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PART 27 MEASUREMENT REPORT

Applicant Name:

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

Date of Testing: 06/30/2021 - 07/24/2021 Test Site/Location: PCTEST Lab. Columbia, MD, USA Test Report Serial No.: 1M2106280072-04.A3L

FCC ID:

A3LSMA528B

APPLICANT:

Samsung Electronics Co., Ltd.

Application Type: Model: Additional Model(s): EUT Type: FCC Classification: FCC Rule Part: Test Procedure(s): Certification SM-A528B/DS SM-A528B Portable Handset PCS Licensed Transmitter Held to Ear (PCE) 27 ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01

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

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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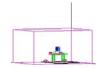


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MEASUREMENT REPORT FCC Part 27



			ERP		RP	Ell		
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Max. Power [W]	Max. Power [dBm]	Emission Designator
	10 MHz	QPSK	704.0 - 711.0	0.074	18.69	0.121	20.84	9M03G7D
		16QAM	704.0 - 711.0	0.059	17.73	0.097	19.88	8M98W7D
LTE Band 17/12	5 MHz	QPSK	701.5 - 713.5	0.073	18.66	0.121	20.81	4M52G7D
		16QAM	701.5 - 713.5	0.059	17.74	0.098	19.89	4M50W7D
	2 MU-	QPSK	700.5 - 714.5	0.073	18.65	0.120	20.80	2M70G7D
LTE Band 12	3 MHz	16QAM	700.5 - 714.5	0.059	17.71	0.097	19.86	2M71W7D
		QPSK	699.7 - 715.3	0.072	18.58	0.118	20.73	1M09G7D
	1.4 MHz	16QAM	699.7 - 715.3	0.059	17.74	0.098	19.89	1M09W7D

Overview Table (<1GHz Bands)

				EIRP		
Mode	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Emission Designator	
WCDMA1700	Spread Spectrum	1712.4 - 1752.6	0.204	23.09	4M19F9W	

Overview Table (>1GHz Bands)

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				EI	RP	
Mode	Mode Bandwidth		Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Emission Designator
	20 MHz	QPSK	1720.0 - 1770.0	0.190	22.79	18M0G7D
		16QAM	1720.0 - 1770.0	0.157	21.96	18M0W7D
	15 MHz	QPSK	1717.5 - 1772.5	0.195	22.89	13M5G7D
		16QAM	1717.5 - 1772.5	0.160	22.03	13M5W7D
	10 MHz	QPSK	1715.0 - 1775.0	0.197	22.94	9M03G7D
LTE Band 66/4		16QAM	1715.0 - 1775.0	0.160	22.04	8M99W7D
LIE Dallu 00/4	5 MHz	QPSK	1712.5 - 1777.5	0.199	22.99	4M50G7D
		16QAM	1712.5 - 1777.5	0.161	22.08	4M50W7D
2 Mili-	3 MHz	QPSK	1711.5 - 1778.5	0.191	22.80	2M70G7D
	3 1011 12	16QAM	1711.5 - 1778.5	0.159	22.01	2M73W7D
	1.4 MHz	QPSK	1710.7 - 1779.3	0.196	22.93	1M09G7D
	1.4 1011 12	16QAM	1710.7 - 1779.3	0.165	22.17	1M10W7D
		π/2 BPSK	1720.0 - 1770.0	0.131	21.16	18M0G7D
	20 MHz	QPSK	1720.0 - 1770.0	0.125	20.97	19M0G7D
		16QAM	1720.0 - 1770.0	0.101	20.04	19M1W7D
		π/2 BPSK	1717.5 - 1772.5	0.134	21.29	13M5G7D
	15 MHz	QPSK	1717.5 - 1772.5	0.123	20.89	14M2G7D
NR Band n66	ND Doord aCC	16QAM	1717.5 - 1772.5	0.094	19.73	14M2W7D
INIX DALIU 1100		π/2 BPSK	1715.0 - 1775.0	0.135	21.29	9M02G7D
	10 MHz	QPSK	1715.0 - 1775.0	0.122	20.86	9M35G7D
		16QAM	1715.0 - 1775.0	0.095	19.79	9M35W7D
		π/2 BPSK	1712.5 - 1777.5	0.134	21.28	4M50G7D
	5 MHz	QPSK	1712.5 - 1777.5	0.119	20.75	4M51G7D
		16QAM	1712.5 - 1777.5	0.092	19.64	4M50W7D

Overview Table (>1GHz Bands)

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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: A3LSMA528B**. 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 27.

Test Device Serial No.: 0792M, 0618M, 1846M, 0715M, 0740M, 0566M

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900, WCDMA/HSPA, Multi-band LTE, 5G NR (FR1), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE), NFC

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

2.4 EMI Suppression Device(s)/Modifications

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

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3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the document titled "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-E-2016) and "Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems" (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

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 wooden turntable 80cm above the ground plane and 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. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168 D01 v03r01.

Per the guidance of ANSI/TIA-603-E-2016, a half-wave dipole is then 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 $P_{g [dBm]}$ – cable loss [dB].

For fundamental radiated power measurements, the guidance of KDB 971168 D01 v03r01 is used to record the EUT power level that is subsequently matched via the aforementioned substitution method given in ANSI/TIA-603-E-2016.

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.

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4.0 MEASUREMENT UNCERTAINTY

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

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

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5.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	AP2	EMC Cable and Switch System	3/4/2021	Annual	3/4/2022	AP2
-	AP1	EMC Cable and Switch System	3/9/2021	Annual	3/9/2022	AP1
-	LTx3	LIcensed Transmitter Cable Set	2/26/2021	Annual	2/26/2022	LTx3
-	LTx5	LIcensed Transmitter Cable Set	3/3/2021	Annual	3/3/2022	LTx5
Agilent	E5515C	Wireless Communications Test Set		N/A		GB46310798
Anritsu	MT8821C	Radio Communication Analyzer		N/A		6200901190
Com-Power	AL-130R	Active Loop Antenna	8/22/2019	Biennial	8/22/2021	121085
Emco	3115	Horn Antenna (1-18GHz)	6/18/2020	Biennial	6/18/2022	9704-5182
Emco	3116	Horn Antenna (18 - 40GHz)	8/7/2018	Triennial	8/7/2021	9203-2178
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	N9030A	PXA Signal Analyzer (44GHz)	8/17/2020	Annual	8/17/2021	MY52350166
Keysight Technologies	N9038A	MXE EMI Receiver	8/11/2020	Annual	8/11/2021	MY51210133
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator		N/A		11403100002
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	JB5	Bi-Log Antenna (30M - 5GHz)	7/27/2020	Biennial	7/27/2022	A051107

Table 5-1. Test Equipment

Notes:

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

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6.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 8M62G7D

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

QAM Modulation

Emission Designator = 8M45W7D

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

Spurious Radiated Emission – LTE Band

Example: Middle Channel LTE Mode 2nd Harmonic (1564 MHz)

The average 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 1564 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80).

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7.0 TEST RESULTS

7.1 Summary

Company Name:	Samsung Electronics Co., Ltd.
FCC ID:	A3LSMA528B
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Mode(s):	WCDMA/LTE/NR

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
	Transmitter Conducted Output Power	2.1046	N/A	PASS	Section 7.2
	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3
CONDUCTED	Conducted Band Edge / Spurious Emissions (LTE Band 12, 17)	2.1051, 27.53(g)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5
CONDI	Conducted Band Edge / Spurious Emissions (WCDMA AWS; LTE Band 4, 66; NR Band n66)	2.1051, 27.53(h)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5
	Peak-to-Average Ratio (WCDMA AWS; LTE Band 4, 66; NR Band n66)	27.50(d)(5)	≤ 13 dB	PASS	Section 7.6
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block	PASS	Section 7.9
	Effective Radiated Power (LTE Band 12, 17)	27.50(c)(10)	≤ 3 Watts max. ERP	PASS	Section 7.7
RADIATED	Equivalent Isotropic Radiated Power (WCDMA AWS; LTE Band 4, 66; NR Band n66)	27.50(d)(10)	≤ 1 Watt max. EIRP	PASS	Section 7.7
RADI	Radiated Spurious Emissions (LTE Band 12, 17)	2.1053, 27.53(g)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Section 7.8
	Radiated Spurious Emissions (WCDMA AWS; LTE Band 4, 66; NR Band n66)	2.1053, 27.53(h)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Section 7.8

Table 7-1. Summary of Test Results (FCC)

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in Section 7.0 were 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

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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) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST 2G/3G Automation Version 4.2.

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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.

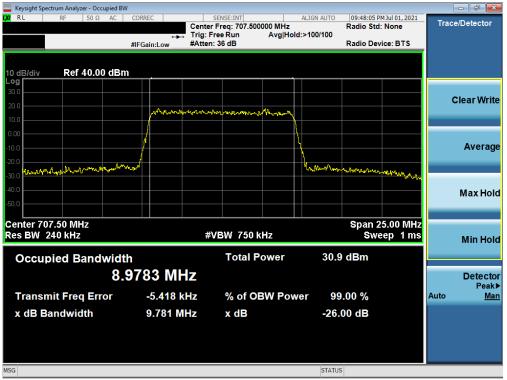
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LTE Band 12/17

	W				
LX R L RF 50 Ω AC		SENSE:INT A Center Freq: 707.500000 MHz Trig: Free Run Avg Hold: #Atten: 36 dB	Rac 100/100	dio Std: None	Trace/Detector
10 dB/div Ref 40.00 dBr	in Gam.eow				
20.0		and a feature of the			Clear Write
-10.0 -20.0 -30.0			haman	mar for the second second	Average
-40.0 -50.0 Center 707.50 MHz			s	pan 25.00 MHz	Max Hold
Res BW 240 kHz Occupied Bandwid		#VBW 750 kHz Total Power	32.4 dE	Sweep 1 ms	Min Hold
9.	0318 MHz	Ζ			Detector Peak≯
Transmit Freq Error	-5.791 kH	z % of OBW Powe	r 99.00	%	Auto <u>Man</u>
x dB Bandwidth	9.818 MH	z x dB	-26.00 (dB	
MSG			STATUS		

Plot 7-1. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz QPSK - Full RB)



Plot 7-2. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz 16-QAM - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 14 of 100
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Keysight Spectrum Analyzer - Occup					
α RL RF 50Ω		SENSE:INT Center Freg: 707.500000 MHz	ALIGN AUTO	09:59:47 PM Jul 01, 2021 Radio Std: None	Trace/Detector
		Trig: Free Run Avg Hol #Atten: 36 dB	d: 100/100	Radio Device: BTS	
	#IFGain:Low +	Atten: 30 dB		Cadio Device. B13	
	- ID				
10 dB/div Ref 40.00 (авт				
30.0					
20.0		whom we have a second			Clear Wr
10.0					
0.00	/		<u>\</u>		
10.0					Avera
20.0	mman		Alla anora		
20.0 30.0			1.0 10 - D-4/- 01 - 041	MUMAAN	
40.0					Max Ho
-50.0					maxine
				8 40 50 BALL-	
Center 707.500 MHz Res BW 120 kHz		#VBW 390 kHz		Span 12.50 MHz Sweep 1 ms	
					Min Ho
Occupied Bandw	ridth	Total Power	32.1	dBm	
	4.5206 MHz	7			Detect
					Pea
Transmit Freq Erro	r -2.723 kH	z % of OBW Pow	/er 99.(00 %	Auto <u>M</u>
x dB Bandwidth	4.965 MH	z xdB	-26.0) dB	
SG			STATUS		

Plot 7-3. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz QPSK - Full RB)



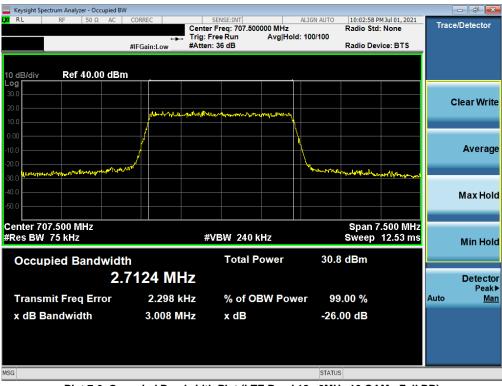
Plot 7-4. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz 16-QAM - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 45 at 400	
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Plot 7-5. Occupied Bandwidth Plot (LTE Band 12 - 3MHz QPSK - Full RB)



Plot 7-6. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 16-QAM - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 16 of 100	
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Keysight Spectrum Analyzer - C									[
X/ RL RF 50	Ω AC	CORREC	Cen	SENSE:INT ter Freg: 707.50	0000 MHz	ALIGN AUTO	10:06:40 F Radio Std	MJul 01, 2021 : None	Trac	e/Detector
			🛶 Trig): Free Run ten: 36 dB	Avg Hold	I: 100/100	Radio De	vice: BTS		
		#IFGain:Lo	w #At	ten: 36 dB			Radio De	/ice: B13		
10 dB/div Ref 40.	00 dBn)								
30.0										
20.0			bh Indial n - d	how when the second					(Clear Writ
10.0		{	a are constrated abo	ersee all bear of the neith.	ALL ALL ALL					
0.00					\					
10.0										Averag
20.0					\				_	
30.0 Myralmathulannan	ᡊᠬᡢᠰ᠋ᢩᡘᡟ	MUNIN			\ \	and here and the	annord from	Warder Millyma		
-40.0										Max Hol
-50.0										Muxinoi
Center 707.500 MHz Res BW 33 kHz				#VBW 110	447			3.500 MHz 5.867 ms		
				#VEVV IIV	КПZ		Sweep	J.807 IIIS		Min Hol
Occupied Ban	dwidt	h		Total F	Power	31.1	1 dBm			
	1 (0923	MHz							Detecto
										Peak
Transmit Freq E	rror	-1.6	71 kHz	% of O	BW Pow	er 99	9.00 %		Auto	<u>Ma</u>
x dB Bandwidth		1.22	27 MHz	x dB		-26.	00 dB			
SG						STATU	s			

Plot 7-7. Occupied Bandwidth Plot (LTE Band 12 - 1.4MHz QPSK - Full RB)



Plot 7-8. Occupied Bandwidth Plot (LTE Band 12 - 1.4MHz 16-QAM - Full RB)

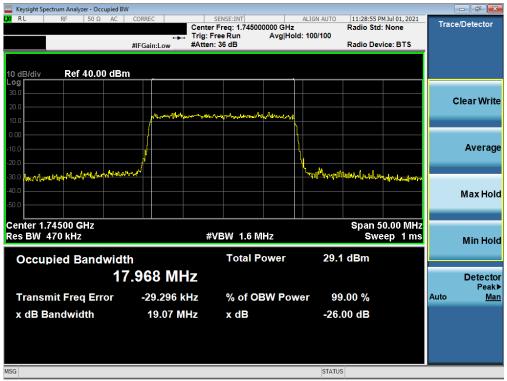
FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 47 at 400	
1M2106280072-04.A3L	06/30/2021 - 07/24/2021	Portable Handset		Page 17 of 122	
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LTE Band 66/4

🚾 Keysight Spectrum Analyzer - Occupied B	W				
IXI RL RF 50Ω AC	CORREC	SENSE:INT Center Freq: 1.745000000 GH		11:28:43 PM Jul 01, 202 Radio Std: None	Trace/Detector
	#IFGain:Low	Trig: Free Run Avg #Atten: 36 dB	lold: 100/100	Radio Device: BTS	
10 dB/div Ref 40.00 dB	m		_		
30.0					
20.0	ل مرجع فقد جا ^ر مرد بدر	marine and a strategic and long and lon			Clear Write
10.0			~		
0.00					
-10.0					Average
-20.0 -30.0	man		have here	an Martin propriet	
				a second and the Charles and and and	
-40.0					Max Hold
-50.0					
Center 1.74500 GHz		4) (D14) - 4 - 6 8411-		Span 50.00 MH	
Res BW 470 kHz		#VBW 1.6 MHz		Sweep 1 m	Min Hold
Occupied Bandwid	th	Total Power	31.2	2 dBm	
1	7.997 MH	z			Detector
				9.00 %	Peak∎ Auto Mar
Transmit Freq Error	-3.111 k				Auto <u>Mar</u>
x dB Bandwidth	19.57 M	Hz x dB	-26	.00 dB	
MSG			STATU	S	

Plot 7-9. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz QPSK - Full RB)



Plot 7-10. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 16-QAM - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 19 of 122		
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Keysight Spectrum Analyzer									11.00.000			- đ 💌
K RL RF 5	0Ω AC	CORRE	:C		NSE:INT req: 1.74500	0000 GHz	ALI	IGN AUTO	11:33:49 P Radio Std	MJul 01, 2021 : None	Trac	e/Detector
				Trig: Fre #Atten: 3		Avg Hol	d: 10	00/100	Radio Dev	ino: BTS		
		#IFGa	in:Low	#Atten: 3	0 UD				Radio Dev	ice: DTS		
10 dB/div Ref 40	0.00 dE	3m	·									
30.0												
20.0											(Clear Writ
10.0			prover in the two of two o	and the second sec	a search an	Sund and a second						
0.00		/										
10.0		/					1					Averag
30.0 with any with how he	Manhull	Mul					5	when the part	mount	April may allow por		
40.0												
50.0												Max Hol
0.0												_
Center 1.74500 GH	z						_		Span 3	7.50 MHz		
Res BW 360 kHz				#VE	3W 1.2 Ⅳ	Hz			Swe	eep 1 ms		Min Hol
	o du u i c	déla			Total P	ower		31.1	dBm			
Occupied Ba					Total I	OWCI		51.1	ubiii			
	1	3.53	1M 0	Z								Detecto
Transmit Freq	Error		9.625 k	Hz	% of O	3W Pov	ver	99	.00 %		Auto	Peak <u>M</u> a
x dB Bandwidt			4.65 M		x dB				00 dB			
			14.00 1	ΠΖ	хав			-20.0	JU 08			
SG								STATUS				

Plot 7-11. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz QPSK - Full RB)



Plot 7-12. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 16-QAM - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 10 of 100
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Keysight Spectrum Analyzer - Occupied	1 BW				
LXI RL RF 50Ω AC		SENSE:INT r Freg: 1.745000000 GH:		:36:00 PM Jul 01, 2021 dio Std: None	Trace/Detector
			old: 100/100	alo sta. None	
	#IFGain:Low #Atter	n: 36 dB	Rad	dio Device: BTS	
10 dB/div Ref 40.00 dl	Bm				
Log					
30.0					Clear Write
20.0	Jan Marine Andrew Marine Marine Andrew Marine and Marin	werpmy annon million			Clear Write
10.0		and Link Howard Markedar	×		
0.00					
-10.0			<u>\</u>		Average
20.0			'n		J
1 and an and a south but a grant	Mrwy 1		John marin	unhammonda	
-40.0					Max Hold
-50.0					
Center 1.74500 GHz				non 25.00 MHz	
Res BW 240 kHz	#	VBW 750 kHz	2	pan 25.00 MHz Sweep 1 ms	
NCS DW 240 MIZ	"	ADAA 120 KUIS		өмсер т шэ	Min Hold
Occupied Bandwi	dth	Total Power	30.7 dE	Bm	
	9.0311 MHz				Detector Peak▶
Transmit Freq Error	-18.280 kHz	% of OBW Po	wer 99.00	%	Auto <u>Man</u>
x dB Bandwidth	9.847 MHz	x dB	-26.00	B	
			20100		
MSG			STATUS		

Plot 7-13. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz QPSK - Full RB)



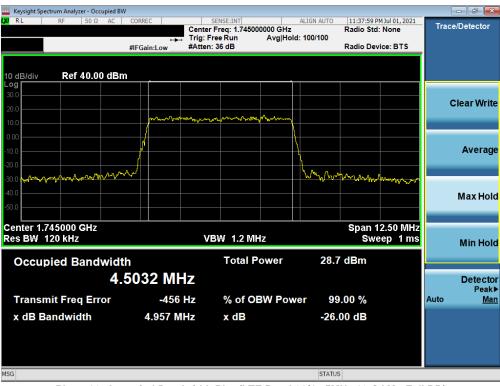
Plot 7-14. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 16-QAM - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 20 of 122	
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🔤 Keysight Spectrum A	Analyzer - Oco	upied BW										
LXIRL RF	50 Ω	AC COF	RREC		NSE:INT reg: 1.74500	0000 011-	A	LIGN AUTO	11:37:55 P Radio Std	M Jul 01, 2021	Tra	ce/Detector
						Avg Hol	d: '	100/100	Radio Sta	None		
		#IF(Gain:Low	#Atten: 3		0.			Radio Dev	ice: BTS		
10 dB/div	Ref 40.0	0 dBm										
Log							\top					
30.0												
20.0												Clear Write
10.0			mon	ᠰᠬ᠋ᠺᠰᠣᡘᢦ᠆ᡐᡄ᠋ᠮ	how	mar have						
0.00			/				Ļ					
			[ł					Average
-10.0		/					Ì					Average
-20.0 -30.0 -30.0	and a stand	www.www.						WWWWARA	mm			
-30.0 Crarelymanud								1	· · · · · · · · · · · · · · · · · · ·	ᠰᡧᢛᡙᠬ᠇ᢩᠰ᠆ᡗᡧ		
-40.0												Max Hold
-50.0												muxmonu
Center 1.7450										2.50 MHz		
Res BW 120 k	٢Hz			VB۱	N 1.2 MH	z			Swe	eep 1 ms		Min Hold
					Total P			20 F	dBm			
Occupied	Band				I otal P	ower		30.5	aBm			
		4.50	16 MI	Hz								Detector
	_											Peak►
Transmit F	req Err	or	-1.633	кHz	% of OE	3W Pow	/e	r 99	.00 %		Auto	<u>Man</u>
x dB Band	width		5.004 N	1Hz	x dB			-26.0	00 dB			
MSG								STATUS				

Plot 7-15. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz QPSK - Full RB)



Plot 7-16. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 16-QAM - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dege 21 of 122	
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Keysight Spectrum Analyzer			DEC.		CENCE INT			0 11.00.41	M 3-1 01 - 2021		
KL RF :	50Ω	AC COF	REC	Cen	SENSE:INT ter Freg: 1.7450	00000 GHz	ALIGN AUT	Radio Std	MJul 01, 2021	Trac	e/Detector
					: Free Run	Avg Hol	d: 100/100				
		#IFC	Gain:Low	#Att	ten: 36 dB			Radio De	vice: BTS		
I0 dB/div Ref 4	0.00	dBm	_								
- og 30.0											
											Clear Writ
20.0			mhar	waren	where a front as a series	el monthme					
10.0			1								
0.00			4				۱				
10.0							-}				Averag
20.0							۲. 		<u> </u>		
30.0 Marshall 1. May 14 m	winterst	N					HAP	Montering	warwallawarka		
40.0											
50.0											Max Hol
30.0											_
Center 1.745000 G	Hz							Span 7	7.500 MHz		
#Res BW 75 kHz					VBW 750 kl	Hz			12.53 ms		Min Hol
Occupied Ba	ndw	vidth			Total F	ower	30).6 dBm			
		2.70	41 N	Ηz							Detecto
											Peak
Transmit Freq	Erro	r	-3.586	5 kHz	% of O	BW Pow	/er	99.00 %		Auto	<u>Ma</u>
x dB Bandwidt	h		3.024	MHz	x dB		-2	6.00 dB			
6G							STA	TUS			

Plot 7-17. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz QPSK - Full RB)



Plot 7-18. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 16-QAM - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Keysight Spectrum Analyze	r - Occupied	BW							
X/RL RF	50 Ω AC	CORREC	SENSE:I	NT 1.745000000 GI	ALIGN AUTO	11:42:03	PM Jul 01, 2021	Trac	e/Detector
			Trig: Free Ru		Hold: 100/100	Radio Sto	a: None		
		#IFGain:Low	#Atten: 36 dB			Radio De	vice: BTS		
	A A A								
10 dB/div Ref 4	0.00 dB	m							
30.0									
20.0									Clear Write
		ŝ	www.www.	en man					
10.0									
0.00		, 7			\				
10.0					<u>-</u>				Average
20.0		{							
-20.0 -30.0	ᡐᢇᠯ᠇᠇᠆ᢧ ^{ᡍᢏ} ᠕ᢆᠰ	www.mon			WWW WWW	Margara	work the second		
v							2004		
-40.0									Max Hold
-50.0									
Center 1.745000 G						- Cnon (2 500 844-		
Res BW 33 kHz	ΠZ		VBM 3	330 kHz			3.500 MHz 5.867 ms		
			VDVV .	JJU KHZ		Sweep	5.807 1115		Min Hold
Occupied Ba	ndwid	lth	Тс	otal Power	30	1 dBm			
Occupied Ba									
	1	.0910 M	HZ						Detecto
Transmit From	-	4 505	kll= 0/			0.00.0/		Auto	Peak
Transmit Freq	Error	-1.595	KHZ %	of OBW P	ower 9	9.00 %		Auto	Mar
x dB Bandwidt	th	1.234	MHz x	dB	-26	.00 dB			
SG					STAT	JS			

Plot 7-19. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB)

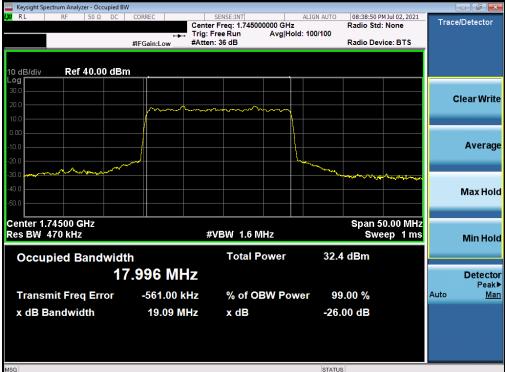


Plot 7-20. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 16-QAM - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Bass 00 st 400	
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NR Band n66



Plot 7-21. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz DFT's BPSK - Full RB)



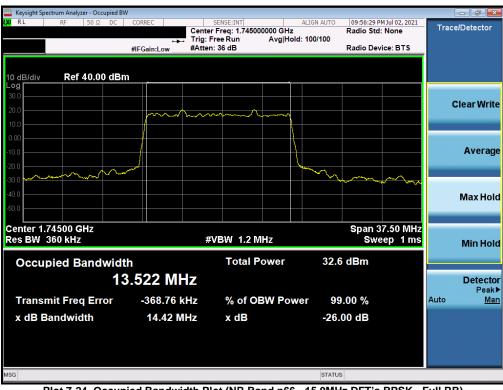
Plot 7-22. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz CP-OFDM QPSK - Full RB)

FCC ID: A3LSMA528B	PCTEST Proditio be petit of @vierceef	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 24 of 122	
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Plot 7-23. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz CP-OFDM 16QAM - Full RB)



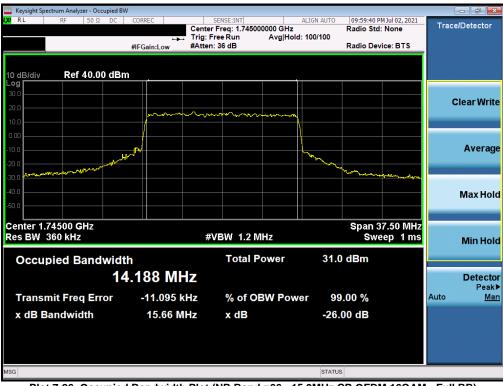
Plot 7-24. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz DFT's BPSK - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 25 of 122
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Keysight Spectrum Analyzer - Occupied E	W						
KM RL RF 50Ω DC		SENSE:INT nter Freq: 1.745000000 GHz g: Free Run Avg Ho	ALIGN AUTO	09:59:07 PI Radio Std:	MJul 02, 2021 None	Trac	e/Detector
		tten: 36 dB		Radio Dev	ice: BTS		
10 dB/div Ref 30.00 dB	m						
20.0 10.0						c	Clear Write
-10.0 -20.0 -30.0				man	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Average
-40.0 -50.0 -60.0							Max Hold
Center 1.74500 GHz Res BW 360 kHz		#VBW 1.2 MHz			7.50 MHz ep 1 ms		Min Hold
Occupied Bandwid	th 4.177 MHz	Total Power	31.2	dBm			Detector
Transmit Freq Error x dB Bandwidth	-28.216 kHz 15.12 MHz	% of OBW Pov x dB		.00 % 00 dB		Auto	Peak▶ <u>Man</u>
MSG			STATUS				

Plot 7-25. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM QPSK - Full RB)



Plot 7-26. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM 16QAM - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 26 of 122	
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🔤 Keysight Spectrum Analyzer - Occ	upied BW							-	- 0
LXI R L RF 50 Ω	DC CORR		SENSE:INT Center Freg: 1.74500		ALIGN AUTO	10:17:00 P	1 Jul 02, 2021	Trace	/Detector
		• • ••	Trig: Free Run	Avg Hold:	100/100				
	#IFG	ain:Low	#Atten: 36 dB			Radio Dev	ice: BTS		
10 dB/div Ref 35.00) dBm								
25.0									
15.0			·····	m				С	lear Write
5.00	/								
-5.00	/								
-15.0	/								Average
-25.0	mad			4	m.				
-35.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				" Walker Walk		man have an		
-45.0									
-55.0									Max Hole
Center 1.74500 GHz							5.00 MHz		
Res BW 240 kHz			#VBW 7501	(Hz		Swe	ep 1 ms		Min Hole
Occupied Band	width		Total F	ower	32.0	dBm			
Occupied Balla		32 MH							Detecto
	9.010		Z						Detecto Peakl
Transmit Freq Err	or -	186.16 kH	z % of O	BW Powe	er 99	.00 %		Auto	Mai
x dB Bandwidth		9.748 MH	z x dB		-26.	00 dB			
ASG					STATUS				

Plot 7-27. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz DFT's BPSK - Full RB)



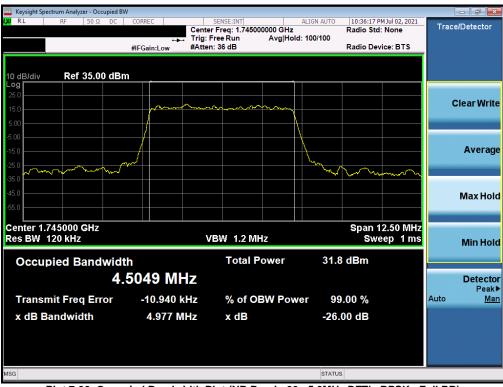
Plot 7-28. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM QPSK - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 07 at 400	
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Keysight Spectrum Analyzer - Occup	bied BW						
LXI RL RF 50 Ω		SENSE:INT Center Freq: 1.74500000	ALIGN AUTO	10:21:16 P	M Jul 02, 2021	Trace	e/Detector
		Trig: Free Run A	vg Hold: 100/100				
	#IFGain:Low	#Atten: 36 dB		Radio Dev	ice: BTS		
10 dB/div Ref 30.00	dBm						
20.0							
10.0	mound	when we we have a second secon	~mm			(Clear Write
0.00			\\				
-10.0			1				
-20.0			mar M				Average
-30.0 Morrow With allow March			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-	moning		
-40.0							
-50.0							Max Hold
-60.0						_	
Center 1.74500 GHz				Span 2	5.00 MHz		
Res BW 240 kHz		#VBW 750 kHz		Swe	ep 1 ms		Min Hold
Occurried Dendu		Total Pow	or 20.2	2 dBm			
Occupied Bandw			GI 30.2				
	9.3481 MH	Z					Detector
Transmit Freg Erro	r -8.072 kH	z % of OBW	Power 99	0.00 %		Auto	Peak▶ Man
· · · · ·							
x dB Bandwidth	10.19 MH	z xdB	-20.	00 dB			
MSG			STATUS	5			

Plot 7-29. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM 16QAM - Full RB)



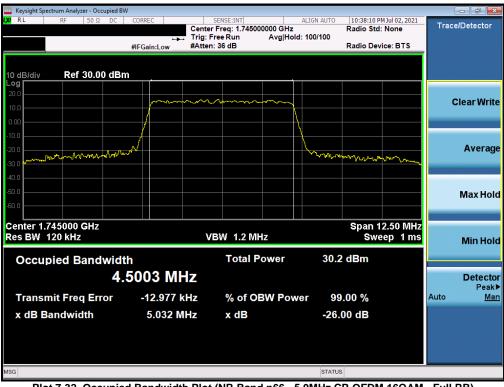
Plot 7-30. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz DFT's BPSK - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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🥮 Keysight Spectrum Analyzer - Occupied B	W							
KL RF 50Ω DC	CORREC	SENSE:INT enter Freg: 1.74500		ALIGN AUTO	10:37:35 Pl	M Jul 02, 2021	Trac	e/Detector
		rig: Free Run	Avg Hold		Raulo Stu.	None		
	#IFGain:Low #	Atten: 36 dB			Radio Dev	ice: BTS		
10 dB/div Ref 30.00 dB	m							
Log								
20.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~	n					Clear Write
10.0								
0.00								
-10.0				N				
-20.0				\m				Average
-30.0 mm m m m m m m m m m m m m m m m m m	~~~			w man	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	manny.		
-40.0								
-50.0								Max Hold
-60.0								
Center 1.745000 GHz			-			2.50 MHz		
Res BW 120 kHz		VBW 1.2 M	IZ		SWe	ep 1 ms		Min Hold
Occupied Bandwid	th	Total P	ower	30.1	dBm			
				50.1	abiii			
4.	.5105 MHz							Detector
Transmit Frag Error	-12.931 kHz	% of O	BW Pow		00 %		Auto	Peak▶ Man
Transmit Freq Error	-12.951 KH2	% 01 01	DW FOW	er 99.	00 %		Auto	Man
x dB Bandwidth	5.063 MHz	x dB		-26.0	0 dB			
MSG				STATUS				

Plot 7-31. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB)



Plot 7-32. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM 16QAM - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 00 at 400
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WCDMA AWS

🔤 Keysight Spectrum An													
LXURL RF	50 Ω	AC	CORREC			NSE:INT req: 1.732	600000		ALIGN AUTO	10:21:09	AM Jul 05, 2021 d: None	Trac	e/Detector
			#IFGain:L		Trig: Fre #Atten: 3	e Run			>100/100	Padio De	vice: BTS		
			#IFGaIn:L	ow	#Atten. v					Raulo De	VICE. DT3		
10 dB/div R	ef 40.00	dBm											
Log	ci 40.00	abiii											
30.0													Clear Write
20.0				m	mand	mm							
10.0				/				\					
0.00								1					Average
-10.0			كمي .					h					Average
-20.0 -30.0	~~~~~	-most of	**************************************						www.cher	manno	www.www.		
-40.0													
-40.0													Max Hold
-50.0													
Center 1.73260										Span	15.00 MHz		
Res BW 150 kl	Hz				VB	W 1.5 M	/IHz			Sw	eep 1 ms		Min Hold
Occupied	Band	width				Total	Powe	r	31.3	3 dBm			
			902	МЦ	7								Detector
		4.1	302		Z								Peak
Transmit Fr	eq Erro	or	12.8	383 kl	z	% of (DBW	Powe	er 99	9.00 %		Auto	Man
x dB Bandw	vidth		4.7	91 MI	Ηz	x dB			-26	00 dB			
MSG									STATU	s			

Plot 7-33. Occupied Bandwidth Plot (WCDMA, Ch. 1413)

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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 18GHz (separated into at least two plots per channel)
- 2. RBW ≥ 100kHz
- 3. VBW ≥ 3 x RBW
- 4. Detector = RMS
- 5. Trace mode = max hold
- 6. Sweep time = auto couple
- 7. The trace was allowed to stabilize

Test Setup

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



Figure 7-2. Test Instrument & Measurement Setup

Test Notes

- 1. Per Part 27 and RSS-139, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100 kHz or greater for measurements below 1GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.
- 2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

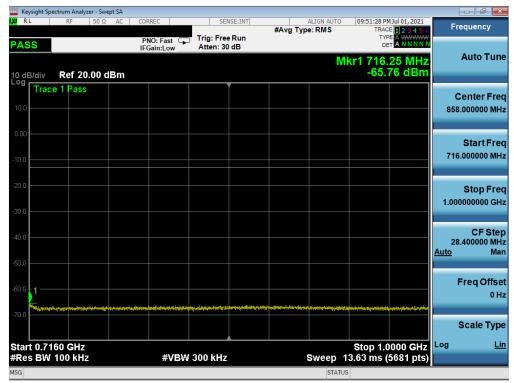
FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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LTE Band 12/17

	/sight Spect	rum Analy	zer - Swe	pt SA										
l XI RL	<u> </u>	RF	50 Ω	AC	CORRE	C	SE	NSE:INT	#Avg Ty	ALIGN AUT		PM Jul 01, 2021	F	requency
PAS	S				PNO: IFGai	:Fast 🖵 n:Low	Trig: Fre Atten: 3				T			A
10 dE	3/div	Ref 20).00 d	Bm						I	Mkr1 697 -63	.30 MHz .08 dBm		Auto Tune
Log	Trace	1 Pass						Ĭ					(Center Freq
10.0														3.950000 MHz
0.00														Start Freq
-10.0													30	0.000000 MHz
-20.0														Stop Freq
-30.0													697	7.900000 MHz
														CF Step
-40.0														6.790000 MHz
-50.0													<u>Auto</u>	Man
												4		Freq Offset
-60.0												<u>+ </u>		0 Hz
-70.0			d temperati			ang Cope March		a na palitika Kanpatén Palitika Kalupatén Kanpatén						
														Scale Type
	t 30.0 I							<u> </u>			Stop	697.9 MHz	Log	Lin
	5 BW 1	00 kH	z			#VBW	/ 300 kHz		\$	Sweep	32.06 ms (13361 pts)		
MSG										STA	TUS			

Plot 7-34. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Low Channel)



Plot 7-35. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Low Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	ectrum Analyz	er - Swept S	SA									
LXI RL	RF	50Ω /	AC COF	RREC	SEI	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS		MJul 01, 2021	Fre	equency
PASS				NO: Fast 🕞 Gain:Low	Trig: Free #Atten: 3				TY	PE A WWWW ET A N N N N N		
10 dB/div Log	Ref 20.	.00 dB	m					N	1kr1 6.90 -45.5	9 0 GHz 43 dBm		Auto Tune
10.0	e 1 Pass											enter Freq 000000 GHz
-10.0												Start Freq 000000 GHz
-20.0												Stop Freq 000000 GHz
-40.0			~~~~~				1-				900. <u>Auto</u>	CF Step 000000 MHz Man
-60.0											F	req Offset 0 Hz
-70.0 Start 1.00	0 GHz								Stop 10		Log	Scale Type <u>Lin</u>
#Res BW	1.0 MHz			#VBW	3.0 MHz		s		15.60 ms (1	8001 pts)		
MSG								STAT	US			

Plot 7-36. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Low Channel)



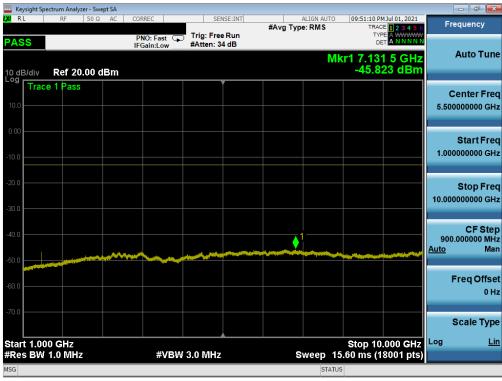
Plot 7-37. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Mid Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	ctrum Analyz										d X
LXI RL	RF	50 Ω AC	CORREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	4 Jul 01, 2021 E 1 2 3 4 5 6	Freque	ncy
PASS			PNO: Fast G	Trig: Free Atten: 30				TYF			
10 dB/div Log	Ref 20.	00 dBm					Μ	kr1 717. -64.	70 MHz 75 dBm	Auto	o Tune
10.0 Trac	e 1 Pass									Cente 858.0000	er Freq 100 MHz
-10.0										Sta 716.0000	rt Freq 100 MHz
-20.0										Sto 1.0000000	p Freq 100 GHz
-40.0										C 28.4000 <u>Auto</u>	F Step 00 MHz Man
-60.0 1	Alter and the second state	القحار في ويد الم		eri ala kalen sekera lara kate	-	har all of a state of the state	aji Protejinaji suri gina	in the state of the	1~11/1001-001000-0100	Freq	Offset 0 Hz
-70.0											e Type Lin
Start 0.71 #Res BW			#VB\	V 300 kHz			Sweep 1	Stop 1.0 3.63 ms (0000 GHz 5681 pts)	LUg	
MSG							STATU	S			

Plot 7-38. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Mid Channel)



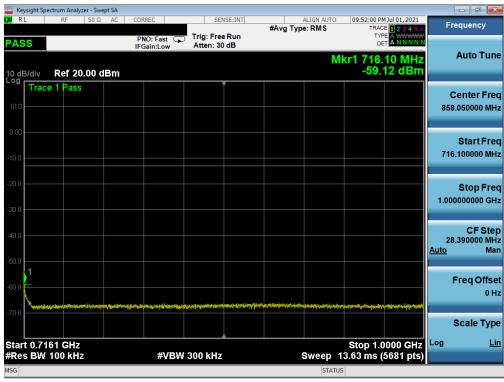
Plot 7-39. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Mid Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	Spectrum Analyz	er - Swept	SA											
L <mark>XI</mark> RL	RF	50 Ω	AC	CORREC		SEI	ISE:INT	#Avg Typ	ALIGN AUT e: RMS	TO 0		1 Jul 01, 2021 E 1 2 3 4 5 6	Fi	requency
PASS				PNO: Fas IFGain:Lo	st 😱	Trig: Free Atten: 30		• //			TYP	E A WWWWW T A N N N N N		
	_			- Guille						Mkr1	696.	00 MHz		Auto Tune
10 dB/div Log	Ref 20	.00 dB	m								-65.	16 dBm		
Tra	ice 1 Pass												0	Center Freq
10.0														1.000000 MHz
0.00														Start Freq
-10.0													30	0.000000 MHz
-20.0														Stop Freq
													698	3.000000 MHz
-30.0														
-40.0														CF Step 5.800000 MHz
													Auto	Man
-50.0														
-60.0												4		Freq Offset
-00.0												l K		0 Hz
-70.0					6 11. UN. 18. J A	ing a first fills in production ing data and any local fill and it								
														Scale Type
Start 30.											Stop 6	98.0 MHz	Log	Lin
#Res BV	V 100 kHz			#	VBW	300 kHz		s	weep	32.06	i ms (1	3361 pts)		
MSG									ST	ATUS				

Plot 7-40. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel)



Plot 7-41. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	ectrum Analyz	er - Swej	pt SA									
LXI RL	RF	50 Ω	AC	CORREC		SEI	SE:INT	#Avg Typ	ALIGN AUT e: RMS		PM Jul 01, 2021 ACE 1 2 3 4 5 6	Frequency
PASS				PNO: Fa	ast 😱 .ow	Trig: Free #Atten: 3		"a)p		Т		
10 dB/div Log	Ref 20	.00 d	Bm							43. Wkr1	93 0 GHz 760 dBm	Auto Tune
Trac	e 1 Pass											Center Freq
10.0												5.500000000 GHz
0.00												Start Freq
-10.0												1.000000000 GHz
-20.0												Stop Freq
-30.0												10.000000000 GHz
								.1				CF Step
-40.0												900.000000 MHz <u>Auto</u> Man
-50.0				- officer -								
-60.0												Freq Offset 0 Hz
-70.0												
												Scale Type
Start 1.00 #Res BW				#	≠vbw	3.0 MHz		s	weep	Stop 1 15.60 ms (0.000 GHz 18001 pts)	Log <u>Lin</u>
MSG	ISG STATUS											

Plot 7-42. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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WCDMA AWS

	ectrum Analyz											_	
(RL	RF	50 Ω	AC	CORREC		SE Trig: Fre		#Avg Typ	ALIGN AUTO e: RMS	TRAC	M Jul 05, 2021	Fr	equency
PASS				PNO: Fa IFGain:L	ast ⊊ .ow	Atten: 3							Auto Tun
0 dB/div	Ref 20	.00 di	Bm						M	(r1 1.65) -49.	2 7 GHz 67 dBm		Auto Tun
og Trac	e 1 Pass						Ĭ					c	enter Fre
10.0												867	.500000 MH
0.00													
												30	Start Fre .000000 M⊢
10.0													
20.0													Stop Fre
30.0												1.705	6000000 GH
													CF Ste
40.0											. 1		.500000 MH
50.0						المريد والمراجع المريد المريد المريد	and the later and the state of	and the second secon	and a state of the second	a sana ana ang ang ang ang ang ang ang ang	<u>, , , , , , , , , , , , , , , , , , , </u>	<u>Auto</u>	Ma
*********		4 december of the	الالالمعادلين الم	********								F	req Offs
60.0													0 H
70.0													
													Scale Typ
itart 0.03 Res BW				4	≠VB₩	3.0 MHz			Sweep_2	Stop 1.7 2.240 ms (7050 GHz 3361 pts)	Log	Li
sg									STATU	_			

Plot 7-43. Conducted Spurious Plot (WCDMA Ch. 1312- Low Channel)



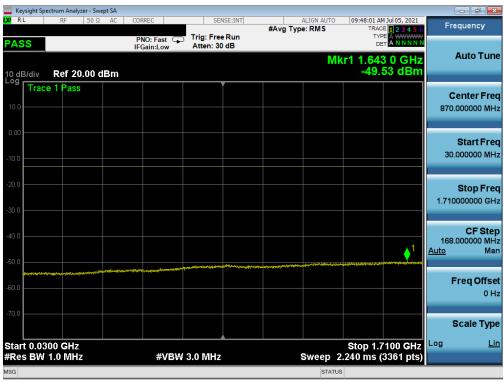
Plot 7-44. Conducted Spurious Plot (WCDMA Ch. 1312- Low Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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		ım Analyzer - Sw										
L <mark>XI</mark> RL		RF 50 Ω	AC	CORREC	SEI	ISE:INT	#Avg Ty	ALIGN AUT		M Jul 05, 2021	Frequ	ency
PASS				PNO: Fast G	Trig: Free Atten: 10		#/(19 1)		TY D			
10 dB/div Log	v R	tef 0.00 di	Зm					M	kr1 18.27 -57.	9 5 GHz 92 dBm	Au	to Tune
Tr	race 1	Pass										ter Freq
-10.0											15.00000	0000 GHz
-20.0											Ct	art Freg
-30.0											10.00000	•
-40.0												op Freq
-50.0									. 1		20.00000	0000 GHz
-60.0												CF Step
		-					and the second s				1.00000 <u>Auto</u>	0000 GHz Man
-70.0												
-80.0											Fre	q Offset 0 Hz
-90.0												UTIL
-56.8											Sca	ale Type
Start 10									Stop 20	.000 GHZ	Log	<u>Lin</u>
#Res B	W 1.0	0 MHz		#VB\	V 3.0 MHz				25.33 ms (2	20001 pts)		
MSG								STA	TUS			

Plot 7-45. Conducted Spurious Plot (WCDMA Ch. 1312- Low Channel)



Plot 7-46. Conducted Spurious Plot (WCDMA Ch. 1413- Mid Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	ctrum Analyzer - Sv										
LXIRL	RF 50 9	Ω AC	CORREC	SEN	SE:INT	#Avg Typ	ALIGN AUTO		1 Jul 05, 2021	Freque	ency
PASS			PNO: Fast G	Trig: Free Atten: 30		#/ 19 19P		TYP DE		A	o Tune
10 dB/div Log	Ref 20.00	dBm					MI	kr1 6.000 -44.8	6 5 GHz 71 dBm	Aut	orune
10.0	e 1 Pass									Cent 5.877500	e r Freq 000 GHz
-10.0										Sta 1.755000	art Freq 000 GHz
-20.0										Sto 10.000000	o p Freq 000 GHz
-40.0		~	~,~		<u>¢</u> 1					0 824.500 <u>Auto</u>	CF Step 000 MHz Man
-60.0										Fred	Offset 0 Hz
-70.0 Start 1.75	5 GHz							Stop 10	.000 GHz	Sca	le Type <u>Lin</u>
#Res BW			#VBW	/ 3.0 MHz		S	weep 14	.29 ms (1	6491 pts)		
MSG							STATU	S			

Plot 7-47. Conducted Spurious Plot (WCDMA Ch. 1413- Mid Channel)



Plot 7-48. Conducted Spurious Plot (WCDMA Ch. 1413- Mid Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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	ectrum Analyzer - S	wept SA									
LXIRL	RF 50	Ω AC	CORREC	SENS	E:INT	#Avg Type	ALIGN AUTO		1 Jul 05, 2021 E 1 2 3 4 5 6	Freque	ency
PASS			PNO: Fast 🕞	Trig: Free Atten: 30				TYP			
10 dB/div	Ref 20.00	dBm					Mk	r1 1.594 -49.0	5 5 GHz 61 dBm	Aut	o Tune
Log Trac	e 1 Pass										e r Freq 000 MHz
-10.0											a rt Freq 000 MHz
-20.0										Sto 1.710000	o p Freq 000 GHz
-40.0									↓ ¹		CF Step 000 MHz Man
-60.0	and a second and a s		an a	and a second	in the second		and a second			Fred	Offset 0 Hz
-70.0										Sca	le Type Lin
Start 0.03 #Res BW			#VBW	3.0 MHz		ę	Sweep 2	Stop 1./ .240 ms ('100 GHz 3361 pts)		<u></u>
MSG							STATUS				

Plot 7-49. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel)



Plot 7-50. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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LXI R.L. RF 50 Ω AC	CORREC SE	NSE:INT #Ava	ALIGN AUTO Type: RMS	09:50:14 AM Jul 05, 2021 TRACE 1 2 3 4 5 6	Frequency
PASS	PNO: Fast Trig: Fre IFGain:Low Atten: 1	e Run -		DET A WWWW	Auto Tune
10 dB/div Ref 0.00 dBm		-	INIK	1 17.520 0 GHz -57.566 dBm	
Trace 1 Pass		Ĭ			Center Freq
-10.0					15.00000000 GHz
-20.0					
					Start Freq
-30.0					10.00000000 GHz
-40.0					01 F
					Stop Freq 20.00000000 GHz
-50.0			<u> </u>		
-60.0					CF Step
					1.000000000 GHz <u>Auto</u> Man
-70.0					
-80.0					Freq Offset
					0 Hz
-90.0					Scale Type
Start 10.000 GHz #Res BW 1.0 MHz	#VBW 3.0 MHz	,	Sween 2	Stop 20.000 GHz 5.33 ms (20001 pts)	Log <u>Lin</u>
MSG	# 1 B 1 7 5 1 0 1 1 1 1		STATU		

Plot 7-51. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel)

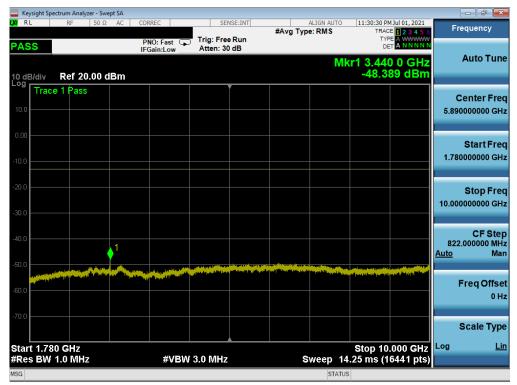
FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 41 of 100
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LTE Band 66/4

Keysight Spectrum Analyzer - Swept SA			
X RL RF 50Ω AC	CORREC SENSE:INT	ALIGN AUTO 11:30:23 PMJul 01, 2021 #Avg Type: RMS TRACE 1234 5 6 TYPE A WWWWW DET A NNNNK	Frequency
10 dB/div Ref 20.00 dBm	IFGain:Low Atten: 30 dB	Mkr1 1.709 0 GHz -52.52 dBm	Auto Tune
10.0 Trace 1 Pass			Center Freq 869.500000 MHz
-10.0			Start Freq 30.000000 MHz
-20.0			Stop Freq 1.709000000 GHz
-40.0			CF Step 167.900000 MHz <u>Auto</u> Mar
-60.0	an terretari ang kang mang mang mang mang mang mang mang m	2007) - 000	Freq Offset 0 Hz
Start 0.0300 GHz		Stop 1.7090 GHz	Scale Type Log <u>Lir</u>
#Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep 2.240 ms (3361 pts)	

Plot 7-52. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Low Channel)



Plot 7-53. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Low Channel)

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	ectrum Analyz	er - Swep	t SA										
X/RL	RF	50 Ω	AC	CORREC			ISE:INT	#Avg Typ	ALIGN AU e: RMS		39 PM Jul 01, 2021	Frequ	iency
PASS				PNO: Fa	ast Ģ⊃ .ow	Trig: Free Atten: 10						_	
10 dB/div	Ref 0.0	0 dBi	m						N	lkr1 18.2 -60	290 0 GHz .919 dBm	AL	ito Tune
-10.0	e 1 Pass												iter Freq 0000 GHz
-20.0												S1 10.00000	tart Freq 0000 GHz
-40.0												Si 20.00000	top Freq 0000 GHz
-60.0					المناجع المراجع								CFStep 0000 GHz Mar
-70.0												Fre	eq Offset 0 Hz
-90.0										Ctor.	20.000.00		ale Type <u>Lir</u>
Start 10.0 #Res BW				#	¢VBW	3.0 MHz		s	weep	25.33 ms	20.000 GHz (20001 pts)	_	
MSG									ST	ATUS			

Plot 7-54. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Low Channel)



Plot 7-55. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Mid Channel)

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	pectrum Analyz	ter - Swep	it SA									=	
lxi rl	RF	50 Ω	AC	CORREC		SE Trig: Fre	NSE:INT	#Avg Ty	ALIGN AUTO	TRA	PM Jul 01, 2021 CE 1 2 3 4 5 6 (PE 4 MAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	Freq	luency
PASS				PNO: Fa	ow	Atten: 3							
10 dB/div	Ref 20	.00 di	Зm						М	kr1 3.49 -48.9	0 0 GHz 20 dBm		uto Tune
Log Tra	ce 1 Pass											Ce	nter Freq
10.0												5.8900	00000 GHz
0.00													
-10.0													Start Freq 00000 GHz
-20.0													Stop Freq
-30.0												10.0000	00000 GHz
-40.0													CF Step
)1									822.0 <u>Auto</u>	00000 MHz Man
-50.0		*	1										
-60.0												Fr	eq Offset 0 Hz
-70.0													
												S	cale Type
Start 1.7	80 GHz 1.0 MHz					3.0 MHz			Swoon 1	Stop 10	0.000 GHz 16441 pts)	Log	<u>Lin</u>
#Res DV				#		5.0 WIH2			sweep 1	_	roaa r pis)		

Plot 7-56. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Mid Channel)



Plot 7-57. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Mid Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 44 at 400
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	ectrum Analyz	er - Swept	t SA										- 0 ×
LXU RL	RF	50 <u>Ω</u>	AC	CORREC		SEN	ISE:INT	#Avg Typ	ALIGN AUTO		M Jul 01, 2021	Fre	equency
PASS				PNO: Fa IFGain:L	ast 🖵 .ow	Trig: Free Atten: 30		0 //		TY D			Auto Tune
10 dB/div	Ref 20	.00 dE	3m						M	lkr1 1.66 -54.	1 0 GHz 01 dBm		Auto Tune
Log Trac	e 1 Pass						/					с	enter Freq
10.0												870.	000000 MHz
0.00													
-10.0												30.	Start Freq 000000 MHz
-10.0													
-20.0													Stop Freq
-30.0												1.710	000000 GHz
													CF Step
-40.0												168. Auto	000000 MHz. Man
-50.0											↓ 1		
-60.0			the property services of the property services		****	مۇ اردىلىرىد ىن	angender of the state of the st			****		F	req Offset
													0 Hz
-70.0												s	Scale Type
Start 0.03	00 GHz									Stop_1_	7100 GHz	Log	Lin
#Res BW				#	¢VBW	3.0 MHz			Sweep	2.240 ms	(3361 pts)		
MSG									STAT	US			

Plot 7-58. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - High Channel)



Plot 7-59. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - High Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 45 at 400
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		n Analyzer - Si	vept SA											
LXI RL	F	RF 50 9	2 AC	CORRE	C	SEN	SE:INT	#Avg Typ	ALIGN AU	TO 11:3		1 Jul 01, 2021	Fr	equency
PASS				PNO IFGai	:Fast 🖵 in:Low	Trig: Free Atten: 10		"a)p			TYP DE			
10 dB/di	v Re	ef 0.00 d	Bm						Μ	lkr1 18 -€	639 60.70	9 5 GHz 01 dBm		Auto Tune
Log Tr -10.0	ace 1	Pass												enter Freq
-20.0													10.00	Start Freq 0000000 GHz
-40.0													20.00	Stop Freq
-60.0	at No St.	dan menangan dan kelara	and the particular of the second		a particular de la contra de la c						1		1.000 <u>Auto</u>	CF Step 0000000 GHz Man
-80.0	a and Walds and			della se de la d										Freq Offset 0 Hz
-90.0													Log	Scale Type
Start 10 #Res B					#VBW	3.0 MHz		s	weep	Sto 25.33 n	p 20. ns <u>(2</u>	.000 GHz 0001 pts)	-	Lin
MSG										ATUS				

Plot 7-60. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - High Channel)

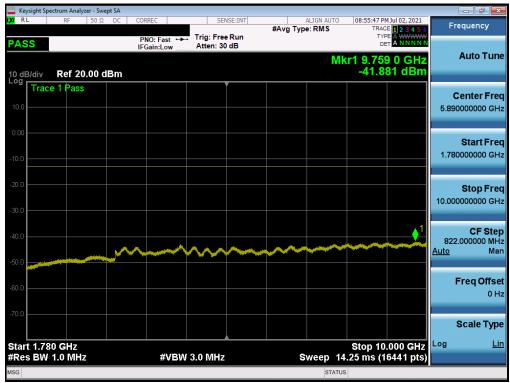
FCC ID: A3LSMA528B	PCTEST Productions part of @ skenser	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 46 of 100
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NR Band n66

PASS	RF 50 Ω D	PNO: Fast ↔ IFGain:Low	SENSE:INT	ALIGN AUTO #Avg Type: RMS	08:55:21 PM Jul 02, 2021 TRACE 1 2 3 4 5 6	Frequency
PASS		PNO: Fast ↔→	Tainy Free Dura		TRAUE 2 3 4 5 6	riequency
		IFGain:Low	Atten: 30 dB		DET A WWWWW	
10 dB/div	Ref 20.00 dBr	n		Mł	r1 1.709 5 GHz -45.26 dBm	Auto Tune
10.0 Trace 1	1 Pass					Center Freq 870.000000 MHz
-10.0						Start Freq 30.000000 MHz
-20.0						Stop Freq
-30.0					1	CF Step 168.000000 MHz
-50.0	Sinad gagade at the state of the	nege melinder sjonspiljeler Hermitisel posisi	an a	۲۹۵ مارون اور		<u>Auto</u> Man Freq Offset
-70.0						0 Hz Scale Type
Start 0.0300 #Res BW 1.		#VBW	3.0 MHz	Sweep 2	Stop 1.7100 GHz .240 ms (3361 pts)	
MSG				STATUS	3	

Plot 7-61. Conducted Spurious Plot (NR Band n66 - 20.0MHz - 1 RB - Low Channel)



Plot 7-62. Conducted Spurious Plot (NR Band n66 - 20.0MHz - 1 RB - Low Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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🔤 Keysight Spectrum Analyze						
RL RF	50 Ω DC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	08:56:20 PM Jul 02, 2021 TRACE 1 2 3 4 5 6	Frequency
PASS		PNO: Fast ↔→→ IFGain:Low	Trig: Free Run Atten: 10 dB		TYPE A WWWWW DET A NNNNN	
10 dB/div Ref 0.0	0 dBm			Mkı	1 19.509 5 GHz -57.629 dBm	Auto Tune
-10.0						Center Freq 15.000000000 GHz
-20.0						Start Freq 10.000000000 GHz
-40.0						Stop Freq 20.000000000 GHz
-60.0						CF Step 1.000000000 GHz <u>Auto</u> Mar
-80.0						Freq Offse 0 Hz
-90.0					Stor. 20 000 SH-	Scale Type
Start 10.000 GHz #Res BW 1.0 MHz		#VBW	3.0 MHz	Sweep 17	Stop 20.000 GHz 7.33 ms (20001 pts)	
MSG				STATU	S	

Plot 7-63. Conducted Spurious Plot (NR Band n66 - 20.0MHz - 1 RB - Low Channel)



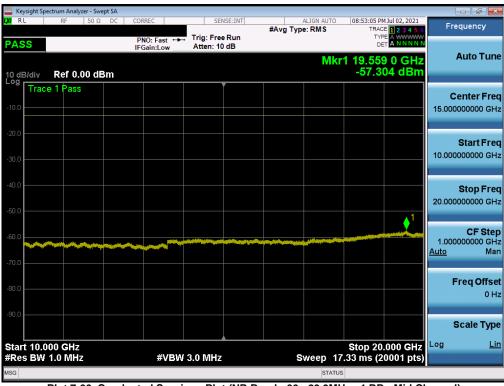
Plot 7-64. Conducted Spurious Plot (NR Band n66 -20.0MHz - 1 RB - Mid Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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🔤 Keysight Spectrum Ai						
LXIRL RF	50 Ω DC	CORREC	SENSE:INT	ALIGN AUTO #Avg Type: RMS	08:52:32 PM Jul 02, 2021 TRACE 1 2 3 4 5 6	Frequency
PASS		PNO: Fast ↔ IFGain:Low	Trig: Free Run Atten: 30 dB	- //	DET A WWWWW	
10 dB/div Ref	20.00 dBm			Mł	r1 9.814 0 GHz -41.402 dBm	Auto Tune
10.0	ISS					Center Freq 5.89000000 GHz
-10.0						Start Freq 1.780000000 GHz
-20.0						Stop Freq 10.000000000 GHz
-40.0	^	~~~^	~~~~			CF Step 822.000000 MHz <u>Auto</u> Man
-60.0						Freq Offset 0 Hz
-70.0						Scale Type
Start 1.780 GH: #Res BW 1.0 M		#VBW	3.0 MHz	Sweep 14	Stop 10.000 GHz .25 ms (16441 pts)	Log <u>Lin</u>
MSG				STATUS	6	

Plot 7-65. Conducted Spurious Plot (NR Band n66 - 20.0MHz - 1 RB - Mid Channel)



Plot 7-66. Conducted Spurious Plot (NR Band n66 - 20.0MHz - 1 RB - Mid Channel)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	m Analyzer - Swe	•								
LX/RL	RF 50 Ω	DC	CORREC		SENSE:INT	#Avg Typ	ALIGN AUTO e: RMS	08:58:08 PM Jul TRACE	02,2021 2 3 4 5 6	Frequency
PASS			PNO: Fast IFGain:Low		Free Run n: 30 dB					
10 dB/div R	ef 20.00 d	Bm					Mł	(r1 1.645 0 -50.081	dBm	Auto Tune
10.0 Trace 1	Pass									Center Fred 870.000000 MH;
-10.0										Start Free 30.000000 MH:
-20.0										Stop Fred 1.710000000 GH;
-40.0									↓ 1	CF Step 168.000000 MH: <u>Auto</u> Mar
-60.0	an fan se fan	فالتحيظران بحواويهم	ententesi yatini e ^{nte} neti ya	9/19/19/19/19/19/19/19/19/19/19/19/19/19	Jansfildt of States and the second states of the					Freq Offse 0 H
-70.0										Scale Type
Start 0.0300 #Res BW 1.0			#VI	BW 3.0 N	AHz.		Sweep 2	Stop 1.710 2.240 ms (33	V GIIZ	Log <u>Lir</u>
MSG							STATUS	3		

Plot 7-67. Conducted Spurious Plot (NR Band n66 - 20.0MHz - 1 RB - High Channel)



Plot 7-68. Conducted Spurious Plot (NR Band n66 - 20.0MHz - 1 RB - High Channel)

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🛄 Keysig	ht Spectrum Anal												
L <mark>XI</mark> RL	RF	50 Ω	DC	CORREC		SEI	NSE:INT	#Avg Typ	ALIGN AUTO		M Jul 02, 2021	Frequ	Jency
PASS				PNO: Fast		Trig: Fre				TY	PE A WWWWW ET A NNNNN		
TASS				IFGain:Lov	N	Atten: 10	a B		B Aller			A	uto Tune
10 dB/d	Bof 0	.00 dBr	~						IVIKI	-57.6	0 5 GHz 24 dBm		
Log -	race 1 Pas						•						
'	race i Fas											Cer	nter Freq
-10.0												15.00000	0000 GHz
-20.0												S	tart Freq
-30.0													00000 GHz
-30.0													
-40.0													4an Enan
													top Freq
-50.0												20.00000	0000 6112
											♦'		CF Step
-60.0													OF Step
												<u>Auto</u>	Man
-70.0													
-80.0												Fre	eq Offset
-00.0													0 Hz
-90.0													
												Sc	ale Type
										Oton 86		Log	Lin
	10.000 GHz 3W 1.0 MH			#\	/BW 3	.0 MHz		s	weep 17	Stop 20 2.33 ms (2	.000 GHz 20001 pts)		
MSG									STATUS		p.o/		

Plot 7-69. Conducted Spurious Plot (NR Band n66 - 20.0MHz - 1 RB - High Channel)

FCC ID: A3LSMA528B	POTEST Production by part of the interval	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Band Edge Emissions at Antenna Terminal 7.4

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 its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

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

Test Procedure Used

KDB 971168 D01 v03r01 - Section 6.0

Test Settings

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW > 1% of the emission bandwidth
- 4. VBW <u>></u> 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

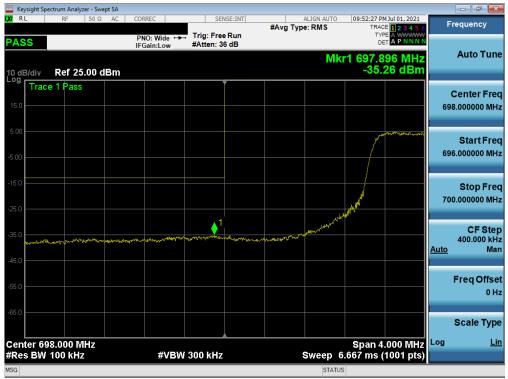
Per 27.53(h) in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission 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.

Per 27.53(g) for operations in the 663 - 698 MHz and 698 – 746MHz bands, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

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LTE Band 12/17



Plot 7-70. Lower Band Edge Plot (LTE Band 12 - 10MHz QPSK - Full RB)



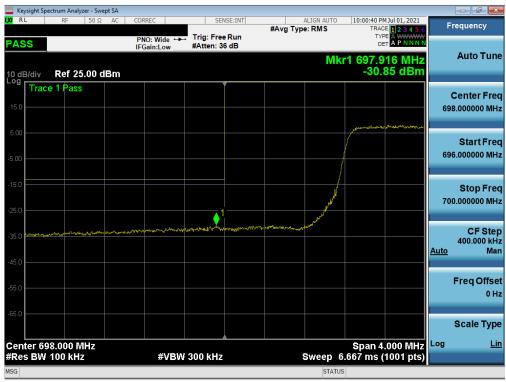
Approved by: ſα PCTEST PART 27 MEASUREMENT REPORT SAMSUNG FCC ID: A3LSMA528B **Technical Manager** Test Report S/N: EUT Type: Test Dates: Page 54 of 122 1M2106280072-04.A3L Portable Handset 06/30/2021 - 07/24/2021 V2.0 4/5/2021

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	Spectrum Analy	ter - Swej	pt SA										
RL ASS	RF	50 <u>Ω</u>	AC		ide ⊶⊶	Trig: Free		#Avg Ty	ALIGN AUTO	TRAC	M Jul 01, 2021 E 1 2 3 4 5 6 PE A WWWW A P N N N N	Fi	requency
D dB/div	Ref 25	.00 d	Bm	IFGain:L	.ow	#Atten: 3	6 dB		MI	(r1 716.0			Auto Tun
15.0 Tra	ce 1 Pass												Center Fre 5.000000 MH
5.00	And a second	na man		nandre streve	my l							714	Start Fre 4.000000 MH
25.0						Millinger.	<u> </u>					718	Stop Fre 3.000000 M⊦
15.0						Mar 1	W Standard Maryan	un ann ann ann ann ann ann ann ann ann a		per all of the section of the sectio	phanth_Capeton,	<u>Auto</u>	CF Ste 400.000 kH Ma
i5.0													Freq Offs 0 F
65.0													Scale Typ
	′16.000 M V 100 kHz			4	¢VBW.	300 kHz			Sweep	Span 4 6.667 ms (.000 MHz 1001 pts)	Log	Li
SG									STATU		inter proj		_

Plot 7-72. Upper Band Edge Plot (LTE Band 12/17 - 10MHz QPSK - Full RB)



Plot 7-73. Upper Band Edge Plot (LTE Band 12 - 5MHz QPSK – Full RB)

FCC ID: A3LSMA528B	PCTEST Dradiu Da part al & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	ectrum Analy	zer - Swe	pt SA										
RL	RF	50 Ω	AC	CORREC	ide ↔→	SEN	Run	#Avg Typ	ALIGN AUTO	TRAC	M Jul 01, 2021 DE 1 2 3 4 5 6 DE A WWWWW A N N N N N	F	requency
ASS	Ref 25	i.00 d	Bm	IFGain:		#Atten: 30	6 dB		Mk	r1 703.9			Auto Tun
og Trac	e 1 Pass												Center Fre 4.000000 MH
.00												70	Start Fro 2.000000 Mi
5.0							1 ¹					70	Stop Fre 6.000000 M
5.0	ayay assaultan	del Artican	www.wasa	nature of the second	or Annali	- Andrew and a start of the sta						<u>Auto</u>	CF Ste 400.000 k M
5.0													Freq Offs 0
5.0												Log	Scale Ty
	04.000 № 100 kH;				#VBW	300 kHz			Sween	5 Span 4 6 667 ms (.000 MHz (1001 pts)		
CCS DVV						000 KH12			oweeb .		roor pis)		

Plot 7-74. Lower Band Edge Plot (LTE Band 17 - 5MHz QPSK - Full RB)



Plot 7-75. Upper Band Edge Plot (LTE Band 12/17 - 5MHz QPSK - Full RB)

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Keysight Spe	ctrum Analy		it SA										
(RL	RF	50 Ω	AC	CORREC			ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	M Jul 01, 2021 E <mark>1 2 3 4 5</mark> 6	F	requency
PASS				PNO: W	ide ⊶⊶ ow	Trig: Free #Atten: 30				DE			•
0 dB/div	Ref 25	i.00 dl	Зm						MI	kr1 697.8 -29.	48 MHz 50 dBm		Auto Tune
Trace	e 1 Pass												Center Fred
15.0											1 martin Martin M	69	B.000000 MH:
5.00										/			Start Free
5.00												69	6.000000 MH
15.0													Stop Fre
25.0						1-			N			70	0.000000 MH
or 0		helannyarsa	Malaiter And	y With Maria	m Materia	and the second second	Margaret Brand Mar	washing a character	ասե				CF Ste
35.0 Manual	w.											Auto	400.000 kH Ma
45.0													
55.0													Freq Offse
													0 H
65.0													Scale Type
Center 69	8.000 N	IH7								Span 4	.000 MHz	Log	<u>Lii</u>
Res BW				#	¢VBW∶	300 kHz		:	Sweep	6.667 ms (1001 pts)		
ISG									STAT	JS			

Plot 7-76. Lower Band Edge Plot (LTE Band 12 - 3MHz QPSK - Full RB)



Plot 7-77. Upper Band Edge Plot (LTE Band 12/17 - 3MHz QPSK - Full RB)

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Plot 7-78. Lower Band Edge Plot (LTE Band 12 - 1.4MHz QPSK - Full RB)



Plot 7-79. Upper Band Edge Plot (LTE Band 12/17 – 1.4MHz QPSK – Full RB)

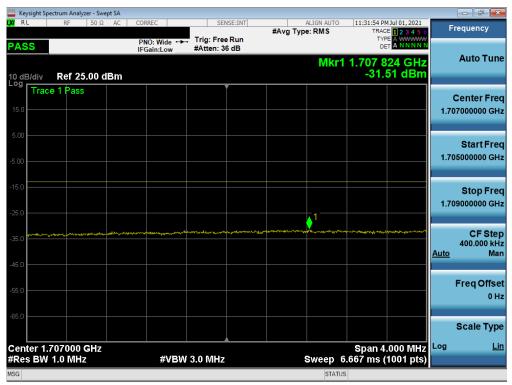
FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 50 of 100	
1M2106280072-04.A3L	06/30/2021 - 07/24/2021	Portable Handset		Page 58 of 122	
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LTE Band 66/4



Plot 7-80. Lower Band Edge Plot (LTE Band 66/4 - 20MHz QPSK - Full RB)



Plot 7-81. Lower Extended Band Edge Plot (LTE Band 66/4 - 20MHz QPSK - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	Dates: EUT Type:		Dogo E0 of 122	
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	Spectrum Analyze	r - Swept	SA										
RL	RF	50 Ω	AC	CORREC				#Avg Ty	ALIGN AUTO	TRAC	MJul 01, 2021	Fi	equency
PASS	Ref 25.	00 dF	łm	PNO: W IFGain:L	ide ↔→ .ow	#Atten: 3			Mkr	1 1.755 0	16 GHz 39 dBm		Auto Tun
od	ice 1 Pass					,							Center Fre 5000000 GH
5.00	<u>((, (, (, (, (, (, (, (, (, (, (, (, (, </u>		oufless ^{on} reale	.**Jpp-rdp/10/44	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~							1.74	Start Fre 7000000 GH
25.0							1					1.76	Stop Fre 3000000 GH
35.0						,()	Ville Marie	Jel What and the second se	ulger/ ^{ayer} etterlye/k	and and the second of the s		Auto	CF Ste 1.600000 MH Ma
i5.0													Freq Offs 0 H
65.0													Scale Typ
	I.755000 G V 470 kHz	Hz			#\/D\\/	1.6 MU-			Swoon	Span 1	6.00 MHz	Log	<u>Li</u>
Res BV	V 470 KHZ			#	FVBW	1.6 MHz			Sweep	1.000 ms (TOOT pts)		

Plot 7-82. Upper Band Edge Plot (LTE Band 4 - 20MHz QPSK - Full RB)



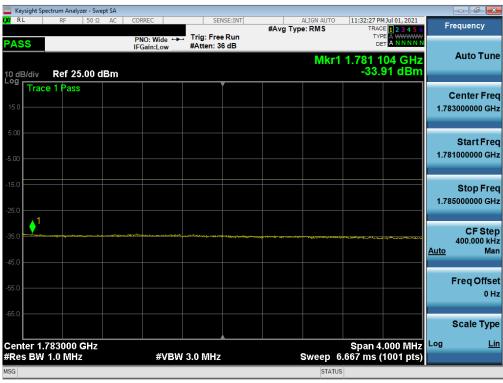
Plot 7-83. Upper Extended Band Edge Plot (LTE Band 4 - 20MHz QPSK – Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 60 at 400
1M2106280072-04.A3L	06/30/2021 - 07/24/2021	Portable Handset	Page 60 of 122	
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	pectrum Analy	zer - Swe	pt SA										- 6
RL	RF	50 Ω	AC	CORREC	ide ↔			#Avg Typ	ALIGN AUTO	TRAC	M Jul 01, 2021 E 1 2 3 4 5 6 PE A WWWW A N N N N N	Fi	equency
ASS	Ref 2	5.00 d	Bm	IFGain:		#Atten: 3			Mkr	1.780 0			Auto Tur
5.0	ce 1 Pass												Center Fre
	Ummer June	******	2747~17~47~46~4									1.77	Start Fr 2000000 G
5.0							1					1.78	Stop Fr 8000000 G
						μη.	Dige Courses	and the effective of the state	an full and the second s	mathering	non management	Auto ¹	CF St 1.600000 M N
.0													Freq Offs 0
nter 1	.780000	CH7				,				Snap 1	6.00 MHz		Scale Ty
	/ 470 kH:				#VBW	1.6 MHz			Sweep	1.000 ms (V.VV IIII II2	-	
G									STATU				

Plot 7-84. Upper Band Edge Plot (LTE Band 66 - 20MHz QPSK - Full RB)



Plot 7-85. Channel Edge Plot (LTE Band 66 - 20MHz QPSK - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 61 of 100
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	pectrum Analyz	er - Swep	ot SA										
X/RL	RF	50 Ω	AC	CORREC			ISE:INT	#Avg Typ	ALIGN AUTO	TRAC	I Jul 01, 2021 E 1 2 3 4 5 6	F	requency
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10 dB/div	Ref 25	.00 dl	Зm						Mkr1	1.709 9 -27.	88 GHz 51 dBm		Auto Tun
Tra	ce 1 Pass												Center Fre
15.0												1.71	0000000 GH
5.00							- /	er and a second and the second and the second s	.กีษาณ์ (กระสะระสุการณาร์)	man	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Start Fre
5.00												1.70	4000000 GH
15.0													
							1					1.71	Stop Fre 6000000 GH
25.0						 M.	V.						
35.0	W. Marson Marine	and the state of the	week yours	white and a second	the way	and the second							CF Ste 1.200000 MH
45.0												<u>Auto</u>	Ma
55.0													Freq Offs
													0 H
65.0													Scale Typ
	.710000 (Span 1	2.00 MHz	Log	L
Res BW	360 kHz			#	#VBW	1.2 MHz			Sweep 1	.000 ms (1001 pts)		

Plot 7-86. Lower Band Edge Plot (LTE Band 66/4 - 15MHz QPSK - Full RB)



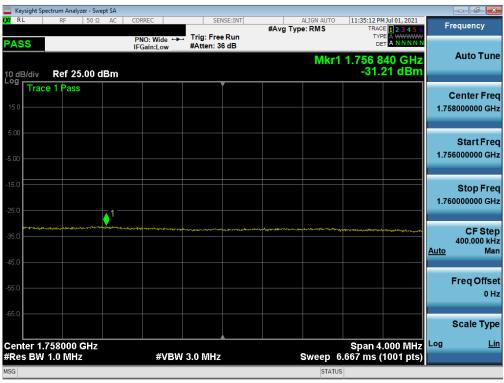
Plot 7-87. Lower Extended Band Edge Plot (LTE Band 66/4 - 15MHz QPSK - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dece 62 of 122	
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	pectrum Analy												
RL	RF	50 Ω	AC	CORREC			NSE:INT	#Avg	ALIGN AUT Type: RMS	TR.	PM Jul 01, 2021 ACE 1 2 3 4 5 6	F	requency
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dB/div	Ref 2	i.00 di	Bm						Mk	r1 1.755 -28	012 GHz .03 dBm		Auto Tur
^{rg} Tra	ce 1 Pass												Center Fre
5.0												1.75	5000000 GI
.00	************************	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	lana na	····^	M. Carrowsky	my							Start Fr
												1.74	19000000 G
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5.0													0
5.0													0
													Scale Ty
	.755000				#\/D\\				Cure en	Span	12.00 MHz	Log	ļ
tes BV	V 360 kH:	-			#VBW	1.2 MHz			Sweep	T.000 ms	(1001 pts)		

Plot 7-88. Upper Band Edge Plot (LTE Band 4 - 15MHz QPSK - Full RB)



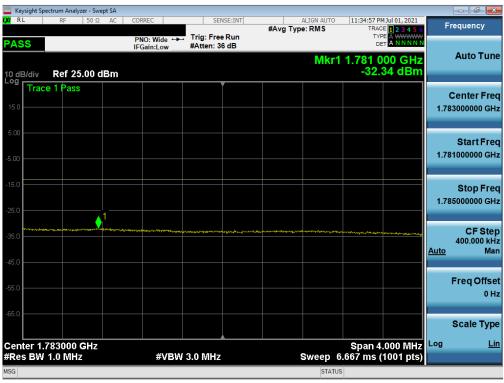
Plot 7-89. Upper Extended Band Edge Plot (LTE Band 4 - 15MHz QPSK – Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	pectrum Analy	ter - Swe	pt SA										
RL ASS	RF	50 <u>Ω</u>	AC		ide ⊶⊶	Trig: Free		#Avg Ty	ALIGN AUTO pe: RMS	TRAC	1 Jul 01, 2021 E 1 2 3 4 5 6 PE A WWWWW T A N N N N N	Fre	quency
) dB/div	Ref 25	.00 d	Bm	IFGain:L	.ow	#Atten: 3	6 dB		Mkr1	1.780 0	12 GHz 23 dBm		Auto Tun
og Tra	ce 1 Pass												enter Fre 000000 GH
5.00					<u>hornon</u>								Start Fre 000000 G⊦
5.0							×1—						Stop Fre
5.0						1	Contraction of the second second	a frailer and a start	munangay	an water	an a	1.: <u>Auto</u>	CF Ste 200000 MH Ma
5.0												F	req Offs 0 H
5.0	.780000	011-								0	2.00 6411-		icale Typ
	.780000 / 360 kHz			;	¢νΒ₩	1.2 MHz			Sweep 1	.000 m <u>s (</u>	2.00 MHz 1001 pts)	209	<u></u>
G									STATUS				

Plot 7-90. Upper Band Edge Plot (LTE Band 66 - 15MHz QPSK - Full RB)



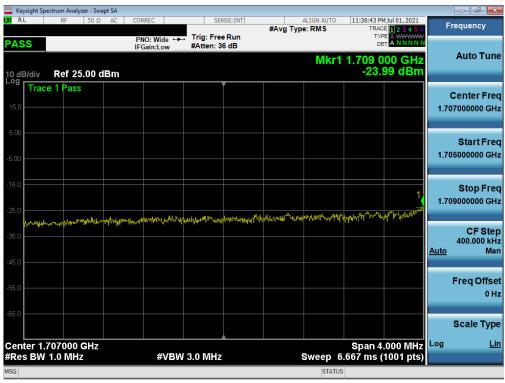
Plot 7-91. Upper Extended Band Edge Plot (LTE Band 66 - 15MHz QPSK – Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 64 of 100
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	ectrum Analyz	er - Swept S	SA										
X/RL	RF	50Ω A	AC CO	RREC			SE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	4 Jul 01, 2021 E 1 2 3 4 5 6	F	requency
PASS				NO: Wi Gain:L	de ⊶⊶ ow	Trig: Free #Atten: 3				TYF De			
10 dB/div	Ref 25	.00 dBı	m						Mkr	1 1.709 9 -27.	60 GHz 44 dBm		Auto Tune
Trac	e 1 Pass											(Center Free
15.0												1.71	0000000 GH
5.00								shawens	lenden allegen er verdet.	#hahmhunnthhp	_{เกา} นของสาวเป็นของสาวเป็นของสาวเป็นของสาวเป็นของสาวเป็นของสาวเป็นของสาวเป็นของสาวเป็นของสาวเป็นของสาวเป็นของสาวเป		Start Free
5.00							1					1.70	6000000 GH
15.0												1 71	Stop Free 4000000 GH
25.0							př.						
35.0 <mark>whyterwy</mark> ł	and service the last	and the state	⅄ _{ℛ℩} ⅃ℯℯℯ ֍	www	^{Yeb} wyla	wayna							CF Ste 800.000 kH
45.0												<u>Auto</u>	Mai
10.0													Freq Offse
55.0													•
65.0													Ocolo Trav
				+	VDW	750 647			Sween	Span 8	.000 MHz	Log	Lii
	710000 (240 kHz			#	VBW	750 kHz			Sweep	13.33 ms (.000 MHz 1001 pts)		0 Hi Scale Type <u>Lir</u>

Plot 7-92. Lower Band Edge Plot (LTE Band 66/4 - 10MHz QPSK - Full RB)



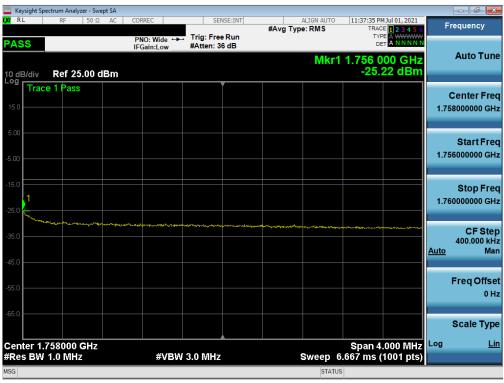
Plot 7-93. Lower Extended Band Edge Plot (LTE Band 66/4 - 10MHz QPSK - Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage (E of 100
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	Spectrum Analy	ter - Swe	ept SA										
ASS	RF	50 Ω	AC		ide ↔→	Trig: Free		#Avg Ty	ALIGN AUTO pe: RMS	TRAC	M Jul 01, 2021 E 1 2 3 4 5 6 PE A WWWW T A N N N N N	F	requency
0 dB/div	 Ref 25	.00 d	IBm	IFGain:	.ow	#Atten: 3	6 dB		Mkr	1 1.755 0			Auto Tun
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5.0							1					1.75	Stop Fre
5.0							Mad and and and and and and and and and a	whether and the second s	and an	ารูปสี่ยางสินที่สารที่มากสี่ยางสารเส	-rum rum	<u>Auto</u>	CF Ste 800.000 k M
5.0													Freq Offs 0
5.0													Scale Typ
	.755000 V 240 kHz				+\/D\M	750 kHz			Swoon	Span 8 13.33 ms (.000 MHz	Log	L
Res DV	V 24V KH2				TOW	730 KHZ			Sweep	13.35 IUS (TOOT PLS)		

Plot 7-94. Upper Band Edge Plot (LTE Band 4 - 10MHz QPSK - Full RB)



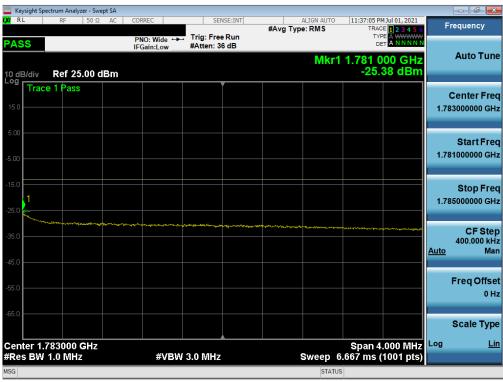
Plot 7-95. Upper Extended Band Edge Plot (LTE Band 4 - 10MHz QPSK – Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage CC of 100
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	pectrum Analy	ter - Swej	pt SA										
RL ASS	RF	50 Ω	AC		ide ↔→	Trig: Free		#Avg Ty	ALIGN AUTO pe: RMS	TRAC	I Jul 01, 2021 E 1 2 3 4 5 6 E A WWWW T A N N N N N	F	requency
0 dB/div	Ref 25	.00 d	Bm	IFGain:L	ow	#Atten: 3	6 dB		Mkr1	1.780 0			Auto Tun
og Tra	ce 1 Pass												Center Fre
5.00			****************									1.77	Start Fre
25.0							1					1.78	Stop Fre 4000000 GF
5.0							And a start and a start and a start a s	and and the second second	and the second of the second o	in star of the start of the sta	n martha fa	<u>Auto</u>	CF Ste 800.000 kl Ma
5.0													Freq Offs 0 I
5.0													Scale Typ
enter 1 Res BM	.780000 (240 kHz	GHz			/VBW	750 kHz			Sweep_1	Span 8. 3.33 ms (.000 MHz 1001 pts)	Log	L
G									STATU		no proj		

Plot 7-96. Upper Band Edge Plot (LTE Band 66 - 10MHz QPSK - Full RB)



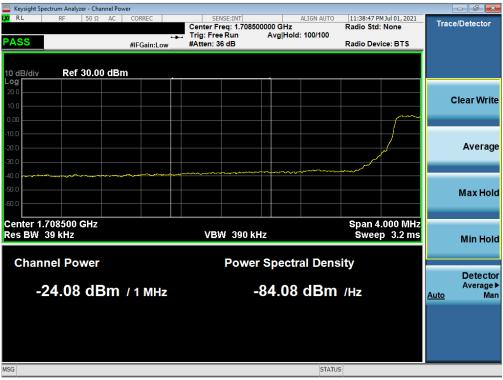
Plot 7-97. Upper Extended Band Edge Plot (LTE Band 66 - 10MHz QPSK – Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 07 at 400
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	pectrum Analy	ter - Swej	pt SA									_	
RL	RF	50 Ω	AC	CORREC	ide ⊶⊶	SEN		#Avg Typ	ALIGN AUTO	TRAC	1 Jul 01, 2021 E 1 2 3 4 5 6 PE A WWWW T A N N N N N	F	requency
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25.0							1					1.71	Stop Fre 2000000 GH
15.0 <mark>////////</mark>	w.A	n.\fai r 1 0 ¹	whenter of the	Alter and a standard	rande							<u>Auto</u>	CF Ste 400.000 kH Ma
i5.0 ———													Freq Offs 0 F
65.0													Scale Typ
	.710000 (/ 120 kHz			#	VBW :	390 kHz			Sweep (Span 4 6.667 ms (.000 MHz 1001 pts)	Log	Li
SG									STATU				_

Plot 7-98. Lower Band Edge Plot (LTE Band 66/4 - 5MHz QPSK - Full RB)



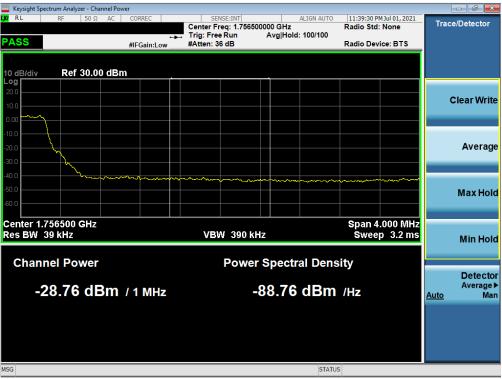
Plot 7-99. Lower Extended Band Edge Plot (LTE Band 66/4 - 5MHz QPSK – Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	Spectrum Analy	er - Swe	ept SA										
RL	RF	50 Ω	AC		ide ↔	Trig: Free		#Avg Ty	ALIGN AUTO pe: RMS	TRA	M Jul 01, 2021 DE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N	F	requency
0 dB/div	Ref 25	.00 d	IBm	IFGain:	_ow	#Atten: 3	6 dB		Mkr	1 1.755 (Auto Tun
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5.00			******			-vy V						1.78	Start Fre
25.0							1					1.75	Stop Fre
15.0							North Conception	erneter Wyma	nlafterlakenserveren er	managy		<u>Auto</u>	CF Ste 400.000 kł Ma
5.0													Freq Offs 0 I
65.0												Log	Scale Typ
	1.755000 × N 120 kHz				#VBW	390 kHz			Sween	Span 4 6.667 ms	.000 MHz (1001 pts)	Log	L
SG	A 120 MH2					000 M12			SWEEP	_	roor pts)		

Plot 7-100. Upper Band Edge Plot (LTE Band 4 - 5MHz QPSK - Full RB)



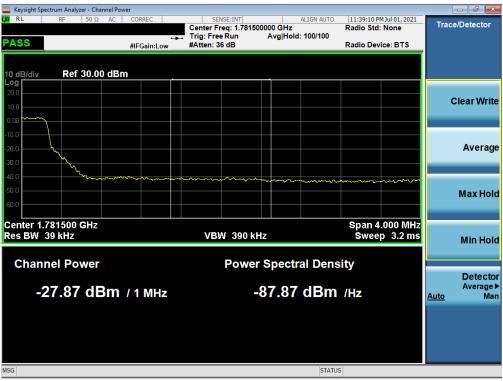
Plot 7-101. Upper Extended Band Edge Plot (LTE Band 4 - 5MHz QPSK – Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	pectrum Analy	zer - Swe	pt SA										
RL	RF	50 Ω	AC	CORREC	ide ↔	Trig: Free		#Avg Ty	ALIGN AUTO	TRA	M Jul 01, 2021 CE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N	F	requency
ASS) dB/div	Ref 25	i.00 d	Bm	IFGain:L		#Atten: 3	6 dB		Mkr	1 1.780 (Auto Tun
5.0	ce 1 Pass												Center Fre
.00 		etheraly+÷in	945 Lap (7) L. P.	2/100-02-6 24-8 11/1-1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	- And						1.77	Start Fre 8000000 Gi
5.0						N N	1					1.78	Stop Fr 2000000 G
5.0							h.	¹ ⁸ WIM ^{AD^{AD}^{AD}^{AD}^{AD}}	a- _{Int} olyneausy-lafant ^e	anarphilinguescommer		<u>Auto</u>	CF Ste 400.000 k M
5.0													Freq Offs 0
5.0													Scale Typ
	.780000 / 120 kH:				≇VB₩	390 kHz			Sween	Span 4 6.667 ms	.000 MHz (1001 pts)	Log	L
G						000-11112			STAT		(1001 pt3)		

Plot 7-102. Upper Band Edge Plot (LTE Band 66 - 5MHz QPSK - Full RB)



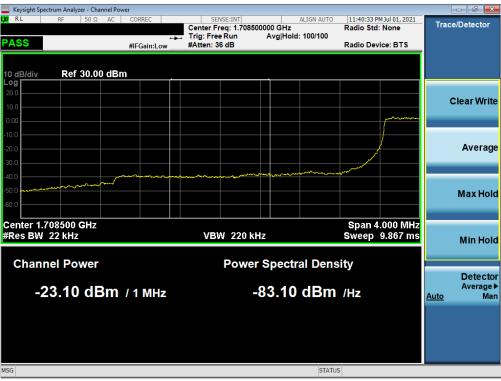
Plot 7-103. Upper Extended Band Edge Plot (LTE Band 66 - 5MHz QPSK – Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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	ectrum Analy		•									_	
KI RL	RF	50 Ω	AC	CORREC		SE	NSE:INT	#A	ALIGN AUTO		M Jul 01, 2021	F	requency
PASS				PNO: W IFGain:l	ide ↔→ .ow	Trig: Fre #Atten: 3		#Avg Typ	e: RMS	TYF	CE 1 2 3 4 5 6 PE A WWWW A NNNNN		
I0 dB/div	Ref 2	i.00 d	Bm						Mkr1	1.709 9 -22.	988 GHz 03 dBm		Auto Tune
15.0 Trac	e 1 Pass							ob i minante d'a		-Marthy party of a	man and a		Center Free 10000000 GH
5.00										ente alma al		1.70	Start Fre
25.0						(1					1.71	Stop Fre
15.0 <mark>~~^~~~~~</mark>	naver to first	alpress ^{rifter}	alour working	www.uhyr	- ^{Ing} el Angle	way and						<u>Auto</u>	CF Ste 400.000 kH Ma
i5.0													Freq Offs 0 F
65.0													Scale Typ
Center 1.		GHz		-	≠VBW	240 kHz			Sweep 6	Span 4 .667 ms (.000 MHz 1001 pts)	Log	Li
SG									STATUS				

Plot 7-104. Lower Band Edge Plot (LTE Band 66/4 - 3MHz QPSK - Full RB)



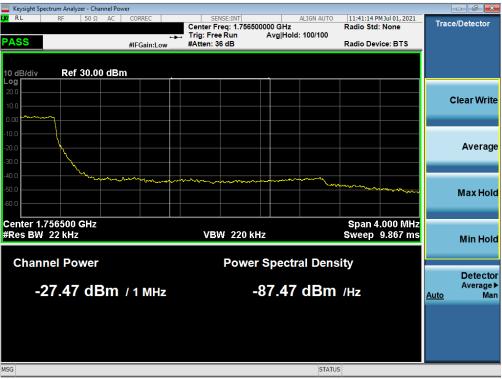
Plot 7-105. Lower Extended Band Edge Plot (LTE Band 66/4 - 3MHz QPSK – Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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	Spectrum Analyz	ter - Swe	ept SA										
URL	RF	50 Ω	AC	CORREC	/ide ⊶⊶	Trig: Fre		#Avg Typ	ALIGN AUTO	TRA	M Jul 01, 2021 DE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N	F	requency
O dB/div	Ref 25	.00 d	IBm	IFGain:	Low	#Atten: 3	6 dB		Mkr	1 1.755 (Auto Tun
15.0	ace 1 Pass												Center Fre 5000000 GH
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25.0							1					1.75	Stop Fre
5.0							Phy and a second	endrumnyelleveletellelete	Annalisa	and a second of the	a the of the second	<u>Auto</u>	CF Ste 400.000 kl Ma
5.0													Freq Offs 0 I
5.0													Scale Typ
	1.755000 (N 75 kHz	GHz			#\/R\//	240 kHz			Sween	Span 4	.000 MHz (1001 pts)	Log	L
SG					#VDVV	240 802			Sweep	_	(100 r pts)		

Plot 7-106. Upper Band Edge Plot (LTE Band 4 - 3MHz QPSK - Full RB)



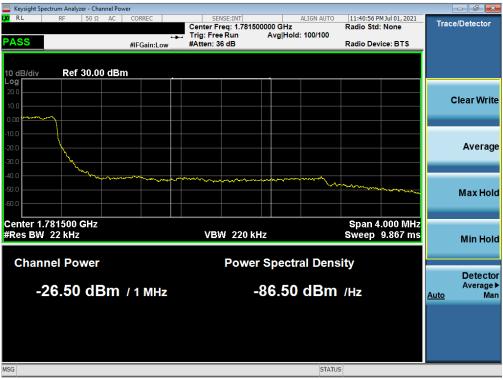
Plot 7-107. Upper Extended Band Edge Plot (LTE Band 4 - 3MHz QPSK – Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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	Spectrum Analyz	ter - Swej	pt SA										
<mark>(</mark> RL	RF	50 Ω	AC	CORREC	ide ⊶⊷	SE	NSE:INT	#Avg Ty	ALIGN AUTO pe: RMS	TRA	M Jul 01, 2021 DE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N		requency
0 dB/div	Ref 25	.00 d	Bm	IFGain:L		#Atten: 3	6 dB		Mkı	1 1.780 (Auto Tun
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5.00	wer the the second s	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	and and a second	-m.18	-ton of the second	with with						1.77	Start Fre 78000000 G⊦
25.0						l h	1					1.78	Stop Fre
35.0							No bergerow	an practic period for the	Mar and a start	Maleren Mary	an a	<u>Auto</u>	CF Ste 400.000 kH Ma
5.0													Freq Offs 0 F
i5.0													Scale Typ
	I.780000 (V 75 kHz	GHz		;	#VBW	240 kHz			Sweep	Span 4 6.667 ms	.000 MHz (1001 pts)	Log	Li
SG									STAT				

Plot 7-108. Upper Band Edge Plot (LTE Band 66 - 3MHz QPSK - Full RB)



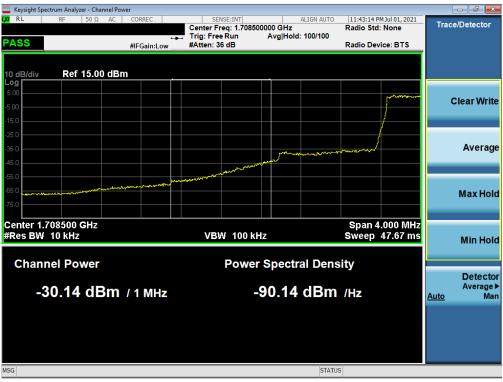
Plot 7-109. Upper Extended Band Edge Plot (LTE Band 66 - 3MHz QPSK – Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 72 of 100
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	pectrum Analyze	er - Swep	t SA										
<mark>0</mark> RL	RF	50 Ω	AC	CORREC		SEN	ISE:INT	#Avg Typ	ALIGN AUTO		1 Jul 01, 2021	F	requency
PASS				PNO: W IFGain:L	ide ⊶⊶ ow	Trig: Free #Atten: 3		#Avg iyp	e: RWS	TYF	E 1 2 3 4 5 6 E A WWWW T A N N N N N		
0 dB/div	Ref 25.	00 di	3m						Mkr	1 1.709 9 -29.	12 GHz 04 dBm		Auto Tun
.og Trac	ce 1 Pass												Center Fre 0000000 GH
5.00												1.70	Start Fre 8000000 GH
15.0												1.71	Stop Fre 2000000 GF
35.0			Mark	m	man	manth	N			- Cultury	the production of the producti	<u>Auto</u>	CF Ste 400.000 kl Ma
15.0 55.0	monor	<i></i>											Freq Offs 0 I
65.0													Scale Typ
enter 1 Res BM	.710000 G / 33 kHz	Hz			¢VB₩	110 kHz			Sween	Span 4 6.667 ms (.000 MHz 1001 pts)	Log	Ŀ
SG	-00 M112					110-10112			STATU		1001 pt3)		

Plot 7-110. Lower Band Edge Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB)



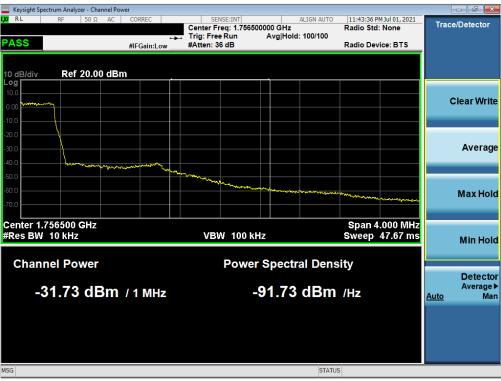
Plot 7-111. Lower Extended Band Edge Plot (LTE Band 66/4 – 1.4MHz QPSK – Full RB)

FCC ID: A3LSMA528B	PCTEST Insult to be part of @ liket.eet	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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	Spectrum Analyzer	- Swept SA										
RL	RF	50 Ω AC	PNO:	Wide ↔	. Trig: Fre		#Avg Ty	ALIGN AUTO	TRAC	M Jul 01, 2021 DE 1 2 3 4 5 6 PE A WWWWW ET A N N N N N	F	requency
0 dB/div	Ref 25.0	0 dBm		n:Low	#Atten: 3	6 dB		Mkr1	1.755 ()88 GHz 85 dBm		Auto Tun
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.00											1.75	Start Fre
5.0											1.75	Stop Fre
5.0	mont					A Land	ham	why have	-1ng		<u>Auto</u>	CF Ste 400.000 kl Ma
5.0									Mann	han marine		Freq Offs 0 I
5.0												Scale Typ
	1.755000 G N 33 kHz	Hz		#VBW	110 kHz			Sweep (.000 MHz (1001 pts)	Log	L
G								STATU		in the prov		

Plot 7-112. Upper Band Edge Plot (LTE Band 4 – 1.4MHz QPSK – Full RB)



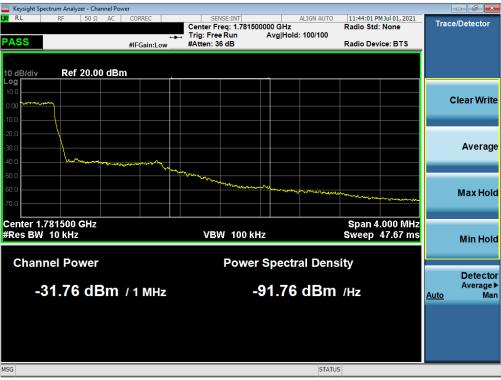
Plot 7-113. Upper Extended Band Edge Plot (LTE Band 4 – 1.4MHz QPSK – Full RB)

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager	
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Plot 7-114. Upper Band Edge Plot (LTE Band 66 - 1.4MHz QPSK - Full RB)



Plot 7-115. Upper Extended Band Edge Plot (LTE Band 66 – 1.4MHz QPSK – Full RB)

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