

PCTEST ENGINEERING LABORATORY, INC.

7185 Oakland Mills Road, Columbia, MD 21046 USA Tel. 410.290.6652 / Fax 410.290.6654 http://www.pctest.com



MEASUREMENT REPORT

LTE

Applicant Name:

Samsung Electronics Co., Ltd. 129, Samsung-ro, Yeongtong-gu, Suwon-si Gyeonggi-do, 16677, Korea Date of Testing: 6/6 - 6/27/2018 Test Site/Location: PCTEST Lab. Columbia, MD, USA Test Report Serial No.: 1M1806060119-03.A3L

FCC ID:

A3LSMT837P

APPLICANT:

Samsung Electronics Co., Ltd.

Application Type: Model: EUT Type: FCC Classification: FCC Rule Part(s): Test Procedure(s): Certification SM-T837P Portable Tablet PCS Licensed Transmitter (PCB) 22, 24, & 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



FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 1 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 1 of 221
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TABLE OF CONTENTS

1.0	INTR	ODUCTION	5				
	1.1	Scope	5				
	1.2	PCTEST Test Location	5				
	1.3	Test Facility / Accreditations	5				
2.0	PRO	DUCT INFORMATION	6				
	2.1	Equipment Description	6				
	2.2	Device Capabilities	6				
	2.3	Test Configuration	6				
	2.4	EMI Suppression Device(s)/Modifications	6				
3.0	DESC	CRIPTION OF TESTS	7				
	3.1	Measurement Procedure	7				
	3.2	Block C Frequency Range	7				
	3.3	Block A Frequency Range	7				
	3.4	Cellular - Base Frequency Blocks	7				
	3.5	Cellular - Mobile Frequency Blocks	7				
	3.6	PCS - Base Frequency Blocks	8				
	3.7	PCS - Mobile Frequency Blocks	8				
	3.8	AWS - Base Frequency Blocks	8				
	3.9	AWS - Mobile Frequency Blocks	8				
	3.10	BRS/EBS Frequency Block	9				
	3.11	Radiated Power and Radiated Spurious Emissions	9				
4.0	MEAS	SUREMENT UNCERTAINTY	.10				
5.0	TEST	EQUIPMENT CALIBRATION DATA	.11				
6.0	SAMF	PLE CALCULATIONS	.12				
7.0	TEST	RESULTS	.13				
	7.1	Summary	. 13				
	7.2	Occupied Bandwidth	. 15				
	7.3	Spurious and Harmonic Emissions at Antenna Terminal	. 69				
	7.4	Band Edge Emissions at Antenna Terminal	103				
	7.5	Peak-Average Ratio	156				
	7.6	Additional Maximum Power Reduction (A-MPR)	166				
	7.7	Uplink Carrier Aggregation	168				
	7.8	Radiated Power (ERP/EIRP)	177				
	7.9	Radiated Spurious Emissions Measurements	186				
	7.10	Uplink Carrier Aggregation Radiated Measurements	203				
	7.11 Frequency Stability / Temperature Variation						
8.0	CON	CLUSION	221				

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 2 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Fage 2 01 22 1
© 2018 PCTEST Engineering Lab	oratory. Inc.			V 8.1 05/10/2018





MEASUREMENT REPORT FCC Part 22, 24, & 27



			ERP		EIRP			
Mode	FCC Rule	Tx Frequency (MHz)	Max. Power	Max. Pow er	Max. Pow er	Max. Pow er	Emission	Modulation
	Part		(W)	(dBm)	(W)	(dBm)	Designator	
TE Dand 10	07	COD 7 745 0	0.070	10.00	0.400	01.07	1140007D	QPSK
LTE Band 12	27	699.7 - 715.3	0.078	18.92	0.128	21.07	1M09G7D	
LTE Band 12	27	699.7 - 715.3	0.065	18.12	0.106	20.27	1M09W7D	16QAM
LTE Band 12	27	699.7 - 715.3	0.057	17.53	0.093	19.68	1M10W7D	64QAM
LTE Band 12	27	700.5 - 714.5	0.079	19.00	0.130	21.15	2M72G7D	QPSK
LTE Band 12	27	700.5 - 714.5	0.069	18.37	0.113	20.52	2M72W7D	16QAM
LTE Band 12	27	700.5 - 714.5	0.059	17.68	0.096	19.83	2M72W7D	64QAM
LTE Band 12	27	701.5 - 713.5	0.081	19.08	0.133	21.23	4M59G7D	QPSK
LTE Band 12	27	701.5 - 713.5	0.069	18.41	0.114	20.56	4M58W7D	16QAM
LTE Band 12	27	701.5 - 713.5	0.060	17.76	0.098	19.91	4M58W7D	64QAM
LTE Band 12	27	704 - 711	0.085	19.29	0.139	21.44	9M27G7D	QPSK
LTE Band 12	27	704 - 711	0.066	18.20	0.109	20.35	9M28W7D	16QAM
LTE Band 12	27	704 - 711	0.053	17.24	0.087	19.39	9M31W7D	64QAM
LTE Band 13	27	779.5 - 784.5	0.142	21.52	0.233	23.67	4M53G7D	QPSK
LTE Band 13	27	779.5 - 784.5	0.120	20.80	0.197	22.95	4M52W7D	16QAM
LTE Band 13	27	779.5 - 784.5	0.097	19.89	0.160	22.04	4M52W7D	64QAM
LTE Band 13	27	782	0.127	21.04	0.208	23.19	8M99G7D	QPSK
LTE Band 13	27	782	0.097	19.89	0.160	22.04	9M01W7D	16QAM
LTE Band 13	27	782	0.077	18.89	0.127	21.04	8M98W7D	64QAM
LTE Band 5/26	22H	824.7 - 848.3	0.156	21.94	0.256	24.09	1M10G7D	QPSK
LTE Band 5/26	22H	824.7 - 848.3	0.130	21.13	0.213	23.28	1M11W7D	16QAM
LTE Band 5/26	22H	824.7 - 848.3	0.099	19.94	0.162	22.09	1M09W7D	64QAM
LTE Band 5/26	22H	825.5 - 847.5	0.163	22.11	0.267	24.26	2M71G7D	QPSK
LTE Band 5/26	22H	825.5 - 847.5	0.129	21.12	0.212	23.27	2M72W7D	16QAM
LTE Band 5/26	22H	825.5 - 847.5	0.112	20.50	0.184	22.65	2M72W7D	64QAM
LTE Band 5/26	22H	826.5 - 846.5	0.173	22.37	0.283	24.52	4M54G7D	QPSK
LTE Band 5/26	22H	826.5 - 846.5	0.142	21.53	0.233	23.68	4M52W7D	16QAM
LTE Band 5/26	22H	826.5 - 846.5	0.119	20.74	0.195	22.89	4M53W7D	64QAM
LTE Band 5/26	22H	829 - 844	0.151	21.79	0.248	23.94	9M01G7D	QPSK
LTE Band 5/26	22H	829 - 844	0.124	20.92	0.203	23.07	9M02W7D	16QAM
LTE Band 5/26	22H	829 - 844	0.101	20.05	0.166	22.20	8M99W7D	64QAM
LTE Band 26	22H	831.5 - 841.5	0.132	21.20	0.216	23.35	13M5G7D	QPSK
LTE Band 26	22H	831.5 - 841.5	0.110	20.43	0.181	22.58	13M5W7D	16QAM
LTE Band 26	22H	831.5 - 841.5	0.087	19.40	0.143	21.55	13M5W7D	64QAM
						21.00	Totalettinb	

EUT Overview (<1GHz)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 2 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 3 of 221
© 2018 PCTEST Engineering Lab	oratory. Inc.	•		V 8.1 05/10/2018



			EI	RP		
Mode	FCC Rule	Tx Frequency (MHz)	Max. Power	Max. Pow er	Emission	Modulation
modo	Part		(W)	(dBm)	Designator	modulation
LTE Band 4	27	1710.7 - 1754.3	0.215	23.32	1M10G7D	QPSK
LTE Band 4	27	1710.7 - 1754.3	0.173	22.39	1M10W7D	16QAM
LTE Band 4	27	1710.7 - 1754.3	0.135	21.30	1M09W7D	64QAM
LTE Band 4	27 27	1711.5 - 1753.5	0.231	23.64 22.95	2M72G7D	QPSK 160AM
LTE Band 4 LTE Band 4	27	1711.5 - 1753.5 1711.5 - 1753.5	0.197 0.151	22.95	2M72W7D 2M71W7D	16QAM 64QAM
LTE Band 4	27	1712.5 - 1752.5	0.265	24.24	4M58G7D	QPSK
LTE Band 4	27	1712.5 - 1752.5	0.220	23.42	4M53W7D	16QAM
LTE Band 4	27	1712.5 - 1752.5	0.169	22.29	4M53W7D	64QAM
LTE Band 4	27	1715 - 1750	0.235	23.71	9M02G7D	QPSK
LTE Band 4 LTE Band 4	27 27	1715 - 1750 1715 - 1750	0.238	23.77 22.80	9M03W7D 8M99W7D	16QAM 64QAM
LTE Band 4	27	1717.5 - 1747.5	0.249	23.96	13M5G7D	QPSK
LTE Band 4	27	1717.5 - 1747.5	0.197	22.95	13M5W7D	16QAM
LTE Band 4	27	1717.5 - 1747.5	0.153	21.84	13M5W7D	64QAM
LTE Band 4	27	1720 - 1745	0.246	23.91	18M0G7D	QPSK
LTE Band 4	27	1720 - 1745	0.191	22.81	17M9W7D	16QAM
LTE Band 4	27 24E	1720 - 1745	0.149	21.74	18M0W7D	64QAM
LTE Band 2/25 LTE Band 2/25	24E 24E	1850.7 - 1914.3 1850.7 - 1914.3	0.248	23.94 23.12	1M10G7D 1M11W7D	QPSK 16QAM
LTE Band 2/25	24E 24E	1850.7 - 1914.3	0.205	22.00	1M10W7D	64QAM
LTE Band 2/25	24E	1851.5 - 1913.5	0.252	24.02	2M72G7D	QPSK
LTE Band 2/25	24E	1851.5 - 1913.5	0.217	23.36	2M72W7D	16QAM
LTE Band 2/25	24E	1851.5 - 1913.5	0.174	22.40	2M72W7D	64QAM
LTE Band 2/25	24E	1852.5 - 1912.5	0.225	23.51	4M54G7D	QPSK 160AM
LTE Band 2/25 LTE Band 2/25	24E 24E	1852.5 - 1912.5 1852.5 - 1912.5	0.190	22.78 21.68	4M52W7D 4M53W7D	16QAM 64QAM
LTE Band 2/25	24L 24E	1855 - 1910	0.232	23.65	9M04G7D	QPSK
LTE Band 2/25	24E	1855 - 1910	0.189	22.77	9M03W7D	16QAM
LTE Band 2/25	24E	1855 - 1910	0.147	21.67	9M00W7D	64QAM
LTE Band 2/25	24E	1857.5 - 1907.5	0.231	23.64	13M5G7D	QPSK
LTE Band 2/25	24E	1857.5 - 1907.5	0.193	22.87	13M5W7D	16QAM
LTE Band 2/25 LTE Band 2/25	24E 24E	1857.5 - 1907.5 1860 - 1905	0.151 0.235	21.78 23.72	13M5W7D 18M0G7D	64QAM QPSK
LTE Band 2/25	24E	1860 - 1905	0.193	22.86	18M0W7D	16QAM
LTE Band 2/25	24E	1860 - 1905	0.151	21.78	18M0W7D	64QAM
LTE Band 7	27	2502.5 - 2567.5	0.092	19.65	4M57G7D	QPSK
LTE Band 7	27	2502.5 - 2567.5	0.077	18.87	4M53W7D	16QAM
LTE Band 7	27	2502.5 - 2567.5	0.061	17.83	4M55W7D	64QAM
LTE Band 7 LTE Band 7	27 27	2505 - 2565 2505 - 2565	0.105 0.084	20.21 19.26	9M01G7D 9M04W7D	QPSK 16QAM
LTE Band 7	27	2505 - 2565	0.064	18.18	9M00W7D	64QAM
LTE Band 7	27	2507.5 - 2562.5	0.179	22.52	13M5G7D	QPSK
LTE Band 7	27	2507.5 - 2562.5	0.148	21.70	13M5W7D	16QAM
LTE Band 7	27	2507.5 - 2562.5	0.114	20.55	13M5W7D	64QAM
LTE Band 7	27	2510 - 2560	0.112	20.48	18M0G7D	QPSK 160AM
LTE Band 7 LTE Band 7	27 27	2510 - 2560 2510 - 2560	0.094 0.077	19.75 18.85	18M0W7D 18M0W7D	16QAM 64QAM
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.528	27.22	4M56G7D	QPSK
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.414	26.17	4M51W7D	16QAM
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.346	25.39	4M53W7D	64QAM
LTE Band 41 (PC2)	27	2501 - 2685	0.603	27.80	9M00G7D	QPSK
LTE Band 41 (PC2)	27 27	2501 - 2685	0.497 0.413	26.96	9M04W7D	16QAM
LTE Band 41 (PC2) LTE Band 41 (PC2)	27	2501 - 2685 2503.5 - 2682.5	0.413	26.16 27.47	9M03W7D 13M5G7D	64QAM QPSK
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.419	26.22	13M5W7D	16QAM
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.356	25.51	13M2W7D	64QAM
LTE Band 41 (PC2)	27	2506 - 2680	0.525	27.20	18M0G7D	QPSK
LTE Band 41 (PC2)	27	2506 - 2680	0.422	26.25	18M0W7D	16QAM
LTE Band 41 (PC2)	27	2506 - 2680	0.328	25.15	17M9W7D	64QAM
LTE Band 41 (PC3) LTE Band 41 (PC3)	27 27	2498.5 - 2687.5 2498.5 - 2687.5	0.272 0.210	24.35 23.23	4M53G7D 4M51W7D	QPSK 16QAM
LTE Band 41 (PC3)	27	2498.5 - 2687.5	0.167	22.22	4M51W7D	64QAM
LTE Band 41 (PC3)	27	2501 - 2685	0.281	24.48	9M01G7D	QPSK
LTE Band 41 (PC3)	27	2501 - 2685	0.230	23.62	9M05W7D	16QAM
LTE Band 41 (PC3)	27	2501 - 2685	0.193	22.86	8M98W7D	64QAM
LTE Band 41 (PC3)	27	2503.5 - 2682.5	0.267	24.26	13M5G7D	QPSK 160AM
LTE Band 41 (PC3) LTE Band 41 (PC3)	27 27	2503.5 - 2682.5 2503.5 - 2682.5	0.210	23.22 22.37	13M5W7D 13M5W7D	16QAM 64QAM
LTE Band 41 (PC3)	27	2506 - 2680	0.173	22.37	18M0G7D	QPSK
LTE Band 41 (PC3)	27	2506 - 2680	0.223	23.48	17M9W7D	16QAM
LTE Band 41 (PC3)	27	2506 - 2680	0.181	22.57	17M9W7D	64QAM
		EUT Overvie	w (>1G	Hz)		

EUT Overview (>1GHz)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 4 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 4 of 221
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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 PCTEST Test Location

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

1.3 Test Facility / Accreditations

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

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

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage E of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 5 of 221
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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Tablet FCC ID: A3LSMT837P**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

Test Device Serial No.: 42489, 42299, 42158, 42497, 42224

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A (BC0, BC1, BC10), Multi-band LTE, 802.11b/g/n WLAN, 802.11a/n/ac UNII, Bluetooth (1x, EDR, LE), ANT+

LTE Band 26 (814.7 – 849 MHz) overlaps the entire frequency range of LTE Band 5 (824 – 849 MHz). Therefore, test data provided in this report covers Band 5 and the portion of Band 26 subject to Part 22.

LTE Band 25 (1850 - 1915 MHz) overlaps the entire frequency range of LTE Band 2 (1850 - 1910 MHz). Therefore, test data provided in this report covers Band 2 as well as Band 25.

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.

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 6 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 6 of 221
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3.0 DESCRIPTION OF TESTS

3.1 Measurement 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 Block C Frequency Range

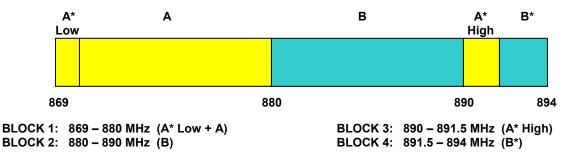
Two paired channels of 11 megahertz each are available for assignment in Block C in the 746-757 MHz and 776-787 MHz bands. In the event that no licenses for two channels in this Block C are assigned based on the results of the first auction in which such licenses were offered because the auction results do not satisfy the applicable reserve price, the spectrum in the 746-757 MHz and 776-787 MHz bands will instead be made available for assignment at a subsequent auction as follows: (i) Two paired channels of 6 megahertz each available for assignment in Block C1 in the 746-752 MHz and 776-782 MHz bands. (ii) Two paired channels of 5 megahertz each available for assignment in Block C2 in the 752-757 MHz and 782-787 MHz bands.

3.3 Block A Frequency Range

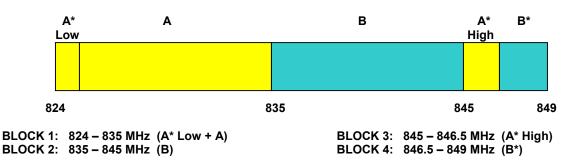
<u>698-746 MHz band</u>. The following frequencies are available for licensing pursuant to this part in the 698-746 MHz band: (1) Three paired channel blocks of 12 megahertz each are available for assignment as follows:

Block A: 698-704 MHz and 728-734 MHz; Block B: 704-710 MHz and 734-740 MHz; and Block C: 710-716 MHz and 740-746 MHz.

3.4 Cellular - Base Frequency Blocks

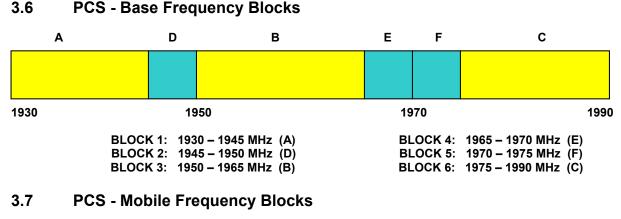


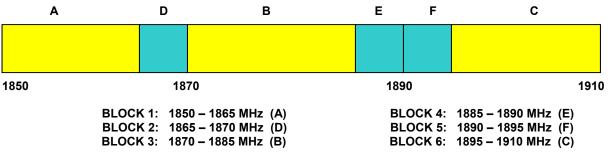
3.5 Cellular - Mobile Frequency Blocks



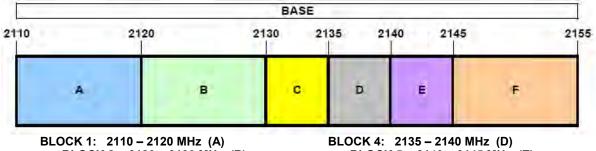
FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 7 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		raye / UIZZI
				V 8 1 05/10/2018





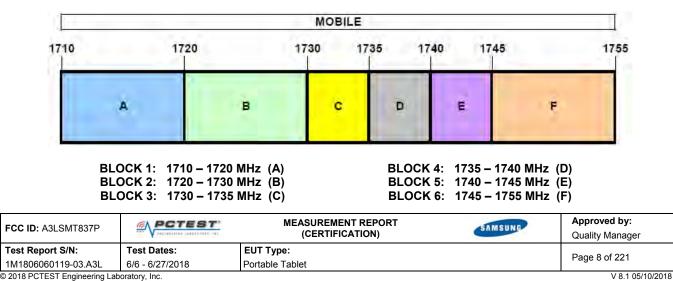


3.8 AWS - Base Frequency Blocks



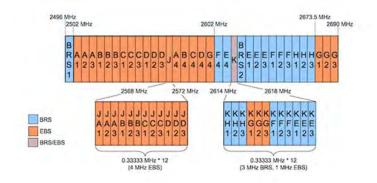
BLOCK 2: 2120 – 2130 MHz (B) BLOCK 3: 2130 – 2135 MHz (C) BLOCK 4: 2135 – 2140 MHz (D) BLOCK 5: 2140 – 2145 MHz (E) BLOCK 6: 2145 – 2155 MHz (F)

3.9 AWS - Mobile Frequency Blocks





3.10 BRS/EBS Frequency Block



3.11 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. 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].

The calculated P_d levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10log₁₀(Power [Watts]). For Band 7 and 41, the calculated P_d levels are compared to the absolute spurious emission limit of -25dBm which is equivalent to the required minimum attenuation of 55 + 10log₁₀(Power [Watts]).

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 0 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 9 of 221
© 2018 PCTEST Engineering Laboratory Inc				V 8 1 05/10/2018



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

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 10 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 10 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



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
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	6/21/2017	Annual	6/21/2018	RE1
-	LTx3	Licensed Transmitter Cable Set	2/21/2018	Annual	2/21/2019	LTx3
Com-Power	PAM-103	Pre-Amplifier (1-1000MHz)	6/21/2017	Annual	6/21/2018	441119
EMCO	3160-09	Small Horn (18 - 26.5GHz)	8/23/2016	Biennial	8/23/2018	135427
Espec	ESX-2CA	Environmental Chamber	3/28/2018	Annual	3/28/2019	17620
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	3/28/2018	Biennial	3/28/2020	128337
Mini Circuits	TVA-11-422	RF Power Amp		N/A		QA1317001
Mini Circuits	PWR-SEN-4GHS	USB Power Sensor	3/30/2018	Annual	3/30/2019	11401010036
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11208010032
Mini-Circuits	PWR-SEN-4RMS	USB Power Sensor	3/30/2018	3/30/2018 Annual 3/30/2019		11210140001
Mini-Circuits	TVA-11-422	RF Power Amp	N/A			QA1303002
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11403100002
Rohde & Schwarz	CMW500	Radio Communication Tester		N/A		
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	1/24/2018	Annual	1/24/2019	100040
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	5/21/2018	Annual	5/21/2019	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	7/31/2017	Annual	7/31/2018	100348
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/11/2017	Annual	8/11/2018	103200
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/3/2017	Annual	7/3/2018	102135
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/3/2017	Annual	7/3/2018	102134
Sunol	DRH-118	Horn Antenna (1-18GHz)	8/11/2017	Biennial	8/11/2019	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	4/19/2018	Biennial	4/19/2020	A051107
Sunol	DRH-118	Horn Antenna (1-18 GHz)	8/11/2017	Biennial	8/11/2019	A042511

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.

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 11 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 11 of 221
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.1 05/10/2018



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 analzyer. 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).

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 10 of 001
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 12 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



TEST RESULTS 7.0

7.1 Summary

Company Name:	Samsung Electronics Co., Ltd.
FCC ID:	A3LSMT837P
FCC Classification:	PCS Licensed Transmitter (PCB)
Mode(s):	<u>LTE</u>

<u>LTE</u> FCC Part

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A		PASS	Section 7.2
2.1051 2.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Out of Band Emissions	> 43 + 10log ₁₀ (P[Watts]) at Band Edge and for all out-of- band emissions		PASS	Section 7.3, 7.4
27.53(m)	Out of Band Emissions	Undesirable emissions must meet the limits detailed in 27.53(m)		PASS	Section 7.3, 7.4
24.232(d)	Peak-Average Ratio	< 13 dB	CONDUCTED	PASS	Section 7.5
2.1046	Transmitter Conducted Output Power	N/A		PASS	See RF Exposure Report
2.1055 22.355 24.235 27.54	Frequency Stability	< 2.5 ppm (Part 22) and fundamental emissions stay within authorized frequency block (Part 24, 27)		PASS	Section 7.11

Table 7-1. Summary of Conducted Test Results

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 12 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 13 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
22.913(a)(5)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 26/5)	< 7 Watts max. ERP		PASS	Section 7.6
27.50(b)(10) 27.50(c)(10)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 12, 13)	< 3 Watts max. ERP		PASS	Section 7.6
24.232(c) 27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 25/2, 7, 41)	< 2 Watts max. EIRP		PASS	Section 7.6
27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4)	< 1 Watts max. EIRP	RADIATED	PASS	Section 7.6
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Undesirable Emissions (Band 12, 5/26, 4, 2/25)	> 43 + 10log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 7.9
27.53(f)	Undesirable Emissions (Band 13)	< -70 dBW/MHz (for wideband signals) < -80 dBW (for discrete emissions less than 700Hz BW) For all emissions in the band 1559 – 1610 MHz		PASS	Section 7.9
27.53(m)	Undesirable Emissions (Band 7, 41)	Undesirable emissions must meet the limits detailed in 27.53(m)		PASS	Section 7.9

Table 7-2. Summary of Radiated Test Results

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots (Sections 7.2, 7.3, 7.4, 7.5) 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) 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 "LTE Automation," Version 4.8.
- 5) For operation <1GHz, the EIRP limits in the table above are referenced to the specifications written in the relevant Radio Standards Specifications for Innovation, Science, and Economic Development Canada.

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 14 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 14 of 221
2018 PCTEST Engineering Laboratory, Inc.				V 8.1 05/10/2018



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.

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 15 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 15 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Band 12



Plot 7-1. Occupied Bandwidth Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)



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

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 16 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 16 of 221
2018 PCTEST Engineering Laboratory, Inc.				V 8.1 05/10/2018





Plot 7-3. Occupied Bandwidth Plot (Band 12 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-4. Occupied Bandwidth Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

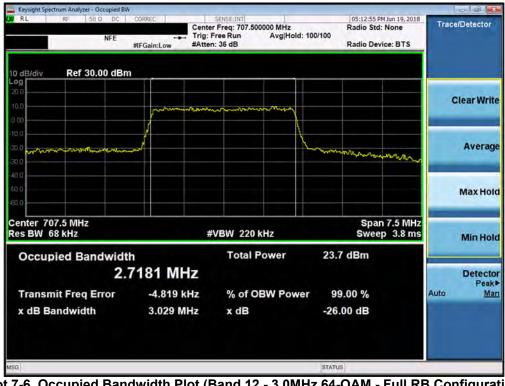
FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 17 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 17 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			

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NRL RF 50 2 DC	Trig: F	SENSE:INT r Freq: 707.500000 MHz Free Run Avg Ho h: 36 dB	ld: 100/100	05:12:22 PMJun 19, 2018 Radio Std: None Radio Device: BTS	Trace/Detector
10 dB/div Ref 30.00 dBm	Junio	manne			Clear Write
0.0 0 0	1		L		Averag
0.0 0.0 20					Max Hol
Center 707.5 MHz tes BW 68 kHz		VBW 220 kHz		Span 7.5 MHz Sweep 3.8 ms	Min Hol
Occupied Bandwidth 2.7	n 7249 MHz	Total Power	24.	7 dBm	Detecto
Transmit Freq Error x dB Bandwidth	-4.683 kHz 3.037 MHz	% of OBW Pov x dB		9.00 % .00 dB	Auto <u>Mar</u>
ISG			STAT	15	

Plot 7-5. Occupied Bandwidth Plot (Band 12 - 3.0MHz 16-QAM - Full RB Configuration)



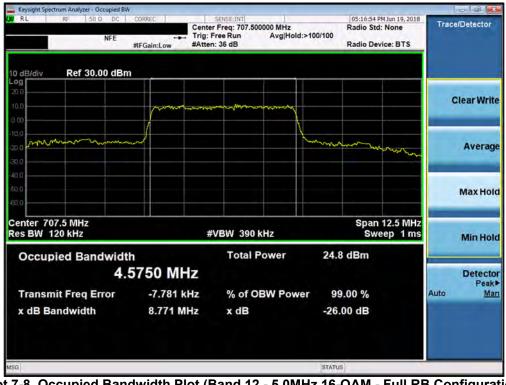
Plot 7-6. Occupied Bandwidth Plot (Band 12 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 19 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 18 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



RL RF 50 Ω DC NFE	Trig:	SENSE:INT Ir Freq: 707.500000 MHz Free Run Avg Hol n: 36 dB	d: 100/100	05:16:41 PM Jun 19, 2018 Radio Std: None Radio Device: BTS	Trace/Detector
10 dB/div Ref 30.00 dBm		man an a			Clear Write
20.0 -20.0 -20.0	~		h	m. m	Average
40.0 60.0 60.0					Max Hold
Center 707.5 MHz Res BW 120 kHz		VBW 390 kHz		Span 12.5 MHz Sweep 1 ms	
Occupied Bandwidth 4.5 Transmit Freq Error x dB Bandwidth	1 5903 MHz 10.834 kHz 7.088 MHz	Total Power % of OBW Pow x dB	ver 99	dBm .00 % 00 dB	Detecto Peak Auto <u>Ma</u>
so			STATUS		-

Plot 7-7. Occupied Bandwidth Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



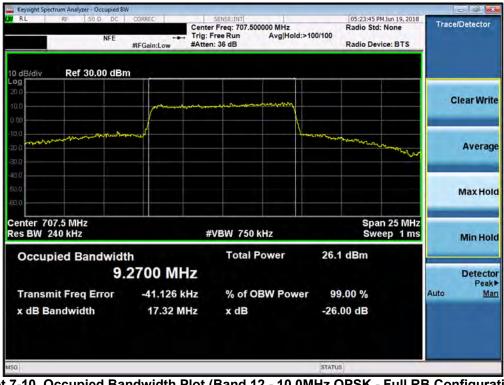
Plot 7-8. Occupied Bandwidth Plot (Band 12 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 10 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 19 of 221
© 2018 PCTEST Engineering La	V 8.1 05/10/2018			



RL RF 50Ω DC	Center Trig: F	SENSE:INT r Freq: 707.500000 MHz Free Run Avg H 1: 36 dB	old: 100/100	05:17:14 PMJun 19, 20 Radio Std: None Radio Device: BTS	Trace/Detector
10 dB/div Ref 30.00 dBm		an and a second			Clear Write
0.0 0.0			h		Averag
0.0 0.0 0.0					Max Hol
enter 707.5 MHz es BW 120 kHz		VBW 390 kHz Total Power	22	Span 12.5 M Sweep 1 r 8 dBm	
	5829 MHz				Detecto
Transmit Freq Error x dB Bandwidth	-2.850 kHz 8.073 MHz	% of OBW Po x dB		9.00 % .00 dB	Auto <u>Ma</u>
i0			STATL	IS	

Plot 7-9. Occupied Bandwidth Plot (Band 12 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-10. Occupied Bandwidth Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 20 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 20 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



NRL RF 50 Ω DC	Cento Trig:	SENSE:INT er Freq: 707.500000 MH Free Run Avg t en: 36 dB	z Hold: 100/100	05:23:58 PM Jun 19, 2 Radio Std: None Radio Device: BTS	Trace/Detector
10 dB/div Ref 30.00 dBn	mmm		~		ClearWrite
-10.0 -20.0 -20.0	~		Municipany	an and a second	Average
-40.0 -50.0 -50.0					Max Hole
Center 707.5 MHz Res BW 240 kHz		#VBW 750 kHz		Span 25 M Sweep 1	
	h 2834 MHz -43.770 kHz 18.44 MHz	Total Power % of OBW Po x dB	ower 9	8 dBm 9.00 % .00 dB	Detecto Peak Auto <u>Ma</u>
150			STATU	JS	

Plot 7-11. Occupied Bandwidth Plot (Band 12 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-12. Occupied Bandwidth Plot (Band 12 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 21 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 21 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Band 13



Plot 7-13. Occupied Bandwidth Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

Keysight Spectrum Analyzer - Occupied BW RL RF 50 Ω AC	CORREC	SENSE:INT		07:05:13 PM Jun 11, 2018	Trace/Detector
	Tr	enter Freq: 782.00000 ig: Free Run Atten: 36 dB	0 MHz Avg Hold: 100/100	Radio Std: None Radio Device: BTS	Trace/Detector
0 dB/div Ref 30.00 dBm			11	1	
10.0 9 00	Jum	munu maran			Clear Writ
a a a a a a a a a a a a a a a a a a a]		him	man and m	Averag
					Max Hol
enter 782 MHz es BW 120 kHz		#VBW 390 kH	z	Span 12.5 MHz Sweep 1 ms	
Occupied Bandwidth 4.5	5173 MHz	Total Pov	wer 30.	4 dBm	Detecto
Transmit Freq Error x dB Bandwidth	-3.270 kHz 4.953 MHz			9.00 % .00 dB	Auto <u>Ma</u>
iG			STAT	IS	

Plot 7-14. Occupied Bandwidth Plot (Band 13 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 22 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet	et Pag	
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			





Plot 7-15. Occupied Bandwidth Plot (Band 13 - 5.0MHz 64-QAM - Full RB Configuration)

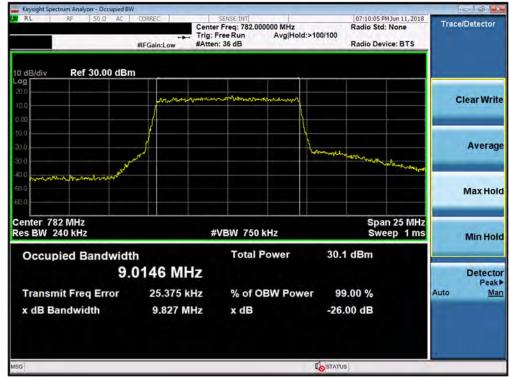


Plot 7-16. Occupied Bandwidth Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

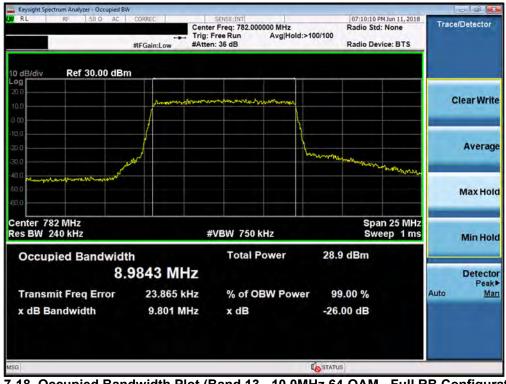
FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 22 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 23 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			

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Plot 7-17. Occupied Bandwidth Plot (Band 13 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-18. Occupied Bandwidth Plot (Band 13 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 24 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 24 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			





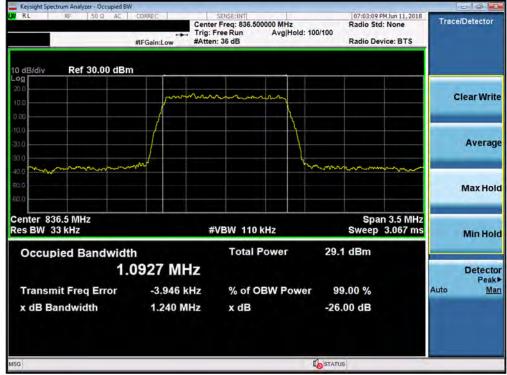
Plot 7-19. Occupied Bandwidth Plot (Band 5/26 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-20. Occupied Bandwidth Plot (Band 5/26 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 25 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	8 Portable Tablet		Page 25 of 221
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Plot 7-21. Occupied Bandwidth Plot (Band 5/26 - 1.4MHz 64-QAM - Full RB Configuration)



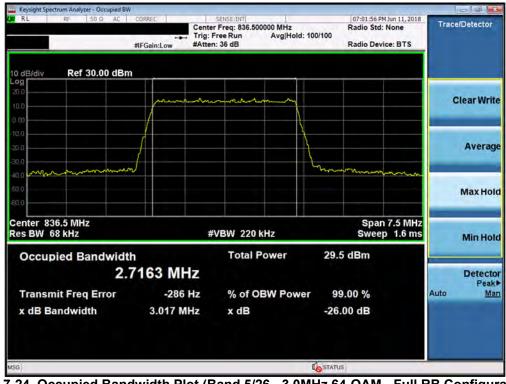
Plot 7-22. Occupied Bandwidth Plot (Band 5/26 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dago 26 of 221	
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 26 of 221	
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018				



Keysight Spectrum Analyzer - Occupied BW	CORREC	cruce turl	102.01.51		- @ ×
	#IFGain:Low #Atter	SENSE:INT r Freq: 836.500000 MHz Free Run Avg Hold: n: 36 dB	Radio Sto		Trace/Detector
10 dB/div Ref 30.00 dBm	mmmm				Clear Writ
10.0 20.0 30.0 40.0			L		Averag
-40.0					Max Hol
Center 836.5 MHz Res BW 68 kHz Occupied Bandwidtl		VBW 220 kHz Total Power		n 7.5 MHz ep 1.6 ms	Min Hol
	7 196 MHz 1.964 kHz 3.019 MHz	% of OBW Powe x dB		,	Detecto Peak Auto <u>Ma</u>
rsa			STATUS		

Plot 7-23. Occupied Bandwidth Plot (Band 5/26 - 3.0MHz 16-QAM - Full RB Configuration)



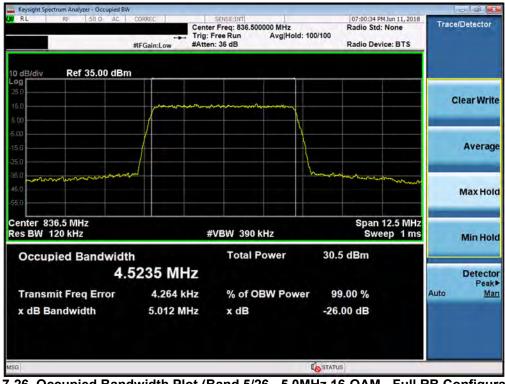
Plot 7-24. Occupied Bandwidth Plot (Band 5/26 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 07 of 001
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet	Page 27 of 221	
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Occupied BW					
RL RF 50Ω AC	Cente Trig: I	SENSE:INT r Freq: 836.500000 MHz Free Run Avg Hold: 1 n: 36 dB	Radio Std:		Trace/Detector
10 dB/div Ref 35.00 dBm					
25.0	Jan Marana	minimum			Clear Writ
-5.00 					Averag
35.0 www.www.www. 45.0 55.0			han marthant	mult	Max Hol
Center 836.5 MHz Res BW 120 kHz	#	VBW 390 kHz		12.5 MHz ep 1 ms	Min Hol
Occupied Bandwidth 4.5	375 MHz	Total Power	31.5 dBm		Detecto
Transmit Freq Error x dB Bandwidth	1.666 kHz 4.964 MHz	% of OBW Power x dB	99.00 % -26.00 dB	A	uto <u>Ma</u>
ISO					

Plot 7-25. Occupied Bandwidth Plot (Band 5/26 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-26. Occupied Bandwidth Plot (Band 5/26 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	EUT Type:	
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 28 of 221
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.1 05/10/2018



X RL RF 50Ω AC	Trig: F	SENSE:IMT r Freq: 836.500000 MHz Free Run Avg He n: 36 dB	old: 100/100	Radio Std		Trace/Detector
10 dB/div Ref 35.00 dBm						
25.0	Junio	mathing the state the second				Clear Writ
5.00 5.00 15.0 25.0						Averag
35.0	J			mm	mon	Max Hol
Center 836.5 MHz Res BW 120 kHz	#	VBW 390 kHz		Sw	12.5 MHz eep 1 ms	Min Hol
Occupied Bandwidth 4.5	5304 MHz	Total Power	29.	1 dBm		Detecto
Transmit Freq Error x dB Bandwidth	8.964 kHz 4.999 MHz	% of OBW Po x dB		9.00 % .00 dB		Auto <u>Ma</u> r
50			STATI	JS		

Plot 7-27. Occupied Bandwidth Plot (Band 5/26 - 5.0MHz 64-QAM - Full RB Configuration)



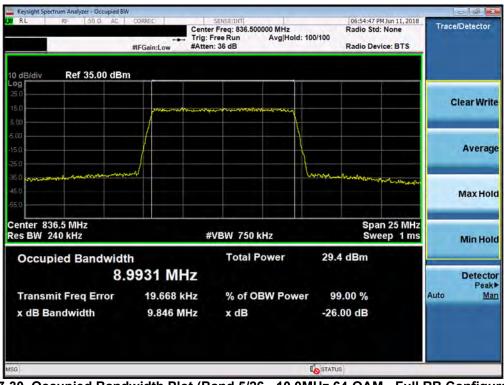
Plot 7-28. Occupied Bandwidth Plot (Band 5/26 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Page 29 of 221	
1M1806060119-03.A3L	6/6 - 6/27/2018	7/2018 Portable Tablet			
© 2018 PCTEST Engineering Laboratory, Inc. V 8.1 05/10/2018					



Keysight Spectrum Analyzer - Occupied BW						
RL RF 50Ω AC		SENSE:INT Center Freq: 836.500 Trig: Free Run #Atten: 36 dB	0000 MHz Avg Hold: 100/10	Radio Std:		Trace/Detector
10 dB/div Ref 35.00 dBm						
250 15.0	partire	mahana di manangi da				Clear Writ
5.00 15.0 25.0						Averag
55 0				monterman	man	Max Hol
Center 836.5 MHz Res BW 240 kHz		#VBW 7501		Swe	n 25 MHz ep 1 ms	Min Hol
Occupied Bandwidth		Total P	ower	30.3 dBm		
9.0	237 MH	Z				Detecto
Transmit Freq Error x dB Bandwidth	14.549 kH 9.850 MH		BW Power	99.00 % 26.00 dB	A	Peak uto <u>Ma</u>
ISG			to ^s	TATUS		

Plot 7-29. Occupied Bandwidth Plot (Band 5/26 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-30. Occupied Bandwidth Plot (Band 5/26 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 20 of 224	
1M1806060119-03.A3L	6/6 - 6/27/2018 Portable Tablet			Page 30 of 221	
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.1 05/10/2018	





Plot 7-31. Occupied Bandwidth Plot (Band 26 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-32. Occupied Bandwidth Plot (Band 26 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 21 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 31 of 221
© 2018 PCTEST Engineering La	V 8.1 05/10/2018			



KL RF 50 Q AC	Trig:	SENSE:INT Ir Freq: 836.500000 MHz Free Run Avg Hol n: 36 dB	d: 100/100	06:16:16 PM Jun 19, Radio Std: None Radio Device: BT	Trace/Detector
10 dB/div Ref 40.00 dBm		in and a start			ClearWrite
0.00 -100 -200			1	Han and a start and a start and a start	Average
-50 0					Max Hold
Center 836.5 MHz Res BW 360 kHz Occupied Bandwidtl		VBW 1.1 MHz	31.	Span 37.5 f Sweep 1 2 dBm	
	.483 MHz 5.283 kHz 14.80 MHz	% of OBW Pow x dB		9.00 % .00 dB	Detecto Peak Auto <u>Mar</u>
ISG			STATU	S	

Plot 7-33. Occupied Bandwidth Plot (Band 26 - 15.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 22 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 32 of 221
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Band 4



Plot 7-34. Occupied Bandwidth Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-35. Occupied Bandwidth Plot (Band 4 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 22 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 33 of 221
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Plot 7-36. Occupied Bandwidth Plot (Band 4 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-37. Occupied Bandwidth Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

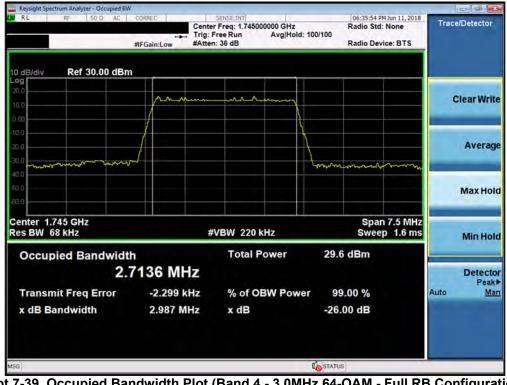
FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 24 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 34 of 221
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Plot 7-38. Occupied Bandwidth Plot (Band 4 - 3.0MHz 16-QAM - Full RB Configuration)



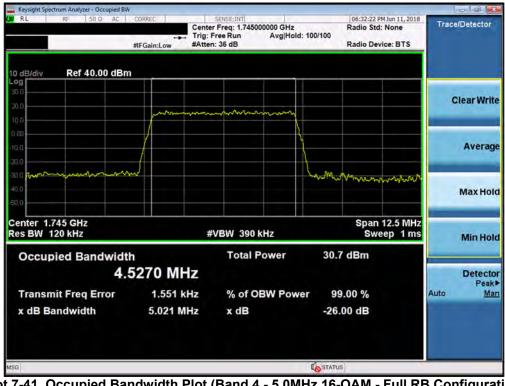
Plot 7-39. Occupied Bandwidth Plot (Band 4 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 25 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet	Page 35 of 221	
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.1 05/10/2018



RL RF 50Ω AC	Cente Trig: F	SENSE:INT r Freq: 1.745000000 GHz Free Run Avg Holo n: 36 dB	Radio S	s PMJun 11, 2018 td: None evice: BTS	Trace/Detector
10 dB/div Ref 40.00 dBm					Clear Write
0.00					Average
30.0 mm			manger	mm	Max Hold
Center 1.745 GHz Res BW 120 kHz Occupied Bandwidt		VBW 390 kHz Total Power		n 12.5 MHz veep 1 ms	Min Hole
4.	-17.215 kHz 5.060 MHz	% of OBW Pow x dB			Detecto Peak Auto <u>Ma</u>
50			STATUS		

Plot 7-40. Occupied Bandwidth Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



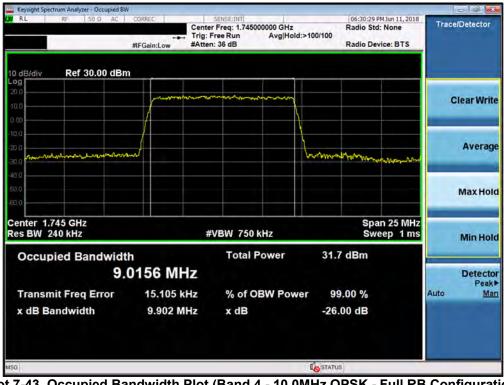
Plot 7-41. Occupied Bandwidth Plot (Band 4 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 26 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 36 of 221
© 2018 PCTEST Engineering Laboratory, Inc.				V 8.1 05/10/2018





Plot 7-42. Occupied Bandwidth Plot (Band 4 - 5.0MHz 64-QAM - Full RB Configuration)



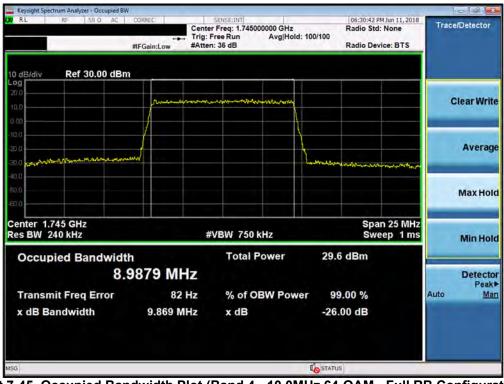
Plot 7-43. Occupied Bandwidth Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 27 of 221	
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 37 of 221	
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018				



Keysight Spectrum Analyzer - Occupied BW	CORREC	SENSE:INT		06-20-27.0	M Jun 11, 2018	- @ <mark>-</mark> X
	Cente Trig: I	r Freq: 1.745000000 GHz	old:>100/100	Radio Std: Radio Dev	None	Trace/Detector
10 dB/div Ref 30.00 dBm						
20.0	hand	n management				Clear Writ
0.00			\			
10.0 20.0 30.0	1		Lunhow	a con all the en	mmun	Averag
40.0					and a state	
60,0 60,0						Max Hol
Center 1.745 GHz Res BW 240 kHz	#	VBW 750 kHz			n 25 MHz ep 1 ms	Min Hol
Occupied Bandwidth		Total Power	31.0) dBm		
9.0	269 MHz					Detecto
Transmit Freq Error	12.263 kHz	% of OBW Por	wer 99	0.00 %		Auto <u>Ma</u>
x dB Bandwidth	9.884 MHz	x dB	-26.	00 dB		
sa			STATU	S		

Plot 7-44. Occupied Bandwidth Plot (Band 4 - 10.0MHz 16-QAM - Full RB Configuration)



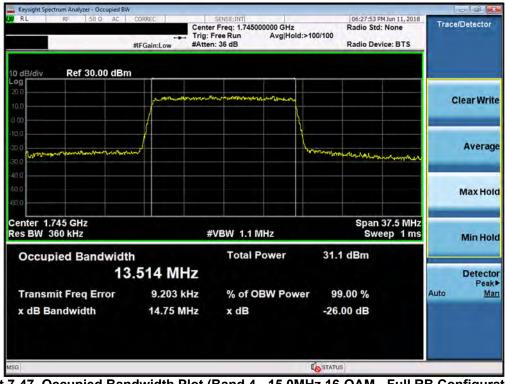
Plot 7-45. Occupied Bandwidth Plot (Band 4 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 29 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 38 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Occupied BW RL RF 50 Ω AC 000	RREC	SENSE:INT	-	06:27:45 PM Jun 1	1,2018
	Center Trig: F	Freg: 1.745000000 G	Hz Hold: 100/100	Radio Std: Non Radio Device: B	e Trace/Detector
10 dB/div Ref 30.00 dBm		_	-		
20.0	monoher	and the second	7		Clear Writ
0.00					
20.0			Multin Minny	no supporter	Averag
40.α 50.0					Max Hol
Center 1.745 GHz				Span 37.5	MH2
Res BW 360 kHz	#	VBW 1.1 MHz		Sweep	
Occupied Bandwidth 13.5	510 MHz	Total Power	32.	0 dBm	Detecto
Transmit Freq Error x dB Bandwidth	10.623 kHz 14.80 MHz	% of OBW P x dB		9.00 % 5.00 dB	Auto <u>Ma</u>
so			STAT	JS	-

Plot 7-46. Occupied Bandwidth Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-47. Occupied Bandwidth Plot (Band 4 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 20 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 39 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Cente Trig: I	r Freq: 1.745000000 Free Run Avg		Radio Std: None Radio Device: BTS	Trace/Detector
(1	-1		
minimum				Clear Writ
1				
		hereber	Amand monorman	Averag
				Max Hol
				-
#	VBW 1.1 MHz		Span 37.5 WHz Sweep 1 ms	Min Hol
	Total Powe	r 30.	0 dBm	
96 MHz				Detecto
3.594 kHz	% of OBW	Power 9	9.00 %	Auto Ma
14.70 MHz	x dB	-26	.00 dB	
	Trig: 1	Center Freq: 1.745000000 Trig: Free Run Avg #Atten: 36 dB #VBW 1.1 MHz #VBW 1.1 MHz Total Powe 96 MHz 3.594 kHz % of OBW F	Center Freq: 1.74500000 GHz Trig: Free Run Avg Hold: 100/100 #Atten: 36 dB #VBW 1.1 MHz #VBW 1.1 MHz Total Power 30. 96 MHz 3.594 kHz % of OBW Power 9 14.70 MHz x dB -26	Center Freq: 1.745000000 GHz Trig: Free Run AvgHold: 100/100 #Atten: 36 dB Radio Device: BTS Radio Device

Plot 7-48. Occupied Bandwidth Plot (Band 4 - 15.0MHz 64-QAM - Full RB Configuration)



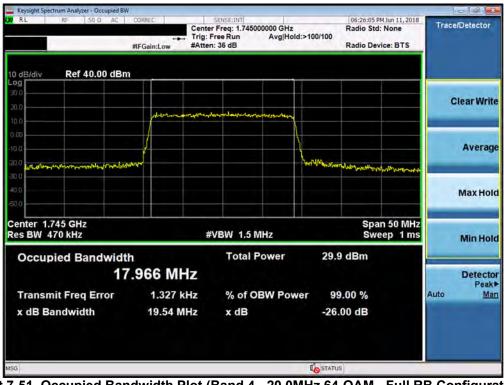
Plot 7-49. Occupied Bandwidth Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 40 of 221	
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 40 of 221	
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Keysight Spectrum Analyzer - Occupied BW RL RF 50 Ω AC 00	RREC	SENSE:INT		06-26-00.0	M Jun 11, 2018	- @ ×
31# 	Cente Trig: F	r Freq: 1.745000000 GHz	ld: 100/100	Radio Std: Radio Dev	None	Trace/Detector
10 dB/div Ref 40.00 dBm		1 1		1		
30.0						Clear Writ
10.0	production	mar and				
0.00	1		\			
10.0			harmen	ymanulata	and the state	Averag
30.0				- Hologoay	A BUNCHARD	
40,0						Max Hol
Center 1.745 GHz			-	Spa	n 50 MHz	
Res BW 470 kHz	#	VBW 1.5 MHz			ep 1 ms	Min Hol
Occupied Bandwidth		Total Power 31.1				
17.9	36 MHz					Detecto
Transmit Freq Error	5.165 kHz	% of OBW Por	wer 9	9.00 %	1	Auto <u>Ma</u>
x dB Bandwidth	19.51 MHz	x dB	-26	.00 dB		
sa			STAT	10		
ne -			NO STATE			

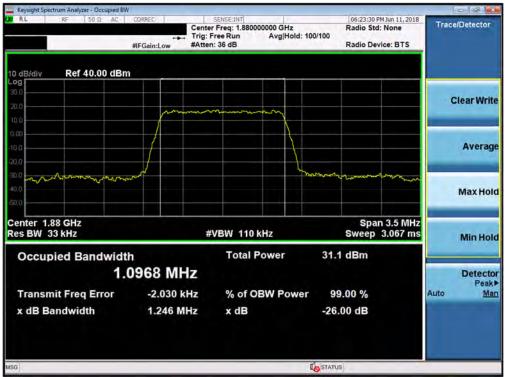
Plot 7-50. Occupied Bandwidth Plot (Band 4 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-51. Occupied Bandwidth Plot (Band 4 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 41 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 41 of 221
© 2018 PCTEST Engineering La	V 8.1 05/10/2018			





Plot 7-52. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-53. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 42 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 42 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			





Plot 7-54. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)



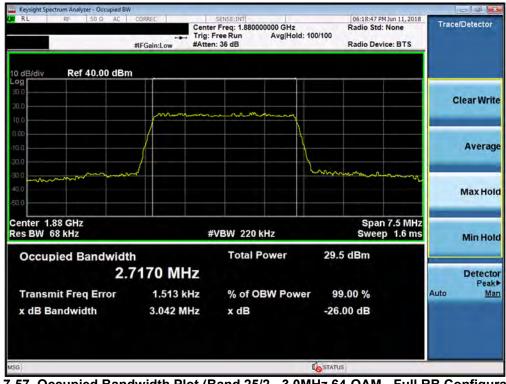
Plot 7-55. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dogo 42 of 221	
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 43 of 221	
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018				



Keysight Spectrum Analyzer - Occupied BW RL RF 50 Ω AC	CORREC	SENSE:INT		06:18:42 PM Jun 11, 2018 Radio Std: None	Trace/Detector
	#IFGain:Low #Atten:			Radio Device: BTS	
10 dB/div Ref 40.00 dBm		1	-		
30.0					Clear Write
10.0					
20.0	1				Averag
30.0 40.0 50.0	~		min	mmm	Max Hol
Center 1.88 GHz Res BW 68 kHz	#	VBW 220 kHz		Span 7.5 MHz Sweep 1.6 ms	Min Hol
Occupied Bandwidth	n 7203 MHz	Total Power	30.4 0	iBm	Detecto
Transmit Freq Error x dB Bandwidth	870 Hz 3.039 MHz	% of OBW Powe x dB	er 99.0 -26.00		Auto <u>Ma</u>
sq			To STATUS		-

Plot 7-56. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-57. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type: 18 Portable Tablet		Dana 44 of 224	
1M1806060119-03.A3L	6/6 - 6/27/2018			Page 44 of 221	
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Keysight Spectrum Analyzer - Occupied BW				and the second	- @ ×
RL RF 50Ω AC	Trig:	SENSE:INT ter Freq: 1.880000000 GHz : Free Run Avg Hold en: 36 dB	Radio d: 100/100	15 PM Jun 11, 2018 Std: None Device: BTS	Trace/Detector
10 dB/div Ref 30.00 dBm					
20.0	francis	mann			Clear Writ
0.00					
10.0 20.0 30.0 m Anger	<i>A</i>		francis	manna	Averag
40.0 50.0					Max Hol
Center 1.88 GHz Res BW 120 kHz		#VBW 390 kHz		an 12.5 MHz sweep 1 ms	Min Hol
Occupied Bandwidt	5376 MHz	Total Power	31.6 dBm		Detecto
Transmit Freq Error x dB Bandwidth	209 Hz 5.042 MHz	% of OBW Pow x dB	ver 99.00 % -26.00 dB		Peak Auto <u>Ma</u>
50			STATUS		

Plot 7-58. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-59. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 45 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 45 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Occupied BW					
RL RF 50Ω AC	Cente Trig: F	SENSE:INT r Freq: 1.880000000 GHz Free Run Avg Hold n: 36 dB	Radio	44 PMJun 11,2018 Std: None Device: BTS	Trace/Detector
10 dB/div Ref 30.00 dBm					
20.0	m	many			Clear Write
0 60 -10.0 -20.0 			hanne	,	Averag
40.0 60.0 60.0					Max Hole
Center 1.88 GHz Res BW 120 kHz	#	VBW 390 kHz		an 12.5 MHz weep 1 ms	Min Hol
Occupied Bandwidth 4.5	316 MHz	Total Power	29.6 dBm		Detecto
Transmit Freq Error x dB Bandwidth	5.204 kHz 5.015 MHz	% of OBW Powe x dB	er 99.00 % -26.00 dB		Auto <u>Mar</u>
so			STATUS		-

Plot 7-60. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-61. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:		Dage 40 of 004			
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 46 of 221			
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Plot 7-62. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-63. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	8 Portable Tablet		Dago 47 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018			Page 47 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Occupied BW					States in	X
	Trig:	SENSE:INT er Freq: 1.880000000 G Free Run Avg en: 36 dB	Hz Hold:>100/100	06:06:38 PM Jur Radio Std: No Radio Device:	one	Trace/Detector
10 dB/div Ref 30.00 dBm	for down on a down		wy			Clear Write
20.0 20.0 30.0			lunn	when the mostly		Averag
40.0 50.0						Max Hol
Center 1.88 GHz Res BW 360 kHz Occupied Bandwidth		≠VBW 1.1 MHz Total Power	31.	Span 37. Sweep 5 dBm		Min Hol
	.514 MHz 8.561 kHz 14.86 MHz	% of OBW P x dB	ower 9	9.00 % .00 dB	Au	Detecto Peaki to <u>Ma</u> i
so			Co STATL	IS	-	

Plot 7-64. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-65. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type: Portable Tablet		Dage 49 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018			Page 48 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			





Plot 7-66. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz 64-QAM - Full RB Configuration)



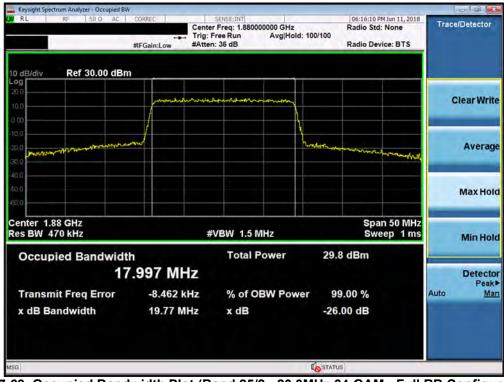
Plot 7-67. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager			
Test Report S/N:	Test Dates:	EUT Type:		Dage 40 of 221			
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 49 of 221			
© 2018 PCTEST Engineering Laboratory, Inc. V 8.1 05							



Keysight Spectrum Analyzer - Occupied B RL RF 50 Ω AC	CORREC	SENS	c.uurl			06-02-501	PM Jun 11, 2018		X
		Center Free Trig: Free F #Atten: 36 d	q: 1.880000 Run		d: 100/100	Radio Sto	i: None	Trace	elDetector
10 dB/div Ref 30.00 dBr	n					1			
20.0								c	Clear Write
-10.0 -0.0 -0.0	~				L		m		Average
-40.0 -60.0 -60.0									Max Hold
Center 1.88 GHz Res BW 470 kHz		#VBV	V 1.5 M	Hz			an 50 MHz eep 1 ms		Min Hold
Occupied Bandwid	th 3.007 MH		Total Po	ower	31.5	5 dBm			Detecto
Transmit Freq Error x dB Bandwidth	-8.912 k 19.78 M		% of OE c dB	3W Pow		9.00 % 00 dB		Auto	Peak Mar
MSG					STATU	S	-	-	_

Plot 7-68. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-69. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 50 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 50 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Band 7



Plot 7-70. Occupied Bandwidth Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

	CORREC	SENSE:INT Center Freq: 2.63500 Trig: Free Run #Atten: 36 dB	00000 GHz Avg Hold: 100/100	06:50:49 PM Jun 11, 2018 Radio Std: None Radio Device: BTS	Trace/Detector
0 dB/div Ref 30.00 dBm					
0.00	/	-handrana			Clear Write
0.0 minute the manual the			hum	Marine Marine	Averag
αφ αφ					Max Hol
enter 2.535 GHz les BW 120 kHz		#VBW 3901		Span 12.5 MHz Sweep 1 ms	
Occupied Bandwidth 4.5	308 MH	Total P	'ower 30.	8 dBm	Detecto
Transmit Freq Error x dB Bandwidth	10.379 kl 5.025 Ml			9.00 % 6.00 dB	Auto <u>Ma</u>
SG			STAT	US	

Plot 7-71. Occupied Bandwidth Plot (Band 7 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 51 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 51 01 22 1
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Plot 7-72. Occupied Bandwidth Plot (Band 7 - 5.0MHz 64-QAM - Full RB Configuration)



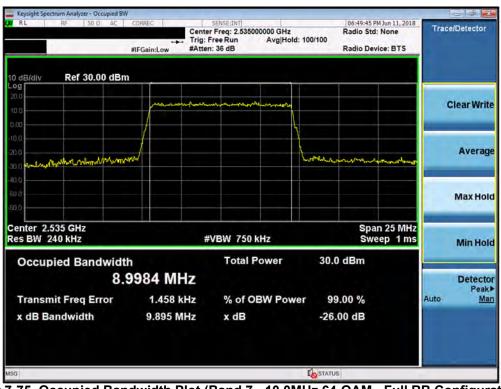
Plot 7-73. Occupied Bandwidth Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 52 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 52 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Occupied BW					
#IF4	Center Trig: F	SENSE:INT Free ?: 2.535000000 GHz Free Run Avg Hol :: 36 dB	Radio d: 100/100	38 PM Jun 11, 2018 Std: None Device: BTS	Trace/Detector
0 dB/div Ref 30.00 dBm 	manna				ClearWrit
0.00 					orear min
0.0 marine start marine south			manner	and managed the	Averag
α.0 α.0 0.0					Max Hol
enter 2.535 GHz es BW 240 kHz	#	VBW 750 kHz		pan 25 MHz Sweep 1 ms	Min Hol
Occupied Bandwidth 9.04	36 MHz	Total Power	31.3 dBm		Detecto
Transmit Freq Error x dB Bandwidth	12.682 kHz 9.928 MHz	% of OBW Pow x dB	ver 99.00 % -26.00 dE		Peak Auto <u>Ma</u>
G			To STATUS		

Plot 7-74. Occupied Bandwidth Plot (Band 7 - 10.0MHz 16-QAM - Full RB Configuration)



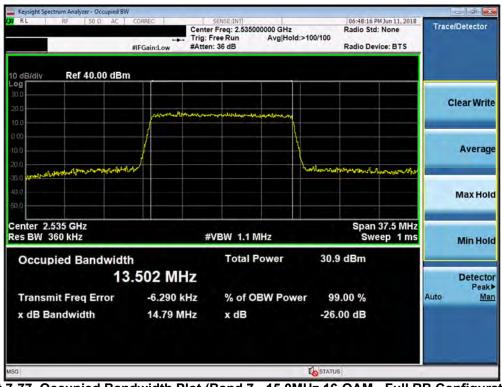
Plot 7-75. Occupied Bandwidth Plot (Band 7 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 52 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 53 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Occupied BW	CORREC	arrian tivel		
KL <u>RE</u> <u>3012</u> AC	Center Trig: F	SENSE:INT] Freq: 2.535000000 GHz Free Run Avg Hold: 10 I: 36 dB	06:48:12 PM Jun 11, 2010 Radio Std: None 0/100 Radio Device: BTS	Trace/Detector
10 dB/div Ref 40.00 dBm				1
-og 30,0				Clear Writ
20.0	pummensum	armal and the second		
0.0		\		Avera
0.0	w	\	whydahar and an and a server at the	Hiteru
0.0 The second sec				Max Ho
0.0				maxito
enter 2.535 GHz tes BW 360 kHz	#	VBW 1.1 MHz	Span 37.5 MH Sweep 1 ms	
Occupied Bandwidth		Total Power	32.0 dBm	
13	.491 MHz			Detecto
Transmit Freq Error	5.537 kHz	% of OBW Power	99.00 %	Auto <u>Ma</u>
x dB Bandwidth	14.84 MHz	x dB	-26.00 dB	
sG			STATUS	

Plot 7-76. Occupied Bandwidth Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)



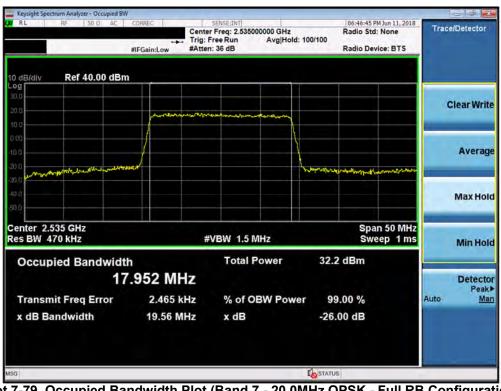
Plot 7-77. Occupied Bandwidth Plot (Band 7 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 54 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 54 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



RL RF 50 Ω AC COP		SENSE:INT Freq: 2.535000000 GHz	d: 100/100	06:48:22 PM Jun 11, 2018 Radio Std: None	Trace/Detector
	Gain:Low #Atten			Radio Device: BTS	
0 dB/div Ref 40.00 dBm	pinnelinhum	mannetreenant			Clear Write
60 60 00 00 00 00			handrent		Averag
0.0 nundemen Binhaben Thining and ser ser 20 3.0					Max Hol
enter 2.535 GHz es BW 360 kHz Occupied Bandwidth	#\	/BW 1.1 MHz Total Power	30.1	Span 37.5 MHz Sweep 1 ms	Min Hole
13.5	13 MHz 11.233 kHz 14.79 MHz	% of OBW Pow		00 %	Detecto Peak Auto <u>Mar</u>
			STATUS		

Plot 7-78. Occupied Bandwidth Plot (Band 7 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-79. Occupied Bandwidth Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 55 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 55 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Occupied BW R L RF 50 Ω AC C		SENSE;INT			M Jun 11, 2018	Trace/Detector
	Center Freq: 2.53500000 GHz Radio Std: None Trig: Free Run Avg Hold:>100/100 Radio Device: BTS				Traceroelector	
10 dB/div Ref 40.00 dBm				_		
30.0		Another present our				Clear Write
10.0						
10.0	/		\			Averag
D.O. Willow web Jose & Mary Cale of Mary			monin	handre and the	- Marchalogo	
50.0						Max Hole
center 2.535 GHz tes BW 470 kHz	#	VBW 1.5 MHz		Spa Swe	n 50 MHz ep 1 ms	Min Hol
Occupied Bandwidth		Total Power	31.	1 dBm		
	970 MHz					Detecto
Transmit Freq Error x dB Bandwidth	-2.963 kHz 19.46 MHz	% of OBW Por x dB		9.00 % .00 dB		Auto <u>Mar</u>
SG			L o STATU	5		

Plot 7-80. Occupied Bandwidth Plot (Band 7 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-81. Occupied Bandwidth Plot (Band 7 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega E6 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 56 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			





Plot 7-82. Occupied Bandwidth Plot (Band 41 PC2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-83. Occupied Bandwidth Plot (Band 41 PC2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 57 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 57 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			





Plot 7-84. Occupied Bandwidth Plot (Band 41 PC2 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-85. Occupied Bandwidth Plot (Band 41 PC2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 59 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 58 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			





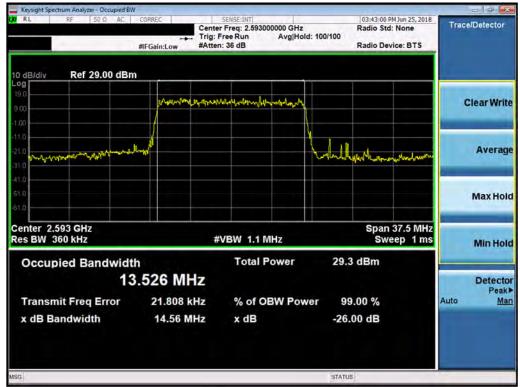
Plot 7-86. Occupied Bandwidth Plot (Band 41 PC2 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-87. Occupied Bandwidth Plot (Band 41 PC2 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 50 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018 Portable Tablet			Page 59 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			





Plot 7-88. Occupied Bandwidth Plot (Band 41 PC2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-89. Occupied Bandwidth Plot (Band 41 PC2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 60 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 60 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Occupied BW						-	A CONTRACTOR		- # X
	Gain:Low	Center Fr			ld: 100/100	03:44:01 F Radio Std Radio Dev		Trac	e/Detector
10 dB/div Ref 30.00 dBm Log 20 D 10 0 0.00	whyth	at the man		WWWW					Clear Write
100 200 300					-	w ^a rtwineligty	tworthe		Average
-40,0 60,0 -60,0									Max Hold
Center 2.593 GHz Res BW 360 kHz		#VE	BW 1.1 M		071	Swe	37.5 MHz eep 1 ms		Min Hold
Occupied Bandwidth 13.2 Transmit Freq Error x dB Bandwidth	-9.288 k 14.27 M	kHz	Total P % of OE x dB		ver 99	7 dBm 0.00 % 00 dB		Auto	Detector Peak▶ <u>Man</u>
MSG					STATUS	5			

Plot 7-90. Occupied Bandwidth Plot (Band 41 PC2 - 15.0MHz 64-QAM - Full RB Configuration)



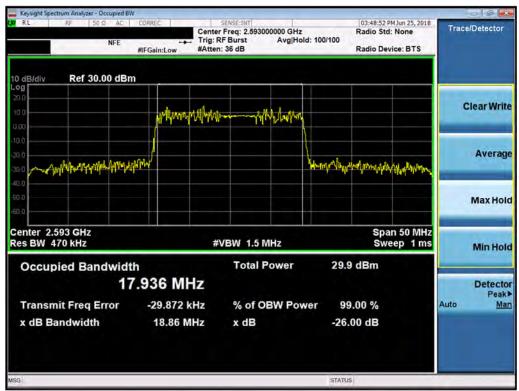
Plot 7-91. Occupied Bandwidth Plot (Band 41 PC2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 61 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 61 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Occupied BW			-	ALC: NO.	-	- 6 ×
	#IFGain:Low #Atter	SENSE:INT rr Freq: 2.593000000 GH Free Run Avg H n: 36 dB	lz lold: 100/100	03:48:28 PM Jur Radio Std: No Radio Device:	ne	race/Detector
10 dB/div Ref 24.00 dBn	n Annaronatikas	مريابليو ميوموا الوهد يب من الله				Clear Write
360 360 mar a mart an met the anti-	NH -		Milled	Universities		Average
-46,0 66,0 -66,0						Max Hold
Center 2.593 GHz Res BW 470 kHz Occupied Bandwidt		VBW 1.5 MHz Total Power	30.	Span 5 Sweep 1 dBm		Min Hold
	-28.244 kHz 19.47 MHz	% of OBW Po x dB		9.00 % .00 dB	Auto	Detector Peak Mar
MSG			STATU	is		

Plot 7-92. Occupied Bandwidth Plot (Band 41 PC2 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-93. Occupied Bandwidth Plot (Band 41 PC2 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 62 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 62 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			





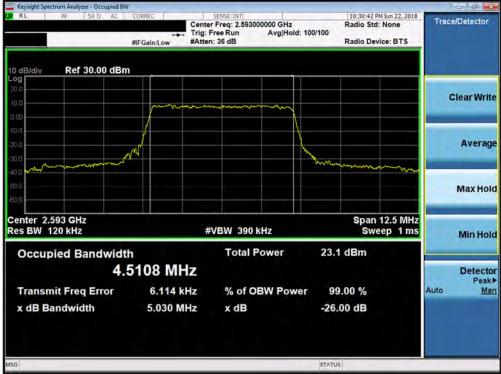
Plot 7-94. Occupied Bandwidth Plot (Band 41 PC3 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-95. Occupied Bandwidth Plot (Band 41 PC3 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 62 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	6 - 6/27/2018 Portable Tablet		Page 63 of 221
© 2018 PCTEST Engineering Lab	V 8 1 05/10/2018			





Plot 7-96. Occupied Bandwidth Plot (Band 41 PC3 - 5.0MHz 64-QAM - Full RB Configuration)



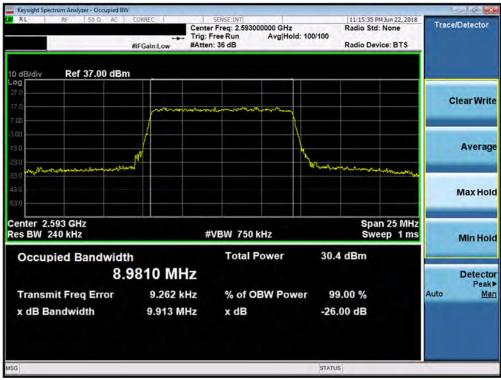
Plot 7-97. Occupied Bandwidth Plot (Band 41 PC3 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Page 64 of 221	
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet			
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018				





Plot 7-98. Occupied Bandwidth Plot (Band 41 PC3 - 10.0MHz 16-QAM - Full RB Configuration)



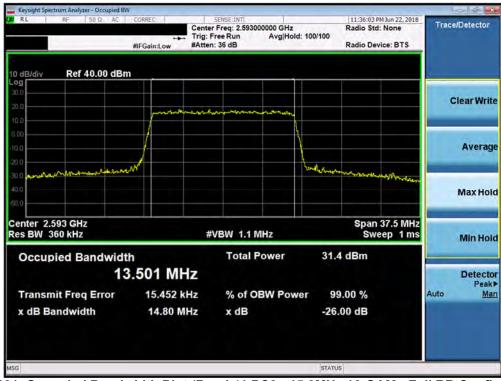
Plot 7-99. Occupied Bandwidth Plot (Band 41 PC3 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 65 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 65 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			





Plot 7-100. Occupied Bandwidth Plot (Band 41 PC3 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-101. Occupied Bandwidth Plot (Band 41 PC3 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 66 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 66 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Occupied BW	sectors and				a ta ta ta	- 6 - 8
	Trig: I	sense:INT r Freq: 2.593000000 GH Free Run Avg H n: 36 dB	z old: 100/100	11:36:09 Pr Radio Std: Radio Dev		Trace/Detector
10 dB/div Ref 40.00 dBm	and the second s	and the second	1			Clear Write
0.00 						Average
-30 0			Southern	n-n-h-s-markya	uhalu santulur	Max Hold
Center 2.593 GHz Res BW 360 kHz		VBW 1.1 MHz	20		37.5 MHz ep 1 ms	Min Hold
Occupied Bandwidth 13. Transmit Freq Error	494 MHz 8.438 kHz	Total Power % of OBW Po		9.00 %		Detecto Peak Auto Mar
x dB Bandwidth	14.64 MHz	x dB	-26	.00 dB		
MSG			STATU	s		

Plot 7-102. Occupied Bandwidth Plot (Band 41 PC3 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-103. Occupied Bandwidth Plot (Band 41 PC3 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dogo 67 of 221		
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 67 of 221		
© 2018 PCTEST Engineering Laboratory, Inc. V 8.1 05/10/2018						



Keysight Spectrum Analyzer - Occupied BW					a la cara	- 6 *
RL RF 50 Ω AC	#IFGain:Low #Atte	sense:inti er Freq: 2.593000000 GHz Free Run Avg Ho n: 36 dB	ld: 100/100	11:46:55 Pi Radio Std: Radio Dev		Trace/Detector
10 dB/div Ref 40.00 dBm		harth of the and hardware free free				Clear Write
0.00 			hora			Average
-30.0 -50.0				- Marian	with and the state	Max Hold
Center 2.593 GHz Res BW 470 kHz		≉VBW 1.5 MHz Total Power	31		n 50 MHz ep 1 ms	Min Hold
Transmit Freq Error	.949 MHz 16.678 kHz	% of OBW Pov	ver 99	9.00 %		Detecto Peak Auto <u>Mar</u>
x dB Bandwidth	19.60 MHz	x dB		.00 dB		
MSG			STATU	IS		

Plot 7-104. Occupied Bandwidth Plot (Band 41 PC3 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-105. Occupied Bandwidth Plot (Band 41 PC3 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 69 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 68 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



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 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 $43 + \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

For Band 7 and 41, the minimum permissible attenuation level of any spurious emission is $55 + \log_{10}(P_{[Watts]})$.

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 at least 10 * the fundamental frequency (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

Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. 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.

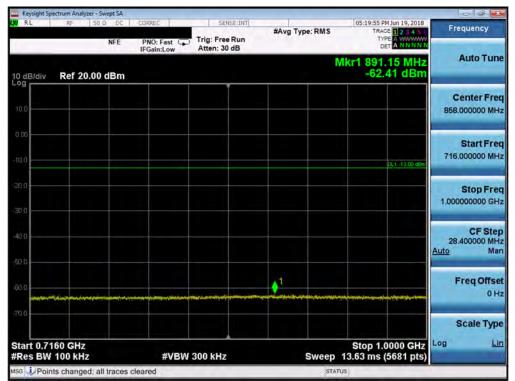
FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 60 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 69 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Band 12

NFE PNO: Fast IFGain:Low Trig: Free Run Atten: 30 dB Trage Rus Trig: Free Run Atten: 30 dB Trage Rus Trage Rus Trag	Keysight Spectrum Analyze		RREC	SENSE:INT	1	05:19:48 PM Jun 19, 2018	
Mikit 1 697.00 Minz -61.36 dBm 00 -61.36 dBm			NO: Fast 😱 Gain:Low		#Avg Type: RMS	TRACE TO TA SI	Frequency
100 Cente 100	0 dB/div Ref 20.	00 dBm			Ν	Akr1 697.60 MHz -61.36 dBm	Auto Tun
10.0 0.1.1300000 200 0.1.1300000 30.00000 30.00000 30.00000 500 500 1							Center Fre 363.950000 MH
500 400 500 500 500 500 500 500						0L1 -13 00 dBm	Start Fre 30.000000 MH
300 66.7900 300 1 300 1							Stop Fre 697.900000 MH
							CF Ste 66.790000 MH Auto Ma
						1	Freq Offs 0 H
	70.0						Scale Typ
Start 30.0 MHz Stop 697.9 MHz #VBW 300 kHz Sweep 32.06 ms (13359 pts)			#VBW	300 kHz	Sweep 3	Stop 037.3 Minz	

Plot 7-106. Conducted Spurious Plot (Band 12 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



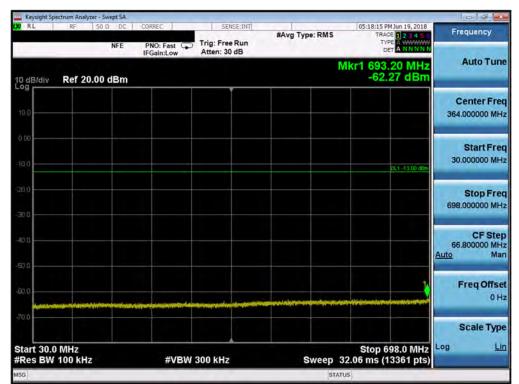
Plot 7-107. Conducted Spurious Plot (Band 12 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 70 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 70 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer -									
RL RF 5	NFE	PNO: Fast			#Avg Type	e: RMS	TRAC	I Jun 19, 2018 E 2 3 4 5 6 E A WINNIN A NNNN N	Frequency
10 dB/div Ref 10.0	0 dBm					Mk	r1 9.77 -51.3	1 0 GHz 34 dBm	Auto Tun
0.00									Center Fre 5.500000000 GH
-10.0 -20.0								0L1 -13:00 dBm	Start Fre 1.000000000 GH
30.0 -40.0									Stop Fre 10.000000000 GF
50.0			~~~	~		~~~	~~~~		CF Ste 900.000000 MH Auto Ma
70.0									Freq Offs 0 F
80.0 Start 1.000 GHz #Res BW 1.0 MHz		#VBW	3.0 MHz		s	weep 15	Stop 10. .60 ms (1	.000 GHz 8001 pts)	Scale Typ Log <u>L</u>
MSG						STATUS	_		

Plot 7-108. Conducted Spurious Plot (Band 12 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-109. Conducted Spurious Plot (Band 12 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 71 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 71 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



RL RF 50	Ω DC	CORREC	SENSE:INT		05:18:22 Pf	Jun 19, 2018	
	NFE	PNO: Fast G	Trig: Free Run Atten: 30 dB	#Avg Type: RM	TYP	E 1 2 3 4 5 0 E A WMMMM A NNNN	
0 dB/div Ref 20.00	dBm				Mkr1 910. -62.	10 MHz 24 dBm	Auto Tun
100							Center Fre 858.000000 MF
a da						0L1 -13 00 dBm	Start Fre 716,000000 Mi
no							Stop Fre 1.00000000 G
aa							CF Ste 28.400000 M <u>Auto</u> M
0.0	and the second second		antes paper a la superior de la company	1 1		erja dispanaj cirja da fa	Freq Offs 01
tart 0.7160 GHz Res BW 100 kHz			300 kHz		Stop 1.0 ep 13.63 ms (0000 GHz	Scale Typ

Plot 7-110. Conducted Spurious Plot (Band 12 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



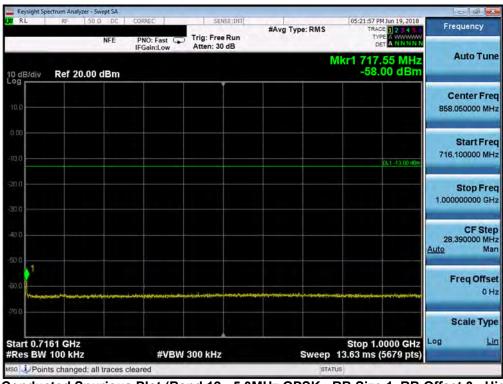
Plot 7-111. Conducted Spurious Plot (Band 12 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 70 of 001
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 72 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



- @ ×	tor down the many		-		ctrum Analyzer - Swept SA	
Frequency	05:21:46 PM Jun 19, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN	#Avg Type: RMS	SENSE:INT Trig: Free Run Atten: 30 dB	PNO: Fast	RF 50 Ω DC	XI RL
Auto Tune	cr1 697.70 MHz -62.71 dBm	M			Ref 20.00 dBm	10 dB/div
Center Free 364.000000 MHz						10.0
Start Free 30.000000 MH:	0L1-13.00 dBm					0.00 -10.0
Stop Free 698.000000 MH						30.0
CF Step 66.800000 MH Auto Ma						-40,0
Freq Offse 0 H	1					-60.0
Scale Type	Stop 698.0 MHz				MHz	Start 30.0
1. A	.06 ms (13361 pts)	Sweep 32 STATUS	300 kHz	#VBW :		#Res BW

Plot 7-112. Conducted Spurious Plot (Band 12 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-113. Conducted Spurious Plot (Band 12 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 72 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 73 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Swept		-			- 6 ×
XIRL RF 50Ω	FE PNO: Fast	SENSE:INT Trig: Free Run Atten: 20 dB	#Avg Type: RMS	05:22:23 PM Jun 19, 2018 TRACE 2 3 4 5 0 TYPE A WARNIN DET A NNNNN	Frequency
10 dB/div Ref 10.00 dE			M	(r1 1.422 5 GHz -49.14 dBm	Auto Tune
000					Center Fred 5.500000000 GHz
-20.0				DL1 -13,00 dBm	Start Free 1.000000000 GH;
					Stop Free 10.000000000 GH
50.0	~m~				CF Step 900.000000 MH <u>Auto</u> Ma
70.0					Freq Offse 0 H
80.0 Start 1.000 GHz #Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep 15	Stop 10.000 GHz 5.60 ms (18001 pts)	Scale Type
NSG			STATU		

Plot 7-114. Conducted Spurious Plot (Band 12 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

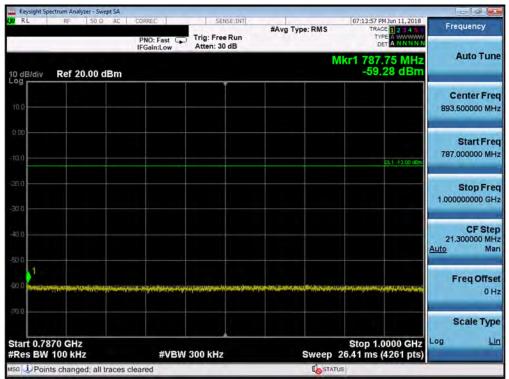
FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 74 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 74 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Band 13

Keysight Spectrum Analyzer - Swept SA					
XIRL RF 50Ω AC	PNO: Fast	SENSE:INT Trig: Free Run Atten: 30 dB	#Avg Type: RMS	07:13:52 PM Jun 11, 2018 TRACE 2 3 4 5 0 TYPE A WWWWW DET A NNNNN	Frequency
10 dB/div Ref 20.00 dBm			M	kr1 776.90 MHz -30.59 dBm	Auto Tun
10.0					Center Free 403.450000 MH
a.co ia.a				0L1 -13 00 dBm	Start Fre 30,000000 MH
20.0				1	Stop Fre 776.900000 MF
40.0					CF Ste 74.690000 MF Auto Ma
		n an constant of a constant and			Freq Offs 0 H
70.0					Scale Typ
Start 30.0 MHz #Res BW 100 kHz	#VBW	300 kHz	Sweep 92	Stop 776.9 MHz 2.62 ms (14939 pts)	Log L
ISG			Lo STATU	S	

Plot 7-115. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



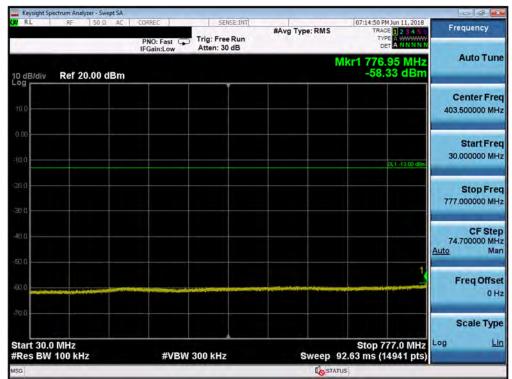
Plot 7-116. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 75 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 75 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



RL RF 50.0	AC CORREC	SENSE:INT		07:14:12 PM Jun 11, 2018	
10 10 50 5	PNO: Fast	Trig: Free Run Atten: 30 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 0 TYPE A WARMAN	Frequency
dB/div Ref 20.00 d		Atten. 50 GB	М	kr1 9.432 0 GHz -43.78 dBm	Auto Tun
0.0					Center Fre 5.500000000 GH
çó 10				0L1 -13 00 dBm	Start Fre 1.000000000 GH
10 1.0					Stop Fre 10.00000000 GH
			1	••••••••••	CF Ste 900.000000 MI Auto Mi
					Freq Offs 01
art 1.000 GHz Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep 1	Stop 10.000 GHz 5.60 ms (18001 pts)	Scale Typ Log <u>L</u>
G			STAT		

Plot 7-117. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-118. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 76 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 76 of 221
© 2018 PCTEST Engineering Lat	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω A			07:14:56 PM Jun 11, 2018	
RE RE JUSE A	PNO: Fast IFGain:Low Atten: 30 dB	#Avg Type: RMS	TRACE 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
O dB/div Ref 20.00 dBn		M	kr1 787.10 MHz -57.26 dBm	Auto Tun
10.0				Center Fre 893,550000 MH
α. co iα α			0L1 -13 00 dEm	Start Fre 787.100000 Mi
30.0				Stop Fre 1.000000000 G
				CF Sto 21.290000 M Auto M
1 C.C. Thereader of a spectrum and a second	ain an hair daa iyyaana a gaybayad . Sanna wand daa Malini Ayyad Wahi	yddry hafa gwladyrhy hwynrodyna Crywdaegawa Y	alaansia goologiin fich sharifiinii dhadaasaanaa	Freq Offs 0
700 Start 0.7871 GHz Res BW 100 kHz	#VBW 300 kHz	Sweep 2	Stop 1.0000 GHz 6.40 ms (4259 pts)	Scale Typ Log L
SG		STATUS		

Plot 7-119. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



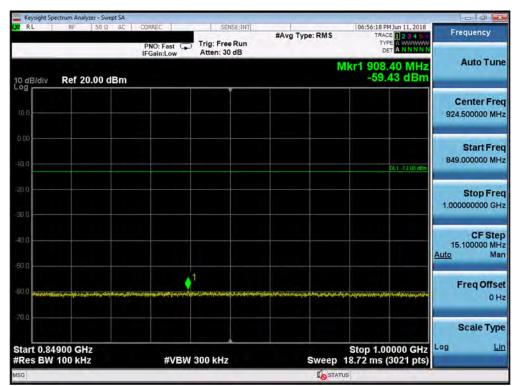
Plot 7-120. Conducted Spurious Plot (Band 13 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 77 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 77 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Swe		I management			0 0
C RL RF 50 Ω	AC CORREC	SENSE:INT Trig: Free Run Atten: 30 dB	#Avg Type: RMS	06:56:13 PM Jun 11, 2018 TRACE 2 3 4 5 6 TYPE A WINN N DET A NNNN N	Frequency
0 dB/div Ref 20.00 d			N	lkr1 816.10 MHz -42.83 dBm	Auto Tur
10.0					Center Fre 426.500000 MH
0.00 ja 0				DL1 -13 00 dēm	Start Fre 30.000000 Mi
80.0					Stop Fr 823.000000 Mi
40 0					CF Ste 79.300000 Mi Auto M
80 0					Freq Offs 01
70.0					Scale Typ
Start 30.0 MHz Res BW 100 kHz	#VBW	300 kHz	Sweep 9	Stop 823.0 MHz 8.33 ms (15861 pts)	Log <u>L</u>
ISG			STATE	IS	

Plot 7-121. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



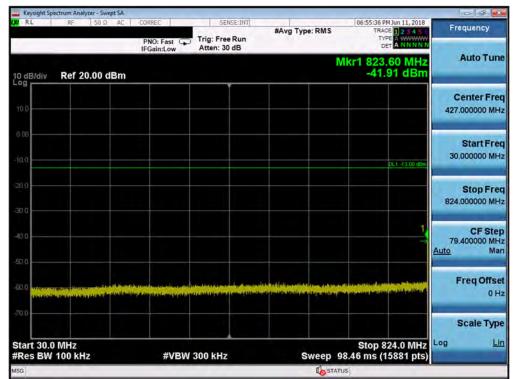
Plot 7-122. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 79 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 78 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Swe RL RF 50 Ω		SENSE:INT		06:56:32 PM Jun 11, 2018	- @ ×
RE RE JUSE	PNO: Fast	Trig: Free Run Atten: 30 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 TYPE A WWWW DET A NNNNN	Frequency
0 dB/div Ref 20.00 d			М	kr1 8.662 5 GHz -43.56 dBm	Auto Tun
i0.0					Center Fre 5.500000000 GH
οφο ία σ				0L1 -13 00 dBm	Start Fre 1.000000000 GH
20.0					Stop Fre 10.00000000 G
	-			1	CF Ste 900.000000 MI <u>Auto</u> M
50 0					Freq Offs 01
700 Start 1.000 GHz #Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep 1	Stop 10.000 GHz 5.60 ms (18001 pts)	Scale Typ
SG			STATU		

Plot 7-123. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-124. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 70 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 79 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC	CORREC SENSE:INT	1	06:55:41 PM Jun 11, 2018	- @ ×
	PNO: Fast Trig: Free Run IFGain:Low Atten: 30 dB	#Avg Type: RMS	TRACE 123450 TYPE A WWWW DET A NNNNN	Frequency
0 dB/div Ref 20.00 dBm		Mkr	1 849.50 MHz -59.02 dBm	Auto Tun
10.0				Center Fre 924.500000 MF
a po			0L1 -13 00 stBm	Start Fre 849.000000 Mi
αο σο				Stop Fre 1.000000000 G
a.a				CF Sto 15.100000 M Auto M
1	netra i casina na manana na mana	nagga ganagga naga naga naga naga sa ana sa ang	نىلىرىيە بىرىنىرىكەر (ئەر يەتەر	Freq Offs 0
tart 0.84900 GHz Res BW 100 kHz	#VBW 300 kHz	Sweep 18	top 1.00000 GHz 72 ms (3021 pts)	Scale Tyj Log <u>L</u>
50		Lo STATUS		

Plot 7-125. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-126. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 90 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 80 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



- @ ×	1				ctrum Analyzer - Swept SA	
Frequency	06:58:06 PM Jun 11, 2018 TRACE 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	#Avg Type: RMS	SENSE:INT Trig: Free Run Atten: 30 dB	PNO: Fast	RF 50 Ω AC	XI RL
Auto Tun	kr1 798.85 MHz -58.47 dBm	M			Ref 20.00 dBm	10 dB/div
Center Free 427.000000 MH						10.0
Start Free 30,000000 MH	0L1 -13 00 dBm					0.00 -10.0
Stop Fre 824.000000 MH						20.0 30.0
CF Ste 79.400000 MH Auto Ma						40.0
Freq Offso 0 H	1 	ang bahar karan di karang di ka			ngan géngén dina dén pangan diné kanangan diné kanangan diné kanangan diné kanangan diné kanangan diné kananga	60.0
Scale Typ	Stop 824.0 MHz				MHz	70.0
	.46 ms (15881 pts)	Sweep 98	300 kHz	#VBW 3		#Res BW

Plot 7-127. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-128. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 91 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 81 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			





Plot 7-129. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

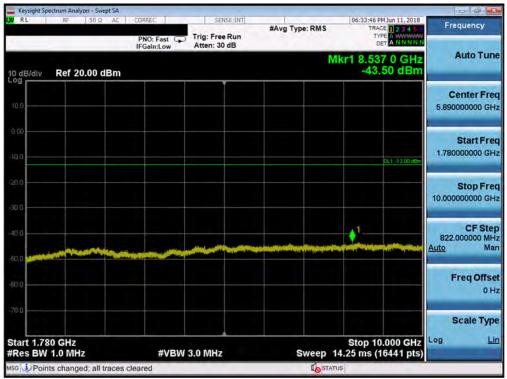
FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 92 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 82 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			



Band 4

Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC	CORREC	SENSE:INT		06:33:38 PM Jun 11, 2018	
	PNO: Fast 😱 IFGain:Low	Trig: Free Run Atten: 30 dB	#Avg Type: RMS	TRACE 2 3 4 5 6 TYPE A WWW DET A NNNNN	Frequency
IO dB/div Ref 20.00 dBm			M	kr1 1.706 5 GHz -33.52 dBm	Auto Tun
10.0					Center Fre 869.000000 MH
10.00				DL1 -13 (0 dijm	Start Fre 30.000000 MH
αα α				1	Stop Fre 1.708000000 GH
ю о ю о		and the second	and the second secon		CF Ste 167.800000 MH Auto Ma
0.0 0					Freq Offs 0 F
Start 0.0300 GHz Res BW 1.0 MHz	#\/B\\/	3.0 MHz	Swaan	Stop 1.7080 GHz 2.239 ms (3359 pts)	Scale Typ
SG	We Door		Lostatu		

Plot 7-130. Conducted Spurious Plot (Band 4 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-131. Conducted Spurious Plot (Band 4 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 92 of 221	
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 83 of 221	
© 2018 PCTEST Engineering Lab	V 8 1 05/10/2018				



ree Run 10 dB	#Avg Typ		TYPE DET	1 2 3 4 5 0 A WINNNN	Frequency Auto Tune
		Mk	r1 16.980 -57.1	0 GHz 5 dBm	Auto Tuni
				L1-13 00 dBm	Center Fre 15.000000000 GH
					Start Fre 10.000000000 GH
					Stop Fre 20.000000000 GH
-					CF Ste 1.000000000 GH Auto Ma
					Freq Offs 0 F
łz –	s	weep <u>2</u>	Stop 20.0 5.33 ms (20	000 GHz	Scale Typ Log <u>L</u>
	4z	4z S		tz Stop 20.0 Sweep 25.33 ms (20 Sweep 25.33 ms (20)	Stop 20.000 GHz iz Sweep 25.33 ms (20001 pts)

Plot 7-132. Conducted Spurious Plot (Band 4 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



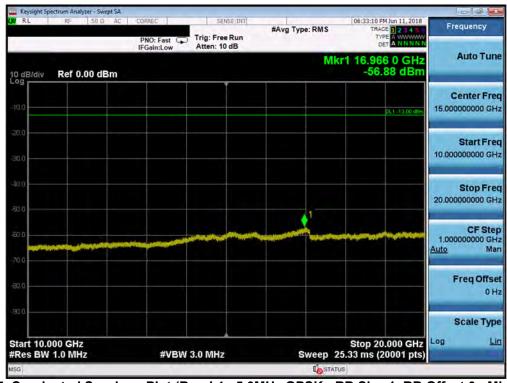
Plot 7-133. Conducted Spurious Plot (Band 4 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 84 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 84 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			





Plot 7-134. Conducted Spurious Plot (Band 4 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-135. Conducted Spurious Plot (Band 4 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMT837P		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 95 of 221
1M1806060119-03.A3L	6/6 - 6/27/2018	Portable Tablet		Page 85 of 221
© 2018 PCTEST Engineering Lab	V 8.1 05/10/2018			