FCC TEST REPORT

Report No.:	R201907010
Model No.:	CB64
Grant No.:	JOY
FCC ID:	JOYCB64
Date of Receipt:	June 17,2019
Date of Test:	June 17,2019~ July 26,2019
Date of Issue:	July 26,2019
Test Result:	PASS

Applicant:	Kyocera Corporation
Manufacturer:	Kyocera Corporation
Factory:	Kyocera Corporation
Product Name	GSM/WCDMA/LTE Mobile Telephone
Trade Mark	KYOCERA
Address:	2-1-1 Kagahara, Tsuzuki-ku, Yokohama-shi,Kanagawa,Japan, 224-8502
Issued By:	BYD Precise Manufacture Co., Ltd.
Lab Location:	No. 3001, Baohe Road, Baolong Longgang, Shenzhen, 518116, People's Republic of China

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1 REPORT ISSUED HISTORY

Version	Description	Issued Data
Rev. 01	Original issue	July 26,2019

2 CERTIFICATION

PRODUCT:	GSM/WCDMA/LTE Mobile Telephone
MODEL:	CB64
BRAND:	Kyocera Corporation
APPLICANT:	Kyocera Corporation
TEST SAMPLE:	ENGINEERING SAMPLE
HW Version:	CB64
IMEI:	356283100010273
SW Version:	msm8937_64-userdebug 9
TESTED:	June 17,2019~ July 26,2019
STANDARDS:	FCC 47 CFR Part15 Subpart C §15.247

The above equipment has been tested by **BYD Precise Manufacture Co., Ltd.,** and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

PREPARED BY : _____ **, DATE:** **2019-7-26**
(Yan Chen / Engineer)

TECHNICAL ACCEPTANCE : _____ **, DATE:** **2019-7-26**
Responsible for EMS (Zhaohui Feng / Manager)

APPROVED BY : _____ **, DATE:** **2019-7-26**
(Jie Yan / Director)

3 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

FCC RULE	TEST ITEMS	RESULT	REMARK
§15.247(a)(2)	6dB BandWidth	PASS	≥0.5MHz
-	99% BandWidth	PASS	-
15.247(b)(1)	Peak Output Power	PASS	≤30dBm
§15.247(e)	Power Spectral Density	PASS	≤8dBm/3kHz
§15.247(d)	Bandedges	PASS	≤20dBc
§15.247(d)	Conducted Spurious Emission	PASS	≤20dBc

3.1 Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5%
RF output power,Conducted	±0.59dB
Power Spectral Density,conducted	±0.59dB
Unwanted Emissions,radiated	±1.6dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	±1%

4 GENERAL INFORMATION

4.1 TEST EQUIPMENTS LIST

Description & Manufacturer	MODEL NO.	SERIAL NO.	Next Calibration date
WIDEBAND RADIO COMMUNICATION TESTER ROHDE & SCHWARZ	CMW500	148345	2019/10/16
SIGNAL ANALYZER ROHDE & SCHWARZ	FSQ26	200393	2020/4/1
USB RF power sensor	RPR3006W	15I00041SNO63	2019/11/3
DC Power Supply Agilent	E3632A	MY40021860	2019/10/18
LC Filters	-	L2000-9C1AS	-
RF cable	Huber Suhner SUCOFLEX 104PE	-	-
PC	-	30009611	-
Power Divider	-	C279810-01	-

NOTE: Calibration cycle 12 months.

4.2 DESCRIPTION OF TEST MODES

Test Items	Mode	Data Rate	Test Channel	Power Level
6dB and 99% BW Power Spectral Density Output Power	802.11b	1Mbps	1/6/11	15.5
	802.11g	6Mbps	1/6/11	12
	802.11n HT20	MCS0	1/6/11	12
Conducted Band Edge	802.11b	1Mbps	1/11	15.5
	802.11g	6Mbps	1/11	12
	802.11n HT20	MCS0	1/11	12
Conducted Spurious Emission	802.11b	1Mbps	1/6/11	15.5
	802.11g	6Mbps	1/6/11	12
	802.11n HT20	MCS0	1/6/11	12

4.3 Test Environment And List Of Software And Parts

Test Items	Software	Parts	Environment
6dB BandWidth	QRCT Version3.0	USB Cable、Fake battery	Temp.:25℃±3 Humi:30%~60% Volt.:3.85V
99% BandWidth	QRCT Version3.0	USB Cable、Fake battery	Temp.:25℃±3 Humi:30%~60% Volt.:3.85V
Peak Output Power	QRCT Version3.0	USB Cable、Fake battery	Temp.:25℃±3 Humi:30%~60% Volt.:3.85V
Power Spectral Density	QRCT Version3.0	USB Cable、Fake battery	Temp.:25℃±3 Humi:30%~60% Volt.:3.85V
Band edges	QRCT Version3.0	USB Cable、Fake battery	Temp.:25℃±3 Humi:30%~60% Volt.:3.85V
Conducted Spurious Emission	QRCT Version3.0	USB Cable、Fake battery	Temp.:25℃±3 Humi:30%~60% Volt.:3.85V

4.4 Testing Location

Test Site	BYD Precise Manufacture Co., Ltd.
Test Site Location	No. 3001, Baohe Road, Baolong Longgang, Shenzhen, 518116, People's Republic of China
Post Code	518116
Telephone	+86-755 8489 8888 55501
Fax	+86-755 8964 3771

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

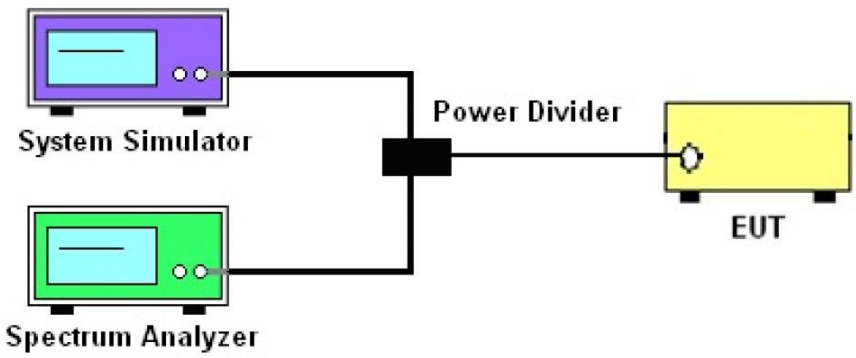
- **A2LA (Certificate No. 4886.01)**

BYD Precise Manufacture Co., Ltd., Baolong Shenzhen Laboratory is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 4886.01.

- **FCC –Designation Number: CN1232**

BYD Precise Manufacture Co., Ltd., Baolong Shenzhen Laboratory has been recognized as an accredited testing laboratory.
Designation Number: CN1232.

4.6 Configuration of System Under Test



4.7 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part15 Subpart C §15.247
FCC KDB Publication No.558074 D01 DTS Meas. Guidance v03r01
ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

5 TEST TYPES AND RESULTS

5.1 6DB AND 99% BANDWIDTH

5.1.1 Description

The minimum 6dB bandwidth shall be at least 500 kHz.

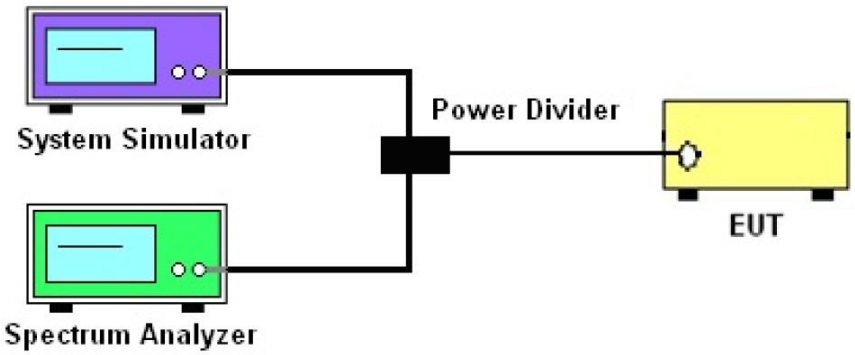
5.1.2 Test Instruments

The measuring equipment is listed in the section 4.1 of this test report.

5.1.3 Test Procedure

a. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
b. Set to the maximum power setting and enable the EUT transmit continuously.
c. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) =100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement, the 6dB bandwidth must be greater than 500 kHz.
d. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) =1MHz and set the Video bandwidth (VBW) =3MHz.
e. Measure and record the results in the test report.

5.1.4 Test Setup

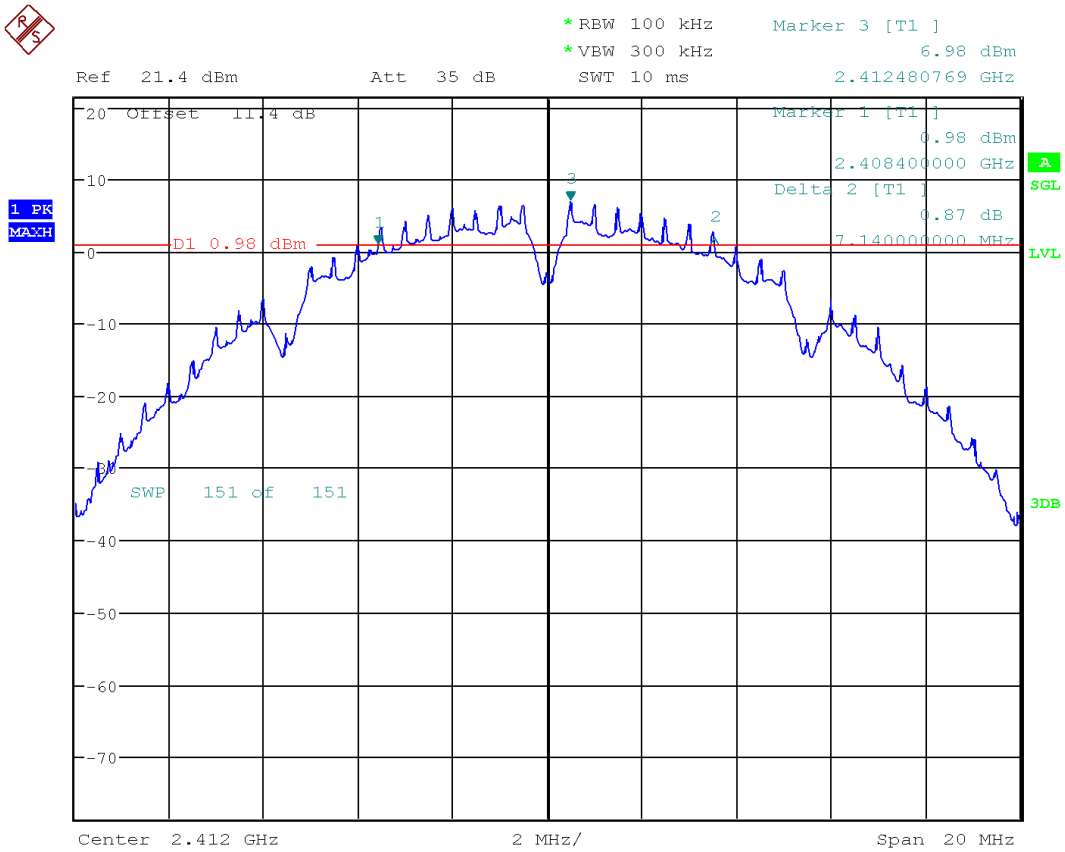


5.1.5 Test Results

2.4G							
Mode	Data Rate	Channel	Frequency (MHz)	99% BW(MHz)	6dB BW(MHz)	6dB BW Limit(MHz)	P/F
11B	1Mbps	1	2412	12.58	7.14	0.5	PASS
11B	1Mbps	6	2437	12.58	7.54	0.5	PASS
11B	1Mbps	11	2462	12.74	8.02	0.5	PASS
11G	6Mbps	1	2412	18.19	16.36	0.5	PASS
11G	6Mbps	6	2437	18.11	16.36	0.5	PASS
11G	6Mbps	11	2462	18.27	16.36	0.5	PASS
11N 2.4G HT20	MCS0	1	2412	18.99	17.58	0.5	PASS

11N 2.4G HT20	MCS0	6	2437	18.99	17.56	0.5	PASS
11N 2.4G HT20	MCS0	11	2462	18.99	17.6	0.5	PASS

6dB bandwidth:



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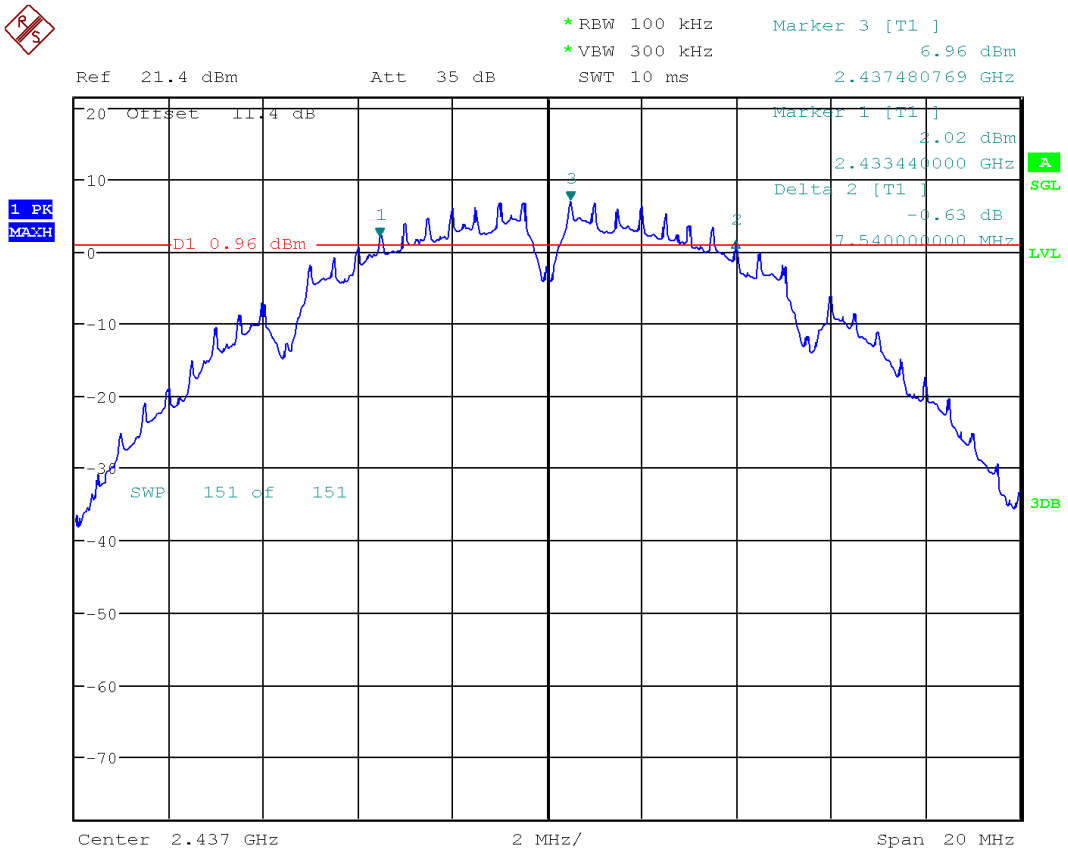
11B 1Mbps CH1 2412MHz



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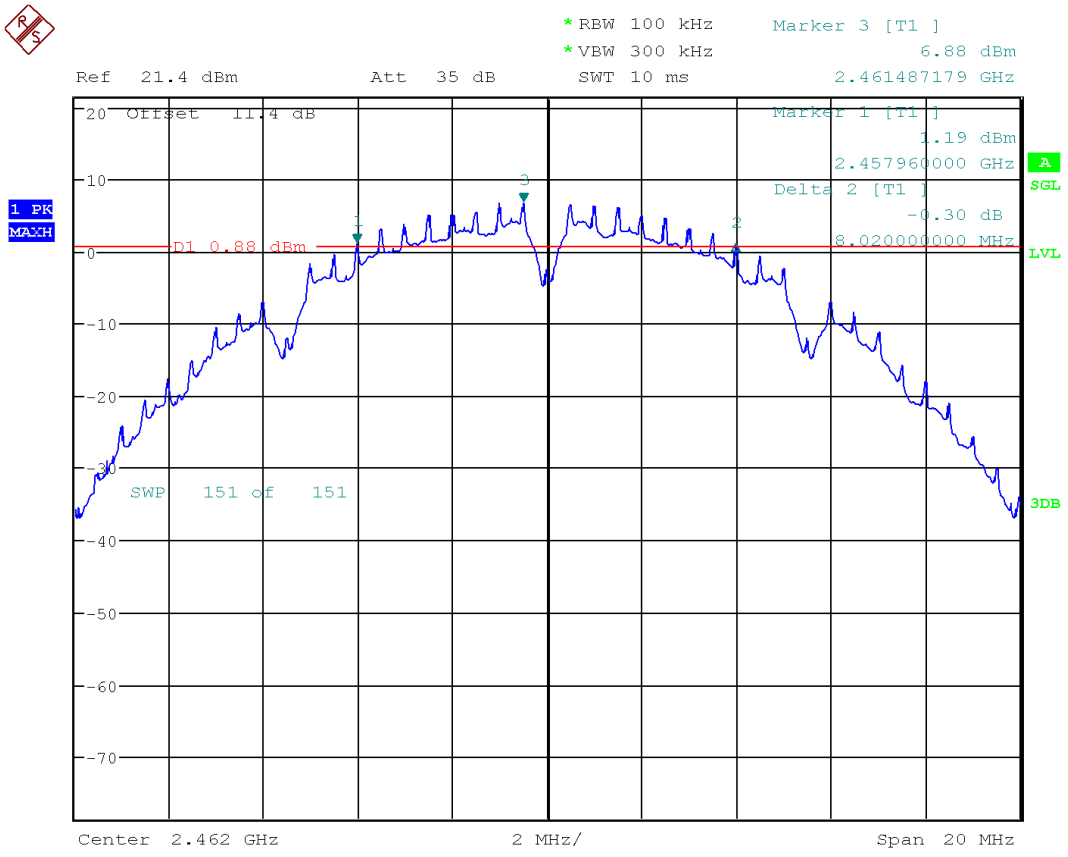
11B 1Mbps CH6 2437MHz



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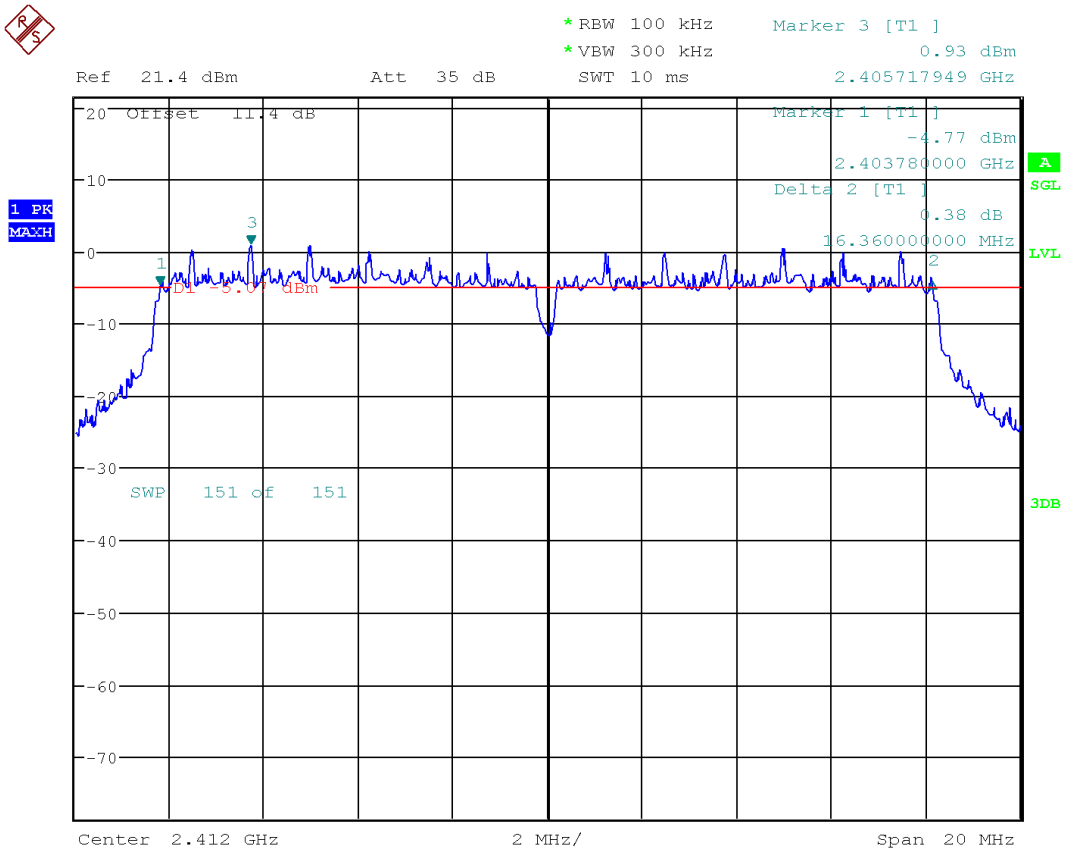
11B 1Mbps CH11 2462MHz



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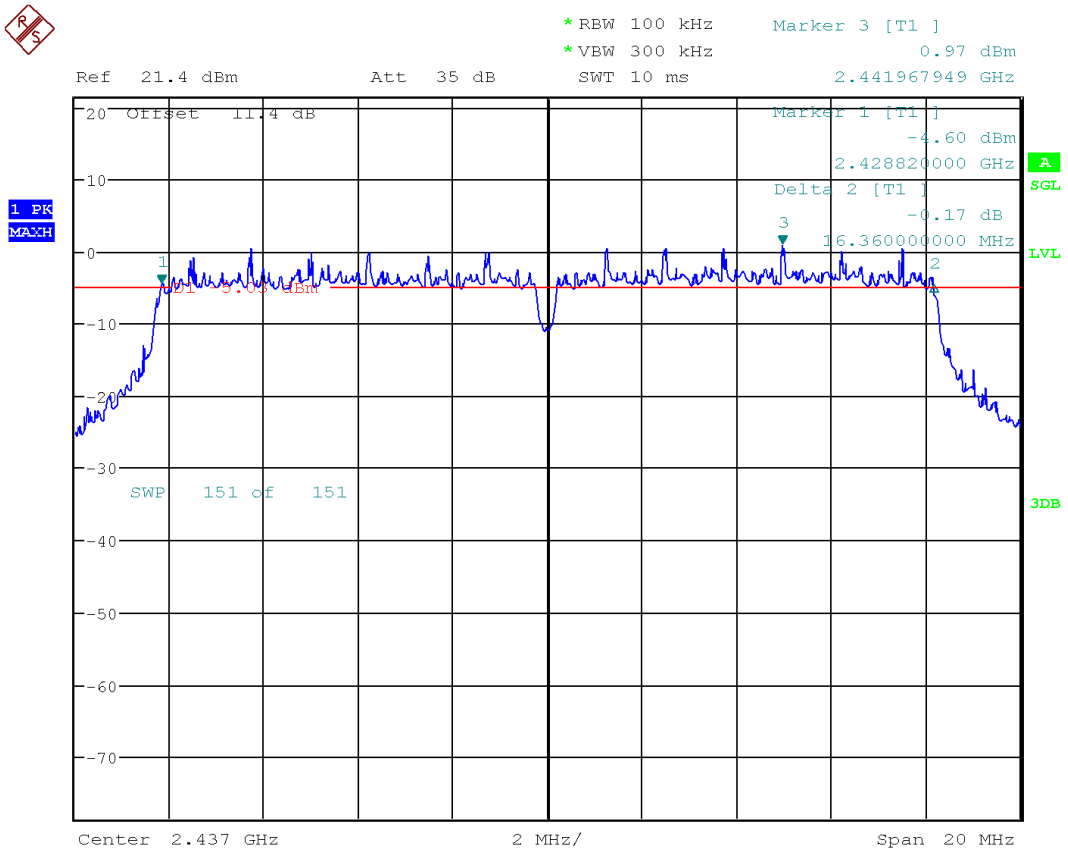
11G 6Mbps CH1 2412MHz



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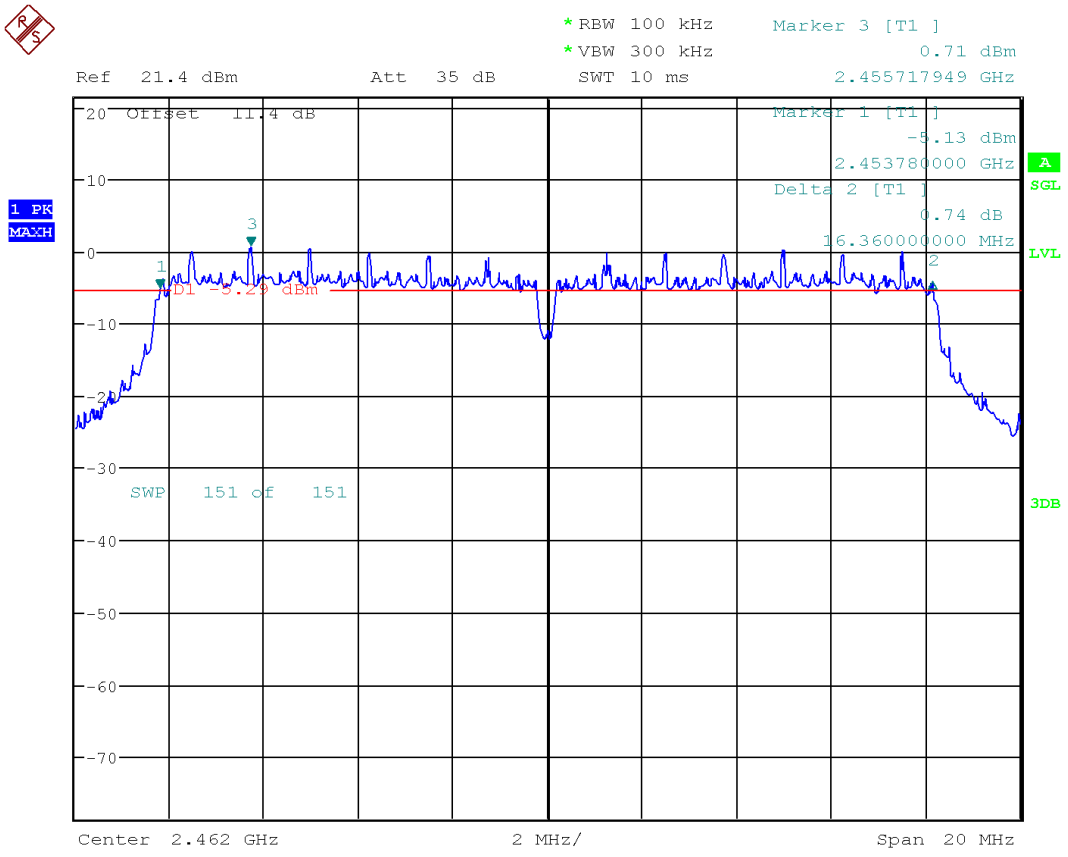
11G 6Mbps CH6 2437MHz



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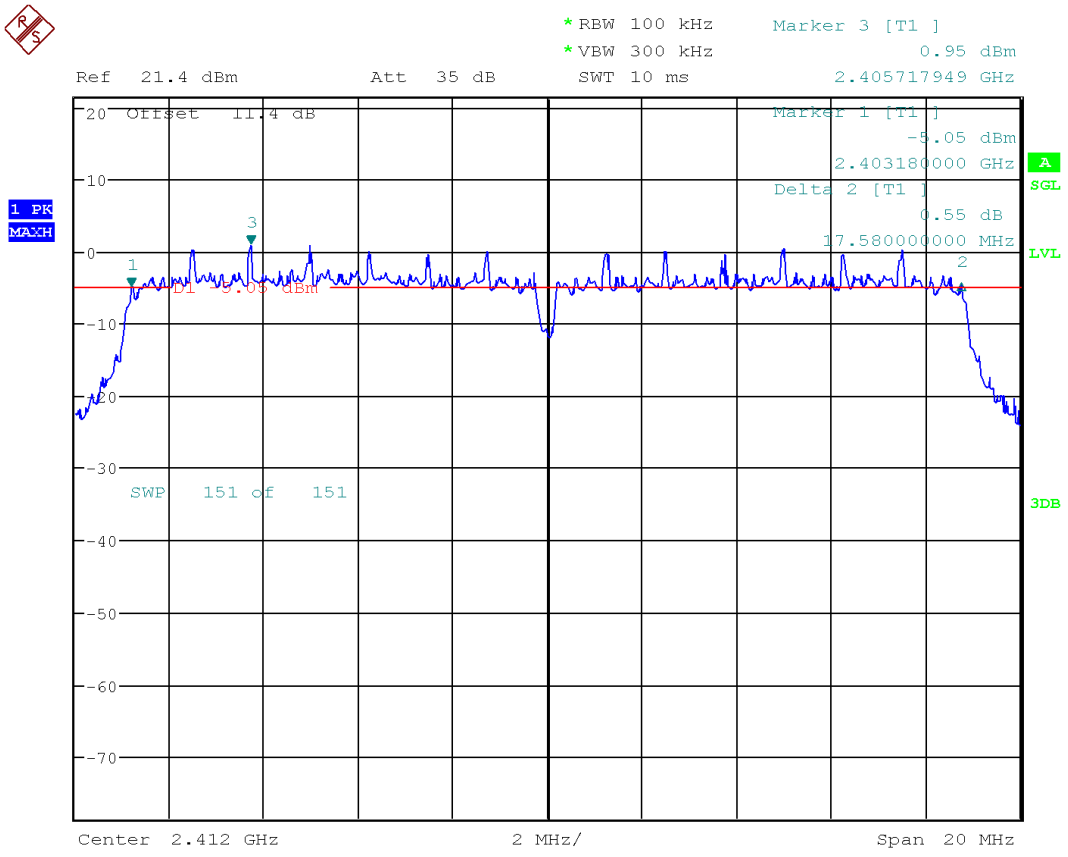
11G 6Mbps CH11 2462MHz



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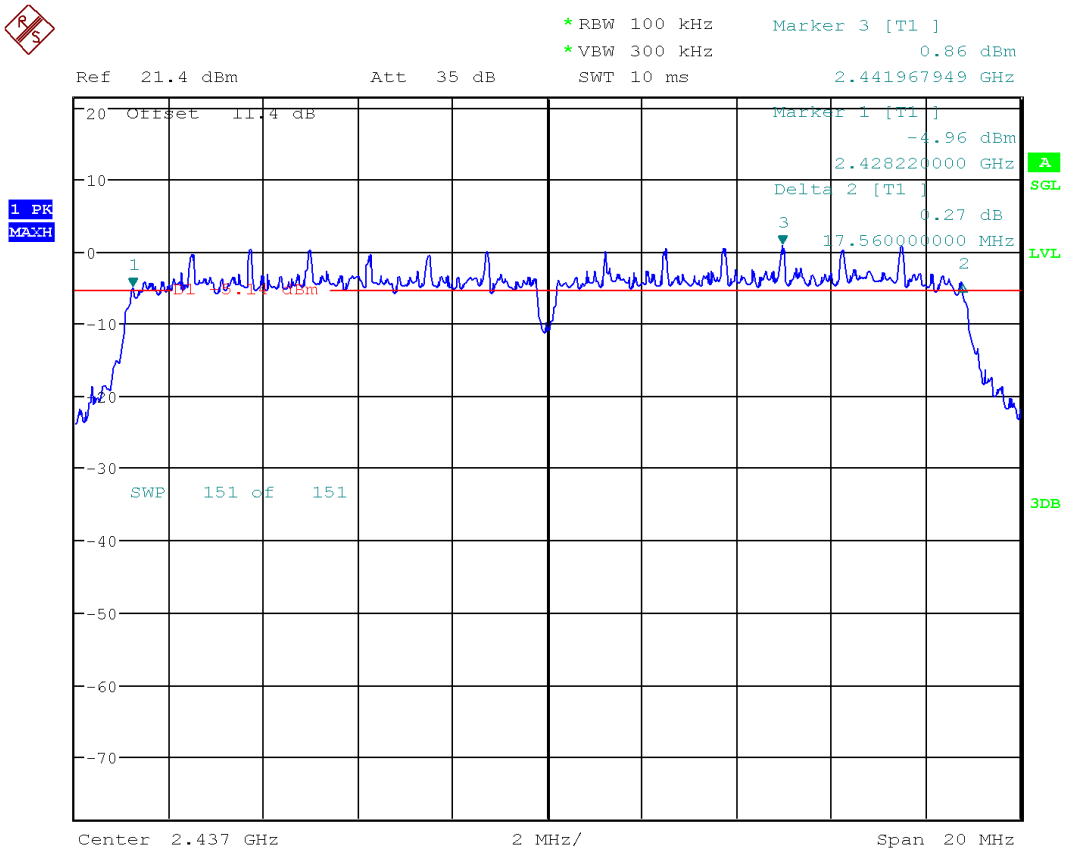
11N 2.4G HT20 MCS0 CH1 2412MHz



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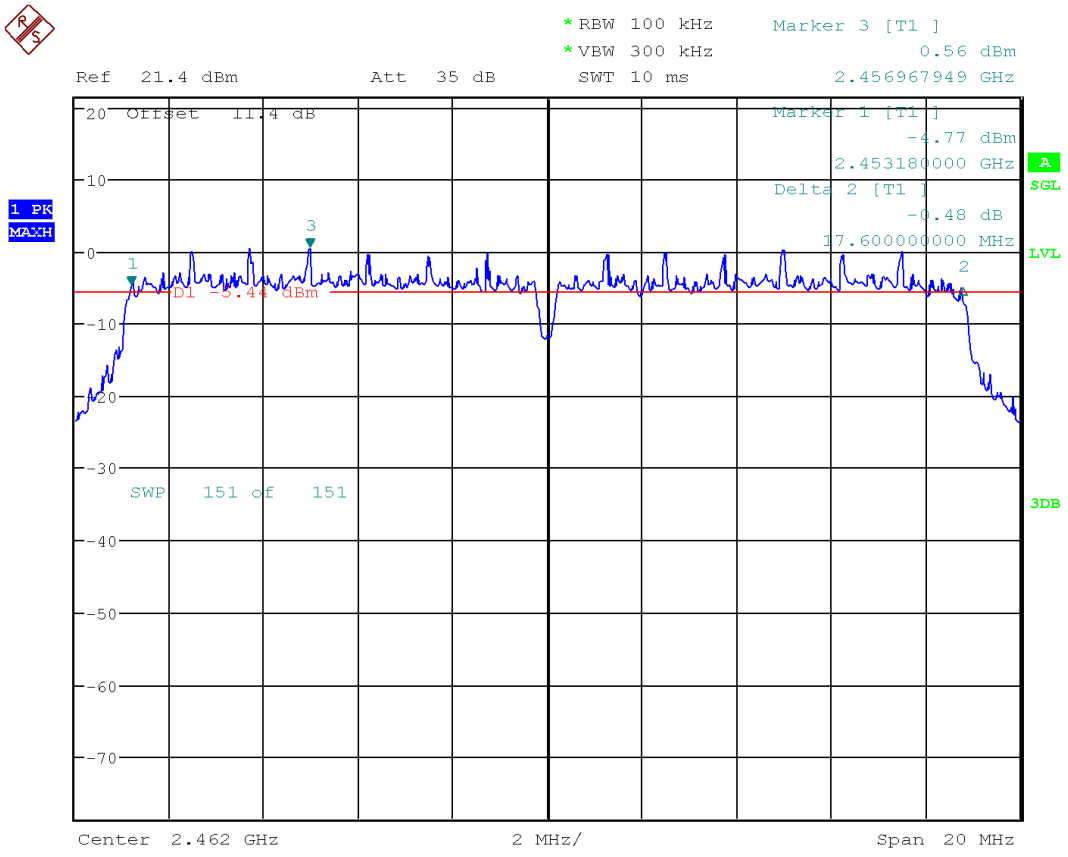
11N 2.4G HT20 MCS0 CH6 2437MHz



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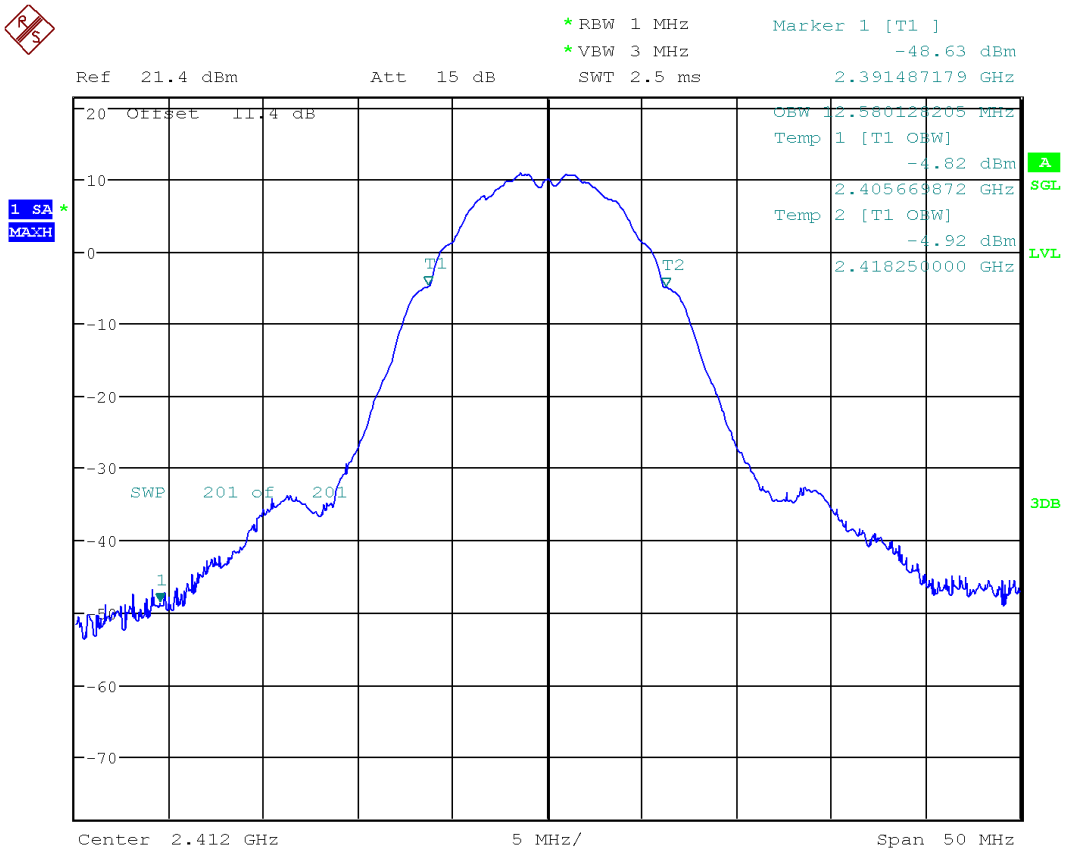
11N 2.4G HT20 MCS0 CH11 2462MHz

99% bandwidth:



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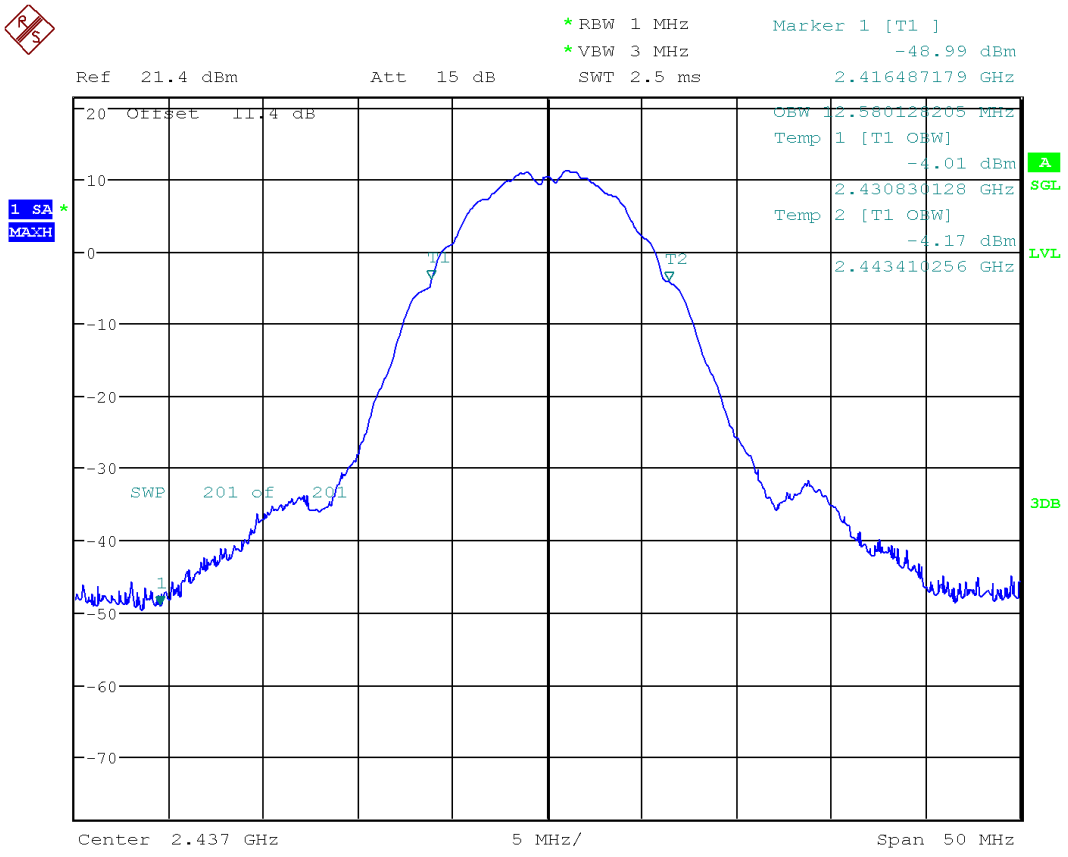
11B 1Mbps CH1 2412MHz



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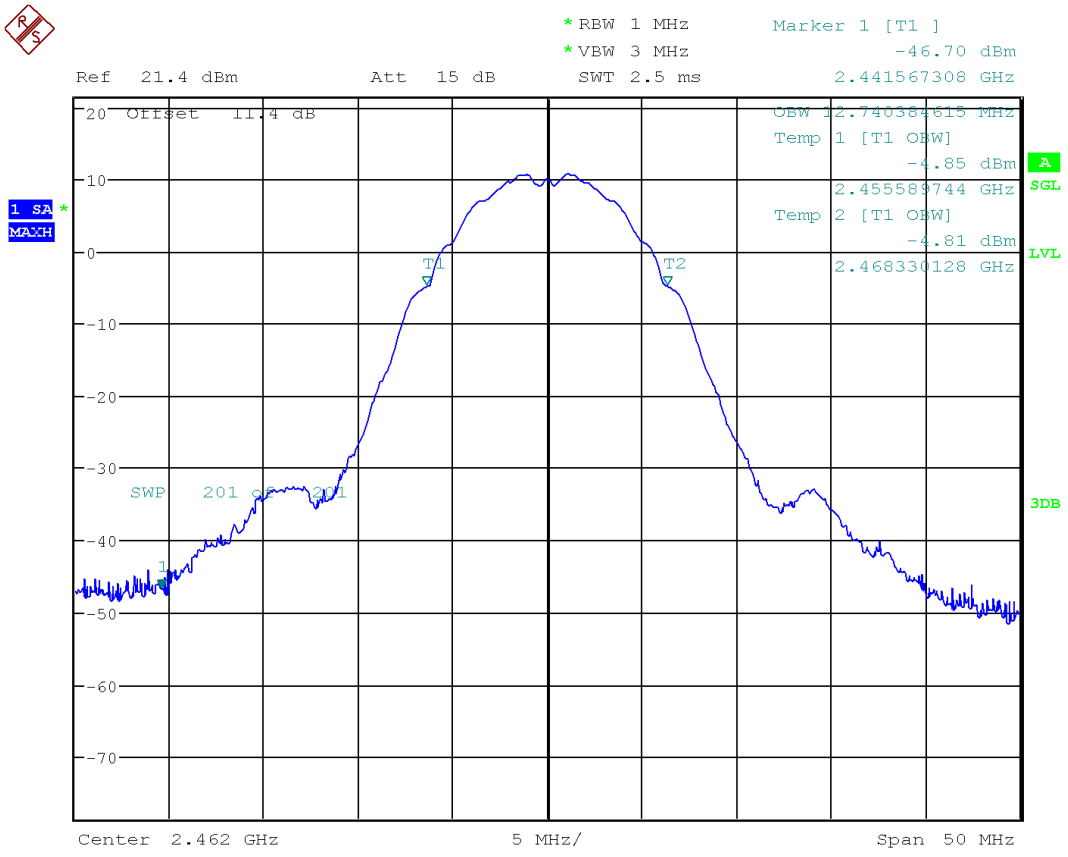
11B 1Mbps CH6 2437MHz



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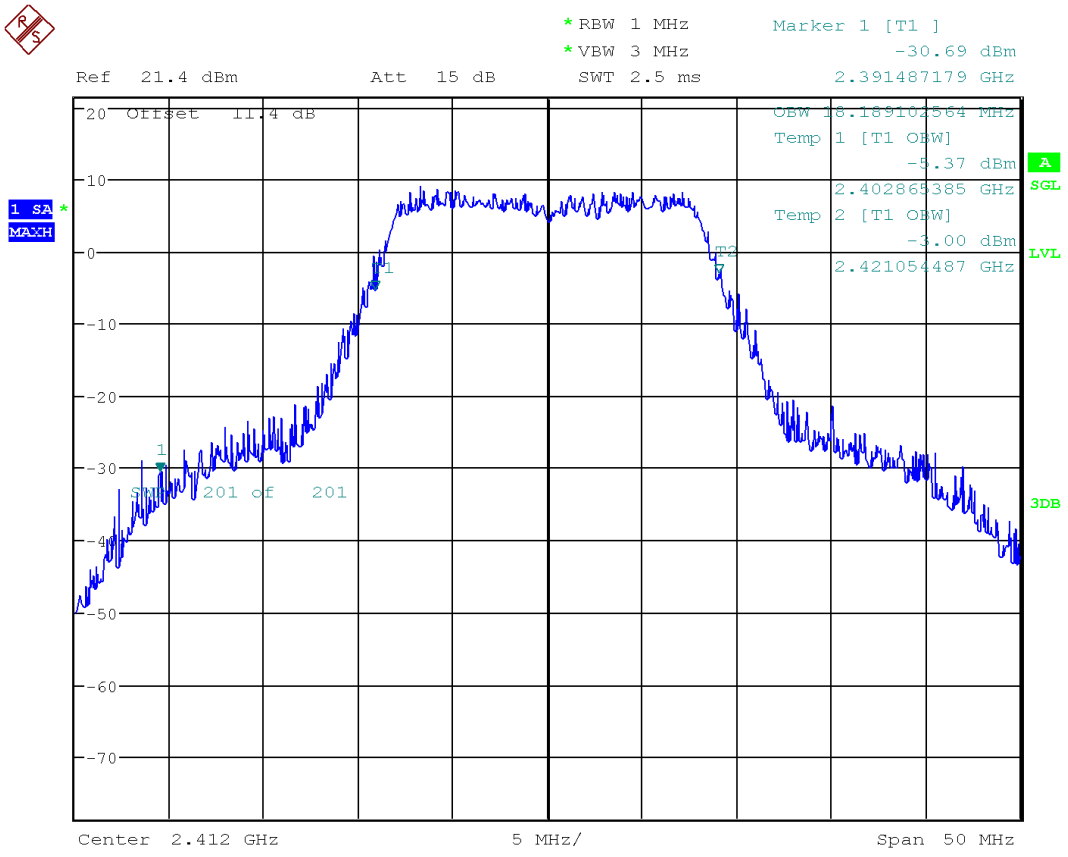
11B 1Mbps CH11 2462MHz



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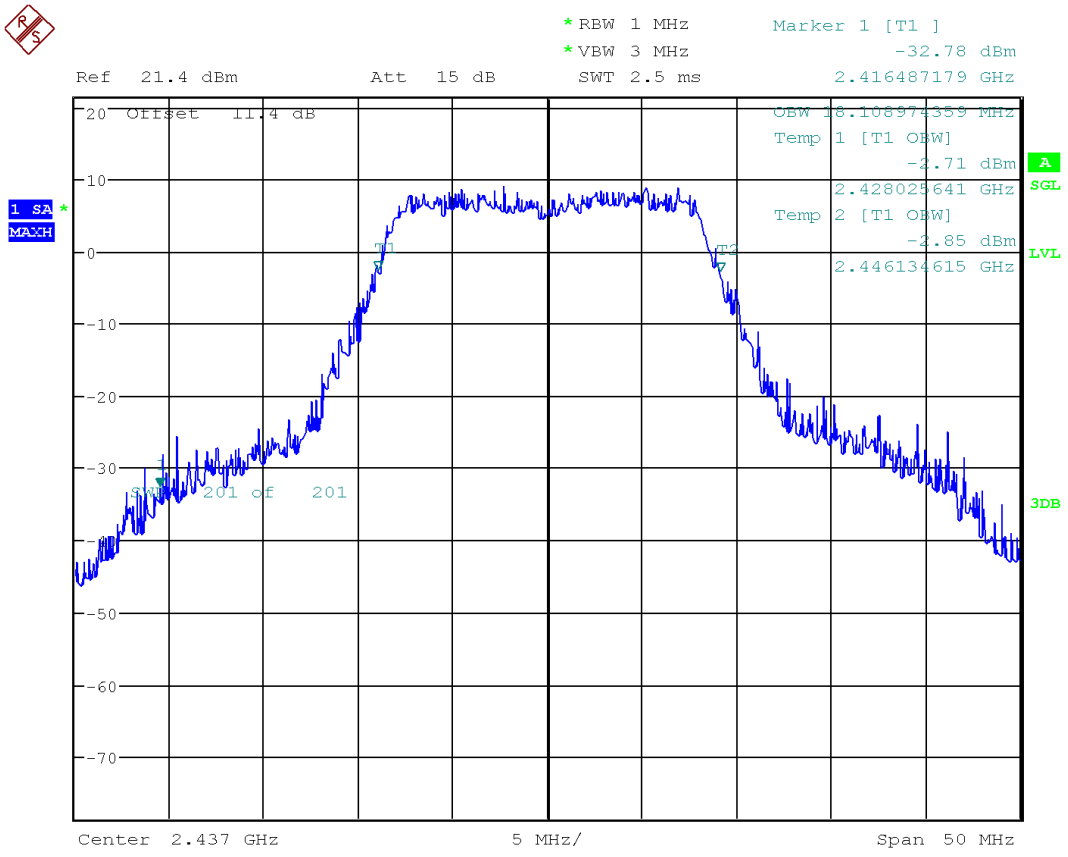
11G 6Mbps CH1 2412MHz



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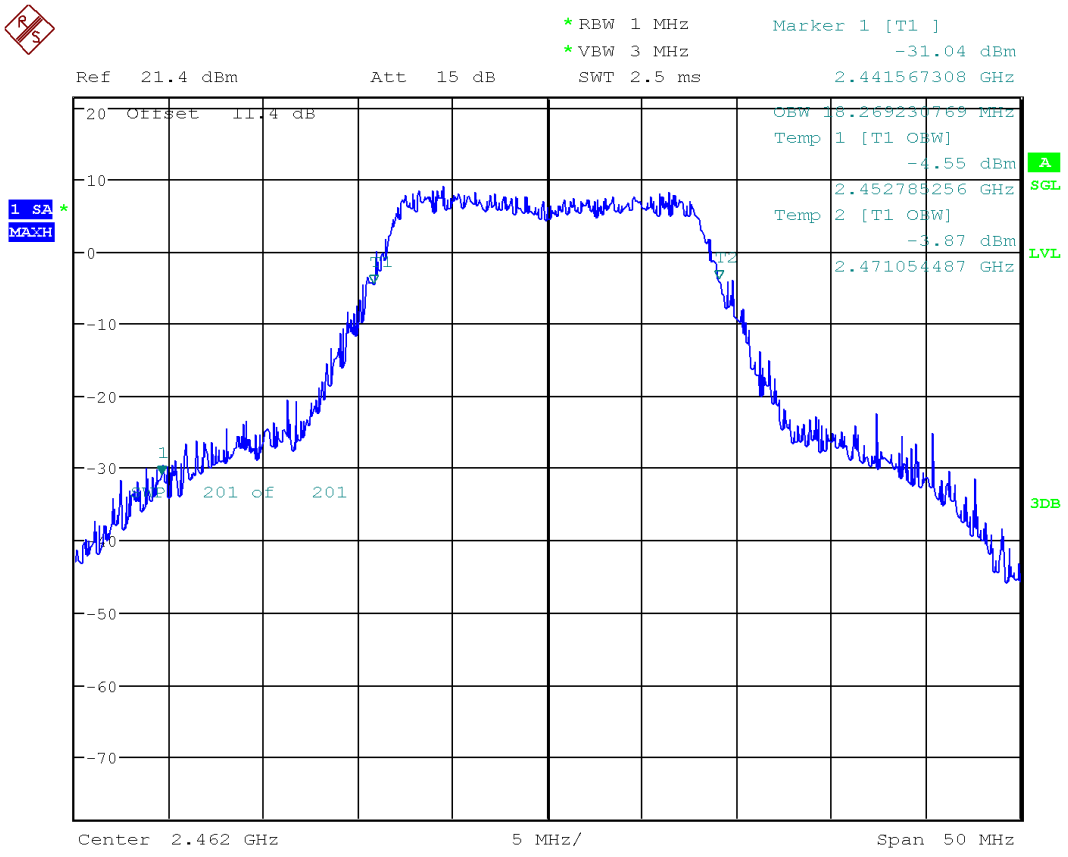
11G 6Mbps CH6 2437MHz



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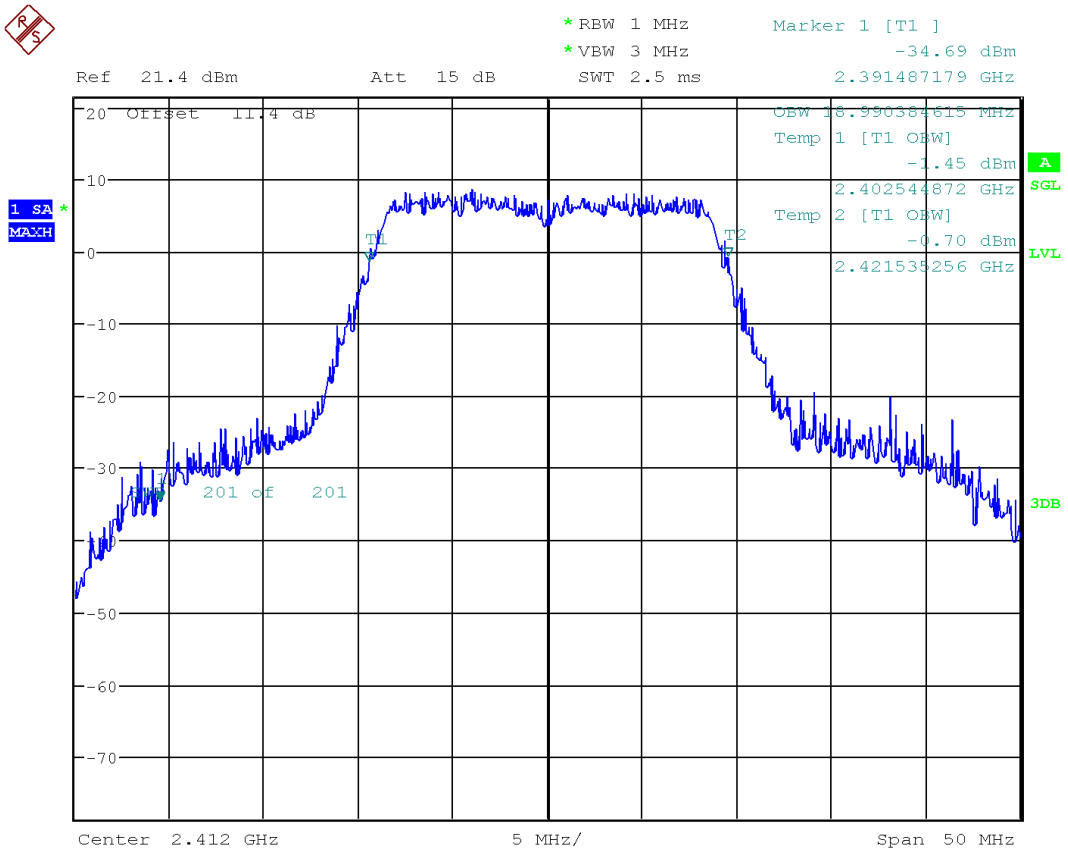
11G 6Mbps CH11 2462MHz



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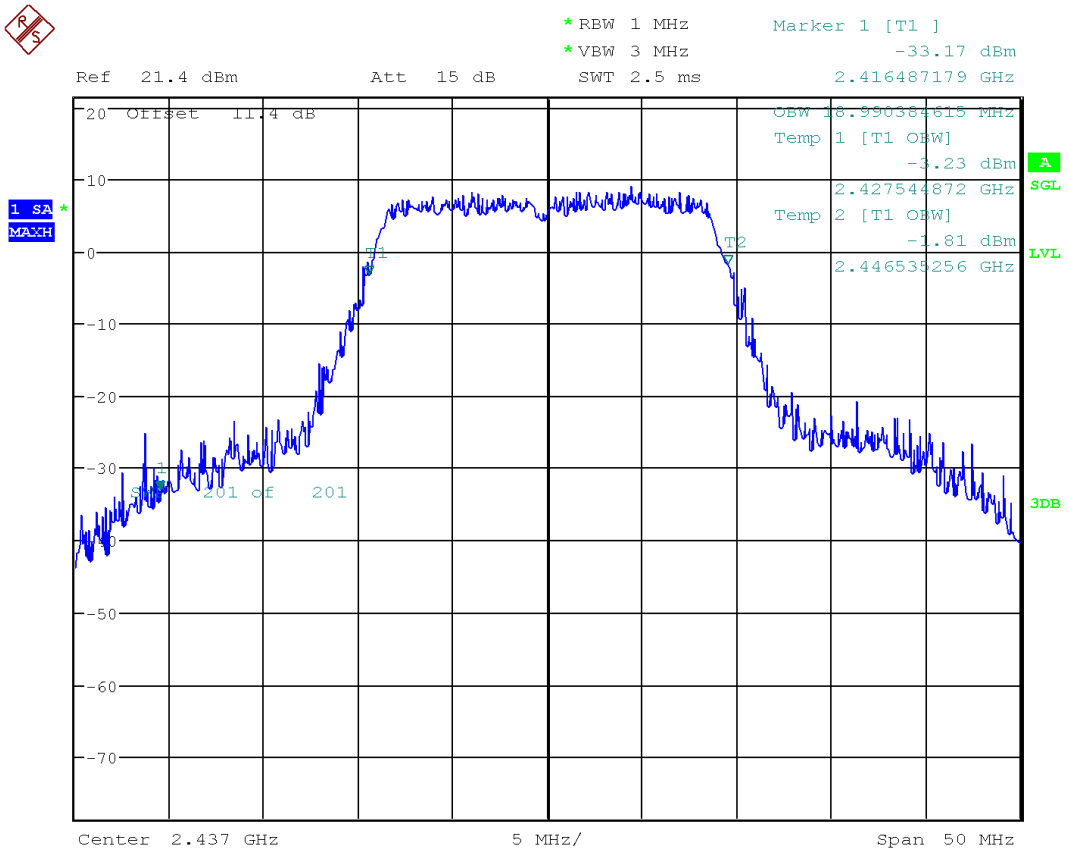
11N 2.4G HT20 MCS0 CH1 2412MHz



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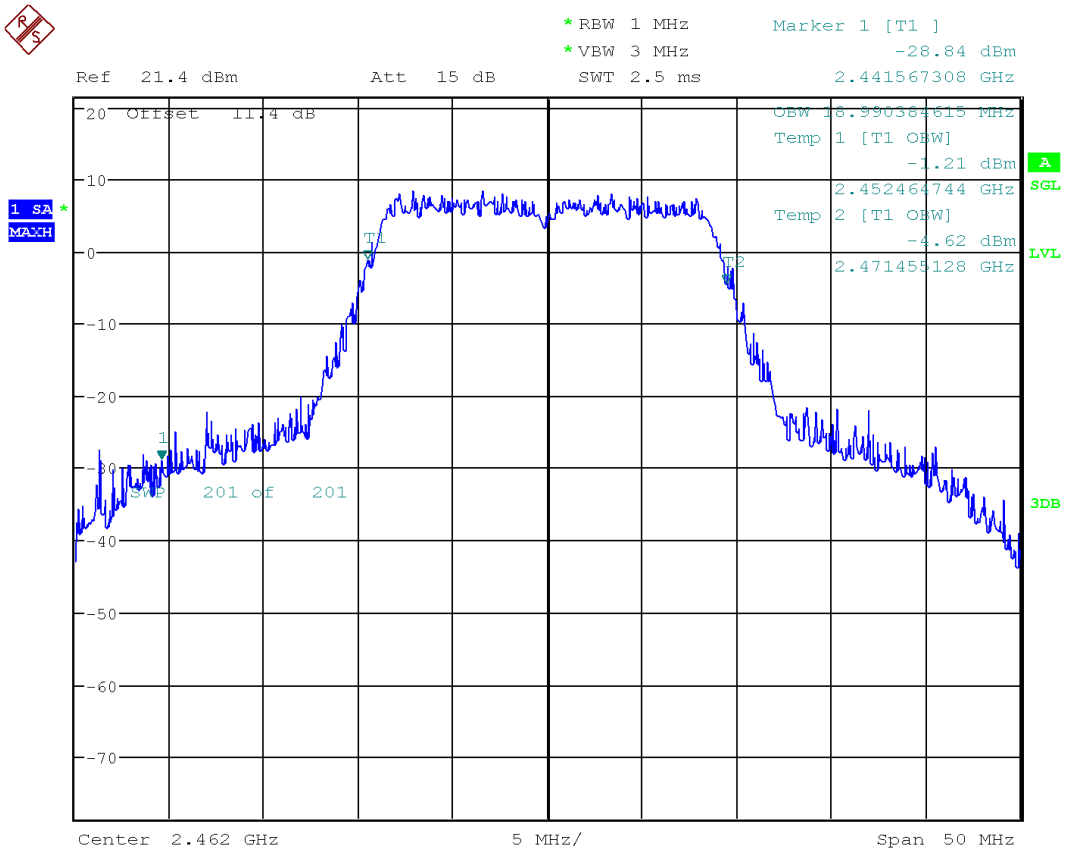
11N 2.4G HT20 MCS0 CH6 2437MHz



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11N 2.4G HT20 MCS0 CH11 2462MHz

5.2 PEAK OUTPUT POWER

5.2.1 Description

For systems using digital modulation in the 2400-2483.5MHz and 5725-5850MHz,the limit for peak output power is 30dBm. If transmitting Antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6 dBi. In case of point –to-point operation, the limit has to be reduce by 1 dB for every 3dB that the directional gain of the Antennal exceeds 6 dBi.

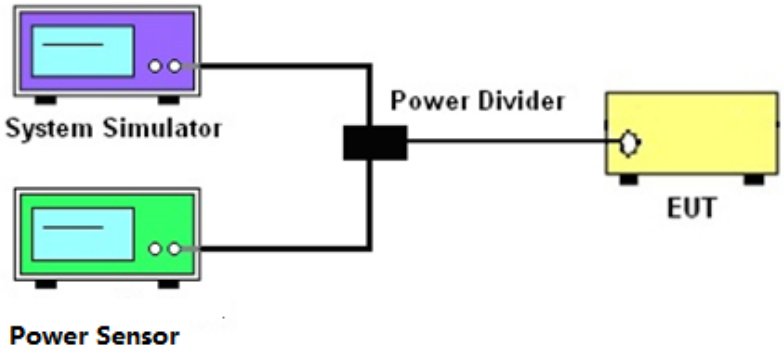
5.2.2 Test Instruments

The measuring equipment is listed in the section 4.1 of this test report.

5.2.3 Test Procedure

a. The RF output of EUT was connected to the Power sensor by RF cable and attenuator. The path loss was compensated to the results for each measurement.
b. Measure and record the results in the test report.
c. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

5.2.4 Test Setup



5.2.5 Test Result

Peak Output Power

Mode	Data Rate	Channel	Frequency (MHz)	Output Power(dBm)	Output Power(dBm)	P/F
11B	1Mbps	1	2412	17.56	30	PASS
11B	1Mbps	6	2437	18.05	30	PASS
11B	1Mbps	11	2462	17.79	30	PASS
11G	6Mbps	1	2412	19.8	30	PASS
11G	6Mbps	6	2437	19.95	30	PASS
11G	6Mbps	11	2462	19.6	30	PASS
11N 2.4G HT20	MCS0	1	2412	19.94	30	PASS
11N 2.4G HT20	MCS0	6	2437	20.09	30	PASS
11N 2.4G HT20	MCS0	11	2462	19.73	30	PASS

5.3 POWER SPECTRAL DENSITY

5.3.1 Description

The peak power spectral density shall not be greater than 8 dBm in any 3 kHz band at any time interval of continuous transmission.

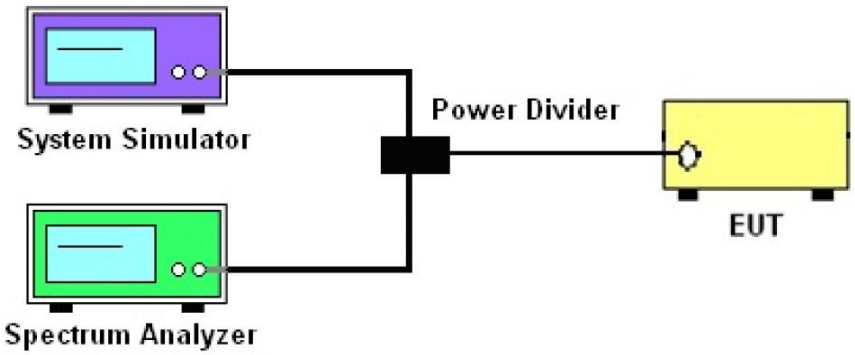
5.3.2 Test Instruments

The measuring equipment is listed in the section 4.1 of this test report.

5.3.3 Test Procedure

a. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
b. Set to the maximum power setting and enable the EUT transmit continuously.
c. Make the measurement with the spectrum analyzer's resolution bandwidth(RBW) = 3 kHz. Set the Video bandwidth(VBW)=10kHz. In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth.(6dB BW)
d. Detector =peak, Sweep time =auto couple, Trace mode =max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
e. Measure and record the results in the test report.

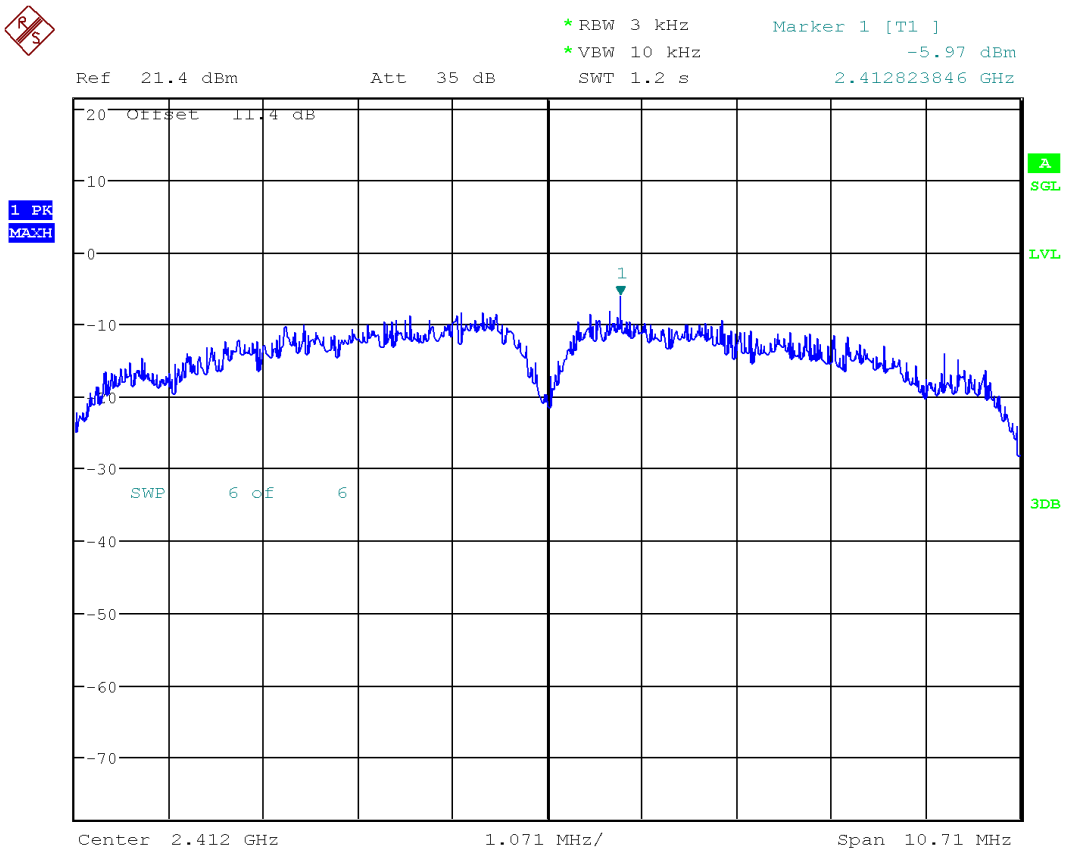
5.3.4 Test Setup



5.3.5 Test Result

2.4G						
Mode	Data Rate	Channel	Frequency (MHz)	Power Spectral Density(dBm/3KHz)	Limit(dBm/ 3KHz)	P/F
11B	1Mbps	1	2412	-5.97	8	PASS
11B	1Mbps	6	2437	-6.71	8	PASS

11B	1Mbps	11	2462	-7.89	8	PASS
11G	6Mbps	1	2412	-13.83	8	PASS
11G	6Mbps	6	2437	-13.41	8	PASS
11G	6Mbps	11	2462	-12.8	8	PASS
11N 2.4G HT20	MCS0	1	2412	-13.76	8	PASS
11N 2.4G HT20	MCS0	6	2437	-11.9	8	PASS
11N 2.4G HT20	MCS0	11	2462	-13.1	8	PASS



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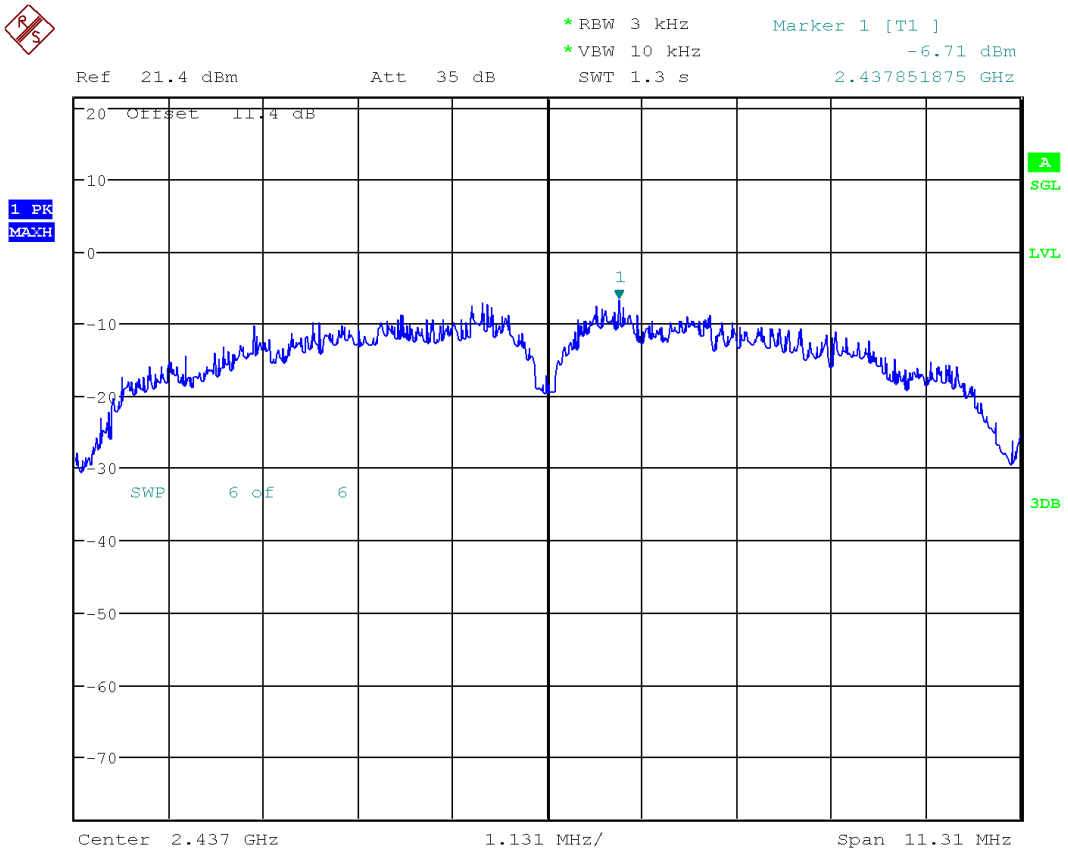
11B 1Mbps CH1 2412MHz



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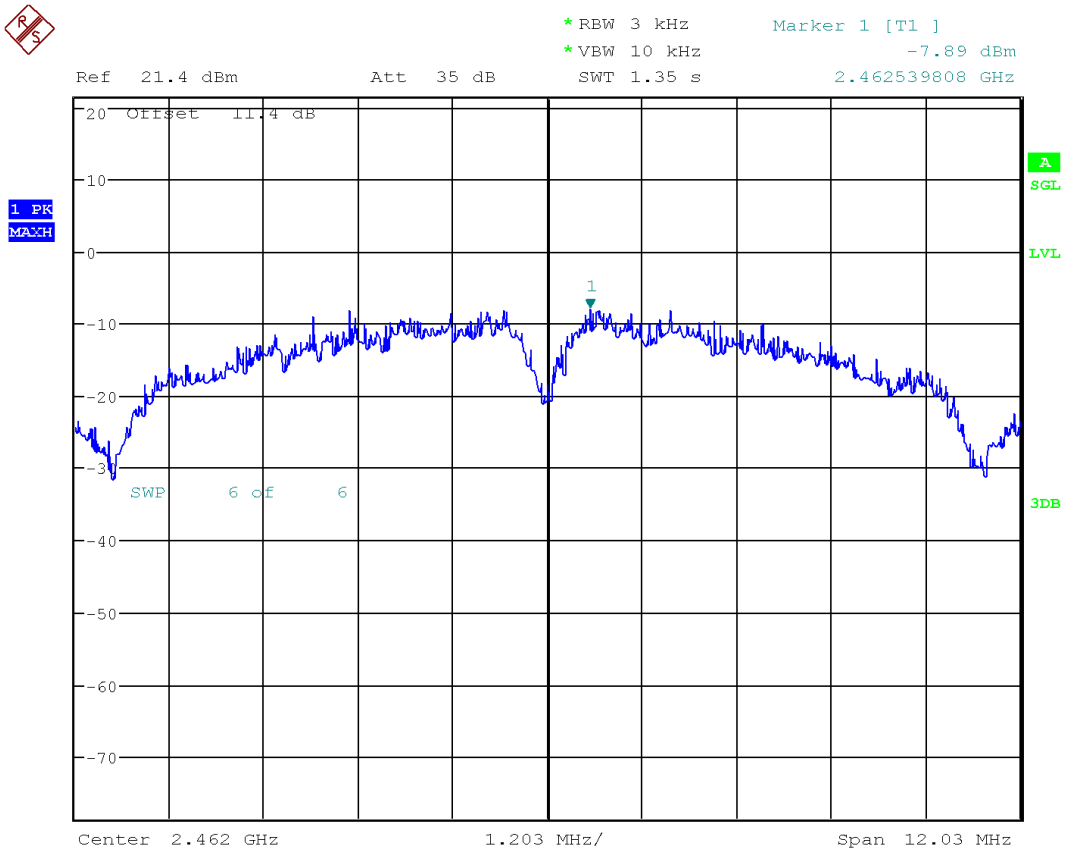
11B 1Mbps CH6 2437MHz



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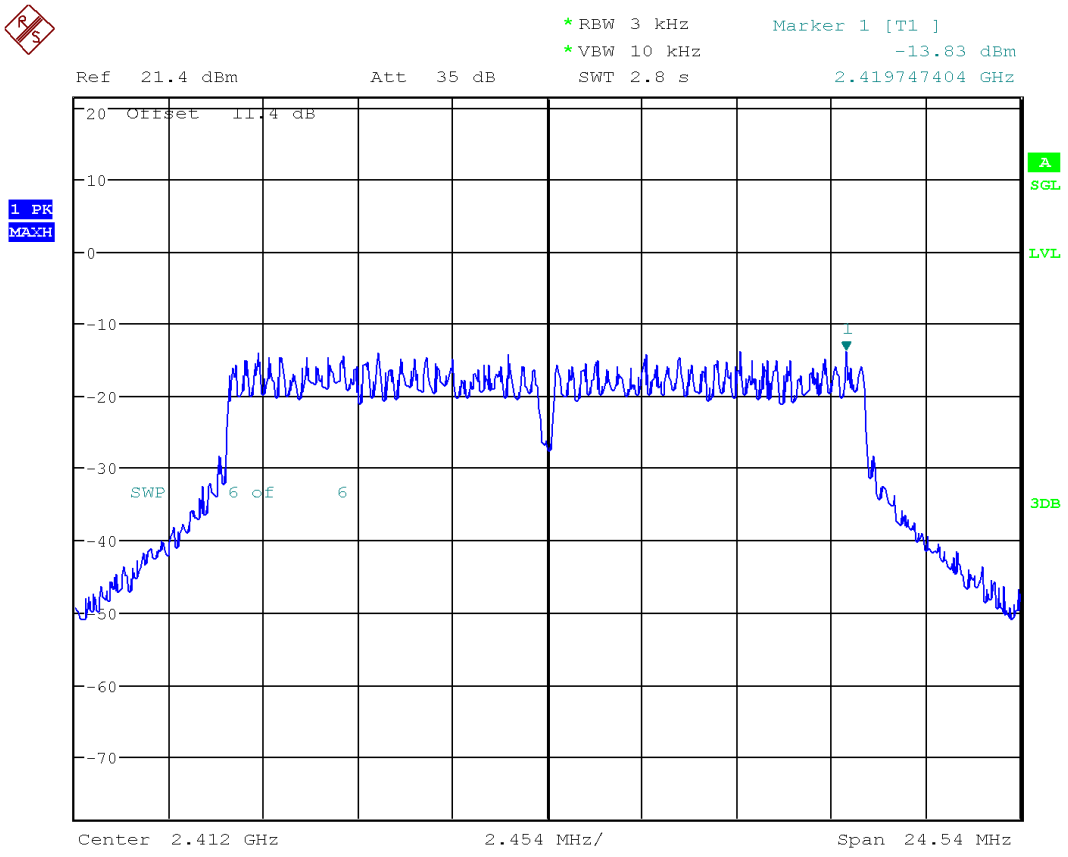

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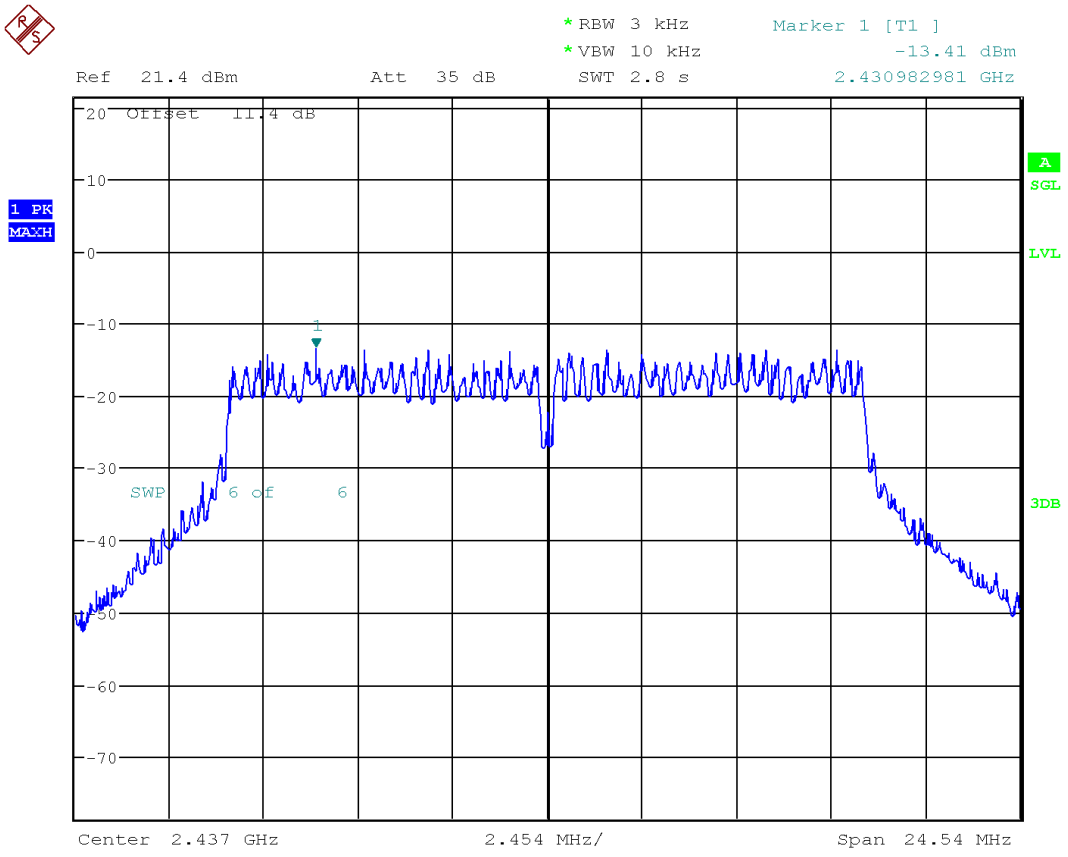
11G 6Mbps CH1 2412MHz



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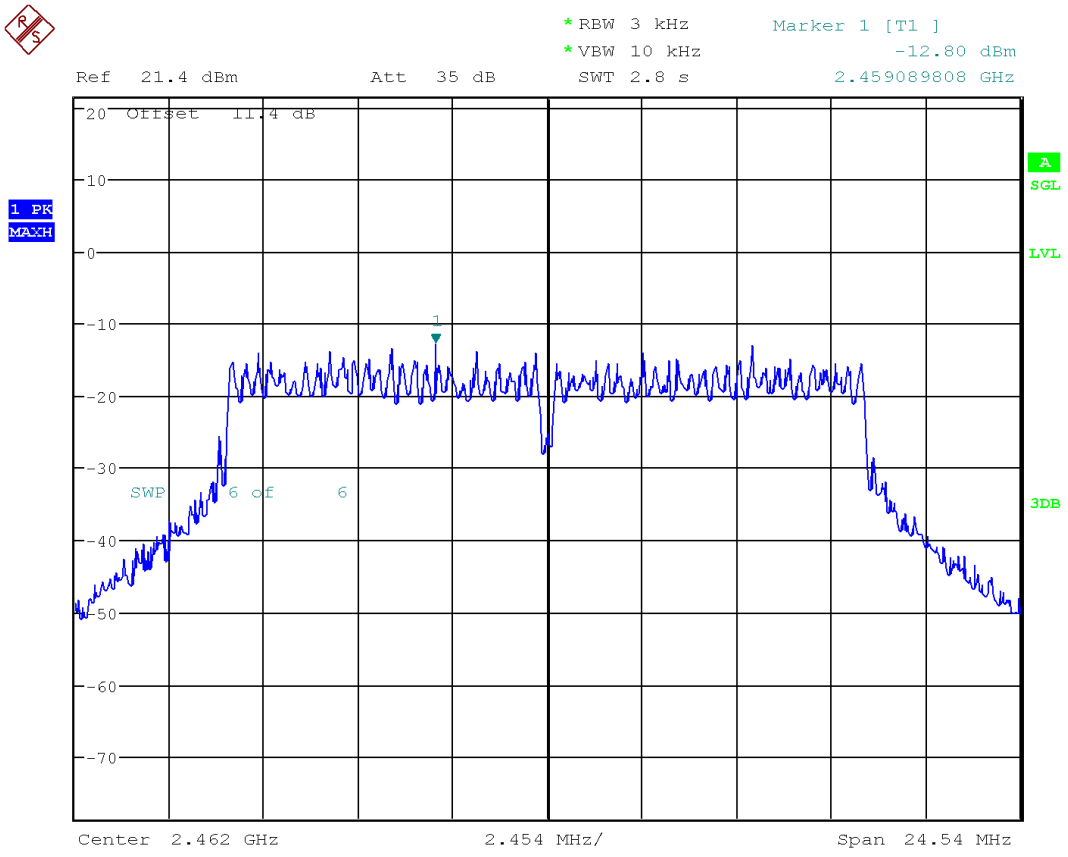

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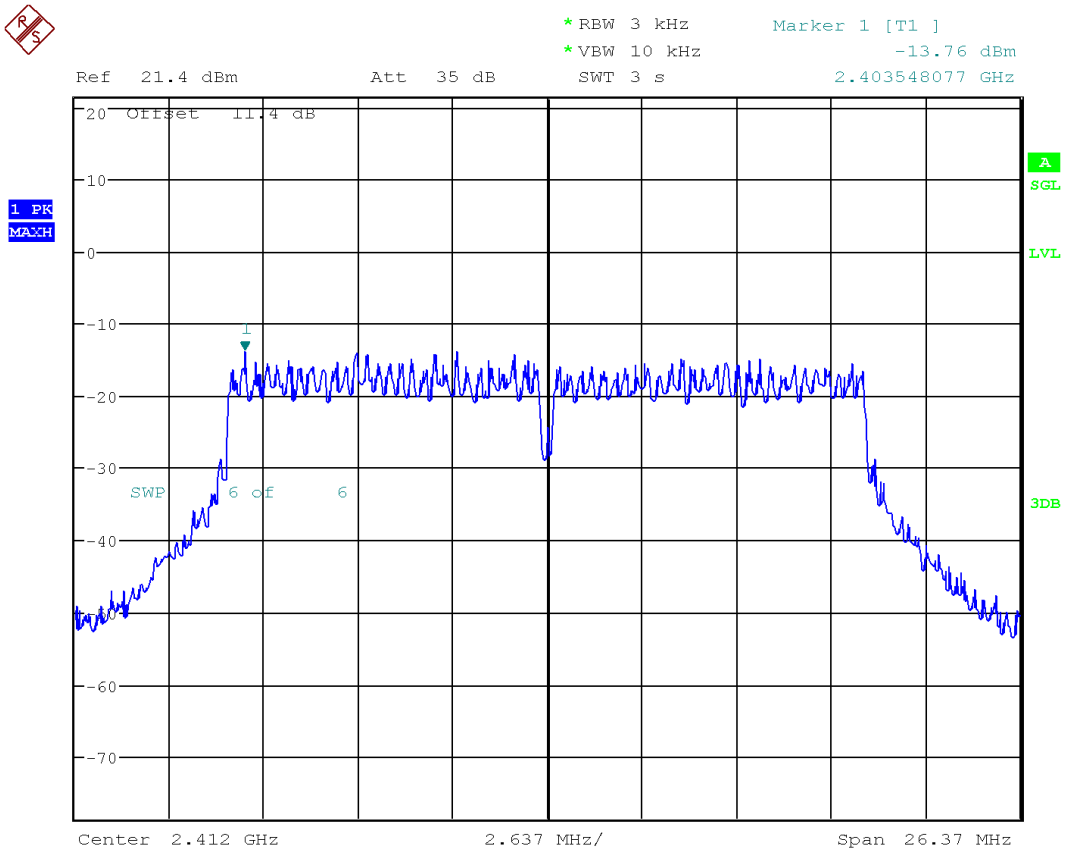
11G 6Mbps CH11 2462MHz



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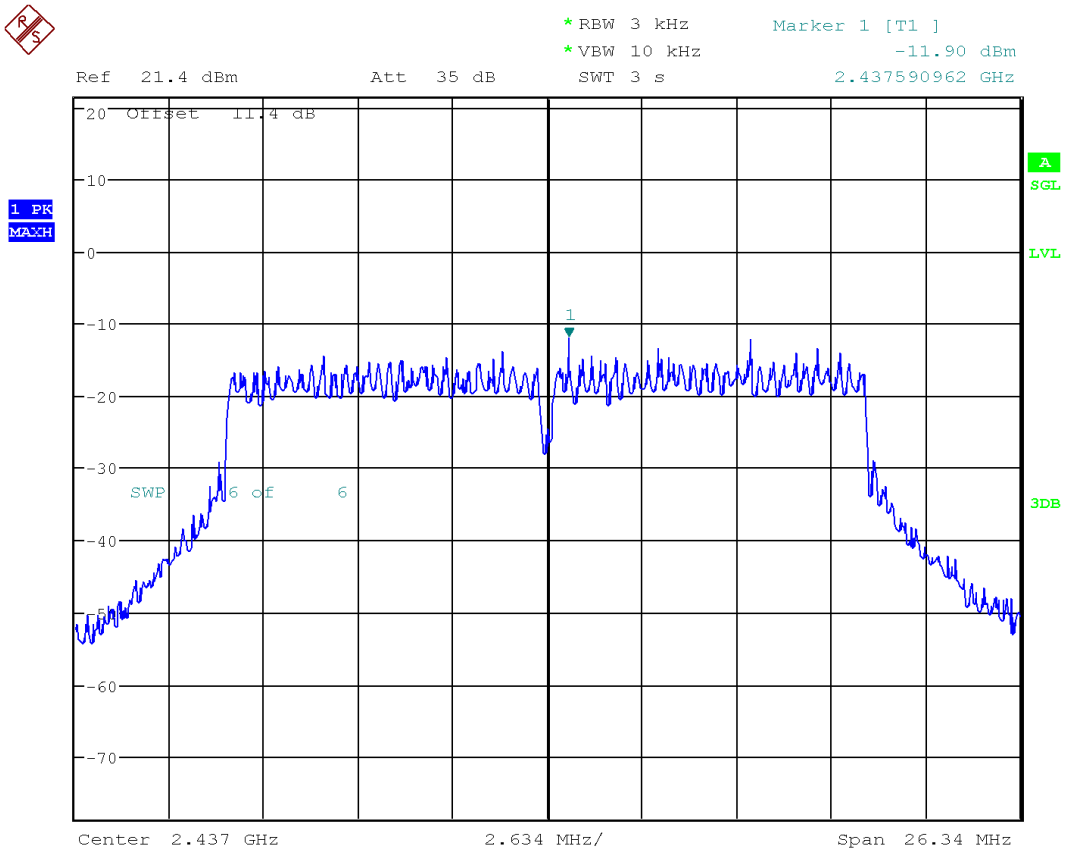
11N 2.4G HT20 MCS0 CH1 2412MHz



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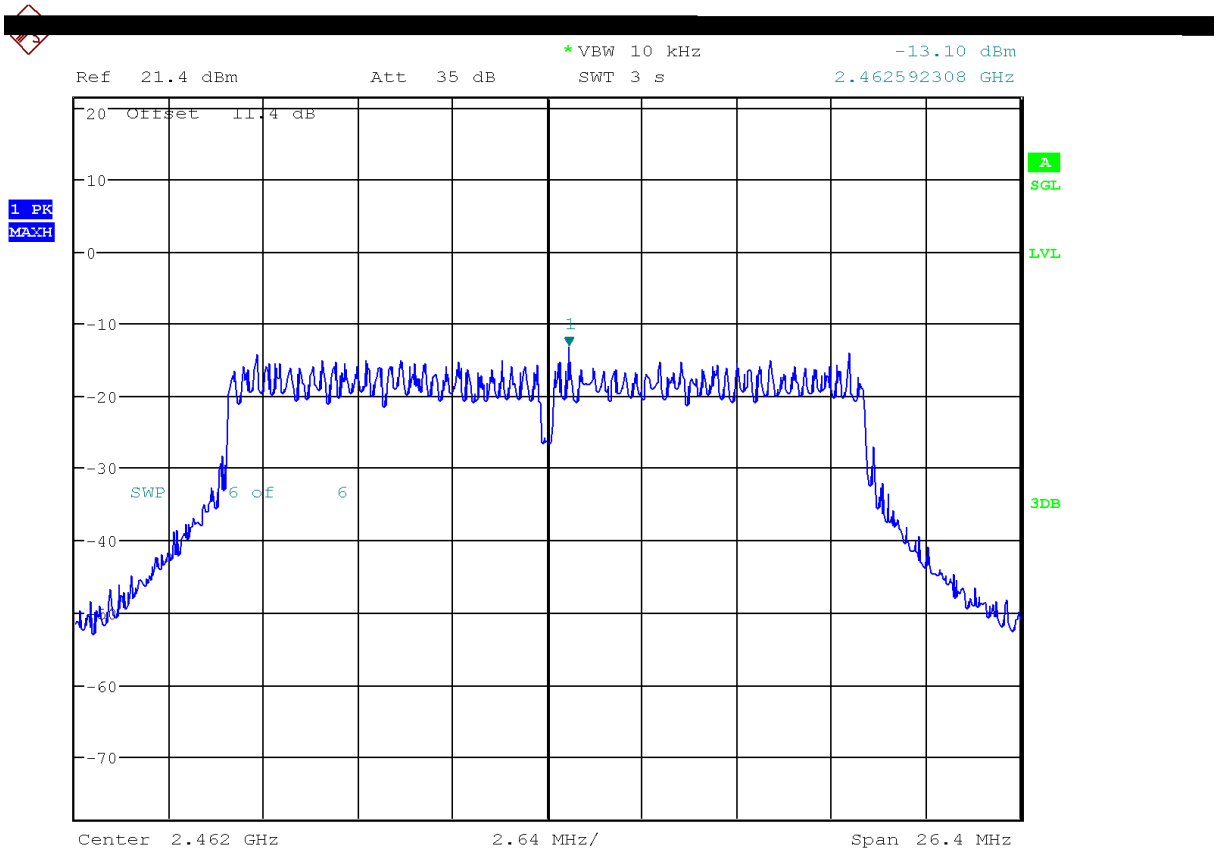
11N 2.4G HT20 MCS0 CH6 2437MHz



Date: 17.MAR.6302 18:25:03

11N 2.4G HT20 MCS0 CH11 2462MHz

5.4 CONDUCTED BAND EDGES AND SPURIOUS EMISSION

5.4.1 Description

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30 dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

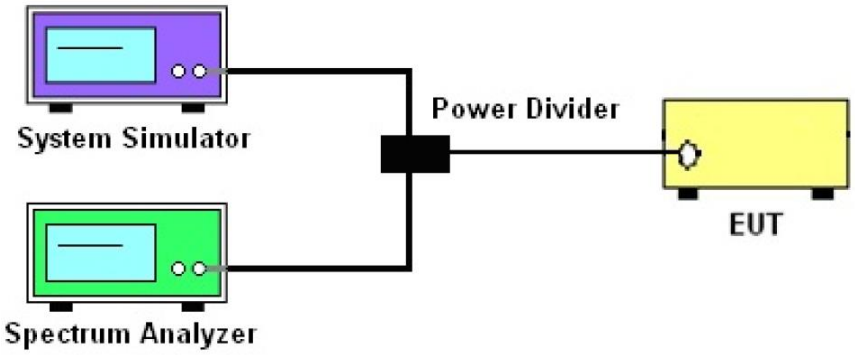
5.4.2 Test Instruments

The measuring equipment is listed in the section 4.1 of this test report.

5.4.3 Test Procedure

d. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
e. Set to the maximum power setting and enable the EUT transmit continuously.
f. Set RBW = 100 kHz, VBW = 300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
g. Measure and record the results in the test report.
h. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

5.4.4 Test Setup



5.4.5 Test Result

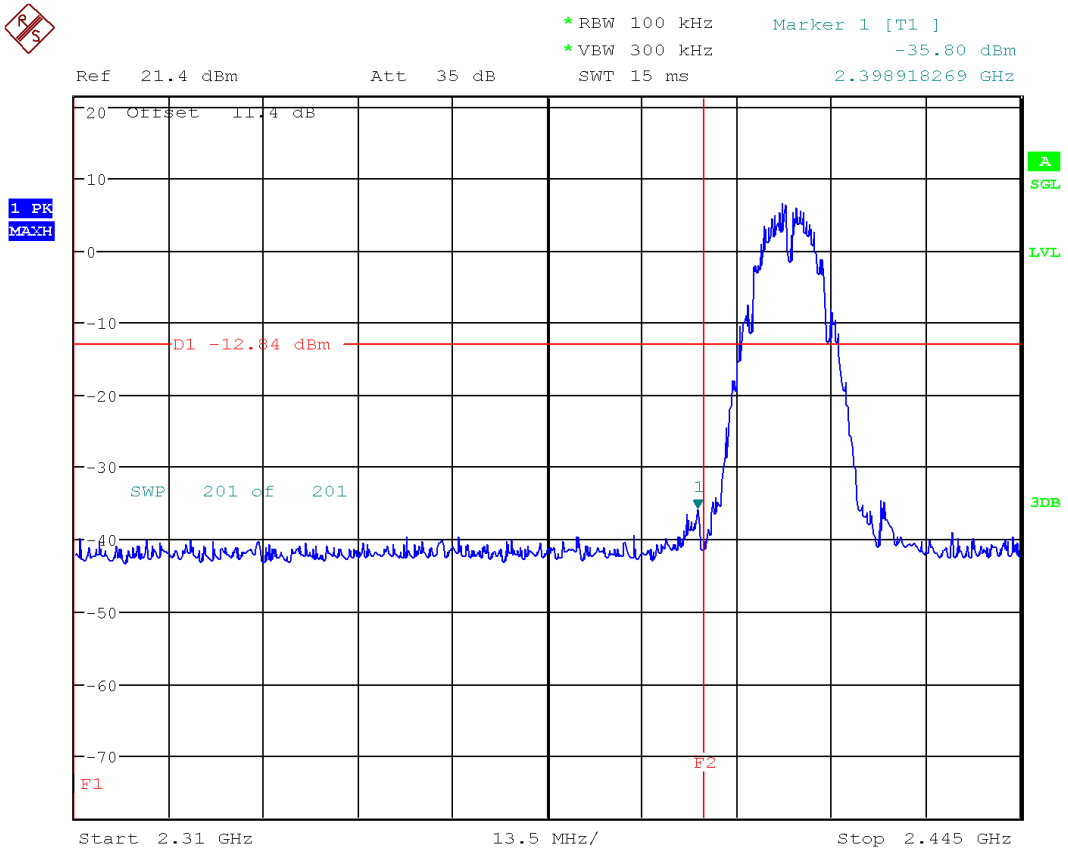
Band Edge Value:

Mode	Channel	Frequency (MHz)	100KHz PSD Reference level(dB)	Band Edge Value(dB)	Limit(100KHz PSD Reference level-20)dB	P/F
11B	1	2412	7.16	-35.8	-12.84	PASS
11B	11	2462	6.84	-38.69	-13.16	PASS
11G	1	2412	0.83	-32.66	-19.17	PASS
11G	11	2462	0.68	-38.91	-19.32	PASS
11N 2.4G HT20	1	2412	0.88	-32.3	-19.12	PASS
11N 2.4G HT20	11	2462	0.62	-39.12	-19.38	PASS

Spurious Emission:

Mode	Channel	Frequency (MHz)	100KHz PSD Reference level(dB)	Spurious Emission (Low Frequency)	Spurious Emission (High Frequency)	Limit (dB) (100KHz PSD Reference level-20)	P/F
11B	1	2412	7.16	-39.26	-32.66	-12.84	PASS
11B	6	2437	7.70	-39.99	-32.02	-12.30	PASS
11B	11	2462	6.84	-38.68	-31.57	-13.16	PASS
11G	1	2412	0.83	-39.09	-32.75	-19.17	PASS
11G	6	2437	0.95	-39.98	-32.45	-19.05	PASS
11G	11	2462	0.68	-41.25	-33.35	-19.32	PASS
11N 2.4G HT20	1	2412	0.88	-41.58	-33.38	-19.12	PASS
11N 2.4G HT20	6	2437	0.96	-39.44	-32.27	-19.04	PASS
11N 2.4G HT20	11	2462	0.62	-38.74	-32.02	-19.38	PASS

Band Edge Value:



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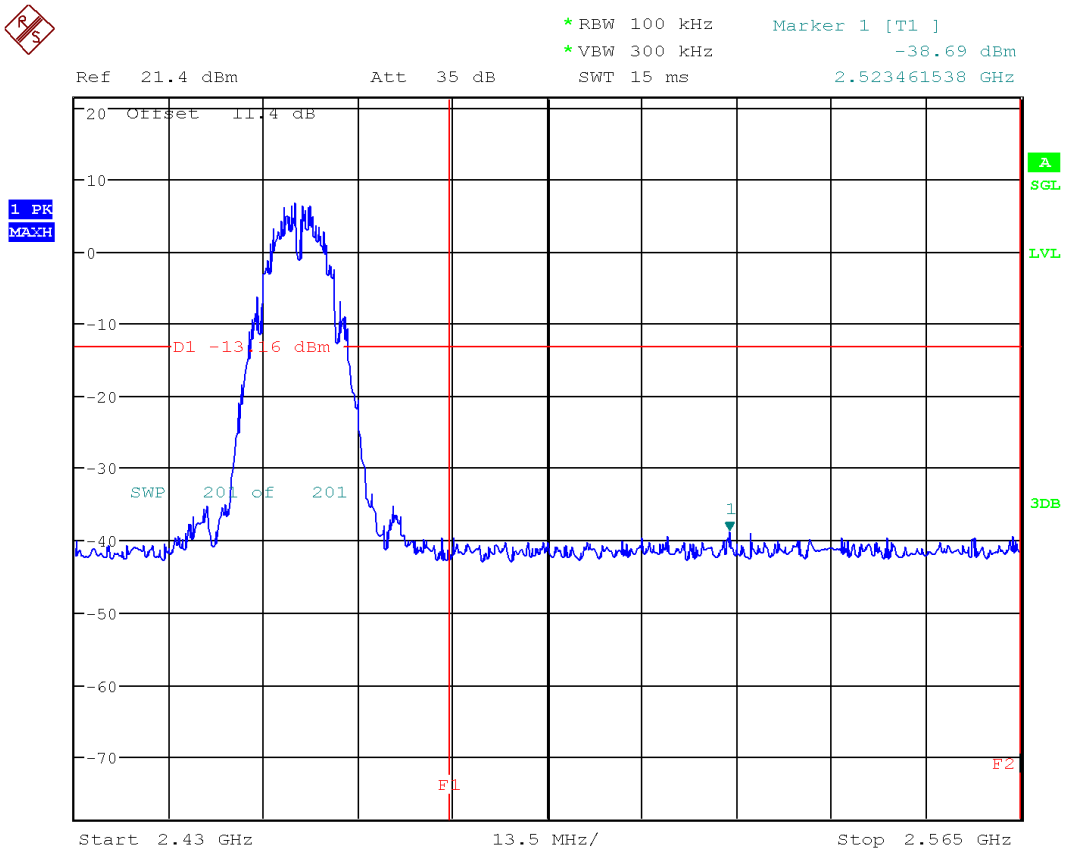
11B CH1 2412MHz



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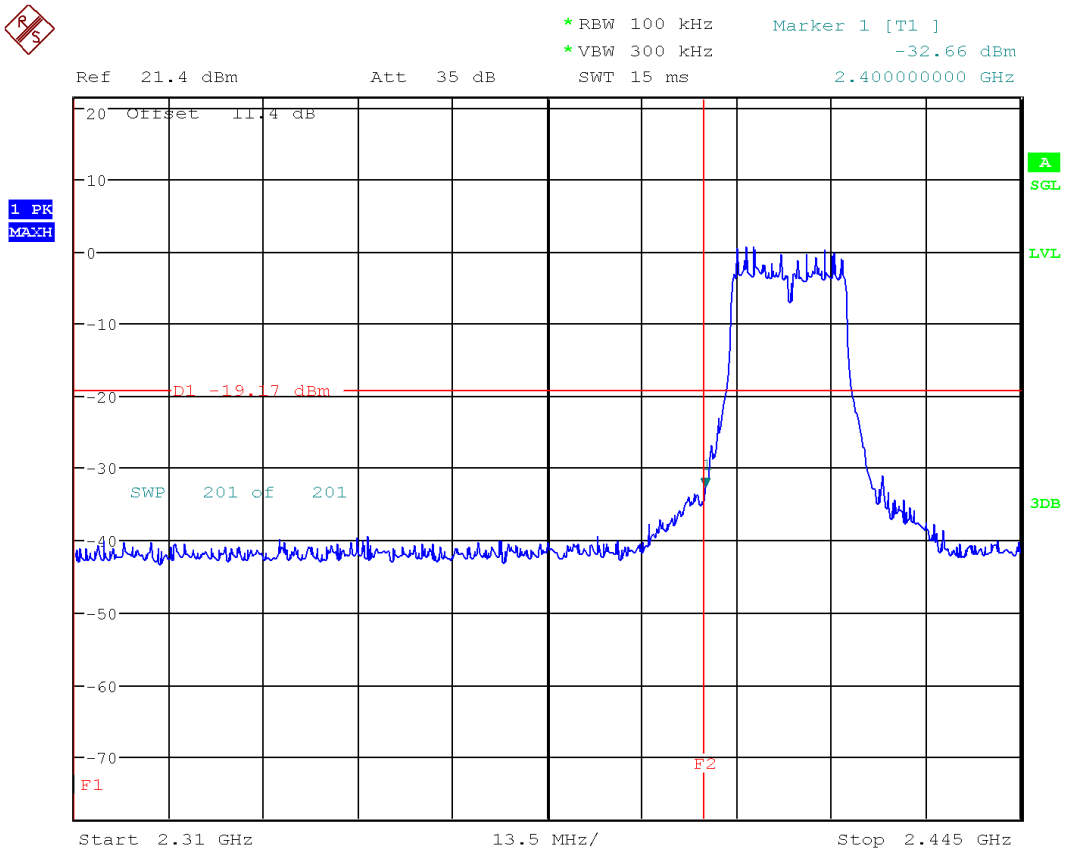
11B CH11 2462MHz



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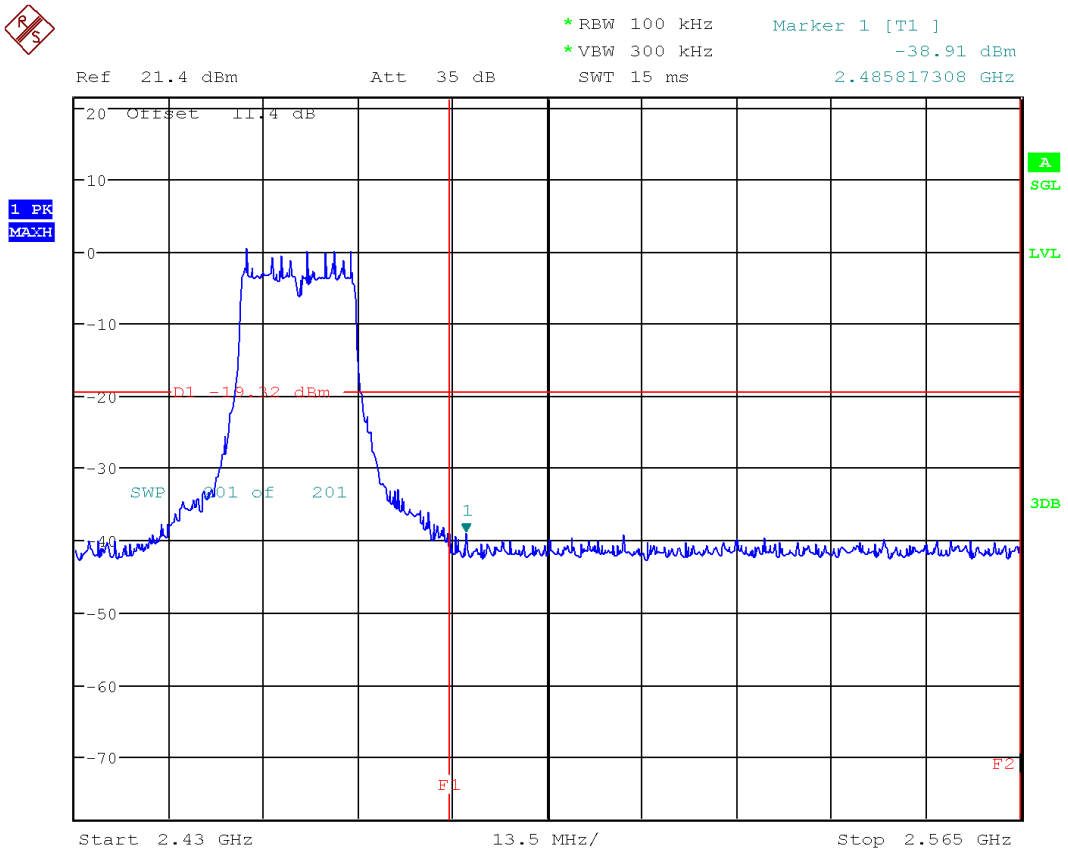
11G CH1 2412MHz



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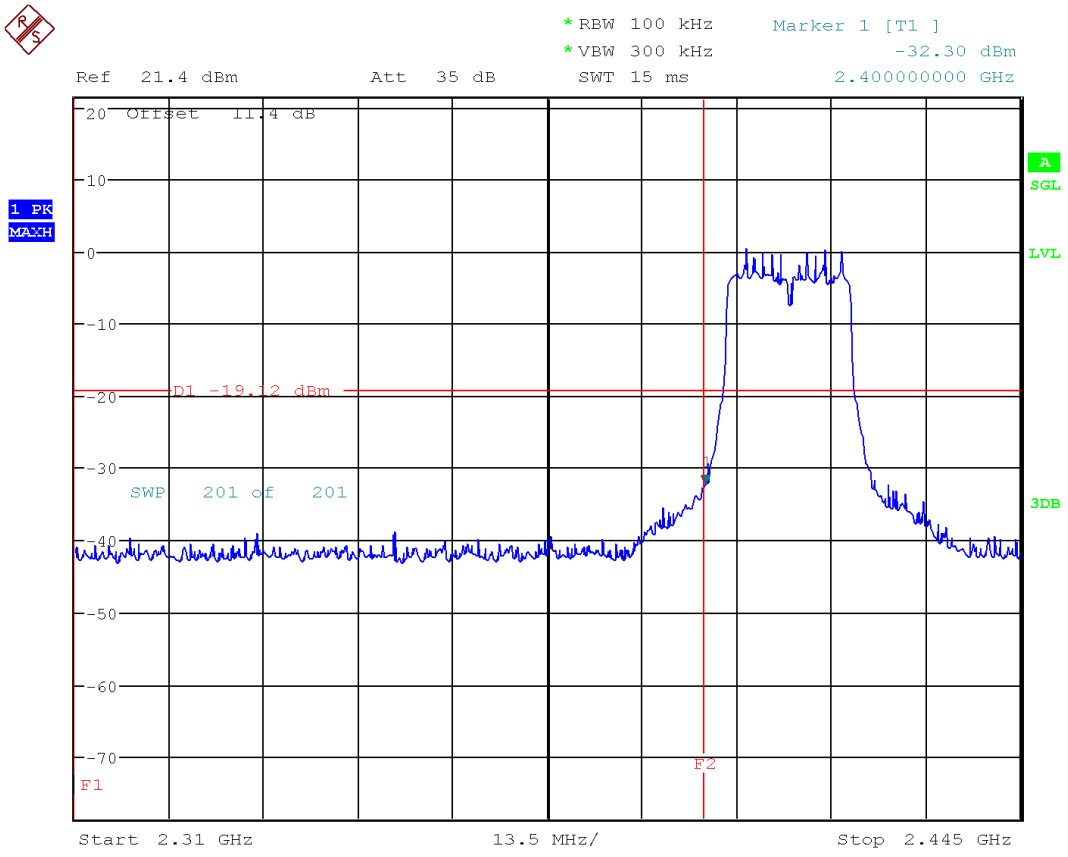
11G CH11 2462MHz



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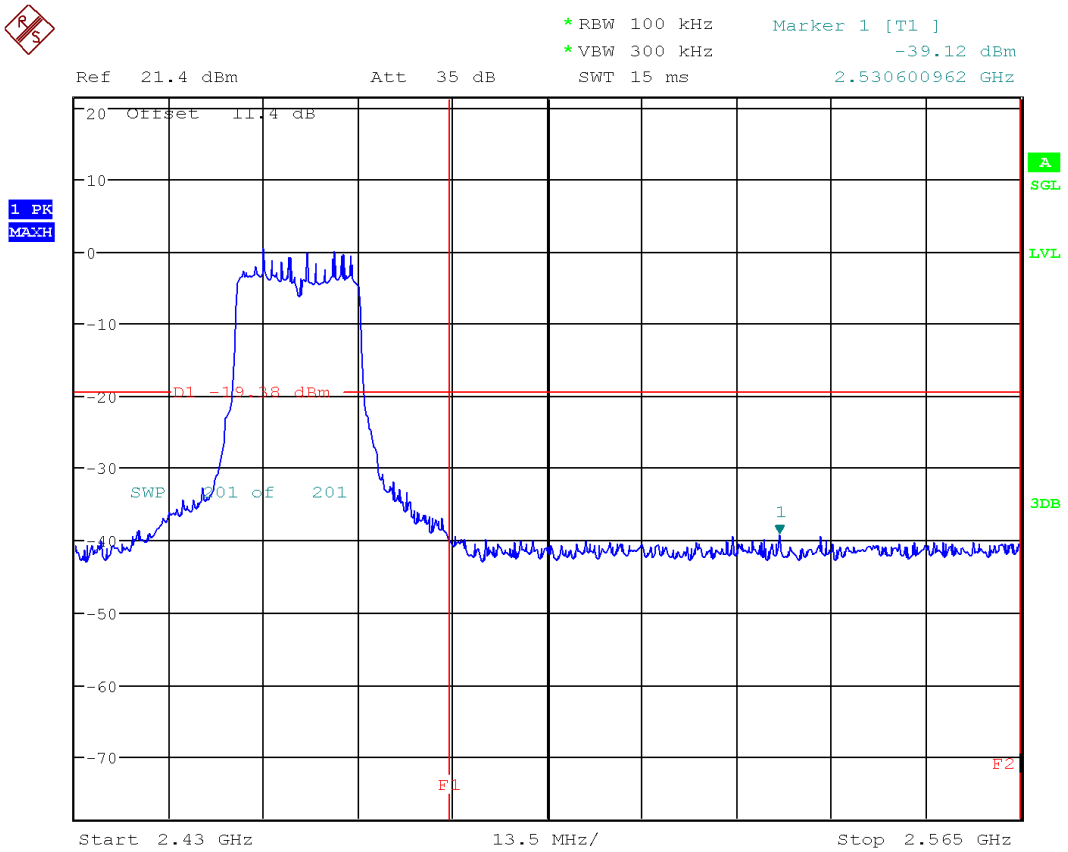
11N 2.4G HT20 CH1 2412MHz



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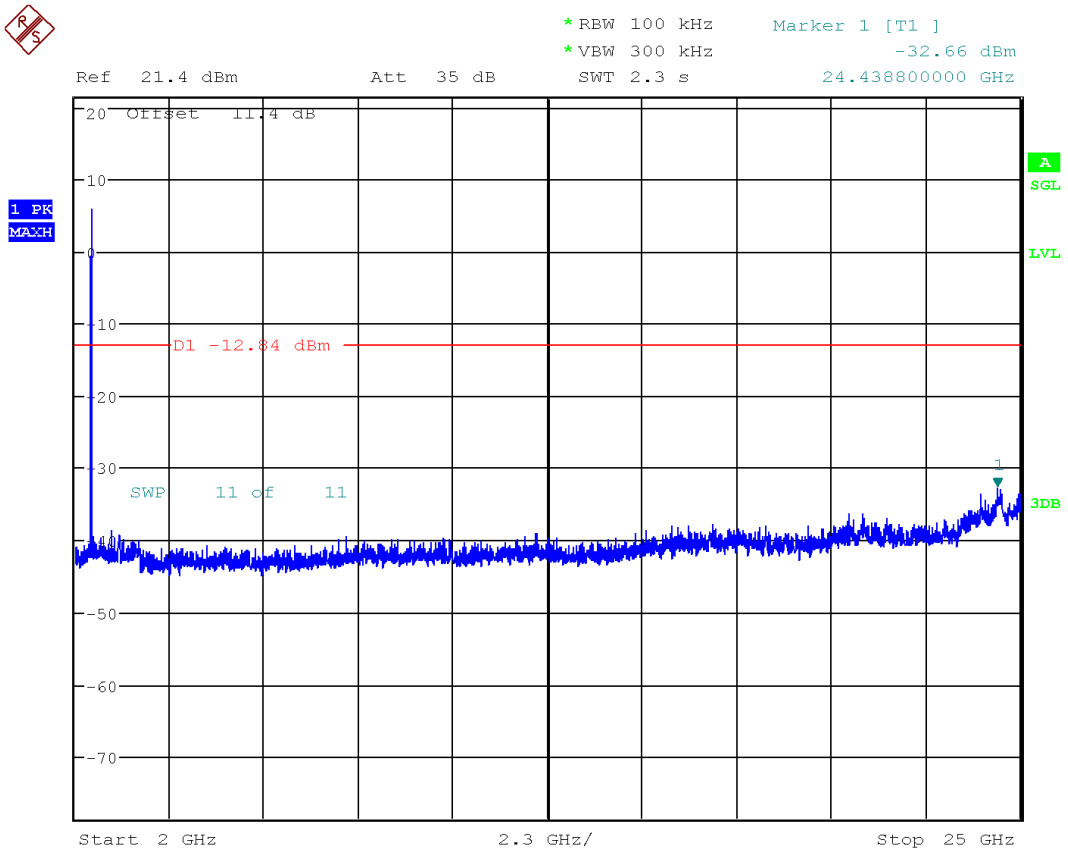
11N 2.4G HT20 CH11 2462MHz

Spurious Emission:



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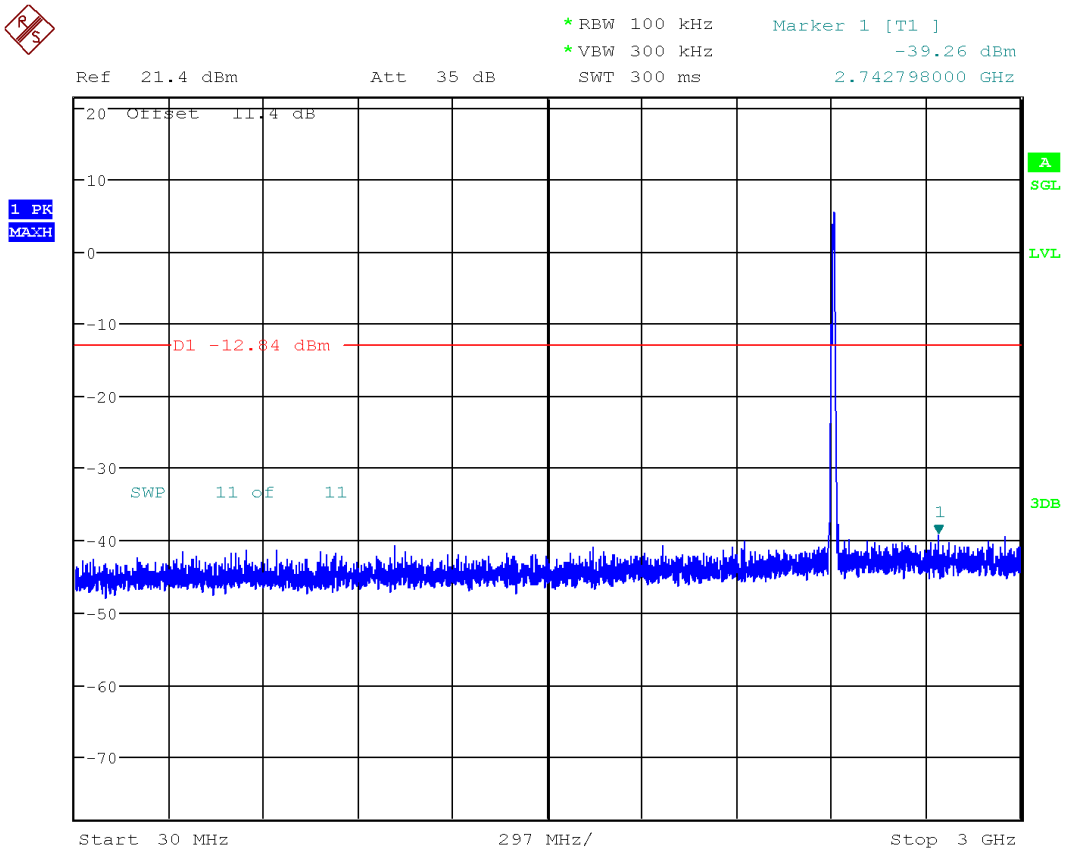
11B CH1 2412MHz(2GHz-25GHz)



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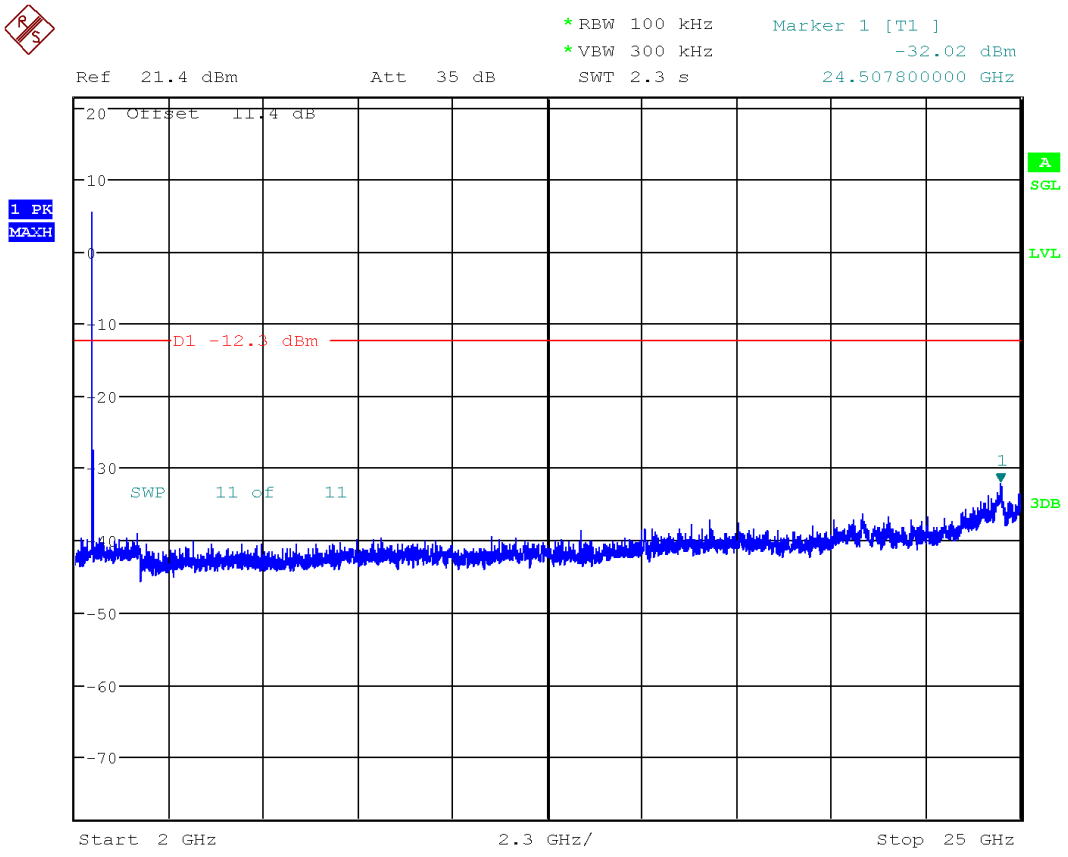
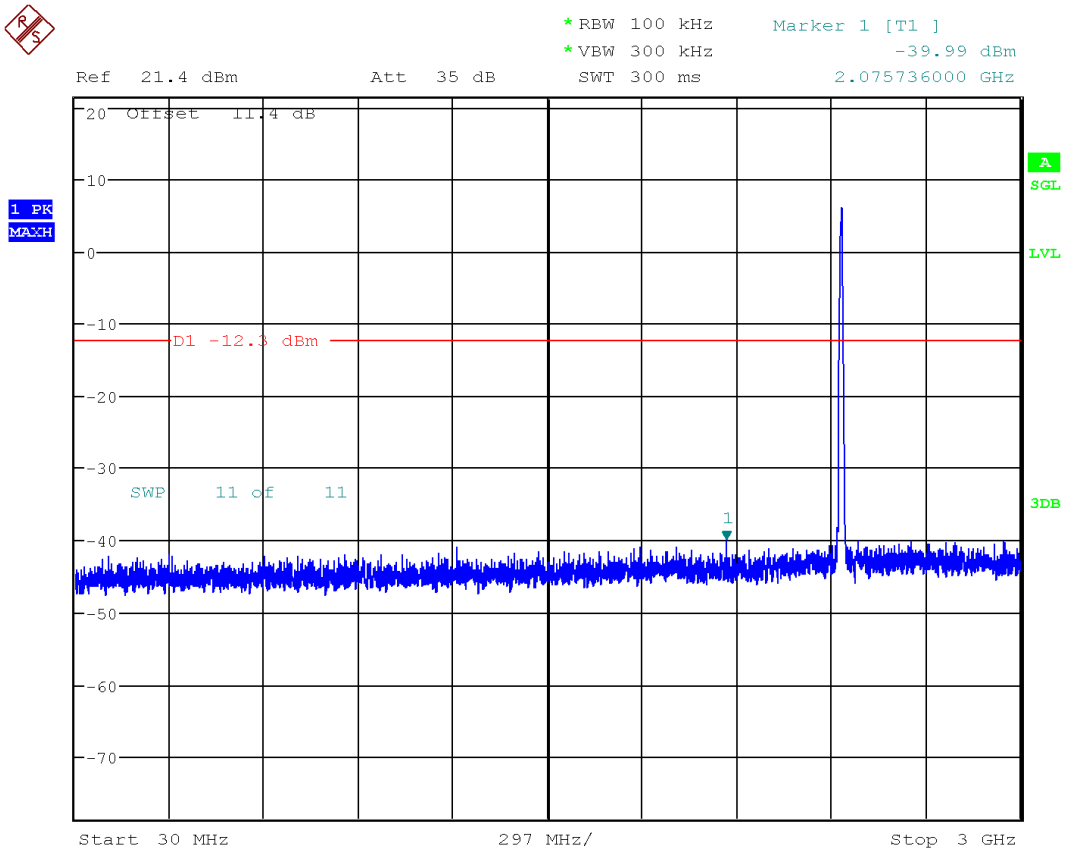
11B CH1 2412MHz(30MHz-3GHz)



Date: 17.MAR.6302 18:07:51

11B CH6 2437MHz(2GHz-25GHz)



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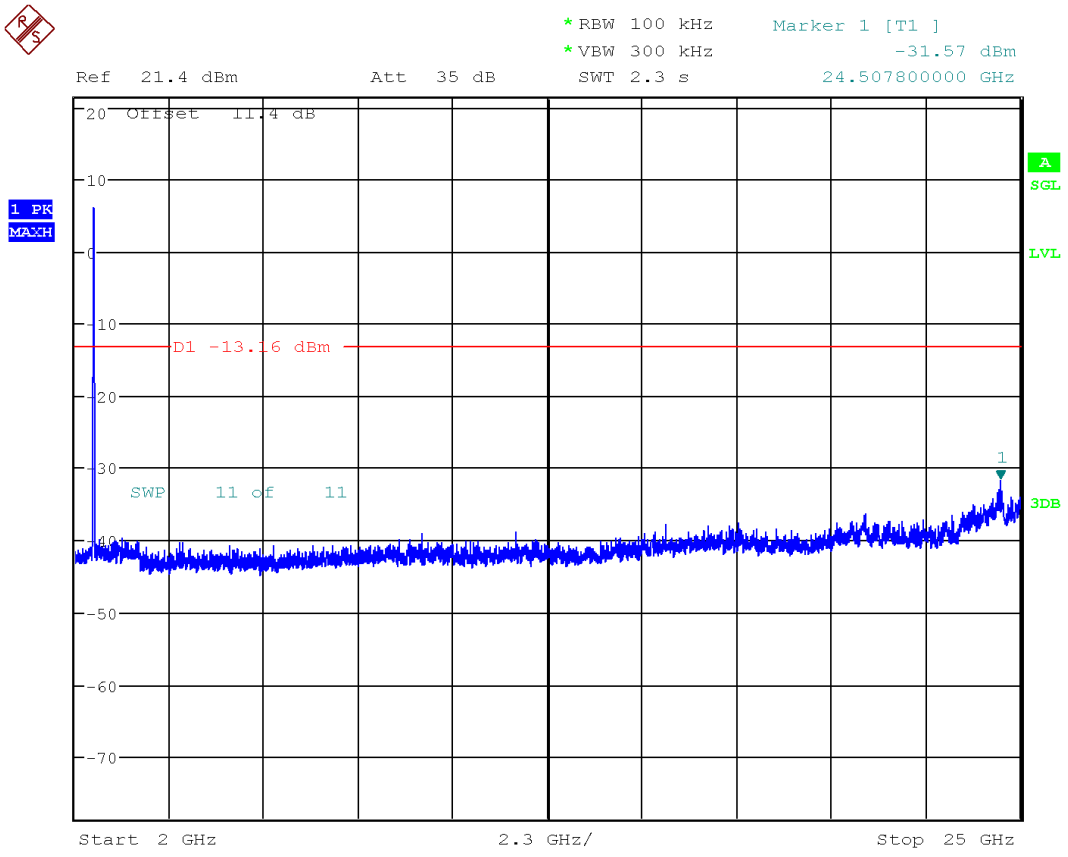
11B CH6 2437MHz(30MHz-3GHz)



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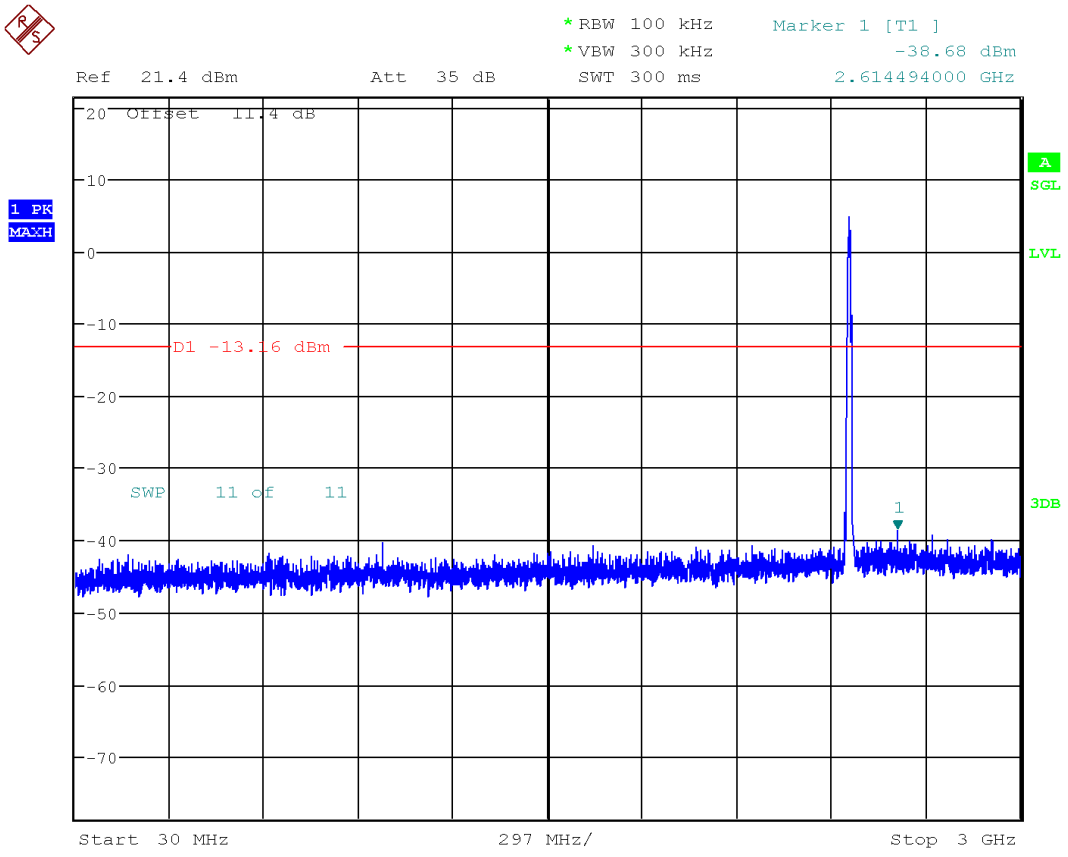
11B CH11 2462MHz(2GHz-25GHz)



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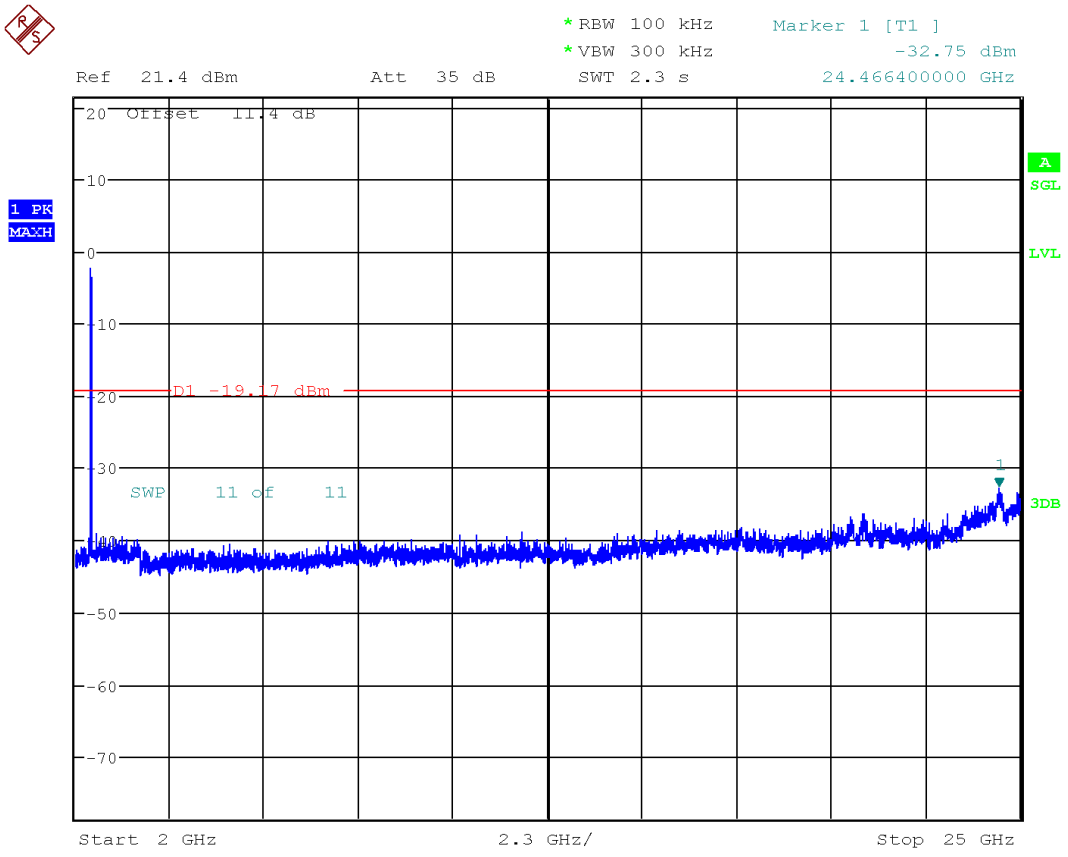
11B CH11 2462MHz(30MHz-3GHz)



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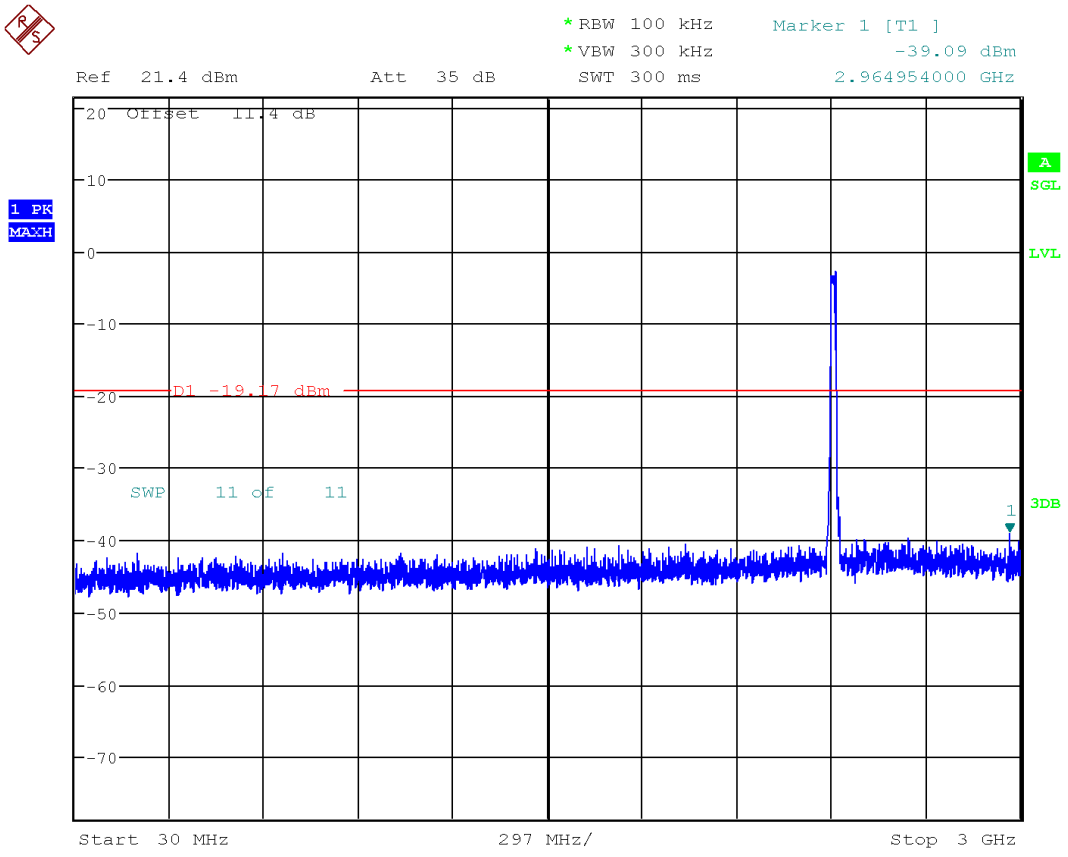
11G CH1 2412MHz(2GHz-25GHz)



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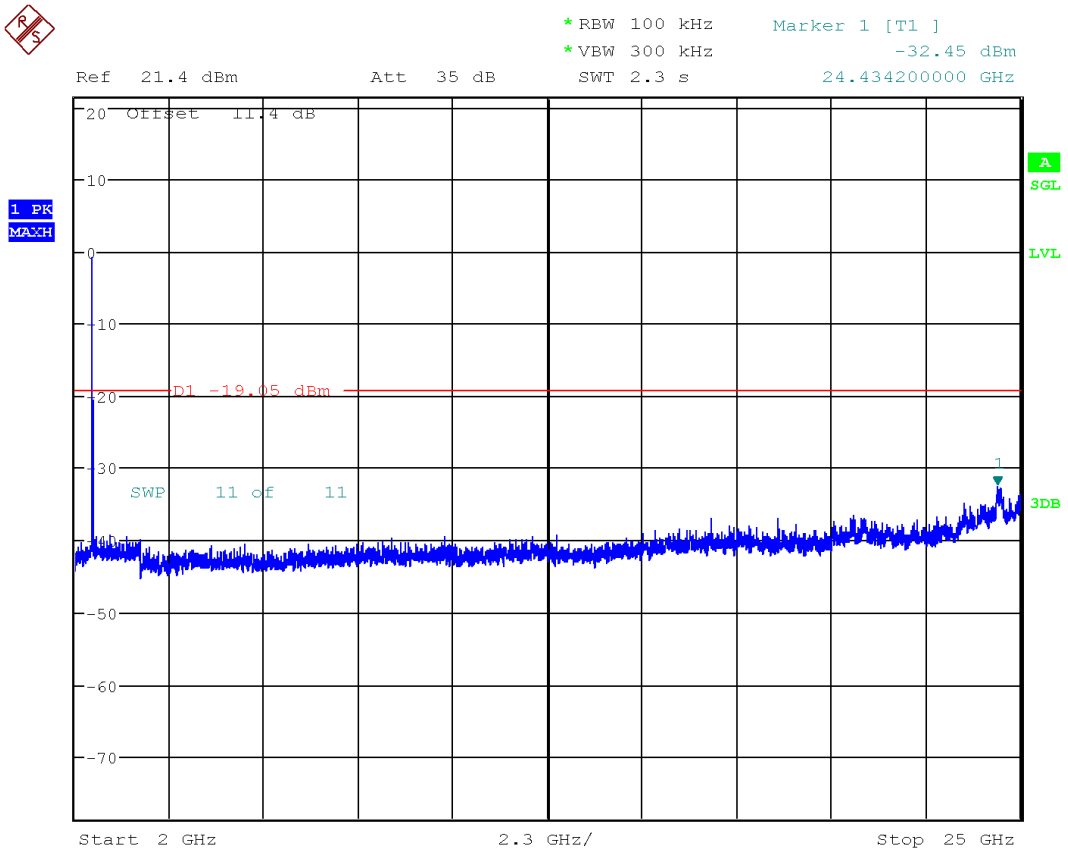
11G CH1 2412MHz(30MHz-3GHz)



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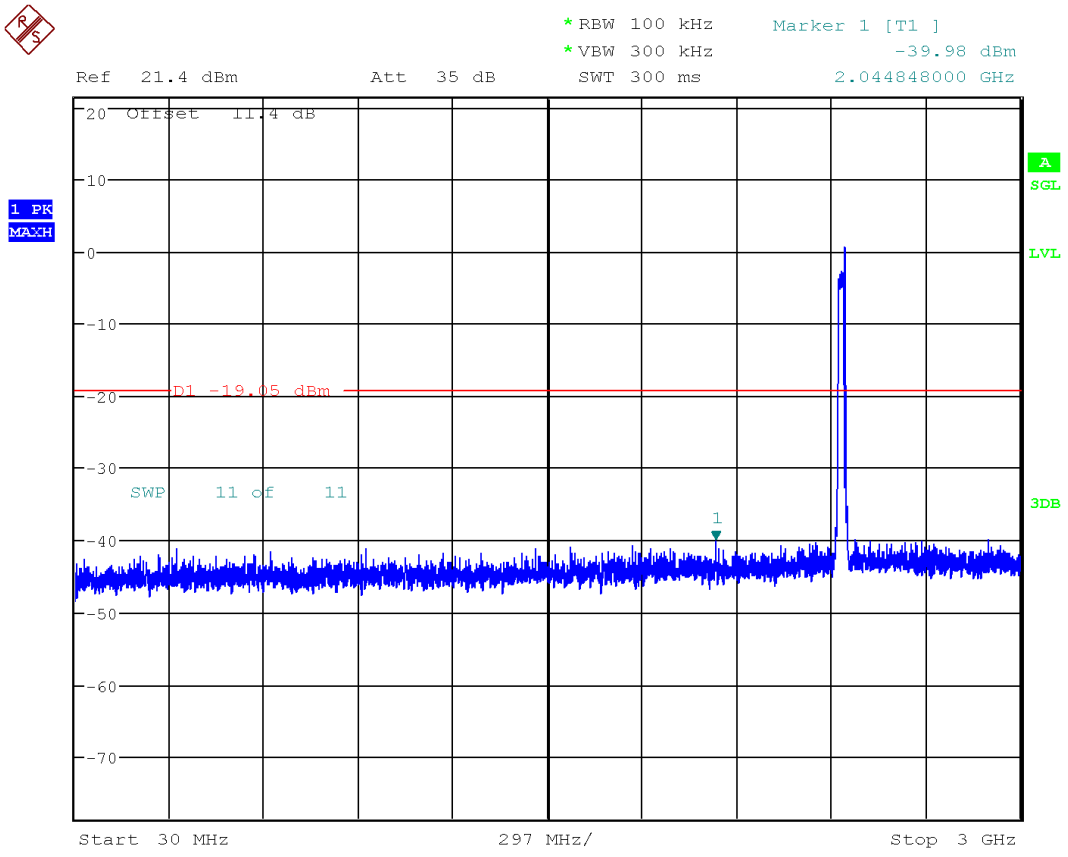
11G CH6 2437MHz(2GHz-25GHz)



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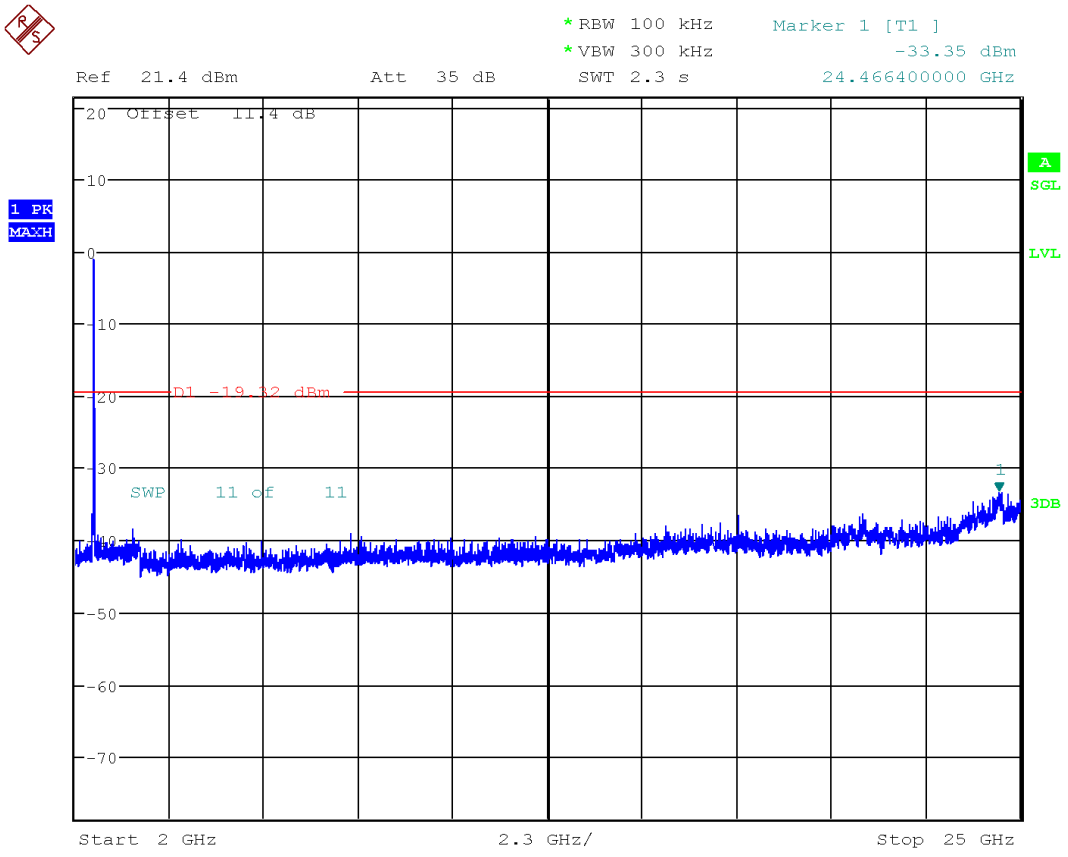
11G CH6 2437MHz(30MHz-3GHz)



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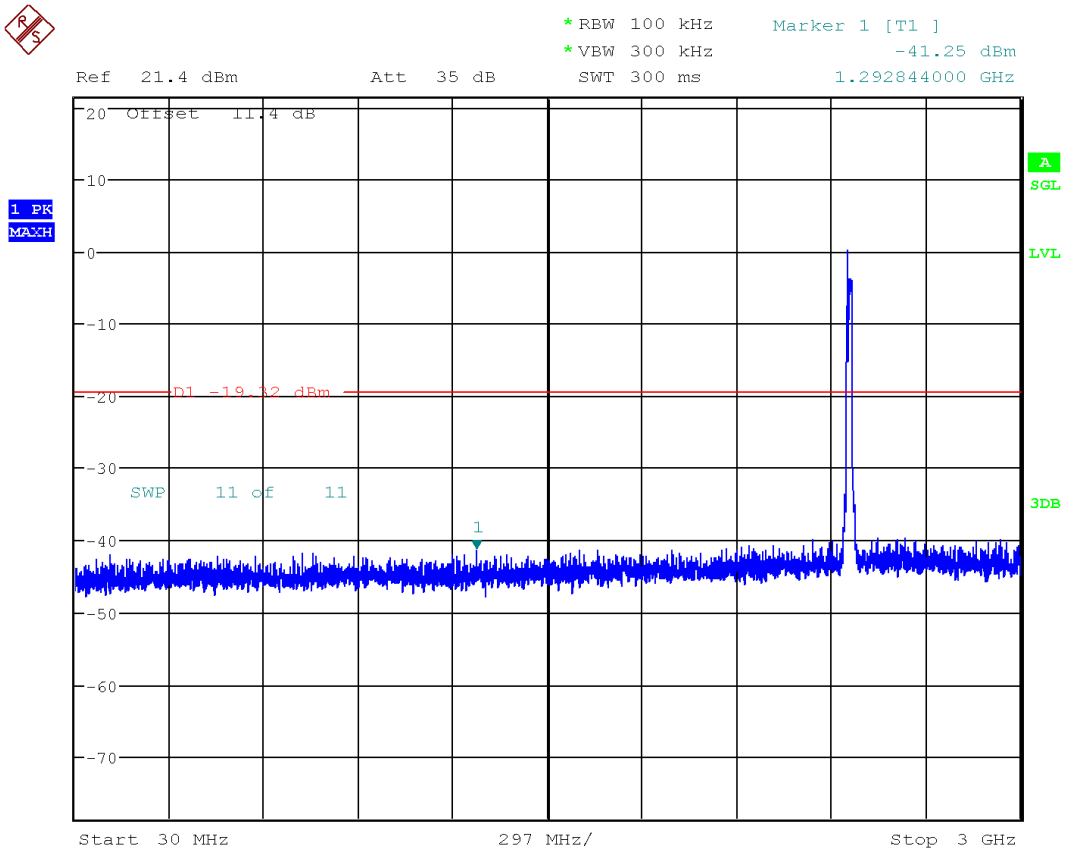
11G CH11 2462MHz(2GHz-25GHz)



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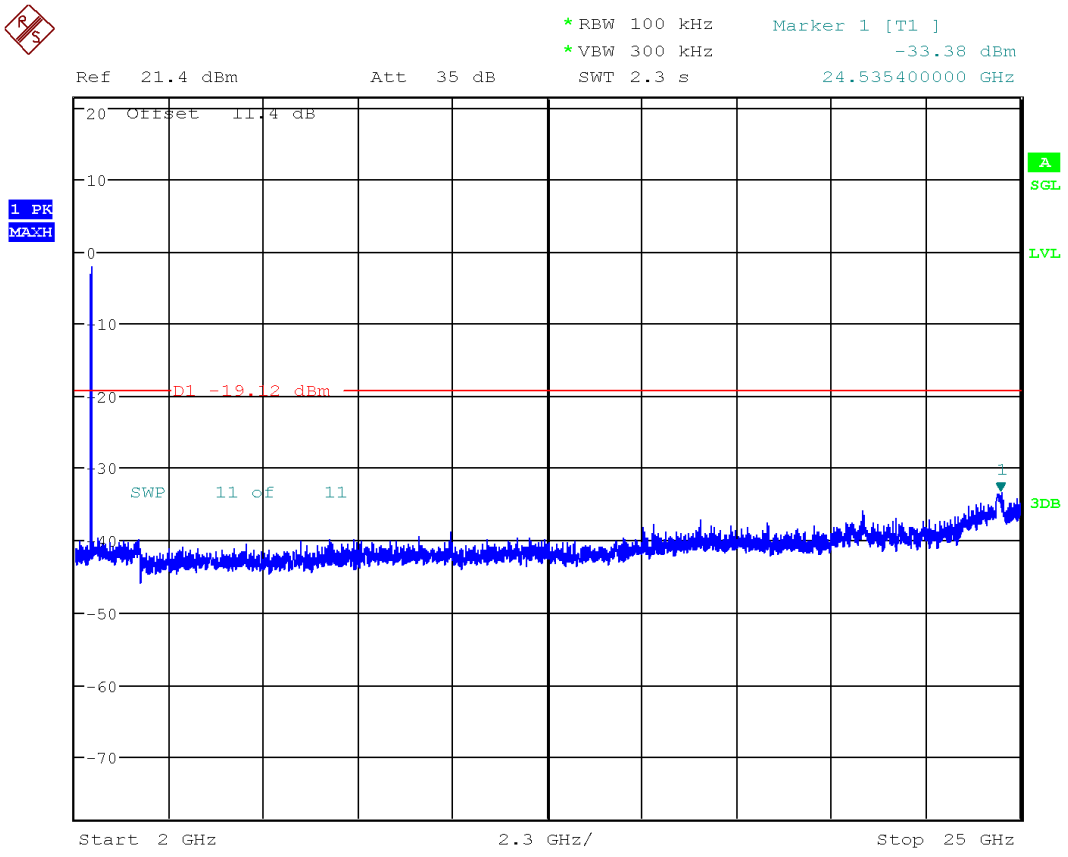
11G CH11 2462MHz(30MHz-3GHz)



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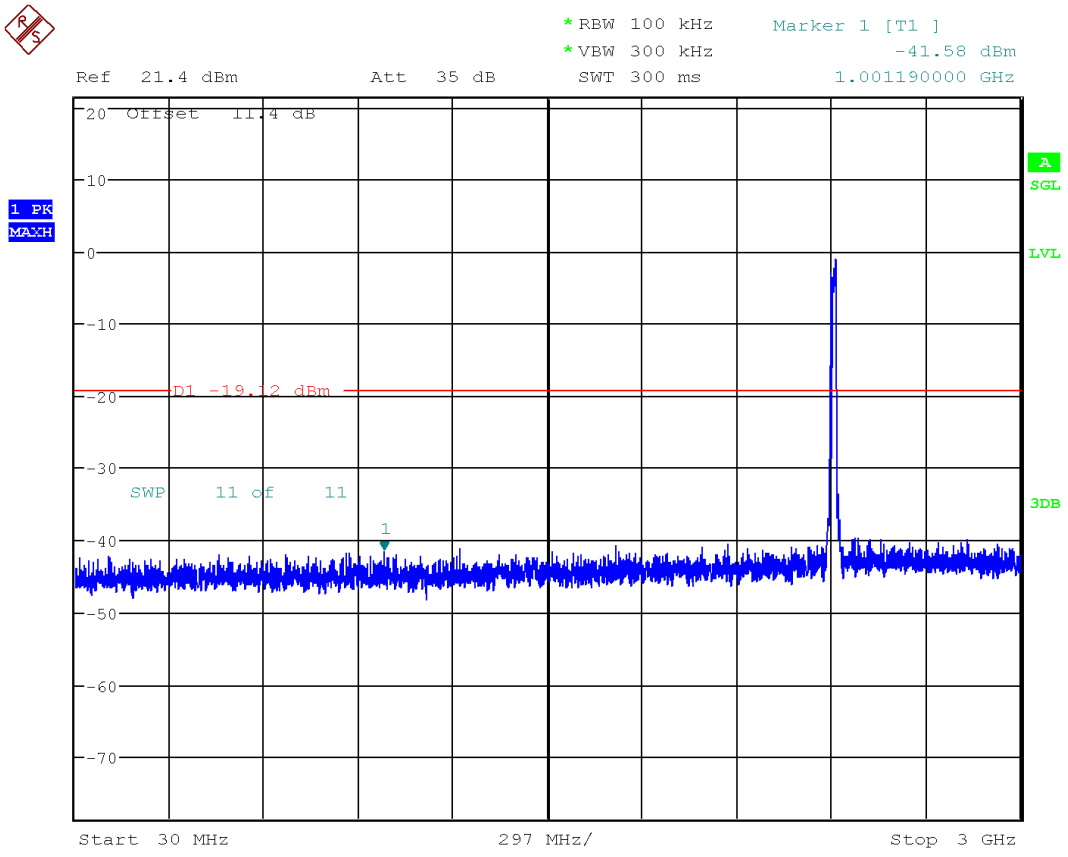
11N 2.4G HT20 CH1 2412MHz(2GHz-25GHz)



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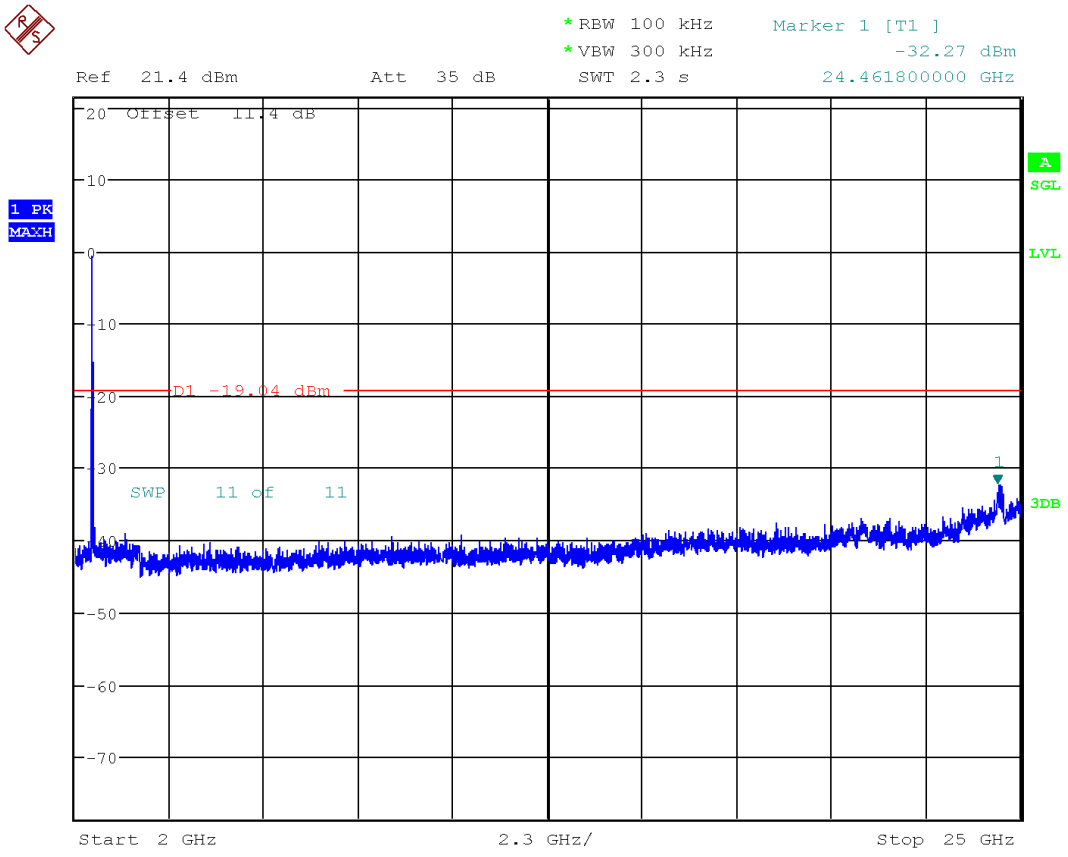
11N 2.4G HT20 CH1 2412MHz(30MHz-3GHz)



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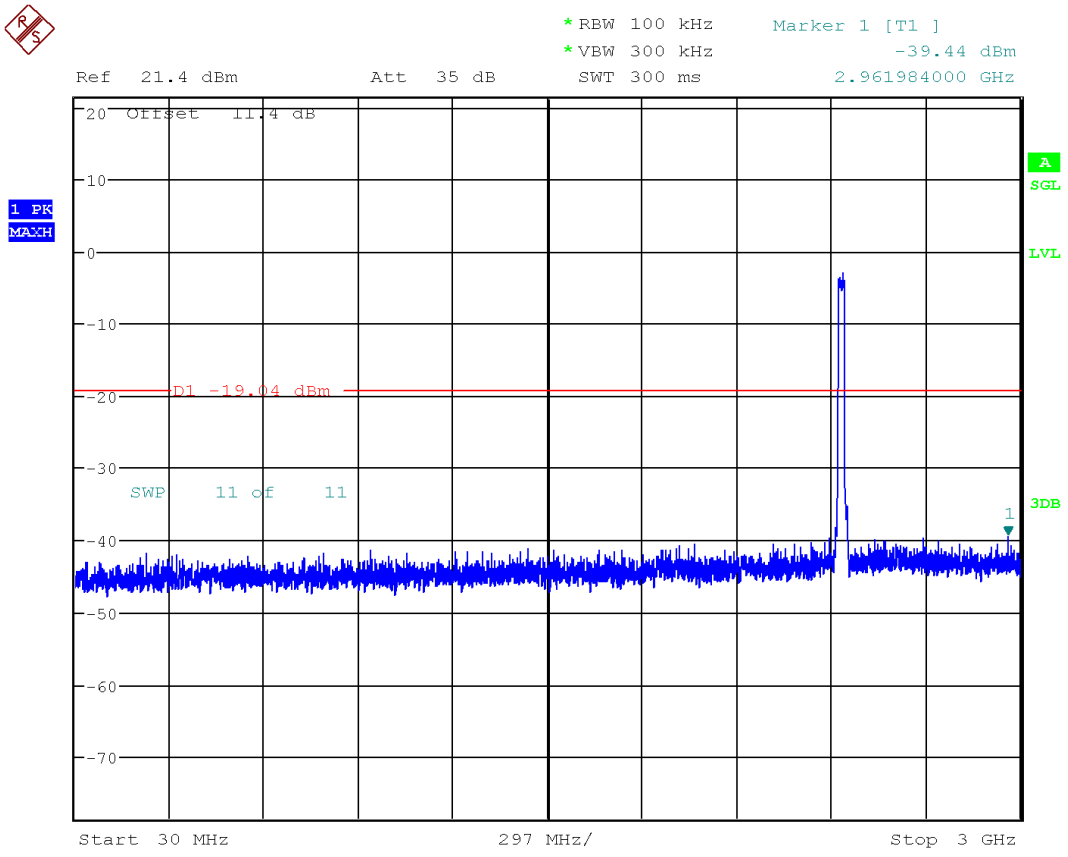
11N 2.4G HT20 CH6 2437MHz(2GHz-25GHz)



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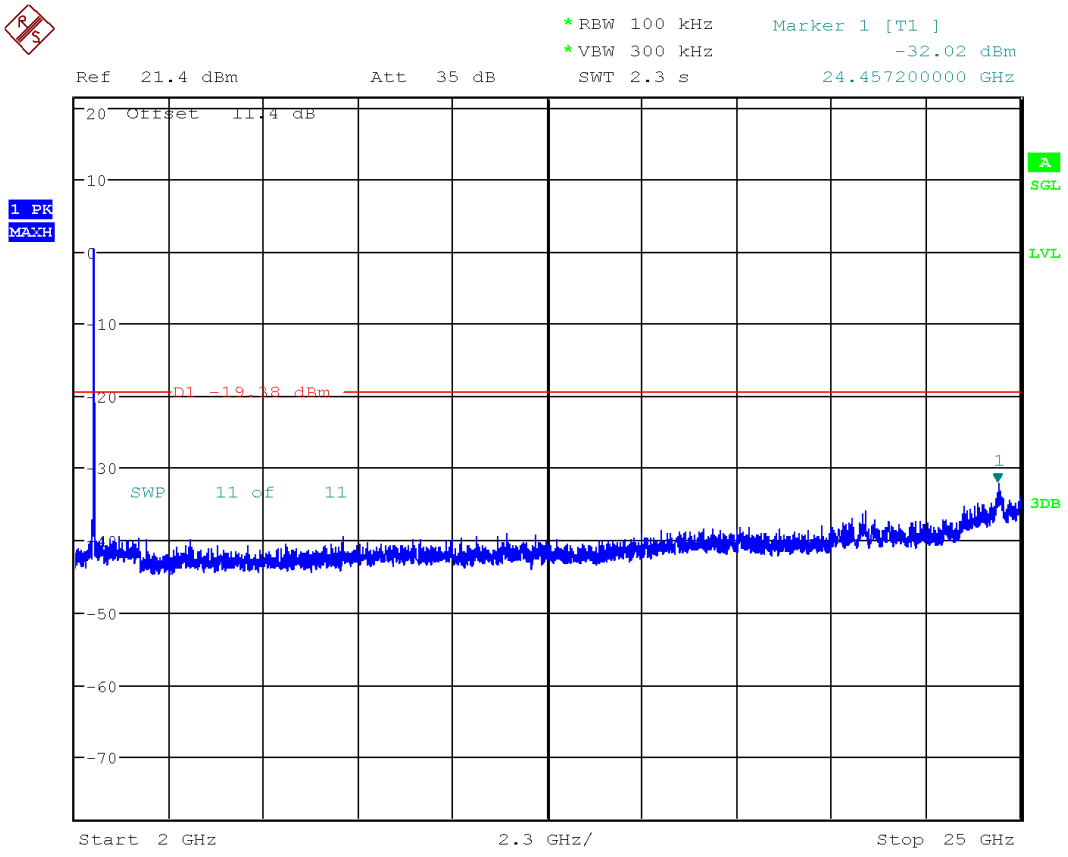
11N 2.4G HT20 CH6 2437MHz(30MHz-3GHz)



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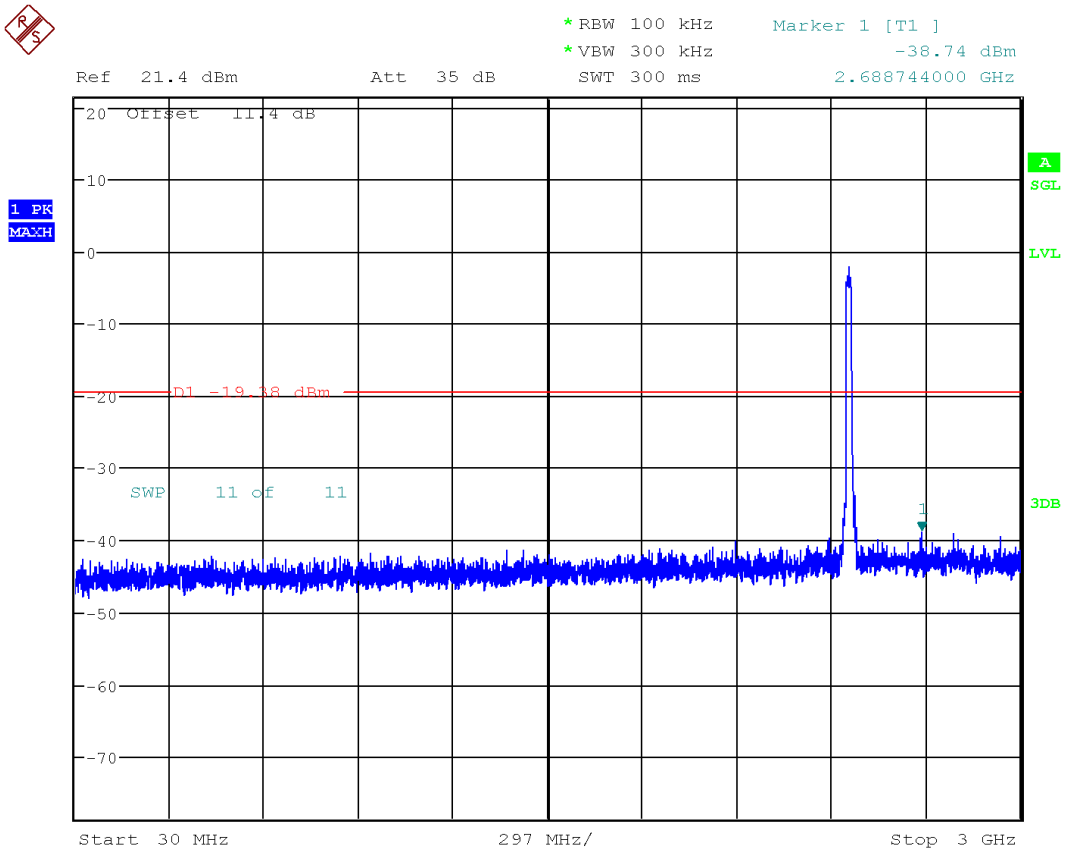
11N 2.4G HT20 CH11 2462MHz(2GHz-25GHz)



Date: 17.MAR.6302 18:25:29

11N 2.4G HT20 CH11 2462MHz(30MHz-3GHz)

6 SAMPLE PICTURE

Refer to the EUT and Test setup Potographs.

7 APPENDIX - INFORMATION ON THE TESTING LABORATORIES

We, BYD Precise Manufacture Co., Ltd., were founded in 2007 to provide our best service in RF, Radio consultation. Our laboratories are accredited by the following accreditation bodies according to ISO/IEC 17025 (2005) .

USA	A2LA Certificate No.: 4886.01

Copies of accreditation certificates could be inquired from our office. If you have any comments, please feel free to contact us at the following:

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Fax: +86-755 8964 3771
Email: BYDERITest@byd.com

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