

FCC REPORT

Class II Permissive Change

Applicant Name:
SAMSUNG Electronics Co., Ltd.**Date of Issue:**
December 06, 2018**Address:**
129, Samsung-ro, Yeongtong-gu, Suwon-si,
Gyeonggi-do, 16677, Rep. of Korea**Location of test lab:**
HCT CO., LTD.,
74, Seoicheon-ro 578beon-gil, Majang-myeon,
Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA**Report No.:** HCT-RF-1812-FC008**FCC ID:** A3LSLS-BD10JQ**APPLICANT:** SAMSUNG Electronics Co.,Ltd.

Model: SLS-BD10JQ

EUT Type: RRU(Remote Radio Unit)

Frequency Ranges: 2 496 MHz ~ 2 690 MHz

Output Power: 160 W (20 W * 8)

Emission Designator: 5 MHz, 15 MHz and 20 MHz emission designator can be found in previously issued report

Date of Test: October 31, 2018 ~ November 14, 2018

FCC Rule Part(s): CFR 47 Part 2, Part 27

Note: Refer to existing report 'HCTR1311FR11', 'HCT-R-1511-F009-1' and 'HCT-RF-1801-FC006' for data not included.

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.



Report prepared by : Kwang il Yoon
Engineer of telecommunication testing center



Approved by : Jong Seok Lee
Manager of telecommunication testing center

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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-1812-FC008	December 06, 2018	- First Approval Report

Table of Contents

1. GENERAL INFORMATION.....	4
1.1. APPLICANT INFORMATION.....	4
1.2. PRODUCT INFORMATION	4
1.3. TEST INFORMATION	4
2. FACILITIES AND ACCREDITATIONS	5
2.1. FACILITIES.....	5
2.2. EQUIPMENT	5
3. TEST SPECIFICATIONS.....	6
3.1. STANDARDS	6
3.2. ADDITIONAL DESCRIPTIONS ABOUT TEST	7
3.3. MAXIMUM MEASUREMENT UNCERTAINTY	8
3.4. STANDARDS ENVIRONMENTAL TEST CONDITIONS	8
3.5. TEST DIAGRAMS.....	9
4. TEST EQUIPMENTS.....	11
5. TEST RESULT	12
5.1. RF OUTPUT POWER	12
5.2. OCCUPIED BANDWIDTH	38
5.3. UNWANTED CONDUCTED EMISSIONS	64
5.4. RADIATED EMISSIONS	177
5.5. FREQUENCY STABILITY.....	180
6. Annex A_EUT AND TEST SETUP PHOTO	184

1. GENERAL INFORMATION

1.1. APPLICANT INFORMATION

Company Name	Samsung Electronics Co., Ltd.
Company Address	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

1.2. PRODUCT INFORMATION

EUT Type	RRU(Remote Radio Unit)
Power Supply	-48 VDC
Emission Designator	5 MHz, 15 MHz and 20 MHz emission designator can be found in previously issued report
Frequency Range	2 496 MHz ~ 2 690 MHz
Output Power	160 W (20 W * 8)
Channel Bandwidths	LTE Band 41, 5 MHz / 15 MHz / 20 MHz Bandwidth
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM
Antenna Specification	Manufacturer does not provide an antenna.

1.3. TEST INFORMATION

FCC Rule Parts	CFR 47 Part 2, Part 27
Measurement standards	ANSI C63.26-2015, KDB 662911 D01 v02r01
Place of Test	HCT CO., LTD. 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

2. FACILITIES AND ACCREDITATIONS

2.1. FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA.

The site is constructed in conformance with the requirements of ANSI C63.4 (Version: 2014) and CISPR Publication 22.

Detailed description of test facility was submitted to the Commission and accepted dated April 02, 2018 (Registration Number: KR0032).

2.2. EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

3. TEST SPECIFICATIONS

3.1. STANDARDS

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 2, Part 27

Description	Reference	Results
RF Output Power	§2.1046, §27.50(h)	Compliant
Occupied Bandwidth	§2.1049	Compliant
Unwanted Conducted Emissions	§2.1051, §27.53(m)	Compliant
Radiated Emissions	§2.1053, §27.53	Compliant
Frequency Stability	§2.1055, §27.54	Compliant

3.2. ADDITIONAL DESCRIPTIONS ABOUT TEST

- The EUT was operated in a manner representative of the typical usage of the equipment.
- During all testing, system components were manipulated within the confines of typical usage to maximize each emission.
- All LTE modulation types (QPSK, 16QAM, 64QAM, 256QAM) supported by the EUT have been tested.
- The dummy loads were connected to the RF output ports for radiated spurious emission testing.
- The tests results in plots are already including the actual value of loss for the attenuator and cable combination. Please check correction factors below table.

Correction factor table			
Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
50	30.446	8 000	32.854
100	30.587	9 000	32.730
200	30.566	10 000	32.956
300	30.749	11 000	32.251
400	30.863	12 000	32.887
500	30.853	13 000	32.314
600	30.863	14 000	32.732
700	30.899	15 000	33.380
750	30.929	16 000	32.487
800	31.137	17 000	33.139
850	31.124	18 000	33.185
900	30.566	19 000	33.761
1 000	30.749	20 000	33.907
1 500	31.318	21 000	36.554
2 000	31.330	22 000	35.316
2 500	31.511	23 000	38.528
3 000	31.806	24 000	40.021
3 500	31.348	25 000	35.730
4 000	32.374	26 000	33.979
5 000	32.165	26 500	34.522
6 000	32.436	-	-
7 000	32.582	-	-

3.3. MAXIMUM MEASUREMENT UNCERTAINTY

The value of the measurement uncertainty for the measurement of each parameter.

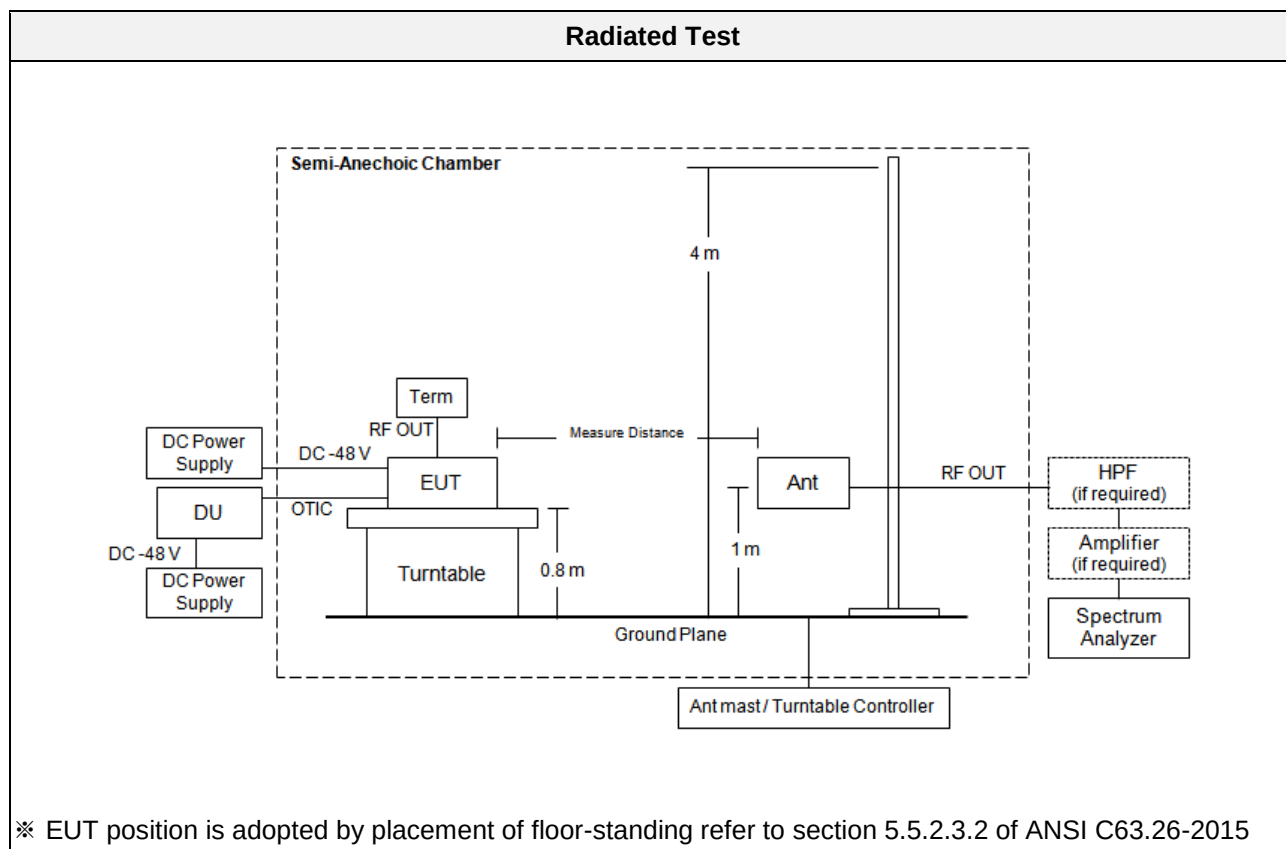
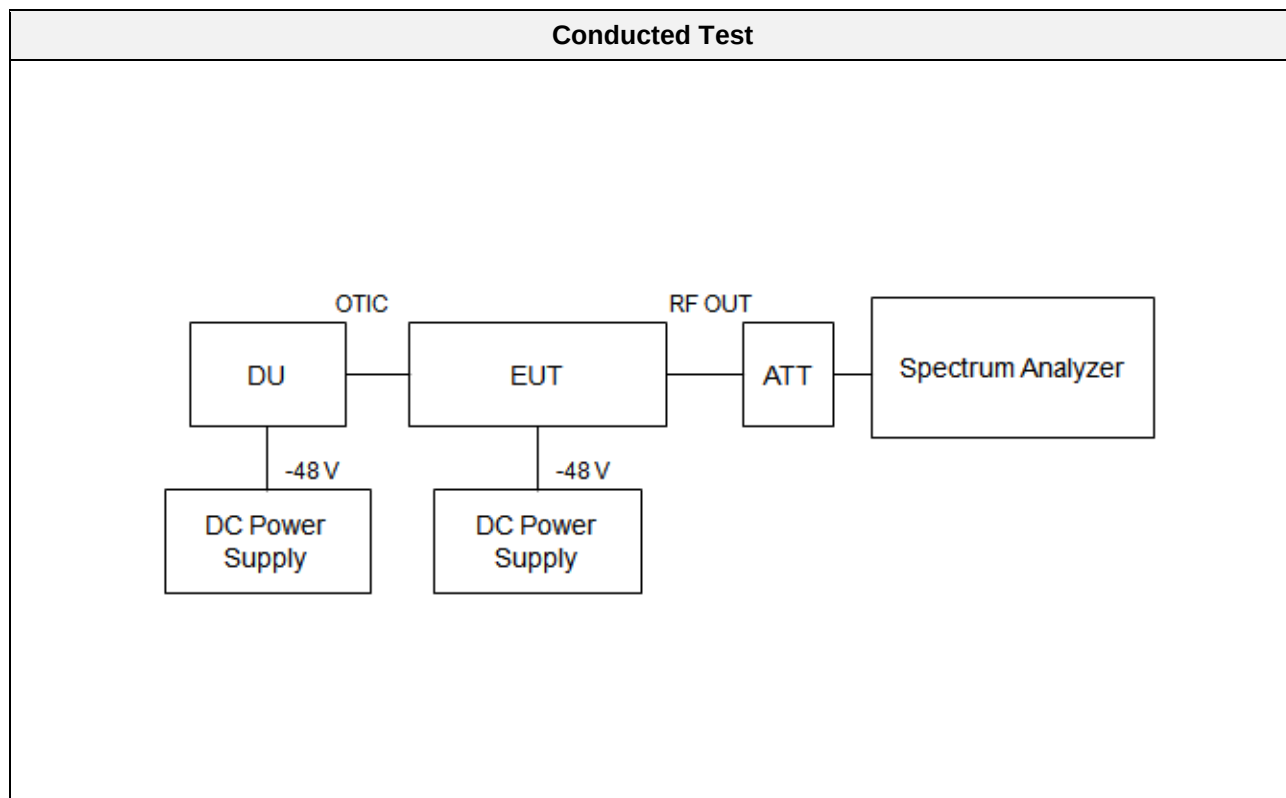
Coverage factor $k = 2$, Confidence levels of 95 %

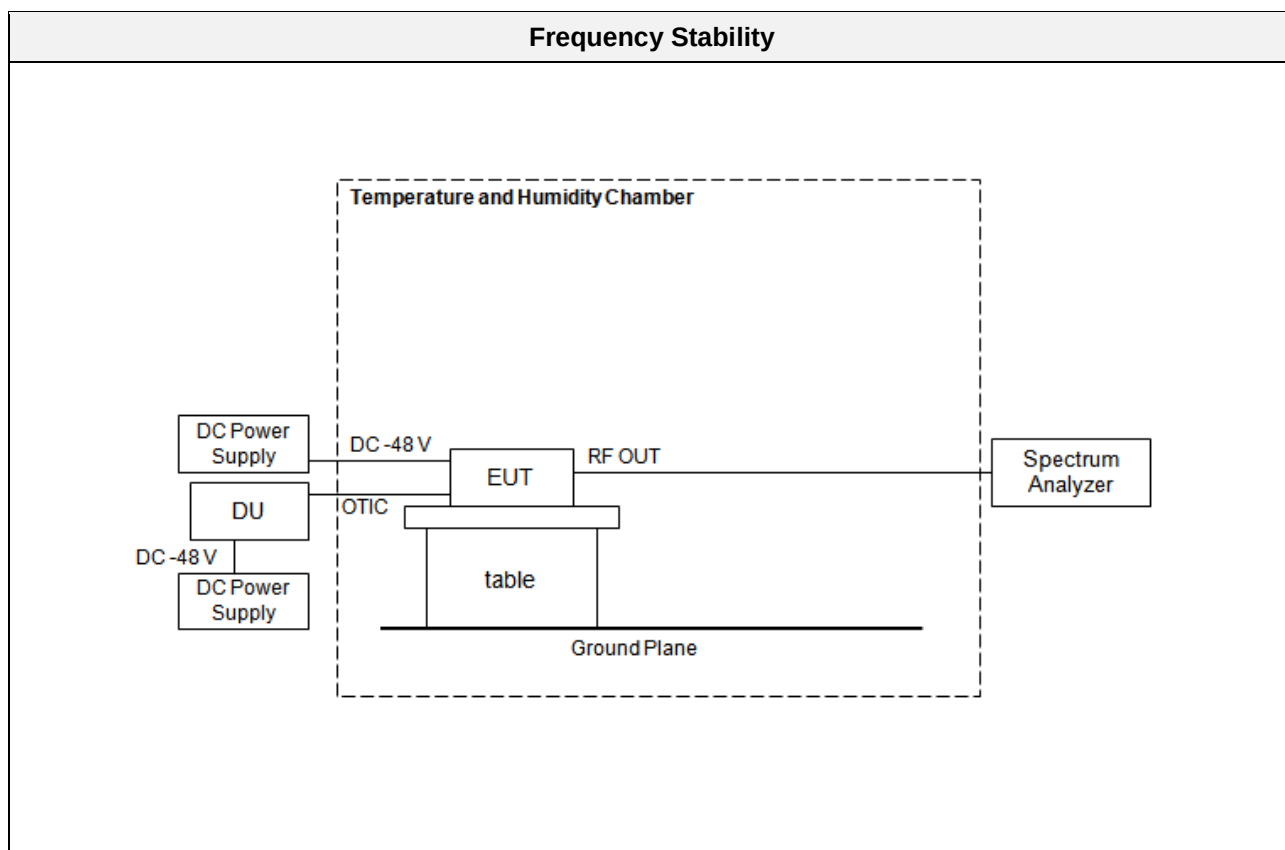
Description	Condition	Uncertainty
RF Output Power	-	± 0.72 dB
Occupied Bandwidth	-	± 0.58 MHz
Unwanted Conducted Emissions	-	± 1.08 dB
Radiated Emissions	$f \leq 1$ GHz	± 4.80 dB
	$f > 1$ GHz	± 6.07 dB
Frequency Stability	-	$\pm 1.22 \times 10^{-6}$

3.4. STANDARDS ENVIRONMENTAL TEST CONDITIONS

Temperature :	+15 °C to +35 °C
Relative humidity:	30 % to 60 %
Air pressure	860 mbar to 1 060 mbar

3.5. TEST DIAGRAMS





4. TEST EQUIPMENTS

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Agilent	N9020A / Spectrum Analyzer	09/05/2018	Annual	MY46471250
AGILENT	8498A / Coaxial Attenuator	02/19/2018	Annual	51162
KIKUSUI	PWR800L / DC Power Supply	03/21/2018	Annual	RE001154
KIKUSUI	PWR800L / DC Power Supply	02/27/2018	Annual	RE001149
NANGYEUL CO., LTD.	NY-THR18750 / Temperature and Humidity Chamber	10/30/2018	Annual	NY-2009012201A
Innco system	CO3000 / Controller(Antenna mast)	N/A	N/A	CO3000-4p
Innco system	MA4640/800-XP-EP / Antenna Position Tower	N/A	N/A	N/A
Emco	2090 / Controller	N/A	N/A	060520
Ets	- / Turn Table	N/A	N/A	N/A
Rohde & Schwarz	- / Loop Antenna	04/19/2017	Biennial	1513-175
Schwarzbeck	VULB 9168 / Hybrid Antenna	04/06/2017	Biennial	760
Schwarzbeck	BBHA 9120D / Horn Antenna	06/30/2017	Biennial	9120D-1300
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	04/25/2017	Biennial	BBHA9170124
Rohde&Schwarz	FSP / Spectrum Analyzer	09/19/2018	Annual	836650/016
Wainwright Instruments	WHKX10-900-1000-15000-40SS / High Pass Filter	07/20/2018	Annual	5
Wainwright Instruments	WHKX10-2700-3000-18000-40SS / High Pass Filter	07/20/2018	Annual	3
CERNEX	CBLU1183540 / Power Amplifier	01/03/2018	Annual	24613
CERNEX	CBL06185030 / Power Amplifier	01/03/2018	Annual	24615

5. TEST RESULT

5.1. RF OUTPUT POWER

Test Requirements:

§ 2.1046 Measurements required: RF power output.

(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in §2.1033(c)(8). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

(b) For single sideband, independent sideband, and single channel, controlled carrier radiotelephone transmitters the procedure specified in paragraph (a) of this section shall be employed and, in addition, the transmitter shall be modulated during the test as specified and applicable in § 2.1046 (b) (1-5). In all tests, the input level of the modulating signal shall be such as to develop rated peak envelope power or carrier power, as appropriate, for the transmitter.

(c) For measurements conducted pursuant to paragraphs (a) and (b) of this section, all calculations and methods used by the applicant for determining carrier power or peak envelope power, as appropriate, on the basis of measured power in the radio frequency load attached to the transmitter output terminals shall be shown. Under the test conditions specified, no components of the emission spectrum shall exceed the limits specified in the applicable rule parts as necessary for meeting occupied bandwidth or emission limitations.

§ 27.50 Power limits and duty cycle.

(h) The following power limits shall apply in the BRS and EBS:

(1) Main, booster and base stations.

(i) The maximum EIRP of a main, booster or base station shall not exceed $33 \text{ dBW} + 10\log(X/Y) \text{ dBW}$, where X is the actual channel width in MHz and Y is either 6 MHz if prior to transition or the station is in the MBS following transition or 5.5 MHz if the station is in the LBS and UBS following transition, except as provided in paragraph (h)(1)(ii) of this section.

(ii) If a main or booster station sectorizes or otherwise uses one or more transmitting antennas with a non-omnidirectional horizontal plane radiation pattern, the maximum EIRP in dBW in a given direction shall be determined by the following formula: $\text{EIRP} = 33 \text{ dBW} + 10 \log(X/Y) \text{ dBW} + 10 \log(360/\text{beamwidth}) \text{ dBW}$, where X is the actual channel width in MHz, Y is either (i) 6 MHz if prior to transition or the station is in the MBS following transition or (ii) 5.5 MHz if the station is in the LBS and UBS following transition, and beamwidth is the total horizontal plane beamwidth of the individual transmitting antenna for the station or any sector measured at the half-power points.

Test Procedures:

The measurement is performed in accordance with Section 5.2.4.4.1 of ANSI C63.26.

- a) Set span to $2 \times$ to $3 \times$ the OBW.
- b) Set RBW = 1 % to 5 % of the OBW.
- c) Set VBW $\geq 3 \times$ RBW.
- d) Set number of measurement points in sweep $\geq 2 \times$ span / RBW.
- e) Sweep time:
 - 1) Set = auto-couple, or
 - 2) Set $\geq [10 \times (\text{number of points in sweep}) \times (\text{transmission symbol period})]$ for single sweep (automation-compatible) measurement.
- f) Detector = power averaging (rms).
- g) If the EUT can be configured to transmit continuously, then set the trigger to free run.
- h) If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints (i.e., configured such that measurement data is collected only during active full-power transmissions).
- i) Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over multiple symbols, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.
- j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

Note:

- 1) The conducted emission level is measured at each antenna port and then summed mathematically to determine the total emission level from the device.
- 2) Maximum ERP is sufficient level to pass the limit.
- 3) Sum data is in a tolerance of specification provided from manufacturer.

RF Output power tolerance: ± 1 dB (each port)

Maximum output power for one port: 25.177 W (43.01 dBm + 1 dB)

Maximum output sum power: $25.177 \text{ W} \times 8 = 201.416 \text{ W}$

Measured sum maximum power: 159.44 W

The measured value is lower than the specification value.

Test Results:

20 MHz Bandwidth + 10 MHz Bandwidth / 2 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Output Power	
				(dBm)	(W)
Port 0	QPSK	Low	2498.50	42.41	17.41
		Middle	2593.00	42.14	16.36
		High	2687.50	42.56	18.02
	16QAM	Low	2498.50	42.17	16.48
		Middle	2593.00	42.10	16.20
		High	2687.50	42.05	16.02
	64QAM	Low	2498.50	42.28	16.90
		Middle	2593.00	42.09	16.17
		High	2687.50	42.30	16.96
	256QAM	Low	2498.50	42.30	16.99
		Middle	2593.00	42.23	16.71
		High	2687.50	42.05	16.04
Port 1	QPSK	Low	2498.50	42.00	15.85
		Middle	2593.00	42.12	16.29
		High	2687.50	42.05	16.05
	16QAM	Low	2498.50	41.96	15.70
		Middle	2593.00	41.95	15.65
		High	2687.50	41.85	15.30
	64QAM	Low	2498.50	41.88	15.40
		Middle	2593.00	41.94	15.64
		High	2687.50	41.94	15.61
	256QAM	Low	2498.50	42.09	16.17
		Middle	2593.00	41.87	15.37
		High	2687.50	41.92	15.56
Port 2	QPSK	Low	2498.50	41.82	15.21
		Middle	2593.00	42.12	16.28
		High	2687.50	41.77	15.03
	16QAM	Low	2498.50	41.81	15.16
		Middle	2593.00	42.06	16.06
		High	2687.50	41.87	15.37

Port	Modulation	Channel	Frequency (MHz)	Measured Output Power	
				(dBm)	(W)
	64QAM	Low	2498.50	42.04	16.00
		Middle	2593.00	42.02	15.92
		High	2687.50	41.94	15.63
	256QAM	Low	2498.50	41.75	14.96
		Middle	2593.00	42.05	16.02
		High	2687.50	41.98	15.76
Port 3	QPSK	Low	2498.50	41.99	15.80
		Middle	2593.00	42.11	16.26
		High	2687.50	41.67	14.70
	16QAM	Low	2498.50	42.04	16.01
		Middle	2593.00	42.05	16.05
		High	2687.50	41.68	14.74
	64QAM	Low	2498.50	41.85	15.30
		Middle	2593.00	42.07	16.09
		High	2687.50	41.72	14.87
	256QAM	Low	2498.50	42.08	16.15
		Middle	2593.00	41.96	15.71
		High	2687.50	41.65	14.63
Port 4	QPSK	Low	2498.50	42.00	15.85
		Middle	2593.00	41.81	15.16
		High	2687.50	41.67	14.67
	16QAM	Low	2498.50	41.93	15.61
		Middle	2593.00	41.76	14.99
		High	2687.50	41.94	15.62
	64QAM	Low	2498.50	41.96	15.71
		Middle	2593.00	41.75	14.95
		High	2687.50	41.68	14.74
	256QAM	Low	2498.50	42.24	16.77
		Middle	2593.00	42.04	15.98
		High	2687.50	41.87	15.38
Port 5	QPSK	Low	2498.50	42.49	17.74
		Middle	2593.00	41.87	15.39

Port	Modulation	Channel	Frequency (MHz)	Measured Output Power	
				(dBm)	(W)
	16QAM	High	2687.50	41.73	14.91
		Low	2498.50	42.00	15.86
		Middle	2593.00	41.75	14.98
		High	2687.50	42.04	15.99
	64QAM	Low	2498.50	42.39	17.33
		Middle	2593.00	41.84	15.26
		High	2687.50	41.69	14.76
	256QAM	Low	2498.50	42.36	17.23
		Middle	2593.00	41.79	15.08
		High	2687.50	41.93	15.60
Port 6	QPSK	Low	2498.50	42.07	16.10
		Middle	2593.00	42.13	16.34
		High	2687.50	41.89	15.47
	16QAM	Low	2498.50	42.20	16.60
		Middle	2593.00	42.00	15.84
		High	2687.50	41.86	15.36
	64QAM	Low	2498.50	42.20	16.59
		Middle	2593.00	42.02	15.93
		High	2687.50	41.87	15.38
	256QAM	Low	2498.50	41.96	15.72
		Middle	2593.00	41.91	15.53
		High	2687.50	42.08	16.15
Port 7	QPSK	Low	2498.50	41.92	15.55
		Middle	2593.00	42.27	16.85
		High	2687.50	41.76	15.01
	16QAM	Low	2498.50	42.00	15.84
		Middle	2593.00	41.86	15.36
		High	2687.50	41.83	15.24
	64QAM	Low	2498.50	41.86	15.35
		Middle	2593.00	41.89	15.44
		High	2687.50	41.82	15.19
	256QAM	Low	2498.50	41.86	15.36

Port	Modulation	Channel	Frequency (MHz)	Measured Output Power	
				(dBm)	(W)
		Middle	2593.00	42.10	16.22
		High	2687.50	41.90	15.49

* This test report only contains the worst case plot data for each port and modulation.

Sum data of all port

Modulation	Channel	Frequency (MHz)	Summed Output Power (W)
QPSK	Low	2498.50	129.51
	Middle	2593.00	128.93
	High	2687.50	123.86
16QAM	Low	2498.50	127.26
	Middle	2593.00	125.13
	High	2687.50	123.64
64QAM	Low	2498.50	128.58
	Middle	2593.00	125.40
	High	2687.50	123.14
256QAM	Low	2498.50	129.35
	Middle	2593.00	126.62
	High	2687.50	124.61

20 MHz Bandwidth + 20 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Output Power	
				(dBm)	(W)
Port 0	QPSK	Low	2526.00	43.37	21.71
		Middle	2593.00	42.81	19.09
		High	2660.00	42.64	18.35
	16QAM	Low	2526.00	43.35	21.62
		Middle	2593.00	42.95	19.70
		High	2660.00	42.75	18.85
	64QAM	Low	2526.00	43.38	21.80
		Middle	2593.00	42.80	19.05
		High	2660.00	42.70	18.62
	256QAM	Low	2526.00	43.42	21.98
		Middle	2593.00	42.57	18.05
		High	2660.00	42.74	18.80
Port 1	QPSK	Low	2526.00	42.76	18.87
		Middle	2593.00	42.65	18.41
		High	2660.00	42.57	18.08
	16QAM	Low	2526.00	42.78	18.97
		Middle	2593.00	42.60	18.21
		High	2660.00	42.42	17.46
	64QAM	Low	2526.00	43.11	20.46
		Middle	2593.00	42.85	19.26
		High	2660.00	42.38	17.31
	256QAM	Low	2526.00	42.96	19.78
		Middle	2593.00	42.48	17.72
		High	2660.00	42.52	17.85
Port 2	QPSK	Low	2526.00	42.74	18.81
		Middle	2593.00	42.56	18.03
		High	2660.00	42.44	17.52
	16QAM	Low	2526.00	42.62	18.30
		Middle	2593.00	42.58	18.11
		High	2660.00	42.51	17.84

Port	Modulation	Channel	Frequency (MHz)	Measured Output Power	
				(dBm)	(W)
	64QAM	Low	2526.00	42.71	18.68
		Middle	2593.00	42.63	18.32
		High	2660.00	42.57	18.08
	256QAM	Low	2526.00	42.78	18.98
		Middle	2593.00	42.48	17.68
		High	2660.00	42.57	18.09
Port 3	QPSK	Low	2526.00	42.72	18.69
		Middle	2593.00	42.72	18.72
		High	2660.00	42.32	17.07
	16QAM	Low	2526.00	42.72	18.70
		Middle	2593.00	42.46	17.64
		High	2660.00	42.27	16.85
	64QAM	Low	2526.00	42.55	17.99
		Middle	2593.00	42.53	17.89
		High	2660.00	42.44	17.52
	256QAM	Low	2526.00	42.56	18.01
		Middle	2593.00	42.42	17.47
		High	2660.00	42.35	17.17
Port 4	QPSK	Low	2526.00	42.82	19.13
		Middle	2593.00	42.88	19.40
		High	2660.00	42.72	18.70
	16QAM	Low	2526.00	42.90	19.51
		Middle	2593.00	42.80	19.06
		High	2660.00	42.53	17.89
	64QAM	Low	2526.00	43.04	20.15
		Middle	2593.00	42.86	19.32
		High	2660.00	42.92	19.57
	256QAM	Low	2526.00	43.11	20.45
		Middle	2593.00	42.95	19.71
		High	2660.00	42.51	17.83
Port 5	QPSK	Low	2526.00	42.86	19.33
		Middle	2593.00	42.79	19.01

Port	Modulation	Channel	Frequency (MHz)	Measured Output Power	
				(dBm)	(W)
	16QAM	High	2660.00	42.68	18.52
		Low	2526.00	42.88	19.41
		Middle	2593.00	42.72	18.69
		High	2660.00	42.73	18.77
	64QAM	Low	2526.00	43.08	20.33
		Middle	2593.00	42.80	19.05
		High	2660.00	42.62	18.30
	256QAM	Low	2526.00	42.90	19.49
		Middle	2593.00	42.77	18.93
		High	2660.00	42.53	17.90
Port 6	QPSK	Low	2526.00	43.05	20.19
		Middle	2593.00	42.87	19.34
		High	2660.00	42.62	18.27
	16QAM	Low	2526.00	43.18	20.78
		Middle	2593.00	42.80	19.05
		High	2660.00	42.63	18.34
	64QAM	Low	2526.00	43.07	20.28
		Middle	2593.00	42.87	19.38
		High	2660.00	42.72	18.72
	256QAM	Low	2526.00	43.10	20.40
		Middle	2593.00	42.99	19.89
		High	2660.00	42.55	17.98
Port 7	QPSK	Low	2526.00	42.74	18.78
		Middle	2593.00	42.87	19.39
		High	2660.00	42.71	18.65
	16QAM	Low	2526.00	42.82	19.16
		Middle	2593.00	42.88	19.43
		High	2660.00	42.52	17.88
	64QAM	Low	2526.00	42.96	19.75
		Middle	2593.00	42.85	19.29
		High	2660.00	42.45	17.58
	256QAM	Low	2526.00	43.08	20.35

Port	Modulation	Channel	Frequency (MHz)	Measured Output Power	
				(dBm)	(W)
		Middle	2593.00	43.01	20.01
		High	2660.00	42.46	17.64

* This test report only contains the worst case plot data for each port and modulation.

Sum data of all port

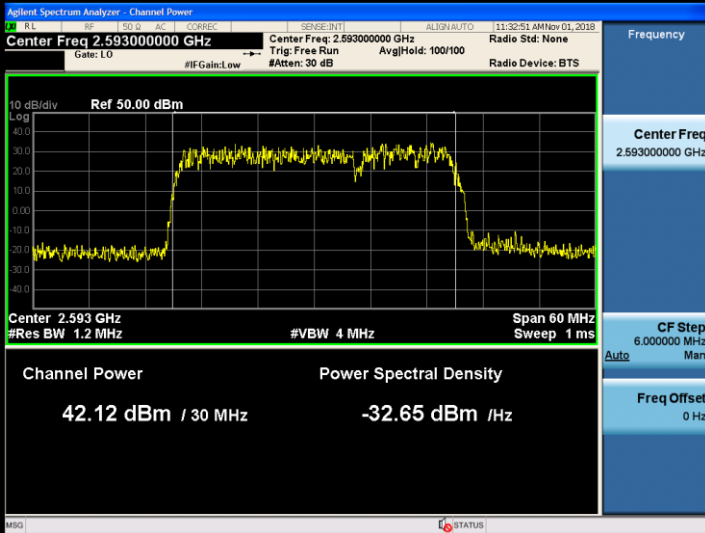
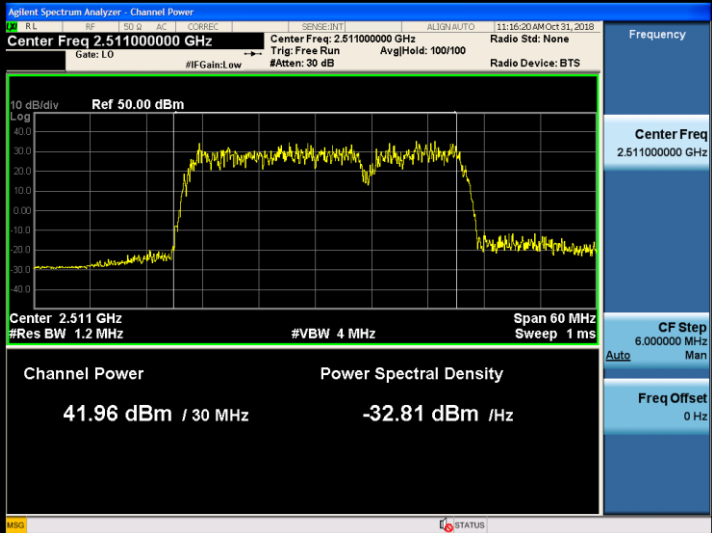
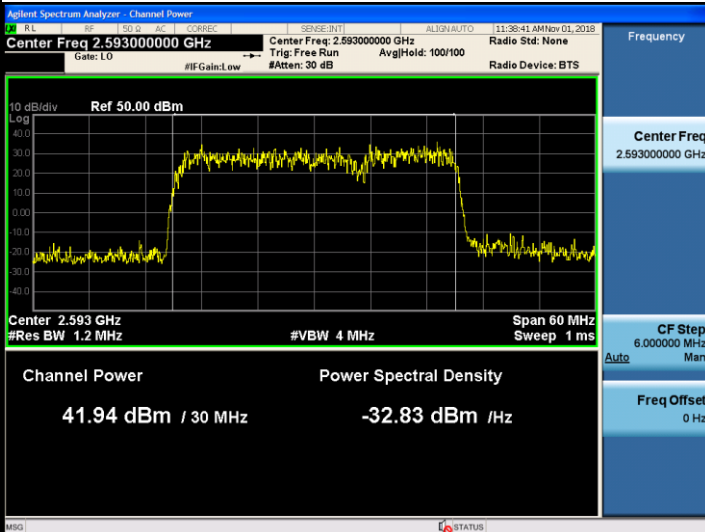
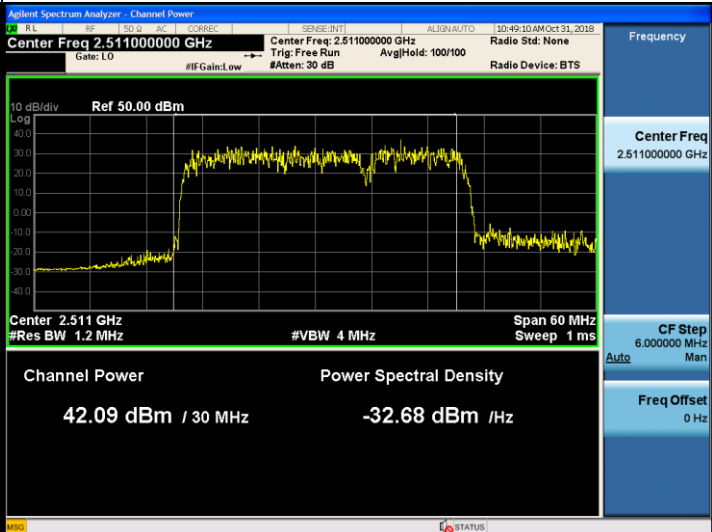
Modulation	Channel	Frequency (MHz)	Summed Output Power (W)
QPSK	Low	2526.00	155.51
	Middle	2593.00	151.39
	High	2660.00	145.16
16QAM	Low	2526.00	156.45
	Middle	2593.00	149.89
	High	2660.00	143.88
64QAM	Low	2526.00	159.44
	Middle	2593.00	151.56
	High	2660.00	145.70
256QAM	Low	2526.00	159.44
	Middle	2593.00	149.46
	High	2660.00	143.26

Plots of Output Power - 20 MHz Bandwidth + 10 MHz Bandwidth / 2 Carriers

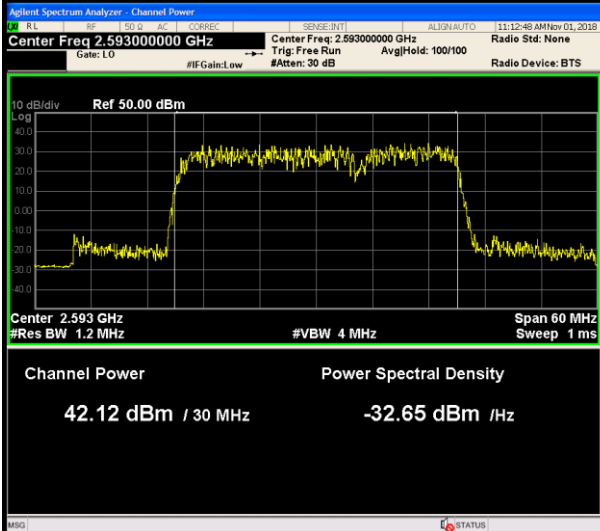
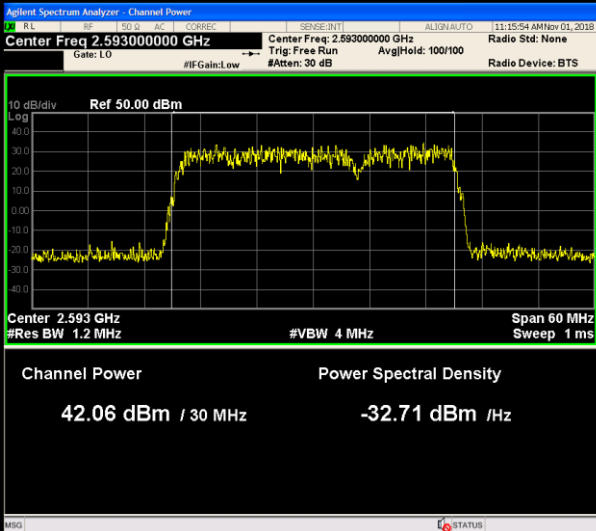
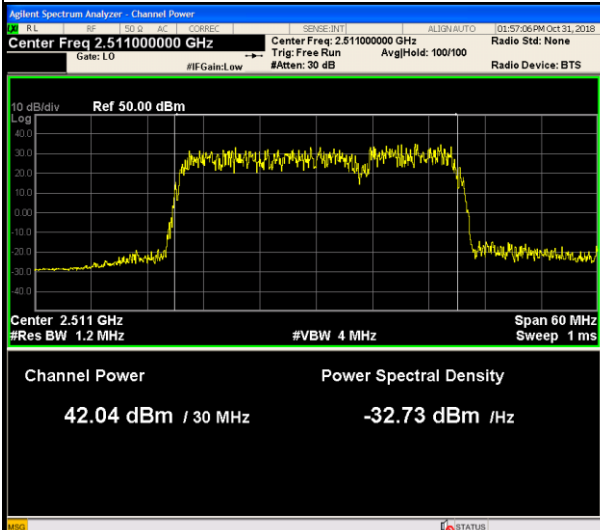
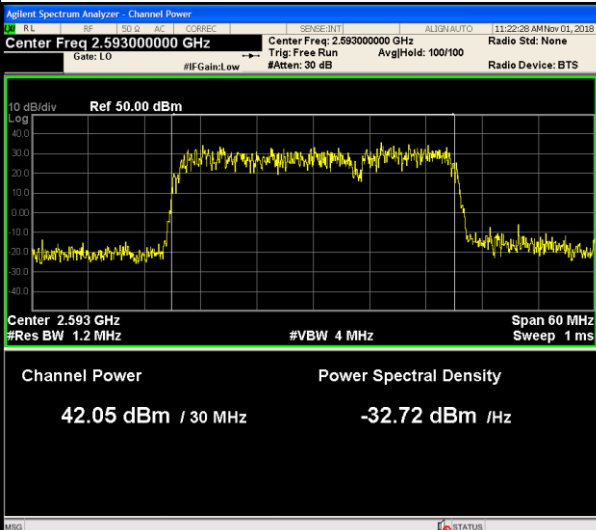
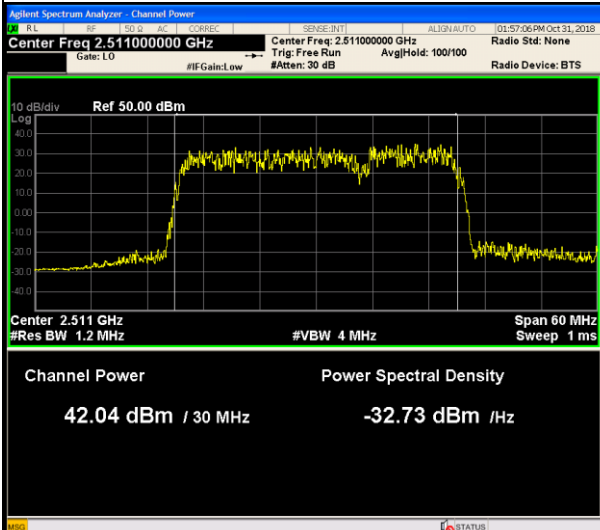
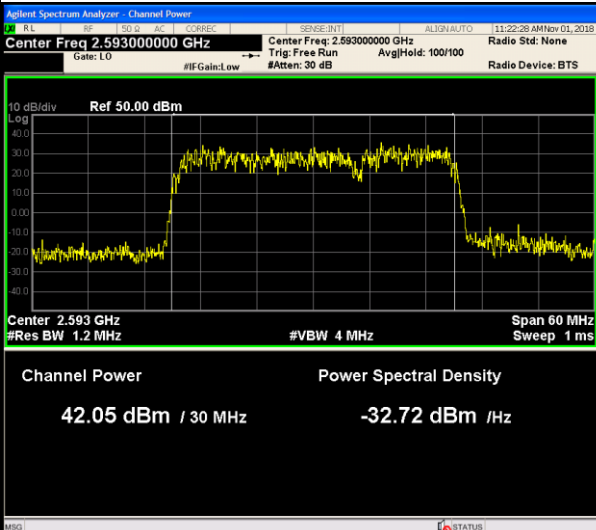
Port 0

Port 0			
Modulation:		QPSK	
Channel:		High	
Agilent Spectrum Analyzer - Channel Power RL IF 50.0 AC CORRECT SENSE:INT ALIGN:AUTO 10:47:33 PM Nov 01, 2018 Center Freq: 2.675000000 GHz Gate: LO #IF Gain: Low Trig: Free Run Avg/Hold: 100/100 Radio Std: None #Atten: 30 dB Radio Device: BTS Frequency Center Freq 2.675000000 GHz 10 dB/div Ref 50.00 dBm Log 40.0 30.0 20.0 10.0 0.00 -10.0 -20.0 -30.0 -40.0 Center 2.675 GHz #Res BW 1.2 MHz #VBW 4 MHz Span 60 MHz Sweep 1 ms Channel Power Power Spectral Density 42.56 dBm / 30 MHz -32.21 dBm /Hz Auto Man Freq Offset 0 Hz MSG STATUS		Agilent Spectrum Analyzer - Channel Power RL IF 50.0 AC CORRECT SENSE:INT ALIGN:AUTO 10:31:11 AM Oct 31, 2018 Center Freq: 2.511000000 GHz Gate: LO #IF Gain: Low Trig: Free Run Avg/Hold: 100/100 Radio Std: None #Atten: 30 dB Radio Device: BTS Frequency Center Freq 2.511000000 GHz 10 dB/div Ref 50.00 dBm Log 40.0 30.0 20.0 10.0 0.00 -10.0 -20.0 -30.0 -40.0 Center 2.511 GHz #Res BW 1.2 MHz #VBW 4 MHz Span 60 MHz Sweep 1 ms Channel Power Power Spectral Density 42.17 dBm / 30 MHz -32.60 dBm /Hz Auto Man Freq Offset 0 Hz MSG STATUS	
Modulation:		16QAM	
Channel:		Low	
Agilent Spectrum Analyzer - Channel Power RL IF 50.0 AC CORRECT SENSE:INT ALIGN:AUTO 10:38:22 PM Nov 01, 2018 Center Freq: 2.675000000 GHz Gate: LO #IF Gain: Low Trig: Free Run Avg/Hold: 100/100 Radio Std: None #Atten: 30 dB Radio Device: BTS Frequency Center Freq 2.675000000 GHz 10 dB/div Ref 50.00 dBm Log 40.0 30.0 20.0 10.0 0.00 -10.0 -20.0 -30.0 -40.0 Center 2.675 GHz #Res BW 1.2 MHz #VBW 4 MHz Span 60 MHz Sweep 1 ms Channel Power Power Spectral Density 42.30 dBm / 30 MHz -32.48 dBm /Hz Auto Man Freq Offset 0 Hz MSG STATUS		Agilent Spectrum Analyzer - Channel Power RL IF 50.0 AC CORRECT SENSE:INT ALIGN:AUTO 10:38:29 AM Oct 31, 2018 Center Freq: 2.511000000 GHz Gate: LO #IF Gain: Low Trig: Free Run Avg/Hold: 100/100 Radio Std: None #Atten: 30 dB Radio Device: BTS Frequency Center Freq 2.511000000 GHz 10 dB/div Ref 50.00 dBm Log 40.0 30.0 20.0 10.0 0.00 -10.0 -20.0 -30.0 -40.0 Center 2.511 GHz #Res BW 1.2 MHz #VBW 4 MHz Span 60 MHz Sweep 1 ms Channel Power Power Spectral Density 42.30 dBm / 30 MHz -32.47 dBm /Hz Auto Man Freq Offset 0 Hz MSG STATUS	
Modulation:		64QAM	
Channel:		High	
Agilent Spectrum Analyzer - Channel Power RL IF 50.0 AC CORRECT SENSE:INT ALIGN:AUTO 10:38:22 PM Nov 01, 2018 Center Freq: 2.675000000 GHz Gate: LO #IF Gain: Low Trig: Free Run Avg/Hold: 100/100 Radio Std: None #Atten: 30 dB Radio Device: BTS Frequency Center Freq 2.675000000 GHz 10 dB/div Ref 50.00 dBm Log 40.0 30.0 20.0 10.0 0.00 -10.0 -20.0 -30.0 -40.0 Center 2.675 GHz #Res BW 1.2 MHz #VBW 4 MHz Span 60 MHz Sweep 1 ms Channel Power Power Spectral Density 42.30 dBm / 30 MHz -32.48 dBm /Hz Auto Man Freq Offset 0 Hz MSG STATUS		Agilent Spectrum Analyzer - Channel Power RL IF 50.0 AC CORRECT SENSE:INT ALIGN:AUTO 10:38:29 AM Oct 31, 2018 Center Freq: 2.511000000 GHz Gate: LO #IF Gain: Low Trig: Free Run Avg/Hold: 100/100 Radio Std: None #Atten: 30 dB Radio Device: BTS Frequency Center Freq 2.511000000 GHz 10 dB/div Ref 50.00 dBm Log 40.0 30.0 20.0 10.0 0.00 -10.0 -20.0 -30.0 -40.0 Center 2.511 GHz #Res BW 1.2 MHz #VBW 4 MHz Span 60 MHz Sweep 1 ms Channel Power Power Spectral Density 42.30 dBm / 30 MHz -32.47 dBm /Hz Auto Man Freq Offset 0 Hz MSG STATUS	
Modulation:		256QAM	
Channel:		Low	
Agilent Spectrum Analyzer - Channel Power RL IF 50.0 AC CORRECT SENSE:INT ALIGN:AUTO 10:38:22 PM Nov 01, 2018 Center Freq: 2.675000000 GHz Gate: LO #IF Gain: Low Trig: Free Run Avg/Hold: 100/100 Radio Std: None #Atten: 30 dB Radio Device: BTS Frequency Center Freq 2.675000000 GHz 10 dB/div Ref 50.00 dBm Log 40.0 30.0 20.0 10.0 0.00 -10.0 -20.0 -30.0 -40.0 Center 2.675 GHz #Res BW 1.2 MHz #VBW 4 MHz Span 60 MHz Sweep 1 ms Channel Power Power Spectral Density 42.30 dBm / 30 MHz -32.48 dBm /Hz Auto Man Freq Offset 0 Hz MSG STATUS		Agilent Spectrum Analyzer - Channel Power RL IF 50.0 AC CORRECT SENSE:INT ALIGN:AUTO 10:38:29 AM Oct 31, 2018 Center Freq: 2.511000000 GHz Gate: LO #IF Gain: Low Trig: Free Run Avg/Hold: 100/100 Radio Std: None #Atten: 30 dB Radio Device: BTS Frequency Center Freq 2.511000000 GHz 10 dB/div Ref 50.00 dBm Log 40.0 30.0 20.0 10.0 0.00 -10.0 -20.0 -30.0 -40.0 Center 2.511 GHz #Res BW 1.2 MHz #VBW 4 MHz Span 60 MHz Sweep 1 ms Channel Power Power Spectral Density 42.30 dBm / 30 MHz -32.47 dBm /Hz Auto Man Freq Offset 0 Hz MSG STATUS	

Port 1

Port 1			
Modulation:		QPSK	
Channel:		Middle	
Agilent Spectrum Analyzer - Channel Power		Agilent Spectrum Analyzer - Channel Power	
			
Modulation:		16QAM	
Channel:		Low	
Agilent Spectrum Analyzer - Channel Power		Agilent Spectrum Analyzer - Channel Power	
			

Port 2

Port 2			
Modulation:		QPSK	
Channel:		Middle	
			
Modulation:		16QAM	
Channel:		Middle	
			
Modulation:		64QAM	
Channel:		Low	
			
Modulation:		256QAM	
Channel:		Middle	
