

**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:

06/03/2022 - 07/29/2022 **Test Report Issue Date:** 8/10/2022 **Test Site/Location:** Element Lab. Columbia, MD, USA **Test Report Serial No.:** 1M2205240063-04-R1.PY7

# FCC ID:

#### PY7-76056F

Applicant Name:

## Sony Corporation

Application Type: EUT Type: FCC Classification: FCC Rule Part: Test Procedure(s): Certification Portable Handset PCS Licensed Transmitter Held to Ear (PCE) 22 ANSI C63.26-2015, 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.

Note: This revised Test Report (S/N: 1M2205240063-04-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.

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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			Ef	RP	EI	RP	Emission
Mode	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Max. Power [W]	Max. Power [dBm]	Designator
	QPSK	829.0 - 844.0	0.046	16.60	0.075	18.75	9M01G7D
	16QAM	829.0 - 844.0	0.040	15.97	0.065	18.12	9M03W7D
	QPSK	826.5 - 846.5	0.046	16.64	0.076	18.79	4M54G7D
LTE Band 5	16QAM	826.5 - 846.5	0.041	16.13	0.067	18.28	4M54W7D
(Main ANT)	QPSK	825.5 - 847.5	0.046	16.65	0.076	18.80	2M72G7D
	16QAM	825.5 - 847.5	0.040	16.07	0.066	18.22	2M72W7D
	QPSK	824.7 - 848.3	0.045	16.56	0.074	18.71	1M10G7D
	16QAM	824.7 - 848.3	0.039	15.91	0.064	18.06	1M11W7D
	π/2 BPSK	834.0 - 839.0	0.058	17.67	0.096	19.82	18M0G7D
	QPSK	834.0 - 839.0	0.059	17.68	0.096	19.83	19M0G7D
	16QAM	834.0 - 839.0	0.045	16.52	0.074	18.67	19M1W7D
	π/2 BPSK	831.5 - 841.5	0.059	17.68	0.096	19.83	13M6G7D
	QPSK	831.5 - 841.5	0.059	17.71	0.097	19.86	14M2G7D
NR Band n5	16QAM	831.5 - 841.5	0.050	16.96	0.081	19.11	14M2W7D
(Main ANT)	π/2 BPSK	829.0 - 844.0	0.057	17.53	0.093	19.68	9M04G7D
	QPSK	829.0 - 844.0	0.058	17.67	0.096	19.82	9M20G7D
	16QAM	829.0 - 844.0	0.043	16.35	0.071	18.50	9M20W7D
	π/2 BPSK	826.5 - 846.5	0.060	17.77	0.098	19.92	4M59G7D
	QPSK	826.5 - 846.5	0.057	17.55	0.093	19.70	4M53G7D
	16QAM	826.5 - 846.5	0.048	16.78	0.078	18.93	4M53W7D

#### EUT Overview (LTE/NR)

				EI	RP	El	RP	
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Max. Power [W]	Max. Power [dBm]	Emission Designator
	10 MHz	QPSK	829.0 - 844.0	0.057	17.54	0.093	19.69	9M01G7D
		16QAM	829.0 - 844.0	0.049	16.87	0.080	19.02	9M00W7D
	5 MHz	QPSK	826.5 - 846.5	0.058	17.66	0.096	19.81	4M54G7D
LTE Band 5	3 MILZ	16QAM	826.5 - 846.5	0.047	16.76	0.078	18.91	4M53W7D
(Sub ANT)	3 MHz	QPSK	825.5 - 847.5	0.056	17.48	0.092	19.63	2M71G7D
	3 MILZ	16QAM	825.5 - 847.5	0.046	16.67	0.076	18.82	2M71W7D
	1.4 MHz	QPSK	824.7 - 848.3	0.055	17.43	0.091	19.58	1M11G7D
		16QAM	824.7 - 848.3	0.047	16.71	0.077	18.86	1M11W7D
	20 MHz	π/2 BPSK	834.0 - 839.0	0.039	15.88	0.064	18.03	18M0G7D
		QPSK	834.0 - 839.0	0.038	15.84	0.063	17.99	17M9G7D
		16QAM	834.0 - 839.0	0.032	15.08	0.053	17.23	18M0W7D
	15 MHz	π/2 BPSK	831.5 - 841.5	0.039	15.94	0.064	18.09	13M5G7D
		QPSK	831.5 - 841.5	0.037	15.73	0.061	17.88	14M2G7D
NR Band n5		16QAM	831.5 - 841.5	0.032	15.10	0.053	17.25	14M2W7D
(Sub ANT)		π/2 BPSK	829.0 - 844.0	0.039	15.90	0.064	18.05	9M02G7D
	10 MHz	QPSK	829.0 - 844.0	0.036	15.62	0.060	17.77	9M36G7D
		16QAM	829.0 - 844.0	0.033	15.16	0.054	17.31	9M36W7D
		π/2 BPSK	826.5 - 846.5	0.039	15.94	0.064	18.09	4M59G7D
	5 MHz	QPSK	826.5 - 846.5	0.038	15.80	0.062	17.95	4M52G7D
		16QAM	826.5 - 846.5	0.031	14.95	0.051	17.10	4M53W7D

EUT Overview (LTE/NR)

			EF	Emission	
Mode	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Emission Designator
<b>GSM/GPRS</b>	GMSK	824.2 - 848.8	0.304	24.83	242KGXW
EDGE	8-PSK	824.2 - 848.8	0.088	19.46	233KG7W
WCDMA	Spread Spectrum	826.4 - 846.6	0.031	14.85	4M18F9W

EUT Overview (2G/3G)

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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 laboratory 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 Element lab located in Columbia, MD 21046, 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: PY7-76056F**. 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.: 94880, 00001, 99864

### 2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900, WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR FR1, 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII (5 and 6 GHz), 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: Belkan 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 0.45 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:

#### Pd [dBm] = Pg [dBm] - cable loss [dB] + 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, 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:

$$\begin{split} & \mathsf{E}_{[dB\mu V/m]} = \text{Measured amplitude level}_{[dBm]} + 107 + \text{Cable Loss}_{[dB]} + \text{Antenna Factor}_{[dB/m]} \\ & \text{And} \\ & \mathsf{EIRP}_{[dBm]} = \mathsf{E}_{[dB\mu V/m]} + 20 \mathsf{logD} - 104.8; \text{ where D is the measurement distance in meters.} \end{split}$$

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 C63.4-2014. 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

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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 Interval	Cal Due	Serial #
-	AP1-002	EMC Cable and Switch System	3/9/2022	Annual	3/9/2023	AP1-002
-	AP2-001	EMC Cable and Switch System	1/4/2022	Annual	1/4/2023	AP2-001
-	AP2-002	EMC Cable and Switch System	3/11/2022	Annual	3/11/2023	AP2-002
-	ETS-001	EMC Cable and Switch System	12/9/2021	Annual	12/9/2022	ETS-001
-	LTx1	Licensed Transmitter Cable Set	12/19/2021	Annual	12/19/2022	LTx1
-	LTx2	Licensed Transmitter Cable Set	12/19/2021	Annual	12/19/2022	LTx2
- LTx4		Licensed Transmitter Cable Set	12/19/2021	Annual	12/19/2022	LTx4
ETS-Lindgren	ETS-Lindgren 3117 1-18 GHz DRG Horn (N		4/20/2021	Biennial	4/20/2023	125518
Keysight Technologies	N9020A	MXA Signal Analyzer	3/4/2022	Annual	3/4/2023	US46470561
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	2/14/2022	Annual	2/14/2023	MY52350166
Keysight Technologies	N9038A	MXE EMI Receiver	1/21/2022	Annual	1/21/2023	MY51210133
Keysight Technologies	N9030A	PXA Signal Analyzer	1/6/2022	Annual	1/6/2023	MY55410501
Keysight Technologies	N9030B	PXA Signal Analyzer, Multi-touch	1/7/2022	Annual	1/7/2023	MY57141001
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	8/3/2021	Annual	8/3/2022	100342
Rohde & Schwarz	ESW44	EMI Test Receiver 2Hz to 44 GHz	3/28/2022	Annual	3/28/2023	101716
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	5/25/2021	Annual	7/25/2022	100348
Rohde & Schwarz	chwarz FSW26 2Hz-26.5GHz Signal and spectrum analyzer		4/14/2022	Annual	4/14/2023	103187

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.

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## 6.0 SAMPLE CALCULATIONS

#### **GSM Emission Designator**

#### Emission Designator = 250KGXW

GSM BW = 250 kHzG = 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

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## **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:	<u>PY7-76056F</u>
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Mode(s):	GSM/GPRS/WCDMA/LTE/NR

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
•	Transmitter Conducted Output Power	2.1046(a), 2.1046(c)	N/A	PASS	Section 7.2
CTEL	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3
CONDUCTED	Conducted Band Edge / Spurious Emissions	2.1051, 22.917(a)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5
8	Frequency Stability	2.1055, 22.355	The carrier frequency of the transmitter must be maintained within the 2.5ppm	PASS	Section 7.8
RADIATED	Effective Radiated Power / Equivalent Isotropic Radiated Power	22.913(a)(5)	< 7 Watts max. ERP	PASS	Section 7.6
RADIA	Radiated Spurious Emissions	2.1053, 22.917(a)	> 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.
- 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.

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## 7.2 Conducted Power Output Data

#### **Test Overview**

All emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, 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.

#### Test Procedure Used

ANSI C63.26-2015 - Section 5.2

#### **Test Settings**

- 1. Detector = RMS
- 2. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 3. Sweep time = auto couple
- 4. The trace was allowed to stabilize
- 5. 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 7-1. Test Instrument & Measurement Setup

#### Test Notes

- 1. Conducted power measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device.
- 2. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz.
- 3. All other conducted power measurements are contained in the RF exposure report for this filing.

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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
N		20450	829.0	1 / 49	23.50
H	QPSK	20525	836.5	1 / 25	23.48
10 MHz		20600	844.0	1/0	23.39
-	16-QAM	20450	829.0	1/0	23.00
		20425	826.5	1 / 24	23.62
Hz	QPSK	20525	836.5	1/0	23.69
5 MHz		20625	846.5	1/0	23.44
4	16-QAM	20425	826.5	1 / 12	22.89
N		20415	825.5	1 / 7	23.45
Hz	QPSK	20525	836.5	1 / 7	23.56
3 MHz		20635	847.5	1/0	23.35
	16-QAM	20415	825.5	1 / 14	22.80
N		20407	824.7	1/5	23.39
HV	QPSK	20525	836.5	1/0	23.65
1.4 MHz		20643	848.3	1/0	23.33
	16-QAM	20407	824.7	1/0	22.84

Table 7-2. LTE Band 5 (Sub ANT) Conducted Power Output Data

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
		166800	834.0	1 / 53	23.69
	π/2 BPSK	167300	836.5	1 / 53	23.55
Ł		167800	839.0	1 / 79	23.49
20 MHz		166800	834.0	1 / 79	23.63
20	QPSK	167300	836.5	1 / 79	23.54
		167800	839.0	1 / 53	23.59
	16-QAM	167800	839.0	1 / 53	22.75
		166300	831.5	1 / 39	23.66
	π/2 BPSK	167300	836.5	1 / 39	23.53
₽ H		168300	841.5	1 / 58	23.55
15 MHz		166300	831.5	1 / 39	23.61
15	QPSK	167300	836.5	1 / 39	23.49
		168300	841.5	1 / 39	23.48
	16-QAM	168300	841.5	1 / 39	22.76
		165800	829.0	1 / 26	23.61
	π/2 BPSK	167300	836.5	1 / 38	23.52
₽ H		168800	844.0	1 / 38	23.51
10 MHz		165800	829.0	1 / 26	23.47
10	QPSK	167300	836.5	1 / 26	23.57
		168800	844.0	1 / 38	23.37
	16-QAM	168800	844.0	1 / 38	22.83
		165300	826.5	1 / 12	23.39
	π/2 BPSK	167300	836.5	1 / 12	23.56
<u>ې</u>		169300	846.5	1 / 12	23.55
MHz		165300	826.5	1 / 12	23.43
5	QPSK	167300	836.5	1 / 12	23.28
		169300	846.5	1 / 12	23.55
	16-QAM	169300	846.5	1 / 12	22.62

Table 7-3. NR Band n5 (Sub ANT) Conducted Power Output Data

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#### **EN-DC** configuration

NR (SCS 15kHz)					LTE				NR	LTE	EN-DC			
NR Band	NR Bandwidth [MHz]	NR Channel	NR Frequency [MHz]	Mod.	NR RB#/Offset	LTE Band	LTE Bandwidth [MHz]	LTE Channel	LTE Frequency [MHz]	Mod.	LTE RB#/Offset	Conducted Power [dBm]	Conducted Power [dBm]	Total Tx. Power [dBm]
				π/2 BPSK	1/53	B2	20	Mid	1880	QPSK	1/50	24.16	23.05	26.65
- 5		20 Mid		QPSK 100/0	100/0					QPSK	100/0	23.19	23.02	26.12
n5 Main	20		836.5	QPSK	100/0					QPSK	1/50	23.18	23.04	26.12
ANT	20		030.5	QPSK	1/53					QPSK	100/0	24.13	23.02	26.62
ANT			QP	QPSK	1/53					QPSK	1/50	24.15	23.07	26.65
				16Q	1/53					16Q	1/50	23.31	23.01	26.17

Table 7-4. Conducted Powers (n5 Main – B2)

		NR (S	SCS 15kHz)				LTE					NR	LTE	EN-DC
NR Band	NR Bandwidth [MHz]	NR Channel	NR Frequency [MHz]	Mod.	NR RB#/Offset	LTE Band	LTE Bandwidth [MHz]	LTE Channel	LTE Frequency [MHz]	Mod.	LTE RB#/Offset	Conducted Power [dBm]	Conducted Power [dBm]	Total Tx. Power [dBm]
				π/2 BPSK	1/53					QPSK	1/50	23.23	23.13	26.19
_				QPSK	100/0					QPSK	100/0	22.79	23.05	25.93
n5	20		000 5	QPSK	100/0		20		4000	QPSK	1/50	22.77	23.14	25.97
Sub	20	Mid	836.5	QPSK	1/53	B2	20	Mid	1880	QPSK	100/0	23.16	23.06	26.12
ANT				QPSK	1/53					QPSK	1/50	23.21	23.18	26.21
				16Q	1/53					16Q	1/50	22.88	23.22	26.06

Table 7-5. Conducted Powers (n5 Sub – B2)

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## 7.3 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 7-2. Test Instrument & Measurement Setup

#### **Test Notes**

None.

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## LTE Band 5 – Main ANT

Keysight Spectrum												- d ×
LXIRL R	F 50 Ω	AC	CORRE	C	Cart	SENSE:INT er Frea: 836.50	0000 MU-	ALIGN AUTO	10:15:21 P Radio Std	MJun 15, 2022	Trace	e/Detector
					-	Free Run		d: 100/100	Radio Std	: None		
			#IFGai	in:Low		n: 36 dB			Radio Dev	vice: BTS		
	Ref 40.0											
10 dB/div Log	Rei 40.0											
30.0												
20.0											C	Clear Write
				monord	however	monthe	normanipum					
10.0												
0.00			1					<b>h</b>				
-10.0			5					<u> </u>				Average
-20.0	marylinesson	Mar Mar	nni)					" Why allower	V Mary Marsall			
-30.0	, norther the second								a cod ar drawdfr	har anna wal		
-40.0												Max Hold
-50.0												
Center 836.5	0 B4LL-								0	5 00 MIL		
Center 836.50 Res BW 240						<b>#VBW</b> 750	VU7			5.00 MHz ep 1 ms		
RES DW 240	КПZ				*	FV DVV 7 JU	NПZ		SW	seh i ilis		Min Hold
Occupie	d Dand	widt	h			Total	ower	31	4 dBm			
Occupie	u Danu					- Ottain i	01101	011				
		9.	005	4 M	ΗZ							Detector
-	_					a/ 10			0.000		0	Peak
Transmit	Freq Eri	or		4.445	KHZ	% of 0	BW Pow	ver 9	9.00 %		Auto	Mar
x dB Band	width		1	0.00	٨Hz	x dB		-26	.00 dB			
ISG								STATU	S			

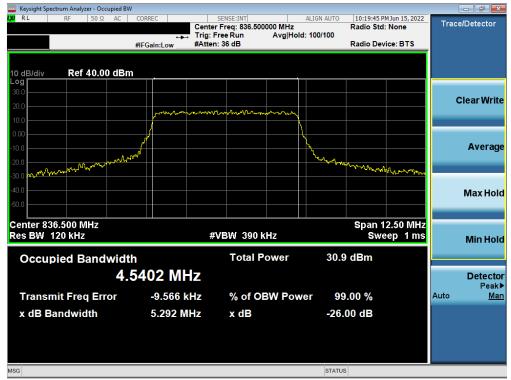
Plot 7-1. Occupied Bandwidth Plot (LTE Band 5 - 10MHz QPSK - Full RB - Main ANT)



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

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



Plot 7-4. Occupied Bandwidth Plot (LTE Band 5 - 5MHz 16-QAM - Full RB - Main ANT)

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



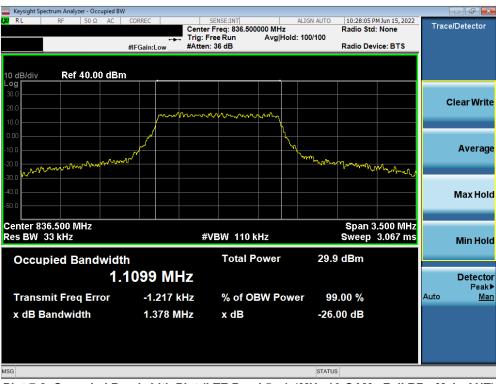
Plot 7-6. Occupied Bandwidth Plot (LTE Band 5 - 3MHz 16-QAM - Full RB - Main ANT)

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



Plot 7-8. Occupied Bandwidth Plot (LTE Band 5 - 1.4MHz 16-QAM - Full RB - Main ANT)

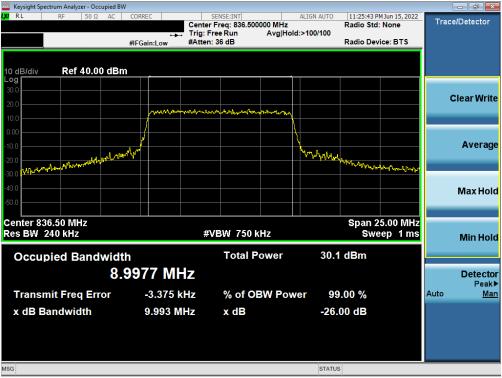
FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT				
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## LTE Band 5 – Sub ANT

Keysight Spectrum Ar													
<b>LXI</b> RL RF	50 Ω	AC	CORREC		Cant	SENSE:INT er Freg: 836.50		ALIG	N AUTO	11:25:30 P Radio Std	M Jun 15, 2022	Trac	e/Detector
					-	Free Run	Avg Hol	ld: 100	0/100	Radio Stu	None		
			#IFGai			n: 36 dB	<b>.</b> .			Radio Dev	ice: BTS		
10 dB/div R	ef 40.00	dBm											
Log													
30.0													Clear Write
20.0				Langer Josefice			າວອາຈາມີການໃນເປັນໄມ					``	
10.0													
0.00			/					<u>۱</u>					
-10.0			J <sup>U</sup>					<u>\</u>					Average
		and the	"ر					400	Maria				J
mound	agedon of a general a	441							ባ የእግር ብ	<sup>R</sup> MMM	rendered		
-30.0													
-40.0													Max Hold
-50.0													
Center 836.50										Cnon 1	5 00 MILL-		
Res BW 240 k					ź	#VBW 750	kH7				5.00 MHz ep 1 ms		
NC3 DVY 240 K	112						NT 12			OWC	ср т шэ		Min Hold
Occupied	Bandy	width				Total I	Power		31.2	dBm			
				4 841									
		9.0		1 MI	ΠZ								Detector Peak▶
Transmit Fi	req Erro	or	-(	3.006 I	kHz	% of O	BW Pov	ver	99	.00 %		Auto	Man
x dB Bandv	vidth		1	0.25 N	IHz _	x dB			-26	00 dB			
MSG									STATUS				

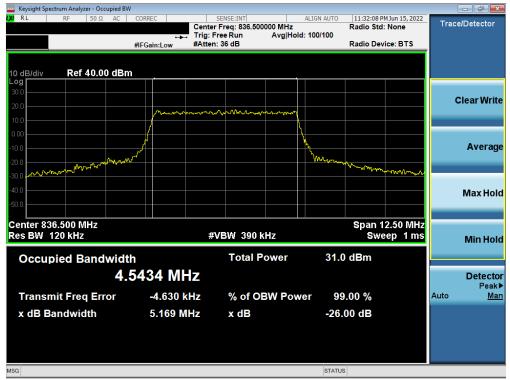
Plot 7-9. Occupied Bandwidth Plot (LTE Band 5 - 10MHz QPSK - Full RB - Sub ANT)



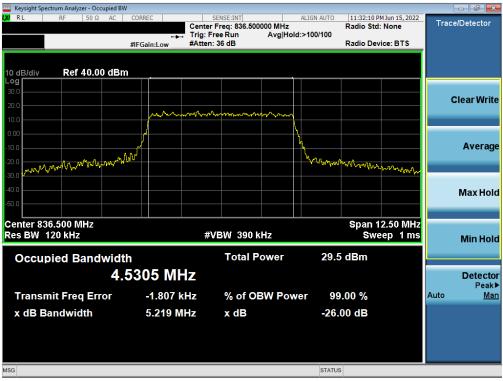
Plot 7-10. Occupied Bandwidth Plot (LTE Band 5 - 10MHz 16-QAM - Full RB - Sub ANT)

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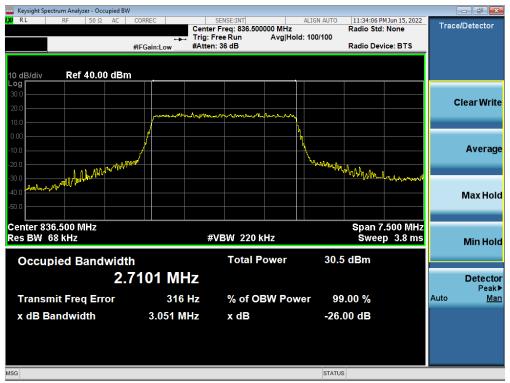
Plot 7-11. Occupied Bandwidth Plot (LTE Band 5 - 5MHz QPSK - Full RB - Sub ANT)



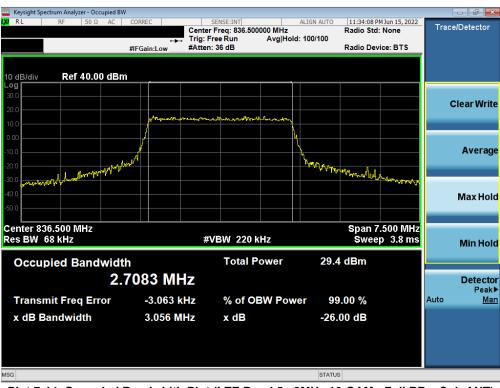
Plot 7-12. Occupied Bandwidth Plot (LTE Band 5 - 5MHz 16-QAM - Full RB - Sub ANT)

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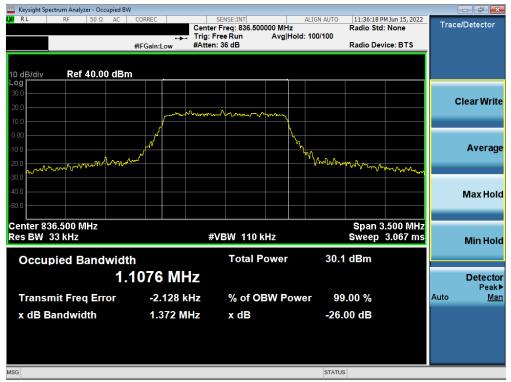
Plot 7-13. Occupied Bandwidth Plot (LTE Band 5 - 3MHz QPSK - Full RB – Sub ANT)



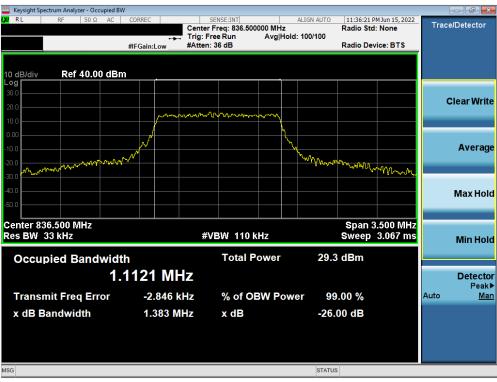
Plot 7-14. Occupied Bandwidth Plot (LTE Band 5 - 3MHz 16-QAM - Full RB – Sub ANT)

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Plot 7-15. Occupied Bandwidth Plot (LTE Band 5 - 1.4MHz QPSK - Full RB – Sub ANT)



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

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## NR Band n5 – Main ANT



Plot 7-17. Occupied Bandwidth Plot (NR Band n5 - 20MHz  $\pi/2$  BPSK - Full RB – Main ANT)



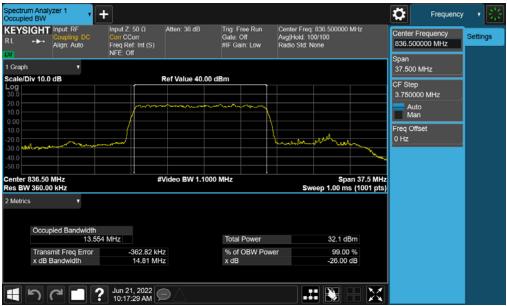
Plot 7-18. Occupied Bandwidth Plot (NR Band n5 - 20MHz QPSK - Full RB - Main ANT)

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Plot 7-19. Occupied Bandwidth Plot (NR Band n5 - 20MHz 16-QAM - Full RB – Main ANT)



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

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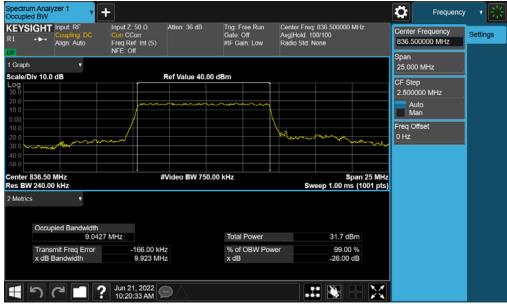
Plot 7-21. Occupied Bandwidth Plot (NR Band n5 - 15MHz QPSK - Full RB – Main ANT)



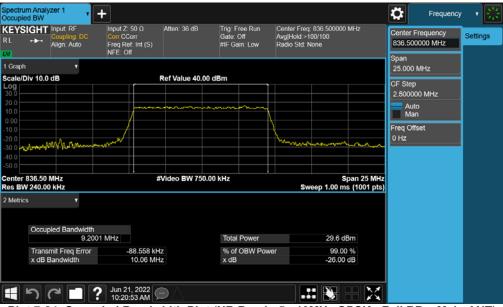
Plot 7-22. Occupied Bandwidth Plot (NR Band n5 - 15MHz 16-QAM - Full RB - Main ANT)

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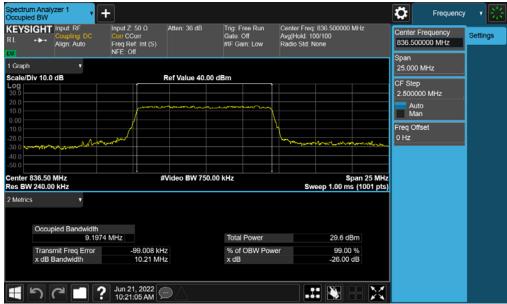
Plot 7-23. Occupied Bandwidth Plot (NR Band n5 - 10MHz  $\pi/2$  BPSK - Full RB – Main ANT)



Plot 7-24. Occupied Bandwidth Plot (NR Band n5 - 10MHz QPSK - Full RB - Main ANT)

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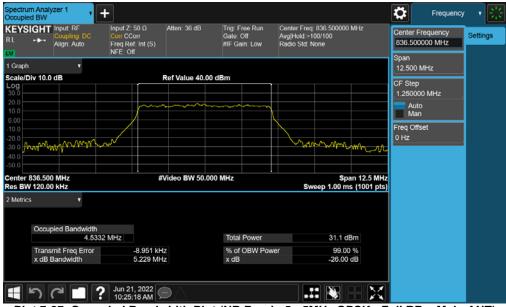
Plot 7-25. Occupied Bandwidth Plot (NR Band n5 - 10MHz 16-QAM - Full RB – Main ANT)



Plot 7-26. Occupied Bandwidth Plot (NR Band n5 - 5MHz  $\pi/2$  BPSK - Full RB – Main ANT)

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Plot 7-27. Occupied Bandwidth Plot (NR Band n5 - 5MHz QPSK - Full RB – Main ANT)



Plot 7-28. Occupied Bandwidth Plot (NR Band n5 - 5MHz 16-QAM - Full RB - Main ANT)

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## NR Band n5 – Sub ANT



Plot 7-29. Occupied Bandwidth Plot (NR Band n5 - 20MHz  $\pi/2$  BPSK - Full RB – Sub ANT)



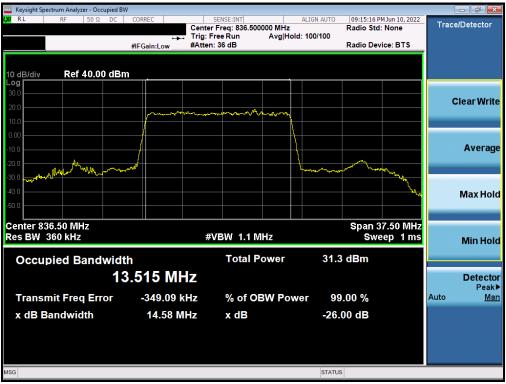
Plot 7-30. Occupied Bandwidth Plot (NR Band n5 - 20MHz QPSK - Full RB – Sub ANT)

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Plot 7-31. Occupied Bandwidth Plot (NR Band n5 - 20MHz 16-QAM - Full RB – Sub ANT)



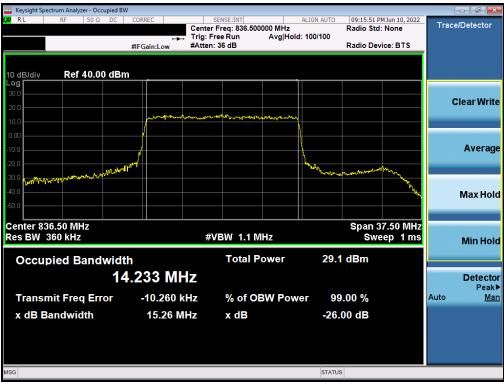
Plot 7-32. Occupied Bandwidth Plot (NR Band n5 - 15MHz  $\pi/2$  BPSK - Full RB – Sub ANT)

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Plot 7-33. Occupied Bandwidth Plot (NR Band n5 - 15MHz QPSK - Full RB - Sub ANT)



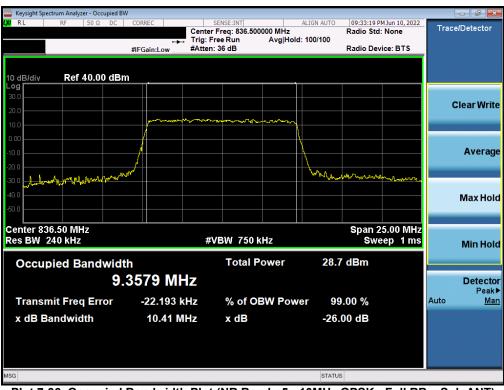
Plot 7-34. Occupied Bandwidth Plot (NR Band n5 - 15MHz 16-QAM - Full RB - Sub ANT)

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Keysight Spectrum Analyzer - Occupied B					- đ ×
<b>LX/</b> RL RF 50Ω DC	CORREC	SENSE:INT	ALIGN AUTO	09:33:02 PM Jun 10, 2022 Radio Std: None	Trace/Detector
		Trig: Free Run A	vg Hold:>100/100		
	#IFGain:Low	¢Atten: 36 dΒ		Radio Device: BTS	7
10 dB/div Ref 40.00 dB Log	m				
30.0					
20.0			_		Clear Write
10.0			~		
0.00					
-10.0	-				Average
-20.0			<u>\</u>		
-30.0 How and have have	~			who	
-40.0					Max Hold
-50.0					
Center 836.50 MHz				Onen OF CO Mille	
Res BW 240 kHz		#VBW 750 kHz		Span 25.00 MHz Sweep 1 ms	
					Min Hold
Occupied Bandwid	th	Total Pow	er 31.0	) dBm	
9	.0187 MHz	2			Detector
			-		Peak⊁
Transmit Freq Error	-171.66 kH	z % of OBW	Power 99	0.00 %	Auto <u>Mar</u>
x dB Bandwidth	9.885 MH	z xdB	-26.	00 dB	
MSG			STATU	ß	

Plot 7-35. Occupied Bandwidth Plot (NR Band n5 - 10MHz  $\pi/2$  BPSK - Full RB – Sub ANT)



Plot 7-36. Occupied Bandwidth Plot (NR Band n5 - 10MHz QPSK - Full RB - Sub ANT)

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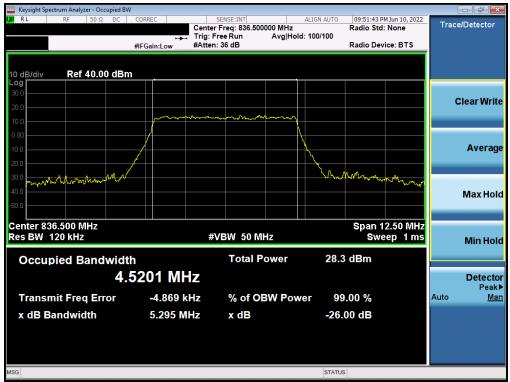
Plot 7-37. Occupied Bandwidth Plot (NR Band n5 - 10MHz 16-QAM - Full RB – Sub ANT)



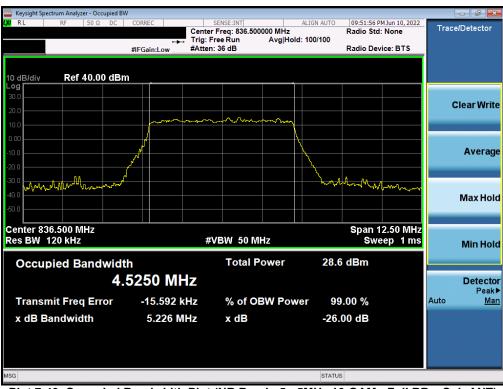
Plot 7-38. Occupied Bandwidth Plot (NR Band n5 - 5MHz π/2 BPSK - Full RB - Sub ANT)

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Plot 7-39. Occupied Bandwidth Plot (NR Band n5 - 5MHz QPSK - Full RB – Sub ANT)

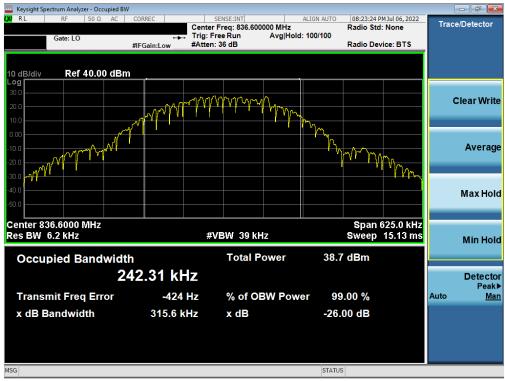


Plot 7-40. Occupied Bandwidth Plot (NR Band n5 - 5MHz 16-QAM - Full RB – Sub ANT)

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## GPRS Cell – Main ANT



Plot 7-41. Occupied Bandwidth Plot (GPRS, Ch. 190 - Main ANT)



Plot 7-42. Occupied Bandwidth Plot (EDGE, Ch. 190 - Main ANT)

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# WCDMA Cell – Main ANT

Keysight Spectrum Analyzer - Occupied BW					
RLT RF 50 Ω AC	CORREC Cente	SENSE:INT ALIG	IN AUTO 12:55:14 A Radio Std	M Jul 06, 2022	Trace/Detector
	Trig:	Free Run Avg Hold: 10	0/100		
	#IFGain:Low #Atter	n: 36 dB	Radio Dev	ice: BTS	
dB/div Ref 40.00 dBm					
og					
10					Clear Wr
nn					
	- marine and a second	monter			
.00					Avora
1.0					Avera
].0					
0.0			And Marine The and		
0.0 mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm				- Marine Co	MaxHo
0.0					
enter 836.600 MHz			Span 1	5.00 MHz	
es BW 150 kHz	#	VBW 910 kHz		ep 1 ms	Min Ho
					WIII I K
Occupied Bandwidt		Total Power	21.0 dBm		
4.1	1790 MHz				Detec
Transmit Frag Error	11.305 kHz	% of OBW Power	99.00 %		Pea Auto N
Transmit Freq Error					Auto <u>N</u>
x dB Bandwidth	4.815 MHz	x dB	-26.00 dB		

Plot 7-43. Occupied Bandwidth Plot (WCDMA, Ch. 4183 - Main ANT)

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## 7.4 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 10<sup>th</sup> 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 7-3. Test Instrument & Measurement Setup

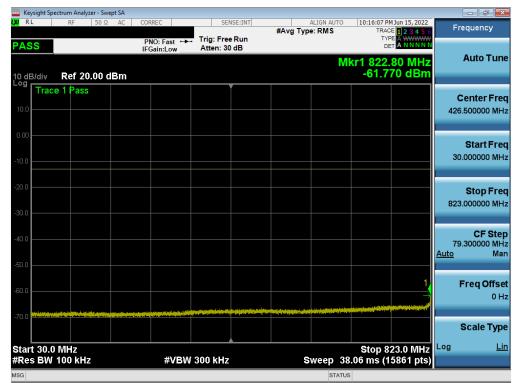
## Test Notes

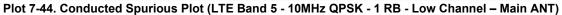
- Per Part 22, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100 kHz or greater for measurements below 1GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 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 is 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.

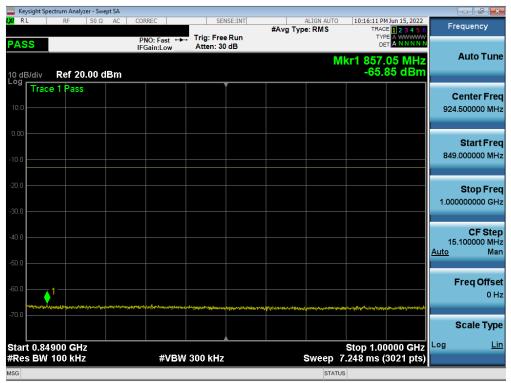
FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT	Approved by: Technical Manager
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# LTE Band 5 – Main ANT







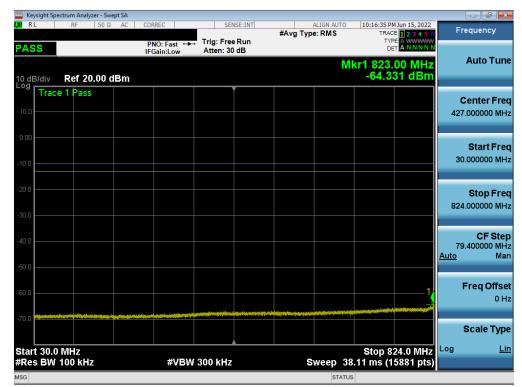
Plot 7-45. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Low Channel – Main ANT)

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	rum Analyzer - Sw									
XI RL	RF 50 Ω	AC (	PNO: Fast +		#Avg Ty	ALIGN AU pe: RMS	т	3 PM Jun 15, 2022 RACE 1 2 3 4 5 6 TYPE A WWWWW	Fr	equency
10 dB/div	Ref 0.00 dl		IFGain:Low	#Atten: 3			Mkr1 1.6 -44	58 0 GHz 958 dBm		Auto Tune
-10.0	1 Pass									Center Free
-20.0									1.000	Start Free
-40.0	1								10.000	<b>Stop Fre</b> 0000000 GH
-60.0									900 <u>Auto</u>	CF Ste  .000000 MH Ma
-80.0										F <b>req Offs</b> e 0 H
-90.0 Start 1.000							Stop	10.000 GHZ	Log	Scale Type
#Res BW 1	.0 MHz		#VBV	V 3.0 MHz			15.60 ms	(18001 pts)		
ISG						ST	ATUS			

Plot 7-46. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Low Channel – Main ANT)



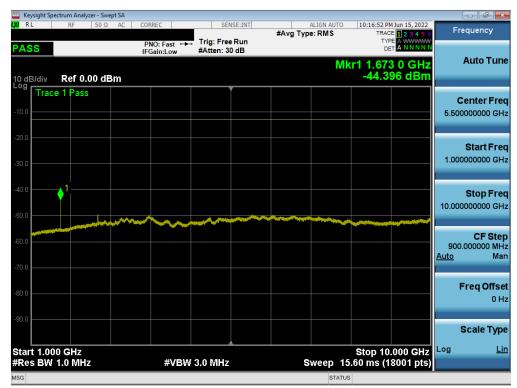
Plot 7-47. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Mid Channel – Main ANT)

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Keysight Spectrum Analyzer - Swept SA					
X RL RF 50Ω AC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	10:16:39 PM Jun 15, 2022 TRACE 1 2 3 4 5 6	Frequency
PASS		rig: Free Run Atten: 30 dB		DET A NNNN	
10 dB/div Ref 20.00 dBm			Μ	lkr1 849.75 MHz -65.29 dBm	Auto Tune
10.0					Center Freq 924.500000 MHz
-10.0					Start Freq 849.000000 MHz
-20.0					<b>Stop Freq</b> 1.00000000 GHz
-40.0					CF Step 15.100000 MHz <u>Auto</u> Man
-60.0 - 1	un mineral and a second se			ung gi kana ng pang kang ng ka	<b>Freq Offset</b> 0 Hz
-70.0					Scale Type
Start 0.84900 GHz #Res BW 100 kHz	#VBW 30	0 kHz	Sween	Stop 1.00000 GHz 7.248 ms (3021 pts)	Log <u>Lin</u>
WINCS DW TOO KITZ	20 990 97	AV 1011/2	Sweep.	TAL 110 10241 1001	

Plot 7-48. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Mid Channel - Main ANT)



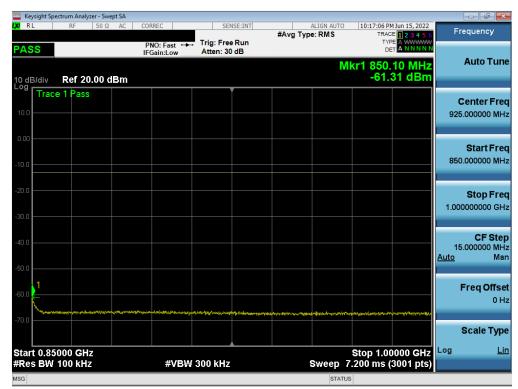
Plot 7-49. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Mid Channel – Main ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT					
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Keysight Spectrum Analyzer - Swept S					
LX/RL RF 50Ω/	AC CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	TRACE 1 2 3 4 5 6	Frequency
PASS	PNO: Fast ++- IFGain:Low	Trig: Free Run Atten: 30 dB		TYPE A WWWWW DET A NNNNN	
	II Gam. Low			/kr1 782.20 MHz	Auto Tune
10 dB/div Ref 20.00 dB	m			-65.018 dBm	
Log Trace 1 Pass		Ĭ			Center Freq
10.0					427.000000 MHz
					427.000000 11112
0.00					
					Start Freq 30.000000 MHz
-10.0					30.000000 WH12
-20.0					
20.0					Stop Freq 824.000000 MHz
-30.0					824.000000 WH2
					CF Step
-40.0					79.400000 MHz
50.0					<u>Auto</u> Man
-50.0					
-60.0				x1	Freq Offset
			de adhean an a		0 Hz
-70.0	n an general and an a general state of the second second second second second second second second second second Second second				
					Scale Type
Start 30.0 MHz		<b>A</b>		Stop 824.0 MHz	Log <u>Lin</u>
#Res BW 100 kHz	#VBW	300 kHz	Sweep 3	38.11 ms (15881 pts)	
MSG			STAT	US	

Plot 7-50. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - High Channel - Main ANT)



Plot 7-51. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - High Channel – Main ANT)

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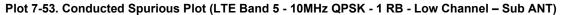
Plot 7-52. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - High Channel - Main ANT)

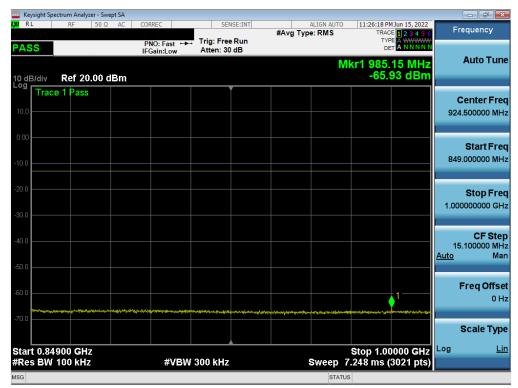
FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT	Approved by: Technical Manager
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# LTE Band 5 – Sub ANT

	ectrum Analy											[	
RL	RF	50 Ω	AC	CORREC			ISE:INT	#Avg Typ	ALIGN AUTO	TRAC	MJun 15, 2022 CE 1 2 3 4 5 6	Fre	quency
PASS				PNO: Fa IFGain:L	ow	Trig: Free Atten: 30				D			
0 dB/div	Ref 20	).00 di	Bm							04 Wkr1 822 61.6-	.95 MHz 01 dBm		Auto Tun
.og Trac	e 1 Pass	;				,						с	enter Fre
10.0													500000 MH
0.00													
0.00													Start Fre
10.0												30.	000000 MH
20.0													Stop Fre
30.0												823.	
													CF Ste
40.0												79. <u>Auto</u>	300000 MH Ma
50.0												Auto	IVId
											1,	F	req Offse
60.0													0H
70.0		a dhelara dhe a Tablica		ana fala Marana Nana ang katalang kanala	anna dharad i ta	yanta a sangaran kana matang ina interdisi a	an a						
												S	cale Typ
start 30.0										Stop 8	23.0 MHz	Log	Li
Res BW	100 kH:	Z		#	VBW	300 kHz		s	weep :	38.06 ms (1	5861 pts)		
SG									STAT	rus			





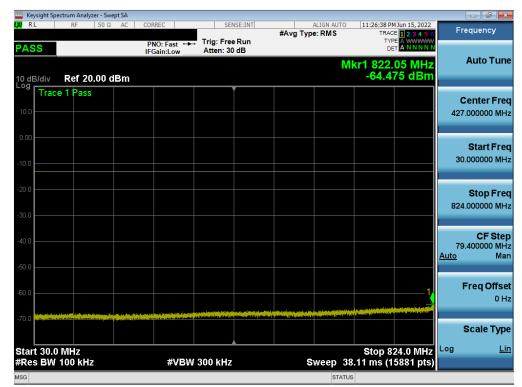
Plot 7-54. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Low Channel - Sub ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT	Approved by: Technical Manager
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	pectrum Anal											
KI RL	RF	50 Ω	AC	CORREC			ISE:INT	#Avg Ty	ALIGN AU /pe: RMS	TO 11:26	TRACE 1 2 3 4 5 6	Frequency
PASS				PNO: F IFGain:	ast ⊶⊷ Low	Trig: Free #Atten: 3						
I0 dB/div	Ref 0.	.00 dB	m							Mkr1 1. -4	.658 0 GHz 4.339 dBm	Auto Tur
<sup>og</sup> Trac	e 1 Pas	S										Center Fre
10.0												5.50000000 GI
20.0												
												Start Fre
30.0												1.00000000 Gi
40.0	1											Stop Fre
.50.0												10.00000000 GI
0.0			~~~	$\sim$	~~~							
60.0												CF Ste 900.000000 Mi
70.0												Auto Ma
												Freq Offs
80.0												01
90.0												
												Scale Typ
start 1.0									_	Stop	7 TO.000 GHZ	Log <u>L</u>
fRes BW	1.0 MH	Z			#VBW	3.0 MHz			Sweep	15.60 m	s (18001 pts)	

Plot 7-55. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Low Channel – Sub ANT)



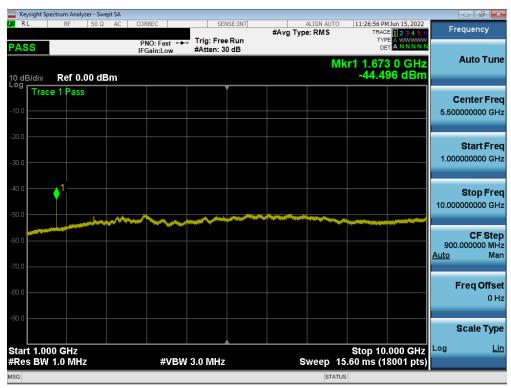
Plot 7-56. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Mid Channel - Sub ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT	Approved by: Technical Manager	
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Keysight Spectrum Analyzer - Swept SA								- F	X
🗶 RL RF 50Ω AC	CORREC		SE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	Jun 15, 2022	Frequency	1
PASS	PNO: Fast +++ IFGain:Low	Trig: Free Atten: 30				TYP			
10 dB/div Ref 20.00 dBm					Μ	kr1 849. -65.2	15 MHz 25 dBm	Auto T	une
Trace 1 Pass		Ĭ						Center F	rog
10.0								924.500000	
0.00								Start F	req
-10.0								849.000000	MHz
-20.0								Stop F 1.000000000	
-30.0								1.000000000	0112
-40.0								CF S	
								15.100000 <u>Auto</u>	MH2 Mar
-50.0									
-60.0 + 1								Freq Of	
and the second s	, , , , , , , , , , , , , , , , , , ,	mart with an and with	and gam, bush a full program for the		والمعادر والمعالية المعادمة	agenting a stratic last for	وديوه الدارية الدارية مرادهم		0 Hz
70.0					an a			Scale T	VDe
						Stop 1 00			Lin
Start 0.84900 GHz #Res BW 100 kHz	#VBW	300 kHz			Sweep 7	Stop 1.00 .248 ms (	3021 pts)		
ISG					STATU	_			

Plot 7-57. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Mid Channel – Sub ANT)



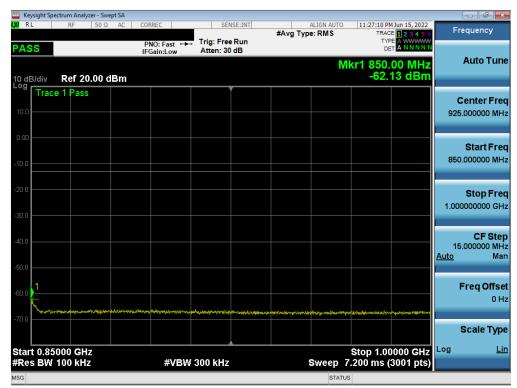
Plot 7-58. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - Mid Channel - Sub ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT	Approved by: Technical Manager
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	ectrum Analyzer - Sw										
X/RL	RF 50 Ω	AC C	ORREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	1 Jun 15, 2022 E 1 2 3 4 5 6	Fn	equency
PASS			PNO:Fast ↔ FGain:Low	Trig: Free Atten: 30							
							М	kr1 822.	70 MHz		Auto Tune
10 dB/div Log	Ref 20.00	dBm						-65.0	01 dBm		
Trac	e 1 Pass			) Y						c	enter Freq
10.0											.000000 MHz
0.00											Start Freq
-10.0										30	.000000 MHz
-20.0											Stop Freq
-30.0										824	.000000 MHz
00.0											
-40.0										79	CF Step .400000 MHz
										<u>Auto</u>	Man
-50.0											
-60.0									1	F	Freq Offset
					ورواله والله والمحمولة المرار	and the second second line is the second	Constitution for the sector				0 Hz
-70.0			and the factor of the state little	and the second secon	ni parati dan maranja ji k	i di terdina da la constanta di Anna da di					Scale Type
Start 30.0			#\(B)A	/ 300 kHz		-	woon 20	Stop 82	24.0 191112	Log	<u>Lin</u>
#Res BW			#VBW	r JUU KHZ		5	weep 38	8.11 ms (1:	seer pisj		
30							STATUS	5			

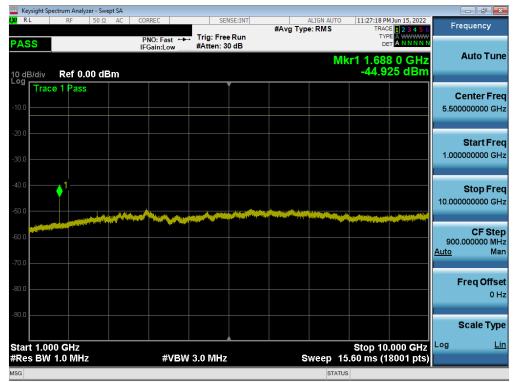
Plot 7-59. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - High Channel – Sub ANT)



Plot 7-60. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - High Channel – Sub ANT)

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Plot 7-61. Conducted Spurious Plot (LTE Band 5 - 10MHz QPSK - 1 RB - High Channel – Sub ANT)

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# NR Band n5 – Main ANT

EYSIGHT Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Off	Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	#Avg Type: Power (RMS 1 2 3 4 5 Trig: Free Run A WWWW A N N N N	427.000000 MHz
Spectrum v cale/Div 10 dB		Ref Level 20.00	dBm	Mkr1 822.95 MH -60.666 dBi	
Trace 1 Pass					Full Span Start Freq
0.0					30.000000 MHz Stop Freq 824.000000 MHz
					AUTO TUNE CF Step
					79.400000 MHz Auto Man
0.0		#Video BW 300		Stop 824.0 Mi	Freq Offset 0 Hz X Axis Scale

Plot 7-62. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Low Channel – Main ANT)



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

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



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

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 50 of 117
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KEYSIGHT Input: RF   Coupling: DC   Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Off	Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off		wwww N N N N	Center Frequency 924.500000 MHz	Settings
Spectrum v cale/Div 10 dB		Ref Level 20.00	dBm	Mkr1 849.4 -62.229	5 MHz	Span 151.000000 MHz Swept Span Zero Span	
Trace 1 Pass						Full Span	
0.0						849.000000 MHz Stop Freq	
0.0						1.000000000 GHz AUTO TUNE	
						CF Step 15.100000 MHz Auto	
0.0 1			**************************************			Man Freq Offset 0 Hz	
art 0.84900 GHz es BW 100 kHz		#Video BW 300	kHz	Stop 1.000 Sweep 7.25 ms (3	000 GHz	( Axis Scale Log Lin	
- n c - 1	Jun 21, 2022 10:12:41 AM				X	Signal Track Span Zoom)	

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



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

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT				
Test Report S/N:	Test Dates:	EUT Type:	Daga 51 of 117			
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EYSIGHT Input: RF Coupling: DC Align: Auto	Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Off	Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off		23456 AWWWWW ANNNNN	Center Frequency 427.000000 MHz Span	Settings
Spectrum v cale/Div 10 dB		Ref Level 20.00	dBm	Mkr1 819 -62.2	.55 MHz 41 dBm	794.000000 MHz Swept Span Zero Span	
<sup>-</sup> Trace 1 Pass						Full Span	
0.0						Start Freq 30.000000 MHz Stop Freg	
0.0						824.000000 MHz	
0.0						CF Step 79.400000 MHz	
0.0					1	Auto Man	
0.0						Freq Offset 0 Hz X Axis Scale	
art 30.0 MHz les BW 100 kHz		#Video BW 300	kHz	Stop Sweep 38.1 ms	824.0 MHz (15881 pts)	Log	

Plot 7-68. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - High Channel – Main ANT)



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

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT				
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Plot 7-70. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - High Channel – Main ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT					
Test Report S/N:	Test Dates:	EUT Type:	Dego 52 of 117				
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# NR Band n5 – Sub ANT

	ectrum Analy											- 0 ×
X/RL	RF	<u>50 Ω</u>	DC	CORREC		SEN	#Avg Typ	ALIGN AUTO	TRA	PM Jun 10, 2022 CE 1 2 3 4 5 6 (PE A WWWWW	Fre	quency
PASS	Ref 20	).00 d	Bm	IFGain:L	ast ↔ .ow	Atten: 30		N	lkr1 823	.05 MHz .53 dBm		Auto Tun
-og Trace	e 1 Pass					,						enter Fre 000000 MH
10.0												Start Fre
30.0											824.	<b>Stop Fre</b> 000000 MH
40.0											79. <u>Auto</u>	<b>CF Ste</b> 400000 M⊦ Ma
50.0					in the second second					1	F	reqOffse 0⊦
70.0	D.QL-1-								Otop (	324.0 MHz		cale Typ Li
Res BW		2		\$	¢VBW	300 kHz	s	weep 3	8.11 ms (	324.0 MHZ 15881 pts)		
ISG								STAT	JS			

Plot 7-71. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Low Channel – Sub ANT)

CORREC SENSE: IN			
	T ALIGN AUTO #Avg Type: RMS	08:50:19 PM Jun 10, 2022 TRACE 1 2 3 4 5 6	Frequency
PNO: Fast +++ Trig: Free Rur IFGain:Low Atten: 30 dB			
	N	lkr1 849.45 MHz -62.41 dBm	Auto Tun
T T T			Center Fre
			924.500000 MH
			Start Fre
			849.000000 MH
			Stop Fr
			1.000000000 G
			CF Ste 15.100000 M
			Auto M
			Freq Offs
**************************************	man and a state of the second of the second s	******	01
			Scale Typ
		0100 1.00000 0112	Log <u>L</u>
#VBW 300 kHz	Sweep	7.248 ms (3021 pts)	
	Atten: 30 dB	PNO: Fast → Trig: Free Run Atten: 30 dB     IFGain:Low     IGGAIN:Low     IGGAI	PNO: Fast + Trig: Free Run Iter: 30 dB Mkr1 849.45 MHz -62.41 dBm 

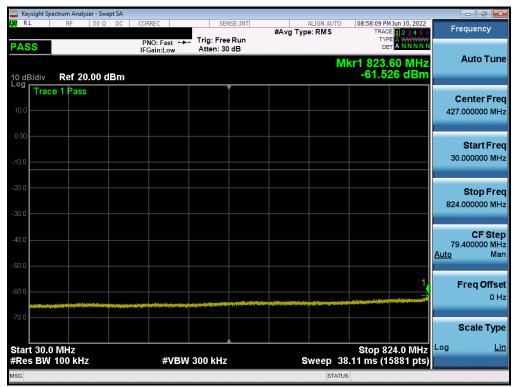
Plot 7-72. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Low Channel – Sub ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT	Approved by: Technical Manager
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XI RL	um Analyzer RF	50 Ω I		CORREC	SE	NSE:INT		ALIGN AUTO	08:50:41 P	M Jun 10, 2022		
							#Avg Typ		TRA	CE 1 2 3 4 5 6	Fr	equency
PASS				PNO: Fast ↔ IFGain:Low	Trig: Fre #Atten: 3				TY D	PE A WWWWW ET A N N N N N		
40 10/10	Ref 0.00	dBn	~					MI	(r1 4.95 -44 7	4 5 GHz 45 dBm		Auto Tui
10 dB/div		леп				•						
Trace	1 035										C	enter Fr
-10.0											5.500	0000000 G
-20.0												
-20.0												Start Fr
-30.0											1.000	000000 G
-40.0					1-							Stop Fr
											10.000	0000000 G
-50.0						$\sim$	$\sim$			<u>تىكارىدانات ئاتا</u>	10.000	
												OF Of
-60.0											900	CF St .000000 M
											<u>Auto</u>	М
-70.0												
											F	req Offs
-80.0												0
-90.0												
-50.0											;	Scale Ty
Start 1.000	<u></u>								Stop 40		Log	ļ
start 1.000 #				#VBV	/ 3.0 MHz			weep 1	5.60 ms.(1	).000 GHz 18001 pts)		
MSG								STATU				

Plot 7-73. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Low Channel – Sub ANT)



Plot 7-74. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Mid Channel – Sub ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT					
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	ectrum Analyzer - Swept SA					
LX/IRL	RF 50 Ω DC	CORREC	SENSE:INT	#Avg Type: RMS	08:58:14 PM Jun 10, 2022 TRACE 1 2 3 4 5 6	Frequency
PASS		PNO: Fast +++ IFGain:Low	Trig: Free Run Atten: 30 dB		TYPE A WWWW DET A NNNNN	Auto Tune
10 dB/div	Ref 20.00 dBm e 1 Pass		•		-62.08 dBm	
	e i Fass					Center Freq
0.00						924.500000 MHz
0.00						Start Freq
-10.0						849.000000 MHz
-20.0						Stop Freq
-30.0						1.000000000 GHz
-40.0						CF Step 15.100000 MHz Auto Man
-50.0						
-60.0						Freq Offset
and the second damage	nerfallfalfalfilletilletilletilletilletilletilletill	มาให้เกิดของรูปกรุงเทียงสาวเลือง	Now (Barnetty Arabahapping and	water and the second		0 Hz
-70.0						Scale Type
Start 0.84			000 1-11-		Stop 1.00000 GHz	Log <u>Lin</u>
#Res BW	TUU KHZ	#VBW	300 kHz	Sweep	7.248 ms (3021 pts)	
Woo				STAIL		

Plot 7-75. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Mid Channel – Sub ANT)



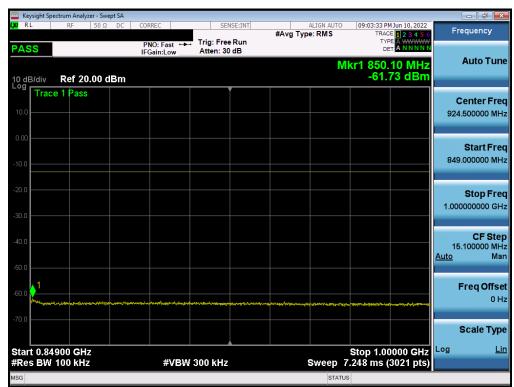
Plot 7-76. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - Mid Channel – Sub ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT					
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	Spectrum Analyzer - Swept SA						
LXI RL	RF 50 Ω DC	CORREC	SENSE:INT	#Avg Type: RN		1 Jun 10, 2022 E 1 2 3 4 5 6	Frequency
PASS		PNO: Fast +++ IFGain:Low	Trig: Free Run Atten: 30 dB	• ,1	TYF DE Mkr1 818.		Auto Tune
10 dB/div Log		n			-62.	00 dBm	
10.0	ace 1 Pass						Center Freq 427.000000 MHz
-10.00							Start Freq 30.000000 MHz
-20.0							Stop Freq 824.000000 MHz
-40.0							<b>CF Step</b> 79.400000 MHz <u>Auto</u> Man
-60.0		in a sign the france into a first \$2.000 into a first region	al ada ang ing ing ing ing ing ing ing ing ing i			1	Freq Offset 0 Hz
-70.0							Scale Type
Start 30 #Res Bl	0.0 MHz № 100 kHz	#VBW	300 kHz	Swee	Stop 8 p 38.11 ms (1	24.0 10112	_og <u>Lin</u>
MSG					STATUS		

Plot 7-77. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - High Channel – Sub ANT)



Plot 7-78. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - High Channel – Sub ANT)

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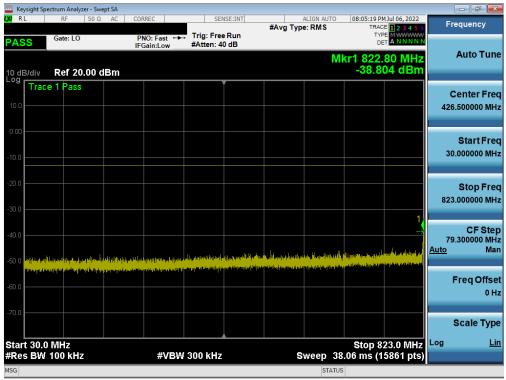
Plot 7-79. Conducted Spurious Plot (NR Band n5 - 20.0MHz - 1 RB - High Channel – Sub ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT	Approved by: Technical Manager	
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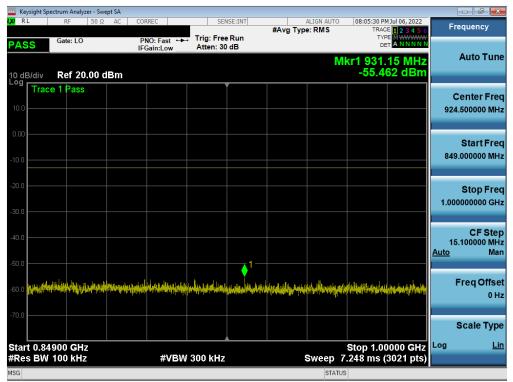
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# GSM/GPRS Cell – Main ANT



Plot 7-80. Conducted Spurious Plot (GPRS Ch. 128 - Main ANT)



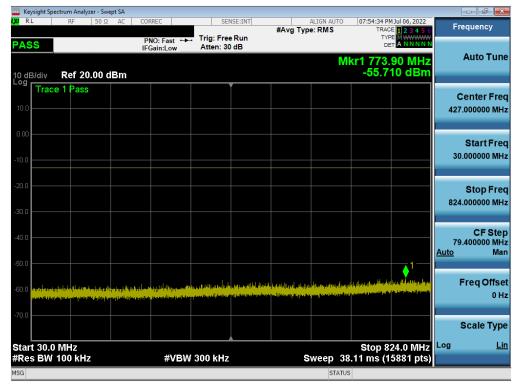
Plot 7-81. Conducted Spurious Plot (GPRS Ch. 128 – Main ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT	Approved by: Technical Manager	
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	ectrum Analy		pt SA									
X/RL	RF	<u>50 Ω</u>	AC	CORREC		SEN	#Avg Typ	ALIGN AUT e: RMS	TI	9 PM Jul 06, 2022 RACE 1 2 3 4 5 6	Fre	quency
PASS	Gate: LO			PNO: Fa	ast ↔ .ow	#Atten: 30						
10 dB/div	Ref 0.	00 dB	m					ľ	44. Nkr1 6.9	14 0 GHz 284 dBm		Auto Tun
Trac	e 1 Pass										C	enter Fre
10.0											5.500	000000 GH
20.0												
-30.0												Start Fre 000000 GH
00.0												
-40.0							<b>→</b> 1-					Stop Fre
-50.0				all sold							10.000	000000 GH
	and the second											CF Ste
60.0											900.0 Auto	000000 MH Ma
70.0												
80.0											F	req Offse
												0 H
90.0											s	cale Typ
Start 1.00	)0 GHz								Stop	10.000 GHz	Log	Li
#Res BW		z		#	¢VB₩	3.0 MHz	s	weep	90.00 ms	(18001 pts)		
ISG							 	STA	TUS			





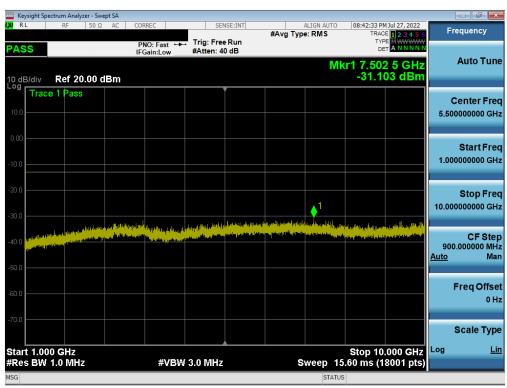


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		Analyzer - Sw										- J X
L <mark>XI</mark> RL	F	F 50 Ω	AC	CORREC	SE	NSE:INT	#Avg Typ	ALIGN AUTO		4 Jul 06, 2022	Fre	quency
PASS				PNO: Fast IFGain:Low	Trig: Fre		• ,,		TYF			_
				IFGain:Low	Atten. 5	UUD		M	kr1 853.			Auto Tune
10 dB/div	, Da	ef 20.00 (	1Bm					IV	-55.1	55 dBm		
Log	ace 1											
	ace n	633									C	enter Freq
10.0											924.	500000 MHz
0.00												Start Freq
-10.0												000000 MHz
-10.0												
-20.0												
												Stop Freq 000000 GHz
-30.0											1.000	000000 GHZ
-40.0											15.	CF Step 100000 MHz
											Auto	Man
-50.0	1—											
D. Hall	a tanan dalah	والمراجعة والمراجع	مماحيتها	data at model .	a the hole substitutes	والمرتجبة المرابع	بالمعام والمعالية	يتر بديا و	land alkan ta	ar and to U	F	req Offset
-60.0	111111											0 Hz
70.0												
-70.0											S	cale Type
Start 0.								-	Stop 1.0	0000 GHz	Log	Lin
#Res B۱	W 100	KHZ		#VE	300 kHz				7.248 ms (	3021 pts)		
MSG								STATU	S			

Plot 7-84. Conducted Spurious Plot (GPRS Ch. 190 – Main ANT)



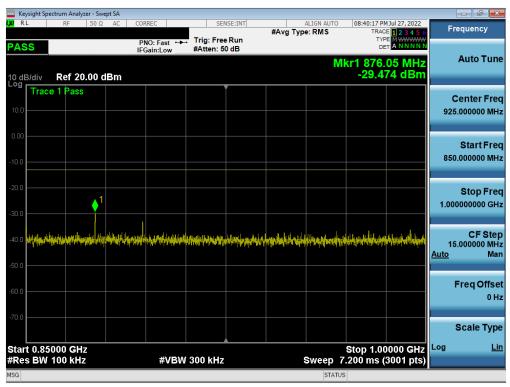
Plot 7-85. Conducted Spurious Plot (GPRS Ch. 190 – Main ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT	Approved by: Technical Manager	
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Keysight Spectrum Analyzer - Swept SA	
X     RL     RF     50 Ω     AC     CORREC     SENSE:INT     ALIGN AUTO     08:39:43 PM Jul 27, 2022       #Avg Type: RMS     TRACE     2.3.4.5.6     1     2.3.4.5.6     1	Frequency
PASS PNO: Fast ↔ Trig: Free Run TYPE WWWWW IGain:Low Atten: 30 dB DET ANNNN	
Mkr1 821.50 MHz	Auto Tune
10 dB/div Ref 20.00 dBm -41.055 dBm	
Log Trace 1 Pass	Center Freq
10.0	427.000000 MHz
	Start Freq 30.000000 MHz
-10.0	30.000000 MHZ
-20.0	Stop Freq
-30.0	824.000000 MHz
-40.0	CF Step 79.400000 MHz
Aut	
-50.0	
	<b>Freq Offset</b>
60.0 Printed with the state of the set of th	0 Hz
-70.0	
	Scale Type
	g <u>Lin</u>
Start 30.0 MHz Stop 824.0 MHz #VBW 300 kHz Sweep 38.11 ms (15881 pts)	
MSG	

Plot 7-86. Conducted Spurious Plot (GPRS Ch. 251 - Main ANT)



Plot 7-87. Conducted Spurious Plot (GPRS Ch. 251 – Main ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT	Approved by: Technical Manager	
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🔤 Keysight Spectrum Analy									
LXIRL RF	50 Ω AC CO	RREC	SEN	SE:INT	#Avg Typ	ALIGN AUTO		1 Jul 27, 2022	Frequency
PASS		NO: Fast 🔸	Trig: Free #Atten: 40		"···ə··)P		TYF De		
10 dB/div Ref 20	).00 dBm					Μ	4r1 7.19 -30.9	45 GHz 40 dBm	Auto Tune
Trace 1 Pass									Center Fred
10.0									5.50000000 GHz
0.00									Start Fred
-10.0									1.000000000 GHz
-20.0									Stop Fred
-30.0					•	1			10.000000000 GHz
In section discovery different section			ana ang ang ang ang ang ang ang ang ang	and and the providence of the second seco	u gitan eta antini su tan. La constancia interation		allan engledy aget Ny fanisken gener		CF Step
-40.0		a a a a a a a a a a a a a a a a a a a							900.000000 MHz <u>Auto</u> Man
-60.0									Freq Offset
									0 Hz
-70.0									Scale Type
Start 1.000 GHz #Res BW 1.0 MH	7	#VBW	3.0 MHz		s	ween 1	Stop 10 5.60 ms (1	.000 GHz 8001 pts)	Log <u>Lin</u>
MSG		<i></i>				STATU		ooor proj	

Plot 7-88. Conducted Spurious Plot (GPRS Ch. 251 - Main ANT)

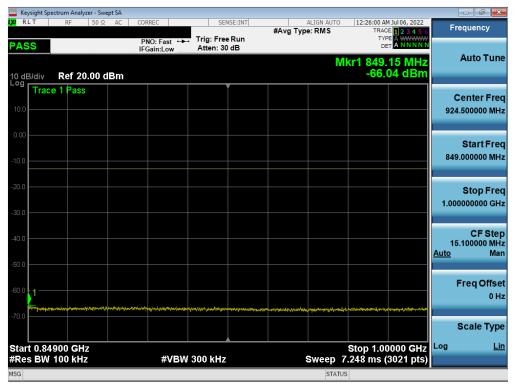
FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT	Approved by: Technical Manager
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# WCDMA Cell – Main ANT

Keysight Spectrum Ar	nalyzer - Swept SA						
X RLT RF	50 Ω AC	CORREC	SENSE:INT	ALIG #Avg Type: R	MS TR.	AM Jul 06, 2022 ACE 1 2 3 4 5 6 YPE A WWWWW DET A NNNNN	Frequency
PASS	20.00 dBm	IFGain:Low	Atten: 30 dB		Mkr1 823	8.00 MHz 940 dBm	Auto Tune
- <sup>og</sup> Trace 1 Pa	ASS						Center Free 426.500000 MH
10.0							Start Free 30.000000 MH
-20.0						1	Stop Free 823.000000 MH
40.0							CF Ste 79.300000 MH <u>Auto</u> Ma
60.0 70.0	a status in statutoren de era stil desentationen de era stil desentationen de era stil desentationen de era st		n da anta di mana di ma				Freq Offse 0 H
Start 30.0 MHz		#//DW	200 kHz		Stop	823.0 MHz	Scale Type Log <u>Li</u> i
#Res BW 100 k		#VBW	300 kHz	Swe	ep 38.06 ms (	19801 pts)	

Plot 7-89. Conducted Spurious Plot (WCDMA Ch. 4132 - Main ANT)



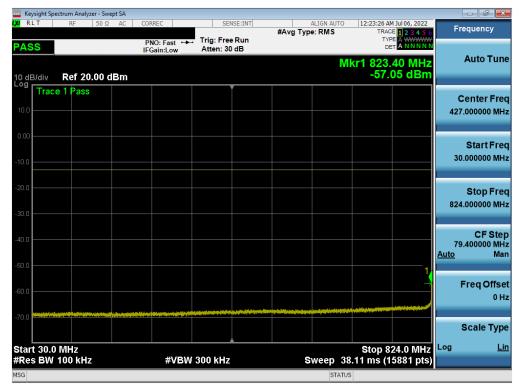
Plot 7-90. Conducted Spurious Plot (WCDMA Ch. 4132 – Main ANT)

FCC ID: PY7-76056F		PART 22 MEASUREMENT REPORT					
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			V3.0 1/4/2022				



Keysight Spectru											d 🗾
RLT	RF 50 Ω	AC	CORREC		NSE:INT	#Avg Typ	ALIGN AUT e: RMS	TR	AM Jul 06, 2022 ACE 1 2 3 4 5 6	Frequer	ncy
ASS			PNO: Fast ↔ IFGain:Low	Trig: Fre #Atten: 3				Т			_
0 dB/div R	ef 0.00 dE	3m					N	49. 148 49.	88 5 GHz 697 dBm	Auto	o Tur
og Trace 1	Pass				Ĭ					Cente	er Fre
10.0										5.5000000	
20.0											
20.0											rtFr
30.0										1.0000000	00 G
10.0											
10.0						<b>1</b>				Sto 10.0000000	p Fr
50.0										10.000000	00 G
				1						С	FSte
60.0										900.0000 Auto	
0.0										<u>Auto</u>	
										Freq	Offs
0.0											0
90.0											
										Scale	е Туј
tart 1.000 G								Stop 1		Log	Ţ
Res BW 1.0	MHŻ		#VB\	V 3.0 MHz		\$	weep	15.60 ms (	(18001 pts)		

Plot 7-91. Conducted Spurious Plot (WCDMA Ch. 4132 - Main ANT)



Plot 7-92. Conducted Spurious Plot (WCDMA Ch. 4183 - Main ANT)

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			V3.0 1/4/2022				



🔤 Keysight Spectrun											×
<b>LXI</b> RLT F	RF 50 Ω	AC CORE	REC	SEN	SE:INT	#Avg Typ	ALIGN AUTO e: RMS	12:23:32 AM TRACE	Jul 06, 2022	Frequency	
PASS			O: Fast ↔→ ain:Low	Trig: Free Atten: 30		• //		TYPI DE	A WWWWW A N N N N N		
10 dB/div Re	ef 20.00 dB	im					М	kr1 849. -53.9	05 MHz 93 dBm	Auto Tu	ne
Trace 1	Pass									Center Fr	eq
10.0										924.500000 M	Hz
0.00											
10.0										Start Fr 849.000000 M	
-10.0											
-20.0										Stop Fr	eq
-30.0										1.000000000 G	Hz
										CF St	en
-40.0										15.100000 M	
-50.0 1										Auto M	an
-60.0										Freq Offs	set
-00.0	All And in the second second second	Am Est Monthlamore	A Prefact the state with the se	d - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -					R. 18 No. 18. 196-1	0	Hz
-70.0						i an	(	an a		Scale Ty	ne
											Lin
Start 0.84900 #Res BW 100			#VBW	300 kHz			Sweep 7	Stop 1.00 2.248 ms (3	000 GHz 3021 pt <u>s)</u>		
MSG							STATU	_			

Plot 7-93. Conducted Spurious Plot (WCDMA Ch. 4183 – Main ANT)



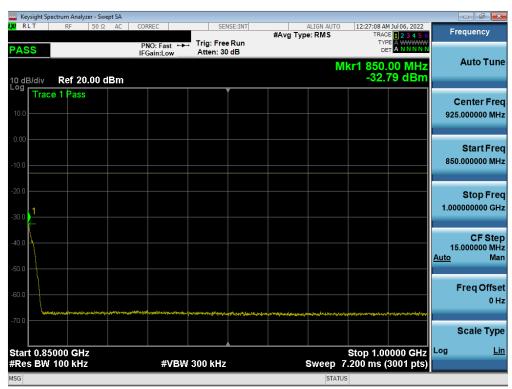
Plot 7-94. Conducted Spurious Plot (WCDMA Ch. 4183 - Main ANT)

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	ctrum Analyzer -									-	- 6 ×
LXI RLT	RF 5	Ω AC	CORREC	SEI	NSE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	M Jul 06, 2022	Fre	quency
PASS			PNO: Fast + IFGain:Low	Trig: Free Atten: 30				TYI Di			
10 dB/div	Ref 20.0	0 dBm					Μ	kr1 822. -65.	50 MHz 24 dBm		Auto Tune
Log Trac	e 1 Pass									Ce	enter Freq
10.0										427.0	000000 MHz
0.00											Start Freq
-10.0											000000 MHz
-20.0											Stop Freq
-30.0										024.0	00000 Wil12
-40.0										79 /	CF Step
-50.0										Auto	Man
-30.0										E	req Offset
-60.0									1		0 Hz
-70.0	and the sector of the sector o										a a la Trima
											cale Type
Start 30.0 #Res BW			#VB	W 300 kHz		S	weep 38	8 Stop 1) Stop	24.0 MHz 5881 pts)	Log	<u>Lin</u>
MSG							STATUS	5			

Plot 7-95. Conducted Spurious Plot (WCDMA Ch. 4233 – Main ANT)



Plot 7-96. Conducted Spurious Plot (WCDMA Ch. 4233 - Main ANT)

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	ectrum Analyz		t SA											
L <mark>XI</mark> RLT	RF	50 Ω	AC	CORREC		SE	NSE:INT	#Ava	ALIGN Type: RM			AM Jul 06, 2022 CE 1 2 3 4 5 6	F	requency
PASS				PNO: F IFGain:	ast ↔ Low	Trig: Fre #Atten: 3			- ypc. rei		T) E			Auto Tuno
10 dB/div Log	Ref 0.0	)0 dBi	m							Mk	r1 6.90 -49.6	4 5 GHz 53 dBm		Auto Tune
Trac	e 1 Pass						Ĭ						(	Center Freq
-10.0														0000000 GHz
-20.0														
-20.0														Start Freq
-30.0													1.00	0000000 GHz
-40.0														
-40.0									1				10.00	Stop Freq 0000000 GHz
-50.0						-		N- Providence					10.00	0000000 GHZ
-	a de la companya de l										an an fair a state a sa an			CF Step
-60.0													900 <u>Auto</u>	0.000000 MHz Man
-70.0													<u>Auto</u>	Mari
														Freq Offset
-80.0														0 Hz
-90.0														
														Scale Type
Start 1.00											Stop 1	0.000 GHz	Log	<u>Lin</u>
#Res BW	1.0 MHz				#VBW	3.0 MHz					.60 ms (	18001 pts)		
MSG										STATUS				

Plot 7-97. Conducted Spurious Plot (WCDMA Ch. 4233 – Main ANT)

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## 7.5 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 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  $\geq 2 \times \text{Span/RBW}$
- 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 7-4. Test Instrument & Measurement Setup

## **Test Notes**

- 1. 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 is 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.

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