

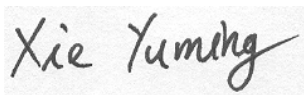
FCC MEASUREMENT AND TEST REPORT

For

ZTE Corporation

ZTE Plaza, Hi-tech Park, Nanshan District, Shenzhen,
Guangdong, China 518057

FCC ID: Q78-R8978S2600MH

This Report Concerns: ☒ Original Report	Equipment Type: LTE Remote Radio Unit
Test Engineer: Jennie.He	
Report No: RF2015081RP	
Test Date: Mar 9 – Mar 20, 2015	
Reviewed By: 	
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Note: The test report is specially limited to the above company and this particular sample only. It may not be duplicated without prior written consent of ZTE Corporation. This report must not be used by the client to claim product certification 、 approval 、 or endorsement by any agency of the US Government.

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1 GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The ZTE Corporation's product, model number: ZXSDR R8978 S2600M or the "EUT" as referred to in this report is a LTE Remote Radio Unit.

Technical specification:

Total Weight: 21kg

Volume: 22L

Dimensions (H*W*D): 430 mm x400 mm x 128 mm

Input voltage: -48VDC (-57VDC to -37VDC)

Frequency range: 2590MHz~2690 MHz

Carrier and bandwidth: 2carriers, 40MHz

Max RF output power: 43dBm one port

Modulation type of emission: LTE

Appearance of EUT:

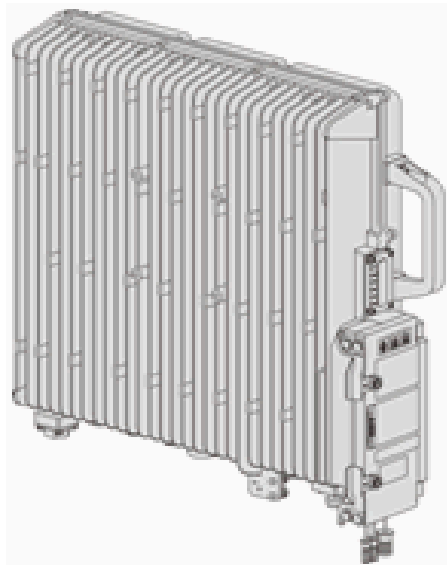


Figure 1 External View of the ZXSDR R8978 S2600M

Objective

This Type approval report is prepared on behalf of ZTE Corporation in accordance with Part 2、Part 15、Part 27 of the Federal Communication Commission rules.

Related Submittal(s)/GrPort(s)

No related submittal(s).

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2. as well as the following parts:

Part 24 Wireless Communication Services

Applicable Standards: TIA EIA 137-A, TIA EIA 97-D, TIA/EIA 603-C, Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

All radiated and conducted measurement was performed at ZTE Corporation Reliability Testing Center. The radiated testing was performed at an Portenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by ZTE Corporation to collect test data is located in the 1/F,B2 Wing, ZTE Plaza, Keji Road South, Shenzhen, Guangdong, 518057, P.R.China, Tel: +86-755-26771609,Fax: +86-755-26770347. Test site at ZTE Corporation has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 373926. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

2 SYSTEM TEST CONFIGURATION

Description of Test Configuration

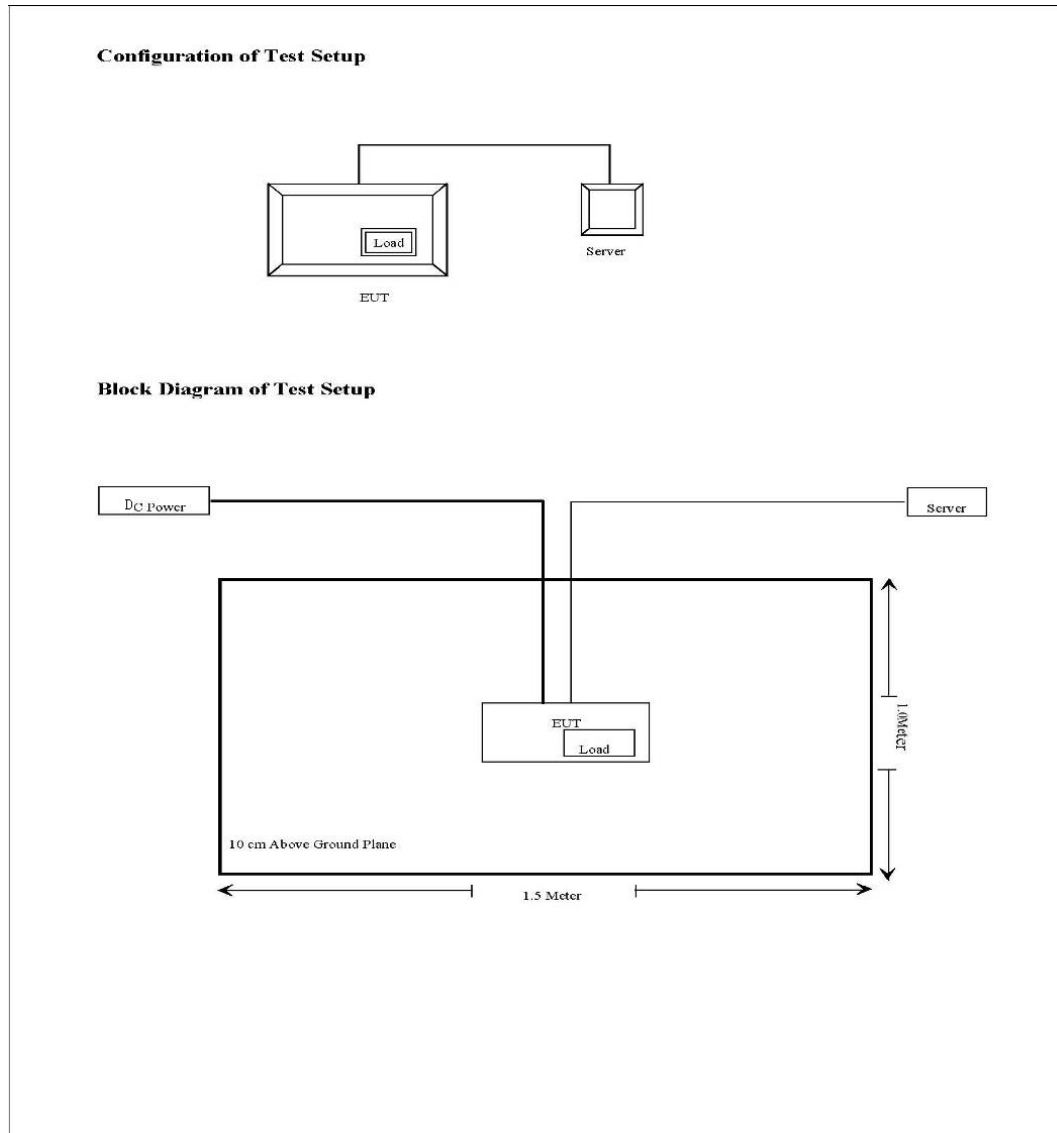
Justification

The EUT was configured for testing according to TIA/EIA-603C.

The final qualification test was performed with EUT operating at normal mode.

Equipment Modifications

ZTE Corporation has not done any modification on the EUT.



3 SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§ 2.1046 , §27.50	RF power output	CompliPort
§ 2.1047	Modulation characteristics	CompliPort
§ 2.1049	Occupied Bandwidth	CompliPort
§ 2.1051, §27.53	Spurious emissions at Portenna terminals	CompliPort

§ 2.1055	Frequency stability	CompliPort
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4 RF POWER OUTPUT

Applicable Standard: FCC § 2.1046 , §27.50

According to FCC §2.1046 & 27.50(h)

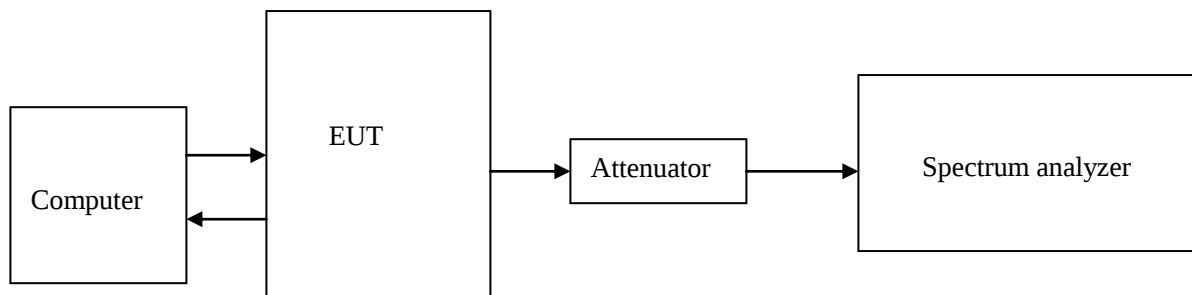
1) Main, booster and base stations. (i) The maximum EIRP of a main, booster or base station shall not exceed $33 \text{ dBW} + 10\log(X/Y) \text{ dBW}$, where X is the actual channel width in MHz and Y is either 6 MHz if prior to transition or the station is in the MBS following transition or 5.5 MHz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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY50110260	2014.09.16	2015.09.16

***statement of traceability:** ZTE Corporation Reliability Testing Center attests that all calibration has been performed per the NVLAP requirements, traceable to NIST.

Test Procedure



The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. External attenuation Loss is 40dB, Cable Loss is about 6.1dB, the detector is peak.

Radiated power (dBm) = Conducted power (dBm) + Portenna gain (dBi) – Signal attenuation in the connecting cable between the transmitter and Portenna (dB)

Portenna gain (dBi):17dBi

Signal attenuation in the connecting cable between the transmitter and Portenna (dB):0.6dB

Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

Test Result: Pass

Test Mode: Transmitting LTE

Test Data:

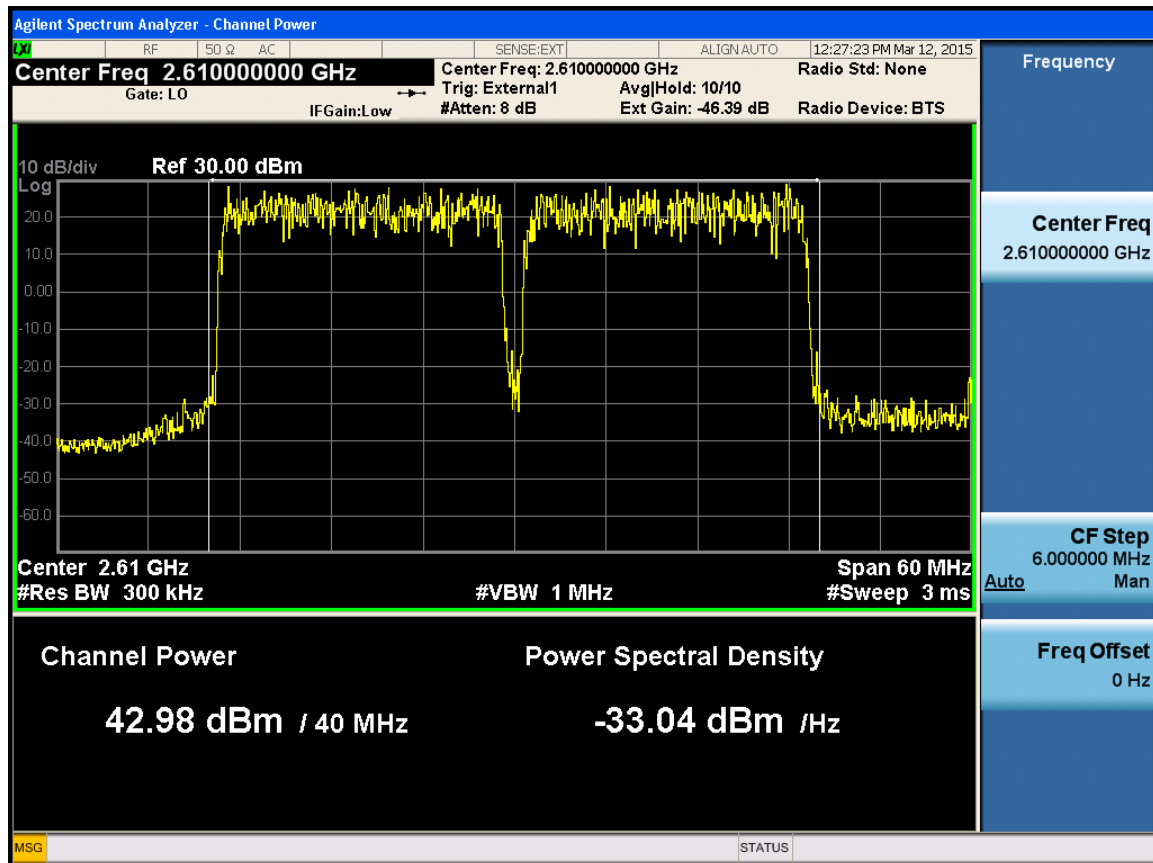
Channel Bandwidth: 20M+20M (1 port)

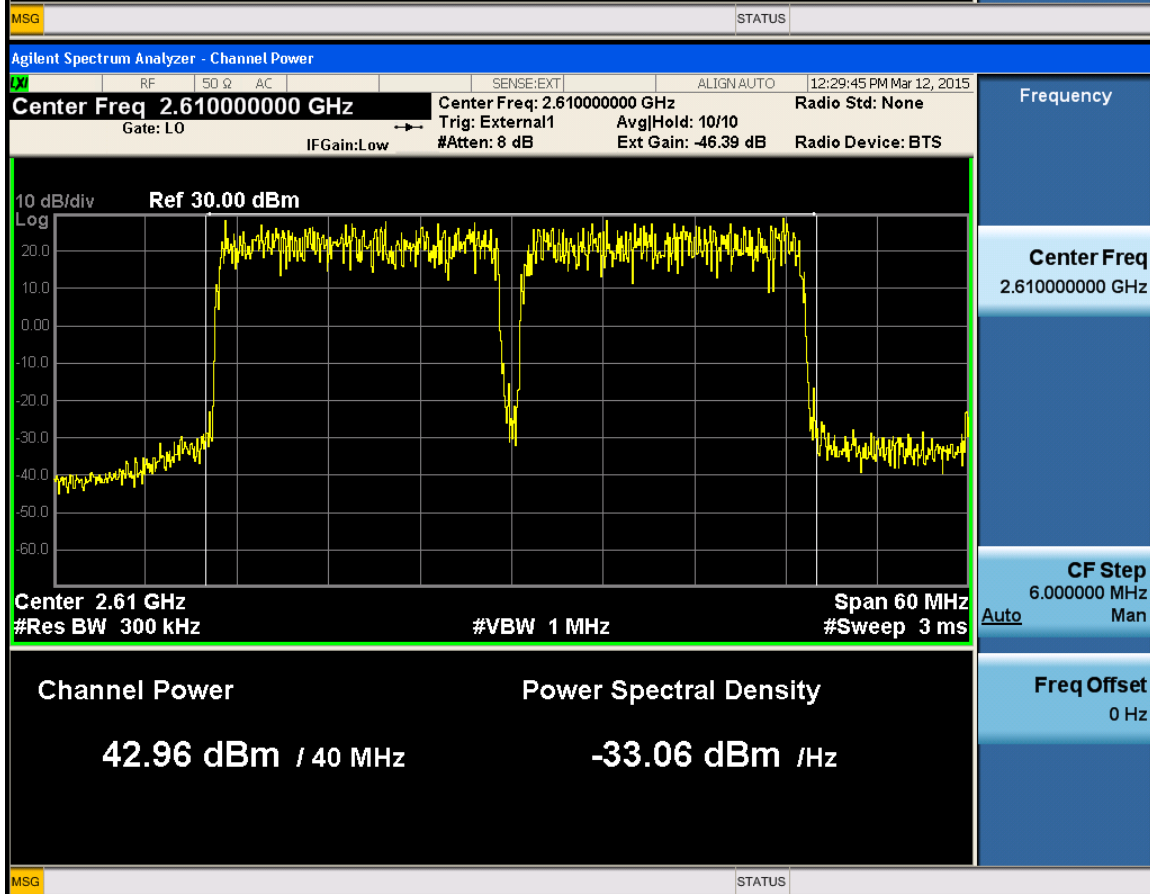
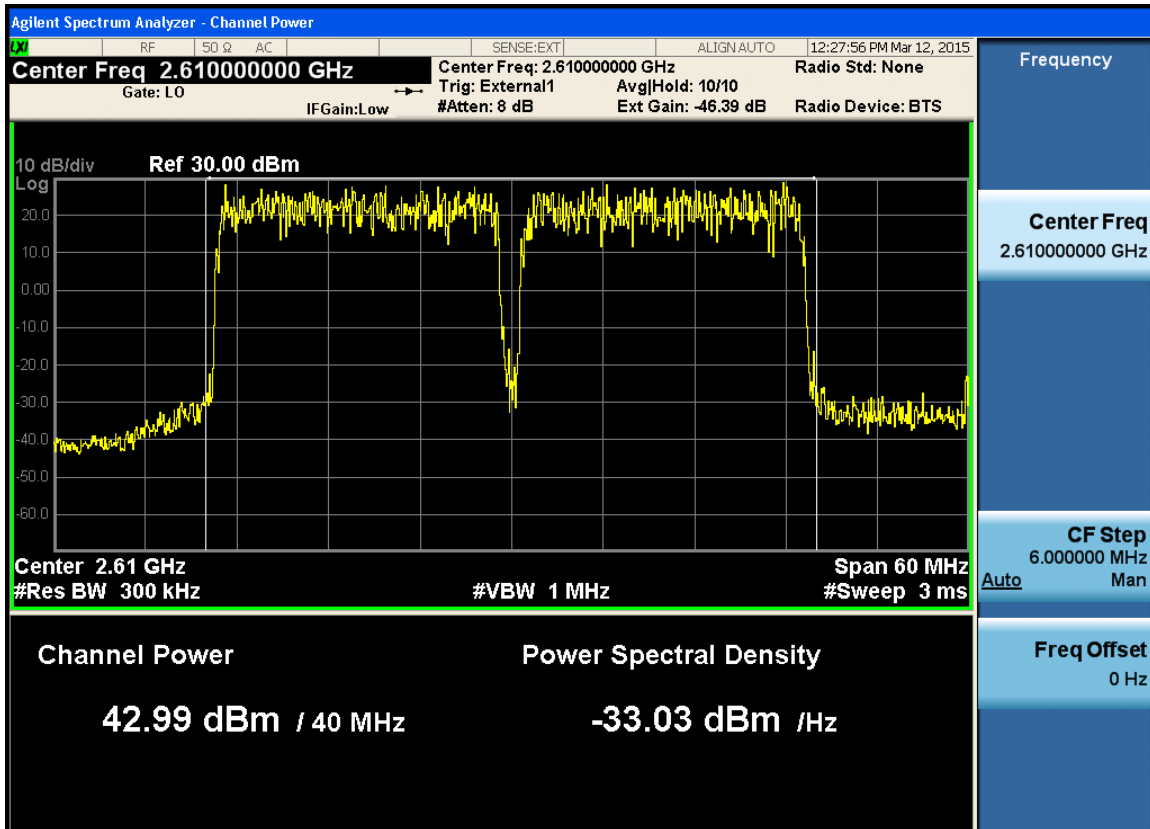
Port	Carrier Freq. c1+c2(MHz)	Output Power					
		QPSK		16QAM		64QAM	
		dBm	W	dBm	W	dBm	W
0	2600+2620	42.98	19.86	42.89	19.45	43.07	20.27
1		42.99	19.90	42.92	19.58	43.01	19.99
2		42.96	19.76	42.94	19.67	43.04	20.13
3		42.98	19.86	42.97	19.81	43.00	19.95
4		42.98	19.86	42.99	19.90	42.99	19.90
5		42.87	19.36	43.01	19.99	42.92	19.58
6		42.88	19.40	43.05	20.18	42.93	19.63
7		42.89	19.45	43.06	20.23	42.95	19.72
0	2630+2650	42.94	19.67	42.93	19.63	42.87	19.36
1		42.98	19.86	42.96	19.76	42.81	19.09
2		43.01	19.99	42.97	19.81	42.82	19.14
3		43.03	20.09	42.99	19.90	42.83	19.18
4		43.04	20.13	42.98	19.86	42.85	19.27
5		43.01	19.99	43.00	19.95	42.87	19.36
6		42.97	19.81	43.01	19.99	42.89	19.45
7		42.98	19.86	43.00	19.95	42.90	19.49
0	2660+2680	42.92	19.58	43.04	20.13	42.89	19.45
1		42.93	19.63	43.05	20.18	42.91	19.54
2		42.93	19.63	43.06	20.23	42.95	19.72
3		42.94	19.67	43.05	20.18	42.97	19.81
4		42.97	19.81	43.00	19.95	42.89	19.45
5		42.98	19.86	43.00	19.95	42.90	19.49

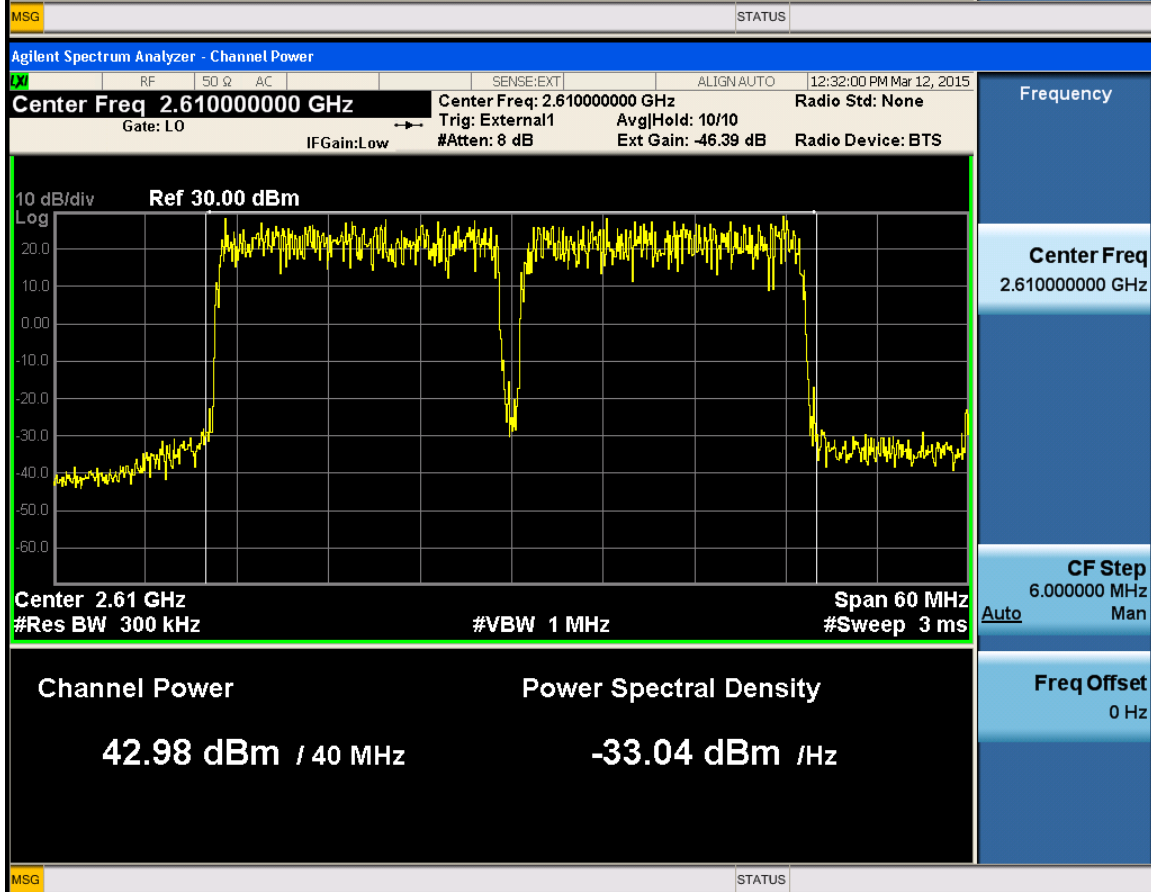
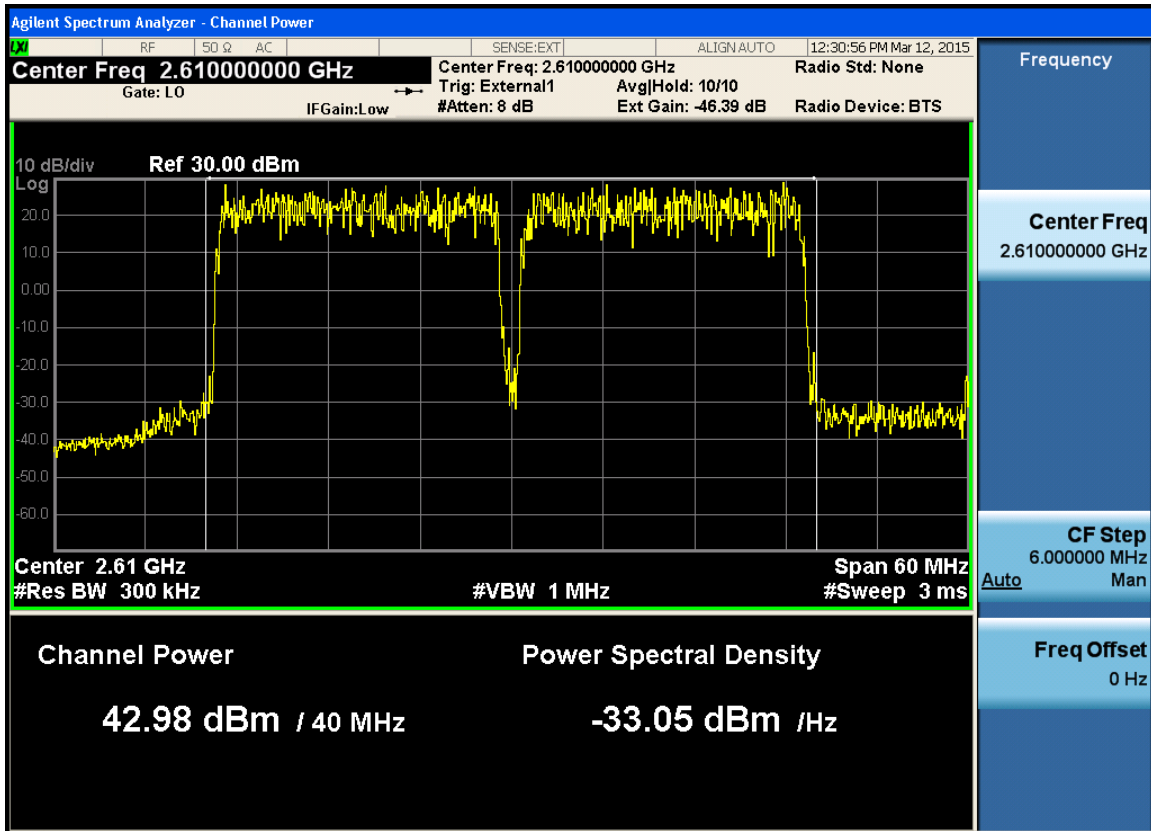
6		42.99	19.90	42.97	19.81	42.91	19.54
7		43.01	19.99	42.93	19.63	42.92	19.58

Channel Bandwidth: 20M+20M (8 ports)

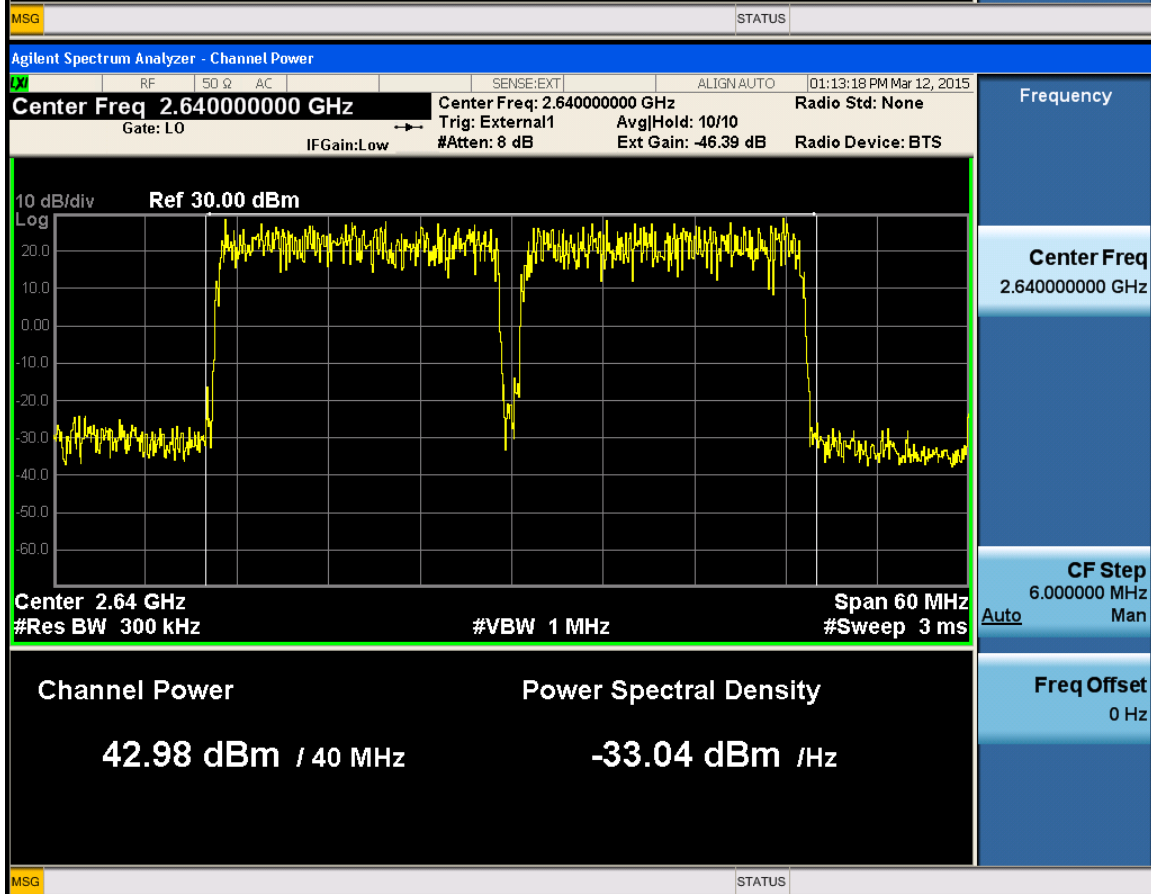
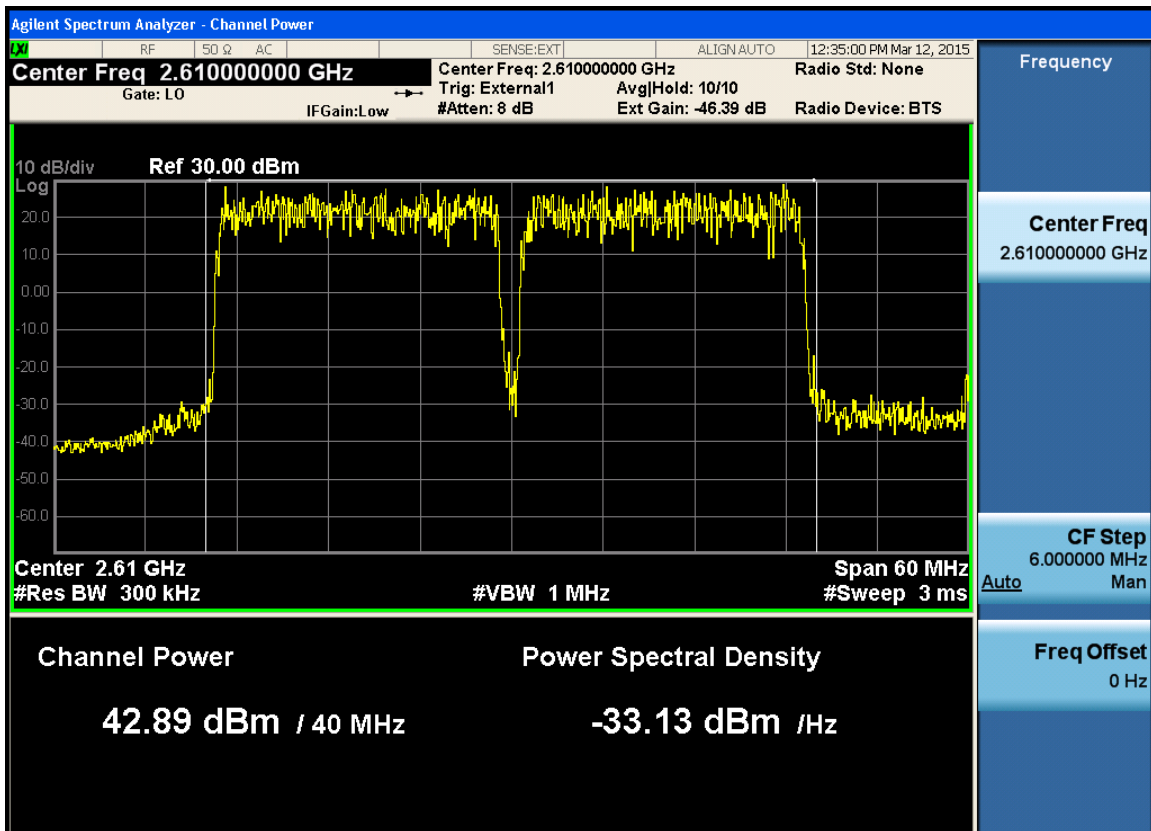
Carrier Freq. c1+c2(MHz)	Output Power									limit(d Bw
	QPSK			16QAM			64QAM			
	dBm	EIRP(dBm)	EIRP(dBw)	dBm	EIRP(dBm)	EIRP(dBw)	dBm	EIRP(dBm)	EIRP(dBw)	
2600+2620	51.97	68.37	38.37	52.01	68.41	38.41	52.01	68.41	38.41	<41.2
2630+2650	52.02	68.42	38.42	52.01	68.41	38.41	51.88	68.28	38.28	<41.2
2660+2680	51.98	68.38	38.38	52.04	68.44	38.44	51.94	68.34	38.34	<41.2

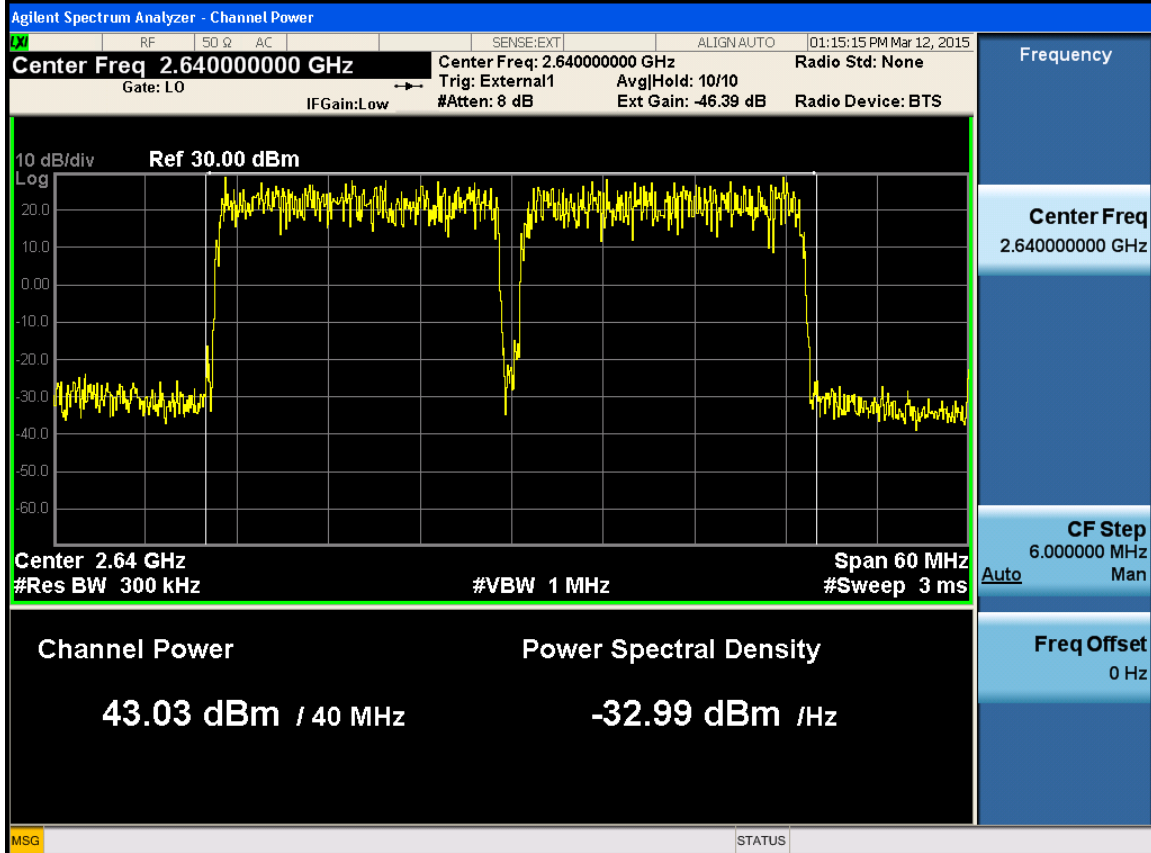
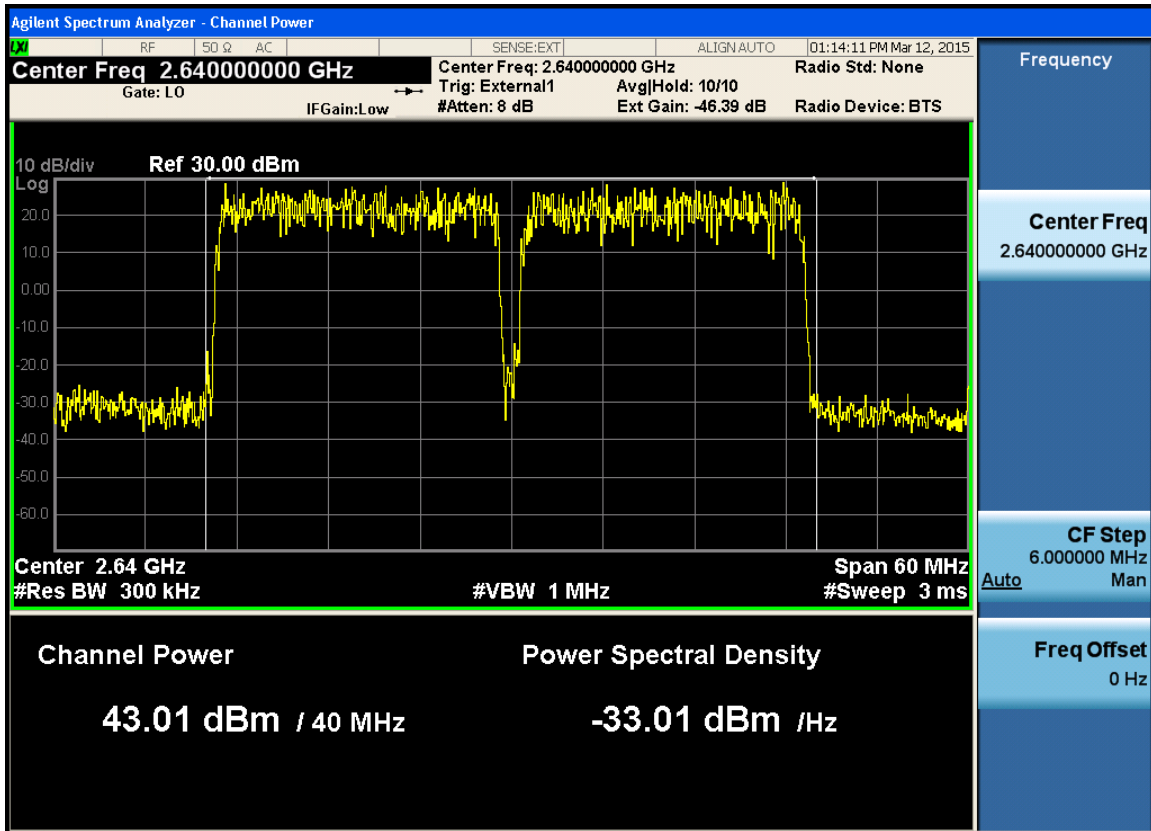


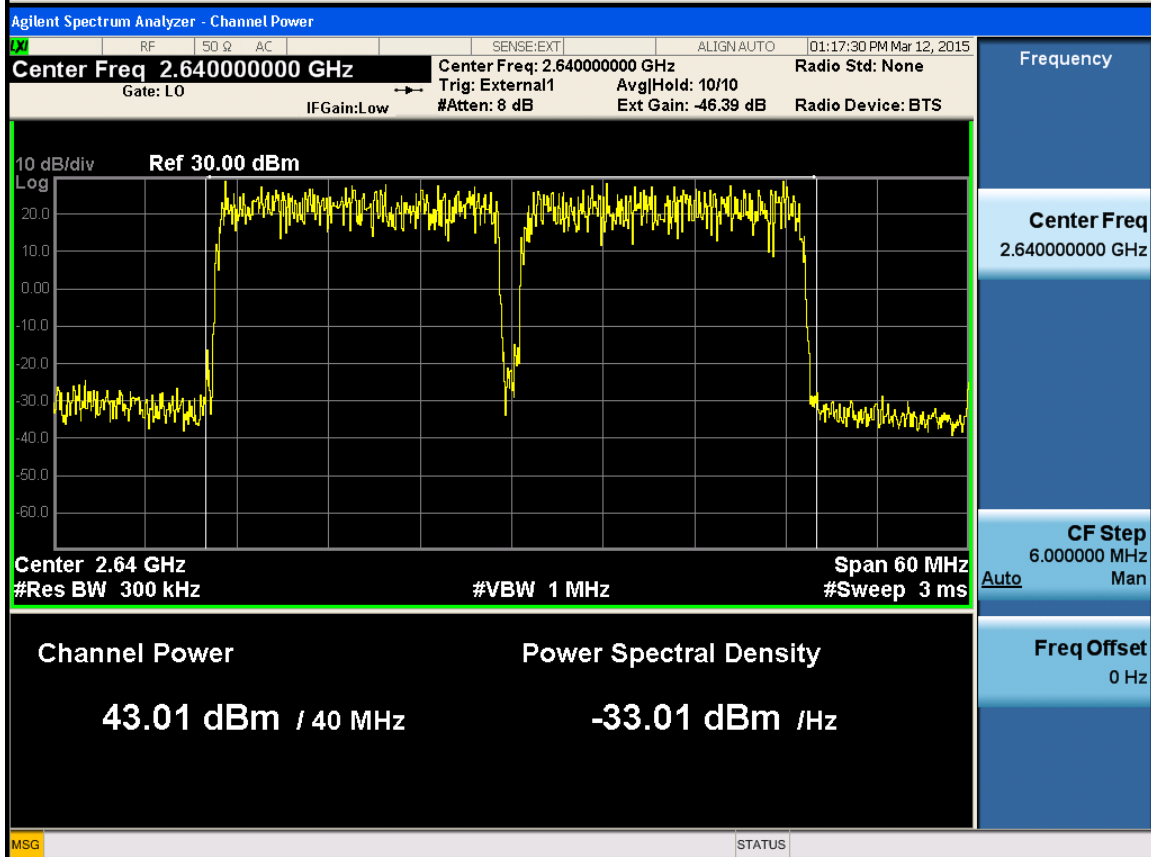
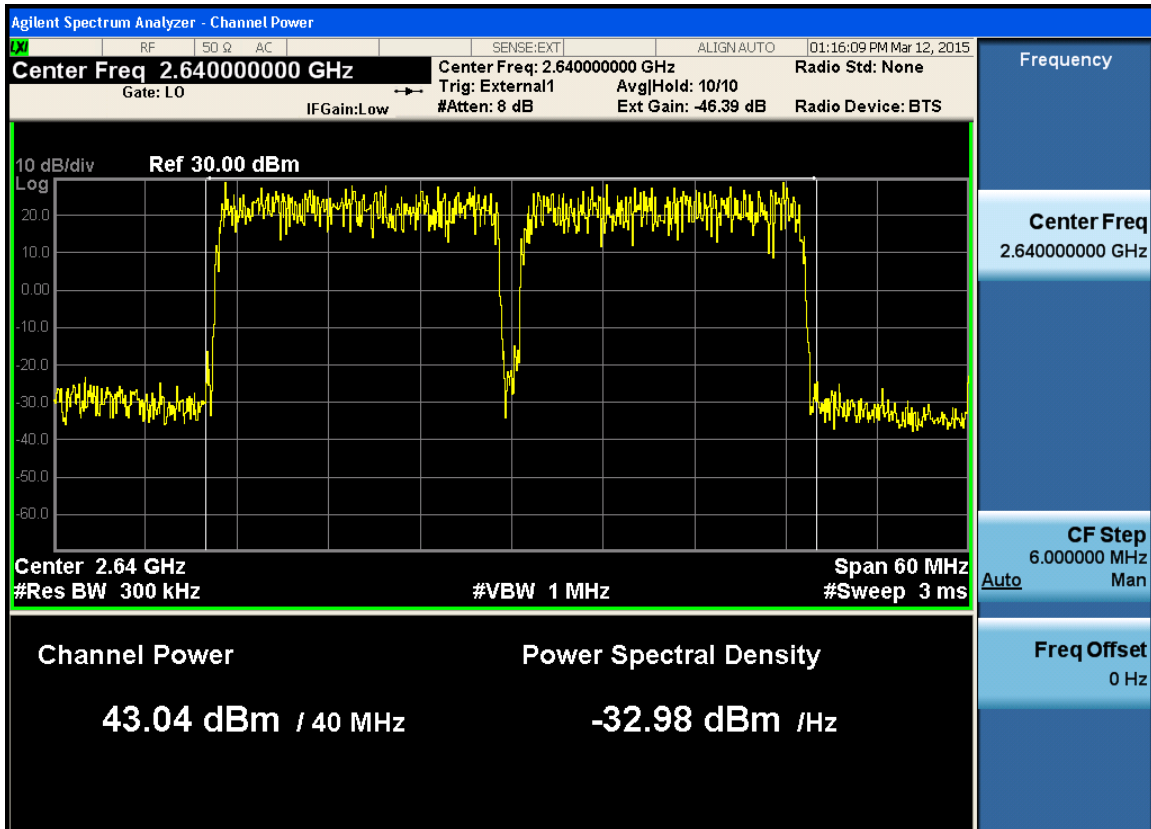


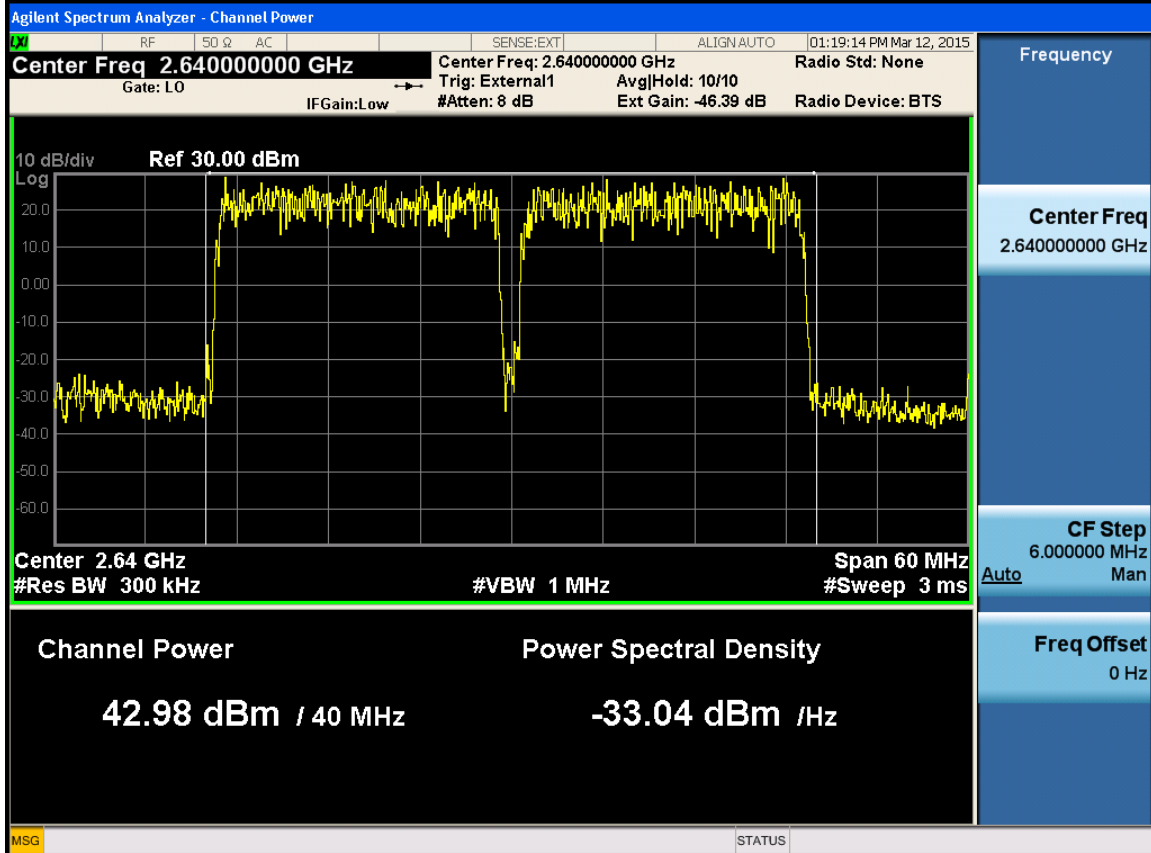
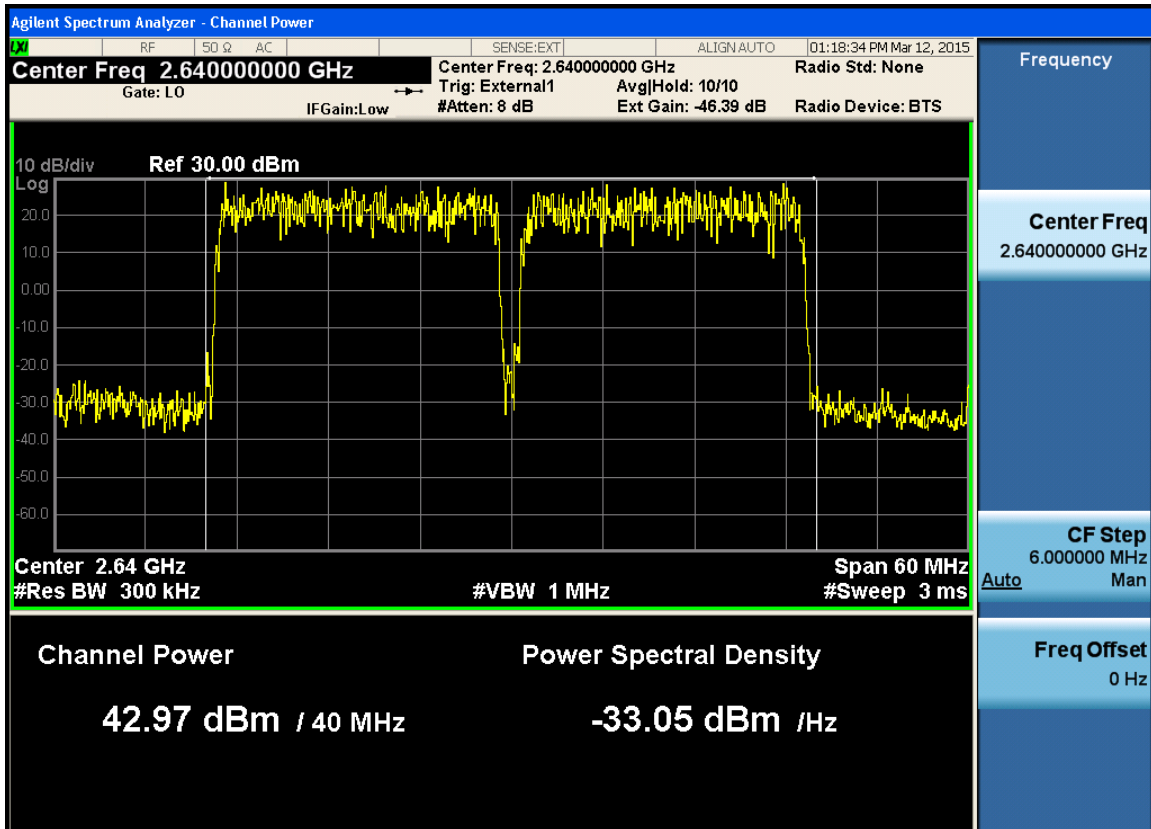


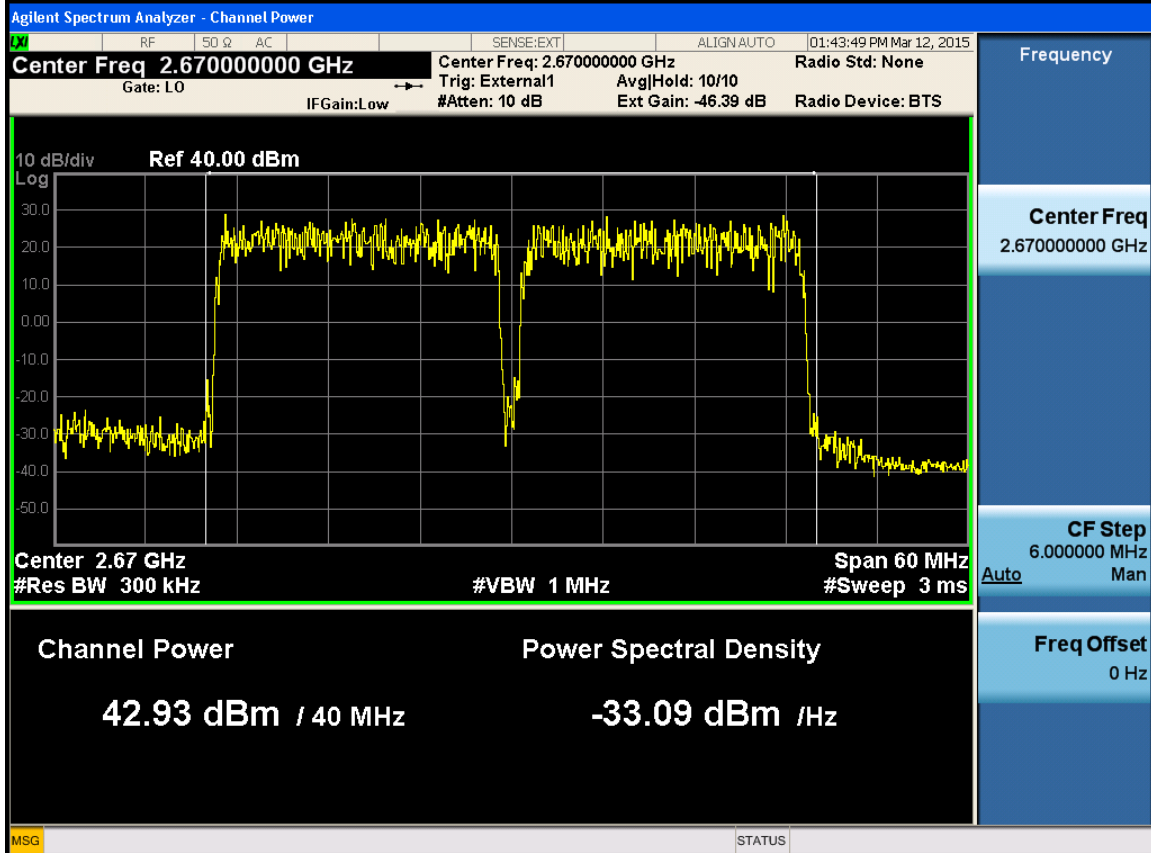
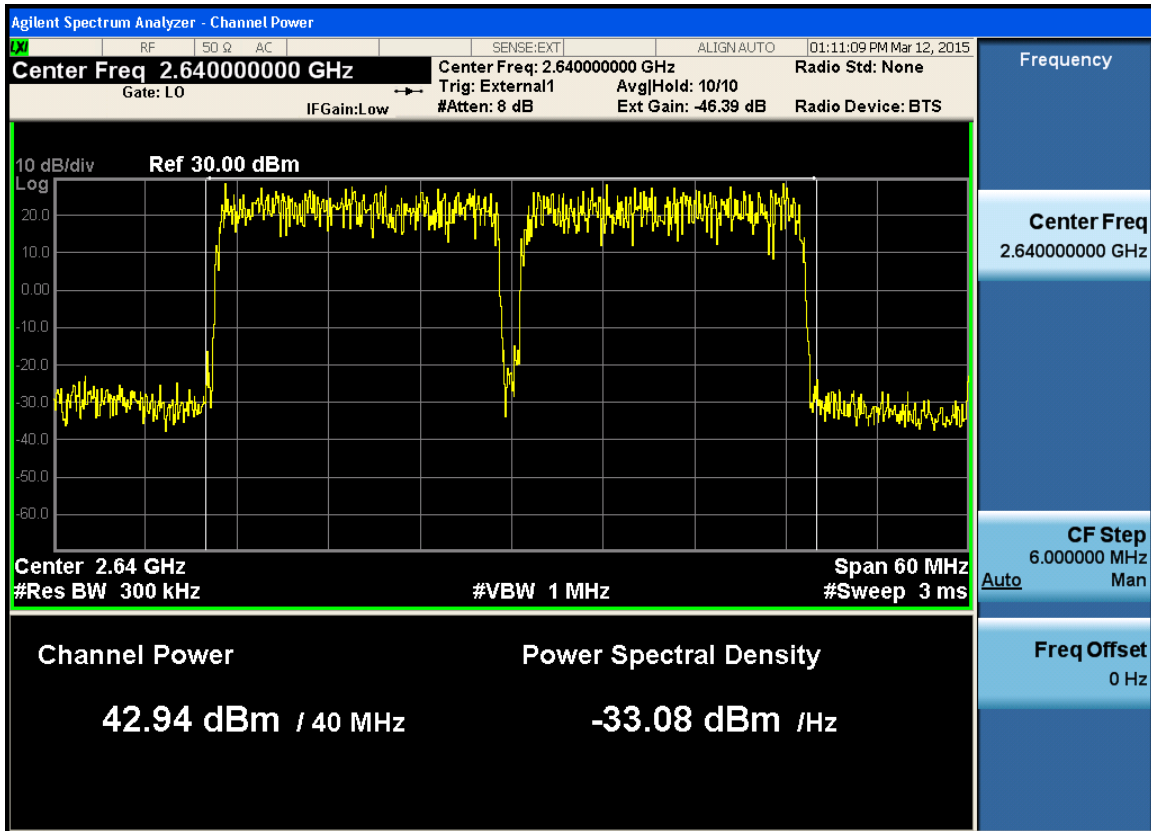


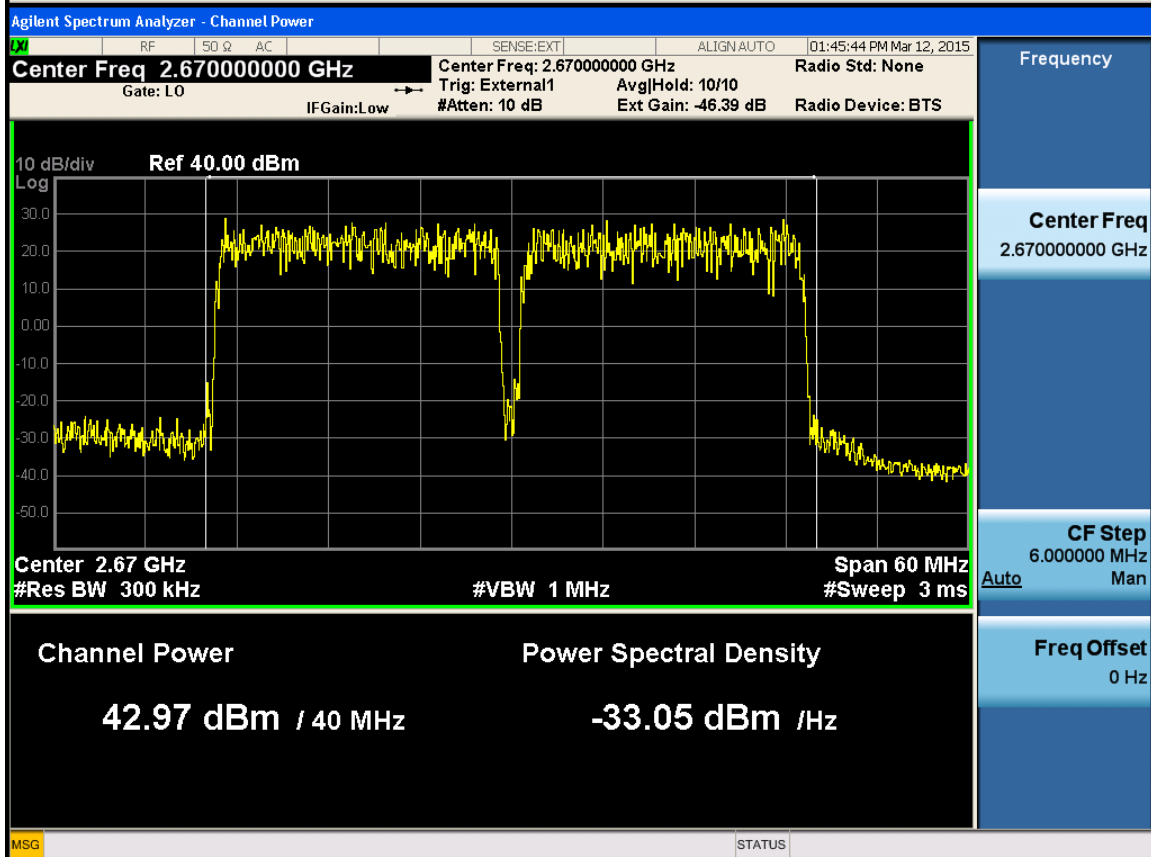
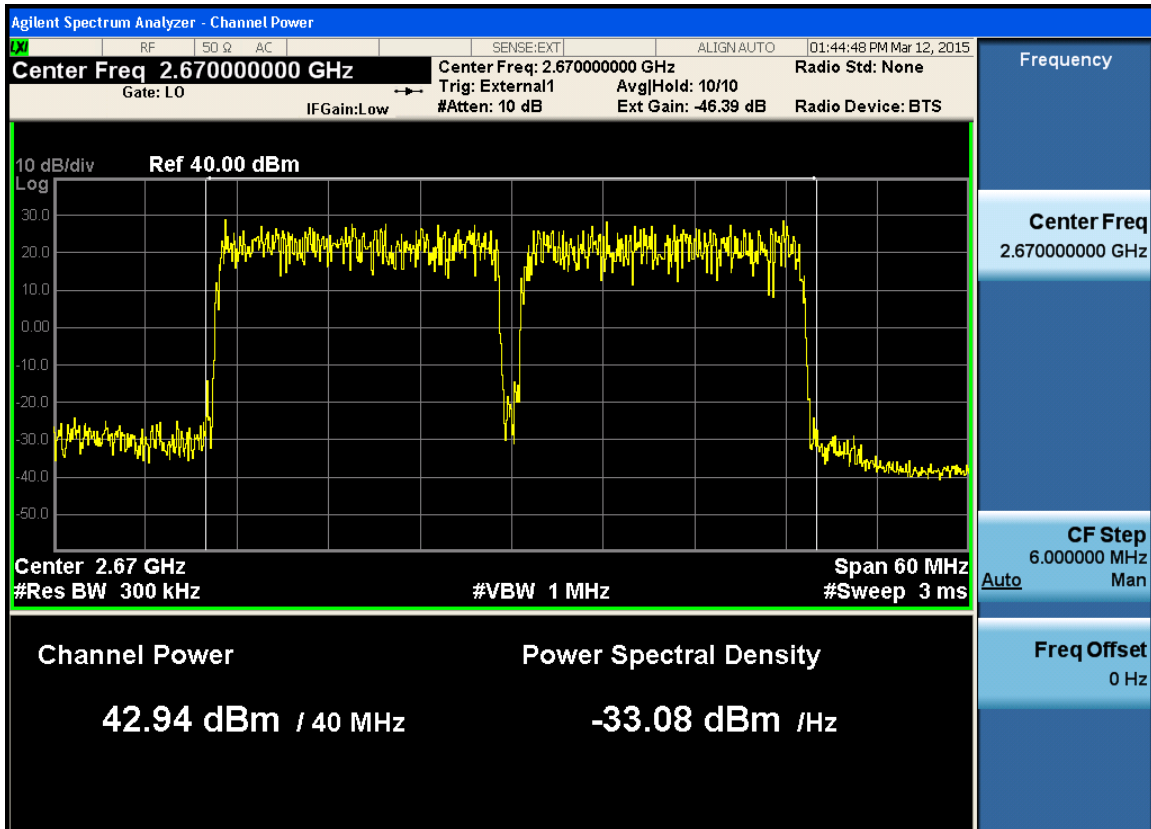


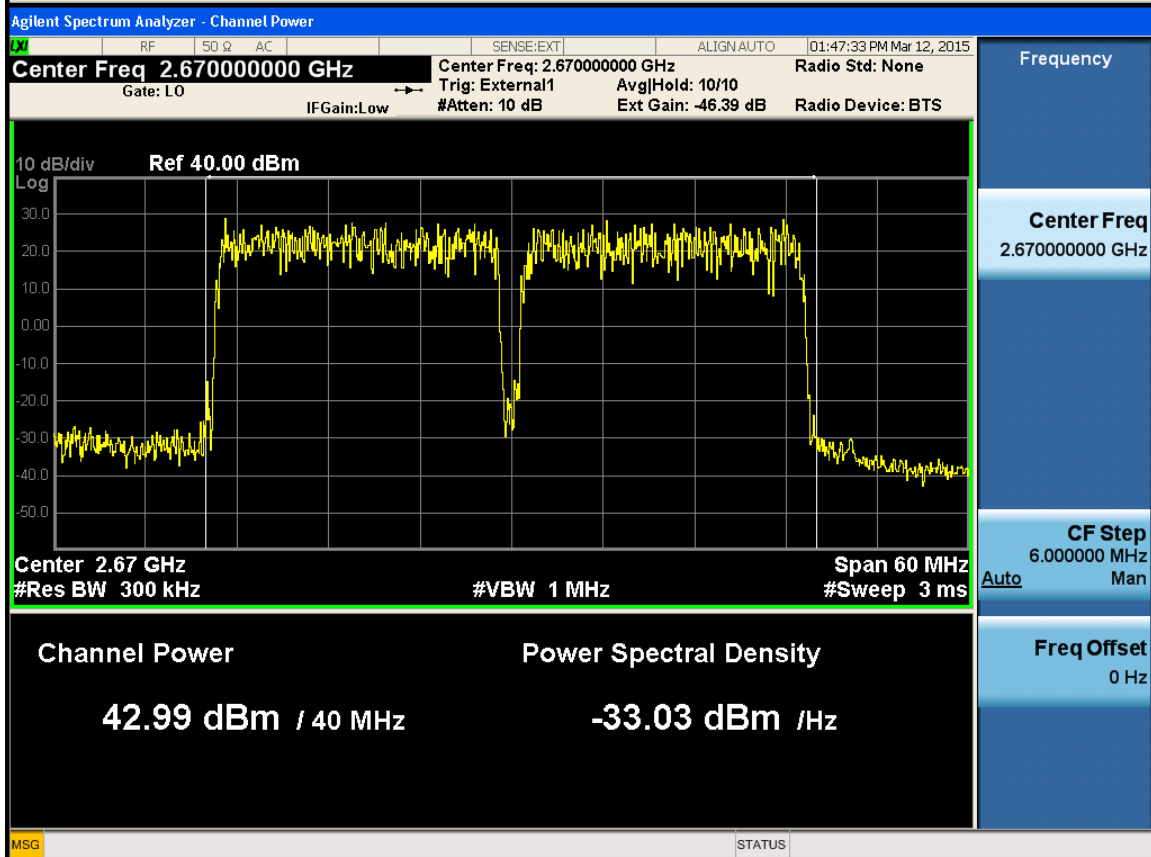
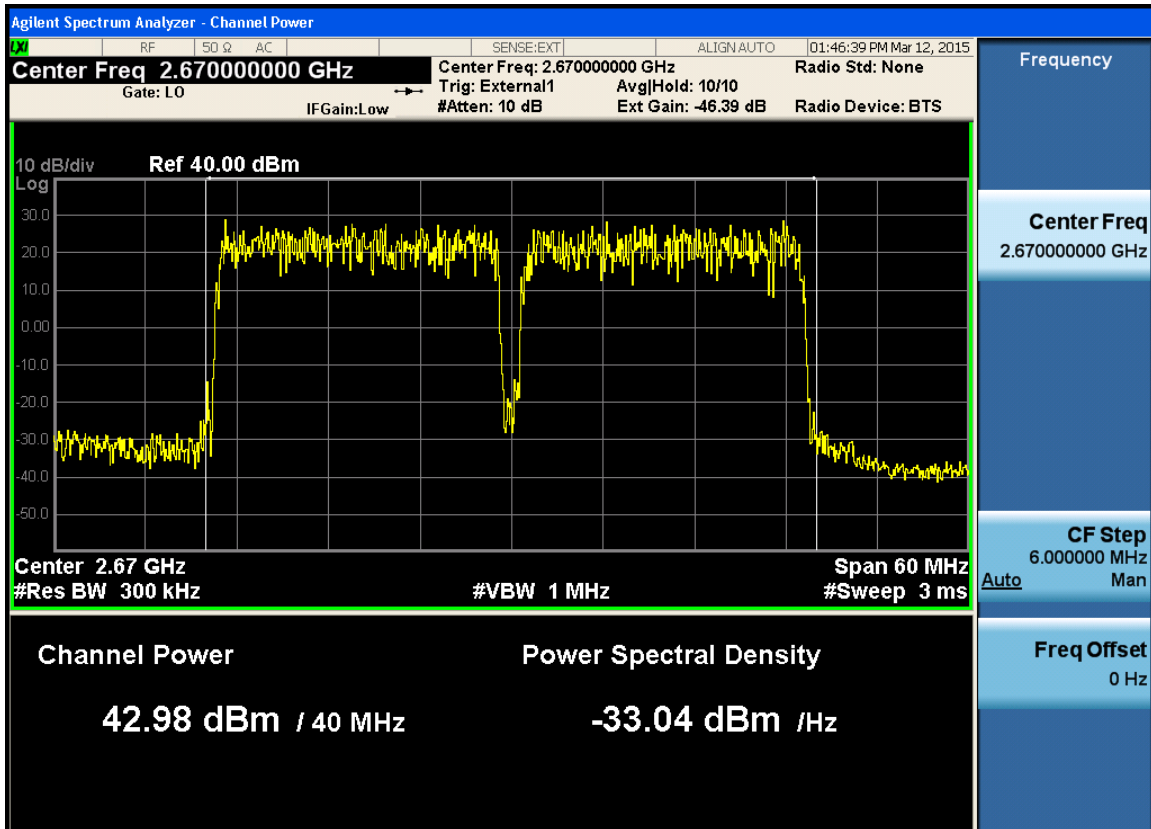


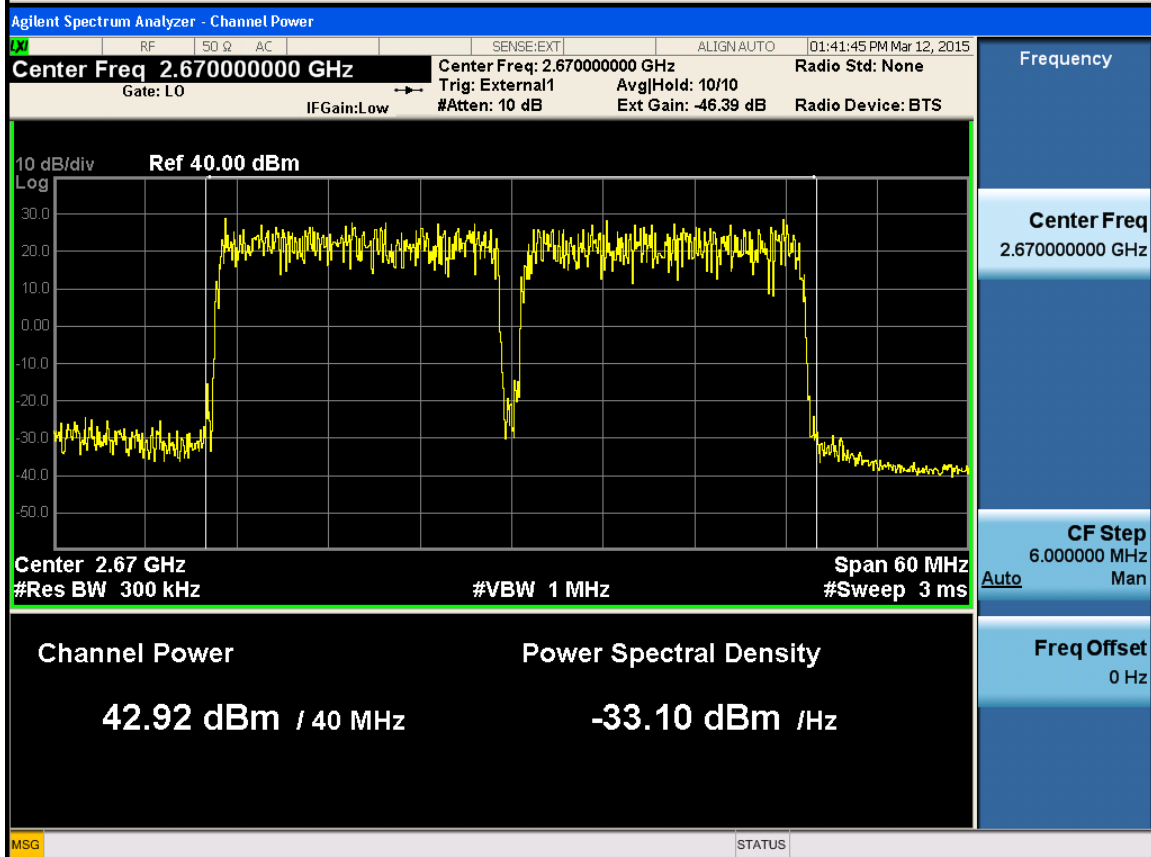
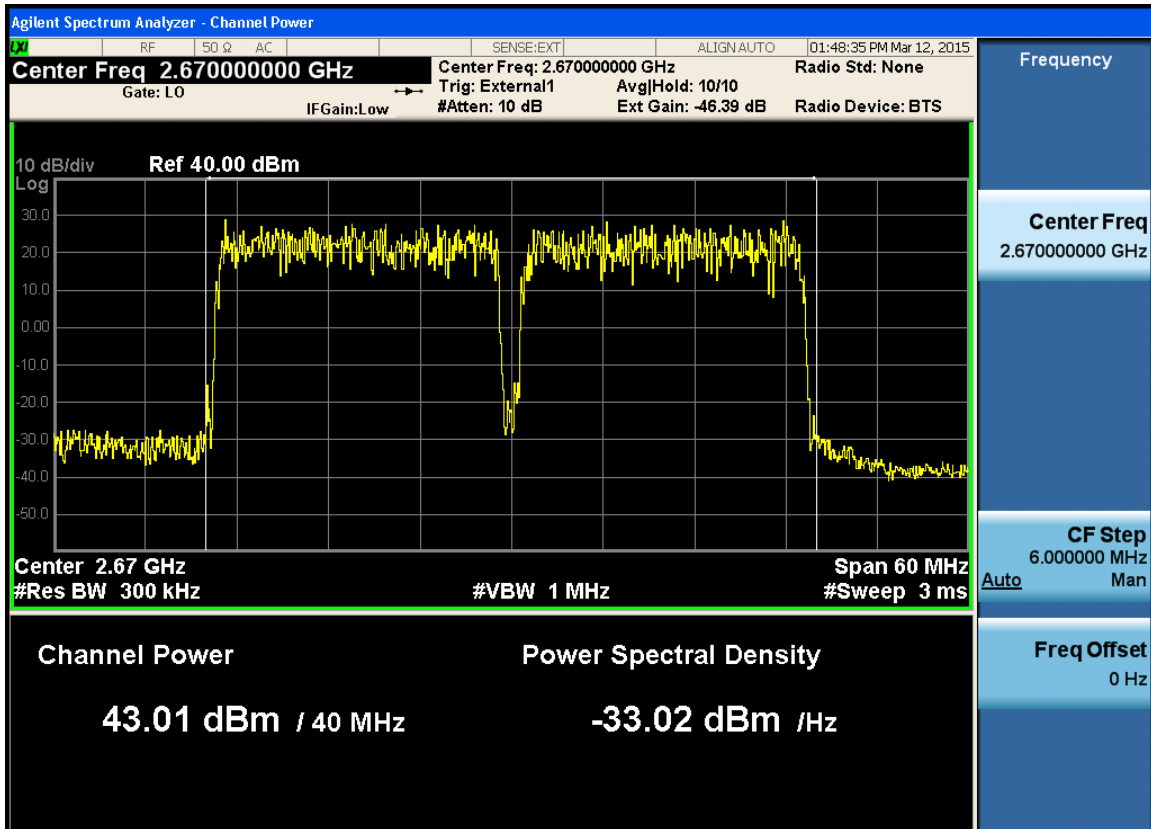


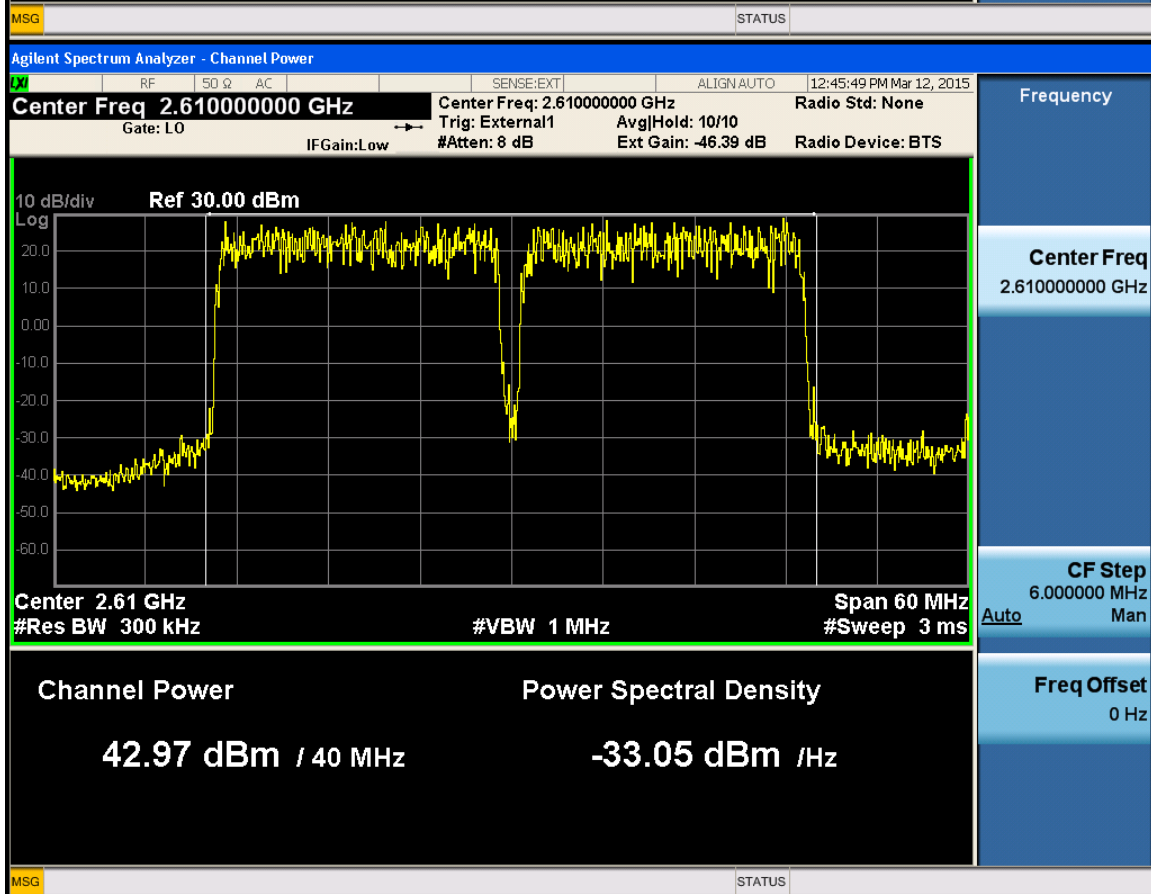
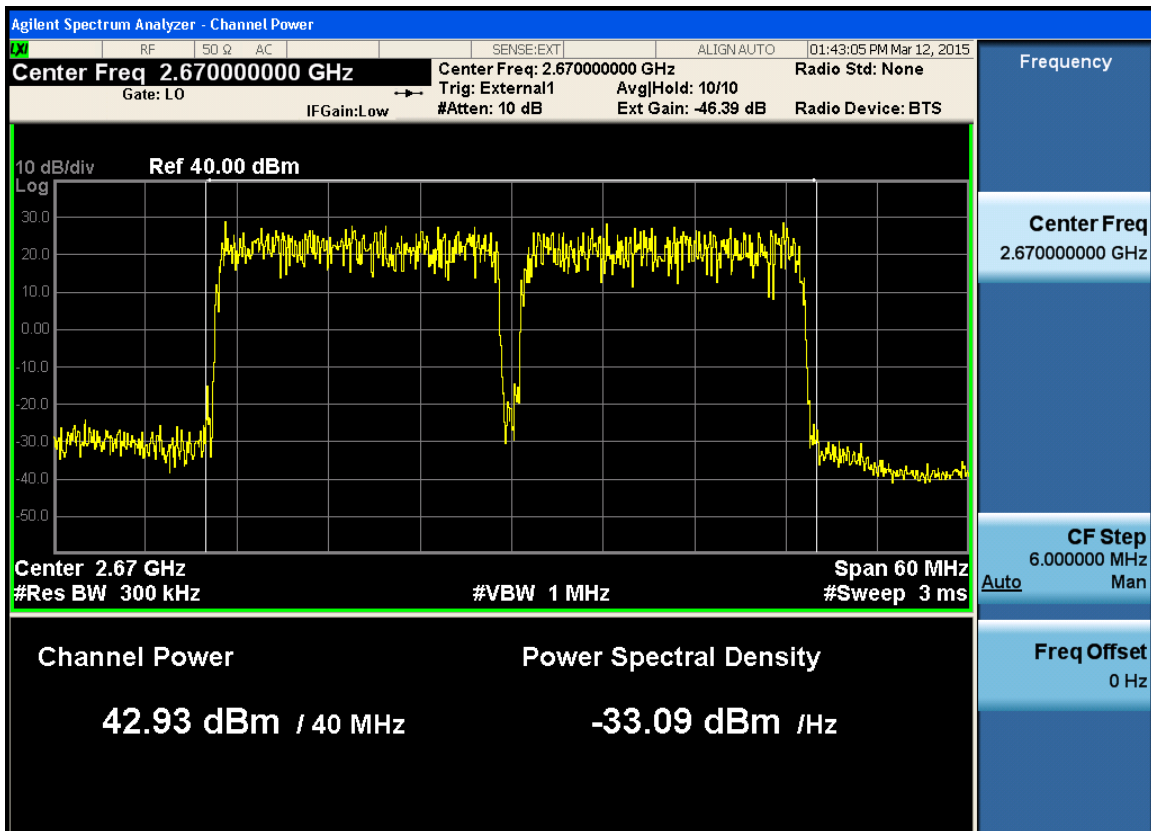


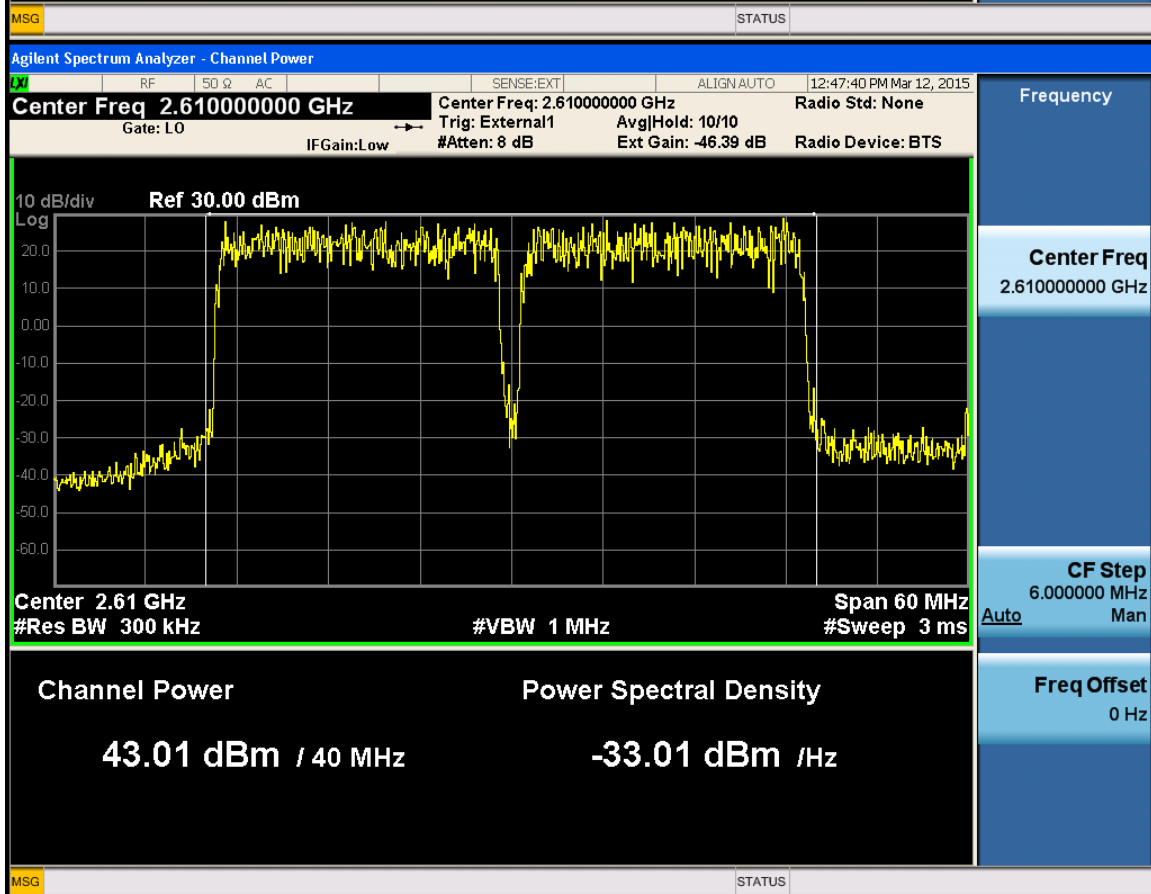
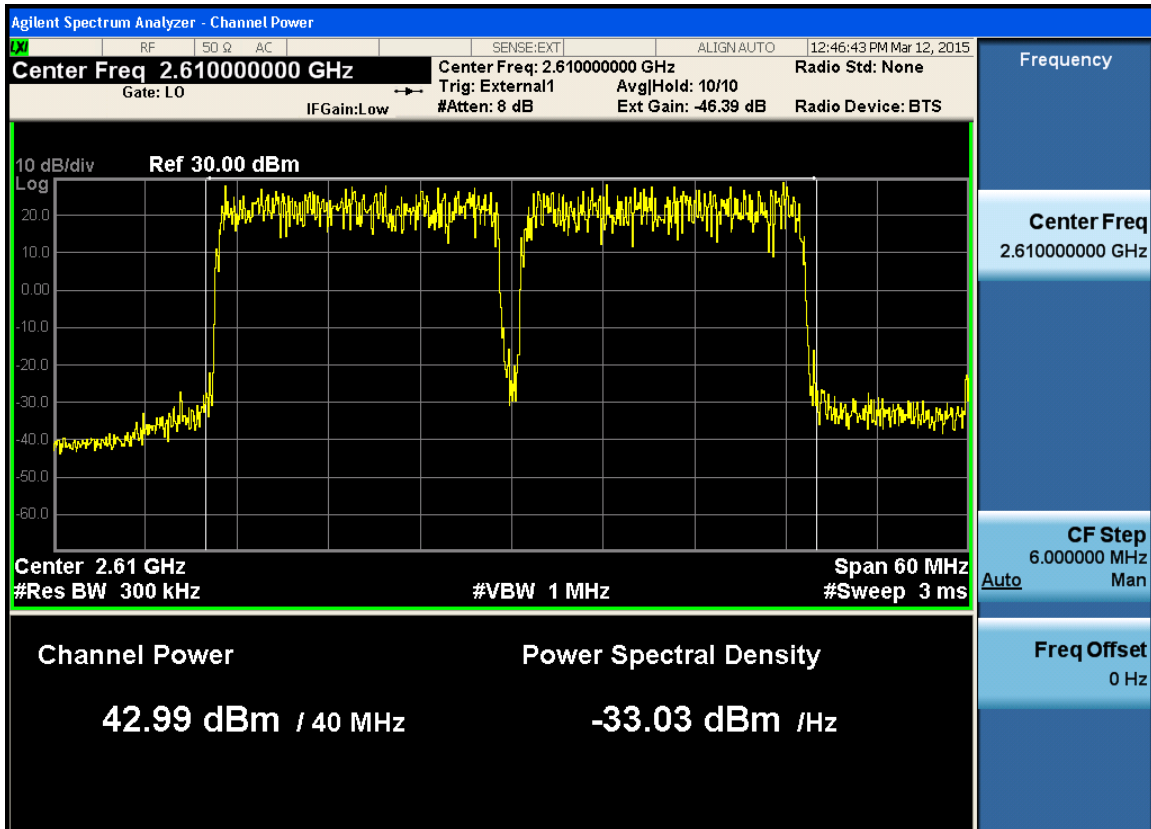


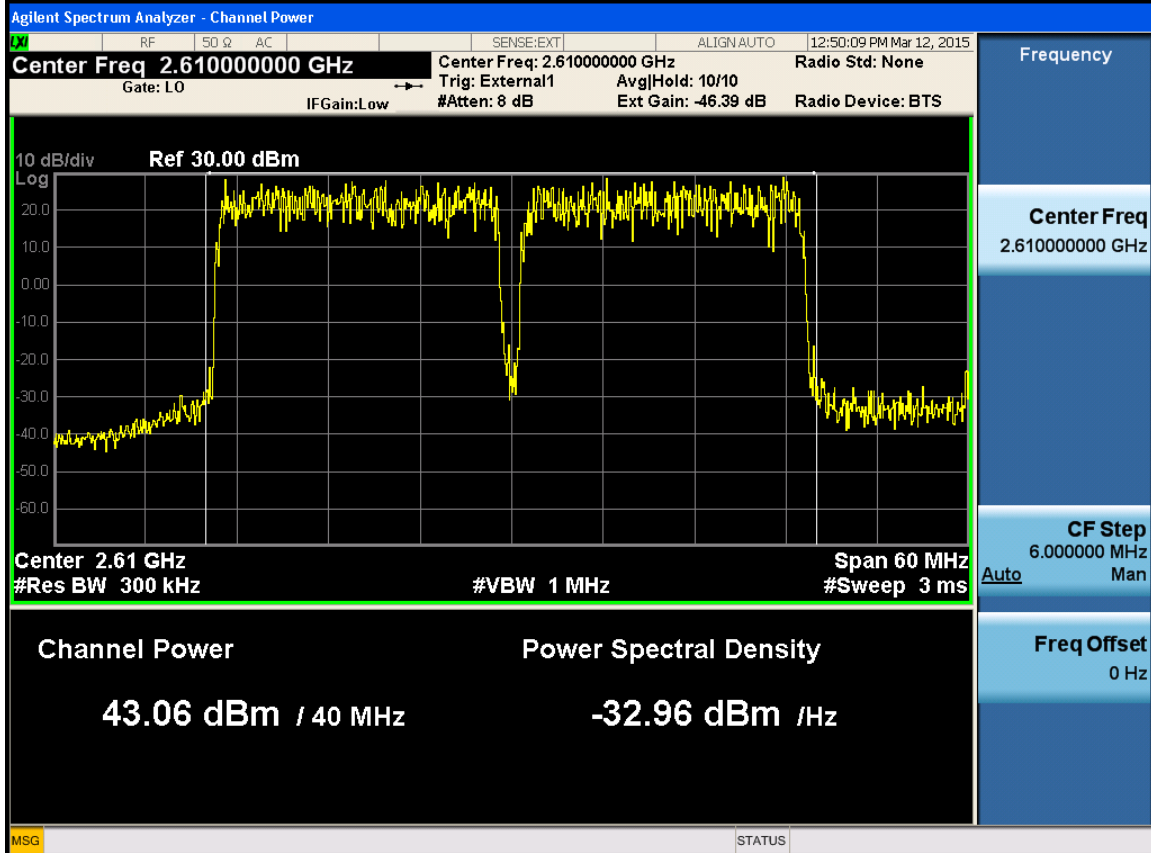
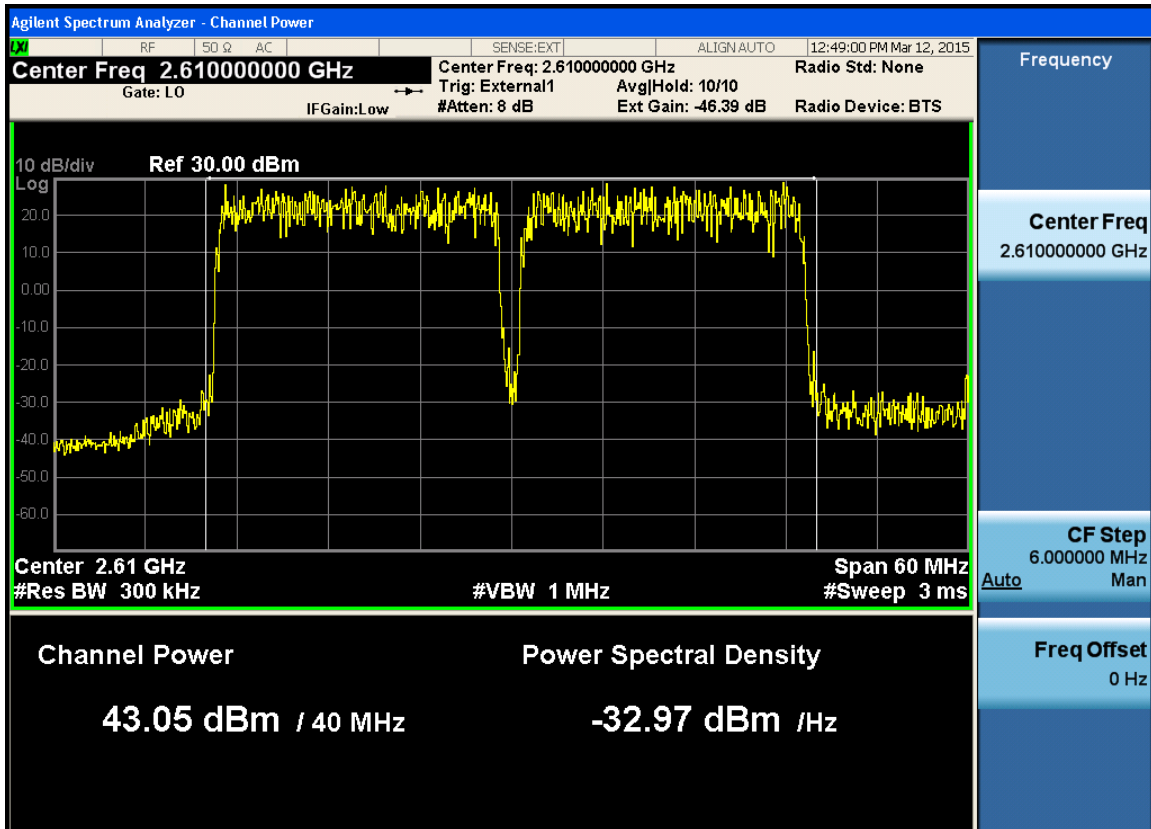


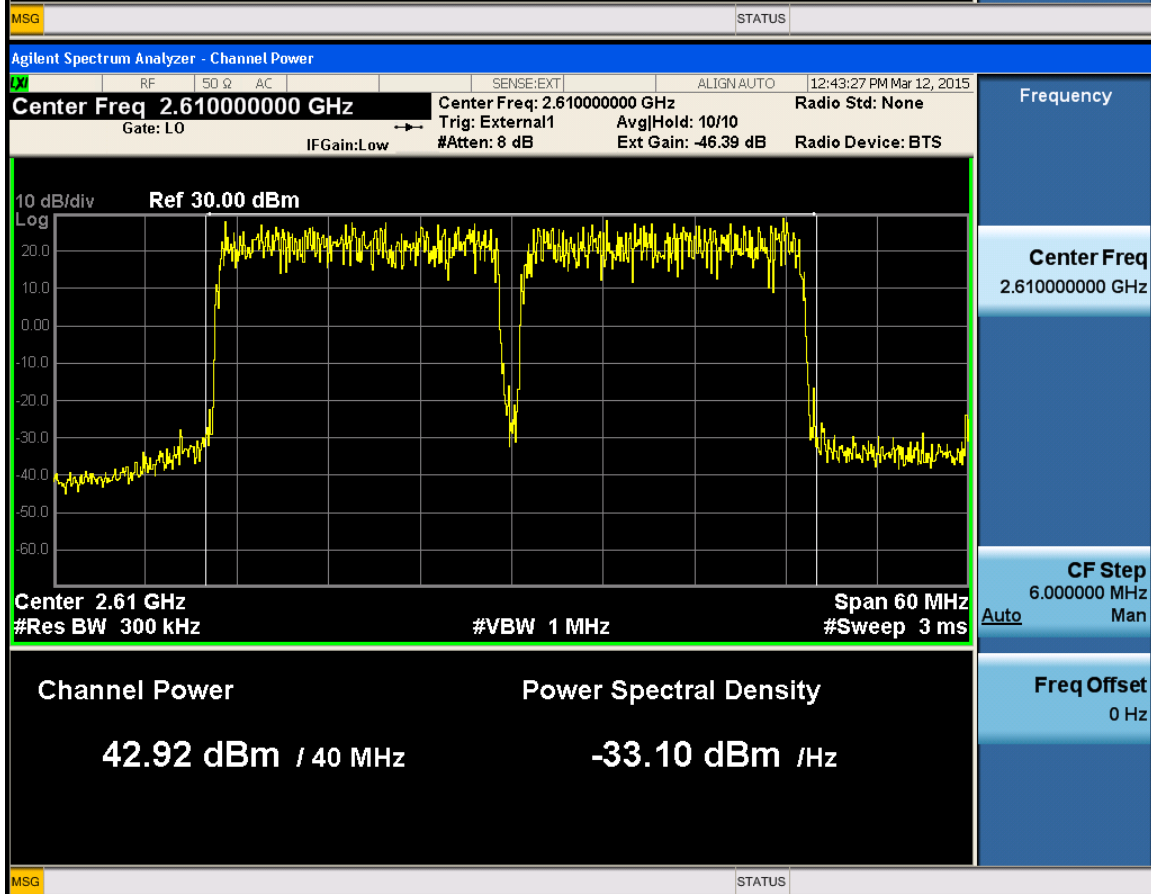
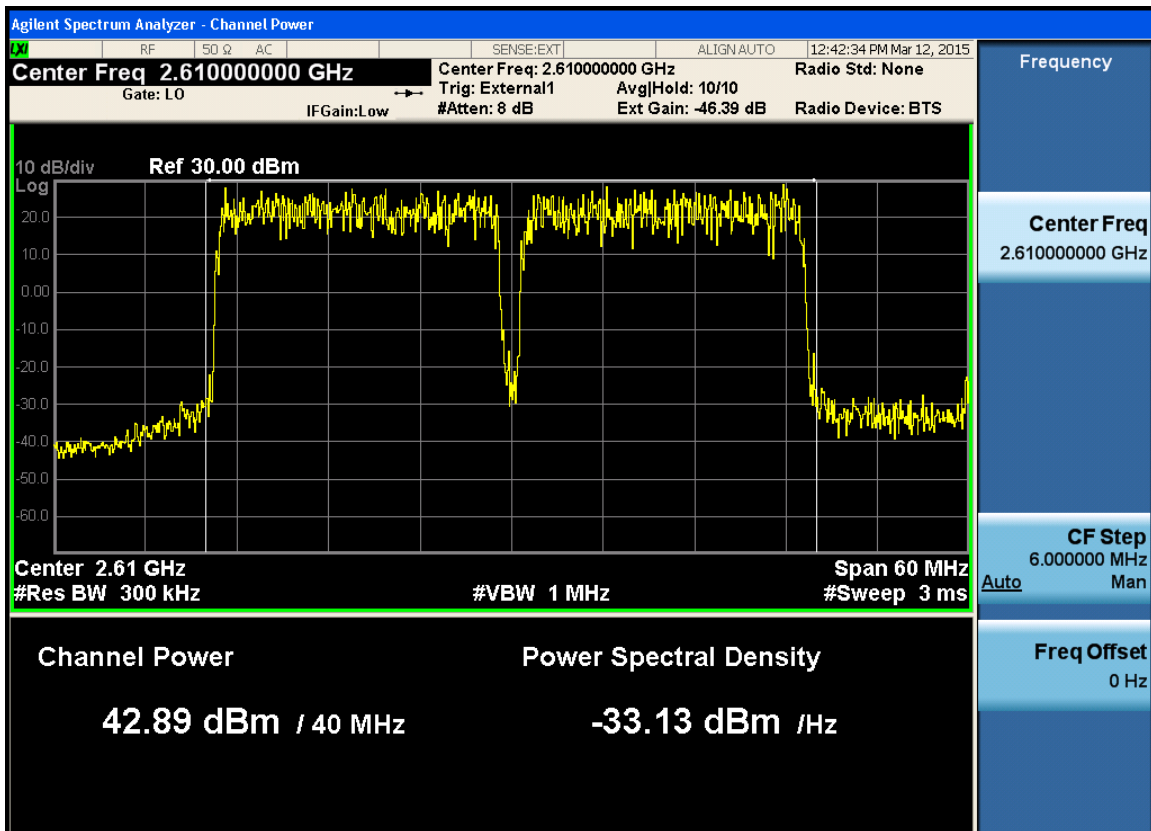




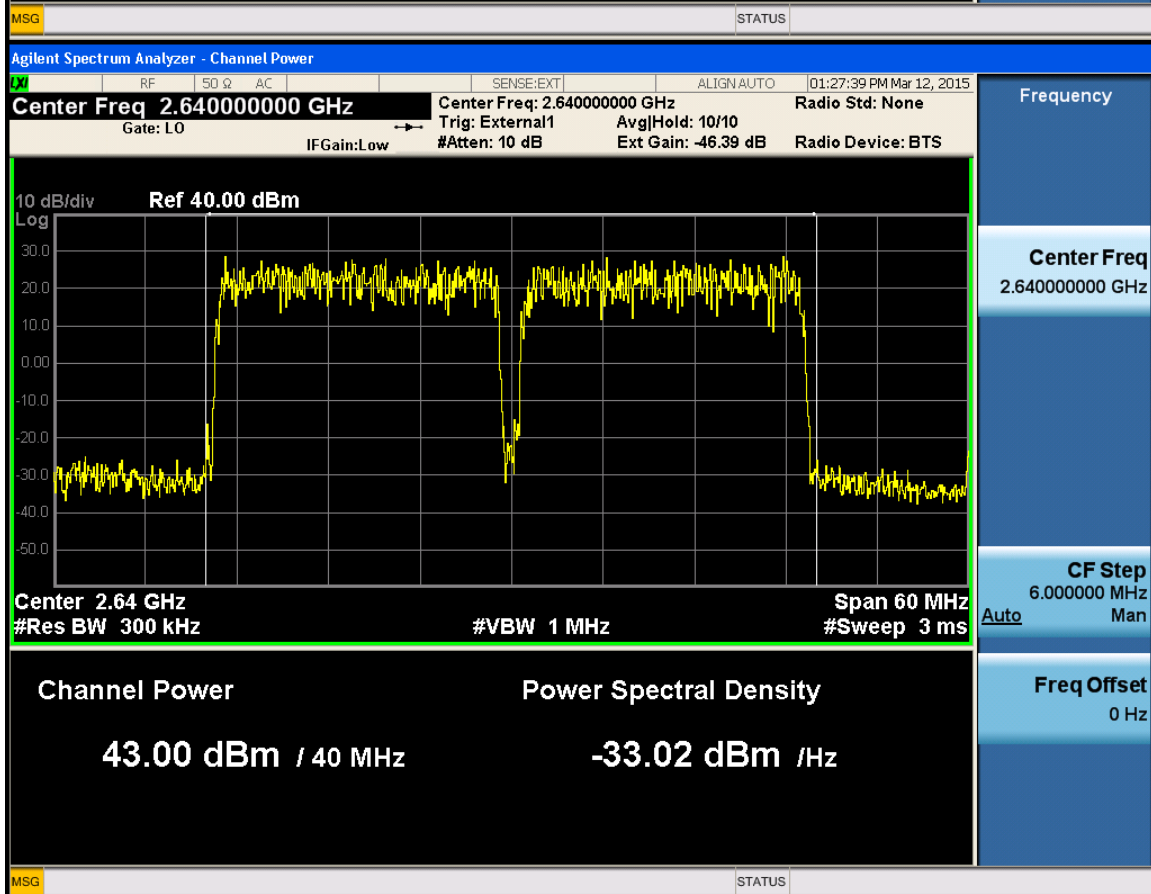
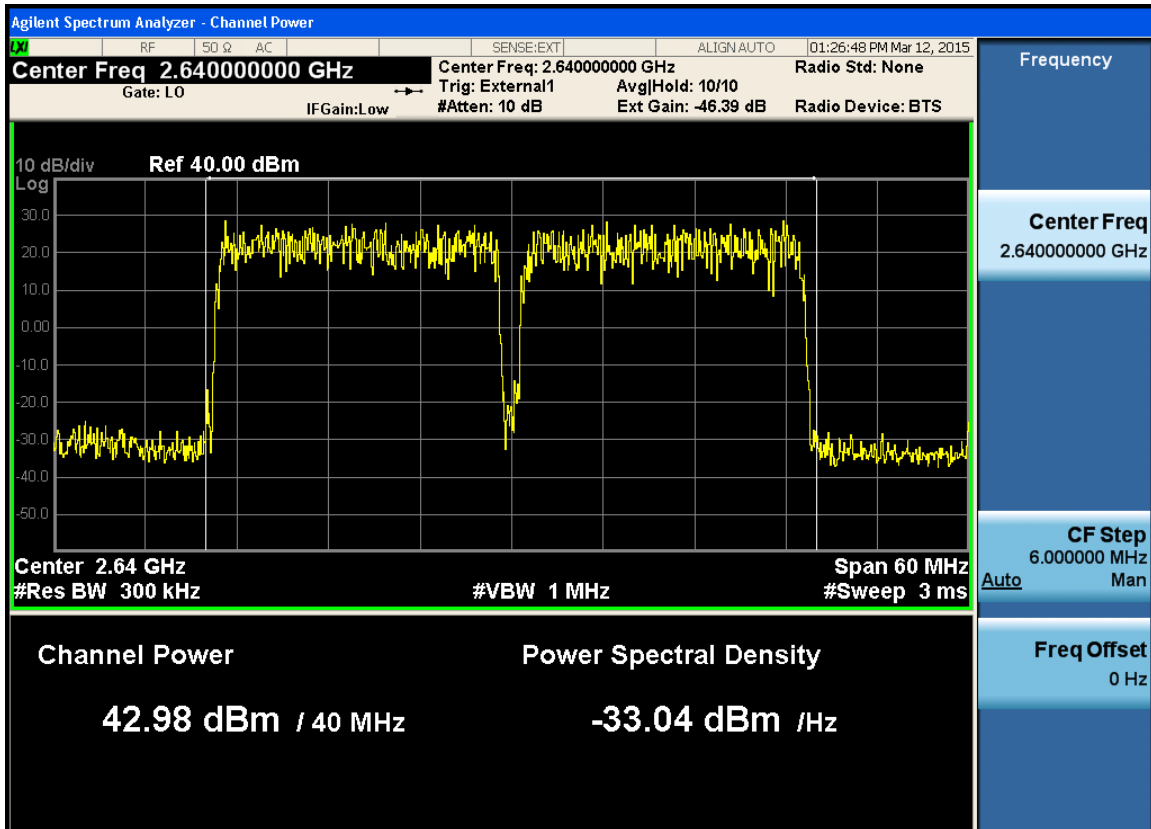


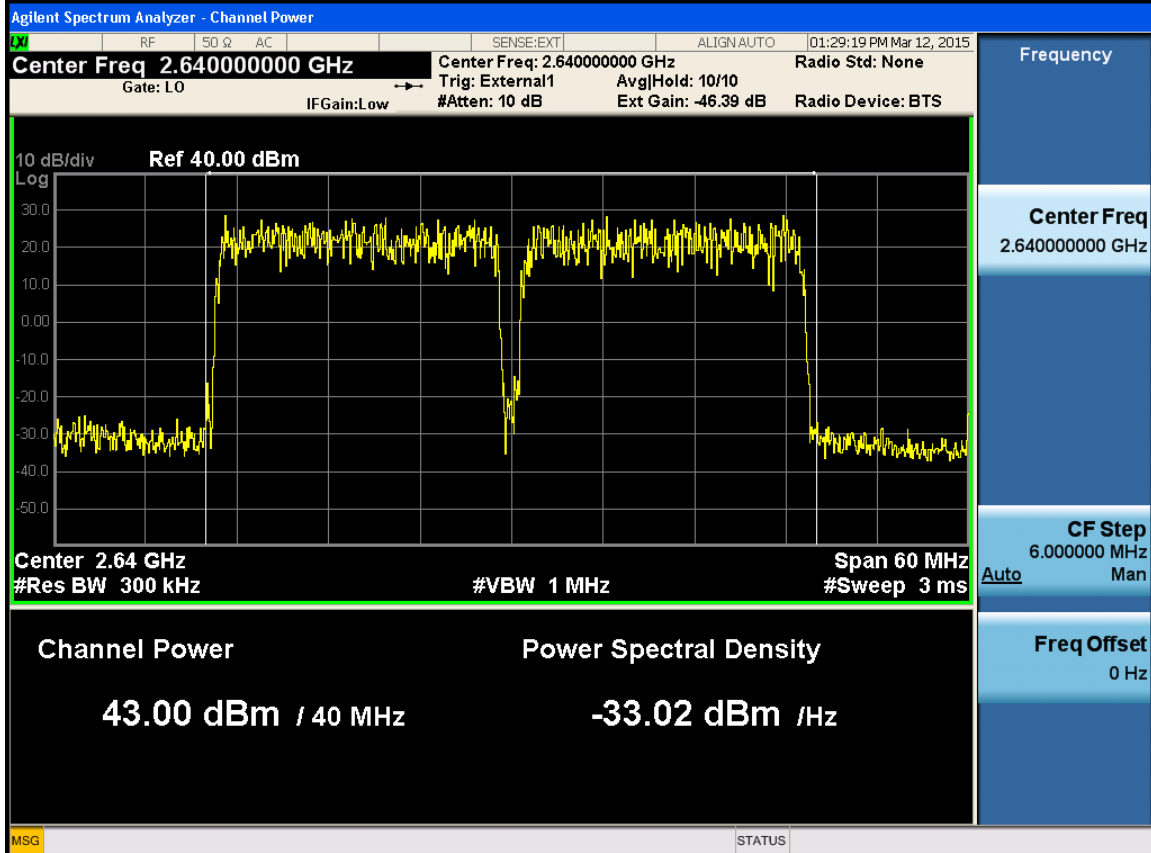
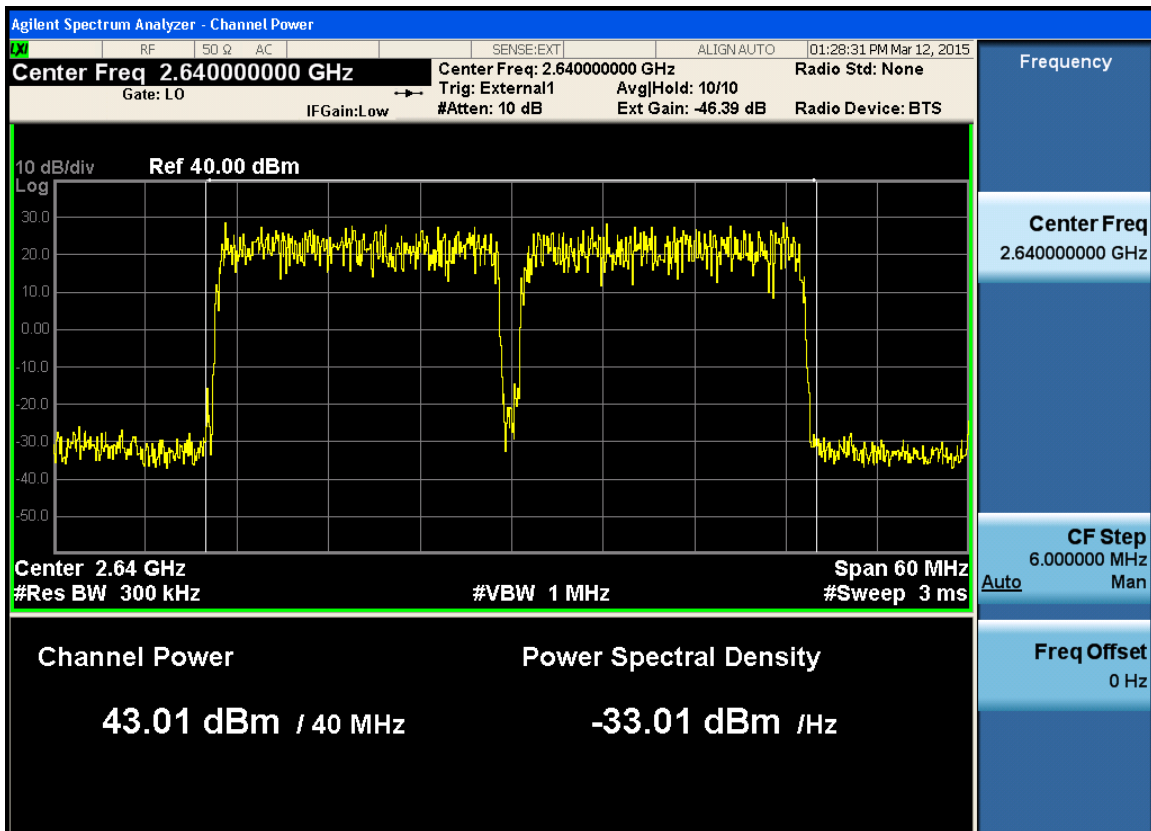


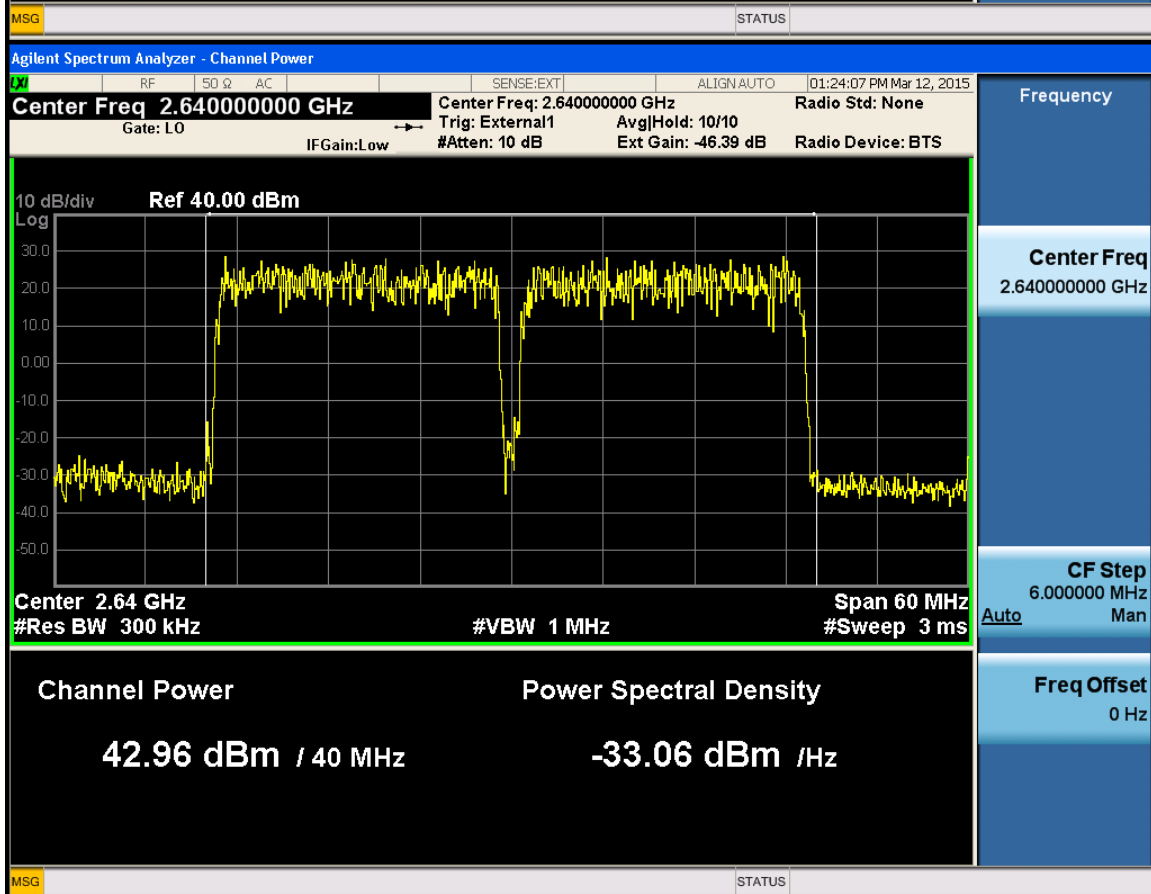
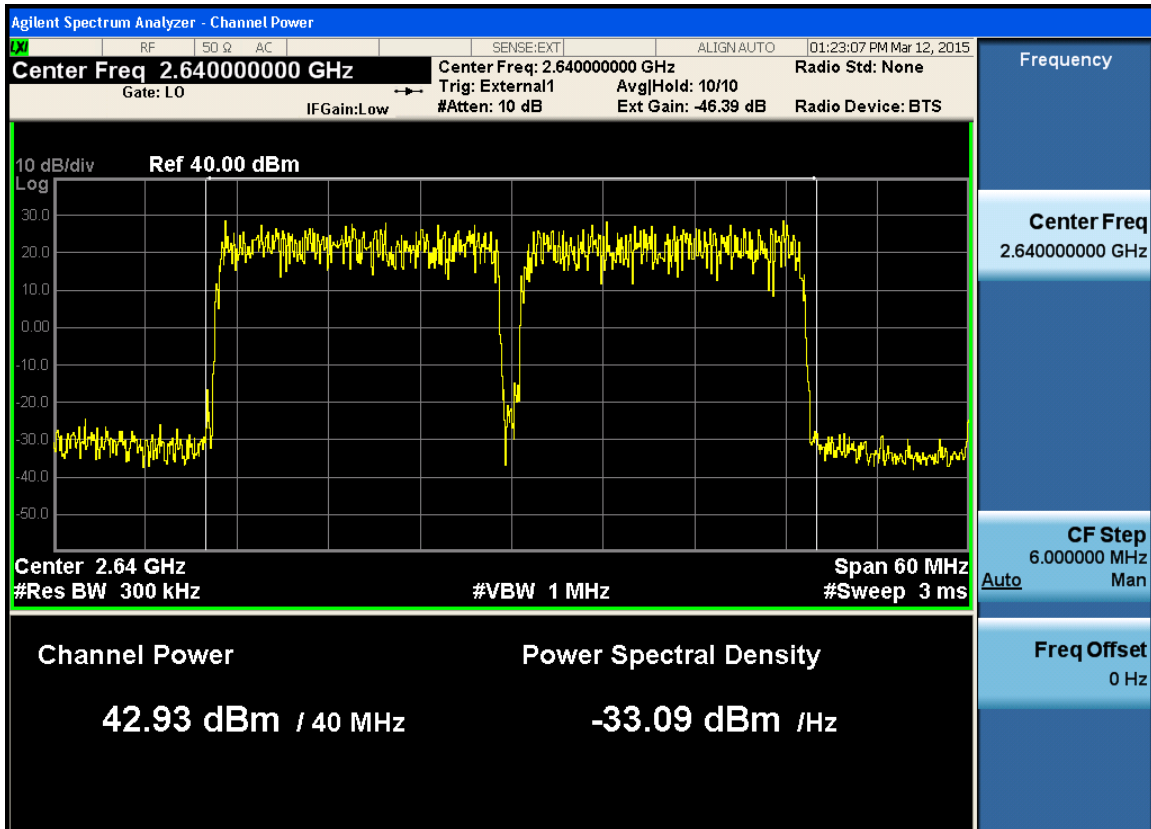


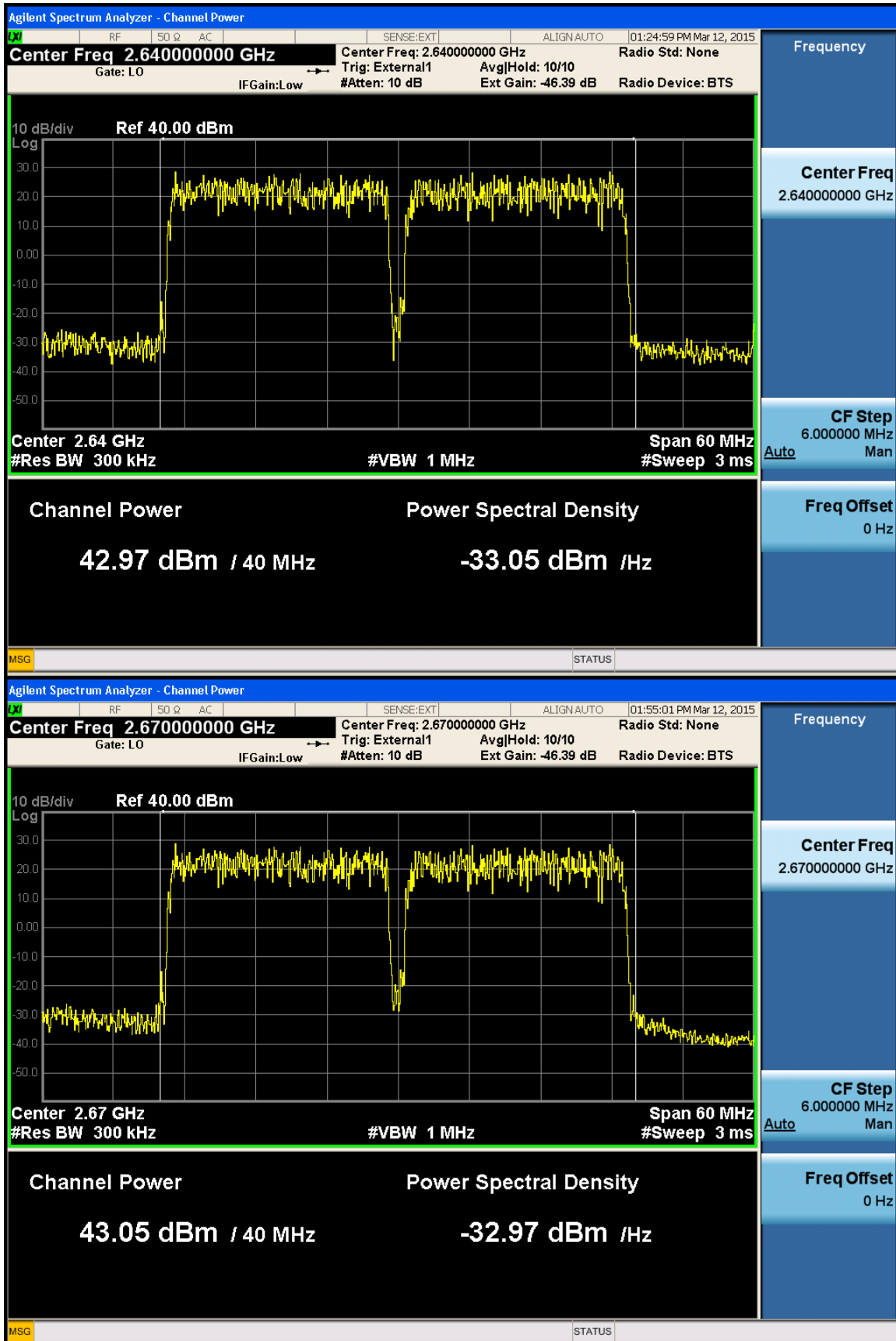


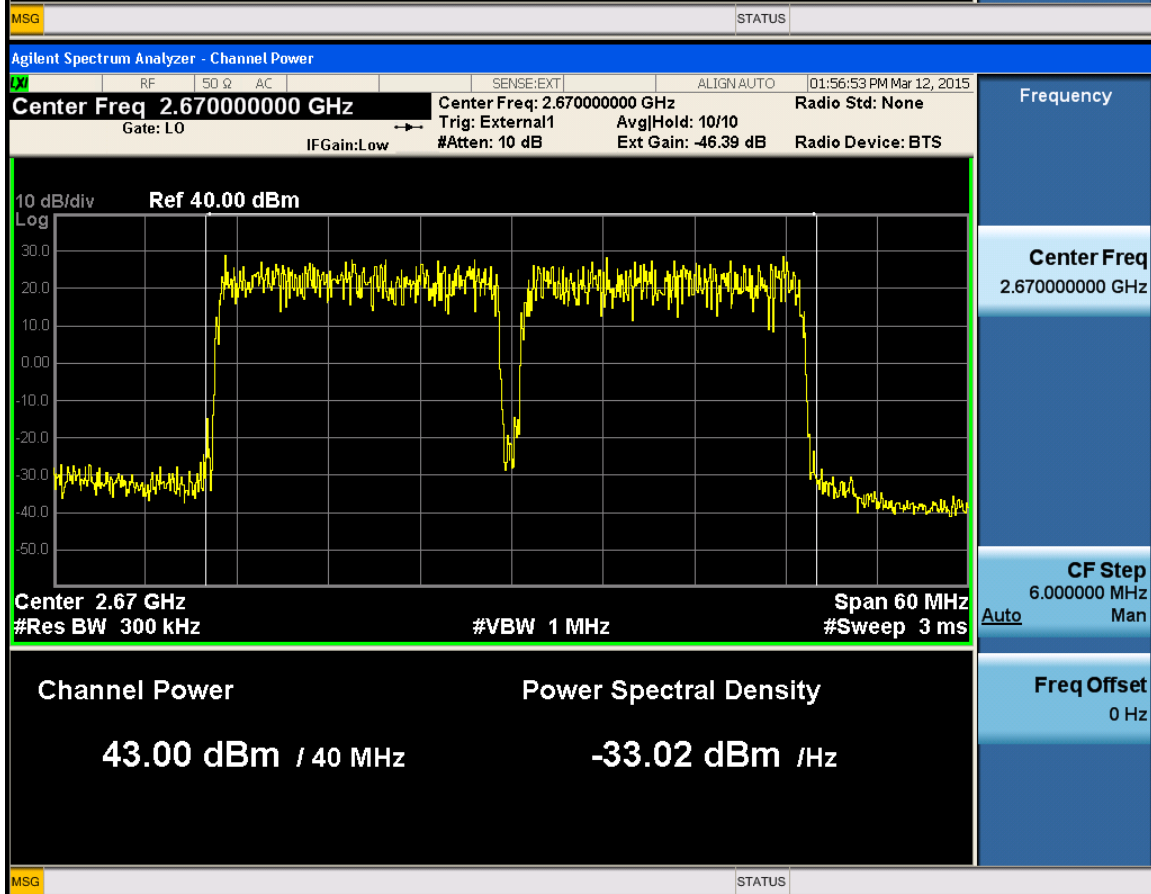
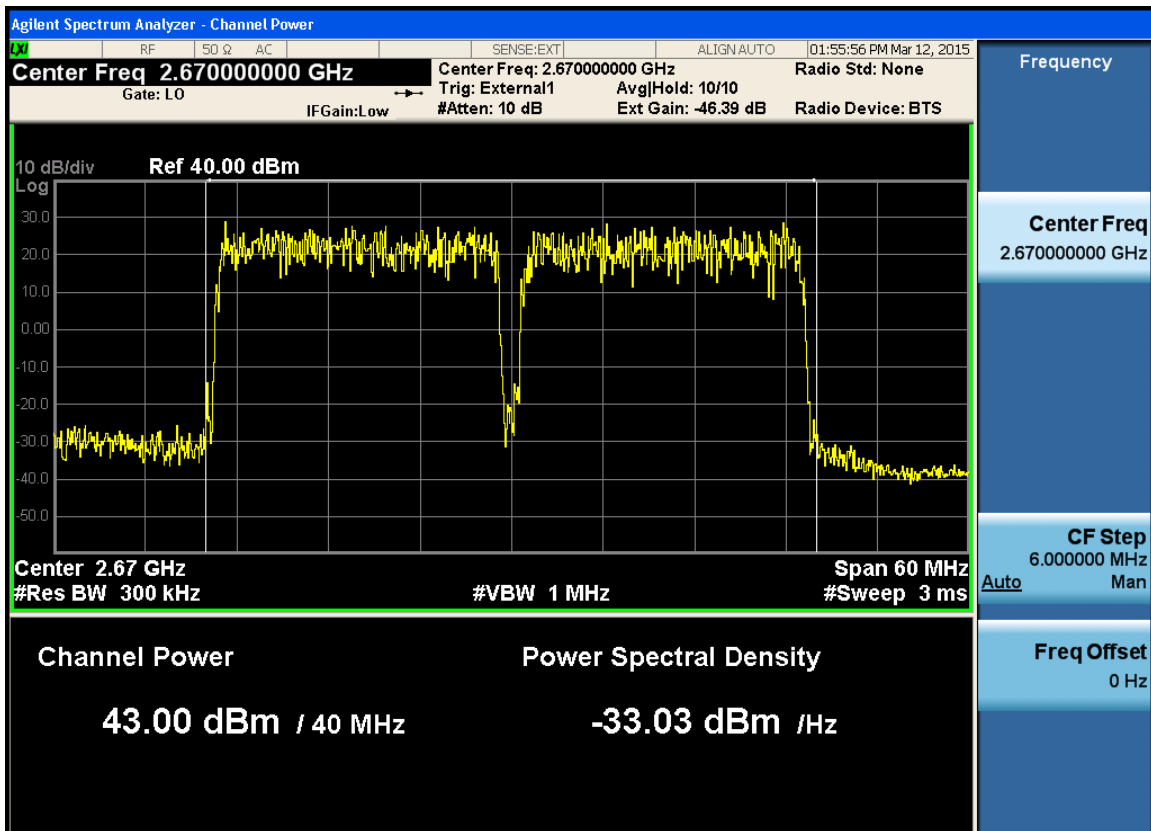


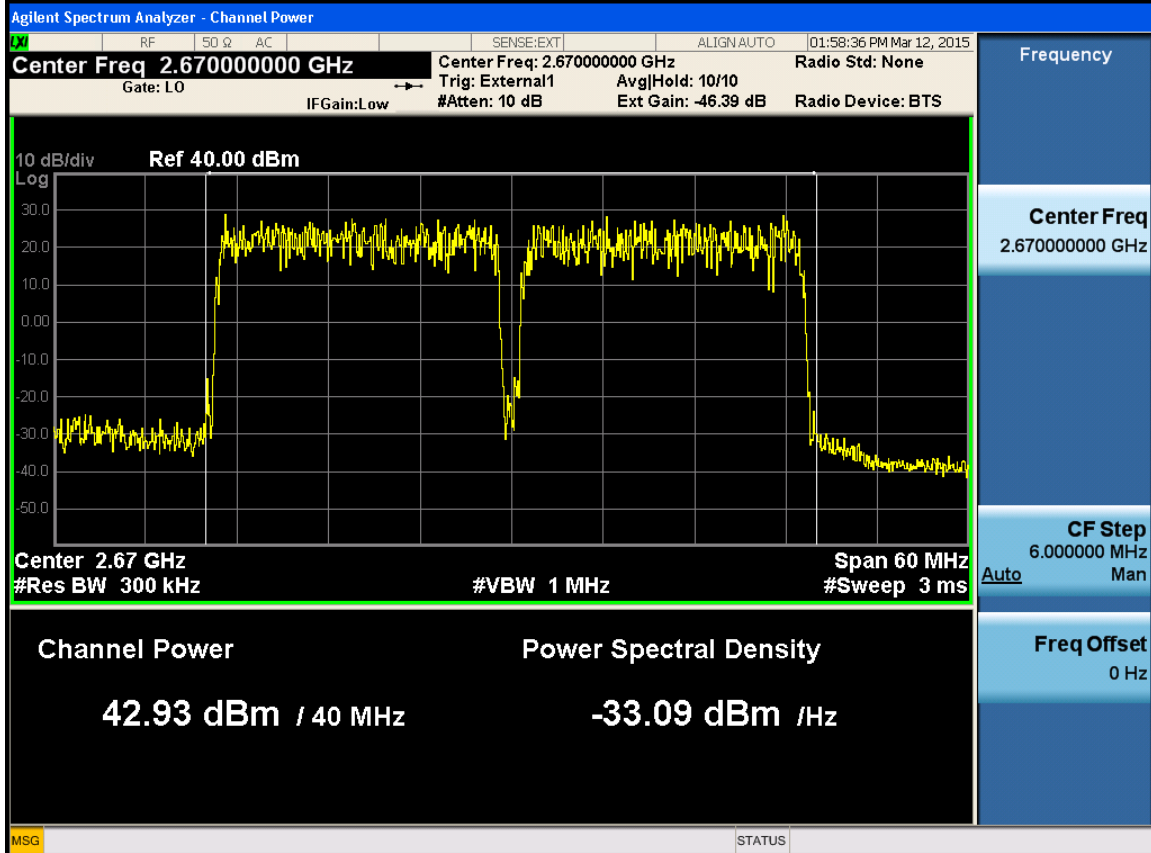
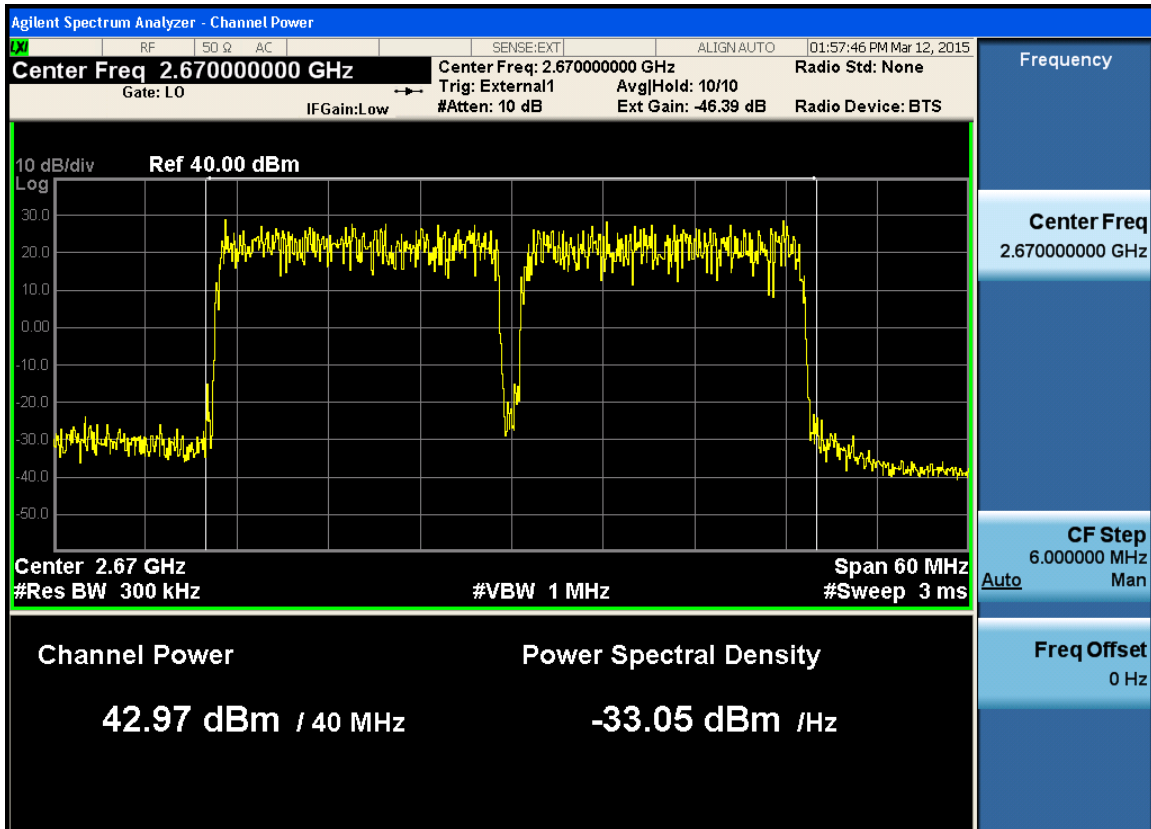


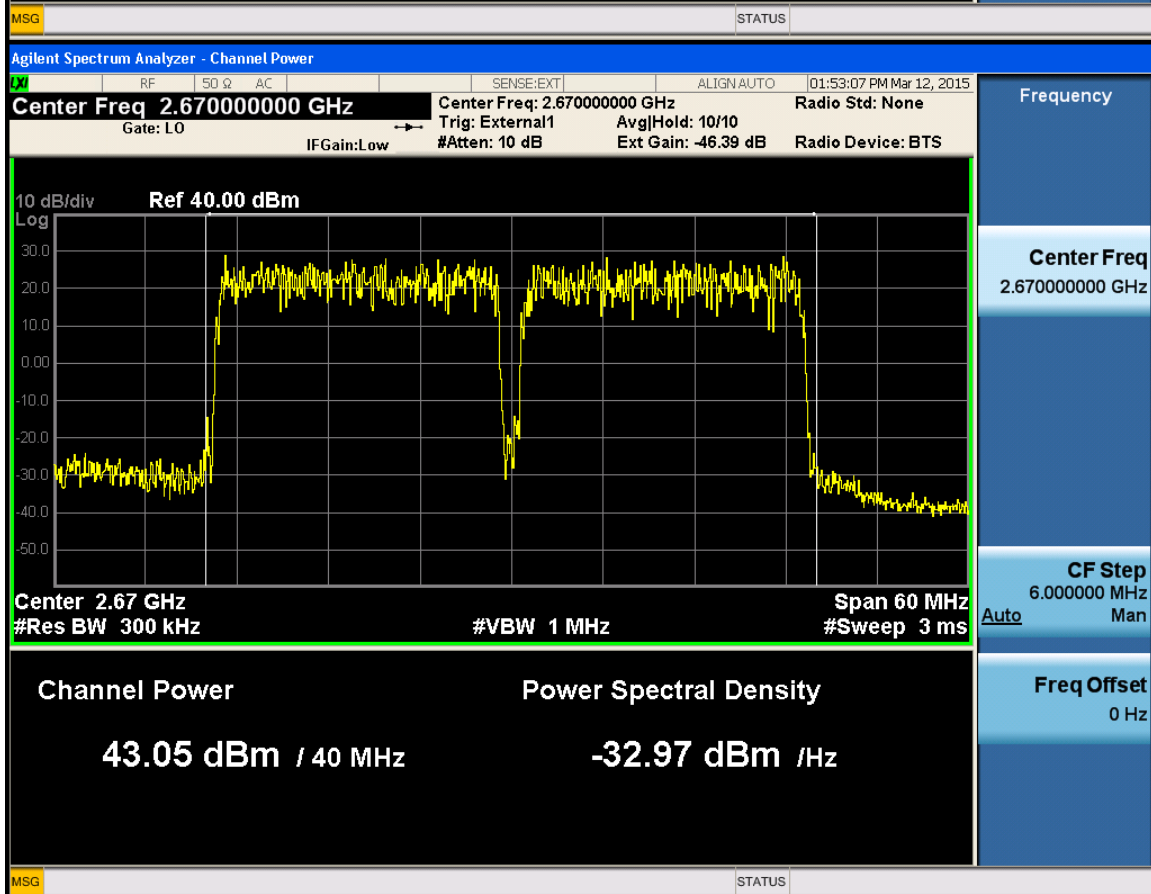
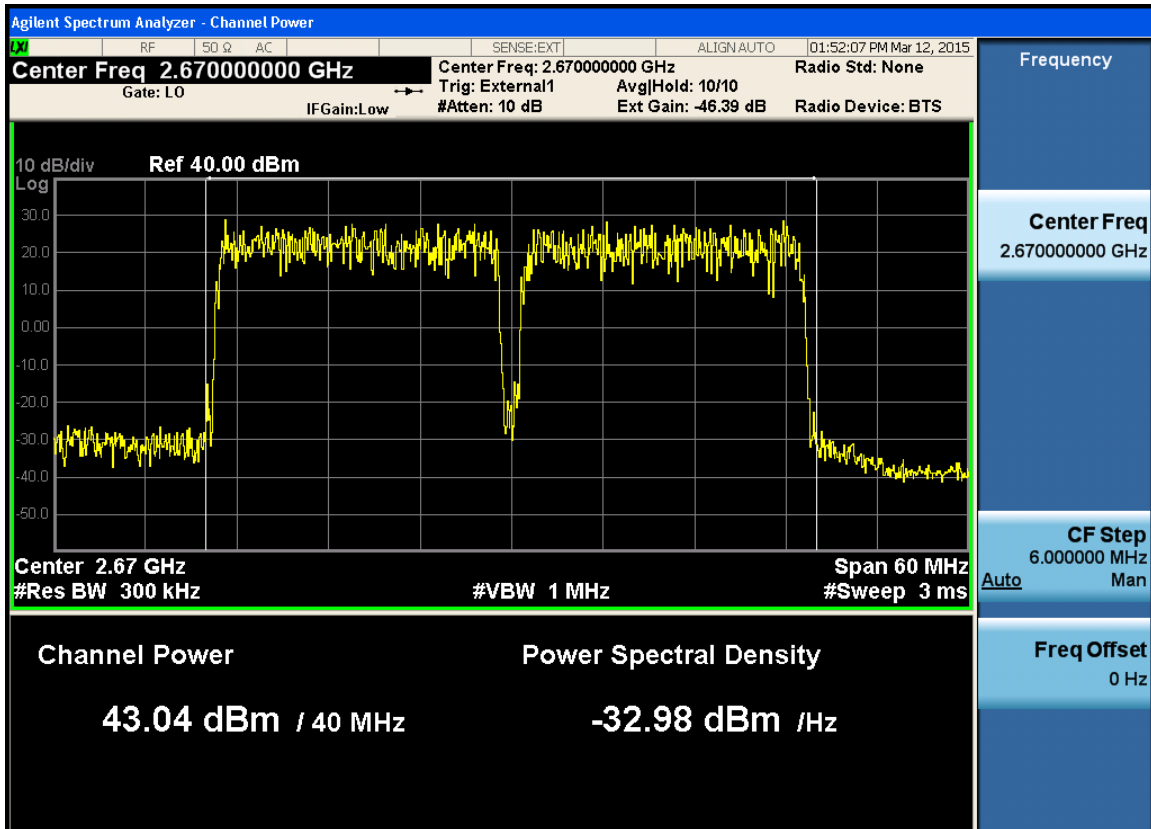


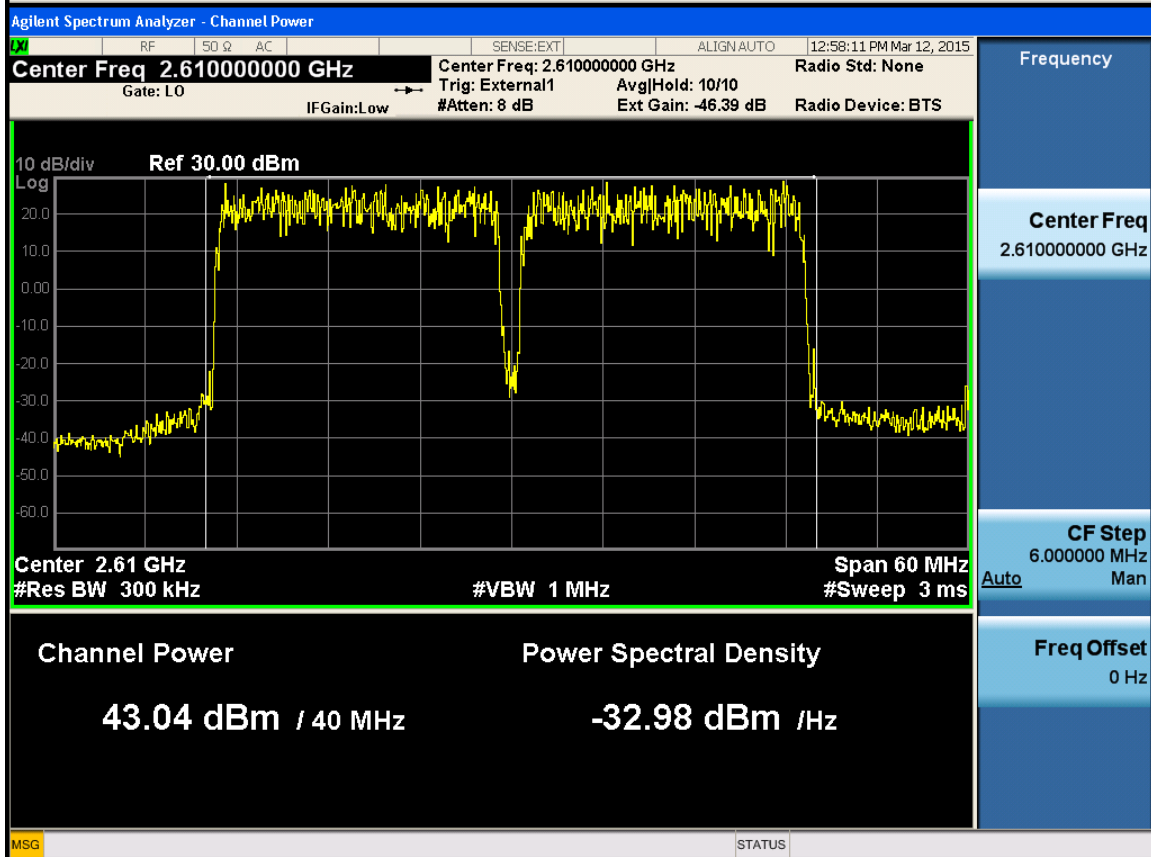
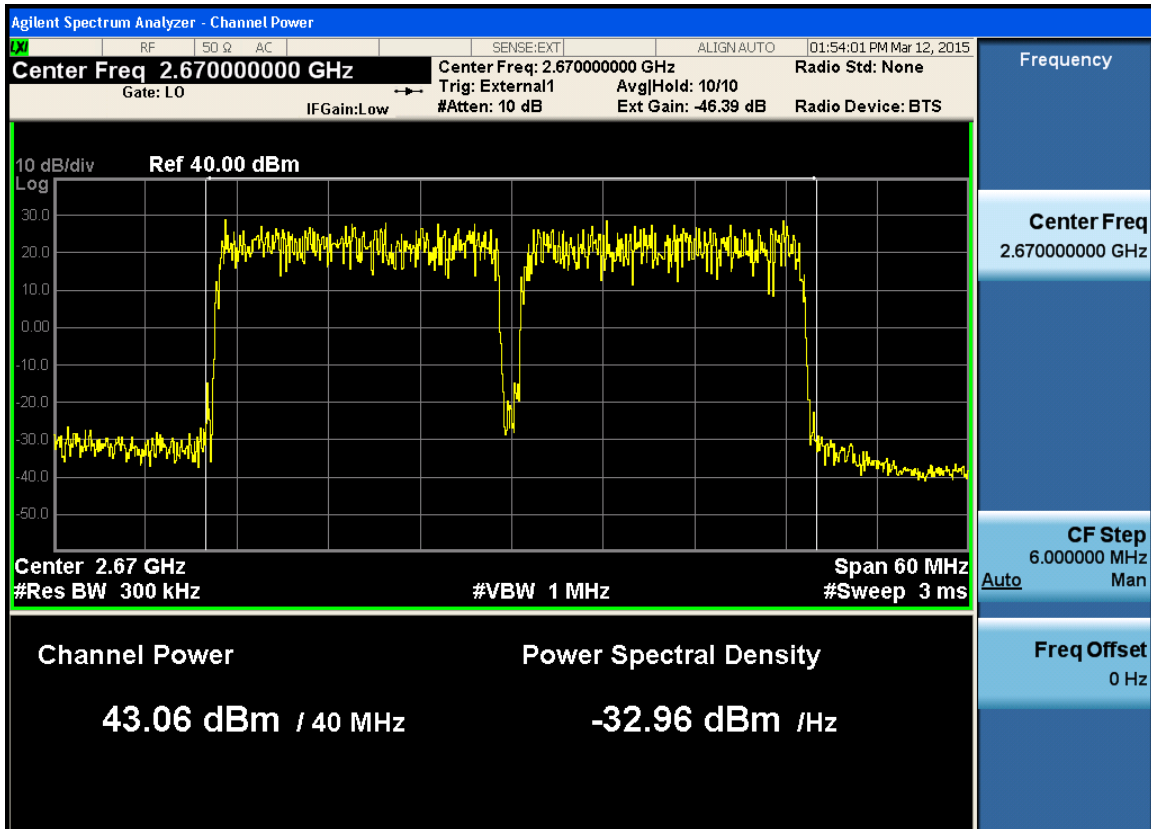


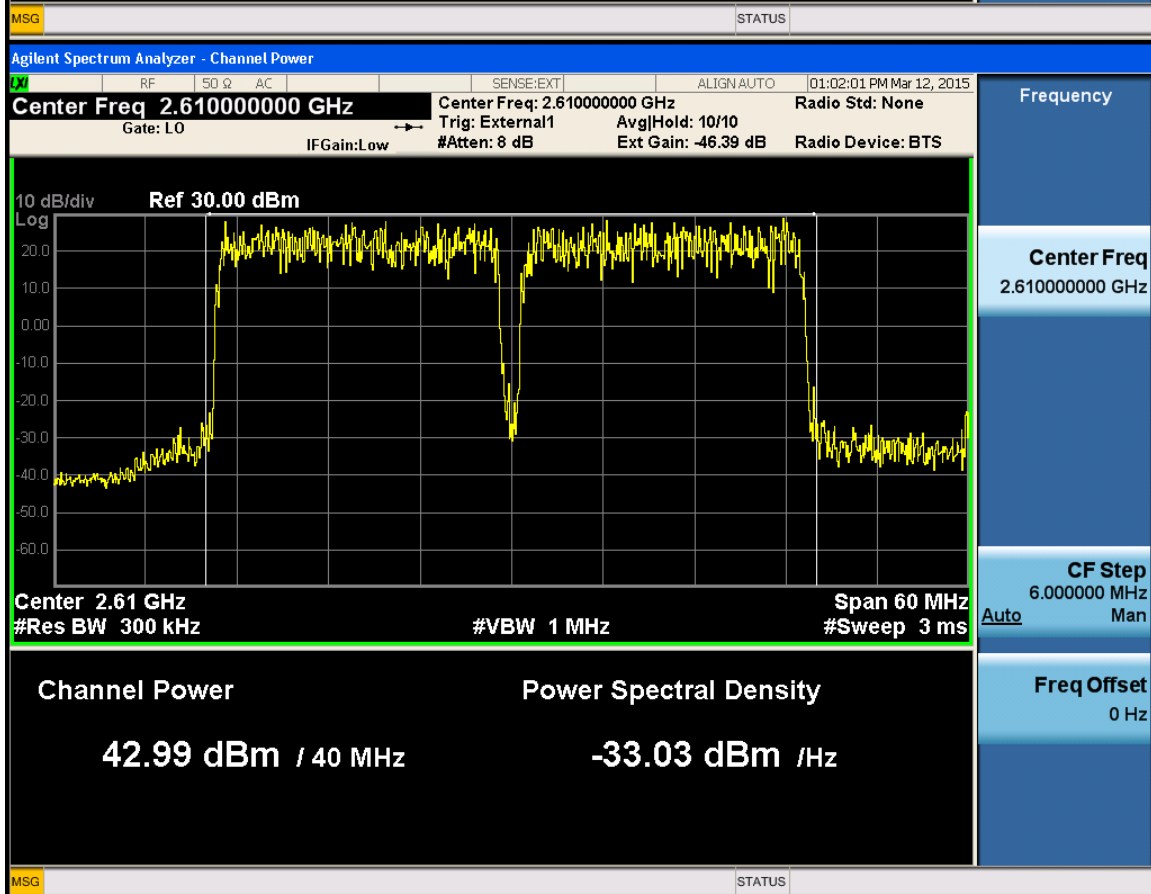
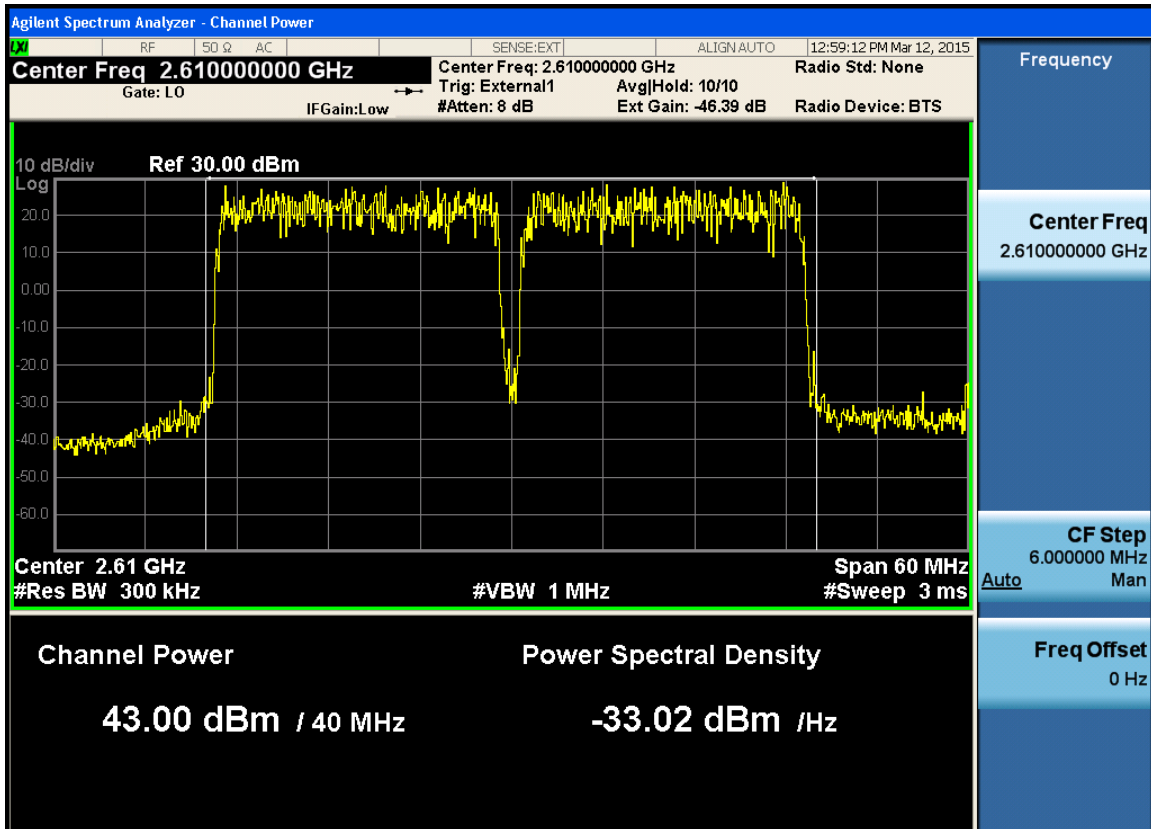


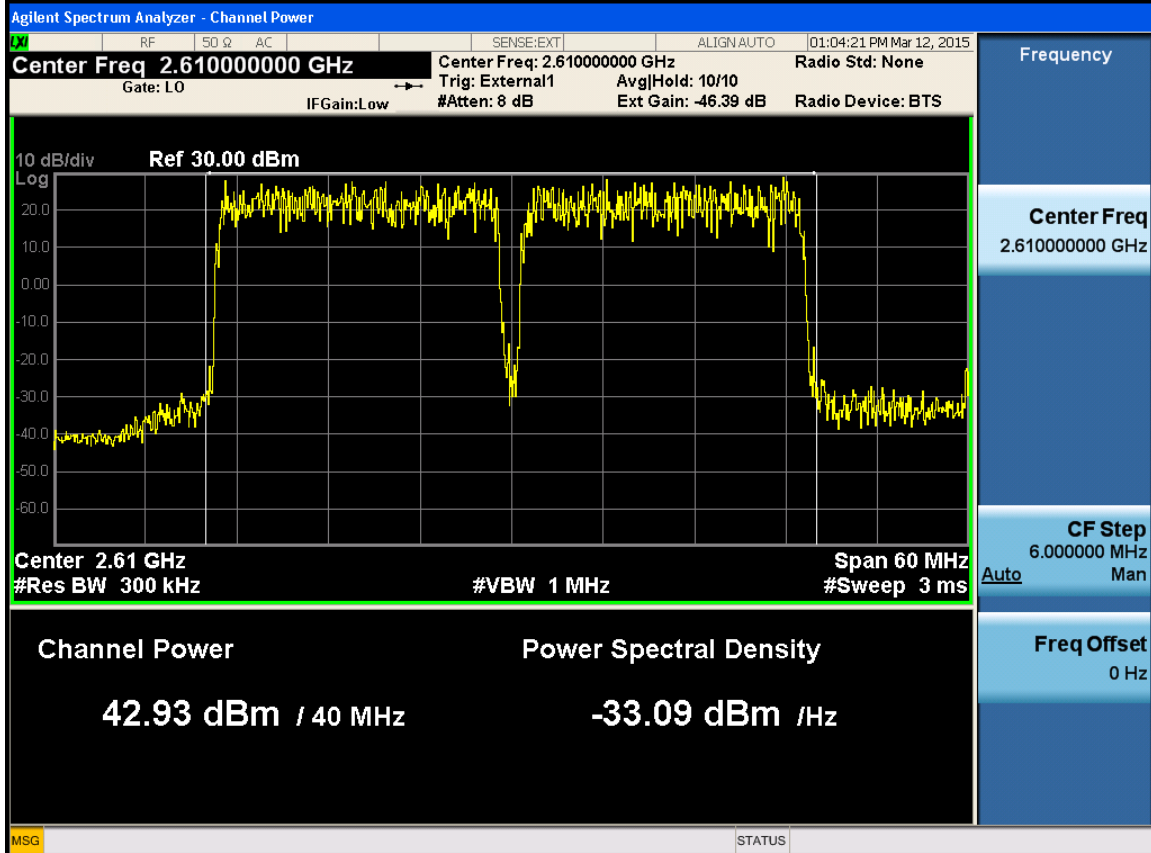
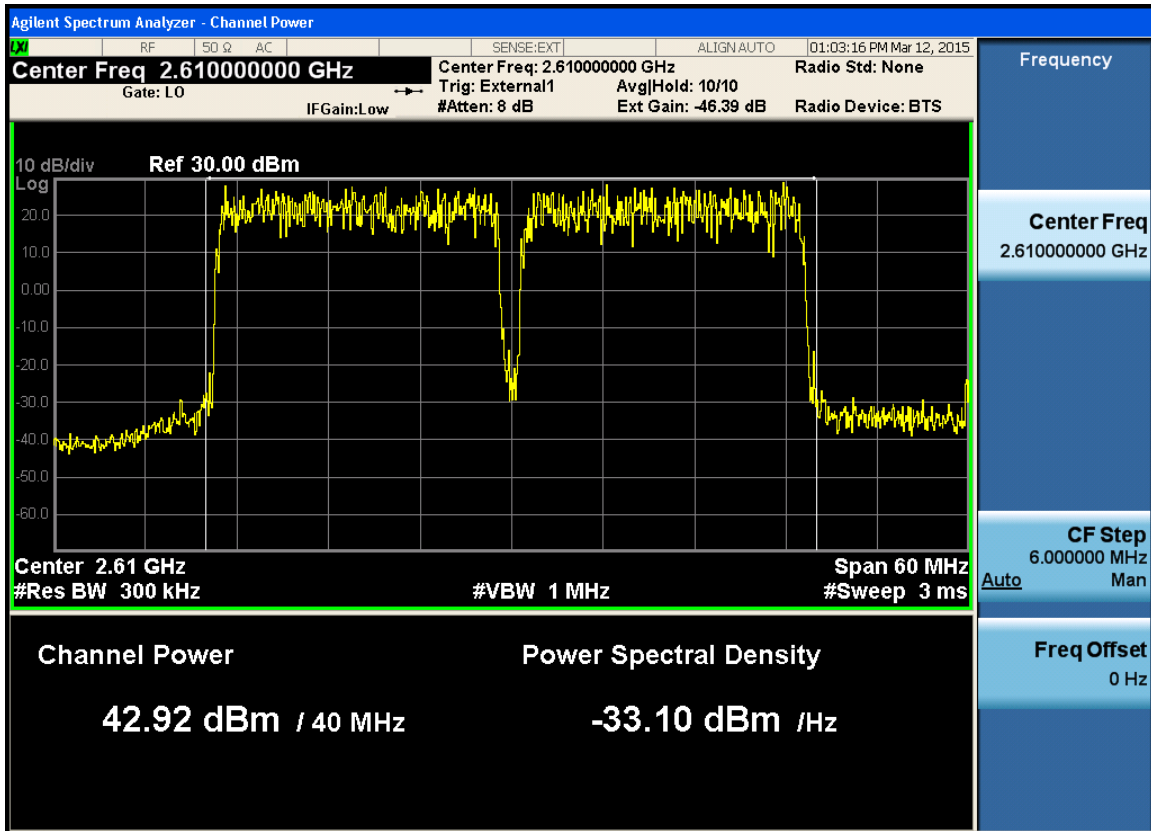




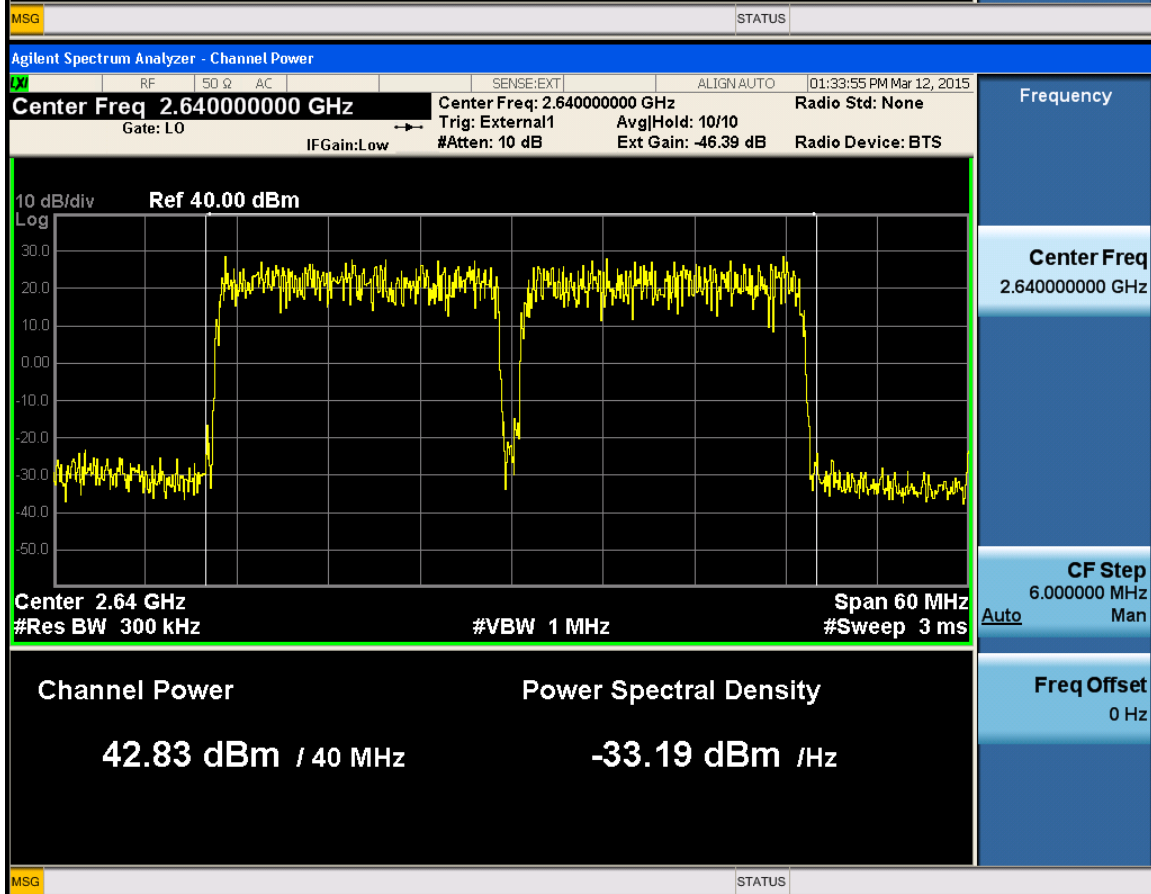
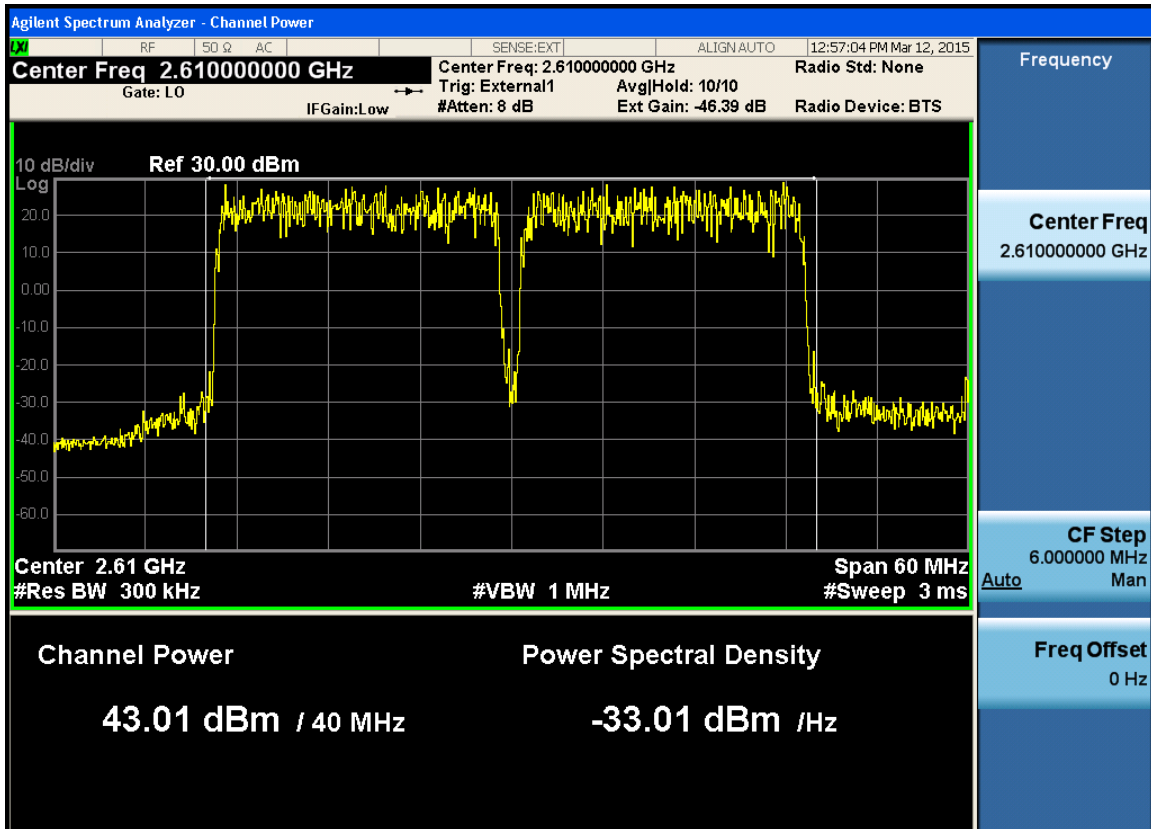


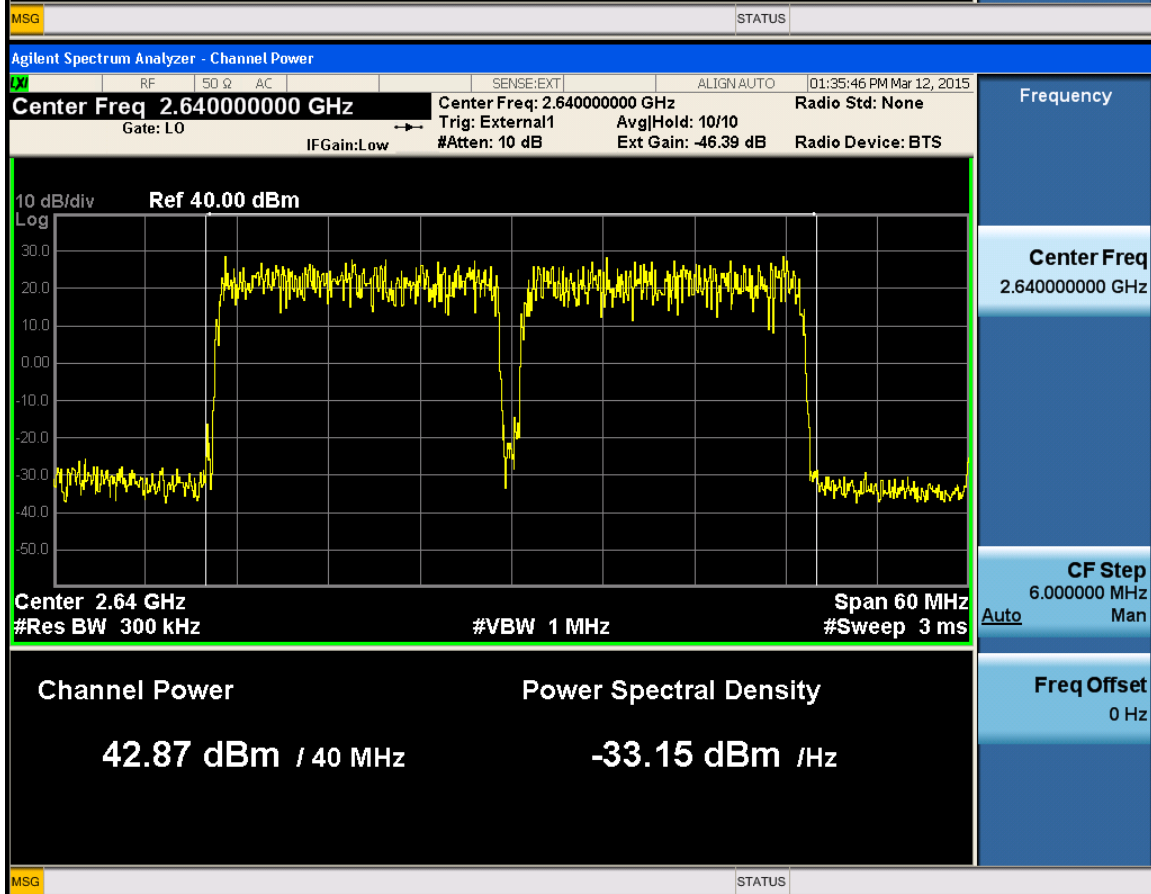
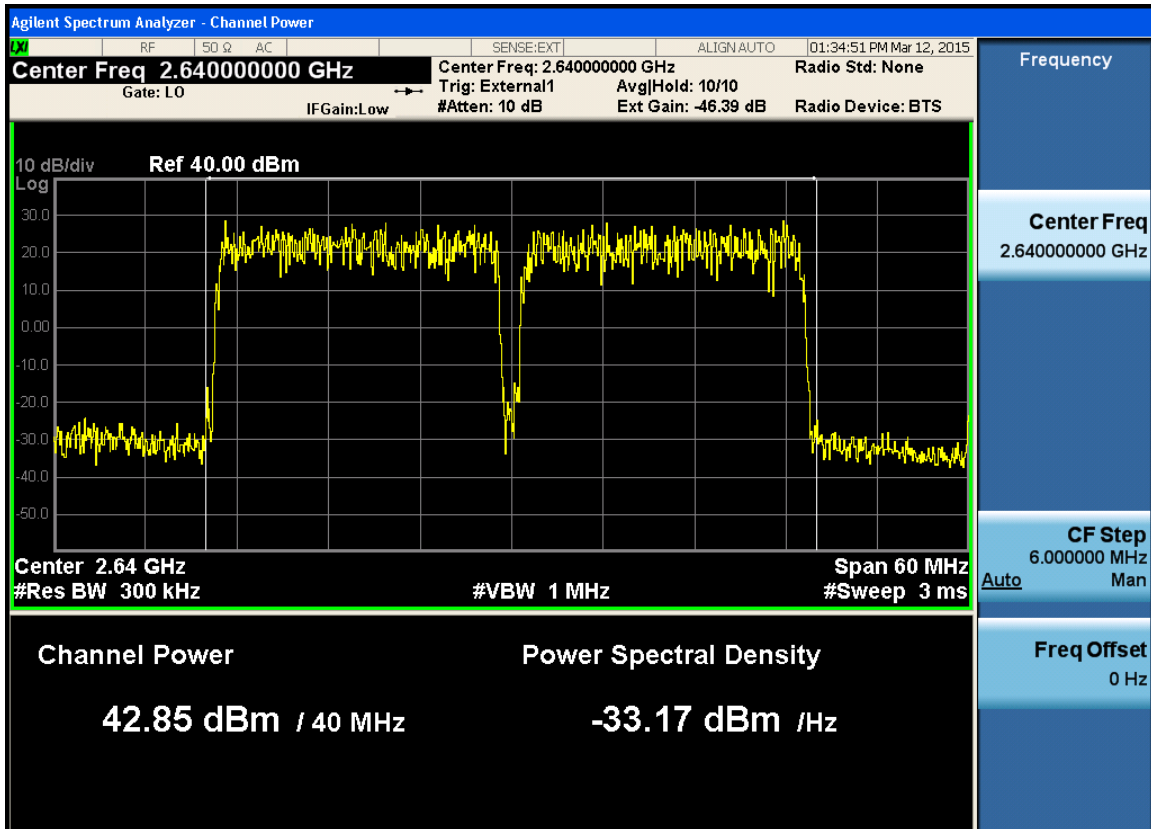


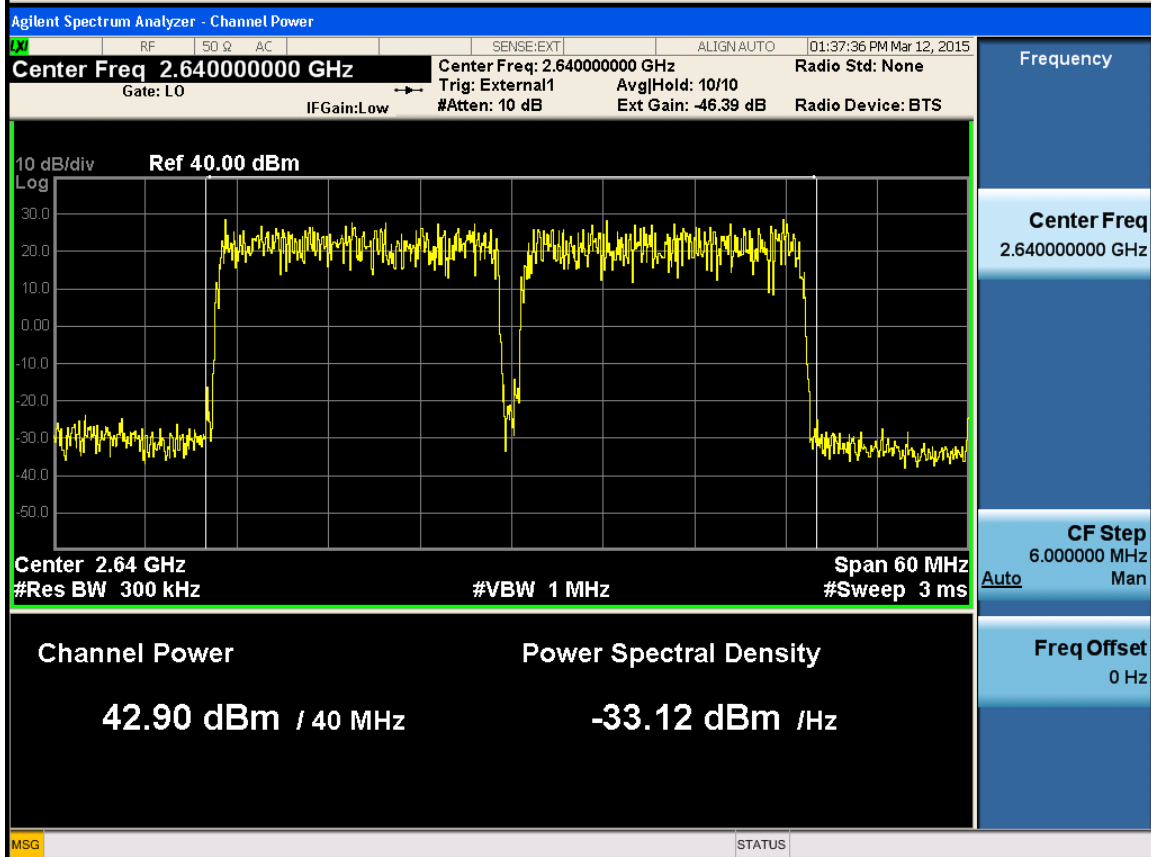
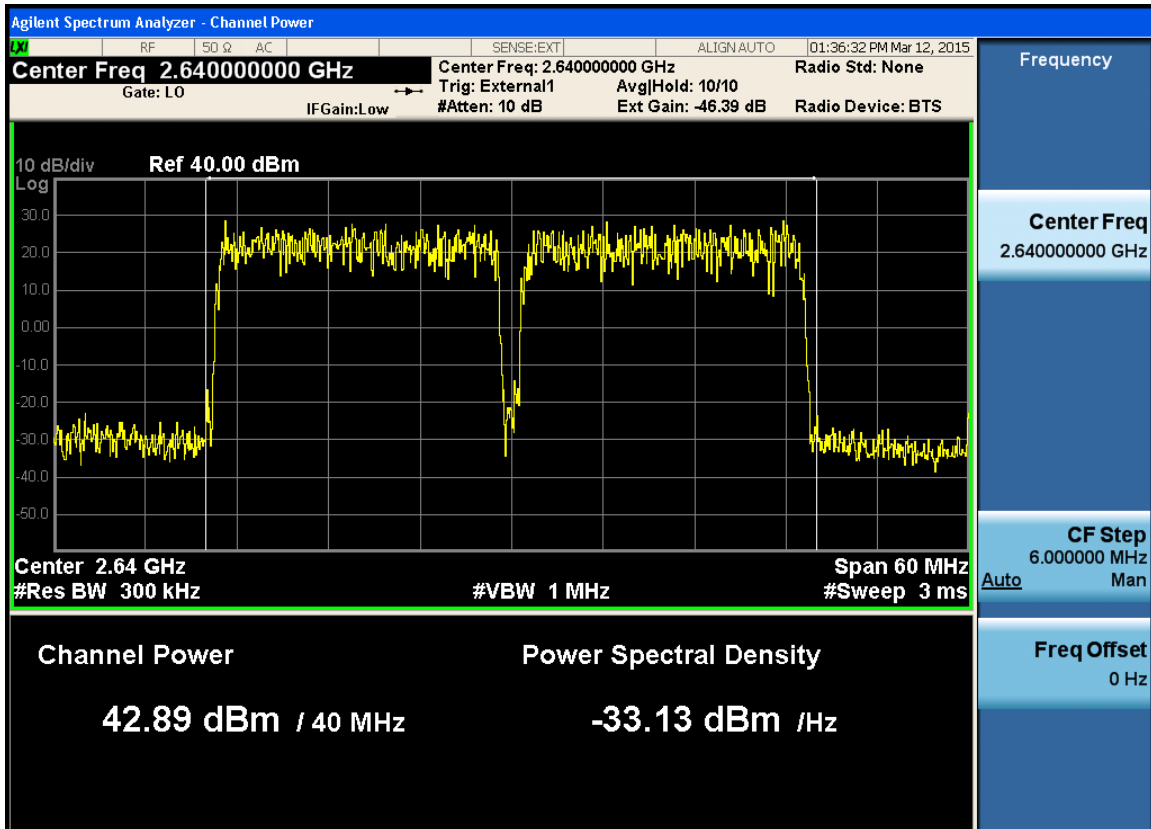


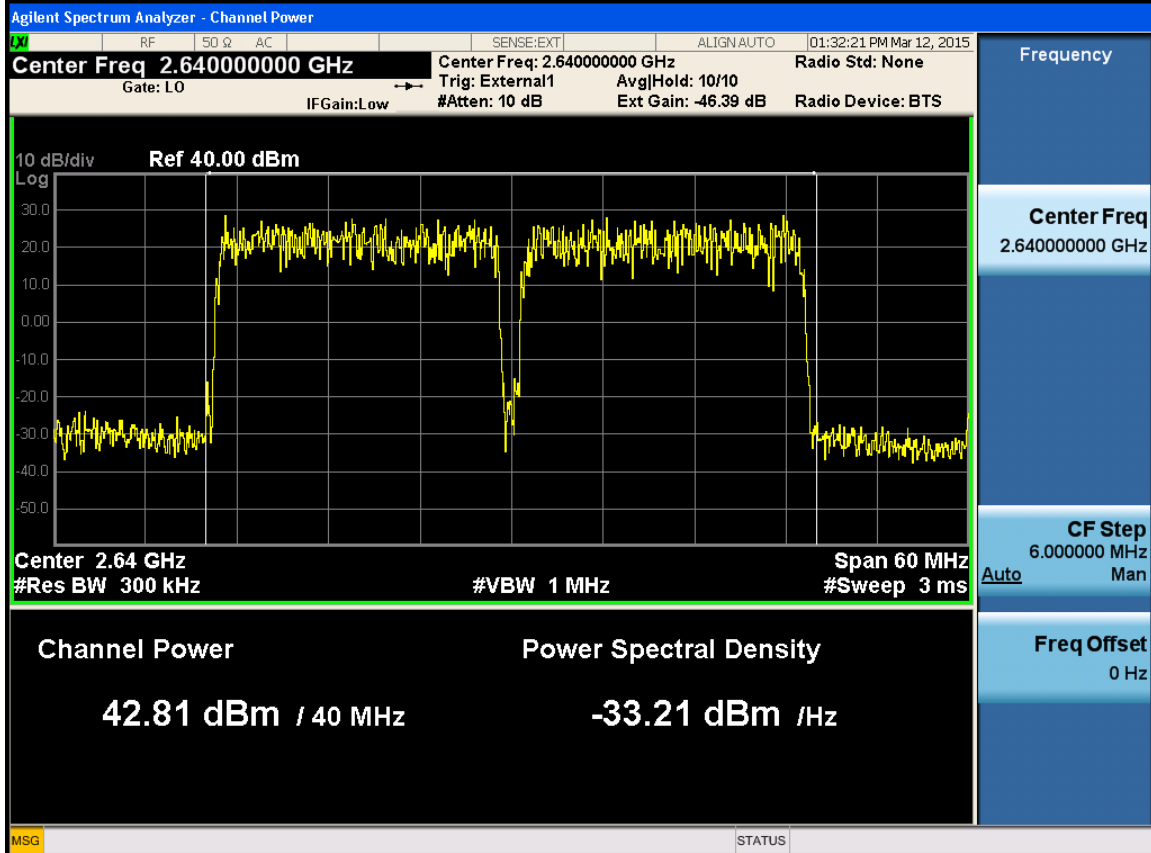
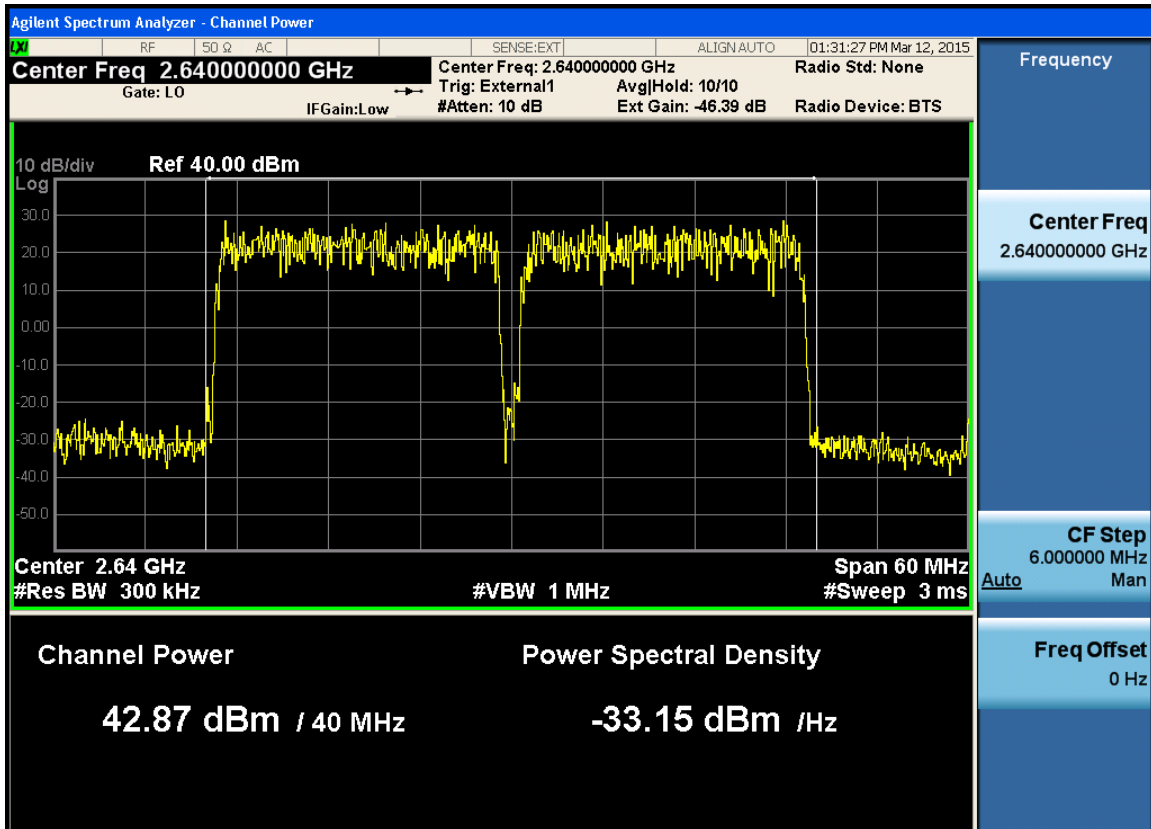


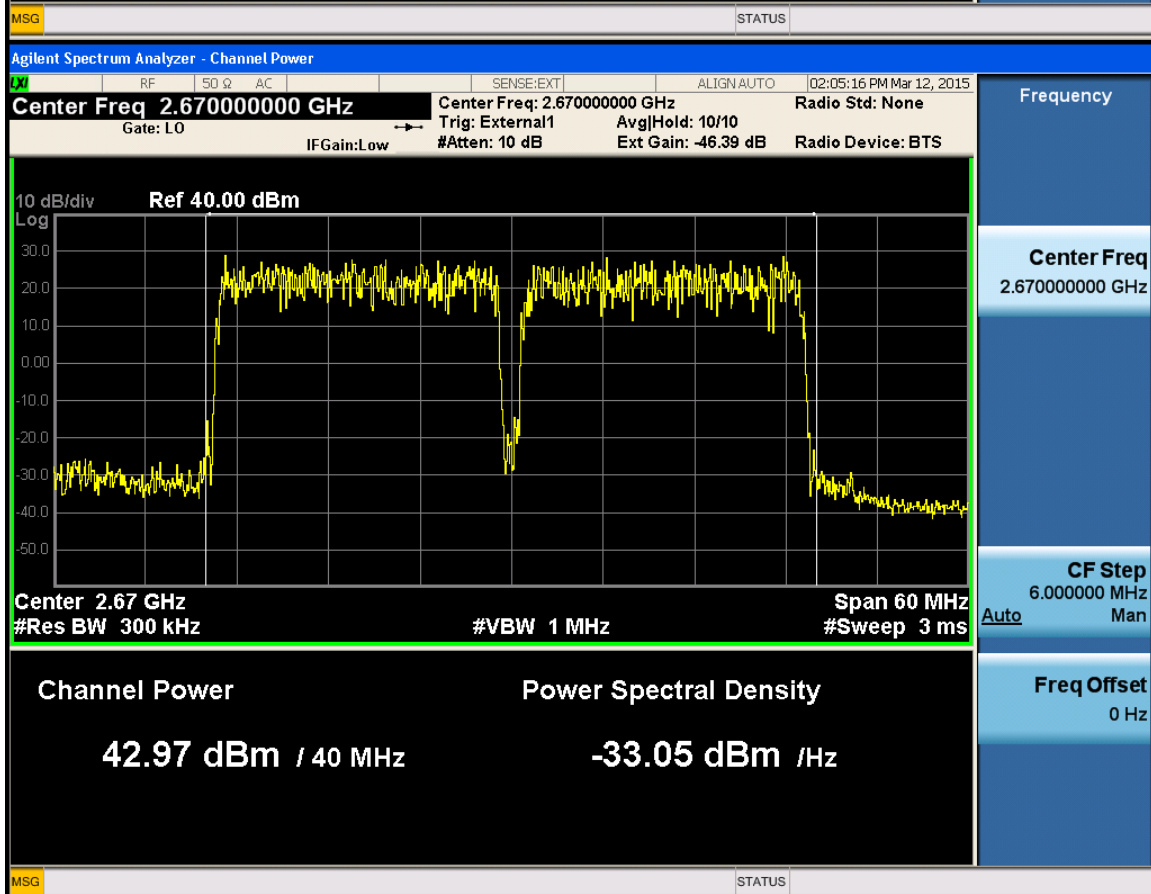
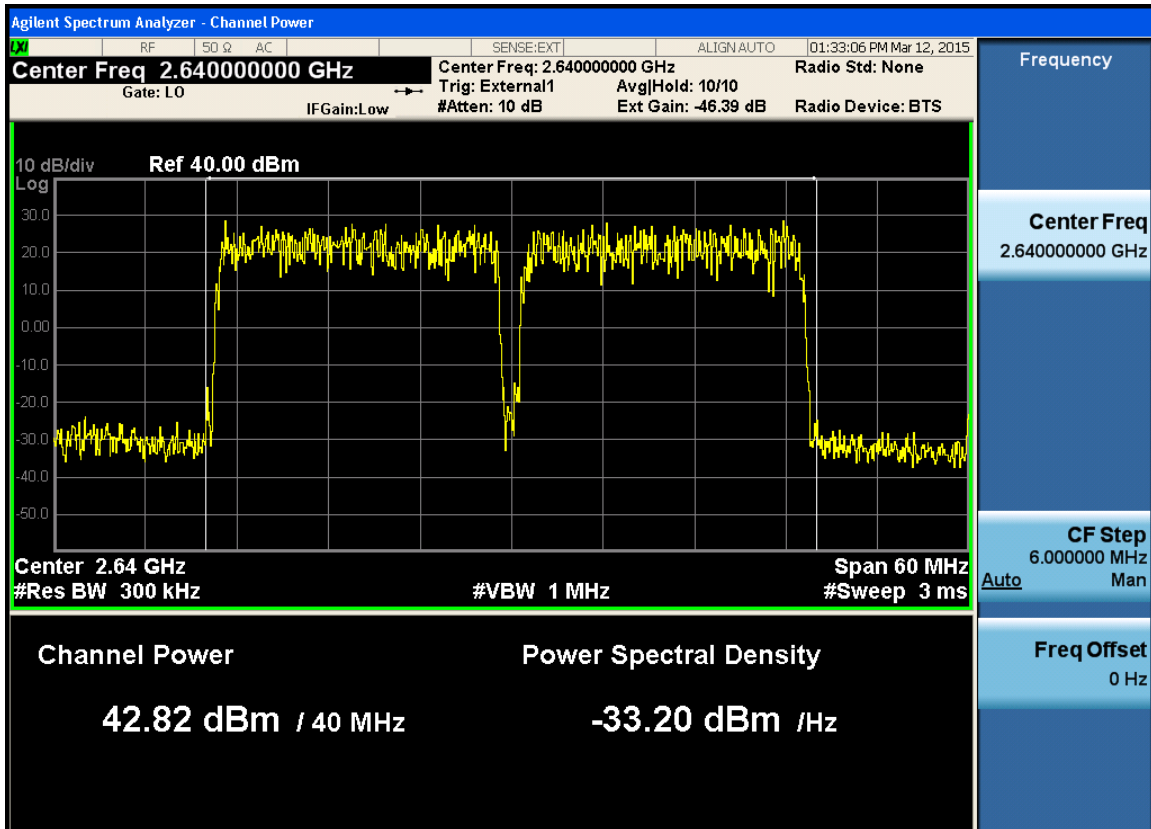


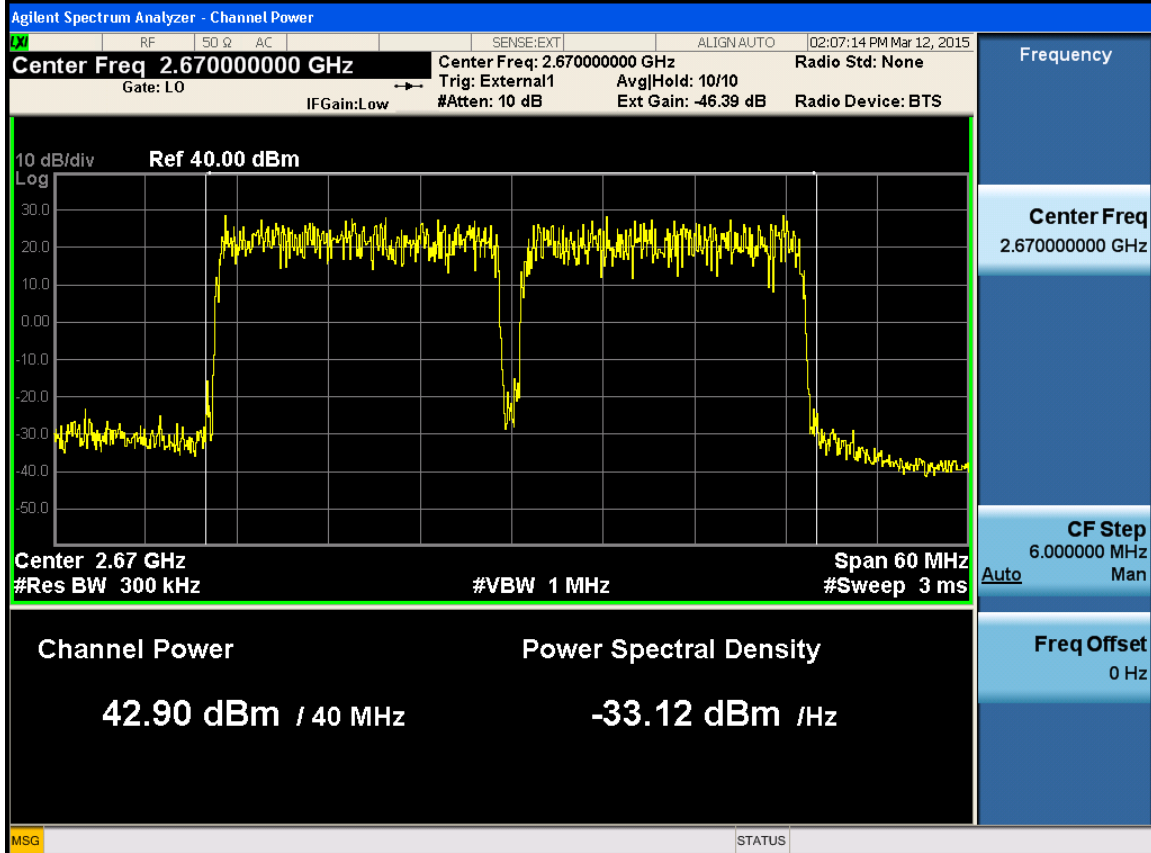
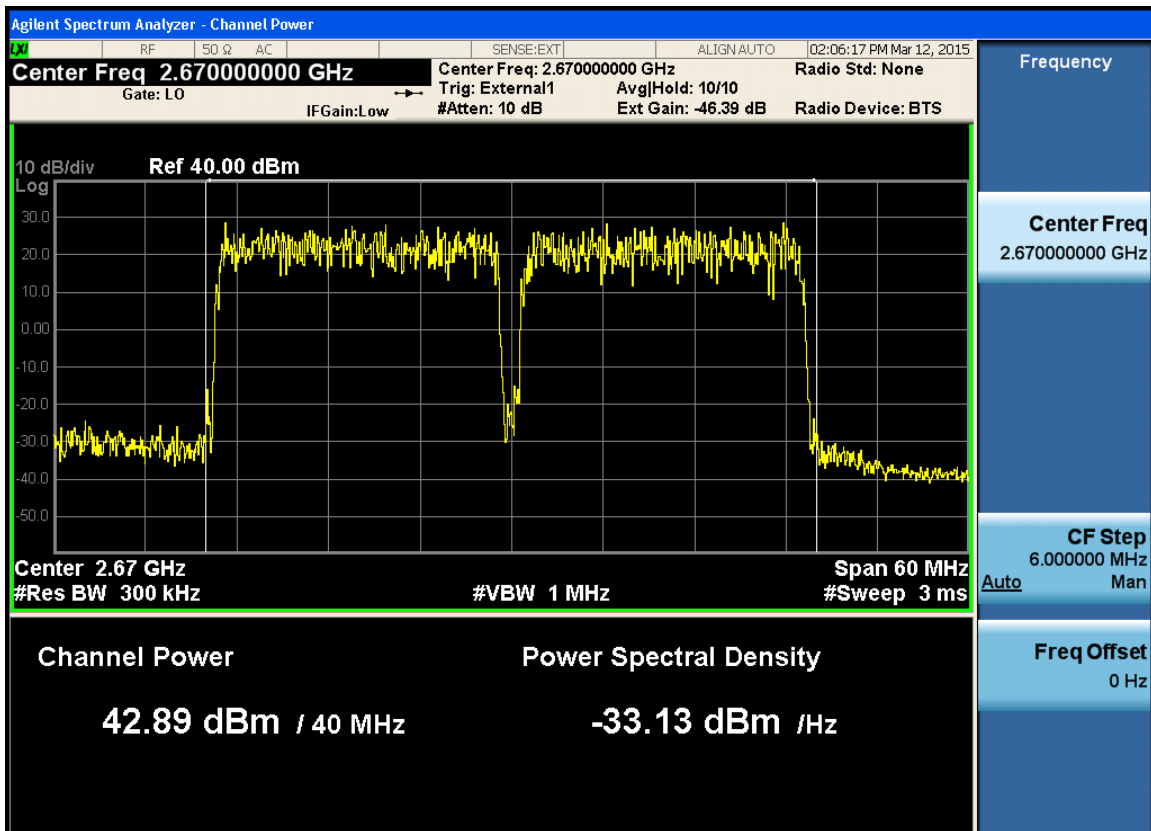


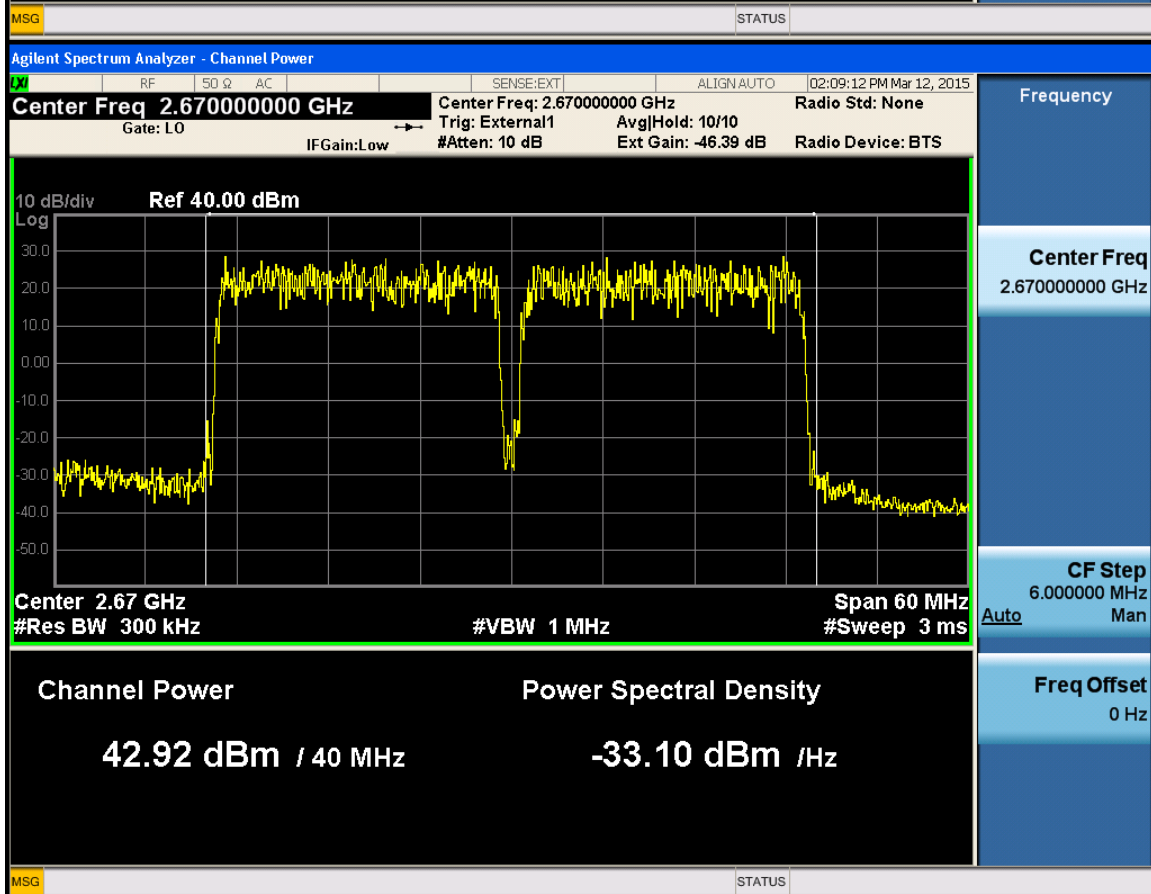
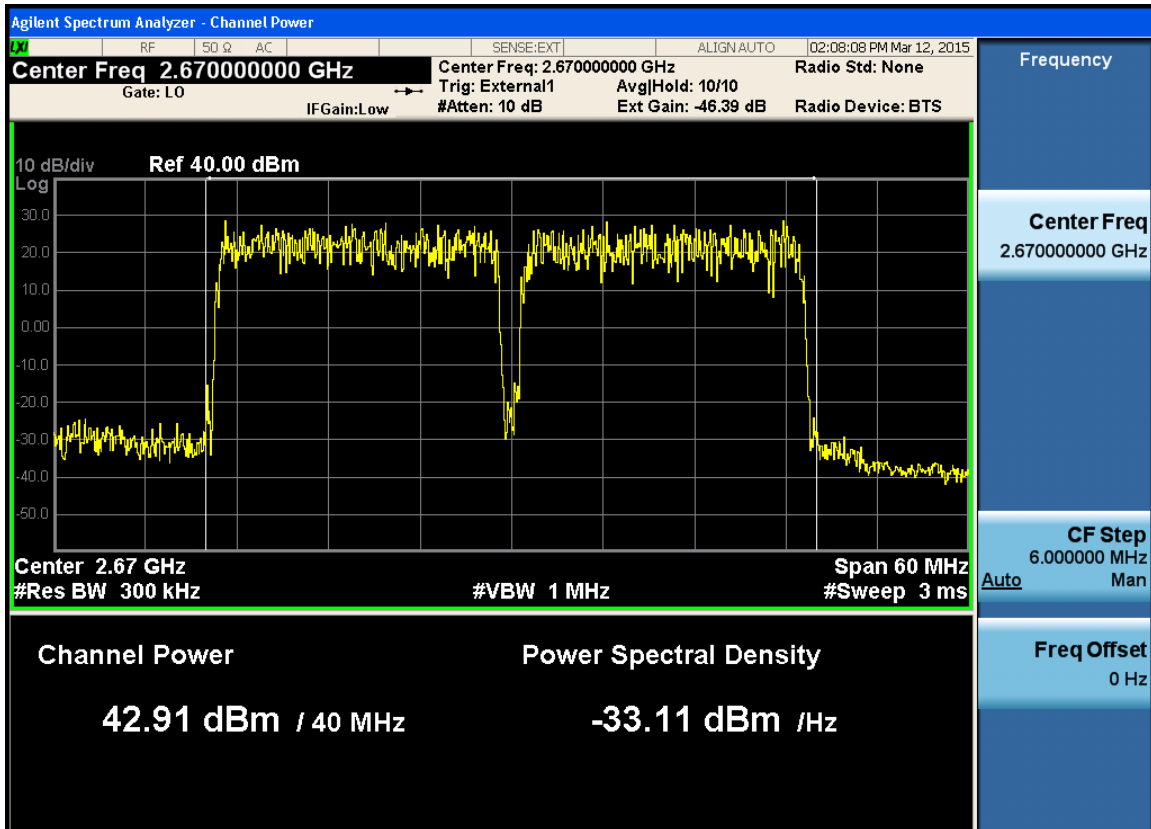


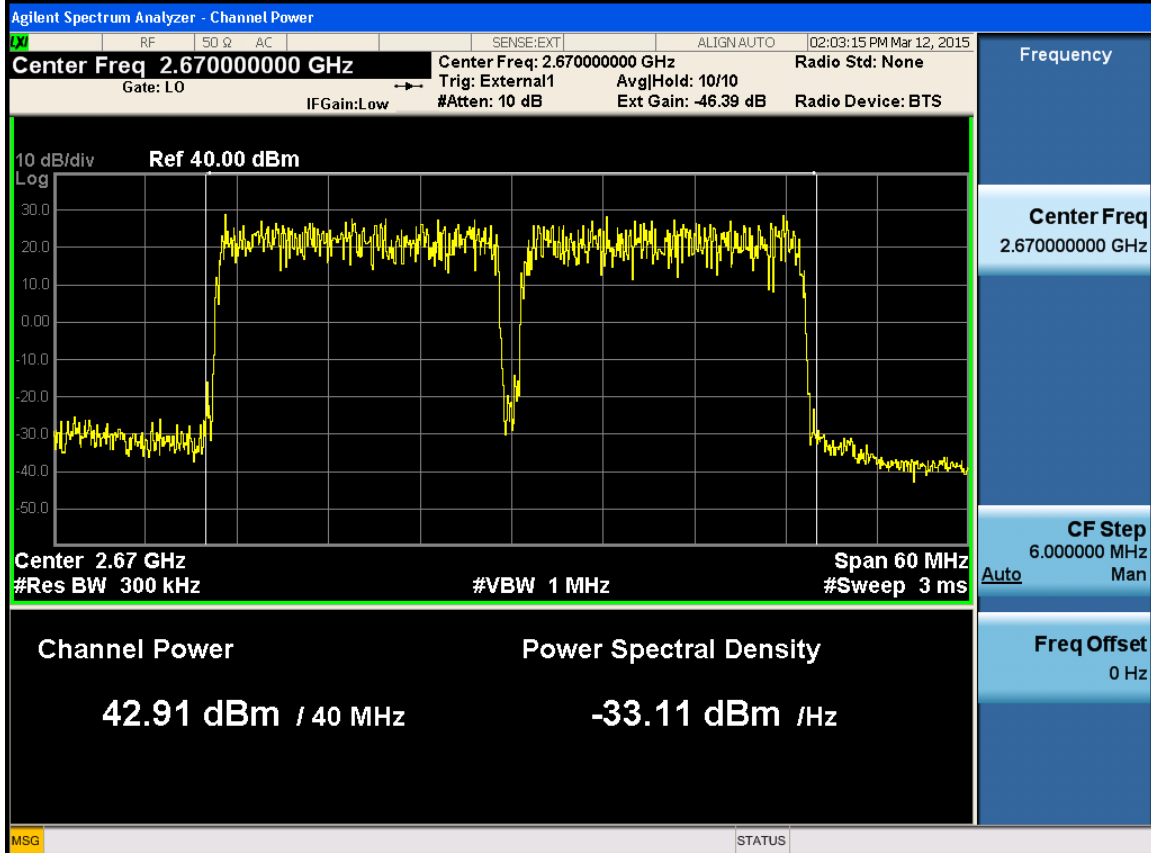
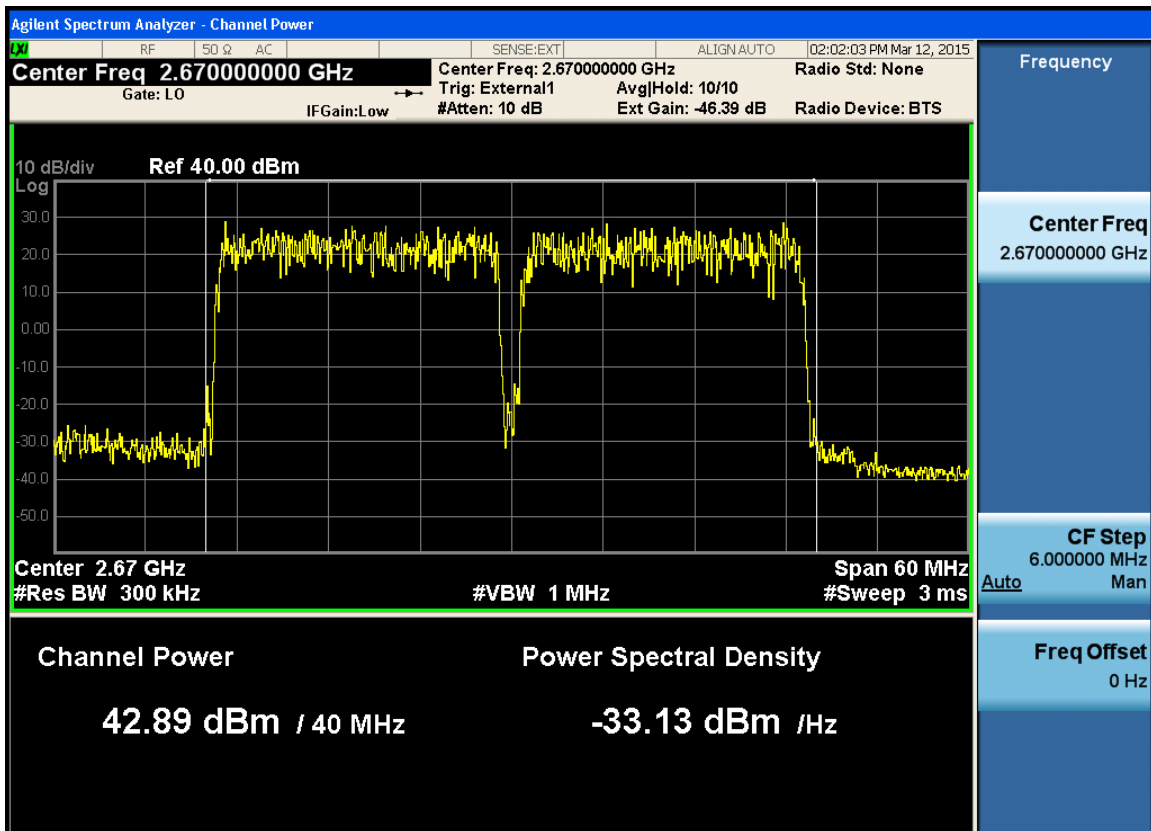


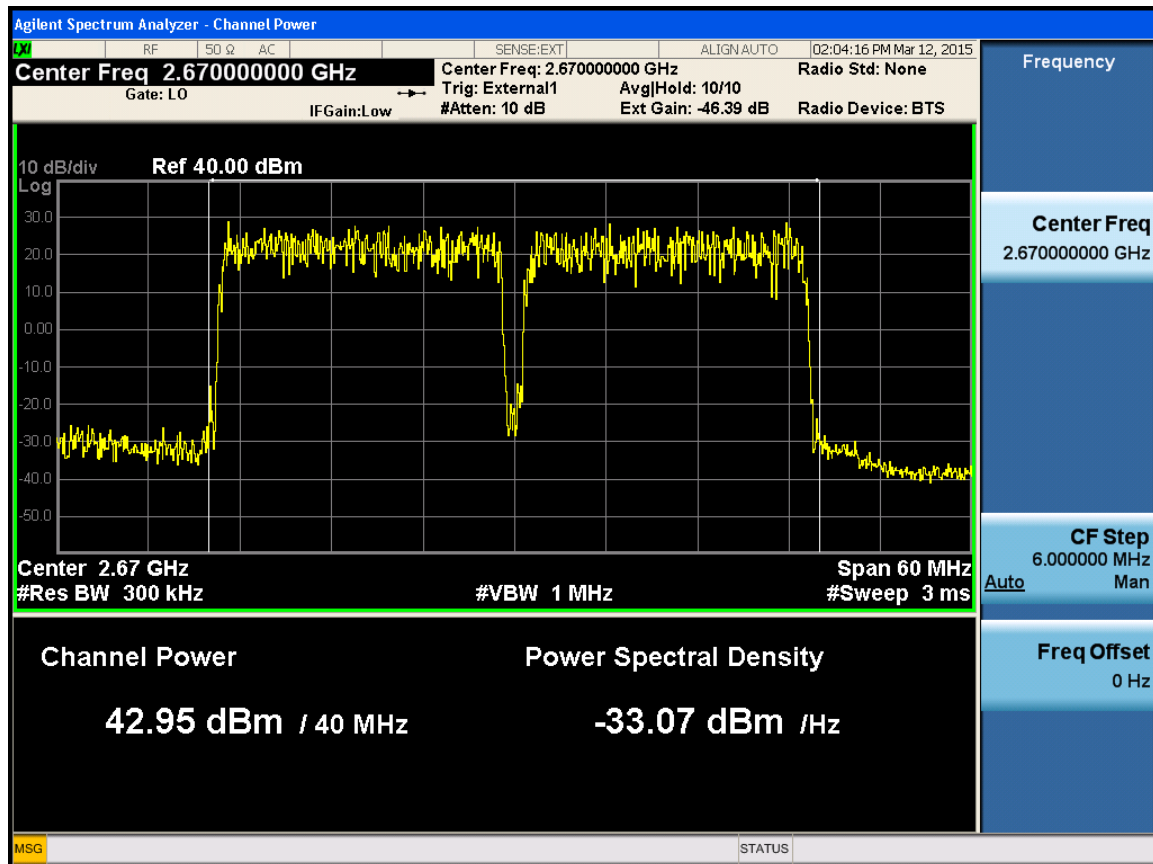












5 MODULATION CHARACTERISTICS

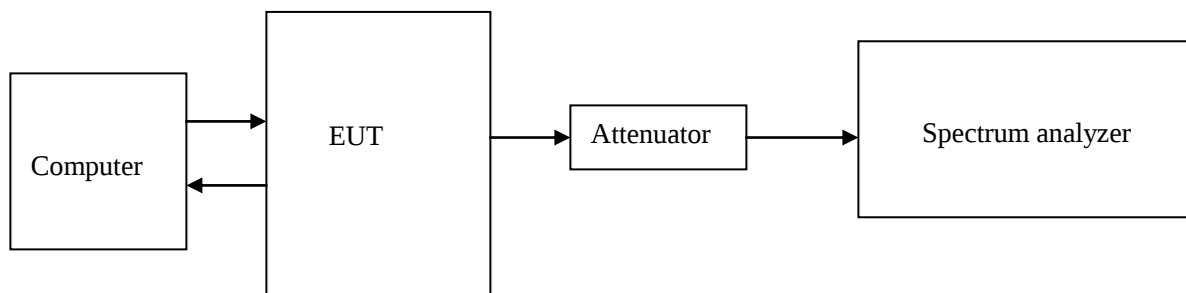
Applicable Standard: FCC § 2.1047, §27.50

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY50110260	2014.09.16	2015.09.16

***statement of traceability:** ZTE Corporation Reliability Testing Center attests that all calibration has been performed per the NVLAP requirements, traceable to NIST.

Test Procedure



The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. External attenuation Loss is 36.8dB. Configure RRU output different modulation signals and test EVM by spectrum analyzer.

Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

Test Result: Pass

Test Mode: Transmitting LTE

Test Data:

Channel Bandwidth: 20M+20M

Port	Carrier Freq. c1+c2(MHz)	Occupied Bandwidth(MHz)		
		QPSK	16QAM	64QAM
0	2600	6.07	4.69	3.75
1		6.10	4.71	3.74
2		6.12	4.69	3.75
3		6.11	4.70	3.74
4		6.10	4.68	3.74
5		6.11	4.70	3.75
6		6.10	4.69	3.74
7		6.11	4.70	3.74
0	2620	6.12	4.71	3.73

1		6.11	4.72	3.74
2		6.13	4.71	3.73
3		6.09	4.68	3.74
4		6.11	4.71	3.73
5		6.15	4.72	3.74
6		6.11	4.73	3.75
7		6.11	4.72	3.71
0	2630	6.12	4.72	3.70
1		6.11	4.71	3.74
2		6.12	4.70	3.75
3		6.11	4.71	3.74
4		6.09	4.69	3.74
5		6.11	4.71	3.75
6		6.10	4.70	3.74
7		6.11	4.71	3.74
0	2650	6.12	4.72	3.75
1		6.13	4.74	3.76
2		6.13	4.72	3.75
3		6.14	4.74	3.74
4		6.13	4.73	3.75
5		6.14	4.74	3.74
6		6.13	4.72	3.75
7		6.11	4.75	3.76
0	2660	6.15	4.73	3.68
1		6.13	4.74	3.69
2		6.12	4.72	3.68
3		6.14	4.73	3.67
4		6.12	4.71	3.68
5		6.15	4.72	3.69
6		6.12	4.71	3.68
7		6.15	4.72	3.69
0	2680	6.18	4.77	3.71
1		6.17	4.73	3.73
2		6.16	4.75	3.72
3		6.15	4.74	3.71
4		6.13	4.74	3.72
5		6.15	4.71	3.71
6		6.17	4.74	3.67
7		6.14	4.72	3.70

