FCC PART 90

TEST REPORT

For

Hytera Communications Co.,Ltd.

HYT Tower, Hi-Tech Industrial Park North, Nanshan District, Shenzhen, China

FCC ID: YAMPT790EXF5

Report Type:	**Product Type:**
Original Report	Ex Digital Radio

Test Engineer:	Dean Liu
Report Number:	RDG150813005-00A
Report Date:	2015-09-06
Reviewed By:	Sula Huang RF Leader
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Hytera Communications Co.,Ltd.'s* product, model number:*PT790Ex F5 (FCC ID:* YAMPT790EXF5*)* or the "EUT" in this report was a *Ex Digital Radio,* which with antenna was measured approximately:20.9cm (L)×6.5cm (W)×5.1cm (H), which without antenna was measured approximately:15.5cm (L)×6.5cm (W)×5.1cm (H), rated with input voltage: DC 7.4V.

Equipment Specification

Operating Frequency Band	809-824MHz&854-869MHz
Modulation Mode	π/4-DQPSK
Channel Separation	25 kHz
Rated Output Power	24.77dBm/28.5dBm

Adapter Information: Hytera
Model:HKA01212010-2F
Input power:100-240V, 0.5A
Output power: 12.0V, 1.0A

**All measurement and test data in this report was gathered from production sample serial number: 150813005 (assigned by BACL, Dongguan) . The EUT supplied by the applicant was received on 2015-08-14.*

Objective

This test report is prepared on behalf of *Hytera Communications Co.,Ltd.* in accordance with Part 2, and Part 90 of the Federal Communication Commission rules.

Related Submittal(s)/Grant(s)

N/A

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2, Sub-part J as well as the following individual parts:

Part 90 – Private Land Mobile Radio Service

Applicable Standards: TIA 603-D and ANSI 63.4-2009.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) 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 on February 06, 2015. 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.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a test mode which has been done in the factory.

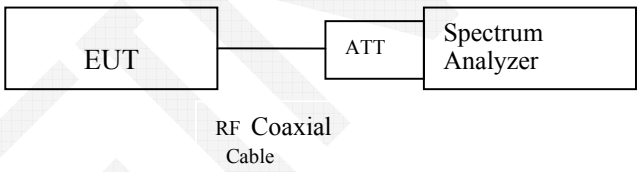
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Weinschel Corp	Terminal Load	100 W	1440-3
Minicircuits	10 dB Attenuator	UNAT-10+	D15542
Wilson	6 dB Attenuator	6dB	859936

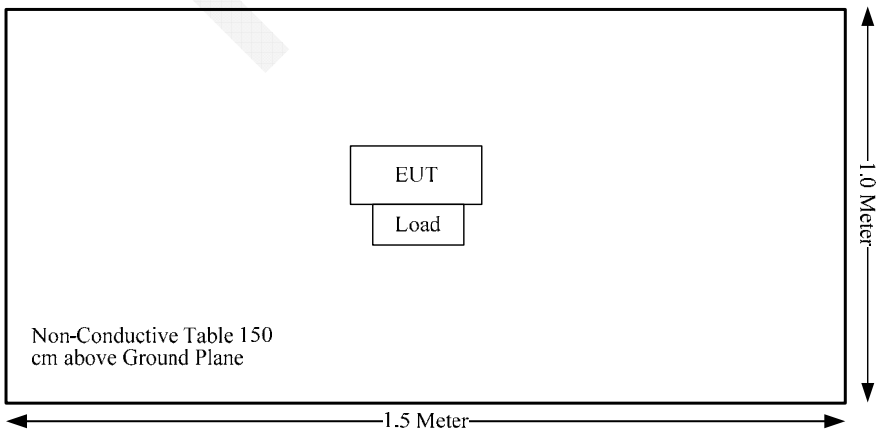
External I/O Cable

Cable Description	Length (m)	From/Port	To
RF Coaxial Cable	0.2	EUT/RF Port	Attenuator

Test Configuration Block Diagram



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§1.1310; §2.1093	RF Exposure	Compliance
§2.1046; §90.205	RF Output Power	Compliance
§90.210; §90.221	Adjacent Channel Power	Compliance
§2.1047;§90.207	Modulation Characteristic	Not Applicable*
§2.1049; §90.209; §90.210; §90.691	Occupied Bandwidth	Compliance
§2.1051; §90.210	Spurious Emission at Antenna Terminal	Compliance
§2.1053; §90.210	Spurious Radiated Emissions	Compliance
§2.1055; §90.213	Frequency Stability	Compliance
§90.214	Transient Frequency Behavior	Not Applicable

Not applicable*: Modulation Characteristic test item is not required for digital device

FCC §1.1310 & §2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RDG150813005-20A

FCC §2.1046 & §90.205- RF OUTPUT POWER

Applicable Standard

FCC §2.1046 and §90.205

Test Procedure

Conducted RF Output Power:

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

Spectrum Analyzer Setting:

RBW	VBW
100 kHz	300 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	831259/019	2015-05-09	2016-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	27.2℃
Relative Humidity:	56 %
ATM Pressure:	100 kPa

The testing was performed by Dean Liu on 2015-08-27.

Test Mode: Transmitting

Test Result: Compliance. Please refer to following table.

High power level:

Test mode	Channel Separation	Modulation type	f_c	Conducted power
			MHz	dBm
DMO	25kHz	π/4-DQPSK	809.0125	28.59
			815.5	28.57
			823.9875	28.59
			854.0125	28.57
			860.5	28.53
			868.9875	28.56
TMO	25kHz		809.0125	28.47
			815.5	28.49
			823.9875	28.59
			854.0125	28.55
			860.5	28.44
			868.9875	28.56

Note: The rated high power is 28.5 dBm

Low power level:

Test mode	Channel Separation	Modulation type	f_c	Conducted power
			MHz	dBm
DMO	25kHz	π/4-DQPSK	809.0125	24.85
			815.5	24.95
			823.9875	25.06
			854.0125	24.81
			860.5	24.96
			868.9875	25.06
TMO	25kHz		809.0125	24.89
			815.5	24.99
			823.9875	25.07
			854.0125	24.90
			860.5	24.94
			868.9875	25.05

Note: The rated low power is 25dBm

FCC §2.1046, §90.210& §90.221- ADJACENT CHANNEL POWER

Applicable Standard

FCC §2.1046, §90.210& §90.221

According to FCC§90.221 (c) (1), Maximum adjacent power levels for frequencies in the 809-824/854-869 MHz band:

Frequency offset	Maximum ACP (dBc) for devices less than 15 watts	Maximum ACP (dBc) for devices 15 watts and above
25 kHz	−55 dBc	−55 dBc
50 kHz	−65 dBc	−65 dBc
75 kHz	−65 dBc	−70 dBc

(2) In any case, no requirement in excess of −36 dBm shall apply

Test Procedure

The EUT was connected to the Spectrum Analyzer with suitable attenuator

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	831259/019	2015-05-09	2016-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	27.1~27.6℃
Relative Humidity:	56~61 %
ATM Pressure:	99.4~100.2 kPa

The testing was performed by Dean Liu on2015-08-23 & 2015-09-04.

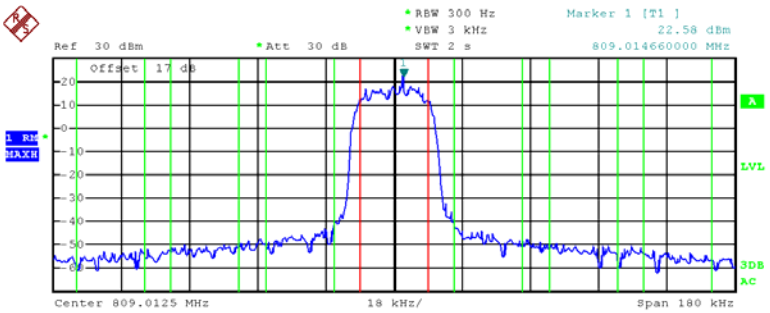
Test Mode: Transmitting

Test Result: Compliance. Please refer to following table and plots.

High power level:

Modulation Mode	Channel Separation	Modulation type	f_c (MHz)	Frequency offset (kHz)	Adjacent Channel Power Ratio (dB)	Limit (dB)
DMO	25kHz	π/4-DQPSK	809.0125	±25	61.96	55
				±50	67.76	65
				±75	71.19	65
			815.5	±25	62.05	55
				±50	67.50	65
				±75	70.70	65
			823.9875	±25	62.42	55
				±50	67.59	65
				±75	70.90	65
			854.0125	±25	61.90	55
				±50	68.09	65
				±75	70.82	65
			860.5	±25	62.12	55
				±50	68.51	65
				±75	70.55	65
			868.9875	±25	62.34	55
				±50	68.50	65
				±75	71.32	65
TMO	25kHz		809.0125	±25	61.86	55
				±50	66.96	65
				±75	70.24	65
			815.5	±25	61.44	55
				±50	66.99	65
				±75	70.51	65
			823.9875	±25	61.54	55
				±50	66.50	65
				±75	70.01	65
			854.0125	±25	61.21	55
				±50	67.36	65
				±75	70.45	65
			860.5	±25	62.92	55
				±50	68.39	65
				±75	70.55	65
			868.9875	±25	61.61	55
				±50	67.77	65
				±75	70.53	65

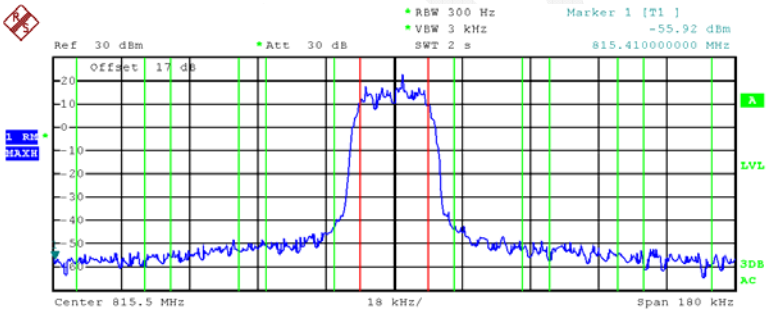
DMO for Frequency 809.0125 MHz



Tx Channel		**TETRA**	
Bandwidth	18 kHz	Power	33.50 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.49 dB
Spacing	25 kHz	Upper	-61.96 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-67.76 dB
Spacing	50 kHz	Upper	-68.07 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-71.22 dB
Spacing	75 kHz	Upper	-71.19 dB

Date: 23.AUG.2015 01:04:47

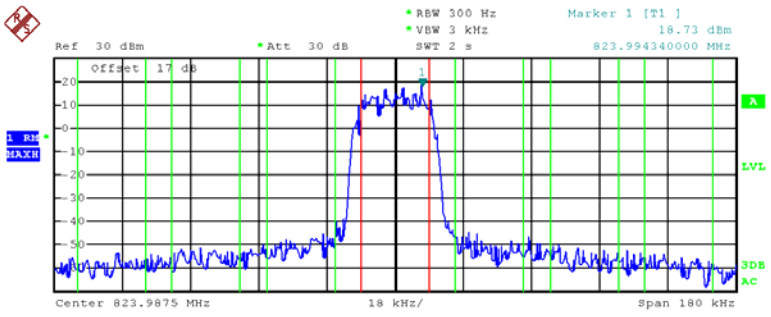
DMO for Frequency 815.5 MHz



Tx Channel		**TETRA**	
Bandwidth	18 kHz	Power	32.17 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.34 dB
Spacing	25 kHz	Upper	-62.05 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-67.74 dB
Spacing	50 kHz	Upper	-67.50 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-71.03 dB
Spacing	75 kHz	Upper	-70.70 dB

Date: 23.AUG.2015 01:07:00

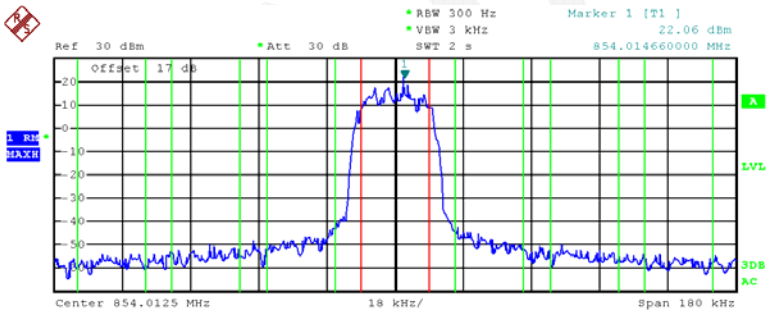
DMO for Frequency 823.9875 MHz



Tx Channel		**TETRA**	
Bandwidth	18 kHz	Power	30.53 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.42 dB
Spacing	25 kHz	Upper	-62.98 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-67.59 dB
Spacing	50 kHz	Upper	-68.02 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.90 dB
Spacing	75 kHz	Upper	-70.90 dB

Date: 23.AUG.2015 01:07:37

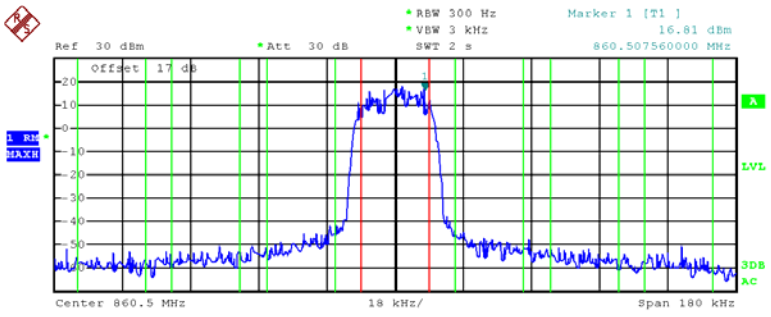
DMO for Frequency 854.0125 MHz



Tx Channel		**TETRA**	
Bandwidth	18 kHz	Power	31.59 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.02 dB
Spacing	25 kHz	Upper	-61.90 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-68.09 dB
Spacing	50 kHz	Upper	-68.16 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.82 dB
Spacing	75 kHz	Upper	-71.17 dB

Date: 23.AUG.2015 01:10:40

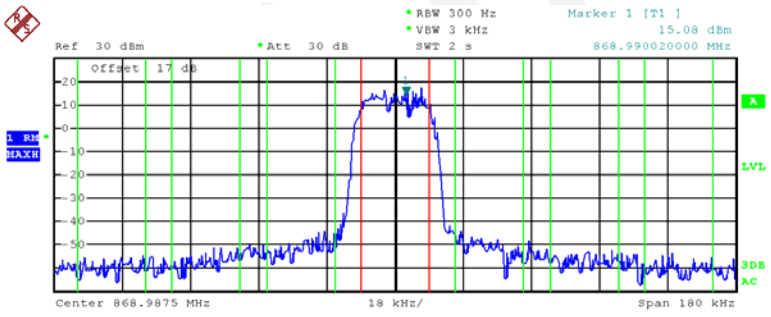
DMO for Frequency 860.5 MHz



Tx Channel		**TETRA**	
Bandwidth	18 kHz	Power	31.00 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.12 dB
Spacing	25 kHz	Upper	-62.32 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-68.94 dB
Spacing	50 kHz	Upper	-68.51 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-71.05 dB
Spacing	75 kHz	Upper	-70.55 dB

Date: 23.AUG.2015 01:09:09

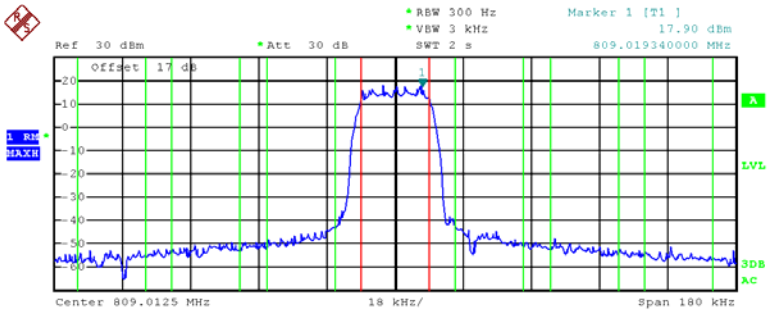
DMO for Frequency 868.9875 MHz



Tx Channel		**TETRA**	
Bandwidth	18 kHz	Power	30.30 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.47 dB
Spacing	25 kHz	Upper	-62.34 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-68.59 dB
Spacing	50 kHz	Upper	-68.50 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-71.32 dB
Spacing	75 kHz	Upper	-71.59 dB

Date: 23.AUG.2015 01:08:25

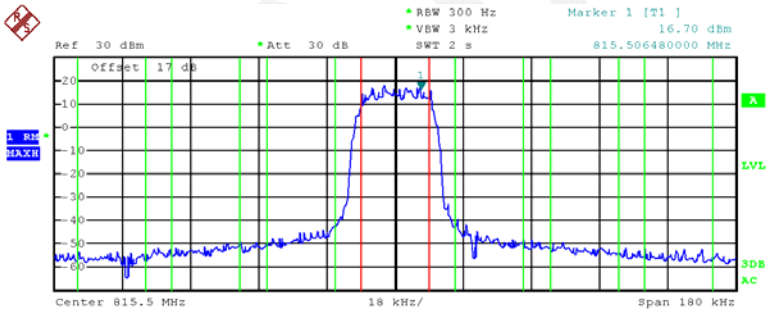
TMO for Frequency 809.0125 MHz



Tx Channel			
Bandwidth	18 kHz	Power	32.43 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.07 dB
Spacing	25 kHz	Upper	-61.86 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-67.04 dB
Spacing	50 kHz	Upper	-66.96 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.62 dB
Spacing	75 kHz	Upper	-70.24 dB

Date: 30.AUG.2015 00:22:13

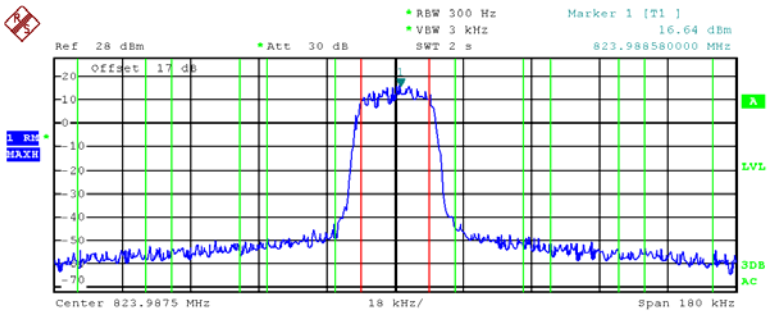
TMO for Frequency 815.5 MHz



Tx Channel			
Bandwidth	18 kHz	Power	32.13 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-61.73 dB
Spacing	25 kHz	Upper	-61.44 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-67.00 dB
Spacing	50 kHz	Upper	-66.99 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.51 dB
Spacing	75 kHz	Upper	-70.85 dB

Date: 30.AUG.2015 00:47:20

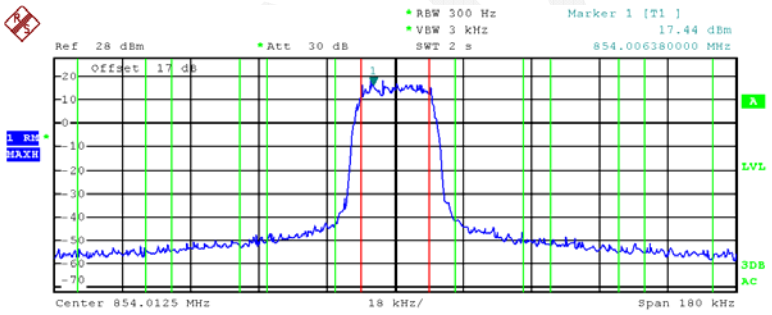
TMO for Frequency 823.9875 MHz



Tx Channel			
Bandwidth	18 kHz	Power	30.36 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.23 dB
Spacing	25 kHz	Upper	-61.54 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-66.50 dB
Spacing	50 kHz	Upper	-66.87 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.47 dB
Spacing	75 kHz	Upper	-70.01 dB

Date: 30.AUG.2015 00:54:27

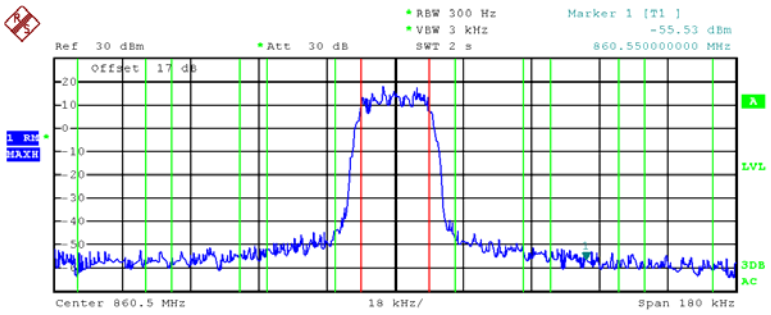
TMO for Frequency 854.0125 MHz



Tx Channel			
Bandwidth	18 kHz	Power	32.82 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-61.79 dB
Spacing	25 kHz	Upper	-61.21 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-67.64 dB
Spacing	50 kHz	Upper	-67.36 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.57 dB
Spacing	75 kHz	Upper	-70.45 dB

Date: 30.AUG.2015 01:06:33

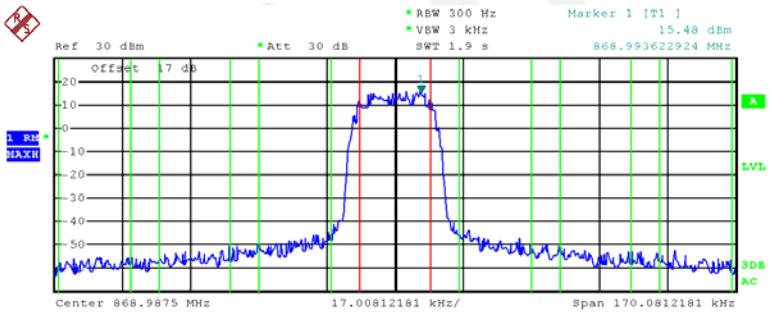
TMO for Frequency 860.5 MHz



Tx Channel			
Bandwidth	18 kHz	Power	30.81 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.35 dB
Spacing	25 kHz	Upper	-62.92 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-68.39 dB
Spacing	50 kHz	Upper	-68.64 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.55 dB
Spacing	75 kHz	Upper	-71.33 dB

Date: 30.AUG.2015 01:43:57

TMO for Frequency 868.9875 MHz



Tx Channel			
Bandwidth	18 kHz	Power	30.47 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.32 dB
Spacing	25 kHz	Upper	-61.61 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-68.20 dB
Spacing	50 kHz	Upper	-67.77 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.76 dB
Spacing	75 kHz	Upper	-70.53 dB

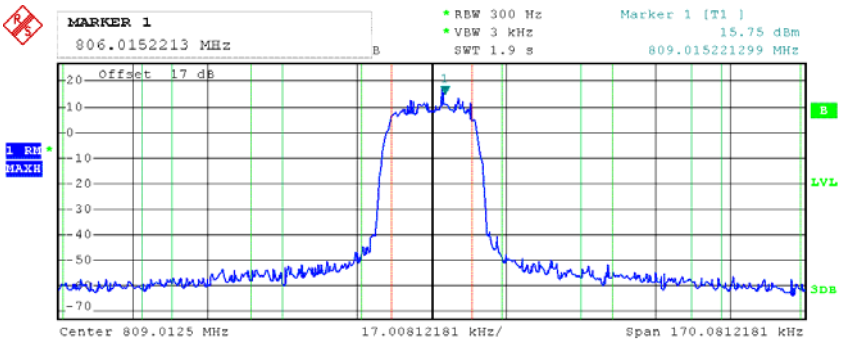
Date: 30.AUG.2015 19:04:03

Low power level:

Modulation Mode	Channel Separation	Modulation type	f_c (MHz)	Frequency offset (kHz)	Adjacent Channel Power Ratio (dB)	Limit (dB)
DMO	25kHz	π/4-DQPSK	809.0125	±25	62.49	55
				±50	67.10	65
				±75	70.16	65
			815.5	±25	61.85	55
				±50	66.83	65
				±75	70.72	65
			823.9875	±25	61.57	55
				±50	65.97	65
				±75	70.59	65
			854.0125	±25	62.51	55
				±50	67.71	65
				±75	70.37	65
			860.5	±25	62.75	55
				±50	67.78	65
				±75	70.78	65
			868.9875	±25	63.46	55
				±50	68.38	65
				±75	71.60	65
TMO	25kHz		809.0125	±25	60.60	55
				±50	65.62	65
				±75	70.34	65
			815.5	±25	60.35	55
				±50	65.14	65
				±75	68.71	65
			823.9875	±25	61.00	55
				±50	65.26	65
				±75	68.11	65
			854.0125	±25	61.64	55
				±50	65.01	65
				±75	69.63	65
			860.5	±25	62.19	55
				±50	67.59	65
				±75	70.59	65
			868.9875	±25	61.97	55
				±50	67.06	65
				±75	70.65	65

Note: The rated power is 0.3 W

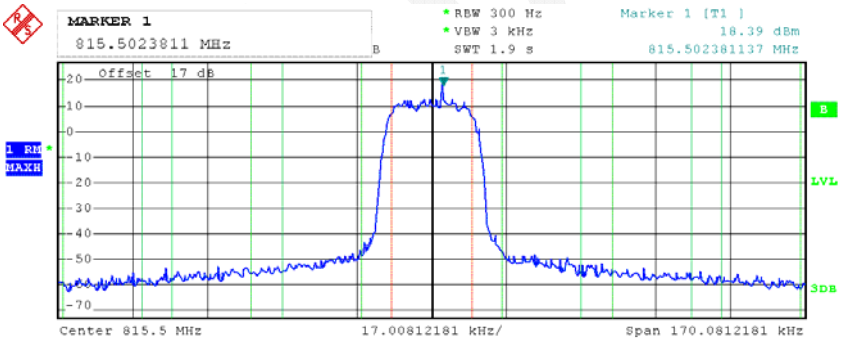
DMO for Frequency 809.0125 MHz



Tx Channel			
Bandwidth	18 kHz	Power	27.82 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.80 dB
Spacing	25 kHz	Upper	-62.49 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-67.31 dB
Spacing	50 kHz	Upper	-67.10 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.16 dB
Spacing	75 kHz	Upper	-70.37 dB

Date: 2.SEP.2015 19:58:52

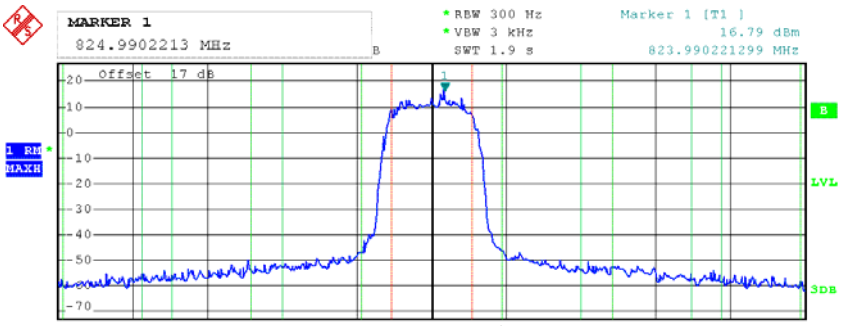
DMO for Frequency 815.5 MHz



Tx Channel			
Bandwidth	18 kHz	Power	28.53 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.07 dB
Spacing	25 kHz	Upper	-61.85 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-66.83 dB
Spacing	50 kHz	Upper	-67.07 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.84 dB
Spacing	75 kHz	Upper	-70.72 dB

Date: 2.SEP.2015 20:09:00

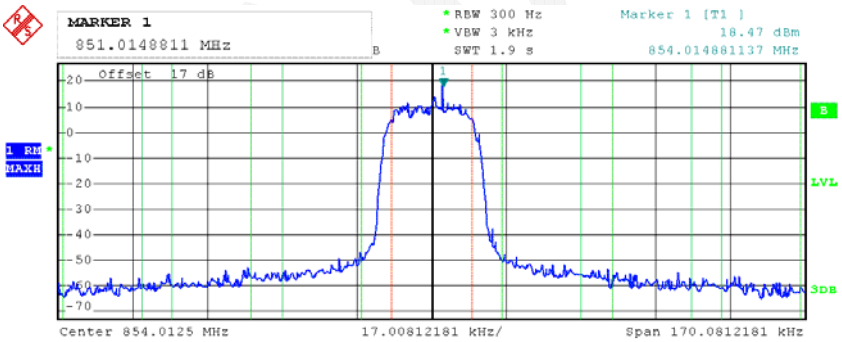
DMO for Frequency 823.9875 MHz



Tx Channel			
Bandwidth	18 kHz	Power	28.76 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-61.91 dB
Spacing	25 kHz	Upper	-61.57 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-66.02 dB
Spacing	50 kHz	Upper	-65.97 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.69 dB
Spacing	75 kHz	Upper	-70.59 dB

Date: 2.SEP.2015 20:05:47

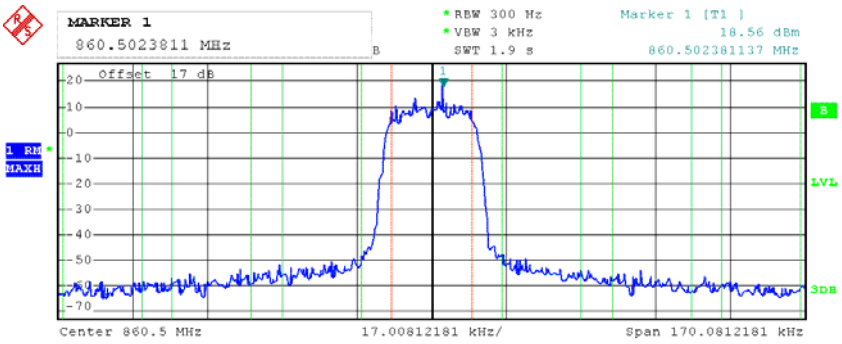
DMO for Frequency 854.0125 MHz



Tx Channel			
Bandwidth	18 kHz	Power	27.40 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-63.15 dB
Spacing	25 kHz	Upper	-62.51 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-67.71 dB
Spacing	50 kHz	Upper	-67.92 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.78 dB
Spacing	75 kHz	Upper	-70.37 dB

Date: 2.SEP.2015 20:11:12

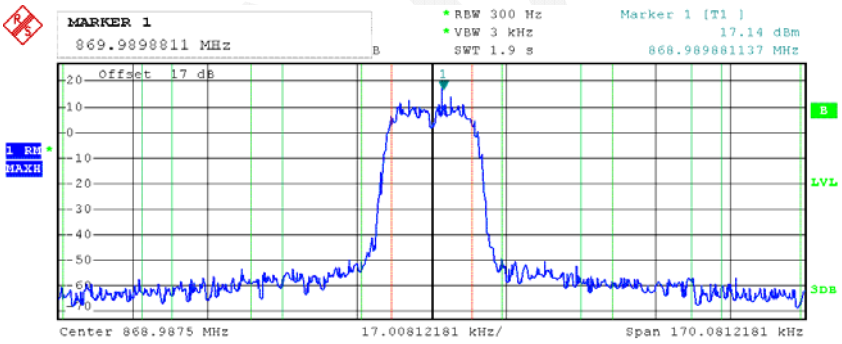
DMO for Frequency 860.5 MHz



Tx Channel			
Bandwidth	18 kHz	Power	27.04 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.89 dB
Spacing	25 kHz	Upper	-62.75 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-67.78 dB
Spacing	50 kHz	Upper	-68.10 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.85 dB
Spacing	75 kHz	Upper	-70.78 dB

Date: 2.SEP.2015 20:00:29

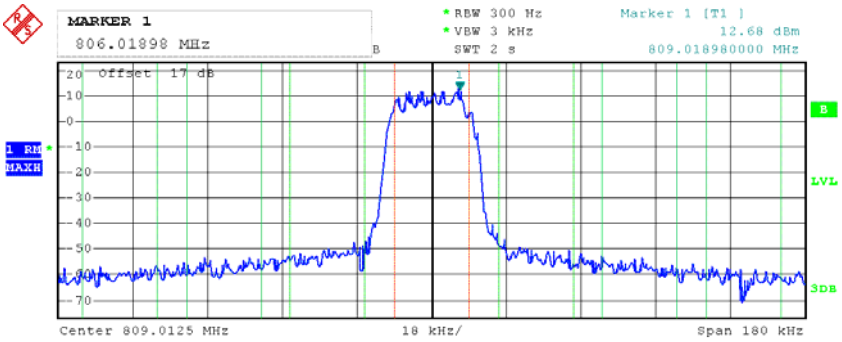
DMO for Frequency 868.9875 MHz



Tx Channel			
Bandwidth	18 kHz	Power	26.57 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-64.17 dB
Spacing	25 kHz	Upper	-63.46 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-68.57 dB
Spacing	50 kHz	Upper	-68.38 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-71.60 dB
Spacing	75 kHz	Upper	-71.69 dB

Date: 2.SEP.2015 20:01:16

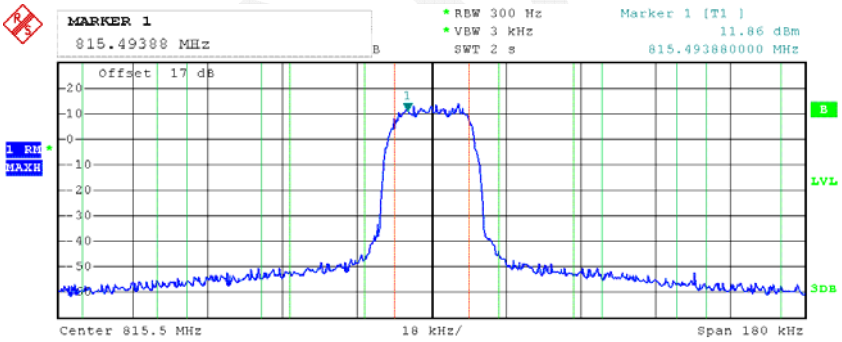
TMO for Frequency 809.0125 MHz



Tx Channel			
Bandwidth	18 kHz	Power	26.41 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-61.00 dB
Spacing	25 kHz	Upper	-60.60 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-65.62 dB
Spacing	50 kHz	Upper	-65.63 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.62 dB
Spacing	75 kHz	Upper	-70.34 dB

Date: 2.SEP.2015 21:17:10

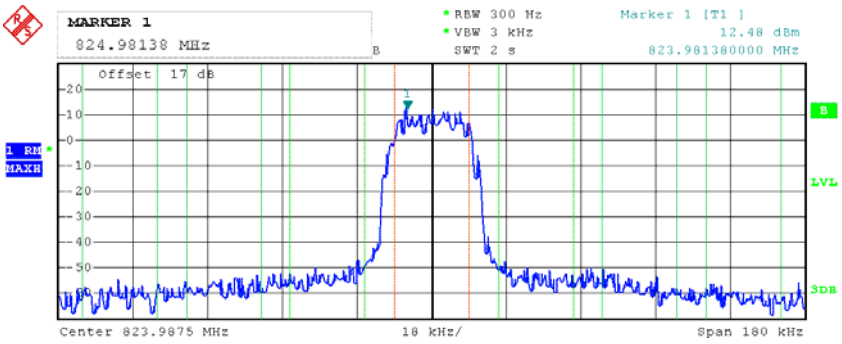
TMO for Frequency 815.5 MHz



Tx Channel			
Bandwidth	18 kHz	Power	28.34 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-60.66 dB
Spacing	25 kHz	Upper	-60.35 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-65.14 dB
Spacing	50 kHz	Upper	-65.39 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-68.71 dB
Spacing	75 kHz	Upper	-68.85 dB

Date: 2.SEP.2015 21:34:51

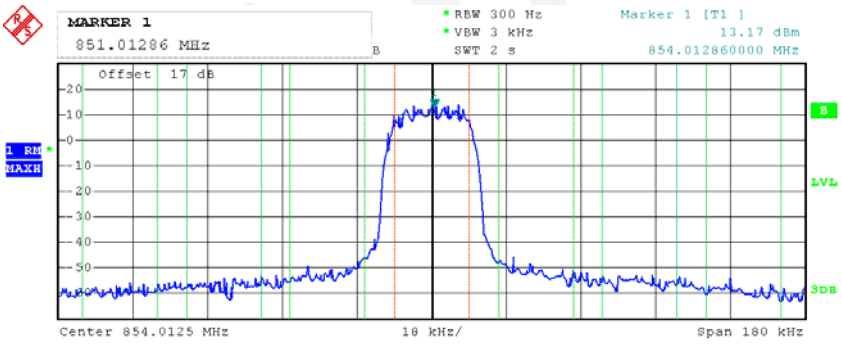
TMO for Frequency 823.9875 MHz



Tx Channel			
Bandwidth	18 kHz	Power	25.69 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-61.00 dB
Spacing	25 kHz	Upper	-61.21 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-65.26 dB
Spacing	50 kHz	Upper	-65.54 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-68.11 dB
Spacing	75 kHz	Upper	-68.78 dB

Date: 2.SEP.2015 21:52:59

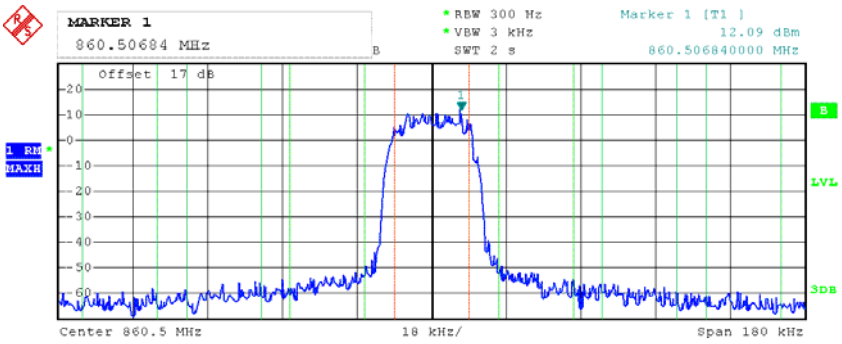
TMO for Frequency 854.0125 MHz



Tx Channel			
Bandwidth	18 kHz	Power	28.28 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.27 dB
Spacing	25 kHz	Upper	-61.64 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-67.14 dB
Spacing	50 kHz	Upper	-65.01 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-69.63 dB
Spacing	75 kHz	Upper	-69.37 dB

Date: 2.SEP.2015 21:57:59

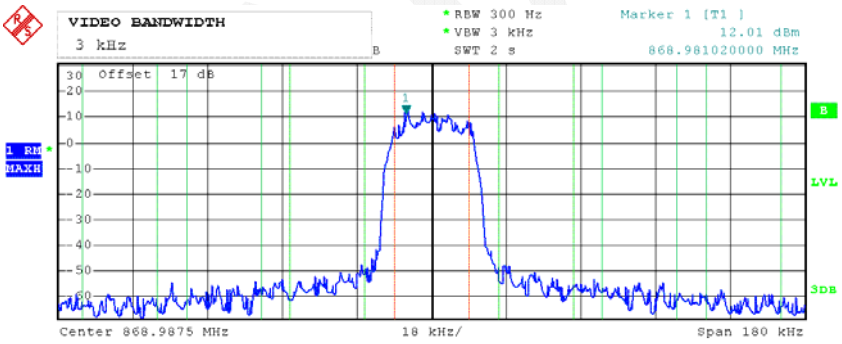
TMO for Frequency 860.5 MHz



Tx Channel			
Bandwidth	18 kHz	Power	25.29 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-63.09 dB
Spacing	25 kHz	Upper	-62.19 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-67.99 dB
Spacing	50 kHz	Upper	-67.59 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-70.59 dB
Spacing	75 kHz	Upper	-70.87 dB

Date: 4.SEP.2015 09:57:23

TMO for Frequency 868.9875 MHz



Tx Channel			
Bandwidth	18 kHz	Power	25.93 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-62.60 dB
Spacing	25 kHz	Upper	-61.97 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-67.79 dB
Spacing	50 kHz	Upper	-67.06 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-71.17 dB
Spacing	75 kHz	Upper	-70.65 dB

Date: 4.SEP.2015 10:28:20

FCC §2.1049 & §90.209, §90.210§90.691 – OCCUPIED BANDWIDTH & EMISSION MASK

Applicable Standard

FCC §2.1049, §90.209, §90.210 and §90.691

Emission Mask B. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.

(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

Emission Mask I. For transmitters that are equipped with an audio low pass filter, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 6.8 kHz, but no more than 9.0 kHz: At least 25 dB;

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 9.0 kHz, but no more than 15 kHz: At least 35 dB;

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 15 kHz: At least 43 + 10 log (P) dB, or 70 dB, whichever is the lesser attenuation.

Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 $Log_{10}(f/6.1)$ decibels or 50 + 10 $Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + $10Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 100 Hz and the spectrum was recorded in the frequency band ±50 kHz from the carrier frequency.

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	831259/019	2015-05-09	2016-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	27.1~27.6℃
Relative Humidity:	56-58 %
ATM Pressure:	99.4 -100.2 kPa

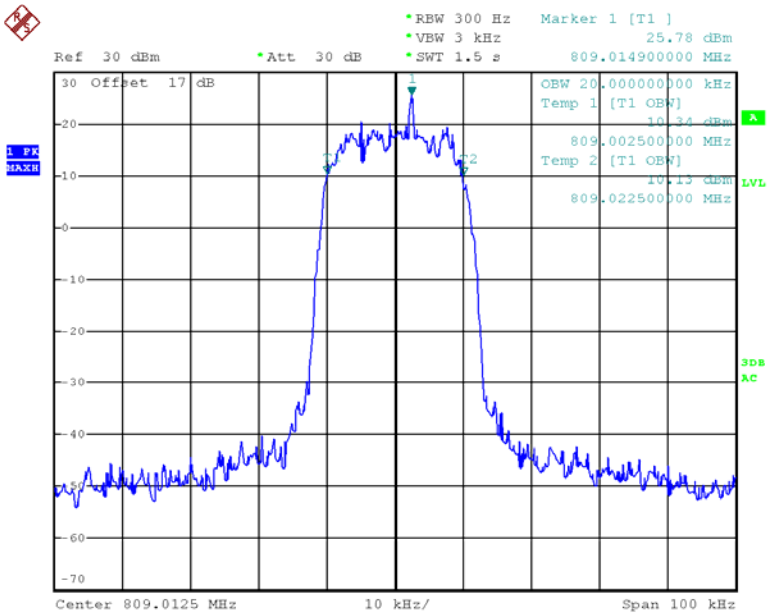
The testing was performed by Dean Liu from 2015-08-23 to 2015-09-04.

High Power Level

ModulationMode	Modulation type	Channel Separation	f_c (MHz)	99% Occupied Bandwidth (kHz)	Limit (kHz)
DMO	π/4-DQPSK	25kHz	809.0125	20.00	22
			815.5	20.20	22
			823.9875	20.00	22
			854.0125	20.20	22
			860.5	20.60	22
			868.9875	19.80	22
TMO		25kHz	809.0125	20.40	22
			815.5	20.40	22
			823.9875	20.40	22
			854.0125	20.00	22
			860.5	20.00	22
			868.9875	20.20	22

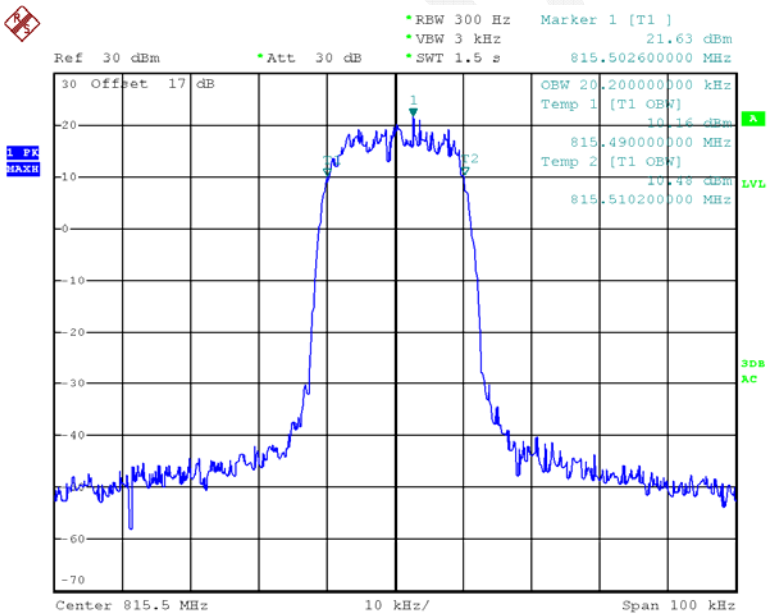
Note: Equipment meets the Adjacent Channel Power limits of §90.221, so emission mask is not tested.

Occupied Bandwidth –DMO, 809.0125 MHz



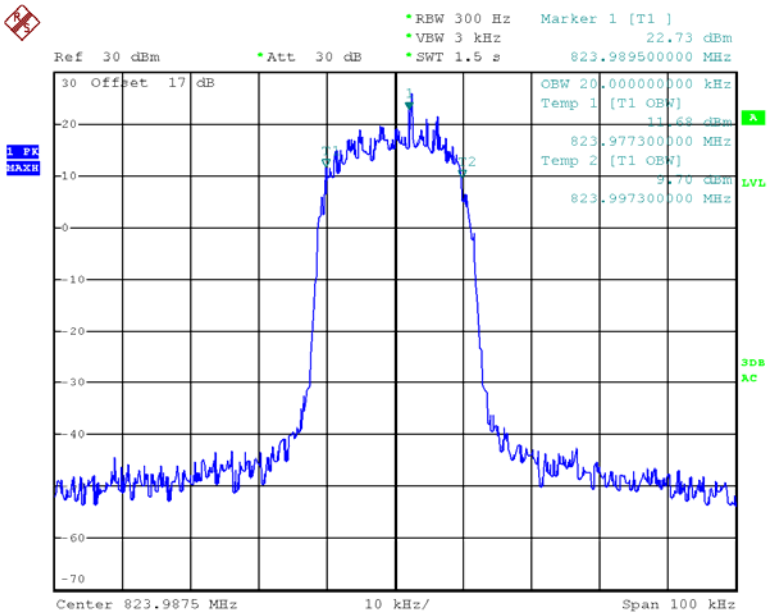
Date: 23.AUG.2015 01:22:19

Occupied Bandwidth –DMO, 815.5 MHz



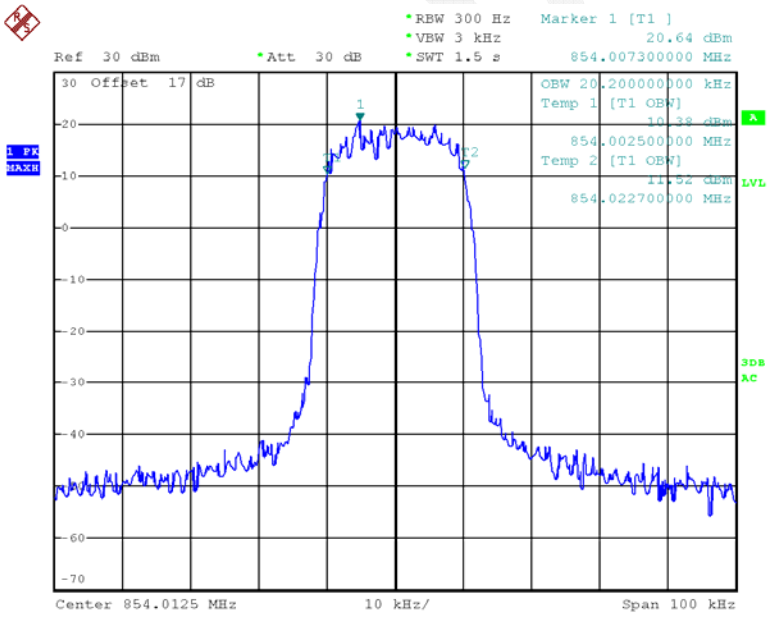
Date: 23.AUG.2015 01:19:55

Occupied Bandwidth –DMO, 823.9875 MHz



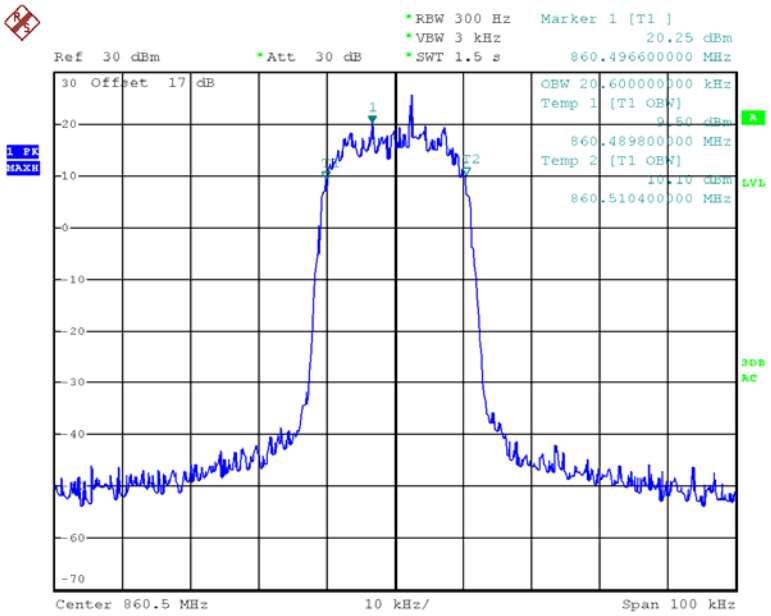
Date: 23.AUG.2015 01:20:55

Occupied Bandwidth –DMO, 854.0125 MHz



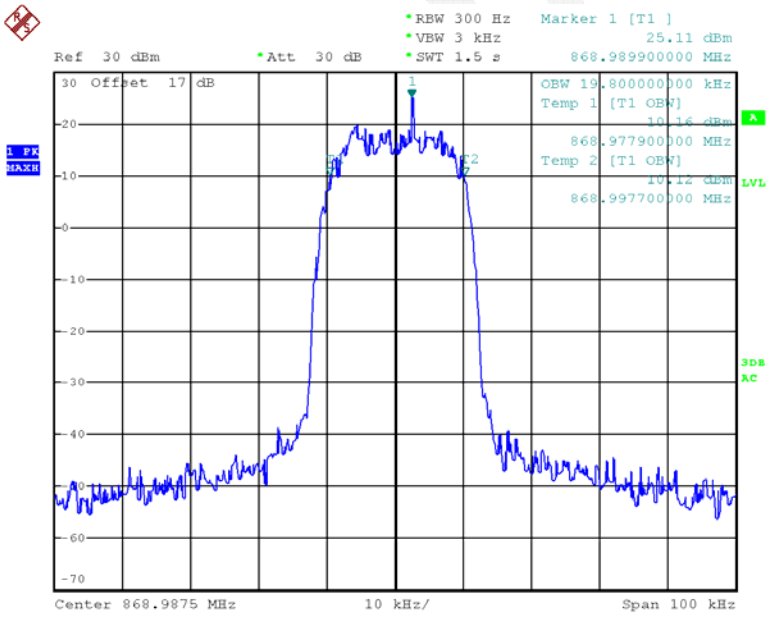
Date: 23.AUG.2015 01:14:43

Occupied Bandwidth –DMO, 860.5 MHz



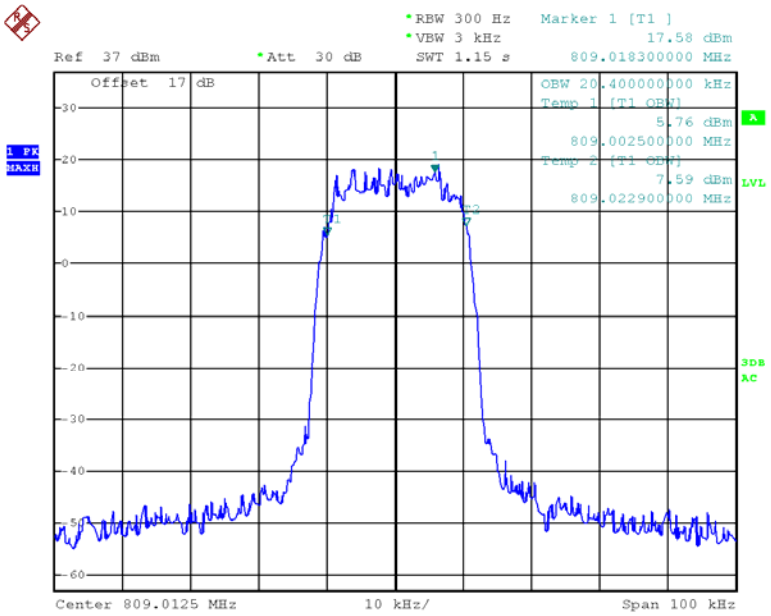
Date: 23.AUG.2015 01:18:00

Occupied Bandwidth –DMO, 868.9875 MHz



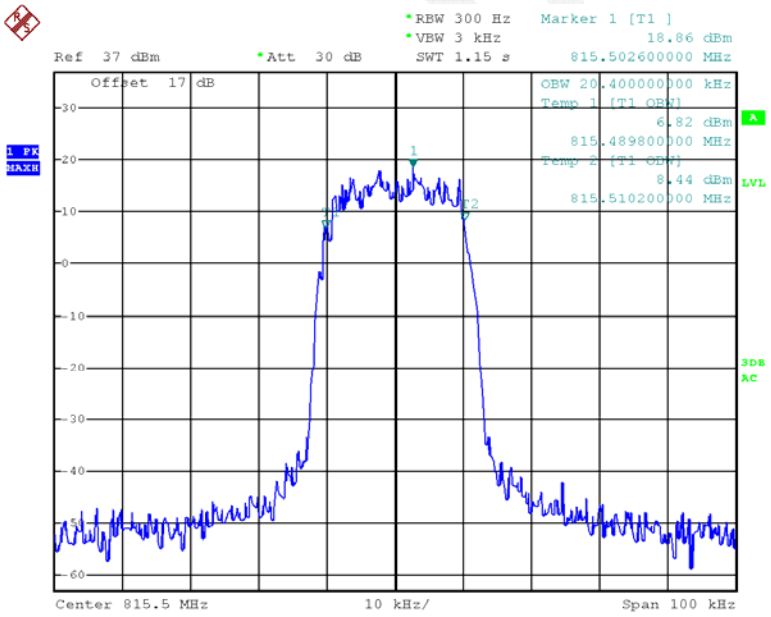
Date: 23.AUG.2015 01:15:52

Occupied Bandwidth –TMO, 809.0125 MHz



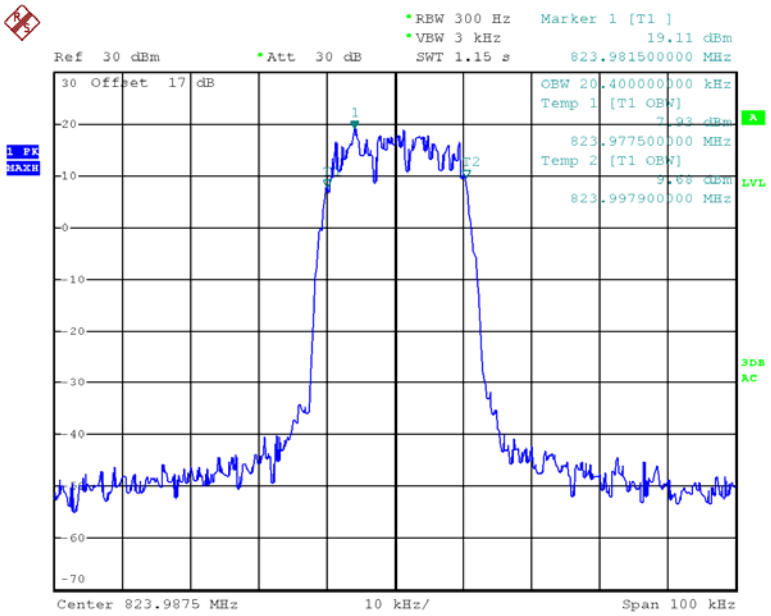
Date: 30.AUG.2015 00:15:04

Occupied Bandwidth –TMO, 815.5 MHz



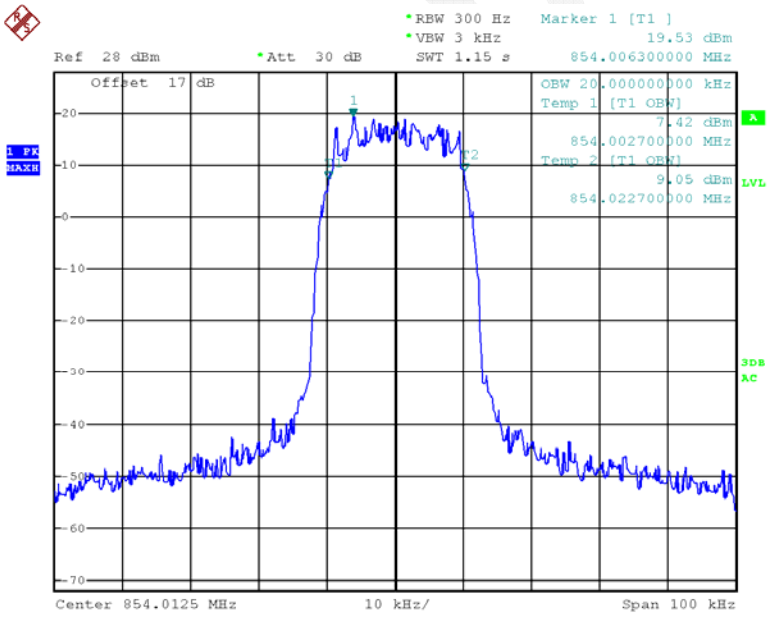
Date: 30.AUG.2015 00:42:42

Occupied Bandwidth –TMO, 823.9875 MHz



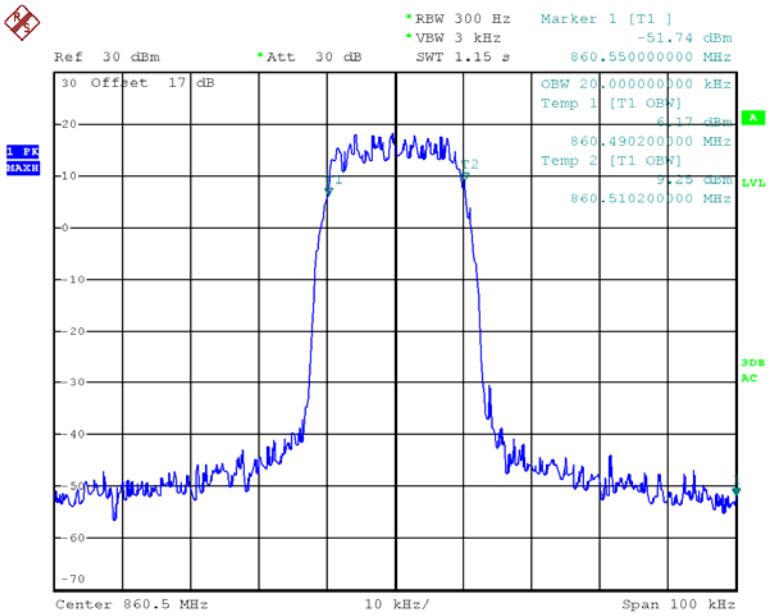
Date: 30.AUG.2015 00:53:15

Occupied Bandwidth –TMO, 854.0125 MHz



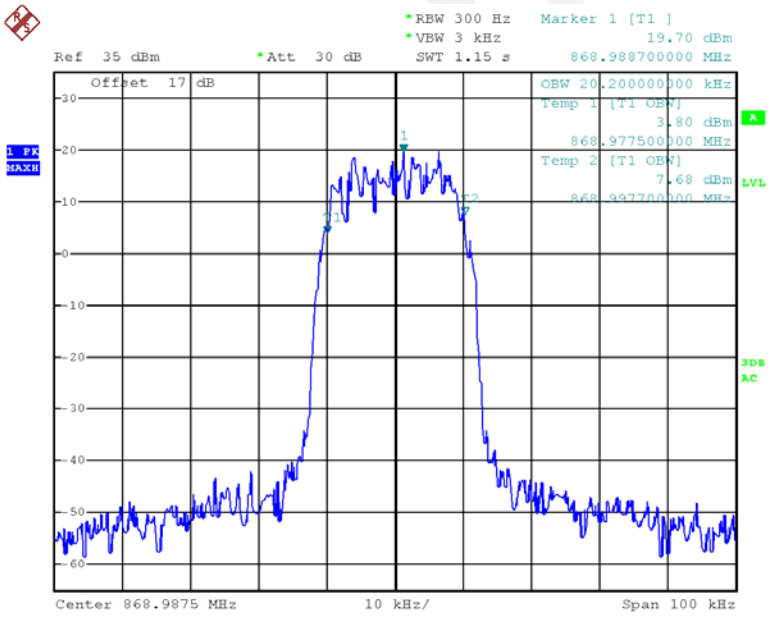
Date: 30.AUG.2015 01:07:47

Occupied Bandwidth –TMO, 860.5 MHz



Date: 30.AUG.2015 01:42:49

Occupied Bandwidth –TMO, 868.9875 MHz



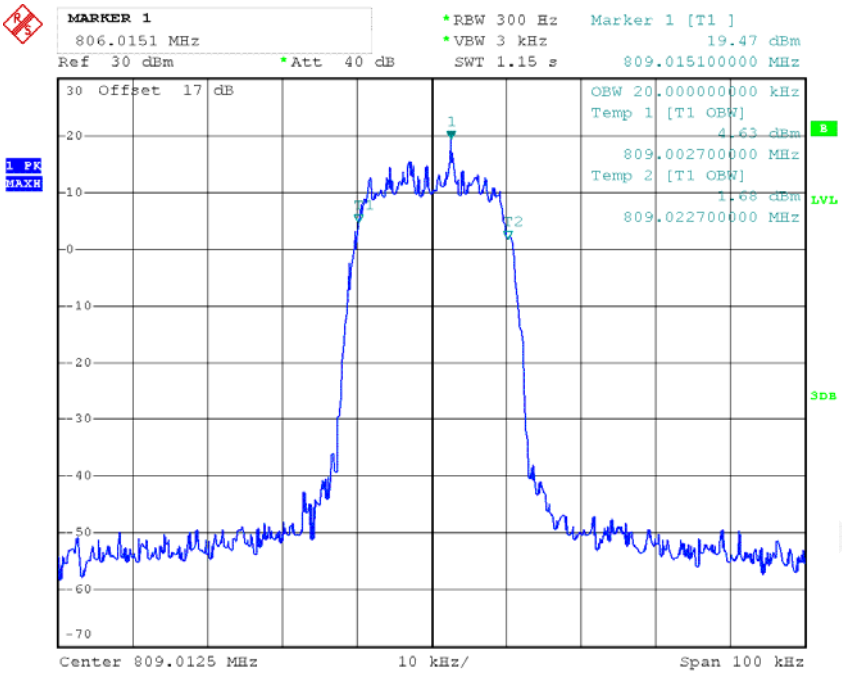
Date: 30.AUG.2015 19:04:53

Low Power Level

ModulationMode	Modulation type	Channel Separation	f_c (MHz)	99% Occupied Bandwidth (kHz)	Limit (kHz)
DMO	π/4-DQPSK	25kHz	809.0125	20.00	22
			815.5	20.20	22
			823.9875	20.20	22
			854.0125	20.00	22
			860.5	20.00	22
			868.9875	20.40	22
TMO		25kHz	809.0125	20.00	22
			815.5	20.40	22
			823.9875	20.40	22
			854.0125	20.20	22
			860.5	20.20	22
			868.9875	20.20	22

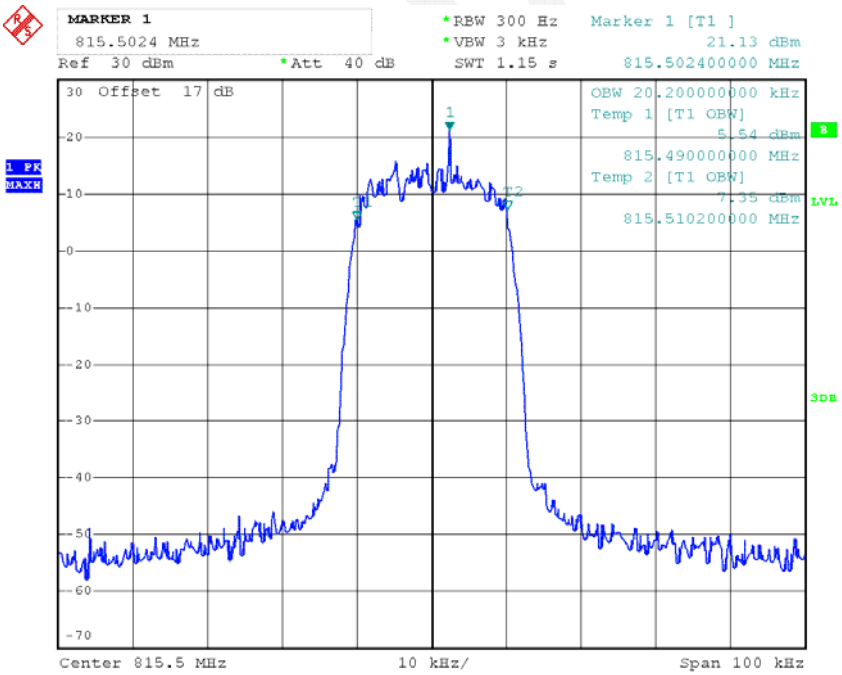
Note: Equipment meets the Adjacent Channel Power limits of §90.221, so emission mask is not tested.
The rated power is 0.3 W

Occupied Bandwidth –DMO, 809.0125 MHz



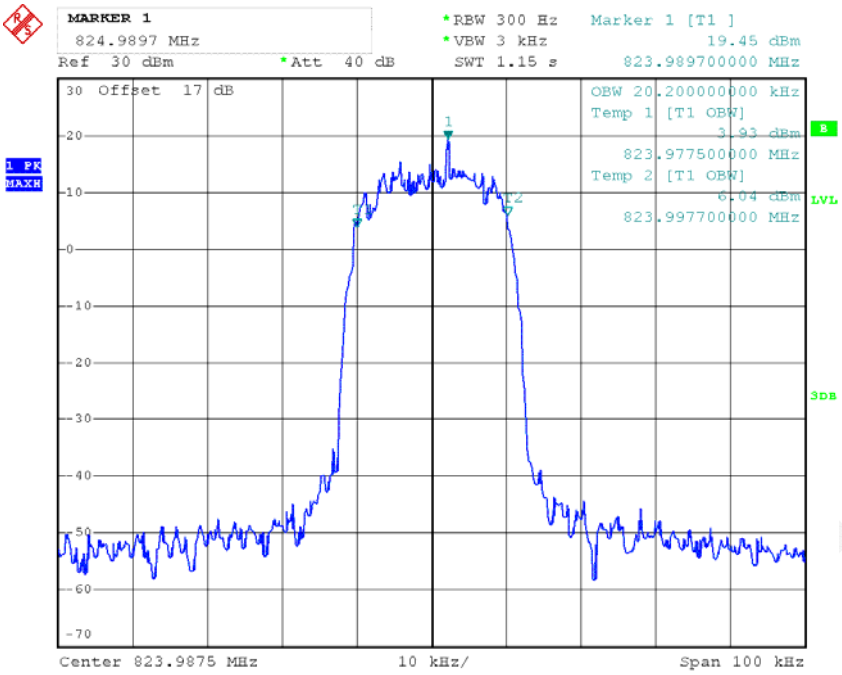
Date: 2.SEP.2015 20:19:51

Occupied Bandwidth –DMO, 815.5 MHz



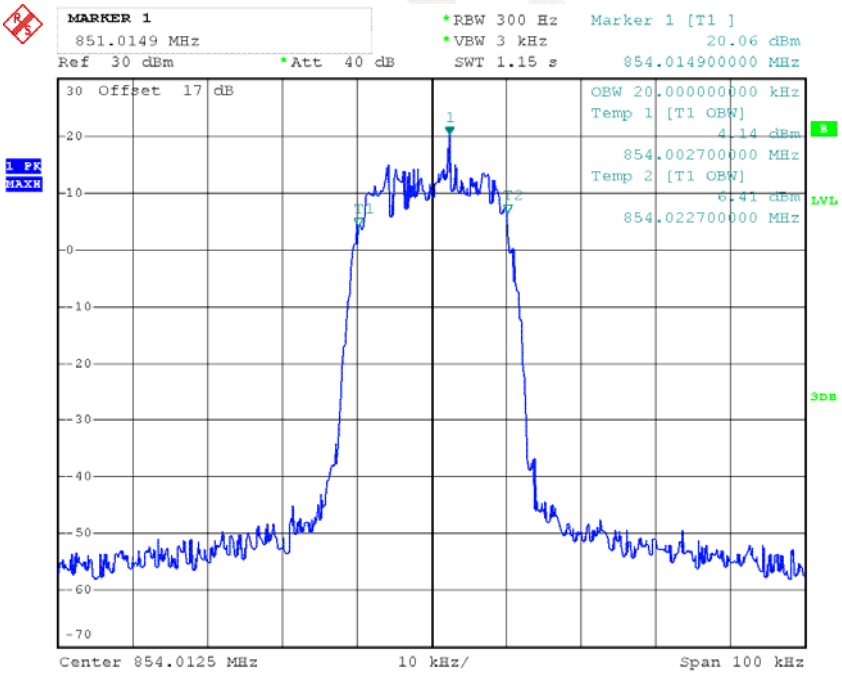
Date: 2.SEP.2015 20:14:49

Occupied Bandwidth –DMO, 823.9875 MHz



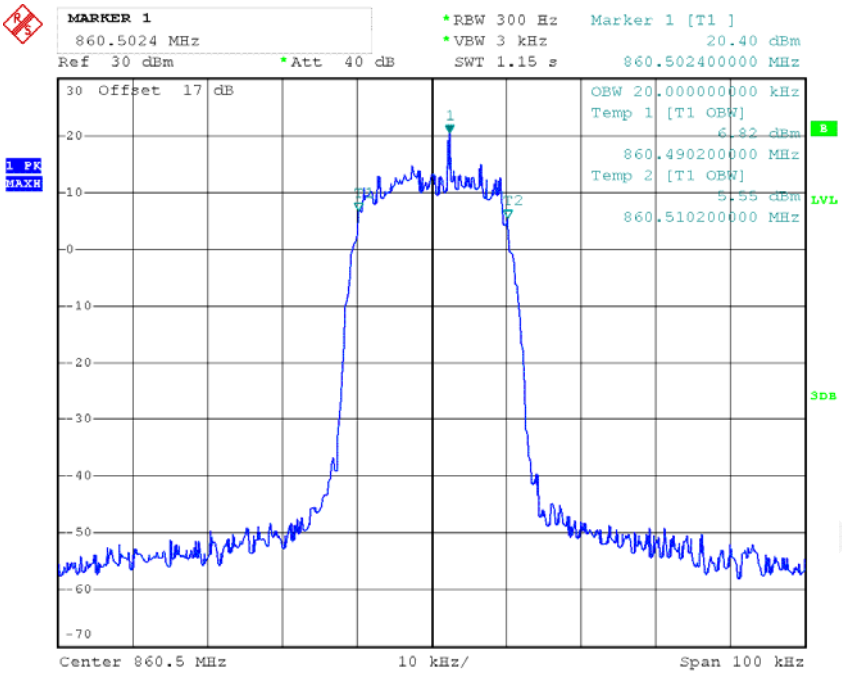
Date: 2.SEP.2015 20:16:25

Occupied Bandwidth –DMO, 854.0125 MHz



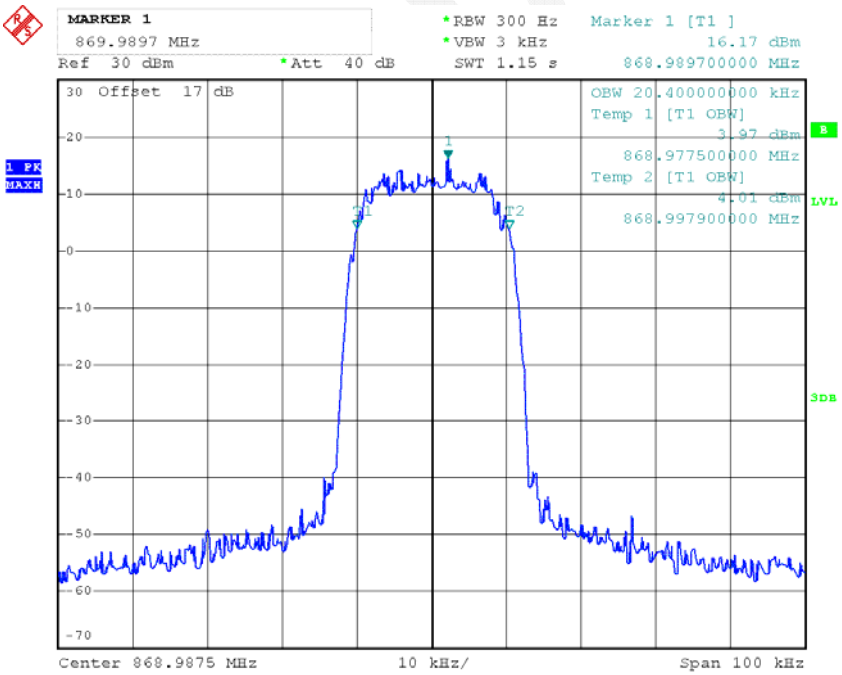
Date: 2.SEP.2015 20:13:29

Occupied Bandwidth –DMO, 860.5 MHz



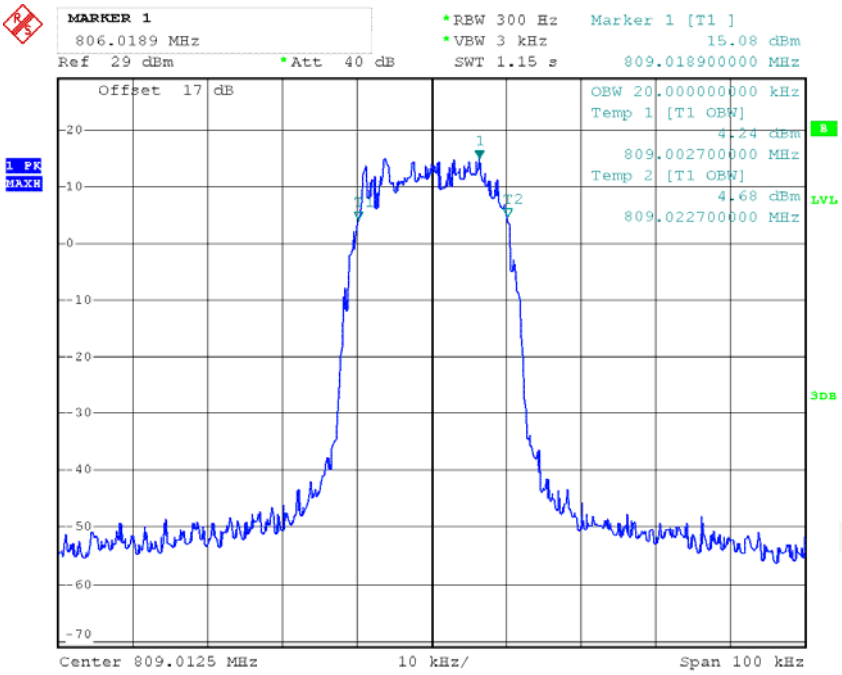
Date: 2.SEP.2015 20:18:44

Occupied Bandwidth –DMO, 868.9875 MHz



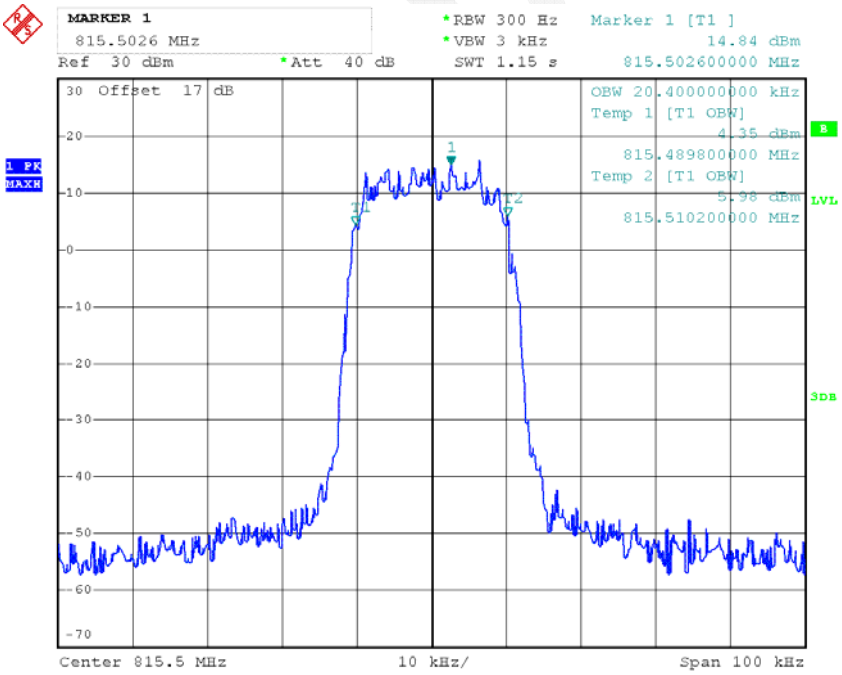
Date: 2.SEP.2015 20:17:34

Occupied Bandwidth –TMO, 809.0125 MHz



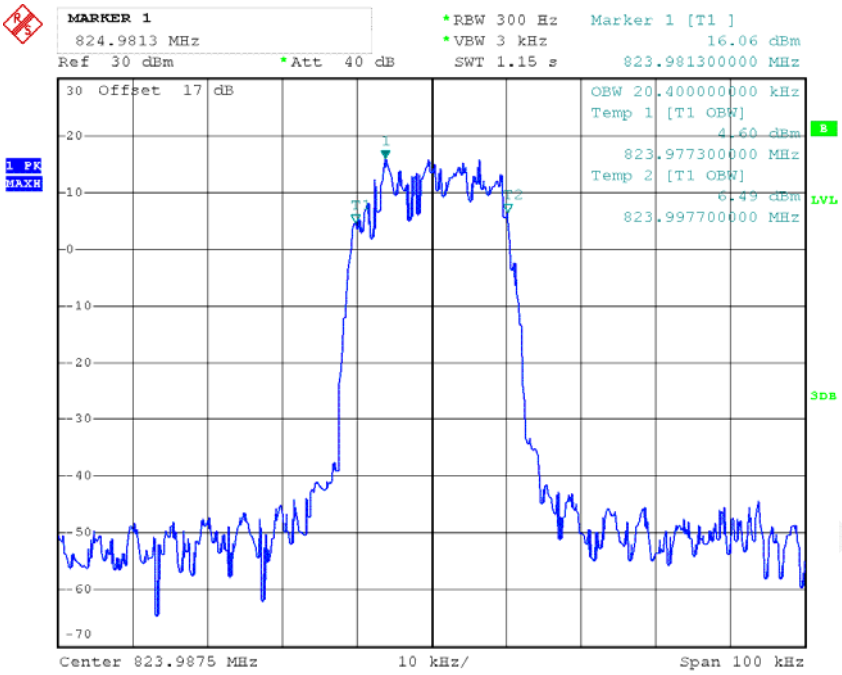
Date: 2.SEP.2015 21:15:05

Occupied Bandwidth –TMO, 815.5 MHz



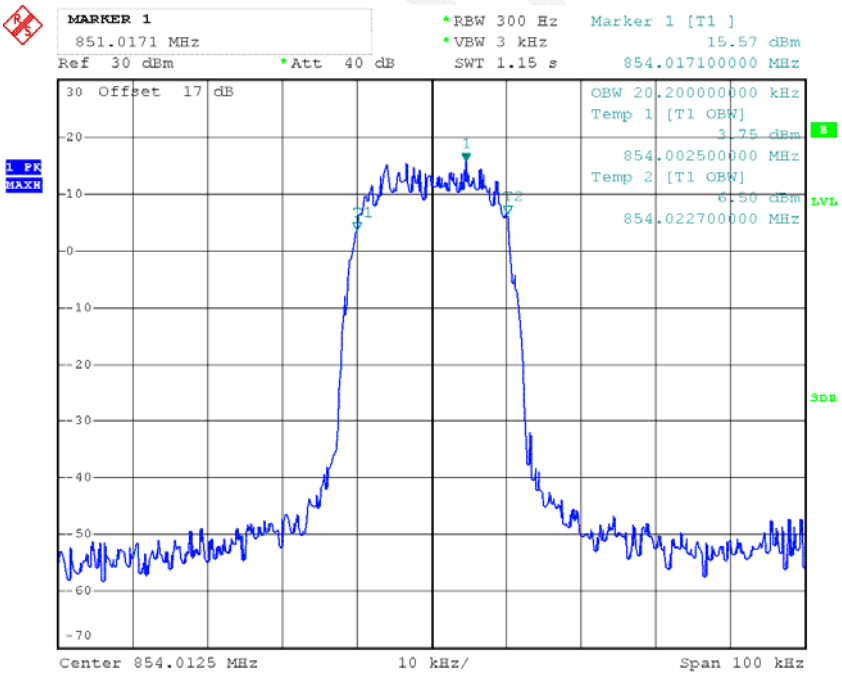
Date: 2.SEP.2015 21:24:22

Occupied Bandwidth –TMO, 823.9875 MHz



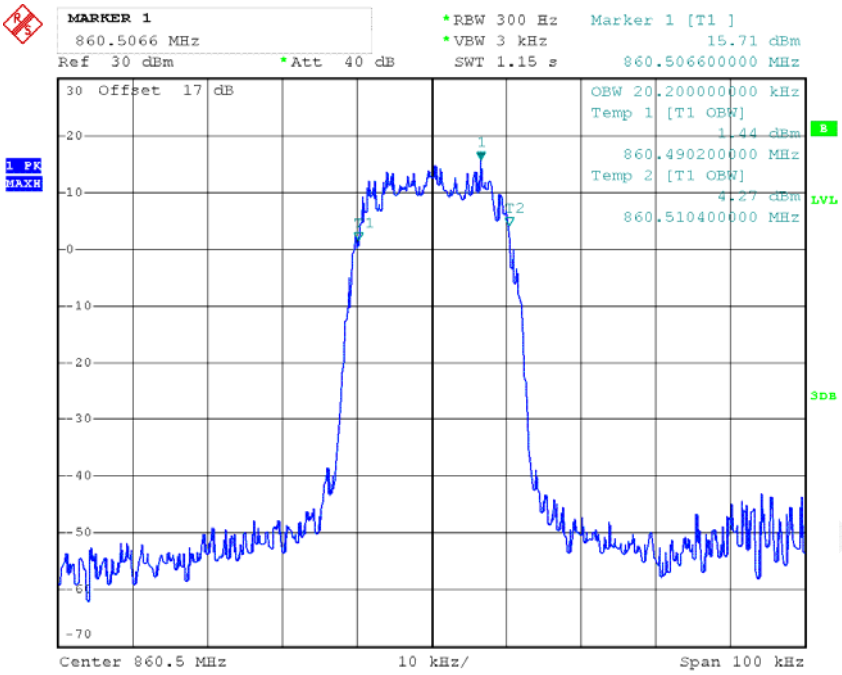
Date: 2.SEP.2015 21:52:25

Occupied Bandwidth –TMO, 854.0125 MHz



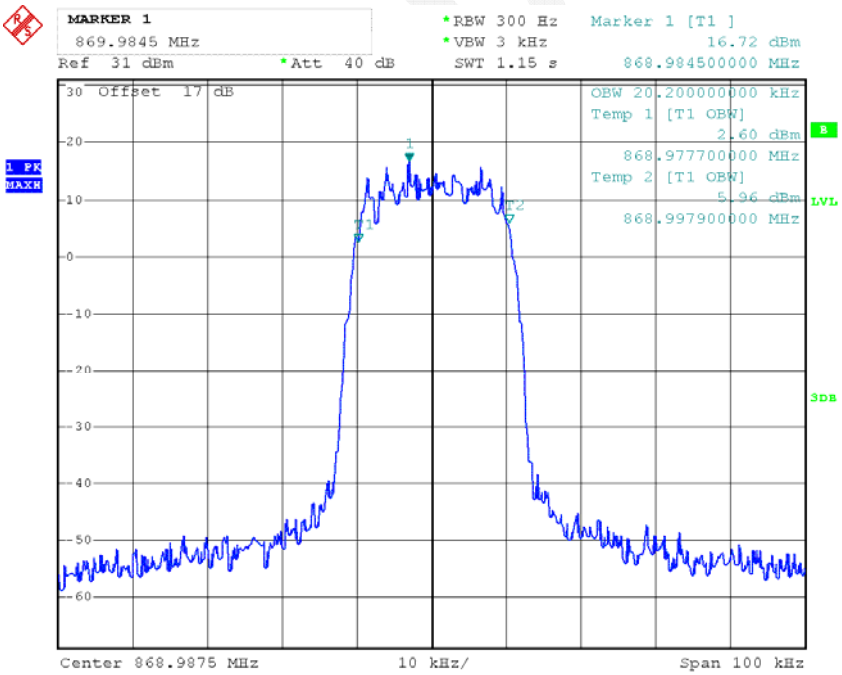
Date: 2.SEP.2015 21:58:53

Occupied Bandwidth –TMO, 860.5 MHz



Date: 4.SEP.2015 09:54:37

Occupied Bandwidth –TMO, 868.9875 MHz



Date: 4.SEP.2015 10:29:33

FCC §2.1051 & §90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

Emission Mask B. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:
(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.
(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.
(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

Test Procedure

The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100kHz for below 1GHz, and 1MHz for above 1GHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	831259/019	2015-05-09	2016-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

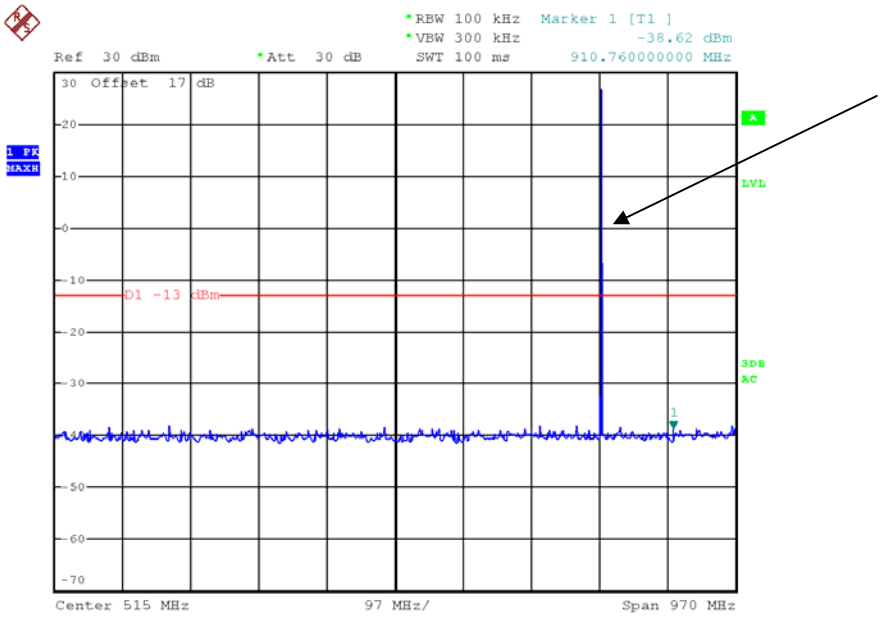
Temperature:	27.1~27.6℃
Relative Humidity:	56-58 %
ATM Pressure:	99.4 -100.2 kPa

The testing was performed by Dean Liu on 2015-08-23& 2015-08-30.

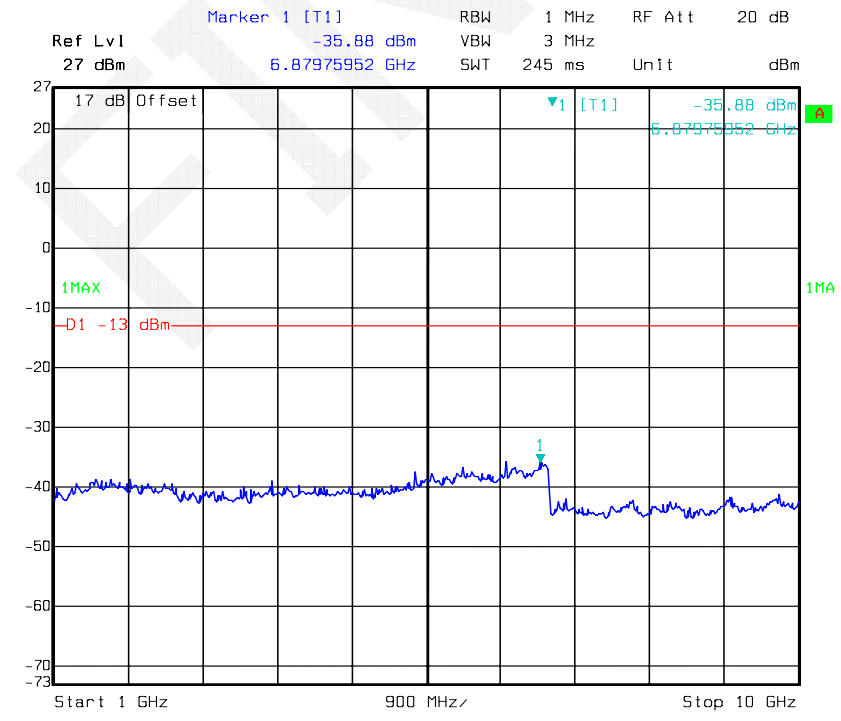
Test Mode: Transmitting

High power level

DMO, 809.0125 MHz

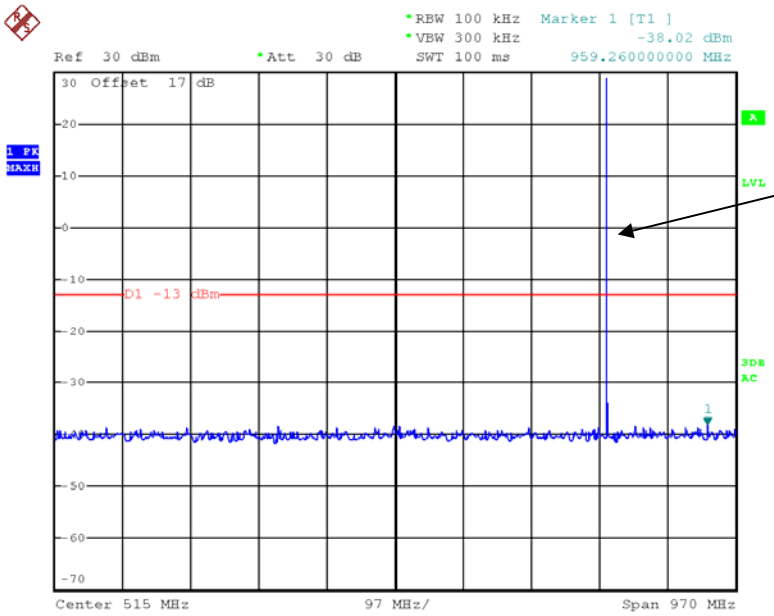


Date: 23.AUG.2015 04:09:01



Date: 30.AUG.2015 21:10:35

DMO, 815.5 MHz



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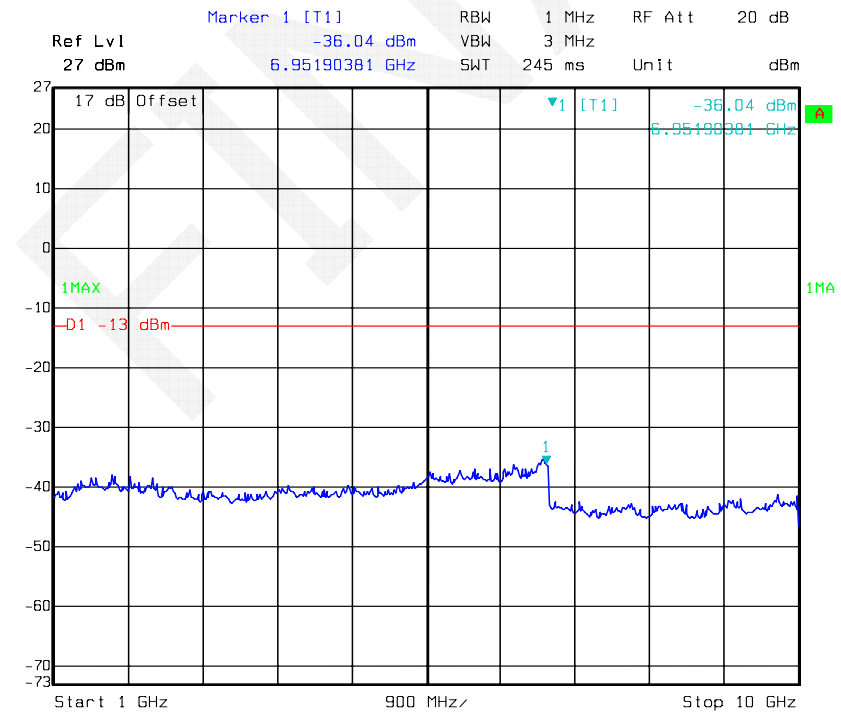
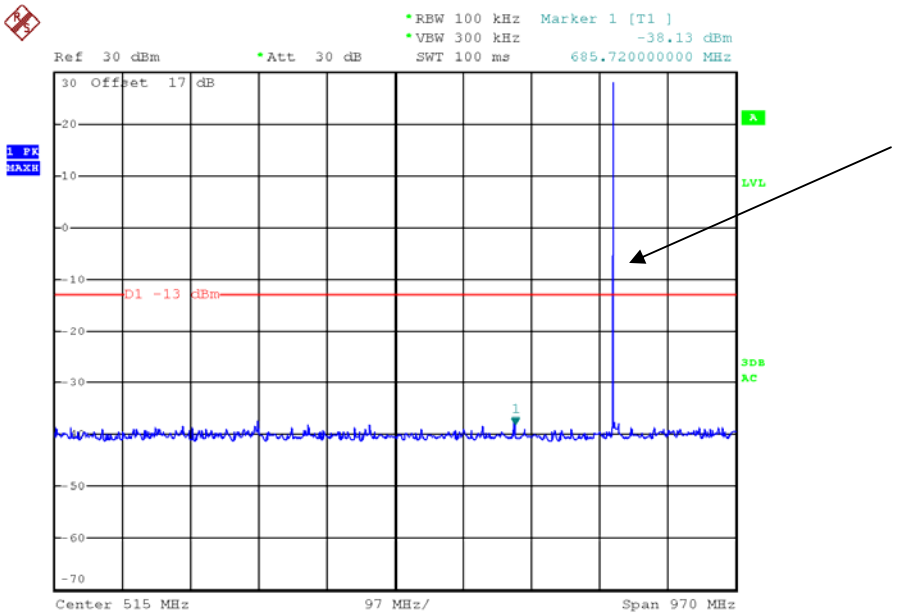


Date: 30.AUG.2015 21:11:12

DMO, 823.9875 MHz



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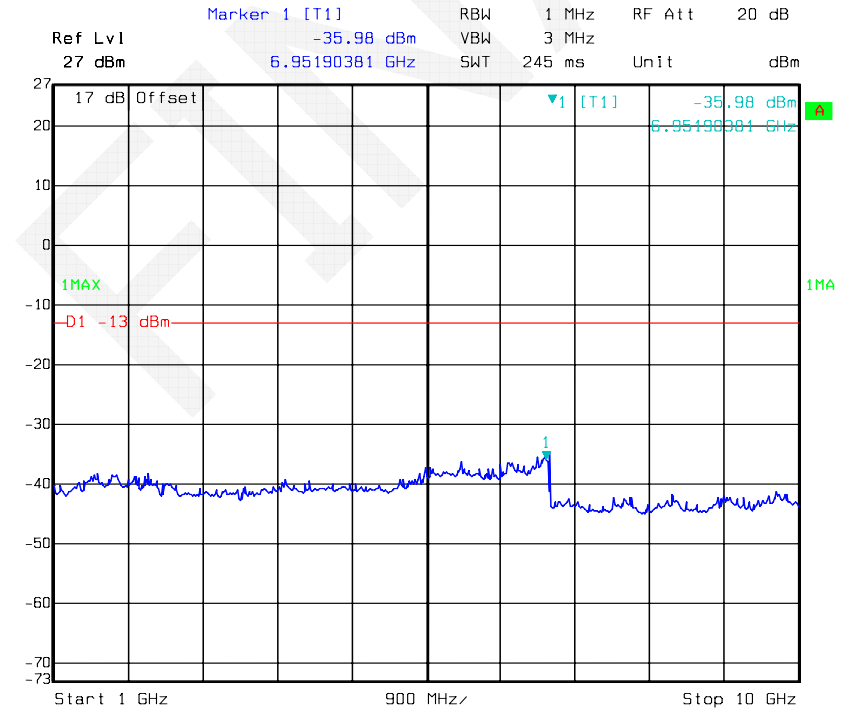
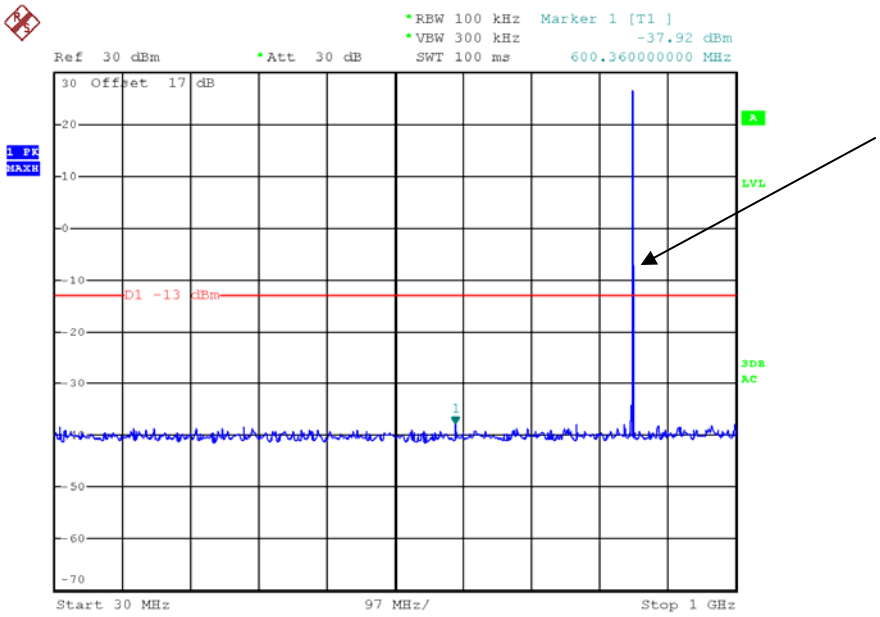


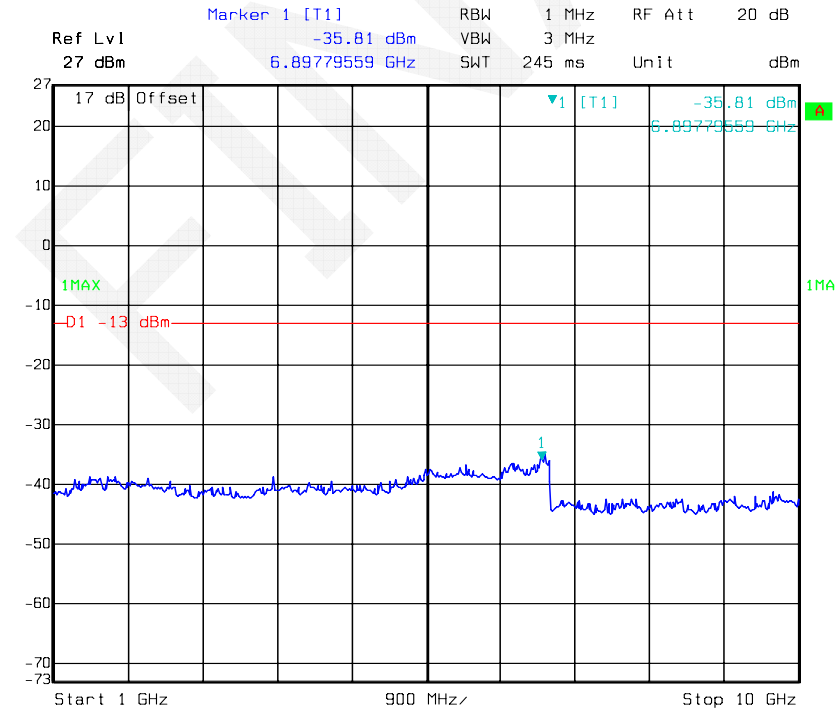
Date: 30.AUG.2015 21:11:42

DMO, 854.0125 MHz



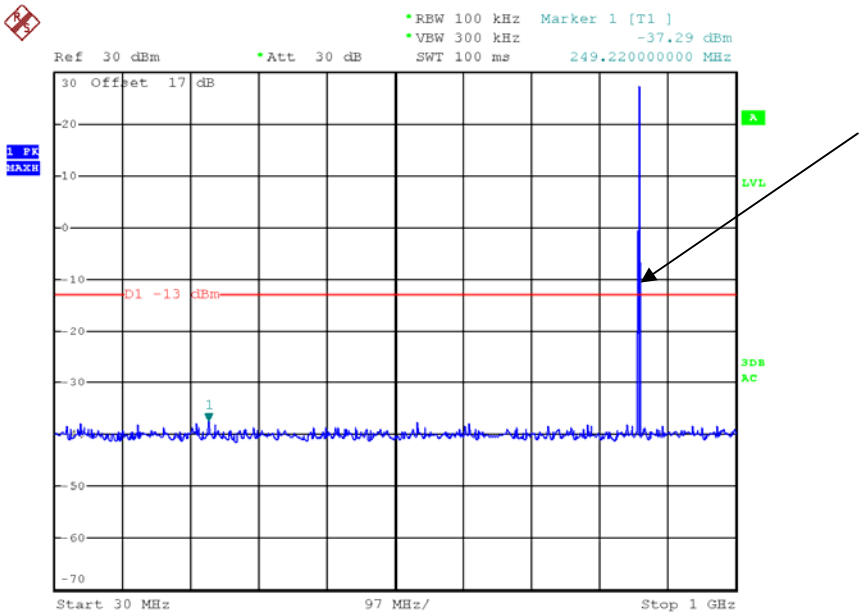
Fundamental

Date: 23.AUG.2015 04:13:14



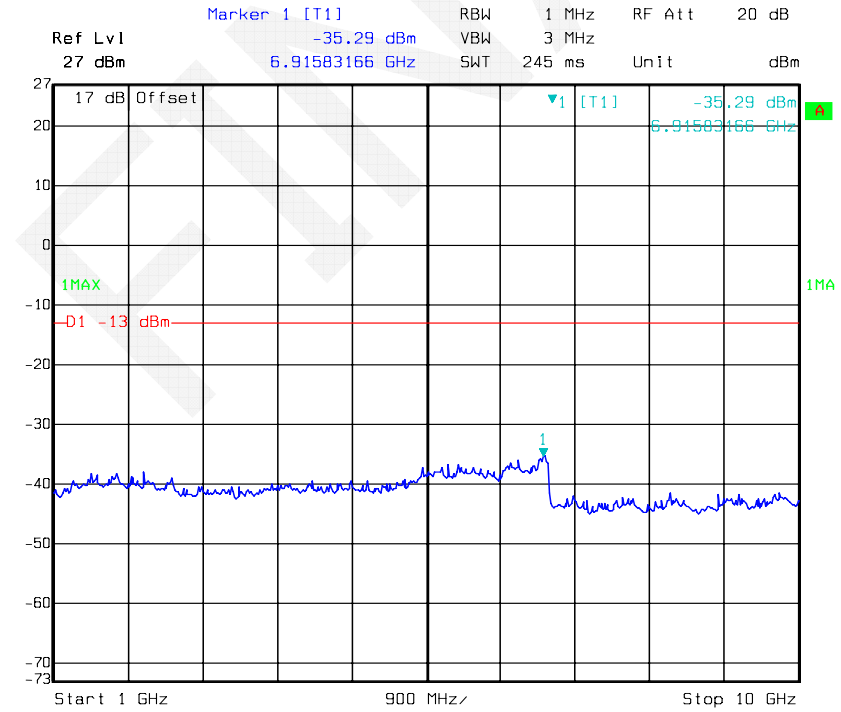
Date: 30.AUG.2015 21:12:11

DMO, 860.5 MHz



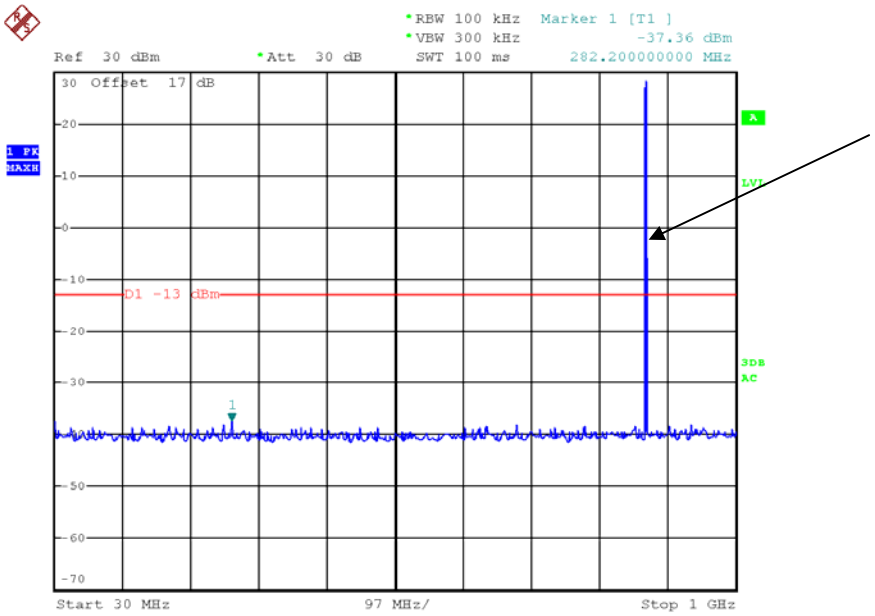
Fundamental

Date: 23.AUG.2015 04:12:27



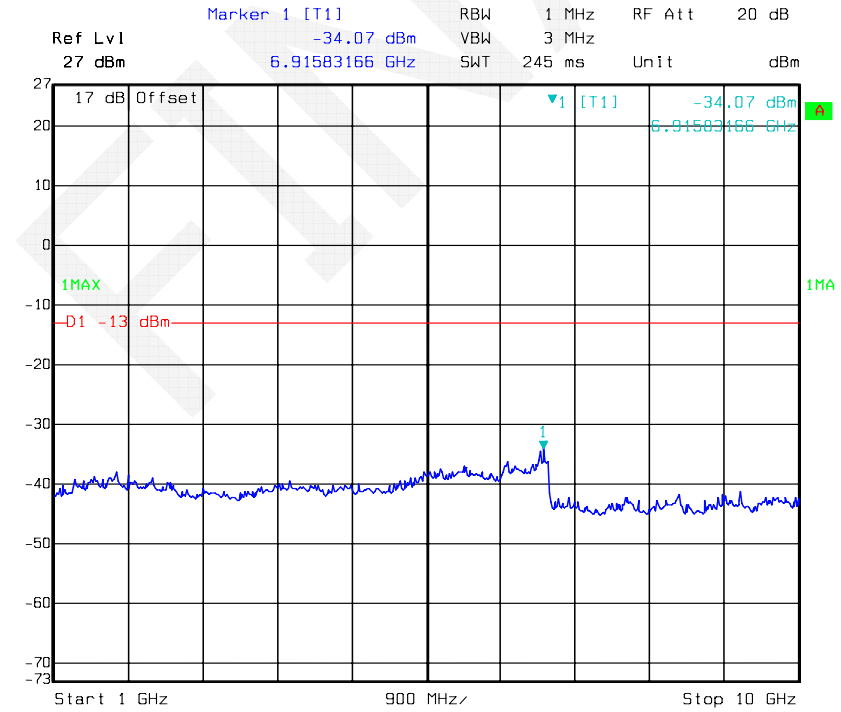
Date: 30.AUG.2015 21:12:42

DMO, 868.9875 MHz



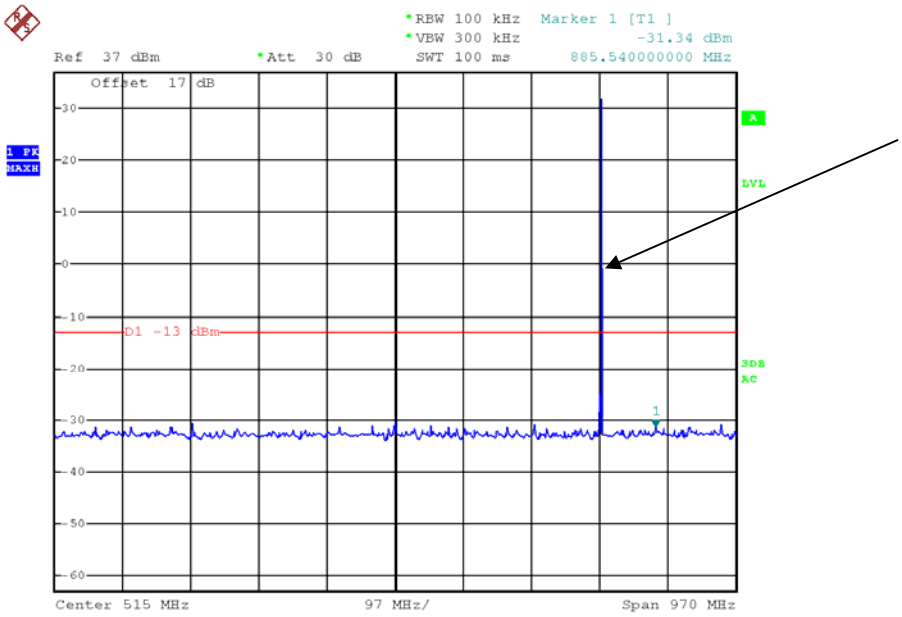
Fundamental

Date: 23.AUG.2015 04:10:48



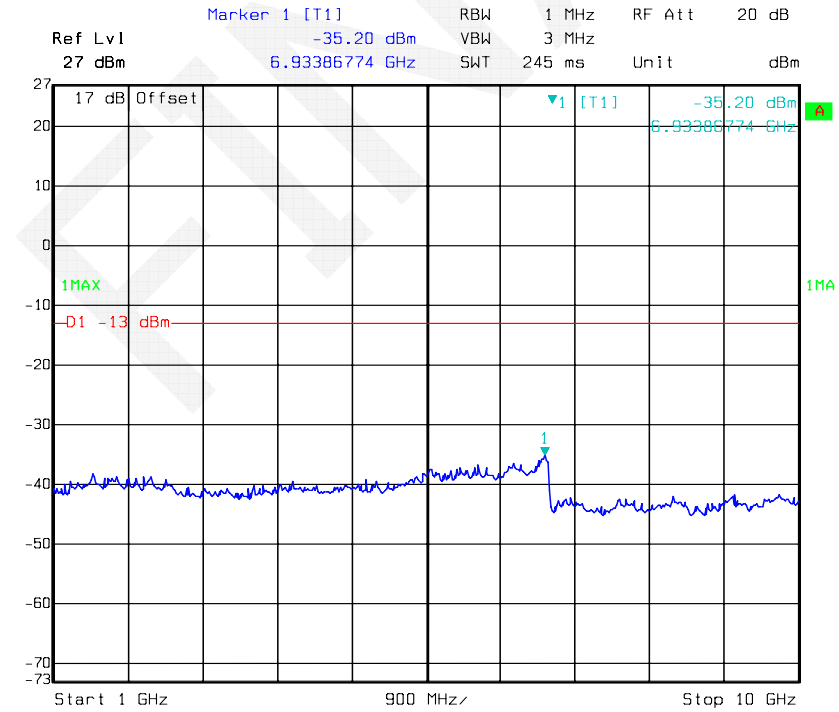
Date: 30.AUG.2015 21:13:08

TMO, 809.0125 MHz



Fundamental

Date: 30.AUG.2015 03:17:42



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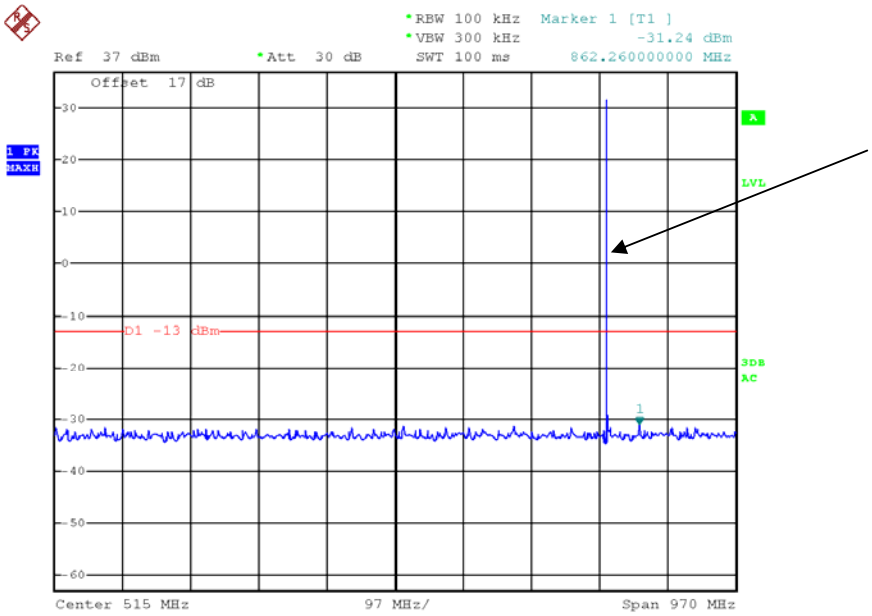
TMO, 815.5 MHz



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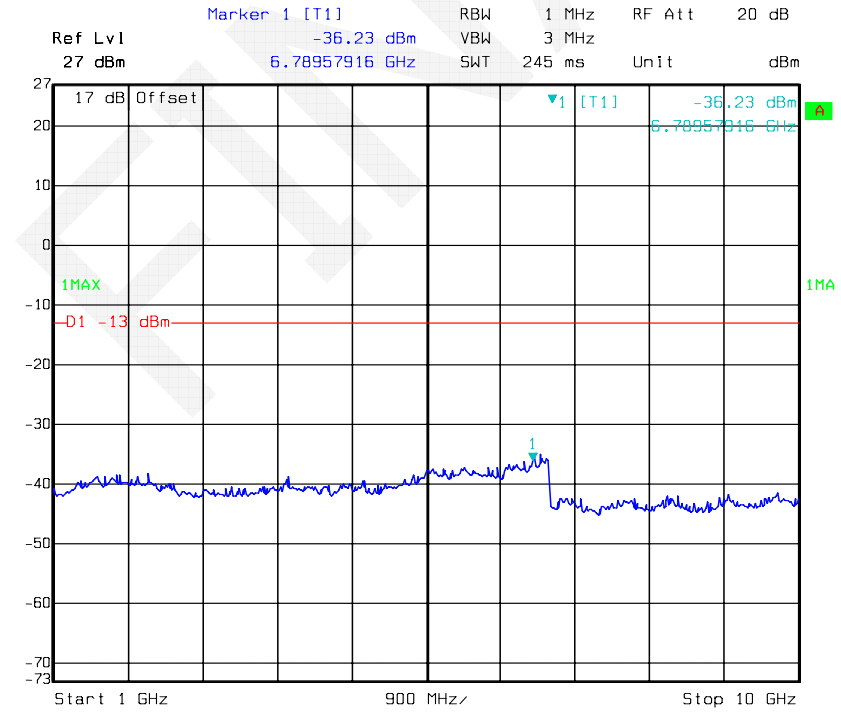

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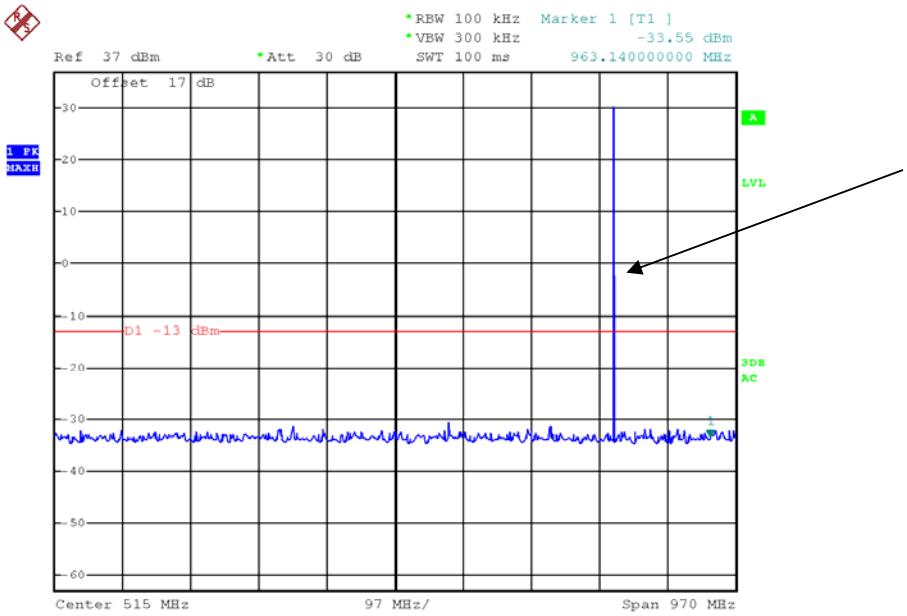
TMO, 823.9875 MHz



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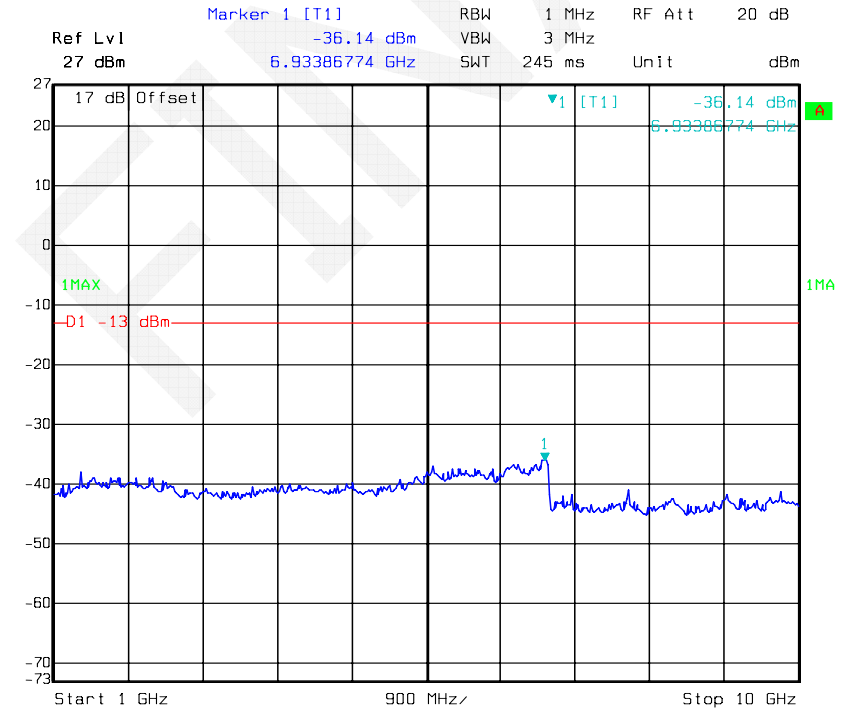
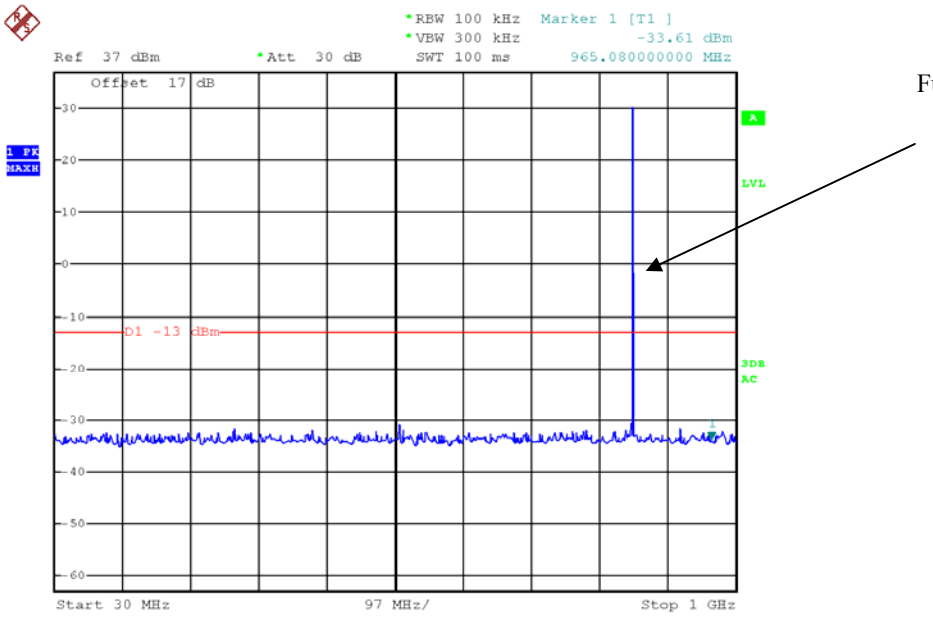


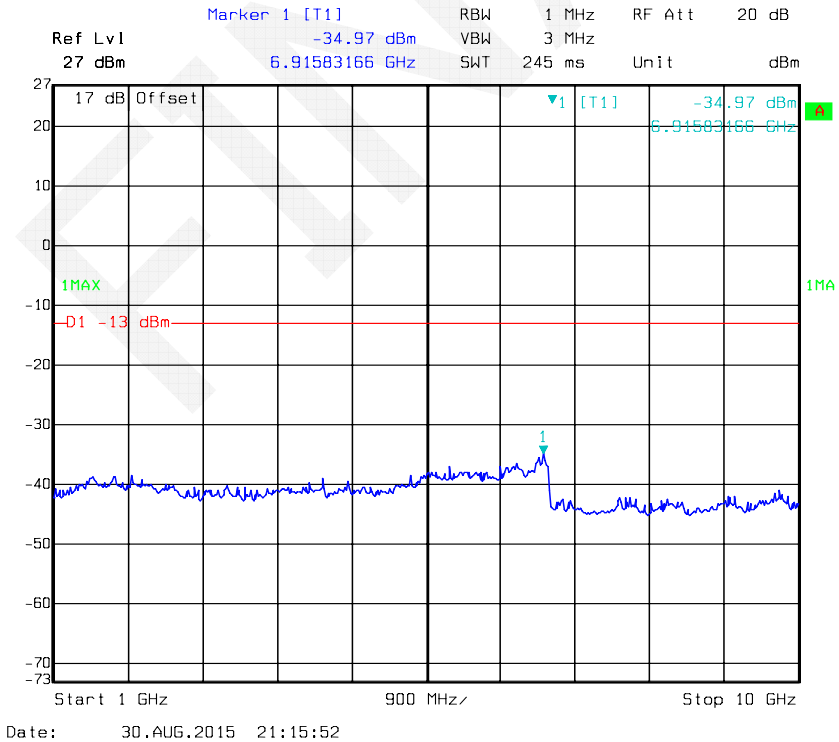
Date: 30.AUG.2015 21:15:03

TMO, 854.0125 MHz



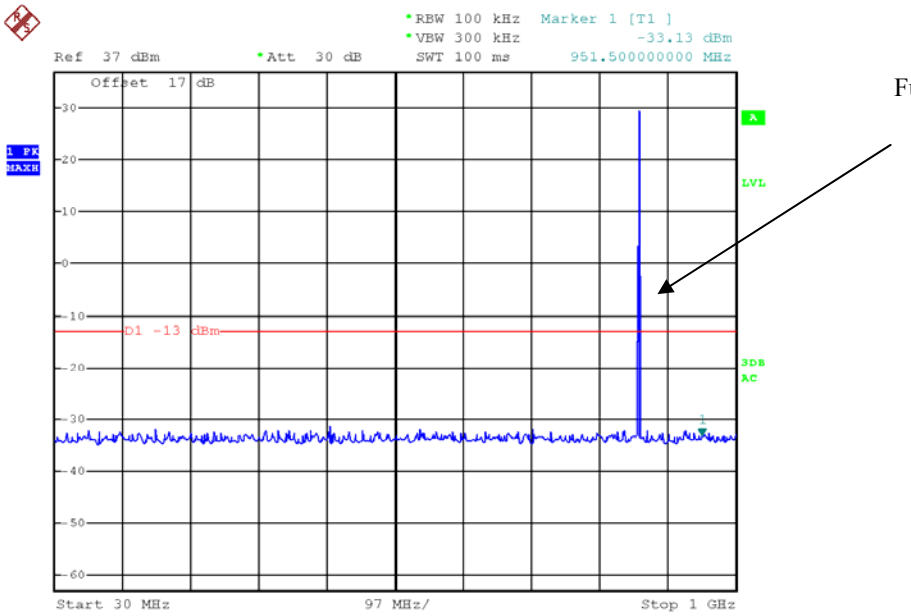
Fundamental

Date: 30.AUG.2015 01:08:27



Date: 30.AUG.2015 21:15:52

TMO, 860.5 MHz



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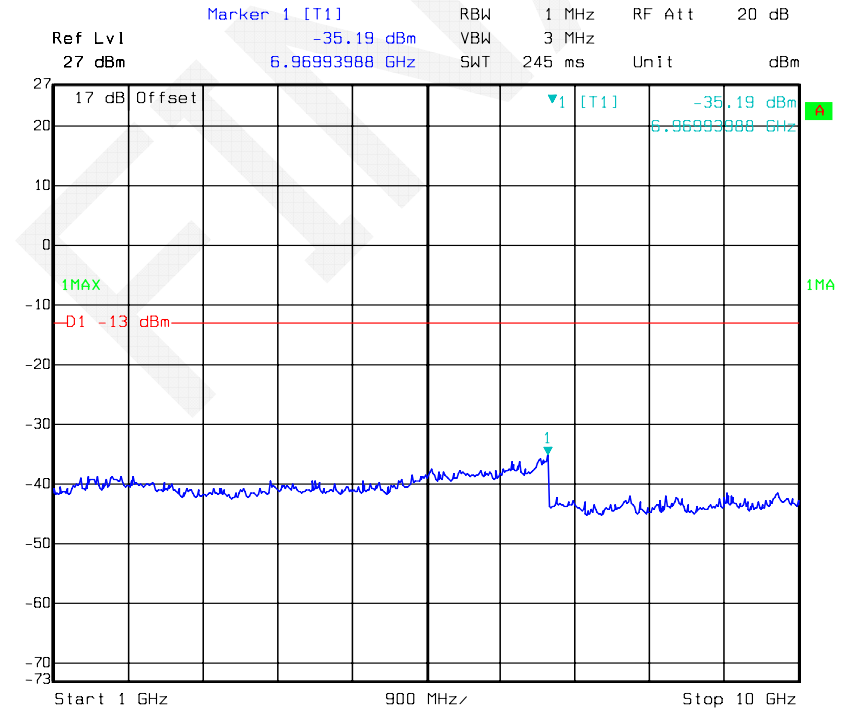
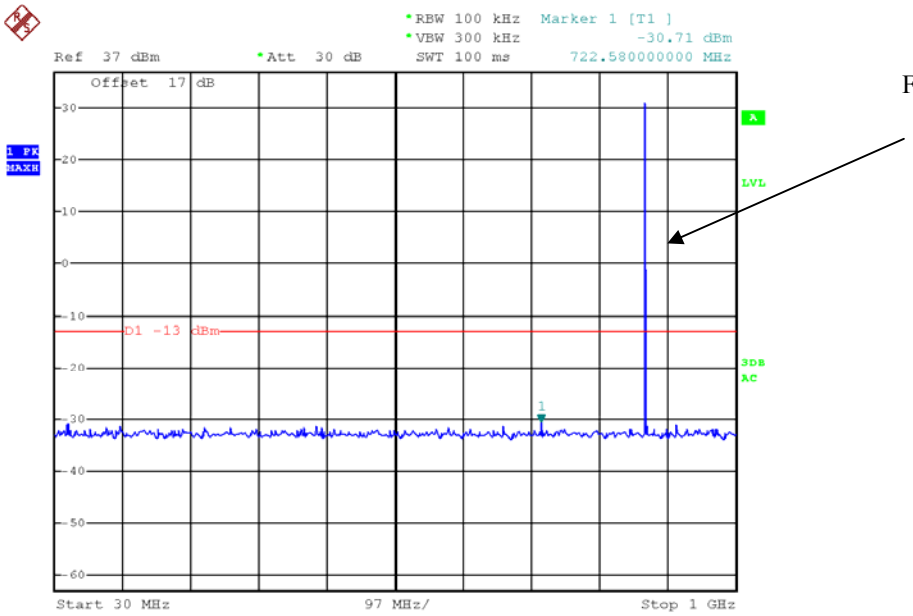


Date: 30.AUG.2015 21:16:20

TMO, 868.9875 MHz



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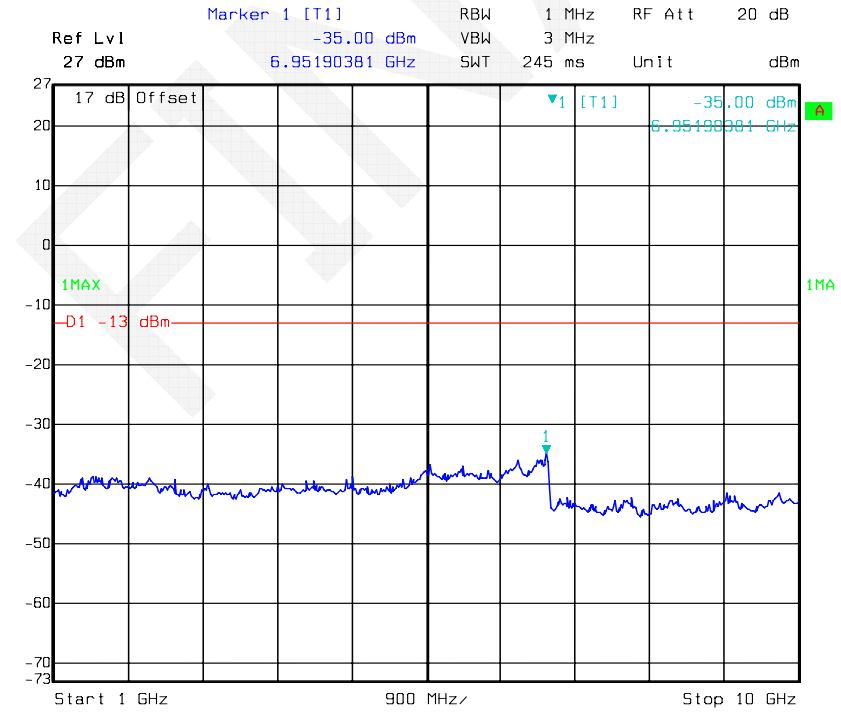

Date: 30.AUG.2015 21:16:46

FCC §2.1053 & §90.210 - RADIATED SPURIOUS EMISSIONS

Applicable Standard

FCC §2.1053, §90.210

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT .The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to teeth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB =10 1g (TXpwr in Watts/0.001)-the absolute level

Spurious attenuation limit in dB =43+10 Log_{10} (power out in Watts) for EUT with a 12.5 kHz channel bandwidth.

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
HP	Signal Generator	8648A	3426A00831	2014-11-06	2015-11-06
Sunol Sciences	Antenna	JB3	A060611-1	2014-09-06	2017-09-05
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
HP	Amplifier	8447E	2434A02181	2014-09-06	2015-09-06
R&S	EMI Test Receiver	ESCI	100224	2015-05-09	2016-05-09
Agilent	Signal Generator	E8247C	MY43321350	2014-10-15	2015-10-15
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2015-02-19	2016-02-19
TDK RF	Horn Antenna	HRN-0118	130 084	2012-09-06	2015-09-06
ETS LINDGREN	Horn Antenna	3115	000 527 35	2012-09-06	2015-09-06
R&S	Spectrum Analyzer	FSEM	DE31388	2015-05-09	2016-05-09
N/A	Coaxial Cable	14m	N/A	2015-05-06	2016-05-06
N/A	Coaxial Cable	8m	N/A	2015-05-06	2016-05-06

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	27.4℃
Relative Humidity:	57 %
ATM Pressure:	100 kPa

The testing was performed by Dean Liu on 2015-08-28.

Test Mode: Transmitting

30MHz - 10GHz:

DMO

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency:809.0125 MHz								
1618.025	H	33.74	-67.4	10.3	1.2	-58.3	-13.0	45.3
1618.025	V	33.37	-68.5	10.3	1.2	-59.4	-13.0	46.4
2427.038	H	35.22	-62.2	12.5	2.7	-52.4	-13.0	39.4
2427.038	V	34.32	-61.9	12.5	2.7	-52.1	-13.0	39.1
3236.050	H	32.13	-65.3	13.6	2.2	-53.9	-13.0	40.9
3236.050	V	31.95	-64.8	13.6	2.2	-53.4	-13.0	40.4
4045.063	H	31.27	-62.8	13.9	3.2	-52.1	-13.0	39.1
4045.063	V	30.82	-62.7	13.9	3.2	-52.0	-13.0	39.0
346.000	H	30.17	-72.4	0.0	0.6	-73.0	-13.0	60.0
346.000	V	29.63	-75.2	0.0	0.6	-75.8	-13.0	62.8
Frequency:815.5000 MHz								
1631.000	H	33.29	-67.9	10.3	1.3	-58.9	-13.0	45.9
1631.000	V	32.69	-69	10.3	1.3	-60.0	-13.0	47.0
2446.500	H	32.20	-65.5	12.7	2.6	-55.4	-13.0	42.4
2446.500	V	31.86	-64.6	12.7	2.6	-54.5	-13.0	41.5
3262.000	H	32.48	-64.9	13.6	2.2	-53.5	-13.0	40.5
3262.000	V	31.73	-65.1	13.6	2.2	-53.7	-13.0	40.7
4077.500	H	31.37	-63	13.8	3.1	-52.3	-13.0	39.3
4077.500	V	30.83	-63	13.8	3.1	-52.3	-13.0	39.3
346.000	H	31.44	-71.1	0.0	0.6	-71.7	-13.0	58.7
346.000	V	30.82	-74	0.0	0.6	-74.6	-13.0	61.6

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency:823.9875 MHz								
1647.975	H	33.89	-67.2	10.5	1.3	-58.0	-13.0	45.0
1647.975	V	32.72	-68.9	10.5	1.3	-59.7	-13.0	46.7
2471.963	H	32.30	-65.7	12.9	2.6	-55.4	-13.0	42.4
2471.963	V	31.61	-65.1	12.9	2.6	-54.8	-13.0	41.8
3295.950	H	31.96	-65.3	13.6	2.1	-53.8	-13.0	40.8
3295.950	V	31.74	-65.1	13.6	2.1	-53.6	-13.0	40.6
1760.000	H	47.53	-53	10.9	1.4	-43.5	-13.0	30.5
1760.000	V	44.82	-56	10.9	1.4	-46.5	-13.0	33.5
346.000	H	30.83	-71.7	0.0	0.6	-72.3	-13.0	59.3
346.000	V	29.95	-74.9	0.0	0.6	-75.5	-13.0	62.5
Frequency:854.0125 MHz								
1708.025	H	33.08	-67.9	10.8	1.4	-58.5	-13.0	45.5
1708.025	V	32.87	-68.2	10.8	1.4	-58.8	-13.0	45.8
2562.038	H	33.32	-62.6	13.2	2.5	-51.9	-13.0	38.9
2562.038	V	32.48	-64.6	13.2	2.5	-53.9	-13.0	40.9
3416.050	H	32.12	-65.3	14.0	2.3	-53.6	-13.0	40.6
3416.050	V	31.80	-65.3	14.0	2.3	-53.6	-13.0	40.6
346.000	H	31.26	-71.3	0.0	0.6	-71.9	-13.0	58.9
346.000	V	30.44	-74.4	0.0	0.6	-75.0	-13.0	62.0
Frequency:860.5000 MHz								
1721.000	H	33.64	-67.2	10.8	1.4	-57.8	-13.0	44.8
1721.000	V	33.55	-67.5	10.8	1.4	-58.1	-13.0	45.1
2581.500	H	35.85	-59.3	13.2	2.5	-48.6	-13.0	35.6
2581.500	V	34.47	-62.6	13.2	2.5	-51.9	-13.0	38.9
3442.000	H	32.09	-65.1	14.0	2.2	-53.3	-13.0	40.3
3442.000	V	31.44	-65.1	14.0	2.2	-53.3	-13.0	40.3
1752.000	H	38.55	-62	10.9	1.4	-52.5	-13.0	39.5
1752.000	V	36.67	-64.2	10.9	1.4	-54.7	-13.0	41.7
346.000	H	31.22	-71.3	0.0	0.6	-71.9	-13.0	58.9
346.000	V	29.63	-75.2	0.0	0.6	-75.8	-13.0	62.8

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency:868.9875 MHz								
1737.975	H	33.78	-66.9	10.9	1.4	-57.4	-13.0	44.4
1737.975	V	32.24	-68.7	10.9	1.4	-59.2	-13.0	46.2
2606.963	H	33.16	-61.4	13.2	2.5	-50.7	-13.0	37.7
2606.963	V	32.30	-64.9	13.2	2.5	-54.2	-13.0	41.2
3475.950	H	30.86	-66	13.9	2.1	-54.2	-13.0	41.2
3475.950	V	30.81	-65.2	13.9	2.1	-53.4	-13.0	40.4
346.000	H	31.15	-71.4	0.0	0.6	-72.0	-13.0	59.0
346.000	V	30.56	-74.2	0.0	0.6	-74.8	-13.0	61.8

Note:
Absolute Level = SG Level - Cable loss + Antenna Gain
Margin = Limit- Absolute Level

TMO

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency:809.0125 MHz								
1618.025	H	33.88	-67.3	10.3	1.2	-58.2	-13.0	45.2
1618.025	V	33.47	-68.4	10.3	1.2	-59.3	-13.0	46.3
2427.038	H	35.32	-62.1	12.5	2.7	-52.3	-13.0	39.3
2427.038	V	34.45	-61.7	12.5	2.7	-51.9	-13.0	38.9
3236.050	H	32.18	-65.2	13.6	2.2	-53.8	-13.0	40.8
3236.050	V	32.05	-64.7	13.6	2.2	-53.3	-13.0	40.3
4045.063	H	31.40	-62.7	13.9	3.2	-52.0	-13.0	39.0
4045.063	V	30.90	-62.6	13.9	3.2	-51.9	-13.0	38.9
346.000	H	30.25	-72.3	0.0	0.6	-72.9	-13.0	59.9
346.000	V	29.53	-75.3	0.0	0.6	-75.9	-13.0	62.9
Frequency:815.5000 MHz								
1631.000	H	33.42	-67.7	10.3	1.3	-58.7	-13.0	45.7
1631.000	V	32.70	-69	10.3	1.3	-60.0	-13.0	47.0
2446.500	H	32.33	-65.3	12.7	2.6	-55.2	-13.0	42.2
2446.500	V	31.97	-64.5	12.7	2.6	-54.4	-13.0	41.4
3262.000	H	32.63	-64.7	13.6	2.2	-53.3	-13.0	40.3
3262.000	V	31.78	-65	13.6	2.2	-53.6	-13.0	40.6
4077.500	H	31.40	-63	13.8	3.1	-52.3	-13.0	39.3
4077.500	V	30.93	-62.9	13.8	3.1	-52.2	-13.0	39.2
346.000	H	30.93	-71.6	0.0	0.6	-72.2	-13.0	59.2
346.000	V	29.65	-75.2	0.0	0.6	-75.8	-13.0	62.8

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency:823.9875 MHz								
1647.975	H	33.99	-67.1	10.5	1.3	-57.9	-13.0	44.9
1647.975	V	32.78	-68.8	10.5	1.3	-59.6	-13.0	46.6
2471.963	H	32.45	-65.6	12.9	2.6	-55.3	-13.0	42.3
2471.963	V	31.75	-65	12.9	2.6	-54.7	-13.0	41.7
3295.950	H	32.02	-65.3	13.6	2.1	-53.8	-13.0	40.8
3295.950	V	31.81	-65.1	13.6	2.1	-53.6	-13.0	40.6
1760.000	H	47.61	-52.9	10.9	1.4	-43.4	-13.0	30.4
1760.000	V	44.92	-55.9	10.9	1.4	-46.4	-13.0	33.4
346.000	H	30.95	-71.6	0.0	0.6	-72.2	-13.0	59.2
346.000	V	28.99	-75.8	0.0	0.6	-76.4	-13.0	63.4
Frequency:854.0125 MHz								
1708.025	H	33.21	-67.8	10.8	1.4	-58.4	-13.0	45.4
1708.025	V	32.89	-68.2	10.8	1.4	-58.8	-13.0	45.8
2562.038	H	33.38	-62.6	13.2	2.5	-51.9	-13.0	38.9
2562.038	V	32.52	-64.6	13.2	2.5	-53.9	-13.0	40.9
3416.050	H	32.16	-65.2	14.0	2.3	-53.5	-13.0	40.5
3416.050	V	31.81	-65.2	14.0	2.3	-53.5	-13.0	40.5
346.000	H	31.41	-71.1	0.0	0.6	-71.7	-13.0	58.7
346.000	V	30.53	-74.3	0.0	0.6	-74.9	-13.0	61.9
Frequency:860.5000 MHz								
1721.000	H	33.65	-67.2	10.8	1.4	-57.8	-13.0	44.8
1721.000	V	33.56	-67.5	10.8	1.4	-58.1	-13.0	45.1
2581.500	H	35.98	-59.2	13.2	2.5	-48.5	-13.0	35.5
2581.500	V	34.61	-62.5	13.2	2.5	-51.8	-13.0	38.8
3442.000	H	32.17	-65	14.0	2.2	-53.2	-13.0	40.2
3442.000	V	31.58	-65	14.0	2.2	-53.2	-13.0	40.2
1752.000	H	38.68	-61.9	10.9	1.4	-52.4	-13.0	39.4
1752.000	V	36.68	-64.2	10.9	1.4	-54.7	-13.0	41.7
346.000	H	31.31	-71.2	0.0	0.6	-71.8	-13.0	58.8
346.000	V	29.44	-75.4	0.0	0.6	-76.0	-13.0	63.0

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency:868.9875 MHz								
1737.975	H	33.86	-66.9	10.9	1.4	-57.4	-13.0	44.4
1737.975	V	32.32	-68.6	10.9	1.4	-59.1	-13.0	46.1
2606.963	H	33.25	-61.3	13.2	2.5	-50.6	-13.0	37.6
2606.963	V	32.36	-64.8	13.2	2.5	-54.1	-13.0	41.1
3475.950	H	30.91	-65.9	13.9	2.1	-54.1	-13.0	41.1
3475.950	V	30.92	-65	13.9	2.1	-53.2	-13.0	40.2
346.000	H	31.28	-71.3	0.0	0.6	-71.9	-13.0	58.9
346.000	V	30.05	-74.8	0.0	0.6	-75.4	-13.0	62.4

Note:
Absolute Level = SG Level - Cable loss + Antenna Gain
Margin = Limit- Absolute Level

FCC §2.1055 & §90.213- FREQUENCY STABILITY

Applicable Standard

FCC §2.1055, §90.213

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a frequency counter via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the counter.

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	831259/019	2015-05-09	2016-05-09
Pro instrument	DC Power Supply	pps3300	/	2015-05-09	2016-05-09
Dongzhixu	High Temperature Test Chamber	DP1000	201105083-4	2015-08-11	2016-08-11
UNI-T	Multimeter	UT39A	M130199938	2015-04-10	2016-04-10

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	27.5 ℃
Relative Humidity:	56 %
ATM Pressure:	100.2 kPa

The testing was performed by Dean Liu on 2015-08-28.

Test Mode: Transmitting

fc =809.0125 MHz				
Temerature	**Voltage**	**Reading**	**Frequency Error**	**Limit**
℃	**Vdc**	**MHz**	**ppm**	**ppm**
-30	7.4	809.012449	-0.06	1.5
-20	7.4	809.012464	-0.04	
-10	7.4	809.012471	-0.04	
0	7.4	809.012466	-0.04	
10	7.4	809.012480	-0.02	
20	7.4	809.012486	-0.02	
30	7.4	809.012479	-0.03	
40	7.4	809.012466	-0.04	
50	7.4	809.012472	-0.03	
25	6.3	809.012491	-0.01	

fc =860.5 MHz				
Temerature	**Voltage**	**Reading**	**Frequency Error**	**Limit**
℃	**Vdc**	**MHz**	**ppm**	**ppm**
-30	7.4	860.499970	-0.03	1.5
-20	7.4	860.499965	-0.04	
-10	7.4	860.499959	-0.05	
0	7.4	860.499983	-0.02	
10	7.4	860.499981	-0.02	
20	7.4	860.499975	-0.03	
30	7.4	860.499986	-0.02	
40	7.4	860.499973	-0.03	
50	7.4	860.499983	-0.02	
25	6.3	860.499968	-0.04	

******* END OF REPORT *******