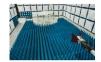


PCTEST

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PART 24 MEASUREMENT REPORT

Applicant Name:

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

Date of Testing:

4/12/2021 – 6/11/2021 Test Site/Location: PCTEST Lab. Columbia, MD, USA Test Report Serial No.: 1M2104070032-03.A3L

FCC ID:

Applicant Name:

A3LSMF711U

Samsung Electronics Co., Ltd.

Application Type: Model: Additional Model(s): EUT Type: FCC Classification: FCC Rule Part: Test Procedure(s): Certification SM-F711U SM-F711U1 Portable Handset PCS Licensed Transmitter Held to Ear (PCE) 24 ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01, KDB 648474 D03 v01r04

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

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

Randy Ortanez President



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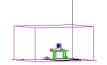


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			Ell	RP	Emission
Mode	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Designator
GSM/GPRS	GMSK	1850.2 - 1909.8	0.994	29.97	241KGXW
EDGE	8-PSK	1850.2 - 1909.8	0.299	24.76	249KG7W
WCDMA	Spread Spectrum	1852.4 - 1907.6	0.232	23.65	4M19F9W
CDMA	Spread Spectrum	1851.25 - 1908.75	0.239	23.78	1M28F9W

20	dwidth MHz - MHz - MHz -	Modulation QPSK 16QAM QPSK 16QAM	Tx Frequency Range [MHz] 1860 - 1905 1860 - 1905 1857.5 - 1907.5	Max. Power [W] 0.259 0.227	Max. Power [dBm] 24.13	Emission Designator 18M1G7D
15 10 LTE Band 25/2	MHz	16QAM QPSK 16QAM	1860 - 1905		-	18M1G7D
15 10 LTE Band 25/2	MHz	QPSK 16QAM		0.227		
10 LTE Band 25/2		16QAM	1857.5 - 1907.5		23.56	18M1W7D
10 LTE Band 25/2				0.260	24.14	13M6G7D
LTE Band 25/2	MHz		1857.5 - 1907.5	0.233	23.67	13M6W7D
LTE Band 25/2	IVITIZ	QPSK	1855 - 1910	0.243	23.85	9M02G7D
		16QAM	1855 - 1910	0.206	23.14	9M00W7D
51		QPSK	1852.5 - 1912.5	0.241	23.82	4M52G7D
		16QAM	1852.5 - 1912.5	0.206	23.15	4M52W7D
		QPSK	1851.5 - 1913.5	0.248	23.94	2M72G7D
31	MHz	16QAM	1851.5 - 1913.5	0.212	23.27	2M72W7D
14	MHz	QPSK	1850.7 - 1914.3	0.243	23.86	1M09G7D
1.4	IVIHZ	16QAM	1850.7 - 1914.3	0.214	23.30	1M10W7D
		π/2 BPSK	1870 - 1895	0.281	24.49	38M9G7D
40	40 MHz	QPSK	1870 - 1895	0.253	24.03	38M9G7D
		16QAM	1870 - 1895	0.216	23.35	38M8W7D
NR Band n25		π/2 BPSK	1865 - 1900	0.251	24.00	28M9G7D
ANT A 30	MHz	QPSK	1865 - 1900	0.247	23.92	28M8G7D
ANTA		16QAM	1865 - 1900	0.214	23.31	28M9W7D
		π/2 BPSK	1862.5 - 1902.5	0.240	23.80	23M1G7D
25	MHz	QPSK	1862.5 - 1902.5	0.249	23.96	23M1G7D
		16QAM	1862.5 - 1902.5	0.194	22.87	23M1W7D
		π/2 BPSK	1860 - 1905	0.236	23.72	18M0G7D
20	MHz	QPSK	1860 - 1905	0.252	24.01	18M0G7D
		16QAM	1860 - 1905	0.181	22.59	18M0W7D
		π/2 BPSK	1857.5 - 1907.5	0.245	23.89	13M5G7D
15	MHz	QPSK	1857.5 - 1907.5	0.246	23.90	13M5G7D
NR Band n25/2		16QAM	1857.5 - 1907.5	0.191	22.80	13M5W7D
ANT A		π/2 BPSK	1855 - 1910	0.233	23.68	8M99G7D
10	MHz	QPSK	1855 - 1910	0.239	23.78	9M00G7D
		16QAM	1855 - 1910	0.185	22.66	9M01W7D
		π/2 BPSK	1852.5 - 1912.5	0.234	23.69	4M53G7D
51	MHz	QPSK	1852.5 - 1912.5	0.231	23.63	4M50G7D
		16QAM	1852.5 - 1912.5	0.177	22.48	4M55W7D

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			Tx Frequency	EI	RP	Emission
Mode	Bandwidth	Modulation Range [MHz]		Max. Power [W]	Max. Power [dBm]	Designator
		π/2 BPSK	1870 - 1895	0.270	24.32	38M7G7D
	40 MHz	QPSK	1870 - 1895	0.273	24.36	38M6G7D
		16QAM	1870 - 1895	0.201	23.03	38M7W7D
NR Band n25		π/2 BPSK	1865 - 1900	0.261	24.17	28M7G7D
ANT I	30 MHz	QPSK	1865 - 1900	0.264	24.21	28M7G7D
		16QAM	1865 - 1900	0.206	23.14	28M7W7D
		π/2 BPSK	1862.5 - 1902.5	0.260	24.16	23M0G7D
	25 MHz	QPSK	1862.5 - 1902.5	0.256	24.09	24M0G7D
		16QAM	1862.5 - 1902.5	0.194	22.89	23M9W7D
		π/2 BPSK	1860 - 1905	0.262	24.18	18M0G7D
	20 MHz	QPSK	1860 - 1905	0.258	24.11	19M0G7D
		16QAM	1860 - 1905	0.200	23.02	19M0W7D
		π/2 BPSK	1857.5 - 1907.5	0.255	24.06	13M5G7D
	15 MHz	QPSK	1857.5 - 1907.5	0.260	24.14	14M2G7D
NR Band n25/2		16QAM	1857.5 - 1907.5	0.190	22.80	14M2W7D
ANT I		π/2 BPSK	1855 - 1910	0.250	23.99	8M98G7D
	10 MHz	QPSK	1855 - 1910	0.256	24.09	9M35G7D
		16QAM	1855 - 1910	0.197	22.96	9M35W7D
		π/2 BPSK	1852.5 - 1912.5	0.266	24.25	4M51G7D
	5 MHz	QPSK	1852.5 - 1912.5	0.258	24.12	4M51G7D
		16QAM	1852.5 - 1912.5	0.197	22.94	4M53W7D

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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 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 located in Columbia, MD 21046, U.S.A.

- PCTEST is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMF711U**. 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 24.

Test Device Serial No.: 0846M, 0130M, 0129M, 0151M, 0129M, 0880M, 0811M, 0859M, 0193M

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A, 1x Advanced (BC0, BC1), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 5G NR (n71, n12, n5, n66, n2, n25, n30, n41, n77, n260, n261), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII (5GHz), Bluetooth (1x, EDR, LE), NFC, Wireless Power Transfer

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 3.4 of this test report for a description of the radiated and antenna port conducted emissions tests.

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

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

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

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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:

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

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:

 $E_{[dB\mu V/m]} =$ 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.

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 414788 D01.

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 Numbe
Agilent	E5515C	Wireless Communications Test Set		N/A		GB45360985
Agilent	E5515C	Wireless Communications Test Set		N/A		GB46310798
Anritsu	MT8820C	Radio Communication Analyzer		N/A		6201300731
Anritsu	MT8821C	Radio Communication Analyzer		N/A		6201381794
Anritsu	MT8821C	Radio Communication Analyzer		N/A		6200901190
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2019	Biennial	10/10/2021	121034
Emco	3115	Horn Antenna (1-18GHz)	6/18/2020	Biennial	6/18/2022	9704-5182
Espec	ESX-2CA	Environmental Chamber	8/27/2020	Annual	8/27/2022	17620
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	3/12/2020	Biennial	3/12/2022	128337
Keysight Technologies	N9020A	MXA Signal Analyzer	8/14/2020	Annual	8/14/2021	US46470561
Keysight Technologies	N9038A	MXE EMI Receiver	8/11/2020	Annual	8/11/2021	MY5121013
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	8/17/2020	Annual	8/17/2021	MY5235016
Keysight Technologies	N9020A	MXA Signal Analyzer	9/22/2020	Annual	9/22/2021	MY5450064
Keysight Technologies	N9030B	PXA Signal Analyzer, Multi-touch	9/17/2020	9/17/2020 Annual 9/17/2021		MY5714100
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator		N/A		
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator		N/A		1140310000
Rohde & Schwarz	CMW500	Radio Communication Tester		N/A		100976
Rohde & Schwarz	CMW500	Radio Communication Tester		N/A		112347
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	7/15/2020	Annual	7/15/2021	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/9/2020	Annual	9/9/2021	100348
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/10/2020	Annual	8/10/2021	103200
Sunol	DRH-118	Horn Antenna (1-18GHz)	10/3/2019	Biennial	10/3/2021	A050307
Sunol	DRH-118	Horn Antenna (1-18 GHz)	8/27/2019	Biennial	8/27/2021	A042511
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/27/2020	Biennial	7/27/2022	A051107
-	AP2	EMC Cable and Switch System	9/9/2020	Annual	9/9/2021	AP2
-	AP1	EMC Cable and Switch System	9/10/2020	Annual	9/10/2021	AP1
-	LTx2	Licensed Transmitter Cable Set	9/16/2020	Annual	9/16/2021	LTx2
-	LTx3	LIcensed Transmitter Cable Set	8/28/2020	Annual	8/28/2021	LTx3
-	LTx4	Licensed Transmitter Cable Set	9/16/2020	Annual	9/16/2021	LTx4
-	LTx5	LIcensed Transmitter Cable Set	9/16/2020	Annual	9/16/2021	LTx5

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)

CDMA Emission Designator

Emission Designator = 1M25F9W

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

WCDMA Emission Designator

Emission Designator = 4M16F9W

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

QPSK Modulation

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

QAM Modulation

Emission Designator = 8M45W7D

LTE BW = 8.45 MHz W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

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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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TEST RESULTS 7.0

7.1 Summary

Company Name:	Samsung Electronics Co., Ltd.
FCC ID:	A3LSMF711U
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Mode(s):	GSM/GPRS/EDGE/WCDMA/CDMA/LTE/NR

Test Condition	Test Description	FCC Part Section(s)	RSS Section(s)	Test Limit	Test Result	Reference
	Occupied Bandwidth	2.1049	RSS-Gen(6.7)	N/A	PASS	Section 7.2
TED	Conducted Band Edge / Spurious Emissions	2.1051, 24.238(a)	RSS-133(6.5)	> 43 + 10log10(P[Watts]) at Band Edge and for all out-of- band emissions	PASS	Sections 7.3, 7.4
CONDUCTED	Peak-Average Ratio	24.232(d)	RSS-133(6.4)	< 13 dB	PASS	Section 7.5
CO	Transmitter Conducted Output Power	2.1046	RSS-133(4.1)	N/A	PASS	See RF Exposure Report
	Frequency Stability	2.1055, 24.235	RSS-133(6.3)	Fundamental emissions stay within authorized frequency block	PASS	Section 7.8
RADIATED	Effective Radiated Power / Equivalent Isotropic Radiated Power	24.232(c)	RSS-132(5.4)	< 7 Watts max. ERP	PASS	Section 7.6
RADIA	Radiated Spurious Emissions	2.1053, 24.238(a)	RSS-133(6.5)	> 43 + 10 log10 (P[Watts]) for all out-of-band emissions	PASS	Section 7.7

Table 7-1. Summary of Test Results

Notes:

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

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7.2 Occupied Bandwidth

Test Overview

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

Test Procedure Used

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 7-1. Test Instrument & Measurement Setup

Test Notes

None.

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LTE Band 25/2

ctrum Analyzer - Occupied B 11:16:41 PM Apr 14, 2021 Radio Std: None RI ALIGN AUTO Trace/Detector Center Freq: 1.882500000 GHz Avg|Hold: 100/100 Trig: Free Run #Atten: 36 dB Radio Device: BTS #IFGain:Low Ref 40.00 dBm 10 dB/div Log **Clear Write** Average mandund Max Hold Center 1.88250 GHz Res BW 470 kHz Span 50.00 MHz #VBW 1.5 MHz Sweep 1 ms Min Hold **Occupied Bandwidth** Total Power 31.0 dBm 18.081 MHz Detector Peak▶ Transmit Freq Error -9.827 kHz % of OBW Power 99.00 % Auto Man x dB Bandwidth 19.54 MHz x dB -26.00 dB STATUS





Plot 7-2. Occupied Bandwidth Plot (LTE Band 25/2 - 20MHz 16-QAM - Full RB)

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🔤 Keys	sight Spect	rum Ana	ilyzer - Oco	upied BW										
L <mark>XI</mark> RL		RF	50 Ω	DC	CORRE	C	Cente	SENSE:INT r Freg: 1.8825	00000 GHz	ALIGN AUTO	11:18:15 P Radio Std	M Apr 14, 2021	Trac	e/Detector
						÷	Trig:	Free Run		d: 100/100	Raulo Stu	. None		
					#IFGa	in:Low	#Atte	n: 36 dB			Radio Dev	vice: BTS		
10 dB	/div	Re	f 40.0	0 dBm										
Log 30.0														
20.0														Clear Write
						mount	montany	~num	wethere					
10.0														
0.00					- I					t				_
-10.0 -				العلام	أهبار					North wheeling a	- how when the			Average
-20.0	where	mpr fur	ر المريد المرا ^ل	Althe a sea sh						1.0.04.44	WV441,-L_AM	to the loss of the		
-30.0														
-40.0														Max Hold
-50.0														
ĻĻ														
	er 1.83 BW 30						+	VBW 1.1 M	1U-			7.50 MHz ep 1 ms		
Res	OVV J	00 NR	2				#		MINZ		SWG	ep mis		Min Hold
0	ccup	ied	Band	widt	h			Total F	ower	30	.7 dBm			
						') M	L I							Detector
				10	.ə/	'2 M	ПΖ							Detector Peak▶
Tr	ansm	it Fre	əq Err	or	-1	4.280	kHz	% of O	BW Pow	ver 9	9.00 %		Auto	Man
	dB Ba					4.75		x dB		26	6.00 dB			
	ир ра	nuw	Iuui			14.751		XUD		-20	0.00 ub			
MSG										STAT	US			

Plot 7-3. Occupied Bandwidth Plot (LTE Band 25/2 - 15MHz QPSK - Full RB)



Plot 7-4. Occupied Bandwidth Plot (LTE Band 25/2 - 15MHz 16-QAM - Full RB)

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	Keysight Sp	pectrum Analy	zer - Occu	upied BW										
LXI	RL	RF	50 Ω	DC	CORREC			NSE:INT reg: 1.88250		ALIGN AUTO	11:18:43 P Radio Std	M Apr 14, 2021	Trac	e/Detector
							Total Free			ld: 100/100	Radio Sta	None		
					#IFGai	n:Low	#Atten: 3				Radio Dev	ice: BTS		
		-												
	dB/div	Ref	40.00) dBm										
Lo:														
20.														Clear Write
						May Mary Bro	with renally	manyment	mont					
10.					Ĵ									
0.0	⁰├──]					4				
-10.	₀				$-\mu$					-h	10			Average
-20.		Jun and a street	wowle	hlvu yvv v	heγ					J-mar 10m	Mohally	malthyrathere		
-30.		n . A dhi e a												
-40.														May Hald
-50.														Max Hold
-50.													_	
Ce	nter 1	.88250 G	Hz								Span 2	5.00 MHz		
Re	s BW	240 kHz	:				#VE	3W 750 k	κHz			ep 1ms		Min Hold
	Occu	pied B	and	widt	n			Total P	ower	30.	0 dBm			
						1 MF	1							Detector
				J.(119		12							Detector Peak▶
•	Trans	mit Fre	q Erro	or		273	Hz	% of O	BW Pov	ver 99	9.00 %		Auto	Man
	k dB B	Bandwig	dth		9	.687 M	Hz	x dB		-26	.00 dB			
MEG										STATU				
MSG										STATU	5			

Plot 7-5. Occupied Bandwidth Plot (LTE Band 25/2 - 10MHz QPSK - Full R



Plot 7-6. Occupied Bandwidth Plot (LTE Band 25/2 - 10MHz 16-QAM - Full RB

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²⁰²¹ PCTEST



	Keysight S	pectrum Ar	nalyzer - Oc	cupied BV	V									
L X I	RL	RF	50 Ω	DC	CORRE	C		ENSE:INT Freg: 1.8825		ALIGN AUTO	11:19:07 F	M Apr 14, 2021	Trac	e/Detector
						↔	. Trig: Fr	ee Run		ld: 100/100				
					#IFGai	n:Low	#Atten:	36 dB			Radio Dev	vice: BTS		
	d <u>B/div</u>	R	ef 40.0	0 dBn	n									
Lo <u>ş</u> 30.														
20.														Clear Write
						~N~~~	~_^_/h~~	~~~~w	mon					
10.					1									
0.0					1					1				
-10.					-/					- h				Average
-20.		har	᠕ᡣ᠕᠕	Wment	~~					Կեր հանկվ	-hom home	Marthan		
-30.		1*												
-40.	₀ ——													Max Hold
-50.	o				$\rightarrow +$									
		00050									0	0.50 MU-		
		.88250 120 ki					VE	W 1.2 M	H7			2.50 MHz eep 1 ms		
RCC	5 DW	120 K	12				VL	1.2 14	112		0			Min Hold
	Occu	pied	Band	widt	h			Total I	Power	30.	0 dBm			
						6 MI	7							Detector
					515		12							Peak
	Trans	mit Fr	req Er	ror	-	2.840	кНz	% of O	BW Pov	ver 9	9.00 %		Auto	<u>Man</u>
,	r dB I	Bandv	vidth		Δ	.988 N	IH7	x dB		-26	.00 dB			
'		Juna	- Catal					A GD		LV				
MSG										STATU	IS			

Plot 7-7. Occupied Bandwidth Plot (LTE Band 25/2 - 5MHz QPSK - Full RB)



Plot 7-8. Occupied Bandwidth Plot (LTE Band 25/2 - 5MHz 16-QAM - Full RB)

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	Keysight Spectrum Analyzer - Occupied BW										
LXU RL	RF 50 Ω	DC CC	ORREC	Center Fr Trig: Free	NSE:INT req: 1.8825000		ALIGN AUTO	Radio Std:		Trac	ce/Detector
		#17	IFGain:Lov	ow #Atten: 36	6 dB			Radio Devi	ice: BTS		
10 dB/div	Ref 40.00	0 dBm									
Log 30.0	وي ا		Æ								Clear Write
20.0 10.0			m	Land and the second	eteronomen an	m					
0.00 -10.0											Average
-20.0 -30.0	_{ไท} ป _{าญสังกฎา^{น ใ}วเปร[ู]ปรูปที}	hall wary growth					Land and a state of the state o	May Munand	e valpenhanden det		
-40.0											Max Hold
	882500 GHz							Span 7	7.500 MHz		
#Res BW	75 kHz			VBV	W 750 kHz				p 3.8 ms		Min Hold
Occu	pied Band				Total Pov	wer	30.5	5 dBm			
					1 of OR			00 W		Auto	Detector Peak►
	mit Freq Err	or			% of OBV	V Powe		9.00 %		Auto	Man
x dB B	Bandwidth		2.97	79 MHz	x dB		-26.0	.00 dB			
MSG							STATUS	ŝ			

Plot 7-9. Occupied Bandwidth Plot (LTE Band 25/2 - 3MHz QPSK - Full RB)



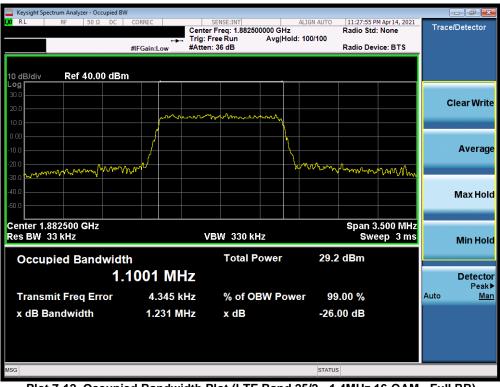
Plot 7-10. Occupied Bandwidth Plot (LTE Band 25/2 - 3MHz 16-QAM - Full R

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🔤 Keysight Spectrum Analyzer - Occupied B	W					_	
LXI RE 50Ω DC	CORREC	SENSE:INT	ALIGN AUTO	11:27:46 PM		Trace/	Detector
			i Hold: 100/100	Radio Std: I	vone		
	#IFGain:Low #	Atten: 36 dB		Radio Devic	e: BTS		
10 dB/div Ref 40.00 dB	m						
Log							
30.0						С	ear Write
20.0		an man and a share the				-	our mile
10.0							
0.00							
-10.0	/		- <u>\</u>				Average
-20.0			h minh				
-30.0 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	ייארי וויארו			wwwwww	why proved		
-40.0							
-50.0							Max Hold
-30.0							
Center 1.882500 GHz				Span 3.(500 MHz		
Res BW 33 kHz		VBW 330 kHz		Swee	ep 3 ms		Min Hold
		T (1 D					
Occupied Bandwid		Total Powe	r 30.1	dBm			
1	.0939 MHz						Detector
			-				Peak►
Transmit Freq Error	-547 Hz	z % of OBW I	ower 99	0.00 %		Auto	Man
x dB Bandwidth	1.243 MHz	x dB	-26.	00 dB			
MSG			STATUS				
Mag			STATUS	5			

Plot 7-11. Occupied Bandwidth Plot (LTE Band 25/2 - 1.4MHz QPSK - Full RB)



Plot 7-12. Occupied Bandwidth Plot (LTE Band 25/2 - 1.4MHz 16-QAM - Full RB)

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NR Band n25 – Ant A



Plot 7-13. Occupied Bandwidth Plot (NR Band n25 - 40.0MHz DFT-s-OFDM BPSK - Full RB)



Plot 7-14. Occupied Bandwidth Plot (NR Band n25 - 40.0MHz CP-OFDM QPSK - Full RB)

FCC ID: A3LSMF711U	PCTEST Prod to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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Keysight Spectrum Analyzer - Occupied BW						
🗶 RE RF 50Ω AC	CORREC	SENSE:INT Senter Freg: 1.882500	ALIGN AUTO	05:45:26 PM Radio Std: 1		Trace/Detector
	т	rig: Free Run Atten: 36 dB	Avg Hold: 100/100	Radio Devid	e: BTS	
10 dB/div Ref 40.00 dBm						
- og 30.0						
20.0	m	have and the second	muner			Clear Writ
0.00						
10.0	~~		monne	ماداد		Averag
20.0 phone and a contraction of the contraction of				- marken		
40.0					mman	
50.0						Max Hol
Center 1.88250 GHz				Span 10	0.0 MHz	
#Res BW 1 MHz		#VBW 3 MHz	2		ep 1 ms	Min Hol
Occupied Bandwidt	า	Total Po	ower 31.6	6 dBm		
38	.779 MHz	-				Detecto Peak
Transmit Freq Error	134.59 kHz	z % of OB	W Power 99	9.00 %	1	Auto <u>Ma</u>
x dB Bandwidth	41.50 MHz	z x dB	-26.	.00 dB		
SG			STATU	s		

Plot 7-15. Occupied Bandwidth Plot (NR Band n25 - 40.0MHz CP-OFDM 16QAM - Full RB)



Plot 7-16. Occupied Bandwidth Plot (NR Band n25 - 30.0MHz DFT-s-OFDM BPSK - Full RB)

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Keysight Spectrum Analyzer - Οccu RL RF 50 Ω		RREC	SE	ENSE:INT		ALIGN AUTO	06:15:14 P	M Apr 21, 2021		
10 5032	AC CO	NACC		req: 1.8825			Radio Std		Trace	e/Detector
		H	Trig: Fre #Atten: 3		Avg Hold	i: 100/100				
	#16	Gain:Low	#Atten:	36 dB			Radio Dev	/ice: BTS		
0 dB/div Ref 40.00	dBm									
og										
10.0									6	lear Wri
0.0		annon	men	- Children and a market	men month					nour min
0.0		1				1				
.00										
0.0		/				Thereader				Avera
0.0 martin and and and and and and and and and an							angrand 1	monther		
0.0								7240		
0.0										Max Ho
0.0										
enter 1.88250 GHz							Cnon 7			
Res BW 750 kHz			#V	BW 2.4 N	147			'5.00 MHz eep 1 ms		
Kes DW 750 KHZ			78	DVV 2.4 I	411Z		344	eep mis		Min Ho
Occupied Bandy	vidth			Total F	ower	31.1	dBm			
Cooupled Ballat			-							
	28.8	321 M	HZ							Detect
Transmit Freq Erro	or -	-9.647	kH7	% of O	BW Pow	er qu	.00 %		Auto	M
	/									
x dB Bandwidth		31.36	MHz	x dB		-26.	00 dB			

Plot 7-17. Occupied Bandwidth Plot (NR Band n25 - 30.0MHz CP-OFDM QPSK - Full RB)



Plot 7-18. Occupied Bandwidth Plot (NR Band n25 - 30.0MHz CP-OFDM 16QAM - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Occupie					
LXI R.L. RF 50 Ω A(SENSE:INT ter Freg: 1.882500000 GHz	ALIGN AUTO	07:43:17 PM Apr 20, 2021 Radio Std: None	Trace/Detector
	Trig		old: 100/100	Radio Device: BTS	
10 dB/div Ref 40.00 d	Bm				
30.0					
20.0	man	man and and and and and and and and and a			Clear Write
10.0					
-10.0					Average
-20.0			how	where the second	
-30.0					
-40.0					Max Hold
-50.0					
Center 1.88250 GHz		#VBW 2 MHz		Span 62.50 MHz	
Res BW 620 kHz				Sweep 1 ms	Min Hold
Occupied Bandwi		Total Power	33.0	dBm	
	23.112 MHz				Detector Peak▶
Transmit Freq Error	-503.73 kHz	% of OBW Pov	wer 99	.00 %	Auto <u>Man</u>
x dB Bandwidth	24.48 MHz	x dB	-26.	00 dB	
MSG			STATUS		
			014100		

Plot 7-19. Occupied Bandwidth Plot (NR Band n25 - 25.0MHz DFT-s-OFDM BPSK - Full RB)



Plot 7-20. Occupied Bandwidth Plot (NR Band n25 - 25.0MHz CP-OFDM QPSK - Full RB)

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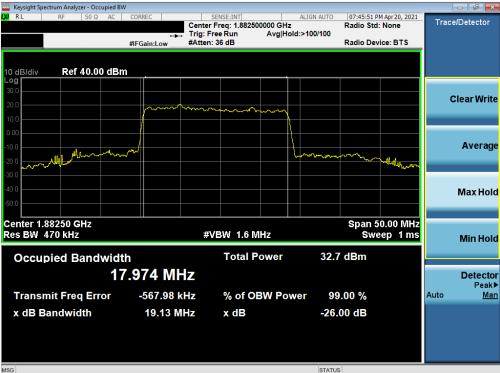
Keysight Spectrum Analyzer - Occupied B					# -
RL RF 50Ω AC	CORREC	SENSE:INT Center Freg: 1.88250	ALIGN AUTO	06:20:28 PM Apr 21, 2021 Radio Std: None	Trace/Detector
		Trig: Free Run #Atten: 36 dB	Avg Hold: 100/100	Radio Device: BTS	
0 dB/div Ref 40.00 dBr	n				
0.0					Clear Writ
0.0		°₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽			
0.0 <u>un harring the second sec</u>			Lund He on money	* Martin and Martin and a	Averaç
0.0					
0.0					Max Ho
enter 1.88250 GHz es BW 620 kHz		#VBW 2 MH	z	Span 62.50 MHz Sweep 1 ms	Min Ho
Occupied Bandwid		Total P	ower 30.	8 dBm	
	3.082 MH				Detect Peal
Transmit Freq Error	-2.8532 MH	z % of O	BW Power 99	9.00 %	Auto <u>M</u>
x dB Bandwidth	28.39 MH	lz x dB	-26	.00 dB	
3			STATU	JS	

Plot 7-21. Occupied Bandwidth Plot (NR Band n25 - 25.0MHz CP-OFDM 16QAM - Full RB)

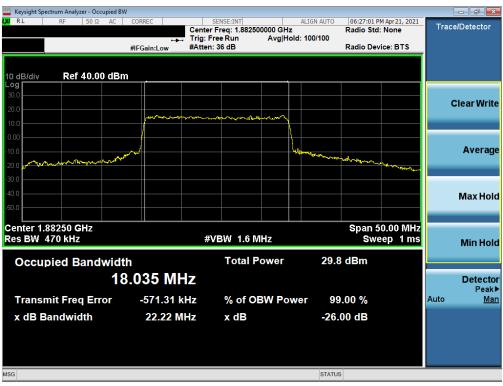
FCC ID: A3LSMF711U	PCTEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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n25/2 – Ant A



Plot 7-22. Occupied Bandwidth Plot (NR Band n25/2 - 20.0MHz DFT-s-OFDM BPSK - Full RB)



Plot 7-23. Occupied Bandwidth Plot (NR Band n25/2 - 20.0MHz CP-OFDM QPSK - Full RB)

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Keysight Spectrum Analyzer - Occupied B						
LXIRL RF 50Ω AC	CORREC	SENSE:INT enter Freg: 1.88250	ALIGN	AUTO 06:28:20 PM Radio Std:	4 Apr 21, 2021 None	Trace/Detector
	⊷ Tr	ig: Free Run Atten: 36 dB	Avg Hold: 100/1			
	#IFGain:Low #A	Atten: 36 dB		Radio Devi	ICE: BIS	
10 dB/div Ref 40.00 dBr Log	n					
30.0						
20.0						Clear Write
10.0	- Internet	when we are	-min			
0.00						
-10.0	and and		how			Average
-20.0 man have man malued				man wanter	~~~~~	
-30.0					m	
-40.0						Max Hold
-50.0						Max Hold
Center 1.88250 GHz					0.00 MHz	
Res BW 470 kHz		#VBW 1.6 Ⅳ	IHZ	Swe	ep 1 ms	Min Hold
Occupied Bandwidt	h	Total P	ower	29.9 dBm		
	3.019 MHz					Detector
10						Peak
Transmit Freq Error	-545.90 kHz	% of O	BW Power	99.00 %		Auto <u>Man</u>
x dB Bandwidth	23.01 MHz	x dB		-26.00 dB		
MSG				STATUS		

Plot 7-24. Occupied Bandwidth Plot (NR Band n25/2 - 20.0MHz CP-OFDM 16QAM - Full RB)



Plot 7-25. Occupied Bandwidth Plot (NR Band n25/2 - 15.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: A3LSMF711U	Pout to be part of @ element	PART 24 MEASUREMENT REPORT	Approved by: Technical Manager
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🚾 Keysight Spectrum Analyzer									
LXI RL RF 5	50Ω AC	CORREC	Center Freq: 1	.882500000 GH;	ALIGN AUTO	06:30:09 P Radio Std	M Apr 21, 2021 None	Trace/	Detector
		HEC sind sur	Trig: Free Run #Atten: 36 dB	Avg He	old: 100/100	Radio Dev	ice: BTS		
		#IFGain:Low	#Atten: 36 dB			Radio Dev	ICE: BTS		
A DUE DAT									
10 dB/div Ref 40	0.00 dB								
30.0								C 1	ear Write
20.0				0					
10.0				a so medi to obra					
0.00									
-10.0					hannen				Average
-20.0 mil mil molen	- and all and	<u></u>			····V Urlandary	warmen and and and and and and and and and an	March and		
-30.0									
-40.0								1	Max Hold
-50.0									
Center 1.88250 GH	z		I			Span 3	7.50 MHz		
Res BW 360 kHz			#VBW 1	1.2 MHz			ep 1ms		Min Hold
Occurried Do	n du si d	41-	To	tal Power	20 -	7 dBm			
Occupied Bar					23.	ubiii			
	1	3.535 M	HZ						Detector Peak
Transmit Freq I	Error	-383.76	kHz % d	of OBW Po	wer 99	9.00 %		Auto	Man
x dB Bandwidth	h	14.52	/Hz xd	B	-26	.00 dB			
		14.021			LU				
MSG					STATU	s			_

Plot 7-26. Occupied Bandwidth Plot (NR Band n25/2 - 15.0MHz CP-OFDM QPSK - Full RB)



Plot 7-27. Occupied Bandwidth Plot (NR Band n25/2 - 15.0MHz CP-OFDM 16QAM - Full RB)

FCC ID: A3LSMF711U	POTEST Prout to be part of @ internet	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Occupied B						
XIRL RF 50Ω AC	CORREC	SENSE:INT ter Freg: 1.88250	ALIGN	AUTO 07:51:01 PM Radio Std:	1 Apr 20, 2021 None	Trace/Detector
	🛶 Trig	g: Free Run ten: 36 dB	Avg Hold: 100/1			
10 dB/div Ref 40.00 dB	m					
- og 30.0 20.0						Clear Write
10.0	marandyme	month	ma			
0.00						Averag
20.0 30.0	~~~{~		,	Marrie Marrie Marrie Marrie	and the second	Max Hol
50.0						Max Hol
Center 1.88250 GHz Res BW 240 kHz		#VBW 750 k	Hz		5.00 MHz ep 1 ms	Min Hole
Occupied Bandwid	th	Total P	ower	30.4 dBm		
	.9850 MHz					Detecto Peak
Transmit Freq Error	-199.42 kHz	% of OE	BW Power	99.00 %	P	Auto <u>Ma</u>
x dB Bandwidth	9.689 MHz	x dB		-26.00 dB		
SG				STATUS		

Plot 7-28. Occupied Bandwidth Plot (NR Band n25/2 - 10.0MHz DFT-s-OFDM BPSK - Full RB)



Plot 7-29. Occupied Bandwidth Plot (NR Band n25/2 - 10.0MHz CP-OFDM QPSK - Full RB)

FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Occupied BV					
RL RF 50Ω AC	CORREC	SENSE:INT Center Freg: 1.88250000	0 GHz	06:35:37 PM Apr 21, 2021 Radio Std: None	Trace/Detector
	₩IFGain:Low		vg Hold: 100/100	Radio Device: BTS	
IO dB/div Ref 40.00 dBr	n _.				
- og 30.0 20.0					Clear Write
10.0					
10.0 20.0 walkarranahlukukar	n M		human	malle malle have	Averag
					Max Hol
50.0				Span 25.00 MHz	
Res BW 240 kHz		#VBW 750 kHz		Sweep 1 ms	Min Hol
Occupied Bandwidt	h	Total Pow	ver 29.0) dBm	
	0061 MH	Z			Detecto Peak
Transmit Freq Error	-201.25 kH	z % of OBW	Power 99	0.00 %	Auto <u>Ma</u>
x dB Bandwidth	9.802 MH	lz xdB	-26.	00 dB	
G			STATU	s	

Plot 7-30. Occupied Bandwidth Plot (NR Band n25/2 - 10.0MHz CP-OFDM 16QAM - Full RB)



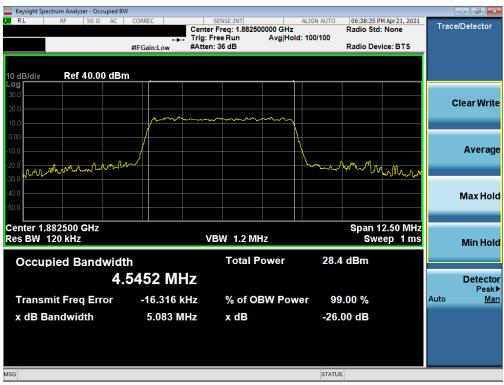
Plot 7-31. Occupied Bandwidth Plot (NR Band n25/2 - 5.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: A3LSMF711U	Post of the effective	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Occupied E		onun un			
C RL RF 50Ω AC	CORREC	SENSE:INT Iter Freg: 1.882500	ALIGN AUTO	06:37:55 PM Apr 21, 2021 Radio Std: None	Trace/Detector
		j: Free Run ten: 36 dB	Avg Hold: 100/100	Radio Device: BTS	
10 dB/div Ref 40.00 dB	m				
-og					
20.0					Clear Write
10.0	m	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
0.00	/				
10.0			\		Averag
20.0 marthan	~~		- NUL	have Malan	
30.0				the work of the brack of	
40.0					Max Hol
50.0					
Center 1.882500 GHz				Span 12.50 MHz	
Res BW 120 kHz		VBW 1.2 MH	Z	Sweep 1 ms	Min Hold
Occupied Bandwid	th	Total Po	ower 28.	3 dBm	
	.5008 MHz				Detecto
Transmit Freq Error	-4.920 kHz	% of OE	3W Power 9	9.00 %	Peak Auto <u>Ma</u>
x dB Bandwidth	5.068 MHz	x dB	-26	.00 dB	
SG			STATU	JS	

Plot 7-32. Occupied Bandwidth Plot (NR Band n25/2 - 5.0MHz CP-OFDM QPSK - Full RB)



Plot 7-33. Occupied Bandwidth Plot (NR Band n25/2 - 5.0MHz CP-OFDM 16QAM - Full RB)

FCC ID: A3LSMF711U	Pout to be part of @ element	PART 24 MEASUREMENT REPORT	Approved by: Technical Manager	
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NR Band n25 – Ant I



Plot 7-34. Occupied Bandwidth Plot (NR Band n25 - 40.0MHz DFT-s-OFDM BPSK - Full RB)

RL RF 50 Ω DC CC	Trig: Free F	q: 1.882500000 GHz Run Avg Hold: 1	Radio Std 00/100	. None	race/Detector
	Gain:Low #Atten: 36	dB	Radio Dev	rice: BTS	
0 dB/div Ref 40.00 dBm	مېر مېرې د د د د د د د د د د د د د د د د د د	hand the may what you have the			Clear Write
0.0 00 0.0 0.0			how we have a set		Average
0.0 0.0 0.0				Anno Manadalan	Max Hold
enter 1.88250 GHz Res BW 1 MHz		V 3 MHz Fotal Power		00.0 MHz ep 1 ms	Min Hold
Occupied Bandwidth 38.5	596 MHz	rotal Power	29.9 dBm		Detecto Peak
Transmit Freq Error x dB Bandwidth		% of OBW Power c dB	99.00 % -26.00 dB	Aut	
G			STATUS		

Plot 7-35. Occupied Bandwidth Plot (NR Band n25 - 40.0MHz CP-OFDM QPSK - Full RB)

FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Occupied	BW				
<mark>(X</mark> RL RF 50Ω DC		SENSE:INT	ALIGN AUTO 01:29:35 Radio St	AM May 04, 2021	Trace/Detector
	Trig: F	ree Run Avg Hold:		a: None	
,	#IFGain:Low #Atten	:: 36 dB	Radio De	evice: BTS	
10 dB/div Ref 40.00 dB	Bm _				
Log 30.0					
					Clear Write
20.0	Somera Mithan al maker				
10.0					
0.00					_
-10.0					Average
-20.0	-m/W		twanter marine way		
-30.0			and the selection	Mr. Mu	
-40.0				moll war	Max Hold
-50.0					maxitora
Center 1.88250 GHz	-223			100.0 MHz	
#Res BW 1 MHz	#	VBW 3 MHz	50	/eep 1 ms	Min Hold
Occupied Bandwig	dth	Total Power	29.0 dBm		
S	38.725 MHz				Detector Peak▶
Transmit Freq Error	-53.902 kHz	% of OBW Powe	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	40.98 MHz	x dB	-26.00 dB		
			20100 42		
MSG			STATUS		

Plot 7-36. Occupied Bandwidth Plot (NR Band n25 - 40.0MHz CP-OFDM 16QAM - Full RB)



Plot 7-37. Occupied Bandwidth Plot (NR Band n25 - 30.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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Keysight Spectrum Analyzer - Occupied BW					
LXX RL RF 50Ω DC	CORREC	SENSE:INT	ALIGN AUTO	01:35:09 AM May 04, 2021 Radio Std: None	Trace/Detector
	→	, Trig: Free Run	Avg Hold: 100/100		
	#IFGain:Low	#Atten: 36 dB		Radio Device: BTS	
10 dB/div Ref 40.00 dBm					
					Clear Write
20.0	And the second	Man Anna maria	- manual and		
10.0					
0.00					
-10.0					Average
-20.0	and		here	-lan l	
-20.0 -30.0 prove the second second				and the second way was a second as	
-40.0					Max Hold
-50.0					Maxiloid
Center 1.88250 GHz				Span 75.00 MHz	
#Res BW 750 kHz		#VBW 2.4 N	AHz	Sweep 1 ms	Min Hold
Occupied Rendwidth		Total P	ower 20	9 dBm	
Occupied Bandwidth			OWCI 23.	5 ubm	
28	.684 MI	HZ			Detector
Transmit Freq Error	-55.151	kHz % of O	BW Power 99	9.00 %	Peak▶ Auto Man
					indiana indiana
x dB Bandwidth	30.46 N	MHz x dB	-26	.00 dB	
MSG			STATU	IS	

Plot 7-38. Occupied Bandwidth Plot (NR Band n25 - 30.0MHz CP-OFDM QPSK - Full RB)



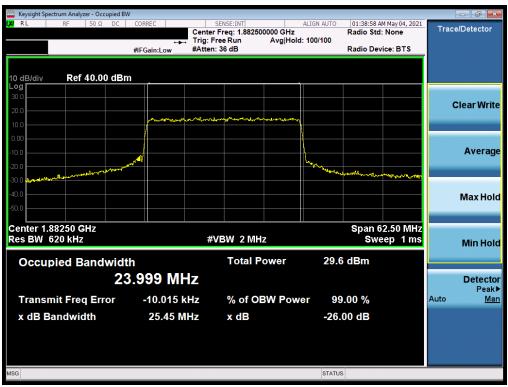
Plot 7-39. Occupied Bandwidth Plot (NR Band n25 - 30.0MHz CP-OFDM 16QAM - Full RB)

FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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	ectrum Analyzer -	Occupied BV	V								[
LXI RL	RF 5	DΩ DC	CORREC		SENSE:II			ALIGN AUTO	01:37:52 A Radio Std	M May 04, 2021	Trace	/Detector
					rig: Free Ru			l: 100/100	Radio Stu	None		
			#IFGain:Lo	w #	Atten: 36 dB				Radio Dev	ice: BTS		
10 dB/div	Ref 40	.00 dBn	n									
Log												
30.0												lear Write
20.0				un com	torevery more	un	-					
10.0						-						
0.00												
-10.0												Average
-20.0							1					J
-20.0	i sound have	mansharten	- There					and the second second	why where	mather		
	4, Maria											
-40.0												Max Hold
-50.0												
Contor 1	88250 GHz	-							Cnon 6	2 50 MU-		
Res BW		2			#VBW	2 MHz				2.50 MHz ep 1 ms		
Res DW	VZV KHZ				# ¥ D¥¥	2 1911 12			OWC	ср тшэ		Min Hold
Occu	pied Bar	ndwidt	h		То	tal Po	wer	31.4	dBm			
					_							
		24	2.999	MHZ								Detector Peak►
Transi	mit Freq E	Irror	-458.	.21 kHz	z %	of OBV	N Pow	er 99	.00 %		Auto	Peak ► <u>Man</u>
x dB B	Bandwidth		24 1	38 MHz	z xo	IB		-26	00 dB			
	unawiad		2-10	50 mm				-20.				
MSG								STATUS	5			

Plot 7-40. Occupied Bandwidth Plot (NR Band n25 - 25.0MHz DFT-s-OFDM BPSK - Full RB)



Plot 7-41. Occupied Bandwidth Plot (NR Band n25 - 25.0MHz CP-OFDM QPSK - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Occupied BW					
XX RL RF 50Ω DC	CORREC	SENSE:INT Center Freg: 1.88250	ALIGN AUTO	01:38:32 AM May 04, 2021 Radio Std: None	Trace/Detector
	#IFGain:Low	#Atten: 36 dB		Radio Device: BTS	
10 dB/div Ref 40.00 dBm					
Log					
30.0					Clear Write
20.0					Ciedi Wille
10.0	parton and a	mantulliterskinsterskyle	mulanting		
0.00	(
-10.0					Average
-20.0					
-20.0	"		4 WWW	hadendalanda and a soundely	
-40.0					Max Hold
-50.0					
Center 1.88250 GHz				Span 62.50 MHz	
Res BW 620 kHz		#VBW 2 MH	z	Sweep 1 ms	Min Hold
					win Hold
Occupied Bandwidt	h	Total P	ower 28.	5 dBm	
	.923 MF	7			Detector
23	.323 WI	12			Detector Peak►
Transmit Freq Error	-33.419 k	Hz % of O	BW Power 99	9.00 %	Auto <u>Man</u>
x dB Bandwidth	25.28 M	Hz x dB	26	.00 dB	
	25.20 W		-20.	.00 ab	
MSG					

Plot 7-42. Occupied Bandwidth Plot (NR Band n25 - 25.0MHz CP-OFDM 16QAM - Full RB)

FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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NR Band n25/2 - Ant I



Plot 7-43. Occupied Bandwidth Plot (NR Band n25/2 - 20.0MHz DFT-s-OFDM BPSK - Full RB)



Plot 7-44. Occupied Bandwidth Plot (NR Band n25/2 - 20.0MHz CP-OFDM QPSK - Full RB)

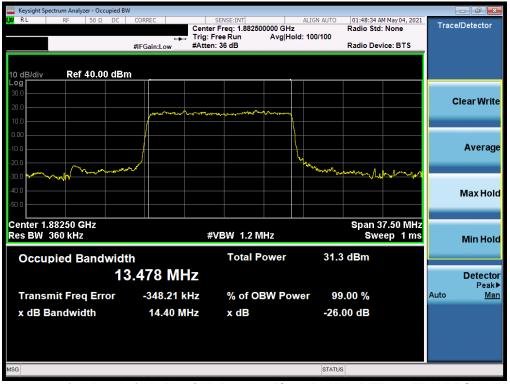
FCC ID: A3LSMF711U	PCTEST ' Proud to be part of (*) element	PART 24 MEASUREMENT REPORT	NG	Approved by: Technical Manager
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🔤 Keysight Spec	ctrum Analyzer - Oc	cupied BW									
LXI RL	RF 50 Ω	DC C	ORREC		NSE:INT reg: 1.88250	0000 GHz	ALIGN AUTO	01:45:28 A	M May 04, 2021	Trac	e/Detector
			→	🕂 Trig: Fre	e Run		d: 100/100				
,		#	FGain:Low	#Atten: 3	6 dB			Radio Dev	ice: BTS		
10 dB/div	Ref 40.0	0 dBm									
Log 30.0											
20.0										(Clear Write
10.0			murrially	man	A My marked by	-					
0.00			1				N .				
											Average
-10.0		handhow					Willy A.				Average
-20.0	أمهار وسدد	N ^{a hara}					r at way of	Mundam.			
-30.0 դդ. 1.4.,1 4	₩~~~₩ ^{₩₩} ₩₽ ^{₩₽}							manyana	-γγπ f will i NewγRA		
-40.0											Max Hold
-50.0											
Center 1.8	38250 GHz							Snan 5	0.00 MHz		
Res BW 4				#VE	3W 1.6 M	Hz		Swe	ep 1 ms		Min Hold
											WIIII HOIG
Occup	bied Band	width			Total P	ower	28.5	dBm			
		19 (011 M	Hz							Detector
											Peak▶
Transm	nit Freq Eri	ror	-2.644	kHz	% of O	3W Pow	ver 99	.00 %		Auto	<u>Man</u>
x dB Ba	andwidth		20.12	ИHz	x dB		-26.	00 dB			
MSG							STATUS				
							UTATOC				

Plot 7-45. Occupied Bandwidth Plot (NR Band n25/2 - 20.0MHz CP-OFDM 16QAM - Full RB)



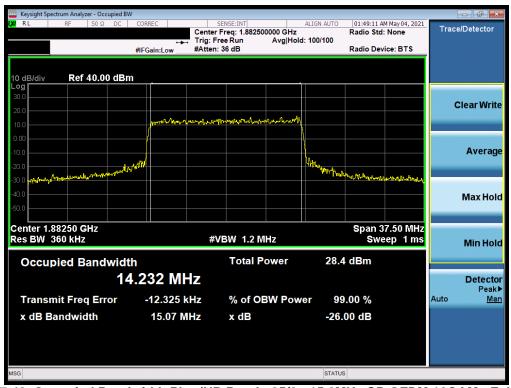
Plot 7-46. Occupied Bandwidth Plot (NR Band n25/2 - 15.0MHz DFT-s-OFDM BPSK - Full RB)

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Keysight Spectrum Analyzer - Occupied BW					
IXIRL RF 50Ω DC C	CORREC	SENSE:INT	ALIGN AUTO	01:49:36 AM May 04, 2021 Radio Std: None	Trace/Detector
		Trig: Free Run	Avg Hold: 100/100		
#	#IFGain:Low	#Atten: 36 dB		Radio Device: BTS	
10 dB/div Ref 40.00 dBm					
Log 30.0	ر وی ال				
20.0	ر کے ال				Clear Write
		and the second and the second and the second	- marine and a second		
10.0			N N		
0.00	ر کے آل				Average
-10.0			k.		Average
-20.0	ر کی ال			mar and and a start and a start and a start a st	
	ر وی ال				
-40.0	ر و ال				Max Hold
-50.0	ر و ال				
Center 1.88250 GHz				Span 37.50 MHz	
Res BW 360 kHz		#VBW 1.2 M	Hz	Sweep 1 ms	Min Hold
				-	WIII HOIG
Occupied Bandwidth		Total P	ower 29.2	dBm	
14.	150 MH	7			Detector
					Peak▶
Transmit Freq Error	-9.298 kH	Iz % of OE	3W Power 99	.00 %	Auto <u>Man</u>
x dB Bandwidth	15.18 MH	lz xdB	-26.	00 dB	
MSG			STATUS		
MSG			STATUS	8	

Plot 7-47. Occupied Bandwidth Plot (NR Band n25/2 - 15.0MHz CP-OFDM QPSK - Full RB)



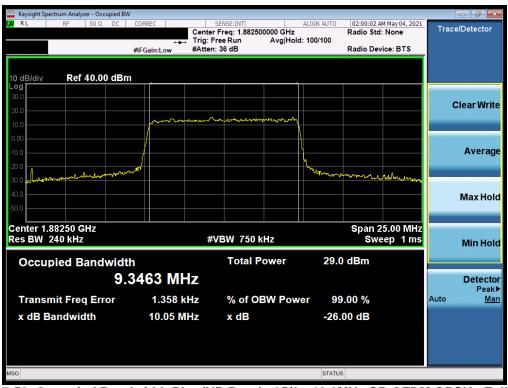
Plot 7-48. Occupied Bandwidth Plot (NR Band n25/2 - 15.0MHz CP-OFDM 16QAM - Full RB)

FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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🔤 Keysight Spectrum Analyzer - Occupied	d BW				
<mark>LXI</mark> RL RF 50ΩDC		SENSE:INT Center Freg: 1.882500	ALIGN AUTO	01:58:56 AM May 04, 2021 Radio Std: None	Trace/Detector
		Trig: Free Run	Avg Hold: 100/100		
	#IFGain:Low	#Atten: 36 dB		Radio Device: BTS	
10 dB/div Ref 40.00 dl	Bm				
Log					
30.0					Clear Write
20.0	m	······································	~~~~		
10.0					
0.00			<u>\</u>		
-10.0	/				Average
-20.0					
-30.0 month of the second	~~~		manul	man Million	
-40.0					
-50.0					Max Hold
-30.0					
Center 1.88250 GHz				Span 25.00 MHz	
Res BW 240 kHz		#VBW 750 ki	Hz	Sweep 1 ms	Min Hold
		T (1 D			
Occupied Bandwi		Total Po	ower 31.	2 dBm	
	8.9819 MH	Z			Detector
					Peak▶
Transmit Freq Error	-195.79 kH	iz % of OB	W Power 99	9.00 %	Auto <u>Man</u>
x dB Bandwidth	9.720 MH	z x dB	-26	.00 dB	
MSG			STATU	2	
mod			STATU	3	

Plot 7-49. Occupied Bandwidth Plot (NR Band n25/2 - 10.0MHz DFT-s-OFDM BPSK - Full RB)



Plot 7-50. Occupied Bandwidth Plot (NR Band n25/2 - 10.0MHz CP-OFDM QPSK - Full RB)

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🔤 Keysight Spectrum Analyzer - Occupied BW 🚽					
		SENSE:INT Center Freq: 1.88250 Trig: Free Run #Atten: 36 dB	ALIGN AUT 00000 GHz Avg Hold: 100/100	Radio Std: None	Trace/Detector
10 dB/div Ref 40.00 dBm					
30.0		manulanynyterityteytetty			Clear Write
10.0					
-10.0	w		4, n.		Average
-20.0 -30.0 -30.0			UTV www	Mon mary and the stranger	
-40.0					Max Hold
-50.0					WIGATIOIG
Center 1.88250 GHz Res BW 240 kHz		#VBW 7501	kHz	Span 25.00 MHz Sweep 1 ms	
Occupied Bandwidth		Total P	ower 28	3.1 dBm	
9.3	455 MHz				Detector Peak►
Transmit Freq Error	14.093 kH	z % of O	BW Power	99.00 %	Auto <u>Man</u>
x dB Bandwidth	10.14 MH	z xdB	-2	6.00 dB	
MSG			STA	TUS	

Plot 7-51. Occupied Bandwidth Plot (NR Band n25/2 - 10.0MHz CP-OFDM 16QAM - Full RB)



Plot 7-52. Occupied Bandwidth Plot (NR Band n25/2 - 5.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: A3LSMF711U	POLIEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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OX RL RF 50 Ω DC CORREC SENSEINT ALIGN AUTO 02:02:30 AM May04, 2021 Trace/DU Center Freq: 1.882500000 GHz Radio Std: None Avg Hold: 100/100 Radio Device: BTS Trace/DU #IFGain:Low #Atten: 36 dB Radio Device: BTS Radio Device: BTS Radio Device: BTS	etector
Trig: Free Run Avg Hold: 100/100	
#IFGain:Low #Atten: 36 dB Radio Device: BTS	
10 dB/div Ref 40.00 dBm	
	ar Write
	Average
30.0 manler hand have a hard hard hard hard hard hard hard ha	
-40.0	ax Hold
-50.0	
Center 1.882500 GHz Span 12.50 MHz	
Res BW 120 kHz VBW 1.2 MHz Sweep 1 ms	lin Hold
Occupied Bandwidth Total Power 28.7 dBm	
4.5090 MHz	Detector
Transmit Freg Error -6.527 kHz % of OBW Power 99.00 %	Peak▶ Man
	Ivian
x dB Bandwidth 5.051 MHz x dB -26.00 dB	
MSG STATUS	

Plot 7-53. Occupied Bandwidth Plot (NR Band n25/2 - 5.0MHz CP-OFDM QPSK - Full RB)



Plot 7-54. Occupied Bandwidth Plot (NR Band n25/2 - 5.0MHz CP-OFDM 16QAM - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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GSM/GPRS PCS







Plot 7-56. Occupied Bandwidth Plot (EDGE, Ch. 661)

FCC ID: A3LSMF711U	PCTEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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WCDMA PCS

🧱 Keysight Spectrum Analyzer - Occupied BW					
LXX RLT RF 50Ω AC	CORREC	SENSE:INT SOURCE OFF		52:54 PM Apr 21, 2021 io Std: None	Trace/Detector
	Trig	: Free Run Avg Hold	1: 100/100		
	#IFGain:Low #Att	en: 36 dB	Rad	io Device: BTS	
10 dB/div Ref 40.00 dBm					
Log 30.0					
20.0					Clear Write
	warne	and the second			
10.0		γ.			
0.00					Average
-10.0	- pr				Average
-20.0	-~~11~~		annan what and	Nonminen and	
-30.0					
-40.0					Max Hold
-50.0					
Center 1.88 GHz				Span 15 MHz	
Res BW 150 kHz		VBW 1.5 MHz		Sweep 1 ms	Min Hold
			04.0.15		
Occupied Bandwidt		Total Power	31.6 dB	m	
4.1	1915 MHz				Detecto
Transmit Freq Error	-1.817 kHz	% of OBW Pow	er 99.00	0/	Peak Auto Mar
· · ·					
x dB Bandwidth	4.795 MHz	x dB	-26.00 d	В	
MSG			STATUS		

Plot 7-57. Occupied Bandwidth Plot (WCDMA, Ch. 9400)

FCC ID: A3LSMF711U	Poud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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CDMA PCS

Keysight Spectrum Analyzer - Occupied BV					
🗶 RL RF 50Ω AC	CORREC	SENSE:INT SOURCE OFF		9 PM Apr 21, 2021 itd: None	Trace/Detector
	+++ Trig:	Free Run Avg Hold:	100/100		
	#IFGain:Low #Atte	n: 36 dB	Radio D	evice: BTS	
10 dB/div Ref 40.00 dBn	n				
Log 30.0					
20.0					Clear Write
10.0	, marine	mont			
0.00					
-10.0					Average
- www.mennew	www	~	mon and a second and	~	Average
-20.0				John Stranger	
-40.0					Max Hold
-50.0					
Center 1.88 GHz			Sp	an 4.5 MHz	
Res BW 43 kHz	\\	/BW 430 kHz	Swee	o 2.267 ms	Min Hold
Occurried Developide	le.	Total Power	31.7 dBm		
Occupied Bandwidt		Total Fower	51.7 uBiii		
1.	2818 MHz				Detecto Peak
Transmit Freq Error	137 Hz	% of OBW Powe	er 99.00 %		Auto Mar
x dB Bandwidth	1.449 MHz	x dB	-26.00 dB		
ISG			STATUS		

Plot 7-58. Occupied Bandwidth Plot (CDMA, Ch. 600)

FCC ID: A3LSMF711U	Potest Proved to be part of @vietnesst	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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7.3 Spurious and Harmonic Emissions at Antenna Terminal

Test Overview

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

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

Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to 20GHz (separated into at least two plots per channel)
- 2. Detector = RMS
- 3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 4. Sweep time = auto couple
- 5. The trace was allowed to stabilize
- 6. Please see test notes below for RBW and VBW settings

Test Setup

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



Figure 7-2. Test Instrument & Measurement Setup

Test Notes

- Per Part 24 and RSS-133, 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.

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LTE Band 25/2

Keysight Spectrum Analyzer - Swept SA					
RL RF 50 Ω DC	CORREC	SENSE:INT	#Avg Type: RMS	11:30:39 PM Apr 14, 2021 TRACE 1 2 3 4 5 6 TYPE A WWWW	Frequency
ASS 0 dB/div Ref 20.00 dBm	IFGain:Low At	ten: 30 dB	М	ьет <mark>а N N N N N N N N N N N N N N N N N N N</mark>	Auto Tur
og Trace 1 Pass					Center Fr 939.500000 M
0.00					Start Fr 30.000000 M
0.0					Stop Fr 1.849000000 G
0.0				1	CF St 181.900000 M <u>Auto</u> M
0.0 	an paul part da ta ta na ina ta	ner dette dige en en en estat por	ene ontwee the part of the other states and	a	Freq Offs 0
10.0					Scale Ty
tart 0.0300 GHz Res BW 1.0 MHz	#VBW 3.0	MHz	Sweep	Stop 1.8490 GHz 2.425 ms (3639 pts)	Log <u>I</u>
SG			STATU	JS	



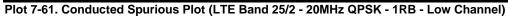
Plot 7-59. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - Low Channel)

Plot 7-60. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - Low Channel)

FCC ID: A3LSMF711U	Point to be part of @element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	ectrum Analyz												- • •
LXI RL	RF	50 Ω I	DC (CORREC		SEI	NSE:INT	#Avg Typ	ALIGN AUTO e: RMS		M Apr 14, 2021 E 1 2 3 4 5 6	Fre	quency
PASS				PNO: Fas IFGain:Lo		Trig: Fre Atten: 10				TY Di			
	Ref 0.0								Mkr	1 19.60	6 5 GHz 80 dBm	,	Auto Tune
10 dB/div		iv aBn	1							-00.0			
-10.0	e 1 Pass												enter Freq
-10.0												15.0000	000000 GHz
-20.0													Start Freq
-30.0													000000 GHz
30.0													
-40.0													Stop Freq
-50.0												20.000	000000 GHz
											• • • • •		05.01
-60.0	~~~		ar the strike of	-									CF Step
-70.0												<u>Auto</u>	Man
												_	0.5
-80.0												F	r eq Offset 0 Hz
-90.0													
-50.01												S	cale Type
Start 10.0	00 GH7									Stop 20	.000 GHz	Log	Lin
#Res BW				#	VBW :	3.0 MHz		s	weep 17	.33 ms (2	0001 pts)		
MSG									STATUS				



					Scale Typ
0.0					Freq Offs 0 H
	بطيطيعا والاسلامة معادية والمتعاومة	and the state of the second state of the secon			
0.0				1	CF Sto 182.000000 M <u>Auto</u> M
0.0					1.850000000 G
.0					Stop Fr
					30.000000 M
00					Start Fr
0.0					940.000000 M
dB/div Ref 20.00 dBm		Ť		-49.479 dBm	Center Fr
	IFGail.Low	Atten: 00 dB	Mk	r1 1.752 0 GHz	Auto Tu
ASS	PNO: Fast ↔→ IFGain:Low	Trig: Free Run Atten: 30 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
RL RF 50 Ω DC	CORREC	SENSE:INT	ALIGN AUTO	11:29:17 PM Apr 14, 2021	Frequency

Plot 7-62. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - Mid Channel)

FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	ectrum Analyze	er - Swep	t SA										
(XVI RL	RF	50 Ω	DC CO	DRREC		SE	NSE:INT	#Avg Typ	ALIGN AUTO	TRAC	M Apr 14, 2021	Freque	ency
PASS				PNO: Fas FGain:Lo		Trig: Fre Atten: 3				TYI Di		A	to Tuno
10 dB/div Log	Ref 20.	00 dE	Зm						MI	kr1 9.80 -41.0	3 6 GHz 65 dBm	Au	to Tune
10.0	e 1 Pass											Cent 5.957500	t er Freq 1000 GHz
-10.0													a rt Freq 1000 GHz
-20.0												Ste 10.000000	o p Freq 000 GHz
-40.0			\sim	~~		~~~	~~~~		figetions, galance, est		<u> </u>		C F Step 000 MHz Man
-60.0												Free	q Offset 0 Hz
-70.0												Sca	le Type
Start 1.91 #Res BW				#	VBW	3.0 MHz		Ş	weep 14	Stop 10 1.02 ms (1	.000 GHz 6181 pts)	Log	<u>Lin</u>
MSG									STATU	s			





Plot 7-64. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - Mid Channel)

FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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	ctrum Analyzer -						
LXU RL	RF 50	DΩ DC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	11:32:13 PM Apr 14, 2021 TRACE 1 2 3 4 5 6	Frequency
PASS			PNO: Fast ↔ IFGain:Low	Trig: Free Run Atten: 30 dB	• //	TYPE A WWWW DET A NNNNN	
10 dB/div Log	Ref 20.00	0 dBm			MI	r1 1.751 5 GHz -49.363 dBm	Auto Tune
10.0 Trace	e 1 Pass						Center Freq 940.000000 MHz
-10.0							Start Freq 30.000000 MHz
-20.0							Stop Freq 1.850000000 GHz
-40.0				ng, gaar of the William of the state of the		1	CF Step 182.000000 MHz <u>Auto</u> Man
-60.0	etyses (alter a second reaction)	inder internet internet	4998830999999999999999999999999999999999	niyyaanan afan san di san di san daga daga daga daga daga daga daga da			Freq Offset 0 Hz
-70.0							Scale Type
Start 0.03 #Res BW			#VBW	3.0 MHz	Sweep 2	Stop 1.8500 GHz 2.427 ms (3641 pts)	Log <u>Lin</u>
MSG					STATU	3	

Plot 7-65. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - High Channel)



Plot 7-66. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - High Channel)

FCC ID: A3LSMF711U	POLITEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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	ectrum Analyz	er - Swept	t SA										- • •
LX/IRL	RF	50 Ω	DC	CORREC		SE	NSE:INT	#Avg Typ	ALIGN AUTO	TRAC	M Apr 14, 2021	Fre	quency
PASS				PNO: Fa	ast ↔ .ow	Trig: Fre Atten: 10				TYI Di			
10 dB/div Log	Ref 0.0)0 dBi	m						Mkr	1 19.61 -55.8	1 0 GHz 83 dBm		Auto Tune
-10.0	e 1 Pass												enter Freq 000000 GHz
-20.0													Start Freq 000000 GHz
-40.0											1-		Stop Freq 000000 GHz
-60.0	~~~											1.0000 <u>Auto</u>	CF Step 000000 GHz Man
-80.0												F	r eq Offset 0 Hz
-90.0												S	cale Type
Start 10.0 #Res BW				\$	≠vbw	3.0 MHz		s	weep 17	Stop 20 .33 ms (2	.000 GHz 0001 pts)	Log	<u>Lin</u>
MSG									STATUS				

Plot 7-67. Conducted Spurious Plot (LTE Band 25/2 - 20MHz QPSK - 1RB - High Channel)

FCC ID: A3LSMF711U	PCTEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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NR Band n25/2 - Ant A

Keysight Spectrum Analyzer - Swept SA									d X
X RL RF 50Ω AC	PNO: Fast		Run	#Avg T	ALIGN AUTO ype: RMS	TRA TY	PM Apr 19, 2021 CE 1 2 3 4 5 6 (PE A WWWWW	Freque	ncy
PASS	IFGain:Low	Atten: 30	dB		N	1kr1 1.84	9 5 GHz 59 dBm	Aut	o Tune
10.0 Trace 1 Pass								Cent 940.0000	er Free DOO MH:
-10.0								Sta 30.0000	N rt Fre DOO MH
-20.0							1	Sto 1.850000	ор Fre 000 GH
-40.0								C 182.0000 <u>Auto</u>	CF Ste 000 MH Ma
60.0	and the second secon	~~~?/\\/*	ie-walienist ist and a	ani takan kangan sana sana sana sana sana sana sana	ny ang	half on Jon Statist (manune and a		Freq	Offs o 0 ⊦
-70.0						Stop 4	8500 GHz		le Typ Li
Start 0.0300 GHz #Res BW 1.0 MHz	#VBW	3.0 MHz			Sweep	2.427 ms	(3641 pts)		<u></u>
MSG					STAT				

Plot 7-68. Conducted Spurious Plot (NR Band n25/2 -20.0MHz - 1RB - Low Channel)



Plot 7-69. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - Low Channel)

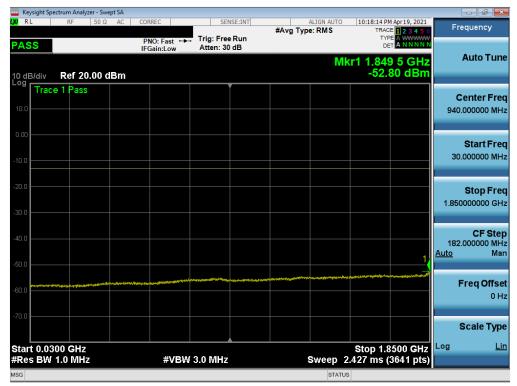
FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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🔤 Keysight Spectrum Ana										×
LXIRL RF	50 Ω AC	CORREC	SEN	SE:INT	#Avg Typ	ALIGN AUTO e: RMS		M Apr 19, 2021	Frequency	,
PASS		PNO: Fast ++-	Trig: Free Atten: 10		• //		TY			
).00 dBm					Mk	r1 17.50 -63.5	5 0 GHz 01 dBm	Auto T	une
Log Trace 1 Pas	s								Center F	rec
-10.0									15.000000000	
-20.0										
									Start F	
-30.0									10.000000000	GH
-40.0									Oton E	
									Stop F 20.000000000	
-50.0										
-60.0						<mark>1</mark>			CF S	
				And the second designation of the second designation of the second designation of the second designation of the		mon				Mar
-70.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~									
-80.0									Freq Of	fse 0 H:
										0 п.
-90.0									Scale T	ype
Start 10.000 GH	-						Stop 20		Log	Lir
#Res BW 1.0 Mi		#VBW	3.0 MHz		s	weep 2	5.33 ms (2	.000 GHz 0001 pts)		
MSG						STATU	IS			





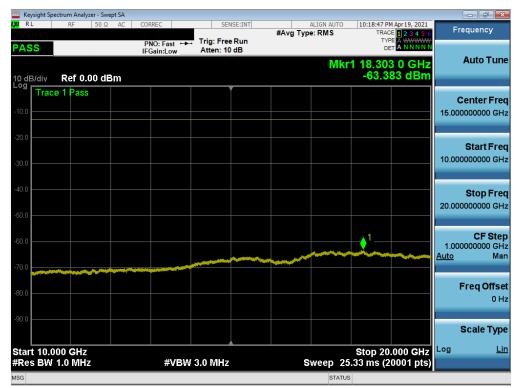
Plot 7-71. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - Mid Channel)

FCC ID: A3LSMF711U	PCTEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Swept SA					
LXURL RF 50Ω AC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	10:18:28 PM Apr 19, 2021 TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
PASS 10 dB/div Ref 20.00 dBm	PNO: Fast +++ IFGain:Low	Atten: 30 dB	М	сет <mark>а NNNNN</mark> kr1 6.042 1 GHz -49.778 dBm	Auto Tune
10.0					Center Fred 5.957500000 GHz
-10.0					Start Fred 1.915000000 GH2
-20.0					Stop Fred 10.000000000 GHz
-40.0		مریک میں کر ان میں			CF Step 808.500000 MH: <u>Auto</u> Mar
-60.0					Freq Offse 0 Hz
Start 1.915 GHz #Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep 14	Stop 10.000 GHz I.25 ms (16441 pts)	Scale Type Log <u>Lir</u>
MSG			STATU		





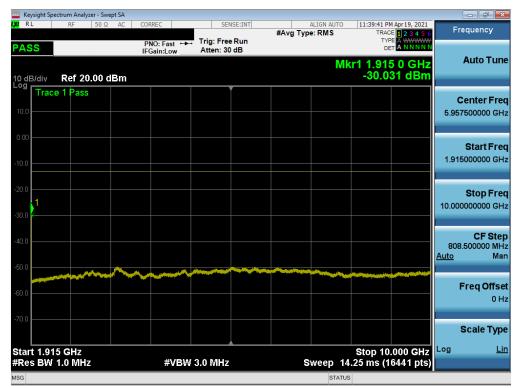
Plot 7-73. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - Mid Channel)

FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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Keysight Spectrum A		1							_	
L <mark>XI</mark> RL RF	50 Ω AC	CORREC		E:INT	#Avg Type	ALIGN AUTO e: RMS		Apr 19, 2021	Freq	uency
PASS		PNO: Fast ++- IFGain:Low	Trig: Free Atten: 30 d							
10 dB/div Ref	20.00 dBm					Mk	r1 1.843 -52.9	30 GHz 96 dBm	A	uto Tune
Log Trace 1 Pa	ass									n ter Freq 00000 MHz
-10.0										itart Freq 00000 MHz
-20.0										top Freq 00000 GHz
-40.0								1	182.00 <u>Auto</u>	CF Step 00000 MHz Man
-60.0	ىسىمۇمىرىيەتلۈچ ^{ار} ىسىلىمىتىرىدۇنچىلىرىيەت	and you and and the second	have benta Matalang	م وال المراجع والم المراجع المراجع المراجع والمراجع المراجع والمراجع والمراجع والمراجع والمراجع والم		gunner en de sonstande en e	anglen pri 1984 i si ma i si ma i si ma		Fr	e q Offset 0 Hz
-70.0 Start 0.0300 G	Hz						Stop 1.8	500 GHz	So Log	ale Type: Lin
#Res BW 1.0 N	1Hz	#VBW	3.0 MHz		Ş	Sweep 2	.427 ms (3641 pts)		
MSG						STATUS	;			

Plot 7-74. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - High Channel)



Plot 7-75. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - High Channel)

FCC ID: A3LSMF711U	PCTEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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PASS PNO: Fast Herein and Attent 10 dB #Avg Type: RMS TRACE 12 34 30 Trace 12 34 34 34 34 34 34 34 34 34 34 34 34 34		ectrum Analyzer - Swept SA									d X
ASS Provide Atten: 10 dB Provi	LXI RL	RF 50 Ω AC	CORREC					TRAC	E 1 2 3 4 5 6	Frequer	псу
WKRT 18,016 5 GH2 -63.278 dBm Trace 1 Pass Center Freq 100 1 1 15.0000000 GHz 200 1 1 15.0000000 GHz 200 1 1 15.0000000 GHz 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 400 1 1 1 <td>PASS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TYF</td> <td></td> <td></td> <td></td>	PASS							TYF			
Og Trace 1 Pass Center Freq 100 1 1 15.00000000 GHz 200 1 1 1 200 1 1 1 1 200 1 1 1 1 200 1 1 1 1 200 1 1 1 1 200 1 1 1 1 200 1 1 1 1 200 1 1 1 1 200 1 1 1 1 200 1 1 1 1 200 1 1 1 1 200 1 1 1 1 200 1 1 1 1 1 200 1 1 1 1 1 1 200 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							Mk	1 18.61	6 5 GHz	Auto	Tune
Trace 1 Pass Center Freq 100 Image: Center Freq 200 Image: Center Freq <	10 dB/div Log							-63.2	78 dBm		
200 200 200 200 200 200 200 200	Trac	e 1 Pass								Cente	er Freg
substart 10.000 GHz Stop 20.000 GHz	-10.0									15.0000000	00 GHz
substart 10.000 GHz Stop 20.000 GHz	20.0										
400 400 400 400 400 400 400 400	-20.0									Sta	rt Freq
Stop Freq 20.00000000 GHz 20.00000000 GHz CF Step 20.00000000 GHz 4uto Man Freq Offset 0 Hz Scale Type Start 10.000 GHz Stop 20.000 GHz	-30.0									10.000000	00 GHz
Stop Preq 20.00000000 GHz 20.00000000 GHz 4uto Man Freq Offset 0 Hz Start 10.000 GHz Stop 20.000 GHz											
50.0 50.0	-40.0										
1.00000000 GHz 1.0000000 GHz	-50.0									20.000000	00 GHz
1.00000000 GHz 1.0000000 GHz											
70.0 80.0	-60.0							<u>+</u> • ¹ -			
800 Freq Offset 800 Start 10.000 GHz Stop 20.000 GHz	70.0				-					<u>Auto</u>	Man
800 0 Hz Stop 20.000 GHz Log Lin	-70.0										
20.0 Scale Type	-80.0									Freq	
Start 10.000 GHz Stop 20.000 GHz											0 H2
Start 10.000 GHz Log Lin	-90.0									Scal	e Type
			#\/B\A	(30 MHz			woon 2	Stop 20	.000 GHz	Log	Lin
	#Res DW	1.0 10112	#VDV			5			ooo r pis)		

Plot 7-76. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - High Channel)

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NR Band n25/2 - Ant I

	ectrum Analyzer - S							
LXI RL	RF 50	ΩDC	CORREC	SENSE:INT	ALIG #Avg Type: R	MS TRA	PM May 04, 2021 CE 1 2 3 4 5 6	Frequency
PASS			PNO: Fast ++- IFGain:Low	Trig: Free Run Atten: 30 dB				
10 dB/div	Ref 20.00	dBm				Mkr1 1.84 -49.5	6 0 GHz 42 dBm	Auto Tune
Trac	e 1 Pass			Ĭ				Center Fred
10.0								940.000000 MH;
0.00								
								Start Free 30.000000 MH;
-10.0								30.00000 Min.
-20.0								Stop Fred
-30.0								1.850000000 GH
-30.0								
-40.0								CF Step 182.000000 MH
-50.0								<u>Auto</u> Mar
and the state of the					يونير الله والمحمد و في المحمد المراجع المحمد المراجع المحمد المراجع المحمد المحمد المحمد المحمد المحمد المحمد	af y ^{an} fan 'n an yn	and and all an and to be an a strange and	Freq Offse
-60.0								0 H
-70.0								
								Scale Type
Start 0.03			<i>(</i>) (5) (4)			Stop 1.		Log <u>Lir</u>
#Res BW	1.0 MHz		#VBW	3.0 MHz	Sw	eep 2.427 ms	(3641 pts)	
MOG						STATUS		

Plot 7-77. Conducted Spurious Plot (NR Band n25/2 -20.0MHz - 1RB - Low Channel)



Plot 7-78. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - Low Channel)

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Keysight Sp RL	RF 50 9		CORREC	SENSE:INT	ALIGN AUTO	09:50:17 PM May 04, 2021	Frequency
PASS			PNO: Fast ++-	Trig: Free Run Atten: 10 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	
0 dB/div	Ref 0.00 d	IBm			Mki	1 19.465 0 GHz -57.158 dBm	Auto Tur
.og Trac	e 1 Pass						Center Fre 15.000000000 GF
30.0							Start Fr 10.000000000 G
i0.0							Stop Fr 20.000000000 G
io.o	~~~~						CF St 1.000000000 G <u>Auto</u> M
80.0							Freq Offs 0
	D00 GHz						Scale Ty Log <u>l</u>
	1.0 MHz		#VBW	3.0 MHz	Sweep 1	7.33 ms (20001 pts)	

Plot 7-79. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - Low Channel)

	ght Spectrum Analyzo								
LX/ RL	RF		PNO: Fast	. Trig: Free		#Avg Typ	ALIGN AUTO e: RMS	10:22:26 PM May 04, 2021 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Frequency
PASS			FGain:Low	Atten: 30	dB		Mk	r1 1.847 0 GHz -50.003 dBm	Auto Tune
10.0	Frace 1 Pass								Center Fred 940.000000 MH
-10.0									Start Free 30.000000 MH
-20.0 -									Stop Fre 1.850000000 GH
-40.0								1	CF Stej 182.000000 MH Auto Ma
-60.0	un and and an and a second second	(Yananaa) Palakan da kata da ka Internet da kata	apati na ng pagang kang padangkan na ng pagang kang pang kang pang pang pang pang pang pang pang p	₩₩ [₩] ₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩	ayı, dekini e nerini i nerini in	a aya aya ka ka aya aya a	h diferen attek julien i Mener		Freq Offse 0 H
-70.0									Scale Type
	0.0300 GHz BW 1.0 MHz		#VBW	3.0 MHz			Sweep 2.	Stop 1.8500 GHz 427 ms (3641 pts)	Log <u>Lir</u>
MSG							STATUS		

Plot 7-80. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - Mid Channel)

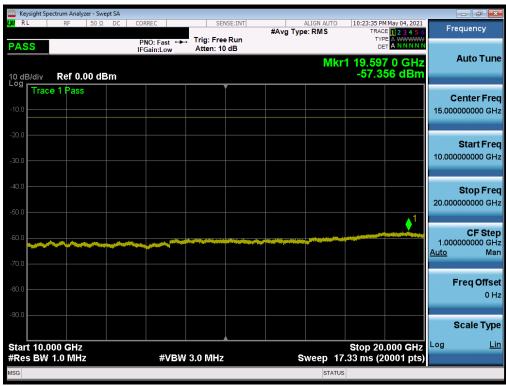
FCC ID: A3LSMF711U	PCTEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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🦲 Keysight Spectrum A		t SA									×
lxi rl RF	50 Ω	DC CO	RREC		NSE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	May 04, 2021	Frequency	
PASS		IF	NO: Fast ↔ Gain:Low	Atten: 30			M	be kr1 9.75		Auto Tu	une
10 dB/div Ref	20.00 dE	3m	1	,	·			-41.7	60 dBm		
10.0	ass									Center F 5.957500000 (
-10.0										Start F 1.915000000 (
-20.0										Stop F 10.0000000000	
-40.0		\sim		~~~	~		and the second		↓ ¹	CF S 808.500000 M Auto	
-60.0										Freq Off ر	f set 0 Hz
-70.0										Scale Ty	уре
Start 1.915 GH #Res BW 1.0 N			#VBW	3.0 MHz		S	weep 14	Stop 10 1.25 ms (1	.000 GHz 6441 pts)	Log	Lin
MSG							STATU	s			

Plot 7-81. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - Mid Channel)



Plot 7-82. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - Mid Channel)

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🔤 Keysight Spectrum											- •
L <mark>XI</mark> RL R	F 50 Ω	DC C	ORREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	10:20:12 PM N TRACE	123456	Fre	quency
PASS			PNO: Fast ↔ FGain:Low	Trig: Free Atten: 30		• //		TYPE DET	A WWWWW A NNNNN		
10 dB/div Re	f 20.00 dl	Bm					Mk	r1 1.848 -50.11	0 GHz 3 dBm		Auto Tune
10.0	Pass										e nter Freq 100000 MHz
-10.0											Start Freq 100000 MHz
-20.0											Stop Freq 000000 GHz
-40.0								Turn an at a statistic statistic		182.0 <u>Auto</u>	CF Step 000000 MHz Man
-60.0	çılarıştığı fira nefaşışlartatlır.	an ta'a kita ang kata ng kata n		W(+\$*\$1+*-92+*+****	<u> </u>	n in the second seco				F	r eq Offset 0 Hz
-70.0										S	cale Type
Start 0.0300 (#Res BW 1.0			#VBW	3.0 MHz			Sweep 2	Stop 1.85 .427 ms (3	OU GITZ	Log	<u>Lin</u>
MSG							STATUS				

Plot 7-83. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - High Channel)



Plot 7-84. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - High Channel)

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	ectrum Analyze	er - Swept SA										
(XVI RL	RF	50 Ω DC	CORREC			ISE:INT	#Avg Typ	ALIGN AUTO	TRA	M May 04, 2021 CE <mark>1 2 3 4 5 6</mark>	F	requency
PASS			PNO: Fa IFGain:L	ast ↔ ow	Trig: Free Atten: 10							Auto Tuno
10 dB/div Log	Ref 0.0	0 dBm						Mki	r1 19.58 -57.4	3 0 GHz 57 dBm		Auto Tune
-10.0	e 1 Pass											Center Freq 00000000 GHz
-20.0											10.00	Start Freq 00000000 GHz
-40.0										. 1	20.00	Stop Freq 00000000 GHz
-60.0	~~~										1.00 <u>Auto</u>	CF Step 00000000 GHz Man
-80.0												Freq Offset 0 Hz
-90.0												Scale Type
Start 10.0 #Res BW				≠vB₩ :	3.0 MHz			weep 17	Stop 20 7.33 ms (2	.000 GHz 20001 pts)	Log	<u>Lin</u>
MSG								STATU	s			

Plot 7-85. Conducted Spurious Plot (NR Band n25/2 - 20.0MHz - 1RB - High Channel)

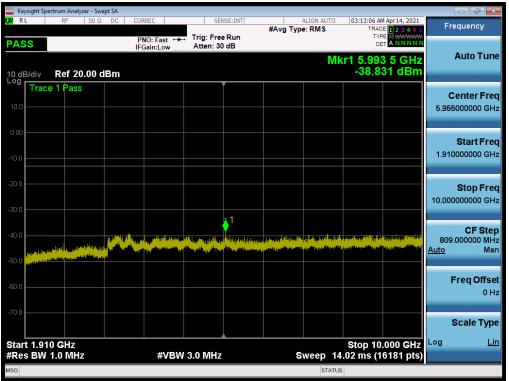
FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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GSM/GPRS PCS

	ectrum Analyzer - Sw									
LXI RL	RF 50 Ω	DC COR	REC		ISE:INT	#Avg Typ	ALIGN AUTO	TRAC	M Apr 14, 2021 E 1 2 3 4 5 6	Frequency
PASS			IO: Fast ↔ Gain:Low	Trig: Free Atten: 30						
							Mk	r1 1.61	0 6 GHz 11 dBm	Auto Tune
10 dB/div	Ref 20.00 c	lBm			/			-44.0	павт	
	e i Fass									Center Freq
10.0										937.500000 MHz
0.00										Otort Eror
-10.0										Start Freq 30.000000 MHz
-10.0										
-20.0										Stop Freq
-30.0										1.845000000 GHz
										OF Oton
-40.0								↓ ¹		CF Step 181.500000 MHz
-50.0	an air a du si ar ai du si ar ai	والمراجع المتراجع المراجع	ويتبعلون والمعاد	u dela contra del		a i ha biy taking a	a di kana si an		اللدي كالبابيا بدائموا	<u>Auto</u> Man
	المحاذاء لاطلهن للألفسيان يقربها والمقدمات									Freq Offset
-60.0										0 Hz
-70.0										
										Scale Type
Start 0.03						1		Stop 1.8	3450 GHz	Log <u>Lin</u>
#Res BW	1.0 MHz		#VBW	3.0 MHz					3641 pts)	
MSG							STATUS		4.0.)	

Plot 7-86. Conducted Spurious Plot (GPRS Ch. 512)



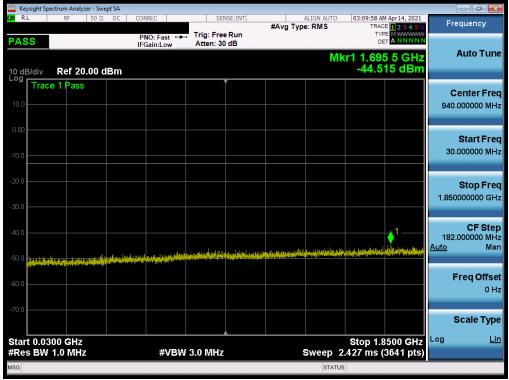
Plot 7-87. Conducted Spurious Plot (GPRS Ch. 512)

FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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Keysight Spectrum Analyzer					
X RL RF 5	DC CORREC PNO: Fast IFGain:Low		ALIGN AUTO	03:13:43 AM Apr 14, 2021 TRACE 1 2 3 4 5 6 TYPE M WWWWW DET A N N N N N	Frequency
10 dB/div Ref 0.00			Mkr	1 19.408 0 GHz -54.814 dBm	Auto Tun
-10.0 Trace 1 Pass					Center Fre 15.000000000 GH
-20.0					Start Fre 10.000000000 G⊦
-40.0				1	Stop Fre 20.00000000 GF
	Elizatel a superior de la companya de la companya Companya de la companya de la company Companya de la companya de la company		nay Douby Construction of the providence of the	n - Lander and Angel Angel Angel ang	CF Ste 1.00000000 GH <u>Auto</u> Ma
80.0					Freq Offs 0 H
.90.0					Scale Typ
Start 10.000 GHz #Res BW 1.0 MHz	#V	BW 3.0 MHz	Sweep 17	Stop 20.000 GHz .33 ms (20001 pts)	Log <u>L</u>
ISG			STATUS		

Plot 7-88. Conducted Spurious Plot (GPRS Ch. 512)



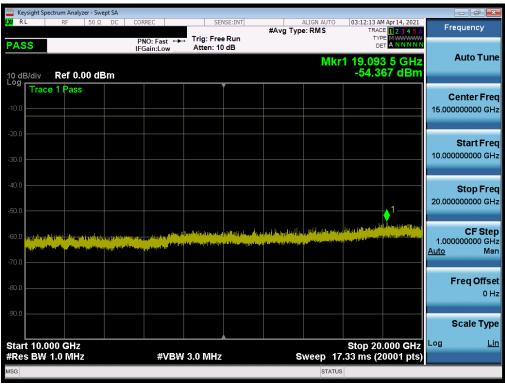
Plot 7-89. Conducted Spurious Plot (GPRS Ch. 661)

FCC ID: A3LSMF711U	Poud to be part of @ viewment	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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🔤 Keysight Spectrum Analyzer - Swept SA					
LX/RL RF 50Ω DC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	03:11:40 AM Apr 14, 2021 TRACE 1 2 3 4 5 6	Frequency
PASS	PNO: Fast ↔→ IFGain:Low	Trig: Free Run Atten: 30 dB		TYPE MWWWW DET A N N N N N	
10 dB/div Ref 20.00 dBm			Mk	r1 9.154 5 GHz -38.742 dBm	Auto Tune
10.0					Center Freq 5.955000000 GHz
-10.0					Start Freq 1.910000000 GHz
-20.0				<u> </u>	Stop Freq 10.000000000 GHz
-40.0			an gan da ganta da g		CF Step 809.000000 MHz <u>Auto</u> Man
-60.0					Freq Offset 0 Hz
-70.0					Scale Type
Start 1.910 GHz #Res BW 1.0 MHz	#VBW :	3.0 MHz	Sweep 14	Stop 10.000 GHz .02 ms (16181 pts)	Log <u>Lin</u>
MSG			STATUS		

Plot 7-90. Conducted Spurious Plot (GPRS Ch. 661)



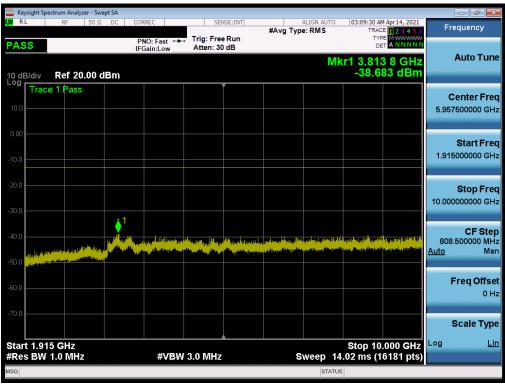
Plot 7-91. Conducted Spurious Plot (GPRS Ch. 661)

FCC ID: A3LSMF711U	POINTEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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	ght Spectru	m Analyzer	- Swept SA									
IXI RL		RF 5	0Ω DC	CORF	REC	SEI	NSE:INT	#Avg Typ	ALIGN AUTO		Apr 14, 2021	Frequency
PASS					O: Fast ↔ ain:Low	Trig: Free Atten: 30		#Avg typ		TYP DE		
10 dB/c	div R	ef 20.0	0 dBm						Mk	44.9	5 5 GHz 58 dBm	Auto Tune
10.0	Trace 1	Pass										Center Freq 940.000000 MHz
-10.0												Start Freq 30.000000 MHz
-20.0												Stop Freq 1.850000000 GHz
-40.0				ر بار بار بار ا	n all, an <mark>ls stil</mark>	وابدا ومنازع راجه والم	all models and train		a an	a sector a s	1 Material	CF Step 182.000000 MHz <u>Auto</u> Man
-60.0												Freq Offset 0 Hz
-70.0												Scale Type
	0.0300 BW 1.0				#VBW	/ 3.0 MHz			Sweep 2	Stop 1.8 .427 ms (500 GHz 3641 pts)	Log <u>Lin</u>
MSG									STATUS	3		

Plot 7-92. Conducted Spurious Plot (GPRS Ch. 810)



Plot 7-93. Conducted Spurious Plot (GPRS Ch. 810)

FCC ID: A3LSMF711U	POTEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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	ectrum Analyzer -										×
L <mark>XI</mark> RL	RF 5	0Ω DC	CORREC	SEI	NSE:INT	#Avg Typ	ALIGN AUTO		M Apr 14, 2021	Frequency	
PASS			PNO: Fast ↔ IFGain:Low	Trig: Free Atten: 10				TYI Di		A	
10 dB/div Log	Ref 0.00	dBm					Mkr	1 19.64 -54.6	9 5 GHz 50 dBm	Auto Tu	ine
Trace	e 1 Pass				Í					Center Fr	req
-10.0										15.00000000 G	€Hz
-20.0										Start Fr	req
-30.0										10.00000000 G	Hz
-40.0										Stop Fr	rea
-50.0									1 -	20.00000000 G	
-60.0		anal silinat		e ang bilangan (de stating af a de s	al and the second strength of the	متعد أداف فكر الارب ألا أ		a a far a		CF St	
-70.0	n an shine an	and the state of t	and a second second second	a tha đinh tanh đại ngaya	(helalohoganika	a Mandala da Sandala ng Bar	a a di Maria di Maria di Maria.	and a second		1.00000000 G <u>Auto</u> N	GH2 Mar
										Freg Offs	se
-80.0											H
-90.0										Scale Ty	/pe
Start 10.0								Stop 20	.000 GHz	Log	Lin
#Res BW	1.0 MHz		#VBW	3.0 MHz		S	weep 17	'.33 ms (2	20001 pts)		
MSG							STATUS	5			

Plot 7-94. Conducted Spurious Plot (GPRS Ch. 810)

FCC ID: A3LSMF711U	Potest	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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WCDMA PCS

🦲 Keysight Spectrum An										
LXI RL RF	50 Ω DC	CORREC		SE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	Apr 14, 2021 1 2 3 4 5 6	Fr	equency
PASS		PNO: Fast +++ IFGain:Low	Trig: Free Atten: 30				DE			
10 dB/div Ref 2	20.00 dBm					Mk	r1 1.848 -33.10	5 0 GHz 04 dBm		Auto Tune
Log Trace 1 Pa	ss		Ĭ							enter Freg
10.0										.500000 MHz
0.00										Start Freq
-10.0									30	.000000 MHz
-20.0										Stop Freq
-30.0								1	1.84	5000000 GHz
								Ť		CF Step
-40.0									181 <u>Auto</u>	.500000 MHz Man
-50.0		a print and a loss of the start			and the state of the			***		
-60.0									1	req Offset
										0 Hz
-70.0										Scale Type
Start 0.0300 GH							Stop 1.8	400 0112	Log	Lin
#Res BW 1.0 M	HZ	#VBW	3.0 MHz			Sweep 2.	-	3641 pts)		
MSG										

Plot 7-95. Conducted Spurious Plot (WCDMA Ch. 9262)



Plot 7-96. Conducted Spurious Plot (WCDMA Ch. 9262)

FCC ID: A3LSMF711U	PCTEST Proud to be part of @element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Swept SA					– F ×
KARL RF 50Ω DC		SENSE:INT	ALIGN #Avg Type: RM		Frequency
10 dB/div Ref 0.00 dBm	IFGam:Low Alle			Mkr1 19.613 0 GH -55.805 dBn	Auto Tune
-10.0 Trace 1 Pass					Center Fred 15.000000000 GHz
-20.0					Start Free 10.000000000 GH;
-40.0				1	Stop Free 20.000000000 GH
-60.0					CF Stej 1.000000000 GH <u>Auto</u> Ma
-80.0					Freq Offse 0 H
-90.0					Scale Type
Start 10.000 GHz #Res BW 1.0 MHz	#VBW 3.0 M	/IHz	Swee	Stop 20.000 GHz p 17.33 ms (20001 pts	Log <u>Lir</u>)
MSG				STATUS	

Plot 7-97. Conducted Spurious Plot (WCDMA Ch. 9262)



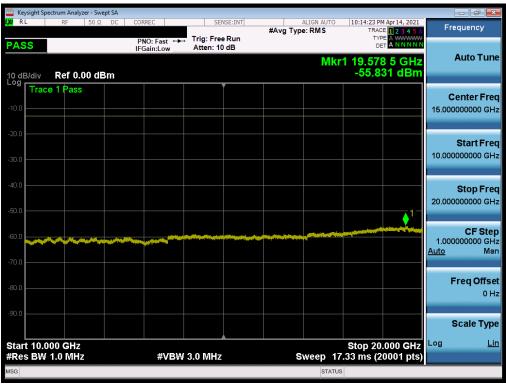
Plot 7-98. Conducted Spurious Plot (WCDMA Ch. 9400)

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	ectrum Analyzei										
LXI RL	RF	50Ω DC	CORREC	SEI	NSE:INT	#Avg Typ	ALIGN AUTO		4 Apr 14, 2021	Fred	uency
PASS			PNO: Fast ← IFGain:Low	Trig: Free Atten: 30		#Avg Typ		TYP DE	E 1 2 3 4 5 6 E A WWWWW A N N N N N		uto Tune
10 dB/div	Ref 20.0	00 dBm					Mk	r1 9.71 -40.9	5 5 GHz 98 dBm		
10.0	e 1 Pass										nter Freq 00000 GHz
-10.0											Start Freq 00000 GHz
-20.0											Stop Freq 00000 GHz
-40.0			~~~~		<u> </u>				<u><u></u> </u>	809.00 <u>Auto</u>	CF Step 00000 MHz Man
-60.0										Fr	e q Offset 0 Hz
-70.0											cale Type
Start 1.91 #Res BW			#VB	W 3.0 MHz		s	weep 14	Stop 10 .02 ms (1	.000 0112	Log	Lin
MSG							STATUS				

Plot 7-99. Conducted Spurious Plot (WCDMA Ch. 9400)



Plot 7-100. Conducted Spurious Plot (WCDMA Ch. 9400)

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	ectrum Analyzer - Sw									
L <mark>XI</mark> RL	RF 50 Ω	DC	CORREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO		Apr14, 2021	Frequency
PASS			PNO: Fast ++ IFGain:Low	Trig: Free Atten: 30				TYPI DE	A WWWWW A N N N N N	
10 dB/div	Ref 20.00	dBm					M	(r1 1.837 -49.30	5 GHz 3 dBm	Auto Tur
Log	e 1 Pass			Ň						Center Fre
10.0										940.000000 MH
0.00										Start Fre
-10.0										30.000000 MH
-20.0										Stop Fre
-30.0										1.850000000 GH
										05.01
-40.0										CF Ste 182.000000 MH
-50.0										<u>Auto</u> Ma
an a	anter and the second difference of the second		Meridian Contraction Contraction of the Contraction	and the second secon	a ang dig ting ang	,	New Sector S			
-60.0										Freq Offs 0 H
70.0										
-70.0										Scale Typ
Stort 0.02								Oton 1.9	500 CH-	Log L
Start 0.03 #Res BW			#VBW	3.0 MHz			Sweep 2	stop 1.8	500 GHz 3641 pts)	
MSG							STATUS			

Plot 7-101. Conducted Spurious Plot (WCDMA Ch. 9538)



Plot 7-102. Conducted Spurious Plot (WCDMA Ch. 9538)

FCC ID: A3LSMF711U	POTEST Proud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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	ım Analyzer - Swe	ept SA									
(XVI RL	RF 50 Ω	DC	CORREC	SEI	SE:INT	#Avg Typ	ALIGN AUTO		M Apr 14, 2021	Freau	lency
PASS			PNO: Fast + IFGain:Low	Trig: Free Atten: 10		#Avg Typ		TYI Di			
Log	tef 0.00 dE	ßm					Mk	r1 19.61 -55.8	6 5 GHz 26 dBm	AL	uto Tune
-10.0	Pass										n ter Freq 0000 GHz
-20.0											tart Freq 0000 GHz
-40.0									1-		top Freq 0000 GHz
-60.0	······		*								CF Step 0000 GHz Man
-80.0										Fre	e q Offset 0 Hz
-90.0											ale Type
Start 10.000 #Res BW 1.0			#VB	W 3.0 MHz		8	weep 1	Stop 20 7.33 ms (2	.000 0112	Log	Lin
MSG							STATU	IS			

Plot 7-103. Conducted Spurious Plot (WCDMA Ch. 9538)

FCC ID: A3LSMF711U	Poud to be part of @ element	PART 24 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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CDMA PCS

Keysight Spectrum Analyzer - Swept SA					e e 💌
LX/RL RF 50Ω DC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	01:25:14 AM Apr 15, 2021 TRACE 1 2 3 4 5 6	Frequency
PASS		Trig: Free Run Atten: 30 dB		DET A NNNN	
			M	r1 1.845 0 GHz	Auto Tune
10 dB/div Ref 20.00 dBm		_		-43.558 dBm	
Trace 1 Pass		Ť			Center Freq
10.0					937.500000 MHz
0.00					Start Freq
-10.0					30.000000 MHz
-20.0					Stop Freq
-30.0					1.845000000 GHz
-40.0				<u>↓1</u>	CF Step 181.500000 MHz
-50.0					<u>Auto</u> Man
	اجبه وحدادهم وحوقوا وجاوا المتحد المرجب أسه	cies, interesting and the standard and the	the second s	n server for an and a server serve	
-60.0					Freq Offset
					0 Hz
-70.0					Scale Type
					Scale Type
Start 0.0300 GHz					Log <u>Lin</u>
#Res BW 1.0 MHz	#VBW 3	U WHZ		.427 ms (3641 pts)	
MSG			STATUS	5	

Plot 7-104. Conducted Spurious Plot (CDMA Ch. 25)



Plot 7-105. Conducted Spurious Plot (CDMA Ch. 25)

FCC ID: A3LSMF711U		PART 24 MEASUREMENT REPORT	Sлмsung	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Swept SA					- ē -
RL RF 50Ω DC		SENSE:INT	#Avg Type: RMS	TO 01:26:06 AM Apr 15, 2021 TRACE 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
IO dB/div Ref 0.00 dBm	in Gameen		N	lkr1 19.603 5 GHz -55.917 dBm	Auto Tun
^{og} Trace 1 Pass					Center Fre 15.000000000 GH
30.0					Start Fre 10.00000000 GF
50.0				1-	Stop Fre 20.00000000 GF
60.0					CF Ste 1.00000000 GH <u>Auto</u> Ma
80.0					Freq Offs 01
90.0					Scale Typ
Start 10.000 GHz #Res BW 1.0 MHz	#VBW 3.	0 MHz	Sweep	Stop 20.000 GHz 17.33 ms (20001 pts)	
ISG			ST	ATUS	

Plot 7-106. Conducted Spurious Plot (CDMA Ch. 25)



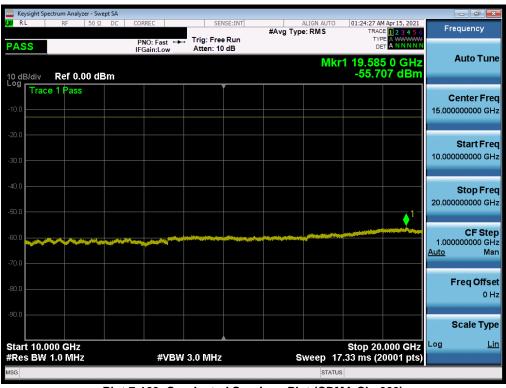
Plot 7-107. Conducted Spurious Plot (CDMA Ch. 600)

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Mkr1 9.723 5 GHz 41.144 dBm Auto Tune 0 gE/div Ref 20.00 dBm Center Freq 5.95500000 GHz 000 Image: Center Freq 5.95500000 GHz Start Freq 1.91000000 GHz 000 Image: Center Freq 5.95500000 GHz Start Freq 1.91000000 GHz 000 Image: Center Freq 5.95500000 GHz Start Freq 1.91000000 GHz 000 Image: Center Freq 1.910000000 GHz Image: Center Freq 1.910000000 GHz 000 Image: Center Freq 1.910000000 GHz Image: Center Freq 1.910000000 GHz 000 Image: Center Freq 1.910000000 GHz Image: Center Freq 1.910000000 GHz 000 Image: Center Freq 1.910000000 GHz Image: Center Freq 1.910000000 GHz 000 Image: Center Freq 1.910000000 GHz Image: Center Freq 1.910000000 GHz 000 Image: Center Freq 1.910000000 GHz Image: Center Freq 1.910000000 GHz 000 Image: Center Freq 1.910000000 GHz Image: Center Freq 1.910000000 GHz 000 Image: Center Freq 1.910000000 GHz Image: Center Freq 1.910000000 GHz 000 Image: Center Freq 1.910000000 GHz Image: Center Freq 1.910000000 GHz 000 Image: Center Freq 1.9100000000 GHz Image: Center Freq 1.9100000000 GHz		ctrum Analyzer - S										
PASS PNO: Fast Trig: Free Run Atten: 30 dB Trig: Free Run Atten: 30 dB Trig: Free Run Atten: 30 dB Auto Tune 10 dB/div Ref 20.00 dBm Center Freq 5.95500000 GHz Center Freq 5.95500000 GHz Start Freq 1.91000000 GHz 000 Image: Start Freq 1.91000000 GHz Image: Start Freq 1.91000000 GHz Start Freq 1.91000000 GHz Start Freq 1.91000000 GHz 000 Image: Start Freq 1.91000000 GHz Image: Start Freq 1.91000000 GHz Image: Start Freq 1.910000000 GHz 000 Image: Start Freq 1.910000000 GHz Image: Start Freq 1.910000000 GHz Image: Start Freq 1.910000000 GHz 000 Image: Start Freq 1.910000000 GHz Image: Start Freq 1.910000000 GHz Image: Start Freq 1.910000000 GHz 000 Image: Start Freq 1.910000000 GHz Image: Start Freq 1.910000000 GHz Image: Start Freq 1.910000000 GHz 000 Image: Start Freq 1.91000000 GHz Image: Start Freq 1.91000000 GHz Image: Start Freq 1.910000000 GHz 000 Image: Start Freq 1.91000000 GHz Image: Start Freq 1.91000000 GHz Image: Start Freq 1.91000000 GHz 000 Image: Start Freq 1.91000000 GHz Image: Start Freq 1.91000000 GHz Image: Start Freq 1.91000000 GHz 000 Image: Start Freq 1.910000000 GHz Image: Start Freq 1.910000000	LXI RL	RF 50	ΩDC	CORREC	SEI	NSE:INT			TRAC	E 1 2 3 4 5 6	Freque	ency
International Structure Structure Structure Center Freq 100 Image: Structure Image	PASS						•		TYI Di		A	. Tune
Trace 1 Pass Center Freq 100	10 dB/div	Ref 20.00	dBm					M	r1 9.72 -41.1	3 5 GHz 44 dBm	Au	o rune
100	Trace	e 1 Pass									Cent	er Fred
100 Start Freq 100 Start Freq 200 Start Freq </td <td>10.0</td> <td></td>	10.0											
100 191000000 GHz 100 1910000000 GHz 100 1910000000 GHz 100 19100000000 GHz 1	0.00											
 Stop Freq Stop Freq	-10.0											
 Stop Freq Stop Freq												
4400 Image: CF Step Step Step Step Step Step Step Step												-
-4000 -50.0 -60.0 -70.0	-30.0									. 1		
-500 -500 -500 -500 -500 -500 -500 Freq Offset 0 Hz -600 -500	-40.0		~		~~~		and the second second			•	809.000	000 MHz
-60.0 0 Hz	-50.0										Auto	Ivian
-70.0											Free	Offset
Scale Type	-60.0											0 Hz
	-70.0											
											Sca	Іе Туре
				40 (D14)					Stop 10		Log	Lin
#Res BW 1.0 MHz #VBW 3.0 MHz Sweep 14.02 ms (16181 pts)	#Res BW	1.0 MIHZ		#VBM	3.0 WHZ		S			6181 pts)		

Plot 7-108. Conducted Spurious Plot (CDMA Ch. 600)



Plot 7-109. Conducted Spurious Plot (CDMA Ch. 600)

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	ctrum Analyzer - Swe	pt SA									×
L <mark>XI</mark> RL	RF 50 Ω	DC CC	ORREC	SEI	NSE:INT	#Avg Typ	ALIGN AUTO		M Apr15, 2021	Frequency	
PASS			PNO: Fast ↔ Gain:Low	Atten: 30				TYF			
10 dB/div	Ref 20.00 d	Bm					M	kr1 1.76 -49.5	9 0 GHz 74 dBm	Auto Tu	une
Log Trace	1 Pass									Center Fi	rea
10.0										940.000000 N	
0.00										Start Fi	rea
-10.0										30.000000 N	
-20.0										Stop Fi	rea
-30.0										1.850000000	
-40.0										CF St	tep
									♦ ¹	182.000000 M <u>Auto</u> M	MHz Man
-50.0			المواصلية ومنابعة مؤمل أبوجه	ويعمدوه فالمدين وايدل			الدحلب جوجوا وتبيتها وا		and a second second second second		
-60.0										Freq Off 0	f set 0 Hz
-70.0										Scale Ty	vpe
										-	
Start 0.030 #Res BW 1			#VBV	/ 3.0 MHz			Sweep 2	Stop 1.8 2.427 ms (3500 GHz 3641 pts)	Log	Lin
MSG							STATU				

Plot 7-110. Conducted Spurious Plot (CDMA Ch. 1175)



Plot 7-111. Conducted Spurious Plot (CDMA Ch. 1175)

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	ectrum Analyz	er - Swept	SA										
LXI RL	RF	50 Ω [DC 0	CORREC		SE	NSE:INT	#Avg Typ	ALIGN AUTO		AM Apr15, 2021	Frequ	iencv
PASS				PNO: Fa IFGain:L		Trig: Fre Atten: 10		#Avg Typ		T) [
10 dB/div Log	Ref 0.0	00 dBm	n						Mk	r1 19.56 -55.8	69 0 GHz 383 dBm	AL	ito Tune
-10.0	e 1 Pass												iter Freq 0000 GHz
-20.0													t art Freq 0000 GHz
-40.0											1		t op Freq 0000 GHz
-60.0	~~~		,,					an a					CF Step 0000 GHz Man
-70.0												Fre	q Offset 0 Hz
-90.0													ale Type
Start 10.0 #Res BW				#	VBW	3.0 MHz		ş	Sweep 1	Stop 2 7.33 ms (0.000 GHz 20001 pts)	Log	<u>Lin</u>
MSG									STAT	US			

Plot 7-112. Conducted Spurious Plot (CDMA Ch. 1175)

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7.4 Band Edge Emissions at Antenna Terminal

Test Overview

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

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

Test Procedure Used

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 \geq 1% of the emission bandwidth
- 4. VBW \geq 3 x RBW
- 5. Detector = RMS
- 6. Number of sweep points $\geq 2 \times \text{Span/RBW}$
- 7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

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Test Notes

- 1. Per 24.238(a) and RSS-133(6.5), 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.
- 3. For CDMA, both CDMA and EVDO operation modes were investigated and the worst case configuration results are reported in this section.
- 4. For WCDMA, both WCDMA and HSUPA operation modes were investigated and the worst case configuration results are reported in this section.

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