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PART 22 MEASUREMENT REPORT

PY7-57441Y

Applicant Name:

Sony Mobile Communications 4-12-3 Higashi-Shinagawa Shinagawa-ku Tokyo, 140-0002, Japan

Date of Testing:

7/9 - 9/30/2020 **Test Site/Location:** PCTEST Lab. Columbia, MD, USA **Test Report Serial No.:** 1M2007070106-14-R2.PY7

FCC ID:

Applicant Name:

Sony Mobile Communications Inc

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, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01

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.

This revised Test Report (S/N: 1M2007070106-14-R2.FCC Report SNs) 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.

Randy Ortanez President



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			T	EF	RP	EIRP		Employedam
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Max. Power [W]	Max. Power [dBm]	Emission Designator
GSM/GPRS	N1/A	GMSK	824.2 - 848.8	0.245	23.89	0.402	26.04	241KGXW
EDGE	N/A	8-PSK	824.2 - 848.8	0.054	17.36	0.089	19.51	241KG7W
WCDMA	N/A	Spread Spectrum	826.4 - 846.6	0.057	17.56	0.094	19.71	4M16F9W
		QPSK	831.5 - 841.5	0.031	14.93	0.051	17.08	13M5G7D
	15MHz	16QAM	831.5 - 841.5	0.026	14.17	0.043	16.32	13M5W7D
	(Band 26 only)	64QAM	831.5 - 841.5	0.021	13.12	0.034	15.27	13M5W7D
		QPSK	829.0 - 844.0	0.033	15.14	0.054	17.29	9M02G7D
	10 MHz	16QAM	829.0 - 844.0	0.026	14.22	0.043	16.37	9M03W7D
		64QAM	829.0 - 844.0	0.020	13.10	0.033	15.25	9M01W7D
		QPSK	826.5 - 846.5	0.032	15.02	0.052	17.17	4M55G7D
LTE Band 26/5	5 MHz	16QAM	826.5 - 846.5	0.030	14.73	0.049	16.88	4M53W7D
		64QAM	826.5 - 846.5	0.022	13.43	0.036	15.58	4M55W7D
		QPSK	825.5 - 847.5	0.031	14.98	0.052	17.13	2M71G7D
	3 MHz	16QAM	825.5 - 847.5	0.026	14.17	0.043	16.32	2M71W7D
		64QAM	825.5 - 847.5	0.021	13.15	0.034	15.30	2M71W7D
		QPSK	824.7 - 848.3	0.032	15.09	0.053	17.24	1M10G7D
	1.4 MHz	16QAM	824.7 - 848.3	0.026	14.19	0.043	16.34	1M10W7D
		64QAM	824.7 - 848.3	0.021	13.14	0.034	15.29	1M09W7D
		π/2 BPSK	834.0 - 839.0	0.020	12.92	0.032	15.07	19M3G7D
		QPSK	834.0 - 839.0	0.020	13.08	0.033	15.23	20M3G7D
	20 MHz	16QAM	834.0 - 839.0	0.016	12.09	0.027	14.24	20M2W7D
		64QAM	834.0 - 839.0	0.011	10.35	0.018	12.50	20M4W7D
		π/2 BPSK	831.5 - 841.5	0.020	13.10	0.034	15.25	13M5G7D
		QPSK	831.5 - 841.5	0.019	12.74	0.031	14.89	14M2G7D
	15 MHz	16QAM	831.5 - 841.5	0.013	11.10	0.021	13.25	14M2W7D
ND Dand of		64QAM	831.5 - 841.5	0.007	8.59	0.012	10.74	14M2W7D
NR Band n5		π/2 BPSK	829.0 - 844.0	0.017	12.39	0.028	14.54	8M97G7D
		QPSK	829.0 - 844.0	0.017	12.34	0.028	14.49	9M34G7D
	10 MHz	16QAM	829.0 - 844.0	0.015	11.76	0.025	13.91	9M37W7D
		64QAM	829.0 - 844.0	0.007	8.34	0.011	10.49	9M39W7D
		π/2 BPSK	826.5 - 846.5	0.021	13.13	0.034	15.28	4M50G7D
	5 MHz	QPSK	826.5 - 846.5	0.018	12.54	0.029	14.69	4M50G7D
	5 MHZ	16QAM	826.5 - 846.5	0.016	12.01	0.026	14.16	4M50W7D
		64QAM	826.5 - 846.5	0.007	8.58	0.012	10.73	4M50W7D

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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 PCTEST Test Location

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

1.3 Test Facility / Accreditations

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

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the SONY **Portable Handset FCC ID:PY7-57441Y**. 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.: 64264, 83171, 81811

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900, WCDMA/HSPA, Multi-band LTE, 5G NR (n5, n66, n2, n260, n261), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE), NFC

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 0 of this test report for a description of the radiated and antenna port conducted emissions tests.

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

Deviation from Measurement Procedure.....None

3.2 Radiated Power and Radiated Spurious Emissions

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

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

For radiated power measurements, substitution method is used per the guidance of ANSI/TIA-603-E-2016. A halfwave 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 $P_{g \text{ [dBm]}}$ – cable loss [dB].

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

$$\begin{split} E_{[dB\mu V/m]} &= Measured \ amplitude \ level_{[dBm]} + 107 + Cable \ Loss_{[dB]} + Antenna \ Factor_{[dB/m]} \\ And \\ EIRP_{[dBm]} &= E_{[dB\mu V/m]} + 20logD - 104.8; \ where \ D \ is the measurement \ distance \ in \ meters. \end{split}$$

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 474788 D01.

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

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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 Date	Cal Interval	Cal Due	Serial Number
-	LTx2	Licensed Transmitter Cable Set	4/9/2020	Annual	4/9/2021	LTx2
-	LTx3	Licensed Transmitter Cable Set	10/30/2019	Annual	10/30/2020	LTx3
Anritsu	MT8821C	Radio Communication Analyzer	3/10/2020	Annual	3/10/2021	6200901190
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2019	Biennial	10/10/2021	121034
Emco	3115	Horn Antenna (1-18GHz)	6/18/2020	Biennial	6/18/2022	9704-5182
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	2/14/2019	Biennial	2/14/2021	125518
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	3/12/2020	Biennial	3/12/2022	128337
ETS-Lindgren	3115	Double Ridged Guide Horn 750MHz - 18GHz	3/12/2020	Biennial	3/12/2022	150693
Hewlett-Packard	8648D	(9kHz-4GHz) Signal Generator	6/23/2020	Annual	6/23/2021	3613A00315
Keysight Technologies	N9020A	MXA Signal Analyzer	8/14/2020	Annual	8/14/2021	US46470561
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	8/17/2020	Annual	8/17/2021	MY52350166
Mini Circuits	TVA-11-422	RF Power Amp		N/A		QA1317001
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator		N/A		11208010032
Rohde & Schwarz	CMU200	Base Station Simulator		N/A		836536/0005
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	11/1/2019	Annual	11/1/2020	100040
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/23/2019	Annual	9/23/2020	100348
Rohde & Schwarz	TC-TA18	Cross-Pol Antenna 400MHz-18GHz	7/8/2020	Biennial	7/8/2022	101058
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	2/10/2020	Annual	2/10/2021	102134
Sunol	DRH-118	Horn Antenna (1-18GHz)	10/3/2019	Biennial	10/3/2021	A050307
Sunol Science	JB5	Bi-Log Antenna (30M - 5GHz)	7/27/2020	Biennial	7/27/2022	A051107

Table 5-1. Test Equipment

Notes:

- 1. For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.
- 2. Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

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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

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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 Mobile Communications Inc
FCC ID:	<u>PY7-57441Y</u>
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Mode(s):	GSM/GPRS/EDGE/WCDMA/LTE/NR

Test Condition	Test Description	FCC Part Section(s)	RSS Section(s)	Test Limit	Test Result	Reference
	Occupied Bandwidth	2.1049	RSS-139(2.3)	N/A	PASS	Section 7.3
CTED	Conducted Band Edge / Spurious Emissions	2.1051, 22.917(a)	RSS-132(5.5)	> 43 + 10log10(P[Watts]) at Band Edge and for all out-of- band emissions	PASS	Sections 7.4, 7.5
CONDUCTED	Transmitter Conducted Output Power	2.1046	RSS-132(5.4)	N/A	PASS	See Section 7.2 / RF Exposure Report
	Frequency Stability	2.1055, 22.355	RSS-132(5.3)	Fundamental emissions stay within authorized frequency block	PASS	Section 7.9
	Effective Radiated Power / Equivalent Isotropic Radiated Power	22.913(a)(5)	RSS-132(5.4)	< 7 Watts max. ERP	PASS	Section 7.7
RADI	Radiated Spurious Emissions	2.1053, 22.917(a)	RSS-132(5.5)	> 43 + 10 log10 (P[Watts]) for all out-of-band emissions	PASS	Section 7.8

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 PCTEST 2G/3G Automation Version 4.5, LTE Automation Version 5.3.

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7.2 Conducted Power Output Data

Test Overview

The EUT is set up to transmit two contiguous LTE channels. The power level of both carriers is measured by means of a calibrated spectrum analyzer. 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

KDB 971168 D01 v03r01 – Section 6.0 KDB 941225 D05 v02

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. Uplink carrier aggregation is only supported in this EUT while operating in Power Class 3.
- 2. 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.
- 3. 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.
- 4. All other conducted power measurements are contained in the RF exposure report for this filing.

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LTE Band 26/5

LTE Band 26 (Cell) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Mid Channel 26865 (831.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]		
	1	0	23.75		0		
	1	36	23.76	0	0		
	1	74	23.65		0		
QPSK	36	0	23.32		1		
	36	18	23.30	0-1	1		
	36	37	23.29	0-1	1		
	75	0	23.31		1		
	1	0	23.44		1		
	1	36	23.45	0-1	1		
	1	74	23.35		1		
16QAM	36	0	22.07		2		
	36	18	22.05	0-2	2		
	36	37	22.05	0-2	2		
	75	0	22.06		2		
	1	0	22.13		2		
	1	36	22.16	0-2	2		
	1	74	22.07		2		
64QAM	36	0	21.06		3		
	36	18	21.06	0.2	3		
	36	37	21.05	0-3	3		
	75	0	21.05		3		

Table 7-2. LTE Band 26 (Cell) Measured Pmax for all DSI - 15 MHz Bandwidth

Note: LTE Band 26 (Cell) at 15 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

				LTE Band 26 (Cell) 10 MHz Bandwidth			
Modulation	RB Size	RB Offset	Low Channel 26740 (819.0 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 26990 (844.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			(Conducted Power [dBm]		
	1	0	24.07	23.93	23.86		0
	1	25	23.90	23.90	23.72	0	0
	1	49	23.93	23.90	23.68		0
QPSK	25	0	23.16	22.97	22.99		1
	25	12	23.15	23.09	22.97	0-1	1
	25	25	23.04	23.00	22.93	0-1	1
	50	0	23.14	23.05	22.93		1
	1	0	22.96	23.27	23.05	<u> </u>	1
	1	25	22.82	23.21	22.97	0-1	1
	1	49	22.77	23.16	22.91		1
16QAM	25	0	21.93	21.79	21.81		2
	25	12	21.90	21.88	21.76	0-2	2
	25	25	21.81	21.79	21.78	0-2	2
	50	0	21.85	21.75	21.65		2
	1	0	21.80	21.79	21.94		2
	1	25	21.64	21.77	21.99	0-2	2
	1	49	21.60	21.82	21.78		2
64QAM	25	0	21.00	20.80	20.79		3
	25	12	20.98	20.86	20.78		3
	25	25	20.86	20.80	20.73	0-3	3
	50	0	20.87	20.83	20.71	1	3

Table 7-3. LTE Band 26/5 (Cell) Measured Pmax for all DSI - 10 MHz Bandwidth

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	1	1		

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				LTE Band 26 (Cell)			
Modulation RB Siz	RB Size	RB Size RB Offset	Low Channel 26715 (816.5 MHz)	5 MHz Bandwidth Mid Channel 26865 (831.5 MHz)	High Channel 27015 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			(Conducted Power [dBm]		
	1	0	24.18	24.02	23.84		0
	1	12	24.10	24.04	23.81	0	0
	1	24	24.01	24.03	23.75		0
QPSK	12	0	23.22	23.06	23.00		1
	12	6	23.24	23.07	22.96	0-1	1
	12	13	23.11	23.01	22.86	0-1	1
	25	0	23.16	23.05	22.97		1
	1	0	23.04	23.11	22.84		1
	1	12	22.95	23.14	22.78	0-1	1
	1	24	22.81	23.10	22.83		1
16QAM	12	0	21.94	21.93	21.73		2
	12	6	21.93	21.96	21.72	0-2	2
	12	13	21.84	21.89	21.62	0-2	2
	25	0	21.91	21.73	21.75		2
	1	0	22.34	22.35	21.88		2
	1	12	22.21	22.39	21.81	0-2	2
	1	24	22.08	22.40	21.75		2
64QAM	12	0	21.03	20.78	20.64		3
	12	6	21.00	20.83	20.64		3
	12	13	20.87	20.79	20.54	- 0-3 -	3
	25	0	20.91	20.89	20.71		3

Table 7-4. LTE Band 26/5 (Cell) Measured Pmax for all DSI - 5 MHz Bandwidth

				LTE Band 26 (Cell)			
				3 MHz Bandwidth		1 1	
			Low Channel	Mid Channel	High Channel		
Modulation	RB Size	RB Offset	26705	26865		MPR Allowed per	MPR [dB]
modulution			(815.5 MHz)	(831.5 MHz)	(847.5 MHz)	3GPP [dB]	
				Conducted Power [dBm]		
	1	0	24.08	23.88	23.87		0
	1	7	24.05	23.90	23.79	0	0
	1	14	23.91	23.93	23.74	Τ Γ	0
QPSK	8	0	23.17	22.97	22.96		1
	8	4	23.20	23.06	22.96	0-1	1
	8	7	23.11	22.96	22.88	- 0-1	1
	15	0	23.19	23.03	22.91		1
	1	0	23.21	22.81	23.20		1
	1	7	23.10	22.80	23.14	0-1	1
	1	14	23.03	22.77	23.09		1
16QAM	8	0	21.98	21.73	21.80		2
	8	4	21.98	21.79	21.80	0-2	2
	8	7	21.90	21.76	21.71	0-2	2
	15	0	21.99	21.71	21.73		2
	1	0	22.24	21.66	21.80		2
	1	7	22.11	21.67	21.75	0-2	2
	1	14	22.04	21.76	21.71		2
64QAM	8	0	21.01	20.69	20.78		3
	8	4	20.98	20.78	20.80	0-3	3
	8	7	20.91	20.74	20.70	0-3	3
	15	0	20.90	20.87	20.65		3

Table 7-5. LTE Band 26/5 (Cell) Measured Pmax for all DSI - 3 MHz Bandwidth

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				LTE Band 26 (Cell) 1.4 MHz Bandwidth			
Modulation	RB Size	RB Offset	Low Channel 26697 (814.7 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27033 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
				Conducted Power [dBm]	T I	
	1	0	23.97	23.81	23.67		0
	1	2	24.03	23.91	23.73	1	0
	1	5	23.90	23.82	23.65		0
QPSK	3	0	24.06	23.86	23.78	0	0
	3	2	24.06	23.95	23.85		0
	3	3	23.99	23.87	23.76		0
	6	0	23.10	22.92	22.80		1
	1	0	23.07	22.71	22.80		1
	1	2	23.13	22.82	22.88	1	1
	1	5	23.04	22.74	22.77	0-1	1
16QAM	3	0	22.84	22.75	22.55	0-1	1
	3	2	22.85	22.87	22.58		1
	3	3	22.75	22.79	22.51		1
	6	0	21.80	21.67	21.52	0-2	2
	1	0	22.09	21.59	21.77		2
	1	2	22.11	21.69	21.81	1	2
	1	5	22.03	21.58	21.76	0-2	2
64QAM	3	0	22.00	21.78	21.74		2
	3	2	22.03	21.93	21.77	1 [2
	3	3	22.02	21.85	21.72		2
	6	0	20.88	20.72	20.66	0-3	3

Table 7-6. LTE Band 26/5 (Cell) Measured P_{max} for all DSI - 1.4 MHz Bandwidth

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NR Band 5

		NR Band 20 MHz Ban			
		Channel			
Modulation	RB Size	RB Offset	167300 (836.5 MHz)	MPR Allowed per 3GPP	MPR [dB]
			Conducted Power [dBm]	[dB]	
	1	1	24.12		0.0
	1	53	24.22	0	0.0
DFT-s-OFDM	1	104	23.53		0.0
$\pi/2$ BPSK	50	0	23.64	0-0.5	0.5
WZ DI SK	50	28	24.01	0	0.0
	50	56	23.53	0-0.5	0.5
	100	0	23.56		0.5
	1	1	24.10		0.0
	1	53	24.06	0	0.0
DFT-s-OFDM	1	104	23.34		0.0
QPSK	50	0	23.09	0-1	1.0
QFOR	50	28	24.06	0	0.0
	50	56	22.97	0-1	1.0
	100	0	23.07	0-1	1.0
DFT-s-OFDM 16QAM	1	1	22.99	0-1	1.0
CP-OFDM QPSK	1	1	22.62	0-1.5	1.5

Table 7-7. NR Band n5 Measured Pmax for all DSI - 20 MHz Bandwidth

Note: NR Band n5 (Cell) at 20 MHz bandwidth does not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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NR Band n5 15 MHz Bandwidth						
			Channel			
Modulation	RB Size	RB Offset	167300 (836.5 MHz)	MPR Allowed per 3GPP	MPR [dB]	
			Conducted Power [dBm]	[dB]		
	1	1	24.04		0.0	
	1	40	23.97	0	0.0	
DFT-s-OFDM	1	77	23.91		0.0	
$\pi/2$ BPSK	36	0	23.46	0-0.5	0.5	
n/2 DI SIX	36	22	23.91	0	0.0	
	36	43	23.39	0-0.5	0.5	
	75	0	23.42	0-0.0	0.5	
	1	1	24.04		0.0	
	1	40	23.88	0	0.0	
DFT-s-OFDM	1	77	23.57		0.0	
QPSK	36	0	22.95	0-1	1.0	
QION	36	22	23.86	0	0.0	
	36	43	22.83	0-1	1.0	
	75	0	22.88	0-1	1.0	
DFT-s-OFDM 16QAM	1	1	22.96	0-1	1.0	
CP-OFDM QPSK	1	1	22.33	0-1.5	1.5	

Table 7-8. NR Band n5 Measured Pmax for all DSI - 15 MHz Bandwidth

Note: NR Band n5 (Cell) at 15 MHz bandwidth does not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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-	NR Band n5 10 MHz Bandwidth						
Modulation	RB Size RB Offset		Channel 167300 (836.5 MHz) Conducted	MPR Allowed per 3GPP [dB]	MPR [dB]		
			Power [dBm]				
	1	1	23.87		0.0		
	1	26	23.94	0	0.0		
DFT-s-OFDM	1	50	23.81		0.0		
$\pi/2$ BPSK	25	0	23.42	0-0.5	0.5		
<i>M</i> 2 DI SIX	25	14	23.92	0	0.0		
	25	27	23.29	0-0.5	0.5		
	50	0	23.39	0-0.5	0.5		
	1	1	23.84		0.0		
	1	26	23.87	0	0.0		
	1	50	23.85		0.0		
DFT-s-OFDM QPSK	25	0	22.81	0-1	1.0		
QFSN	25	14	23.85	0	0.0		
	25	27	22.79	0.1	1.0		
	50	0	22.84	0-1	1.0		
DFT-s-OFDM 16QAM	1	1	22.76	0-1	1.0		
CP-OFDM QPSK	1	1	22.12	0-1.5	1.5		

Table 7-9. NR Band n5 Measured Pmax for all DSI - 10 MHz Bandwidth

Note: NR Band n5 (Cell) at 10 MHz bandwidth does not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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NR Band n5 5 MHz Bandwidth								
Modulation	RB Size	RB Size RB Offset	165300 (826.5 MHz)	167300 (836.5 MHz)	169300 (846.5 MHz)	MPR Allowed per 3GPP	MPR [dB]	
			Cor	[dB]	·1			
	1	1	23.96	23.90	23.81		0.0	
	1	13	23.81	23.84	23.68	0	0.0	
DFT-s-OFDM π/2 BPSK	1	23	23.84	23.77	23.59		0.0	
	12	0	23.44	23.34	23.04	0-0.5	0.5	
1/2 DPSK	12	7	23.96	23.89	23.42	0	0.0	
	12	13	23.36	23.29	23.09	0-0.5	0.5	
	25	0	23.40	23.35	23.17		0.5	
	1	1	23.98	23.88	23.78	0	0.0	
	1	13	23.95	23.82	23.54		0.0	
	1	23	23.80	23.83	23.66		0.0	
DFT-s-OFDM QPSK	12	0	22.93	22.90	22.57	0-1	1.0	
QFSK	12	7	23.84	23.79	23.38	0	0.0	
	12	13	22.87	22.82	22.63	0-1	1.0	
	25	0	22.88	22.85	22.66	0-1	1.0	
DFT-s-OFDM 16QAM	1	1	22.96	22.84	22.80	0-1	1.0	
CP-OFDM QPSK	1	1	22.47	22.08	22.01	0-1.5	1.5	

Table 7-10. NR Band n5 Measured Pmax for all DSI - 5 MHz Bandwidth

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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

KDB 971168 D01 v03r01 - Section 4.2

Test Settings

- 1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 1 5% of the expected OBW
- 3. VBW \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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GPRS Cell



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

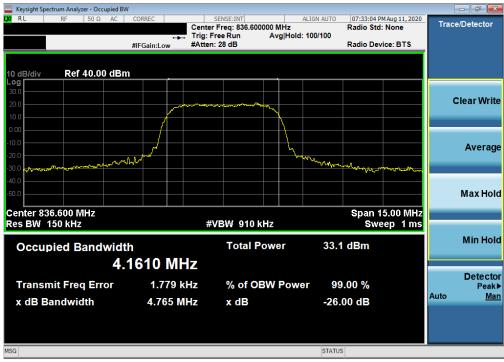


Plot 7-2. Occupied Bandwidth Plot (EDGE, Ch. 190)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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WCDMA Cell

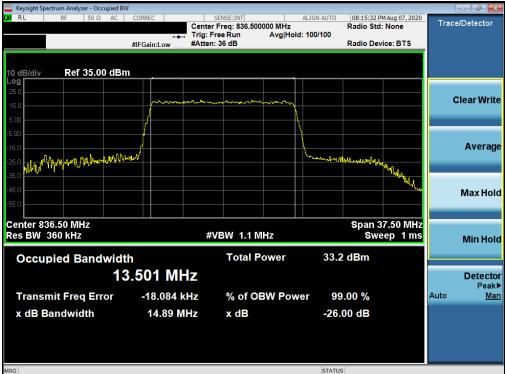


Plot 7-3. Occupied Bandwidth Plot (WCDMA, Ch. 4183)

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LTE Band 26/5



Plot 7-4. Occupied Bandwidth Plot (LTE Band 26 - 15MHz QPSK - Full RB Configuration)



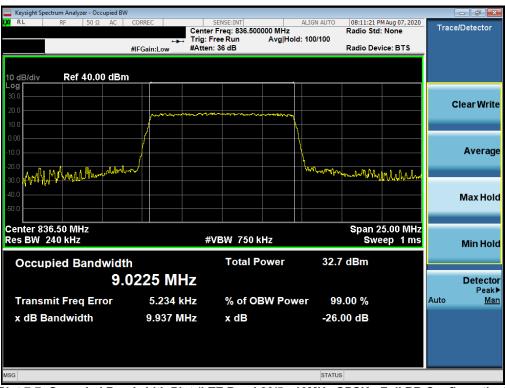
Plot 7-5. Occupied Bandwidth Plot (LTE Band 26 - 15MHz 16-QAM - Full RB Configuration)

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Keysight Spectrum Analyzer - Occu					
X/RL RF 50Ω		SENSE:INT Center Frea: 836.500000 M	ALIGN AUTO	08:15:57 PM Aug 07, 2020 Radio Std: None	Trace/Detector
			Hold: 100/100	Radio Device: BTS	
10 dB/div Ref 35.00	dBm				
_og					
25.0	Marchet Screen				Clear Writ
5.00					
5.00	/				
15.0					Averag
25.0	Market and a second second		"TUY-or Andrew Property	amore that we have the second	
45.0				****	Max Ho
-55.0					maxito
Center 836.50 MHz				Span 37.50 MHz	
Res BW 360 kHz		#VBW 1.1 MHz		Sweep 1 ms	Min Hol
Occupied Bandy	vidth	Total Powe	r 30.5	5 dBm	
	13.508 MH	Z			Detecto
Transmit Freq Erro	or -13.606 kH	lz % of OBW F	ower 99	9.00 %	Peak Auto <u>Ma</u>
x dB Bandwidth	14.74 MF		-26.	.00 dB	
SG			STATU:	S	

Plot 7-6. Occupied Bandwidth Plot (LTE Band 26 - 15MHz 64-QAM - Full RB Configuration)



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

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied						
LXIRL RF 50Ω AC		SENSE:INT Center Freg: 836.500	ALIGN AUTO	08:11:59 PM Radio Std:	Aug 07, 2020 None	Trace/Detector
	- -	Trig: Free Run	Avg Hold:>100/100			
	#IFGain:Low	#Atten: 36 dB		Radio Devi	ce: BTS	
10 dB/div Ref 40.00 dE	3m					
30.0						
20.0						Clear Write
10.0	mendlemment	man man man	mont			
0.00	/		l l			
-10.0	/		1 V			Average
						Average
-20.0	muh		malina	-marine		
multiport multiple and				C TO CHANK CAN	℠୶୳ୠୗ୕୕ୢୄୄୄୄ୷ୄୗ୰ଵୄୄଊ୷୶୷୷	
-40.0						Max Hold
-50.0						
Center 836.50 MHz				Span 25	5.00 MHz	
Res BW 240 kHz		#VBW 750 k	Hz		ep 1 ms	Min Hold
						WIITTIOIG
Occupied Bandwic	ith	Total P	ower 31.	0 dBm		
9	.0276 MH	Z				Detector
						Peak▶
Transmit Freq Error	7.124 kH	z % of OE	3W Power 9	9.00 %		Auto <u>Man</u>
x dB Bandwidth	9.942 MH	z xdB	-26	.00 dB		
MSG			STATU	JS		

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



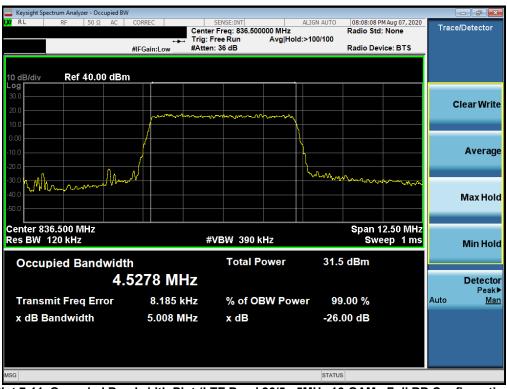
Plot 7-9. Occupied Bandwidth Plot (LTE Band 26/5 - 10MHz 64-QAM - Full RB Configuration)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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IX RL RF 50Ω AC 0	CORREC	SENSE:INT nter Freg: 836.500		ALIGN AUTO	08:07:52 P	M Aug 07, 2020	Trac	e/Detector
	ter Tri	ig: Free Run	Avg Hold:	100/100				
#	#IFGain:Low #A	tten: 36 dB			Radio Dev	ice: BTS		
10 dB/div Ref 40.00 dBm								
Log 30.0								
							(Clear Write
20.0	mmm	- mar and a marked	m					
10.0	d							
0.00								
-10.0								Average
-20.0 an AB - Man Anna Man Anna Anna Anna Anna Anna A	<u></u>			mana ad	w_{M}	1000		
-30.0 Marthan	V				• ሆ የሆላ ሥ	~~~~~~		
-40.0								Max Hold
-50.0								Muxitolu
Center 836.500 MHz						2.50 MHz		
Res BW 120 kHz		#VBW 390 k	Hz		Swe	ep 1 ms		Min Hold
Occupied Bandwidth		Total P	ower	33.0	dBm			
		rotarr		00.0	abiii			
4.5	456 MHz							Detector
Transmit Freq Error	-6.518 kHz	% of O	3W Powe	r 99	.00 %		Auto	Peak▶ Man
x dB Bandwidth	5.029 MHz	x dB		-26.0	00 dB			
MSG				STATUS				

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



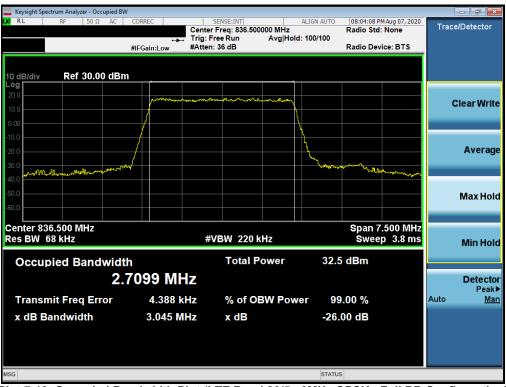
Plot 7-11. Occupied Bandwidth Plot (LTE Band 26/5 - 5MHz 16-QAM - Full RB Configuration)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 26 of 02
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🔤 Keysight Spectrum Analyzer - Occupied B					
<mark>LX/</mark> RL RF 50Ω AC		SENSE:INT Freq: 836.500000 MHz	ALIGN AUTO 08:08:21 F Radio Std	M Aug 07, 2020	Trace/Detector
	Trig: F	ree Run Avg Hold	1: 100/100		
	#IFGain:Low #Atten	:: 36 dB	Radio Dev	vice: BTS	
10 dB/div Ref 40.00 dBi	m				
Log 30.0					
20.0					Clear Write
	mannaman	mmmmmm			
10.0					
0.00					
-10.0					Average
-20.0				A	
-30.0	~~		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	man	
-40.0 mm mm					Max Hold
-50.0					
Center 836.500 MHz Res BW 120 kHz	#1	VBW 390 kHz		2.50 MHz eep 1 ms	
Res BW 120 KHZ	#	VEVV JSUKEZ	510	eep mis	Min Hold
Occupied Bandwid	th	Total Power	30.3 dBm		
					Detector
4.	.5518 MHz				Detector Peak▶
Transmit Freq Error	-43 Hz	% of OBW Pow	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	5.032 MHz	x dB	-26.00 dB		
MSG			STATUS		
			514105		

Plot 7-12. Occupied Bandwidth Plot (LTE Band 26/5 - 5MHz 64-QAM - Full RB Configuration)



Plot 7-13. Occupied Bandwidth Plot (LTE Band 26/5 - 3MHz QPSK - Full RB Configuration)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 27 of 02
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Keysight Spectrum Analyzer - Occupied BW							
LX RL RF 50Ω AC	CORREC	SENSE:INT Center Freq: 836.500	ALIGN AUT	0 08:04:26 P Radio Std	M Aug 07, 2020 : None	Trace/Dete	ctor
	++→ #IFGain:Low		Avg Hold: 100/100	Radio Dev	ice: BTS		
	#IFGain:Low	#Atten: 36 dB		Radio Dev	ice. B13		
10 dB/div Ref 30.00 dBm							
Log							
20.0	motor	Mun the man	mallhorn			Clear	Write
10.0						Gicai	
0.00							
-10.0							
-20.0						AV	erage
-30.0 -40.0	<i>,</i>		استربع	how when	mlyman		
-50.0						Max	Hold
-60.0							_
Center 836.500 MHz					.500 MHz		
Res BW/68 kHz		#VBW 2201	(Hz	Swee	p 3.8 ms	Min	Hold
Occupied Bandwidt	•	Total F	ower 31	.1 dBm			
			0.001				
2.0	7121 MF	1Z					ector Peak ►
Transmit Freq Error	-1.362 k	Hz % of O	BW Power	99.00 %		Auto	Man
x dB Bandwidth	3.023 M	Hz x dB	-2	6.00 dB			
MSG			STA	TUS			

Plot 7-14. Occupied Bandwidth Plot (LTE Band 26/5 - 3MHz 16-QAM - Full RB Configuration)



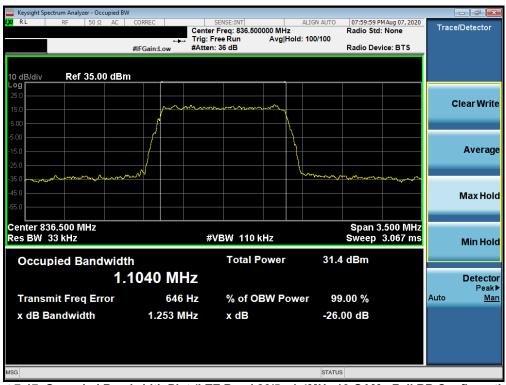
Plot 7-15. Occupied Bandwidth Plot (LTE Band 26/5 - 3MHz 64-QAM - Full RB Configuration)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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Keysight Spectrum Analyzer - Occupied B					
RL RF 50Ω AC	CORREC	SENSE:INT AL	IGN AUTO 07:59:38 I Radio Sto	M Aug 07, 2020	Trace/Detector
	Trig: I	Free Run Avg Hold: 1	100/100		
	#IFGain:Low #Atter	n: 36 dB	Radio De	vice: BTS	
IO dB/div Ref 35.00 dB	n				
- og 25.0					
15.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Clear Wri
5.00					
5.00					
15.0					Avera
25.0					717014
25.0		۰ ا	harmon		
					Max Ho
55.0					
enter 836.500 MHz				3.500 MHz	
Res BW 33 kHz	#	VBW 110 kHz	Sweep	3.067 ms	Min Ho
Occupied Denducid		Total Power	32.7 dBm		
Occupied Bandwid		TOtal FOwer	52.7 UBIII		
1.	0972 MHz				Detect
Transmit Freq Error	-1.479 kHz	% of OBW Power	99.00 %		Auto <u>M</u>
x dB Bandwidth	1.259 MHz	x dB	-26.00 dB		
	1.239 MHZ	хав	-20.00 dB		
G			STATUS		

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



Plot 7-17. Occupied Bandwidth Plot (LTE Band 26/5 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: PY7-57441Y	PCTEST Proud to be part of @ element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 20 of 02
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Keysight Spectrum Analyz	er-Occupii 50Ω A		RREC	1		ENSE:INT			LIGN AUTO	00.00.00	PM Aug 07, 2020	_	
KL RF	50 <u>5</u> 2 A		RREU			Freq: 836.5	00000 MH		ALIGN AUTO	Radio Sto		Trac	e/Detector
					Trig: Fr	ee Run			100/100				
		#IF	Gain:Lo	w	#Atten:	36 dB				Radio De	vice: BTS		
0 dB/div Ref	35.00 d	lBm											
og			Ē										
5.0													0
5.0				~~~~~	\sim	m							Clear Wri
			/					<u>کر</u>					
													Avera
5.0													Avera
5.0								-					
5.0 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	www	r					Ч		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m		
5.0													Max Ho
5.0													ΜάλΠυ
5.0													_
enter 836.500 M	Hz									Span :	3.500 MHz		_
es BW 33 kHz					#V	BW 110	kHz			Sweep	3.067 ms		Min Ho
Occupied Ba	andw	idth				Total	Power		30.6	dBm			
		1.08	66	MH	7								Detect
													Pea
Transmit Free	Error			267	Hz	% of (DBW P	owe	r 99	.00 %		Auto	M
x dB Bandwid	th		12	45 MI	17	x dB			-26	00 dB			
			1.2.	10 101	1/2	X UD			-20.				

Plot 7-18. Occupied Bandwidth Plot (LTE Band 26/5 - 1.4MHz 64-QAM - Full RB Configuration)

FCC ID: PY7-57441Y	PCTEST* Proud to be part of @ element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 20 of 02
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NR Band n5



Plot 7-19. Occupied Bandwidth Plot (NR Band n5 - 20MHz π/2 BPSK - Full RB Configuration)



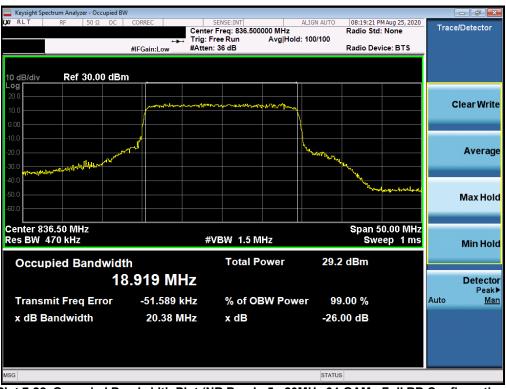
Plot 7-20. Occupied Bandwidth Plot (NR Band n5 - 20MHz QPSK - Full RB Configuration)

FCC ID: PY7-57441Y	PCTEST Proud to be part of @ element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 21 of 02
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Keysight Spectrum Analyzer - Occupied B					
κ/ RLT RF 50 Ω DC	+++ Tr	SENSE:INT enter Freq: 836.500000 MHz ig: Free Run Avg H .tten: 36 dB	ALIGN AUTO	08:19:12 PM Aug 25, Radio Std: None	Trace/Detector
	#IFGain:Low #A	Atten: 36 dB		Radio Device: BT	
10 dB/div Ref 30.00 dB	~				
og					
20.0		where the start way and a start way			Clear Writ
10.0					
0.00					
0.0			home		Avera
			Concession of the second	Ψ.	Avera
0.0				Mr.	
0.0				manshed and a second	ene Baardia
60.0					Max Ho
enter 836.50 MHz tes BW 470 kHz		#VBW 1.5 MHz		Span 50.00 N Sweep 1	
					Min Ho
Occupied Bandwid	th	Total Power	29.8	3 dBm	
1	8.954 MHz				Detect
Transmit Freq Error	-46.724 kHz	% of OBW Po	wer 90	0.00 %	Pea Auto M
x dB Bandwidth	20.21 MHz			00 dB	
	20.21 MHZ	хuв	-20.		
G			STATUS	5	
	a a ale a l'altita. Di a t	(ND David v.C. C			

Plot 7-21. Occupied Bandwidth Plot (NR Band n5 - 20MHz 16-QAM - Full RB Configuration)



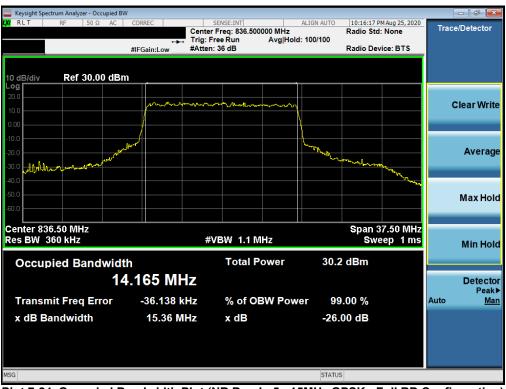
Plot 7-22. Occupied Bandwidth Plot (NR Band n5 - 20MHz 64-QAM - Full RB Configuration)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 22 of 02
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Keysight Spectrum Analyzer - Occupied E								
LXX RLT RF 50Ω AC	CORREC	SENSE:INT enter Freg: 836.500		LIGN AUTO	10:15:57 Pl Radio Std:	1 Aug 25, 2020 None	Trac	e/Detector
	ta T	rig: Free Run	Avg Hold:	100/100				
	#IFGain:Low #	Atten: 36 dB			Radio Dev	ice: BTS		
10 dB/div Ref 40.00 dB	m							
30.0								
20.0							(Clear Write
10.0	and the second s	when and					_	
0.00	/		\\					
-10.0	/							Average
-20.0								
-30.0	Mar and a second s			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-lland			
-40.0					ν ·	white		
-50.0						744		Max Hold
-30.0								
Center 836.50 MHz						7.50 MHz		
Res BW 360 kHz		#VBW 1.1 Ⅳ	Hz		Swe	ep 1 ms		Min Hold
Occupied Bandwid	th	Total P	ower	32.2	dBm			
				ULIL	abiii			
1	3.463 MHz							Detector Peak▶
Transmit Freq Error	-23.518 kHz	z % of Ol	3W Power	r 99.	00 %		Auto	Man
x dB Bandwidth	14.65 MHz				0 dB			
	14.05 MHz	хив		-20.0	U UB			
MSG				STATUS				

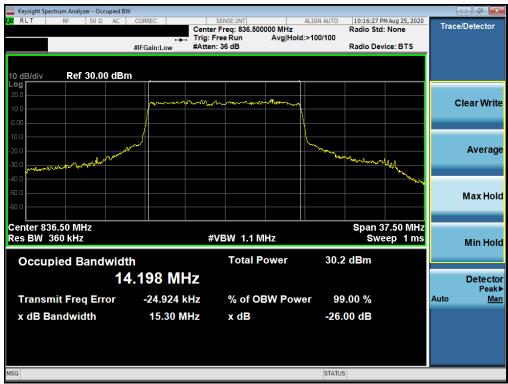
Plot 7-23. Occupied Bandwidth Plot (NR Band n5 - 15MHz π/2 BPSK - Full RB Configuration)



Plot 7-24. Occupied Bandwidth Plot (NR Band n5 - 15MHz QPSK - Full RB Configuration)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 22 of 02
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Plot 7-25. Occupied Bandwidth Plot (NR Band n5 - 15MHz 16-QAM - Full RB Configuration)



Plot 7-26. Occupied Bandwidth Plot (NR Band n5 - 15MHz 64-QAM - Full RB Configuration)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 24 of 02
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Keysight Spectrum Analyzer - Occupied BW RLT RF 50 Ω AC	CORREC	SENSE:INT	ALIGN AUTO	10:21:33 PI	1 Aug 25, 2020		- đ
NCT IN SOLE AC	Cente	r Freq: 836.500000 MHz	old: 100/100	Radio Std:		Trace/De	tector
		n: 36 dB		Radio Dev	ce: BTS		
0 dB/div Ref 35.00 dBm							
og 5.0							
5.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				Clea	ır Wr
.00							
00	/						
5.0			$\left \right\rangle$			^	vera
	m l						vera
5.0 wohnth bernow				and and all hall be a	hom on		
5.0							
5.0						Ma	ax Ho
5.0							-
enter 836.50 MHz					5.00 MHz		
es BW 240 kHz	#	VBW 750 kHz		Swe	ep 1 ms	М	in Ho
Occupied Bandwidt	n	Total Power	32.2	2 dBm			
	9709 MHz					_	
0.3						D	etect Pea
Transmit Freq Error	-7.574 kHz	% of OBW Por	wer 99	0.00 %		Auto	N
x dB Bandwidth	9.797 MHz	x dB	-26.	00 dB			
,			STATUS				_

Plot 7-27. Occupied Bandwidth Plot (NR Band n5 - 10MHz π/2 BPSK - Full RB Configuration)



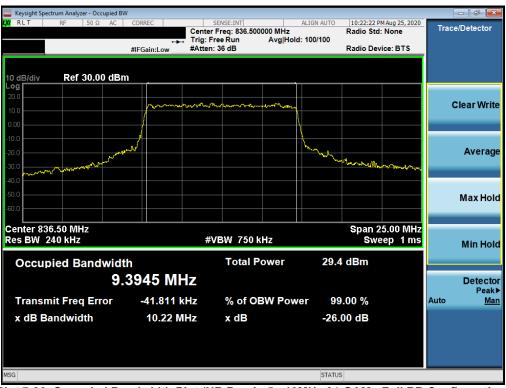
Plot 7-28. Occupied Bandwidth Plot (NR Band n5 - 10MHz QPSK - Full RB Configuration)

FCC ID: PY7-57441Y	PCTEST [•] Proud to be part of @ element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 25 of 02
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Plot 7-29. Occupied Bandwidth Plot (NR Band n5 - 10MHz 16-QAM - Full RB Configuration)



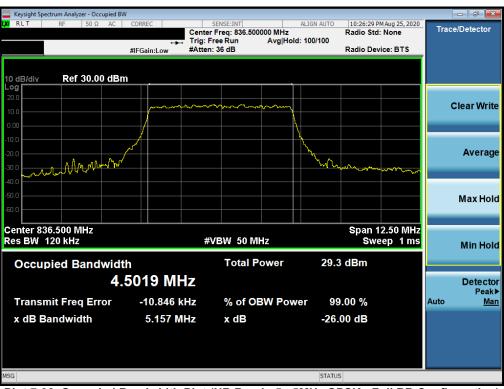
Plot 7-30. Occupied Bandwidth Plot (NR Band n5 - 10MHz 64-QAM - Full RB Configuration)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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Plot 7-31. Occupied Bandwidth Plot (NR Band n5 - 5MHz π/2 BPSK - Full RB Configuration)



Plot 7-32. Occupied Bandwidth Plot (NR Band n5 - 5MHz QPSK - Full RB Configuration)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 27 of 02
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Plot 7-33. Occupied Bandwidth Plot (NR Band n5 - 5MHz 16-QAM - Full RB Configuration)



Plot 7-34. Occupied Bandwidth Plot (NR Band n5 - 5MHz 64-QAM - Full RB Configuration)

FCC ID: PY7-57441Y	PCTEST Proud to be part of the element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 29 of 02
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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 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

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

Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

Test Settings

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

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

Test Notes

- Per Part 22 and RSS-132, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100 kHz or greater for measurements below 1GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.
- 2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

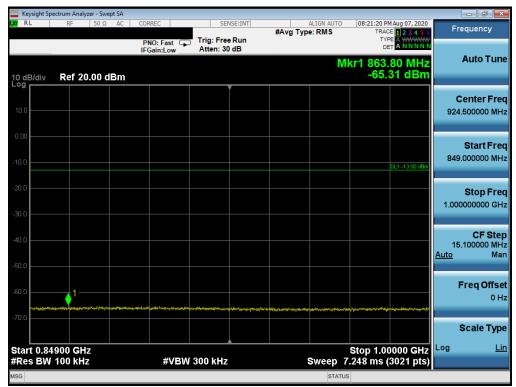
FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 20 of 02
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LTE Band 26/5

Keysight Sp XI R L	ectrum Analyze	50 Ω A			ENSE:INT		ALIGN AUTO	08:21:13 PM	Aug 07, 2020		
	Ν Γ	50 52 AU	PNO: Fast	Trig: Fre	ee Run	#Avg Typ		TRACE	1 2 3 4 5 6 A WWWW A NNNNN	Frec	uency
10 dB/div	Ref 20.	00 dBn	IFGain:Low	Atten. a	0 08		Μ	kr1 823.(A	uto Tun
10.0											nter Fre
-10.0									DL1 -13.00 dBm		Start Fre
30.0											Stop Fr 00000 M
40.0									1	79.3 <u>Auto</u>	CF St 00000 M M
60.0	nalog sharters for twey	formerson and the physics			a da je kalenda met Mendela di Milio					Fr	eq Off s 0
-70.0											cale Ty
Start 30.0 #Res BW) MHz 100 kHz		#V	BW 300 kH:	z	s	weep 38	Stop 82 15 stop 82	3.0 MHz 5861 pts)	Log	Ī
ISG							STATUS		/		

Plot 7-35. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

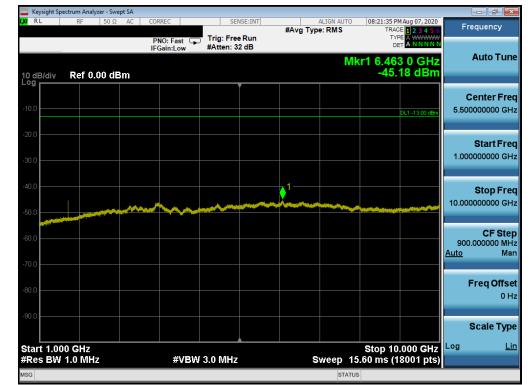


Plot 7-36. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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Plot 7-37. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-38. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: PY7-57441Y	PCTEST Proud to be part of the element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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	ectrum Analyzer - S								
LXI RL	RF 50 !	Ω AC	CORREC	SENSE:		ALIGN AUTO	08:19:56 PM TRAC	Aug 07, 2020	Frequency
			PNO: Fast IFGain:Low	Trig: Free Ru Atten: 30 dB	in .		TYP DE Ikr1 867.	85 MHz	Auto Tune
10 dB/div Log	Ref 20.00	dBm					-65.2	20 dBm	
10.0									Center Freq 924.500000 MHz
-10.0									Start Freq 849.000000 MHz
-20.0								DL1 -13.00 dBm	Stop Freq
-30.0									1.000000000 GHz
-40.0									15.100000 MHz <u>Auto</u> Man
-60.0	1	الالت الشياجية المالي	49.yr/y-ubj:PartPatry, 1926/29-64.gas, 40.jeey	المستحد والمعالية وال	ور)، ماردواندواندرواندرواندرواندرواندر	walandaria.agallaterbayatint-ad-webera	ng angle the glored a section of the section of the	lugitastastingen Samer Sam	Freq Offset 0 Hz
-70.0									Scale Type
Start 0.84 #Res BW			#VBW	300 kHz		Sweep	Stop 1.00 7.248 ms (3	000 GHz 3021 pts)	Log <u>Lin</u>
MSG						STATU	JS		

Plot 7-39. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



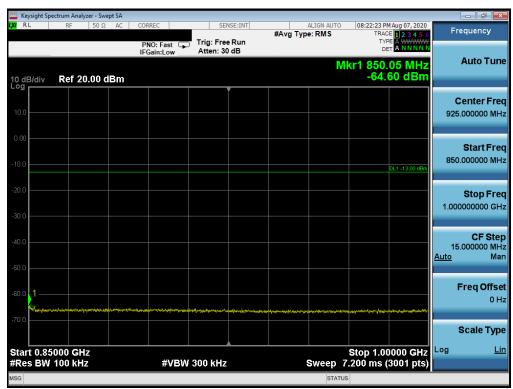
Plot 7-40. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 42 of 02
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	ctrum Analyzer -							
LXI RL	RF 50	Ω AC	CORREC	SENSE:INT	#Avg Typ	ALIGN AUTO	08:22:16 PM Aug 07, 2020 TRACE 1 2 3 4 5 6	Frequency
10 dB/div	Ref 20.00) dBm	PNO: Fast IFGain:Low	☐ Trig: Free Run Atten: 30 dB		M	kr1 817.45 MHz -64.09 dBm	Auto Tuno
10.0								Center Fre 427.000000 MH
-10.0							DL1 -13.00 dBm	Start Fre 30.000000 M⊦
-20.0								Stop Fre 824.000000 M⊦
-40.0								CF Ste 79.400000 MH <u>Auto</u> Ma
60.0					Medianske and Exception and American			Freq Offs 0 H
-70.0	an section of the section of the local	ne here and a second						Scale Typ
Start 30.0 #Res BW			#VBV	/ 300 kHz	s	weep <u>38</u>	Stop 824.0 MHz .11 ms (15881 pts)	Log <u>Li</u>
MSG						STATUS		

Plot 7-41. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-42. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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Plot 7-43. Conducted Spurious Plot (LTE Band 26/5 - 10MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

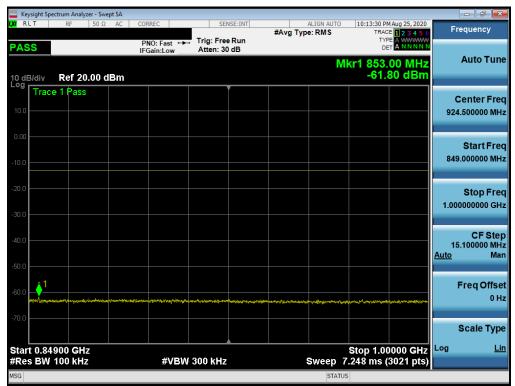
FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 44 of 02
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NR Band n5

	ysight Spe	ctrum An	alvzer - Sw	vept SA										
	LT	RF	50 Ω		CORRE	C		SENSE:INT		ALIGN AUTO	10:13:24 PI	4 Aug 25, 2020		
PAS	S					:Fast ⊶ n:Low		Free Run : 30 dB	#Avg Typ	e:RMS	TYP	E 1 2 3 4 5 6 E A WWWW T A N N N N N	-	requency
10 dl	3/div	R ef :	20.00	dBm						Μ	kr1 823. -31.	95 MHz 03 dBm		Auto Tun
Log 10.0	Trace	e 1 Pa	SS											Center Fre 7.000000 MH
													3	Start Fre 0.000000 M
												1	82	Stop Fr 4.000000 M
													7 <u>Auto</u>	CF St 9.400000 M N
		A stars Berneted	necolocity for the out-			ia si ba continuentitora com	al anna bria	adaile all para da sa thairde						Freq Offs 0
			100 Iolo (6 Iol		and a star of the	da a da a da code e angliar a sa da M								Scale Ty
	t 30.0 s BW		Hz			#VBV	V 300 k	Hz	s	weep 38	Stop 8 3.11 ms (1	24.0 MHz 5881 pts)	Log	Ļ
MSG										STATUS	6			

Plot 7-44. Conducted Spurious Plot (NR Band n5 - 20.0MHz - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-45. Conducted Spurious Plot (NR Band n5 - 20.0MHz DFT-s-OFDM BPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: PY7-57441Y	PCTEST [°] Proud to be part of ® element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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	ectrum Analyzer -						- 7
(RLT	RF 50	Ω AC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	10:13:50 PM Aug 25, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWW	Frequency
PASS	Ref 0.00	dBm	IFGain:Low	#Atten: 30 dB	М	сет <mark>а NNNNN</mark> kr1 9.996 5 GHz -44.602 dBm	Auto Tur
-og Trac	e 1 Pass						Center Fre 5.500000000 Gł
80.0							Start Fr 1.000000000 G
40.0						1,	Stop Fre 10.000000000 Gi
50.0 70.0							CF Ste 900.000000 M <u>Auto</u> M
0.0							Freq Offs 0
90.0							Scale Ty
	00 GHz 1.0 MHz		#VBV	/ 3.0 MHz	Sweep 1	Stop 10.000 GHz 5.60 ms (18001 pts)	Log <u>l</u>
SG					STATU	S	

Plot 7-46. Conducted Spurious Plot (NR Band n5 - 20.0MHz - RB Size 1, RB Offset 0 - Low Channel)

	ght Spectru													
X <mark>/</mark> RLT		RF	50 Ω	AC	CORREC			SENSE:INT	#Avg Ty	ALIGN AUTO pe: RMS	TRA	PM Aug 25, 2020 ACE 1 2 3 4 5 6	Fr	equency
PASS	;				PNO: IFGair	Fast ↔ ∺Low		ree Run 30 dB	• •		T			
										Ν	/kr1 823	.90 MHz		Auto Tui
0 dB/o).00 d	Bm							-01.2	251 dBm		
	Trace 1	Pass						Ť					C	Center Fr
10.0														.000000 M
0.00														
														Start Fr
10.0													30	0.000000 M
-20.0												+		Stop Fre
													824	000000 MI
30.0														
														CF Ste
40.0														.400000 M
-50.0													<u>Auto</u>	М
50.0														
-60.0												1		Freq Offs
												a i parte di stati ang parte		0
70.0														
														Scale Ty
													Log	_
start : #Peel	30.0 M BW 10	HZ	,			#\/R\/	V 300 ki	17		Sween 3	Stop	824.0 MHz 15881 pts)		Ŀ
AGE S		U NII				7709	4 300 M	12		aweeh c	o, i r ilis (13001 pts)		

Plot 7-47. Conducted Spurious Plot (NR Band n5 - 20.0MHz - RB Size 1, RB Offset 0 - Mid Channel)

PCTEST Proud to be part of @ element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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	Proud to be part of @element	Test Dates: EUT Type:	Test Dates: EUT Type:

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									rum Analyzer - S	
Frequency	PM Aug 25, 2020 ACE 1 2 3 4 5 6	TRAC	ALIGN AUTO Type: RMS				CORREC	2 AC	RF 50 !	RLT
		TYF			Trig: Free Atten: 30	ast ⊶⊶ _ow	PNO: Fa			ASS
Auto Tune	.00 MHz .96 dBm	lkr1 849. -61.	Μ					dBm	Ref 20.00	dB/div
Center Free									1 Pass	Trace
924.500000 MH;										0.0
Start Fred										.00
849.000000 MH;										0.0
Stop Fred										o.o
1.000000000 GH										D.0
CF Step 15.100000 MH										J.O
<u>Auto</u> Mar										J.O
Freq Offse										1
0 H;	yet-hitty-faytiftedex-mer _v ely-ne	1.0 ^{1.0} 0.01.01.00.000000000000000000000	ليواردين المركز الم	mademhaningetanhan	and 10 a 19 december - 14	meringipalentitis	****	afa, en ar an	ىلىرەيولەمىيەتىرىمۇمە _ل يىدىي	a supplied as the
Scale Type										0.0
Log <u>Lir</u>	0000 GHz (3021 pts)	Stop 1.00	Sween		300 kHz	#\/B\AL				tart 0.849 Res BW
	(002 1 pt3)		STATU		000 MHZ		·		oor 10112	G

Plot 7-48. Conducted Spurious Plot (NR Band n5 - 20.0MHz - RB Size 1, RB Offset 0 - Mid Channel)



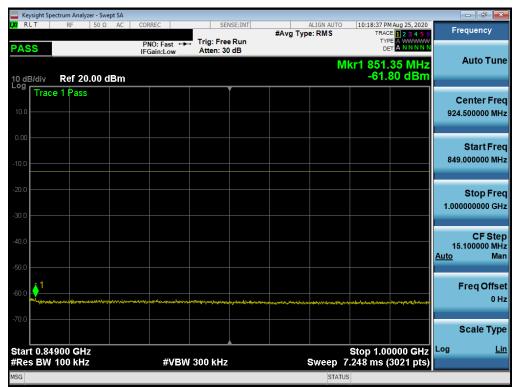
Plot 7-49. Conducted Spurious Plot (NR Band n5 - 20.0MHz - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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		trum Anal	yzer - Swe	ept SA											
🗶 RLT		RF	50 Ω	AC	CORRE	C		SEI	NSE:INT	#Ava T	ALIGN AUTO ype: RMS	TRA	M Aug 25, 2020	F	requency
PASS						:Fast ← n:Low _		ig: Free tten: 30			,,	TY D	PE A WWWW ET A N N N N N		
10 dB/c	div	Ref 2	0.00 c	IBm							Ν	/kr1 823 -60.8	.80 MHz 84 dBm		Auto Tune
	Frace	1 Pas	S						Í						Center Fred
10.0															7.000000 MHz
0.00															Start Free
-10.0														3	0.000000 MHz
-20.0															Stop Fred
-30.0														82	4.000000 MHz
															CF Step
-40.0															9.400000 MHz
-50.0														<u>Auto</u>	Man
													1		Freq Offset
-60.0	ann al anna d		a she cifel in the										a and shake a start of the		0 Hz
-70.0	andra andra andra					a dala da babajaka		al an indication in a state of the							
															Scale Type
L Start 3	30.0 1	٧Hz										Stop 8	24.0 MHz	Log	Lir
#Res I			Z			#VB	N 30	0 kHz			Sweep 3	18.11 ms (1	5881 pts)		
MSG											STAT	US			

Plot 7-50. Conducted Spurious Plot (NR Band n5 - 20.0MHz - RB Size 1, RB Offset 0 - High Channel)



Plot 7-51. Conducted Spurious Plot (NR Band n5 - 20.0MHz - RB Size 1, RB Offset 0 - High Channel)

FCC ID: PY7-57441Y	PCTEST* Proud to be part of @ element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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Plot 7-52. Conducted Spurious Plot (NR Band n5 - 20.0MHz - RB Size 1, RB Offset 0 - High Channel)

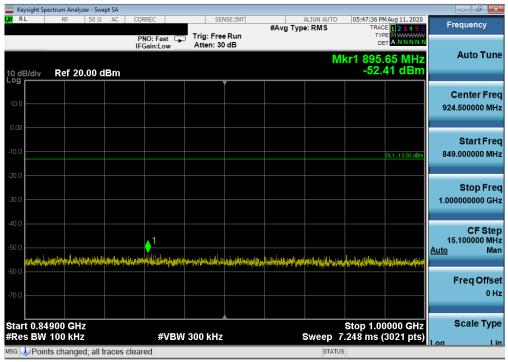
FCC ID: PY7-57441Y	PCTEST* Proud to be part of @ element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 40 of 02
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GSM/GPRS Cell

Keysight Spectrum Analyzer	- Swept SA						
LXIRL RF 5	0Ω AC CO	RREC	SENSE:INT		GN AUTO	05:47:30 PM Aug 11, 2020	Frequency
		NO: Fast 🖵 Gain:Low	Trig: Free Run Atten: 30 dB	#Avg Type: F	RIVIS	TRACE 1 2 3 4 5 TYPE M WWWW DET A N N N N	
10 dB/div Ref 20.0	0 dBm				M	r1 821.90 MHz -31.37 dBm	Auto Tune
Log			Ĭ				Center Free
10.0							426.500000 MH;
0.00							Otort Eros
-10.0							Start Free 30.000000 MH;
						DL1 -13.00 dBm	30.00000 WHA
-20.0							
						1	Stop Free
-30.0							823.000000 MH;
-40.0							
							CF Step 79,300000 MH
-50.0						and the second	Auto Mar
-60.0.1	Navaka or Deviala (Dylandia)	Combattion Classical Profile	hidayated tipered paths with a		and the second	an da kana ang kana a Kana ang kana	
د. <u>استان معالم معالم المعالية بيا</u> ية. 160.0	والالفوراف فمخيات والمحد فيمالطه						Freq Offse
-70.0							0 На
Start 30.0 MHz						Stop 823.0 MHz	Scale Type
#Res BW 100 kHz		#VBW :	300 kHz	Swe	eep 38	.06 ms (15861 pts	
MSG					STATUS		Loa Lir

Plot 7-31. Conducted Spurious Plot (GPRS Ch. 128)



Plot 7-31. Conducted Spurious Plot (GPRS Ch. 128)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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Keysight Spectrum Analyzer	- Swept SA						
KIRL RF !		PNO: Fast	SENSE	#Avg Ty un	ALIGN AUTO	05:47:59 PM Aug 11, 2020 TRACE 1 2 3 4 5 6 TYPE MWWWW DET A N N N N N	Frequency
10 dB/div Ref 10.0	I	Gain:Low	#Atten: 34 d	B	N	1kr1 7.223 5 GHz -33.36 dBm	Auto Tune
0.00							Center Fre 5.50000000 GH
20.0					▲ 1	DL1 -13.00 dBm	Start Fre 1.000000000 GH
-40.0	(Fig Maria (fig ^{fig d} i antipatria) Marina (galanti ^{11, da} antipatria)			an a		terin ya ani ya ay na ya da da ya ya kati ka ya tu kat Kati ka ya kati kati kati kati kati kati kati kat	Stop Free 10.000000000 GH
50.0 60.0							CF Ste 900.000000 MH <u>Auto</u> Ma
80.0							Freq Offse 0 H
Start 1.000 GHz Res BW 1.0 MHz		#VBW	3.0 MHz		Sweep '	Stop 10.000 GHz 15.60 ms (18001 pts)	Scale Typ

Plot 7-31. Conducted Spurious Plot (GPRS Ch. 128)

🚾 Keysight Sp	ectrum Analyzer - Sw	vept SA								
X/RL	RF 50 Ω	AC CO	RREC		ISE:INT	#Avg Typ	ALIGN AUT e: RMS	TRAC	1 Aug 11, 2020	Frequency
			NO: Fast 🖵 Gain:Low	Trig: Free Atten: 30				DE Mkr1 805.		Auto Tune
10 dB/div Log	Ref 20.00	dBm						-51.	77 dBm	
10.0										Center Free 427.000000 MH
10.00									DL1 -13.00 dBm	Start Free 30.000000 MH;
30.0										Stop Free 824.000000 MH
40.0									1	CF Stej 79.400000 MH
-50.0	a the ter for the sector that the sector the sector that the sector of the sector of the sector of the sector s	ر بر میروند و در این میرود. مرحمه ایرون – در بر مربع م	n ann Airean (Algadha An an Airean (Algadha	and the state of t	م اليونية المراجع الم مراجع من مراجع المراجع المراجع مراجع المراجع ا	a y daaraa daa ahaa ahaa ahaa ahaa ahaa aha	n population and a set	ing Papal (p) (Prog) and Price (party fight) a strong shirt (Carlos a territoria. Natrito de la carlos	<u>Auto</u> Mar
-70.0										Freq Offse 0 H
Start 30.0			#\/DW						24.0 MHz	Scale Type
#Res BW	TUU KHZ		#VBW	300 kHz		5		38.11 ms (1 Musi	3881 pts)	Loa Lir

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

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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	ectrum Analyzer - Sw	ept SA								
LXU RL	RF 50 Ω	Р	RREC	Trig: Free		#Avg Typ	ALIGN AUTO e: RMS	TRAC TYP	Aug 11, 2020 E 1 2 3 4 5 6 E M M M M M A N N N N N	Frequency
10 dB/div	Ref 20.00 d		Gain:Low	Atten: 30	dB		N	/kr1 875.		Auto Tu
10.0										Center Fr 924.500000 N
-10.0									DL1 -13.00 dBm	Start Fi 849.000000 N
-20.0										Stop Fi 1.000000000 G
-40.0	ما المعادية	l Adolariji Januarija (je da je da Adolariji (je da je d		A felowyski w Likiuwy Ja	ian mi İlisadır Har	And with the temperature of the tem	advitic that be		hin started at starting	CF S1 15.100000 M <u>Auto</u> M
-60.0										Freq Off
Start 0.84 #Res BW			#VBW	300 kHz			Sweep	7.248 ms (0000 GHz 3021 pts)	Scale Ty

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

	ectrum Analyzer - Sw	ept SA								
X/RL	RF 50 Ω	AC CO	RREC		ISE:INT	#Avg Typ	ALIGN AUT	TRA	MAug 11, 2020 DE 1 2 3 4 5 6	Frequency
			NO: Fast 🖵 Gain:Low	Trig: Free #Atten: 28				D		
10 dB/div	Ref 10.00 (dBm					Ν	/kr1 6.79 -39.	2 0 GHz 13 dBm	Auto Tune
										Center Free
0.00										5.500000000 GH
-10.0									DL1 -13.00 dBm	
-20.0										Start Free 1.000000000 GH
-30.0										
-30.0						1				Stop Free
-40.0	a starting the starting of the start	a partition and a statement	a la la facilitation de la compactica	, traduction	lin ^{dan b} utter and the second	and a shirt of the state of the		and the strength of		10.00000000 GH
-50.0	Property and a statistic participation of a line		Bearing the second second	فطاد لأقرب فالأطعوني	ana dada, hataa k			فريعاناهم يغاذلنه وأالله		
										CF Step 900.000000 MH
-60.0										<u>Auto</u> Mar
-70.0										Freq Offse
-80.0										0 H:
Start 1.00							_	Stop 10	.000 GHz	Scale Type
#Res BW	1.0 MHz		#VBW	3.0 MHz		s	weep	15.60 ms (1	8001 pts)	Loa Lir

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

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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	pectrum Analyzer -	Swept SA									
LXU RL	RF 51	Ω AC	CORREC	ast 🖵	Trig: Free		#Avg Typ	ALIGN AUTO e: RMS	TYPE	1 2 3 4 5 6 MWWWW	Frequency
10 dB/div Log	Ref 20.0	0 dBm	IFGain:L		Atten: 30	dB		Μ	kr1 755.5	o MHz d dBm	Auto Tune
10.0											Center Freq 427.000000 MHz
-10.0									D	L1 -13.00 dBm	Start Freq 30.000000 MHz
-20.0											Stop Fred 824.000000 MHz
-40.0	the last for the second second		lan kali ku kanin ak	يتوريه والتروي	فللمأدا تتحمينا إدأارته	al for southing	in Adverse bei strategisten de	l _{maan} ke ana ke ka	ara tala, jakijing indans n	1 Lennenstandard	CF Step 79.400000 MH Auto Mar
-60.0	n na sa	سريږي (ا . عام ال ا	فافتحب والمرقاني في	issan Buddhud ii	<u>yakang ank init Arpa</u>	and a second	la fa sta base para da se br>Internet da se d) de deconstituit en Rein Rein (Rein en S	al all de citerit de di la d		Freq Offsel 0 Hz
Start 30. #Res BW	0 MHz 100 kHz		3	#VBW	300 kHz		s	weep 3	8.11 ms (15	4.0 MHz 881 pts)	Scale Type

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

Keysight Spectrum Analyzer - Swept SA					
🗶 RL RF 50Ω AC	CORREC SET			:49:18 PM Aug 11, 2020	Frequency
	RNO: Fast Trig: Free	#Avg Typ e Run	e:RMS	TRACE 1 2 3 4 5 6 TYPE M WWWW	riequency
	PNO: Fast Trig: Free IFGain:Low Atten: 30			DET A NNNNN	
			Mkr1	850.45 MHz	Auto Tune
10 dB/div Ref 20.00 dBm				-20.62 dBm	
		▼			
					Center Freq
10.0					925.000000 MHz
					520.000000 Mil 12
0.00					
					Start Freq
-10.0				DL1 -13.00 dBm	850.000000 MHz
1				DET -13.00 dbm	
-20.0					
					Stop Freq
-30.0					1.000000000 GHz
-40.0					
					CF Step
-50.0					15.000000 MHz Auto Man
Antipurely and all his work hims a licher see	Anderson of the first state of the state of	والمتعادية والمتحدث والمتحدث والمتحدث	and a part of the second second	ومسجوب ومروال المام وحمايك	<u>Auto</u> Man
-60.0	and an extension of the state of				
					Freq Offset
-70.0					0 Hz
Start 0.85000 GHz				p 1.00000 GHz	Scale Type
#Res BW 100 kHz	#VBW 300 kHz		Sweep 7.20	0 ms (3001 pts)	Loa Lin
MSG 🜙 Points changed; all trace	s cleared		STATUS		

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

FCC ID: PY7-57441Y	PCTEST [®] Proud to be part of ® element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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	pectrum Analyz												a X
X/RL	RF	50Ω A	AC	CORREC		SEN	ISE:INT	#Avg Typ	ALIGN AUT		Aug 11, 2020	Freque	ency
				PNO: Fa IFGain:L		Trig: Free #Atten: 3		#~\18 I.)P		TYF			
10 dB/div	Ref 10.	.00 dBi	m							Mkr1 7.05 -31.	1 0 GHz 29 dBm	Aut	o Tune
-09												Cent	er Fred
0.00												5.500000	
-10.0													
10.0											DL1 -13.00 dBm	Sta	art Fred
-20.0												1.000000	
								1					
-30.0		and a local sector	United and			يهاليل وينا	_n atiquardiplic	and demonstration to		here were produced	and the state of the second	Sto	op Fred
40.0 where	and the standard states of	a la constante de la constante		يدرين بالأمر يدرين بالأمر	nille contre :	استحقى الأرضريت	أأعار بتعليب الألاء	ومعرور الملكي ومتروحا الك		أعقيطه وللنعتر لكالأسياط واقطاعت		10.000000	
and the second													
-50.0													F Step
-60.0												900.000	000 MH Mar
												<u>Auto</u>	Iviar
70.0												Eroc	Offse
-80.0												Fiet	Unse 0 H
-00:0													UT.
										Stan 40	000 CH-	Sca	іе Туре
Start 1.0 #Res BM	00 GHZ / 1.0 MHz			#	VBW	3.0 MHz		s	weep	15.60 ms (1	.000 GHz 8001 pts)		
1SG										ATUS		Loa	Liı

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

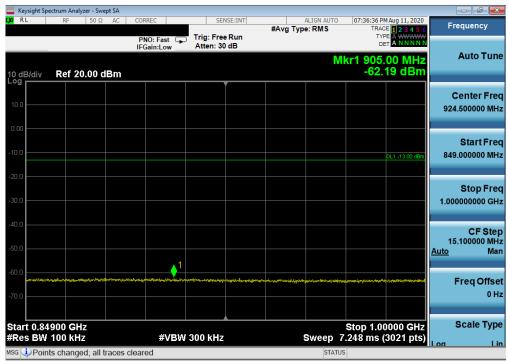
FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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WCDMA Cell

	ectrum Analyz	ter - Swept SA									
XU RL	RF	50 Ω AC	PN	REC IO:Fast C iain:Low		SENSE:INT Free Run : 30 dB	#Avg Typ	ALIGN AUTO De: RMS	TRAC TYP	I Aug 11, 2020 E 1 2 3 4 5 6 E A WWWWW T A N N N N N	Frequency
0 dB/div	Ref 20	.00 dBm	n					Μ	kr1 823. -41.8	00 MHz 84 dBm	Auto Tur
10.0 0.00											Center Fre 426.500000 MH
-10.0										DL1 -13.00 dBm	Start Fre 30.000000 MH
-20.0										1	Stop Fre 823.000000 MF
-40.0											CF Ste 79.300000 MH <u>Auto</u> Ma
.70.0											Freq Offso 0 F
Start 30.0 #Res BW				#VB	W 300 ki	Hz	s	weep 38	Stop 8: 8.06 ms (1	23.0 MHz 5861 pts)	Scale Typ
ISG								STATUS	5		





Plot 7-31. Conducted Spurious Plot (WCDMA Ch. 4132)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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	ectrum Ana		•								
RL	RF	50 Ω	AC	CORREC PNO: F IFGain:	ast 🖵	Trig: Fre Atten: 36	#Avg Typ	ALIGN AUTO e: RMS	TRACE	Aug 11, 2020 E 1 2 3 4 5 6 E A WWWWW T A N N N N N	Frequency
0 dB/div	Ref 2	5.99 d	Bm					M	kr1 6.936 -39.7	6 5 GHz 79 dBm	Auto Tur
i6.0											Center Fre 5.500000000 GH
.01										DL1 -13.00 dBm	Start Fre 1.000000000 GF
4.0											Stop Fre 10.000000000 GI
4.0	angle (197	and the second second second	~~~	~~~	<u> </u>		 ¹				CF Ste 900.000000 Mi <u>Auto</u> M
4.0											Freq Offs 0 I
tart 1.00 Res BW		Iz			#VBW	3.0 MHz	s	weep 1	Stop 10. 5.60 ms (1	000 GHz 8001 pts)	Scale Typ

Plot 7-31. Conducted Spurious Plot (WCDMA Ch. 4132)

Keysight Sp	ectrum Analy	zer - Swept	t SA										
K <mark>I</mark> RL	RF	50 Ω		ORREC			Run	#Avg Typ	ALIGN AU	TO 07:	TRACI	Aug 11, 2020	Frequency
				PNO: Fa FGain:L		Atten: 30					DE 824.	00 MHz	Auto Tu
I0 dB/div	Ref 20).00 dE	3m								-56.1	19 dBm	
10.0													Center Fr 427.000000 M
10.00												DL1 -13.00 dBm	Start Fro 30.000000 M
30.0													Stop Fr 824.000000 M
40.0 50.0												1	CF Ste 79.400000 M <u>Auto</u> M
.60.0 .70.0		Mana di Antonio di Junio di Perta di Antonio seguna						allen et effent å verst skille som			an a	antinana dan tahun dari da Antinana dan tahun dari dari dari dari dari dari dari dari	Freq Offs 0
Start 30.0 Res BW		z		#	VBW	300 kHz		s	weep	S 38.11	top 82 ms (1:	24.0 MHz 5881 pts)	
ISG										ATUS			Loa I

Plot 7-31. Conducted Spurious Plot (WCDMA Ch. 4183)

FCC ID: PY7-57441Y	PCTEST Proud to be part of @ element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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	ectrum Anal											l	
RL	RF	50 Ω	AC	PNO: F	ast 🖵	Trig: Fre Atten: 30		#Avg Typ	ALIGN AUTO e: RMS	TRAC	Aug 11, 2020 E 1 2 3 4 5 6 E A WWWW T A N N N N N	Fre	equency
) dB/div	Ref 2	0.00 d	Bm	in Guin.					N	lkr1 849. -53.3	00 MHz 36 dBm		Auto Tun
													enter Fre 500000 MH
0.0											DL1 -13.00 dBm	849.	Start Fre 000000 MH
0.0												1.000	Stop Fre
0.0												15. <u>Auto</u>	CF Ste 100000 MI Ma
0.0	Nyt-myslyngangen	underna verse	ye ⁿ in yestika	guerter versigteret	,	··ͼ;·ʹ ··;;ϲ·ϳͱ· ϯ ·ϲϳʹͷϗ;	n erit la mislenn,	antis tapotas katalantigi (1978 ga	an naharan dagadh na i	1618-1919-1-1914-1-1914-1-1914-1-1914-1-1914-1-1914-1-1914-1-1914-1-1914-1-1914-1-1914-1-1914-1-1914-1-1914-1-1	ing the stand of the	F	Freq Offs 0 F
tart 0.84 Res BW					#VBW	300 kHz			Sweep	Stop 1.00 7.248 ms (0000 GHz	:	Scale Typ

Plot 7-31. Conducted Spurious Plot (WCDMA Ch. 4183)

Keysight Spectrum Analyzer - Swept S						
<mark>0 RL RF 50Ω A</mark>	C CORREC	SENSE:INT	ALI #Avg Type: F	RMS TRAC	MAug 11, 2020	Frequency
	PNO: Fast 😱 IFGain:Low	Trig: Free Run #Atten: 30 dB		DE		.
0 dB/div Ref 10.00 dBr	n			Mkr1 6.82 -45.	2 0 GHz 79 dBm	Auto Tune
og		Ĭ				Center Fre
0.00						5.500000000 GH
10.0					DL1 -13.00 dBm	
~~~						Start Fre
20.0						1.000000000 GH
30.0						Oten Ene
40.0			1			Stop Fre 10.00000000 GH
50.0	m					
50.0						CF Ste 900.000000 MH
60.0						<u>Auto</u> Ma
70.0						
~						Freq Offse 0 H
80.0						UN
Start 1.000 GHz				Stop 10	.000 GHz	Scale Type
Res BW 1.0 MHz	#VBW :	3.0 MHz	Swe	eep 15.60 ms (1		Loa Lii
SG				STATUS		

Plot 7-31. Conducted Spurious Plot (WCDMA Ch. 4183)

FCC ID: PY7-57441Y	PCTEST Proud to be part of @ element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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	ectrum Analy											
RL	RF	50 Ω	AC	CORREC PNO: Fa	ast 🖵		#Avg Typ	ALIGN AUTO e: RMS	TRAI TY	MAug 11, 2020 CE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N	F	requency
0 dB/div	Ref 20	.00 dB	3m					Μ	kr1 818 -61.	.85 MHz 01 dBm		Auto Tune
10.0 0.00												Center Free 7.000000 MH
10.0										DL1 -13.00 dBm	3(	Start Free 0.000000 MH
80.0											824	Stop Fre 4.000000 MH
40.0 50.0										1	79 <u>Auto</u>	CF Stej 9.400000 MH Mai
60.0 14,14,14,14,14,14,14,14,14,14,14,14,14,1	indeland and an investig					ng san ding tina gan san sa ding ng ng tina tina ng ting tina di						Freq Offse 0 Ha
tart 30.0 Res BW		2		#	¢νв₩	300 kHz	s	weep 38		24.0 MHz 5881 pts)	Log	Scale Type
SG								STATU	5			

Plot 7-31. Conducted Spurious Plot (WCDMA Ch. 4233)

	ectrum Analyzer - Swept SA					
X/RL	RF 50 Ω AC		SENSE:INT	ALIGN AUTO #Avg Type: RMS	07:42:10 PM Aug 11, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWW	Frequency
		PNO: Fast 🖵 IFGain:Low	Atten: 30 dB		DET A N N N N N	Auto Tune
10 dB/div Log	Ref 20.00 dBm	1		IVI	kr1 850.00 MHz -33.83 dBm	
			Ĭ			Center Free
10.0						925.000000 MHz
0.00						Start Free
-10.0					DL1 -13.00 dBm	850.000000 MH2
20.0						Stop Free
30.0						1.000000000 GH
40.0						CF Step 15.000000 MH
-50.0						<u>Auto</u> Mai
60.0	yan faljona filipada para angina na kada na kada kada kada kada kada k	******	and a start of the second start		ilige hypersoner operations into service	Freq Offse
-70.0						0 H:
	000 GHz		<b>A</b>		Stop 1.00000 GHz	Scale Type
#Res BW	100 kHz	#VBW	300 kHz	Sweep 7	7.200 ms (3001 pts)	Loa Lin

Plot 7-31. Conducted Spurious Plot (WCDMA Ch. 4233)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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	ectrum Analyz	ter - Swep	pt SA									
XI RL	RF	50 Ω	AC	CORREC PNO: IFGain	Fast C		SENSE:INT Free Run : 40 dB	#Avg Typ	ALIGN AUTO e:RMS	TYPE	Aug 11, 2020 <b>1 2 3 4 5 6</b> A WWWWW A N N N N N	Frequency
10 dB/div Log	Ref 30	.00 d	Bm						Mł	r1 6.916 -35.5	0 GHz 6 dBm	Auto Tune
20.0												Center Fred 5.500000000 GHz
0.00												Start Fred 1.000000000 GHz
20.0										C	)L1 -13.00 dBm	Stop Fred 10.000000000 GH
-30.0		a second a s	-	~~~~	in _{the s} ame			1-				CF Step 900.000000 MH: <u>Auto</u> Mar
-50.0												Freq Offset 0 Hz
Start 1.00 #Res BW					#VBW	3.0 M	Hz	s	weep 15	Stop 10. .60 ms (18	2001 nts)	Scale Type

Plot 7-31. Conducted Spurious Plot (WCDMA Ch. 4233)

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#### Band Edge Emissions at Antenna Terminal 7.5

#### **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 log₁₀(P_{IWattsI}), where P is the transmitter power in Watts.

#### **Test Procedure Used**

KDB 971168 D01 v03r01 - Section 6.0

### **Test Settings**

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW > 1% of the emission bandwidth
- 4. VBW > 3 x RBW
- 5. Detector = RMS
- 6. Number of sweep points  $\geq 2 \times \text{Span/RBW}$
- 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

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### Test Notes

- Per 22.917(b) and RSS-132(5.5), in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.
- 2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

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## LTE Band 26/5

Keysight Spectrum Ana	lyzer - Swept SA						
KURL RF	50 Ω AC	CORREC	SENSE:INT	ALI #Avg Type: F		M Aug 07, 2020 CE 1 2 3 4 5 6	Frequency
		PNO: Wide G	Trig: Free Run Atten: 36 dB	0 //	TY	PE A WWWWW ET A N N N N N	
	5.00 dBm				Mkr1 824.0 -32.	000 MHz 81 dBm	Auto Tun
15.0							Center Fre 824.000000 MH
5.00				Joy Jose - Landon on Conference		DL1 -13.00 dBm	Start Fre 818.000000 M⊦
25.0							Stop Fre 830.000000 M⊦
35.0 45.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		1/			Ē	CF Ste 1.200000 MH Auto Ma
55.0							Freq Offs 0 ⊦
65.0							Scale Typ
enter 824.000   Res BW 150 kH		#VBW	470 kHz	Sv	Span 1 veep 1.000 ms	2.00 191112	.og <u>L</u> i
SG					STATUS		

Plot 7-53. Lower Band Edge Plot (LTE Band 26 - 15MHz QPSK – Full RB Configuration)



Plot 7-54. Upper Band Edge Plot (LTE Band 26 - 15MHz QPSK – Full RB Configuration)

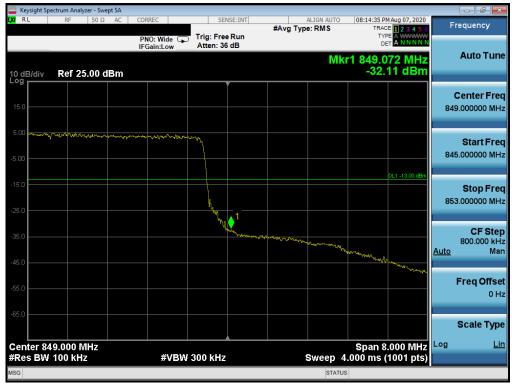
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Keysight Spectrum Analyzer - Swept S	5A				
<mark>0 RL</mark> RF 50Ω A	AC CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	08:14:05 PM Aug 07, 2020 TRACE 1 2 3 4 5 6	Frequency
0 dB/div Ref 25.00 dB	IFGain:Low	Trig: Free Run Atten: 36 dB	Mk	TYPE A WWWW DET A NNNNN r1 823.992 MHz -32.53 dBm	Auto Tur
		Ţ			
15.0					Center Fre 824.000000 MH
					024.000000 mil
5.00		(MAN)	ประกฎ <mark>ขางสาขใบสาของ</mark> ไหน่ง เพราะสาขสาขาง	ᡮᠬ᠊ᡁᠰᠬᡧᡟ᠈ᠧᡘᢦᡨᡱᠣ᠋᠆ᠧᠬᢦᢧᠧᡘ	Start Fre
5.00					820.000000 MH
				DL1 -13.00 dBm	
15.0					Stop Fre 828.000000 Mi
25.0		1			828.000000 Mi
35.0		A CONTRACT			CF Ste
yan hukawa wange wange	Maria and and a second and the second	aport and a start of the start			800.000 kł <u>Auto</u> M:
45.0					
55.0					Freq Offs
					01
35.0					Scale Typ
enter 824.000 MHz				Spop 8 000 Milia	Log L
Res BW 100 kHz	#VBW 3	00 kHz	Sweep 4	Span 8.000 MHz .000 ms (1001 pts)	
SG			STATUS		

Plot 7-55. Lower Band Edge Plot (LTE Band 26/5 - 10MHz QPSK – Full RB Configuration)



Plot 7-56. Upper Band Edge Plot (LTE Band 26/5 - 10MHz QPSK – Full RB Configuration)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager	
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🔤 Keysight Sp	ectrum Analyz	er - Swept S	A									
LXI RL	RF	50 Ω A	C COI	RREC	SE	NSE:INT	#Avg Typ	ALIGN AUTO		Aug 07, 2020	Fr	requency
				NO:Wide ⊂ Gain:Low	Trig: Fre Atten: 3				TYPE DE1	A WWWWW A N N N N N		
10 dB/div Log	Ref 25.	.00 dBr	n					Mk	r1 823.98 -26.0	80 MHz )3 dBm		Auto Tune
15.0						~		har har		Aurtones		Center Freq 4.000000 MHz
-5.00											822	Start Freq 2.000000 MHz
-15.0						1				0L1 -13.00 dBm	826	Stop Fred 5.000000 MH2
-35.0	man	Muhan	مرمرسم	-							<u>Auto</u>	CF Step 400.000 kH Mar
-55.0												Freq Offse 0 Hi
-65.0												Scale Type
Center 82 #Res BW	4.000 M 100 kHz	Hz		#VB	W 300 kHz			Sweep 2	Span 4. 000 ms (1		Log	Lin
MSG								STATUS	5			

Plot 7-57. Lower Band Edge Plot (LTE Band 26/5 - 5MHz QPSK – Full RB Configuration)



Plot 7-58. Upper Band Edge Plot (LTE Band 26/5 - 5MHz QPSK – Full RB Configuration)

FCC ID: PY7-57441Y	PCTEST [®] Froud to be part of @ element	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager	
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🔤 Keysight Sp	ectrum Analyze	er - Swept SA									
LXI RL	RF	50 Ω AC	CORREC	SEI	SE:INT	#Avg Typ	ALIGN AUTO e: RMS		Aug 07, 2020	Fr	equency
			PNO: Wide IFGain:Low	Trig: Free Atten: 36				TYF DE			
10 dB/div Log	Ref 25.	.00 dBm	1				Mk	r1 824.0 -19.4	00 MHz 04 dBm		Auto Tune
15.0					m	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	- Arrow	mm	www.		Center Freq 1.000000 MHz
-5.00										822	Start Freq 2.000000 MHz
-15.0				h _n	1				DL1 -13.00 dBm	826	Stop Freq 5.000000 MHz
-35.0	m	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	www.							<u>Auto</u>	<b>CF Step</b> 400.000 kHz Mar
-55.0											Freq Offset 0 Hz
-65.0											Scale Type
Center 82 #Res BW	24.000 M 100 kHz	Hz	#VE	3W 300 kHz			Sweep_2	Span 4 .000 ms (	.000 MHz 1001 pts)	Log	<u>Lin</u>
MSG							STATUS	5			

Plot 7-59. Lower Band Edge Plot (LTE Band 26/5 - 3MHz QPSK – Full RB Configuration)



Plot 7-60. Upper Band Edge Plot (LTE Band 26/5 - 3MHz QPSK – Full RB Configuration)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager	
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Keysight Spectrum Analyzer -						
XIRL RF 51	0Ω AC CORF	REC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	08:02:30 PM Aug 07, 2020 TRACE 1 2 3 4 5 6	Frequency
	IFG		Γrig: Free Run Atten: 36 dΒ	• //	TYPE A WWWW DET A NNNNN r1 823.996 MHz	Auto Tune
10 dB/div Ref 25.0	0 dBm				-23.47 dBm	
15.0			man	how when the here of the	<b>X</b>	Center Free 824.000000 MH
5.00						
-5.00						Start Free 822.000000 MH
.15.0					DL1 -13.00 dBm	
25.0			<b>1</b>			Stop Free 826.000000 MH
25.0					h www.	CF Ste
45.0 - All March M	mm	· · · · · ·	mon			400.000 kH <u>Auto</u> Ma
40.0						FreqOffse
-55.0						ОН
65.0						Scale Type
Center 824.000 MHz #Res BW 100 kHz	2	#VBW 3	00 kHz	Sweep 2	Span 4.000 MHz 2.000 ms (1001 pts)	Log <u>Lir</u>
ISG				STATUS		





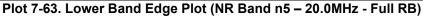
Plot 7-62. Upper Band Edge Plot (LTE Band 26/5 – 1.4MHz QPSK – Full RB Configuration)

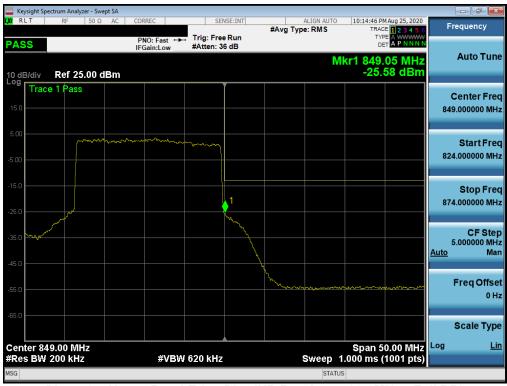
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## NR Band n5

	ept SA				
LX/ RLT RF 50Ω	AC CORREC	SENSE:INT	ALIGN AUTO	10:12:52 PM Aug 25, 2020 TRACE 1 2 3 4 5 6	Frequency
PASS	PNO: Fast +++	Trig: Free Run #Atten: 36 dB	#Avg Type: RMS	TYPE A WWWWW DET A P N N N N	
10 dB/div Ref 25.00 d	IBm		М	kr1 823.90 MHz -25.70 dBm	Auto Tune
15.0 Trace 1 Pass					Center Free 824.000000 MH:
-5.00			ground and a second	mm	Start Free 799.000000 MH
-15.0		1			Stop Free 849.000000 MH
-35.0	manna			han have	CF Step 5.000000 MH <u>Auto</u> Ma
-55.0 00000 pr. 100-000 Acros					Freq Offse 0 H
-65.0					Scale Typ
Center 824.00 MHz #Res BW 200 kHz	#VBW	620 kHz	Sweep 1	Span 50.00 MHz .000 ms (1001 pts)	Log <u>Li</u> i
MSG			STATUS	5	





Plot 7-64. Upper Band Edge Plot (NR Band n5 – 20.0MHz - Full RB)

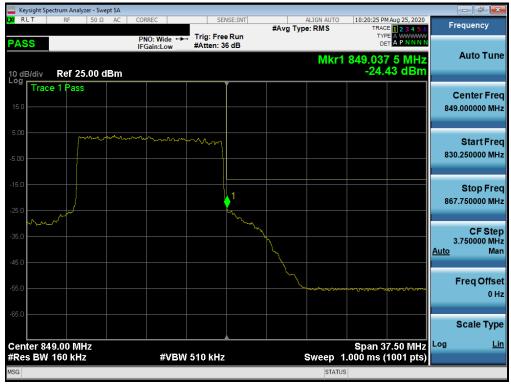
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	um Analyzer - Swe										
X/RLT	RF 50 Ω		REC		NSE:INT	#Avg Typ	ALIGN AUTO	TRAC	MAug 25, 2020 DE 1 2 3 4 5 6	F	requency
PASS			IO: Wide ↔ Gain:Low	Trig: Free #Atten: 3				D	ET A P N N N N		
10 dB/div	Ref 25.00 d	Bm					Mkr1	823.96 -28.	2 5 MHz 57 dBm		Auto Tune
Log Trace 1	l Pass										Center Fred
15.0											4.000000 MH
F 00						Ma	<b>^</b>				
5.00								m			Start Free
-5.00										80	5.250000 MHz
45.0					[						
-15.0										0.4	Stop Free 2.750000 MH;
-25.0					1			+		04/	2.7 30000 1011
-35.0				mo	ſ			۱. L	W.		CF Step
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	and more than the second secon	www					M	: <u>Auto</u>	3.750000 MH Mar
45.0	mark	~~~~									
-55.0	m										Freq Offse 0 H
											011
-65.0											Scale Type
Center 824.	00 MHz							Span 3	7.50 MHz	Log	Lir
#Res BW 16			#VBW	/ 510 kHz			Sweep 7	1.000 ms ((1001 pts)		
4SG							STATU	s			

Plot 7-65. Lower Band Edge Plot (NR Band n5 – 15.0MHz - Full RB)



Plot 7-66. Upper Band Edge Plot (NR Band n5 – 15.0MHz - Full RB)

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Keysight Spectrum Analyze						
XIRLT RF	50 Ω AC CORRE	C	SENSE:INT	ALIGN AUTO #Avg Type: RMS	10:24:12 PM Aug 25, 2020 TRACE 1 2 3 4 5 6	Frequency
PASS			Free Run n: 36 dB	• //	DET A WWWWW	
10 dB/div Ref 25.0	00 dBm			Mk	r1 823.975 MHz -26.56 dBm	Auto Tune
15.0						Center Frec 824.000000 MH2
5.00				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Start Fred 811.500000 MH;
25.0			1			Stop Fred 836.500000 MH
45.0	www.		, , , , , , , , , , , , , , , , , , ,			CF Step 2.500000 MH <u>Auto</u> Mar
55.0 						Freq Offse 0 H
-65.0						Scale Type
Center 824.00 MHz #Res BW 100 kHz		#VBW 300 k	Hz	Sweep 1	Span 25.00 MHz .200 ms (1001 pts)	Log <u>Lir</u>
MSG				STATUS	6	

Plot 7-67. Lower Band Edge Plot (NR Band n5 – 10.0MHz - Full RB)



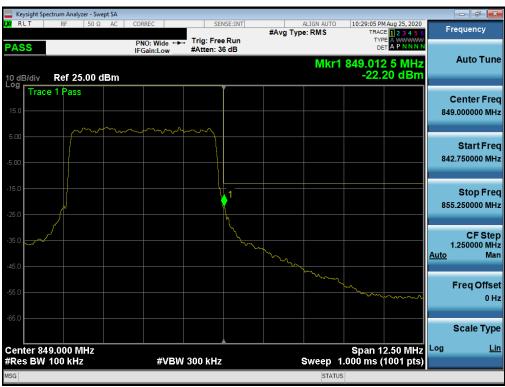
Plot 7-68. Upper Band Edge Plot (NR Band n5 – 10.0MHz - Full RB)

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🔤 Keysight Spectrur											
LXI RLT	RF 50 Ω	AC CC	DRREC	SEI	SE:INT	#Avg Typ	ALIGN AUTO		Aug 25, 2020	Fre	quency
PASS			NO: Wide ↔ Gain:Low	Trig: Free #Atten: 3				TYF DE			
10 dB/div R	ef 25.00 d	Bm					Mkr1	823.987 -24.	7 5 MHz 09 dBm		Auto Tune
Log Trace 1	Pass						······				enter Freq 000000 MHz
-5.00											Start Freq 750000 MHz
-15.0					1						Stop Freq 250000 MHz
-35.0		~~~		~~~						1.: <u>Auto</u>	CF Step 250000 MHz Man
-55.0	~~~~									F	req Offset 0 Hz
-65.0										s	cale Type
Center 824.0 #Res BW 10			#VBW	300 kHz			Sweep 1	Span 1 .000 ms (2.50 MHz 1001 pts)	Log	<u>Lin</u>
MSG							STATUS				

Plot 7-69. Lower Band Edge Plot (NR Band n5 – 5.0MHz - Full RB)

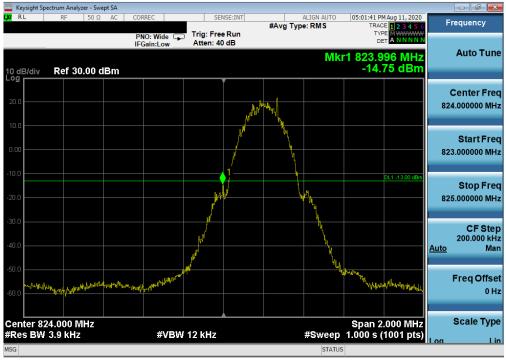


Plot 7-70. Upper Band Edge Plot (NR Band n5 – 5.0MHz - Full RB)

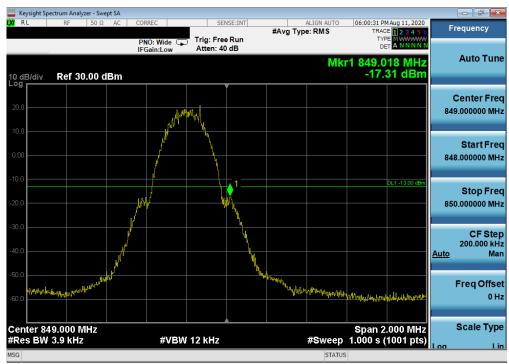
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GSM/GPRS Cell



Plot 7-71. Lower Band Edge Plot (GSM Cell - Ch. 128)



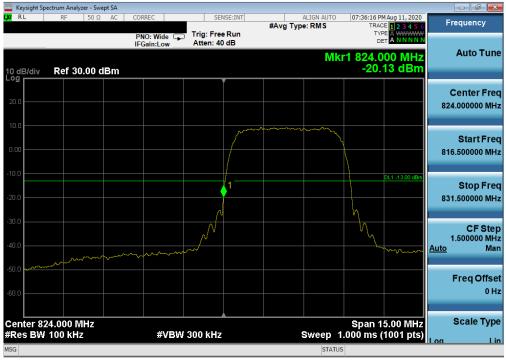
Plot 7-72. Upper Band Edge Plot (GSM Cell - Ch. 251)

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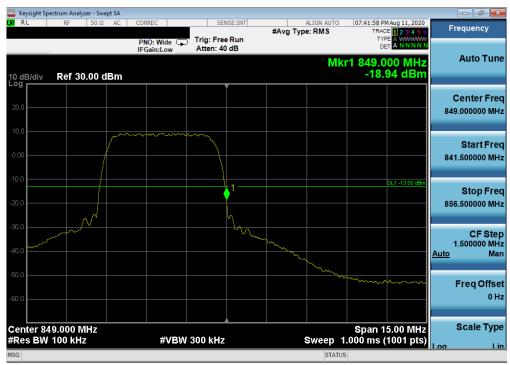
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WCDMA Cell



Plot 7-73. Lower Band Edge Plot (WCDMA Cell - Ch. 4132)



Plot 7-74. Upper Band Edge Plot (WCDMA Cell - Ch. 4233)

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7.6 Radiated Power (ERP)

Test Overview

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

Test Procedures Used

KDB 971168 D01 v03r01 - Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

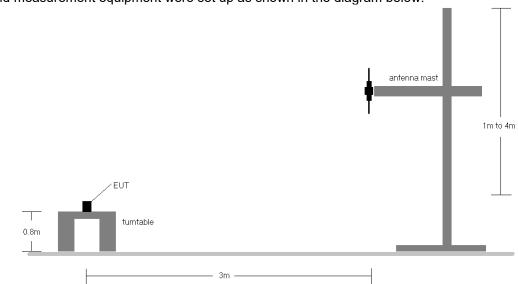
- Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
- 2. RBW = 1 5% of the expected OBW, not 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 7-5. Radiated Test Setup <1GHz

Test Notes

- 1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest powers is reported in GPRS mode while transmitting with one slot active.
- 2) This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1".
- 3) 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) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.
- 6) 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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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]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]
824.20	GPRS850	Н	222	170	18.79	6.35	22.99	0.199	38.45	-15.46	25.14	0.327	40.61
836.60	GPRS850	Н	205	177	19.66	6.38	23.89	0.245	38.45	-14.56	26.04	0.402	40.61
848.80	GPRS850	Н	349	44	15.91	6.51	20.27	0.106	38.45	-18.19	22.42	0.174	40.61
836.60	GPRS850	V	161	159	15.90	6.38	20.13	0.103	38.45	-18.32	22.28	0.169	40.61
836.60	EDGE850	н	205	177	13.13	6.38	17.36	0.054	38.45	-21.09	19.51	0.089	40.61

Table 7-75. 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]	EIRP [dBm]	EIRP [Watts]	EIRP Limi [dBm]
826.40	WCDMA850	Н	220	278	12.51	6.77	17.13	0.052	38.45	-21.32	19.28	0.085	40.61
836.60	WCDMA850	Н	222	275	12.39	6.68	16.92	0.049	38.45	-21.53	19.07	0.081	40.61
846.60	WCDMA850	Н	225	28	13.03	6.68	17.56	0.057	38.45	-20.89	19.71	0.094	40.61
846.60	WCDMA850	V	159	33	12.40	6.68	16.93	0.049	38.45	-21.52	19.08	0.081	40.61

Table 7-76. ERP Data (WCDMA Cell)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
		831.5	Н	220.0	45.0	6.43	1 / 37	10.48	14.76	0.030	38.45	-23.69	16.91	0.049	40.61	-23.70
15MHz	QPSK	836.5	н	211.0	38.0	6.38	1 / 37	10.64	14.87	0.031	38.45	-23.58	17.02	0.050	40.61	-23.59
(Band 26		841.5	Н	216.0	40.0	6.43	1/0	10.65	14.93	0.031	38.45	-23.52	17.08	0.051	40.61	-23.53
only)	16-QAM	836.5	н	211.0	38.0	6.38	1 / 37	9.94	14.17	0.026	38.45	-24.28	16.32	0.043	40.61	-24.29
	64-QAM	836.5	Н	211.0	38.0	6.38	1 / 37	8.89	13.12	0.021	38.45	-25.33	15.27	0.034	40.61	-25.34
		829.0	Н	220.0	45.0	6.40	1/0	10.30	14.55	0.028	38.45	-23.90	16.70	0.047	40.61	-23.91
	QPSK	836.5	Н	211.0	38.0	6.38	1/0	10.69	14.92	0.031	38.45	-23.53	17.07	0.051	40.61	-23.54
10 MHz		844.0	Н	216.0	40.0	6.46	1/0	10.83	15.14	0.033	38.45	-23.31	17.29	0.054	40.61	-23.32
	16-QAM	836.5	Н	211.0	38.0	6.38	1/0	9.99	14.22	0.026	38.45	-24.23	16.37	0.043	40.61	-24.24
	64-QAM	836.5	Н	211.0	38.0	6.38	1/0	8.87	13.10	0.020	38.45	-25.35	15.25	0.033	40.61	-25.36
		826.5	Н	220.0	45.0	6.37	1/0	10.42	14.65	0.029	38.45	-23.80	16.80	0.048	40.61	-23.81
	QPSK	836.5	Н	211.0	38.0	6.38	1 / 24	10.77	15.00	0.032	38.45	-23.45	17.15	0.052	40.61	-23.46
5 MHz		846.5	Н	216.0	40.0	6.48	1/0	10.69	15.02	0.032	38.45	-23.43	17.17	0.052	40.61	-23.44
	16-QAM	836.5	Н	211.0	38.0	6.38	1 / 24	10.50	14.73	0.030	38.45	-23.72	16.88	0.049	40.61	-23.73
	64-QAM	836.5	Н	211.0	38.0	6.38	1 / 24	9.20	13.43	0.022	38.45	-25.02	15.58	0.036	40.61	-25.03
		825.5	Н	220.0	45.0	6.36	1/7	10.40	14.62	0.029	38.45	-23.83	16.77	0.047	40.61	-23.84
	QPSK	836.5	Н	211.0	38.0	6.38	1 / 14	10.67	14.90	0.031	38.45	-23.55	17.05	0.051	40.61	-23.56
3 MHz		847.5	Н	216.0	40.0	6.49	1/0	10.64	14.98	0.031	38.45	-23.47	17.13	0.052	40.61	-23.48
	16-QAM	836.5	Н	211.0	38.0	6.38	1 / 14	9.94	14.17	0.026	38.45	-24.28	16.32	0.043	40.61	-24.29
	64-QAM	836.5	Н	211.0	38.0	6.38	1 / 14	8.92	13.15	0.021	38.45	-25.30	15.30	0.034	40.61	-25.31
		824.7	н	220.0	45.0	6.36	1/2	10.28	14.49	0.028	38.45	-23.96	16.64	0.046	40.61	-23.97
	QPSK	836.5	Н	211.0	38.0	6.38	1/2	10.64	14.87	0.031	38.45	-23.58	17.02	0.050	40.61	-23.59
1.4 MHz		848.3	Н	216.0	40.0	6.50	1/2	10.74	15.09	0.032	38.45	-23.36	17.24	0.053	40.61	-23.37
	16-QAM	836.5	Н	211.0	38.0	6.38	1/2	9.96	14.19	0.026	38.45	-24.26	16.34	0.043	40.61	-24.27
	64-QAM	836.5	Н	211.0	38.0	6.38	1/2	8.91	13.14	0.021	38.45	-25.31	15.29	0.034	40.61	-25.32
	Opposite Pol.	841.5	V	178.0	247.0	6.43	1/0	7.73	14.16	0.026	38.45	-24.29	16.31	0.043	40.61	-24.30

Table 7-77. ERP Data (LTE Band 26/5)

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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]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
		834.0	Н	221.0	59.0	6.36	1/0	8.18	12.39	0.017	38.45	-26.07	14.54	0.028	40.61	-26.07
	π/2 BPSK	836.5	н	220.0	345.0	6.38	1 / 99	8.69	12.92	0.020	38.45	-25.53	15.07	0.032	40.61	-25.54
		839.0	н	201.0	67.0	6.50	1/0	7.93	12.28	0.017	38.45	-26.17	14.43	0.028	40.61	-26.18
20 MHz		834.0	н	221.0	59.0	6.36	1/0	8.87	13.08	0.020	38.45	-25.38	15.23	0.033	40.61	-25.38
20 10112	QPSK	836.5	н	220.0	345.0	6.38	1 / 99	8.69	12.92	0.020	38.45	-25.53	15.07	0.032	40.61	-25.54
		839.0	н	201.0	67.0	6.50	1 / 50	8.27	12.62	0.018	38.45	-25.83	14.77	0.030	40.61	-25.84
	16-QAM	834.0	н	221.0	59.0	6.36	1 / 50	7.88	12.09	0.016	38.45	-26.37	14.24	0.027	40.61	-26.37
	64-QAM	834.0	Н	221.0	59.0	6.36	1/0	6.14	10.35	0.011	38.45	-28.11	12.50	0.018	40.61	-28.11
		831.5	Н	221.0	59.0	0.00	1/37	14.96	12.81	0.019	38.45	-25.65	14.96	0.031	40.61	-25.65
	π/2 BPSK	836.5	н	220.0	345.0	0.00	1/37	15.25	13.10	0.020	38.45	-25.35	15.25	0.034	40.61	-25.35
		841.5	н	201.0	67.0	0.00	1 / 37	14.81	12.66	0.018	38.45	-25.79	14.81	0.030	40.61	-25.80
15 MHz		831.5	н	221.0	59.0	0.00	1 / 37	14.89	12.74	0.019	38.45	-25.72	14.89	0.031	40.61	-25.72
13 WITZ	QPSK	836.5	н	220.0	345.0	0.00	1 / 37	14.60	12.45	0.018	38.45	-26.00	14.60	0.029	40.61	-26.01
		841.5	н	201.0	67.0	0.00	1 / 37	14.44	12.29	0.017	38.45	-26.16	14.44	0.028	40.61	-26.17
	16-QAM	836.5	н	220.0	345.0	0.00	1/37	13.25	11.10	0.013	38.45	-27.35	13.25	0.021	40.61	-27.36
	64-QAM	836.5	Н	220.0	345.0	0.00	1 / 37	10.74	8.59	0.007	38.45	-29.86	10.74	0.012	40.61	-29.86
		829.0	н	221.0	59.0	0.00	1 / 25	14.02	11.87	0.015	38.45	-26.59	14.02	0.025	40.61	-26.59
	π/2 BPSK	836.5	н	220.0	345.0	0.00	1 / 25	14.54	12.39	0.017	38.45	-26.06	14.54	0.028	40.61	-26.07
		844.0	н	201.0	67.0	0.00	1 / 25	14.10	11.95	0.016	38.45	-26.50	14.10	0.026	40.61	-26.51
10 MHz		829.0	н	221.0	59.0	0.00	1 / 25	14.49	12.34	0.017	38.45	-26.12	14.49	0.028	40.61	-26.12
10 10112	QPSK	836.5	н	220.0	345.0	0.00	1 / 25	14.21	12.06	0.016	38.45	-26.39	14.21	0.026	40.61	-26.40
		844.0	н	201.0	67.0	0.00	1 / 25	14.10	11.95	0.016	38.45	-26.50	14.10	0.026	40.61	-26.51
	16-QAM	836.5	н	220.0	345.0	0.00	1 / 25	13.91	11.76	0.015	38.45	-26.69	13.91	0.025	40.61	-26.69
	64-QAM	836.5	Н	220.0	345.0	0.00	1 / 25	10.49	8.34	0.007	38.45	-30.11	10.49	0.011	40.61	-30.12
		829.0	н	221.0	59.0	0.00	1 / 12	14.96	12.81	0.019	38.45	-25.65	14.96	0.031	40.61	-25.65
	π/2 BPSK	836.5	н	220.0	345.0	0.00	1 / 12	15.28	13.13	0.021	38.45	-25.32	15.28	0.034	40.61	-25.33
		844.0	н	201.0	67.0	0.00	1 / 12	14.59	12.44	0.018	38.45	-26.01	14.59	0.029	40.61	-26.02
5 MHz		829.0	н	221.0	59.0	0.00	1 / 12	14.69	12.54	0.018	38.45	-25.92	14.69	0.029	40.61	-25.92
J WILLS	QPSK	836.5	н	220.0	345.0	0.00	1 / 12	14.38	12.23	0.017	38.45	-26.22	14.38	0.027	40.61	-26.22
		844.0	н	201.0	67.0	0.00	1 / 12	13.99	11.84	0.015	38.45	-26.61	13.99	0.025	40.61	-26.62
	16-QAM	836.5	н	220.0	345.0	0.00	1 / 12	14.16	12.01	0.016	38.45	-26.44	14.16	0.026	40.61	-26.44
	64-QAM	836.5	Н	220.0	345.0	0.00	1 / 12	10.73	8.58	0.007	38.45	-29.87	10.73	0.012	40.61	-29.87
	QPSK (CP-OFDM)	834.0	Н	221.0	59.0	6.36	1/0	4.32	10.68	0.012	38.45	-27.78	12.83	0.019	40.61	-27.78
	QPSK (Opposite Pol.)	834.0	V	134.0	165.0	6.38	1/0	2.56	8.94	0.008	38.45	-29.51	11.09	0.013	40.61	-29.52

Table 7-78. ERP Data (NR Band n5)

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7.7 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in KDB 971168 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 - Section 5.8

Test Settings

- 1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
- 2. VBW \geq 3 x RBW
- 3. Span = 1.5 times the OBW
- 4. No. of sweep points > 2 x 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.

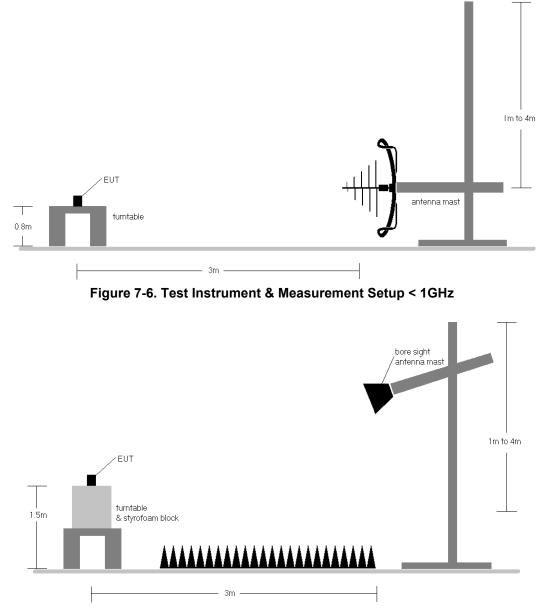


Figure 7-7. Test Instrument & Measurement Setup >1 GHz

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Test Notes

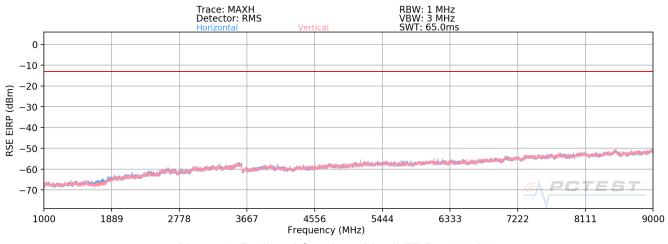
- Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
 b) E(dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)
 d) EIRP (dBm) = E(dBµV/m) + 20logD 104.8; where D is the measurement distance in meters.
- 2) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest powers is 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 power is 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 EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.
- 7) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 8) 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.
- 9) The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 10) 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.
- 11) Spurious emissions shown in this section are measured while operating in EN-DC mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor). Spurious emissions from the NR carrier device, is subject to the rules under which the NR carrier operates. Spurious emission caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.

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LTE Band 26/5





Frequency (MHz):	831.5
RB / Offset:	1 / 37
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

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]
1663.0	Н	-	-	-71.22	-1.75	34.03	-61.23	-13.00	-48.23
2494.5	Н	-	-	-72.90	-5.03	29.07	-66.19	-13.00	-53.19
3326.0	Н	-	-	-74.53	0.78	33.25	-62.01	-13.00	-49.01

Table 7-11. Radiated Spurious Data (LTE Band 26/5 – Low Channel)

Frequency (MHz):	836.5
RB / Offset:	1 / 37
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

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]
1673.0	Н	-	-	-70.29	-3.89	32.82	-62.44	-13.00	-49.44
2509.5	Н	-	-	-68.07	-11.51	27.42	-67.83	-13.00	-54.83
3346.0	Н	-	-	-68.70	0.64	38.94	-56.32	-13.00	-43.32

Table 7-12. Radiated Spurious Data (LTE Band 26/5 – Mid Channel)

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Frequency (MHz):	841.5
RB / Offset:	1 / 37
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

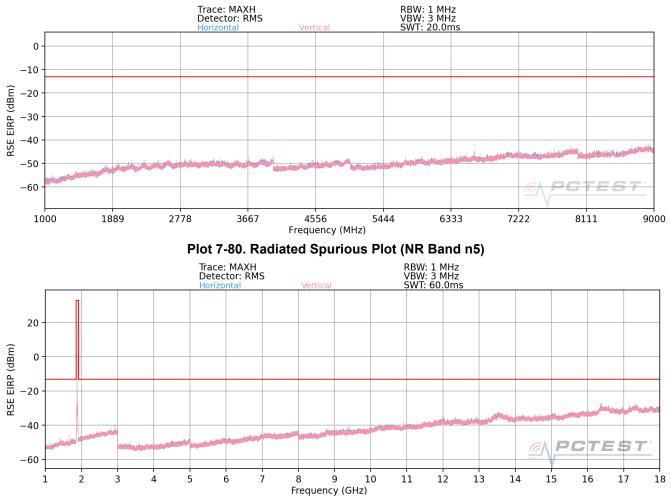
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1683.00	Н	-	-	-68.25	-7.84	30.91	-64.34	-13.00	-51.34
2524.50	Н	-	-	-68.09	-10.63	28.28	-66.97	-13.00	-53.97
3366.00	Н	-	-	-69.00	0.67	38.67	-56.58	-13.00	-43.58

Table 7-13. Radiated Spurious Data (LTE Band 26/5 – High Channel)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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NR Band n5





Bandwidth (MHz):	20
Frequency (MHz):	834.0
RB / Offset:	1 / 50
Mode:	Standalone
Anchor Band:	-

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]
1668.0	Н	-	-	-78.11	2.93	31.82	-63.44	-13.00	-50.44
2502.0	Н	-	-	-79.03	6.27	34.24	-61.02	-13.00	-48.02

Table 7-14. Radiated Spurious Data (NR Band n5 – Low Channel)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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20
836.5
1 / 50
Standalone
-

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]
1673.0	Н	-	-	-78.25	2.84	31.59	-63.67	-13.00	-50.67
2509.5	Н	-	-	-79.11	6.12	34.01	-61.25	-13.00	-48.25

Table 7-15. Radiated Spurious Data (NR Band n5 – Mid Channel)

Sample #:	/81811
Bandwidth (MHz):	20
Frequency (MHz):	839.0
RB / Offset:	1 / 50
Mode:	Standalone
Anchor Band:	-

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]
1678.0	Н	-	-	-78.14	2.73	31.59	-63.67	-13.00	-50.67
2517.0	Н	-	-	-79.08	6.09	34.01	-61.25	-13.00	-48.25

Table 7-16. Radiated Spurious Data (NR Band n5 – High Channel)

Bandwidth (MHz):	20
Frequency (MHz):	836.5
RB / Offset:	1 / 50
Mode:	EN-DC
Anchor Band:	2

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]
1889.0	V	-	-	-67.67	1.67	41.00	-54.26	-13.00	-41.26
2653.5	V	101	256	-65.06	3.51	45.45	-49.81	-13.00	-36.81
2797.5	V	-	-	-67.95	4.49	43.54	-51.72	-13.00	-38.72
3562.0	V	-	-	-69.72	5.00	42.28	-52.97	-13.00	-39.97
4470.0	V	-	-	-68.99	6.85	44.86	-50.40	-13.00	-37.40

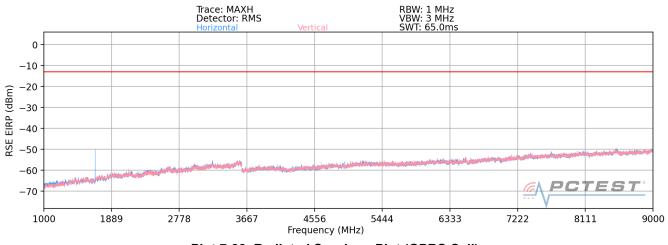
Table 7-17. Radiated Spurious Data (NR Band n5 – Anchor B)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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GSM/GPRS Cell



Plot 7-82. Radiated Spurious Plot (GPRS Cell)

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 [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1648.4	Н	209	186	-56.95	-1.04	49.01	-46.25	-13.00	-33.25
2472.6	Н	145	151	-70.49	3.11	39.62	-55.63	-13.00	-42.63
3296.8	Н	-	-	-71.50	4.54	40.04	-55.21	-13.00	-42.21
4121.0	Н	-	-	-74.90	5.82	37.92	-57.33	-13.00	-44.33

Table 7-18. 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 [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1673.2	Н	181	16	-63.85	-0.70	42.45	-52.81	-13.00	-39.81
2509.8	Н	-	-	-70.08	3.08	40.00	-55.26	-13.00	-42.26
3346.4	Н	-	-	-72.97	4.19	38.22	-57.04	-13.00	-44.04
4183.0	Н	-	-	-72.57	5.73	40.16	-55.10	-13.00	-42.10

Table 7-19. Radiated Spurious Data (GPRS Cell – Mid Channel)

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GPRS 1 Tx Slot
251
848.8

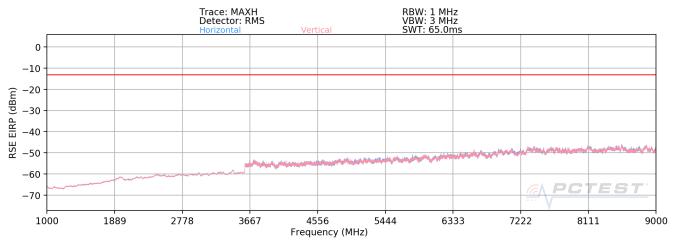
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1697.6	Н	117	31	-70.30	-1.00	35.70	-59.55	-13.00	-46.55
2546.4	Н	104	165	-70.78	3.28	39.50	-55.76	-13.00	-42.76
3395.2	Н	-	-	-72.50	4.65	39.15	-56.11	-13.00	-43.11
4244.0	Н	-	-	-74.79	5.51	37.72	-57.54	-13.00	-44.54

Table 7-20. Radiated Spurious Data (GPRS Cell – High Channel)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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WCDMA Cell



Plot 7-83. Radiated Spurious Plot (WCDMA Cell)

Channel:	4132
Frequency (MHz):	826.4
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

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]
1652.8	Н	-	-	-75.20	-0.95	30.85	-64.41	-13.00	-51.41
2479.2	Н	-	-	-75.76	3.04	34.28	-60.98	-13.00	-47.98
3305.6	Н	-	-	-76.13	4.64	35.51	-59.75	-13.00	-46.75

Table 7-21. Radiated Spurious Data (WCDMA Cell – Low Channel)

WCDMA RMC
4183
836.6
RMS / Average
1MHz / 3MHz

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]
1673.2	Н	-	-	-74.71	-0.70	31.59	-63.67	-13.00	-50.67
2509.8	Н	-	-	-75.58	3.08	34.50	-60.76	-13.00	-47.76
3346.4	Н	-	-	-76.09	4.19	35.10	-60.16	-13.00	-47.16

Table 7-22. Radiated Spurious Data (WCDMA Cell – Mid Channel)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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Mode:	WCDMA RMC	
Channel:	4233	
Frequency (MHz):	846.6	
Detector / Trace Mode:	RMS / Average	
RBW / VBW:	1MHz / 3MHz	

	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]
	1693.2	Н	-	-	-75.09	-0.91	31.00	-64.25	-13.00	-51.25
ĺ	2539.8	Н	-	-	-75.40	3.29	34.89	-60.36	-13.00	-47.36
	3386.4	Н	-	-	-75.64	4.54	35.90	-59.35	-13.00	-46.35

Table 7-23. Radiated Spurious Data (WCDMA Cell – High Channel)

FCC ID: PY7-57441Y		PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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7.8 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. 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 and RSS-132, the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency.

Test Procedure Used

ANSI/TIA-603-E-2016

Test Settings

- 1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
- 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 26/5

LTE Band 26/5							
	Operating F	requency (Hz):	836,50	00,000			
	Ref.	Voltage (VDC):	4.	18			
		Deviation Limit:	± 0.00025%	o or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)		
		- 30	836,499,860	140	0.0000167		
		- 20	836,500,354	-354	-0.0000423		
		- 10	836,499,954	46	0.0000055		
		0	836,499,922	78	0.0000093		
100 %	4.18	+ 10	836,499,729	271	0.0000324		
		+ 20 (Ref)	836,500,104	-104	-0.0000124		
		+ 30	836,499,932	68	0.0000081		
		+ 40	836,500,067	-67	-0.0000080		
		+ 50	836,500,045	-45	-0.0000054		
Battery Endpoint	3.21	+ 20	836,499,868	132	0.0000158		

Table 7-9. LTE Band 26/5 Frequency Stability Data

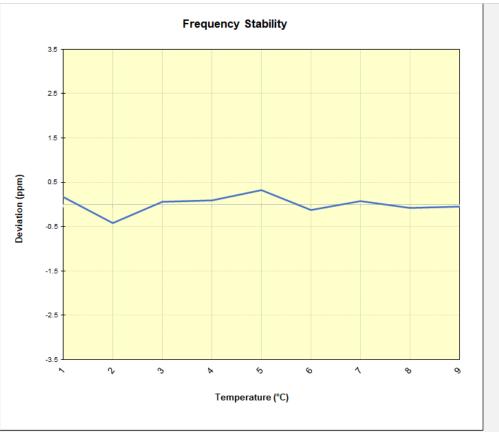


Table 7-9. LTE Band 26/5 Frequency Stability Chart

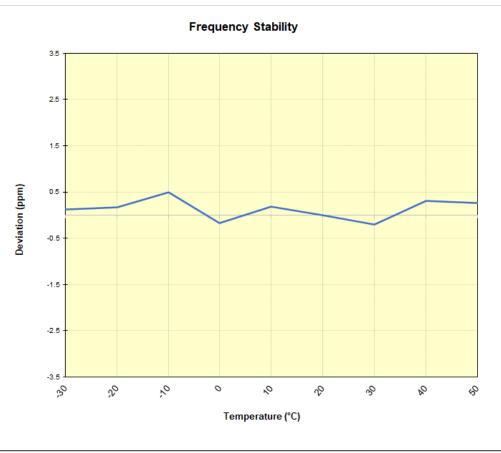
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NR Band n5

NR Band n5							
	Operating F	Frequency (Hz):	836,500,000				
	Ref. Voltage (VDC):		4.18				
	Deviation Limit:		± 0.00025% or 2.5 ppm				
					-		
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)		
		- 30	831,500,005	98	0.0000118		
		- 20	831,500,044	137	0.0000165		
		- 10	831,500,316	409	0.0000492		
		0	831,499,769	-138	-0.0000166		
100 %	4.18	+ 10	831,500,060	153	0.0000184		
		+ 20 (Ref)	831,499,907	0	0.0000000		
		+ 30	831,499,741	-166	-0.0000200		
		+ 40	831,500,159	252	0.0000303		
		+ 50	831,500,130	223	0.0000268		
Battery Endpoint	3.21	+ 20	831,500,072	165	0.0000198		

Table 7-9. NR Band n5 Frequency Stability Data





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GSM/GPRS Cell

GSM/GPRS Cellular						
	Operating F	requency (Hz):	836,600,000			
	Ref.	Voltage (VDC):	4.18			
		Deviation Limit:	± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)	
		- 30	836,599,833	-192	-0.0000230	
		- 20	836,599,974	-51	-0.0000061	
		- 10	836,600,229	204	0.0000244	
		0	836,600,016	-9	-0.0000011	
100 %	4.18	+ 10	836,600,062	37	0.0000044	
		+ 20 (Ref)	836,600,025	0	0.0000000	
		+ 30	836,600,257	232	0.0000277	
		+ 40	836,600,056	31	0.0000037	
		+ 50	836,600,074	49	0.0000059	
Battery Endpoint	3.21	+ 20	836,600,055	30	0.000036	

Table 7-9. GSM/GPRS Cell Frequency Stability Data

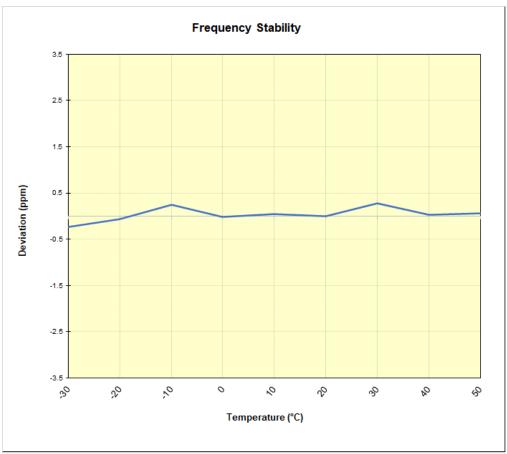


Table 7-9. GSM/GPRS Cell Frequency Stability Chart

FCC ID: PY7-57441Y	Pottest*	PART 22 MEASUREMENT REPORT	SONY	Approved by: Quality Manager
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WCDMA Cell

<u> </u>							
WCDMA Cellular							
	Operating F	requency (Hz):	836,600,000]		
	Ref. Voltage (VDC):		4.18		1		
		Deviation Limit:	± 0.00025% or 2.5 ppm		1		
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)		
		- 30	836,519,830	-479	-0.0000573		
		- 20	836,519,870	-439	-0.0000525		
		- 10	836,519,978	-331	-0.0000396		
		0	836,520,223	-86	-0.0000103		
100 %	4.18	+ 10	836,519,648	-661	-0.0000790		
		+ 20 (Ref)	836,520,309	0	0.0000000		
		+ 30	836,520,076	-233	-0.0000279		
		+ 40	836,519,703	-606	-0.0000724		
		+ 50	836,520,014	-295	-0.0000353		
Battery Endpoint	3.21	+ 20	836,520,003	-306	-0.0000366		

Table 7-9. WCDMA Cell Frequency Stability Data

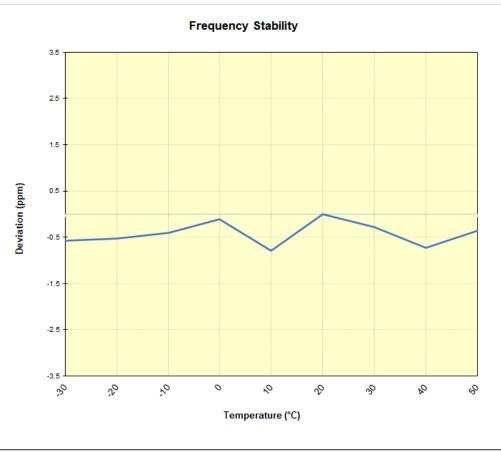


Table 7-9. WCDMA Cell Frequency Stability Chart

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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the SONY **Portable Handset FCC ID: PY7-57441Y** complies with all the requirements of Part 22 of the FCC rules.

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Test Report S/N:	Test Dates:	EUT Type:		Page 93 of 93
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