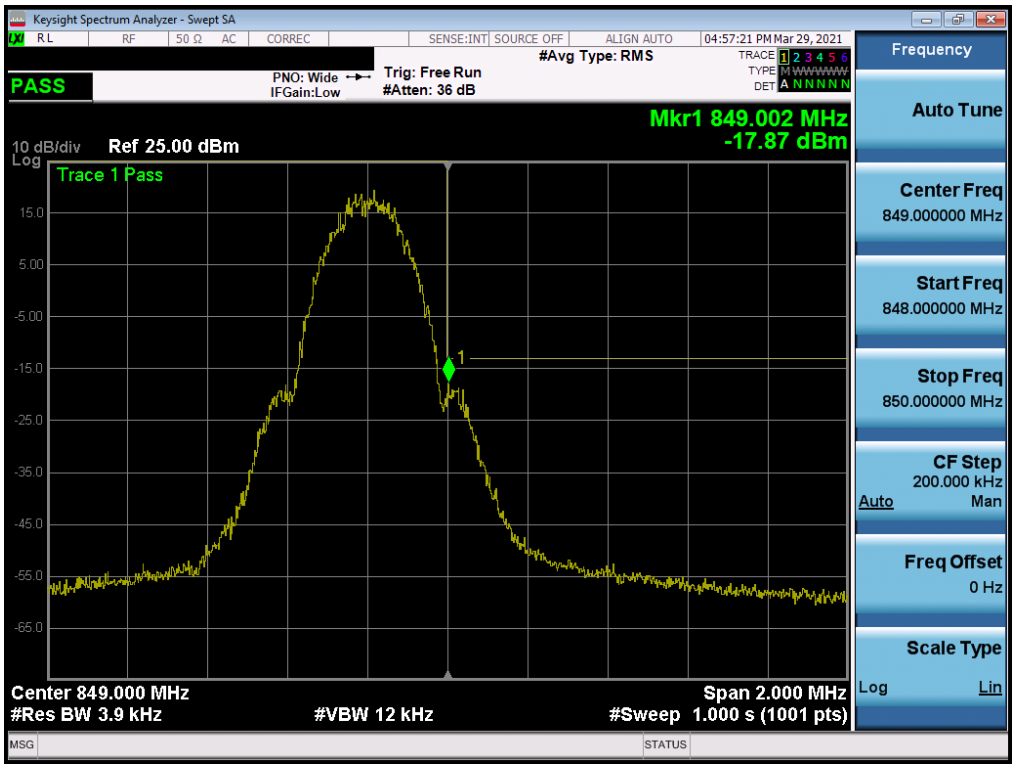
Test Notes

1. Per 22.917(b) and RSS-132(5.5), in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

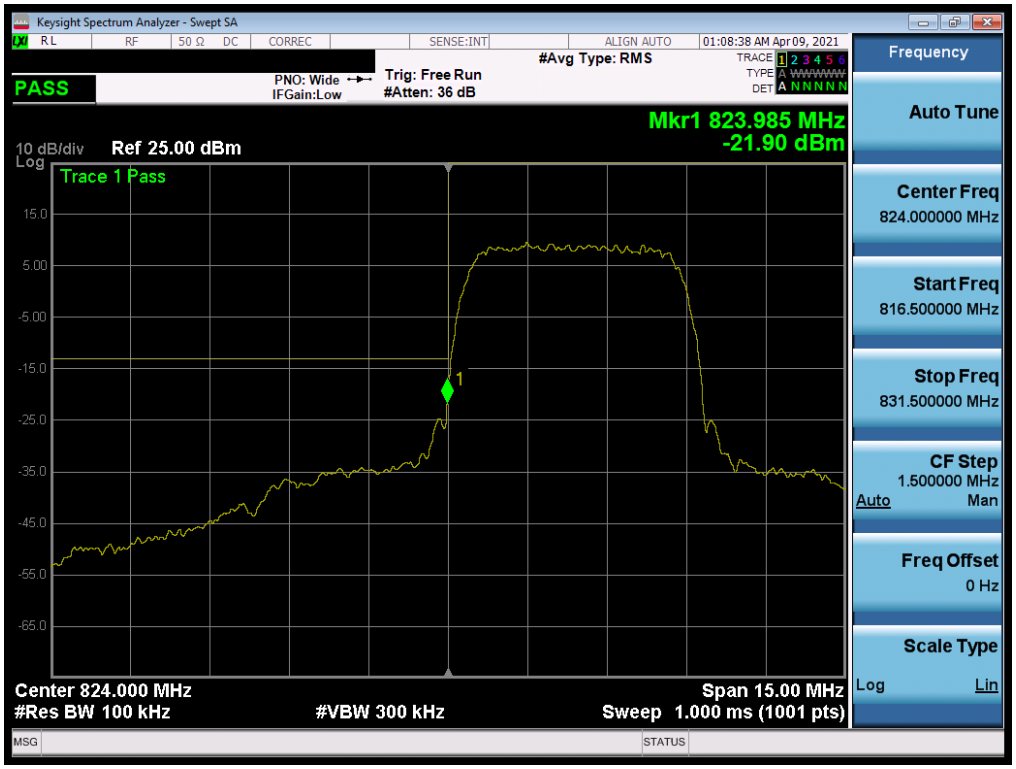


Plot 7-72. Lower Band Edge Plot (GPRS Cell – Ch. 128)



Plot 7-73. Upper Band Edge Plot (GPRS Cell – Ch. 251)

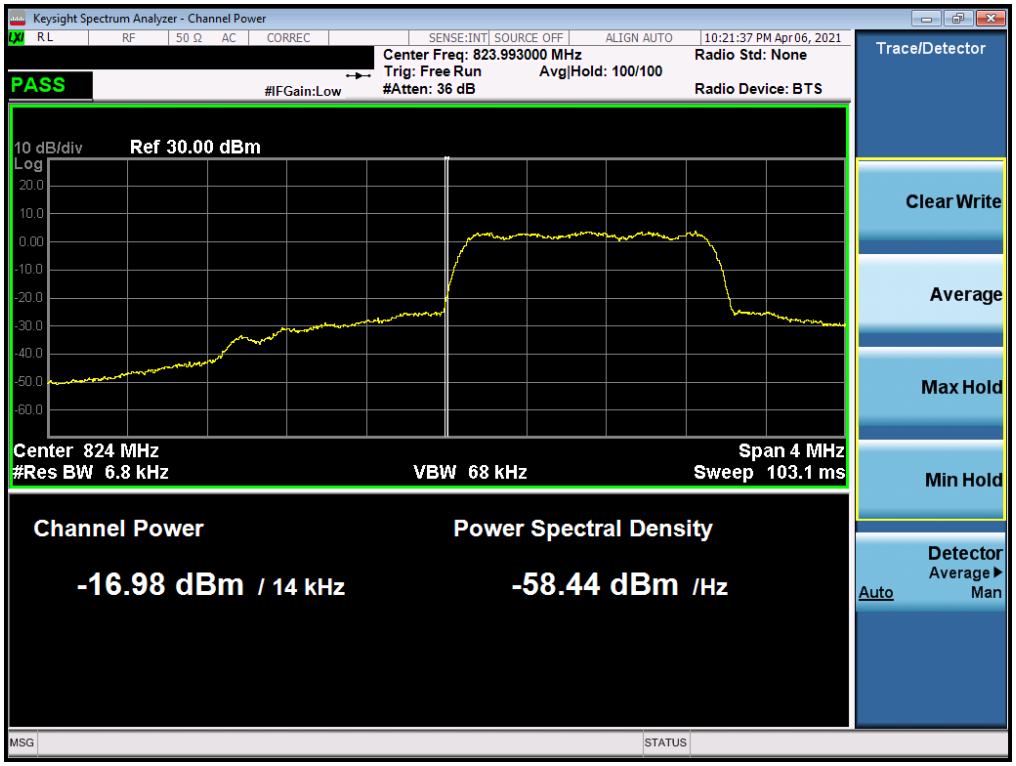
WCDMA Cell



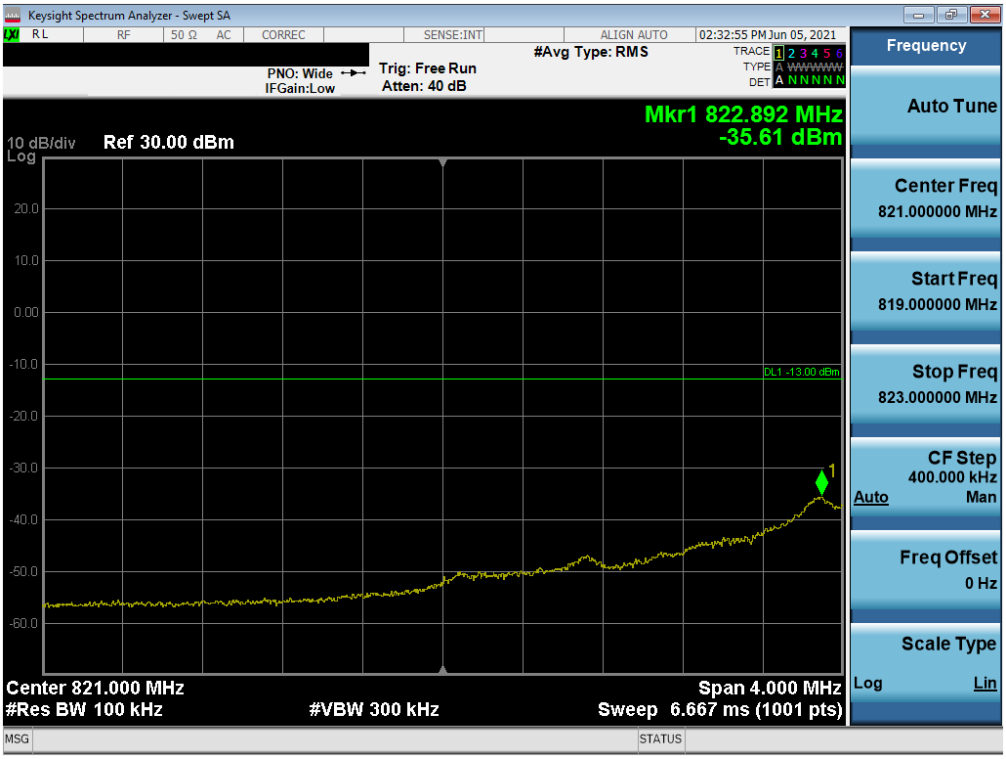
Plot 7-74. Lower Band Edge Plot (WCDMA Cell – Ch. 4132)

Plot 7-75. Upper Band Edge Plot (WCDMA Cell – Ch. 4233)

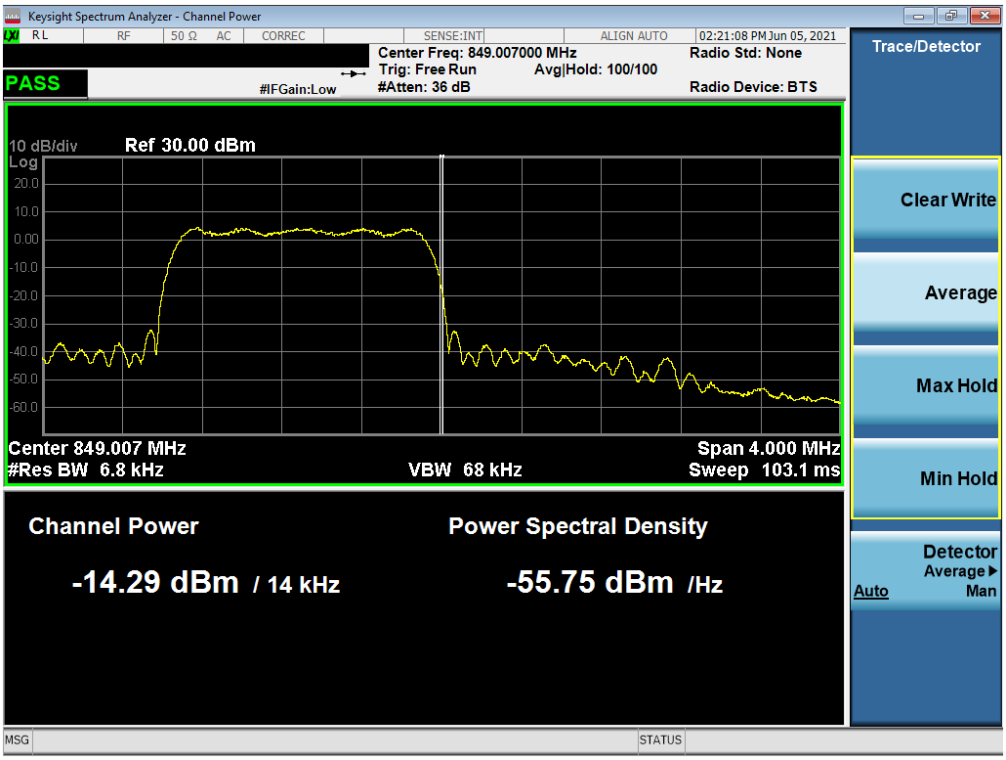
CDMA Cell



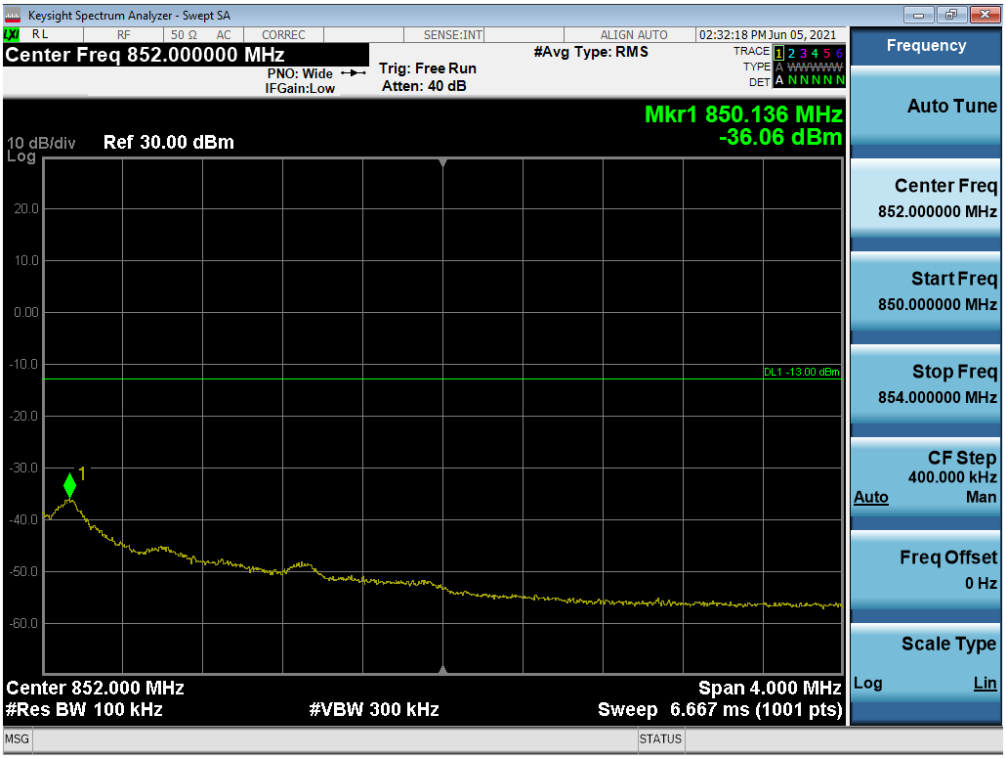
Plot 7-76. Lower Band Edge Plot (CDMA Cell – Ch. 1013)



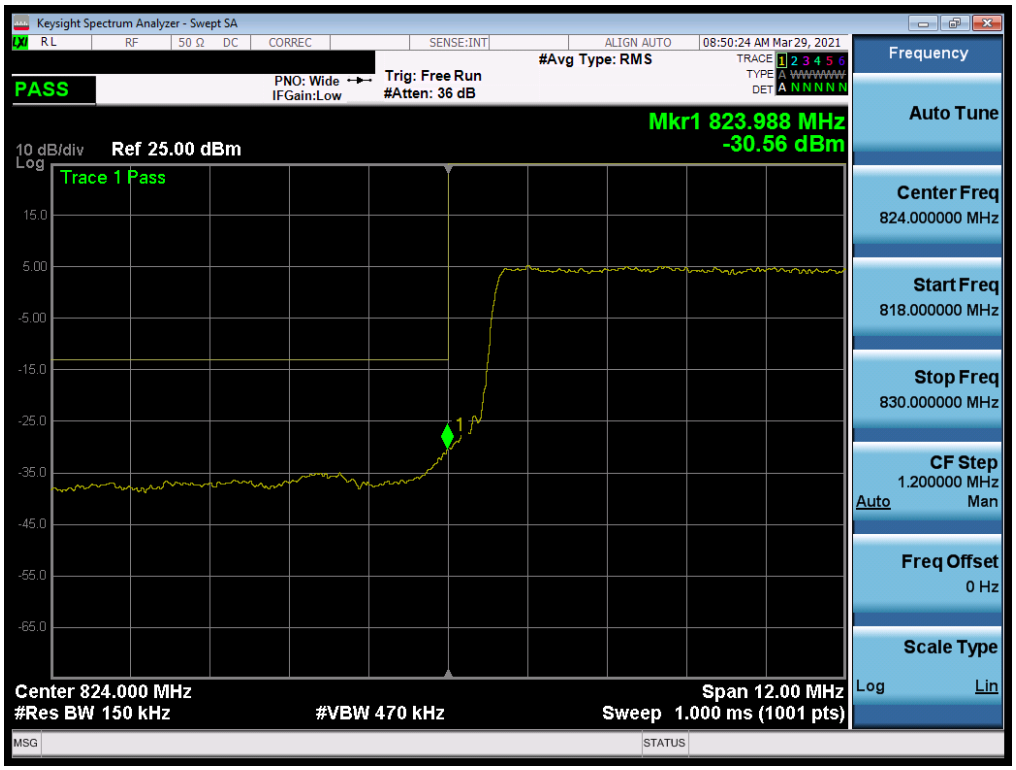
Plot 7-77. Lower Extended Band Edge Plot (CDMA Cell – Ch. 1013)



Plot 7-78. Upper Band Edge Plot (CDMA Cell – Ch. 777)

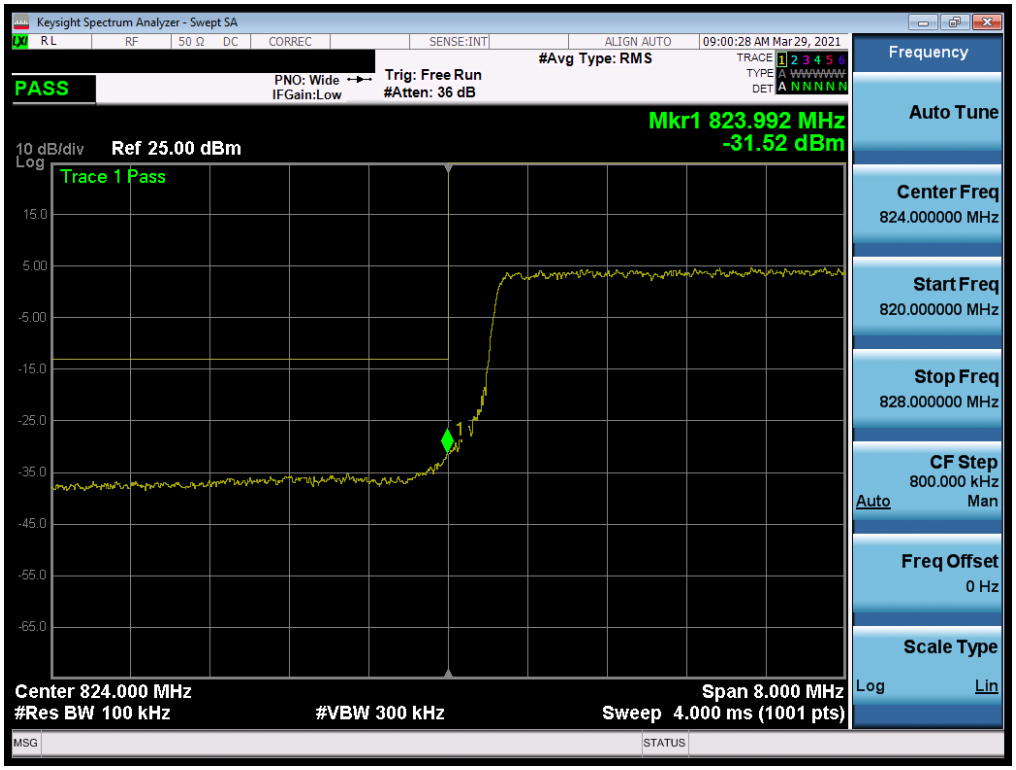


Plot 7-79. Upper Extended Band Edge Plot (CDMA Cell – Ch. 777)



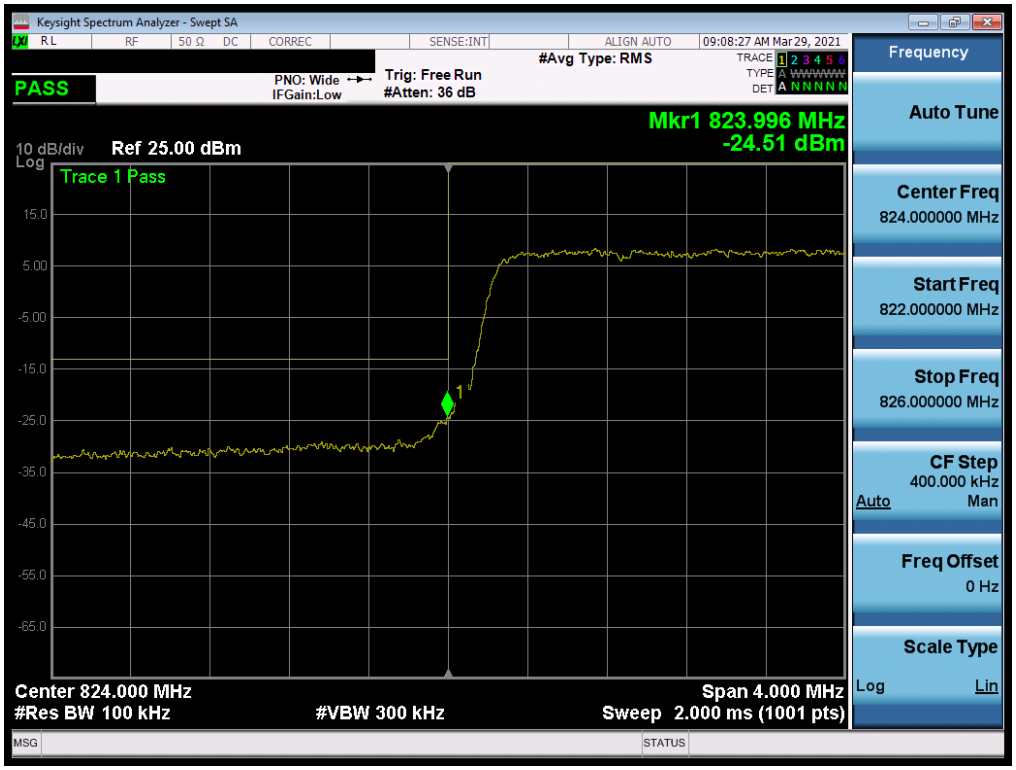
Plot 7-80. Lower Band Edge Plot (LTE Band 26 - 15MHz QPSK – Full RB)

Plot 7-81. Upper Band Edge Plot (LTE Band 26 - 15MHz QPSK – Full RB)

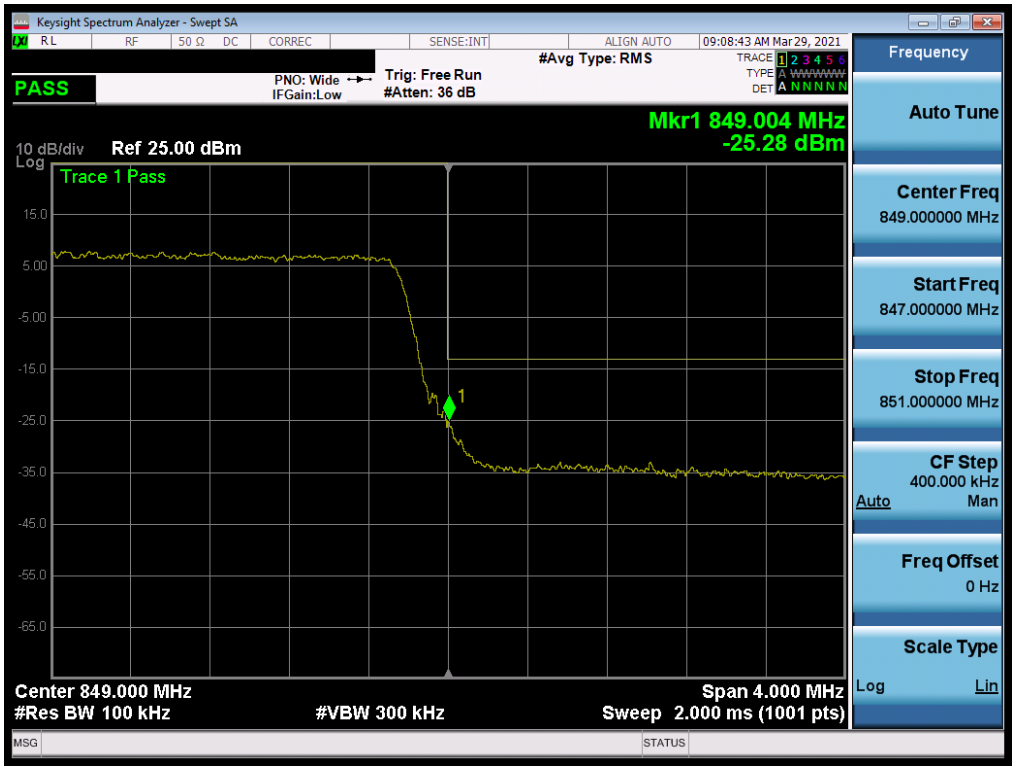


Plot 7-82. Lower Band Edge Plot (LTE Band 26/5 - 10MHz QPSK – Full RB)

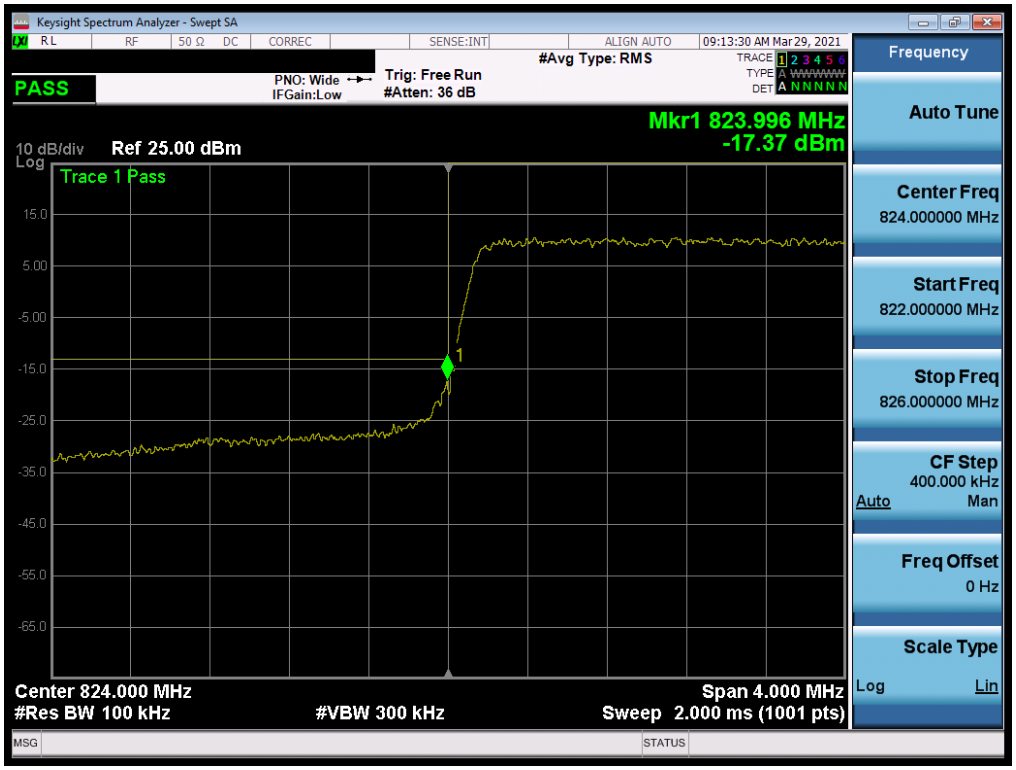
Plot 7-83. Upper Band Edge Plot (LTE Band 26/5 - 10MHz QPSK – Full RB)



Plot 7-84. Lower Band Edge Plot (LTE Band 26/5 - 5MHz QPSK – Full RB)

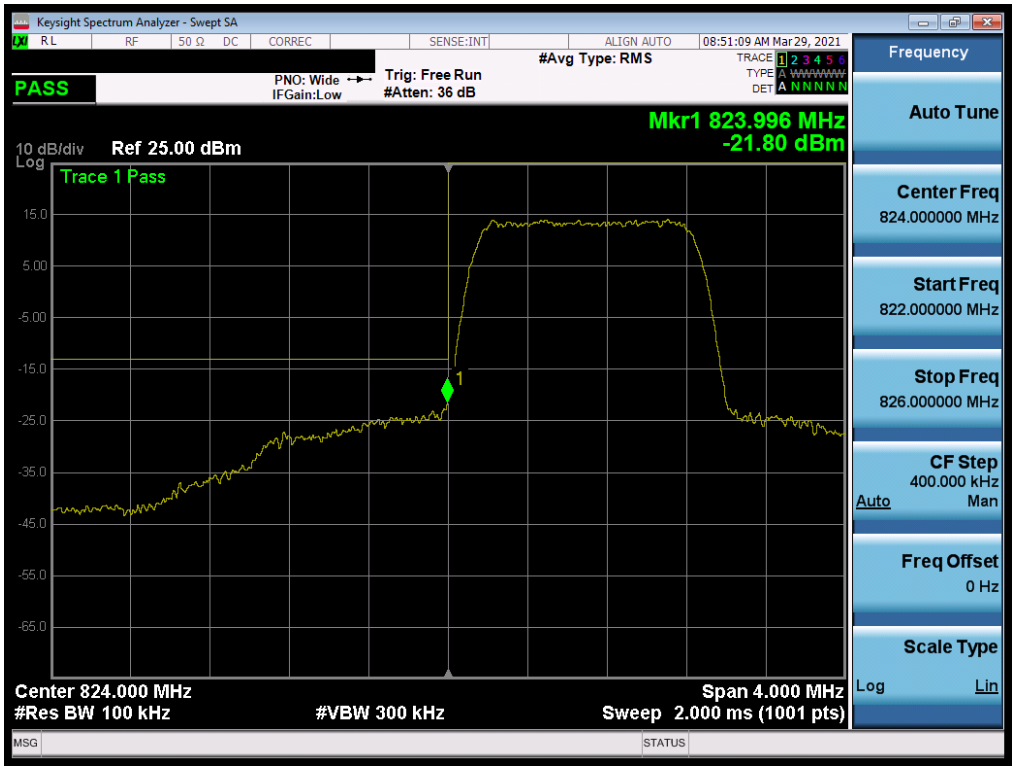


Plot 7-85. Upper Band Edge Plot (LTE Band 26/5 - 5MHz QPSK – Full RB)

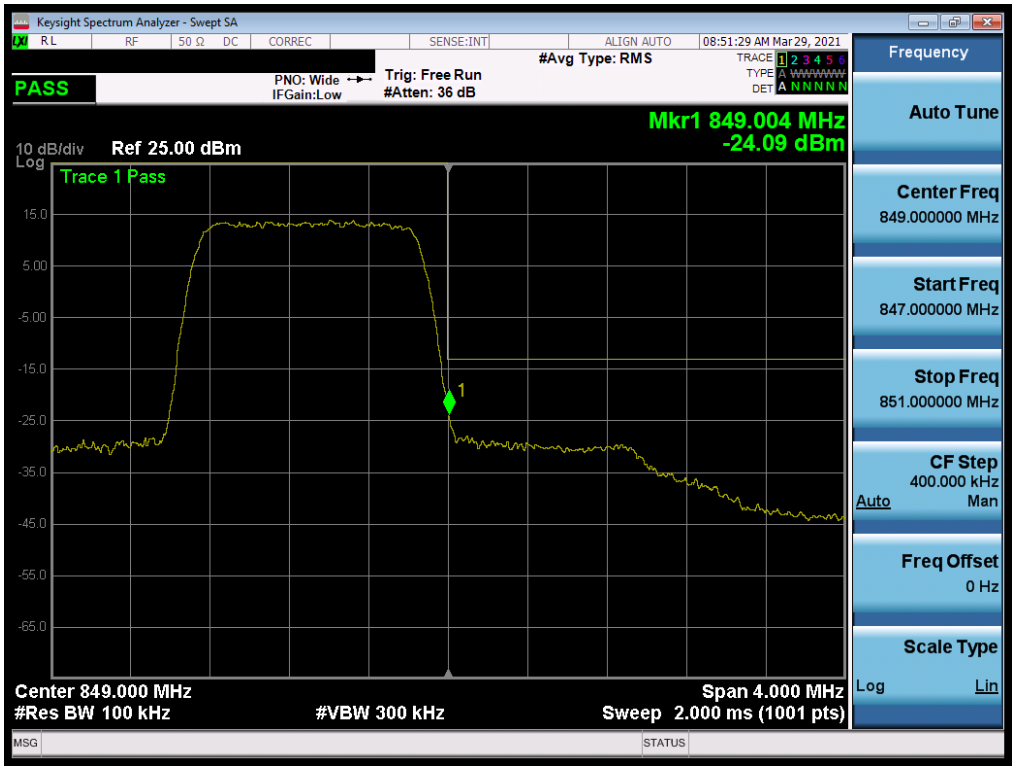


Plot 7-86. Lower Band Edge Plot (LTE Band 26/5 - 3MHz QPSK – Full RB)

Plot 7-87. Upper Band Edge Plot (LTE Band 26/5 - 3MHz QPSK – Full RB)

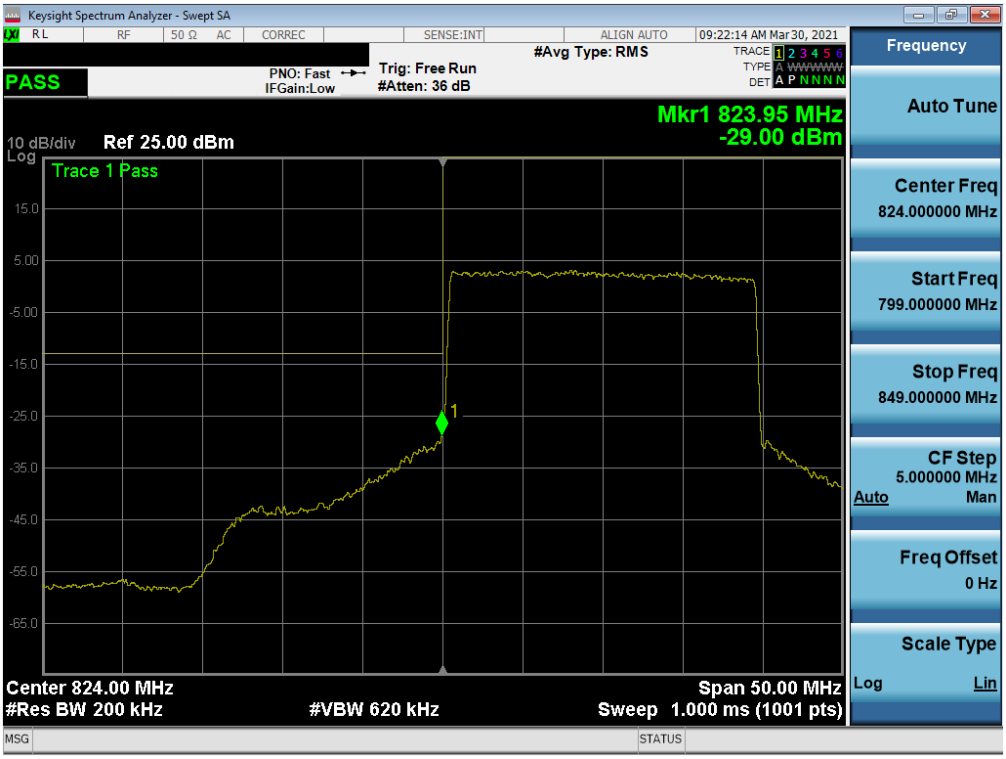


Plot 7-88. Lower Band Edge Plot (LTE Band 26/5 – 1.4MHz QPSK – Full RB)

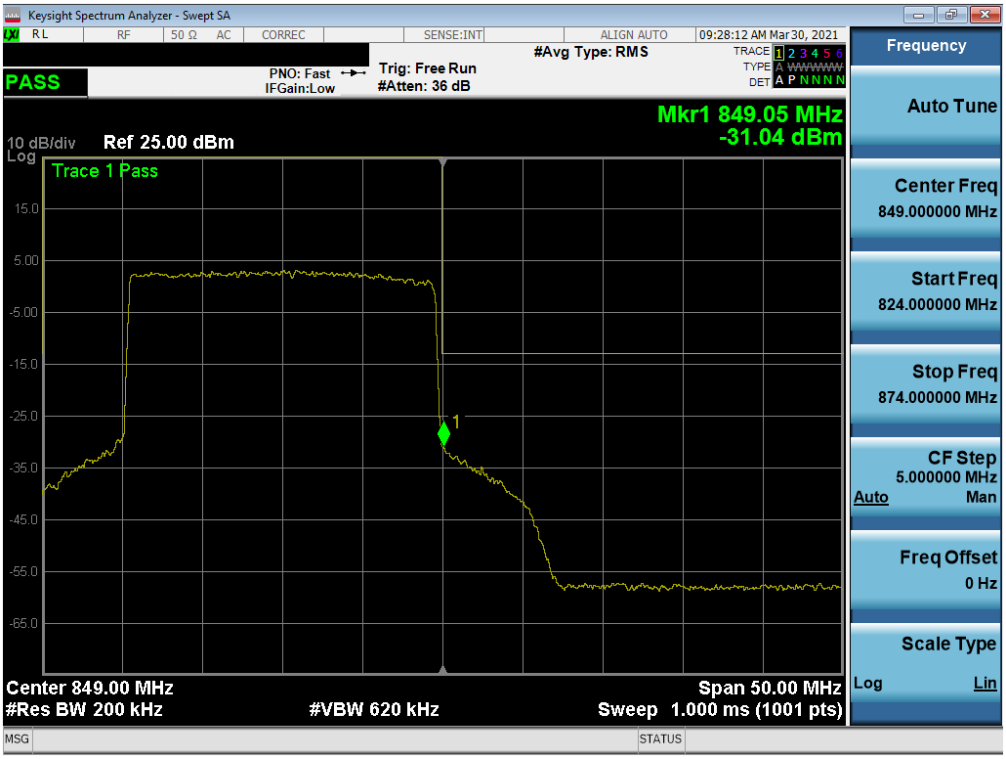


Plot 7-89. Upper Band Edge Plot (LTE Band 26/5 – 1.4MHz QPSK – Full RB)

NR Band n5

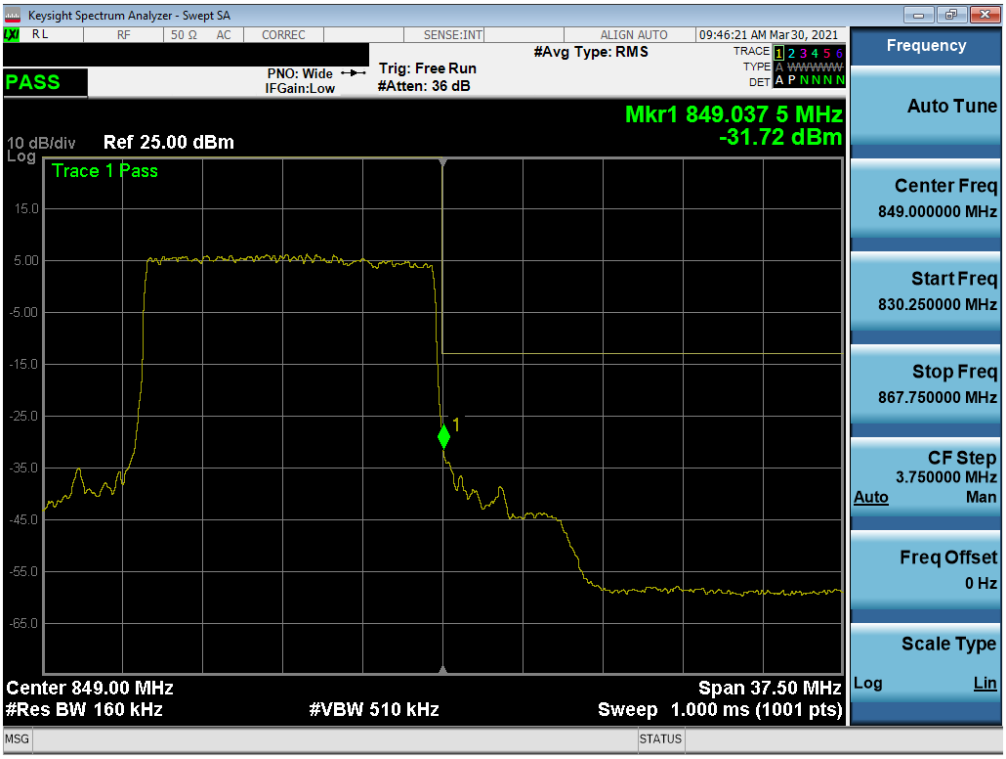


Plot 7-90. Lower Band Edge Plot (NR Band n5 – 20.0MHz DFT-s-OFDM-QPSK - Full RB)



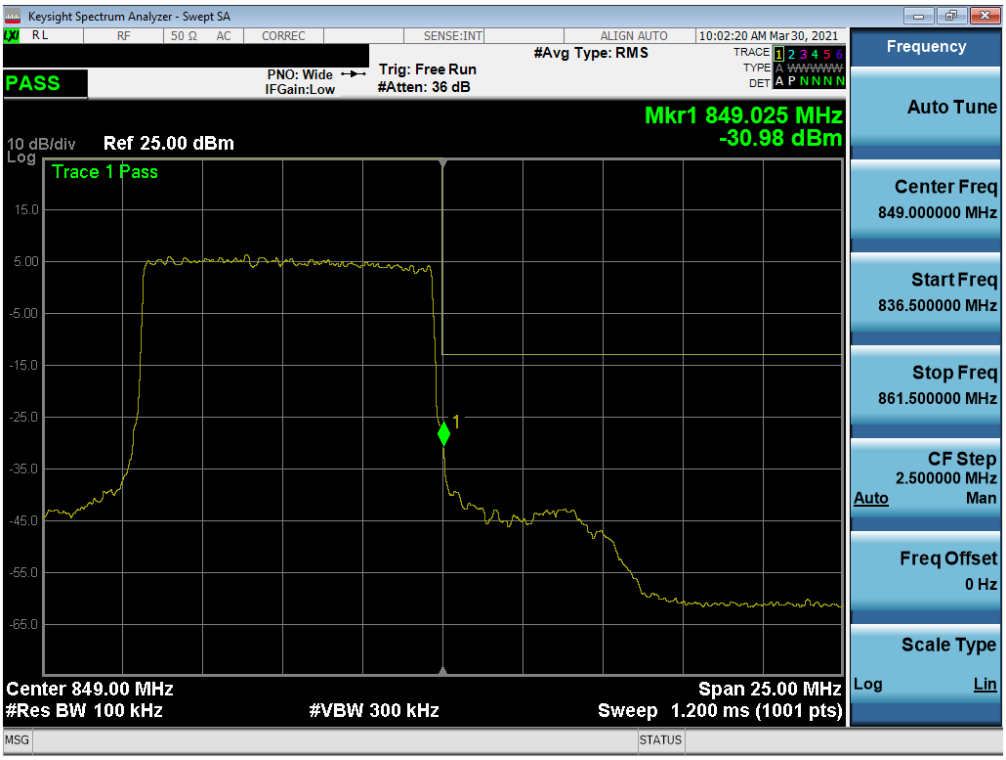
Plot 7-91. Upper Band Edge Plot (NR Band n5 – 20.0MHz DFT-s-OFDM-QPSK - Full RB)

Plot 7-92. Lower Band Edge Plot (NR Band n5 – 15.0MHz DFT-s-OFDM-QPSK - Full RB)

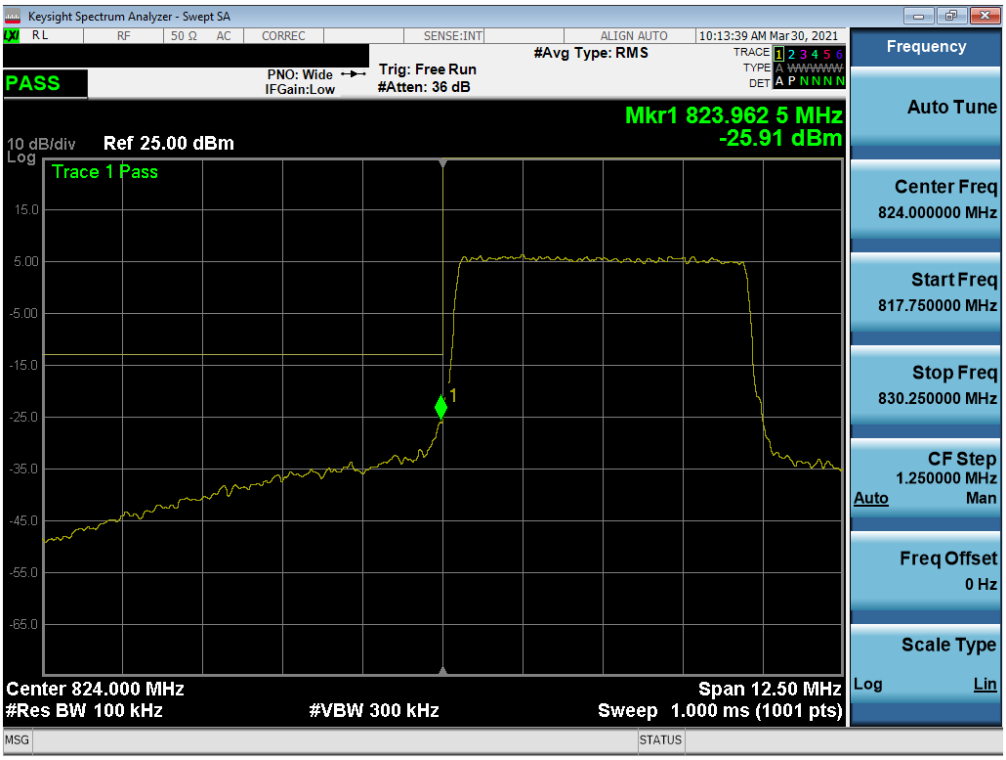


Plot 7-93. Upper Band Edge Plot (NR Band n5 – 15.0MHz DFT-s-OFDM-QPSK - Full RB)

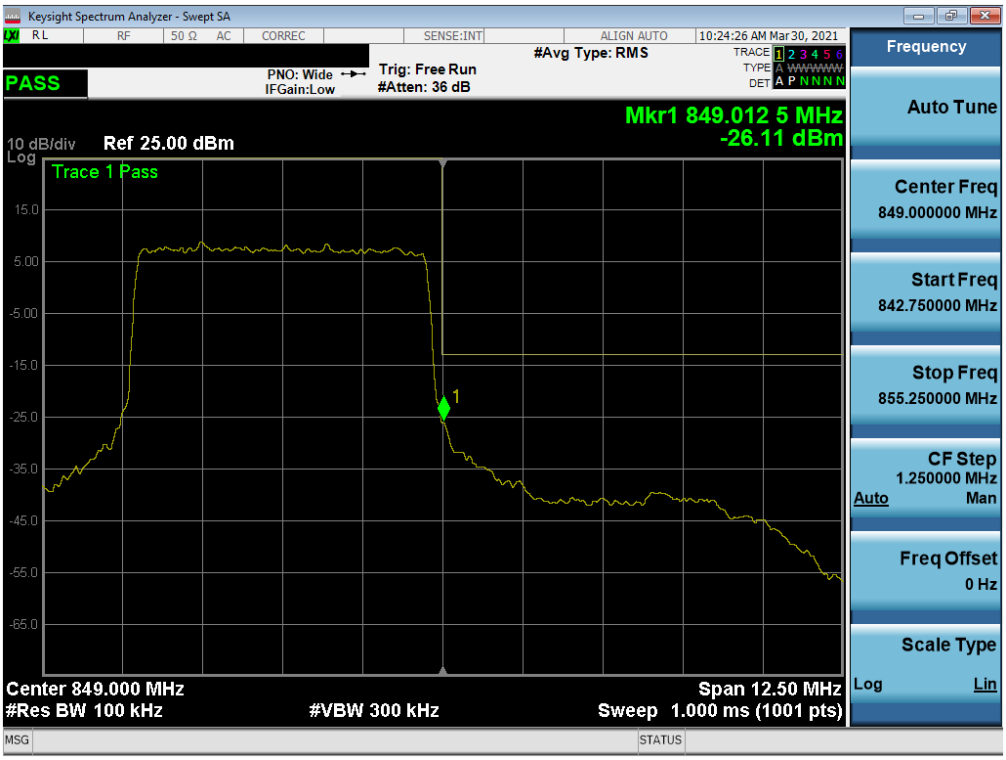
Plot 7-94. Lower Band Edge Plot (NR Band n5 – 10.0MHz DFT-s-OFDM-QPSK - Full RB)



Plot 7-95. Upper Band Edge Plot (NR Band n5 – 10.0MHz DFT-s-OFDM-QPSK - Full RB)



Plot 7-96. Lower Band Edge Plot (NR Band n5 – 5.0MHz DFT-s-OFDM-QPSK - Full RB)



Plot 7-97. Upper Band Edge Plot (NR Band n5 – 5.0MHz DFT-s-OFDM-QPSK - Full RB)

7.5 Radiated Power (ERP)

Test Overview

Effective Radiated Power (ERP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

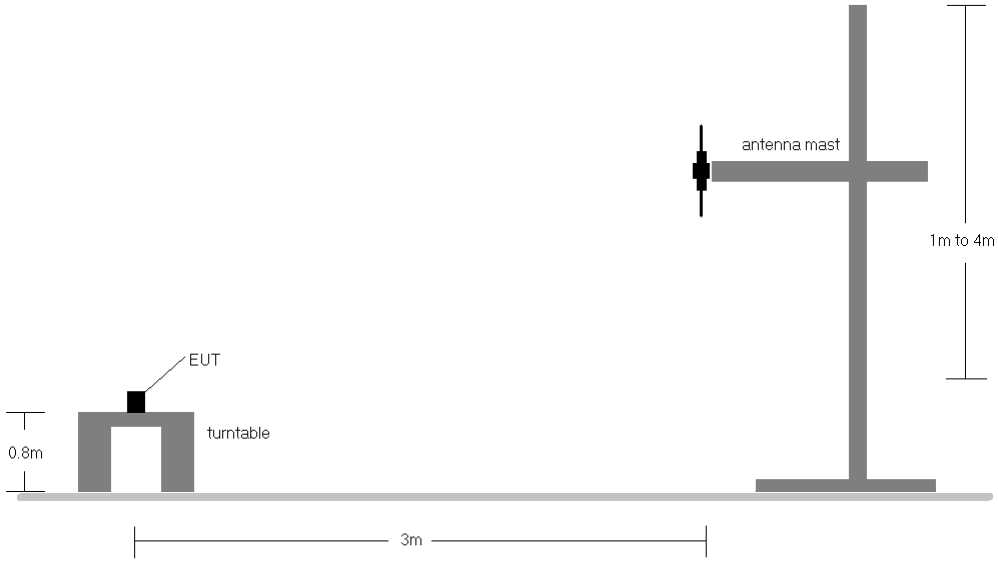


Figure 7-4. Radiated Test Setup <1GHz

Test Notes

1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest powers is reported in GPRS mode while transmitting with one slot active.

2) This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to “1”.

3) This device employs CDMA technology. The EUT was tested under all RC and SO combinations and the worst case is reported with RC3/SO55 with "All Up" power control bits.

4) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

5) This unit was tested with its standard battery.

6) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.

7) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.20	GSM850	H	215	327	22.12	6.75	26.72	0.470	38.45	-11.73
836.60	GSM850	H	223	341	22.71	6.68	**27.24**	**0.530**	38.45	-11.21
848.80	GSM850	H	225	345	21.19	6.71	25.75	0.375	38.45	-12.71
836.60	GSM850	V	334	93	18.34	6.38	22.57	0.181	38.45	-15.88
836.60	EDGE850	H	223	341	18.12	6.68	**22.65**	0.184	38.45	-15.80
836.60	Closed	H	347	338	21.51	6.68	26.04	**0.402**	38.45	-12.41
836.60	GSM850 (WCP)	H	140	228	15.89	6.68	20.42	0.110	38.45	-18.03

Table 7-2. ERP Data (GPRS Cell) – AntA + AntB

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.20	GSM850	H	230	342	21.57	7.34	26.76	0.475	38.45	-11.69
836.60	GSM850	H	223	331	21.54	7.74	**27.13**	**0.516**	38.45	-11.32
848.80	GSM850	H	150	319	19.71	7.73	25.29	0.338	38.45	-13.16
836.60	GSM850	V	216	244	19.52	7.74	25.11	0.324	38.45	-13.34
836.60	EDGE850	H	223	331	11.95	7.74	**17.54**	0.057	38.45	-20.91
836.60	GSM850 (WCP)	V	169	271	20.52	7.74	26.11	0.408	38.45	-12.34

Table 7-3. ERP Data (GPRS Cell) – AntA

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
826.40	WCDMA850	H	208	103	13.90	6.77	18.52	0.071	38.45	-19.93
836.60	WCDMA850	H	209	105	13.21	6.68	17.74	0.059	38.45	-20.71
846.60	WCDMA850	H	205	337	14.27	6.68	**18.80**	**0.076**	38.45	-19.65
846.60	WCDMA850	V	143	159	13.16	6.37	17.38	0.055	38.45	-21.07
826.40	Closed	H	147	91	13.68	6.77	18.30	**0.068**	38.45	-20.15
846.60	WCDMA850 (WCP)	H	119	231	12.30	6.77	16.92	0.049	38.45	-21.53

Table 7-4. ERP Data (WCDMA Cell) – AntA + AntB

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
826.40	WCDMA850	H	239	330	12.43	7.40	17.68	0.059	38.45	-20.77
836.60	WCDMA850	H	135	332	12.60	7.74	18.19	0.066	38.45	-20.26
846.60	WCDMA850	H	141	335	12.67	7.76	**18.28**	**0.067**	38.45	-20.17
846.60	WCDMA850	V	216	159	12.19	7.76	17.80	0.060	38.45	-20.65
846.60	WCDMA850 (WCP)	V	222	216	12.11	7.76	17.72	0.059	38.45	-20.73

Table 7-5. ERP Data (WCDMA Cell) – AntA

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.70	CDMA850	H	220	337	14.16	6.76	**18.77**	**0.075**	38.45	-19.69
836.52	CDMA850	H	195	320	12.78	6.68	17.31	0.054	38.45	-21.14
848.31	CDMA850	H	375	339	12.14	6.70	16.69	0.047	38.45	-21.76
824.70	CDMA850	V	338	43	10.32	6.36	14.53	0.028	38.45	-23.93
824.70	CDMA850 (WCP)	H	378	142	11.02	6.76	15.63	0.037	38.45	-22.83

Table 7-6. ERP Data (CDMA Cell)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
15MHz (Band 26 only)	QPSK	831.5	H	212	113	6.73	1 / 0	13.82	**18.40**	0.069	38.45	-20.05	**20.55**	0.113	40.61	-20.06
		836.5	H	206	112	6.68	1 / 0	13.58	18.11	0.065	38.45	-20.34	20.26	0.106	40.61	-20.35
		841.5	H	211	109	6.63	1 / 0	13.43	17.91	0.062	38.45	-20.54	20.06	0.101	40.61	-20.55
	16-QAM	831.5	H	212	113	6.73	1 / 0	13.05	17.63	0.058	38.45	-20.82	19.78	0.095	40.61	-20.83
10 MHz	QPSK	829.0	H	212	113	6.80	1 / 0	13.91	**18.56**	0.072	38.45	-19.89	**20.71**	0.118	40.61	-19.90
		836.5	H	206	112	6.68	1 / 0	13.73	18.26	0.067	38.45	-20.19	20.41	0.110	40.61	-20.20
		844.0	H	211	109	6.66	1 / 0	13.58	18.09	0.064	38.45	-20.36	20.24	0.106	40.61	-20.37
	16-QAM	829.0	H	212	113	6.80	1 / 0	13.41	18.06	0.064	38.45	-20.39	20.21	0.105	40.61	-20.39
5 MHz	QPSK	826.5	H	212	113	6.77	1 / 0	13.95	**18.58**	0.072	38.45	-19.87	**20.73**	0.118	40.61	-19.88
		836.5	H	206	112	6.68	1 / 24	13.87	18.40	0.069	38.45	-20.05	20.55	0.113	40.61	-20.06
		846.5	H	211	109	6.68	1 / 0	13.62	18.15	0.065	38.45	-20.30	20.30	0.107	40.61	-20.30
	16-QAM	836.5	H	206	112	6.68	1 / 24	13.39	17.92	0.062	38.45	-20.53	20.07	0.102	40.61	-20.53
3 MHz	QPSK	825.5	H	212	113	6.76	1 / 14	14.13	**18.74**	0.075	38.45	-19.71	**20.89**	0.123	40.61	-19.72
		836.5	H	206	112	6.68	1 / 0	13.84	18.37	0.069	38.45	-20.08	20.52	0.113	40.61	-20.09
		847.5	H	211	109	6.69	1 / 14	13.51	18.05	0.064	38.45	-20.40	20.20	0.105	40.61	-20.41
	16-QAM	825.5	H	212	113	6.76	1 / 14	13.30	17.92	0.062	38.45	-20.54	20.07	0.102	40.61	-20.54
1.4 MHz	QPSK	824.7	H	212	113	6.76	1 / 3	14.00	**18.61**	0.073	38.45	-19.84	**20.76**	0.119	40.61	-19.85
		836.5	H	206	112	6.68	1 / 3	13.78	18.31	0.068	38.45	-20.14	20.46	0.111	40.61	-20.14
		848.3	H	211	109	6.70	1 / 0	13.43	17.98	0.063	38.45	-20.47	20.13	0.103	40.61	-20.48
	16-QAM	836.5	H	206	112	6.68	1 / 3	13.25	17.78	0.060	38.45	-20.67	19.93	0.098	40.61	-20.68
15MHz	QPSK (Opposite Pol.)	831.5	V	141	57	6.43	0.00	13.59	17.87	0.061	38.45	-20.58	20.02	0.100	40.61	-20.59
	Closed	836.5	H	141	57	6.43	0.00	13.63	17.91	0.062	38.45	-20.54	20.06	0.101	40.61	-20.55
	QPSK (WCP)	831.5	H	206	90	6.73	0.00	12.12	16.70	0.047	38.45	-21.75	18.85	0.077	40.61	-21.76

Table 7-7. ERP Data (LTE Band 26/5 AntA + AntB)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
15MHz (Band 26 only)	QPSK	831.5	H	202	144	6.73	1 / 37	6.62	11.20	0.013	38.45	-27.25	13.35	0.022	40.61	-27.26
		836.5	H	217	152	6.68	1 / 0	6.85	**11.38**	0.014	38.45	-27.07	**13.53**	0.023	40.61	-27.08
		841.5	H	204	144	6.63	1 / 0	5.18	9.66	0.009	38.45	-28.79	11.81	0.015	40.61	-28.80
	16-QAM	836.5	H	217	152	6.68	1 / 0	6.23	10.76	0.012	38.45	-27.69	12.91	0.020	40.61	-27.70
	64-QAM	836.5	H	217	152	6.68	1 / 0	5.25	9.78	0.010	38.45	-28.67	11.93	0.016	40.61	-28.68
	256-QAM	836.5	H	217	152	6.68	1 / 0	3.15	7.68	0.006	38.45	-30.77	9.83	0.010	40.61	-30.78
10 MHz	QPSK	829.0	H	202	144	6.80	1 / 0	6.71	11.36	0.014	38.45	-27.09	13.51	0.022	40.61	-27.10
		836.5	H	217	152	6.68	1 / 0	7.00	**11.53**	0.014	38.45	-26.92	**13.68**	0.023	40.61	-26.93
		844.0	H	204	144	6.66	1 / 0	5.33	9.84	0.010	38.45	-28.61	11.99	0.016	40.61	-28.62
	16-QAM	836.5	H	217	152	6.68	1 / 0	6.61	11.14	0.013	38.45	-27.31	13.29	0.021	40.61	-27.32
	64-QAM	836.5	H	217	152	6.68	1 / 0	5.25	9.78	0.009	38.45	-28.67	11.93	0.016	40.61	-28.68
	256-QAM	836.5	H	217	152	6.68	1 / 0	3.56	8.09	0.006	38.45	-30.36	10.24	0.011	40.61	-30.36
5 MHz	QPSK	826.5	H	202	144	6.77	1 / 0	6.75	11.38	0.014	38.45	-27.07	13.53	0.023	40.61	-27.08
		836.5	H	217	152	6.68	1 / 24	7.14	**11.67**	0.015	38.45	-26.78	**13.82**	0.024	40.61	-26.79
		846.5	H	204	144	6.68	1 / 0	5.37	9.90	0.010	38.45	-28.55	12.05	0.016	40.61	-28.55
	16-QAM	836.5	H	217	152	6.68	1 / 24	6.69	11.22	0.013	38.45	-27.23	13.37	0.022	40.61	-27.23
	64-QAM	836.5	H	217	152	6.68	1 / 24	5.42	9.95	0.010	38.45	-28.50	12.10	0.016	40.61	-28.51
	256-QAM	836.5	H	217	152	6.68	1 / 24	3.84	8.37	0.007	38.45	-30.08	10.52	0.011	40.61	-30.09
3 MHz	QPSK	825.5	H	202	144	6.76	1 / 14	6.93	11.54	0.014	38.45	-26.91	13.69	0.023	40.61	-26.92
		836.5	H	217	152	6.68	1 / 0	7.11	**11.64**	0.015	38.45	-26.81	**13.79**	0.024	40.61	-26.82
		847.5	H	204	144	6.69	1 / 14	5.26	9.80	0.010	38.45	-28.65	11.95	0.016	40.61	-28.66
	16-QAM	836.5	H	217	152	6.68	1 / 0	6.41	10.94	0.012	38.45	-27.51	13.09	0.020	40.61	-27.52
	64-QAM	836.5	H	217	152	6.68	1 / 0	5.49	10.02	0.010	38.45	-28.43	12.17	0.016	40.61	-28.44
	256-QAM	836.5	H	217	152	6.68	1 / 0	3.64	8.17	0.007	38.45	-30.28	10.32	0.011	40.61	-30.29
1.4 MHz	QPSK	824.7	H	202	144	6.76	1 / 3	6.80	11.41	0.014	38.45	-27.04	13.56	0.023	40.61	-27.05
		836.5	H	217	152	6.68	1 / 3	7.05	**11.58**	0.014	38.45	-26.87	**13.73**	0.024	40.61	-26.87
		848.3	H	204	144	6.70	1 / 0	5.18	9.73	0.009	38.45	-28.72	11.88	0.015	40.61	-28.73
	16-QAM	836.5	H	217	152	6.68	1 / 3	6.55	11.08	0.013	38.45	-27.37	13.23	0.021	40.61	-27.38
	64-QAM	836.5	H	217	152	6.68	1 / 3	5.61	10.14	0.010	38.45	-28.31	12.29	0.017	40.61	-28.32
	256-QAM	836.5	H	217	152	6.68	1 / 3	3.75	8.28	0.007	38.45	-30.18	10.43	0.011	40.61	-30.18

Table 7-8. ERP Data (LTE Band 26/5 – AntA)