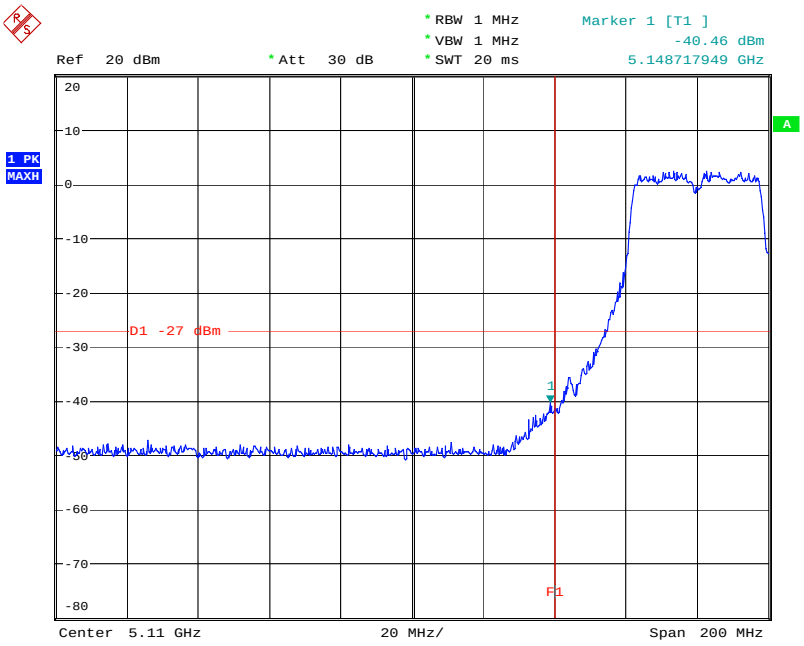
EIRP Emission in Band on Configuration Draft n MCS8 40MHz Ant. 1 / 5190 MHz



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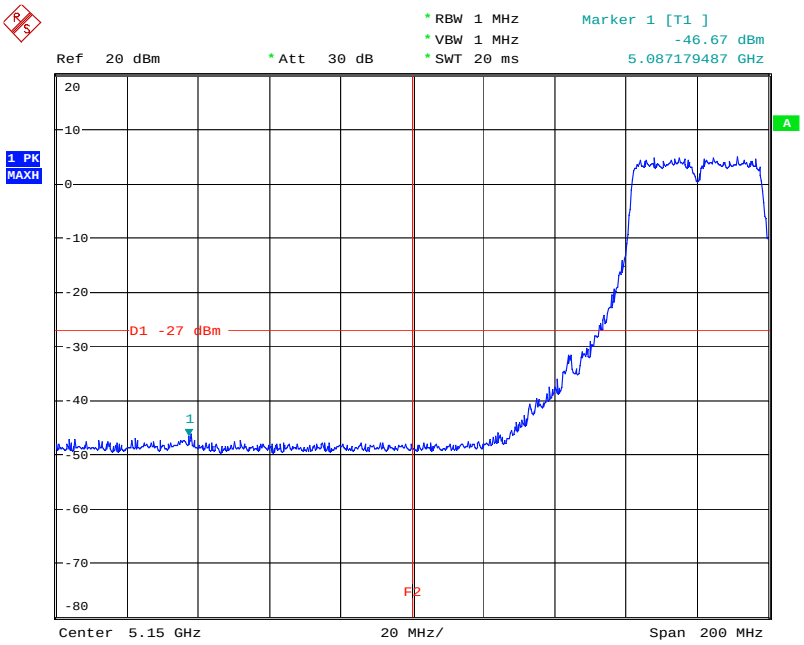

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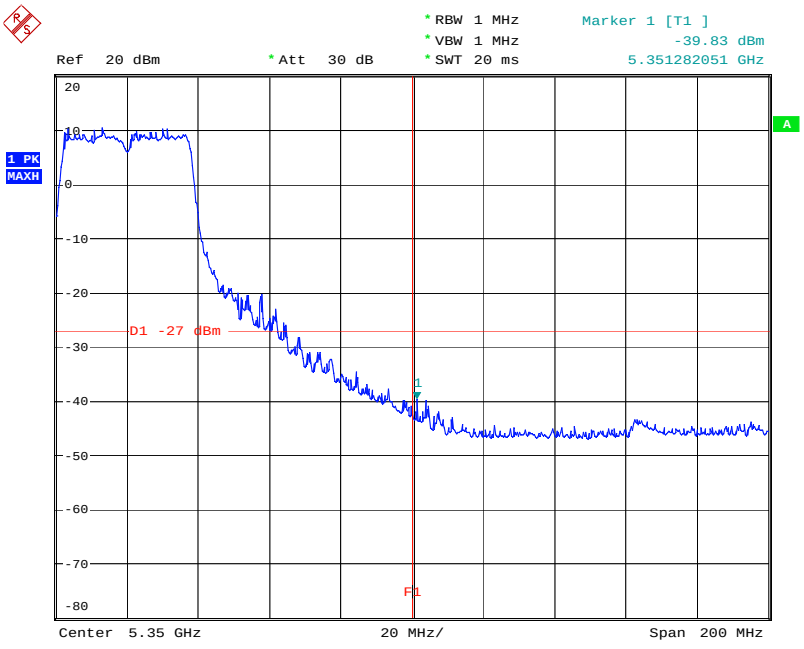

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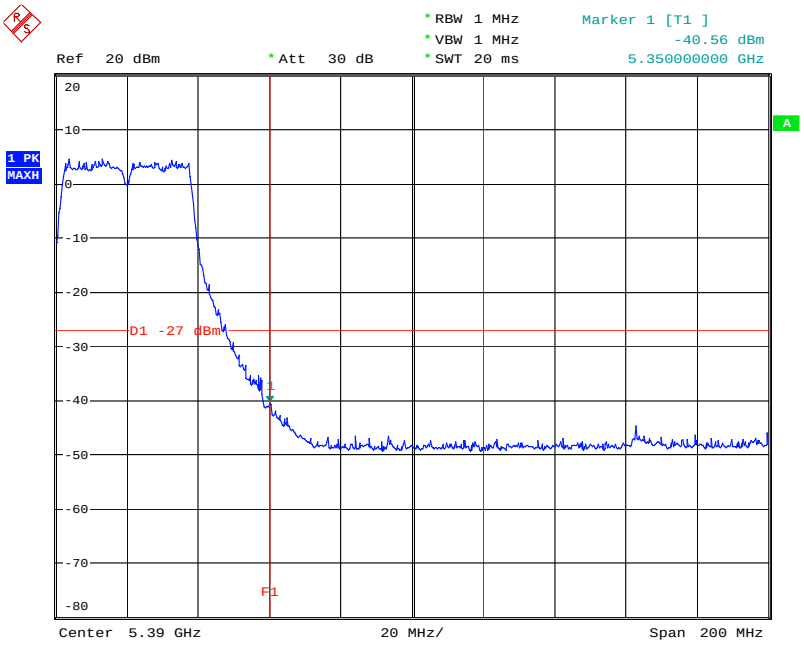
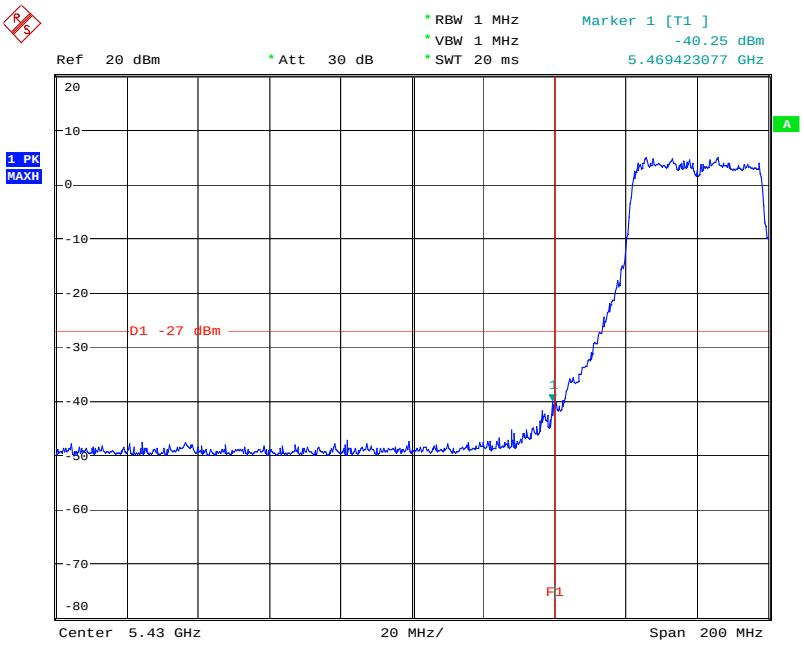


EIRP Emission in Band on Configuration Draft n MCS8 40MHz Ant. 1 / 5510 MHz



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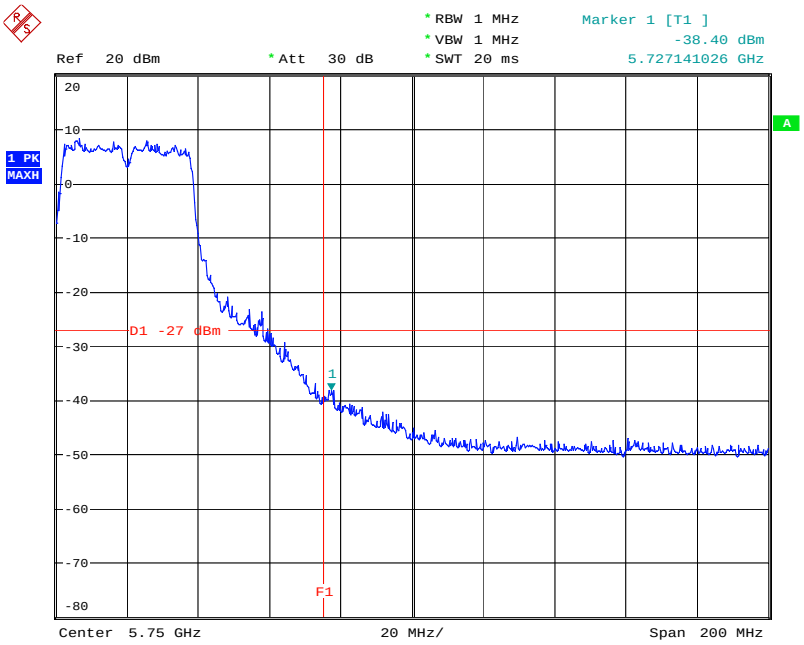

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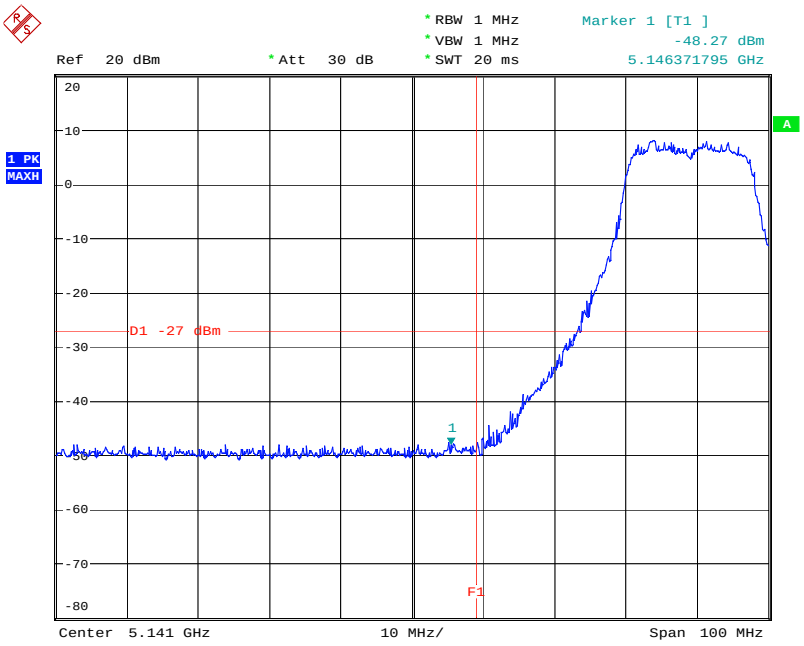

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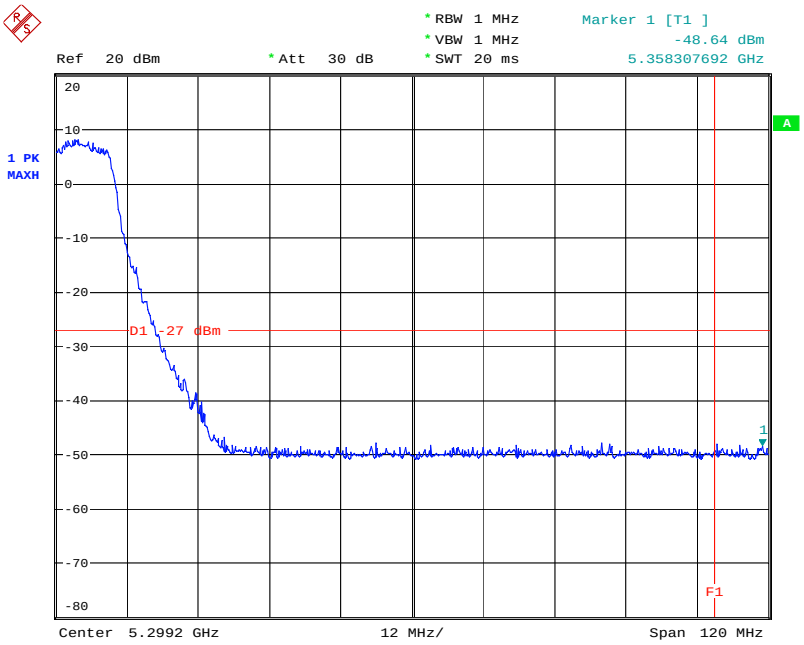
EIRP Emission in Band on Configuration Draft n MCS8 20MHz Ant. 5 / 5240 MHz



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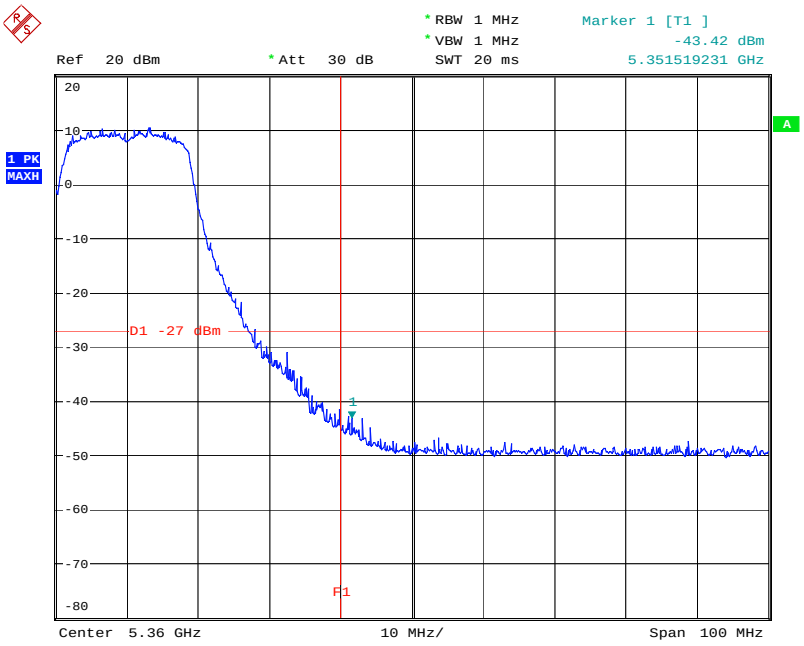
EIRP Emission in Band on Configuration Draft n MCS8 20MHz Ant. 5/ 5320 MHz



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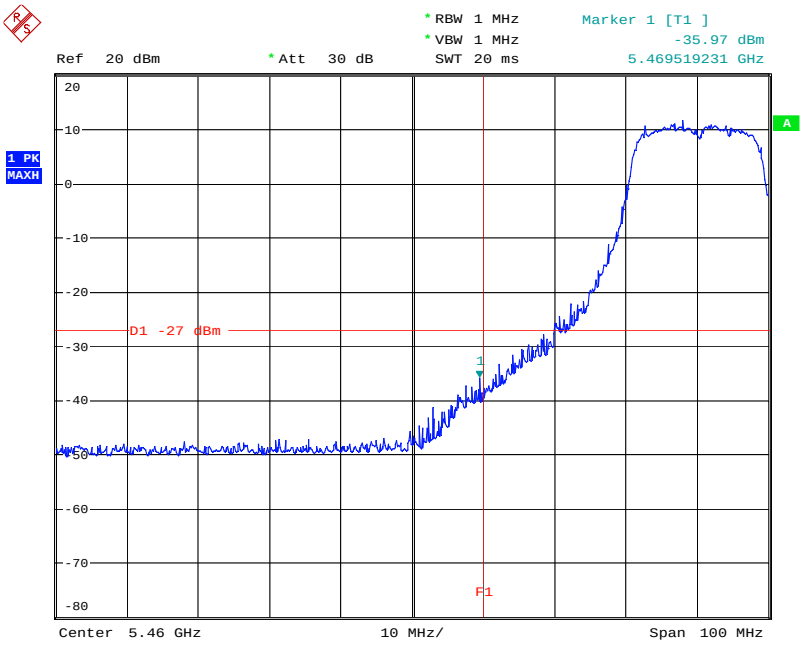

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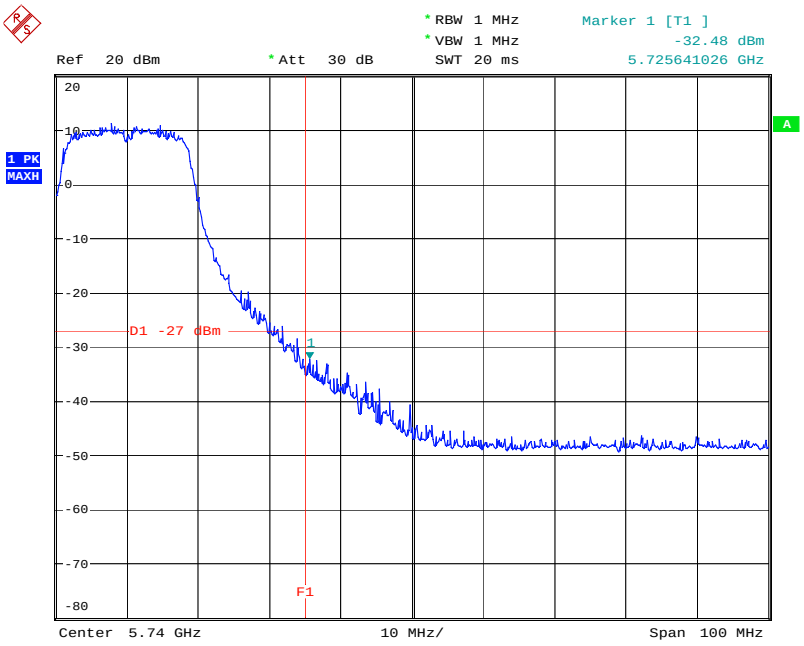
EIRP Emission in Band on Configuration Draft n MCS8 20MHz Ant. 5 / 5700 MHz



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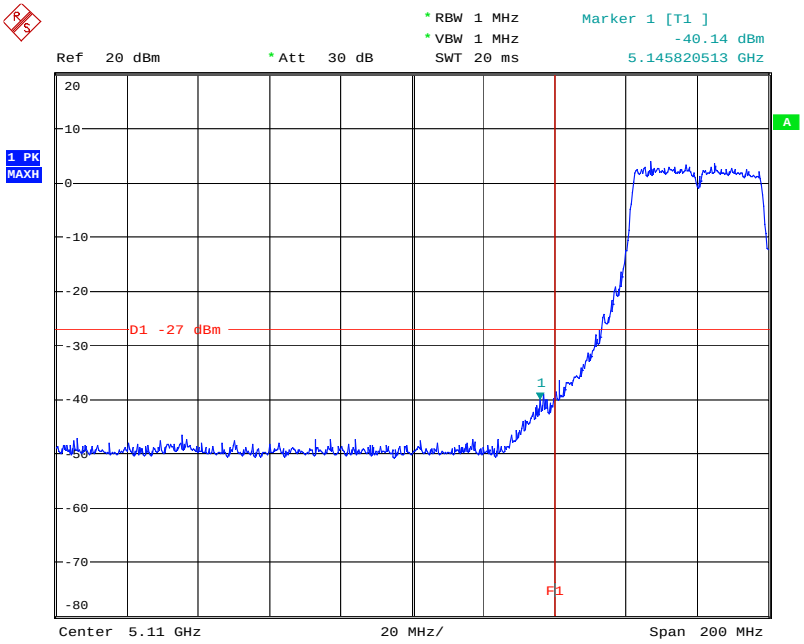
EIRP Emission in Band on Configuration Draft n MCS8 40MHz Ant. 5 / 5190 MHz



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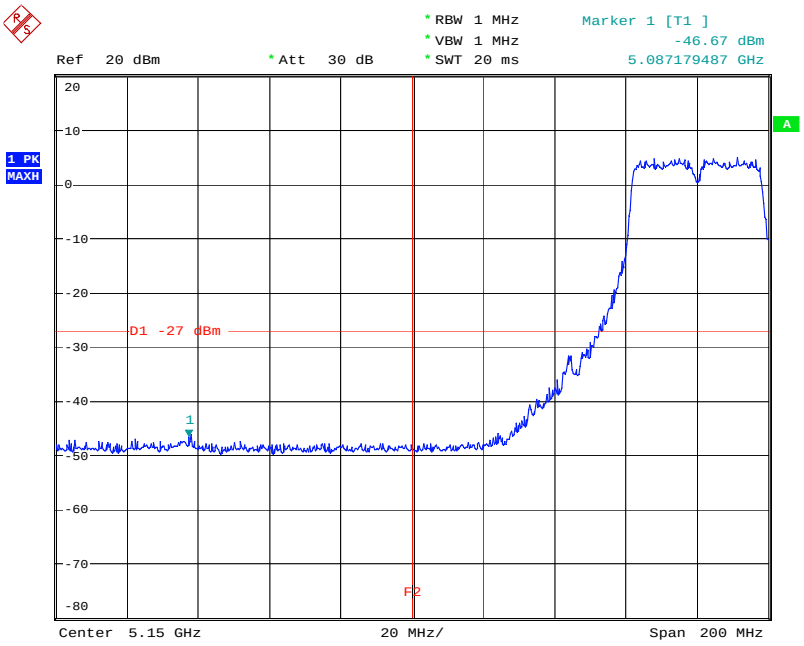

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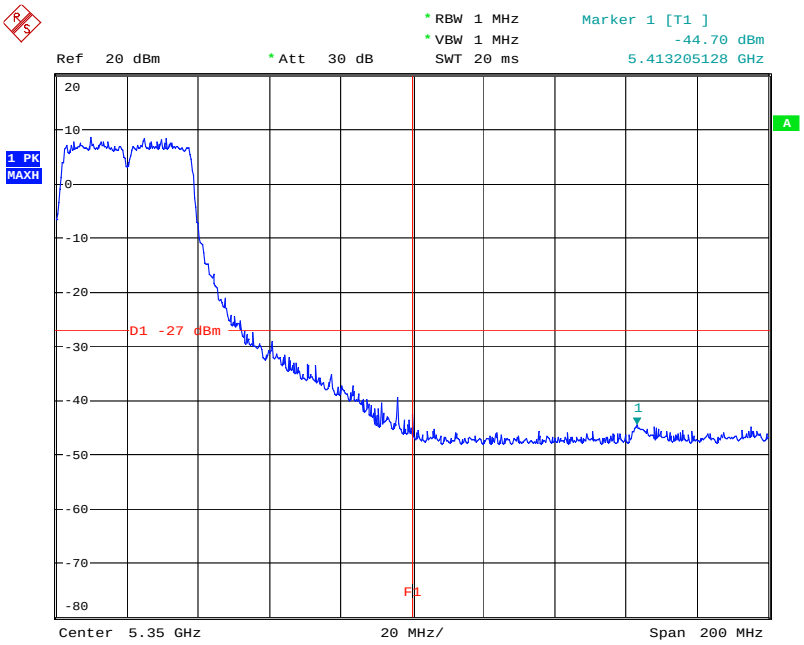

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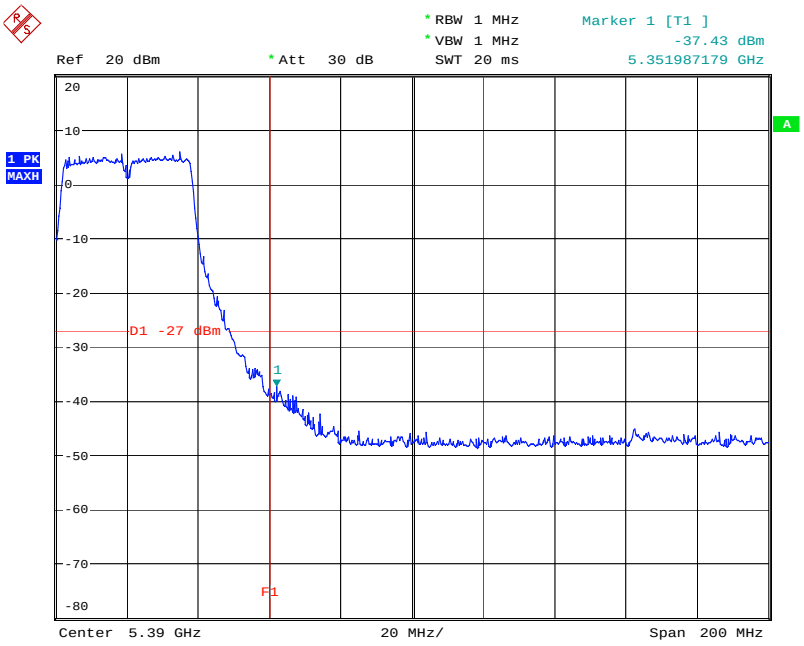

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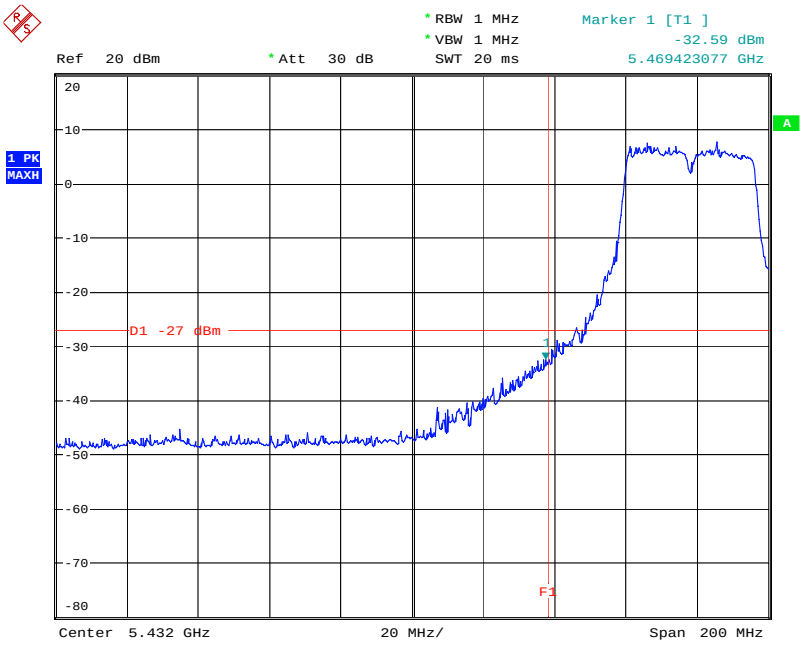
EIRP Emission in Band on Configuration Draft n MCS8 40MHz Ant. 5 / 5510MHz



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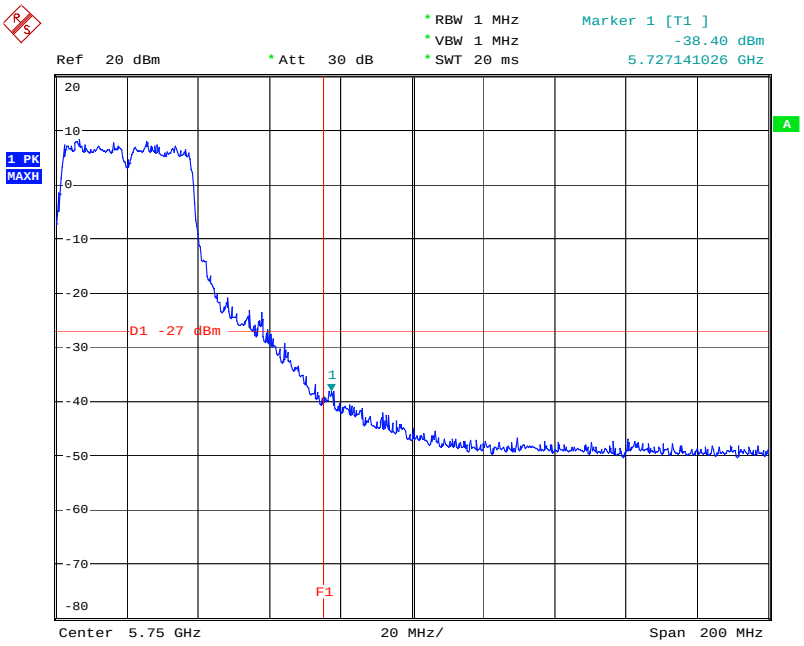
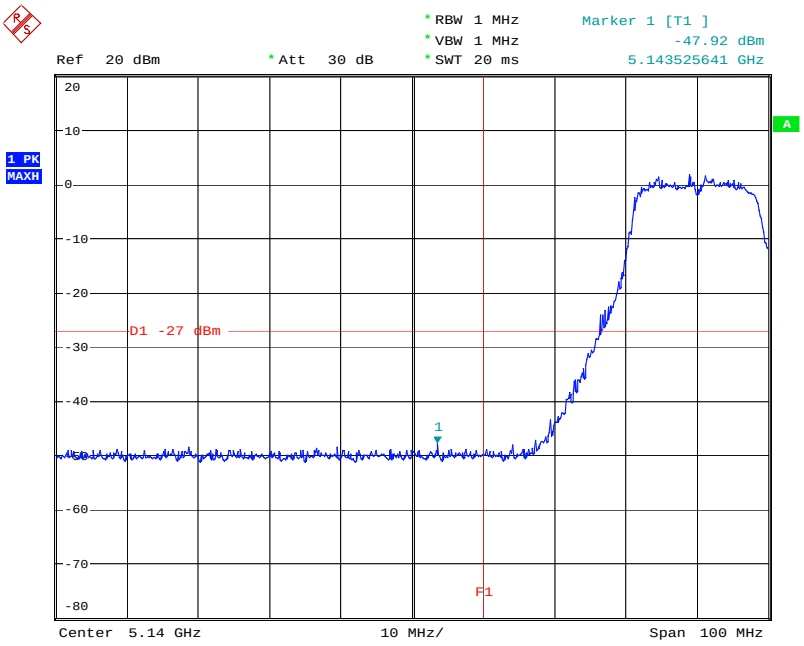
EIRP Emission in Band on Configuration Draft n MCS8 40MHz Ant. 5/ 5670 MHz



EIRP Emission in Band on Configuration Draft n MCS8 20MHz Ant. 6 / 5180 MHz



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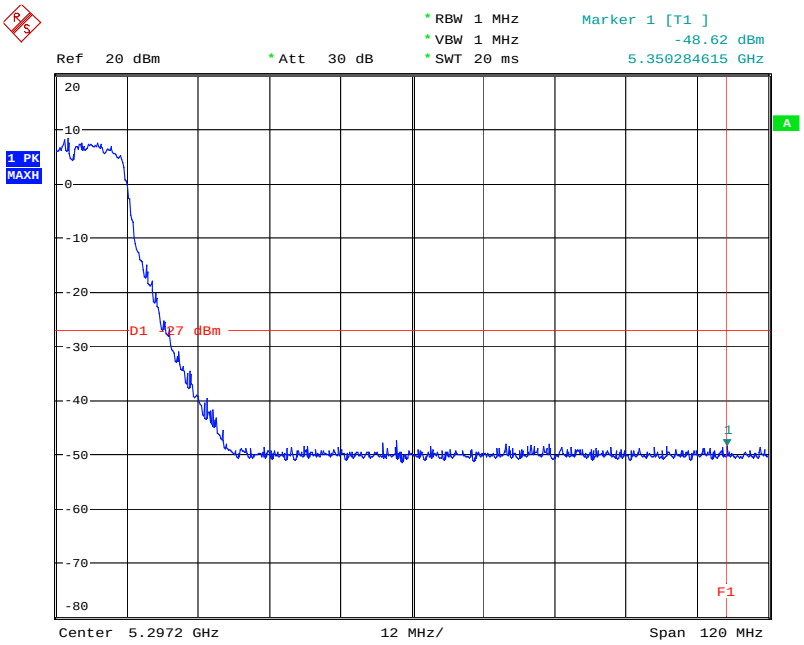
EIRP Emission in Band on Configuration Draft n MCS8 20MHz Ant. 6 / 5240 MHz



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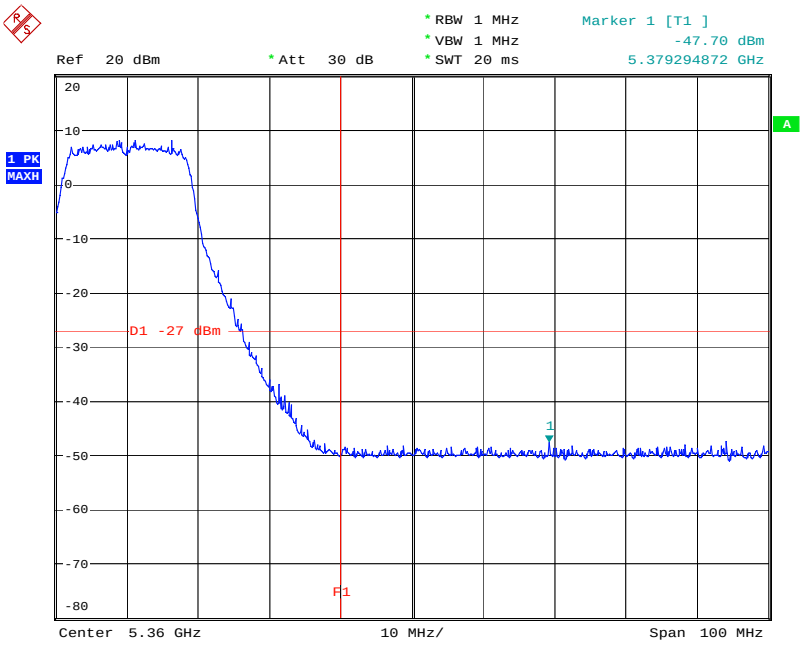

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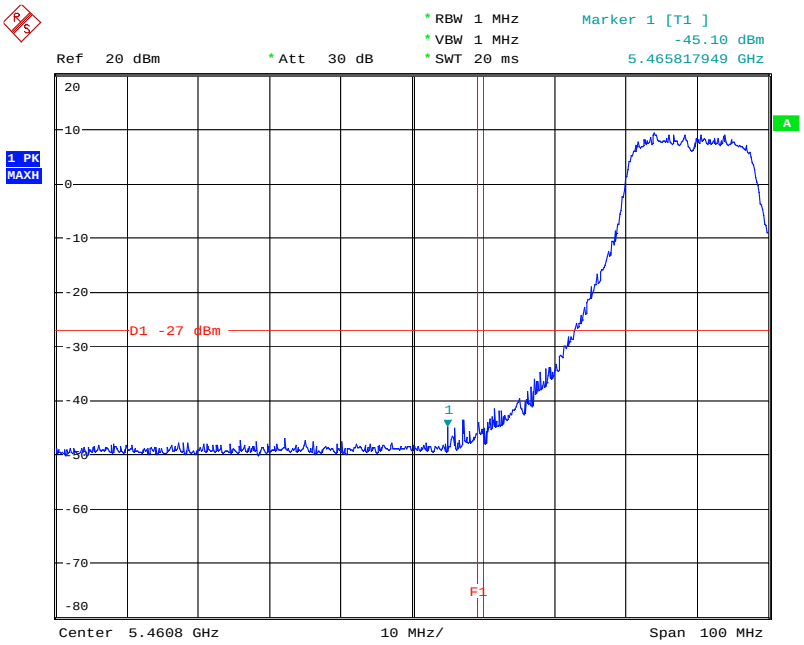

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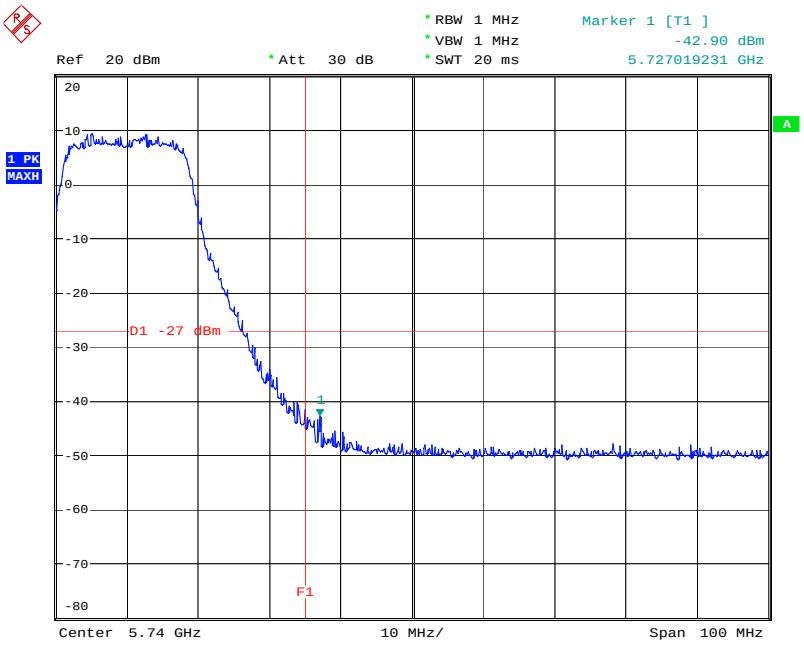

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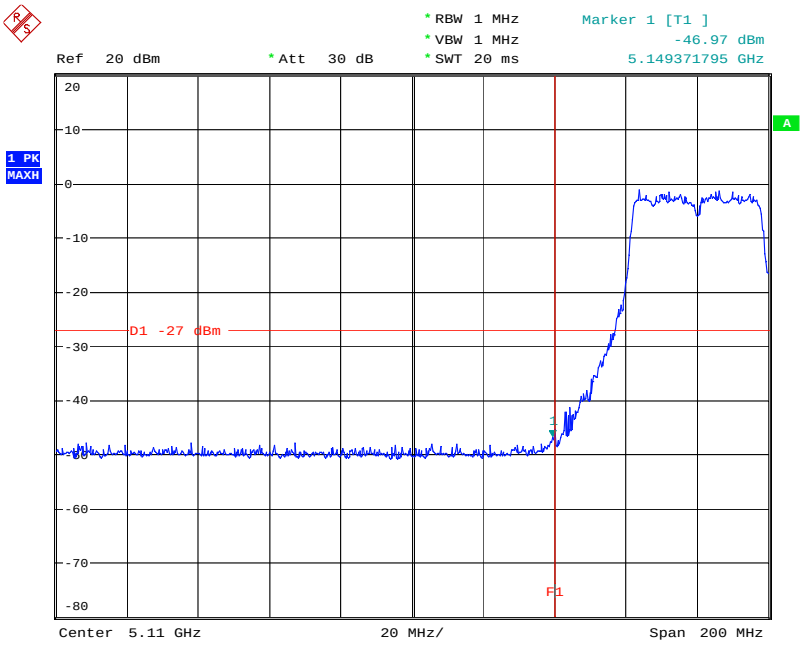

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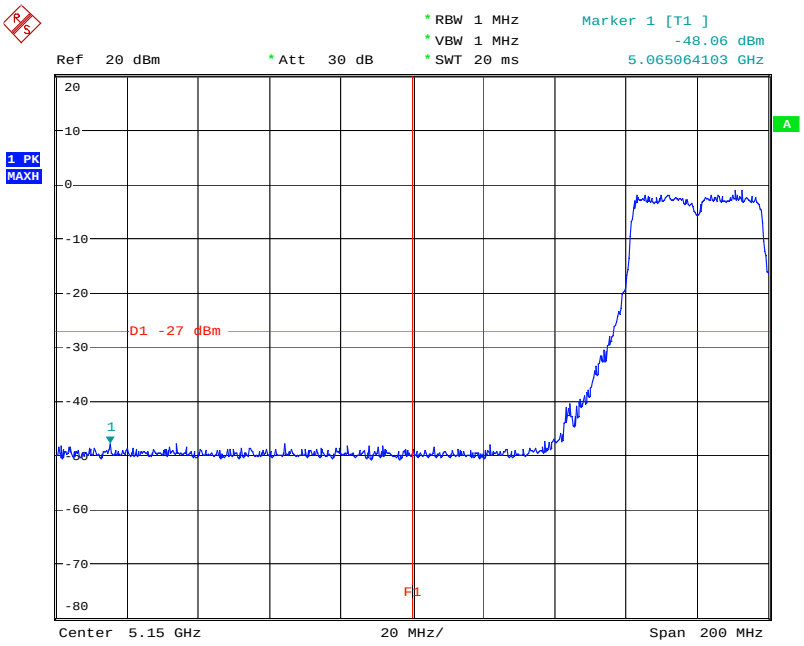

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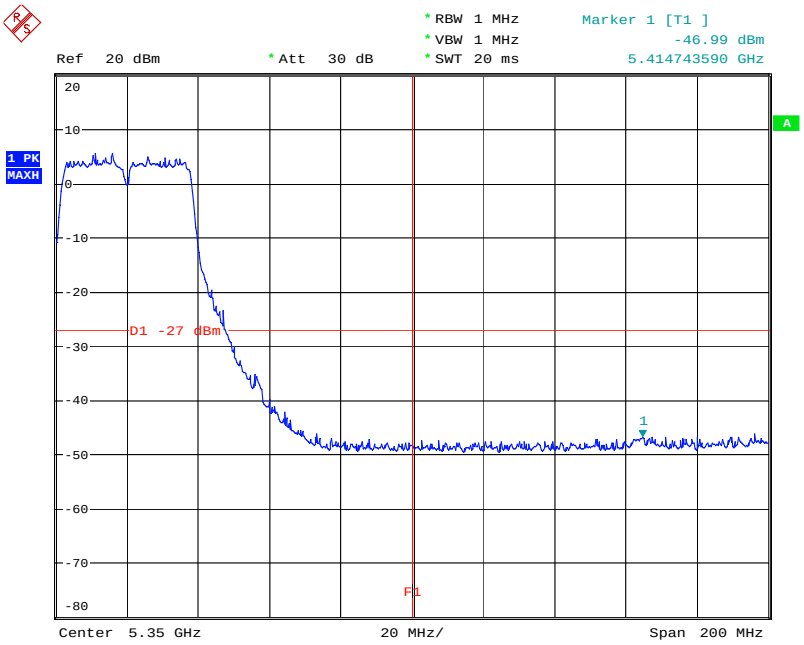

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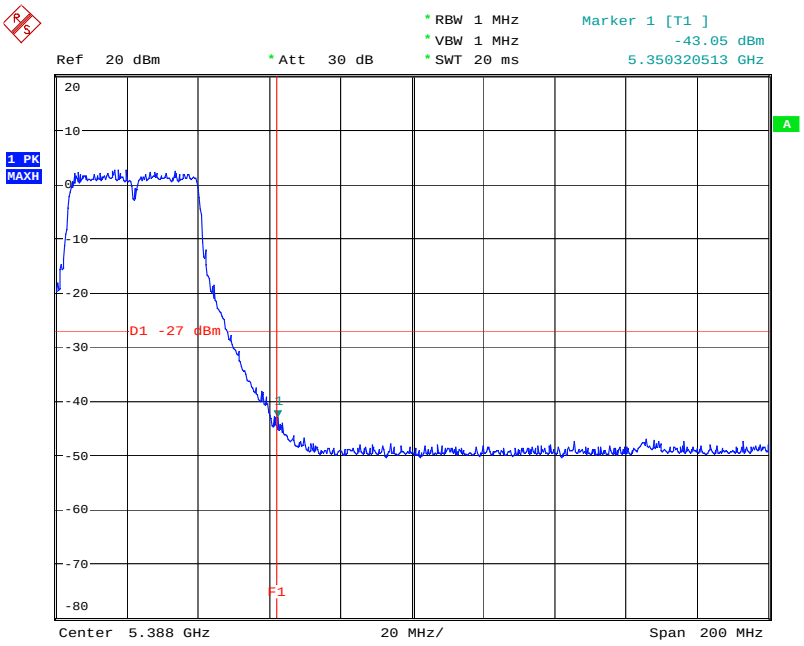

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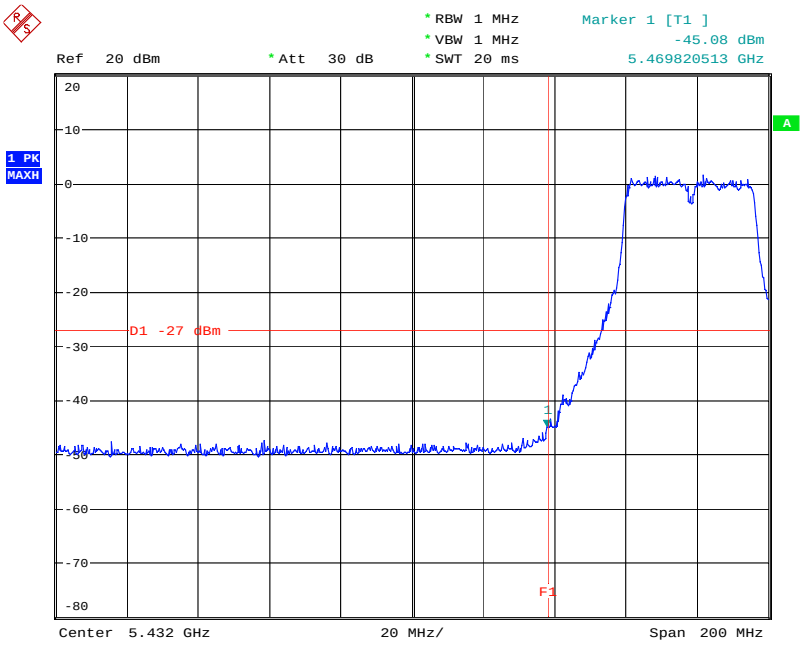
EIRP Emission in Band on Configuration Draft n MCS8 40MHz Ant. 6 / 5510MHz



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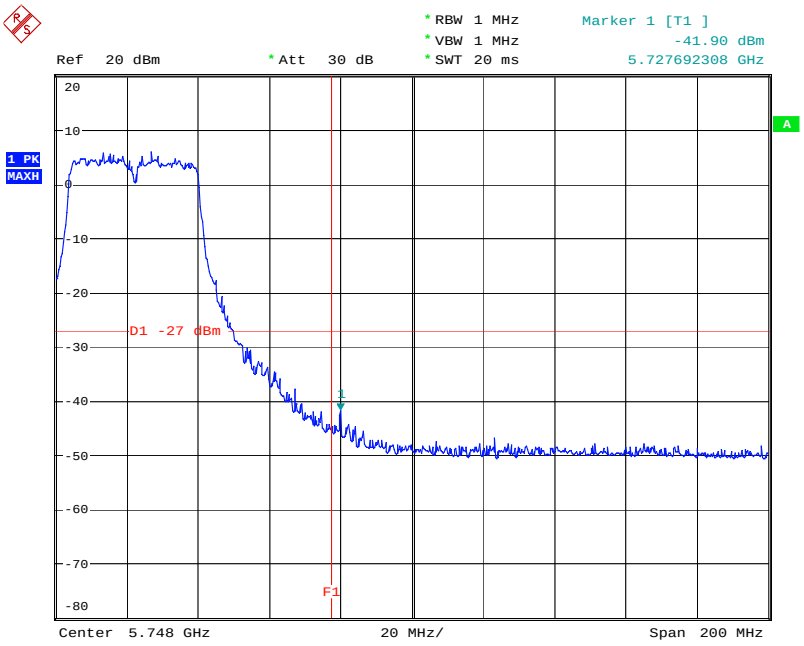
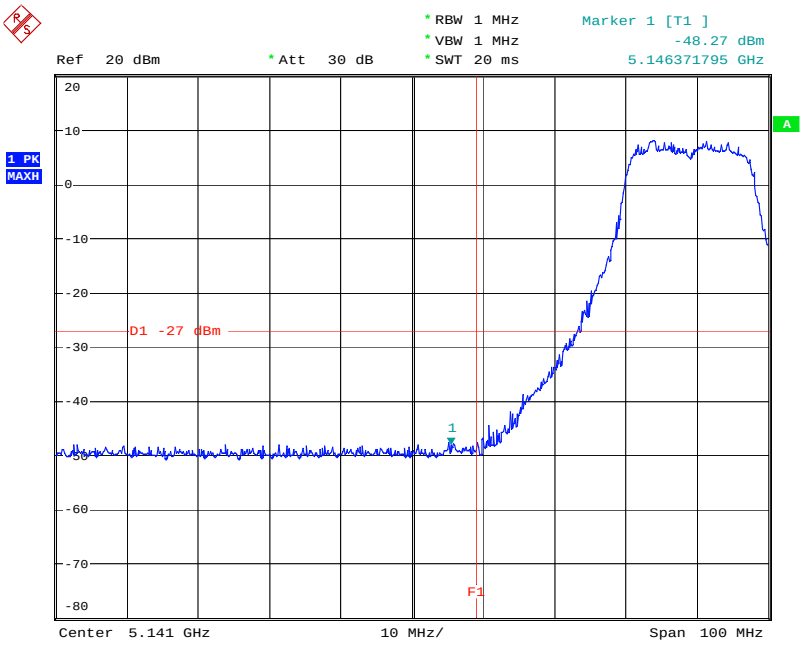


EIRP Emission in Band on Configuration Draft n MCS8 20MHz Ant. 7 / 5180 MHz



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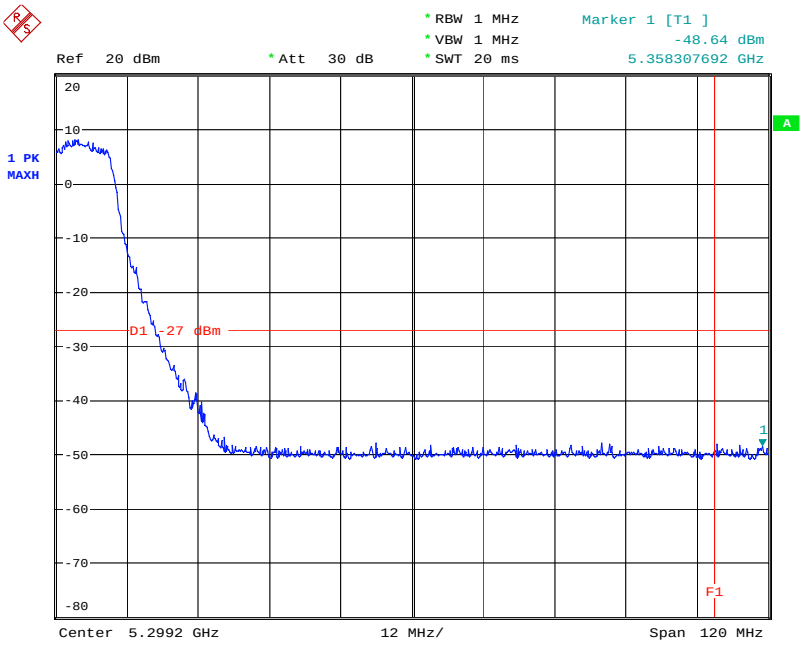
EIRP Emission in Band on Configuration Draft n MCS8 20MHz Ant. 7 / 5240 MHz



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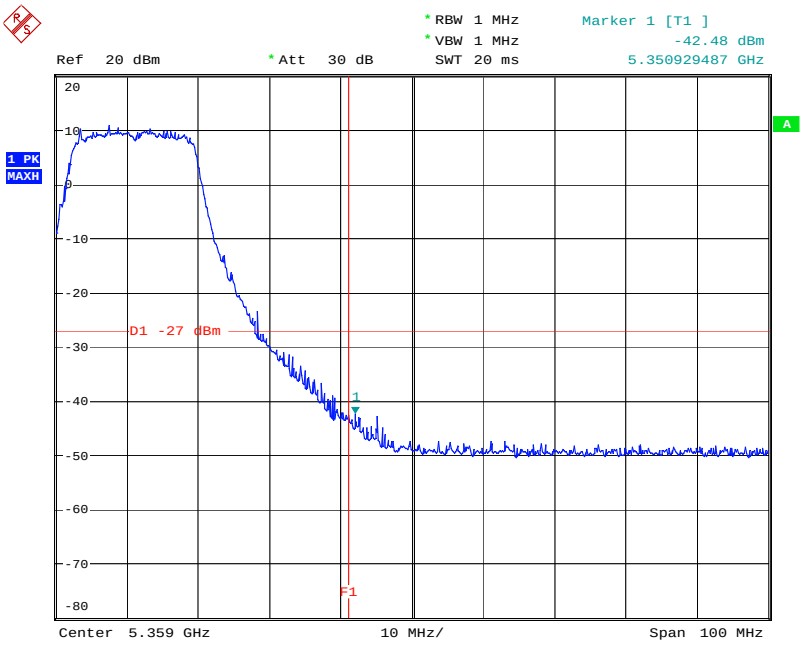

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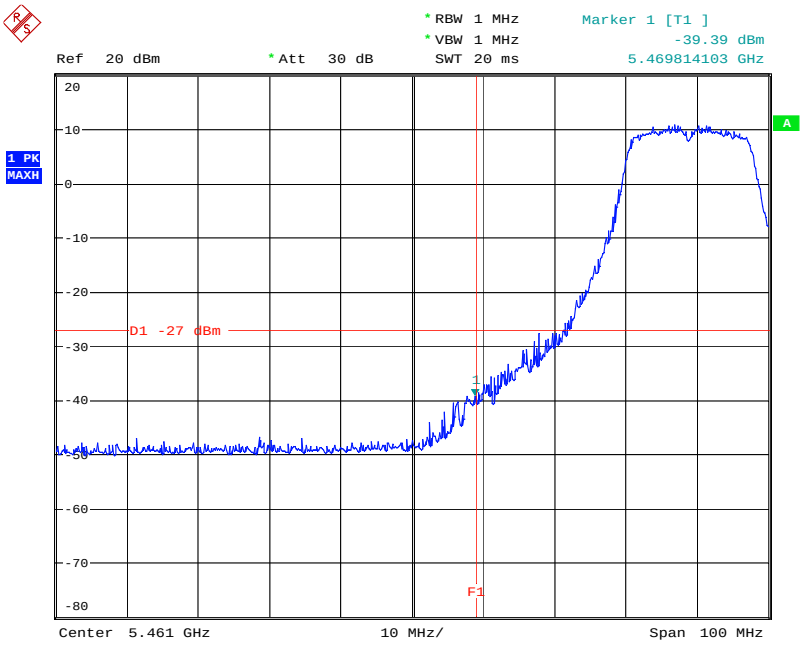

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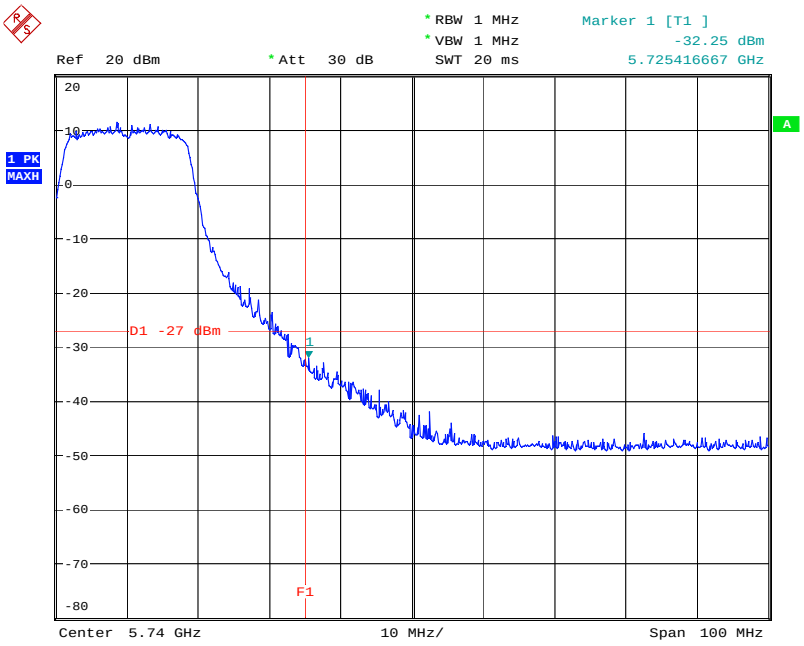

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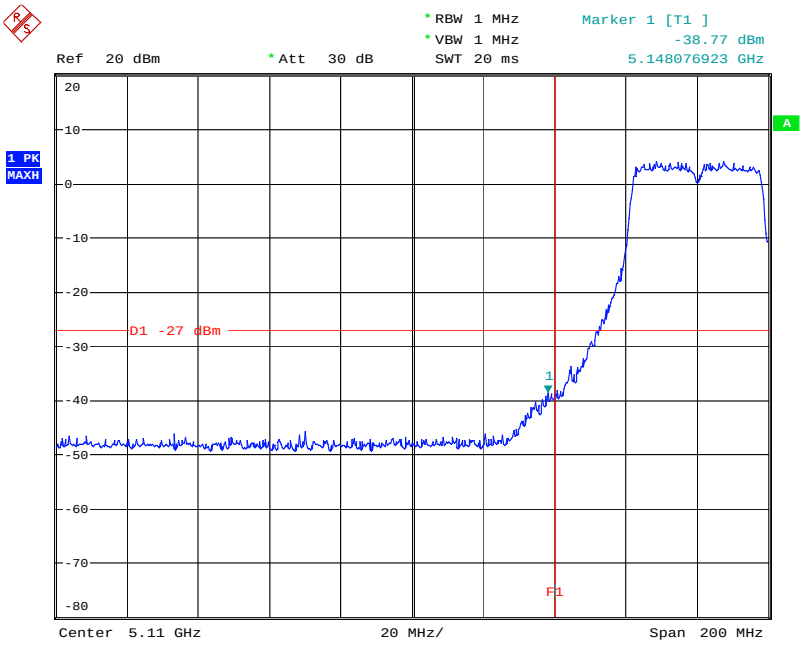
EIRP Emission in Band on Configuration Draft n MCS8 40MHz Ant. 7 / 5190 MHz



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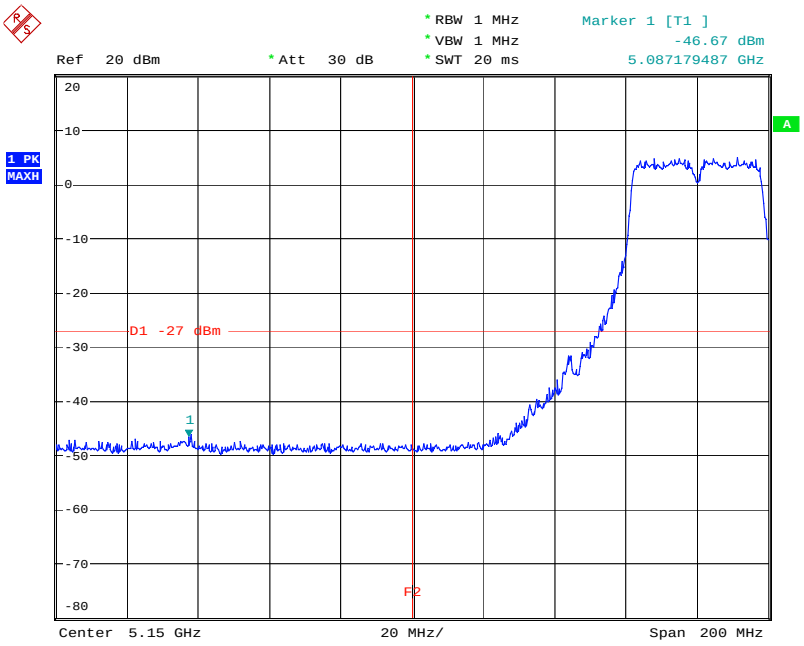
EIRP Emission in Band on Configuration Draft n MCS8 40MHz Ant. 7 / 5230 MHz



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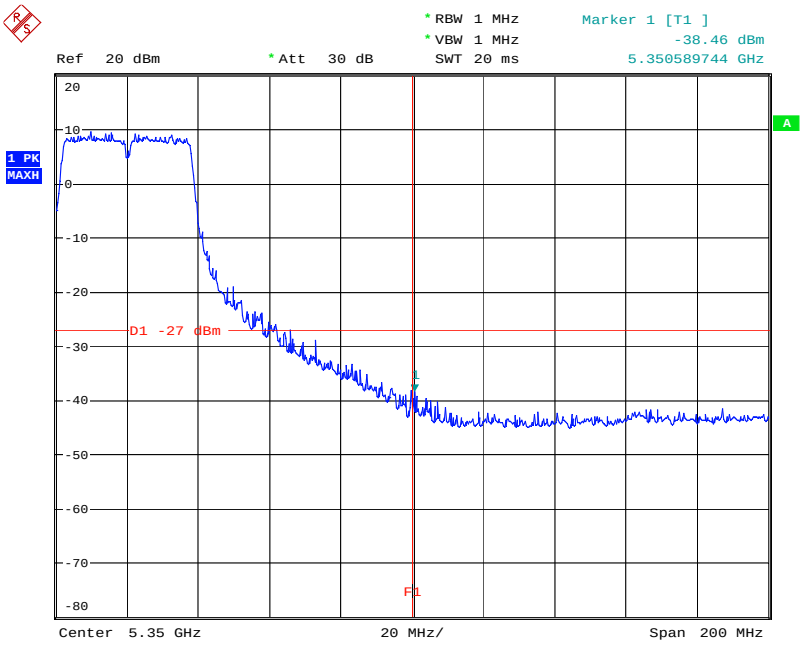
EIRP Emission in Band on Configuration Draft n MCS8 40MHz Ant. 7 / 5270 MHz



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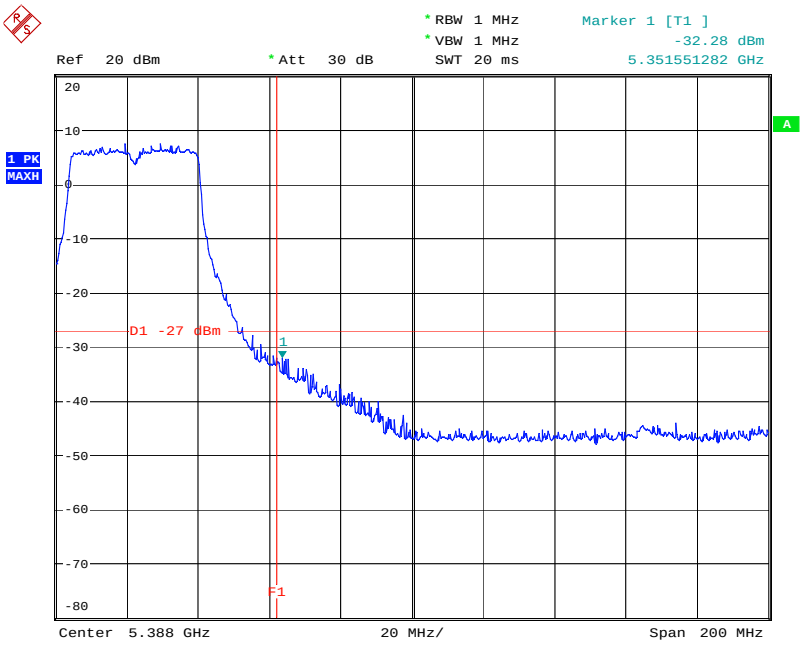
EIRP Emission in Band on Configuration Draft n MCS8 40MHz Ant. 7 / 5310 MHz



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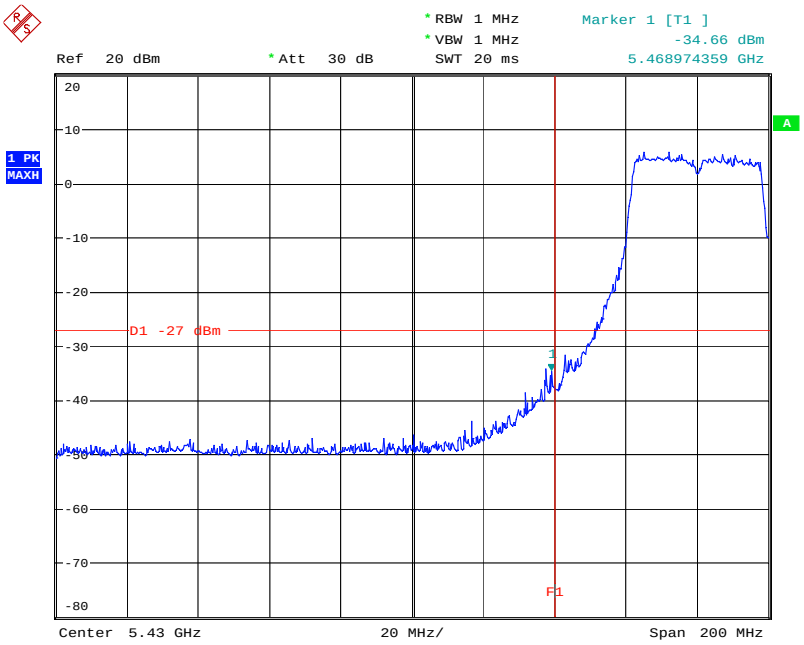
EIRP Emission in Band on Configuration Draft n MCS8 40MHz Ant. 7 / 5510MHz



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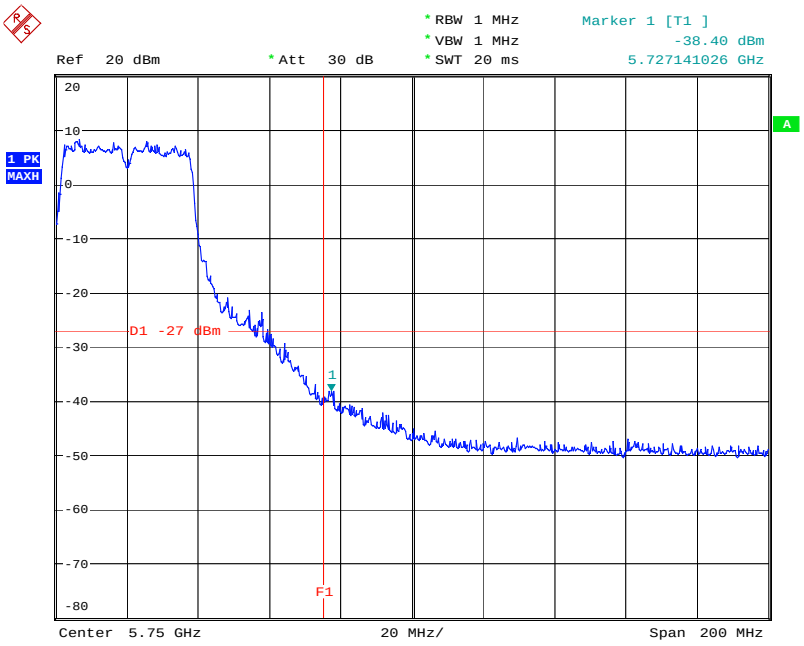
EIRP Emission in Band on Configuration Draft n MCS8 40MHz Ant. 7 / 5670 MHz



Date: 20.MAR.2008 19:46:43

4.8. Frequency Stability Measurement

4.8.1. Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emissions is maintained within the band of operation under all conditions of normal operation as specified in the user's manual or ±20ppm (Draft n specification).

4.8.2. Measuring Instruments and Setting

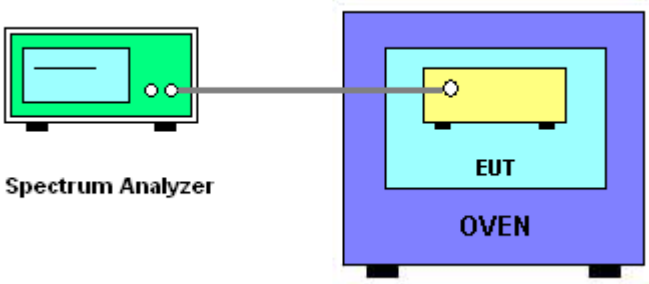
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RB	10 kHz
VB	10 kHz
Sweep Time	Auto

4.8.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (Draft n specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature rule is -30°C~50°C.
8. Measuring multiple antennas, the connector is required to link with spectrum analyzer through a combiner.

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

The EUT was programmed to be in continuously un-modulation transmitting mode.

4.8.7. Test Result of Frequency Stability

For Antenna 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)	
(V)	5200 MHz	5260 MHz
126.50	5200.0451	5260.014150
110.00	5200.0322	5260.023700
93.50	5200.0211	5260.022000
Max. Deviation (MHz)	**0.045100**	**0.023700**
Max. Deviation (ppm)	**8.67**	**4.51**

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)	
(°C)	5200 MHz	5260 MHz
-30	5200.0512	5260.054400
-20	5200.0412	5260.052100
-10	5200.0315	5260.043200
0	5200.0211	5260.000000
10	5200.0101	5259.996800
20	5200.0001	5259.967900
30	5199.9981	5259.966500
40	5199.9885	5259.956900
50	5199.9648	5259.951900
Max. Deviation (MHz)	**0.051200**	**0.054400**
Max. Deviation (ppm)	**9.85**	**10.34**

For Antenna 5

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)	
(V)	5200 MHz	5260 MHz
126.50	5200.0451	5260.014150
110.00	5200.0322	5260.023700
93.50	5200.0211	5260.022000
Max. Deviation (MHz)	**0.045100**	**0.023700**
Max. Deviation (ppm)	**8.67**	**4.51**

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)	
(°C)	5200 MHz	5260 MHz
-30	5200.0512	5260.054400
-20	5200.0412	5260.052100
-10	5200.0315	5260.043200
0	5200.0211	5260.000000
10	5200.0101	5259.996800
20	5200.0001	5259.967900
30	5199.9981	5259.966500
40	5199.9885	5259.956900
50	5199.9648	5259.951900
Max. Deviation (MHz)	**0.051200**	**0.054400**
Max. Deviation (ppm)	**9.85**	**10.34**

For Antenna 6

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)	
(V)	5200 MHz	5260 MHz
126.50	5200.0451	5260.014150
110.00	5200.0322	5260.023700
93.50	5200.0211	5260.022000
Max. Deviation (MHz)	**0.045100**	**0.023700**
Max. Deviation (ppm)	**8.67**	**4.51**

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)	
(°C)	5200 MHz	5260 MHz
-30	5200.0275	5260.027400
-20	5200.0269	5260.027800
-10	5200.0254	5260.024000
0	5200.0153	5260.017700
10	5200.0043	5260.002400
20	5199.9984	5259.990800
30	5199.9778	5259.975900
40	5199.9674	5259.965300
50	5199.9668	5259.967700
Max. Deviation (MHz)	**0.033200**	**0.034700**
Max. Deviation (ppm)	**6.38**	**6.60**

For Antenna 7

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)	
(V)	5200 MHz	5260 MHz
126.50	5200.0451	5260.014150
110.00	5200.0322	5260.023700
93.50	5200.0211	5260.022000
Max. Deviation (MHz)	**0.045100**	**0.023700**
Max. Deviation (ppm)	**8.67**	**4.51**

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)	
(°C)	5200 MHz	5260 MHz
-30	5200.0512	5260.054400
-20	5200.0412	5260.052100
-10	5200.0315	5260.043200
0	5200.0211	5260.000000
10	5200.0101	5259.996800
20	5200.0001	5259.967900
30	5199.9981	5259.966500
40	5199.9885	5259.956900
50	5199.9648	5259.951900
Max. Deviation (MHz)	**0.051200**	**0.054400**
Max. Deviation (ppm)	**9.85**	**10.34**

4.9. Antenna Requirements

4.9.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

4.9.2. Antenna Connector Construction

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	Mar. 03, 2008	Conduction (CO04-HY)
LISN	MessTec	NNB-2/16Z	99079	9kHz – 30MHz	Mar. 31, 2008	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz – 30MHz	Mar. 22, 2008	Conduction (CO04-HY)
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9kHz – 30MHz	Apr. 20, 2007	Conduction (CO04-HY)
ISN	SCHAFFNER	ISN T400	21653	9kHz –30MHz	Mar. 27, 2008	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30 MHz - 1 GHz 3m	Jun. 14, 2007	Radiation (03CH03-HY)
Amplifier	SCHAFFNER	COA9231A	18667	9 kHz - 2 GHz	Jan. 14, 2008	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1 GHz - 26.5 GHz	Jun. 07, 2007	Radiation (03CH03-HY)
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5 GHz - 40 GHz	Jan. 22, 2007*	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP40	100305	9 kHz - 40 GHz	Sep. 27, 2007	Radiation (03CH03-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	May 23, 2006*	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30 MHz – 1 GHz	Jul. 21, 2007	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	May 04, 2007	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15 GHz - 40 GHz	Jan.18, 2008	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz - 1 GHz	Dec. 03, 2007	Radiation (03CH03-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1 GHz - 40 GHz	Dec. 03, 2007	Radiation (03CH03-HY)
Turn Table	HD	DS 420	420/650/00	0 – 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP30	100023	9kHz ~ 30GHz	Jan. 10, 2008	Conducted (TH01-HY)
Power Meter	R&S	NRVS	100444	DC ~ 40GHz	Jun. 27, 2007	Conducted (TH01-HY)
Power Sensor	R&S	NRV-Z51	100458	DC ~ 30GHz	Jun. 27, 2007	Conducted (TH01-HY)
Power Sensor	R&S	NRV-Z32	100057	30MHz ~ 6GHz	Jun. 27, 2007	Conducted (TH01-HY)
AC Power Source	HPC	HPA-500W	HPA-9100024	AC 0 ~ 300V	May 04, 2007*	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Mar. 13, 2008	Conducted (TH01-HY)
Temp. and Humidity Chamber	KSON	THS-C3L	612	N/A	Oct. 01, 2007	Conducted (TH01-HY)
RF CABLE-1m	Jye Bao	RG142	CB034-1m	20MHz ~ 7GHz	Dec. 01, 2007	Conducted (TH01-HY)
RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz ~ 1GHz	Dec. 01, 2007	Conducted (TH01-HY)
Vector Signal Generator	R&S	SMU200A	102098	100kHz ~ 6GHz	Nov. 14, 2007	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Mar. 10, 2008	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is one year.

Note: *Calibration Interval of instruments listed above is two year.

6. TEST LOCATION

SHIJR	ADD	:	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C.
	TEL	:	886-2-2696-2468
	FAX	:	886-2-2696-2255
HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
	TEL	:	886-3-327-3456
	FAX	:	886-3-318-0055
LINKOU	ADD	:	No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C
	TEL	:	886-2-2601-1640
	FAX	:	886-2-2601-1695
DUNGHU	ADD	:	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C.
	TEL	:	886-2-2631-4739
	FAX	:	886-2-2631-9740
JUNGHE	ADD	:	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C.
	TEL	:	886-2-8227-2020
	FAX	:	886-2-8227-2626
NEIHU	ADD	:	4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C.
	TEL	:	886-2-2794-8886
	FAX	:	886-2-2794-9777
JHUBEI	ADD	:	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.
	TEL	:	886-3-656-9065
	FAX	:	886-3-656-9085

7. TAF CERTIFICATE OF ACCREDITATION

Certificate No. : L1190-070110

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	:	ISO/IEC 17025:2005
Accreditation Number	:	1190
Originally Accredited	:	December 15, 2003
Effective Period	:	January 10, 2007 to January 09, 2010
Accredited Scope	:	Testing Field, see described in the Appendix
Specific Accreditation Program	:	Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory

Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 10, 2007

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The Appendix forms an integral part of this Certificate, which shall be invalid when used without the Appendix.