

**MEASUREMENT REPORT**
FCC Part 30 5G mmWave**Applicant Name:**

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

Date of Testing:

05/14 - 07/12/2019

Test Site/Location:

PCTEST Lab. Columbia, MD, USA

Test Report Serial No.:

1M1905130071-06-R1.A3L

FCC ID:

A3LSMN976V

APPLICANT:

Samsung Electronics Co., Ltd.

Application Type:

Certification

Model:

SM-N976V

Additional Model(s):

SM-N976XU

EUT Type:

Portable Handset

FCC Classification:

Part 30 Mobile Transmitter (5GM)

FCC Rule Part(s):

30

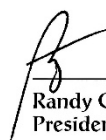
Test Procedure(s):

ANSI C63.26-2015, KDB 971168 D01 v03r01, KDB 842590 D01 v01

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

This revised Test Report (S/N: 1M1905130071-06-R1.A3L) supersedes and replaces the previously issued test report (S/N: 1M1905130071-06.A3L) on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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

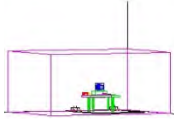

Randy Ortanez
President

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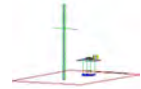
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FCC Part 30



Band	FCC Rule Part	Mode	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
							Max. Power (W)	Max. Power (dBm)		
n261	30	SISO	J Dipole	50	1	27500 - 28350	0.106	20.27	47M4G7D	QPSK
n261	30	SISO	J Dipole	50	1	27500 - 28350	0.091	19.61	46M4W7D	16QAM
n261	30	SISO	J Dipole	50	1	27500 - 28350	0.054	17.34	46M5W7D	64QAM
n261	30	SISO	J Dipole	100	1	27500 - 28350	0.085	19.32	94M5G7D	QPSK
n261	30	SISO	J Dipole	100	1	27500 - 28350	0.072	18.57	94M4W7D	16QAM
n261	30	SISO	J Dipole	100	1	27500 - 28350	0.046	16.60	94M2W7D	64QAM
n261	30	SISO	J Dipole	200	4	27500 - 28350	0.067	18.25	219MG7D	QPSK
n261	30	SISO	J Dipole	200	4	27500 - 28350	0.054	17.30	198MW7D	16QAM
n261	30	SISO	J Dipole	200	4	27500 - 28350	0.034	15.32	196MW7D	64QAM
n261	30	SISO	J Dipole	400	4	27500 - 28350	0.054	17.34	397MG7D	QPSK
n261	30	SISO	J Dipole	400	4	27500 - 28350	0.046	16.61	395MW7D	16QAM
n261	30	SISO	J Dipole	400	4	27500 - 28350	0.027	14.39	393MW7D	64QAM
n261	30	SISO	J Patch	50	1	27500 - 28350	0.185	22.67	47M3G7D	QPSK
n261	30	SISO	J Patch	50	1	27500 - 28350	0.139	21.43	46M5W7D	16QAM
n261	30	SISO	J Patch	50	1	27500 - 28350	0.088	19.45	46M6W7D	64QAM
n261	30	SISO	J Patch	100	1	27500 - 28350	0.174	22.40	94M6G7D	QPSK
n261	30	SISO	J Patch	100	1	27500 - 28350	0.131	21.17	94M4W7D	16QAM
n261	30	SISO	J Patch	100	1	27500 - 28350	0.088	19.46	94M1W7D	64QAM
n261	30	SISO	J Patch	200	4	27500 - 28350	0.128	21.06	201MG7D	QPSK
n261	30	SISO	J Patch	200	4	27500 - 28350	0.102	20.10	197MW7D	16QAM
n261	30	SISO	J Patch	200	4	27500 - 28350	0.064	18.08	196MW7D	64QAM
n261	30	SISO	J Patch	400	4	27500 - 28350	0.110	20.43	395MG7D	QPSK
n261	30	SISO	J Patch	400	4	27500 - 28350	0.087	19.42	394MW7D	16QAM
n261	30	SISO	J Patch	400	4	27500 - 28350	0.054	17.34	393MW7D	64QAM
n261	30	SISO	K Patch	50	1	27500 - 28350	0.122	20.85	47M4G7D	QPSK
n261	30	SISO	K Patch	50	1	27500 - 28350	0.093	19.71	46M5W7D	16QAM
n261	30	SISO	K Patch	50	1	27500 - 28350	0.057	17.52	46M7W7D	64QAM
n261	30	SISO	K Patch	100	1	27500 - 28350	0.118	20.71	94M6G7D	QPSK
n261	30	SISO	K Patch	100	1	27500 - 28350	0.095	19.77	94M4W7D	16QAM
n261	30	SISO	K Patch	100	1	27500 - 28350	0.062	17.90	94M3W7D	64QAM
n261	30	SISO	K Patch	200	4	27500 - 28350	0.073	18.62	201MG7D	QPSK
n261	30	SISO	K Patch	200	4	27500 - 28350	0.060	17.76	197MW7D	16QAM
n261	30	SISO	K Patch	200	4	27500 - 28350	0.036	15.57	196MW7D	64QAM
n261	30	SISO	K Patch	400	4	27500 - 28350	0.080	19.05	396MG7D	QPSK
n261	30	SISO	K Patch	400	4	27500 - 28350	0.066	18.21	395MW7D	16QAM
n261	30	SISO	K Patch	400	4	27500 - 28350	0.038	15.83	393MW7D	64QAM
n261	30	SISO	L Patch	50	1	27500 - 28350	0.104	20.19	47M4G7D	QPSK
n261	30	SISO	L Patch	50	1	27500 - 28350	0.087	19.41	46M5W7D	16QAM
n261	30	SISO	L Patch	50	1	27500 - 28350	0.057	17.54	46M5W7D	64QAM
n261	30	SISO	L Patch	100	1	27500 - 28350	0.111	20.46	94M4G7D	QPSK
n261	30	SISO	L Patch	100	1	27500 - 28350	0.087	19.40	94M3W7D	16QAM
n261	30	SISO	L Patch	100	1	27500 - 28350	0.059	17.70	94M3W7D	64QAM
n261	30	SISO	L Patch	200	4	27500 - 28350	0.070	18.45	200MG7D	QPSK
n261	30	SISO	L Patch	200	4	27500 - 28350	0.058	17.65	197MW7D	16QAM
n261	30	SISO	L Patch	200	4	27500 - 28350	0.035	15.43	196MW7D	64QAM
n261	30	SISO	L Patch	400	4	27500 - 28350	0.062	17.93	395MG7D	QPSK
n261	30	SISO	L Patch	400	4	27500 - 28350	0.049	16.89	394MW7D	16QAM
n261	30	SISO	L Patch	400	4	27500 - 28350	0.029	14.57	393MW7D	64QAM

EUT Overview (n261 - SISO)

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Band	FCC Rule Part	Mode	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
							Max. Power (W)	Max. Power (dBm)		
n261	30	MIMO	J Dipole	50	1	27500 - 28350	0.141	21.49	47M4G7D	QPSK
n261	30	MIMO	J Dipole	50	1	27500 - 28350	0.122	20.87	46M4W7D	16QAM
n261	30	MIMO	J Dipole	50	1	27500 - 28350	0.072	18.60	46M5W7D	64QAM
n261	30	MIMO	J Dipole	100	1	27500 - 28350	0.120	20.80	94M5G7D	QPSK
n261	30	MIMO	J Dipole	100	1	27500 - 28350	0.103	20.15	94M4W7D	16QAM
n261	30	MIMO	J Dipole	100	1	27500 - 28350	0.062	17.91	94M2W7D	64QAM
n261	30	MIMO	J Patch	50	1	27500 - 28350	0.335	25.25	47M3G7D	QPSK
n261	30	MIMO	J Patch	50	1	27500 - 28350	0.235	23.72	46M5W7D	16QAM
n261	30	MIMO	J Patch	50	1	27500 - 28350	0.158	21.97	46M6W7D	64QAM
n261	30	MIMO	J Patch	100	1	27500 - 28350	0.348	25.41	94M6G7D	QPSK
n261	30	MIMO	J Patch	100	1	27500 - 28350	0.247	23.93	94M4W7D	16QAM
n261	30	MIMO	J Patch	100	1	27500 - 28350	0.159	22.03	94M1W7D	64QAM
n261	30	MIMO	K Patch	50	1	27500 - 28350	0.197	22.94	47M4G7D	QPSK
n261	30	MIMO	K Patch	50	1	27500 - 28350	0.148	21.71	46M5W7D	16QAM
n261	30	MIMO	K Patch	50	1	27500 - 28350	0.104	20.16	46M7W7D	64QAM
n261	30	MIMO	K Patch	100	1	27500 - 28350	0.185	22.68	94M6G7D	QPSK
n261	30	MIMO	K Patch	100	1	27500 - 28350	0.144	21.59	94M4W7D	16QAM
n261	30	MIMO	K Patch	100	1	27500 - 28350	0.103	20.12	94M3W7D	64QAM
n261	30	MIMO	L Patch	50	1	27500 - 28350	0.153	21.85	47M4G7D	QPSK
n261	30	MIMO	L Patch	50	1	27500 - 28350	0.117	20.69	46M5W7D	16QAM
n261	30	MIMO	L Patch	50	1	27500 - 28350	0.073	18.63	46M5W7D	64QAM
n261	30	MIMO	L Patch	100	1	27500 - 28350	0.166	22.20	94M4G7D	QPSK
n261	30	MIMO	L Patch	100	1	27500 - 28350	0.128	21.06	94M3W7D	16QAM
n261	30	MIMO	L Patch	100	1	27500 - 28350	0.096	19.83	94M3W7D	64QAM

EUT Overview (n261 - MIMO)

FCC ID: A3LSMN976V	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band	FCC Rule Part	Mode	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
							Max. Power (W)	Max. Power (dBm)		
n260	30	SISO	J Dipole	50	1	37000 - 40000	0.050	17.01	47M5G7D	QPSK
n260	30	SISO	J Dipole	50	1	37000 - 40000	0.048	16.79	46M6W7D	16QAM
n260	30	SISO	J Dipole	50	1	37000 - 40000	0.030	14.81	46M7W7D	64QAM
n260	30	SISO	J Dipole	100	1	37000 - 40000	0.055	17.37	94M6G7D	QPSK
n260	30	SISO	J Dipole	100	1	37000 - 40000	0.049	16.94	94M4W7D	16QAM
n260	30	SISO	J Dipole	100	1	37000 - 40000	0.033	15.13	94M3W7D	64QAM
n260	30	SISO	J Dipole	200	4	37000 - 40000	0.049	16.86	200MG7D	QPSK
n260	30	SISO	J Dipole	200	4	37000 - 40000	0.043	16.29	197MW7D	16QAM
n260	30	SISO	J Dipole	200	4	37000 - 40000	0.032	15.03	196MW7D	64QAM
n260	30	SISO	J Dipole	400	4	37000 - 40000	0.050	17.02	392MG7D	QPSK
n260	30	SISO	J Dipole	400	4	37000 - 40000	0.046	16.60	392MW7D	16QAM
n260	30	SISO	J Dipole	400	4	37000 - 40000	0.037	15.74	391MW7D	64QAM
n260	30	SISO	J Patch	50	1	37000 - 40000	0.147	21.67	47M7G7D	QPSK
n260	30	SISO	J Patch	50	1	37000 - 40000	0.115	20.59	46M7W7D	16QAM
n260	30	SISO	J Patch	50	1	37000 - 40000	0.074	18.71	46M7W7D	64QAM
n260	30	SISO	J Patch	100	1	37000 - 40000	0.148	21.71	94M8G7D	QPSK
n260	30	SISO	J Patch	100	1	37000 - 40000	0.120	20.81	94M5W7D	16QAM
n260	30	SISO	J Patch	100	1	37000 - 40000	0.082	19.14	94M2W7D	64QAM
n260	30	SISO	J Patch	200	4	37000 - 40000	0.108	20.35	208MG7D	QPSK
n260	30	SISO	J Patch	200	4	37000 - 40000	0.093	19.69	198MW7D	16QAM
n260	30	SISO	J Patch	200	4	37000 - 40000	0.067	18.29	196MW7D	64QAM
n260	30	SISO	J Patch	400	4	37000 - 40000	0.106	20.26	396MG7D	QPSK
n260	30	SISO	J Patch	400	4	37000 - 40000	0.094	19.74	396MW7D	16QAM
n260	30	SISO	J Patch	400	4	37000 - 40000	0.067	18.28	393MW7D	64QAM
n260	30	SISO	K Patch	50	1	37000 - 40000	0.099	19.95	47M4G7D	QPSK
n260	30	SISO	K Patch	50	1	37000 - 40000	0.078	18.91	46M5W7D	16QAM
n260	30	SISO	K Patch	50	1	37000 - 40000	0.051	17.06	46M8W7D	64QAM
n260	30	SISO	K Patch	100	1	37000 - 40000	0.110	20.40	94M7G7D	QPSK
n260	30	SISO	K Patch	100	1	37000 - 40000	0.082	19.16	94M5W7D	16QAM
n260	30	SISO	K Patch	100	1	37000 - 40000	0.057	17.57	94M4W7D	64QAM
n260	30	SISO	K Patch	200	4	37000 - 40000	0.079	19.00	210MG7D	QPSK
n260	30	SISO	K Patch	200	4	37000 - 40000	0.069	18.42	198MW7D	16QAM
n260	30	SISO	K Patch	200	4	37000 - 40000	0.048	16.83	197MW7D	64QAM
n260	30	SISO	K Patch	400	4	37000 - 40000	0.079	18.97	395MG7D	QPSK
n260	30	SISO	K Patch	400	4	37000 - 40000	0.069	18.36	395MW7D	16QAM
n260	30	SISO	K Patch	400	4	37000 - 40000	0.053	17.24	394MW7D	64QAM
n260	30	SISO	L Patch	50	1	37000 - 40000	0.098	19.92	47M4G7D	QPSK
n260	30	SISO	L Patch	50	1	37000 - 40000	0.079	18.97	46M6W7D	16QAM
n260	30	SISO	L Patch	50	1	37000 - 40000	0.053	17.25	46M6W7D	64QAM
n260	30	SISO	L Patch	100	1	37000 - 40000	0.113	20.53	94M5G7D	QPSK
n260	30	SISO	L Patch	100	1	37000 - 40000	0.092	19.66	94M5W7D	16QAM
n260	30	SISO	L Patch	100	1	37000 - 40000	0.063	18.00	94M4W7D	64QAM
n260	30	SISO	L Patch	200	4	37000 - 40000	0.073	18.66	219MG7D	QPSK
n260	30	SISO	L Patch	200	4	37000 - 40000	0.064	18.07	200MW7D	16QAM
n260	30	SISO	L Patch	200	4	37000 - 40000	0.045	16.58	198MW7D	64QAM
n260	30	SISO	L Patch	400	4	37000 - 40000	0.069	18.42	433MG7D	QPSK
n260	30	SISO	L Patch	400	4	37000 - 40000	0.062	17.89	432MW7D	16QAM
n260	30	SISO	L Patch	400	4	37000 - 40000	0.047	16.68	488MW7D	64QAM

EUT Overview (n260 - SISO)

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Band	FCC Rule Part	Mode	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
							Max. Power (W)	Max. Power (dBm)		
n260	30	MIMO	J Dipole	50	1	37000 - 40000	0.088	19.46	47M5G7D	QPSK
n260	30	MIMO	J Dipole	50	1	37000 - 40000	0.067	18.29	46M6W7D	16QAM
n260	30	MIMO	J Dipole	50	1	37000 - 40000	0.042	16.18	46M7W7D	64QAM
n260	30	MIMO	J Dipole	100	1	37000 - 40000	0.092	19.66	94M6G7D	QPSK
n260	30	MIMO	J Dipole	100	1	37000 - 40000	0.076	18.79	94M4W7D	16QAM
n260	30	MIMO	J Dipole	100	1	37000 - 40000	0.047	16.72	94M3W7D	64QAM
n260	30	MIMO	J Patch	50	1	37000 - 40000	0.176	22.45	47M7G7D	QPSK
n260	30	MIMO	J Patch	50	1	37000 - 40000	0.137	21.37	46M7W7D	16QAM
n260	30	MIMO	J Patch	50	1	37000 - 40000	0.088	19.44	46M7W7D	64QAM
n260	30	MIMO	J Patch	100	1	37000 - 40000	0.178	22.50	94M8G7D	QPSK
n260	30	MIMO	J Patch	100	1	37000 - 40000	0.140	21.45	94M5W7D	16QAM
n260	30	MIMO	J Patch	100	1	37000 - 40000	0.094	19.74	94M2W7D	64QAM
n260	30	MIMO	K Patch	50	1	37000 - 40000	0.136	21.32	47M4G7D	QPSK
n260	30	MIMO	K Patch	50	1	37000 - 40000	0.107	20.28	46M5W7D	16QAM
n260	30	MIMO	K Patch	50	1	37000 - 40000	0.071	18.52	46M8W7D	64QAM
n260	30	MIMO	K Patch	100	1	37000 - 40000	0.149	21.75	94M7G7D	QPSK
n260	30	MIMO	K Patch	100	1	37000 - 40000	0.114	20.58	94M5W7D	16QAM
n260	30	MIMO	K Patch	100	1	37000 - 40000	0.077	18.87	94M4W7D	64QAM
n260	30	MIMO	L Patch	50	1	37000 - 40000	0.121	20.82	47M4G7D	QPSK
n260	30	MIMO	L Patch	50	1	37000 - 40000	0.098	19.91	46M6W7D	16QAM
n260	30	MIMO	L Patch	50	1	37000 - 40000	0.065	18.16	46M6W7D	64QAM
n260	30	MIMO	L Patch	100	1	37000 - 40000	0.123	20.91	94M5G7D	QPSK
n260	30	MIMO	L Patch	100	1	37000 - 40000	0.102	20.07	94M5W7D	16QAM
n260	30	MIMO	L Patch	100	1	37000 - 40000	0.066	18.23	94M4W7D	64QAM

EUT Overview (n260 - MIMO)

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1.0 INTRODUCTION

1.1 Scope

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

1.2 PCTEST Test Location

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

1.3 Test Facility / Accreditations

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

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

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMN976V**. The test data contained in this report pertains only to the emissions due to the EUT's 5G mmWave function.

The EUT has 2 array antenna configurations. Type1: 4 patches and 4 dipoles, placed on the rear side (denoted as J Patch and J Dipole). Type 2: 4 patches only, placed on the left and right side (denoted as K patch and L Patch). Each of the patch antennas is comprised of two separate antenna feeds - one for horizontal and one for vertical polarization. Only one array antenna can be active at a time. Dipole antenna does not radiate when patch antenna radiates.

The EUT supports up to 8CC for DL, and 4CC for UL. For each CC, the EUT supports both 50MHz bandwidth and 100MHz bandwidth. For modulation, the EUT supports QPSK, 16QAM and 64QAM. Different Beam IDs are supported, each corresponding to a different position in space for each antenna. During testing, FTM (Factory Test Mode) was used to operate the transmitter. MIMO operation was achieved by enabling two Beam IDs at the same time: one is from the list of H Beam IDs and other is from the list of V Beam IDs.

Test Device Serial No.: 0103M, 0465M

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A, 1x Advanced (BC0, BC1), 850/1900 GSM/GPRS/EDGE, 850/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE), NFC, ANT+, Wireless Power Transfer, n261/n260 5G NR

2.3 Test Configuration

The EUT was tested per the guidance of KDB 842590 D01 v01 and ANSI C63.26-2015. See Section 7.0 of this test report for a description of the radiated tests.

EIRP Simulation data for all Beam IDs was used to determine the worst case Beam ID for SISO operation and Beam ID pair for MIMO operation. These Beam ID's were used for final measurements.

All testing was performed using FTM (Factory Test Mode) software at continuous Tx operation. When implemented out in the field, the EUT will operate with a maximum uplink configuration (i.e., a maximum uplink duty cycle of 100%).

2.4 EMI Suppression Device(s)/Modifications

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

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3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The measurement procedures described in the document titled "American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services" (ANSI C63.26-2015) and the guidance provided in KDB 842590 D01 v01 were used in the measurement of the EUT.

3.2 Radiated Power and Radiated Spurious Emissions

§30.202, §30.203

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

Radiated power (EIRP) measurements were performed in a full anechoic chamber (FAC) conforming to the site validation requirements of CISPR 16-1-4. A positioner was used to manipulate the EUT through several positions in space by rotating about the roll axis as shown in the figure below. The positioner was mounted on top of a turntable bringing the total EUT height to 1.5m.

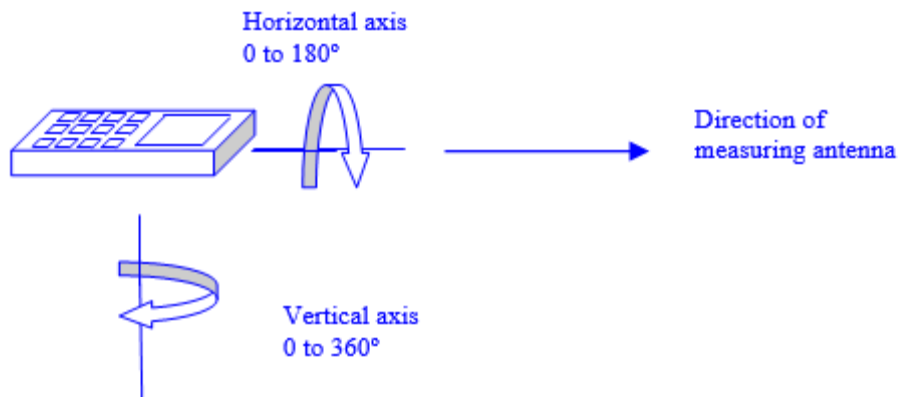


Figure 3-1. Rotation of the EUT through horizontal and vertical axis

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The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable. The measurement antenna is in the far field of the EUT per formula $2D^2/\lambda$ where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, D is the largest dimension of the measurement antenna. The EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

Frequency Range (GHz)	Wavelength(cm)	Far Field Distance (m)	Measurement Distance (m)
18-40	0.749	0.54	1.00
40-60	0.500	1.39	1.50
60-90	0.333	0.91	1.00
90-140	0.214	0.58	1.00
140-200	0.150	0.39	1.00

Table 3-1. Far-Field Distance & Measurement Distance per Frequency Range

Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst case polarization/positioning. It was determined that H=0 degree and V=90 degree are the worst case positions when the EUT was transmitting horizontally and vertically polarized beams, respectively.

The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration bandwidth set to the emissions' occupied bandwidth. The EIRP is calculated from the raw power level measured with the spectrum analyzer using the formulas shown below.

Effective Isotropic Radiated Power Sample Calculation

The measured e.i.r.p is converted to E-field in V/m. Then, the distance correction is applied before converting back to calculated e.i.r.p, as explained in KDB 971168 D01.

$$\begin{aligned}
 \text{Field Strength [dB}\mu\text{V/m]} &= \text{Measured Value [dBm]} + \text{AFCL [dB/m]} + 107 \\
 &= -32.74 \text{ dBm} + (40.7 \text{ dB/m} + 8.78 \text{ dB}) + 107 = 123.74 \text{ dB}\mu\text{V/m} \\
 &= 10^{(123.74/20)/1000000} = 1.54 \text{ V/m} \\
 \text{e.i.r.p. [dBm]} &= 10 * \log((\text{E-Field} * D_m)^2/30) + 30 \text{ dB} \\
 &= 10 * \log((1.54 \text{ V/m} * 1.00 \text{ m})^2/30) + 30 \text{ dB} \\
 &= 18.98 \text{ dBm e.i.r.p.}
 \end{aligned}$$

Sample MIMO e.i.r.p. Calculation:

The e.i.r.p of the H Beam and V Beam were first measured individually. The measured values were then summed in linear power units then converted back to dBm per the guidance of KDB 662911 D01.

$$\begin{aligned}
 \text{Conversion to linear value} &= 10^{(\text{e.i.r.p}/10)} = 10^{(17.45/10)} = 55.59 \text{ mW} \\
 \text{MIMO e.i.r.p.} &= \text{e.i.r.p.}_H + \text{e.i.r.p.}_V \\
 &= 55.59 \text{ mW} + 20.04 \text{ mW} \\
 &= 10 * \log(75.63 \text{ mW}) \\
 &= 18.79 \text{ dBm}
 \end{aligned}$$

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4.0 MEASUREMENT UNCERTAINTY

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

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

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5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to an accredited ISO/IEC 17025 calibration facility. 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
Agilent	N9030A	PXA Signal Analyzer (44GHz)	7/25/2018	Annual	7/25/2019	MY52350166
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
Espec	ESX-2CA	Environmental Chamber	6/13/2019	Annual	6/13/2020	17620
Keysight Technologies	N9030A	3Hz-44GHz PXA Signal Analyzer	5/2/2019	Annual	5/2/2020	MY49430494
OML, Inc.	M19RH	Horn Antenna (40 - 60GHz)	7/30/2018	Annual	7/30/2019	18073001
OML, Inc.	M12RH	Horn Antenna (60 - 90GHz)	7/30/2018	Annual	7/30/2019	18073001
OML, Inc.	M08RH	Horn Antenna (90 - 140GHz)	7/30/2018	Annual	7/30/2019	18073001
OML, Inc.	M05RH	Horn Antenna (140 - 220GHz)	7/30/2018	Annual	7/30/2019	18073001
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/17/2018	Annual	8/17/2019	103200
Rohde & Schwarz	180-442-KF	Horn (Small)	8/21/2018	Annual	8/21/2019	U157403-01
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	6/5/2019	Annual	6/5/2020	100342
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	6/18/2018	Annual	6/18/2019	102134
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	4/19/2018	Biennial	4/19/2020	A051107
Virginia Diodes Inc	SAX252	SAX Module (60 - 90GHz)	8/14/2018	Annual	8/14/2019	SAX252
Virginia Diodes Inc	SAX253	SAX Module (90 - 140GHz)	8/8/2018	Annual	8/8/2019	SAX253
Virginia Diodes Inc	SAX254	SAX Module (140 - 220GHz)	8/22/2018	Annual	8/22/2019	SAX254

Table 5-1. Test Equipment

Notes:

- For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

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6.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 800MG7D

BW = 800 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 802MW7D

BW = 802 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

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7.0 TEST RESULTS

7.1 Summary

Company Name: Samsung Electronics Co., Ltd.
 FCC ID: A3LSMN976V
 FCC Classification: Part 30 Mobile Transmitter (5GM)
 Mode(s): TDD

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A	RADIATED	PASS	Section 7.2
2.1046, 30.202	Equivalent Isotropic Radiated Power	43dBm		PASS	Section 7.3
2.1051, 30.203	Spurious Emissions	-13dBm/MHz for all out-of-band emissions		PASS	Section 7.4
2.1051, 30.203	Out-of-Band Emissions at the Band Edge	-13dBm/MHz for all out-of-band emissions, -5dBm/MHz from the band edge up to 10% of the channel BW		PASS	Section 7.5
2.1055	Frequency Stability	Fundamental emissions stay within authorized frequency block		PASS	Section 7.6

Table 7-1. Summary of Radiated Test Results

Notes:

- 1) All modes of operation and modulations were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) Per 2.1057(a)(2), spurious emissions were investigated up to 100GHz for n261 and up to 200GHz for n260.
- 3) All radiated emission measurements at the band edge are converted to an equivalent conductive power by subtracting the known antenna gain from the EIRP measured at each frequency of interest. These emissions are compared to the 30.203 spurious emission limits as conductive power levels.
- 4) The radiated RF output power and all out-of-band emissions in the spurious domain are evaluated to the EIRP limits.
- 5) "CC" refers to "Component Carriers".
- 6) Beam IDs were chosen based on which Beam ID produces the highest EIRP during EIRP simulation.
- 7) All testing was performed using FTM (Factory Test Mode) software at continuous Tx operation (100% duty cycle).

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7.2 Occupied Bandwidth

\$2.1049

Test Overview

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

Test Procedure Used

ANSI C63.26-2015 Section 5.4.3
KDB 842590 D01 v01 Section 4.3

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW $\geq 3 \times$ RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

Test Notes

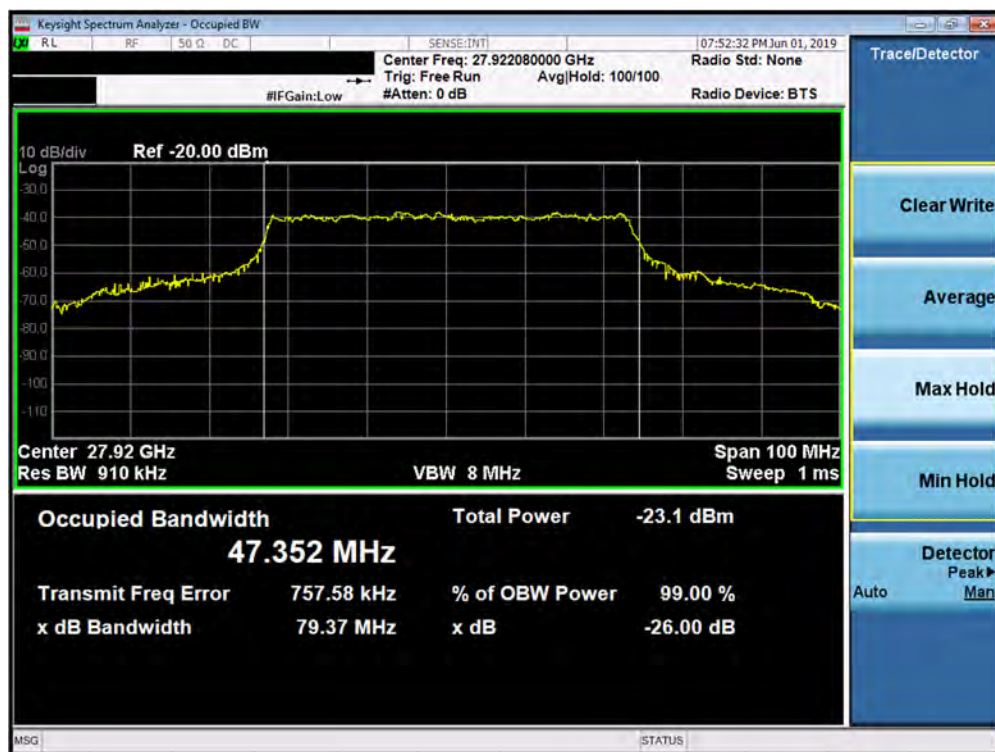
None.

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7.2.1 n261 Occupied Bandwidth J Dipole Occupied Bandwidth (n261)

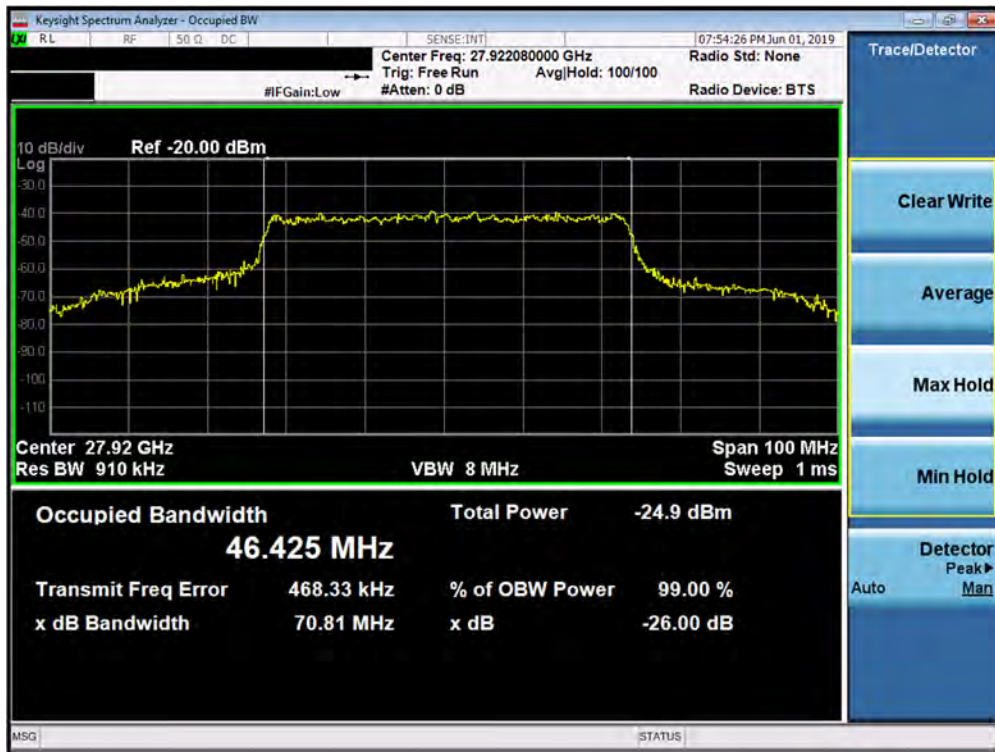
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	47.35
Mid	50	1	16QAM	46.43
Mid	50	1	64QAM	46.46
Mid	100	1	QPSK	94.54
Mid	100	1	16QAM	94.36
Mid	100	1	64QAM	94.18
Mid	200	4	QPSK	218.86
Mid	200	4	16QAM	197.98
Mid	200	4	64QAM	196.00
Mid	400	4	QPSK	396.55
Mid	400	4	16QAM	395.31
Mid	400	4	64QAM	392.79

Table 7-2. Summary of J Dipole Occupied Bandwidths (n261)

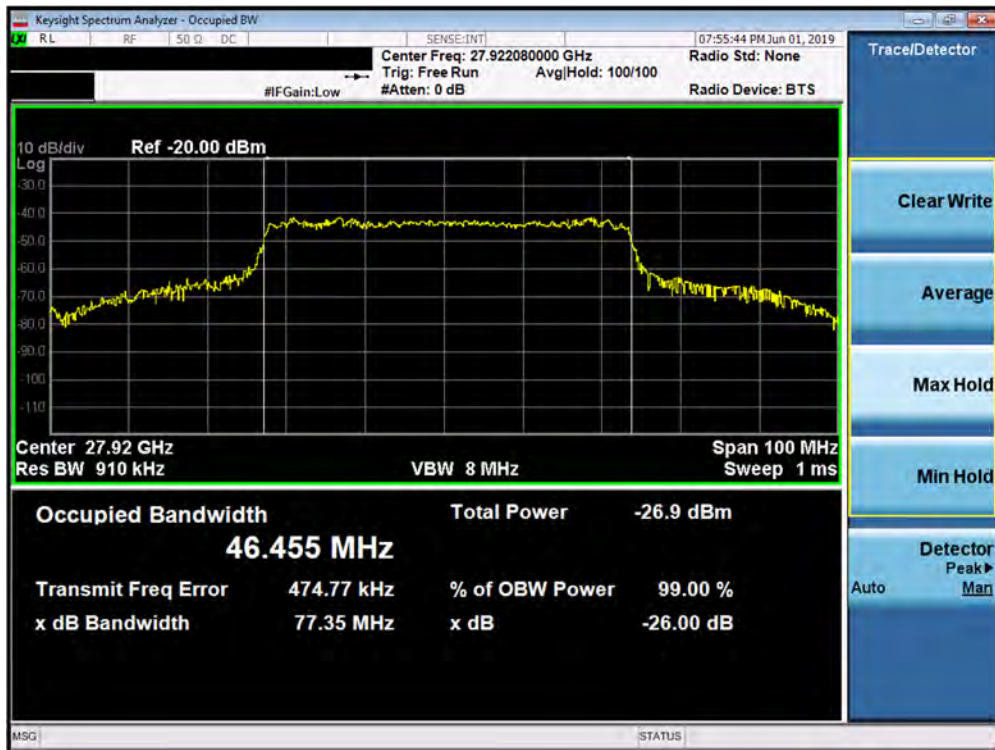


Plot 7-1. Occupied Bandwidth Plot (1CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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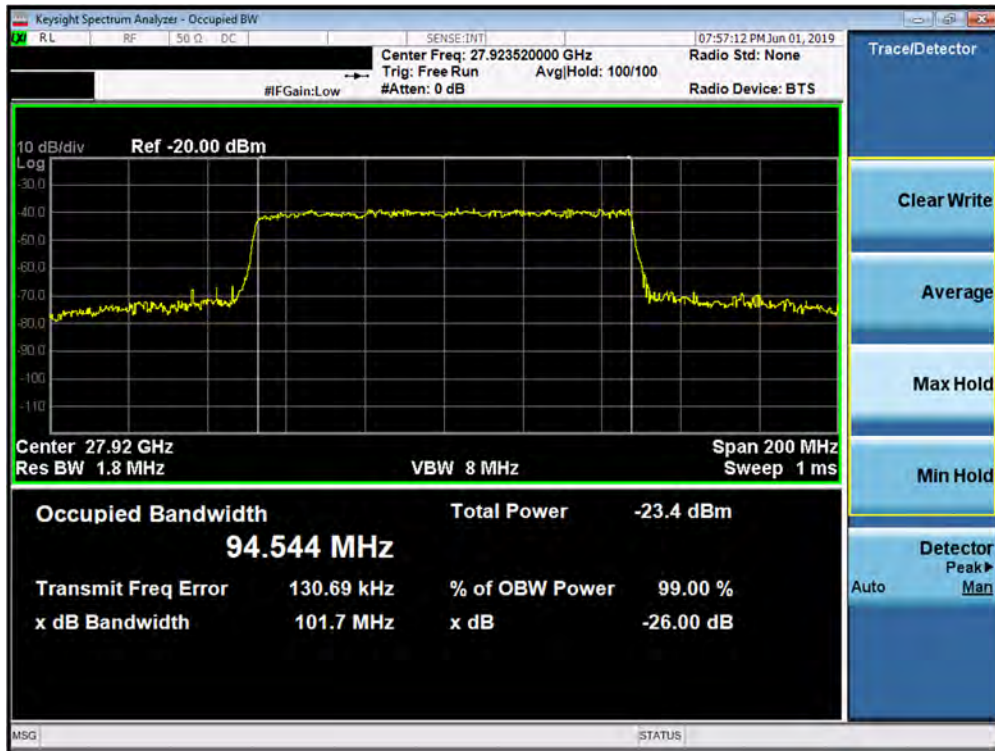


Plot 7-2. Occupied Bandwidth Plot (1CC – 50MHz - 16QAM - Mid Channel)

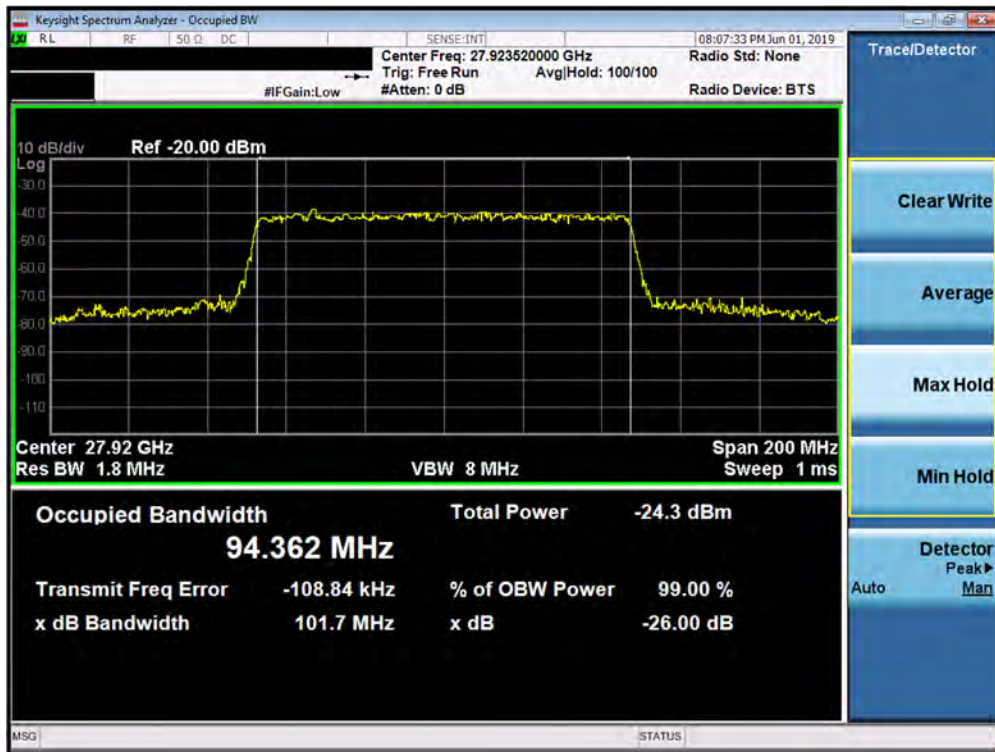


Plot 7-3. Occupied Bandwidth Plot (1CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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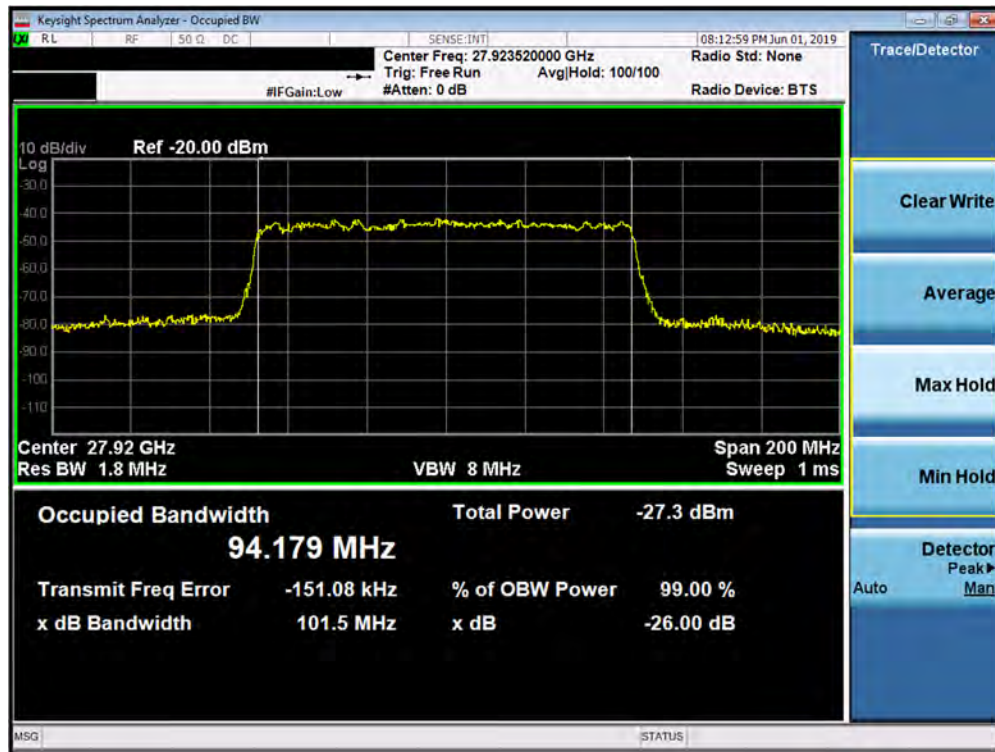


Plot 7-4. Occupied Bandwidth Plot (1CC – 100MHz - QPSK - Mid Channel)



Plot 7-5. Occupied Bandwidth Plot (1CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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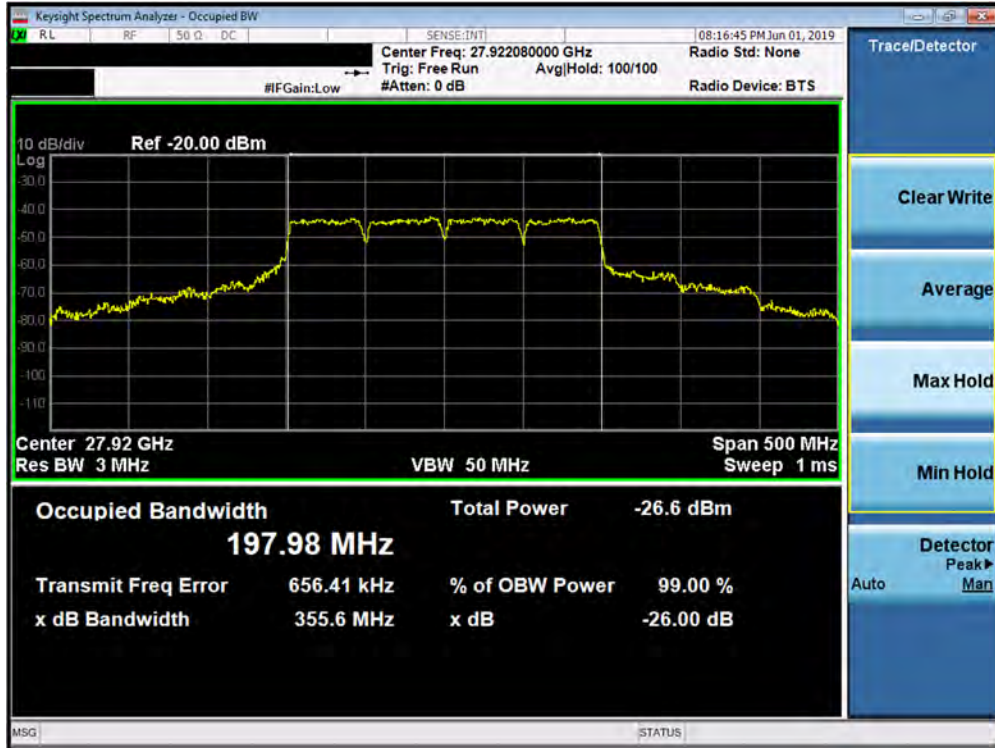


Plot 7-6. Occupied Bandwidth Plot (1CC – 100MHz - 64QAM Mid Channel)

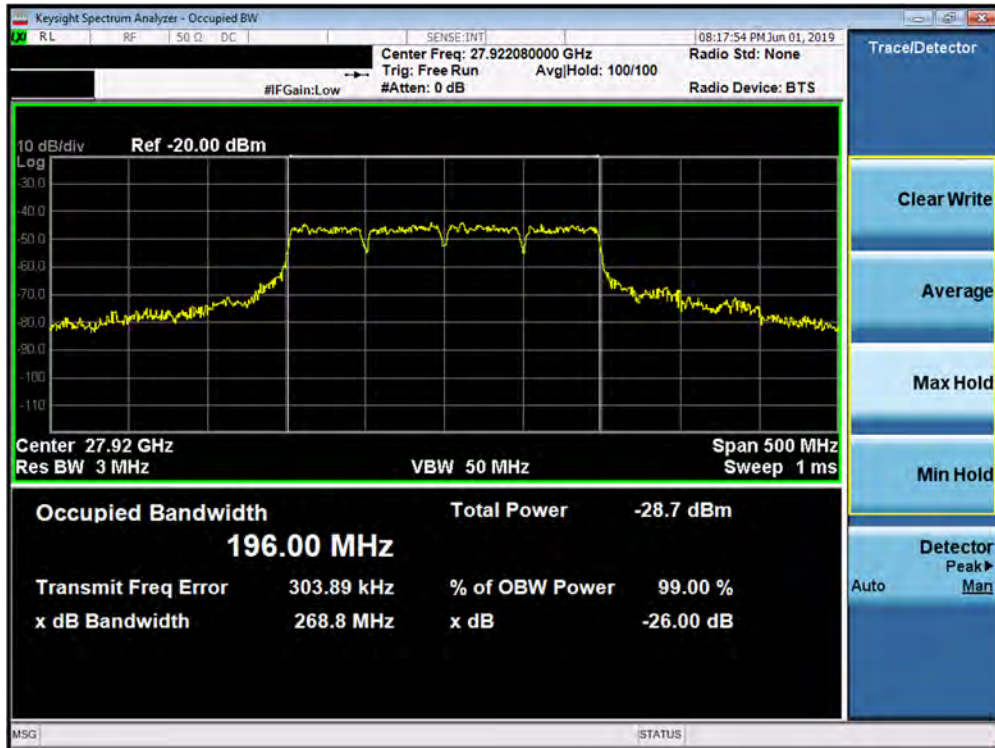


Plot 7-7. Occupied Bandwidth Plot (4CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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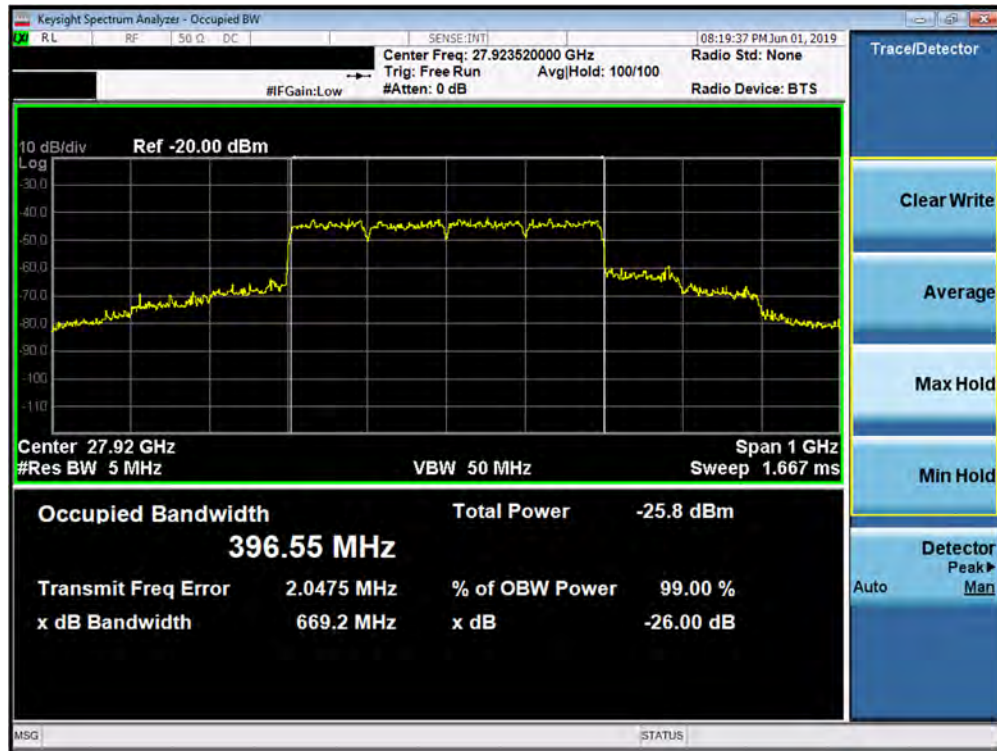


Plot 7-8. Occupied Bandwidth Plot (4CC – 50MHz - 16QAM - Mid Channel)



Plot 7-9. Occupied Bandwidth Plot (4CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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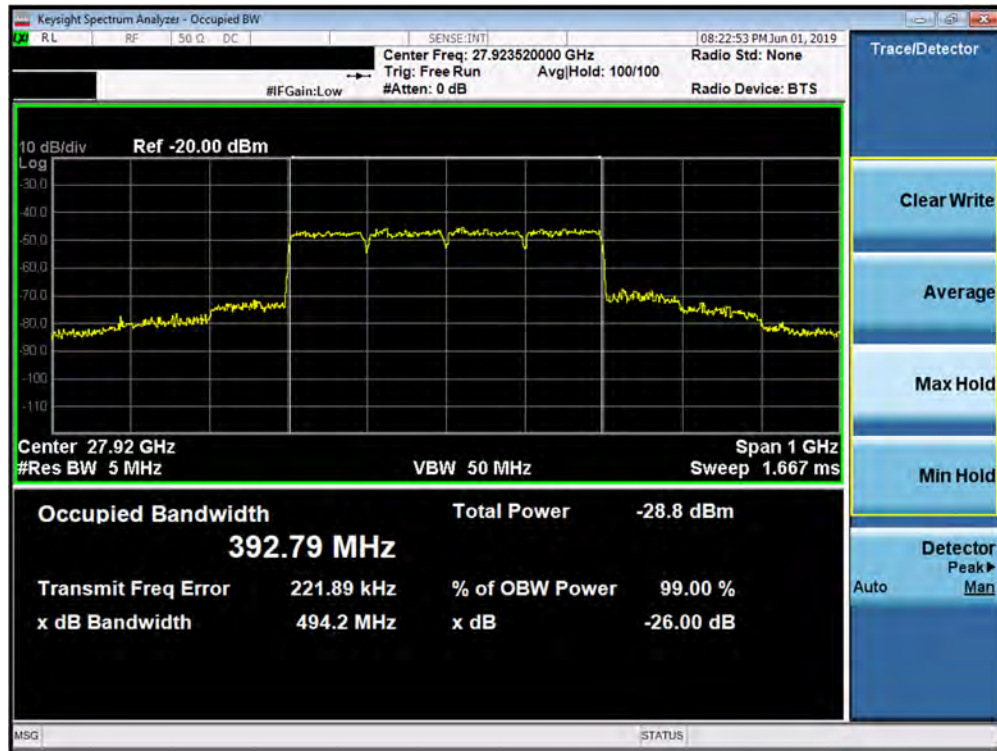


Plot 7-10. Occupied Bandwidth Plot (4CC – 100MHz - QPSK - Mid Channel)



Plot 7-11. Occupied Bandwidth Plot (4CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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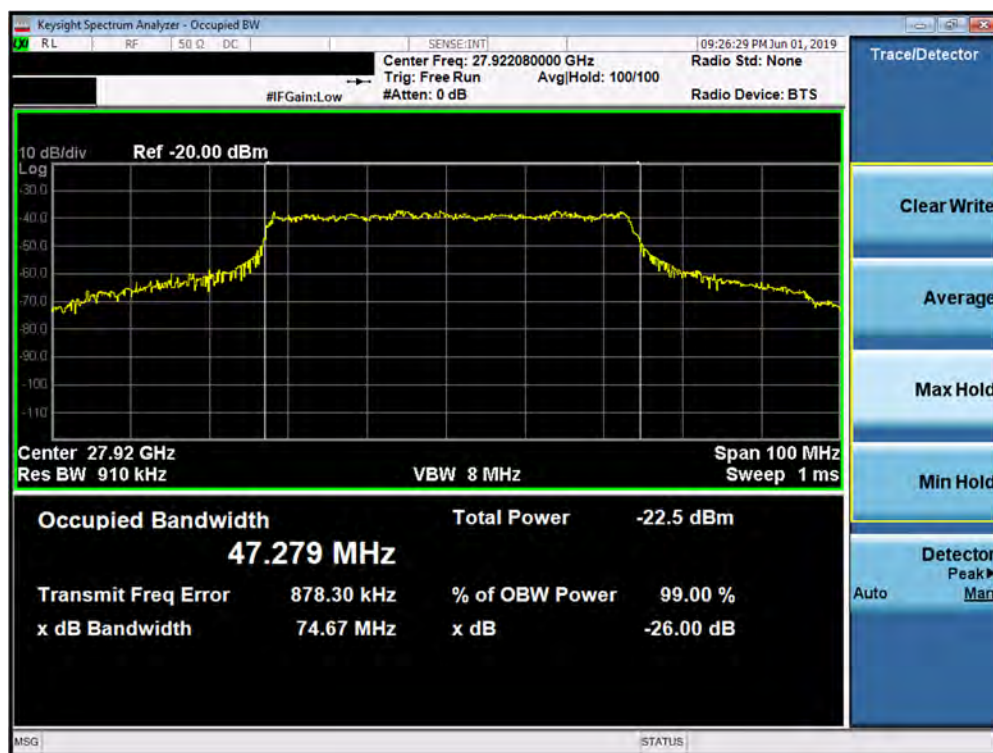
Plot 7-12. Occupied Bandwidth Plot (4CC – 100MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
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J Patch Occupied Bandwidth (n261)

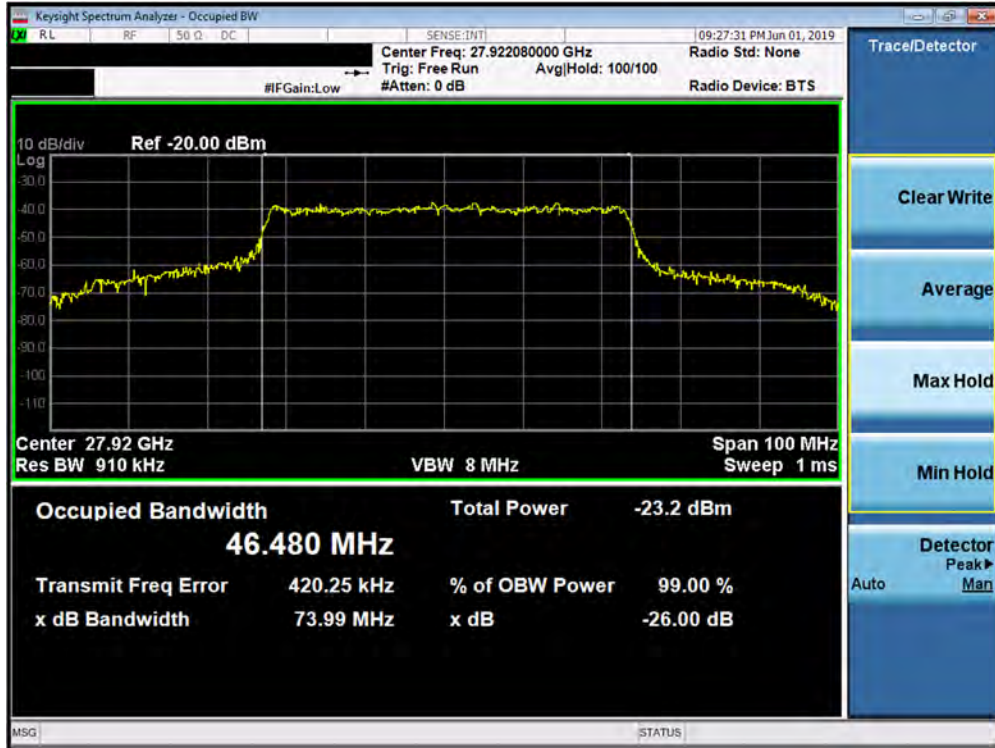
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	47.28
Mid	50	1	16QAM	46.48
Mid	50	1	64QAM	46.58
Mid	100	1	QPSK	94.59
Mid	100	1	16QAM	94.39
Mid	100	1	64QAM	94.11
Mid	200	4	QPSK	201.35
Mid	200	4	16QAM	196.90
Mid	200	4	64QAM	195.75
Mid	400	4	QPSK	394.69
Mid	400	4	16QAM	394.03
Mid	400	4	64QAM	392.76

Table 7-3. Summary of J Patch Occupied Bandwidths (n261)

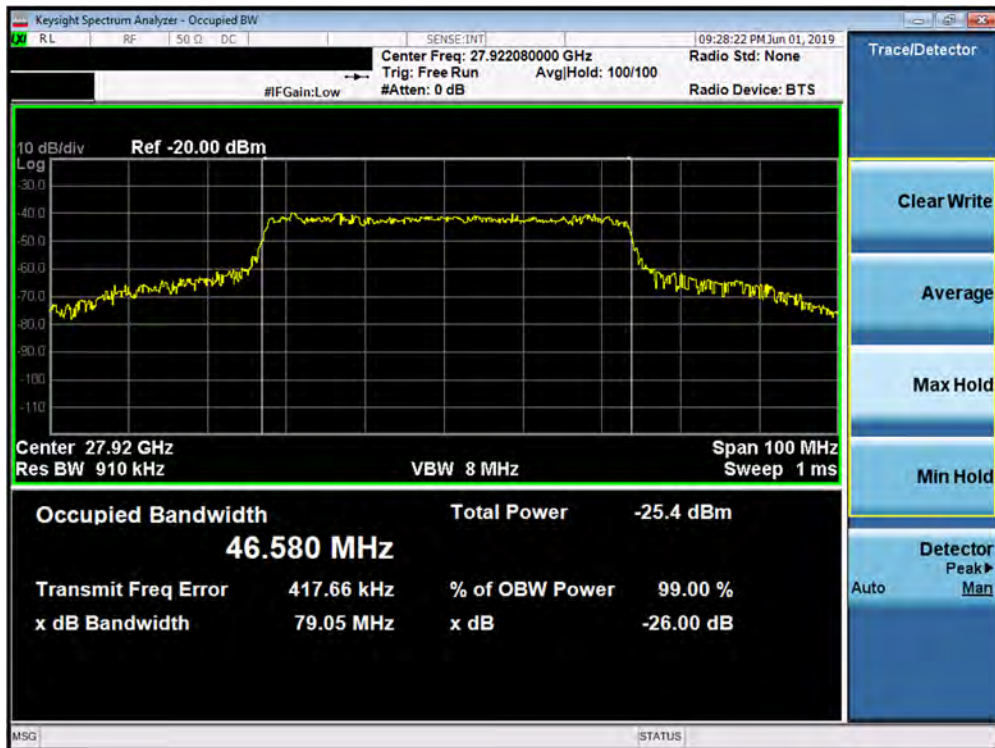


Plot 7-13. Occupied Bandwidth Plot (1CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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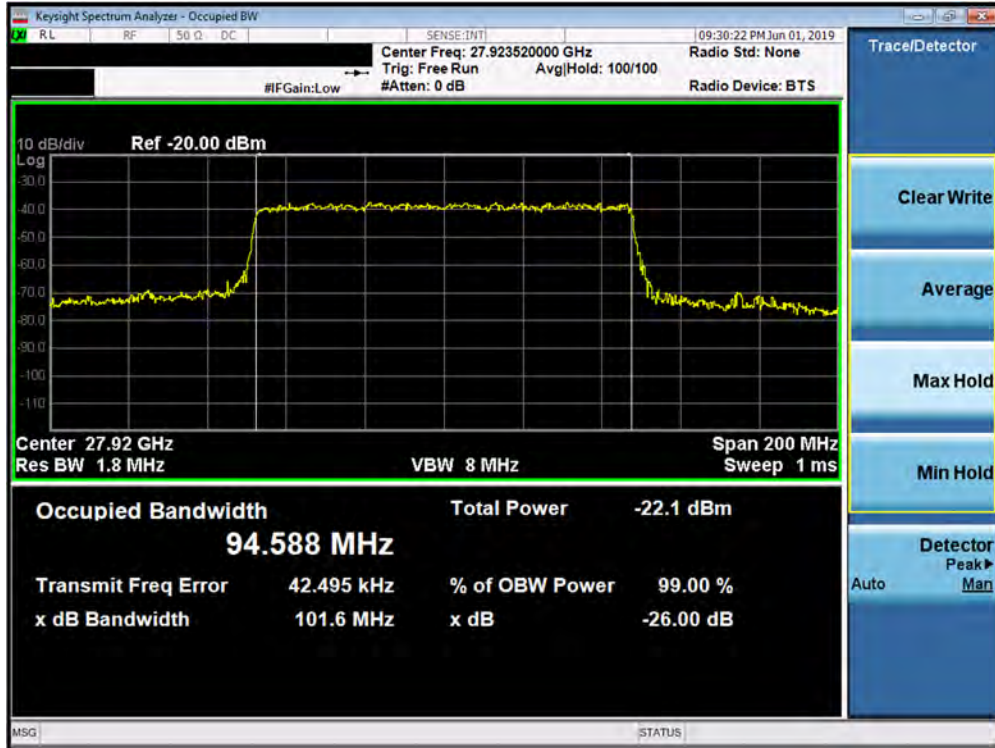


Plot 7-14. Occupied Bandwidth Plot (1CC – 50MHz - 16QAM - Mid Channel)

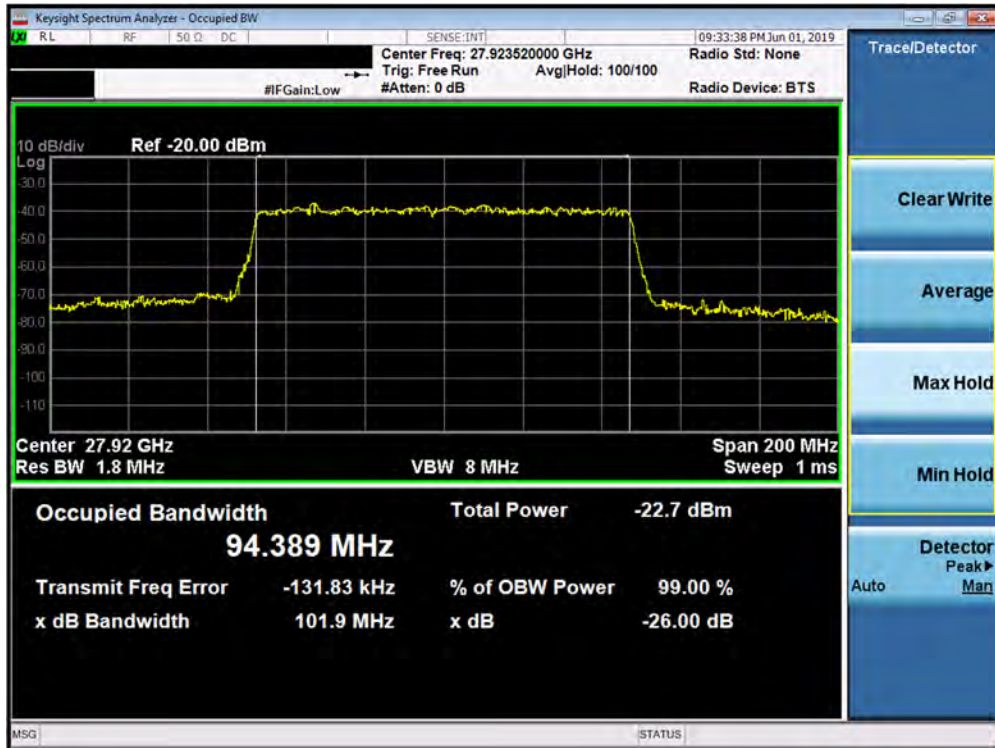


Plot 7-15. Occupied Bandwidth Plot (1CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-16. Occupied Bandwidth Plot (1CC – 100MHz - QPSK - Mid Channel)

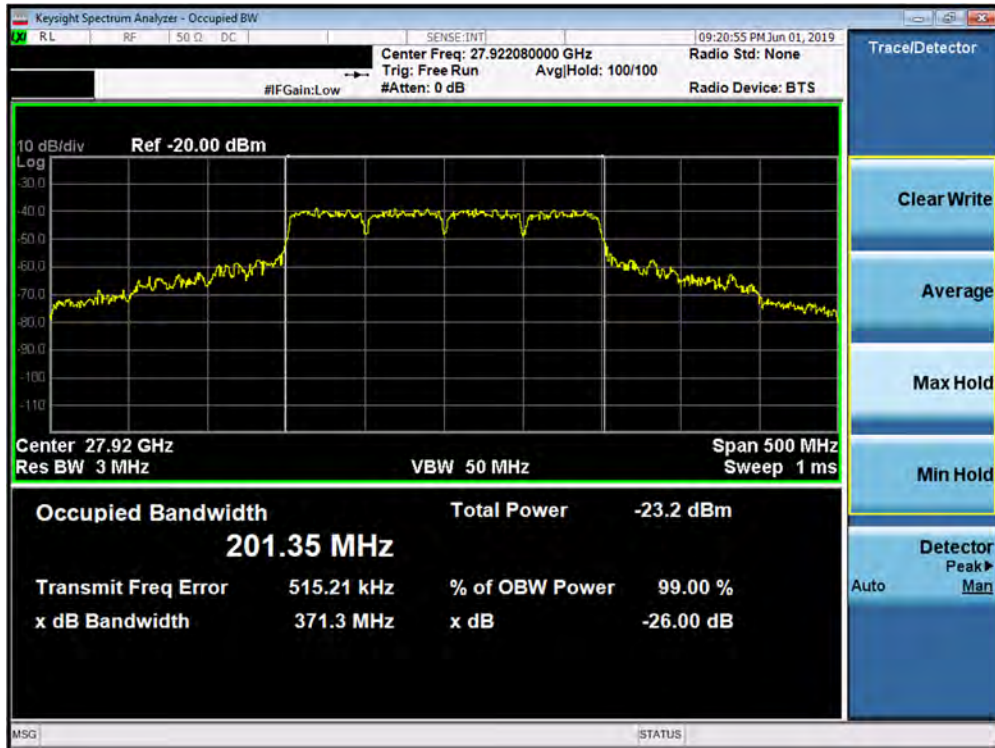


Plot 7-17. Occupied Bandwidth Plot (1CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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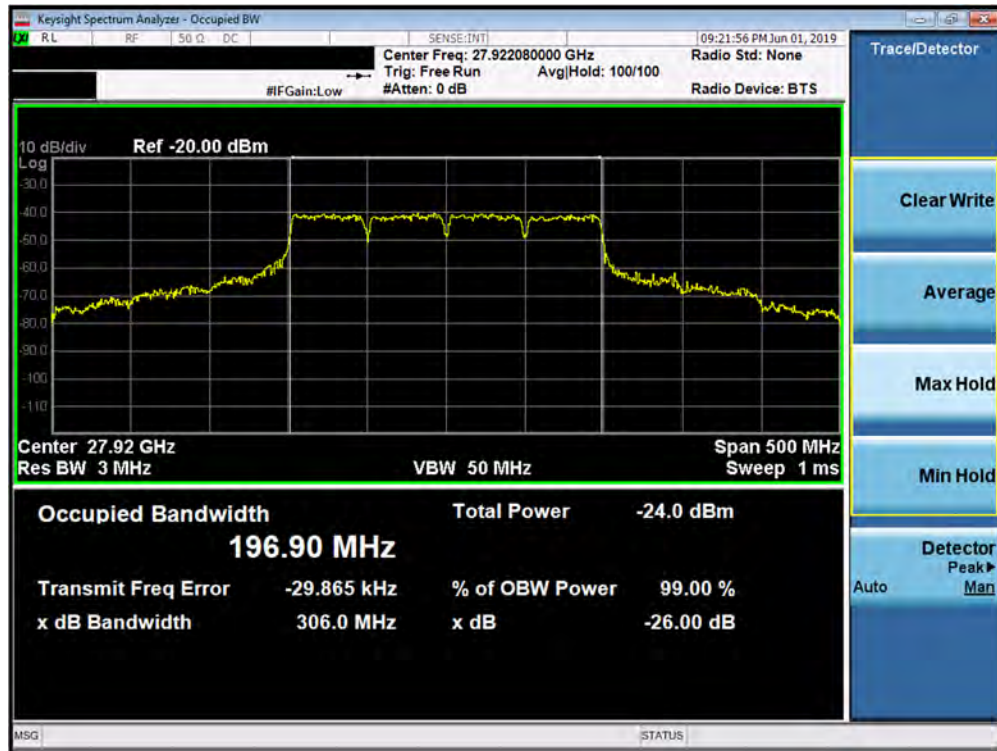


Plot 7-18. Occupied Bandwidth Plot (1CC – 100MHz - 64QAM Mid Channel)

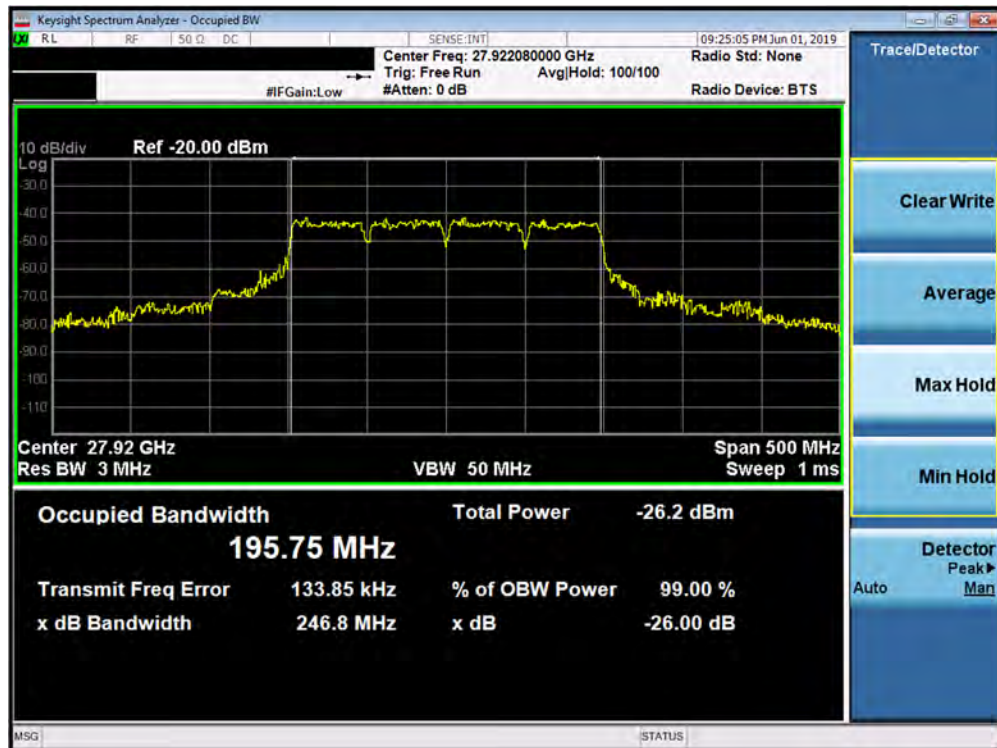


Plot 7-19. Occupied Bandwidth Plot (4CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 26 of 371

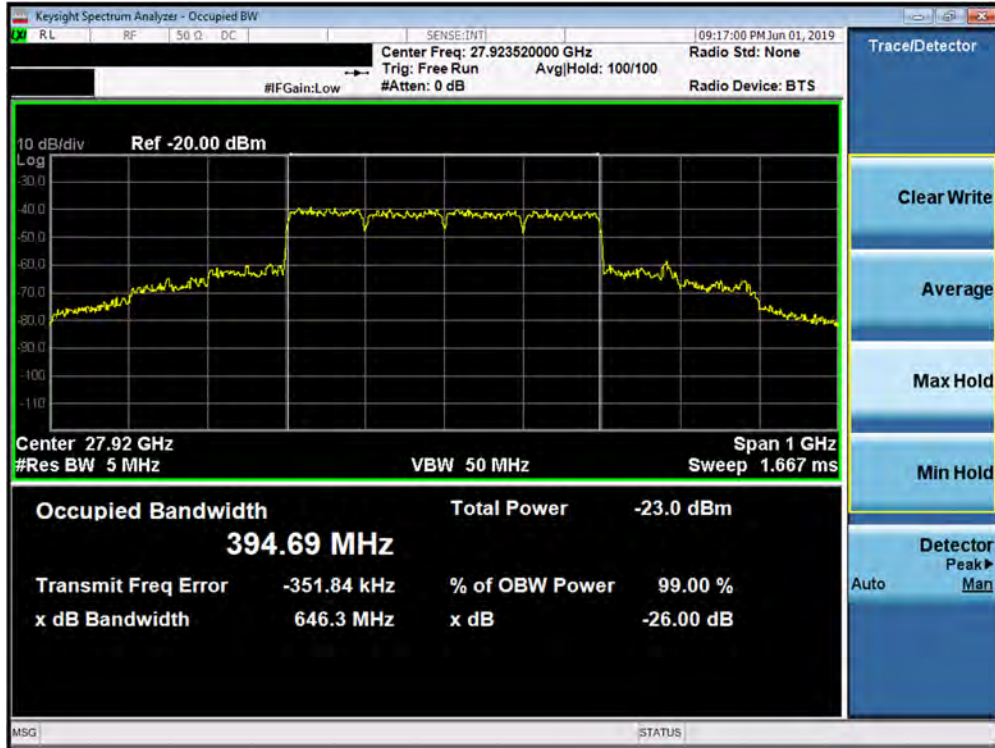


Plot 7-20. Occupied Bandwidth Plot (4CC – 50MHz - 16QAM - Mid Channel)

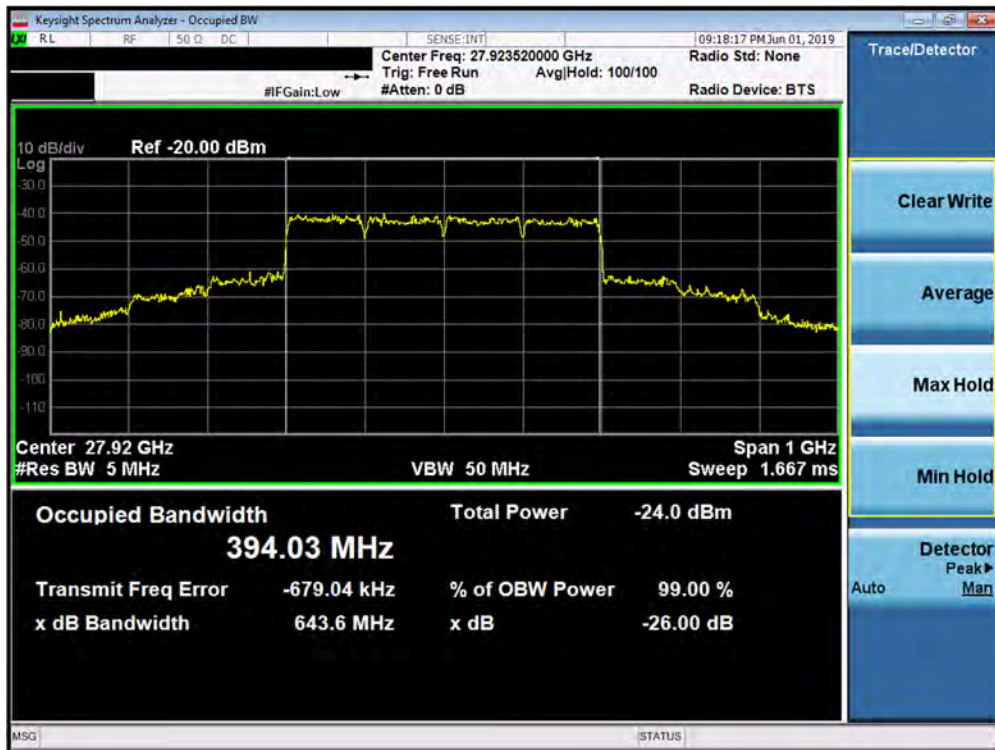


Plot 7-21. Occupied Bandwidth Plot (4CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 27 of 371

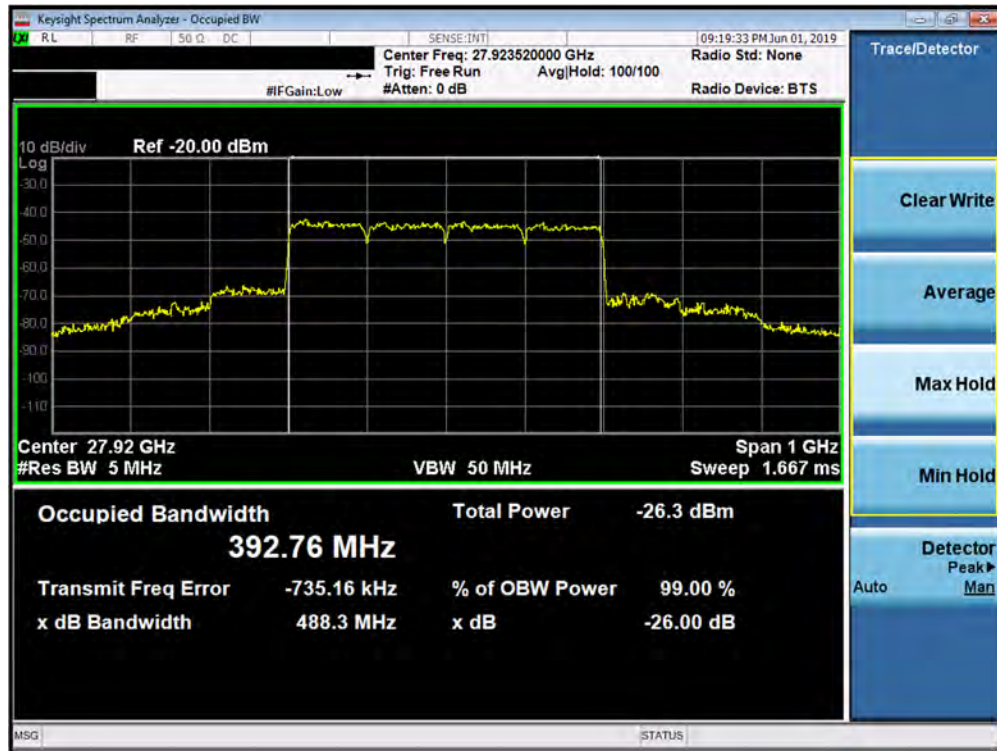


Plot 7-22. Occupied Bandwidth Plot (4CC – 100MHz - QPSK - Mid Channel)



Plot 7-23. Occupied Bandwidth Plot (4CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 28 of 371



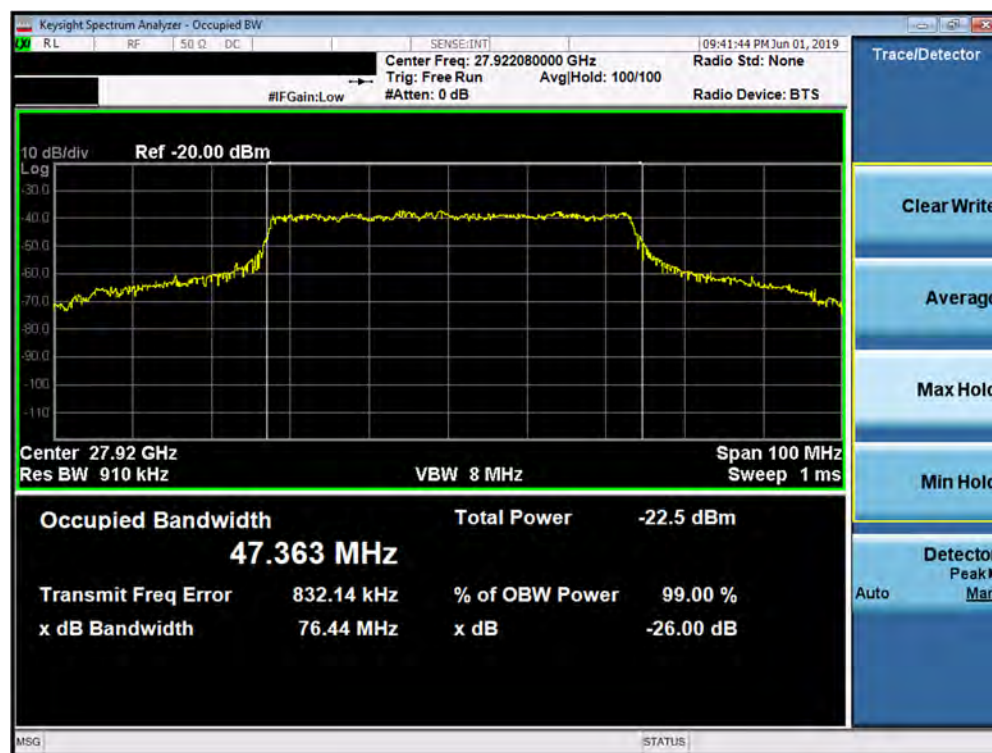
Plot 7-24. Occupied Bandwidth Plot (4CC – 100MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 29 of 371

K Patch Occupied Bandwidth (n261)

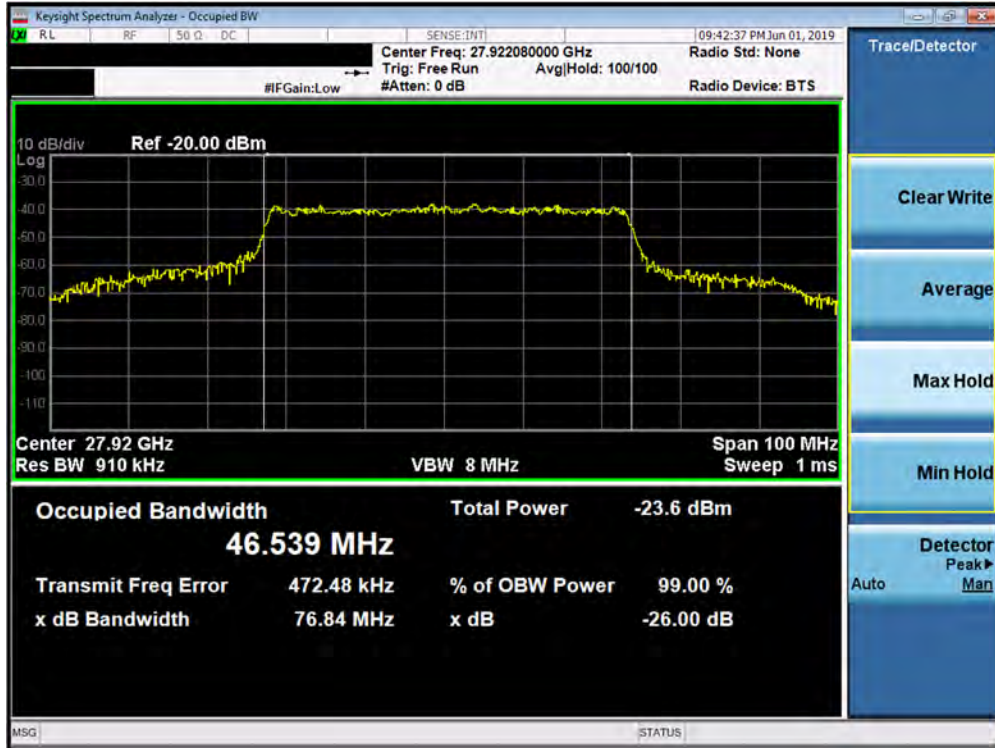
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	47.36
Mid	50	1	16QAM	46.54
Mid	50	1	64QAM	46.72
Mid	100	1	QPSK	94.63
Mid	100	1	16QAM	94.36
Mid	100	1	64QAM	94.25
Mid	200	4	QPSK	200.95
Mid	200	4	16QAM	197.45
Mid	200	4	64QAM	196.08
Mid	400	4	QPSK	396.19
Mid	400	4	16QAM	395.49
Mid	400	4	64QAM	393.44

Table 7-4. Summary of K Patch Occupied Bandwidths (n261)

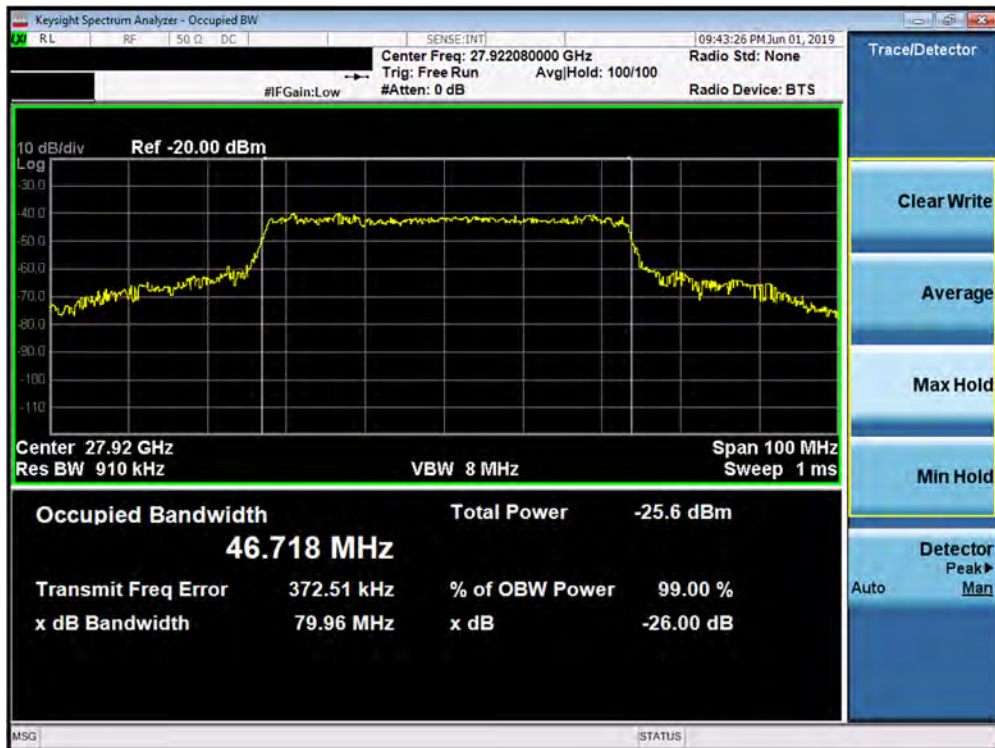


Plot 7-25. Occupied Bandwidth Plot (1CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 30 of 371

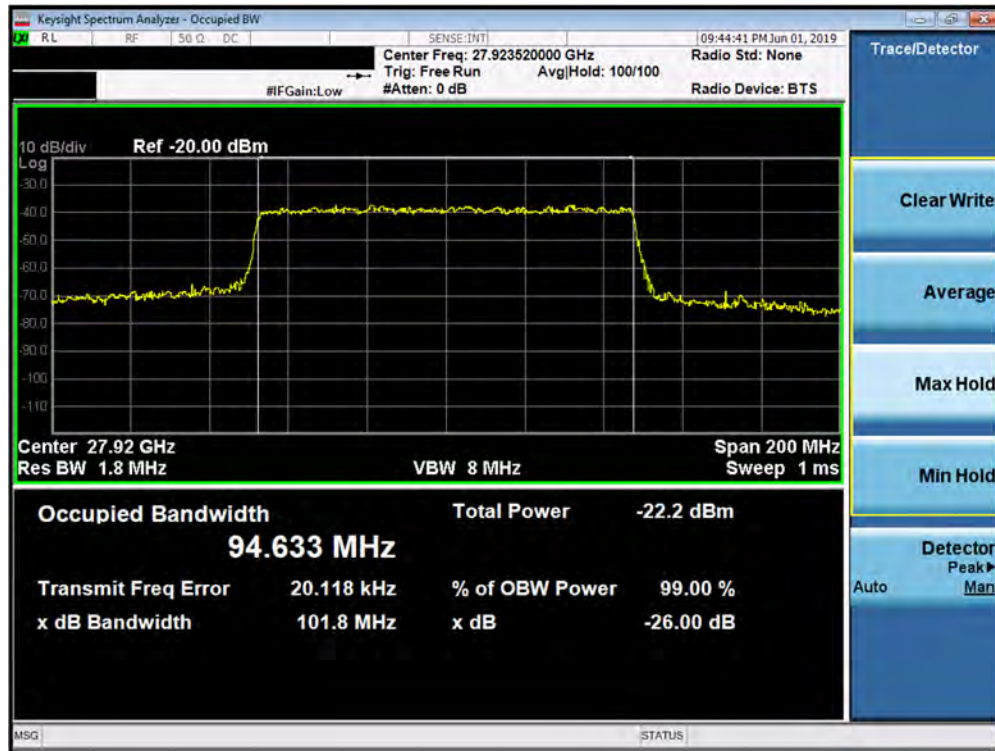


Plot 7-26. Occupied Bandwidth Plot (1CC – 50MHz - 16QAM - Mid Channel)

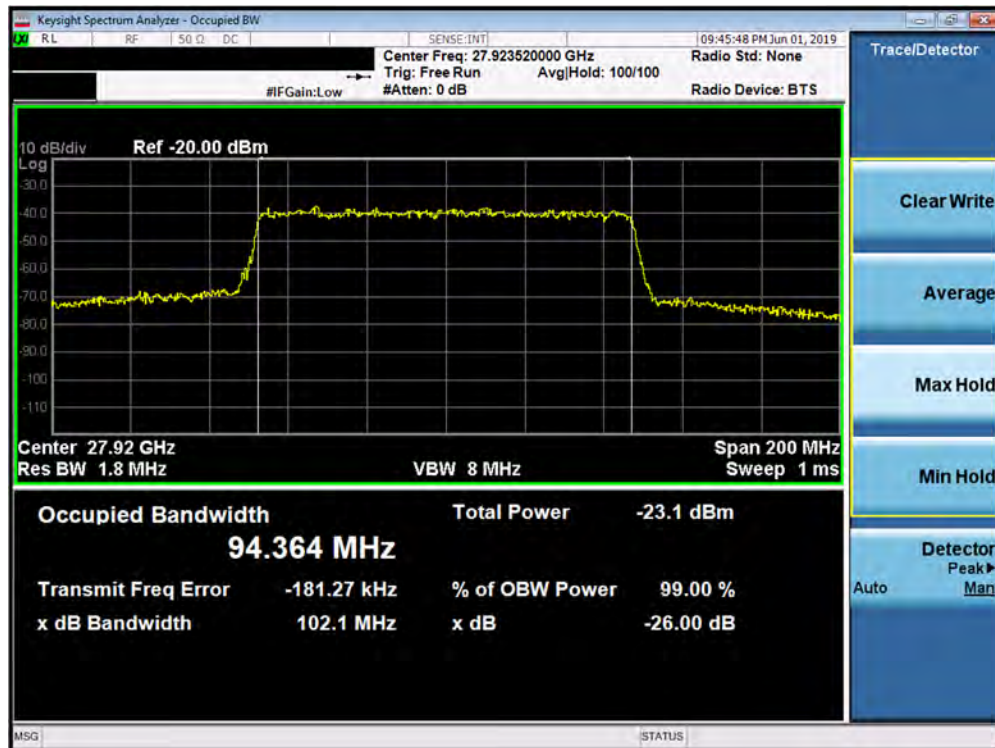


Plot 7-27. Occupied Bandwidth Plot (1CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 31 of 371

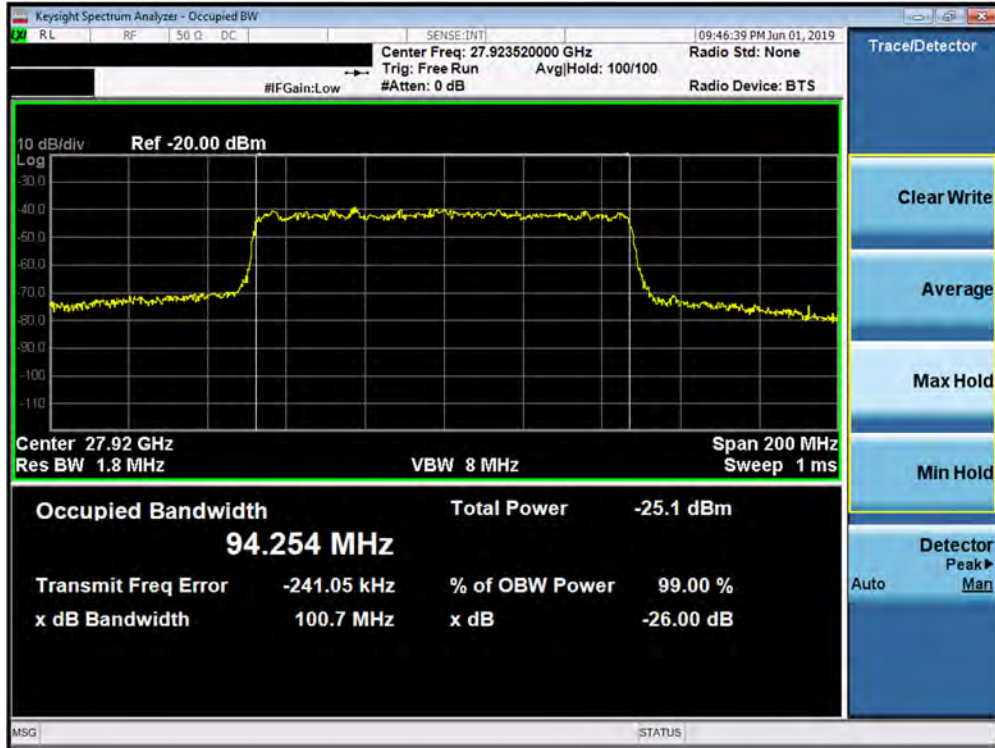


Plot 7-28. Occupied Bandwidth Plot (1CC – 100MHz - QPSK - Mid Channel)

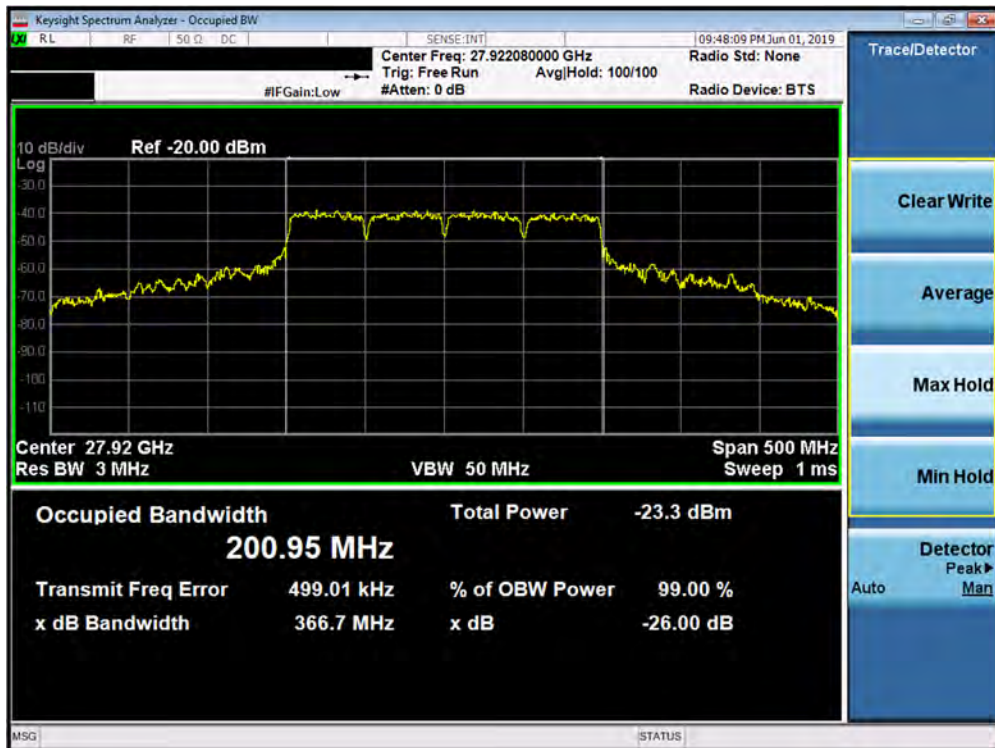


Plot 7-29. Occupied Bandwidth Plot (1CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 32 of 371

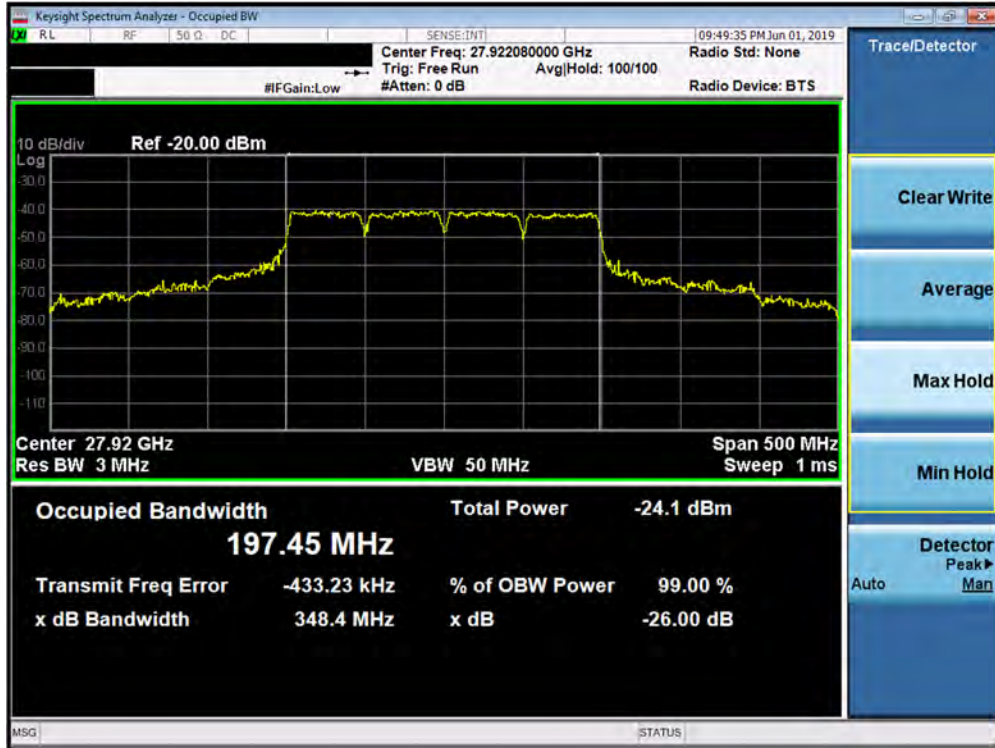


Plot 7-30. Occupied Bandwidth Plot (1CC – 100MHz - 64QAM Mid Channel)

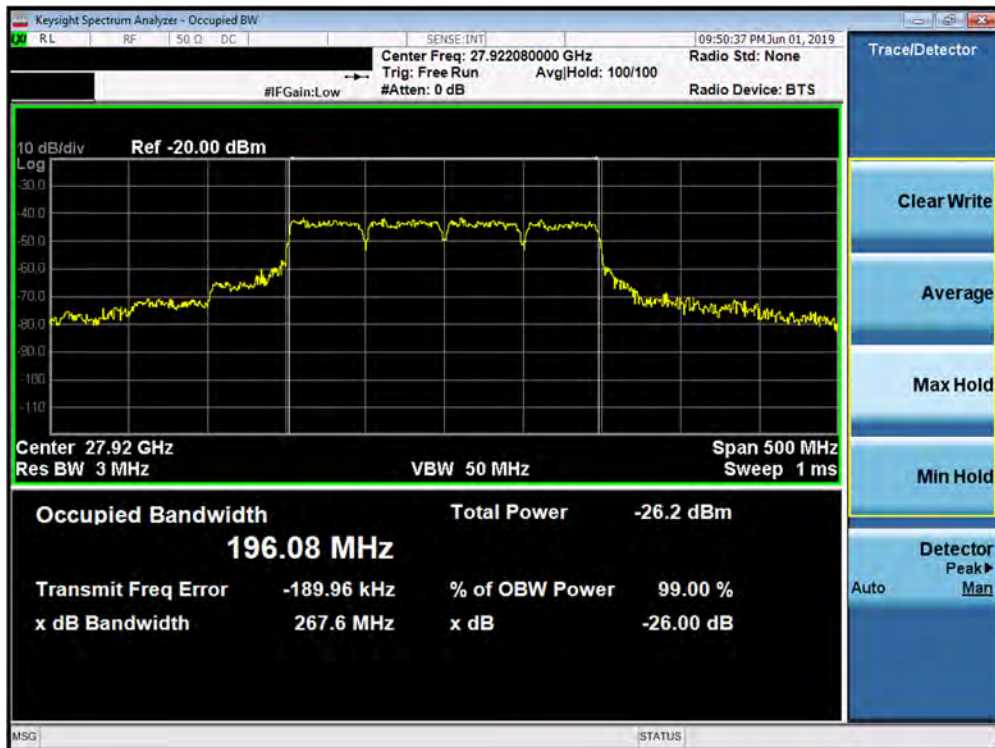


Plot 7-31. Occupied Bandwidth Plot (4CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 33 of 371

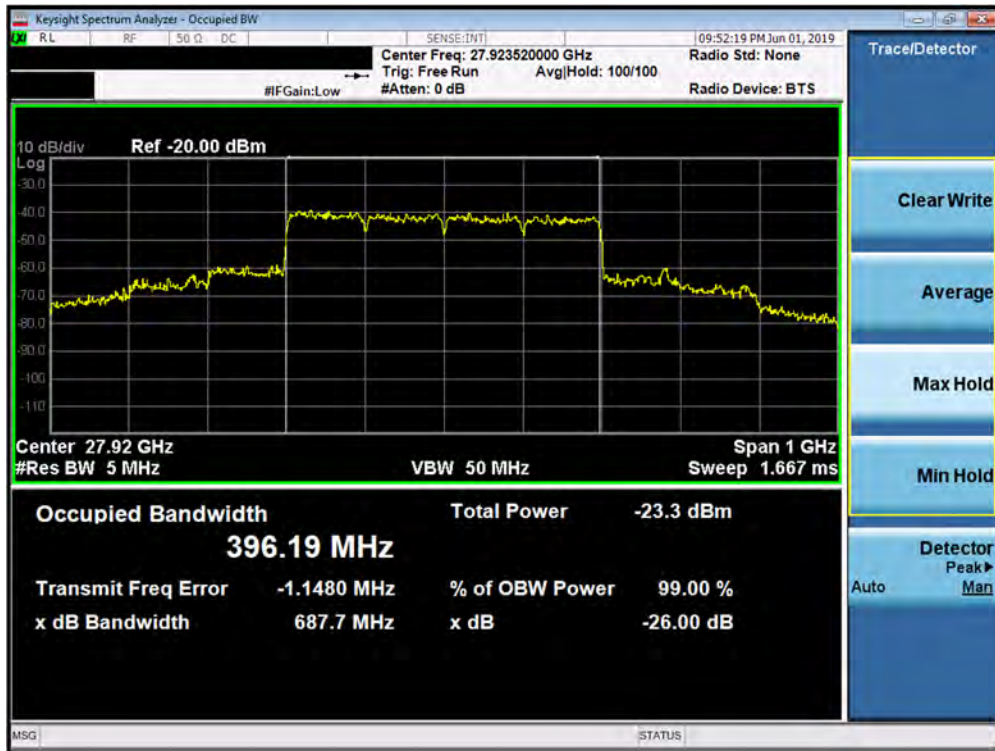


Plot 7-32. Occupied Bandwidth Plot (4CC – 50MHz - 16QAM - Mid Channel)

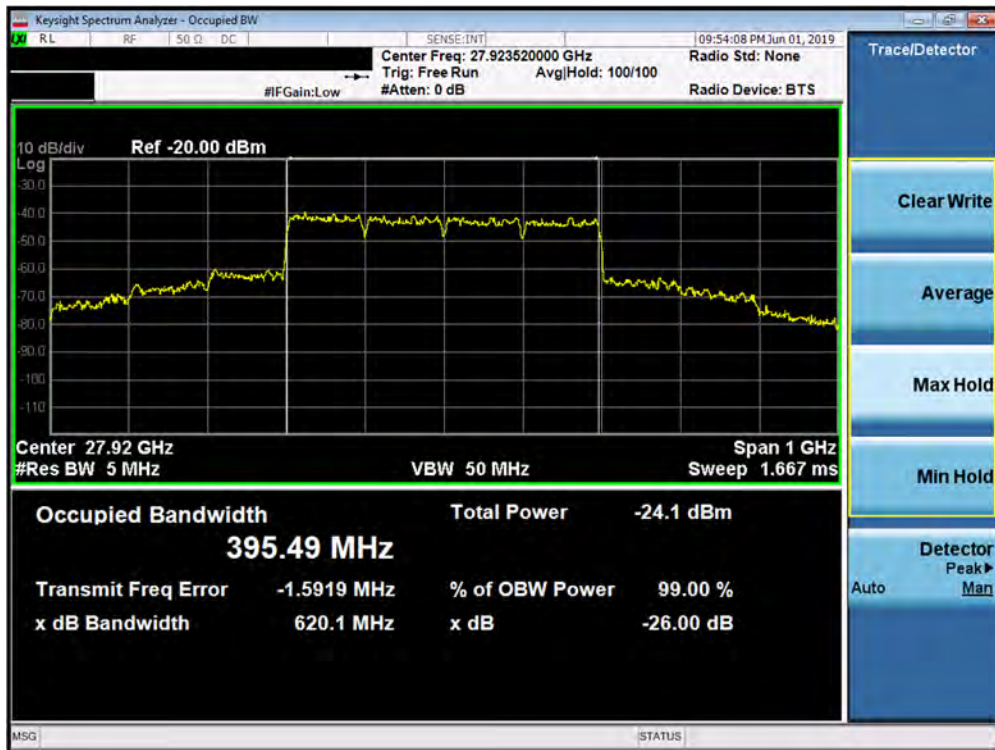


Plot 7-33. Occupied Bandwidth Plot (4CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 34 of 371

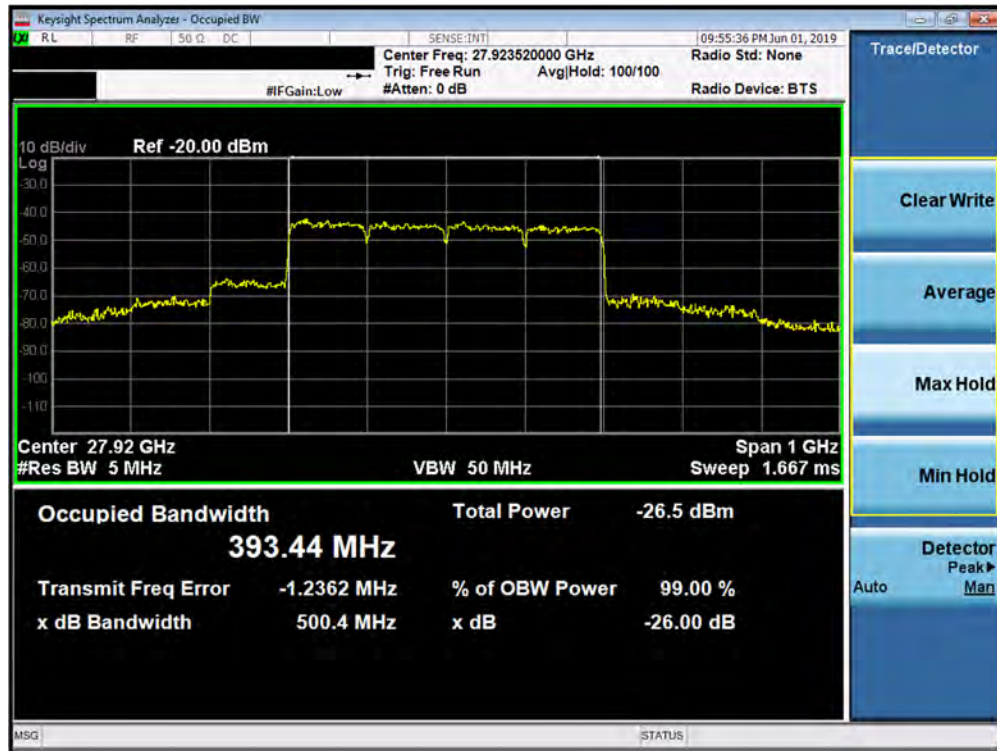


Plot 7-34. Occupied Bandwidth Plot (4CC – 100MHz - QPSK - Mid Channel)



Plot 7-35. Occupied Bandwidth Plot (4CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 35 of 371



Plot 7-36. Occupied Bandwidth Plot (4CC – 100MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset	Page 36 of 371

L Patch Occupied Bandwidth (n261)

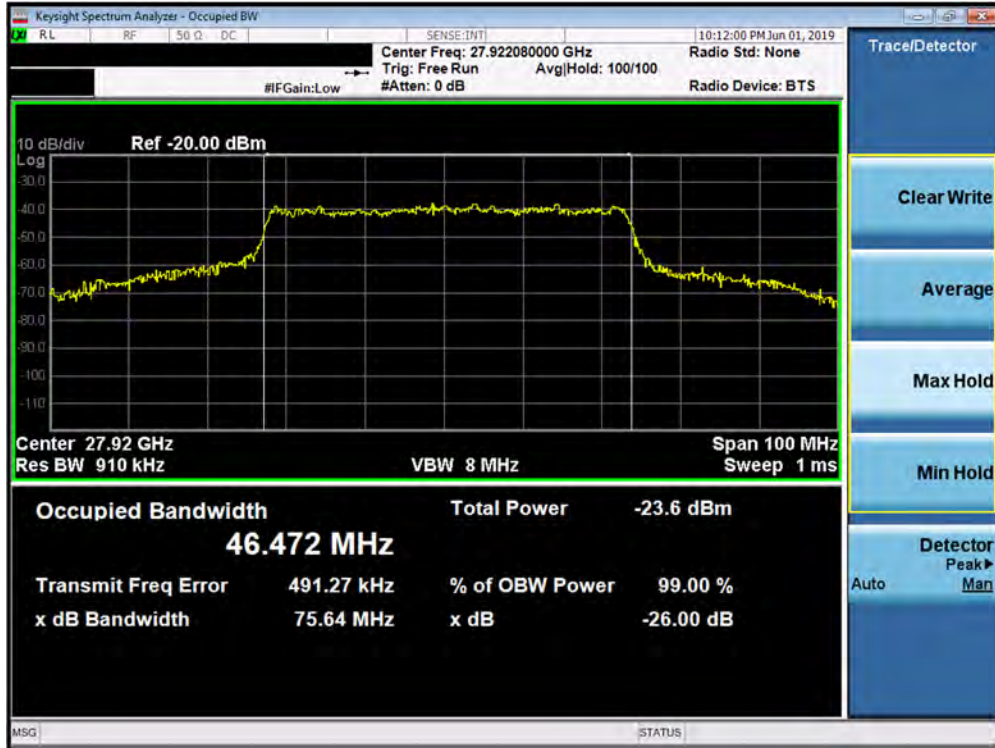
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	47.40
Mid	50	1	16QAM	46.47
Mid	50	1	64QAM	46.53
Mid	100	1	QPSK	94.42
Mid	100	1	16QAM	94.33
Mid	100	1	64QAM	94.33
Mid	200	4	QPSK	200.14
Mid	200	4	16QAM	196.84
Mid	200	4	64QAM	195.98
Mid	400	4	QPSK	394.74
Mid	400	4	16QAM	394.33
Mid	400	4	64QAM	393.18

Table 7-5. Summary of L Patch Occupied Bandwidths (n261)

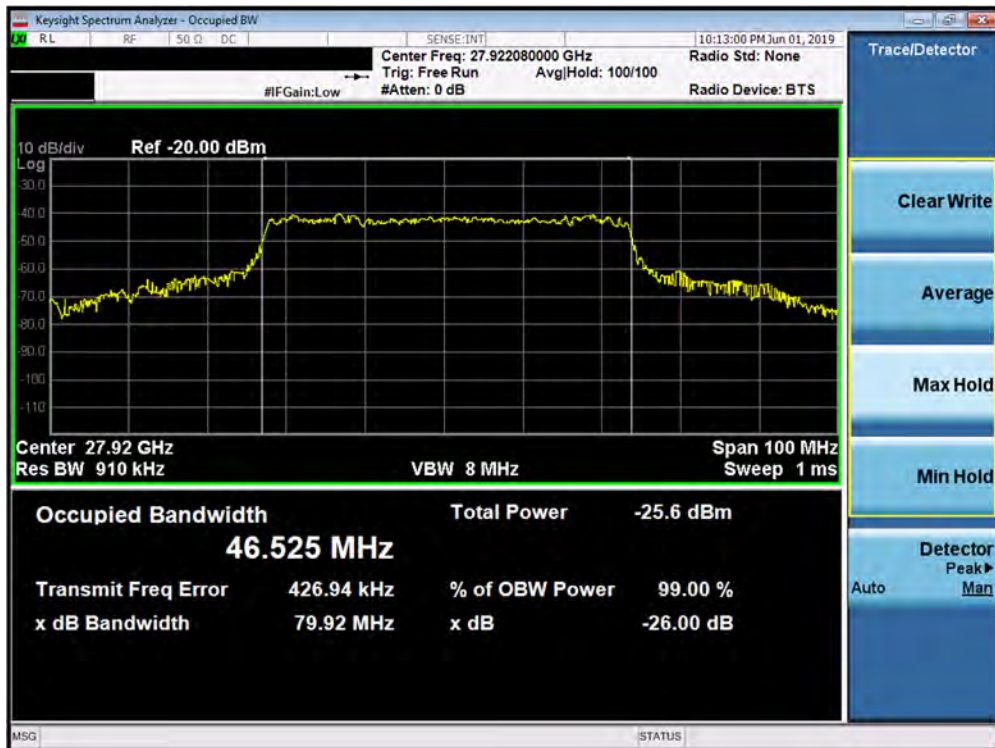


Plot 7-37. Occupied Bandwidth Plot (1CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset	Page 37 of 371

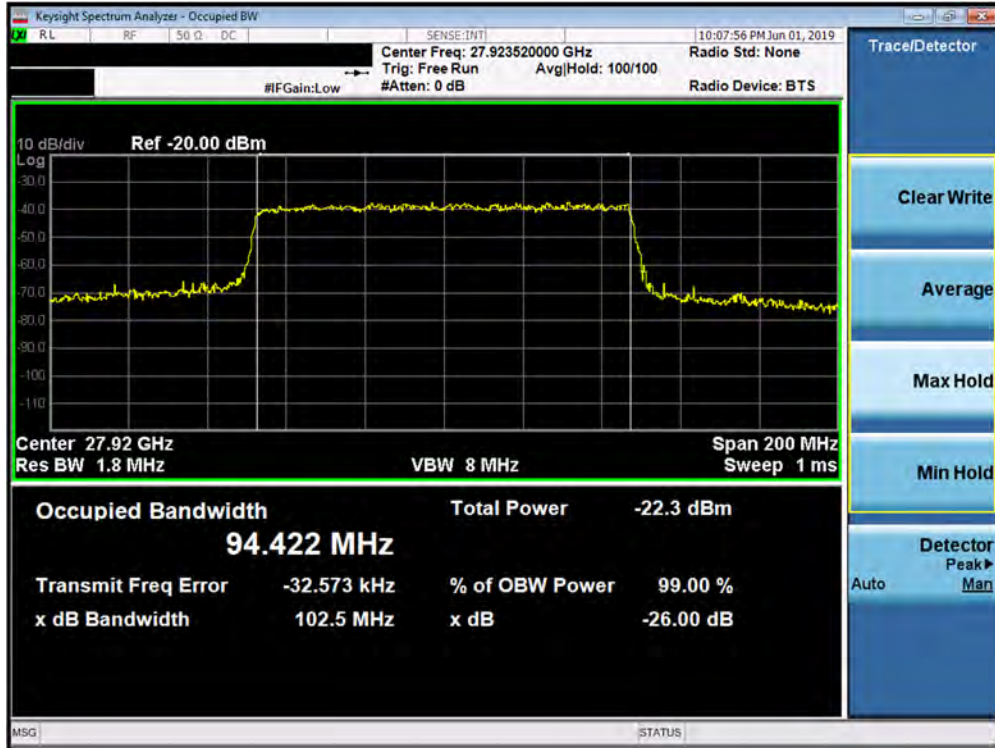


Plot 7-38. Occupied Bandwidth Plot (1CC – 50MHz - 16QAM - Mid Channel)

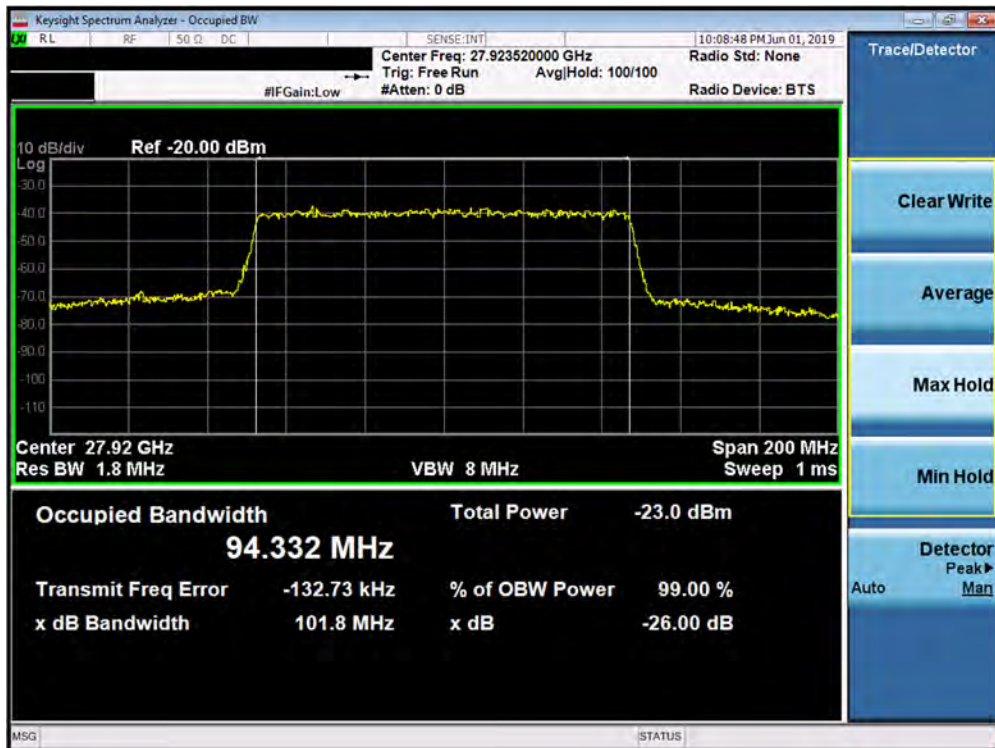


Plot 7-39. Occupied Bandwidth Plot (1CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 38 of 371

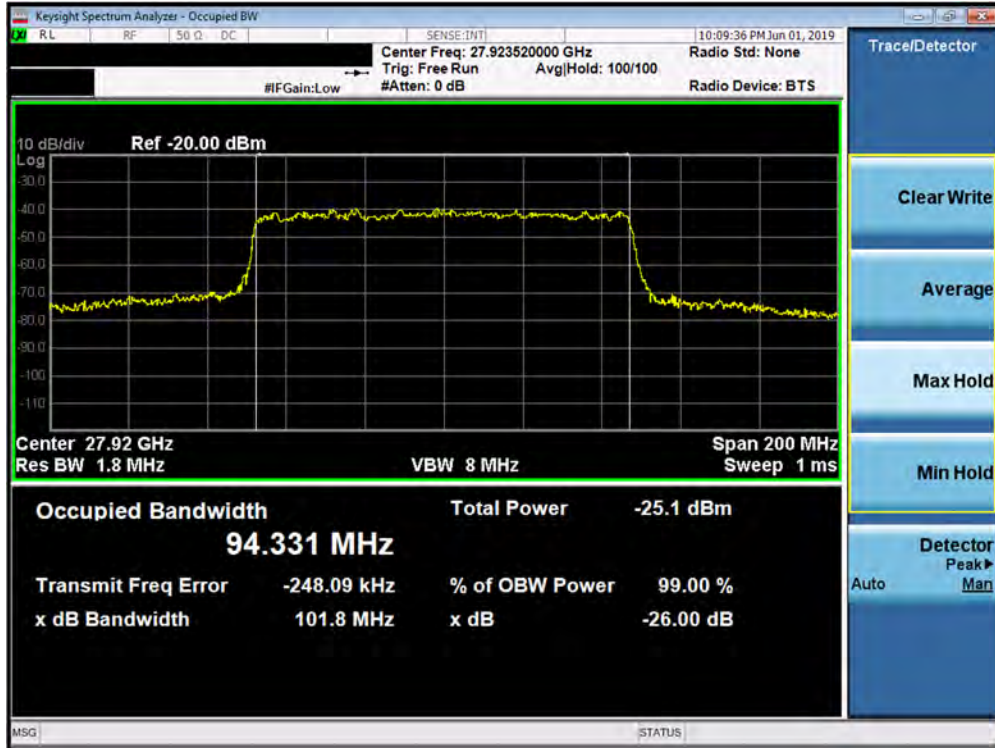


Plot 7-40. Occupied Bandwidth Plot (1CC – 100MHz - QPSK - Mid Channel)

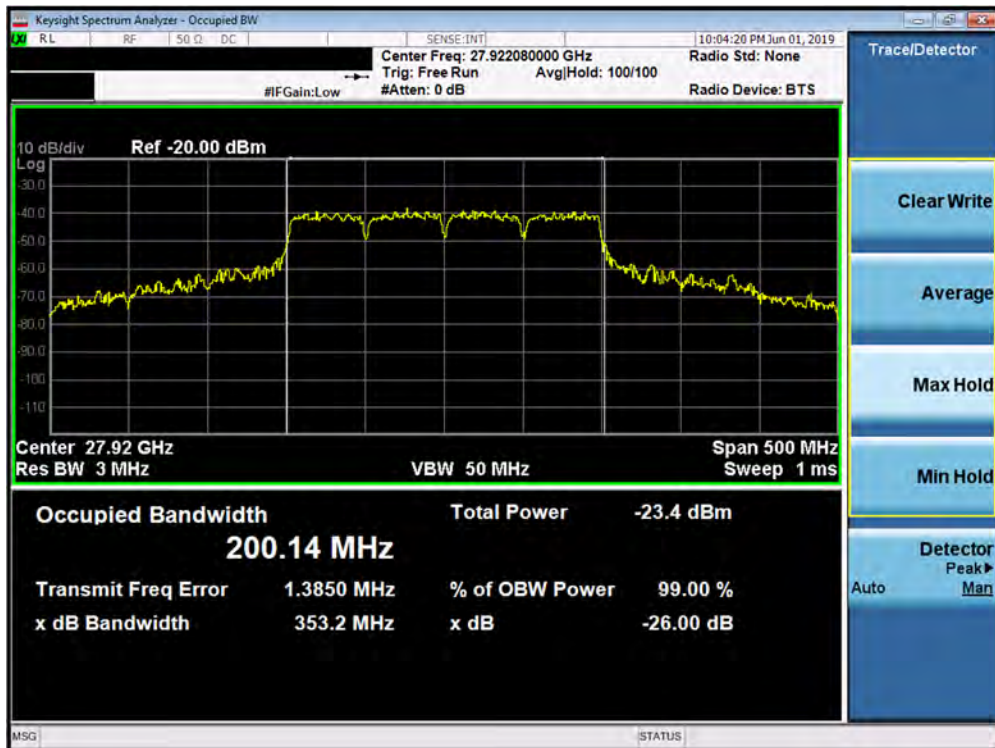


Plot 7-41. Occupied Bandwidth Plot (1CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 39 of 371

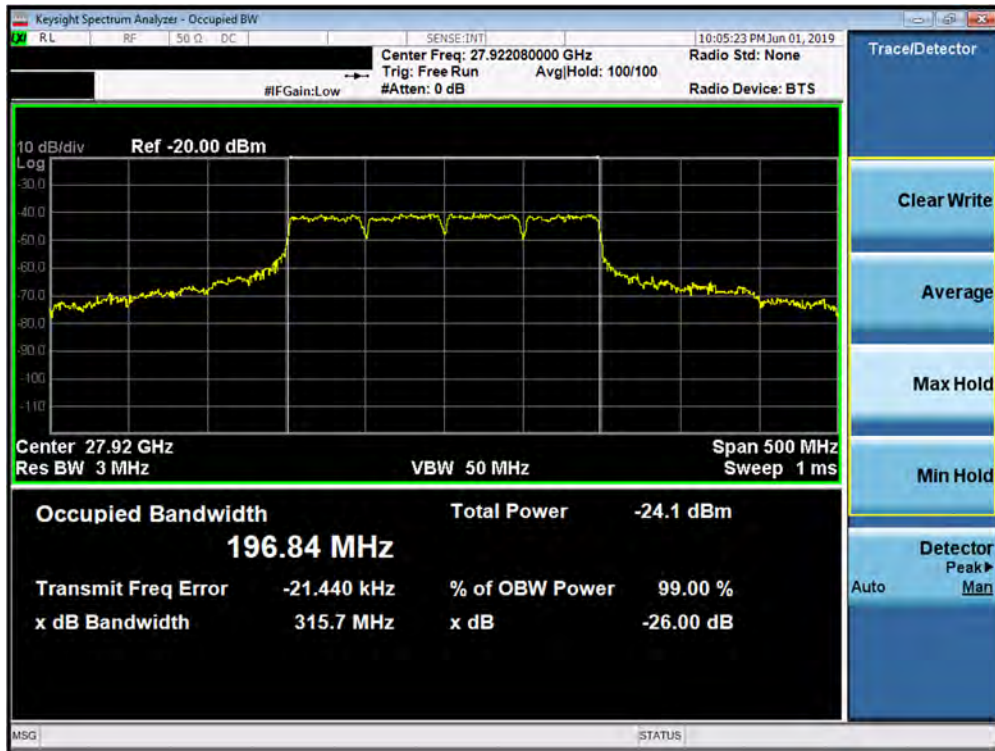


Plot 7-42. Occupied Bandwidth Plot (1CC – 100MHz - 64QAM Mid Channel)

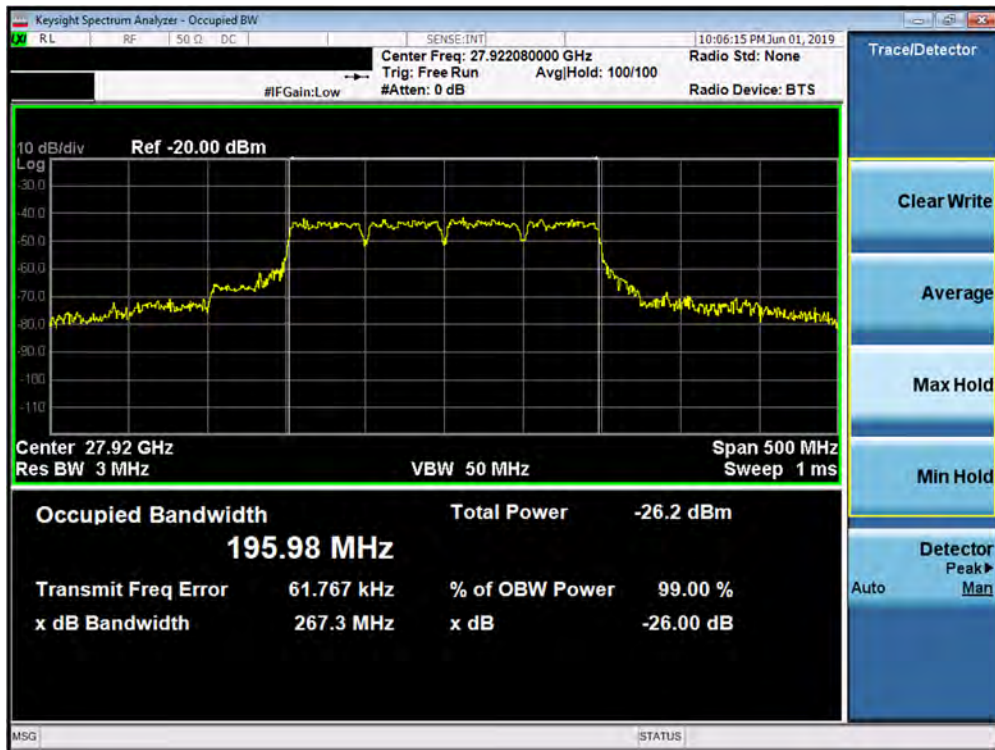


Plot 7-43. Occupied Bandwidth Plot (4CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 40 of 371

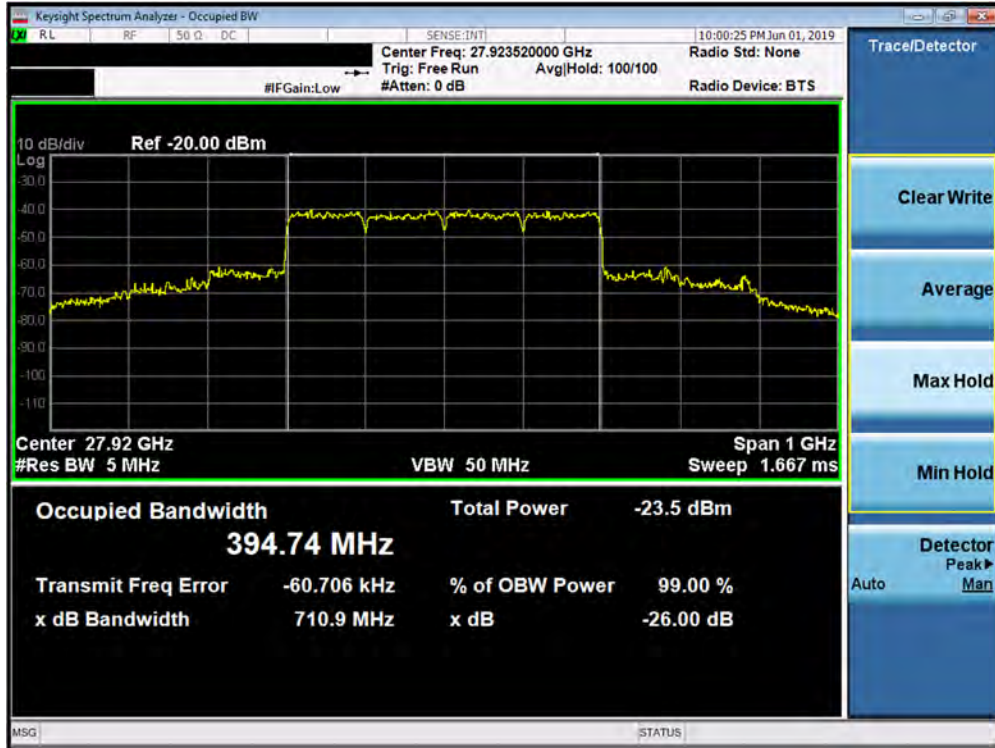


Plot 7-44. Occupied Bandwidth Plot (4CC – 50MHz - 16QAM - Mid Channel)

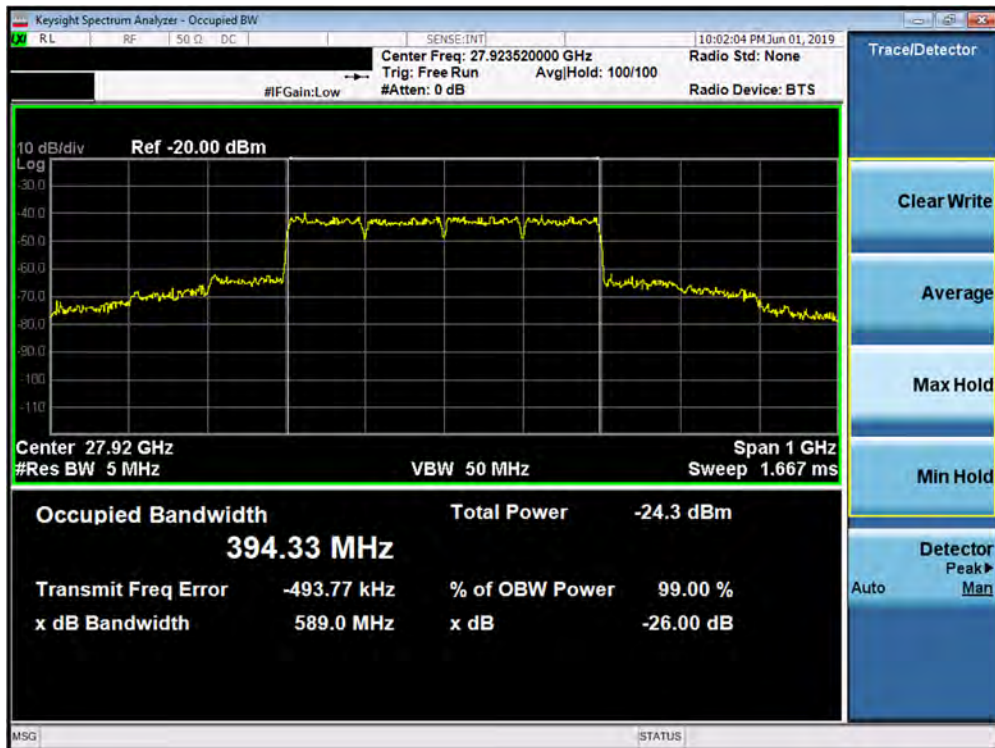


Plot 7-45. Occupied Bandwidth Plot (4CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 41 of 371

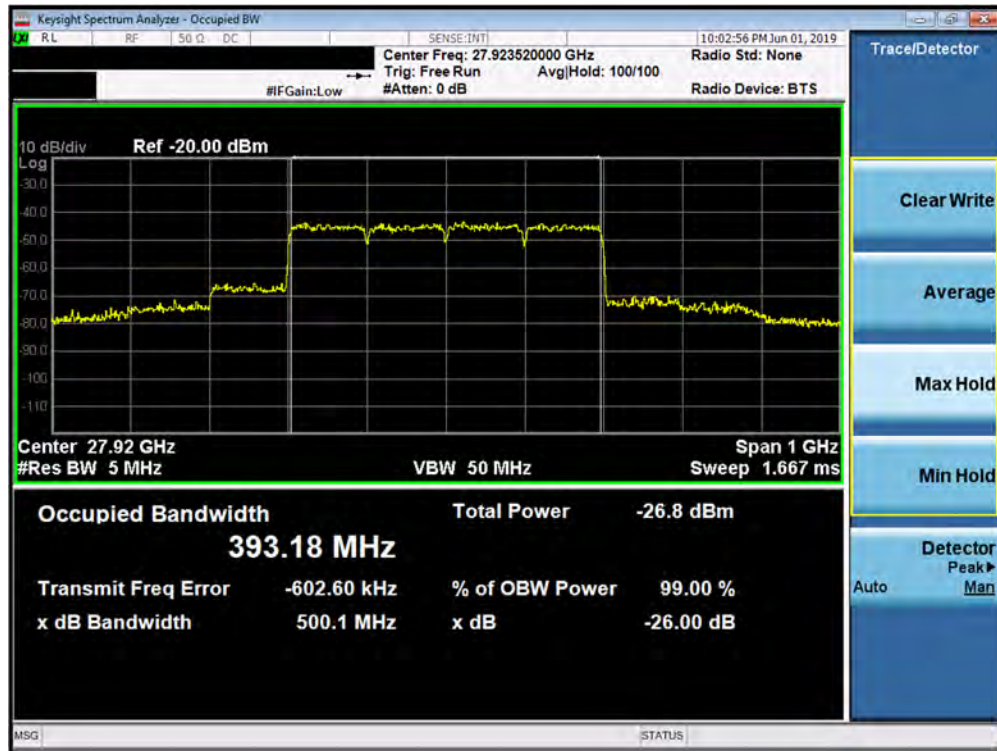


Plot 7-46. Occupied Bandwidth Plot (4CC – 100MHz - QPSK - Mid Channel)



Plot 7-47. Occupied Bandwidth Plot (4CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 42 of 371



Plot 7-48. Occupied Bandwidth Plot (4CC – 100MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 43 of 371

7.2.2 n260 Occupied Bandwidth J Dipole Occupied Bandwidth (n260)

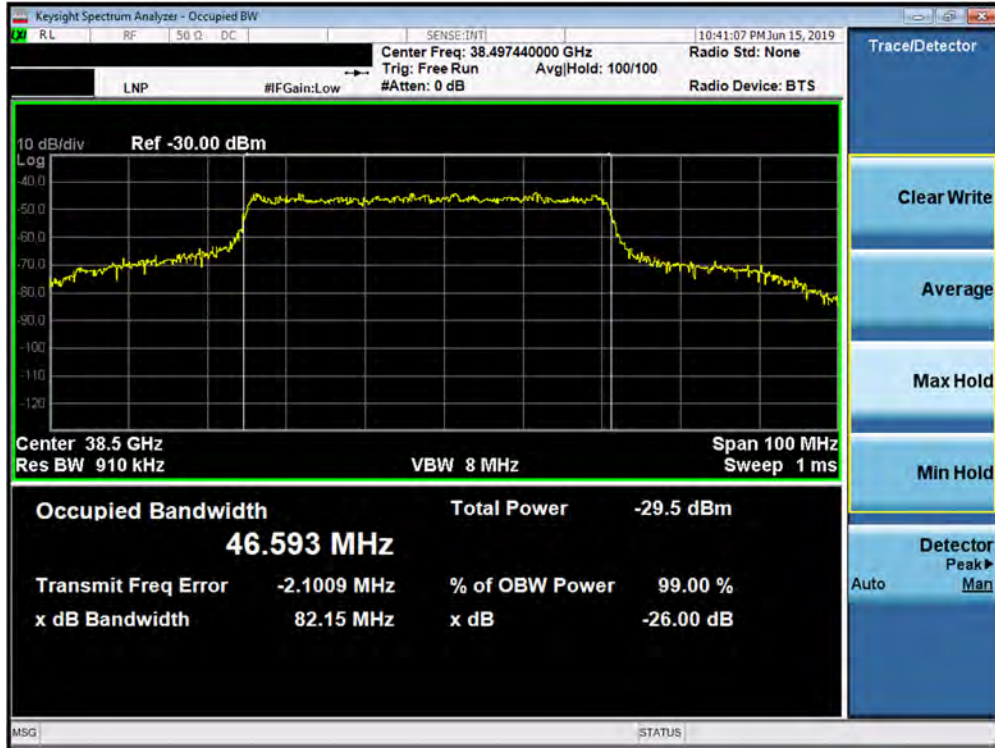
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	47.54
Mid	50	1	16QAM	46.59
Mid	50	1	64QAM	46.71
Mid	100	1	QPSK	94.62
Mid	100	1	16QAM	94.42
Mid	100	1	64QAM	94.35
Mid	200	4	QPSK	200.46
Mid	200	4	16QAM	197.08
Mid	200	4	64QAM	196.17
Mid	400	4	QPSK	392.45
Mid	400	4	16QAM	391.71
Mid	400	4	64QAM	390.52

Table 7-6. Summary of J Dipole Occupied Bandwidths (n260)



Plot 7-49. Occupied Bandwidth Plot (1CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset	Page 44 of 371

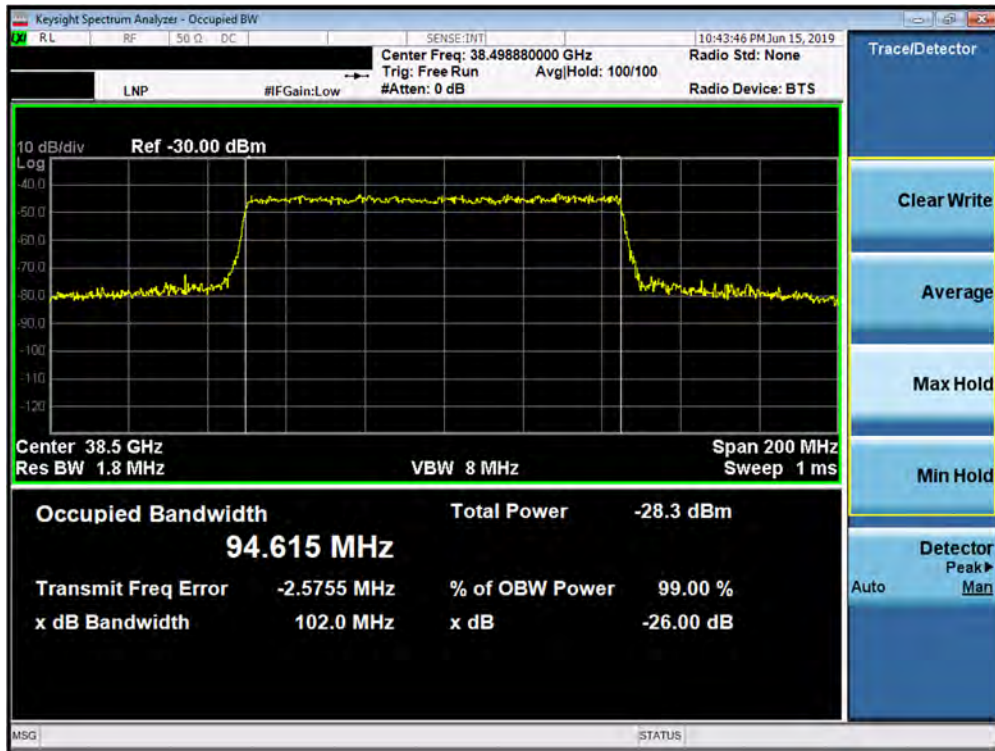


Plot 7-50. Occupied Bandwidth Plot (1CC – 50MHz - 16QAM - Mid Channel)

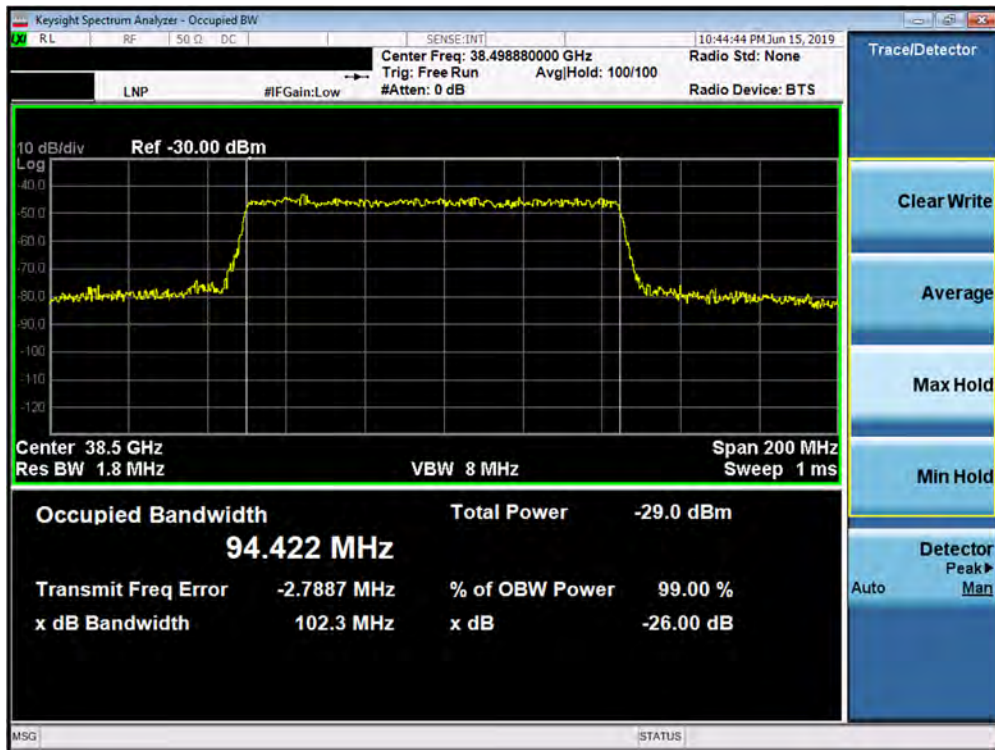


Plot 7-51. Occupied Bandwidth Plot (1CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 45 of 371

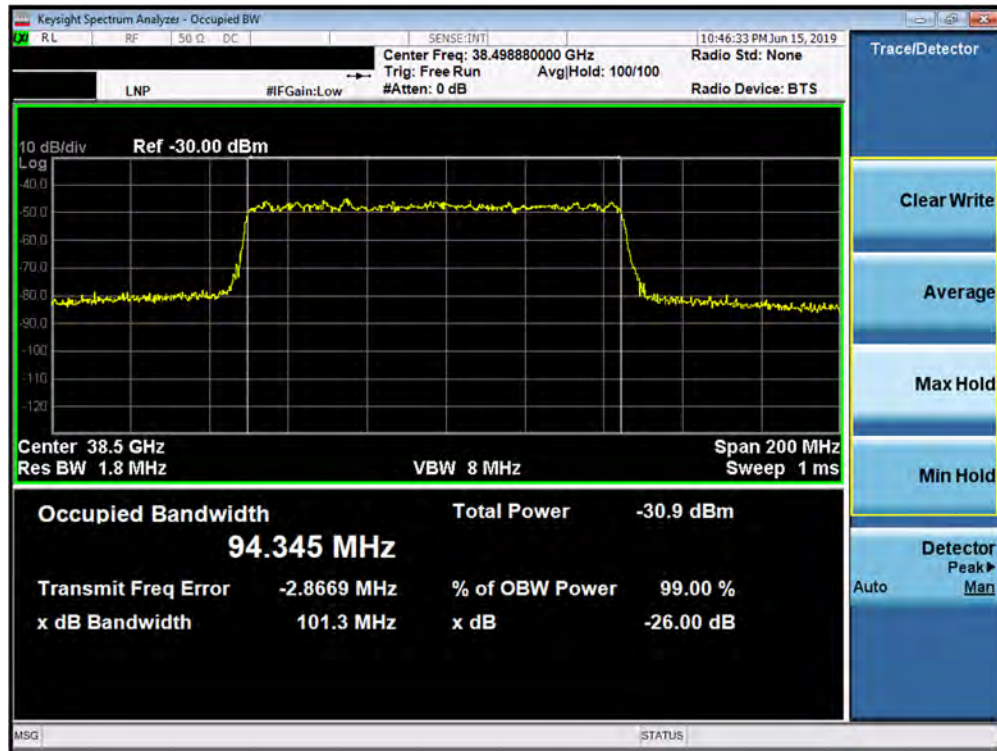


Plot 7-52. Occupied Bandwidth Plot (1CC – 100MHz - QPSK - Mid Channel)

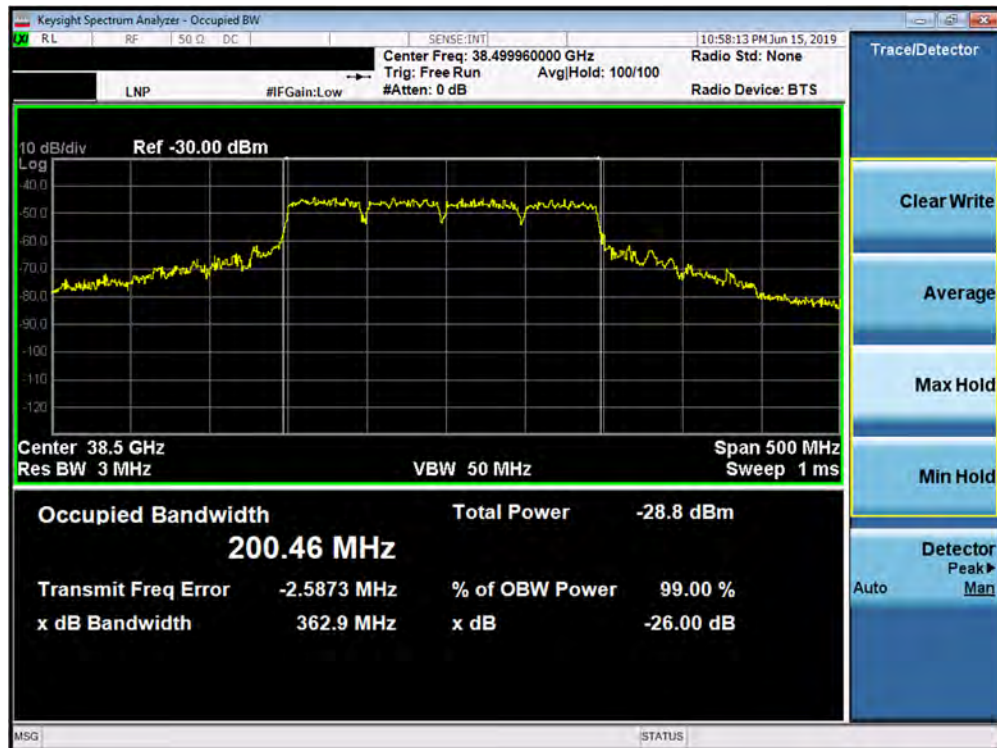


Plot 7-53. Occupied Bandwidth Plot (1CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 46 of 371

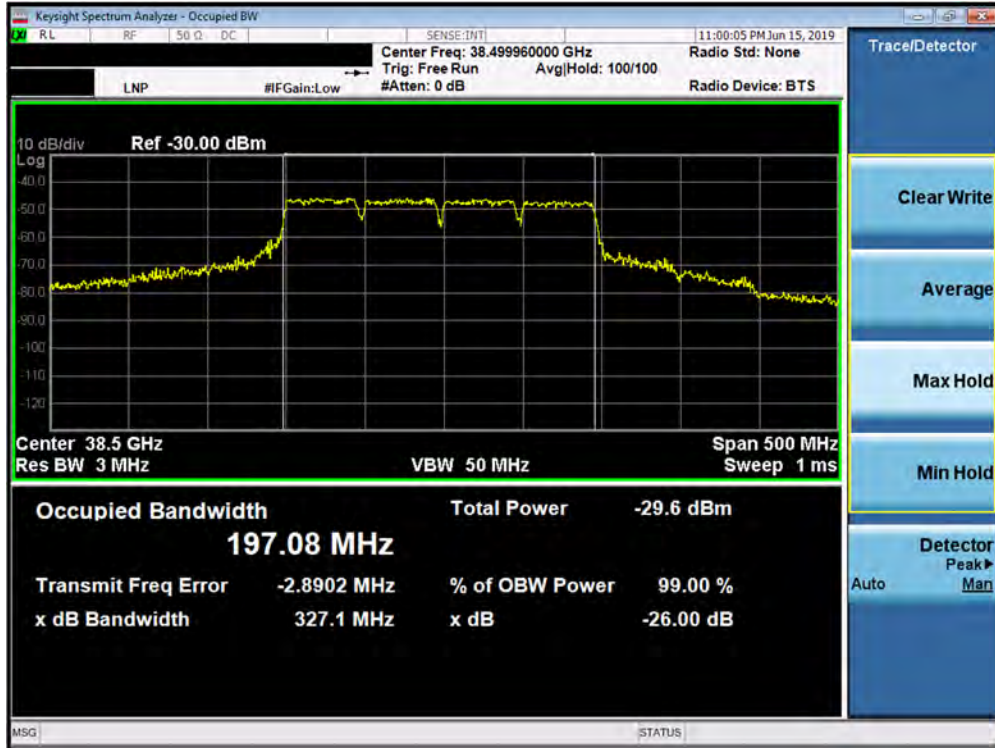


Plot 7-54. Occupied Bandwidth Plot (1CC – 100MHz - 64QAM Mid Channel)

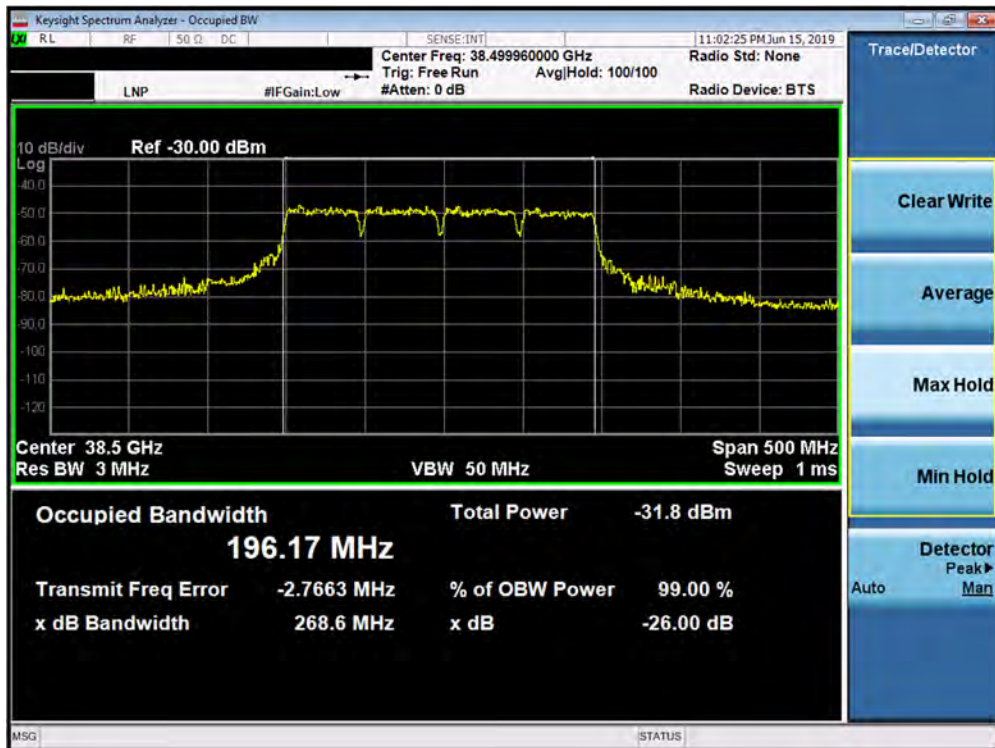


Plot 7-55. Occupied Bandwidth Plot (4CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 47 of 371

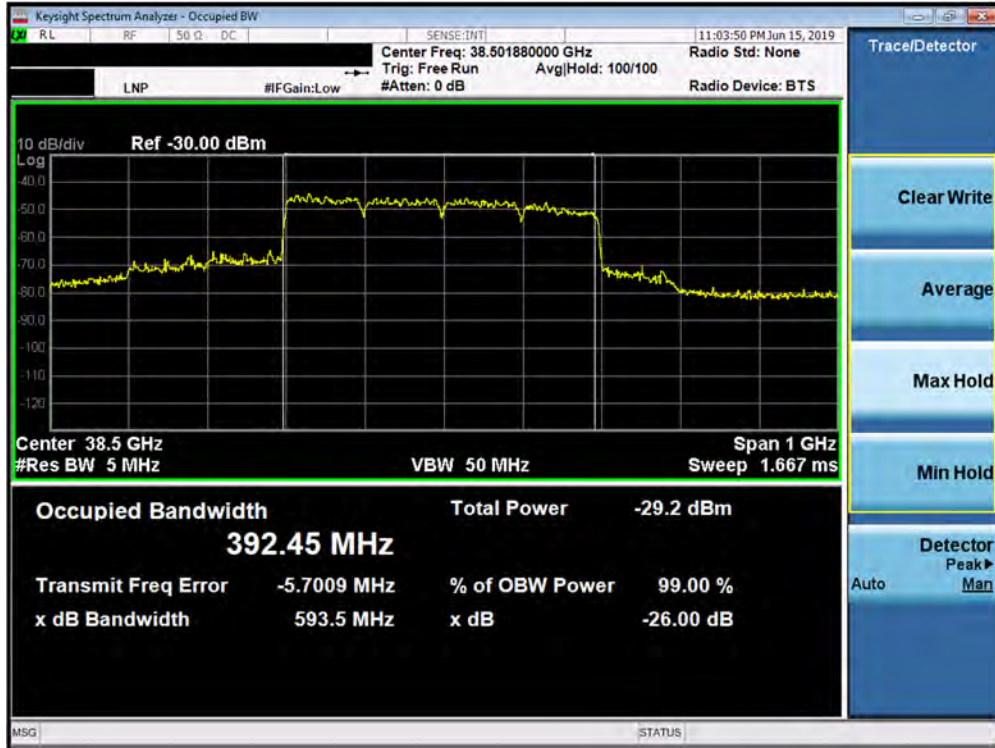


Plot 7-56. Occupied Bandwidth Plot (4CC – 50MHz - 16QAM - Mid Channel)

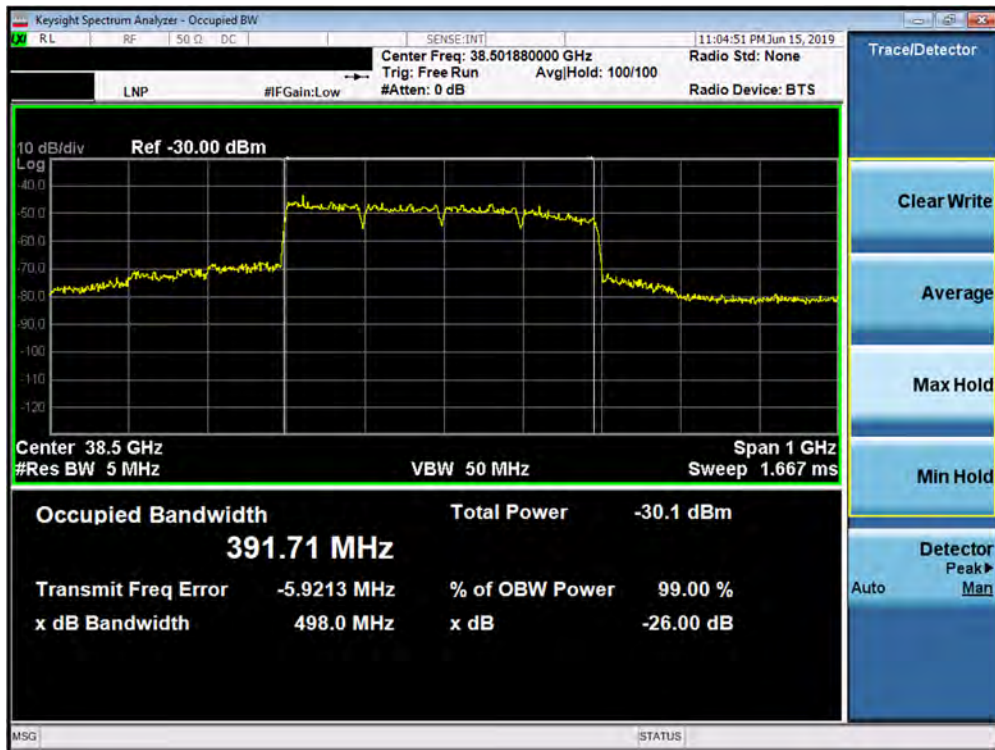


Plot 7-57. Occupied Bandwidth Plot (4CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 48 of 371

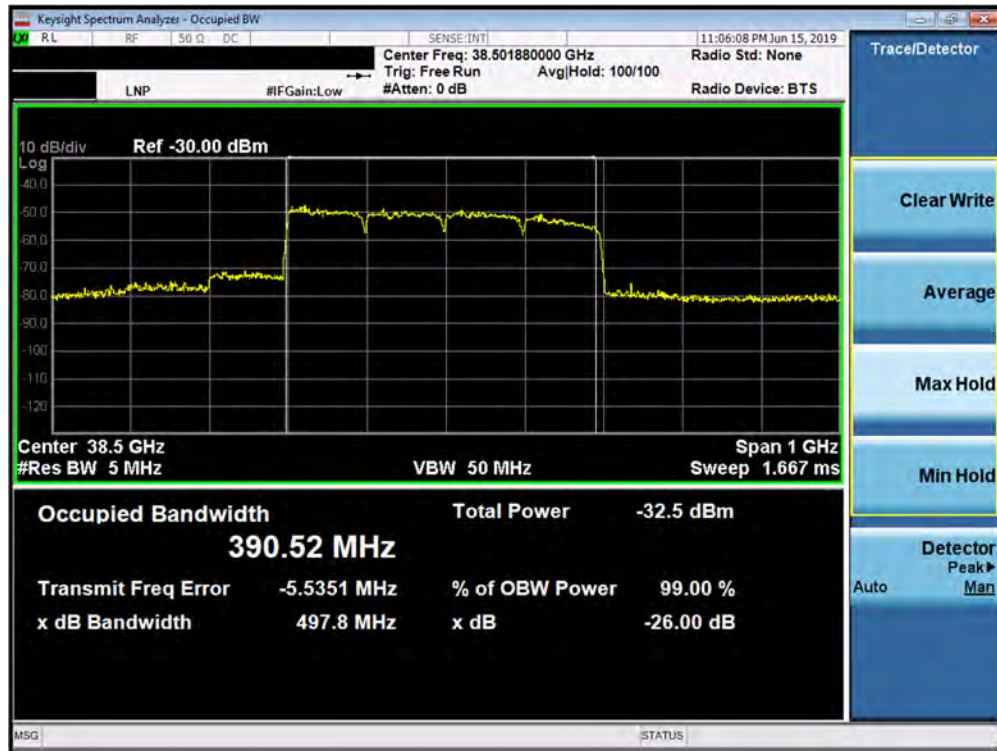


Plot 7-58. Occupied Bandwidth Plot (4CC – 100MHz - QPSK - Mid Channel)



Plot 7-59. Occupied Bandwidth Plot (4CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 49 of 371



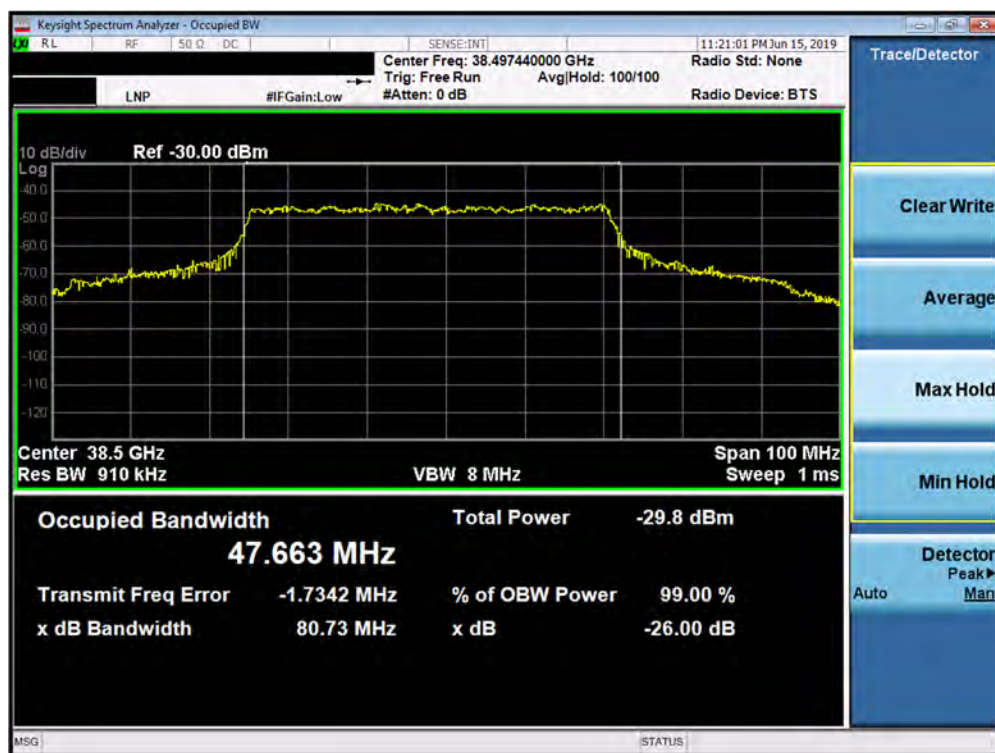
Plot 7-60. Occupied Bandwidth Plot (4CC – 100MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset	Page 50 of 371

J Patch Occupied Bandwidth (n260)

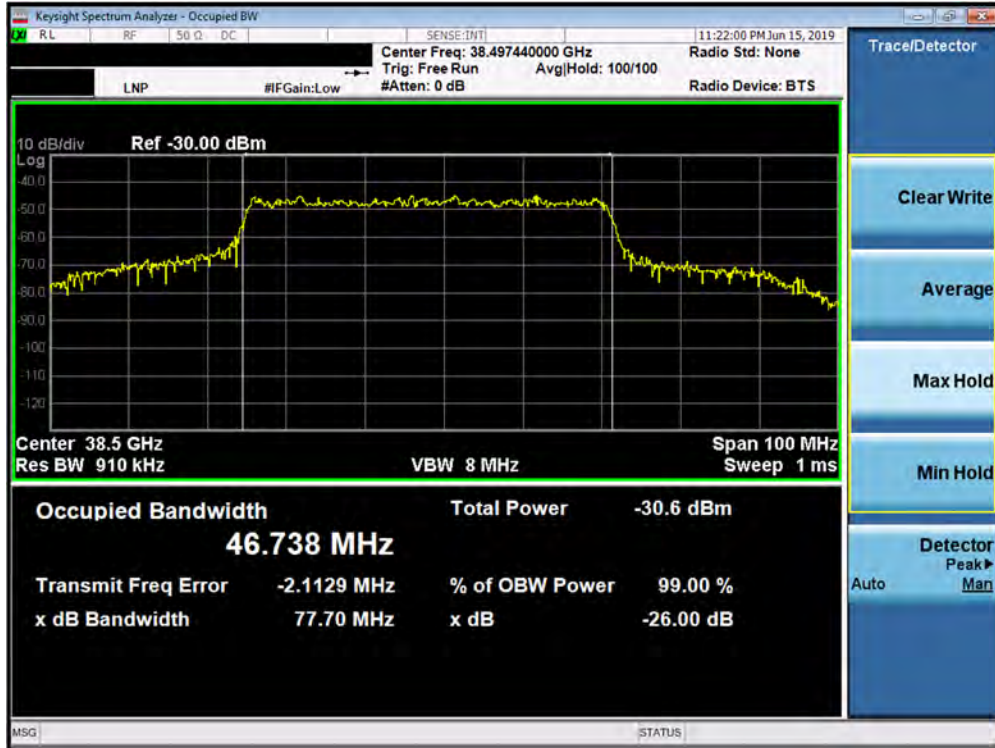
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	47.66
Mid	50	1	16QAM	46.74
Mid	50	1	64QAM	46.75
Mid	100	1	QPSK	94.81
Mid	100	1	16QAM	94.50
Mid	100	1	64QAM	94.20
Mid	200	4	QPSK	207.80
Mid	200	4	16QAM	198.08
Mid	200	4	64QAM	196.27
Mid	400	4	QPSK	396.21
Mid	400	4	16QAM	395.61
Mid	400	4	64QAM	393.31

Table 7-7. Summary of J Patch Occupied Bandwidths (n260)



Plot 7-61. Occupied Bandwidth Plot (1CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset	Page 51 of 371

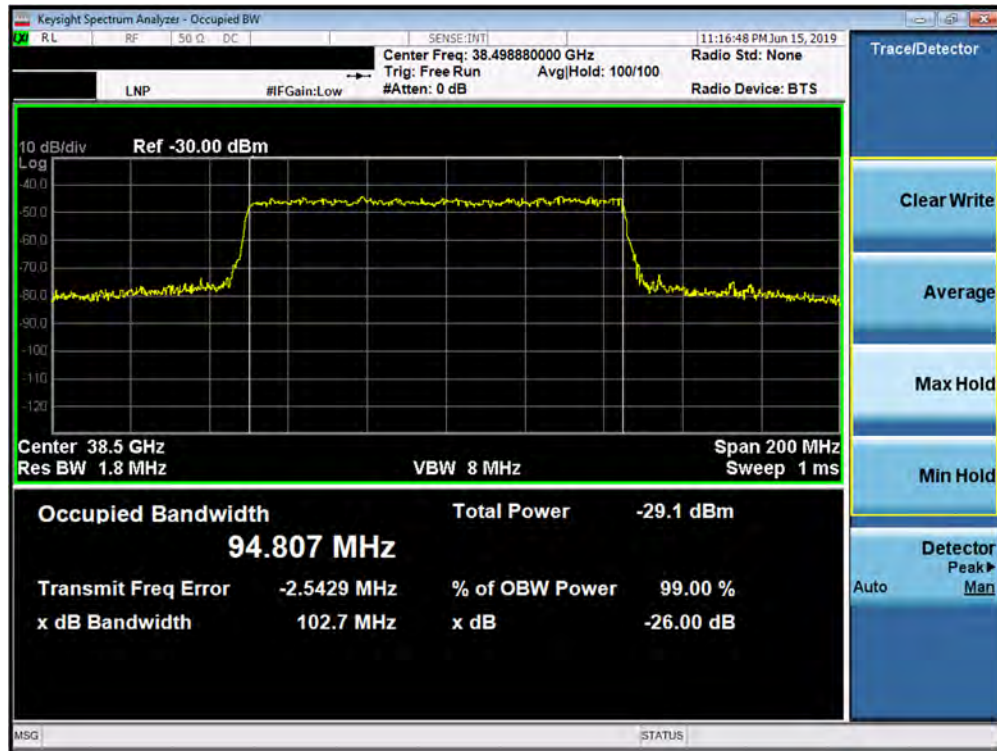


Plot 7-62. Occupied Bandwidth Plot (1CC – 50MHz - 16QAM - Mid Channel)

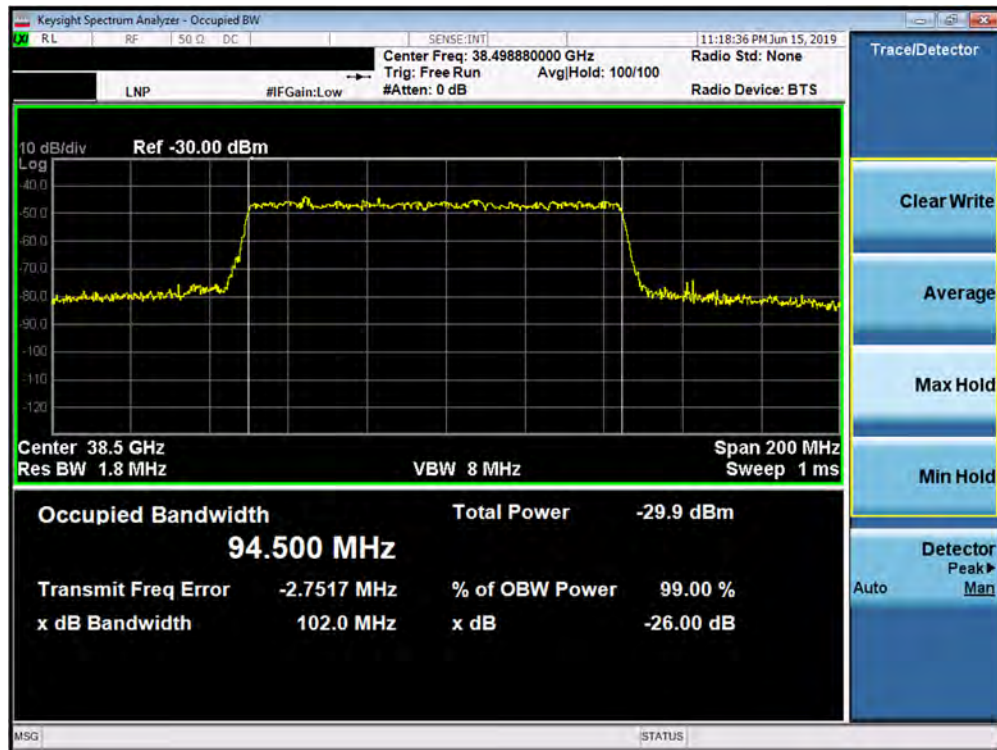


Plot 7-63. Occupied Bandwidth Plot (1CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 52 of 371

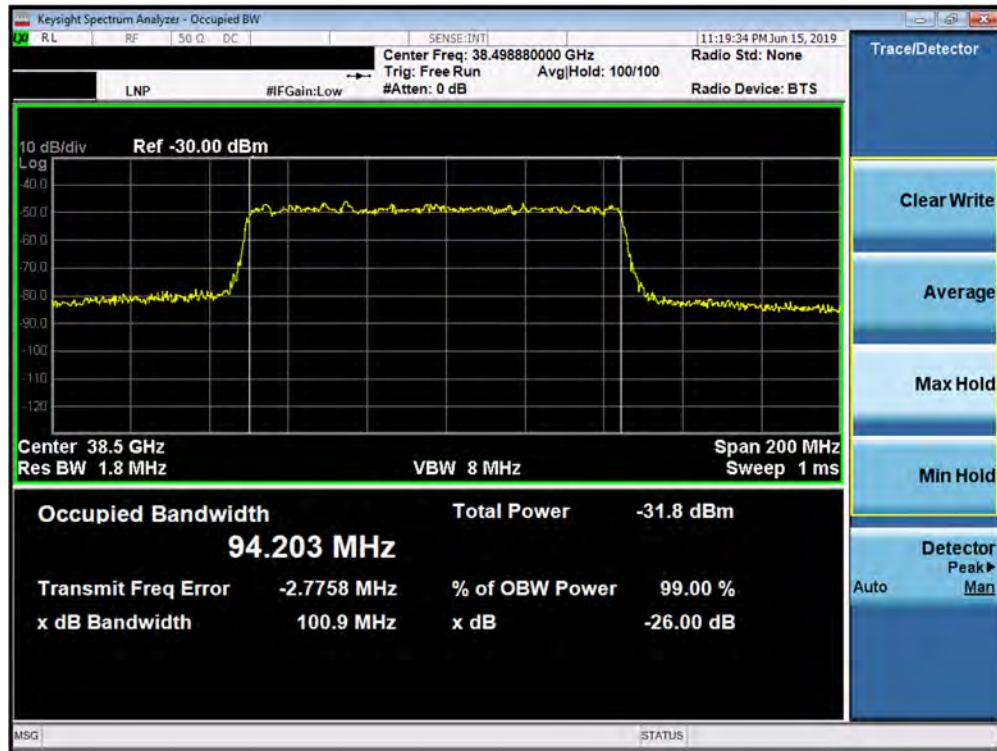


Plot 7-64. Occupied Bandwidth Plot (1CC – 100MHz - QPSK - Mid Channel)

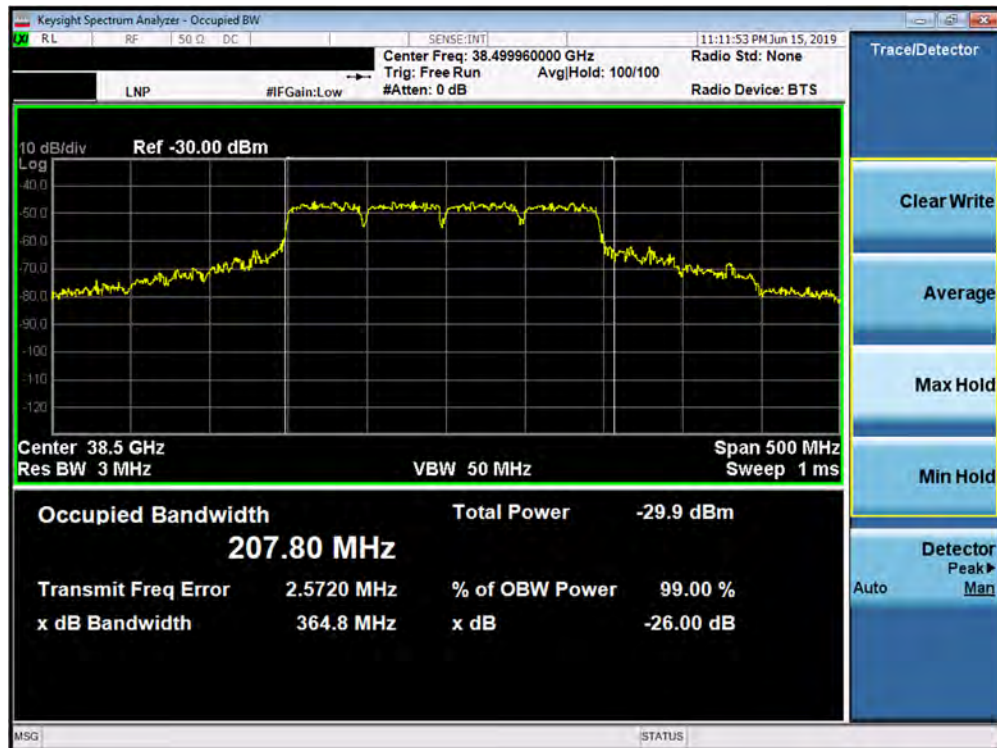


Plot 7-65. Occupied Bandwidth Plot (1CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 53 of 371

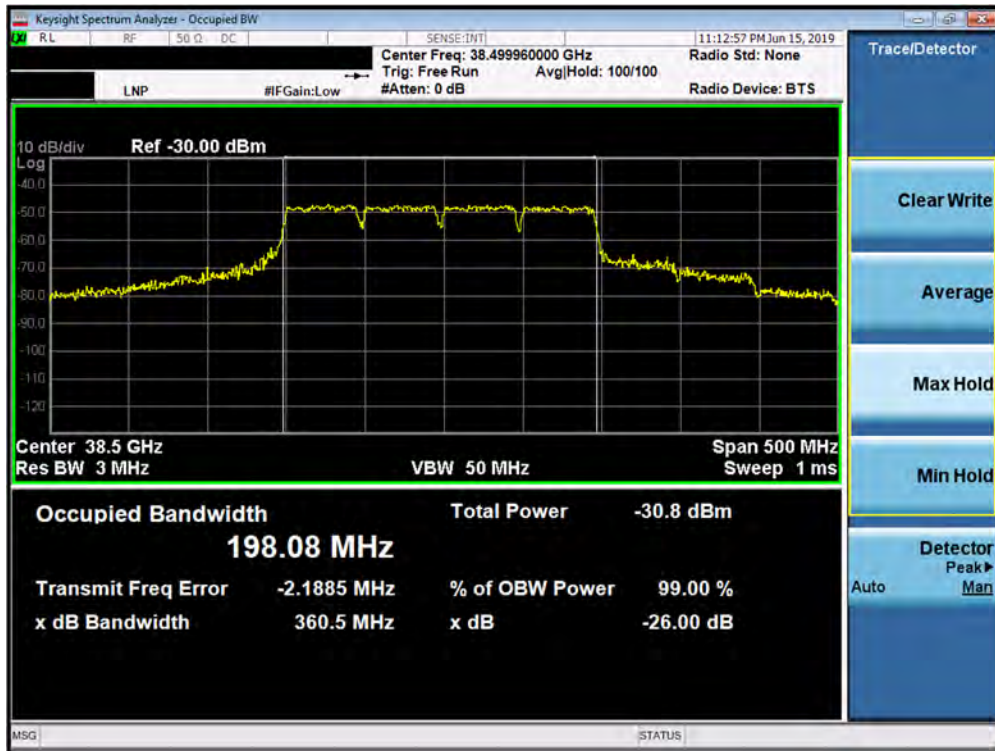


Plot 7-66. Occupied Bandwidth Plot (1CC – 100MHz - 64QAM Mid Channel)

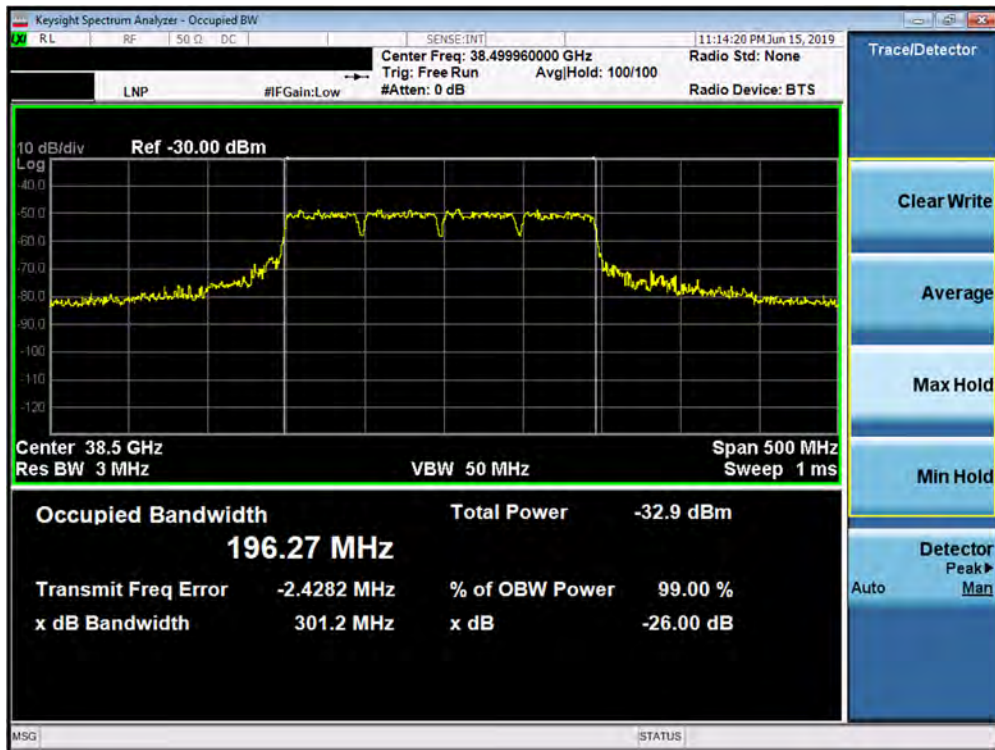


Plot 7-67. Occupied Bandwidth Plot (4CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 54 of 371

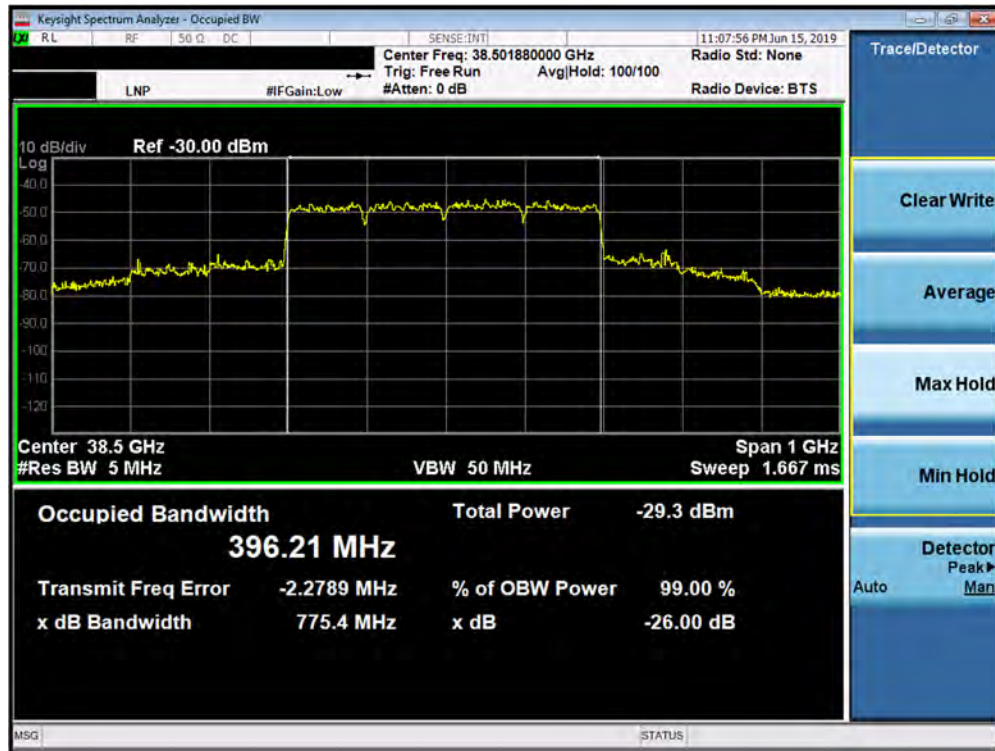


Plot 7-68. Occupied Bandwidth Plot (4CC – 50MHz - 16QAM - Mid Channel)

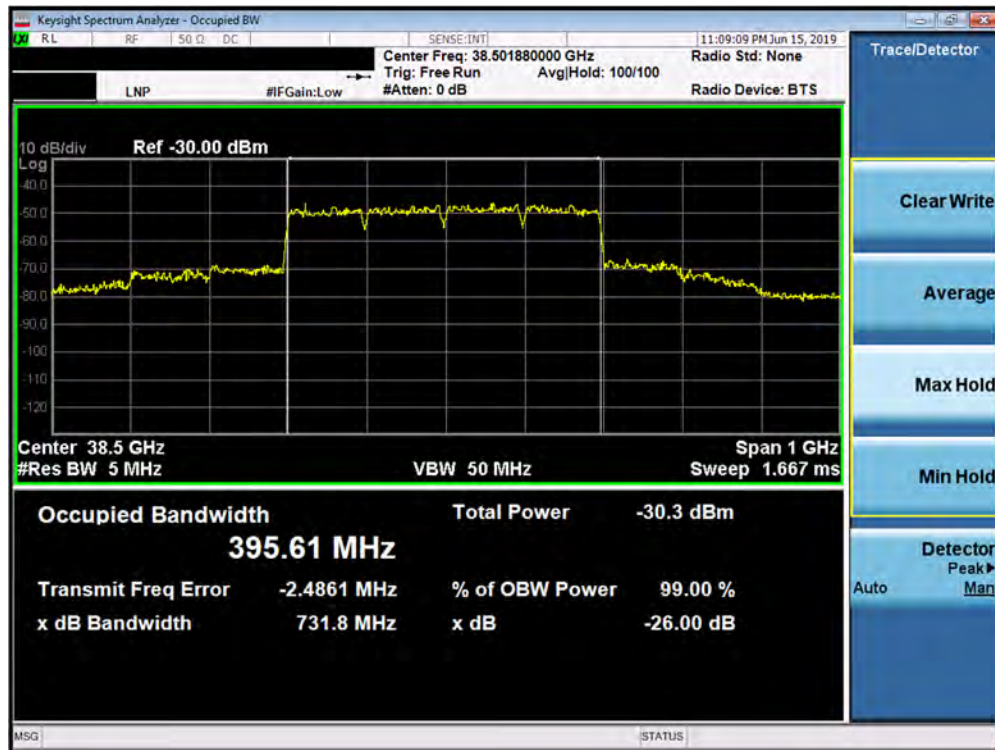


Plot 7-69. Occupied Bandwidth Plot (4CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 55 of 371

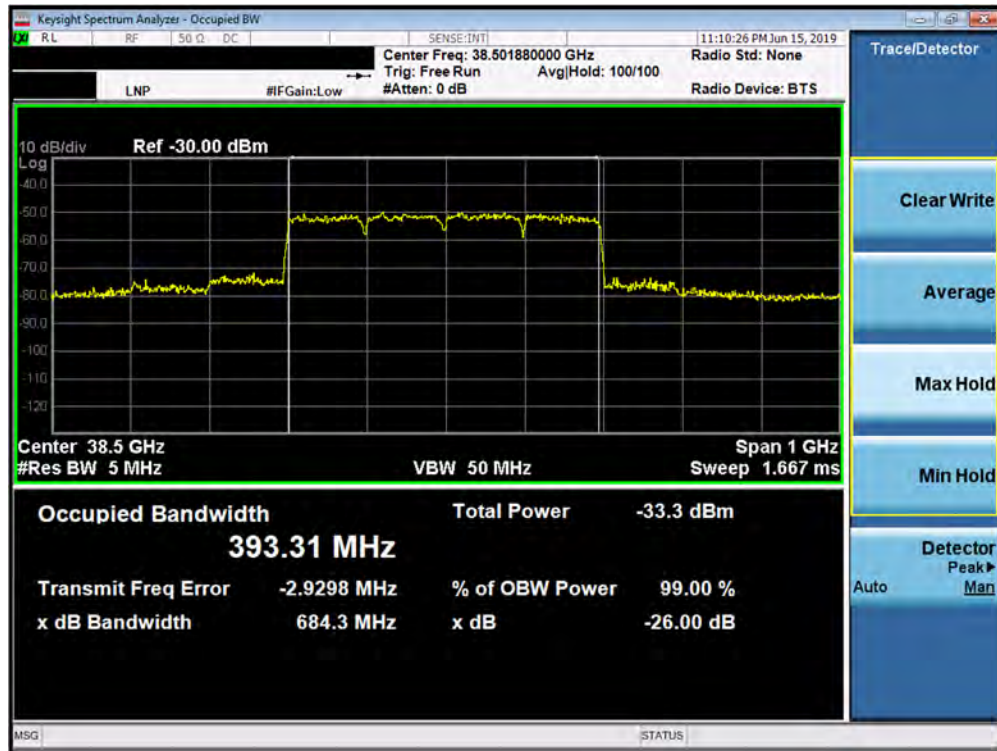


Plot 7-70. Occupied Bandwidth Plot (4CC – 100MHz - QPSK - Mid Channel)



Plot 7-71. Occupied Bandwidth Plot (4CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 56 of 371



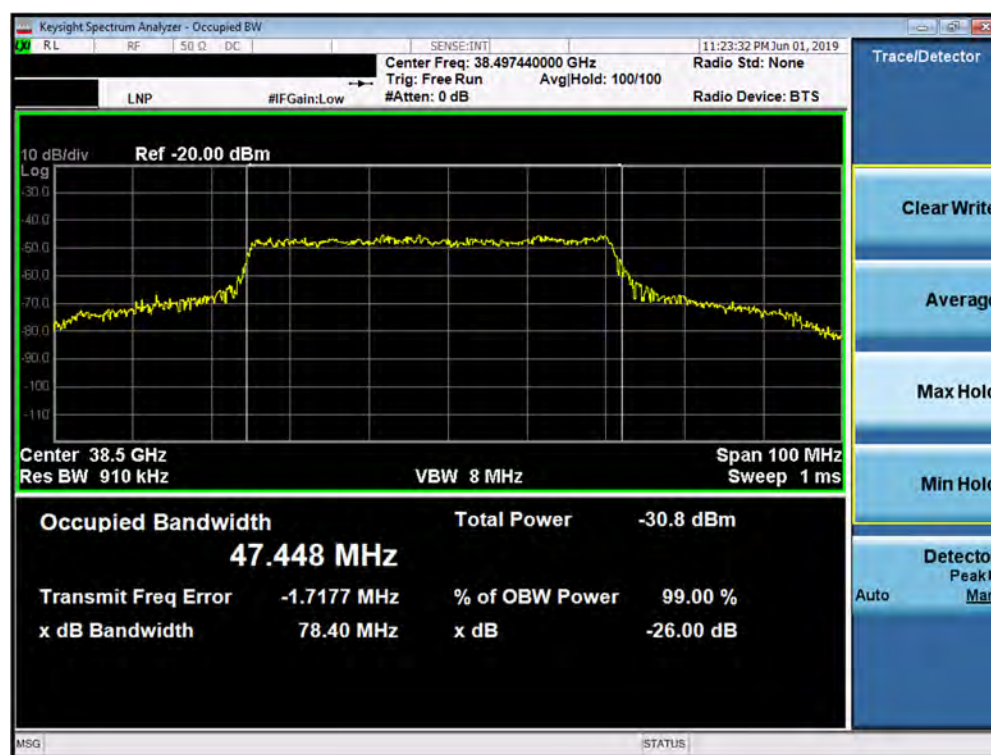
Plot 7-72. Occupied Bandwidth Plot (4CC – 100MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 57 of 371

K Patch Occupied Bandwidth (n260)

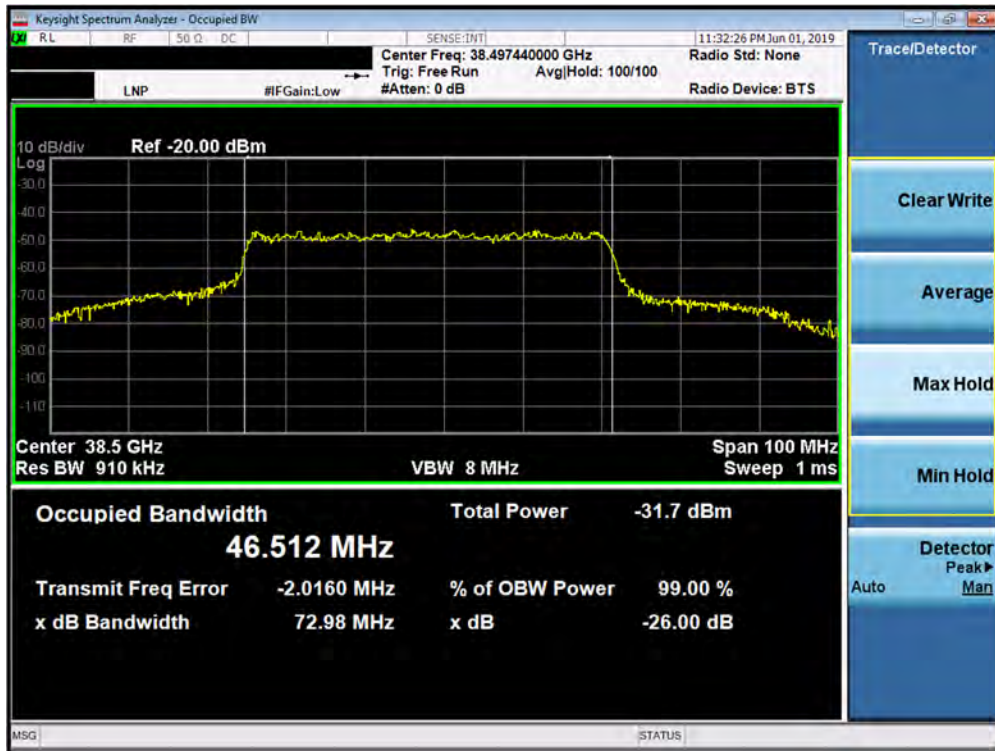
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	47.45
Mid	50	1	16QAM	46.51
Mid	50	1	64QAM	46.83
Mid	100	1	QPSK	94.73
Mid	100	1	16QAM	94.47
Mid	100	1	64QAM	94.45
Mid	200	4	QPSK	210.24
Mid	200	4	16QAM	198.33
Mid	200	4	64QAM	196.77
Mid	400	4	QPSK	395.16
Mid	400	4	16QAM	394.63
Mid	400	4	64QAM	394.49

Table 7-8. Summary of K Patch Occupied Bandwidths (n260)



Plot 7-73. Occupied Bandwidth Plot (1CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 58 of 371

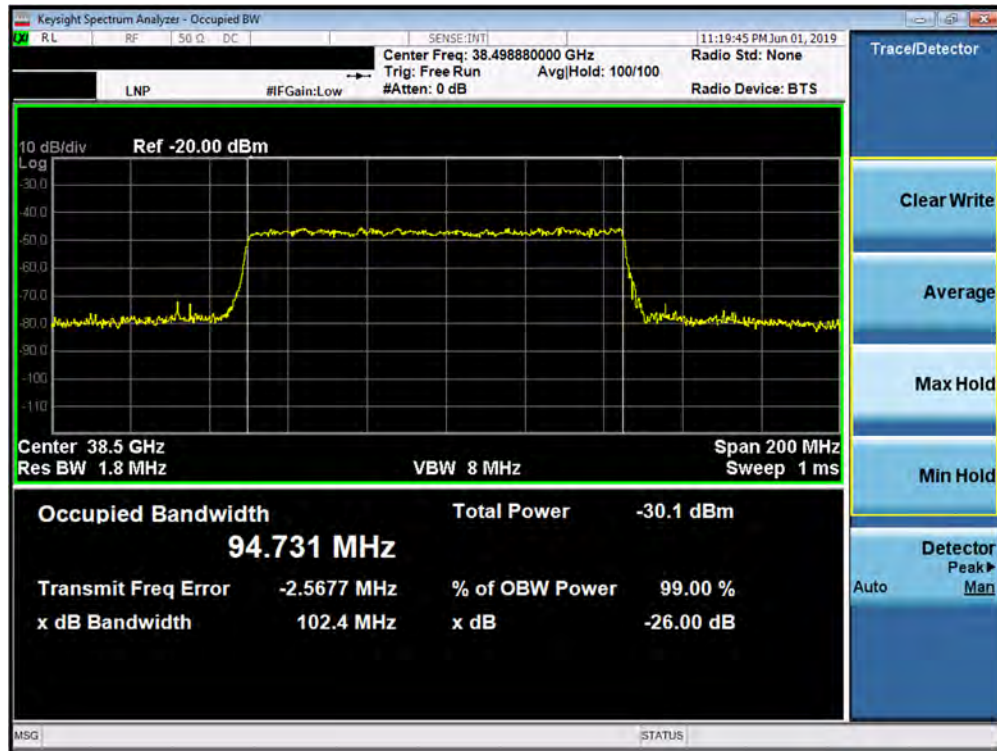


Plot 7-74. Occupied Bandwidth Plot (1CC – 50MHz - 16QAM - Mid Channel)

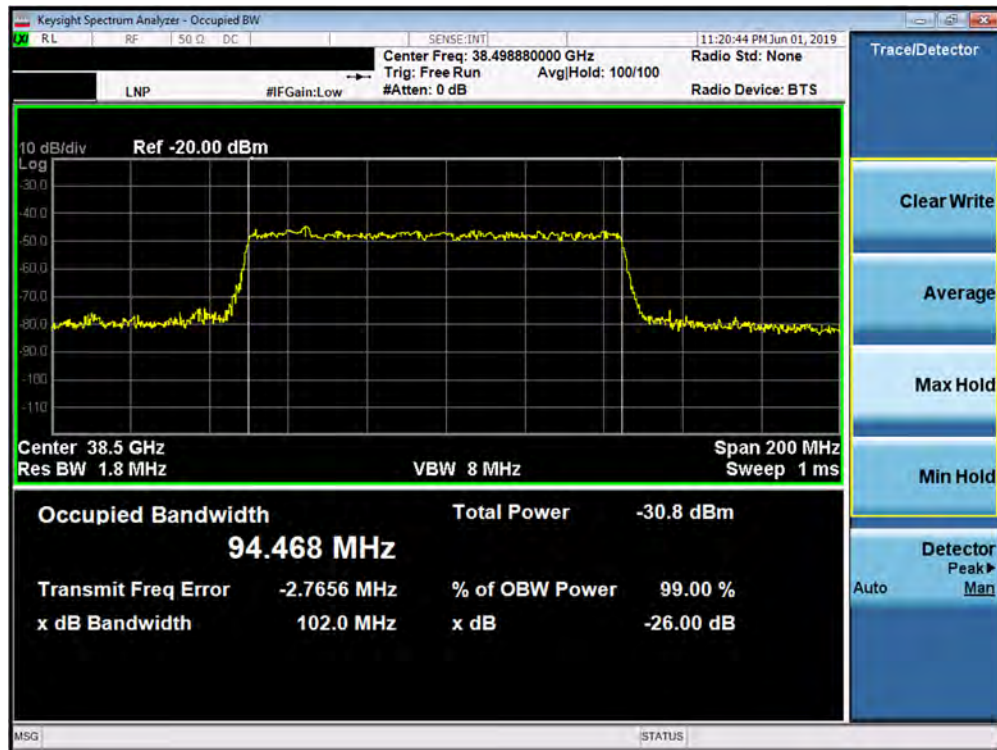


Plot 7-75. Occupied Bandwidth Plot (1CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 59 of 371

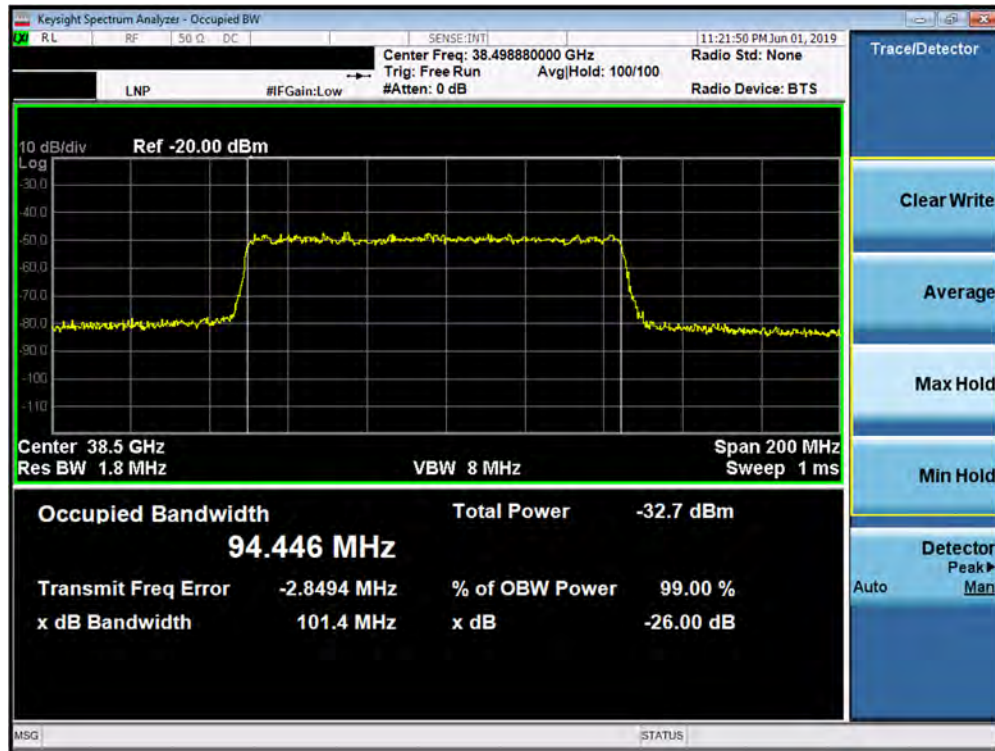


Plot 7-76. Occupied Bandwidth Plot (1CC – 100MHz - QPSK - Mid Channel)

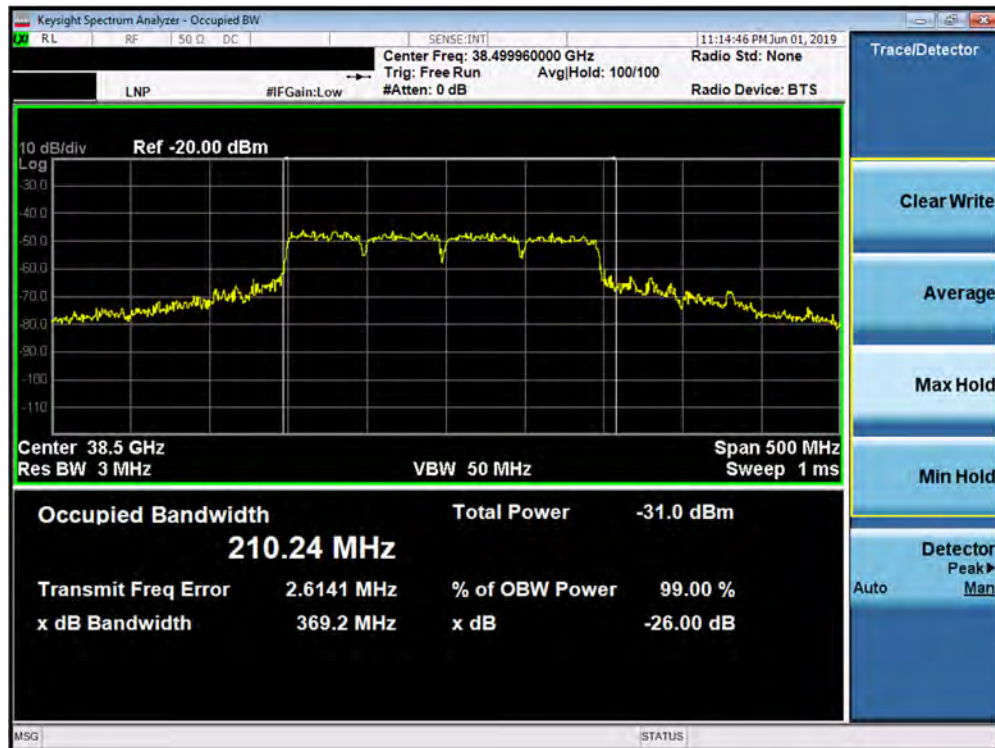


Plot 7-77. Occupied Bandwidth Plot (1CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 60 of 371

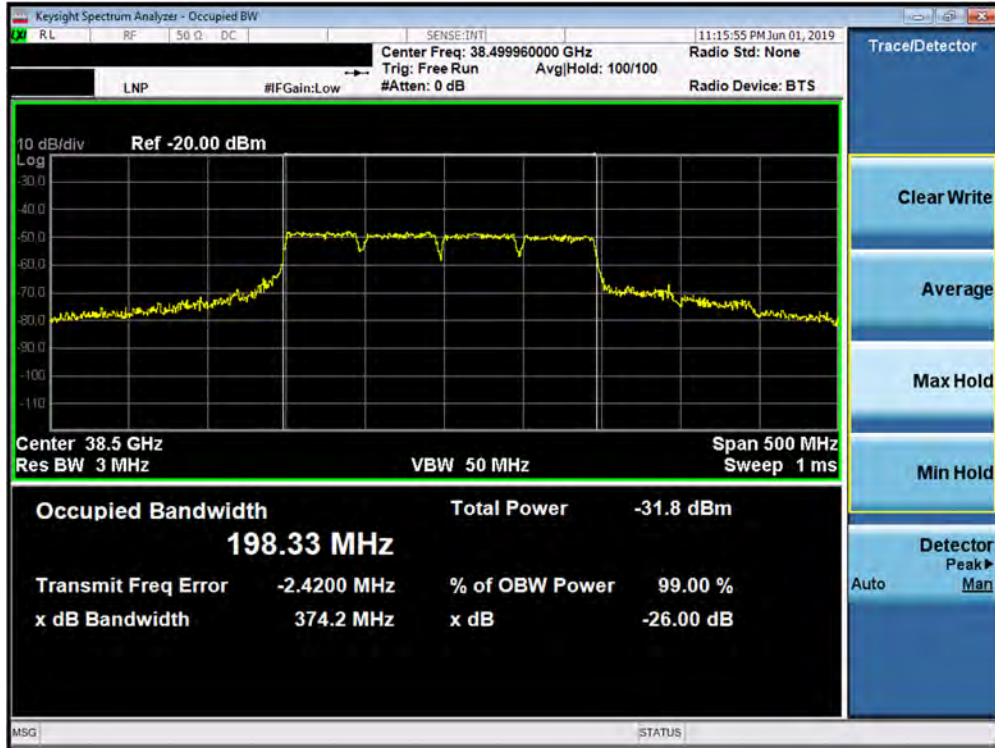


Plot 7-78. Occupied Bandwidth Plot (1CC – 100MHz - 64QAM Mid Channel)

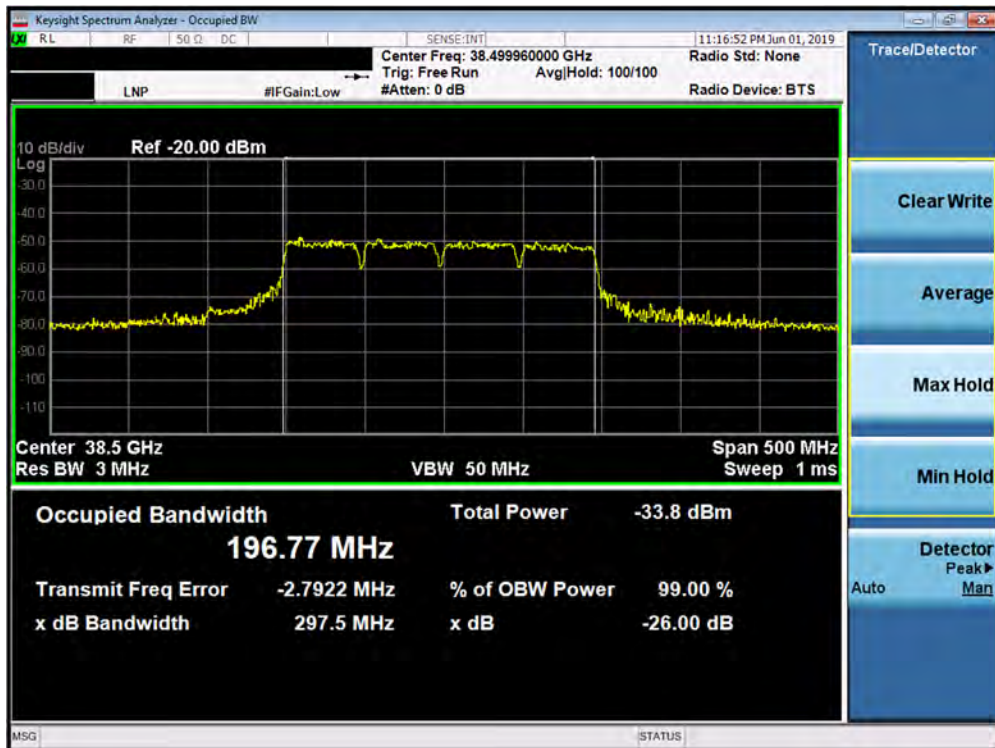


Plot 7-79. Occupied Bandwidth Plot (4CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 61 of 371

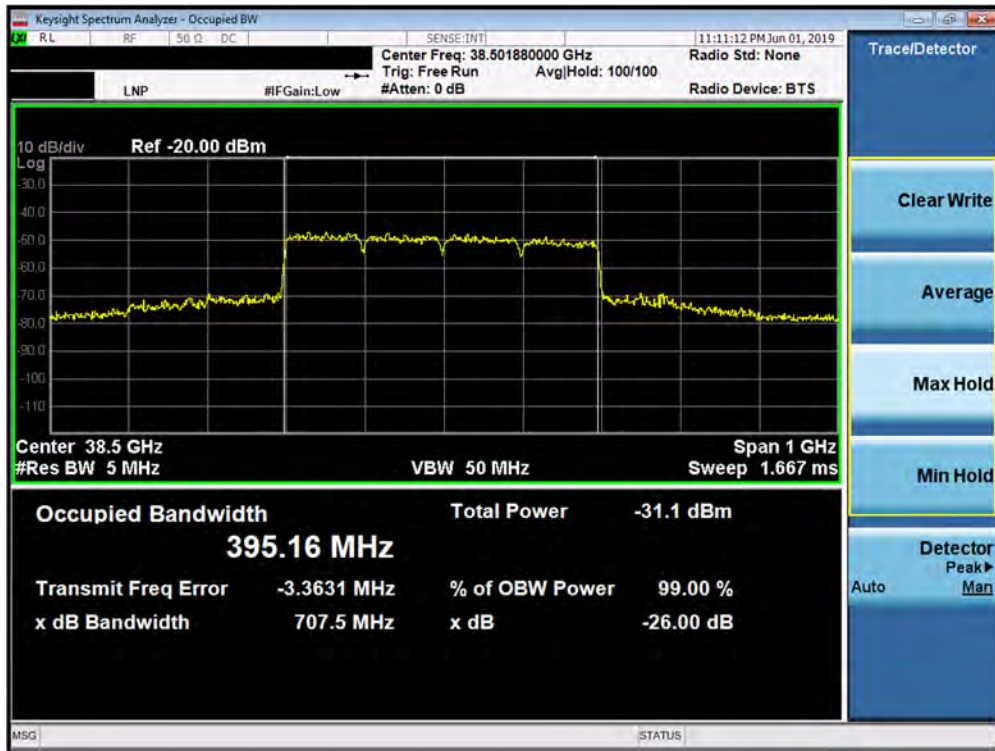


Plot 7-80. Occupied Bandwidth Plot (4CC – 50MHz - 16QAM - Mid Channel)

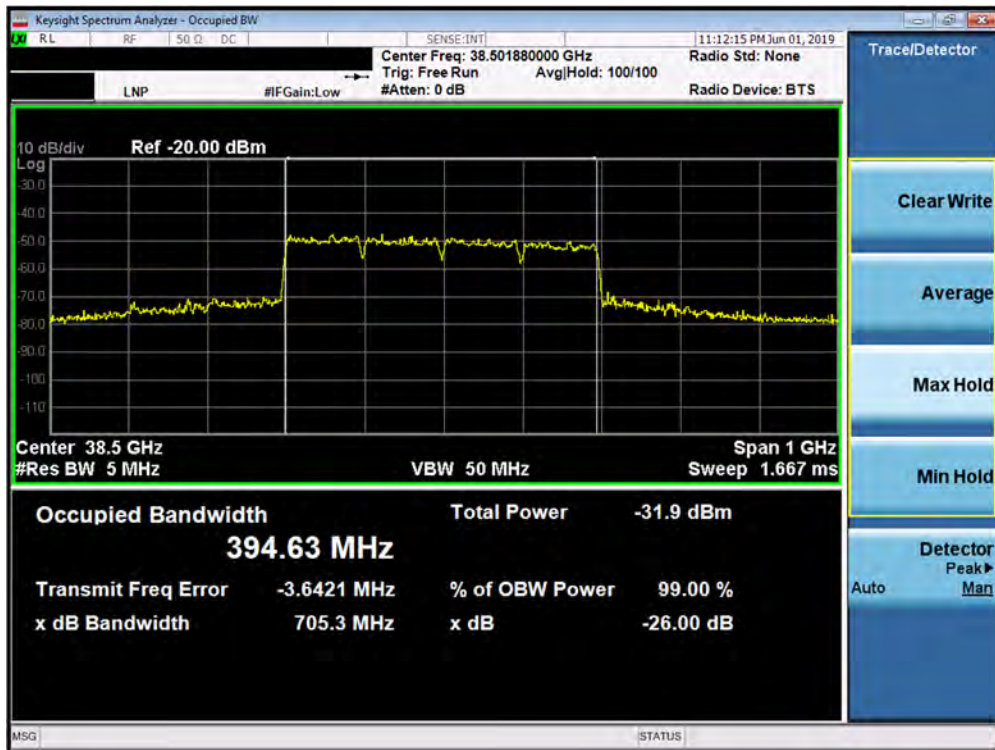


Plot 7-81. Occupied Bandwidth Plot (4CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 62 of 371

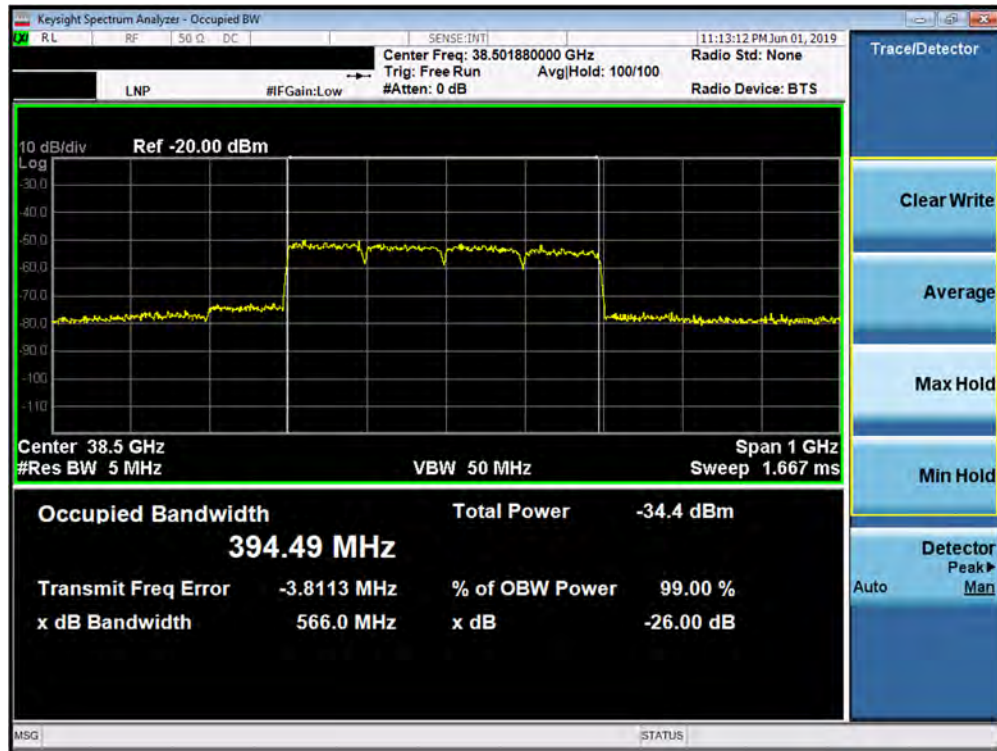


Plot 7-82. Occupied Bandwidth Plot (4CC – 100MHz - QPSK - Mid Channel)



Plot 7-83. Occupied Bandwidth Plot (4CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 63 of 371



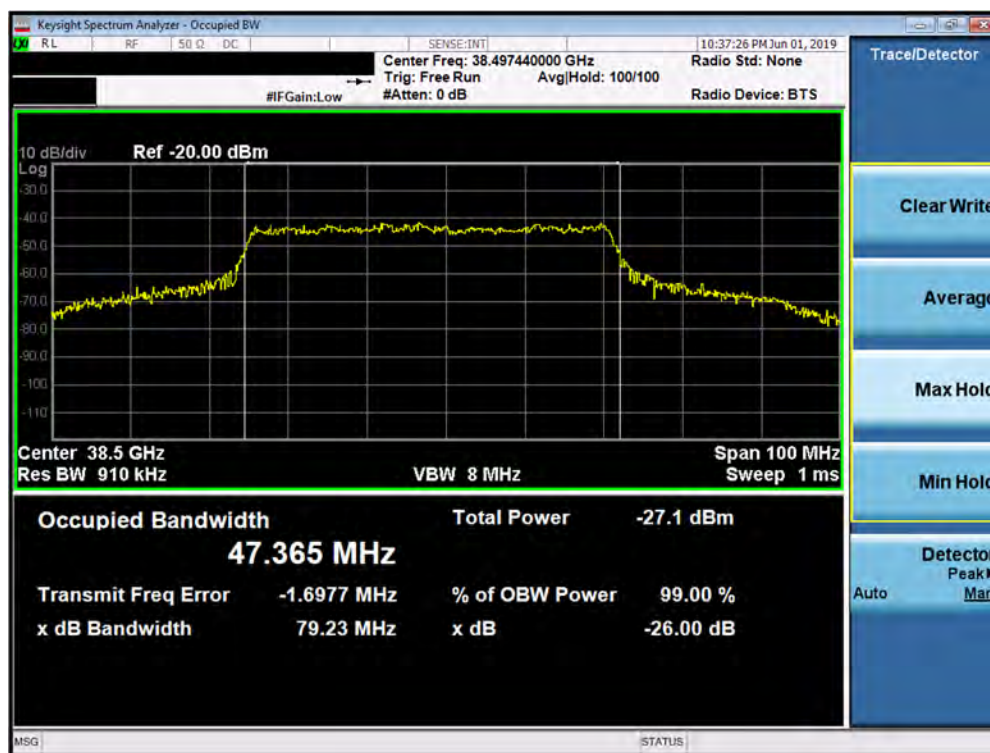
Plot 7-84. Occupied Bandwidth Plot (4CC – 100MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 64 of 371

L Patch Occupied Bandwidth (n260)

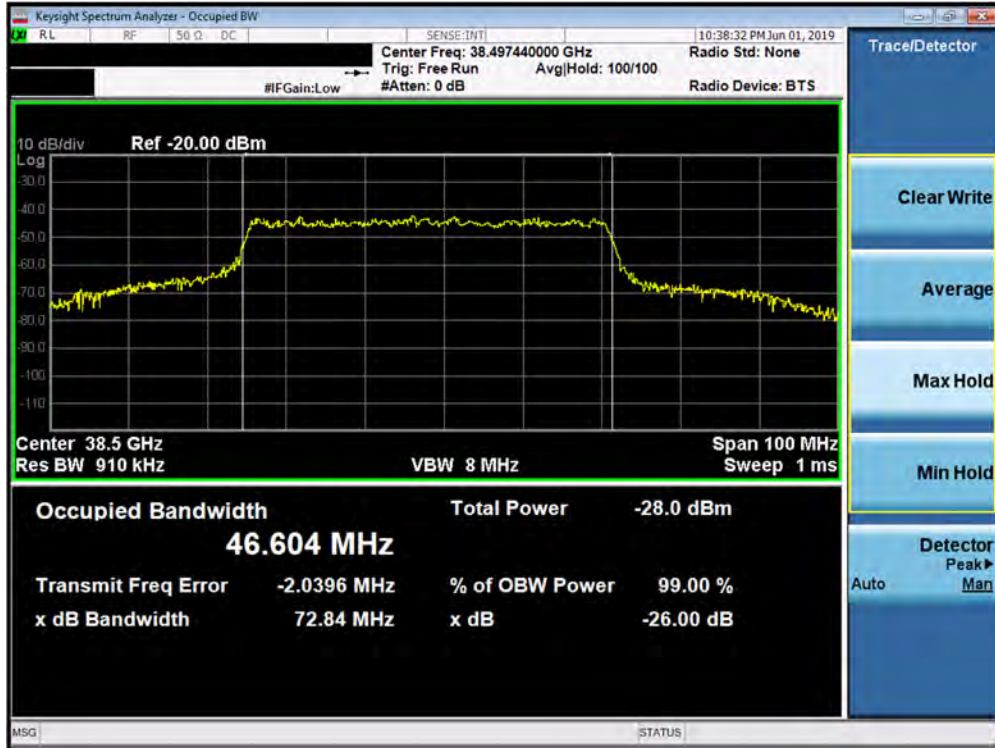
Channel	Bandwidth	CCs Active	Modulation	OBW [MHz]
Mid	50	1	QPSK	47.37
Mid	50	1	16QAM	46.60
Mid	50	1	64QAM	46.65
Mid	100	1	QPSK	94.53
Mid	100	1	16QAM	94.47
Mid	100	1	64QAM	94.36
Mid	200	4	QPSK	218.89
Mid	200	4	16QAM	199.74
Mid	200	4	64QAM	198.02
Mid	400	4	QPSK	432.79
Mid	400	4	16QAM	432.16
Mid	400	4	64QAM	488.45

Table 7-9. Summary of L Patch Occupied Bandwidths (n260)

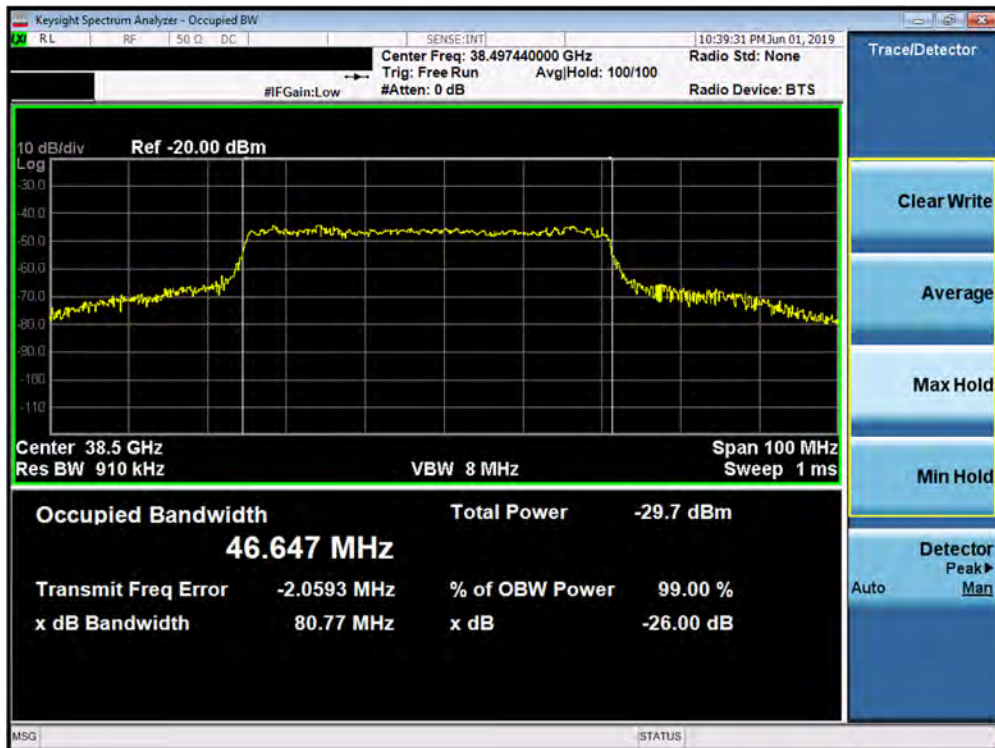


Plot 7-85. Occupied Bandwidth Plot (1CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset	Page 65 of 371

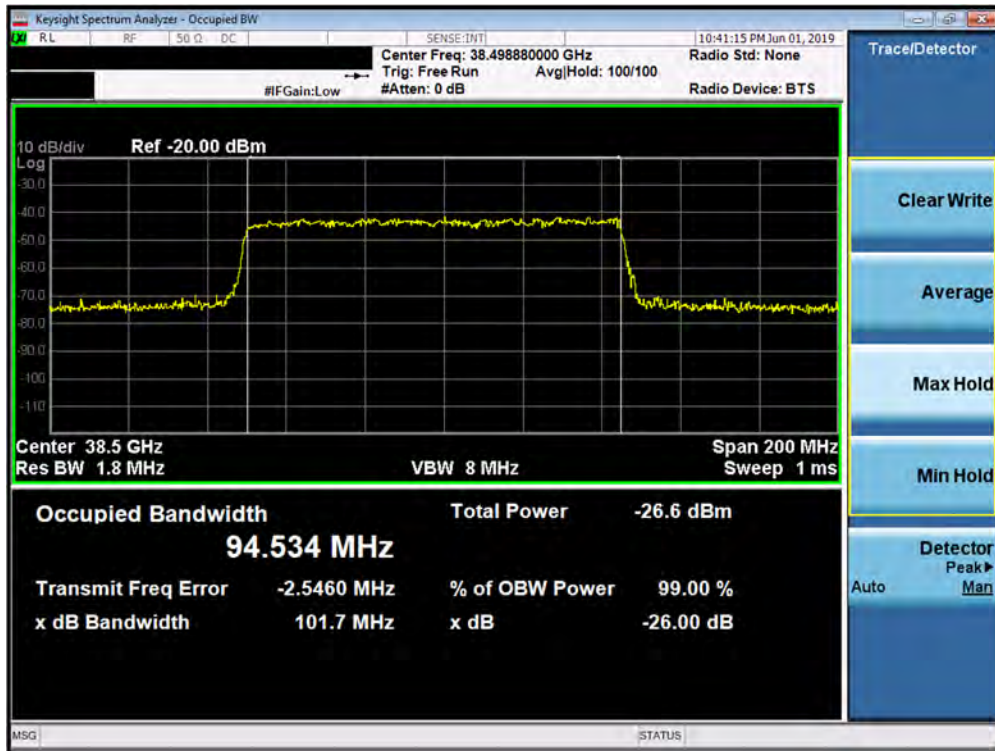


Plot 7-86. Occupied Bandwidth Plot (1CC – 50MHz - 16QAM - Mid Channel)

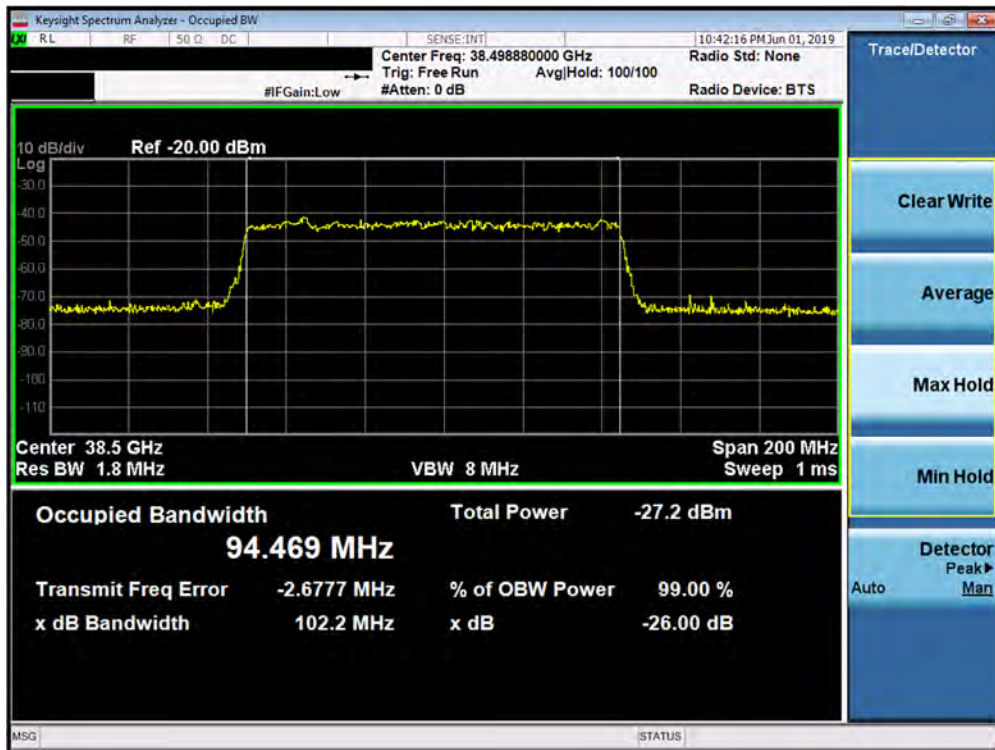


Plot 7-87. Occupied Bandwidth Plot (1CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 66 of 371

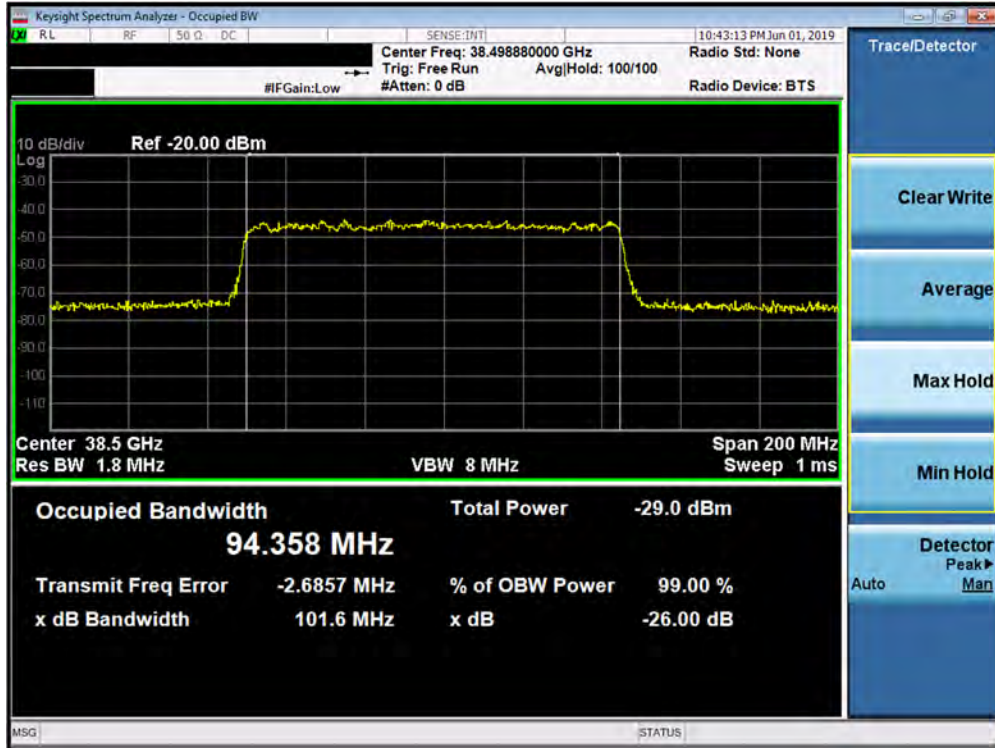


Plot 7-88. Occupied Bandwidth Plot (1CC – 100MHz - QPSK - Mid Channel)

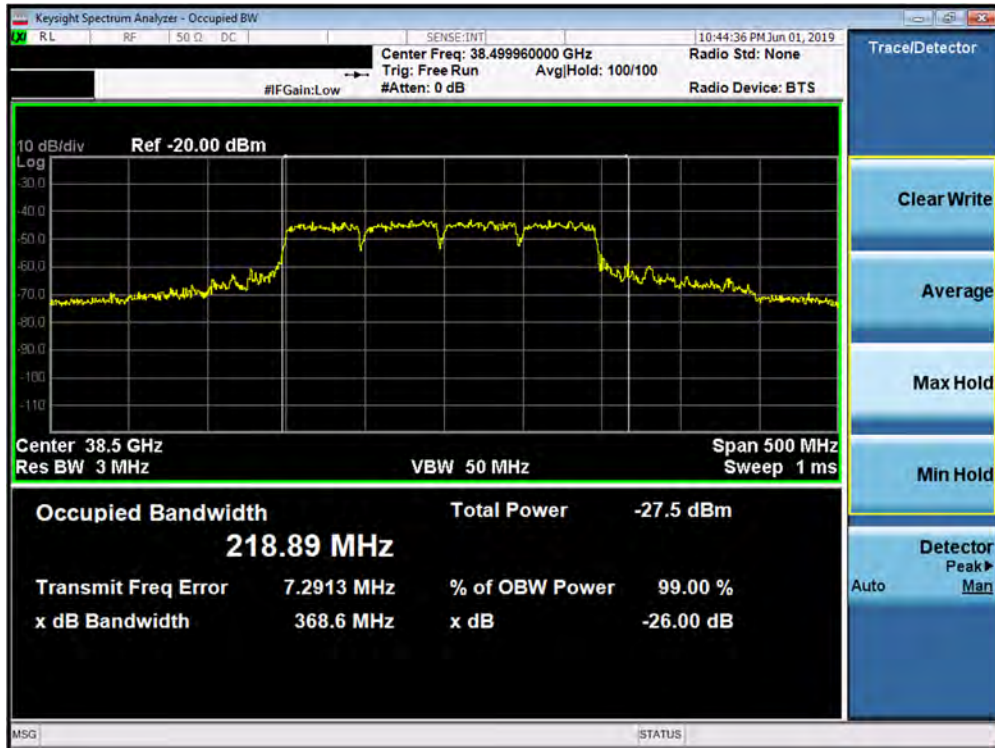


Plot 7-89. Occupied Bandwidth Plot (1CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 67 of 371

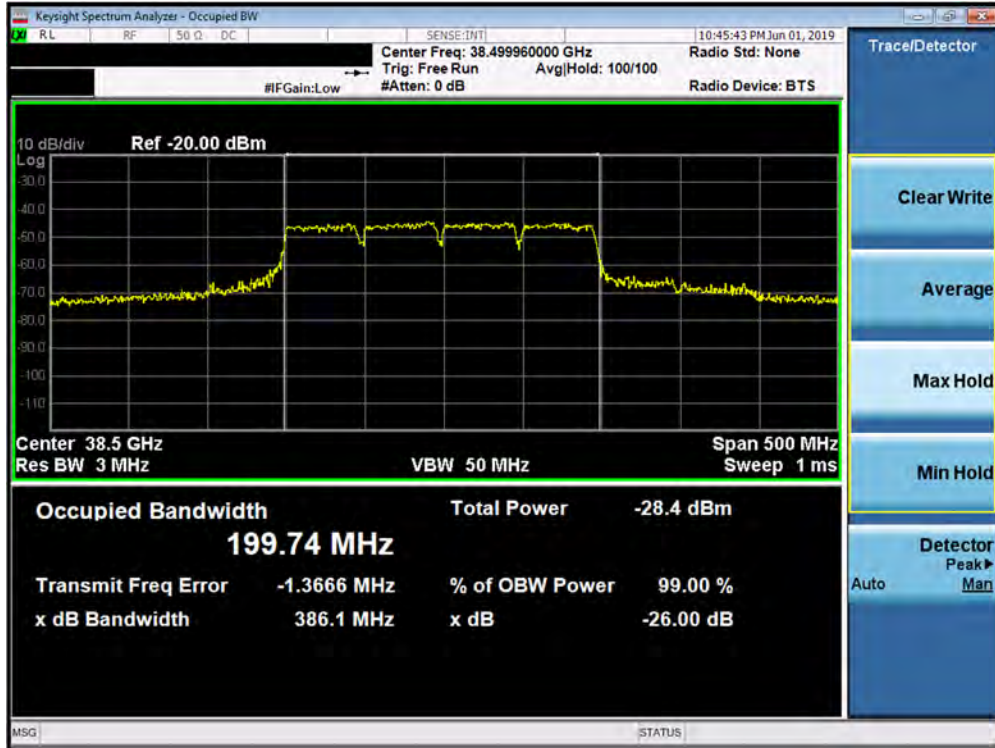


Plot 7-90. Occupied Bandwidth Plot (1CC – 100MHz - 64QAM Mid Channel)

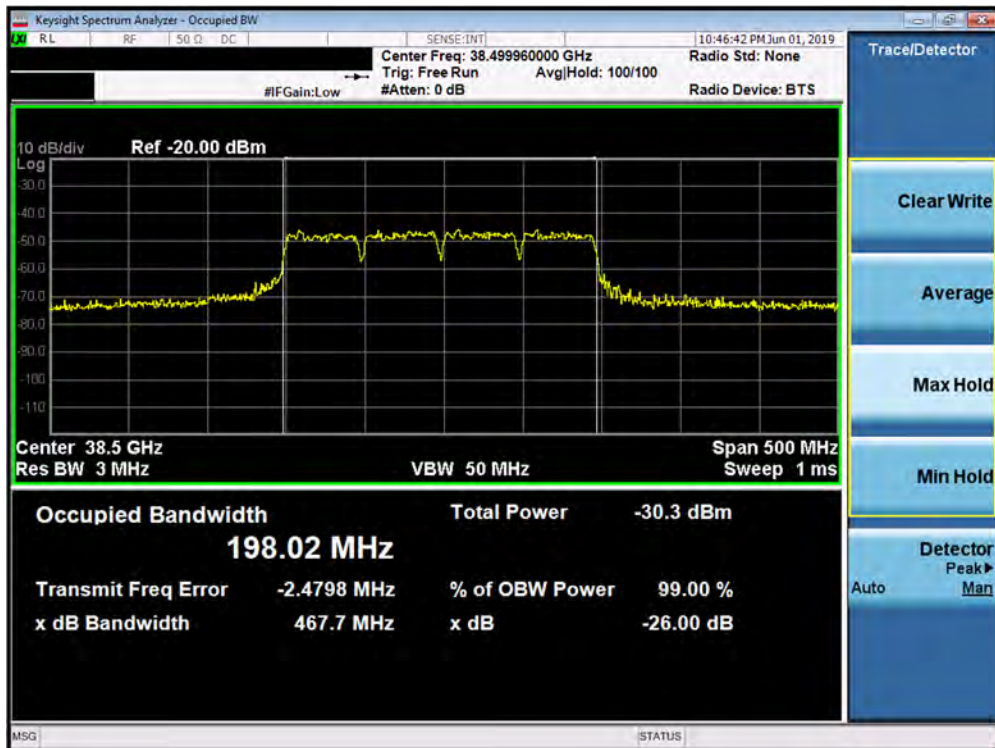


Plot 7-91. Occupied Bandwidth Plot (4CC – 50MHz - QPSK - Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 68 of 371

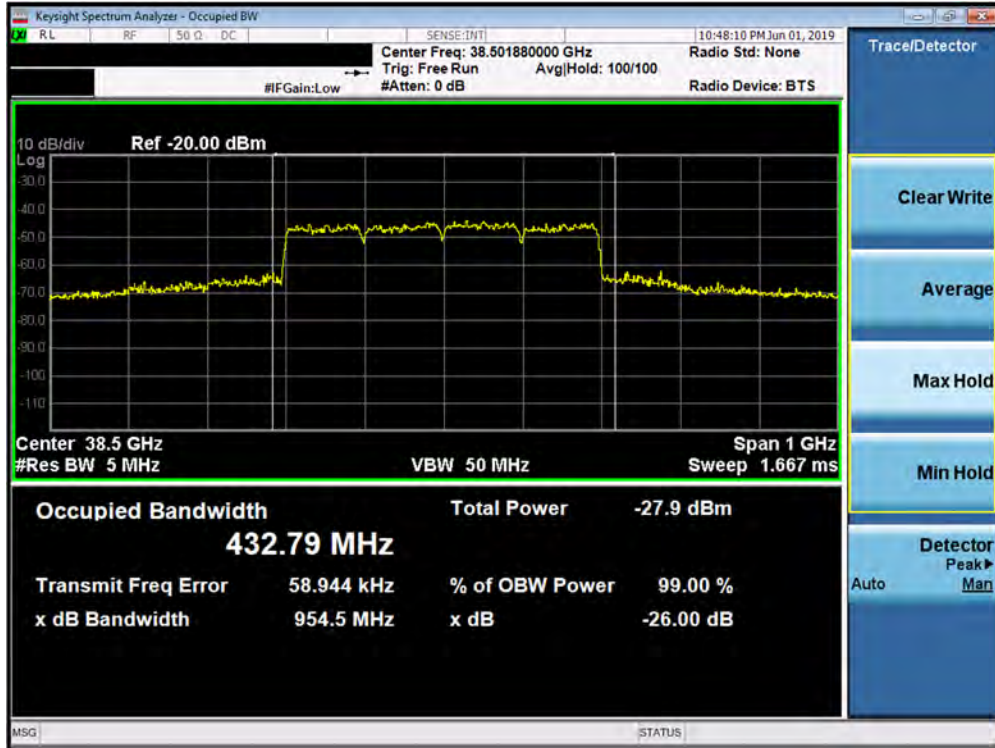


Plot 7-92. Occupied Bandwidth Plot (4CC – 50MHz - 16QAM - Mid Channel)

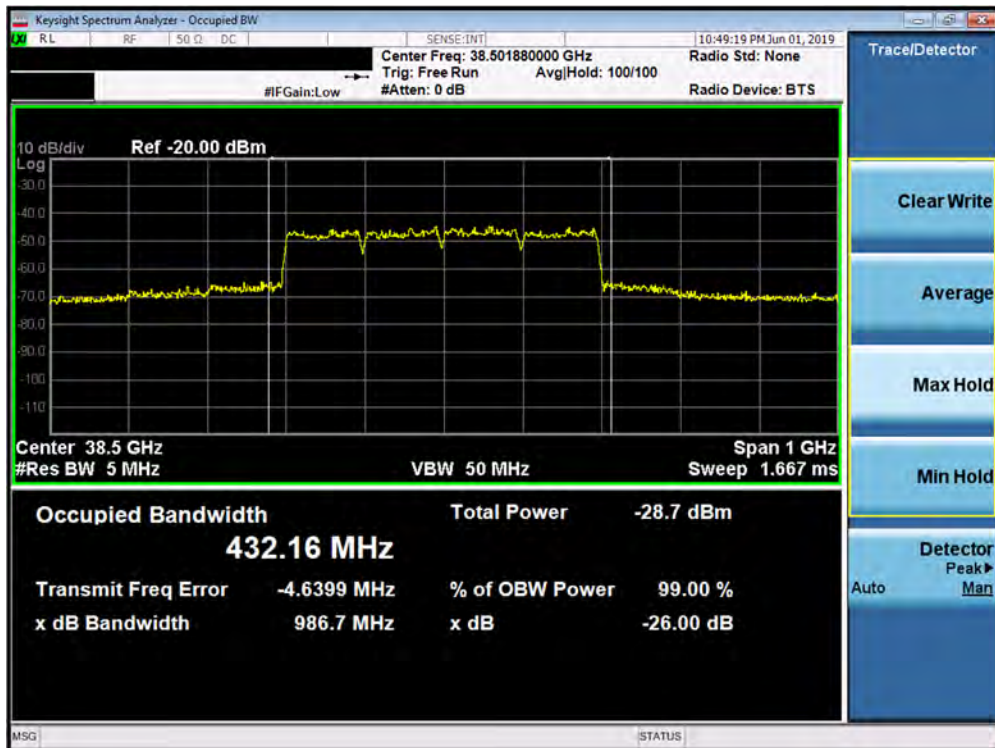


Plot 7-93. Occupied Bandwidth Plot (4CC – 50MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 69 of 371

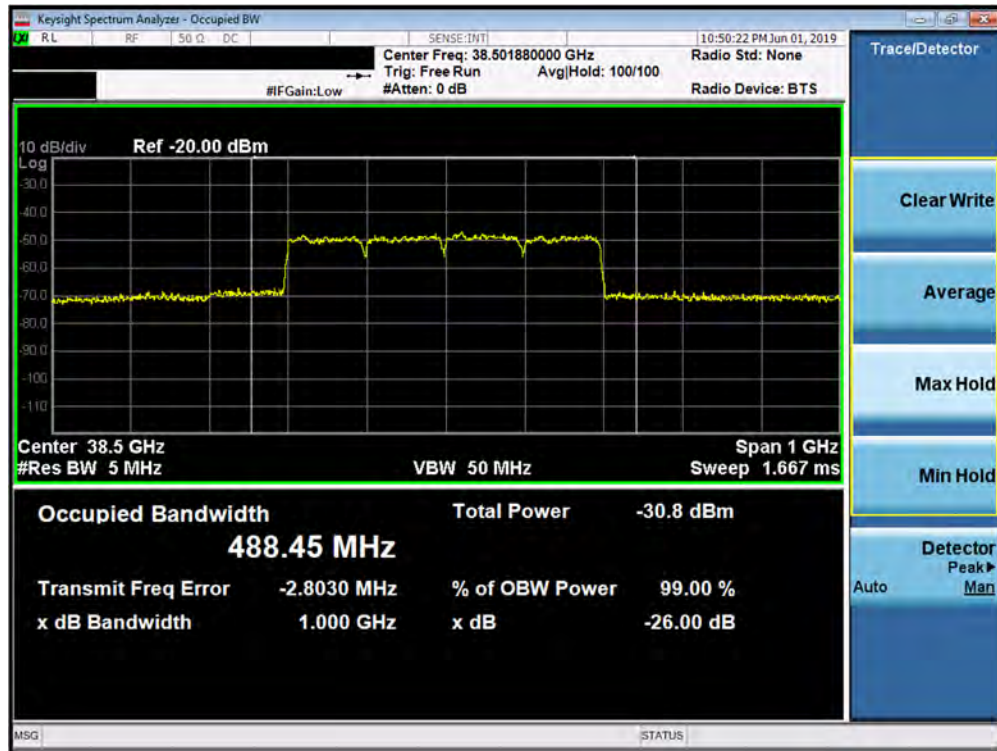


Plot 7-94. Occupied Bandwidth Plot (4CC – 100MHz - QPSK - Mid Channel)



Plot 7-95. Occupied Bandwidth Plot (4CC – 100MHz - 16QAM - Mid Channel)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
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Plot 7-96. Occupied Bandwidth Plot (4CC – 100MHz - 64QAM Mid Channel)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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7.3 Equivalent Isotropic Radiated Power

\$2.1046, \$30.202

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

The average power of the sum of all antenna elements is limited to a maximum EIRP of +43 dBm.

Test Procedures Used

ANSI C63.26-2015 Section 5.2.4.4.1
KDB 842590 D01 v01 Section 4.2

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW $\geq 3 \times$ RBW
4. Span = 2x to 3x the OBW
5. No. of sweep points $\geq 2 \times$ span / RBW
6. Detector = RMS
7. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
8. Trace mode = trace averaging (RMS) over 100 sweeps
9. The trace was allowed to stabilize

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Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) Elements within the same antenna array are correlated to produce beamforming array gain. Antenna arrays cannot be correlated with another antenna array. During testing, only one antenna array was active.
- 3) EIRP measurements were taken at 1m test distance.
- 4) The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: EIRP (dBm) = E (dBμV/m) + 20log(D) - 104.8; where D is the measurement distance (in the far field region) in m. The field strength E is calculated E (dBμV/m) = Spectrum Analyzer Channel Power Level (dBm) + Antenna Factor (dB/m) + Cable Loss (dB) + 107.
- 5) Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst case polarization/positioning. It was determined that H=0 degree and V=90 degree are the worst case positions when the EUT was transmitting horizontally and vertically polarized beams, respectively.

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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7.3.1 J Dipole Equivalent Isotropic Radiated Power (EIRP)

Antenna	Chan.	Channel Freq [MHz]	Bandwidth (MHz)	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	Limit [dBm]	Margin [dB]
J Dipole	Low	27534.84	50	H	SISO	5	1	32	0	QPSK	63	99	-32.74	18.94	43.00	-24.06
	Mid	27922.08	50	H	SISO	4	1	32	0	QPSK	68	99	-31.44	20.27	43.00	-22.73
	High	28319.52	50	H	SISO	16	1	1	0	QPSK	62	99	-32.86	18.93	43.00	-24.07
	Low	27534.84	50	H	SISO	5	1	1	31	16QAM	63	99	-33.06	18.62	43.00	-24.38
	Mid	27922.08	50	H	SISO	4	1	1	31	16QAM	68	99	-32.10	19.61	43.00	-23.39
	High	28319.52	50	H	SISO	16	1	1	0	16QAM	62	99	-33.53	18.26	43.00	-24.74
	Low	27534.84	50	H	SISO	5	1	1	16	64QAM	63	99	-35.23	16.45	43.00	-26.55
	Mid	27922.08	50	H	SISO	4	1	32	0	64QAM	68	99	-34.37	17.34	43.00	-25.66
	High	28319.52	50	H	SISO	16	1	1	0	64QAM	62	99	-36.52	15.27	43.00	-27.73
	Low	27534.84	50	H	SISO	133	1	32	0	QPSK	86	308	-35.48	16.20	43.00	-26.80
	Mid	27922.08	50	H	SISO	144	1	32	0	QPSK	85	308	-35.51	16.20	43.00	-26.80
	High	28319.52	50	H	SISO	133	1	32	0	QPSK	84	310	-36.23	15.56	43.00	-27.44
	Low	27534.84	50	H	SISO	133	1	1	16	16QAM	86	308	-35.93	15.75	43.00	-27.25
	Mid	27922.08	50	H	SISO	144	1	1	31	16QAM	85	308	-36.75	14.96	43.00	-28.04
	High	28319.52	50	H	SISO	133	1	1	0	16QAM	84	310	-37.14	14.65	43.00	-28.35
	Low	27534.84	50	H	SISO	133	1	1	16	64QAM	86	308	-38.27	13.41	43.00	-29.59
	Mid	27922.08	50	H	SISO	144	1	32	0	64QAM	85	308	-39.41	12.30	43.00	-30.70
	High	28319.52	50	H	SISO	133	1	32	0	64QAM	84	310	-39.37	12.42	43.00	-30.58
	Low	27559.32	100	H	SISO	5	1	1	0	QPSK	65	99	-32.71	18.97	43.00	-24.03
	Mid	27923.52	100	H	SISO	4	1	1	0	QPSK	63	99	-32.39	19.32	43.00	-23.68
	High	28292.16	100	H	SISO	16	1	1	0	QPSK	61	99	-32.55	19.24	43.00	-23.76
	Low	27559.32	100	H	SISO	5	1	1	0	16QAM	65	99	-33.41	18.27	43.00	-24.73
	Mid	27923.52	100	H	SISO	4	1	1	0	16QAM	63	99	-33.14	18.57	43.00	-24.43
	High	28292.16	100	H	SISO	16	1	1	0	16QAM	61	99	-33.26	18.53	43.00	-24.47
	Low	27559.32	100	H	SISO	5	1	1	0	64QAM	65	99	-35.08	16.60	43.00	-26.40
	Mid	27923.52	100	H	SISO	4	1	1	0	64QAM	63	99	-35.36	16.35	43.00	-26.65
	High	28292.16	100	H	SISO	16	1	1	0	64QAM	61	99	-35.89	15.90	43.00	-27.10
	Low	27559.32	100	H	SISO	133	1	66	0	QPSK	86	308	-35.31	16.37	43.00	-26.63
	Mid	27923.52	100	H	SISO	144	1	66	0	QPSK	84	305	-35.24	16.47	43.00	-26.53
	High	28292.16	100	H	SISO	133	1	66	0	QPSK	84	310	-35.91	15.88	43.00	-27.12
	Low	27559.32	100	H	SISO	133	1	1	32	16QAM	86	308	-35.60	16.08	43.00	-26.92
	Mid	27923.52	100	H	SISO	144	1	1	0	16QAM	84	305	-36.52	15.19	43.00	-27.81
	High	28292.16	100	H	SISO	133	1	1	65	16QAM	84	310	-36.78	15.01	43.00	-27.99
	Low	27559.32	100	H	SISO	133	1	1	32	64QAM	86	308	-38.01	13.67	43.00	-29.33
	Mid	27923.52	100	H	SISO	144	1	66	0	64QAM	84	305	-38.58	13.13	43.00	-29.87
	High	28292.16	100	H	SISO	133	1	66	0	64QAM	84	310	-38.77	13.02	43.00	-29.98
	Mid	27922.08	200	H	SISO	4	4	32	0	QPSK	65	99	-33.46	18.25	43.00	-24.75
	Mid	27922.08	200	H	SISO	4	4	32	0	16QAM	65	99	-34.41	17.30	43.00	-25.70
	Mid	27922.08	200	H	SISO	4	4	32	0	64QAM	65	99	-36.39	15.32	43.00	-27.68
	Mid	27922.08	200	H	SISO	144	4	32	0	QPSK	85	308	-36.17	15.54	43.00	-27.46
	Mid	27922.08	200	H	SISO	144	4	32	0	16QAM	85	308	-37.61	14.10	43.00	-28.90
	Mid	27922.08	200	H	SISO	144	4	32	0	64QAM	85	308	-39.74	11.97	43.00	-31.03
	Mid	27923.52	400	H	SISO	4	4	66	0	QPSK	67	97	-34.37	17.34	43.00	-25.66
	Mid	27923.52	400	H	SISO	4	4	66	0	16QAM	67	97	-35.10	16.61	43.00	-26.39
	Mid	27923.52	400	H	SISO	4	4	66	0	64QAM	67	97	-37.32	14.39	43.00	-28.61
	Mid	27923.52	400	H	SISO	144	4	66	0	QPSK	85	309	-37.18	14.53	43.00	-28.47
	Mid	27923.52	400	H	SISO	144	4	66	0	16QAM	85	309	-38.08	13.63	43.00	-29.37
	Mid	27923.52	400	H	SISO	144	4	66	0	64QAM	85	309	-40.55	11.16	43.00	-31.84

Table 7-10. J Dipole EIRP Summary Data (n261 - SISO)

Antenna	Chan.	Channel Freq [MHz]	Bandwidth (MHz)	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	MIMO EIRP [dBm]	Limit [dBm]	Margin [dB]
J Dipole	Mid	27922.08	50	H	MIMO	4	1	1	0	QPSK	68	99	-31.44	20.27	21.49	43.00	-21.51
	Mid	27922.08	50	H	MIMO	133	1	1	0	QPSK	280	312	-36.34	15.37			
	Mid	27922.08	50	H	MIMO	4	1	1	0	16QAM	68	99	-32.10	19.61			
	Mid	27922.08	50	H	MIMO	133	1	1	0	16QAM	280	312	-36.83	14.88	20.87	43.00	-22.13
	Mid	27922.08	50	H	MIMO	4	1	1	0	64QAM	68	99	-34.37	17.34			
	Mid	27922.08	50	H	MIMO	133	1	1	0	64QAM	280	312	-39.10	12.61			
	Mid	27923.52	100	H	MIMO	4	1	1	0	QPSK	63	99	-32.39	19.32	20.80	43.00	-22.20
	Mid	27923.52	100	H	MIMO	133	1	1	0	QPSK	281	310	-36.29	15.42			
	Mid	27923.52	100	H	MIMO	4	1	1	0	16QAM	63	99	-33.14	18.57			
	Mid	27923.52	100	H	MIMO	133	1	1	0	16QAM	281	310	-36.73	14.98	20.15	43.00	-22.85
	Mid	27923.52	100	H	MIMO	4	1	1	0	64QAM	63	99	-35.36	16.35			
	Mid	27923.52	100	H	MIMO	133	1	1	0	64QAM	281	310	-38.99	12.72			

Table 7-11. J Dipole EIRP Summary Data (n261 - MIMO)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 74 of 371

Antenna	Chan.	Channel Freq. [MHz]	Bandwidth (MHz)	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	Limit [dBm]	Margin [dB]
J Dipole	Low	37027.32	50	H	SISO	5	1	1	16	QPSK	93	314	-39.87	14.04	43.00	-28.96
	Mid	38497.44	50	H	SISO	5	1	32	0	QPSK	105	314	-37.24	16.97	43.00	-26.03
	High	39966.24	50	H	SISO	5	1	1	0	QPSK	102	314	-38.00	16.80	43.00	-26.20
	Low	37027.32	50	H	SISO	5	1	1	16	16QAM	93	314	-40.18	13.73	43.00	-29.27
	Mid	38497.44	50	H	SISO	5	1	1	31	16QAM	105	314	-37.42	16.79	43.00	-26.21
	High	39966.24	50	H	SISO	5	1	1	0	16QAM	102	314	-38.78	16.02	43.00	-26.98
	Low	37027.32	50	H	SISO	5	1	1	16	64QAM	93	314	-41.96	11.95	43.00	-31.05
	Mid	38497.44	50	H	SISO	5	1	1	31	64QAM	105	314	-39.40	14.81	43.00	-28.19
	High	39966.24	50	H	SISO	5	1	32	0	64QAM	102	314	-40.68	14.12	43.00	-28.88
	Low	37027.32	50	H	SISO	145	1	1	16	QPSK	105	98	-39.69	14.22	43.00	-28.78
	Mid	38497.44	50	H	SISO	128	1	32	0	QPSK	100	98	-37.20	17.01	43.00	-25.99
	High	39966.24	50	H	SISO	145	1	32	0	QPSK	284	67	-38.43	16.37	43.00	-26.63
	Low	37027.32	50	H	SISO	145	1	1	16	16QAM	105	98	-40.18	13.73	43.00	-29.27
	Mid	38497.44	50	H	SISO	128	1	1	16	16QAM	100	98	-38.32	15.89	43.00	-27.11
	High	39966.24	50	H	SISO	145	1	32	0	16QAM	284	67	-39.52	15.28	43.00	-27.72
	Low	37027.32	50	H	SISO	145	1	32	0	64QAM	105	98	-42.02	11.89	43.00	-31.11
	Mid	38497.44	50	H	SISO	128	1	32	0	64QAM	100	98	-40.04	14.17	43.00	-28.83
	High	39966.24	50	H	SISO	145	1	32	0	64QAM	284	67	-41.26	13.54	43.00	-29.46
	Low	37051.80	100	H	SISO	5	1	1	65	QPSK	93	314	-38.39	15.52	43.00	-27.48
	Mid	38498.88	100	H	SISO	5	1	66	0	QPSK	105	314	-37.03	17.18	43.00	-25.82
	High	39949.92	100	H	SISO	5	1	1	32	QPSK	102	314	-37.43	17.37	43.00	-25.63
	Low	37051.80	100	H	SISO	5	1	1	65	16QAM	93	314	-39.12	14.79	43.00	-28.21
	Mid	38498.88	100	H	SISO	5	1	1	0	16QAM	105	314	-37.27	16.94	43.00	-26.06
	High	39949.92	100	H	SISO	5	1	1	32	16QAM	102	314	-38.21	16.59	43.00	-26.41
	Low	37051.80	100	H	SISO	5	1	1	65	64QAM	93	314	-40.41	13.50	43.00	-29.50
	Mid	38498.88	100	H	SISO	5	1	66	0	64QAM	105	314	-39.08	15.13	43.00	-27.87
	High	39949.92	100	H	SISO	5	1	66	0	64QAM	102	314	-39.85	14.95	43.00	-28.05
	Low	37051.80	100	H	SISO	145	1	1	32	QPSK	103	98	-38.17	15.74	43.00	-27.26
	Mid	38498.88	100	H	SISO	128	1	66	0	QPSK	100	98	-37.34	16.87	43.00	-26.13
	High	39949.92	100	H	SISO	145	1	66	0	QPSK	284	67	-38.93	15.87	43.00	-27.13
	Low	37051.80	100	H	SISO	145	1	1	32	16QAM	103	98	-38.43	15.48	43.00	-27.52
	Mid	38498.88	100	H	SISO	128	1	66	0	16QAM	100	98	-38.09	16.12	43.00	-26.88
	High	39949.92	100	H	SISO	145	1	66	0	16QAM	284	67	-39.64	15.16	43.00	-27.84
	Low	37051.80	100	H	SISO	145	1	1	32	64QAM	103	98	-40.07	13.84	43.00	-29.16
	Mid	38498.88	100	H	SISO	128	1	66	0	64QAM	100	98	-39.65	14.56	43.00	-28.44
	High	39949.92	100	H	SISO	145	1	66	0	64QAM	284	67	-40.97	13.83	43.00	-29.17
	Mid	38499.96	200	H	SISO	5	4	32	0	QPSK	105	314	-37.35	16.86	43.00	-26.14
	Mid	38499.96	200	H	SISO	5	4	32	0	16QAM	105	314	-37.92	16.29	43.00	-26.71
	Mid	38499.96	200	H	SISO	5	4	1	31	64QAM	105	314	-39.18	15.03	43.00	-27.97
	Mid	38499.96	200	H	SISO	128	4	32	0	QPSK	100	98	-37.68	16.53	43.00	-26.47
	Mid	38499.96	200	H	SISO	128	4	32	0	16QAM	100	98	-38.25	15.96	43.00	-27.04
	Mid	38499.96	200	H	SISO	128	4	32	0	64QAM	100	98	-39.65	14.56	43.00	-28.44
	Mid	38501.88	400	H	SISO	5	4	66	0	QPSK	105	314	-37.19	17.02	43.00	-25.98
	Mid	38501.88	400	H	SISO	5	4	66	0	16QAM	105	314	-37.61	16.60	43.00	-26.40
	Mid	38501.88	400	H	SISO	5	4	1	65	64QAM	105	314	-38.47	15.74	43.00	-27.26
	Mid	38501.88	400	H	SISO	128	4	66	0	QPSK	100	98	-37.33	16.88	43.00	-26.12
	Mid	38501.88	400	H	SISO	128	4	66	0	16QAM	100	98	-37.75	16.46	43.00	-26.54
	Mid	38501.88	400	H	SISO	128	4	66	0	64QAM	100	98	-38.69	15.52	43.00	-27.48

Table 7-12. J Dipole EIRP Summary Data (n260 - SISO)

Antenna	Chan.	Channel Freq. [MHz]	Bandwidth (MHz)	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	MIMO EIRP [dBm]	Limit [dBm]	Margin [dB]
J Dipole	Mid	38497.44	50	H	MIMO	4	1	32	0	QPSK	285	321	-37.41	16.80	19.46	43.00	-23.54
	Mid	38497.44	50	H	MIMO	132	1	32	0	QPSK	269	97	-38.15	16.06			
	Mid	38497.44	50	H	MIMO	4	1	32	0	16QAM	285	321	-38.55	15.66			
	Mid	38497.44	50	H	MIMO	132	1	32	0	16QAM	269	97	-39.34	14.87	18.29	43.00	-24.71
	Mid	38497.44	50	H	MIMO	4	1	32	0	64QAM	285	321	-40.76	13.45			
	Mid	38497.44	50	H	MIMO	132	1	32	0	64QAM	269	97	-41.33	12.88			
	Mid	38498.88	100	H	MIMO	4	1	66	0	QPSK	285	324	-37.12	17.09	19.66	43.00	-23.34
	Mid	38498.88	100	H	MIMO	132	1	66	0	QPSK	269	97	-38.05	16.16			
	Mid	38498.88	100	H	MIMO	4	1	66	0	16QAM	285	324	-38.07	16.14			
	Mid	38498.88	100	H	MIMO	132	1	66	0	16QAM	269	97	-38.83	15.38	18.79	43.00	-24.21
	Mid	38498.88	100	H	MIMO	4	1	66	0	64QAM	285	324	-40.21	14.00			
	Mid	38498.88	100	H	MIMO	132	1	66	0	64QAM	269	97	-40.81	13.40			

Table 7-13. J Dipole EIRP Summary Data (n260 - MIMO)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 75 of 371

7.3.2 J Patch Equivalent Isotropic Radiated Power (EIRP)

Antenna	Chan.	Channel Freq [MHz]	Bandwidth (MHz)	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	Limit [dBm]	Margin [dB]
J Patch	Low	27534.84	50	H	SISO	25	1	32	0	QPSK	110	98	-29.64	22.04	43.00	-20.96
	Mid	27922.08	50	H	SISO	25	1	32	0	QPSK	112	98	-30.93	20.78	43.00	-22.22
	High	28319.52	50	H	SISO	25	1	1	0	QPSK	110	98	-30.14	21.65	43.00	-21.35
	Low	27534.84	50	H	SISO	25	1	32	0	16QAM	110	98	-30.25	21.43	43.00	-21.57
	Mid	27922.08	50	H	SISO	25	1	32	0	16QAM	112	98	-31.64	20.07	43.00	-22.93
	High	28319.52	50	H	SISO	25	1	32	0	16QAM	110	98	-31.20	20.59	43.00	-22.41
	Low	27534.84	50	H	SISO	25	1	32	0	64QAM	110	98	-32.23	19.45	43.00	-23.55
	Mid	27922.08	50	H	SISO	25	1	1	31	64QAM	112	98	-33.45	18.26	43.00	-24.74
	High	28319.52	50	H	SISO	25	1	32	0	64QAM	110	98	-33.14	18.65	43.00	-24.35
	Low	27534.84	50	V	SISO	154	1	32	0	QPSK	95	277	-30.63	21.05	43.00	-21.95
	Mid	27922.08	50	V	SISO	155	1	1	31	QPSK	99	287	-30.35	21.36	43.00	-21.64
	High	28319.52	50	V	SISO	168	1	1	16	QPSK	97	290	-29.12	22.67	43.00	-20.33
	Low	27534.84	50	V	SISO	154	1	1	0	16QAM	95	277	-31.41	20.27	43.00	-22.73
	Mid	27922.08	50	V	SISO	155	1	32	0	16QAM	99	287	-31.33	20.38	43.00	-22.62
	High	28319.52	50	V	SISO	168	1	32	0	16QAM	97	290	-31.10	20.69	43.00	-22.31
	Low	27534.84	50	V	SISO	154	1	32	0	64QAM	95	277	-33.44	18.24	43.00	-24.76
	Mid	27922.08	50	V	SISO	155	1	1	31	64QAM	99	287	-32.55	19.16	43.00	-23.84
	High	28319.52	50	V	SISO	168	1	1	16	64QAM	97	290	-32.77	19.02	43.00	-23.98
	Low	27559.32	100	H	SISO	25	1	66	0	QPSK	110	98	-29.38	22.30	43.00	-20.70
	Mid	27923.52	100	H	SISO	25	1	66	0	QPSK	104	95	-30.41	21.30	43.00	-21.70
	High	28292.16	100	H	SISO	25	1	1	0	QPSK	110	98	-29.90	21.89	43.00	-21.11
	Low	27559.32	100	H	SISO	25	1	66	0	16QAM	110	98	-30.51	21.17	43.00	-21.83
	Mid	27923.52	100	H	SISO	25	1	66	0	16QAM	104	95	-31.99	19.72	43.00	-23.28
	High	28292.16	100	H	SISO	25	1	66	0	16QAM	110	98	-30.98	20.81	43.00	-22.19
	Low	27559.32	100	H	SISO	25	1	1	0	64QAM	110	98	-32.22	19.46	43.00	-23.54
	Mid	27923.52	100	H	SISO	25	1	66	0	64QAM	104	95	-33.67	18.04	43.00	-24.96
	High	28292.16	100	H	SISO	25	1	66	0	64QAM	110	98	-32.97	18.82	43.00	-24.18
	Low	27559.32	100	V	SISO	154	1	66	0	QPSK	96	275	-30.65	21.03	43.00	-21.97
	Mid	27923.52	100	V	SISO	155	1	1	65	QPSK	97	288	-30.28	21.43	43.00	-21.57
	High	28292.16	100	V	SISO	168	1	1	0	QPSK	97	290	-29.39	22.40	43.00	-20.60
	Low	27559.32	100	V	SISO	154	1	66	0	16QAM	96	275	-31.62	20.06	43.00	-22.94
	Mid	27923.52	100	V	SISO	155	1	66	0	16QAM	97	288	-31.66	20.05	43.00	-22.95
	High	28292.16	100	V	SISO	168	1	1	0	16QAM	97	290	-31.03	20.76	43.00	-22.24
	Low	27559.32	100	V	SISO	154	1	66	0	64QAM	96	275	-33.60	18.08	43.00	-24.92
	Mid	27923.52	100	V	SISO	155	1	1	65	64QAM	97	288	-33.27	18.44	43.00	-24.56
	High	28292.16	100	V	SISO	168	1	1	0	64QAM	97	290	-32.87	18.92	43.00	-24.08
	Mid	27922.08	200	H	SISO	25	4	32	0	QPSK	111	98	-30.65	21.06	43.00	-21.94
	Mid	27922.08	200	H	SISO	25	4	32	0	16QAM	111	98	-31.61	20.10	43.00	-22.90
	Mid	27922.08	200	H	SISO	25	4	32	0	64QAM	111	98	-33.63	18.08	43.00	-24.92
	Mid	27922.08	200	V	SISO	155	4	32	0	QPSK	99	287	-31.53	20.18	43.00	-22.82
	Mid	27922.08	200	V	SISO	155	4	32	0	16QAM	99	287	-32.56	19.15	43.00	-23.85
	Mid	27922.08	200	V	SISO	155	4	32	0	64QAM	99	287	-34.69	17.02	43.00	-25.98
	Mid	27923.52	400	H	SISO	25	4	66	0	QPSK	110	98	-31.28	20.43	43.00	-22.57
	Mid	27923.52	400	H	SISO	25	4	66	0	16QAM	110	98	-32.29	19.42	43.00	-23.58
	Mid	27923.52	400	H	SISO	25	4	66	0	64QAM	110	98	-34.37	17.34	43.00	-25.66
	Mid	27923.52	400	V	SISO	155	4	66	0	QPSK	97	288	-32.28	19.43	43.00	-23.57
	Mid	27923.52	400	V	SISO	155	4	66	0	16QAM	97	288	-33.05	18.66	43.00	-24.34
	Mid	27923.52	400	V	SISO	155	4	66	0	64QAM	97	288	-35.26	16.45	43.00	-26.55

Table 7-14. J Patch EIRP Summary Data (n261 - SISO)

Antenna	Chan.	Channel Freq [MHz]	Bandwidth (MHz)	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	MIMO EIRP [dBm]	Limit [dBm]	Margin [dB]
J Patch	High	28319.52	50	H	MIMO	39	1	1	31	QPSK	303	96	-29.05	22.74	25.25	43.00	-17.75
	High	28319.52	50	V	MIMO	170	1	1	31	QPSK	241	282	-30.12	21.67			
	High	28319.52	50	H	MIMO	39	1	1	31	16QAM	303	96	-30.91	20.88			
	High	28319.52	50	V	MIMO	170	1	1	31	16QAM	241	282	-31.26	20.53	23.72	43.00	-19.28
	High	28319.52	50	H	MIMO	39	1	1	31	64QAM	303	96	-32.62	19.17			
	High	28319.52	50	V	MIMO	170	1	1	31	64QAM	241	282	-33.04	18.75			
	High	28292.16	100	H	MIMO	39	1	1	0	QPSK	298	96	-28.55	23.24	25.41	43.00	-17.59
	High	28292.16	100	V	MIMO	170	1	1	0	QPSK	240	282	-30.42	21.37			
	High	28292.16	100	H	MIMO	39	1	1	0	16QAM	298	96	-30.33	21.46			
	High	28292.16	100	V	MIMO	170	1	1	0	16QAM	240	282	-31.48	20.31	23.93	43.00	-19.07
	High	28292.16	100	H	MIMO	39	1	1	0	64QAM	298	96	-32.10	19.69			
	High	28292.16	100	V	MIMO	170	1	1	0	64QAM	240	282	-33.57	18.22			

Table 7-15. J Patch EIRP Summary Data (n261 - MIMO)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 76 of 371

Antenna	Chan.	Channel Freq. [MHz]	Bandwidth (MHz)	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	Limit [dBm]	Margin [dB]
J Patch	Low	37027.32	50	H	SISO	26	1	32	0	QPSK	297	94	-38.96	14.95	43.00	-28.05
	Mid	38497.44	50	H	SISO	28	1	1	31	QPSK	292	98	-37.93	16.28	43.00	-26.72
	High	39966.24	50	H	SISO	26	1	1	0	QPSK	290	88	-39.62	15.18	43.00	-27.82
	Low	37027.32	50	H	SISO	26	1	32	0	16QAM	297	94	-39.81	14.10	43.00	-28.90
	Mid	38497.44	50	H	SISO	28	1	1	31	16QAM	292	98	-39.01	15.20	43.00	-27.80
	High	39966.24	50	H	SISO	26	1	32	0	16QAM	290	88	-40.44	14.36	43.00	-28.64
	Low	37027.32	50	H	SISO	26	1	32	0	64QAM	297	94	-41.34	12.57	43.00	-30.43
	Mid	38497.44	50	H	SISO	28	1	1	31	64QAM	292	98	-40.86	13.35	43.00	-29.65
	High	39966.24	50	H	SISO	26	1	32	0	64QAM	290	88	-41.75	13.05	43.00	-29.95
	Low	37027.32	50	V	SISO	168	1	32	0	QPSK	278	274	-34.02	19.89	43.00	-23.11
	Mid	38497.44	50	V	SISO	168	1	1	0	QPSK	278	274	-32.54	21.67	43.00	-21.33
	High	39966.24	50	V	SISO	168	1	1	31	QPSK	268	274	-34.64	20.16	43.00	-22.84
	Low	37027.32	50	V	SISO	168	1	32	0	16QAM	278	274	-34.84	19.07	43.00	-23.93
	Mid	38497.44	50	V	SISO	168	1	1	0	16QAM	278	274	-33.62	20.59	43.00	-22.41
	High	39966.24	50	V	SISO	168	1	32	0	16QAM	268	274	-35.95	18.85	43.00	-24.15
	Low	37027.32	50	V	SISO	168	1	32	0	64QAM	278	274	-36.41	17.50	43.00	-25.50
	Mid	38497.44	50	V	SISO	168	1	1	0	64QAM	278	274	-35.50	18.71	43.00	-24.29
	High	39966.24	50	V	SISO	168	1	32	0	64QAM	268	274	-37.70	17.10	43.00	-25.90
	Low	37051.80	100	H	SISO	26	1	1	0	QPSK	297	94	-39.09	14.82	43.00	-28.18
	Mid	38498.88	100	H	SISO	28	1	1	32	QPSK	292	98	-37.73	16.48	43.00	-26.52
	High	39949.92	100	H	SISO	26	1	66	0	QPSK	288	88	-39.11	15.69	43.00	-27.31
	Low	37051.80	100	H	SISO	26	1	1	0	16QAM	297	94	-39.94	13.97	43.00	-29.03
	Mid	38498.88	100	H	SISO	28	1	1	32	16QAM	292	98	-38.77	15.44	43.00	-27.56
	High	39949.92	100	H	SISO	26	1	66	0	16QAM	288	88	-39.76	15.04	43.00	-27.96
	Low	37051.80	100	H	SISO	26	1	66	0	64QAM	297	94	-41.42	12.49	43.00	-30.51
	Mid	38498.88	100	H	SISO	28	1	66	0	64QAM	292	98	-40.18	14.03	43.00	-28.97
	High	39949.92	100	H	SISO	26	1	66	0	64QAM	288	88	-40.85	13.95	43.00	-29.05
	Low	37051.80	100	V	SISO	168	1	1	65	QPSK	278	274	-33.10	20.81	43.00	-22.19
	Mid	38498.88	100	V	SISO	168	1	1	32	QPSK	278	274	-32.50	21.71	43.00	-21.29
	High	39949.92	100	V	SISO	168	1	66	0	QPSK	268	274	-34.13	20.67	43.00	-22.33
	Low	37051.80	100	V	SISO	168	1	66	0	16QAM	278	274	-34.02	19.89	43.00	-23.11
	Mid	38498.88	100	V	SISO	168	1	1	32	16QAM	278	274	-33.40	20.81	43.00	-22.19
	High	39949.92	100	V	SISO	168	1	66	0	16QAM	268	274	-35.01	19.79	43.00	-23.21
	Low	37051.80	100	V	SISO	168	1	66	0	64QAM	278	274	-35.64	18.27	43.00	-24.73
	Mid	38498.88	100	V	SISO	168	1	66	0	64QAM	278	274	-35.07	19.14	43.00	-23.86
	High	39949.92	100	V	SISO	168	1	66	0	64QAM	268	274	-36.68	18.12	43.00	-24.88
	Mid	38499.96	200	H	SISO	28	4	32	0	QPSK	292	98	-38.59	15.62	43.00	-27.38
	Mid	38499.96	200	H	SISO	28	4	32	0	16QAM	292	98	-39.04	15.17	43.00	-27.83
	Mid	38499.96	200	H	SISO	28	4	32	0	64QAM	292	98	-40.25	13.96	43.00	-29.04
	Mid	38499.96	200	V	SISO	168	4	32	0	QPSK	278	274	-33.86	20.35	43.00	-22.65
	Mid	38499.96	200	V	SISO	168	4	32	0	16QAM	278	274	-34.52	19.69	43.00	-23.31
	Mid	38499.96	200	V	SISO	168	4	32	0	64QAM	278	274	-35.92	18.29	43.00	-24.71
	Mid	38501.88	400	H	SISO	28	4	66	0	QPSK	293	97	-38.03	16.18	43.00	-26.82
	Mid	38501.88	400	H	SISO	28	4	66	0	16QAM	293	97	-38.76	15.45	43.00	-27.55
	Mid	38501.88	400	H	SISO	28	4	66	0	64QAM	293	97	-40.01	14.20	43.00	-28.80
	Mid	38501.88	400	V	SISO	168	4	66	0	QPSK	278	274	-33.95	20.26	43.00	-22.74
	Mid	38501.88	400	V	SISO	168	4	66	0	16QAM	278	274	-34.47	19.74	43.00	-23.26
	Mid	38501.88	400	V	SISO	168	4	66	0	64QAM	278	274	-35.93	18.28	43.00	-24.72

Table 7-16. J Patch EIRP Summary Data (n260 - SISO)

Antenna	Chan.	Channel Freq. [MHz]	Bandwidth (MHz)	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	MIMO EIRP [dBm]	Limit [dBm]	Margin [dB]
J Patch	Mid	38497.44	50	H	MIMO	41	1	1	0	QPSK	106	89	-39.60	14.61	22.45	43.00	-20.55
	Mid	38497.44	50	V	MIMO	168	1	1	0	QPSK	278	274	-32.54	21.67			
	Mid	38497.44	50	H	MIMO	41	1	1	0	16QAM	106	89	-40.65	13.56			
	Mid	38497.44	50	V	MIMO	168	1	1	0	16QAM	278	274	-33.62	20.59			
	Mid	38497.44	50	H	MIMO	41	1	1	0	64QAM	106	89	-42.84	11.37	19.44	43.00	-23.56
	Mid	38497.44	50	V	MIMO	168	1	1	0	64QAM	278	274	-35.50	18.71			
	Mid	38498.88	100	H	MIMO	41	1	1	32	QPSK	105	87	-39.52	14.69			
	Mid	38498.88	100	V	MIMO	168	1	1	32	QPSK	278	274	-32.50	21.71			
	Mid	38498.88	100	H	MIMO	41	1	1	32	16QAM	105	87	-41.36	12.85	21.45	43.00	-21.55
	Mid	38498.88	100	V	MIMO	168	1	1	32	16QAM	278	274	-33.40	20.81			
	Mid	38498.88	100	H	MIMO	41	1	66	0	64QAM	105	87	-43.38	10.83			
	Mid	38498.88	100	V	MIMO	168	1	66	0	64QAM	278	274	-35.07	19.14			

Table 7-17. J Patch EIRP Summary Data (n260 - MIMO)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 77 of 371

7.3.3 K Patch Equivalent Isotropic Radiated Power (EIRP)

Antenna	Chan.	Channel Freq [MHz]	Bandwidth (MHz)	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	Limit [dBm]	Margin [dB]
K Patch	Low	27534.84	50	H	SISO	44	1	1	31	QPSK	275	292	-31.47	20.21	43.00	-22.79
	Mid	27922.08	50	H	SISO	44	1	1	31	QPSK	275	304	-32.12	19.59	43.00	-23.41
	High	28319.52	50	H	SISO	30	1	1	16	QPSK	275	317	-30.94	20.85	43.00	-22.15
	Low	27534.84	50	H	SISO	44	1	32	0	16QAM	275	292	-32.24	19.44	43.00	-23.56
	Mid	27922.08	50	H	SISO	44	1	32	0	16QAM	275	304	-33.32	18.39	43.00	-24.61
	High	28319.52	50	H	SISO	30	1	32	0	16QAM	275	317	-32.83	18.96	43.00	-24.04
	Low	27534.84	50	H	SISO	44	1	1	31	64QAM	275	292	-34.16	17.52	43.00	-25.48
	Mid	27922.08	50	H	SISO	44	1	32	0	64QAM	275	304	-35.00	16.71	43.00	-26.29
	High	28319.52	50	H	SISO	30	1	1	16	64QAM	275	317	-34.68	17.11	43.00	-25.89
	Low	27534.84	50	V	SISO	173	1	32	0	QPSK	163	1	-33.18	18.50	43.00	-24.50
	Mid	27922.08	50	V	SISO	173	1	32	0	QPSK	163	1	-32.54	19.17	43.00	-23.83
	High	28319.52	50	V	SISO	160	1	1	0	QPSK	163	354	-31.57	20.22	43.00	-22.78
	Low	27534.84	50	V	SISO	173	1	32	0	16QAM	163	1	-34.10	17.58	43.00	-25.42
	Mid	27922.08	50	V	SISO	173	1	32	0	16QAM	163	1	-33.63	18.08	43.00	-24.92
	High	28319.52	50	V	SISO	160	1	1	0	16QAM	163	354	-32.08	19.71	43.00	-23.29
	Low	27534.84	50	V	SISO	173	1	32	0	64QAM	163	1	-35.94	15.74	43.00	-27.26
	Mid	27922.08	50	V	SISO	173	1	1	31	64QAM	163	1	-35.39	16.32	43.00	-26.68
	High	28319.52	50	V	SISO	160	1	1	0	64QAM	163	354	-34.33	17.46	43.00	-25.54
	Low	27559.32	100	H	SISO	44	1	66	0	QPSK	275	292	-30.97	20.71	43.00	-22.29
	Mid	27923.52	100	H	SISO	44	1	66	0	QPSK	275	304	-31.41	20.30	43.00	-22.70
	High	28292.16	100	H	SISO	30	1	1	32	QPSK	275	317	-31.20	20.59	43.00	-22.41
	Low	27559.32	100	H	SISO	44	1	66	0	16QAM	275	292	-31.91	19.77	43.00	-23.23
	Mid	27923.52	100	H	SISO	44	1	66	0	16QAM	275	304	-32.41	19.30	43.00	-23.70
	High	28292.16	100	H	SISO	30	1	66	0	16QAM	275	317	-32.27	19.52	43.00	-23.48
	Low	27559.32	100	H	SISO	44	1	66	0	64QAM	275	292	-33.89	17.79	43.00	-25.21
	Mid	27923.52	100	H	SISO	44	1	66	0	64QAM	275	304	-34.47	17.24	43.00	-25.76
	High	28292.16	100	H	SISO	30	1	1	32	64QAM	275	317	-34.07	17.72	43.00	-25.28
	Low	27559.32	100	V	SISO	173	1	66	0	QPSK	163	1	-33.08	18.60	43.00	-24.40
	Mid	27923.52	100	V	SISO	173	1	1	65	QPSK	163	1	-31.89	19.82	43.00	-23.18
	High	28292.16	100	V	SISO	160	1	66	0	QPSK	163	354	-31.45	20.34	43.00	-22.66
	Low	27559.32	100	V	SISO	173	1	66	0	16QAM	163	1	-34.14	17.54	43.00	-25.46
	Mid	27923.52	100	V	SISO	173	1	1	65	16QAM	163	1	-32.57	19.14	43.00	-23.86
	High	28292.16	100	V	SISO	160	1	1	32	16QAM	163	354	-32.43	19.36	43.00	-23.64
	Low	27559.32	100	V	SISO	173	1	66	0	64QAM	163	1	-36.15	15.53	43.00	-27.47
	Mid	27923.52	100	V	SISO	173	1	1	65	64QAM	163	1	-34.04	17.67	43.00	-25.33
	High	28292.16	100	V	SISO	160	1	1	32	64QAM	163	354	-33.89	17.90	43.00	-25.10
	Mid	27922.08	200	H	SISO	44	4	32	0	QPSK	275	304	-33.87	17.84	43.00	-25.16
	Mid	27922.08	200	H	SISO	44	4	32	0	16QAM	275	304	-34.84	16.87	43.00	-26.13
	Mid	27922.08	200	H	SISO	44	4	32	0	64QAM	275	304	-37.02	14.69	43.00	-28.31
	Mid	27922.08	200	V	SISO	173	4	32	0	QPSK	163	1	-33.09	18.62	43.00	-24.38
	Mid	27922.08	200	V	SISO	173	4	32	0	16QAM	163	1	-33.95	17.76	43.00	-25.24
	Mid	27922.08	200	V	SISO	173	4	32	0	64QAM	163	1	-36.14	15.57	43.00	-27.43
	Mid	27923.52	400	H	SISO	44	4	66	0	QPSK	275	304	-32.66	19.05	43.00	-23.95
	Mid	27923.52	400	H	SISO	44	4	66	0	16QAM	275	304	-33.50	18.21	43.00	-24.79
	Mid	27923.52	400	H	SISO	44	4	66	0	64QAM	275	304	-35.88	15.83	43.00	-27.17
	Mid	27923.52	400	V	SISO	173	4	66	0	QPSK	163	5	-33.88	17.83	43.00	-25.17
	Mid	27923.52	400	V	SISO	173	4	66	0	16QAM	163	5	-34.68	17.03	43.00	-25.97
	Mid	27923.52	400	V	SISO	173	4	66	0	64QAM	163	5	-37.16	14.55	43.00	-28.45

Table 7-18. K Patch EIRP Summary Data (n261 - SISO)

Antenna	Chan.	Channel Freq [MHz]	Bandwidth (MHz)	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	MIMO EIRP [dBm]	Limit [dBm]	Margin [dB]
K Patch	High	28319.52	50	H	MIMO	44	1	1	16	QPSK	275	300	-31.52	20.27	22.94	43.00	-20.06
	High	28319.52	50	V	MIMO	171	1	1	16	QPSK	8	8	-32.22	19.57			
	High	28319.52	50	H	MIMO	44	1	1	16	16QAM	275	300	-32.99	18.80			
	High	28319.52	50	V	MIMO	171	1	1	16	16QAM	8	8	-33.19	18.60	20.16	43.00	-22.84
	High	28319.52	50	H	MIMO	44	1	1	16	64QAM	275	300	-34.81	16.98			
	High	28319.52	50	V	MIMO	171	1	1	16	64QAM	8	8	-34.47	17.32			
	High	28292.16	100	H	MIMO	44	1	1	32	QPSK	273	296	-31.70	20.09	22.68	43.00	-20.32
	High	28292.16	100	V	MIMO	171	1	1	32	QPSK	9	6	-32.58	19.21			
	High	28292.16	100	H	MIMO	44	1	1	32	16QAM	273	296	-32.86	18.93			
	High	28292.16	100	V	MIMO	171	1	1	32	16QAM	9	6	-33.59	18.20	21.59	43.00	-21.41
	High	28292.16	100	H	MIMO	44	1	1	32	64QAM	273	296	-34.37	17.42			
	High	28292.16	100	V	MIMO	171	1	1	32	64QAM	9	6	-35.02	16.77			

Table 7-19. K Patch EIRP Summary Data (n261 - MIMO)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 78 of 371

Antenna	Chan.	Channel Freq. [MHz]	Bandwidth [MHz]	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	Limit [dBm]	Margin [dB]
K Patch	Low	37027.32	50	H	SISO	30	1	32	0	QPSK	298	329	-36.83	17.08	43.00	-25.92
	Mid	38497.44	50	H	SISO	44	1	1	31	QPSK	298	326	-36.38	17.83	43.00	-25.17
	High	39966.24	50	H	SISO	31	1	32	0	QPSK	292	325	-38.50	16.30	43.00	-26.70
	Low	37027.32	50	H	SISO	30	1	32	0	16QAM	298	329	-37.80	16.11	43.00	-26.89
	Mid	38497.44	50	H	SISO	44	1	32	0	16QAM	298	326	-37.75	16.46	43.00	-26.54
	High	39966.24	50	H	SISO	31	1	32	0	16QAM	292	325	-39.06	15.74	43.00	-27.26
	Low	37027.32	50	H	SISO	30	1	32	0	64QAM	298	329	-39.44	14.47	43.00	-28.53
	Mid	38497.44	50	H	SISO	44	1	32	0	64QAM	298	326	-39.37	14.84	43.00	-28.16
	High	39966.24	50	H	SISO	31	1	32	0	64QAM	292	325	-40.68	14.12	43.00	-28.88
	Low	37027.32	50	V	SISO	172	1	32	0	QPSK	188	355	-37.02	16.89	43.00	-26.11
	Mid	38497.44	50	V	SISO	158	1	1	0	QPSK	187	3	-34.26	19.95	43.00	-23.05
	High	39966.24	50	V	SISO	172	1	1	0	QPSK	190	8	-35.20	19.60	43.00	-23.40
	Low	37027.32	50	V	SISO	172	1	1	31	16QAM	188	355	-37.91	16.00	43.00	-27.00
	Mid	38497.44	50	V	SISO	158	1	1	0	16QAM	187	3	-35.30	18.91	43.00	-24.09
	High	39966.24	50	V	SISO	172	1	32	0	16QAM	190	8	-36.60	18.20	43.00	-24.80
	Low	37027.32	50	V	SISO	172	1	32	0	64QAM	188	355	-39.61	14.30	43.00	-28.70
	Mid	38497.44	50	V	SISO	158	1	1	0	64QAM	187	3	-37.15	17.06	43.00	-25.94
	High	39966.24	50	V	SISO	172	1	32	0	64QAM	190	8	-38.35	16.45	43.00	-26.55
	Low	37051.80	100	H	SISO	30	1	1	0	QPSK	298	329	-36.04	17.87	43.00	-25.13
	Mid	38498.88	100	H	SISO	44	1	1	0	QPSK	298	326	-35.98	18.23	43.00	-24.77
	High	39949.92	100	H	SISO	31	1	66	0	QPSK	292	325	-37.33	17.47	43.00	-25.53
	Low	37051.80	100	H	SISO	30	1	1	0	16QAM	298	329	-36.82	17.09	43.00	-25.91
	Mid	38498.88	100	H	SISO	44	1	66	0	16QAM	298	326	-36.88	17.33	43.00	-25.67
	High	39949.92	100	H	SISO	31	1	66	0	16QAM	292	325	-38.10	16.70	43.00	-26.30
	Low	37051.80	100	H	SISO	30	1	66	0	64QAM	298	329	-38.87	15.04	43.00	-27.96
	Mid	38498.88	100	H	SISO	44	1	66	0	64QAM	298	326	-38.58	15.63	43.00	-27.37
	High	39949.92	100	H	SISO	31	1	66	0	64QAM	292	325	-39.59	15.21	43.00	-27.79
	Low	37051.80	100	V	SISO	172	1	66	0	QPSK	188	355	-35.76	18.15	43.00	-24.85
	Mid	38498.88	100	V	SISO	158	1	1	32	QPSK	187	3	-33.81	20.40	43.00	-22.60
	High	39949.92	100	V	SISO	172	1	1	0	QPSK	190	8	-34.99	19.81	43.00	-23.19
	Low	37051.80	100	V	SISO	172	1	66	0	16QAM	188	355	-36.52	17.39	43.00	-25.61
	Mid	38498.88	100	V	SISO	158	1	66	0	16QAM	187	3	-35.05	19.16	43.00	-23.84
	High	39949.92	100	V	SISO	172	1	66	0	16QAM	190	8	-35.92	18.88	43.00	-24.12
	Low	37051.80	100	V	SISO	172	1	66	0	64QAM	188	355	-37.98	15.93	43.00	-27.07
	Mid	38498.88	100	V	SISO	158	1	66	0	64QAM	187	3	-36.64	17.57	43.00	-25.43
	High	39949.92	100	V	SISO	172	1	66	0	64QAM	190	8	-37.58	17.22	43.00	-25.78
	Mid	38499.96	200	H	SISO	44	4	32	0	QPSK	298	326	-36.98	17.23	43.00	-25.77
	Mid	38499.96	200	H	SISO	44	4	32	0	16QAM	298	326	-37.66	16.55	43.00	-26.45
	Mid	38499.96	200	H	SISO	44	4	32	0	64QAM	298	326	-39.16	15.05	43.00	-27.95
	Mid	38499.96	200	V	SISO	158	4	32	0	QPSK	187	3	-35.21	19.00	43.00	-24.00
	Mid	38499.96	200	V	SISO	158	4	32	0	16QAM	187	3	-35.79	18.42	43.00	-24.58
	Mid	38499.96	200	V	SISO	158	4	32	0	64QAM	187	3	-37.38	16.83	43.00	-26.17
	Mid	38501.88	400	H	SISO	44	4	66	0	QPSK	298	326	-36.86	17.35	43.00	-25.65
	Mid	38501.88	400	H	SISO	44	4	66	0	16QAM	298	326	-37.36	16.85	43.00	-26.15
	Mid	38501.88	400	H	SISO	44	4	66	0	64QAM	298	326	-38.43	15.78	43.00	-27.22
	Mid	38501.88	400	V	SISO	158	4	66	0	QPSK	185	9	-35.24	18.97	43.00	-24.03
	Mid	38501.88	400	V	SISO	158	4	66	0	16QAM	185	9	-35.85	18.36	43.00	-24.64
	Mid	38501.88	400	V	SISO	158	4	66	0	64QAM	185	9	-36.97	17.24	43.00	-25.76

Table 7-20. K Patch EIRP Summary Data (n260 - SISO)

Antenna	Chan.	Channel Freq. [MHz]	Bandwidth [MHz]	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	MIMO EIRP [dBm]	Limit [dBm]	Margin [dB]
K Patch	Mid	38497.44	50	H	MIMO	44	1	1	31	QPSK	298	326	-36.38	17.83	21.32	43.00	-21.68
	Mid	38497.44	50	V	MIMO	172	1	1	31	QPSK	2	359	-35.46	18.75			
	Mid	38497.44	50	H	MIMO	44	1	32	0	16QAM	298	326	-37.75	16.46			
	Mid	38497.44	50	V	MIMO	172	1	1	31	16QAM	2	359	-36.25	17.96			
	Mid	38497.44	50	H	MIMO	44	1	32	0	64QAM	298	326	-39.37	14.84	18.52	43.00	-24.48
	Mid	38497.44	50	V	MIMO	172	1	1	31	64QAM	2	359	-38.12	16.09			
	Mid	38498.88	100	H	MIMO	44	1	1	0	QPSK	298	326	-35.98	18.23			
	Mid	38498.88	100	V	MIMO	172	1	1	65	QPSK	2	357	-35.02	19.19			
	Mid	38498.88	100	H	MIMO	44	1	66	0	16QAM	298	326	-36.88	17.33	20.58	43.00	-22.42
	Mid	38498.88	100	V	MIMO	172	1	1	65	16QAM	2	357	-36.42	17.79			
	Mid	38498.88	100	H	MIMO	44	1	66	0	64QAM	298	326	-38.58	15.63			
	Mid	38498.88	100	V	MIMO	172	1	1	65	64QAM	2	357	-38.14	16.07			

Table 7-21. K Patch EIRP Summary Data (n260 - MIMO)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 79 of 371

7.3.4 L Patch Equivalent Isotropic Radiated Power (EIRP)

Antenna	Chan.	Channel Freq [MHz]	Bandwidth (MHz)	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	Limit [dBm]	Margin [dB]
L Patch	Low	27534.84	50	H	SISO	48	1	32	0	QPSK	89	317	-32.83	18.85	43.00	-24.15
	Mid	27922.08	50	H	SISO	48	1	1	31	QPSK	85	314	-32.97	18.74	43.00	-24.26
	High	28319.52	50	H	SISO	48	1	1	0	QPSK	89	317	-32.96	18.83	43.00	-24.17
	Low	27534.84	50	H	SISO	48	1	32	0	16QAM	89	317	-33.78	17.90	43.00	-25.10
	Mid	27922.08	50	H	SISO	48	1	32	0	16QAM	85	314	-34.34	17.37	43.00	-25.63
	High	28319.52	50	H	SISO	48	1	32	0	16QAM	89	317	-34.12	17.67	43.00	-25.33
	Low	27534.84	50	H	SISO	48	1	32	0	64QAM	89	317	-35.59	16.09	43.00	-26.91
	Mid	27922.08	50	H	SISO	48	1	1	31	64QAM	85	314	-36.04	15.67	43.00	-27.33
	High	28319.52	50	H	SISO	48	1	1	0	64QAM	89	317	-36.13	15.66	43.00	-27.34
	Low	27534.84	50	V	SISO	163	1	32	0	QPSK	86	354	-32.83	18.85	43.00	-24.15
	Mid	27922.08	50	V	SISO	176	1	32	0	QPSK	84	0	-33.33	18.38	43.00	-24.62
	High	28319.52	50	V	SISO	176	1	32	0	QPSK	92	12	-31.60	20.19	43.00	-22.81
	Low	27534.84	50	V	SISO	163	1	32	0	16QAM	86	354	-33.67	18.01	43.00	-24.99
	Mid	27922.08	50	V	SISO	176	1	32	0	16QAM	84	0	-34.38	17.33	43.00	-25.67
	High	28319.52	50	V	SISO	176	1	1	0	16QAM	92	12	-32.38	19.41	43.00	-23.59
	Low	27534.84	50	V	SISO	163	1	32	0	64QAM	86	354	-35.65	16.03	43.00	-26.97
	Mid	27922.08	50	V	SISO	176	1	32	0	64QAM	84	0	-36.35	15.36	43.00	-27.64
	High	28319.52	50	V	SISO	176	1	1	0	64QAM	92	12	-34.25	17.54	43.00	-25.46
	Low	27559.32	100	H	SISO	48	1	66	0	QPSK	89	317	-32.49	19.19	43.00	-23.81
	Mid	27923.52	100	H	SISO	48	1	66	0	QPSK	85	315	-32.89	18.82	43.00	-24.18
	High	28292.16	100	H	SISO	48	1	66	0	QPSK	89	317	-32.69	19.10	43.00	-23.90
	Low	27559.32	100	H	SISO	48	1	66	0	16QAM	89	317	-33.41	18.27	43.00	-24.73
	Mid	27923.52	100	H	SISO	48	1	66	0	16QAM	85	315	-33.91	17.80	43.00	-25.20
	High	28292.16	100	H	SISO	48	1	66	0	16QAM	89	317	-33.71	18.08	43.00	-24.92
	Low	27559.32	100	H	SISO	48	1	66	0	64QAM	89	317	-35.47	16.21	43.00	-26.79
	Mid	27923.52	100	H	SISO	48	1	1	65	64QAM	85	315	-35.57	16.14	43.00	-26.86
	High	28292.16	100	H	SISO	48	1	1	32	64QAM	89	317	-35.52	16.27	43.00	-26.73
	Low	27559.32	100	V	SISO	163	1	66	0	QPSK	86	354	-32.56	19.12	43.00	-23.88
	Mid	27923.52	100	V	SISO	176	1	1	65	QPSK	84	0	-32.57	19.14	43.00	-23.86
	High	28292.16	100	V	SISO	176	1	1	32	QPSK	92	12	-31.33	20.46	43.00	-22.54
	Low	27559.32	100	V	SISO	163	1	66	0	16QAM	86	354	-33.49	18.19	43.00	-24.81
	Mid	27923.52	100	V	SISO	176	1	66	0	16QAM	84	0	-33.64	18.07	43.00	-24.93
	High	28292.16	100	V	SISO	176	1	1	32	16QAM	92	12	-32.39	19.40	43.00	-23.60
	Low	27559.32	100	V	SISO	163	1	66	0	64QAM	86	354	-35.32	16.36	43.00	-26.64
	Mid	27923.52	100	V	SISO	176	1	1	65	64QAM	84	0	-35.39	16.32	43.00	-26.68
	High	28292.16	100	V	SISO	176	1	1	32	64QAM	92	12	-34.09	17.70	43.00	-25.30
	Mid	27922.08	200	H	SISO	48	4	32	0	QPSK	85	315	-33.65	18.06	43.00	-24.94
	Mid	27922.08	200	H	SISO	48	4	32	0	16QAM	85	315	-34.49	17.22	43.00	-25.78
	Mid	27922.08	200	H	SISO	48	4	32	0	64QAM	85	315	-36.57	15.14	43.00	-27.86
	Mid	27922.08	200	V	SISO	176	4	32	0	QPSK	84	0	-33.26	18.45	43.00	-24.55
	Mid	27922.08	200	V	SISO	176	4	32	0	16QAM	84	0	-34.06	17.65	43.00	-25.35
	Mid	27922.08	200	V	SISO	176	4	32	0	64QAM	84	0	-36.28	15.43	43.00	-27.57
	Mid	27923.52	400	H	SISO	48	4	66	0	QPSK	85	315	-34.34	17.37	43.00	-25.63
	Mid	27923.52	400	H	SISO	48	4	66	0	16QAM	85	315	-35.14	16.57	43.00	-26.43
	Mid	27923.52	400	H	SISO	48	4	66	0	64QAM	85	315	-37.58	14.13	43.00	-28.87
	Mid	27923.52	400	V	SISO	176	4	66	0	QPSK	85	3	-33.78	17.93	43.00	-25.07
	Mid	27923.52	400	V	SISO	176	4	66	0	16QAM	85	3	-34.82	16.89	43.00	-26.11
	Mid	27923.52	400	V	SISO	176	4	66	0	64QAM	85	3	-37.14	14.57	43.00	-28.43

Table 7-22. L Patch EIRP Summary Data (n261 - SISO)

Antenna	Chan.	Channel Freq [MHz]	Bandwidth (MHz)	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	MIMO EIRP [dBm]	Limit [dBm]	Margin [dB]
L Patch	High	28319.52	50	H	MIMO	36	1	32	0	QPSK	266	319	-33.01	18.78	21.85	43.00	-21.15
	High	28319.52	50	V	MIMO	164	1	32	0	QPSK	254	358	-32.88	18.91			
	High	28319.52	50	H	MIMO	36	1	32	0	16QAM	266	319	-34.23	17.56			
	High	28319.52	50	V	MIMO	164	1	32	0	16QAM	254	358	-33.98	17.81	20.69	43.00	-22.31
	High	28319.52	50	H	MIMO	36	1	32	0	64QAM	266	319	-36.38	15.41			
	High	28319.52	50	V	MIMO	164	1	32	0	64QAM	254	358	-35.97	15.82			
	High	28292.16	100	H	MIMO	36	1	1	0	QPSK	265	321	-32.75	19.04	22.20	43.00	-20.80
	High	28292.16	100	V	MIMO	164	1	1	0	QPSK	249	358	-32.45	19.34			
	High	28292.16	100	H	MIMO	36	1	1	0	16QAM	265	321	-34.11	17.68			
	High	28292.16	100	V	MIMO	164	1	1	0	16QAM	249	358	-33.39	18.40	21.06	43.00	-21.94
	High	28292.16	100	H	MIMO	36	1	1	0	64QAM	265	321	-35.11	16.68			
	High	28292.16	100	V	MIMO	164	1	1	0	64QAM	249	358	-34.83	16.96			

Table 7-23. L Patch EIRP Summary Data (n261 - MIMO)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-06-R1.A3L	Test Dates: 05/14 - 07/12/2019	EUT Type: Portable Handset		Page 80 of 371

Antenna	Chan.	Channel Freq. [MHz]	Bandwidth [MHz]	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	Limit [dBm]	Margin [dB]
L Patch	Low	37027.32	50	H	SISO	35	1	32	0	QPSK	80	38	-36.42	17.49	43.00	-25.51
	Mid	38497.44	50	H	SISO	35	1	1	16	QPSK	80	22	-36.04	18.17	43.00	-24.83
	High	39966.24	50	H	SISO	35	1	32	0	QPSK	83	34	-37.35	17.45	43.00	-25.55
	Low	37027.32	50	H	SISO	35	1	32	0	16QAM	80	38	-37.37	16.54	43.00	-26.46
	Mid	38497.44	50	H	SISO	35	1	1	16	16QAM	80	22	-37.39	16.82	43.00	-26.18
	High	39966.24	50	H	SISO	35	1	32	0	16QAM	83	34	-38.09	16.71	43.00	-26.29
	Low	37027.32	50	H	SISO	35	1	32	0	64QAM	80	38	-38.97	14.94	43.00	-28.06
	Mid	38497.44	50	H	SISO	35	1	32	0	64QAM	80	22	-39.05	15.16	43.00	-27.84
	High	39966.24	50	H	SISO	35	1	32	0	64QAM	83	34	-39.70	15.10	43.00	-27.90
	Low	37027.32	50	V	SISO	176	1	32	0	QPSK	82	7	-37.38	16.53	43.00	-26.47
	Mid	38497.44	50	V	SISO	176	1	32	0	QPSK	82	7	-35.25	18.96	43.00	-24.04
	High	39966.24	50	V	SISO	176	1	1	0	QPSK	84	354	-34.88	19.92	43.00	-23.08
	Low	37027.32	50	V	SISO	176	1	32	0	16QAM	82	7	-38.37	15.54	43.00	-27.46
	Mid	38497.44	50	V	SISO	176	1	1	31	16QAM	82	7	-35.50	18.71	43.00	-24.29
	High	39966.24	50	V	SISO	176	1	1	0	16QAM	84	354	-35.83	18.97	43.00	-24.03
	Low	37027.32	50	V	SISO	176	1	32	0	64QAM	82	7	-39.83	14.08	43.00	-28.92
	Mid	38497.44	50	V	SISO	176	1	1	31	64QAM	82	7	-37.10	17.11	43.00	-25.89
	High	39966.24	50	V	SISO	176	1	32	0	64QAM	84	354	-37.55	17.25	43.00	-25.75
	Low	37051.80	100	H	SISO	35	1	66	0	QPSK	80	38	-36.02	17.89	43.00	-25.11
	Mid	38498.88	100	H	SISO	35	1	1	65	QPSK	82	25	-35.75	18.46	43.00	-24.54
	High	39949.92	100	H	SISO	35	1	66	0	QPSK	83	34	-36.71	18.09	43.00	-24.91
	Low	37051.80	100	H	SISO	35	1	66	0	16QAM	80	38	-36.86	17.05	43.00	-25.95
	Mid	38498.88	100	H	SISO	35	1	66	0	16QAM	82	25	-37.02	17.19	43.00	-25.81
	High	39949.92	100	H	SISO	35	1	66	0	16QAM	83	34	-37.49	17.31	43.00	-25.69
	Low	37051.80	100	H	SISO	35	1	66	0	64QAM	80	38	-38.38	15.53	43.00	-27.47
	Mid	38498.88	100	H	SISO	35	1	66	0	64QAM	82	25	-38.46	15.75	43.00	-27.25
	High	39949.92	100	H	SISO	35	1	66	0	64QAM	83	34	-39.12	15.68	43.00	-27.32
	Low	37051.80	100	V	SISO	176	1	1	65	QPSK	82	8	-35.29	18.62	43.00	-24.38
	Mid	38498.88	100	V	SISO	176	1	1	0	QPSK	82	7	-34.53	19.68	43.00	-23.32
	High	39949.92	100	V	SISO	176	1	66	0	QPSK	84	354	-34.27	20.53	43.00	-22.47
	Low	37051.80	100	V	SISO	176	1	66	0	16QAM	82	8	-37.14	16.77	43.00	-26.23
	Mid	38498.88	100	V	SISO	176	1	66	0	16QAM	82	7	-35.57	18.64	43.00	-24.36
	High	39949.92	100	V	SISO	176	1	66	0	16QAM	84	354	-35.14	19.66	43.00	-23.34
	Low	37051.80	100	V	SISO	176	1	66	0	64QAM	82	8	-38.60	15.31	43.00	-27.69
	Mid	38498.88	100	V	SISO	176	1	66	0	64QAM	82	7	-37.16	17.05	43.00	-25.95
	High	39949.92	100	V	SISO	176	1	66	0	64QAM	84	354	-36.80	18.00	43.00	-25.00
	Mid	38499.96	200	H	SISO	35	4	32	0	QPSK	80	22	-36.90	17.31	43.00	-25.69
	Mid	38499.96	200	H	SISO	35	4	32	0	16QAM	80	22	-37.49	16.72	43.00	-26.28
	Mid	38499.96	200	H	SISO	35	4	32	0	64QAM	80	22	-38.86	15.35	43.00	-27.65
	Mid	38499.96	200	V	SISO	176	4	32	0	QPSK	82	7	-35.55	18.66	43.00	-24.34
	Mid	38499.96	200	V	SISO	176	4	32	0	16QAM	82	7	-36.14	18.07	43.00	-24.93
	Mid	38499.96	200	V	SISO	176	4	32	0	64QAM	82	7	-37.63	16.58	43.00	-26.42
	Mid	38501.88	400	H	SISO	35	4	66	0	QPSK	80	22	-36.77	17.44	43.00	-25.56
	Mid	38501.88	400	H	SISO	35	4	66	0	16QAM	80	22	-37.40	16.81	43.00	-26.19
	Mid	38501.88	400	H	SISO	35	4	66	0	64QAM	80	22	-38.82	15.39	43.00	-27.61
	Mid	38501.88	400	V	SISO	176	4	66	0	QPSK	83	11	-35.79	18.42	43.00	-24.58
	Mid	38501.88	400	V	SISO	176	4	66	0	16QAM	83	11	-36.32	17.89	43.00	-25.11
	Mid	38501.88	400	V	SISO	176	4	66	0	64QAM	83	11	-37.53	16.68	43.00	-26.32

Table 7-24. L Patch EIRP Summary Data (n260 - SISO)

Antenna	Chan.	Channel Freq. [MHz]	Bandwidth [MHz]	Ant. Pol. [H/V]	Mode	Beam ID	CCs active	RB Size	RB Offset	Modulation	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Analyzer Level [dBm]	EIRP [dBm]	MIMO EIRP [dBm]	Limit [dBm]	Margin [dB]
L Patch	High	39966.24	50	H	MIMO	49	1	32	0	QPSK	9	11	-38.34	16.46	20.82	43.00	-22.18
	High	39966.24	50	V	MIMO	177	1	32	0	QPSK	5	354	-35.96	18.84			
	High	39966.24	50	H	MIMO	49	1	32	0	16QAM	9	11	-39.32	15.48			
	High	39966.24	50	V	MIMO	177	1	32	0	16QAM	5	354	-36.83	17.97	19.91	43.00	-23.09
	High	39966.24	50	H	MIMO	49	1	32	0	64QAM	9	11	-41.00	13.80			
	High	39966.24	50	V	MIMO	177	1	32	0	64QAM	5	354	-38.62	16.18			
	High	39949.92	100	H	MIMO	49	1	66	0	QPSK	10	6	-38.24	16.56	20.91	43.00	-22.09
	High	39949.92	100	V	MIMO	177	1	66	0	QPSK	6	359	-35.87	18.93			
	High	39949.92	100	H	MIMO	49	1	66	0	16QAM	10	6	-39.00	15.80			
	High	39949.92	100	V	MIMO	177	1	66	0	16QAM	6	359	-36.76	18.04	20.07	43.00	-22.93
	High	39949.92	100	H	MIMO	49	1	66	0	64QAM	10	6	-40.80	14.00			
	High	39949.92	100	V	MIMO	177	1	66	0	64QAM	6	359	-38.63	16.17			

Table 7-25. L Patch EIRP Summary Data (n260 - MIMO)

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7.4 Radiated Spurious and Harmonic Emissions

§2.1051, §30.203

Test Overview

The spectrum is scanned from 30MHz to 100GHz for n261 and from 30MHz to 200GHz for n260. All out of band emissions are measured in a radiated test setup while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All modulations were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The conductive power or total radiated power of any emissions outside a licensee's frequency block shall be -13dBm/1MHz.

Test Procedure Used

ANSI C63.26-2015 Section 5.7.4

KDB 842590 D01 v01 Section 4.4.2 and Section 4.4.3

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 100 GHz for n261 and 200GHz for n260. Several plots are used to show investigations in this entire span.
2. Detector = RMS
3. Trace mode = trace average
4. Sweep time = auto couple
5. Number of sweep points $\geq 2 \times \text{Span/RBW}$
6. The trace was allowed to stabilize
7. RBW = 1MHz, VBW = 3MHz

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) All radiated spurious emissions were measured as EIRP to compare with the §30.203 TRP limits.
- 3) Elements within the same antenna array are correlated to produce beamforming array gain. Antenna arrays cannot be correlated with another antenna array. During testing, only one antenna array was active.
- 4) The plots from 1-200GHz show corrected average EIRP levels. Plots below 1GHz are corrected field strength levels. The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: $\text{EIRP (dBm)} = E (\text{dB}\mu\text{V/m}) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m. The field strength E is calculated $E (\text{dB}\mu\text{V/m}) = \text{Spectrum Analyzer Level (dBm)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} + \text{Harmonic Mixer Conversion Loss (dB)} + 107$. All appropriate Antenna Factor and Cable Loss have been applied in the spectrum analyzer for each measurement. For measurements > 40GHz, Harmonic Mixer Conversion Loss was also applied to the spectrum analyzer.
- 5) Emissions below 18GHz were measured at a 3 meter test distance, while emissions above 18GHz were measured at the appropriate far field distance. The far field of the mmWave signal is based on formula: $R > 2D^2/\text{wavelength}$, where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, D is the largest dimension of the measurement antenna.

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Frequency Range (GHz)	Wavelength(cm)	Far Field Distance (m)	Measurement Distance (m)
18-40	0.749	0.54	1.00
40-60	0.500	1.39	1.50
60-90	0.333	0.91	1.00
90-140	0.214	0.58	1.00
140-200	0.150	0.39	1.00

Table 7-26. Far-Field Distance & Measurement Distance per Frequency Range

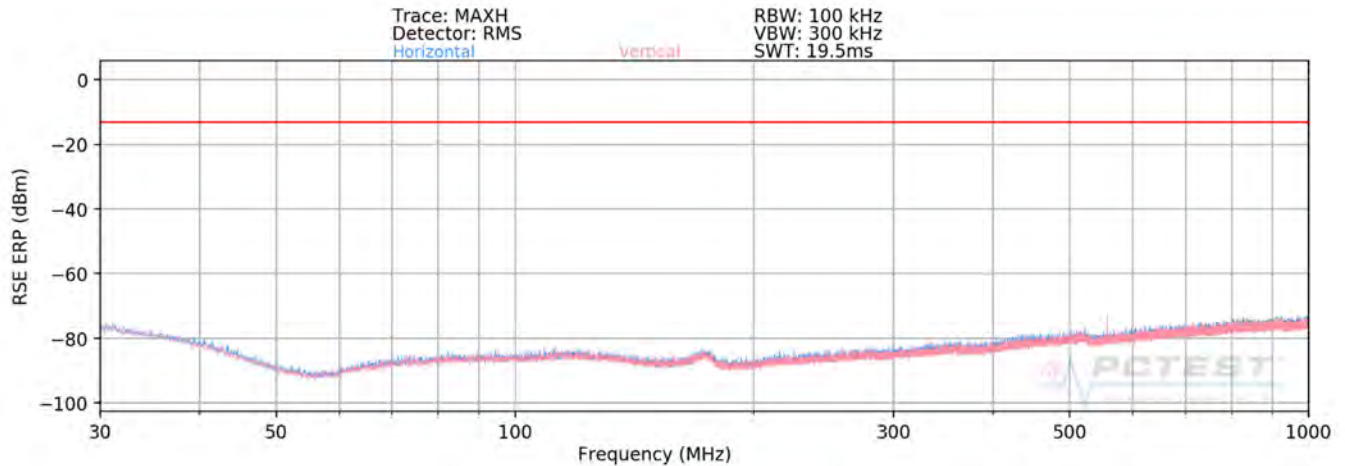
- 6) All emissions from 30MHz - 60GHz were measured using a spectrum analyzer with an internal preamplifier. Emissions >60GHz were measured using a harmonic mixer with the spectrum analyzer.
- 7) All RSE's were measured with 1CC. It was determined that adding more CC's causes the overall amplitude of just 1CC to decrease, therefore, 1CC is the worst case for the purposes of spurious emissions measurements.
- 8) The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 9) All RSE's were investigated in EN-DC mode and with 802.11 chipset active. It was determined that there is no new emission introduced by EN-DC mode, or the 802.11 chipset. For EN-DC mode, the anchor bands are: LTE B13, B5, B4, B66 and B2.

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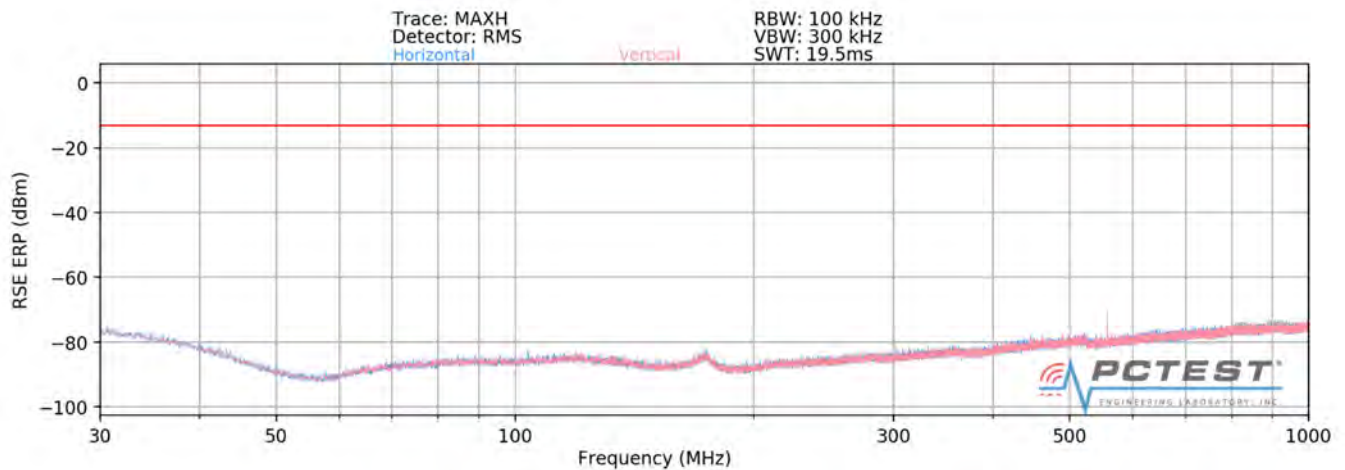
7.4.1 n261 Radiated Spurious Emissions

J Dipole Radiated Spurious Emissions(n261)

30MHz – 1GHz(n261)



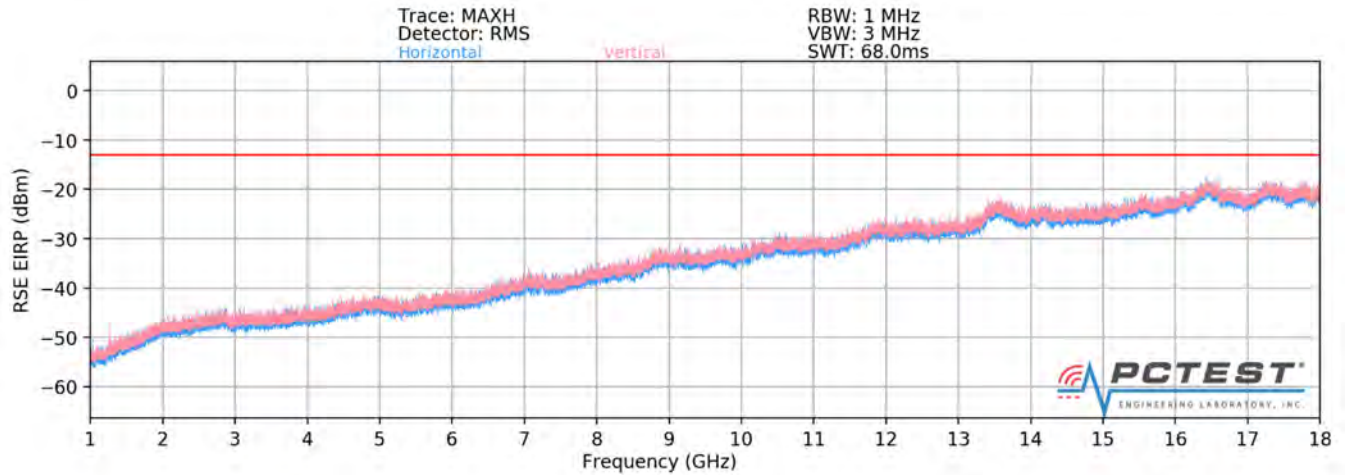
Plot 7-97. J Dipole Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel H Beam – n261)



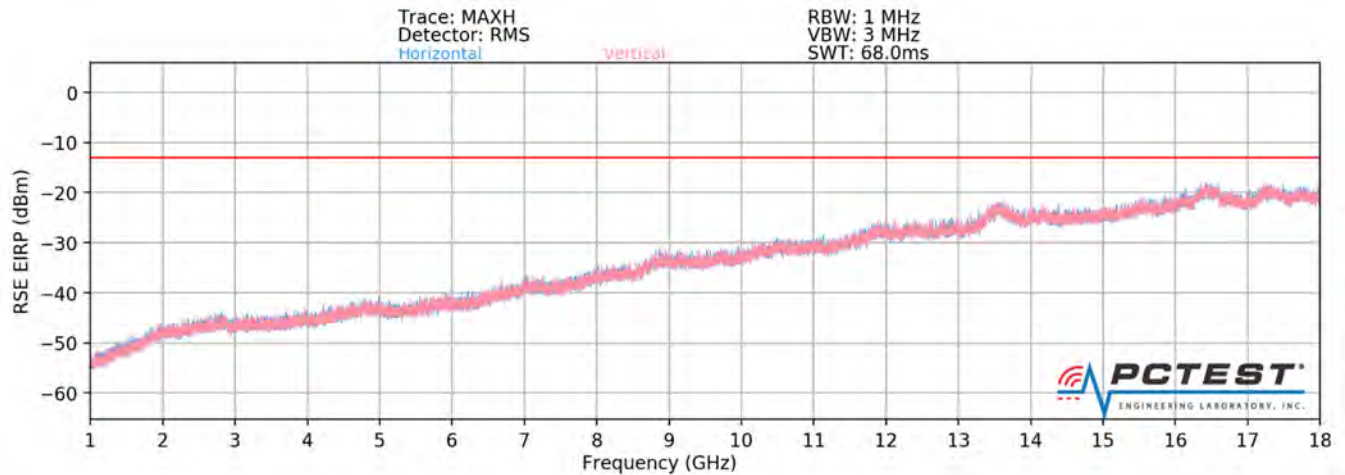
Plot 7-98. J Dipole Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel V Beam – n261)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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1 – 18GHz



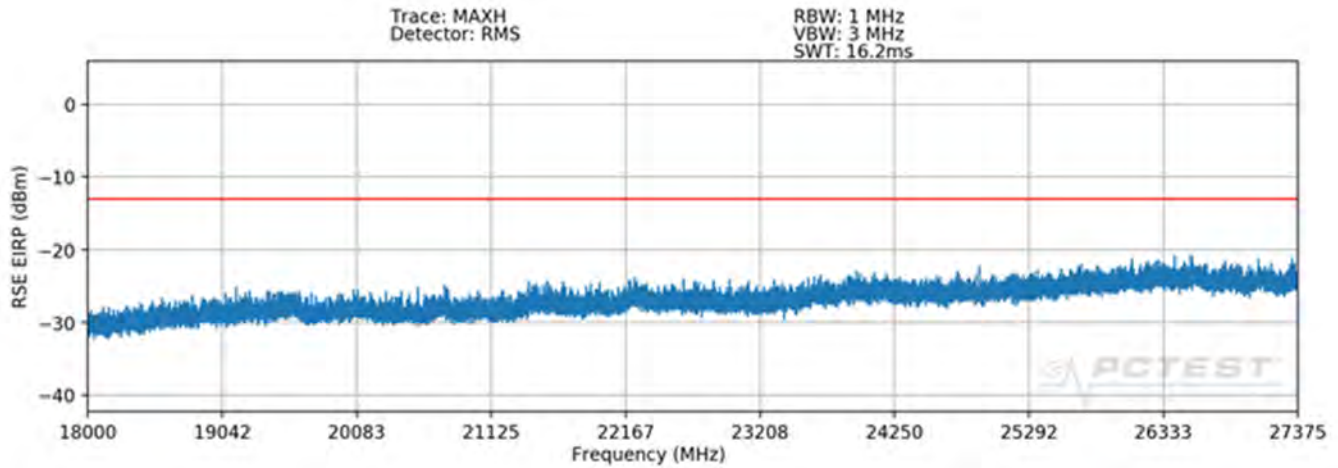
Plot 7-99. J Dipole Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel H Beam – n261)



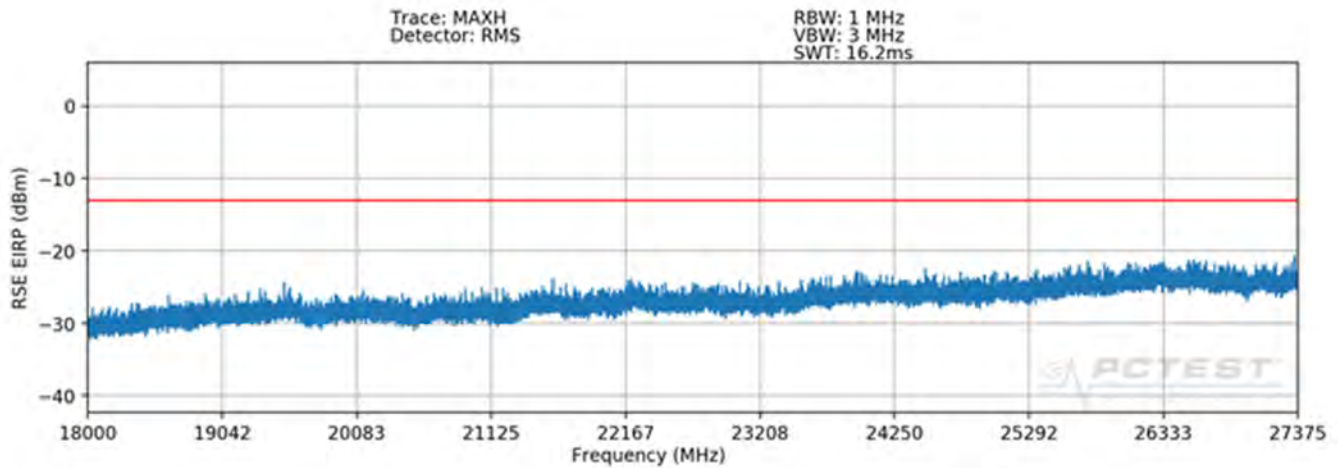
Plot 7-100. J Dipole Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel V Beam – n261)

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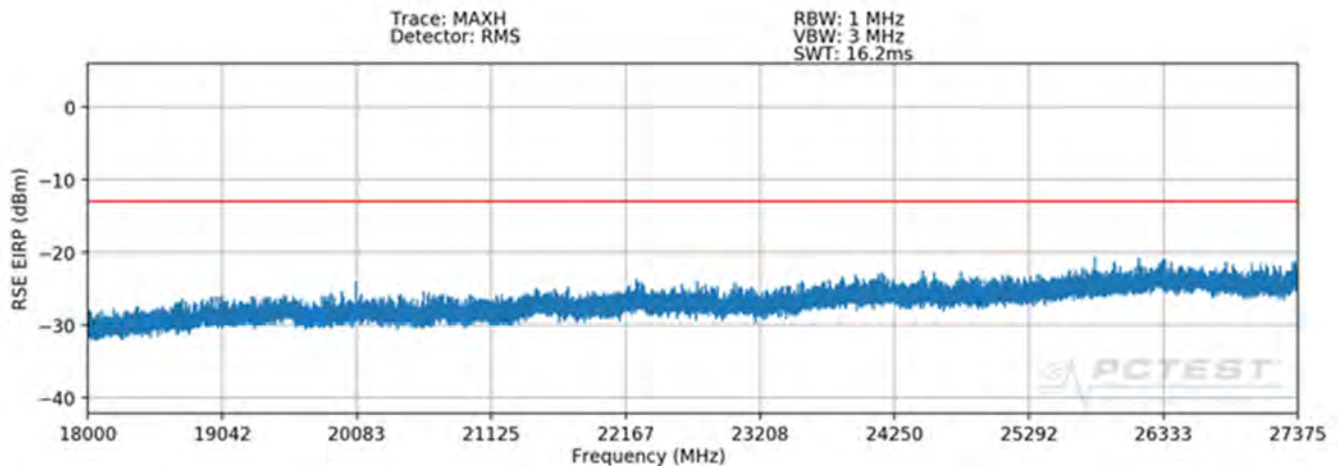
18 – 27.375GHz



Plot 7-101. J Dipole Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Low Channel H Beam – n261)

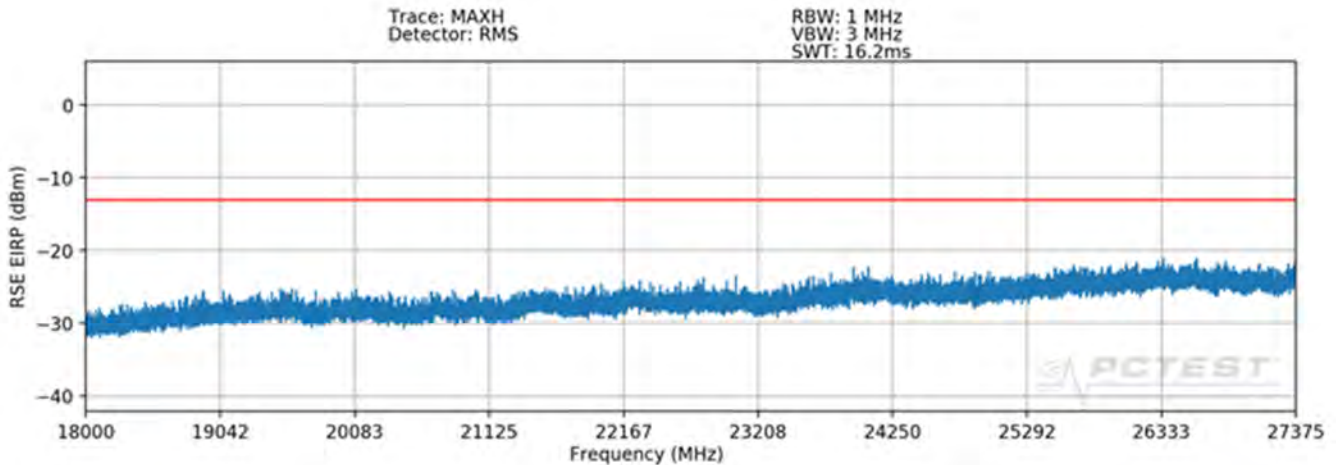


Plot 7-102. J Dipole Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Mid Channel H Beam – n261)

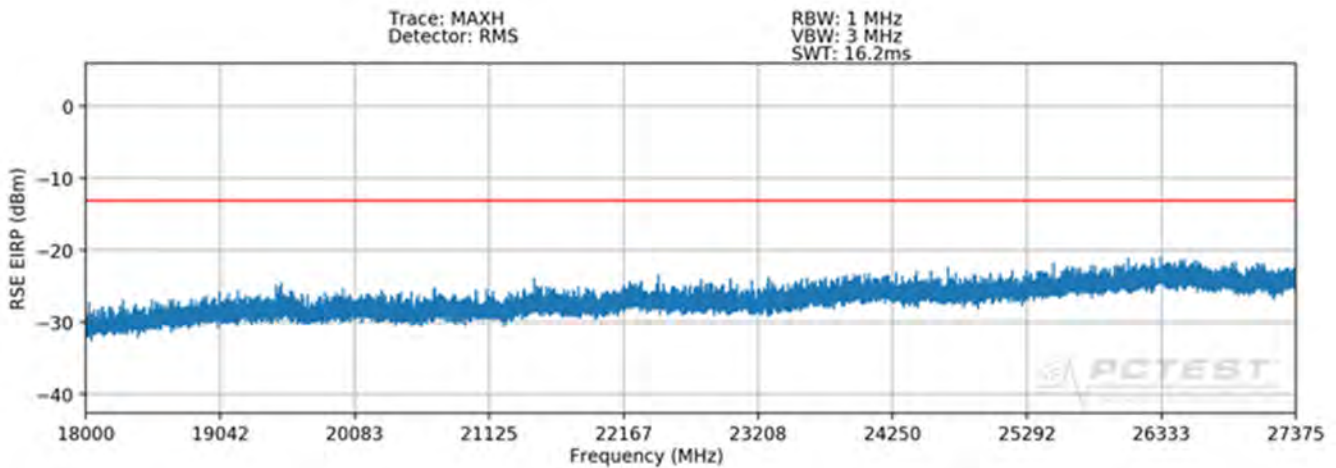


Plot 7-103. J Dipole Radiated Spurious Plot 18-27.375 GHz (1CC QPSK High Channel H Beam – n261)

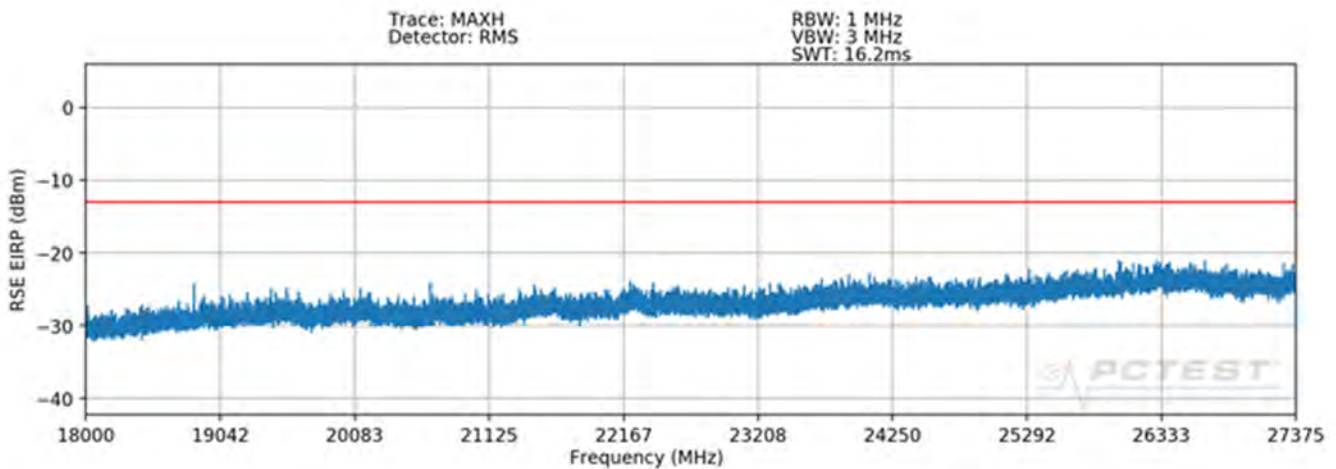
FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-104. J Dipole Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-105. J Dipole Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-106. J Dipole Radiated Spurious Plot 18-27.375 GHz (1CC QPSK High Channel V Beam – n261)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Detector/Trace	Chan.	Bandwidth (MHz)	Mod.	EUT Beam Polarization	Ant. Pos [H/V]	Turntable Azimuth [degree]	Positioner Azimuth [degree]	RSE EIRP [dBm]	Limit [dBm]	Margin [dB]
26961.60	RMS/Avg	Low	50	QPSK	H	H	301	104	-34.51	-13.00	-21.51
27343.10	RMS/Avg	Mid	50	QPSK	H	H	305	104	-31.96	-13.00	-18.96
25667.80	RMS/Avg	High	50	QPSK	H	H	305	104	-36.44	-13.00	-23.44
25659.40	RMS/Avg	Low	50	QPSK	V	H	268	306	-36.77	-13.00	-23.77
25667.30	RMS/Avg	Mid	50	QPSK	V	H	260	308	-36.38	-13.00	-23.38
25671.60	RMS/Avg	High	50	QPSK	V	H	270	312	-36.62	-13.00	-23.62

Table 7-27. J Dipole Spurious Emissions Table (18-27.375GHz – n261)

Notes

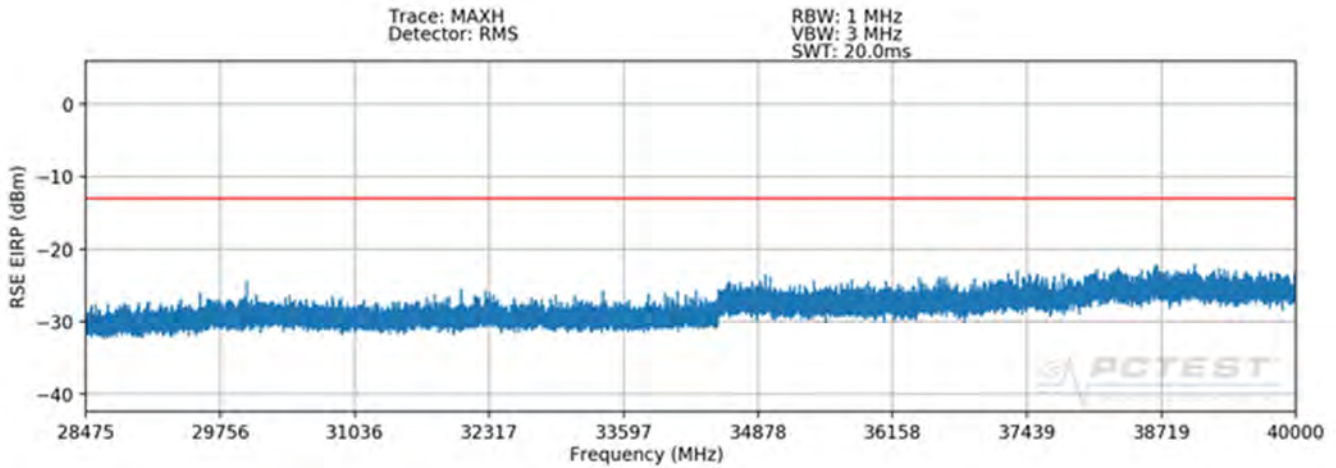
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

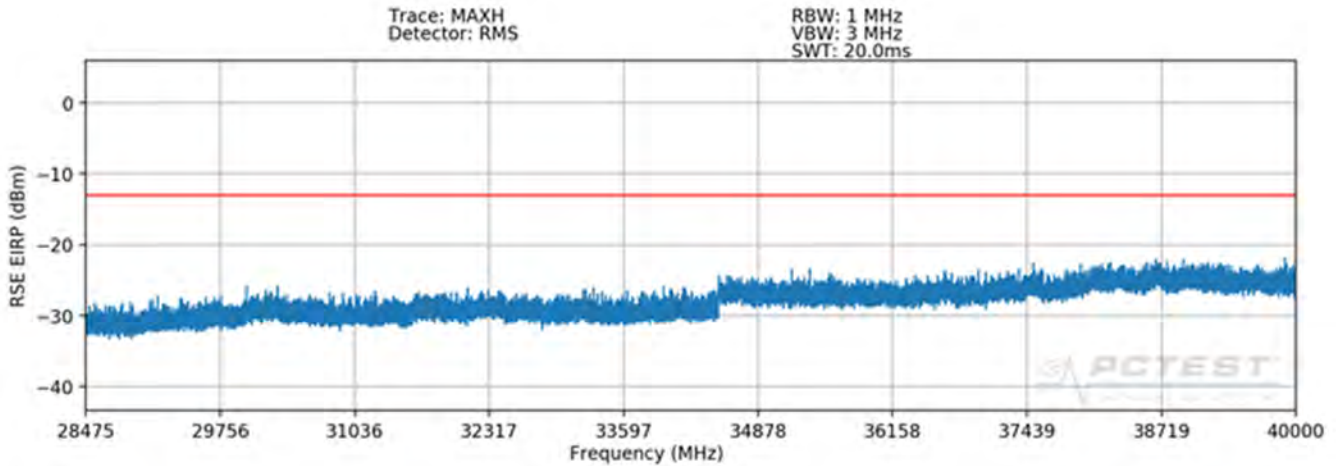
$$(-31.96 \text{ dBm} + -36.38 \text{ dBm}) = (636.80 \text{ nW} + 230.14 \text{ nW}) = (866.94 \text{ nW}) = -30.62 \text{ dBm}$$

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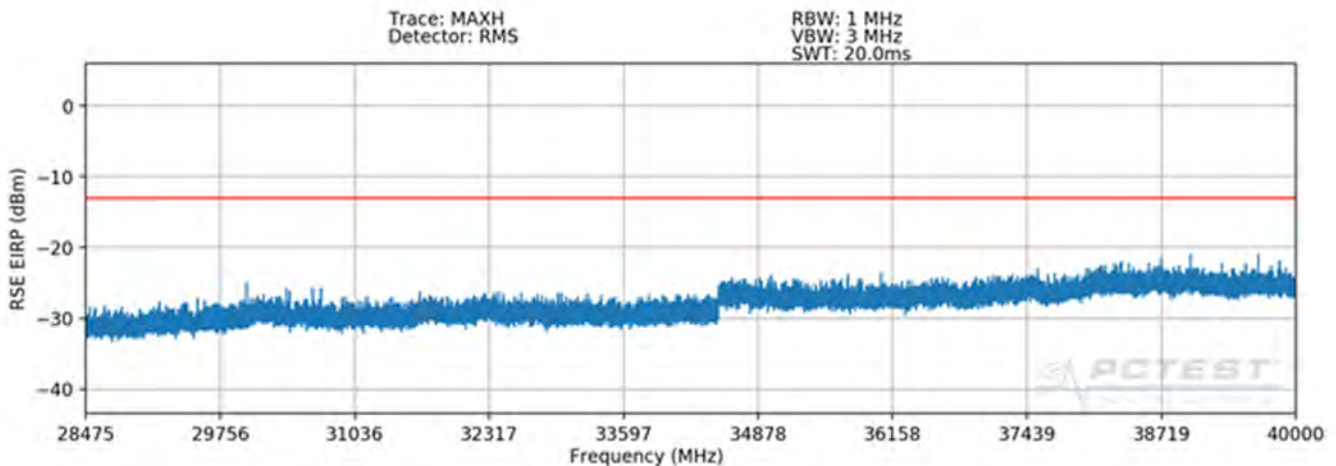
28.475 – 40GHz(n261)



Plot 7-107. J Dipole Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Low Channel H Beam – n261)

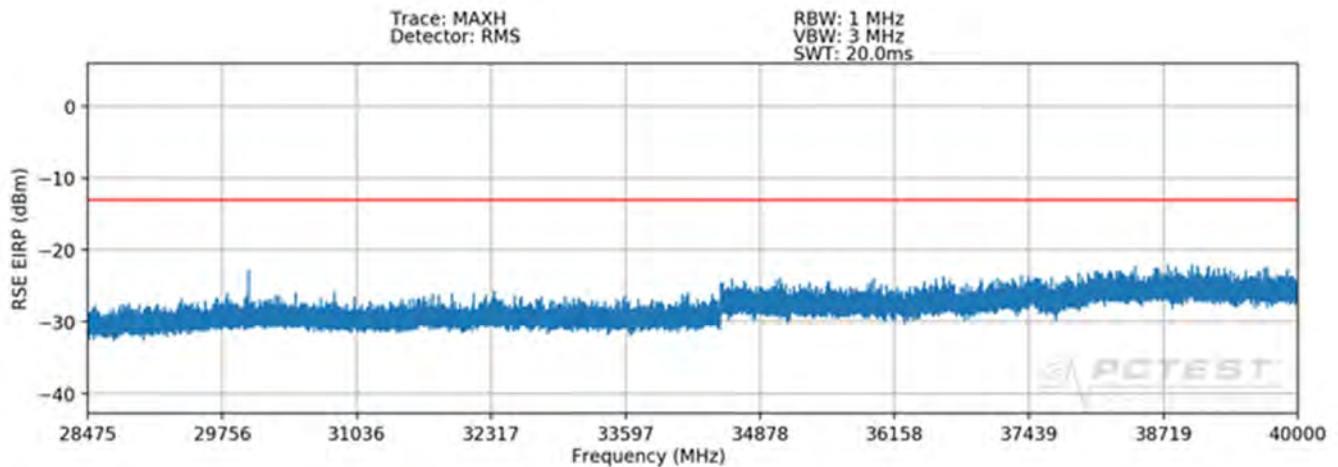


Plot 7-108. J Dipole Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Mid Channel H Beam – n261)

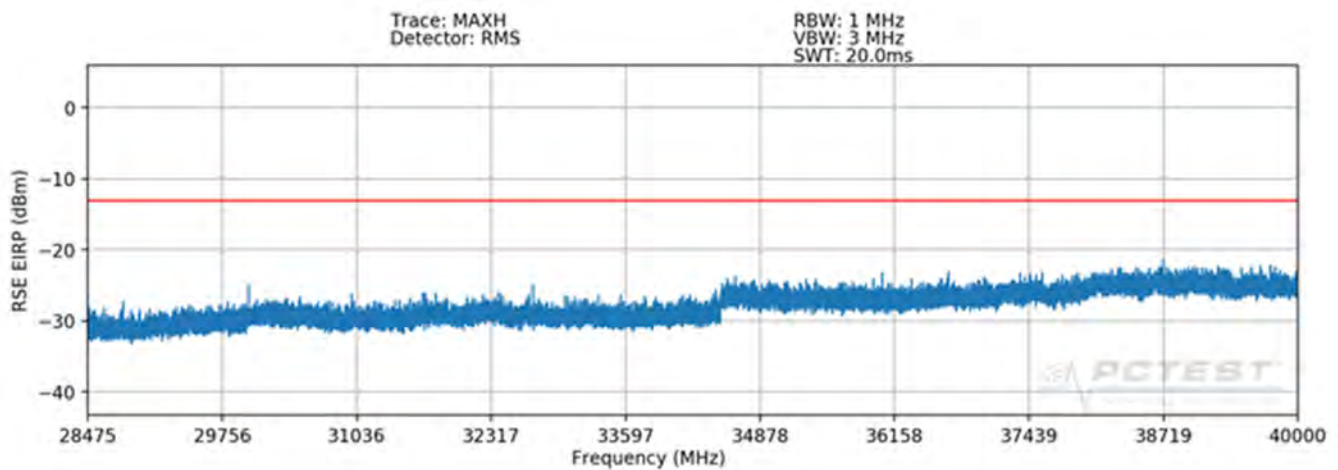


Plot 7-109. J Dipole Radiated Spurious Plot 28.475-40 GHz (1CC QPSK High Channel H Beam – n261)

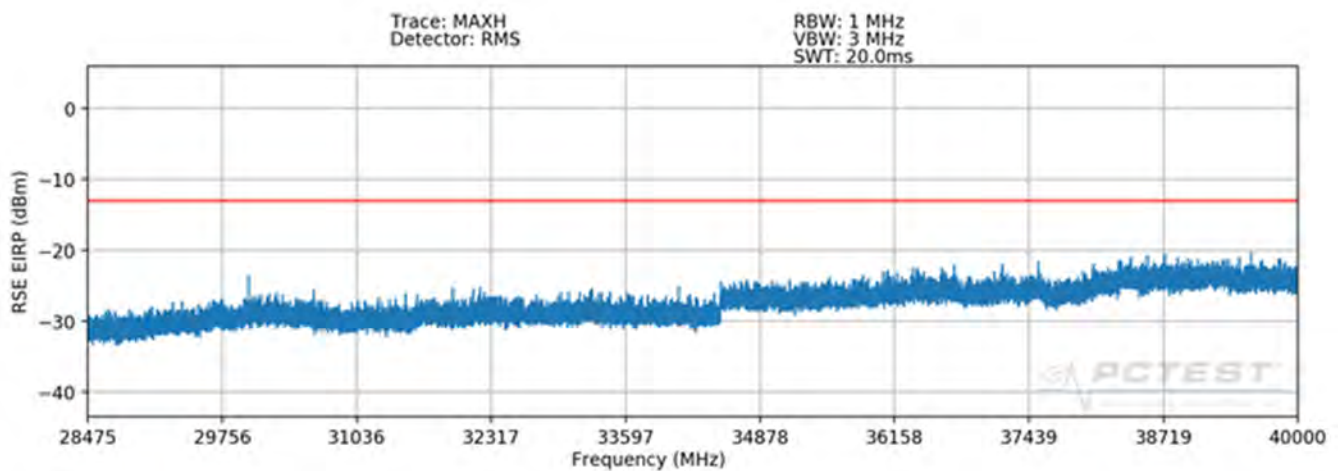
FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-110. J Dipole Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-111. J Dipole Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-112. J Dipole Radiated Spurious Plot 28.475-40 GHz (1CC QPSK High Channel V Beam – n261)

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Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Detector/Trace	Chan.	Bandwidth (MHz)	Mod.	EUT Beam Polarization	Ant. Pos [H/V]	Turntable Azimuth [degree]	Positioner Azimuth [degree]	RSE EIRP [dBm]	Limit [dBm]	Margin [dB]
30006.40	RMS/Avg	Low	50	QPSK	H	H	305	102	-28.59	-13.00	-15.59
38969.50	RMS/Avg	Mid	50	QPSK	H	H	305	107	-29.44	-13.00	-16.44
38594.40	RMS/Avg	High	50	QPSK	H	H	-	-	-30.68	-13.00	-17.68
28761.20	RMS/Avg	Low	50	QPSK	V	H	270	306	-28.71	-13.00	-15.71
28959.50	RMS/Avg	Mid	50	QPSK	V	H	269	309	-27.48	-13.00	-14.48
29373.00	RMS/Avg	High	50	QPSK	V	H	274	312	-26.61	-13.00	-13.61

Table 7-28. J Dipole Spurious Emissions Table (28.475-40 GHz – n261)

Notes

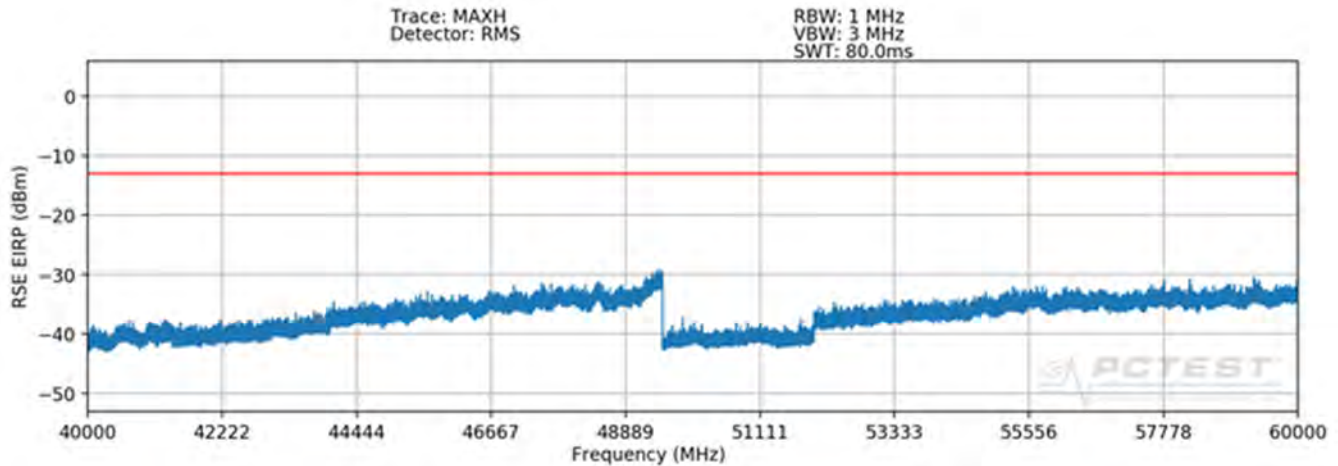
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

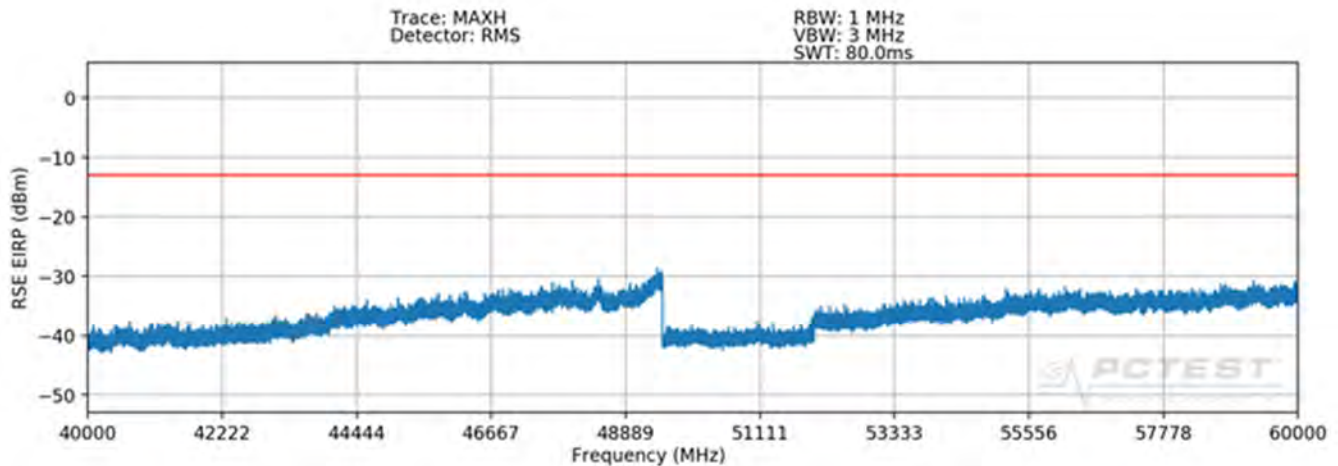
$$(-30.68 \text{ dBm} + -26.61 \text{ dBm}) = (855.07 \text{ nW} + 2182.73 \text{ nW}) = (3037.80 \text{ nW}) = -25.17 \text{ dBm}$$

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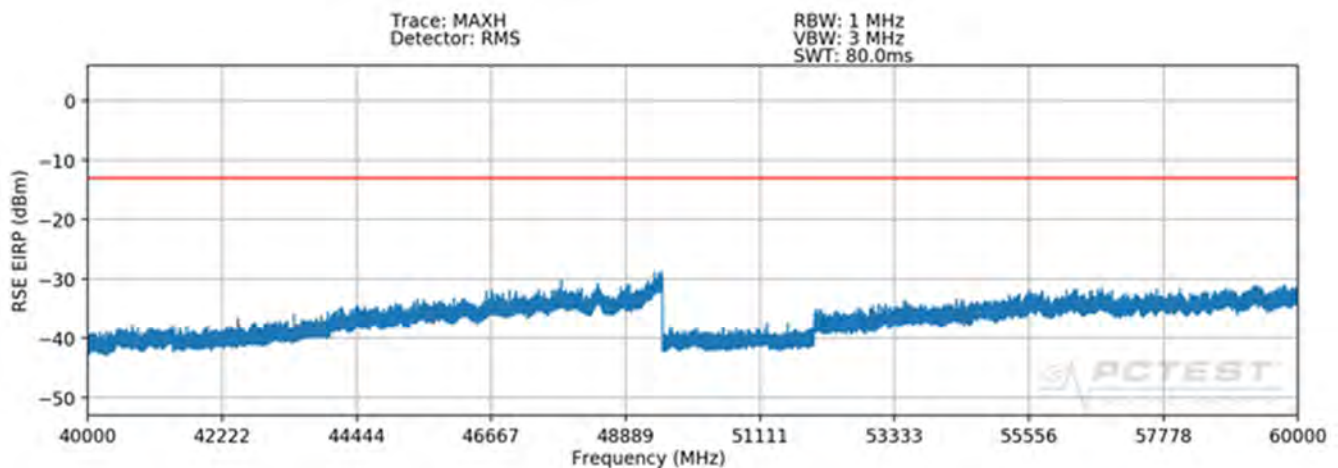
40 – 60GHz(n261)



Plot 7-113. J Dipole Radiated Spurious Plot 40-60 GHz (1CC QPSK Low Channel H Beam – n261)

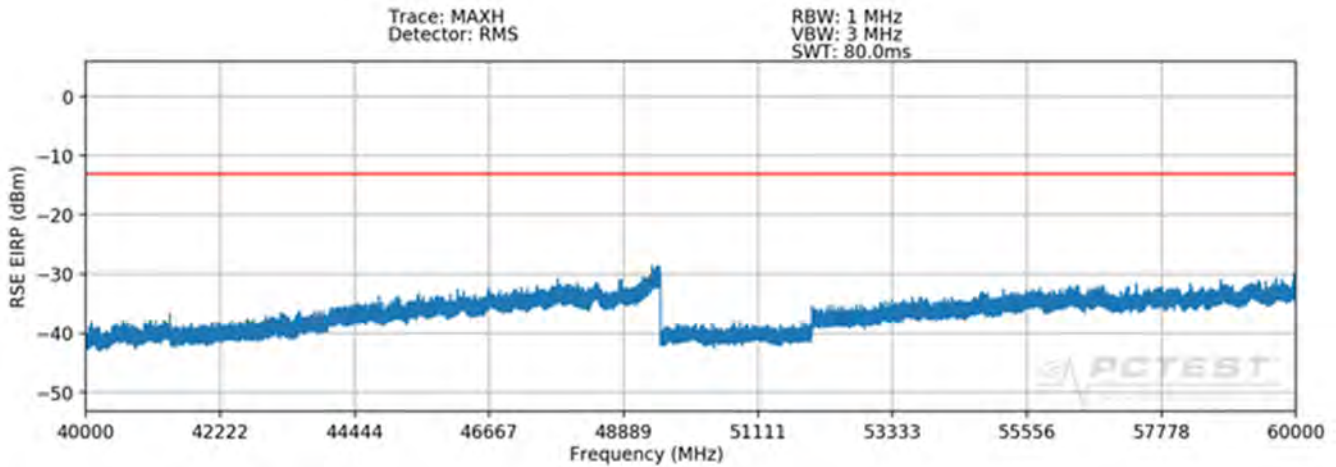


Plot 7-114. J Dipole Radiated Spurious Plot 40-60 GHz (1CC QPSK Mid Channel H Beam – n261)

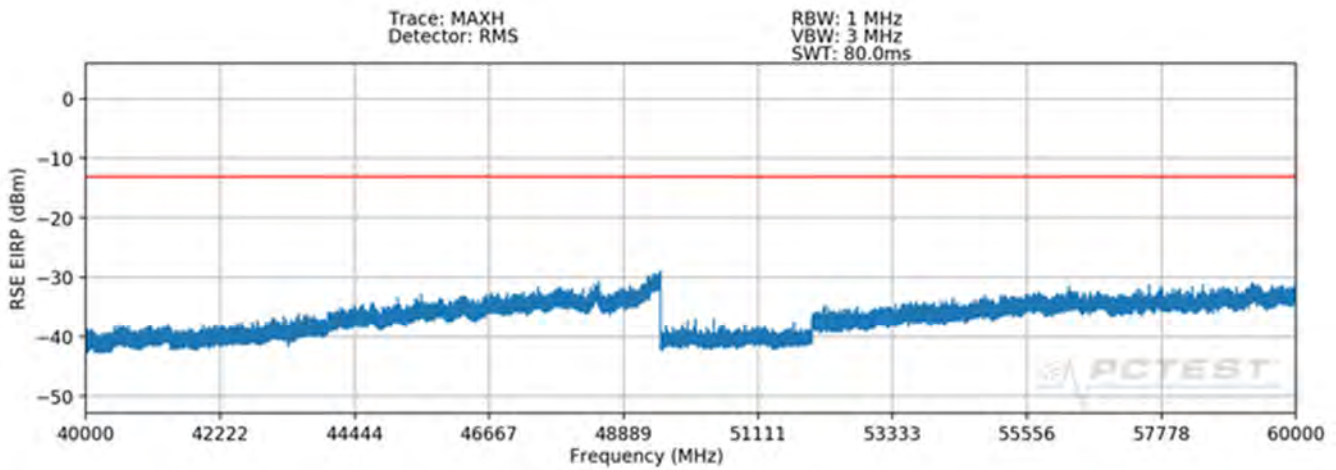


Plot 7-115. J Dipole Radiated Spurious Plot 40-60 GHz (1CC QPSK High Channel H Beam – n261)

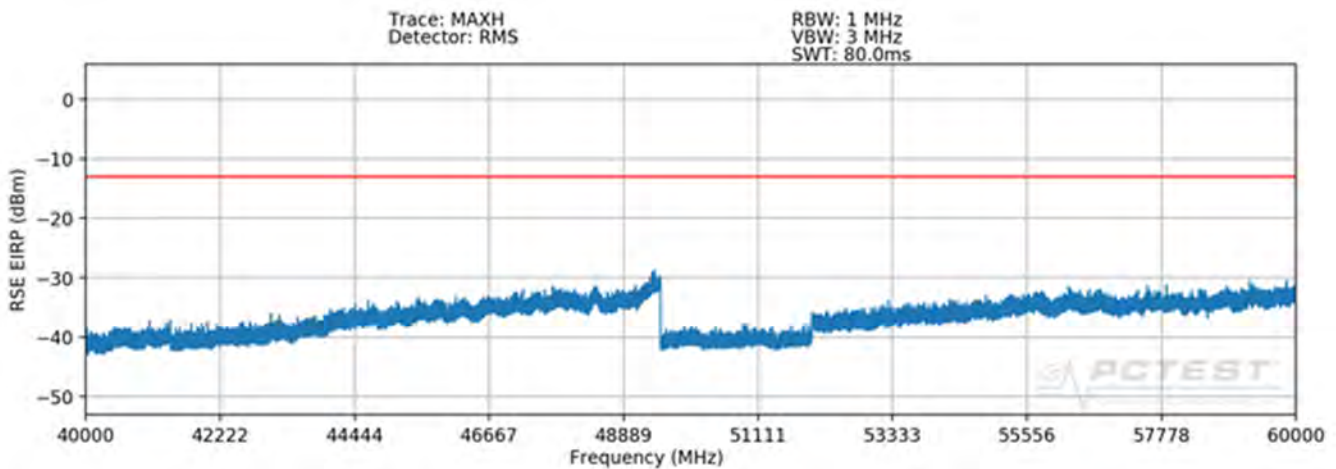
FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-116. J Dipole Radiated Spurious Plot 40-60 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-117. J Dipole Radiated Spurious Plot 40-60 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-118. J Dipole Radiated Spurious Plot 40-60 GHz (1CC QPSK High Channel V Beam – n261)

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Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Detector/Trace	Chan.	Bandwidth (MHz)	Mod.	EUT Beam Polarization	Ant. Pos [H/V]	Turntable Azimuth [degree]	Positioner Azimuth [degree]	RSE EIRP [dBm]	Limit [dBm]	Margin [dB]
49495.01	RMS/Avg	Low	50	QPSK	H	H	-	-	-37.36	-13.00	-24.36
49499.01	RMS/Avg	Mid	50	QPSK	H	H	-	-	-37.78	-13.00	-24.78
49498.41	RMS/Avg	High	50	QPSK	H	H	-	-	-37.39	-13.00	-24.39
49486.41	RMS/Avg	Low	50	QPSK	V	H	-	-	-37.61	-13.00	-24.61
49498.15	RMS/Avg	Mid	50	QPSK	V	H	-	-	-37.71	-13.00	-24.71
49499.45	RMS/Avg	High	50	QPSK	V	H	-	-	-37.59	-13.00	-24.59

Table 7-29. J Dipole Spurious Emissions Table (40 - 60GHz – n261)

Notes

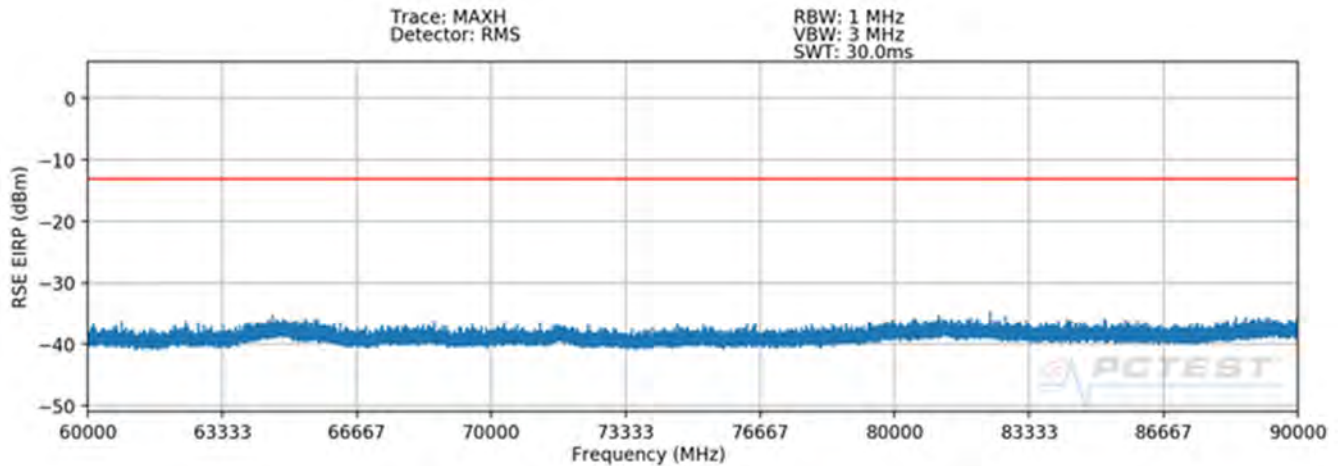
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

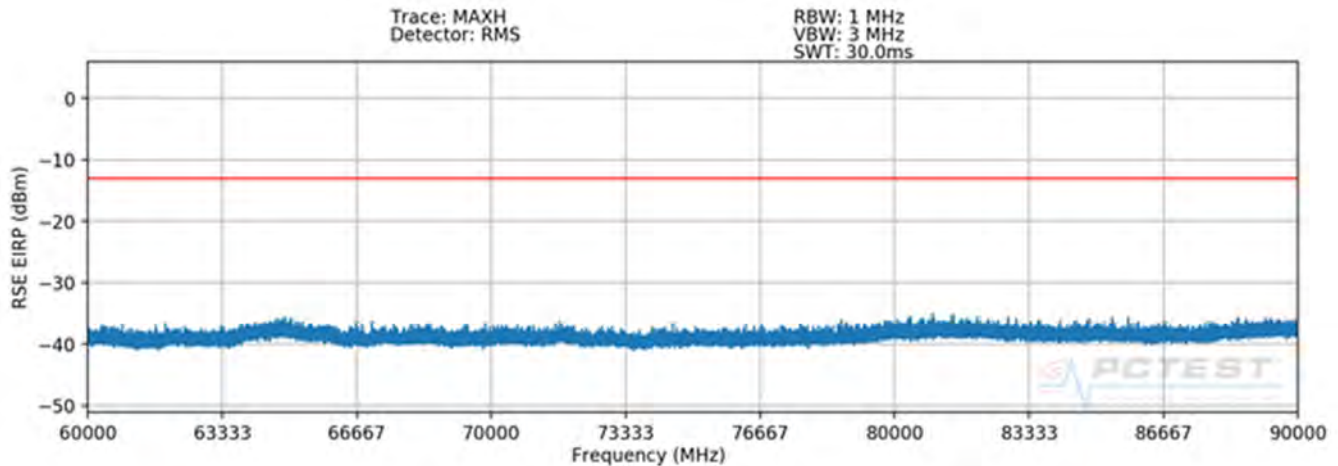
$$(-37.36 \text{ dBm} + -37.61 \text{ dBm}) = (186.65 \text{ nW} + 173.38 \text{ nW}) = (357.03 \text{ nW}) = -34.47 \text{ dBm}$$

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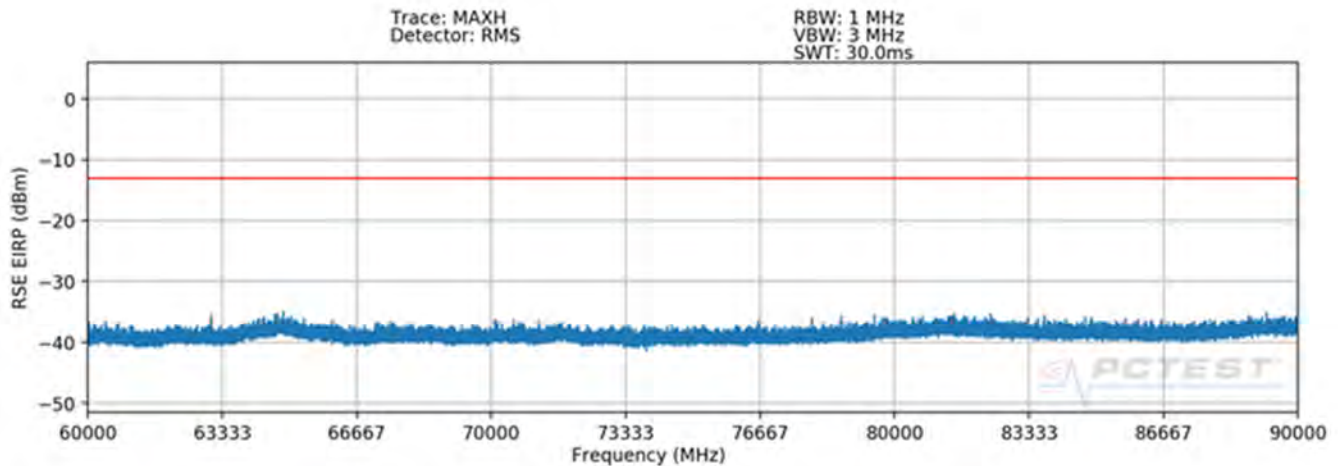
60 – 90GHz(n261)



Plot 7-119. J Dipole Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel H Beam – n261)

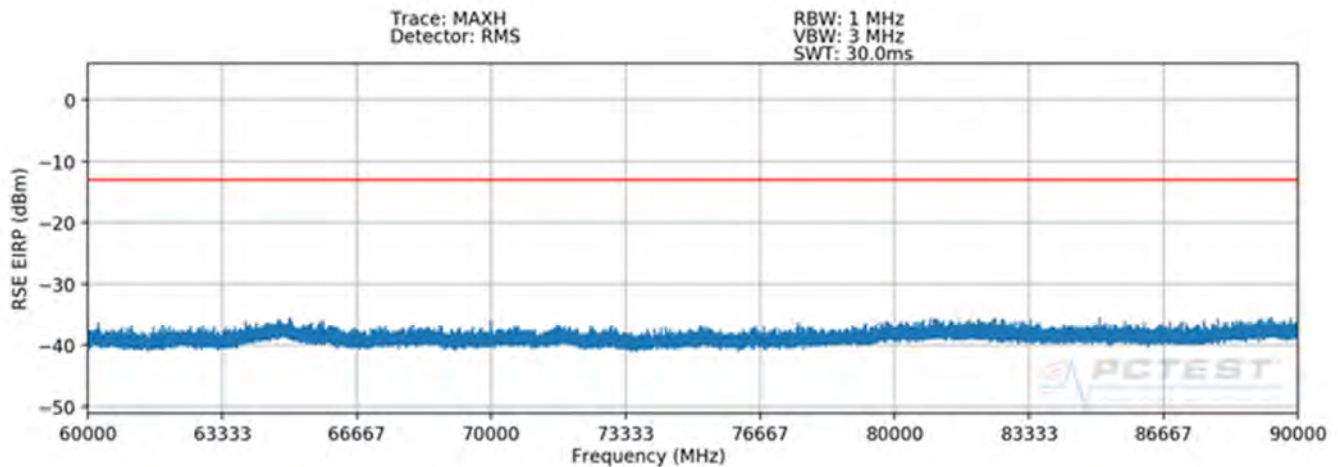


Plot 7-120. J Dipole Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel H Beam – n261)

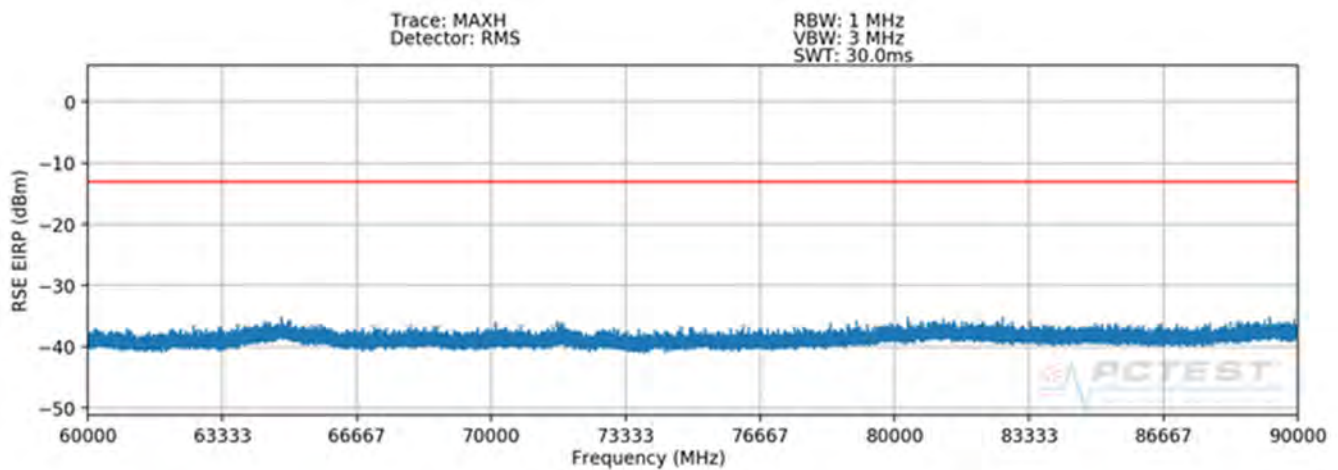


Plot 7-121. J Dipole Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel H Beam – n261)

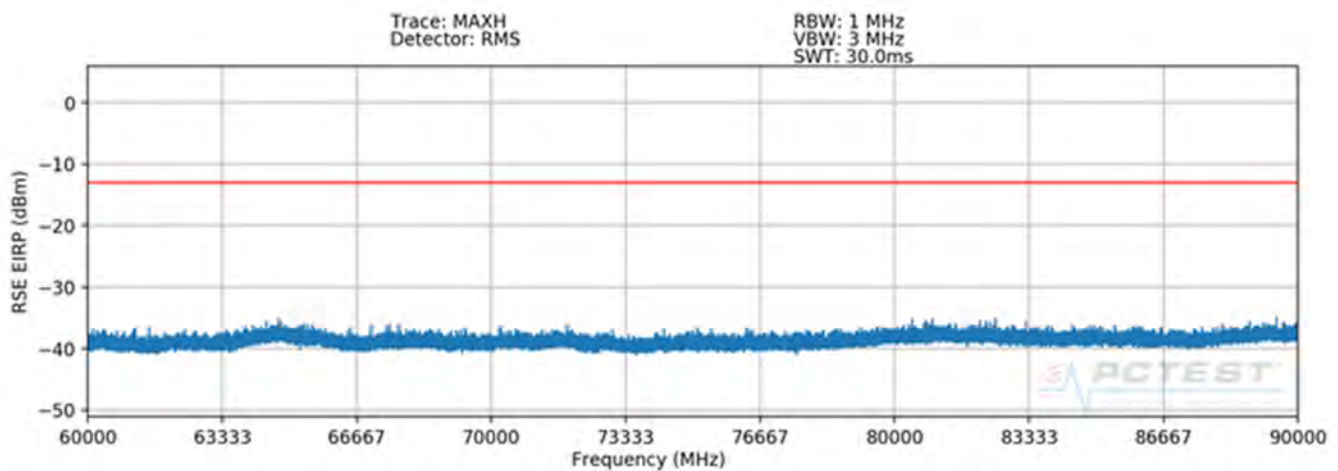
FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-122. J Dipole Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-123. J Dipole Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-124. J Dipole Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel V Beam – n261)

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Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

Frequency [MHz]	Detector/Trace	Chan.	Bandwidth (MHz)	Mod.	EUT Beam Polarization	Ant. Pos [H/V]	Turntable Azimuth [degree]	Positioner Azimuth [degree]	RSE EIRP [dBm]	Limit [dBm]	Margin [dB]
82539.50	RMS/Avg	Low	50	QPSK	H	H	281	108	-41.60	-13.00	-28.60
83700.50	RMS/Avg	Mid	50	QPSK	H	H	227	106	-42.21	-13.00	-29.21
84893.50	RMS/Avg	High	50	QPSK	H	H	232	108	-39.41	-13.00	-26.41
83184.00	RMS/Avg	Low	50	QPSK	V	H	313	296	-44.54	-13.00	-31.54
84346.00	RMS/Avg	Mid	50	QPSK	V	H	313	320	-44.30	-13.00	-31.30
84893.50	RMS/Avg	High	50	QPSK	V	H	201	320	-44.24	-13.00	-31.24

Table 7-30. J Dipole Spurious Emissions Table (60-90GHz – n261)

Notes

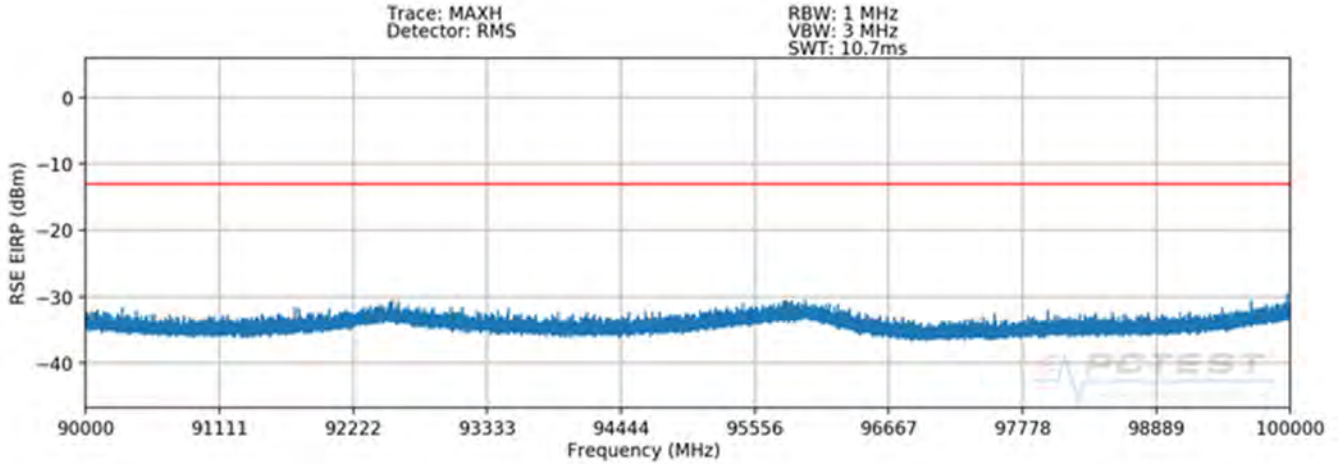
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

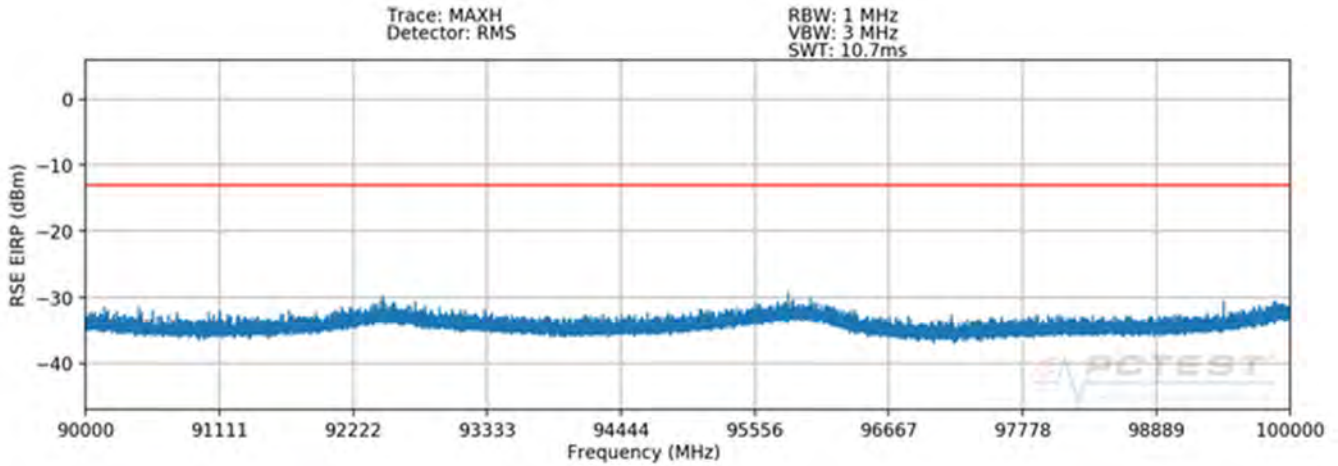
$$(-39.41 \text{ dBm} + -44.24 \text{ dBm}) = (114.66 \text{ nW} + 37.69 \text{ nW}) = (152.34 \text{ nW}) = -38.17 \text{ dBm}$$

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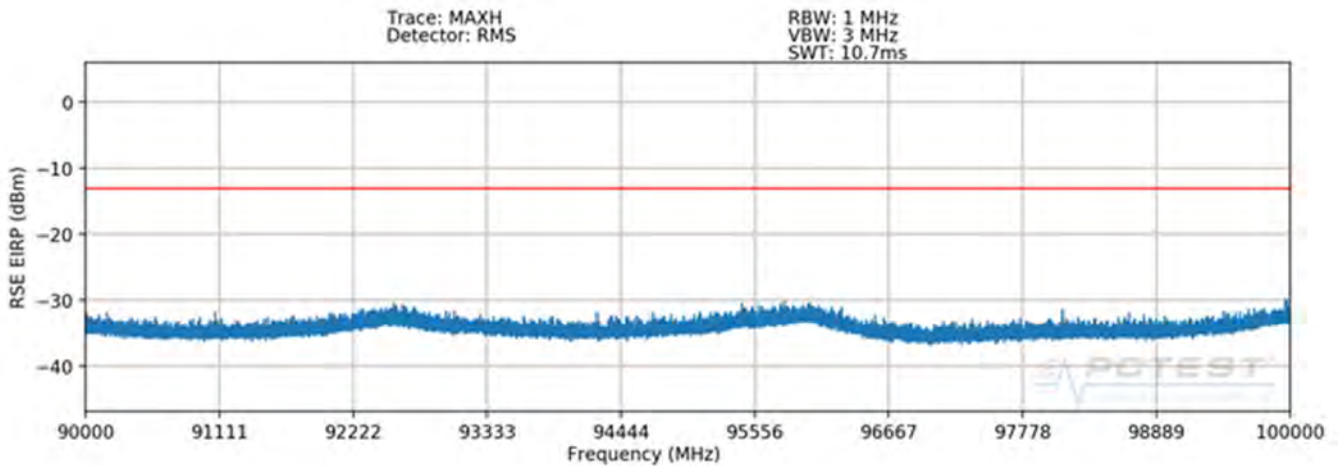
90 – 100GHz(n261)



Plot 7-125. J Dipole Radiated Spurious Plot 90-100 GHz (1CC QPSK Low Channel H Beam – n261)

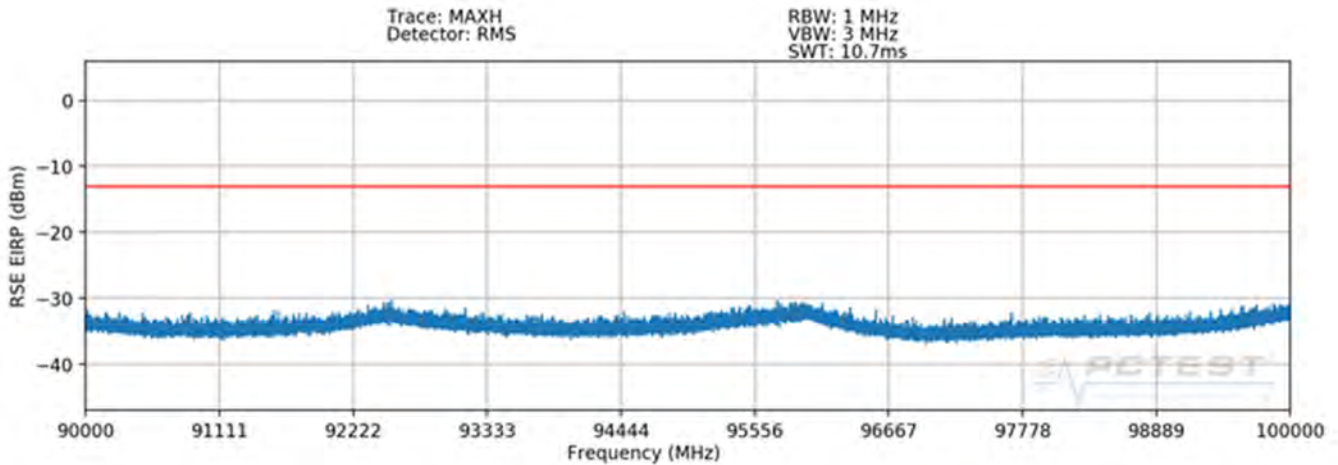


Plot 7-126. J Dipole Radiated Spurious Plot 90-100 GHz (1CC QPSK Mid Channel H Beam – n261)

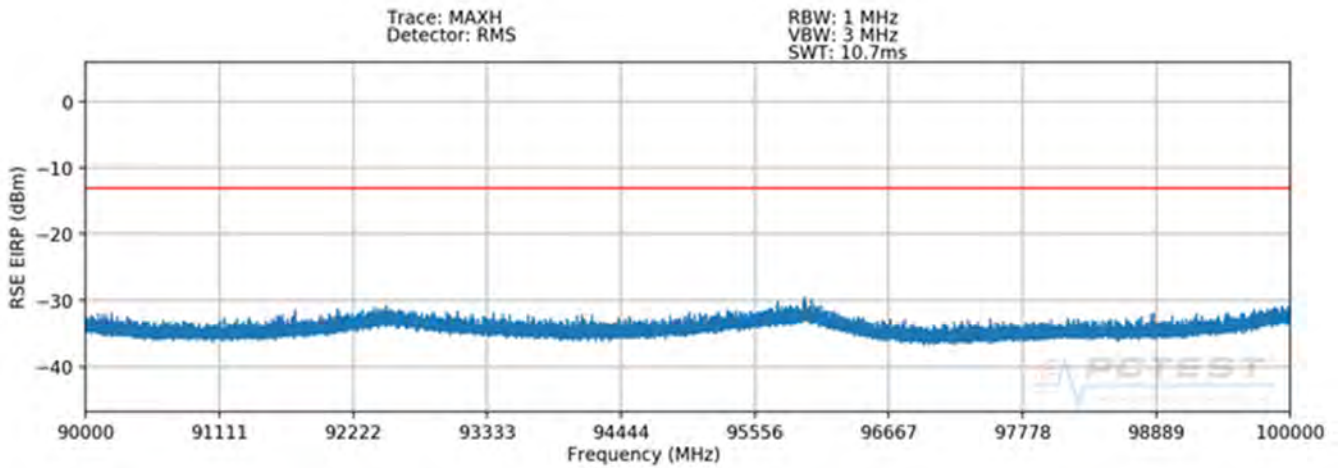


Plot 7-127. J Dipole Radiated Spurious Plot 90-100 GHz (1CC QPSK High Channel H Beam – n261)

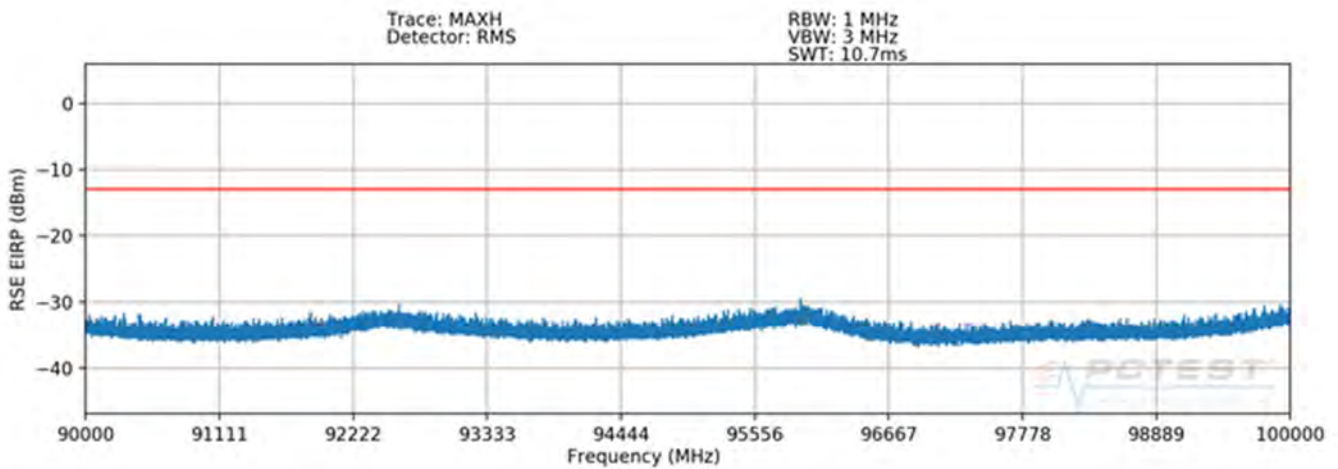
FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-128. J Dipole Radiated Spurious Plot 90-100 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-129. J Dipole Radiated Spurious Plot 90-100 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-130. J Dipole Radiated Spurious Plot 90-100 GHz (1CC QPSK High Channel V Beam – n261)

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Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

Frequency [MHz]	Detector/Trace	Chan.	Bandwidth (MHz)	Mod.	Beam Polarization	Ant. Pos [H/V]	Turntable Azimuth [degree]	Positioner Azimuth [degree]	RSE EIRP [dBm]	Limit [dBm]	Margin [dB]
96001.00	RMS/Avg	Low	50	QPSK	H	H	-	-	-39.68	-13.00	-26.68
95805.50	RMS/Avg	Mid	50	QPSK	H	H	-	-	-39.76	-13.00	-26.76
96000.00	RMS/Avg	High	50	QPSK	H	H	-	-	-40.12	-13.00	-27.12
95863.00	RMS/Avg	Low	50	QPSK	V	H	-	-	-40.14	-13.00	-27.14
95983.00	RMS/Avg	Mid	50	QPSK	V	H	-	-	-39.68	-13.00	-26.68
95858.00	RMS/Avg	High	50	QPSK	V	H	-	-	-39.93	-13.00	-26.93

Table 7-31. J Dipole Spurious Emissions Table (90-100GHz – n261)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

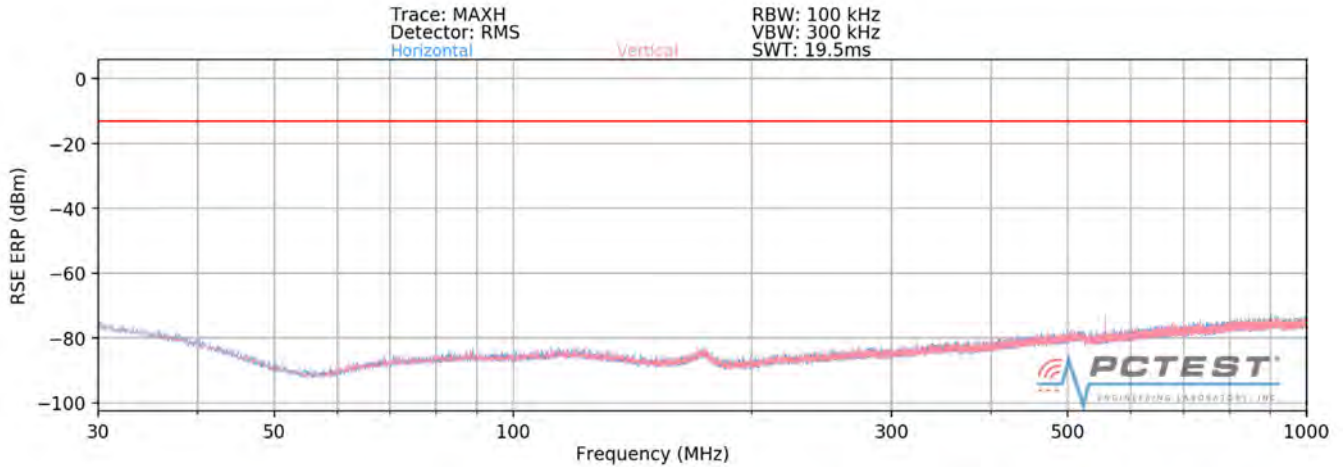
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

$$(-39.76 \text{ dBm} + -39.68 \text{ dBm}) = (105.61 \text{ nW} + 107.55 \text{ nW}) = (213.16 \text{ nW}) = -36.71 \text{ dBm}$$

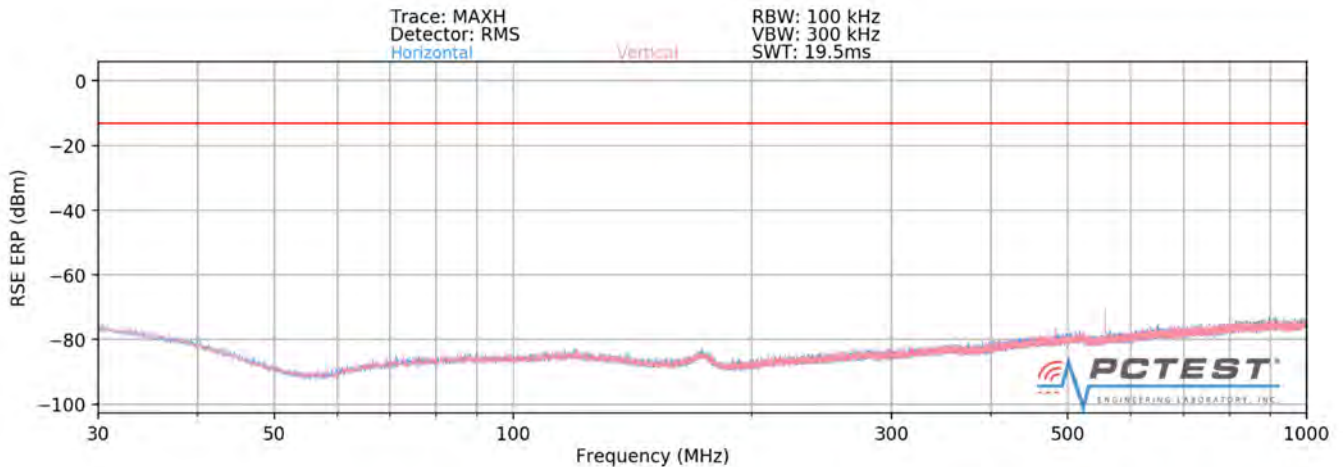
FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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J Patch Radiated Spurious Emissions(n261)

30MHz – 1GHz(n261)



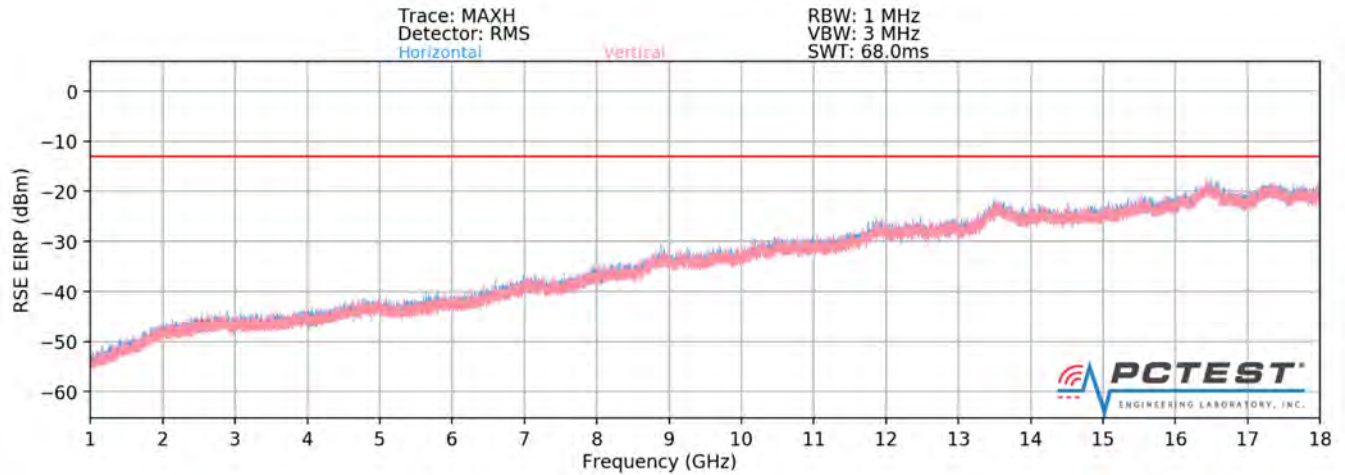
Plot 7-131. J Patch Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel H Beam – n261)



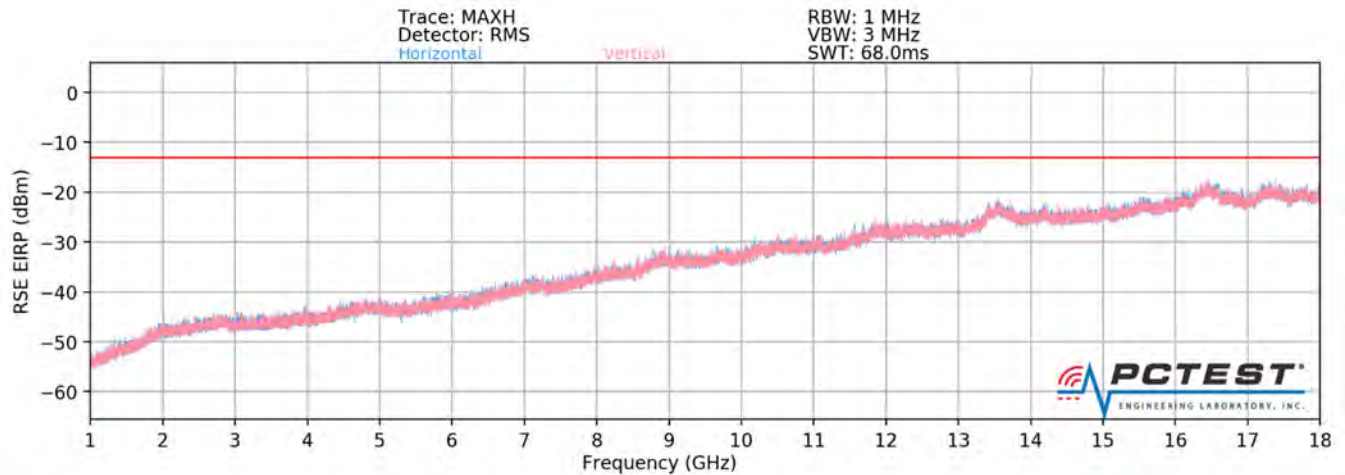
Plot 7-132. J Patch Radiated Spurious Plot 30 MHz - 1 GHz (1CC QPSK Mid Channel V Beam – n261)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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1 – 18GHz



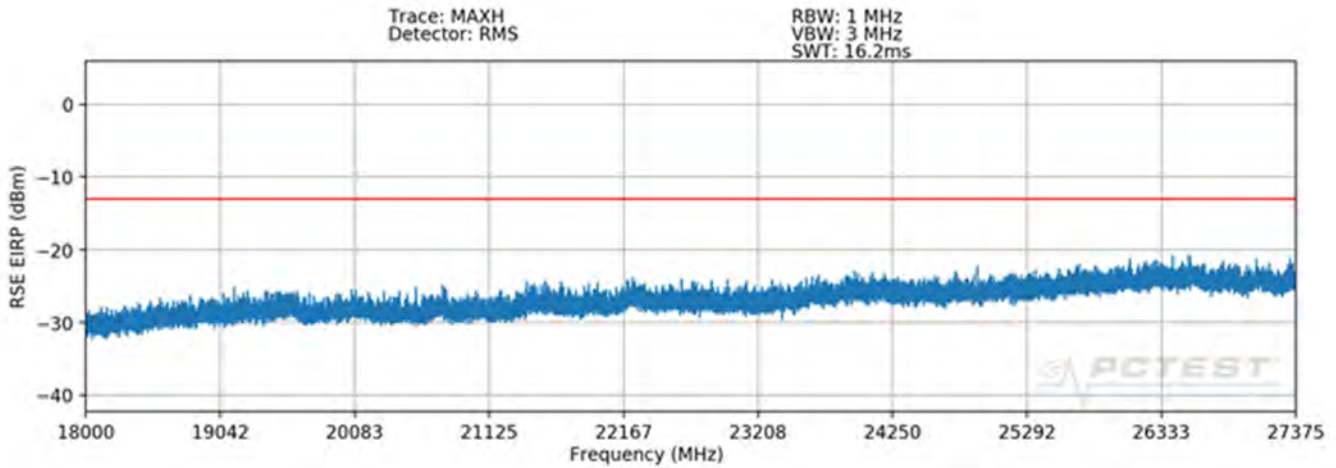
Plot 7-133. J Patch Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel H Beam – n261)



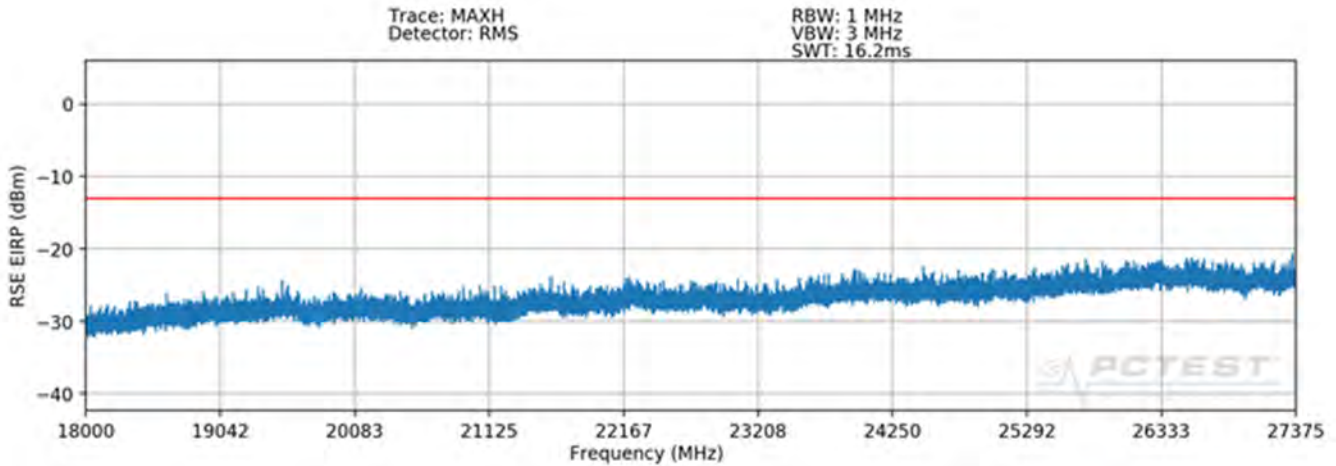
Plot 7-134. J Patch Radiated Spurious Plot 1-18 GHz (1CC QPSK Mid Channel V Beam – n261)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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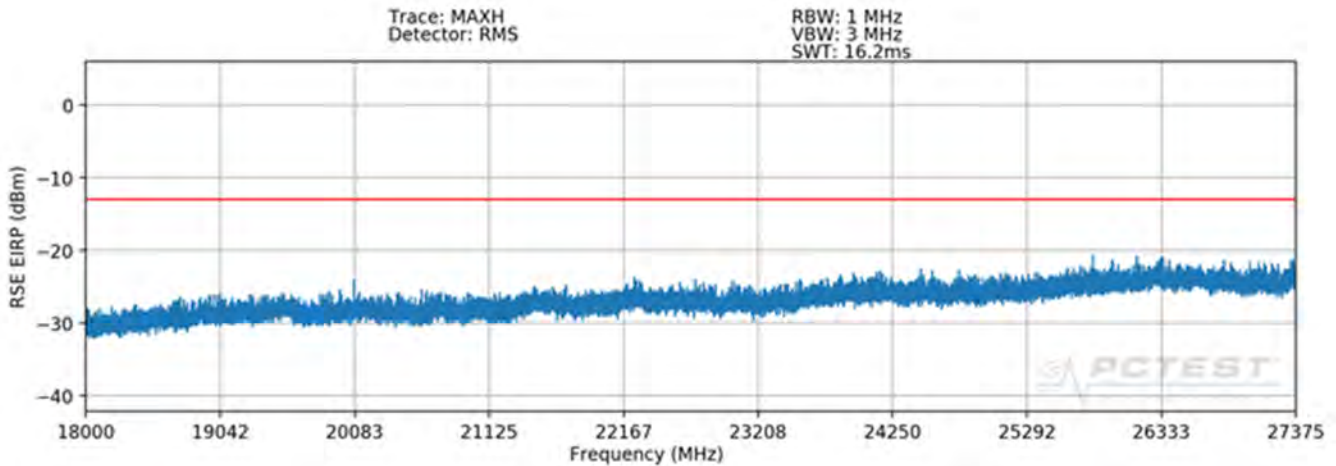
18 – 27.375GHz



Plot 7-135. J Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Low Channel H Beam – n261)

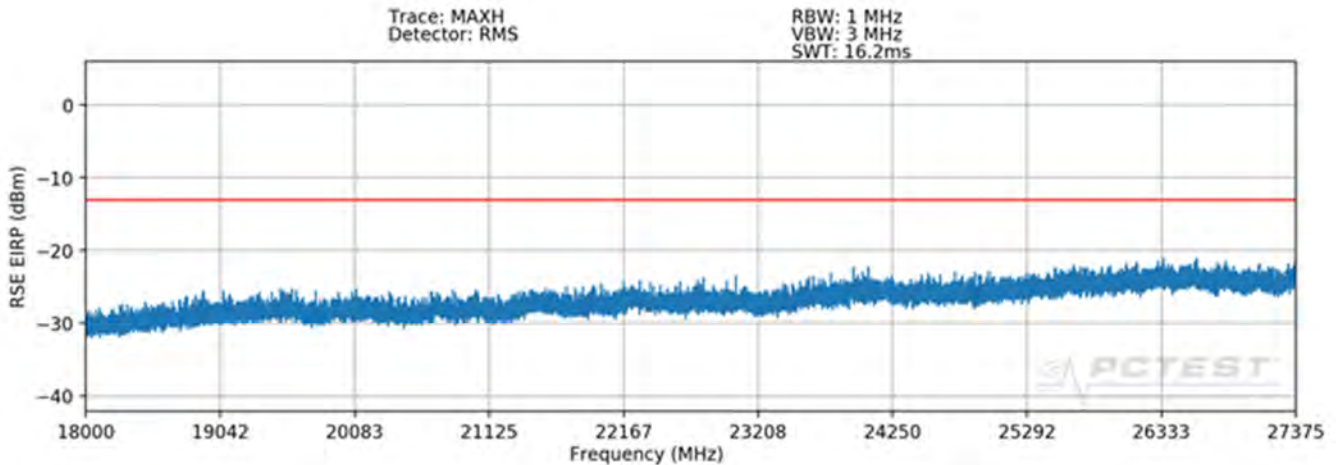


Plot 7-136. J Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Mid Channel H Beam – n261)

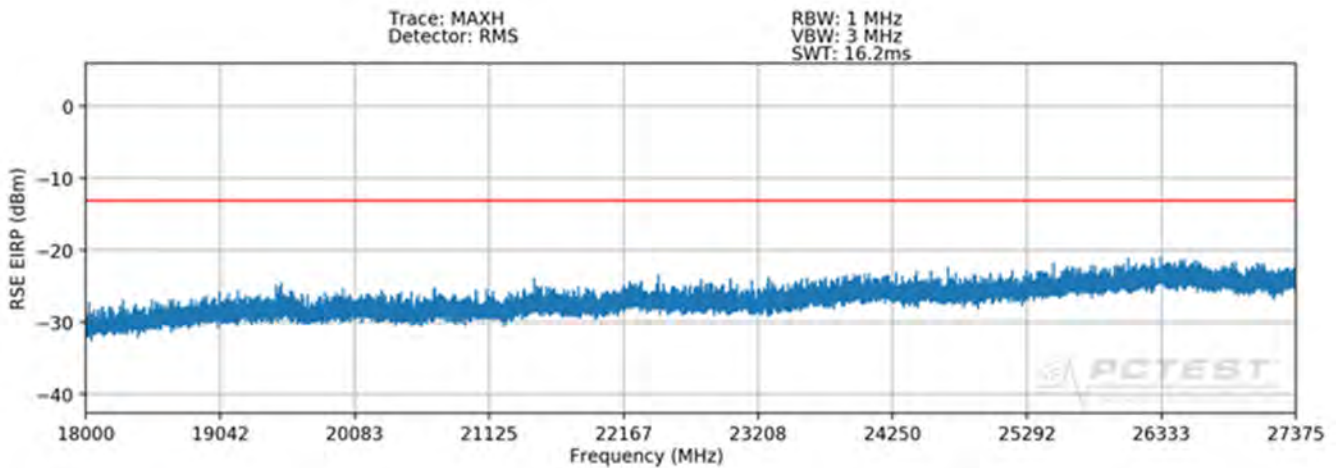


Plot 7-137. J Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK High Channel H Beam – n261)

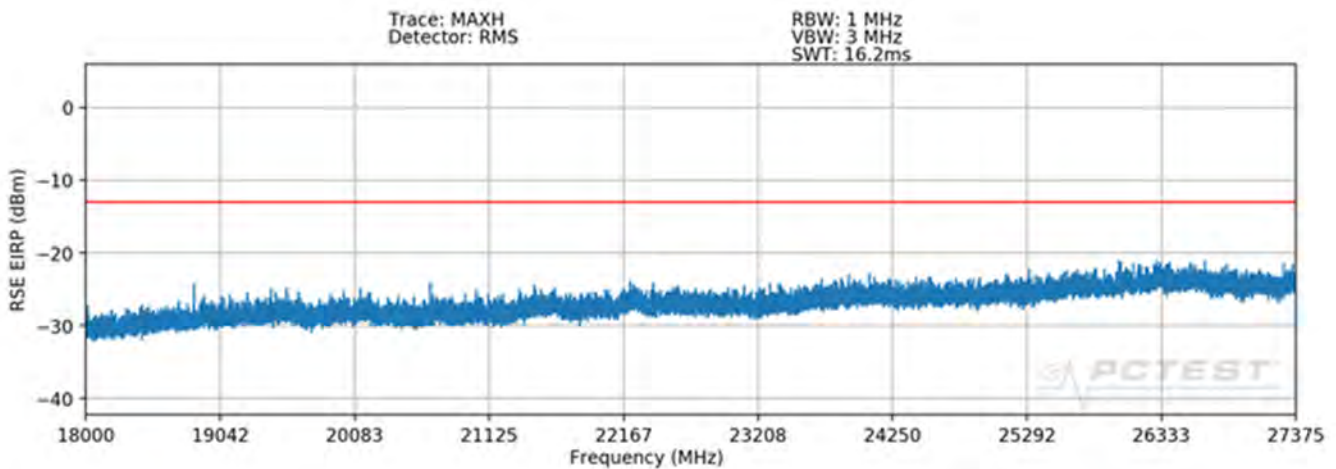
FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-138. J Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-139. J Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-140. J Patch Radiated Spurious Plot 18-27.375 GHz (1CC QPSK High Channel V Beam – n261)

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Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Detector/Trace	Chan.	Bandwidth (MHz)	Mod.	EUT Beam Polarization	Ant. Pos [H/V]	Turntable Azimuth [degree]	Positioner Azimuth [degree]	RSE EIRP [dBm]	Limit [dBm]	Margin [dB]
25710.00	RMS/Avg	Low	50	QPSK	H	H	268	92	-35.78	-13.00	-22.78
25770.00	RMS/Avg	Mid	50	QPSK	H	H	267	93	-34.91	-13.00	-21.91
26280.50	RMS/Avg	High	50	QPSK	H	H	265	93	-35.91	-13.00	-22.91
25673.40	RMS/Avg	Low	50	QPSK	V	V	234	272	-35.28	-13.00	-22.28
26226.10	RMS/Avg	Mid	50	QPSK	V	V	232	273	-36.13	-13.00	-23.13
25701.60	RMS/Avg	High	50	QPSK	V	V	231	277	-35.45	-13.00	-22.45

Table 7-32. J Patch Spurious Emissions Table (18-27.375GHz – n261)

Notes

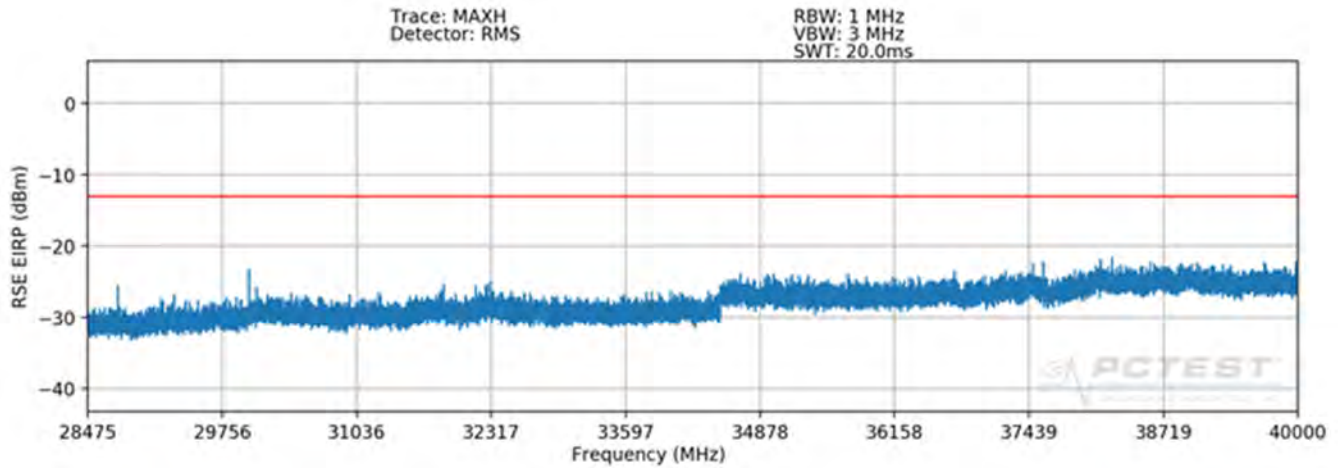
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

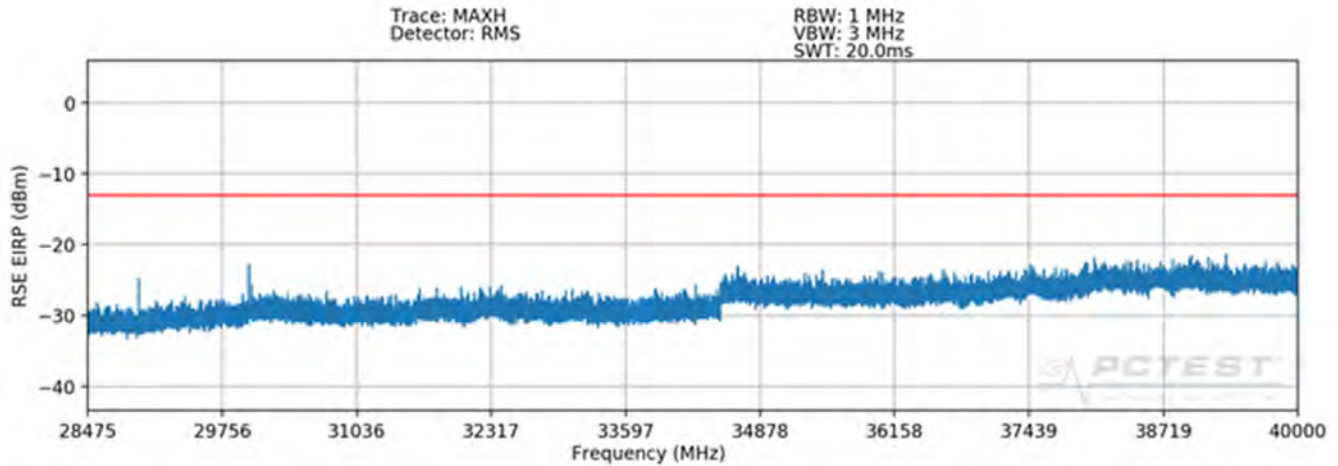
$$(-34.91 \text{ dBm} + -36.13 \text{ dBm}) = (322.92 \text{ nW} + 243.73 \text{ nW}) = (566.65 \text{ nW}) = -32.47 \text{ dBm}$$

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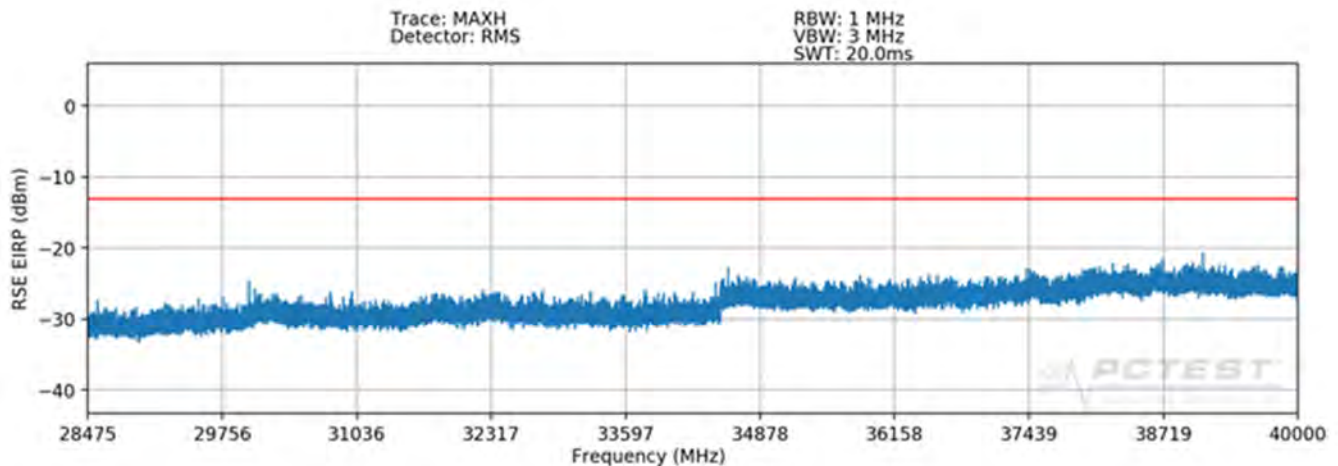
28.475 – 40GHz(n261)



Plot 7-141. J Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Low Channel H Beam – n261)

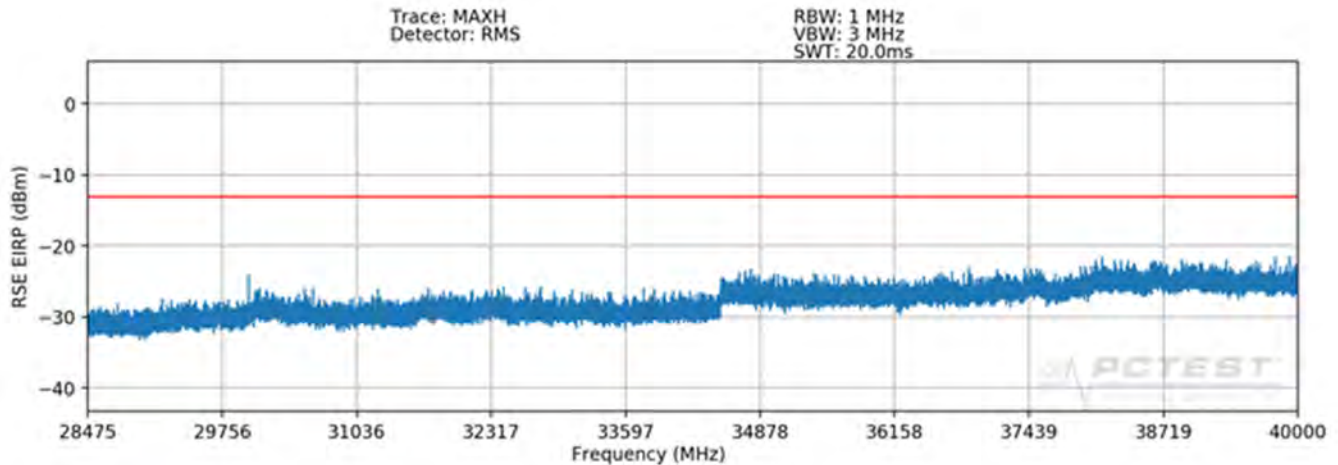


Plot 7-142. J Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Mid Channel H Beam – n261)

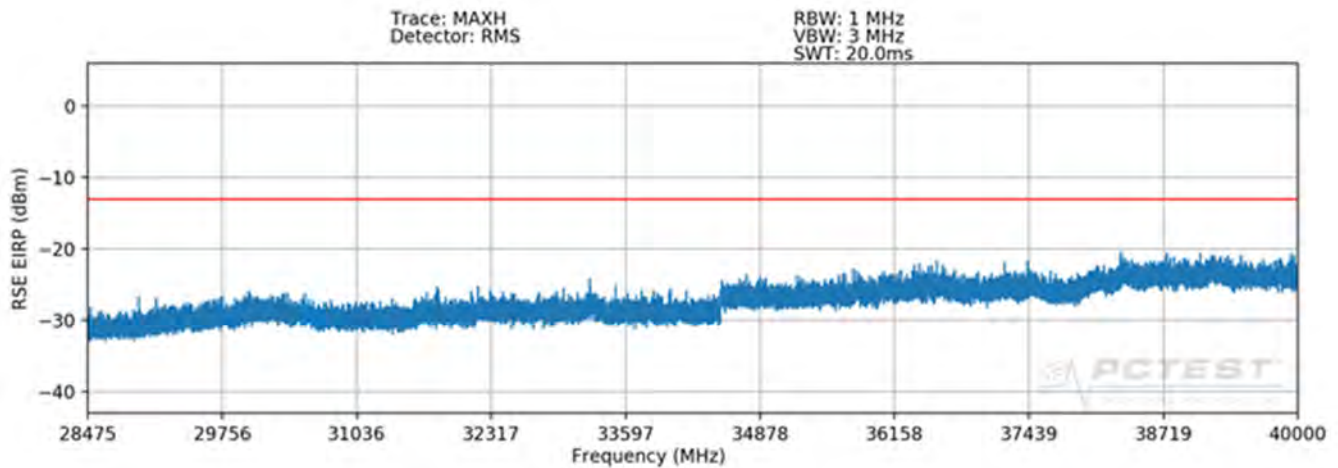


Plot 7-143. J Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK High Channel H Beam – n261)

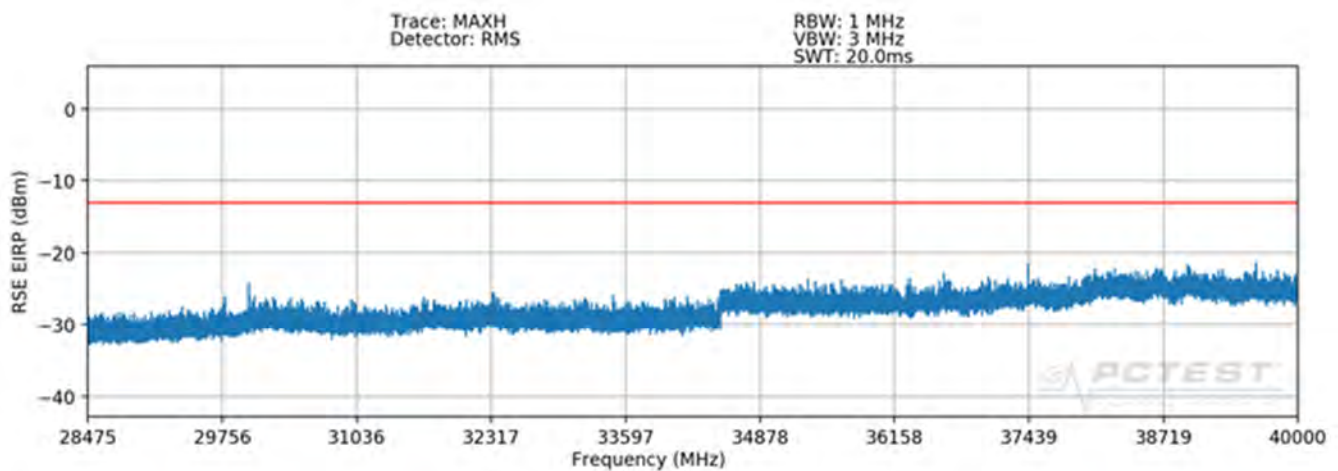
FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-144. J Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-145. J Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-146. J Patch Radiated Spurious Plot 28.475-40 GHz (1CC QPSK High Channel V Beam – n261)

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Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Detector/Trace	Chan.	Bandwidth (MHz)	Mod.	EUT Beam Polarization	Ant. Pos [H/V]	Turntable Azimuth [degree]	Positioner Azimuth [degree]	RSE EIRP [dBm]	Limit [dBm]	Margin [dB]
28761.20	RMS/Avg	Low	50	QPSK	H	H	268	93	-26.09	-13.00	-13.09
28959.50	RMS/Avg	Mid	50	QPSK	H	H	269	93	-26.91	-13.00	-13.91
29372.50	RMS/Avg	High	50	QPSK	H	H	268	93	-29.52	-13.00	-16.52
28761.70	RMS/Avg	Low	50	QPSK	V	V	235	273	-27.29	-13.00	-14.29
28959.50	RMS/Avg	Mid	50	QPSK	V	V	232	273	-27.60	-13.00	-14.60
29373.00	RMS/Avg	High	50	QPSK	V	V	231	276	-28.14	-13.00	-15.14

Table 7-33. J Patch Spurious Emissions Table (28.475-40 GHz – n261)

Notes

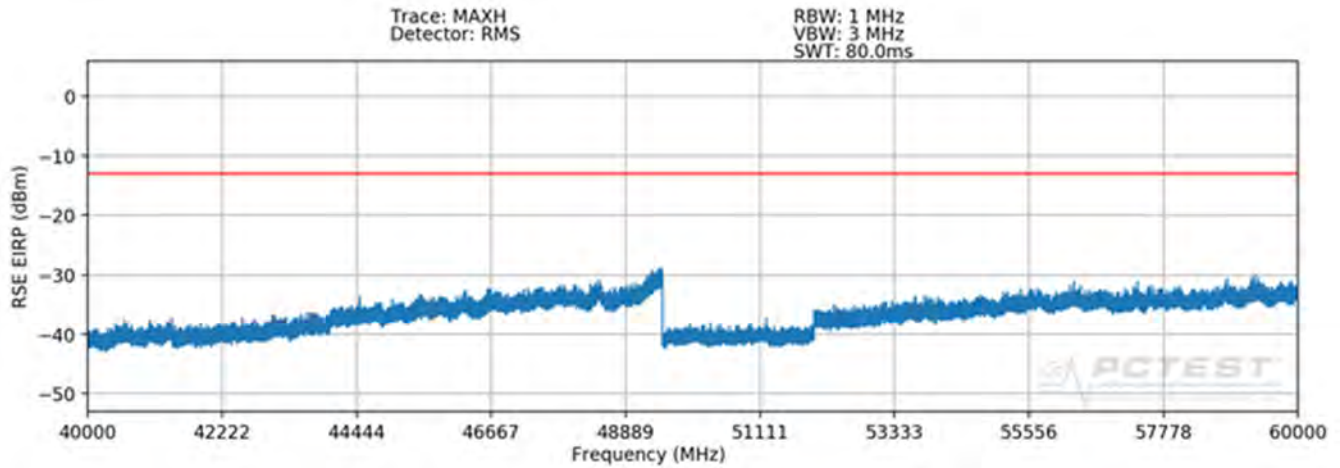
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

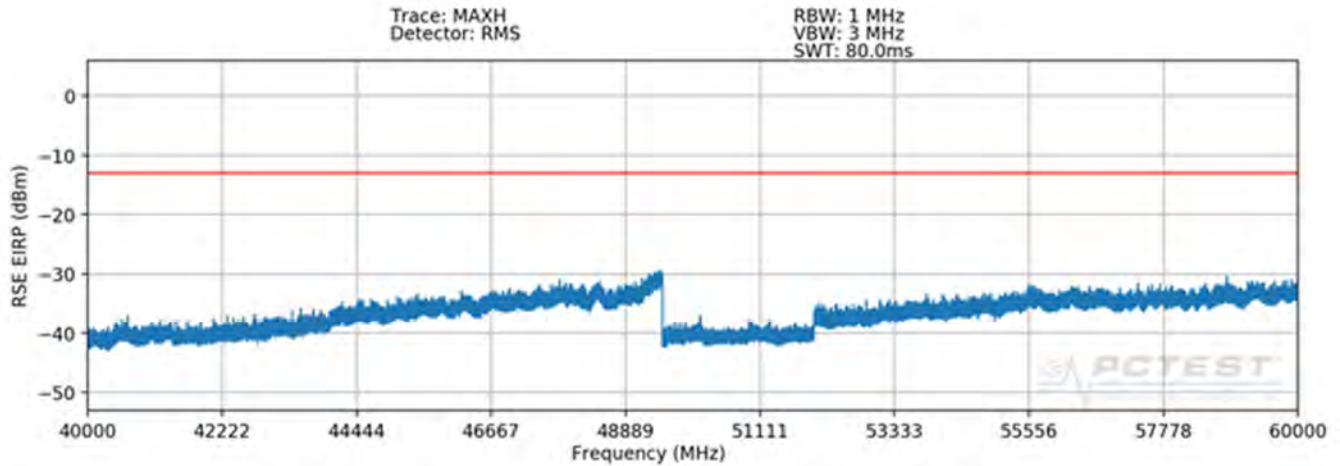
$$(-26.09 \text{ dBm} + -27.29 \text{ dBm}) = (2463.20 \text{ nW} + 1867.67 \text{ nW}) = (4330.87 \text{ nW}) = -23.63 \text{ dBm}$$

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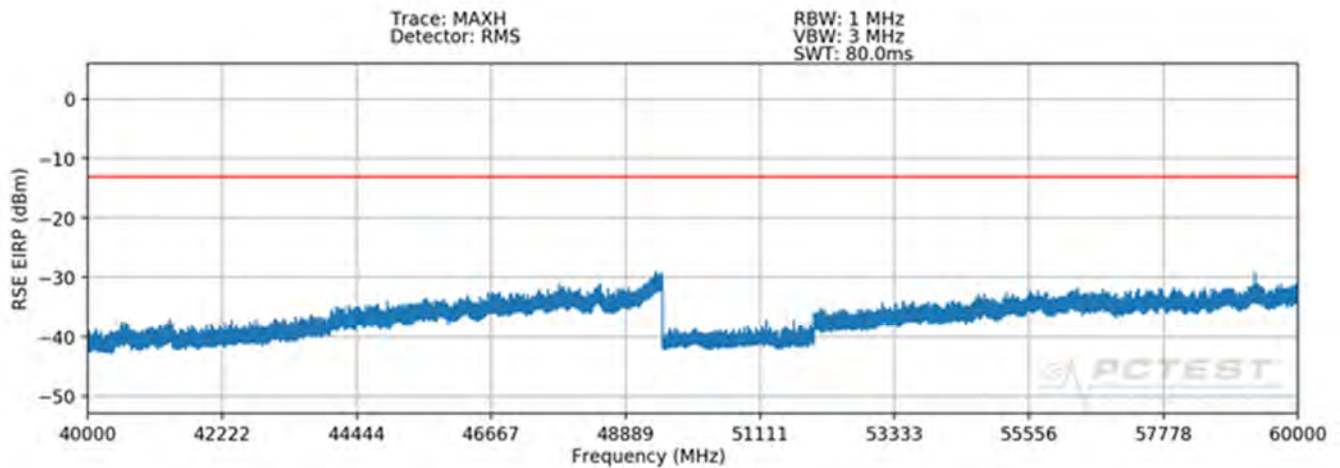
40 – 60GHz(n261)



Plot 7-147. J Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK Low Channel H Beam – n261)

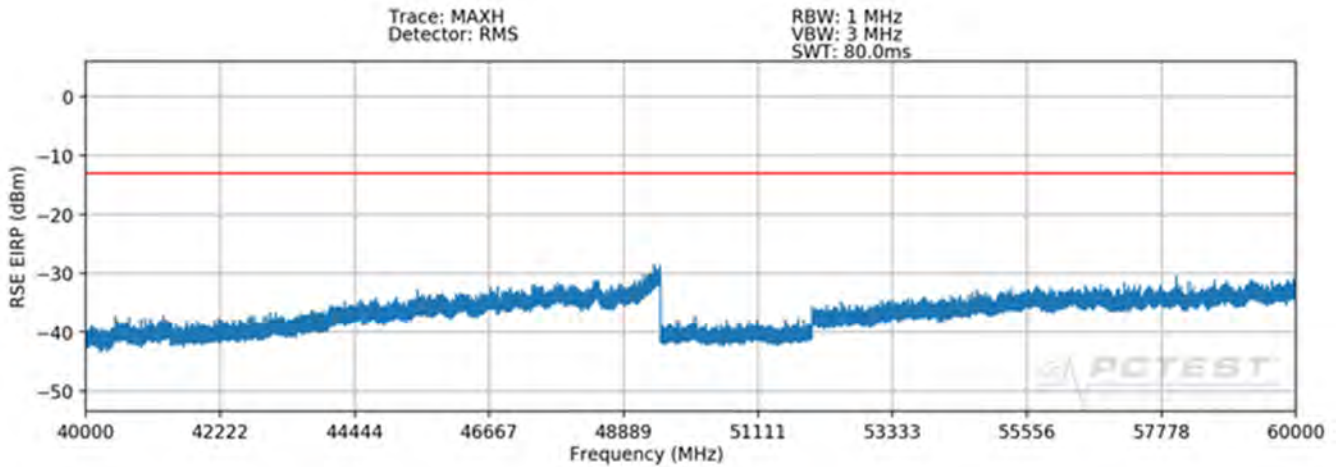


Plot 7-148. J Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK Mid Channel H Beam – n261)

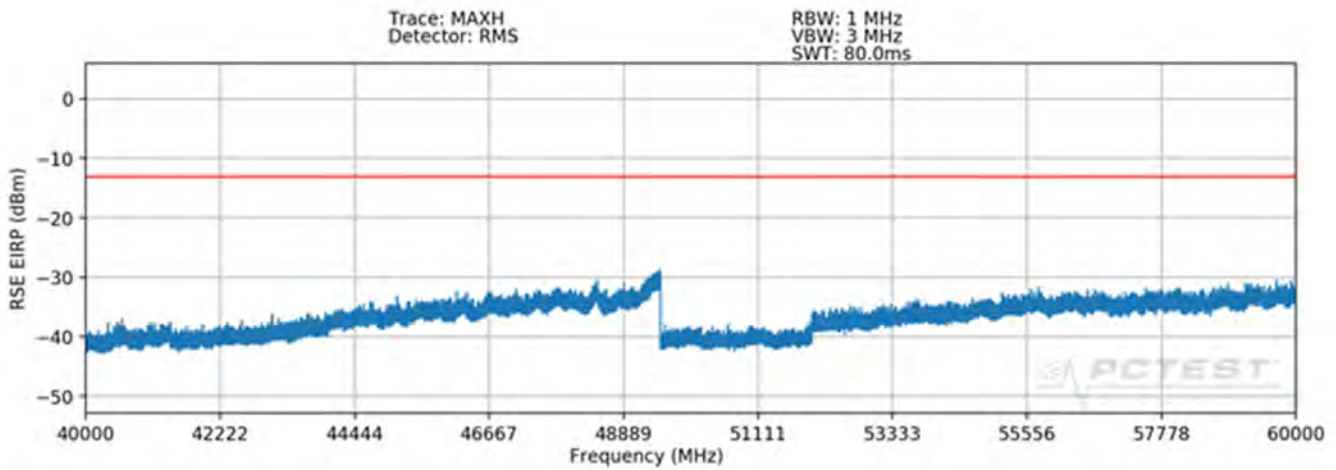


Plot 7-149. J Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK High Channel H Beam – n261)

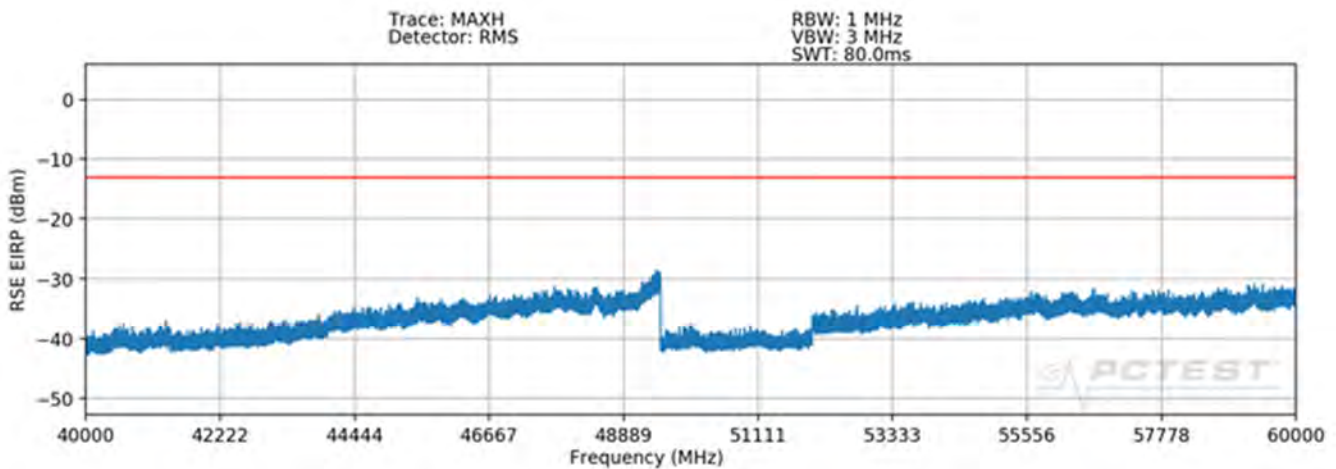
FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-150. J Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-151. J Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-152. J Patch Radiated Spurious Plot 40-60 GHz (1CC QPSK High Channel V Beam – n261)

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Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Detector/Trace	Chan.	Bandwidth (MHz)	Mod.	EUT Beam Polarization	Ant. Pos [H/V]	Turntable Azimuth [degree]	Positioner Azimuth [degree]	RSE EIRP [dBm]	Limit [dBm]	Margin [dB]
49499.15	RMS/Avg	Low	50	QPSK	H	H	-	-	-37.98	-13.00	-24.98
49497.45	RMS/Avg	Mid	50	QPSK	H	H	-	-	-37.71	-13.00	-24.71
49493.25	RMS/Avg	High	50	QPSK	H	H	-	-	-37.51	-13.00	-24.51
49480.25	RMS/Avg	Low	50	QPSK	V	H	-	-	-37.66	-13.00	-24.66
49494.05	RMS/Avg	Mid	50	QPSK	V	H	-	-	-37.69	-13.00	-24.69
49491.65	RMS/Avg	High	50	QPSK	V	H	-	-	-37.92	-13.00	-24.92

Table 7-34. J Patch Spurious Emissions Table (40 - 60GHz – n261)

Notes

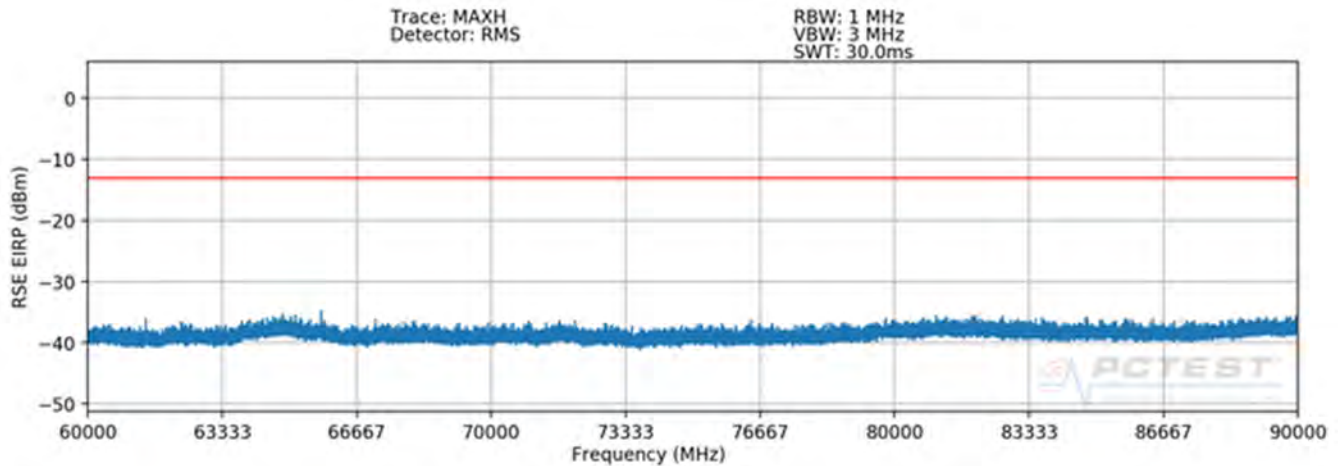
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1.5 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

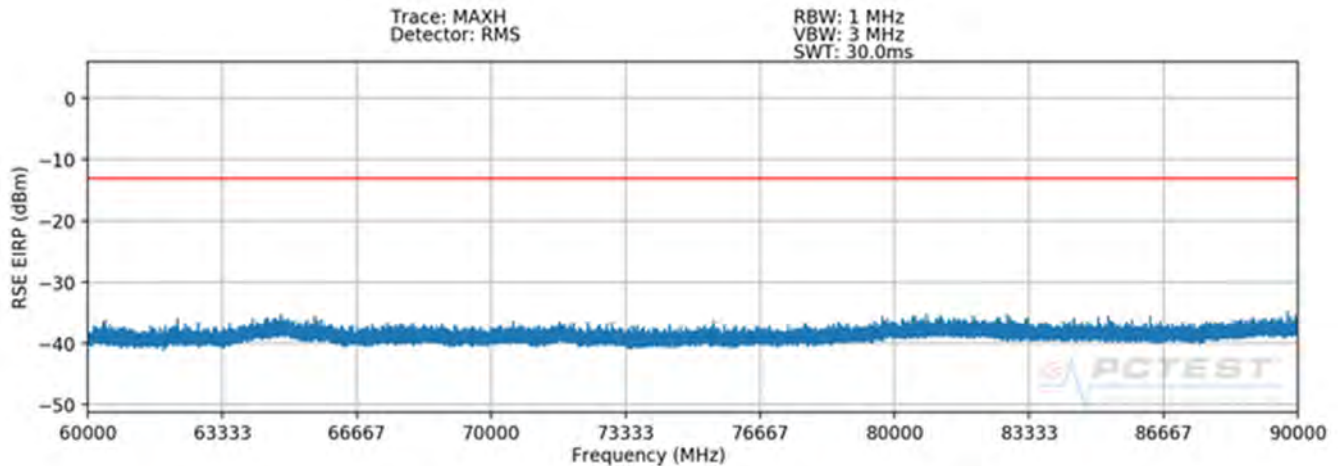
$$(-37.71 \text{ dBm} + -37.69 \text{ dBm}) = (169.43 \text{ nW} + 170.21 \text{ nW}) = (339.65 \text{ nW}) = -34.69 \text{ dBm}$$

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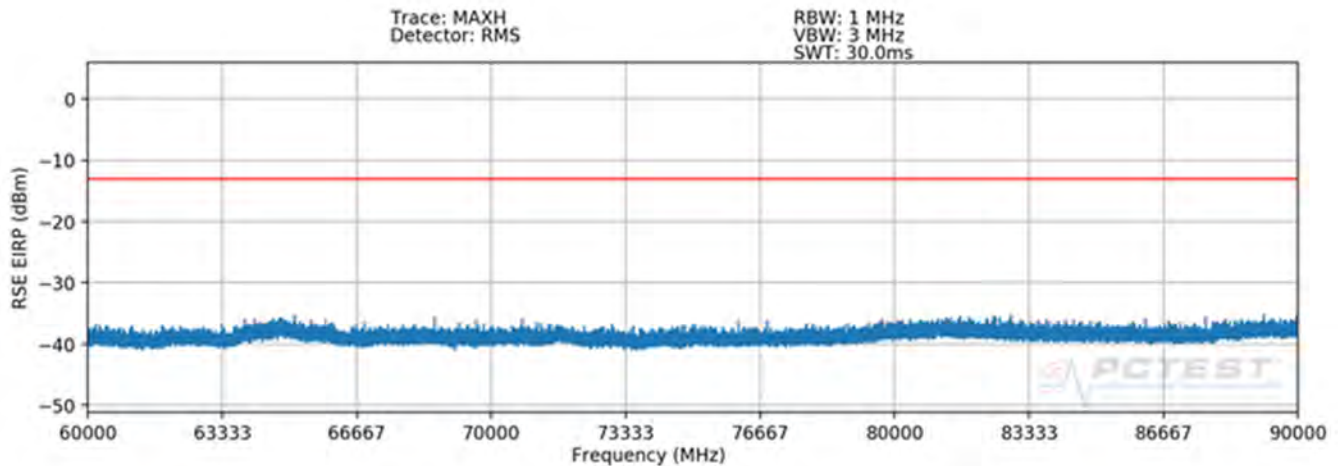
60 – 90GHz(n261)



Plot 7-153. J Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel H Beam – n261)

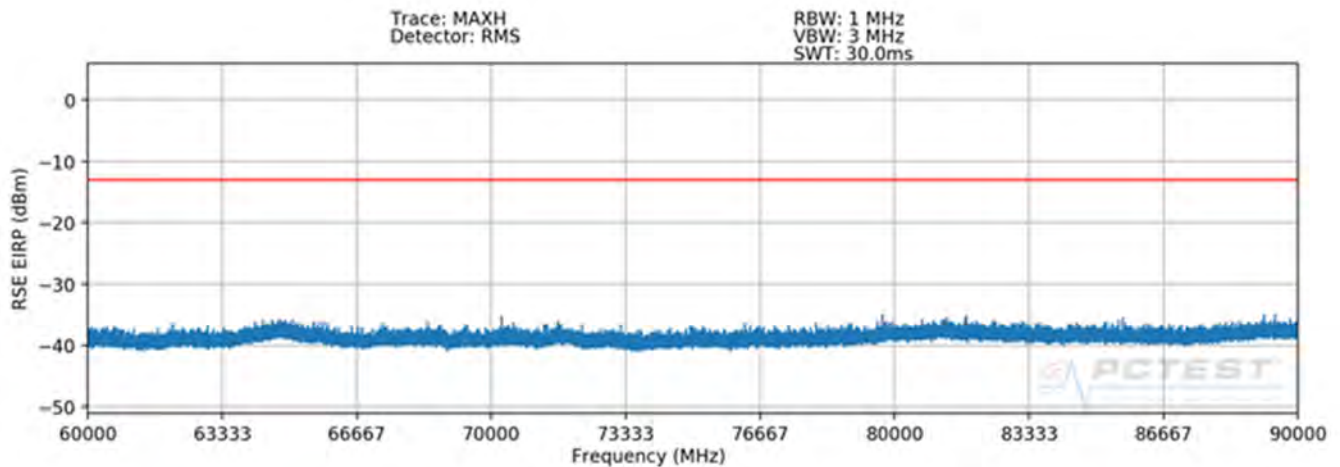


Plot 7-154. J Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel H Beam – n261)

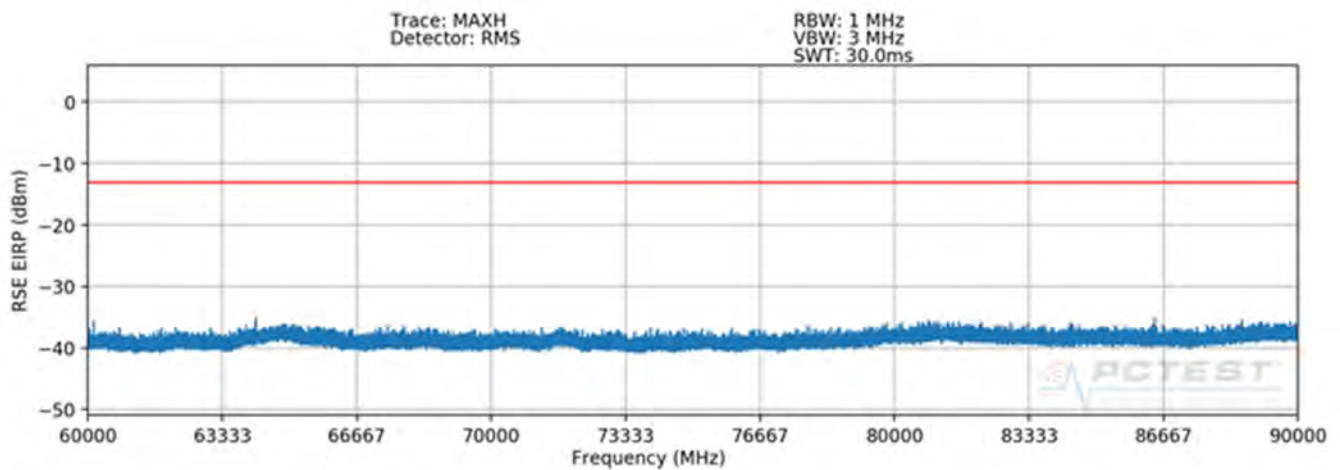


Plot 7-155. J Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel H Beam – n261)

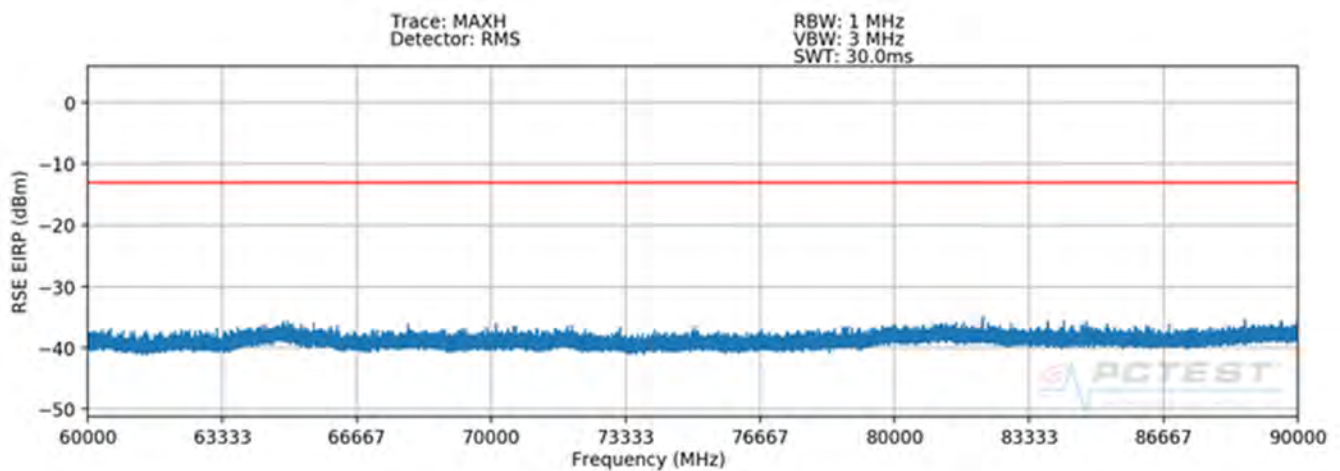
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Plot 7-156. J Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-157. J Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-158. J Patch Radiated Spurious Plot 60-90 GHz (1CC QPSK High Channel V Beam – n261)

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Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL [dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

Frequency [MHz]	Detector/Trace	Chan.	Bandwidth (MHz)	Mod.	EUT Beam Polarization	Ant. Pos [H/V]	Turntable Azimuth [degree]	Positioner Azimuth [degree]	RSE EIRP [dBm]	Limit [dBm]	Margin [dB]
89316.50	RMS/Avg	Low	50	QPSK	H	H	-	-	-44.64	-13.00	-31.64
89205.00	RMS/Avg	Mid	50	QPSK	H	H	-	-	-44.93	-13.00	-31.93
89930.00	RMS/Avg	High	50	QPSK	H	H	-	-	-44.76	-13.00	-31.76
81373.50	RMS/Avg	Low	50	QPSK	V	V	-	-	-44.25	-13.00	-31.25
64872.00	RMS/Avg	Mid	50	QPSK	V	V	-	-	-44.05	-13.00	-31.05
64848.50	RMS/Avg	High	50	QPSK	V	V	-	-	-43.99	-13.00	-30.99

Table 7-35. J Patch Spurious Emissions Table (60-90GHz – n261)

Notes

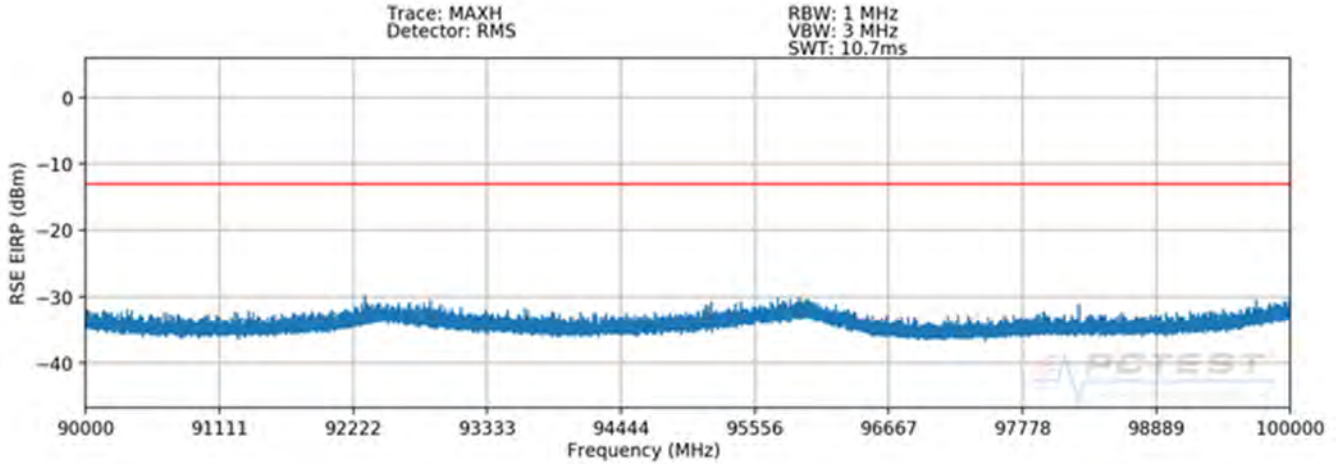
1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

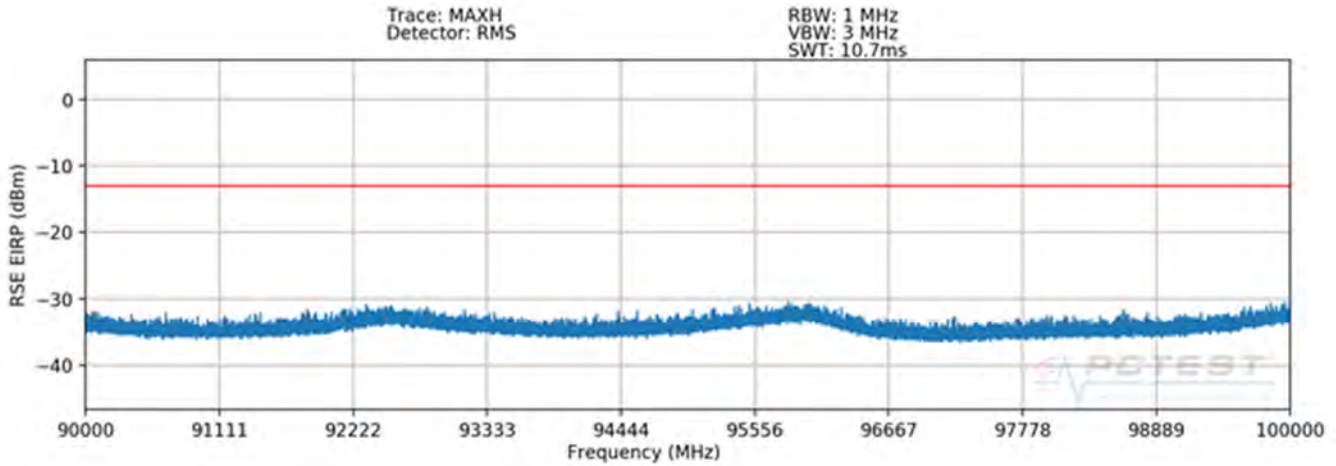
$$(-44.76 \text{ dBm} + -43.99 \text{ dBm}) = (33.45 \text{ nW} + 39.94 \text{ nW}) = (73.39 \text{ nW}) = -41.34 \text{ dBm}$$

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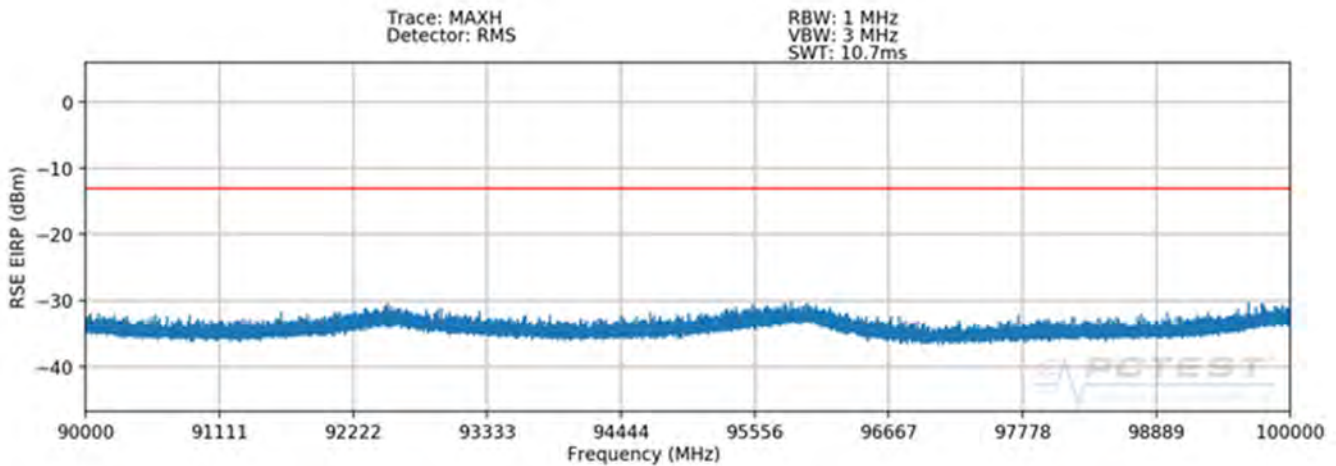
90 – 100GHz(n261)



Plot 7-159. J Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK Low Channel H Beam – n261)

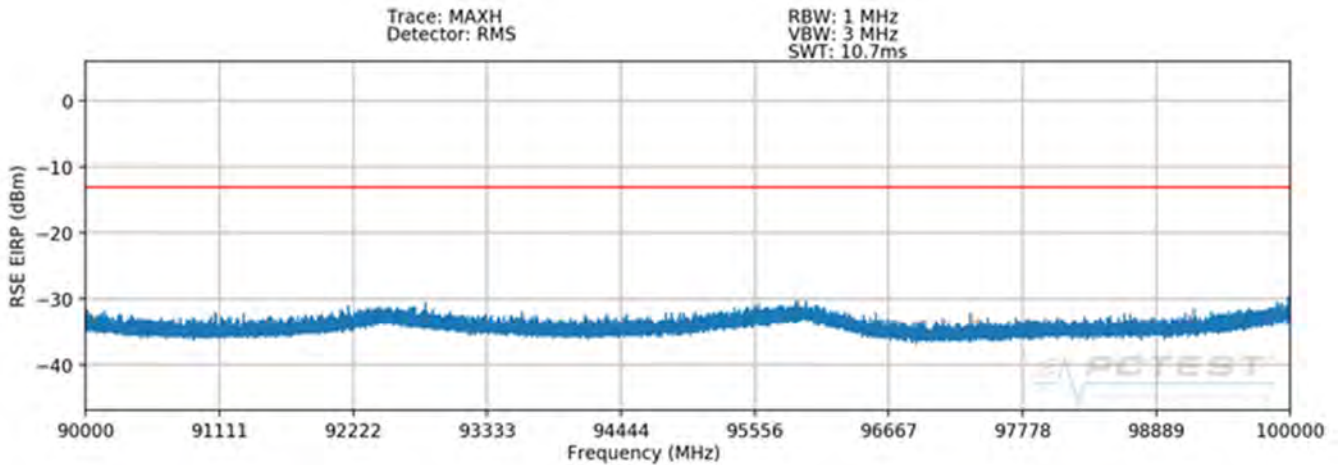


Plot 7-160. J Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK Mid Channel H Beam – n261)

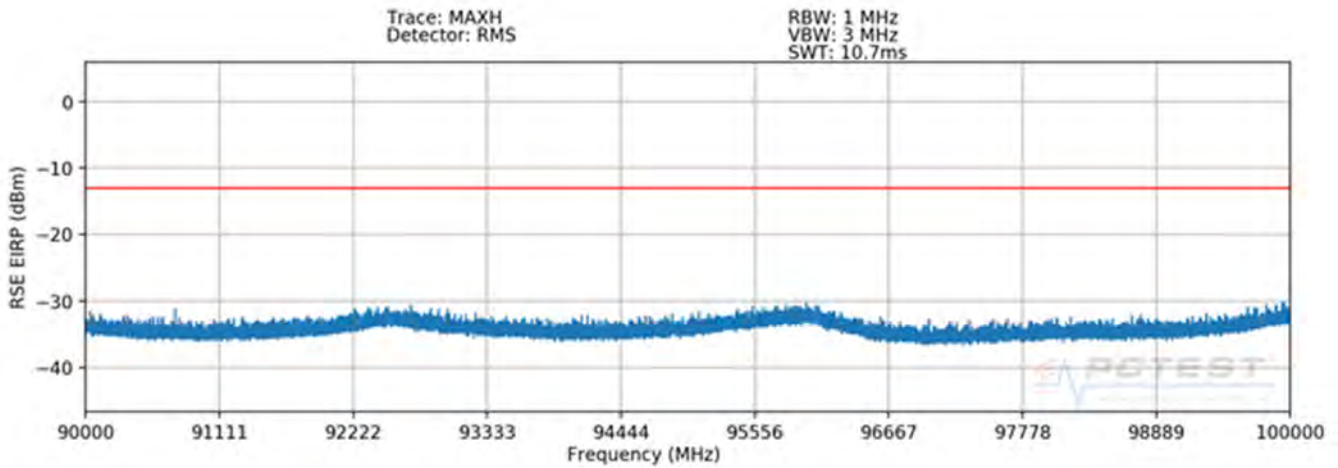


Plot 7-161. J Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK High Channel H Beam – n261)

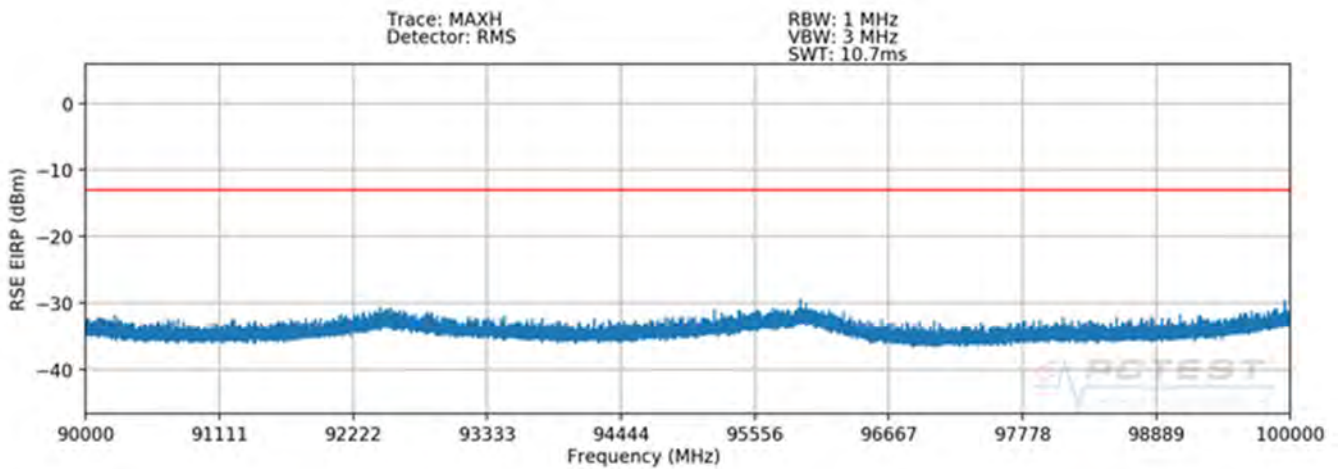
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Plot 7-162. J Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK Low Channel V Beam – n261)



Plot 7-163. J Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK Mid Channel V Beam – n261)



Plot 7-164. J Patch Radiated Spurious Plot 90-100 GHz (1CC QPSK High Channel V Beam – n261)

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Spurious Emissions EIRP Sample Calculation(n261)

The raw radiated spurious level is converted to field strength in dBμV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP [dBm]} = \text{Analyzer Level [dBm]} + 107 + \text{AFCL[dB/m]} + 20\text{Log(Dm)} + \text{Harmonic Mixer Loss (dB)} - 104.8$$

Frequency [MHz]	Detector/Trace	Chan.	Bandwidth (MHz)	Mod.	Beam Polarization	Ant. Pos [H/V]	Turntable Azimuth [degree]	Positioner Azimuth [degree]	RSE EIRP [dBm]	Limit [dBm]	Margin [dB]
95995.50	RMS/Avg	Low	50	QPSK	H	H	-	-	-39.80	-13.00	-26.80
95849.00	RMS/Avg	Mid	50	QPSK	H	H	-	-	-39.85	-13.00	-26.85
99992.50	RMS/Avg	High	50	QPSK	H	H	-	-	-39.80	-13.00	-26.80
95875.50	RMS/Avg	Low	50	QPSK	V	V	-	-	-39.84	-13.00	-26.84
96009.00	RMS/Avg	Mid	50	QPSK	V	V	-	-	-39.70	-13.00	-26.70
95883.00	RMS/Avg	High	50	QPSK	V	V	-	-	-39.84	-13.00	-26.84

Table 7-36. J Patch Spurious Emissions Table (90-100GHz – n261)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

$$(-39.85 \text{ dBm} + -39.70 \text{ dBm}) = (103.42 \text{ nW} + 107.10 \text{ nW}) = (210.52 \text{ nW}) = -36.77 \text{ dBm}$$

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