



REPORT

For

Dali Wireless, Inc.

535 Middlefield Road, Suite 280
Menlo Park, CA 94025

Date: 09 July 2018
Report No.: 16898-4E
Revision No.: 0
Project No.: 16898
Equipment: Quad Band Medium Power DAS
Model No.: hd33-4-PS-ABCH-20-8N-D0
FCC ID: HCOHD334PSABCH20A

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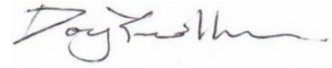


Unit 205 – 8291 92 ST., Delta, BC
V4G 0A4, Canada
Phone: 604-247-0444
Fax: 604-247-0442
www.labtestcert.com

TABLE OF CONTENTS

TEST REPORT_FCC Part 2, 90	4
Revision History.....	5
Device Under Test Description.....	5
Program details	6
Description of Equipment Under Test and Variant Models	7
Client Equipment Used During Test.....	9
Software and Firmware	9
Input/Output Ports	9
Power Interface	10
EUT Operation Modes.....	10
EUT Configuration Modes	10
Test Equipment Verified for function	10
Test Station Photo	11
Test Station Cables and Loads	11
Test Station Insertion Loss	11
Measurement Uncertainty	11
Result Summary.....	12
Radiated Emissions.....	12
Output Power (Conducted).....	13
Test setup	14
Results – Output Power FCC Requirement	14
Input-versus-output Signal Comparison (Conducted)	15
Test setup	16
Results – Occupied Bandwidth (OBW)	17
Unwanted Emissions for 4 Bands Operating PLMRS and PSRS Service (Conducted)	26
Test setup	26
Results	27
Unwanted Emissions for 700 Band Operating Broadband Signal (Conducted)	39
Test setup	40
Results – Out-of-band Emissions	41
Results – Spurious Emissions	45
Results – Spurious Emissions on Adjacent Narrow Band Frequency Range	48
Results – Out-of-band Intermodulation Emission	49
Spectrum Emission Mask.....	50
Test setup	51
Results	52
Frequency Stability	93
Passband Gain and Bandwidth & Out of Band Rejection	94
Test setup	94
Results	95
Intermodulation.....	97
Test setup	98
Results Screenshots	99
Input/output Power and Amplifier/Booster Gain	103
Test setup	103
Results	104
Noise Figure	105
Test setup	105

Results	106
Radiated Emissions - Enclosure	108
Test setup	109
Measurement Procedure	112
Test Result.....	112
Graphical Representation for Emission - Radiated 30kHz to 30MHz	112
Graphical Representation for Emission - Radiated 30MHz to 1GHz	113
Graphical Representation for Emission - Radiated 1 to 18GHz	116
Table Representation for Emission - Radiated 30MHz to 18GHz.....	118

TEST REPORT_FCC Part 2, 90	
Private Land Mobile Services	
Report Reference No.....:	16898-4E
Report Revision History.....:	✓ Rev. 0: 09 July 2018
Compiled by (+ signature).....	Daniel Lee 
Approved by (+ signature).....	Jeremy Lee 
Date of issue	09 July 2018
Total number of pages	118
FCC Site Registration No.:	
	CA5970
IC Site Registration No.:	
	5970A-2
Testing Laboratory.....:	
	LabTest Certification Inc.
Address	
	Unit 3128-20800 Westminster HWY, Richmond, B.C. V6V 2W3 Canada
Applicant's name.....:	
	Dali Wireless, Inc.
Address	
	535 Middlefield Road, Suite 280, Menlo Park, CA 94025
Manufacture's Name	
	Dali Wireless (Canada) Inc.
Address	
	8618 Commerce Court, Burnaby, B.C. V5A 4N6, Canada
Test specification:	
Standards	➤ FCC Part 2; 2018 ➤ FCC Part 90; 2018
Test procedure	➤ ANSI C63.10:2013 ➤ ANSI C63.4:2014 ➤ ANSI/TIA-603- E-2016 ➤ FCC KDB 935210 D05 Indus Booster Basic Meas v01r02: October 27, 2017
Non-standard test method.....:	N/A
Test Report Form(s) Originator	Jeremy Lee
Master TRF	1036_Rev2 – RF Report Template
Test item description :	
Trade Mark	hd33™
Model/Type reference	hd33-4-PS-ABCH-20-8N-D0

Serial Number	10911110RA1B86001
FCC ID	HCOHD334PSABCH20A
Possible test case verdicts:	
- test case does not apply to the test object	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
Testing:	
Date of receipt of test item	June 19, 2018
Date (s) of performance of tests.....	June 20-25, 2018

Revision History

Revision	Date	Reason For Change	Author(s)
0	July, 2018	Initial Data	Jeremy Lee

Device Under Test Description

Application for	PS 900/800/700/450 Remote Unit, Quad Band Medium Power DAS
Passing Transmit Frequency	935 MHz – 941 MHz 851 MHz – 862 MHz 758 MHz – 775 MHz 450 MHz – 512 MHz
Operating Transmit Frequency FCC	935 MHz – 940 MHz 851 MHz – 861 MHz 758 MHz – 768 MHz 769 MHz – 775 MHz 450 MHz – 454 MHz 456 MHz – 462.5375 MHz 462.7375 MHz – 467.5375 MHz 467.7375 MHz – 512 MHz
Passing Receive Frequency	896 MHz – 902 MHz 806 MHz – 817 MHz 788 MHz – 805 MHz 450 MHz – 512 MHz

Operating Receive Frequency FCC	896 MHz – 901 MHz 806 MHz – 816 MHz 788 MHz – 798 MHz 799 MHz – 805 MHz 450 MHz – 454 MHz 456 MHz – 462.5375 MHz 462.7375 MHz – 467.5375 MHz 467.7375 MHz – 512 MHz
Number of Channels	As many as which can fit
Rated RF Output(e.i.r.p.)	35 dBm
Modulation Type	P25 Phase I C4FM, CQPSK; P25 Phase II HDQPSK on full band of Band 900, Band 800 and Band 450; 4FSK on Band 900 only; FM on Band 800 between 851 MHz – 854 MHz only; 5MHz LTE on Band 700 between 758 MHz – 768 MHz; P25 Phase I C4FM, CQPSK; P25 Phase II HDQPSK on Band 700 between 769 MHz – 775 MHz
Equipment mobility	Fixed
Operating condition	-40 to +50 °C
Mass of equipment (g)	< 22,700g
Dimension(W X D X H)	430 mm X 194 mm X 466 mm
Nominal Voltages for:	<u>48 V</u> stand-alone equipment <u>48 V</u> combined (or host) equipment
Supply Voltage:	_____ AC _____ Amps <u>48V</u> DC <u>7.083</u> Amps
If DC Power:	_____ Internal Power Supply <u>✓</u> External Power Supply

Program details

Testing Facility by procedure:		
☒	Radiated Measurement	LabTest Certification Inc.
Testing location/ address		Unit 3128-20800 Westminster HWY, Richmond, B.C. V6V 2W3 Canada
☒	Conducted Measurement:	LabTest Certification Inc.
Testing location/ address		Unit 3128-20800 Westminster HWY, Richmond, B.C. V6V 2W3 Canada

Summary of testing:	
Tests performed (name of test and test clause): Conducted Measurement Radiated Emissions on Enclosure	Testing location: Bench top, Richmond In SAC, Richmond
The tests indicated in Test Summary were performed on the product constructed as described below. The test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted. Based on the results of our investigation, we have concluded the product tested complies with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. LabTest does not make any claims of compliance for samples or variants which were not tested.	

Description of Equipment Under Test and Variant Models

Description:

The hd33 900PS/800PS/700PS/450 PS is a quad-band remote unit that provides at least 2 W of output power on each band.

The quad-band unit supports up to bands in a sealed type 2 chassis.

On the downlink path the hd33 PS remote receives an aggregated stream of digitized RF signals from an *hdHost* PS, which it then converts into analog RF signals. Depending on the frequency band, the signal is amplified in the RF module and then sent out through simplex RF ports to an external filter.

On the UL path the hd33 PS remote receives analog RF signals for the RF band, from an external filter. The RF signals are converted into a digital data stream and then delivered over optical fiber to an *hdHost* PS. The hd33 PS remote also accommodates a 1 Gbps Ethernet backhaul for transporting the data from nearby IP devices such as security cameras and Wi-Fi access points.

The intentional transmitter only exists in the downlink path and hence the EMC tests in this report dedicated to the downlink emission.

In order to build up a complete signal booster system, the *hdHost* was connected as the Auxiliary device. The *hdHost* does not have antenna port, where the signal was injected and ejected via coaxial cables.



Variant Models:

The following variant models were not tested as part of this evaluation, but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

hd33-4-PS-ABCH-20-8N-D0 – quad band 900PS 800PS 700PS 450PS model as tested

Tri Band

1. hd33-3-PS-ABH-20-6N-D0 (hd33 with 450,700,800PS)
2. hd33-3-PS-ACH-20-6N-D0 (hd33 with 450,700,900PS)
3. hd33-3-PS-BCH-20-6N-D0 (hd33 with 450,800,900PS)
4. hd33-3-PS-ABC-20-6N-D0 (hd33 with 700,800,900PS)

Dual Band:

1. hd33-2-PS-AH-20-4N-D0 (hd33 with 450,700PS)
2. hd33-2-PS-BH-20-4N-D0 (hd33 with 450,800PS)
3. hd33-2-PS-CH-20-4N-D0 (hd33 with 450,000PS)
4. hd33-2-PS-AB-20-4N-D0 (hd33 with 700,800PS)
5. hd33-2-PS-AC-20-4N-D0 (hd33 with 700,900PS)
6. hd33-2-PS-BC-20-4N-D0 (hd33 with 800,900PS)

Single Band:

1. hd33-1-PS-H-20-2N-D0 (hd33 with 450PS)
2. hd33-1-PS-A -20-2N-D0 (hd33 with 700PS)
3. hd33-1-PS-B-20-2N-D0 (hd33 with 800PS)
4. hd33-1-PS-C-20-2N-D0 (hd33 with 900PS)

Client Equipment Used During Test

Use*	Product Type	Manufacturer	Model	Comments
EUT	<i>hd33, 900PS, 800PS, 700PS, 450PS</i>	Dali Wireless Inc.	hd33-4-PS-ABCH-20-8N-D0	EUT where the RF (I/O) antenna attached via duplexers/multiplexer when necessary.
AE1	<i>hdHost, 900PS, 800PS, 700PS, 450PS</i>	Dali Wireless Inc.	hdHost-4-PS-ABCH-0-8N-D	Auxiliary equipment, which is connected to the Base Station via RF coaxial cables, has no air interface.
AE2	Dali Matrix Console	Dali Wireless Inc.	hdCNSL-1-8-4-120G-AC	Auxiliary equipment provides the configuration and control interface to UBitT-CP, <i>hdHost</i> and <i>hd33</i> .
Abbreviations: EUT - Equipment Under Test, AE - Auxiliary/Associated Equipment, or SIM - Simulator (Not Subjected to Test)				

Software and Firmware

Use*	Description	Version
EUT	Software installed	1.0.10.5020
AE1	Software installed	1.0.10.5019
AE2	Software installed	
Abbreviations: EUT - Equipment Under Test, AE - Auxiliary/Associated Equipment, or SIM - Simulator (Not Subjected to Test)		

Input/Output Ports

Port #	Name	Type*	Cable Max. >3m	Cable Shielded	Comments
1	DC Power Port	DC	No	No	Dual feed 48 VDC Assembly
2	8 * RF Input/Output Ports	I/O	No	No	N-Type Coaxial
3	2 * Optical Fibre I/O Ports	I/O	No	No	LC/UPC Duplex
4	2 * TP	TP	No	No	RJ-45
*Note: AC = AC Power Port DC = DC Power Port N/E = Non-Electrical I/O = Signal Input or Output Port (Not Involved in Process Control) TP = Telecommunication Ports					

Power Interface

Mode #	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
1	48	-	-	DC	-	

EUT Operation Modes

Mode #	Description
1	UL and DL transmission and receiving ON

EUT Configuration Modes

Mode #	Description
1	<i>hd</i> Host maximum input threshold set to -10 dBm, uplink attenuation set to 0dB; <i>hd</i> 33 uplink and downlink attenuation set to 0dB.

Test Equipment Verified for function

Model #	Description	Checked Function	Results
N9038A	Spectrum Analyzer	Frequency and Amplitude	Connected 50MHz and -20 dBm Ref_siganl and checked OK.
JB1	Antenna, 30 to 2000MHz	Checked structure	Normal – no damage.
SAS-571	Antenna, 1 to 18GHz	Checked structure	Normal – no damage.
AL-130	Antenna, 9kHz to 30MHz	Checked structure	Normal – no damage.
KT-N5172B	Signal Generator, up to 6GHz	Frequency, Amplitude and Modulation	Within MFR Specs
KT-N9010A	Spectrum Analyzer	Frquency and Amplitude	Within MFR Specs

Test Station Photo



Test Station Cables and Loads

Model #	Manufacture	Description
TM4-N1S1-60	MegaPhase	N-Type male to SMA male coaxial cable in 60 inches
8 * TM4-S1S1-60	MegaPhase	8 times SMA male to SAM male coaxial cable in 60 inches
GB14-S1S1-16	MegaPhase	SMA male to SAM male coaxial cable in 16 inches
4 * GB14-S1S1-12	MegaPhase	SMA male to SAM male coaxial cable in 12 inches
4 * GB14-S1S1-18	MegaPhase	SMA male to SAM male coaxial cable in 18 inches
3 * RG316/U	Pasternack	SMA male to SMA male coaxial cable in 12 inches
RG316/U	Pasternack	SMA male to SMA male coaxial cable in 36 inches
4 * PE3C0101-400cm	Pasternack	N-Type male to N-Type male coaxial cable in 4 meters
4 * 49-30-34	Aeroflex	40dB 150W attenuators
4 * VAT-10W2+	Minicircuit	10dB 2W attenuators

Test Station Insertion Loss

	Band 900	Band 800	Band 700	Band 450
DL Transmitter	43.8 dB	44.5 dB	43.55 dB	43 dB
UL Receiver	9.5 dB	9.52 dB	9 dB	8.9 dB

Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests:

Parameter	Uncertainty
Radio Frequency	±1 ppm
Total RF Power: Conducted	±1 dB
RF Power Density: Conducted	±2.75 dB
Spurious Emissions: Conducted	±3 dB
Temperature	±1 °C
Humidity	±5 %
DC and Low Frequency Voltages	±3 %
Radiated Emission, 30 to 6,000MHz	± 4.95 dB

Uncertainty figures are valid to a confidence level of 95%.

Result Summary

The Compliance Status is a judgment based on the direct measurements and calculated highest emissions to appropriate standard limits. Measurement uncertainty values, provided on calibration certificates, were not be used in the judgment of the final status of compliance.

FCC Part			
Test Type	Regulation	Measurement Method	Result
Output Power (Conducted)	FCC Part 2 2.1046 FCC Part 90.219	ANSI TIA-603-E-2016	Compliant
Input-versus-output Signal Comparison	FCC Part 2 2.1049	ANSI TIA-603- E-2016 & FCC KDB 935210 D05, v01r02 Sec 3.4	Compliant
Unwanted Emissions (Transmitter Conducted)	FCC Part 2 2.1046(a) FCC Part 90.210 FCC Part 90.543(e)	ANSI TIA-603- E-2016 & FCC KDB 935210 D05, v01r02	Compliant
Spectrum Emission Mask	FCC Part 90 90.210	ANSI TIA-603- E-2016 & FCC KDB 935210 D05, v01r02	Compliant
Out of Band Rejection	FCC KDB 935210 D05, v01r02	FCC KDB 935210 D05, v01r02	Compliant
Intermodulation	FCC Part 90 90.219	ANSI TIA-603- E-2016 & FCC KDB 935210 D05, v01r02	Compliant
Input/output Power and Amplifier/Booster Gain	FCC Part 90 90.219	ANSI TIA-603- E-2016 & FCC KDB 935210 D05, v01r02	Compliant
Noise Figure	FCC Part 90 90.219	ANSI TIA-603- E-2016 & FCC KDB 935210 D05, v01r02	Compliant
Radiated Emissions - Enclosure	FCC Part 2.1053, FCC Part 90.210 & FCC Part 90.219	ANSI C63.4:2014 & ANSI TIA- 603-D	Compliant

Output Power (Conducted)

Governing Doc	FCC Part 2 2.1046(a) FCC Part 90.219(d)	Room Temperature (°C)	29
Test Procedure	ANSI/TIA-603- E-2016; FCC KDB 935210 D05, v01r02;	Relative Humidity (%)	39.9
Test Location	Burnaby	Barometric Pressure (kPa)	101.5
Test Engineer	Jeremy Lee	Date	Jun 20, 2018
EUT Voltage	☒ DC ☐ 120VAC @ 60Hz		
Test Equipment Used	Manufacturer	Model	Serial Number
Signal Generator	Keysight	N5172B	MY53050270
Spectrum Analyzer	Keysight	N9010A	MY50520285
Frequency Range:	☒ 935 MHz – 940 MHz; 851 MHz – 861 MHz; 758 MHz – 775 MHz; ☐ 450 MHz – 512 MHz		
Detector:	☒ Peak		
Type of Facility:	☒ Test bench		
Distance:	☒ Direct		
Arrangement of EUT:	☐ Table-top only ☐ Floor-standing only ☒ Rack Mounted		
Output Power is less than 34.8 dBm in band 900, less than 35.5 dBm in band 800, less than 35.1 dBm in band 700, and less than 35 dBm in band 450.			
Compliant ☒ Non-Compliant ☐ Not Applicable ☐			

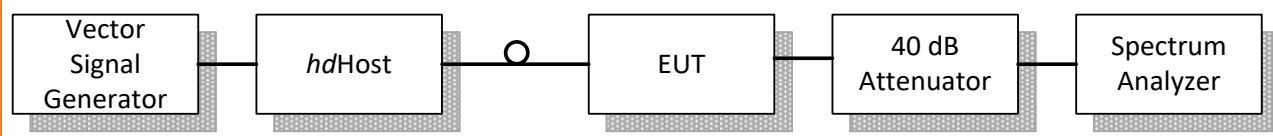
Test setup

Description of test set-up:

Output power is measured by connecting a spectrum analyzer to RF output connector of EUT via 40dB Attenuator. With a nominal input power and the amplifier properly adjusted the RF output is measured.

The EUT was set to **Operation Mode #1 with configuration Mode #1.**

The maximum output power is measured when the Automatic Level Control (ALC) starting to compress the power and hold to a constant level.



Results – Output Power FCC Requirement

Frequency Range (MHz)	Frequency (MHz)	Input Power Trip ALC (dBm)	Output Power (dBm)	Limit (37dBm)
935 - 940	935.0125	-9.5	34.8	PASS
	937.5	-9.5	34.6	PASS
	939.9875	-9.5	34.7	PASS
851 - 861	851.0125	-8.5	35.1	PASS
	856	-9.5	35.2	PASS
	860.9875	-9.5	35.5	PASS
769 - 775	769.0125	-9.5	35.1	PASS
	772	-9.0	35.1	PASS
	774.9875	-9.0	35.0	PASS
758 - 768	760.5	-8.0	34.9	PASS
	763	-8.5	34.9	PASS
	765.5	-8.5	35.0	PASS
450 - 454	450.0125	-9.5	34.2	PASS
456 – 462.5375	462.53125	-10.5	34.7	PASS
462.7375 – 467.5375	463.6375	-10.5	34.6	PASS
467.7375 - 512	511.9875	-10.5	35	PASS

Input-versus-output Signal Comparison (Conducted)

Governing Doc	FCC Part 2 2.1049	Room Temperature (°C)	29
Test Procedure	ANSI/TIA-603- E-2016; FCC KDB 935210 D05, v01r02 Sec 3.4	Relative Humidity (%)	39.9
Test Location	Burnaby	Barometric Pressure (kPa)	101.5
Test Engineer	Jeremy Lee	Date	Jun 20, 2018
EUT Voltage	☒ DC ☐ 120VAC @ 60Hz		
Test Equipment Used	Manufacturer	Model	Serial Number
Signal Generator	Keysight	N5172B	MY53050270
Spectrum Analyzer	Keysight	N9010A	MY50520285
Frequency Range:	☒ 935 MHz – 940 MHz; 851 MHz – 861 MHz; 758 MHz – 775 MHz; ☐ 450 MHz – 512 MHz		
Detector:	☒ Peak		
Type of Facility:	☒ Test bench		
Distance:	☒ Direct		
Arrangement of EUT:	☐ Table-top only ☐ Floor-standing only ☒ Rack Mounted		
Output signal has an occupied channel bandwidth less than the designated channel bandwidth on any location on the operating band. - 4FSK < 12.5 kHz - C4FM < 12.5 kHz - CQPSK < 6.25 kHz - HDQPSK < 12.5 kHz - 4 kHz FM with 1kHz deviation < 12.5 kHz - LTE < 5 MHz AGC activation does not distort the signal shape.			
Compliant ☒ Non-Compliant ☐ Not Applicable ☐			

Test setup

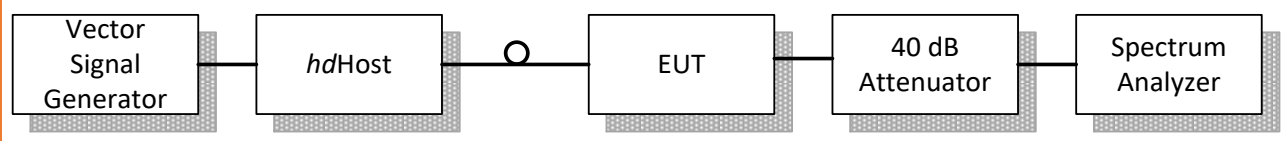
Description of test set-up:

Occupied Bandwidth is measured by connecting a Spectrum Analyzer to the RF output connector via 40dB attenuator. The required measurement resolution bandwidth (RBW) is 1% of the emission bandwidth. 99% energy rule was applied to measure the occupied channel bandwidth. The emission bandwidth is measured as the width of the signal between two frequency points on the channel edge, outside of which the transmission power is attenuated at least 26dB below the transmitter output power

The EUT was set to **Operation Mode #1 with configuration Mode #1.**

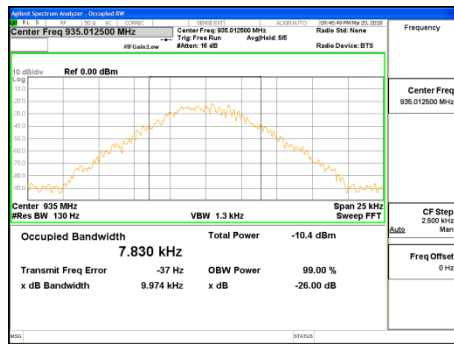
The occupied bandwidth of DL output is measured under two input conditions:

- Nominal: with input 0.5dB below AGC threshold
- AGC: with input 3dB above AGC threshold

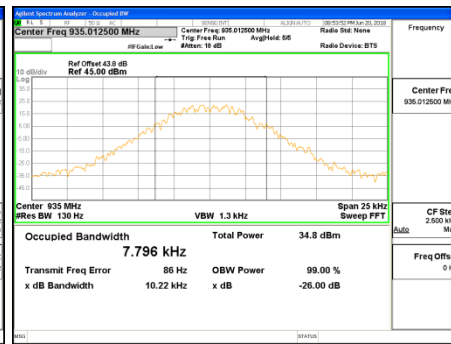


Results – Occupied Bandwidth (OBW)

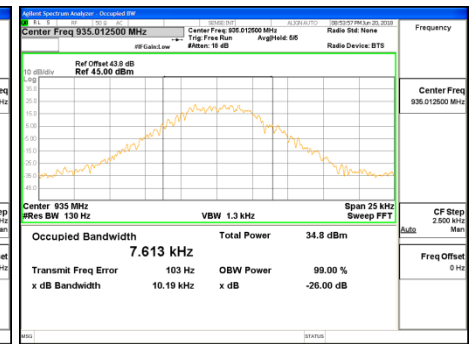
Input OBW



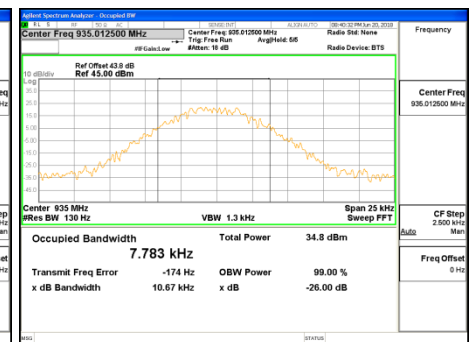
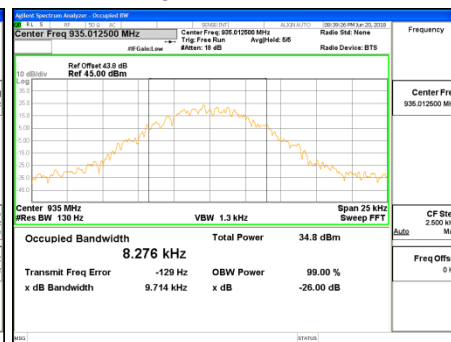
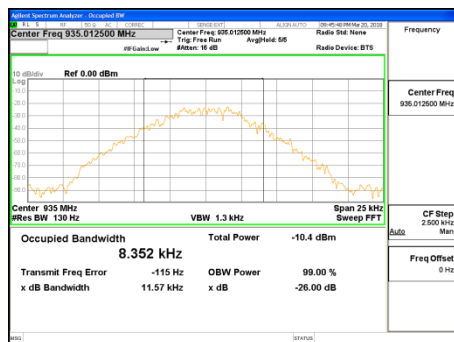
Output OBW when AGC inactive 4FSK Signal at 935.0125 MHz



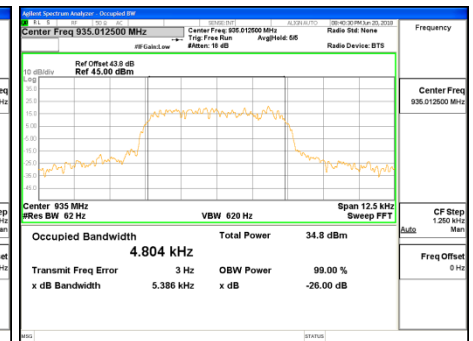
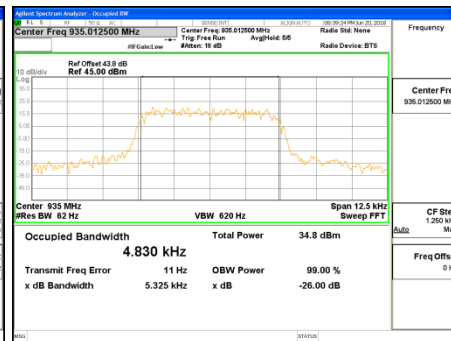
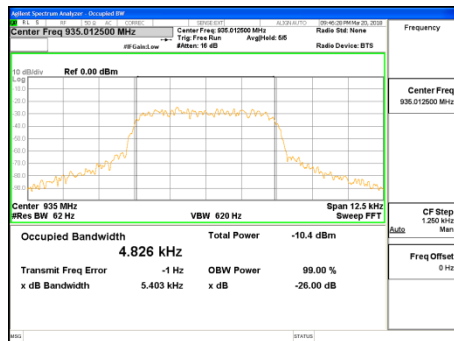
Output OBW when AGC active



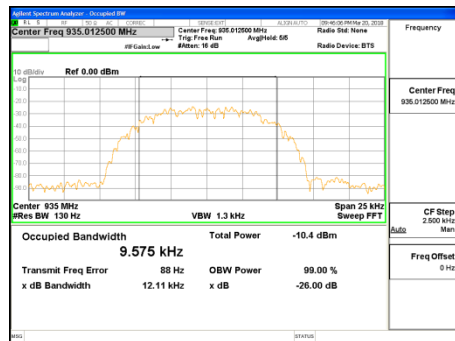
C4FM Signal at 935.0125 MHz



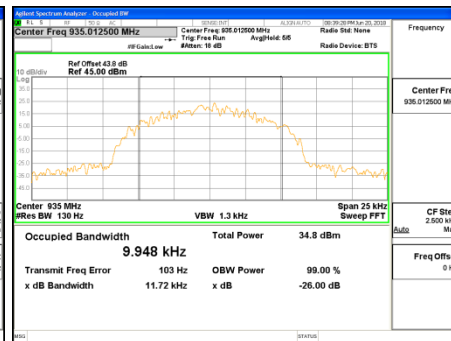
CQPSK Signal at 935.0125 MHz



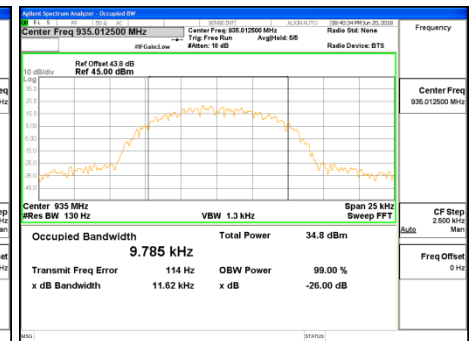
Input OBW



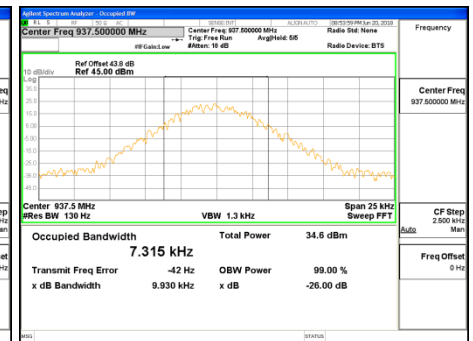
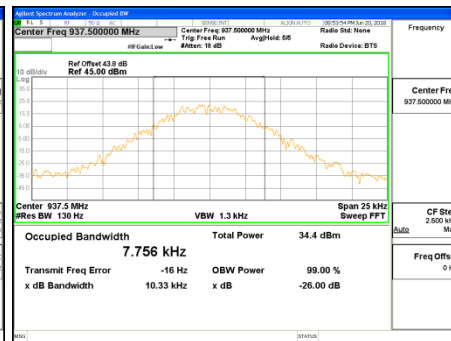
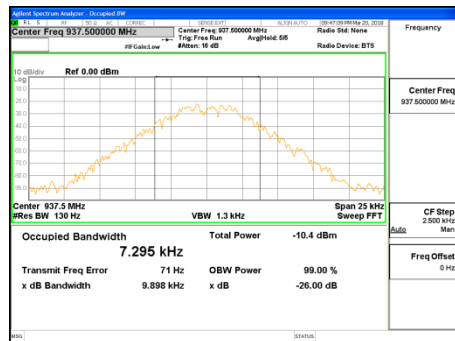
Output OBW when AGC inactive HDQPSK Signal at 935.0125 MHz



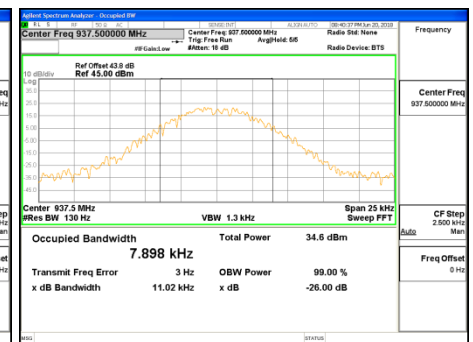
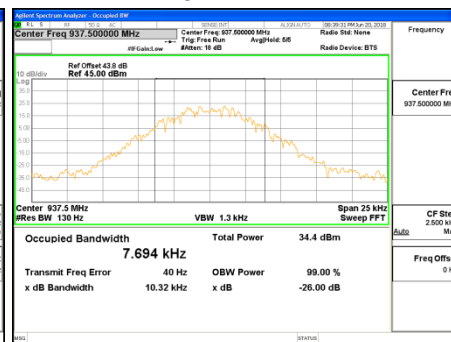
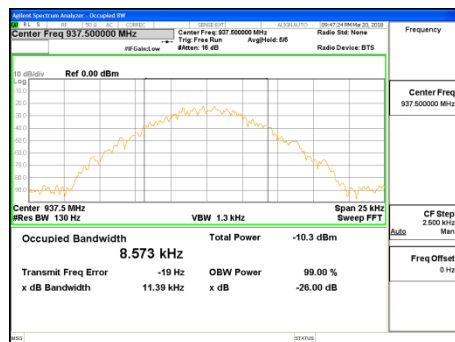
Output OBW when AGC active



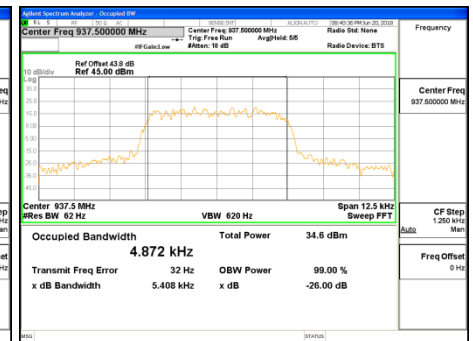
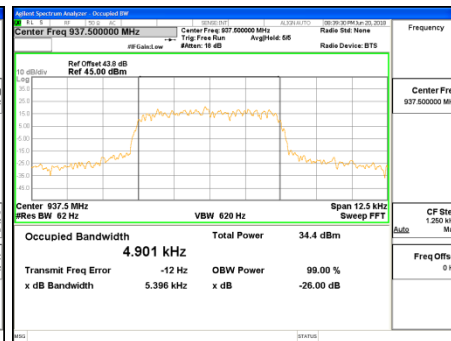
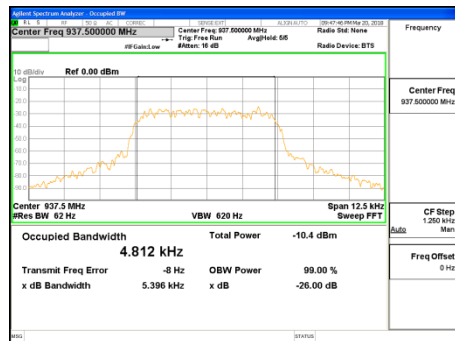
4FSK Signal at 937.5 MHz



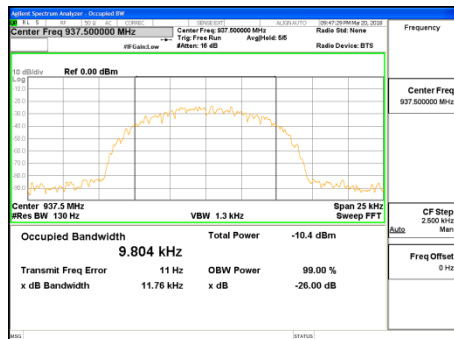
C4FM Signal at 937.5 MHz



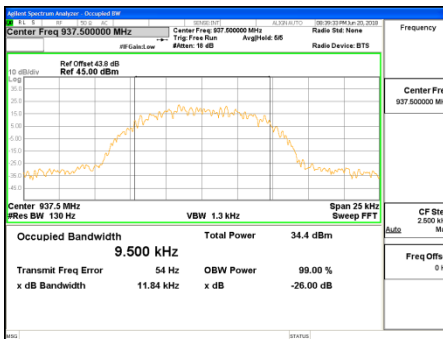
CQPSK Signal at 937.5 MHz



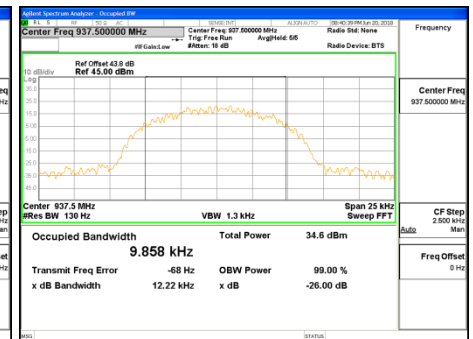
Input OBW



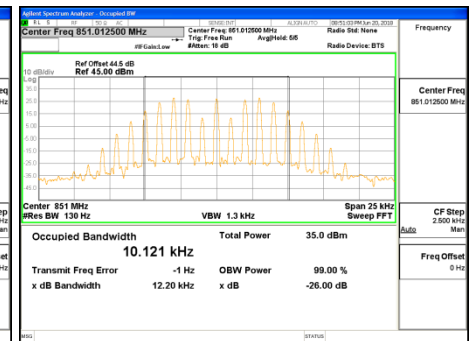
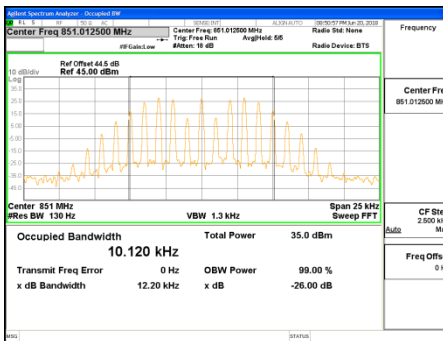
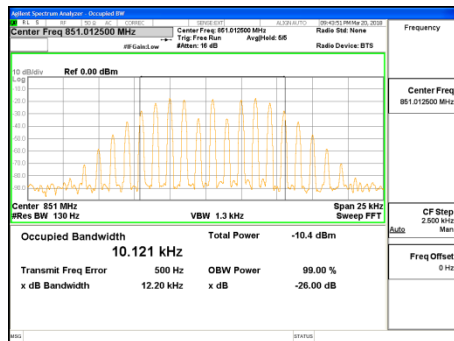
Output OBW when AGC inactive HDQPSK Signal at 937.5 MHz



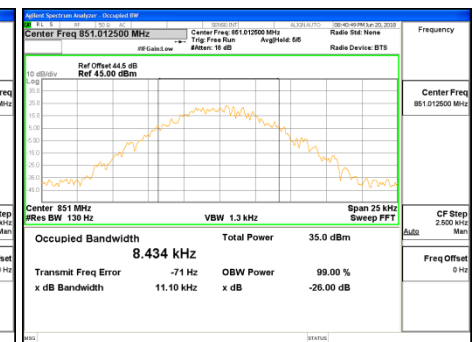
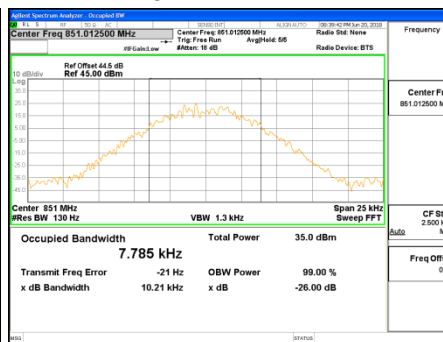
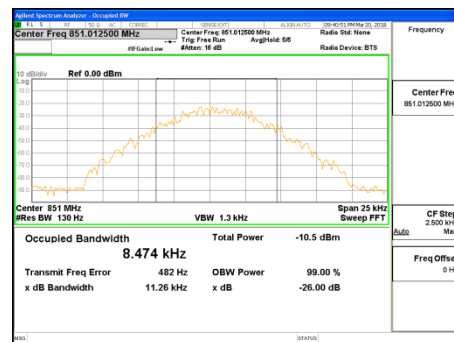
Output OBW when AGC active



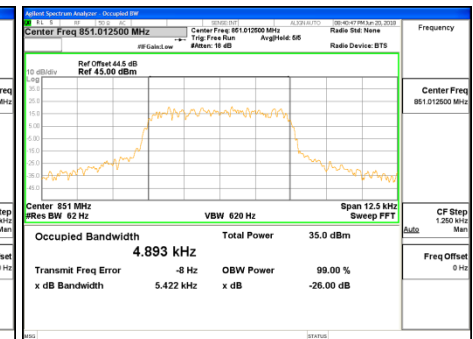
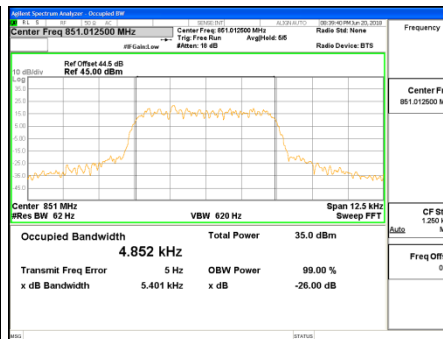
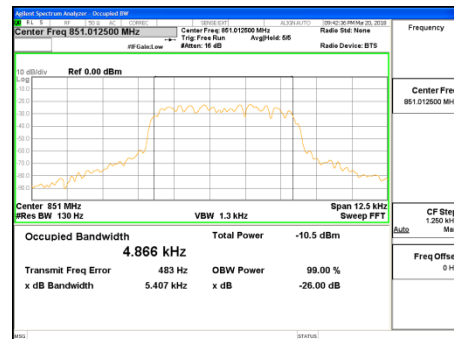
FM Signal at 851.0125MHz



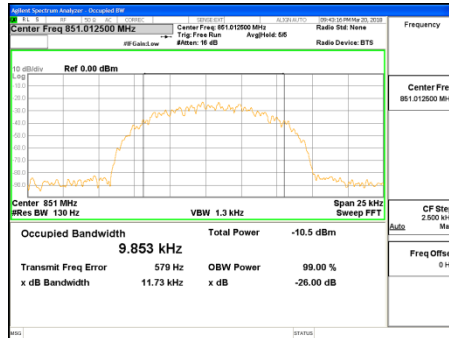
C4FM Signal at 851.0125 MHz



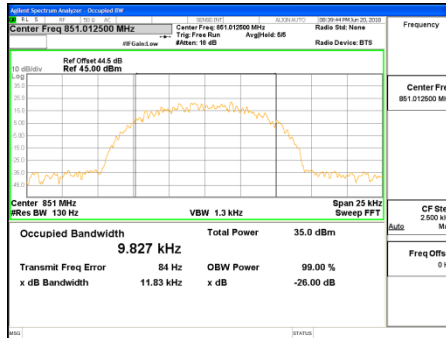
CQPSK Signal at 851.0125 MHz



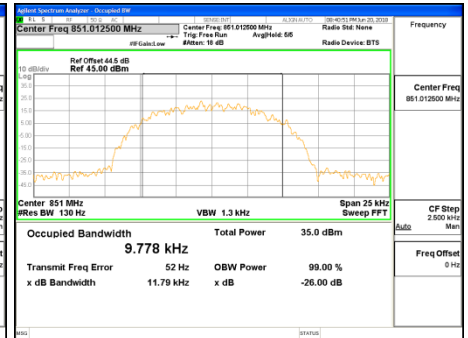
Input OBW



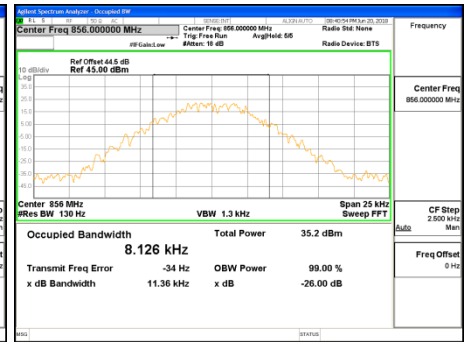
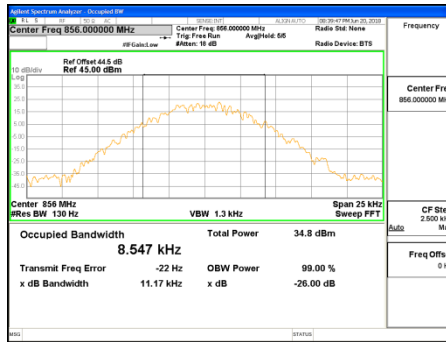
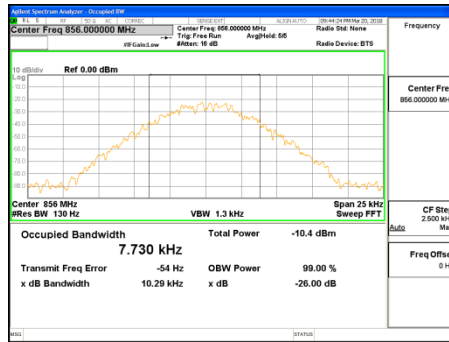
Output OBW when AGC inactive HDQPSK Signal at 851.0125 MHz



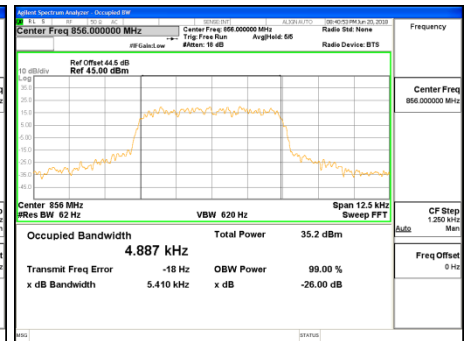
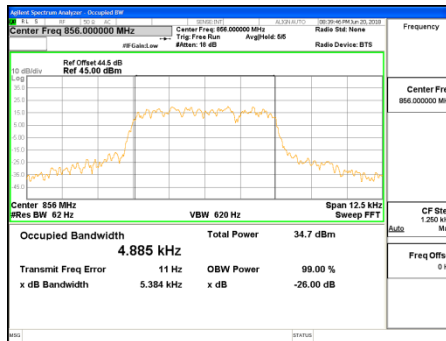
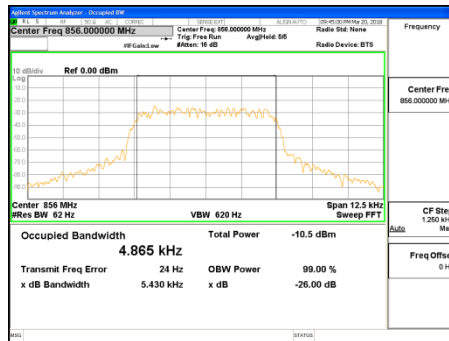
Output OBW when AGC active



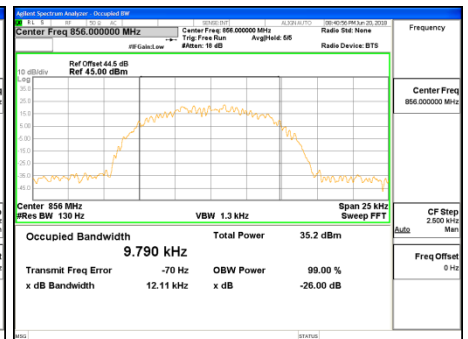
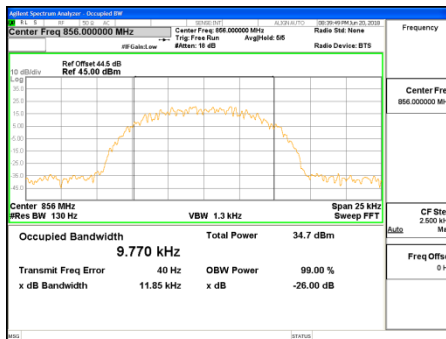
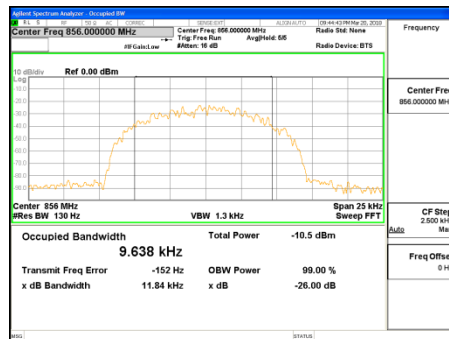
C4FM Signal at 856 MHz



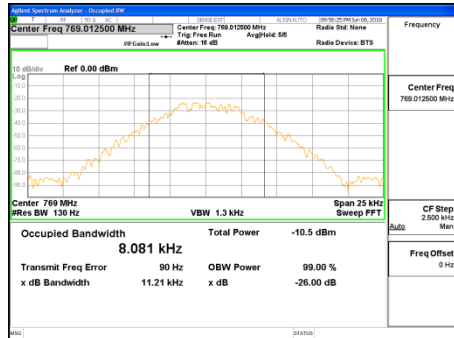
CQPSK Signal at 856 MHz



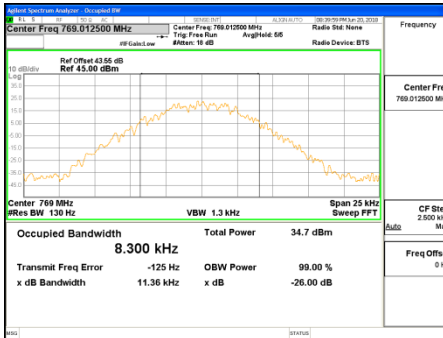
HDQPSK Signal at 856 MHz



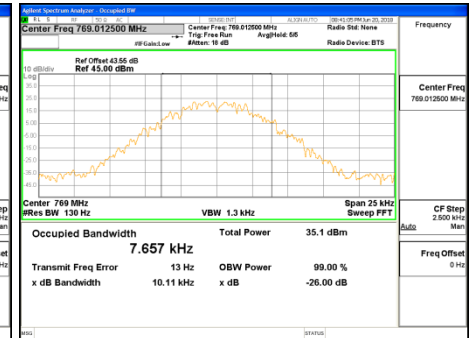
Input OBW



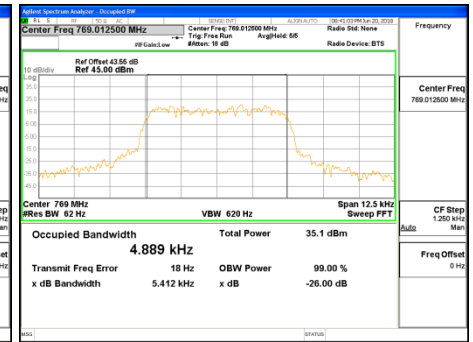
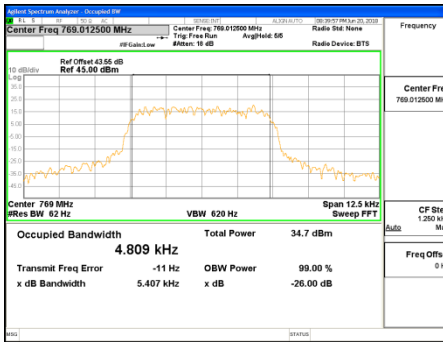
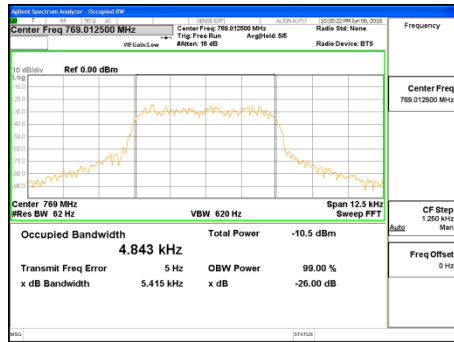
Output OBW when AGC inactive C4FM Signal at 769.0125 MHz



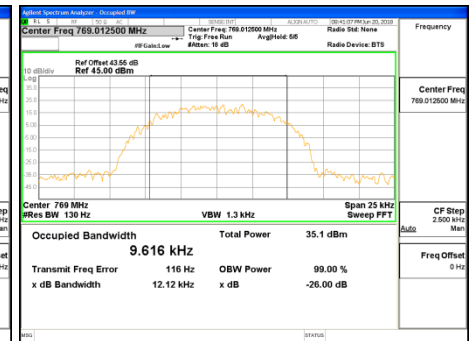
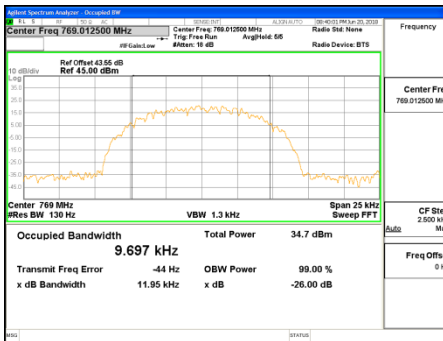
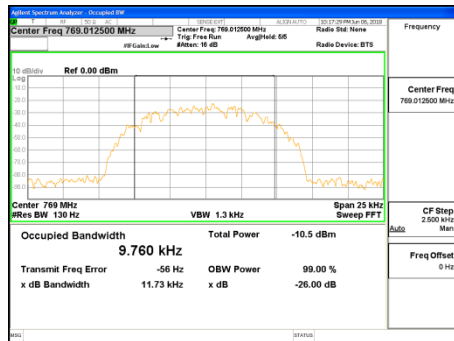
Output OBW when AGC active



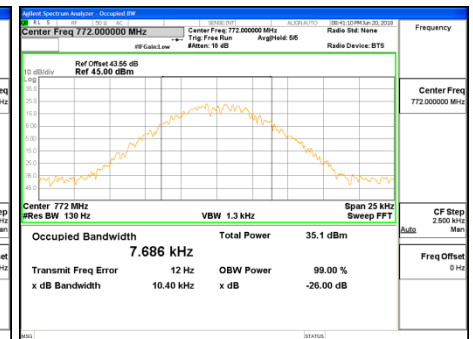
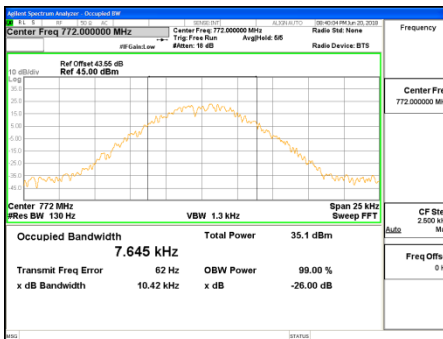
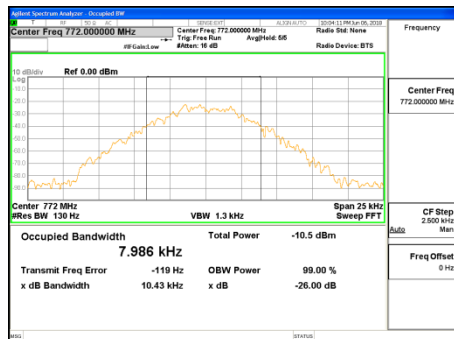
CQPSK Signal at 769.0125 MHz



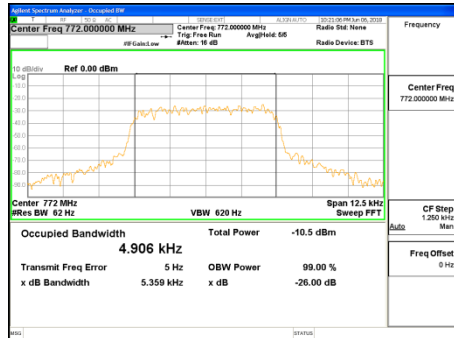
HDQPSK Signal at 769.0125 MHz



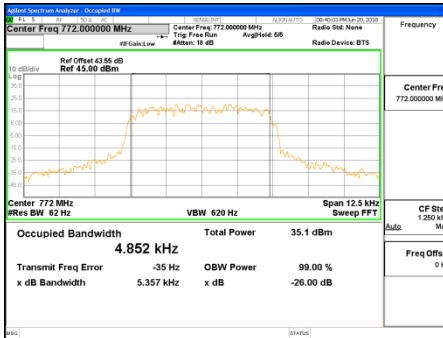
C4FM Signal at 772 MHz



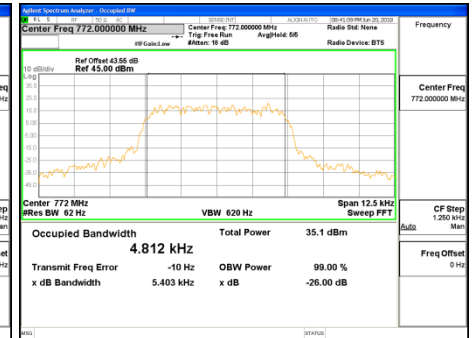
Input OBW



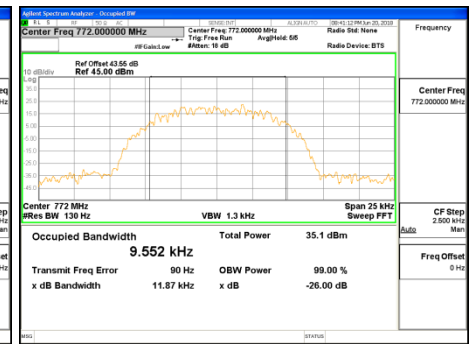
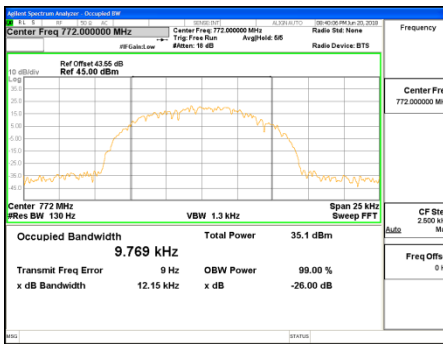
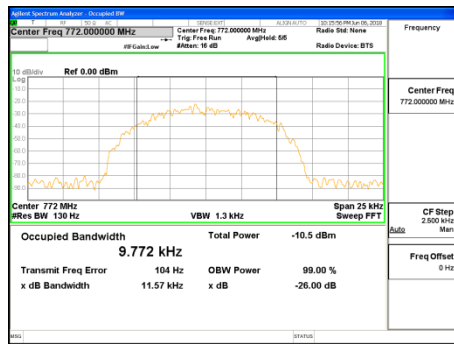
Output OBW when AGC inactive CQPSK Signal at 772 MHz



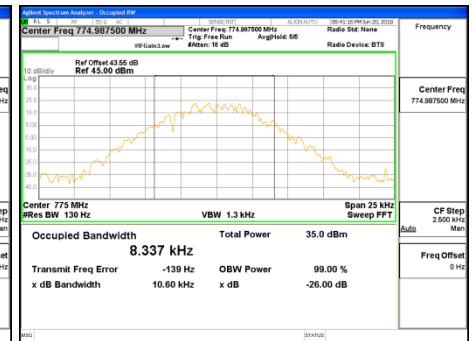
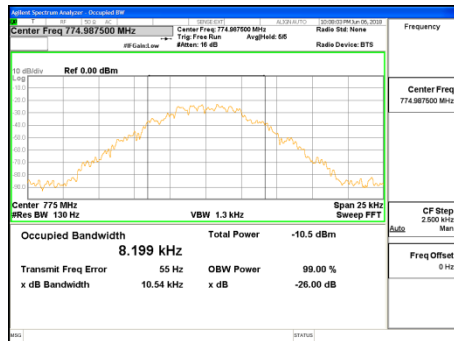
Output OBW when AGC active



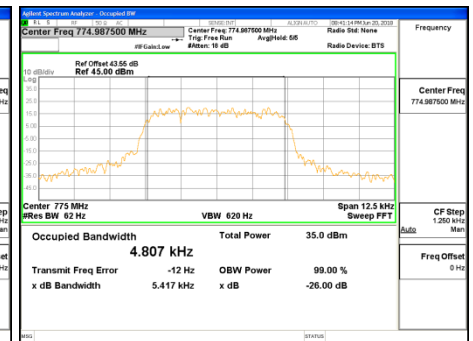
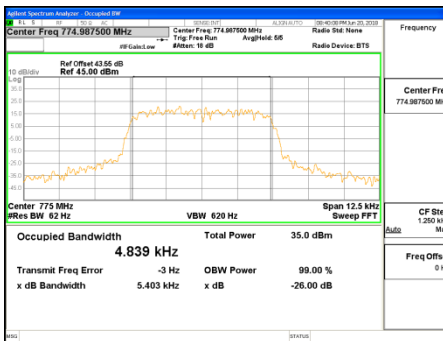
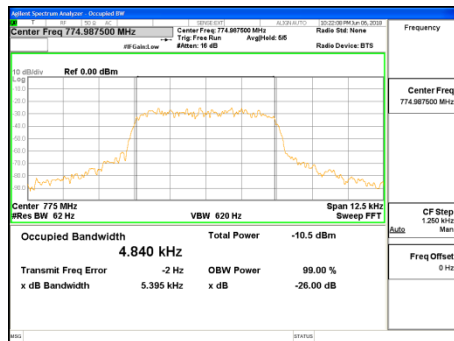
HDQPSK Signal at 772 MHz



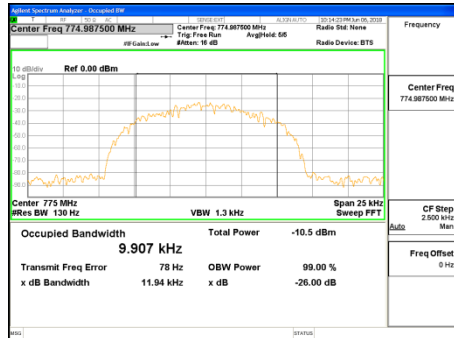
C4FM Signal at 774.9875 MHz



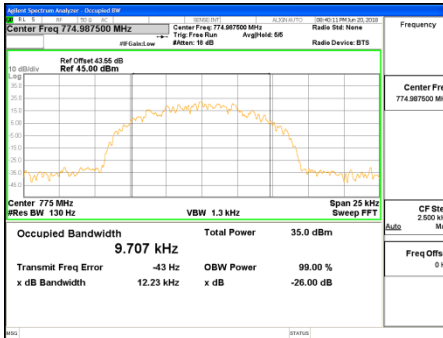
CQPSK Signal at 774.9875 MHz



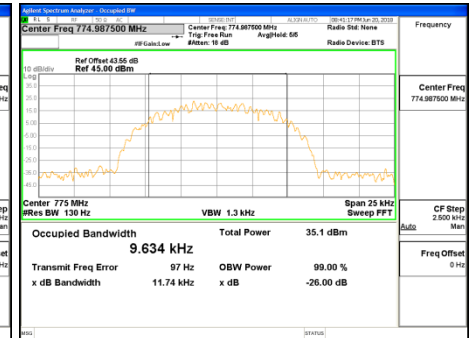
Input OBW



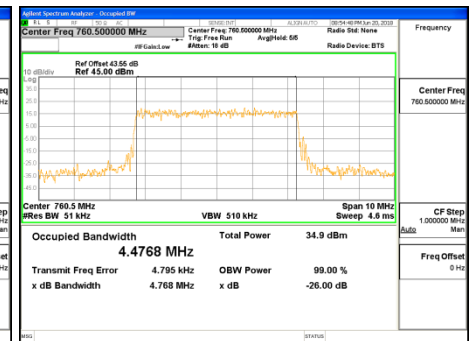
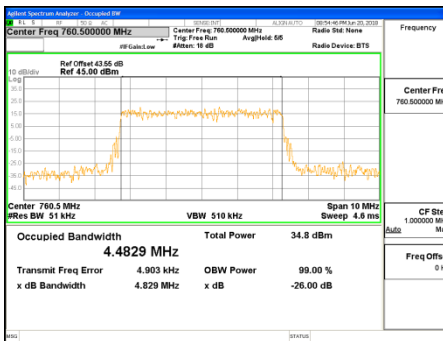
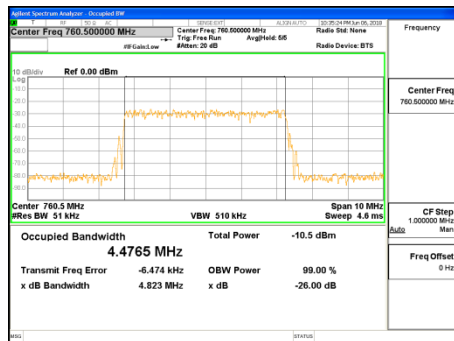
Output OBW when AGC inactive HDQPSK Signal at 774.9875 MHz



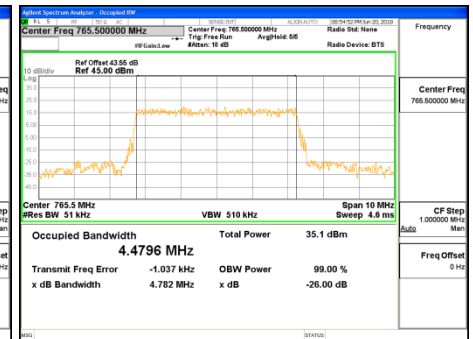
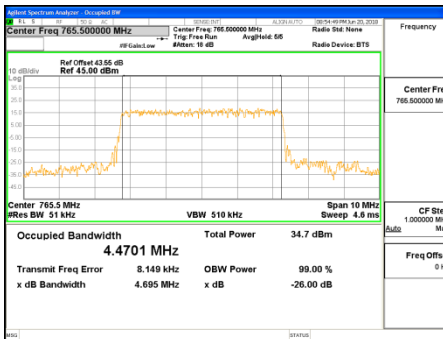
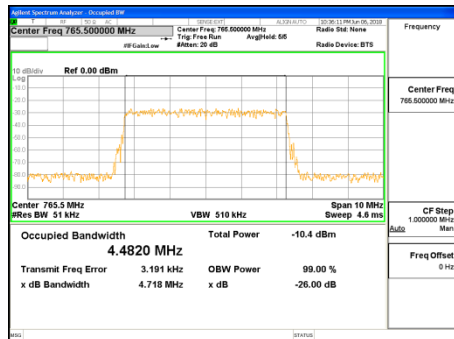
Output OBW when AGC active



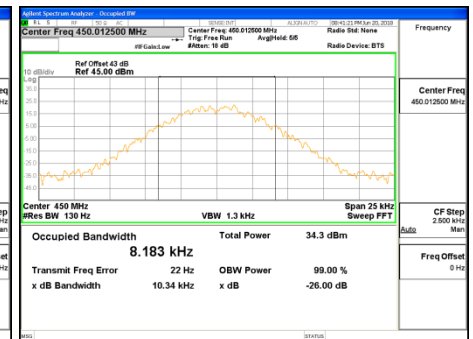
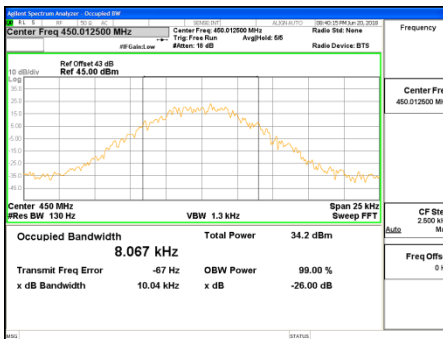
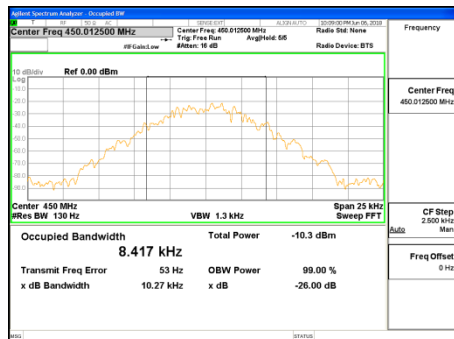
5MHz LTE Signal at 760.5 MHz



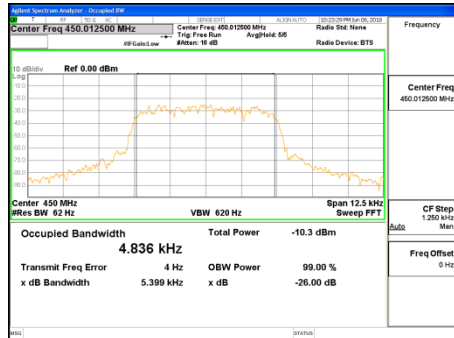
5MHz LTE Signal at 765.5 MHz



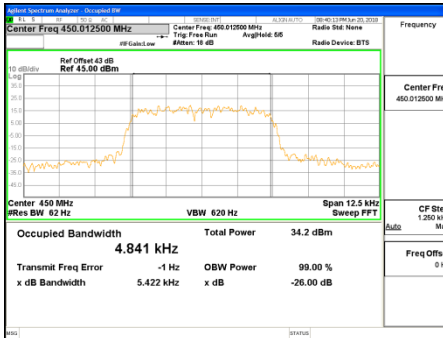
C4FM Signal at 450.0125 MHz



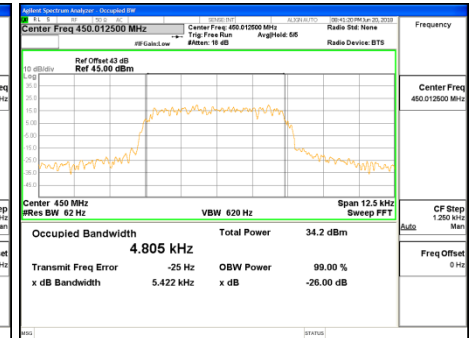
Input OBW



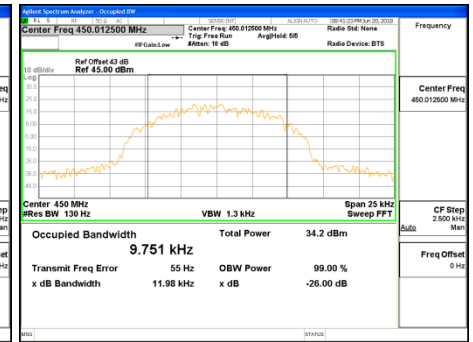
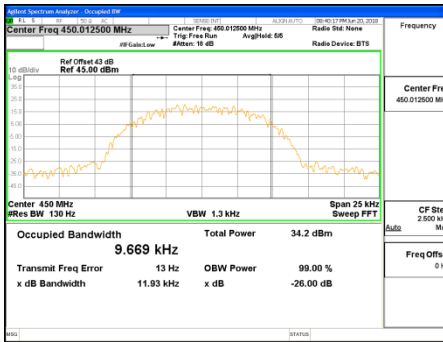
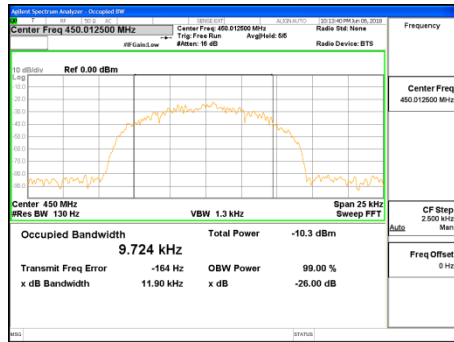
Output OBW when AGC inactive CQPSK Signal at 450.0125 MHz



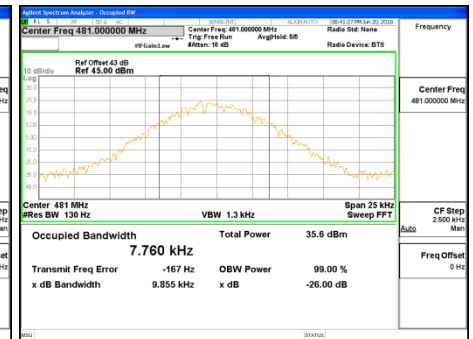
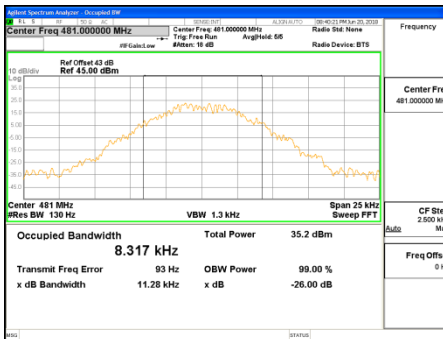
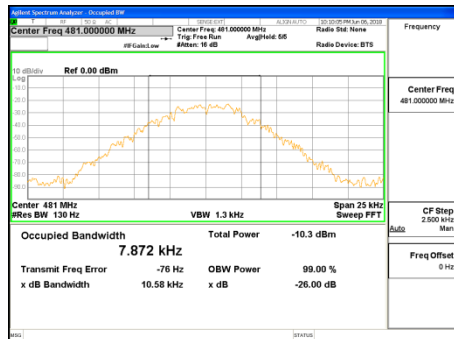
Output OBW when AGC active



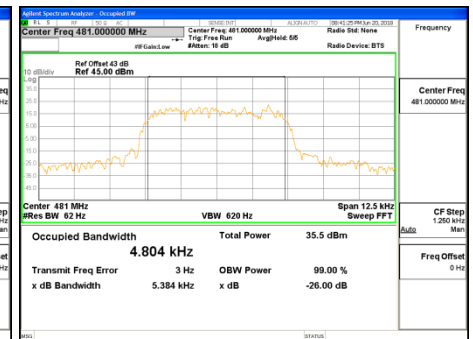
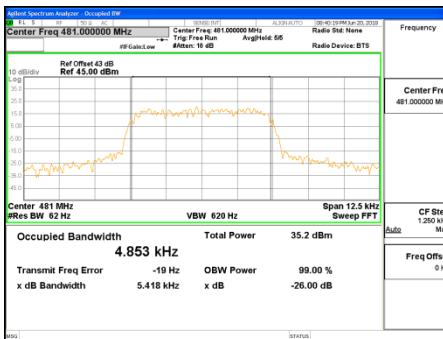
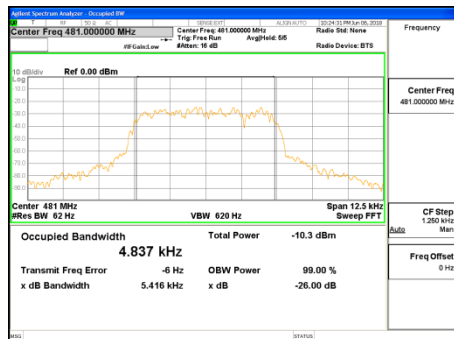
HDQPSK Signal at 450.0125 MHz



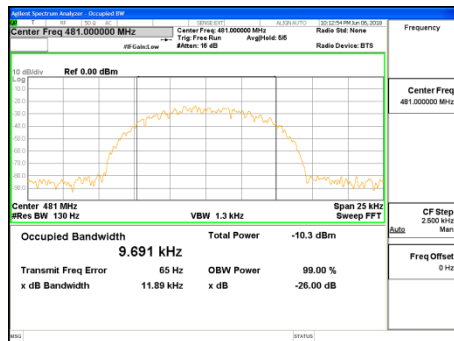
C4FM Signal at 481 MHz



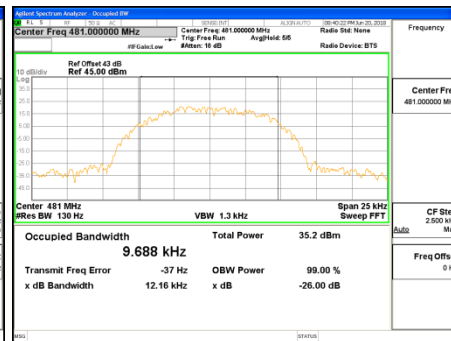
CQPSK Signal at 481 MHz



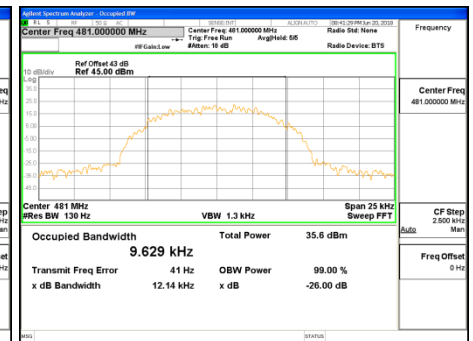
Input OBW



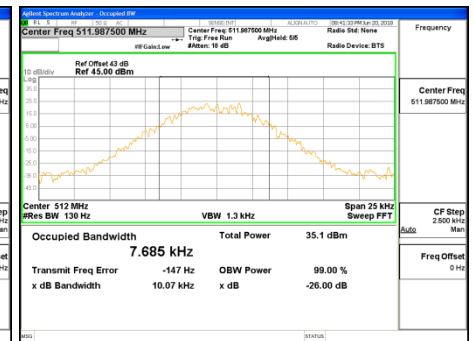
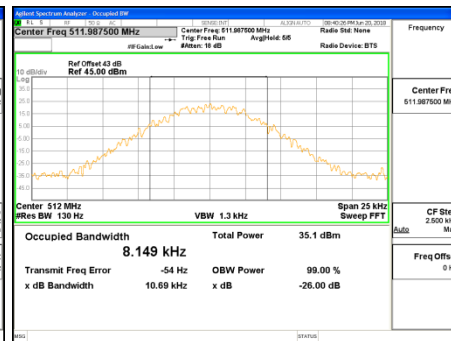
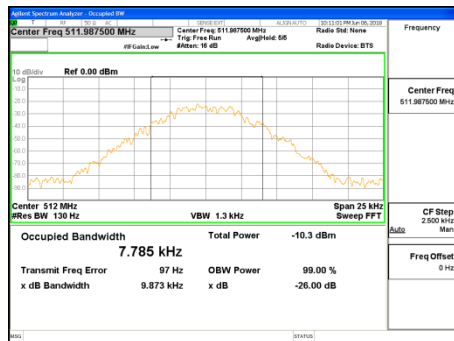
Output OBW when AGC inactive HDQPSK Signal at 481 MHz



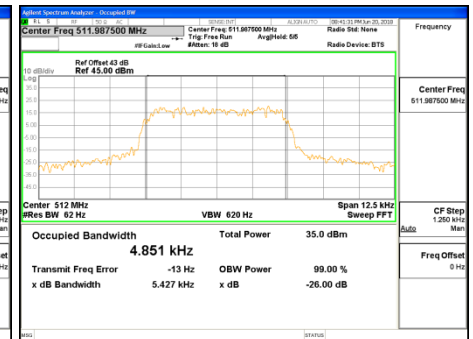
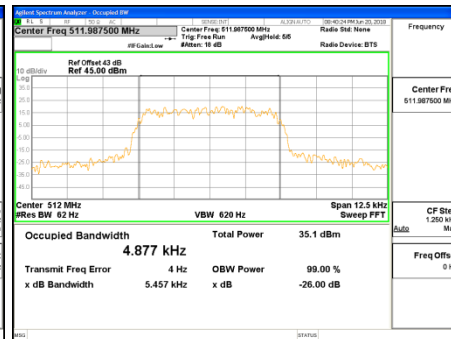
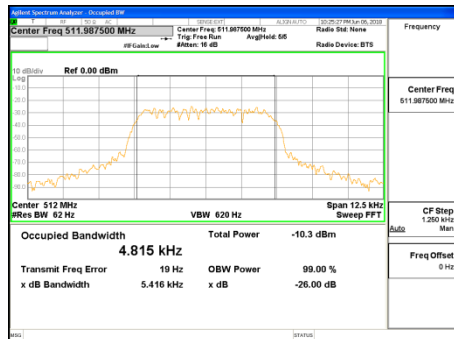
Output OBW when AGC active



C4FM Signal at 511.9875 MHz



CQPSK Signal at 511.9875 MHz



HDQPSK Signal at 511.9875 MHz

