

PCTEST ENGINEERING LABORATORY, INC.

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## MEASUREMENT REPORT FCC PART 15.247 WLAN 802.11ax OFDMA

#### **Applicant Name:**

Samsung Electronics Co., Ltd. 129, Samsung-ro, Yeongtong-gu, Suwon-si Gyeonggi-do, 16677, Korea Date of Testing: 10/31/2018-1/17/2019 Test Site/Location: PCTEST Lab. Columbia, MD, USA Test Report Serial No.: 1M1811120202-14.A3L

## FCC ID:

## A3LSMG9750

Certification

APPLICANT:

# Samsung Electronics Co., Ltd.

Application Type: Model: Additional Model(s): EUT Type: Frequency Range: FCC Classification: FCC Rule Part(s): ISED Specification: Test Procedure(s):

SM-G9750 SM-G9758 Portable Handset 2412 – 2472MHz Digital Transmission System (DTS) Part 15 Subpart C (15.247) RSS-247 Issue 2 ANSI C63.10-2013, KDB 558074 D01 v05, KDB 662911 D01 v02r01, KDB 648474 D03 v01r04

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013 and KDB 558074 D01 v05. 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: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 1 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 1 of 149
© 2019 PCTEST Engineering Lat	poratory Inc			V 8 8 11/19/2018

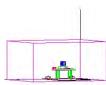


# TABLE OF CONTENTS

1.0	INTRO	ODUCTION	4
	1.1	Scope	4
	1.2	PCTEST Test Location	4
	1.3	Test Facility / Accreditations	4
2.0	PROE	DUCT INFORMATION	5
	2.1	Equipment Description	5
	2.2	Device Capabilities	5
	2.3	Test Configuration	7
	2.4	EMI Suppression Device(s)/Modifications	7
3.0	DESC	CRIPTION OF TESTS	8
	3.1	Evaluation Procedure	8
	3.2	Radiated Emissions	8
	3.3	Environmental Conditions	8
4.0	ANTE	ENNA REQUIREMENTS	9
5.0	MEAS	SUREMENT UNCERTAINTY	10
6.0	TEST	T EQUIPMENT CALIBRATION DATA	11
7.0	TEST	T RESULTS	12
	7.1	Summary	12
	7.2	6dB Bandwidth Measurement	13
	7.3	Output Power Measurement	
	7.4	Power Spectral Density	
	7.5	Conducted Emissions at the Band Edge	
	7.6	Conducted Spurious Emissions	75
	7.7	Radiated Spurious Emission Measurements – Above 1 GHz	101
		7.7.1 SISO Antenna-1 Radiated Spurious Emission Measurements	104
		7.7.2 SISO Antenna-2 Radiated Spurious Emission Measurements	111
		7.7.3 MIMO Radiated Spurious Emission Measurements	118
		7.7.4 SISO Antenna-1 Radiated Restricted Band Edge Measurements	125
		7.7.5 SISO Antenna-2 Radiated Restricted Band Edge Measurements	131
		7.7.6 MIMO Radiated Restricted Band Edge Measurements	137
	7.8	Radiated Spurious Emissions Measurements – Below 1GHz	143
8.0	CONC	CLUSION	149

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 2 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 2 of 149
© 2019 PCTEST Engineering Lab	V 8.8 11/19/2018			





# **MEASUREMENT REPORT**



			ANT1			ANT2			MIMO					
		Ty Freework	Avg Co	nducted	Peak Co	onducted	Avg Co	nducted	Peak Co	onducted	Avg Co	nducted	Peak Co	nducted
Mode	Tones	Tx Frequency [MHz]	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
		[[[[[[[	Power	Power	Power	Power	Power	Power	Power	Power	Power	Power	Power	Power
			(mW)	(dBm)	(mW)	(dBm)	(mW)	(dBm)	(mW)	(dBm)	(mW)	(dBm)	(mW)	(dBm)
802.11ax OFDMA	26T	2412 - 2472	23.933	13.79	134.896	21.30	25.003	13.98	138.038	21.40	24.838	13.95	143.275	21.56
802.11ax OFDMA	52T	2412 - 2472	31.046	14.92	187.499	22.73	30.620	14.86	174.985	22.43	31.434	14.97	182.193	22.61
802.11ax OFDMA	106T	2412 - 2472	37.931	15.79	216.272	23.35	39.084	15.92	204.644	23.11	37.951	15.79	241.120	23.82
802.11ax OFDMA	242T	2412 - 2472	44.771	16.51	241.546	23.83	47.206	16.74	219.786	23.42	45.202	16.55	248.776	23.96
	ELIT Overview													

EUT Overview

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 2 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 3 of 149
© 2019 PCTEST Engineering Laboratory Inc.				V 8 8 11/19/2018



# 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: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 4 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 4 of 149
© 2019 PCTEST Engineering Lab		V 8.8 11/19/2018		



#### **PRODUCT INFORMATION** 2.0

#### 2.1 **Equipment Description**

The Equipment Under Test (EUT) is the Samsung Portable Handset FCC ID: A3LSMG9750. The test data contained in this report pertains only to the emissions due to the EUT's WLAN (DTS) transmitter.

Test Device Serial No.: 0505M, 0218M, 0193M, 0181M, 0543M

#### 2.2 **Device Capabilities**

This device contains the following capabilities:

800/850/1900 CDMA/EvDO Rev0/A, 1x Advanced (BC0, BC1, BC10), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE), NFC, ANT+

Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432	12	2467
6	2437	13	2472
7	2442		

#### Table 2-1. Frequency/ Channel Operations

Note: The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = peak per the guidance of Section 6.0 b) of ANSI C63.10-2013 and KDB 558074 D01 v05. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Antenna	Tone	duty cycle
	26T	99.6
1	52T	99.6
T	106T	99.6
	242T	99.6
	26T	99.6
2	52T	99.6
Z	106T	99.6
	242T	99.6
	26T	99.2
MIMO CDD	52T	99.2
	106T	99.1
	242T	99.6
	2	26T 52T 106T 242T 242T 26T 52T 106T 242T 242T 26T 52T 106T

#### Table 2-2. Measured Duty Cycles

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 5 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 5 of 149
© 2019 PCTEST Engineering Laboratory, Inc.				V 8.8 11/19/2018

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The device employs MIMO technology. Below are the possible configurations.

WiFi Configurations		SISO		SDM		CDD/MIMO	
WIFI COIII	igurations	ANT1	ANT2	ANT1	ANT2	ANT1	ANT2
	11b	✓	✓	×	×	×	×
	11g	✓	✓	×	×	✓	✓
2.4GHz	11n	✓	✓	✓	✓	✓	✓
	11ax	✓	√	✓	✓	✓	✓

Table 2-3. Frequency / Channel Operations

✓ = Support ; × = NOT Support **SISO** = Single Input Single Output **SDM** = Spatial Diversity Multiplexing – MIMO function **CDD** = Cyclic Delay Diversity - 2Tx Function

This device supports simultaneous transmission operation, which allows for two SISO channels to operate independent of one another in the 2.4GHz and 5GHz bands simultaneously on each antenna. The following tables show the worst case configurations determined during testing. The data for these configurations is contained in the UNII test report.

Configuration 1: ANT1 transmitting in 2.4GHz mode and ANT2 in 5GHz mode

Description	2.4 GHz Emission	5 GHz Emission
Antenna	1	2
Channel	6	144
Operating Frequency (MHz)	2437	5720
Data Rate (Mbps)	1	6
Mode	802.11b	802.11a

Table 2-4. Config-1 (ANT1 2.4GHz & ANT2 5GHz)

Configuration 2: ANT1 transmitting in 5GHz mode and ANT2 in 2.4GHz mode

Description	2.4 GHz Emission	5 GHz Emission
Antenna	2	1
Channel	6	144
Operating Frequency (MHz)	2437	5720
Data Rate (Mbps)	1	6
Mode	802.11b	802.11a

Table 2-5. Config-2 (ANT1 5GHz & ANT2 2.4GHz)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 6 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 6 of 149
© 2019 PCTEST Engineering Labo	pratory Inc			V 8 8 11/19/2018



Configuration 3: ANT1 and ANT2 both transmitting in 2.4GHz and 5GHz modes simultaneously

Description	2.4 GHz Emission	5 GHz Emission
Antenna	1, 2	1, 2
Channel	6	157
Operating Frequency (MHz)	2437	5785
Data Rate (Mbps)	6	6
Mode	802.11g	802.11a

Table 2-6. Config-3 (ANT1 MIMO & ANT2 MIMO)

#### 2.3 **Test Configuration**

The EUT was tested per the guidance of KDB 558074 D01 v05. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing. See Sections 7.7 and 7.8 for radiated emissions test setups and 7.2, 7.3, 7.4, 7.5, and 7.6 for antenna port conducted emissions test setups.

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

#### 2.4 EMI Suppression Device(s)/Modifications

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

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 7 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 7 of 149
© 2019 PCTEST Engineering Labo	oratory Inc			V 8 8 11/19/2018



# 3.0 DESCRIPTION OF TESTS

## 3.1 Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) and the guidance provided in KDB 558074 D01 v05 were used in the measurement of the EUT.

Deviation from measurement procedure.....None

## 3.2 Radiated 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. An 80cm tall test table made of Styrodur is placed on top of the turn table. For measurements above 1GHz, an additional Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33 depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions.

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 474788 D01.

## 3.3 Environmental Conditions

The temperature is controlled within range of 15°C to 35°C. The relative humidity is controlled within range of 10% to 75%. The atmospheric pressure is monitored within the range 86-106kPa (860-1060mbar).

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 8 of 149
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 6 01 149
© 2019 PCTEST Engineering Lab	poratory Inc.			V 8 8 11/19/2018



# 4.0 ANTENNA REQUIREMENTS

#### Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antennas of the EUT are permanently attached.
- There are no provisions for connections to an external antenna.

#### **Conclusion:**

The EUT unit complies with the requirement of §15.203.

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 0 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 9 of 149
© 2019 PCTEST Engineering Lab	oratory Inc			V 8 8 11/19/2018



#### **MEASUREMENT UNCERTAINTY** 5.0

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. 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 UCISPR 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
Line Conducted Disturbance	3.09
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 10 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 10 of 149
© 2019 PCTEST Engineering Labo	V 8 8 11/19/2018			



# 6.0 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
-	WL25-1	Conducted Cable Set (25GHz)	1/23/2018	Annual	1/23/2019	WL25-1
Agilent	N9020A	MXA Signal Analyzer	1/24/2018	Annual	1/24/2019	US46470561
Agilent	N9030A	PXA Signal Analyzer (44GHz)	5/25/2018	Annual	5/25/2019	MY52350166
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	846215
Anritsu	ML2495A	Power Meter	10/21/2018	Annual	10/21/2019	941001
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2017	Biennial	10/10/2019	121034
COM-Power	PAM-103	Pre-Amplifier (1-1000MHz)	9/17/2018	Annual	9/17/2019	441119
Emco	3115	Horn Antenna (1-18GHz)	3/28/2018	Biennial	3/28/2020	9704-5182
Emco	3116	Horn Antenna (18 - 40GHz)	6/7/2018	Triennial	6/7/2021	9203-2178
Huber + Suhner	Sucoflex 102A	40GHz Radiated Cable Set	1/23/2018	Annual	1/23/2019	251425001
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	5/21/2018	Annual	5/21/2019	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	8/9/2018	Annual	8/9/2019	100348
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	6/18/2018	Annual	6/18/2019	102134
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	6/25/2018	Annual	6/25/2019	102133
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	1/24/2018	Annual	1/24/2019	100040
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

Table 6-1. Annual Test Equipment Calibration Schedule

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 11 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 11 of 149
© 2019 PCTEST Engineering Labo	oratory Inc			V 8 8 11/19/2018



#### TEST RESULTS 7.0

#### 7.1 Summary

Company Name: <u>Samsung Electronics Co., Ltd.</u>
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FCC ID: A3LSMG9750

FCC Classification: Digital Transmission System (DTS)

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(2)	6dB Bandwidth	> 500kHz	CONDUCTED	PASS	Section 7.2
15.247(b)(3)	Transmitter Output Power	< 1 Watt		PASS	Sections 7.3
15.247(e)	Transmitter Power Spectral Density	< 8dBm / 3kHz Band		PASS	Section 7.4
15.247(d)	Band Edge / Out-of-Band Emissions	≥ 20dBc		PASS	Sections 7.5, 7.6
15.205 15.209	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	RADIATED	PASS	Sections 7.7, 7.8
15.207	AC Conducted Emissions 150kHz – 30MHz	< FCC 15.207 limits	LINE CONDUCTED	PASS	See WLAN Test Report

Table 7-1. Summary of Test Results

### Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The 2) correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer 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 and attenuators.
- 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 "WLAN Automation," Version 3.5.
- 5) For radiated band edge, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "Chamber Automation," Version 0.2.16.
- 6) 802.11ax OFDMA testing was performed for all signal tone configurations as specified by the 802.11ax standard. Worst case results are determined and reported per the guidance provided at the October 2018 TCB Workshop.

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 12 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 12 of 149
© 2019 PCTEST Engineering Laboratory. Inc.			V 8.8 11/19/2018	

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# 7.2 6dB Bandwidth Measurement §15.247(a.2);

#### **Test Overview and Limit**

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the transmitter 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 and the worst case configuration results are reported in this section.

#### The minimum permissible 6dB bandwidth is 500 kHz.

#### **Test Procedure Used**

ANSI C63.10-2013 – Section 11.8.2 Option 2 KDB 558074 D01 v05 – Section 8.2

#### Test Settings

- 1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 100kHz
- 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

#### 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: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 12 of 140	
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 13 of 149	
© 2019 PCTEST Engineering Labor	V 8.8 11/19/2018				



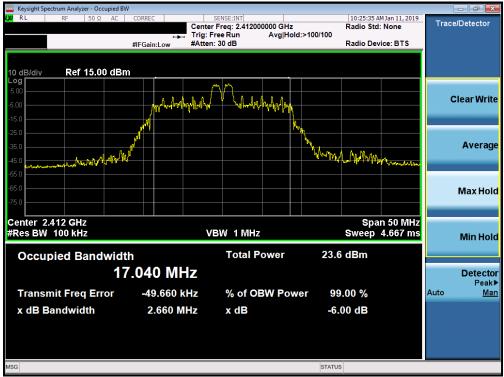
# SISO Antenna-1 6 dB Bandwidth Measurements

Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
2412	1	ax	26T	MCS0	2.660	0.500
2437	6	ax	26T	MCS0	2.716	0.500
2462	11	ax	26T	MCS0	2.680	0.500
2412	1	ax	52T	MCS0	6.65	0.500
2437	6	ax	52T	MCS0	10.36	0.500
2462	11	ax	52T	MCS0	10.38	0.500
2412	1	ax	106T	MCS0	17.18	0.500
2437	6	ax	106T	MCS0	17.18	0.500
2462	11	ax	106T	MCS0	17.20	0.500
2412	1	ax	242T	MCS0	19.10	0.500
2437	6	ax	242T	MCS0	19.04	0.500
2462	11	ax	242T	MCS0	18.98	0.500

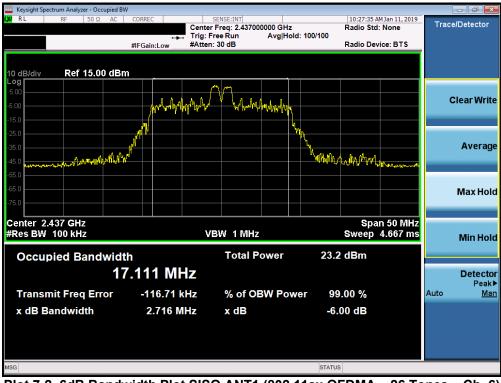
Table 7-2. Conducted Bandwidth Measurements SISO ANT1

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 14 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 14 of 149
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Plot 7-1. 6dB Bandwidth Plot SISO ANT1 (802.11ax OFDMA - 26 Tones - Ch. 1)



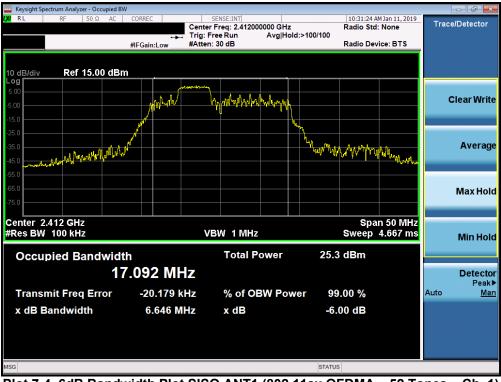
Plot 7-2. 6dB Bandwidth Plot SISO ANT1 (802.11ax OFDMA - 26 Tones - Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 15 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 15 of 149
© 2019 PCTEST Engineering Labor	ratory, Inc.	·		V 8.8 11/19/2018





Plot 7-3. 6dB Bandwidth Plot SISO ANT1 (802.11ax OFDMA – 26 Tones – Ch. 11)



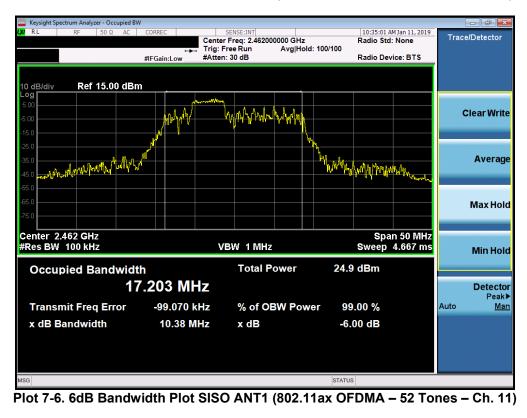
Plot 7-4. 6dB Bandwidth Plot SISO ANT1 (802.11ax OFDMA – 52 Tones – Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 16 of 149
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 18 01 149
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Plot 7-5. 6dB Bandwidth Plot SISO ANT1 (802.11ax OFDMA - 52 Tones - Ch. 6)

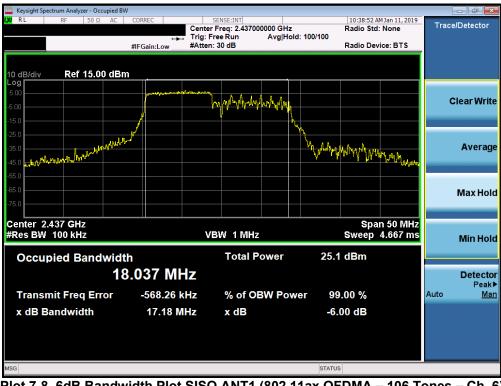


FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 17 of 140	
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 17 of 149	
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Plot 7-7. 6dB Bandwidth Plot SISO ANT1 (802.11ax OFDMA – 106 Tones – Ch. 1)



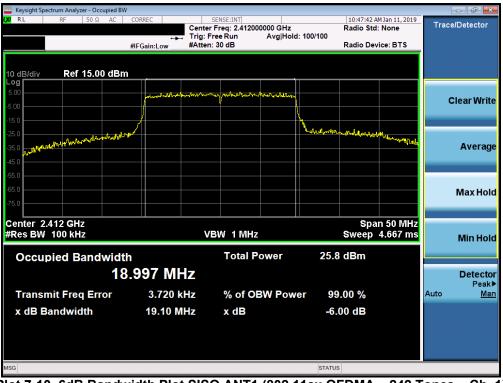
Plot 7-8. 6dB Bandwidth Plot SISO ANT1 (802.11ax OFDMA – 106 Tones – Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 19 of 140	
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 18 of 149	
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Plot 7-9. 6dB Bandwidth Plot SISO ANT1 (802.11ax OFDMA - 106 Tones - Ch. 11)



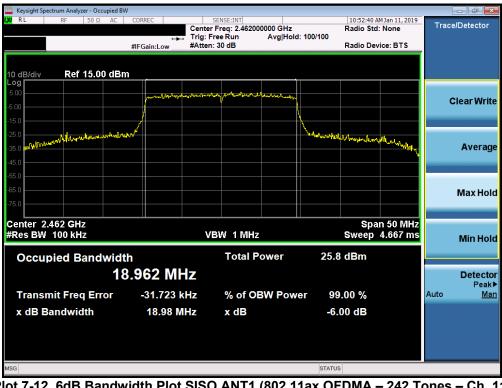
Plot 7-10. 6dB Bandwidth Plot SISO ANT1 (802.11ax OFDMA – 242 Tones – Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 19 of 149
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset	able Handset	
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Keysight Spectrum Analyzer - Occupied BW									
LXI RL RF 50Ω AC	CORREC	SENSE:IN Center Freq: 2		0 GHz		10:49:43 A Radio Std	MJan 11, 2019 : None	Trac	e/Detector
	Trig: Free Run Avg Hold: 100/100								
	#IFGain:Low	#Atten: 30 uB				Radio Dev	ICE. DT3		
10 dB/div Ref 15.00 dBm									
Log									
5.00	mound	marian mature	امرداميماوسا	h glanse					Clear Write
-5.00				1					
-15.0	1				h				
-25.0	¢				"The stille for a local	to and the party	MAR MAR AND		•
-35.0									Average
-45.0									
-55.0									
-65.0									Max Hold
-75.0									
Center 2.437 GHz							n 50 MHz		
#Res BW/100 kHz		VBW 1	MHz			Sweep	4.667 ms		Min Hold
Occupied Bandwidth		To	al Pow	/er	25.9	dBm			
					2010				
18.	990 MH	Z							Detector Peak▶
Transmit Freq Error	-13.326 kH	lz % d	of OBW	Pow	er 99	.00 %		Auto	Man
x dB Bandwidth	19.04 MF	z xd	в		-6.	00 dB			
MSG					STATUS				

Plot 7-11. 6dB Bandwidth Plot SISO ANT1 (802.11ax OFDMA – 242 Tones – Ch. 6)



Plot 7-12. 6dB Bandwidth Plot SISO ANT1 (802.11ax OFDMA - 242 Tones - Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 20 of 140	
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 20 of 149	
© 2019 PCTEST Engineering Labora	V 8.8 11/19/2018				



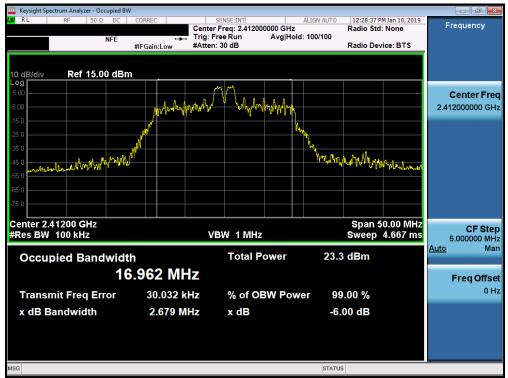
# SISO Antenna-2 6 dB Bandwidth Measurements

Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]
2412	1	ax	26T	MCS0	2.679	0.500
2437	6	ax	26T	MCS0	2.130	0.500
2462	11	ax	26T	MCS0	2.133	0.500
2412	1	ax	52T	MCS0	17.04	0.500
2437	6	ax	52T	MCS0	14.55	0.500
2462	11	ax	52T	MCS0	13.35	0.500
2412	1	ax	106T	MCS0	17.13	0.500
2437	6	ax	106T	MCS0	17.20	0.500
2462	11	ax	106T	MCS0	17.19	0.500
2412	1	ax	242T	MCS0	18.94	0.500
2437	6	ax	242T	MCS0	19.03	0.500
2462	11	ax	242T	MCS0	18.99	0.500

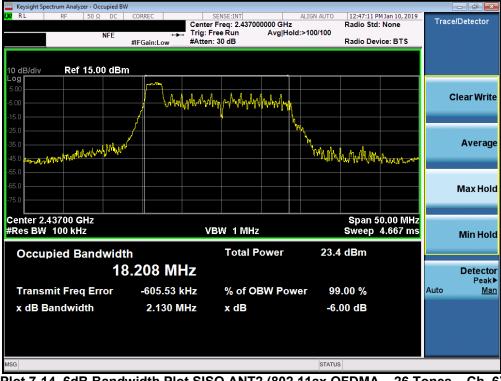
Table 7-3. Conducted Bandwidth Measurements SISO ANT2

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 21 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 21 of 149
© 2019 PCTEST Engineering Lab	pratory. Inc.	•		V 8.8 11/19/2018





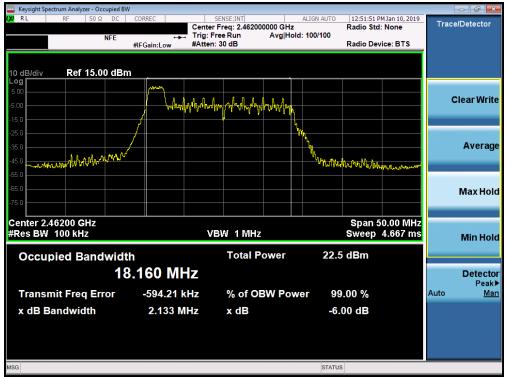
Plot 7-13. 6dB Bandwidth Plot SISO ANT2 (802.11ax OFDMA – 26 Tones – Ch. 1)



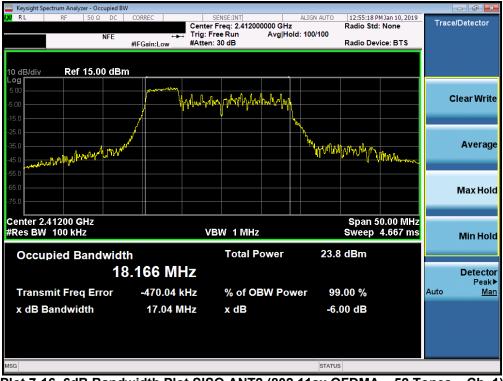
Plot 7-14. 6dB Bandwidth Plot SISO ANT2 (802.11ax OFDMA – 26 Tones – Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 22 of 140	
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 22 of 149	
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Plot 7-15. 6dB Bandwidth Plot SISO ANT2 (802.11ax OFDMA - 26 Tones - Ch. 11)



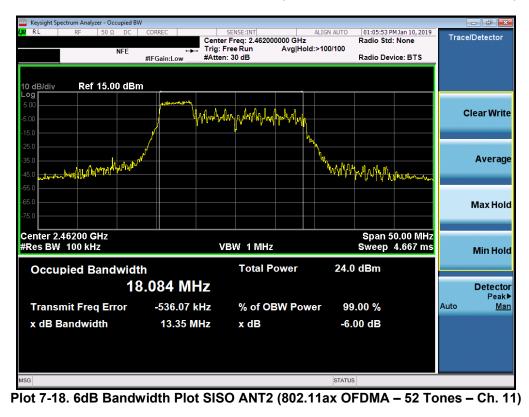
Plot 7-16. 6dB Bandwidth Plot SISO ANT2 (802.11ax OFDMA – 52 Tones – Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 22 of 140	
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 23 of 149	
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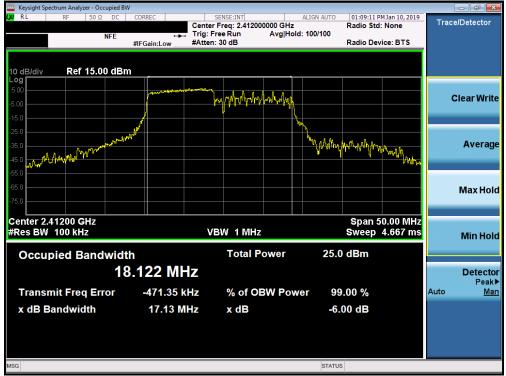


Plot 7-17. 6dB Bandwidth Plot SISO ANT2 (802.11ax OFDMA – 52 Tones – Ch. 6)

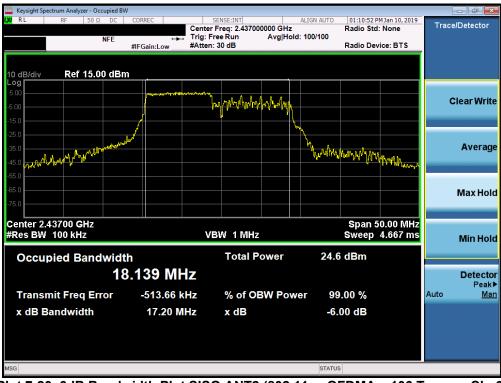


FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 24 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset	Page 24 of 149	
© 2019 PCTEST Engineering Labora	V 8.8 11/19/2018			





Plot 7-19. 6dB Bandwidth Plot SISO ANT2 (802.11ax OFDMA - 106 Tones - Ch. 1)



Plot 7-20. 6dB Bandwidth Plot SISO ANT2 (802.11ax OFDMA – 106 Tones – Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 25 of 149
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset	et	
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Plot 7-21. 6dB Bandwidth Plot SISO ANT2 (802.11ax OFDMA – 106 Tones – Ch. 11)



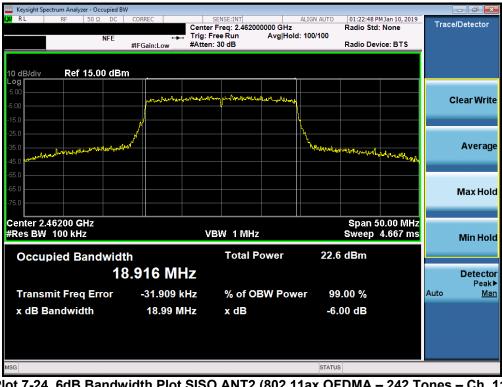
Plot 7-22. 6dB Bandwidth Plot SISO ANT2 (802.11ax OFDMA – 242 Tones – Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 26 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset	Page 26 of 149	
© 2019 PCTEST Engineering Lab	oratory Inc			V 8 8 11/19/2018





Plot 7-23. 6dB Bandwidth Plot SISO ANT2 (802.11ax OFDMA – 242 Tones – Ch. 6)



Plot 7-24. 6dB Bandwidth Plot SISO ANT2 (802.11ax OFDMA – 242 Tones – Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 27 of 140	
1M1811120202-14.A3L	10/31/2018-1/17/2019	ortable Handset		Page 27 of 149	
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# 7.3 Output Power Measurement §15.247(b.3);

#### **Test Overview and Limits**

A transmitter antenna terminal of EUT is connected to the input of an RF power sensor. Measurement is made using a broadband power meter capable of making peak and average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

#### The maximum permissible conducted output power is 1 Watt.

#### **Test Procedure Used**

ANSI C63.10-2013 – Section 11.9.1.3 PKPM1 Peak Power Method KDB 558074 D01 v05 – Section 8.3.1.3 PKPM1 Peak-reading Power Meter Method ANSI C63.10-2013 – Section 11.9.2.3.2 Method AVGPM-G KDB 558074 D01 v05 – Section 8.3.2.3 Measurement using a Power Meter (PM) ANSI C63.10-2013 – Section 14.2 Measure-and-Sum Technique KDB 662911 D01 v02r01 – Section E)1) Measure-and-Sum Technique

#### **Test Settings**

#### Method PKPM1 (Peak Power Measurement)

Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The pulse sensor employs a VBW = 50MHz so this method was only used for signals whose DTS bandwidth was less than or equal to 50MHz.

#### Method AVGPM-G (Average Power Measurement)

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

#### Test Setup

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



#### Figure 7-2. Test Instrument & Measurement Setup for Power Meter Measurements

#### Test Notes

#### None

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 28 of 140	
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 28 of 149	
© 2019 PCTEST Engineering Lab	V 8.8 11/19/2018				



# Antenna-1

	Freq [MHz]	Channel	Tones	RU Index	Detector	Conducted Powers (dBm)	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]								
				0	AVG	13.70	30.00	-16.30	-8.06	5.64	36.02	-30.38								
				0	PEAK	21.09	30.00	-8.91	-8.06	13.03	36.02	-22.99								
	2412	1	26T	4	AVG	13.67	30.00	-16.33	-8.06	5.61	36.02	-30.41								
	2412	1	201	4	PEAK	21.02	30.00	-8.98	-8.06	12.96	36.02	-23.06								
				8	AVG	13.45	30.00	-16.55	-8.06	5.39	36.02	-30.63								
				0	PEAK	20.97	30.00	-9.03	-8.06	12.91	36.02	-23.11								
				0	AVG	13.63	30.00	-16.37	-6.55	7.08	36.02	-28.94								
				0	PEAK	20.97	30.00	-9.03	-6.55	14.42	36.02	-21.60								
	2437	6	26T	4	AVG	13.58	30.00	-16.42	-6.55	7.03	36.02	-28.99								
	2407	0	201	-	PEAK	21.01	30.00	-8.99	-6.55	14.46	36.02	-21.56								
					8	AVG	13.49	30.00	-16.51	-6.55	6.94	36.02	-29.08							
N											0	PEAK	21.05	30.00	-8.95	-6.55	14.50	36.02	-21.52	
2.4GHz		11										0	AVG	13.35	30.00	-16.65	-6.42	6.93	36.02	-29.09
Q			26T		PEAK	20.80	30.00	-9.20	-6.42	14.38	36.02	-21.64								
5 S	2462			26T 4	AVG	13.69	30.00	-16.31	-6.42	7.27	36.02	-28.75								
••	2402				PEAK	21.09	30.00	-8.91	-6.42	14.67	36.02	-21.35								
				8	AVG	13.79	30.00	-16.21	-6.42	7.37	36.02	-28.65								
				0	PEAK	21.30	30.00	-8.70	-6.42	14.88	36.02	-21.14								
				0	AVG	12.50	30.00	-17.50	-6.42	6.08	36.02	-29.94								
					PEAK	19.84	30.00	-10.16	-6.42	13.42	36.02	-22.60								
	2467	12	26T	4	AVG	12.67	30.00	-17.33	-6.42	6.25	36.02	-29.77								
	2.101		201		PEAK	20.25	30.00	-9.75	-6.42	13.83	36.02	-22.19								
				8	AVG	12.92	30.00	-17.08	-6.42	6.50	36.02	-29.52								
				-	PEAK	19.71	30.00	-10.29	-6.42	13.29	36.02	-22.73								
				0	AVG	0.93	30.00	-29.07	-6.42	-5.49	36.02	-41.51								
				-	PEAK	8.48	30.00	-21.52	-6.42	2.06	36.02	-33.96								
	2472	13	26T	4	AVG	0.56	30.00	-29.44	-6.42	-5.86	36.02	-41.88								
			201	+	PEAK	8.38	30.00	-21.62	-6.42	1.96	36.02	-34.06								
				8	AVG	0.82	30.00	-29.18	-6.42	-5.60	36.02	-41.62								
					PEAK	9.64	30.00	-20.36	-6.42	3.22	36.02	-32.80								

Table 7-4. Conducted Output Power Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager				
Test Report S/N:	Test Dates:	EUT Type:		Dago 20 of 140				
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 29 of 149				
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	Freq [MHz]	Channel	Tones	RU Index	Detector	Conducted Powers (dBm)	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]		
				37	AVG	14.84	30.00	-15.16	-8.06	6.78	36.02	-29.24		
				37	PEAK	22.63	30.00	-7.37	-8.06	14.57	36.02	-21.45		
	2412	1	52T	38	AVG	14.43	30.00	-15.57	-8.06	6.37	36.02	-29.65		
	2412	1	521	30	PEAK	21.83	30.00	-8.17	-8.06	13.77	36.02	-22.25		
				40	AVG	14.92	30.00	-15.08	-8.06	6.86	36.02	-29.16		
				40	PEAK	22.73	30.00	-7.27	-8.06	14.67	36.02	-21.35		
				37	AVG	14.63	30.00	-15.37	-6.55	8.08	36.02	-27.94		
				57	PEAK	22.20	30.00	-7.80	-6.55	15.65	36.02	-20.37		
	2437	6	52T	38	AVG	14.69	30.00	-15.31	-6.55	8.14	36.02	-27.88		
	2407	0	521		PEAK	22.13	30.00	-7.87	-6.55	15.58	36.02	-20.44		
				40	AVG	14.55	30.00	-15.45	-6.55	8.00	36.02	-28.02		
N				-10	PEAK	22.43	30.00	-7.57	-6.55	15.88	36.02	-20.14		
2.4GHz						37	AVG	14.88	30.00	-15.12	-6.42	8.46	36.02	-27.56
Q			11 52T	0.	PEAK	22.63	30.00	-7.37	-6.42	16.21	36.02	-19.81		
. v 0	2462	11		52T 38	AVG	14.65	30.00	-15.35	-6.42	8.23	36.02	-27.79		
	2402				PEAK	22.29	30.00	-7.71	-6.42	15.87	36.02	-20.15		
				40	AVG	14.52	30.00	-15.48	-6.42	8.10	36.02	-27.92		
				- <b>U</b>	PEAK	21.98	30.00	-8.02	-6.42	15.56	36.02	-20.46		
				37	AVG	13.38	30.00	-16.62	-6.55	6.83	36.02	-29.19		
					PEAK	21.33	30.00	-8.67	-6.55	14.78	36.02	-21.24		
	2467	12	52T	38	AVG	13.08	30.00	-16.92	-6.55	6.53	36.02	-29.49		
	2.101		021		PEAK	20.54	30.00	-9.46	-6.55	13.99	36.02	-22.03		
				40	AVG	13.20	30.00	-16.80	-6.55	6.65	36.02	-29.37		
					PEAK	19.45	30.00	-10.55	-6.55	12.90	36.02	-23.12		
				37	AVG	2.19	30.00	-27.81	-6.42	-4.23	36.02	-40.25		
					PEAK	9.76	30.00	-20.24	-6.42	3.34	36.02	-32.68		
	2472 13	13	52T	52T 38	AVG	1.97	30.00	-28.03	-6.42	-4.45	36.02	-40.47		
			13 521		PEAK	9.75	30.00	-20.25	-6.42	3.33	36.02	-32.69		
				40	AVG	2.49	30.00	-27.51	-6.42	-3.93	36.02	-39.95		
					PEAK	12.18	30.00	-17.82	-6.42	5.76	36.02	-30.26		

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 20 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset	Page 30 of 149	
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	Freq [MHz]	Channel	Tones	RU Index	Detector	Conducted Powers (dBm)	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				53	AVG	15.32	30.00	-14.68	-8.06	7.26	36.02	-28.76
	2412	1	106T	55	PEAK	22.99	30.00	-7.01	-8.06	14.93	36.02	-21.09
	2412		1001	54	AVG	15.70	30.00	-14.30	-8.06	7.64	36.02	-28.38
				54	PEAK	23.34	30.00	-6.66	-8.06	15.28	36.02	-20.74
				53	AVG	15.79	30.00	-14.21	-6.55	9.24	36.02	-26.78
	2437	6	106T	55	PEAK	23.35	30.00	-6.65	-6.55	16.80	36.02	-19.22
N	2437	0	1001	54	AVG	15.54	30.00	-14.46	-6.55	8.99	36.02	-27.03
Î				34	PEAK	23.17	30.00	-6.83	-6.55	16.62	36.02	-19.40
2.4GHz				53	AVG	15.59	30.00	-14.41	-6.42	9.17	36.02	-26.85
4	2462	11	106T	53	PEAK	23.23	30.00	-6.77	-6.42	16.81	36.02	-19.21
~~~	2402		1001	54	AVG	15.41	30.00	-14.59	-6.42	8.99	36.02	-27.03
				54	PEAK	22.73	30.00	-7.27	-6.42	16.31	36.02	-19.71
				53	AVG	14.80	30.00	-15.20	-6.55	8.25	36.02	-27.77
	2467	12	106T	55	PEAK	22.62	30.00	-7.38	-6.55	16.07	36.02	-19.95
	2407	12	1001	54	AVG	14.92	30.00	-15.08	-6.55	8.37	36.02	-27.65
				54	PEAK	21.46	30.00	-8.54	-6.55	14.91	36.02	-21.11
		72 13		53	AVG	4.19	30.00	-25.81	-6.42	-2.23	36.02	-38.25
	2472		13 106T —	53	PEAK	11.98	30.00	-18.02	-6.42	5.56	36.02	-30.46
	2412			54	AVG	4.33	30.00	-25.67	-6.42	-2.09	36.02	-38.11
				54	PEAK	12.91	30.00	-17.09	-6.42	6.49	36.02	-29.53

Table 7-6. Conducted Output Power Measurements SISO ANT1 (106 Tones)

	Freq [MHz]	Channel	Tones	RU Index	Detector	Conducted Powers (dBm)	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
	2412	1	242T	61	AVG	15.41	30.00	-14.59	-8.06	7.35	36.02	-28.67
	2412	1	2421	01	PEAK	22.72	30.00	-7.28	-8.06	14.66	36.02	-21.36
	2417	2	242T	61	AVG	16.55	30.00	-13.45	-8.06	8.49	36.02	-27.53
N	2417	2	2421	01	PEAK	23.75	30.00	-6.25	-8.06	15.69	36.02	-20.33
4GHz	2437	6	242T	61	AVG	16.51	30.00	-13.49	-6.55	9.96	36.02	-26.06
<u>U</u>	2437	0	2421		PEAK	23.83	30.00	-6.17	-6.55	17.28	36.02	-18.74
5	2457	10	242T	61	AVG	16.78	30.00	-13.22	-6.42	10.36	36.02	-25.66
	2437	10	2421	61	PEAK	23.89	30.00	-6.11	-6.42	17.47	36.02	-18.55
	2462	11	242T	61	AVG	14.79	30.00	-15.21	-6.42	8.37	36.02	-27.65
	2402		2421	01	PEAK	22.25	30.00	-7.75	-6.42	15.83	36.02	-20.19
	2467	12	242T	61	AVG	14.73	30.00	-15.27	-6.42	8.31	36.02	-27.71
	2407	12	2421	61	PEAK	21.99	30.00	-8.01	-6.42	15.57	36.02	-20.45
	2472	13	242T	61	AVG	9.06	30.00	-20.94	-6.42	2.64	36.02	-33.38
	2472	13	2421		PEAK	16.96	30.00	-13.04	-6.42	10.54	36.02	-25.48

Table 7-7. Conducted Output Power Measurements SISO ANT1 (242 Tones)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Degree 21 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 31 of 149
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# Antenna-2

	Freq [MHz]	Channel	Tones	RU Index	Detector	Conducted Powers (dBm)	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]									
				0	AVG	13.53	30.00	-16.47	-7.46	6.07	36.02	-29.95									
				0	PEAK	20.94	30.00	-9.06	-7.46	13.48	36.02	-22.54									
	2412	1	26T	4	AVG	13.63	30.00	-16.37	-7.46	6.17	36.02	-29.85									
	2412	'	201	4	PEAK	21.17	30.00	-8.83	-7.46	13.71	36.02	-22.31									
				8	AVG	13.98	30.00	-16.02	-7.46	6.52	36.02	-29.50									
				0	PEAK	21.40	30.00	-8.60	-7.46	13.94	36.02	-22.08									
				0	AVG	13.87	30.00	-16.13	-7.85	6.02	36.02	-30.00									
				0	PEAK	21.28	30.00	-8.72	-7.85	13.43	36.02	-22.59									
	2437	6	26T	4	AVG	13.82	30.00	-16.18	-7.85	5.97	36.02	-30.05									
	2437	0	201	+	PEAK	21.24	30.00	-8.76	-7.85	13.39	36.02	-22.63									
				8	AVG	13.73	30.00	-16.27	-7.85	5.88	36.02	-30.14									
N			0	PEAK	21.03	30.00	-8.97	-7.85	13.18	36.02	-22.84										
2.4GHz				0	AVG	13.71	30.00	-16.29	-6.32	7.39	36.02	-28.63									
Q		11	26T		PEAK	21.33	30.00	-8.67	-6.32	15.01	36.02	-21.01									
4	2462			4	AVG	13.89	30.00	-16.11	-6.32	7.57	36.02	-28.45									
••	2402		201	4	PEAK	21.33	30.00	-8.67	-6.32	15.01	36.02	-21.01									
				8	AVG	13.87	30.00	-16.13	-6.32	7.55	36.02	-28.47									
				0	PEAK	21.19	30.00	-8.81	-6.32	14.87	36.02	-21.15									
				0	AVG	12.89	30.00	-17.11	-6.32	6.57	36.02	-29.45									
				Ŭ	PEAK	20.37	30.00	-9.63	-6.32	14.05	36.02	-21.97									
	2467	12	26T	26T	26T	26T	26T	26T	26T	26T	26T	26T	4	AVG	12.58	30.00	-17.42	-6.32	6.26	36.02	-29.76
	2401	12	201	-	PEAK	20.10	30.00	-9.90	-6.32	13.78	36.02	-22.24									
				8	AVG	12.64	30.00	-17.36	-6.32	6.32	36.02	-29.70									
				Ŭ	PEAK	20.33	30.00	-9.67	-6.32	14.01	36.02	-22.01									
				0	AVG	0.58	30.00	-29.42	-6.32	-5.74	36.02	-41.76									
		13 26T		Ŭ	PEAK	0.40	30.00	-29.60	-6.32	-5.92	36.02	-41.94									
	2472		26T	4	AVG	0.64	30.00	-29.36	-6.32	-5.68	36.02	-41.70									
	2712		201		PEAK	8.29	30.00	-21.71	-6.32	1.97	36.02	-34.05									
				8	AVG	0.90	30.00	-29.10	-6.32	-5.42	36.02	-41.44									
				0	PEAK	8.83	30.00	-21.17	-6.32	2.51	36.02	-33.51									
		Table 7-	8 Condu	icted Ou			ļ					-33.51									

Table 7-8. Conducted Output Power Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 22 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 32 of 149
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	Freq [MHz]	Channel	Tones	RU Index	Detector	Conducted Powers (dBm)	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				37	AVG	14.56	30.00	-15.44	-7.46	7.10	36.02	-28.92
				51	PEAK	22.03	30.00	-7.97	-7.46	14.57	36.02	-21.45
	2412	1	52T	38	AVG	14.60	30.00	-15.40	-7.46	7.14	36.02	-28.88
	2412	I	521	30	PEAK	21.99	30.00	-8.01	-7.46	14.53	36.02	-21.49
				40	AVG	14.72	30.00	-15.28	-7.46	7.26	36.02	-28.76
				40	PEAK	22.43	30.00	-7.57	-7.46	14.97	36.02	-21.05
				37	AVG	14.58	30.00	-15.42	-7.85	6.73	36.02	-29.29
				51	PEAK	22.23	30.00	-7.77	-7.85	14.38	36.02	-21.64
	2437	6	52T	38	AVG	14.86	30.00	-15.14	-7.85	7.01	36.02	-29.01
	2451	0	521		PEAK	22.40	30.00	-7.60	-7.85	14.55	36.02	-21.47
				40	AVG	14.79	30.00	-15.21	-7.85	6.94	36.02	-29.08
N				40	PEAK	22.30	30.00	-7.70	-7.85	14.45	36.02	-21.57
2.4GHz				37	AVG	14.49	30.00	-15.51	-6.32	8.17	36.02	-27.85
Q			52T		PEAK	22.09	30.00	-7.91	-6.32	15.77	36.02	-20.25
.v 0	2462	11		38	AVG	14.82	30.00	-15.18	-6.32	8.50	36.02	-27.52
	2402		021		PEAK	22.32	30.00	-7.68	-6.32	16.00	36.02	-20.02
					AVG	14.65	30.00	-15.35	-6.32	8.33	36.02	-27.69
				40	PEAK	22.05	30.00	-7.95	-6.32	15.73	36.02	-20.29
				37	AVG	13.24	30.00	-16.76	-6.55	6.69	36.02	-29.33
					PEAK	20.68	30.00	-9.32	-6.55	14.13	36.02	-21.89
	2467	12	52T	38	AVG	13.11	30.00	-16.89	-6.55	6.56	36.02	-29.46
	2401	12	021		PEAK	20.72	30.00	-9.28	-6.55	14.17	36.02	-21.85
				40	AVG	13.26	30.00	-16.74	-6.55	6.71	36.02	-29.31
				40	PEAK	20.99	30.00	-9.01	-6.55	14.44	36.02	-21.58
				37	AVG	2.03	30.00	-27.97	-6.42	-4.39	36.02	-40.41
		2472 13			PEAK	9.84	30.00	-20.16	-6.42	3.42	36.02	-32.60
	2472		13 52T	52T 38	AVG	2.45	30.00	-27.55	-6.42	-3.97	36.02	-39.99
	2472 13	10	021	52T 38	PEAK	9.98	30.00	-20.02	-6.42	3.56	36.02	-32.46
				40	AVG	1.84	30.00	-28.16	-6.42	-4.58	36.02	-40.60
		<b>T</b> - 1 - 1 - <b>7</b> 4			PEAK	9.51	30.00	-20.49	-6.42	3.09	36.02	-32.93

Table 7-9. Conducted Output Power Measurements SISO ANT2 (52 Tones)

	Freq [MHz]	Channel	Tones	RU Index	Detector	Conducted Powers (dBm)	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
				53	AVG	15.84	30.00	-14.16	-7.46	8.38	36.02	-27.64
	2412	1	106T	55	PEAK	22.97	30.00	-7.03	-7.46	15.51	36.02	-20.51
	2412	I	1001	54	AVG	15.46	30.00	-14.54	-7.46	8.00	36.02	-28.02
				54	PEAK	22.87	30.00	-7.13	-7.46	15.41	36.02	-20.61
				53	AVG	15.92	30.00	-14.08	-7.85	8.07	36.02	-27.95
	2437	6	106T	55	PEAK	23.11	30.00	-6.89	-7.85	15.26	36.02	-20.76
N	2437	0	1001	54	AVG	15.37	30.00	-14.63	-7.85	7.52	36.02	-28.50
Î				54	PEAK	22.88	30.00	-7.12	-7.85	15.03	36.02	-20.99
2.4GHz				53 -	AVG	15.79	30.00	-14.21	-6.32	9.47	36.02	-26.55
4	2462	11	106T		PEAK	23.06	30.00	-6.94	-6.32	16.74	36.02	-19.28
	2402		1001		AVG	15.57	30.00	-14.43	-6.32	9.25	36.02	-26.77
				54	PEAK	22.67	30.00	-7.33	-6.32	16.35	36.02	-19.67
				53	AVG	14.78	30.00	-15.22	-6.55	8.23	36.02	-27.79
	2467	12	106T	55	PEAK	22.27	30.00	-7.73	-6.55	15.72	36.02	-20.30
	2407	12	1001	54	AVG	14.54	30.00	-15.46	-6.55	7.99	36.02	-28.03
				34	PEAK	22.27	30.00	-7.73	-6.55	15.72	36.02	-20.30
	2472 13		52	AVG	3.92	30.00	-26.08	-6.42	-2.50	36.02	-38.52	
		40CT	53	PEAK	11.86	30.00	-18.14	-6.42	5.44	36.02	-30.58	
		13 106T	106T	54	AVG	4.35	30.00	-25.65	-6.42	-2.07	36.02	-38.09
			54	PEAK	12.22	30.00	-17.78	-6.42	5.80	36.02	-30.22	

Table 7-10. Conducted Output Power Measurements SISO ANT2 (106 Tones)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 22 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 33 of 149
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Freq [MHz]	Channel	Tones	RU Index	Detector	Conducted Powers (dBm)	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
2412	1	242T	61	AVG	15.69	30.00	-14.31	-7.46	8.23	36.02	-27.79
2412	1	2421	01	PEAK	22.78	30.00	-7.22	-7.46	15.32	36.02	-20.70
2417	2	242T	61	AVG	16.73	30.00	-13.27	-7.46	9.27	36.02	-26.75
2417	2	2421	01	PEAK	23.45	30.00	-6.55	-7.46	15.99	36.02	-20.03
2427	6	242T	61	AVG	16.74	30.00	-13.26	-7.85	8.89	36.02	-27.13
2437	0	2421	01	PEAK	23.42	30.00	-6.58	-7.85	15.57	36.02	-20.45
2457	10	242T	61	AVG	16.73	30.00	-13.27	-6.32	10.41	36.02	-25.61
2437	10	2421	61	PEAK	23.49	30.00	-6.51	-6.32	17.17	36.02	-18.85
2462	11	242T	61	AVG	14.73	30.00	-15.27	-6.32	8.41	36.02	-27.61
2402		2421	01	PEAK	21.83	30.00	-8.17	-6.32	15.51	36.02	-20.51
2467	10	242T	61	AVG	14.42	30.00	-15.58	-6.42	8.00	36.02	-28.02
2407	12	242T	01	PEAK	21.99	30.00	-8.01	-6.42	15.57	36.02	-20.45
2472	12	242T	61	AVG	9.48	30.00	-20.52	-6.42	3.06	36.02	-32.96
2472 13 2421		61	PEAK	17.10	30.00	-12.90	-6.42	10.68	36.02	-25.34	
	2412 2417 2437 2457 2462 2462 2467 2472	2412         1           2417         2           2437         6           2457         10           2462         11           2467         12           2472         13	2412         1         242T           2417         2         242T           2437         6         242T           2457         10         242T           2462         11         242T           2467         12         242T           2472         13         242T	2412         1         242T         61           2417         2         242T         61           2437         6         242T         61           2437         6         242T         61           2457         10         242T         61           2462         11         242T         61           2467         12         242T         61           2472         13         242T         61	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{ c c c c c c } \hline {\rm Freq}  [\rm MHz] & {\rm Channel} & {\rm Tones} & {\rm RU}  {\rm Index} & {\rm Detector} & {\rm Powers} \\ \hline {\rm (dBm)} \\ \hline \\ 2412 & 1 & 242T & 61 & {\rm AVG} & 15.69 \\ \hline {\rm PEAK} & 22.78 \\ \hline \\ 2417 & 2 & 242T & 61 & {\rm AVG} & 16.73 \\ \hline {\rm PEAK} & 23.45 \\ \hline \\ 2437 & 6 & 242T & 61 & {\rm AVG} & 16.74 \\ \hline \\ 2437 & 6 & 242T & 61 & {\rm AVG} & 16.74 \\ \hline \\ 2457 & 10 & 242T & 61 & {\rm AVG} & 16.73 \\ \hline \\ 2462 & 11 & 242T & 61 & {\rm AVG} & 16.73 \\ \hline \\ 2462 & 11 & 242T & 61 & {\rm AVG} & 14.73 \\ \hline \\ 2467 & 12 & 242T & 61 & {\rm AVG} & 14.42 \\ \hline \\ 2477 & 13 & 242T & 61 & {\rm AVG} & 14.42 \\ \hline \\ \hline \end{array} $	$ \begin{array}{ c c c c c c } \hline {\bf Freq [MHz]} & {\bf Channel} & {\bf Tones} & {\bf RU Index} & {\bf Detector} & {\bf Powers} & {\bf Power Limit} \\ \hline {\bf (dBm)} & {\bf 2412} & 1 & 242T & 61 & {\bf AVG} & 15.69 & 30.00 \\ \hline {\bf PEAK} & 22.78 & 30.00 \\ \hline {\bf PEAK} & 23.45 & 30.00 \\ \hline {\bf PEAK} & 23.42 & 30.00 \\ \hline {\bf PEAK} & 23.49 & 30.00 \\ \hline {\bf PEAK} & 23.49 & 30.00 \\ \hline {\bf PEAK} & 21.83 & 30.00 \\ \hline {\bf PEAK} & 21.99 & 30.00$	$ \begin{array}{ c c c c c c } \hline \mbox{Freq [MHz]} & \mbox{Channel} & \mbox{Tones} & \mbox{RU index} & \mbox{Detector} & \mbox{CdBm} & \mbox{Power Limit} & \mbox{Margin [dB]} \\ \hline \mbox{Added} \\ \hline \mbox{2412} & \mbox{1} & \mbox{2421} & \mbox{Added} \\ \hline \mbox{2417} & \mbox{2421} & \mbox{2421} & \mbox{Added} \\ \hline \mbox{2417} & \mbox{2421} & \mbox{2421} & \mbox{Added} \\ \hline \mbox{2437} & \mbox{Added} \\ \hline \mbox{2427} & \mbox{2427} & \mbox{Added} \\ \hline \mbox{2427} & \m$	$ \begin{array}{ c c c c c c } \hline \mbox{Freq [MHz]} & \mbox{Channel} & \mbox{Tones} & \mbox{RU index} & \mbox{Detector} & \mbox{Power} & \mbox{(dBm)} & \mbox{Power} & \mbox{Margin [dB]} & \$	$ \begin{array}{ c c c c c c } \hline {\bf Freq [MHz]} & {\bf Channel} & {\bf Tones} & {\bf RU Index} & {\bf Detector} & {\bf Power} & {\bf Ower} & {\bf Ower} & {\bf Max Gain} & {\bf Max 6.r.p.} \\ \hline {\bf (dBII)} & {\bf (dBII)} $	$ \begin{array}{ c c c c c c c } \hline \mbox{Freq [MHz]} & \mbox{Channel} & \mbox{Tones} & \mbox{RU index} & \mbox{Detector} & \mbox{Power} & \mbox{dBm} & \mbox{Power} & \mbox{Margin [dB]} & \$

Table 7-11. Conducted Output Power Measurements SISO ANT2 (242 Tones)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 24 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 34 of 149
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# MIMO

	Freq [MHz] Channel		Tones	RU Index	Detector	Cond	lucted Power [	dBm]	Conducted Power Limit	Conducted Power	Directional Ant. Gain	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin (dB)																
						ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	[ubiii]	Chine [GDinj	margin [ub]																
				0	AVG	11.42	10.05	13.80	30.00	-16.20	-4.74	9.05	36.02	-26.97																
				U	PEAK	18.82	17.32	21.14	30.00	-8.86	-4.74	16.40	36.02	-19.62																
	2412	1	26T	4	AVG	11.22	10.06	13.69	30.00	-16.31	-4.74	8.94	36.02	-27.08																
	2412		201	7	PEAK	18.45	17.62	21.07	30.00	-8.93	-4.74	16.32	36.02	-19.70																
				8	AVG	10.98	9.86	13.47	30.00	-16.53	-4.74	8.72	36.02	-27.30																
				0	PEAK	18.43	17.40	20.96	30.00	-9.04	-4.74	16.21	36.02	-19.81																
				0	AVG	11.03	10.35	13.71	30.00	-16.29	-4.17	9.55	36.02	-26.47																
				U	PEAK	18.73	17.79	21.30	30.00	-8.70	-4.17	17.13	36.02	-18.89																
	2437	6	26T	4	AVG	11.10	10.09	13.63	30.00	-16.37	-4.17	9.47	36.02	-26.55																
	2437	0	201	4	PEAK	18.51	17.76	21.16	30.00	-8.84	-4.17	17.00	36.02	-19.02																
				8	AVG	11.03	10.85	13.95	30.00	-16.05	-4.17	9.79	36.02	-26.23																
N			26T	0	PEAK	18.66	18.44	21.56	30.00	-8.44	-4.17	17.40	36.02	-18.62																
Ϊ				0	AVG	11.13	10.71	13.94	30.00	-16.06	-3.36	10.58	36.02	-25.44																
Q				0	PEAK	18.42	17.13	20.83	30.00	-9.17	-3.36	17.47	36.02	-18.55																
2.4GHz	2462	11		26T	26T	4	AVG	11.34	9.57	13.55	30.00	-16.45	-3.36	10.20	36.02	-25.83														
~	2402	11		4	PEAK	18.79	17.23	21.09	30.00	-8.91	-3.36	17.73	36.02	-18.29																
				8	AVG	10.28	10.52	13.41	30.00	-16.59	-3.36	10.05	36.02	-25.97																
				8	PEAK	17.84	18.10	20.98	30.00	-9.02	-3.36	17.62	36.02	-18.40																
				0	AVG	9.50	10.39	12.98	30.00	-17.02	-3.36	9.62	36.02	-26.40																
																			_	0	PEAK	16.85	17.84	20.38	30.00	-9.62	-3.36	17.02	36.02	-19.00
	2467	12	26T	26T	26T	26T	26T	26T	26T	26T	26T	26T	26T	26T	26T	26T	26T	26T		AVG	9.58	10.28	12.95	30.00	-17.05	-3.36	9.59	36.02	-26.43	
	2467	12																	26T	4	PEAK	17.15	17.93	20.57	30.00	-9.43	-3.36	17.21	36.02	-18.81
			F	-	-		-	-				-	-	F			-	8	AVG	9.48	8.51	12.03	30.00	-17.97	-3.36	8.67	36.02	-27.35		
																			0	PEAK	16.64	16.09	19.38	30.00	-10.62	-3.36	16.02	36.02	-20.00	
				0	AVG	-2.57	-1.76	0.86	30.00	-29.14	-3.36	-2.50	36.02	-38.52																
				0	PEAK	4.50	5.83	8.23	30.00	-21.77	-3.36	4.87	36.02	-31.15																
	0.170	13 26	007	Tac	TOC	TOC	OCT	26T	267	26T	26T	<b>26</b> T	Tac		AVG	-1.90	-2.29	0.92	30.00	-29.08	-3.36	-2.44	36.02	-38.46						
	2472		26T	4	PEAK	5.65	5.33	8.50	30.00	-21.50	-3.36	5.14	36.02	-30.88																
			-			AVG	-2.76	-2.28	0.50	30.00	-29.50	-3.36	-2.86	36.02	-38.88															
			8		8	PEAK	4.80	5.21	8.02	30.00	-21.98	-3.36	4.66	36.02	-31.36															
	•	Tal	blo 7-13	Cond	uctod C	Nutrout E	Dowor M	loseur	ements	MIMO	26 Ton	06)		I																

Table 7-12. Conducted Output Power Measurements MIMO (26 Tones)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 25 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 35 of 149
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	Freq [MHz]	Channel	Tones	RU Index	Conducted Power [dBm]			Conducted Power Limit	Conducted Power	Directional Ant. Gain	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin (dB)	
						ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	Lapud	Emilie [dibin]	margin [db]
		1	52T	37	AVG	12.15	10.91	14.58	30.00	-15.42	-4.74	9.84	36.02	-26.18
				51	PEAK	19.95	18.45	22.27	30.00	-7.73	-4.74	17.53	36.02	-18.49
	2412			38	AVG	12.27	11.48	14.90	30.00	-15.10	-4.74	10.16	36.02	-25.86
				30	PEAK	19.88	19.29	22.61	30.00	-7.39	-4.74	17.86	36.02	-18.16
				40	AVG	11.66	11.45	14.57	30.00	-15.43	-4.74	9.82	36.02	-26.20
				40	PEAK	19.32	19.37	22.36	30.00	-7.64	-4.74	17.61	36.02	-18.41
	2437	6	52T	37	AVG	12.34	11.16	14.80	30.00	-15.20	-4.17	10.63	36.02	-25.39
2.4GHz				51	PEAK	20.18	18.89	22.59	30.00	-7.41	-4.17	18.43	36.02	-17.59
				38	AVG	11.94	11.01	14.51	30.00	-15.49	-4.17	10.34	36.02	-25.68
				30	PEAK	19.55	18.76	22.18	30.00	-7.82	-4.17	18.02	36.02	-18.00
				40	AVG	10.93	11.37	14.17	30.00	-15.83	-4.17	10.00	36.02	-26.02
					PEAK	18.86	19.17	22.03	30.00	-7.97	-4.17	17.86	36.02	-18.16
	2462	11	52T	37	AVG	12.10	10.69	14.46	30.00	-15.54	-3.36	11.10	36.02	-24.92
				51	PEAK	19.93	18.45	22.26	30.00	-7.74	-3.36	18.90	36.02	-17.12
				38	AVG	12.23	11.68	14.97	30.00	-15.03	-3.36	11.61	36.02	-24.41
				30	PEAK	19.70	19.45	22.59	30.00	-7.41	-3.36	19.23	D         36.02         -           D         36.02         -           1         36.02         -           3         36.02         -           3         36.02         -           3         36.02         -           3         36.02         -           3         36.02         -	-16.79
				40	AVG	11.30	11.05	14.19	30.00	-15.81	-3.36	10.83	36.02	-25.19
				40	PEAK	18.85	18.90	21.89	30.00	-8.11	-3.36	18.53	36.02	-17.49
	2467	12	52T	37	AVG	9.79	10.07	12.94	30.00	-17.06	-3.54	9.40	36.02	-26.62
				57	PEAK	17.38	17.48	20.44	30.00	-9.56	-3.54	16.90	36.02	-19.12
				FOT	38	AVG	10.57	9.84	13.23	30.00	-16.77	-3.54	9.69	36.02
	2407			30	PEAK	17.98	14.52	19.60	30.00	-10.40	-3.54	10.00           17.86           11.10           18.90           11.61           19.23           10.83           18.53           9.40           16.90           9.69           16.06           9.95	36.02	-19.96
				40	AVG	10.74	10.20	13.49	30.00	-16.51	-3.54	9.95	36.02	-26.07
				40	PEAK	18.36	18.11	21.25	30.00	-8.75	-3.54	17.71	36.02	-18.31
		13	52T	37	AVG	-0.90	-0.36	2.39	30.00	-27.61	-3.41	-1.02	36.02	-37.04
				37	PEAK	6.93	7.44	10.20	30.00	-19.80	-3.41	6.79	36.02	-29.23
	2472			38	AVG	-0.34	-0.71	2.49	30.00	-27.51	-3.41	-0.92	36.02	-36.94
	2472			30	PEAK	7.74	7.20	10.49	30.00	-19.51	-3.41	7.08	36.02	-28.94
				40	AVG	-1.08	-0.74	2.10	30.00	-27.90	-3.41	-1.31	36.02	-37.33
				40	PEAK	6.65	7.08	9.88	30.00	-20.12	-3.41	6.47	36.02	-29.55

Table 7-13. Conducted Output Power Measurements MIMO (52 Tones)

	Freq [MHz]	Channel	Tones	RU Index	Detector	Conducted Power [dBm]			Conducted Power Limit	Conducted Power	Directional Ant. Gain	Max e.i.r.p.	Max e.i.r.p.	e.i.r.p. Margin (dB)
						ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	[abiii]		
	2412	1	106T	53	AVG	12.46	12.81	15.65	30.00	-14.35	-4.74	10.90	36.02	-25.12
				55	PEAK	20.01	20.60	23.33	30.00	-6.67	-4.74	18.58	36.02	-17.44
				54	AVG	12.65	12.91	15.79	30.00	-14.21	-4.74	11.05	36.02	-24.97
				54	PEAK	20.18	20.63	23.42	30.00	-6.58	-4.74	[dBm]         Limit [dBm]         N           10.90         36.02         1           18.58         36.02         1           11.05         36.02         1           18.68         36.02         1           18.68         36.02         1           19.66         36.02         1           11.52         36.02         1           11.52         36.02         1           19.66         36.02         1           19.67         36.02         1           19.27         36.02         1           12.27         36.02         1           19.87         36.02         1           19.87         36.02         1           11.20         36.02         1           11.84         36.02         1           18.84         36.02         1           18.95         36.02         1	-17.34	
	2437	6	106T	53	AVG	12.68	11.49	15.14	30.00	-14.86	-4.17	10.97	36.02	-25.05
4GHz					PEAK	20.30	21.27	23.82	30.00	-6.18	-4.17	19.66	36.02	-16.36
				54	AVG	12.04	13.23	15.69	30.00	-14.31	-4.17	11.52	36.02	-24.50
				54	PEAK	19.79	21.09	23.50	30.00	-6.50	-4.17	19.33	36.02	-16.69
	2462	11		53	AVG	12.50	12.74	15.63	30.00	-14.37	-3.36	12.27	36.02	-23.75
, N			106T		PEAK	20.21	20.53	23.38	30.00	-6.62	-3.36	20.02	36.02	-16.00
				54	AVG	12.33	12.73	15.54	30.00	-14.46	-3.36	12.19 36	36.02	-23.84
				04	PEAK	19.93	20.49	23.23	30.00	-6.77	-3.36	19.87	36.02	-16.15
	2467	12	106T	53	AVG	10.93	12.41	14.74	30.00	-15.26	-3.54	11.20	36.02	-24.82
					PEAK	18.56	20.05	22.38	30.00	-7.62	-3.54	19.33         36.02           12.27         36.02           20.02         36.02           12.19         36.02           19.87         36.02           11.20         36.02           18.84         36.02           11.30         36.02	-17.18	
				54	AVG	12.00	11.66	14.84	30.00	-15.16	-3.54	11.30	36.02	-24.72
				04	PEAK	19.65	19.30	22.49	30.00	-7.51	-3.54	18.95	36.02	-17.07
	2472	13	106T	53	AVG	0.92	1.53	4.25	30.00	-25.75	-3.41	0.84	36.02	-35.18
				50	PEAK	8.70	9.62	12.19	30.00	-17.81	-3.41	8.78	36.02	-27.24
				54	AVG	1.03	0.60	3.83	30.00	-26.17	-3.41	19.33         12.27         20.02         12.19         19.87         11.20         18.84         11.30         18.95         0.84         8.78         0.42	36.02	-35.60
				54	PEAK	8.50	8.69	11.61	30.00	-18.39	-3.41	8.20	36.02	-27.82

Table 7-14. Conducted Output Power Measurements MIMO (106 Tones)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N: Test Dates:		EUT Type:		Page 36 of 149	
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset	le Handset		
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	Freq [MHz]	Channel	Tones	RU Index	Detector	Cond	lucted Power [	dBm]	Conducted Power Limit	Conducted Power	Directional Ant. Gain	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]						
						ANT1	ANT2	MIMO	[dBm]	Margin [dB]	[dBi]	[upin]	Ennie [GB/ii]	margin [ab]						
	2412	1	242T	61	AVG	12.60	12.88	15.75	30.00	-14.25	-4.74	11.01	36.02	-25.01						
	2412	1	2421	01	PEAK	20.00	20.51	23.27	30.00	-6.73	-4.74	18.53	36.02	-17.49						
	2417	2	242T	61	AVG	13.33	14.01	16.69	30.00	-13.31	-4.74	11.95	36.02	-24.07						
N	<b>P</b> 2437 6 242T	2417 2		2	2421	2421	01	PEAK	20.67	21.43	24.08	30.00	-5.92	-4.74	19.33	36.02	-16.69			
I		6	242T	242T	61	AVG	13.09	13.95	16.55	30.00	-13.45	-4.17	12.39	36.02	-23.63					
<u>n</u>		2421	2421 01	PEAK	20.68	21.20	23.96	30.00	-6.04	-4.17	19.79	36.02	-16.23							
2.4	2457	10	10 242T 6	242T 61	AVG	13.84	13.84	16.85	30.00	-13.15	-3.36	13.49	36.02	-22.53						
	2437	10		01	PEAK	21.23	21.43	24.34	30.00	-5.66	-3.36	20.98	36.02	-15.04						
	2462	11	0.407	040T	0407	040T	242T	0407	0407	61	AVG	11.80	11.59	14.71	30.00	-15.29	-3.36	11.35	36.02	-24.67
	2462 11	11	2421	01	PEAK	18.62	19.34	22.01	30.00	-7.99	-3.36	18.65	36.02	-17.37						
	2467	12	0407	242T 61	AVG	11.46	12.07	14.79	30.00	-15.21	-3.41	11.38	36.02	-24.64						
	2407	12	2421		PEAK	18.89	19.57	22.25	30.00	-7.75	-3.41	18.84	36.02	-17.18						
	2472	13	13 242T	242T 61	AVG	6.21	6.12	9.18	30.00	-20.82	-3.41	5.77	36.02	-30.25						
	2472	13		2421 61	PEAK	13.93	14.29	17.12	30.00	-12.88	-3.41	13.71	36.02	-22.31						

## Table 7-15. Conducted Output Power Measurements MIMO (242 Tones)

## Note:

Per ANSI C63.10-2013 and KDB 662911 D01 v02r01 Section E)1), the conducted powers at Antenna 1 and Antenna 2 were first measured separately during MIMO transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

## Sample MIMO Calculation:

Assuming the average conducted output power was measured to be 11.42 dBm for Antenna-1 and 10.05 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

(11.42 dBm + 10.05 dBm) = (13.87 mW + 10.12 mW) = 23.99 mW = 13.80 dBm

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 27 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	0/31/2018-1/17/2019 Portable Handset		Page 37 of 149
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# 7.4 Power Spectral Density §15.247(e);

#### **Test Overview and Limit**

The peak power density is 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 and the worst case configuration results are reported in this section.

#### The maximum permissible power spectral density is 8 dBm in any 3 kHz band.

#### **Test Procedure Used**

ANSI C63.10-2013 – Section 11.10.2 Method PKPSD KDB 558074 D01 v05 – Section 8.4 DTS Maximum Power Spectral Density level in the fundamental emission ANSI C63.10-2013 – Section 14.3.2.2 Measure-and-Sum Technique KDB 662911 D01 v02r01 – Section E)2) Measure-and-Sum Technique

## **Test Settings**

- 1. Analyzer was set to the center frequency of the DTS channel under investigation
- 2. Span = 1.5 times the DTS channel bandwidth
- 3. RBW = 10kHz
- 4. VBW = 1MHz
- 5. Detector = peak
- 6. Sweep time = auto couple
- 7. Trace mode = max hold
- 8. Trace was allowed to stabilize

# Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

#### Test Notes

The power spectral density for each channel was measured with the RU index showing the highest conducted power.

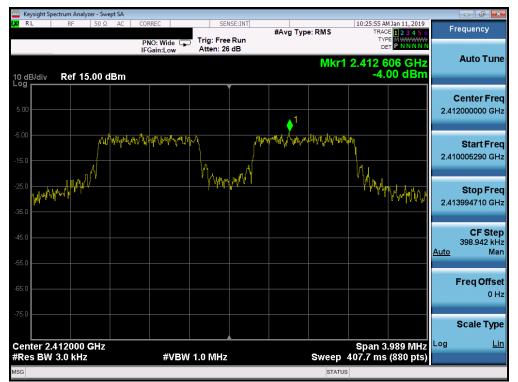
FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 29 of 140	
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 38 of 149	
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# SISO Antenna-1 Power Spectral Density Measurements

Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Spectral Density [dBm]	Maximum Permissib le Power Density	Margin [dB]	Pass / Fail
2412	1	ax	26T	MCS0	-4.00	8.00	-12.00	Pass
2437	6	ax	26T	MCS0	-3.63	8.00	-11.63	Pass
2462	11	ax	26T	MCS0	-3.06	8.00	-11.06	Pass
2412	1	ax	52T	MCS0	-3.86	8.00	-11.86	Pass
2437	6	ax	52T	MCS0	-5.35	8.00	-13.35	Pass
2462	11	ax	52T	MCS0	-4.52	8.00	-12.52	Pass
2412	1	ax	106T	MCS0	-6.82	8.00	-14.82	Pass
2437	6	ax	106T	MCS0	-6.74	8.00	-14.74	Pass
2462	11	ax	106T	MCS0	-6.16	8.00	-14.16	Pass
2412	1	ax	242T	MCS0	-8.93	8.00	-16.93	Pass
2437	6	ax	242T	MCS0	-9.30	8.00	-17.30	Pass
2462	11	ax	242T	MCS0	-9.04	8.00	-17.04	Pass

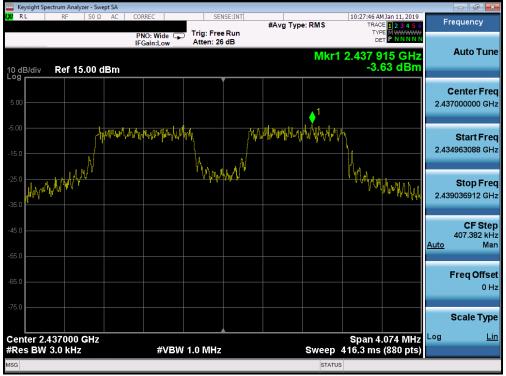
Table 7-16. Conducted Power Density Measurements SISO ANT1



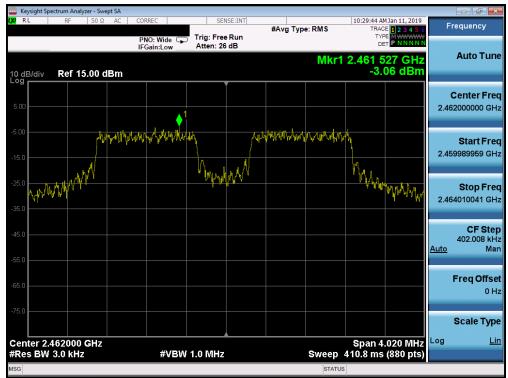
Plot 7-25. Power Spectral Density Plot SISO ANT1 (802.11ax OFDMA – 26 Tones – Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dega 20 of 140		
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 39 of 149		
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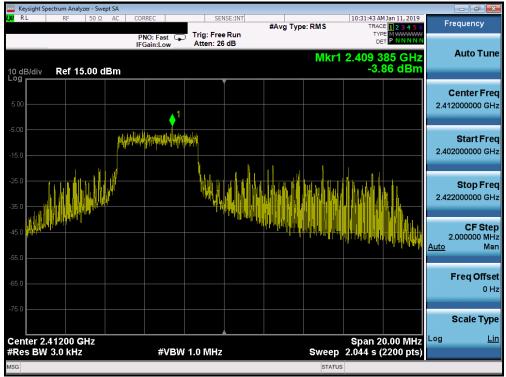
Plot 7-26. Power Spectral Density Plot SISO ANT1 (802.11ax OFDMA - 26 Tones - Ch. 6)



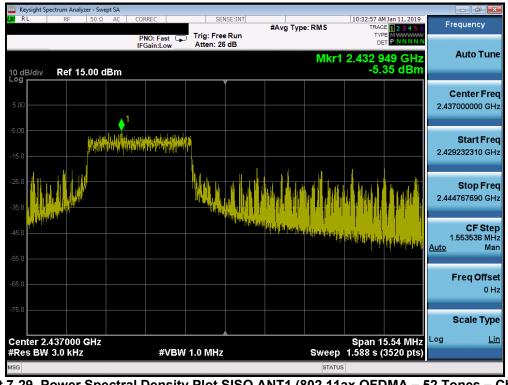
Plot 7-27. Power Spectral Density Plot SISO ANT1 (802.11ax OFDMA - 26 Tones - Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 40 of 149
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 40 01 149
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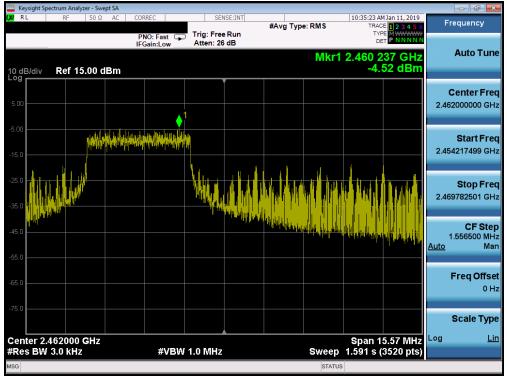
Plot 7-28. Power Spectral Density Plot SISO ANT1 (802.11ax OFDMA – 52 Tones – Ch. 1)



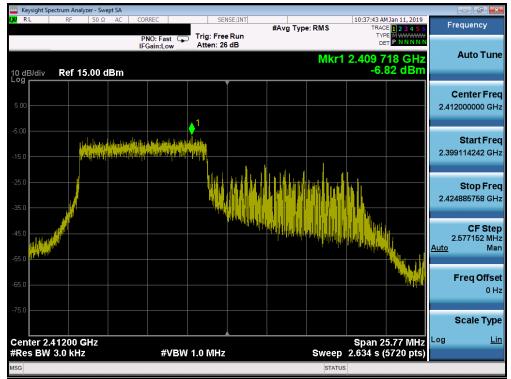
Plot 7-29. Power Spectral Density Plot SISO ANT1 (802.11ax OFDMA – 52 Tones – Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 41 of 149
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 41 01 149
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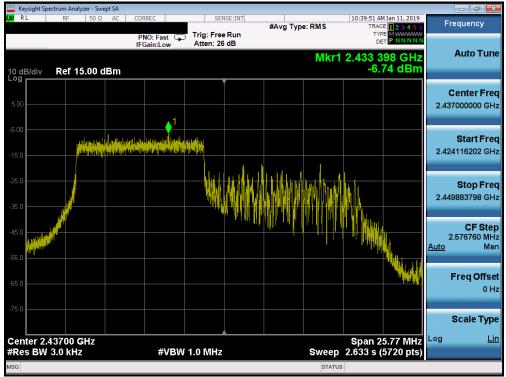
Plot 7-30. Power Spectral Density Plot SISO ANT1 (802.11ax OFDMA - 52 Tones - Ch. 11)



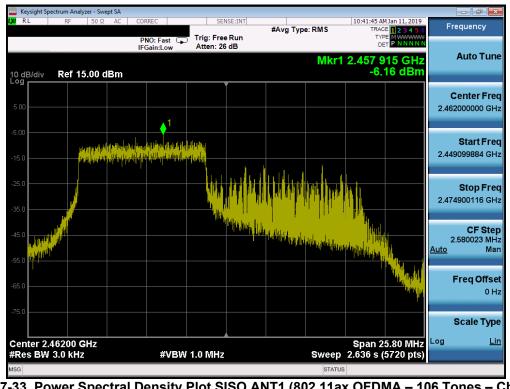
Plot 7-31. Power Spectral Density Plot SISO ANT1 (802.11ax OFDMA - 106 Tones - Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 42 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 42 of 149
© 2019 PCTEST Engineering Lab	poratory. Inc.			V 8.8 11/19/2018





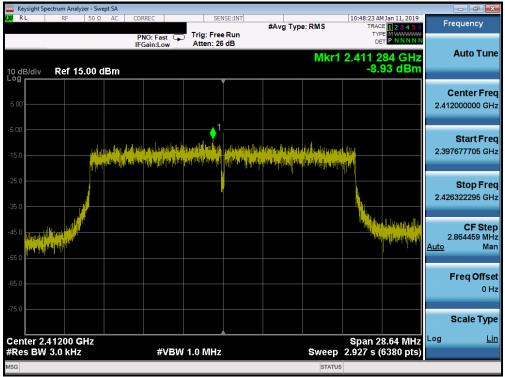
Plot 7-32. Power Spectral Density Plot SISO ANT1 (802.11ax OFDMA – 106 Tones – Ch. 6)



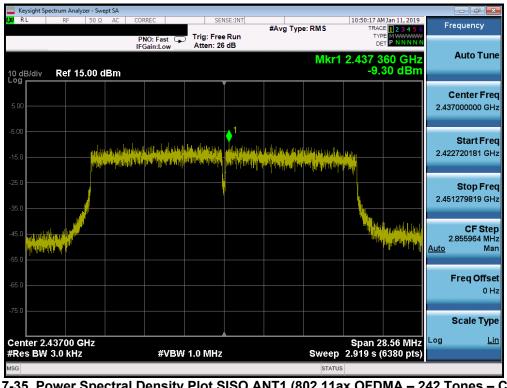
Plot 7-33. Power Spectral Density Plot SISO ANT1 (802.11ax OFDMA - 106 Tones - Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 42 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 43 of 149
© 2019 PCTEST Engineering Labora	V 8.8 11/19/2018			





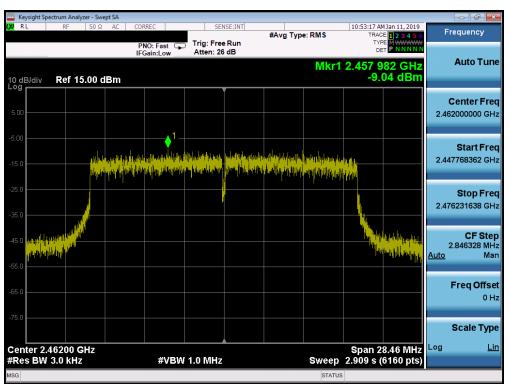
Plot 7-34. Power Spectral Density Plot SISO ANT1 (802.11ax OFDMA - 242 Tones - Ch. 1)



Plot 7-35. Power Spectral Density Plot SISO ANT1 (802.11ax OFDMA – 242 Tones – Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 44 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 44 of 149
© 2019 PCTEST Engineering Labora	V 8.8 11/19/2018			





Plot 7-36. Power Spectral Density Plot SISO ANT1 (802.11ax OFDMA - 242 Tones - Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 45 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 45 of 149
© 2019 PCTEST Engineering Labor	atory Inc			V 8 8 11/19/2018



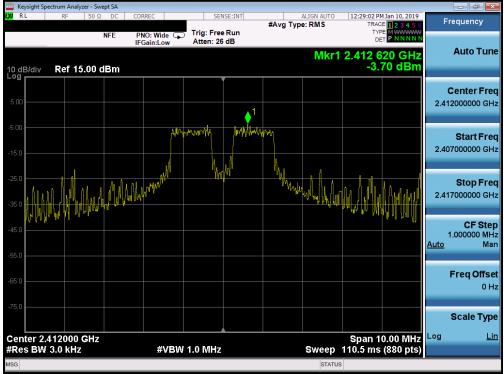
# SISO Antenna-2 Power Spectral Density Measurements

Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Spectral Density	Maximum Permissibl e Power Density	Margin [dB]	Pass / Fail
2412	1	ax	26T	MCS0	-3.70	8.00	-11.70	Pass
2437	6	ax	26T	MCS0	-3.99	8.00	-11.99	Pass
2462	11	ax	26T	MCS0	-4.23	8.00	-12.23	Pass
2412	1	ax	52T	MCS0	-4.85	8.00	-12.85	Pass
2437	6	ax	52T	MCS0	-6.00	8.00	-14.00	Pass
2462	11	ax	52T	MCS0	-5.82	8.00	-13.82	Pass
2412	1	ax	106T	MCS0	-6.36	8.00	-14.36	Pass
2437	6	ax	106T	MCS0	-7.02	8.00	-15.02	Pass
2462	11	ax	106T	MCS0	-7.13	8.00	-15.13	Pass
2412	1	ax	242T	MCS0	-10.72	8.00	-18.72	Pass
2437	6	ax	242T	MCS0	-8.63	8.00	-16.63	Pass
2462	11	ax	242T	MCS0	-10.54	8.00	-18.54	Pass

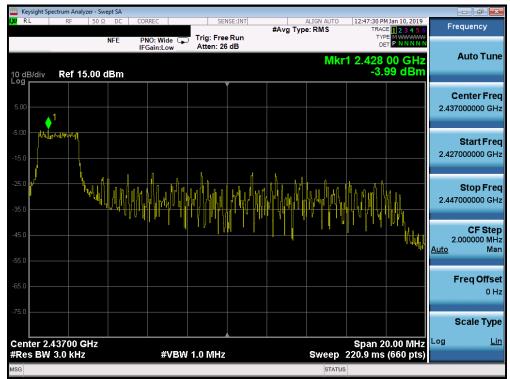
Table 7-17. Conducted Power Density Measurements SISO ANT2

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 46 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 46 of 149
© 2019 PCTEST Engineering Lab	V 8.8 11/19/2018			





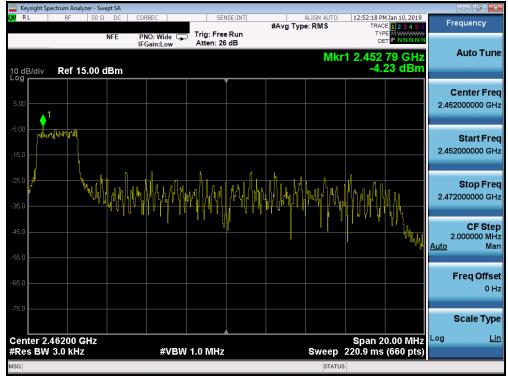
Plot 7-37. Power Spectral Density Plot SISO ANT2 (802.11ax OFDMA - 26 Tones - Ch. 1)



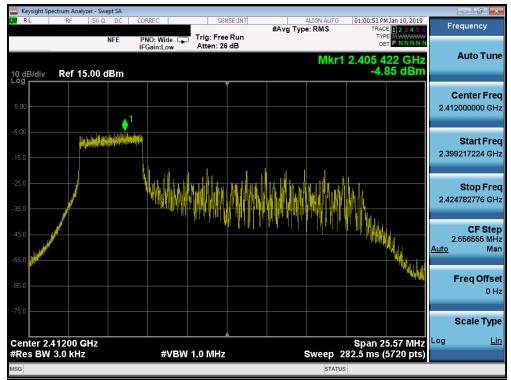
Plot 7-38. Power Spectral Density Plot SISO ANT2 (802.11ax OFDMA – 26 Tones – Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 17 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 47 of 149
© 2019 PCTEST Engineering Lab	V 8.8 11/19/2018			





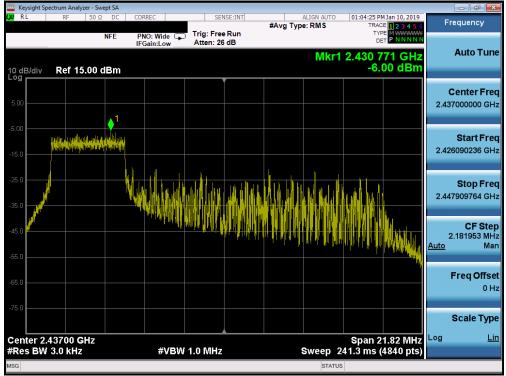
Plot 7-39. Power Spectral Density Plot SISO ANT2 (802.11ax OFDMA – 26 Tones – Ch. 11)



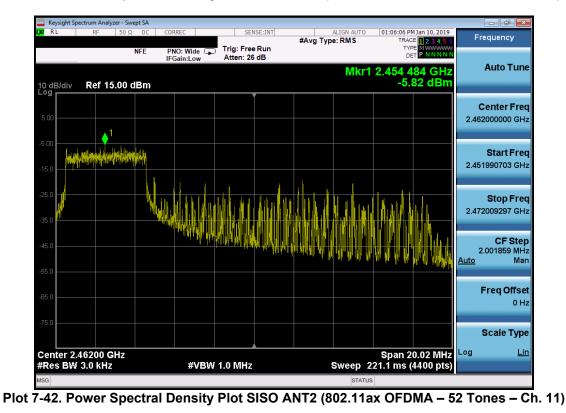
Plot 7-40. Power Spectral Density Plot SISO ANT2 (802.11ax OFDMA - 52 Tones - Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 49 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 48 of 149
© 2019 PCTEST Engineering Laboratory Inc.				V 8 8 11/19/2018





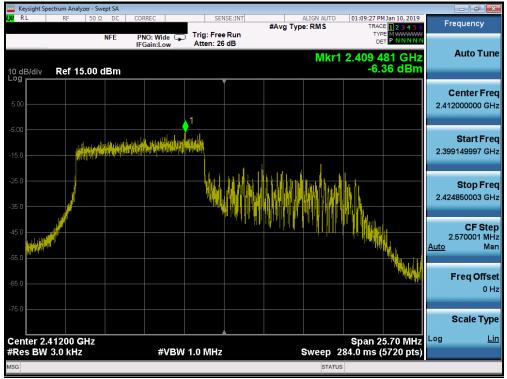
Plot 7-41. Power Spectral Density Plot SISO ANT2 (802.11ax OFDMA – 52 Tones – Ch. 6)



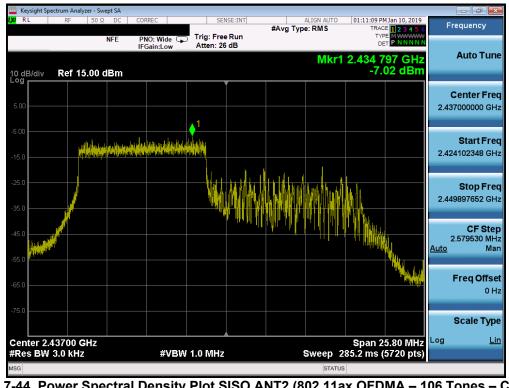
Approved by: PCTEST MEASUREMENT REPORT SAMSUNG FCC ID: A3LSMG9750 (CERTIFICATION) Quality Manager EUT Type: Test Report S/N: Test Dates: Page 49 of 149 10/31/2018-1/17/2019 1M1811120202-14.A3L Portable Handset V 8.8 11/19/2018

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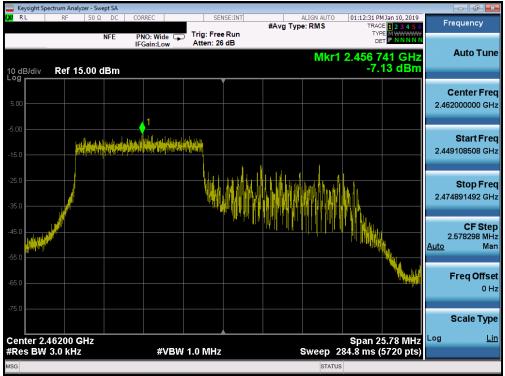
Plot 7-43. Power Spectral Density Plot SISO ANT2 (802.11ax OFDMA - 106 Tones - Ch. 1)



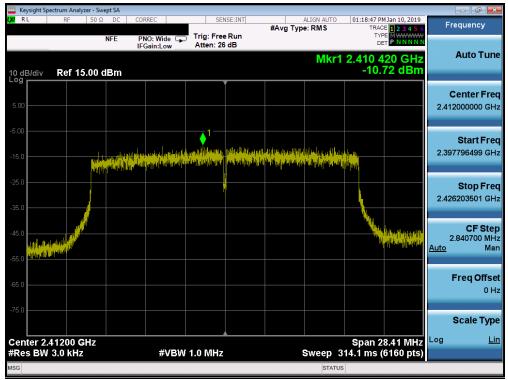
Plot 7-44. Power Spectral Density Plot SISO ANT2 (802.11ax OFDMA – 106 Tones – Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 50 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 50 of 149
© 2019 PCTEST Engineering Labo	V 8.8 11/19/2018			





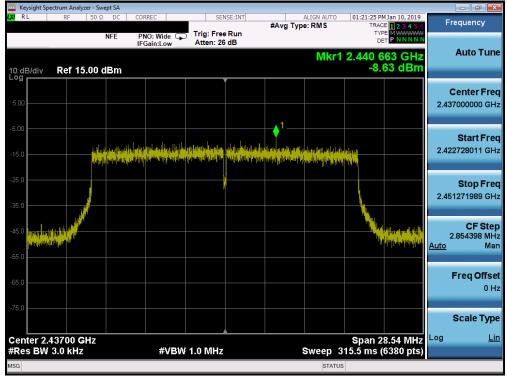
Plot 7-45. Power Spectral Density Plot SISO ANT2 (802.11ax OFDMA - 106 Tones - Ch. 11)



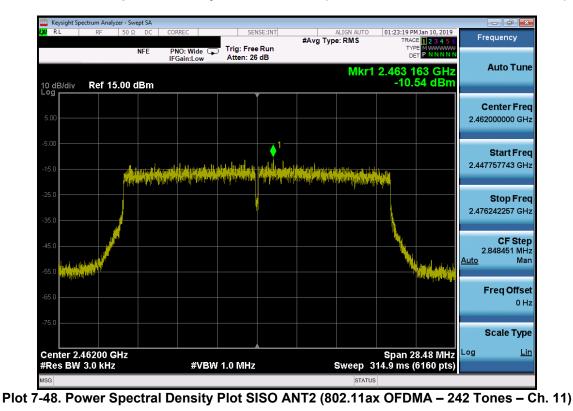
Plot 7-46. Power Spectral Density Plot SISO ANT2 (802.11ax OFDMA – 242 Tones – Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 51 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 51 of 149
© 2019 PCTEST Engineering Lab	V 8.8 11/19/2018			





Plot 7-47. Power Spectral Density Plot SISO ANT2 (802.11ax OFDMA - 242 Tones - Ch. 6)



 FCC ID: A3LSMG9750
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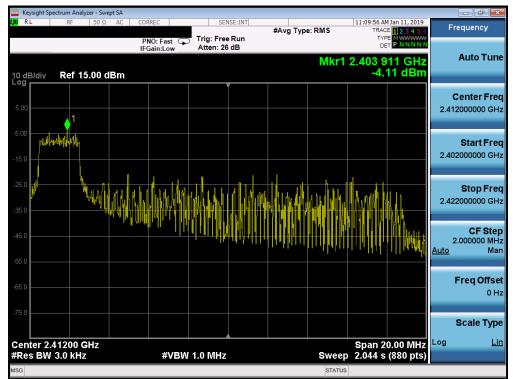
FCC ID. ASLSMG9750	- Anorenand commonly of	(CERTIFICATION)	in some	Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 52 of 149
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Fage 52 01 149
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**MIMO Power Spectral Density Measurements** 

Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	ANT 1 Power Spectral Density [dBm]	ANT 2 Power Spectral Density [dBm]	Summed MIMO Power Spectral Density [dBm]	Maximum Permissible Power Density [dBm / 3kHz]	Margin [dB]	Pass / Fail
2412	1	ax	26T	MCS0	-4.11	-4.90	-1.48	8.00	-9.48	Pass
2437	6	ax	26T	MCS0	-5.62	-8.73	-3.89	8.00	-11.89	Pass
2462	11	ax	26T	MCS0	-5.92	-3.92	-1.80	8.00	-9.80	Pass
2412	1	ax	52T	MCS0	-4.99	-5.81	-2.37	8.00	-10.37	Pass
2437	6	ax	52T	MCS0	-9.25	-11.83	-7.34	8.00	-15.34	Pass
2462	11	ax	52T	MCS0	-5.94	-5.77	-2.84	8.00	-10.84	Pass
2412	1	ax	106T	MCS0	-8.33	-9.04	-5.66	8.00	-13.66	Pass
2437	6	ax	106T	MCS0	-9.39	-9.28	-6.32	8.00	-14.32	Pass
2462	11	ax	106T	MCS0	-9.26	-9.25	-6.24	8.00	-14.24	Pass
2412	1	ax	242T	MCS0	-12.73	-13.11	-9.91	8.00	-17.91	Pass
2437	6	ax	242T	MCS0	-16.31	-12.93	-11.29	8.00	-19.29	Pass
2462	11	ax	242T	MCS0	-11.01	-11.83	-8.39	8.00	-16.39	Pass

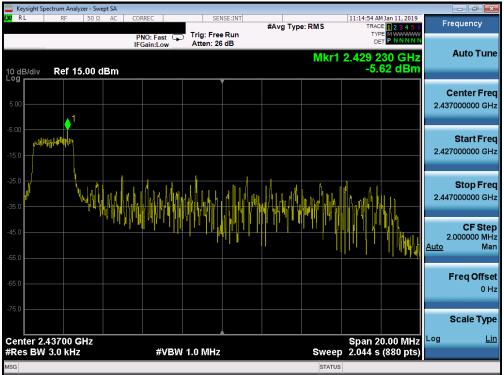
Table 7-18.MIMO Conducted Power Density Measurements



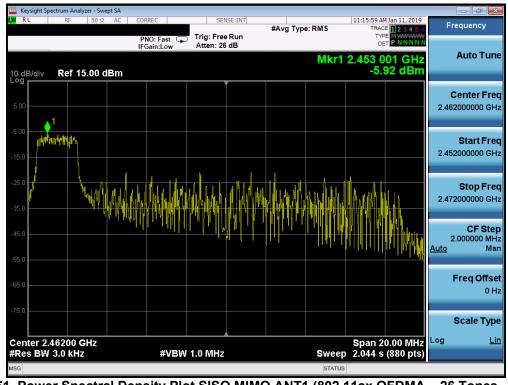
Plot 7-49. Power Spectral Density Plot SISO MIMO ANT1 (802.11ax OFDMA – 26 Tones – Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 52 of 140	
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 53 of 149	
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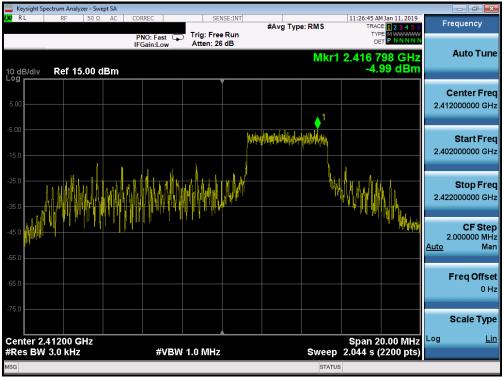
Plot 7-50. Power Spectral Density Plot SISO MIMO ANT1 (802.11ax OFDMA - 26 Tones - Ch. 6)



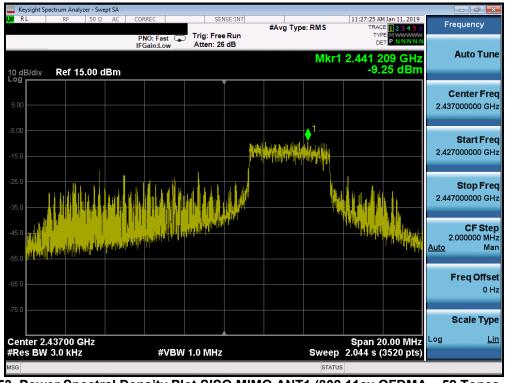
Plot 7-51. Power Spectral Density Plot SISO MIMO ANT1 (802.11ax OFDMA – 26 Tones – Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 54 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 54 of 149
© 2019 PCTEST Engineering Labor	V 8.8 11/19/2018			





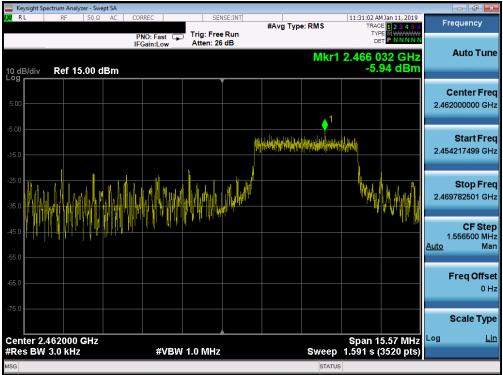
Plot 7-52. Power Spectral Density Plot SISO MIMO ANT1 (802.11ax OFDMA - 52 Tones - Ch. 1)



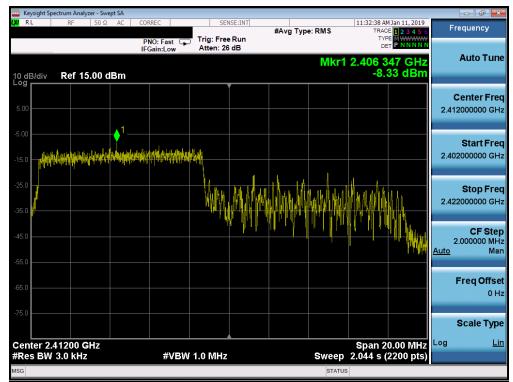
Plot 7-53. Power Spectral Density Plot SISO MIMO ANT1 (802.11ax OFDMA - 52 Tones - Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege EE of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 55 of 149
© 2019 PCTEST Engineering Laboratory, Inc.				V 8.8 11/19/2018





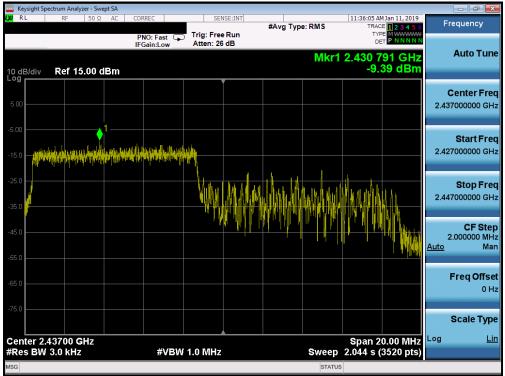
Plot 7-54. Power Spectral Density Plot SISO MIMO ANT1 (802.11ax OFDMA - 52 Tones - Ch. 11)



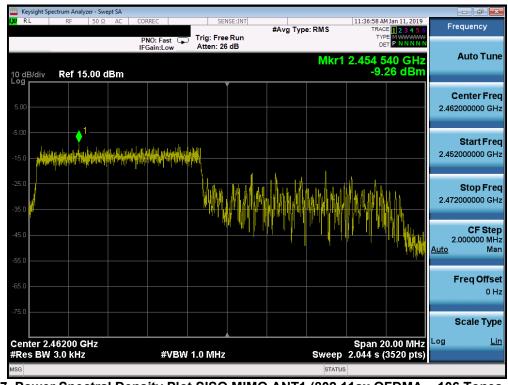
Plot 7-55. Power Spectral Density Plot SISO MIMO ANT1 (802.11ax OFDMA - 106 Tones - Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage EC of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 56 of 149
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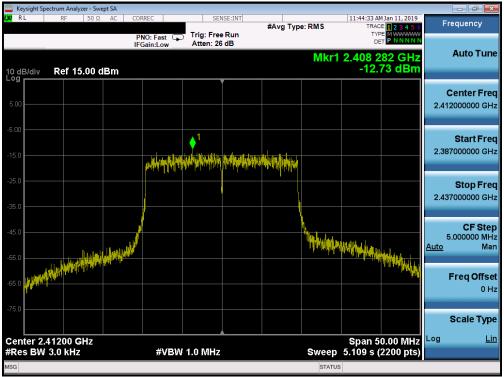
Plot 7-56. Power Spectral Density Plot SISO MIMO ANT1 (802.11ax OFDMA - 106 Tones - Ch. 6)



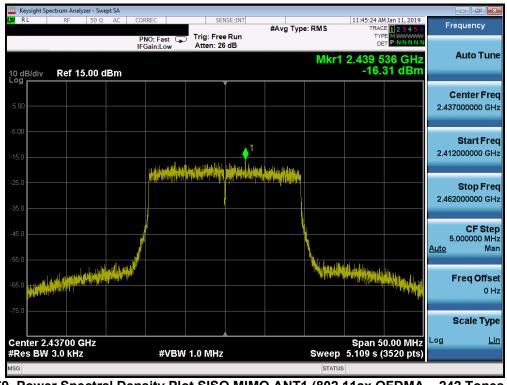
Plot 7-57. Power Spectral Density Plot SISO MIMO ANT1 (802.11ax OFDMA - 106 Tones - Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 57 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 57 of 149
© 2019 PCTEST Engineering Labo	V 8.8 11/19/2018			





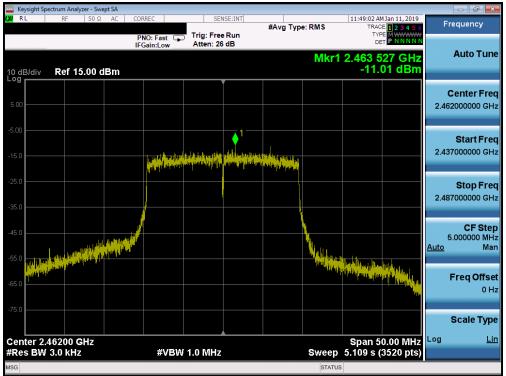
Plot 7-58. Power Spectral Density Plot SISO MIMO ANT1 (802.11ax OFDMA – 242 Tones – Ch. 1)



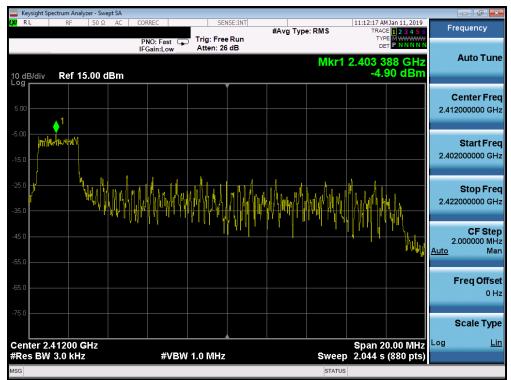
Plot 7-59. Power Spectral Density Plot SISO MIMO ANT1 (802.11ax OFDMA - 242 Tones - Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 59 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 58 of 149
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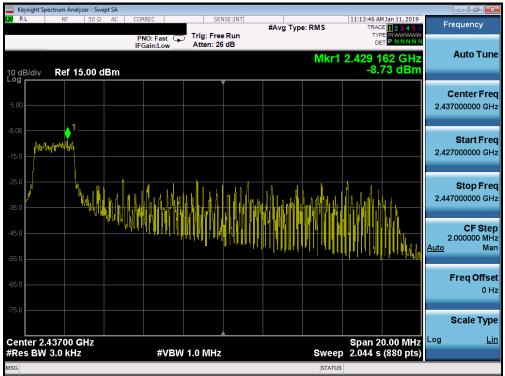
Plot 7-60. Power Spectral Density Plot SISO MIMO ANT1 (802.11ax OFDMA – 242 Tones – Ch. 11)



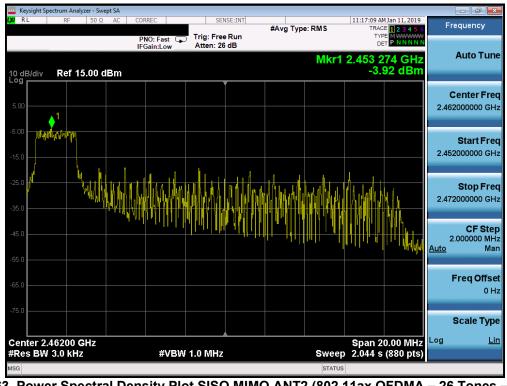
Plot 7-61. Power Spectral Density Plot SISO MIMO ANT2 (802.11ax OFDMA – 26 Tones – Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 50 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 59 of 149
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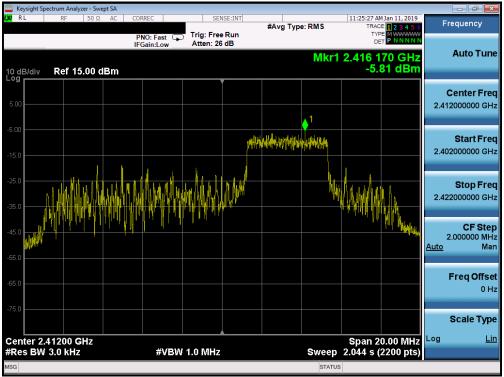
Plot 7-62. Power Spectral Density Plot SISO MIMO ANT2 (802.11ax OFDMA – 26 Tones – Ch. 6)



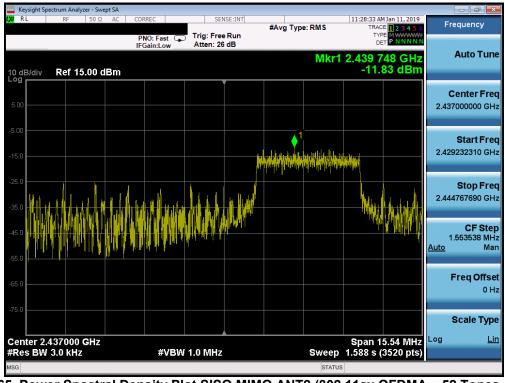
Plot 7-63. Power Spectral Density Plot SISO MIMO ANT2 (802.11ax OFDMA - 26 Tones - Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 60 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 60 of 149
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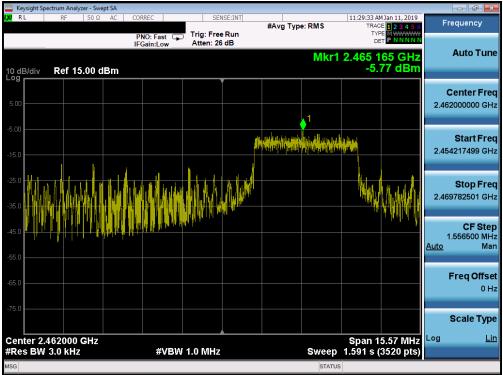
Plot 7-64. Power Spectral Density Plot SISO MIMO ANT2 (802.11ax OFDMA - 52 Tones - Ch. 1)



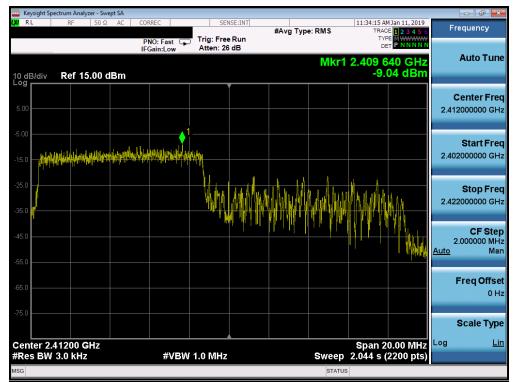
Plot 7-65. Power Spectral Density Plot SISO MIMO ANT2 (802.11ax OFDMA – 52 Tones – Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 61 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 61 of 149
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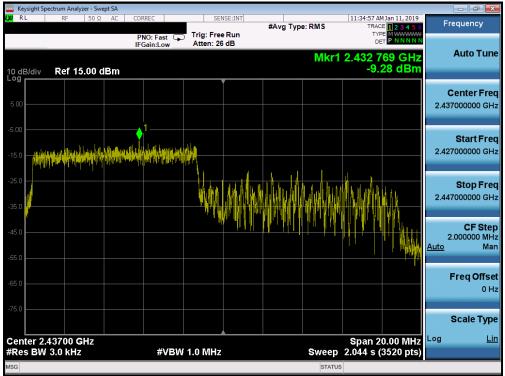
Plot 7-66. Power Spectral Density Plot SISO MIMO ANT2 (802.11ax OFDMA - 52 Tones - Ch. 11)



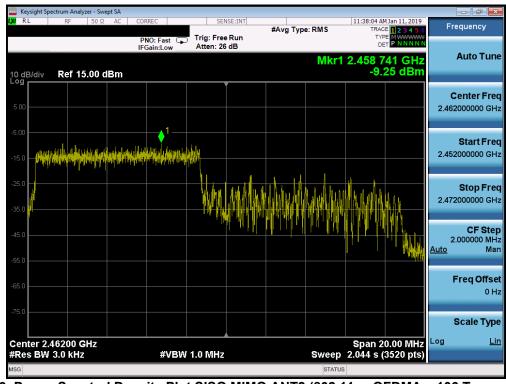
Plot 7-67. Power Spectral Density Plot SISO MIMO ANT2 (802.11ax OFDMA - 106 Tones - Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 62 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 62 of 149
2019 PCTEST Engineering Laboratory. Inc.				V 8.8 11/19/2018





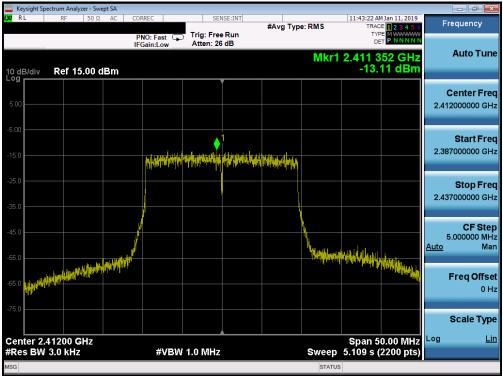
Plot 7-68. Power Spectral Density Plot SISO MIMO ANT2 (802.11ax OFDMA - 106 Tones - Ch. 6)



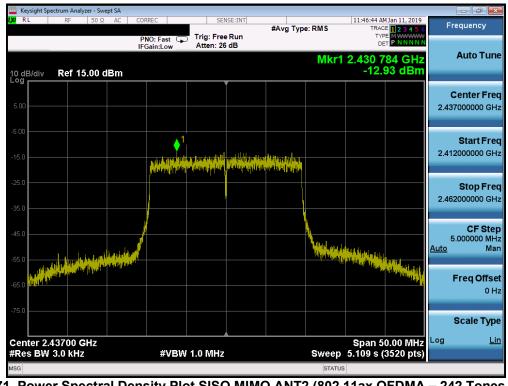
Plot 7-69. Power Spectral Density Plot SISO MIMO ANT2 (802.11ax OFDMA - 106 Tones - Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 62 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 63 of 149
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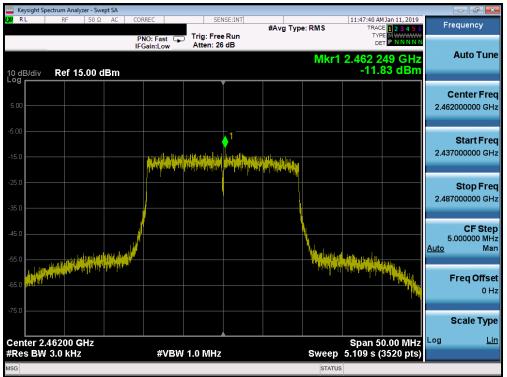
Plot 7-70. Power Spectral Density Plot SISO MIMO ANT2 (802.11ax OFDMA – 242 Tones – Ch. 1)



Plot 7-71. Power Spectral Density Plot SISO MIMO ANT2 (802.11ax OFDMA – 242 Tones – Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 64 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 64 of 149
2019 PCTEST Engineering Laboratory, Inc.				V 8.8 11/19/2018





Plot 7-72. Power Spectral Density Plot SISO MIMO ANT2 (802.11ax OFDMA – 242 Tones – Ch. 11)

#### Note:

Per ANSI C63.10-2013 Section 14.3.2.2 and KDB 662911 D01 v02r01 Section E)2), the power spectral density at Antenna 1 and Antenna 2 were first measured separately as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

## Sample MIMO Calculation:

Assuming the average conducted power spectral density was measured to be -2.95 dBm for Antenna-1 and -2.95 dBm for Antenna-2.

(-2.95 dBm + -2.95 dBm) = (0.51 mW + 0.51 mW) = 1.02 mW = 0.06 dBm

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 65 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 65 of 149
2019 PCTEST Engineering Laboratory. Inc.				V 8 8 11/19/2018



# 7.5 Conducted Emissions at the Band Edge §15.247(d);

# Test Overview and Limit

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. For the following out of band conducted emissions plots at the band edge, the EUT was set to a data rate of MCS0 in 802.11ax mode as this setting produced the worst-case emissions.

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the PSD procedure (Section 7.4).

#### Test Procedure Used

ANSI C63.10-2013 – Section 11.11.3 KDB 558074 D01 v05 – Section 8.7.2

#### **Test Settings**

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW = 100kHz
- 4. VBW = 1MHz
- 5. Detector = Peak
- 6. Number of sweep points  $\geq 2 \times \text{Span/RBW}$
- 7. Trace mode = max hold
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize

#### Test Setup

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



Figure 7-4. Test Instrument & Measurement Setup

#### Test Notes

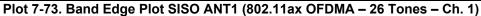
#### None

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 66 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 66 of 149
2019 PCTEST Engineering Laboratory, Inc.				V 8.8 11/19/2018





# SISO Antenna-1 Conducted Emissions at the Band Edge





Plot 7-74. Band Edge Plot SISO ANT1 (802.11ax OFDMA - 26 Tones - Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 67 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 67 of 149
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Plot 7-75. Band Edge Plot SISO ANT1 (802.11ax OFDMA - 52 Tones - Ch. 1)

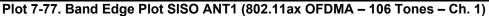


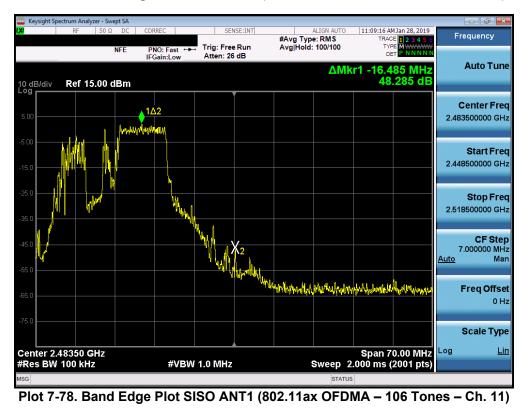
Plot 7-76. Band Edge Plot SISO ANT1 (802.11ax OFDMA - 52 Tones - Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 69 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 68 of 149
2019 PCTEST Engineering Laboratory. Inc.				V 8.8 11/19/2018



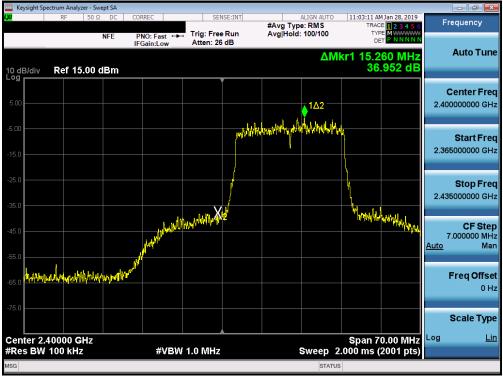


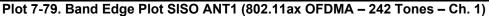




FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 60 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 69 of 149
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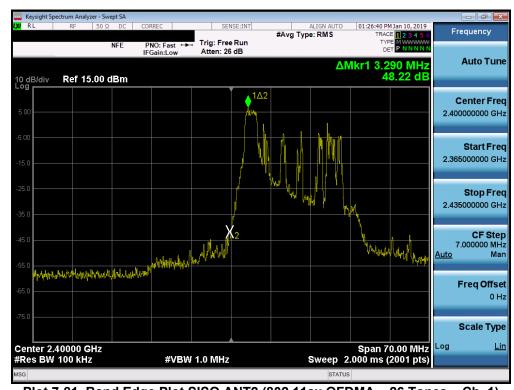




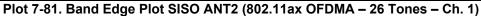


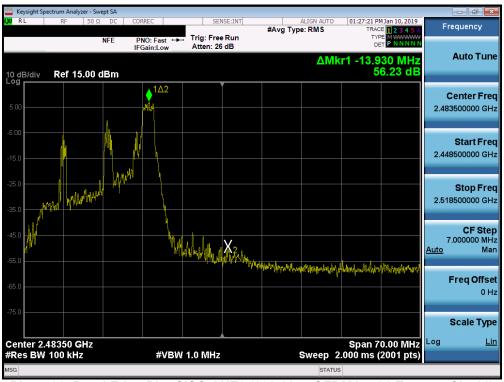
FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 70 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 70 of 149
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# SISO Antenna-2 Conducted Emissions at the Band Edge





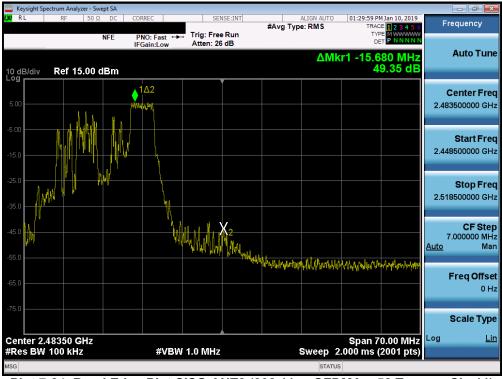
Plot 7-82. Band Edge Plot SISO ANT2 (802.11ax OFDMA - 26 Tones - Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 71 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 71 of 149
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Plot 7-83. Band Edge Plot SISO ANT2 (802.11ax OFDMA – 52 Tones – Ch. 1)

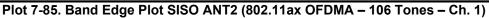


Plot 7-84. Band Edge Plot SISO ANT2 (802.11ax OFDMA - 52 Tones - Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 72 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 72 of 149
© 2019 PCTEST Engineering Lab	oratory Inc			V 8 8 11/19/2018





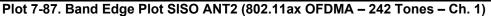




FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 72 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 73 of 149
© 2019 PCTEST Engineering Labora	atory. Inc.			V 8.8 11/19/2018



🔤 Keysight Sp	pectrum Analyzer						
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		NFE	PNO: Fast ↔→ IFGain:Low	Trig: Free Run Atten: 26 dB			
10 dB/div Log	Ref 15.0	0 dBm			ΔΜ	kr1 17.990 MHz 35.99 dB	Auto Tune
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-15.0							Start Fred 2.365000000 GHz
-25.0				/		NA A K .	Stop Free
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-75.0							Scale Type
	.40000 GH / 100 kHz	Z	#VBW	1.0 MHz	Sweep 2	Span 70.00 MHz 2.000 ms (2001 pts)	
MSG					STATUS		





FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 74 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 74 of 149
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# 7.6 Conducted Spurious Emissions §15.247(d);

## **Test Overview and Limit**

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. For the following out of band conducted emissions plots, the EUT was set to a data rate of MCS0 in 802.11ax mode as this setting produced the worst-case emissions.

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the procedure in Section 11.1 of ANSI C63.10-2013 and KDB 558074 D01 v05.

## **Test Procedure Used**

ANSI C63.10-2013 – Section 11.11.3 KDB 558074 D01 v05 – Section 8.5 ANSI C63.10-2013 – Section 14.3.3 KDB 662911 D01 v02r01 – Section E)3)b)

#### **Test Settings**

- 1. Start frequency was set to 30MHz and stop frequency was set to 25GHz (separated into two plots per channel)
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep time = auto couple
- 7. The trace was allowed to stabilize

#### Test Setup

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



Figure 7-5. Test Instrument & Measurement Setup

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 75 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 75 of 149
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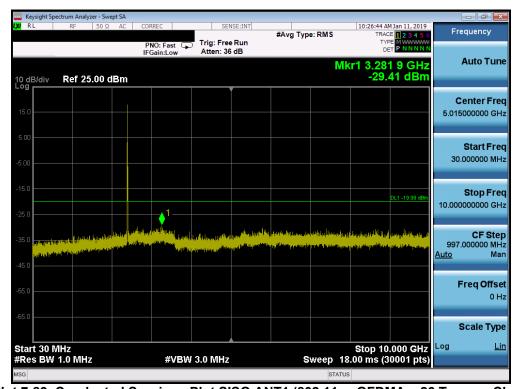
# Test Notes

- 1. RBW was set to 1MHz rather than 100kHz in order to increase the measurement speed.
- 2. The display line shown in the following plots denotes the limit at 20dB below the fundamental emission level measured in a 100kHz bandwidth. However, since the traces in the following plots are measured with a 1MHz RBW, the display line may not necessarily appear to be 20dB below the level of the fundamental in a 1MHz bandwidth.
- 3. For plots showing conducted spurious emissions near the limit, the frequencies were investigated with a reduced RBW to ensure that no emissions were present.
- 4. The conducted spurious emissions were measured to relative limits. Therefore, in accordance with ANSI C63.10-2013 and KDB 662911 D01 v02r01 Section E)3)b), it was unnecessary to show compliance through the summation of test results of the individual outputs.

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 76 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 76 of 149
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# SISO Antenna-1 Conducted Spurious Emission





Plot 7-90. Conducted Spurious Plot SISO ANT1 (802.11ax OFDMA- 26 Tones - Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 77 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 77 of 149
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_		PN								
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Plot 7-91. Conducted Spurious Plot SISO ANT1 (802.11ax OFDMA- 26 Tones - Ch. 6)



Plot 7-92. Conducted Spurious Plot SISO ANT1 (802.11ax OFDMA- 26 Tones - Ch. 6)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 70 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 78 of 149
© 2019 PCTEST Engineering Labor	ratory Inc.			V 8 8 11/19/2018



10 dB/div	RF 50 Ω	P IF	RREC			#Avg Typ		TRA TY D	M Jan 11, 2019 CE 1 2 3 4 5 6 PE M WWWW ET P NNNNN		uency uto Tune
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Plot 7-93. Conducted Spurious Plot SISO ANT1 (802.11ax OFDMA- 26 Tones - Ch. 11)



Plot 7-94. Conducted Spurious Plot SISO ANT1 (802.11ax OFDMA- 26 Tones - Ch. 11)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 70 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 79 of 149
© 2019 PCTEST Engineering Lab		V 8.8 11/19/2018		



PNO: Fast         Trig: Free Run           IO dB/div         Ref 25.00 dBm           IO         IO           IO         IO  <	10:31:59 AMJan 11, 2019         Frequenc           ype: RMS         TRACE 12 3 4 5 0         Frequenc           TYPE MWANN         DET PINNNN         Auto 1           Mkr1 3.305 8 GHz         Auto 1
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Plot 7-95. Conducted Spurious Plot SISO ANT1 (802.11ax OFDMA – 52Tones – Ch. 1)



Plot 7-96. Conducted Spurious Plot SISO ANT1 (802.11ax OFDMA- 52 Tones - Ch. 1)

FCC ID: A3LSMG9750		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 90 of 140
1M1811120202-14.A3L	10/31/2018-1/17/2019	Portable Handset		Page 80 of 149
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