

FCC/IC REPORT

(UNII)

Applicant: Baicells Technologies Co., Ltd.

Address of Applicant: 3F, Hui Yuan Development Building, No.1 Shangdi Information Industry Base, Haidian Dist., Beijing, China

Equipment Under Test (EUT)

Product Name: LTE-FDD Base Station

Model No.: u4G-AP1000

Trade mark: BaiCells

FCC ID: 2AG32U4GAP1000

Canada IC: 20982-U4GAP1000

FCC CFR Title 47 Part 15 Subpart E Section 15.407

Applicable standards: RSS-247 Issue 2, February 2017
RSS-Gen Issue 4, November 2014

Date of sample receipt: 08 Jan., 2018

Date of Test: 08 Jan., to 23 Jan., 2018

Date of report issued: 23 Jan., 2018

Test Result: PASS*

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

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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2 Version

Version No.	Date	Description
00	23 Jan., 2018	Original

Tested by:



Date:

23 Jan., 2018

Test Engineer

Reviewed by:



Date:

23 Jan., 2018

Project Engineer

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.407 (a)	Pass
AC Power Line Conducted Emission	15.207 RSS-GEN Section 8.8	Pass
Conducted Peak Output Power	15.407 (a)(3) RSS-247 Section 6.2.4.1	Pass
6dB Emission Bandwidth	15.407(e) RSS-247 Section 6.2.4.1	Pass
Power Spectral Density	15.407 (a)(3) RSS-247 Section 6.2.4.1	Pass
Band Edge	15.407(b)(4) RSS-247 Section 6.2.4.2	Pass
Spurious Emission	15.205/15.209 15.407(b)(4) RSS-GEN Section 6.13 RSS-247 Section 6.2.4.2	Pass
Frequency Stability	15.407(g)	Pass
<i>Pass: The EUT complies with the essential requirements in the standard.</i>		

5 General Information

5.1 Client Information

Applicant:	Baicells Technologies Co., Ltd.
Address of Applicant:	3F, Hui Yuan Development Building, No.1 Shangdi Information Industry Base, Haidian Dist., Beijing, China
Manufacturer:	Baicells Technologies Co., Ltd.
Address of Manufacture:	3F, Hui Yuan Development Building, No.1 Shangdi Information Industry Base, Haidian Dist., Beijing, China

5.2 General Description of E.U.T.

Product Name:	LTE-FDD Base Station
Model No.:	u4G-AP1000
Operation Frequency:	Downlink: 5725MHz-5825MHz (for Tx frequency band) Uplink: 5150MHz-5250MHz (for Rx frequency band)
Operation mode:	Fixed point-to-point operation
Modulation type:	QPSK, 16-QAM, 64-QAM
Antenna type:	Panel antenna
Antenna gain:	14 dBi
Power supply:	DC 48
AC adapter:	Model: EUV-096S048SV 96W Input: AC100-240V, 50/60Hz, 1.2A Output: DC 48V, 2A

Test Frequency List			
10MHz Bandwidth		20MHz Bandwidth	
Test Channel	Frequency	Test Channel	Frequency
Lowest channel	5730 MHz	Lowest channel	5735 MHz
Middle channel	5775 MHz	Middle channel	5775 MHz
Highest channel	5820 MHz	Highest channel	5815 MHz

5.3 Test environment and mode

Operating Environment:	
Temperature:	Normal: 15°C ~ 35°C, Extreme: -30°C ~ +50°C
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: 120Vac, Extreme: Low 102Vac, High 138Vac
Test mode:	
QPSK mode	Keep the EUT communication with simulated station in QPSK mode
16-QAM mode	Keep the EUT communication with simulated station in 16-QAM mode
64-QAM mode	Keep the EUT communication with simulated station in 64-QAM mode
Remark:	
- The EUT has been tested under continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing. The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for these modes with power adaptor, earphone and Data cable. Just the worst case position (H mode) shown in report. - Pre-scan all modulation mode (QPSK, 16QAM, 64QAM), and found the QPSK and 64QAM modulation mode are the worst case. So the worst case shown in report.	

5.4 Description of Support Units

Test Equipment	Manufacturer	Model No.	Serial No.
/	/	/	/

5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Radiated Emission (9kHz ~ 30MHz)	4.24 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	4.35 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	4.44 dB (k=2)
Radiated Emission (18GHz ~ 26.5GHz)	4.56 dB (k=2)

5.6 Related Submittal(s) / Grant (s)

This is an original grant, no related submittals and grants.

5.7 Laboratory Facility

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

- **FCC - Registration No.: 727551**

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

- **IC - Registration No.: 10106A-1**

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

- **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

- **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>

5.8 Laboratory Location

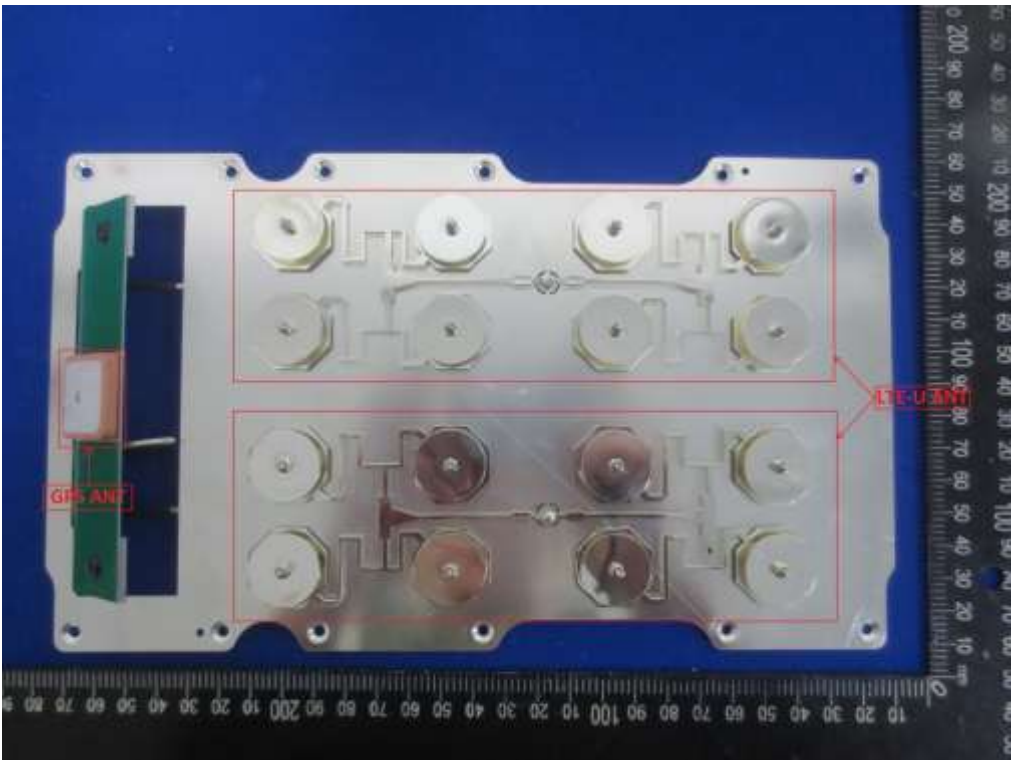
Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

5.9 Test Instruments list

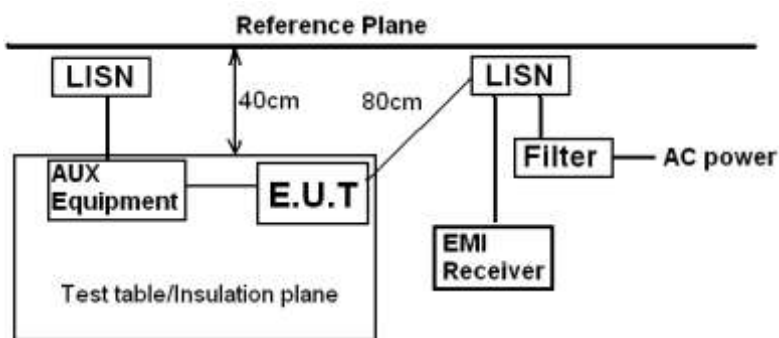
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	02-25-2017	02-24-2018
Biconical Antenna	SCHWARZBECK	VUBA9117	359	06-22-2017	06-21-2018
Horn Antenna	SCHWARZBECK	BBHA9120D	916	02-25-2017	02-24-2018
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	02-25-2017	02-24-2018
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A
Pre-amplifier	HP	8447D	2944A09358	02-25-2017	02-24-2018
Pre-amplifier	CD	PAP-1G18	11804	02-25-2017	02-24-2018
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	02-25-2017	02-24-2018
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	02-25-2017	02-24-2018
Spectrum Analyzer	Agilent	N9020A	MY50510123	10-29-2017	10-28- 2018
Signal Generator	Rohde & Schwarz	SMX	835454/016	02-25-2017	02-24- 2018
Signal Generator	R&S	SMR20	1008100050	02-25-2017	02-24-2018
RF Switch Unit	MWRFTTEST	MW200	N/A	N/A	N/A
Cable	ZDECL	Z108-NJ-NJ-81	1608458	02-25-2017	02-24-2018
Cable	MICRO-COAX	MFR64639	K10742-5	02-25-2017	02-24-2018
Cable	SUHNER	SUCOFLEX100	58193/4PE	02-25-2017	02-24-2018
DC Power Supply	XinNuoEr	WYK-10020K	1409050110020	10-31-2017	10-30-2018
Temperature Humidity Chamber	HengPu	HPGDS-500	20140828008	09-24-2017	09-23-2018
Simulated Station	Rohde & Schwarz	CMW500	140493	06-24-2017	06-23-2018

6 Test results and Measurement Data

6.1 Antenna requirement

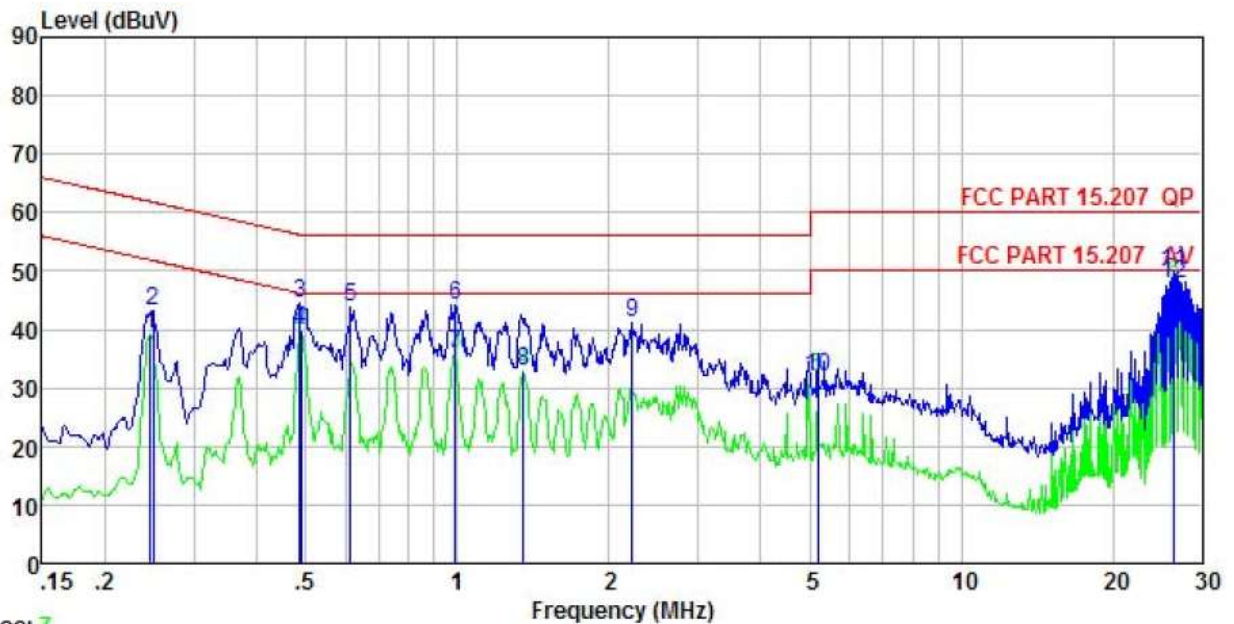
Standard requirement:	FCC Part15 E Section 15.203 /407(a)
15.203 requirement: <i>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</i> <i>This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.</i>	
E.U.T Antenna:	
The EUT antenna is an internal antenna which cannot be replaced by end-user, the best case gain of the antenna is 14 dBi.	
	

6.2 Conducted Emission

Test Requirement:	FCC Part 15.207 and RSS-GEN Section 8.8		
Test Method:	ANSI C63.4: 2014		
TestFrequencyRange:	150kHz to 30MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9kHz, VBW=30kHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test procedure	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). It provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.		
Test setup:	 Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m		
Test Instruments:	Refer to section 5.9 for details		
Test mode:	Refer to section 5.3 for details.		
Test results:	Passed		

Measurement Data:

Test Polarization: Line



Trace: 7

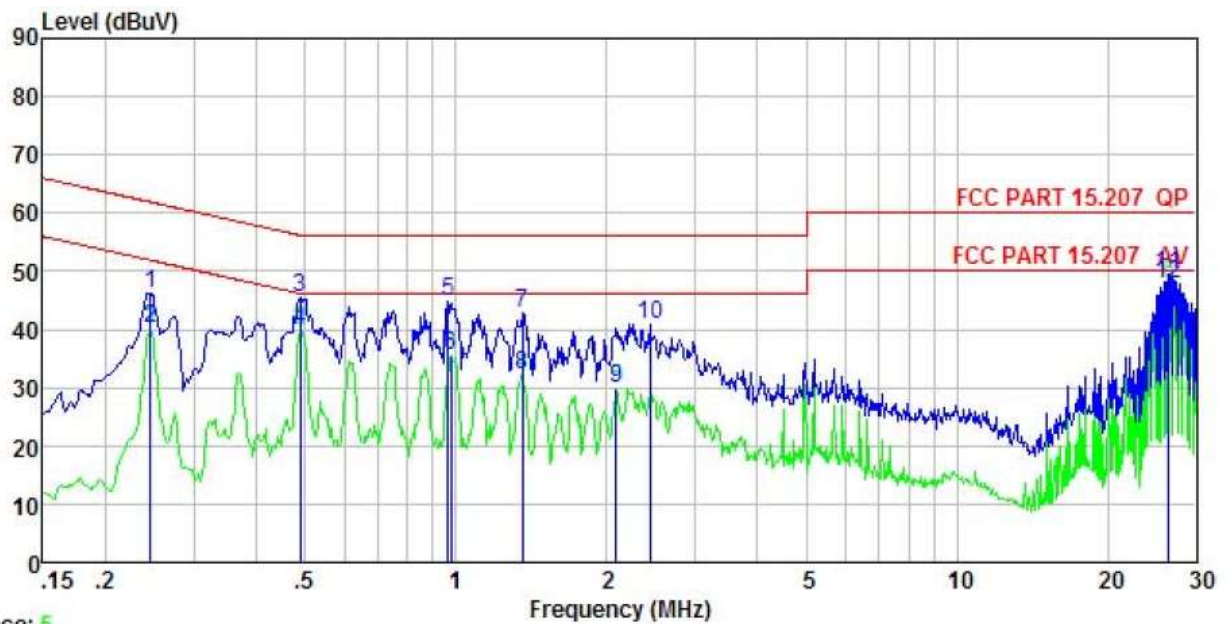
Site : CCIS Shielding Room
 Condition : FCC PART 15.207 QP LISN(RS) LINE
 EUT : LTE-FDD Base Station
 Model : u4G-AP1000
 Test Mode : TX Mode
 Power Rating : AC 120V/60Hz
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa
 Test Engineer: MT
 Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.246	27.83	0.74	10.75	39.32	51.91	-12.59	Average
2	0.249	31.68	0.74	10.75	43.17	61.78	-18.61	QP
3	0.486	33.00	0.76	10.76	44.52	56.23	-11.71	QP
4	0.489	28.44	0.76	10.76	39.96	46.19	-6.23	Average
5	0.614	32.38	0.77	10.77	43.92	56.00	-12.08	QP
6	0.989	32.60	0.78	10.87	44.25	56.00	-11.75	QP
7	0.989	24.08	0.78	10.87	35.73	46.00	-10.27	Average
8	1.352	21.29	0.78	10.91	32.98	46.00	-13.02	Average
9	2.225	29.54	0.78	10.95	41.27	56.00	-14.73	QP
10	5.194	20.36	0.76	10.84	31.96	50.00	-18.04	Average
11	26.418	38.30	0.70	10.87	49.87	60.00	-10.13	QP
12	26.418	36.40	0.70	10.87	47.97	50.00	-2.03	Average

Notes:

1. An initial pre-scan was performed on the live and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss.

Test Polarization: Neutral



Trace: 5

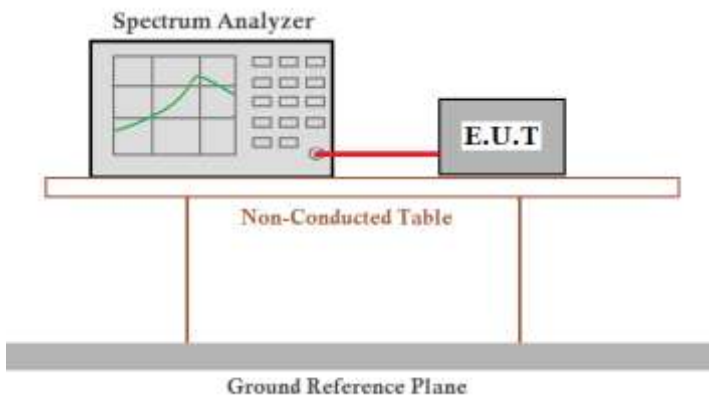
Site : CCIS Shielding Room
 Condition : FCC PART 15.207 QP LISN(RS) NEUTRAL
 EUT : LTE-FDD Base Station
 Model : u4G-AP1000
 Test Mode : TX Mode
 Power Rating : AC 120V/60Hz
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa
 Test Engineer: MT
 Remark :

	Freq	Read	LISN	Cable	Level	Limit	Over	
	MHz	Level	Factor	Loss	dBuV	Line	Limit	Remark
		dBuV	dB	dB	dBuV	dBuV	dB	
1	0.246	34.83	0.65	10.75	46.23	61.91	-15.68	QP
2	0.246	28.72	0.65	10.75	40.12	51.91	-11.79	Average
3	0.489	34.13	0.61	10.76	45.50	56.19	-10.69	QP
4	0.489	28.41	0.61	10.76	39.78	46.19	-6.41	Average
5	0.963	33.19	0.67	10.86	44.72	56.00	-11.28	QP
6	0.979	24.04	0.67	10.86	35.57	46.00	-10.43	Average
7	1.359	31.37	0.67	10.91	42.95	56.00	-13.05	QP
8	1.359	20.77	0.67	10.91	32.35	46.00	-13.65	Average
9	2.088	18.33	0.67	10.96	29.96	46.00	-16.04	Average
10	2.435	29.26	0.67	10.94	40.87	56.00	-15.13	QP
11	26.418	37.95	0.69	10.87	49.51	60.00	-10.49	QP
12	26.418	36.32	0.69	10.87	47.88	50.00	-2.12	Average

Notes:

1. An initial pre-scan was performed on the live and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss.

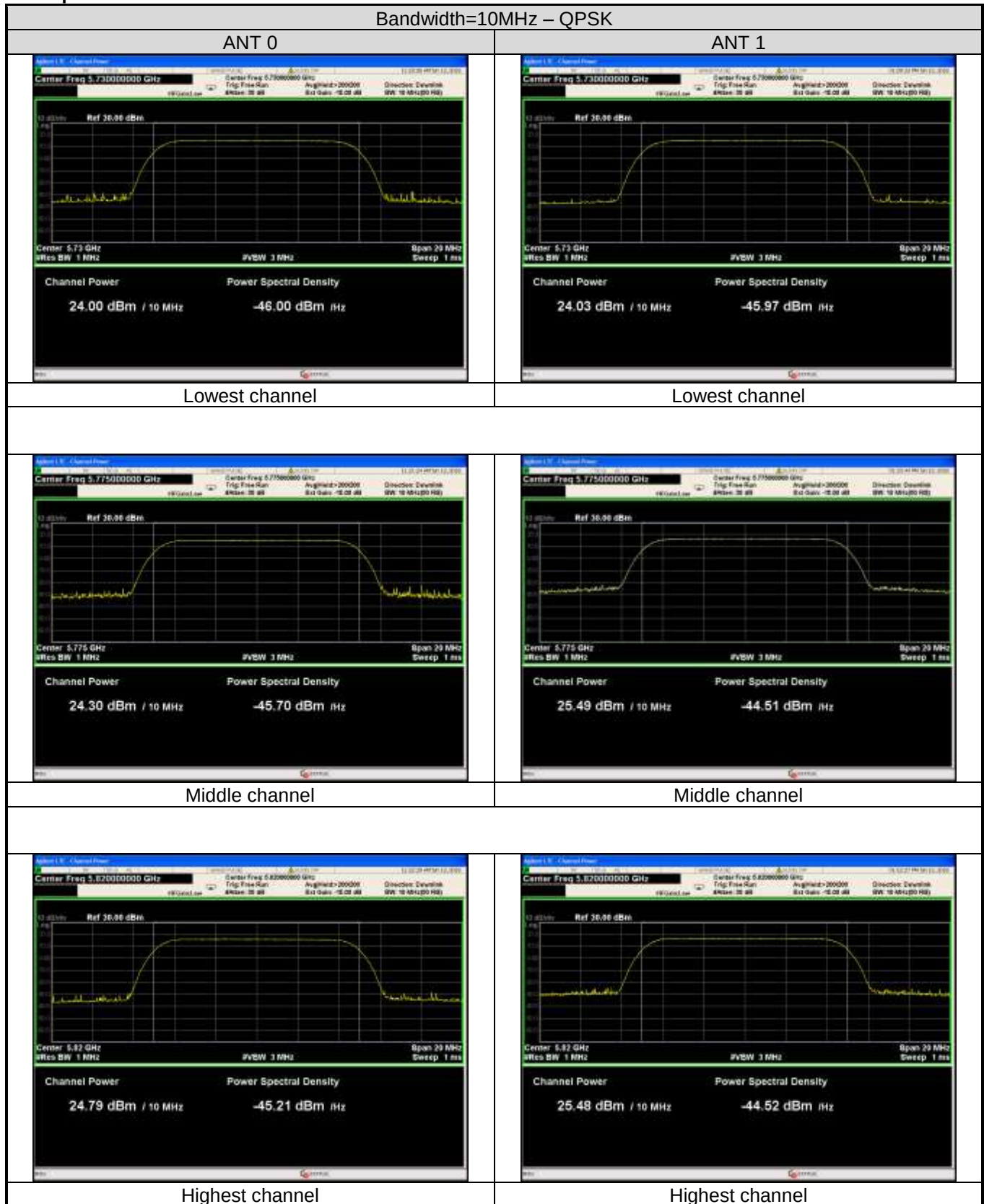
6.3 Conducted Output Power

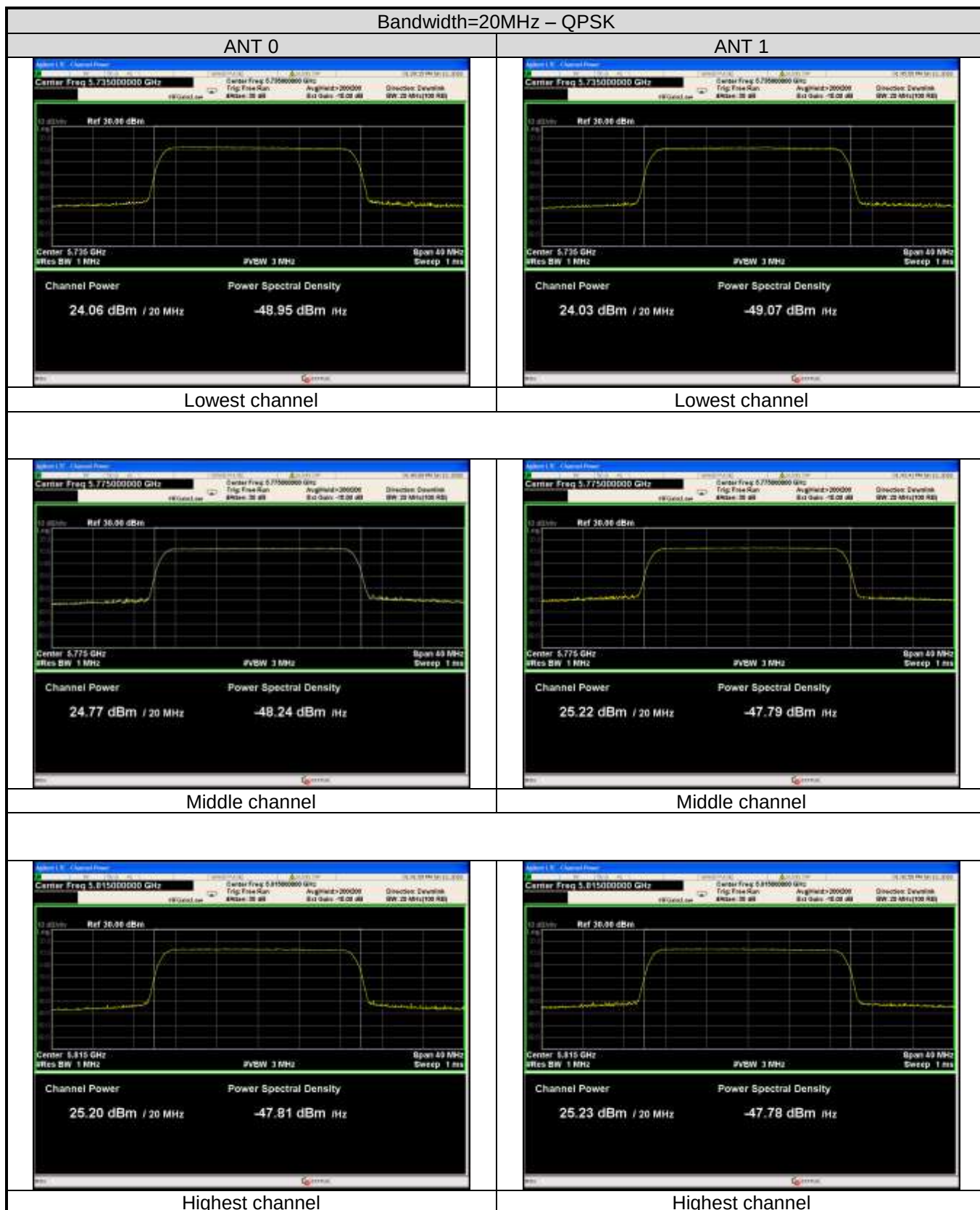
Test Requirement:	FCC Part 15.407 (a) (3) and RSS-247 Section 6.2.4.1
Test Method:	ANSI C63.10: 2013 and KDB789033
Limit:	The maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by two vertical legs and sits on a Ground Reference Plane.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

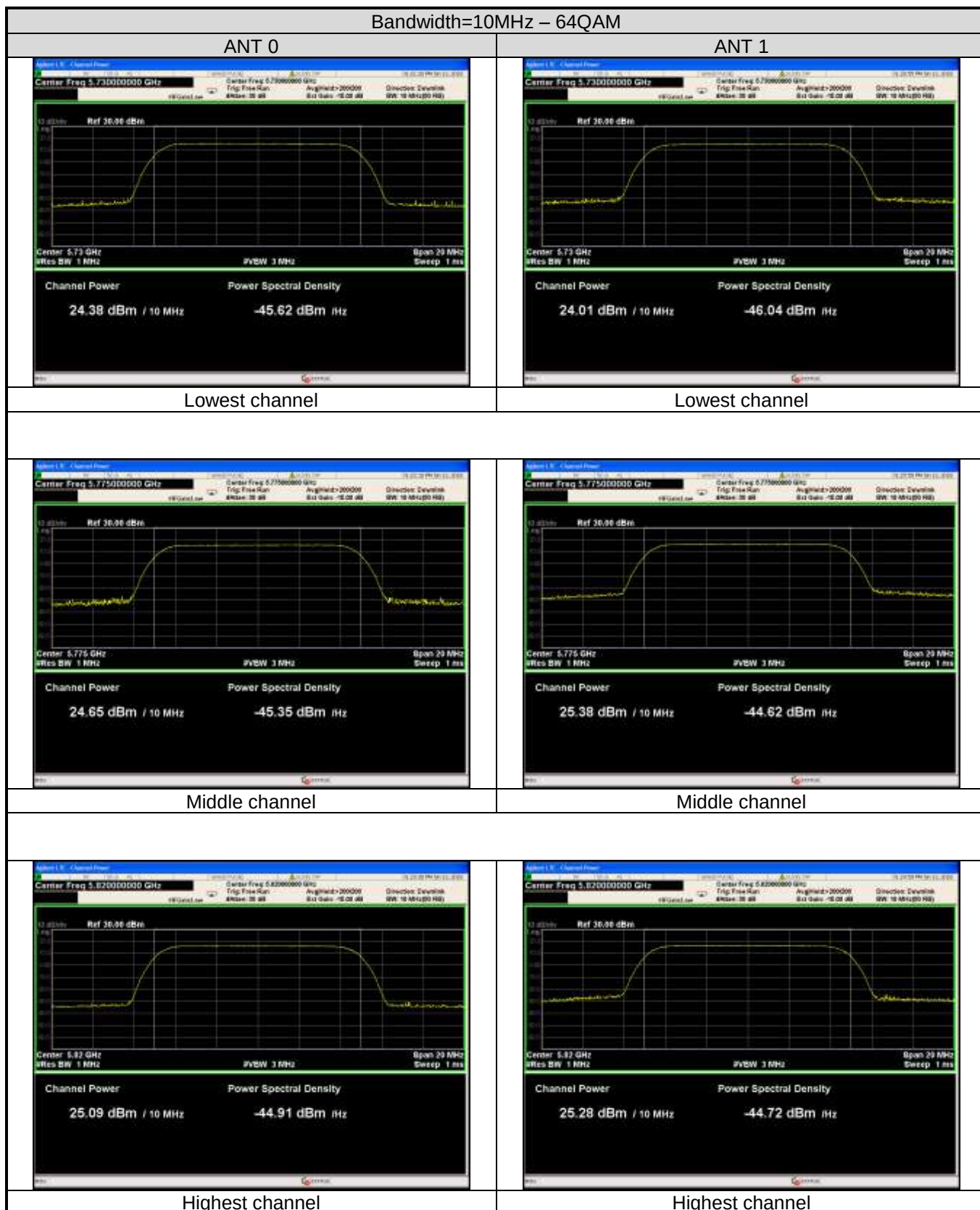
Measurement Data:

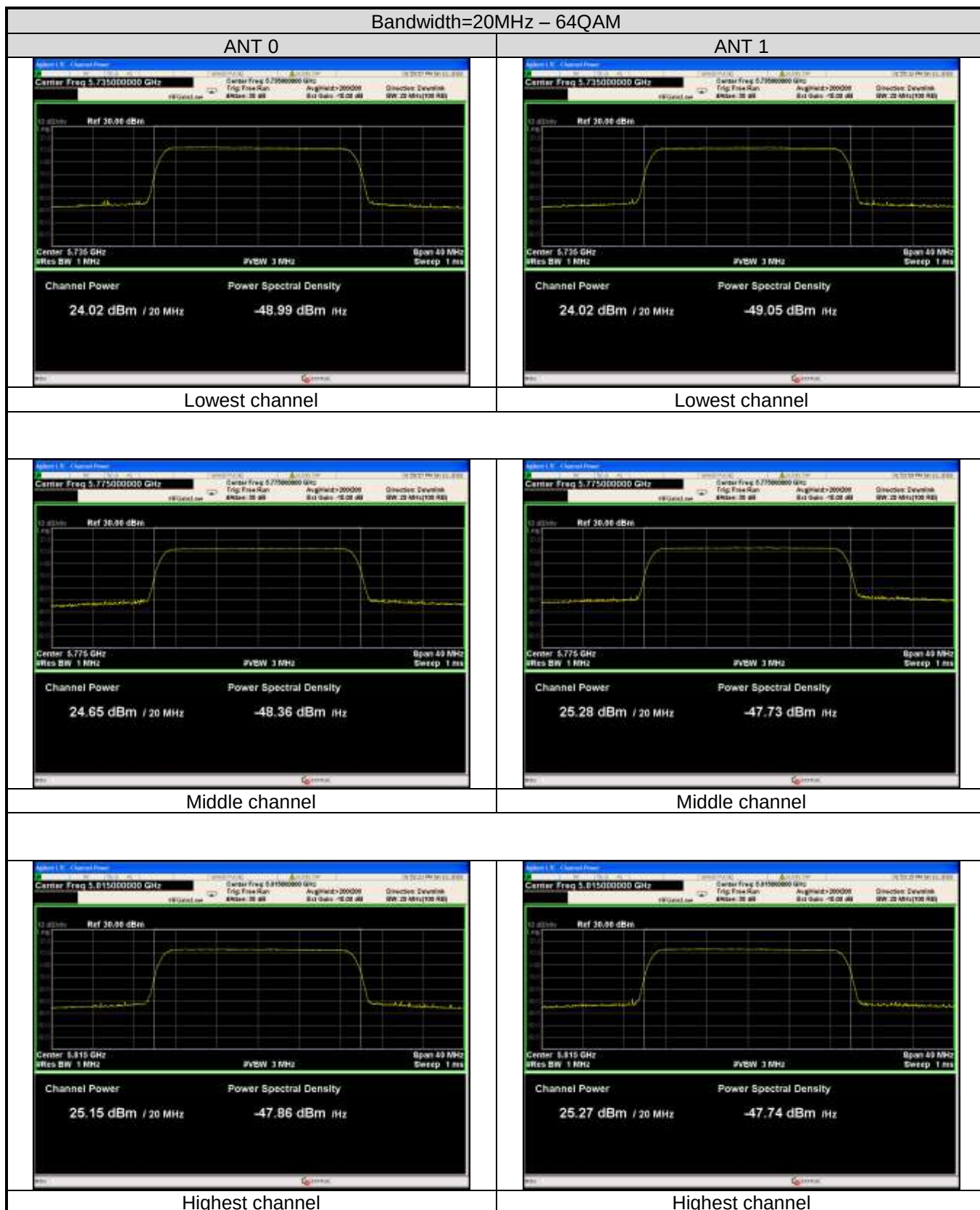
Test Channel	Bandwidth (MHz)	Modulation	Ant. Port	Conducted Output power (dBm)	Total Power (dBm)	Limit (dBm)	Result
Lowest	10	QPSK	Ant 0	24.00	27.03	30.00	Pass
			Ant 1	24.03			
		64QAM	Ant 0	24.38	27.21		
			Ant 1	24.01			
Middle	10	QPSK	Ant 0	24.30	27.95	30.00	Pass
			Ant 1	25.49			
		64QAM	Ant 0	24.65	28.04		
			Ant 1	25.38			
Highest	10	QPSK	Ant 0	24.79	28.16	30.00	Pass
			Ant 1	25.48			
		64QAM	Ant 0	25.09	28.20		
			Ant 1	25.28			
Lowest	20	QPSK	Ant 0	24.06	27.06	30.00	Pass
			Ant 1	24.03			
		64QAM	Ant 0	24.02	27.03		
			Ant 1	24.02			
Middle	20	QPSK	Ant 0	24.77	28.01	30.00	Pass
			Ant 1	25.22			
		64QAM	Ant 0	24.65	27.99		
			Ant 1	25.28			
Highest	20	QPSK	Ant 0	25.20	28.23	30.00	Pass
			Ant 1	25.23			
		64QAM	Ant 0	25.15	28.22		
			Ant 1	25.27			
Remark: Directional gain = $G_{ANT} + 10 \log(N_{ANT}) \text{ dBi} = 14 + 10 \log(2) \text{ dBi} = 17\text{dBi}$.							

Test plot as follows:

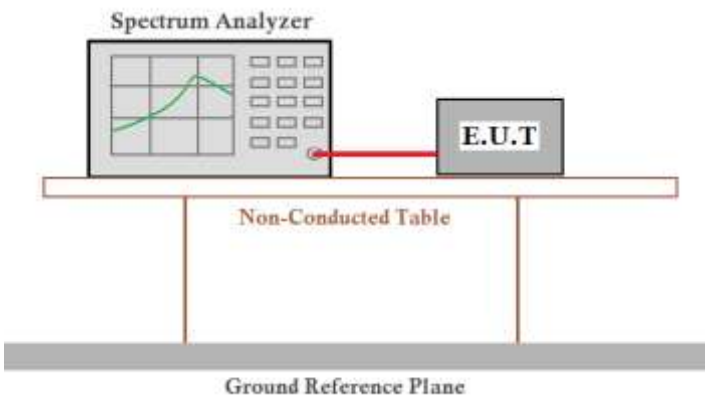








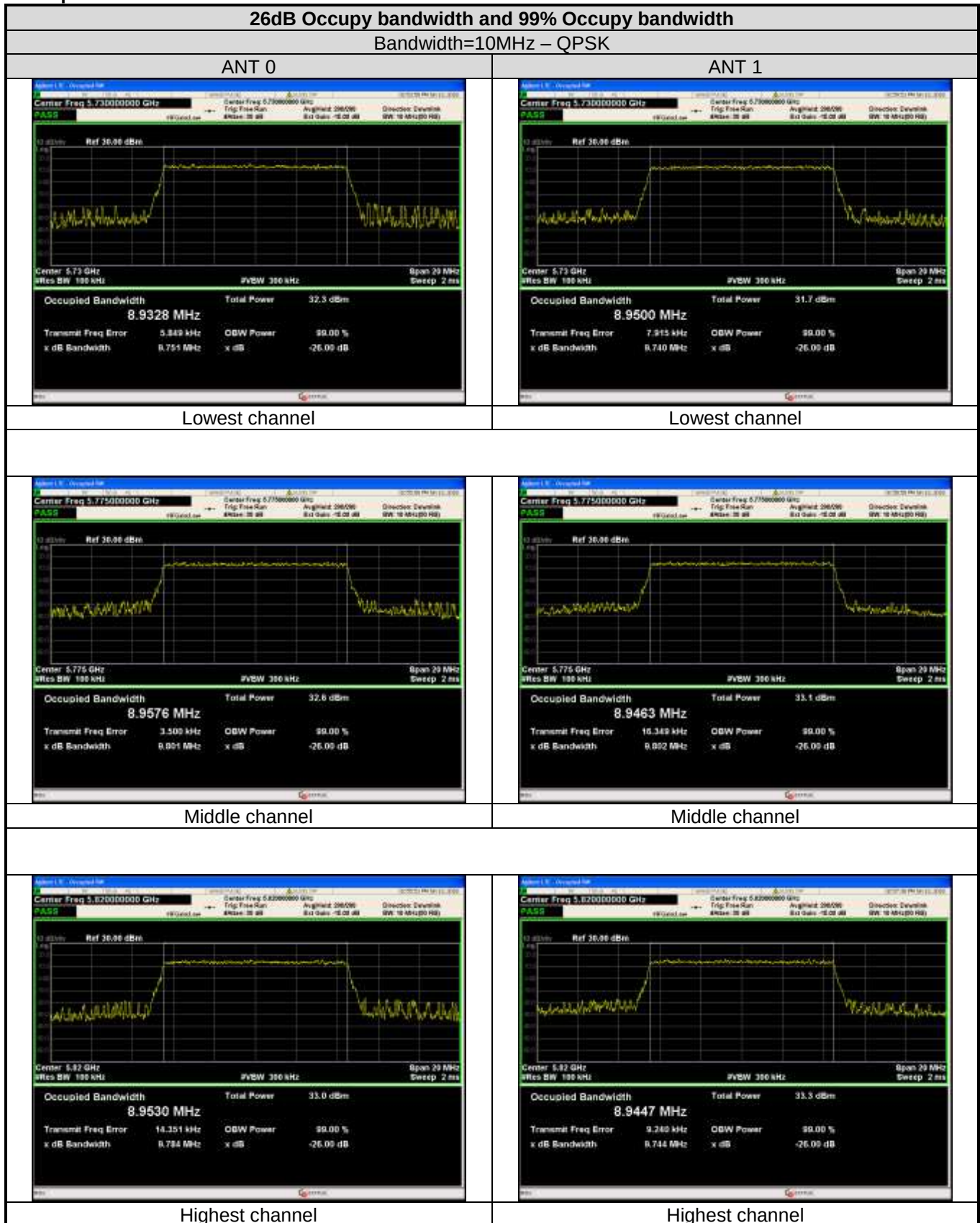
6.4 Occupy Bandwidth

Test Requirement:	FCC Part 15.407 (e) and RSS-247 Section 6.2.4.1
Test Method:	ANSI C63.10:2013 and KDB 789033
Limit:	>500kHz(6dB Bandwidth) N/A(26dB Emission Bandwidth and 99% Occupy Bandwidth)
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. The table is supported by two vertical legs. Below the table is a Ground Reference Plane.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

Test Channel	Bandwidth (MHz)	Modulation	Ant. Port	26dB Occupy bandwidth (MHz)	99% Occupy bandwidth (MHz)	6dB Emission Bandwidth (MHz)
Lowest	10	QPSK	Ant 0	9.75	8.93	9.00
			Ant 1	9.74	8.95	9.01
		64QAM	Ant 0	9.75	8.94	9.01
			Ant 1	9.74	8.95	9.00
Middle	10	QPSK	Ant 0	9.80	8.96	9.00
			Ant 1	9.80	8.95	9.01
		64QAM	Ant 0	9.77	8.95	9.03
			Ant 1	9.74	8.95	9.01
Highest	10	QPSK	Ant 0	9.78	8.95	9.03
			Ant 1	9.74	8.94	8.99
		64QAM	Ant 0	9.75	8.94	9.02
			Ant 1	9.67	8.95	9.04
Lowest	20	QPSK	Ant 0	19.25	17.87	18.00
			Ant 1	19.28	17.89	18.01
		64QAM	Ant 0	19.25	17.88	18.00
			Ant 1	19.24	17.88	18.02
Middle	20	QPSK	Ant 0	19.39	17.87	18.01
			Ant 1	19.30	17.81	18.01
		64QAM	Ant 0	19.40	17.85	18.02
			Ant 1	19.25	17.91	18.05
Highest	20	QPSK	Ant 0	19.31	17.85	18.02
			Ant 1	19.30	17.88	18.04
		64QAM	Ant 0	19.25	17.84	18.00
			Ant 1	19.25	17.86	18.03

Test plot as follows:

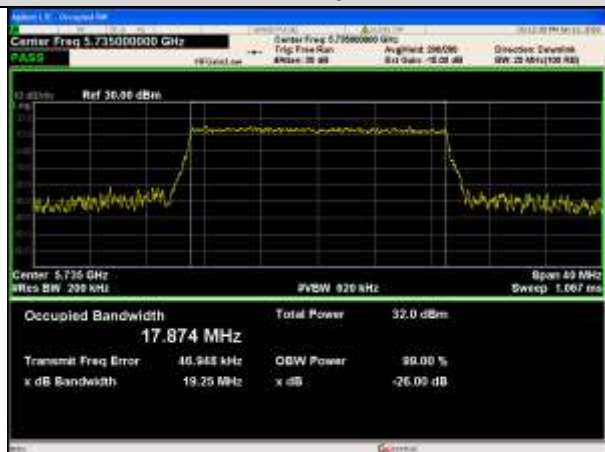


26dB Occupy bandwidth and 99% Occupy bandwidth

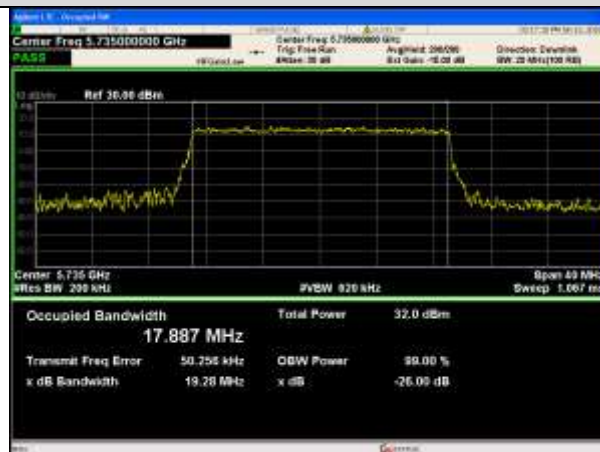
Bandwidth=20MHz – QPSK

ANT 0

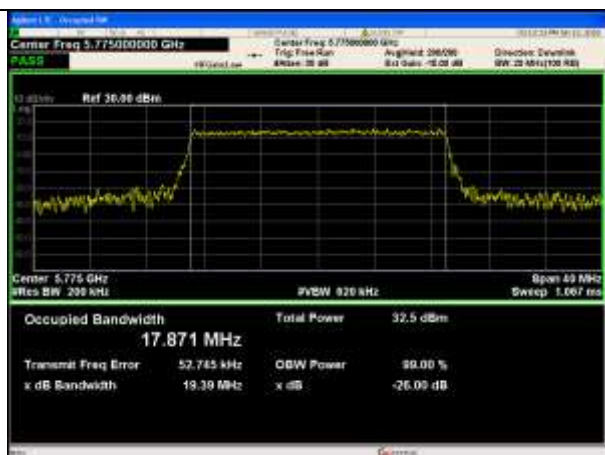
ANT 1



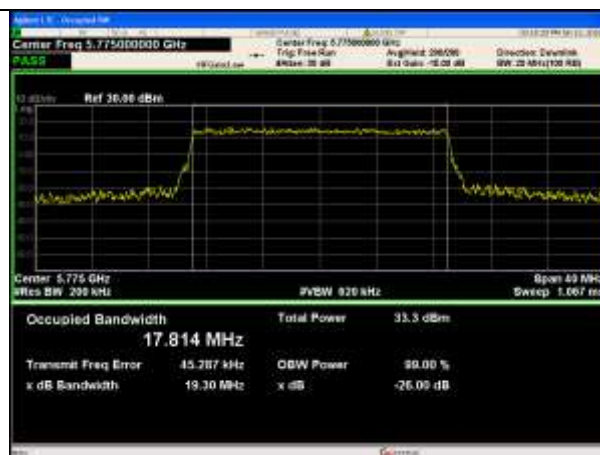
Lowest channel



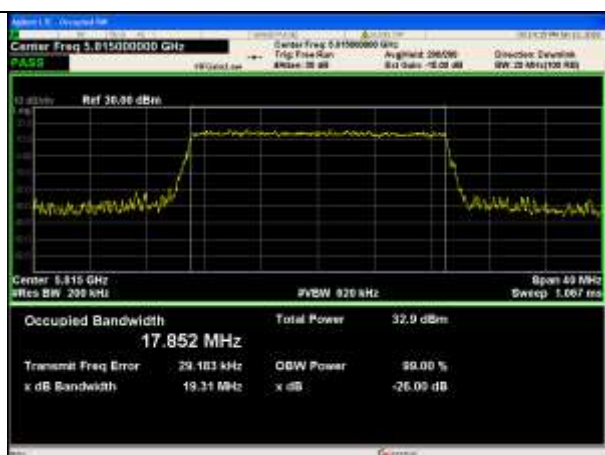
Lowest channel



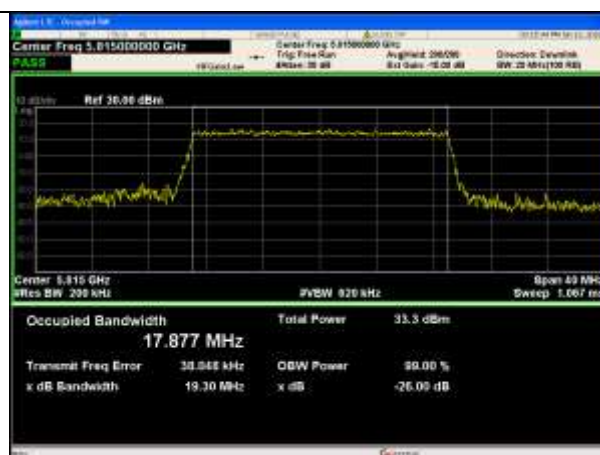
Middle channel



Middle channel



Highest channel

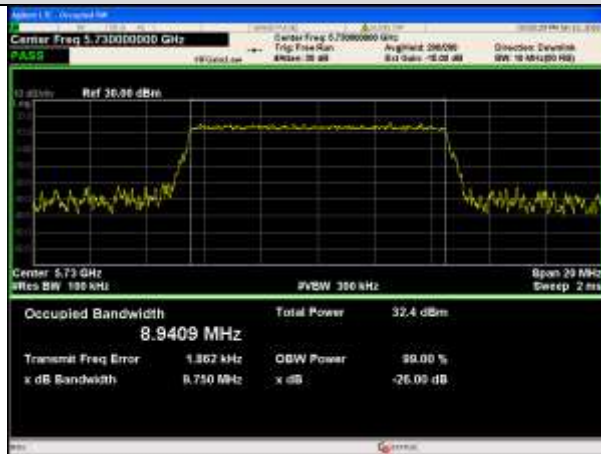


Highest channel

26dB Occupy bandwidth and 99% Occupy bandwidth

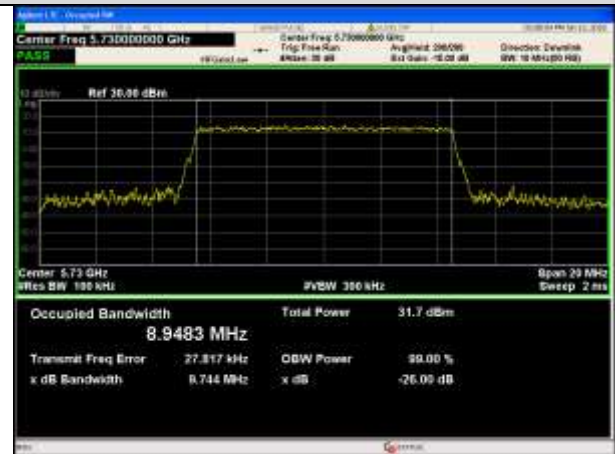
Bandwidth=10MHz – 64QAM

ANT 0

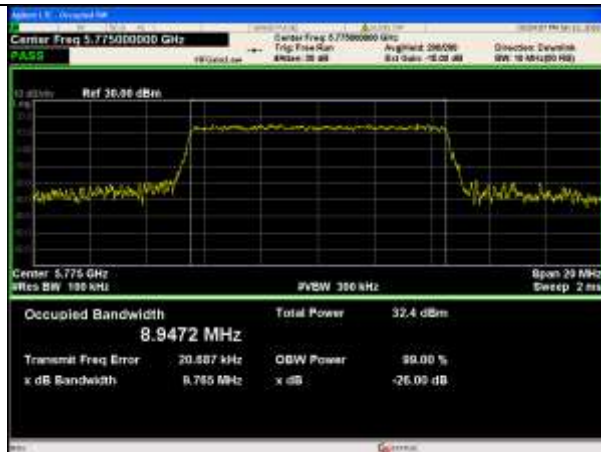


Lowest channel

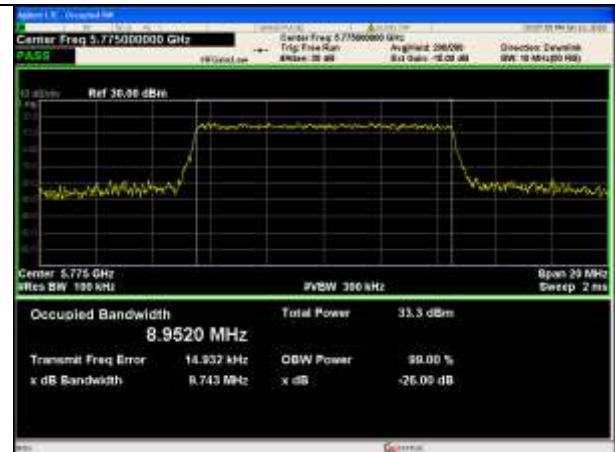
ANT 1



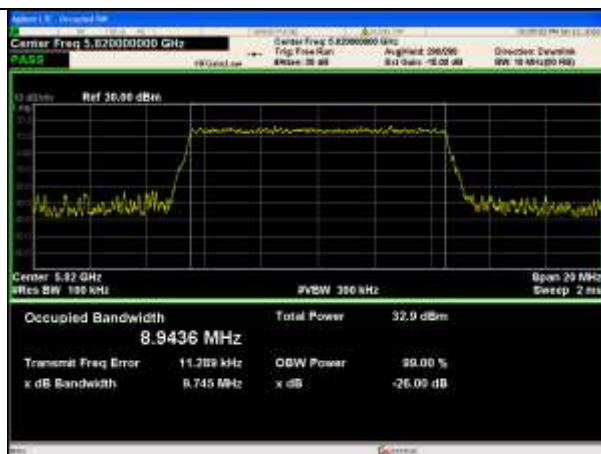
Lowest channel



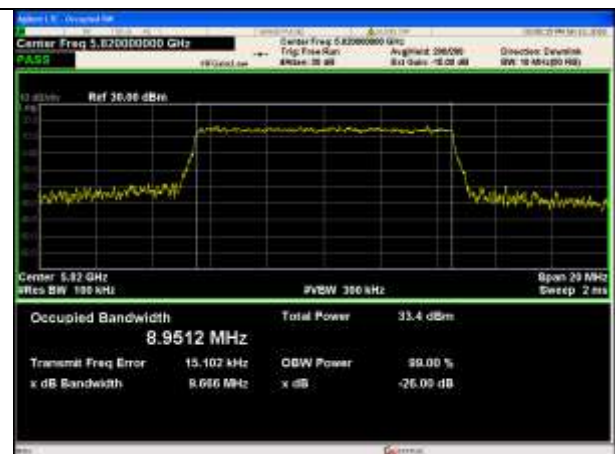
Middle channel



Middle channel



Highest channel

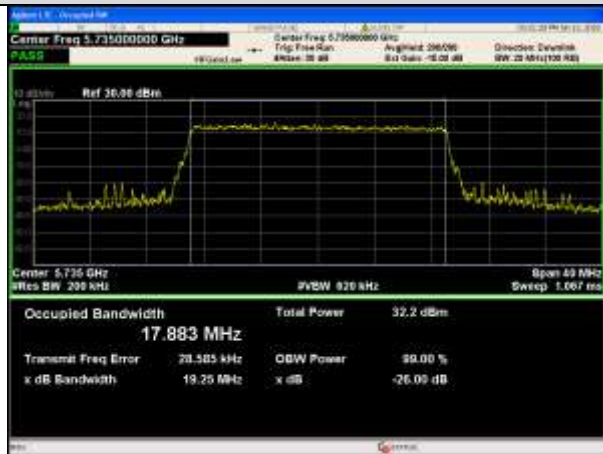


Highest channel

26dB Occupy bandwidth and 99% Occupy bandwidth

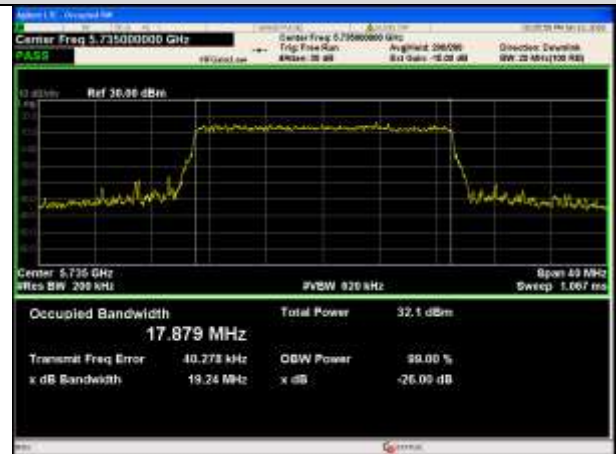
Bandwidth=20MHz – 64QAM

ANT 0

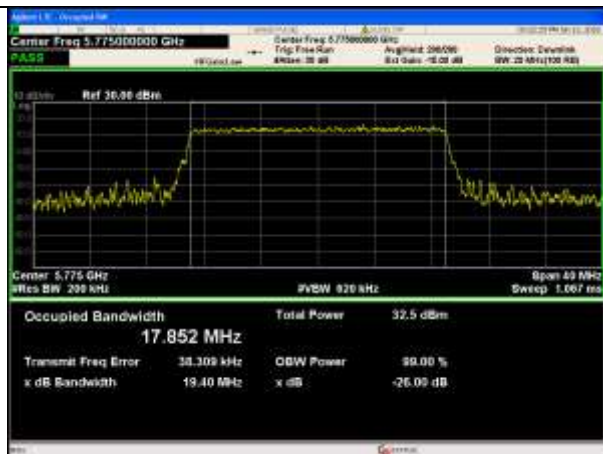


Lowest channel

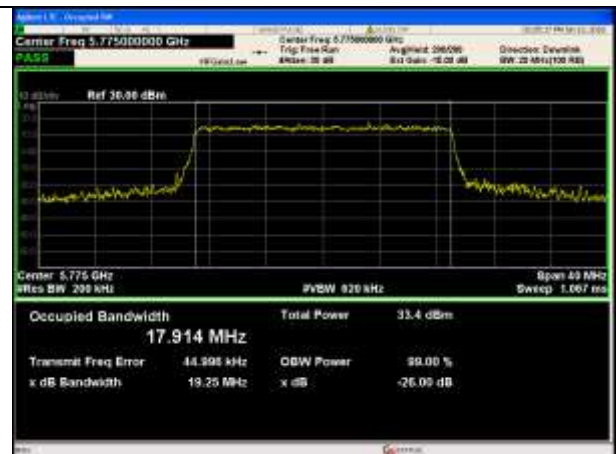
ANT 1



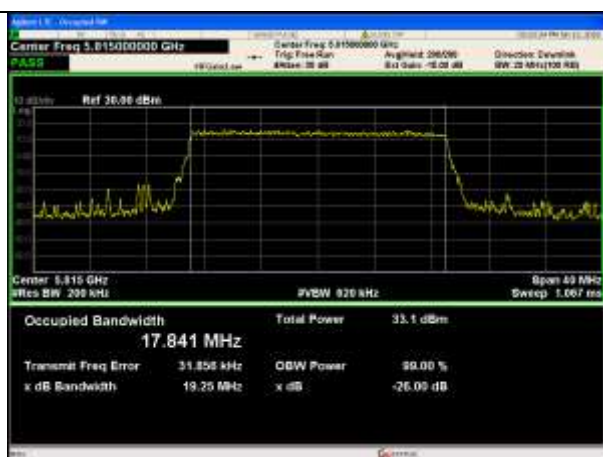
Lowest channel



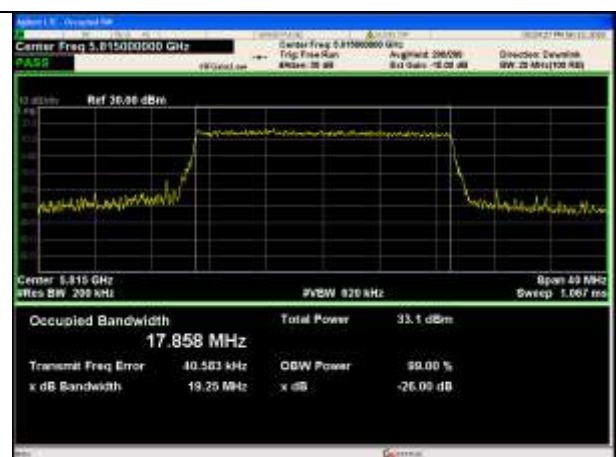
Middle channel



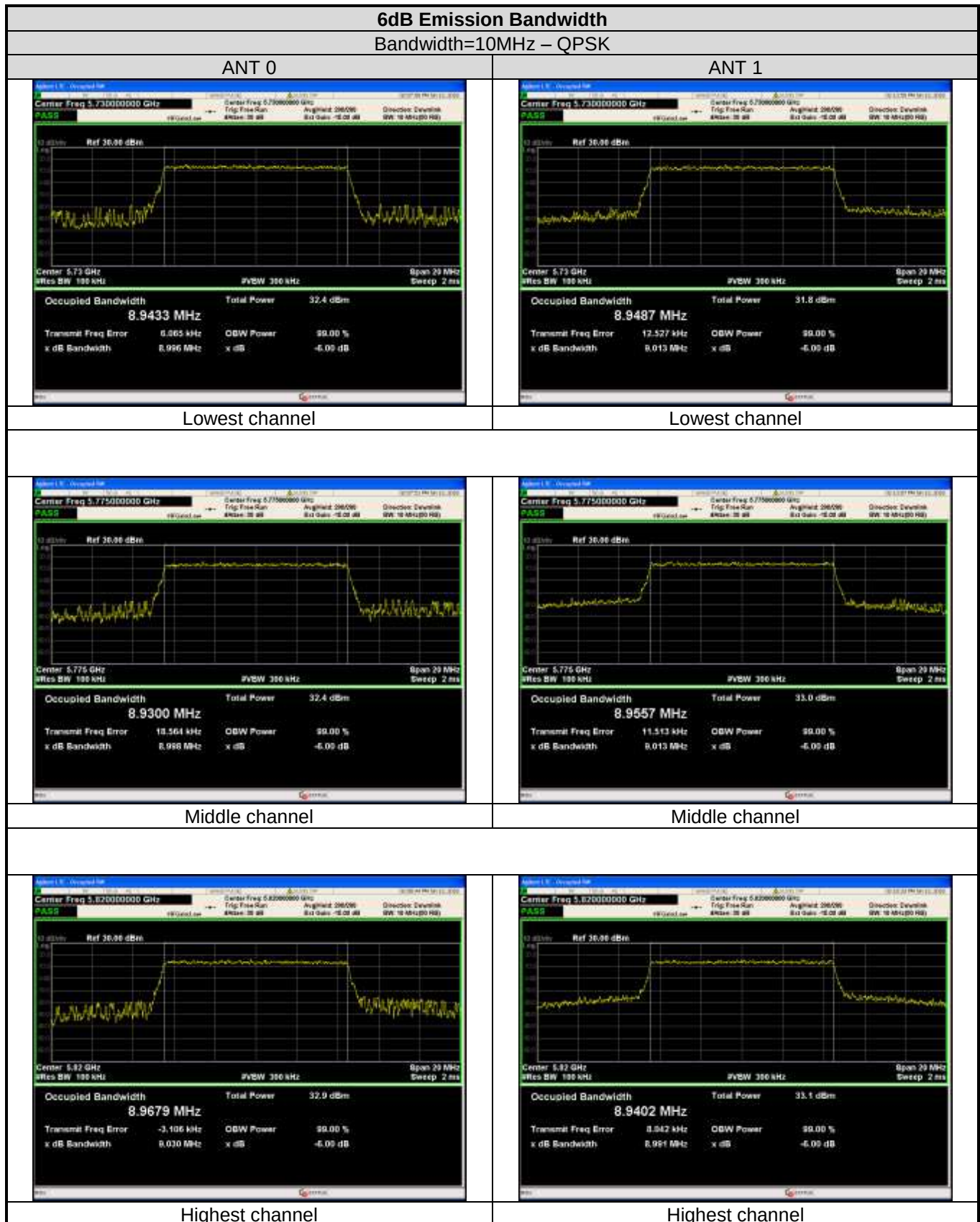
Middle channel

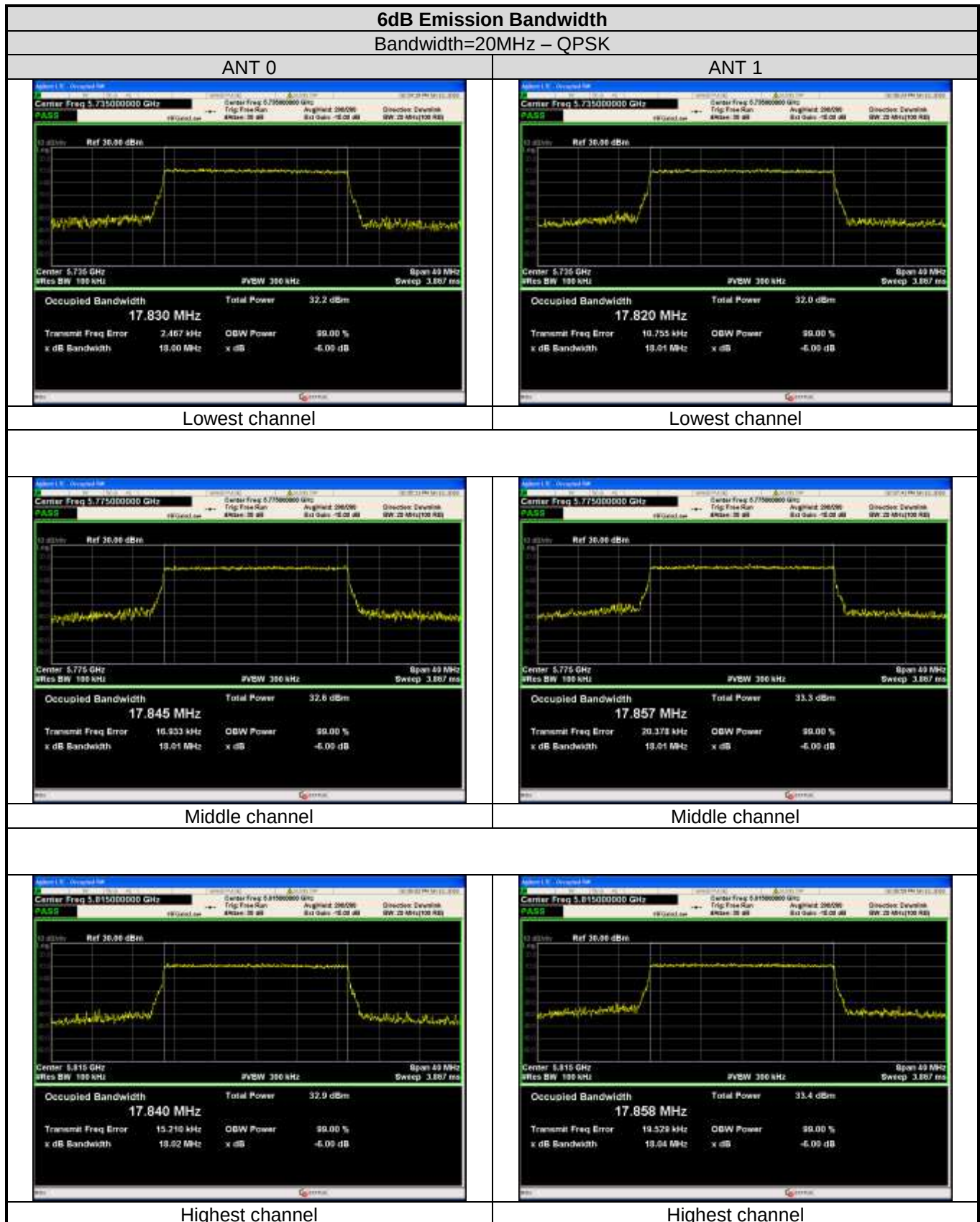


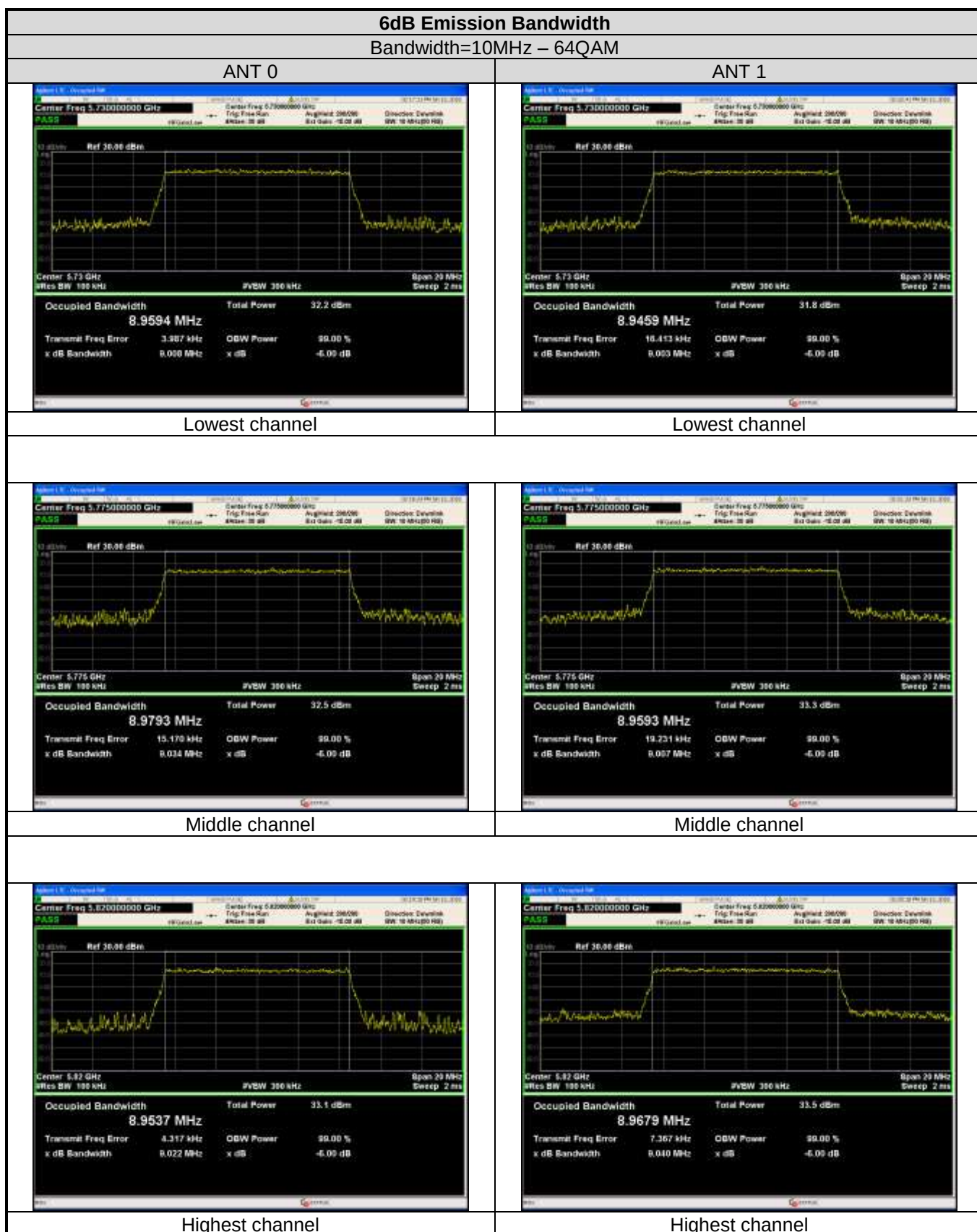
Highest channel

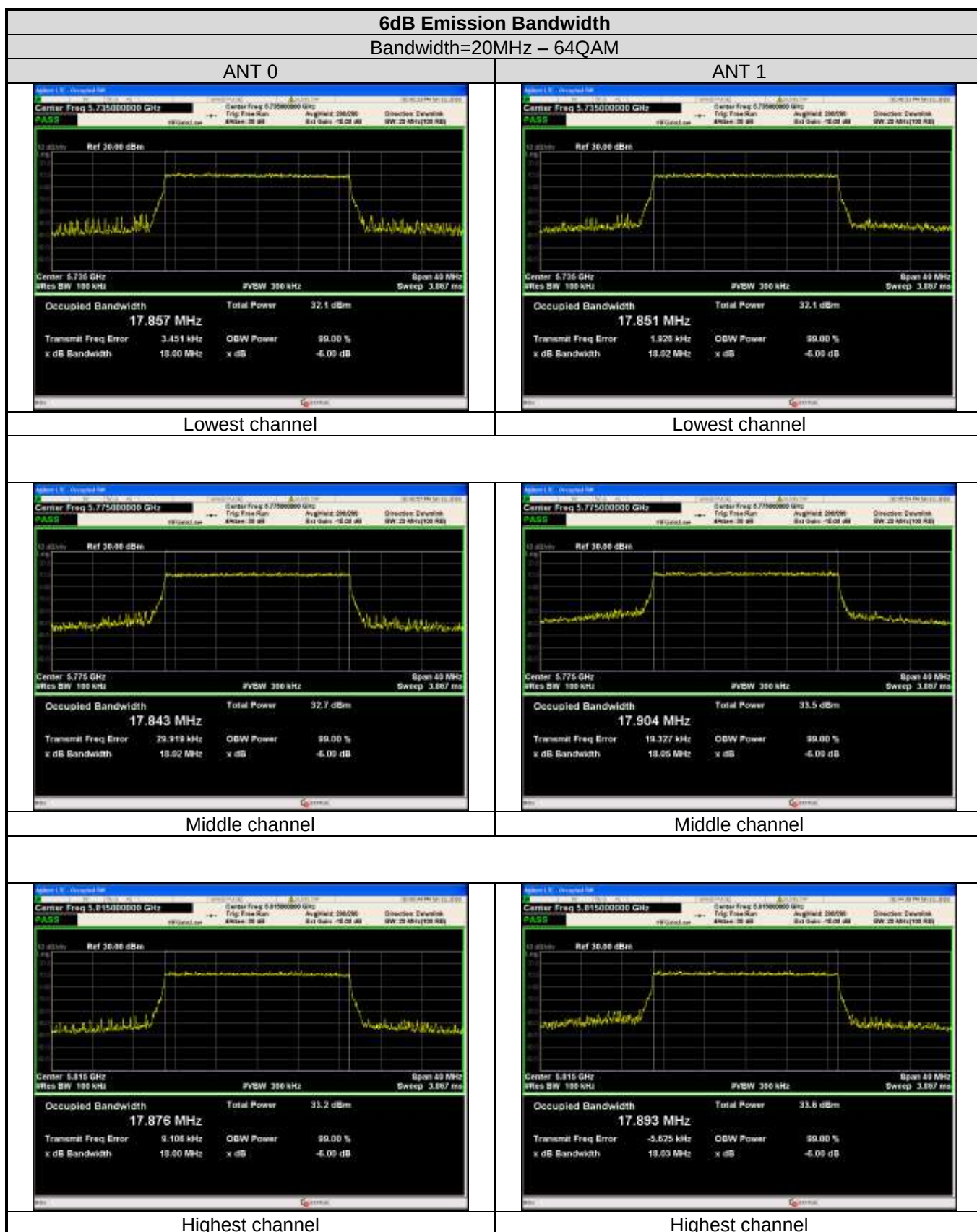


Highest channel

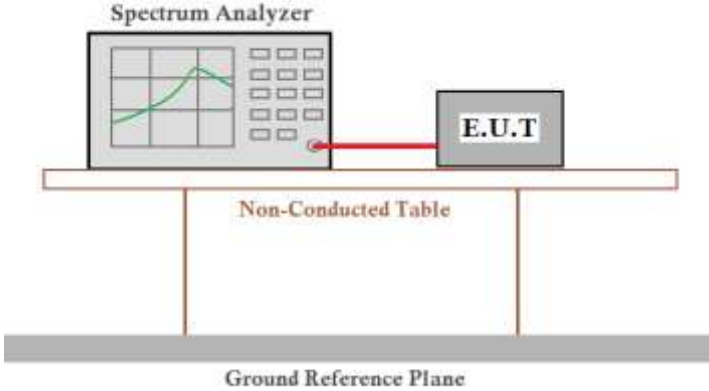








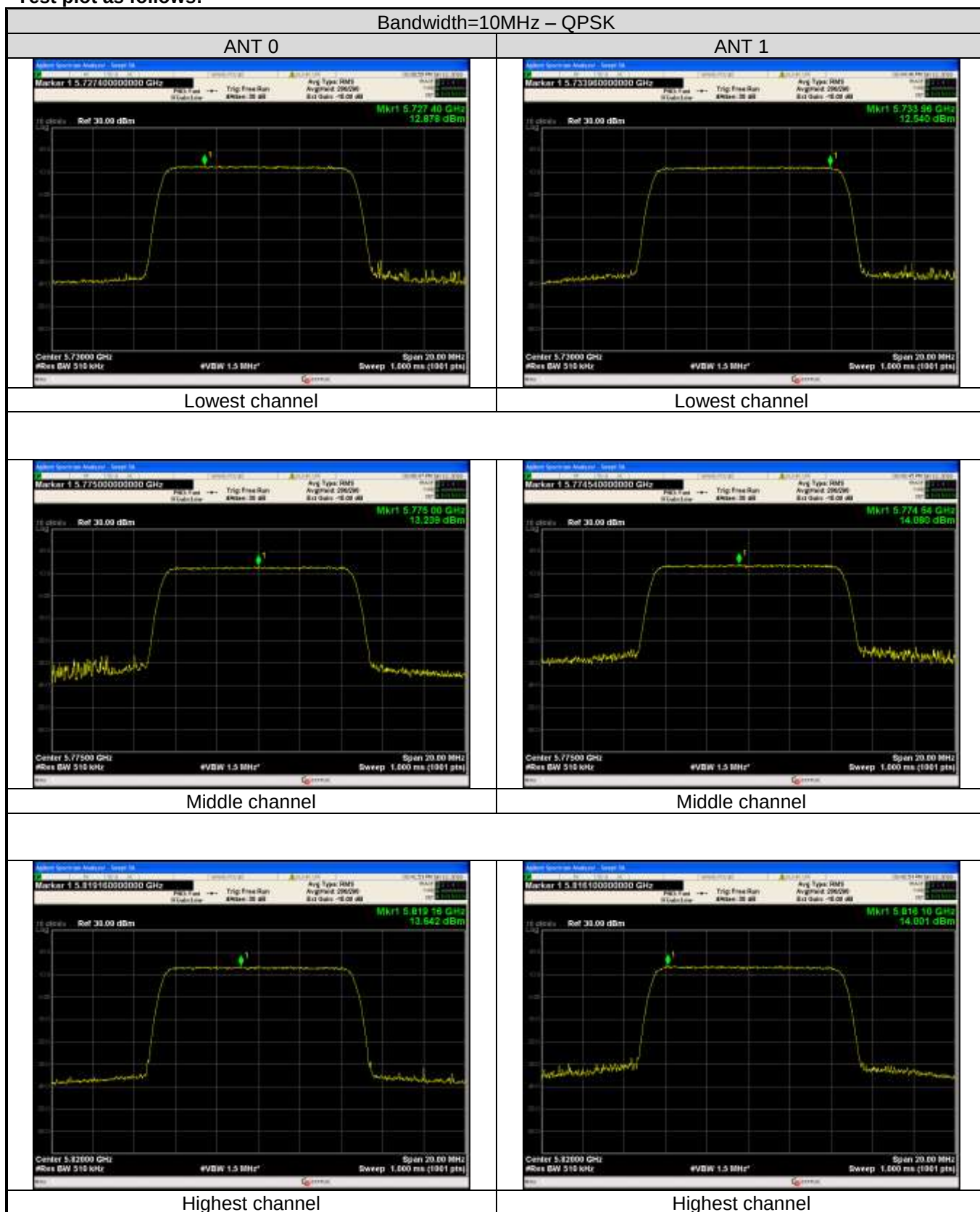
6.5 Power Spectral Density

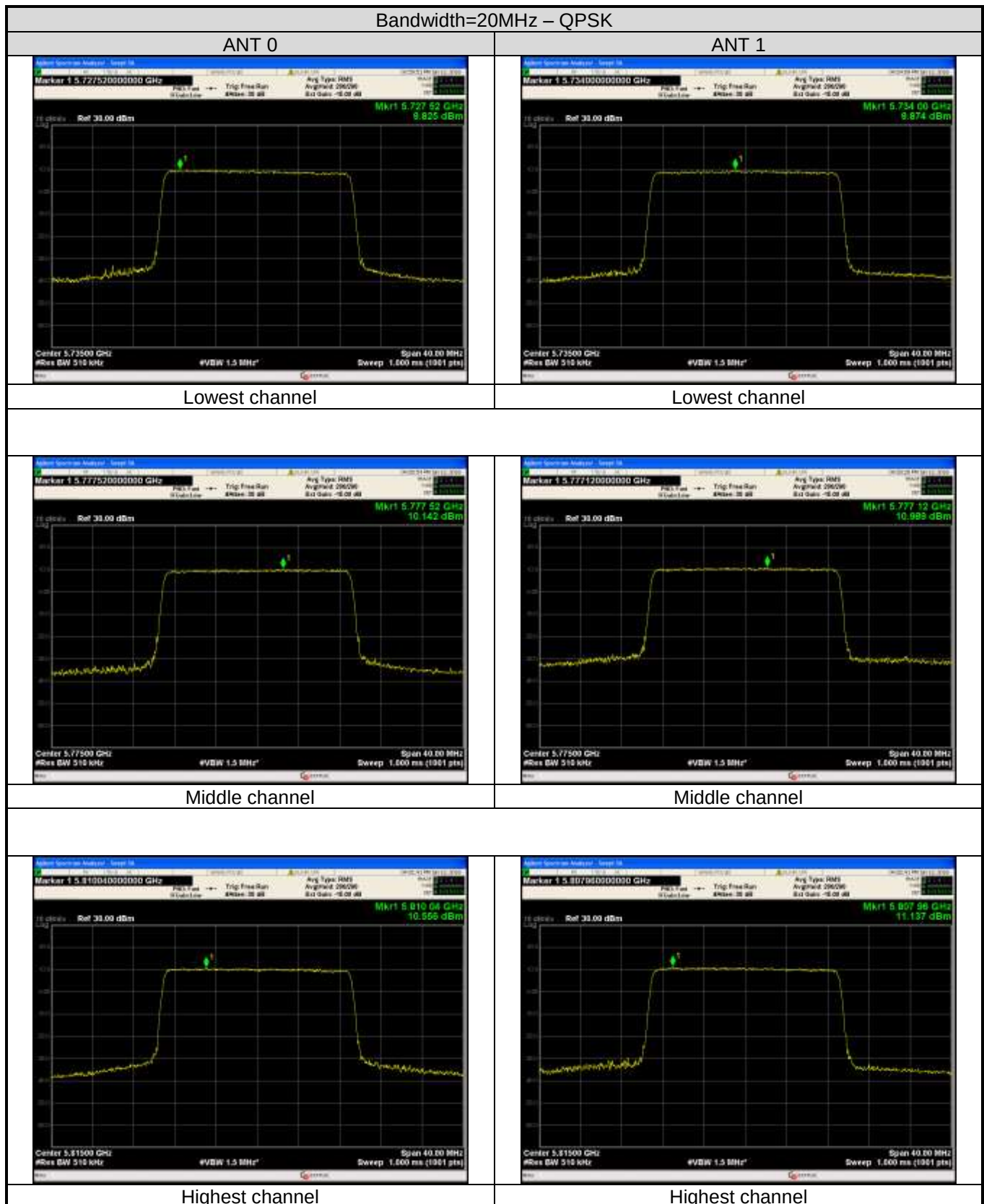
Test Requirement:	FCC Part 15.407 (a) (3) and RSS-247 Section 6.2.4.1
Test Method:	ANSI C63.10:2013, KDB789033
Limit:	The output power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by two vertical legs. Below the table is a Ground Reference Plane.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

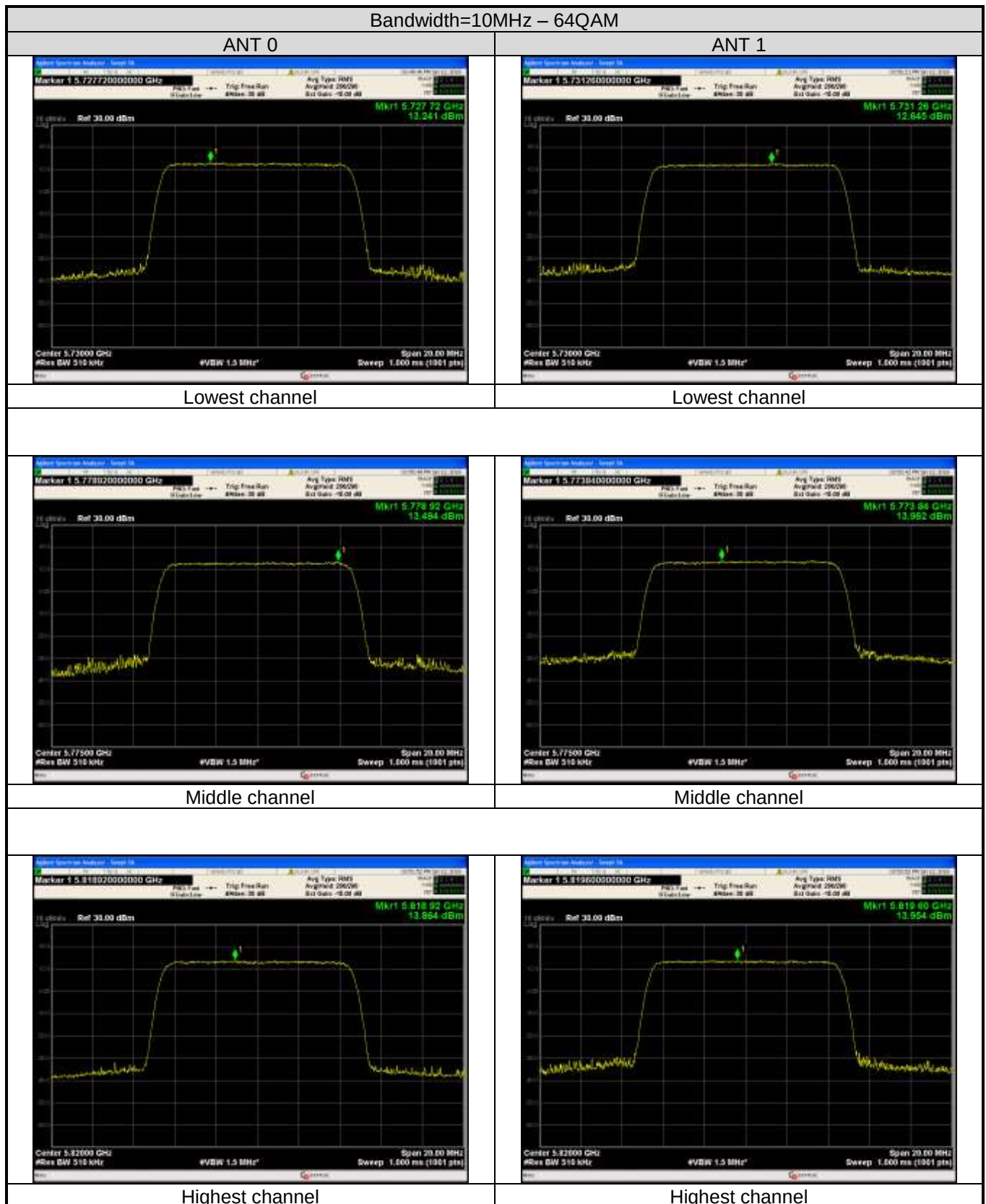
Measurement Data:

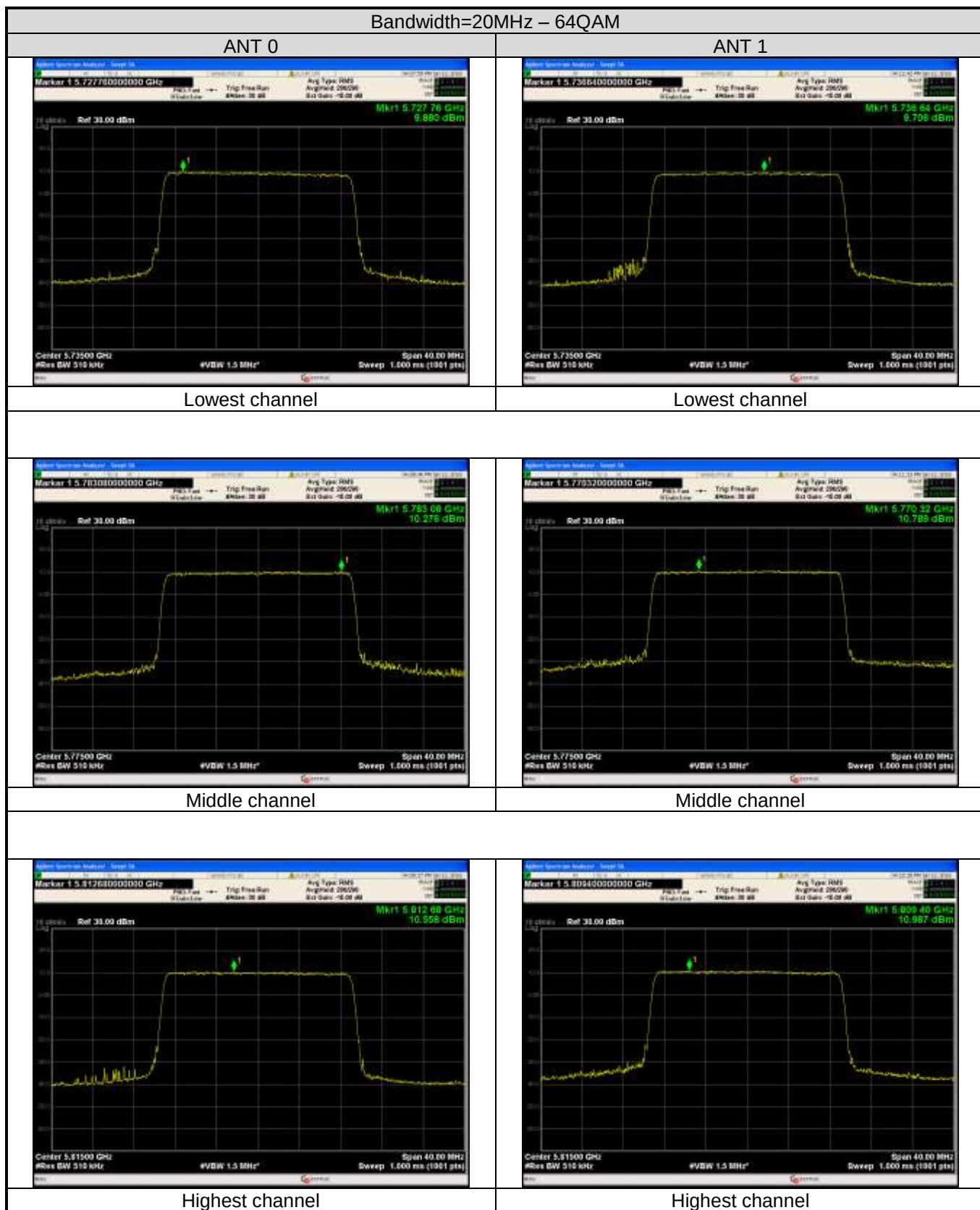
Test Channel	Bandwidth (MHz)	Modulation	Ant. Port	PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Result
Lowest	10	QPSK	Ant 0	12.88	15.72	30.00	Pass
			Ant 1	12.54			
		64QAM	Ant 0	13.24	15.97		
			Ant 1	12.65			
Middle	10	QPSK	Ant 0	13.24	16.69	30.00	Pass
			Ant 1	14.08			
		64QAM	Ant 0	13.49	16.74		
			Ant 1	13.96			
Highest	10	QPSK	Ant 0	13.64	16.83	30.00	Pass
			Ant 1	14.00			
		64QAM	Ant 0	13.86	16.92		
			Ant 1	13.95			
Lowest	20	QPSK	Ant 0	9.83	12.86	30.00	Pass
			Ant 1	9.87			
		64QAM	Ant 0	9.88	12.81		
			Ant 1	9.71			
Middle	20	QPSK	Ant 0	10.14	13.60	30.00	Pass
			Ant 1	10.99			
		64QAM	Ant 0	10.28	13.55		
			Ant 1	10.79			
Highest	20	QPSK	Ant 0	10.56	13.87	30.00	Pass
			Ant 1	11.14			
		64QAM	Ant 0	10.56	13.79		
			Ant 1	10.99			
Remark: Directional gain = $G_{ANT} + 10 \log(N_{ANT}) \text{ dBi} = 14 + 10 \log(2) \text{ dBi} = 17\text{dBi}$.							

Test plot as follows:



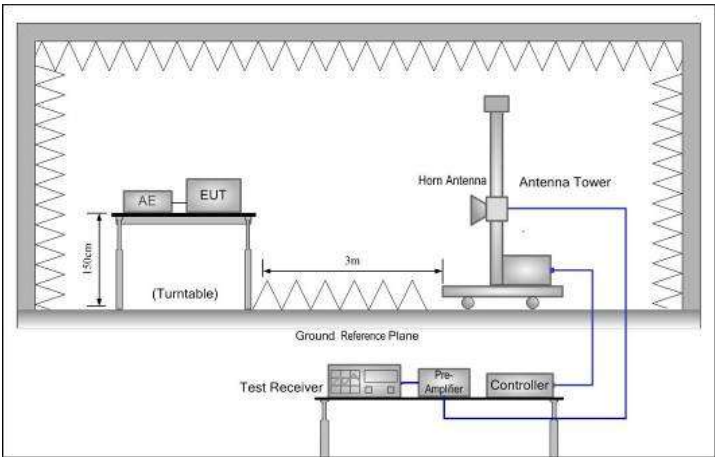






6.6 Band Edge

Test Requirement:	FCC Part 15.407 (b)(4) and RSS-247 Section 6.2.4.2			
Test Method:	ANSI C63.10:2013 and KDB789033			
Receiver setup:	Detector	RBW	VBW	Remark
	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	RMS	1MHz	3MHz	Average Value
Limit:	Limit (dBuV/m @3m)			Remark
	68.20			Peak Value
	54.00			Average Value
	All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.			
	Remark: 1. $E[\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] + 95.2 = 68.2 \text{ dB}\mu\text{V}/\text{m}$, for $\text{EIPR}[\text{dBm}] = -27 \text{ dBm}$. 2. $E[\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] + 95.2 = 105.2 \text{ dB}\mu\text{V}/\text{m}$, for $\text{EIPR}[\text{dBm}] = 10 \text{ dBm}$. 3. $E[\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] + 95.2 = 110.8 \text{ dB}\mu\text{V}/\text{m}$, for $\text{EIPR}[\text{dBm}] = 15.6 \text{ dBm}$. 4. $E[\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] + 95.2 = 122.2 \text{ dB}\mu\text{V}/\text{m}$, for $\text{EIPR}[\text{dBm}] = 27 \text{ dBm}$.			
Test Procedure:	1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotating table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.			

Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

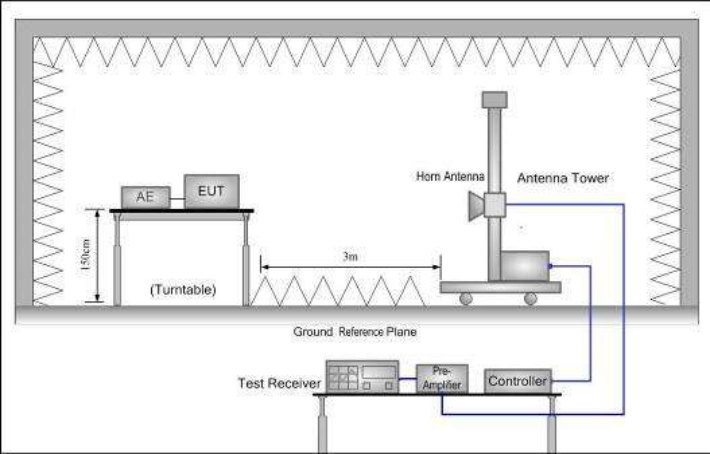
Measurement Data (worst case):

Bandwidth=10MHz – QPSK								
Test channel: Lowest channel,								
Detector: Peak								
Frequency (MHz)	Read Level (dBUV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBUV/m)	Limit Line (dBUV/m)	Over Limit (dB)	Polarization
5725.00	52.36	34.65	11.62	40.54	58.09	68.20	-10.11	Horizontal
5725.00	53.14	34.65	11.62	40.54	58.87	68.20	-9.33	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBUV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBUV/m)	Limit Line (dBUV/m)	Over Limit (dB)	Polarization
5725.00	42.63	34.65	11.62	40.54	48.36	54.00	-5.64	Horizontal
5725.00	42.69	34.65	11.62	40.54	48.42	54.00	-5.58	Vertical
Test channel: Highest channel								
Detector: Peak								
Frequency (MHz)	Read Level (dBUV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBUV/m)	Limit Line (dBUV/m)	Over Limit (dB)	Polarization
5850.00	52.36	34.62	11.74	40.69	58.03	68.20	-10.17	Horizontal
5850.00	52.78	34.62	11.74	40.69	58.45	68.20	-9.75	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBUV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBUV/m)	Limit Line (dBUV/m)	Over Limit (dB)	Polarization
5850.00	42.58	34.62	11.74	40.69	48.25	54.00	-5.75	Horizontal
5850.00	42.96	34.62	11.74	40.69	48.63	54.00	-5.37	Vertical
Remark: 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor. 2. The emission levels of other frequencies are very lower than the limit and not show in test report. 3. Pre-scan QPSK and 64QAM modulation mode, and found the QPSK modulation mode is the worst case. So the worst case shown in report.								

Bandwidth=20MHz – QPSK								
Test channel: Lowest channel,								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	52.01	34.65	11.62	40.54	57.74	68.20	-10.46	Horizontal
5725.00	51.98	34.65	11.62	40.54	57.71	68.20	-10.49	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	41.69	34.65	11.62	40.54	47.42	54.00	-6.58	Horizontal
5725.00	42.03	34.65	11.62	40.54	47.76	54.00	-6.24	Vertical
Test channel: Highest channel								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	52.32	11.74	11.75	40.69	35.12	68.20	-33.08	Horizontal
5850.00	51.98	11.74	11.75	40.69	34.78	68.20	-33.42	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	42.12	34.62	11.74	40.69	47.79	54.00	-6.21	Horizontal
5850.00	42.30	34.62	11.74	40.69	47.97	54.00	-6.03	Vertical
Remark: 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor. 2. The emission levels of other frequencies are very lower than the limit and not show in test report. 3. Pre-scan QPSK and 64QAM modulation mode, and found the QPSK modulation mode is the worst case. So the worst case shown in report.								

6.7 Spurious Emission

6.7.1 Restricted Band

Test Requirement:	FCC Part 15.407 (b)(4) and RSS-247 Section 6.2.4.2				
Test Method:	ANSI C63.10:2013 and KDB789033				
Test Frequency Range:	5.35 GHz to 5.46 GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value
Limit:	Frequency	Limit (dBuV/m @3m)			Remark
	Above 1GHz	74.00			Peak Value
		54.00			Average Value
Test Procedure:	1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotating table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.				
Test setup:					
Test Instruments:	Refer to section 5.9 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Passed				

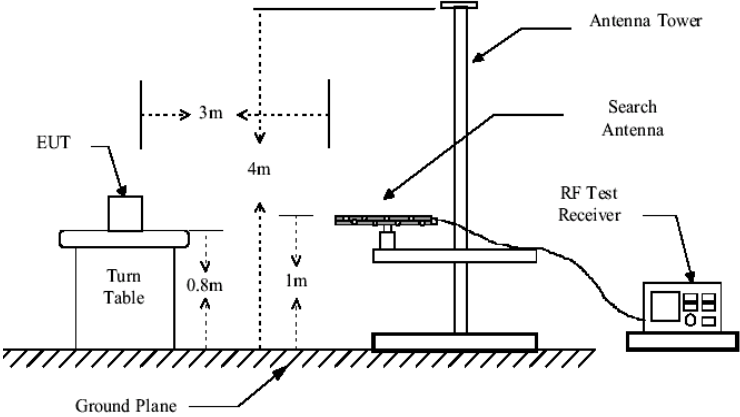
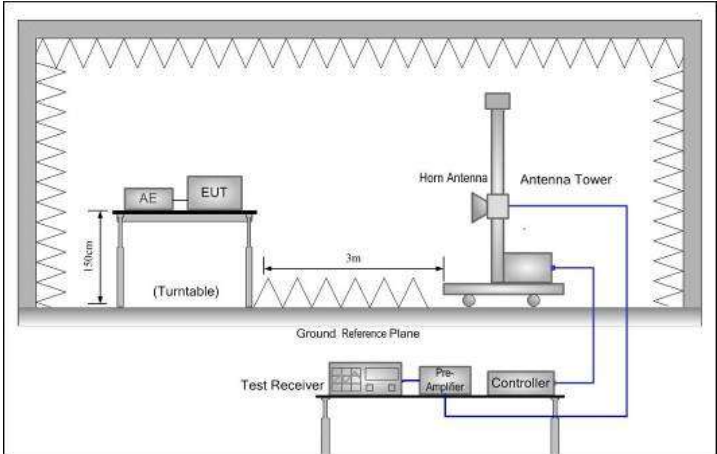
Measurement Data (worst case):

Bandwidth=10MHz – QPSK								
Test channel: Lowest channel,								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	48.32	35.37	11.19	40.18	54.70	74.00	-19.30	Horizontal
5350.00	48.96	35.37	11.19	40.18	55.34	74.00	-18.66	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	35.69	35.37	11.19	40.18	42.07	54.00	-11.93	Horizontal
5350.00	35.74	35.37	11.19	40.18	42.12	54.00	-11.88	Vertical
Test channel: Highest channel								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	48.63	34.90	11.32	40.23	54.62	74.00	-19.38	Horizontal
5460.00	48.52	34.90	11.32	40.23	54.51	74.00	-19.49	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	35.63	34.90	11.32	40.23	41.62	54.00	-12.38	Horizontal
5460.00	35.41	34.90	11.32	40.23	41.40	54.00	-12.60	Vertical
Remark: 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor. 2. The emission levels of other frequencies are very lower than the limit and not show in test report. 3. Pre-scan QPSK and 64QAM modulation mode, and found the QPSK modulation mode is the worst case. So the worst case shown in report.								

Bandwidth=20MHz – QPSK								
Test channel: Lowest channel,								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	48.21	35.37	11.19	40.18	54.59	74.00	-19.41	Horizontal
5350.00	48.74	35.37	11.19	40.18	55.12	74.00	-18.88	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	35.33	35.37	11.19	40.18	41.71	54.00	-12.29	Horizontal
5350.00	35.47	35.37	11.19	40.18	41.85	54.00	-12.15	Vertical
Test channel: Highest channel								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	48.56	34.90	11.32	40.23	54.55	74.00	-19.45	Horizontal
5460.00	48.74	34.90	11.32	40.23	54.73	74.00	-19.27	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5460.00	35.66	34.90	11.32	40.23	41.65	54.00	-12.35	Horizontal
5460.00	35.72	34.90	11.32	40.23	41.71	54.00	-12.29	Vertical
Remark: 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor. 2. The emission levels of other frequencies are very lower than the limit and not show in test report. 3. Pre-scan QPSK and 64QAM modulation mode, and found the QPSK modulation mode is the worst case. So the worst case shown in report.								

6.7.2 Unwanted Emissions out of the Restricted Bands

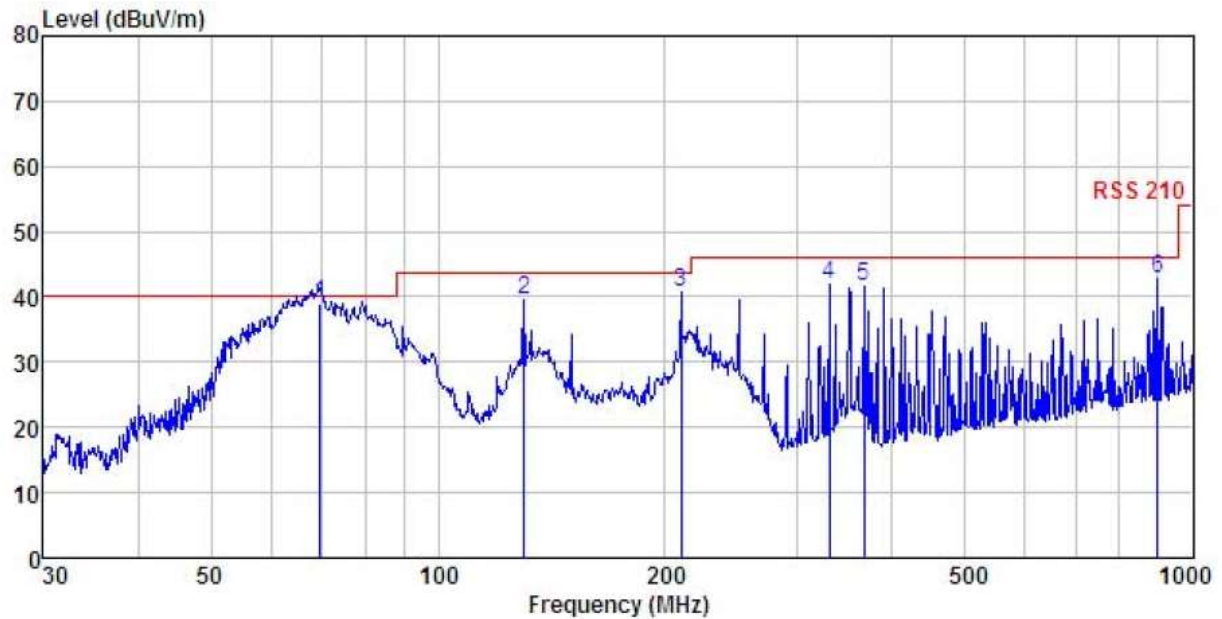
Test Requirement:	FCC Part 15.209, 15.407(b)(4) RSS-GEN Section 6.13, RSS-247 Section 6.2.4.2				
Test Method:	ANSI C63.10:2013 and KDB789033				
TestFrequencyRange:	30MHz to 40GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	30MHz-88MHz		40.0		Quasi-peak Value
	88MHz-216MHz		43.5		Quasi-peak Value
	216MHz-960MHz		46.0		Quasi-peak Value
	960MHz-1GHz		54.0		Quasi-peak Value
	Frequency		Limit (dBm/MHz)		Remark
	Above 1GHz		68.20		Peak Value
			54.00		Average Value
	Remark:				
	1. $E[dB\mu V/m] = EIRP[dBm] + 95.2=68.2 \text{ dBuV/m}$, for $EIPR[dBm]=-27dBm$.				
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz) /1.5m(above 1GHz) above the groundat a 3 meter camber. The table was rotated 360 degrees todetermine the position of the highest radiation.				
	2. The EUT was set 3 meters away from the interference-receiving antenna, whichwas mounted on the top of a variable-height antenna tower.				
	3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.				
	4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatablewas turned from 0 degrees to 360 degrees to find the maximum reading.				
	5. The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth with Maximum Hold Mode.				
	6. If the emission level of the EUT in peak mode was 10dB lower than the limitspecified, then testing could be stopped and the peak values of the EUT wouldbe reported. Otherwise the emissions that did not have 10dB margin would bere-tested one by one using peak, quasi-peak or average method as specified andthen reported in a data sheet.				

Test setup:	Below 1GHz  Above 1GHz 
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data (worst case):

Below 1GHz:

Test Polarization: Horizontal

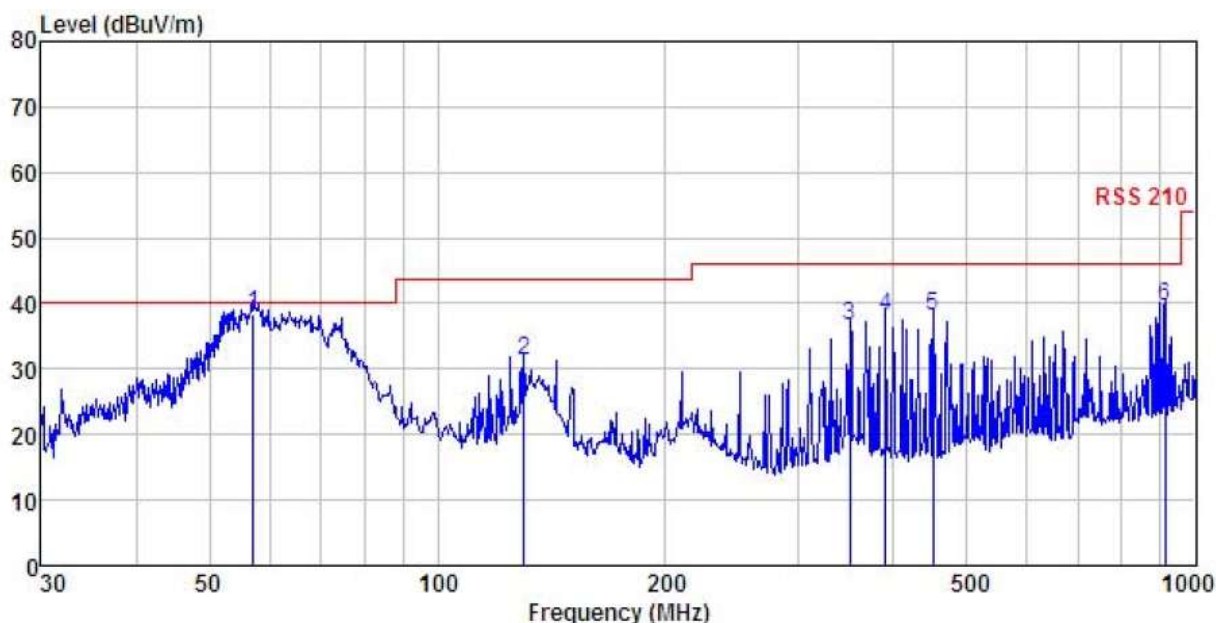


Site : 3m chamber
 Condition : RSS 210 3m VULB9163(30M2G) HORIZONTAL
 EUT : LTE-FDD Base Station
 Model : u4G-AP1000
 Test mode : TX Mode
 Power Rating : AC120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: MT
 Remark :

	Freq	ReadAntenna	Cable	Preamp	Limit	Over	
	Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1	69.845	57.02	10.20	1.52	29.72	39.02	40.00
2	129.923	58.00	8.60	2.28	29.33	39.55	43.60
3	210.048	55.43	11.30	2.86	28.77	40.82	43.60
4	330.195	53.63	13.80	3.04	28.52	41.95	46.00
5	366.823	52.61	14.55	3.09	28.64	41.61	46.00
6	900.147	46.10	21.00	3.71	27.88	42.93	46.00

Remark: Pre-scan QPSK and 64QAM modulation mode, and found the QPSK modulation mode is the worst case. So the worst case shown in report.

Test Polarization: Vertical



Site : 3m chamber
 Condition : RSS 210 3m VULB9163(30M2G) VERTICAL
 EUT : LTE-FDD Base Station
 Model : u4G-AP1000
 Test mode : TX Mode
 Power Rating : AC120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: MT
 Remark :

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	Line	Limit	Remark
		dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	57.191	53.73	13.12	1.37	29.79	38.43	40.00	-1.57 QP
2	129.923	49.83	8.60	2.28	29.33	31.38	43.60	-12.22 QP
3	350.477	47.37	14.77	3.10	28.56	36.68	46.00	-9.32 QP
4	390.723	49.16	14.70	3.08	28.74	38.20	46.00	-7.80 QP
5	451.135	48.10	15.59	3.21	28.87	38.03	46.00	-7.97 QP
6	912.862	42.45	21.00	3.84	27.84	39.45	46.00	-6.55 QP

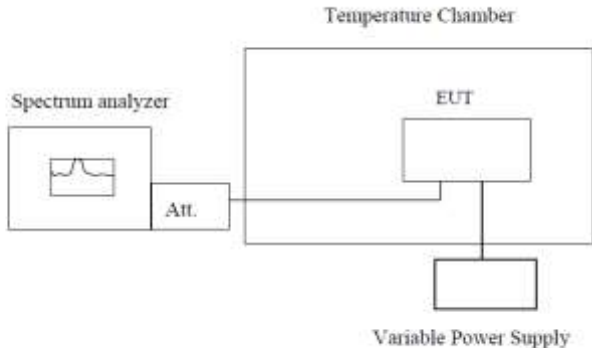
Remark: Pre-scan QPSK and 64QAM modulation mode, and found the QPSK modulation mode is the worst case. So the worst case shown in report.

Above 1GHz:

Bandwidth=10MHz – QPSK								
Test channel: Lowest channel,								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11460.00	44.25	41.50	16.83	40.75	61.83	68.20	-6.37	Horizontal
11460.00	43.25	41.50	16.83	40.75	60.83	68.20	-7.37	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11460.00	28.63	41.50	16.83	40.75	46.21	54.00	-7.79	Horizontal
11460.00	28.74	41.50	16.83	40.75	46.32	54.00	-7.68	Vertical
Test channel: Middle channel								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11550.00	43.69	41.38	16.90	40.91	61.06	68.20	-7.14	Horizontal
11550.00	43.71	41.38	16.90	40.91	61.08	68.20	-7.12	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11550.00	29.41	41.38	16.90	40.91	46.78	54.00	-7.22	Horizontal
11550.00	29.44	41.38	16.90	40.91	46.81	54.00	-7.19	Vertical
Test channel: Highest channel								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11640.00	44.32	41.26	16.97	41.06	61.49	68.20	-6.71	Horizontal
11640.00	43.20	41.26	16.97	41.06	60.37	68.20	-7.83	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11640.00	29.41	41.26	16.97	41.06	46.58	54.00	-7.42	Horizontal
11640.00	29.74	41.26	16.97	41.06	46.91	54.00	-7.09	Vertical
Remark:								
1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.								
2. The emission levels of other frequencies are very lower than the limit and not show in test report.								
3. Pre-scan QPSK and 64QAM modulation mode, and found the QPSK modulation mode is the worst case. So the worst case shown in report.								

Bandwidth=20MHz – QPSK								
Test channel: Lowest channel,								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11470.00	43.52	41.50	16.83	40.75	61.10	68.20	-7.10	Horizontal
11470.00	43.76	41.50	16.83	40.75	61.34	68.20	-6.86	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11470.00	29.79	41.50	16.83	40.75	47.37	54.00	-6.63	Horizontal
11470.00	30.02	41.50	16.83	40.75	47.60	54.00	-6.40	Vertical
Test channel: Middle channel								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11550.00	43.52	41.38	16.90	40.91	60.89	68.20	-7.31	Horizontal
11550.00	43.85	41.38	16.90	40.91	61.22	68.20	-6.98	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11550.00	29.41	41.38	16.90	40.91	46.78	54.00	-7.22	Horizontal
11550.00	29.87	41.38	16.90	40.91	47.24	54.00	-6.76	Vertical
Test channel: Highest channel								
Detector: Peak								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11630.00	43.41	41.26	16.97	41.06	60.58	68.20	-7.62	Horizontal
11630.00	44.32	41.26	16.97	41.06	61.49	68.20	-6.71	Vertical
Detector: Average								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11630.00	29.23	41.26	16.97	41.06	46.40	54.00	-7.60	Horizontal
11630.00	29.74	41.26	16.97	41.06	46.91	54.00	-7.09	Vertical
Remark: 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor. 2. The emission levels of other frequencies are very lower than the limit and not show in test report. 3. Pre-scan QPSK and 64QAM modulation mode, and found the QPSK modulation mode is the worst case. So the worst case shown in report.								

6.8 Frequency stability

Test Requirement:	FCC Part15 E Section 15.407 (g)
Limit:	Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.
Test setup:	 Note : Measurement setup for testing on Antenna connector
Test procedure:	1. The EUT is installed in an environment test chamber with external power source. 2. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT. 3. A sufficient stabilization period at each temperature is used prior to each frequency measurement. 4. When temperature is stabled, measure the frequency stability. 5. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details, and all channels have been tested, only shows the worst channel data in this report.
Test results:	Passed

Measurement Data (the worst channel):

Voltage vs. Frequency Stability:

Reference Frequency: Lowest channel=5730MHz(10MHz for QPSK)			
Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Temp(°C)	Voltage(AC/60Hz)		
20	102V	5729.997412	0.45
	120V	5729.993621	1.11
	138V	5729.994197	1.01
Reference Frequency: Lowest channel=5735MHz(20MHz for QPSK)			
Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Temp(°C)	Voltage(AC/60Hz)		
20	102V	5734.996841	0.55
	120V	5734.993624	1.11
	138V	5734.995476	0.79
Reference Frequency: Lowest channel=5730MHz(10MHz for 64QAM)			
Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Temp(°C)	Voltage(AC/60Hz)		
20	102V	5729.998541	0.25
	120V	5729.993654	1.11
	138V	5729.996854	0.55
Reference Frequency: Lowest channel=5735MHz(20MHz for 64QAM)			
Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Temp(°C)	Voltage(AC/60Hz)		
20	102V	5734.996785	0.56
	120V	5734.994752	0.92
	138V	5734.998542	0.25

Temperature vs. Frequency Stability

Reference Frequency: Lowest channel=5730MHz(10MHz for QPSK)			
Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Voltage(AC/60Hz)	Temp(°C)		
120V	-30	5729.995475	0.79
	-20	5729.991457	1.49
	-10	5729.995583	0.77
	0	5729.996574	0.60
	10	5729.993595	1.12
	20	5729.992692	1.28
	30	5729.995742	0.74
	40	5729.991548	1.48
	50	5729.992467	1.31
Reference Frequency: Lowest channel=5735MHz(20MHz for QPSK)			
Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Voltage(AC/60Hz)	Temp(°C)		
120V	-30	5734.992564	1.30
	-20	5734.995748	0.74
	-10	5734.994573	0.95
	0	5734.991984	1.40
	10	5734.993251	1.18
	20	5734.994575	0.95
	30	5734.992364	1.33
	40	5734.995388	0.80
	50	5734.993687	1.10
Reference Frequency: Lowest channel=5730MHz(10MHz for 64QAM)			
Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Voltage(AC/60Hz)	Temp(°C)		
120V	-30	5729.993657	1.11
	-20	5729.992455	1.32
	-10	5729.993665	1.11
	0	5729.994526	0.96
	10	5729.992368	1.33
	20	5729.994578	0.95
	30	5729.995842	0.73
	40	5729.993381	1.16
	50	5729.993475	1.14
Reference Frequency: Lowest channel=5735MHz(20MHz for 64QAM)			
Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Voltage(AC/60Hz)	Temp(°C)		
120V	-30	5734.993224	1.18
	-20	5734.996328	0.64
	-10	5734.992389	1.33
	0	5734.992586	1.29
	10	5734.991784	1.43
	20	5734.993695	1.10
	30	5734.995471	0.79
	40	5734.996325	0.64
	50	5734.993244	1.18