

REV	Δ	DESCRIPTION	SHEET EFFECTED	DATE	DRAWN	CHECKED
A				24.11.2011	M. Reuben	S. Cohen
B		Replaced data for Output power		17.05.2012	M. Reuben	S. Cohen

EMC Laboratory

WipAir 8000/4000

**Manufactured by
WaveIP LTD.**

FCC ID: QQ2-WA805X

EMC Test Report - Part 1

According to FCC Part 15.247

	Fonction/Title	Name	Signature	Date
Prepared by:	Technical Writer	M. Reuben		24.11.2011
Checked by:	Test Engineer	I. Arbitman		23.11.2011
Approved By:	EMC Lab. Manager	S. Cohen		12-Dec-11

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1. ADMINISTRATIVE DATA

1.1. Scope

This document describes the measurement procedures and tests for Radiated and conducted emission testing of the WipAir X000 manufactured by WaveIP Ltd.

2. GENERAL INFORMATION

2.1. Description of equipment Under Test

Equipment Under Test	WipAir 8000/4000
FCCID	QQ2-WA805X
Manufacturer	WaveIP Ltd.
Serial Numbers	0050C2AC7B33
Mode of Operation	Tranceiver MODE
Receiver operating frequency	5730 MHz – 5845 MHz
Year of Manufacture	2011

2.2. Applicant Information:

Applicant	WaveIP Ltd
Applicant Address	Teradion Industrial park, Misgav 20179, Israel
Telephone	+972-4-9027000
FAX	+972-4-9990324
The testing was observed by	AMIT ARAZI

2.3. Test Performance:

Dates of testing	November 2011, January 2012
Test Laboratory Location	Elbit Systems Land and C ⁴ I - Tadiran Ltd., EMC LAB, Hashoftim 26 Holon 58102 ISRAEL Tel: 972-3-5574476 Fax: 972-3-5575320
Applicable EMC Specification	Federal Communication Commission (FCC), FCC Part 15: Radio Frequency Devices, Sections 15.209, 15.207 & 15.247

3. TEST SUMMARY AND SIGNATURES.

Elbit Systems Land and C⁴I Ltd., EMC Laboratory has completed testing of E.U.T in accordance with the requirements of the FCC Part 15 Regulations for Class B equipment.

The E.U.T was found to comply with the requirements of the FCC Part 15 Regulations given below

Test	Test Description	Section	PASS/FAIL
1	6 dB Bandwidth	15.247 (a)(2), RSS-210 section A8.2(a)	PASS
2	Peak Output Power	15.247 (b)(3), RSS-210 section A8.4(4)	PASS*
3	Conducted Spurious Emissions	15.247 (d), RSS-210 section A8.5	PASS
4	Radiation Spurious Emission	15.247 (d), RSS-210 section A8.5	PASS
5	Peak Power Density	15.247 (e), RSS-210 section A8.2(b)	PASS
6	Conducted Emission	15.247 (a), RSS-210 section 7.2.2	PASS
7	RF Exposure	15.247 (i), RSS-General section 5.5	PASS
8	Antenna Requirement	15.203, RSS-210 section 7.1.4	PASS

3.1. Test performed by:

I. Arbitman



3.2. Test Report prepared by:

M. Reuben



3.3. Test Report Approved by:

Mr. Samuel Cohen EMC Lab. Manager



4. E.U.T INFORMATION

4.1. E.U.T description

WipAir_X000 is WaveIP's wireless point-to-point and point to multi point broadband wireless communication system. The system uses dual or single radio channels, (defined by software) in the 5GHz bands, utilizing 5,10,20,40 MHz channels, OFDM modulation, and TDD Spectrum Management.

The total conducted output power is up to 1Watt (sum of both channels), with dynamic range of ~ 45 dB.

WipAir4000 uses single RF channel (SISO)

WipAir8000 uses two RF ports (MIMO), hence WipAir 8000 was tested.

Antennas used during tests:

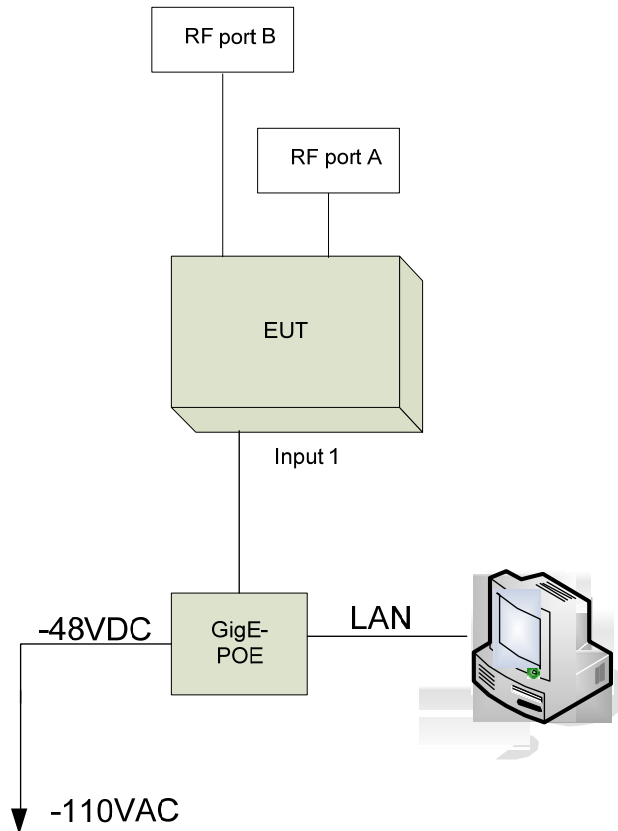
Type	MFG	MODLE	GAIN
Flat panel, dual polarization, integrated	WaveIP	MT-485048/CVH/A	23
Dish dual polarization, detached	WaveIP	DP-5X-285D-005	28.5

EUT Technical characteristics

Transmitter characteristics		Notes
Assigned frequency	5725-5850MHZ	
Operating Frequency range	5730-5845MHZ	5MHz Channel
	5735-5840MHZ	10MHz Channel
	5735-5840MHZ	20MHz Channel
	5745-5830MHZ	40MHz Channel
Antenna Ports	TNC	For detached option only
Modulations type	QPSK, 4QAM, 16QAM, 64QAM	
Multiplexing type	OFDM	
Modulating Test Signal	PRBS	

4.2. E.U.T Test Configuration

E.UT. test configuration is shown in figure below:



4.3. E.U.T Mode of Operation description

5730 MHz – 5845 MHz TRANCEIVER

5. OCCUPIED BANDWIDTH

Equipment Under Test	WipAir 8000/4000
Test Method	FCC New Guidance on Measurements for DTS in section 15.247(a) (2).
Date	08.11.2011
Relative Humidity	40%
Ambient Temperature	25 ⁰ C
Air Pressure	1010 hPa
Test Setup	Figure 1

Testing Engineer: I. Arbitman 

Date 08.11.2011

5.1. Test Results Summary & Conclusions

The E.U.T was found in compliance with Bandwidth of the emission fundamental frequency requirement.

5.2. Limits of bandwidth

The test unit shall meet the limits of Table 1

Table 1: Bandwidth Limits

Assigned Frequency (MHz)	Modulation Envelope Reference Points* (dBc)	Minimum Bandwidth Limits (kHz)
902.0 – 928.0	6.0	500.0
2400.0 – 2483.5		
5725.0 – 5850.0		

*: Attenuation below the peak of modulated carrier.

5.3. Test Instrumentation and Equipment

Table 2: Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	E7405A	Agilent	11.05.2012

5.4. Procedure

The Bandwidth is determined at the point 20db down from the modulated carrier, while the spectrum analyzer was set to “max hold” and VBW – 10 KHz.

5.5. Test Setup

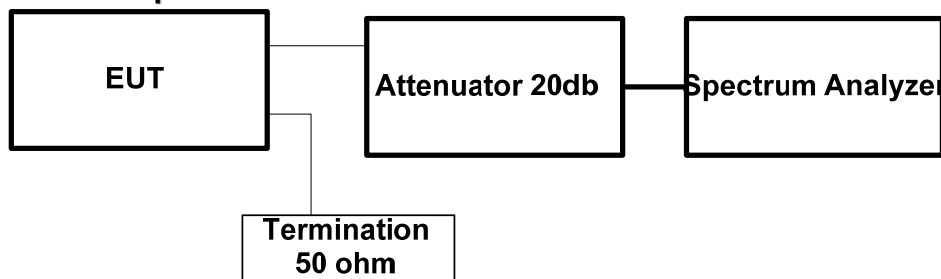


Figure 1: Measurement test setup

5.6. Results for Port A

Table 3: 5 MHz Bandwidth Test Result

Frequency (MHz)	Bandwidth (kHz)	Minimum Bandwidth Limits (kHz)	Plot No	PASS/FAIL
Low - 5730	4490.0	500.0	1	Pass
Middle - 5785	4512.0	500.0	2	Pass
High - 5845	4490.0	500.0	3	Pass

Table 4: 10 MHz Bandwidth Test Result

Frequency (MHz)	Bandwidth (kHz)	Minimum Bandwidth Limits (kHz)	Plot No	PASS/FAIL
Low - 5735	8948.0	500.0	4	Pass
Middle - 5785	8931.0	500.0	5	Pass
High - 5840	8941.0	500.0	6	Pass

Table 5: 20 MHz Bandwidth Test Result

Frequency (MHz)	Bandwidth (kHz)	Minimum Bandwidth Limits (kHz)	Plot No	PASS/FAIL
Low - 5735	17844.0	500.0	7	Pass
Middle - 5785	17822.0	500.0	8	Pass
High - 5840	17861.0	500.0	9	Pass

Table 6: 40 MHz Bandwidth Test Result

Frequency (MHz)	Bandwidth (kHz)	Minimum Bandwidth Limits (kHz)	Plot No	PASS/FAIL
Low - 5745	36628.0	500.0	10	Pass
Middle - 5785	36360.0	500.0	11	Pass
High - 5830	36290.0	500.0	12	Pass

5.7. Results for Port B

Table 7: 5 MHz Bandwidth Test Result

Frequency (MHz)	Bandwidth (kHz)	Minimum Bandwidth Limits (kHz)	Plot No	PASS/FAIL
Low - 5730	4499.0	500.0	13	Pass
Middle - 5785	4477.0	500.0	14	Pass
High - 5845	4492.0	500.0	15	Pass

Table 8: 10 MHz Bandwidth Test Result

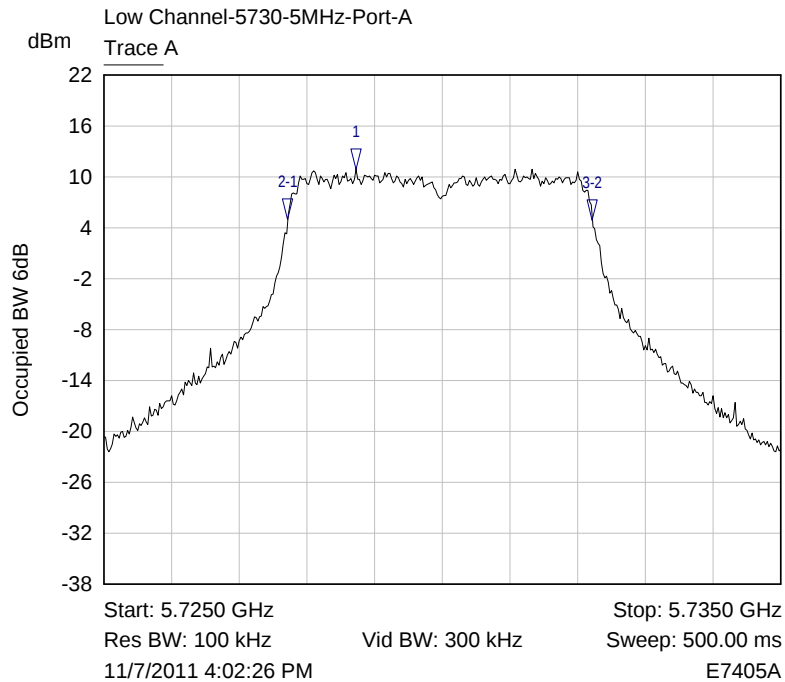
Frequency (MHz)	Bandwidth (kHz)	Minimum Bandwidth Limits (kHz)	Plot No	PASS/FAIL
Low - 5735	8948.0	500.0	16	Pass
Middle - 5785	8939.0	500.0	17	Pass
High - 5840	8944.0	500.0	18	Pass

Table 9: 20 MHz Bandwidth Test Result

Frequency (MHz)	Bandwidth (kHz)	Minimum Bandwidth Limits (kHz)	Plot No	PASS/FAIL
Low - 5735	17872.0	500.0	19	Pass
Middle - 5785	17860.0	500.0	20	Pass
High - 5840	17861.0	500.0	21	Pass

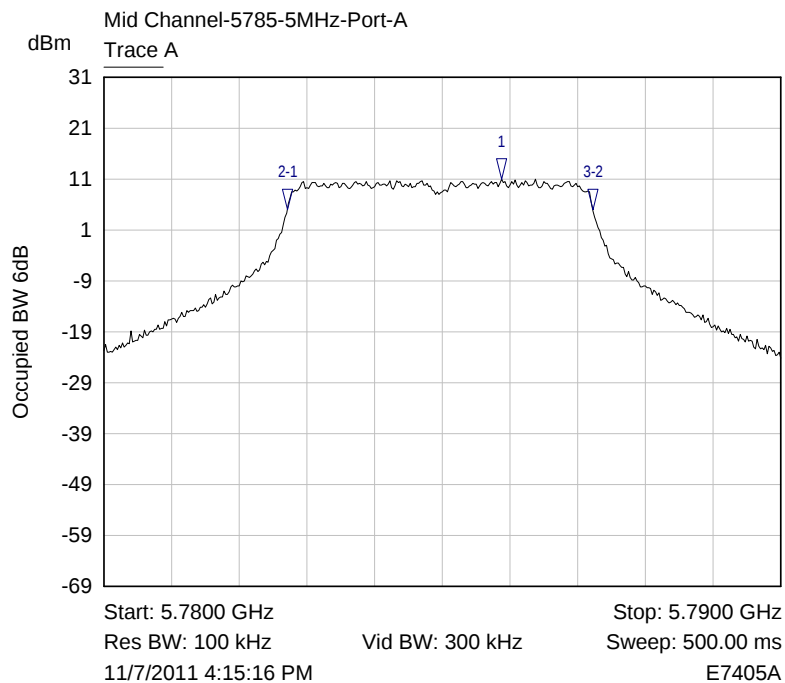
Table 10: 40 MHz Bandwidth Test Result

Frequency (MHz)	Bandwidth (kHz)	Minimum Bandwidth Limits (kHz)	Plot No	PASS/FAIL
Low - 5745	36290.0	500.0	22	Pass
Middle - 5785	36230.0	500.0	23	Pass
High - 5830	36524.0	500.0	24	Pass



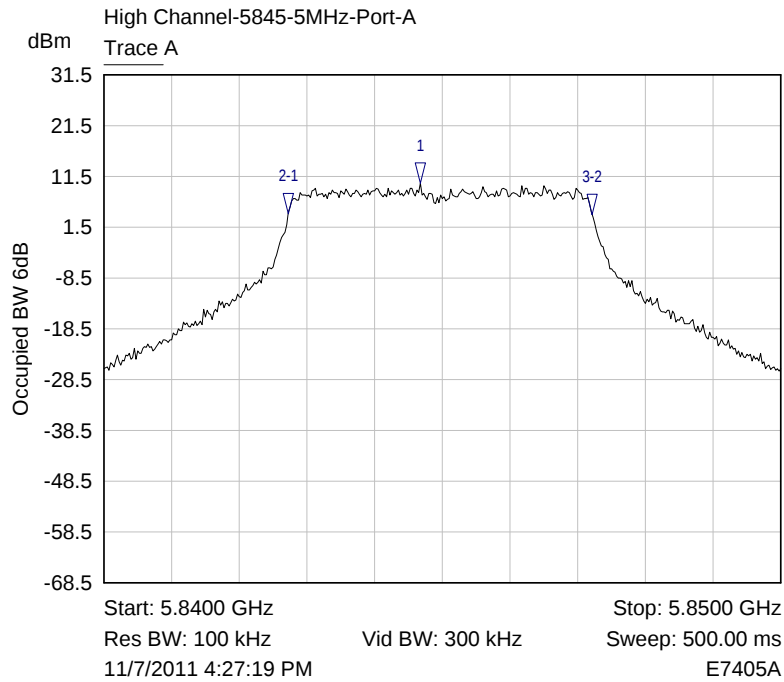
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7287 GHz	10.94 dBm	
2-1 ▽	Trace A	-1.0070 MHz	-5.99 dB	
3-2 ▽	Trace A	4.4990 MHz	-0.02 dB	Limit=500KHz

Plot Occupied BW 6dB/ 1



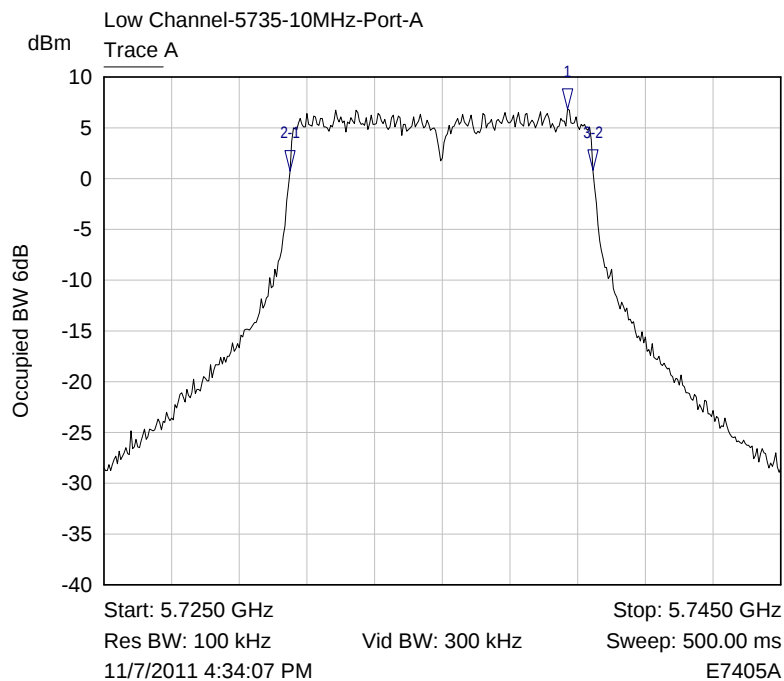
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7859 GHz	10.92 dBm	
2-1 ▽	Trace A	-3.1670 MHz	-6.01 dB	
3-2 ▽	Trace A	4.5120 MHz	0.05 dB	Limit=500KHz

Plot Occupied BW 6dB/ 2



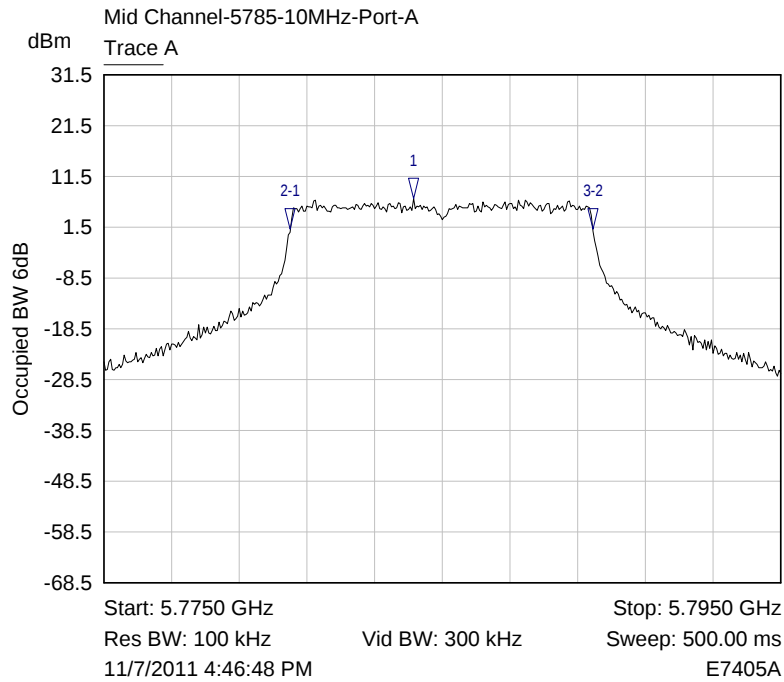
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8447 GHz	10.11 dBm	
2-1 ▽	Trace A	-1.9540 MHz	-5.98 dB	
3-2 ▽	Trace A	4.4900 MHz	-0.00 dB	Limit=500KHz

Plot Occupied BW 6dB/ 3



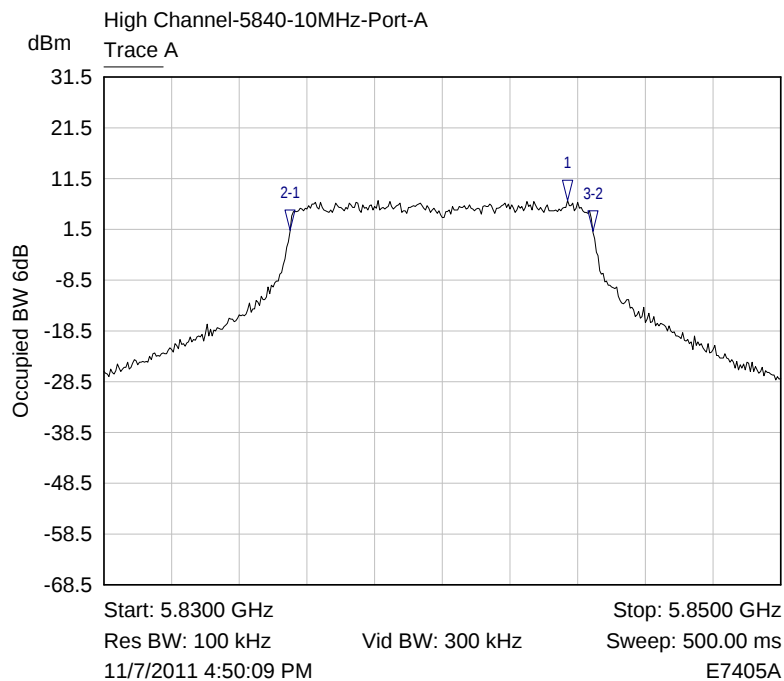
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7387 GHz	6.82 dBm	
2-1 ▽	Trace A	-8.2000 MHz	-6.04 dB	
3-2 ▽	Trace A	8.9480 MHz	0.04 dB	Limit=500KHz

Plot Occupied BW 6dB/ 4



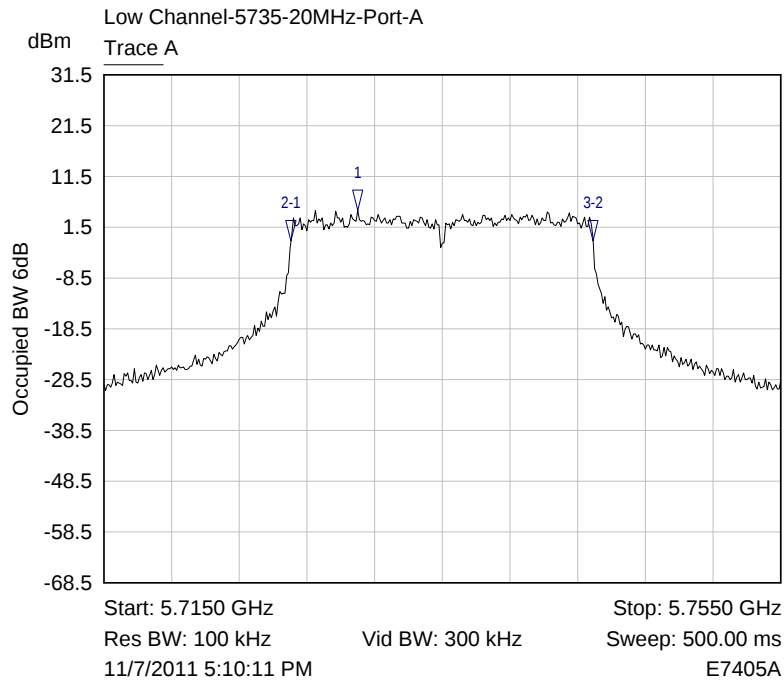
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7842 GHz	7.13 dBm	
2-1 ▽	Trace A	-3.6380 MHz	-6.01 dB	
3-2 ▽	Trace A	8.9310 MHz	0.04 dB	Limit=500KHz

Plot Occupied BW 6dB/ 5



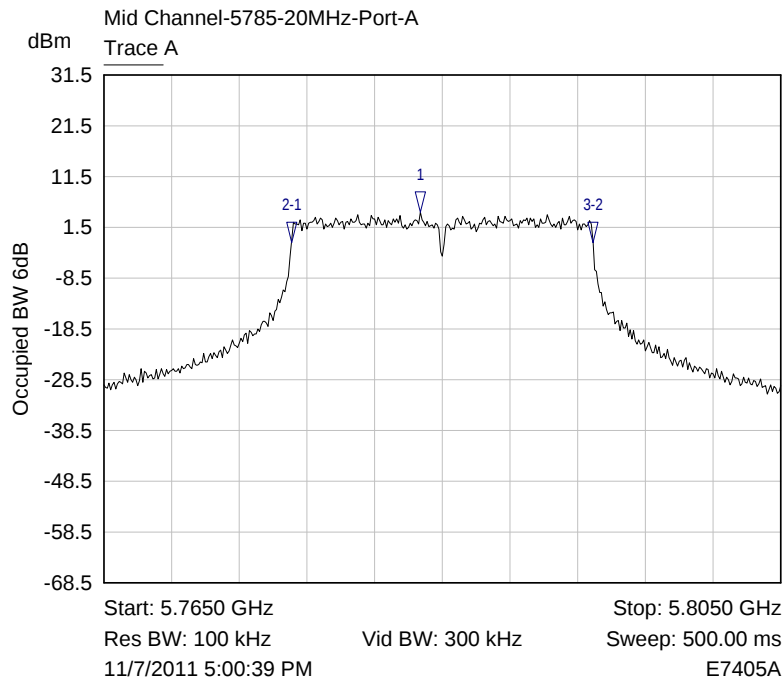
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8437 GHz	7.19 dBm	
2-1 ▽	Trace A	-8.1980 MHz	-5.99 dB	
3-2 ▽	Trace A	8.9410 MHz	0.01 dB	Limit=500KHz

Plot Occupied BW 6dB/ 6



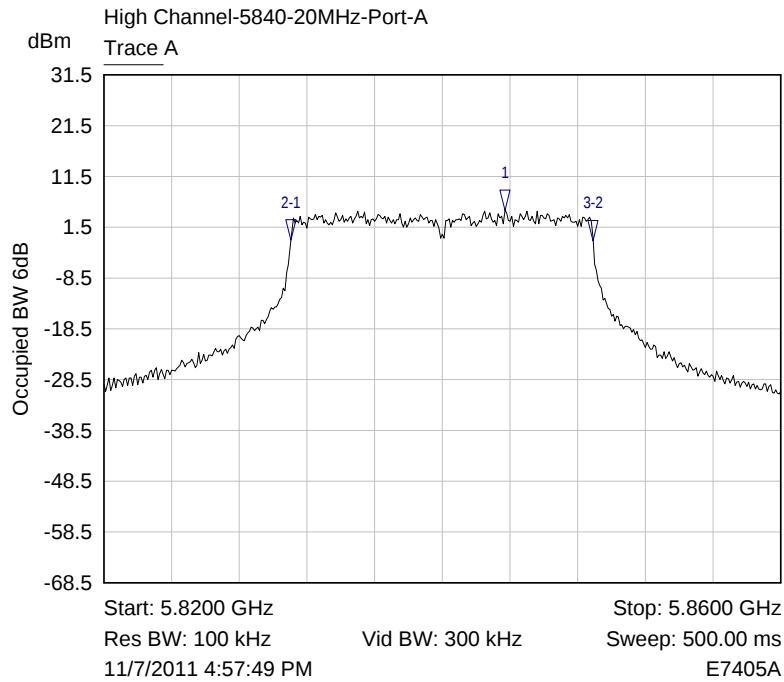
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7300 GHz	4.91 dBm	
2-1 ▽	Trace A	-3.9370 MHz	-6.01 dB	
3-2 ▽	Trace A	17.8440 MHz	-0.01 dB	Limit=500KHz

Plot Occupied BW 6dB/ 7



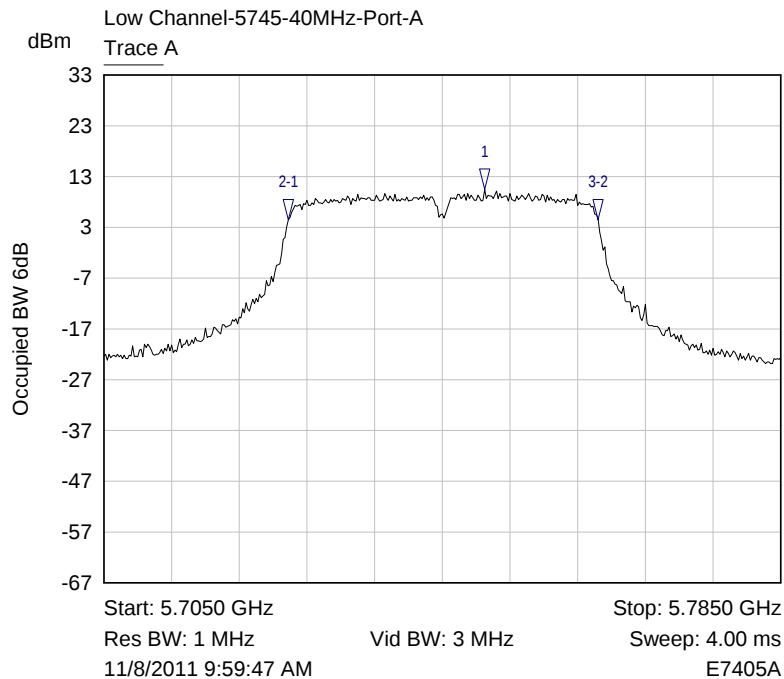
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7837 GHz	4.51 dBm	
2-1 ▽	Trace A	-7.6170 MHz	-5.99 dB	
3-2 ▽	Trace A	17.8220 MHz	0.01 dB	Limit=500KHz

Plot Occupied BW 6dB/ 8



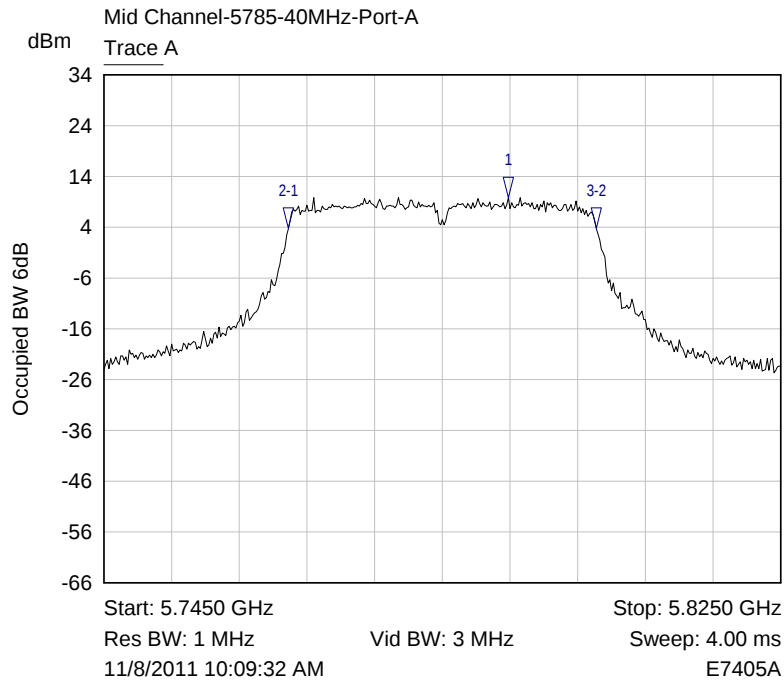
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8437 GHz	4.89 dBm	
2-1 ▽	Trace A	-12.6490 MHz	-6.01 dB	
3-2 ▽	Trace A	17.8610 MHz	0.01 dB	Limit=500KHz

Plot Occupied BW 6dB/ 9



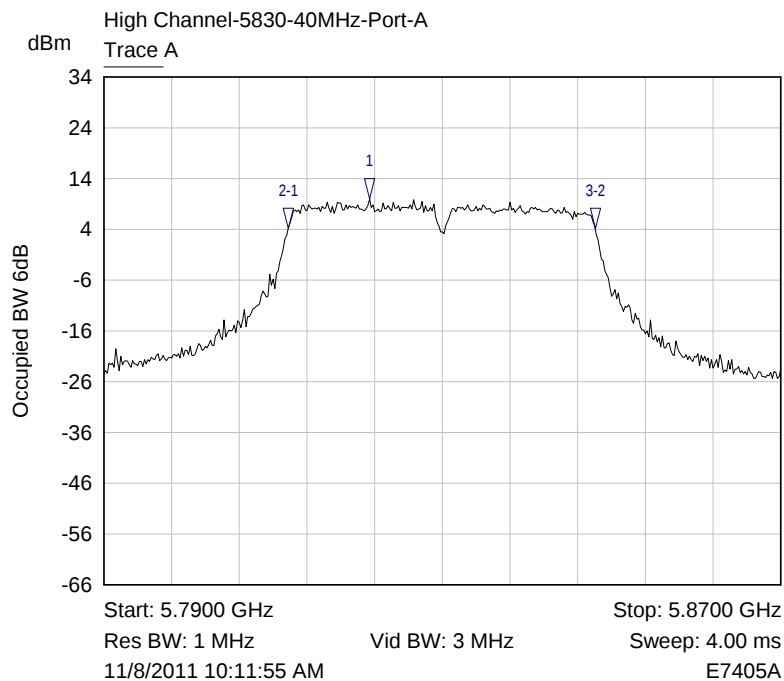
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7500 GHz	10.44 dBm	
2-1 ▽	Trace A	-23.2000 MHz	-5.99 dB	
3-2 ▽	Trace A	36.6280 MHz	0.00 dB	Limit=500KHz

Plot Occupied BW 6dB/ 10



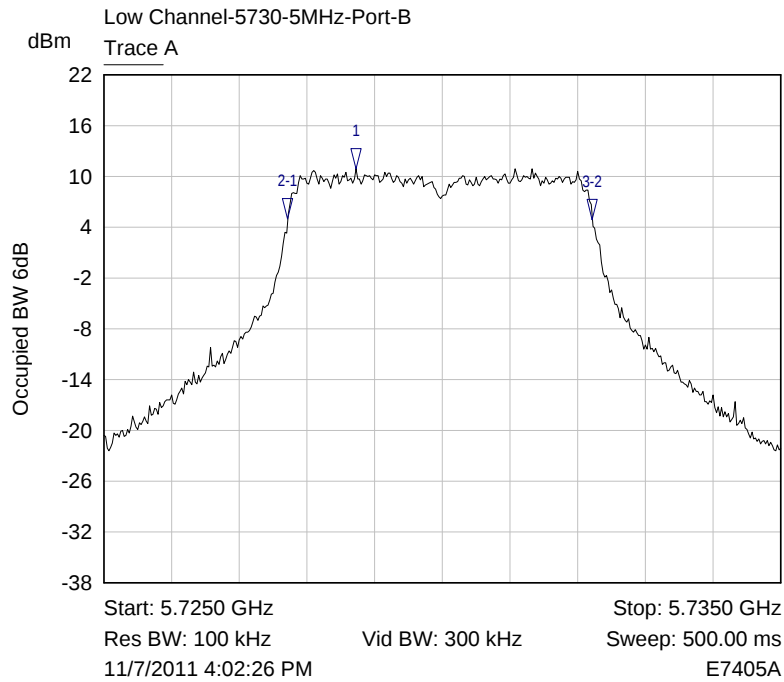
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7928 GHz	9.89 dBm	
2-1 ▽	Trace A	-25.9810 MHz	-6.00 dB	
3-2 ▽	Trace A	36.3600 MHz	-0.01 dB	Limit=500KHz

Plot Occupied BW 6dB/ 11



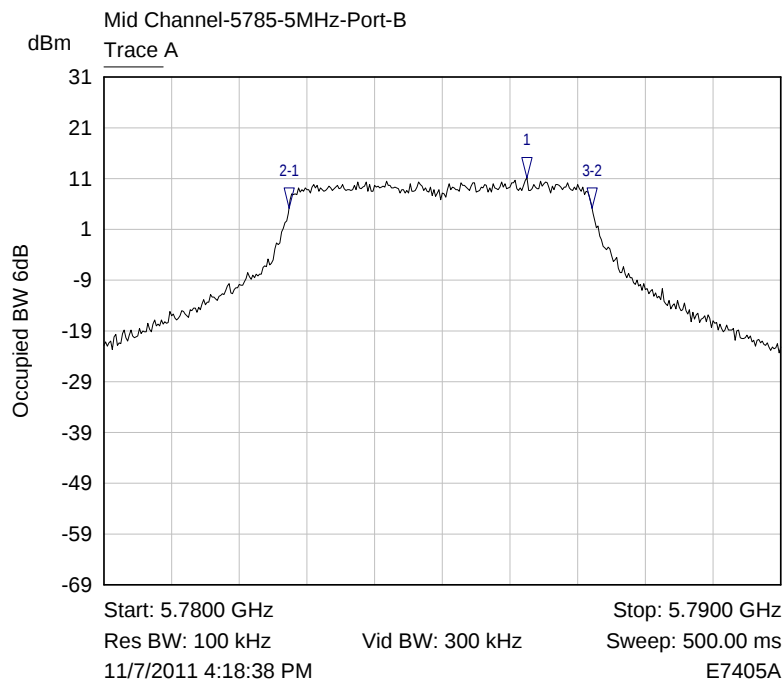
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8214 GHz	10.08 dBm	
2-1 ▽	Trace A	-9.6270 MHz	-6.00 dB	
3-2 ▽	Trace A	36.2900 MHz	-0.01 dB	Limit=500KHz

Plot Occupied BW 6dB/ 12



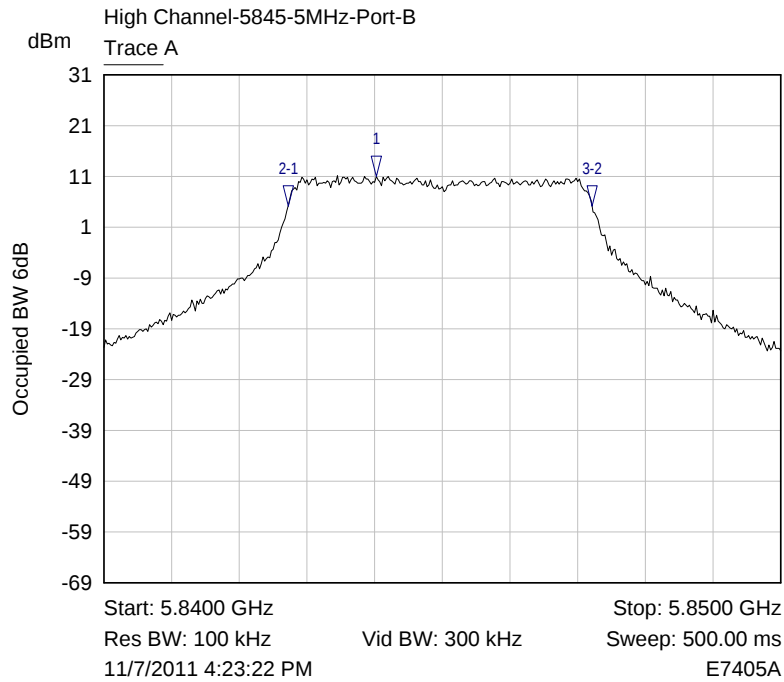
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7287 GHz	10.94 dBm	
2-1 ▽	Trace A	-1.0070 MHz	-5.99 dB	
3-2 ▽	Trace A	4.4990 MHz	-0.02 dB	Limit=500KHz

Plot Occupied BW 6dB/ 13



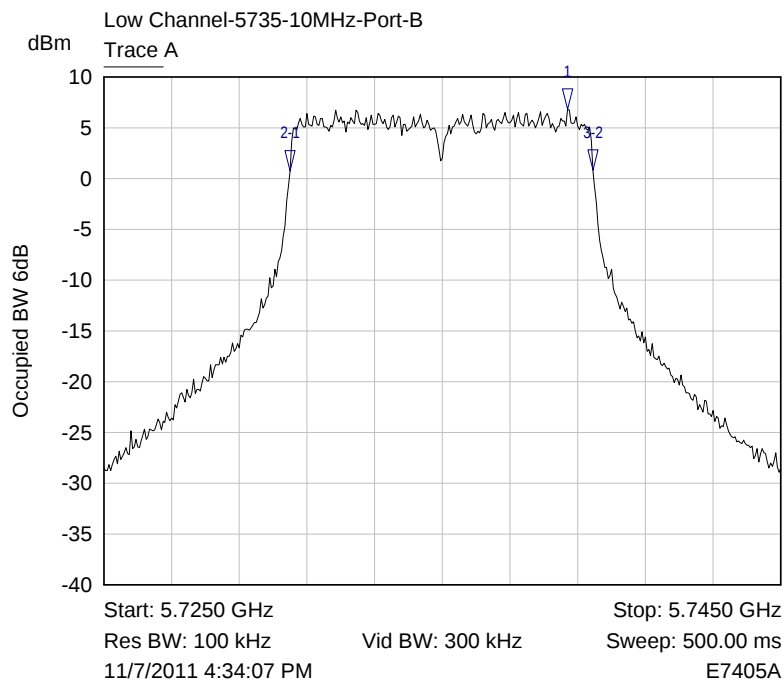
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7863 GHz	11.17 dBm	
2-1 ▽	Trace A	-3.5160 MHz	-6.05 dB	
3-2 ▽	Trace A	4.4770 MHz	0.03 dB	Limit=500KHz

Plot Occupied BW 6dB/ 14



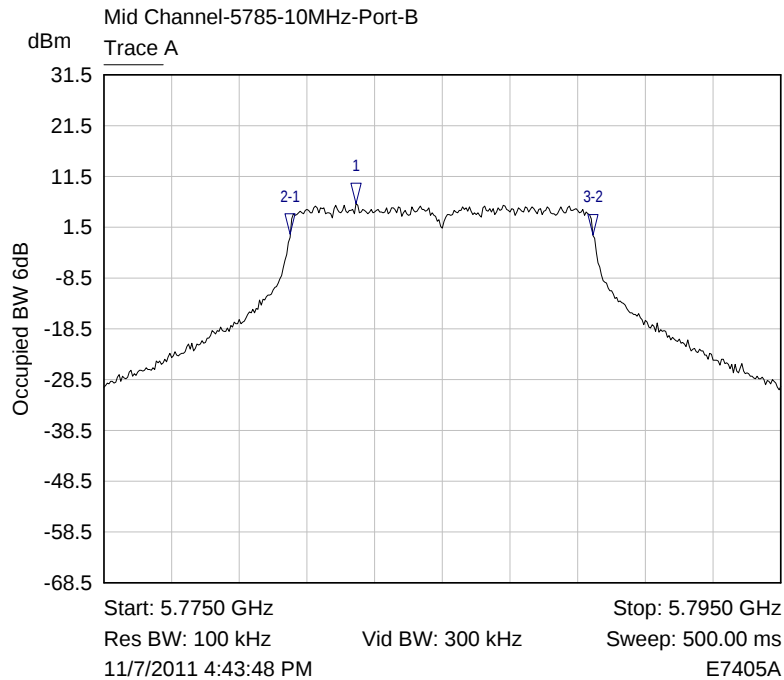
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8440 GHz	11.07 dBm	
2-1 ▽	Trace A	-1.3050 MHz	-6.02 dB	
3-2 ▽	Trace A	4.4920 MHz	0.06 dB	Limit=500KHz

Plot Occupied BW 6dB/ 15



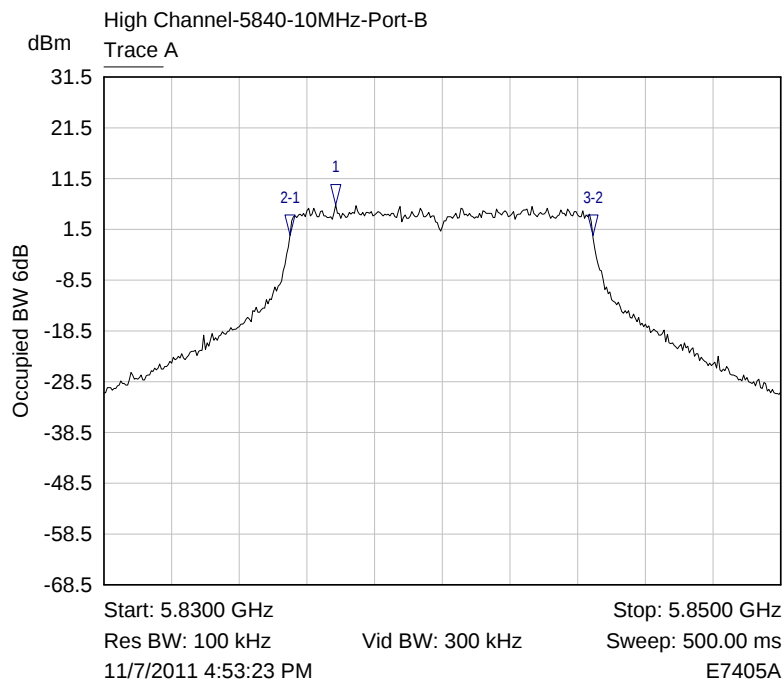
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7387 GHz	6.82 dBm	
2-1 ▽	Trace A	-8.2000 MHz	-6.04 dB	
3-2 ▽	Trace A	8.9480 MHz	0.04 dB	Limit=500KHz

Plot Occupied BW 6dB/ 16



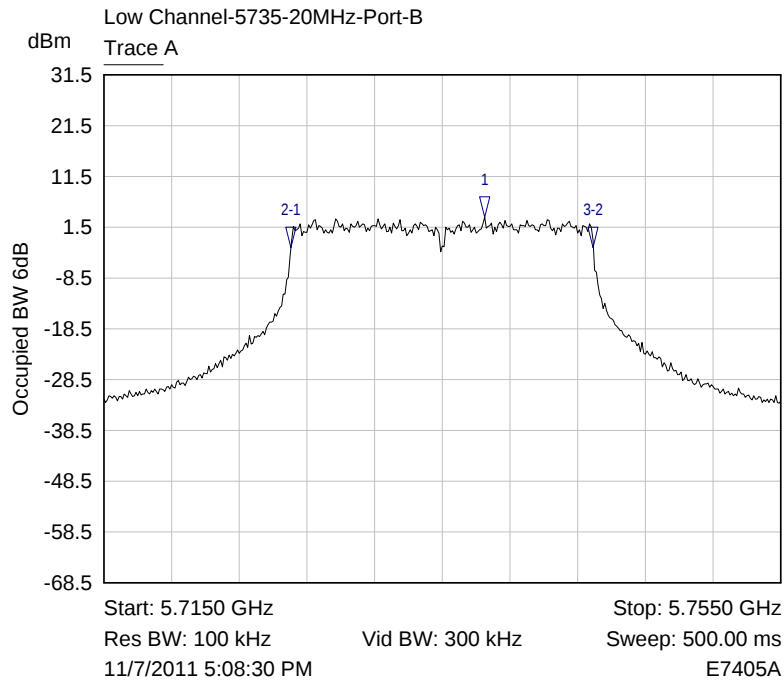
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7825 GHz	6.11 dBm	
2-1 ▽	Trace A	-1.9420 MHz	-5.98 dB	
3-2 ▽	Trace A	8.9390 MHz	-0.03 dB	Limit=500KHz

Plot Occupied BW 6dB/ 17



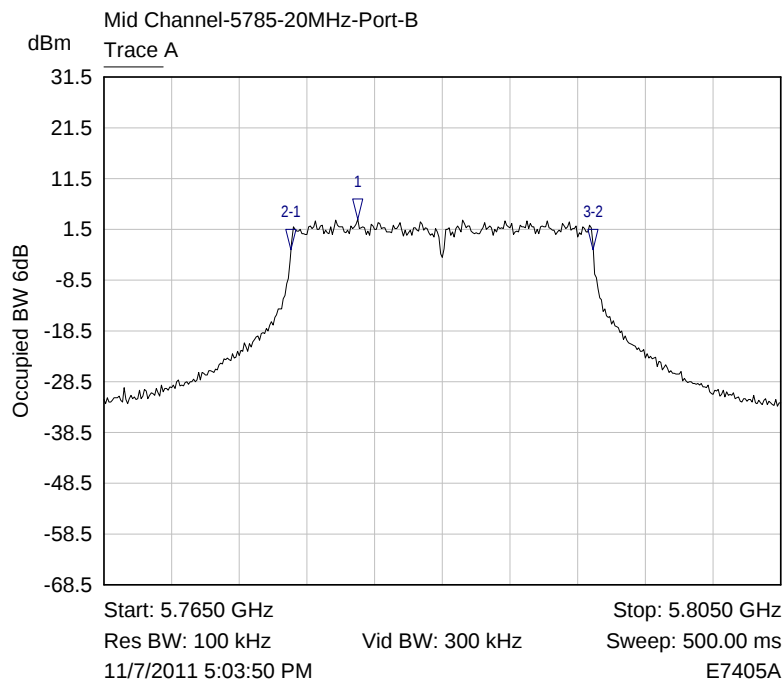
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8369 GHz	6.40 dBm	
2-1 ▽	Trace A	-1.3520 MHz	-5.99 dB	
3-2 ▽	Trace A	8.9440 MHz	-0.02 dB	Limit=500KHz

Plot Occupied BW 6dB/ 18



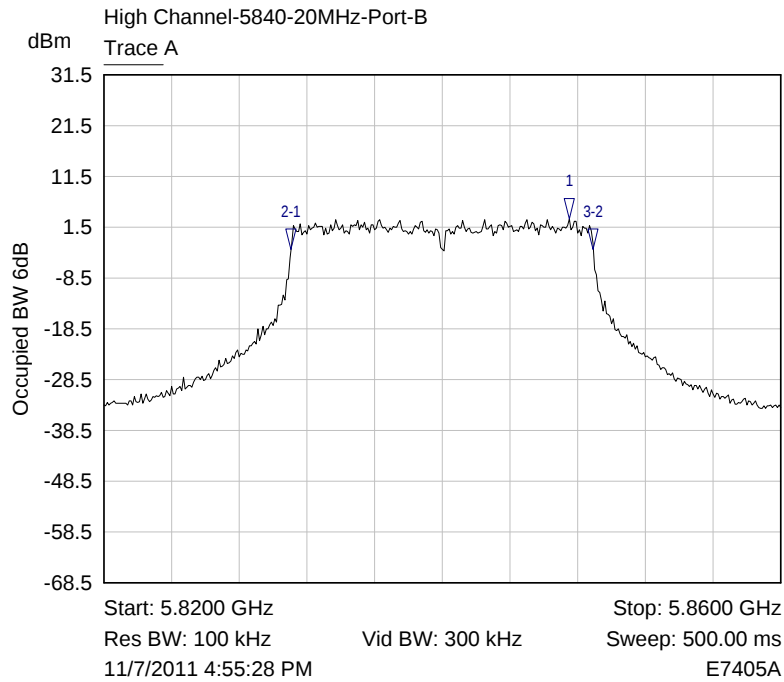
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7375 GHz	3.49 dBm	
2-1 ▽	Trace A	-11.4470 MHz	-5.99 dB	
3-2 ▽	Trace A	17.8720 MHz	-0.02 dB	Limit=500KHz

Plot Occupied BW 6dB/ 19



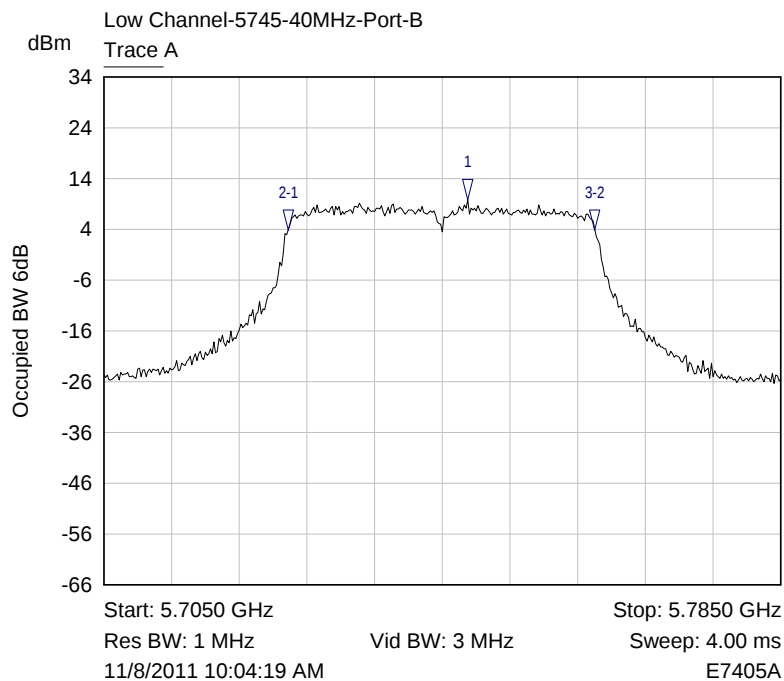
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7800 GHz	3.52 dBm	
2-1 ▽	Trace A	-3.9430 MHz	-6.02 dB	
3-2 ▽	Trace A	17.8600 MHz	-0.03 dB	Limit=500KHz

Plot Occupied BW 6dB/ 20



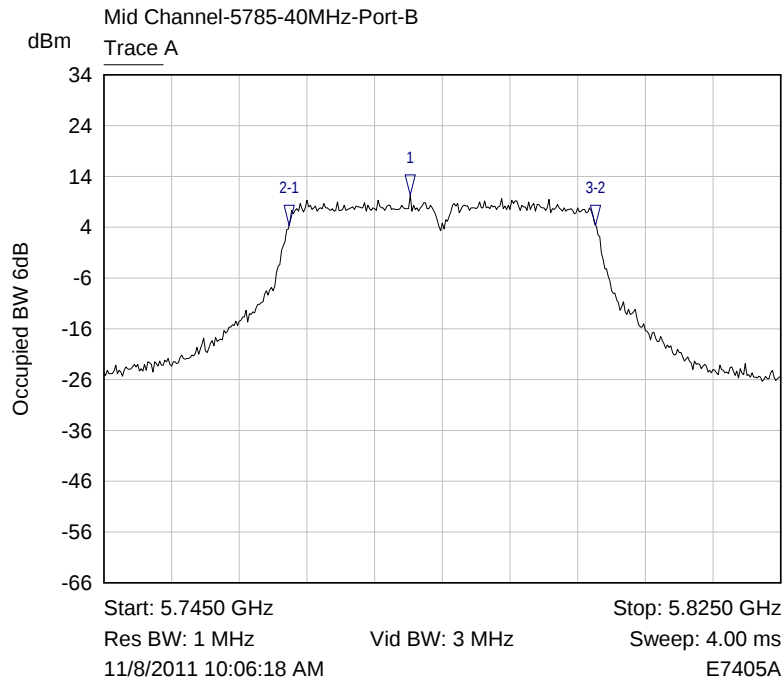
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8475 GHz	3.14 dBm	
2-1 ▽	Trace A	-16.4390 MHz	-6.01 dB	
3-2 ▽	Trace A	17.8610 MHz	0.02 dB	Limit=500KHz

Plot Occupied BW 6dB/ 21



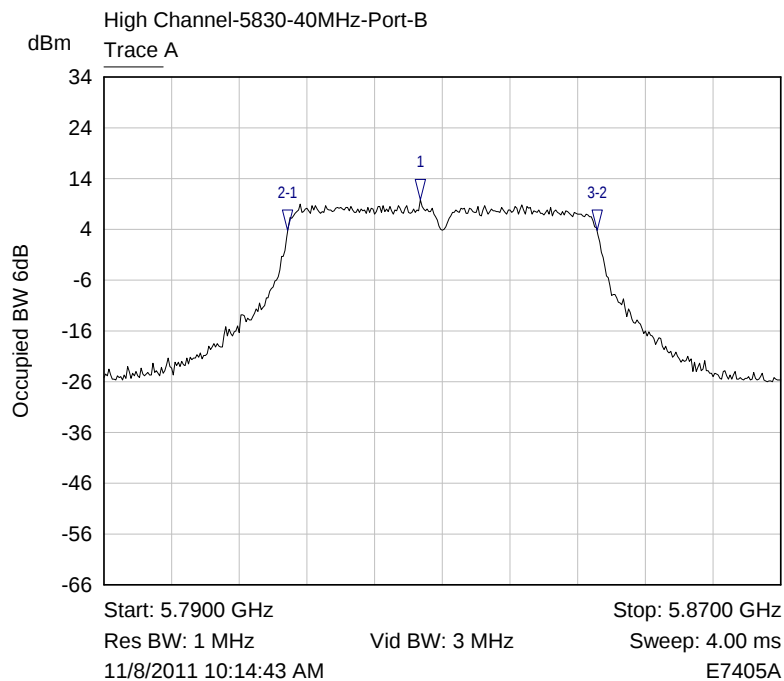
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7480 GHz	9.85 dBm	
2-1 ▽	Trace A	-21.2450 MHz	-6.01 dB	
3-2 ▽	Trace A	36.2900 MHz	0.01 dB	Limit=500KHz

Plot Occupied BW 6dB/ 22



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7812 GHz	10.35 dBm	
2-1 ▽	Trace A	-14.3170 MHz	-6.01 dB	
3-2 ▽	Trace A	36.2300 MHz	-0.02 dB	Limit=500KHz

Plot Occupied BW 6dB/ 23



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8274 GHz	9.89 dBm	
2-1 ▽	Trace A	-15.6590 MHz	-5.99 dB	
3-2 ▽	Trace A	36.5240 MHz	-0.01 dB	Limit=500KHz

Plot Occupied BW 6dB/ 24

6. PEAK OUTPUT POWER

Equipment Under Test	WipAir 8000/4000
Test Method	FCC New Guidance on Measurements for DTS in section 15.247(b), Option 2, Method #3.
Date	16.04.2012
Relative Humidity	40%
Ambient Temperature	25 ⁰ C
Air Pressure	1010 hPa
Test Setup	Figure 2

Testing Engineer: I. Arbitman



Date 16.04.2012

6.1. Test Results Summary & Conclusions

The E.U.T was found in compliance with Peak Output Power requirements

6.2. Limits of Peak Output Power according to 15.247 (b)

The test unit shall meet the limits of Table 11.

Table 11: Limits for Fundamental

Assigned Frequency (MHz)	Modulation Envelope Reference Points* (dBi)	Peak Output Power	
		W	dBm
902.0 – 928.0	6.0	1.0	30.0
2400.0 – 2483.5			
5725.0 – 5850.0			

*: If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power limit shall be reduced below the .stated value as follows:

- By 1 dB for every 3 dB that the directional gain of antenna exceeds 6 dBi for fixed point to point transmitters operate in 2400 – 2483.5 MHz band.
- Without any corresponding reduction for fixed-point-to-point transmitters operate in 5725 – 5850 MHz band;
- By the amount in dB that the directional gain of antenna exceeds 6 dBi for the rest of transmitters.

6.3. Test Instrumentation and Equipment

Table 12: Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	MXA-N9020	Agilent	04.04.2013
30db attenuator	769-30	Narda	15.11.2013

6.4. Test Procedure

The EUT was set to transmit at 100% duty cycle, at highest transmitting power.

Power measurements were performed for top, middle and bottom frequencies, for each channel, BW 5, 10, 20 and 40 MHz.

The EUT was connected to the spectrum analyzer through an appropriate attenuator and accounted for cable loss in the settings.

Note: The 30dB attenuator has been considered in the measurements results.

The EBW of the EUT is larger than the largest available RBW of the spectrum analyzer, therefore, Peak power was measured at 1 MHz resolution BW.

Power factor correction was added to the SA readings as follows:

$10\log 26\text{dBc}$ Emission BW

Total output power was calculated as a sum of 'Peak output power Channel A + Peak output power Channel B'.

6.5. Test Setup

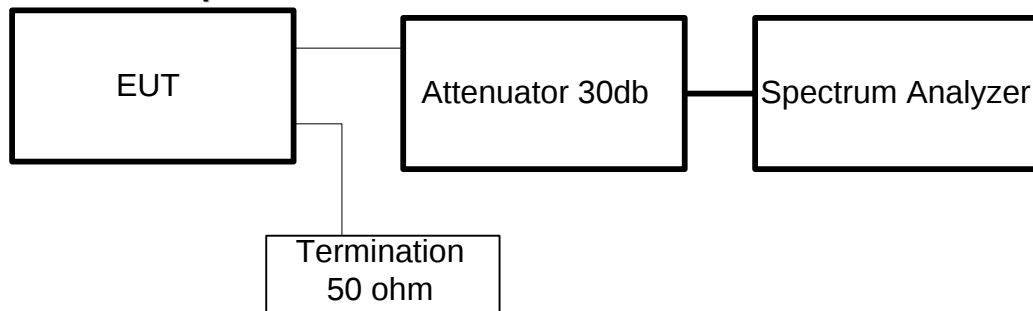


Figure 2: Field strength of fundamental test setup

6.6. Test Results for Port A

Table 13: 5 MHz BW Test Results

Frequency (MHz)	Measured Peak Output Power (dBm)	Margin (dBm)	Limit (dBm)	Plot Reference	Pass/Fail
5730	26.762	-3.238	30	1	Pass
5785	26.789	-3.211	30	2	Pass
5845	26.200	-3.800	30	3	Pass

Table 14: 10 MHz BW Test Results

Frequency (MHz)	Measured Peak Output Power (dBm)	Margin (dBm)	Limit (dBm)	Plot Reference	Pass/Fail
5735	26.697	-3.303	30	4	Pass
5785	26.970	-3.030	30	5	Pass
5840	27.095	-2.905	30	6	Pass

Table 15: 20 MHz BW Test Results

Frequency (MHz)	Measured Peak Output Power (dBm)	Margin (dBm)	Limit (dBm)	Plot Reference	Pass/Fail
5735	26.819	-3.181	30	7	Pass
5785	26.600	-3.400	30	8	Pass
5840	26.932	-3.068	30	9	Pass

Table 16: 40 MHz BW Test Results

Frequency (MHz)	Measured Peak Output Power (dBm)	Margin (dBm)	Limit (dBm)	Plot Reference	Pass/Fail
5745	26.312	-3.688	30	10	Pass
5785	26.984	-3.016	30	11	Pass
5830	26.580	-3.420	30	12	Pass

6.7. Test Results for Port B

Table 17: 5 MHz BW Test Results

Frequency (MHz)	Measured Peak Output Power (dBm)	Margin (dBm)	Limit (dBm)	Plot Reference	Pass/Fail
5730	26.619	-3.381	30	13	Pass
5785	26.714	-3.286	30	14	Pass
5845	26.568	-3.432	30	15	Pass

Table 18: 10 MHz BW Test Results

Frequency (MHz)	Measured Peak Output Power (dBm)	Margin (dBm)	Limit (dBm)	Plot Reference	Pass/Fail
5735	26.943	-3.057	30	16	Pass
5785	26.567	-3.433	30	17	Pass
5840	26.708	-3.292	30	18	Pass

Table 19: 20 MHz BW Test Results

Frequency (MHz)	Measured Peak Output Power (dBm)	Margin (dBm)	Limit (dBm)	Plot Reference	Pass/Fail
5735	26.824	-3.176	30	19	Pass
5785	26.530	-3.470	30	20	Pass
5840	26.580	-3.420	30	21	Pass

Table 20: 40 MHz BW Test Results

Frequency (MHz)	Measured Peak Output Power (dBm)	Margin (dBm)	Limit (dBm)	Plot Reference	Pass/Fail
5745	26.383	-3.617	30	22	Pass
5785	26.880	-3.120	30	23	Pass
5840	26.814	-3.186	30	24	Pass

6.8. Calculated Results for both ports

Table 21: 5 MHz BW Test Results

Frequency (MHz)	Peak Output Power (dBm)		Calculated Peak Output Power (dBm)	Limit (dBm)	Pass/Fail
	Port A	Port B			
5730	26.762	26.619	29.701	30	Pass
5785	26.789	26.714	29.762	30	Pass
5845	26.200	26.568	29.398	30	Pass

Table 22: 10 MHz BW Test Results

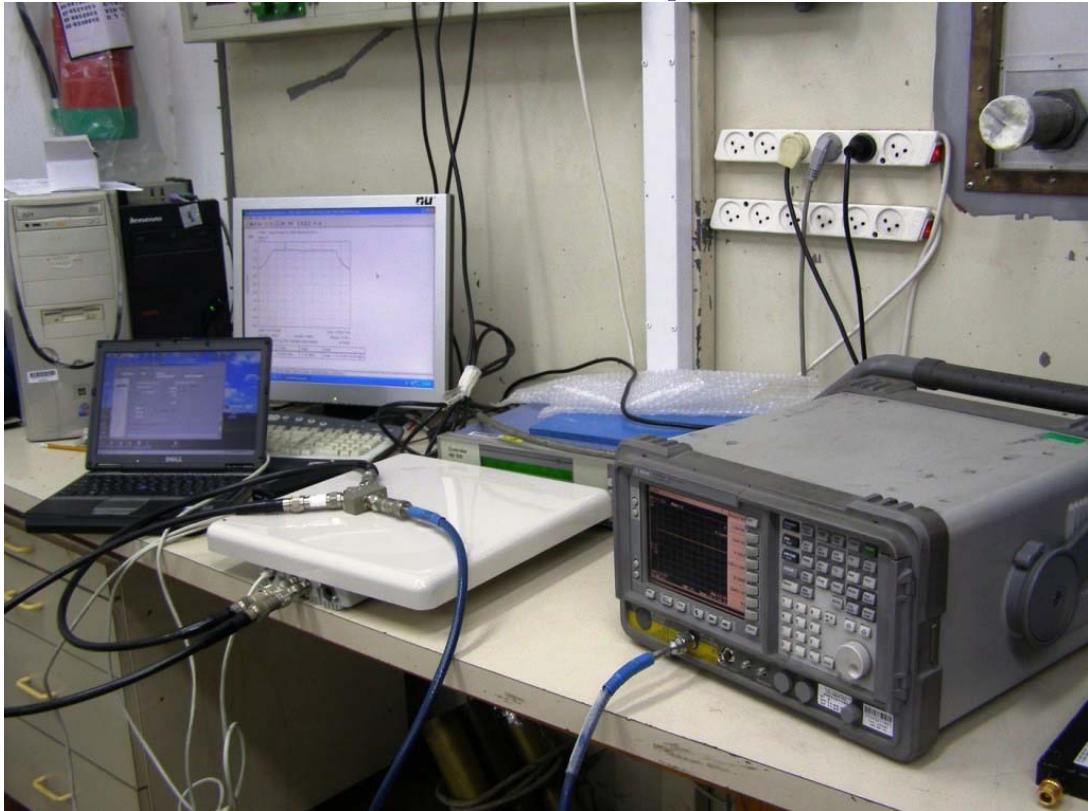
Frequency (MHz)	Peak Output Power (dBm)		Calculated Peak Output Power (dBm)	Limit (dBm)	Pass/Fail
	Port A	Port B			
5730	26.697	26.943	29.832	30	Pass
5785	26.970	26.567	29.783	30	Pass
5845	27.095	26.708	29.916	30	Pass

Table 23: 20 MHz BW Test Results

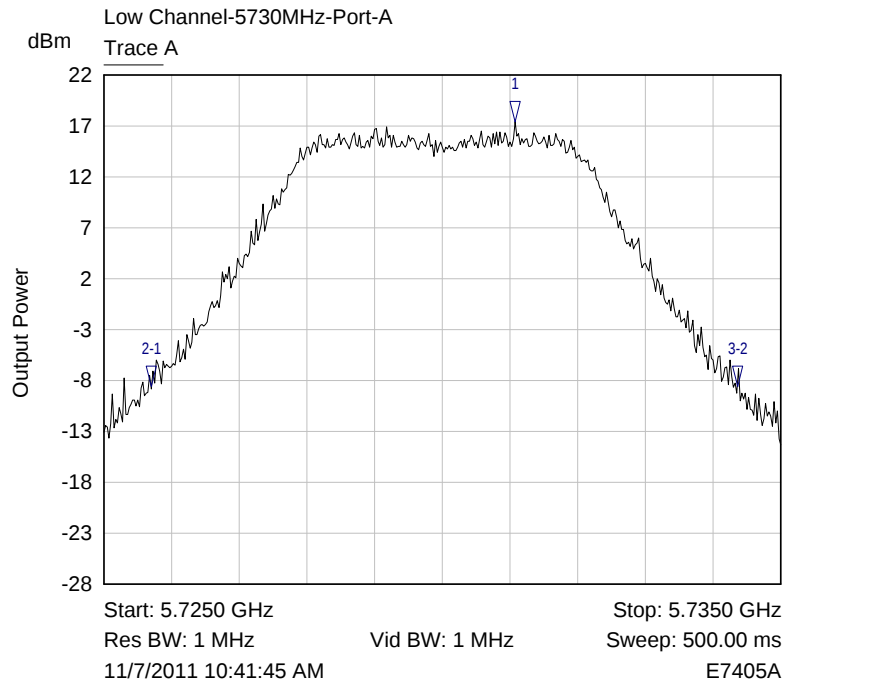
Frequency (MHz)	Peak Output Power (dBm)		Calculated Peak Output Power (dBm)	Limit (mW)	Pass/Fail
	Port A	Port B			
5730	26.819	26.824	29.832	30	Pass
5785	26.600	26.530	29.575	30	Pass
5845	26.932	26.580	29.770	30	Pass

Table 24: 40 MHz BW Test Results

Frequency (MHz)	Peak Output Power (dBm)		Calculated Peak Output Power (dBm)	Limit (mW)	Pass/Fail
	Port A	Port B			
5730	26.312	26.383	29.358	30	Pass
5785	26.984	26.880	29.943	30	Pass
5845	26.580	26.814	29.709	30	Pass

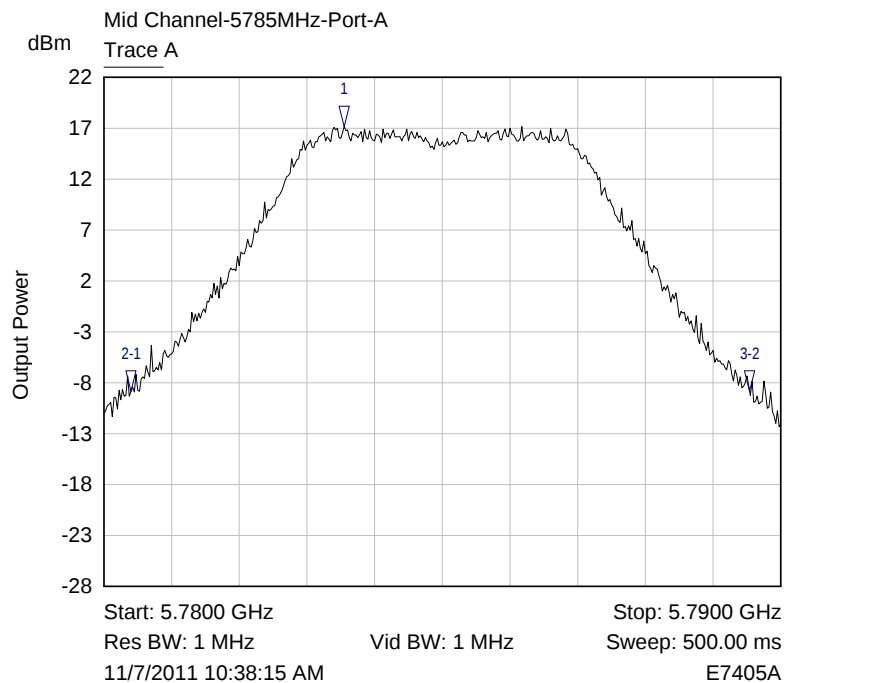


Photograph for Conducted Measurement Test Setup/ 1



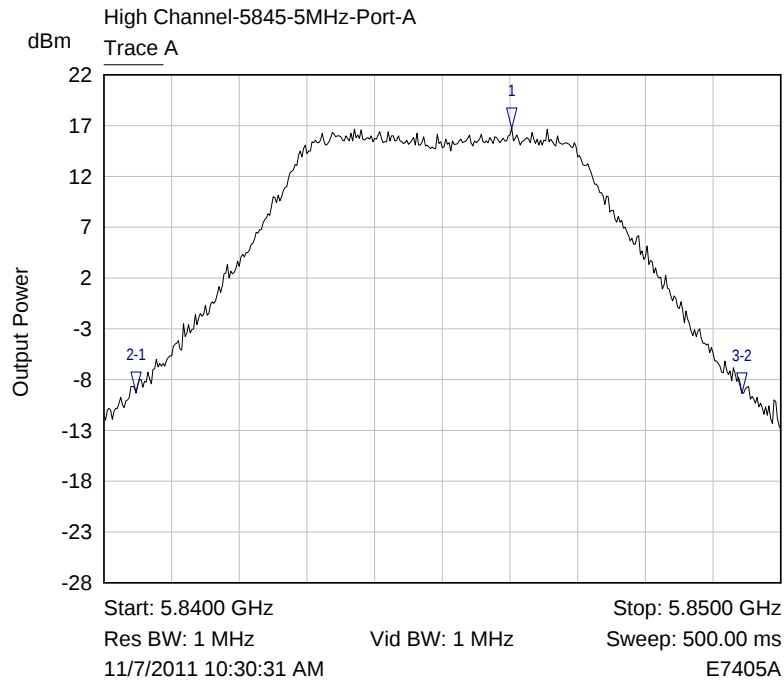
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7311 GHz	17.39 dBm	$P_{out}=17.39+9.372=26.762\text{dBm}$
2-1 ▽	Trace A	-5.3720 MHz	-26.01 dB	
3-2 ▽	Trace A	8.6535 MHz	-0.00 dB	$PCF=10\log 8.975=9.372$

Plot Peak Output Power/ 1



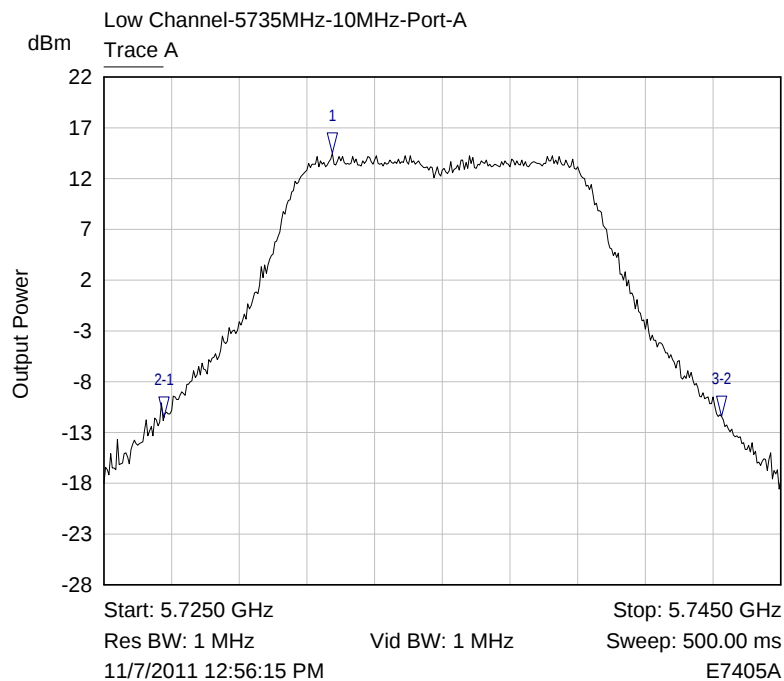
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7836 GHz	17.18 dBm	$P_{out}=17.18+9.609=26.789\text{dBm}$
2-1 ▽	Trace A	-3.1500 MHz	-26.03 dB	
3-2 ▽	Trace A	9.1400 MHz	-0.02 dB	$PCF=10\log 9.14=9.609$

Plot Peak Output Power/ 2



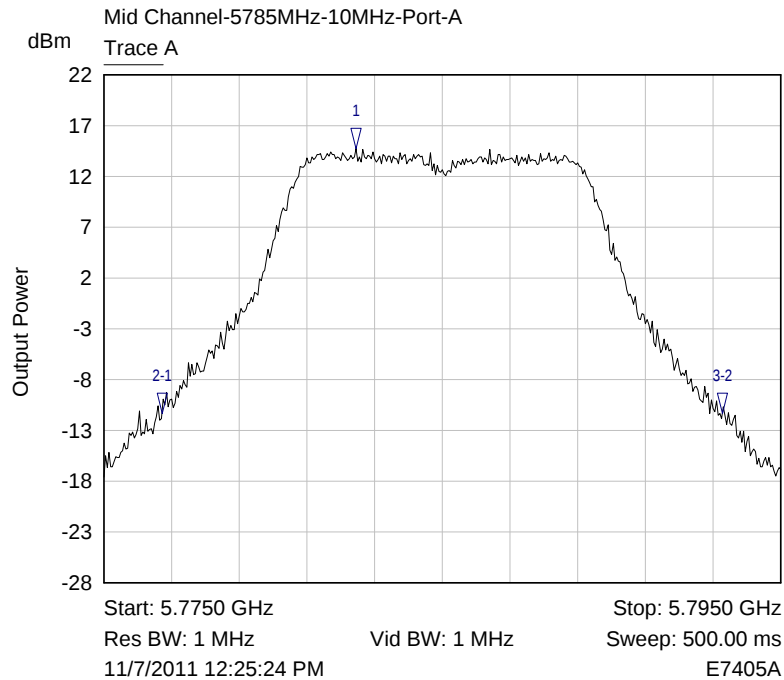
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8460 GHz	16.77 dBm	Pout=16.77+9.52=26.2dBm
2-1 ▽	Trace A	-5.5550 MHz	-25.99 dB	
3-2 ▽	Trace A	8.9550 MHz	-0.09 dB	PCF=10log8.955=9.52

Plot Peak Output Power/ 3



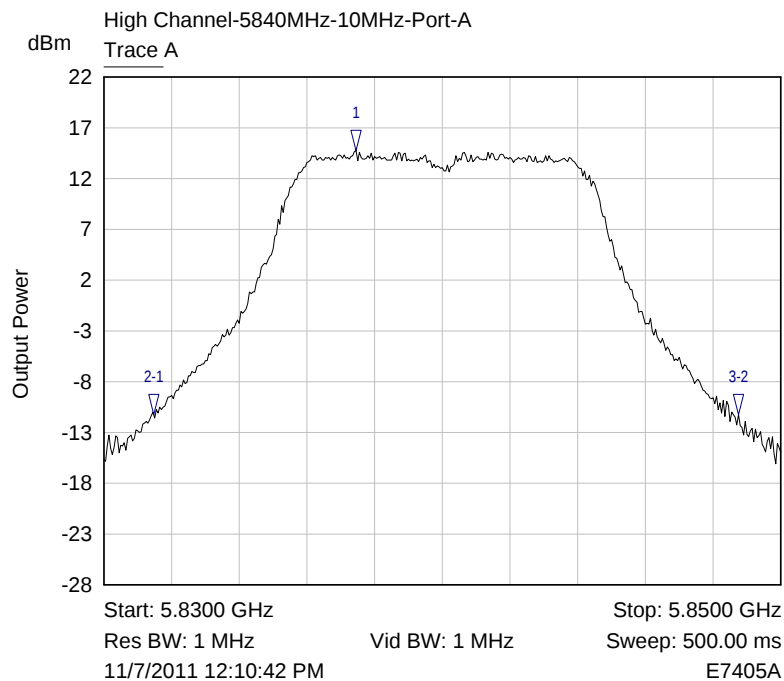
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7318 GHz	14.53 dBm	Pout=14.53+12.167=26.697dBm
2-1 ▽	Trace A	-4.9720 MHz	-25.99 dB	
3-2 ▽	Trace A	16.4720 MHz	0.04 dB	PCF=10log16.472=12.167

Plot Peak Output Power/ 4



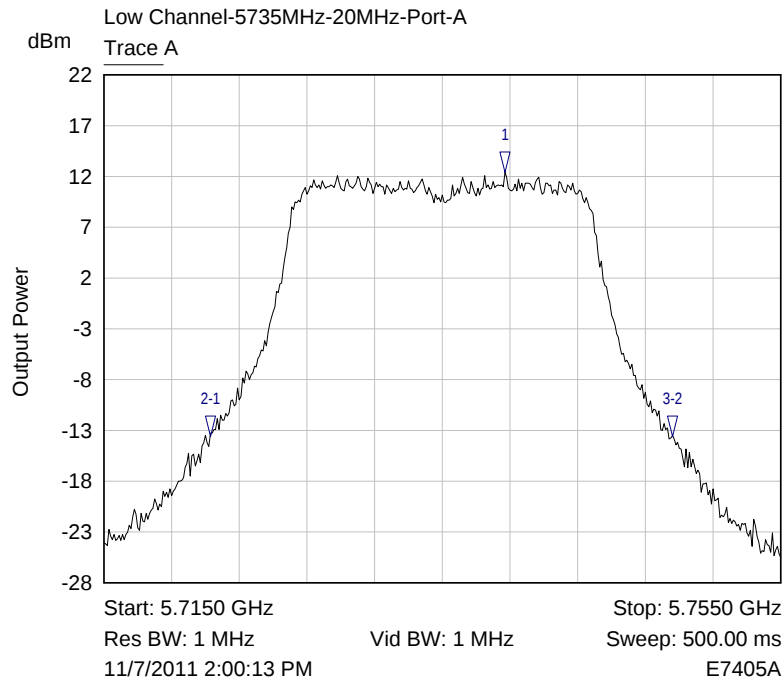
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7825 GHz	14.78 dBm	Pout=14.78+12.19=26.97dBm
2-1 ▽	Trace A	-5.7370 MHz	-26.12 dB	
3-2 ▽	Trace A	16.5570 MHz	-0.03 dB	PCF=10log16.557=12.19

Plot Peak Output Power/ 5



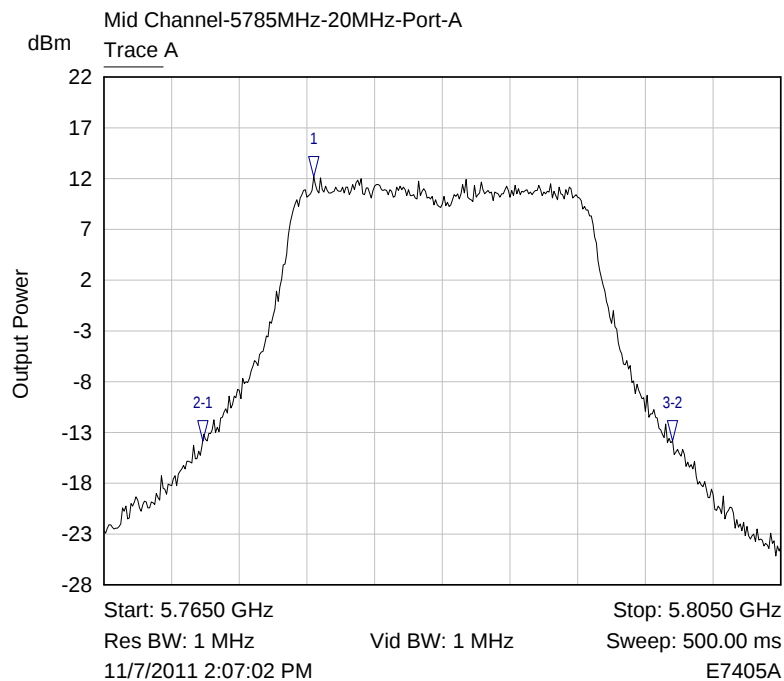
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8375 GHz	14.72 dBm	Pout=14.72+12.375=27.095dBm
2-1 ▽	Trace A	-5.9800 MHz	-25.96 dB	
3-2 ▽	Trace A	17.2800 MHz	-0.04 dB	PCF=10log17.34=12.375

Plot Peak Output Power/ 6



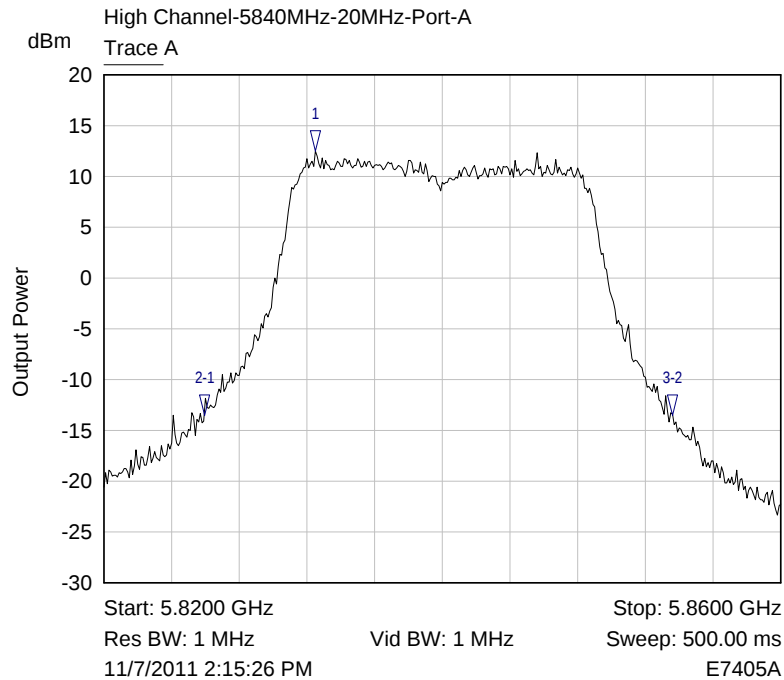
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7387 GHz	12.45 dBm	Pout=12.45+14.369=26.819dBm
2-1 ▽	Trace A	-17.4250 MHz	-26.00 dB	
3-2 ▽	Trace A	27.3450 MHz	-0.01 dB	PCF=10log27.345=14.369

Plot Peak Output Power/ 7



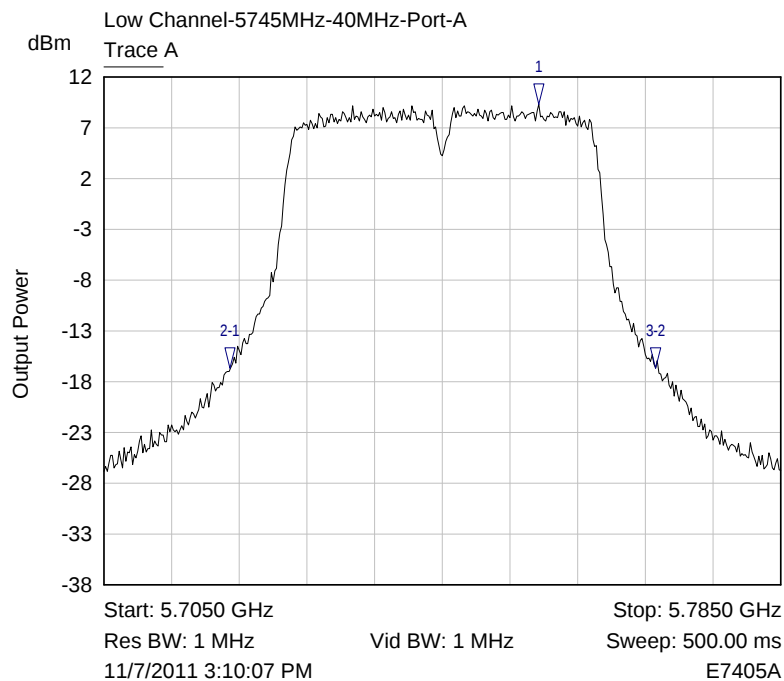
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7774 GHz	12.17 dBm	Pout=12.17+14.430=26.6dBm
2-1 ▽	Trace A	-6.5590 MHz	-26.00 dB	
3-2 ▽	Trace A	27.7390 MHz	-0.01 dB	PCF=10log27.739=14.430

Plot Peak Output Power/ 8



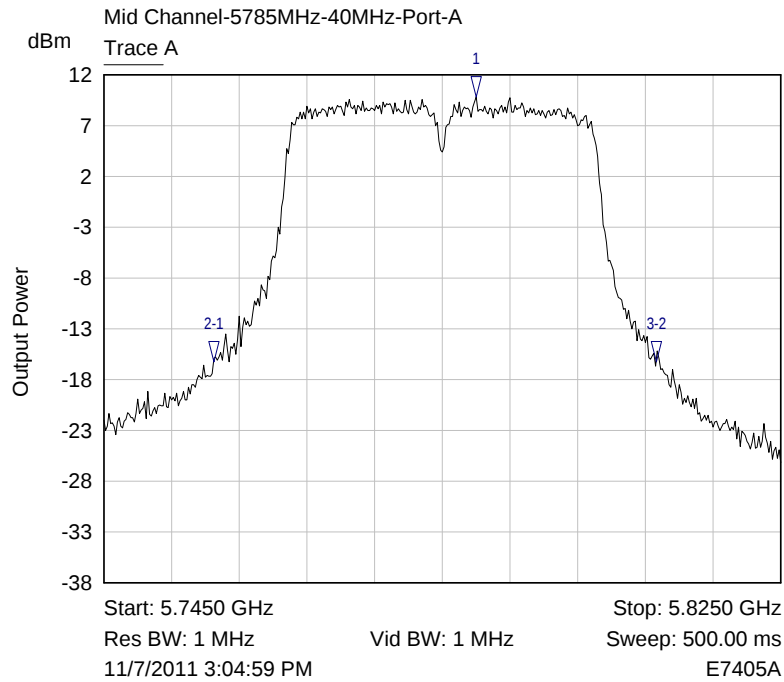
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8325 GHz	12.51 dBm	$P_{out}=12.51+14.422=26.932\text{dBm}$
2-1 ▽	Trace A	-6.5730 MHz	-26.00 dB	
3-2 ▽	Trace A	27.6800 MHz	0.01 dB	$PCF=10\log 27.68=14.422$

Plot Peak Output Power/ 9



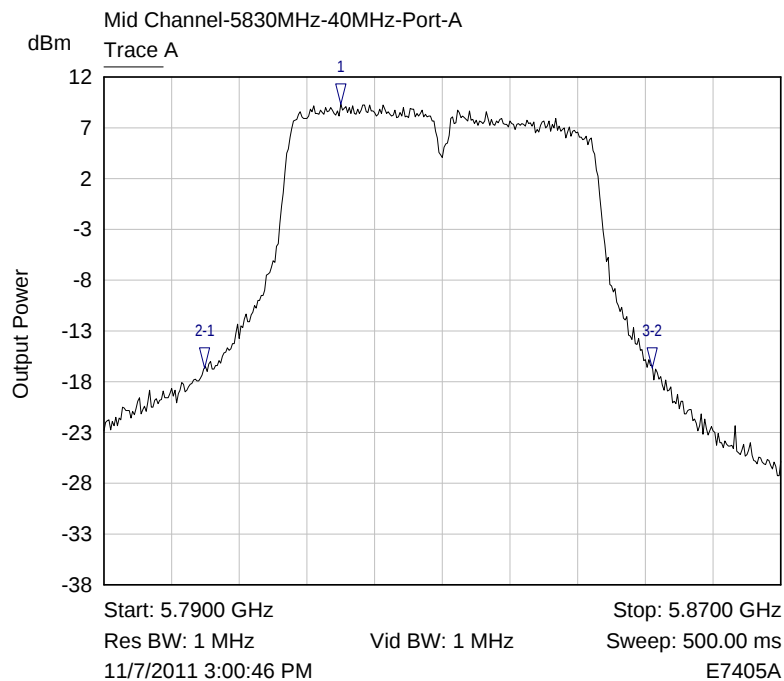
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7564 GHz	9.30 dBm	$P_{out}=9.30+17.012=26.312\text{dBm}$
2-1 ▽	Trace A	-36.4550 MHz	-26.00 dB	
3-2 ▽	Trace A	50.2550 MHz	0.02 dB	$PCF=10\log 50.255=17.012$

Plot Peak Output Power/ 10



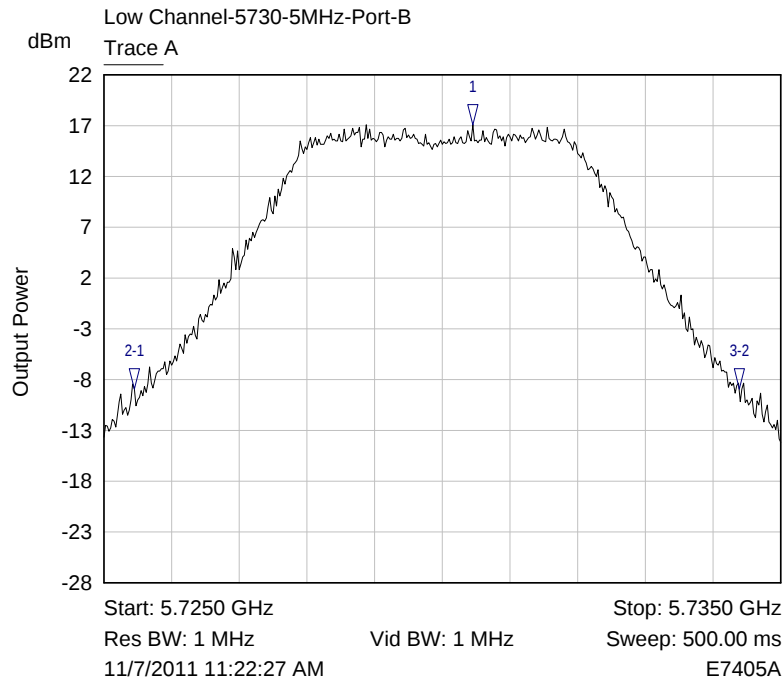
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7890 GHz	9.80 dBm	$P_{out}=9.80+17.184=26.984\text{dBm}$
2-1 ▽	Trace A	-31.0400 MHz	-25.99 dB	
3-2 ▽	Trace A	52.2960 MHz	-0.04 dB	$PCF=10\log 52.296=17.184$

Plot Peak Output Power/ 11



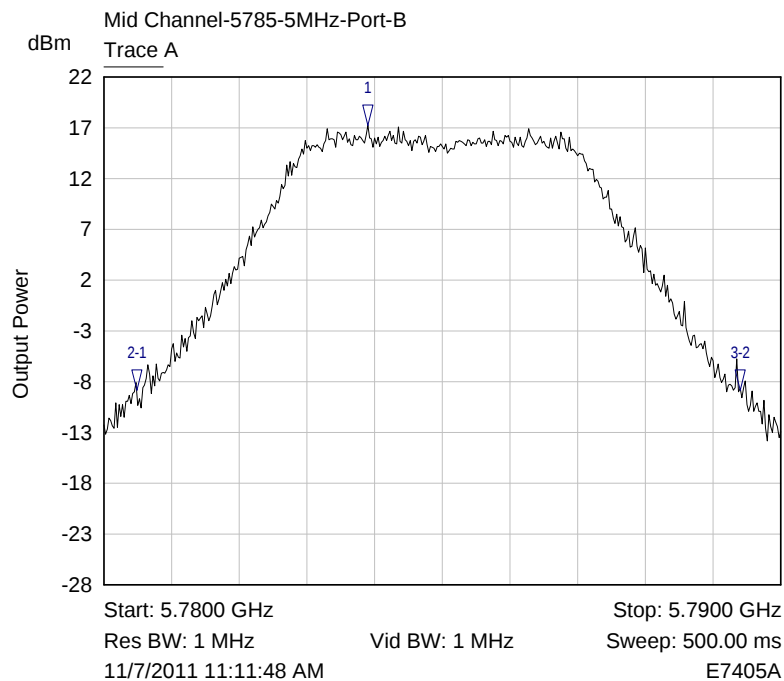
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8180 GHz	9.34 dBm	$P_{out}=9.34+17.24=26.580\text{dBm}$
2-1 ▽	Trace A	-16.1200 MHz	-26.01 dB	
3-2 ▽	Trace A	52.9600 MHz	0.01 dB	$PCF=10\log 52.96=17.24$

Plot Peak Output Power/ 12



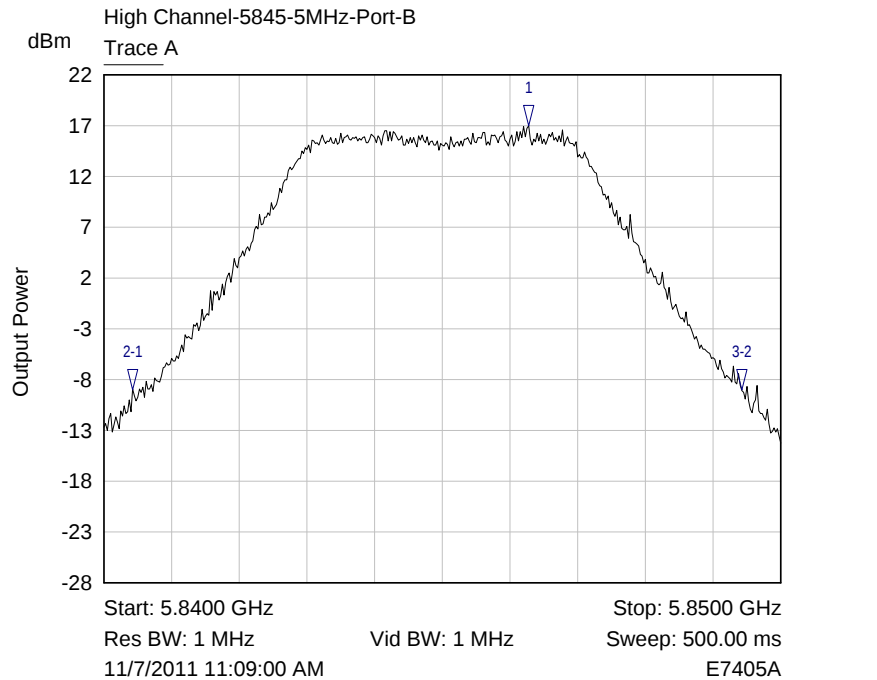
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7305 GHz	17.11 dBm	$P_{out}=17.11+9.509=26.619\text{dBm}$
2-1 ▽	Trace A	-5.0000 MHz	-26.02 dB	
3-2 ▽	Trace A	8.9330 MHz	-0.00 dB	$PCF=10\log 8.933=9.509$

Plot Peak Output Power/ 13



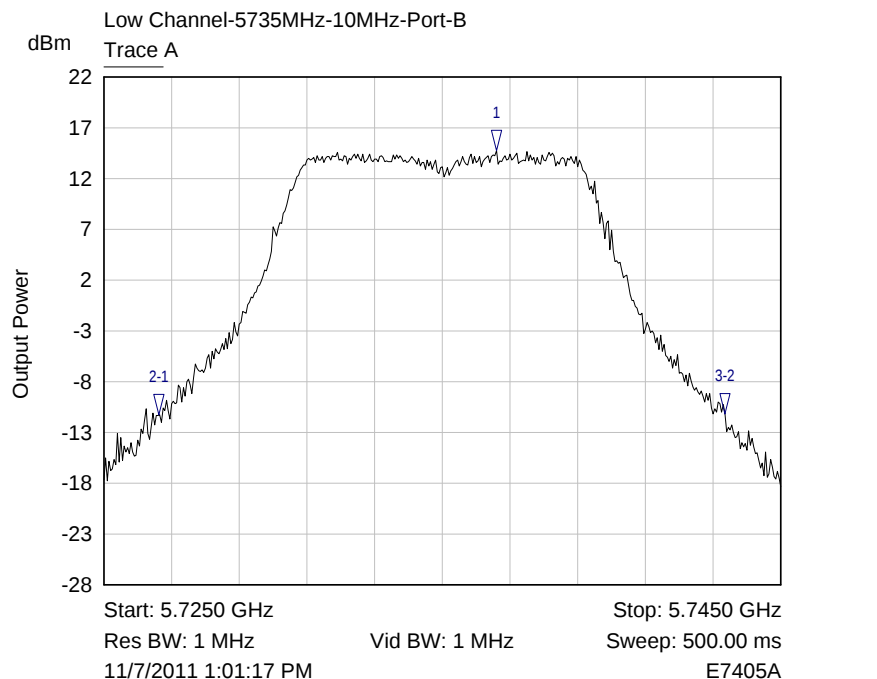
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7839 GHz	17.21 dBm	$P_{out}=17.21+9.504=26.714\text{dBm}$
2-1 ▽	Trace A	-3.4170 MHz	-26.03 dB	
3-2 ▽	Trace A	8.9210 MHz	-0.00 dB	$PCF=10\log 8.921=9.504$

Plot Peak Output Power/ 14



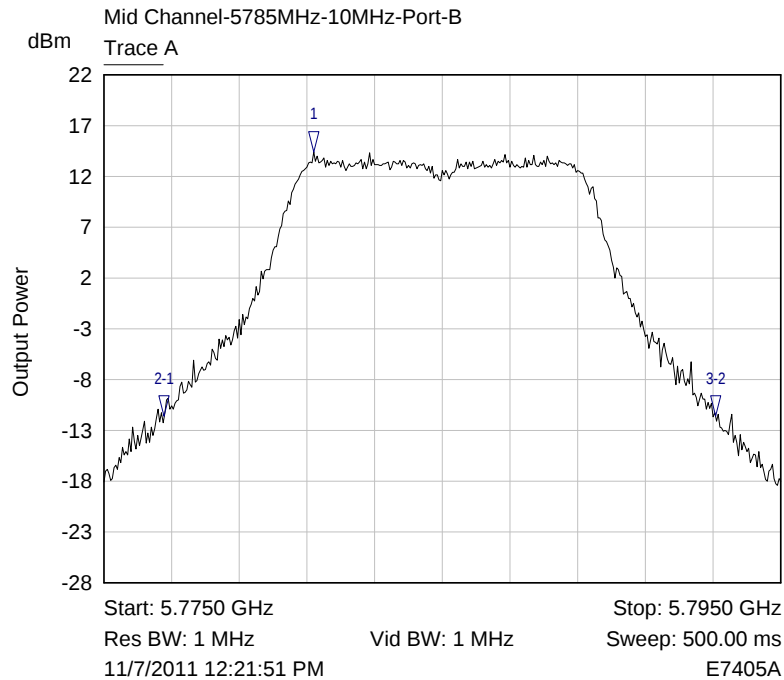
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8463 GHz	17.03 dBm	$P_{out}=17.03+9.538=26.568\text{dBm}$
2-1 ▽	Trace A	-5.8470 MHz	-26.02 dB	
3-2 ▽	Trace A	8.9910 MHz	-0.01 dB	$PCF=10\log 8.991=9.538$

Plot Peak Output Power/ 15



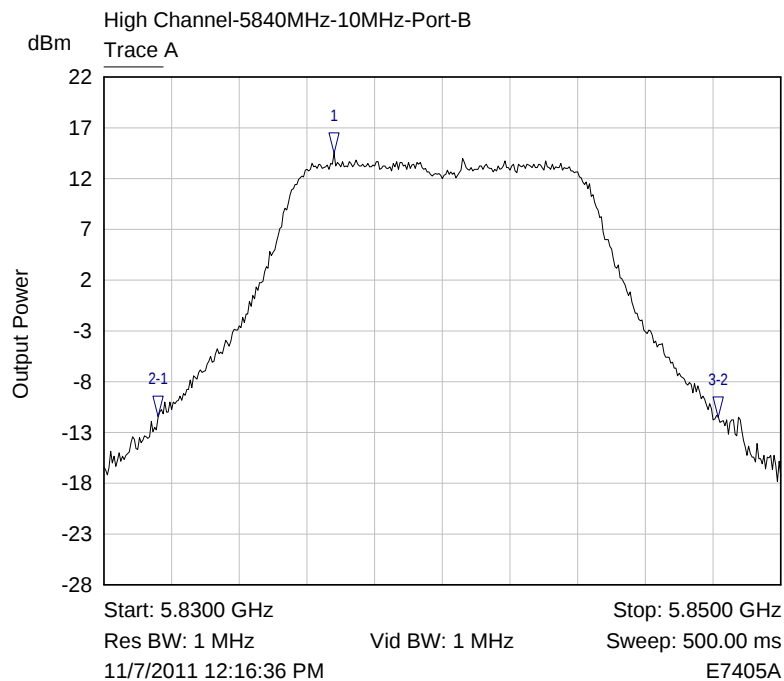
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7366 GHz	14.71 dBm	$P_{out}=14.71+12.095=26.943\text{dBm}$
2-1 ▽	Trace A	-9.9700 MHz	-25.99 dB	
3-2 ▽	Trace A	16.7220 MHz	0.09 dB	$PCF=10\log 16.722=12.233$

Plot Peak Output Power/ 16



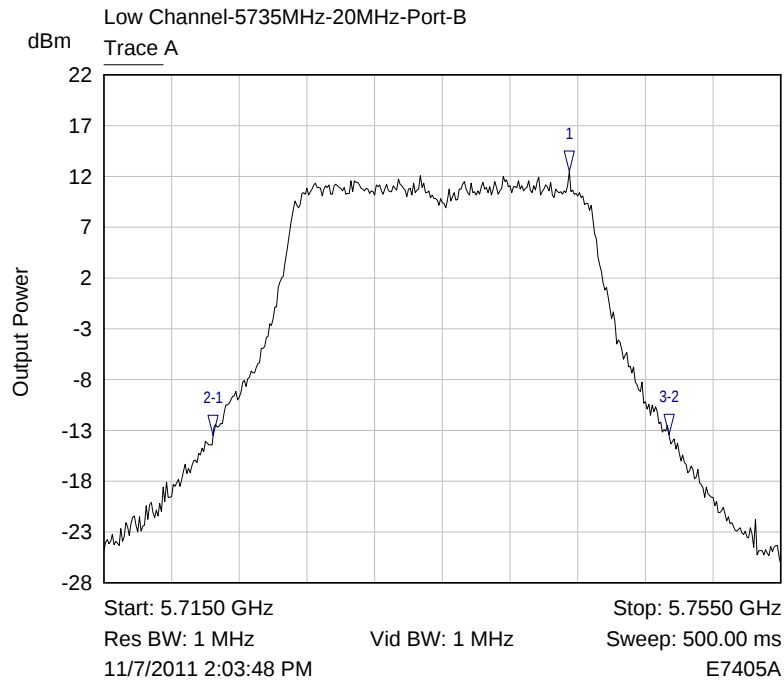
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7812 GHz	14.45 dBm	$P_{out}=14.45+12.117=26.567\text{dBm}$
2-1 ▽	Trace A	-4.4130 MHz	-26.00 dB	
3-2 ▽	Trace A	16.2830 MHz	-0.02 dB	$PCF=10\log 16.283=12.117$

Plot Peak Output Power/ 17



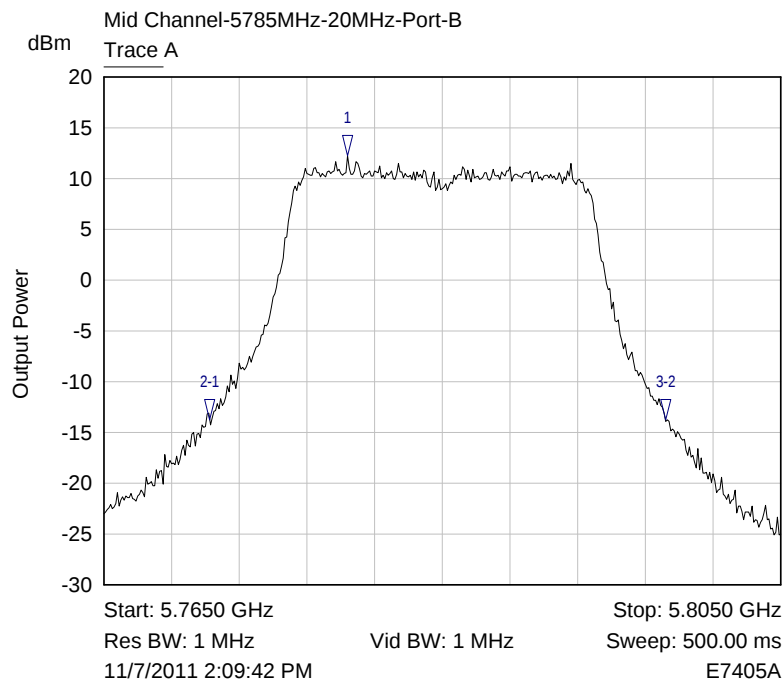
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8368 GHz	14.52 dBm	$P_{out}=14.52+12.188=26.708\text{dBm}$
2-1 ▽	Trace A	-5.1950 MHz	-26.00 dB	
3-2 ▽	Trace A	16.5500 MHz	0.00 dB	$PCF=10\log 16.55=12.188$

Plot Peak Output Power/ 18



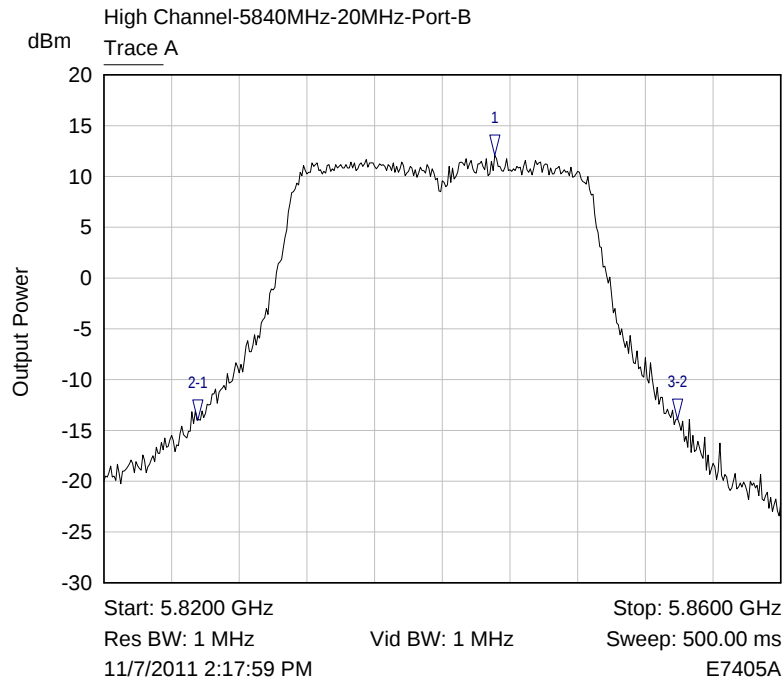
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7425 GHz	12.52 dBm	Pout=12.52+14.304=26.824dBm
2-1 ▽	Trace A	-21.0460 MHz	-26.00 dB	
3-2 ▽	Trace A	26.9400 MHz	0.00 dB	PCF=10log26.94=14.304

Plot Peak Output Power/ 19



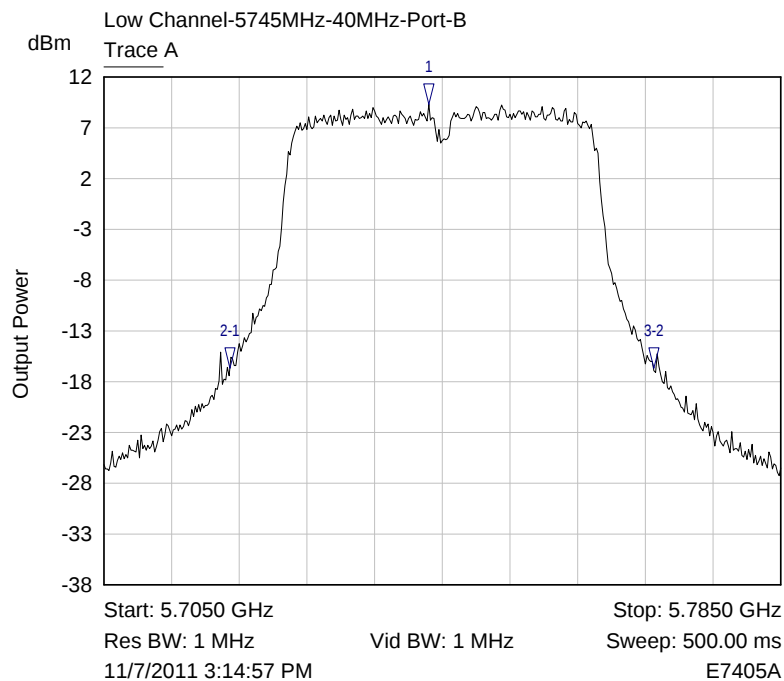
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7794 GHz	12.23 dBm	Pout=12.23+14.30=26.53dBm
2-1 ▽	Trace A	-8.1400 MHz	-26.00 dB	
3-2 ▽	Trace A	26.9200 MHz	0.02 dB	PCF=10log26.92=14.3

Plot Peak Output Power/ 20



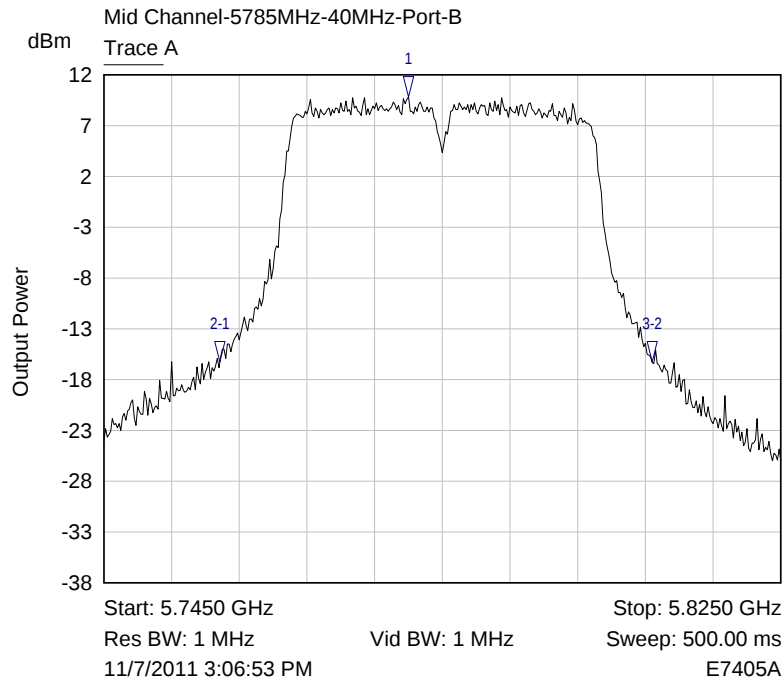
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8431 GHz	12.05 dBm	$P_{out}=12.05+14.530=26.58\text{dBm}$
2-1 ▽	Trace A	-17.5600 MHz	-26.00 dB	
3-2 ▽	Trace A	28.3800 MHz	0.01 dB	$PCF=10\log 28.38=14.530$

Plot Peak Output Power/ 21



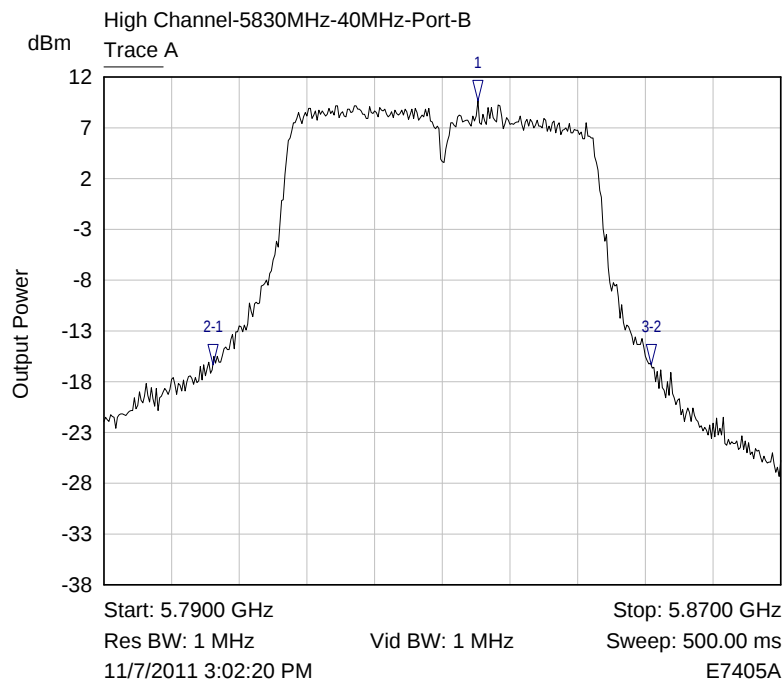
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7434 GHz	9.33 dBm	$P_{out}=9.33+17.053=26.383\text{dBm}$
2-1 ▽	Trace A	-23.5220 MHz	-26.01 dB	
3-2 ▽	Trace A	50.0730 MHz	-0.00 dB	$PCF=10\log 8.975=17.053$

Plot Peak Output Power/ 22



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7810 GHz	9.80 dBm	Pout=9.80+17.08=26.88dBm
2-1 ▽	Trace A	-22.2850 MHz	-26.00 dB	
3-2 ▽	Trace A	51.0450 MHz	-0.01 dB	PCF=10log51.045=17.08

Plot Peak Output Power/ 23



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8342 GHz	9.67 dBm	Pout=9.67+17.144=26.814dBm
2-1 ▽	Trace A	-31.3240 MHz	-26.00 dB	
3-2 ▽	Trace A	51.8040 MHz	-0.03 dB	PCF=10log51.804=17.144

Plot Peak Output Power/ 24

7. POWER IN PTMP MODE

Equipment Under Test	WipAir 6000/3000
Test Method	FCC New Guidance on Measurements for DTS in section 15.247(b), Option 2, Method #3.
Date	17.05.2010
Relative Humidity	40%
Ambient Temperature	25 ⁰ C
Air Pressure	1010 hPa
Test Setup	Figure 2

Testing Engineer: I. Arbitman



Date 17.05.2010

7.1. Test Results Summary & Conclusions

The E.U.T was found in compliance with Peak Output Power requirements

7.2. Limits of Peak Output Power according 15.247 (b)

The test unit shall meet the limits of Table 1

Table 25: Limits for Fundamental

Assigned Frequency (MHz)	Modulation Envelope Reference Points* (dBi)	Peak Output Power	
		W	dBm
902.0 – 928.0	6.0	1.0	30.0
2400.0 – 2483.5			
5725.0 – 5850.0			

*: If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power limit shall be reduced below the .stated value as follows:

- By 1 dB for every 3 dB that the directional gain of antenna exceeds 6 dBi for fixed point to point transmitters operate in 2400 – 2483.5 MHz band.
- Without any corresponding reduction for fixed-point-to-point transmitters operate in 5725 – 5850 MHz band;
- By the amount in dB that the directional gain of antenna exceeds 6 dBi for the rest of transmitters.

7.3. Test Instrumentation and Equipment

Table 26: Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	NXA-N9020	Agilent	24.02.2012
30db attenuator	769-30	Narda	15.11.2013

7.4. Test Procedure

The EUT was set to transmit at 100% duty cycle, at transmitted power suited to the corresponding antenna gain.

Power measurements were performed for top, middle and bottom frequencies, for each channel, BW 5, 10, 20 and 40 MHz.

The EUT was connected to the spectrum analyzer through an appropriate attenuator and accounted for cable loss and attenuation in the settings.

Total output power was calculated as a sum of 'Peak output power Channel A + Peak output power Channel B'.

7.5. Test Setup

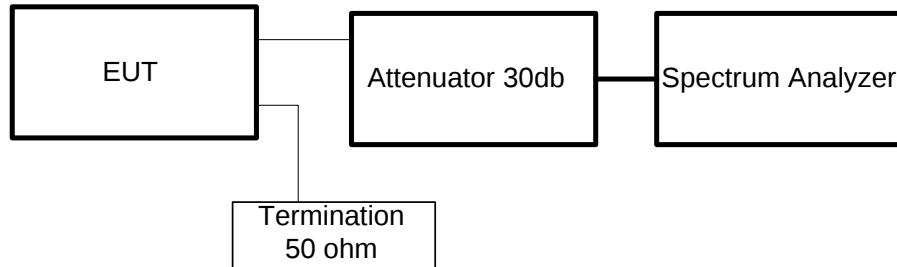


Figure 2: Field strength of fundamental test setup

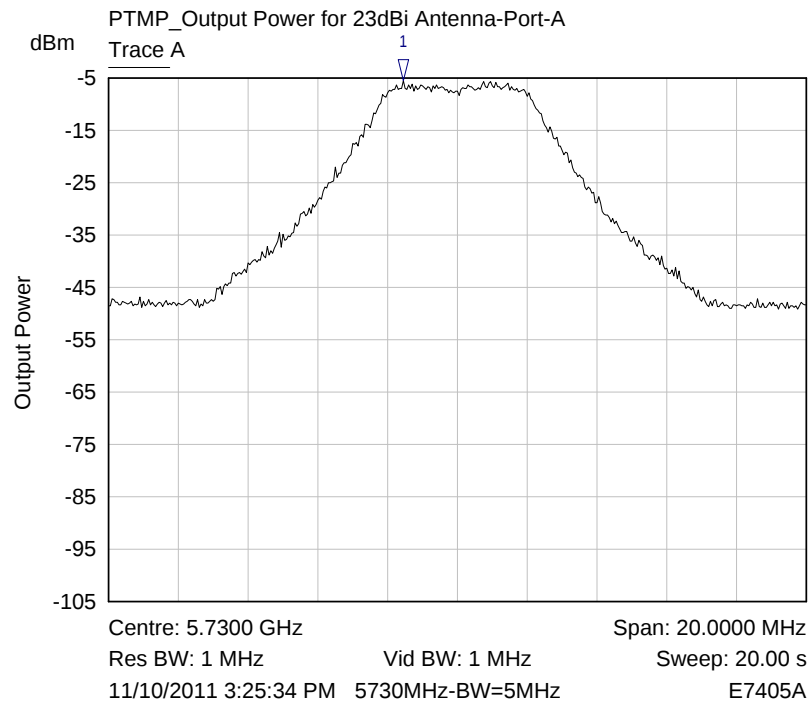
7.6. Calculated Results for both ports

Table 27: Settings for 23 dBi Antenna PTMP mode

Frequency MHz	BW MHz	PortA dBm	PortA mW	PortB dBm	PortB mW	Total Power mW	Total Power dBm	Antenna Gain dBi	EIRP	Limit EIRP	Pass/Fail
5730	5	3.832	2.417	2.909	1.954	4.371	6.406	23	29.406	36	Pass
5785	5	4.139	2.594	3.584	2.282	4.876	6.881	23	29.881	36	Pass
5845	5	3.820	2.410	3.708	2.348	4.758	6.774	23	29.774	36	Pass
5735	10	3.657	2.321	2.254	1.680	4.001	6.022	23	29.022	36	Pass
5785	10	3.330	2.153	3.037	2.012	4.165	6.196	23	29.196	36	Pass
5840	10	3.265	2.121	3.048	2.017	4.138	6.168	23	29.168	36	Pass
5735	20	3.039	2.013	2.400	1.738	3.751	5.741	23	28.741	36	Pass
5785	20	3.010	2.000	2.904	1.952	3.952	5.968	23	28.968	36	Pass
5840	20	3.142	2.062	3.650	2.317	4.379	6.414	23	29.414	36	Pass
5745	40	3.592	2.287	3.633	2.308	4.595	6.623	23	29.623	36	Pass
5785	40	4.164	2.609	3.570	2.275	4.884	6.888	23	29.888	36	Pass
5830	40	3.840	2.421	4.110	2.576	4.997	6.987	23	29.987	36	Pass

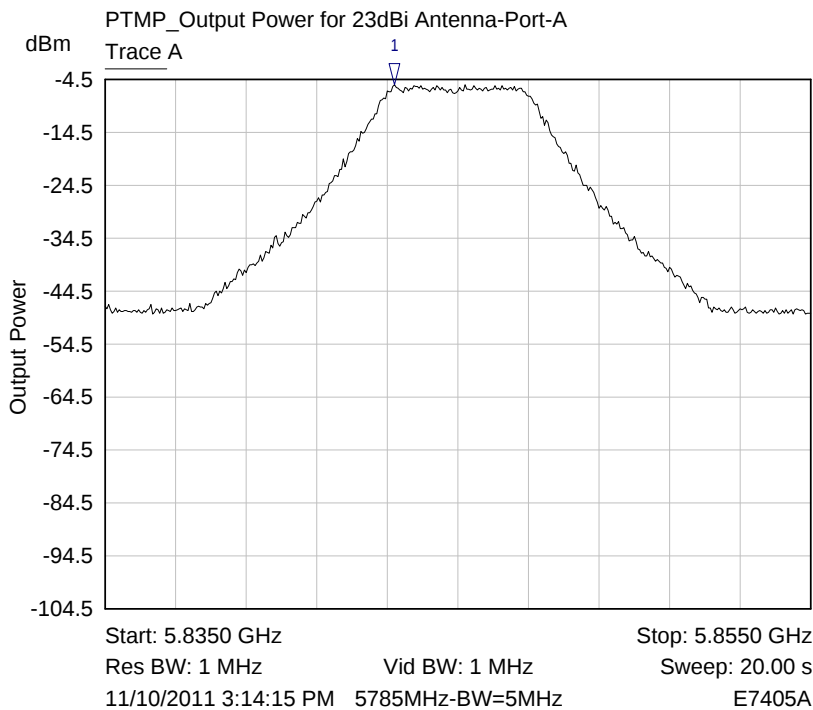
Table 28: Settings for 28.5 dBi Antenna PTMP mode

Frequency MHz	BW MHz	PortA dBm	PortA mW	PortB dBm	PortB mW	Total Power mW	Total Power dBm	Antenna Gain dBi	EIRP	Limit EIRP	Pass/Fail
5730	5	1.658	1.465	2.551	1.799	3.264	5.138	28.5	33.638	36	Pass
5785	5	1.911	1.553	2.556	1.801	3.354	5.256	28.5	33.756	36	Pass
5845	5	1.690	1.476	1.972	1.575	3.051	4.844	28.5	33.344	36	Pass
5735	10	1.763	1.501	1.823	1.522	3.023	4.804	28.5	33.304	36	Pass
5785	10	2.330	1.710	2.253	1.680	3.390	5.302	28.5	33.802	36	Pass
5840	10	1.925	1.558	2.162	1.645	3.203	5.056	28.5	33.556	36	Pass
5735	20	2.081	1.615	3.180	2.080	3.695	5.676	28.5	34.176	36	Pass
5785	20	2.580	1.811	2.116	1.628	3.439	5.364	28.5	33.864	36	Pass
5840	20	1.418	1.386	1.330	1.376	2.762	4.412	28.5	32.912	36	Pass
5745	40	1.788	1.509	1.567	1.435	2.944	4.689	28.5	33.189	36	Pass
5785	40	1.906	1.551	1.980	1.578	3.129	4.954	28.5	33.454	36	Pass
5830	40	1.660	1.466	1.666	1.468	2.934	4.674	28.5	33.174	36	Pass



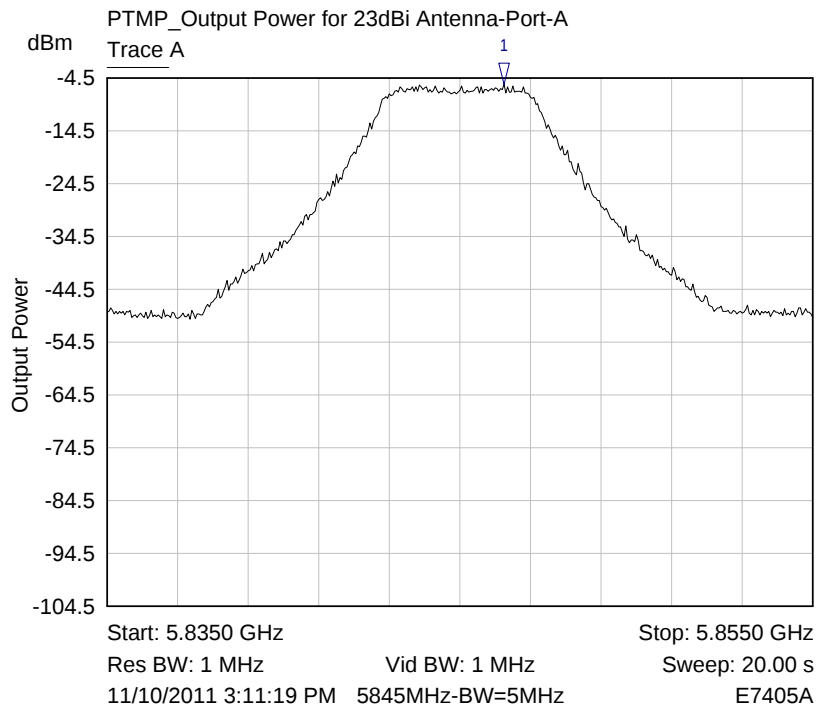
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7285 GHz	-5.54 dBm	Pout=-5.54+9.372=3.832dBm

PTMP Power for 23dBi Antenna/ 1



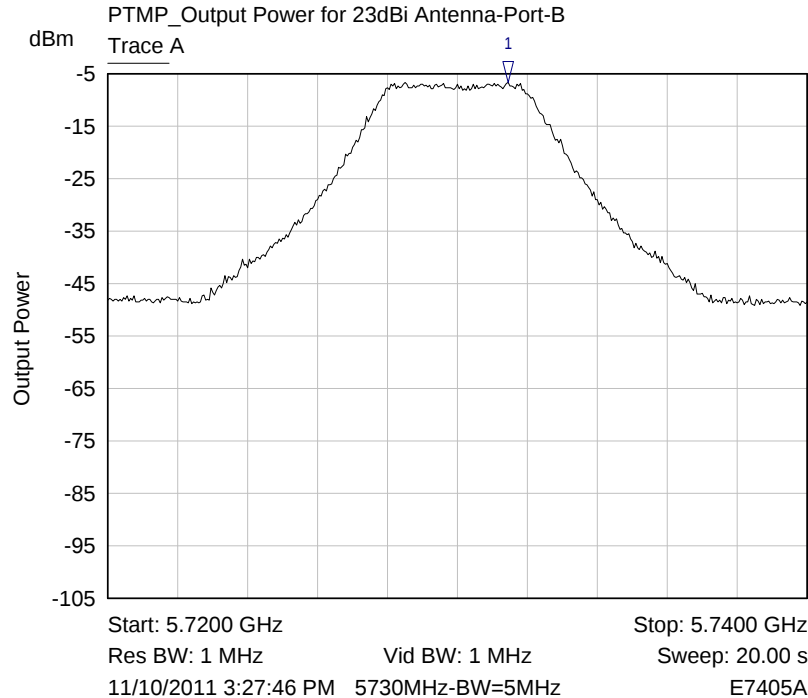
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.8432 GHz	-5.47 dBm	Pout=-5.47+9.609=4.139dBm

PTMP Power for 23dBi Antenna/ 2



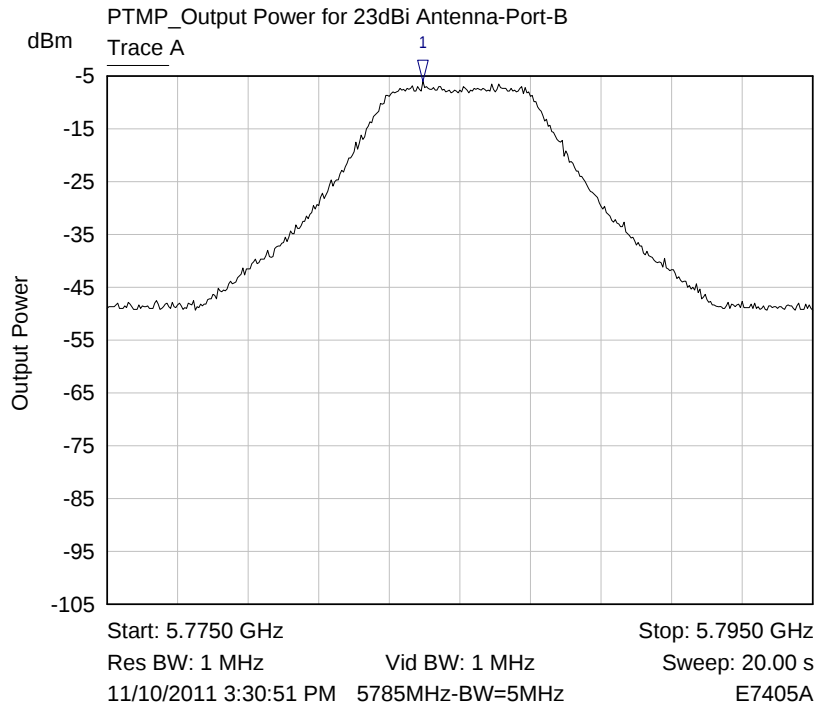
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8463 GHz	-5.70 dBm	Pout=-5.7+9.52=3.82dBm

PTMP Power for 23dBi Antenna/ 3



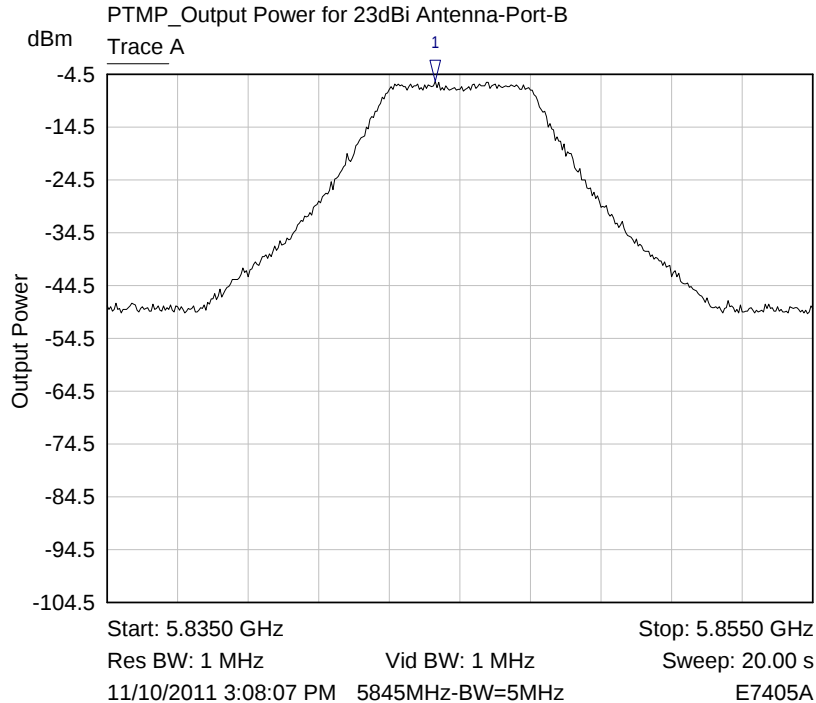
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7315 GHz	-6.60 dBm	Pout=-6.6+9.509=2.909dBm

PTMP Power for 23dBi Antenna/ 4



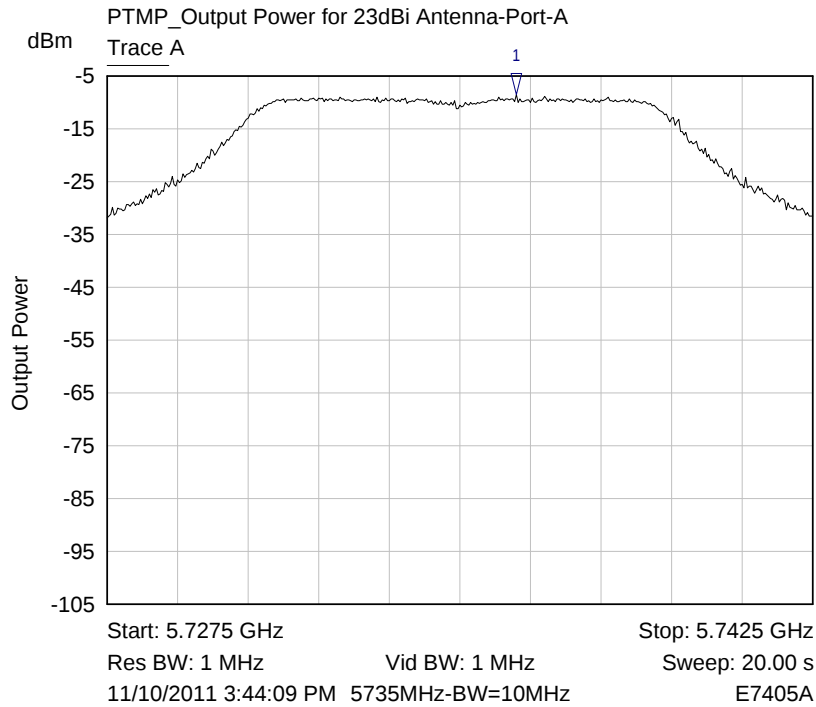
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7840 GHz	-5.92 dBm	Pout=-5.92+9.504=3.584dBm

PTMP Power for 23dBi Antenna/ 5



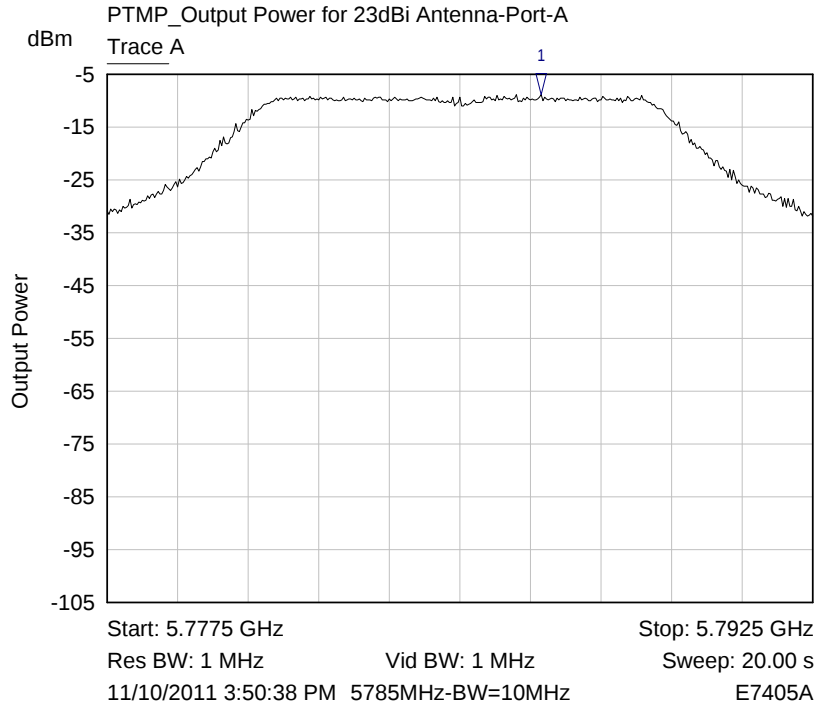
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8443 GHz	-5.83 dBm	Pout=-5.83+9.538=3.708dBm

PTMP Power for 23dBi Antenna/ 6



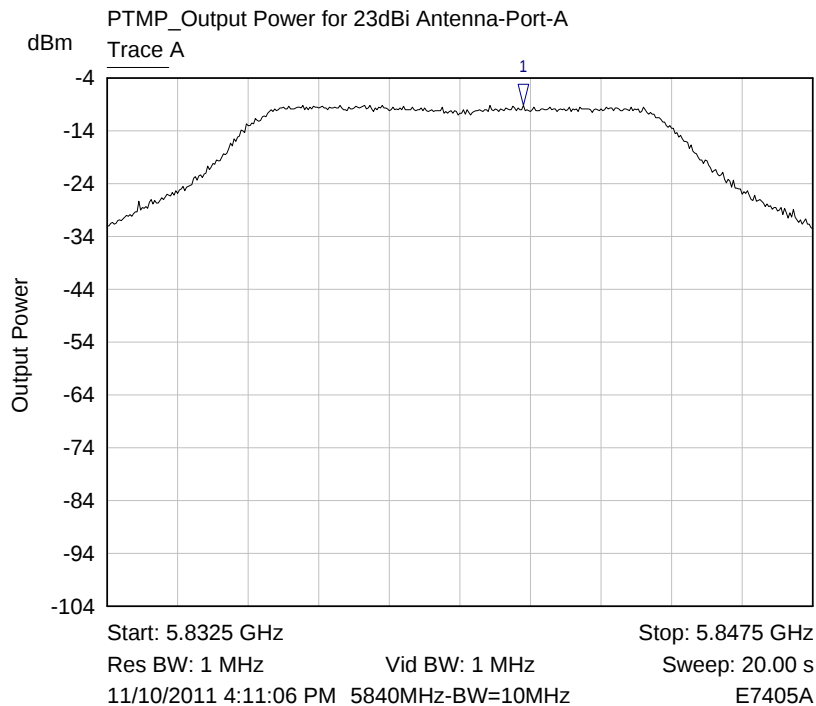
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7362 GHz	-8.51 dBm	Pout=-8.51+12.167=3.657dBm

PTMP Power for 23dBi Antenna/ 7



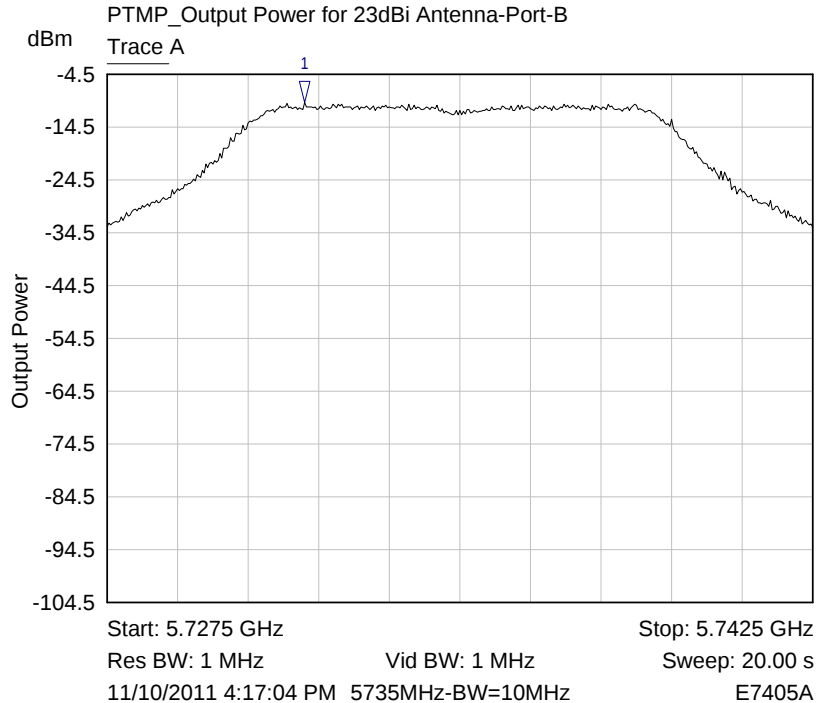
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7867 GHz	-8.86 dBm	Pout=-8.86+12.19=3.33dBm

PTMP Power for 23dBi Antenna/ 8



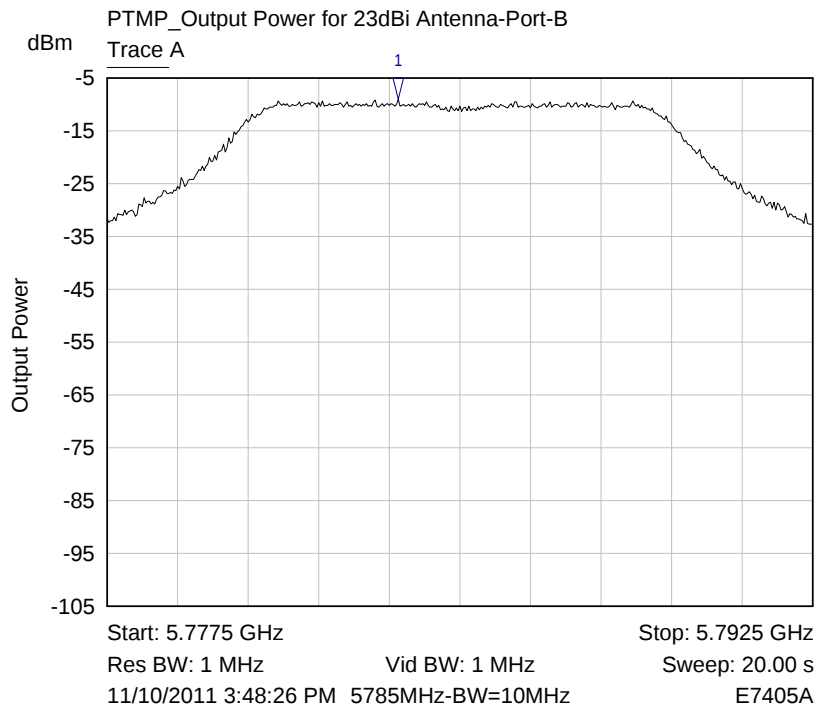
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8414 GHz	-9.11 dBm	Pout=-9.11+12.375=3.265dBm

PTMP Power for 23dBi Antenna/ 9



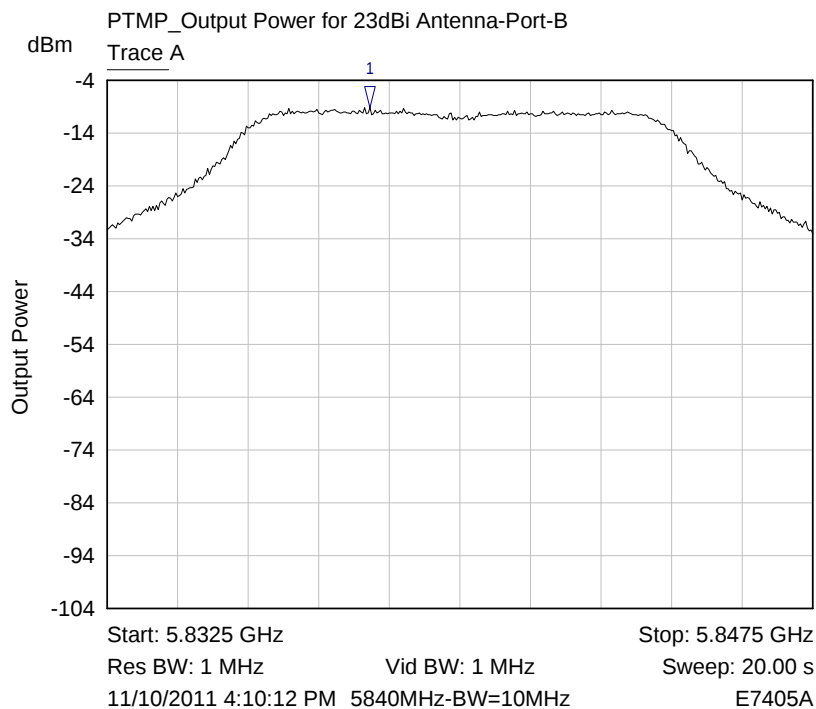
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7317 GHz	-9.85 dBm	Pout=-9.85+12.095 =2.245dBm

PTMP Power for 23dBi Antenna/ 10



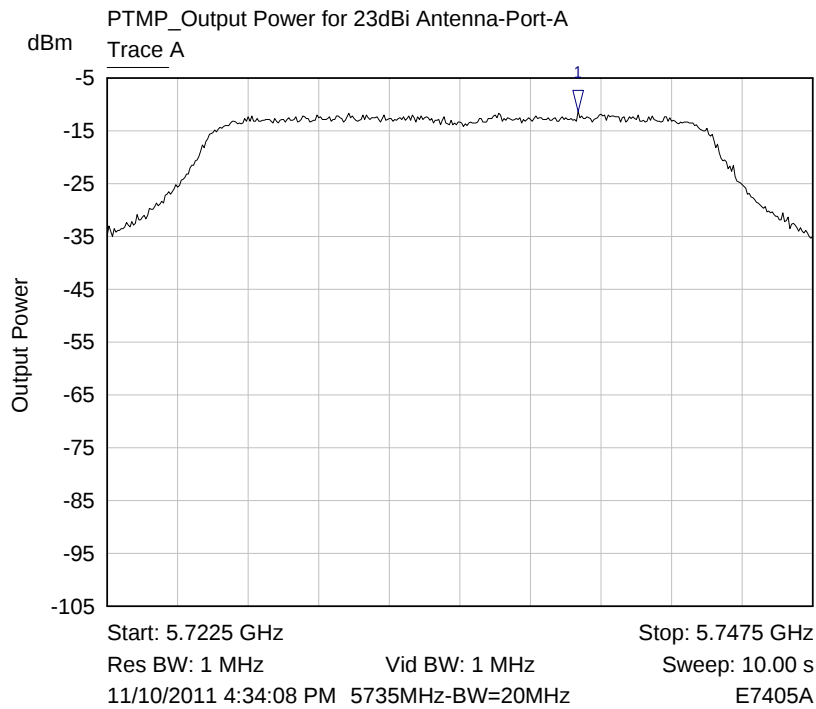
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7837 GHz	-9.08 dBm	Pout=-9.08+12.117=3.037dBm

PTMP Power for 23dBi Antenna/ 11



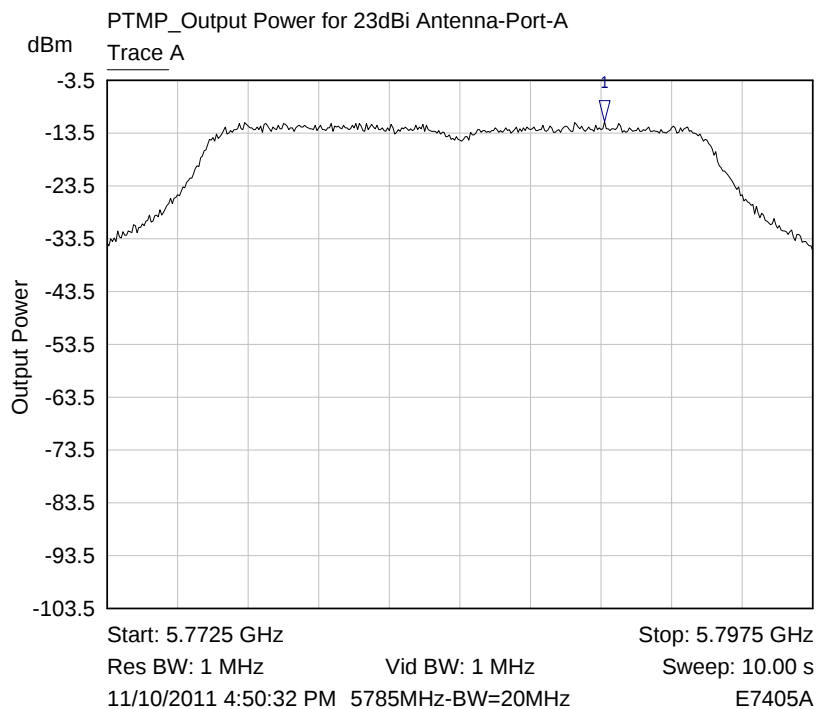
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8381 GHz	-9.14 dBm	Pout=-9.14+12.188=3.048dBm

PTMP Power for 23dBi Antenna/ 12



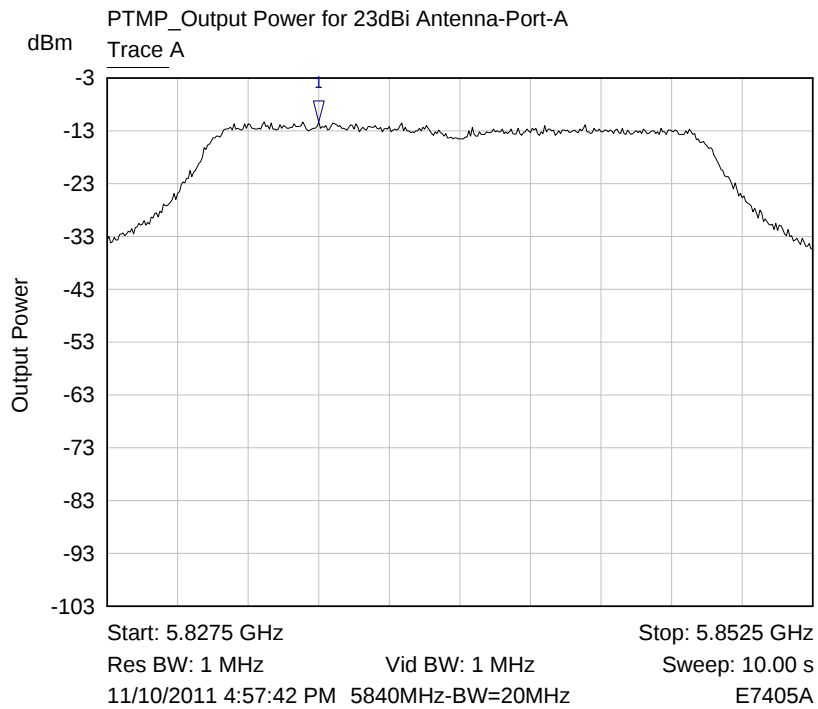
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7392 GHz	-11.33 dBm	Pout=-11.33+14.369=3.039dBm

PTMP Power for 23dBi Antenna/ 13



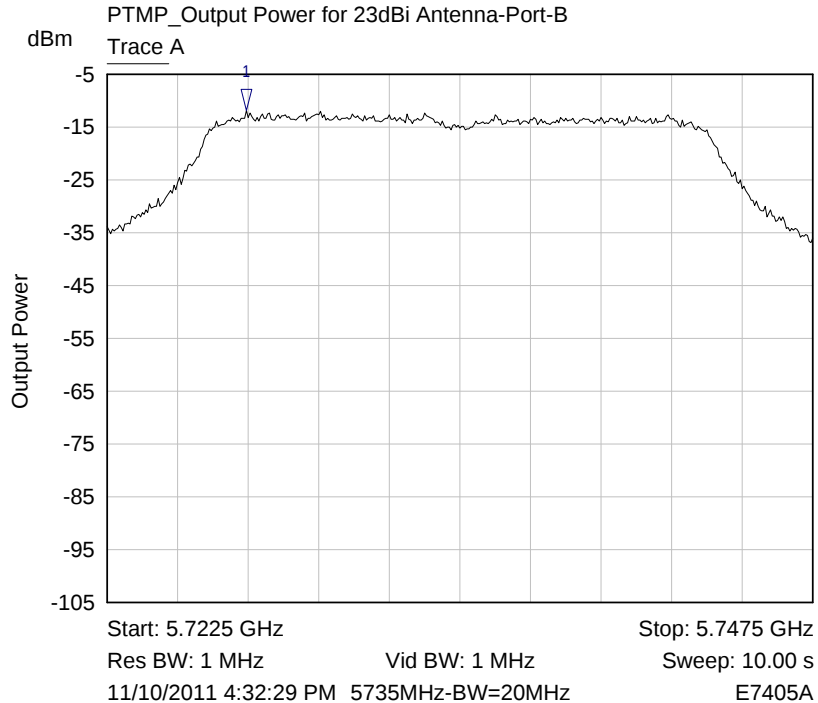
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7901 GHz	-11.42 dBm	Pout=-11.42+14.43=3.01dBm

PTMP Power for 23dBi Antenna/ 14



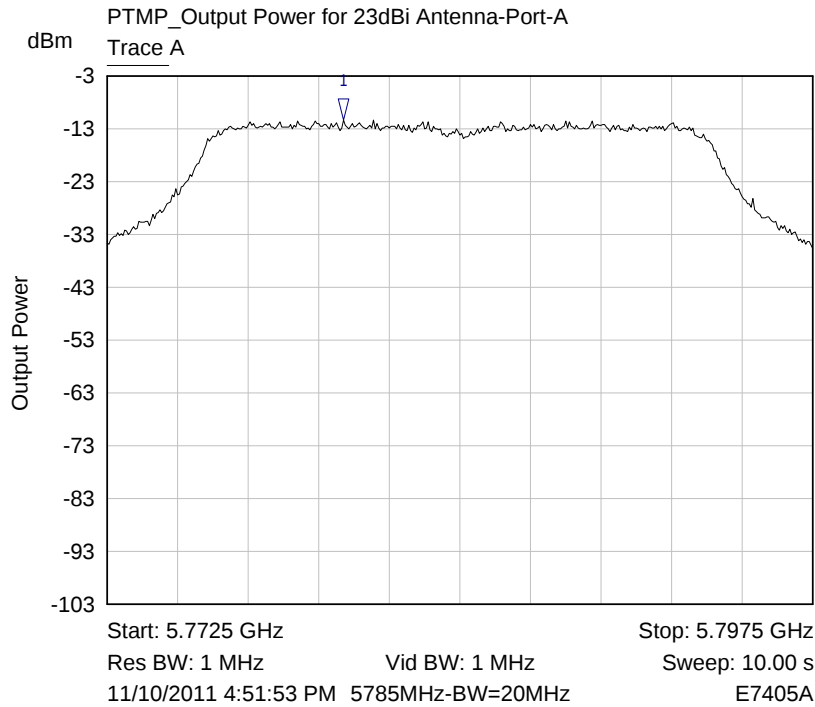
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8350 GHz	-11.30 dBm	Pout=-11.3+14.442=3.142dBm

PTMP Power for 23dBi Antenna/ 15



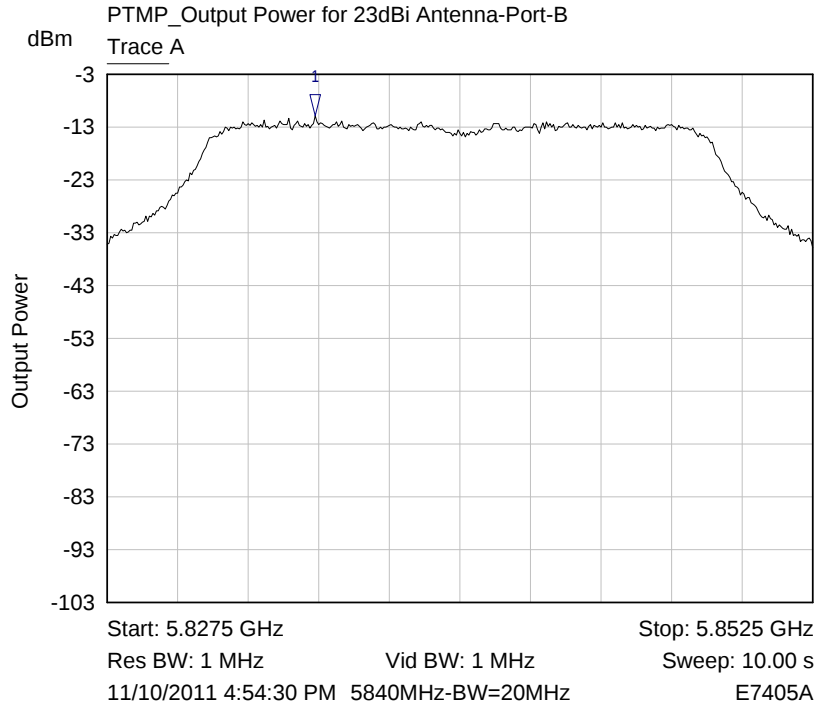
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7274 GHz	-11.90 dBm	Pout=-11.9+14.3=2.4dBm

PTMP Power for 23dBi Antenna/ 16



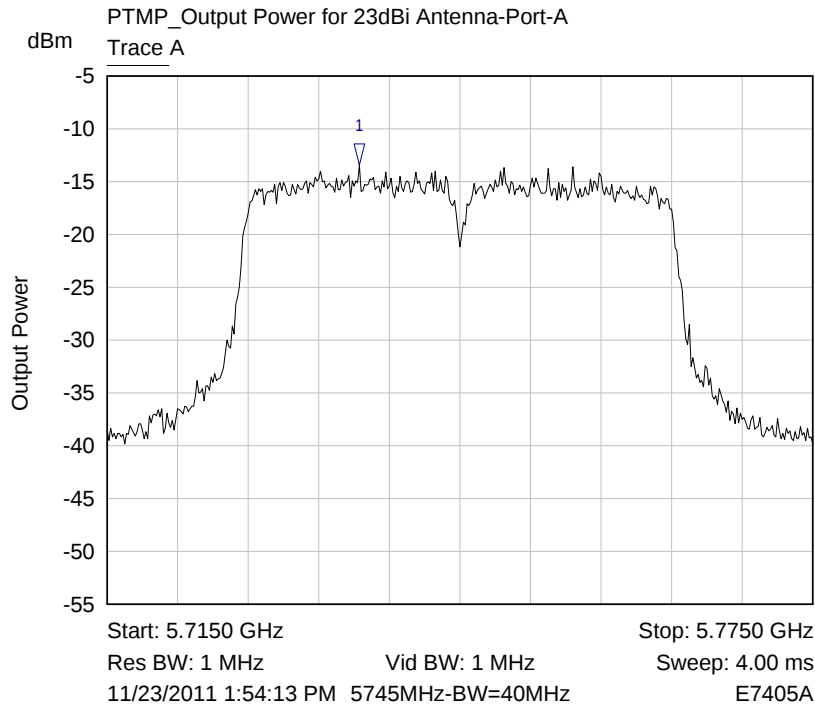
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7809 GHz	-11.40 dBm	Pout=-11.40+14.304=2.904dBm

PTMP Power for 23dBi Antenna/ 17



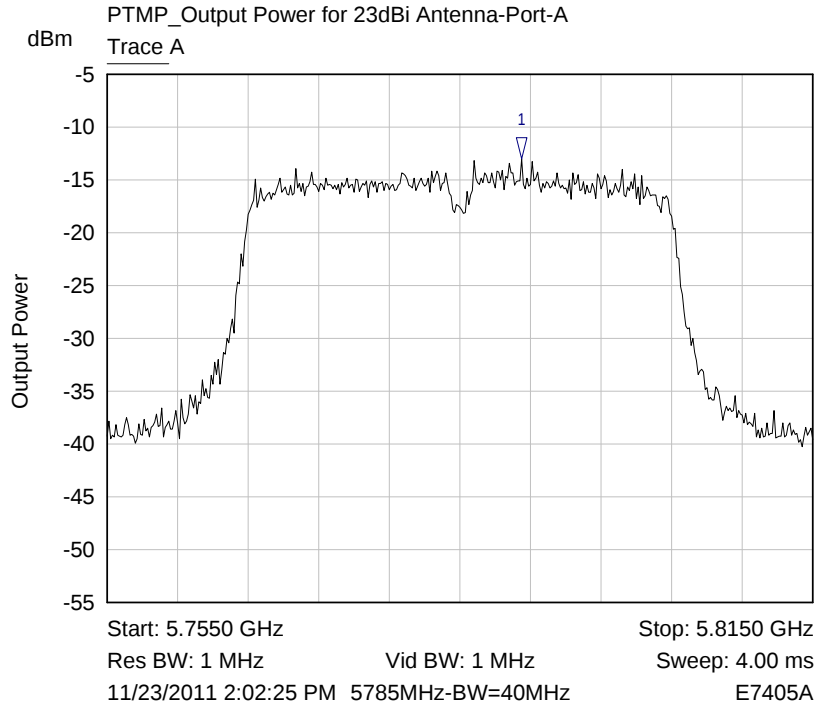
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8349 GHz	-10.88 dBm	Pout=-10.88+14.53=3.65dBm

PTMP Power for 23dBi Antenna/ 18



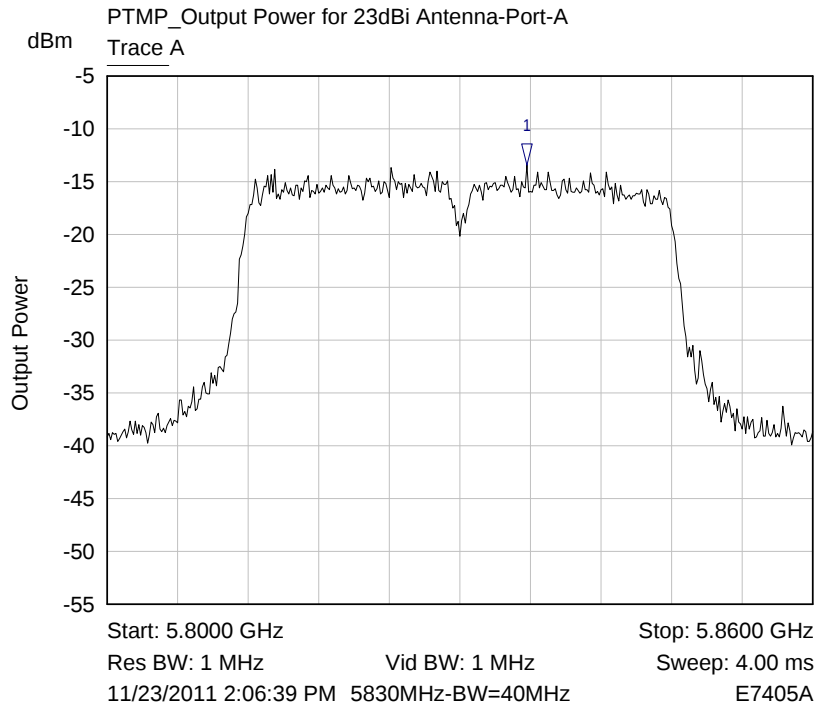
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7365 GHz	-13.42 dBm	Pout=-13.42+17.012=3.592dBm

PTMP Power for 23dBi Antenna/ 19



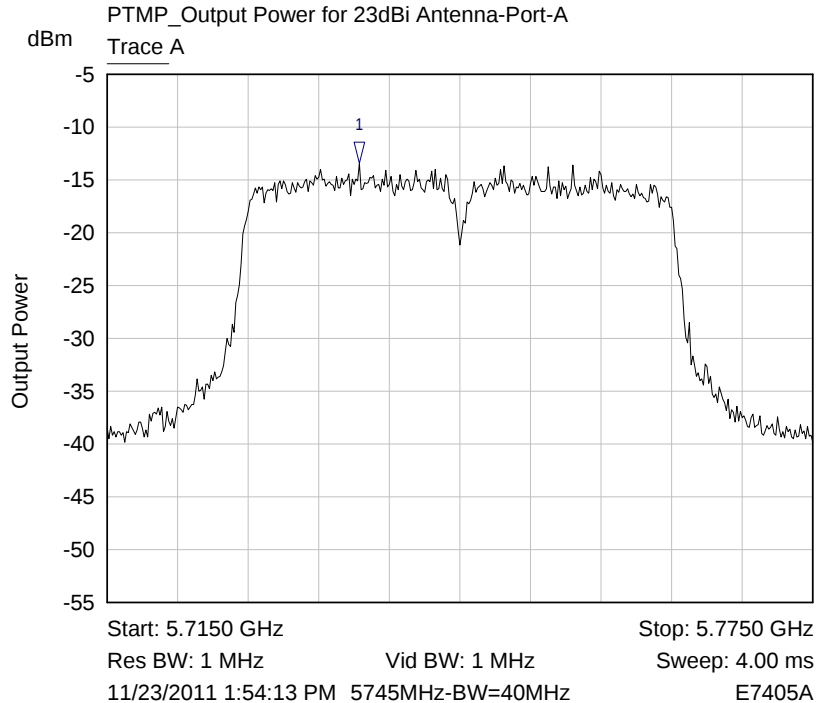
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7903 GHz	-13.02 dBm	Pout=-13.02+17.184=4.164dBm

PTMP Power for 23dBi Antenna/ 20



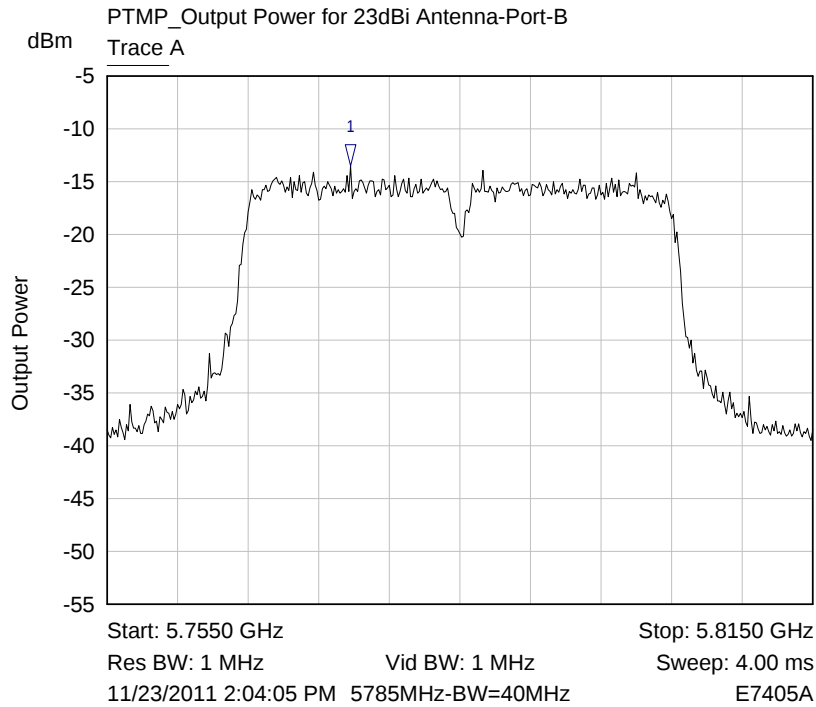
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8357 GHz	-13.40 dBm	Pout=-13.4+17.24=3.84dBm

PTMP Power for 23dBi Antenna/ 21



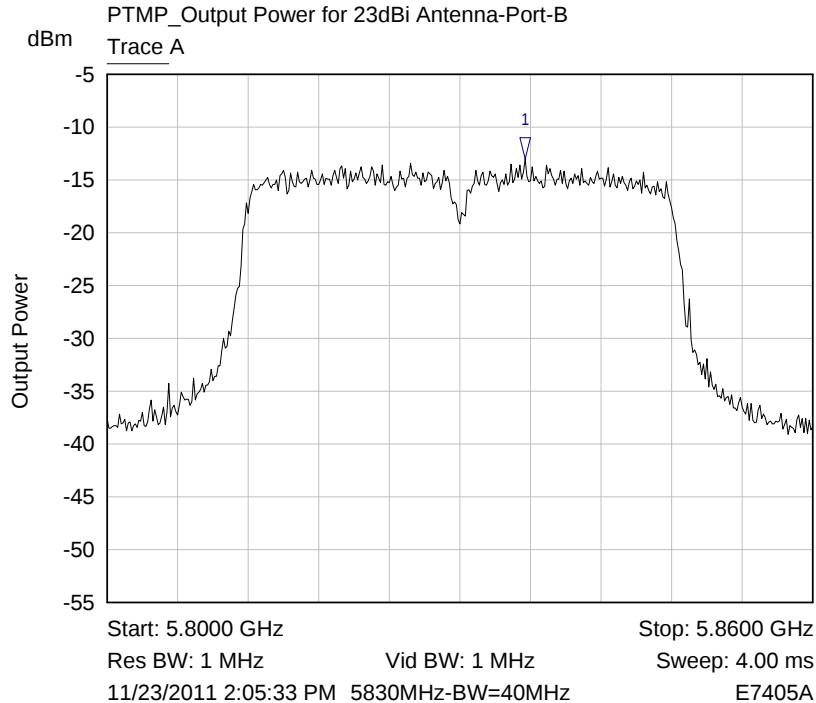
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7365 GHz	-13.42 dBm	Pout=-13.42+17.053=3.633dBm

PTMP Power for 23dBi Antenna/ 22



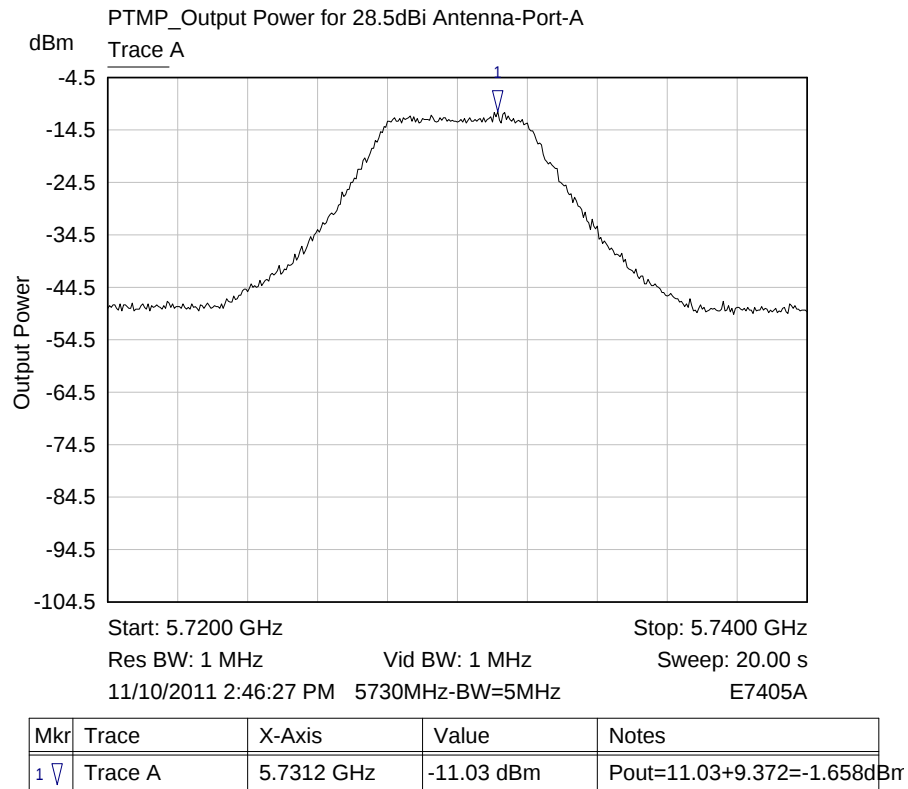
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7757 GHz	-13.51 dBm	Pout=-13.51+17.08=3.57dBm

PTMP Power for 23dBi Antenna/ 23

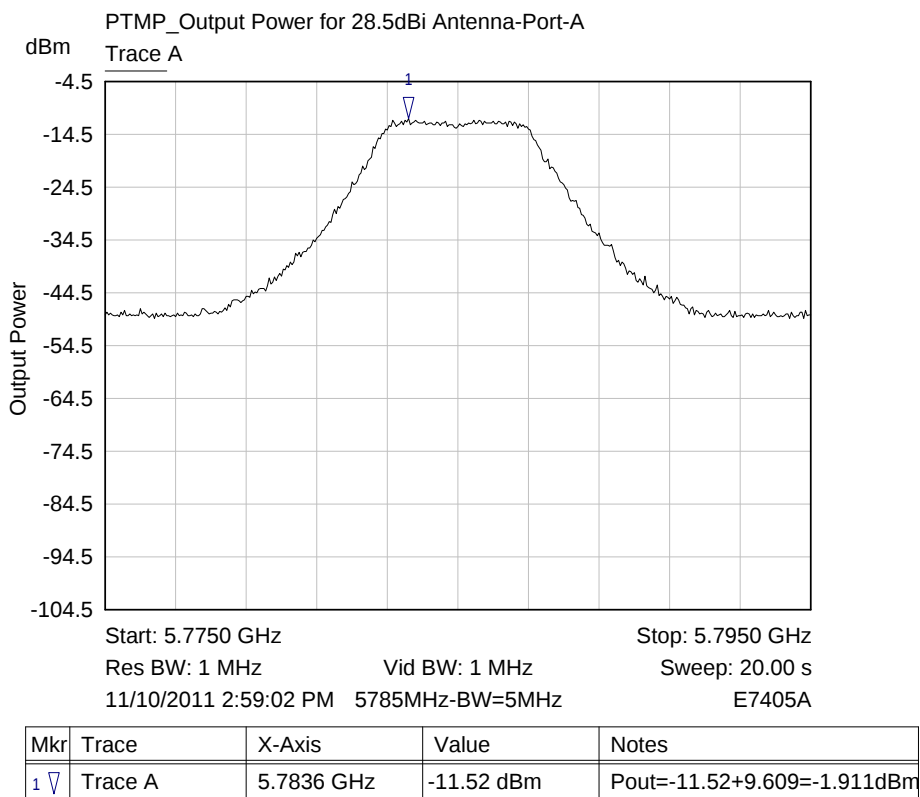


Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8356 GHz	-13.03 dBm	Pout=-13.03+17.14=4.11dBm

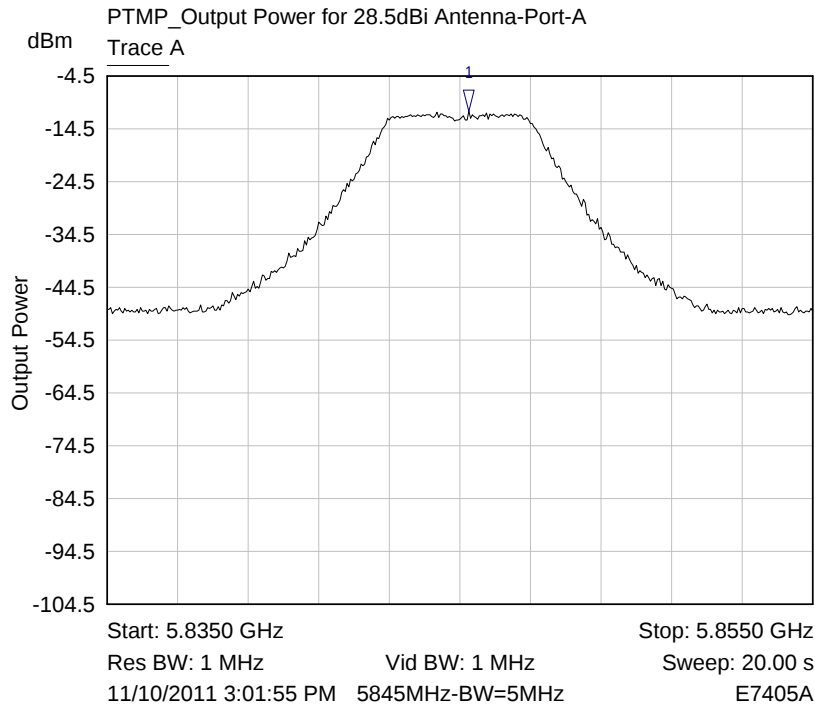
PTMP Power for 23dBi Antenna/ 24



PTMP Power for 28.5dBi Antenna/ 25

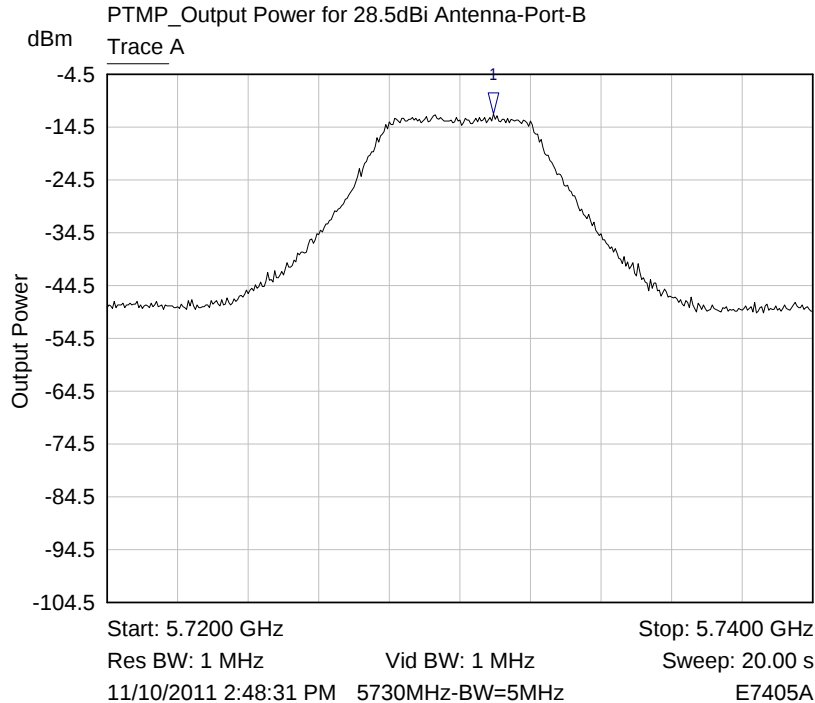


PTMP Power for 28.5dBi Antenna/ 26



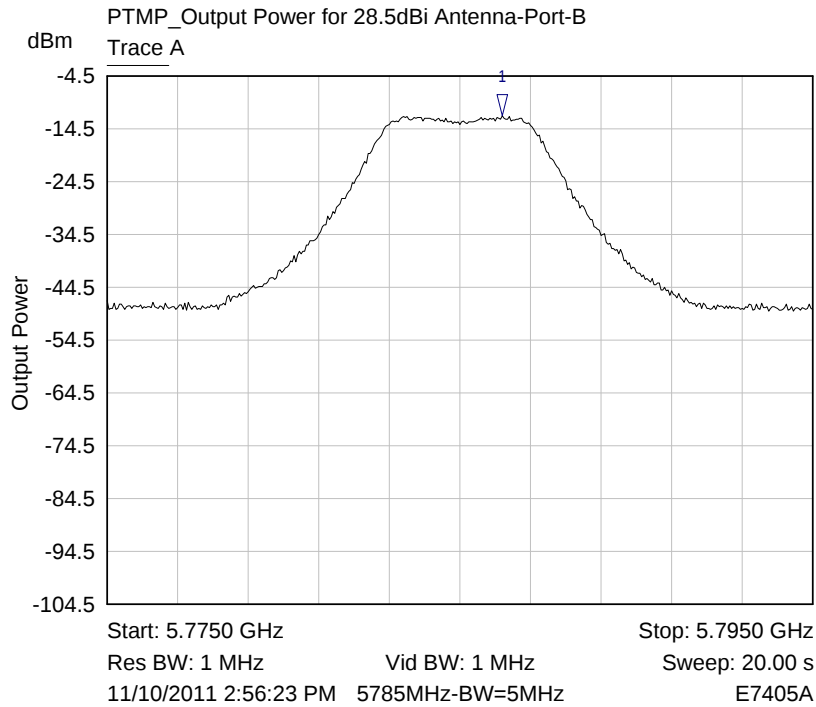
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8453 GHz	-11.21 dBm	Pout=-11.21+9.52=-1.69dBm

PTMP Power for 28.5dBi Antenna/ 27



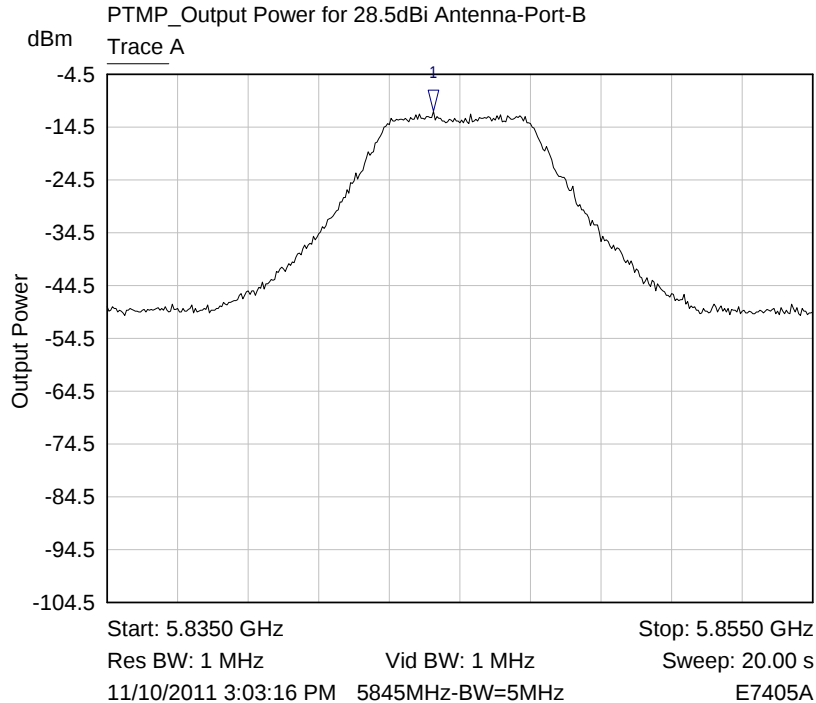
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7310 GHz	-12.06 dBm	Pout=-12.06+9.509=-2.551dBm

PTMP Power for 28.5dBi Antenna/ 28



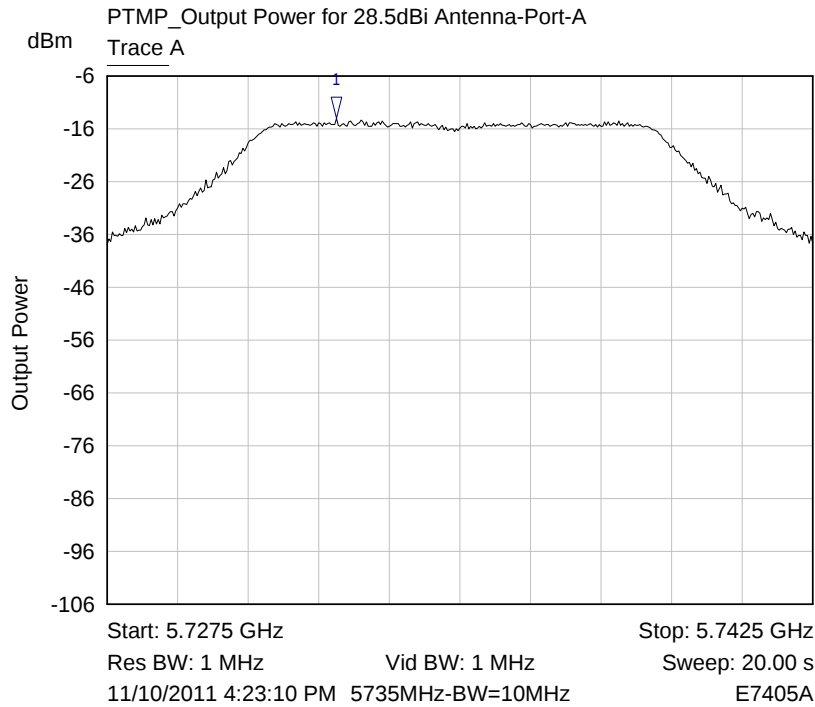
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7862 GHz	-12.06 dBm	Pout=-12.06+9.504=-2.556dBm

PTMP Power for 28.5dBi Antenna/ 29



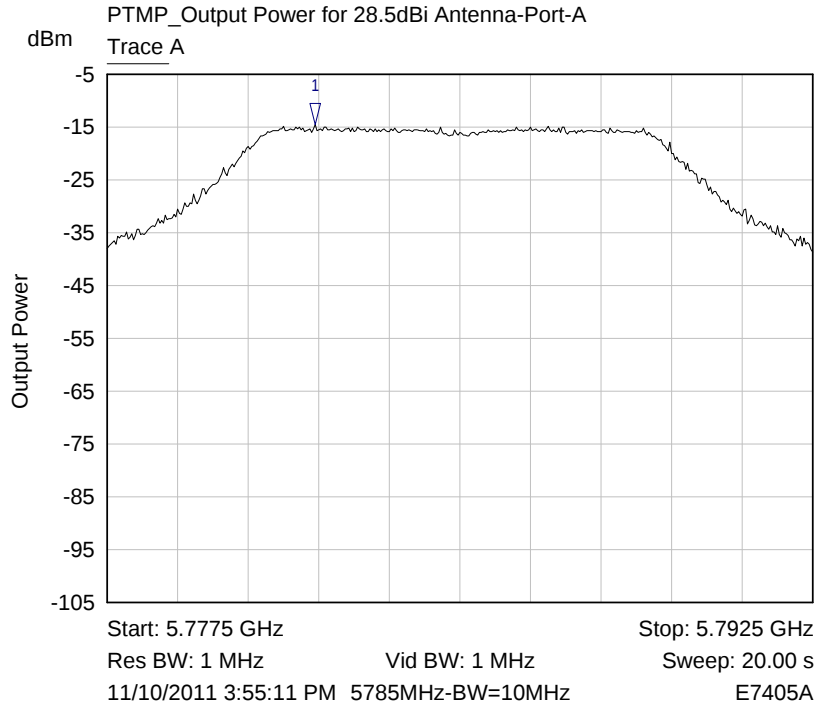
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8443 GHz	-11.51 dBm	Pout=-11.51+9.538=-1.972dBm

PTMP Power for 28.5dBi Antenna/ 30



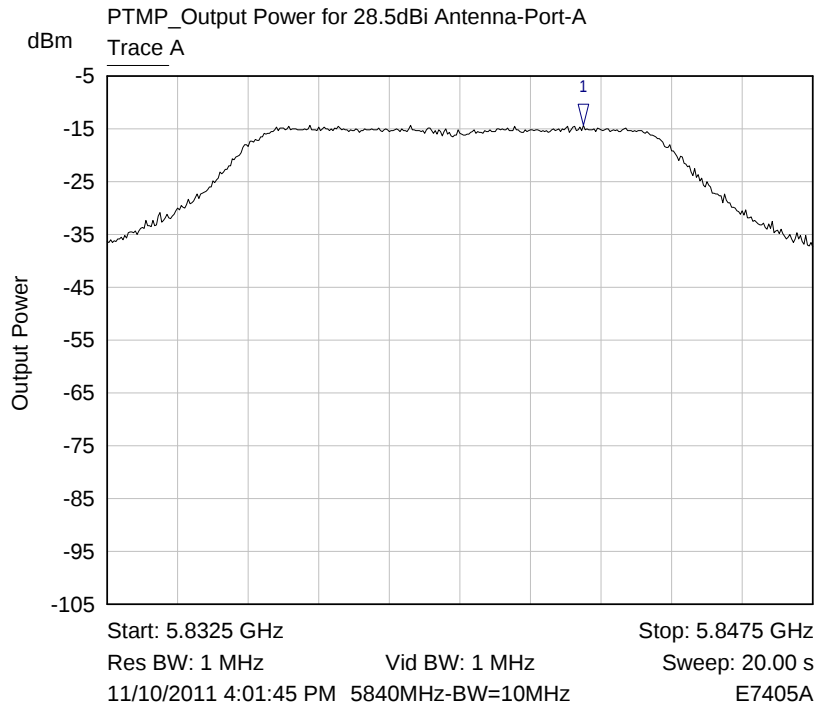
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7324 GHz	-13.93 dBm	Pout=-13.93+12.167=-1.763dBm

PTMP Power for 28.5dBi Antenna/ 31



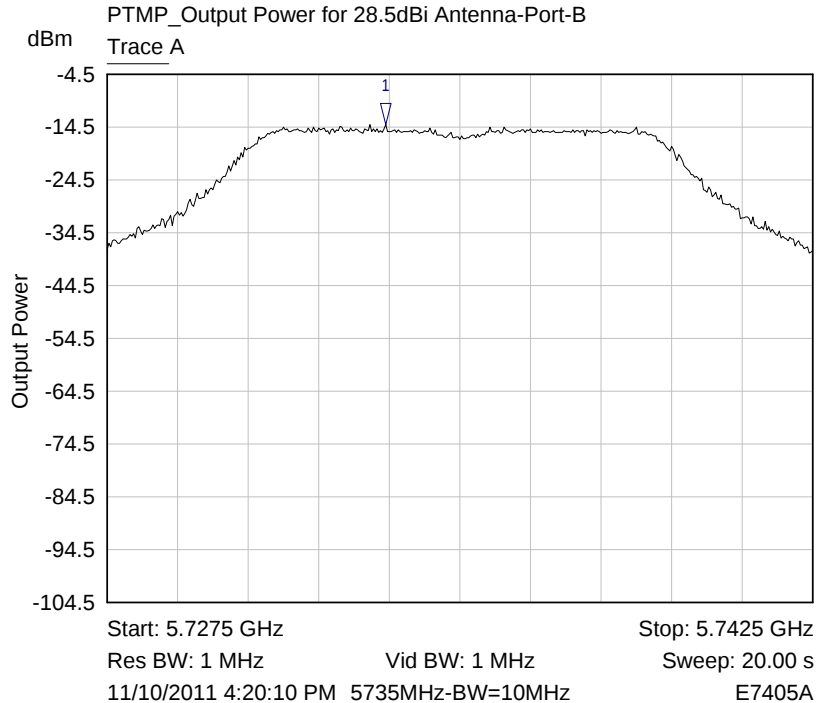
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7819 GHz	-14.52 dBm	Pout=-14.52+12.19=-2.33dBm

PTMP Power for 28.5dBi Antenna/ 32



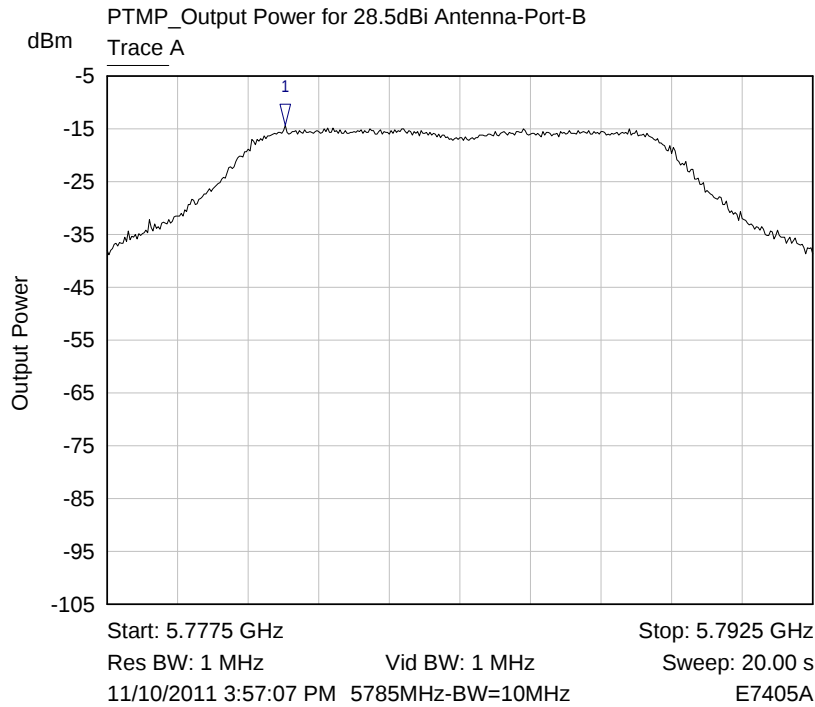
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8426 GHz	-14.30 dBm	Pout=-14.3+12.375=-1.925dBm

PTMP Power for 28.5dBi Antenna/ 33



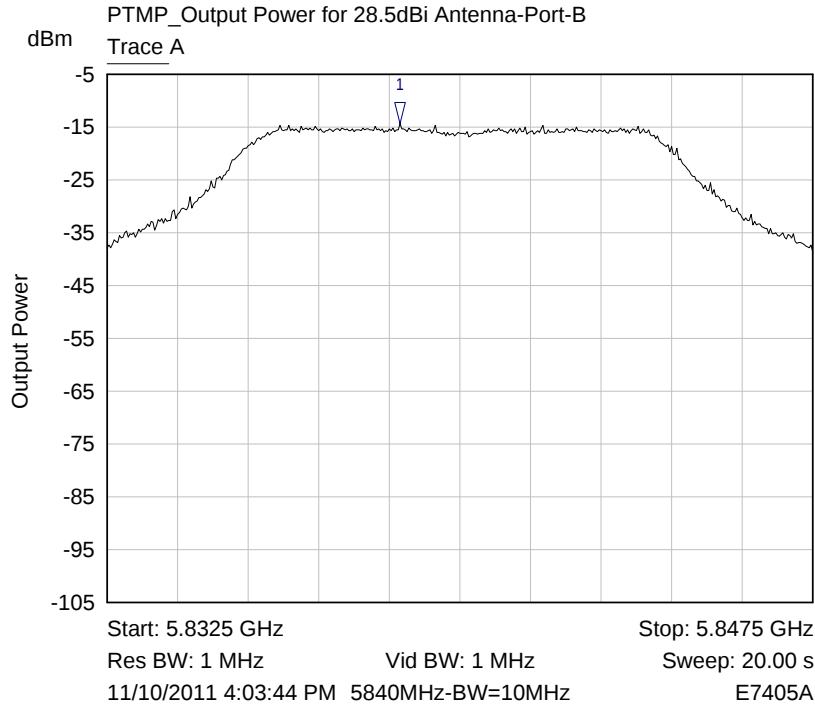
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7334 GHz	-13.94 dBm	Pout=-13.94+12.117=-1.823dBm

PTMP Power for 28.5dBi Antenna/ 34



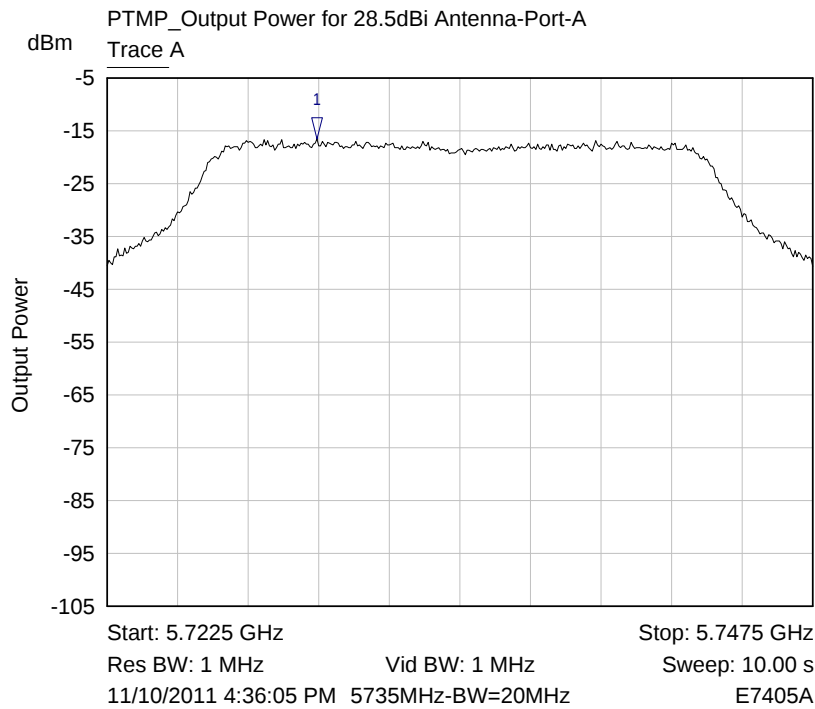
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7813 GHz	-14.37 dBm	Pout=-14.37+12.117=-2.253dBm

PTMP Power for 28.5dBi Antenna/ 35



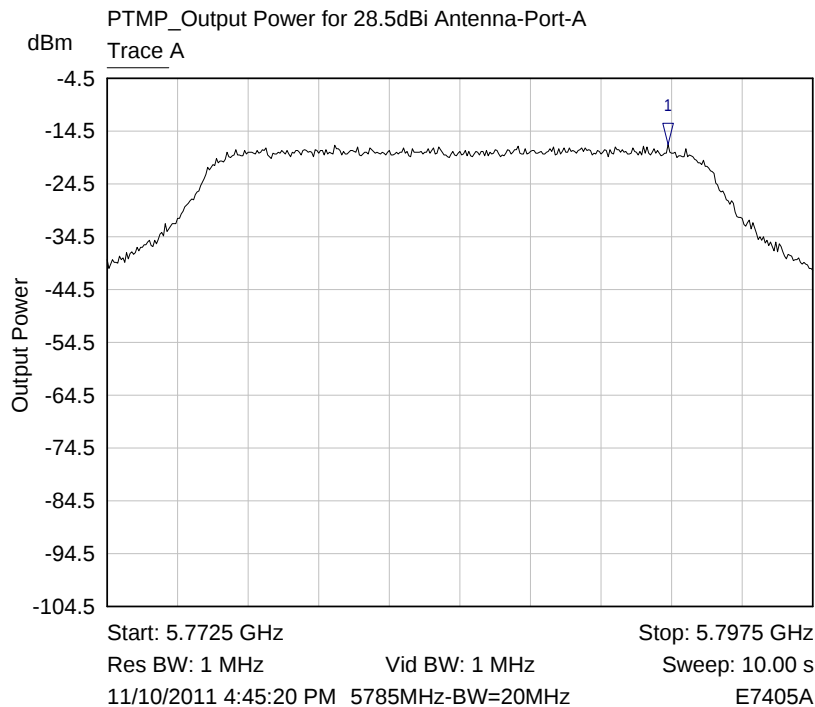
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8387 GHz	-14.35 dBm	Pout=-14.35+12.188=-2.162dBm

PTMP Power for 28.5dBi Antenna/ 36



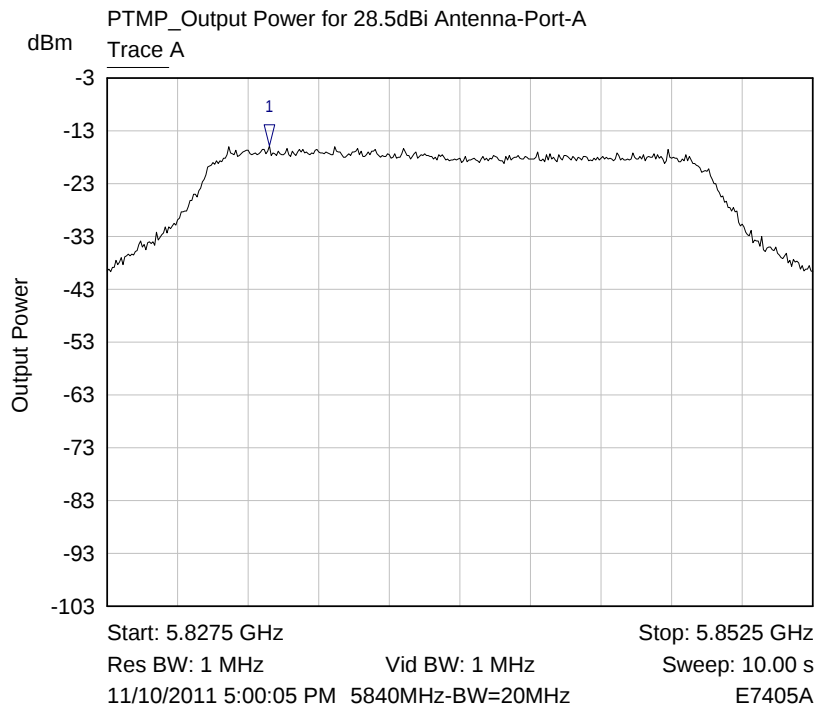
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7299 GHz	-16.45 dBm	Pout=-16.45+14.369=-2.081dBm

PTMP Power for 28.5dBi Antenna/ 37



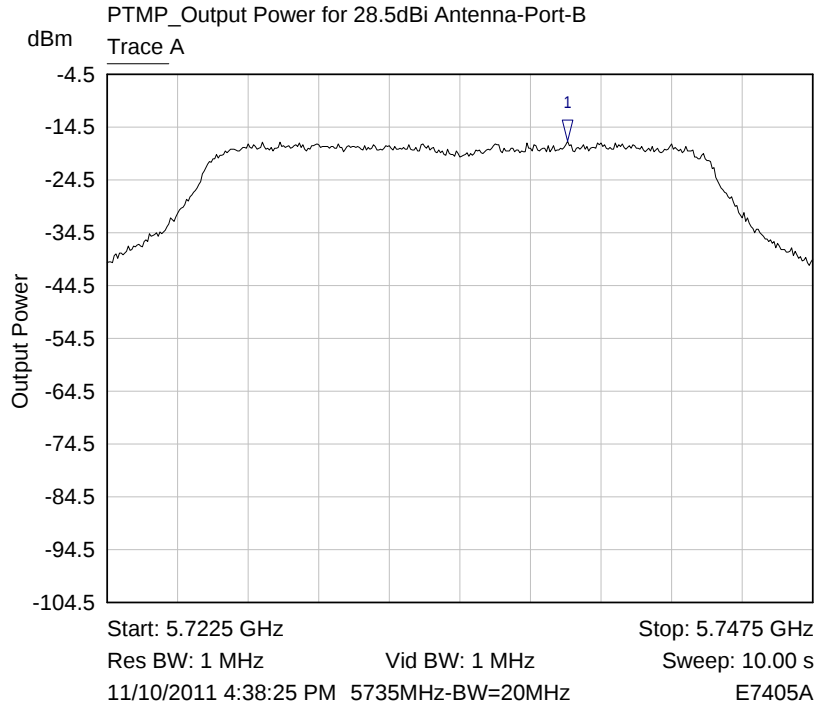
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7924 GHz	-17.01 dBm	Pout=-17.01+14.43=-2.58dBm

PTMP Power for 28.5dBi Antenna/ 38



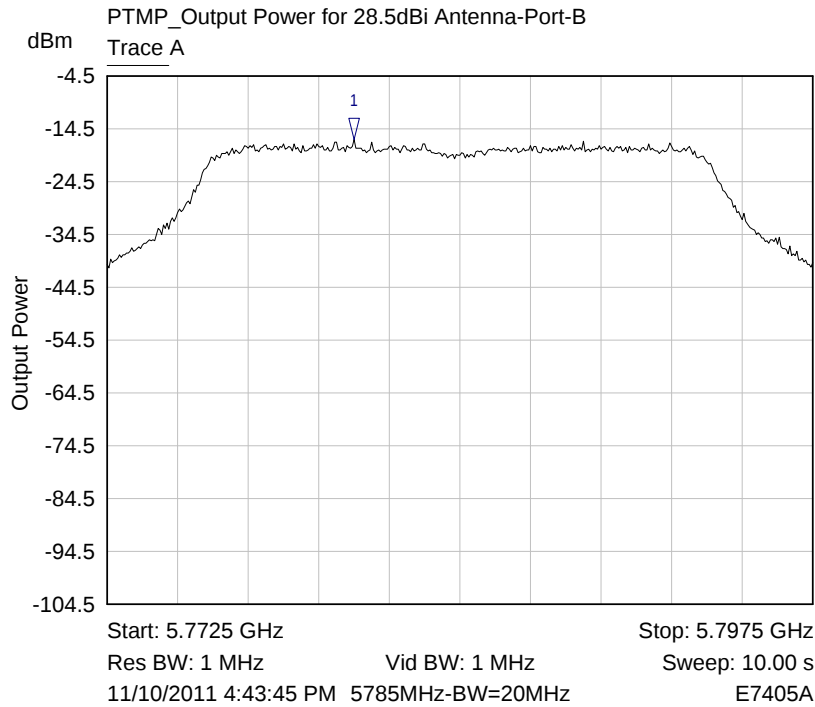
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8333 GHz	-15.86 dBm	Pout=-15.86+14.442=-1.418dBm

PTMP Power for 28.5dBi Antenna/ 39



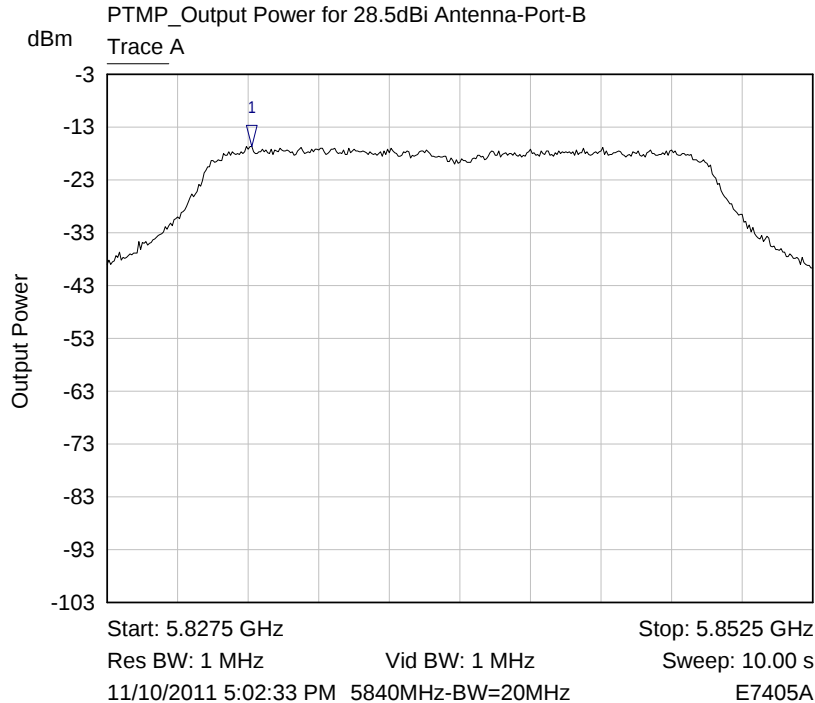
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7388 GHz	-17.15 dBm	Pout=-17.48+14.3=-3.18dBm

PTMP Power for 28.5dBi Antenna/ 40



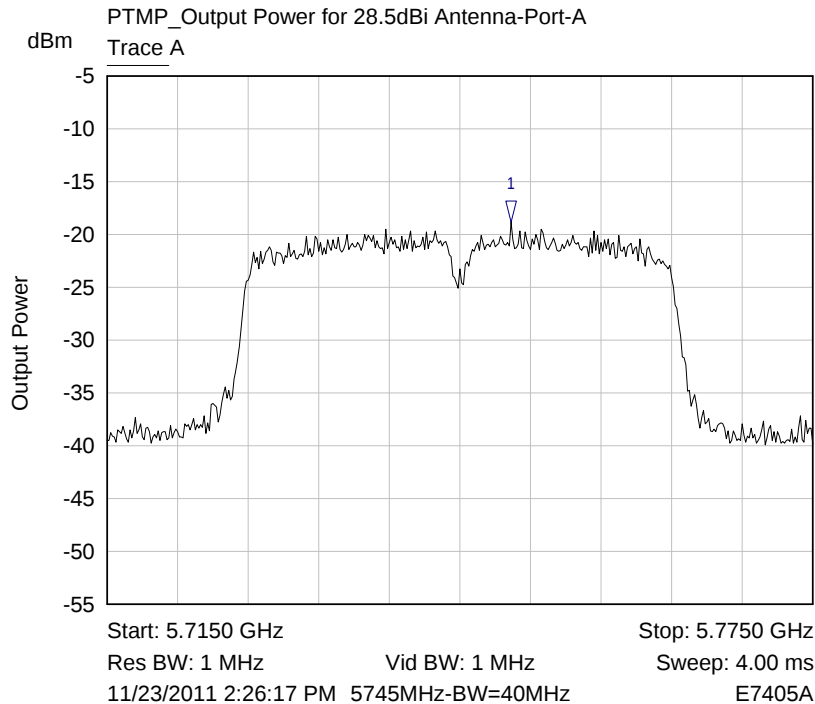
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7813 GHz	-16.42 dBm	Pout=-16.42+14.304=-2.116dBm

PTMP Power for 28.5dBi Antenna/ 41



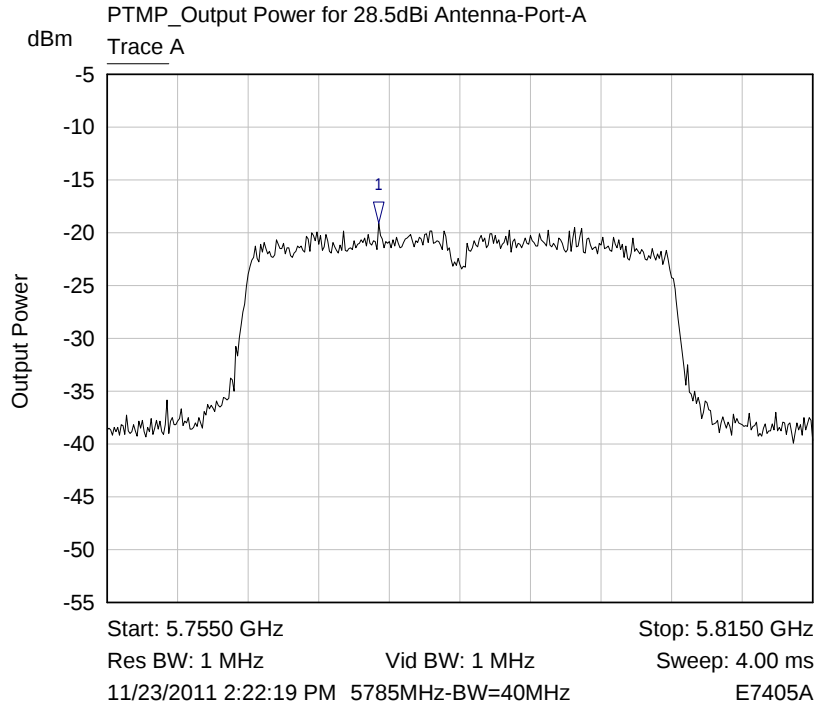
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8326 GHz	-16.61 dBm	Pout=-15.86+14.53=-1.33dBm

PTMP Power for 28.5dBi Antenna/ 42



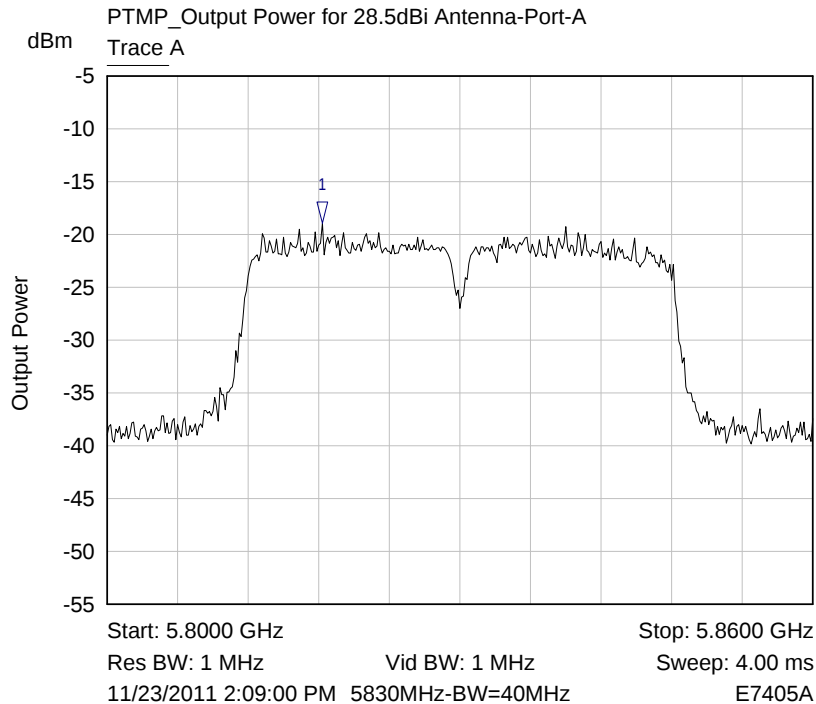
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7494 GHz	-18.80 dBm	Pout=-18.8+17.012=-1.788dBm

PTMP Power for 28.5dBi Antenna/ 43



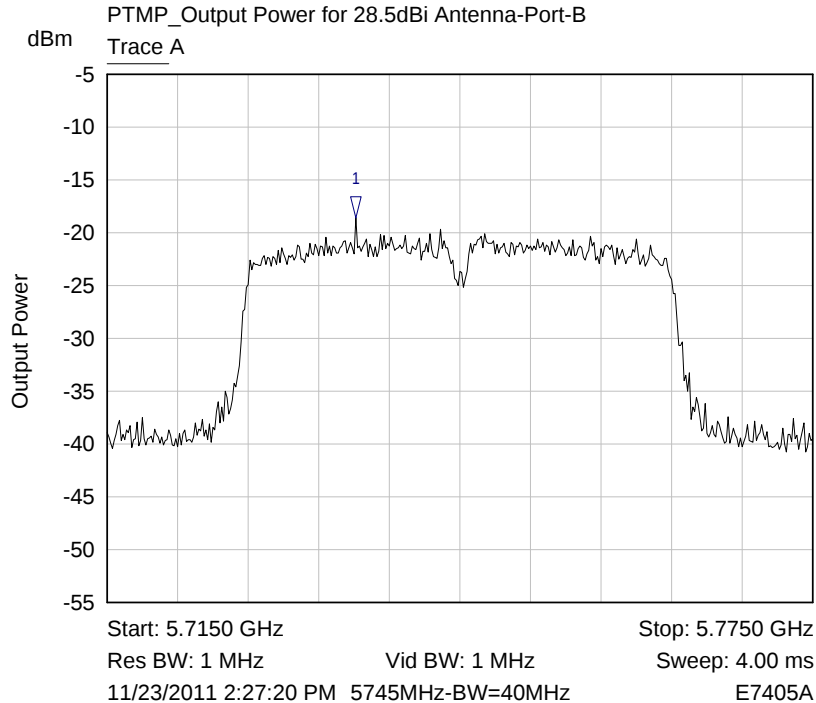
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7781 GHz	-19.09 dBm	Pout=-19.09+17.184=-1.906dBm

PTMP Power for 28.5dBi Antenna/ 44



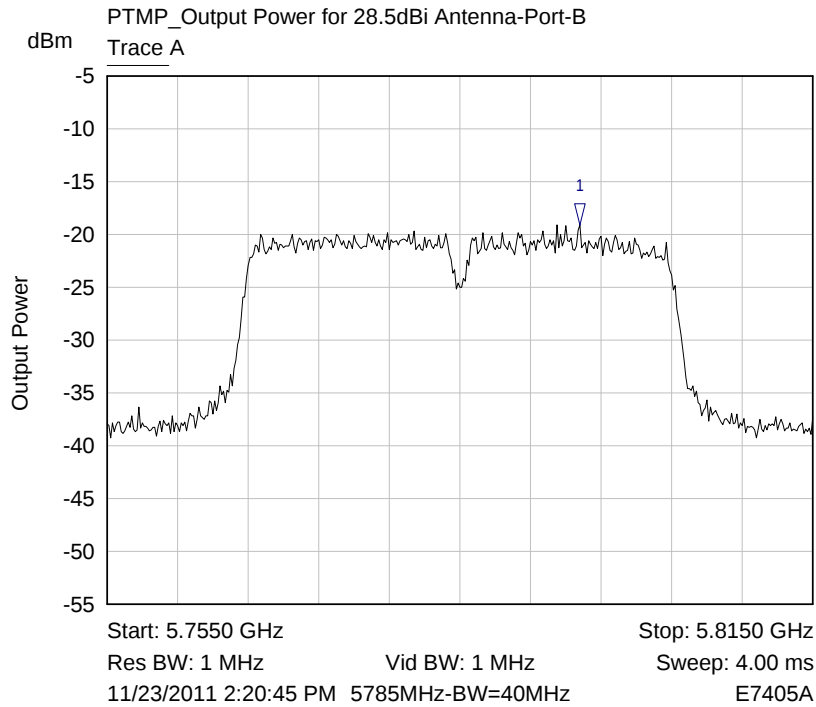
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8183 GHz	-18.90 dBm	Pout=-18.9+17.24=-1.66dBm

PTMP Power for 28.5dBi Antenna/ 45



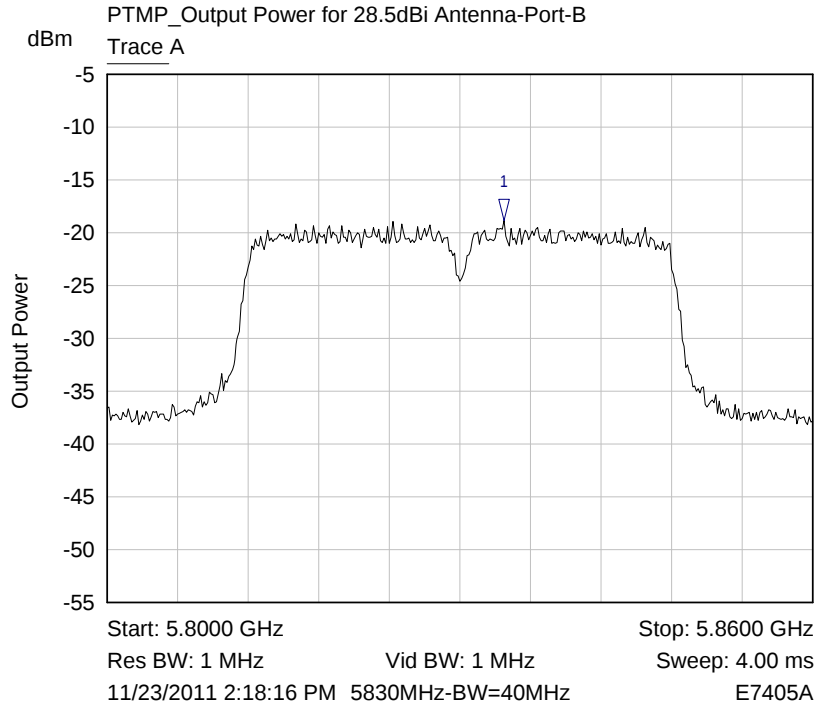
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7362 GHz	-18.62 dBm	Pout=-18.62+17.053=-1.567dBm

PTMP Power for 28.5dBi Antenna/ 46



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7952 GHz	-19.06 dBm	Pout=-19.06+17.08=-1.98dBm

PTMP Power for 28.5dBi Antenna/ 47



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8338 GHz	-18.81 dBm	Pout=-18.81+17.144=-1.666dBm

PTMP Power for 28.5dBi Antenna/ 48

8. OUT OF BAND CONDUCTED EMISSION

Equipment Under Test	WipAir 8000/4000
Test Method	FCC New Guidance on Measurements for DTS in section 15.247(d).
Date	09.11.2011
Relative Humidity	40%
Ambient Temperature	25 ⁰ C
Air Pressure	1010 hPa
Test Setup	Figure 2

Testing Engineer: I. Arbitman



Date : 09.11.2011

8.1. Test Results Summary & Conclusions

The E.U.T was found in compliance with 15.247 (d) conducted emission requirements

8.2. Limits of Conducted Emission at Antenna Terminals

The test unit shall meet the limits of Table 25 for FCC Part 15 Para 15.247 equipment.

Table 29: Limits for 15.247 (d)

Frequency* (MHz)	Attenuation below carrier** (dBc)
0.009-10 th harmonic	20.00 (30.00)

*: This limit applies from the lowest frequency generated in the device, without going below 9 kHz up to the tenth harmonic of the highest fundamental frequency.

**: Spurious emission limit is provided in terms of attenuate peak of modulated carrier measured with the same resolution bandwidth.

8.3. Test Instrumentation and Equipment

Table 30: Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	E7405A	Agilent	11.05.2012
10db attenuator	771-20	Narda	29.12.2011
10db attenuator	771-20	Narda	29.12.2011
10db attenuator	771-20	Narda	29.12.2011
Splitter	11667A	Agilent	22.10.2012

8.4. Test Procedure

The EUT was set to transmit at 100% duty cycle, at highest transmitting power.

Out of band conducted measurements were performed separately for each RF channel and also for both channels combined through RF Combiner/Splitter by connecting the EUT to a spectrum analyzer through an appropriate attenuator.

Measurements were done for top, middle and bottom frequencies, for each channel BW 5, 10, 20 and 40 MHz.

The test set up is shown in figure 3 below.

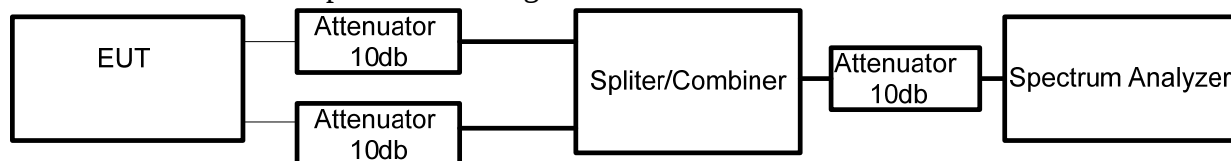


Figure 3: Test Setup for Out of Band Conducted measurements

8.5. Results

Table 31: 5 MHz BW Test Results

Frequency (MHz)	Spurious Emission (dBm)	Limit (dBc)	Margin (dB)	Plot Reference	Pass/ Fail
5735	No emissions noted	20	-	1-13	Pass
5790	No emissions noted	20	-	14-26	Pass
5845	No emissions noted	20	-	27-39	Pass

Table 32: 10 MHz BW Test Results

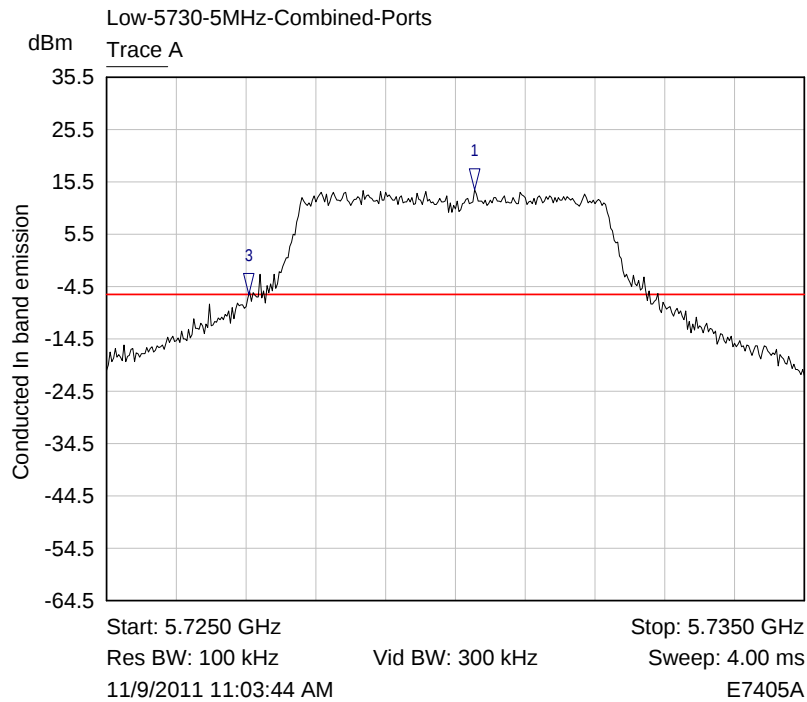
Frequency (MHz)	Spurious Emission (dBm)	Limit (dBc)	Margin (dB)	Plot Reference	Pass/ Fail
5840	No emissions noted	20	-	40-52	Pass
5735	No emissions noted	20	-	53-65	Pass
5790	No emissions noted	20	-	65-78	Pass

Table 33: 20 MHz BW Test Results

Frequency (MHz)	Spurious Emission (dBm)	Limit (dBc)	Margin (dB)	Plot Reference	Pass/ Fail
5735	No emissions noted	20	-	79-91	Pass
5790	No emissions noted	20	-	92-104	Pass
5840	No emissions noted	20	-	105-117	Pass

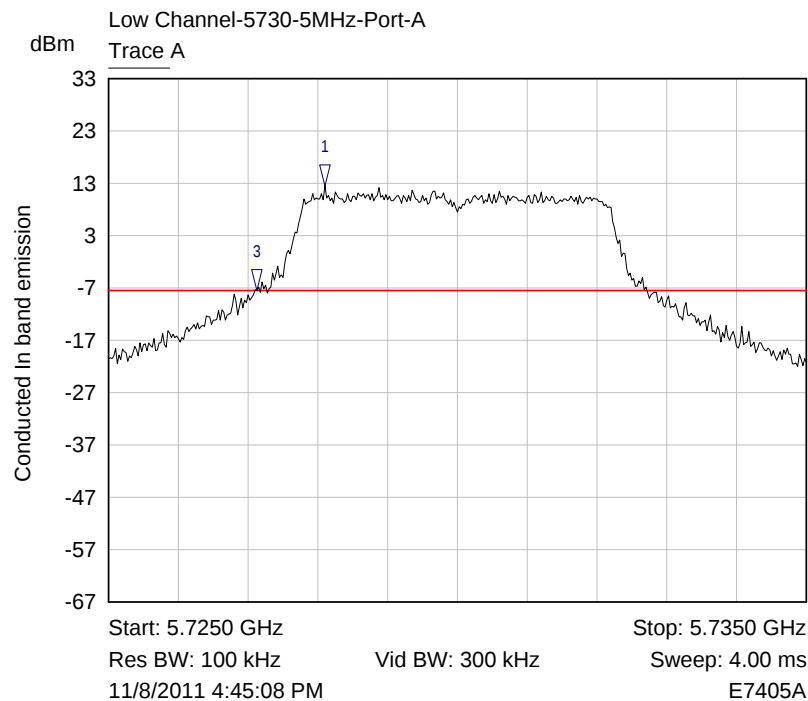
Table 34: 40 MHz BW Test Results

Frequency (MHz)	Spurious Emission (dBm)	Limit (dBc)	Margin (dB)	Plot Reference	Pass/ Fail
5745	No emissions noted	20	-	118-130	Pass
5790	No emissions noted	20	-	131-143	Pass
5830	No emissions noted	20	-	144-156	Pass



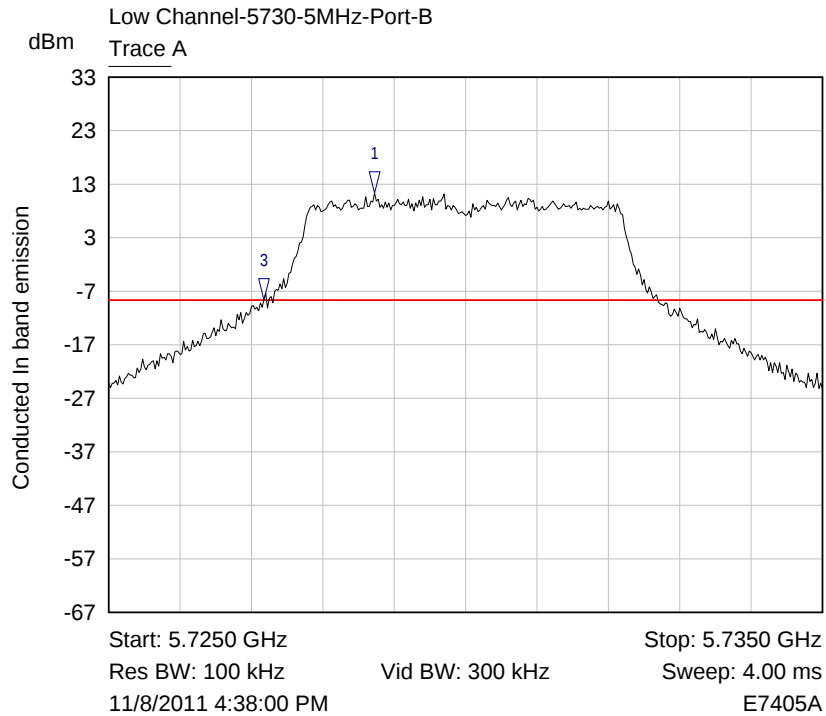
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7303 GHz	14.01 dBm	Highest emission in band
3 ▽	Trace A	5.7270 GHz	-6.01 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 1



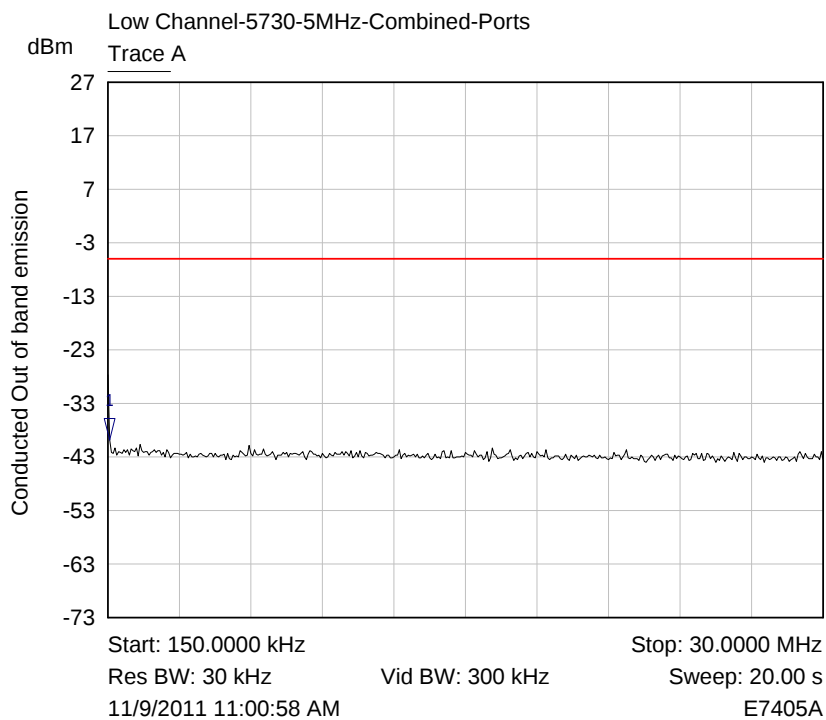
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7281 GHz	12.52 dBm	Highest emission in band
3 ▽	Trace A	5.7271 GHz	-7.43 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 2



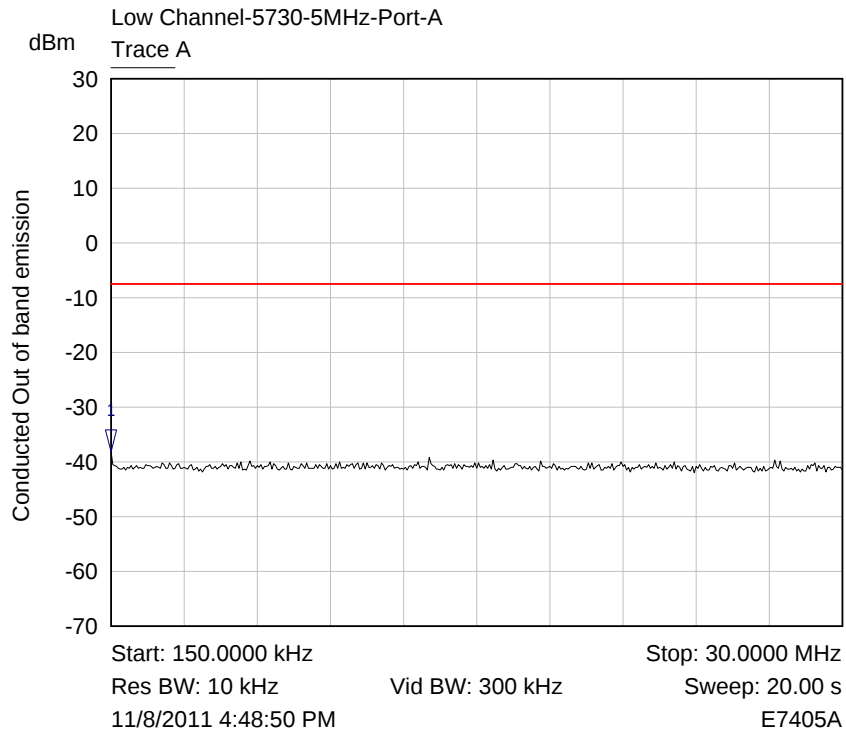
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7287 GHz	11.33 dBm	Highest emission in band
3 ▽	Trace A	5.7272 GHz	-8.67 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 3



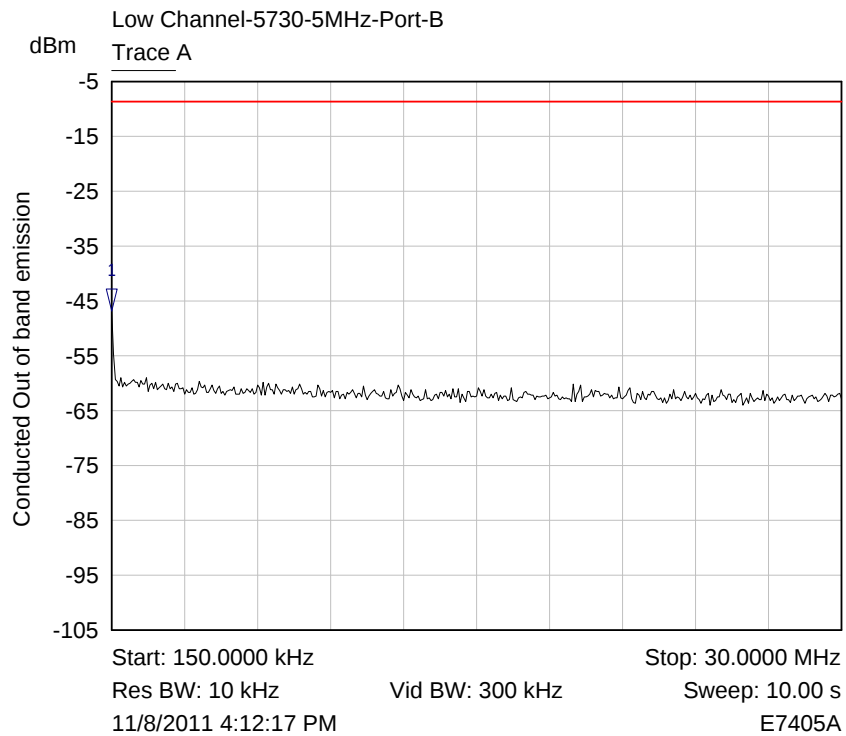
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	224.6250 kHz	-39.91 dBm	

Plot Out of Band Conducted Emission/ 4



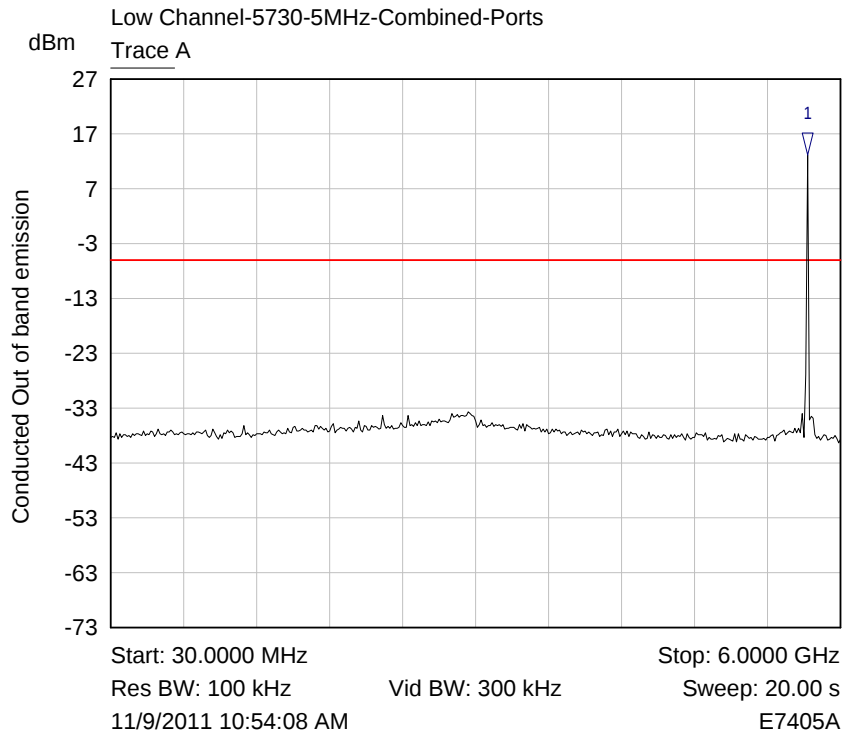
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	150.0000 kHz	-38.15 dBm	

Plot Out of Band Conducted Emission/ 5



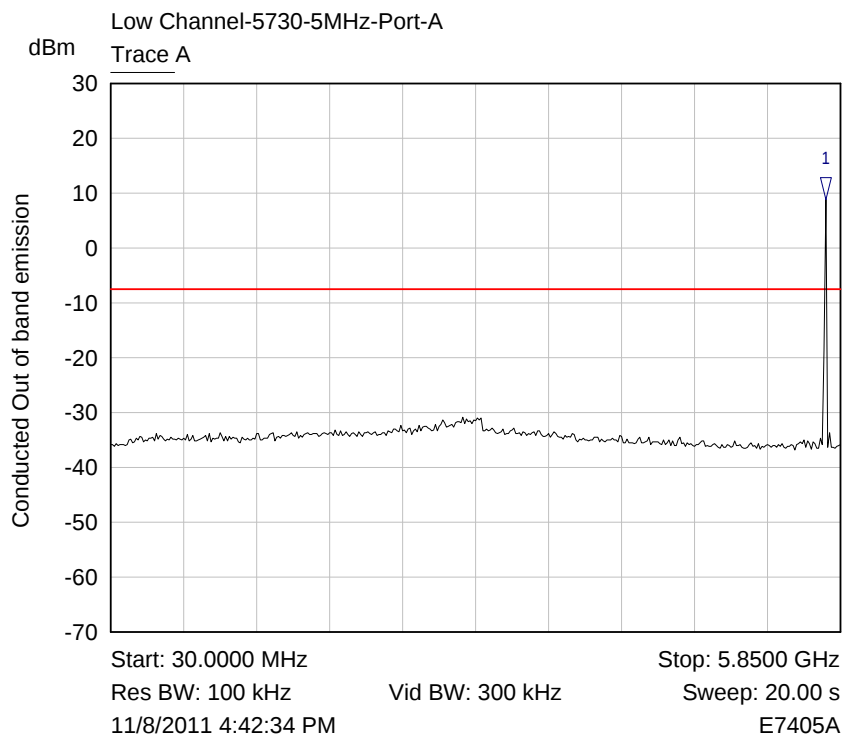
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	150.0000 kHz	-46.90 dBm	

Plot Out of Band Conducted Emission/ 6



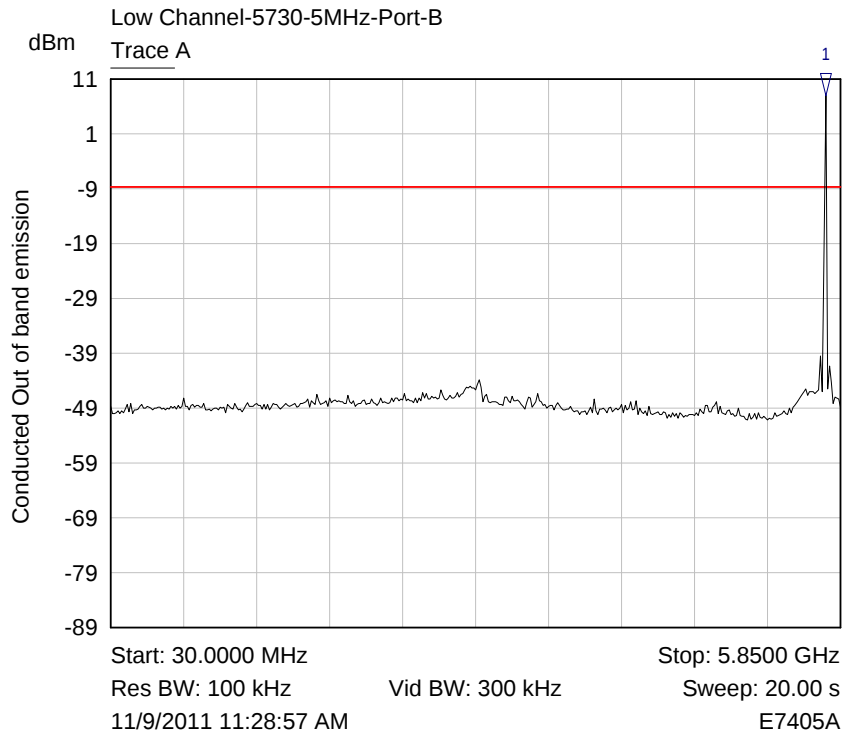
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7314 GHz	13.18 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 7



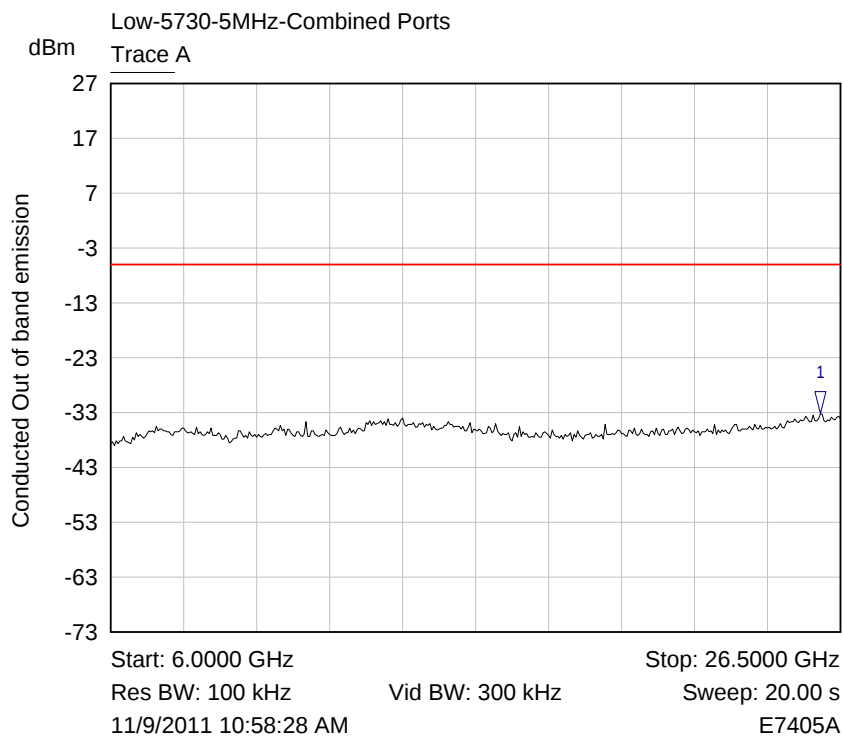
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7336 GHz	8.85 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 8



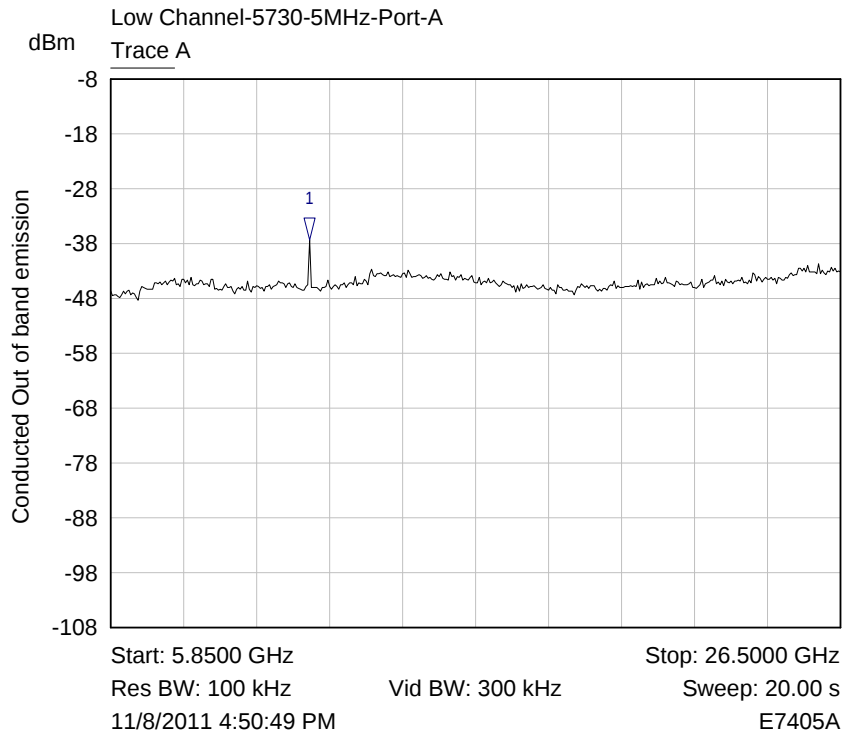
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7336 GHz	7.98 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 9



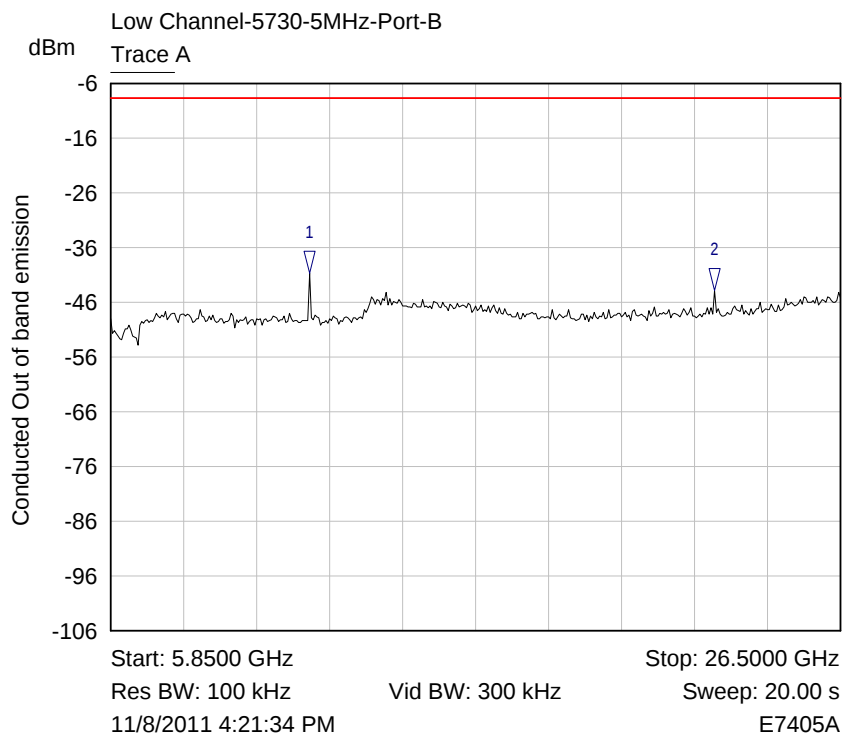
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	25.9363 GHz	-33.19 dBm	

Plot Out of Band Conducted Emission/ 10



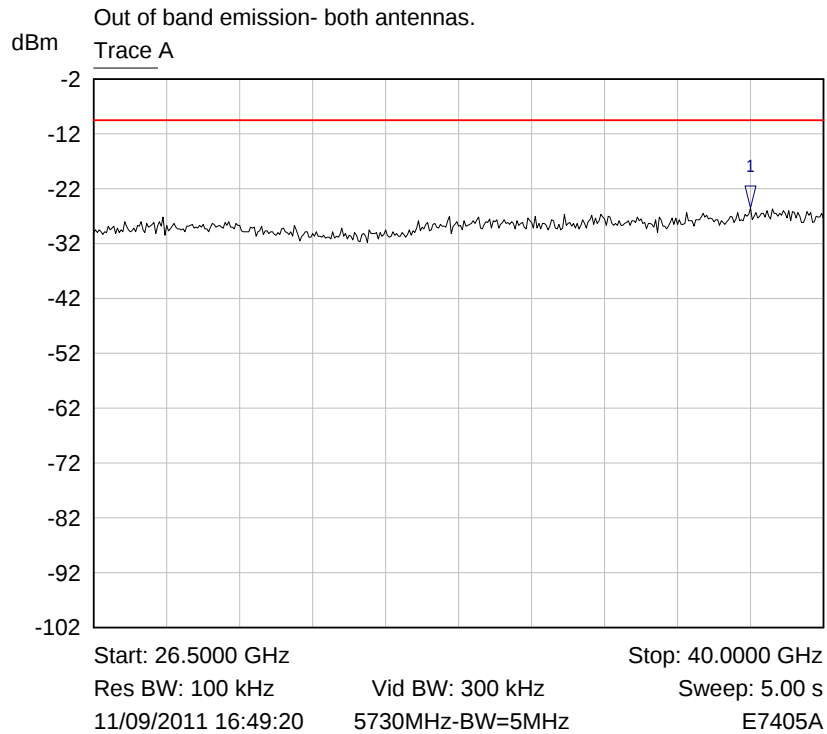
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.4771 GHz	-37.29 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 11



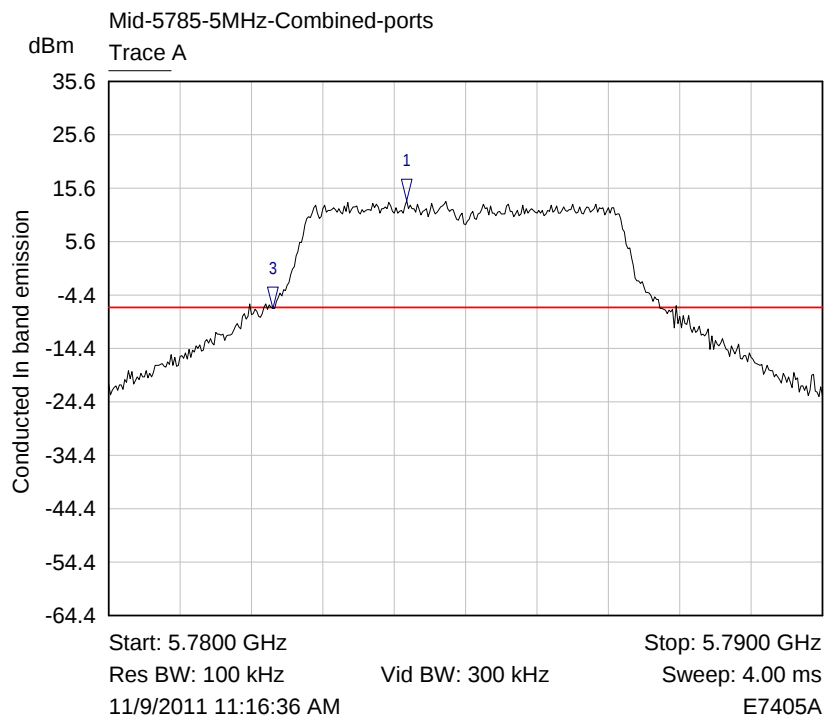
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.4771 GHz	-40.63 dBm	2nd Harmonic
2 ▽	Trace A	22.9379 GHz	-43.83 dBm	4th Harmonic

Plot Out of Band Conducted Emission/ 12



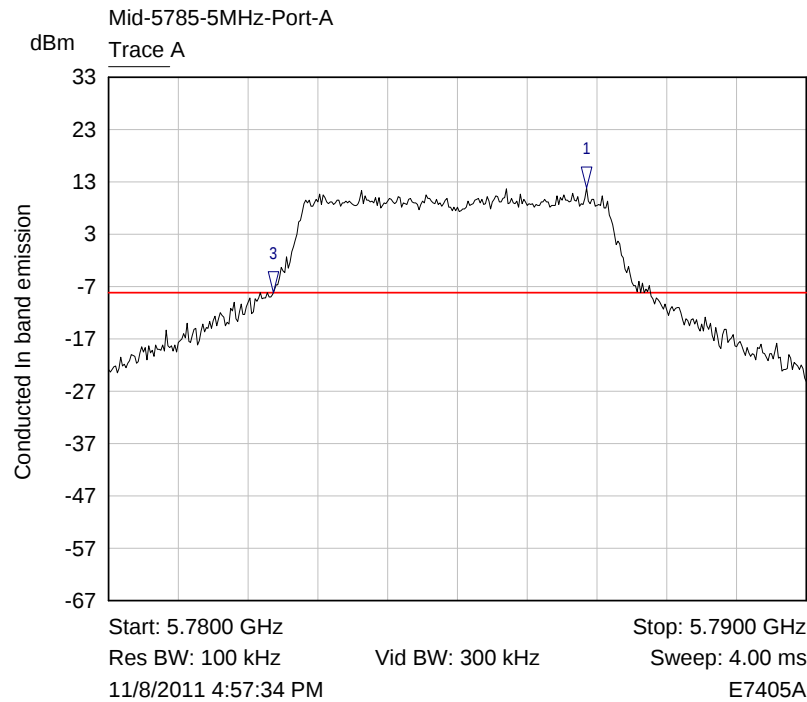
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	38.6500 GHz	-25.52 dBm	

Plot Out of Band Conducted Emission/ 13



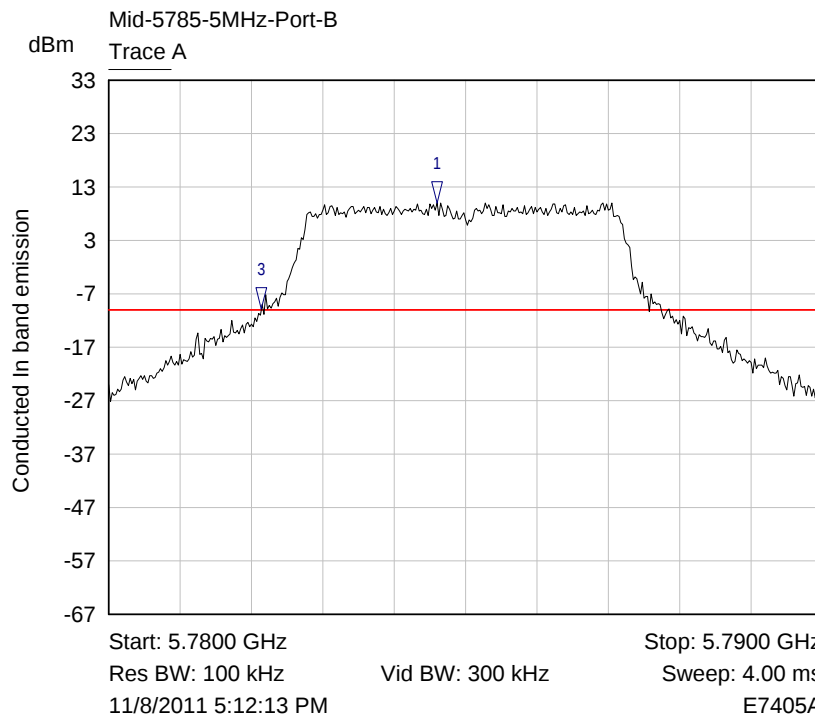
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7842 GHz	13.19 dBm	Highest emission in band
3 ▽	Trace A	5.7823 GHz	-6.84 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 14



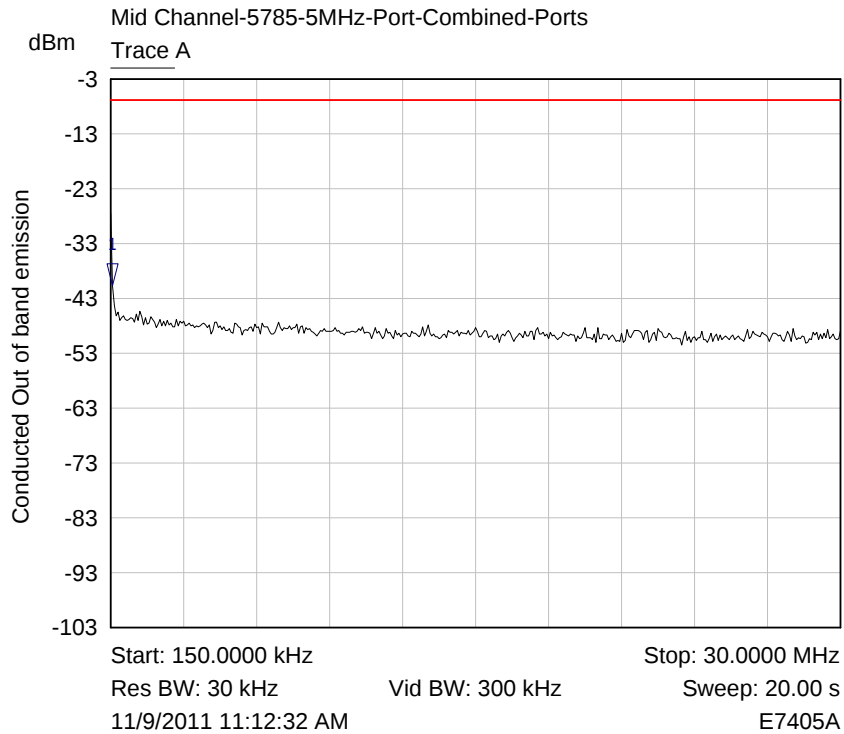
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7869 GHz	11.76 dBm	Highest emission in band
3 ▽	Trace A	5.7824 GHz	-8.25 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 15



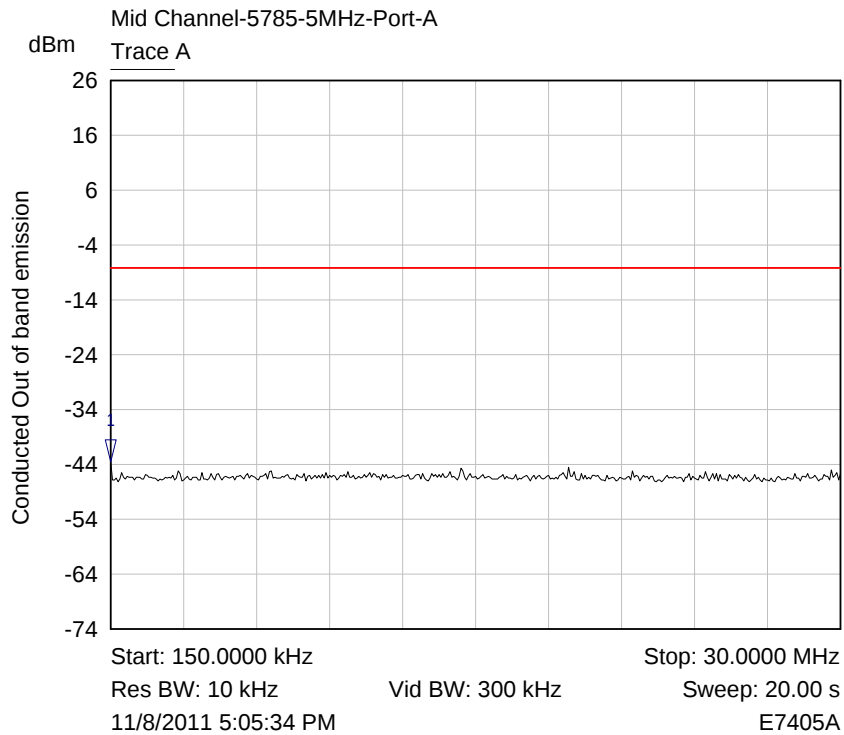
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7846 GHz	10.08 dBm	Highest emission in band
3 ▽	Trace A	5.7821 GHz	-9.91 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 16



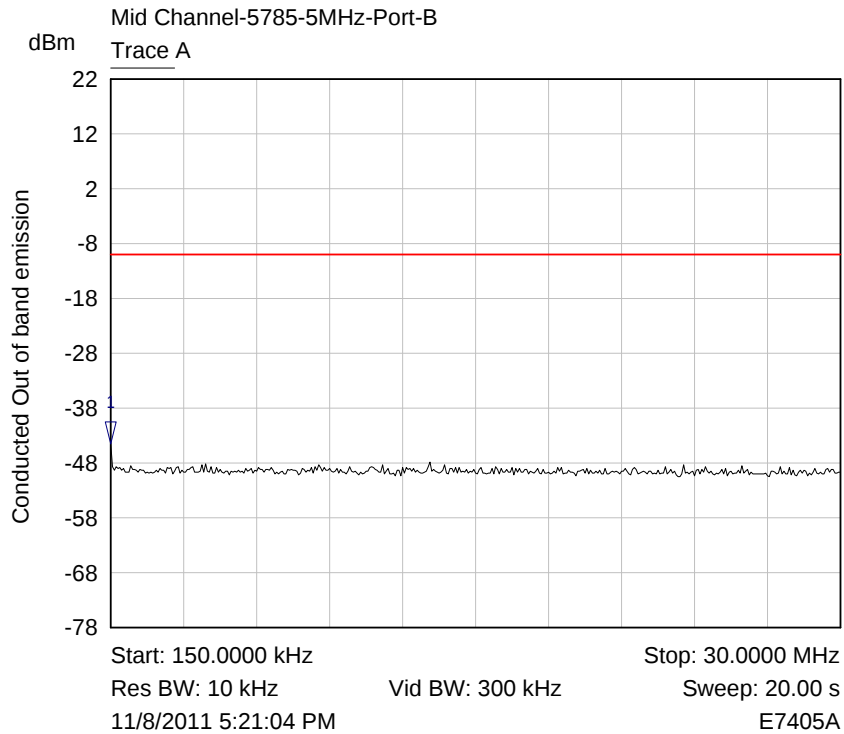
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	224.6250 kHz	-40.71 dBm	

Plot Out of Band Conducted Emission/ 17



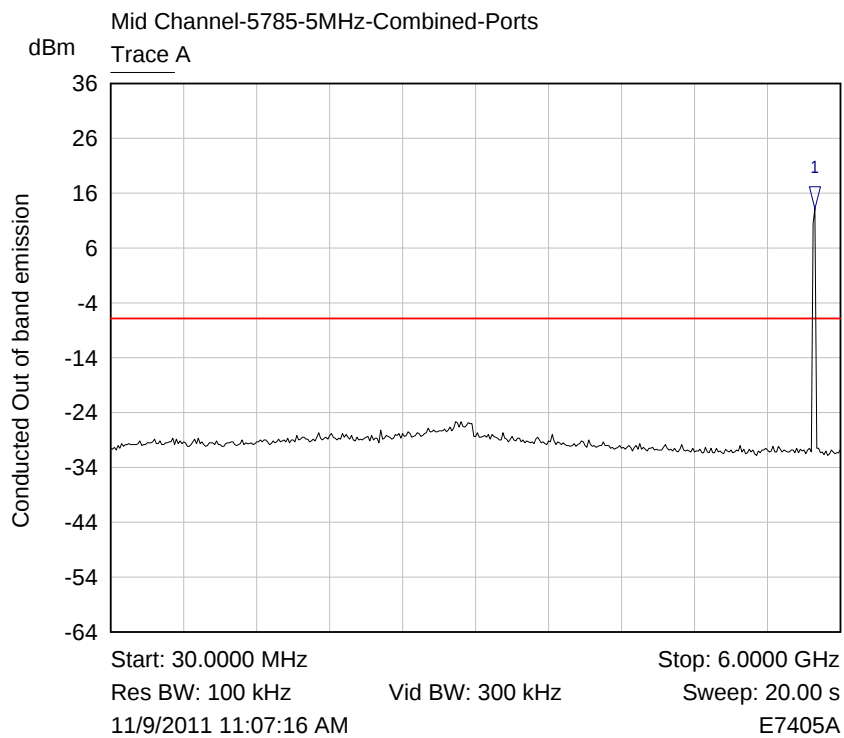
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	150.0000 kHz	-43.55 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 18



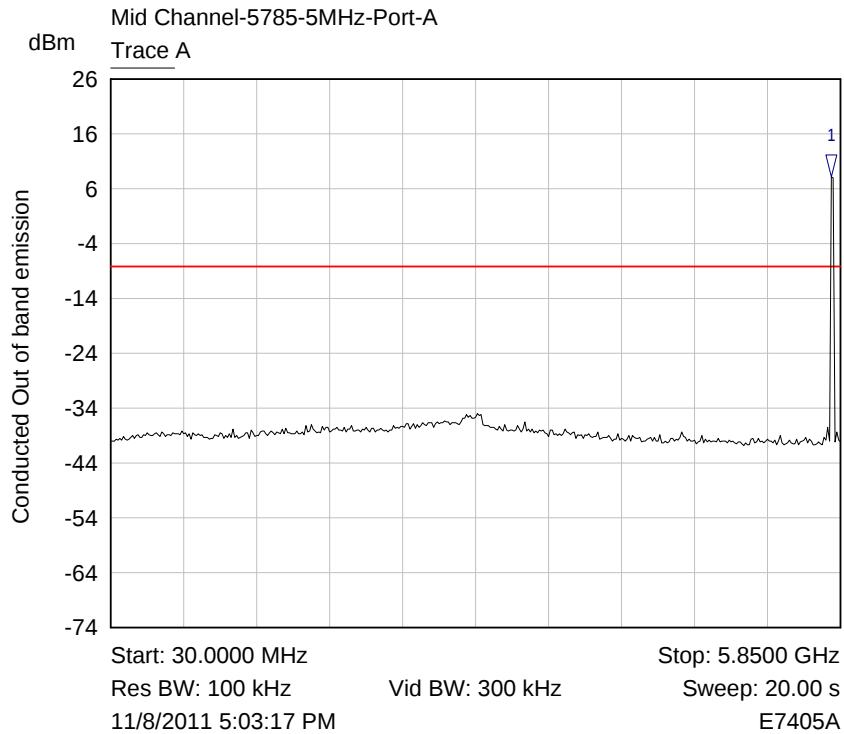
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	150.0000 kHz	-44.58 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 19



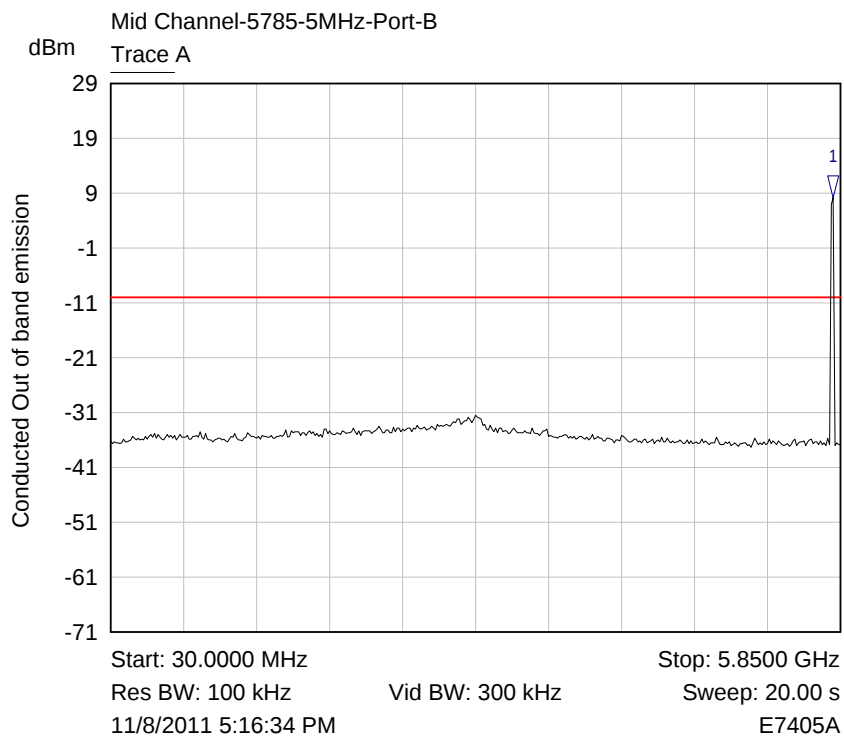
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7911 GHz	13.13 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 20



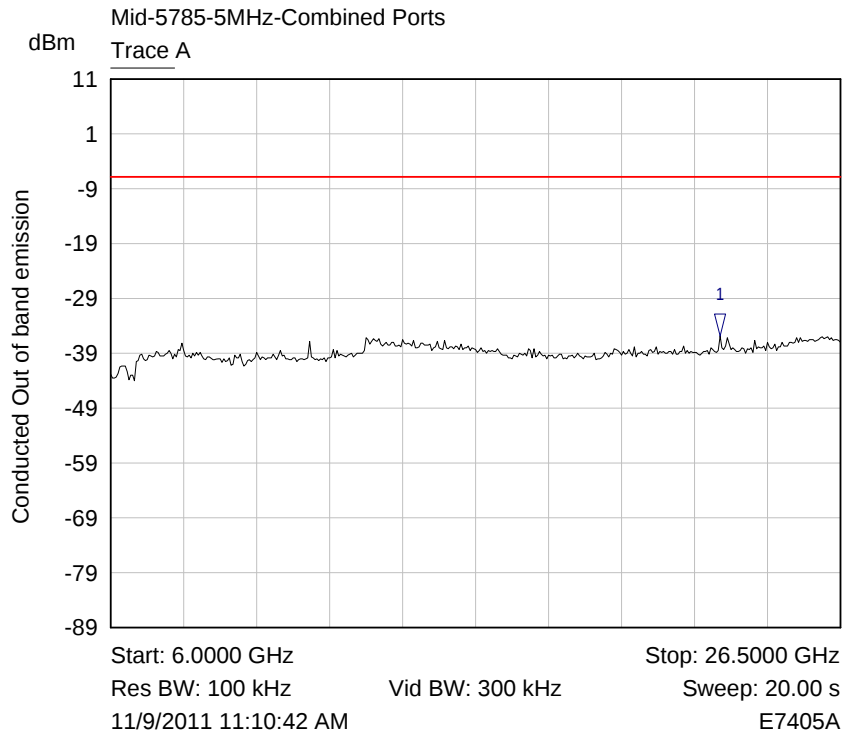
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7773 GHz	8.09 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 21



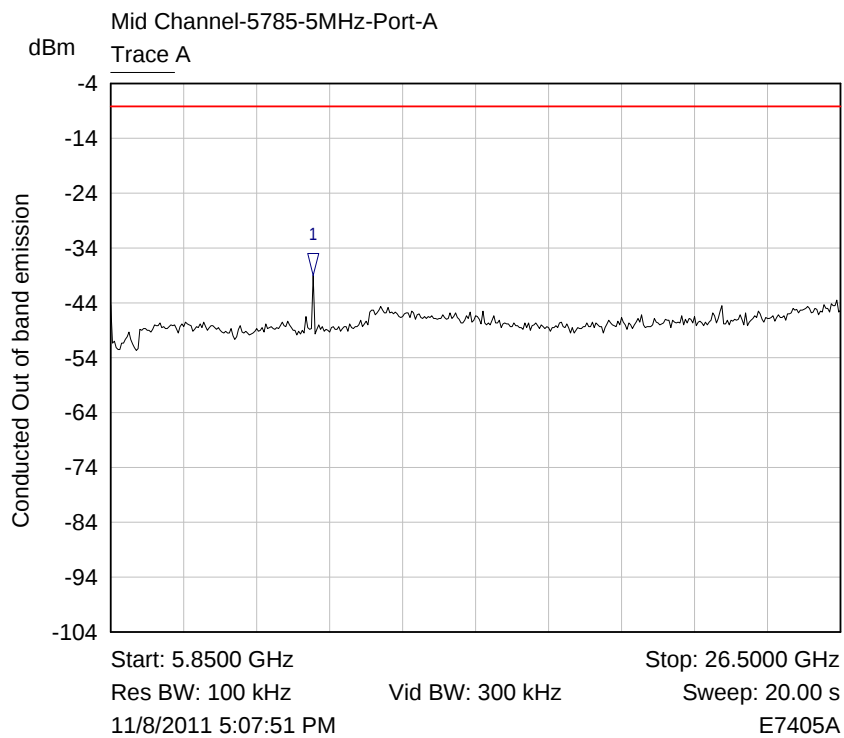
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7918 GHz	8.23 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 22



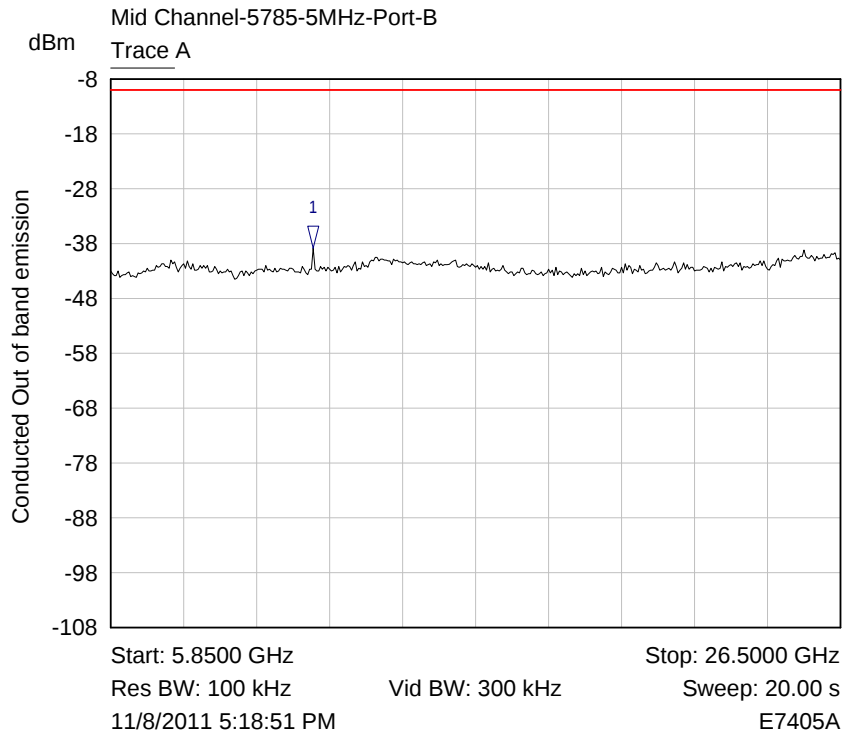
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	23.1175 GHz	-35.85 dBm	

Plot Out of Band Conducted Emission/ 23



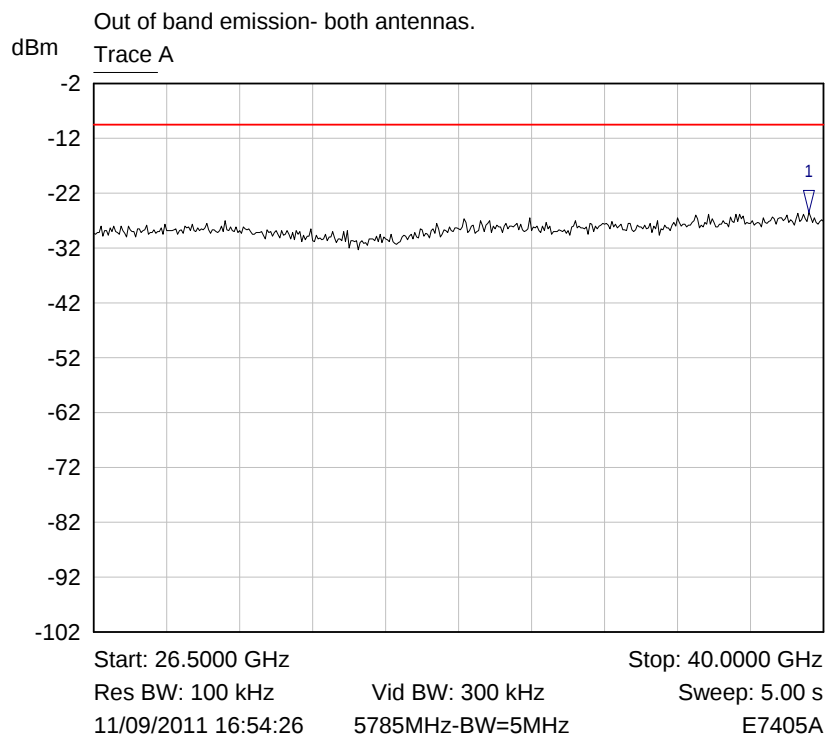
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.5804 GHz	-39.08 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 24



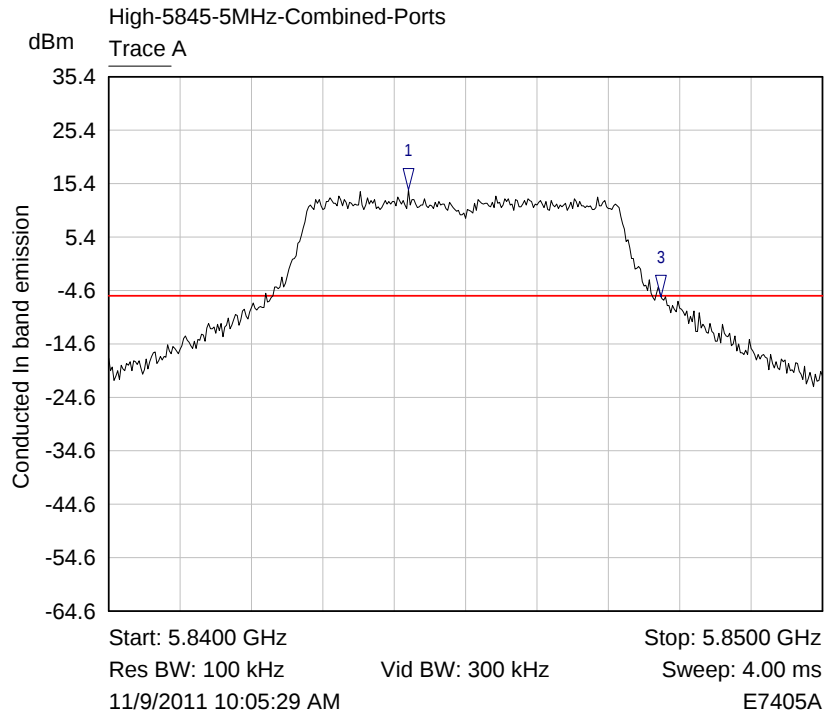
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.5804 GHz	-38.80 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 25



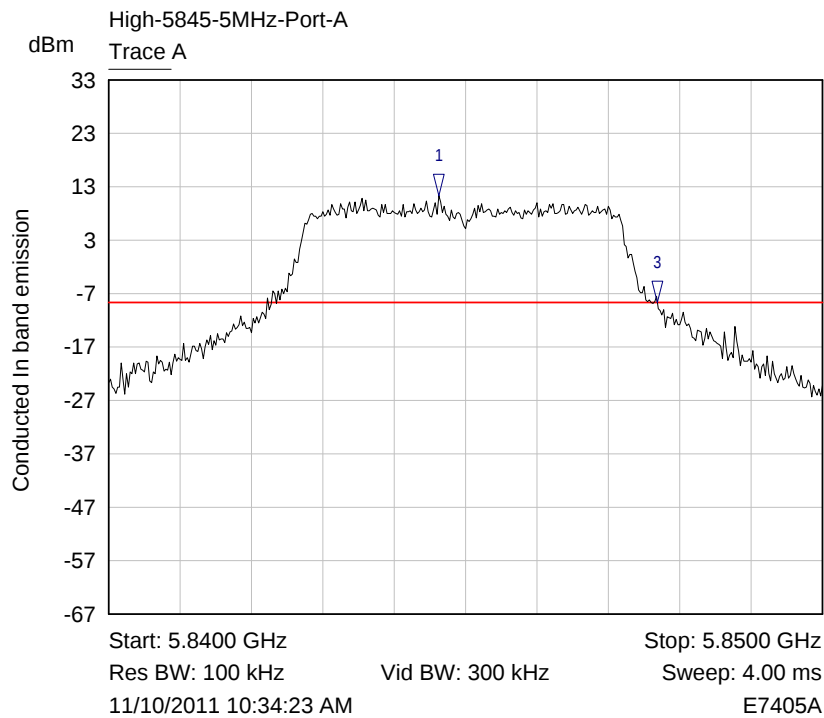
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	39.7300 GHz	-25.52 dBm	

Plot Out of Band Conducted Emission/ 26



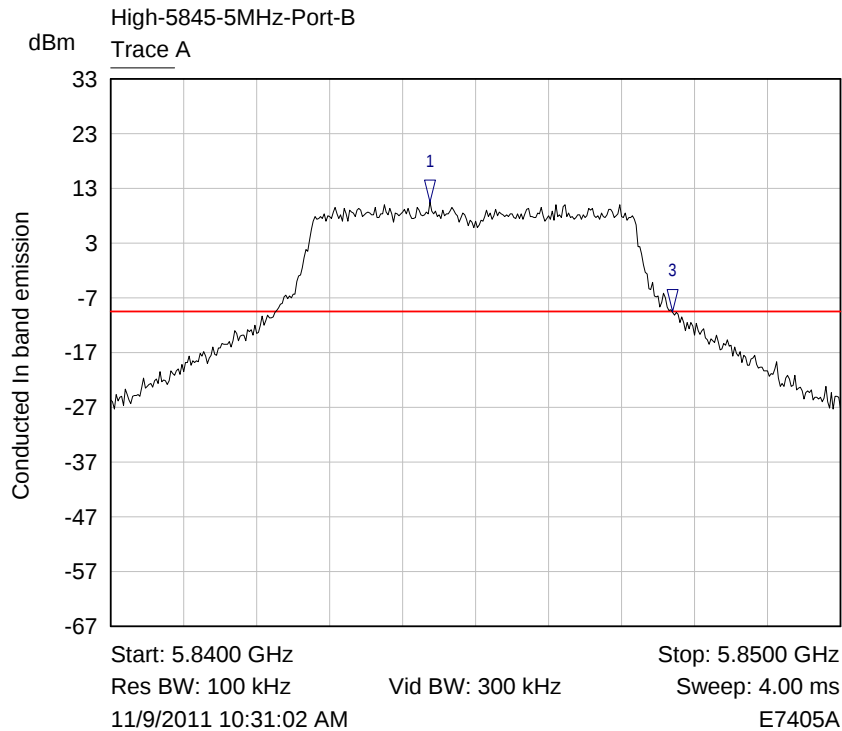
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8442 GHz	14.32 dBm	Highest emission in band
3 ▽	Trace A	5.8477 GHz	-5.68 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 27



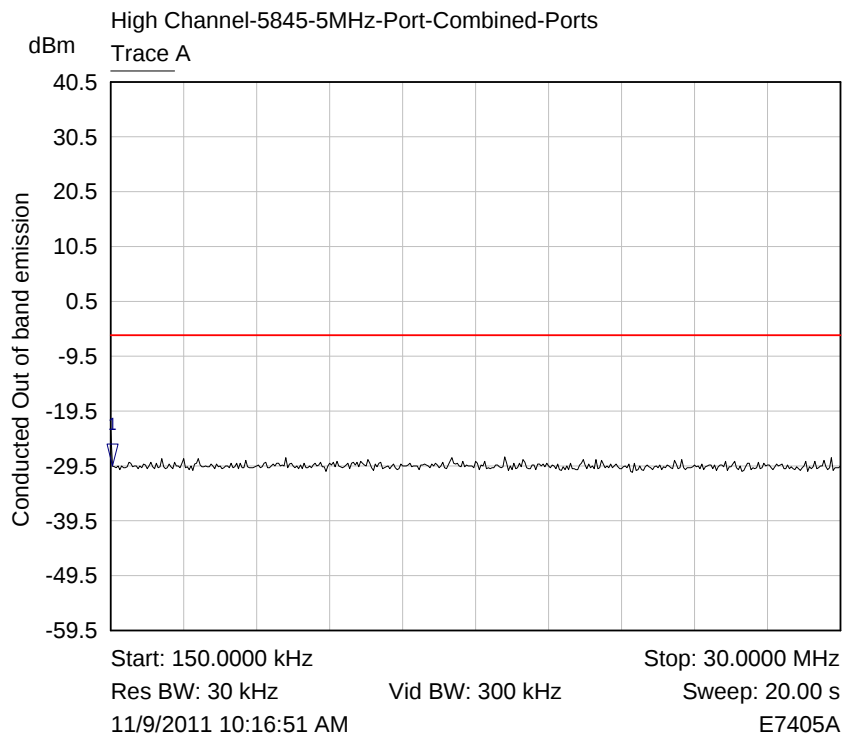
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8446 GHz	11.34 dBm	Highest emission in band
3 ▽	Trace A	5.8477 GHz	-8.66 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 28



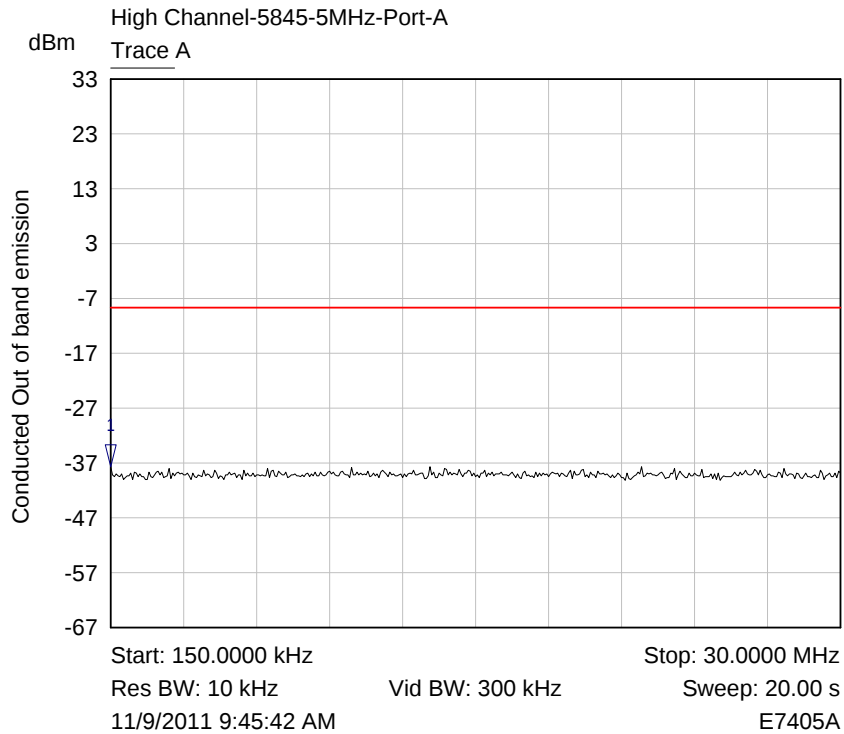
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8444 GHz	10.51 dBm	Highest emission in band
3 ▽	Trace A	5.8477 GHz	-9.49 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 29



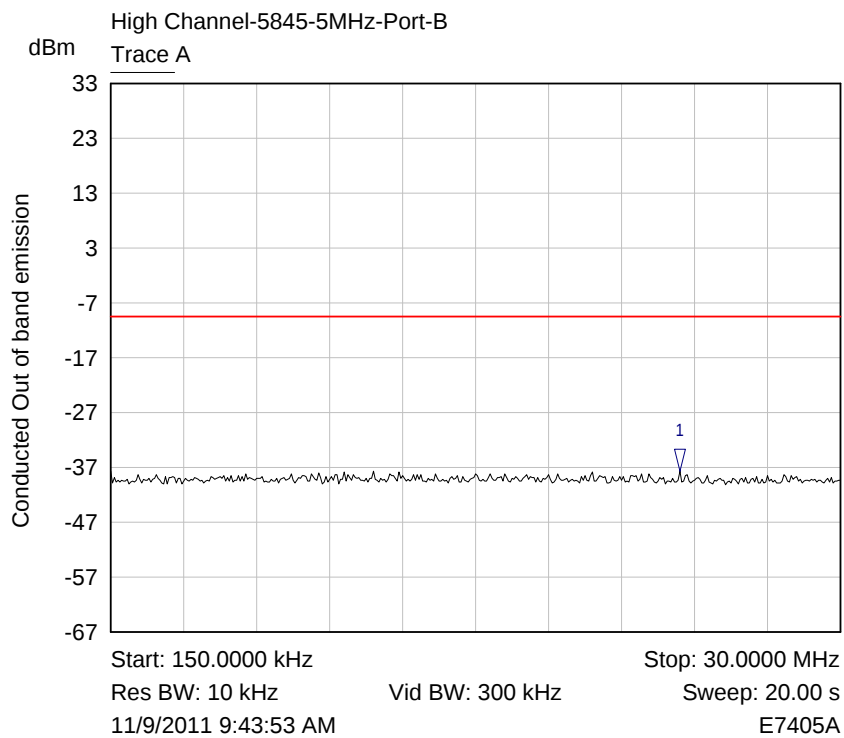
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	224.6250 kHz	-29.47 dBm	

Plot Out of Band Conducted Emission/ 30



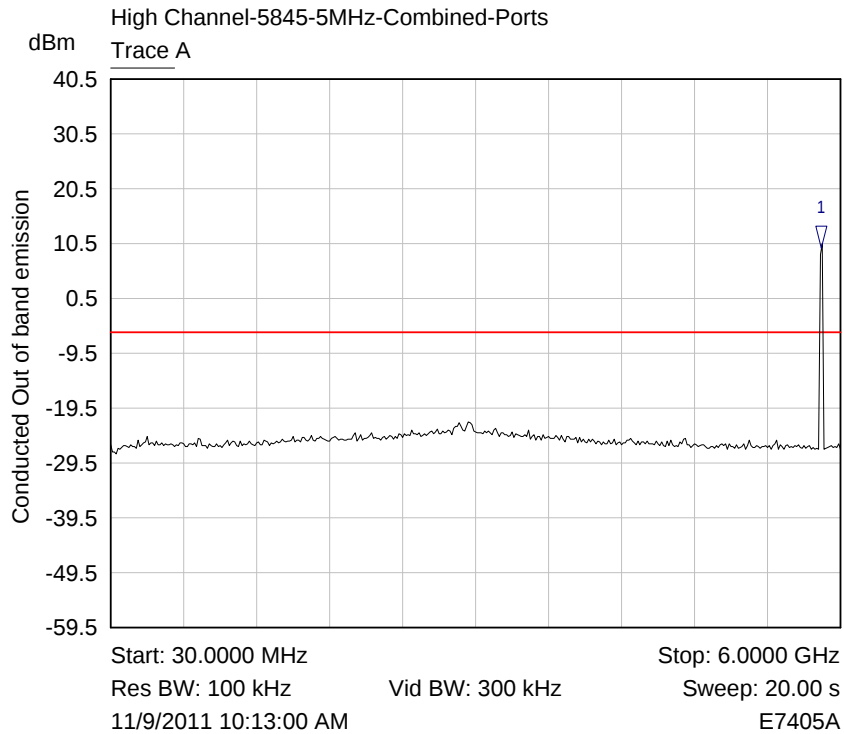
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	150.0000 kHz	-37.63 dBm	

Plot Out of Band Conducted Emission/ 31



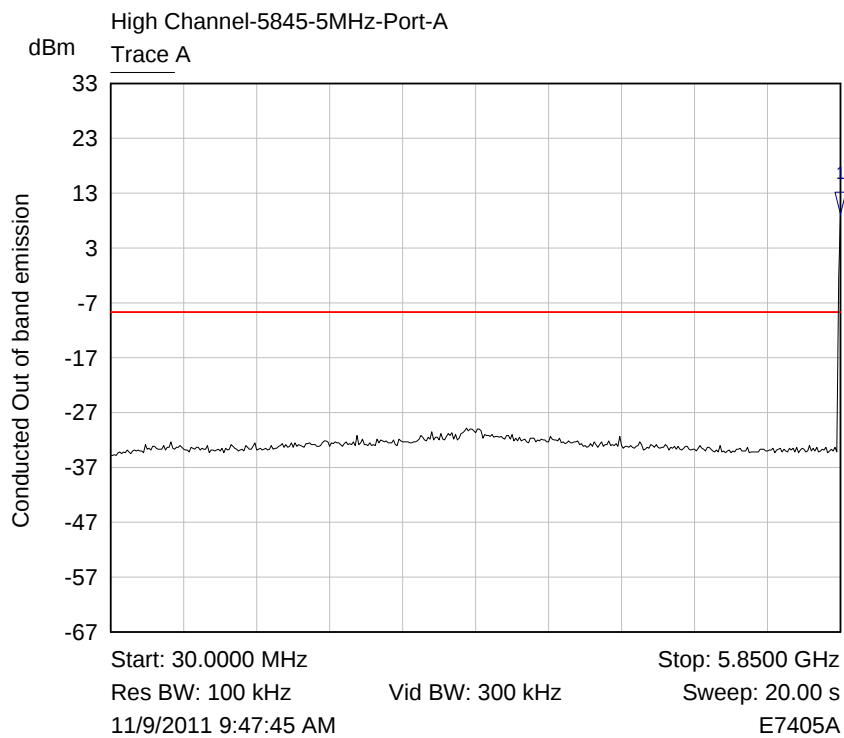
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	23.4330 MHz	-37.63 dBm	

Plot Out of Band Conducted Emission/ 32



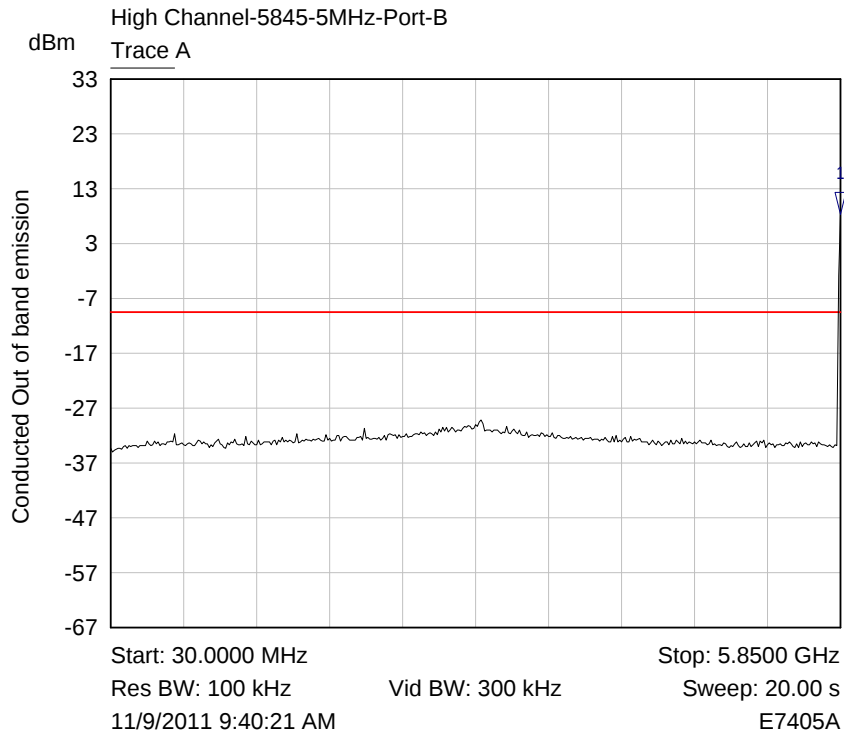
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.8450 GHz	9.74 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 33



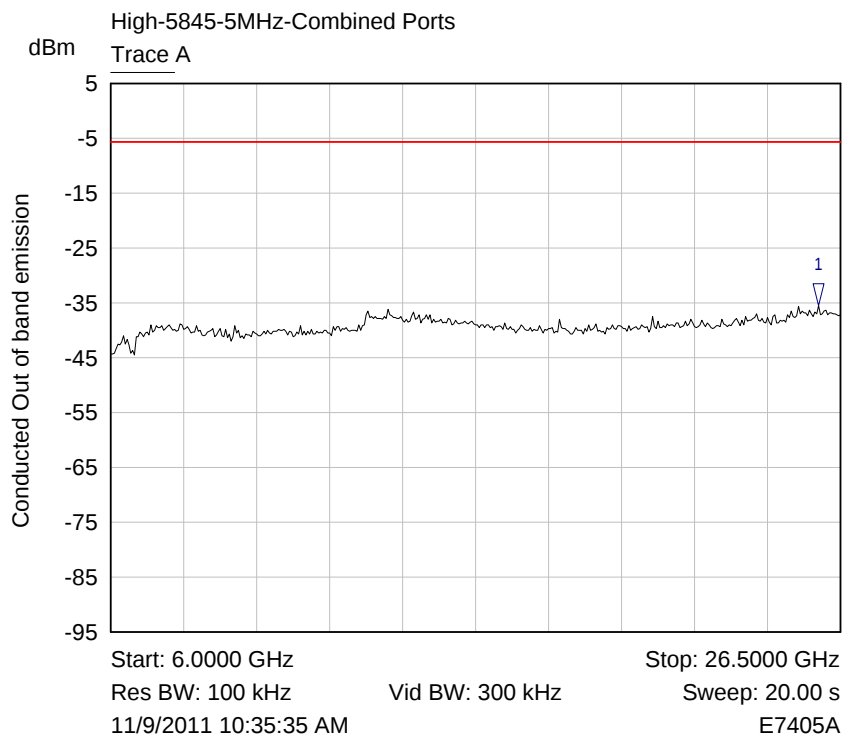
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.8500 GHz	9.14 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 34



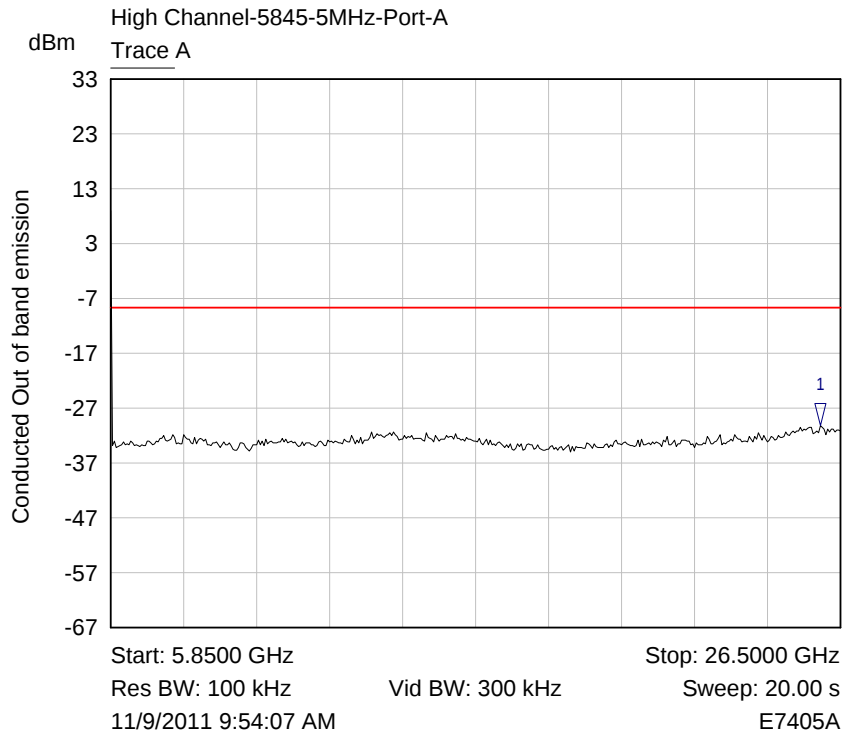
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.8500 GHz	8.32 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 35



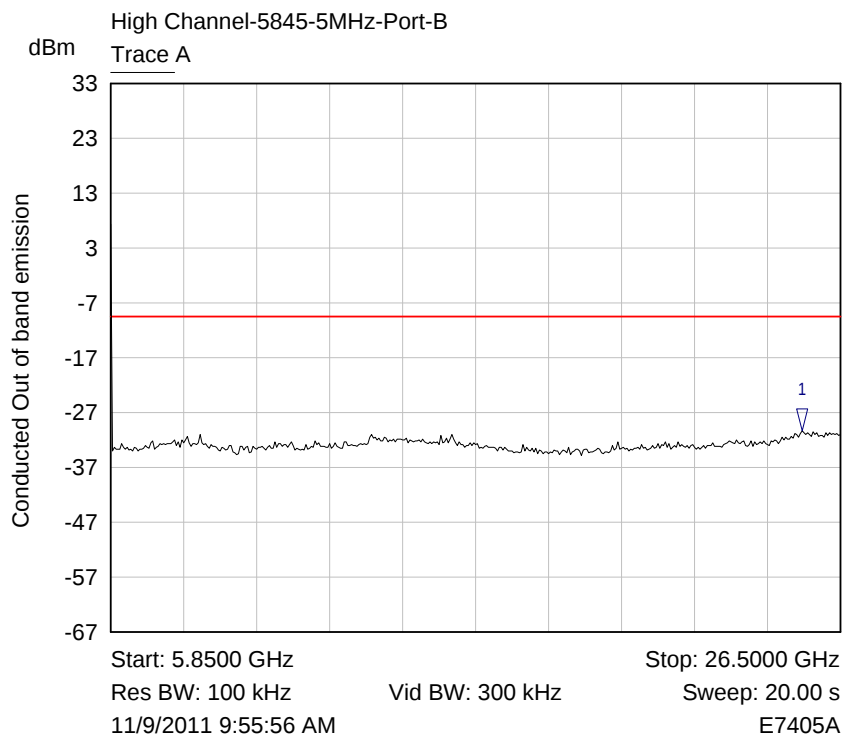
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	25.8850 GHz	-35.57 dBm	

Plot Out of Band Conducted Emission/ 36



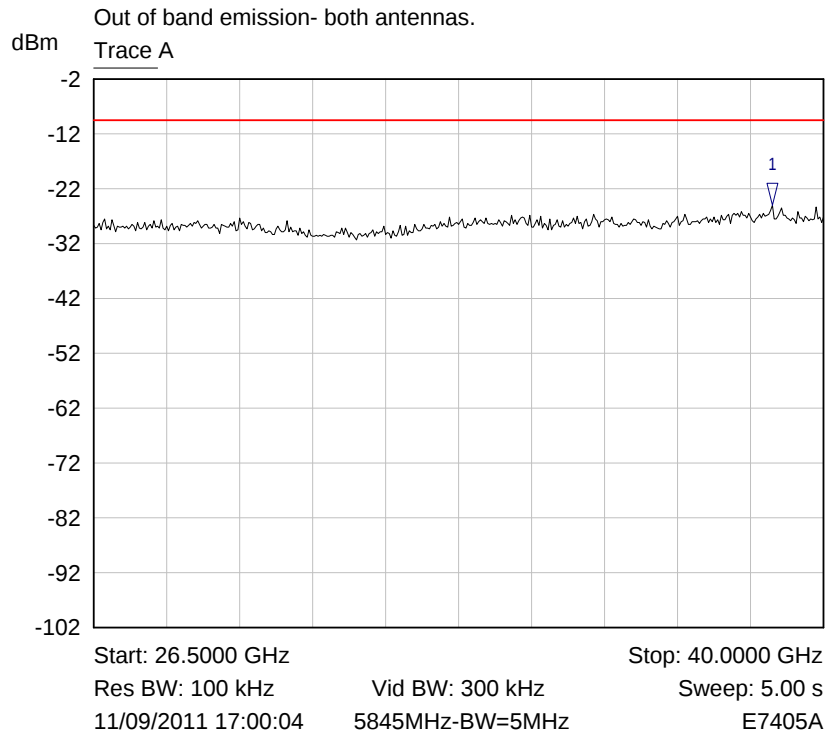
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	25.9321 GHz	-30.24 dBm	

Plot Out of Band Conducted Emission/ 37



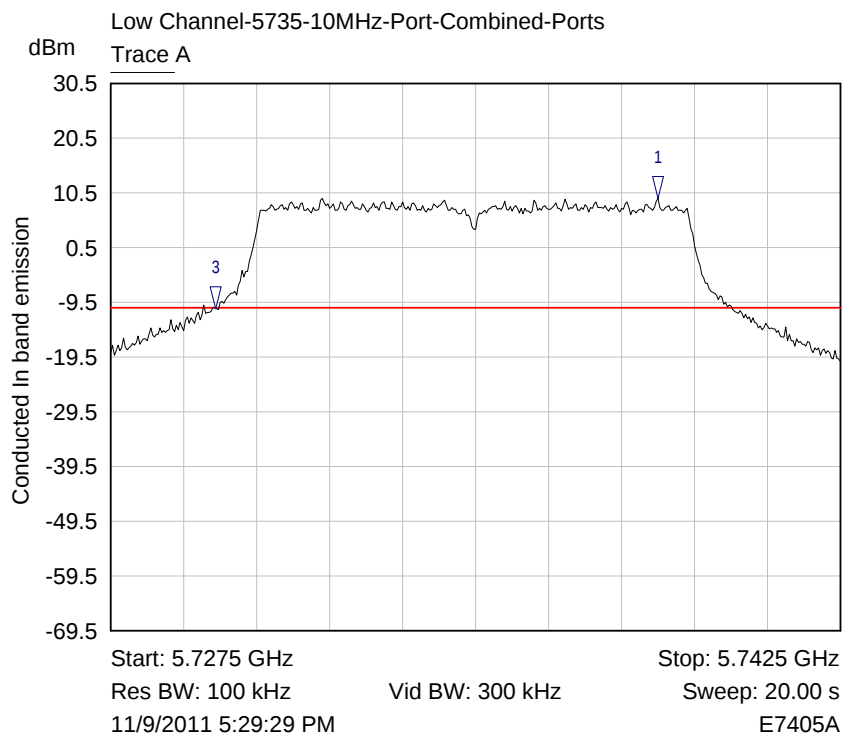
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	25.4159 GHz	-30.32 dBm	

Plot Out of Band Conducted Emission/ 38



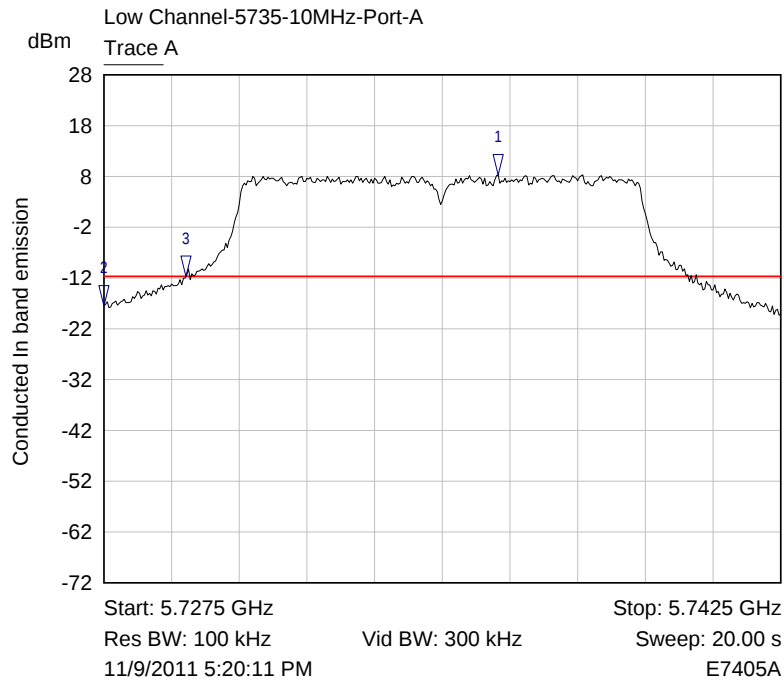
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	39.0550 GHz	-25.05 dBm	

Plot Out of Band Conducted Emission/ 39



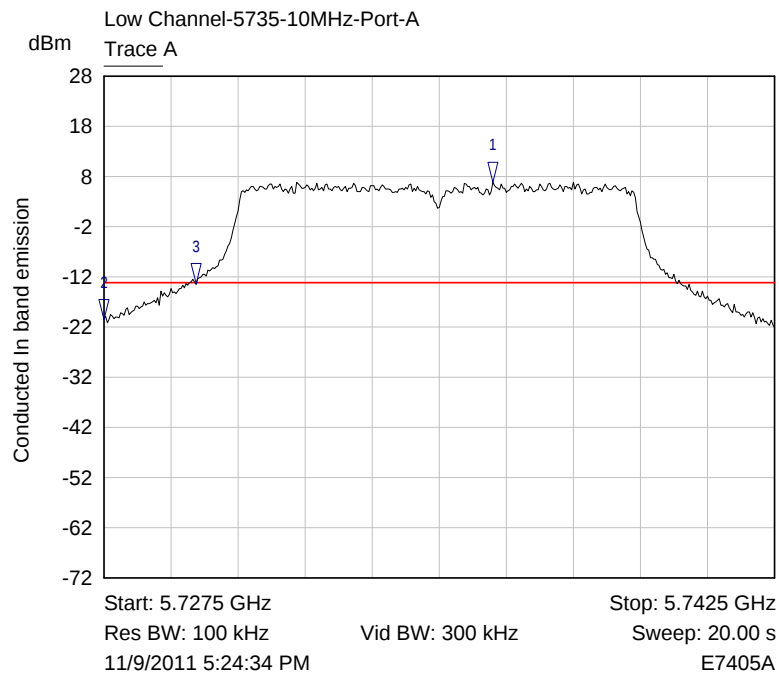
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7388 GHz	9.44 dBm	Highest emission in band
3 ▽	Trace A	5.7297 GHz	-10.58 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 40



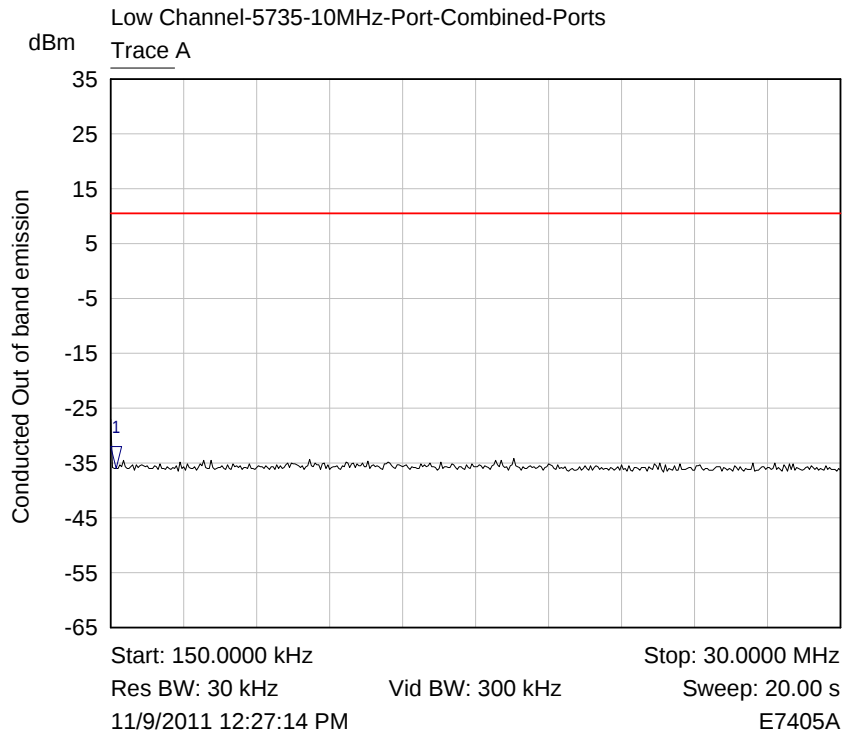
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7362 GHz	8.31 dBm	Highest emission in band
2 ▽	Trace A	5.7275 GHz	-17.45 dBm	Band Edge
3 ▽	Trace A	5.7293 GHz	-11.71 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 41



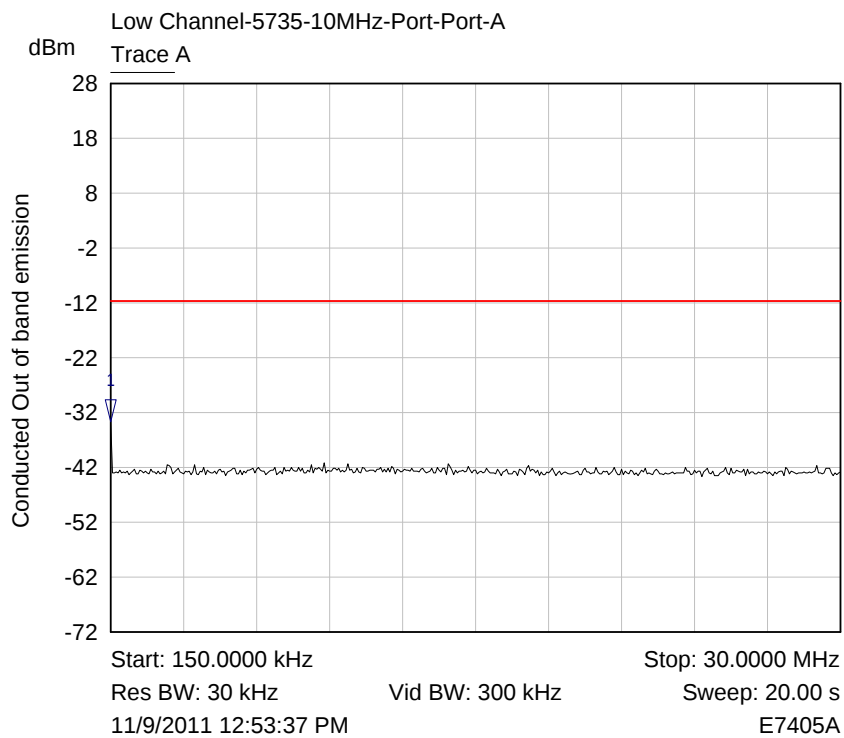
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7362 GHz	6.79 dBm	Highest emission in band
2 ▽	Trace A	5.7275 GHz	-20.55 dBm	Band Edge
3 ▽	Trace A	5.7296 GHz	-13.23 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 42



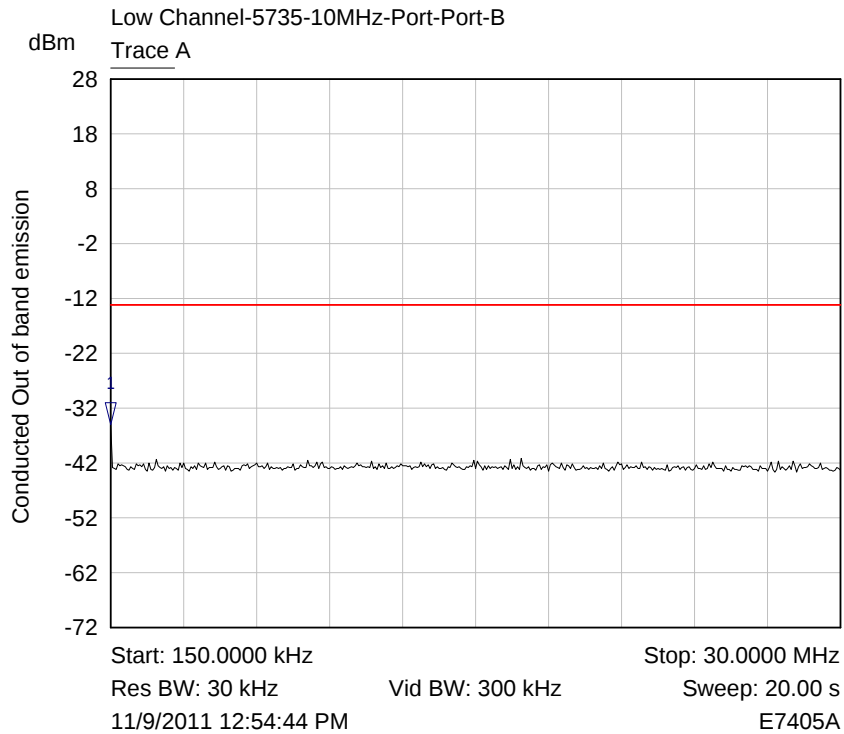
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	373.8750 kHz	-36.07 dBm	

Plot Out of Band Conducted Emission/ 43



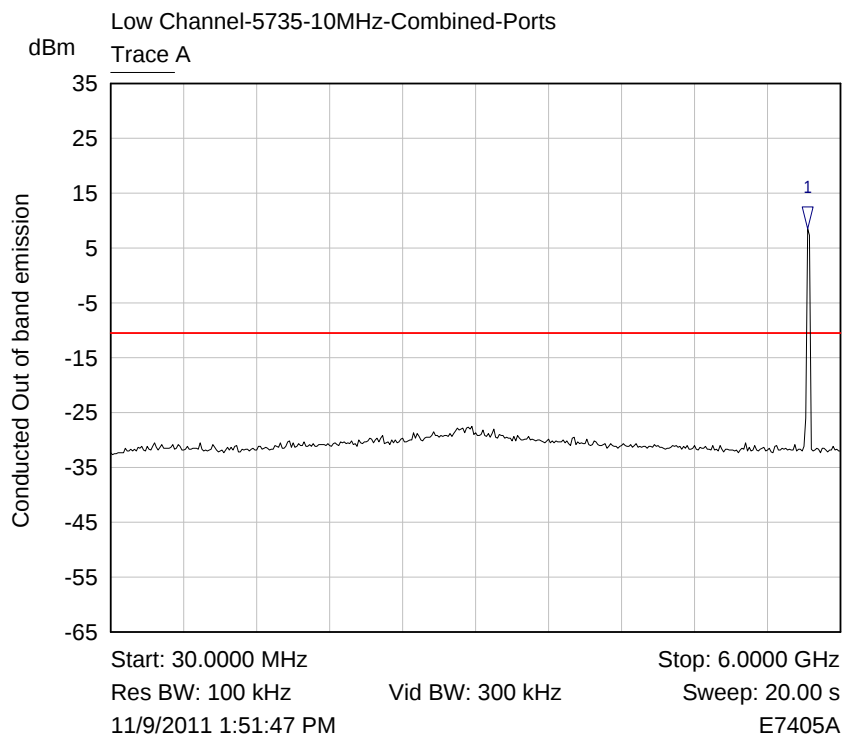
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	150.0000 kHz	-33.70 dBm	

Plot Out of Band Conducted Emission/ 44



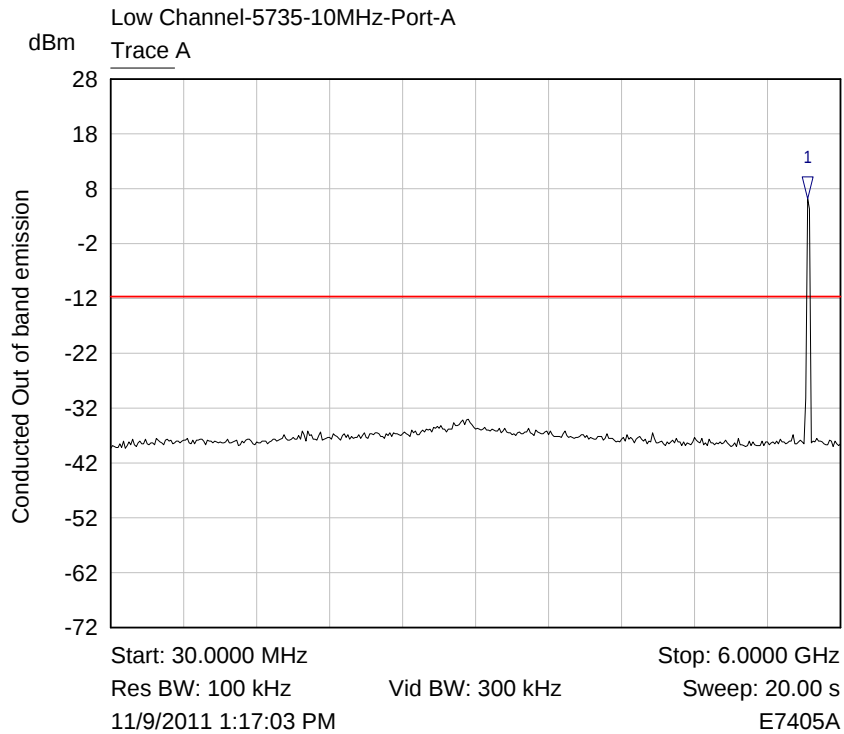
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	150.0000 kHz	-34.98 dBm	

Plot Out of Band Conducted Emission/ 45



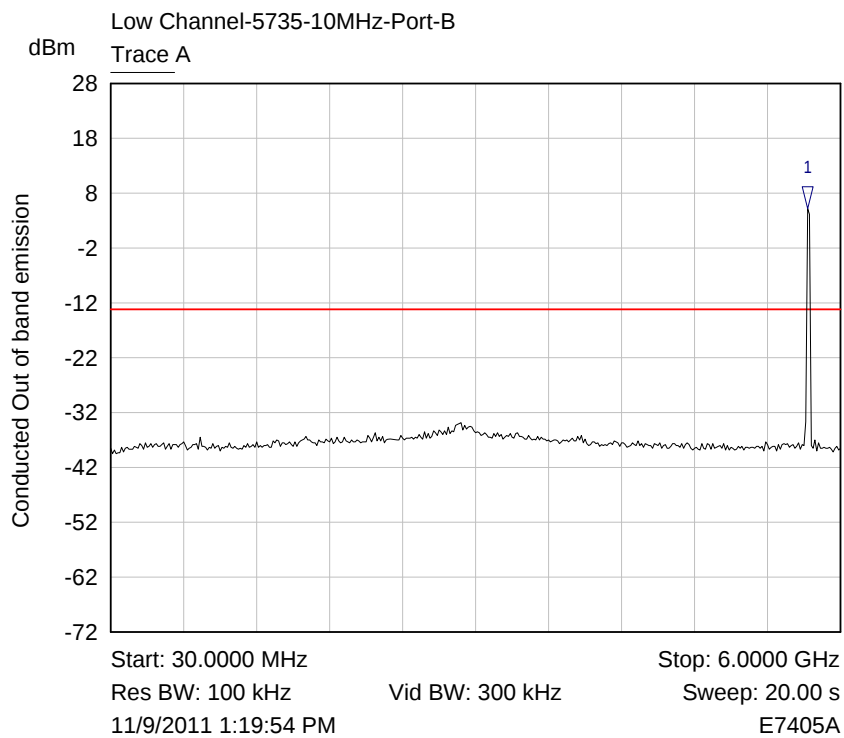
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7314 GHz	8.55 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 46



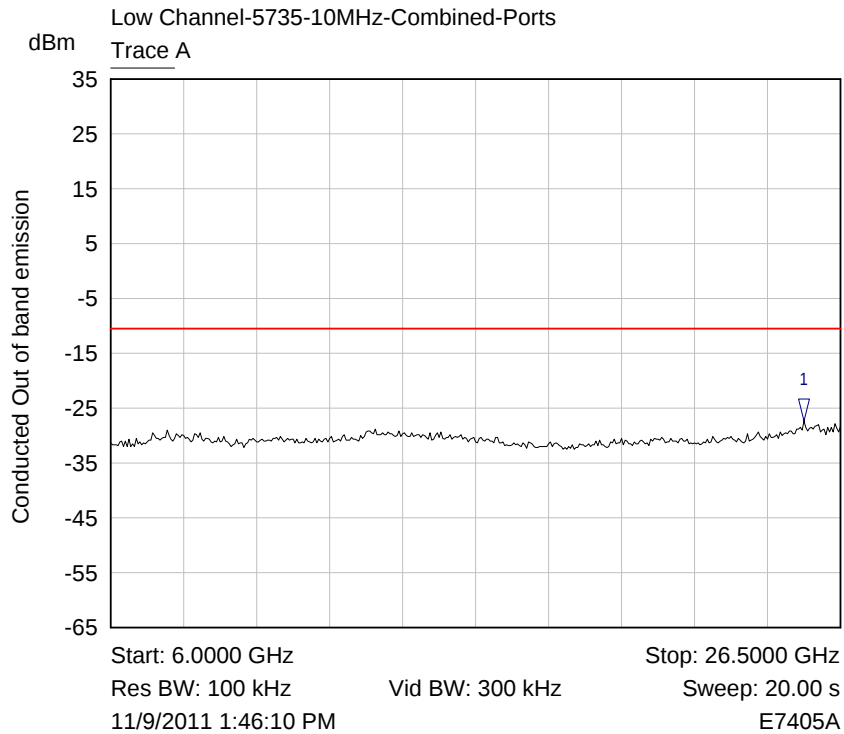
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7314 GHz	6.24 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 47



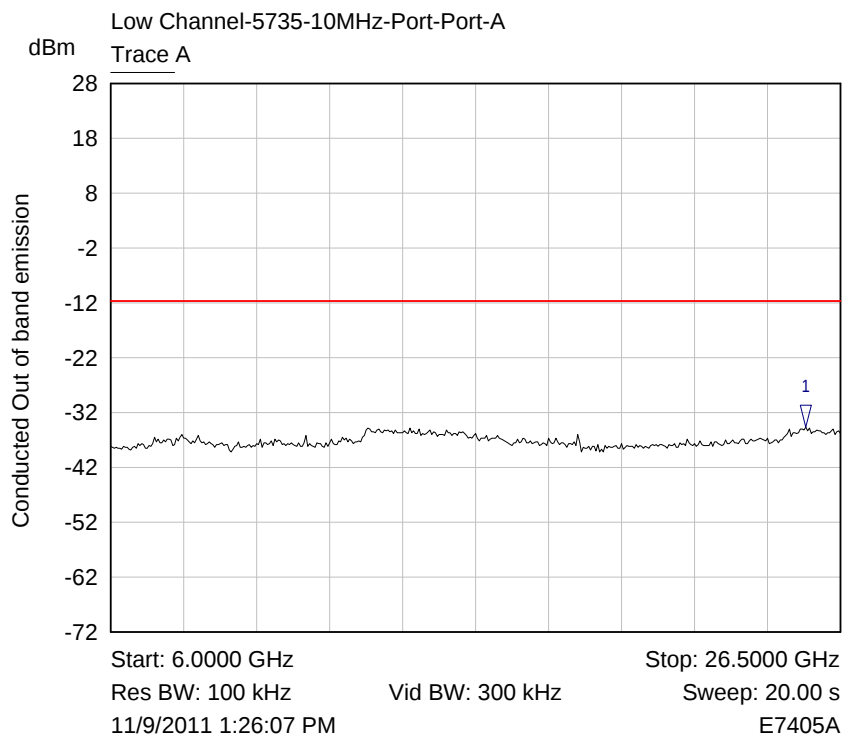
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7314 GHz	5.10 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 48



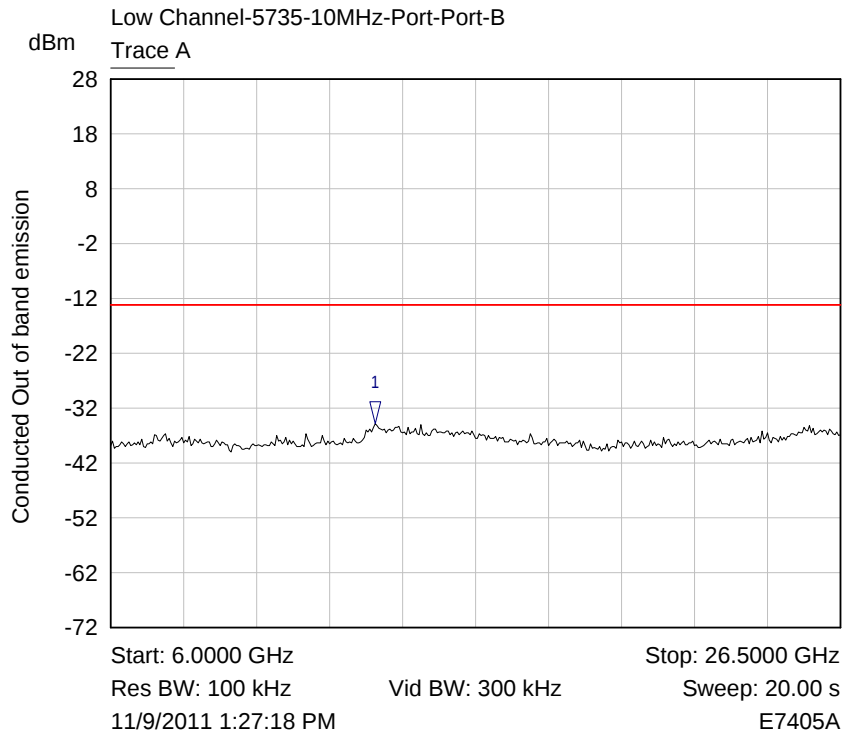
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	25.4750 GHz	-27.29 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 49



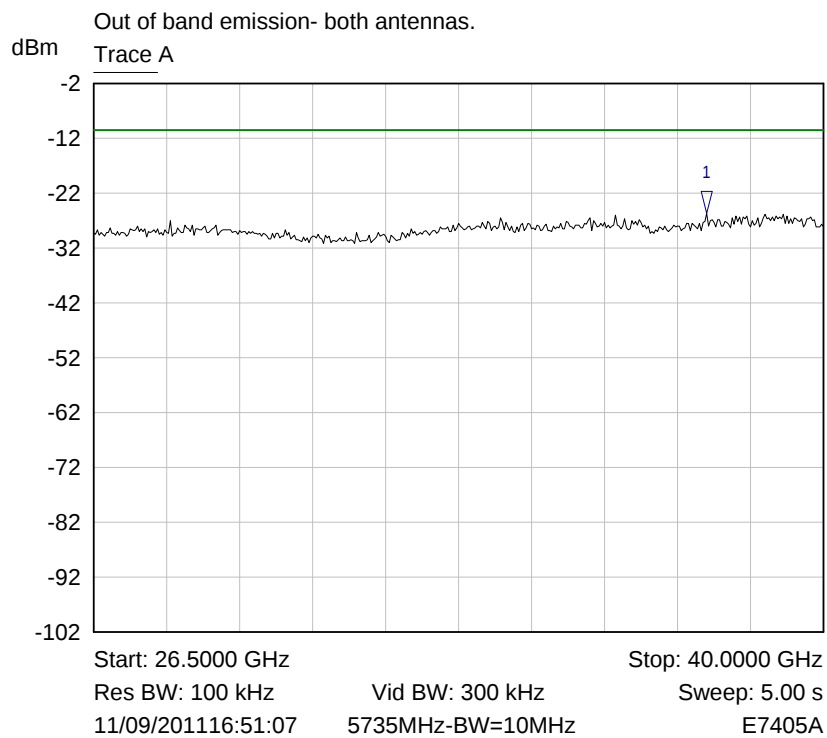
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	25.5263 GHz	-34.64 dBm	

Plot Out of Band Conducted Emission/ 50



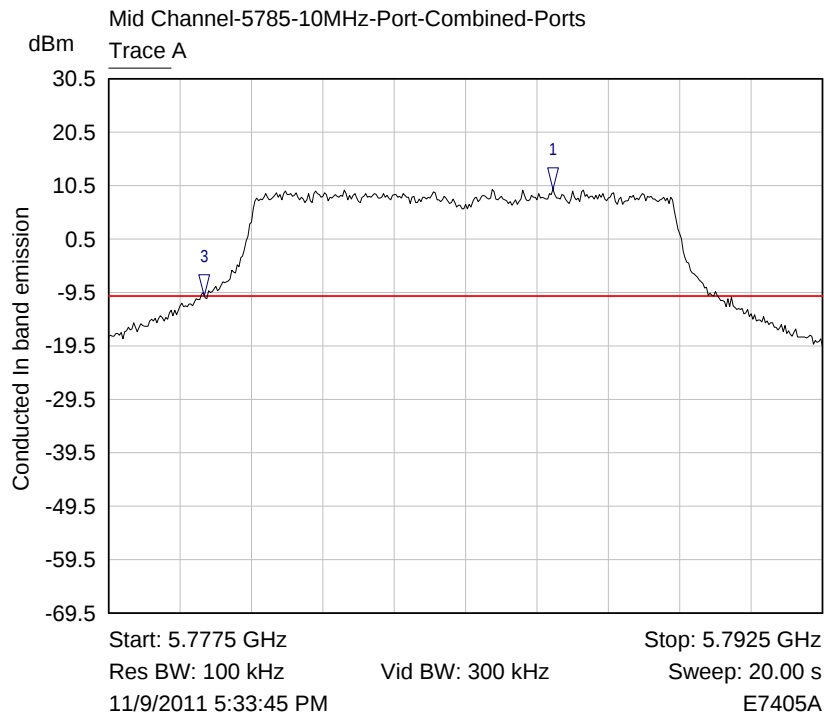
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	13.4313 GHz	-34.83 dBm	

Plot Out of Band Conducted Emission/ 51



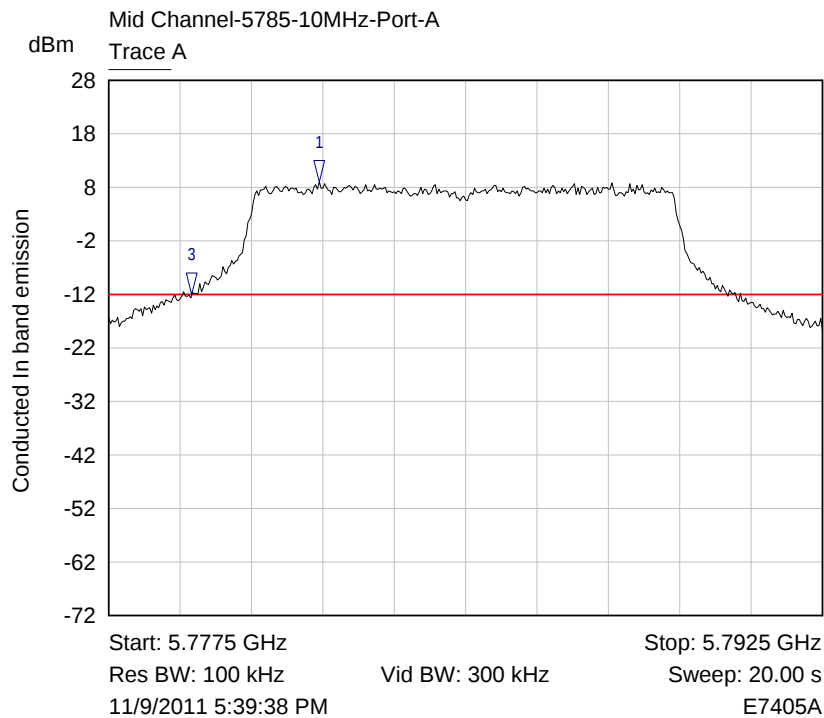
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	37.8400 GHz	-25.70 dBm	

Plot Out of Band Conducted Emission/ 52



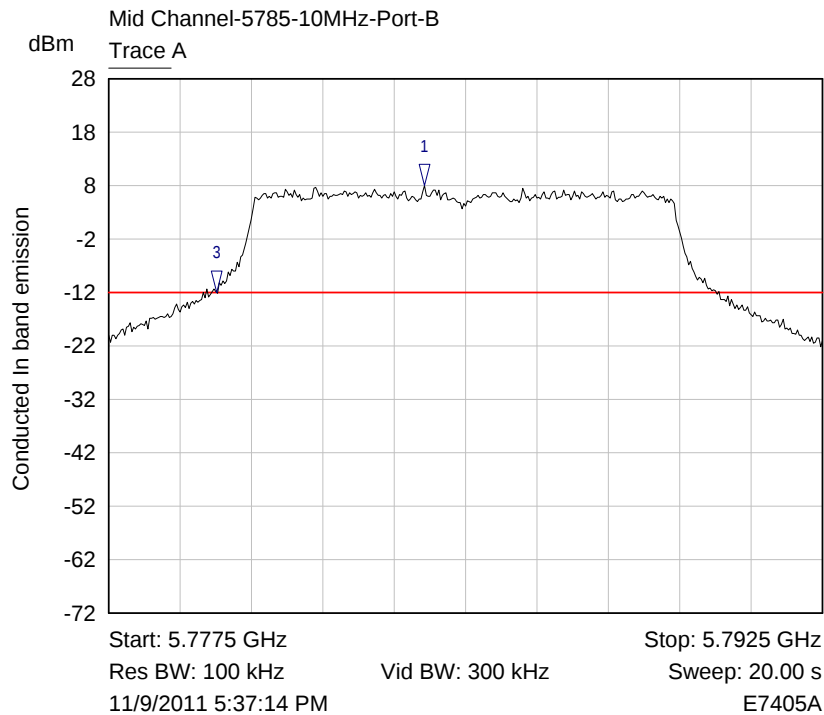
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7868 GHz	9.82 dBm	Highest emission in band
3 ▽	Trace A	5.7795 GHz	-10.12 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 53



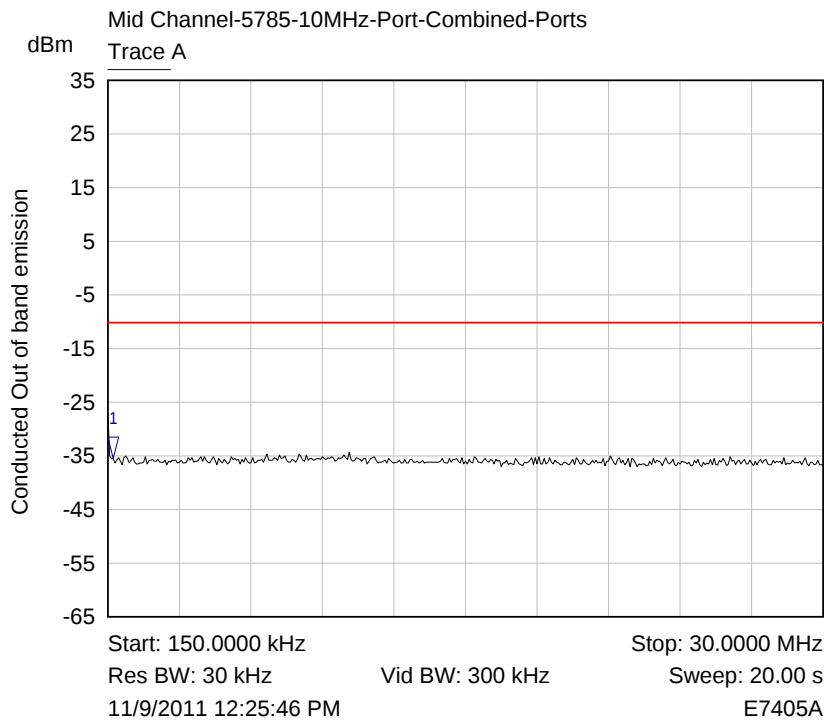
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7819 GHz	9.06 dBm	Highest emission in band
3 ▽	Trace A	5.7793 GHz	-11.94 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 54



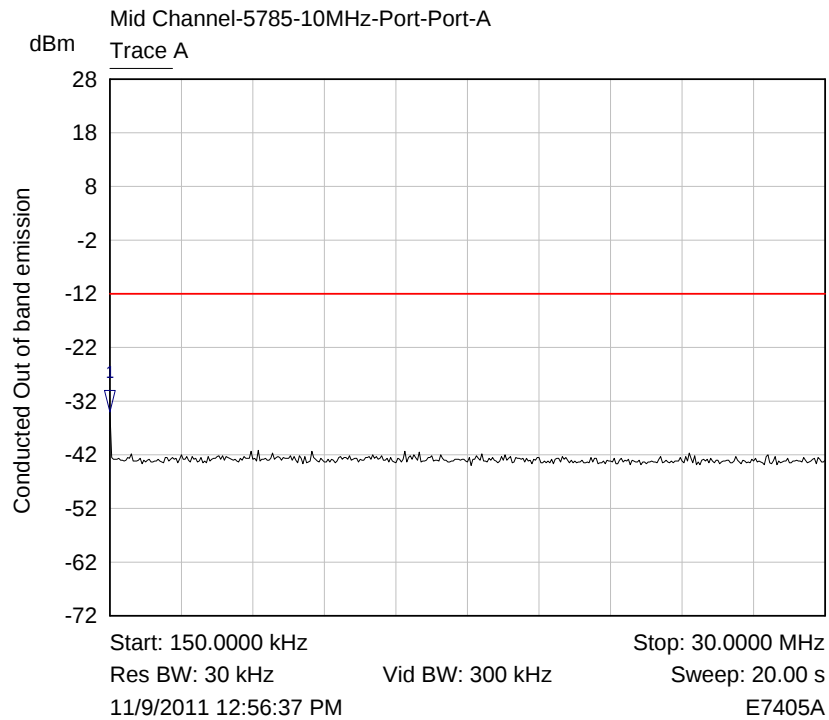
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7841 GHz	8.06 dBm	Highest emission in band
3 ▽	Trace A	5.7798 GHz	-11.93 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 55



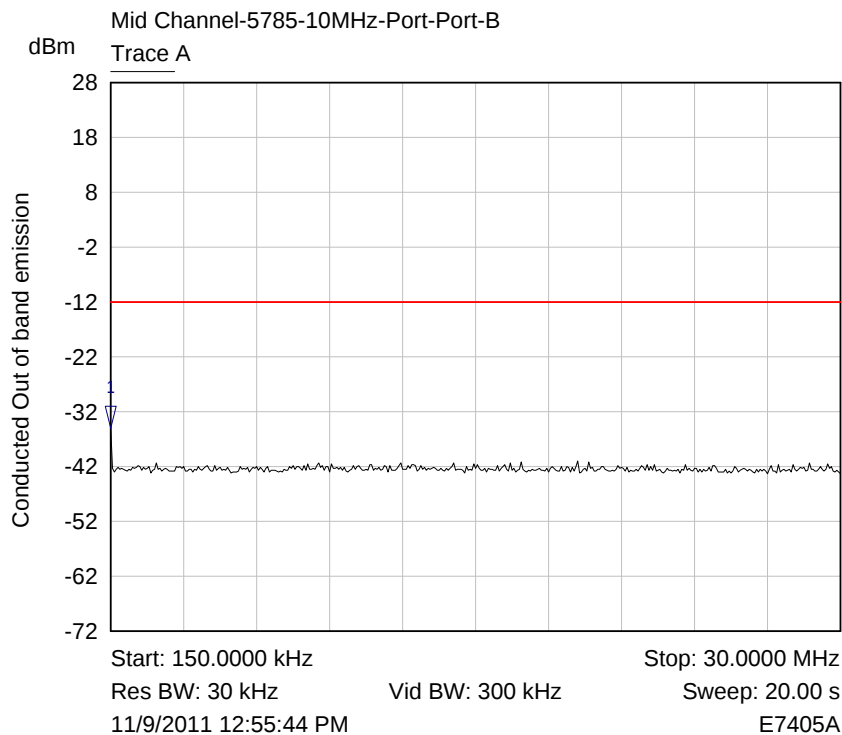
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	373.8750 kHz	-35.47 dBm	

Plot Out of Band Conducted Emission/ 56



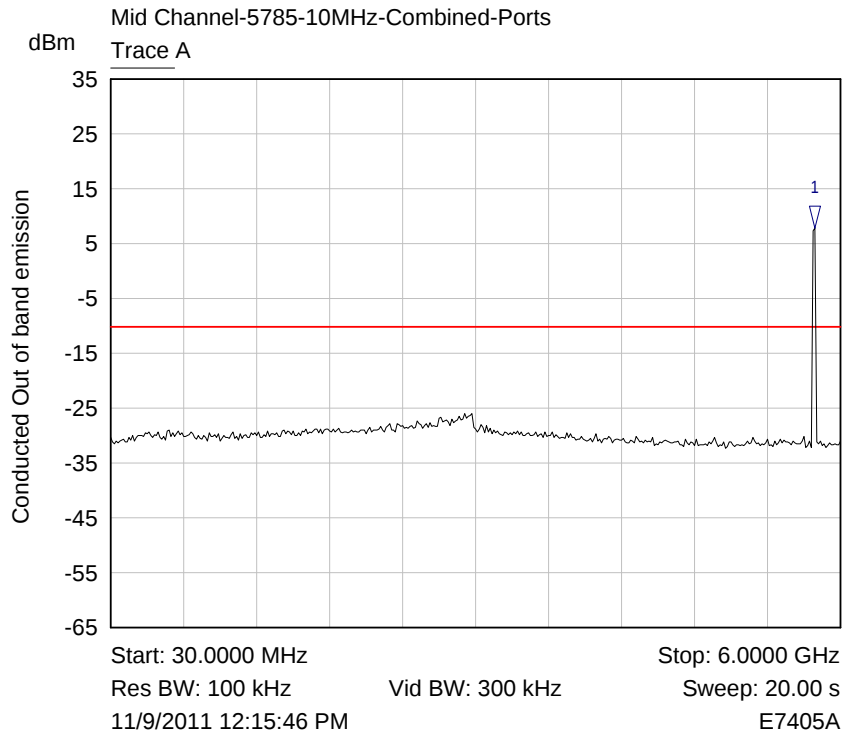
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	150.0000 kHz	-34.00 dBm	

Plot Out of Band Conducted Emission/ 57



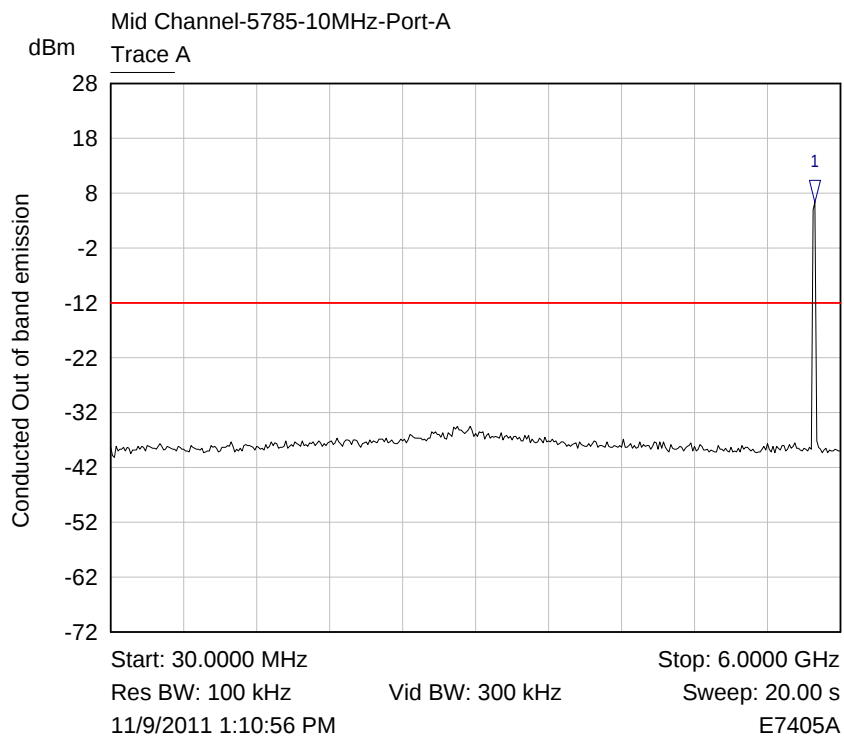
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	150.0000 kHz	-34.97 dBm	

Plot Out of Band Conducted Emission/ 58



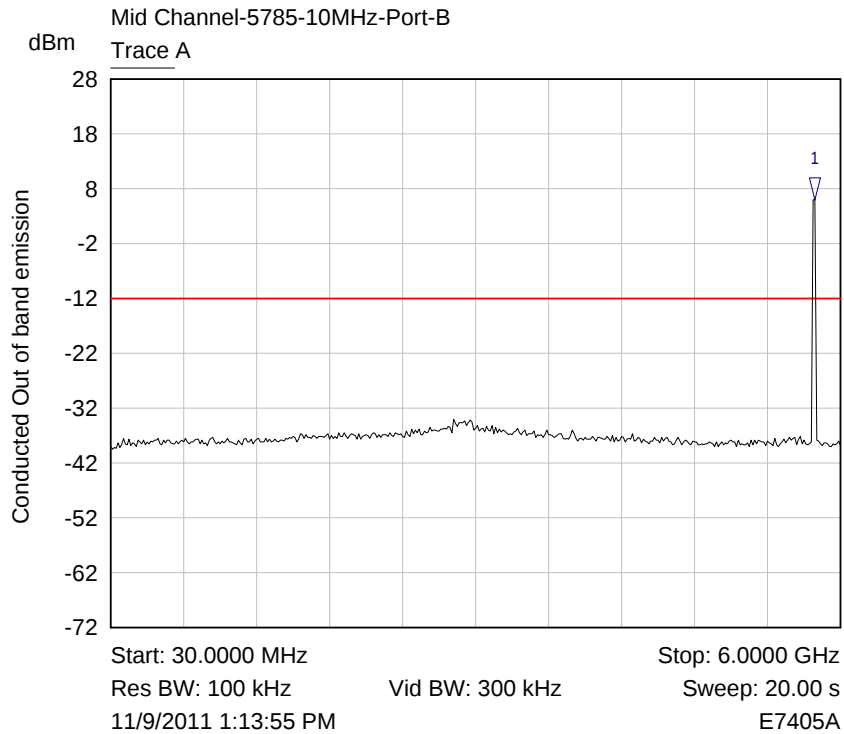
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7911 GHz	7.76 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 59



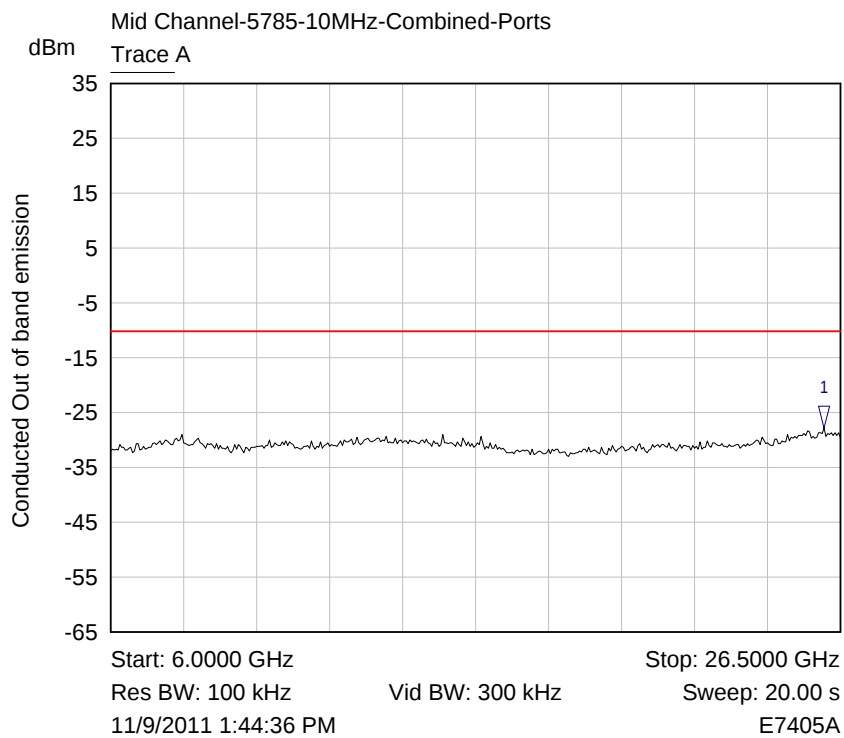
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7911 GHz	6.34 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 60



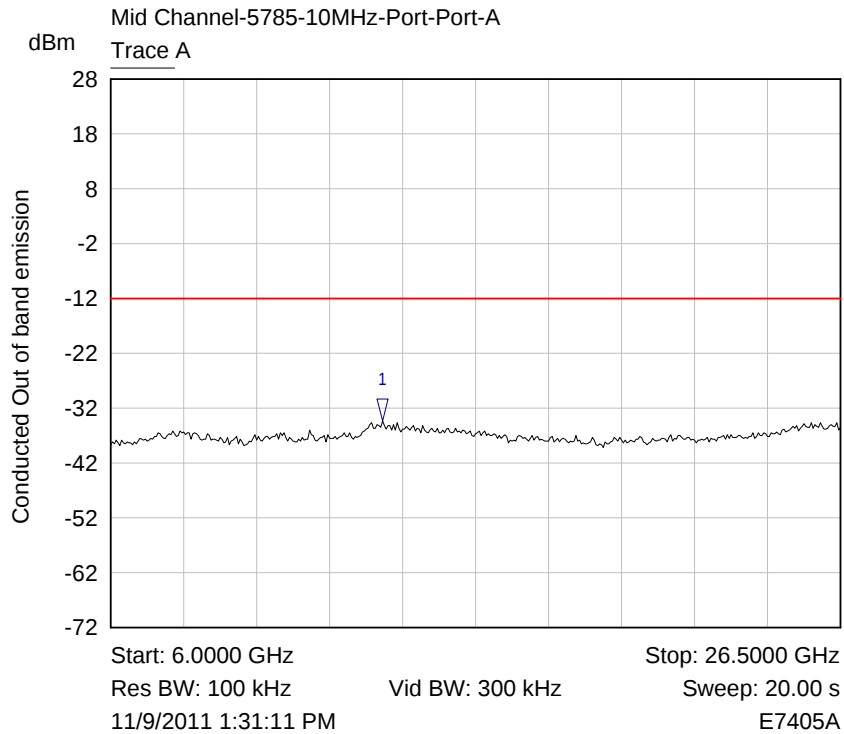
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7911 GHz	5.95 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 61



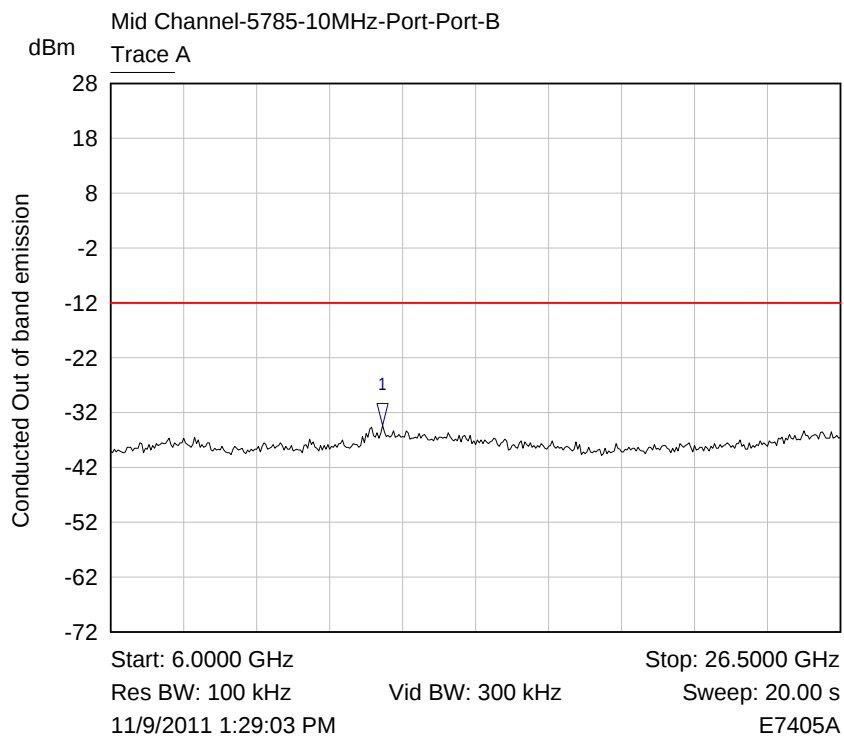
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	26.0388 GHz	-27.82 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 62



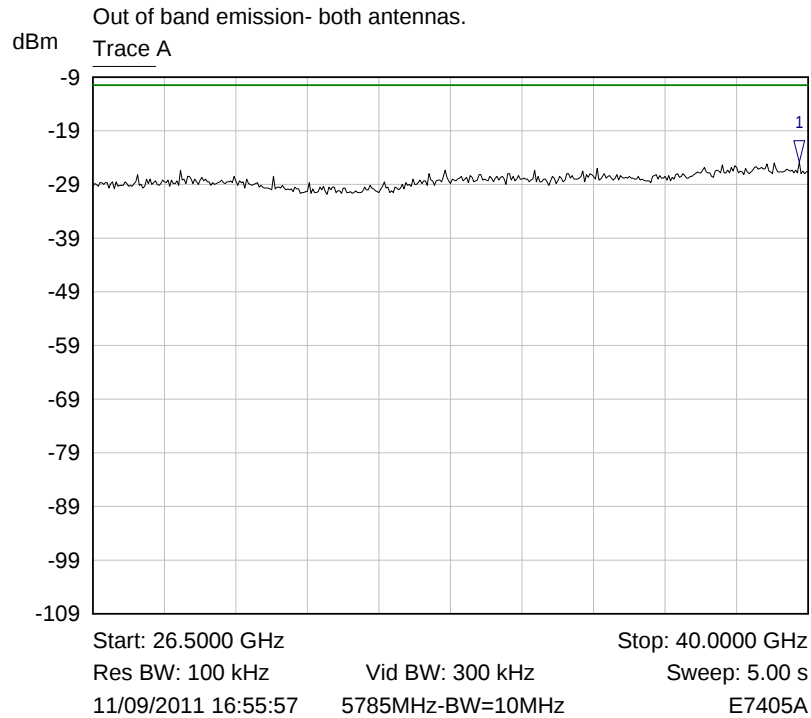
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	13.6363 GHz	-34.37 dBm	

Plot Out of Band Conducted Emission/ 63



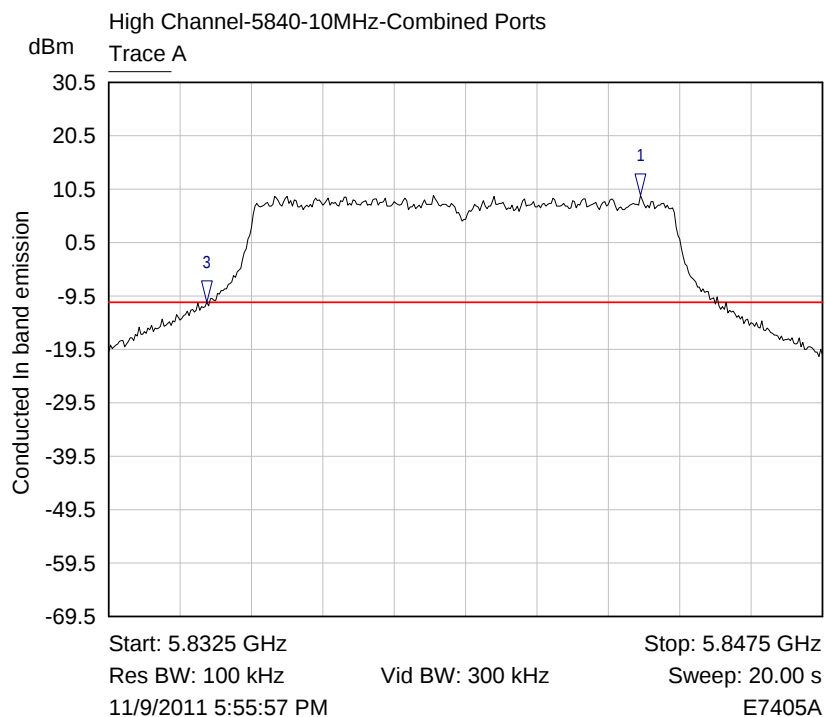
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	13.6363 GHz	-34.37 dBm	

Plot Out of Band Conducted Emission/ 64



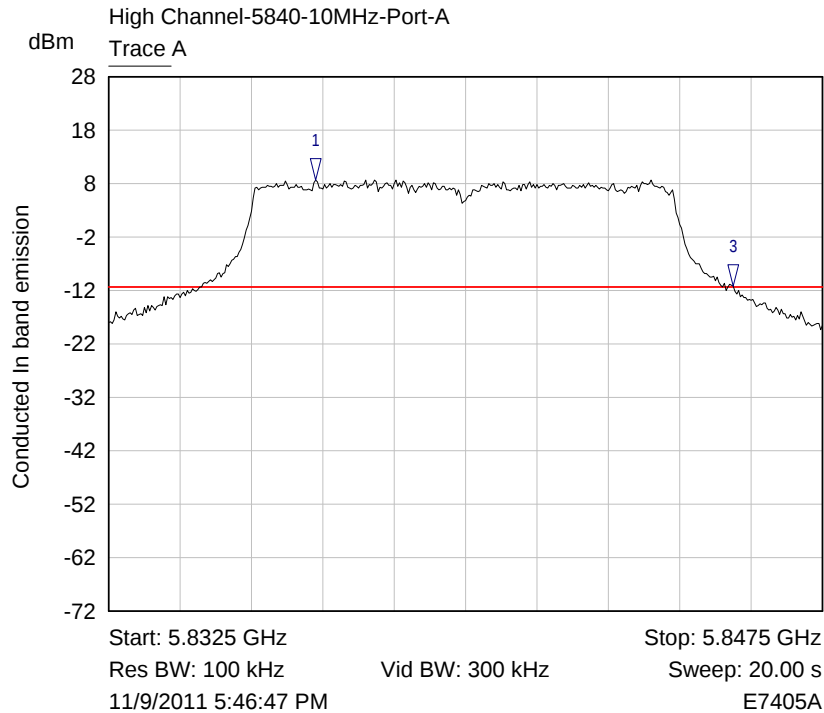
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	39.8313 GHz	-24.85 dBm	

Plot Out of Band Conducted Emission/ 65



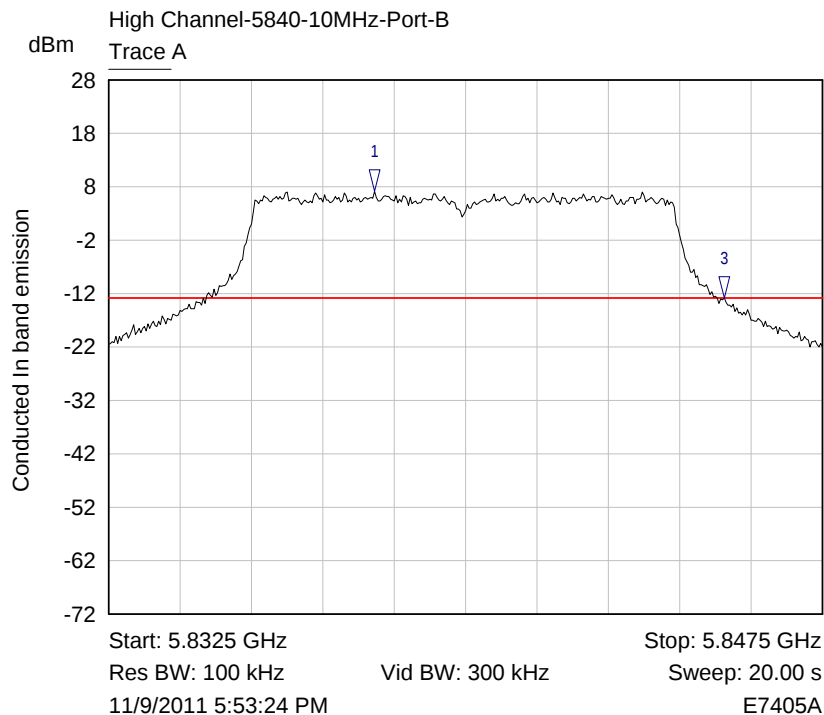
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8437 GHz	9.34 dBm	Highest emission in band
3 ▽	Trace A	5.8346 GHz	-10.65 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 66



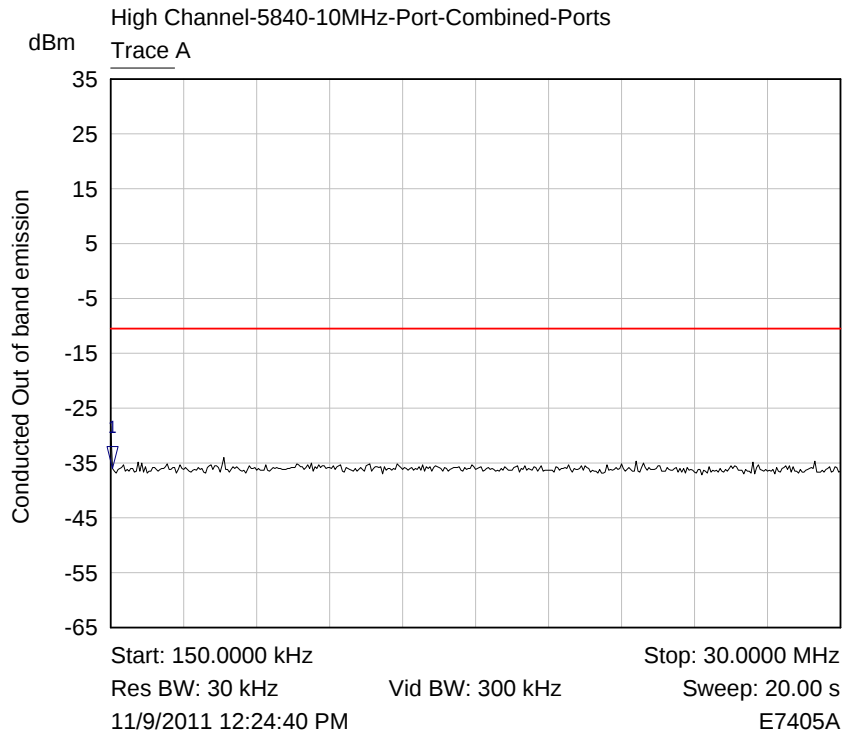
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8369 GHz	8.74 dBm	Highest emission in band
3 ▽	Trace A	5.8456 GHz	-11.26 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 67



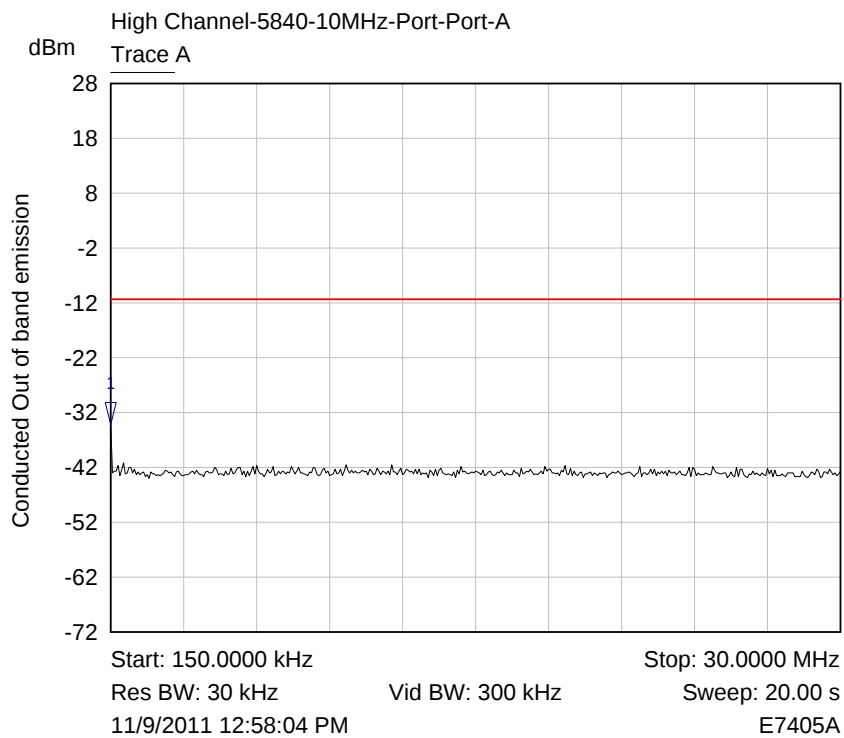
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8381 GHz	7.17 dBm	Highest emission in band
3 ▽	Trace A	5.8454 GHz	-12.87 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 68



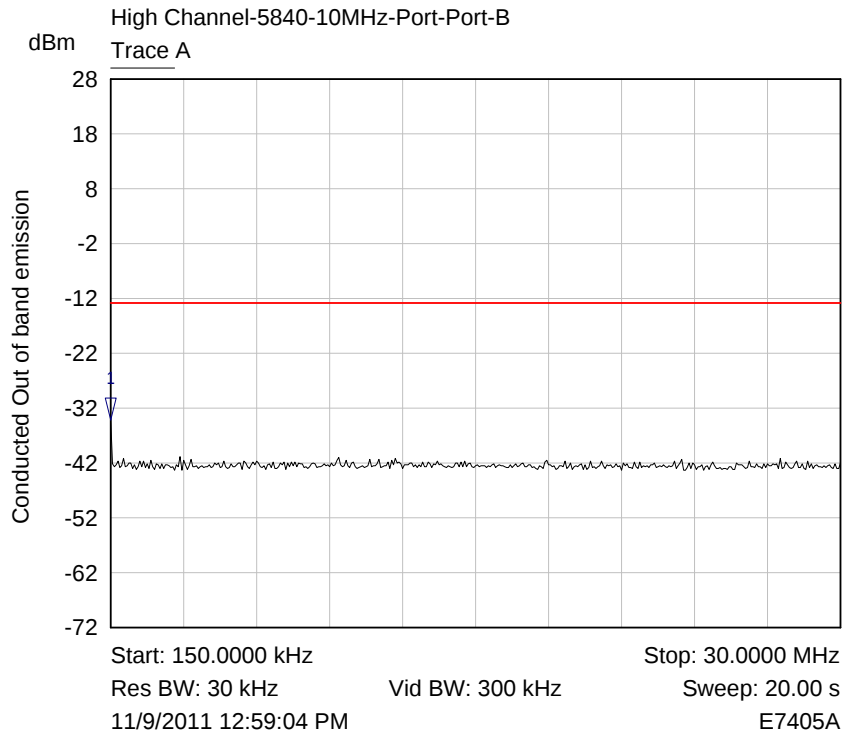
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	224.6250 kHz	-36.05 dBm	

Plot Out of Band Conducted Emission/ 69



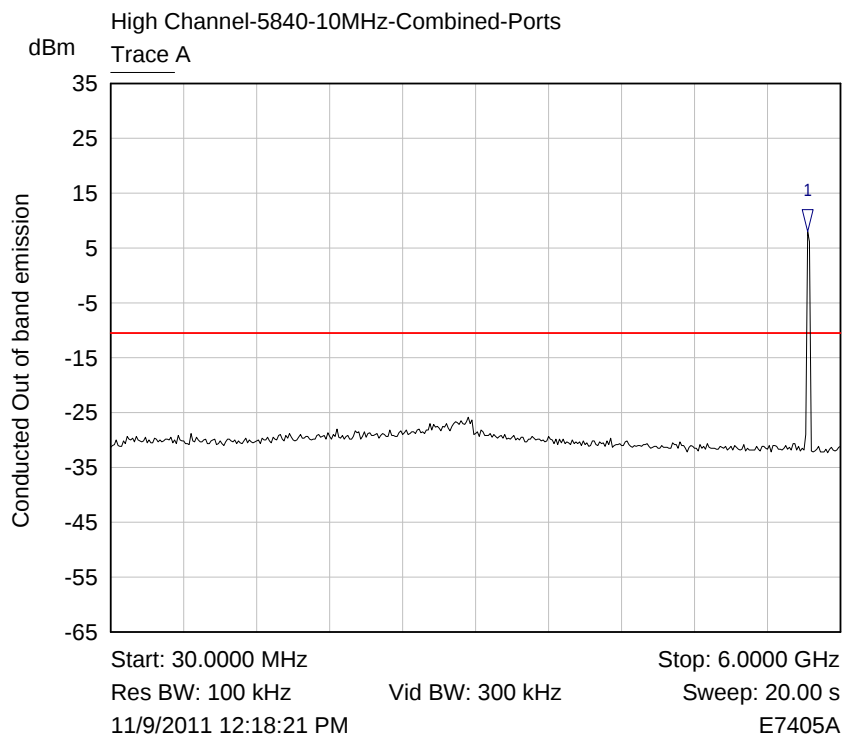
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	150.0000 kHz	-34.25 dBm	

Plot Out of Band Conducted Emission/ 70



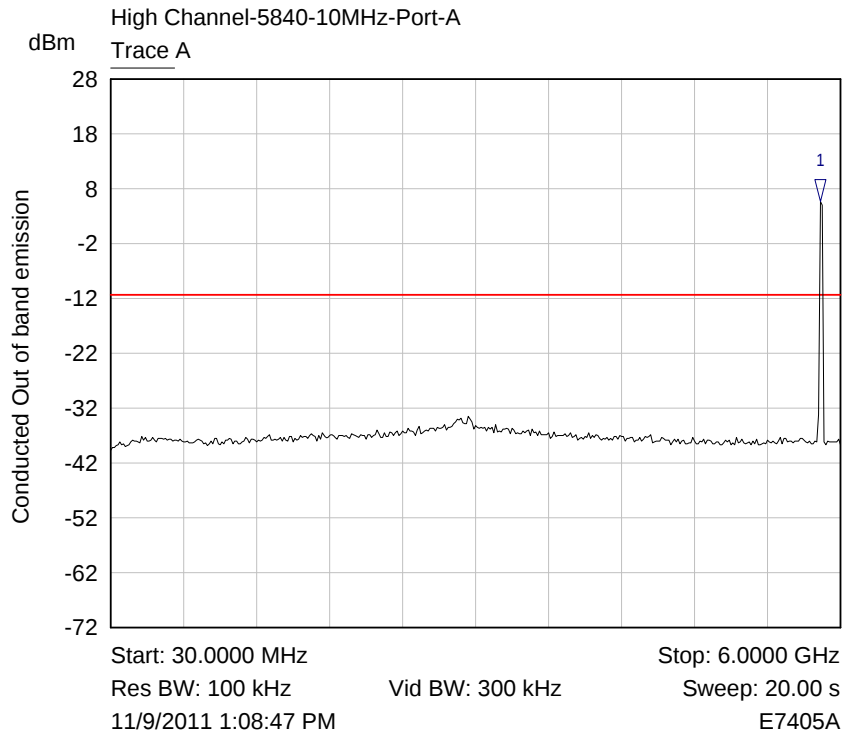
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	150.0000 kHz	-34.20 dBm	

Plot Out of Band Conducted Emission/ 71



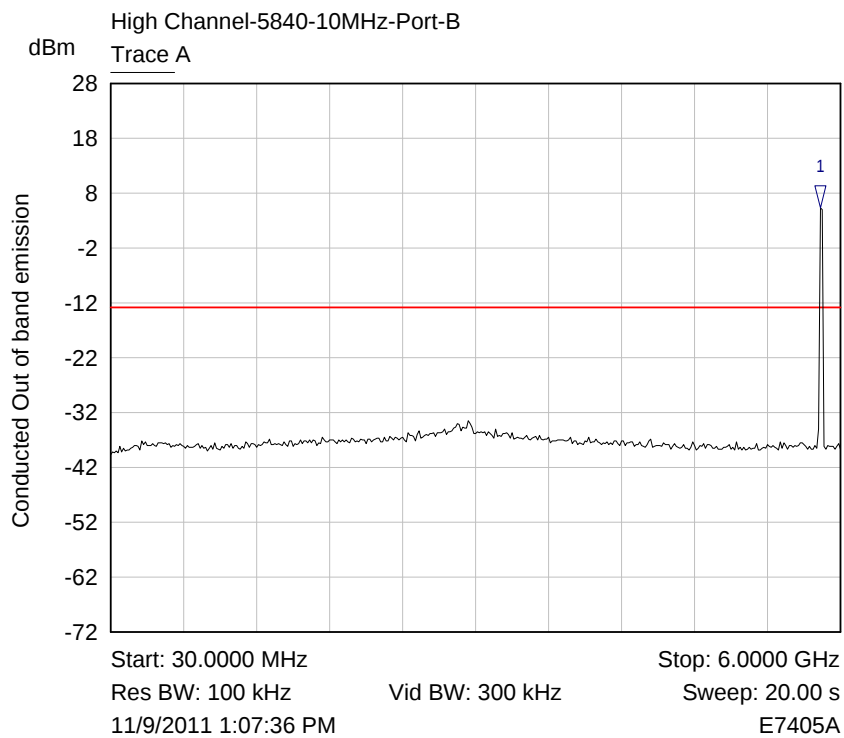
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7314 GHz	8.00 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 72



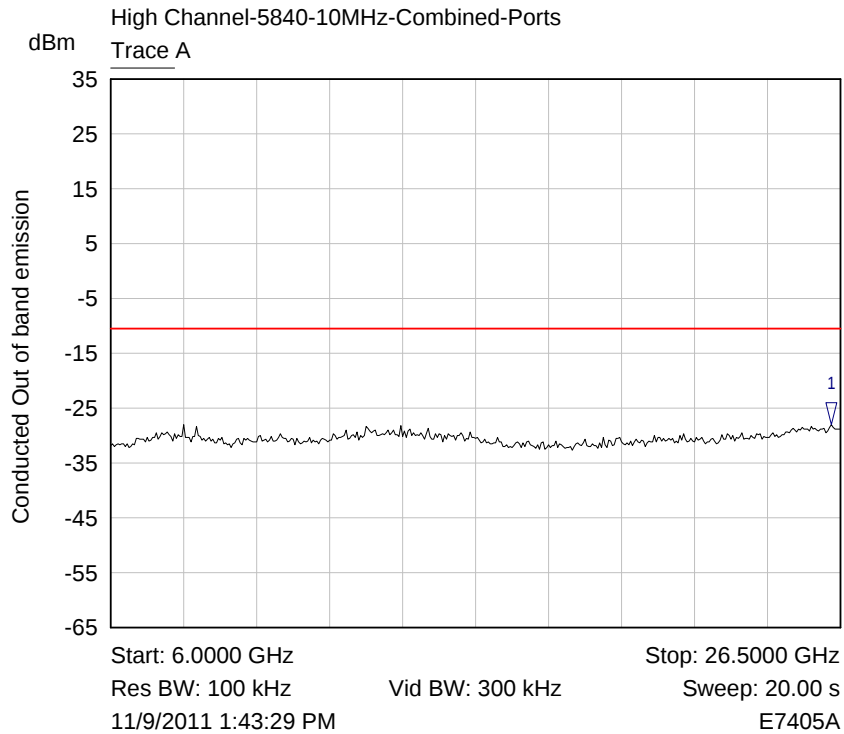
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.8358 GHz	5.74 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 73



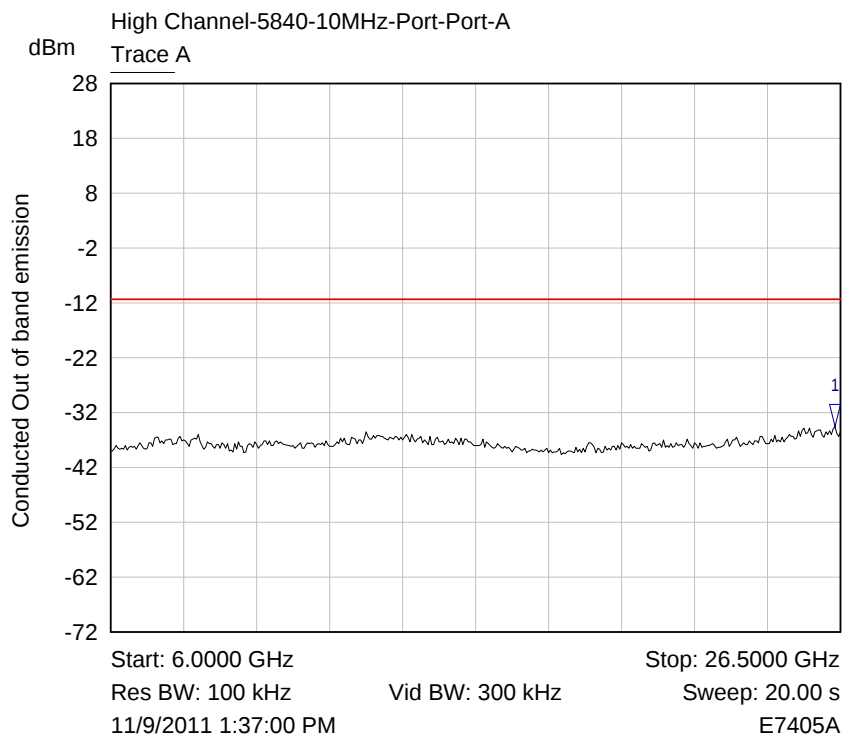
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.8358 GHz	5.31 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 74



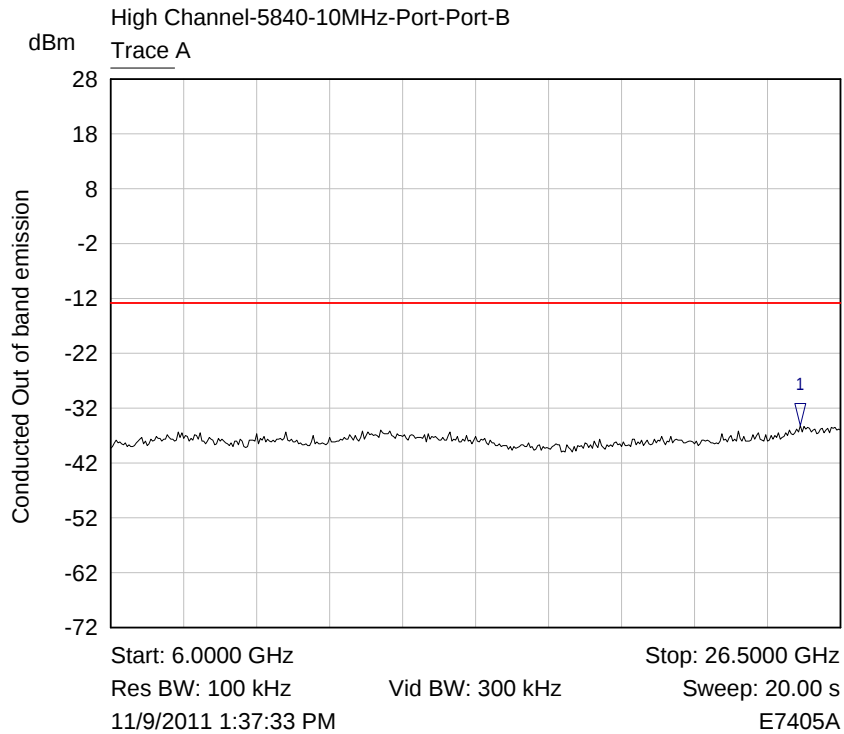
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	26.2438 GHz	-27.92 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 75



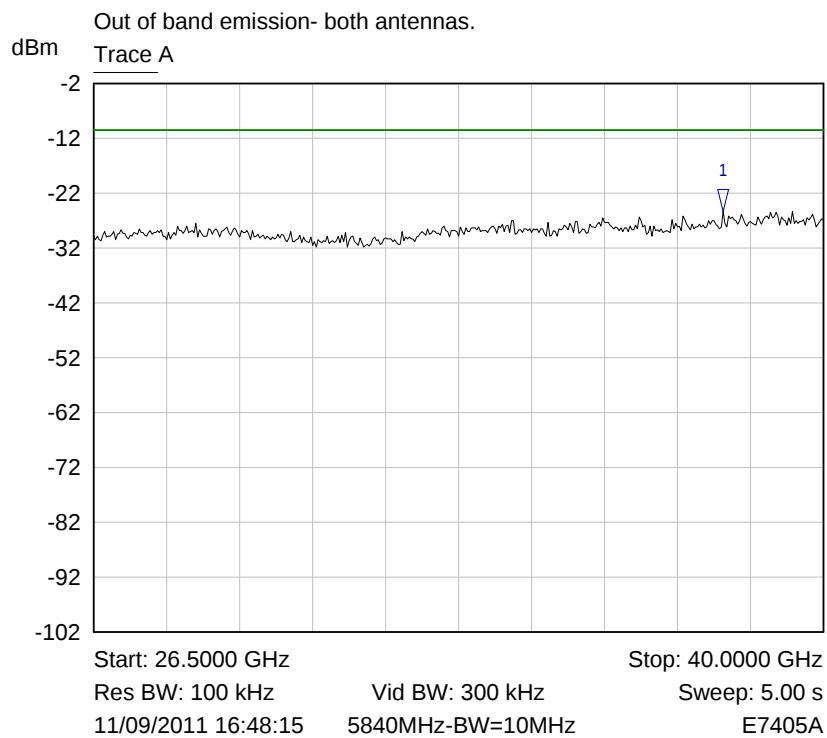
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	26.3463 GHz	-34.57 dBm	

Plot Out of Band Conducted Emission/ 76



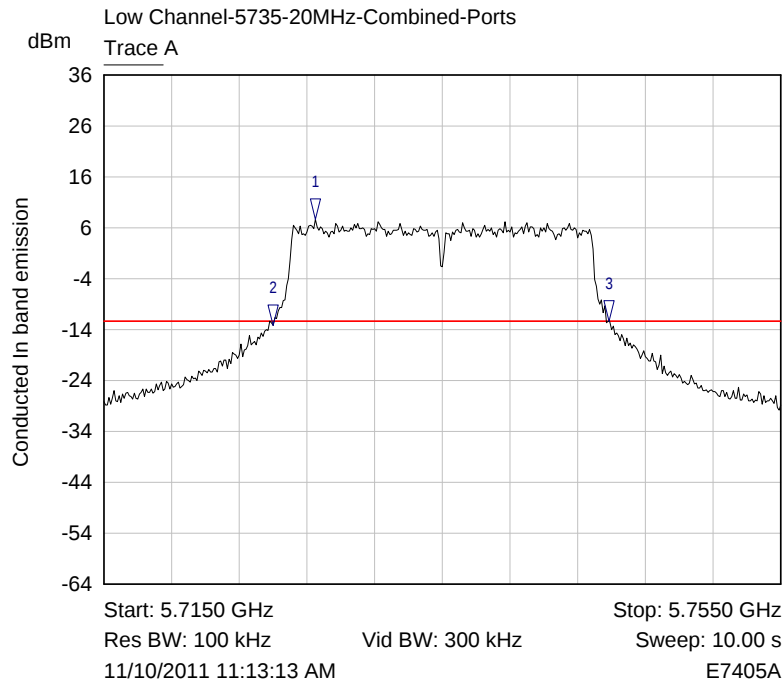
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	25.3725 GHz	-35.12 dBm	

Plot Out of Band Conducted Emission/ 77



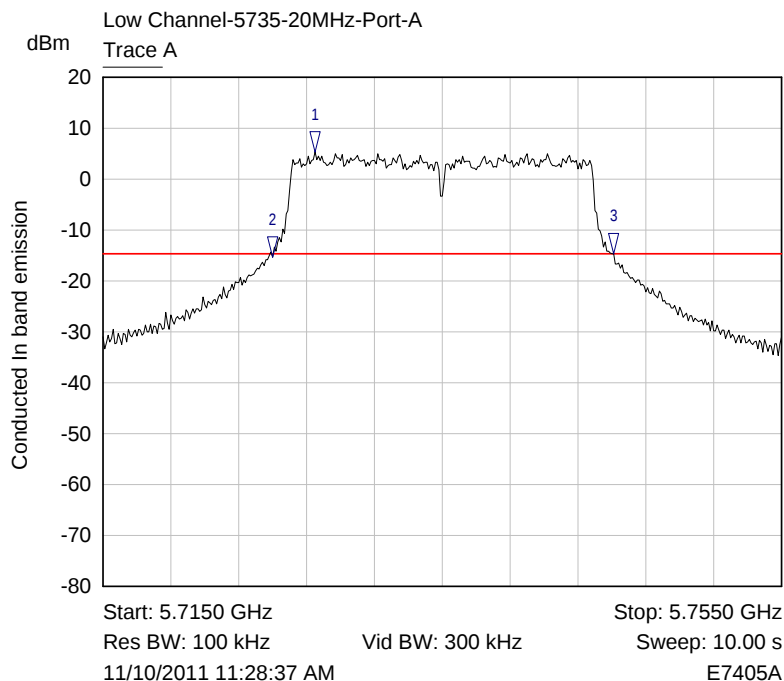
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	38.1438 GHz	-25.32 dBm	

Plot Out of Band Conducted Emission/ 78



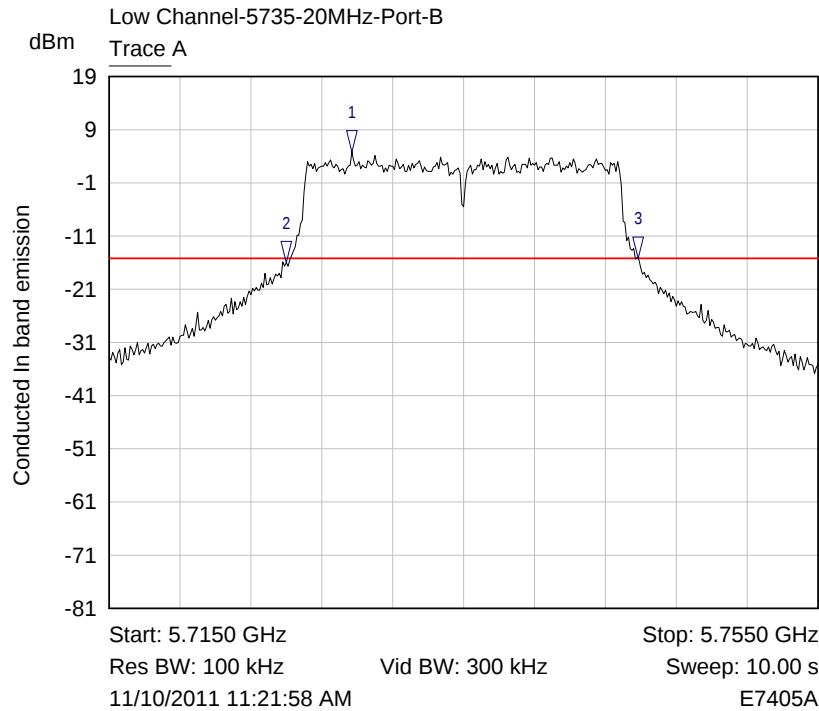
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7275 GHz	7.66 dBm	Highest emission in band
2 ▽	Trace A	5.7250 GHz	-13.18 dBm	Band Edge
3 ▽	Trace A	5.7448 GHz	-12.34 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 79



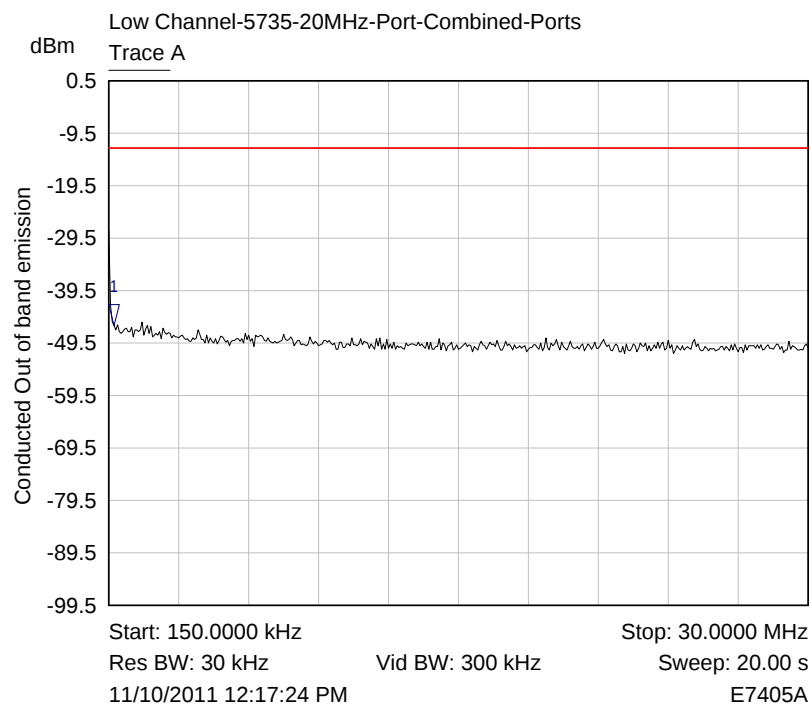
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7275 GHz	5.33 dBm	Highest emission in band
2 ▽	Trace A	5.7250 GHz	-15.28 dBm	Band Edge
3 ▽	Trace A	5.7451 GHz	-14.67 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 80



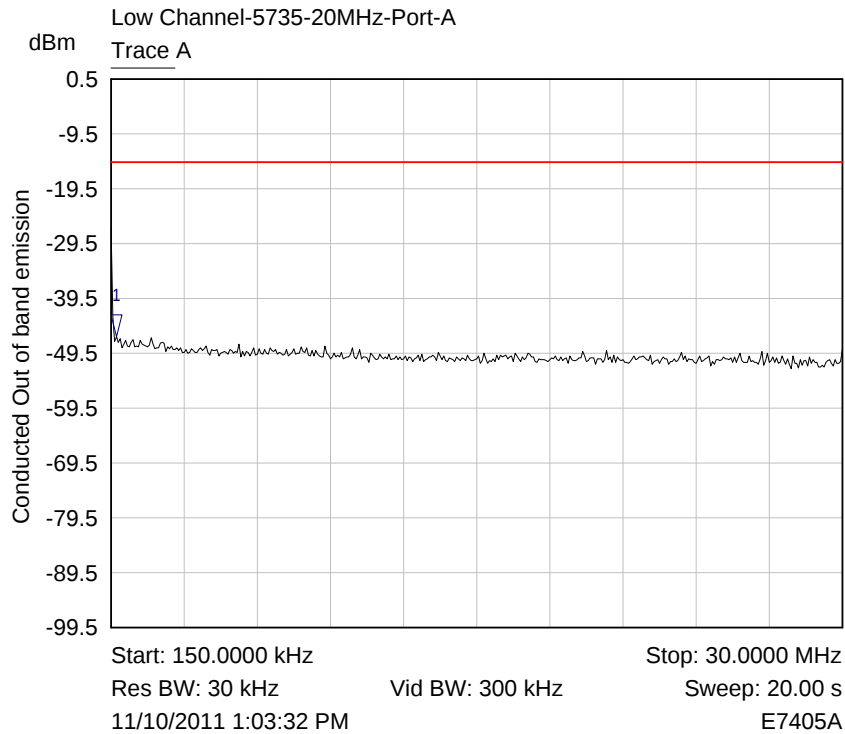
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7287 GHz	4.85 dBm	Highest emission in band
2 ▽	Trace A	5.7250 GHz	-16.01 dBm	Band Edge
3 ▽	Trace A	5.7448 GHz	-15.15 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 81



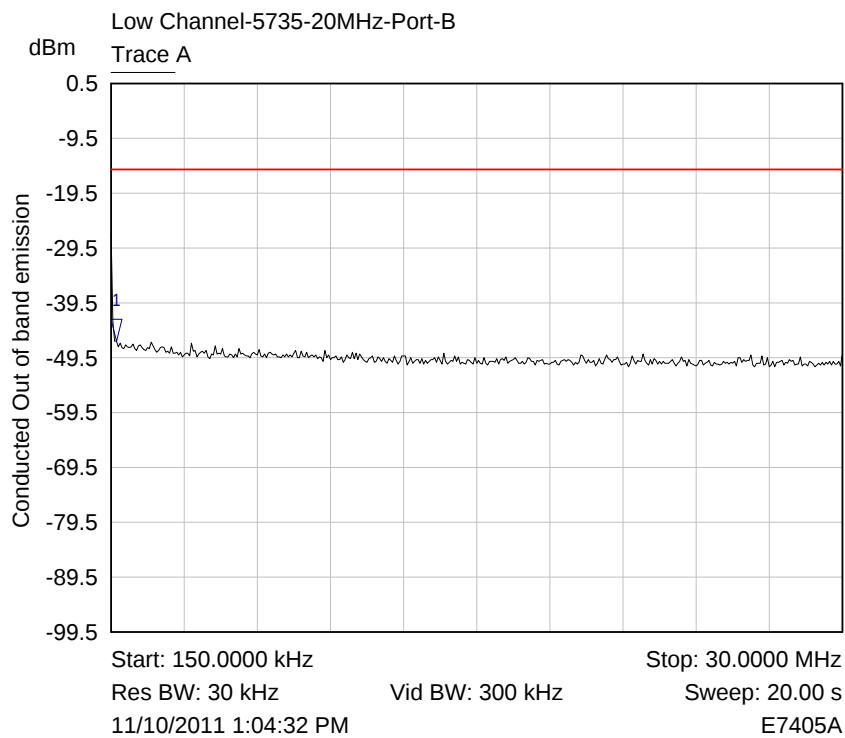
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	373.8750 kHz	-46.16 dBm	

Plot Out of Band Conducted Emission/ 82



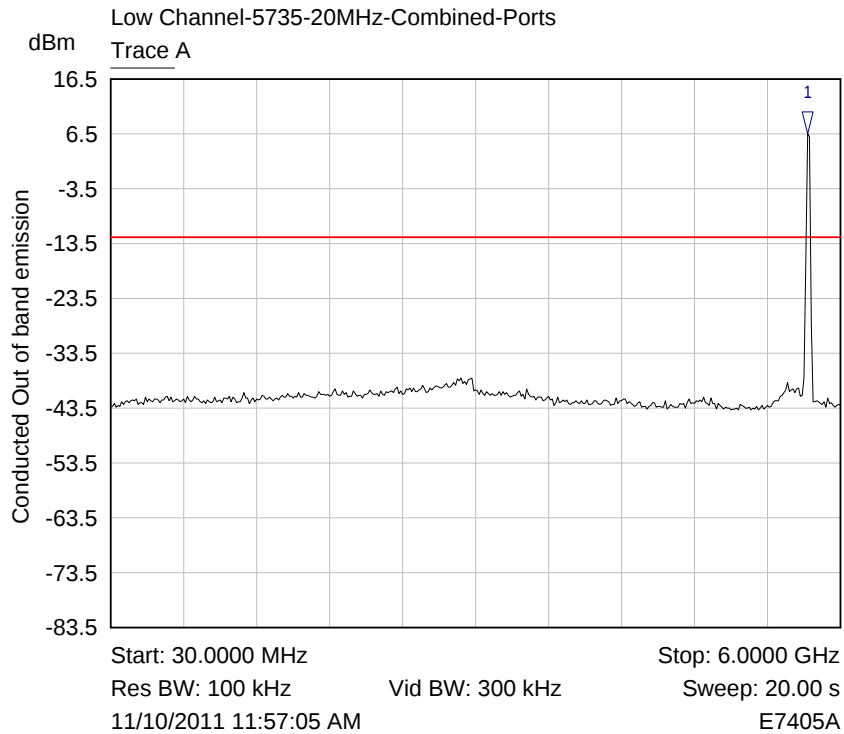
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	373.8750 kHz	-46.49 dBm	

Plot Out of Band Conducted Emission/ 83



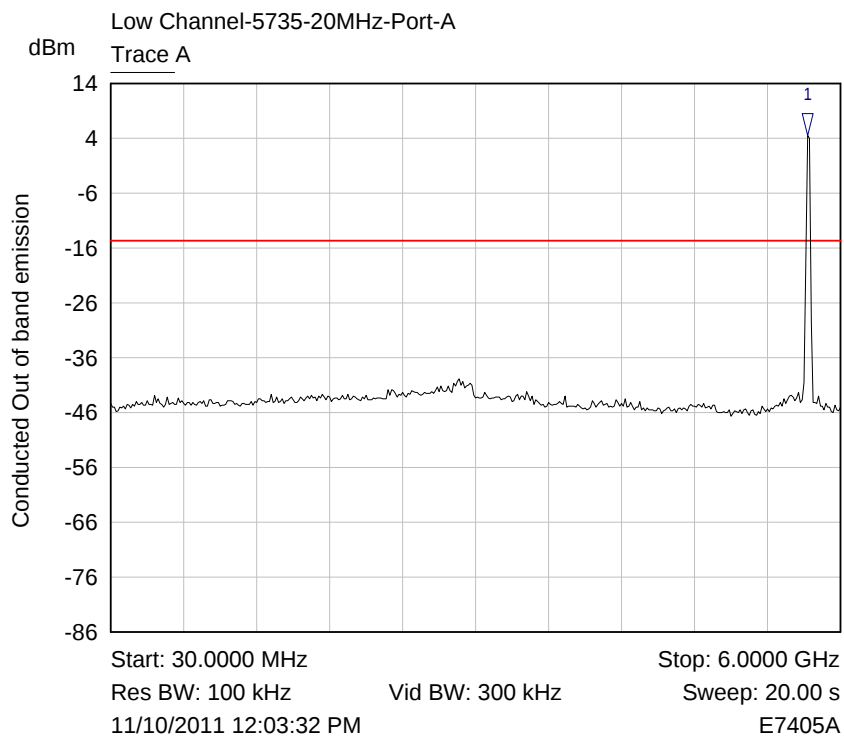
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	373.8750 kHz	-46.49 dBm	

Plot Out of Band Conducted Emission/ 84



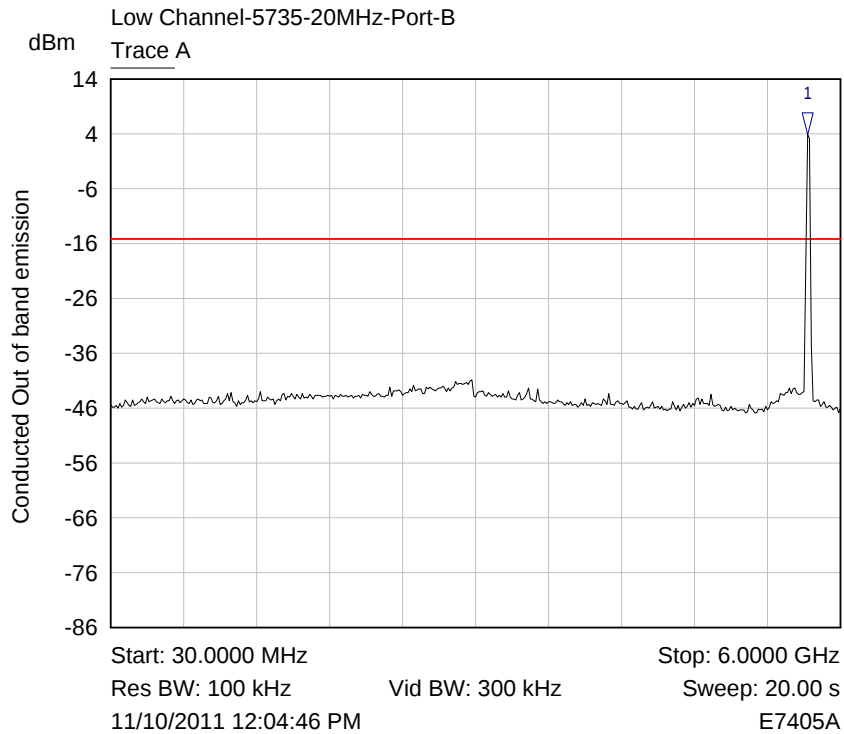
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7314 GHz	6.46 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 85



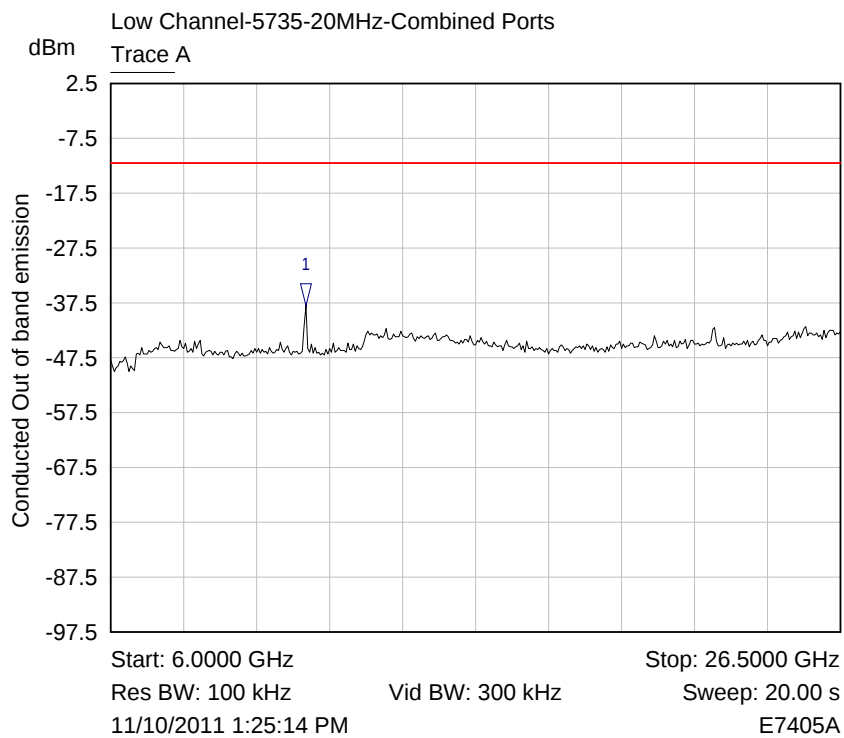
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7314 GHz	4.43 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 86



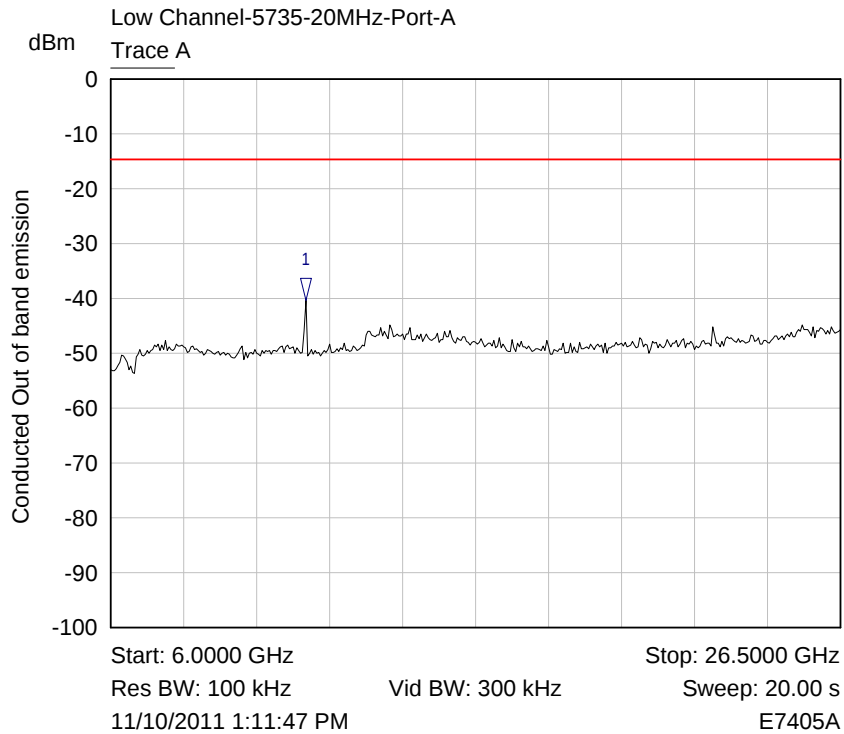
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7314 GHz	3.84 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 87



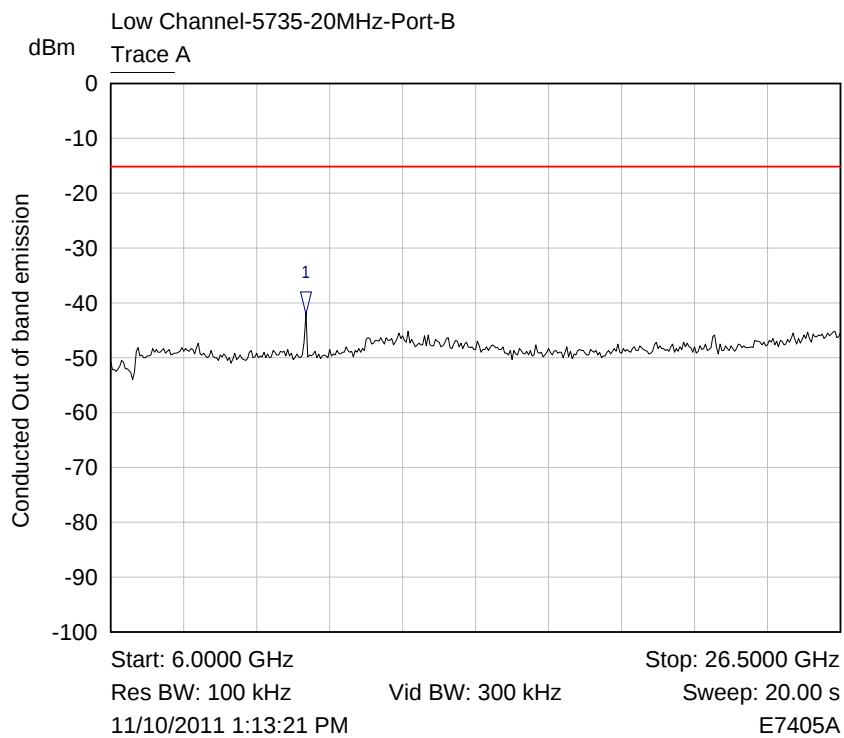
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.4838 GHz	-38.01 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 88



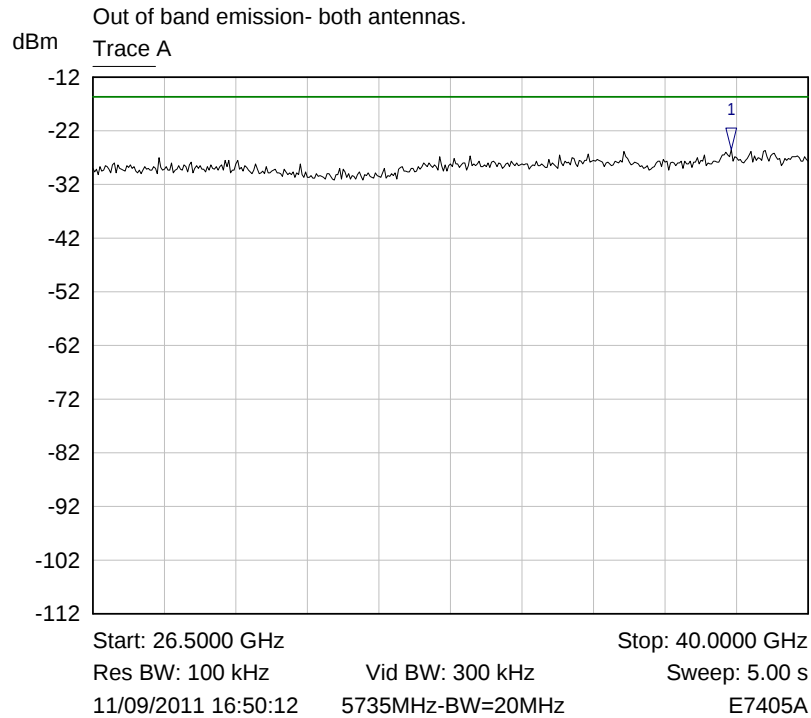
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.4838 GHz	-40.38 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 89



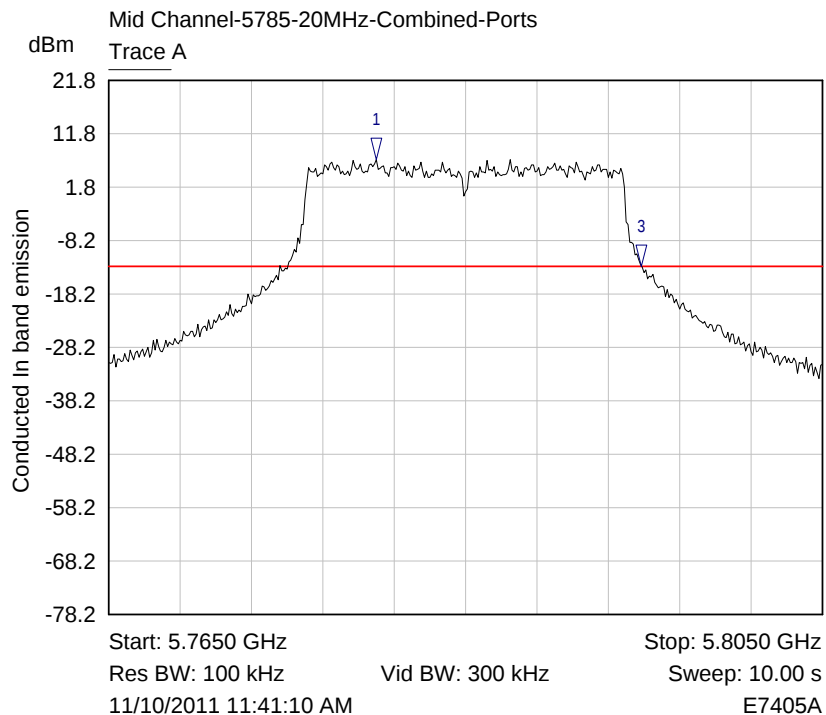
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.4838 GHz	-41.97 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 90



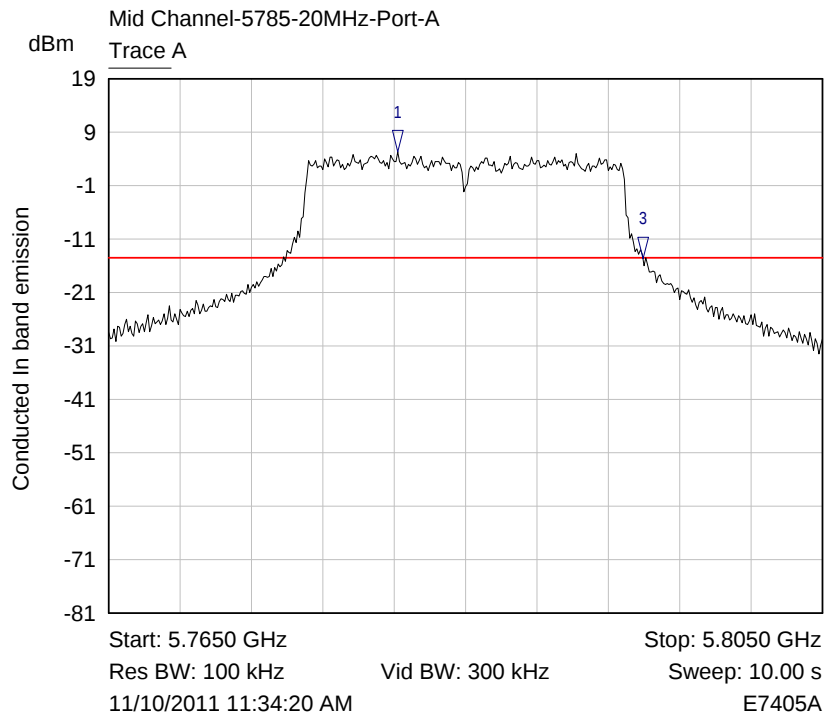
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	38.5488 GHz	-25.53 dBm	

Plot Out of Band Conducted Emission/ 91



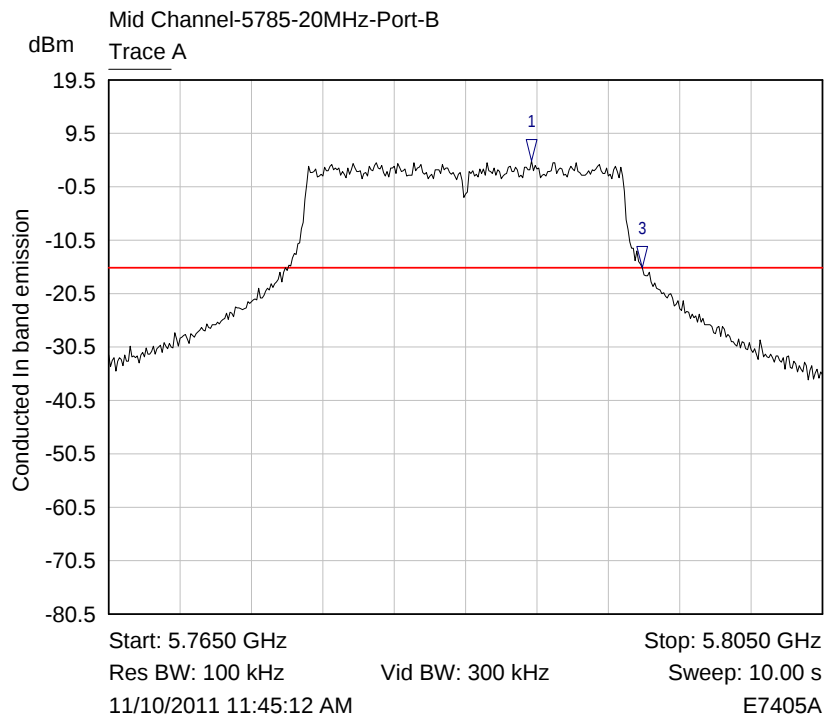
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7800 GHz	7.03 dBm	Highest emission in band
3 ▽	Trace A	5.7949 GHz	-12.96 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 92



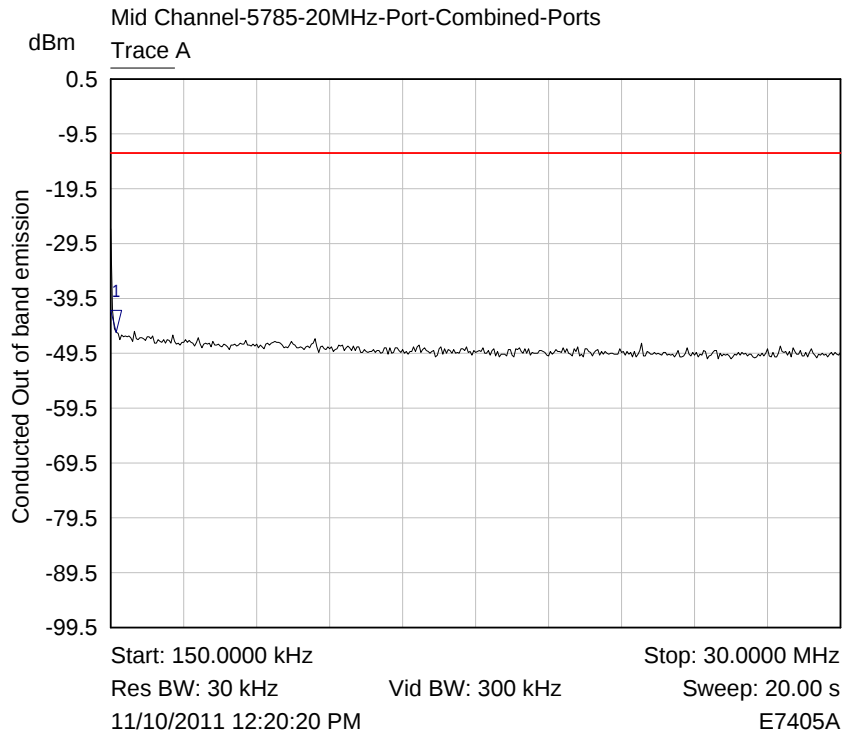
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7812 GHz	5.26 dBm	Highest emission in band
3 ▽	Trace A	5.7949 GHz	-14.73 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 93



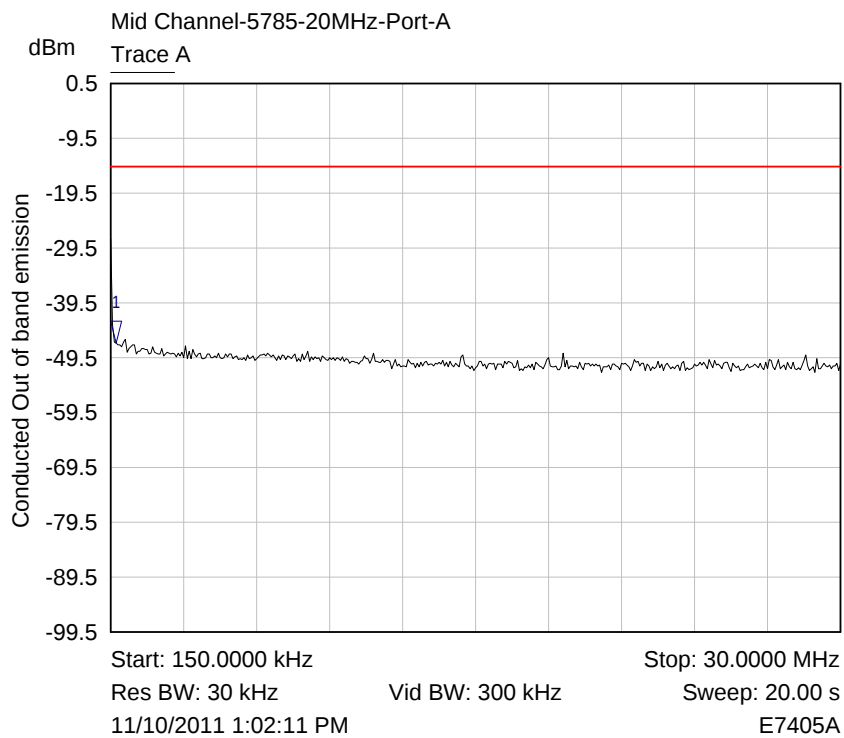
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7887 GHz	4.27 dBm	Highest emission in band
3 ▽	Trace A	5.7949 GHz	-15.72 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 94



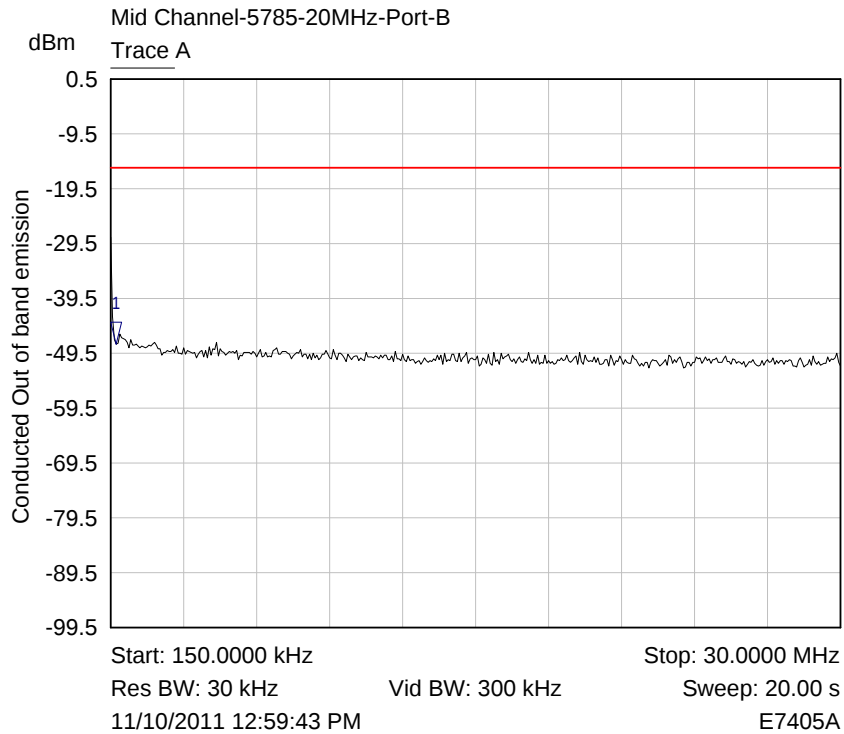
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	373.8750 kHz	-45.71 dBm	

Plot Out of Band Conducted Emission/ 95



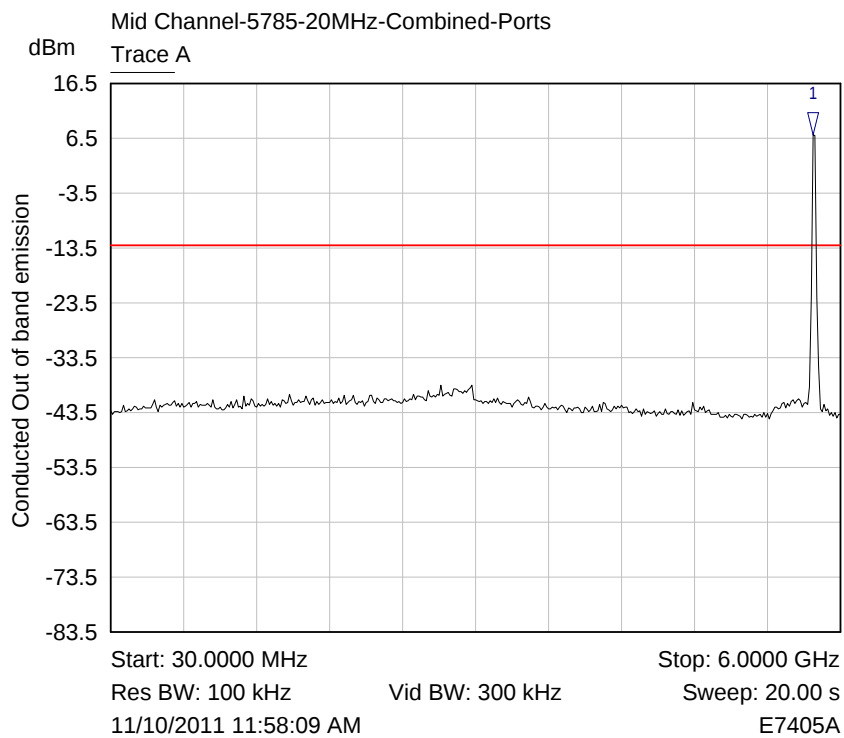
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	373.8750 kHz	-46.88 dBm	

Plot Out of Band Conducted Emission/ 96



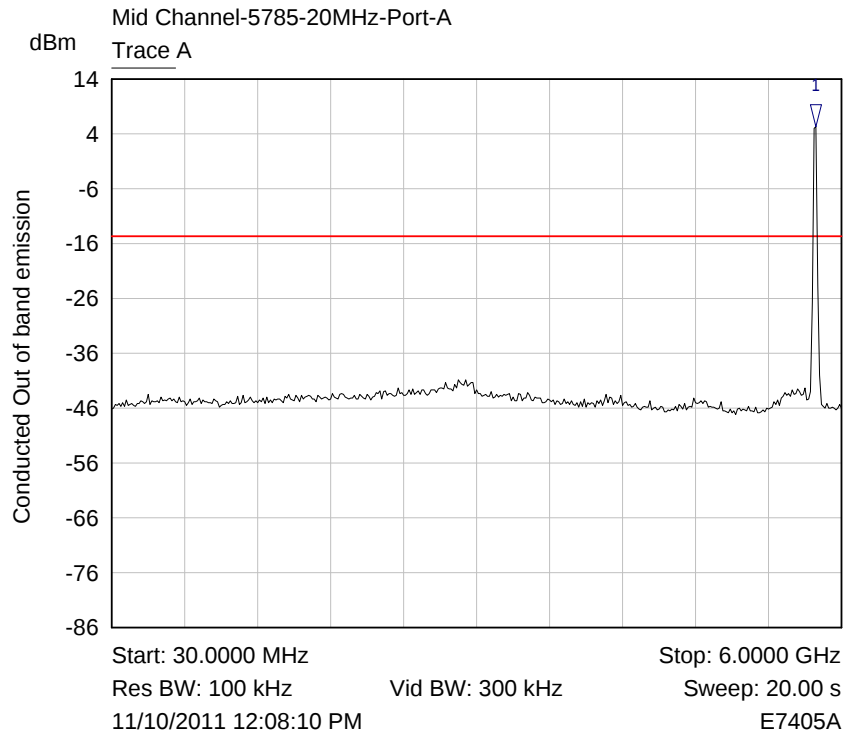
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	373.8750 kHz	-47.89 dBm	

Plot Out of Band Conducted Emission/ 97



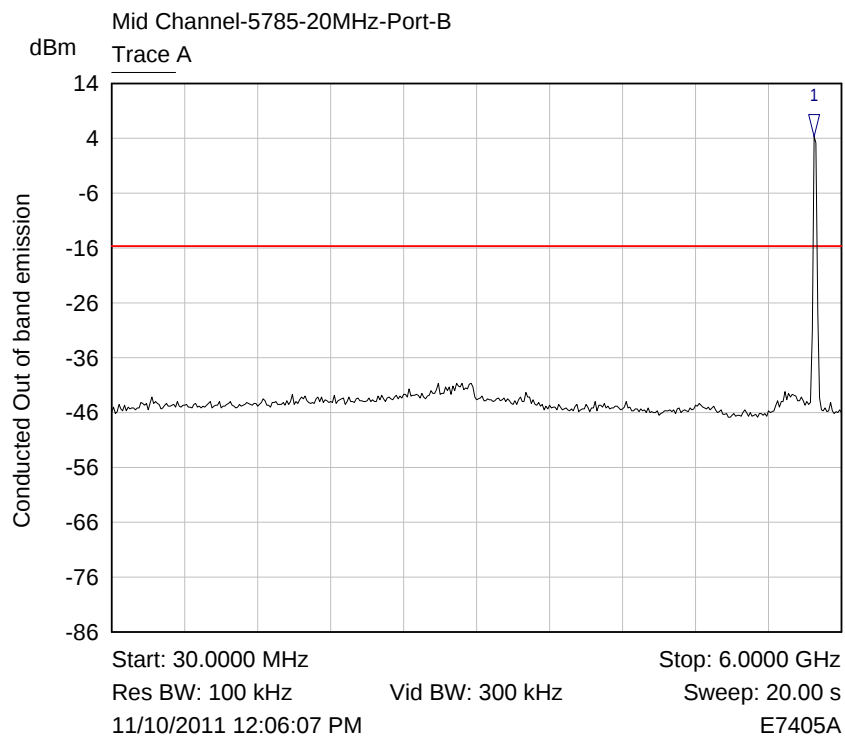
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7761 GHz	7.09 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 98



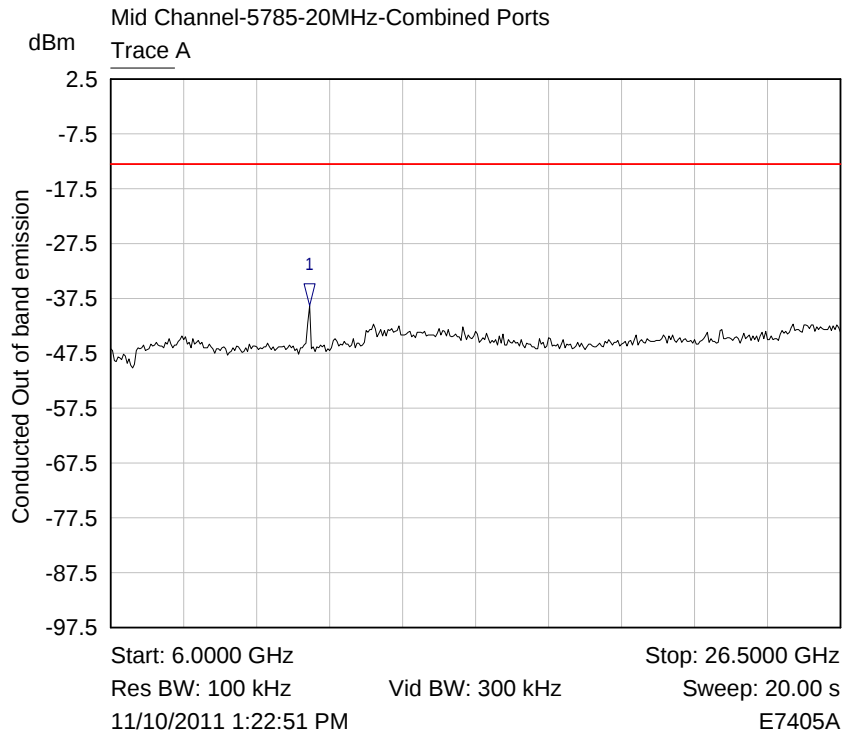
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7911 GHz	5.40 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 99



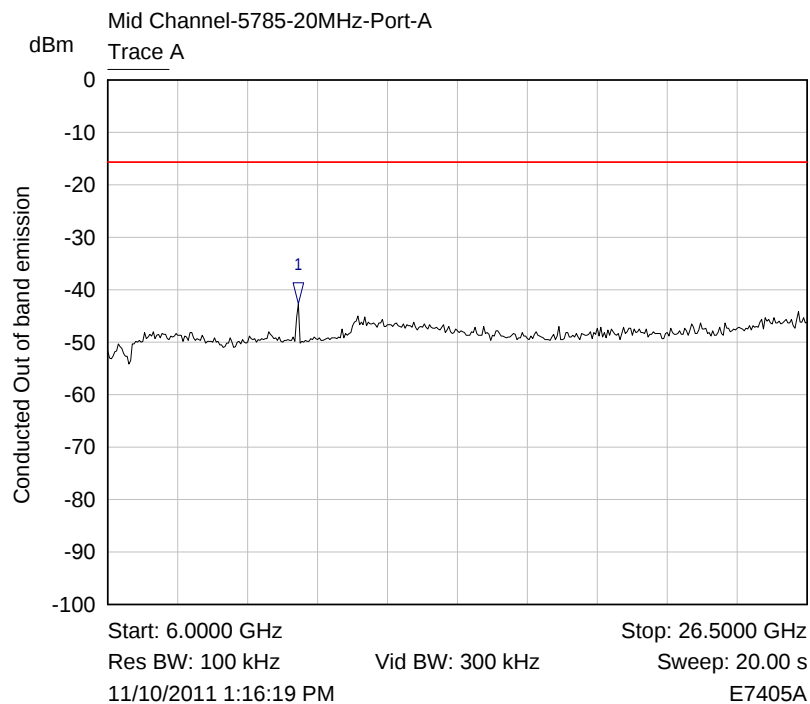
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7761 GHz	4.28 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 100



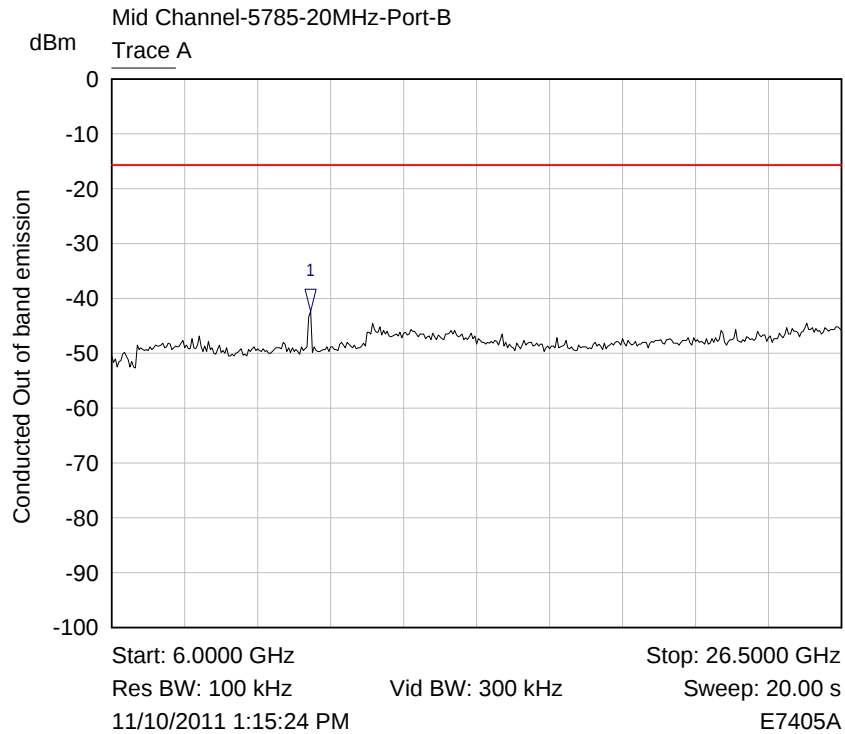
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.5863 GHz	-38.83 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 101



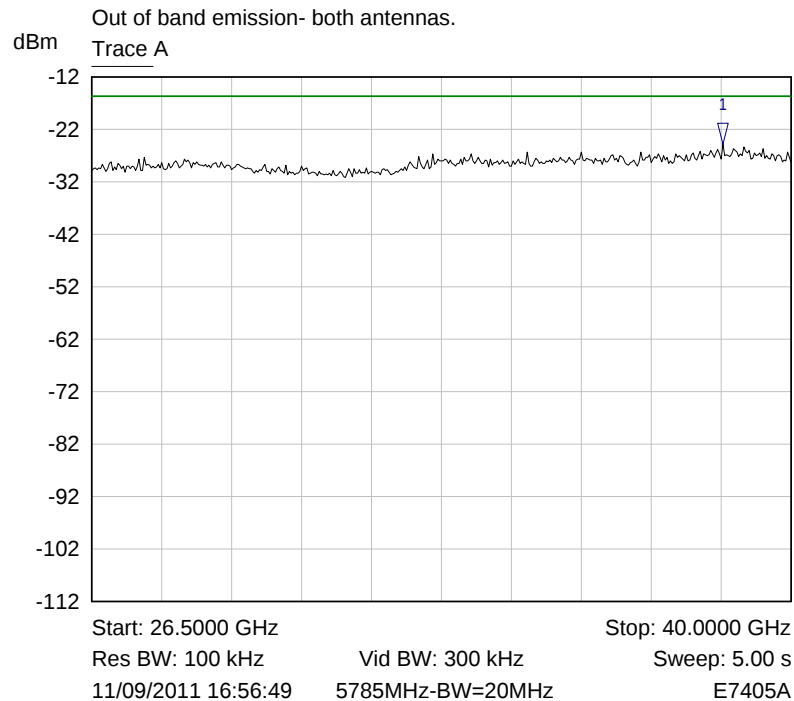
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.5863 GHz	-42.67 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 102



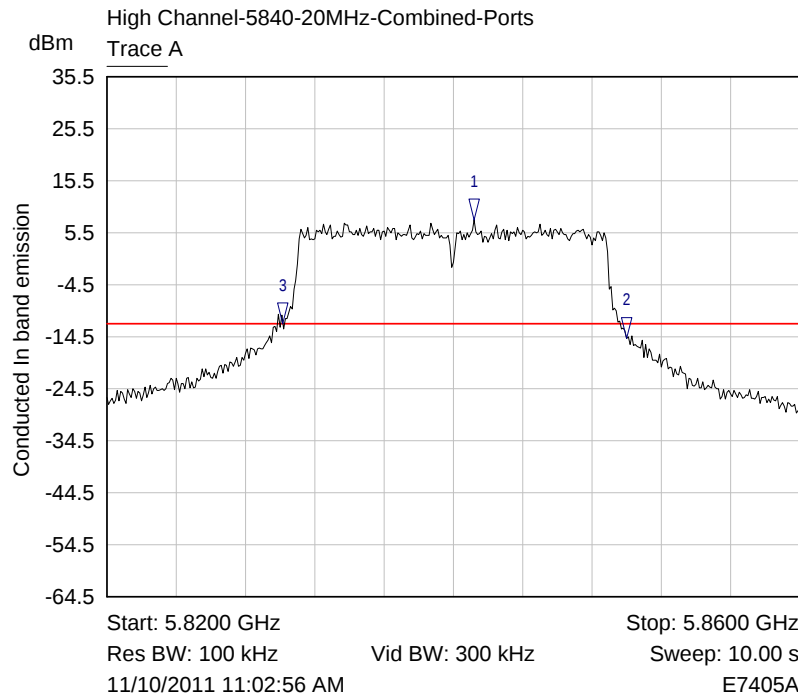
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.5863 GHz	-42.30 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 103



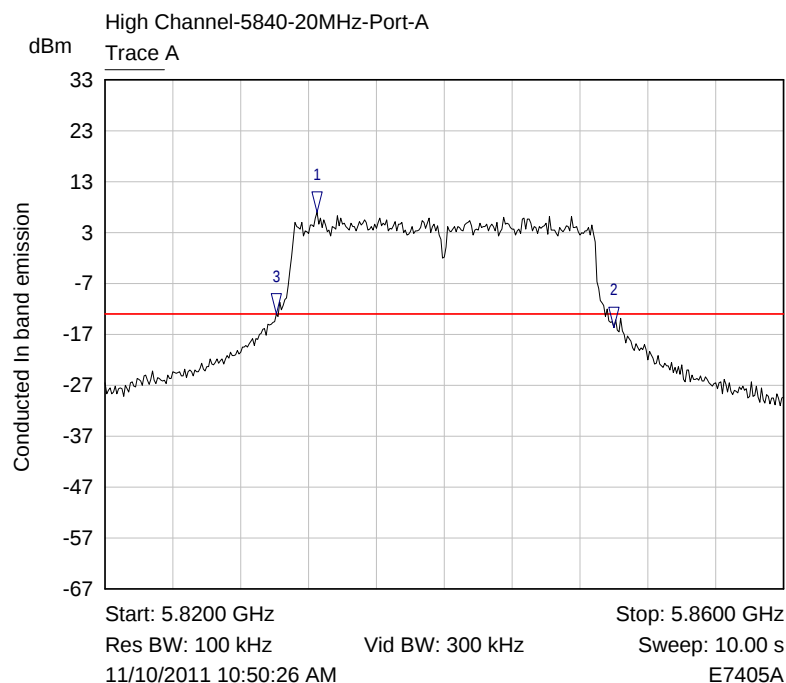
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	38.6838 GHz	-24.88 dBm	

Plot Out of Band Conducted Emission/ 104



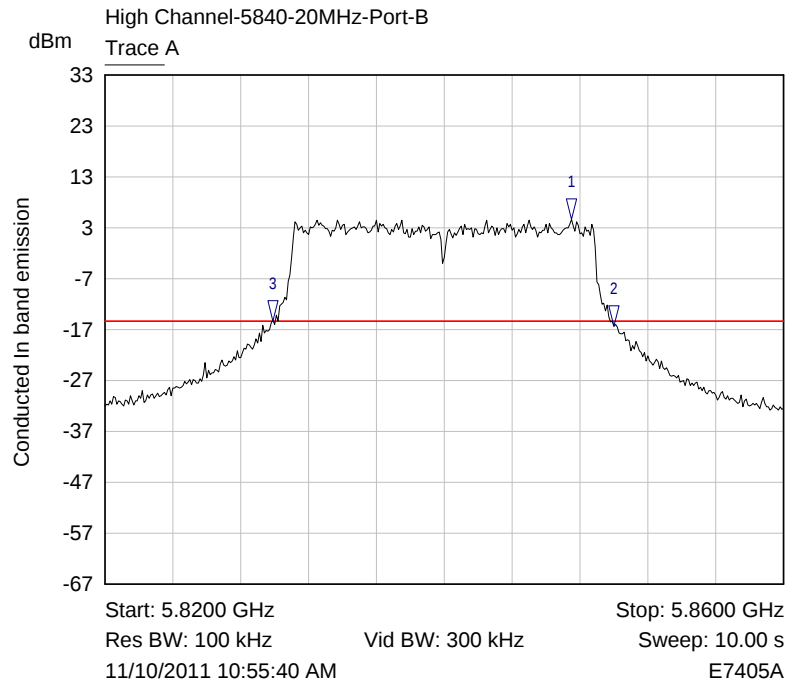
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8412 GHz	8.03 dBm	Highest emission in band
2 ▽	Trace A	5.8500 GHz	-14.77 dBm	Band Edge
3 ▽	Trace A	5.8302 GHz	-11.98 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 105



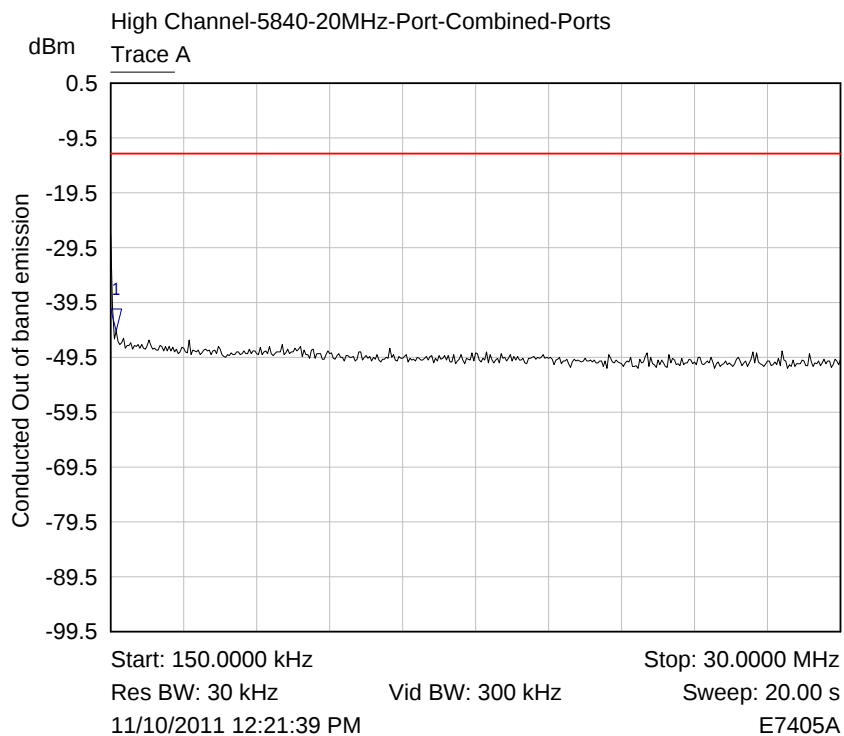
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8325 GHz	6.93 dBm	Highest emission in band
2 ▽	Trace A	5.8500 GHz	-15.63 dBm	Band Edge
3 ▽	Trace A	5.8301 GHz	-13.06 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 106



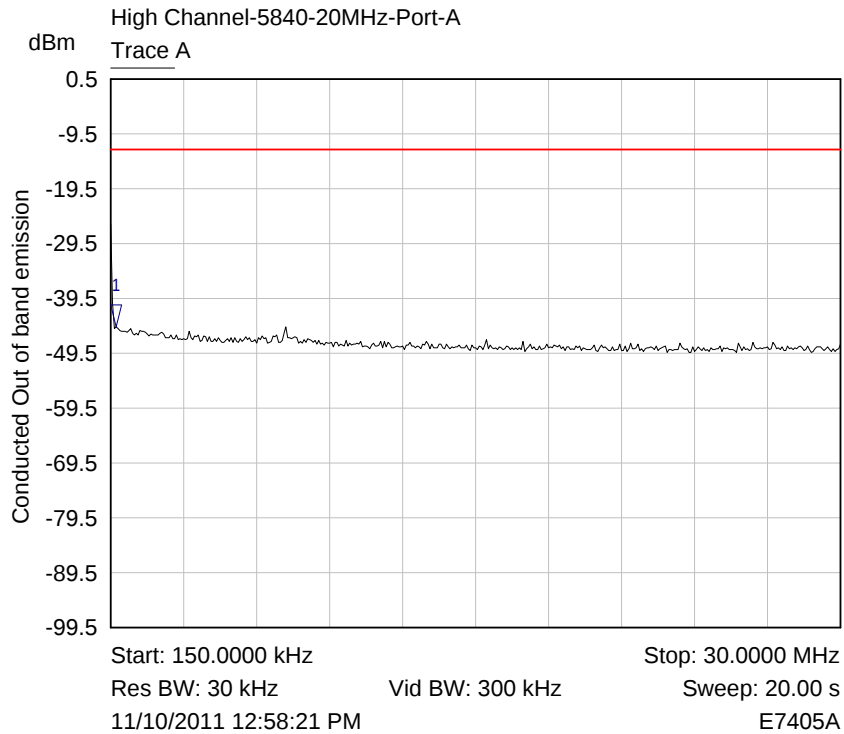
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8475 GHz	4.67 dBm	Highest emission in band
2 ▽	Trace A	5.8500 GHz	-16.28 dBm	Band Edge
3 ▽	Trace A	5.8299 GHz	-15.33 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 107



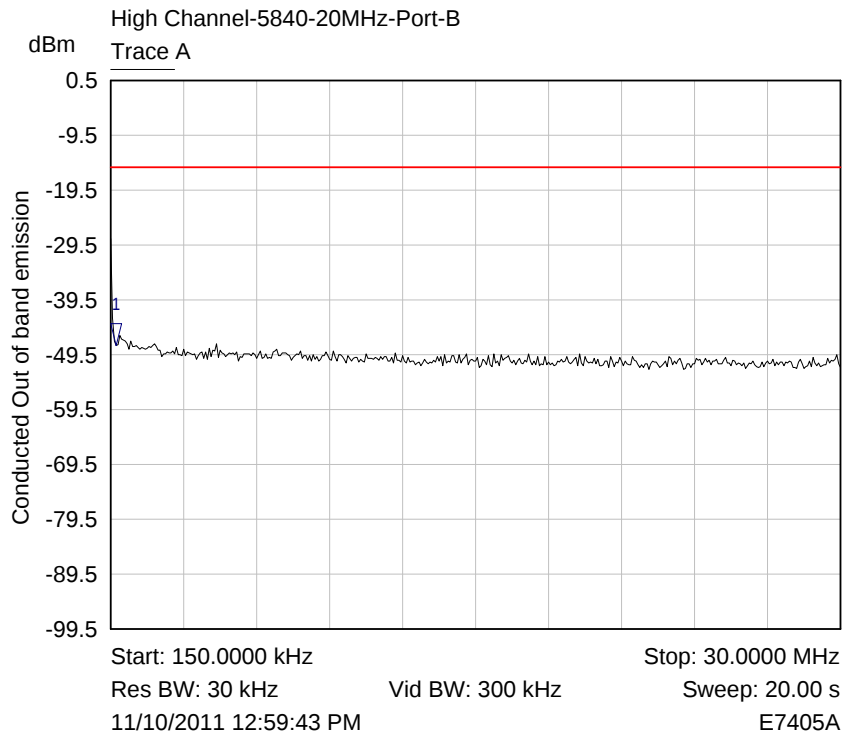
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	373.8750 kHz	-44.68 dBm	

Plot Out of Band Conducted Emission/ 108



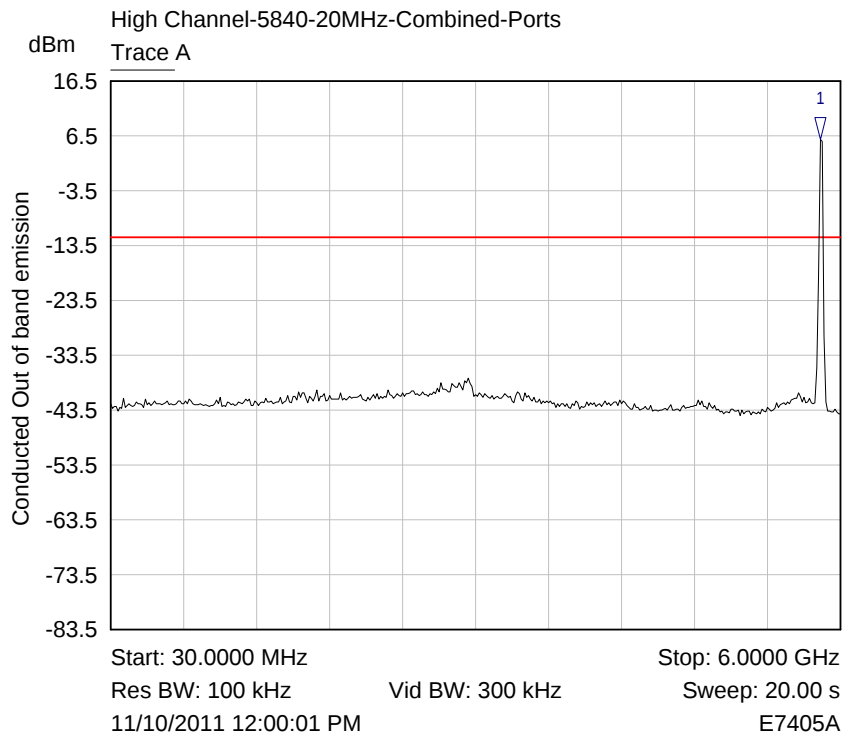
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	373.8750 kHz	-44.68 dBm	

Plot Out of Band Conducted Emission/ 109



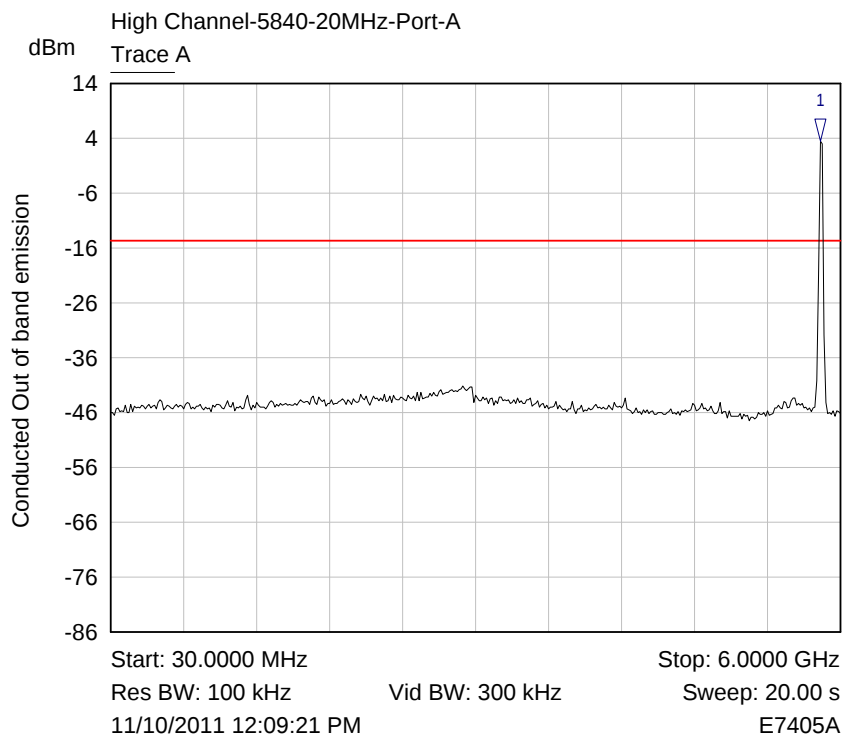
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	373.8750 kHz	-47.89 dBm	

Plot Out of Band Conducted Emission/ 110



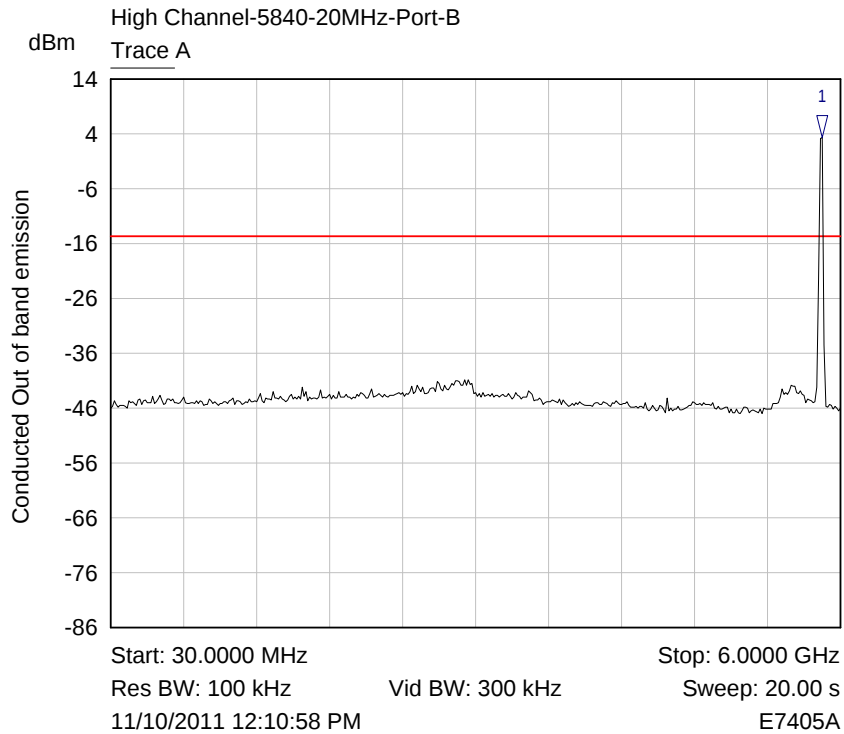
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8358 GHz	5.81 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 111



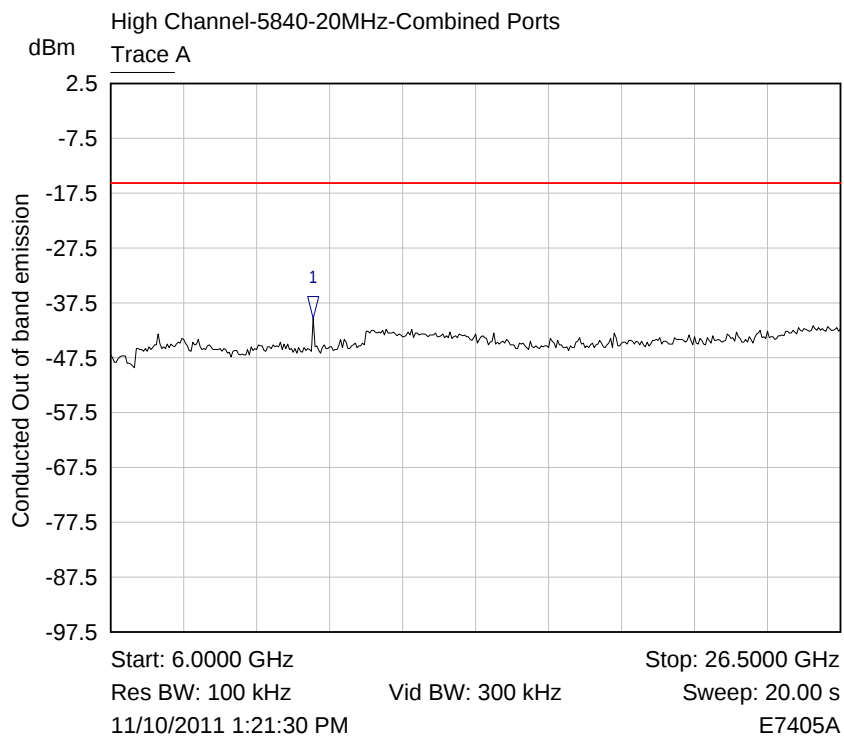
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8358 GHz	3.44 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 112



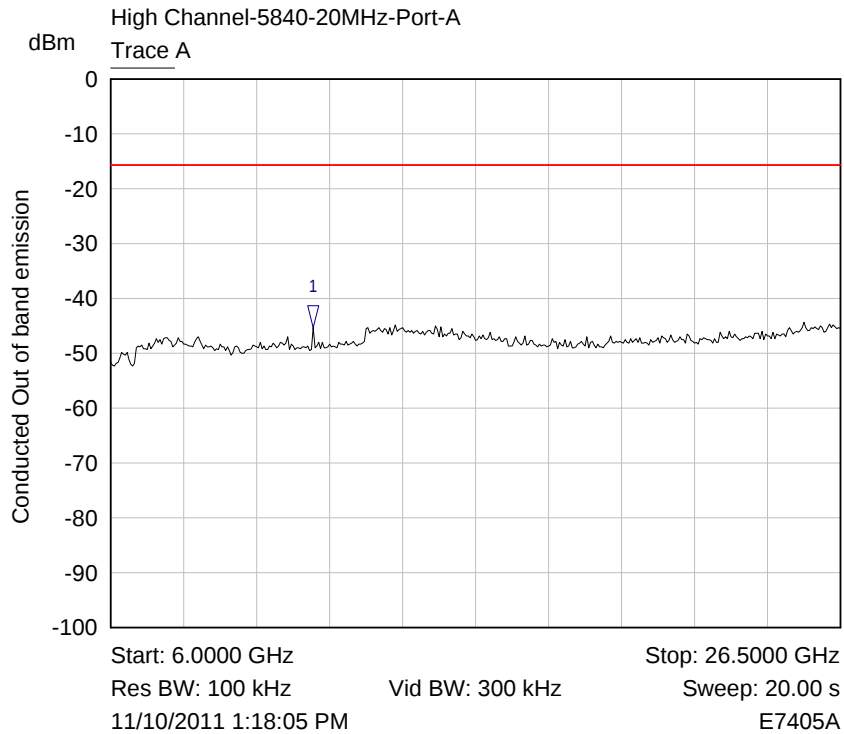
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8508 GHz	3.30 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 113



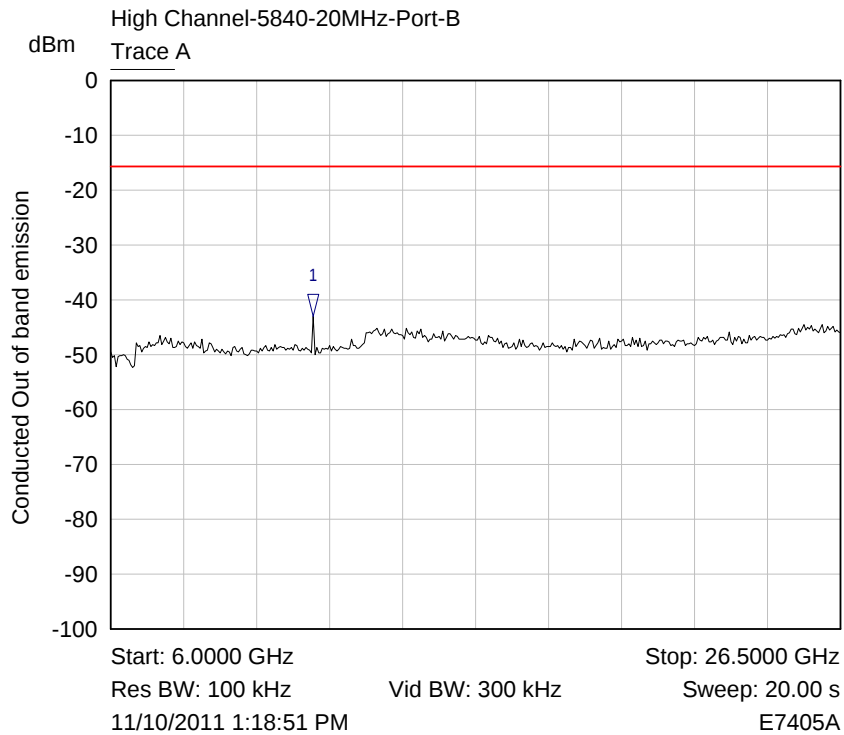
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.6888 GHz	-40.27 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 114



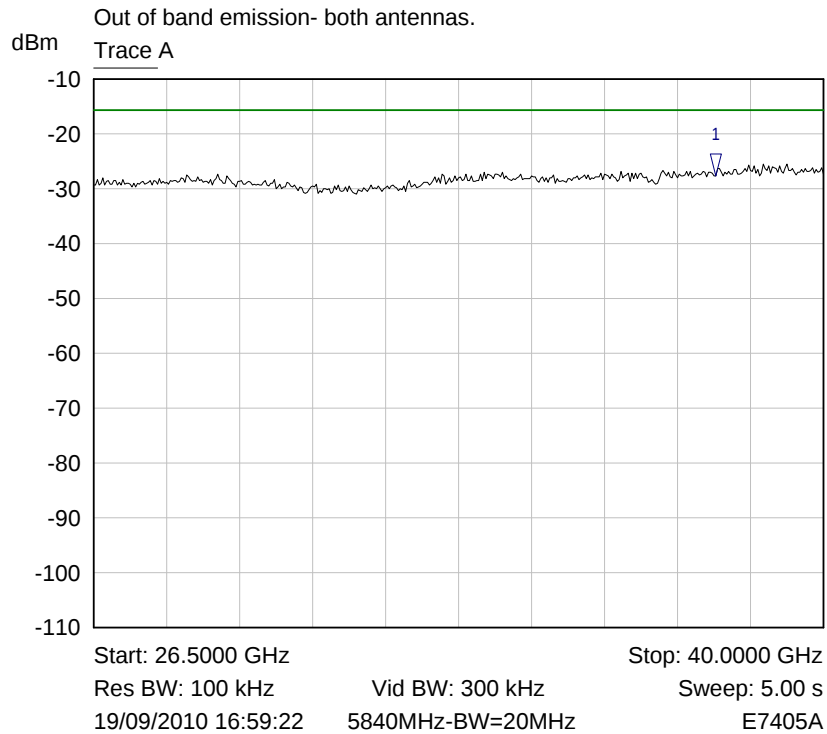
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.6888 GHz	-45.31 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 115



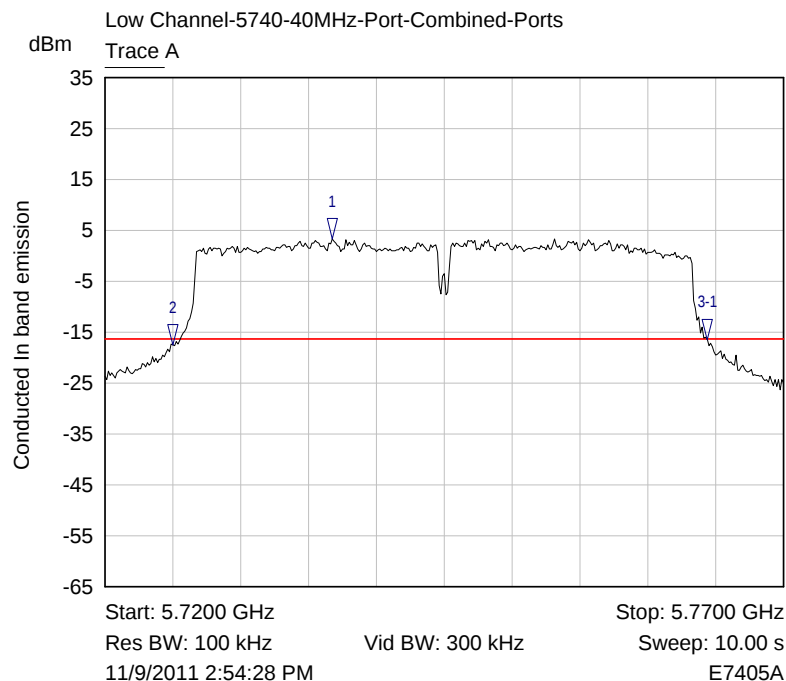
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.6888 GHz	-43.00 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 116



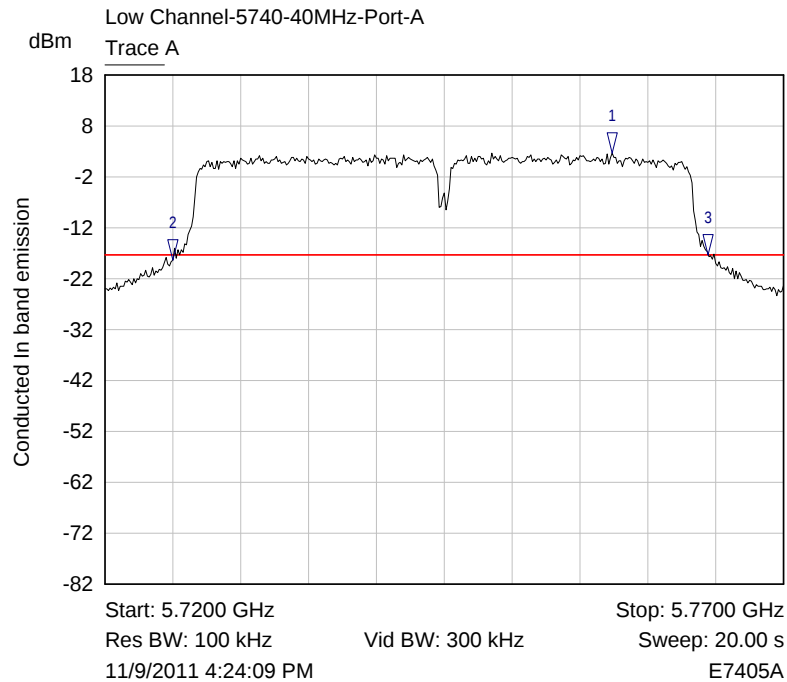
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	38.0088 GHz	-27.70 dBm	

Plot Out of Band Conducted Emission/ 117



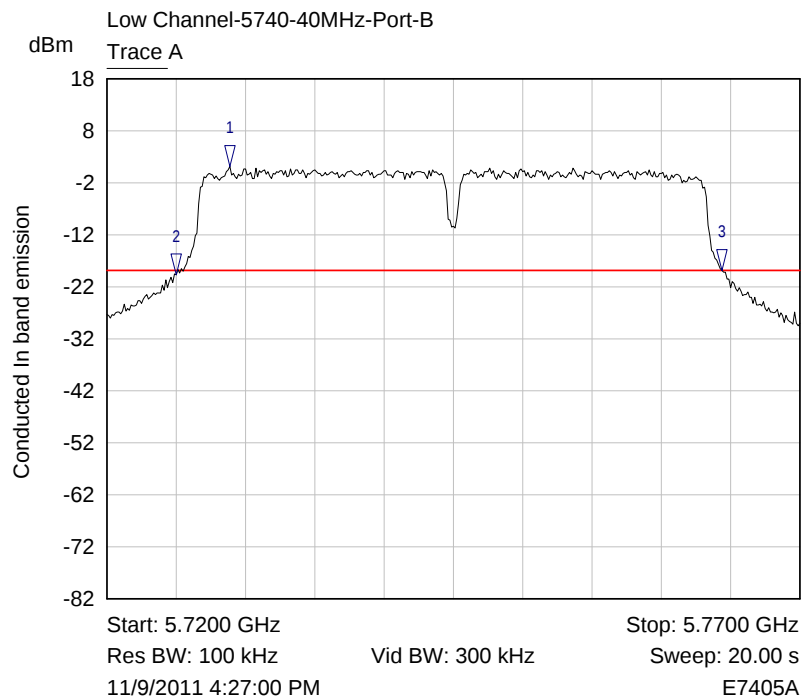
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7368 GHz	3.40 dBm	Highest emission in band
2 ▽	Trace A	5.7250 GHz	-17.46 dBm	Band Edge
3-1 ▽	Trace A	27.6460 MHz	-20.00 dB	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 118



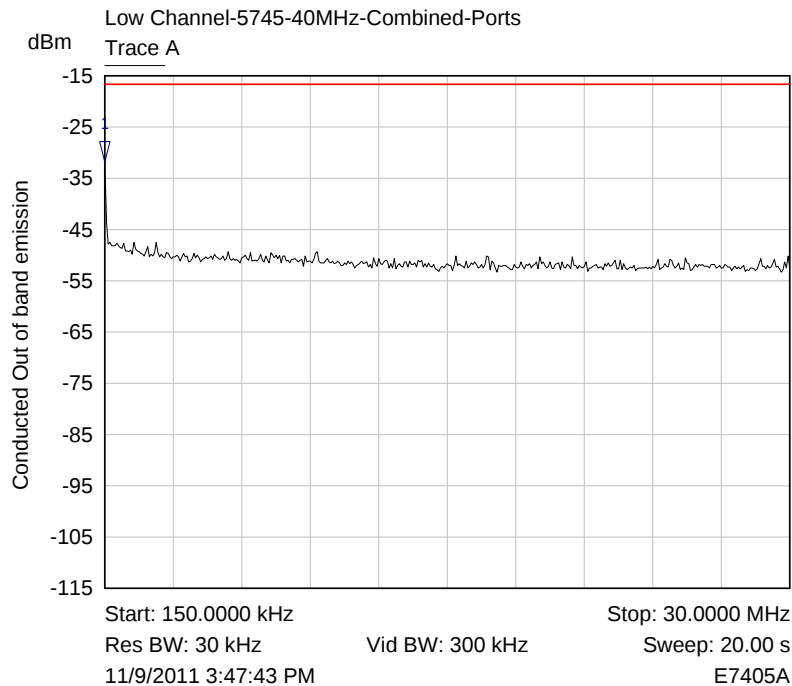
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7574 GHz	2.74 dBm	Highest emission in band
2 ▽	Trace A	5.7250 GHz	-18.38 dBm	Band Edge
3 ▽	Trace A	5.7645 GHz	-17.23 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 119



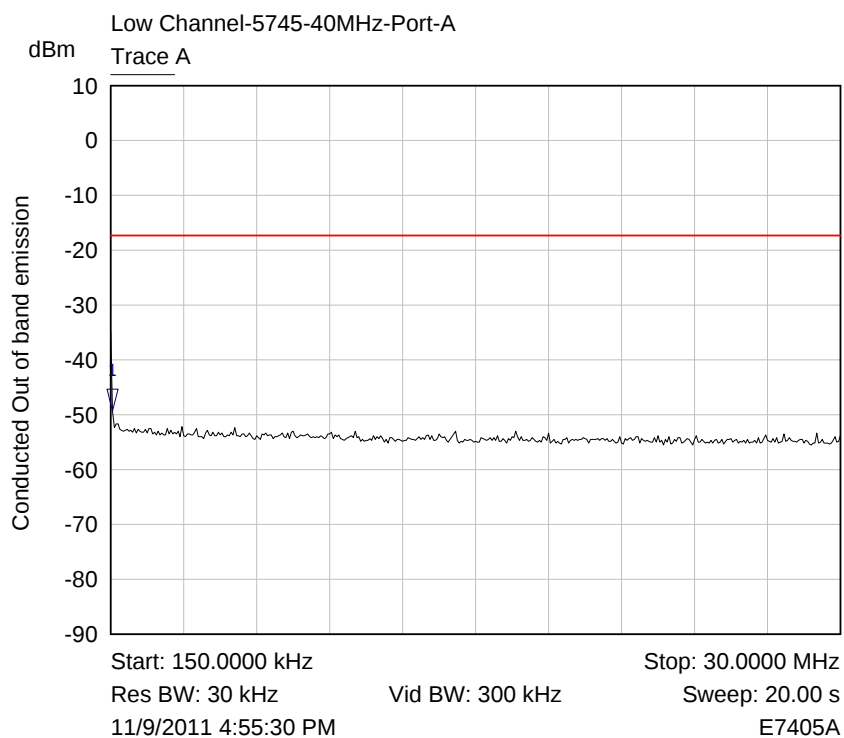
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7289 GHz	1.20 dBm	Highest emission in band
2 ▽	Trace A	5.7250 GHz	-19.72 dBm	Band Edge
3 ▽	Trace A	5.7644 GHz	-18.79 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 120



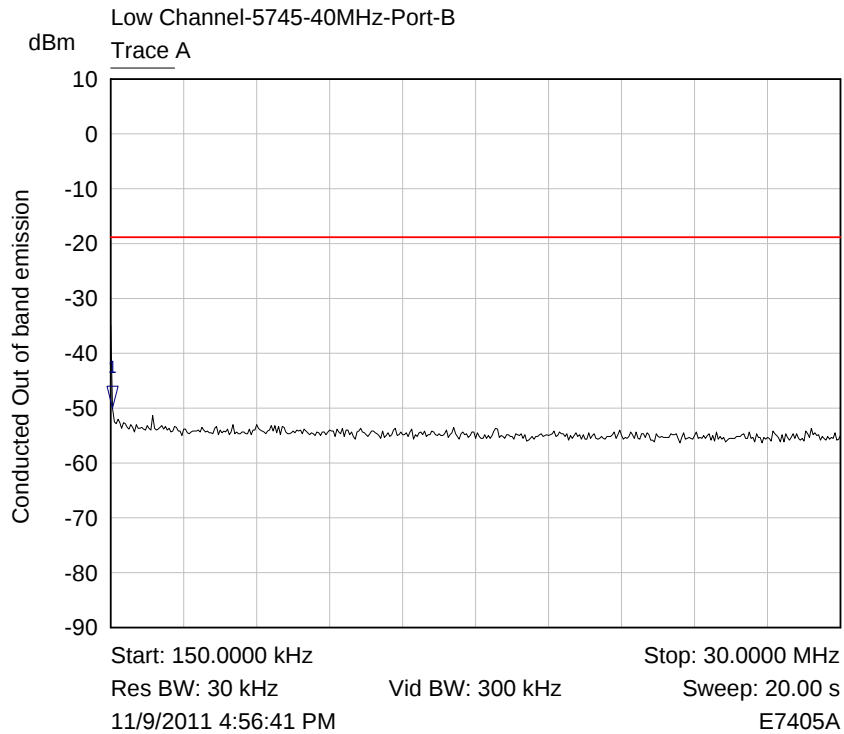
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	150.0000 kHz	-31.81 dBm	

Plot Out of Band Conducted Emission/ 121



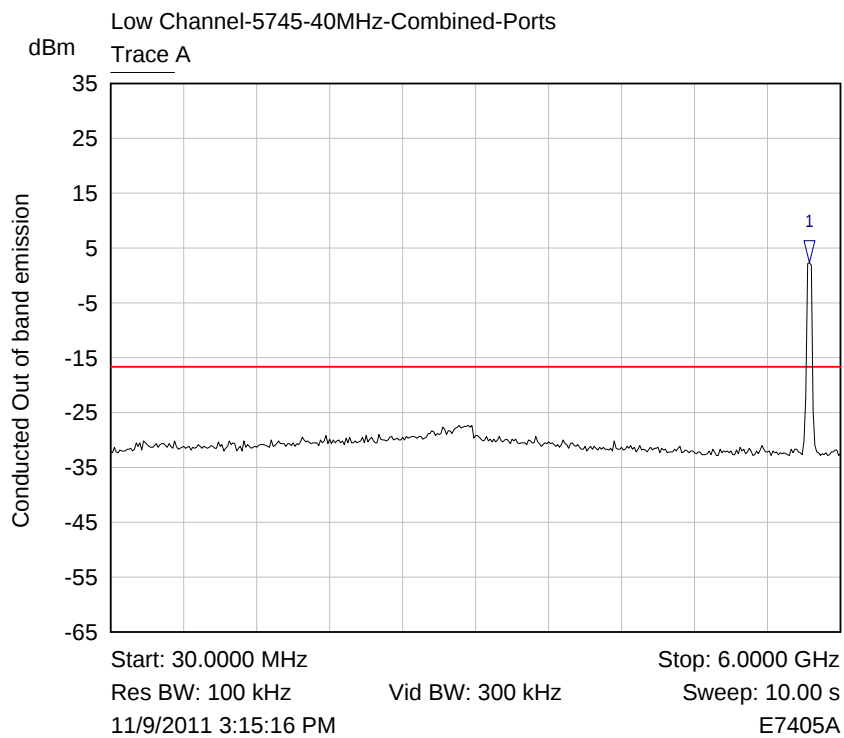
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	224.6250 kHz	-49.32 dBm	

Plot Out of Band Conducted Emission/ 122



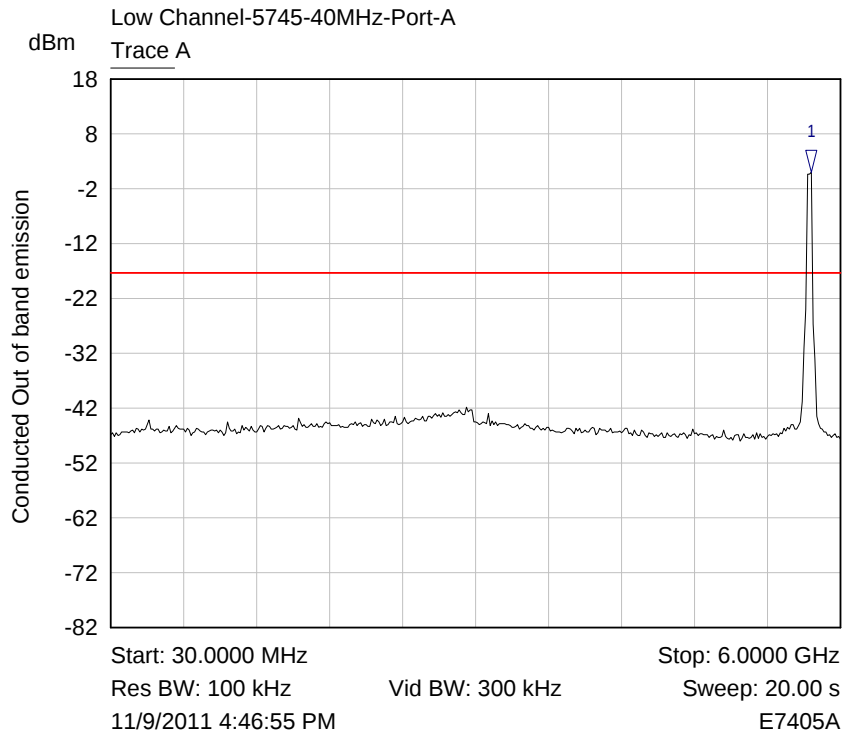
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	224.6250 kHz	-50.08 dBm	

Plot Out of Band Conducted Emission/ 123



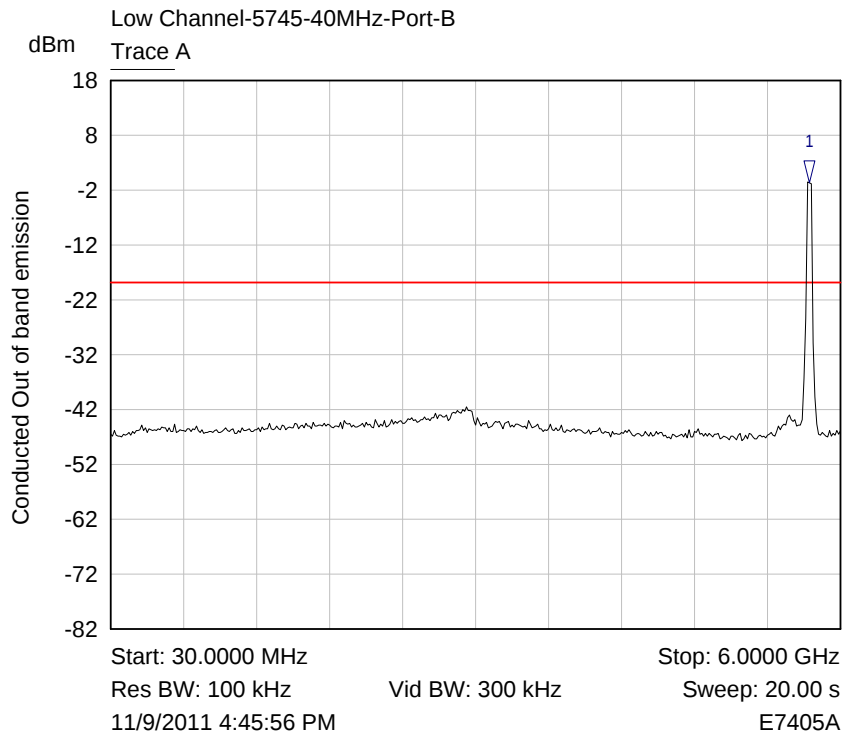
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7463 GHz	2.39 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 124



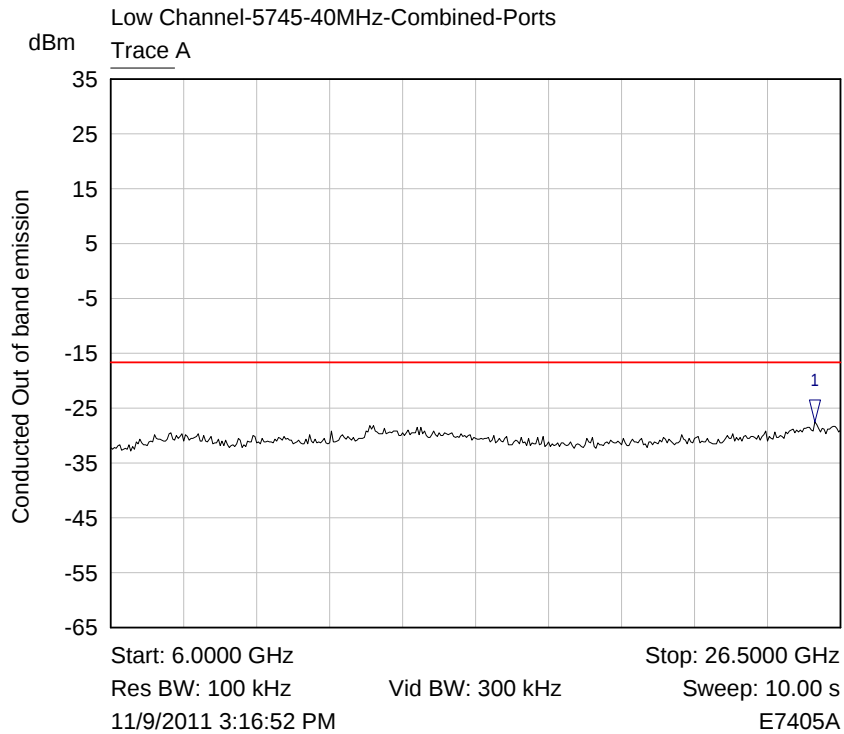
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7612 GHz	1.05 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 125



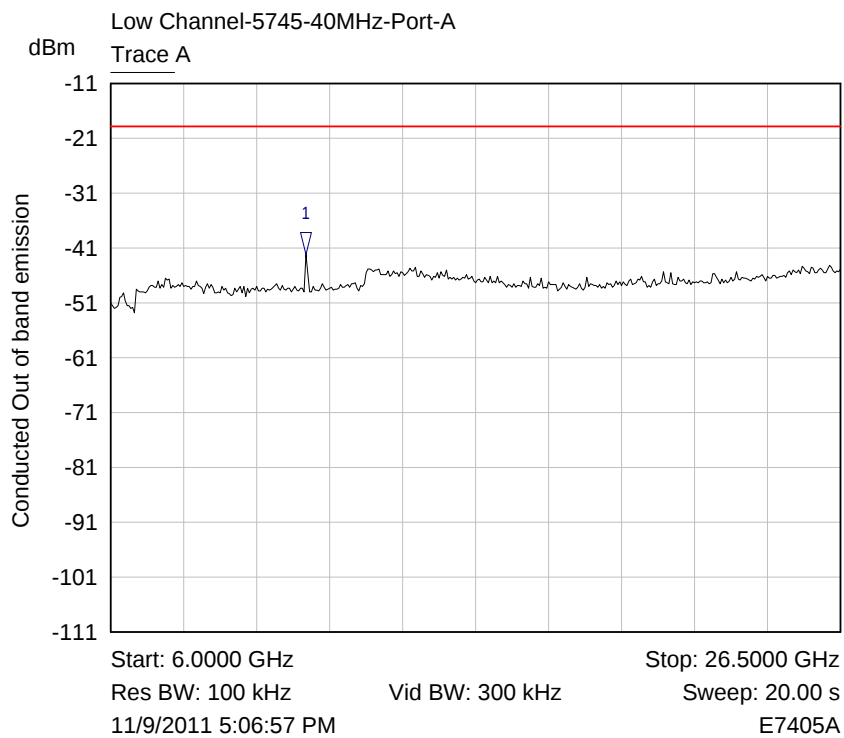
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7463 GHz	-0.66 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 126



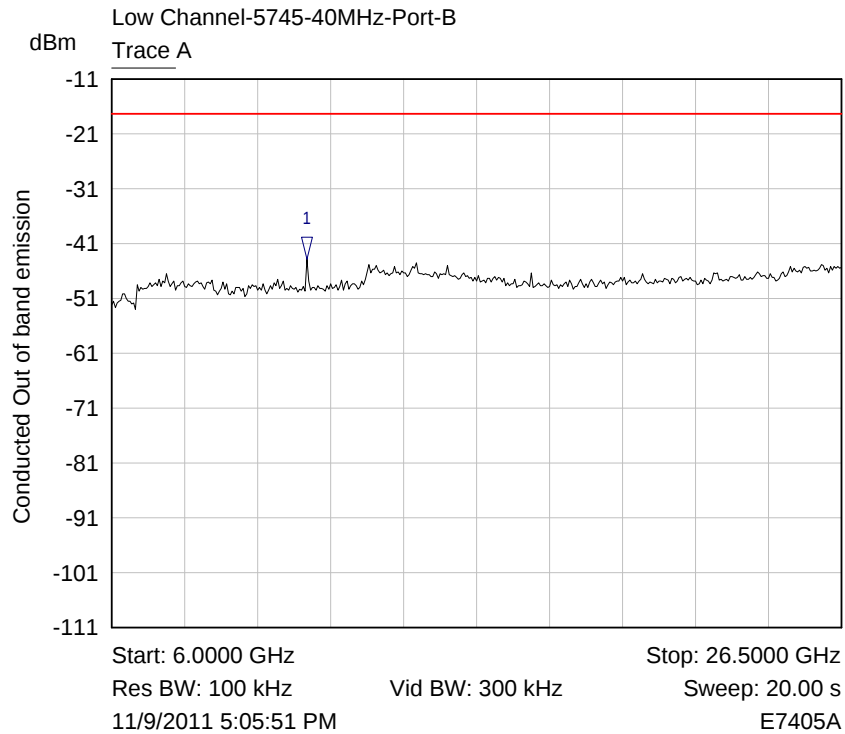
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	25.7825 GHz	-27.47 dBm	

Plot Out of Band Conducted Emission/ 127



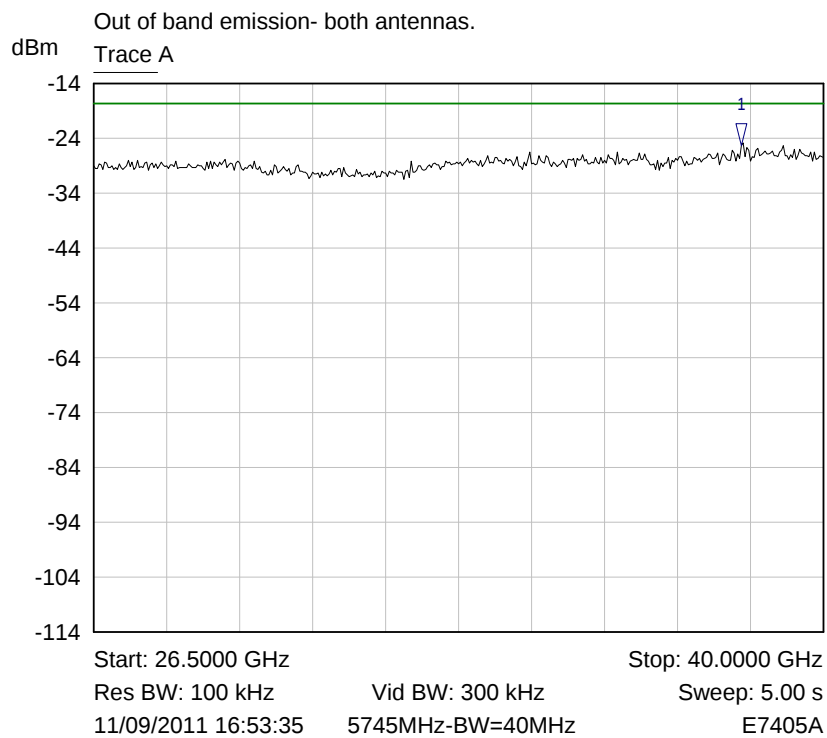
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.4838 GHz	-42.15 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 128



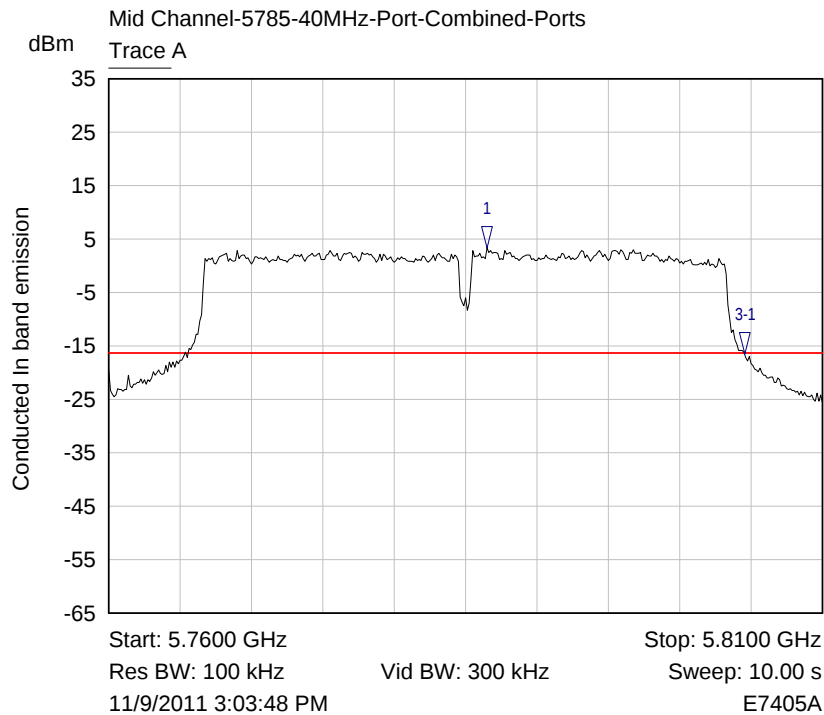
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.4838 GHz	-43.86 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 129



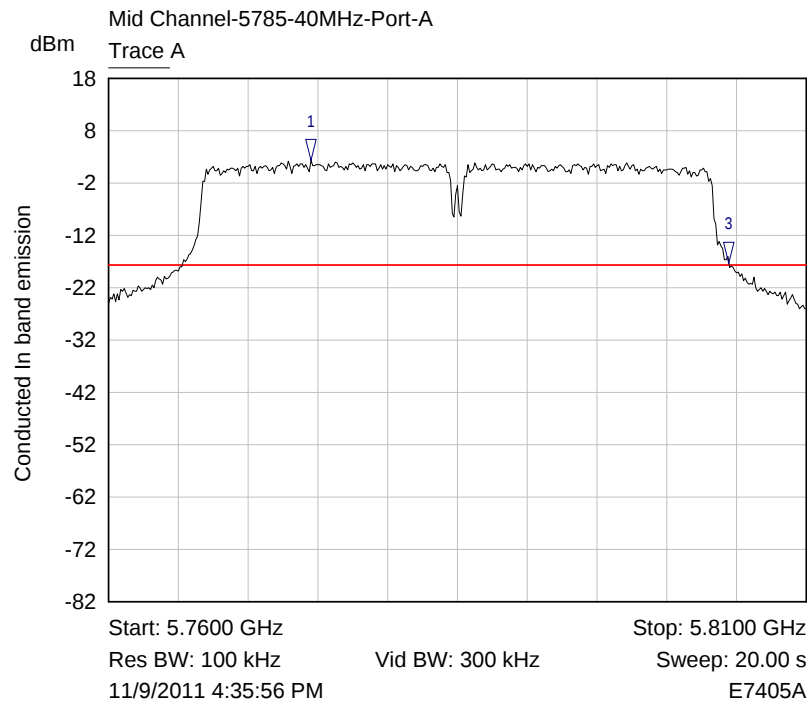
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	38.4813 GHz	-25.36 dBm	

Plot Out of Band Conducted Emission/ 130



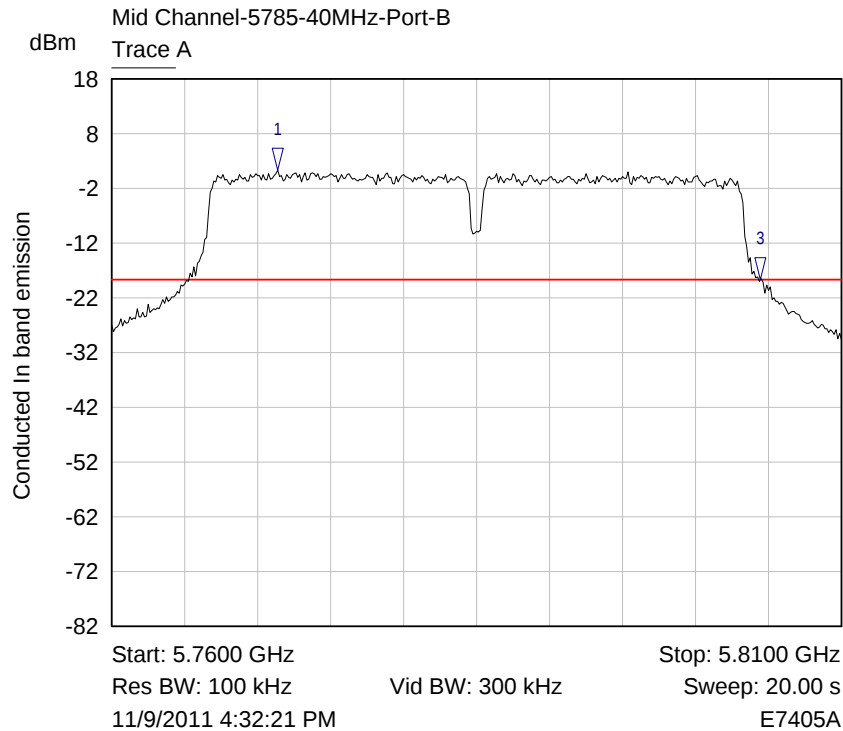
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7865 GHz	3.40 dBm	Highest emission in band
3-1 ▽	Trace A	18.0500 MHz	-19.99 dB	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 131



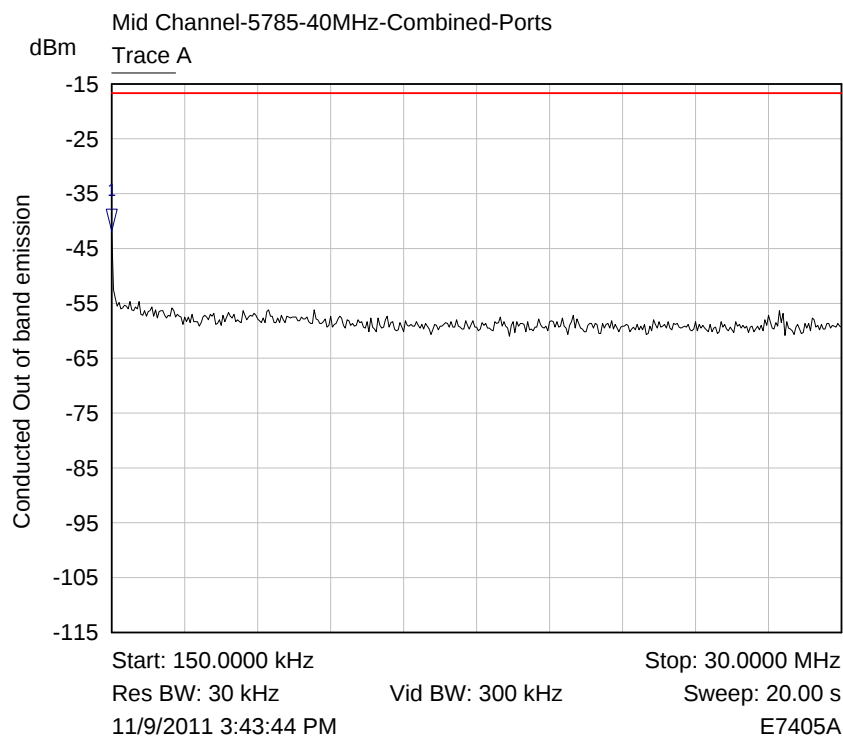
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7745 GHz	2.36 dBm	Highest emission in band
3 ▽	Trace A	5.8045 GHz	-17.34 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 132



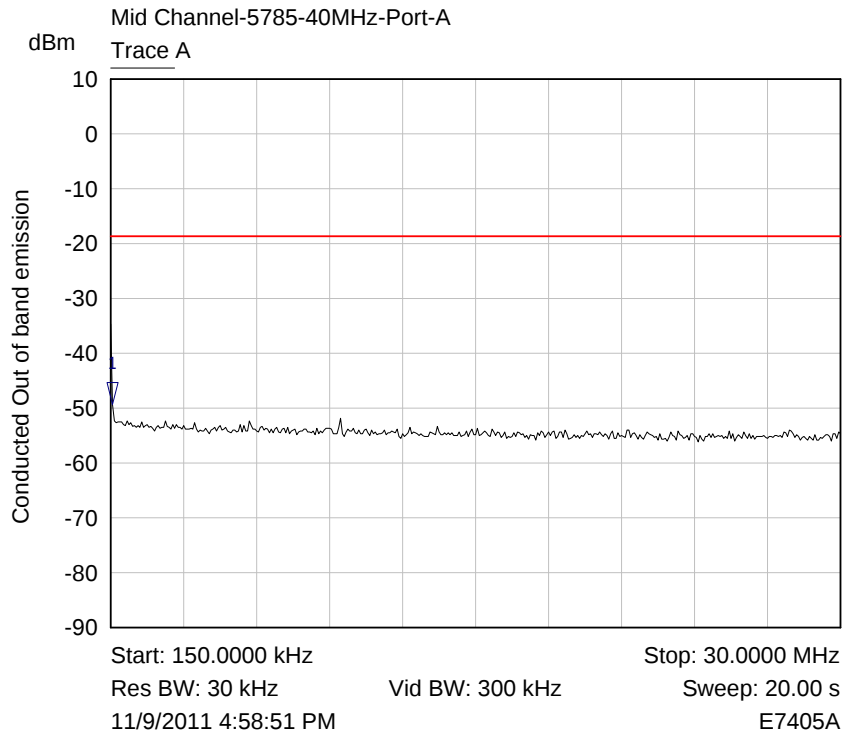
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7714 GHz	1.29 dBm	Highest emission in band
3 ▽	Trace A	5.8045 GHz	-18.70 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 133



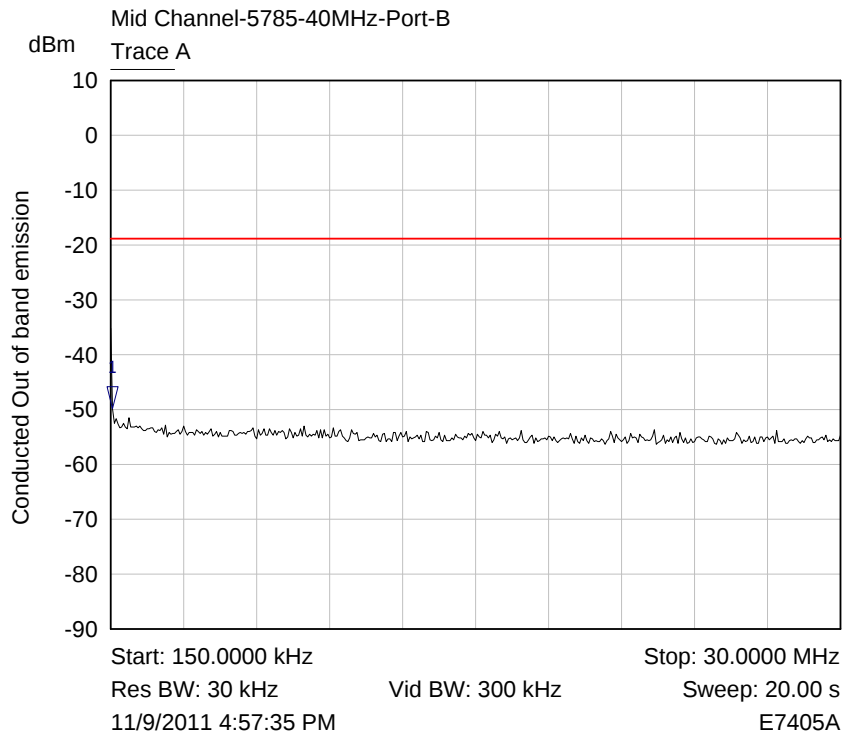
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	150.0000 kHz	-41.80 dBm	

Plot Out of Band Conducted Emission/ 134



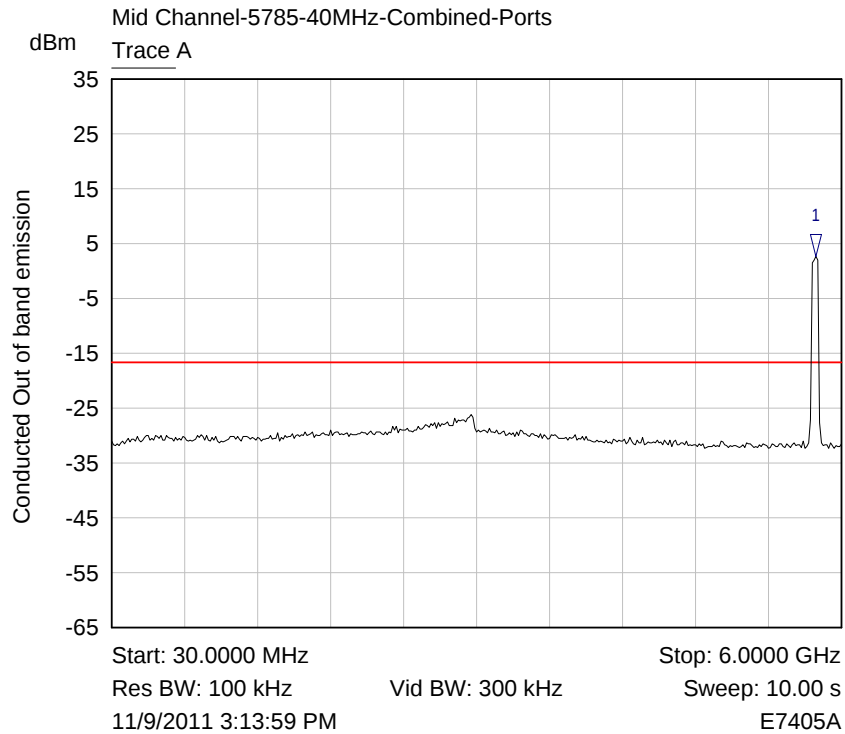
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	224.6250 kHz	-49.30 dBm	

Plot Out of Band Conducted Emission/ 135



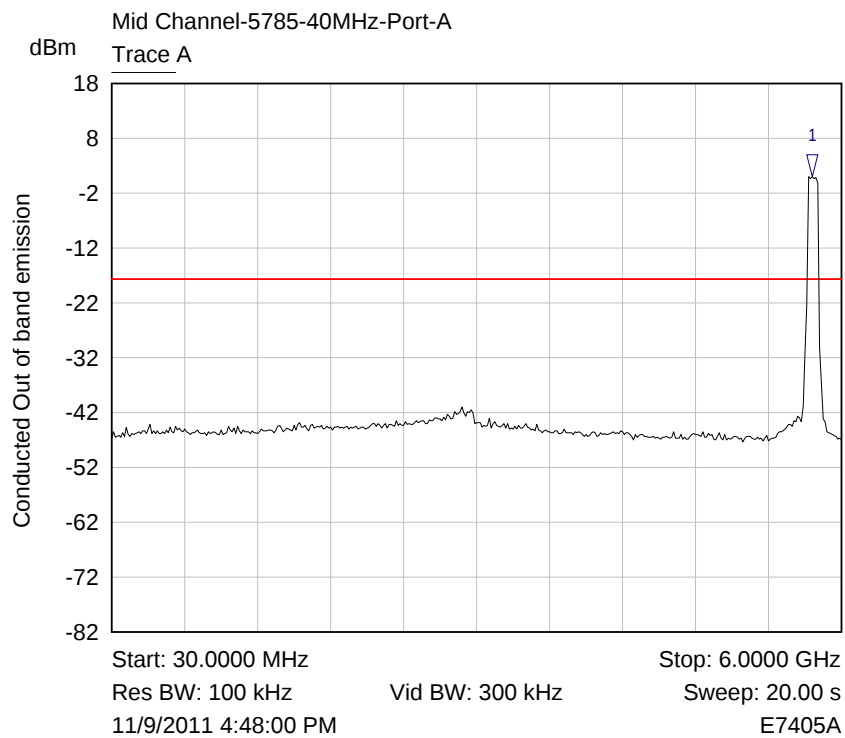
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	224.6250 kHz	-49.84 dBm	

Plot Out of Band Conducted Emission/ 136



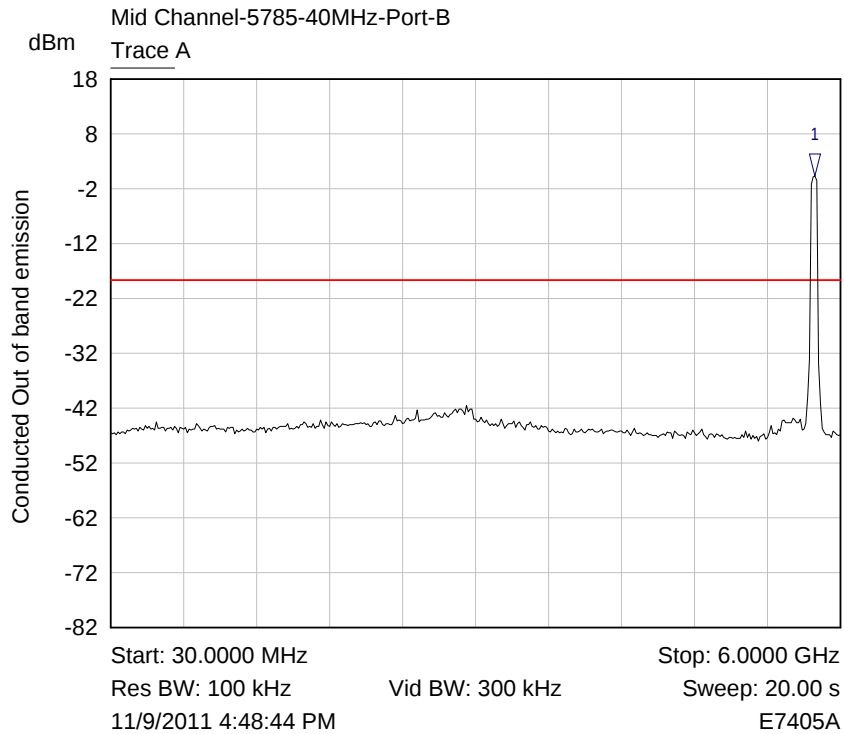
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7911 GHz	2.74 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 137



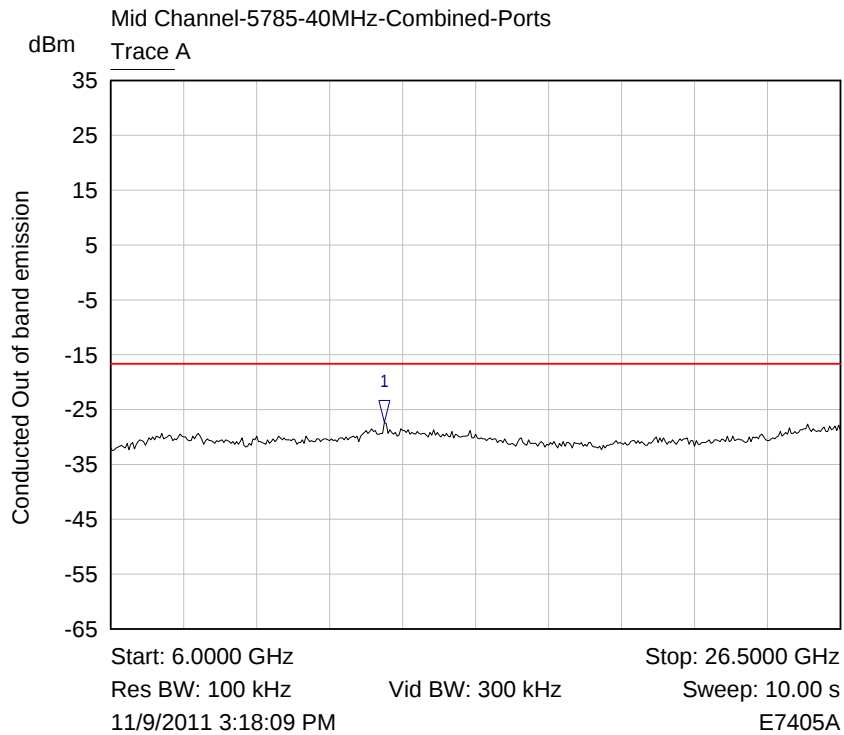
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.7612 GHz	1.05 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 138



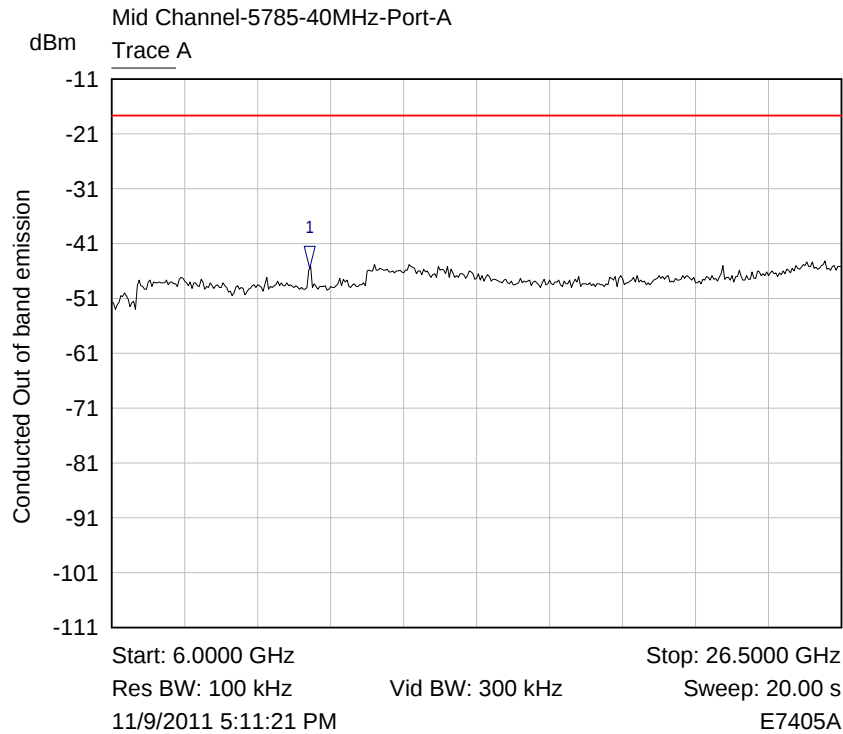
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.7911 GHz	0.26 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 139



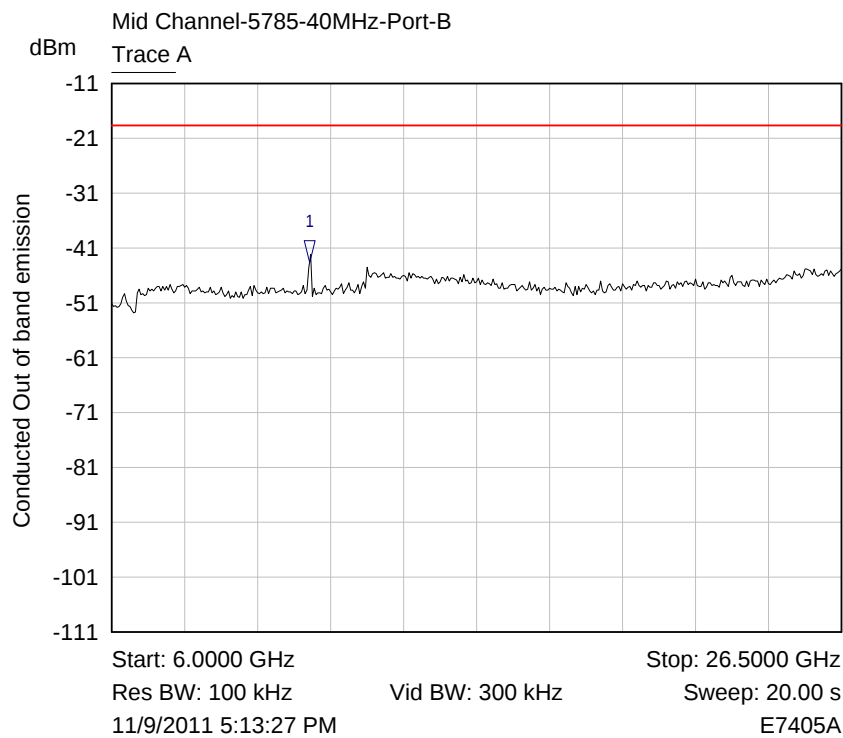
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	13.6875 GHz	-27.35 dBm	

Plot Out of Band Conducted Emission/ 140



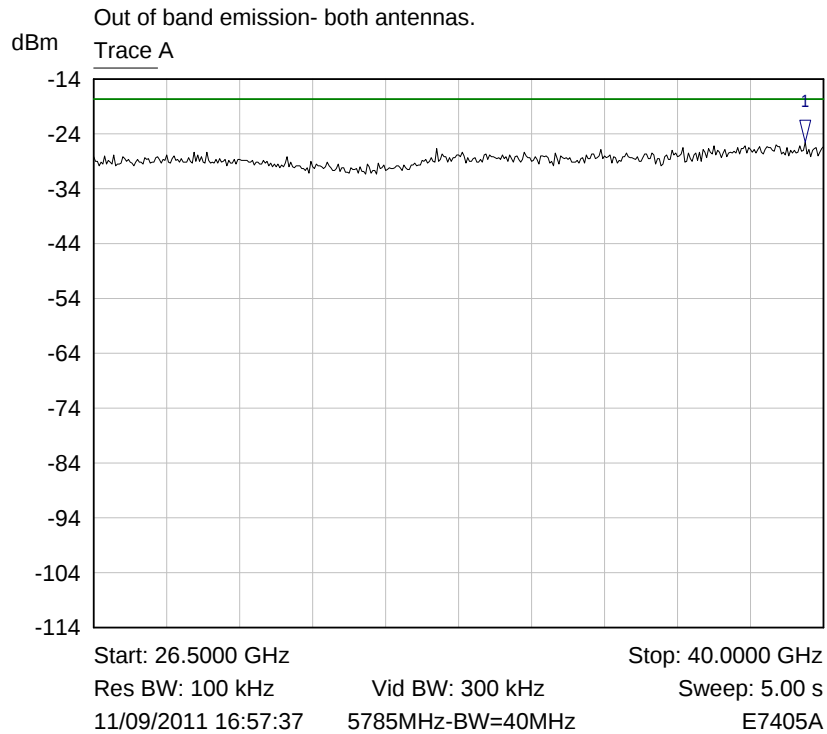
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.5555 GHz	-45.63 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 141



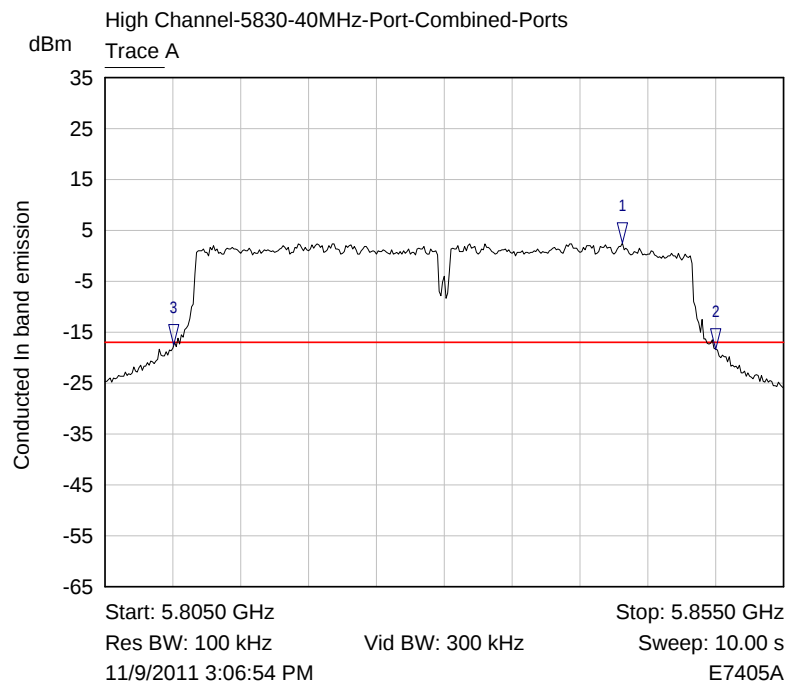
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.5555 GHz	-43.71 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 142



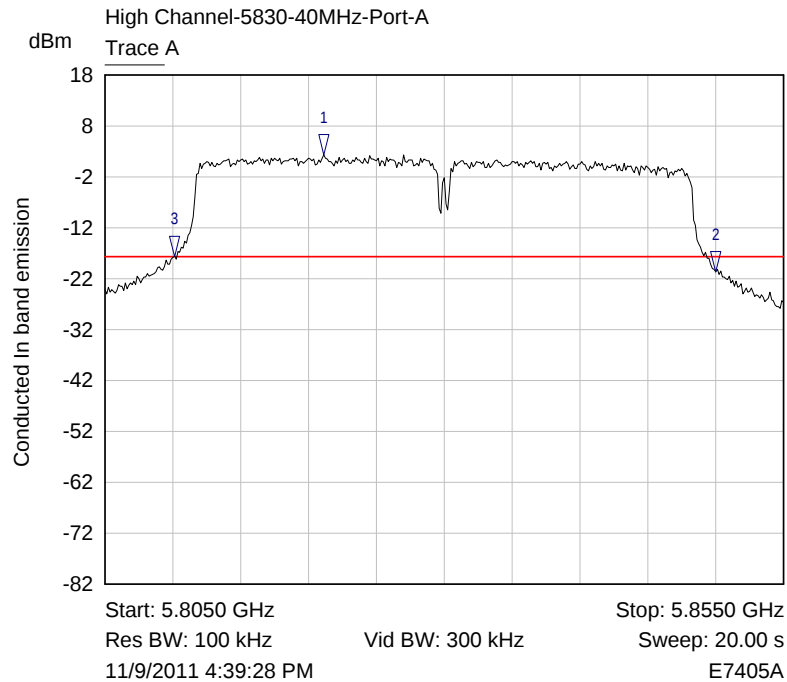
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	39.6625 GHz	-25.50 dBm	

Plot Out of Band Conducted Emission/ 143



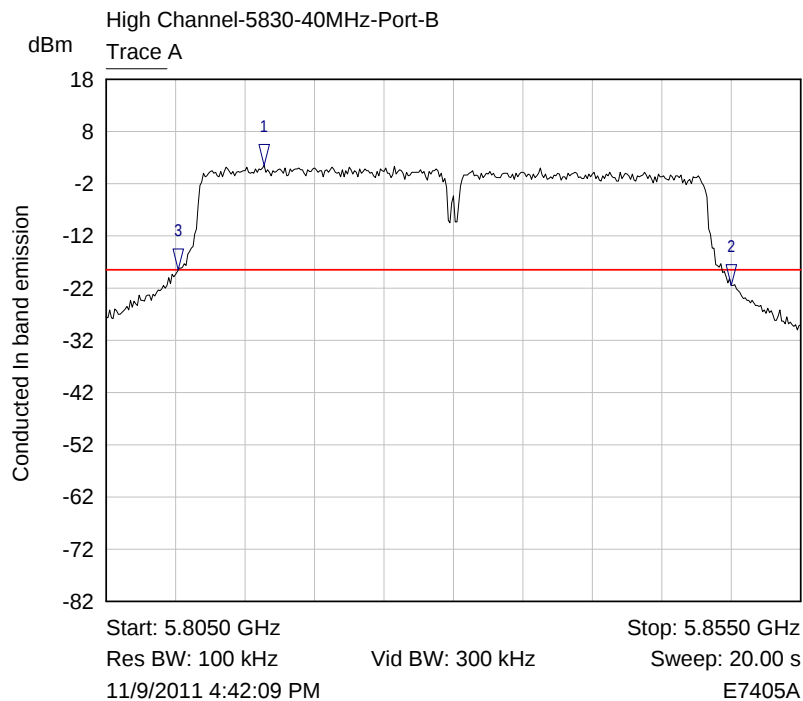
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8431 GHz	2.44 dBm	Highest emission in band
2 ▽	Trace A	5.8500 GHz	-18.38 dBm	Band Edge
3 ▽	Trace A	5.8101 GHz	-17.56 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 144



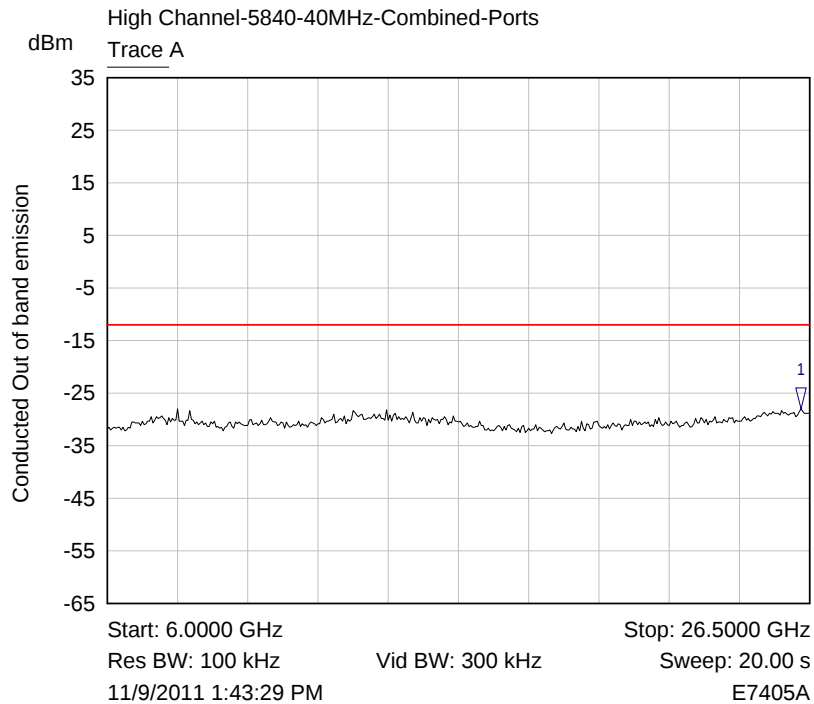
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8211 GHz	2.31 dBm	Highest emission in band
2 ▽	Trace A	5.8500 GHz	-20.70 dBm	Band Edge
3 ▽	Trace A	5.8102 GHz	-17.66 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 145



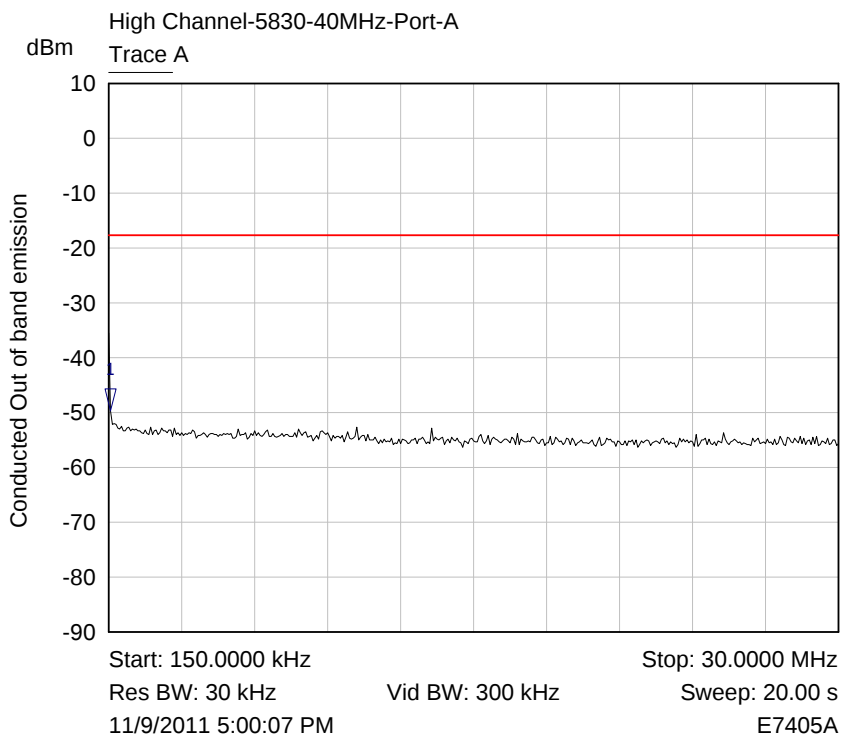
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8164 GHz	1.43 dBm	Highest emission in band
2 ▽	Trace A	5.8500 GHz	-21.54 dBm	Band Edge
3 ▽	Trace A	5.8102 GHz	-18.58 dBm	-20dBc Limit Line

Plot Out of Band Conducted Emission/ 146



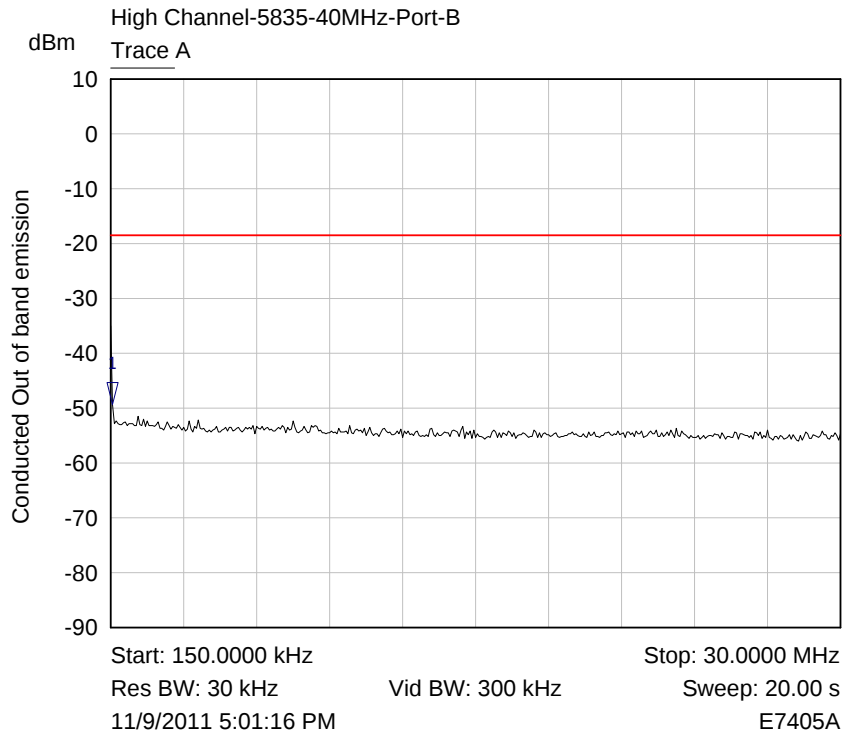
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	26.2438 GHz	-27.92 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 147



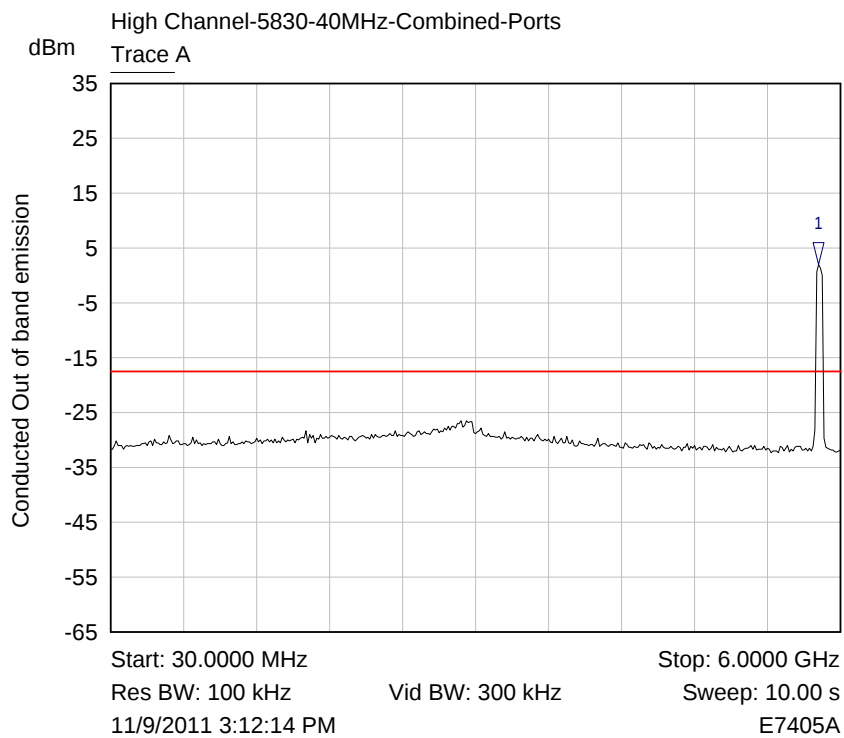
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	224.6250 kHz	-49.63 dBm	

Plot Out of Band Conducted Emission/ 148



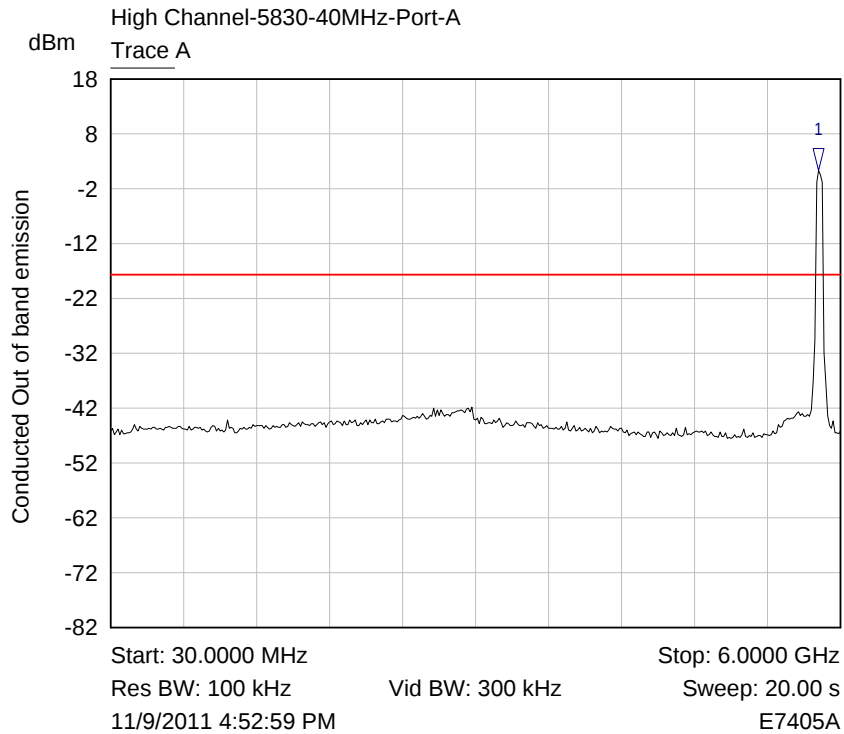
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	224.6250 kHz	-49.35 dBm	

Plot Out of Band Conducted Emission/ 149



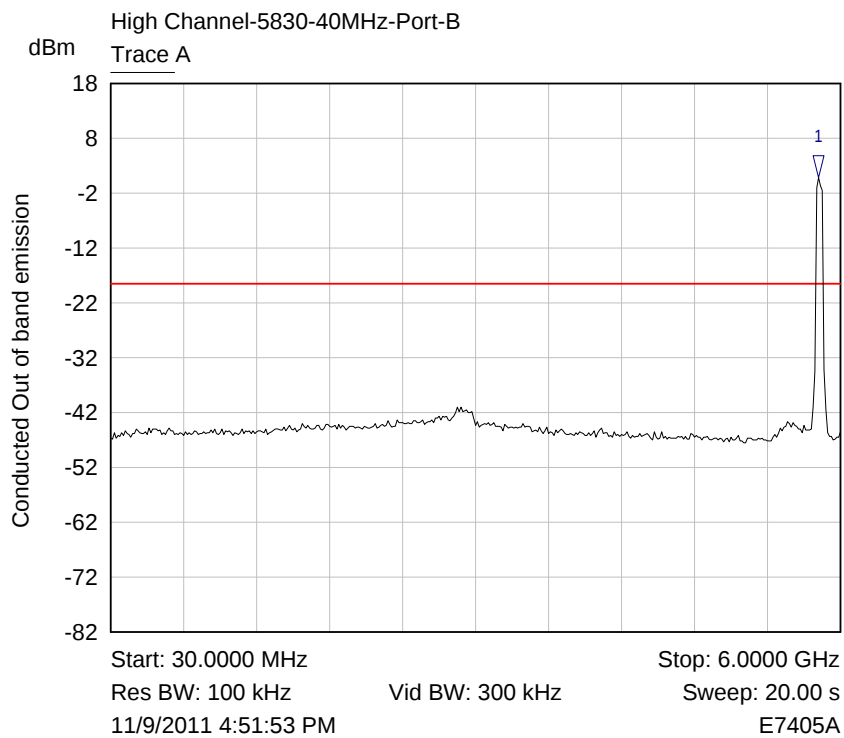
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	5.8209 GHz	2.08 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 150



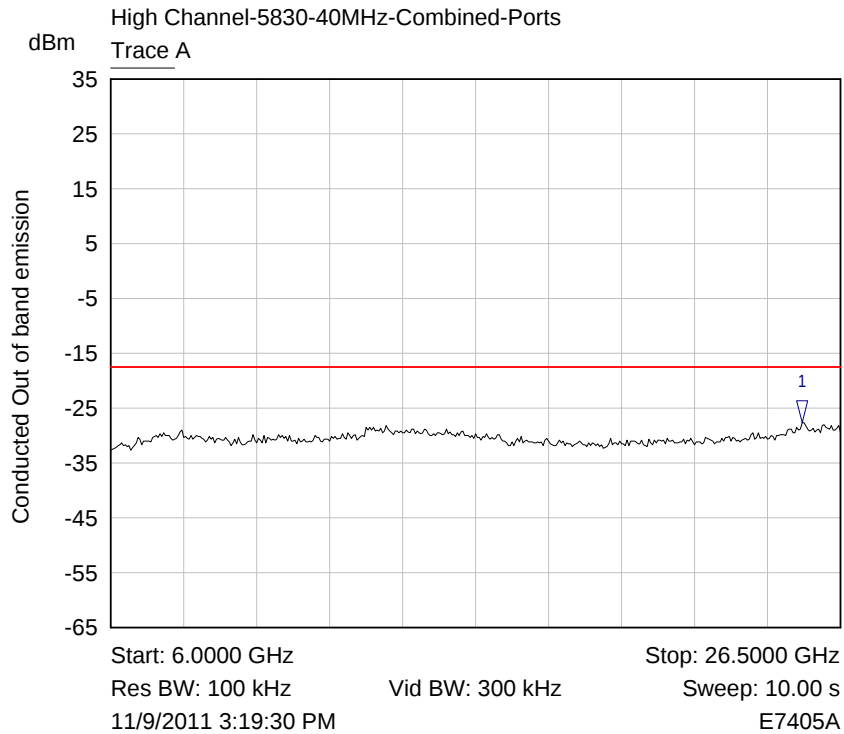
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.8209 GHz	1.38 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 151



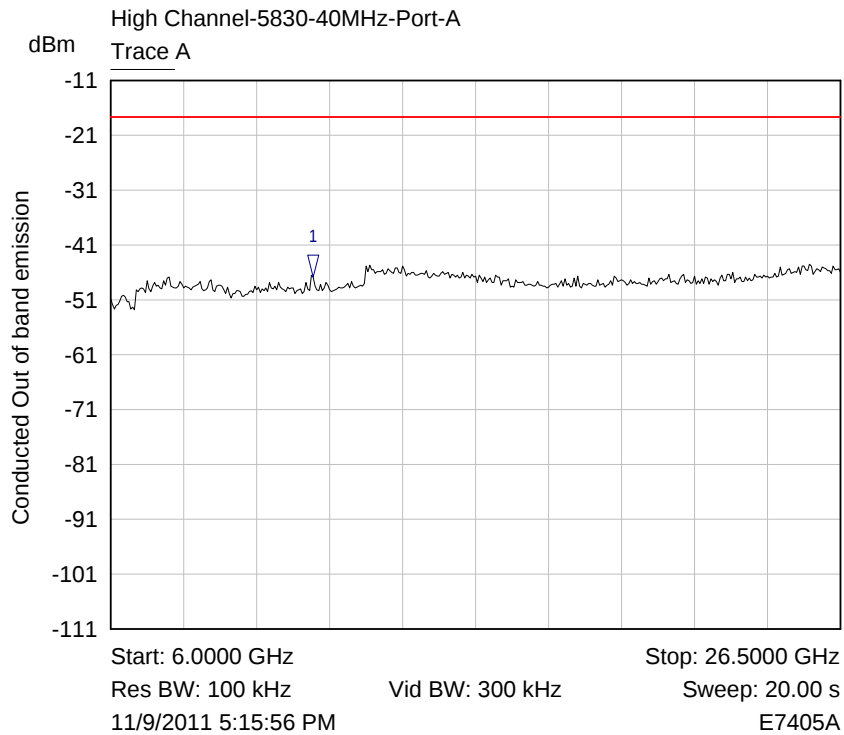
Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	5.8209 GHz	0.84 dBm	Peak Emission

Plot Out of Band Conducted Emission/ 152



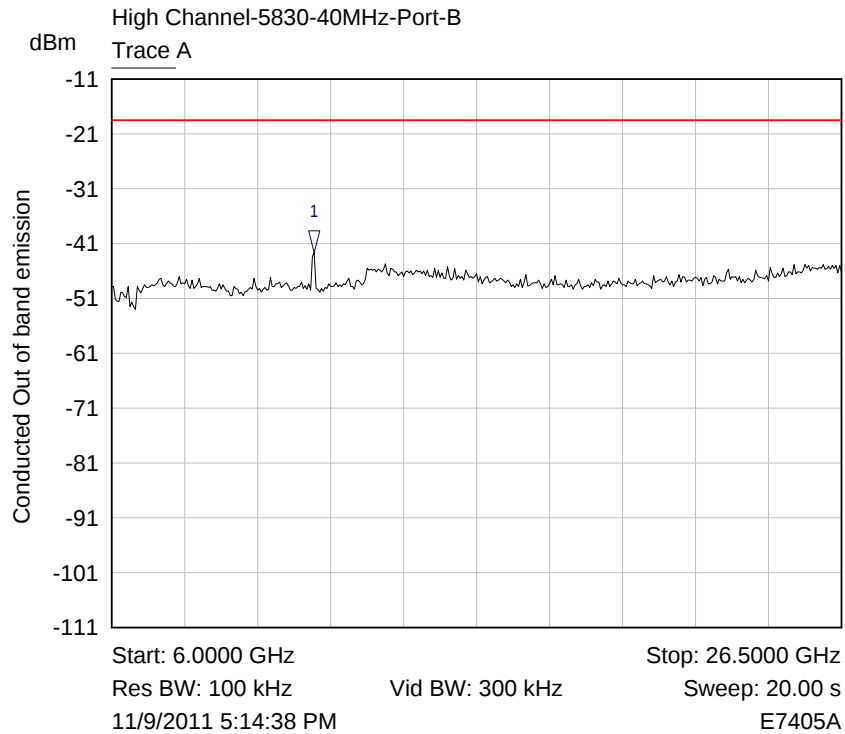
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	25.4238 GHz	-27.61 dBm	

Plot Out of Band Conducted Emission/ 153



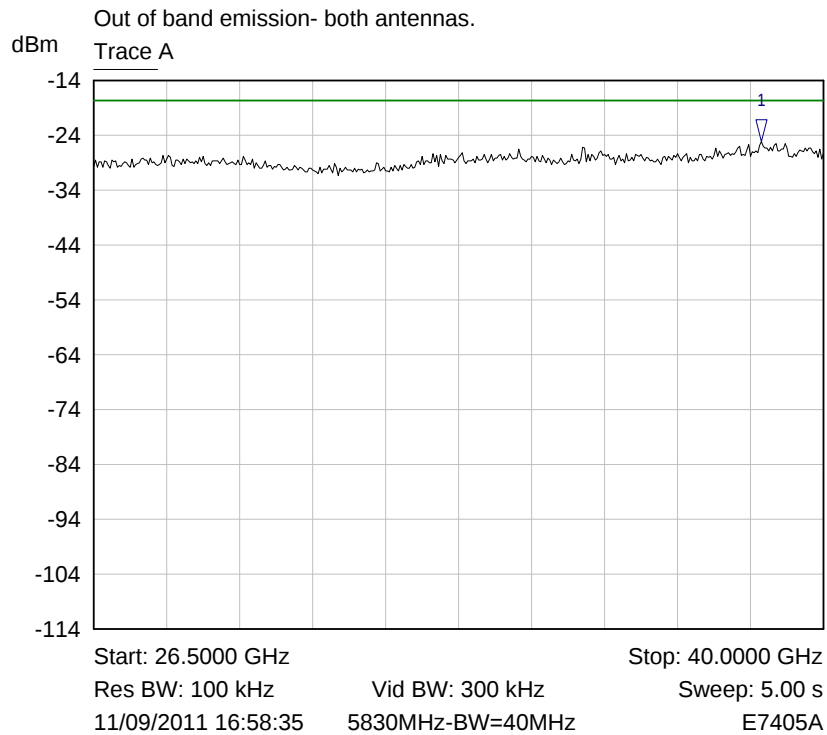
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.6888 GHz	-46.82 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 154



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	11.6888 GHz	-42.69 dBm	2nd Harmonic

Plot Out of Band Conducted Emission/ 155



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	38.8525 GHz	-25.22 dBm	

Plot Out of Band Conducted Emission/ 156