

**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:**

09/10/2020 – 10/08/2020

**Test Site/Location:**

PCTEST KOREA Lab. Yongin-si, Gyeonggi-do,  
Korea

**Test Report Serial No.:**

8K20090901-02-R2.A3L

**FCC ID:**

**A3LAT1K04-B10**

**APPLICANT:**

**Samsung Electronics Co., Ltd.**

**Application Type:**

Certification

**Model:**

AT1K04-B10

**EUT Type:**

5G Access Unit

**FCC Classification:**

Part 30 Fixed Transmitter (5GB)

**Test Procedure(s):**

ANSI C63.26-2015, KDB 971168 D01 v03r01,  
KDB 842590 D01 v01r01

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: 8K20090901-02-R2.A3L) supersedes and replaces the previously issued test report (S/N: 8K20090901-02-R1.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.

Prepared by

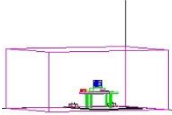
Reviewed by

<b>FCC ID: A3LAT1K04-B10</b>		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
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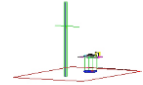
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## FCC Part 30



Bandwidth (MHz)	Mode	FCC Rule Part	Antenna	Tx Frequency (MHz)	EIRP Density		Emission Designator	Modulation
					Max. Power (W/100MHz)	Max. Power (dBm/100MHz)		
50	TDD(1CC)	30	A	27500 - 28350	65.31	48.15	46M6G7D	QPSK
	TDD(1CC)	30	A	27500 - 28350	63.53	48.03	46M5W7D	16QAM
	TDD(1CC)	30	A	27500 - 28350	65.01	48.13	46M5W7D	64QAM
100	TDD(1CC)	30	A	27500 - 28350	61.09	47.86	95M0G7D	QPSK
	TDD(1CC)	30	A	27500 - 28350	59.70	47.76	94M5W7D	16QAM
	TDD(1CC)	30	A	27500 - 28350	60.12	47.79	94M6W7D	64QAM
50	TDD(2CC)	30	A	27500 - 28350	58.61	47.68	95M4G7D	QPSK
	TDD(2CC)	30	A	27500 - 28350	58.34	47.66	95M5W7D	16QAM
	TDD(2CC)	30	A	27500 - 28350	59.02	47.71	95M5W7D	64QAM
100	TDD(8CC)	30	A	27500 - 28350	37.58	45.75	786MG7D	QPSK
	TDD(8CC)	30	A	27500 - 28350	36.22	45.59	787MW7D	16QAM
	TDD(8CC)	30	A	27500 - 28350	36.22	45.59	786MW7D	64QAM
50	TDD(1CC)	30	B	27500 - 28350	59.16	47.72	46M4G7D	QPSK
	TDD(1CC)	30	B	27500 - 28350	57.68	47.61	46M0W7D	16QAM
	TDD(1CC)	30	B	27500 - 28350	58.75	47.69	46M2W7D	64QAM
100	TDD(1CC)	30	B	27500 - 28350	59.43	47.74	94M4G7D	QPSK
	TDD(1CC)	30	B	27500 - 28350	58.75	47.69	94M3W7D	16QAM
	TDD(1CC)	30	B	27500 - 28350	59.57	47.75	94M7W7D	64QAM
50	TDD(2CC)	30	B	27500 - 28350	61.66	47.90	95M5G7D	QPSK
	TDD(2CC)	30	B	27500 - 28350	61.09	47.86	95M5W7D	16QAM
	TDD(2CC)	30	B	27500 - 28350	60.67	47.83	95M5W7D	64QAM
100	TDD(8CC)	30	B	27500 - 28350	36.06	45.57	786MG7D	QPSK
	TDD(8CC)	30	B	27500 - 28350	36.06	45.57	787MW7D	16QAM
	TDD(8CC)	30	B	27500 - 28350	36.06	45.57	786MW7D	64QAM
50	TDD(1CC)	30	C	27500 - 28350	62.23	47.94	46M3G7D	QPSK
	TDD(1CC)	30	C	27500 - 28350	61.24	47.87	46M0W7D	16QAM
	TDD(1CC)	30	C	27500 - 28350	61.24	47.87	46M0W7D	64QAM
100	TDD(1CC)	30	C	27500 - 28350	63.97	48.06	94M4G7D	QPSK
	TDD(1CC)	30	C	27500 - 28350	62.81	47.98	94M4W7D	16QAM
	TDD(1CC)	30	C	27500 - 28350	63.68	48.04	94M5W7D	64QAM
50	TDD(2CC)	30	C	27500 - 28350	64.42	48.09	95M3G7D	QPSK
	TDD(2CC)	30	C	27500 - 28350	63.10	48.00	95M4W7D	16QAM
	TDD(2CC)	30	C	27500 - 28350	61.66	47.90	95M4W7D	64QAM
100	TDD(8CC)	30	C	27500 - 28350	36.39	45.61	786MG7D	QPSK
	TDD(8CC)	30	C	27500 - 28350	36.31	45.60	787MW7D	16QAM
	TDD(8CC)	30	C	27500 - 28350	35.73	45.53	786MW7D	64QAM
50	TDD(1CC)	30	D	27500 - 28350	61.80	47.91	46M5G7D	QPSK
	TDD(1CC)	30	D	27500 - 28350	59.02	47.71	46M2W7D	16QAM
	TDD(1CC)	30	D	27500 - 28350	60.95	47.85	46M2W7D	64QAM
100	TDD(1CC)	30	D	27500 - 28350	55.98	47.48	94M9G7D	QPSK
	TDD(1CC)	30	D	27500 - 28350	55.21	47.42	94M5W7D	16QAM
	TDD(1CC)	30	D	27500 - 28350	55.85	47.47	94M6W7D	64QAM
50	TDD(2CC)	30	D	27500 - 28350	62.52	47.96	95M6G7D	QPSK
	TDD(2CC)	30	D	27500 - 28350	61.66	47.90	95M5W7D	16QAM
	TDD(2CC)	30	D	27500 - 28350	61.38	47.88	95M5W7D	64QAM
100	TDD(8CC)	30	D	27500 - 28350	35.40	45.49	786MG7D	QPSK
	TDD(8CC)	30	D	27500 - 28350	35.97	45.56	787MW7D	16QAM
	TDD(8CC)	30	D	27500 - 28350	36.73	45.65	786MW7D	64QAM

### EUT Overview for Antenna A, B, C, and D

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Bandwidth (MHz)	Mode	FCC Rule Part	Antenna	Tx Frequency (MHz)	EIRP Density		Emission Designator	Modulation
					Max. Power (W/100MHz)	Max. Power (dBm/100MHz)		
50	TDD(1CC)	30	A+C	27500 - 28350	127.54	51.06	46M6G7D	QPSK
	TDD(1CC)	30	A+C	27500 - 28350	124.77	50.96	46M5W7D	16QAM
	TDD(1CC)	30	A+C	27500 - 28350	126.25	51.01	46M5W7D	64QAM
100	TDD(1CC)	30	A+C	27500 - 28350	125.07	50.97	95M0G7D	QPSK
	TDD(1CC)	30	A+C	27500 - 28350	122.51	50.88	94M5W7D	16QAM
	TDD(1CC)	30	A+C	27500 - 28350	123.80	50.93	94M6W7D	64QAM
50	TDD(2CC)	30	A+C	27500 - 28350	123.03	50.90	95M4G7D	QPSK
	TDD(2CC)	30	A+C	27500 - 28350	121.44	50.84	95M5W7D	16QAM
	TDD(2CC)	30	A+C	27500 - 28350	120.68	50.82	95M5W7D	64QAM
100	TDD(8CC)	30	A+C	27500 - 28350	73.98	48.69	786MG7D	QPSK
	TDD(8CC)	30	A+C	27500 - 28350	72.53	48.61	787MW7D	16QAM
	TDD(8CC)	30	A+C	27500 - 28350	71.95	48.57	786MW7D	64QAM
50	TDD(1CC)	30	B+D	27500 - 28350	120.96	50.83	46M4G7D	QPSK
	TDD(1CC)	30	B+D	27500 - 28350	116.70	50.67	46M0W7D	16QAM
	TDD(1CC)	30	B+D	27500 - 28350	119.70	50.78	46M2W7D	64QAM
100	TDD(1CC)	30	B+D	27500 - 28350	115.40	50.62	94M4G7D	QPSK
	TDD(1CC)	30	B+D	27500 - 28350	113.96	50.57	94M3W7D	16QAM
	TDD(1CC)	30	B+D	27500 - 28350	115.41	50.62	94M7W7D	64QAM
50	TDD(2CC)	30	B+D	27500 - 28350	124.18	50.94	95M5G7D	QPSK
	TDD(2CC)	30	B+D	27500 - 28350	122.75	50.89	95M5W7D	16QAM
	TDD(2CC)	30	B+D	27500 - 28350	122.05	50.87	95M5W7D	64QAM
100	TDD(8CC)	30	B+D	27500 - 28350	71.46	48.54	786MG7D	QPSK
	TDD(8CC)	30	B+D	27500 - 28350	72.03	48.58	787MW7D	16QAM
	TDD(8CC)	30	B+D	27500 - 28350	72.79	48.62	786MW7D	64QAM

### EUT Overview for Antenna A + C and B + D

Bandwidth (MHz)	Mode	FCC Rule Part	Antenna	Tx Frequency (MHz)	EIRP Density		Emission Designator	Modulation
					Max. Power (W/100MHz)	Max. Power (dBm/100MHz)		
50	TDD(1CC)	30	A+B+C+D	27500 - 28350	248.50	53.95	46M6G7D	QPSK
	TDD(1CC)	30	A+B+C+D	27500 - 28350	241.46	53.83	46M5W7D	16QAM
	TDD(1CC)	30	A+B+C+D	27500 - 28350	245.95	53.91	46M5W7D	64QAM
100	TDD(1CC)	30	A+B+C+D	27500 - 28350	240.47	53.81	95M0G7D	QPSK
	TDD(1CC)	30	A+B+C+D	27500 - 28350	236.47	53.74	94M5W7D	16QAM
	TDD(1CC)	30	A+B+C+D	27500 - 28350	239.21	53.79	94M7W7D	64QAM
50	TDD(2CC)	30	A+B+C+D	27500 - 28350	247.21	53.93	95M5G7D	QPSK
	TDD(2CC)	30	A+B+C+D	27500 - 28350	244.19	53.88	95M5W7D	16QAM
	TDD(2CC)	30	A+B+C+D	27500 - 28350	242.73	53.85	95M5W7D	64QAM
100	TDD(8CC)	30	A+B+C+D	27500 - 28350	145.43	51.63	786MG7D	QPSK
	TDD(8CC)	30	A+B+C+D	27500 - 28350	144.56	51.60	787MW7D	16QAM
	TDD(8CC)	30	A+B+C+D	27500 - 28350	144.74	51.61	786MW7D	64QAM

### EUT Overview for Antenna A + B + C + D

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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 KOREA Test Location

These measurement tests were conducted at the PCTEST KOREA CO., LTD. facility located at (#1407) 13, Heungdeok 1-ro, Giheung-gu, Yongin-si, Gyeonggi-do 16954, Korea.

### 1.3 Test Facility / Accreditations

Measurements were performed at PCTEST KOREA Lab located in Yongin-si, Gyeonggi, Korea.

- PCTEST KOREA is an ISO 17025:2005 accredited test facility under the National Institute of Standards and Technology (NIST) with Certificate number 600143-0 for Specific Absorption Rate (SAR), where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST KOREA facility is accredited and designated in accordance with the provision of Radio Wave Act and International Standard ISO/IEC 17025:2017 under the National Radio Research Agency.
  - Designation Number: KR0169
  - Test Firm Registration Number: 417945

Scope	FCC Rule Parts	Maximum Assessed Frequency in MHz
Intentional Radiators	FCC Part 15, Subpart C	220,000
U-NII without DFS Intentional Radiators	FCC Part 15, Subpart E	40,000
U-NII with DFS Intentional Radiators	FCC Part 15, Subpart E	40,000
UWB Intentional Radiators	FCC Part 15, Subpart F	200,000
Commercial Mobile Services	Part 22 (cellular), Part 24, Part 25 (below 3 GHz), Part 27	220,000
General Mobile Radio Service	Part 22 (non-cellular), Part 90 (below 3GHz), Part 95 (below 3GHz), Part 97 (below 3GHz), Part 101 (below 3GHz)	220,000
Citizens Broadband Radio Services	Part 96	220,000
Microwave and Millimeter Bands Radio Services	Part 25 (below 3GHz), Part 30, Part 74, Part 90 (above 3 GHz), Part 95 (above 3 GHz), Part 97 (above 3 GHz), Part 101	220,000
RF Exposure		6,000
Signal Boosters	Part 20, Part 90	220,000

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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

This device supports 1 to 2 component carriers(contiguous/non-contiguous) of 50 MHz bandwidth, 1 to 8 component carriers(contiguous/non-contiguous) of 100 MHz bandwidth and 2 to 8 component carriers(contiguous/non-contiguous) of mixed bandwidth (50 MHz+100 MHz).

The Equipment Under Test (EUT) is the **Samsung 5G Access Unit FCC ID: A3LAT1K04-B10**. The test data contained in this report pertains only to the emissions due to the EUT's 5G mmWave function.

The present document shall be constructed per the guidelines found in KDB 484596 D01 "Referencing Test Data" v01 which can be referred from 10.0 Appendix KDB 484596.

The EUT operates as a 4X4 MIMO system that consists of four antenna arrays (denoted herein as "Antenna A", "Antenna B", "Antenna C" and "Antenna D". Each of the four antenna arrays has 256 antenna elements for a total of 1024 antenna elements. Of the 4 antenna arrays, Antenna A and Antenna C have the same polarization (135 degrees from horizontal) and Antenna B and Antenna D have the same polarization (45 degrees from horizontal). Beamforming is used with Antenna A and Antenna C and it is also used with Antenna B and Antenna D. Signal correlation is possible between the outputs of all four antenna arrays.

This unit is powered by a nominal AC voltage source.

See Section 3.2 for the antenna polarization of the 5G Access Unit and the measurement antenna.

**Test Device Serial No.:** S616627399

### 2.2 Device Capabilities

This device contains the following capabilities:

TDD of mmWave

### 2.3 Test Configuration

The EUT was tested per the guidance of ANSI C63.26-2015 and KDB 971168 D01 v03r01. See Section 7.0 of this test report for a description of the radiated tests.

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BW	Configuration	Channel	CC	Frequency [MHz]
50 MHz	1CC	Low	CC0	27525.30
		Mid	CC0	27925.02
		High	CC0	28324.98
	contiguous 2CC	Low	CC0	27525.30
			CC1	27575.28
		Mid	CC0	27900.00
			CC1	27949.98
		High	CC0	28275.00
			CC1	28324.98
	Non-contiguous 2CC	Low	CC0	27525.30
			CC1	28275.00
		Mid	CC0	27550.20
CC1			28299.90	
High		CC0	27575.28	
		CC1	28324.98	

**Table 2-1. Declared of EUT configuration Frequency list for 50 MHz BW Mode**

BW	Configuration	Channel	CC	Frequency [MHz]
100 MHz	contiguous 1CC	Low	CC0	27550.02
		Mid	CC0	27925.02
		High	CC0	28300.02
	contiguous 2CC	Low	CC0	27550.02
			CC1	27649.98
		Mid	CC0	27875.04
			CC1	27975.00
		High	CC0	28200.06
			CC1	28300.02
	contiguous 3CC	Low	CC0	27550.02
			CC1	27649.98
			CC2	27749.94
		Mid	CC0	27825.06
			CC1	27925.02
			CC2	28024.98
		High	CC0	28100.10
			CC1	28200.06
			CC2	28300.02
	contiguous 4CC	Low	CC0	27550.02
			CC1	27649.98
			CC2	27749.94
			CC3	27849.90
		Mid	CC0	27775.08
			CC1	27875.04
			CC2	27975.00
			CC3	28074.96
		High	CC0	28000.14
			CC1	28100.10
			CC2	28200.06
			CC3	28300.02
contiguous 5CC	Low	CC0	27550.02	
		CC1	27649.98	
		CC2	27749.94	
		CC3	27849.90	
		CC4	27949.86	

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	contiguous 5CC	Mid	CC4	27949.86
			CC0	27725.10
			CC1	27825.06
			CC2	27925.02
			CC3	28024.98
		CC4	28124.94	
		High	CC0	27900.18
			CC1	28000.14
			CC2	28100.10
			CC3	28200.06
	CC4		28300.02	
	contiguous 6CC	Low	CC0	27550.02
			CC1	27649.98
			CC2	27749.94
			CC3	27849.90
			CC4	27949.86
		CC5	28049.82	
		Mid	CC0	27675.12
			CC1	27775.08
			CC2	27875.04
			CC3	27975.00
			CC4	28074.96
		CC5	28174.92	
		High	CC0	27800.22
			CC1	27900.18
			CC2	28000.14
	CC3		28100.10	
	CC4		28200.06	
	CC5	28300.02		
	contiguous 7CC	Low	CC0	27550.02
			CC1	27649.98
			CC2	27749.94
			CC3	27849.90
			CC4	27949.86
		CC5	28049.82	
		CC6	28149.78	
		Mid	CC0	27625.14
			CC1	27725.10
			CC2	27825.06
			CC3	27925.02
CC4			28024.98	
CC5		28124.94		
CC6		28224.90		
High		CC0	27700.26	
	CC1	27800.22		
	CC2	27900.18		
	CC3	28000.14		
	CC4	28100.10		
CC5	28200.06			
CC6	28300.02			
contiguous 8CC	Low	CC0	27550.02	
		CC1	27649.98	
		CC2	27749.94	
		CC3	27849.90	
		CC4	27949.86	

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	contiguous 8CC	Mid	CC5	28049.82
			CC6	28149.78
			CC7	28249.74
			CC0	27575.16
			CC1	27675.12
			CC2	27775.08
			CC3	27875.04
		CC4	27975.00	
		CC5	28074.96	
		CC6	28174.92	
		CC7	28274.88	
		High	CC0	27600.30
			CC1	27700.26
			CC2	27800.22
	CC3		27900.18	
	CC4		28000.14	
	CC5		28100.10	
	CC6		28200.06	
	Non-contiguous 2CC	Low	CC0	27550.02
			CC1	28249.74
		Mid	CC0	27575.16
			CC1	28274.88
		High	CC0	27600.30
			CC1	28300.02
	Non-contiguous 3CC	Low	CC0	27550.02
			CC1	27899.88
			CC2	28249.74
		Mid	CC0	27575.16
			CC1	27925.02
			CC2	28274.88
		High	CC0	27600.30
			CC1	27950.16
			CC2	28300.02
	Non-contiguous 4CC	Low	CC0	27550.02
			CC1	27783.30
			CC2	28016.52
			CC3	28249.74
		Mid	CC0	27575.16
			CC1	27808.44
			CC2	28041.66
			CC3	28274.88
		High	CC0	27600.30
CC1			27833.58	
CC2			28066.80	
CC3			28300.02	
Non-contiguous 5CC	Low	CC0	27550.02	
		CC1	27724.92	
		CC2	27899.88	
		CC3	28074.84	
		CC4	28249.74	
	Mid	CC0	27575.16	
		CC1	27750.06	
		CC2	27925.02	
		CC3	28099.98	
		CC4	28274.88	

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		High	CC4	28274.88
			CC0	27600.30
			CC1	27775.20
			CC2	27950.16
			CC3	28125.06
			CC4	28300.02
	Non-contiguous 6CC	Low	CC0	27550.02
			CC1	27689.94
			CC2	27829.92
			CC3	27969.90
			CC4	28109.82
			CC5	28249.74
		Mid	CC0	27575.16
			CC1	27715.08
			CC2	27855.06
			CC3	27995.04
			CC4	28134.96
		High	CC0	27600.30
			CC1	27740.22
			CC2	27880.20
			CC3	28020.18
	CC4		28160.10	
	Non-contiguous 7CC	Low	CC5	28300.02
			CC0	27550.02
			CC1	27666.60
			CC2	27783.24
			CC3	27899.88
			CC4	28016.52
			CC5	28133.16
		Mid	CC6	28249.74
CC0			27575.16	
CC1			27691.74	
CC2			27808.38	
CC3			27925.02	
CC4			28041.66	
High		CC5	28158.30	
		CC6	28274.88	
	CC0	27600.30		
	CC1	27716.88		
	CC2	27833.52		
	CC3	27950.16		
			CC4	28066.80
			CC5	28183.44
			CC6	28300.02

**Table 2-2. Declared of EUT configuration Frequency list for 100 MHz BW Mode**

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BW	Configuration	Channel	CC	Frequency [MHz]
50 MHz + 100 MHz	contiguous 50 MHz 1CC 100 MHz 1CC	Low	50 MHz Bandwidth	
			CC0	27525.30
			100 MHz Bandwidth	
		Mid	CC0	27600.30
			50 MHz Bandwidth	
			CC0	27850.02
			100 MHz Bandwidth	
			CC0	27925.02
			50 MHz Bandwidth	
		High	CC0	28225.02
			100 MHz Bandwidth	
			CC0	28300.02
	50 MHz Bandwidth			
	Low		CC0	27525.30
			CC1	27575.28
		100 MHz Bandwidth		
		CC0	27650.28	
		Mid	50 MHz Bandwidth	
			CC0	27850.02
	CC1		27900.00	
	100 MHz Bandwidth			
	CC0		27975.00	
	50 MHz Bandwidth			
	High	CC0	28175.04	
		CC1	28225.02	
		100 MHz Bandwidth		
		CC0	28300.02	
		Low	50 MHz Bandwidth	
			CC0	27525.30
	100 MHz Bandwidth			
	CC0		27600.30	
	CC1		27700.26	
	Mid		50 MHz Bandwidth	
		CC0	27825.00	
		100 MHz Bandwidth		
		CC0	27900.00	
		CC1	27999.96	
		High	50 MHz Bandwidth	
	CC0		28125.06	
	100 MHz Bandwidth			
	CC0		28200.06	
	CC1		28300.02	
	contiguous 50 MHz 2CC 100 MHz 2CC		Low	50 MHz Bandwidth
		CC0		27525.30
		CC1		27575.28
		100 MHz Bandwidth		
		CC0		27650.28
		CC1		27750.24
Mid		50 MHz Bandwidth		
		CC0	27800.04	
		CC1	27850.02	
		100 MHz Bandwidth		
		CC0	27925.02	

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50 MHz + 100 MHz		High	CC1	28024.98	
			50 MHz Bandwidth		
			CC0	28075.08	
			CC1	28125.06	
			100 MHz Bandwidth		
			CC0	28200.06	
	contiguous 50 MHz 1CC 100 MHz 3CC	Low		50 MHz Bandwidth	
				CC0	27525.30
				100 MHz Bandwidth	
				CC0	27600.30
				CC1	27700.26
				CC2	27800.22
		Mid		50 MHz Bandwidth	
				CC0	27775.02
				100 MHz Bandwidth	
				CC0	27850.02
				CC1	27949.98
				CC2	28049.94
	High		50 MHz Bandwidth		
			CC0	28025.10	
			100 MHz Bandwidth		
			CC0	28100.10	
			CC1	28200.06	
			CC2	28300.02	
	contiguous 50 MHz 2CC 100 MHz 3CC	Low		50 MHz Bandwidth	
				CC0	27525.30
				CC1	27575.28
				100 MHz Bandwidth	
				CC0	27650.28
				CC1	27750.24
		Mid		50 MHz Bandwidth	
				CC0	27750.06
CC1				27800.04	
100 MHz Bandwidth					
CC0				27875.04	
CC1				27975.00	
High			50 MHz Bandwidth		
			CC0	27975.12	
			CC1	28025.10	
			100 MHz Bandwidth		
			CC0	28100.10	
			CC1	28200.06	
contiguous 50 MHz 1CC 100 MHz 4CC	Low		50 MHz Bandwidth		
			CC0	27525.30	
			100 MHz Bandwidth		
			CC0	27600.30	
			CC1	27700.26	
			CC2	27800.22	
	Mid		50 MHz Bandwidth		
			CC0	27900.18	
			CC0	27725.04	

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50 MHz + 100 MHz	contiguous 50 MHz 2CC 100 MHz 4CC	High	100 MHz Bandwidth	
			CC0	27800.04
			CC1	27900.00
			CC2	27999.96
			CC3	28099.92
			50 MHz Bandwidth	
		CC0	27925.14	
		100 MHz Bandwidth		
		CC0	28000.14	
		CC1	28100.10	
		CC2	28200.06	
		CC3	28300.02	
	Low	50 MHz Bandwidth		
		CC0	27525.30	
		CC1	27575.28	
		100 MHz Bandwidth		
		CC0	27650.28	
		CC1	27750.24	
		CC2	27850.20	
		CC3	27950.16	
		50 MHz Bandwidth		
		CC0	27700.02	
		CC1	27750.00	
		100 MHz Bandwidth		
	CC0	27825.00		
	CC1	27924.96		
	CC2	28024.92		
	CC3	28124.88		
	High	50 MHz Bandwidth		
		CC0	27875.16	
		CC1	27925.14	
		100 MHz Bandwidth		
CC0		28000.14		
CC1		28100.10		
CC2		28200.06		
CC3		28300.02		
50 MHz Bandwidth				
CC0		27525.30		
100 MHz Bandwidth				
CC0		27600.30		
CC1	27700.26			
CC2	27800.22			
CC3	27900.18			
CC4	28000.14			
Mid	50 MHz Bandwidth			
	CC0	27675.00		
	100 MHz Bandwidth			
	CC0	27750.00		
	CC1	27849.96		
	CC2	27949.92		
	CC3	28049.88		
	CC4	28149.84		
	50 MHz Bandwidth			
	CC0	27825.18		
	100 MHz Bandwidth			
	CC0	27825.18		

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50 MHz + 100 MHz			CC0	27900.18	
			CC1	28000.14	
			CC2	28100.10	
			CC3	28200.06	
			CC4	28300.02	
	contiguous 50 MHz 2CC 100 MHz 5CC	Low	50 MHz Bandwidth		
			CC0	27525.30	
			CC1	27575.28	
			100 MHz Bandwidth		
			CC0	27650.28	
			CC1	27750.24	
			CC2	27850.20	
			CC3	27950.16	
		CC4	28050.12		
		Mid	50 MHz Bandwidth		
			CC0	27650.04	
			CC1	27700.02	
			100 MHz Bandwidth		
			CC0	27775.02	
			CC1	27874.98	
			CC2	27974.94	
	CC3		28074.90		
	CC4	28174.86			
	High	50 MHz Bandwidth			
		CC0	27775.20		
		CC1	27825.18		
		100 MHz Bandwidth			
		CC0	27900.18		
		CC1	28000.14		
		CC2	28100.10		
		CC3	28200.06		
	CC4	28300.02			
contiguous 50 MHz 1CC 100 MHz 6CC	Low	50 MHz Bandwidth			
		CC0	27525.30		
		100 MHz Bandwidth			
		CC0	27600.30		
		CC1	27700.26		
		CC2	27800.22		
		CC3	27900.18		
		CC4	28000.14		
	CC5	28100.10			
	Mid	50 MHz Bandwidth			
		CC0	27625.02		
		100 MHz Bandwidth			
		CC0	27700.02		
		CC1	27799.98		
		CC2	27899.94		
		CC3	27999.90		
CC4		28099.86			
CC5	28199.82				
High	50 MHz Bandwidth				
	CC0	27725.22			
	100 MHz Bandwidth				
	CC0	27800.22			
			CC1	27900.18	

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50 MHz + 100 MHz	contiguous 50 MHz 2CC 100 MHz 6CC	Low	CC2	28000.14	
			CC3	28100.10	
			CC4	28200.06	
			CC5	28300.02	
			50 MHz Bandwidth		
		CC0	27525.30		
		CC1	27575.28		
		100 MHz Bandwidth			
		CC0	27650.28		
		CC1	27750.24		
		CC2	27850.20		
		CC3	27950.16		
		CC4	28050.12		
		CC5	28150.08		
		Mid	50 MHz Bandwidth		
	CC0		27600.06		
	CC1		27650.04		
	100 MHz Bandwidth				
	CC0		27725.04		
	CC1		27825.00		
	CC2		27924.96		
	CC3		28024.92		
	CC4		28124.88		
	CC5		28224.84		
	High		50 MHz Bandwidth		
			CC0	27675.24	
			CC1	27725.22	
			100 MHz Bandwidth		
			CC0	27800.22	
		CC1	27900.18		
		CC2	28000.14		
		CC3	28100.10		
		CC4	28200.06		
		CC5	28300.02		
		Non-contiguous 50 MHz 1CC 100 MHz 1CC	Low	50 MHz Bandwidth	
				CC0	27525.30
				100 MHz Bandwidth	
			CC0	28249.74	
			Mid	50 MHz Bandwidth	
	CC0			27550.02	
100 MHz Bandwidth					
CC0	28274.46				
High	50 MHz Bandwidth				
	CC0	27575.58			
	100 MHz Bandwidth				
CC0	28300.02				
Non-contiguous 50 MHz 2CC 100 MHz 1CC	Low	50 MHz Bandwidth			
		CC0	27525.30		
		CC1	27887.52		
		100 MHz Bandwidth			
		CC0	28249.74		
	Mid	50 MHz Bandwidth			
		CC0	27550.02		
		CC1	27912.24		
		100 MHz Bandwidth			

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50 MHz + 100 MHz	Non-contiguous 50 MHz 1CC 100 MHz 2CC	High	CC0	28274.46
			50 MHz Bandwidth	
			CC0	27575.58
			CC1	27937.80
		100 MHz Bandwidth		
		CC0	28300.02	
		Low	50 MHz Bandwidth	
			CC0	27525.30
	100 MHz Bandwidth			
	CC0		27887.52	
	Mid	50 MHz Bandwidth		
		CC0	27550.02	
		100 MHz Bandwidth		
		CC0	27912.24	
	High	50 MHz Bandwidth		
		CC0	27575.58	
		100 MHz Bandwidth		
		CC0	27937.80	
	Non-contiguous 50 MHz 2CC 100 MHz 2CC	Low	50 MHz Bandwidth	
			CC0	27525.30
			CC1	27766.80
			100 MHz Bandwidth	
		Mid	50 MHz Bandwidth	
			CC0	27550.02
			CC1	27791.52
			100 MHz Bandwidth	
		High	50 MHz Bandwidth	
			CC0	27575.58
			CC1	27817.08
			100 MHz Bandwidth	
	Low	50 MHz Bandwidth		
		CC0	27525.30	
		CC1	28008.30	
		CC2	28249.74	
	Non-contiguous 50 MHz 1CC 100 MHz 3CC	Mid	50 MHz Bandwidth	
			CC0	27550.02
			100 MHz Bandwidth	
			CC0	27791.52
		High	50 MHz Bandwidth	
			CC0	27575.58
100 MHz Bandwidth				
CC0			27817.08	

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50 MHz + 100 MHz	Non-contiguous 50 MHz 2CC 100 MHz 3CC	Low	CC1	28058.58
			CC2	28300.02
			50 MHz Bandwidth	
			CC0	27525.30
			CC1	27706.38
			100 MHz Bandwidth	
		CC0	27887.52	
		CC1	28068.66	
		CC2	28249.74	
		Mid	50 MHz Bandwidth	
			CC0	27550.44
			CC1	27731.52
	100 MHz Bandwidth			
	CC0		27912.66	
	CC1		28093.80	
	High	50 MHz Bandwidth		
		CC0	27575.58	
		CC1	27756.66	
		100 MHz Bandwidth		
		CC0	27937.80	
		CC1	28118.94	
	Non-contiguous 50 MHz 1CC 100 MHz 4CC	Low	50 MHz Bandwidth	
			CC0	27525.30
			100 MHz Bandwidth	
			CC0	27706.38
			CC1	27887.52
			CC2	28068.66
		Mid	50 MHz Bandwidth	
			CC0	27550.02
			100 MHz Bandwidth	
			CC0	27731.10
			CC1	27912.24
CC2			28093.38	
High	50 MHz Bandwidth			
	CC0	27575.58		
	100 MHz Bandwidth			
	CC0	27756.66		
	CC1	27937.80		
	CC2	28118.94		
Non-contiguous 50 MHz 2CC 100 MHz 4CC	Low	50 MHz Bandwidth		
		CC0	27525.30	
		CC1	27670.20	
		100 MHz Bandwidth		
		CC0	27815.10	
		CC1	27960.00	
	Mid	50 MHz Bandwidth		
		CC0	27550.02	
		CC1	27694.92	

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50 MHz + 100 MHz	High	100 MHz Bandwidth		
		CC0	27839.82	
		CC1	27984.72	
		CC2	28129.62	
		CC3	28274.46	
		50 MHz Bandwidth		
		CC0	27575.58	
		CC1	27720.48	
		100 MHz Bandwidth		
		CC0	27865.38	
	CC1	28010.28		
	CC2	28155.18		
	CC3	28300.02		
	Low	50 MHz Bandwidth		
		CC0	27525.3	
		100 MHz Bandwidth		
		CC0	27670.20	
		CC1	27815.10	
		CC2	27960.00	
		CC3	28104.90	
		CC4	28249.74	
		Mid	50 MHz Bandwidth	
			CC0	27550.02
	100 MHz Bandwidth			
	CC0		27694.92	
	CC1		27839.82	
	CC2		27984.72	
	CC3		28129.62	
CC4	28274.46			
High	50 MHz Bandwidth			
	CC0		27575.58	
	100 MHz Bandwidth			
	CC0	27720.48		
	CC1	27865.38		
	CC2	28010.28		
	CC3	28155.18		
	CC4	28300.02		
	Low	50 MHz Bandwidth		
		CC0	27525.30	
CC1		27646.08		
100 MHz Bandwidth				
CC0		27766.80		
CC1		27887.52		
CC2		28008.24		
CC3		28128.96		
CC4		28249.74		
Mid		50 MHz Bandwidth		
	CC0	27550.02		
	CC1	27670.80		
	100 MHz Bandwidth			
	CC0	27791.52		
	CC1	27912.24		
	CC2	28032.96		
	CC3	28153.68		
	CC4	28274.46		
	Non-contiguous 50 MHz 1CC 100 MHz 5CC	High	100 MHz Bandwidth	
CC0			27839.82	
CC1			27984.72	
CC2			28129.62	
CC3			28274.46	
50 MHz Bandwidth				
CC0			27575.58	
CC1			27720.48	
100 MHz Bandwidth				
CC0			27865.38	
CC1	28010.28			
CC2	28155.18			
CC3	28300.02			
Non-contiguous 50 MHz 2CC 100 MHz 5CC	Low	50 MHz Bandwidth		
		CC0	27525.30	
		CC1	27646.08	
		100 MHz Bandwidth		
		CC0	27766.80	
		CC1	27887.52	
		CC2	28008.24	
		CC3	28128.96	
		CC4	28249.74	
		Mid	50 MHz Bandwidth	
CC0	27550.02			
CC1	27670.80			
100 MHz Bandwidth				
CC0	27791.52			
CC1	27912.24			
CC2	28032.96			
CC3	28153.68			
CC4	28274.46			

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50 MHz + 100 MHz	High	50 MHz Bandwidth			
		CC0	27575.58		
		CC1	27696.36		
		100 MHz Bandwidth			
		CC0	27817.08		
		CC1	27937.80		
		CC2	28058.52		
		CC3	28179.24		
		CC4	28300.02		
		Non-contiguous 50 MHz 1CC 100 MHz 6CC	Low	50 MHz Bandwidth	
				CC0	27525.30
				100 MHz Bandwidth	
	CC0			27646.08	
	CC1			27766.80	
	CC2			27887.52	
	Mid		50 MHz Bandwidth		
			CC0	27550.02	
			100 MHz Bandwidth		
			CC0	27670.80	
			CC1	27791.52	
			CC2	27912.24	
	Non-contiguous 50 MHz 2CC 100 MHz 6CC	High	50 MHz Bandwidth		
			CC0	27575.58	
			100 MHz Bandwidth		
			CC0	27696.36	
			CC1	27817.08	
			CC2	27937.80	
		Low	50 MHz Bandwidth		
			CC0	27525.30	
			CC1	27600.30	
			100 MHz Bandwidth		
			CC0	27700.26	
CC1			27800.22		
Mid	50 MHz Bandwidth				
	CC0	27625.02			
	CC1	27700.02			
	100 MHz Bandwidth				
	CC0	27799.98			
	CC1	27899.94			
	CC2	27999.90			
	CC3	28099.86			
CC4	28199.82				

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50 MHz + 100 MHz	High	CC5	28274.82
		50 MHz Bandwidth	
		CC0	27725.22
		CC1	27800.22
		100 MHz Bandwidth	
		CC0	27900.18
		CC1	28000.14
		CC2	28100.10
		CC3	28200.06
		CC4	28300.02
		CC5	28300.02

**Table 2-3. Declared of EUT configuration Frequency list for 50 MHz + 100 MHz BW Mode**

## 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 Transmitter Used in Licensed Radio Service” (ANSI C63.26-2015) and the guidance provided in KDB 842590 D01 v01r01 were used in the measurement of the EUT.

### 3.2 Radiated Power and Radiated Spurious Emissions

§30.202, §30.203, §30.404, §30.405

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for Final measurement and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 8.5 m(L) x 6.1 m(W) x 5.6 m(H) 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 1 GHz. For measurements below 1 GHz, 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 80 cm 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 1.5 m.

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 1.5 m for measurements above 1 GHz.

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.

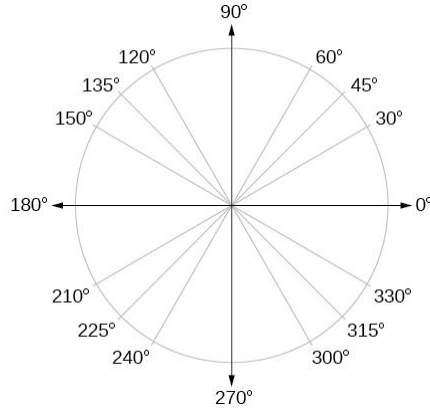
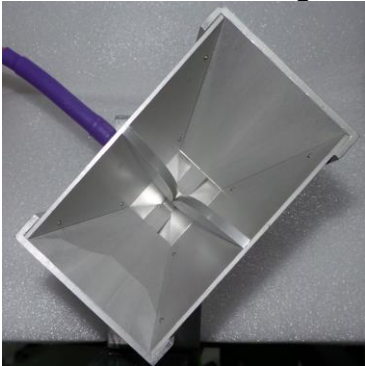
Frequency Range [GHz]	Wavelength [cm]	Far Field Distance [m]	Measurements Distance [m]
18 to 40	0.749	3.19	3.19
40 to 60	0.500	1.39	3.19
60 to 90	0.333	0.91	3.19
90 to 100	0.214	0.58	2.00

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

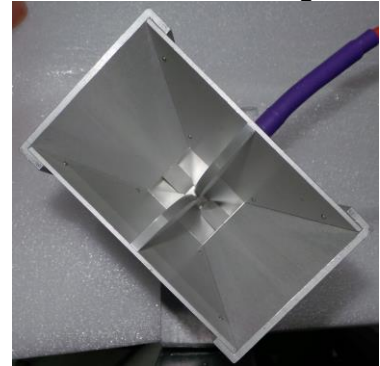
Radiated power levels are investigated with the receive antenna horizontally and vertically polarized. Additionally, the receive antenna was rotated on various angles to investigate worst case emissions on each EUT antenna array. The EUT antenna array polarization and horn antennas angle are denoted as follows:

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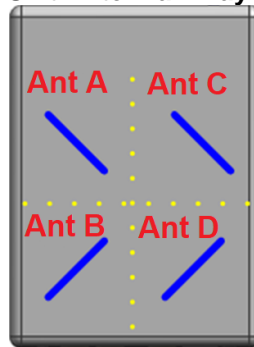
**Horn antenna at 135 degrees**



**Horn antenna at 45 degrees**



**5G Access Unit Antenna Array Polarization**



The maximized power level is recorded using the spectrum analyzer “Channel Power” function with the integration band 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 converted back to calculated e.i.r.p.as explained in KDB 971168 D01 D01 v03r01.

**Field Strength [dBμV/m]** = Measured Value [dBm] + AFCL [dB/m] + 107

= -5.28 dBm + (47.07 dB/m + 11.33 dB) + 107 = 160.12 dBuV/m

= 10^(160.12/20)/1000000 = 101.39 V/m

**e.i.r.p. [dBm]** = 10\*log((E-Field\*D<sub>m</sub>)^2/30) + 30 dB

= 10\*log((101.39 V/m \* 3.19 m)^2/30) + 30 dB

= **65.42 dBm e.i.r.p.**

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

The e.i.r.p at Antenna A, Antenna B, Antenna C and Antenna D were first measured individually. The measured values were then summed in linear power units then converted back to dBm for the co-polarized antennas.

$$\text{Conversion to linear value} = 10^{(e.i.r.p./10)} = 10^{(47.67/10)} = 58479 \text{ mW}$$

$$\begin{aligned} \text{MIMO e.i.r.p.} &= e.i.r.p._A + e.i.r.p._c \\ &= 58479 \text{ mW} + 53088 \text{ mW} \\ &= 10 * \log(111567 \text{ mW}) \\ &= 50.48 \text{ dBm} \end{aligned}$$

For summation across all antennas,

$$\begin{aligned} \text{MIMO e.i.r.p.} &= e.i.r.p._A + e.i.r.p._B + e.i.r.p._c + e.i.r.p._D \\ &= 58479 \text{ mW} + 54576 \text{ mW} + 53088 \text{ mW} + 52360 \text{ mW} \\ &= 10 * \log(218503 \text{ mW}) \\ &= 53.39 \text{ dBm} \end{aligned}$$

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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  $U_{\text{CISPR}}$  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	2.51
Radiated Disturbance (<1 GHz)	3.29
Radiated Disturbance (>1 GHz)	4.94

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## 5.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacture	Model	Description	Cal Date	Cal interval	Cal Due	Serial Number
Rohde & Schwarz	FSW43	Signal & Spectrum Analyzer	09/17/2020	Annual	09/16/2021	101250
KIKISUI	PWR1201ML	DC POWER SUPPLY	05/20/2020	Annual	05/19/2021	ZL000973
SUKSAN TECHNOLOGY	SE-CT-10	Temperature Chamber	09/17/2020	Annual	09/16/2021	191021
Schwarzbeck	VULB9162	Broadband TRILOG Antenna	07/09/2019	Biennial	07/08/2021	9162-217
Sunol sciences	DRH-118	Horn Antenna	08/09/2019	Biennial	08/08/2021	A102416-1
Schwarzbeck	BBHA 9170	Horn Antenna	09/02/2020	Biennial	09/01/2022	1037
MIWV	261F-25/387	Horn Antenna	06/10/2020	Annual	06/09/2021	2019
MIWV	261U-25/383	Horn Antenna	06/01/2020	Annual	05/31/2021	2019
MIWV	261G-25/387	Horn Antenna	06/10/2020	Annual	06/09/2021	-
Radiometer Physics	FS-Z140	Harmonic Mixer	03/13/2020	Annual	03/12/2021	101135
Radiometer Physics	FS-Z60	Harmonic Mixer	03/13/2020	Annual	03/12/2021	100981
Rohde & Schwarz	FS-Z90	Harmonic Mixer	10/23/2019	Annual	10/22/2020	101860

**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 = 80M0G7D**

BW = 800 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

#### QAM Modulation

**Emission Designator = 80M2W7D**

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: A3LAT1K04-B00  
 FCC Classification: Part 30 Fixed Transmitter (5GB)  
 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
30.202	EIRP Density	EIRP Density of 75 dBm/100 MHz		PASS	Section 7.3
2.1046	RF Output Power	N/A		PASS	Section 7.4
2.1051 30.203	Out-of-Band Spurious Emissions	-13 dBm/MHz		PASS	Section 7.5
2.1051 30.203	Out-of-Band Emissions at the Band Edge	-13 dBm/MHz for all out-of-band emissions, -5 dBm/MHz from the band edge up to 10 % of the channel BW		PASS	Section 7.6
2.1055	Frequency Stability	Fundamental emissions stay within authorized frequency block		PASS	Section 7.7

**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)(3), spurious emissions were investigated up to 100 GHz for n261.
- 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) The fundamental band consists of 1 – 8 component carriers, referred as “CC” in this report. Lowest frequency CC is CC0 and highest frequency CC is CC7.
- 6) In the following tables, the term “CCs Active” refers to which component carrier is transmitting for a particular test.
- 7) CCs active 0, 4, 7 = 1 Component Carriers Active, 0-7 = 8 Component Carriers Active. 0-7(NC) = 8 Non-contiguous Component Carriers Active. Each component carrier’s bandwidth is either of 50 MHz or 100 MHz.
- 8) A3LAT1K04-B10 test result is referenced from A3LAT1K04-B00 test result which only AC and DC power supply type. Power condition is not affected to RF specification which had been checked from manufacturer and testing laboratory in PCTEST.

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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 % 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 C63.25-2015 Section 5.4.3  
KDB 842590 D01 v01r01 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 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5 % of the 99 % occupied bandwidth observed in Step 7

#### Test Notes

A3LAT1K04-B10 test result is referenced as A3LAT1K04-B00 result which only difference of power type as AC and DC which supply condition no affect to RF specification.

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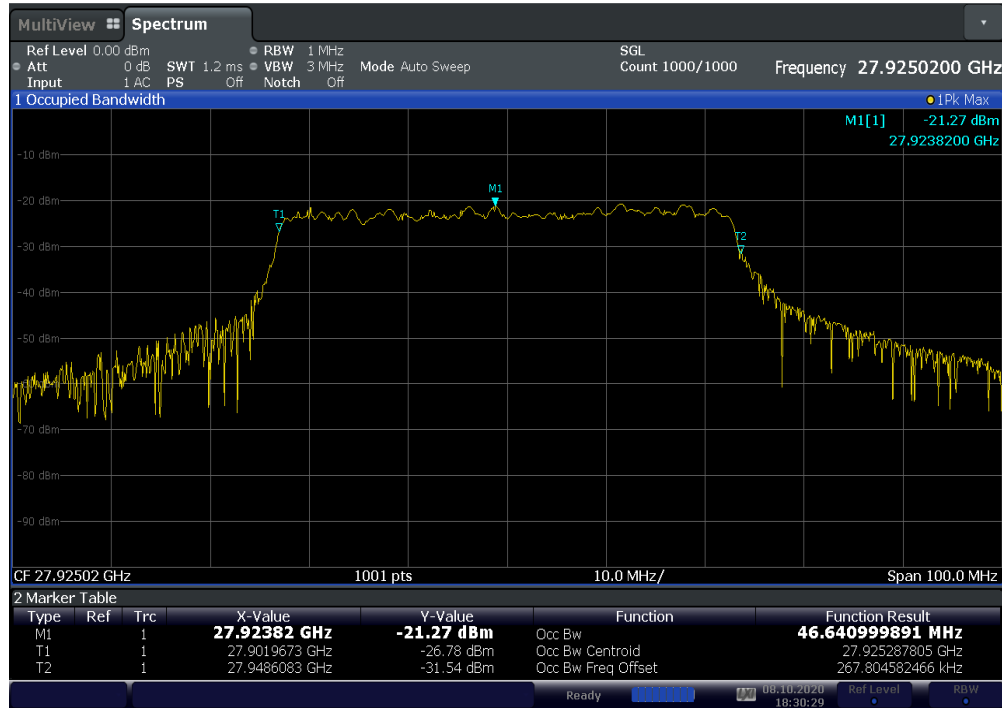
## 7.2.1 Antenna A Occupied Bandwidth

EUT Operating	Antenna	Configuration	CCs Active	Channel	Modulation	OBW [MHz]
50 MHz	A	1CC	0	Mid	QPSK	46.64
		1CC	0	Mid	16QAM	46.51
		1CC	0	Mid	64QAM	46.58
		2CC	0-1	Mid	QPSK	95.48
		2CC	0-1	Mid	16QAM	95.59
		2CC	0-1	Mid	64QAM	95.52
100 MHz		1CC	0	Mid	QPSK	95.06
		1CC	0	Mid	16QAM	94.52
		1CC	0	Mid	64QAM	94.60
		8CC	0-7	Mid	QPSK	786.63
		8CC	0-7	Mid	16QAM	787.72
		8CC	0-7	Mid	64QAM	786.29

Table 7-2. Antenna A Occupied Bandwidth Summary Data

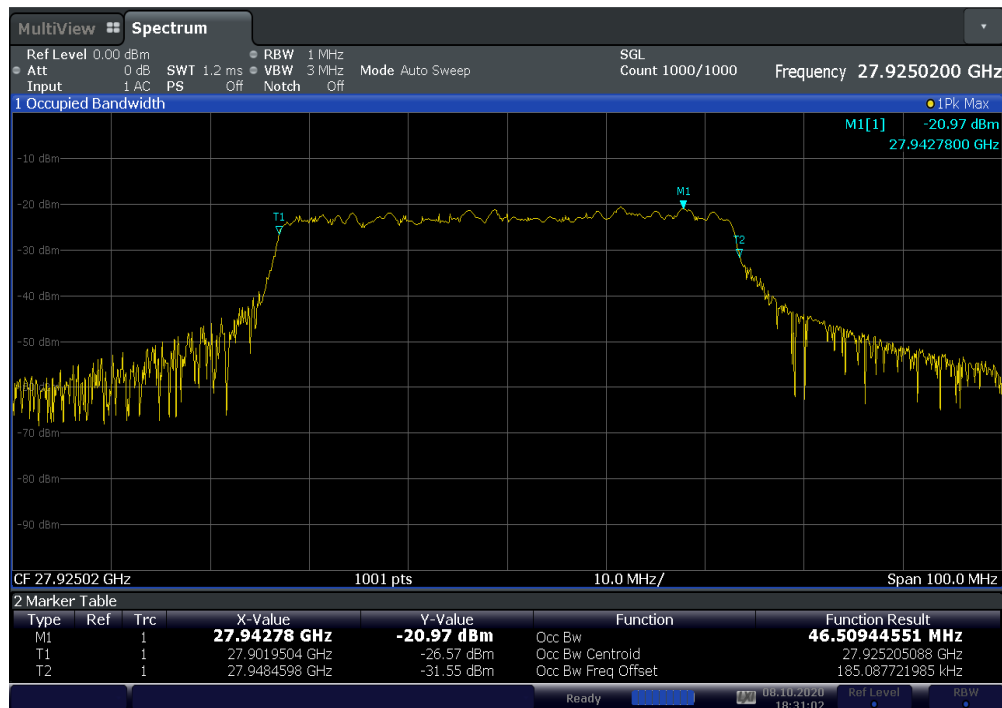
FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-1. OBW (Ant A 50 MHz BW 1CC QPSK Mid)

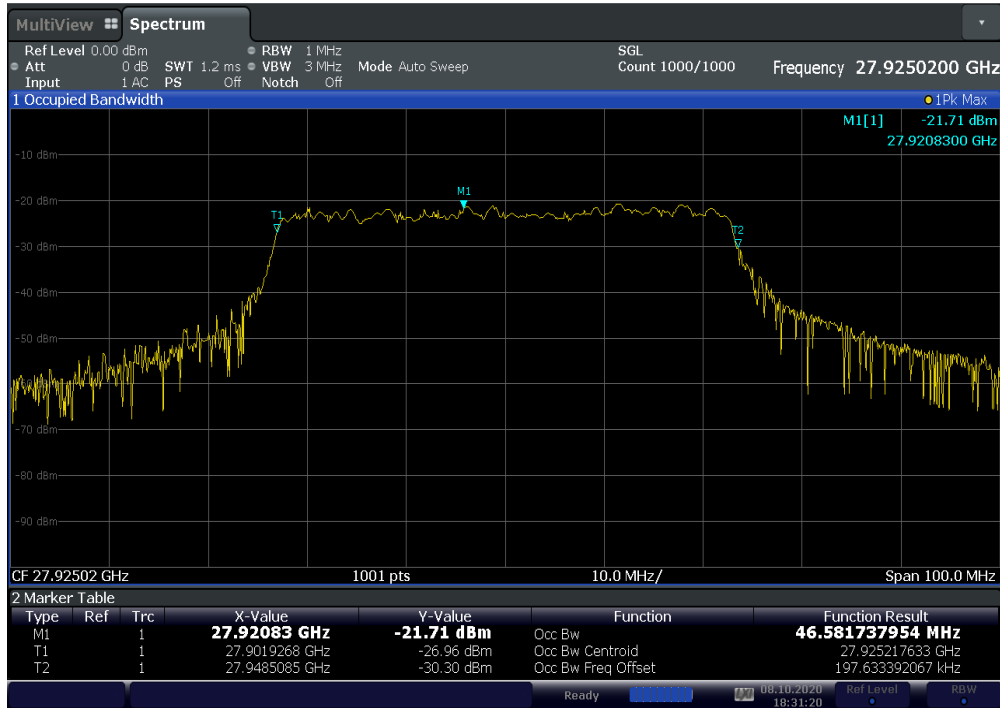
ACLRRResults



Plot 7-2. OBW (Ant A 50 MHz BW 1CC 16QAM Mid)

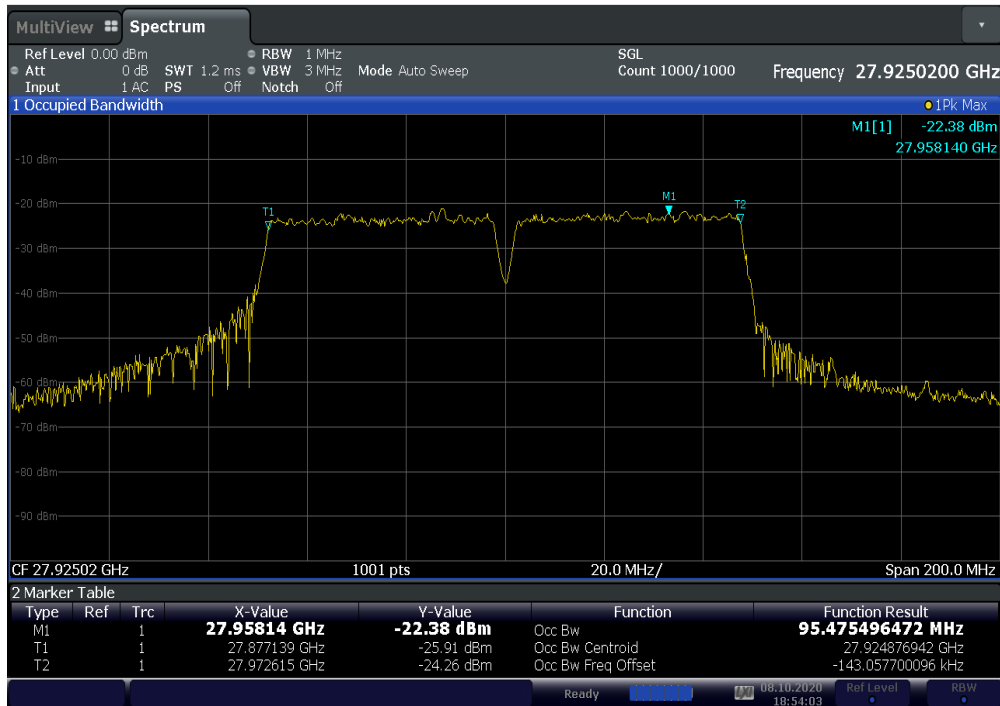
FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-3. OBW (Ant A 50 MHz BW 1CC 64QAM Mid)

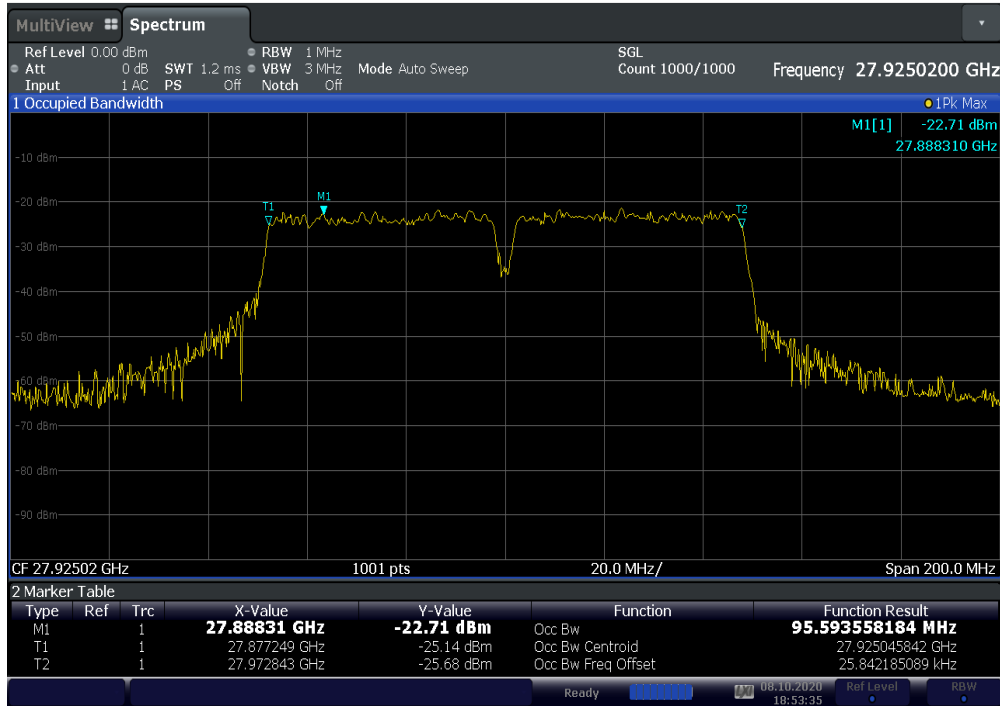
ACLRRResults



Plot 7-4. OBW (Ant A 50 MHz BW 2CC QPSK Mid)

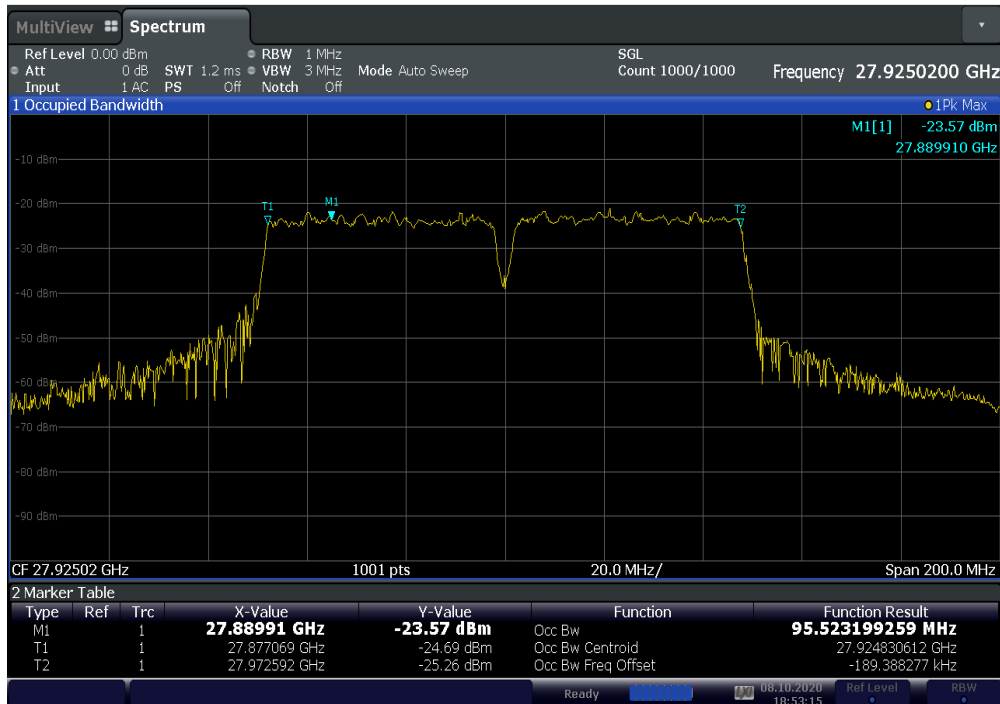
FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-5. OBW (Ant A 50 MHz BW 2CC 16QAM Mid)

ACLRRResults

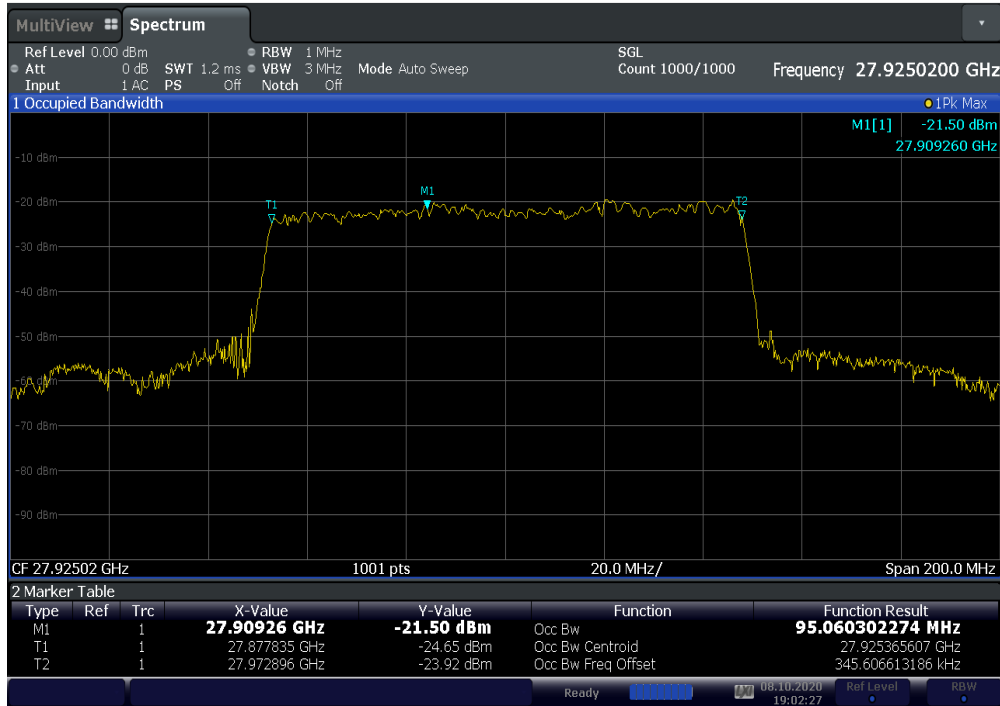


Plot 7-6. OBW (Ant A 50 MHz BW 2CC 64QAM Mid)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
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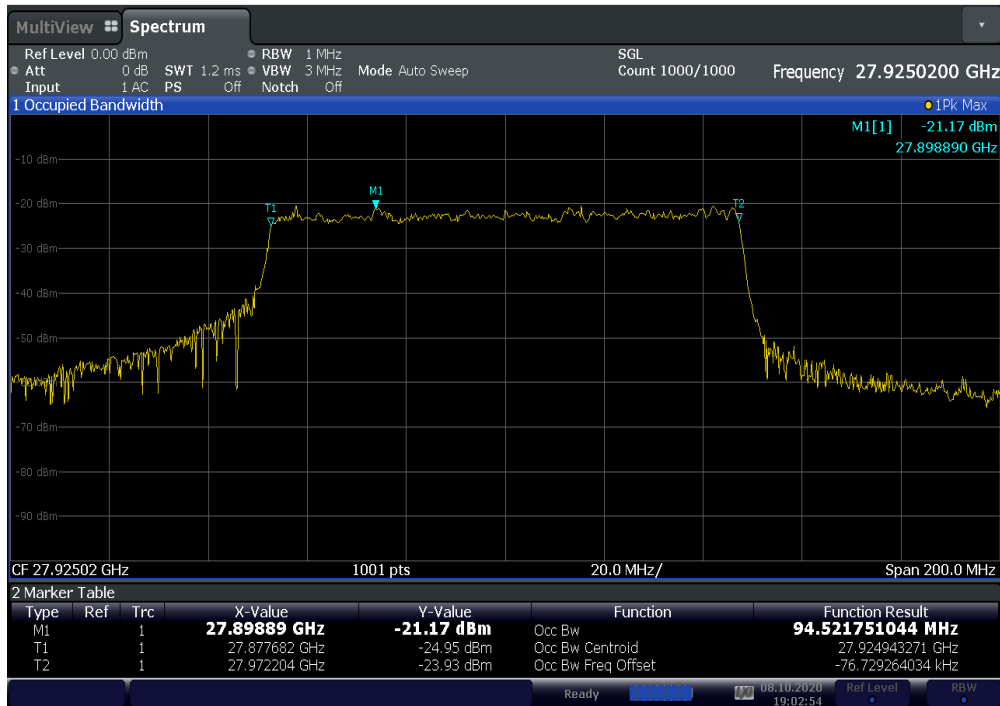


ACLRRResults



Plot 7-7. OBW (Ant A 100 MHz BW 1CC QPSK Mid)

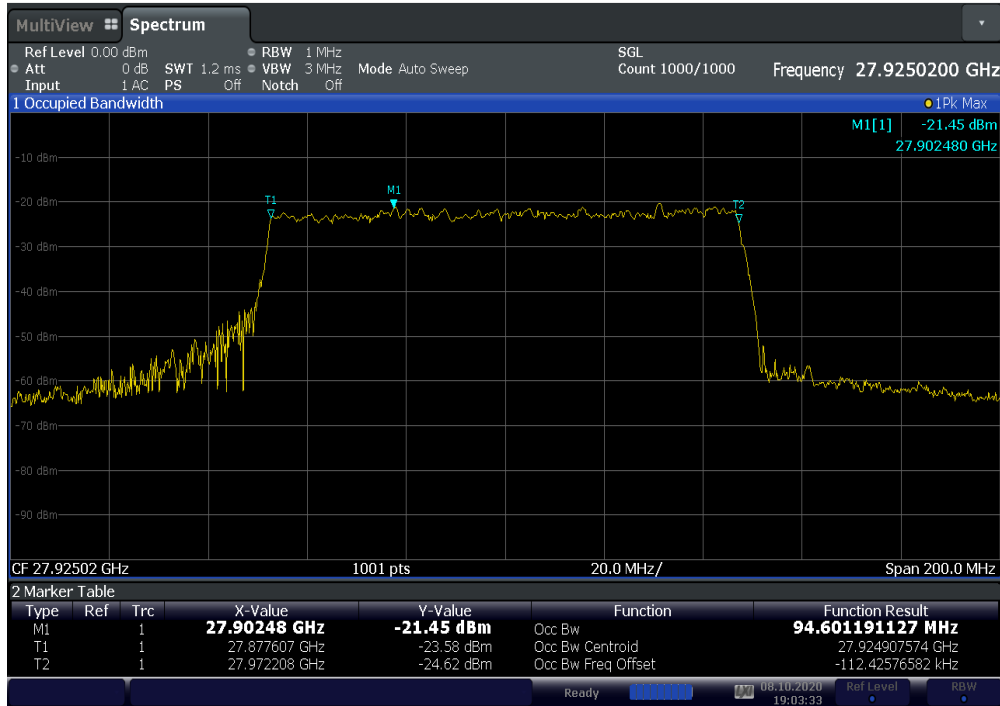
ACLRRResults



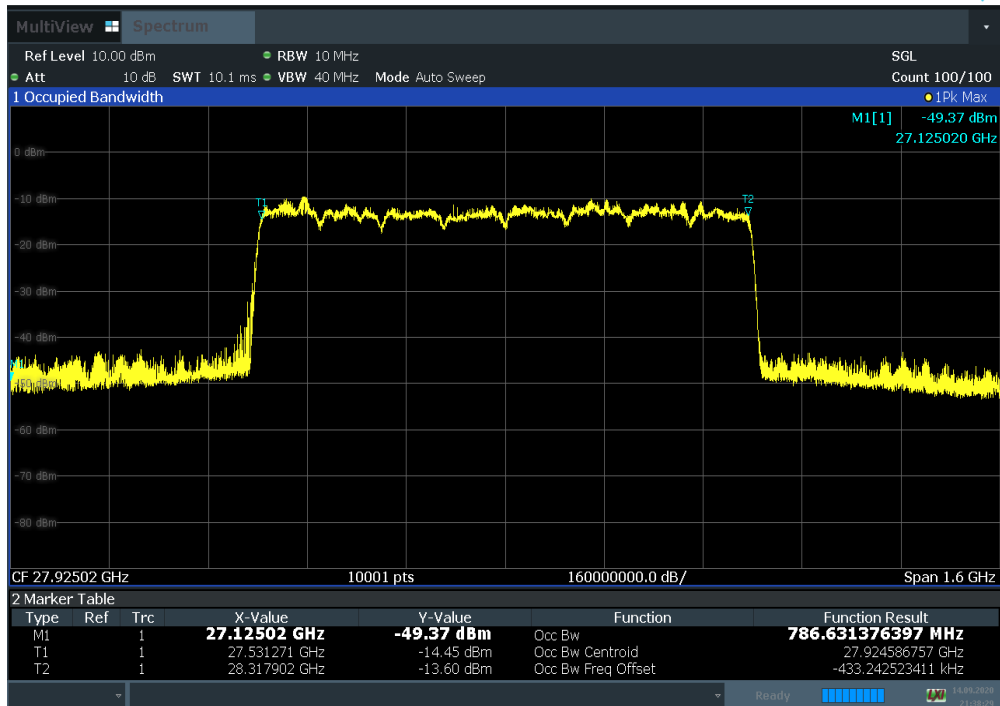
Plot 7-8. OBW (Ant A 100 MHz BW 1CC 16QAM Mid)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
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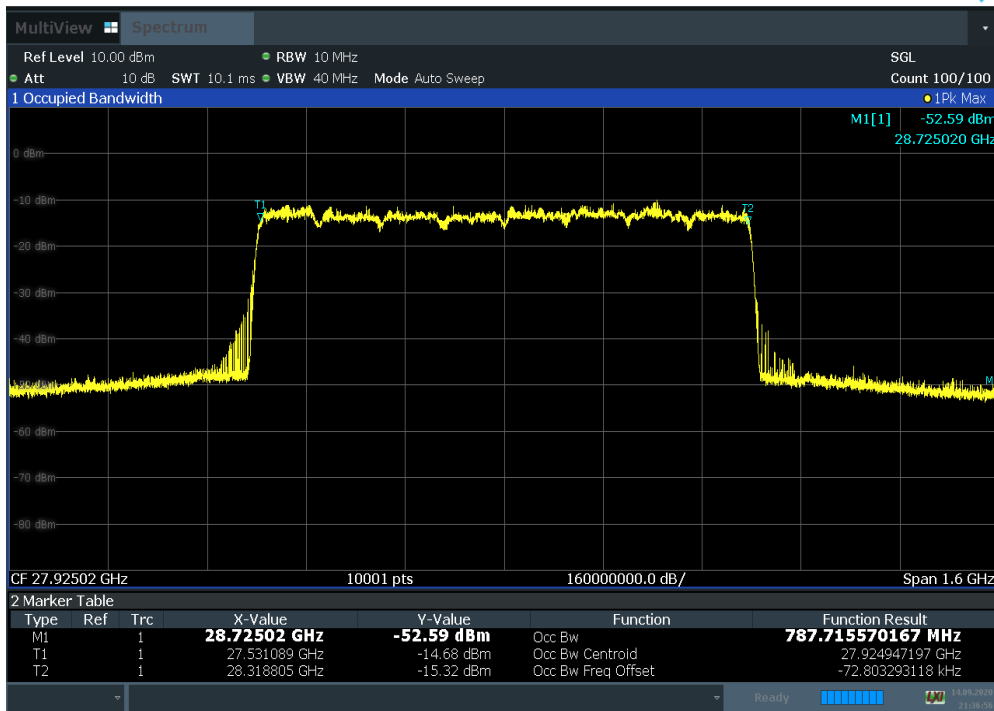


Plot 7-9. OBW (Ant A 100 MHz BW 1CC 64QAM Mid)

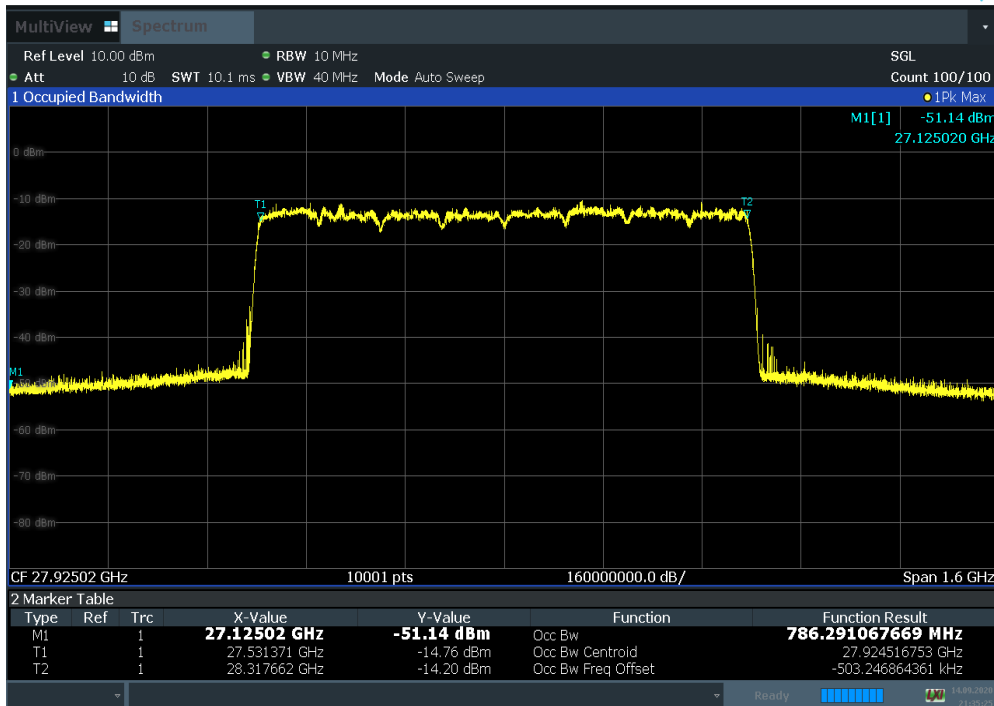


Plot 7-10. OBW (Ant A 100 MHz BW 8CC QPSK Mid)

FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-11. OBW (Ant A 100 MHz BW 8CC 16QAM Mid)



Plot 7-12. OBW (Ant A 100 MHz BW 8CC 64QAM Mid)

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## 7.2.2 Antenna B Occupied Bandwidth

EUT Operating	Antenna	Configuration	CCs Active	Channel	Modulation	OBW [MHz]
50 MHz	B	1CC	0	Mid	QPSK	46.40
		1CC	0	Mid	16QAM	46.04
		1CC	0	Mid	64QAM	46.21
		2CC	0-1	Mid	QPSK	95.57
		2CC	0-1	Mid	16QAM	95.52
		2CC	0-1	Mid	64QAM	95.57
100 MHz		1CC	0	Mid	QPSK	94.48
		1CC	0	Mid	16QAM	94.37
		1CC	0	Mid	64QAM	94.71
		8CC	0-7	Mid	QPSK	786.09
		8CC	0-7	Mid	16QAM	787.19
		8CC	0-7	Mid	64QAM	786.23

**Table 7-3. Antenna B Occupied Bandwidth Summary Data**

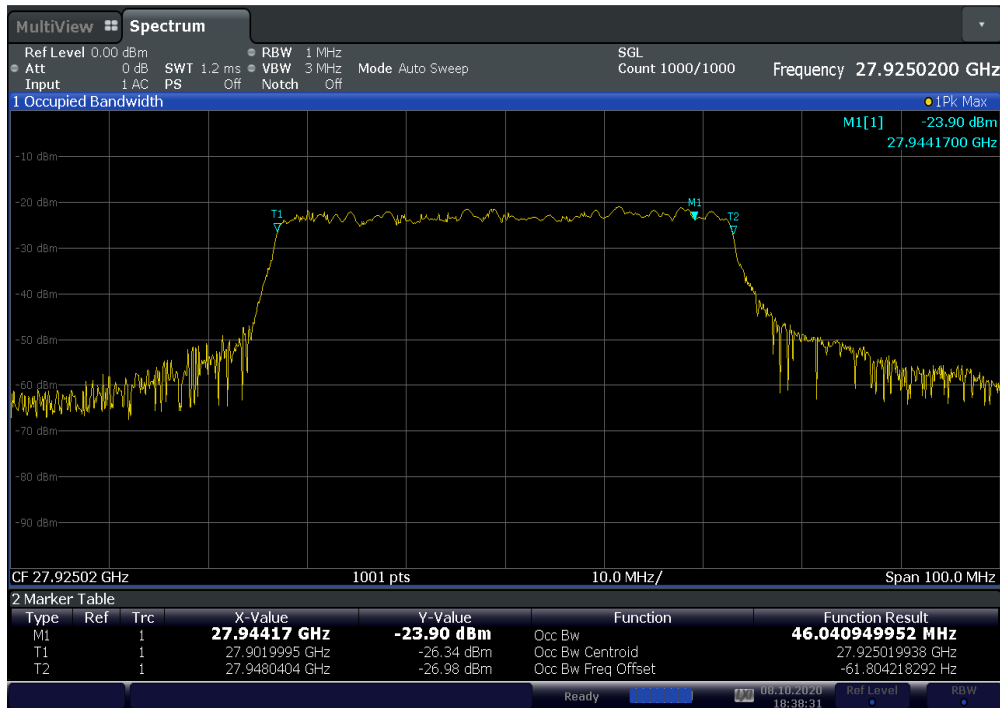
<b>FCC ID:</b> A3LAT1K04-B10		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 8K20090901-02-R2.A3L	<b>Test Dates:</b> 09/10/2020-10/08/2020	<b>EUT Type:</b> 5G Access Unit	Page 36 of 469	

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Plot 7-13. OBW (Ant B 50 MHz BW 1CC QPSK Mid)

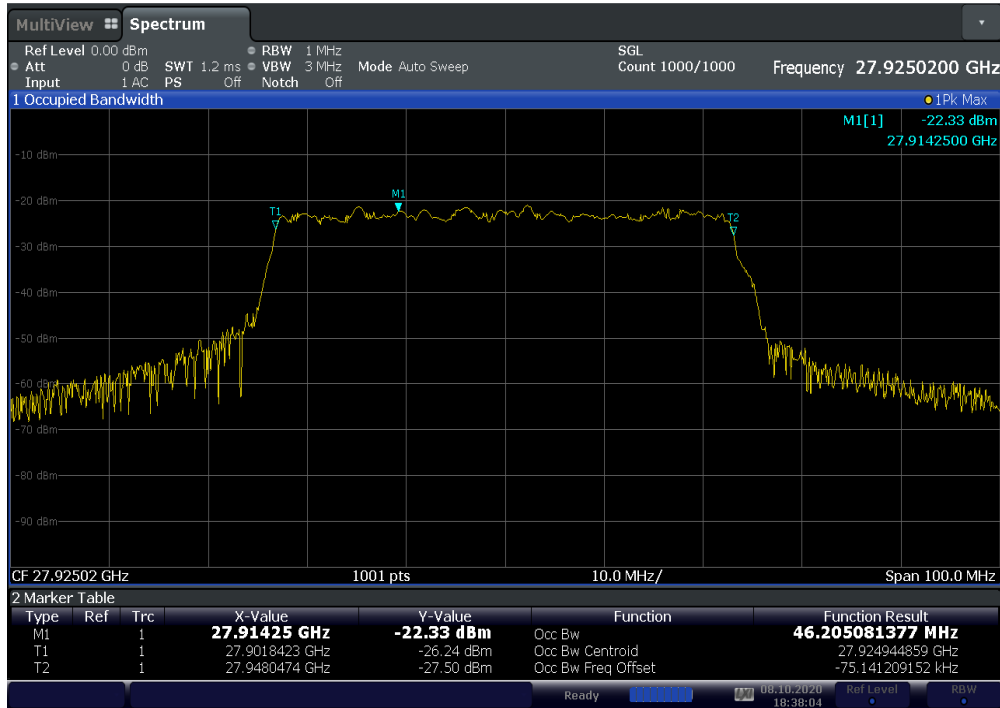
ACLRRResults



Plot 7-14. OBW (Ant B 50 MHz BW 1CC 16QAM Mid)

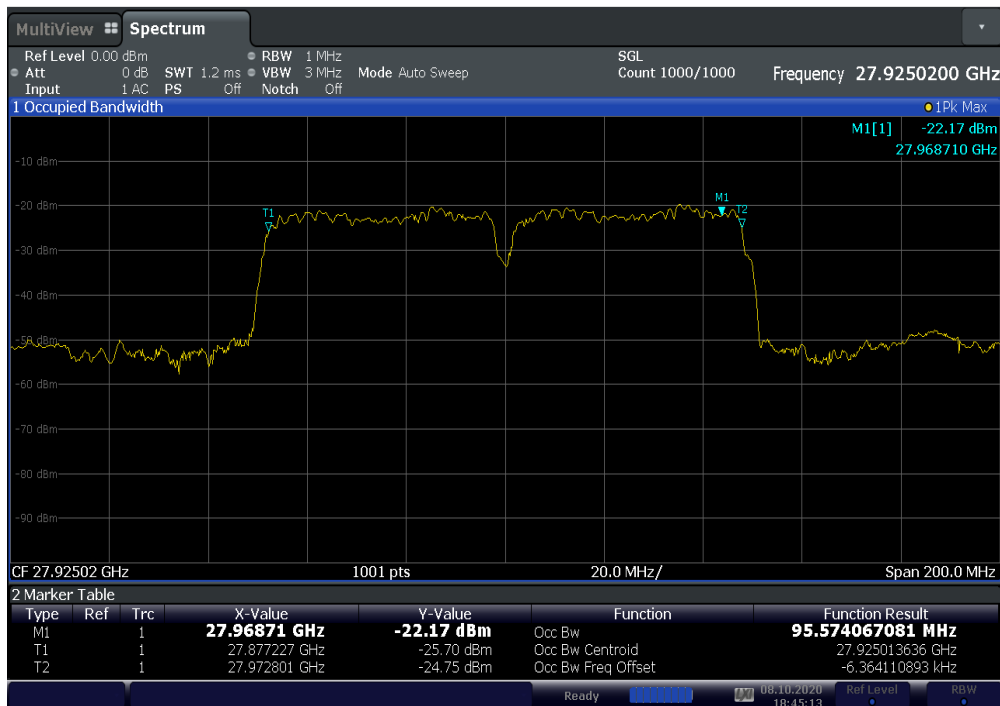
FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit		Page 37 of 469

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Plot 7-15. OBW (Ant B 50 MHz BW 1CC 64QAM Mid)

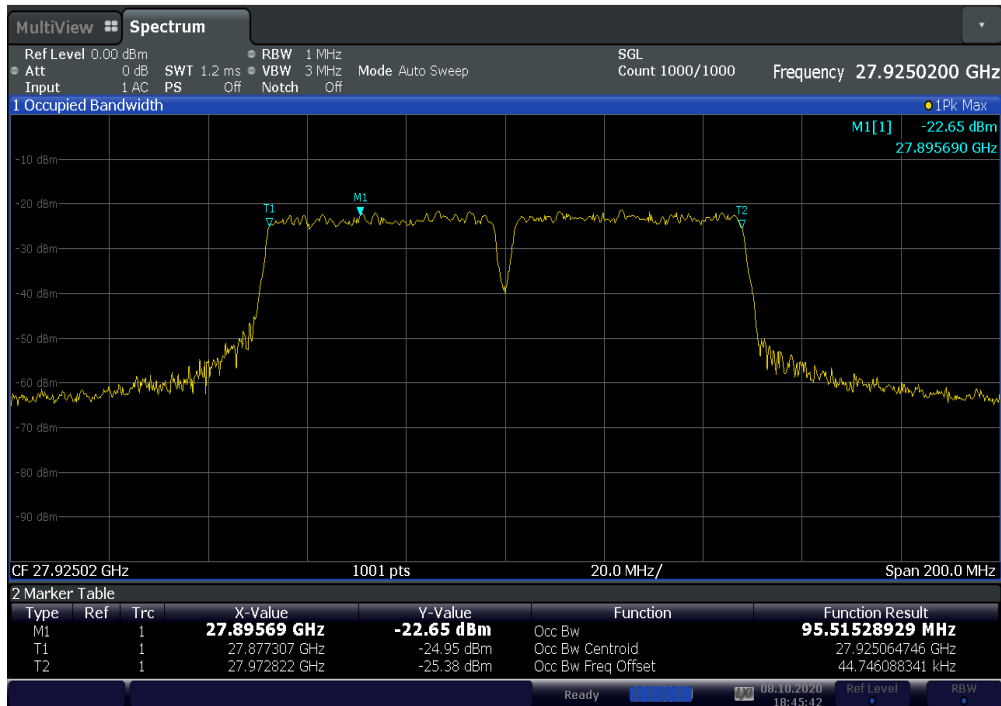
ACLRRResults



Plot 7-16. OBW (Ant B 50 MHz BW 2CC QPSK Mid)

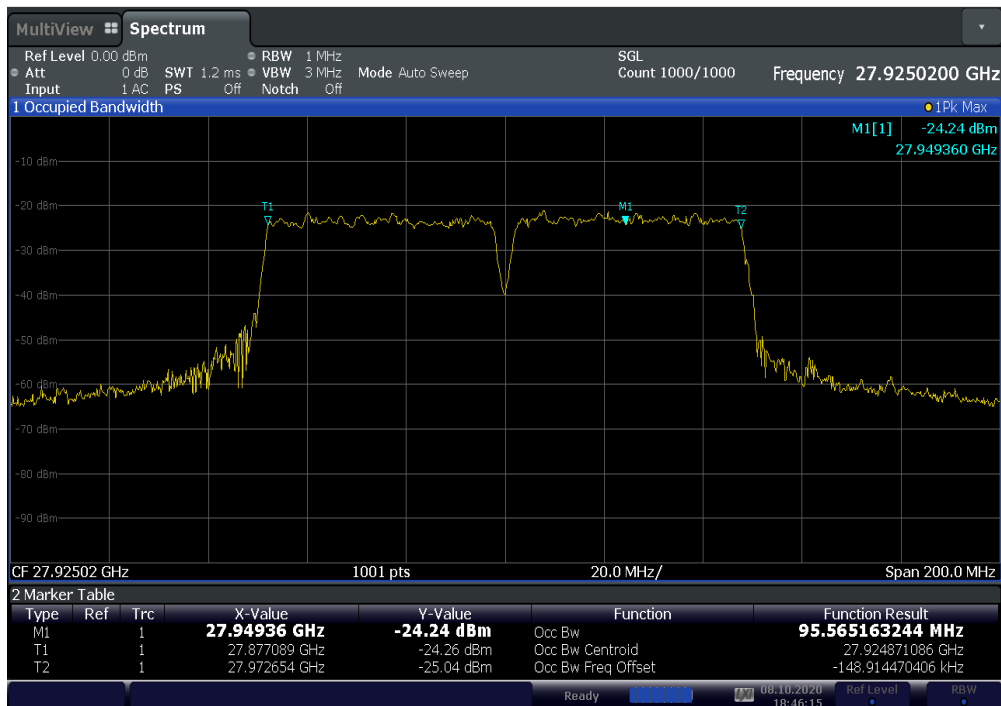
FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
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Plot 7-17. OBW (Ant B 50 MHz BW 2CC 16QAM Mid)

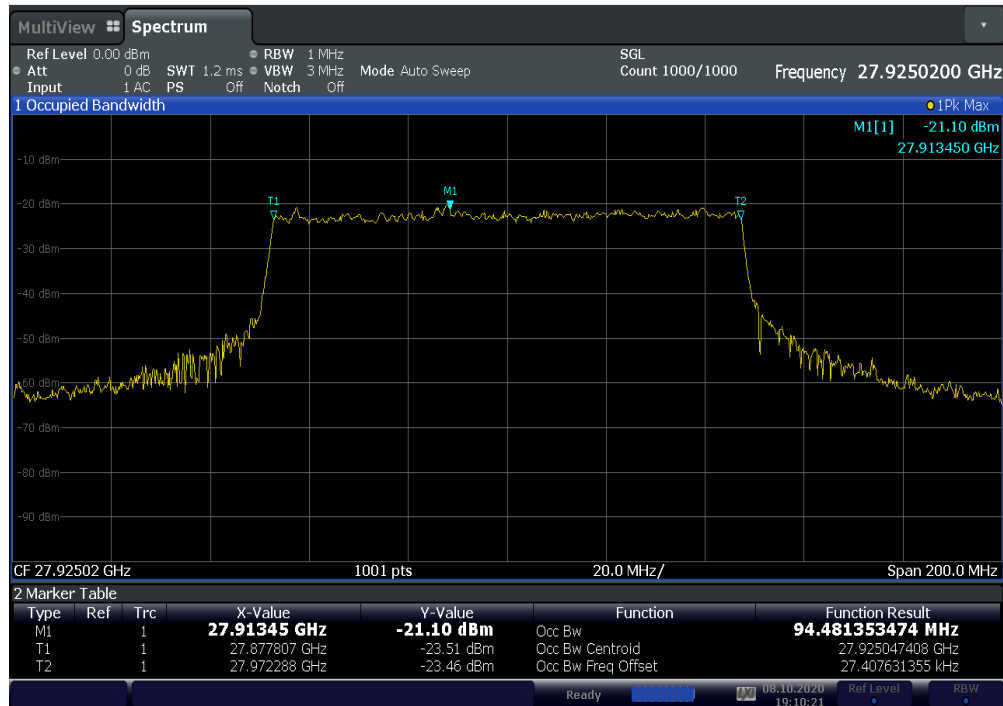
ACLRRResults



Plot 7-18. OBW (Ant B 50 MHz BW 2CC 64QAM Mid)

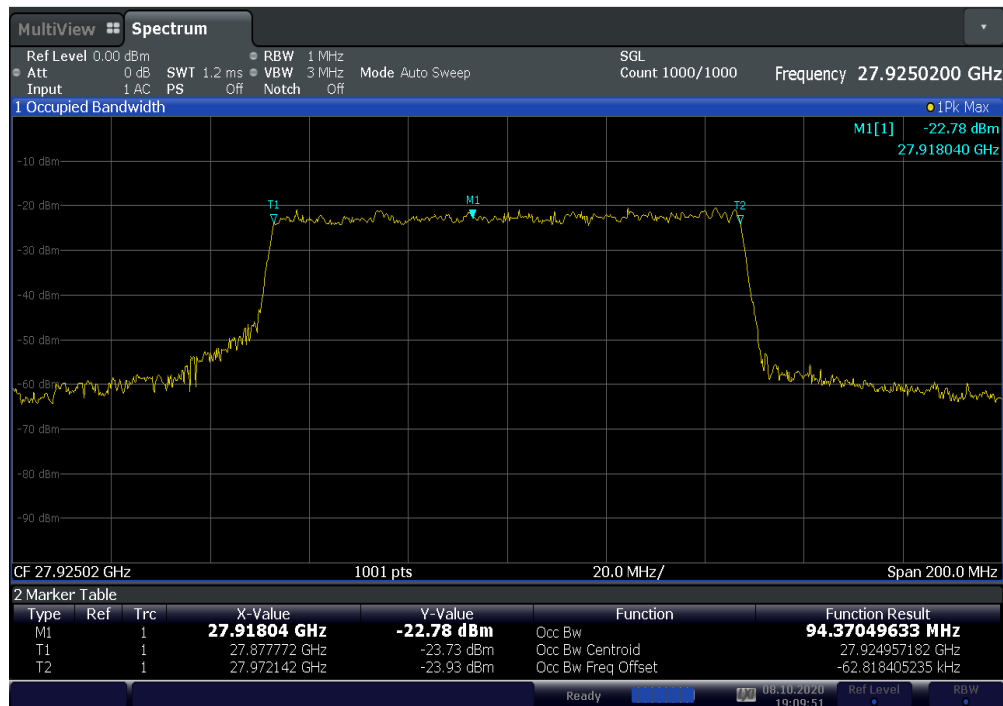
FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-19. OBW (Ant B 100 MHz BW 1CC QPSK Mid)

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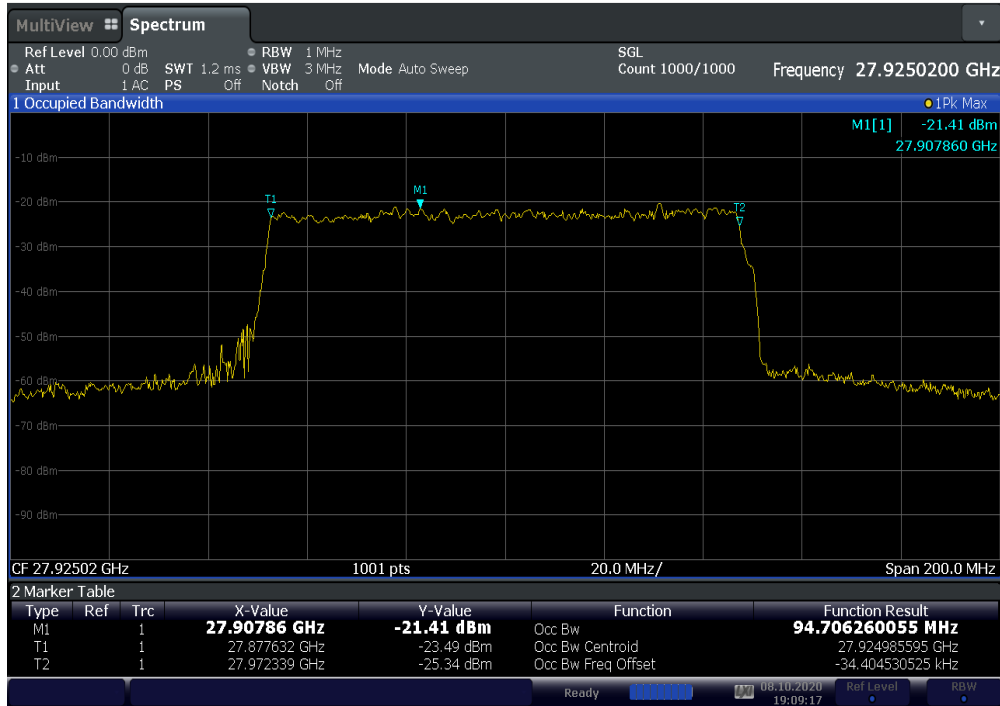


Plot 7-20. OBW (Ant B 100 MHz BW 1CC 16QAM Mid)

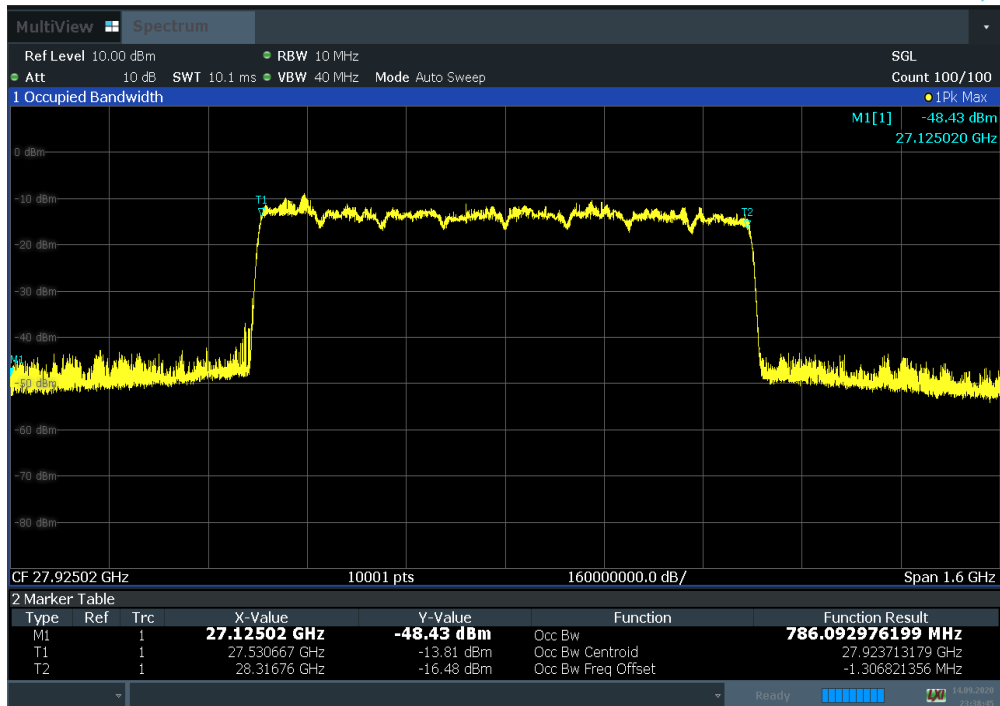
FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit		Page 40 of 469



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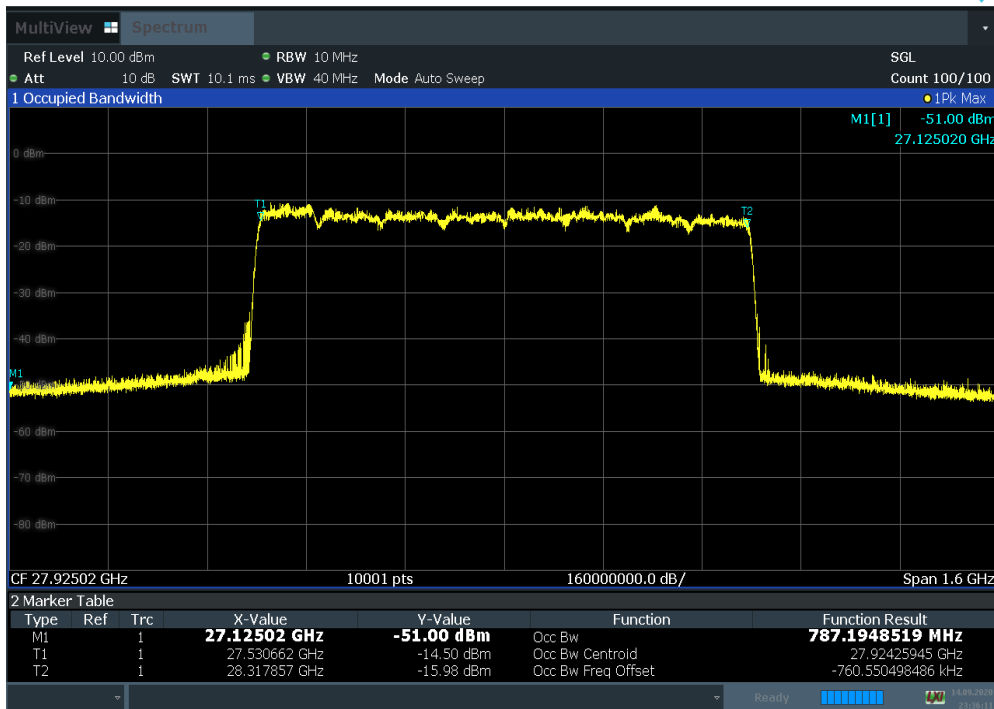


Plot 7-21. OBW (Ant B 100 MHz BW 1CC 64QAM Mid)

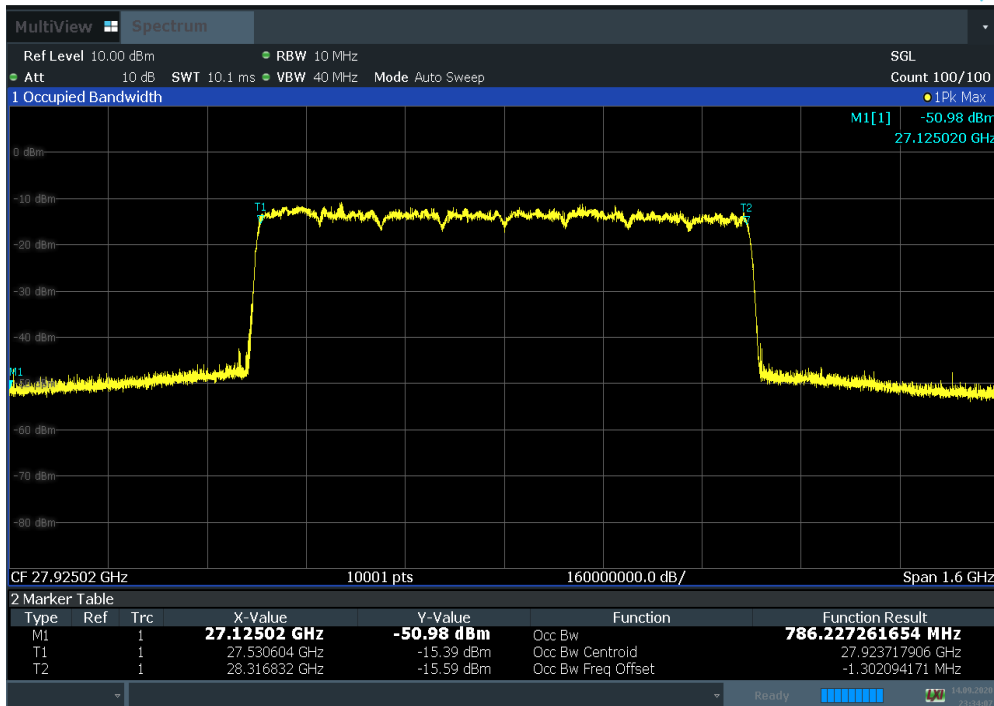


Plot 7-22. OBW (Ant B 100 MHz BW 8CC QPSK Mid)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit		Page 41 of 469



Plot 7-23. OBW (Ant B 100 MHz BW 8CC 16QAM Mid)



Plot 7-24. OBW (Ant B 100 MHz BW 8CC 64QAM Mid)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit		Page 42 of 469

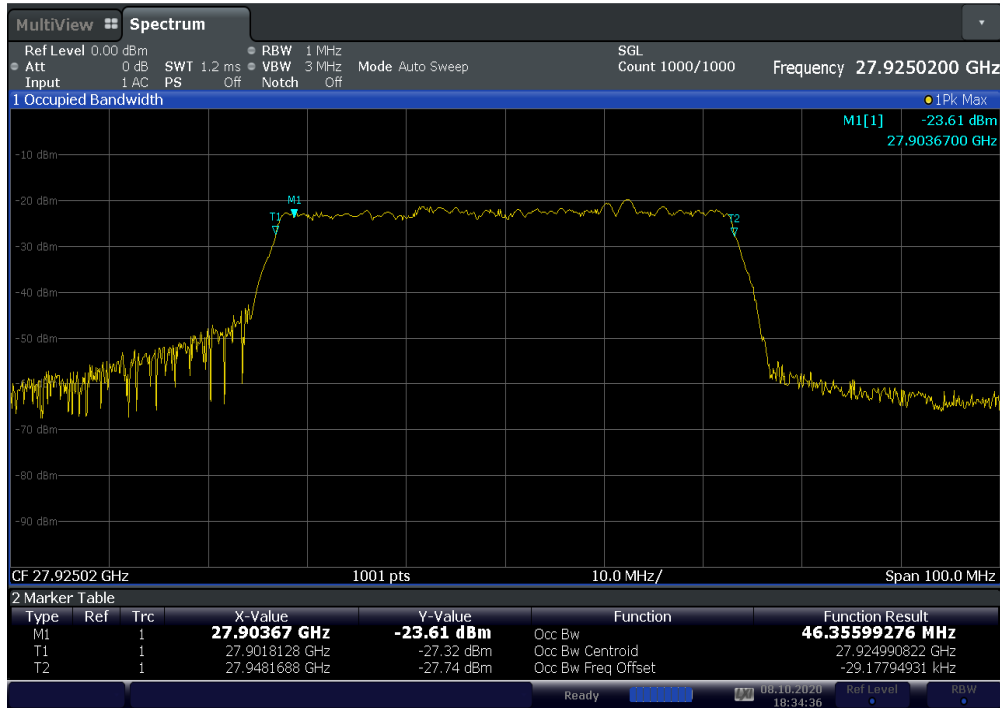
### 7.2.3 Antenna C Occupied Bandwidth

EUT Operating	Antenna	Configuration	CCs Active	Channel	Modulation	OBW [MHz]
50 MHz	C	1CC	0	Mid	QPSK	46.36
		1CC	0	Mid	16QAM	46.03
		1CC	0	Mid	64QAM	46.05
		2CC	0-1	Mid	QPSK	95.33
		2CC	0-1	Mid	16QAM	95.46
		2CC	0-1	Mid	64QAM	95.48
100 MHz		1CC	0	Mid	QPSK	94.47
		1CC	0	Mid	16QAM	94.45
		1CC	0	Mid	64QAM	94.57
		8CC	0-7	Mid	QPSK	786.94
		8CC	0-7	Mid	16QAM	787.68
		8CC	0-7	Mid	64QAM	786.62

Table 7-4. Antenna C Occupied Bandwidth Summary Data

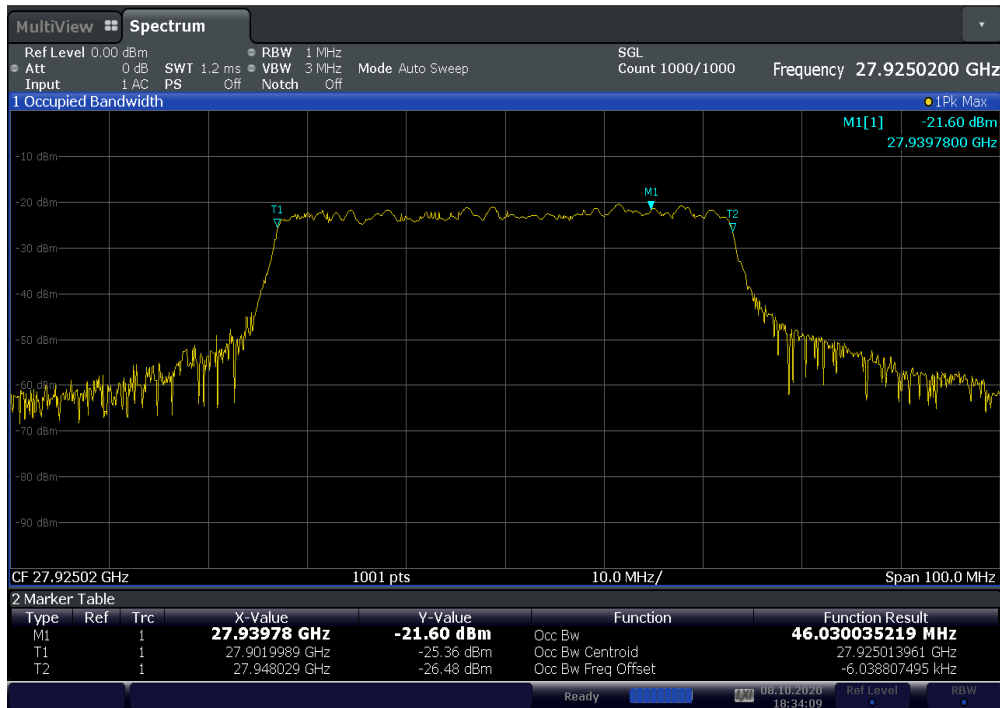
FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-25. OBW (Ant C 50 MHz BW 1CC QPSK Mid)

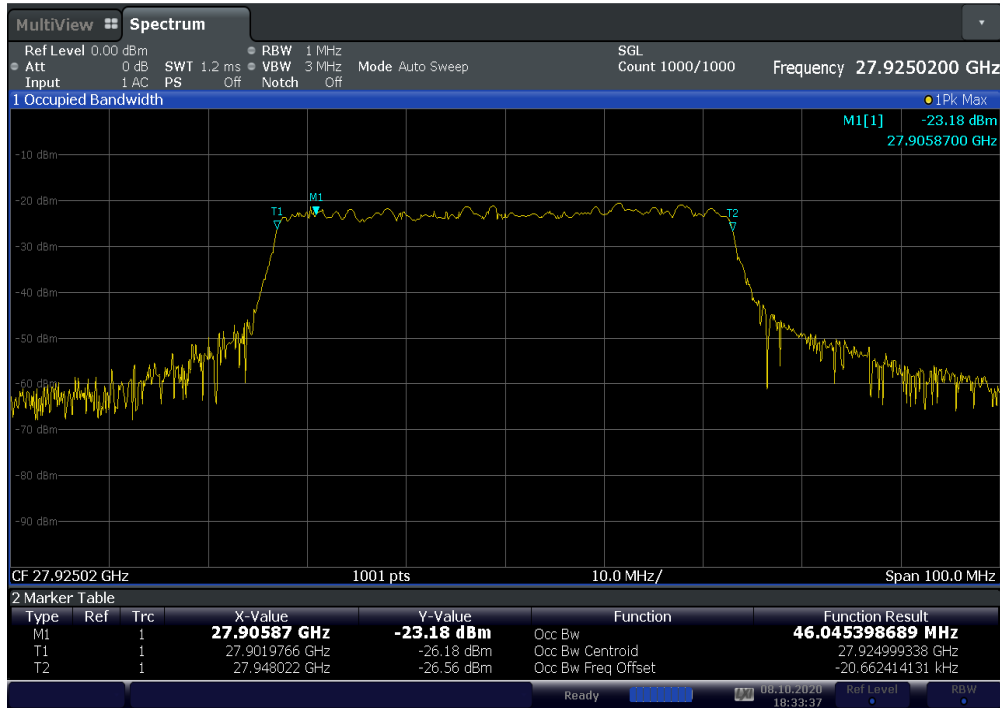
ACLRRResults



Plot 7-26. OBW (Ant C 50 MHz BW 1CC 16QAM Mid)

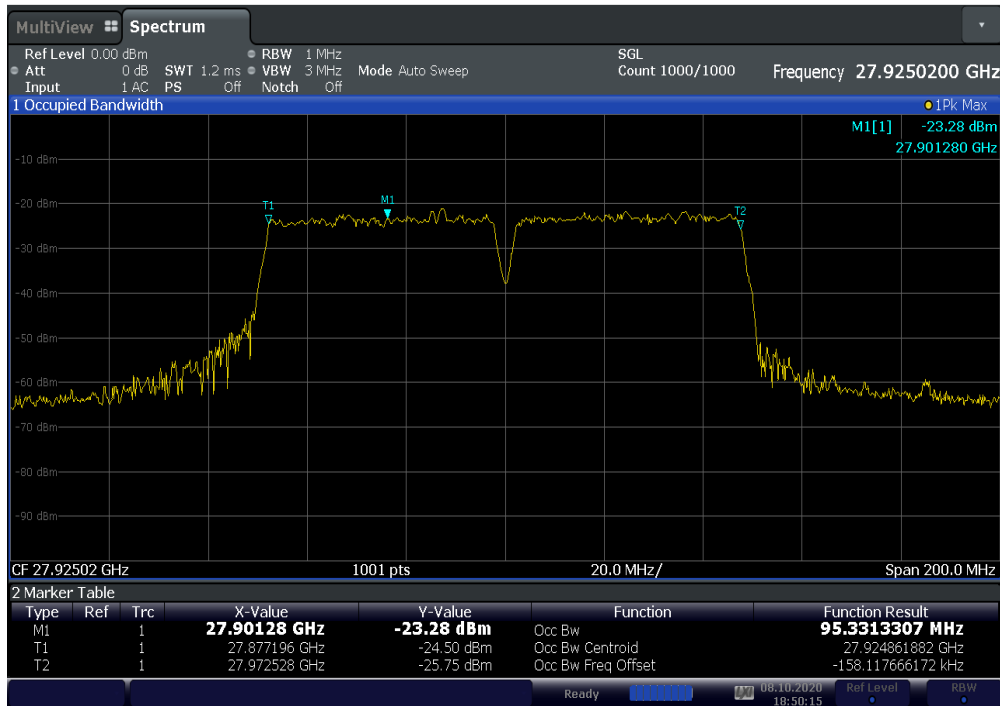
FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit		Page 44 of 469

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Plot 7-27. OBW (Ant C 50 MHz BW 1CC 64QAM Mid)

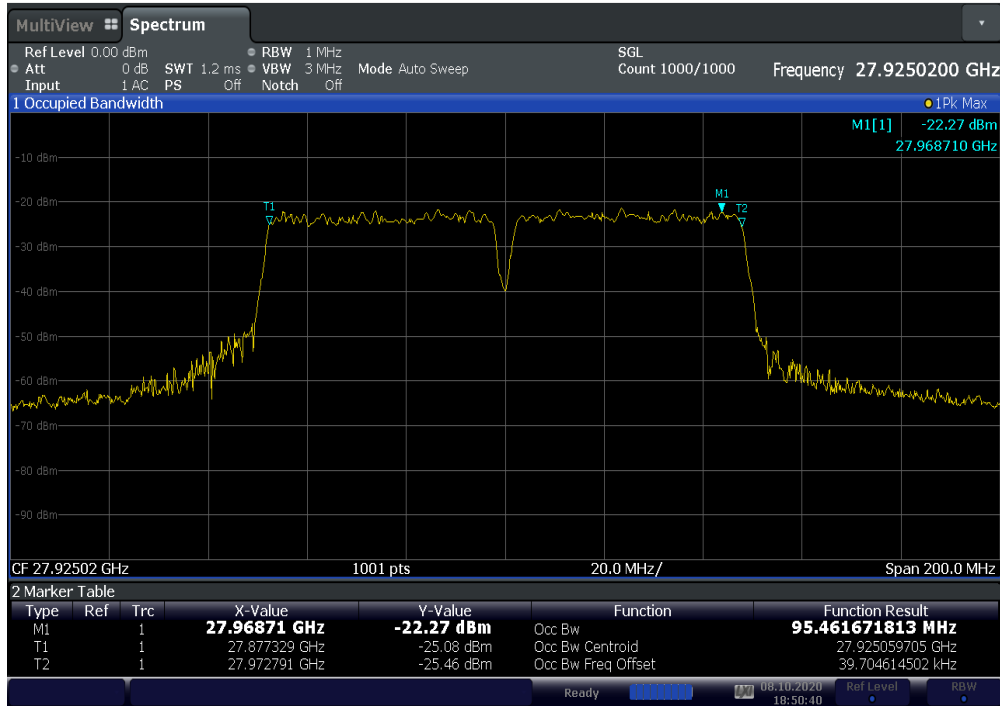
ACLRRResults



Plot 7-28. OBW (Ant C 50 MHz BW 2CC QPSK Mid)

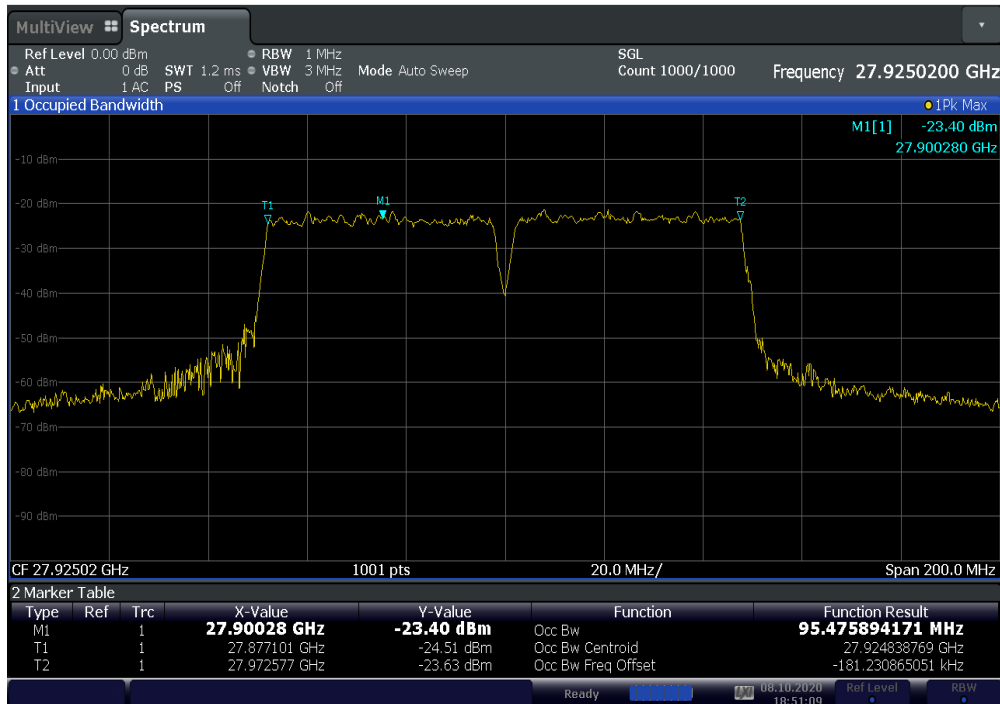
FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
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Plot 7-29. OBW (Ant C 50 MHz BW 2CC 16QAM Mid)

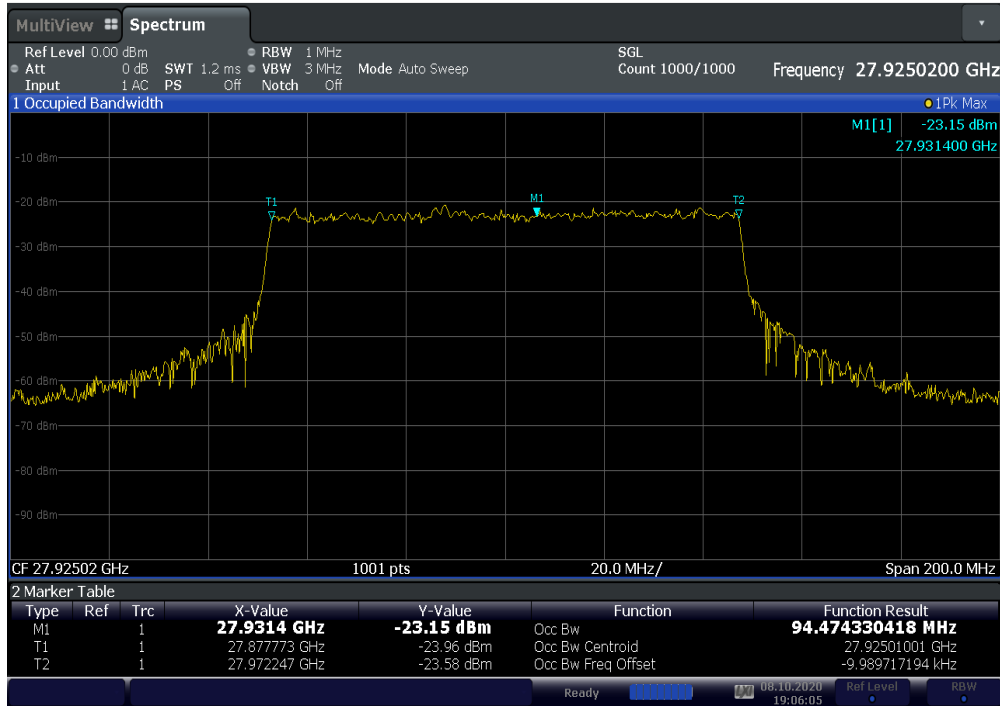
ACLRRResults



Plot 7-30. OBW (Ant C 50 MHz BW 2CC 64QAM Mid)

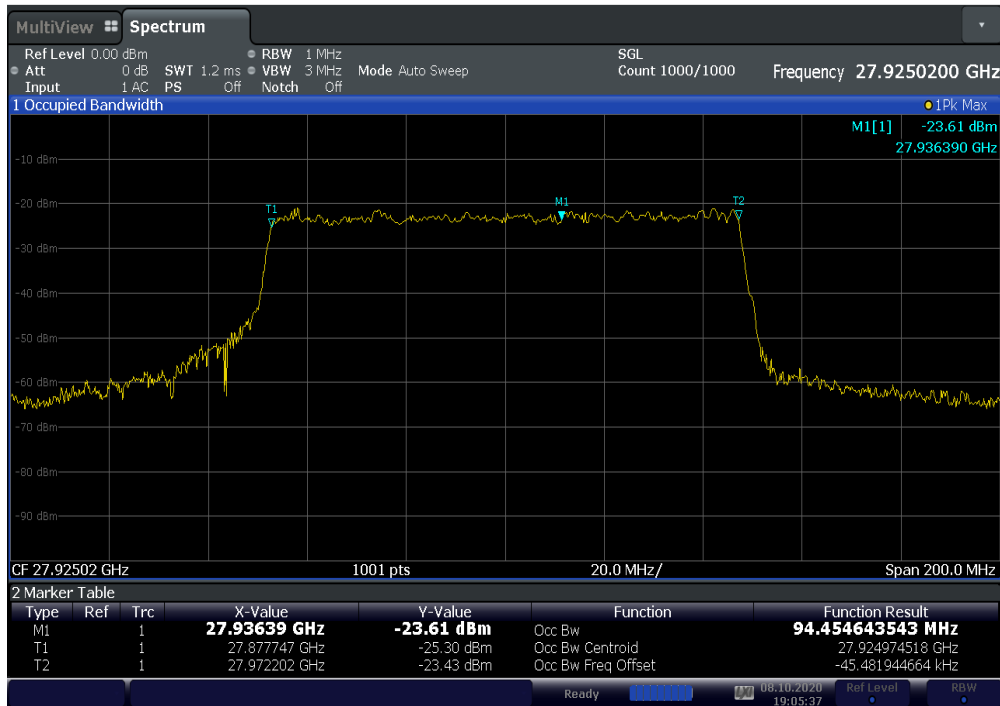
FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit		Page 46 of 469

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Plot 7-31. OBW (Ant C 100 MHz BW 1CC QPSK Mid)

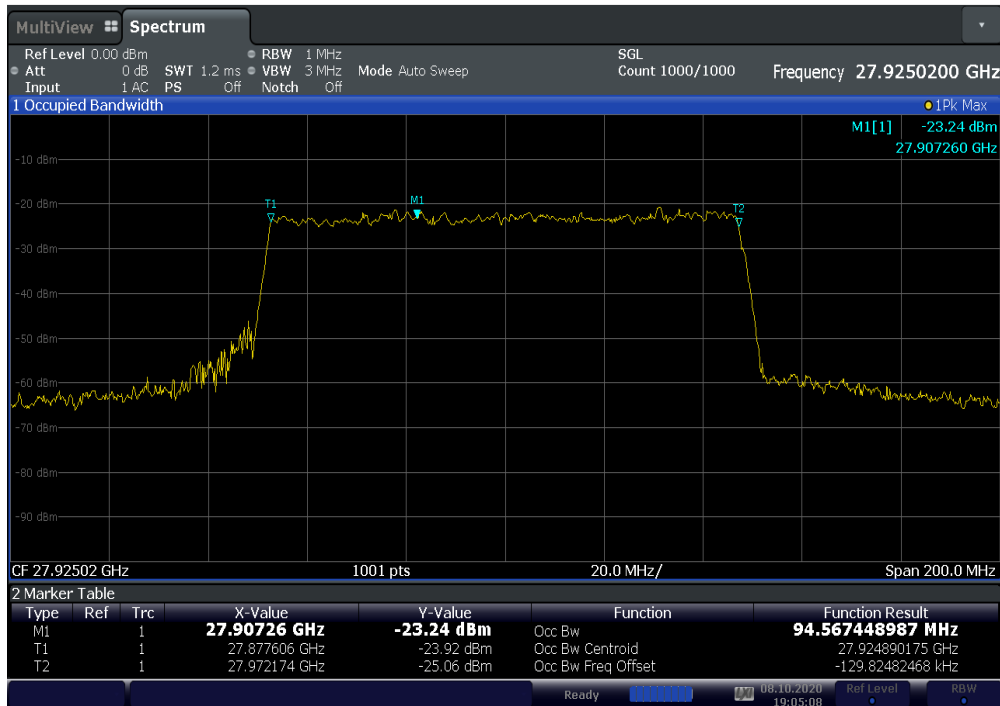
ACLRRResults



Plot 7-32. OBW (Ant C 100 MHz BW 1CC 16QAM Mid)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit			Page 47 of 469

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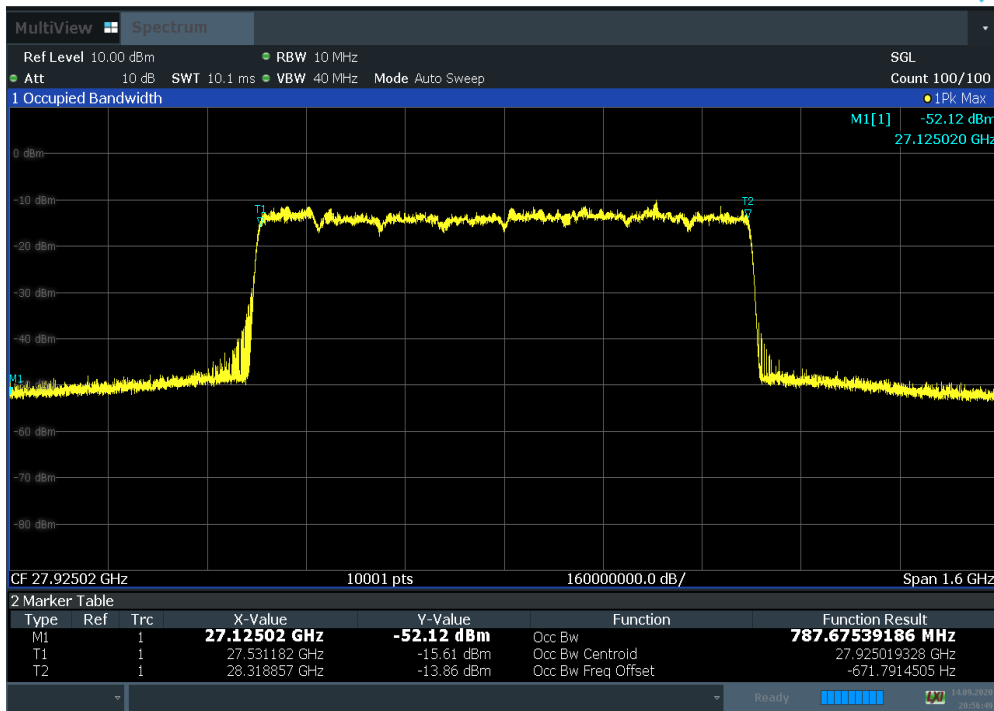
Plot 7-33. OBW (Ant C 100 MHz BW 1CC 64QAM Mid)



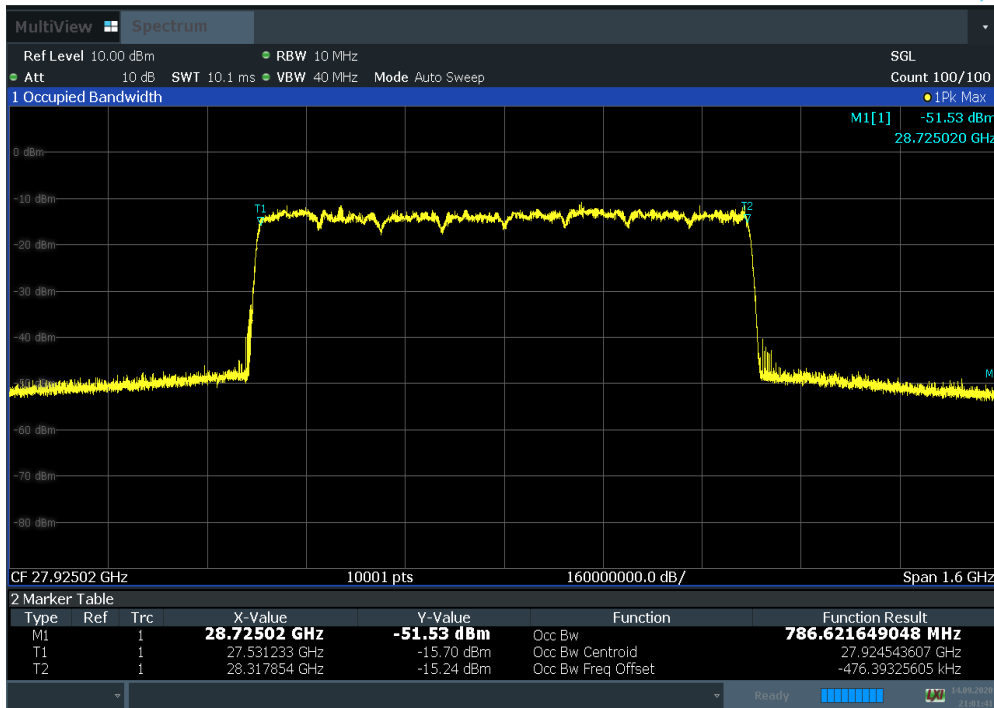
Plot 7-34. OBW (Ant C 100 MHz BW 8CC QPSK Mid)

FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-35. OBW (Ant C 100 MHz BW 8CC 16QAM Mid)



Plot 7-36. OBW (Ant C 100 MHz BW 8CC 64QAM Mid)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit		Page 49 of 469

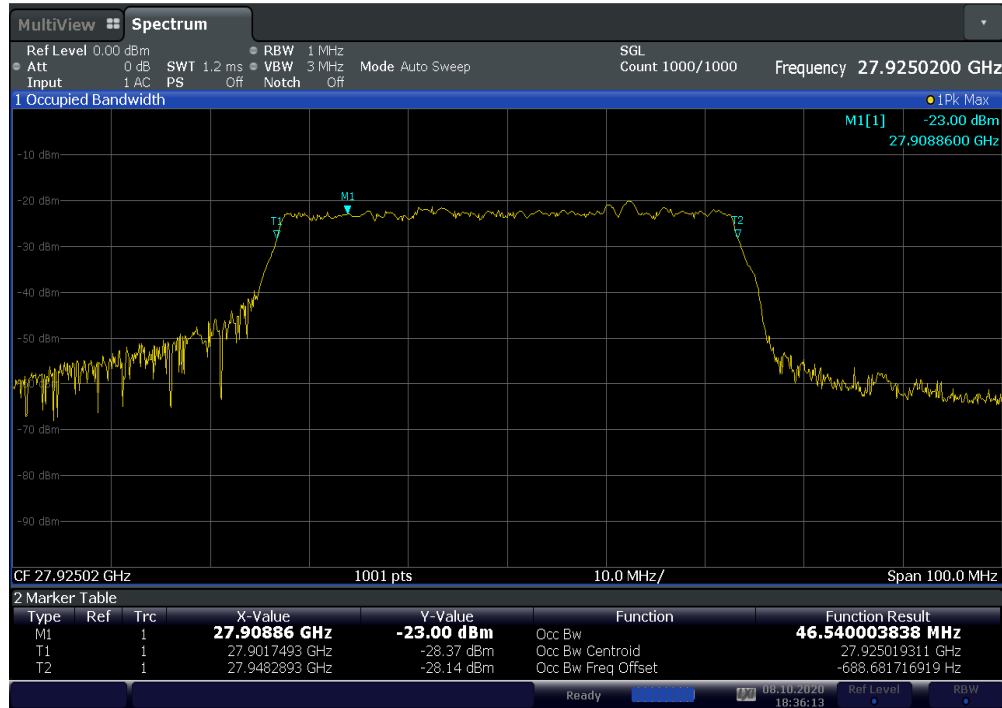
## 7.2.4 Antenna D Occupied Bandwidth

EUT Operating	Antenna	Configuration	CCs Active	Channel	Modulation	OBW [MHz]
50 MHz	D	1CC	0	Mid	QPSK	46.54
		1CC	0	Mid	16QAM	46.21
		1CC	0	Mid	64QAM	46.25
		2CC	0-1	Mid	QPSK	95.67
		2CC	0-1	Mid	16QAM	95.58
		2CC	0-1	Mid	64QAM	95.54
100 MHz		1CC	0	Mid	QPSK	94.91
		1CC	0	Mid	16QAM	94.50
		1CC	0	Mid	64QAM	94.61
		8CC	0-7	Mid	QPSK	786.63
		8CC	0-7	Mid	16QAM	787.48
		8CC	0-7	Mid	64QAM	786.40

Table 7-5. Antenna D Occupied Bandwidth Summary Data

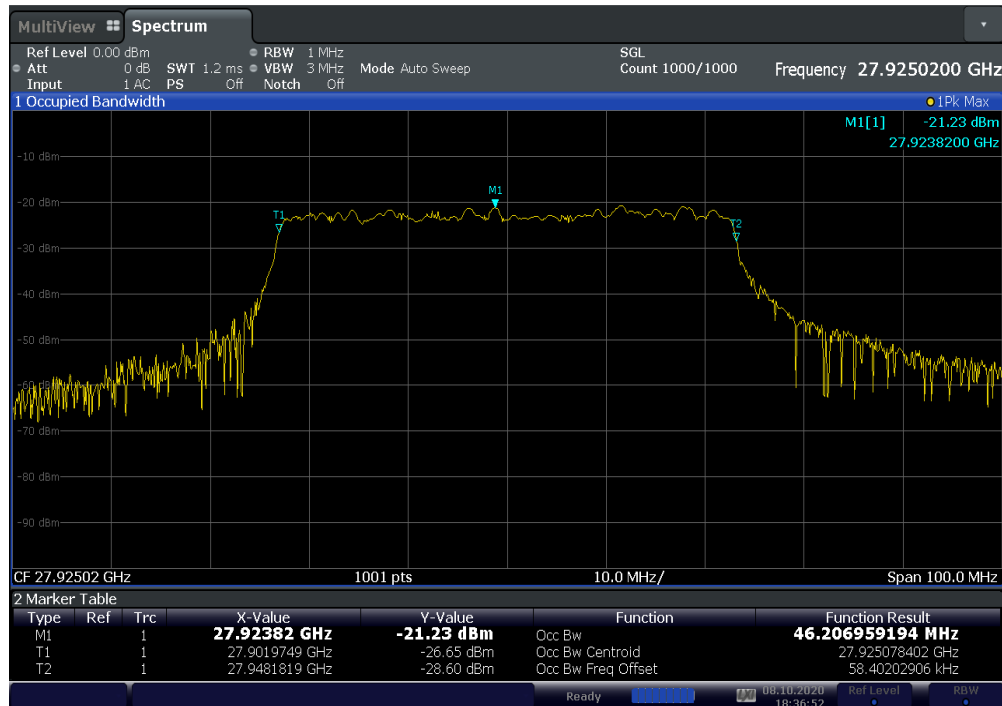
FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-37. OBW (Ant D 50 MHz BW 1CC QPSK Mid)

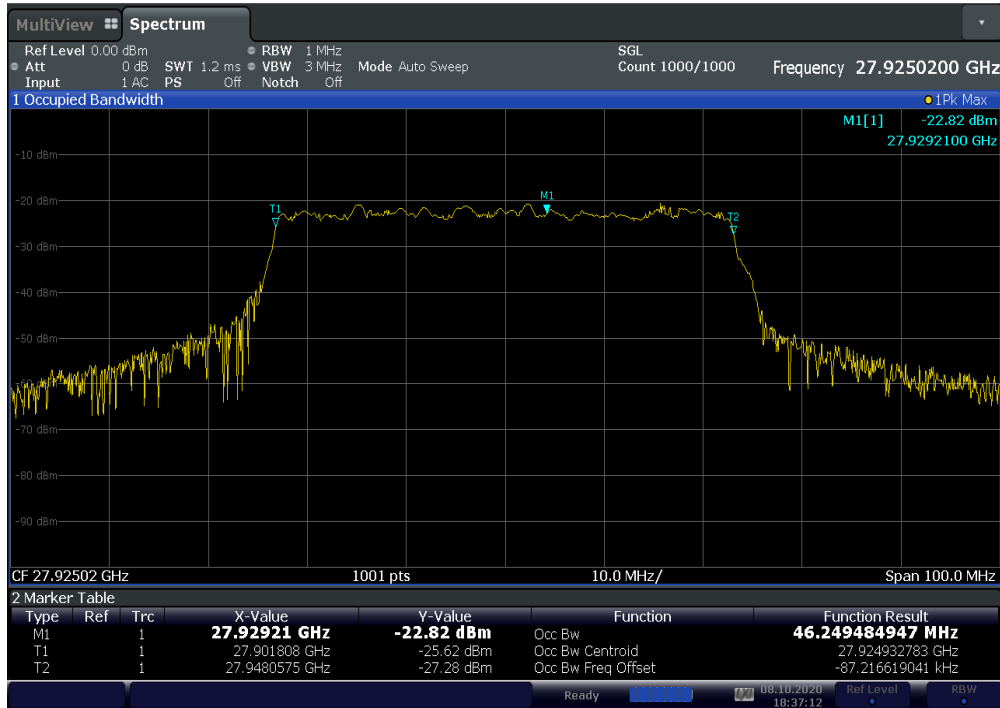
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Plot 7-38. OBW (Ant D 50 MHz BW 1CC 16QAM Mid)

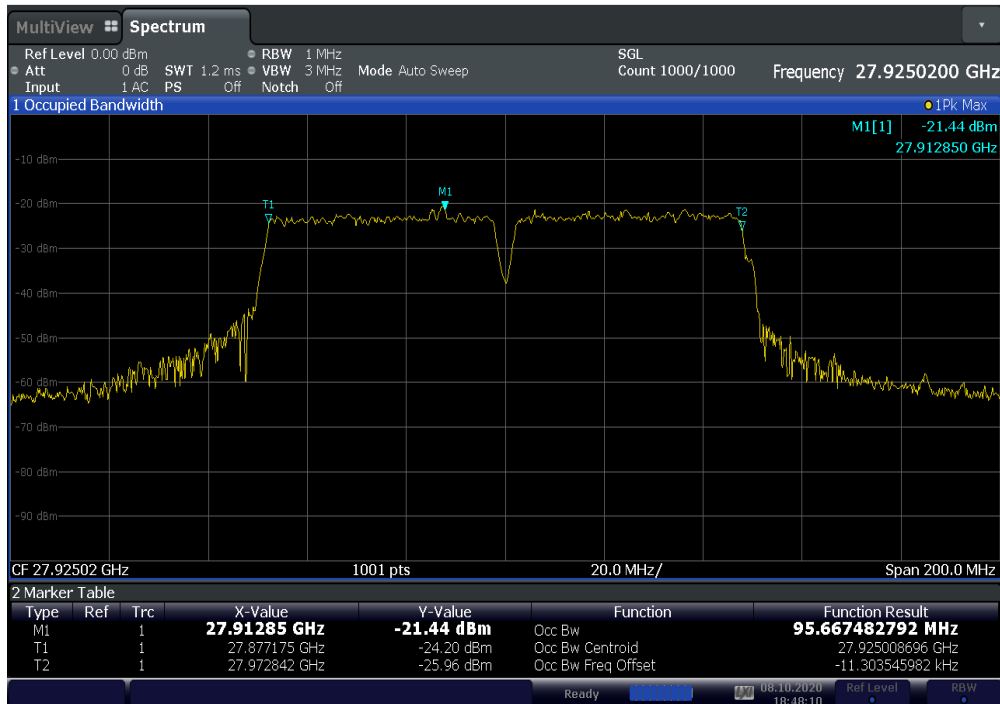
FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-39. OBW (Ant D 50 MHz BW 1CC 64QAM Mid)

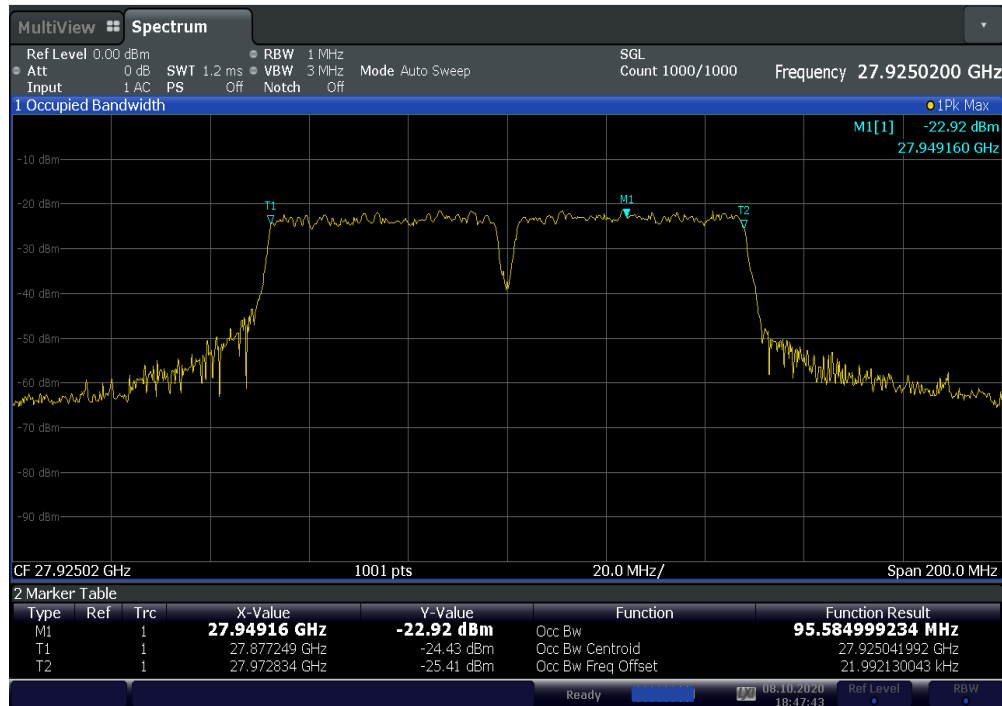
ACLRRResults



Plot 7-40. OBW (Ant D 50 MHz BW 2CC QPSK Mid)

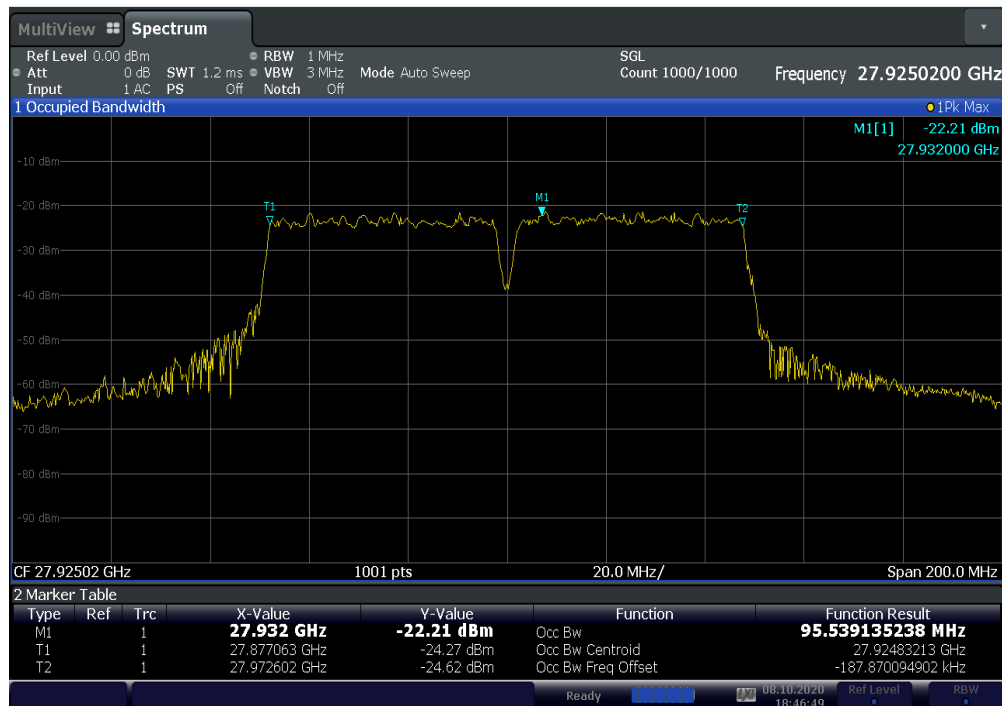
FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-41. OBW (Ant D 50 MHz BW 2CC 16QAM Mid)

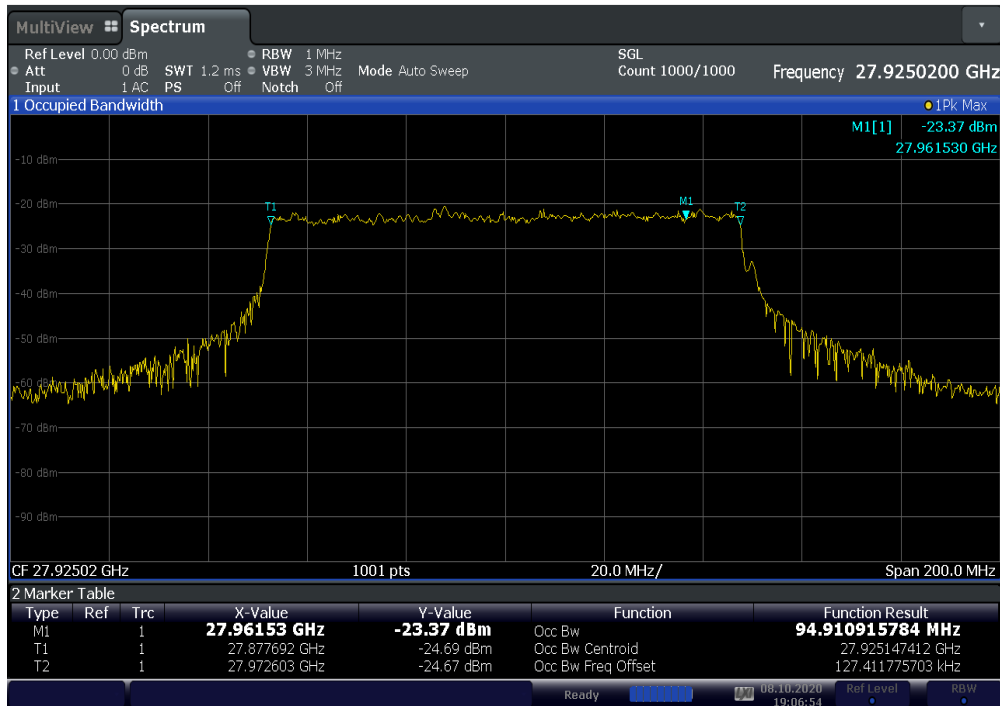
ACLRRResults



Plot 7-42. OBW (Ant D 50 MHz BW 2CC 64QAM Mid)

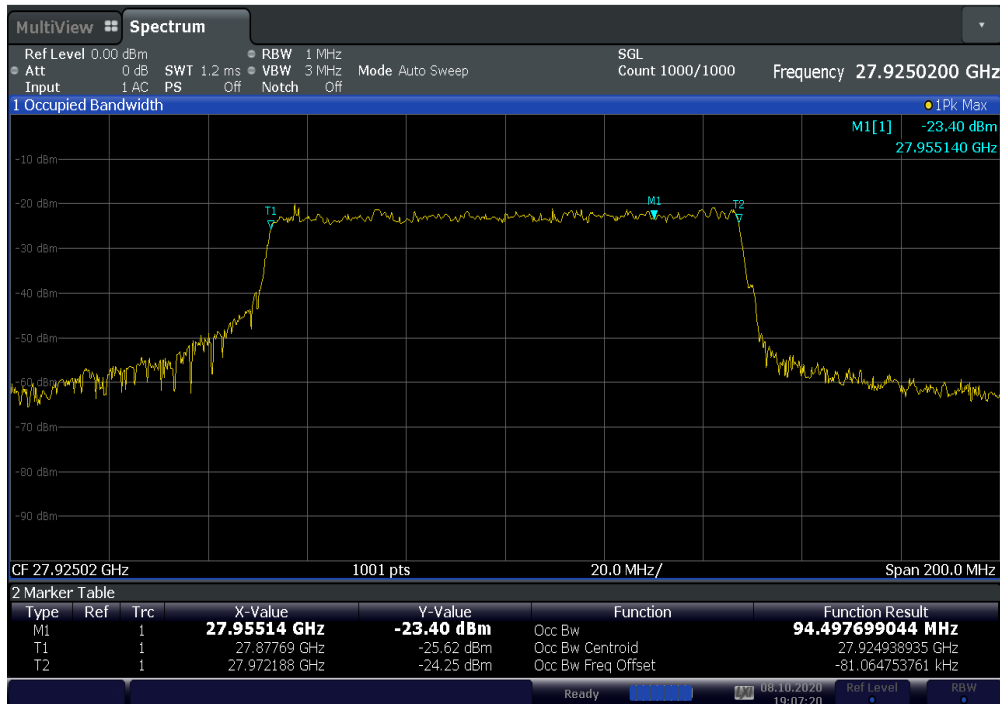
FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-43. OBW (Ant D 100 MHz BW 1CC QPSK Mid)

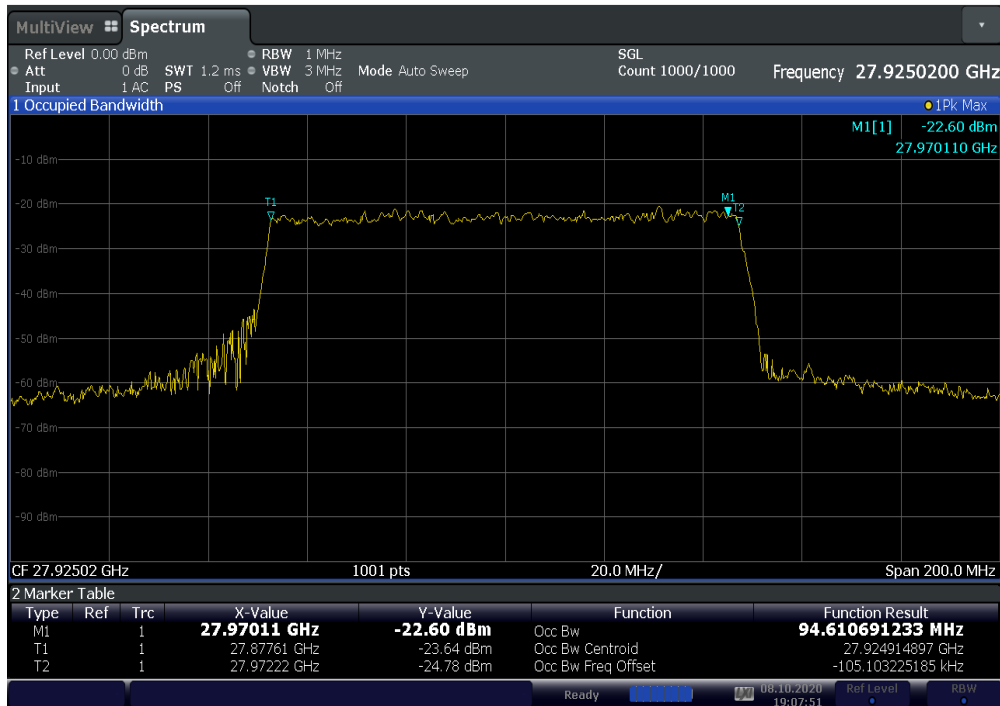
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Plot 7-44. OBW (Ant D 100 MHz BW 1CC 16QAM Mid)

FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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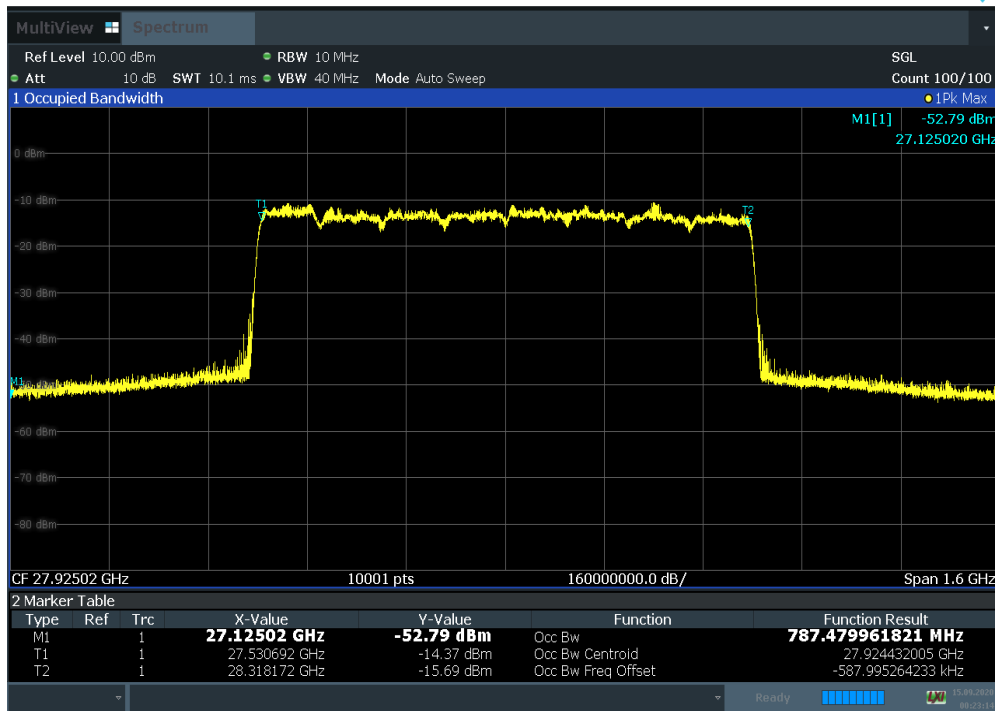


Plot 7-45. OBW (Ant D 100 MHz BW 1CC 64QAM Mid)

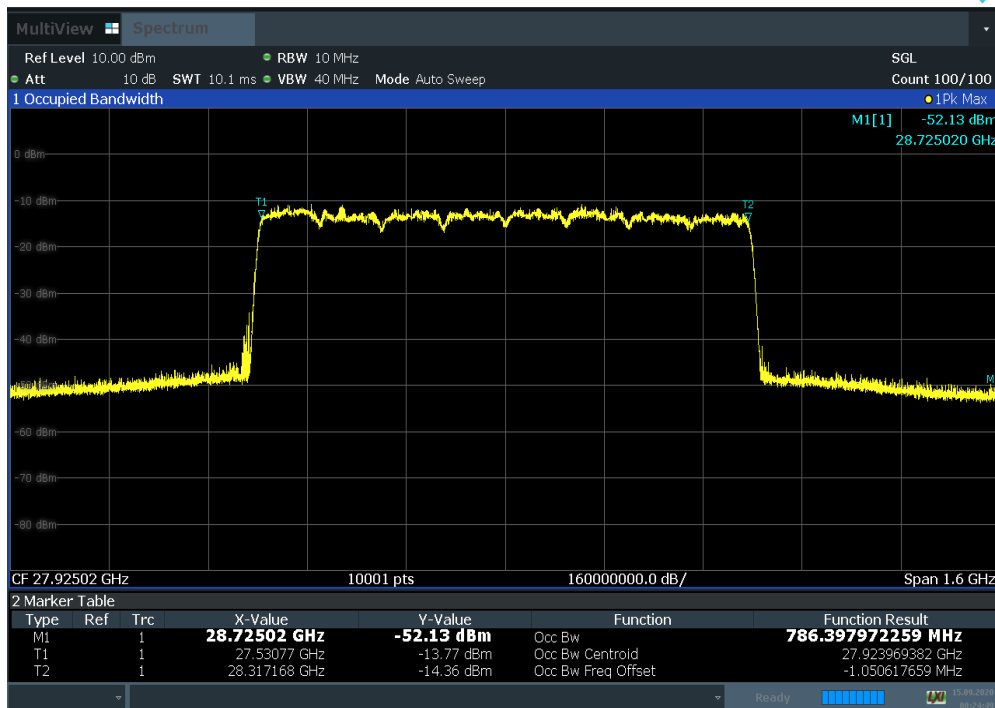


Plot 7-46. OBW (Ant D 100 MHz BW 8CC QPSK Mid)

FCC ID: A3LAT1K04-B10		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-47. OBW (Ant D 100 MHz BW 8CC 16QAM Mid)



Plot 7-48. OBW (Ant D 100 MHz BW 8CC 64QAM Mid)

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## 7.3 Equivalent Isotropic Radiated Power (EIRP) Density

§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 an equivalent isotopically radiated power (EIRP) density of +75 dBm / 100 MHz.***

### Test Procedures Used

ANSI C63.26-2015 Section 5.2.4.4.1  
ANSI C63.26-2015 Section 6.4  
KDB 842590 D01 v01r01 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
3. VBW  $\geq$  3 x RBW
4. Span = 2x to 3x the OBW
5. No. of sweep points  $\geq$  2 x span / RBW
6. Detector = RMS
7. The integration bandwidth was roughly set equal to the measured (EIRP) Density of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
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 while positioned upright and mounted on a mast at 1.5 m height. The worst case emissions are reported with the EUT in this fixed position and with the modulations and active component carriers shown in the tables below.
- 2) The EIRP measurements of the co-polarized antenna arrays (Antenna A/C and Antenna B/D) were added together to address MIMO concerns referenced in ANSI C63.26-2015 Section 6.4.
- 3) Elements within the same antenna array are correlated to produce beamforming array gain.
- 4) Measurements were taken in the far field of the mmWave signal based on the formula:  $R \geq 2D^2/\text{wavelength}$ .
- 5) The test case with 1 CC and 8 CC active, was selected for the worst case emission testing as it created the highest EIRP within 50 MHz, 100 MHz, and 50 MHz + 100 MHz Mixed bandwidth.
- 6) The average EIRP reported below is calculate per formula specified in d) of ANSI C63.26-2015 Section 5.2.7:

EIRP (dBm) = E (dBuV/m) + 20log(D) – 104.8; where D is the measurement distance (in the far field region) in m.

For this section, all EIRP density measurements were performed at a distance of 3.19 m, so, the effective correction is:

$$\text{EIRP (dBm)} = \text{E (dBuV/m)} - 94.72 \text{ dB}$$

$$= \text{Analyzer Level (dBm)} + \text{AFCL (dB/m)} + 107 \text{ dB} - 94.72 \text{ dB}$$

$$= \text{Analyzer Level (dBm)} + \text{AFCL (dB/m)} + 12.28$$

\*AFCL (dB/m) contains measurement antenna factor(dB/m) and cable loss(dB) as below:

Frequency [GHz]	Antenna Factor [dB/m]	Cable loss [dB]	AFCL [dB]
27.5	39.54	5.83	45.37
27.93	39.53	5.93	45.46
28.35	39.74	6.07	45.81

**Table 7-6. Adopted AFCL value in the calculation**

- 7) For channel bandwidths less than 100 MHz BW the EIRP must be reduced proportionally and lineary based on the bandwidth relative to 100 MHz according to §30.202 Power limits.

For 50 MHz BW operation RBW scaling factor,  
Scaling Factor (dB) =  $10\log(\text{BW}_1/\text{BW}_2) = 10*\log(100/50)$   
= 3.01 dB

- Mixed test mode has been re-calculated for 50 MHz BW with scaling factor(3.01 dB). Thus, 50 MHz and 100 MHz BW carriers are compared and reported.
- 8) The angle of the horn antenna was rotated to maximize and find the worst case emissions. Worst case EIRP is reported below.
  - 9) A3LAT1K04-B10 test result is referenced as A3LAT1K04-B00 result which only difference of power type as AC and DC which supply condition no affect to RF specification.

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### 7.3.1 Antenna A EIRP Density

Bandwidth [MHz]	Configuration	Channel	CCs active	Modulation	Horn Angle [degrees]	Horn Height [cm]	Turntable Azimuth [degrees]	Analyzer Level [dBm]	AFCL [dBm]	Average e.i.r.p. PSD [dBm/100MHz]	PSD Limit [dBm/100MHz]	Margin [dB]
50	1 CC	Low	0	QPSK	135.0	156	54	-12.99	45.37	47.67	75.00	27.33
		Low	0	16QAM	135.0	156	54	-13.10	45.37	47.56	75.00	27.44
		Low	0	64QAM	135.0	156	54	-12.99	45.37	47.67	75.00	27.33
	2 CC	Low	0-1	QPSK	135.0	156	54	-12.85	45.37	47.81	75.00	27.19
		Low	0-1	16QAM	135.0	156	54	-12.83	45.37	47.83	75.00	27.17
		Low	0-1	64QAM	135.0	156	54	-12.83	45.37	47.83	75.00	27.17
	1 CC	Mid	4	QPSK	135.0	156	54	-13.14	45.46	47.61	75.00	27.39
		Mid	4	16QAM	135.0	156	54	-13.31	45.46	47.44	75.00	27.56
		Mid	4	64QAM	135.0	156	54	-13.17	45.46	47.58	75.00	27.42
	2 CC	Mid	0-1	QPSK	135.0	156	54	-13.12	45.46	47.63	75.00	27.37
		Mid	0-1	16QAM	135.0	156	54	-13.09	45.46	47.66	75.00	27.34
		Mid	0-1	64QAM	135.0	156	54	-13.05	45.46	47.7	75.00	27.30
	1 CC	High	7	QPSK	135.0	156	54	-12.95	45.81	48.15	75.00	26.85
		High	7	16QAM	135.0	156	54	-13.07	45.81	48.03	75.00	26.97
		High	7	64QAM	135.0	156	54	-12.97	45.81	48.13	75.00	26.87
	2 CC	High	0-1	QPSK	135.0	156	54	-12.86	45.81	45.94	75.00	26.76
		High	0-1	16QAM	135.0	156	54	-12.95	45.81	46.01	75.00	26.85
		High	0-1	64QAM	135.0	156	54	-12.94	45.81	46.03	75.00	26.84
100	1 CC	Low	0	QPSK	135.0	156	54	-9.98	45.37	47.67	75.00	27.33
		Low	0	16QAM	135.0	156	54	-10.05	45.37	47.60	75.00	27.40
		Low	0	64QAM	135.0	156	54	-9.99	45.37	47.66	75.00	27.34
	8 CC	Low	0-7	QPSK	135.0	156	54	-12.01	45.37	45.64	75.00	29.36
		Low	0-7	16QAM	135.0	156	54	-12.06	45.37	45.59	75.00	29.41
		Low	0-7	64QAM	135.0	156	54	-12.06	45.37	45.59	75.00	29.41
	1 CC	Mid	4	QPSK	135.0	156	54	-10.50	45.46	47.24	75.00	27.76

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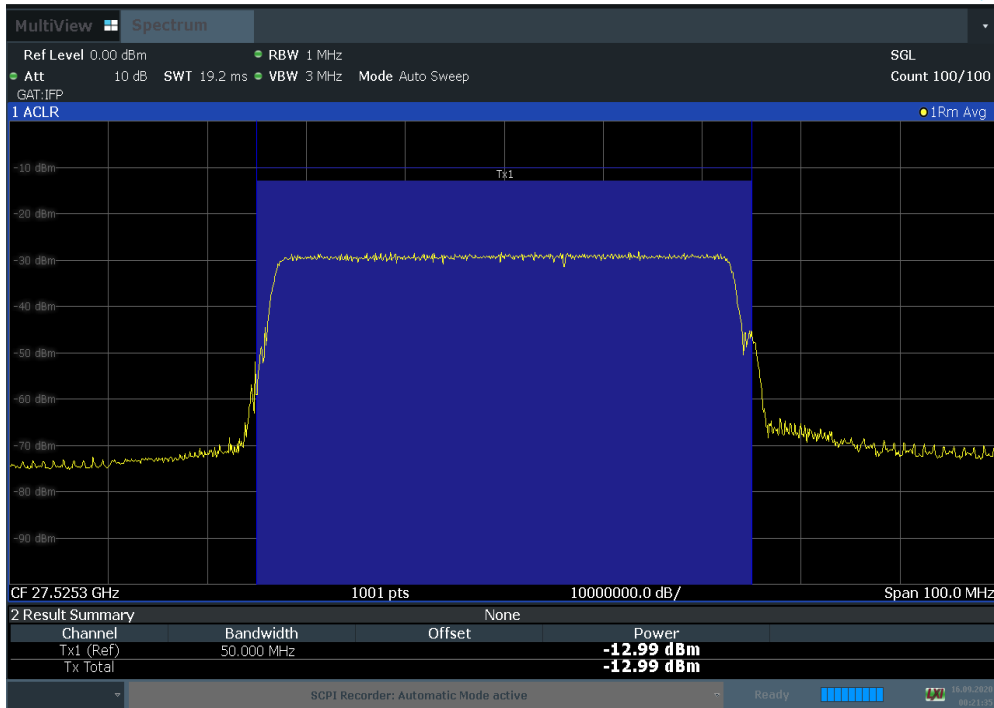
100	Mid	4	16QAM	135.0	156	54	-10.11	45.46	47.63	75.00	27.37	
		4	64QAM	135.0	156	54	-10.04	45.46	47.70	75.00	27.30	
	8 CC	Mid	0-7	QPSK	135.0	156	54	-11.99	45.46	45.75	75.00	29.25
		Mid	0-7	16QAM	135.0	156	54	-12.24	45.46	45.50	75.00	29.50
		Mid	0-7	64QAM	135.0	156	54	-12.18	45.46	45.56	75.00	29.44
	1 CC	High	7	QPSK	135.0	156	54	-10.23	45.81	47.86	75.00	27.14
		High	7	16QAM	135.0	156	54	-10.33	45.81	47.76	75.00	27.24
		High	7	64QAM	135.0	156	54	-10.3	45.81	47.79	75.00	27.21
	2 CC	High	0-1	QPSK	135.0	156	54	-10.21	45.81	47.88	75.00	27.12
	3 CC	High	0-2	QPSK	135.0	156	54	-9.78	45.81	48.31	75.00	26.69
	4 CC	High	0-3	QPSK	135.0	156	54	-9.61	45.81	48.48	75.00	26.52
	5 CC	High	0-4	QPSK	135.0	156	54	-10.45	45.81	47.64	75.00	27.36
	6 CC	High	0-5	QPSK	135.0	156	54	-11.26	45.81	46.83	75.00	28.17
	7 CC	High	0-6	QPSK	135.0	156	54	-11.94	45.81	46.15	75.00	28.85
	8 CC	High	0-7	QPSK	135.0	156	54	-12.79	45.81	45.94	75.00	29.70
		High	0-7	16QAM	135.0	156	54	-12.53	45.81	46.01	75.00	29.44
High		0-7	64QAM	135.0	156	54	-12.73	45.81	46.03	75.00	29.64	
50 MHz + 100 MHz Mix	50 M 1CC + 100 M 1CC	High	0-1	QPSK	135.0	156	54	-9.79	45.81	48.30	75.00	26.70
	50 M 2CC + 100 M 1CC	High	0-2	QPSK	135.0	156	54	-9.89	45.81	48.20	75.00	26.80
	50 M 1CC + 100 M 2CC	High	0-2	QPSK	135.0	156	54	-10.08	45.81	48.01	75.00	26.99
	50 M 2CC + 100 M 2CC	High	0-3	QPSK	135.0	156	54	-10.29	45.81	47.80	75.00	27.20
	50 M 1CC + 100 M 3CC	High	0-3	QPSK	135.0	156	54	-9.95	45.81	48.14	75.00	26.86
	50 M 2CC + 100 M 3CC	High	0-4	QPSK	135.0	156	54	-10.24	45.81	47.85	75.00	27.15
	50 M 1CC + 100 M 4CC	High	0-4	QPSK	135.0	156	54	-10.60	45.81	47.49	75.00	27.51
	50 M 2CC + 100 M 4CC	High	0-5	QPSK	135.0	156	54	-11.08	45.81	47.01	75.00	27.99
	50 M 1CC + 100 M 5CC	High	0-5	QPSK	135.0	156	54	-11.60	45.81	46.49	75.00	28.51
	50 M 2CC + 100 M 5CC	High	0-6	QPSK	135.0	156	54	-11.77	45.81	46.32	75.00	28.68

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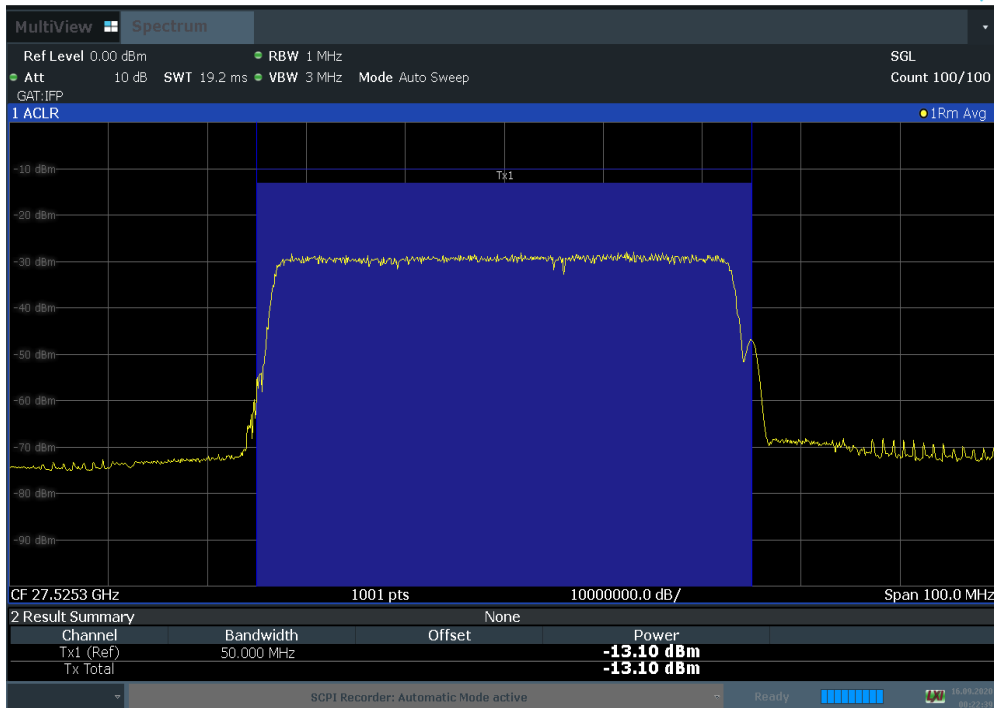
50 MHz + 100 MHz Mix	50 M 1CC + 100 M 6CC	High	0-6	QPSK	135.0	156	54	-11.56	45.81	46.53	75.00	28.47
	50 M 2CC + 100 M 6CC	High	0-7	QPSK	135.0	155	54	-12.54	45.81	45.55	75.00	29.45

**Table 7-7. Antenna A EIRP Density Summary Data**

<b>FCC ID:</b> A3LAT1K04-B10		<b>MEASUREMENT REPORT (CERTIFICATION)</b>			<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 8K20090901-02-R2.A3L	<b>Test Dates:</b> 09/10/2020-10/08/2020	<b>EUT Type:</b> 5G Access Unit		Page 61 of 469	

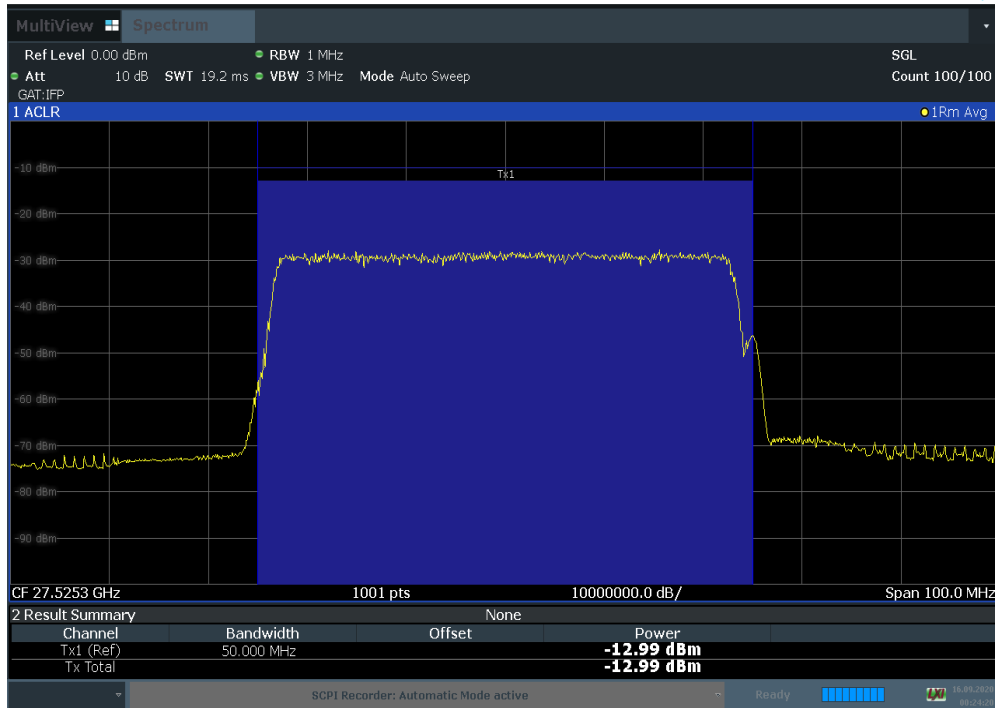


Plot 7-49. EIRP Density (Ant A 50 MHz BW 1CC QPSK Low)

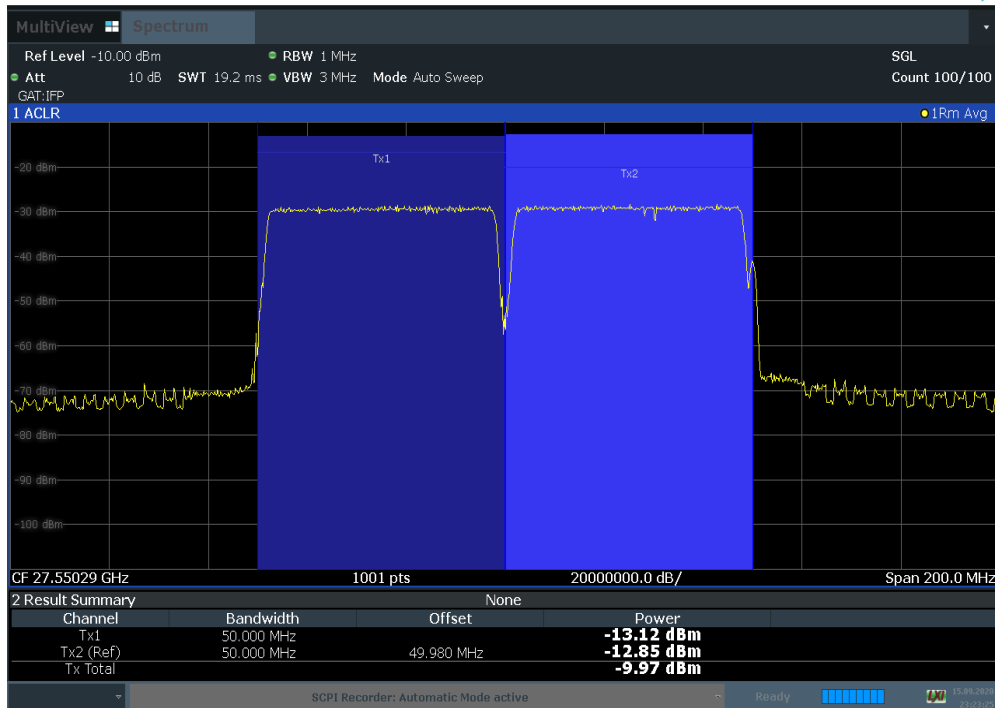


Plot 7-50. EIRP Density (Ant A 50 MHz BW 1CC 16QAM Low)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit			Page 62 of 469

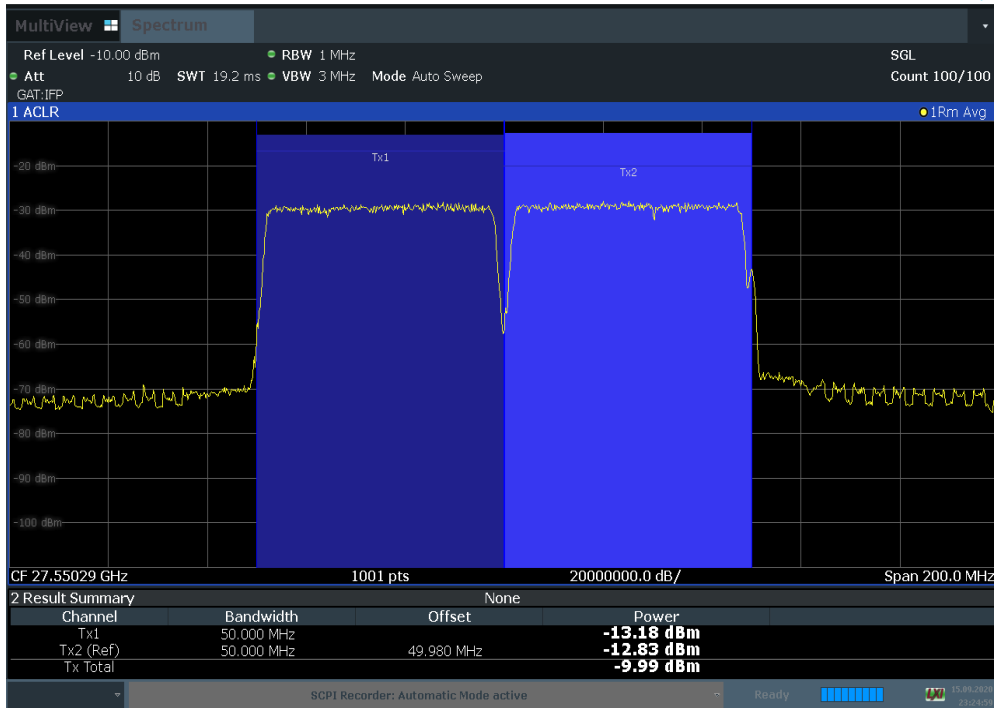


Plot 7-51. EIRP Density (Ant A 50 MHz BW 1CC 64QAM Low)

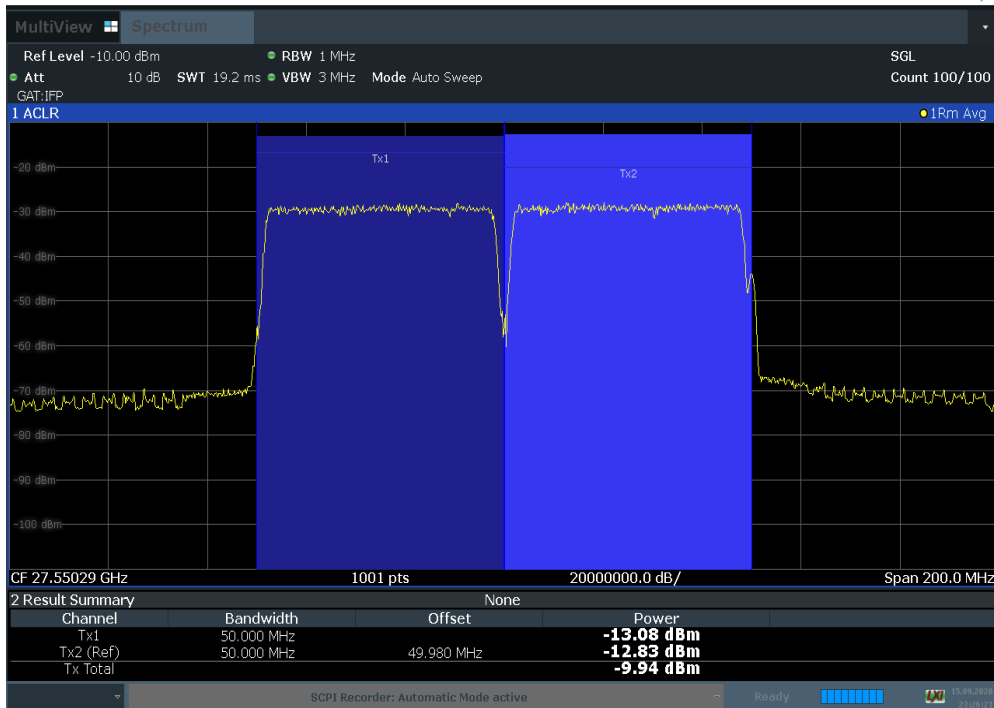


Plot 7-52. EIRP Density (Ant A 50 MHz BW 2CC QPSK Low)

FCC ID: A3LAT1K04-B10	PCTEST Proud to be part of  element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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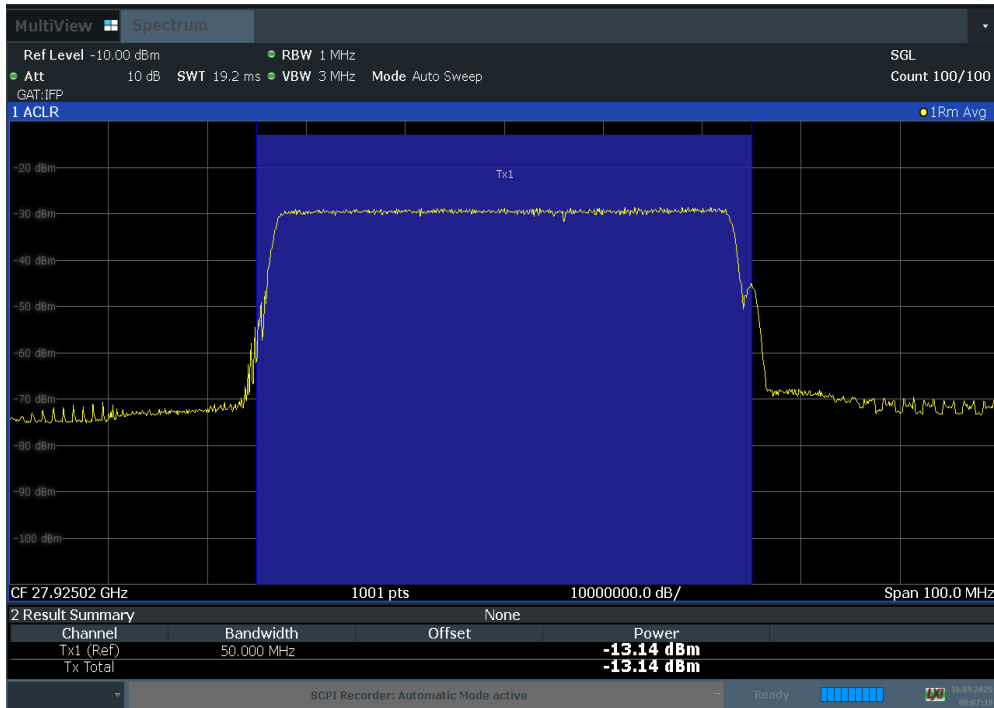
Plot 7-53. EIRP Density (Ant A 50 MHz BW 2CC 16QAM Low)



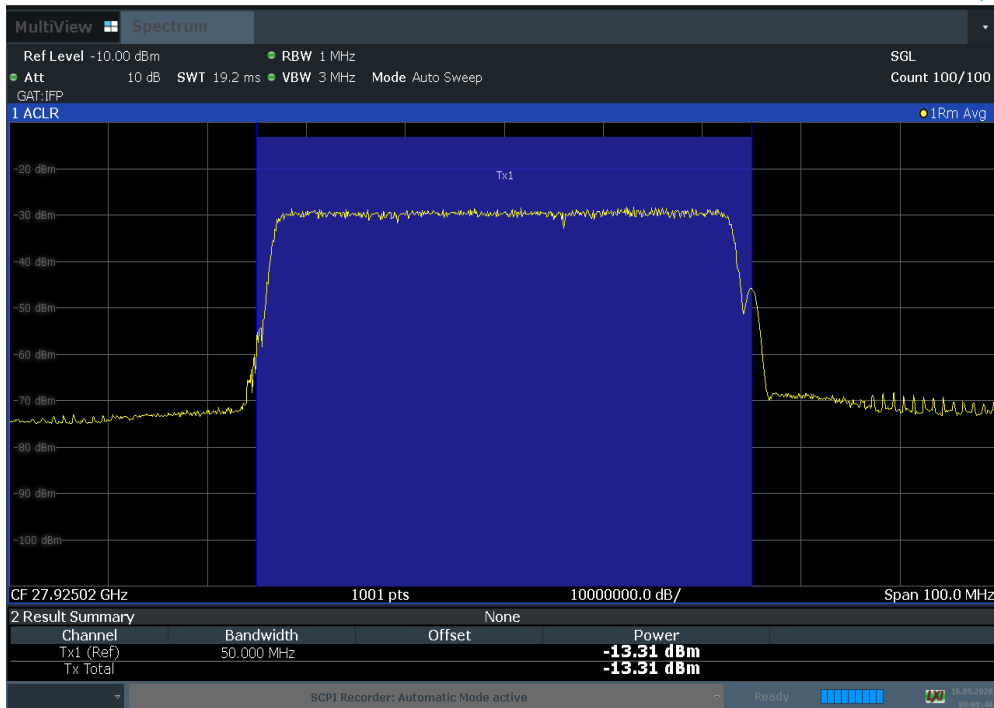
Plot 7-54. EIRP Density (Ant A 50 MHz BW 2CC 64QAM Low)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit		Page 64 of 469



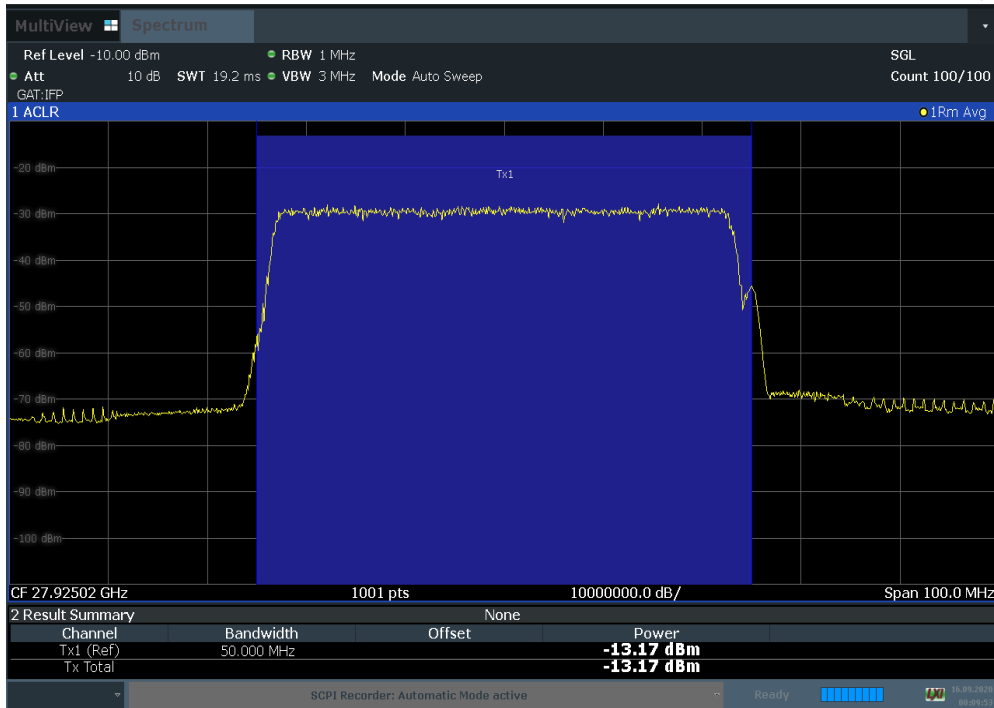


Plot 7-55. EIRP Density (Ant A 50 MHz BW 1CC QPSK Mid)

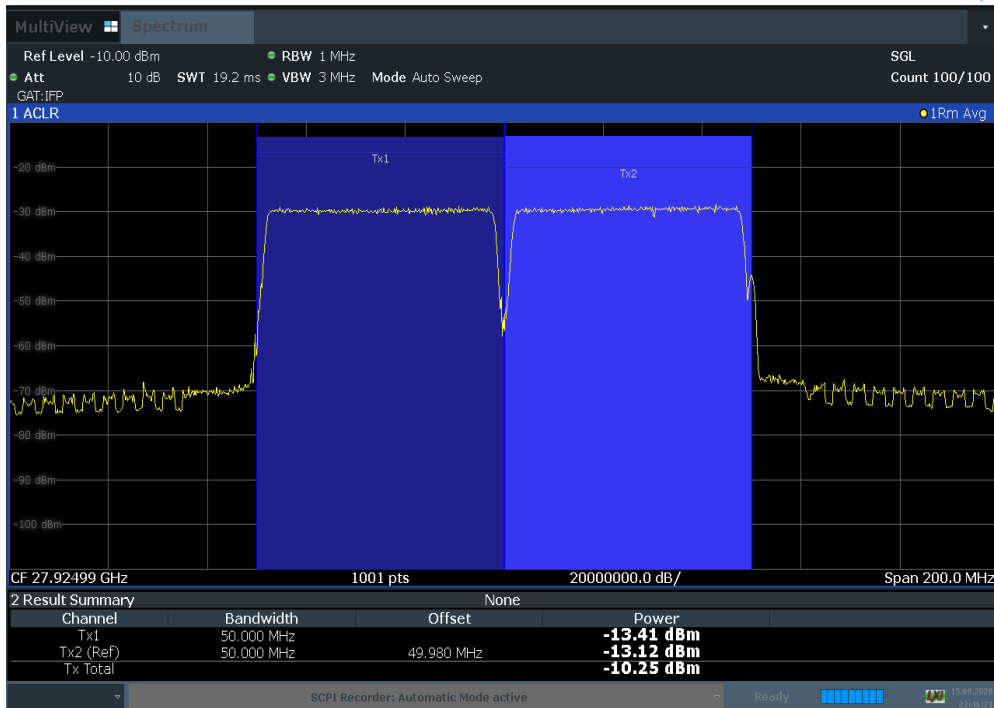


Plot 7-56. EIRP Density (Ant A 50 MHz BW 1CC 16QAM Mid)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit		Page 65 of 469

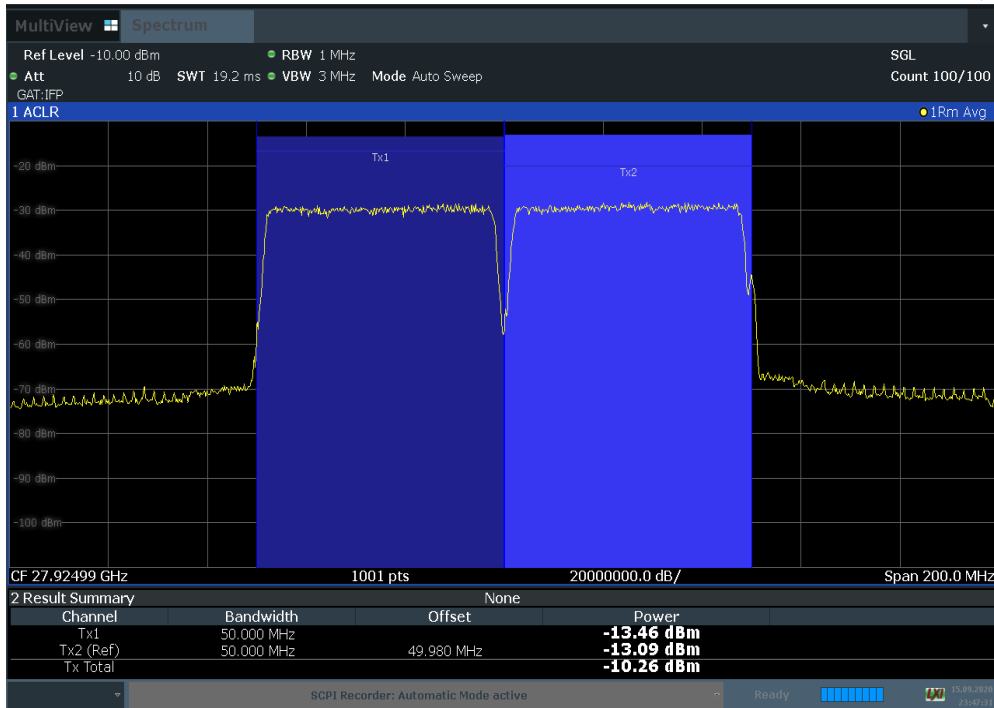


Plot 7-57. EIRP Density (Ant A 50 MHz BW 1CC 64QAM Mid)

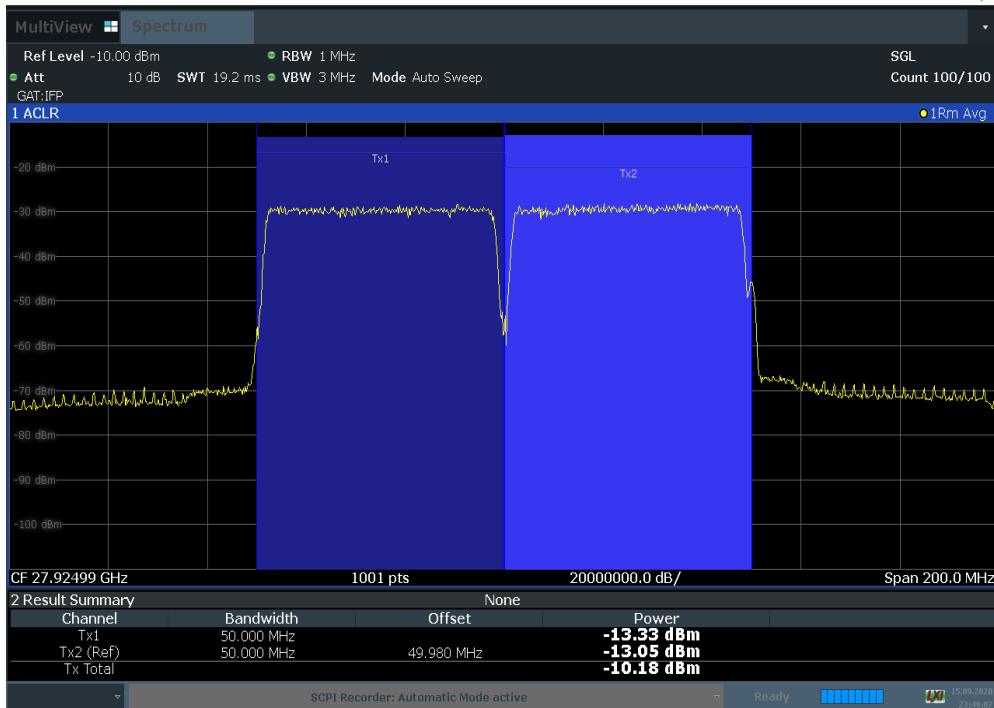


Plot 7-58. EIRP Density (Ant A 50 MHz BW 2CC QPSK Mid)

FCC ID: A3LAT1K04-B10	Proud to be part of  element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
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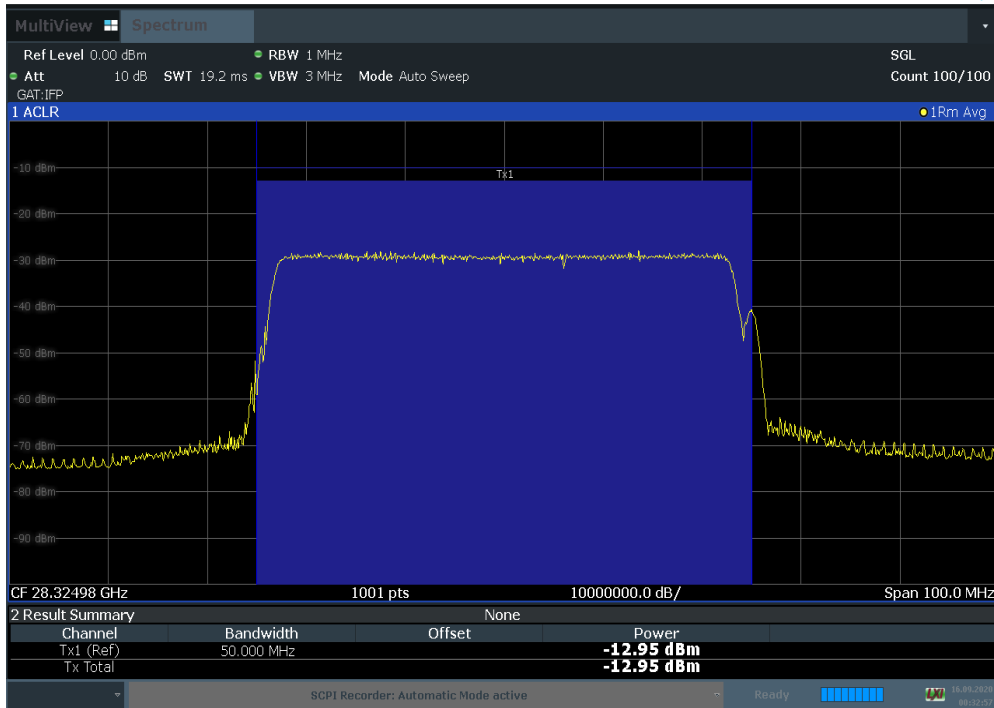


Plot 7-59. EIRP Density (Ant A 50 MHz BW 2CC 16QAM Mid)

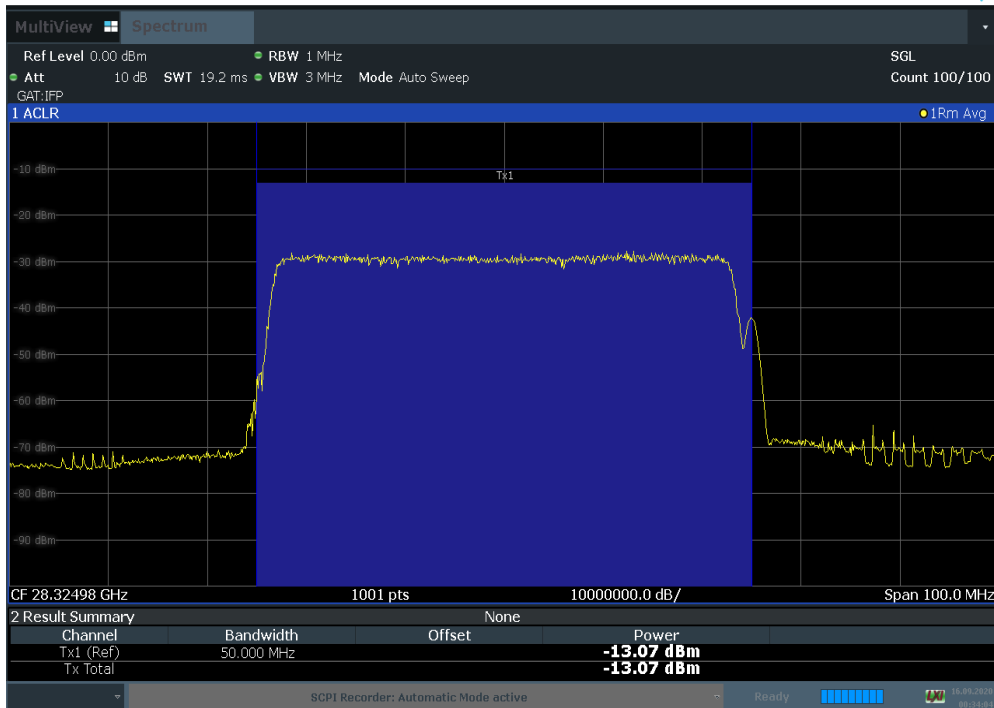


Plot 7-60. EIRP Density (Ant A 50 MHz BW 2CC 64QAM Mid)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
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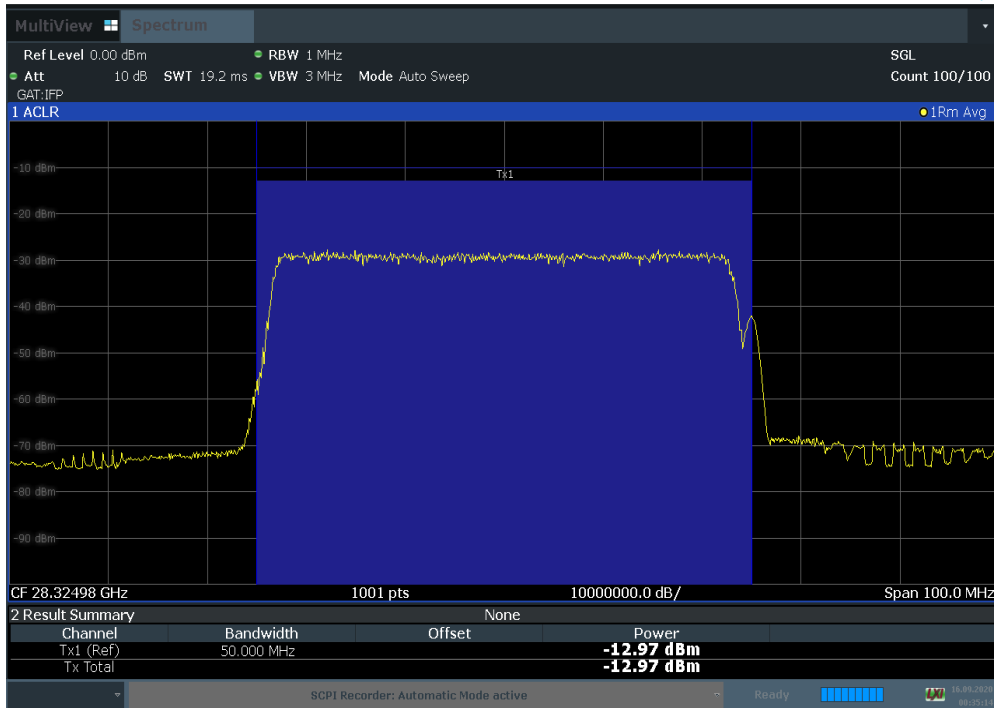


Plot 7-61. EIRP Density (Ant A 50 MHz BW 1CC QPSK High)

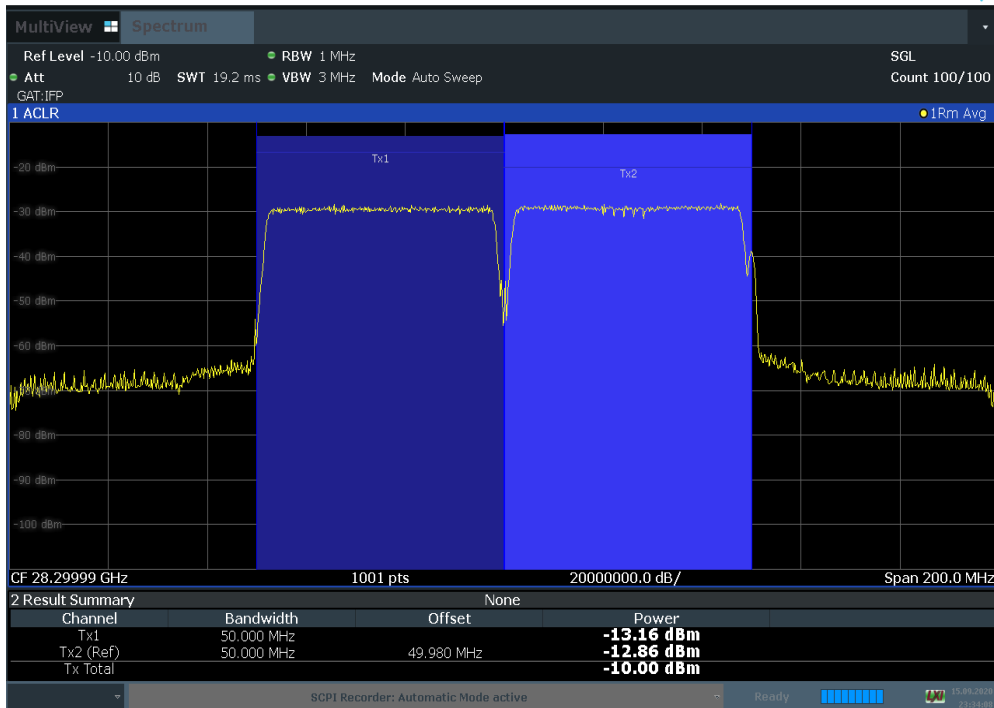


Plot 7-62. EIRP Density (Ant A 50 MHz BW 1CC 16QAM High)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit		Page 68 of 469

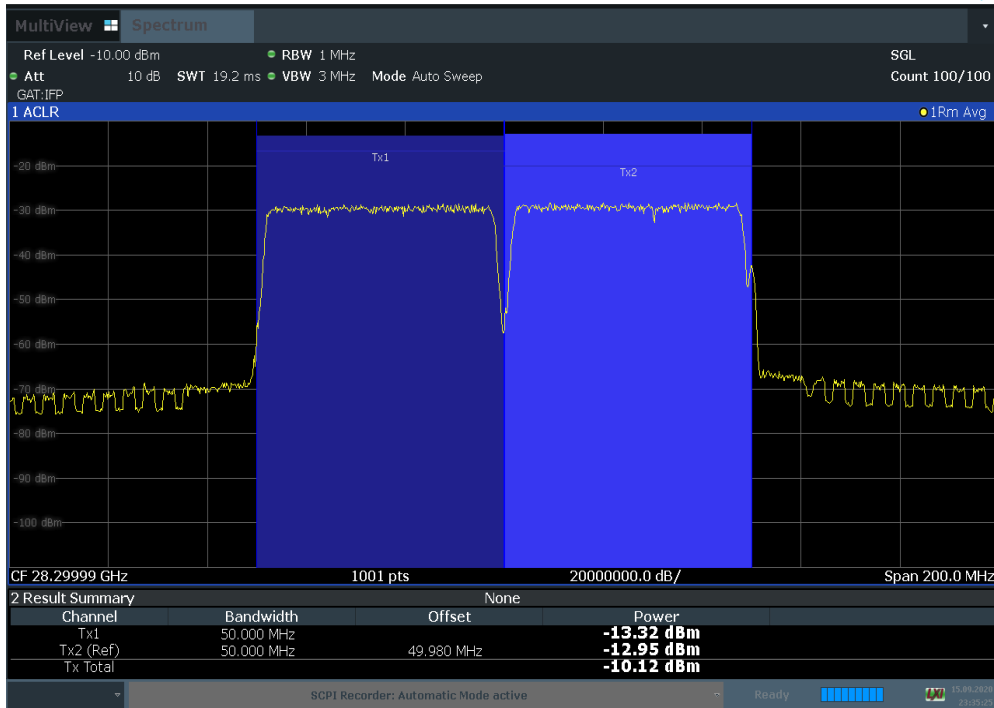


Plot 7-63. EIRP Density (Ant A 50 MHz BW 1CC 64QAM High)

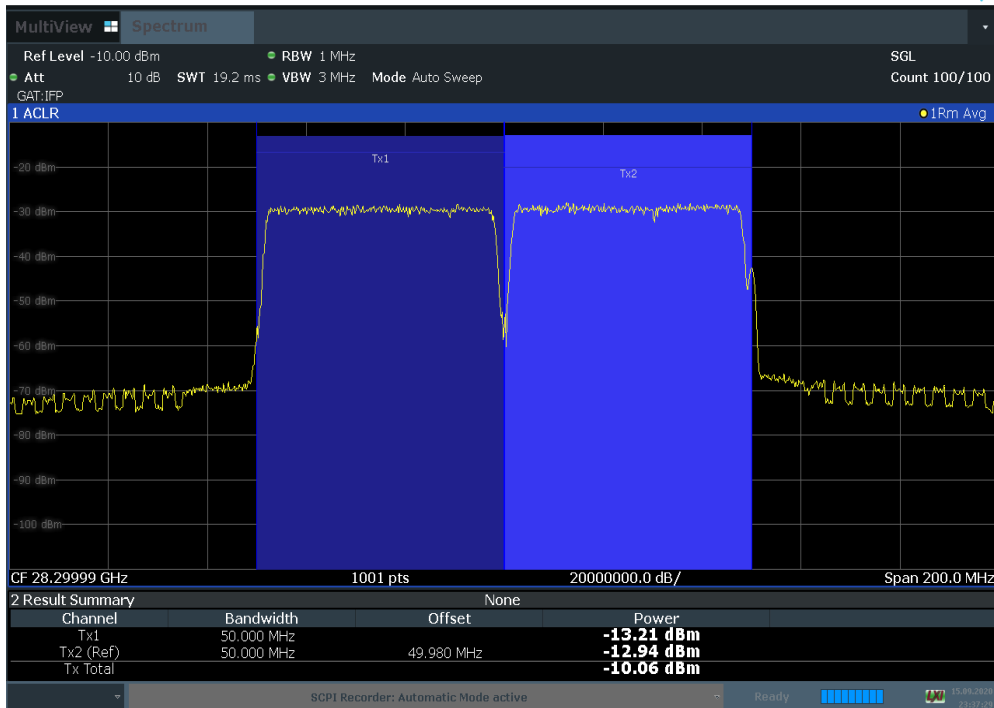


Plot 7-64. EIRP Density (Ant A 50 MHz BW 2CC QPSK High)

FCC ID: A3LAT1K04-B10	Proud to be part of  element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit		Page 69 of 469

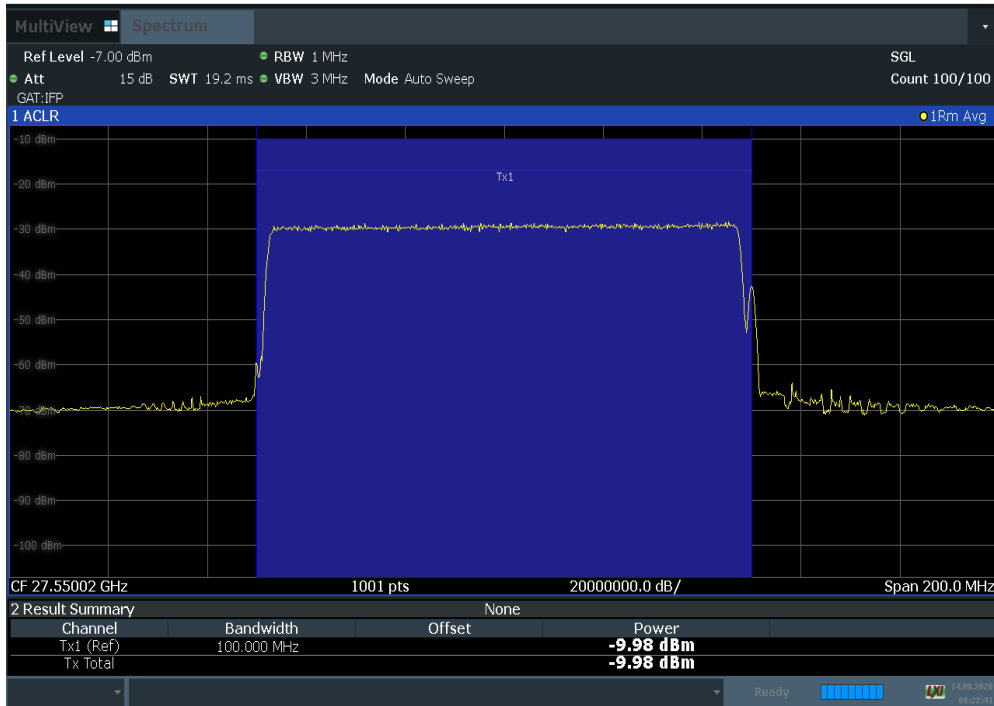


Plot 7-65. EIRP Density (Ant A 50 MHz BW 2CC 16QAM High)

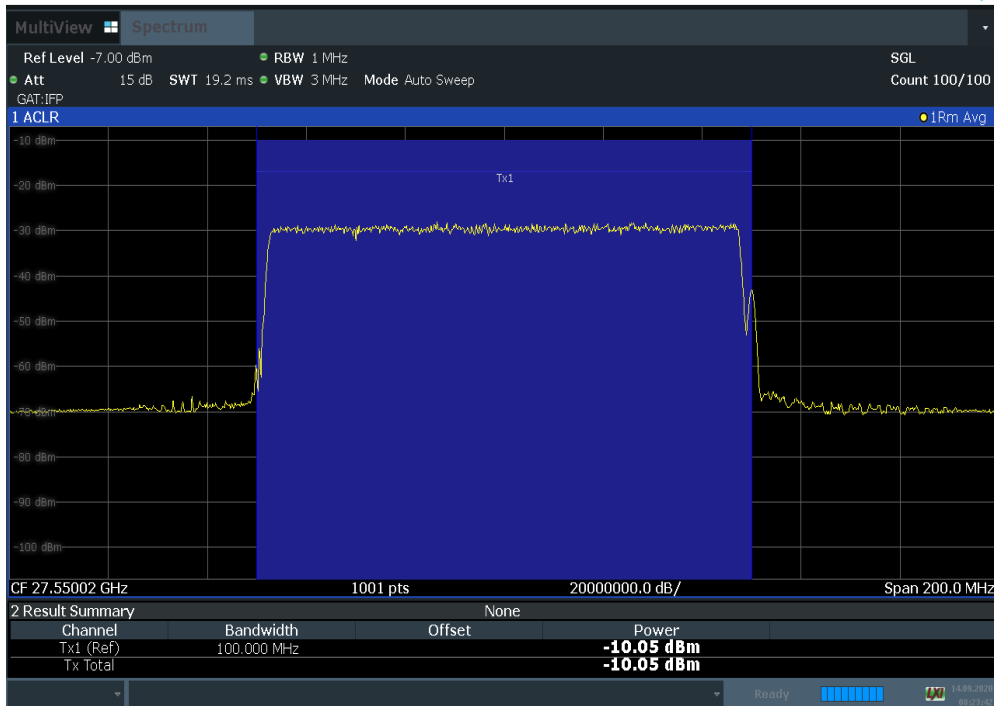


Plot 7-66. EIRP Density (Ant A 50 MHz BW 2CC 64QAM High)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
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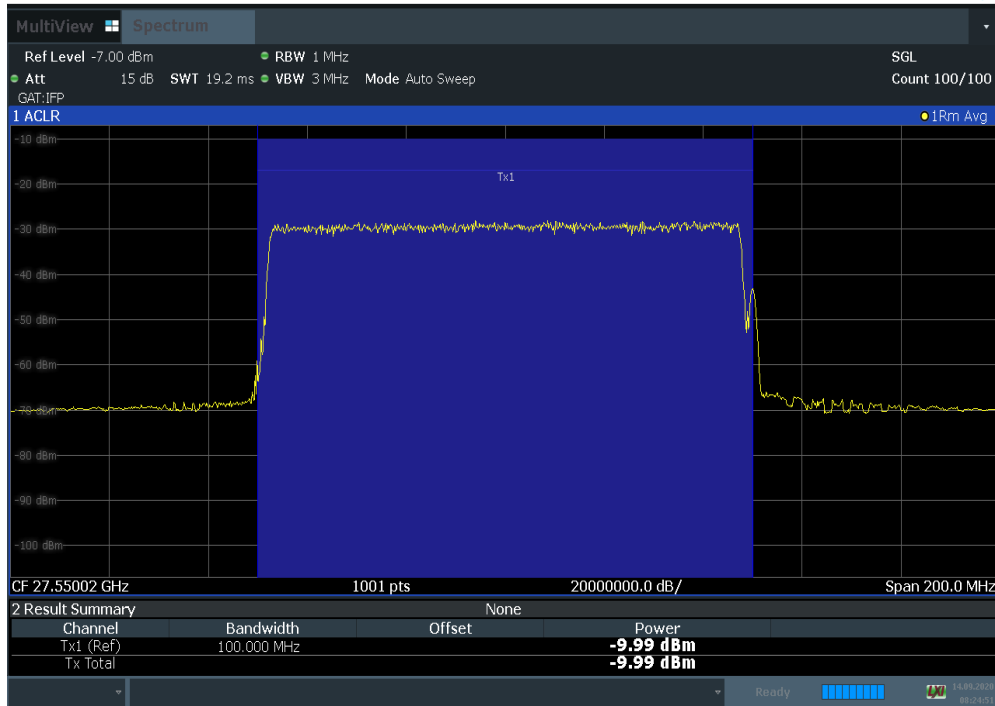


Plot 7-67. EIRP Density (Ant A 100 MHz BW 1CC QPSK Low)

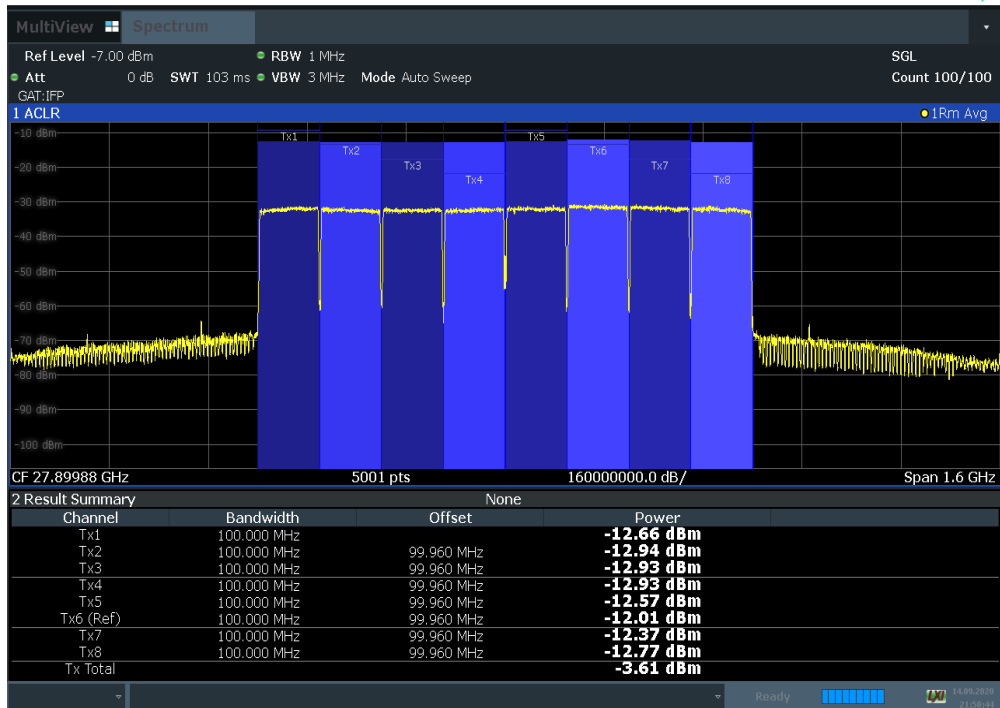


Plot 7-68. EIRP Density (Ant A 100 MHz BW 1CC 16QAM Low)

FCC ID: A3LAT1K04-B10	Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
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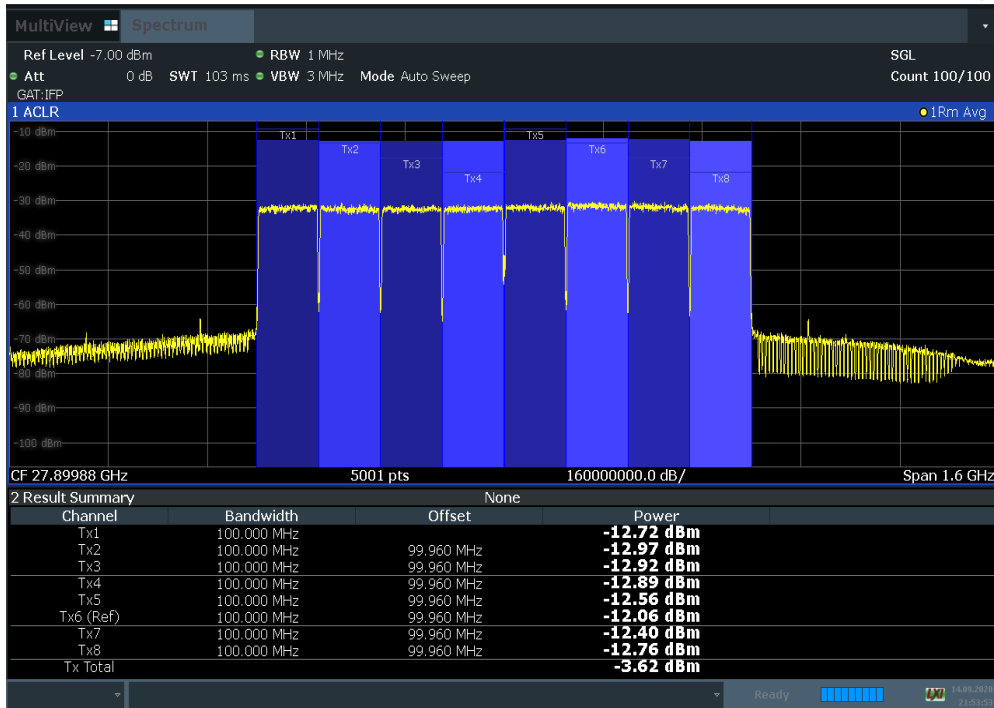
Plot 7-69. EIRP Density (Ant A 100 MHz BW 1CC 64QAM Low)



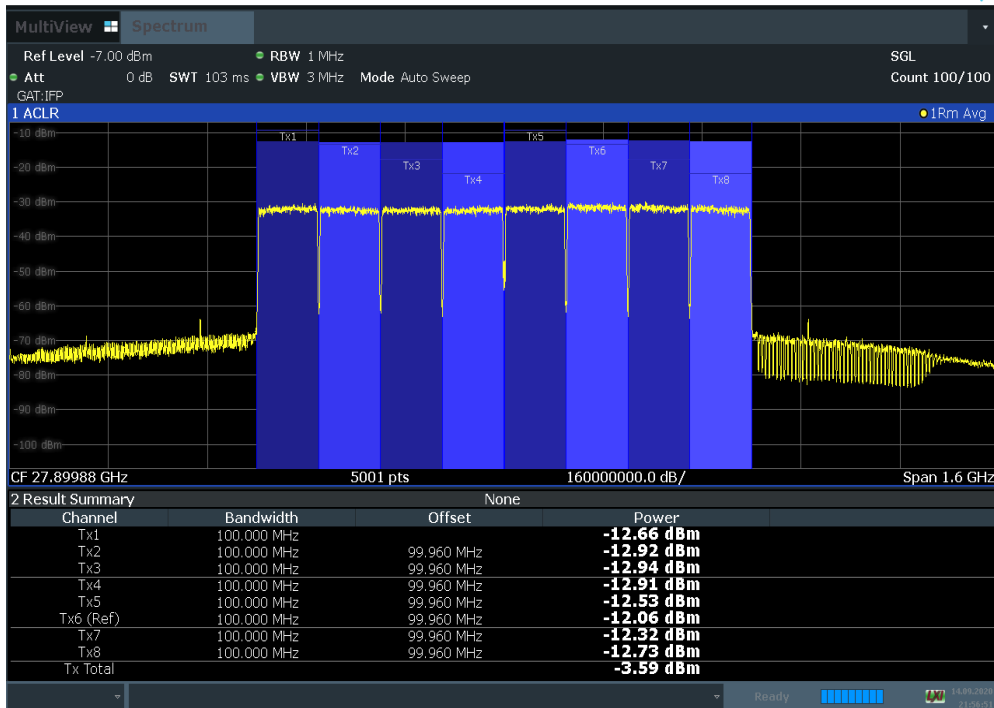
Plot 7-70. EIRP Density (Ant A 100 MHz BW 8CC QPSK Low)

FCC ID: A3LAT1K04-B10	Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
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Plot 7-71. EIRP Density (Ant A 100 MHz BW 8CC 16QAM Low)



Plot 7-72. EIRP Density (Ant A 100 MHz BW 8CC 64QAM Low)

FCC ID: A3LAT1K04-B10	<b>PCTEST</b> Proud to be part of element	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 8K20090901-02-R2.A3L	Test Dates: 09/10/2020-10/08/2020	EUT Type: 5G Access Unit		Page 73 of 469