FCC REPORT

Applicant:	Baicells Technologies Co., Ltd.
Address of Applicant:	9-10F, 1stBldg., No.81BeiqingRoad, Haidian District, Beijing, China

Equipment Under Test (EUT)

Product Name:	LTE Outdoor CPE
Model No.:	EG8015G-M11
Trade mark:	Baicells
FCC ID:	2AG32EG8015GM11
Applicable standards:	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part 96
Date of sample receipt:	21 Oct., 2020
Date of Test:	22 Oct., to 18 Nov., 2020
Date of report issued:	18 Nov., 2020
Test Result:	PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Bruce Zhang
Laboratory Manager

2. Version

Version No.	Date	Description
00	*18 Nov., 2020*	*Original*

Tested by: Carey Chen ***Date:*** *18 Nov., 2020*

Test Engineer

Reviewed by: Winner Zhang ***Date:*** *18 Nov., 2020*

Project Engineer

3. Contents

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4. Test Summary

Test Item	Section in CFR 47	Result
	FCC	
Effective Isotropic Radiated Power (EIRP) Power Spectral Density (PSD)	Part 2.1046 Part 96.41(b)	Pass
Peak-to-average power ratio (PAPR)	Part 96.41(g)	Pass
Modulation Characteristics	Part 2.1047 Part 96.41(a)	Pass
99% Occupied Bandwidth -26 dB Occupied Bandwidth	Part 2.1049 Part 96.41(e)(3)	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 96.41(e)(1)(2)(3)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 96.41(e)(1)(2)	Pass
Frequency stability vs. temperature	Part 2.1055(a)(b)	Pass
Frequency stability vs. voltage	Part 2.1055(d)	Pass

Test Method:

- ANSI C63.26-2015
- ANSI/TIA-603-E-2016
- ANSI C63.4-2014
- KDB 971168 D01 Power Meas License Digital Systems v03r01
- KDB 940660 D01 Part 96 CBRS Eqpt v02

Pass: The EUT complies with the essential requirements in the standard.

5. General Information

5.1 Client Information

Applicant:	Baicells Technologies Co., Ltd.
Address:	9-10F, 1stBldg., No.81BeiqingRoad, Haidian District, Beijing, China
Manufacturer	Baicells Technologies Co., Ltd.
Address:	9-10F, 1stBldg., No.81BeiqingRoad, Haidian District, Beijing, China

5.2 General Description of E.U.T.

Product Name:	LTE Outdoor CPE
Model No.:	EG8015G-M11
Operation Frequency range:	Band48: 3550MHz~3700MHz
Modulation type:	QPSK, 16QAM, 64QAM, 256QAM
Antenna type:	Internal antenna (“N” type)
Antenna gain:	LTE Band 48: 18.0dBi
AC adapter:	Model No: G0720-240-050 Input : 100-240VAC, 50/60Hz, 0.75A MAX Output:24vdc, 0-6.25A
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

Test Channel:

10MHz		15MHz	
Channel:	Frequency (MHz)	Channel:	Frequency (MHz)
Lowest	3555.0	Lowest	3557.5
Middle	3625.0	Middle	3625.0
Highest	3695.0	Highest	3692.5
20MHz			
Channel:	Frequency (MHz)		
Lowest	3560.0		
Middle	3625.0		
Highest	3690.0		

5.3 Test modes and test samples plans

Test mode:	
Data mode (QPSK)	Keep the EUT in data communicating mode (QPSK). *(10MHz, 15MHz, 20MHz)*
Data mode (64QAM)	Keep the EUT in data communicating mode (64QAM). *(10MHz, 15MHz, 20MHz)*
Remarks	The duty cycle correction=10 log(1/duty cycle)=10 log(1/(1.98/4.98))=4dB Offset factory=ATT loss + Cable loss + Duty cycle correction=4.5+1.5+4=10dB

5.4 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.16 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±3.20 dB (k=2)

5.5 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
LENOVO	Laptop	SL510	2847A65	DoC

5.6 Related Submittal(s) / Grant (s)

FCC: This submittal(s) (test report) is filing to comply with Section Part 90 subpart Z of the FCC CFR 47 Rules.

5.7 Description of Cable Used

N/A

5.8 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.9 Laboratory Location

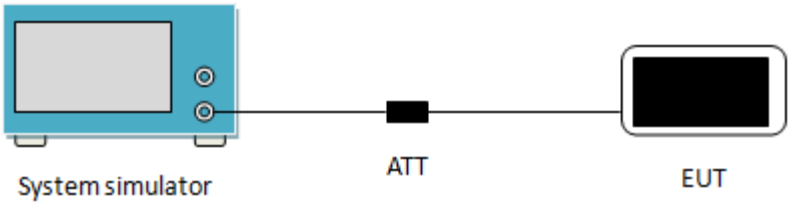
JianYan Testing Group Shenzhen Co., Ltd.
Address: No.110~116, Building B, Jinyuan Business Building, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

5.10 Test Instruments list

Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2020	07-21-2021
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-18-2020	03-17-2021
Biconical Antenna	SCHWARZBECK	VUBA9117	359	06-22-2020	06-21-2021
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-07-2020	03-06-2021
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-22-2020	06-21-2021
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-18-2019	11-17-2020
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Pre-amplifier	HP	8447D	2944A09358	03-07-2020	03-06-2021
Pre-amplifier	CD	PAP-1G18	11804	03-07-2020	03-06-2021
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-05-2020	03-04-2021
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-18-2019	11-17-2020
Spectrum Analyzer	Agilent	N9020A	MY50510123	11-18-2019	11-17-2020
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-05-2020	03-04-2021
Spectrum Analyzer	Agilent	N9020A	MY50510123	11-18-2019	11-17-2020
Signal Generator	Rohde & Schwarz	SMX	835454/016	03-05-2020	03-04-2021
Signal Generator	R&S	SMR20	1008100050	03-05-2020	03-04-2021
RF Switch Unit	MWRFTEST	MW200	N/A	N/A	N/A
Test Software	MWRFTEST	MTS8200	Version: 2.0.0.0		
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-07-2020	03-06-2021
Cable	MICRO-COAX	MFR64639	K10742-5	03-07-2020	03-06-2021
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-07-2020	03-06-2021
DC Power Supply	XinNuoEr	WYK-10020K	1409050110020	09-24-2020	09-23-2021
Temperature Humidity Chamber	HengPu	HPGDS-500	20140828008	11-01-2019	11-31-2020
Simulated Station	Rohde & Schwarz	CMW500	140493	07-22-2020	07-21-2021

6. Test results

6.1 Effective Isotropic Radiated (EIRP) and Power Spectral Density (PSD)

Test Requirement:	FCC part 96.41(b), FCC part2.1046
Limit:	<table><tr><th>Device</th><th>Maximum EIRP (dBm/10 megahertz)</th><th>Maximum PSD (dBm/MHz)</th></tr><tr><td>End User Device</td><td>23</td><td>n/a</td></tr><tr><td>Category A CBSD</td><td>30</td><td>20</td></tr><tr><td>Category B CBSD[1]</td><td>47</td><td>37</td></tr></table>
Test setup	
Test Procedure:	1. RBW=1% to 5% of the OBW, VBW≥3*RBW, Detector mode= RMS 2. Trace mode: Power averaging over 100 sweeps 3. Compute power by integrating the spectrum across the OBW(10MHz) of the signal using the instrument's band or channel power measurement function with band/channel limits set equal to the OBW(10MHz) band edges. 4. Add 10log(1/duty cycle)to the measured power level to compute the average power during continuous transmission 5. EIRP=P_{meas} + G_T
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data (EIRP):

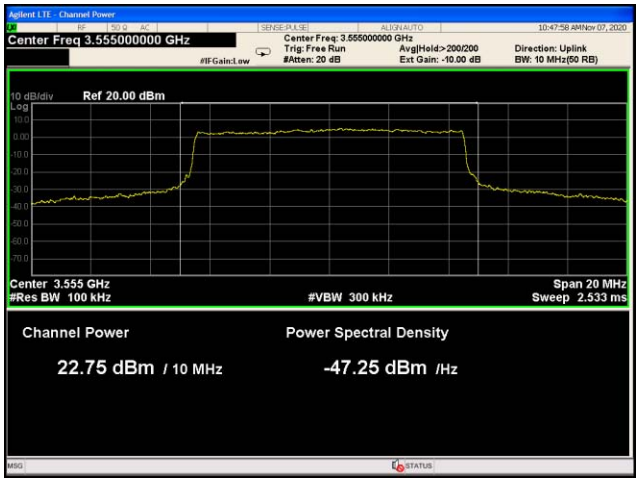
Modulation	Frequency (MHz)	ANT. Port	Output Power (dBm/10MHz)	Total Power (dBm/10MHz)	Directional gain (dBi)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)
QPSK (10MHz)	3555.00	ANT 1	22.75	26.26	18	44.26	47.00
		ANT 2	23.69				
	3625.00	ANT 1	22.24	25.30	18	43.30	
		ANT 2	22.33				
	3695.00	ANT 1	22.58	25.57	18	43.57	
		ANT 2	22.54				
64QAM (10MHz)	3555.00	ANT 1	22.73	26.03	18	44.03	
		ANT 2	23.29				
	3625.00	ANT 1	22.31	25.29	18	43.29	
		ANT 2	22.25				
	3695.00	ANT 1	22.70	25.54	18	43.54	
		ANT 2	22.36				
QPSK (15MHz)	3557.50	ANT 1	21.91	25.11	18	43.11	47.00
		ANT 2	22.28				
	3625.00	ANT 1	21.55	24.47	18	42.47	
		ANT 2	21.37				
	3692.50	ANT 1	21.70	24.43	18	42.43	
		ANT 2	21.11				
64QAM (15MHz)	3557.50	ANT 1	21.51	24.89	18	42.89	
		ANT 2	22.22				
	3625.00	ANT 1	21.36	24.24	18	42.24	
		ANT 2	21.09				
	3692.50	ANT 1	21.61	24.78	18	42.78	
		ANT 2	21.93				
QPSK (20MHz)	3560.00	ANT 1	20.56	23.97	18	41.97	47.00
		ANT 2	21.32				
	3625.00	ANT 1	20.15	23.29	18	41.29	
		ANT 2	20.40				
	3690.00	ANT 1	20.58	23.60	18	41.60	
		ANT 2	20.60				
64QAM (20MHz)	3560.00	ANT 1	20.49	23.88	18	41.88	
		ANT 2	21.22				
	3625.00	ANT 1	20.20	23.36	18	41.36	
		ANT 2	20.50				
	3690.00	ANT 1	20.63	23.53	18	41.53	
		ANT 2	20.41				

Full Transmit Output Power							
Modulation	Frequency (MHz)	ANT. Port	Output Power (dBm/15MHz)	Total Power (dBm/15MHz)	Directional gain (dBi)	EIRP (dBm/15MHz)	Limit (dBm/15MHz)
QPSK (15MHz)	3557.50	ANT 1	22.52	26.19	18	44.19	/
		ANT 2	23.76				
	3625.00	ANT 1	22.48	25.38	18	43.38	
		ANT 2	22.26				
	3692.50	ANT 1	22.97	25.49	18	43.49	
		ANT 2	21.93				
64QAM (15MHz)	3557.50	ANT 1	22.51	25.99	18	43.99	
		ANT 2	23.40				
	3625.00	ANT 1	22.18	25.18	18	43.18	
		ANT 2	22.16				
	3692.50	ANT 1	22.92	25.55	18	43.55	
		ANT 2	22.12				
Modulation	Frequency (MHz)	ANT. Port	Output Power (dBm/20MHz)	Total Power (dBm/20MHz)	Directional gain (dBi)	EIRP (dBm/20MHz)	Limit (dBm/20MHz)
QPSK (20MHz)	3560.00	ANT 1	22.48	25.71	18	43.71	/
		ANT 2	22.91				
	3625.00	ANT 1	22.21	25.35	18	43.35	
		ANT 2	22.47				
	3690.00	ANT 1	22.74	25.80	18	43.80	
		ANT 2	22.83				
64QAM (20MHz)	3560.00	ANT 1	22.02	25.38	18	43.38	
		ANT 2	22.70				
	3625.00	ANT 1	22.24	25.40	18	43.40	
		ANT 2	22.53				
	3690.00	ANT 1	22.63	25.56	18	43.56	
		ANT 2	22.46				

Test plot as below:

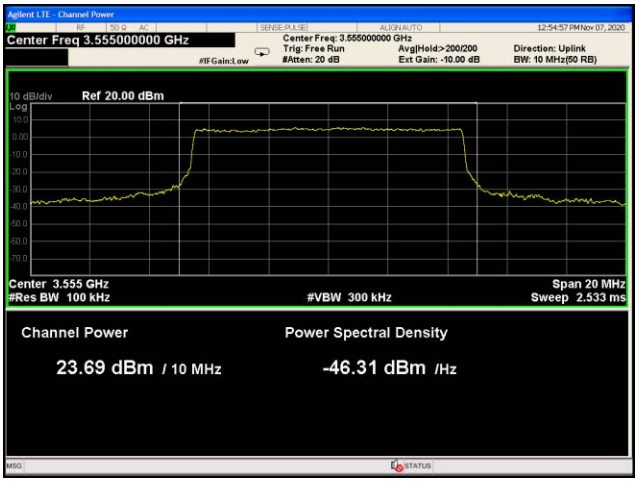
Bandwidth=10MHz – QPSK

ANT 1



Lowest channel

ANT 2



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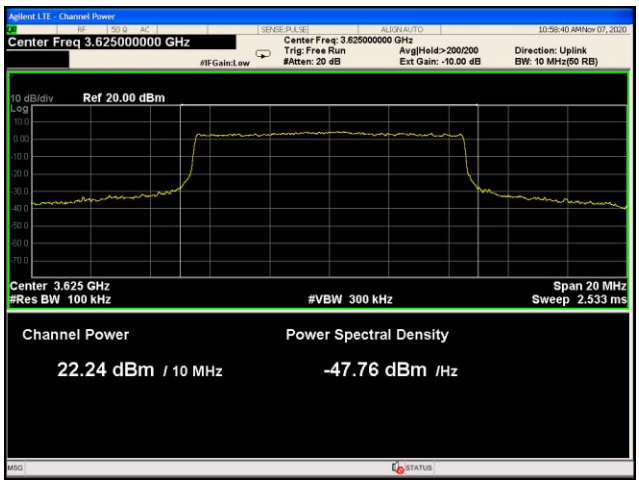
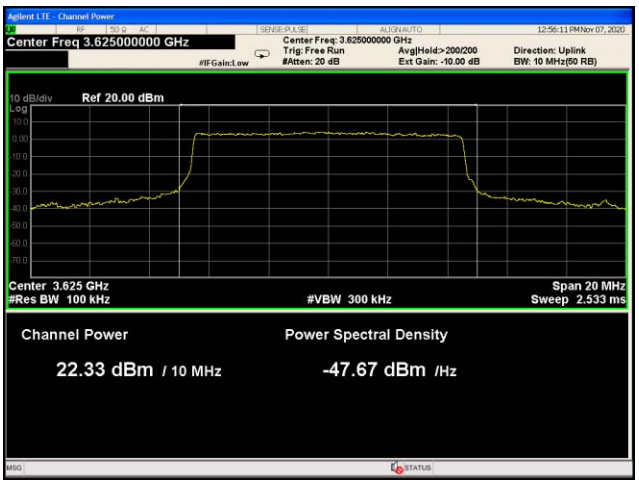
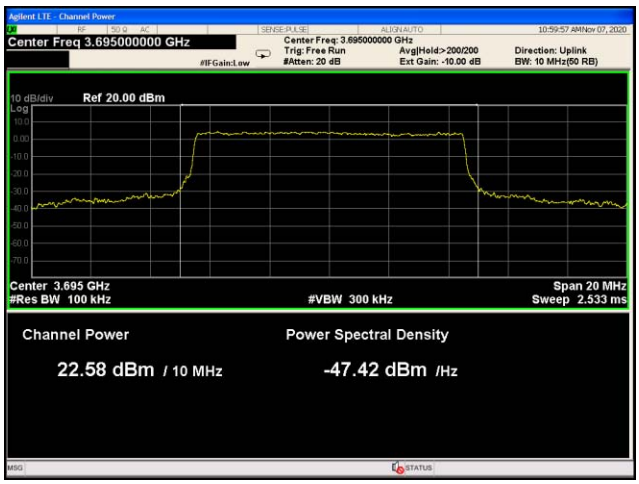


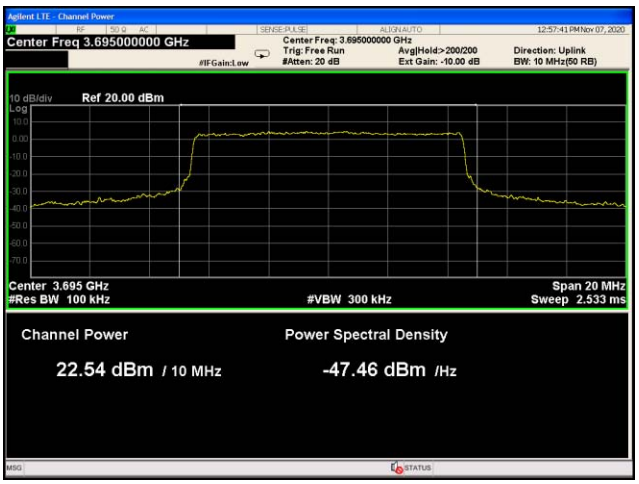
Middle channel



Middle channel



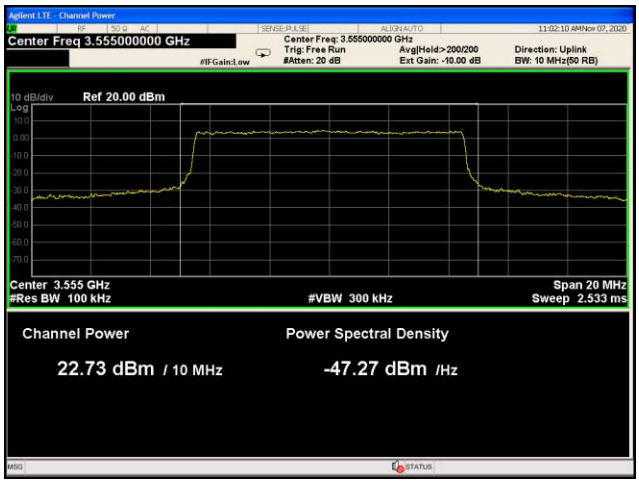
Highest channel



Highest channel

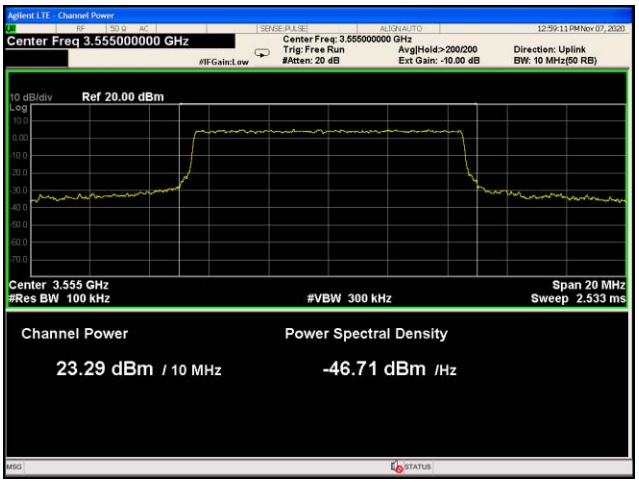
Bandwidth=10MHz – 64QAM

ANT 1



Lowest channel

ANT 2



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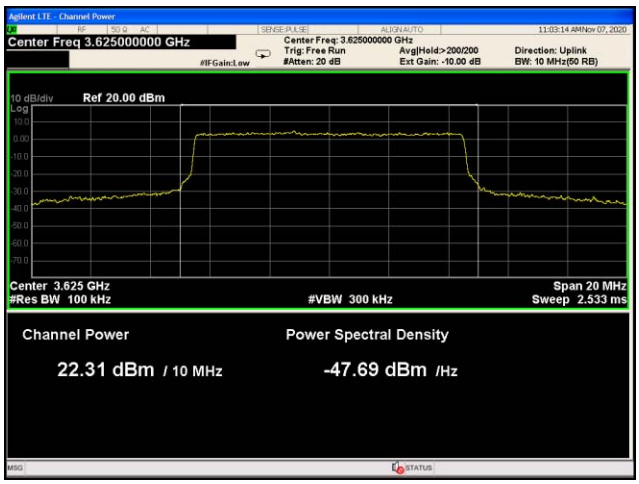

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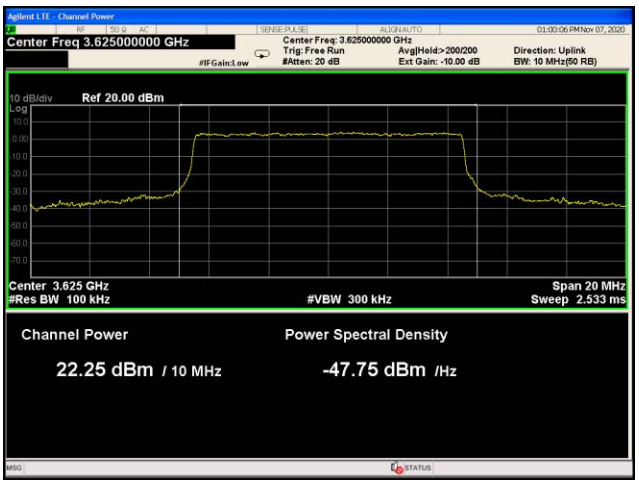

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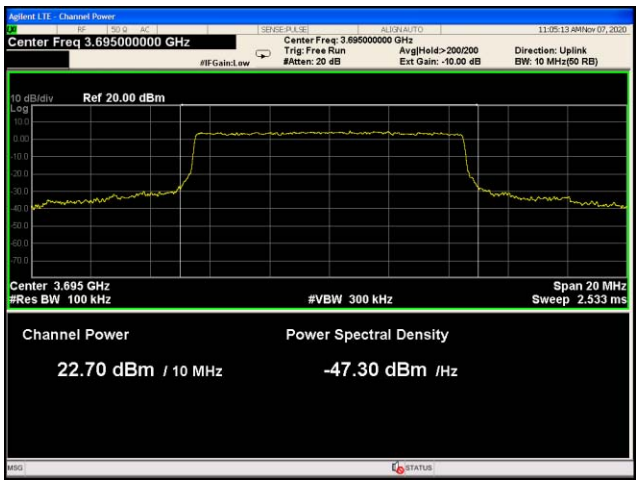
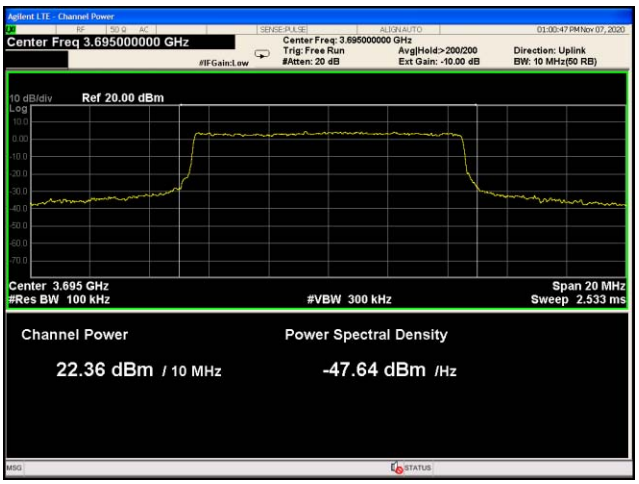


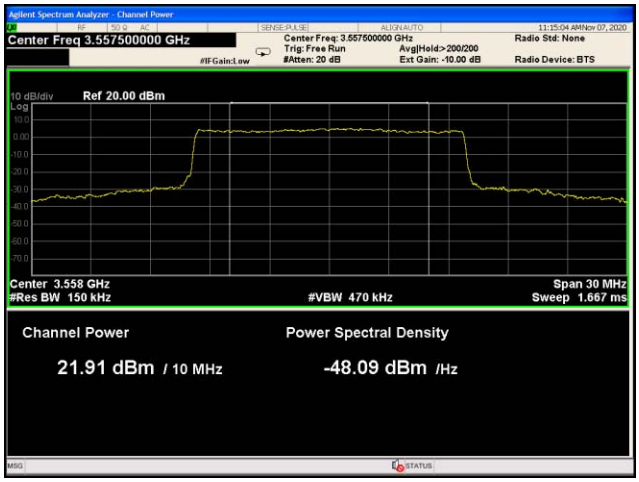
Highest channel



Highest channel

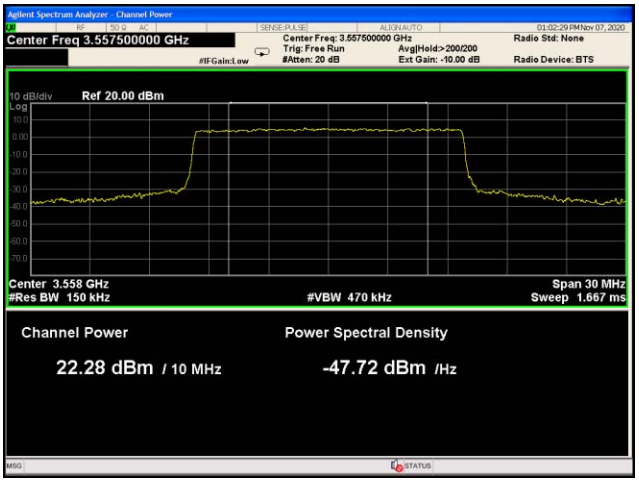
Bandwidth=15MHz – QPSK

ANT 1



Lowest channel

ANT 2



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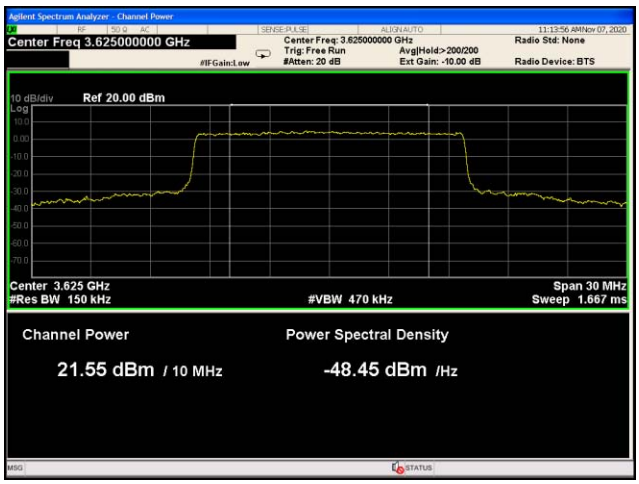

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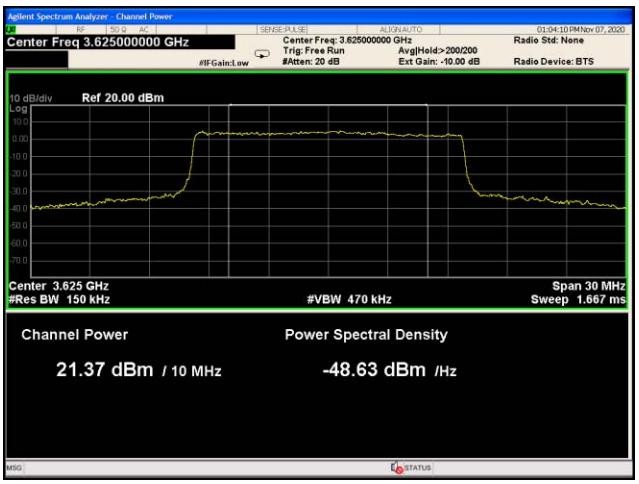
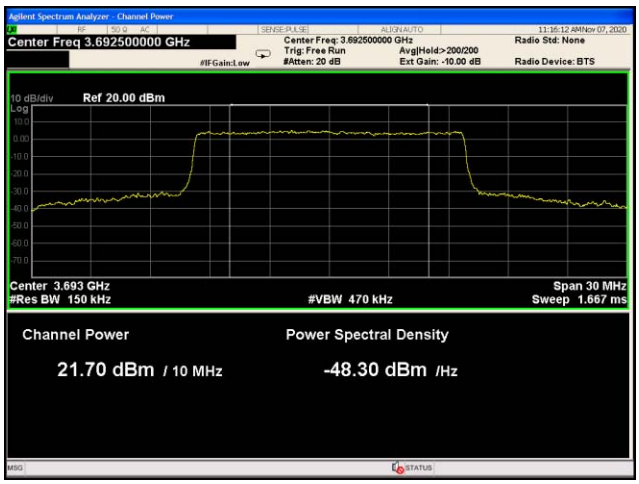
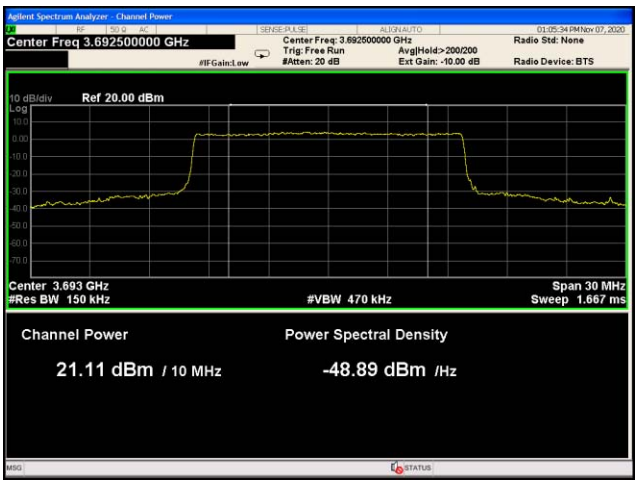


Middle channel



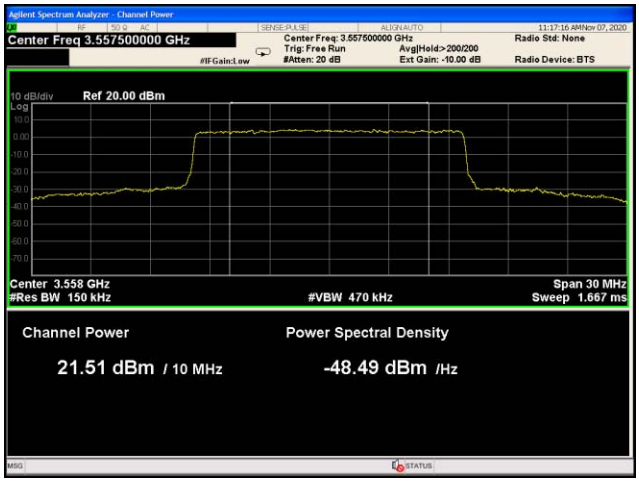
Highest channel



Highest channel

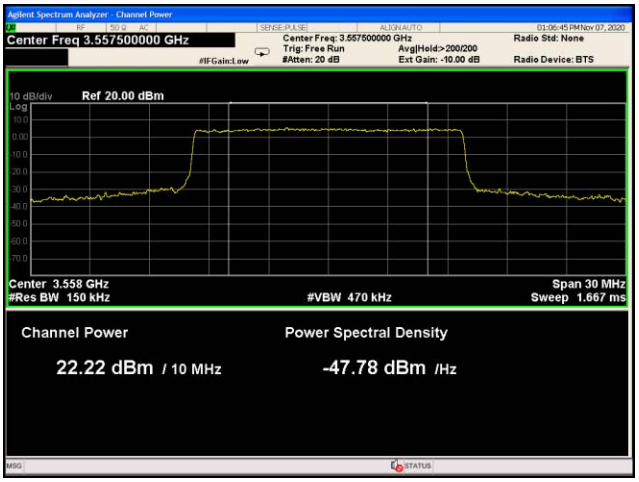
Bandwidth=15MHz – 64QAM

ANT 1



Lowest channel

ANT 2



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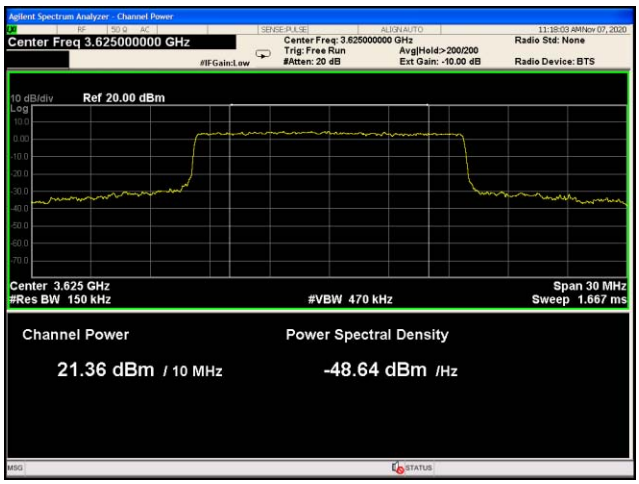

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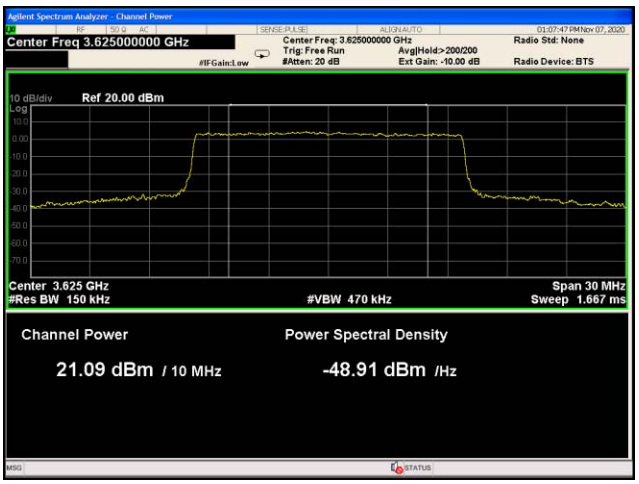

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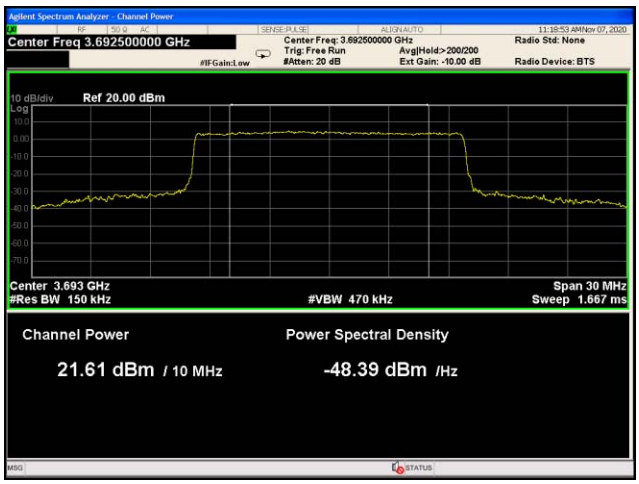
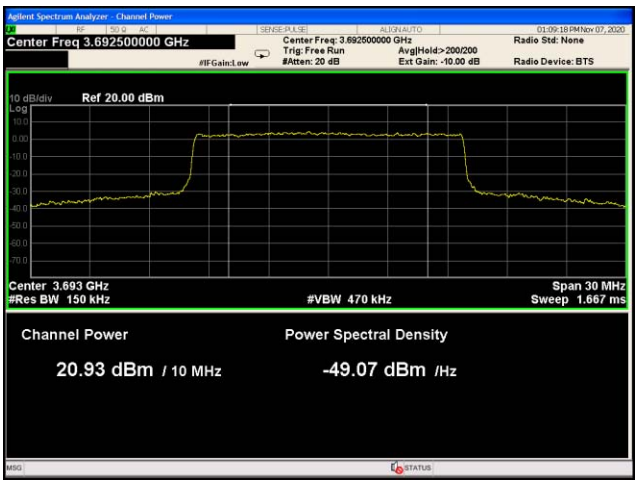


Highest channel



Highest channel

Bandwidth=20MHz – QPSK

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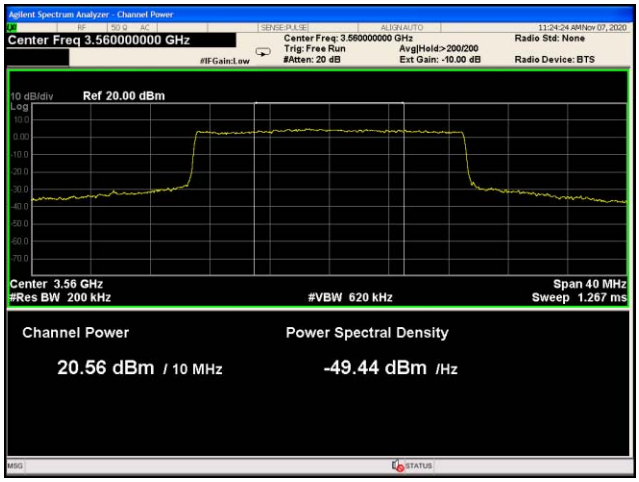

Lowest channel

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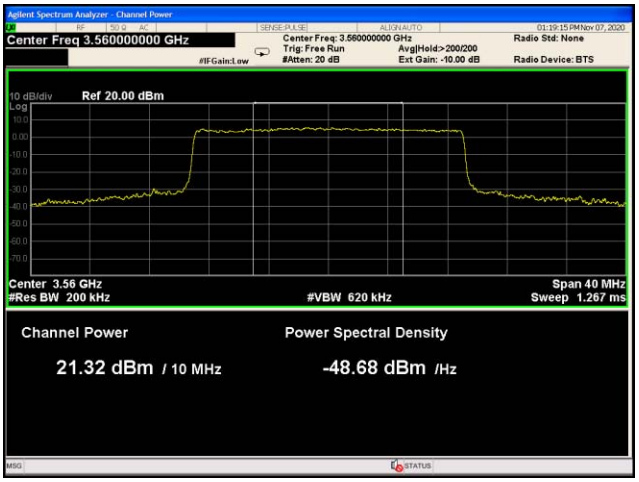

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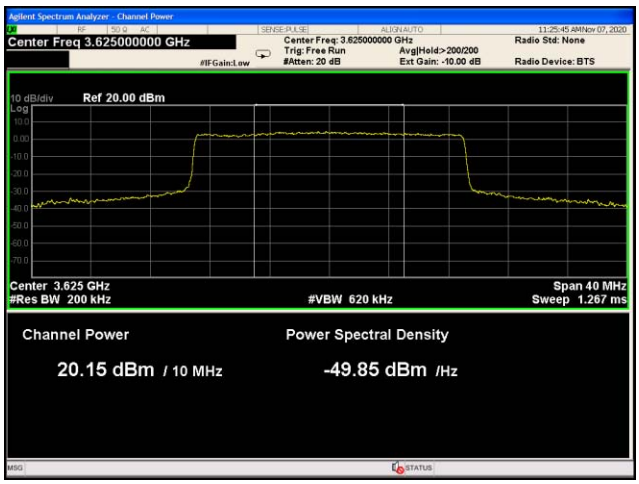
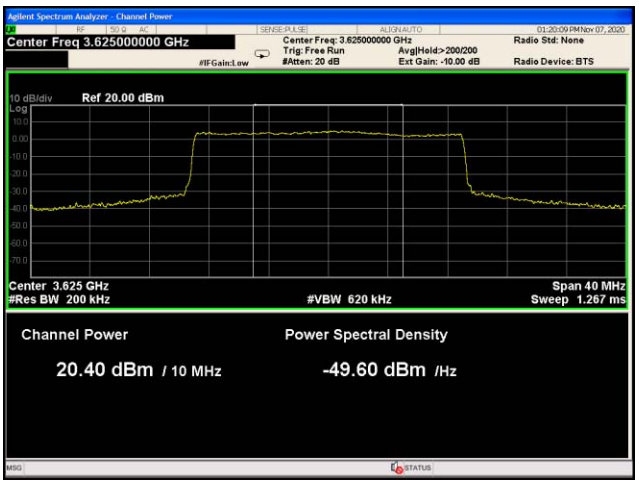
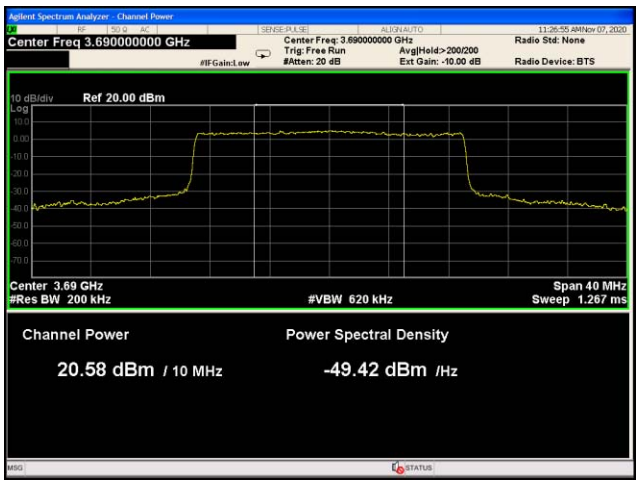


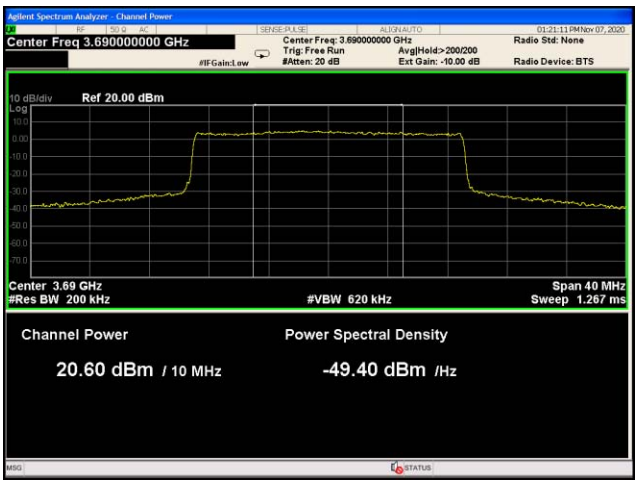
Middle channel



Middle channel



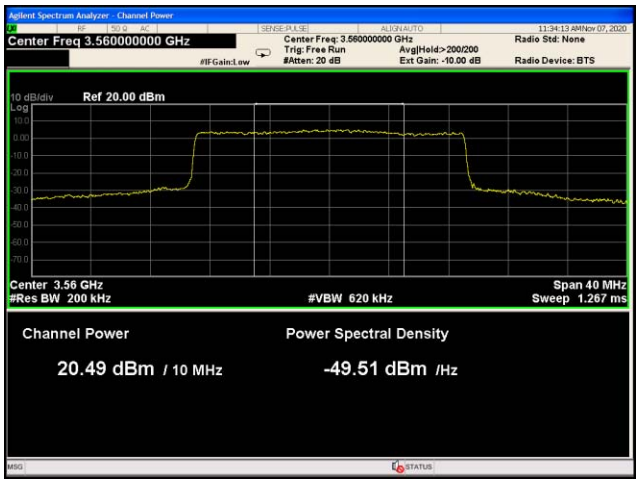
Highest channel



Highest channel

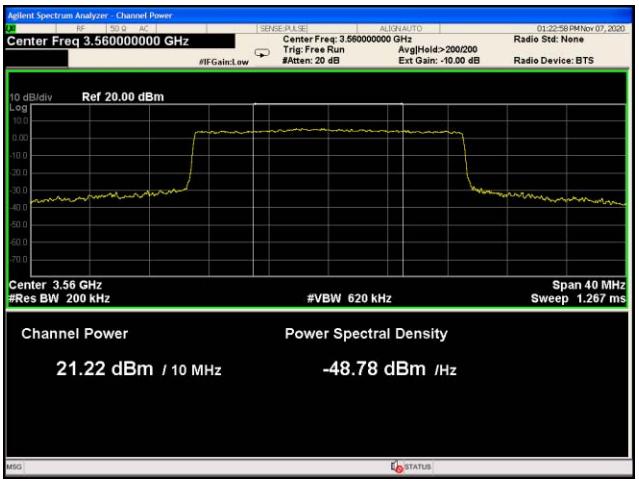
Bandwidth=20MHz – 64QAM

ANT 1

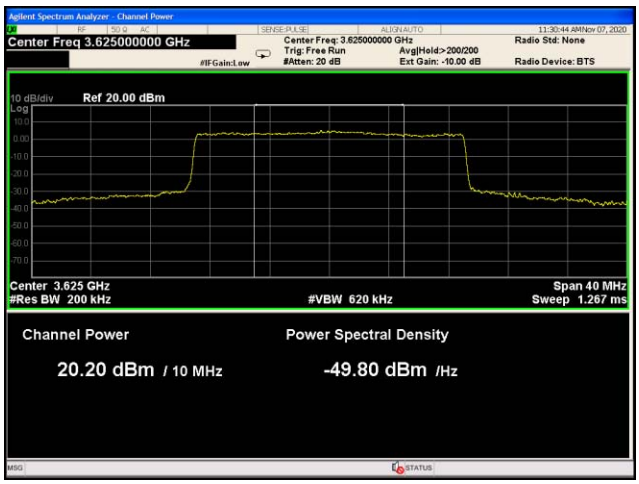


Lowest channel

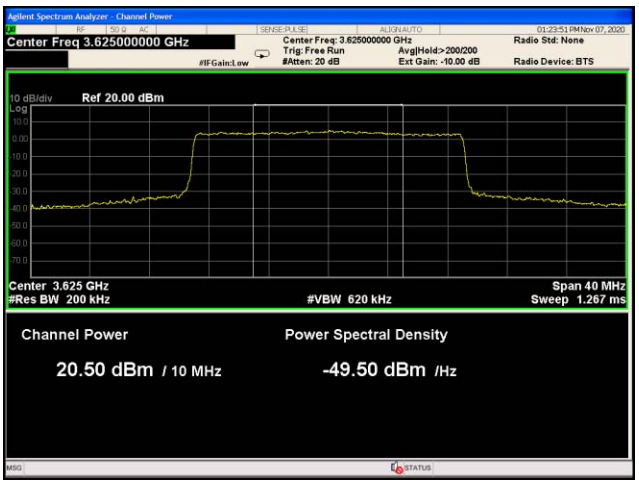
ANT 2



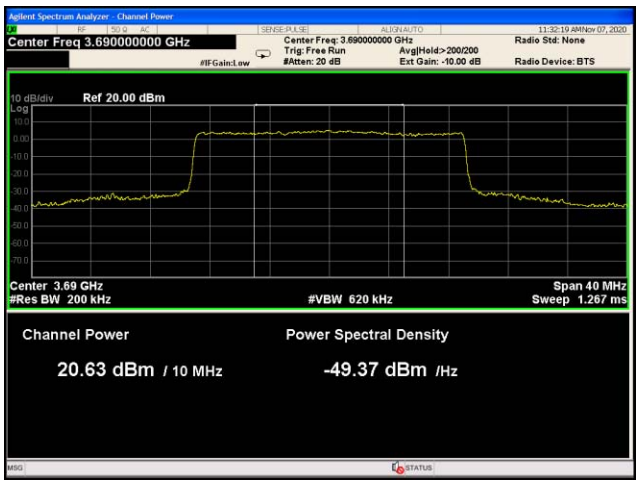
Lowest channel



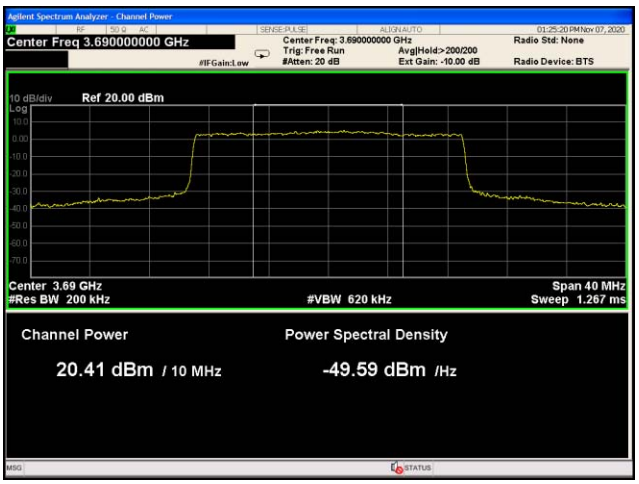
Middle channel



Middle channel



Highest channel

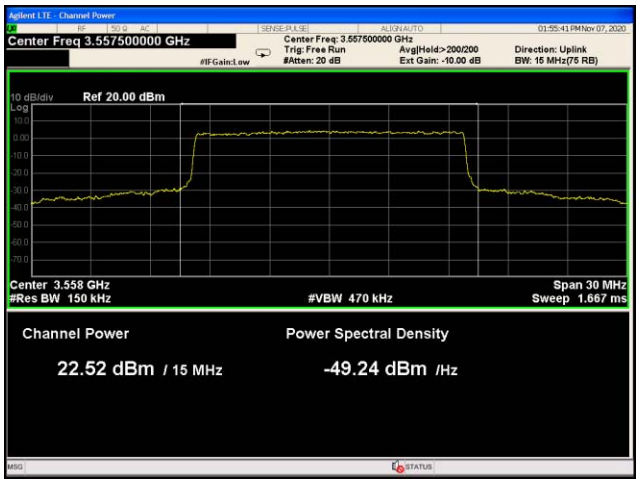


Highest channel

Full Transmit Output Power

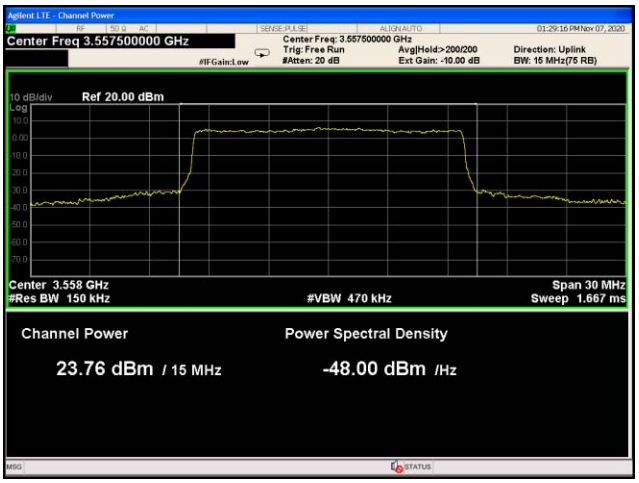
Bandwidth=15MHz – QPSK

ANT 1

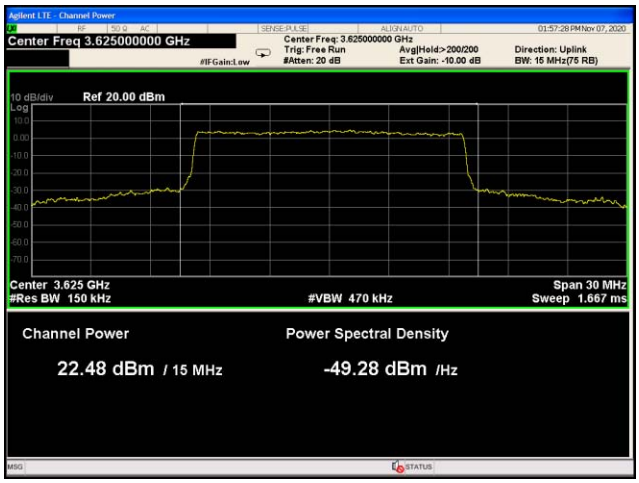


Lowest channel

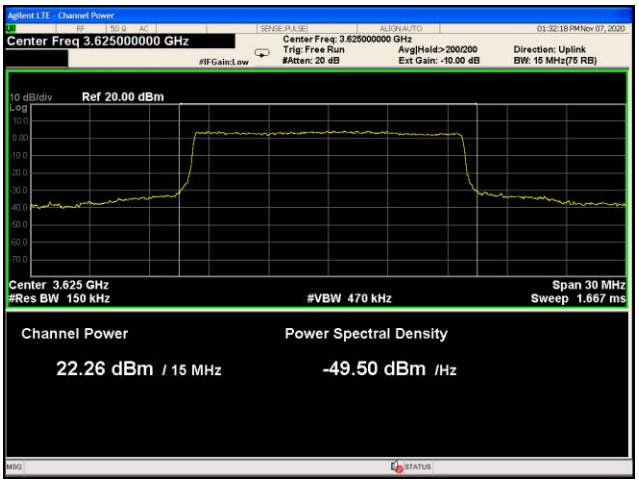
ANT 2



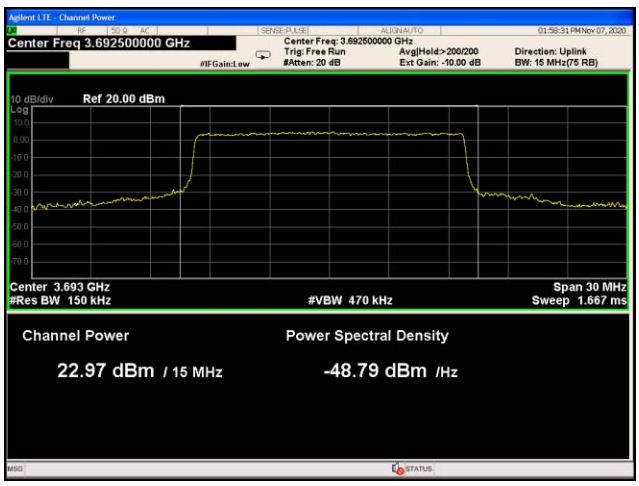
Lowest channel



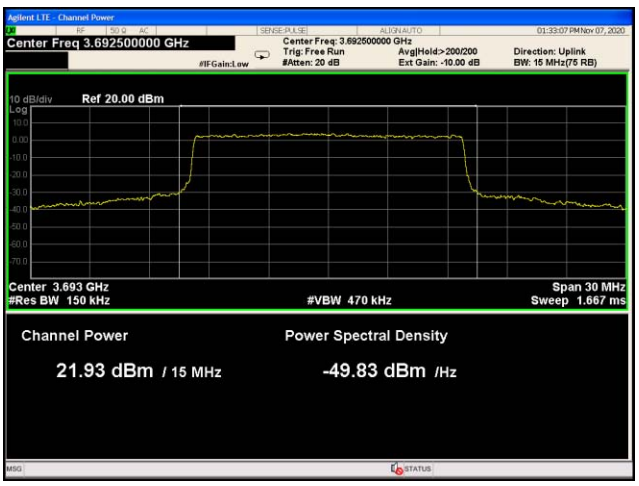
Middle channel



Middle channel



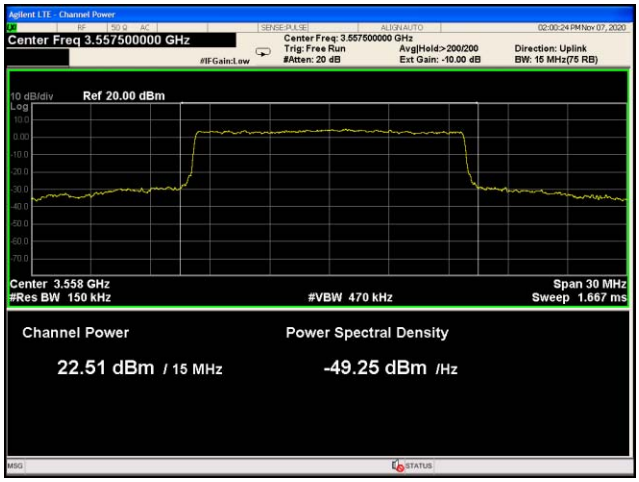
Highest channel



Highest channel

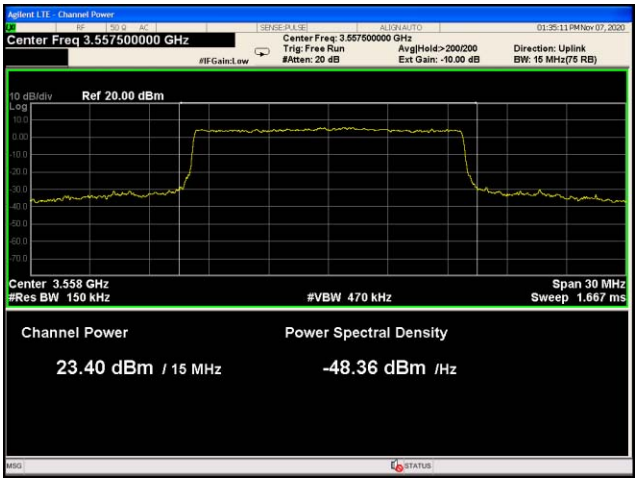
Bandwidth=15MHz – 64QAM

ANT 1

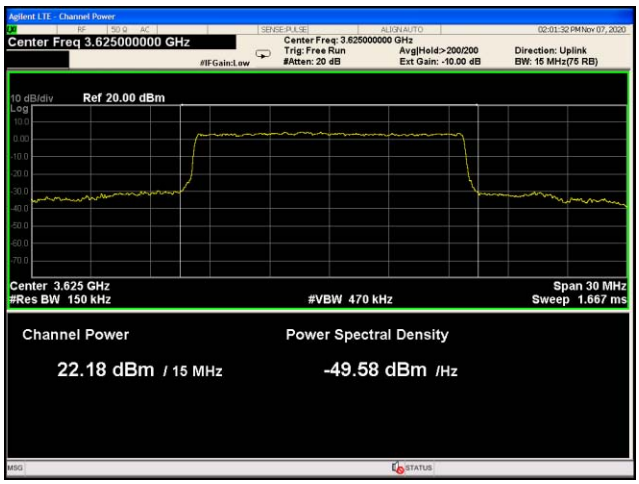


Lowest channel

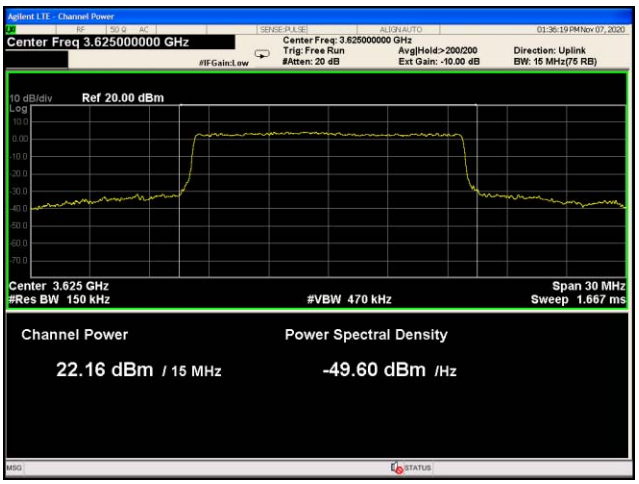
ANT 2



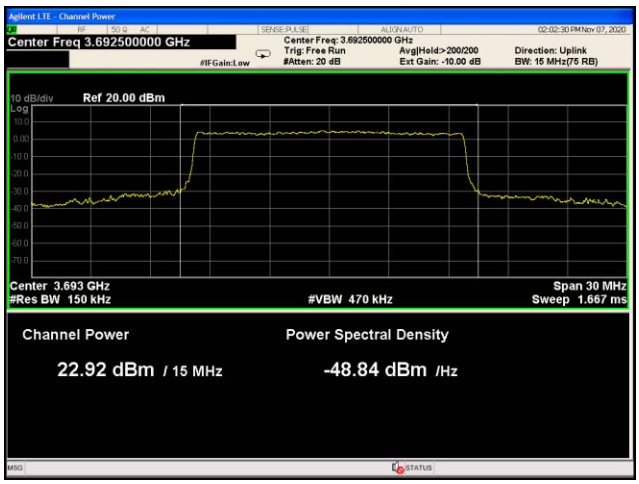
Lowest channel



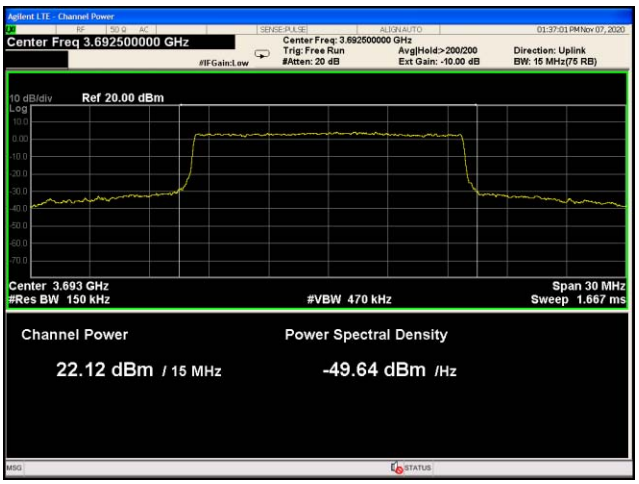
Middle channel



Middle channel



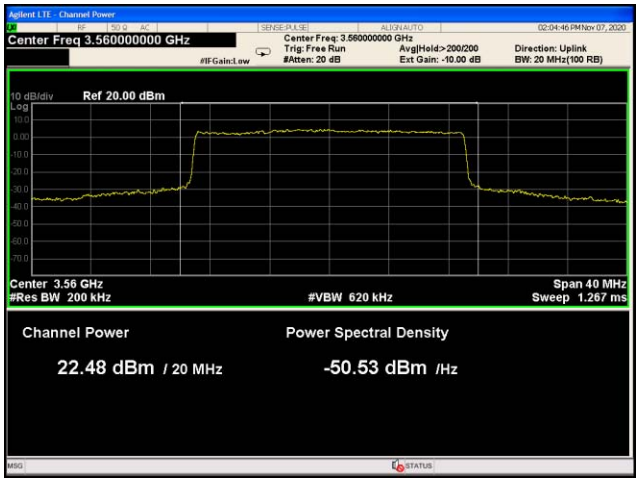
Highest channel



Highest channel

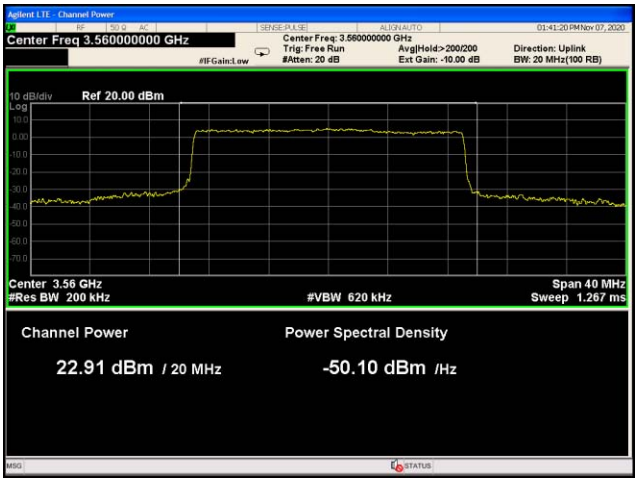
Bandwidth=20MHz – QPSK

ANT 1

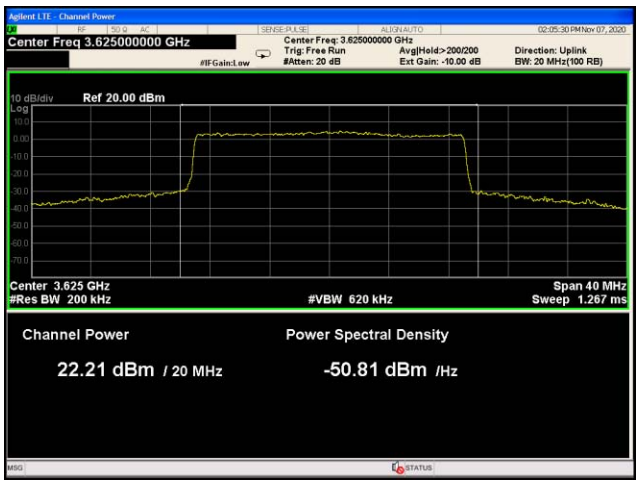


Lowest channel

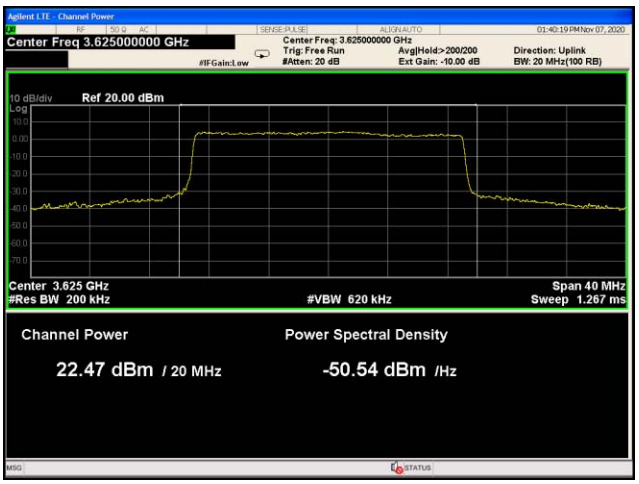
ANT 2



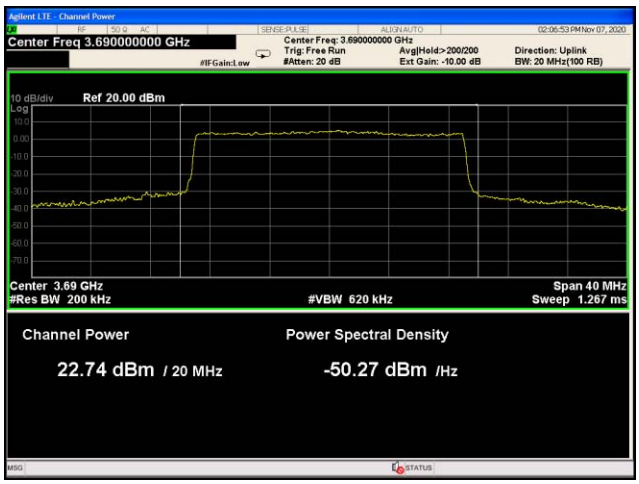
Lowest channel



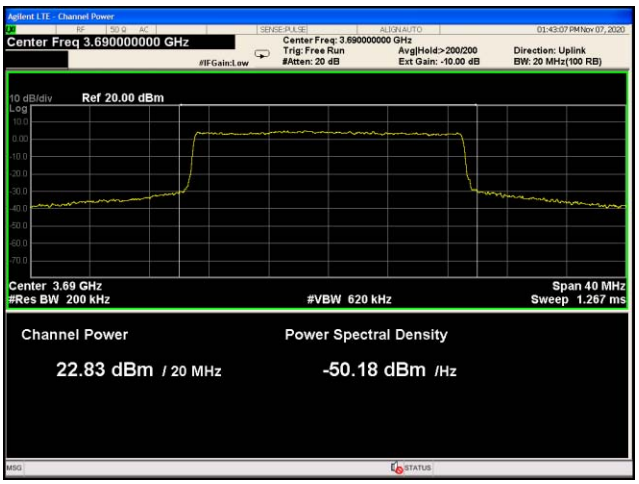
Middle channel



Middle channel



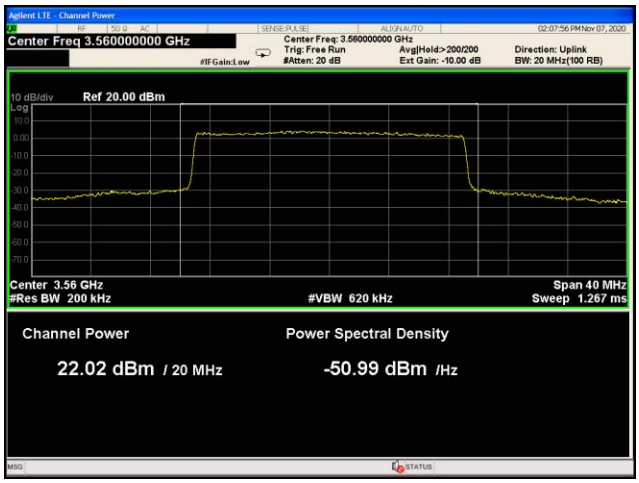
Highest channel



Highest channel

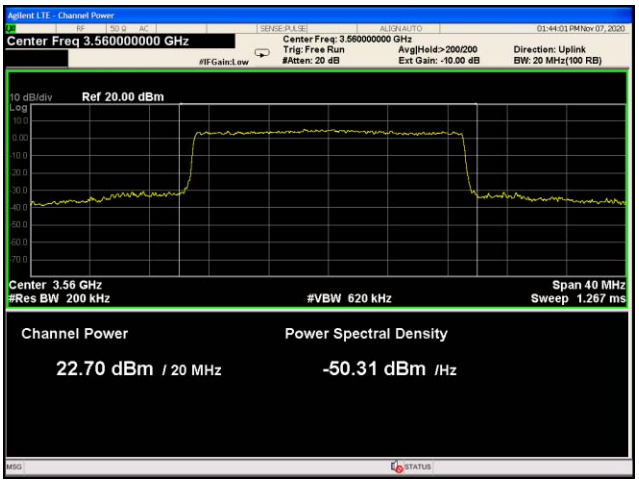
Bandwidth=20MHz – 64QAM

ANT 1

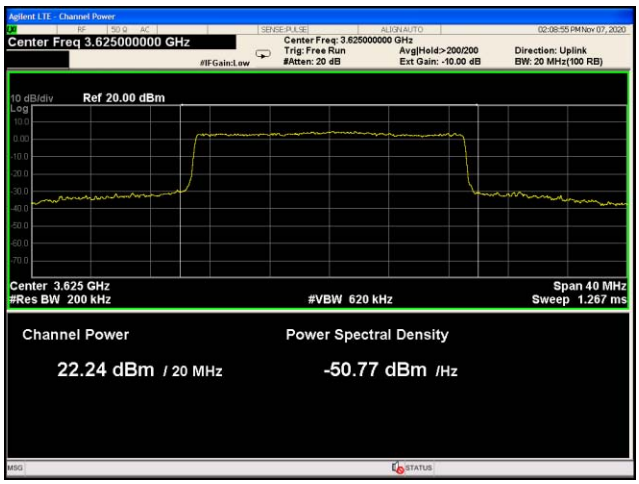


Lowest channel

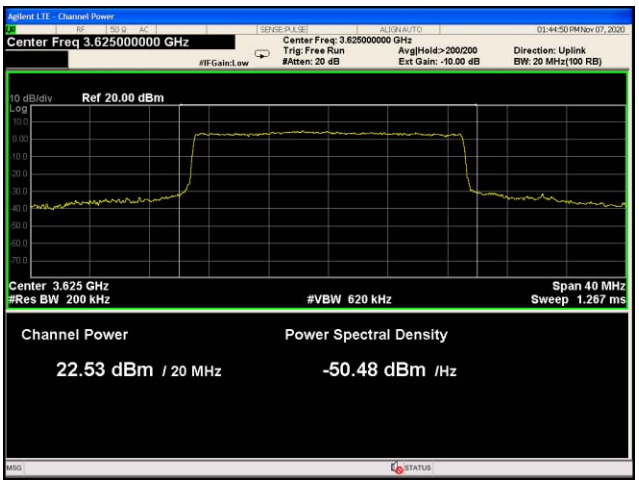
ANT 2



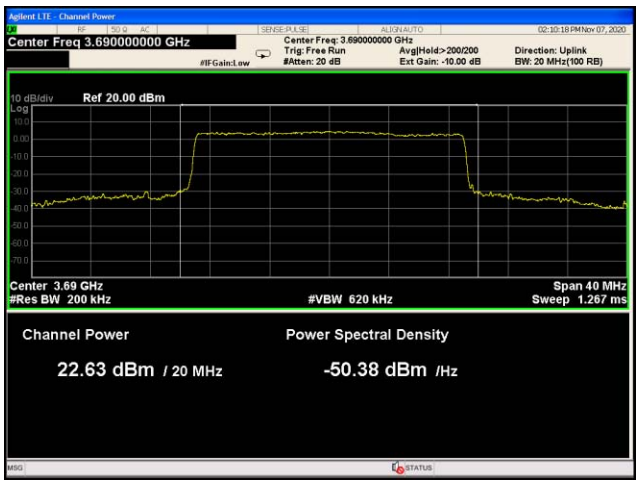
Lowest channel



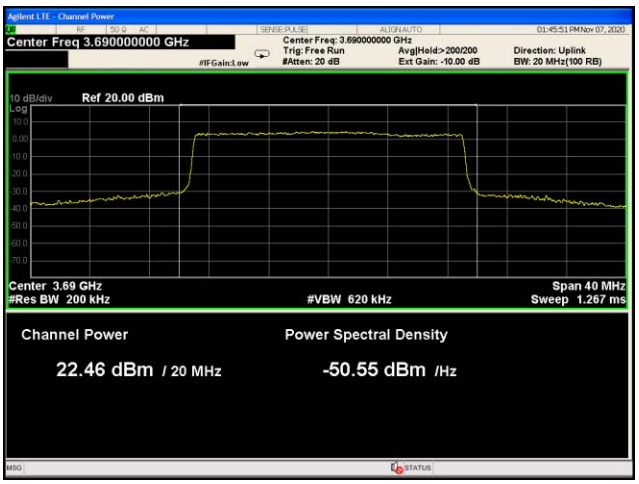
Middle channel



Middle channel



Highest channel



Highest channel

Measurement Data (PSD):

Modulation	Frequency (MHz)	ANT. Port	PSD (dBm/MHz)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)
QPSK (10MHz)	3555.00	ANT 1	14.231	17.88	18	35.88	37.00
		ANT 2	15.433				
	3625.00	ANT 1	14.368	17.61	18	35.61	
		ANT 2	14.812				
	3695.00	ANT 1	14.732	17.39	18	35.39	
		ANT 2	13.993				
64QAM (10MHz)	3555.00	ANT 1	14.453	18.04	18	36.04	
		ANT 2	15.534				
	3625.00	ANT 1	14.042	17.44	18	35.44	
		ANT 2	14.791				
	3695.00	ANT 1	14.765	17.36	18	35.36	
		ANT 2	13.887				
QPSK (15MHz)	3557.50	ANT 1	13.024	16.42	18	34.42	37.00
		ANT 2	13.760				
	3625.00	ANT 1	12.859	15.90	18	33.90	
		ANT 2	12.927				
	3692.50	ANT 1	13.209	16.01	18	34.01	
		ANT 2	12.770				
64QAM (15MHz)	3557.50	ANT 1	12.907	16.34	18	34.34	
		ANT 2	13.719				
	3625.00	ANT 1	13.132	15.90	18	33.90	
		ANT 2	12.640				
	3692.50	ANT 1	13.053	15.83	18	33.83	
		ANT 2	12.564				
QPSK (20MHz)	3560.00	ANT 1	11.962	15.35	18	33.35	37.00
		ANT 2	12.691				
	3625.00	ANT 1	12.015	15.12	18	33.12	
		ANT 2	12.204				
	3690.00	ANT 1	11.956	14.96	18	32.96	
		ANT 2	11.935				
64QAM (20MHz)	3560.00	ANT 1	11.932	15.42	18	33.42	
		ANT 2	12.843				
	3625.00	ANT 1	11.782	14.85	18	32.85	
		ANT 2	11.894				
	3690.00	ANT 1	12.249	15.09	18	33.09	
		ANT 2	11.901				

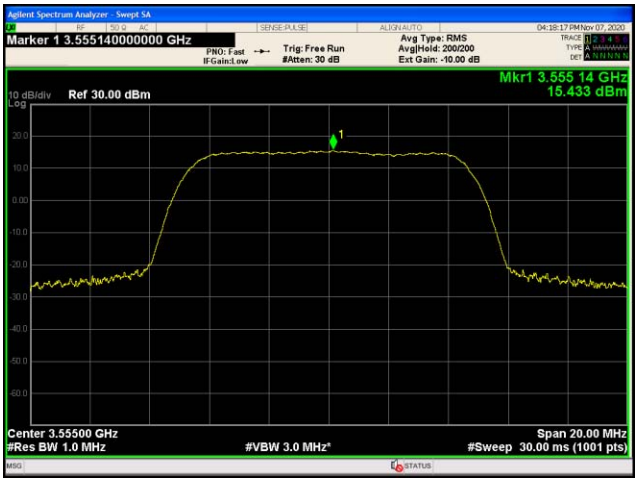
Test plot as below:

Bandwidth=10MHz – QPSK

ANT 1

Lowest channel

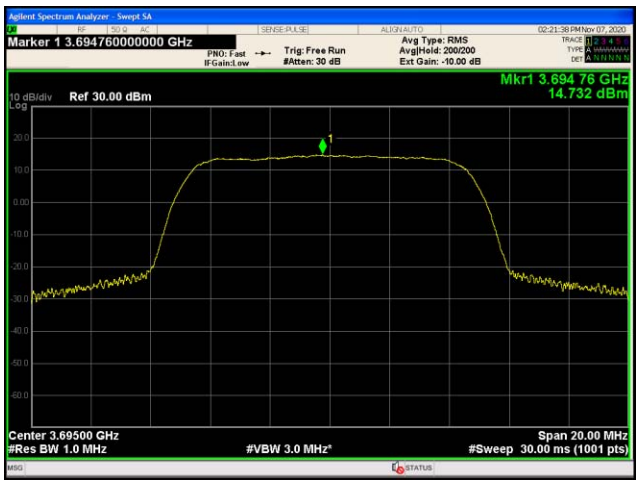
ANT 2



Lowest channel

Middle channel

Middle channel



Highest channel

Highest channel

Bandwidth=10MHz – 64QAM

ANT 1

Lowest channel

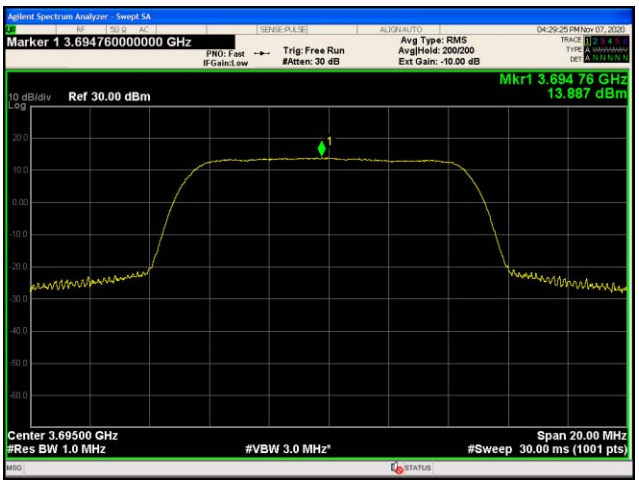
ANT 2

Lowest channel

Middle channel

Middle channel

Highest channel



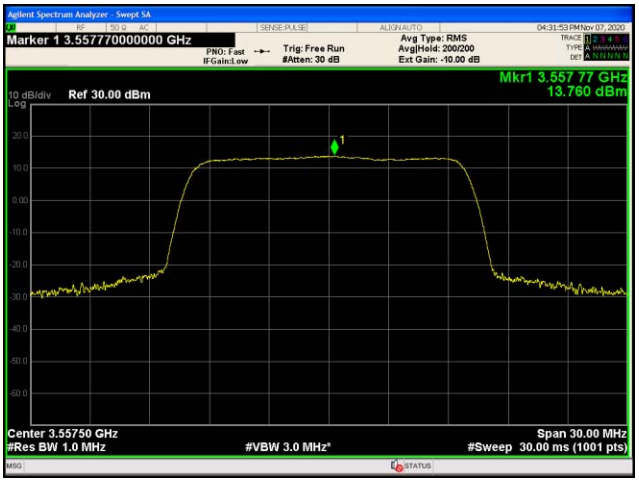
Highest channel

Bandwidth=15MHz – QPSK

ANT 1

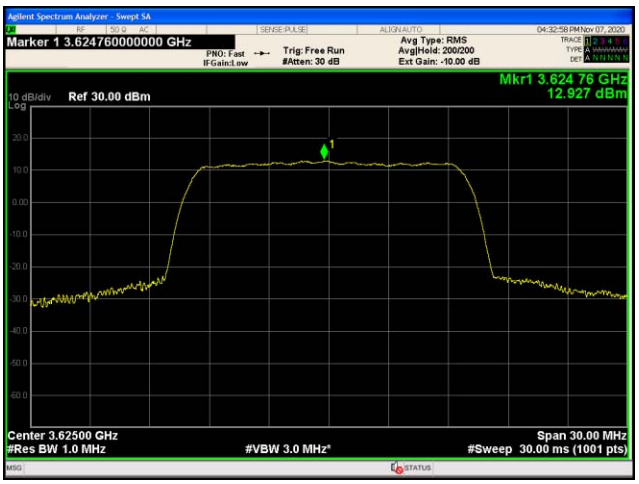
Lowest channel

ANT 2

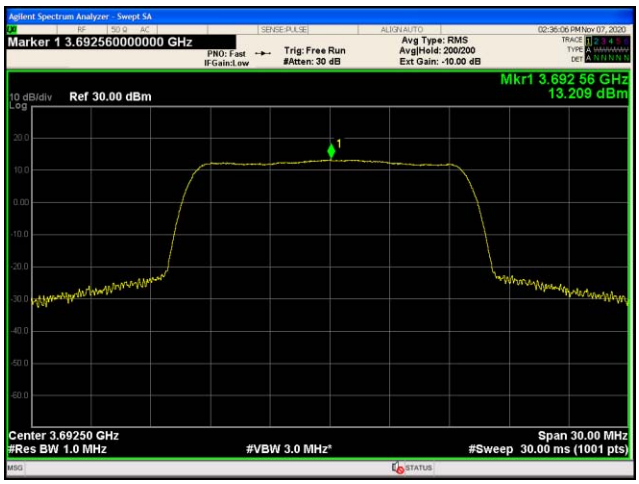


Lowest channel

Middle channel



Middle channel



Highest channel

Highest channel

Bandwidth=15MHz – 64QAM

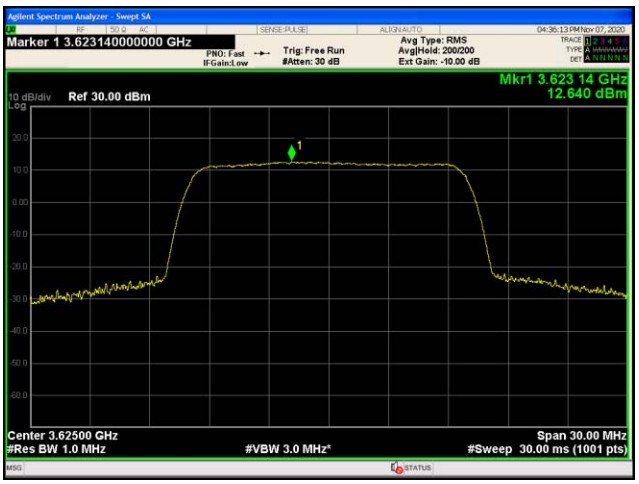
ANT 1

Lowest channel

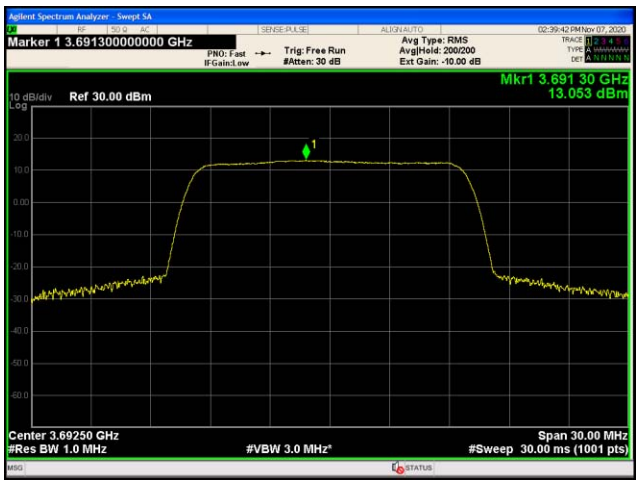
ANT 2

Lowest channel

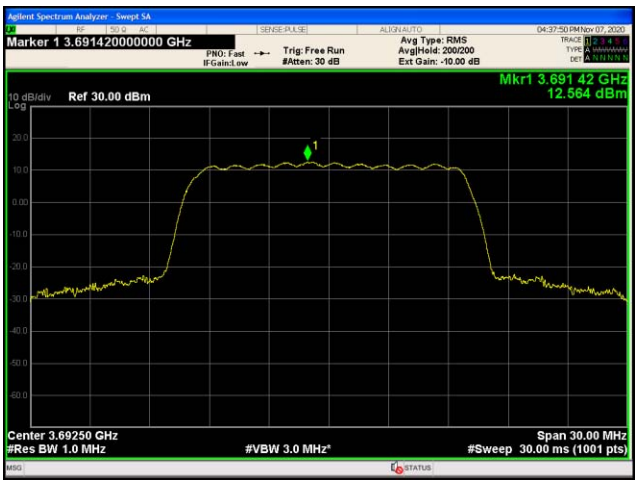
Middle channel



Middle channel



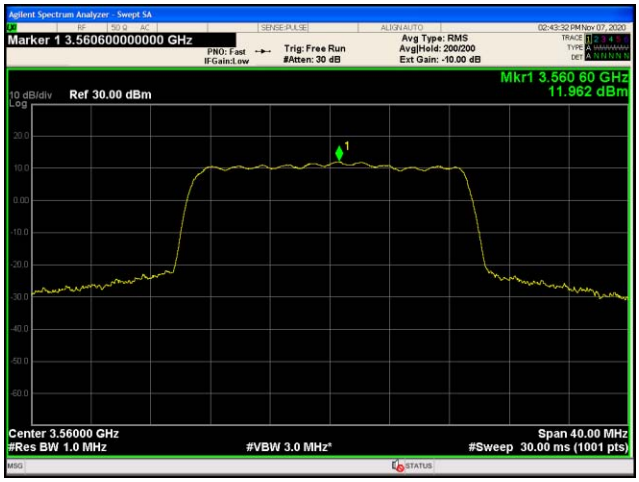
Highest channel



Highest channel

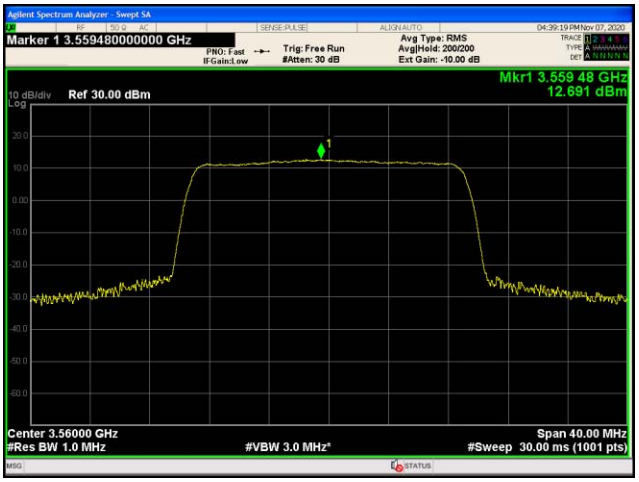
Bandwidth=20MHz – QPSK

ANT 1

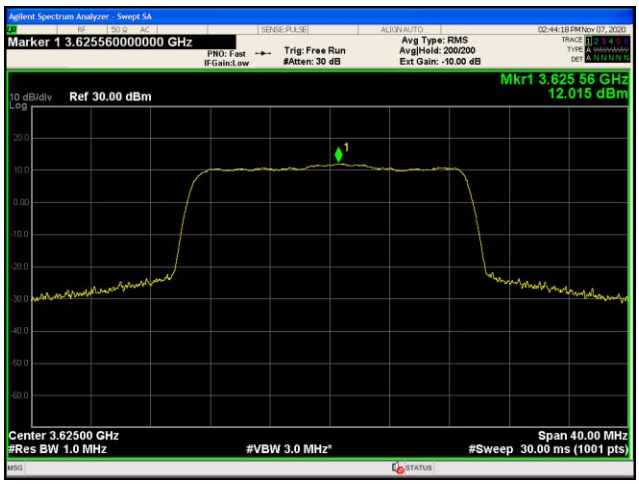


Lowest channel

ANT 2

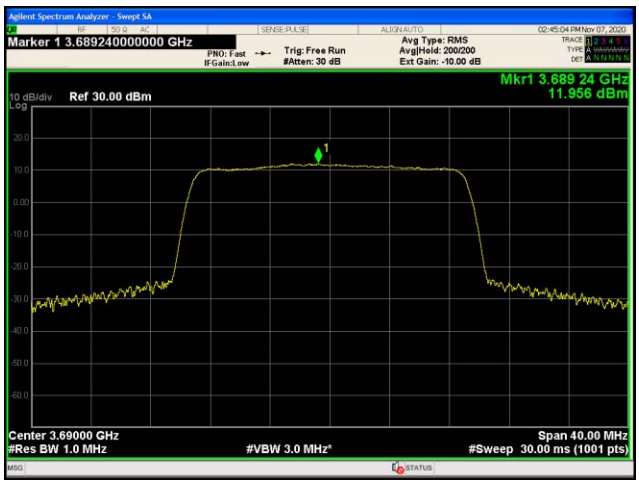


Lowest channel

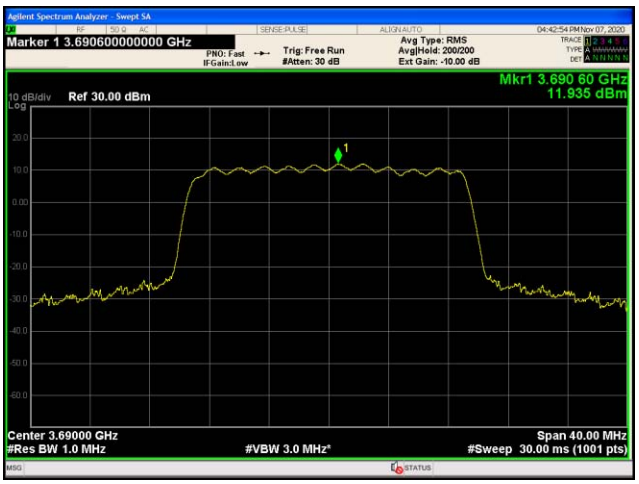


Middle channel

Middle channel



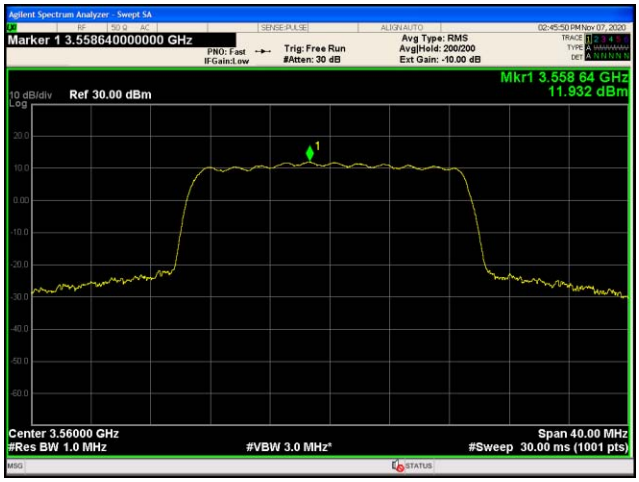
Highest channel



Highest channel

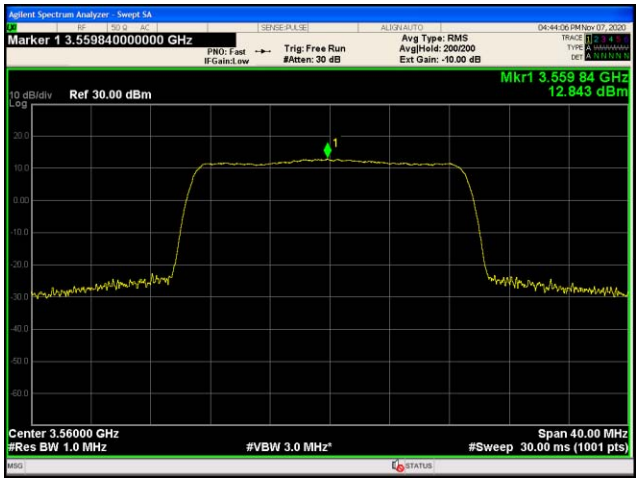
Bandwidth=20MHz – 64QAM

ANT 1

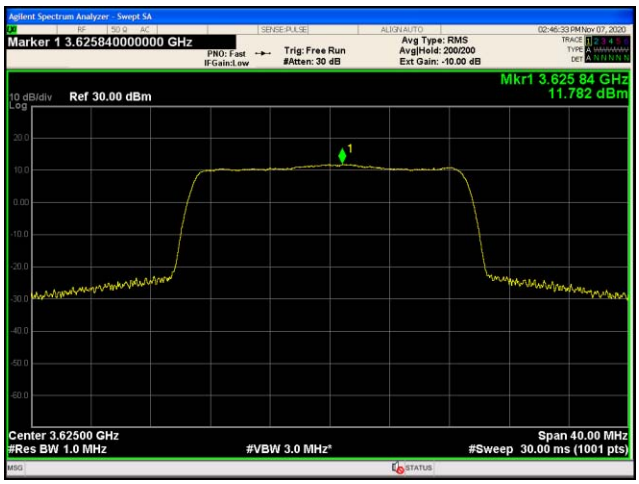


Lowest channel

ANT 2

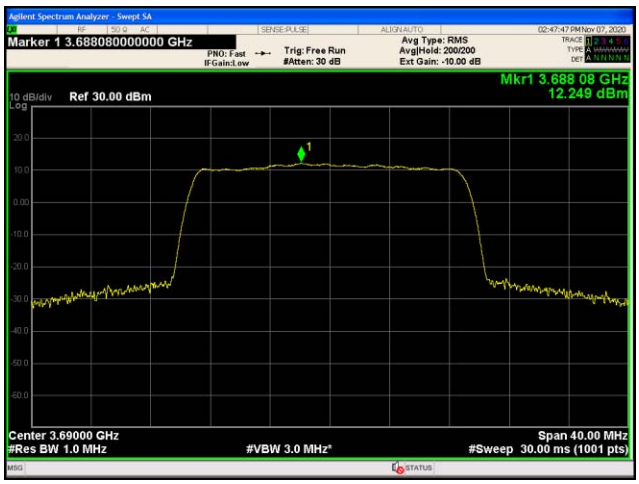


Lowest channel

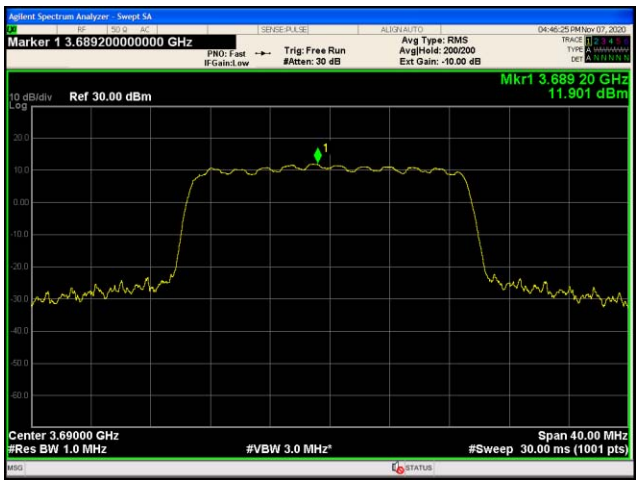


Middle channel

Middle channel

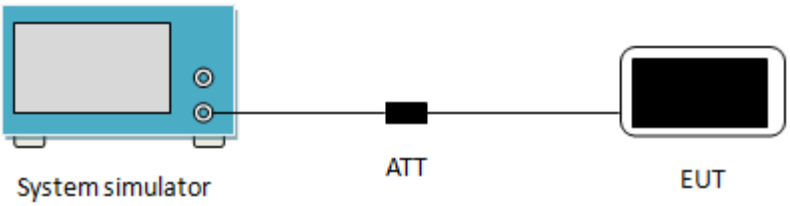


Highest channel



Highest channel

6.2 Peak-to-Average Power Ratio (PAPR)

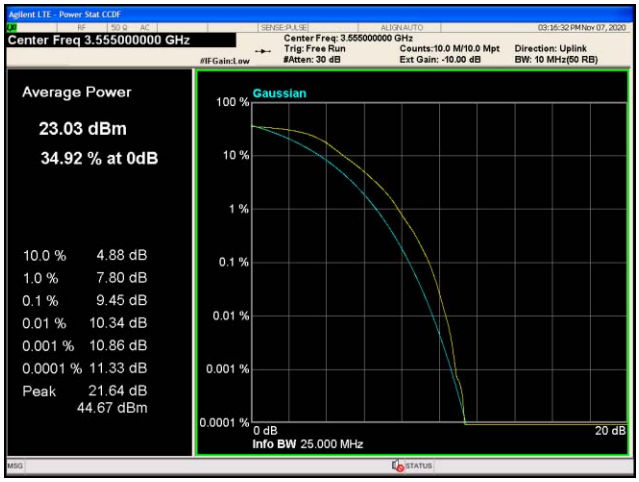
Test Requirement:	FCC part 96.41(g)
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test setup:	
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 Set the CCDF option in spectrum analyzer, RBW ≥ OBW, 3 Set the EUT working in highest power level, measured and recorded the 0.1% as PAPR level. 4 Repeat step 1~3 at other frequency and modulations.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

Modulation	Frequency (MHz)	ANT. Port 1	ANT. Port 2	Limit (dBm)
QPSK (10MHz)	3555.00	9.45	9.13	13.00
	3625.00	9.62	9.10	
	3695.00	9.34	9.30	
QPSK (15MHz)	3557.50	9.97	10.08	
	3625.00	9.83	9.71	
	3692.50	10.17	9.72	
QPSK (20MHz)	3560.00	9.40	9.53	
	3625.00	9.56	8.96	
	3690.00	9.32	9.40	

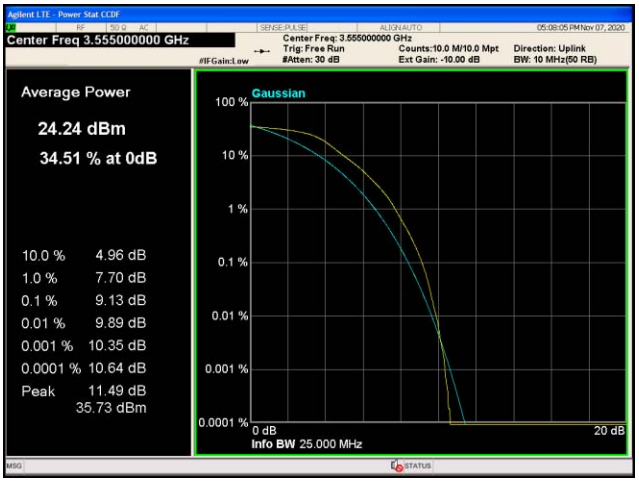
Bandwidth=10MHz – QPSK

ANT 1



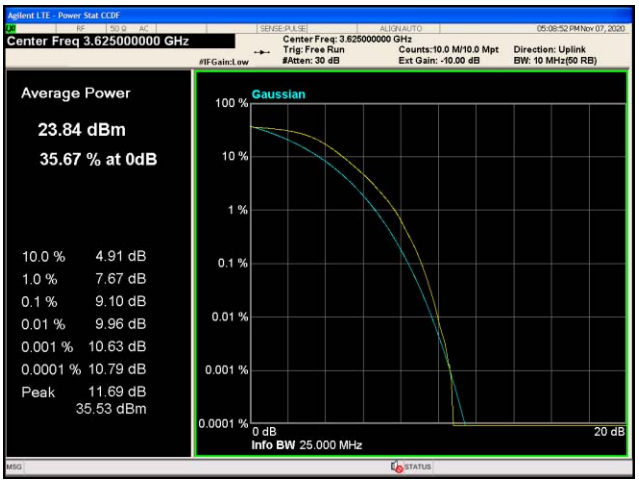
Lowest channel

ANT 2



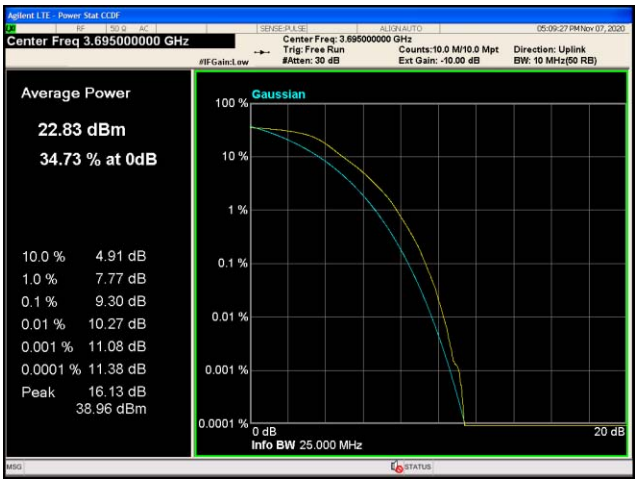
Lowest channel

Middle channel



Middle channel

Highest channel



Highest channel

Bandwidth=15MHz – QPSK

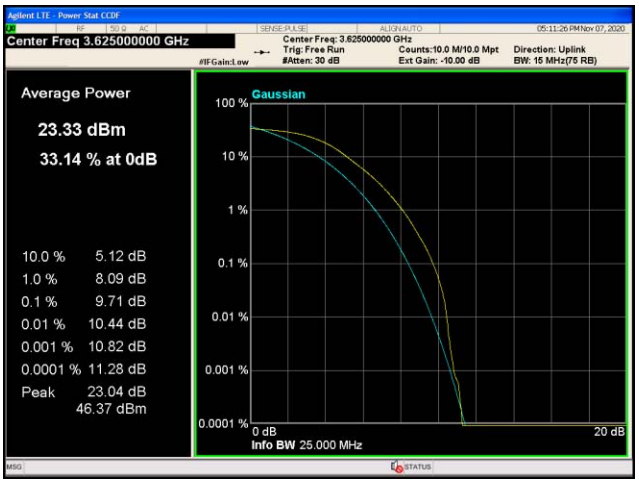
ANT 1

Lowest channel

ANT 2

Lowest channel

Middle channel



Middle channel

Highest channel

Highest channel