



ELEMENT WASHINGTON DC LLC

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PART 22 MEASUREMENT REPORT

Applicant Name:

Sony Corporation
1-7-1 Konan Minato-Ku
Tokyo, 108-0075
Japan

Date of Testing:

02/22/2023 - 03/22/2023

Test Report Issue Date:

3/24/2023

Test Site/Location:

Element Materials Technology, Morgan Hill, CA, USA

Test Report Serial No.:

1M2302230018-01-R1.PY7

FCC ID:

PY7-25682R

Applicant Name:

Sony Corporation

Application Type:

Certification

EUT Type:

Portable Handset

FCC Classification:

PCS Licensed Transmitter Held to Ear (PCE)

FCC Rule Part:

22

Test Procedure(s):

ANSI C63.26-2015, KDB 648474 D03 v01r04,
KDB 971168 D01 v03r01

Note: This revised Test Report (S/N: 1M2302230018-01-R1.PY7) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly

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.

RJ Ortanez
Executive Vice President



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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	ERP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
GSM/GPRS	N/A	GMSK	824.2 - 848.8	0.261	24.16	244KGXW
EDGE	N/A	8-PSK	824.2 - 848.8	0.104	20.17	246KG7W
WCDMA	N/A	Spread Spectrum	826.4 - 846.6	0.044	16.48	4M15F9W
LTE Band 5	10 MHz	QPSK	829.0 - 844.0	0.031	14.95	9M02G7D
		16QAM	829.0 - 844.0	0.033	15.23	9M03W7D
		64QAM	829.0 - 844.0	0.034	15.32	9M02W7D
	5 MHz	QPSK	826.5 - 846.5	0.032	15.05	4M54G7D
		16QAM	826.5 - 846.5	0.034	15.32	4M54W7D
		64QAM	826.5 - 846.5	0.041	16.12	4M54W7D
	3 MHz	QPSK	825.5 - 847.5	0.034	15.33	2M72G7D
		16QAM	825.5 - 847.5	0.034	15.30	2M72W7D
		64QAM	825.5 - 847.5	0.033	15.14	2M72W7D
	1.4 MHz	QPSK	824.7 - 848.3	0.033	15.22	1M10G7D
		16QAM	824.7 - 848.3	0.034	15.29	1M12W7D
		64QAM	824.7 - 848.3	0.032	15.07	1M11W7D

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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 Element Test Location

These measurement tests were conducted at the Element Materials Technology Morgan Hill facility located at 18855 Adams Court, Morgan Hill, CA 95037. 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 Element Materials Technology located in Morgan Hill, CA 95037, U.S.A.

- Element Washington DC LLC 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.
- Element Washington DC LLC 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).
- Element Washington DC LLC facility is a registered (2451B) test laboratory with the site description on file with ISED.
- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreement.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Sony Corporation Portable Handset FCC ID: PY7-25682R**. 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.: 86701, 89549, 87105

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE), NFC, Wireless Power Transfer

2.3 Test Configuration

The EUT was tested per the guidance of ANSI C63.26-2015. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

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: Belkin F7U050 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 Software and Firmware

Testing was performed on device(s) using software/firmware version 0.498 installed on the EUT.

2.5 EMI Suppression Device(s)/Modifications

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

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3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the “American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services” (ANSI C63.26-2015) 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 C63.26-2015. For emissions below 1GHz, 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 $P_g [dBm] - \text{cable loss} [dB]$.

For radiated spurious emissions measurements, the field strength conversion method is used per the formulas in Section 5.2.7 of ANSI C63.26-2015. 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

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

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 414788 D01 v01r01.

Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI C63.26-2015.

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4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.23-2012. 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 (\pm dB)
Conducted Bench Top Measurements	1.77
Radiated Disturbance (<30MHz)	4.38
Radiated Disturbance (30MHz - 1GHz)	4.75
Radiated Disturbance (1 - 18GHz)	5.20
Radiated Disturbance (>18GHz)	4.72

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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
Agilent Technologies	N9030A	3Hz-44GHz PXA Signal Analyzer	6/10/2022	Annual	6/10/2023	MY49430244
ATM	180-442A-KF	20dB Nominal Gain Horn Antenna	11/1/2022	Annual	11/1/2023	T058701-01
ESPEC	SU-241	Tabletop Temperature Chamber	11/10/2022	Annual	11/10/2023	92009574
ETS-Lindgren	3117	Double Ridged Guide Antenna (1-18 GHz)	5/11/2022	Annual	5/11/2023	205956
ETS-Lindgren	3117	1-18 GHz DRG Horn (Medium)	4/20/2021	Biennial	4/20/2023	125518
Rohde & Schwarz	HFH-2Z2	9kHz - 30MHz Loop Antenna	4/13/2022	Annual	4/13/2023	100546
Rohde & Schwarz	ESW26	EMI Test Receiver	5/19/2022	Annual	5/19/2023	101299
Rohde & Schwarz	TS-PR1	Pre-Amplifier (30MHz - 1GHz)	4/18/2022	Annual	4/18/2023	102081
Rohde & Schwarz	ESW44	EMI Test Receiver	1/30/2023	Annual	1/30/2024	101570
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	10/13/2022	Annual	10/13/2023	161616
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	2/9/2023	Annual	2/9/2024	161617
Rohde & Schwarz	SMB100A	Signal Generator 100kHz-40GHz	3/10/2023	Annual	3/10/2024	180081
Rohde & Schwarz	TS-PR1840	Pre-Amplifier (18GHz - 40GHz)	4/18/2022	Annual	4/18/2023	100050
Schwarzbeck	VULB9162	BiConiLog Antenna (30MHz - 6GHz)	7/27/2022	Annual	7/27/2023	00358

Table 5-1. Test Equipment

Notes:

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.

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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)

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.

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7.0 TEST RESULTS

7.1 Summary

Company Name: Sony Corporation
 FCC ID: PY7-25682R
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): GSM/GPRS/EDGE/WCDMA/LTE

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
CONDUCTED	Transmitter Conducted Output Power	2.1046(a), 2.1046(c)	N/A	PASS	Section 7.2
	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3
	Conducted Band Edge / Spurious Emissions	2.1051, 22.917(a)	$\geq 43 + 10 \log (P[\text{Watts}])$ dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5
	Peak-to-Average Ratio	N/A	≤ 13 dB	PASS	Section 7.6
	Frequency Stability	2.1055, 22.355	The carrier frequency of the transmitter must be maintained within the 2.5ppm	PASS	Section 7.9
RADIATED	Effective Radiated Power / Equivalent Isotropic Radiated Power	22.913(a)(5)	< 7 Watts max. ERP	PASS	Section 7.7
	Radiated Spurious Emissions	2.1053, 22.917(a)	$> 43 + 10 \log_{10} (P[\text{Watts}])$ for all out-of-band emissions	PASS	Section 7.8

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 EMC Software Tool v1.1.
- 5) All conducted power measurements are contained in the RF exposure report for this filing.

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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

ANSI C63.26-2015 – Section 5.4.4

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 \geq 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.

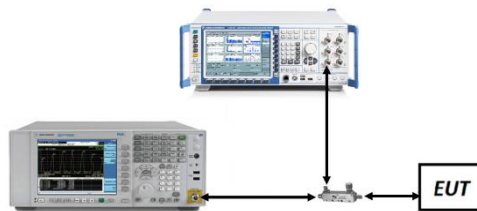


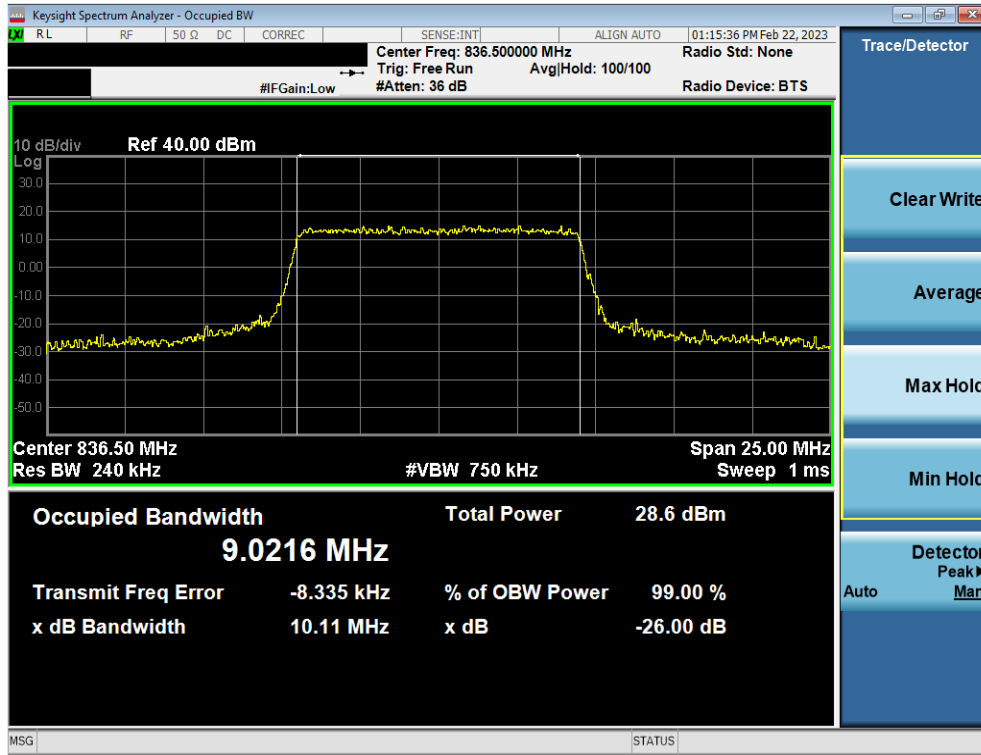
Figure 7-1. Test Instrument & Measurement Setup

Test Notes

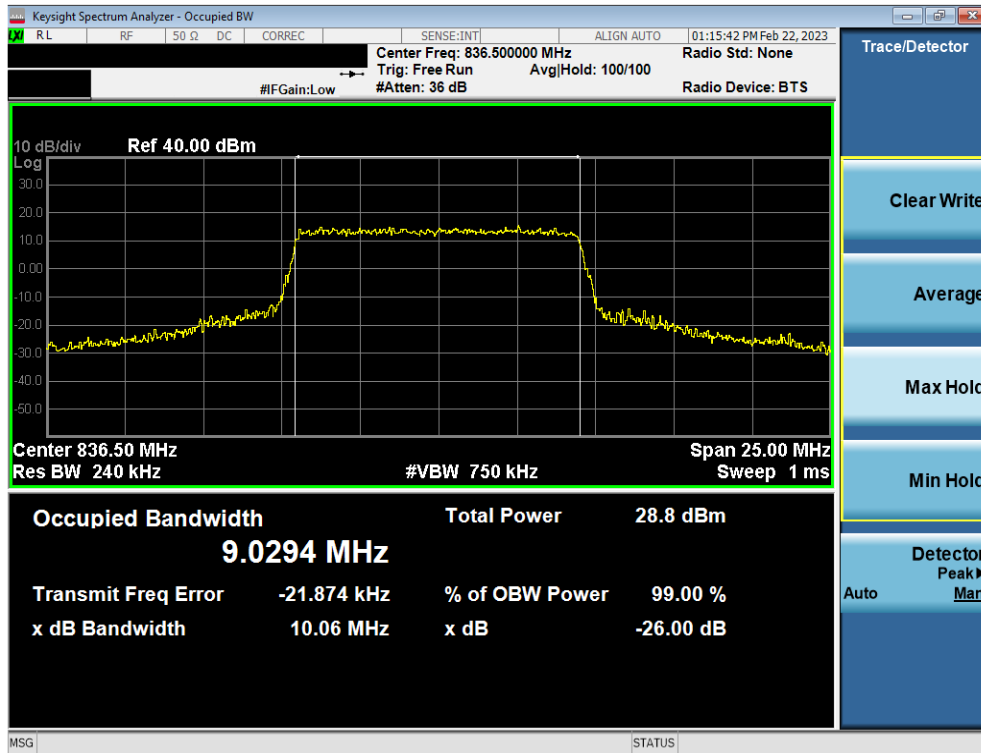
None.

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LTE Band 5

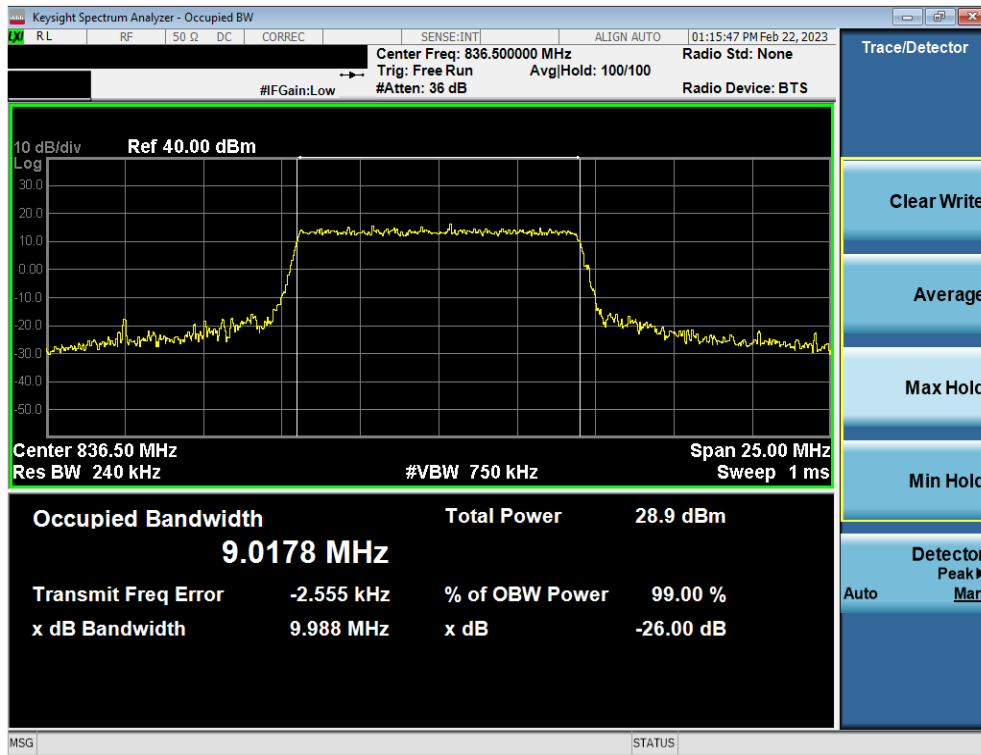


Plot 7-1. Occupied Bandwidth Plot (LTE Band 5 - 10MHz QPSK - Full RB)

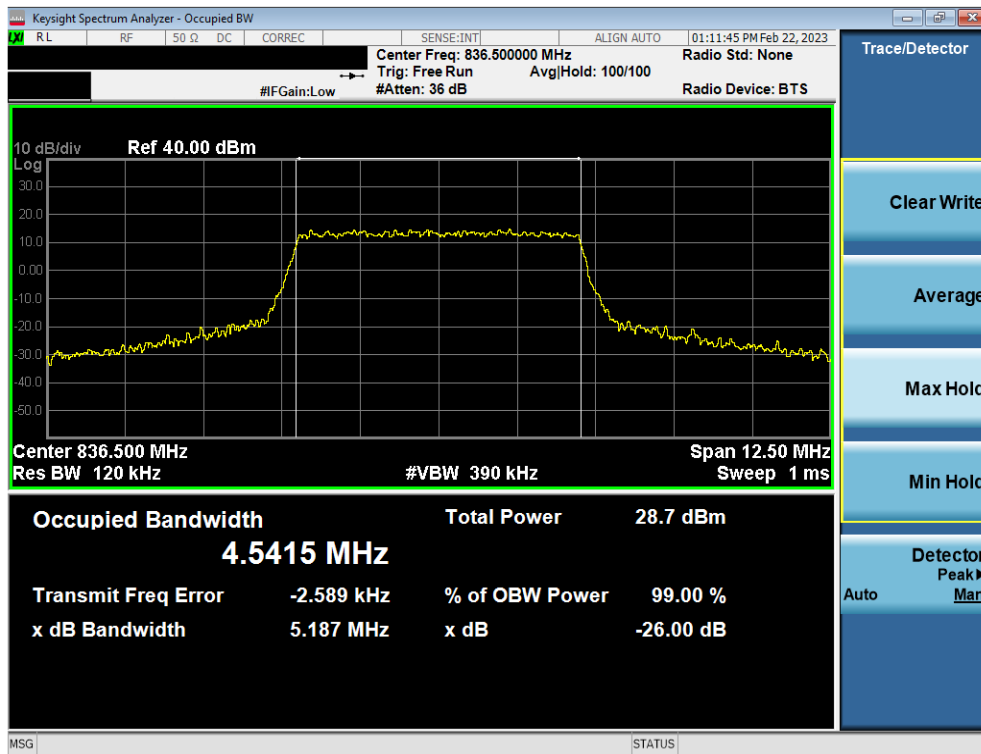


Plot 7-2. Occupied Bandwidth Plot (LTE Band 5 - 10MHz 16-QAM - Full RB)

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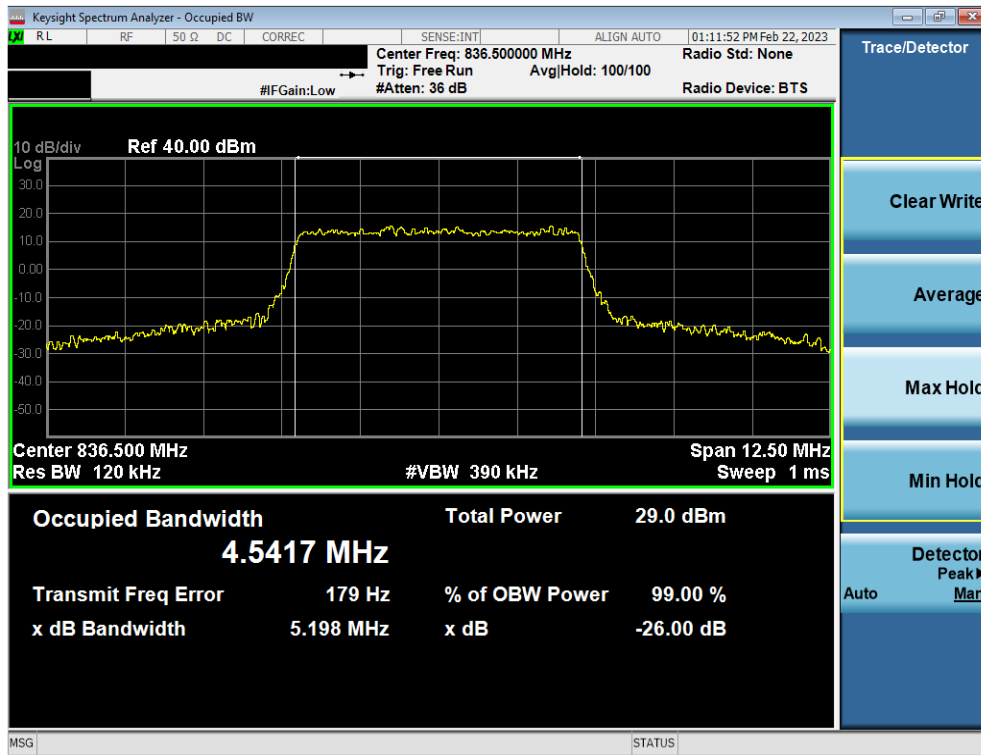


Plot 7-3. Occupied Bandwidth Plot (LTE Band 5 - 10MHz 64-QAM - Full RB)

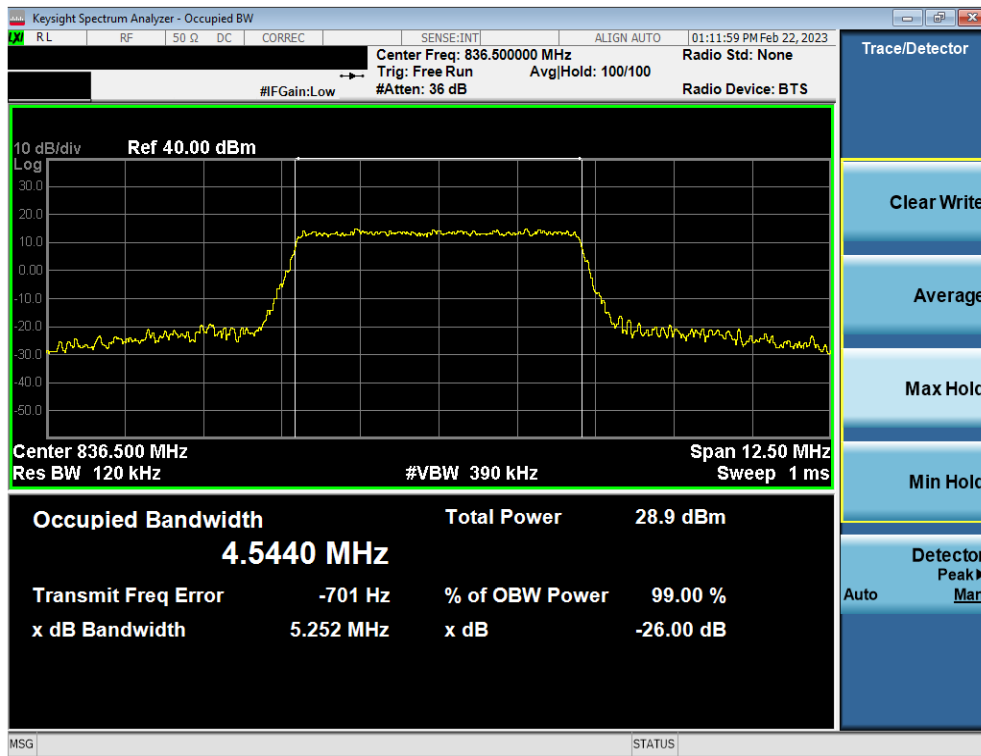


Plot 7-4. Occupied Bandwidth Plot (LTE Band 5 - 5MHz QPSK - Full RB)

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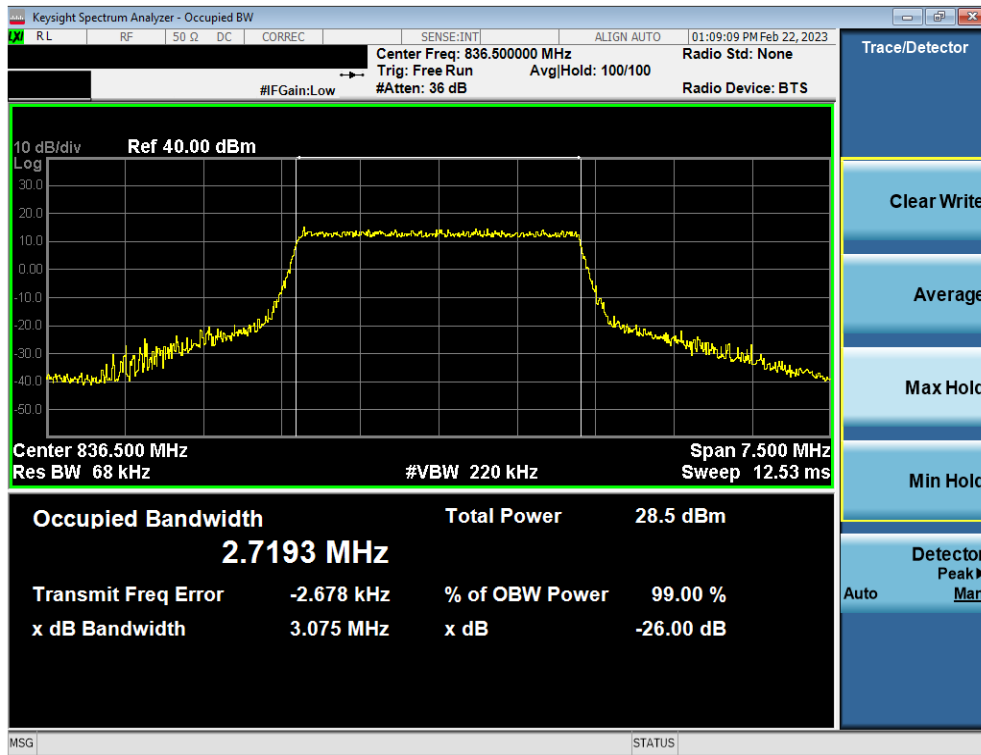


Plot 7-5. Occupied Bandwidth Plot (LTE Band 5 - 5MHz 16-QAM - Full RB)

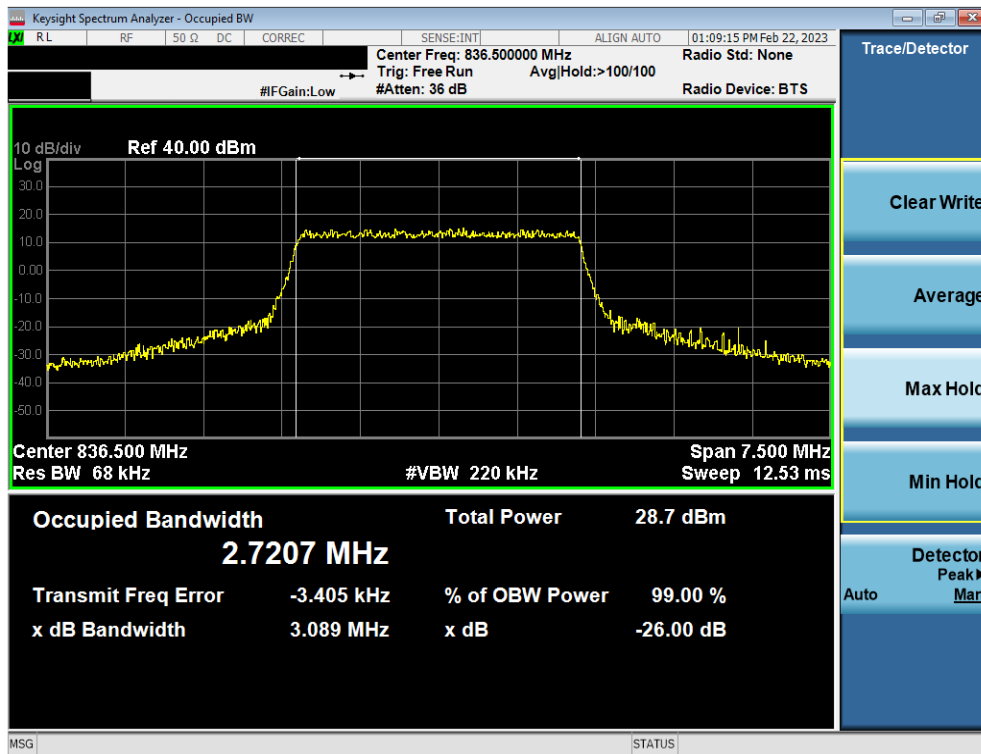


Plot 7-6. Occupied Bandwidth Plot (LTE Band 5 - 5MHz 64-QAM - Full RB)

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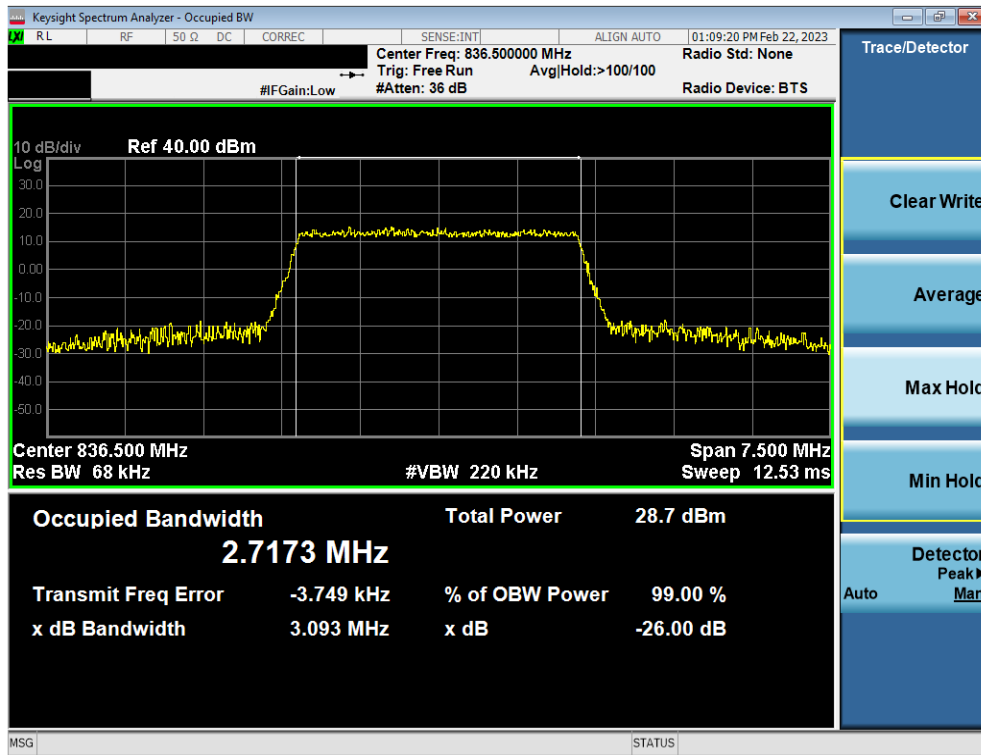


Plot 7-7. Occupied Bandwidth Plot (LTE Band 5 - 3MHz QPSK - Full RB)

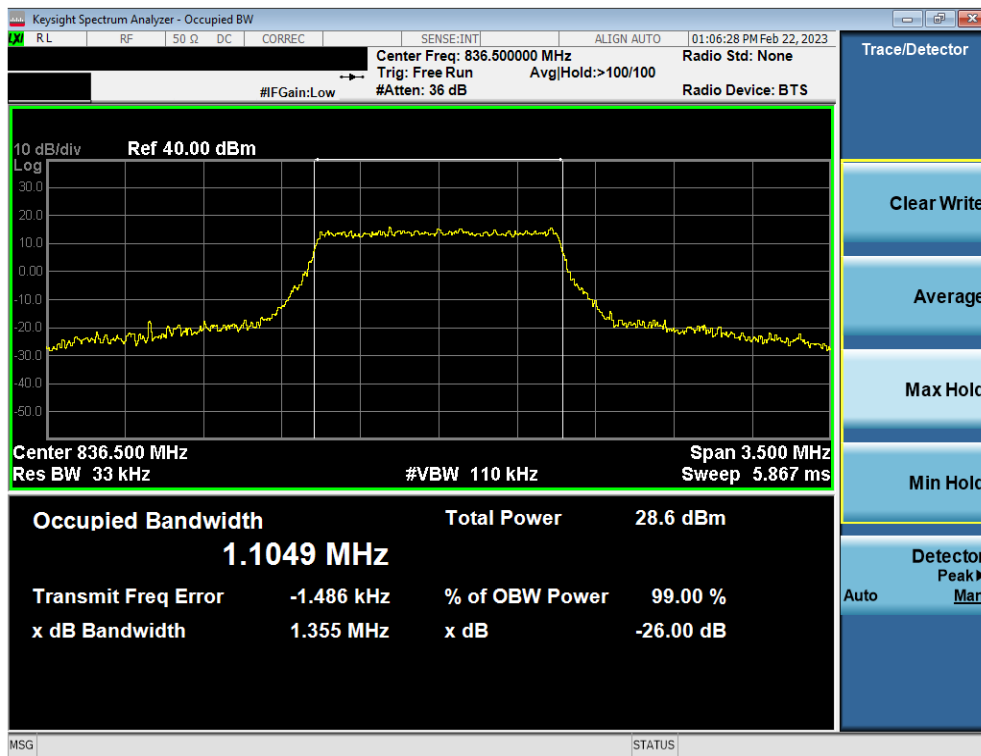


Plot 7-8. Occupied Bandwidth Plot (LTE Band 5 - 3MHz 16-QAM - Full RB)

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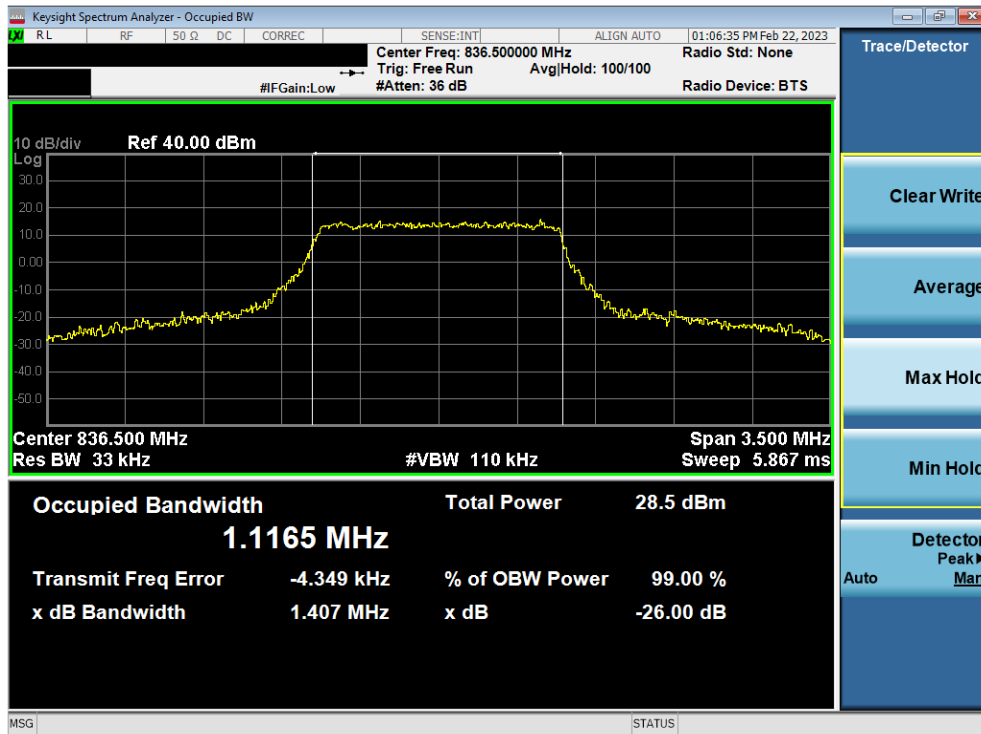


Plot 7-9. Occupied Bandwidth Plot (LTE Band 5 - 3MHz 64-QAM - Full RB)

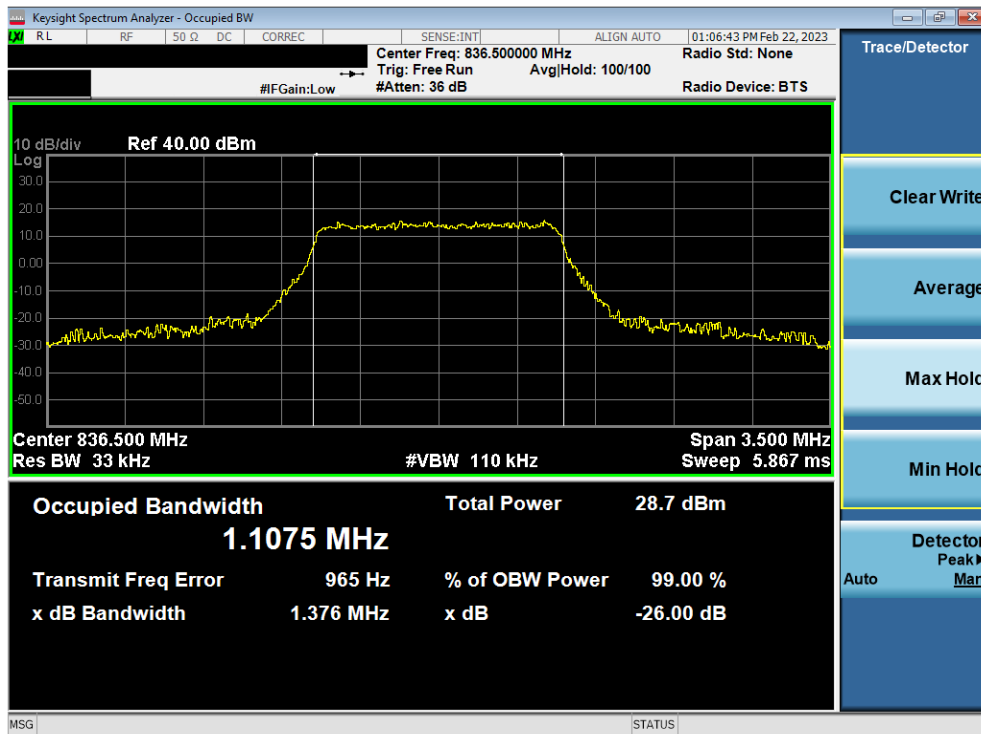


Plot 7-10. Occupied Bandwidth Plot (LTE Band 5 - 1.4MHz QPSK - Full RB)

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Plot 7-11. Occupied Bandwidth Plot (LTE Band 5 - 1.4MHz 16-QAM - Full RB)



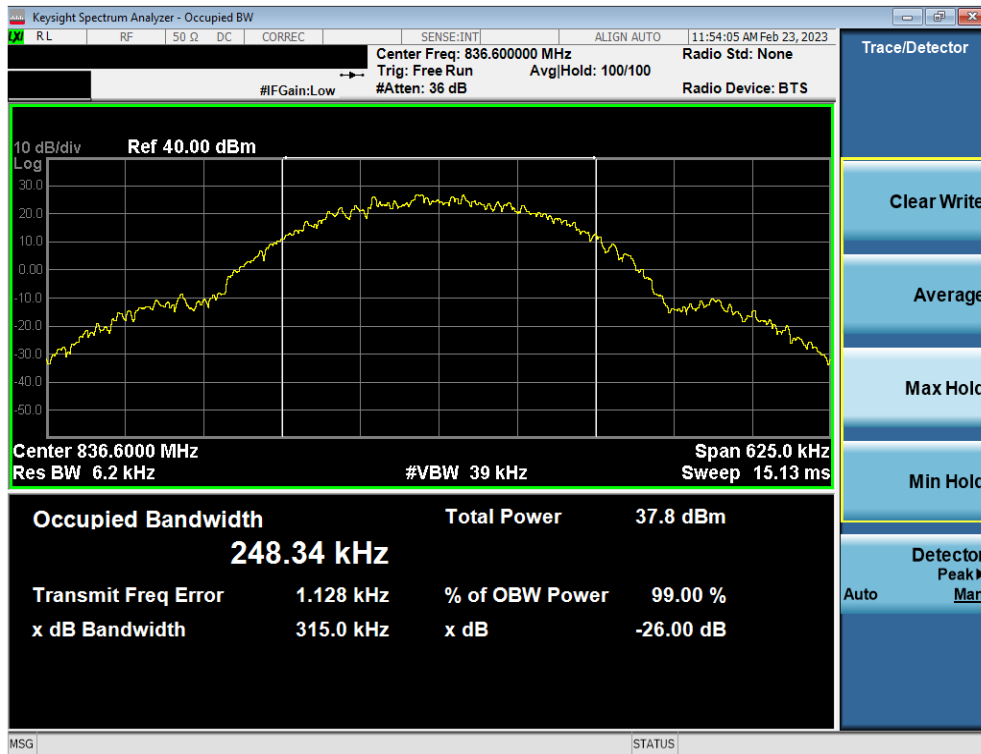
Plot 7-12. Occupied Bandwidth Plot (LTE Band 5 - 1.4MHz 64-QAM - Full RB)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 17 of 60

GPRS Cell



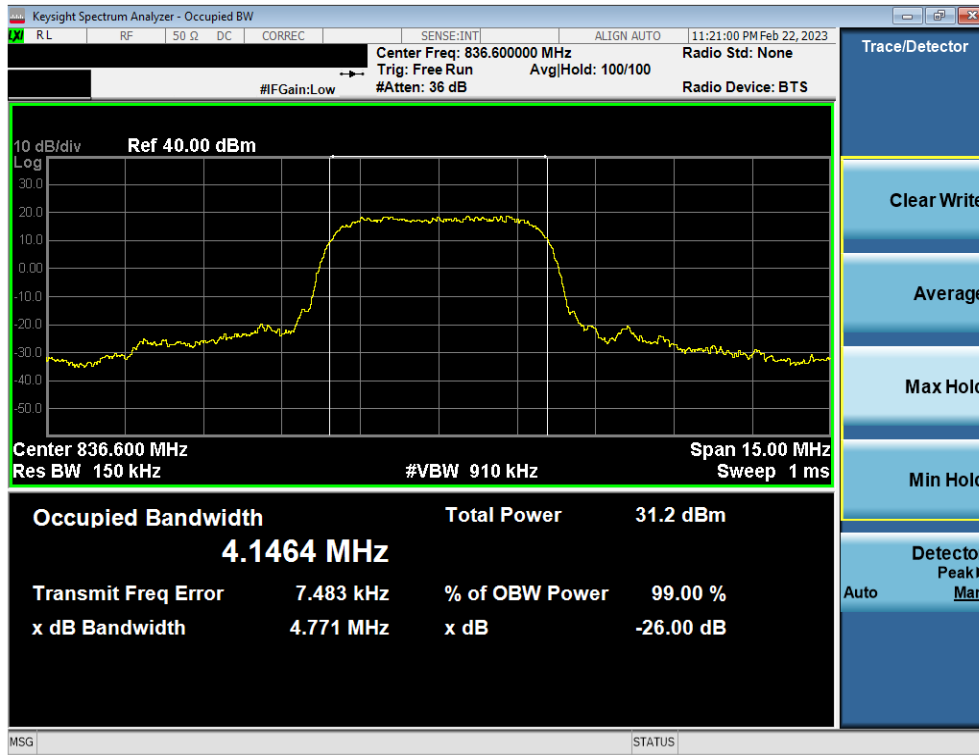
Plot 7-13. Occupied Bandwidth Plot (GPRS, Ch. 190)



Plot 7-14. Occupied Bandwidth Plot (EDGE, Ch. 190)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 18 of 60

WCDMA Cell



Plot 7-15. Occupied Bandwidth Plot (WCDMA, Ch. 4183)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 19 of 60

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

ANSI C63.26-2015 – Section 5.7.4

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.

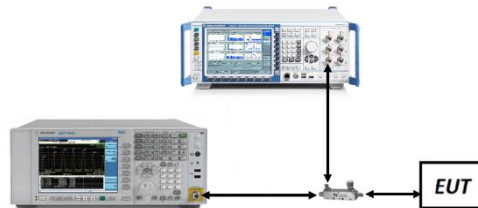


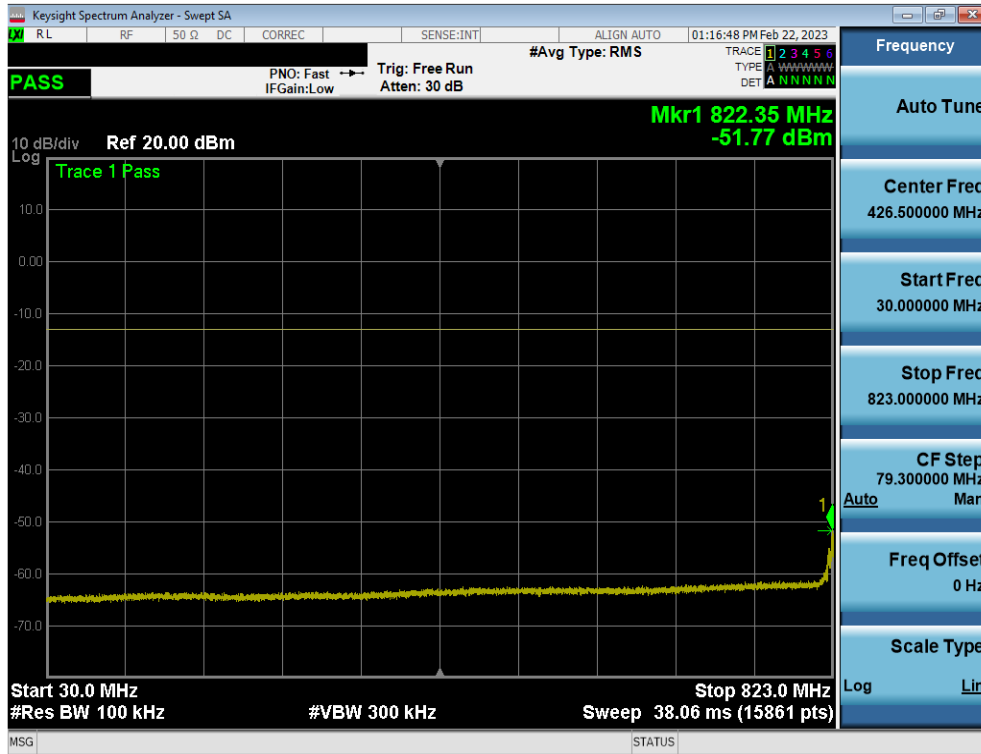
Figure 7-2. Test Instrument & Measurement Setup

Test Notes

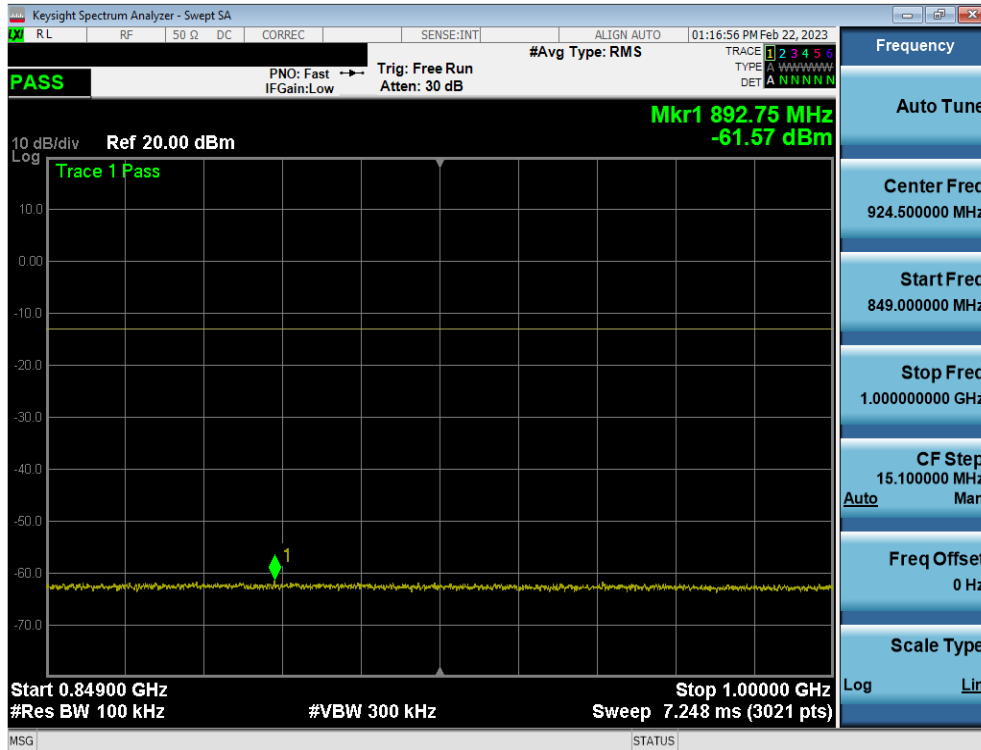
Per Part 22, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100kHz or greater.

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 20 of 60

LTE Band 5

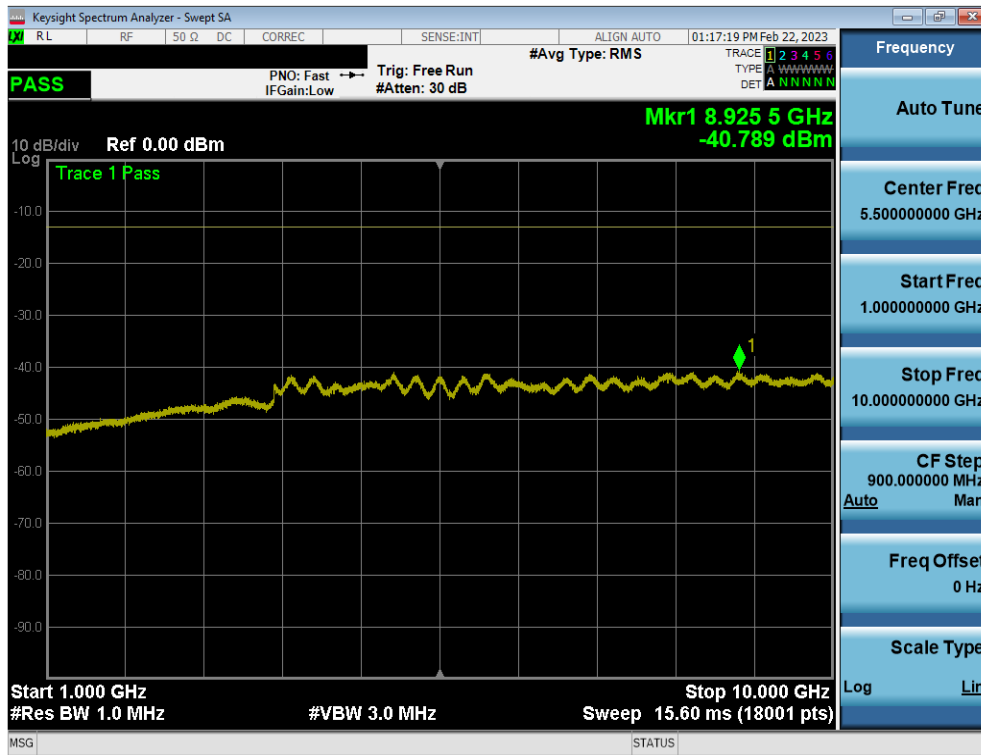


Plot 7-16. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Low Channel)

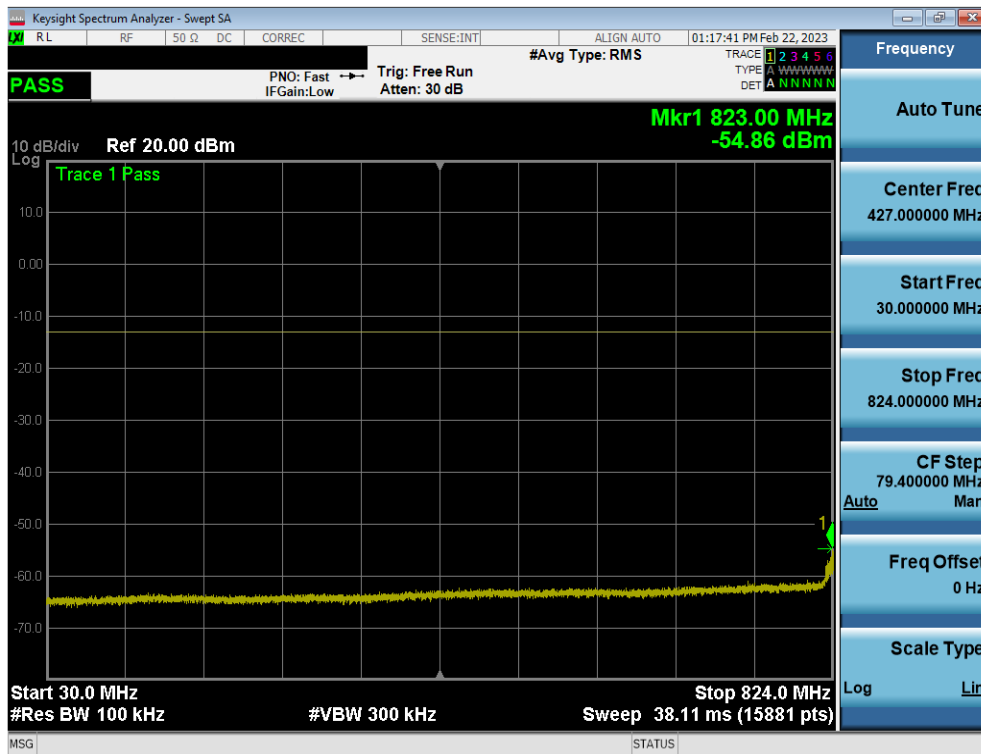


Plot 7-17. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Low Channel)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 21 of 60

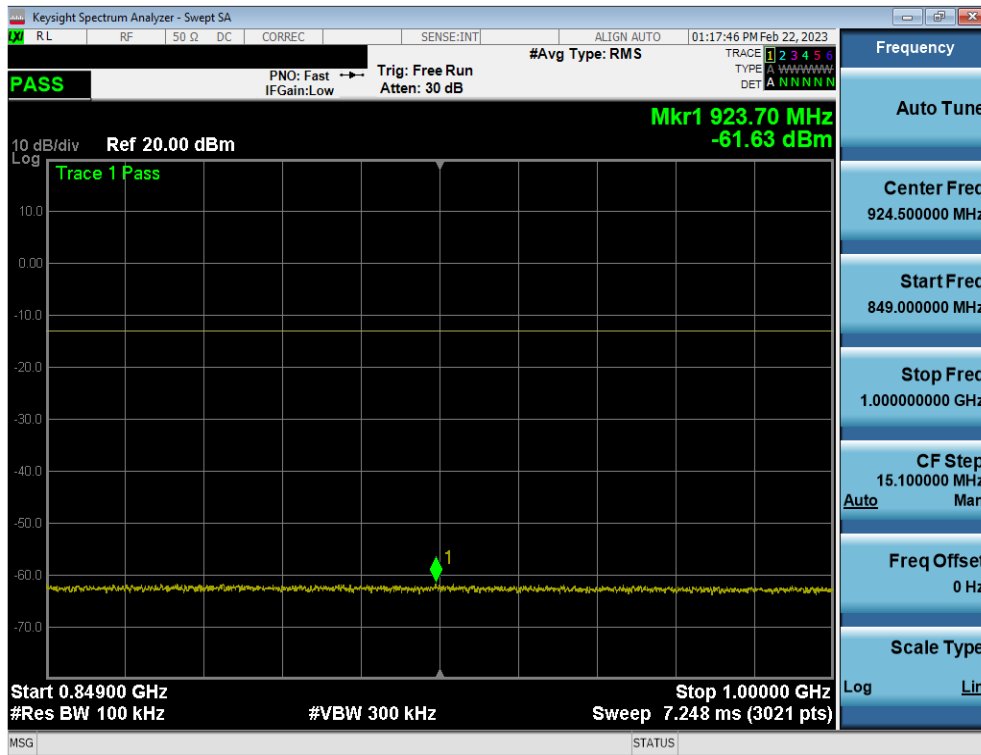


Plot 7-18. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Low Channel)



Plot 7-19. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Mid Channel)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 22 of 60

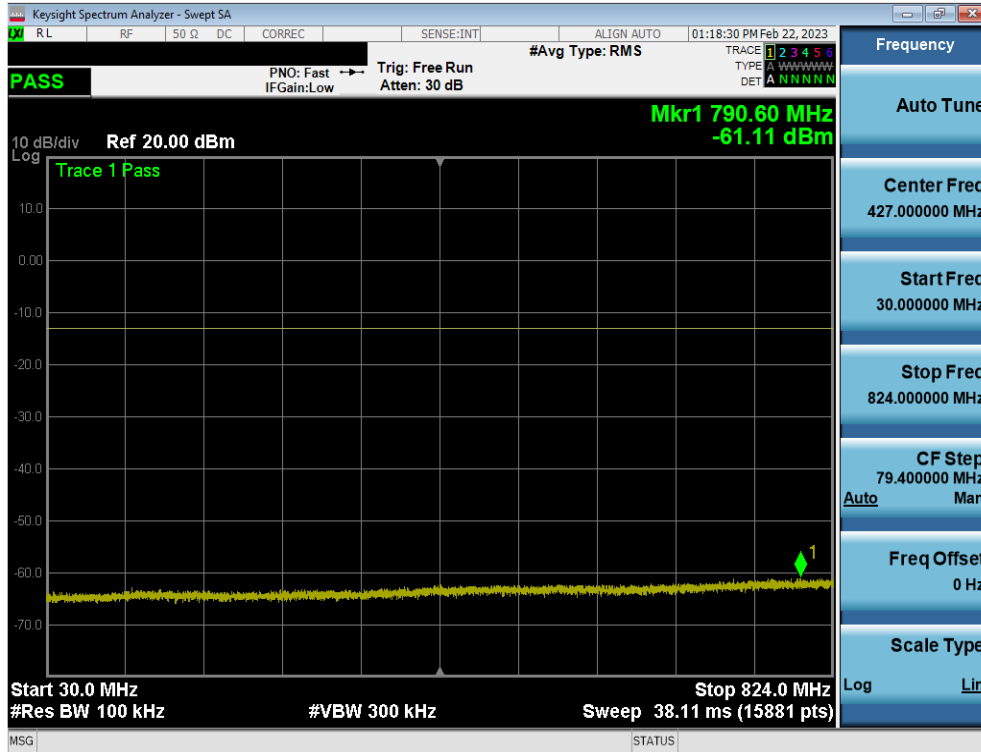


Plot 7-20. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Mid Channel)

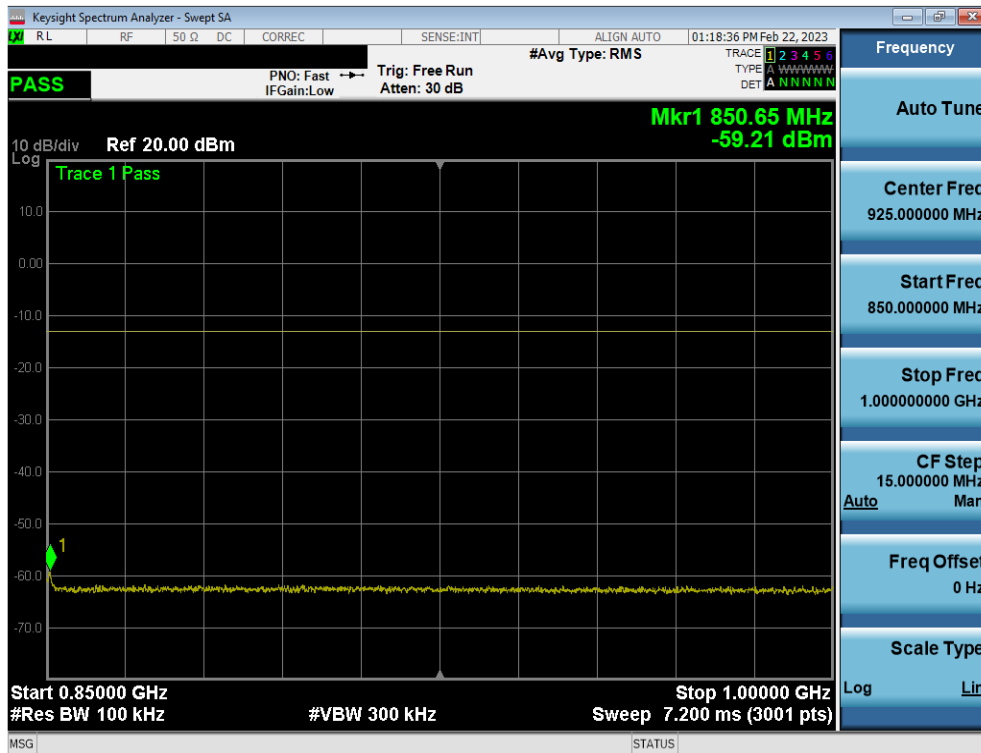


Plot 7-21. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Mid Channel)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 23 of 60

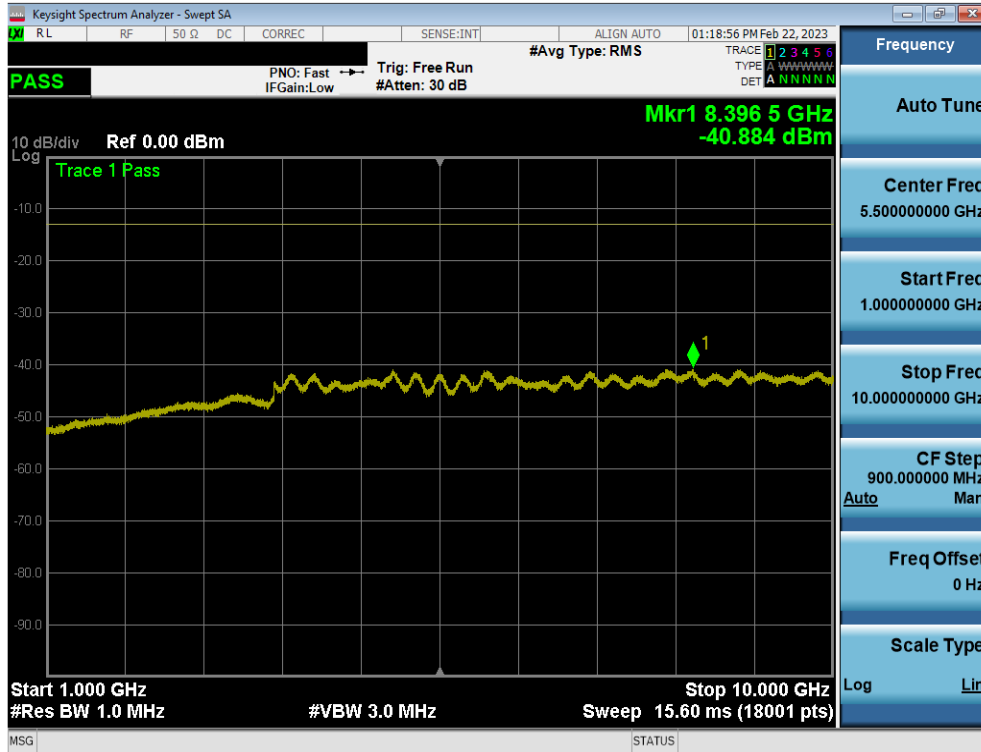


Plot 7-22. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - High Channel)



Plot 7-23. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - High Channel)

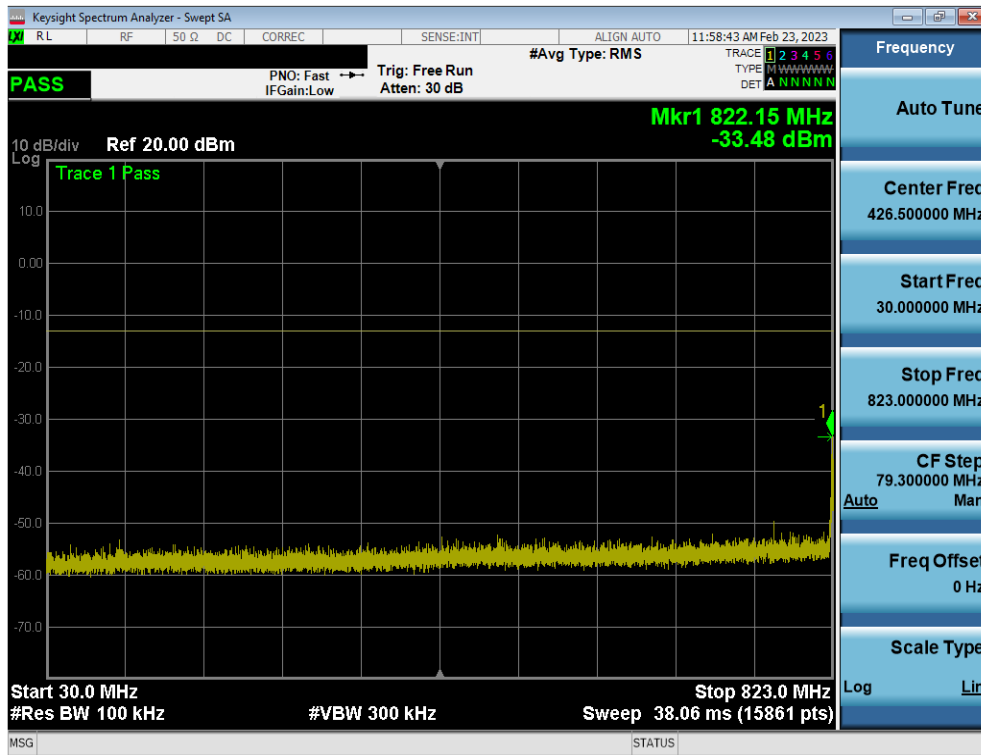
FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 24 of 60



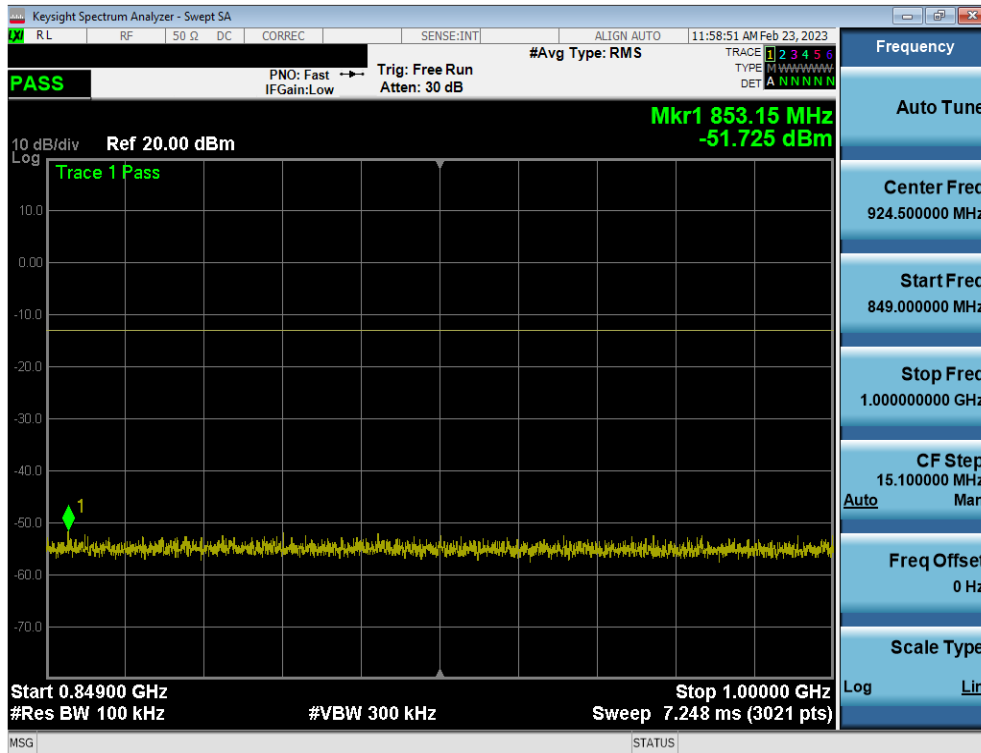
Plot 7-24. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - High Channel)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 25 of 60

GSM/GPRS Cell

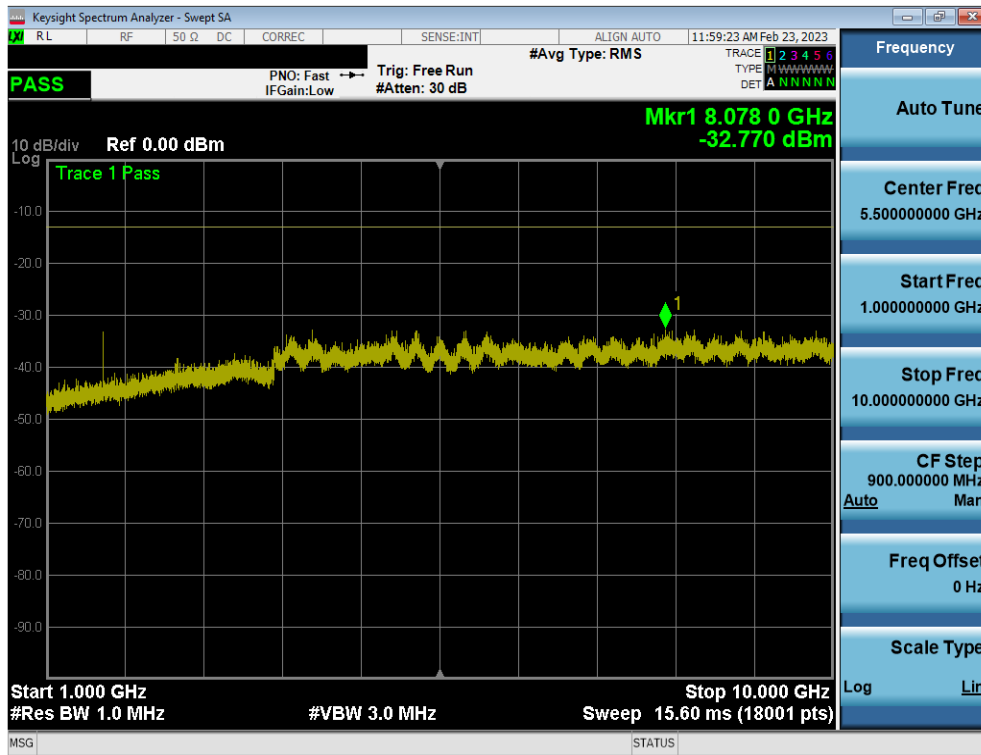


Plot 7-25. Conducted Spurious Plot (GPRS Ch. 128)

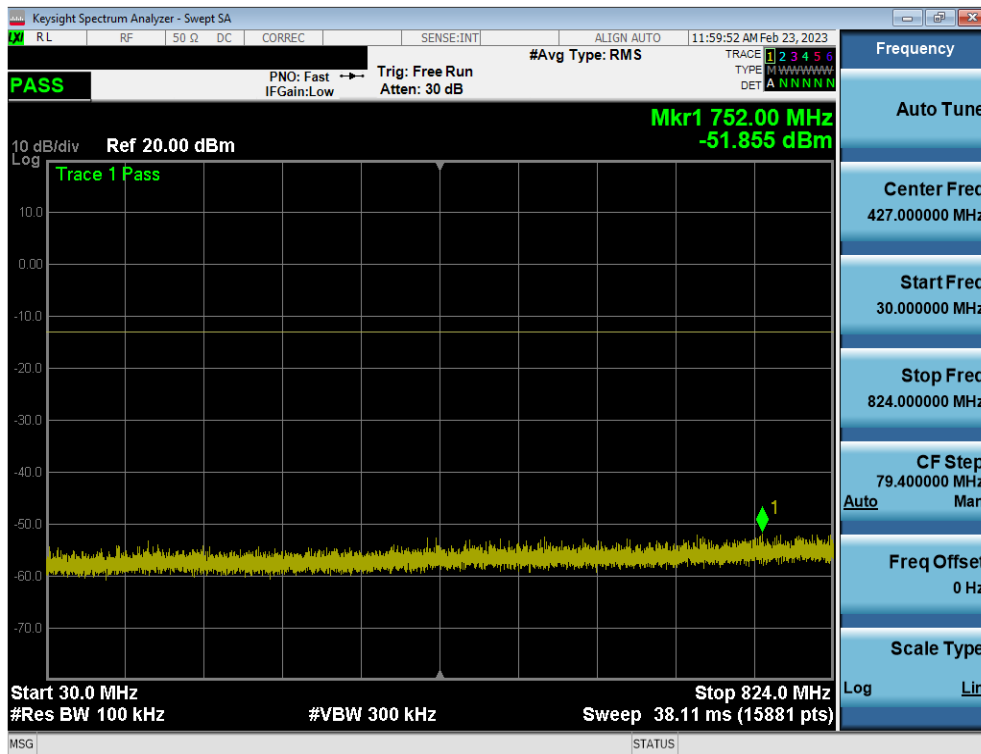


Plot 7-26. Conducted Spurious Plot (GPRS Ch. 128)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 26 of 60

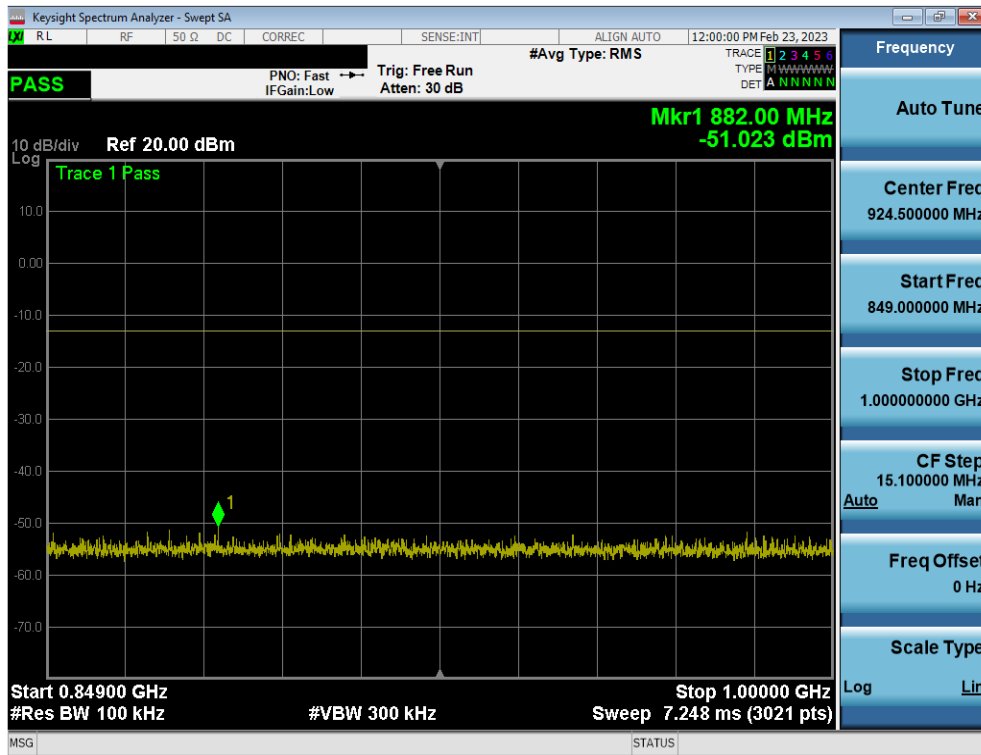


Plot 7-27. Conducted Spurious Plot (GPRS Ch. 128)

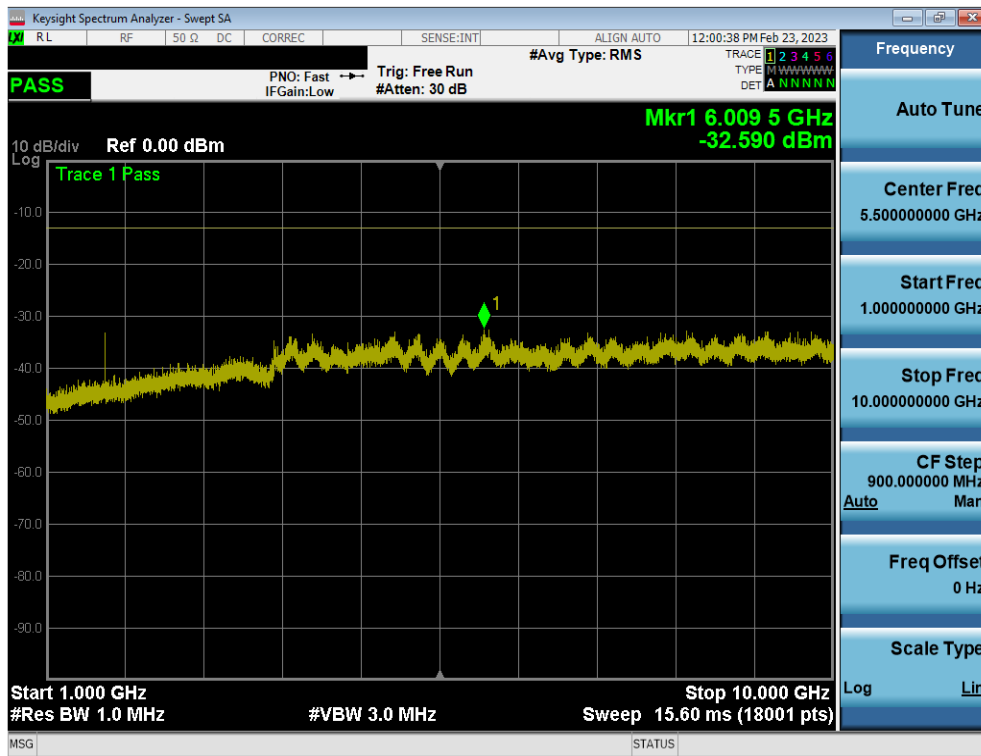


Plot 7-28. Conducted Spurious Plot (GPRS Ch. 190)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 27 of 60

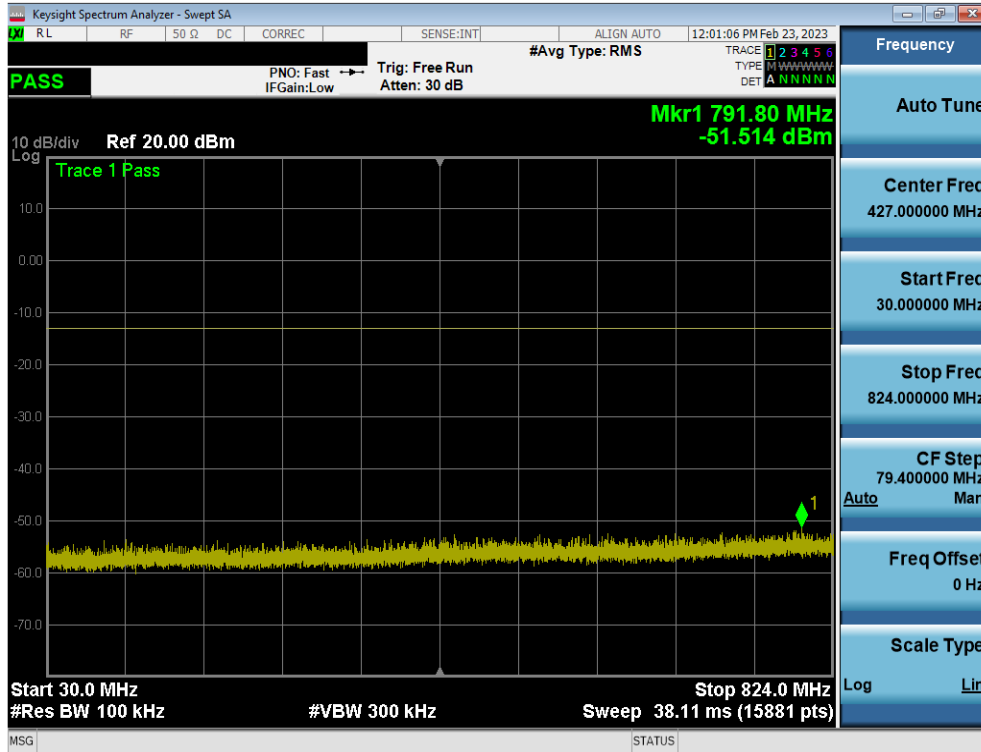


Plot 7-29. Conducted Spurious Plot (GPRS Ch. 190)

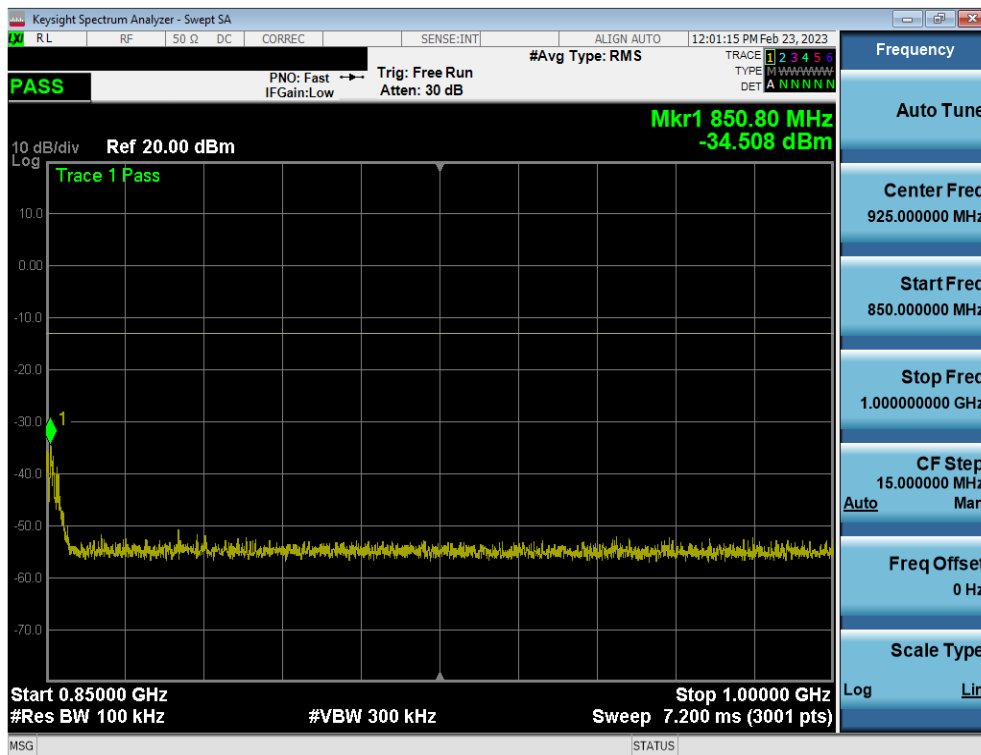


Plot 7-30. Conducted Spurious Plot (GPRS Ch. 190)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 28 of 60



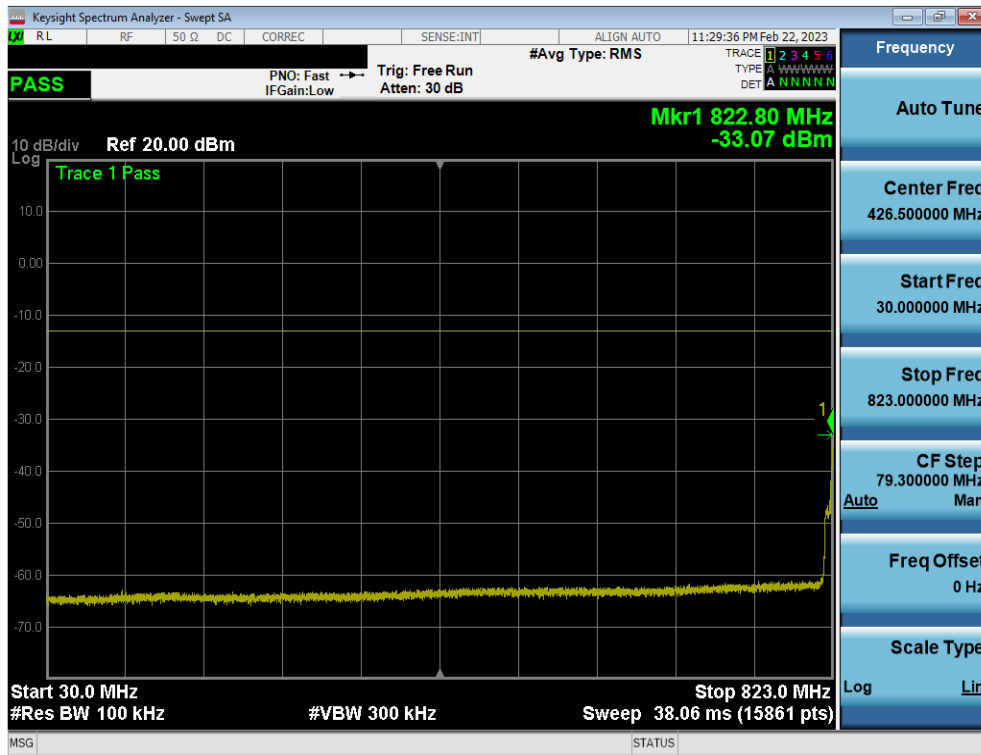
Plot 7-31. Conducted Spurious Plot (GPRS Ch. 251)



Plot 7-32. Conducted Spurious Plot (GPRS Ch. 251)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 29 of 60

WCDMA Cell

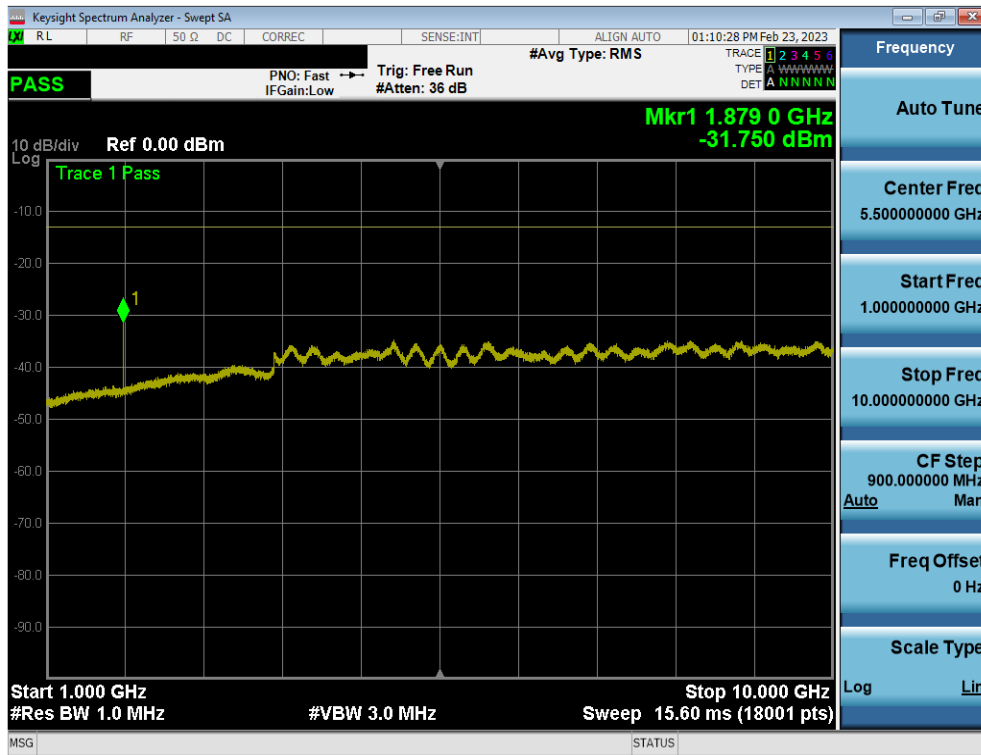


Plot 7-34. Conducted Spurious Plot (WCDMA Ch. 4132)

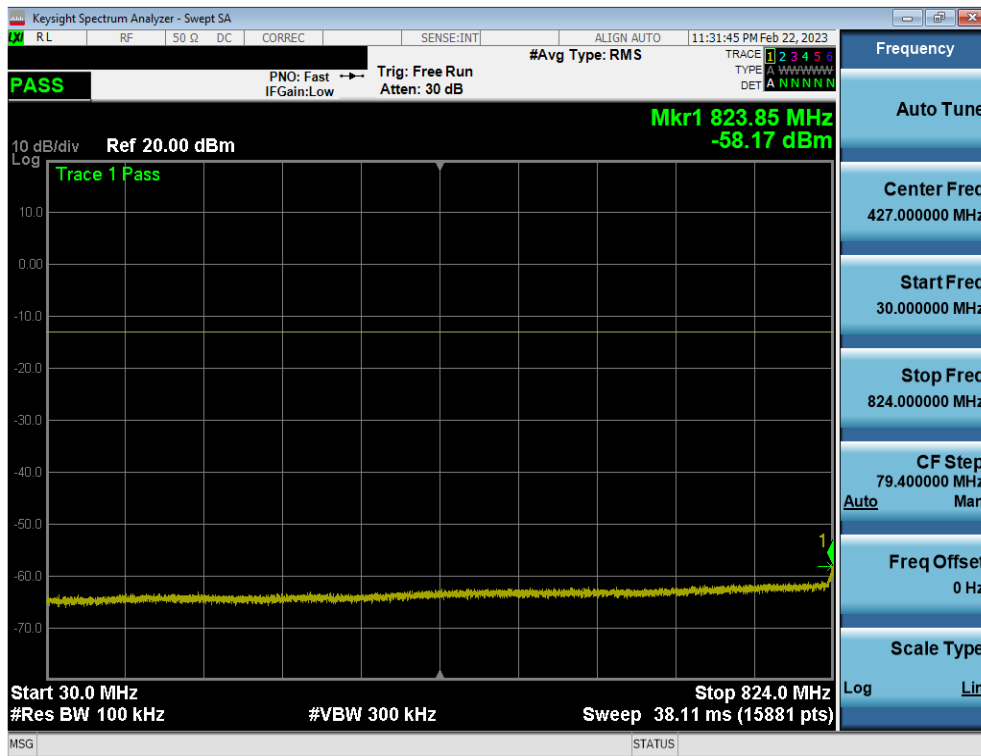


Plot 7-35. Conducted Spurious Plot (WCDMA Ch. 4132)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 31 of 60

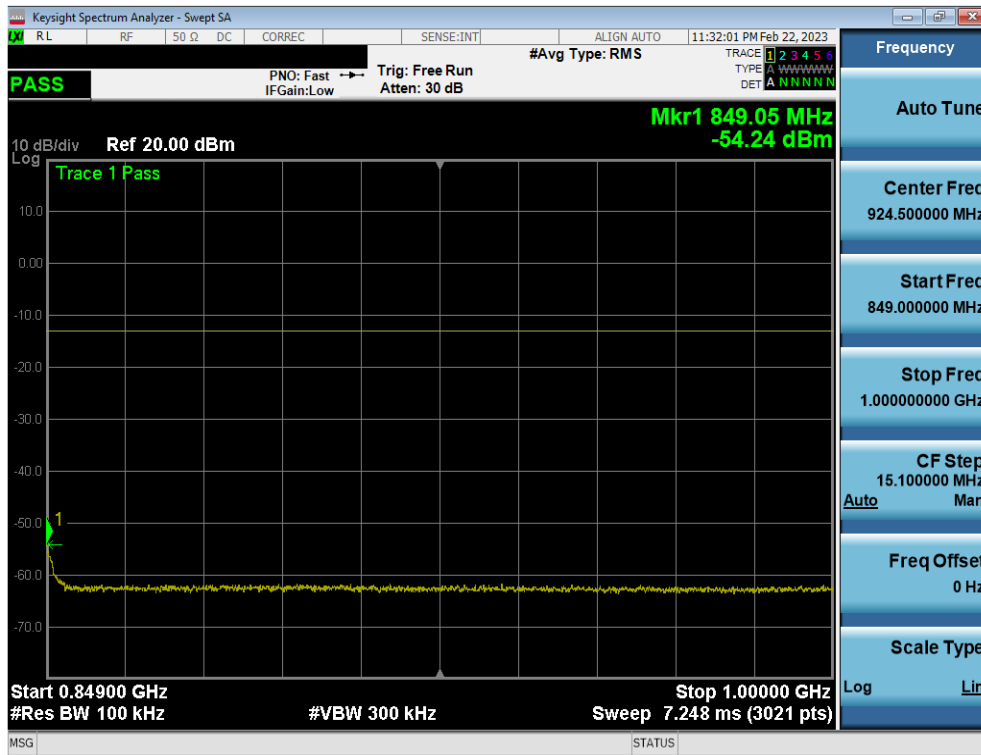


Plot 7-36. Conducted Spurious Plot (WCDMA Ch. 4132)

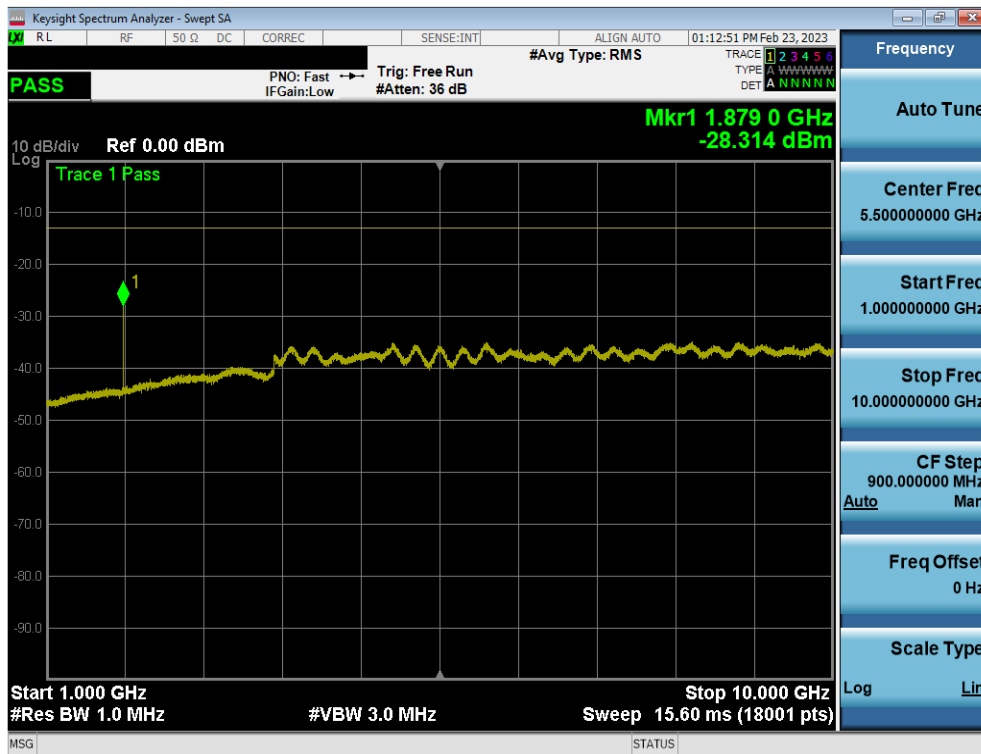


Plot 7-37. Conducted Spurious Plot (WCDMA Ch. 4183)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 32 of 60

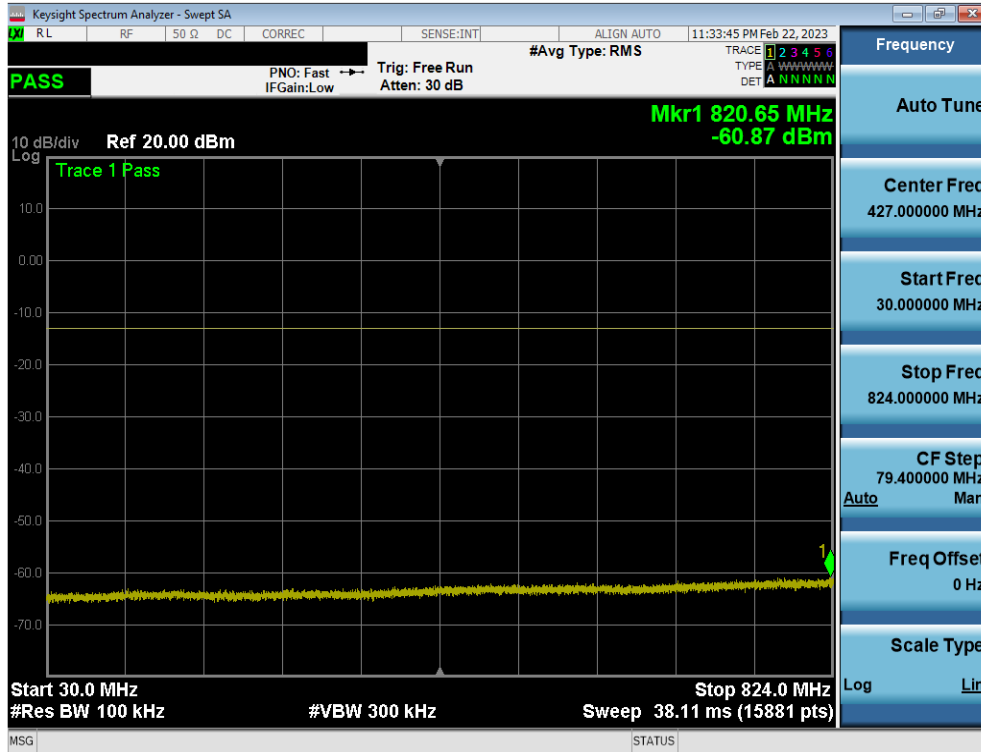


Plot 7-38. Conducted Spurious Plot (WCDMA Ch. 4183)

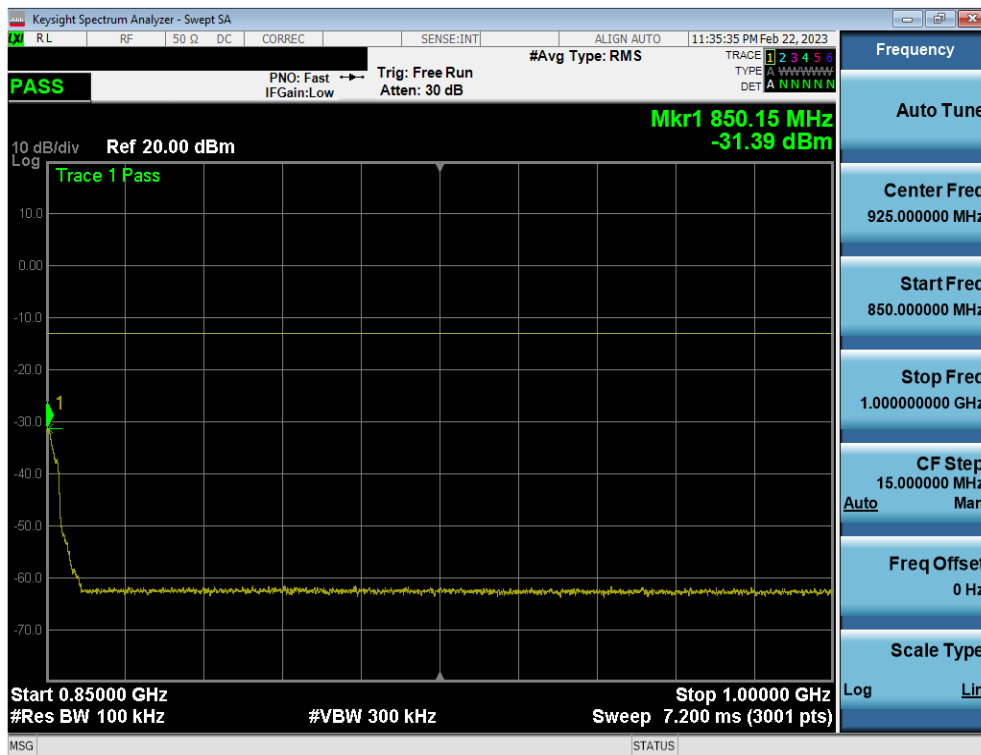


Plot 7-39. Conducted Spurious Plot (WCDMA Ch. 4183)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 33 of 60

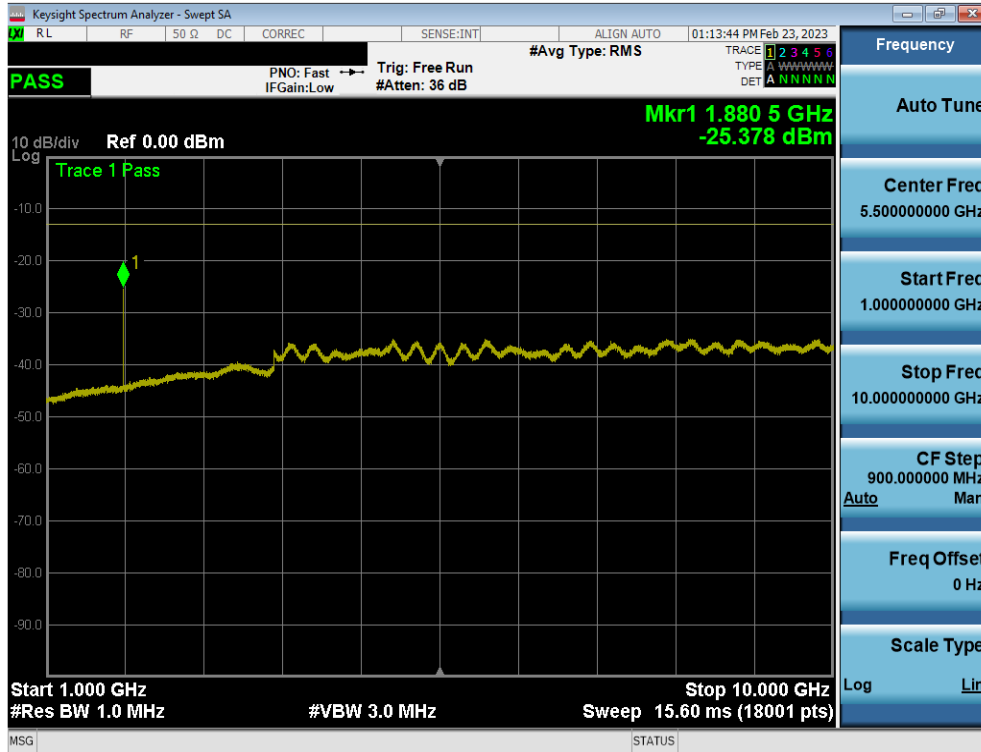


Plot 7-40. Conducted Spurious Plot (WCDMA Ch. 4233)



Plot 7-41. Conducted Spurious Plot (WCDMA Ch. 4233)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-42. Conducted Spurious Plot (WCDMA Ch. 4233)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
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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

ANSI C63.26-2015 – Section 5.7.3

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 \geq 1% of the emission bandwidth
4. VBW \geq 3 x RBW
5. Detector = RMS
6. Number of sweep points \geq 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.

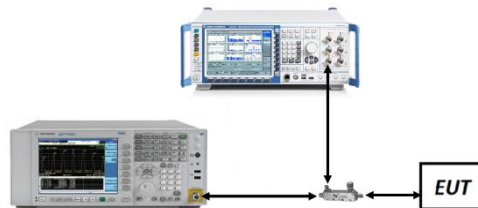


Figure 7-3. Test Instrument & Measurement Setup

Test Notes

Per 22.917(b), 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.

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 5

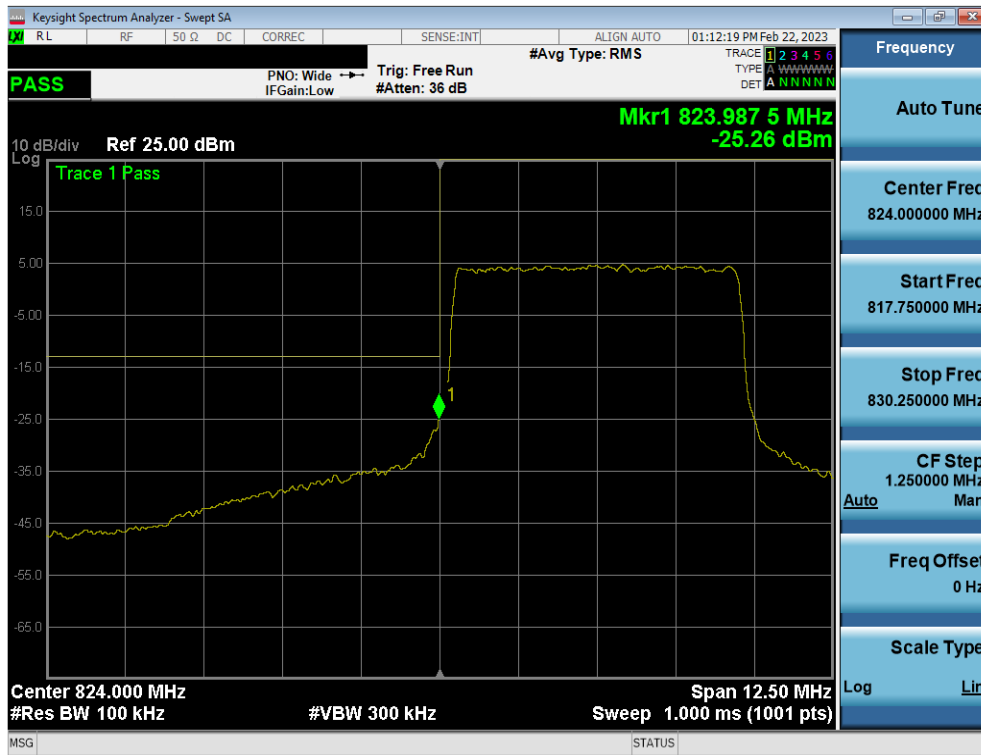


Plot 7-43. Lower Band Edge Plot (LTE Band 5 - 10MHz QPSK – Full RB)



Plot 7-44. Upper Band Edge Plot (LTE Band 5 - 10MHz QPSK – Full RB)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
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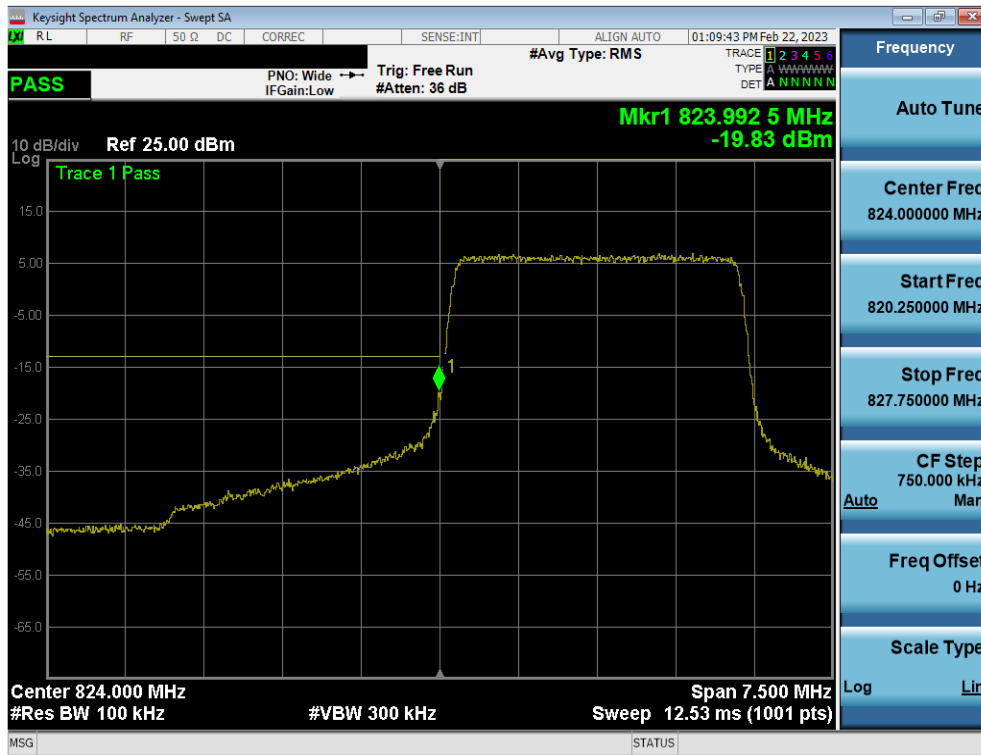


Plot 7-45. Lower Band Edge Plot (LTE Band 5 - 5MHz QPSK – Full RB)



Plot 7-46. Upper Band Edge Plot (LTE Band 5 - 5MHz QPSK – Full RB)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 38 of 60

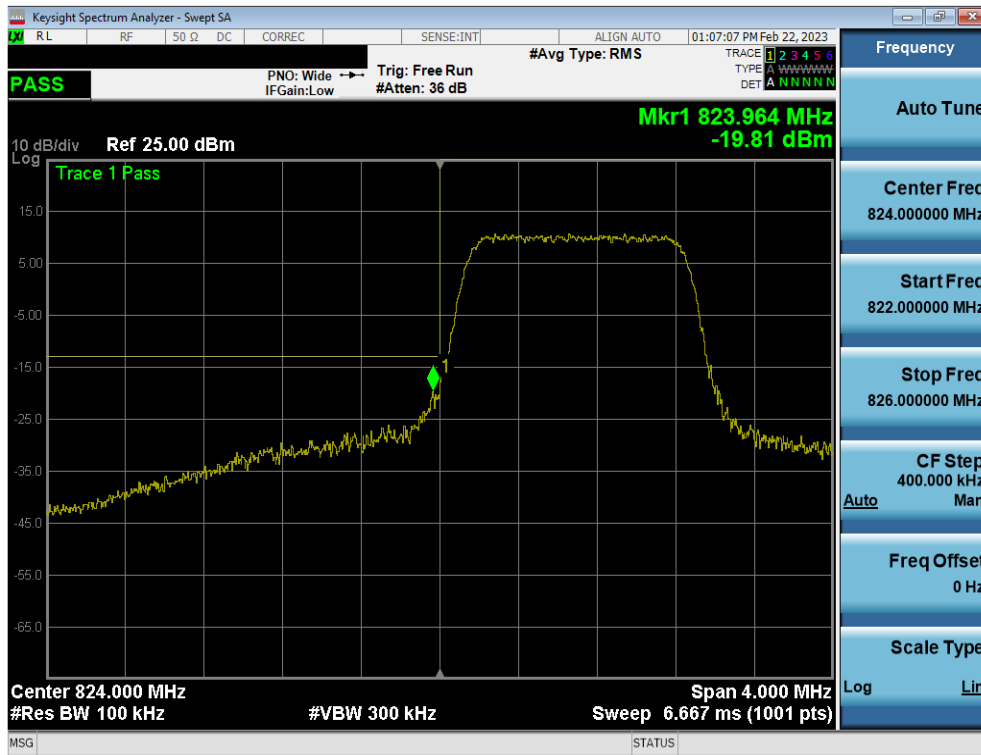


Plot 7-47. Lower Band Edge Plot (LTE Band 5 - 3MHz QPSK – Full RB)



Plot 7-48. Upper Band Edge Plot (LTE Band 5 - 3MHz QPSK – Full RB)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 39 of 60



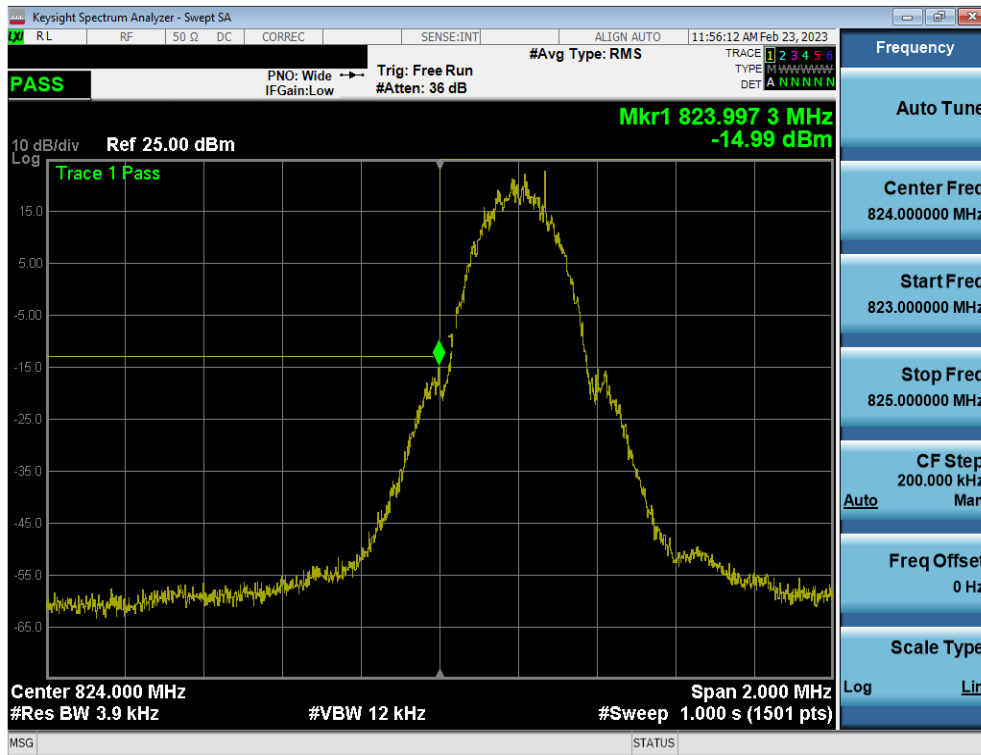
Plot 7-49. Lower Band Edge Plot (LTE Band 5 – 1.4MHz QPSK – Full RB)



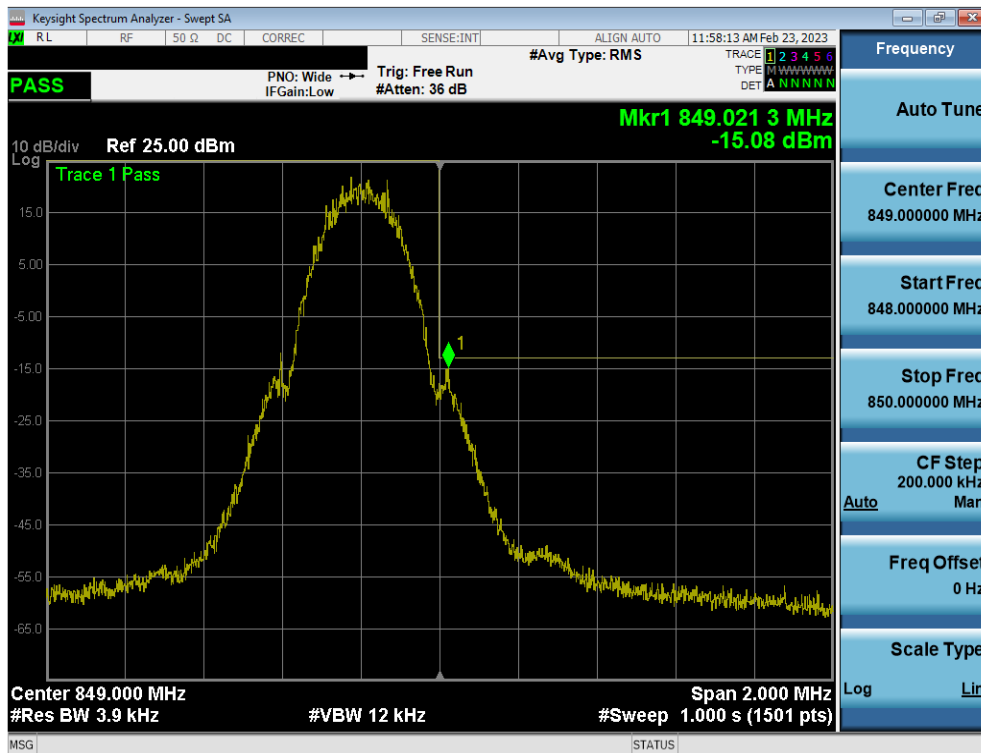
Plot 7-50. Upper Band Edge Plot (LTE Band 5 – 1.4MHz QPSK – Full RB)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
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GSM/GPRS Cell



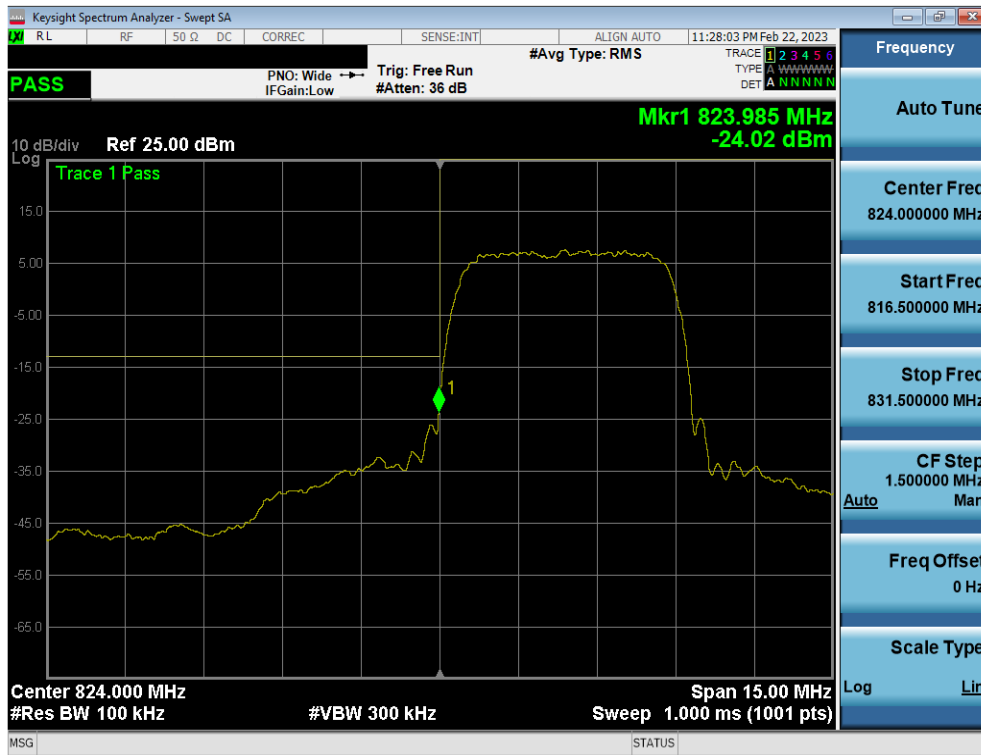
Plot 7-51. Lower Band Edge Plot (GPRS Cell – Ch. 128)



Plot 7-52. Upper Band Edge Plot (GPRS Cell – Ch. 251)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 41 of 60

WCDMA Cell



Plot 7-53. Lower Band Edge Plot (WCDMA Cell – Ch. 4132)



Plot 7-54. Upper Band Edge Plot (WCDMA Cell – Ch. 4233)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
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7.5 Radiated Power (ERP)

Test Overview

Effective Radiated Power (ERP) measurements are performed using the substitution method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements 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

ANSI C63.26-2015 – Section 5.2.4.4

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 \geq 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points \geq 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.

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Test Setup

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

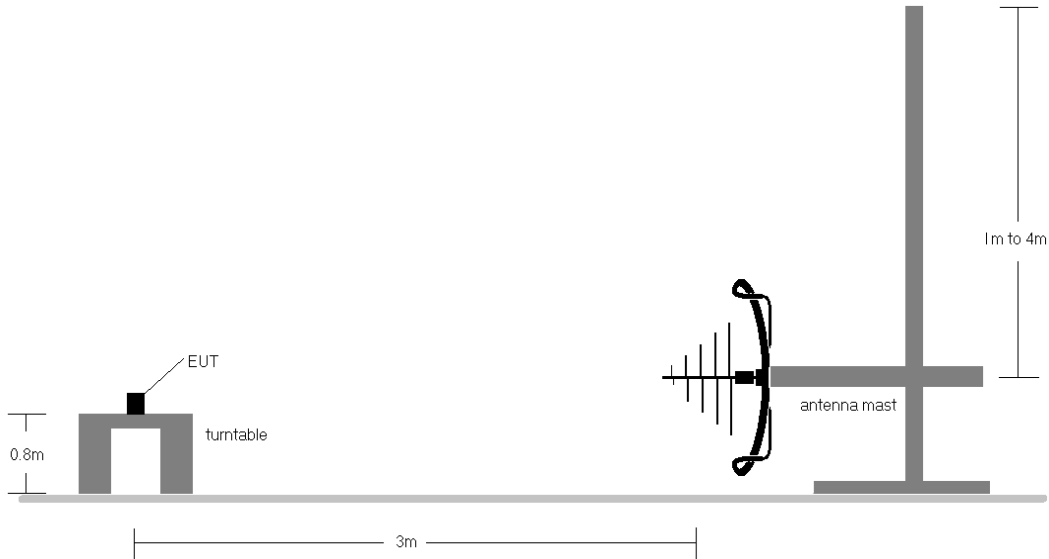


Figure 7-4. Radiated Test Setup < 1GHz

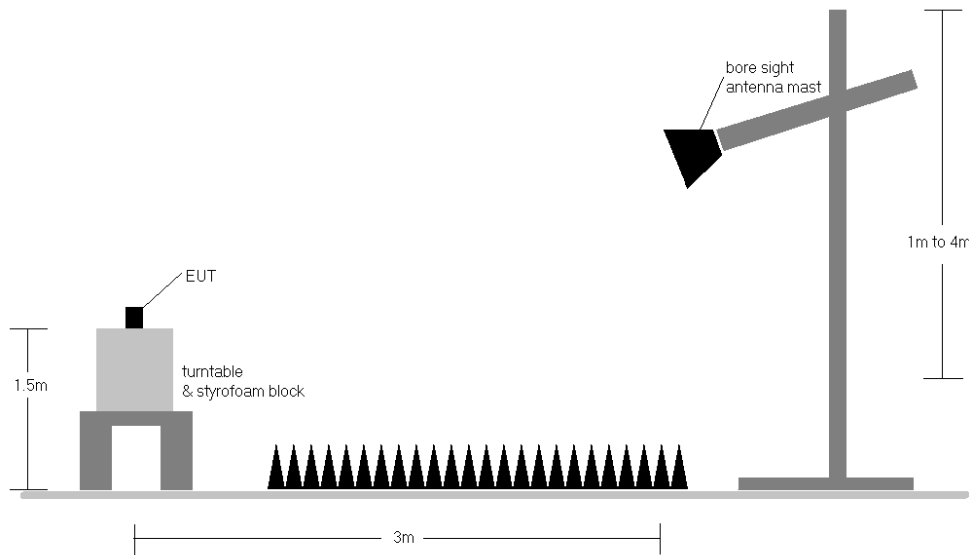


Figure 7-5. Radiated Test Setup > 1GHz

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Test Notes

- 1) This device employs GSM, GPRS, and EDGE capabilities.
- 2) This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest powers are reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1".
- 3) 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.
- 4) This unit was tested with its standard battery.
- 5) 20dB attenuator was applied to the antenna gain.

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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]
10 MHz	QPSK	829.00	H	103	261	-19.79	1 / 0	36.89	14.95	0.031	38.45	-23.50
	QPSK	836.50	H	103	226	-19.79	1 / 0	36.31	14.37	0.027	38.45	-24.08
	QPSK	844.00	H	103	256	-19.79	1 / 0	35.85	13.91	0.025	38.45	-24.54
	16-QAM	829.00	H	103	261	-19.79	1 / 49	37.17	15.23	0.033	38.45	-23.22
5 MHz	64-QAM	829.00	H	103	261	-19.79	1 / 0	37.26	15.32	0.034	38.45	-23.13
	QPSK	829.00	H	103	261	-19.79	1 / 0	36.99	15.05	0.032	38.45	-23.40
	QPSK	836.50	H	103	226	-19.79	1 / 12	36.44	14.50	0.028	38.45	-23.95
	QPSK	844.00	H	103	256	-19.79	1 / 12	36.14	14.20	0.026	38.45	-24.25
	16-QAM	829.00	H	103	261	-19.79	1 / 12	37.26	15.32	0.034	38.45	-23.13
3 MHz	64-QAM	829.00	H	103	261	-19.79	1 / 24	38.06	16.12	0.041	38.45	-22.33
	QPSK	829.00	H	103	261	-19.79	1 / 7	37.27	15.33	0.034	38.45	-23.12
	QPSK	836.50	H	103	226	-19.79	1 / 7	36.58	14.64	0.029	38.45	-23.81
	QPSK	844.00	H	103	256	-19.79	1 / 14	35.96	14.02	0.025	38.45	-24.43
1.4 MHz	16-QAM	829.00	H	103	261	-19.79	1 / 7	37.24	15.30	0.034	38.45	-23.15
	64-QAM	844.00	H	103	256	-19.79	1 / 14	37.08	15.14	0.033	38.45	-23.31
	QPSK	829.00	H	103	261	-19.79	1 / 0	37.16	15.22	0.033	38.45	-23.23
	QPSK	836.50	H	103	226	-19.79	1 / 3	36.40	14.46	0.028	38.45	-23.99
10 MHz	QPSK	844.00	H	103	256	-19.79	1 / 0	35.91	13.97	0.025	38.45	-24.48
	16-QAM	829.00	H	103	261	-19.79	1 / 3	37.23	15.29	0.034	38.45	-23.16
	64-QAM	844.00	H	103	256	-19.79	1 / 5	37.01	15.07	0.032	38.45	-23.39
	QPSK (WCP)	829.00	H	103	336	-19.79	1 / 0	34.98	13.04	0.020	38.45	-25.41

Table 7-2. ERP Data (LTE Band 5)

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	GPRS850	H	107	260	46.10	-19.79	24.16	0.261	38.45	-14.29
836.60	GPRS850	H	103	254	45.90	-19.79	23.96	0.249	38.45	-14.49
848.80	GPRS850	H	103	253	45.32	-19.79	23.38	0.218	38.45	-15.07
824.20	EDGE850	H	107	256	42.11	-19.79	20.17	0.104	38.45	-18.28
824.20	GPRS850 (WCP)	H	103	299	45.18	-19.79	23.24	0.211	38.45	-15.21

Table 7-3. ERP Data (GPRS Cell)

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	103	247	38.42	-19.79	16.48	0.044	38.45	-21.97
836.60	WCDMA850	H	103	255	37.65	-19.79	15.71	0.037	38.45	-22.74
846.60	WCDMA850	H	103	250	36.64	-19.79	14.70	0.030	38.45	-23.75
826.40	WCDMA850 (WCP)	H	103	252	38.76	-19.79	16.82	0.048	38.45	-21.63

Table 7-4. ERP Data (WCDMA Cell)

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7.6 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

ANSI C63.26-2015 – Section 5.5.4

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $\geq 2 \times$ span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize.

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Test Setup

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

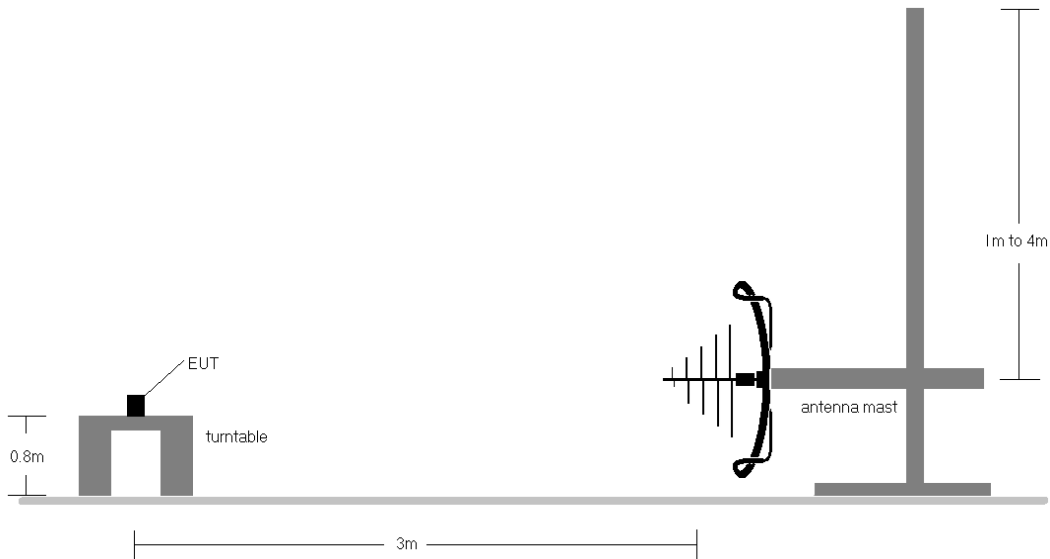


Figure 7-6. Test Instrument & Measurement Setup < 1GHz

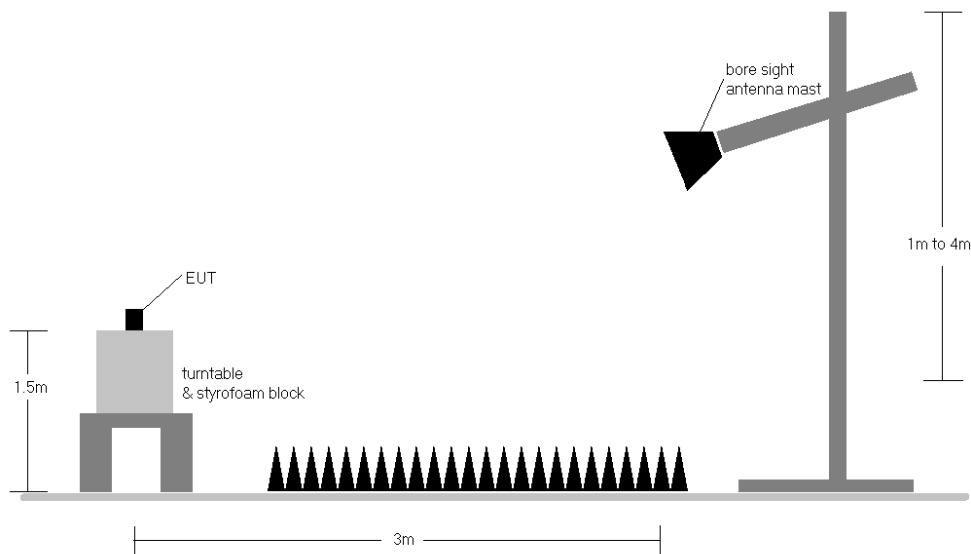


Figure 7-7. Test Instrument & Measurement Setup > 1GHz

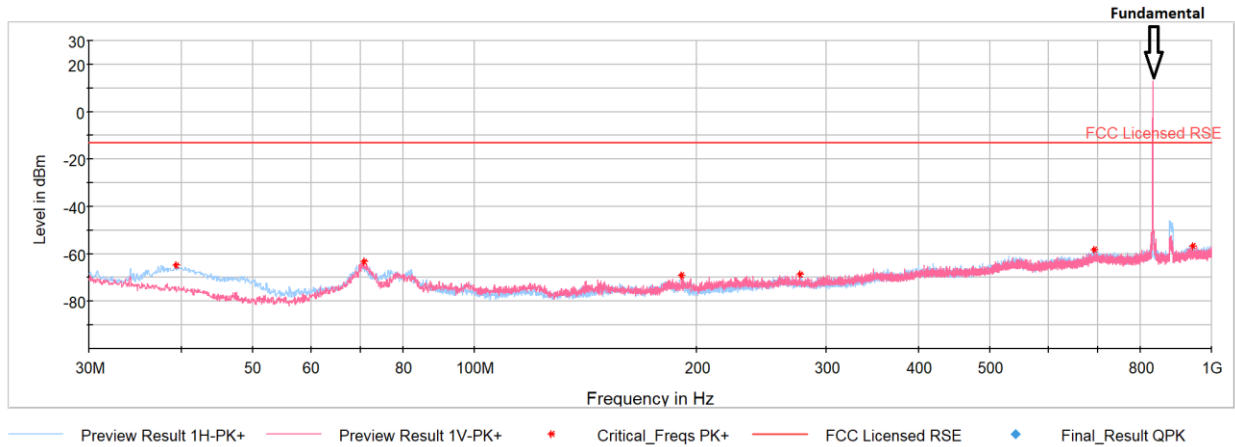
FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
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Test Notes

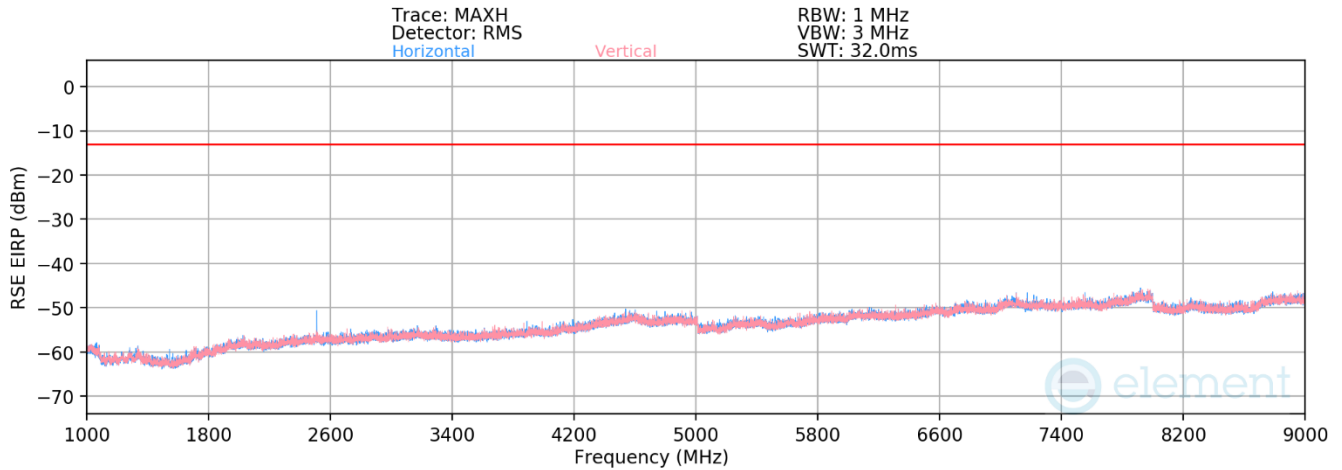
- 1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
 - a) $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - b) $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$; where D is the measurement distance in meters.
- 2) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest powers are reported in GPRS mode while transmitting with one slot active.
- 3) This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest powers are reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1".
- 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 spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 7) Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1-meter test distance with the application of a distance correction factor.
- 8) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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LTE Band 5



Plot 7-55. Radiated Spurious Plot Below 1GHz (LTE Band 5)



Plot 7-56. Radiated Spurious Plot (LTE Band 5)

Bandwidth (MHz):	10
Frequency (MHz):	836.5
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
942.96	H	200	358	-70.83	4.55	40.72	-56.69	-13.00	-43.69

Table 7-5. Radiated Spurious Data Below 1GHz (LTE Band 5 – Mid Channel)

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Bandwidth (MHz):	10
Frequency (MHz):	829
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1658.00	H	-	-	-78.97	-1.50	26.53	-68.72	-13.00	-55.72
2487.00	H	143	25	-72.57	3.25	37.68	-57.58	-13.00	-44.58
3316.00	H	-	-	-80.60	4.81	31.21	-64.05	-13.00	-51.05
4145.00	H	-	-	-81.81	6.75	31.94	-63.31	-13.00	-50.31
4974.00	H	-	-	-82.13	8.15	33.02	-62.24	-13.00	-49.24

Table 7-6. Radiated Spurious Data (LTE Band 5 – Low Channel)

Bandwidth (MHz):	10
Frequency (MHz):	836.5
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1673.00	H	-	-	-79.04	-1.26	26.70	-68.56	-13.00	-55.56
2509.50	H	193	15	-70.90	3.27	39.37	-55.89	-13.00	-42.89
3346.00	H	-	-	-80.88	4.70	30.82	-64.43	-13.00	-51.43
4182.50	H	-	-	-81.99	6.90	31.91	-63.35	-13.00	-50.35
5019.00	H	-	-	-82.40	7.94	32.54	-62.72	-13.00	-49.72

Table 7-7. Radiated Spurious Data (LTE Band 5 – Mid Channel)

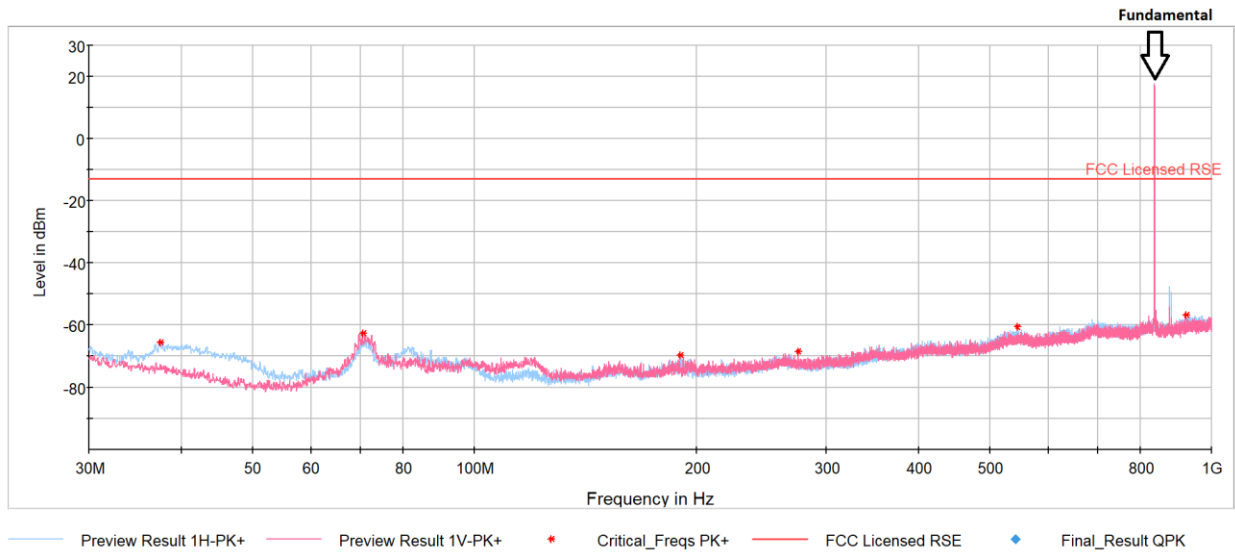
Bandwidth (MHz):	10
Frequency (MHz):	844
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1688.00	H	-	-	-78.58	-0.95	27.47	-67.79	-13.00	-54.79
2532.00	H	123	28	-70.90	3.20	39.30	-55.96	-13.00	-42.96
3376.00	H	-	-	-80.86	4.64	30.78	-64.47	-13.00	-51.47
4220.00	H	-	-	-81.51	6.65	32.14	-63.12	-13.00	-50.12
5064.00	H	-	-	-82.79	8.11	32.32	-62.94	-13.00	-49.94

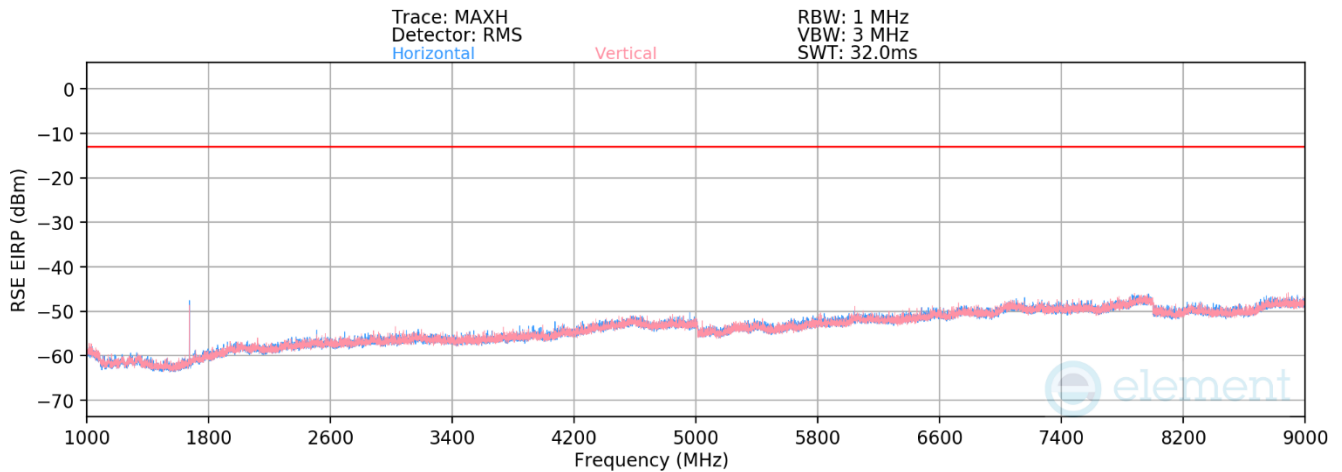
Table 7-8. Radiated Spurious Data (LTE Band 5 – High Channel)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
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GPRS Cell



Plot 7-57. Radiated Spurious Plot Below 1GHz (GPRS Cell)



Plot 7-58. Radiated Spurious Plot (GPRS Cell)

Mode:	GPRS 1 Tx Slot
Channel:	190
Frequency (MHz):	836.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
924.00	H	200	320	-71.58	3.76	39.18	-58.23	-13.00	-45.23

Table 7-9. Radiated Spurious Data Below 1GHz (GPRS Cell – Mid Channel)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
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Mode:	GPRS 1 Tx Slot
Channel:	128
Frequency (MHz):	824.2

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1648.40	H	262	226	-58.39	-1.60	47.01	-48.25	-13.00	-35.25
2472.60	H	136	152	-65.85	3.28	44.43	-50.83	-13.00	-37.83
3296.80	H	-	-	-71.18	4.82	40.64	-54.62	-13.00	-41.62
4121.00	H	-	-	-72.17	6.94	41.77	-53.49	-13.00	-40.49
4945.20	H	-	-	-73.12	8.28	42.16	-53.09	-13.00	-40.09

Table 7-10. Radiated Spurious Data (GPRS Cell – Low Channel)

Mode:	GPRS 1 Tx Slot
Channel:	190
Frequency (MHz):	836.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1673.20	H	384	290	-56.98	-1.26	48.76	-46.49	-13.00	-33.49
2509.80	H	254	125	-66.25	3.27	44.02	-51.24	-13.00	-38.24
3346.40	H	-	-	-71.54	4.70	40.16	-55.10	-13.00	-42.10
4183.00	H	-	-	-72.61	6.89	41.28	-53.97	-13.00	-40.97
5019.60	H	-	-	-72.78	7.94	42.16	-53.10	-13.00	-40.10

Table 7-11. Radiated Spurious Data (GPRS Cell – Mid Channel)

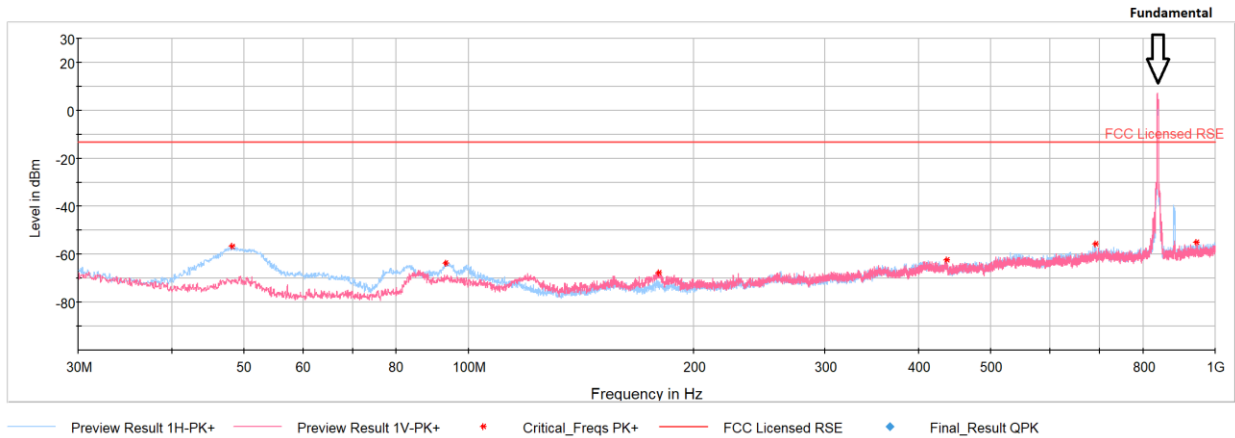
Mode:	GPRS 1 Tx Slot
Channel:	251
Frequency (MHz):	848.8

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1697.60	H	200	153	-65.80	-0.73	40.47	-54.78	-13.00	-41.78
2546.40	H	117	200	-70.82	3.16	39.34	-55.92	-13.00	-42.92
3395.20	H	-	-	-71.52	4.64	40.12	-55.13	-13.00	-42.13
4244.00	H	-	-	-72.28	6.60	41.32	-53.94	-13.00	-40.94
5092.80	H	-	-	-72.55	8.29	42.74	-52.52	-13.00	-39.52

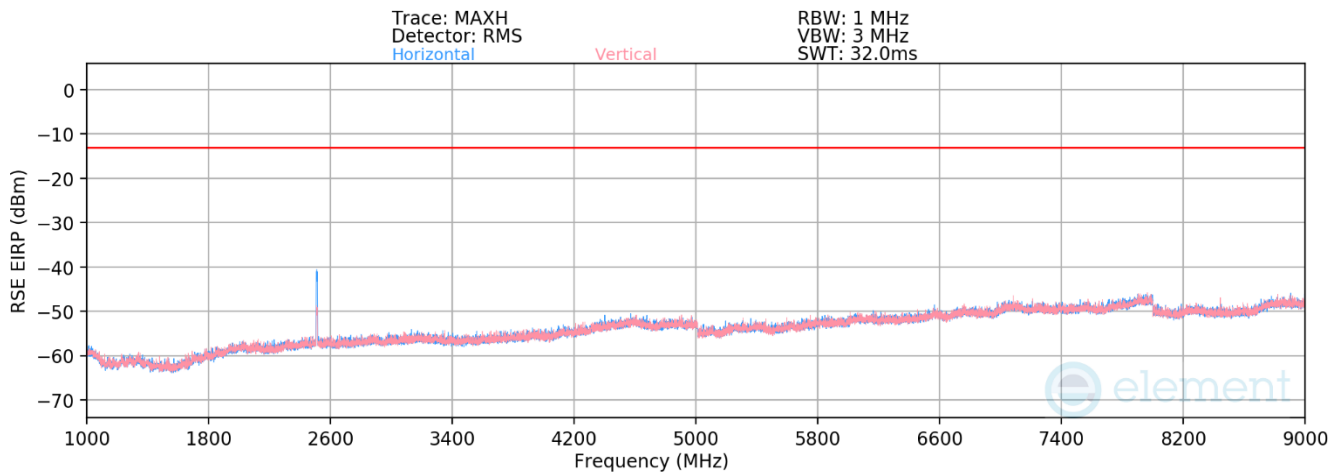
Table 7-12. Radiated Spurious Data (GPRS Cell – High Channel)

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WCDMA Cell



Plot 7-59. Radiated Spurious Plot Below 1GHz (WCDMA Cell)



Plot 7-60. Radiated Spurious Plot (WCDMA Cell)

Mode:	WCDMA RMC
Channel:	4183
Frequency (MHz):	836.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
48.19	H	100	9	-50.42	-17.77	38.81	-58.60	-13.00	-45.60

Table 7-13. Radiated Spurious Data Below 1GHz (WCDMA Cell – Mid Channel)

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
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Mode:	WCDMA RMC
Channel:	4132
Frequency (MHz):	826.4

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1652.80	H	-	-	-78.86	-1.56	26.58	-68.68	-13.00	-55.68
2479.20	H	105	136	-61.23	3.24	49.01	-46.24	-13.00	-33.24
3305.60	H	-	-	-80.64	4.83	31.19	-64.07	-13.00	-51.07
4132.00	H	-	-	-81.93	7.03	32.10	-63.16	-13.00	-50.16
4958.40	H	-	-	-82.26	8.24	32.98	-62.28	-13.00	-49.28

Table 7-14. Radiated Spurious Data (WCDMA Cell – Low Channel)

Mode:	WCDMA RMC
Channel:	4183
Frequency (MHz):	836.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1673.20	H	-	-	-79.14	-1.26	26.60	-68.65	-13.00	-55.65
2509.80	H	156	154	-60.95	3.27	49.32	-45.94	-13.00	-32.94
3346.40	H	-	-	-80.96	4.70	30.74	-64.52	-13.00	-51.52
4183.00	H	-	-	-81.95	6.89	31.94	-63.31	-13.00	-50.31
5019.60	H	-	-	-82.39	7.94	32.55	-62.71	-13.00	-49.71

Table 7-15. Radiated Spurious Data (WCDMA Cell – Mid Channel)

Mode:	WCDMA RMC
Channel:	4233
Frequency (MHz):	846.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1693.20	H	-	-	-79.02	-0.83	27.15	-68.11	-13.00	-55.11
2539.80	H	123	146	-60.52	3.18	49.66	-45.60	-13.00	-32.60
3386.40	H	-	-	-80.86	4.66	30.80	-64.46	-13.00	-51.46
4233.00	H	-	-	-81.60	6.65	32.05	-63.21	-13.00	-50.21
5079.60	H	-	-	-82.58	8.22	32.64	-62.62	-13.00	-49.62

Table 7-16. Radiated Spurious Data (WCDMA Cell – High Channel)

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7.7 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **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.

For Part 22, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency.

Test Procedure Used

ANSI C63.26-2015 – Section 5.6

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

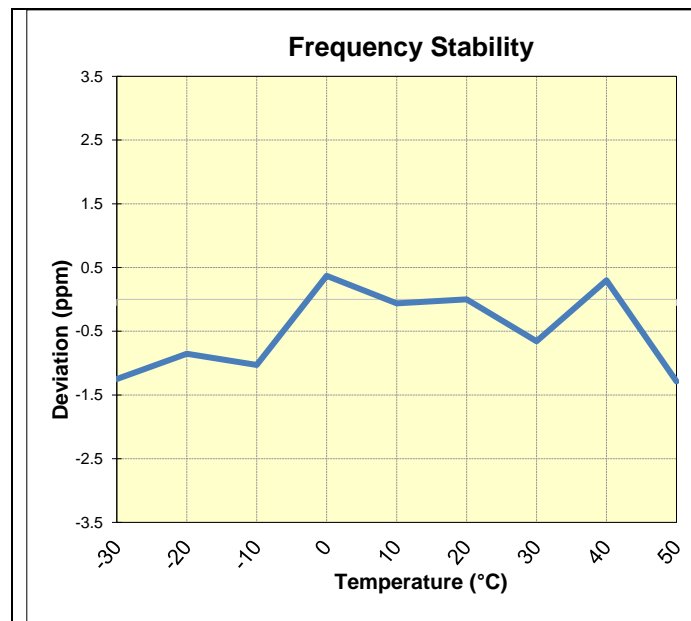
Test Notes

None

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LTE Band 5					
		Operating Frequency (Hz):		836,500,000	
		Ref. Voltage (VDC):		4.28	
		Deviation Limit:		± 0.00025% or 2.5 ppm	
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.28	- 30	836,500,168	-1,045	-0.0001249
		- 20	836,500,498	-715	-0.0000854
		- 10	836,500,352	-861	-0.0001029
		0	836,501,522	309	0.0000370
		+ 10	836,501,160	-52	-0.0000062
		+ 20 (Ref)	836,501,213	0	0.0000000
		+ 30	836,500,663	-550	-0.0000657
		+ 40	836,501,463	250	0.0000299
		+ 50	836,500,136	-1,077	-0.0001287
Battery Endpoint	3.69	+ 20	836,502,303	1,090	0.0001303

Table 7-17. LTE Band 5 Frequency Stability Data

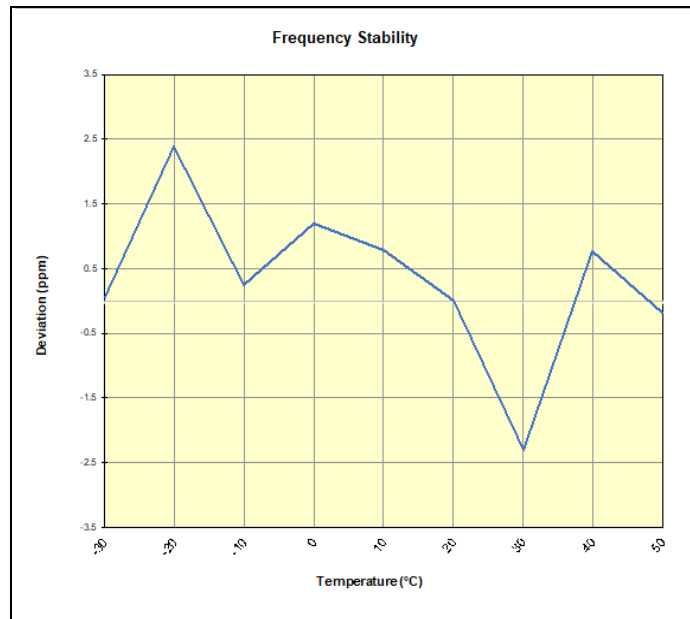


Plot 7-61. LTE Band 5 Frequency Stability Chart

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 57 of 60

GSM/GPRS Cellular					
		Operating Frequency (Hz):		836,600,000	
		Ref. Voltage (VDC):		4.28	
		Deviation Limit:		± 0.00025% or 2.5 ppm	
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.28	- 30	836,600,065	54	0.0000064
		- 20	836,602,010	1,999	0.0002389
		- 10	836,600,224	213	0.0000255
		0	836,601,015	1,005	0.0001201
		+ 10	836,600,666	655	0.0000783
		+ 20 (Ref)	836,600,011	0	0.0000000
		+ 30	836,598,081	-1,930	-0.0002307
		+ 40	836,600,650	639	0.0000764
Battery Endpoint	3.69	+ 20	836,600,081	70	0.0000083

Table 7-18. GSM/GPRS Cell Frequency Stability Data

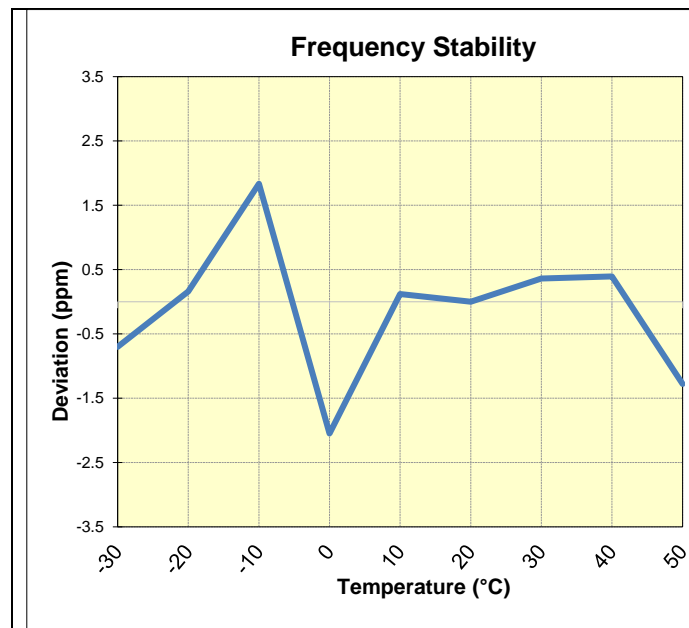


Plot 7-62. GSM/GPRS Cell Frequency Stability Chart

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 58 of 60

WCDMA Cellular					
		Operating Frequency (Hz):		836,600,000	
		Ref. Voltage (VDC):		4.28	
		Deviation Limit:		± 0.00025% or 2.5 ppm	
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.28	- 30	836,606,494	-585	-0.0000700
		- 20	836,607,214	134	0.0000160
		- 10	836,608,615	1,535	0.0001835
		0	836,605,366	-1,714	-0.0002049
		+ 10	836,607,181	102	0.0000121
		+ 20 (Ref)	836,607,080	0	0.0000000
		+ 30	836,607,383	303	0.0000362
		+ 40	836,607,410	330	0.0000395
		+ 50	836,606,010	-1,070	-0.0001279
Battery Endpoint	3.69	+ 20	836,606,784	-296	-0.0000354

Table 7-19. WCDMA Cell Frequency Stability Data



Plot 7-63. WCDMA Cell Frequency Stability Chart

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 59 of 60

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Sony Corporation Portable Handset FCC ID: PY7-25682R** complies with all the requirements of Part 22 of the FCC rules.

FCC ID: PY7-25682R	PART 22 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302230018-01-R1.PY7	Test Dates: 02/22/2023 - 03/22/2023	EUT Type: Portable Handset	Page 60 of 60