FCC PART 15.407

TEST REPORT

For

ZIONCOM ELECTRONICS (SHENZHEN) LTD.

Building A1-A2, Lantian Science and Technology Park, Xinyu Road,Xinqiao Henggang Block
Shajing Street, Baoan District, Shenzhen, Guangdong, China

FCC ID: X7DWX009

Report Type:	**Product Name:**
Original Report	AC1200 Dual Band Wi-Fi Range Extender

Report Number:	RDG170930001-00C
Report Date:	2017-11-06
Reviewed By:	Jerry Zhang EMC Manager
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The ***ZIONCOM ELECTRONICS (SHENZHEN) LTD.***'s product, model number: ***EX1200M (FCC ID: X7DWX009)*** (the "EUT") in this report was a ***AC1200 Dual Band Wi-Fi Range Extender,*** which was measured approximately: 11.7cm(L)*6.6cm(W)*4.8cm(H) without antenna, 11.7cm(L)*6.6cm(W)*22.1cm(H) with Antenna, rated power: AC 100V~240V / 50~60Hz 0.1A.

Note:The EUT have two type of antenna, the two type of antenna is only appearance difference. The series product, model EX1200M , WX009 are electrically identical, the difference between them is model name, we selected EX1200M for testing, the detail was explained in the attached declaration letter.

**All measurement and test data in this report was gathered from production sample serial number: 170930001 (Assigned by BACL,Dongguan). The EUT was received on 2017-10-09.*

Objective

This type approval report is prepared on behalf of ***ZIONCOM ELECTRONICS (SHENZHEN) LTD.*** in accordance with Part 2-Subpart J, Part 15-Subparts A, and E of the Federal Communications Commission's rules.

The tests were performed in order to determine compliance with FCC Rules Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

Related Submittal(s)/Grant(s)

FCC Part 15C DTS submissions with FCC ID: X7DWX009.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices. And KDB 789033 D02 General U-NII Test Procedures New Rules v01r04

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical 1G~6GHz: 4.45 dB, 6G~40GHz: 5.23 dB
Unwanted Emissions,conducted	±1.5 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Test Facility

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

Bay Area Compliance Laboratories Corp. (Dongguan) has been accredited to ISO/IEC 17025 by CNAS(Lab code: L5662). And accredited to ISO/IEC 17025 by NVLAP(Test Laboratory Accreditation Certificate Number 500069-0), the FCC Designation No. CN5002 under the KDB 974614 D01.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Bay Area Compliance Laboratories Corp. (Dongguan) was registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The EUT was configured for testing in an engineering mode which was provided by the manufacturer.

The system support 802.11a/n ht20/n ht40/ac vht20/ac vht40/ac vht80, the vh20/vht40 were reduced since the identical parameters with 802.11n ht20 and ht40.

For 5150~5250 MHz band, 7 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240
42	5210	/	/

802.11a, 802.11n ht20 and 802.11ac20 modes were tested with Channel 36, 40 and 48,
802.11n ht40 and 802.11ac40 modes were tested with Channel 38 and 46.
802.11ac80 mode was tested with channel 42

For 5725~5850MHz band, 8 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785
151	5755	159	5795
153	5765	161	5805
155	5775	165	5825

802.11a, 802.11n ht20 and 802.11ac20 modes were tested with Channel 149, 157 and 165,
802.11n ht40 and 802.11ac40 modes were tested with Channel 151 and 159.
802.11ac80 mode was tested with channel 155.

The device supports SISO and MIMO at 802.11n ht20/n ht40/AC80 mode, per pre-test, MIMO mode was the worst and reported.

EUT Exercise Software

The software "MT76xxE_AP" was used for testing, which was provided by manufacturer. The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all date rates bandwidths, and modulations. The maximum power was configured as below table, that provided by the manufacturer:

5125-5250 MHz:

Test Mode	Test Software Version		MT76xxE_AP		
802.11a	Test Frequency		5180MHz	5200MHz	5240MHz
	Data Rate		6Mbps	6Mbps	6Mbps
	Power Lever Setting	Chain0	14	14	14
		Chain1	0F	0F	0F
802.11n ht20	Test Frequency		5180MHz	5200MHz	5240MHz
	Data Rate		MCS0	MCS0	MCS0
	Power Lever Setting	Chain0	0B	0B	0B
		Chain1	08	08	08
802.11n ht40	Test Frequency		5190MHz	/	5230MHz
	Data Rate		MCS0	/	MCS0
	Power Lever Setting	Chain0	0A	/	0B
		Chain1	08		08
802.11ac ac80	Test Frequency		/	5210MHz	/
	Data Rate		/	MCS0	/
	Power Lever Setting	Chain0	/	1F	/
		Chain1		1B	

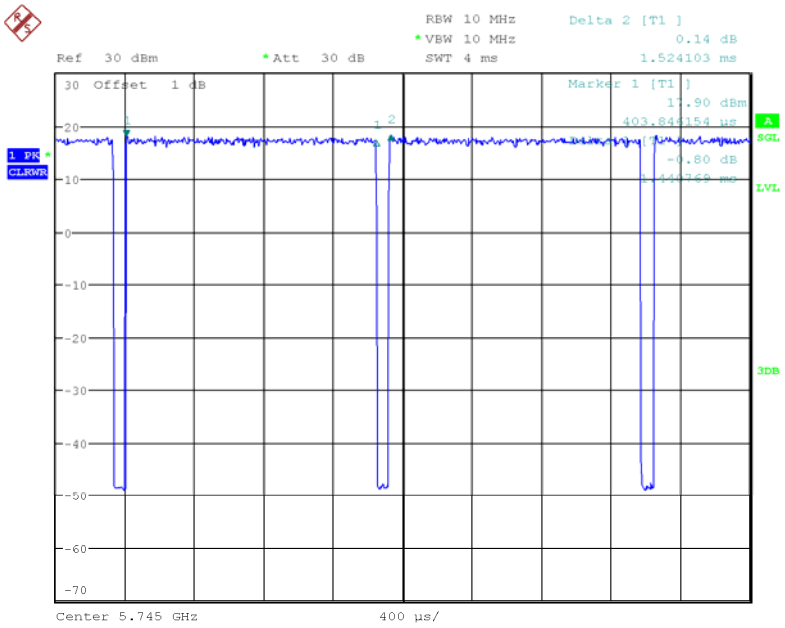
5725-5850MHz:

Test Mode	Test Software Version		MT76xxE_AP		
802.11a	Test Frequency		5745MHz	5785MHz	5825MHz
	Data Rate		6Mbps	6Mbps	6Mbps
	Power Lever Setting	Chain0	12	12	12
		Chain1	10	10	10
802.11n ht20	Test Frequency		5745MHz	5785MHz	5825MHz
	Data Rate		MCS0	MCS0	MCS0
	Power Lever Setting	Chain0	0A	0A	0A
		Chain1	08	08	08
802.11n ht40	Test Frequency		5755MHz	/	5795MHz
	Data Rate		MCS0	/	MCS0
	Power Lever Setting	Chain0	0A	/	0A
		Chain1	0A		0A
802.11ac ac80	Test Frequency		/	5775MHz	/
	Data Rate		/	NSS1 MCS0	/
	Power Lever Setting	Chain0	/	1E	/
		Chain1		1D	

The duty cycle as below:

Mode	T_{on} (ms)	T_{on+off} (ms)	Duty Cycle (%)	Duty cycle Factor (dB) (10*log(1/x))
802.11 a	1.441	1.524	94.6	0.24
802.11n ht20	1.353	1.479	91.5	0.39
802.11n ht40	0.665	0.760	87.5	0.58
802.11ac80	0.334	0.417	80.1	0.96

802.11a



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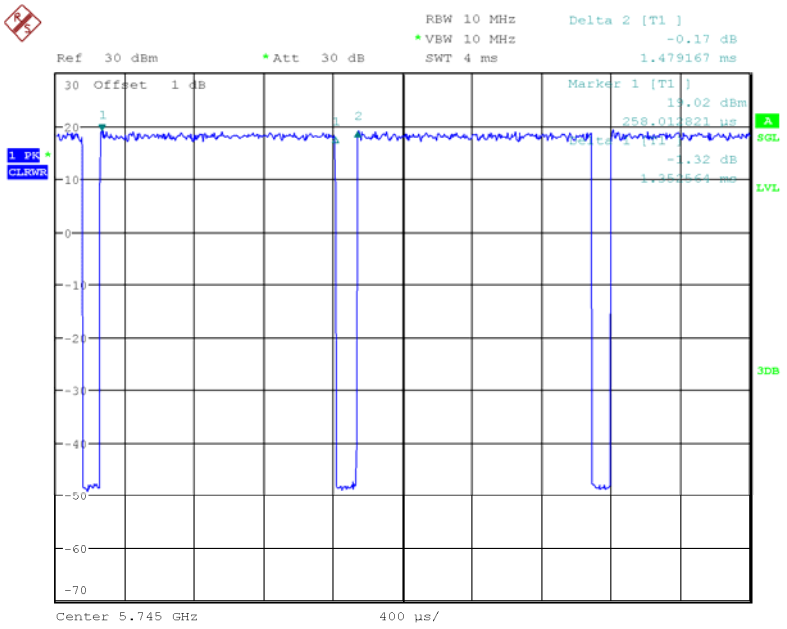
802.11n ht20



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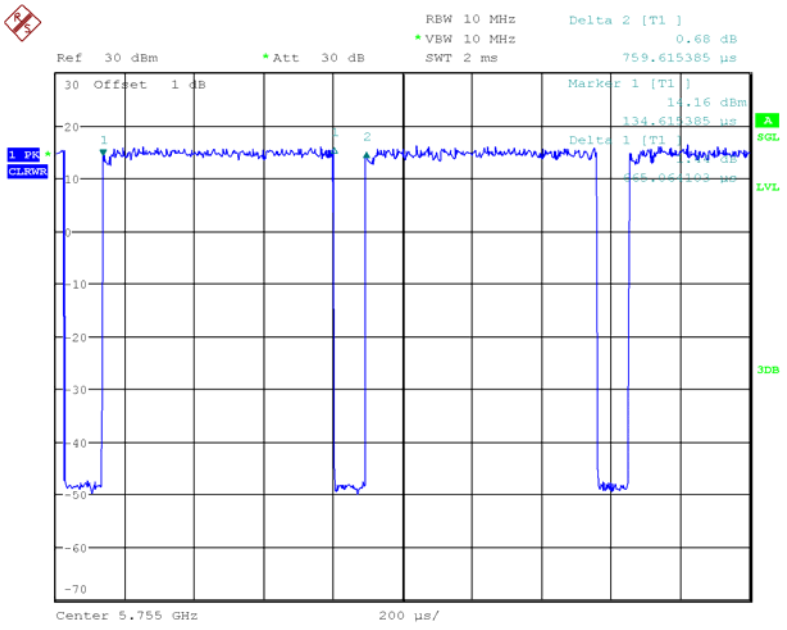
802.11n ht40



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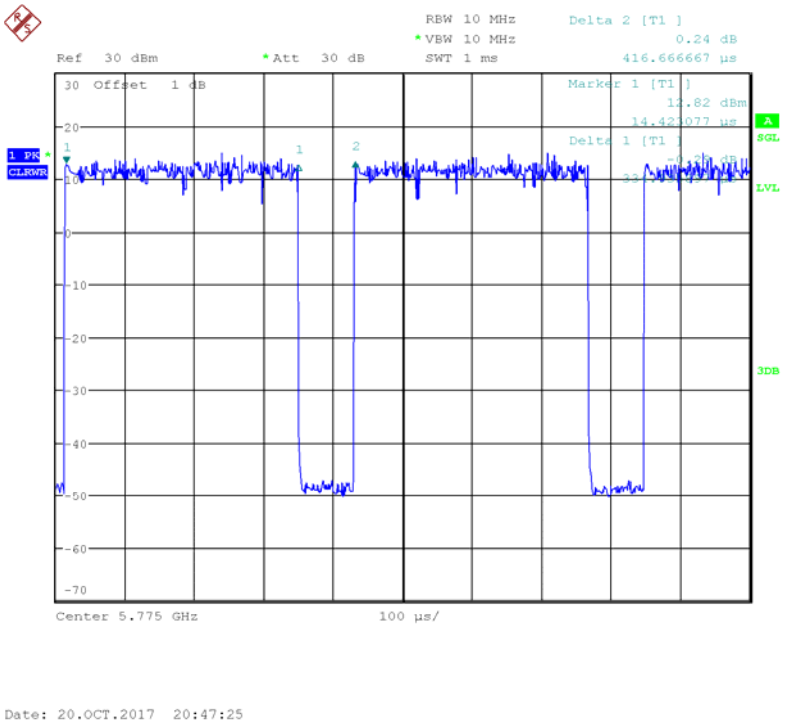
802.11 ac80



Equipment Modifications

No modification was made to the EUT.

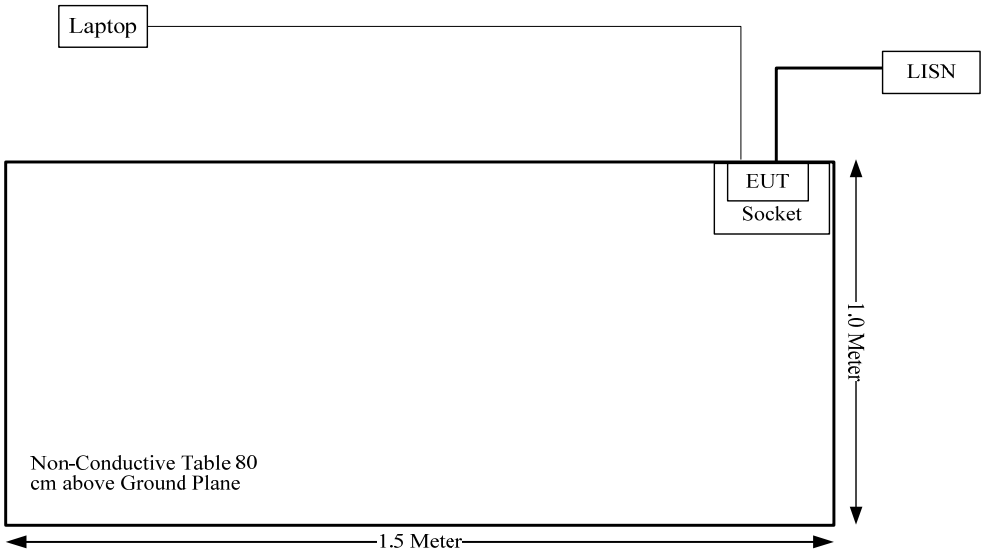
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	Laptop	PP11L	QDS-BRCM1017

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RJ45 Cable	yes	No	10.0	RJ45 Port of Laptop	EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.407 (f) & §1.1310 & §2.1091	Maximum Permissable Exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.407(b)(6)& §15.207(a)	Conducted Emissions	Compliance
§15.205& §15.209 &§15.407(b)	Undesirable Emission& Restricted Bands	Compliance
§15.407(b)	Out Of Band Emissions	Compliance
§15.407(a) (e)	Emission Bandwidth	Compliance
§15.407(g)	Frequency Stability	Compliance
§15.407(a)	Conducted Transmitter Output Power	Compliance
§15.407 (a)	Power Spectral Density	Compliance

FCC §15.407 (f) & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.407(f)and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculation formula:

Prediction of power density at the distance of the applicable MPE limit
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Calculated Data:

Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
	(dBi)	(numeric)	(dBm)	(mW)			
2412-2462	5	3.16	27	501.19	20.00	0.3155	1.0
5150-5250 & 5725-5850	5	3.16	16	39.81	20.00	0.0251	1.0

The 2.4GHz band and 5GHz band can transmit simultaneously:

$$\sum_i \frac{S_i}{S_{Limit,i}}$$

$=S_{2.4}/S_{limit-2.4} + S_5/S_{limit-5}$

$=0.3155/1+0.0251/1$

$=0.3405$

< 1.0

Result: The device meet FCC MPE at 20 cm distance

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, 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 a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
And according to FCC 47 CFR section 15.407 (a)(1),if transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT have 2 external antennas for 2.4G and 5GHz band, which was permanently attached to the Unit, both antenna gains are 5dBi in 2.4G and 5GHz range. Please refer to the EUT photo.

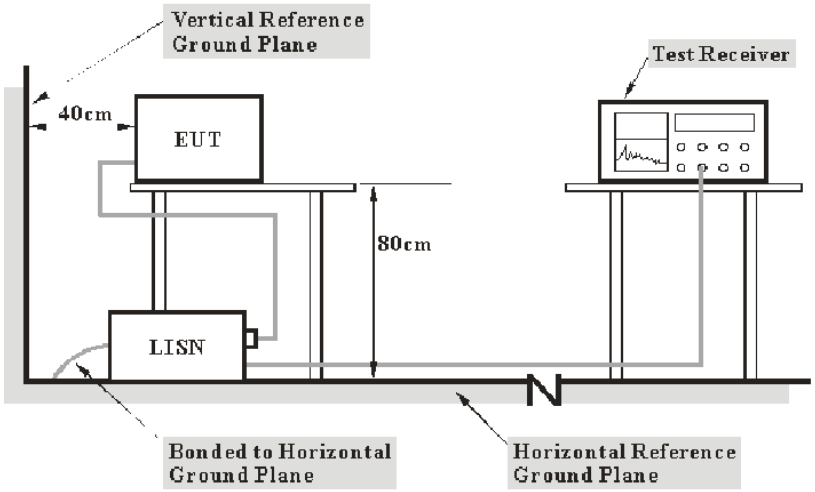
Result: Compliance.

FCC §15.407 (b) (6) §15.207 (a) – CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a), §15.407(b) (6).

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The EUT was connected to the main lisn with a 120 V/60 Hz AC power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$V_C = V_R + A_C + VDF$
$C_f = A_C + VDF$

Herein,
V_C (cord. Reading): corrected voltage amplitude
V_R: reading voltage amplitude
A_c: attenuation caused by cable loss
VDF: voltage division factor of AMN
C_f: Correction Factor

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2016-12-08	2017-12-08
R&S	L.I.S.N	ESH2-Z5	892107/021	2017-09-01	2018-09-01
R&S	Two-line V-network	ENV 216	3560.6550.12	2016-12-08	2017-12-08
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
N/A	Coaxial Cable	2m	C0200/01	2017-09-05	2018-09-05

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

Test Procedure

During the conducted emission test, the EUT was connected to the first LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Data

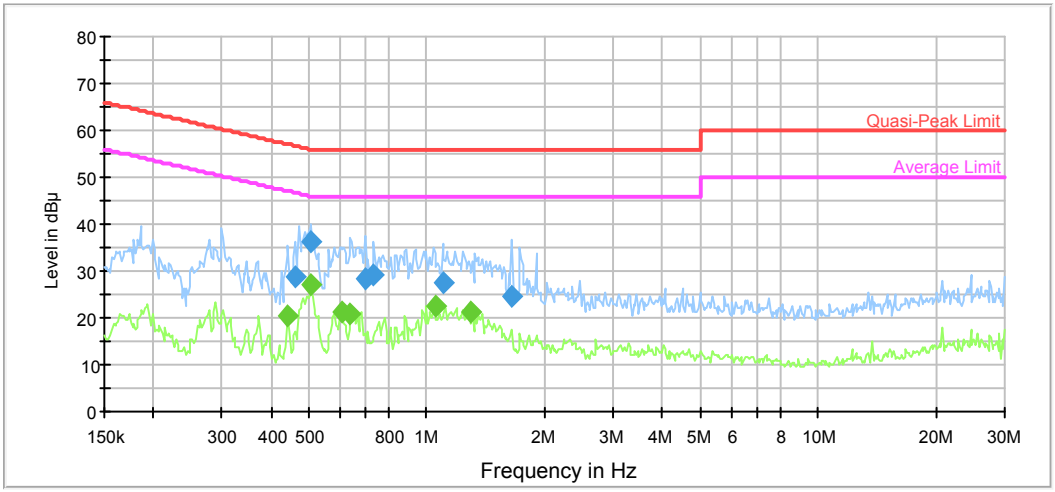
Environmental Conditions

Temperature:	27.6 °C
Relative Humidity:	50 %
ATM Pressure:	100.6 kPa

The testing was performed by Alex You on 2017-10-12.

Test Mode: Transmitting

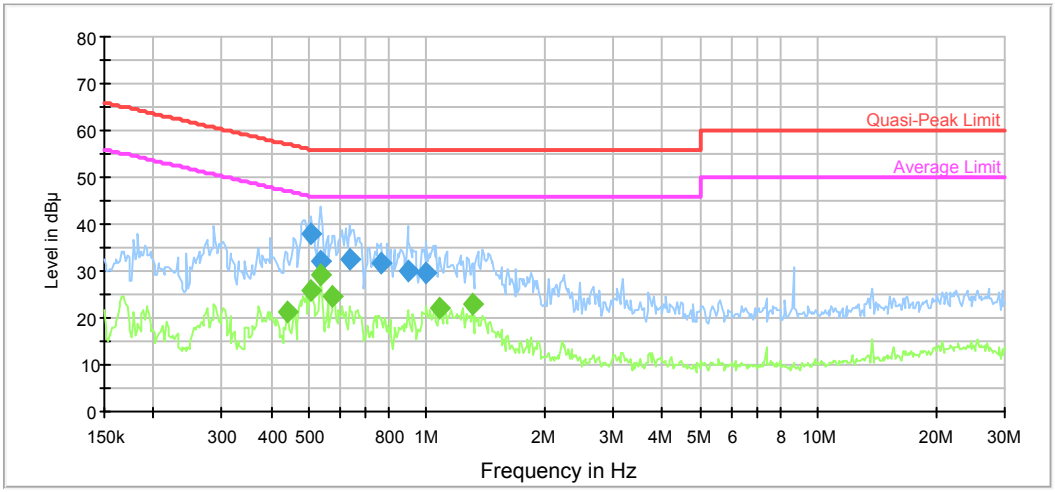
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.461346	29.0	9.000	L1	9.9	27.7	56.7	Compliance
0.507637	36.2	9.000	L1	9.9	19.8	56.0	Compliance
0.698191	28.2	9.000	L1	9.8	27.8	56.0	Compliance
0.732382	29.4	9.000	L1	9.8	26.6	56.0	Compliance
1.099574	27.6	9.000	L1	9.8	28.4	56.0	Compliance
1.650866	24.8	9.000	L1	9.7	31.2	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.443327	20.3	9.000	L1	9.9	26.7	47.0	Compliance
0.507637	27.3	9.000	L1	9.9	18.7	46.0	Compliance
0.604902	21.3	9.000	L1	9.8	24.7	46.0	Compliance
0.639600	20.8	9.000	L1	9.8	25.2	46.0	Compliance
1.048242	22.5	9.000	L1	9.8	23.5	46.0	Compliance
1.289541	21.1	9.000	L1	9.8	24.9	46.0	Compliance

AC120 V, 60 Hz, Neutral:



requency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.507637	37.9	9.000	N	9.9	18.1	56.0	Compliance
0.536756	32.0	9.000	N	9.9	24.0	56.0	Compliance
0.634524	32.4	9.000	N	9.8	23.6	56.0	Compliance
0.762149	31.7	9.000	N	9.8	24.3	56.0	Compliance
0.893821	30.1	9.000	N	9.8	25.9	56.0	Compliance
0.999305	29.4	9.000	N	9.8	26.6	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.439808	21.1	9.000	N	9.9	26.0	47.1	Compliance
0.503608	26.0	9.000	N	9.9	20.0	46.0	Compliance
0.536756	29.0	9.000	N	9.9	17.0	46.0	Compliance
0.576662	24.6	9.000	N	9.8	21.4	46.0	Compliance
1.073601	22.3	9.000	N	9.8	23.7	46.0	Compliance
1.310256	23.0	9.000	N	9.8	23.0	46.0	Compliance

FCC §15.209, §15.205 & §15.407(b) –UNWANTED EMISSION

Applicable Standard

FCC §15.407; §15.209; §15.205;

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

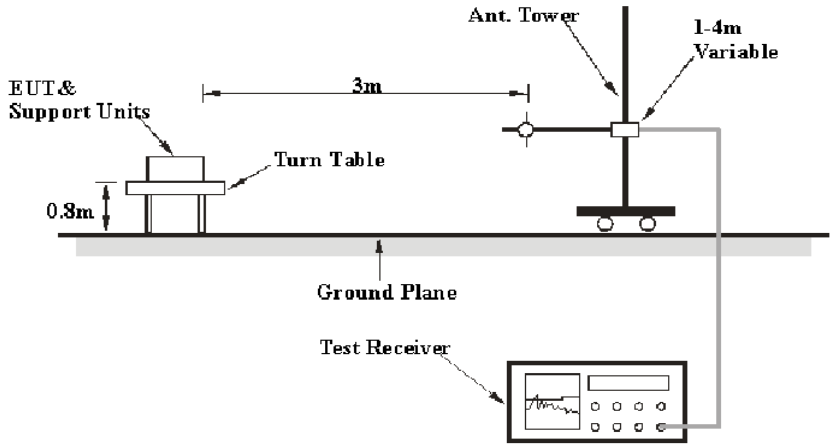
(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

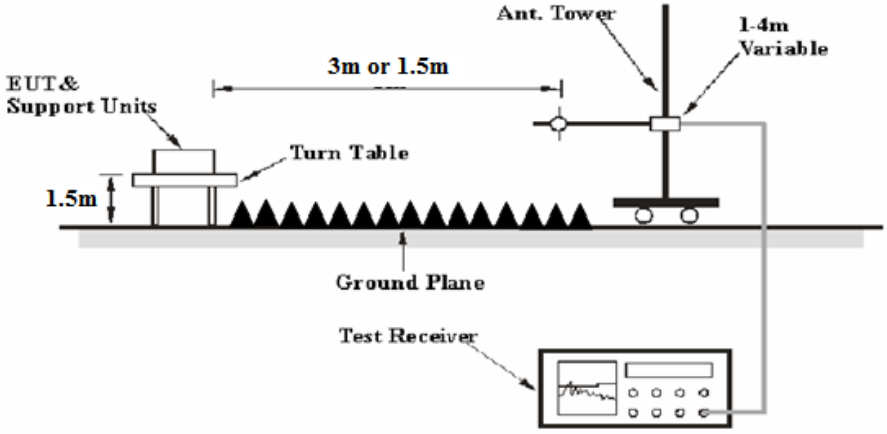
(7) The provisions of §15.205 apply to intentional radiators operating under this section.

EUT Setup

Below 1 GHz:



Above 1 GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

30-1000MHz:

Measurement	RBW	Video B/W	IF B/W
QP	120 kHz	300 kHz	120kHz

1GHz- 40GHz:

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
Ave.	>98%	1MHz	10 Hz
	<98%	1MHz	1/T

Test Procedure

During the radiated emission test, the EUT was connected to the first AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04, emission shall be computed as: E [dBμV/m] = EIRP[dBm] + 95.2, for d = 3 meters.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Extrapolation result -Limit

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2017-09-01	2018-09-01
Sunol Sciences	Antenna	JB3	A060611-1	2014-11-06	2017-11-06
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
Agilent	Signal Generator	E8247C	MY43321350	2016-09-23	2018-09-23
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2017-09-05	2018-09-05
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2016-12-08	2017-12-08
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-02 1304	2016-11-18	2019-11-18
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2017-06-27	2018-06-27
R&S	Spectrum Analyzer	FSP 38	100478	2016-12-08	2017-12-08
Unknown	Coaxial Cable	Chamber A-1	4m	2017-09-05	2018-09-05
Unknown	Coaxial Cable	Chamber B-1	0.75m	2017-09-05	2018-09-05
Unknown	Coaxial Cable	Chamber A-2	10m	2017-09-05	2018-09-05
Unknown	Coaxial Cable	Chamber B-2	8m	2017-09-05	2018-09-05
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A

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

Test Data

Environmental Conditions

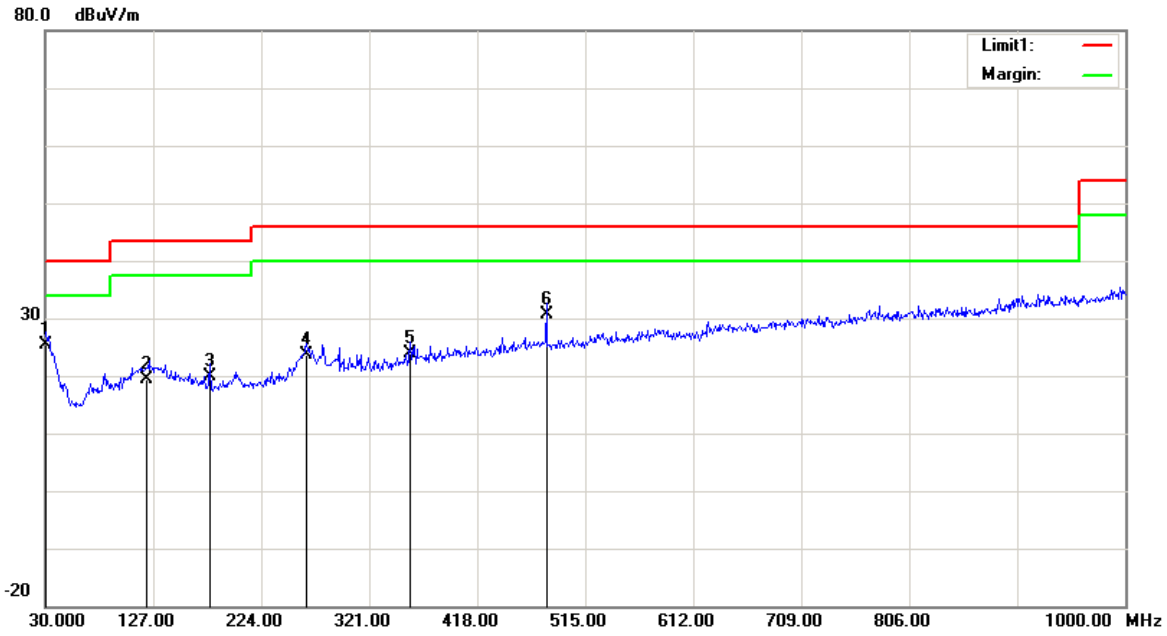
Temperature:	25.1~25.3 °C
Relative Humidity:	27~38 %
ATM Pressure:	101~101.4 kPa

** The testing was performed by Sunny Cen from 2017-10-23 to 2017-10-27.*

Test Mode: Transmitting

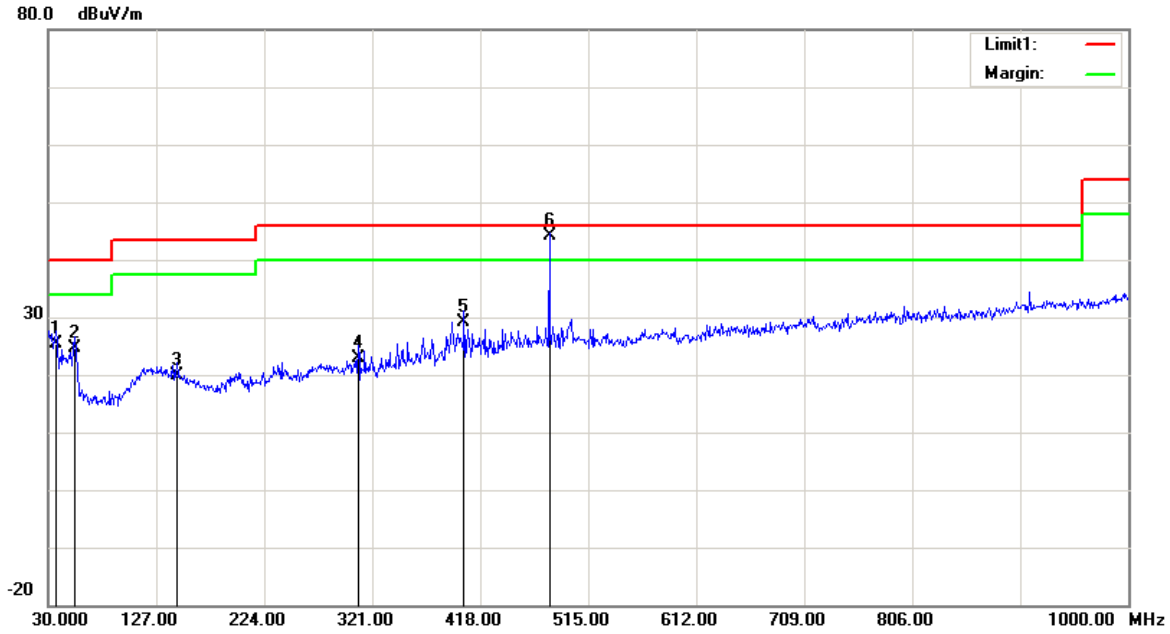
1) Below 1GHz(802.11a 5240MHz was the worst):

Horizontal



Frequency (MHz)	Receiver Reading (dBµV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
30.0000	24.42	QP	1.08	25.50	40.00	14.50
121.1800	24.25	QP	-4.85	19.40	43.50	24.10
177.4400	27.75	QP	-7.75	20.00	43.50	23.50
264.7400	28.02	QP	-4.42	23.60	46.00	22.40
357.8600	26.79	QP	-2.99	23.80	46.00	22.20
480.0800	31.71	QP	-1.01	30.70	46.00	15.30

Vertical



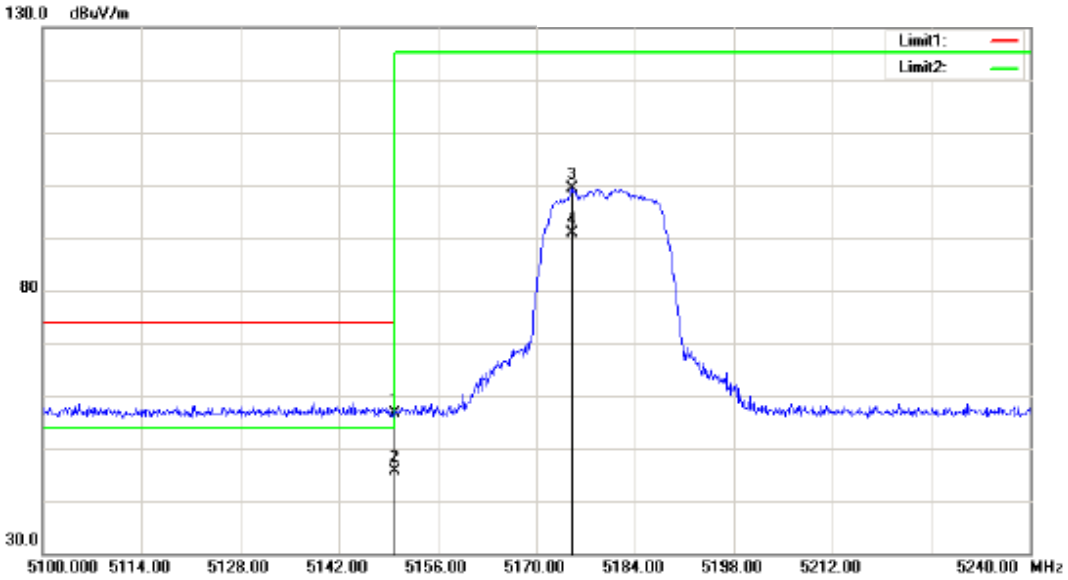
Frequency (MHz)	Receiver Reading (dBµV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
36.7900	29.13	QP	-3.83	25.30	40.00	14.70
53.2800	36.97	QP	-12.27	24.70	40.00	15.30
145.4300	26.43	QP	-6.43	20.00	43.50	23.50
308.3900	27.56	QP	-4.56	23.00	46.00	23.00
403.4500	31.29	QP	-2.19	29.10	46.00	16.90
480.0800	45.21	QP	-1.01	44.20	46.00	1.80

2) 1GHz-40GHz:

5150-5250MHz, 802.11a (Chain 0 was the worst):

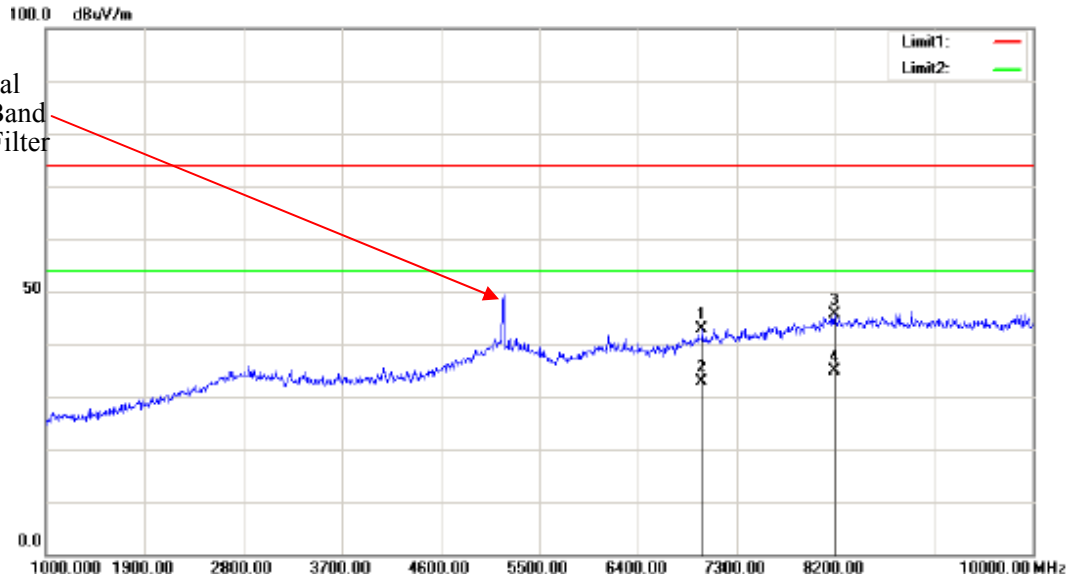
Low Channel

Horizontal

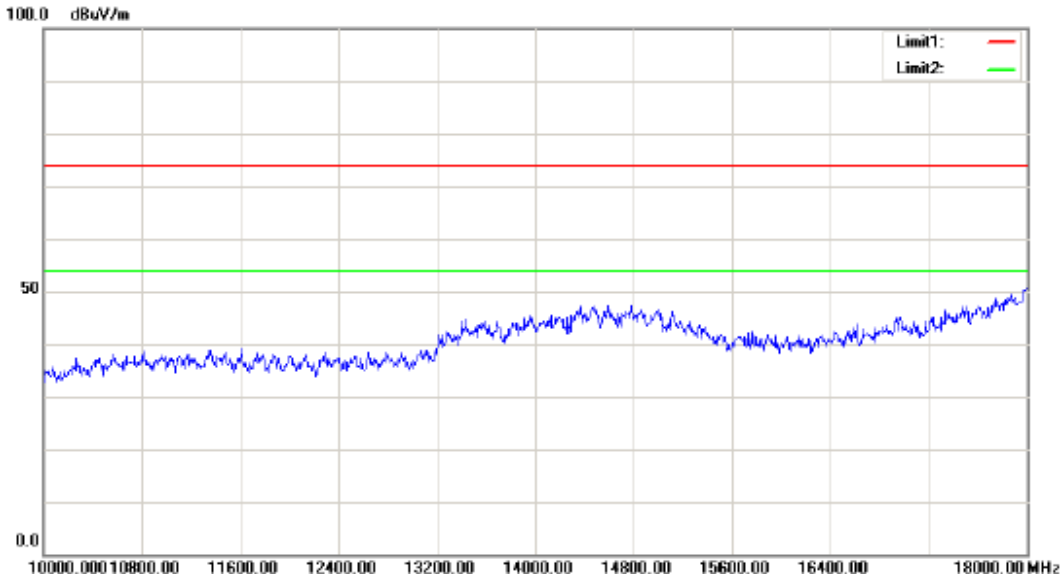


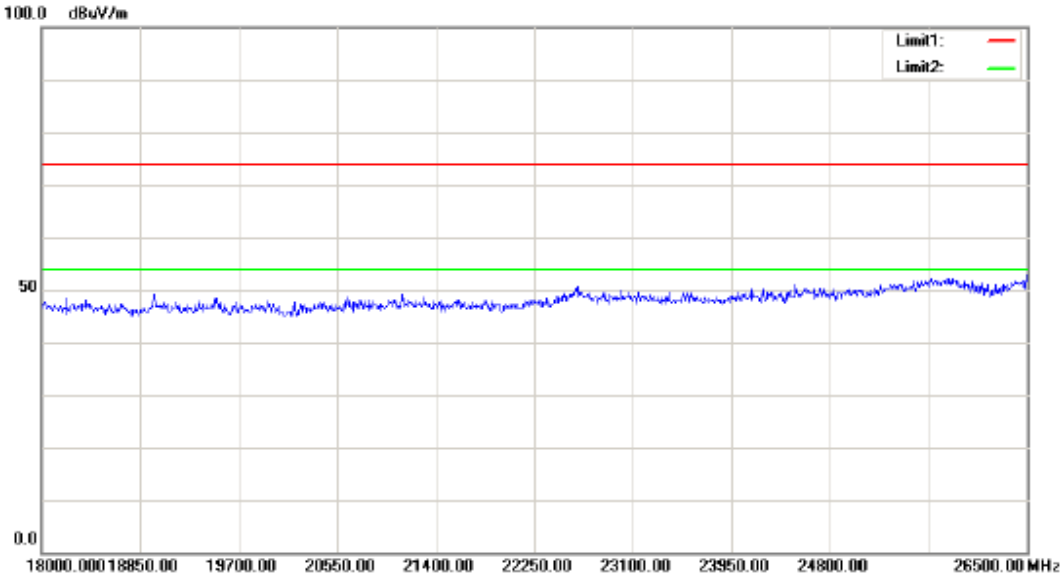
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5150.000	25.51	peak	31.10	56.61	74.00	163	224	17.39	
*	2	5150.000	14.53	AVG	31.10	45.63	54.00	163	224	8.37	
	3	5175.180	68.28	peak	31.16	99.44	125.20	163	224	25.76	Fundamental
	4	5175.180	59.67	AVG	31.16	90.83	125.20	163	224	34.37	Fundamental

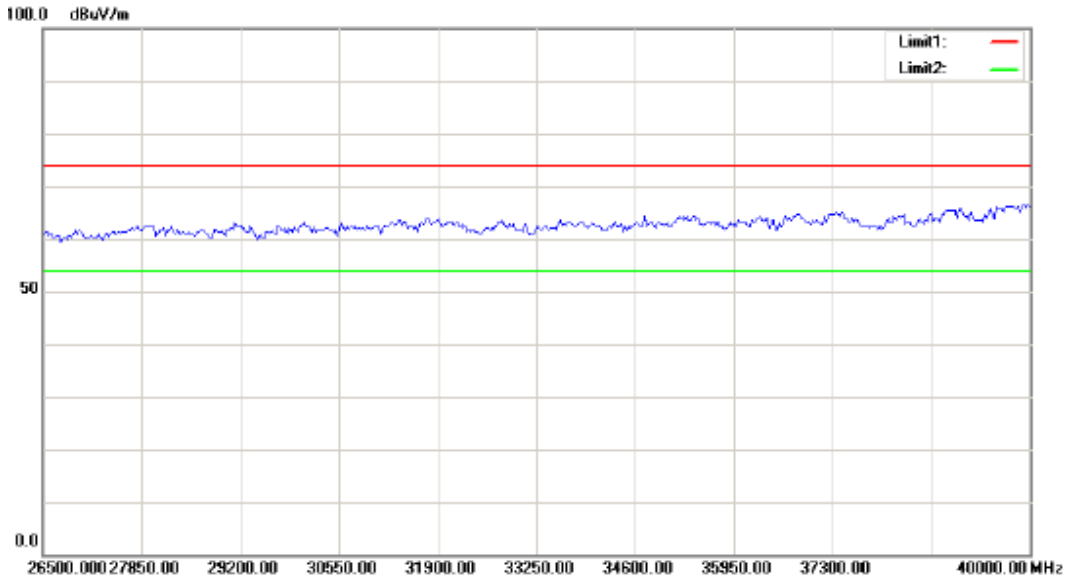
Fundamental Test with Band Rejection Filter



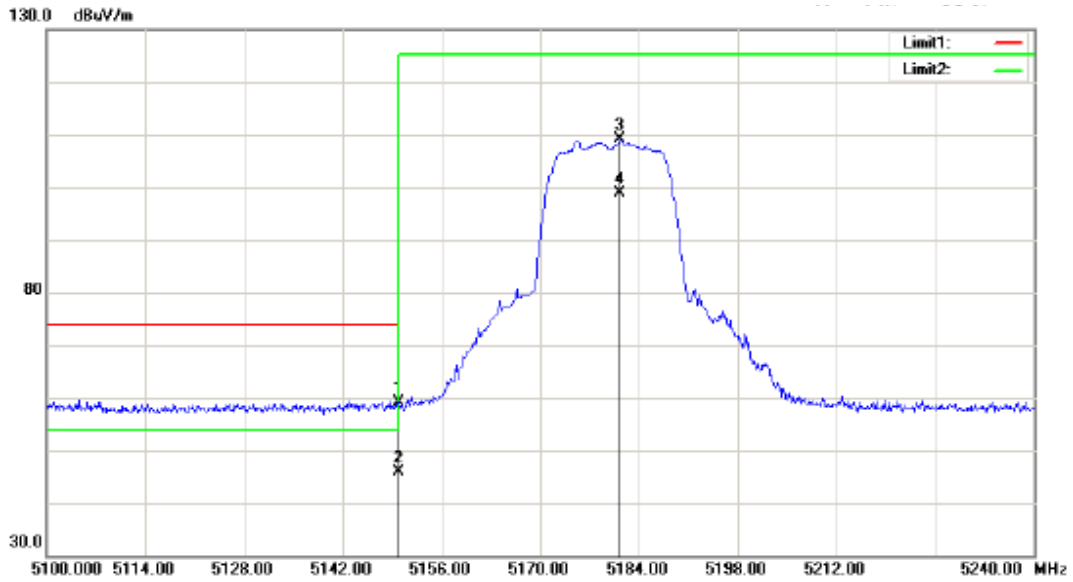
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6985.000	45.54	peak	-2.63	42.91	74.00	152	155	31.09	
	2	6985.000	35.62	AVG	-2.63	32.99	54.00	152	155	21.01	
	3	8191.000	46.45	peak	-0.92	45.53	74.00	152	155	28.47	
*	4	8191.000	35.87	AVG	-0.92	34.95	54.00	152	155	19.05	


100.0 dBuV/m
Limit1:
Limit2:
50
0.0
10000.000 10800.00 11600.00 12400.00 13200.00 14000.00 14800.00 15600.00 16400.00 18000.00 MHz


100.0 dBuV/m
Limit1:
Limit2:
50
0.0
18000.000 18850.00 19700.00 20550.00 21400.00 22250.00 23100.00 23950.00 24800.00 26500.00 MHz

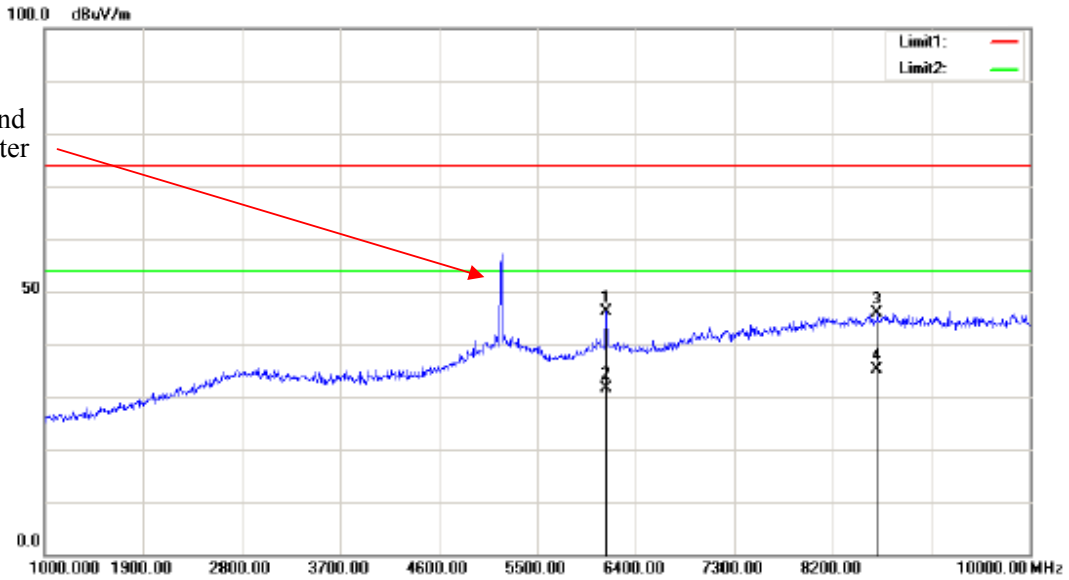

100.0 dBuV/m
Limit1:
Limit2:
50
0.0
26500.000
27850.00
29200.00
30550.00
31900.00
33250.00
34600.00
35950.00
37300.00
40000.00 MHz

Vertical:

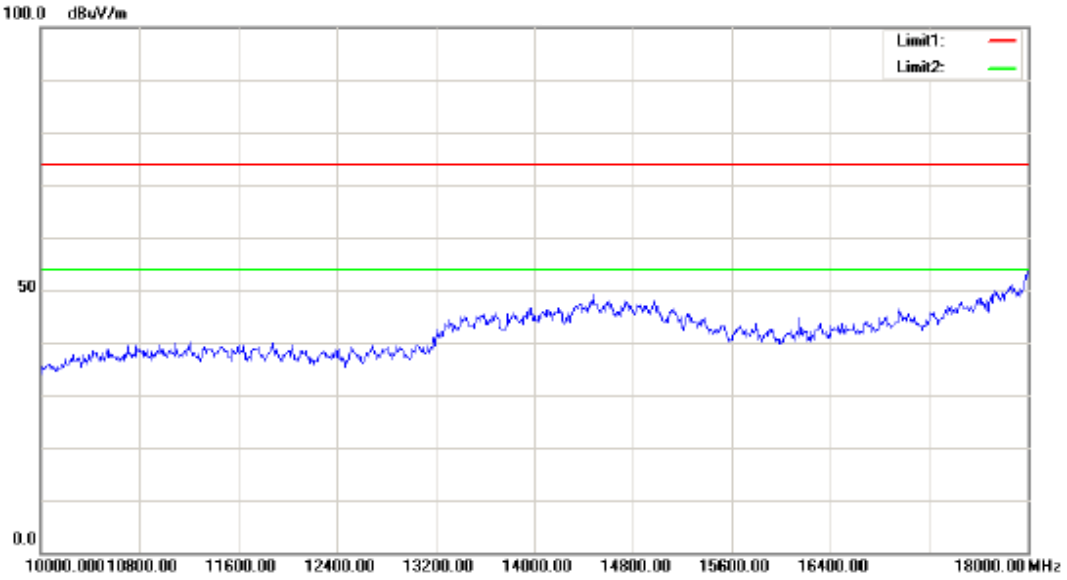


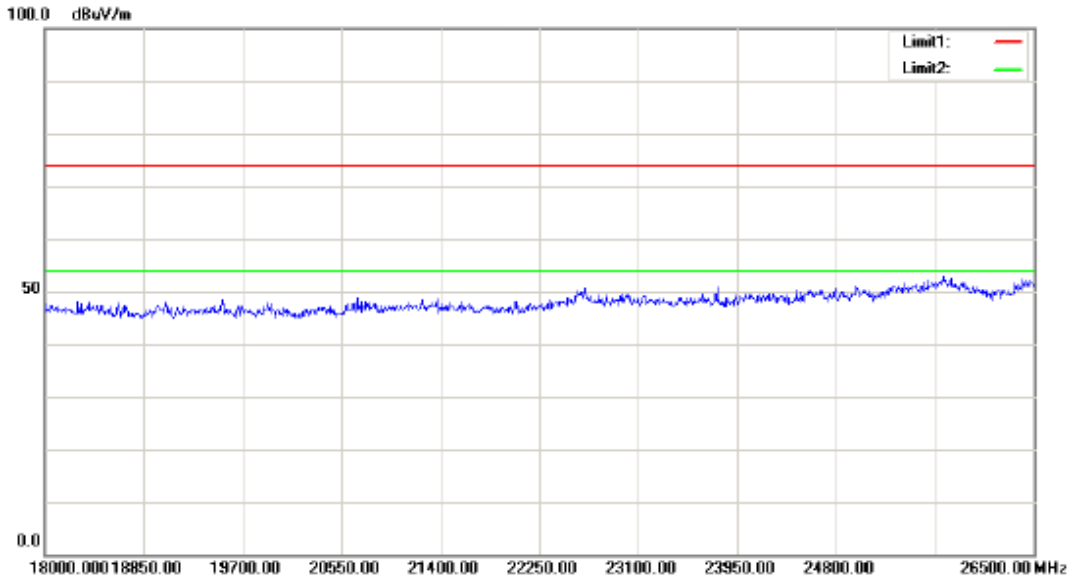
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5150.000	28.12	peak	31.10	59.22	74.00	152	334	14.78	
*	2	5150.000	14.69	AVG	31.10	45.79	54.00	152	334	8.21	
	3	5181.410	77.87	peak	31.18	109.05	125.20	152	334	16.15	Fundamental
	4	5181.410	67.82	AVG	31.18	99.00	125.20	152	334	26.20	Fundamental

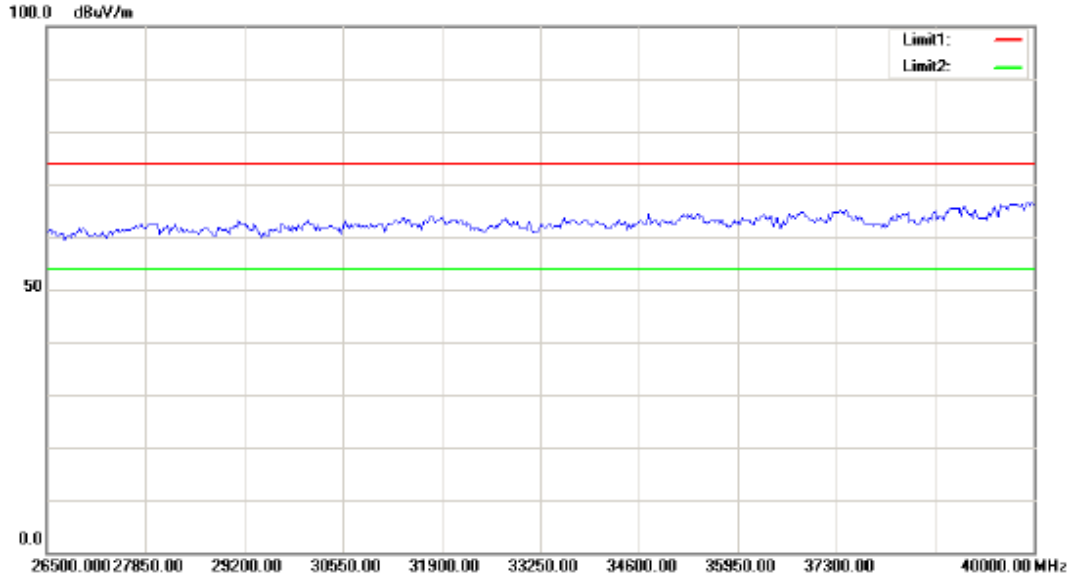
Fundamental Test with Band Rejection Filter



Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	51.01	peak	-4.92	46.09	74.00	158	49	27.91	
	2	6130.000	36.48	AVG	-4.92	31.56	54.00	158	49	22.44	
	3	8609.500	46.21	peak	-0.37	45.84	74.00	158	49	28.16	
*	4	8609.500	35.46	AVG	-0.37	35.09	54.00	158	49	18.91	

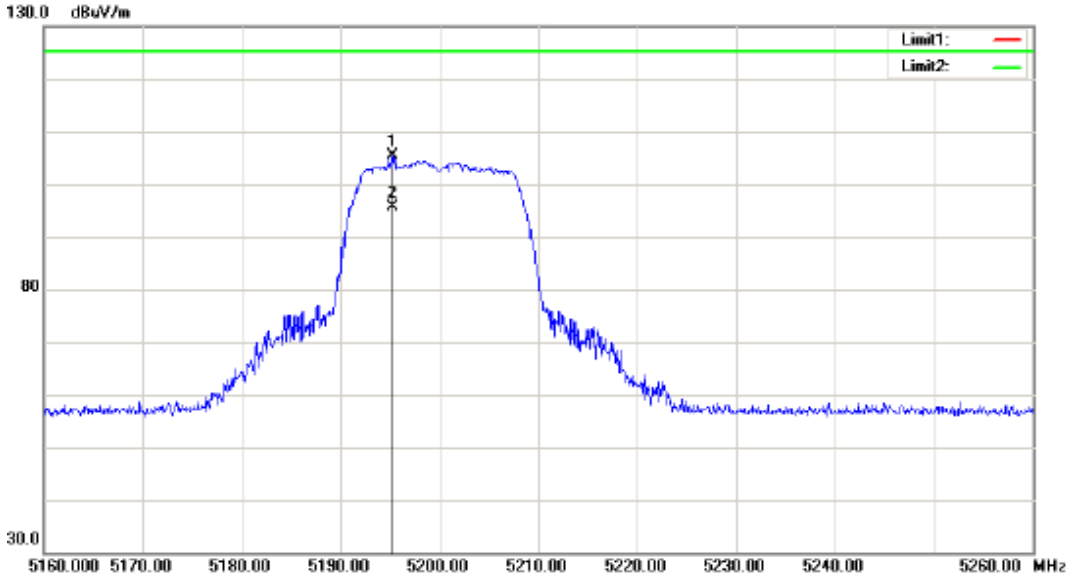



100.0 dBuV/m
Limit1:
Limit2:
50
0.0
18000.000 18850.00 19700.00 20550.00 21400.00 22250.00 23100.00 23950.00 24800.00 26500.00 MHz


100.0 dBuV/m
Limit1:
Limit2:
50
0.0
26500.000 27850.00 29200.00 30550.00 31900.00 33250.00 34600.00 35950.00 37300.00 40000.00 MHz

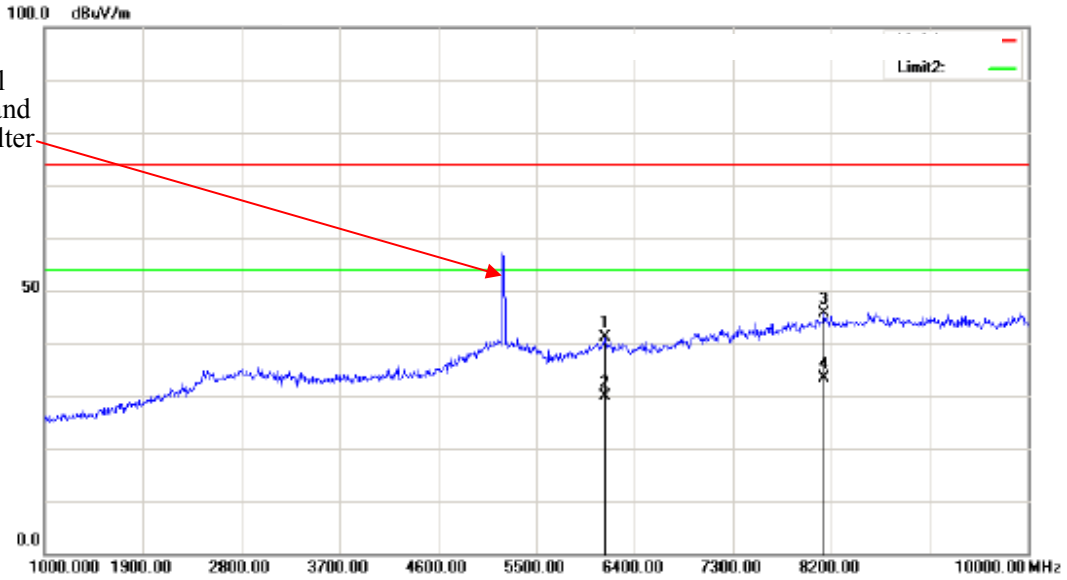
Midle Channel

Horizontal

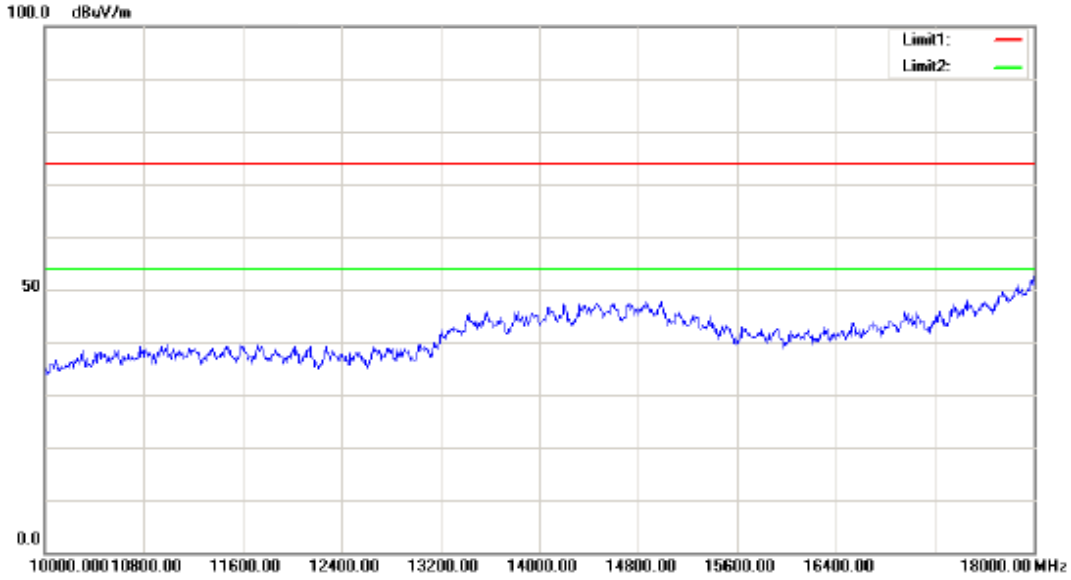


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5195.300	74.09	peak	31.21	105.30	125.20	152	334	19.90	Fundamental
	2	5195.300	64.53	AVG	31.21	95.74	125.20	152	334	29.46	Fundamental

Fundamental Test with Band Rejection Filter

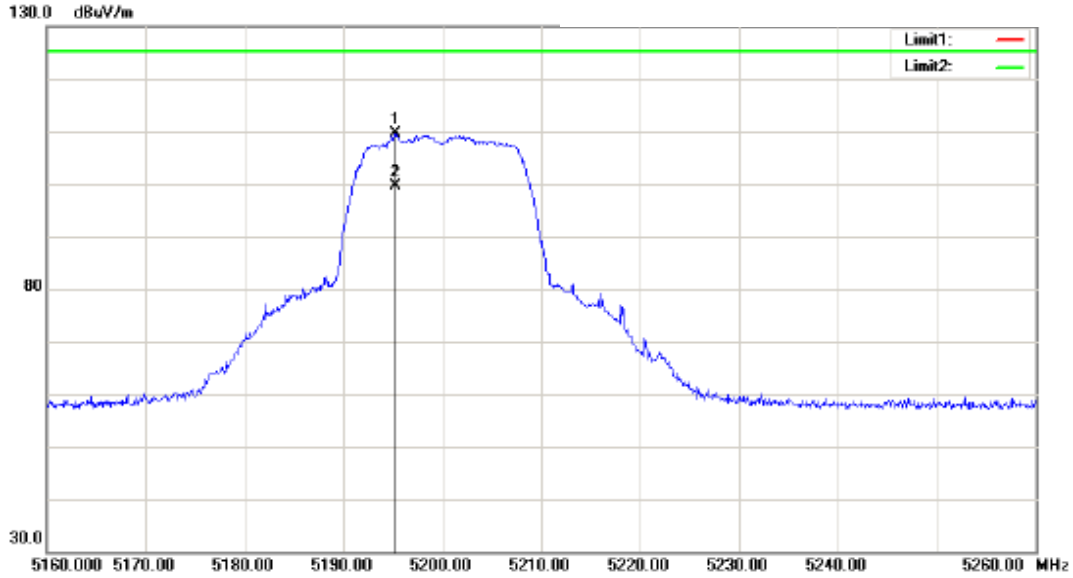


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	45.99	peak	-4.92	41.07	74.00	169	228	32.93	
	2	6130.000	34.68	AVG	-4.92	29.76	54.00	169	228	24.24	
	3	8128.000	46.53	peak	-1.01	45.52	74.00	169	228	28.48	
*	4	8128.000	34.28	AVG	-1.01	33.27	54.00	169	228	20.73	



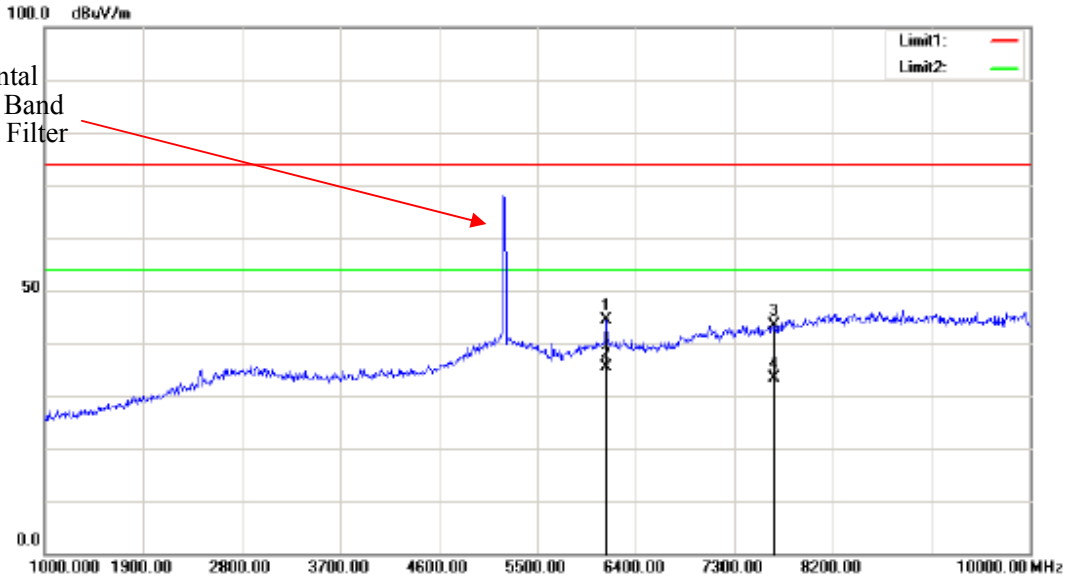
Note: No emission was detected in the range 18-40GHz.

Vertical

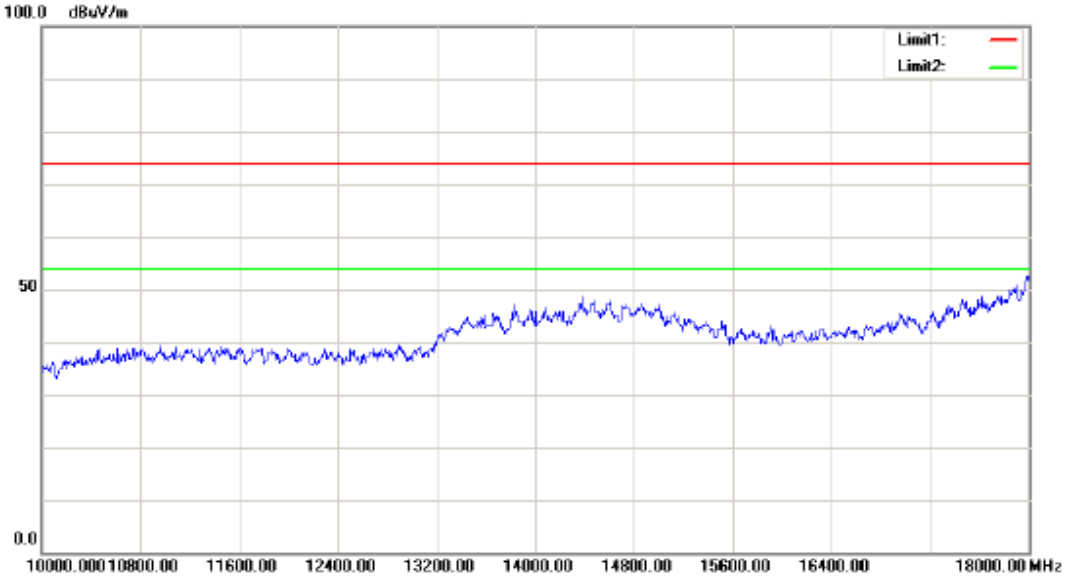


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5195.250	78.38	peak	31.21	109.59	125.20	153	228	15.61	Fundamental
	2	5195.250	68.54	AVG	31.21	99.75	125.20	153	228	25.45	Fundamental

Fundamental Test with Band Rejection Filter



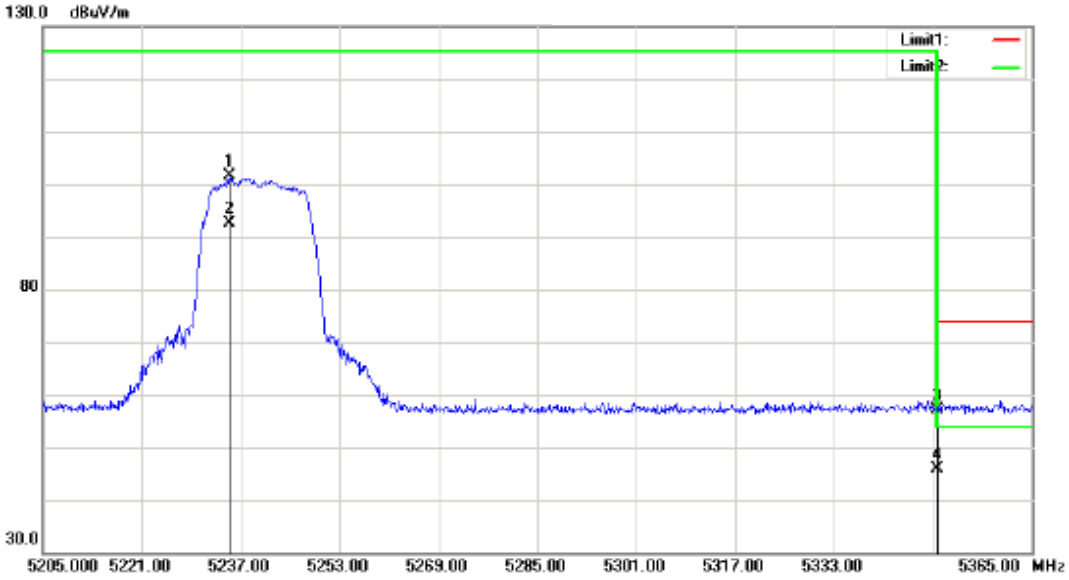
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	49.30	peak	-4.92	44.38	74.00	156	87	29.62	
*	2	6130.000	40.23	AVG	-4.92	35.31	54.00	156	87	18.69	
	3	7664.500	45.73	peak	-2.25	43.48	74.00	156	87	30.52	
	4	7664.500	35.62	AVG	-2.25	33.37	54.00	156	87	20.63	



Note: No emission was detected in the range 18-40GHz.

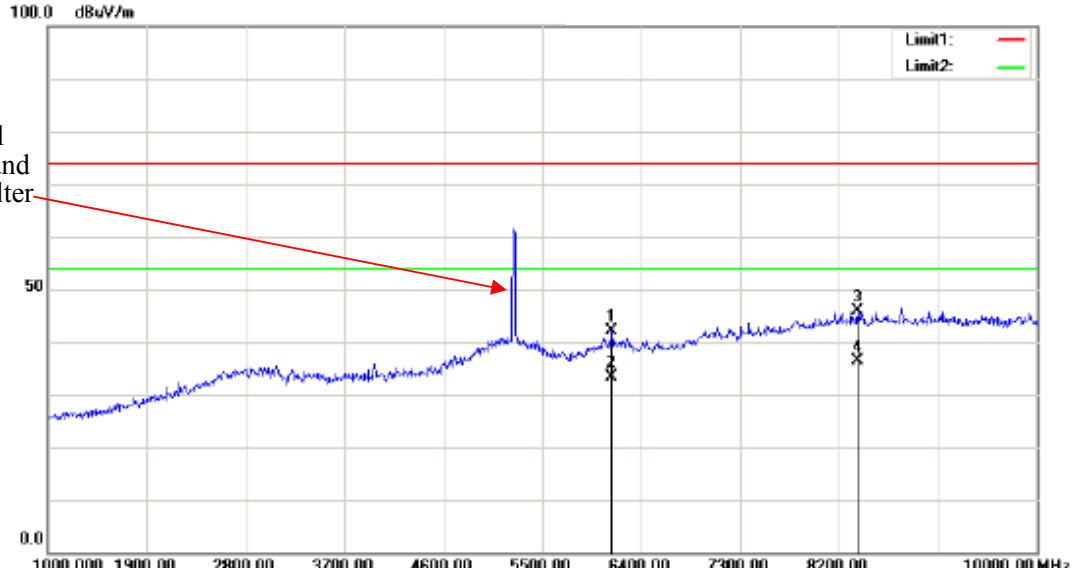
High Channel

Horizontal

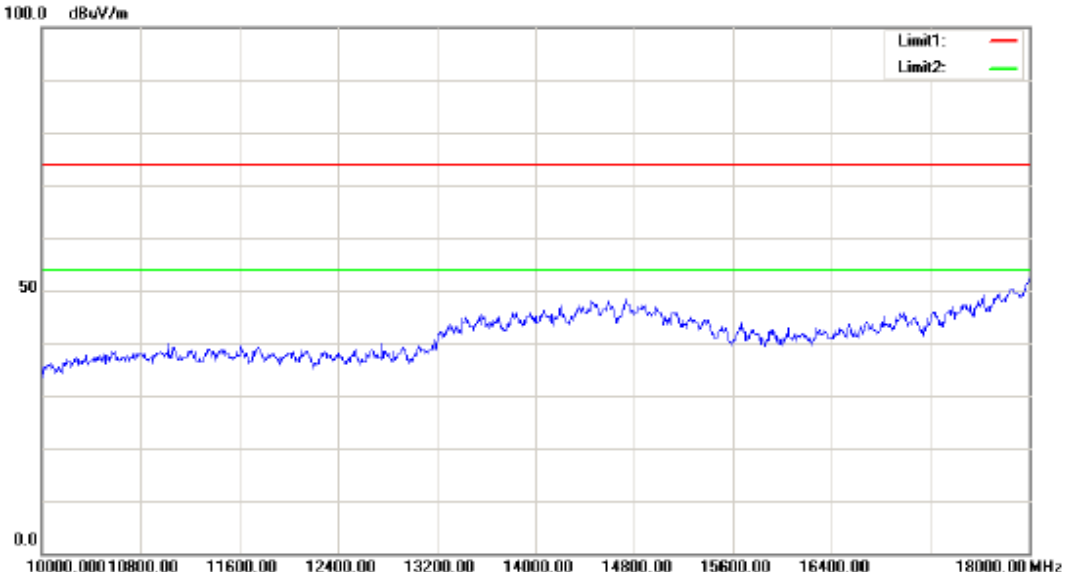


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5235.320	70.47	peak	31.21	101.68	125.20	153	155	23.52	Fundamental
	2	5235.320	61.38	AVG	31.21	92.59	125.20	153	155	32.61	Fundamental
	3	5350.000	25.70	peak	31.38	57.08	74.00	153	155	16.92	
*	4	5350.000	14.58	AVG	31.38	45.96	54.00	153	155	8.04	

Fundamental Test with Band Rejection Filter

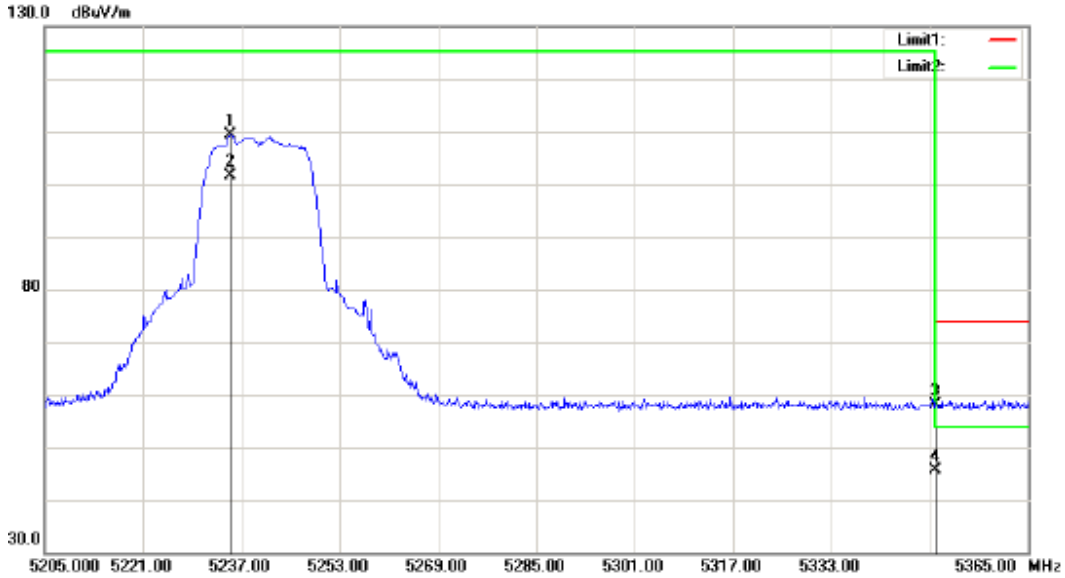


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	47.09	peak	-4.92	42.17	74.00	165	145	31.83	
	2	6130.000	38.35	AVG	-4.92	33.43	54.00	165	145	20.57	
	3	8375.500	46.68	peak	-0.70	45.98	74.00	165	145	28.02	
*	4	8375.500	37.15	AVG	-0.70	36.45	54.00	165	145	17.55	



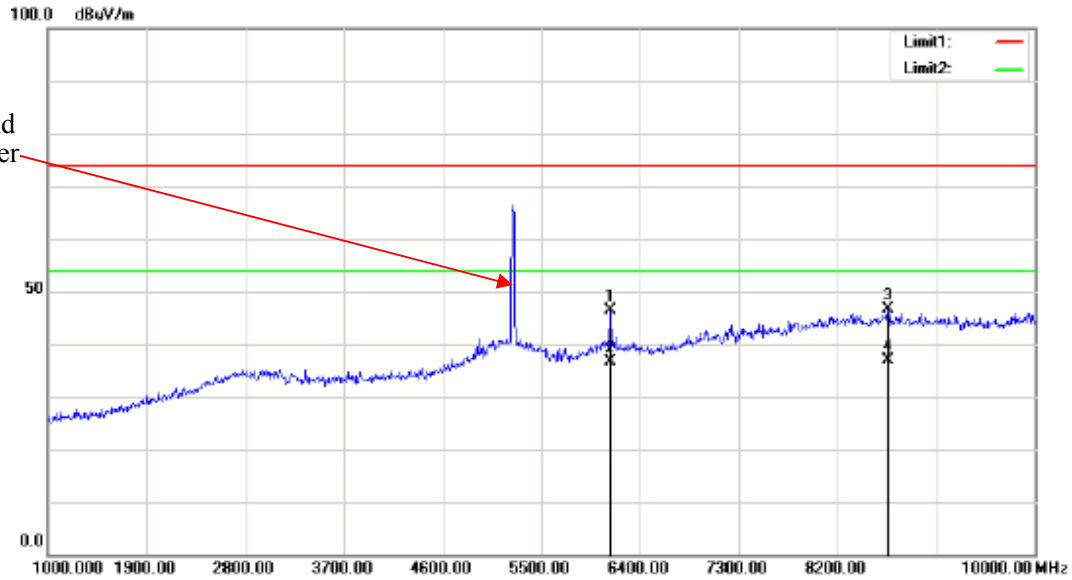
Note: No emission was detected in the range 18-40GHz.

Vertical

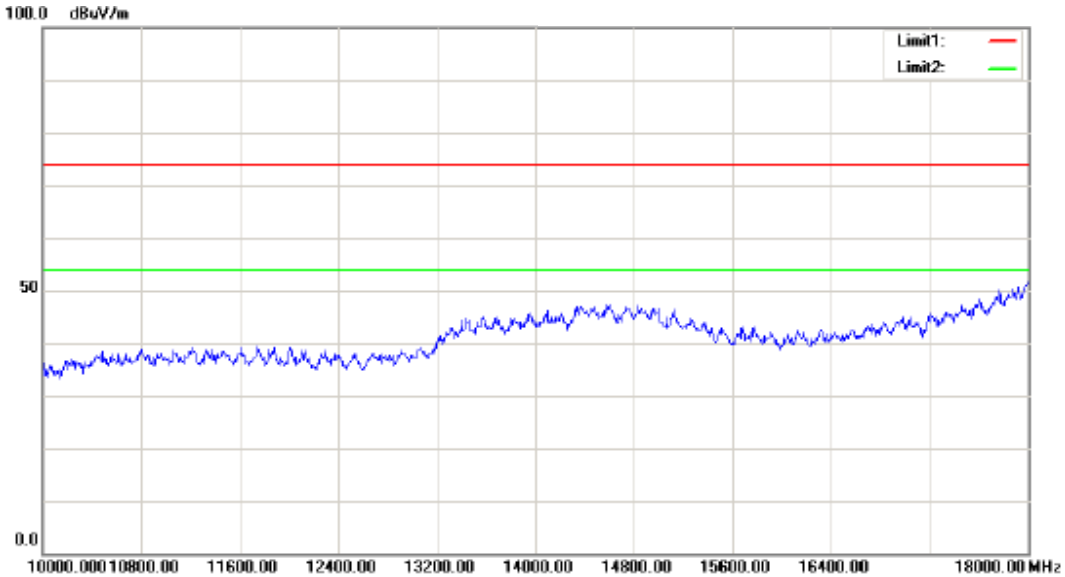


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5235.160	78.18	peak	31.21	109.39	125.20	143	22	15.81	Fundamental
	2	5235.160	70.42	AVG	31.21	101.63	125.20	143	22	23.57	Fundamental
	3	5350.000	26.68	peak	31.38	58.06	74.00	143	22	15.94	
*	4	5350.000	14.35	AVG	31.38	45.73	54.00	143	22	8.27	

Fundamental Test with Band Rejection Filter



Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	51.24	peak	-4.92	46.32	74.00	163	85	27.68	
	2	6130.000	41.64	AVG	-4.92	36.72	54.00	163	85	17.28	
	3	8659.000	46.85	peak	-0.29	46.56	74.00	163	85	27.44	
*	4	8659.000	37.28	AVG	-0.29	36.99	54.00	163	85	17.01	

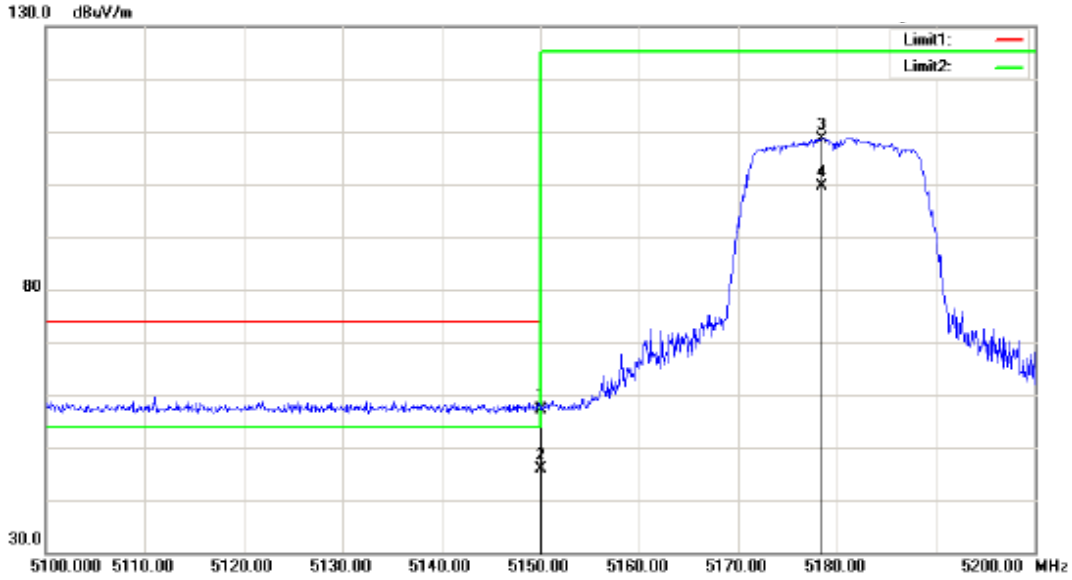


Note: No emission was detected in the range 18-40GHz.

802.11n20(2TX was the worst):

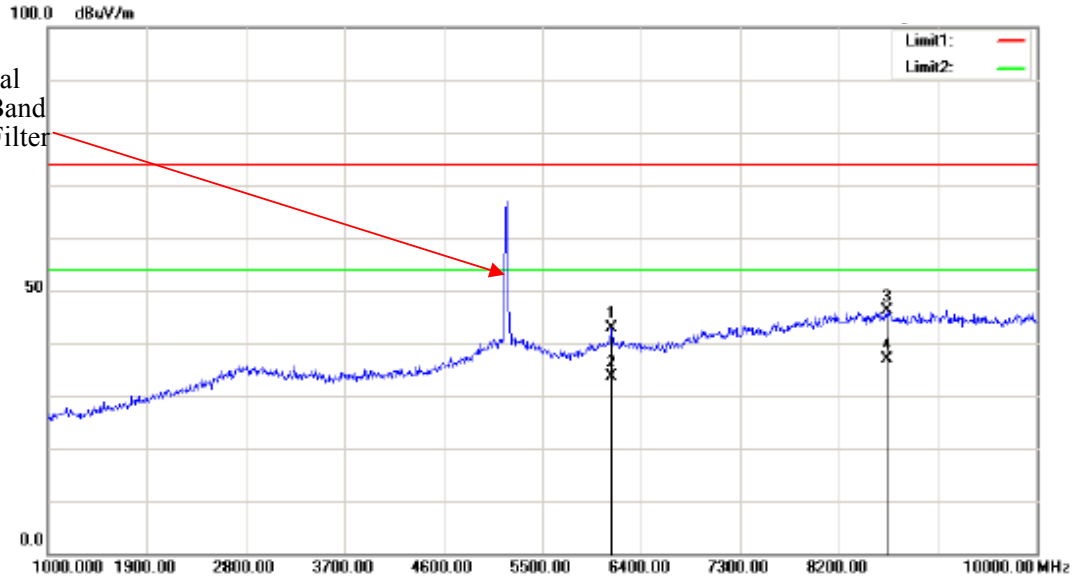
Low Channel

Horizontal

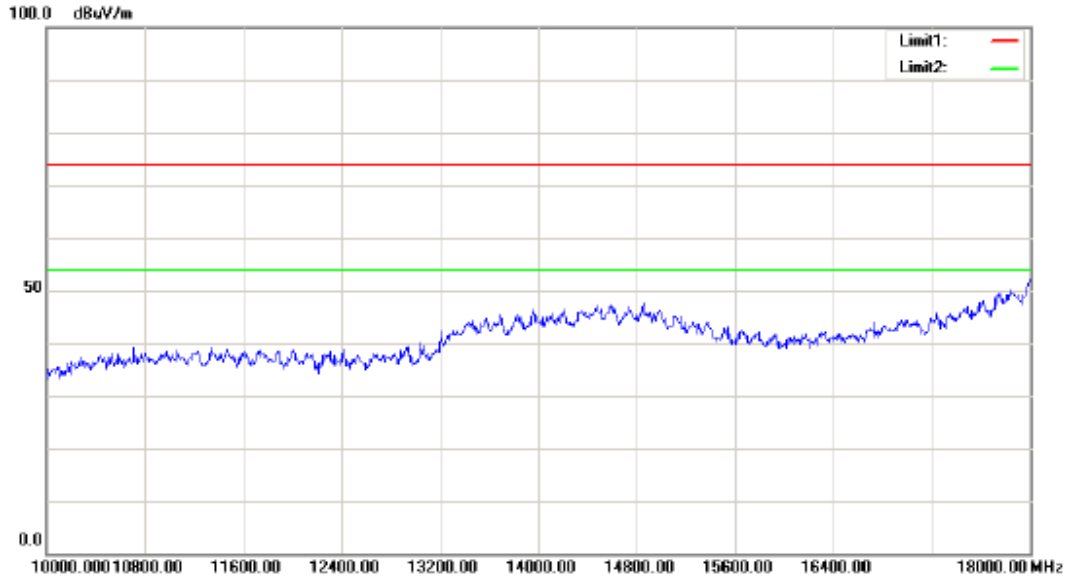


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5150.000	26.15	peak	31.10	57.25	74.00	156	200	16.75	
*	2	5150.000	14.69	AVG	31.10	45.79	54.00	156	200	8.21	
	3	5178.450	77.48	peak	31.17	108.65	125.20	156	200	16.55	Fundamental
	4	5178.450	68.52	AVG	31.17	99.69	125.20	156	200	25.51	Fundamental

Fundamental Test with Band Rejection Filter

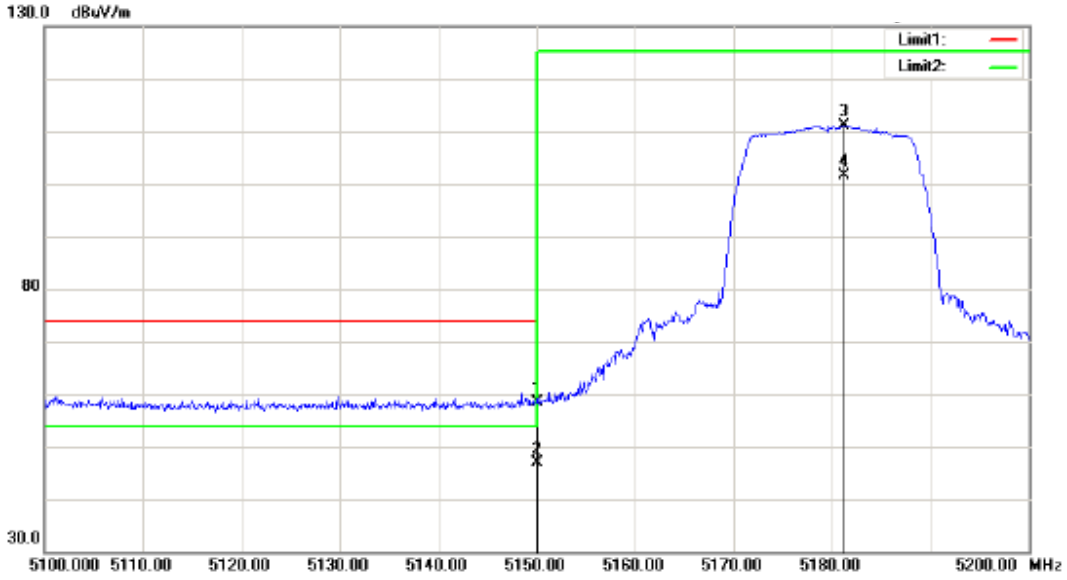


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	47.83	peak	-4.92	42.91	74.00	147	54	31.09	
	2	6130.000	38.49	AVG	-4.92	33.57	54.00	147	54	20.43	
	3	8632.000	46.42	peak	-0.34	46.08	74.00	147	54	27.92	
*	4	8632.000	37.25	AVG	-0.34	36.91	54.00	147	54	17.09	



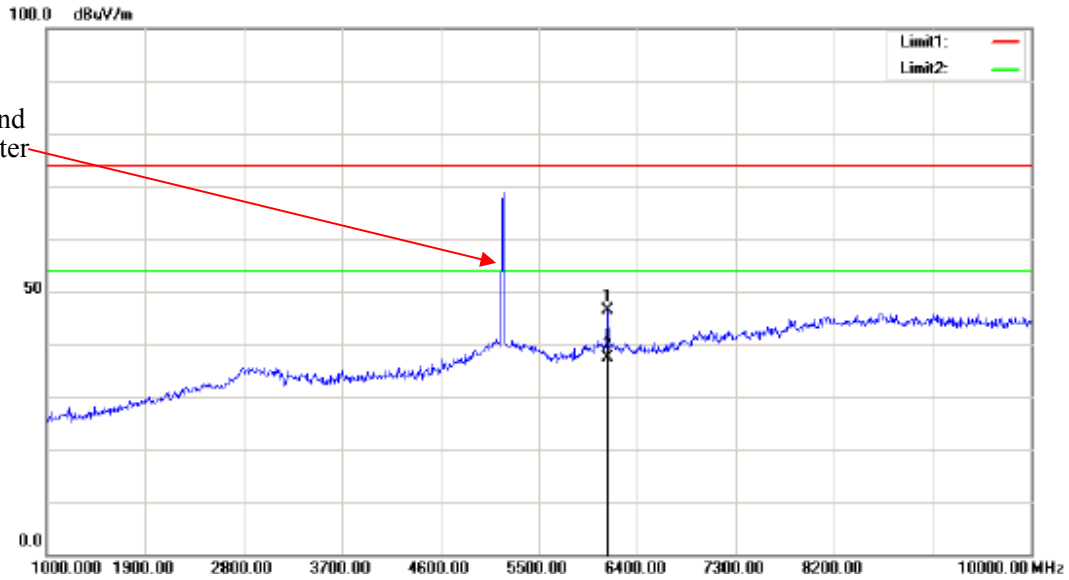
Note: No emission was detected in the range 18-40GHz.

Vertical:

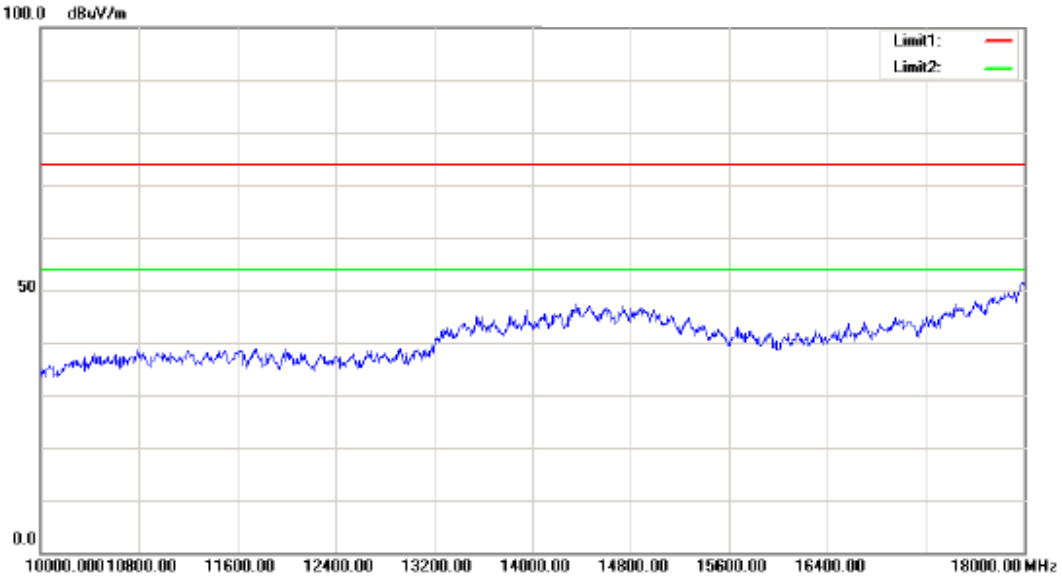


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5150.000	27.30	peak	31.10	58.40	74.00	146	180	15.60	
*	2	5150.000	15.86	AVG	31.10	46.96	54.00	146	180	7.04	
	3	5181.250	79.90	peak	31.17	111.07	125.20	146	180	14.13	Fundamental
	4	5181.250	70.56	AVG	31.17	101.73	125.20	146	180	23.47	Fundamental

Fundamental Test with Band Rejection Filter



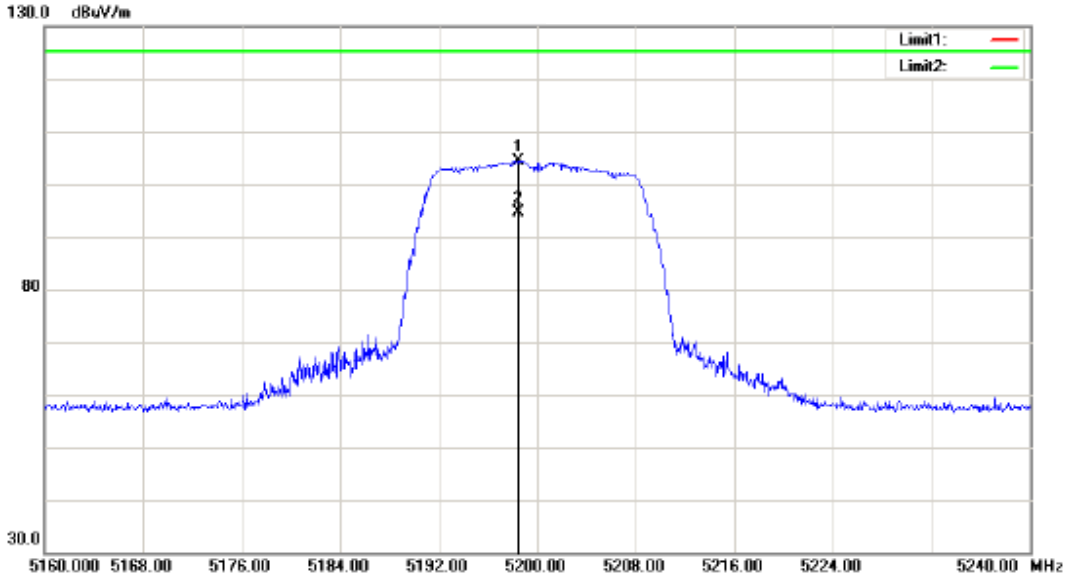
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	51.38	peak	-4.92	46.46	74.00	145	221	27.54	
*	2	6130.000	42.35	AVG	-4.92	37.43	54.00	145	221	16.57	



Note: No emission was detected in the range 18-40GHz.

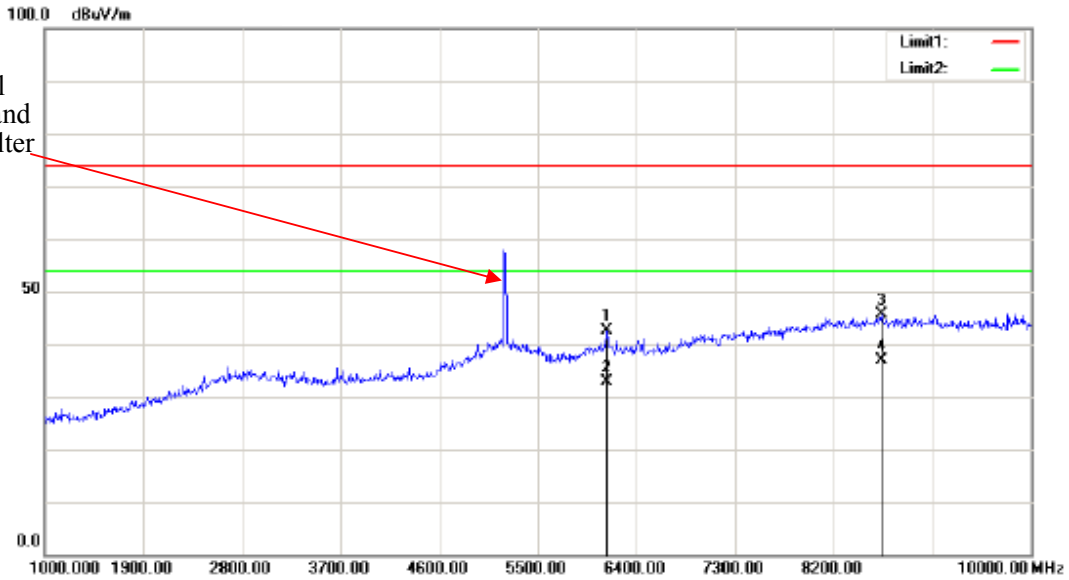
Midle Channel

Horizontal

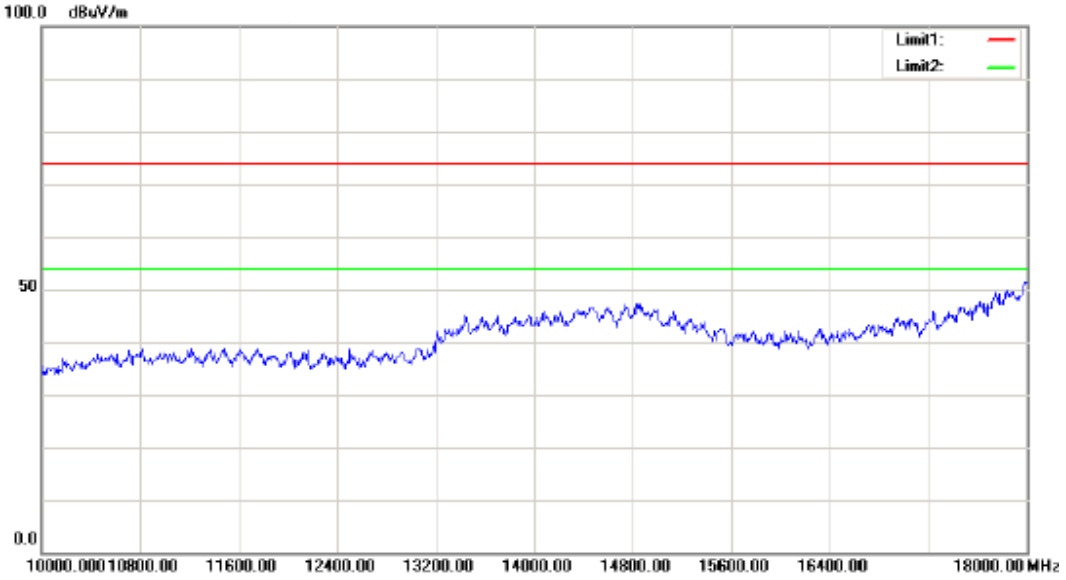


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5198.480	73.20	peak	31.22	104.42	125.20	157	48	20.78	Fundamental
	2	5198.480	63.38	AVG	31.22	94.60	125.20	157	48	30.60	Fundamental

Fundamental Test with Band Rejection Filter

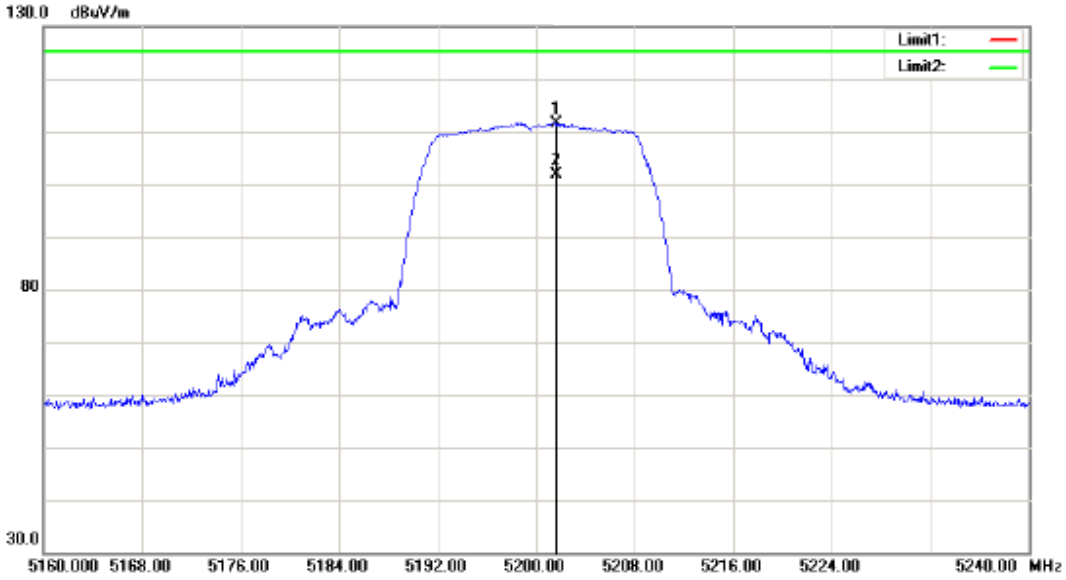


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	47.50	peak	-4.92	42.58	74.00	136	48	31.42	
	2	6130.000	37.69	AVG	-4.92	32.77	54.00	136	48	21.23	
	3	8632.000	46.07	peak	-0.34	45.73	74.00	136	48	28.27	
*	4	8632.000	37.15	AVG	-0.34	36.81	54.00	136	48	17.19	



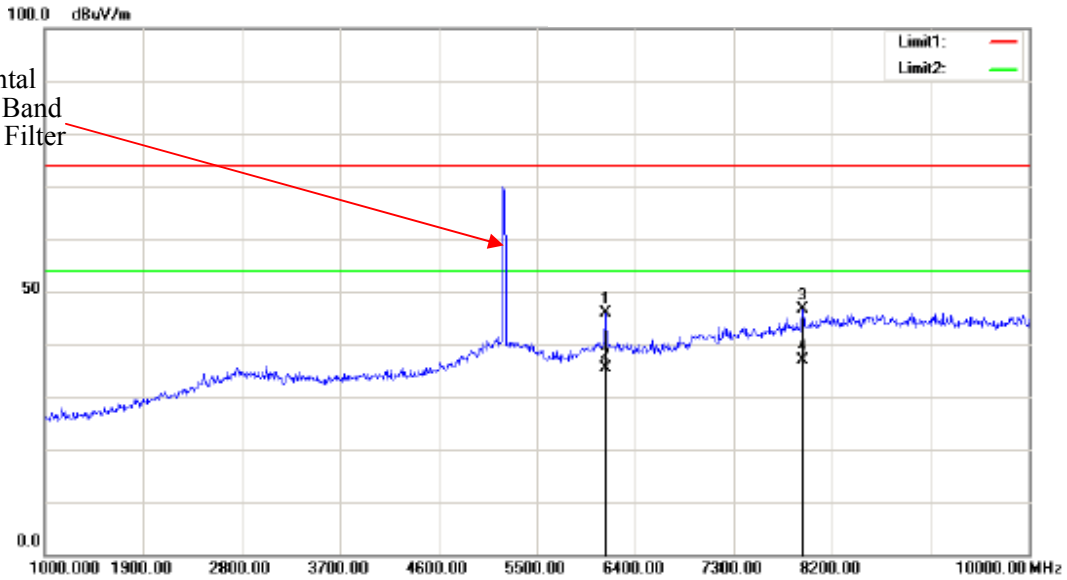
Note: No emission was detected in the range 18-40GHz.

Vertical

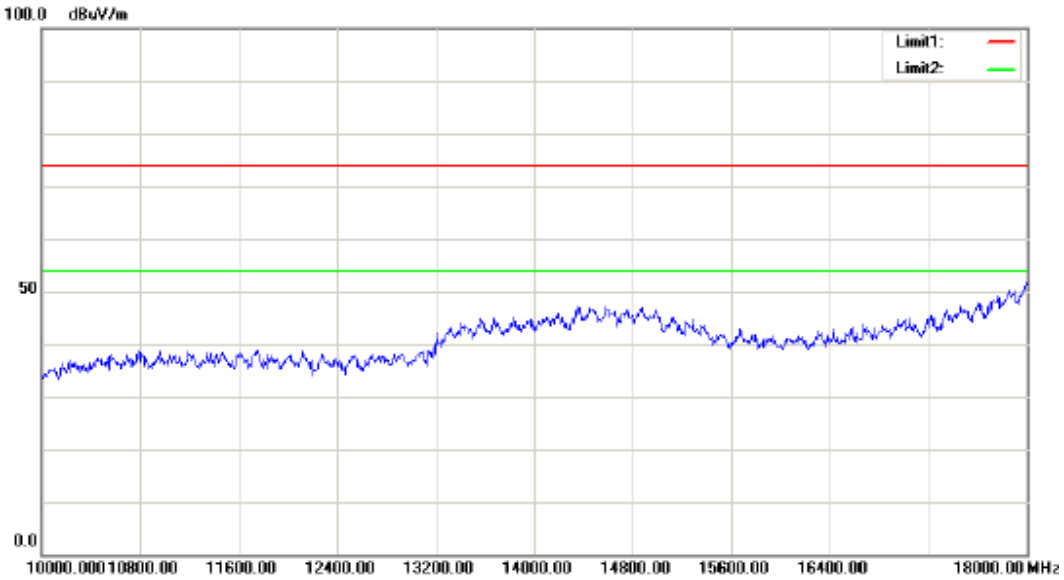


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5201.640	80.35	peak	31.22	111.57	125.20	158	69	13.63	Fundamental
	2	5201.640	70.62	AVG	31.22	101.84	125.20	158	69	23.36	Fundamental

Fundamental Test with Band Rejection Filter



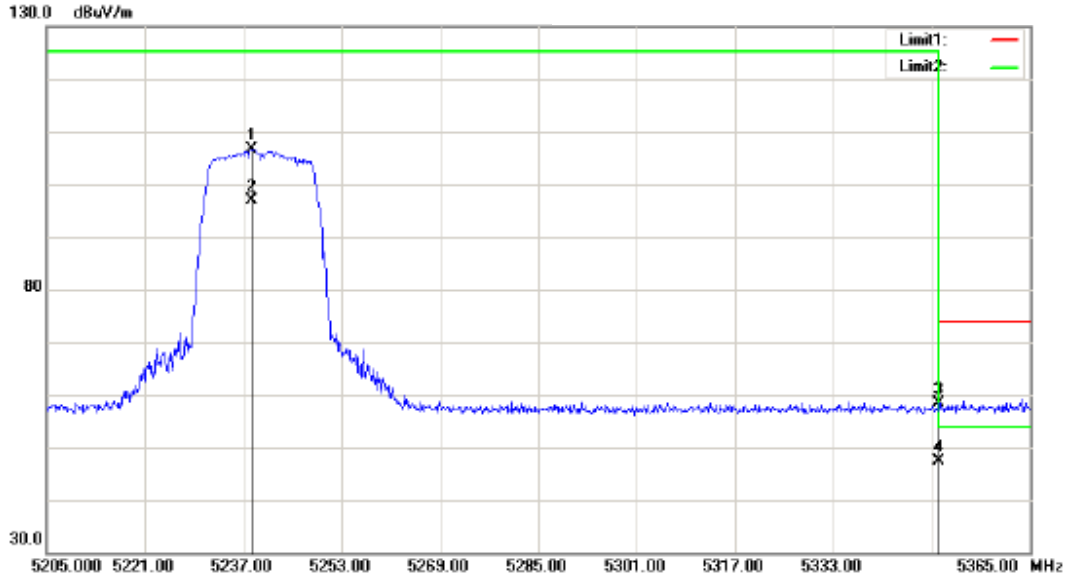
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	50.77	peak	-4.92	45.85	74.00	168	150	28.15	
	2	6130.000	40.37	AVG	-4.92	35.45	54.00	168	150	18.55	
	3	7934.500	48.04	peak	-1.38	46.66	74.00	168	150	27.34	
*	4	7934.500	38.23	AVG	-1.38	36.85	54.00	168	150	17.15	



Note: No emission was detected in the range 18-40GHz.

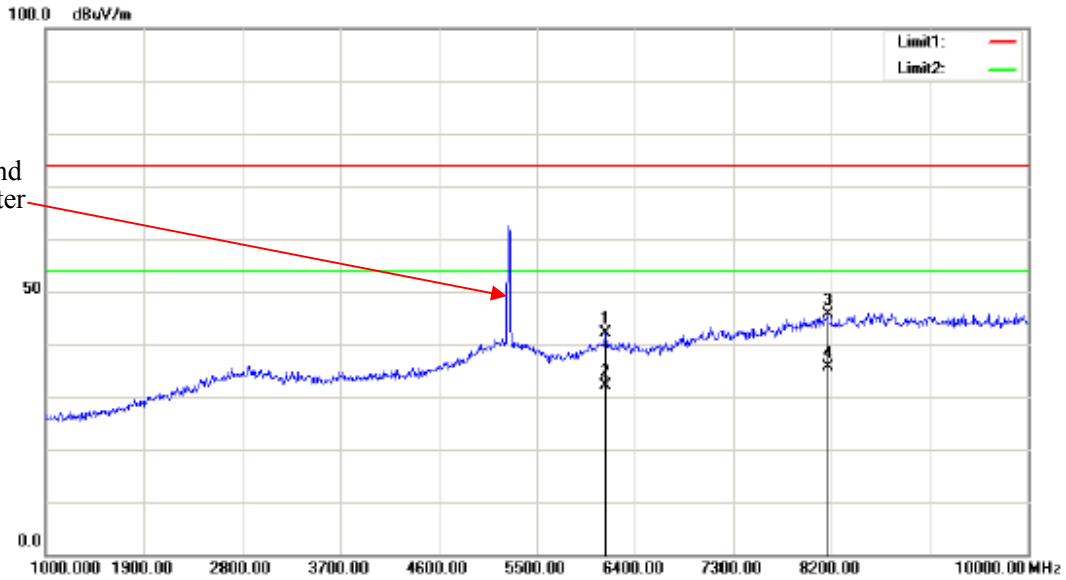
High Channel

Horizontal

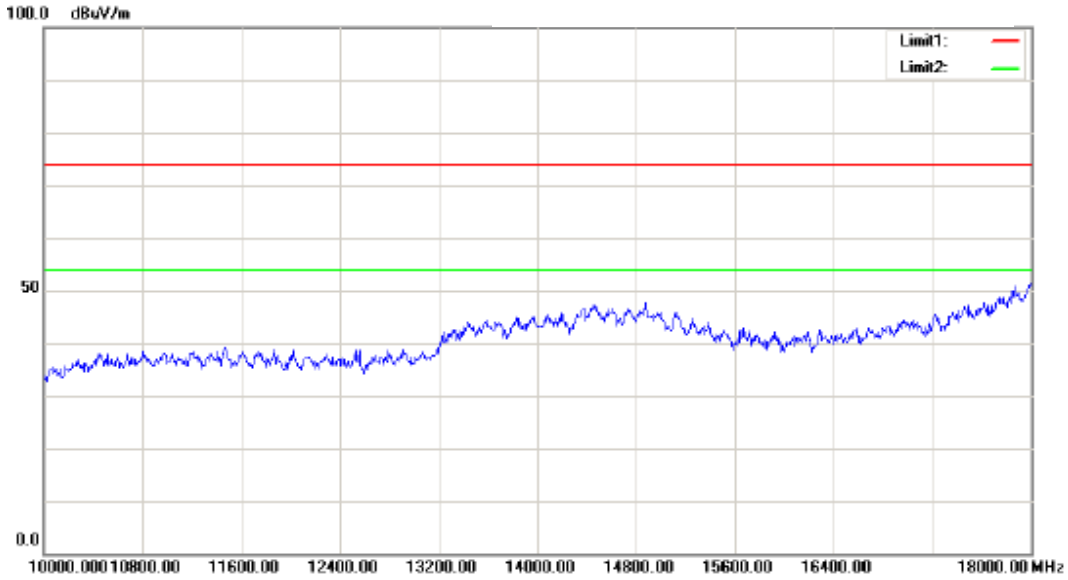


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5238.360	75.33	peak	31.21	106.54	125.20	138	79	18.66	Fundamental
	2	5238.360	65.62	AVG	31.21	96.83	125.20	138	79	28.37	Fundamental
	3	5350.000	26.97	peak	31.38	58.35	74.00	138	79	15.65	
*	4	5350.000	15.88	AVG	31.38	47.26	54.00	138	79	6.74	

Fundamental Test with Band Rejection Filter

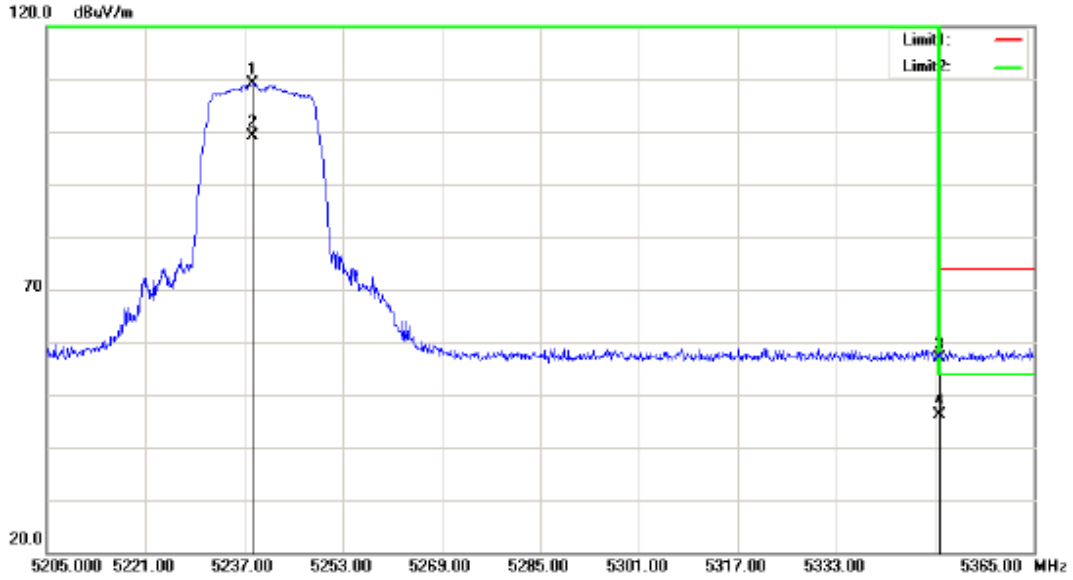


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	47.16	peak	-4.92	42.24	74.00	170	123	31.76	
	2	6130.000	37.06	AVG	-4.92	32.14	54.00	170	123	21.86	
	3	8168.500	46.66	peak	-0.95	45.71	74.00	170	123	28.29	
*	4	8168.500	36.66	AVG	-0.95	35.71	54.00	170	123	18.29	



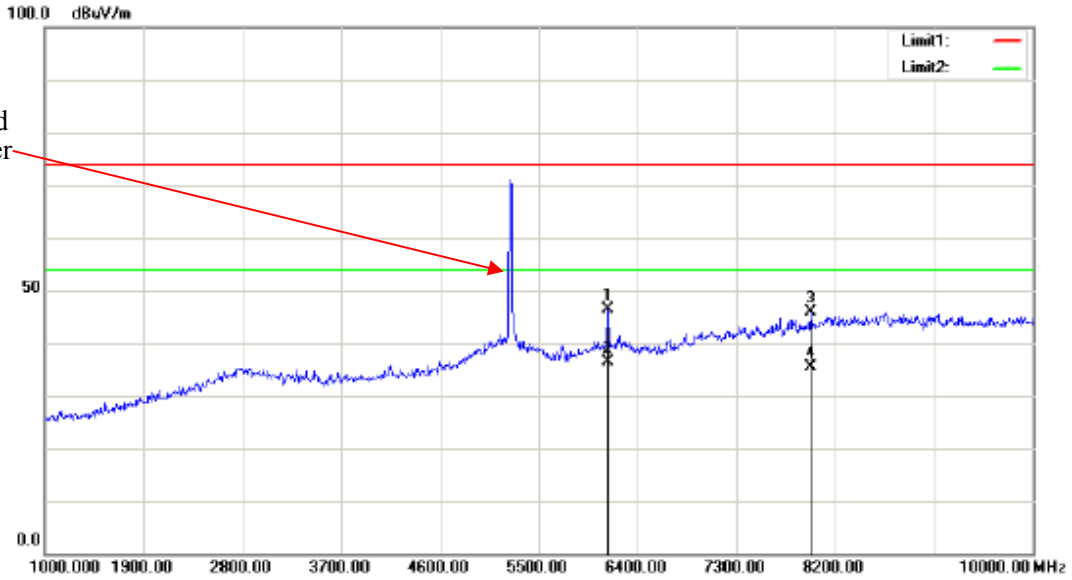
Note: No emission was detected in the range 18-40GHz.

Vertical

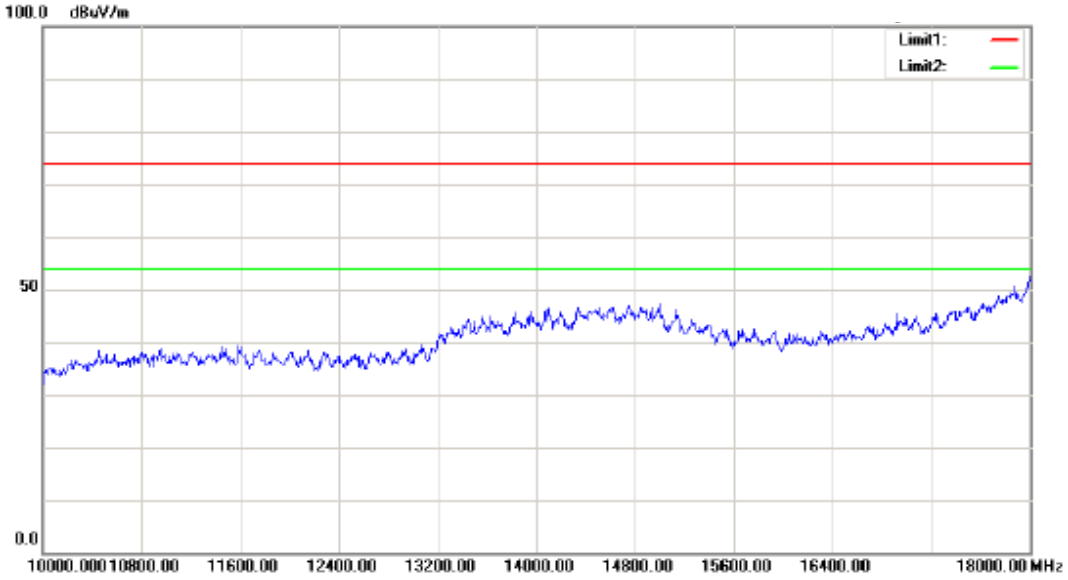


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5238.440	77.93	peak	31.21	109.14	125.20	152	49	16.06	Fundamental
	2	5238.440	67.99	AVG	31.21	99.20	125.20	152	49	26.00	Fundamental
	3	5350.000	25.47	peak	31.38	56.85	74.00	152	49	17.15	
*	4	5350.000	14.67	AVG	31.38	46.05	54.00	152	49	7.95	

Fundamental Test with Band Rejection Filter



Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	51.22	peak	-4.92	46.30	74.00	175	110	27.70	
*	2	6130.000	41.22	AVG	-4.92	36.30	54.00	175	110	17.70	
	3	7975.000	47.17	peak	-1.24	45.93	74.00	175	110	28.07	
	4	7975.000	36.73	AVG	-1.24	35.49	54.00	175	110	18.51	

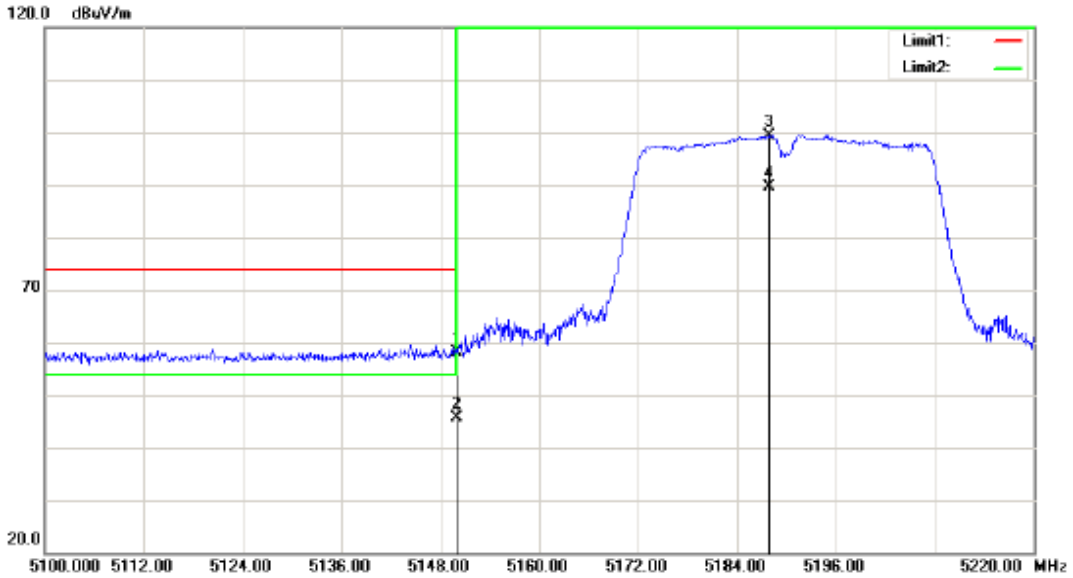


Note: No emission was detected in the range 18-40GHz.

802.11n40(2TX was the worst):

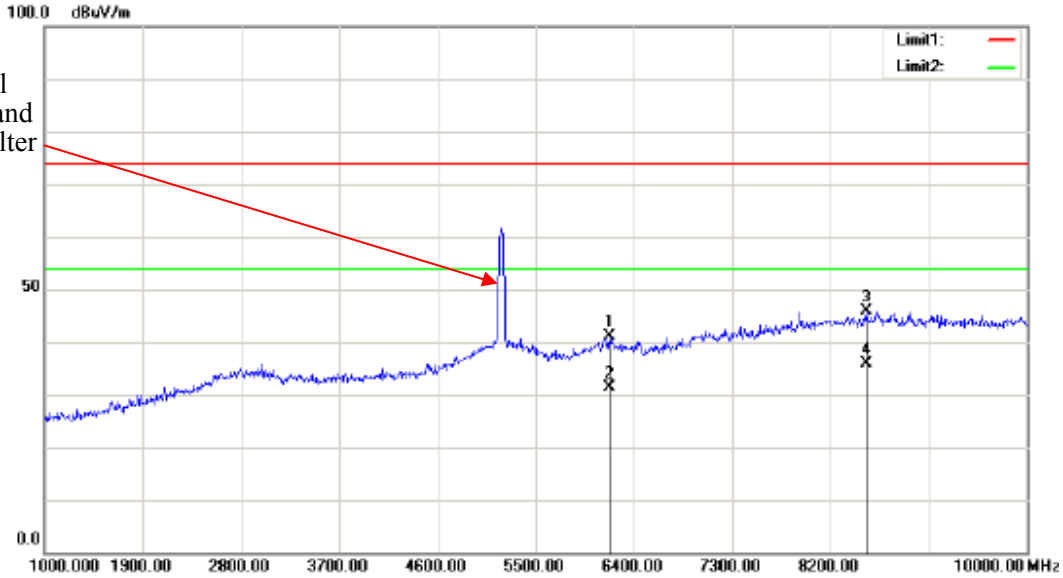
Low Channel

Horizontal

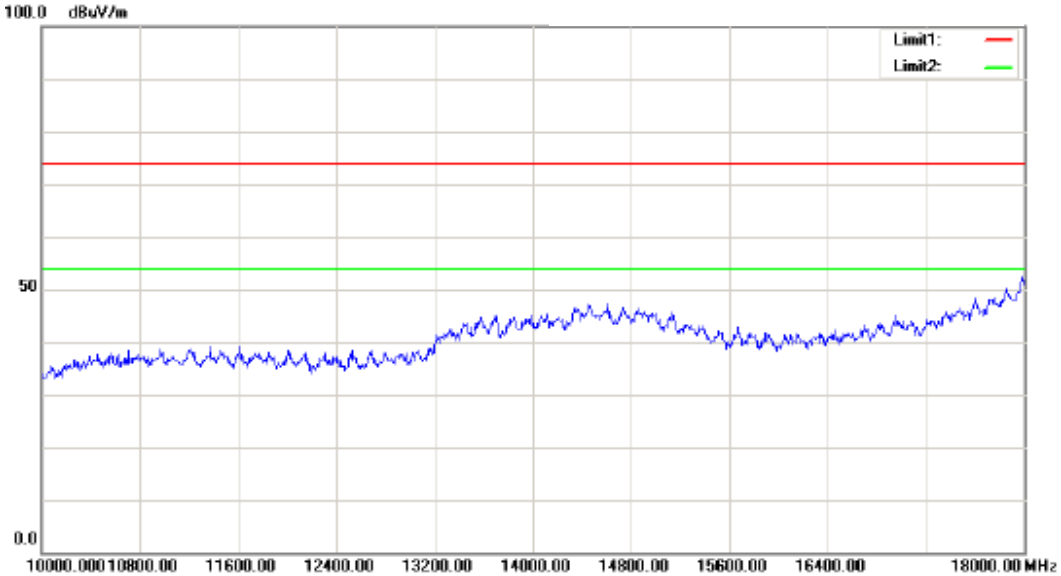


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5150.000	27.14	peak	31.10	58.24	74.00	154	225	15.76	
*	2	5150.000	14.53	AVG	31.10	45.63	54.00	154	225	8.37	
	3	5188.020	68.17	peak	31.19	99.36	125.20	154	225	25.84	Fundamental
	4	5188.020	58.46	AVG	31.19	89.65	125.20	154	225	35.55	Fundamental

Fundamental Test with Band Rejection Filter

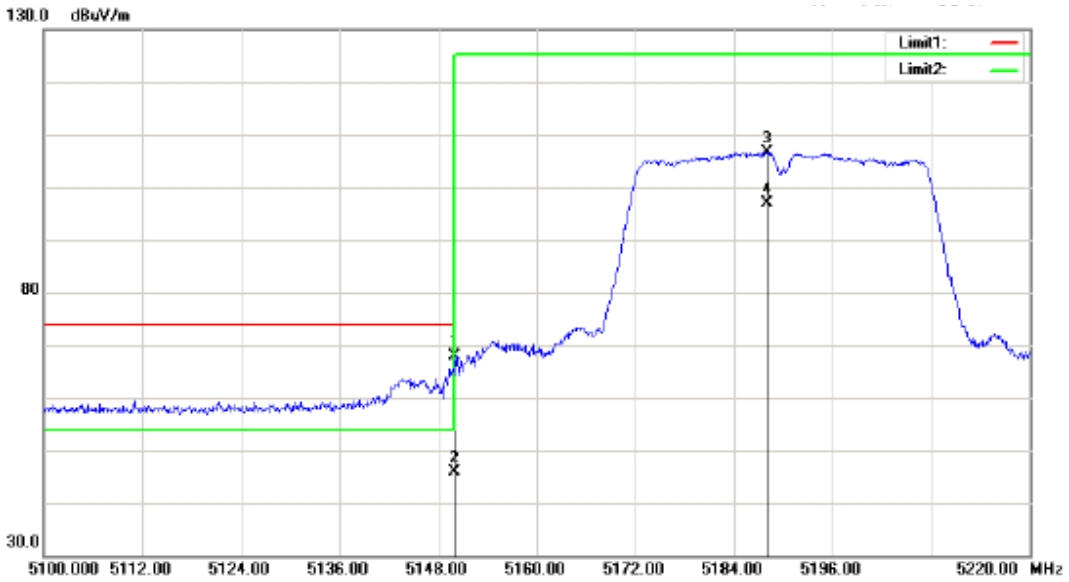


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6175.000	45.95	peak	-4.82	41.13	74.00	155	200	32.87	
	2	6175.000	36.27	AVG	-4.82	31.45	54.00	155	200	22.55	
	3	8528.500	46.47	peak	-0.50	45.97	74.00	155	200	28.03	
*	4	8528.500	36.37	AVG	-0.50	35.87	54.00	155	200	18.13	



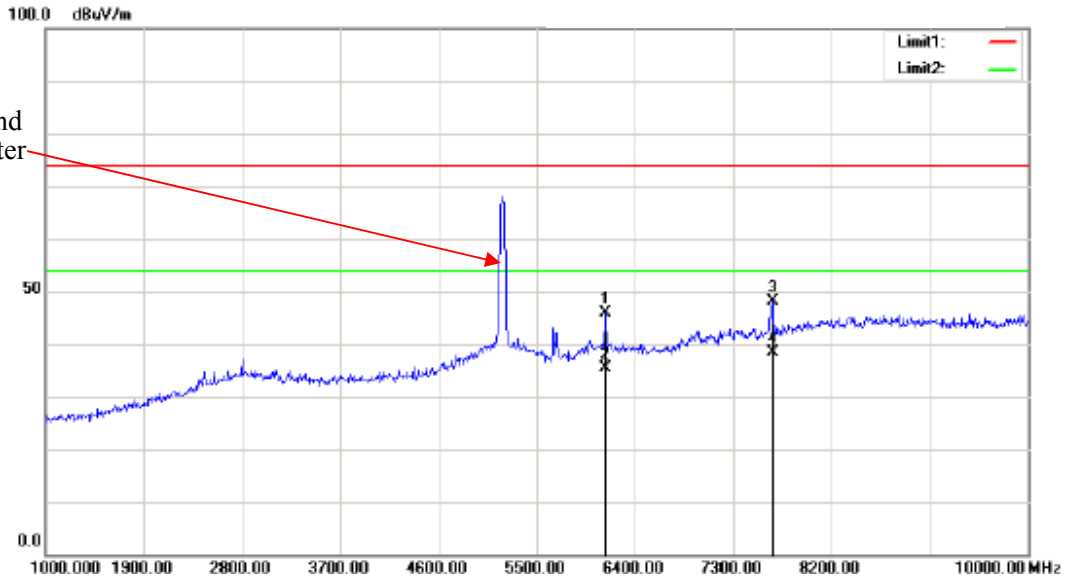
Note: No emission was detected in the range 18-40GHz.

Vertical:

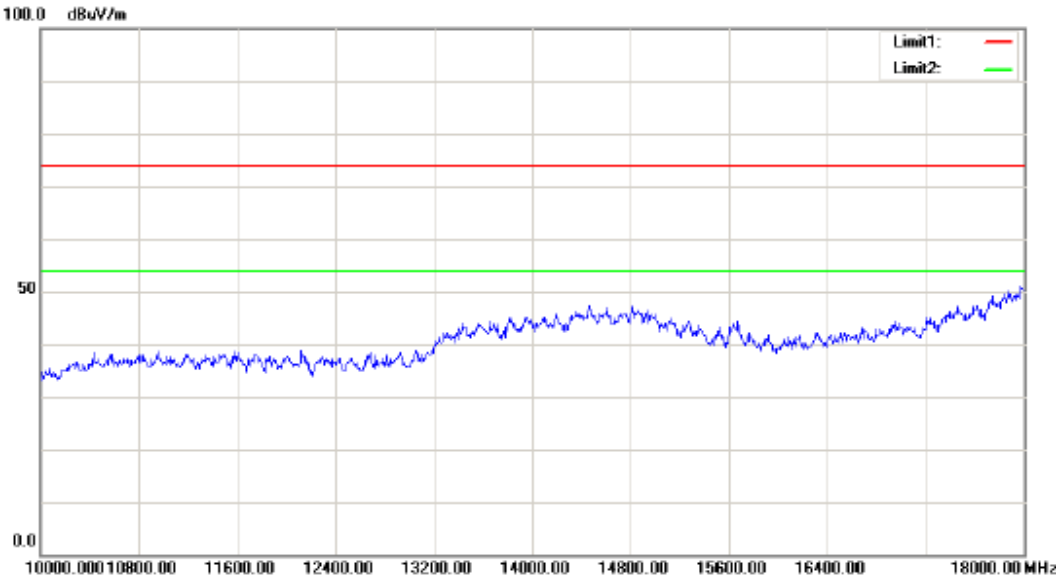


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5150.000	36.71	peak	31.10	67.81	74.00	149	224	6.19	
	2	5150.000	14.88	AVG	31.10	45.98	54.00	149	224	8.02	
	3	5188.140	75.48	peak	31.19	106.67	125.20	149	224	18.53	Fundamental
	4	5188.140	65.62	AVG	31.19	96.81	125.20	149	224	28.39	Fundamental

Fundamental Test with Band Rejection Filter



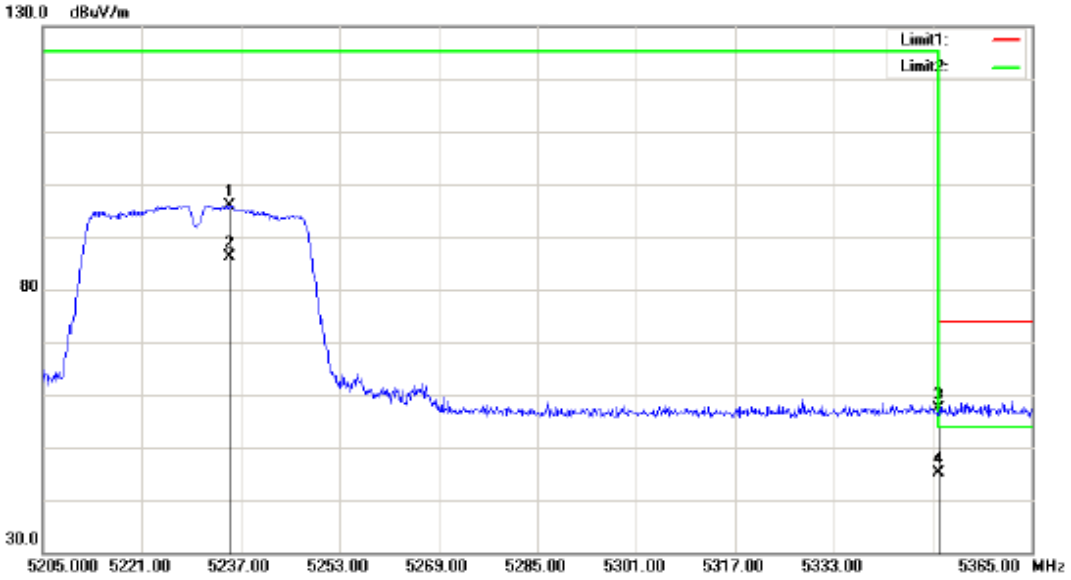
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	50.90	peak	-4.92	45.98	74.00	145	122	28.02	
	2	6130.000	40.41	AVG	-4.92	35.49	54.00	145	122	18.51	
	3	7660.000	50.51	peak	-2.27	48.24	74.00	145	122	25.76	
*	4	7660.000	40.74	AVG	-2.27	38.47	54.00	145	122	15.53	



Note: No emission was detected in the range 18-40GHz.

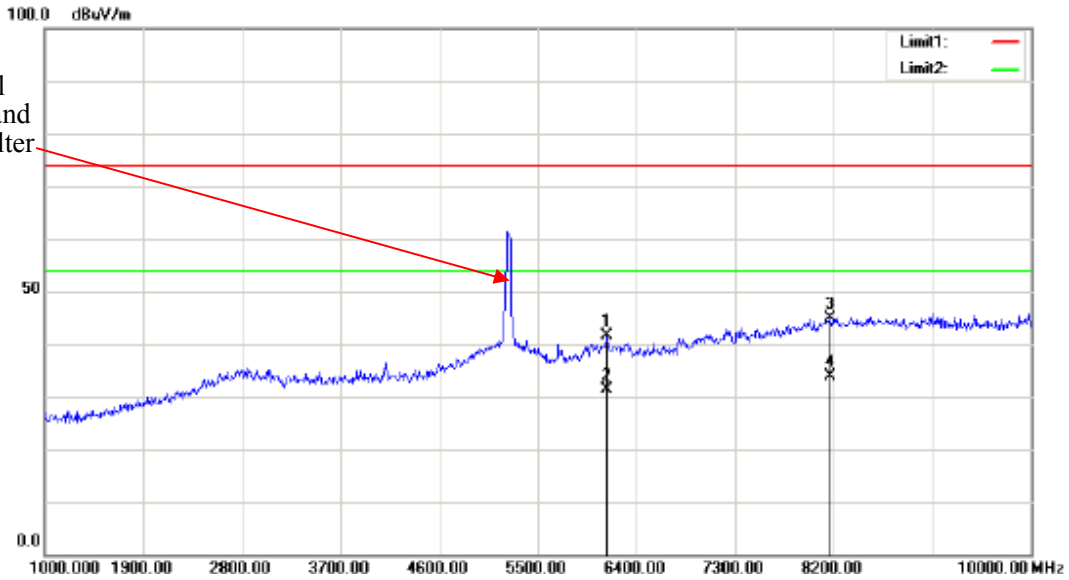
High Channel

Horizontal

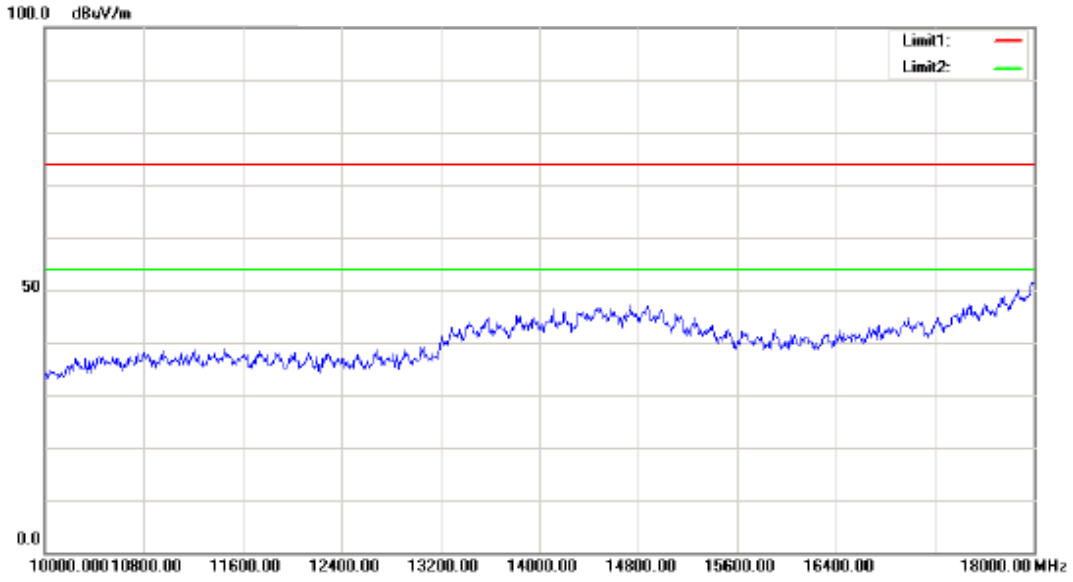


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5235.080	64.71	peak	31.21	95.92	125.20	153	222	29.28	Fundamental
	2	5235.080	54.93	AVG	31.21	86.14	125.20	153	222	39.06	Fundamental
	3	5350.000	26.08	peak	31.38	57.46	74.00	153	222	16.54	
*	4	5350.000	13.65	AVG	31.38	45.03	54.00	153	222	8.97	

Fundamental Test with Band Rejection Filter

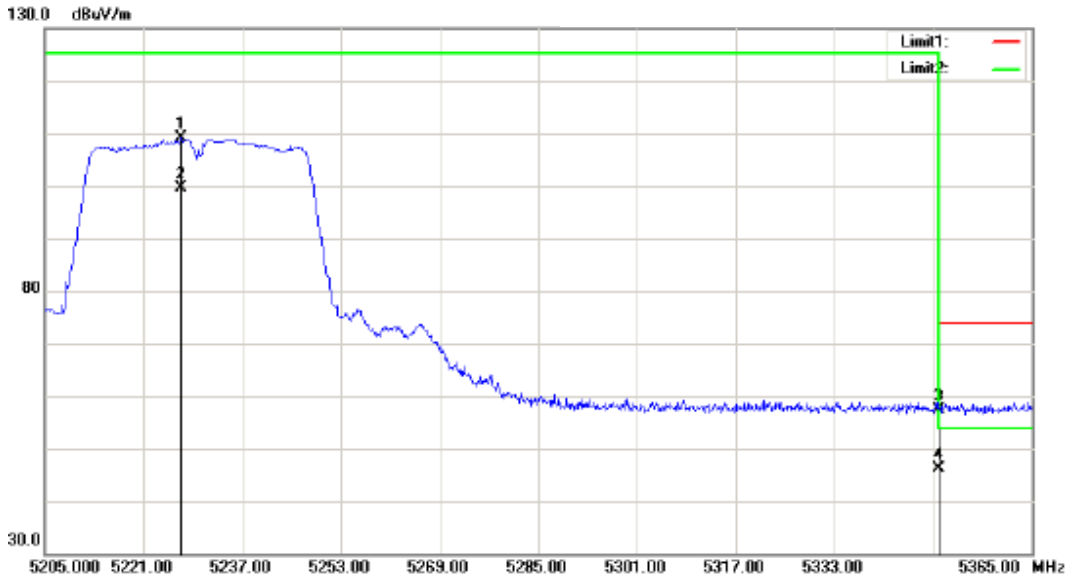


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	46.62	peak	-4.92	41.70	74.00	154	200	32.30	
	2	6130.000	36.20	AVG	-4.92	31.28	54.00	154	200	22.72	
	3	8173.000	45.85	peak	-0.95	44.90	74.00	154	200	29.10	
*	4	8173.000	34.95	AVG	-0.95	34.00	54.00	154	200	20.00	

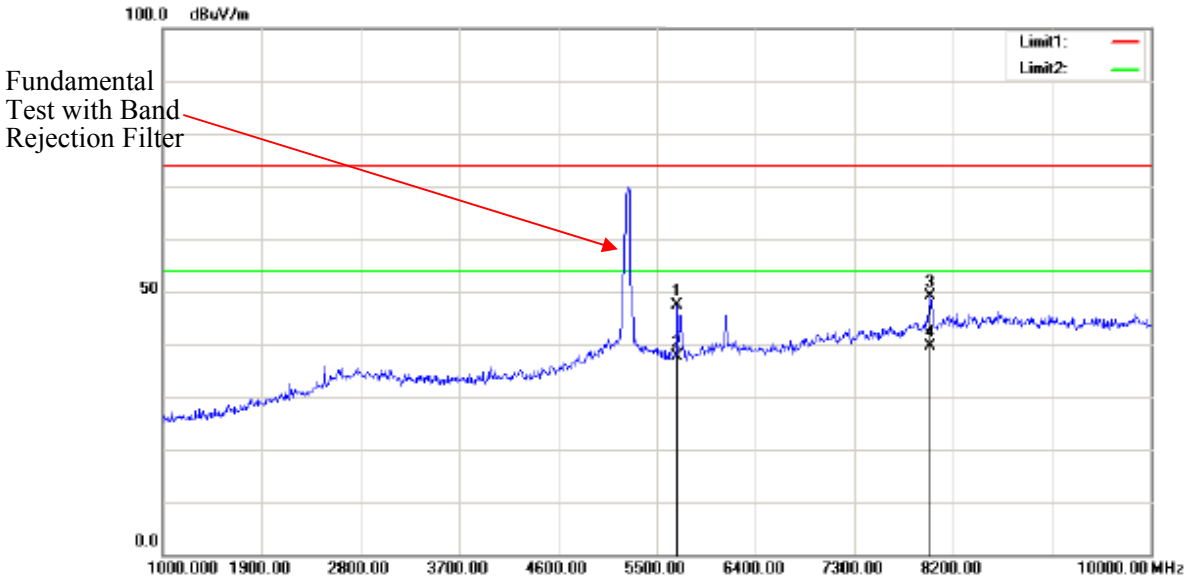


Note: No emission was detected in the range 18-40GHz.

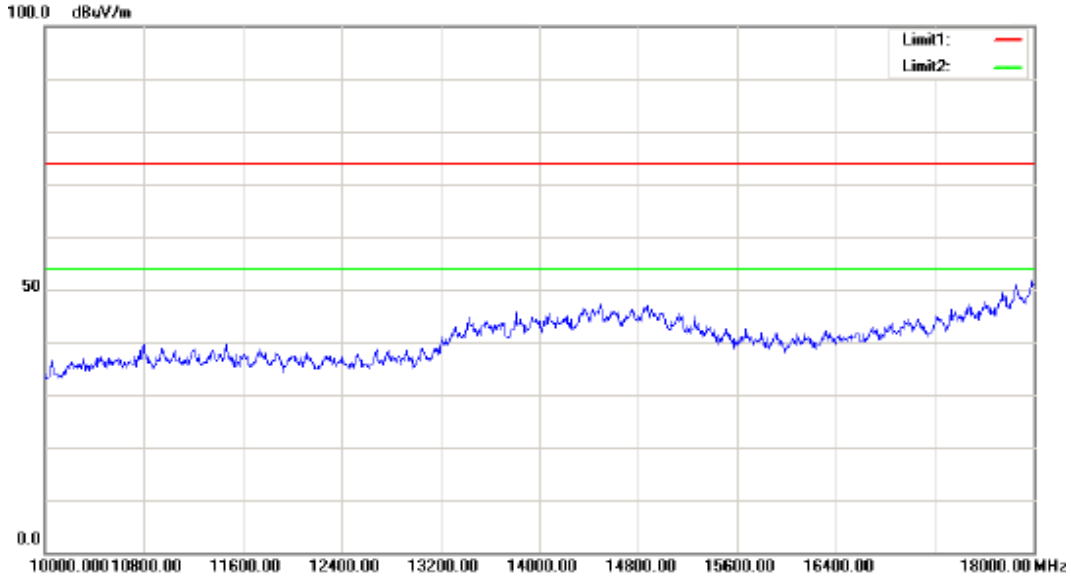
Vertical



Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5227.160	78.00	peak	31.21	109.21	125.20	148	56	15.99	Fundamental
	2	5227.160	68.54	AVG	31.21	99.75	125.20	148	56	25.45	Fundamental
	3	5350.000	26.04	peak	31.38	57.42	74.00	148	56	16.58	
*	4	5350.000	14.78	AVG	31.38	46.16	54.00	148	56	7.84	



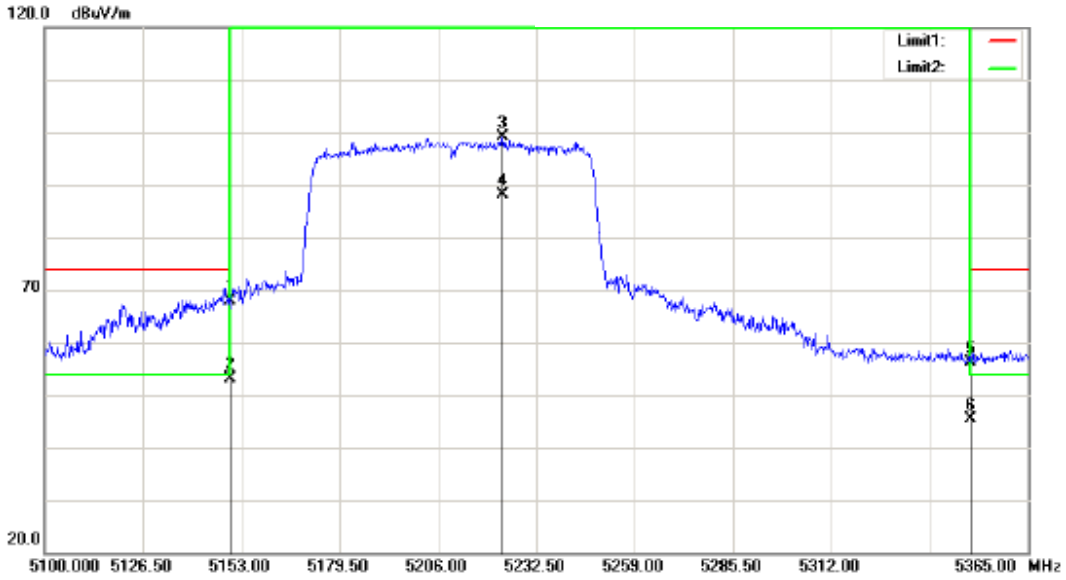
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5693.500	52.91	peak	-5.51	47.40	74.00	166	233	26.60	
	2	5693.500	43.02	AVG	-5.51	37.51	54.00	166	233	16.49	
	3	7993.000	50.34	peak	-1.18	49.16	74.00	166	233	24.84	
*	4	7993.000	40.74	AVG	-1.18	39.56	54.00	166	233	14.44	



Note: No emission was detected in the range 18-40GHz.

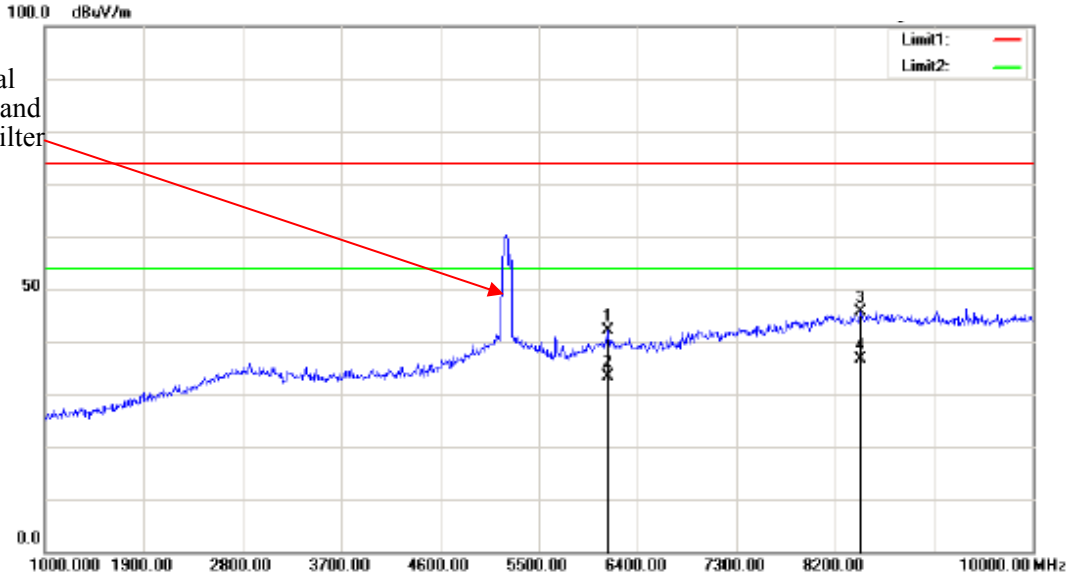
802.11ac80(2TX was the worst):

Horizontal

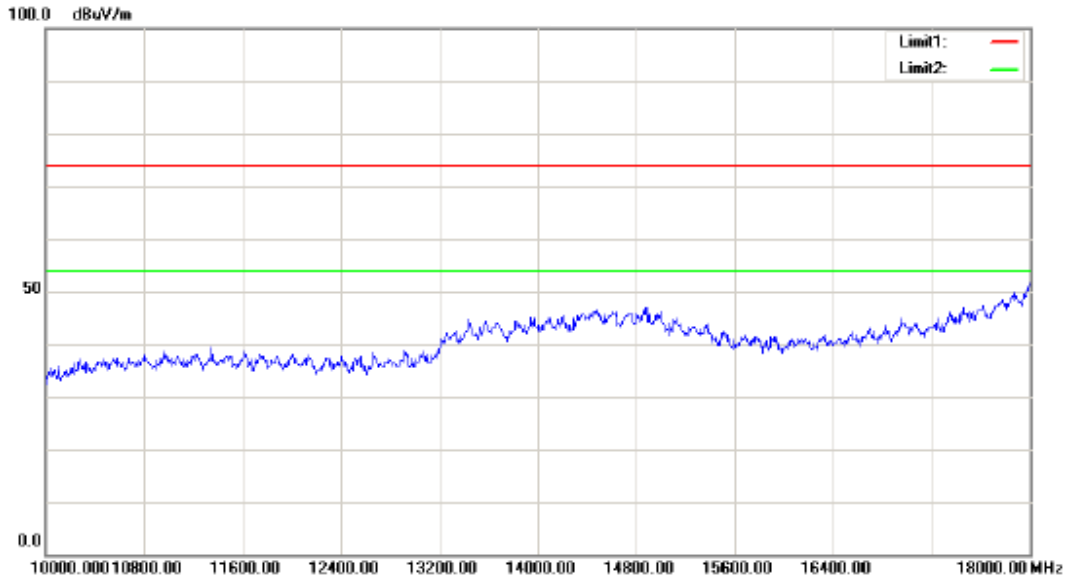


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5150.000	36.75	peak	31.10	67.85	74.00	158	255	6.15	
*	2	5150.000	22.11	AVG	31.10	53.21	54.00	158	255	0.79	
	3	5223.490	67.80	peak	31.22	99.02	125.20	158	255	26.18	Fundamental
	4	5223.490	57.02	AVG	31.22	88.24	125.20	158	255	36.96	Fundamental
	5	5350.000	24.83	peak	31.38	56.21	74.00	158	255	17.79	
	6	5350.000	13.90	AVG	31.38	45.28	54.00	158	255	8.72	

Fundamental Test with Band Rejection Filter

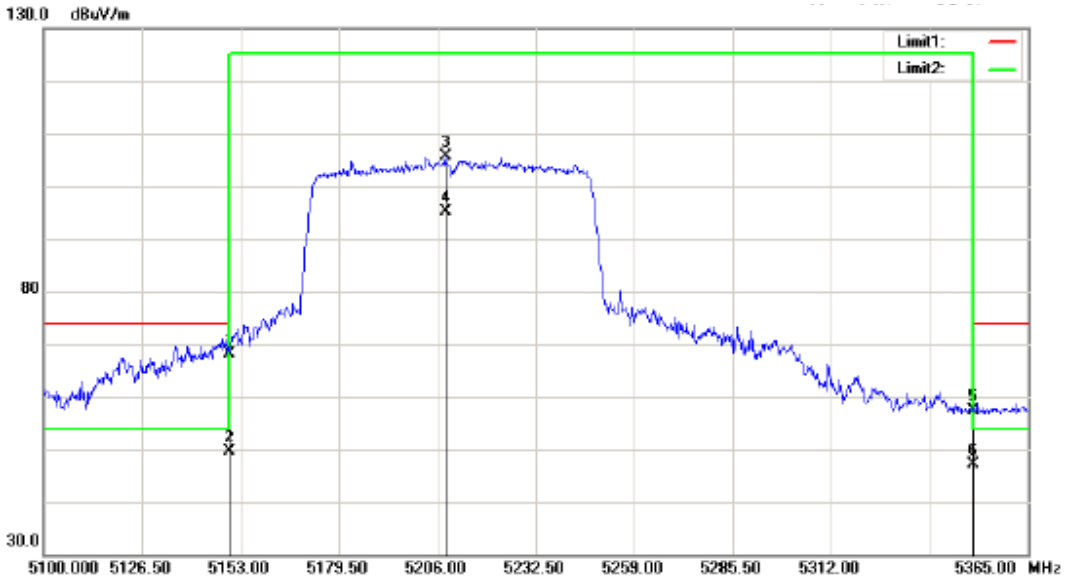


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6130.000	47.10	peak	-4.92	42.18	74.00	154	225	31.82	
	2	6130.000	38.24	AVG	-4.92	33.32	54.00	154	225	20.68	
	3	8434.000	46.15	peak	-0.63	45.52	74.00	154	225	28.48	
*	4	8434.000	37.16	AVG	-0.63	36.53	54.00	154	225	17.47	



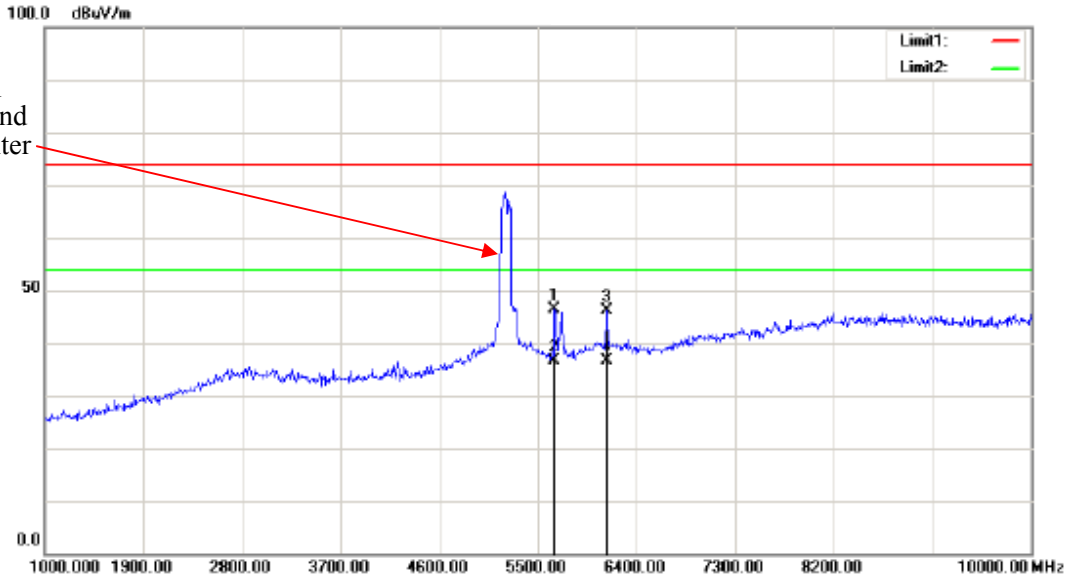
Note: No emission was detected in the range 18-40GHz.

Vertical:

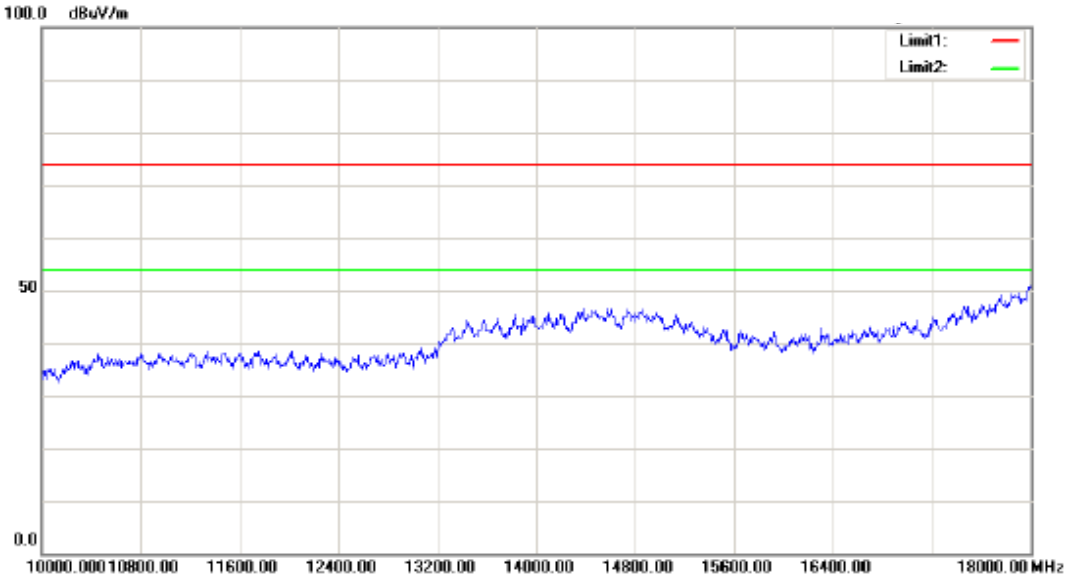


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5150.000	37.06	peak	31.10	68.16	74.00	160	233	5.84	
*	2	5150.000	18.46	AVG	31.10	49.56	54.00	160	233	4.44	
	3	5208.252	74.49	peak	31.21	105.70	125.20	160	233	19.50	Fundamental
	4	5208.252	63.87	AVG	31.21	95.08	125.20	160	233	30.12	Fundamental
	5	5350.000	26.04	peak	31.38	57.42	74.00	160	233	16.58	
	6	5350.000	15.76	AVG	31.38	47.14	54.00	160	233	6.86	

Fundamental Test with Band Rejection Filter



Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5657.500	52.07	peak	-5.66	46.41	74.00	154	226	27.59	
	2	5657.500	42.36	AVG	-5.66	36.70	54.00	154	226	17.30	
	3	6130.000	51.08	peak	-4.92	46.16	74.00	154	226	27.84	
*	4	6130.000	41.65	AVG	-4.92	36.73	54.00	154	226	17.27	

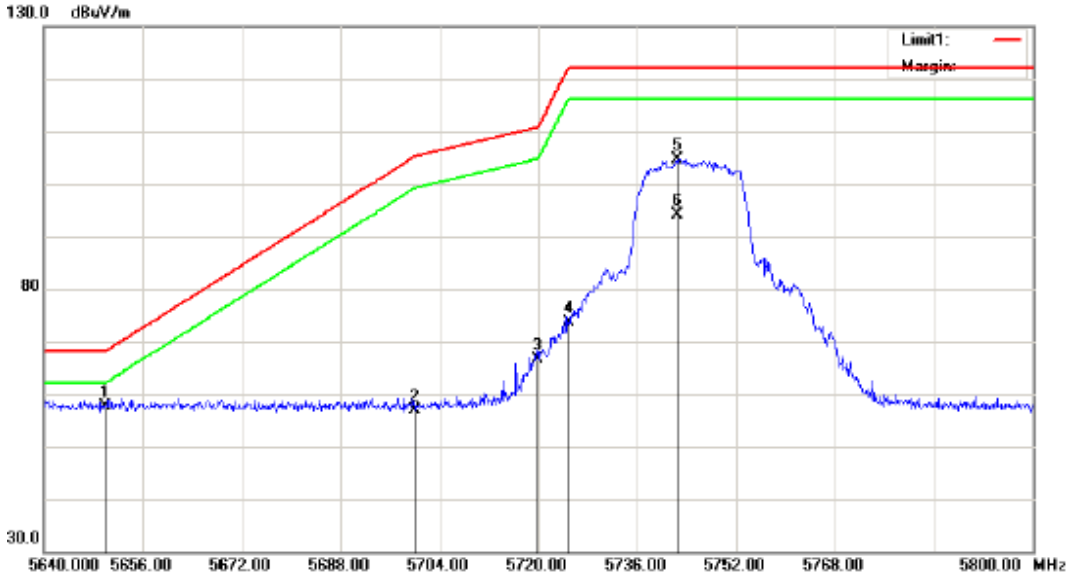


Note: No emission was detected in the range 18-40GHz.

5725-5850MHz, 802.11 a (Chain1 was the worst):

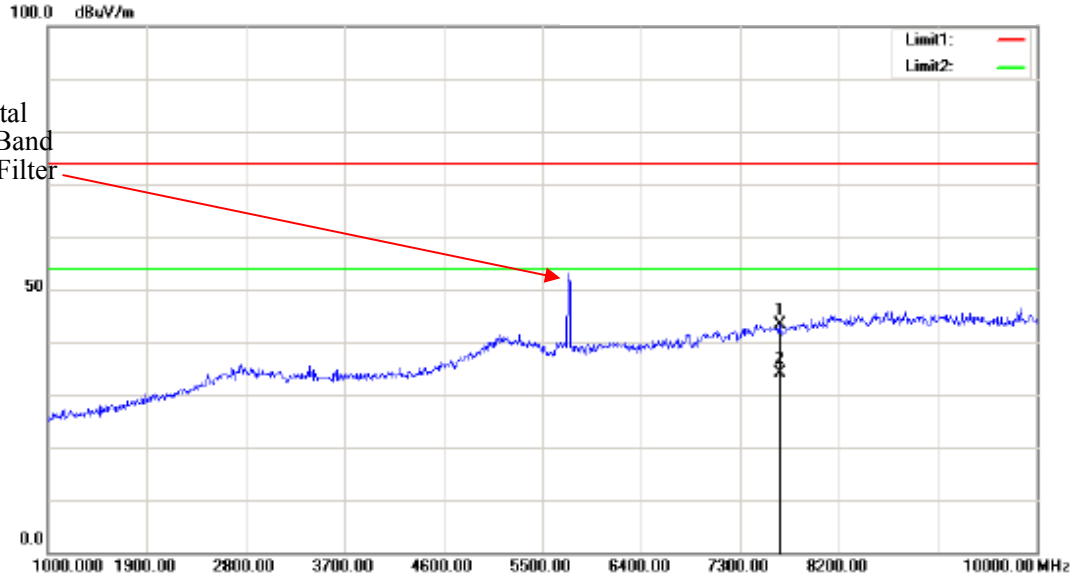
Low Channel

Horizontal

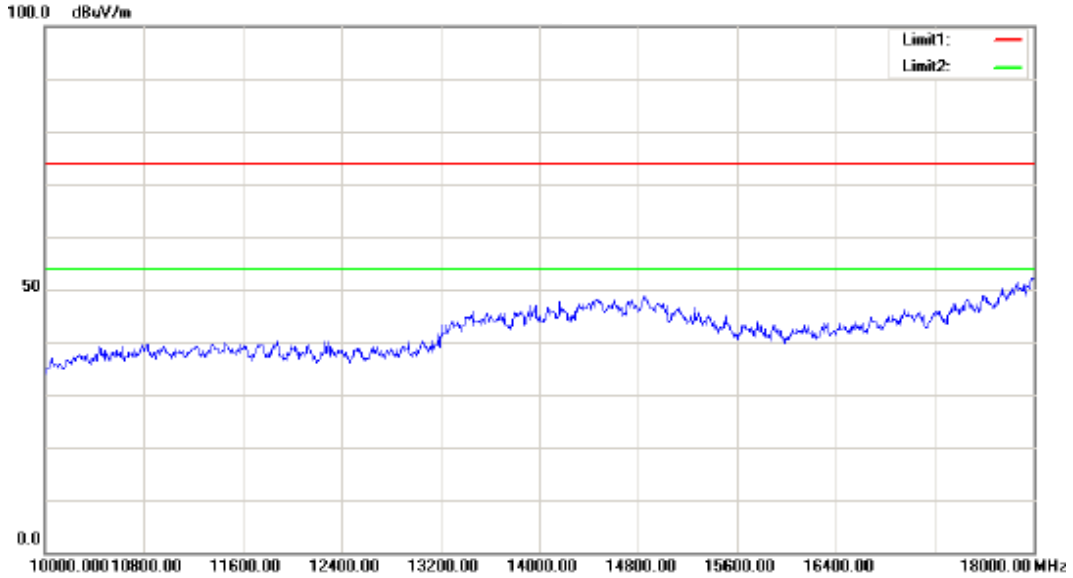


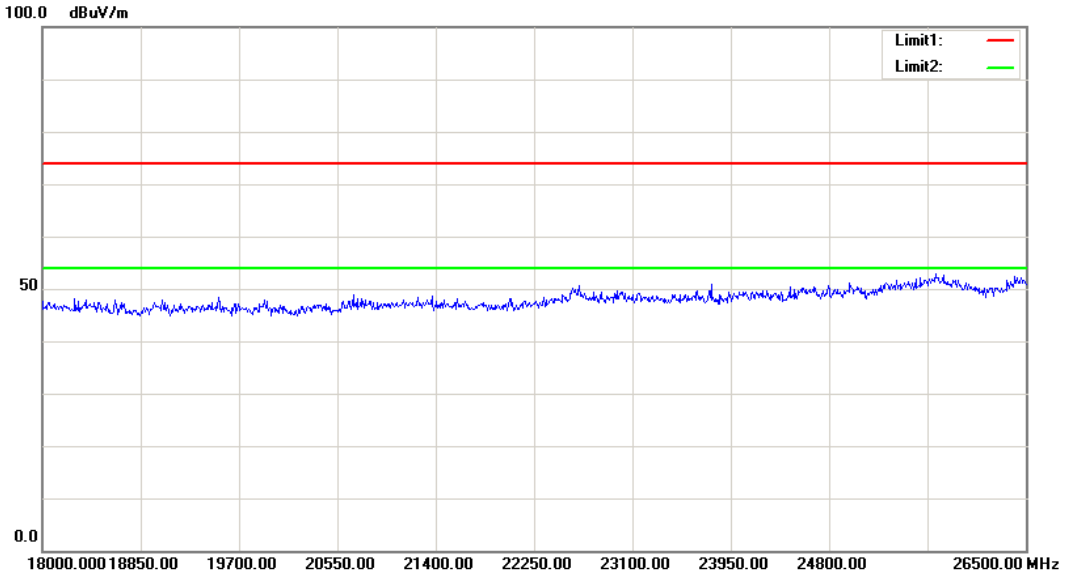
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5650.000	25.82	peak	31.79	57.61	68.20	154	23	10.59	
	2	5700.000	25.05	peak	31.86	56.91	105.20	154	23	48.29	
	3	5720.000	34.87	peak	31.88	66.75	110.80	154	23	44.05	
	4	5725.000	41.75	peak	31.88	73.63	122.20	154	23	48.57	
	5	5742.640	72.82	peak	31.89	104.71	122.20	154	23	17.49	Fundamental
	6	5742.640	62.34	AVG	31.89	94.23	122.20	154	23	27.97	Fundamental

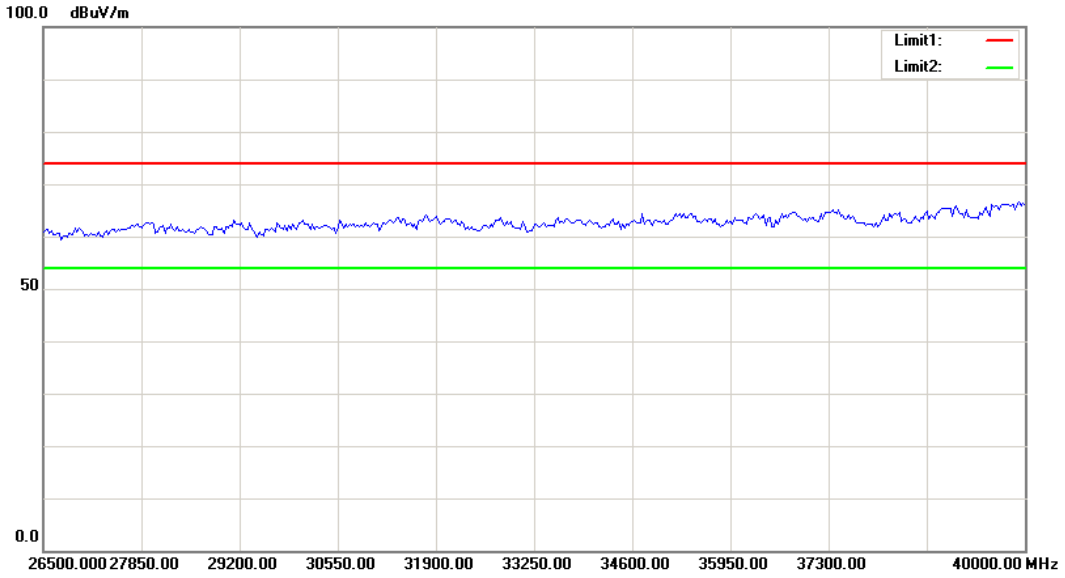
Fundamental Test with Band Rejection Filter



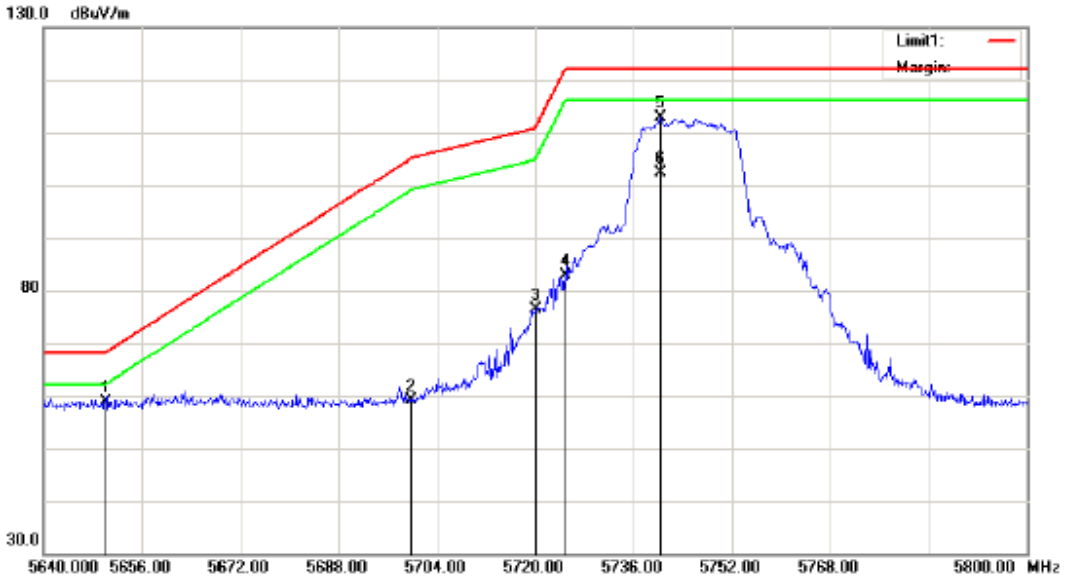
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	7660.000	45.65	peak	-2.27	43.38	74.00	145	23	30.62	
*	2	7660.000	36.52	AVG	-2.27	34.25	54.00	145	23	19.75	




100.0 dBuV/m
Limit1:
Limit2:
50
0.0
18000.000 18850.00 19700.00 20550.00 21400.00 22250.00 23100.00 23950.00 24800.00 26500.00 MHz

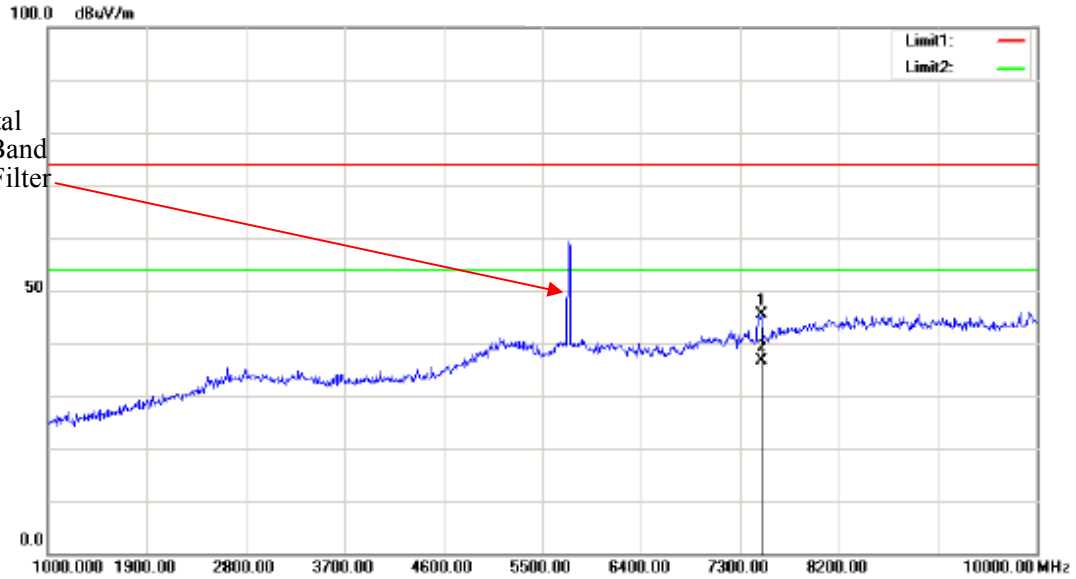

100.0 dBuV/m
Limit1:
Limit2:
50
0.0
26500.000 27850.00 29200.00 30550.00 31900.00 33250.00 34600.00 35950.00 37300.00 40000.00 MHz

Vertical

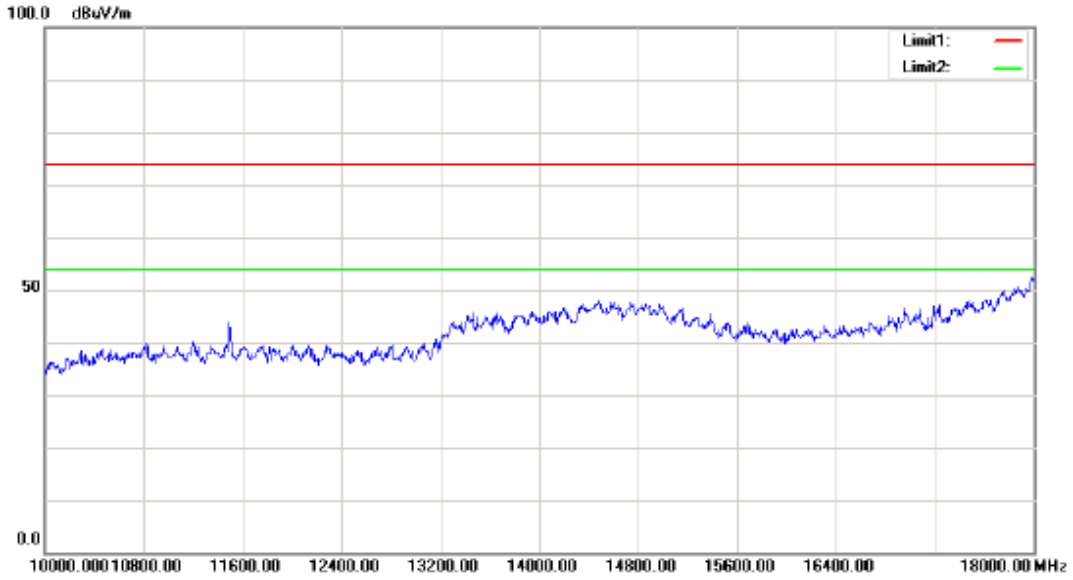


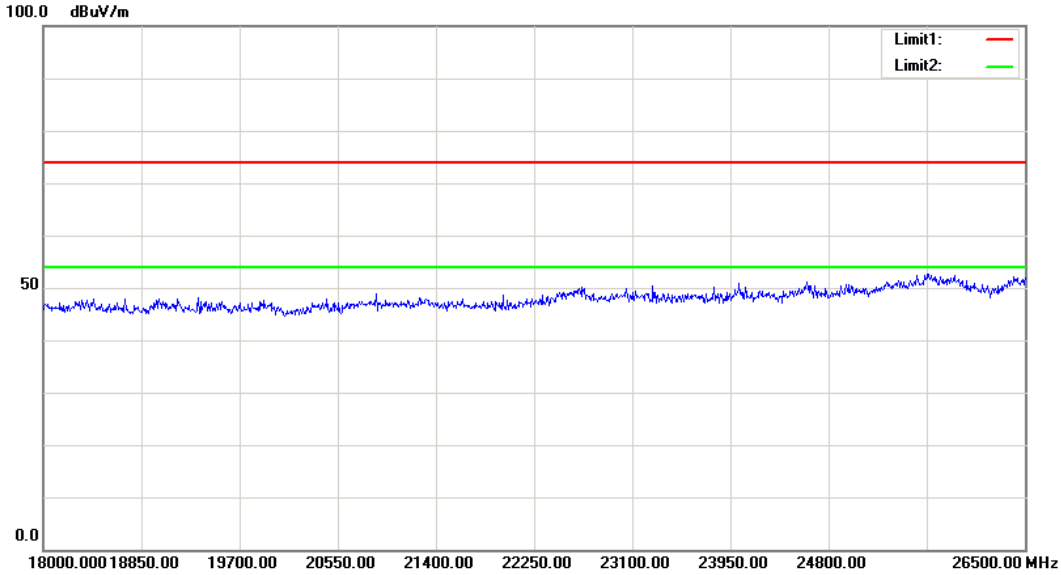
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5650.000	27.07	peak	31.79	58.86	68.20	146	48	9.34	
	2	5700.000	27.19	peak	31.86	59.05	105.20	146	48	46.15	
	3	5720.000	44.53	peak	31.88	76.41	110.80	146	48	34.39	
	4	5725.000	51.05	peak	31.88	82.93	122.20	146	48	39.27	
	5	5740.320	80.93	peak	31.89	112.82	122.20	146	48	9.38	Fundamental
	6	5740.320	70.54	AVG	31.89	102.43	122.20	146	48	19.77	Fundamental

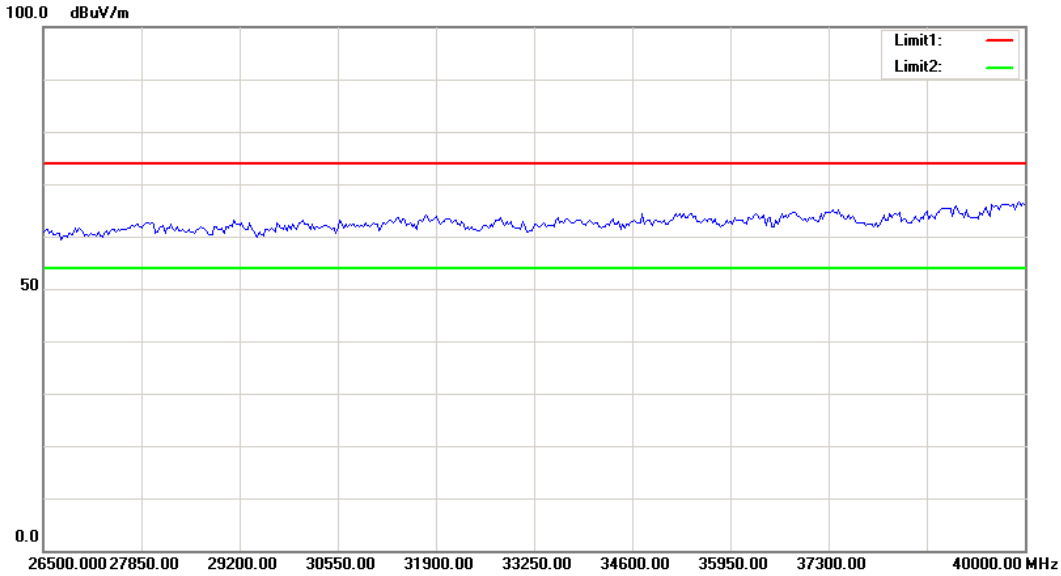
Fundamental Test with Band Rejection Filter



Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	7498.000	48.11	peak	-2.80	45.31	74.00	148	144	28.69	
*	2	7498.000	39.35	AVG	-2.80	36.55	54.00	148	144	17.45	

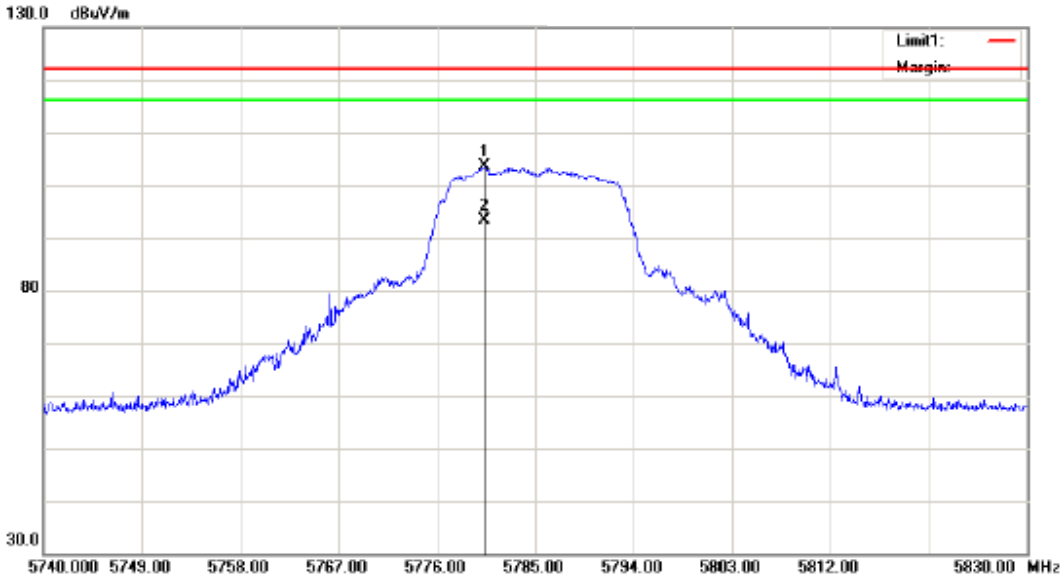



100.0 dBuV/m
Limit1:
Limit2:
50
0.0
18000.000 18850.00 19700.00 20550.00 21400.00 22250.00 23100.00 23950.00 24800.00 26500.00 MHz


100.0 dBuV/m
Limit1:
Limit2:
50
0.0
26500.000 27850.00 29200.00 30550.00 31900.00 33250.00 34600.00 35950.00 37300.00 40000.00 MHz

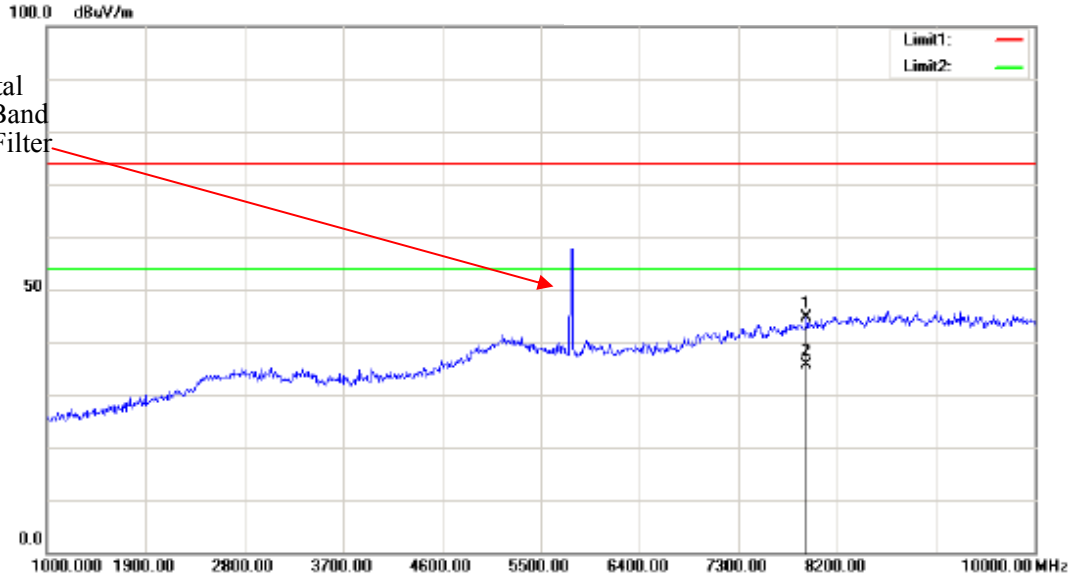
Middle Channel

Horizontal

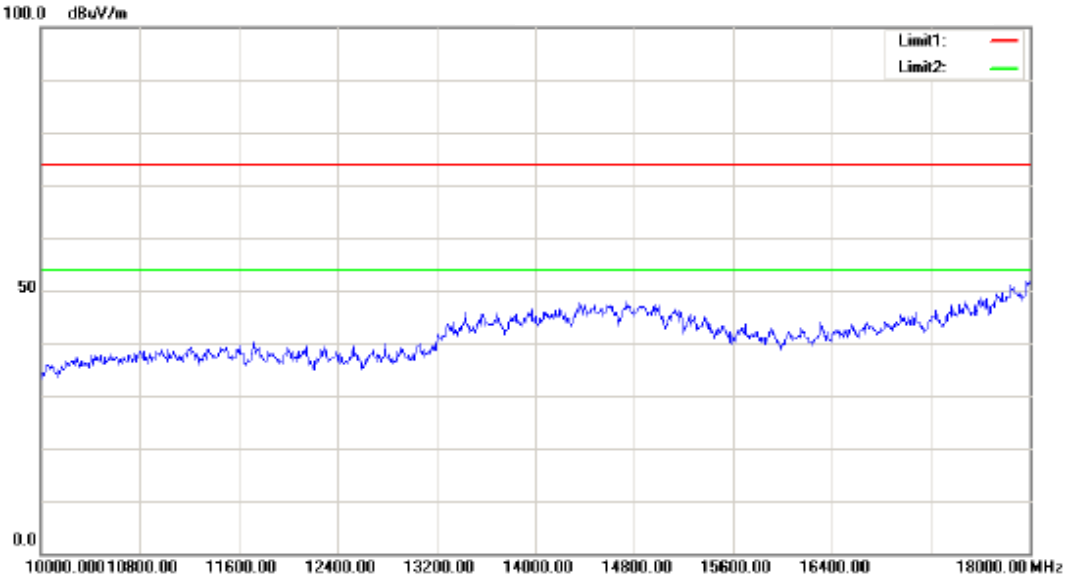


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5780.320	71.62	peak	31.91	103.53	122.20	136	224	18.67	Fundamental
	2	5780.320	61.58	AVG	31.91	93.49	122.20	136	224	28.71	Fundamental

Fundamental Test with Band Rejection Filter

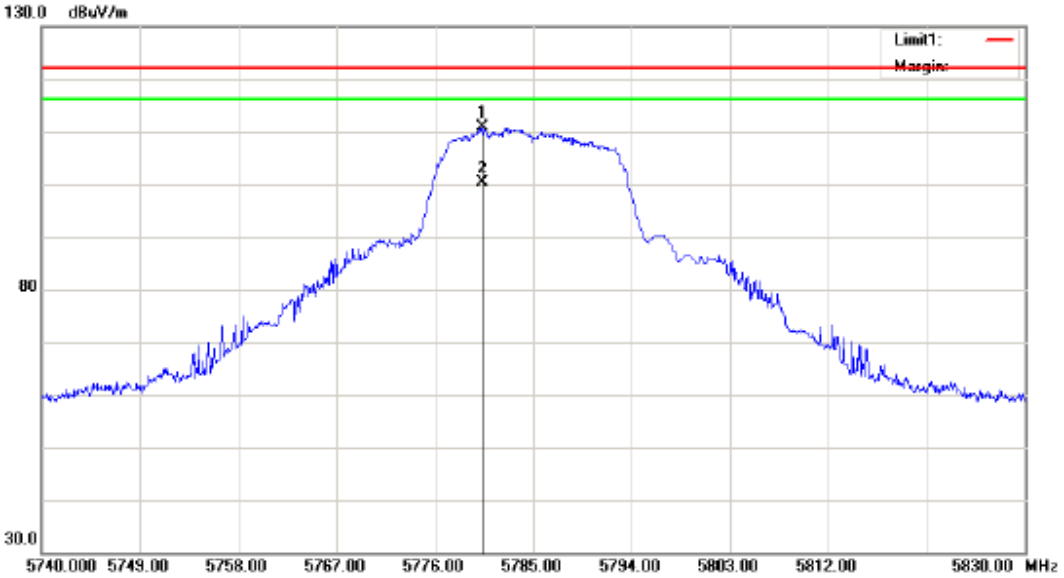


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	7921.000	46.00	peak	-1.42	44.58	74.00	147	226	29.42	
*	2	7921.000	37.16	AVG	-1.42	35.74	54.00	147	226	18.26	



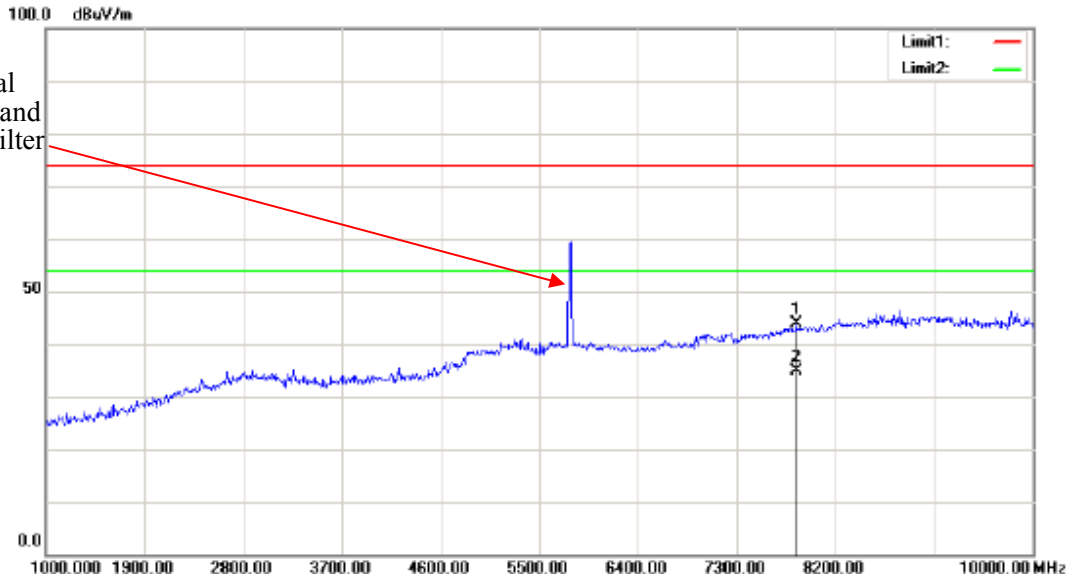
Note: No emission was detected in the range 18-40GHz.

Vertical

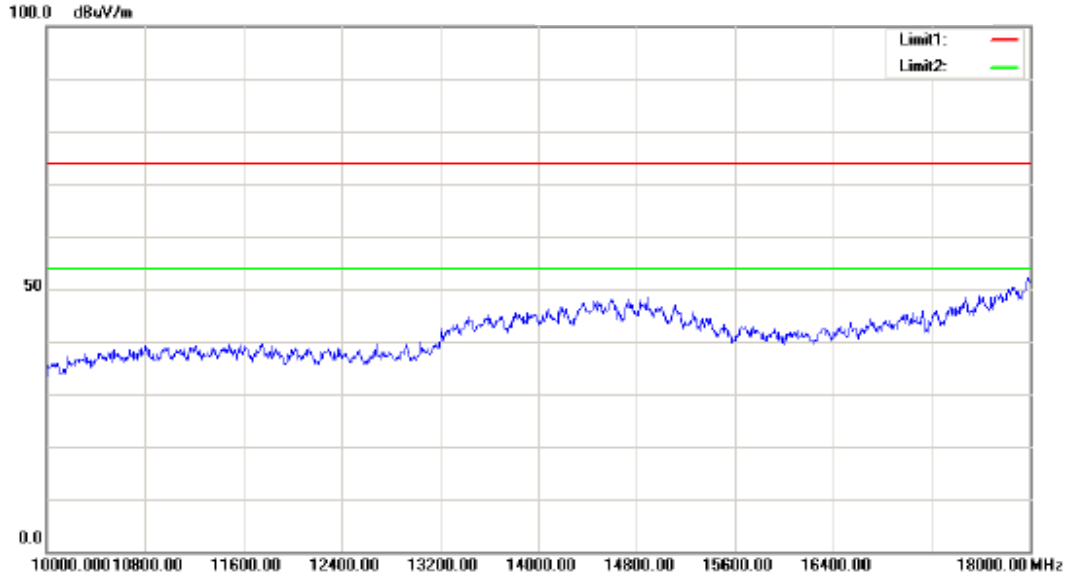


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5780.455	78.86	peak	31.91	110.77	122.20	142	334	11.43	Fundamental
	2	5780.455	68.57	AVG	31.91	100.48	122.20	142	334	21.72	Fundamental

Fundamental Test with Band Rejection Filter



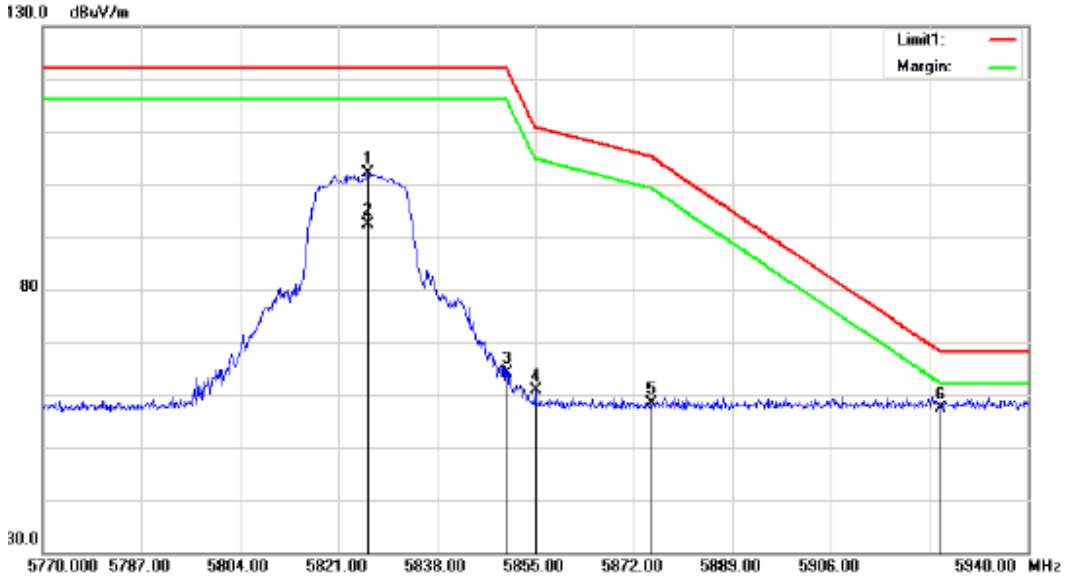
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	7840.000	45.65	peak	-1.68	43.97	74.00	147	122	30.03	
*	2	7840.000	36.68	AVG	-1.68	35.00	54.00	147	122	19.00	



Note: No emission was detected in the range 18-40GHz.

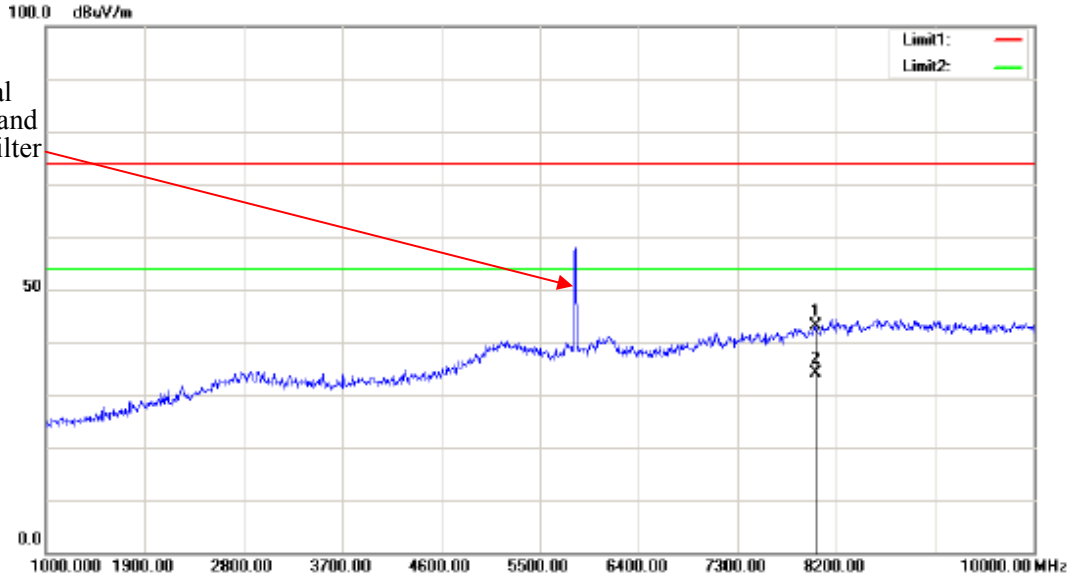
High Channel

Horizontal

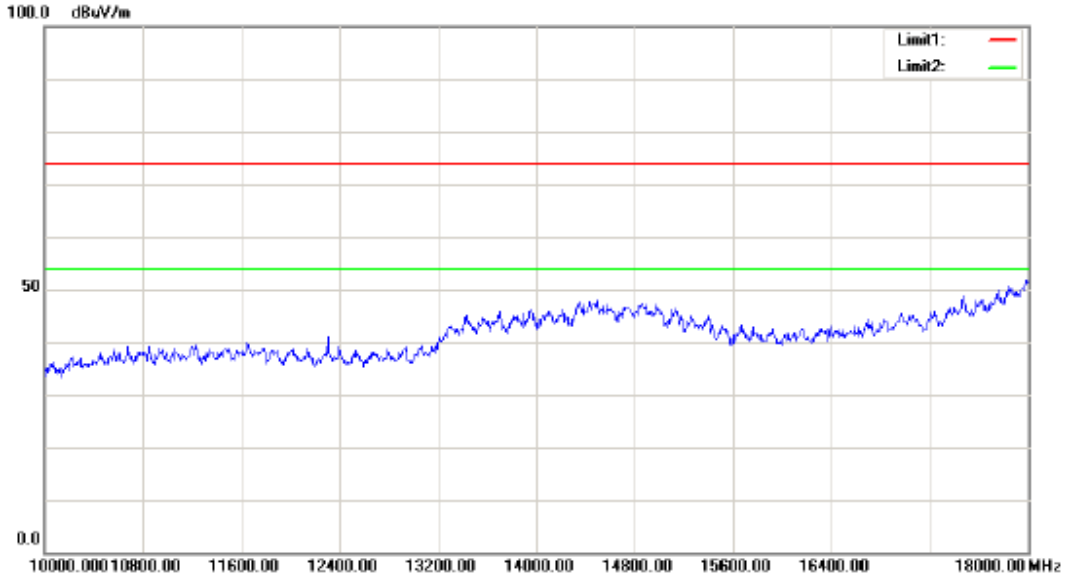


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5826.185	70.27	peak	31.96	102.23	122.20	148	69	19.97	Fundamental
	2	5826.185	60.35	AVG	31.96	92.31	122.20	148	69	29.89	Fundamental
	3	5850.000	32.17	peak	31.99	64.16	122.20	148	69	58.04	
	4	5855.000	28.81	peak	31.99	60.80	110.80	148	69	50.00	
	5	5875.000	26.33	peak	32.02	58.35	105.20	148	69	46.85	
*	6	5925.000	25.23	peak	32.07	57.30	68.20	148	69	10.90	

Fundamental Test with Band Rejection Filter

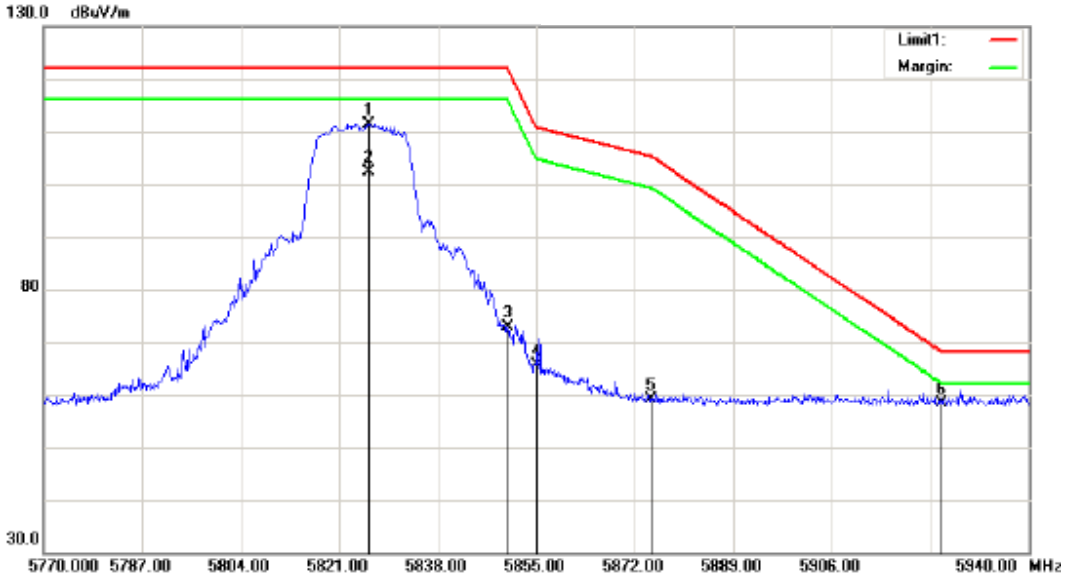


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	8011.000	44.30	peak	-1.15	43.15	74.00	138	223	30.85	
*	2	8011.000	35.38	AVG	-1.15	34.23	54.00	138	223	19.77	



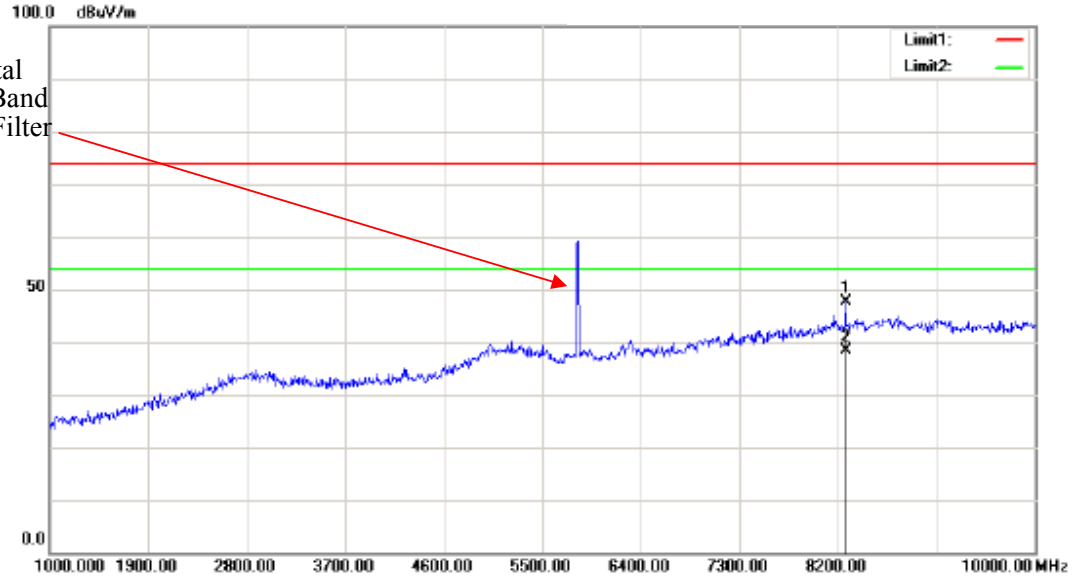
Note: No emission was detected in the range 18-40GHz.

Vertical

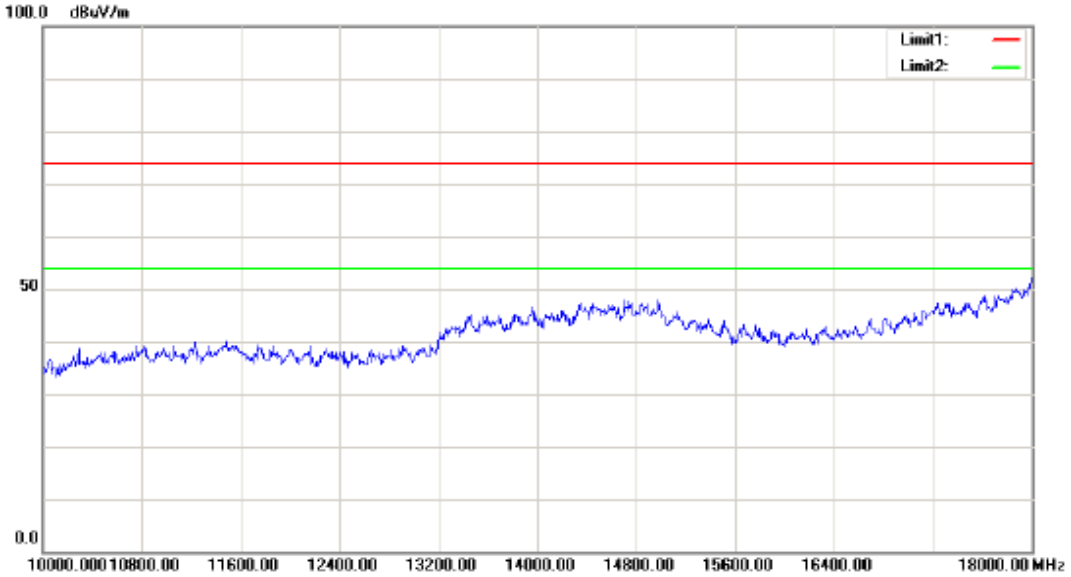


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5826.100	79.53	peak	31.96	111.49	122.20	146	25	10.71	Fundamental
	2	5826.100	70.48	AVG	31.96	102.44	122.20	146	25	19.76	Fundamental
	3	5850.000	40.85	peak	31.99	72.84	122.20	146	25	49.36	
	4	5855.000	33.66	peak	31.99	65.65	110.80	146	25	45.15	
	5	5875.000	27.00	peak	32.02	59.02	105.20	146	25	46.18	
*	6	5925.000	26.38	peak	32.07	58.45	68.20	146	25	9.75	

Fundamental Test with Band Rejection Filter



Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	8276.500	48.43	peak	-0.82	47.61	74.00	148	55	26.39	
*	2	8276.500	39.28	AVG	-0.82	38.46	54.00	148	55	15.54	

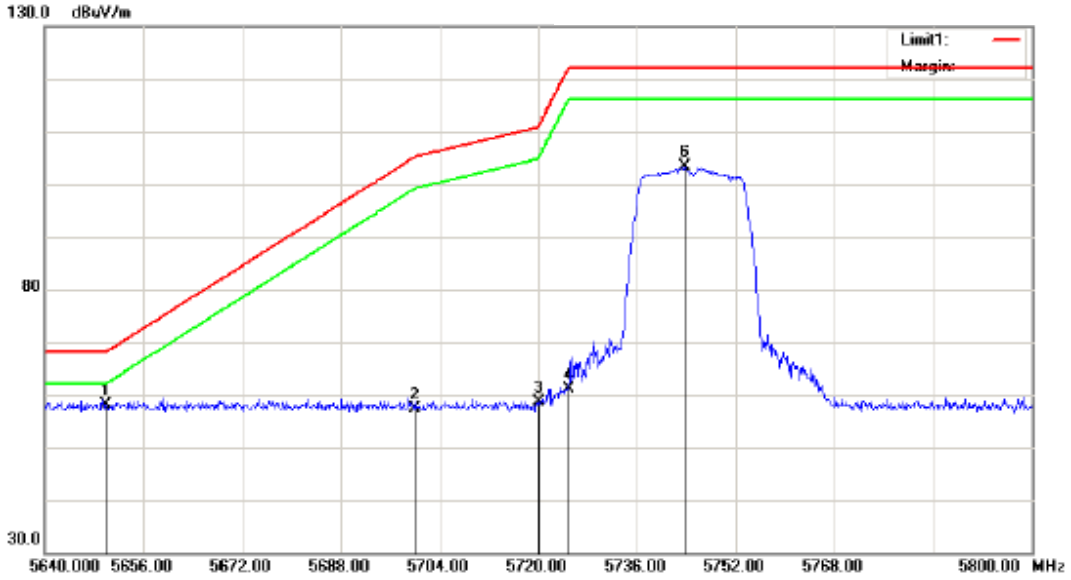


Note: No emission was detected in the range 18-40GHz.

802.11n20(2TX was the worst):

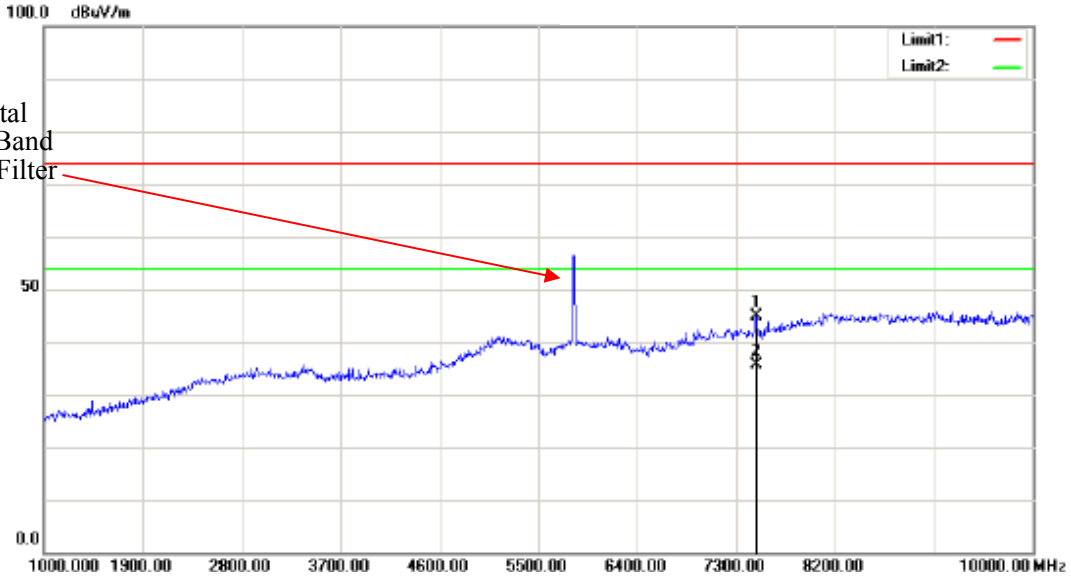
Low Channel

Horizontal

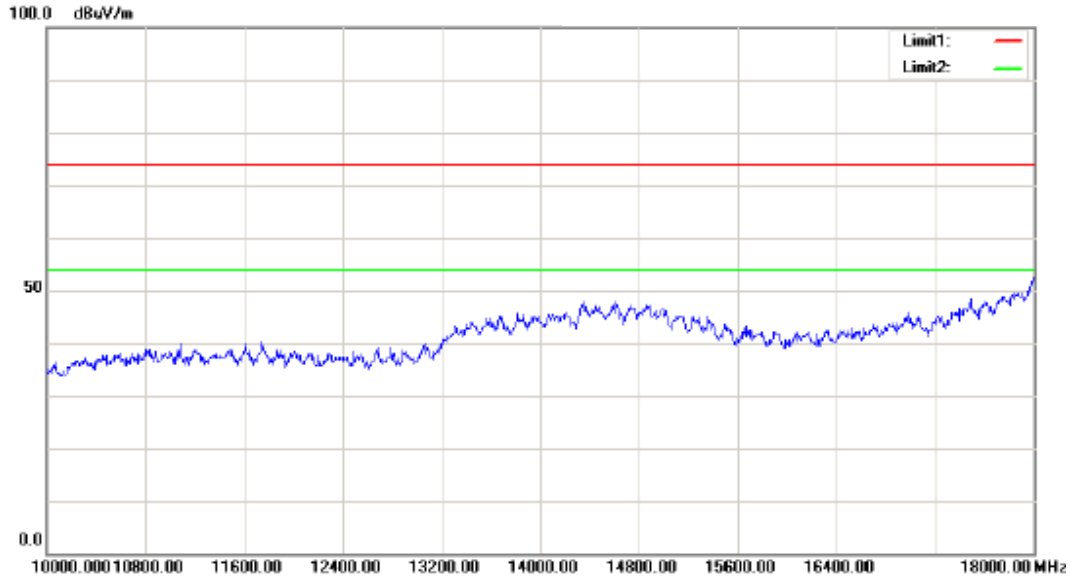


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5650.000	26.24	peak	31.79	58.03	68.20	148	122	10.17	
	2	5700.000	25.47	peak	31.86	57.33	105.20	148	122	47.87	
	3	5720.000	26.65	peak	31.88	58.53	110.80	148	122	52.27	
	4	5725.000	29.17	peak	31.88	61.05	122.20	148	122	61.15	
	5	5743.680	71.45	peak	31.89	103.34	122.20	148	122	18.86	Fundamental
	6	5743.680	71.45	AVG	31.89	103.34	122.20	148	122	18.86	Fundamental

Fundamental Test with Band Rejection Filter

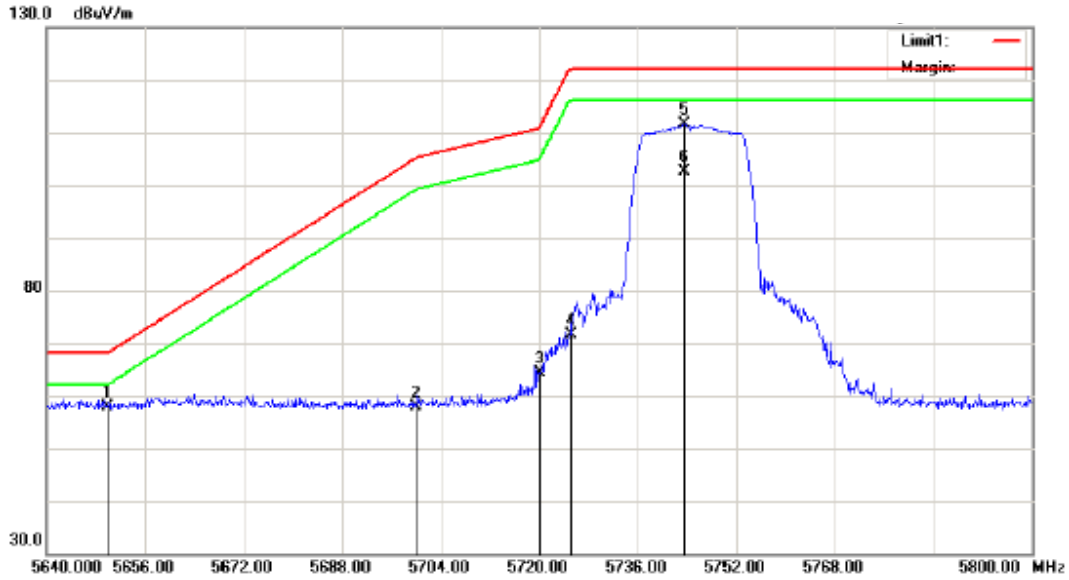


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	7480.000	47.58	peak	-2.78	44.80	74.00	163	224	29.20	
*	2	7480.000	38.49	AVG	-2.78	35.71	54.00	163	224	18.29	



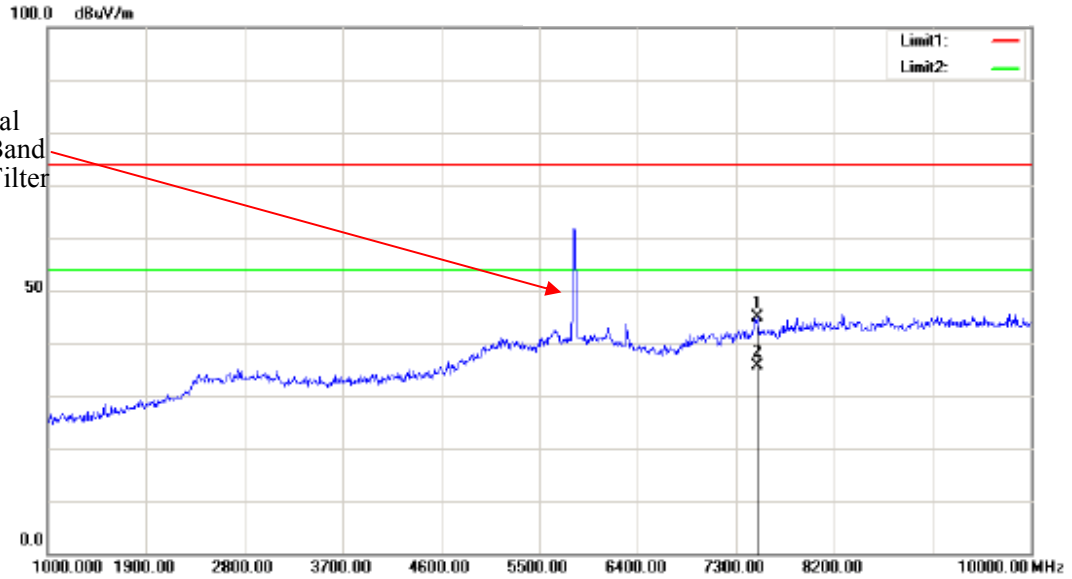
Note: No emission was detected in the range 18-40GHz.

Vertical

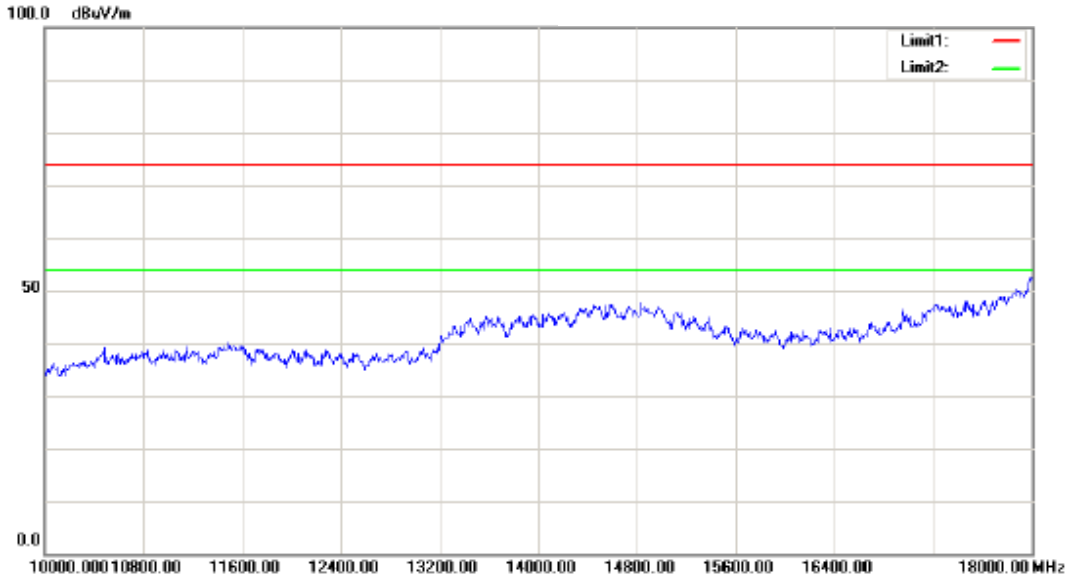


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5650.000	26.01	peak	31.79	57.80	68.20	157	224	10.40	
	2	5700.000	25.99	peak	31.86	57.85	105.20	157	224	47.35	
	3	5720.000	32.60	peak	31.88	64.48	110.80	157	224	46.32	
	4	5725.000	39.80	peak	31.88	71.68	122.20	157	224	50.52	
	5	5743.520	79.73	peak	31.89	111.62	122.20	157	224	10.58	Fundamental
	6	5743.520	70.62	AVG	31.89	102.51	122.20	157	224	19.69	Fundamental

Fundamental Test with Band Rejection Filter



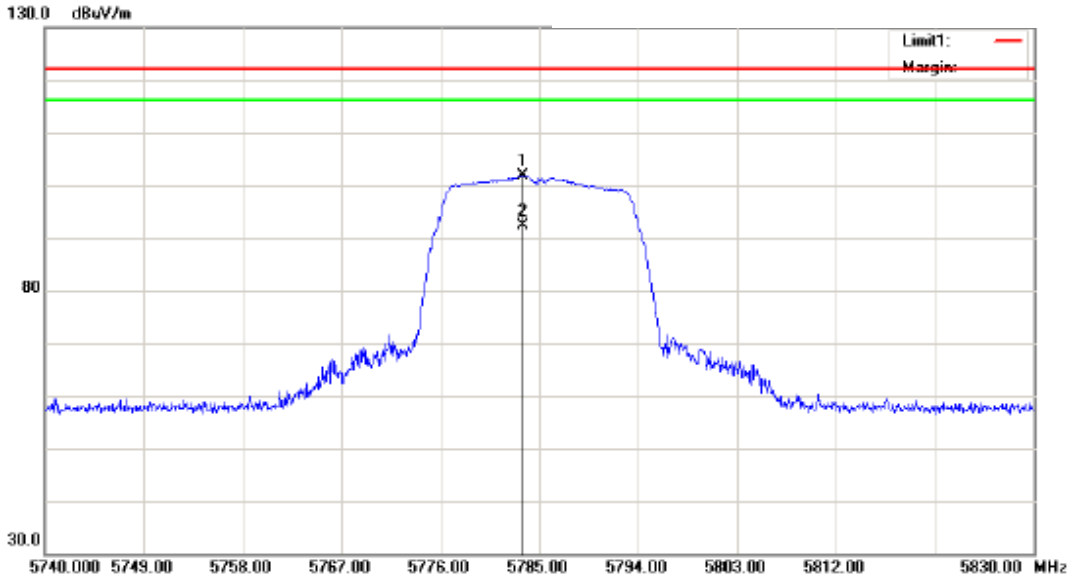
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	7498.000	47.72	peak	-2.80	44.92	74.00	145	223	29.08	
*	2	7498.000	38.49	AVG	-2.80	35.69	54.00	145	223	18.31	



Note: No emission was detected in the range 18-40GHz.

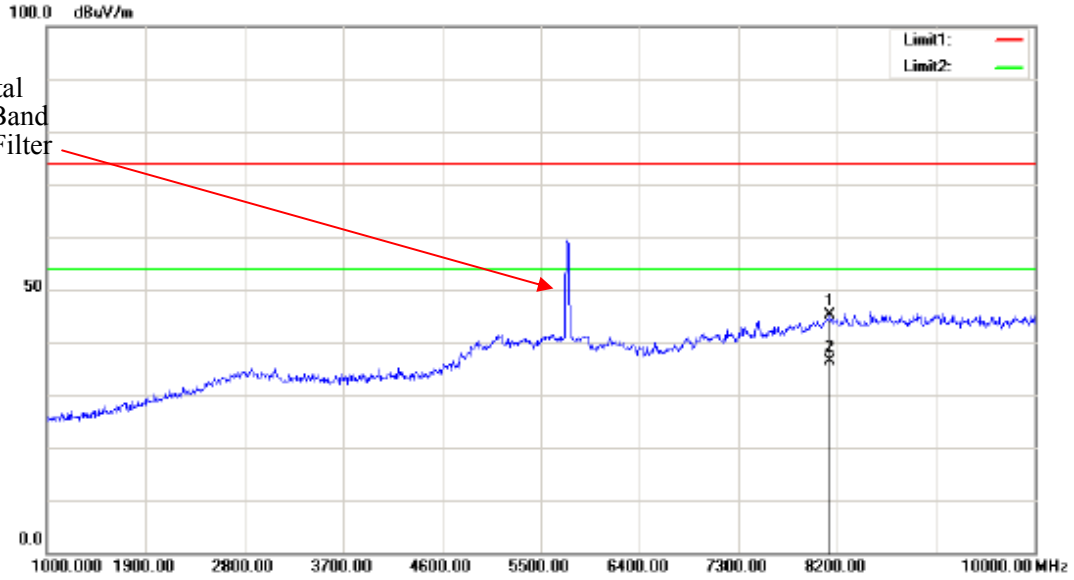
Middle Channel

Horizontal

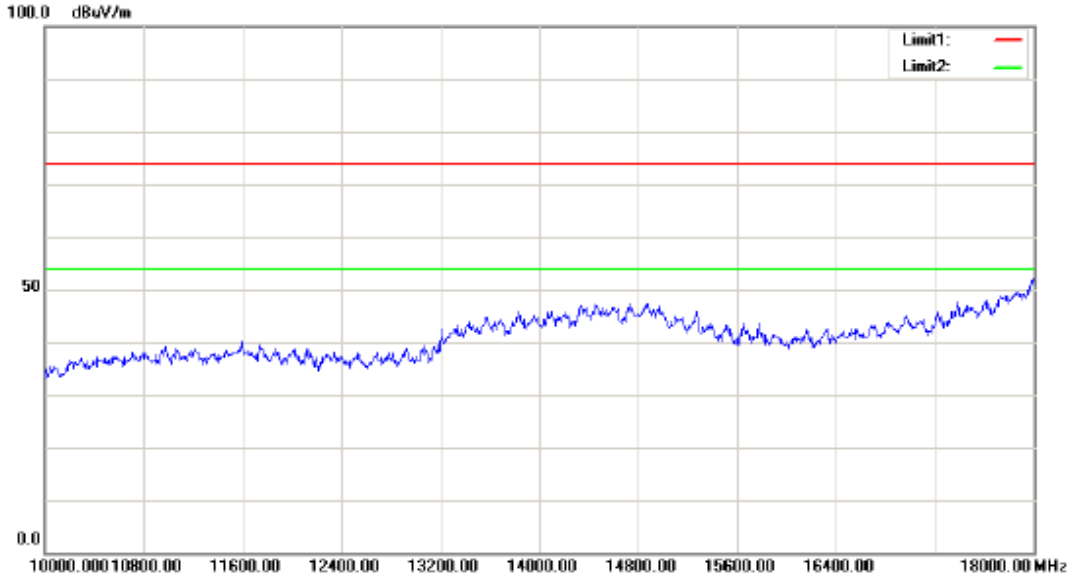


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5783.470	69.86	peak	31.92	101.78	122.20	166	32	20.42	Fundamental
	2	5783.470	60.48	AVG	31.92	92.40	122.20	166	32	29.80	Fundamental

Fundamental Test with Band Rejection Filter

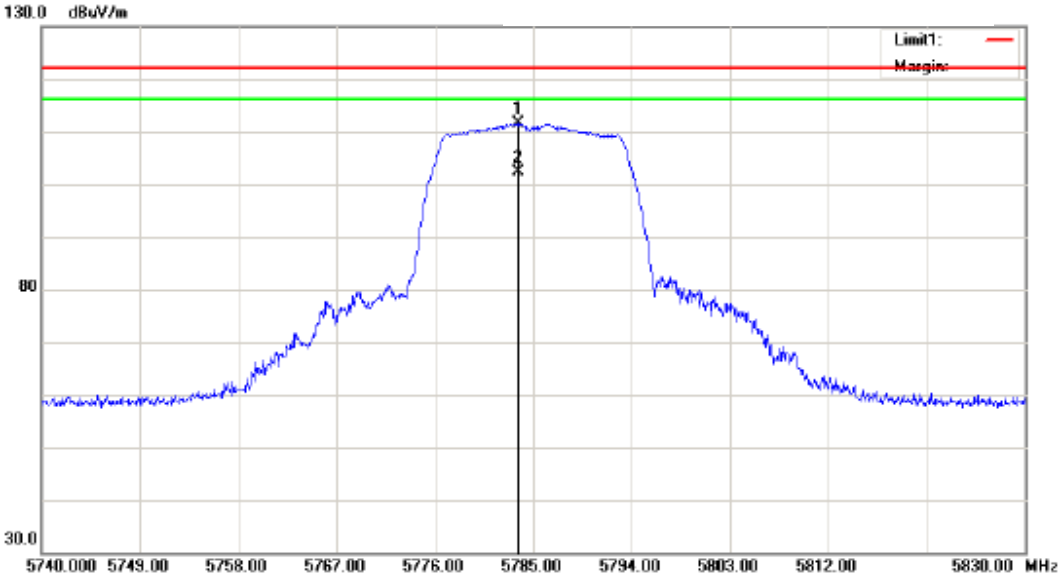


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	8141.500	46.06	peak	-0.98	45.08	74.00	148	226	28.92	
*	2	8141.500	37.48	AVG	-0.98	36.50	54.00	148	226	17.50	



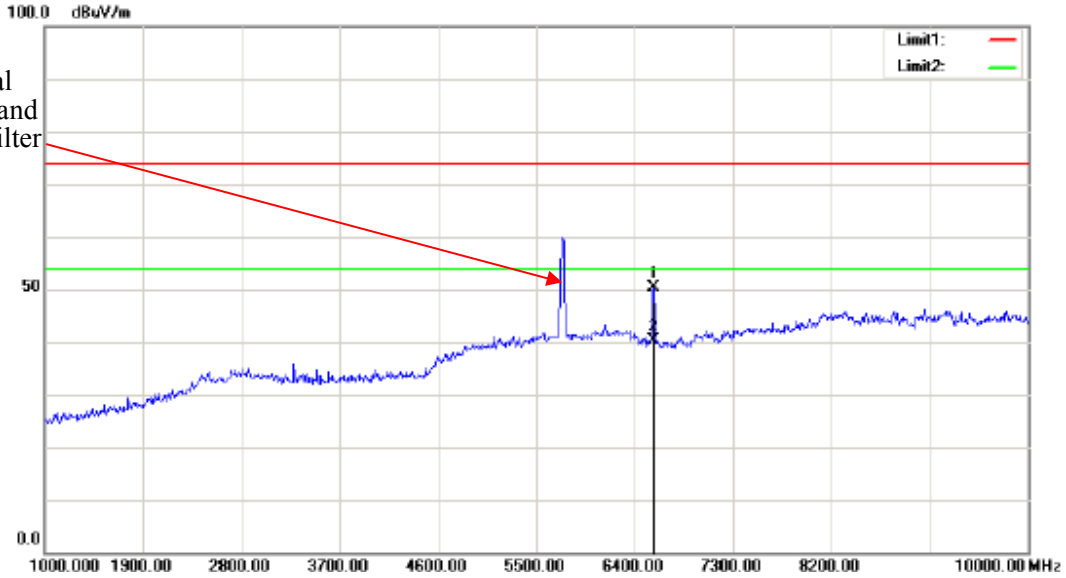
Note: No emission was detected in the range 18-40GHz.

Vertical

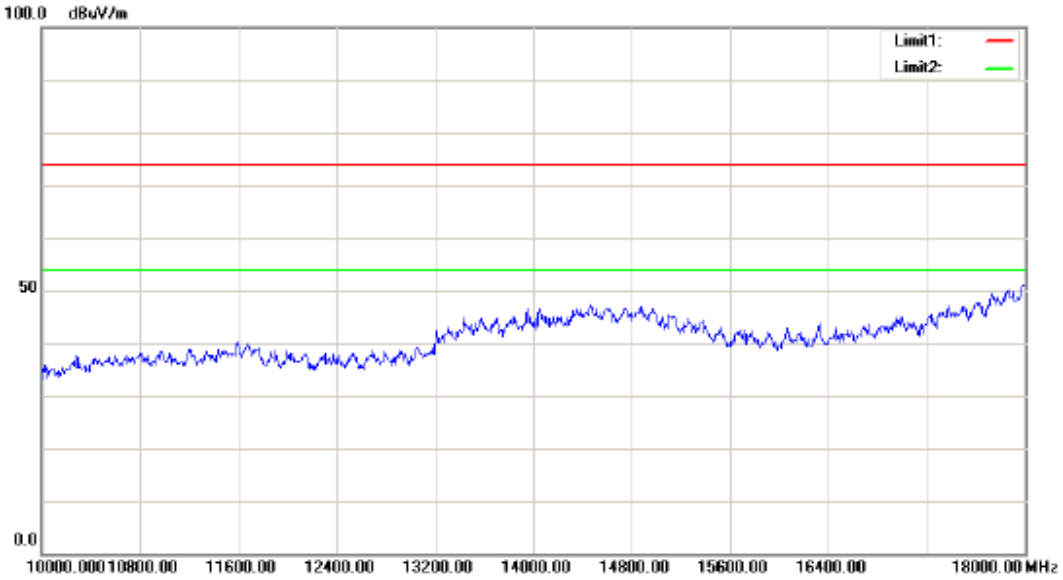


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5783.650	79.62	peak	31.92	111.54	122.20	178	49	10.66	Fundamental
	2	5783.650	70.48	AVG	31.92	102.40	122.20	178	49	19.80	Fundamental

Fundamental Test with Band Rejection Filter



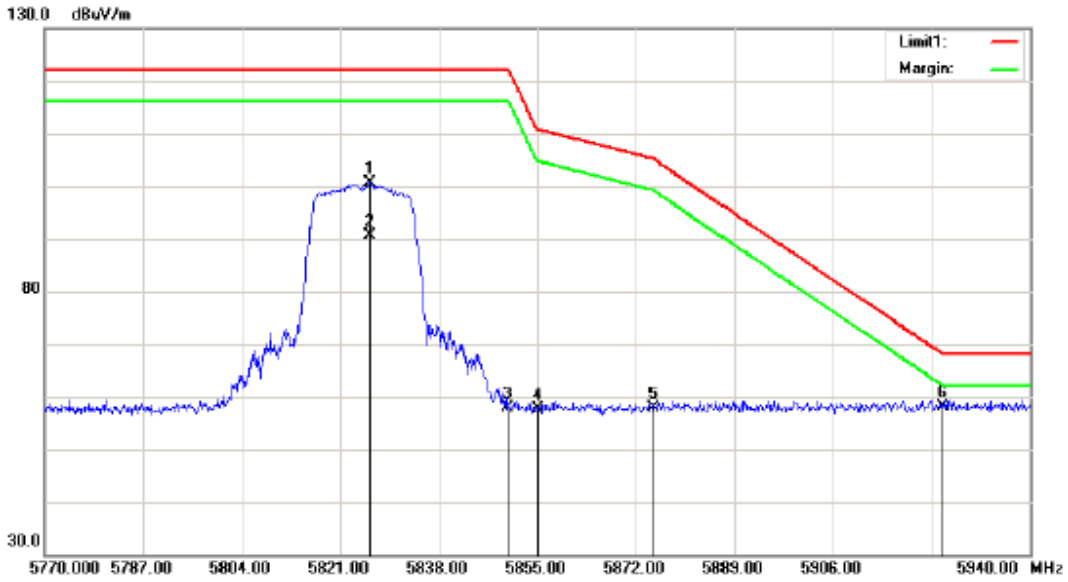
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6571.000	54.28	peak	-3.91	50.37	74.00	148	29	23.63	
*	2	6571.000	44.27	AVG	-3.91	40.36	54.00	148	29	13.64	



Note: No emission was detected in the range 18-40GHz.

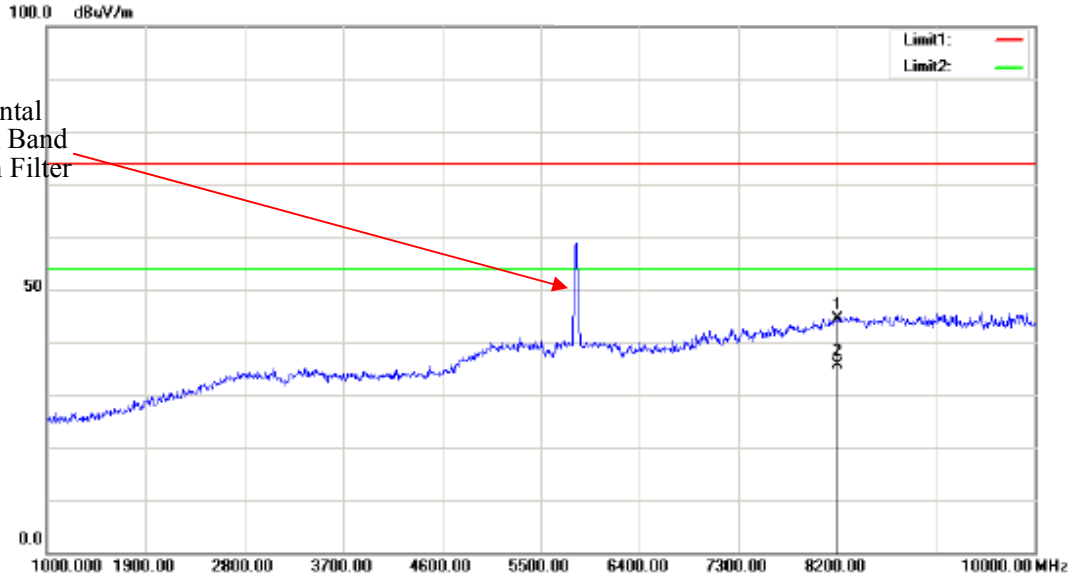
High Channel

Horizontal

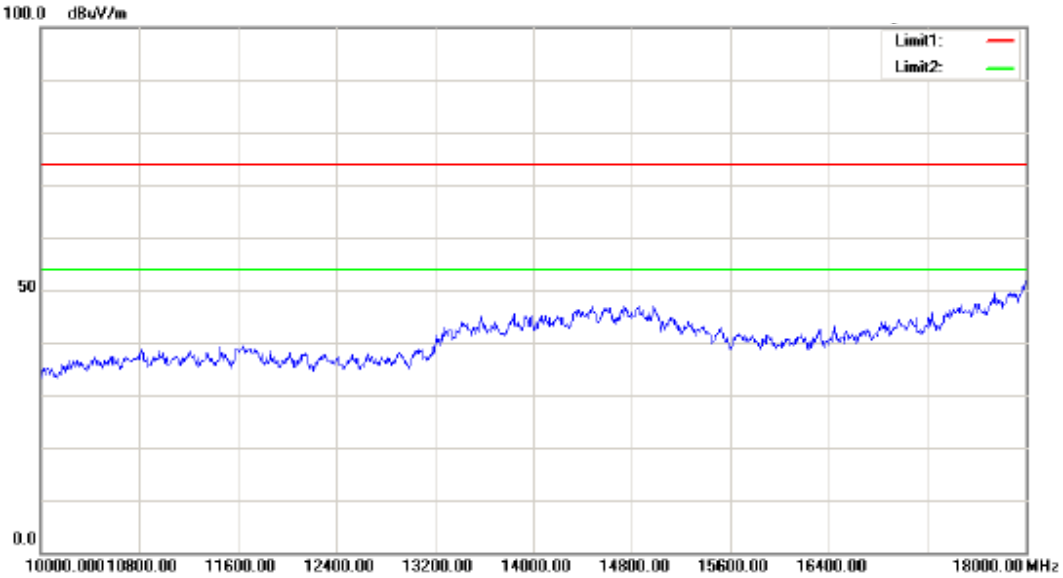


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5826.100	68.70	peak	31.96	100.66	122.20	146	37	21.54	Fundamental
	2	5826.100	58.69	AVG	31.96	90.65	122.20	146	37	31.55	Fundamental
	3	5850.000	25.94	peak	31.99	57.93	122.20	146	37	64.27	
	4	5855.000	25.71	peak	31.99	57.70	110.80	146	37	53.10	
	5	5875.000	25.80	peak	32.02	57.82	105.20	146	37	47.38	
*	6	5925.000	25.98	peak	32.07	58.05	68.20	146	37	10.15	

Fundamental Test with Band Rejection Filter

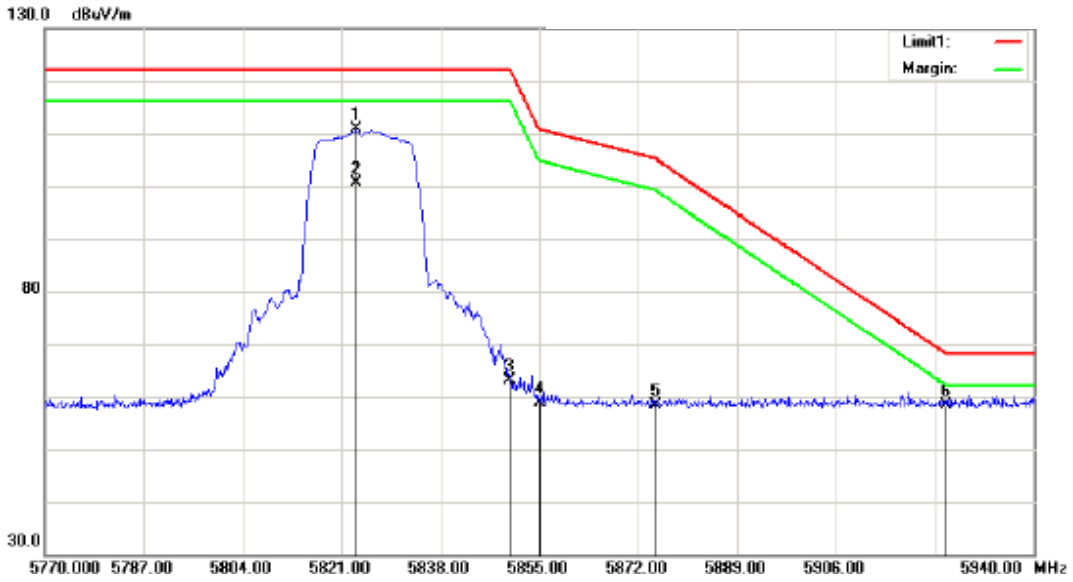


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	8200.000	45.31	peak	-0.92	44.39	74.00	142	223	29.61	
*	2	8200.000	36.52	AVG	-0.92	35.60	54.00	142	223	18.40	



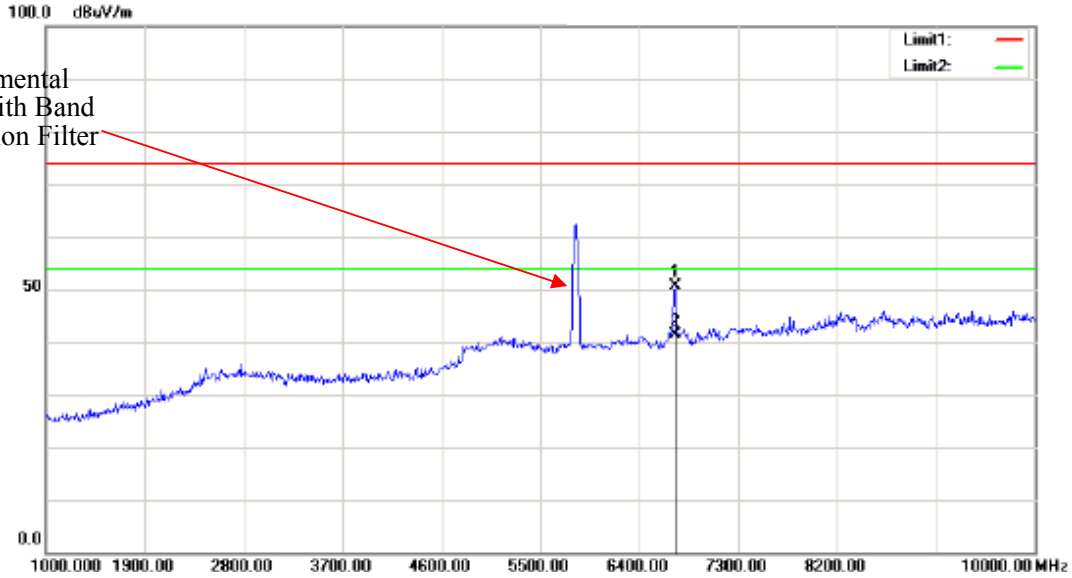
Note: No emission was detected in the range 18-40GHz.

Vertical

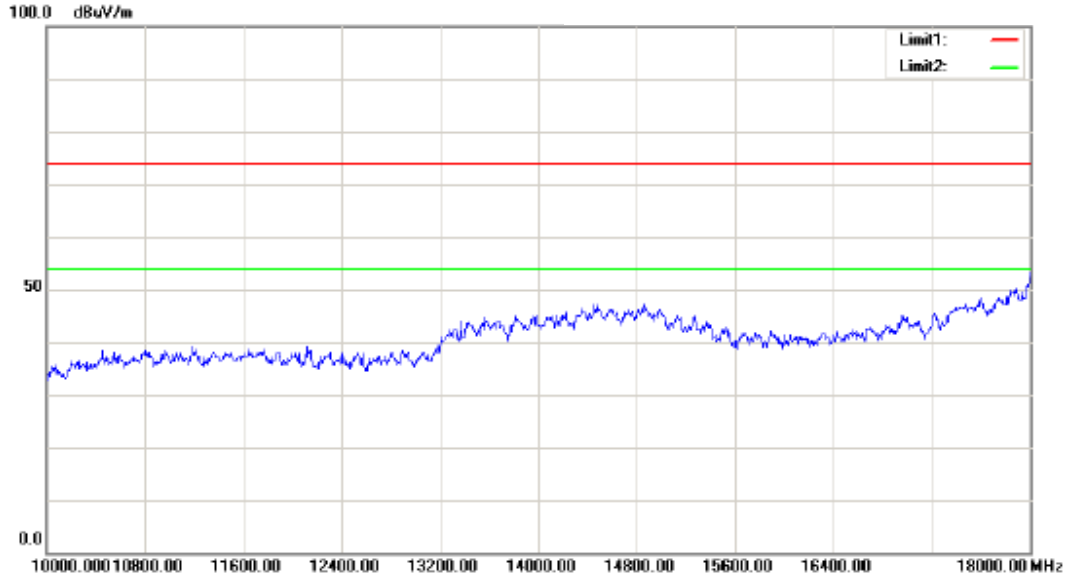


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5823.550	78.90	peak	31.96	110.86	122.20	154	22	11.34	Fundamental
	2	5823.550	68.67	AVG	31.96	100.63	122.20	154	22	21.57	Fundamental
	3	5850.000	31.25	peak	31.99	63.24	122.20	154	22	58.96	
	4	5855.000	26.78	peak	31.99	58.77	110.80	154	22	52.03	
	5	5875.000	26.36	peak	32.02	58.38	105.20	154	22	46.82	
*	6	5925.000	26.38	peak	32.07	58.45	68.20	154	22	9.75	

Fundamental Test with Band Rejection Filter



Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	6724.000	54.12	peak	-3.44	50.68	74.00	153	155	23.32	
*	2	6724.000	44.79	AVG	-3.44	41.35	54.00	153	155	12.65	

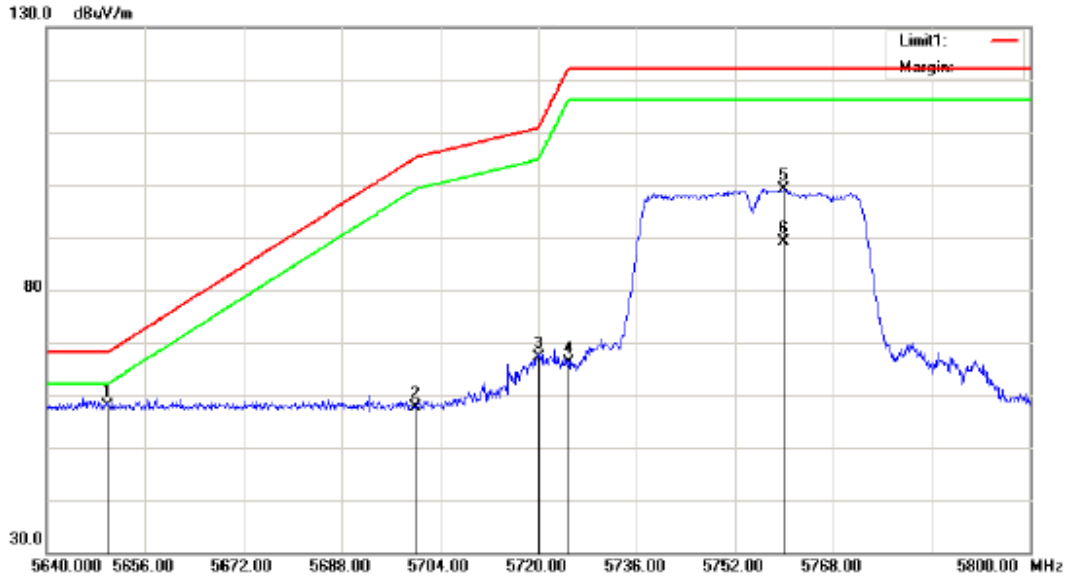


Note: No emission was detected in the range 18-40GHz.

802.11n40(2TX was the worst):

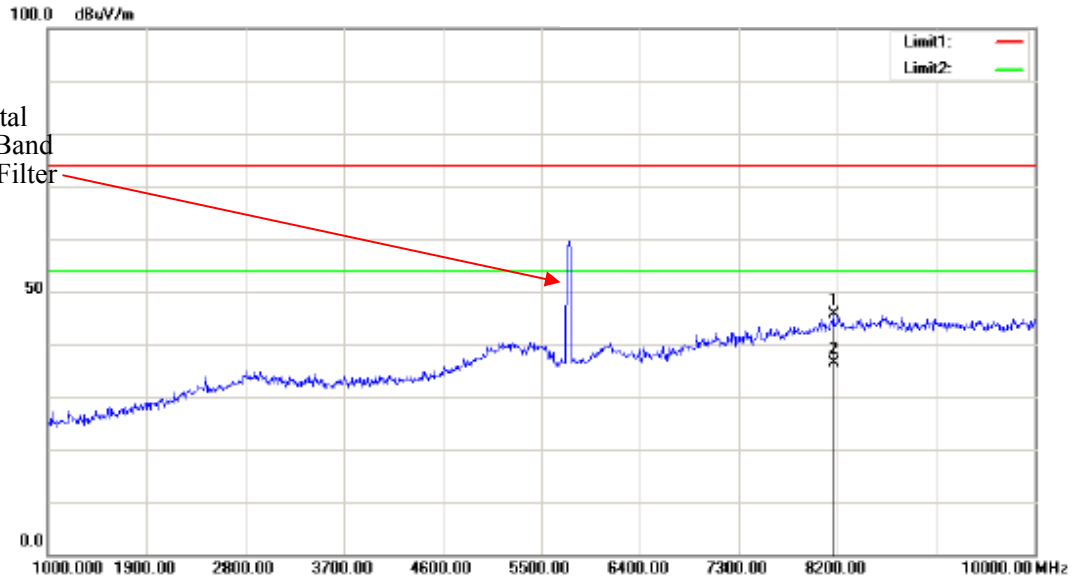
Low Channel

Horizontal

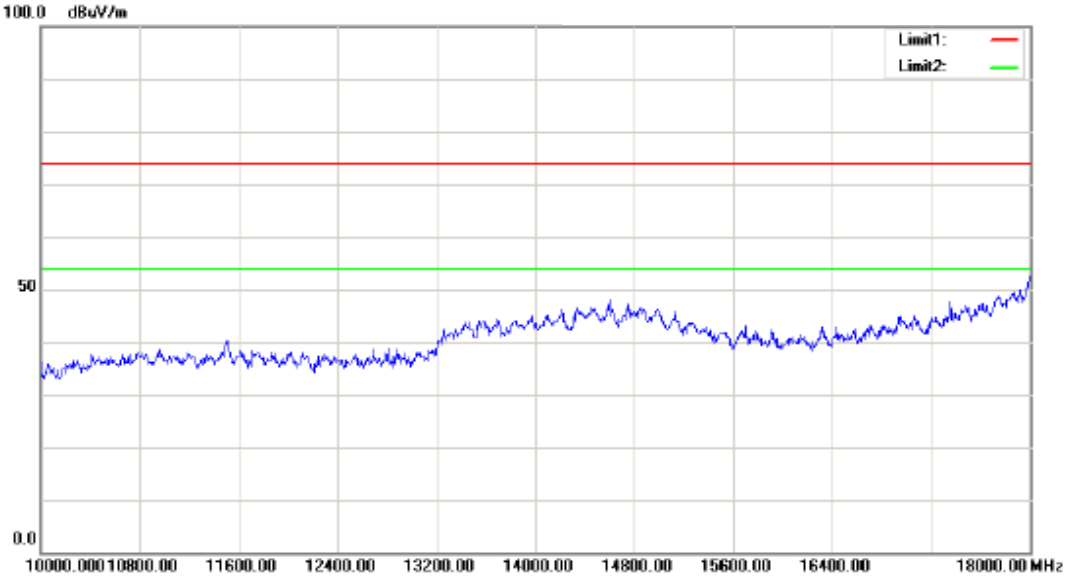


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5650.000	26.06	peak	31.79	57.85	68.20	136	27	10.35	
	2	5700.000	25.84	peak	31.86	57.70	105.20	136	27	47.50	
	3	5720.000	35.25	peak	31.88	67.13	110.80	136	27	43.67	
	4	5725.000	34.30	peak	31.88	66.18	122.20	136	27	56.02	
	5	5760.080	67.18	peak	31.90	99.08	122.20	136	27	23.12	Fundamental
	6	5760.080	57.34	AVG	31.90	89.24	122.20	136	27	32.96	Fundamental

Fundamental Test with Band Rejection Filter

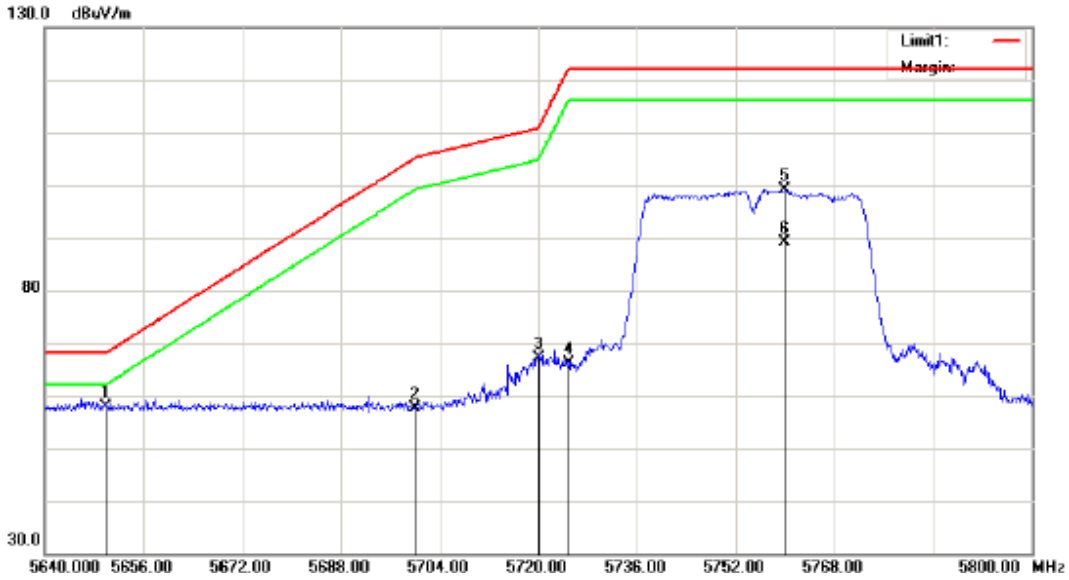


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	8164.000	46.68	peak	-0.96	45.72	74.00	152	334	28.28	
*	2	8164.000	37.42	AVG	-0.96	36.46	54.00	152	334	17.54	



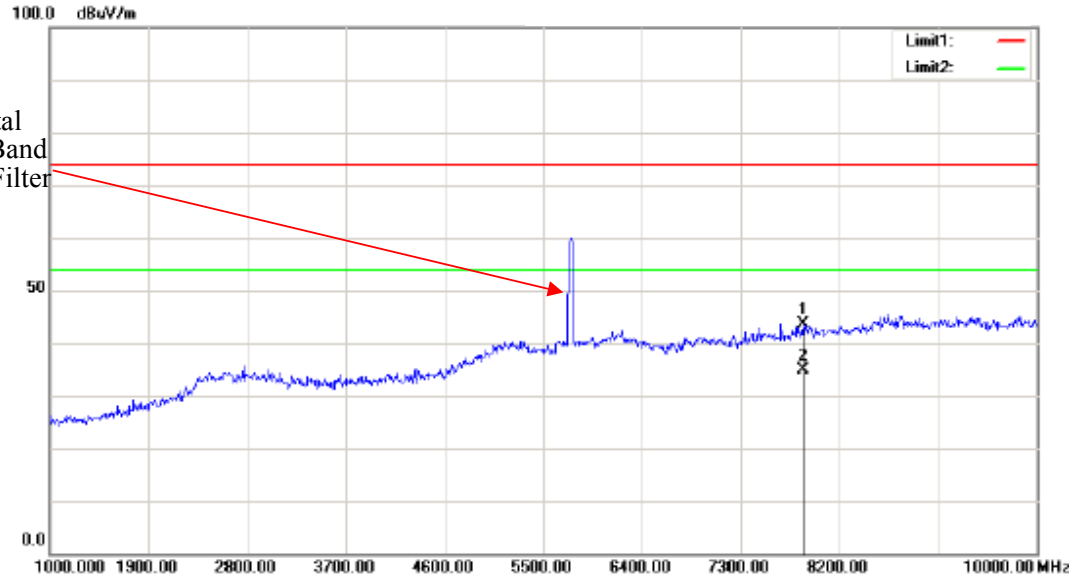
Note: No emission was detected in the range 18-40GHz.

Vertical

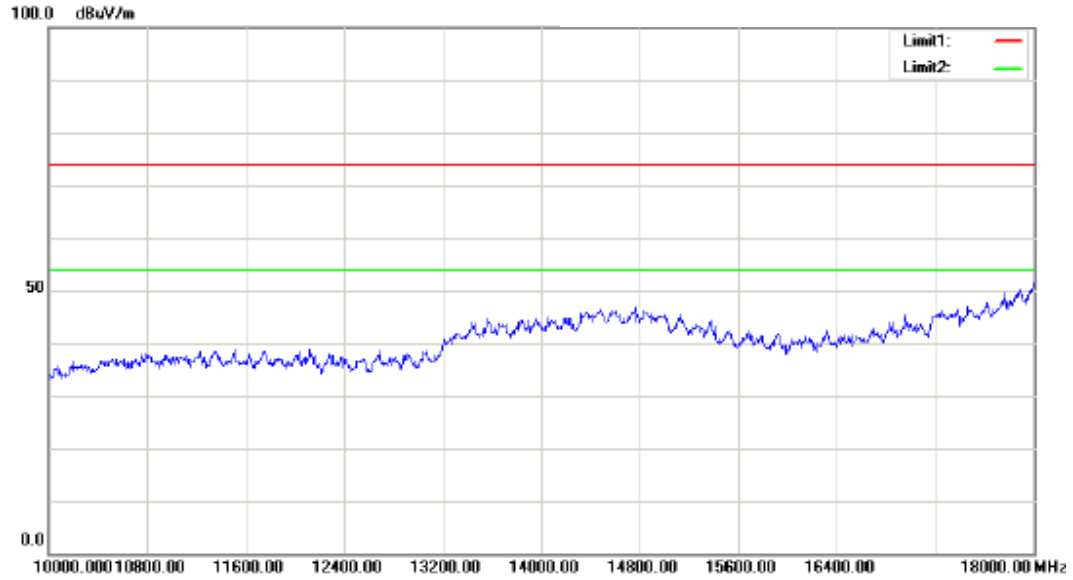


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5650.000	26.06	peak	31.79	57.85	68.20	152	79	10.35	
	2	5700.000	25.84	peak	31.86	57.70	105.20	152	79	47.50	
	3	5720.000	35.25	peak	31.88	67.13	110.80	152	79	43.67	
	4	5725.000	34.30	peak	31.88	66.18	122.20	152	79	56.02	
	5	5760.080	67.18	peak	31.90	99.08	122.20	152	79	23.12	Fundamental
	6	5760.080	57.14	AVG	31.90	89.04	122.20	152	79	33.16	Fundamental

Fundamental Test with Band Rejection Filter



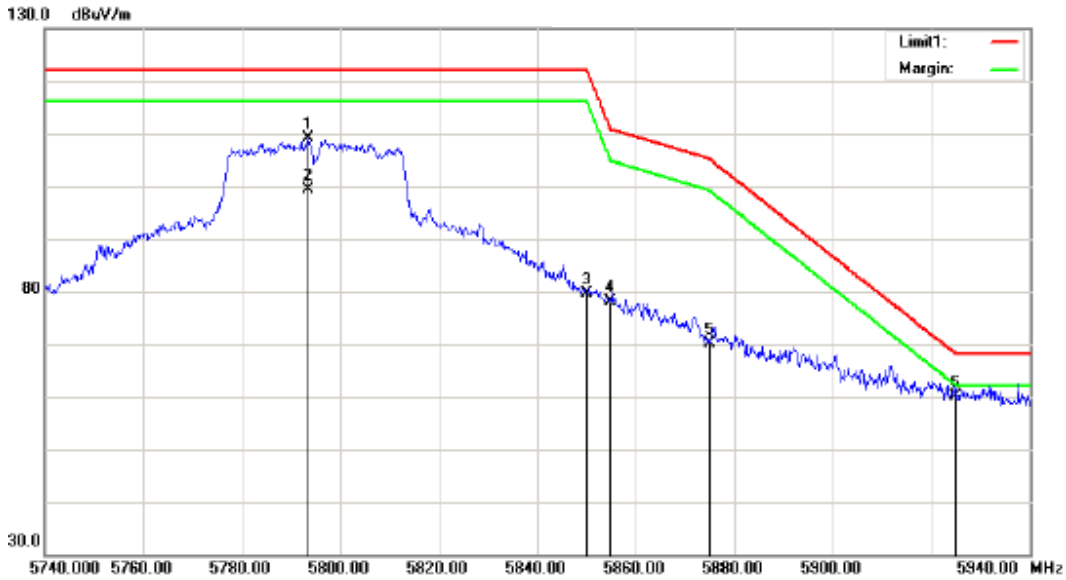
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	7867.000	45.25	peak	-1.59	43.66	74.00	151	223	30.34	
*	2	7867.000	36.49	AVG	-1.59	34.90	54.00	151	223	19.10	



Note: No emission was detected in the range 18-40GHz.

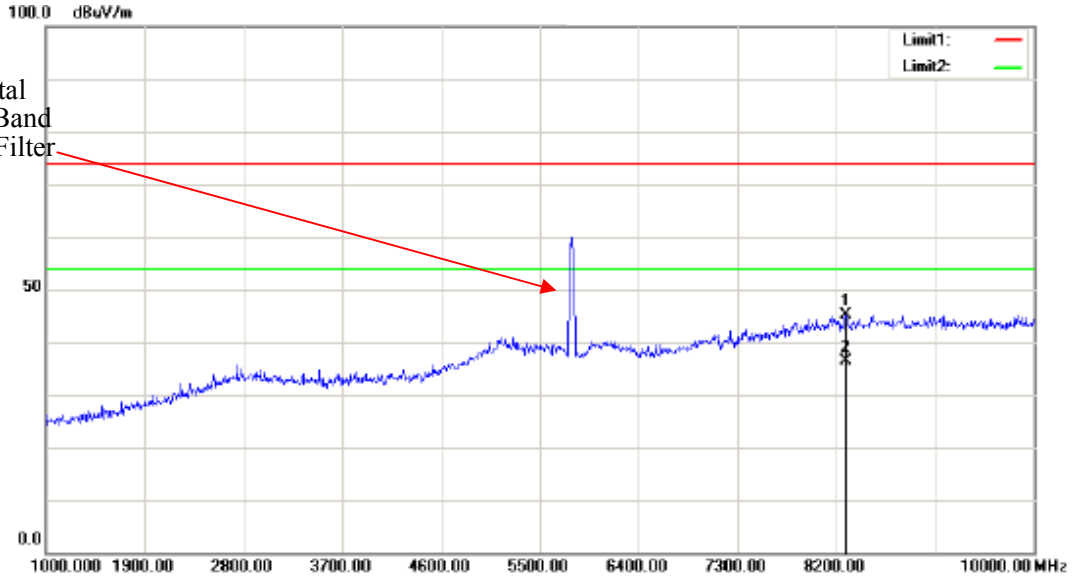
High Channel

Horizontal

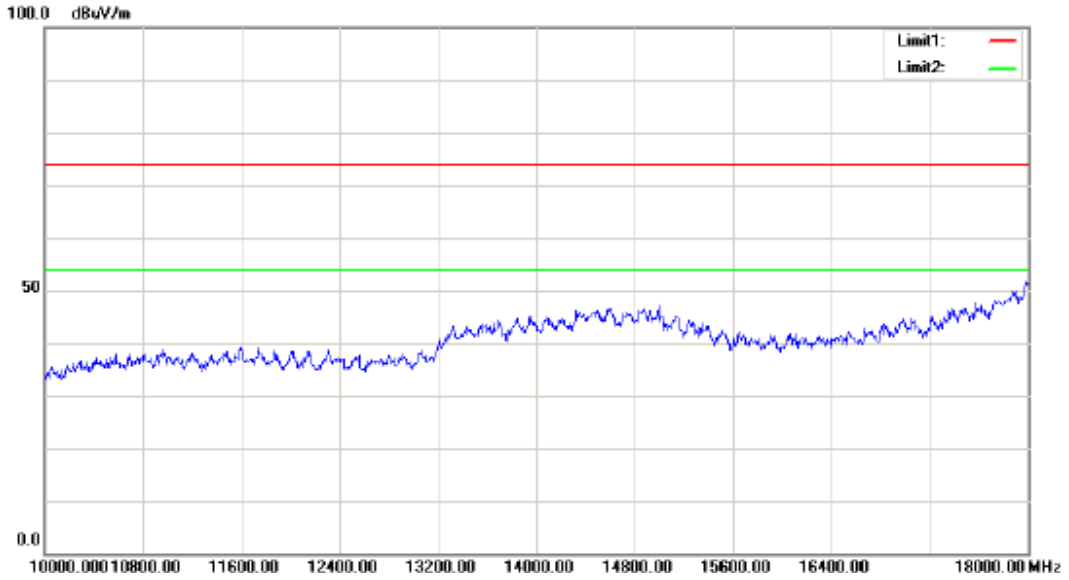


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5793.500	77.30	peak	31.93	109.23	122.20	147	65	12.97	Fundamental
	2	5793.500	67.48	AVG	31.93	99.41	122.20	147	65	22.79	Fundamental
	3	5850.000	47.61	peak	31.99	79.60	122.20	147	65	42.60	
	4	5855.000	46.24	peak	31.99	78.23	110.80	147	65	32.57	
	5	5875.000	38.09	peak	32.02	70.11	105.20	147	65	35.09	
*	6	5925.000	28.15	peak	32.07	60.22	68.20	147	65	7.98	

Fundamental Test with Band Rejection Filter

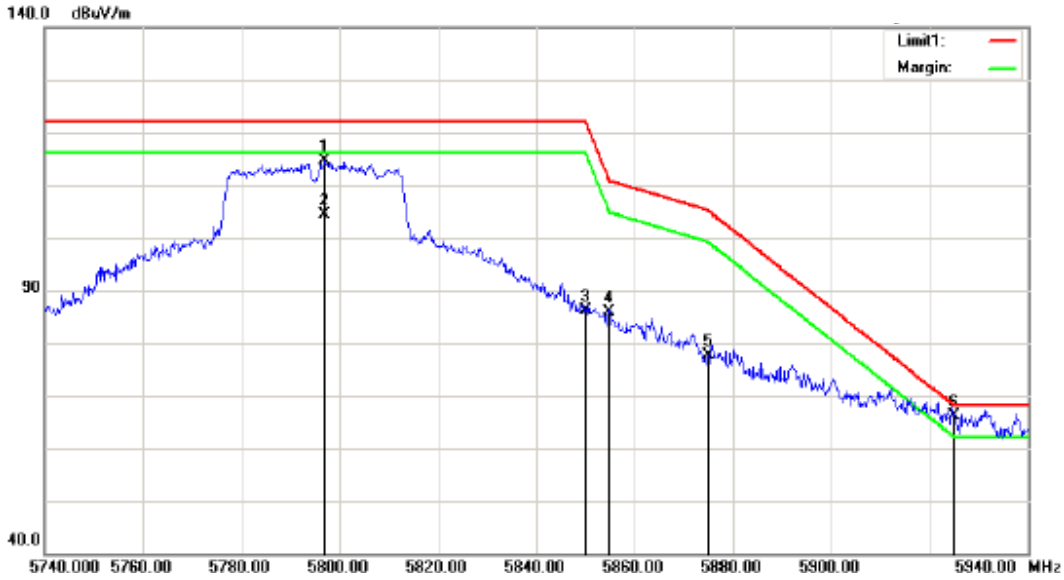


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	8294.500	46.00	peak	-0.81	45.19	74.00	148	123	28.81	
*	2	8294.500	37.16	AVG	-0.81	36.35	54.00	148	123	17.65	



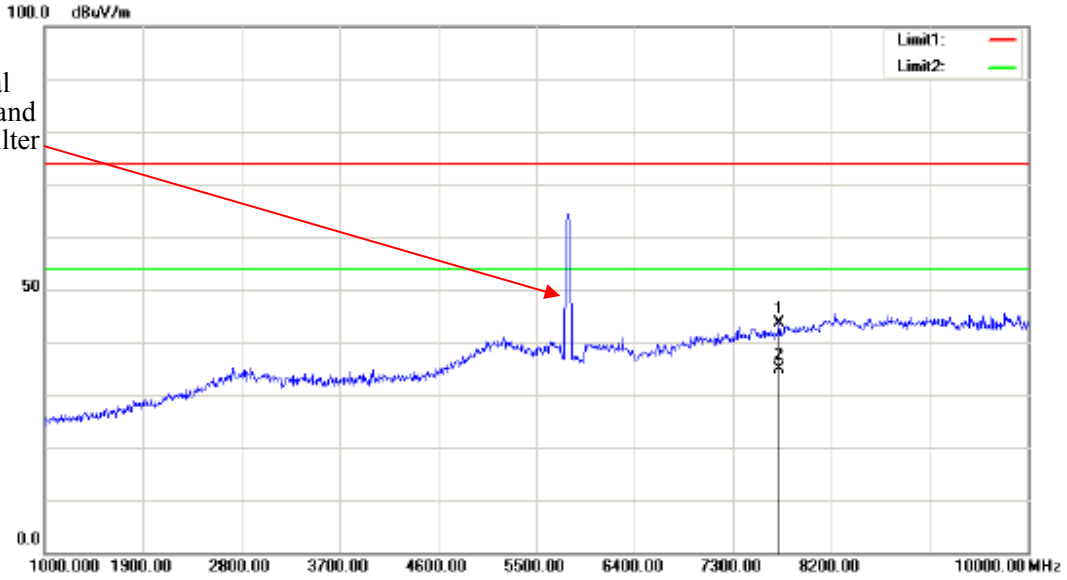
Note: No emission was detected in the range 18-40GHz.

Vertical

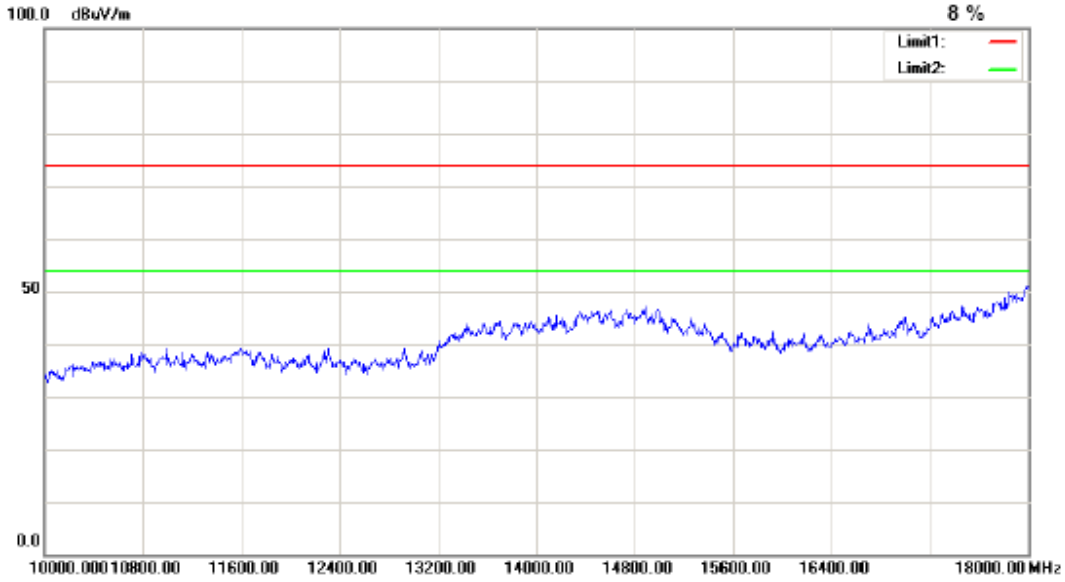


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5796.800	82.79	peak	31.93	114.72	122.20	149	68	7.48	Fundamental
	2	5796.800	72.35	AVG	31.93	104.28	122.20	149	68	17.92	Fundamental
	3	5850.000	54.09	peak	31.99	86.08	122.20	149	68	36.12	
	4	5855.000	53.83	peak	31.99	85.82	110.80	149	68	24.98	
	5	5875.000	45.65	peak	32.02	77.67	105.20	149	68	27.53	
*	6	5925.000	34.07	peak	32.07	66.14	68.20	149	68	2.06	

Fundamental Test with Band Rejection Filter



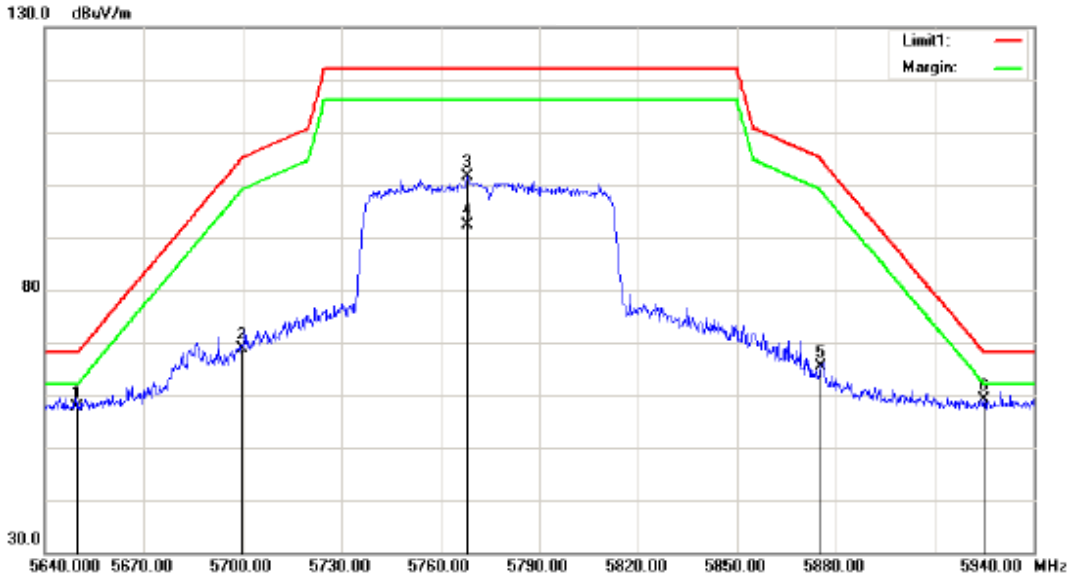
Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	7727.500	45.65	peak	-2.05	43.60	74.00	148	15	30.40	
*	2	7727.500	36.92	AVG	-2.05	34.87	54.00	148	15	19.13	



Note: No emission was detected in the range 18-40GHz.

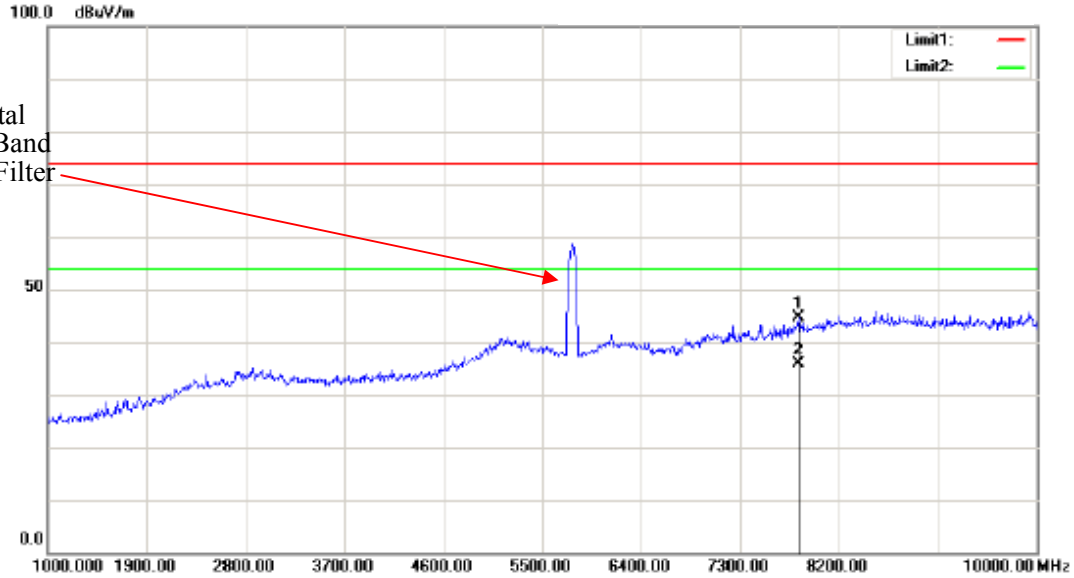
802.11ac80(2TX was the worst):

Horizontal

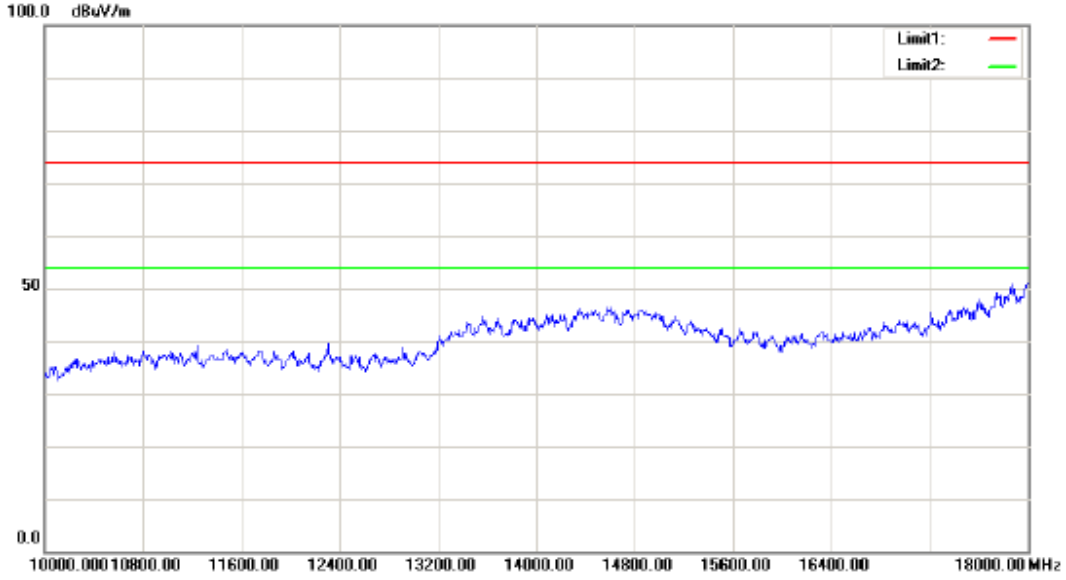


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	5650.000	25.84	peak	31.79	57.63	68.20	135	153	10.57	
	2	5700.000	36.91	peak	31.86	68.77	105.20	135	153	36.43	
	3	5768.250	69.74	peak	31.91	101.65	122.20	135	153	20.55	Fundamental
	4	5768.250	60.43	AVG	31.91	92.34	122.20	135	153	29.86	Fundamental
	5	5875.000	33.46	peak	32.02	65.48	105.20	135	153	39.72	
*	6	5925.000	27.03	peak	32.07	59.10	68.20	135	153	9.10	

Fundamental Test with Band Rejection Filter

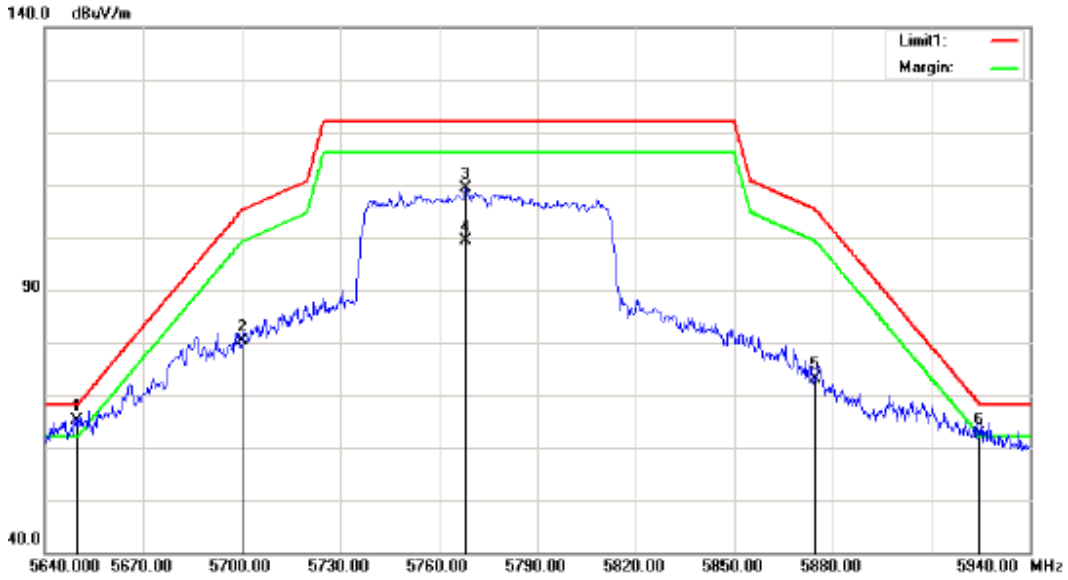


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	7831.000	46.33	peak	-1.71	44.62	74.00	151	223	29.38	
*	2	7831.000	37.48	AVG	-1.71	35.77	54.00	151	223	18.23	



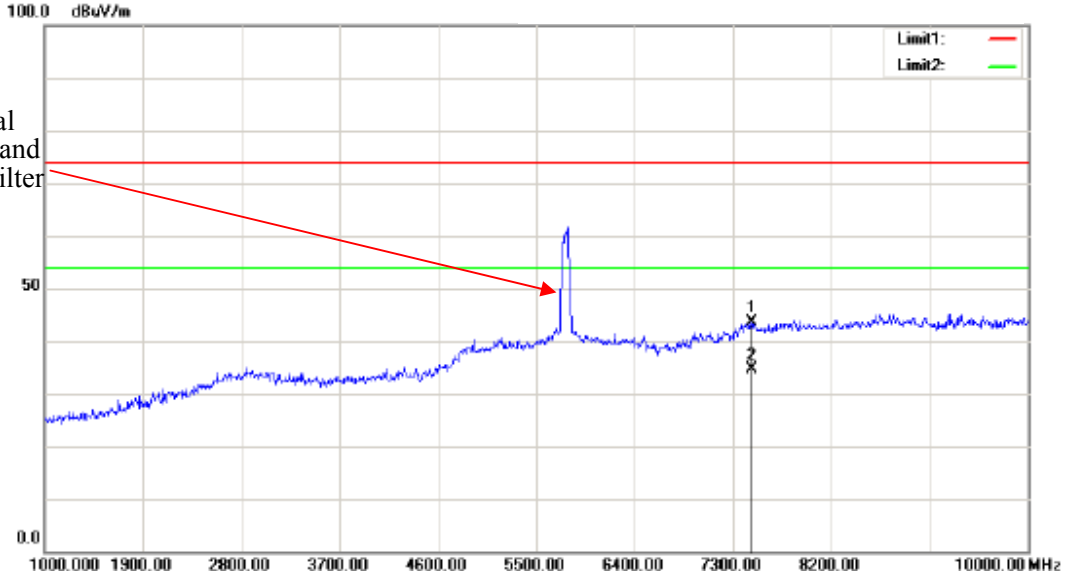
Note: No emission was detected in the range 18-40GHz.

Vertical

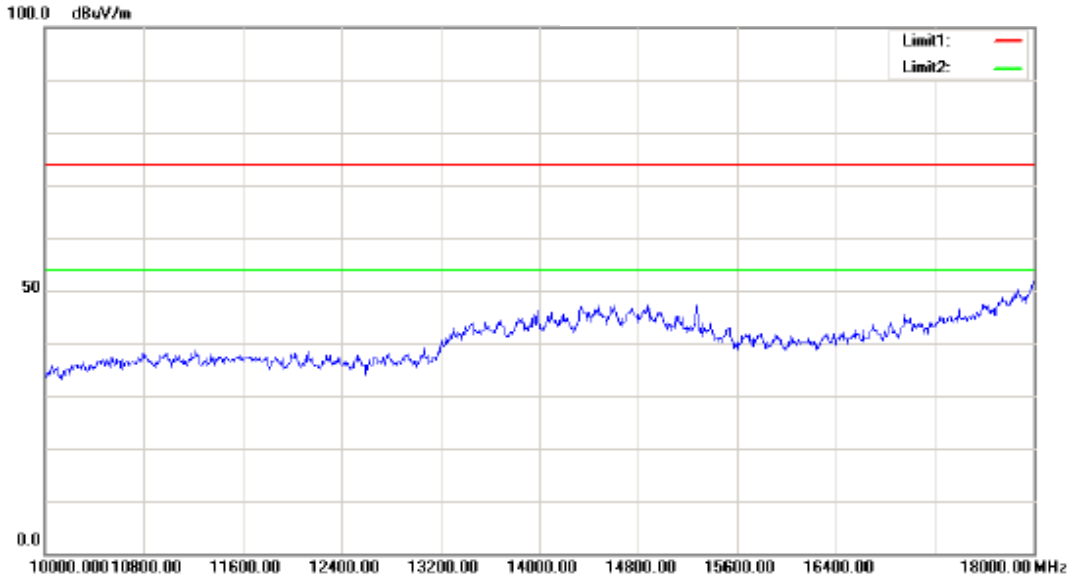


Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1	5650.000	33.27	peak	31.79	65.06	68.20	146	25	3.14	
	2	5700.000	48.61	peak	31.86	80.47	105.20	146	25	24.73	
	3	5768.250	77.35	peak	31.91	109.26	122.20	146	25	12.94	Fundamental
	4	5768.250	67.48	AVG	31.91	99.39	122.20	146	25	22.81	Fundamental
	5	5875.000	40.99	peak	32.02	73.01	105.20	146	25	32.19	
!	6	5925.000	30.47	peak	32.07	62.54	68.20	146	25	5.66	

Fundamental Test with Band Rejection Filter



Mk.	No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1	7475.500	46.38	peak	-2.78	43.60	74.00	154	225	30.40	
*	2	7475.500	37.45	AVG	-2.78	34.67	54.00	154	225	19.33	



Note: No emission was detected in the range 18-40GHz.

FCC §15.407(b)–OUT- OF-BAND EMISSIONS

Applicable Standard

FCC §15.407

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSIQ	831929/005	2017-08-31	2018-08-31
Unknown	RF Cable	Unknown	C-4	Each Time	/

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

Test Data

Environmental Conditions

Temperature:	26.8~27.5°C
Relative Humidity:	41~51 %
ATM Pressure:	100.8 ~101.9kPa

The testing was performed by Kami Zhou from 2017-10-21 to 2017-10-31.

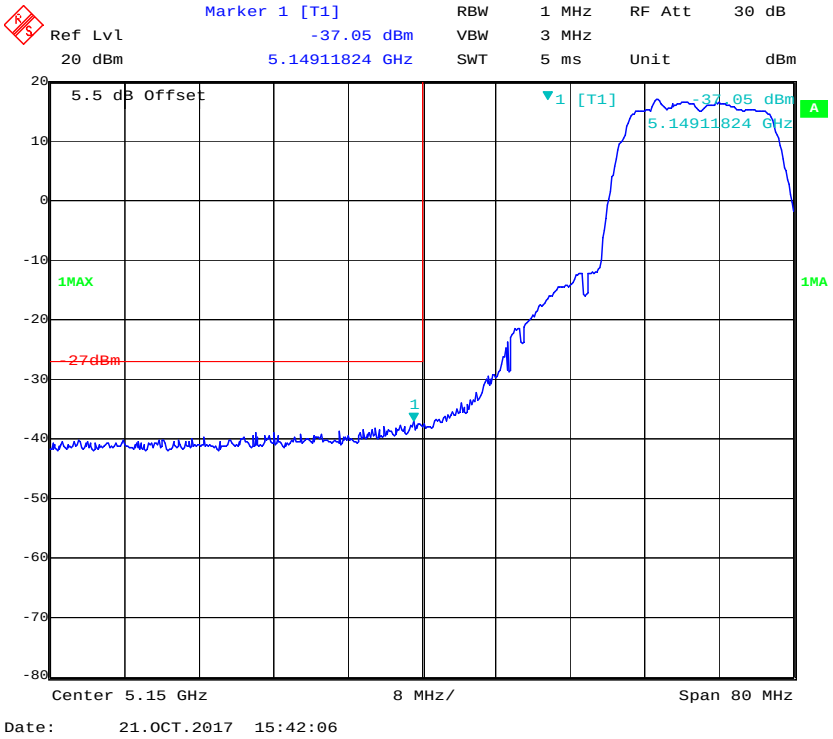
Test Result: Pass.

Please refer to the following plots.

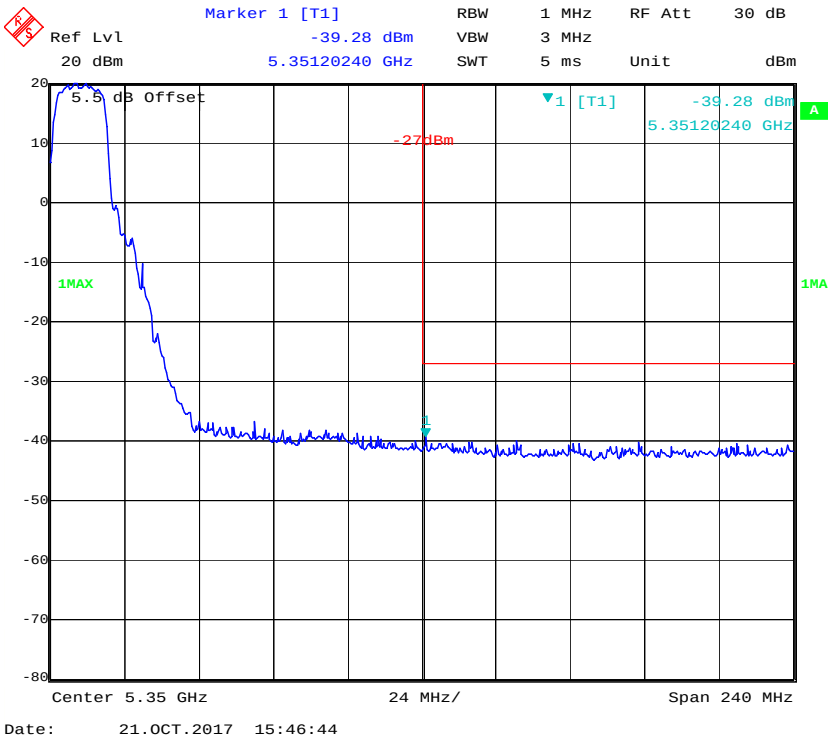
5150-5250MHz(the atenna gain was offset in the display, all emission under limit more than 3dBc, so 2TX mode also compliance the requirement)

Chain 0:

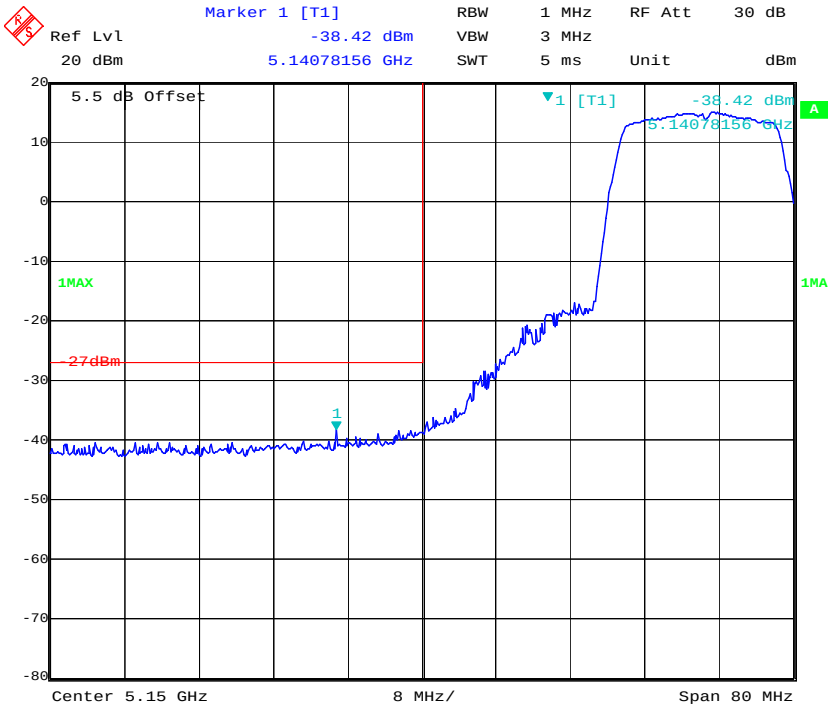
802.11a Low Channel



802.11a High Channel

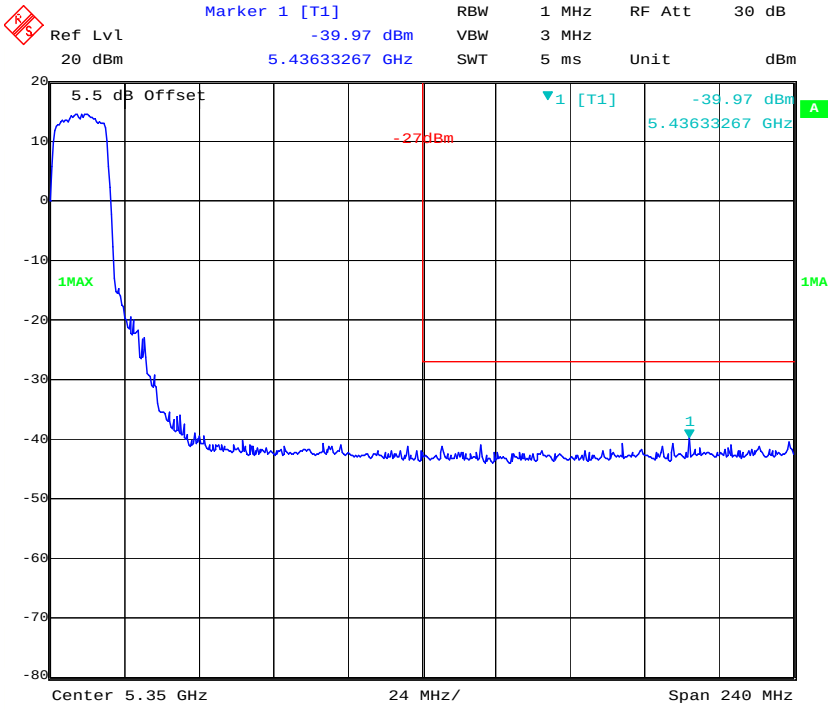


802.11n ht20 Low Channel



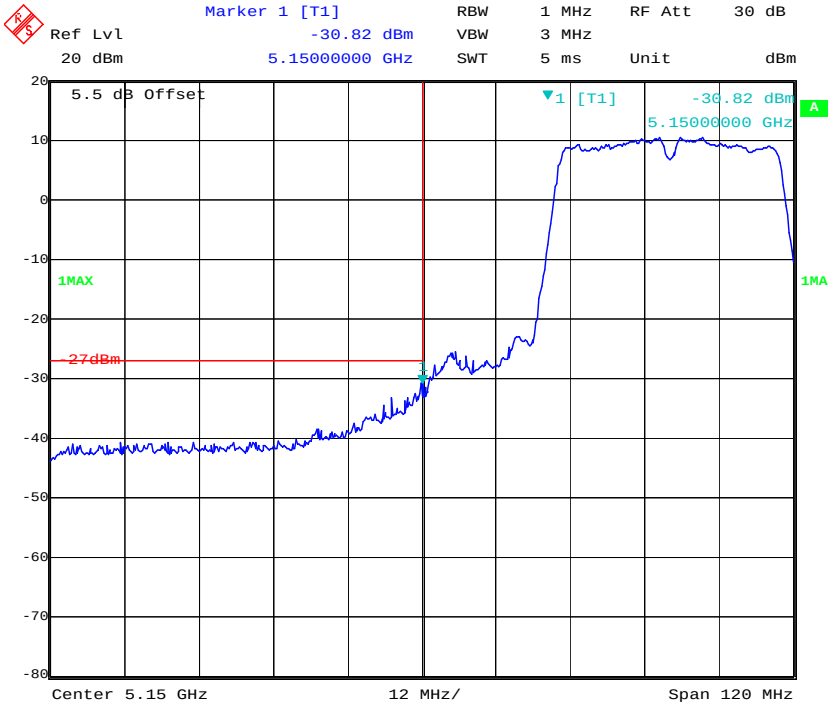
Date: 24.OCT.2017 09:49:14

802.11n ht20 High Channel



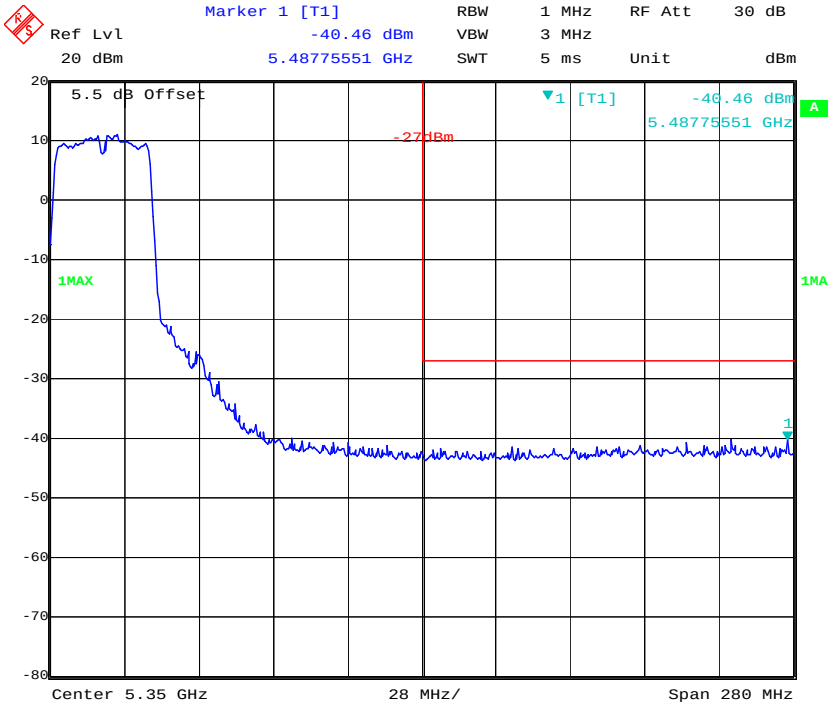
Date: 24.OCT.2017 09:50:50

802.11n ht40 Low Channel



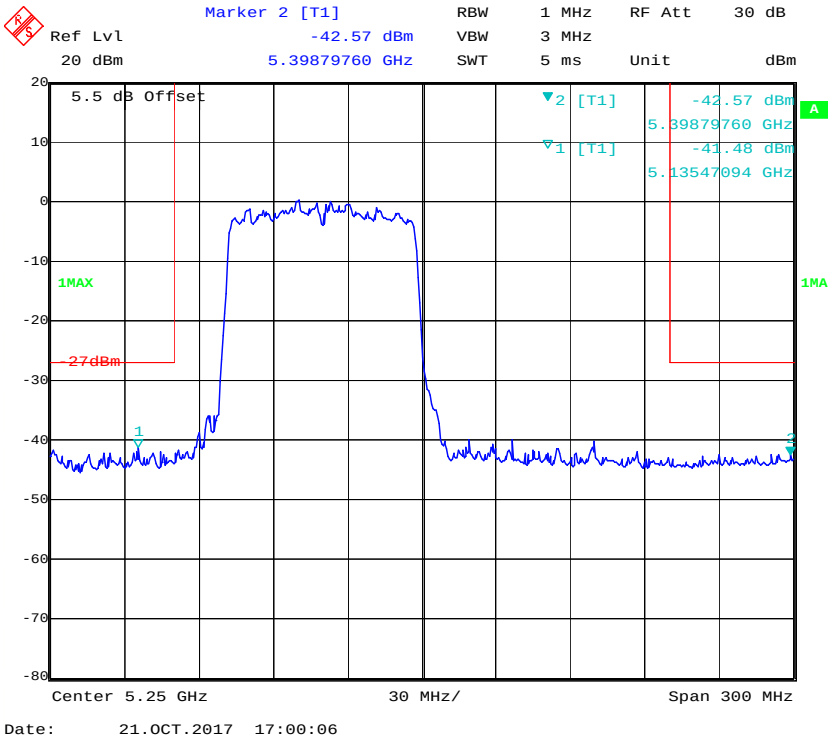
Date: 24.OCT.2017 09:54:22

802.11n ht40 High Channel



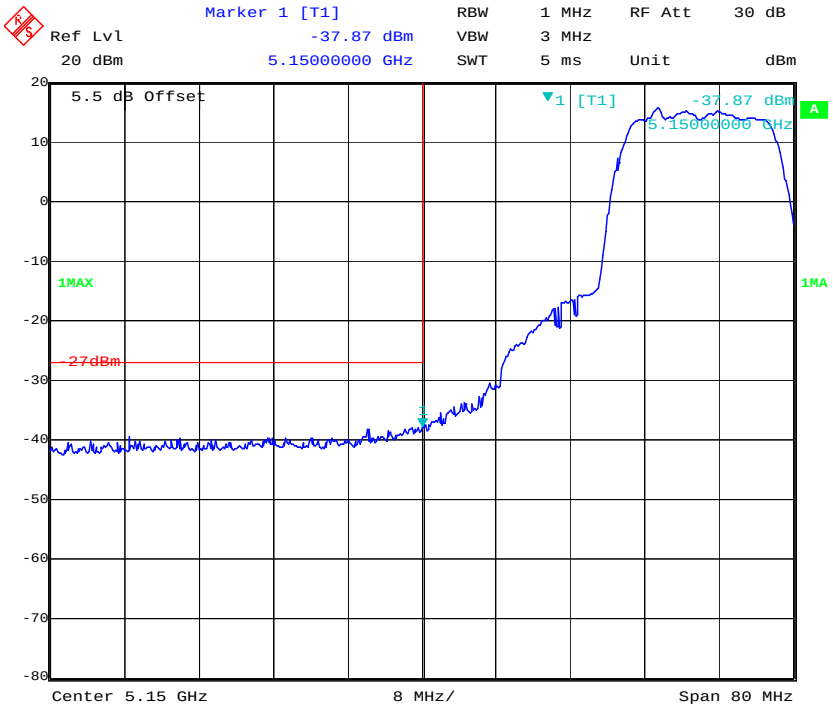
Date: 24.OCT.2017 09:56:16

802.11n ac80 Middle Channel



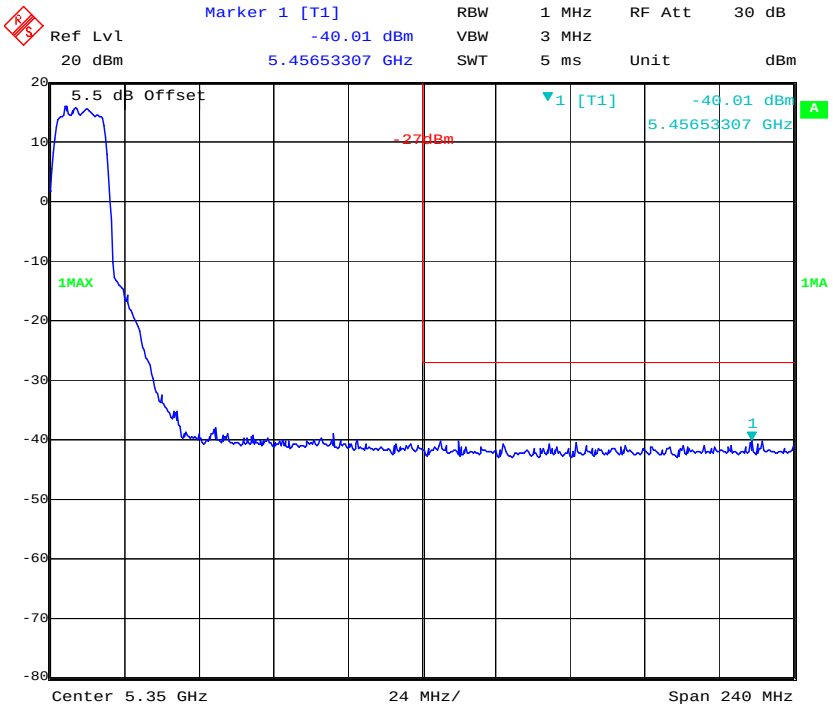
Chain 1:

802.11a Low Channel



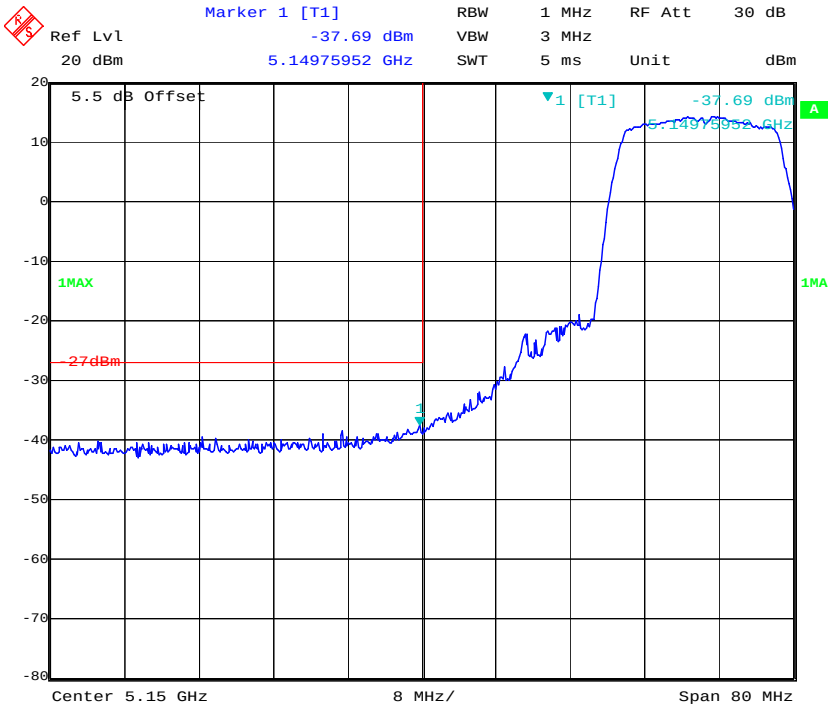
Date: 23.OCT.2017 11:43:20

802.11a High Channel



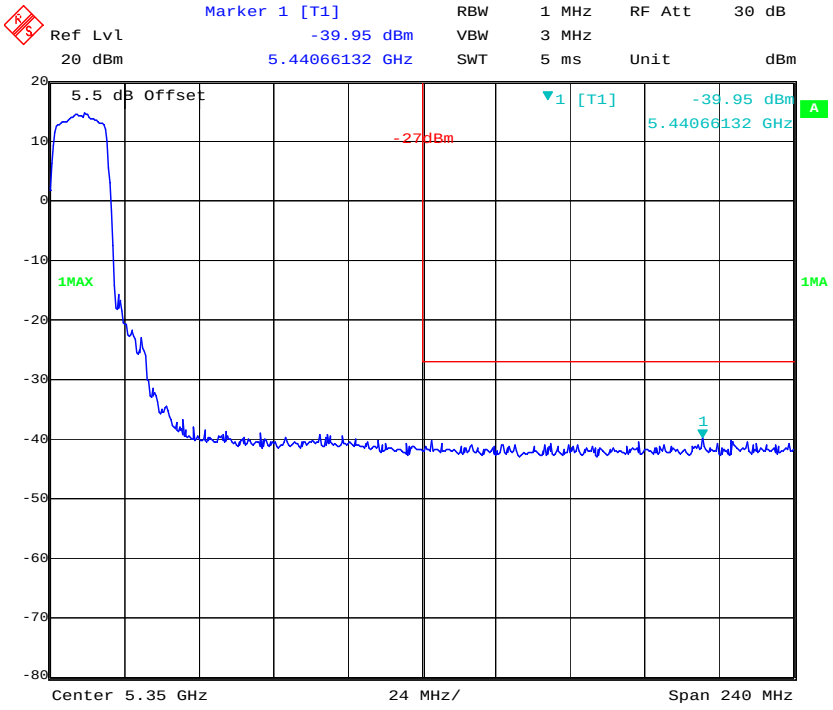
Date: 23.OCT.2017 11:54:59

802.11n ht20 Low Channel



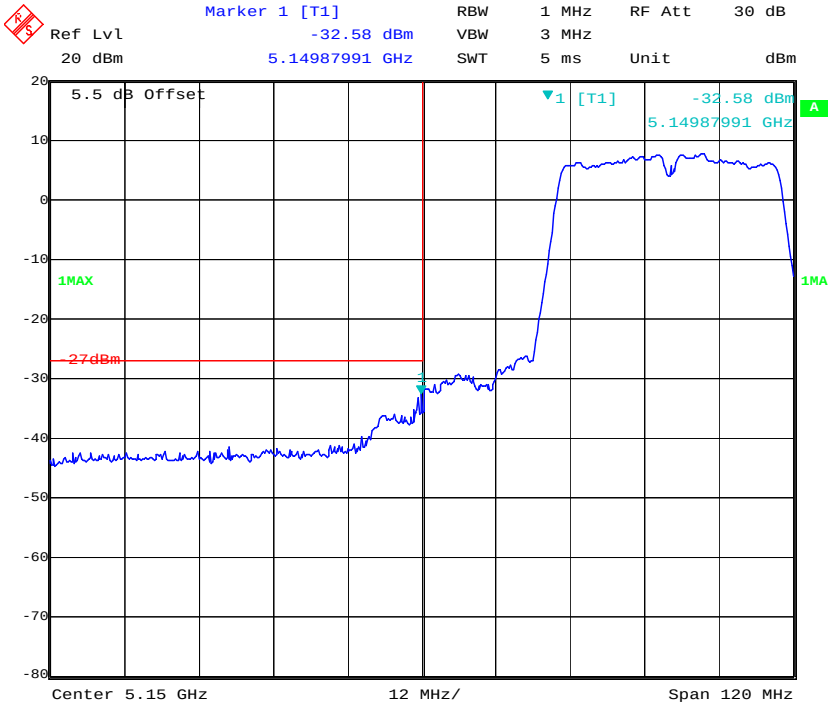
Date: 23.OCT.2017 13:07:26

802.11n ht20 High Channel



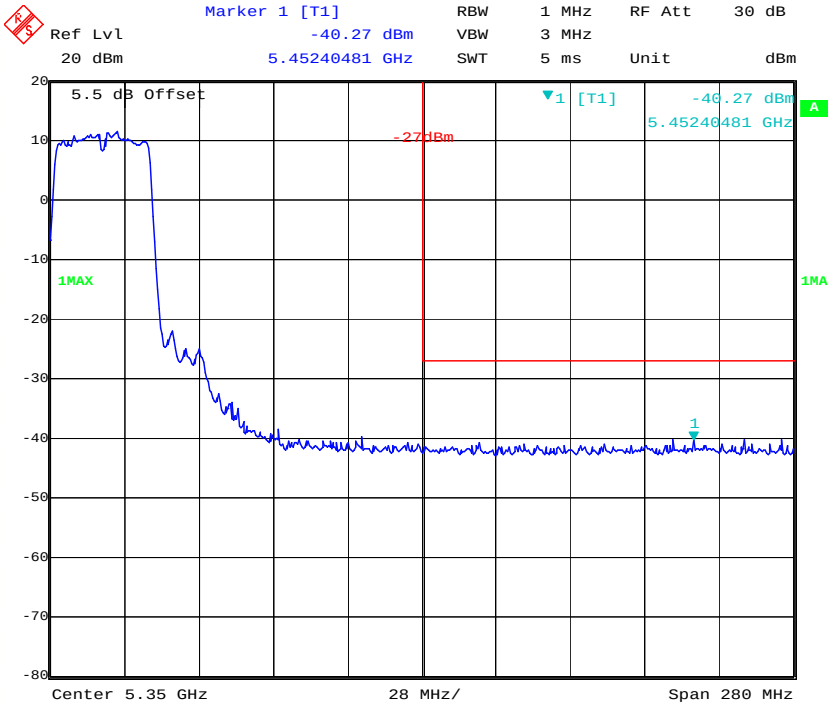
Date: 23.OCT.2017 13:18:26

802.11n ht40 Low Channel



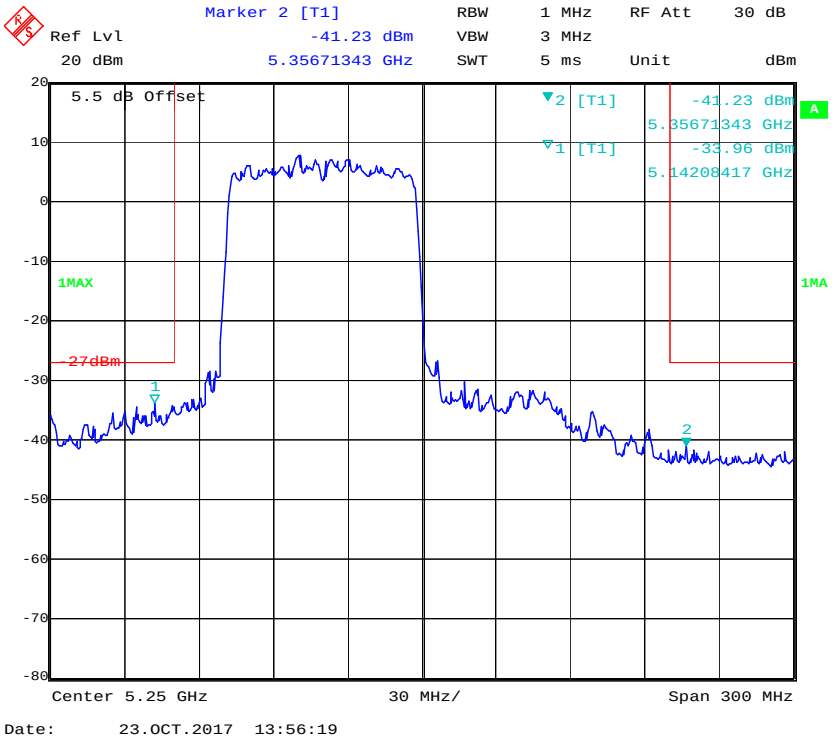
Date: 31.OCT.2017 22:32:31

802.11n ht40 High Channel



Date: 23.OCT.2017 13:27:46

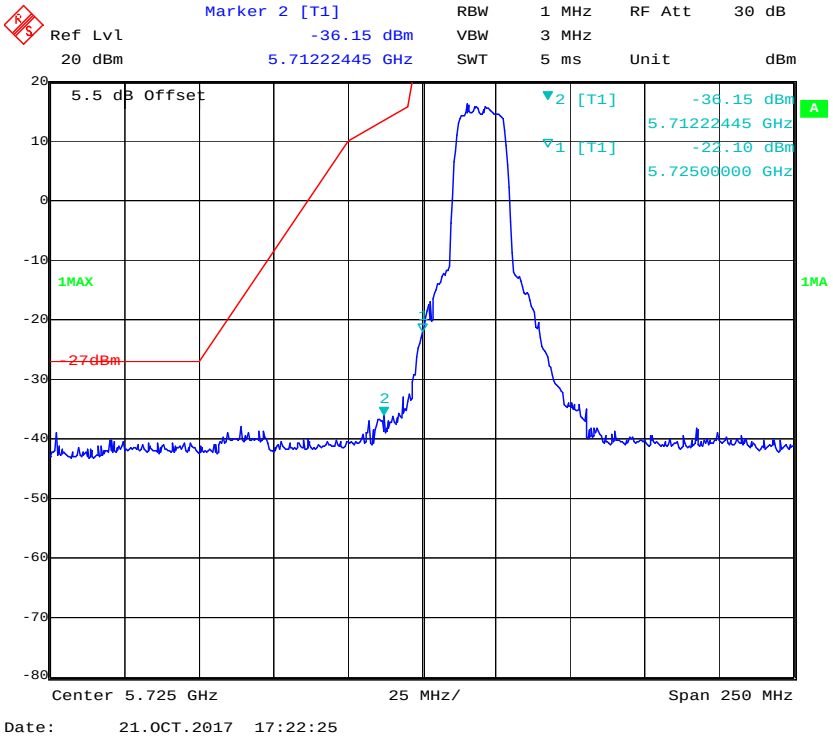
802.11n ac80 Middle Channel



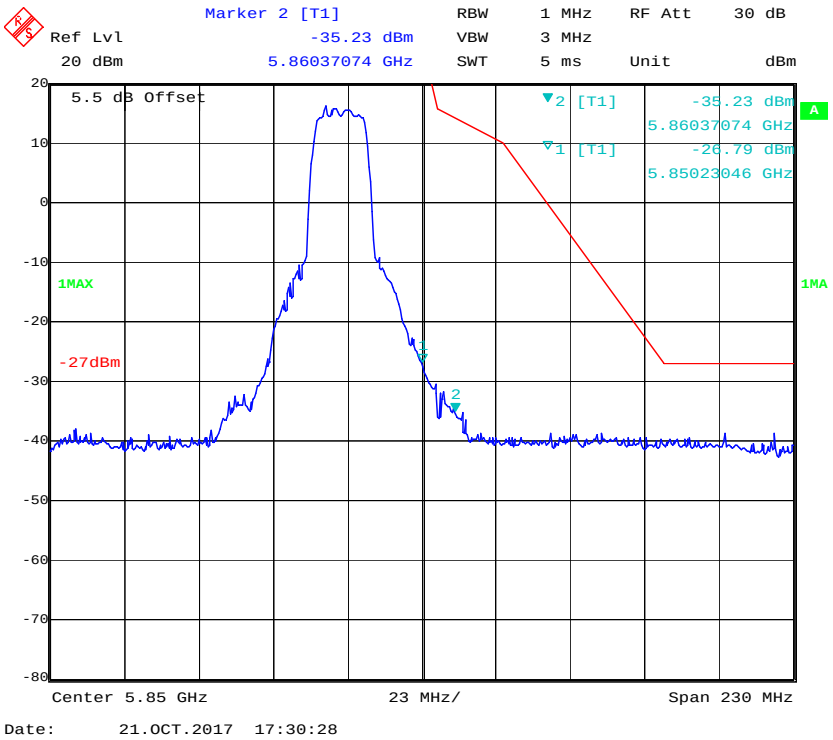
5725-5850MHz(the atenna gain was offset in the display, all emission under limit more than 3dBc, so 2TX mode also compliance the requirement)

Chain 0:

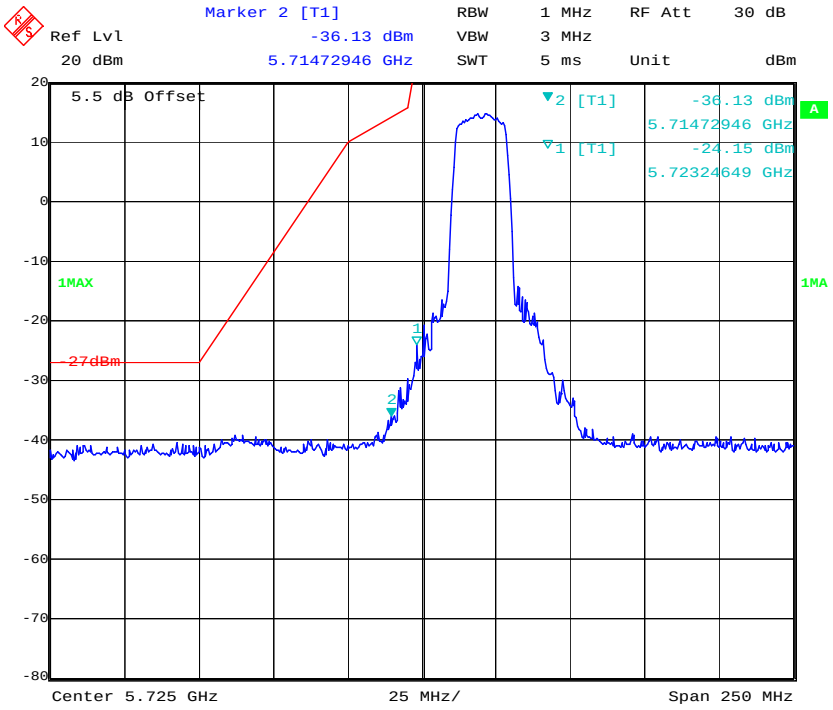
802.11a Low Channel



802.11a High Channel

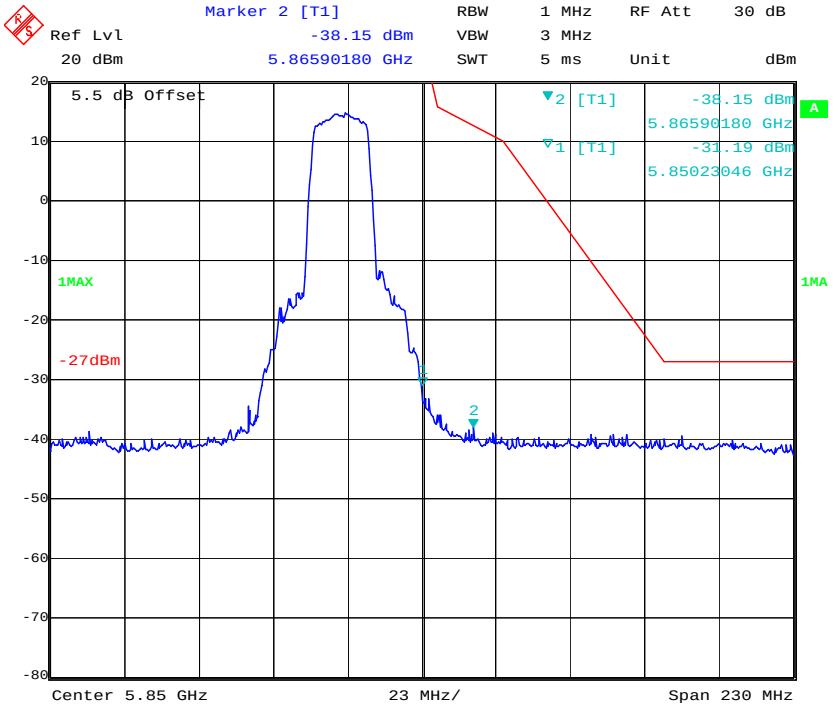


802.11n ht20 Low Channel



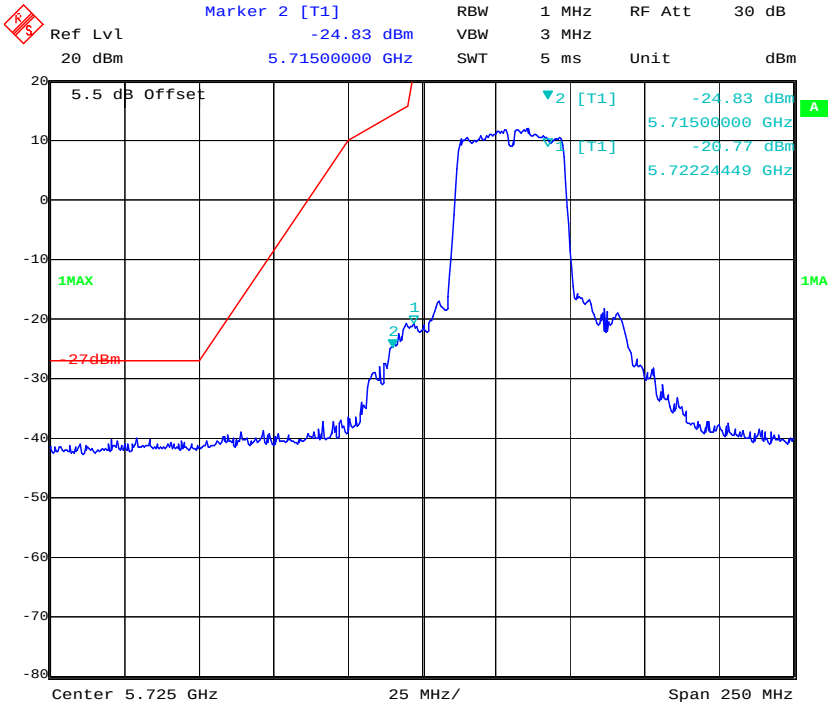
Date: 21.OCT.2017 17:44:51

802.11n ht20 High Channel



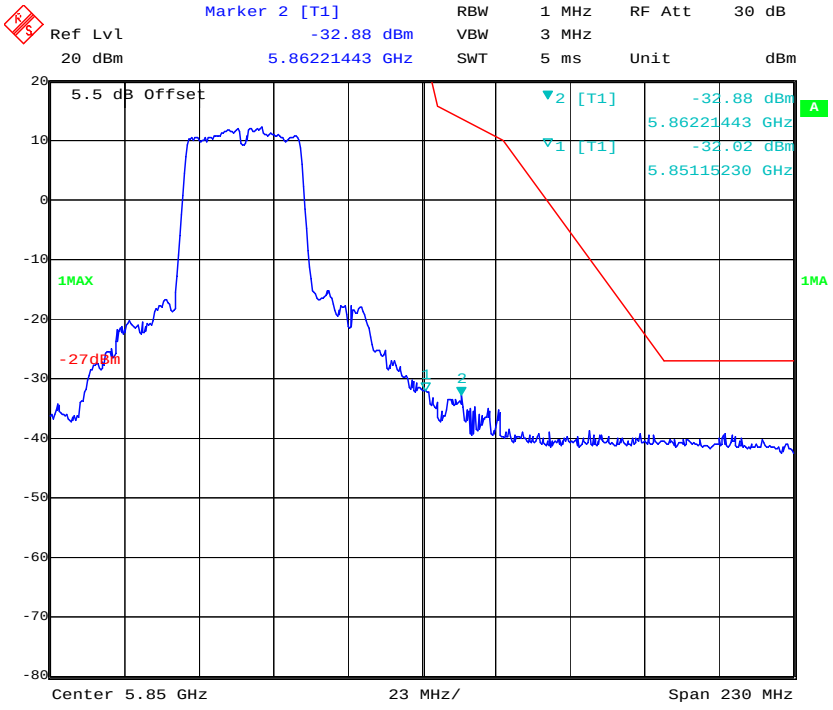
Date: 21.OCT.2017 17:37:05

802.11n ht40 Low Channel



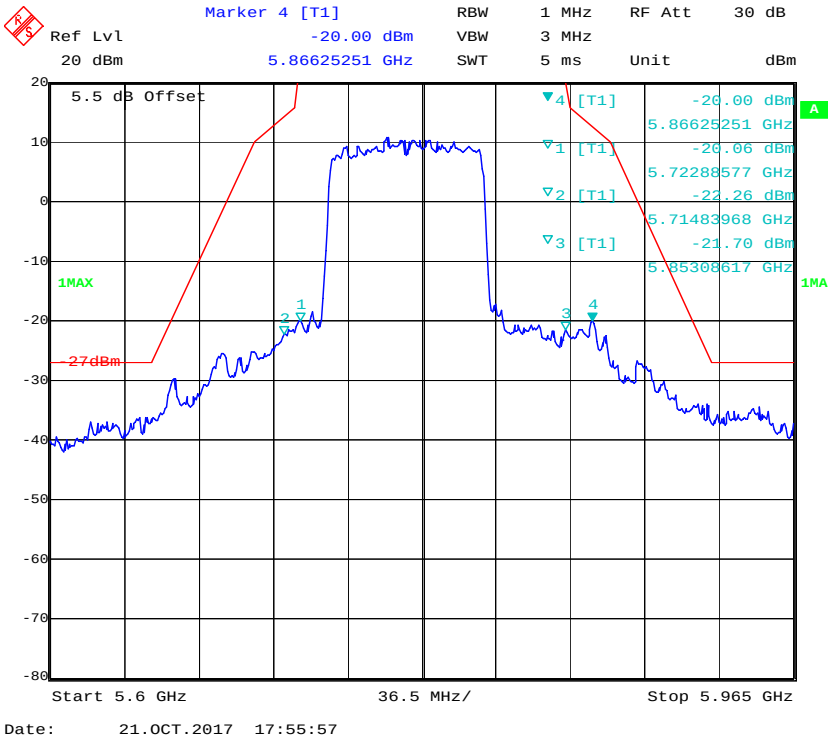
Date: 21.OCT.2017 17:48:37

802.11n ht40 High Channel



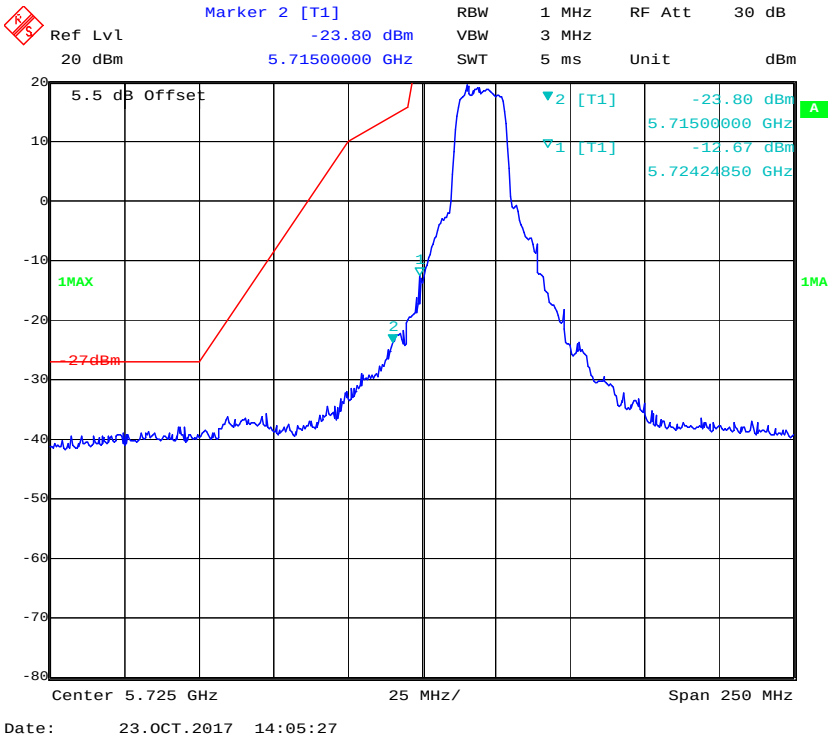
Date: 21.OCT.2017 17:51:43

802.11n ac80 Middle Channel

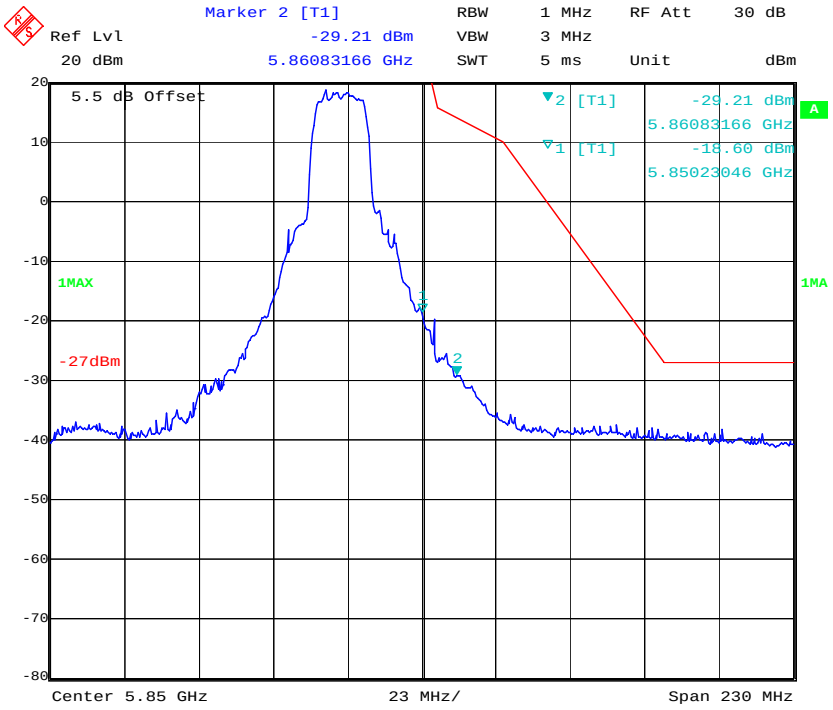


Chain 1:

802.11a Low Channel

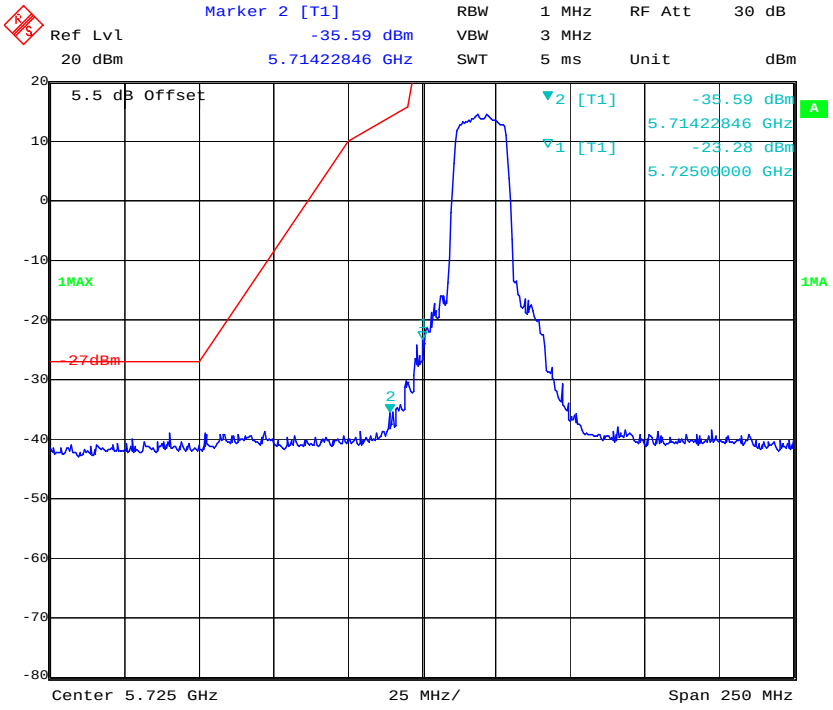


802.11a High Channel



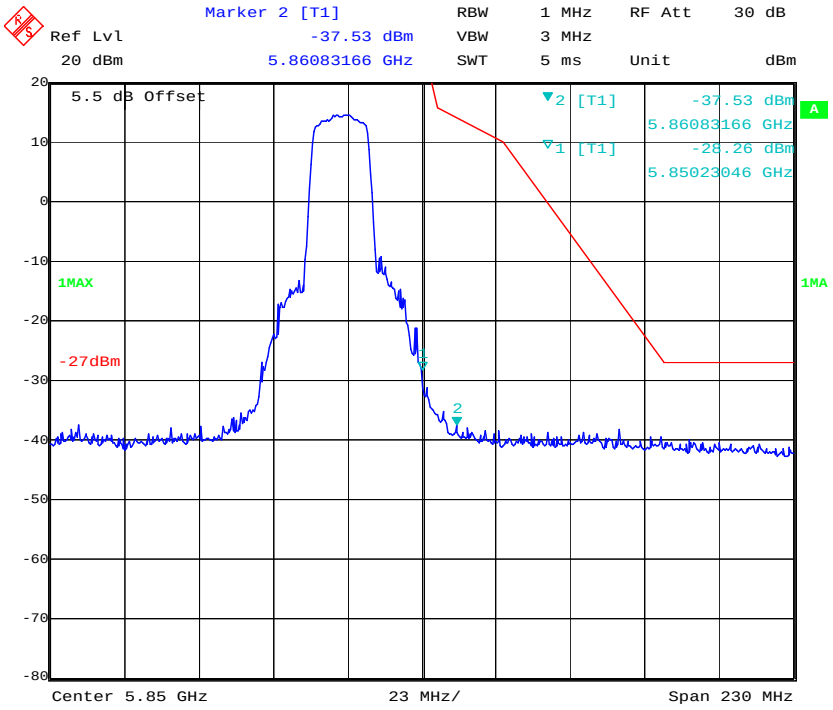
Date: 23.OCT.2017 14:11:06

802.11n ht20 Low Channel



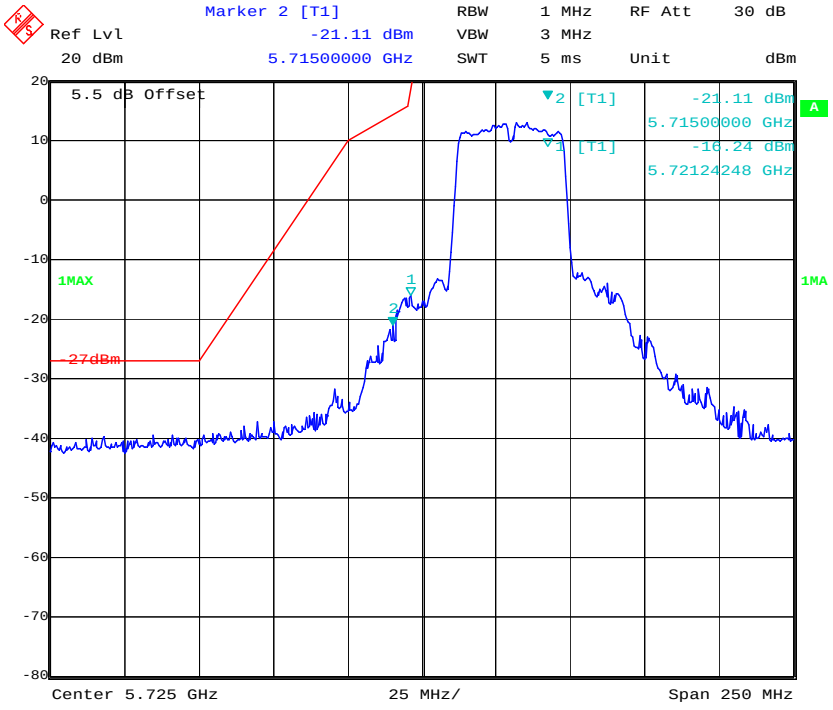
Date: 23.OCT.2017 14:18:30

802.11n ht20 High Channel



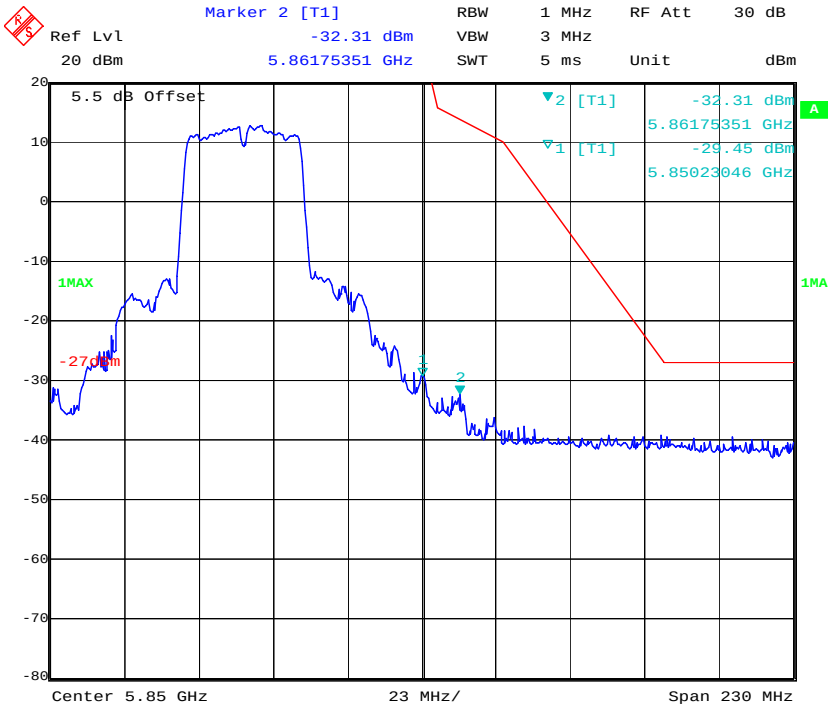
Date: 23.OCT.2017 14:24:58

802.11n ht40 Low Channel



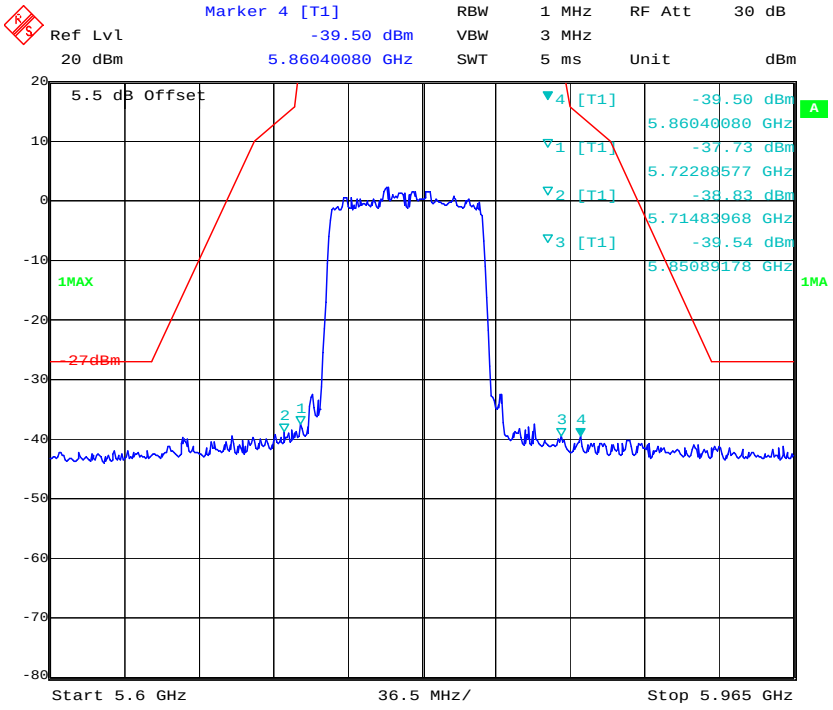
Date: 23.OCT.2017 14:36:55

802.11n ht40 High Channel



Date: 23.OCT.2017 14:39:35

802.11n ac80 Middle Channel



Date: 23.OCT.2017 14:45:15

FCC §15.407(a)(e) –EMISSION BANDWIDTH AND OCCUPIED BANDWIDTH

Applicable Standard

15.407(a) (e)

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSIQ	831929/005	2017-08-31	2018-08-31
Unknown	RF Cable	Unknown	C-4	Each Time	/

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

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04

Test Data

Environmental Conditions

Temperature:	26.8~27.3°C
Relative Humidity:	41~49 %
ATM Pressure:	100.8 ~102.1kPa

The testing was performed by Kami Zhou from 2017-10-21 to 2017-10-31.

Test Result: Pass.

Please refer to the following tables and plots.

Test mode: Transmitting(Test performed at chain 0)

5150-5250MHz:

Mode	Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11 a	Low	5180	25.81	17.31
	Middle	5200	25.49	17.31
	High	5240	25.41	17.23
802.11n ht20	Low	5180	21.4	17.96
	Middle	5200	20.84	18.2
	High	5240	21.48	18.28
802.11n ht40	Low	5190	40.08	36.39
	High	5230	40.08	36.39
802.11ac80	Middle	5210	81.12	75.35

Note: the 99% Occupied Bandwidth have not fall into the band 5250-5350MHz, please refer to the test plots of 99% Occupied Bandwidth.

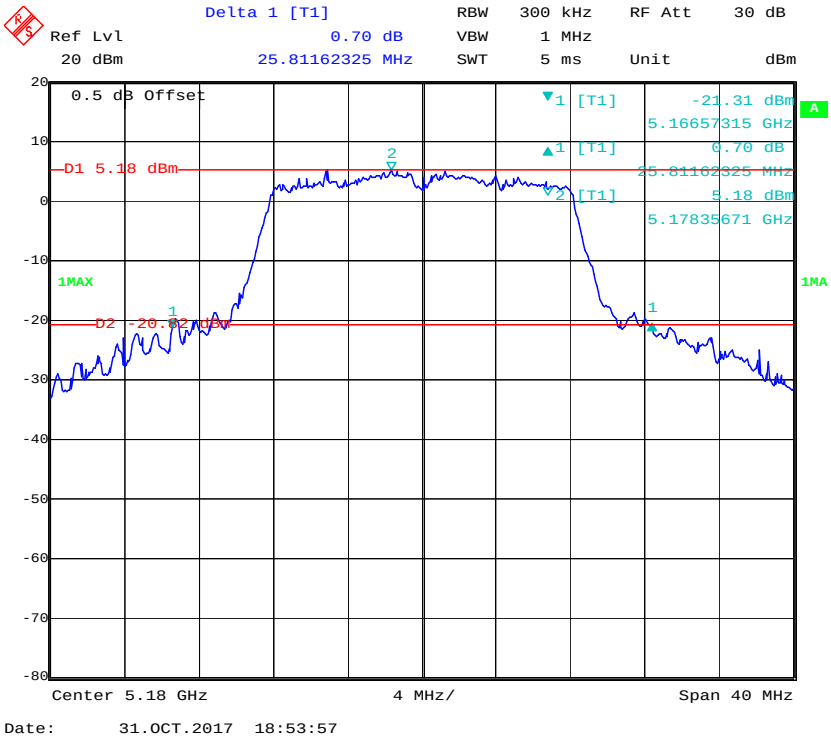
5725-5850MHz:

Mode	Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11 a	Low	5745	16.35	16.91
	Middle	5785	16.19	16.99
	High	5825	16.19	16.99
802.11n ht20	Low	5745	17.15	17.8
	Middle	5785	17.15	17.8
	High	5825	17.15	17.8
802.11n ht40	Low	5755	35.43	36.39
	High	5795	35.59	36.55
802.11ac80	Middle	5775	75.35	75.03

Note: For 5725-5850MHz band, the 99% Occupied Bandwidth have not fall into the band 5470-5725MHz.

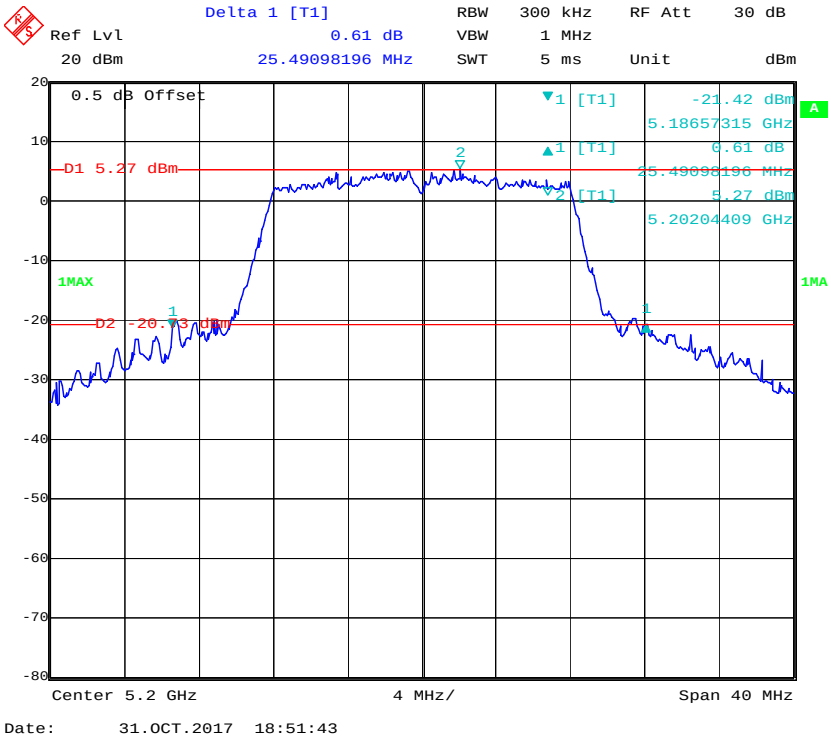
5150-5250MHz: 26dB Emission Bandwidth:

802.11a Low Channel



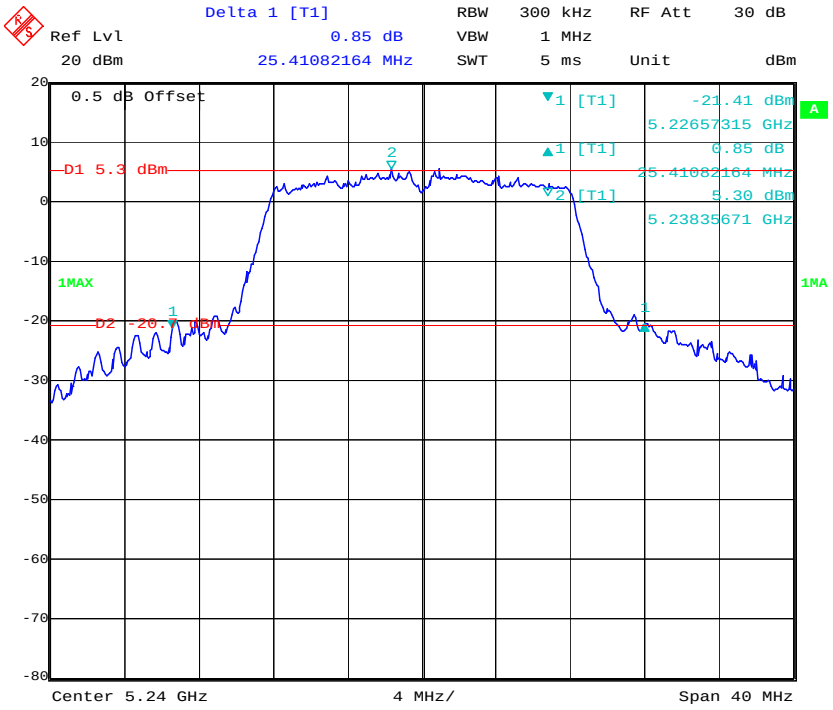
Date: 31.OCT.2017 18:53:57

802.11a Middle Channel



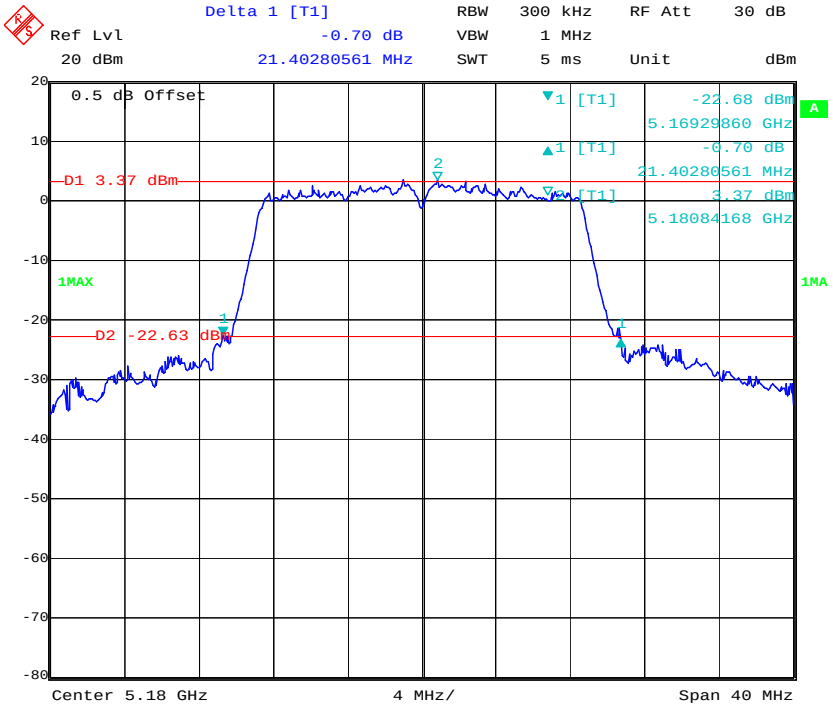
Date: 31.OCT.2017 18:51:43

802.11a High Channel



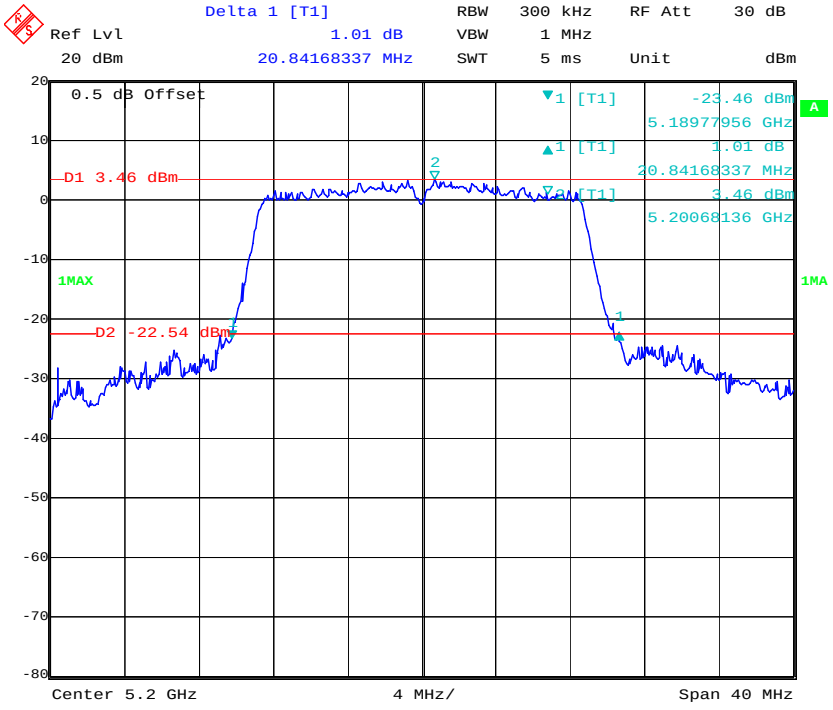
Date: 31.OCT.2017 18:49:25

802.11n ht20 Low Channel



Date: 31.OCT.2017 19:04:31

802.11n ht20 Middle Channel



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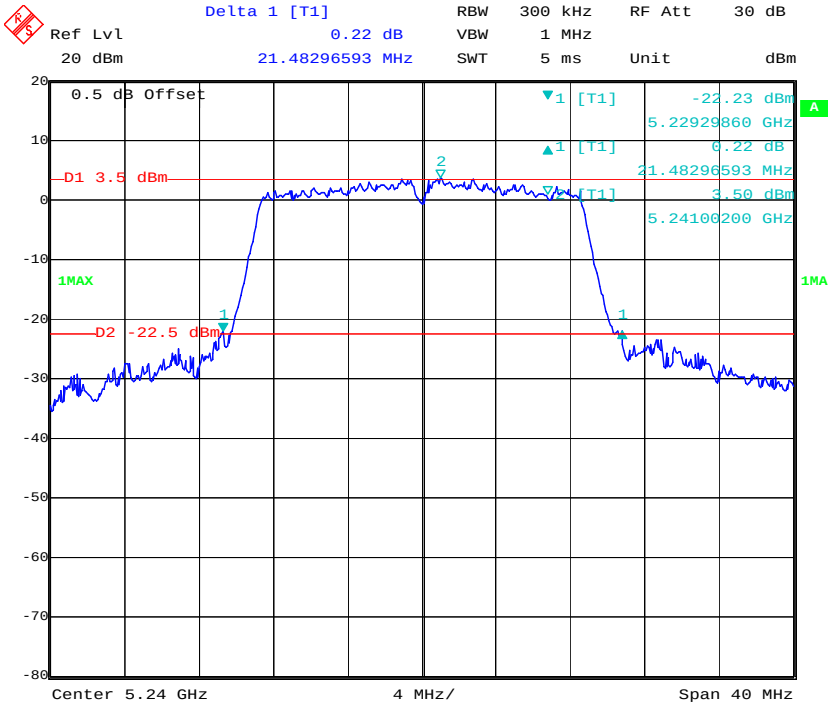
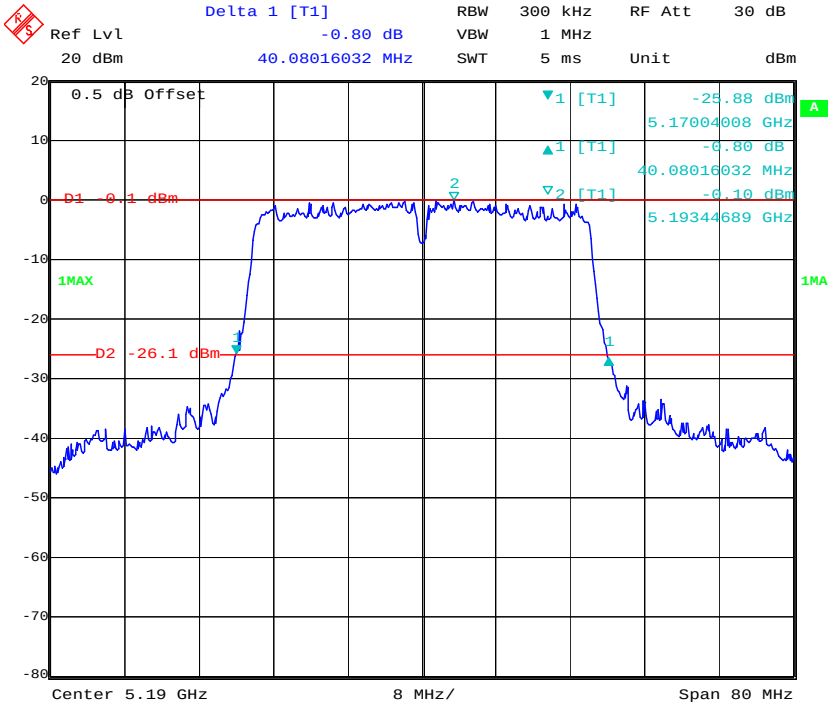
802.11n ht20 High Channel



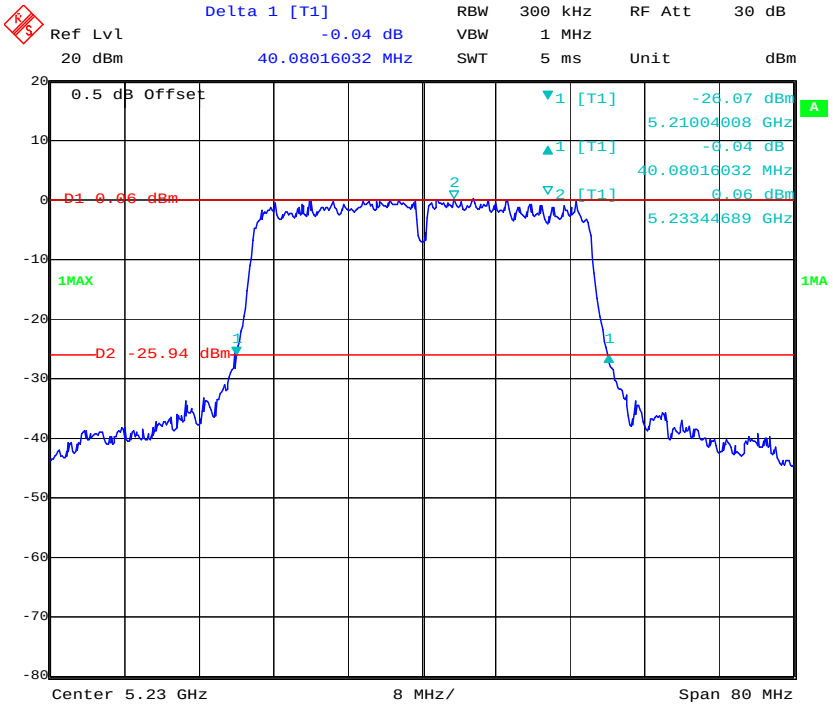
Date: 31.OCT.2017 19:08:05

802.11n ht40 Low Channel



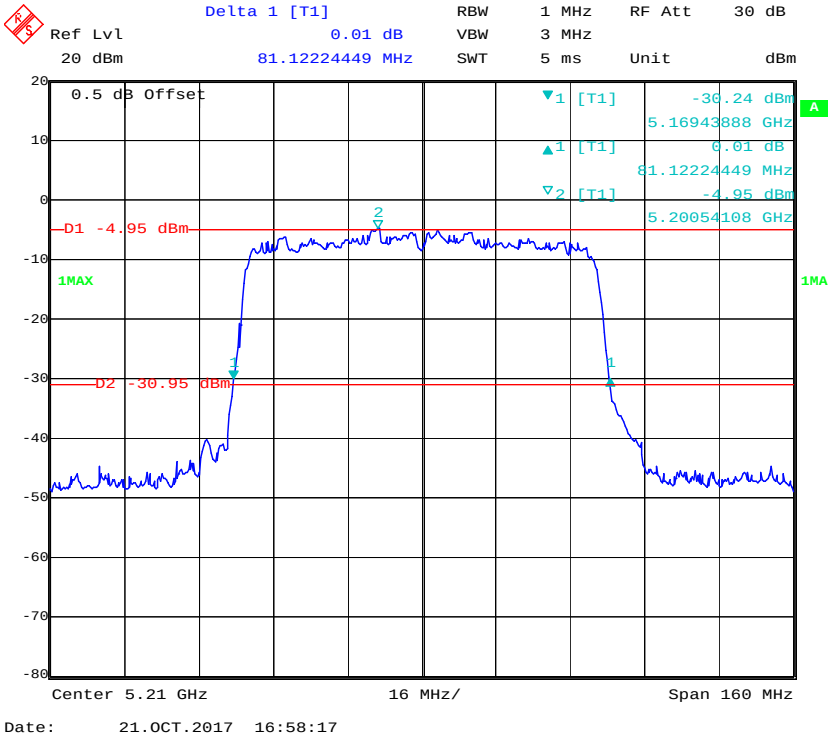
Date: 21.OCT.2017 16:44:48

802.11n ht40 High Channel



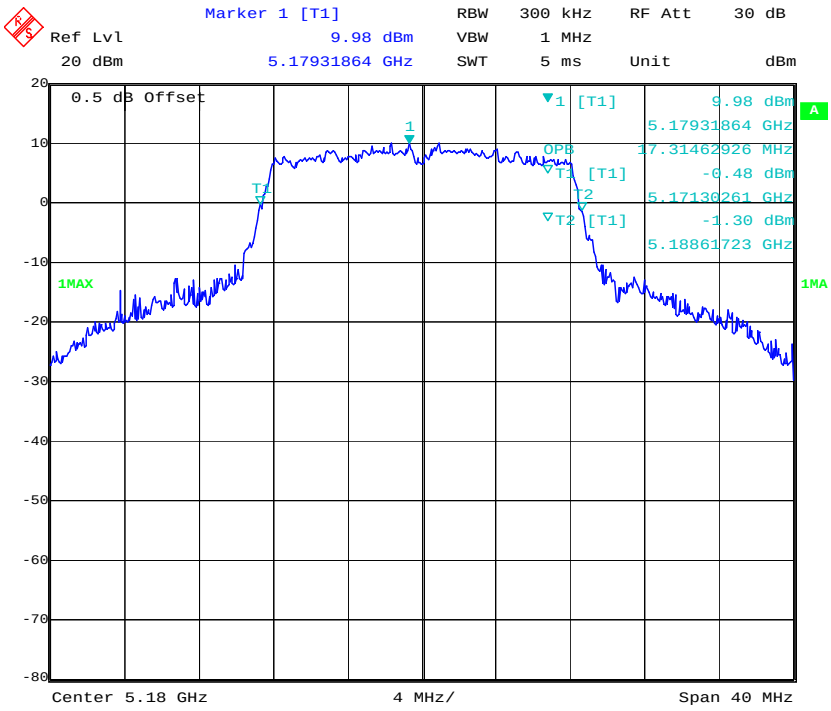
Date: 21.OCT.2017 16:54:41

802.11ac80 Middle Channel



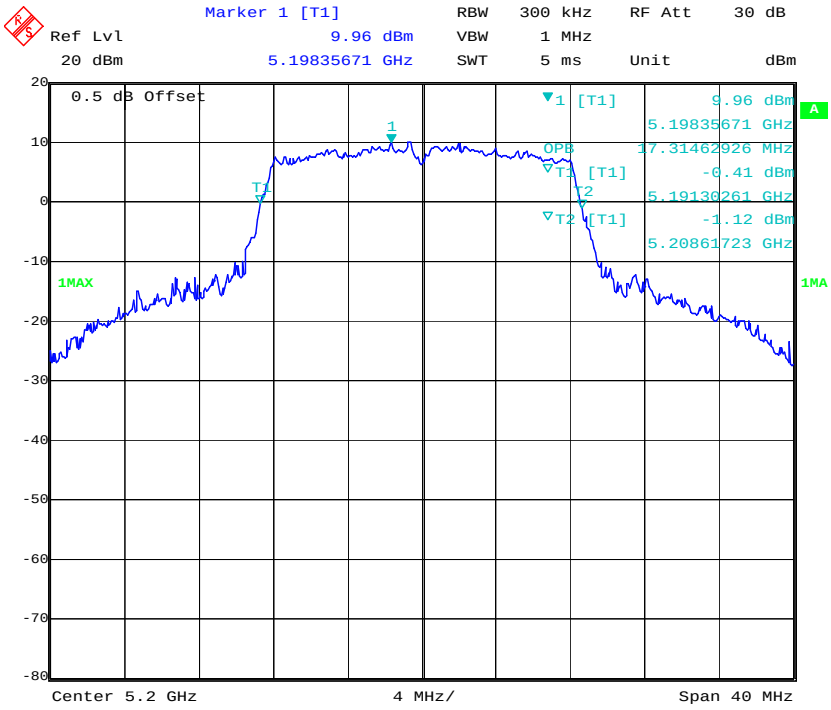
99% Occupied Bandwidth

802.11a Low Channel



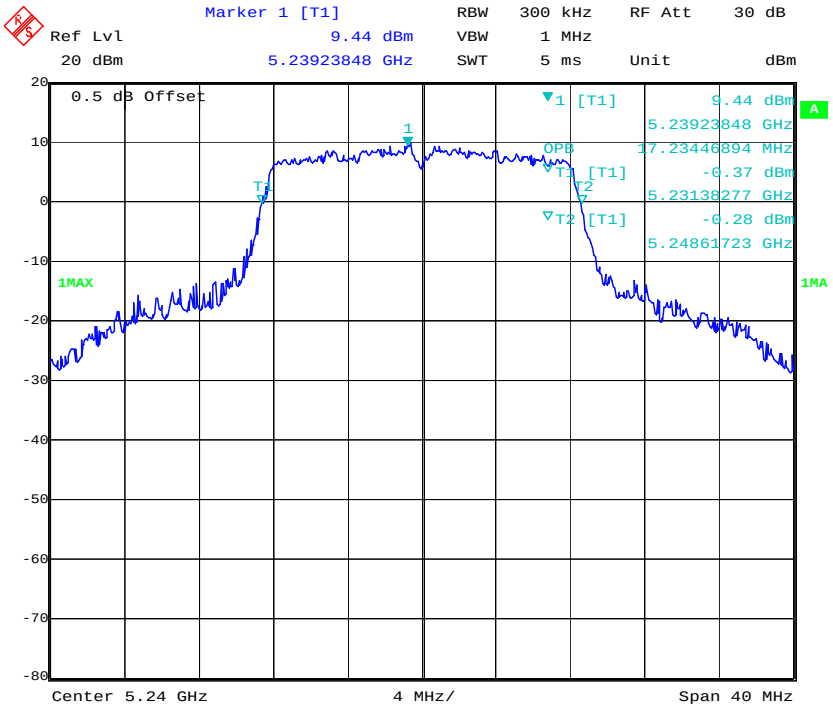
Date: 21.OCT.2017 15:35:17

802.11a Middle Channel



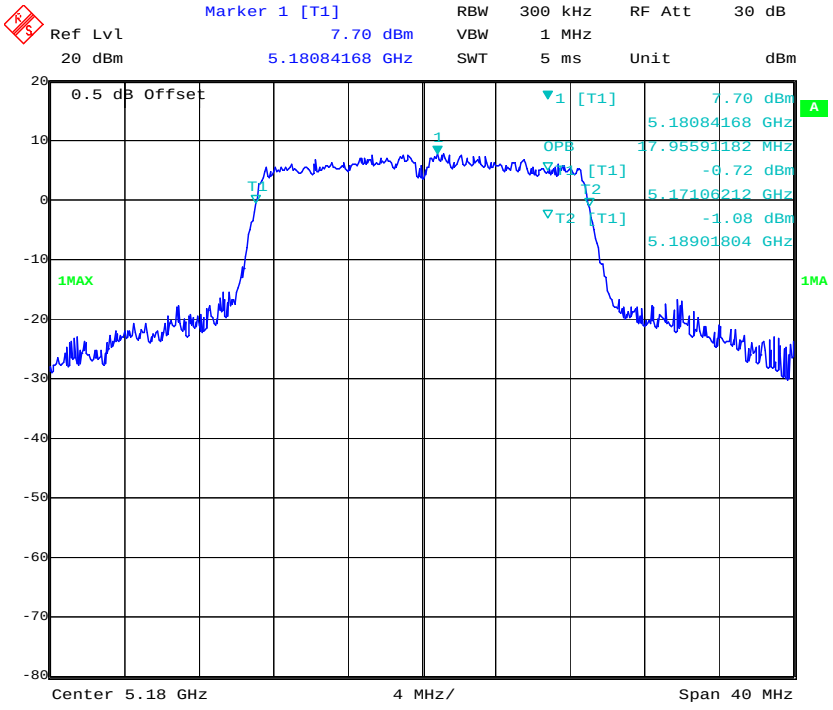
Date: 21.OCT.2017 15:43:36

802.11a High Channel



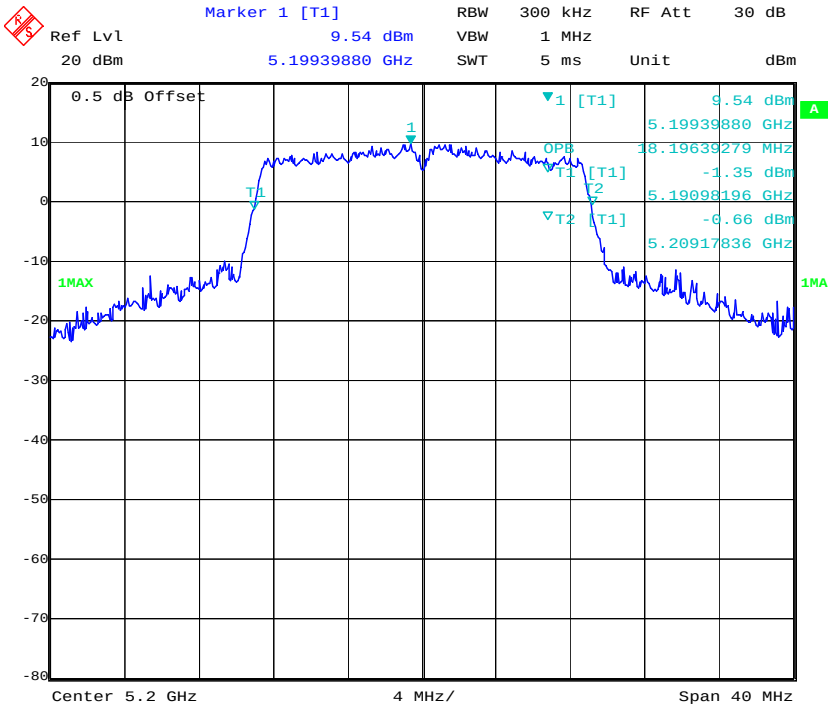
Date: 21.OCT.2017 15:45:35

802.11n ht20 Low Channel



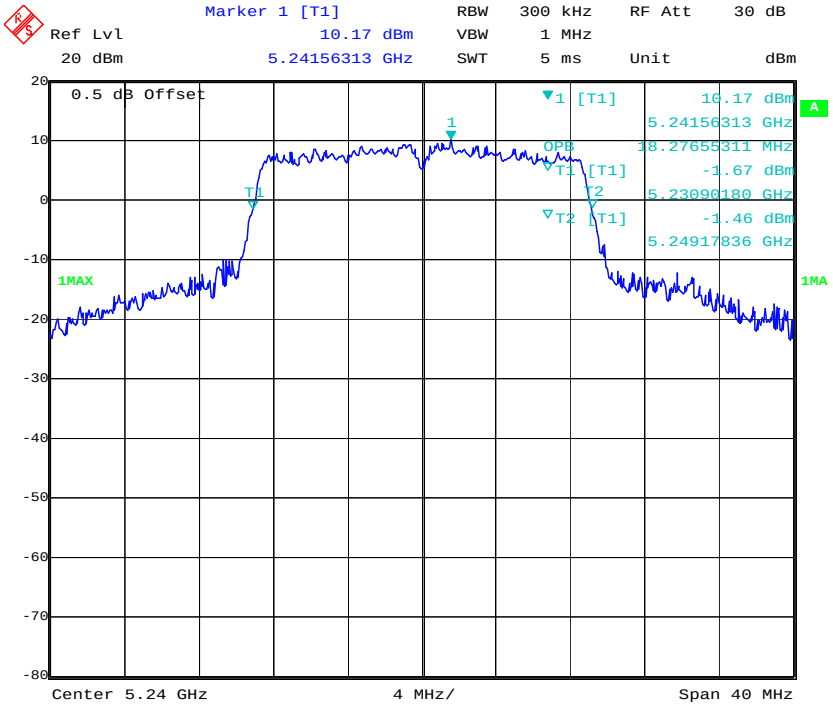
Date: 21.OCT.2017 16:23:04

802.11n ht20 Middle Channel



Date: 21.OCT.2017 16:14:59

802.11n ht20 High Channel



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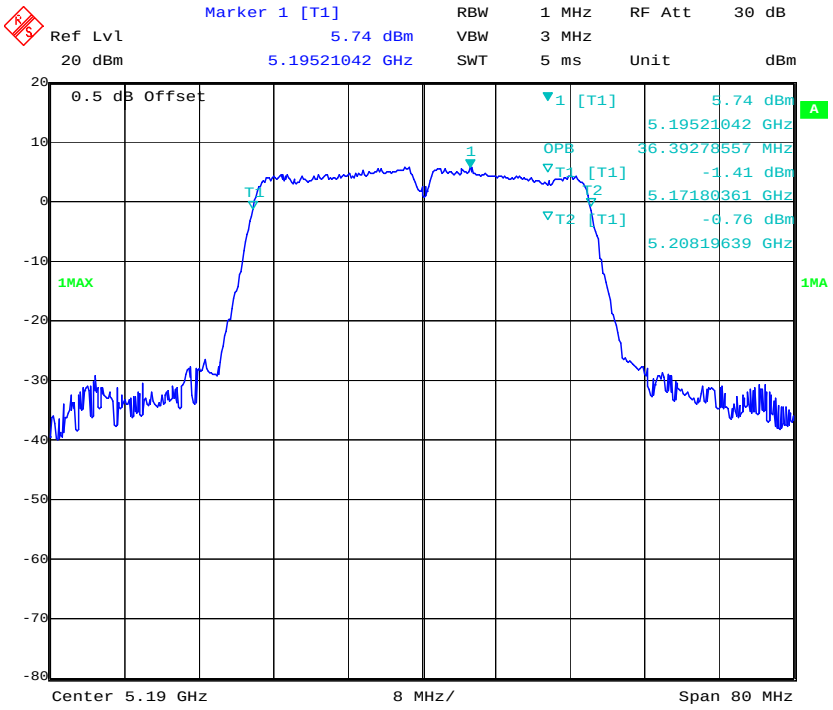
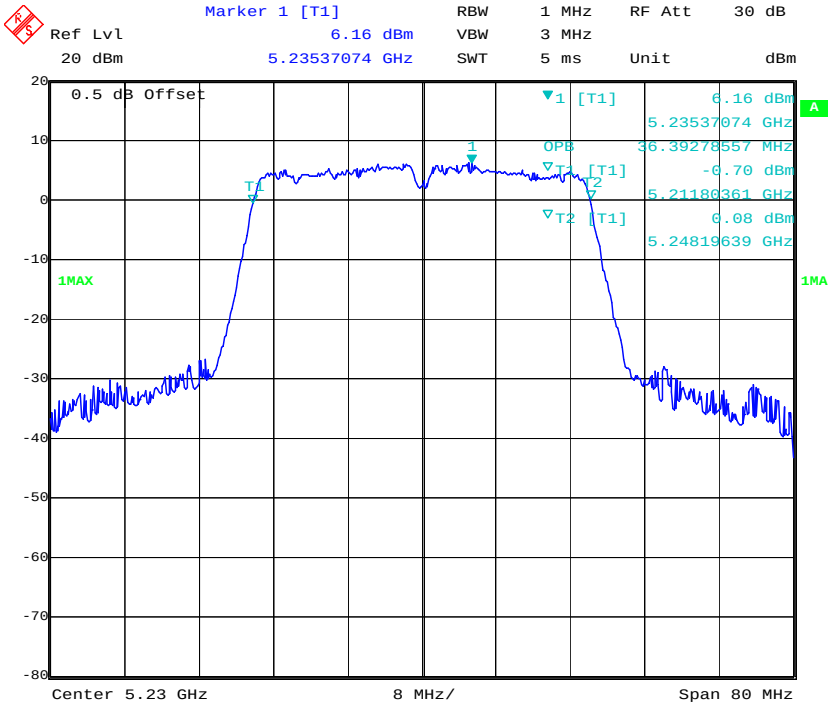
802.11n ht40 Low Channel



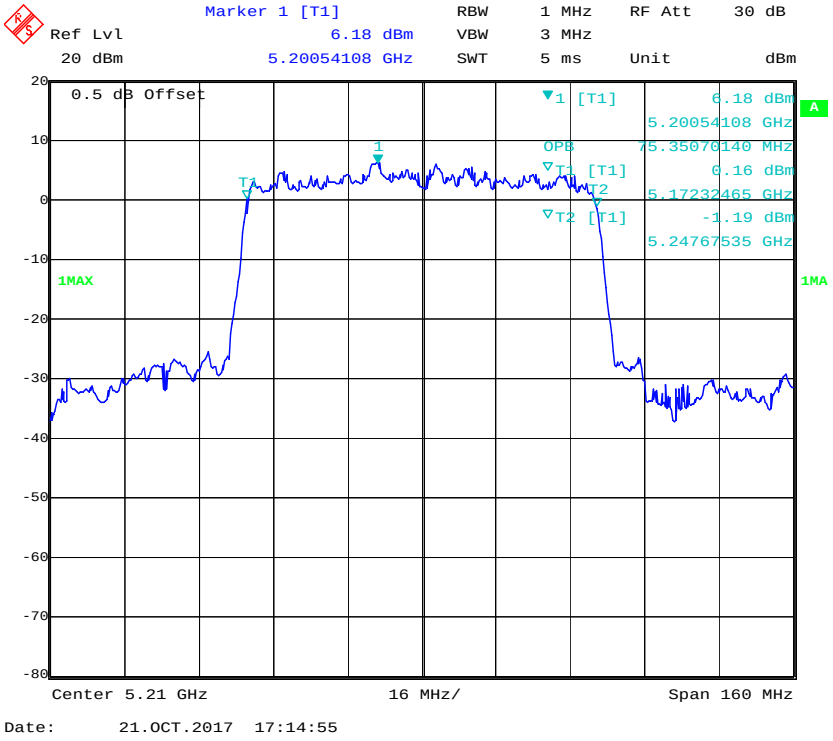
Date: 21.OCT.2017 16:45:07

802.11n ht40 High Channel



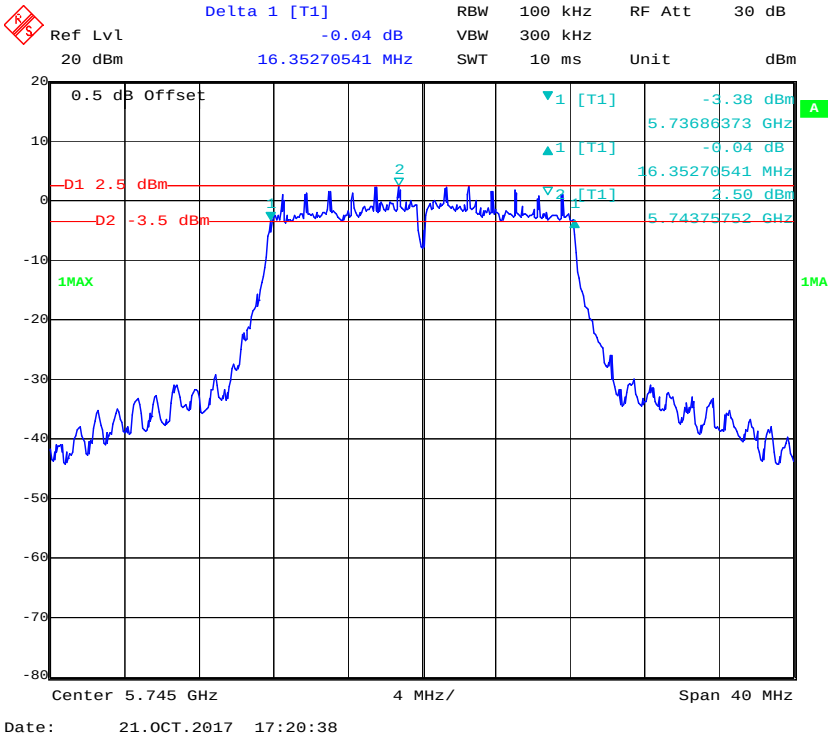
Date: 21.OCT.2017 16:54:57

802.11ac80 Middle Channel



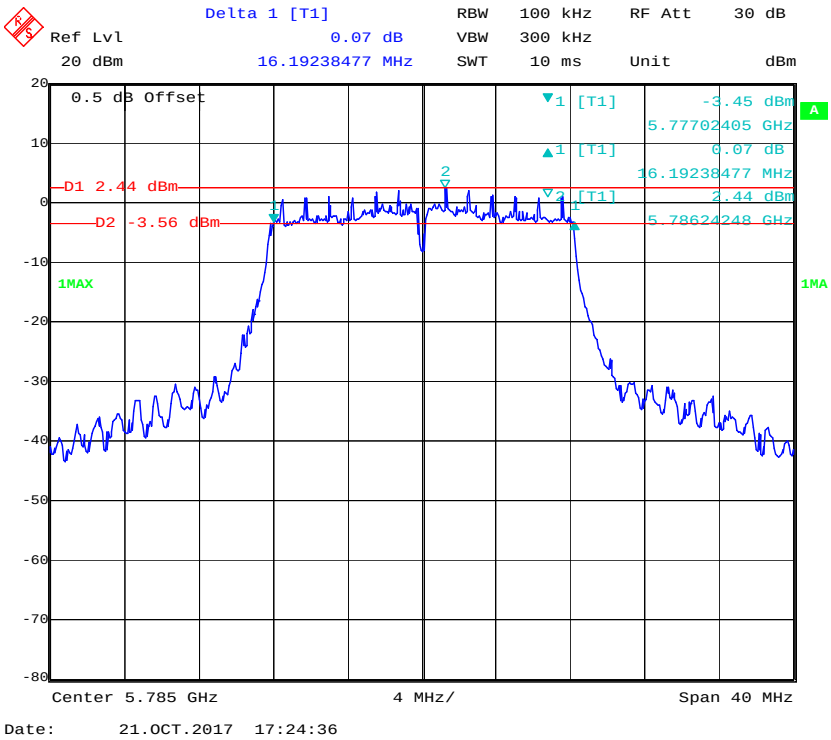
5725-5850MHz:
6dB Bandwidth:

802.11a Low Channel



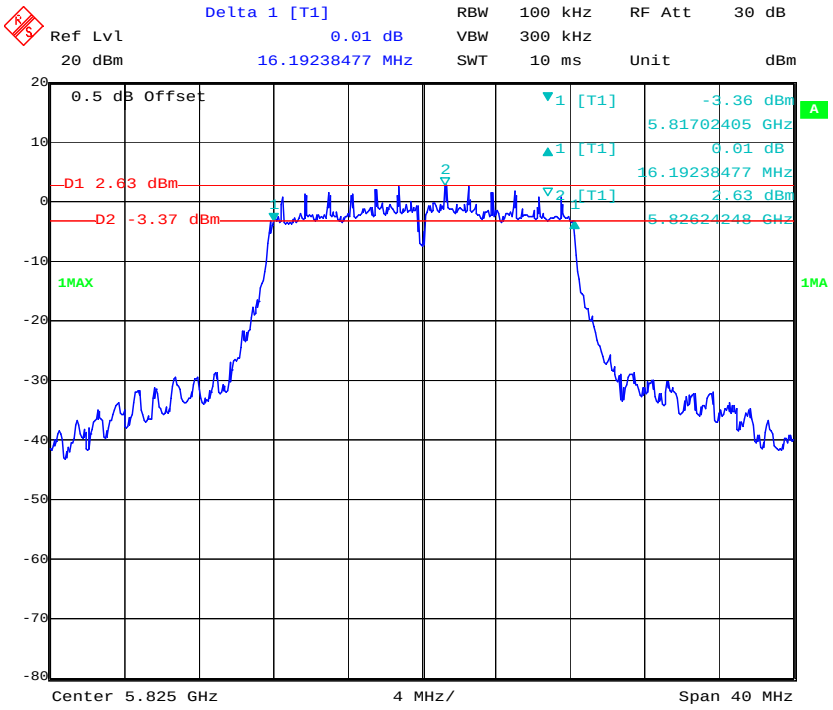
Date: 21.OCT.2017 17:20:38

802.11a Middle Channel



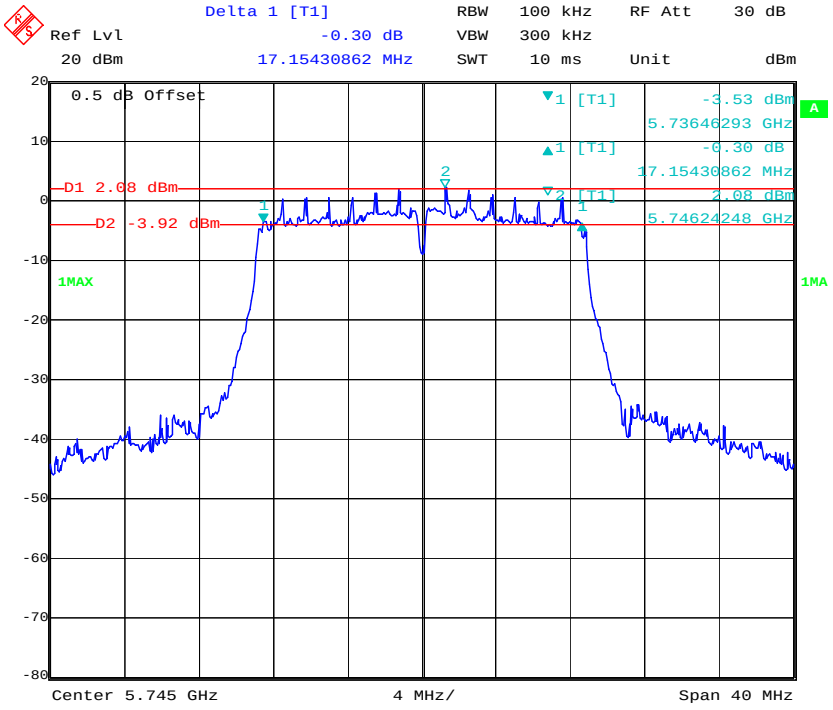
Date: 21.OCT.2017 17:24:36

802.11a High Channel



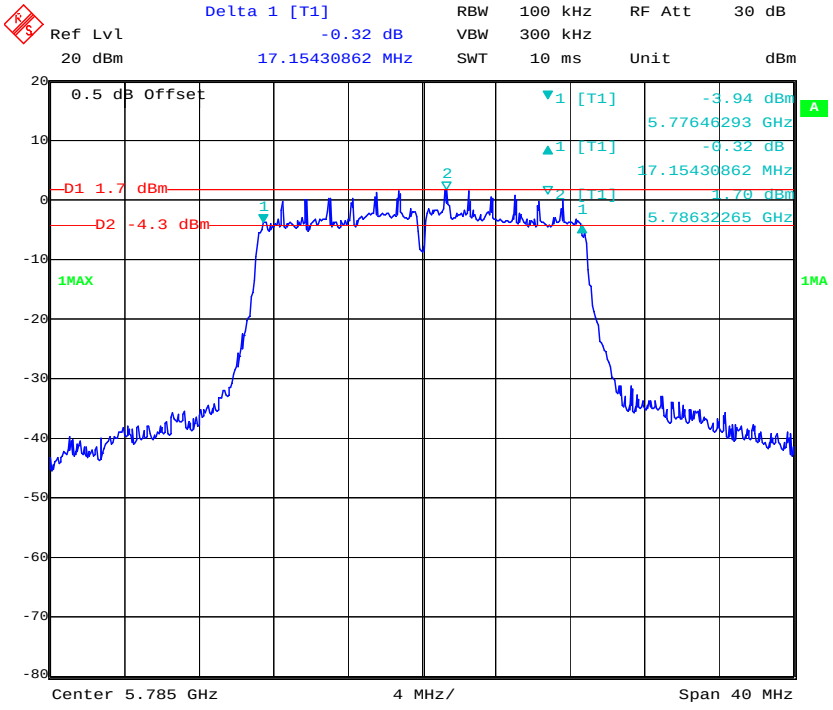
Date: 21.OCT.2017 17:28:41

802.11ht20 Low Channel



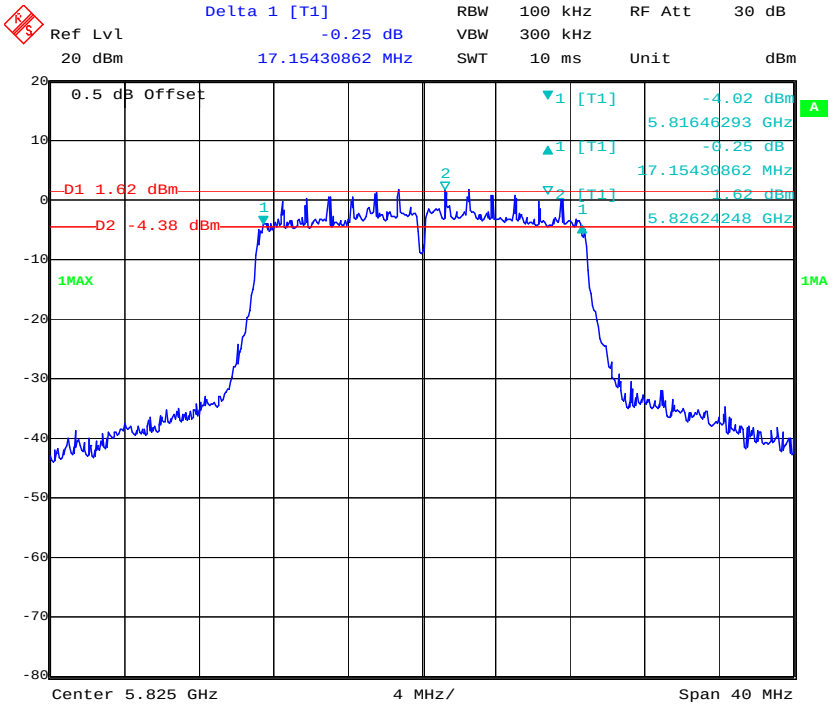
Date: 21.OCT.2017 17:43:27

802.11ht20 Middle Channel



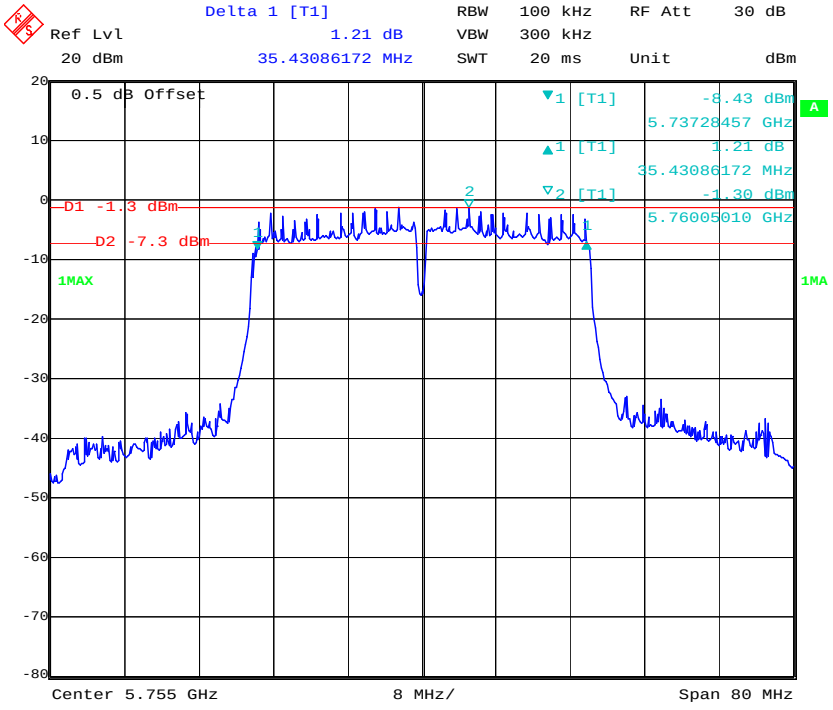
Date: 21.OCT.2017 17:40:19

802.11ht20 High Channel



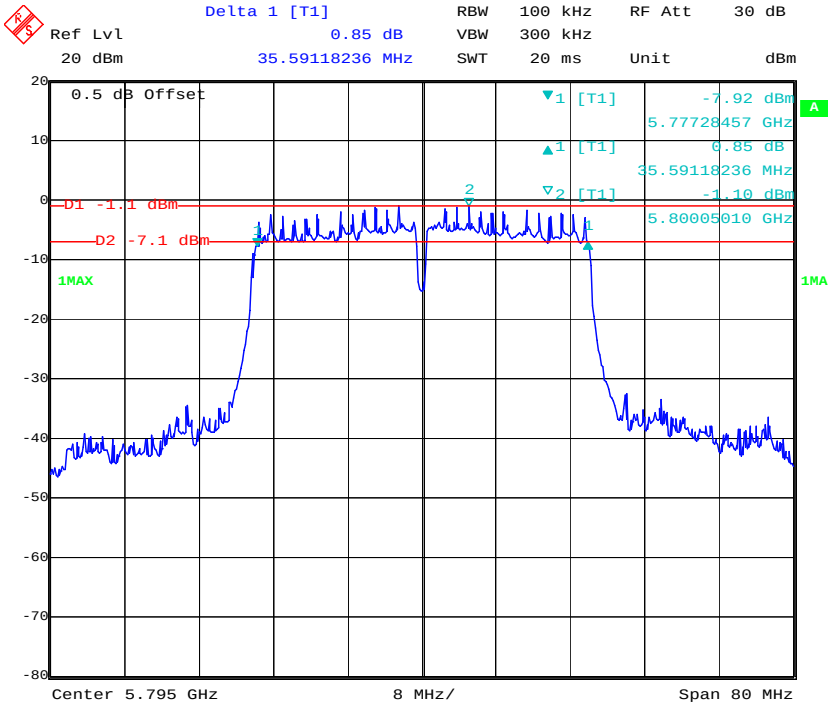
Date: 21.OCT.2017 17:35:12

802.11ht40 Low Channel



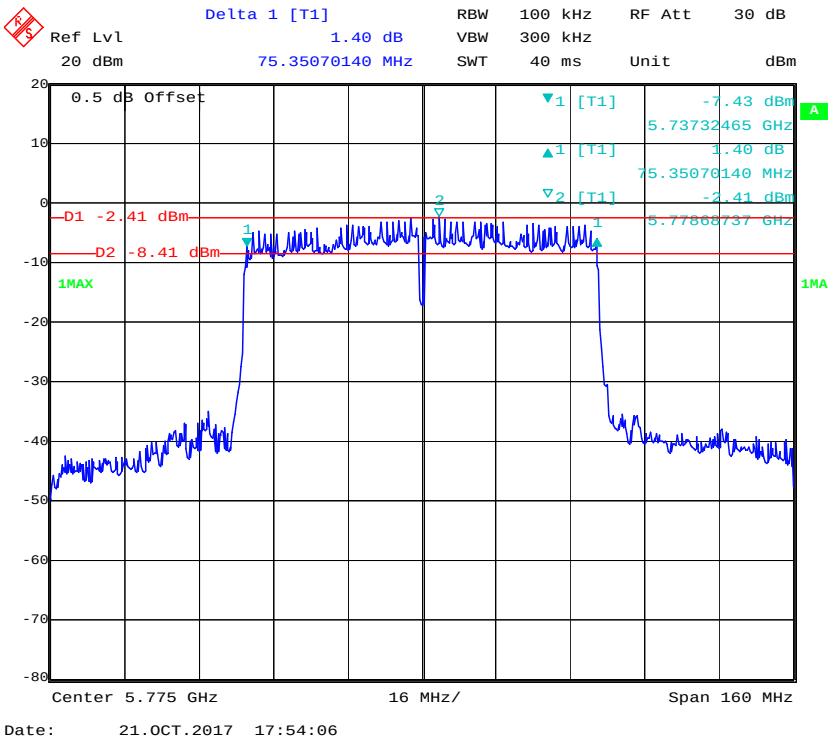
Date: 21.OCT.2017 17:46:41

802.11ht40 High Channel



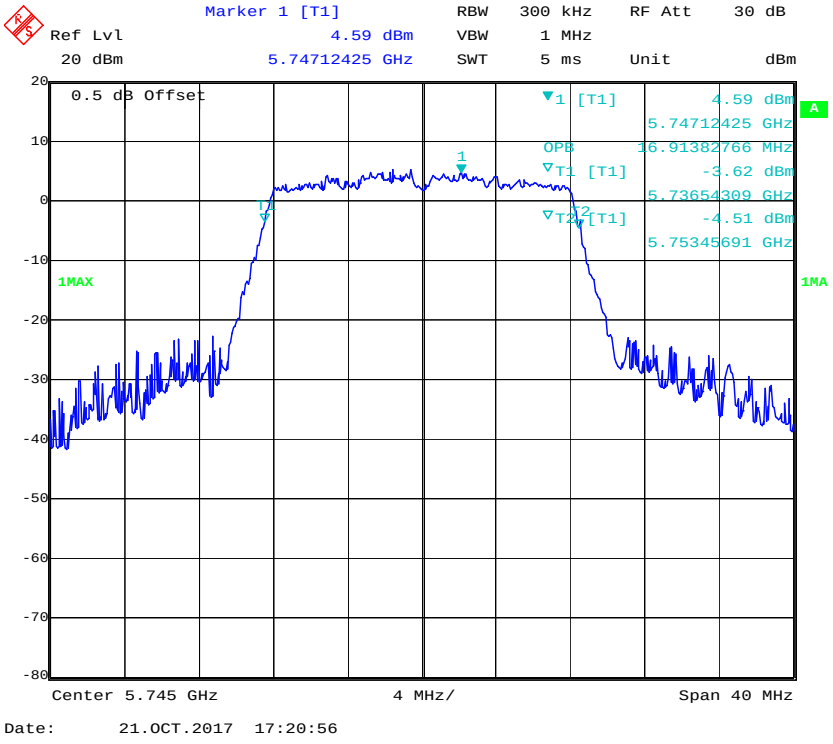
Date: 21.OCT.2017 17:49:53

802.11ac80 Middle Channel

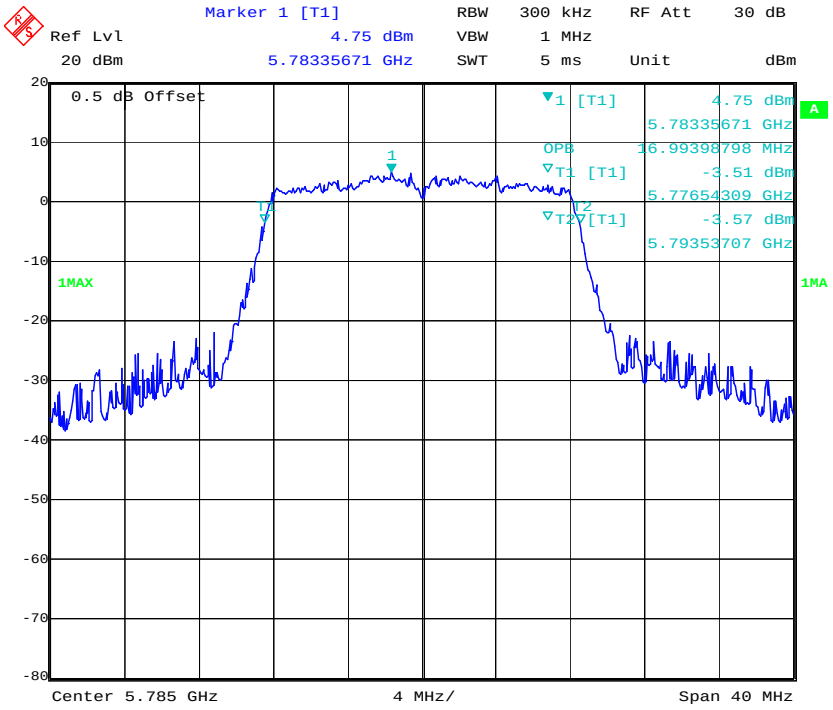


99% Occupied Bandwidth:

802.11a Low Channel

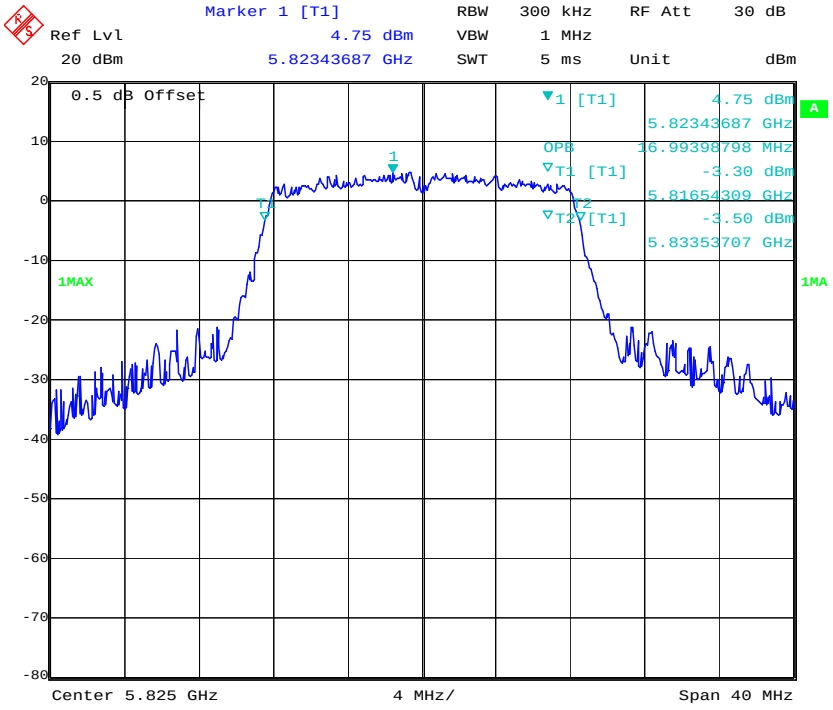


802.11a Middle Channel



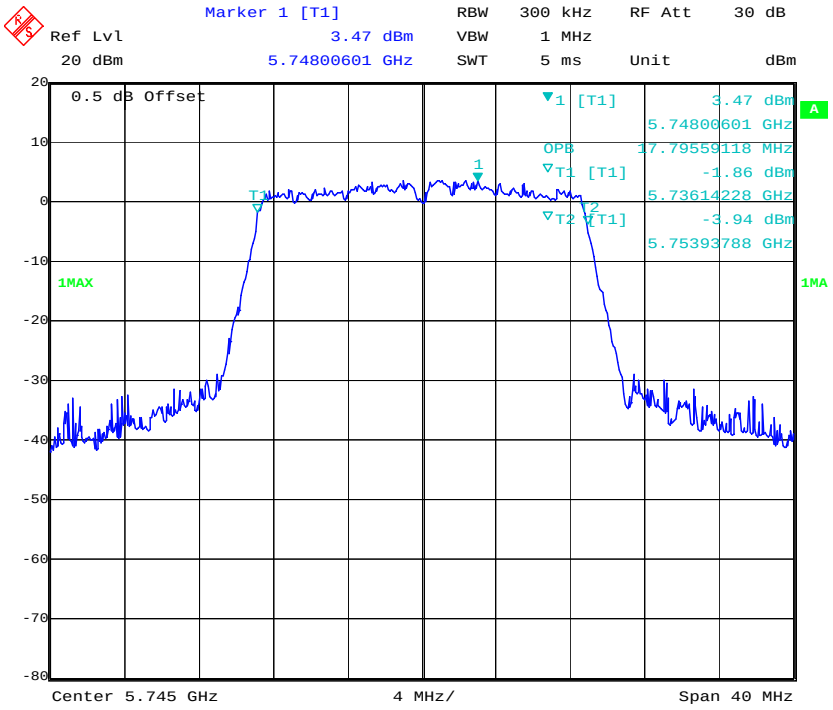
Date: 21.OCT.2017 17:24:53

802.11a High Channel

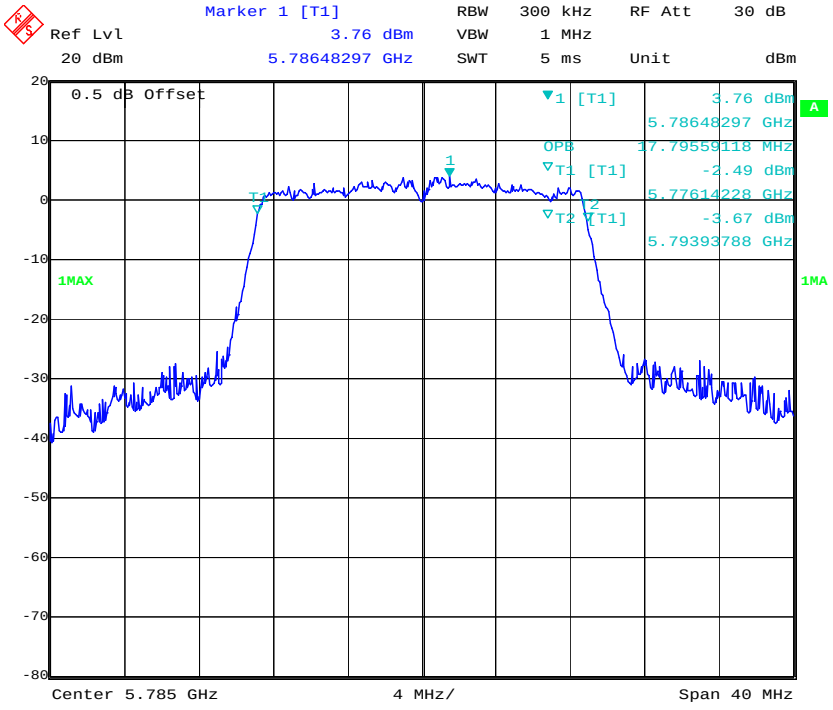


Date: 21.OCT.2017 17:28:58

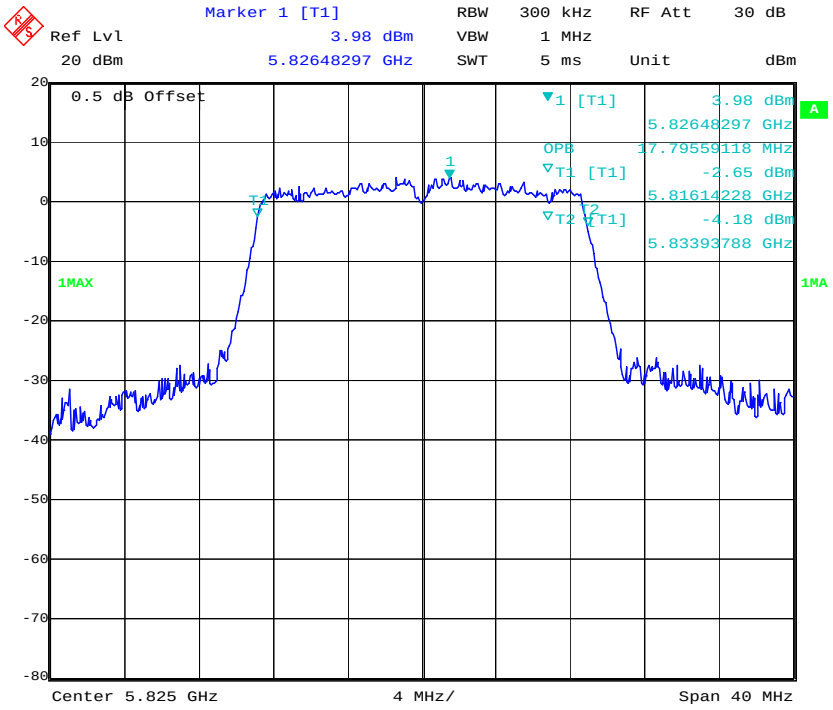
802.11ht20 Low Channel



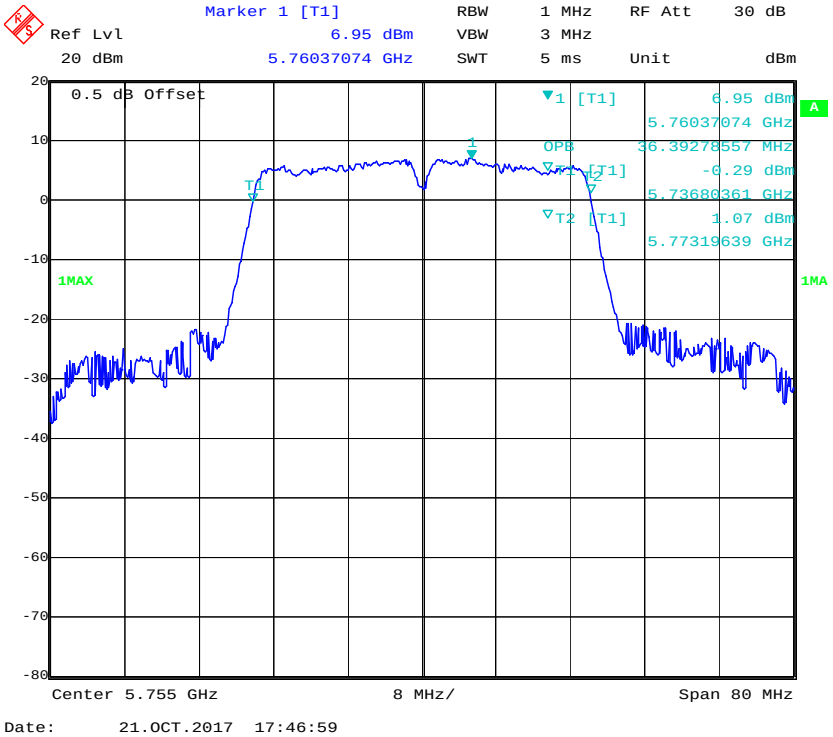
802.11ht20 Middle Channel



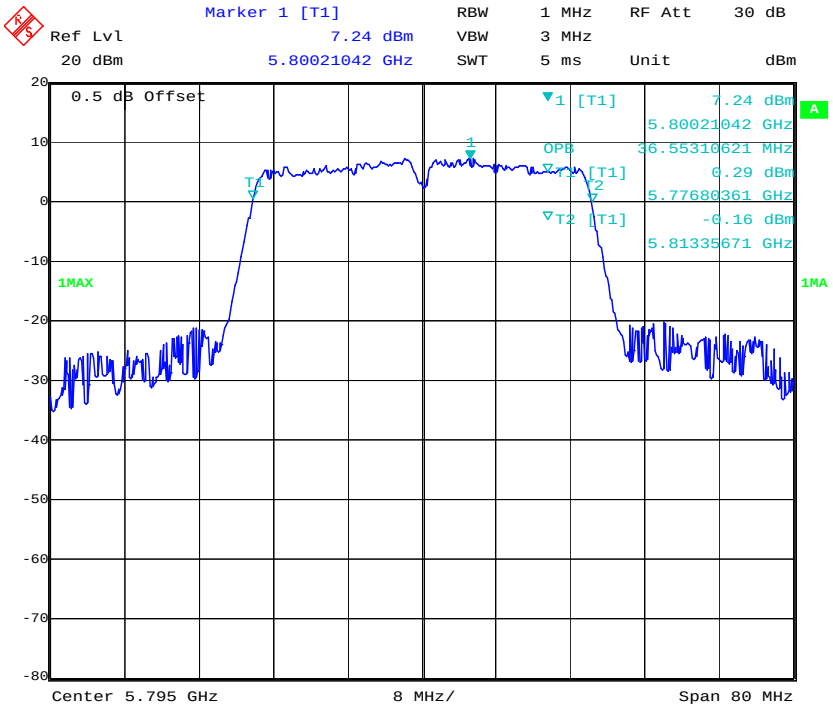
802.11ht20 High Channel



802.11ht40 Low Channel

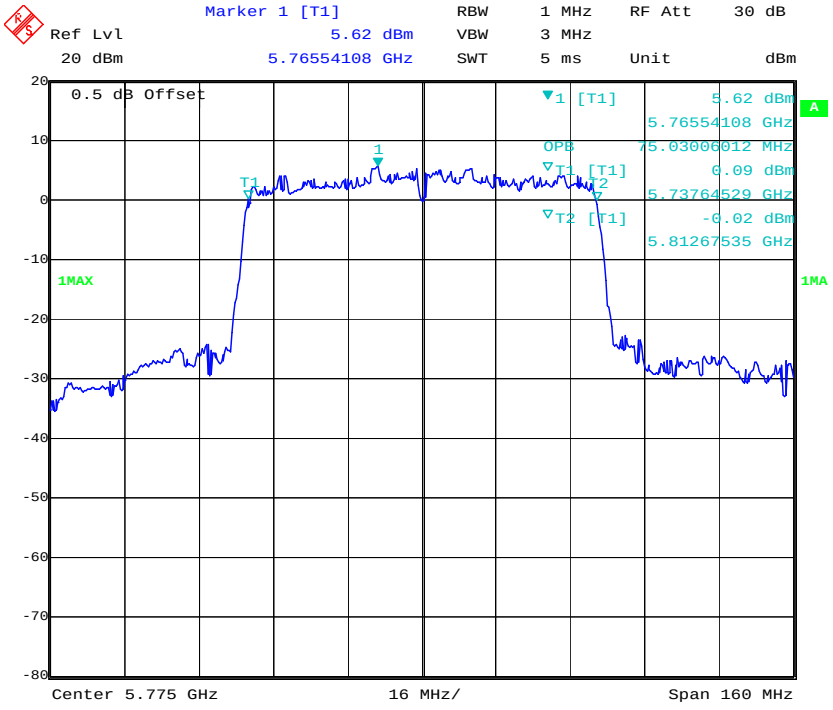


802.11ht40 High Channel



Date: 21.OCT.2017 17:50:09

802.11ac80 Middle Channel



Date: 21.OCT.2017 17:53:08

FCC §15.407(g)–FREQUENCY STABILITY

Applicable Standard

FCC §15.407(g)

(g) Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

Test Procedure

According to ANSI C63.10-2013 "American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices".

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSIQ	831929/005	2017-08-31	2018-08-31
Unknown	RF Cable	Unknown	C-4	Each Time	/
UNI-T	Multimeter	UT39A	M130199938	2017-04-10	2018-04-10
Dongzhixu	High Temperature Test Chamber	DP1000	201105083-4	2017-09-10	2018-09-09

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

Test Data

Environmental Conditions

Temperature:	26.6°C
Relative Humidity:	47 %
ATM Pressure:	101 kPa

The testing was performed by Kami Zhou on 2017-10-23.

Test Mode: Transmitting(Test was performed at Chain 0)

Test Result: Pass.

5150-5250MHz:

802.11a

Temperature	Voltage	f_L at Low Test Channel	F_H at High Test Channel	Limit
℃	V_{AC}	MHz	MHz	
0	120	5170.7423	5248.6167	f_L and f_H Within 5150~5250MHz range
10		5170.7424	5248.6165	
20		5170.7419	5248.6176	
30		5170.7415	5248.6173	
40		5170.7419	5248.6176	
25	102	5170.7412	5248.6165	
25	138	5170.7423	5248.6165	

802.11n ht20:

Temperature	Voltage	f_L at Low Test Channel	F_H at High Test Channel	Limit
℃	V_{AC}	MHz	MHz	
0	120	5171.0623	5249.0173	f_L and f_H Within 5150~5250MHz range
10		5171.0623	5249.0182	
20		5171.0627	5249.0164	
30		5171.0621	5249.0159	
40		5171.0624	5249.0168	
25	102	5171.0622	5249.0183	
25	138	5171.0625	5249.0163	

802.11n ht40:

Temperature	Voltage	f_L at Low Test Channel	F_H at High Test Channel	Limit
℃	V_{AC}	MHz	MHz	
0	120	5171.3266	5248.3567	f_L and f_H Within 5150~5250MHz range
10		5171.3263	5248.3569	
20		5171.3261	5248.3565	
30		5171.3264	5248.3563	
40		5171.3262	5248.3561	
25	102	5171.3261	5248.3562	
25	138	5171.3262	5248.3561	

802.11ac80:

Temperature	Voltage	f_L at Low Test Channel	F_H at High Test Channel	Limit
℃	V_{AC}	MHz	MHz	
0	120	5172.0022	5247.9934	f_L and f_H Within 5150~5250MHz range
10		5172.0025	5247.9952	
20		5172.0021	5247.9941	
30		5172.0022	5247.9944	
40		5172.0023	5247.9932	
25	102	5172.0026	5247.9951	
25	138	5172.0014	5247.9953	

Note: the f_L and f_H determined by 99% Occupied bandwidth low edge at Low test channel and High edge at High test channel.

5725-5850MHz:

802.11a

Temperature	Voltage	f_L at Low Test Channel	F_H at High Test Channel	Limit
℃	V_{AC}	MHz	MHz	
0	120	5736.6276	5833.4558	f_L and f_H Within 5725~5850MHz range
10		5736.6253	5833.4574	
20		5736.6276	5833.4582	
30		5736.6257	5833.4574	
40		5736.6224	5833.4566	
25	102	5736.6272	5833.4563	
25	138	5736.6244	5833.4562	

802.11n ht20:

Temperature	Voltage	f_L at Low Test Channel	F_H at High Test Channel	Limit
℃	V_{AC}	MHz	MHz	
0	120	5735.9816	5834.0944	f_L and f_H Within 5725~5850MHz range
10		5735.9811	5834.0932	
20		5735.9818	5834.0923	
30		5735.9812	5834.0957	
40		5735.9813	5834.0942	
25	102	5735.9804	5834.0981	
25	138	5735.9825	5834.0973	

802.11n ht40:

Temperature	Voltage	f_L at Low Test Channel	F_H at High Test Channel	Limit
℃	V_{AC}	MHz	MHz	
0	120	5736.6433	5813.5165	f_L and f_H Within 5725~5850MHz range
10		5736.6430	5813.5153	
20		5736.6455	5813.5161	
30		5736.6442	5813.5153	
40		5736.6457	5813.5174	
25	102	5736.6448	5813.5175	
25	138	5736.6434	5813.5174	

802.11ac80:

Temperature	Voltage	f_L at Low Test Channel	F_H at High Test Channel	Limit
℃	V_{AC}	MHz	MHz	
0	120	5737.0043	5812.9932	f_L and f_H Within 5725~5850MHz range
10		5737.0029	5812.9953	
20		5737.0044	5812.9942	
30		5737.0045	5812.9949	
40		5737.0024	5812.9954	
25	102	5737.0045	5812.9934	
25	138	5737.0061	5812.9954	

Note: the f_L and f_H determined by 99% Occupied bandwidth low edge at Low test channel and High edge at High test channel.

FCC §15.407(a) –MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

(a) Power limits:

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(4) The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Wideband Power Sensor	N1921A	MY54210016	2016-11-03	2017-11-03
Agilent	Wideband Power Sensor	N1921A	MY54170013	2016-11-03	2017-11-03
Agilent	P-Series Power Meter	N1912A	MY5000448	2016-11-03	2017-11-03
Unknown	RF Cable	Unknown	C-4	Each Time	/

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

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04

Test Data

Environmental Conditions

Temperature:	26.8~27.3°C
Relative Humidity:	41~49 %
ATM Pressure:	100.8 ~102.1kPa

The testing was performed by Kami Zhou from 2017-10-21 to 2017-10-31.

Test Mode: Transmitting

UNII Band	Mode	Frequency (MHz)	Conducted Average Output Power (dBm)			Limit (dBm)	Result
			Chain 0	Chain 1	Total		
5150-5250 MHz	802.11 a	5180	12.88	12.71	/	30	PASS
		5200	12.82	12.66	/	30	PASS
		5240	12.74	12.95	/	30	PASS
	802.11ht20	5180	11.05	11.85	14.48	30	PASS
		5200	11.2	11.69	14.46	30	PASS
		5240	11.39	11.62	14.52	30	PASS
	802.11ht40	5190	10.63	11.48	14.09	30	PASS
		5230	11.38	11.58	14.49	30	PASS
	802.11 ac80	5210	11.17	11.56	14.38	30	PASS
5725-5850 MHz	802.11 a	5745	12.43	15.69	/	30	PASS
		5785	12.83	15.32	/	30	PASS
		5825	12.74	15.49	/	30	PASS
	802.11ht20	5745	11.75	11.05	14.42	30	PASS
		5785	11.65	11.29	14.48	30	PASS
		5825	11.8	11.5	14.66	30	PASS
	802.11ht40	5755	11.8	11.64	14.73	30	PASS
		5795	11.78	11.81	14.81	30	PASS
	802.11 ac80	5775	11.5	11.35	14.44	30	PASS

Note 1: the duty cycle have been calculated in the result.
Note 2: The maximum antenna gain is 5dBi in 5GHz band. The device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power measurements on IEEE 802.11 devices:

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;

So:

Directional gain = G_{ANT} + Array Gain = 5dBi < 6dBi

FCC §15.407(a) - POWER SPECTRAL DENSITY

Applicable Standard

(a) Power limits:

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output

power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSIQ	831929/005	2017-08-31	2018-08-31
Unknown	RF Cable	Unknown	C-4	Each Time	/

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

Test Data

Environmental Conditions

Temperature:	26.8~27.3°C
Relative Humidity:	41~49 %
ATM Pressure:	100.8 ~102.1kPa

The testing was performed by Kami Zhou from 2017-10-21 to 2017-11-07.

Test Mode: Transmitting

Test Result:Compliance.Please refer to the following table and plot.

5150-5250MHz

Mode	Frequency (MHz)	Reading (dBm/MHz)		Duty cycle Factor (dB)	Power Spectral Density (dBm/MHz)			
		Chain 0	Chain 1		Chain 0	Chain 1	Total	Limits
802.11 a	5180	3.2	3.2	0.24	3.44	3.44	/	17
	5200	3.47	3	0.24	3.71	3.71	/	17
	5240	3.53	3.59	0.24	3.77	3.77	/	17
802.11 ht20	5180	2.99	2.14	0.39	3.38	3.38	6.39	15
	5200	2.9	2.19	0.39	3.29	3.29	6.30	15
	5240	2.94	2.6	0.39	3.33	3.33	6.34	15
802.11 ht40	5190	-1.71	-0.98	0.58	-1.13	-1.13	1.88	15
	5230	-0.18	-1.55	0.58	0.4	0.4	3.41	15
802.11 ac80	5210	-4.85	-5.2	0.96	-3.89	-3.89	-8.58	15

5725-5850MHz

Mode	Frequency (MHz)	Reading (dBm/300kHz)		Duty cycle Factor (dB)	Power Spectral Density (dBm/500kHz)			
		Chain 0	Chain 1		Chain 0	Chain 1	Total	Limit
802.11 a	5745	1.62	5.13	0.24	4.08	7.59	/	30
	5785	0.11	4.31	0.24	2.57	6.77	/	30
	5825	1.24	4.93	0.24	3.7	7.39	/	30
802.11 ht20	5745	1.22	0.56	0.39	3.83	3.17	6.52	28
	5785	0.35	-0.43	0.39	2.96	2.18	5.60	28
	5825	0.97	0.82	0.39	3.58	3.43	6.52	28
802.11 ht40	5755	-2.7	-1.1	0.58	0.1	1.7	3.98	28
	5795	-2.01	-1.05	0.58	0.79	1.75	4.31	28
802.11 ac80	5775	-3.08	-4.49	0.96	0.1	-1.31	2.46	28

Note 1:The maximum antenna gain is 5dBi in 5GHz band. The device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD) measurements on the devices:

$$\text{Array Gain} = 10 \log(N_{ANT}/N_{SS}) \text{ dB}.$$

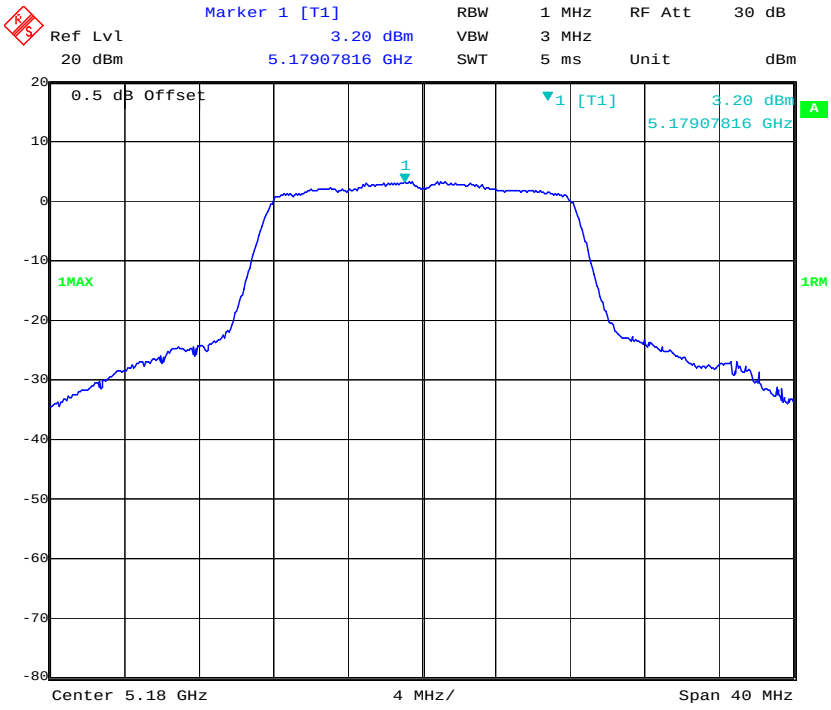
So:

Directional gain = G_{ANT} + Array Gain = 5.0dBi+10*log(2)=8dBi

Note 2: For 5.8GHz band, If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

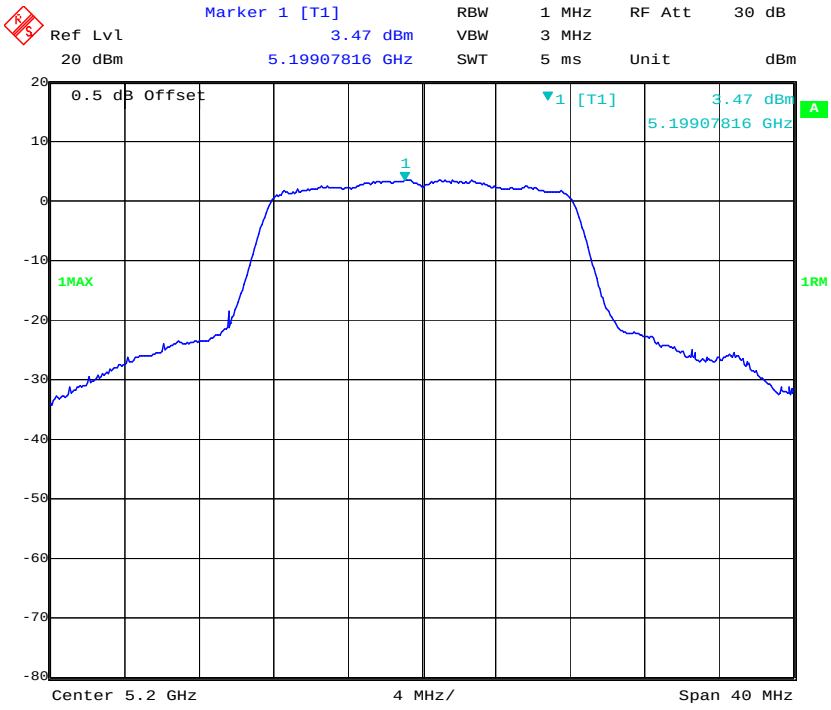
5150-5250MHz
Chain 0:

802.11a Low Channel



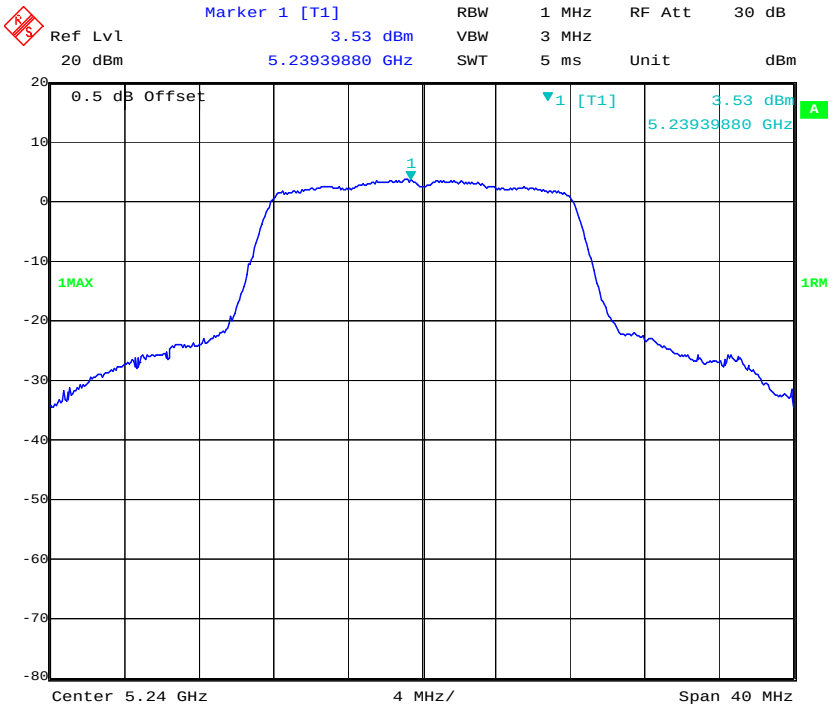
Date: 31.OCT.2017 18:33:54

802.11a Middle Channel

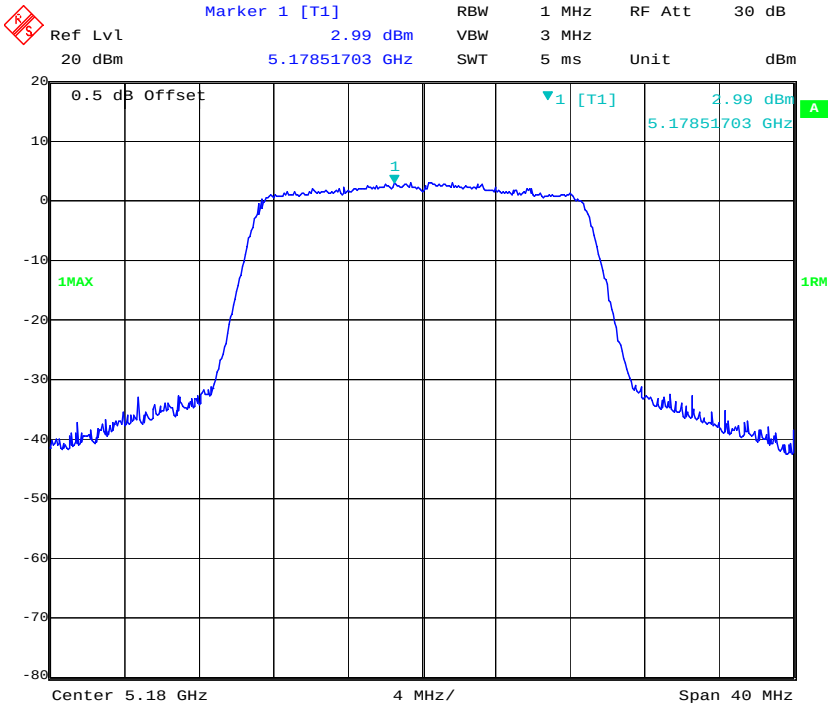


Date: 31.OCT.2017 18:31:46

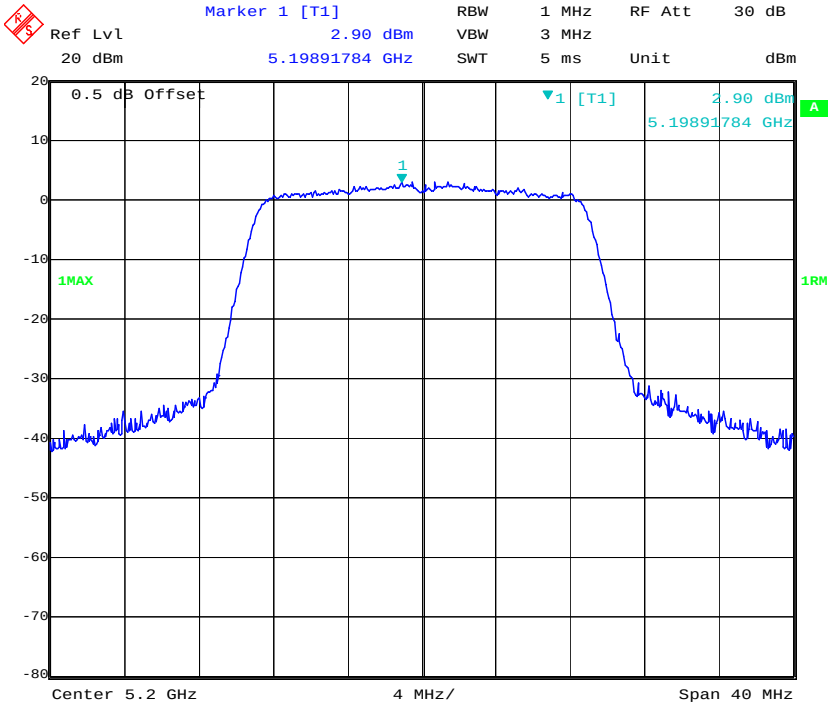
802.11a High Channel



802.11n ht20 Low Channel

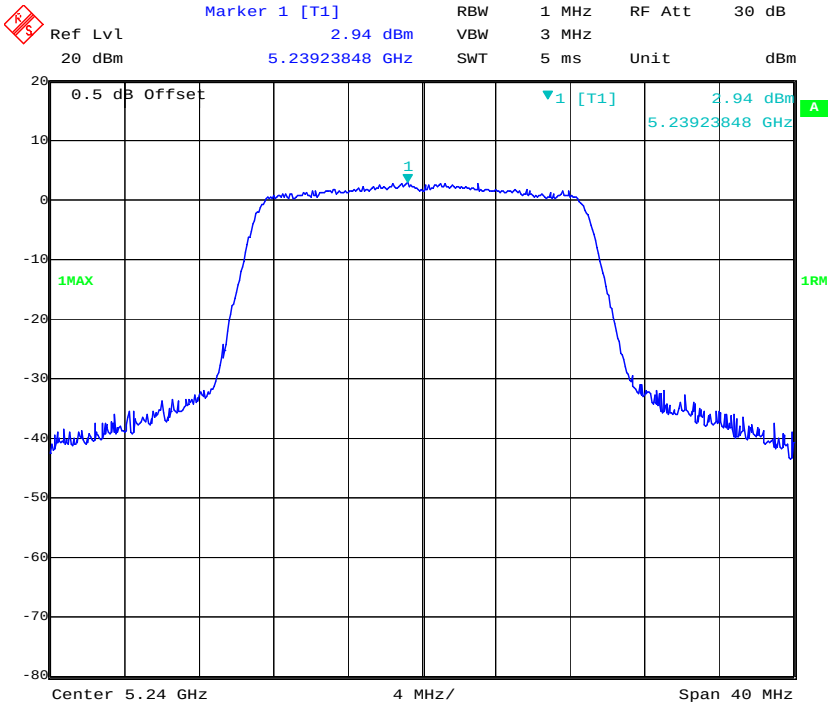


802.11n ht20 Middle Channel



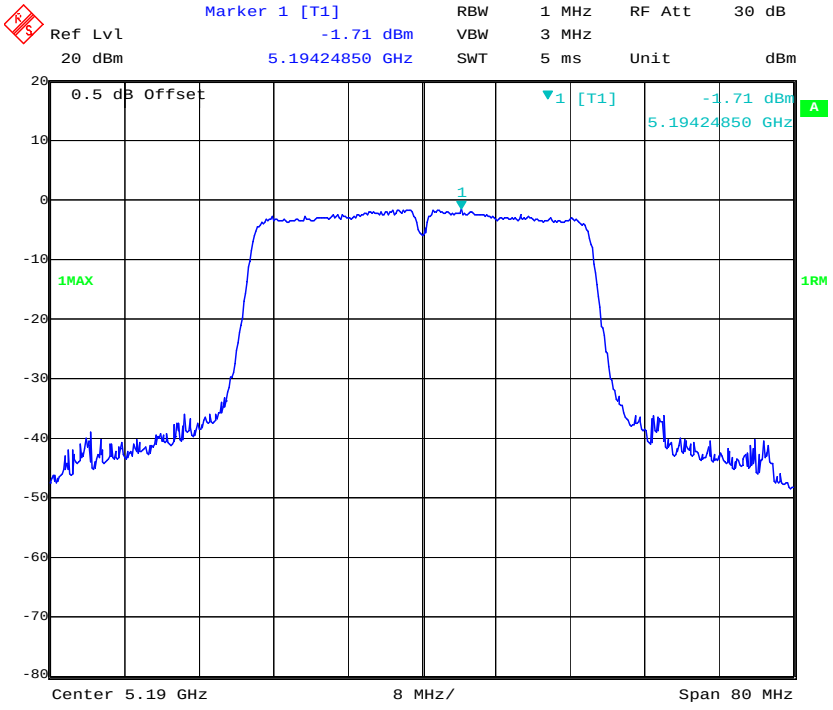
Date: 24.OCT.2017 09:49:51

802.11n ht20 High Channel



Date: 24.OCT.2017 09:50:29

802.11n ht40 Low Channel



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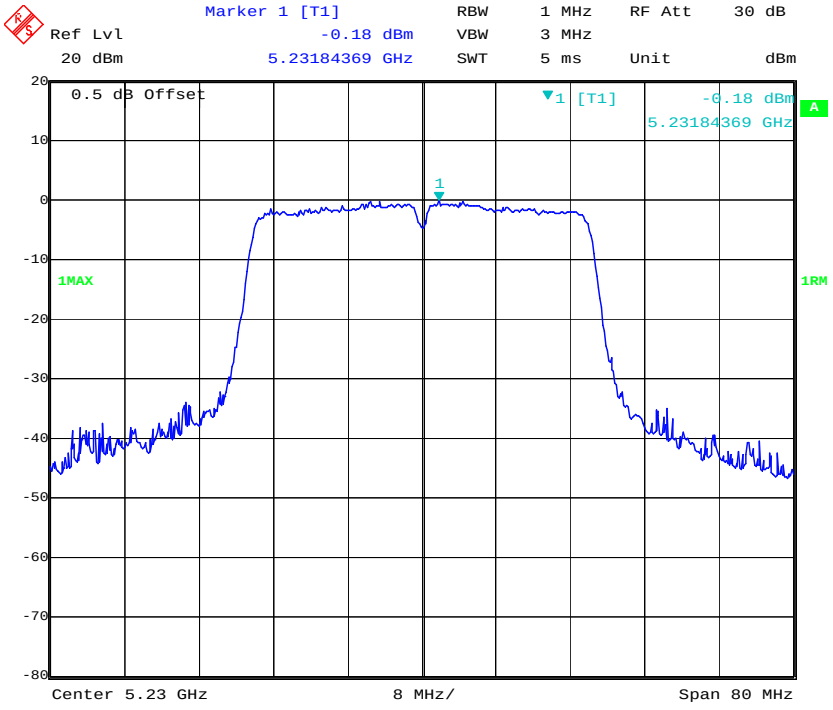
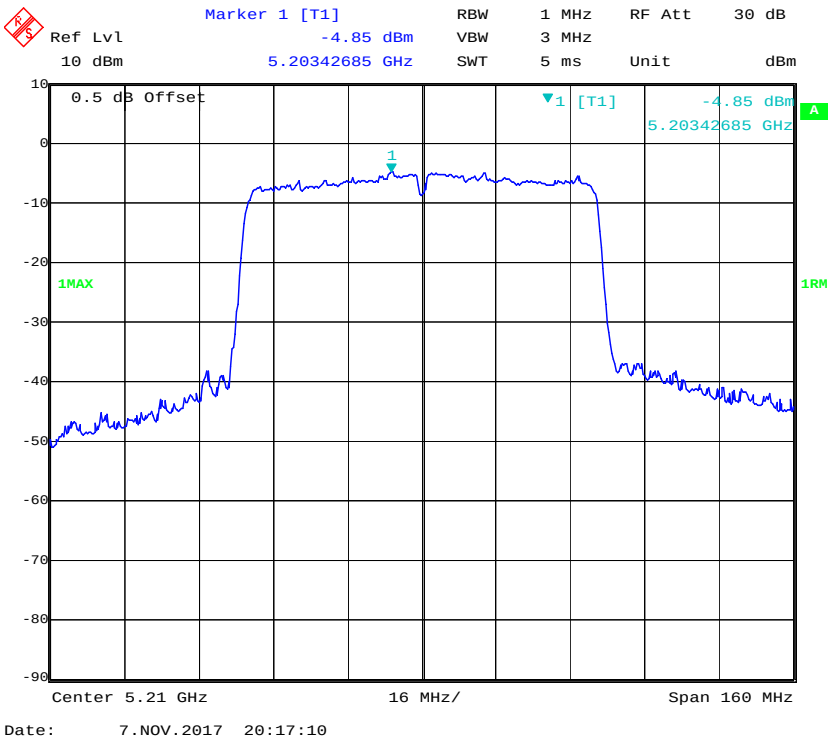
802.11n ht40 High Channel



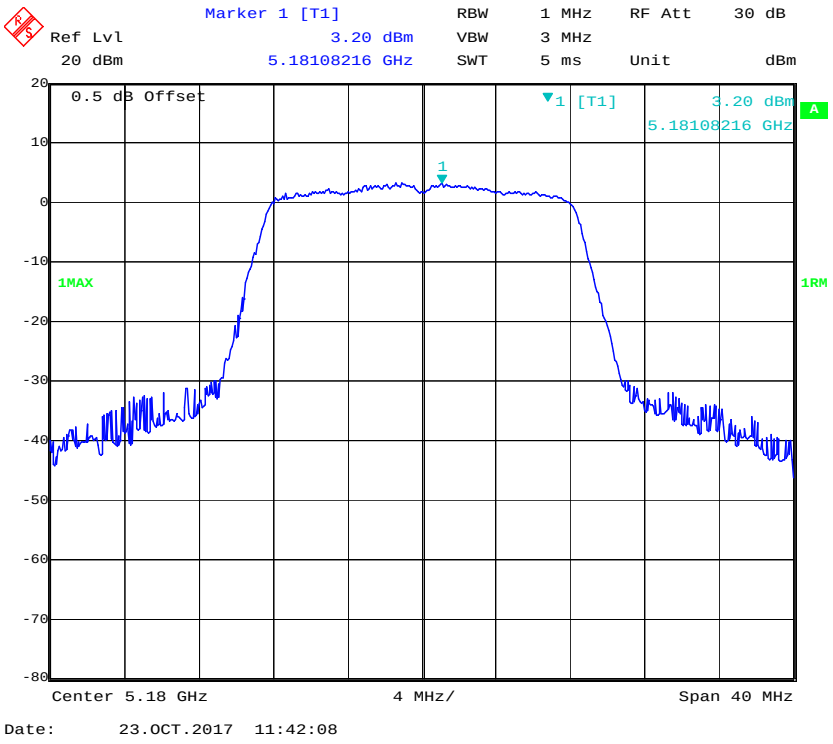
Date: 24.OCT.2017 10:20:38

802.11ac80 Middle Channel

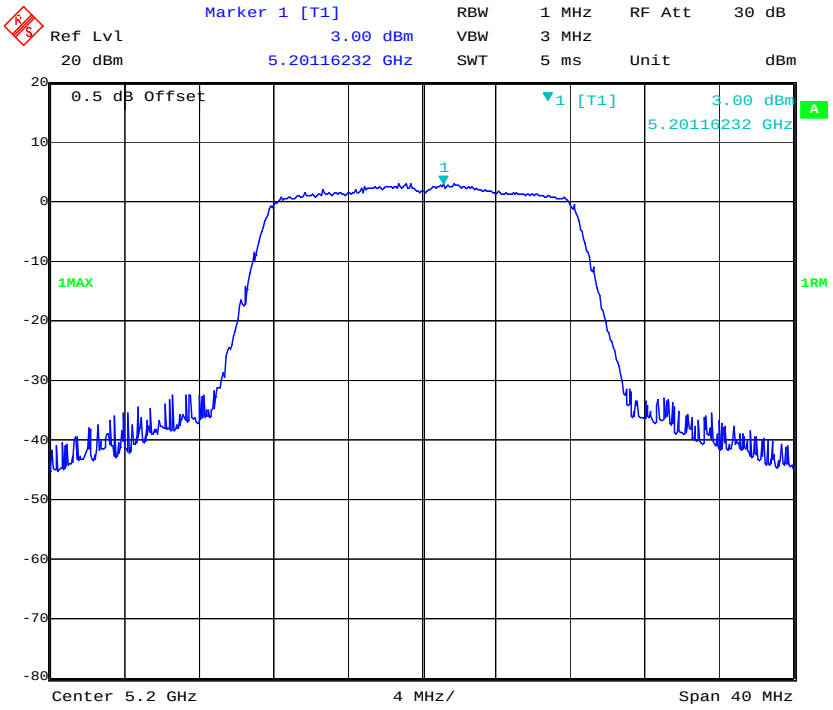


Chain 1:

802.11a Low Channel

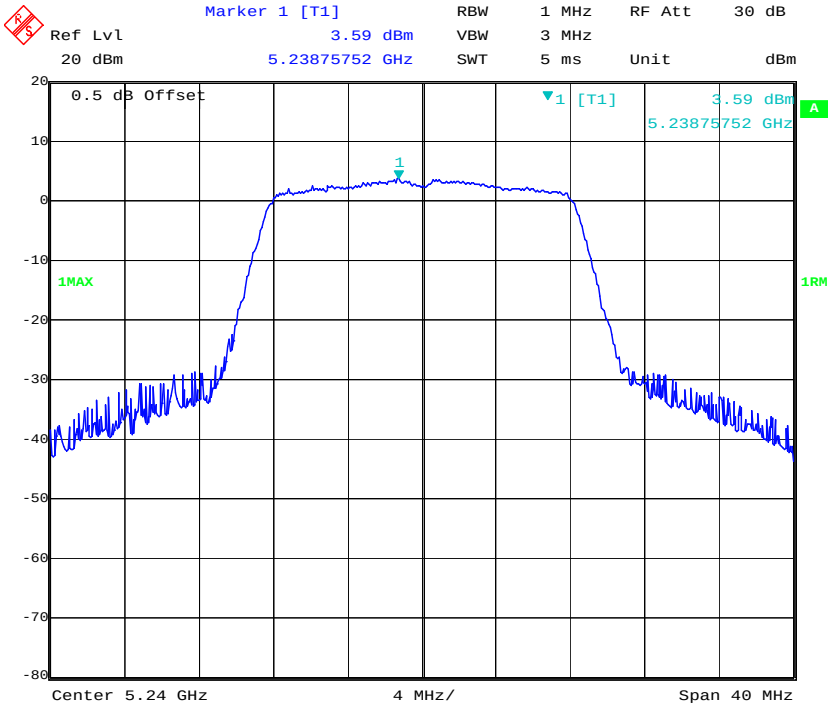


802.11a Middle Channel



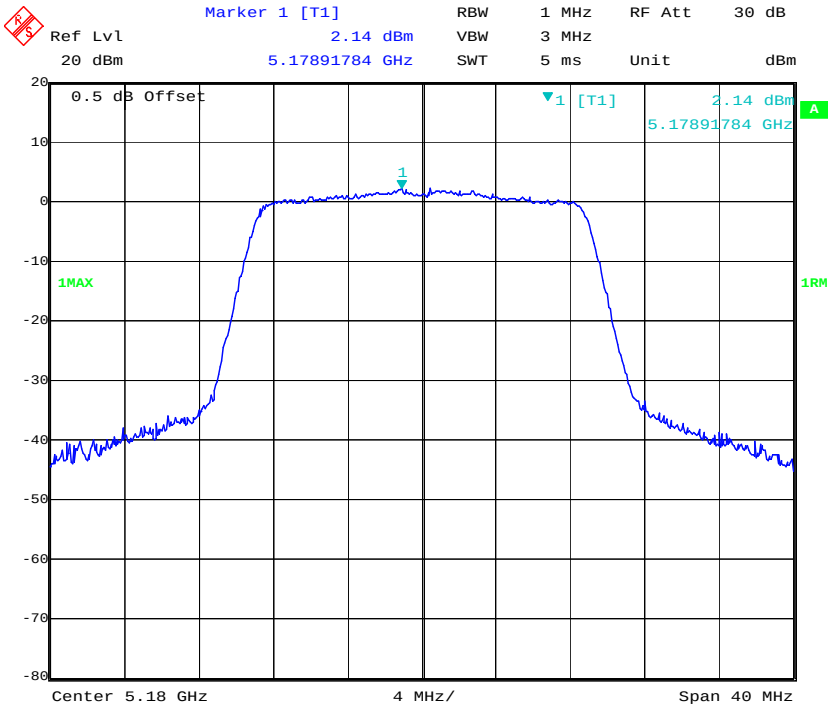
Date: 23.OCT.2017 13:01:51

802.11a High Channel



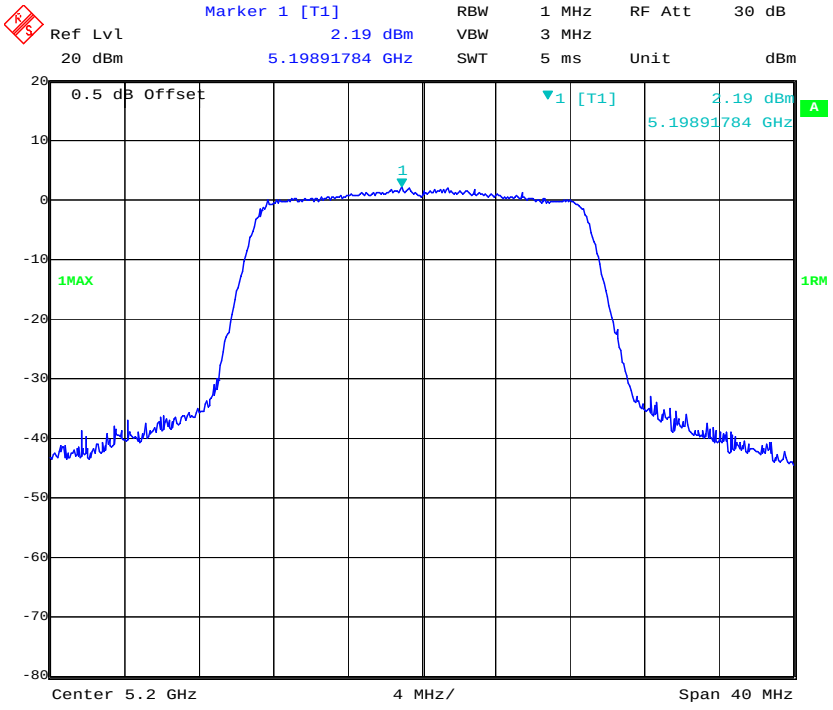
Date: 23.OCT.2017 11:53:51

802.11n ht20 Low Channel



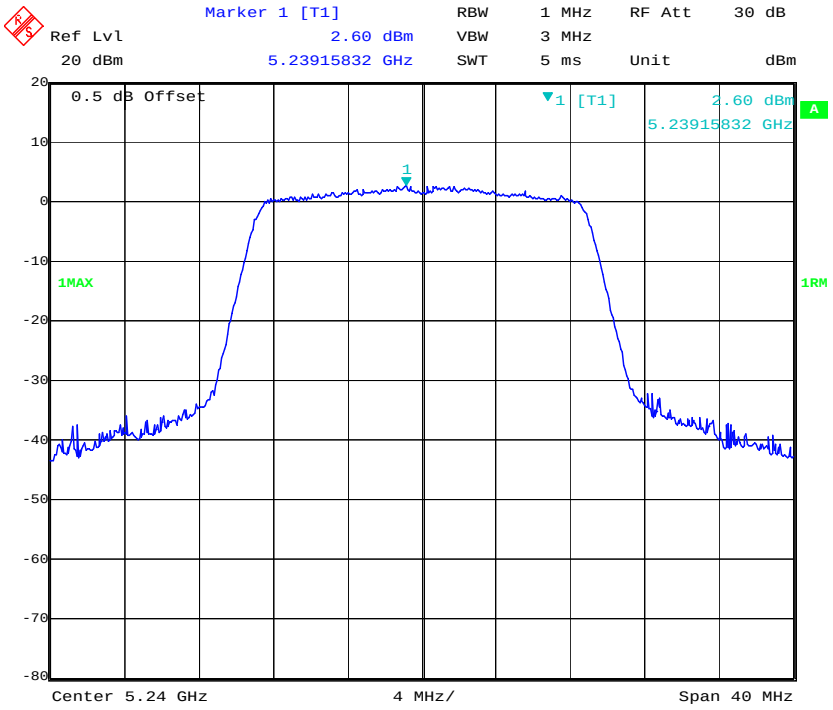
Date: 23.OCT.2017 13:06:27

802.11n ht20 Middle Channel



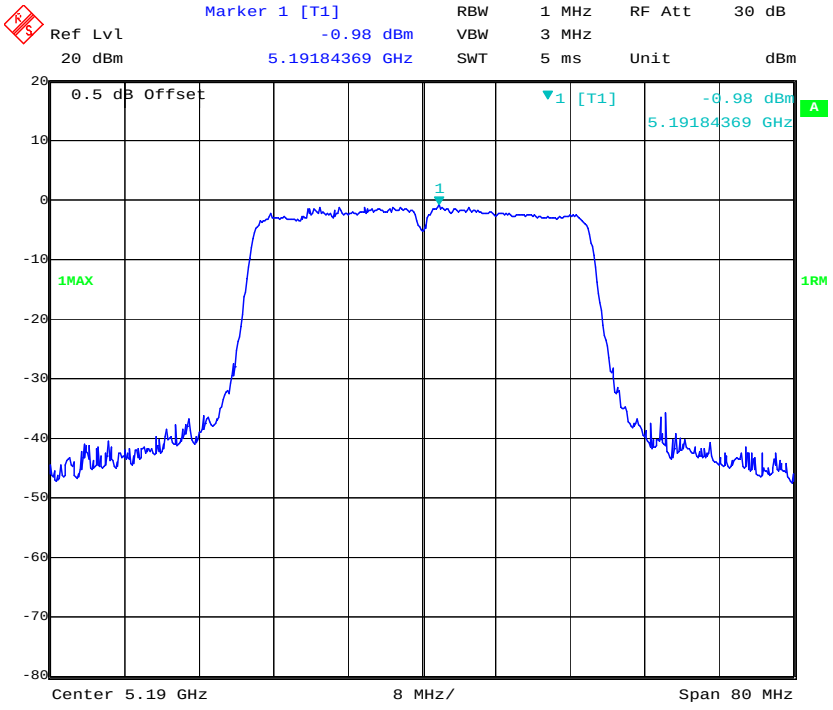
Date: 23.OCT.2017 13:11:01

802.11n ht20 High Channel



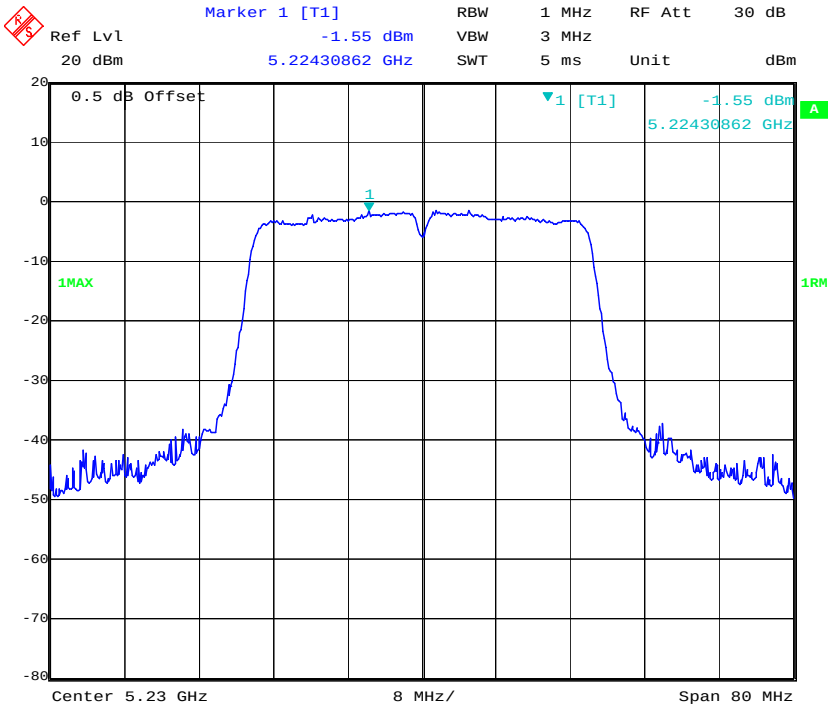
Date: 23.OCT.2017 13:17:23

802.11n ht40 Low Channel



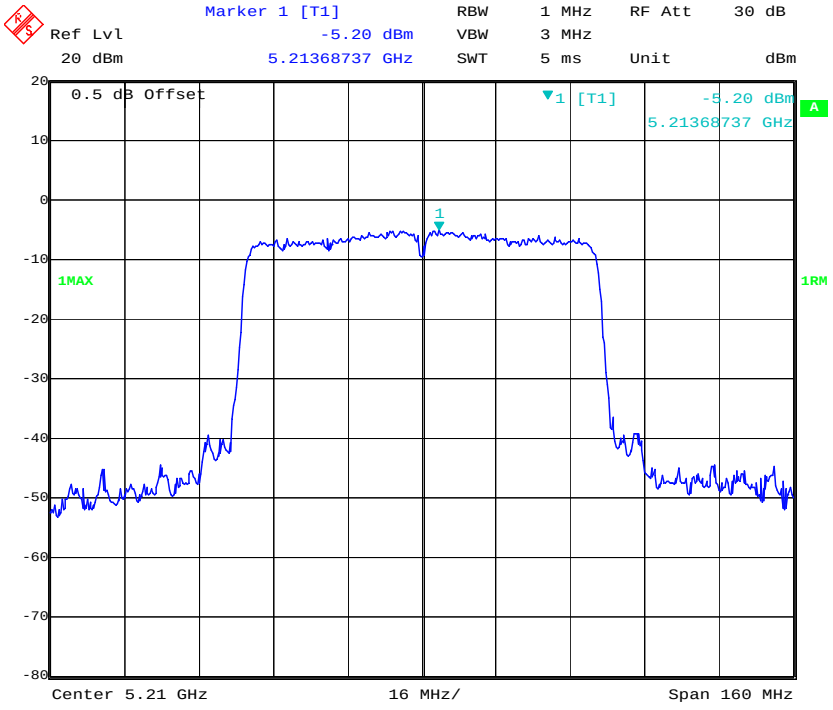
Date: 23.OCT.2017 13:23:35

802.11n ht40 High Channel



Date: 23.OCT.2017 13:26:43

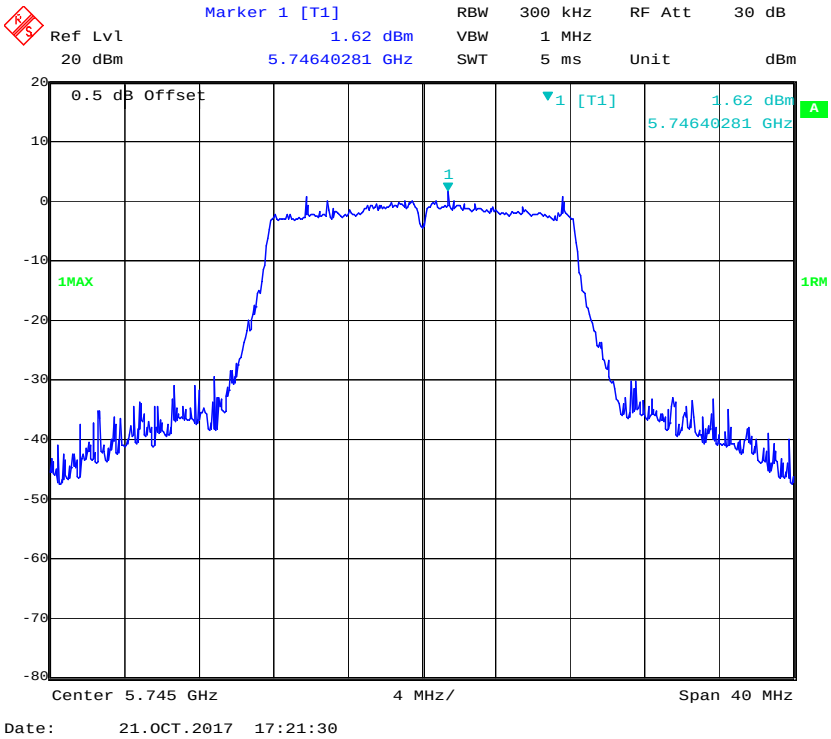
802.11ac80 Middle Channel



Date: 23.OCT.2017 13:55:26

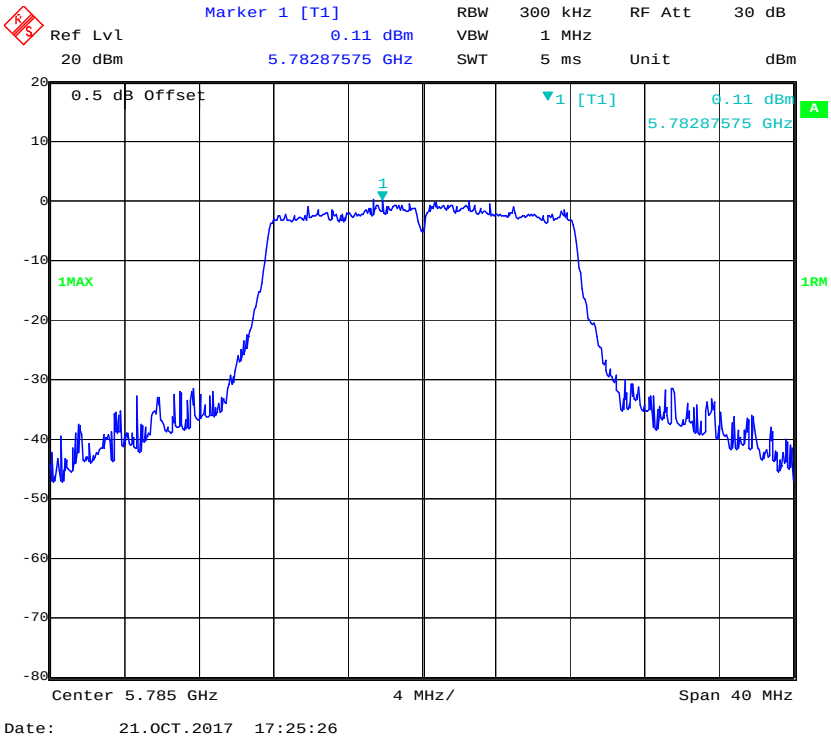
5725-5850MHz
Chain 0:

802.11a Low Channel



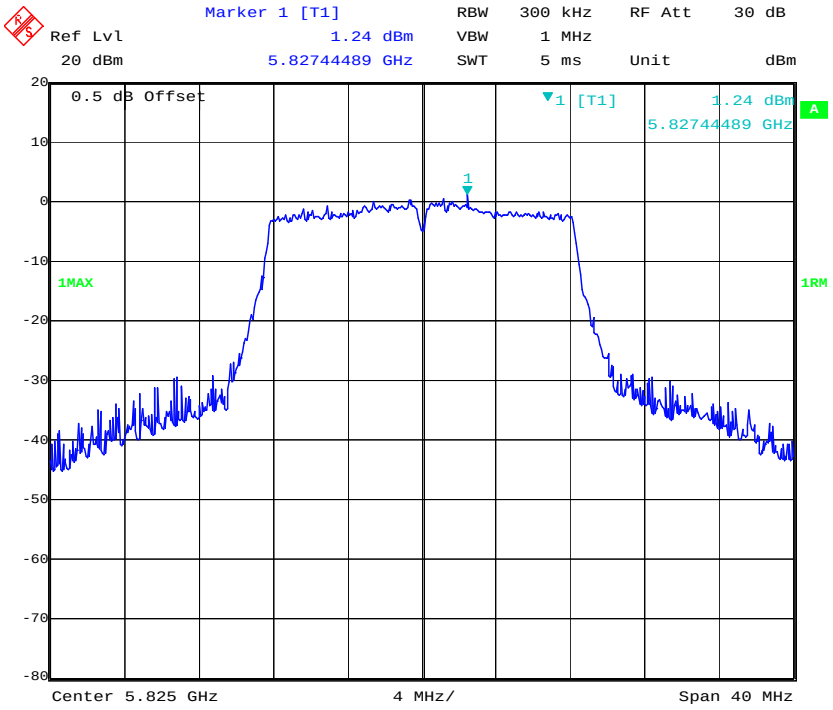
Date: 21.OCT.2017 17:21:30

802.11a Middle Channel



Date: 21.OCT.2017 17:25:26

802.11a High Channel



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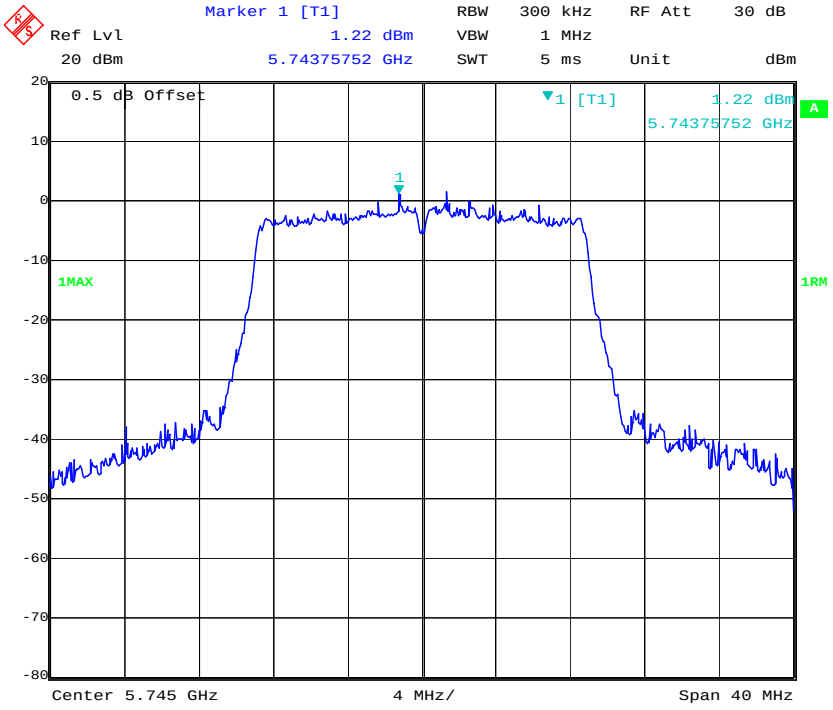
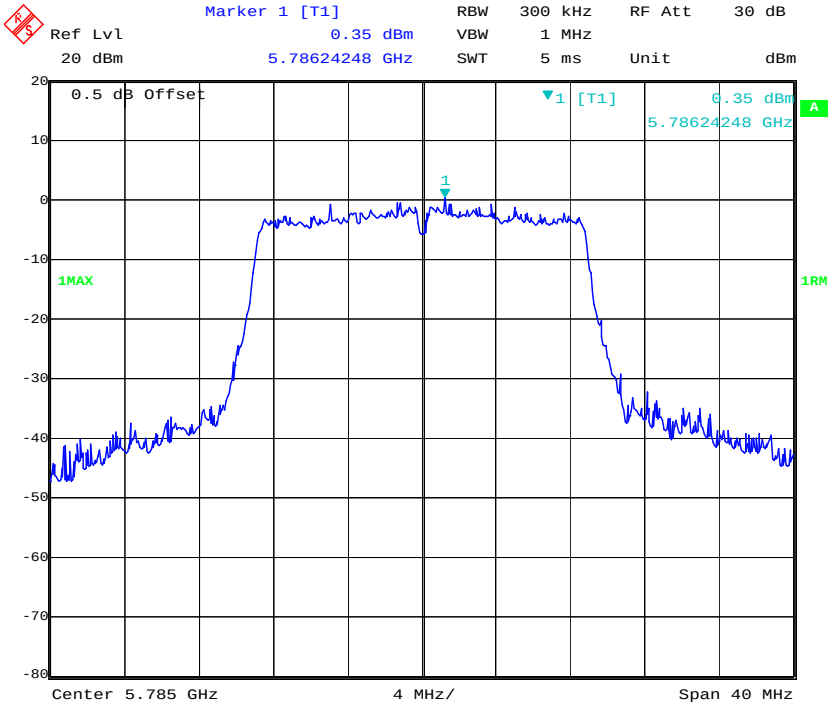
802.11n ht20 Low Channel



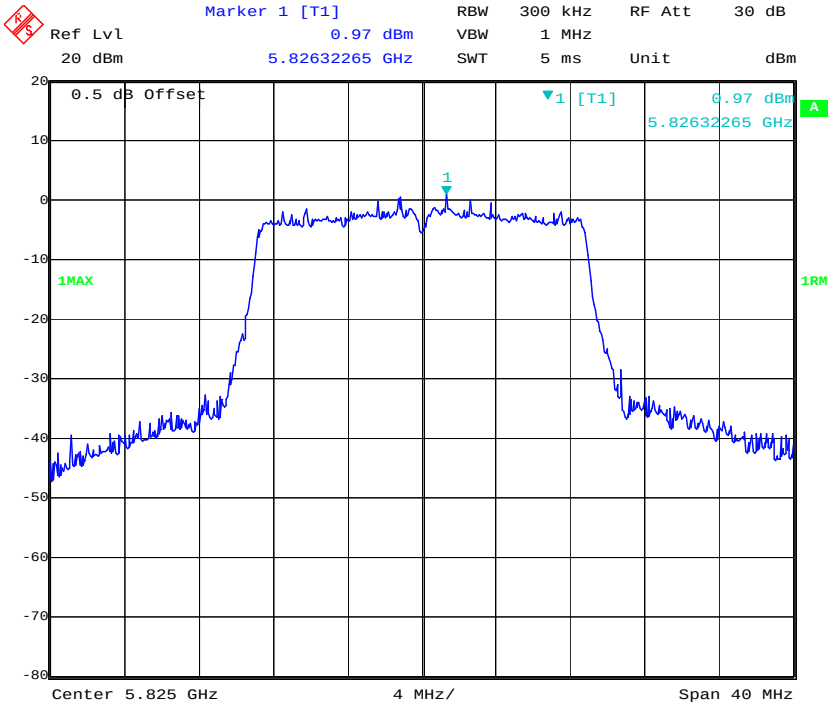
Date: 21.OCT.2017 17:43:59

802.11n ht20 Middle Channel



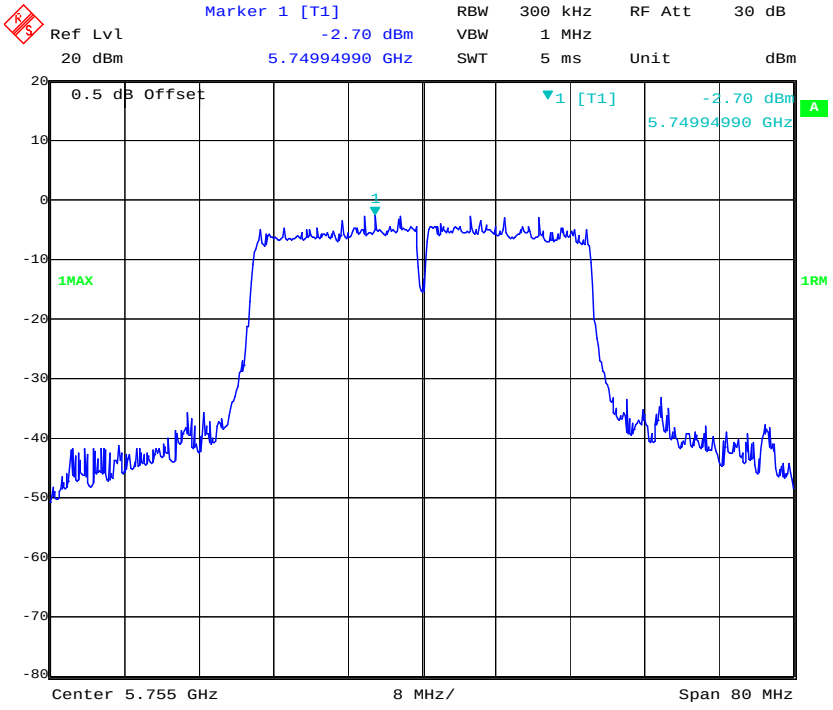
Date: 21.OCT.2017 17:41:08

802.11n ht20 High Channel



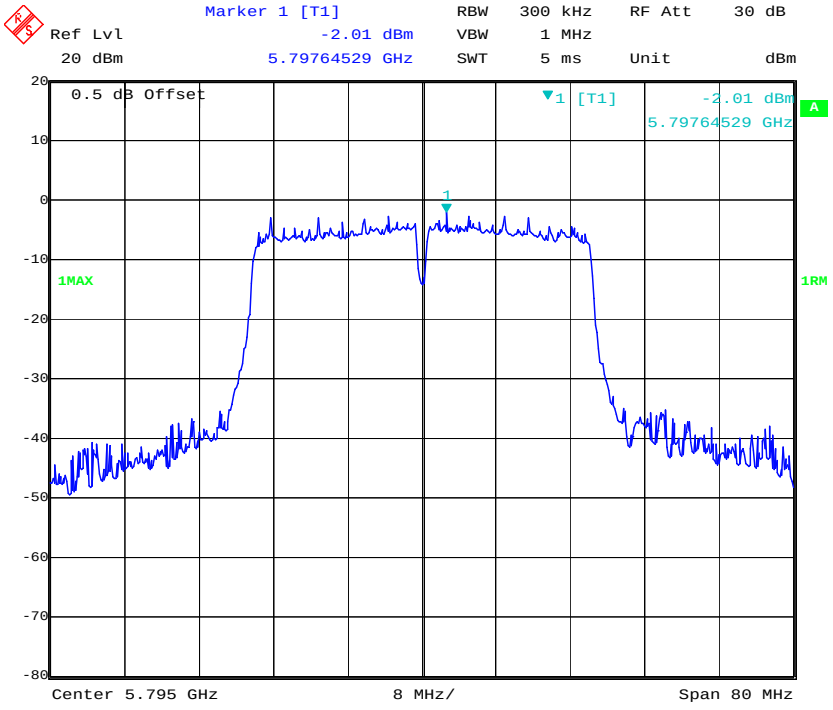
Date: 21.OCT.2017 17:36:00

802.11n ht40 Low Channel



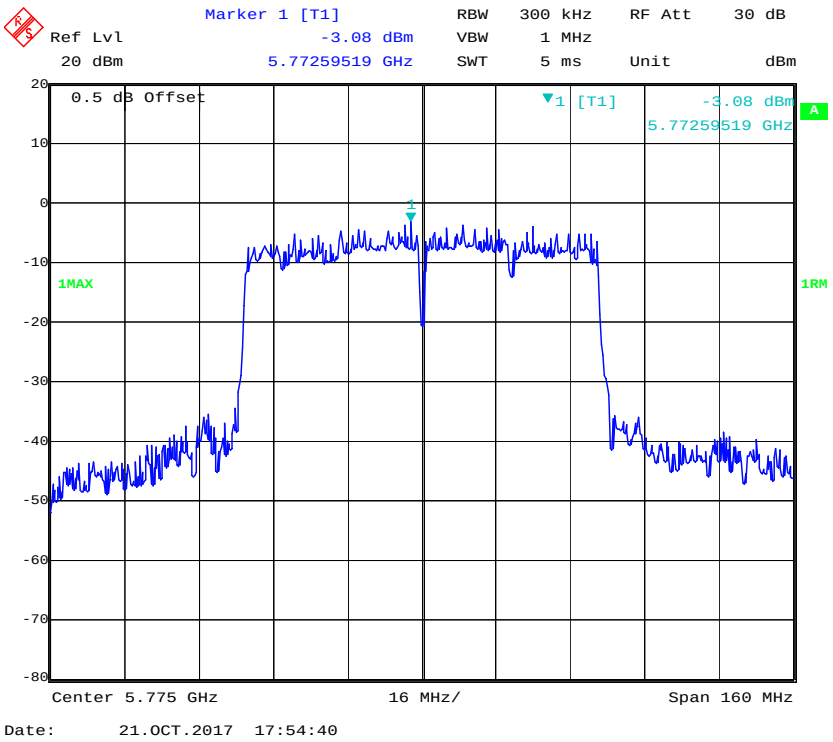
Date: 21.OCT.2017 17:47:33

802.11n ht40 High Channel



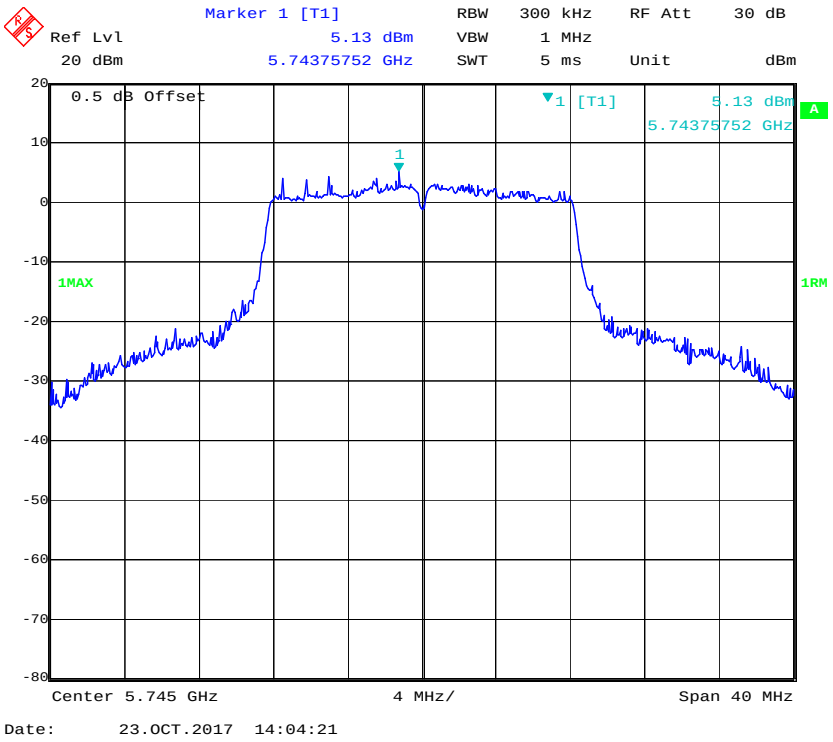
Date: 21.OCT.2017 17:50:43

802.11ac80 Middle Channel

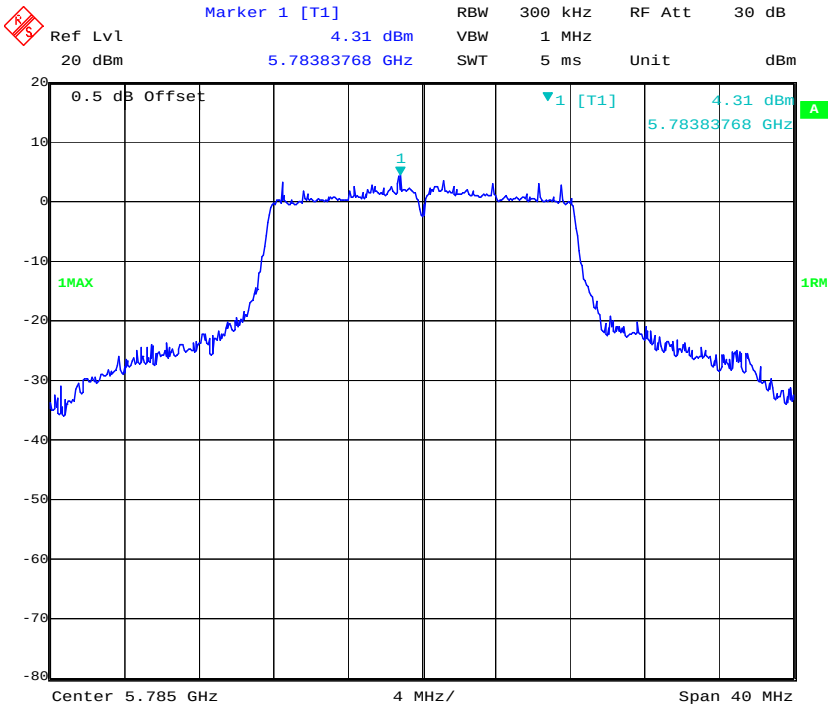


Chain 1:

802.11a Low Channel



802.11a Middle Channel



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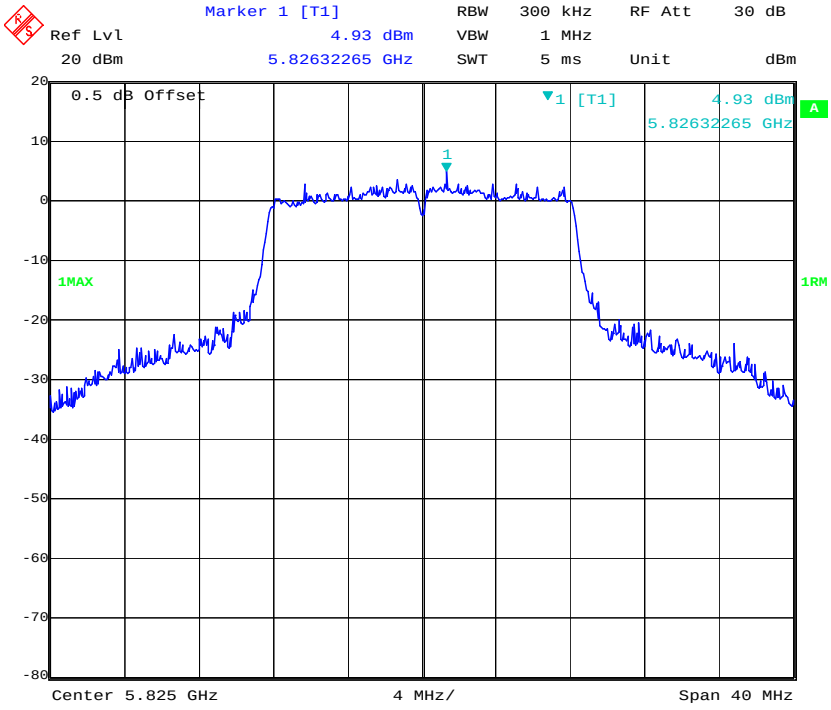
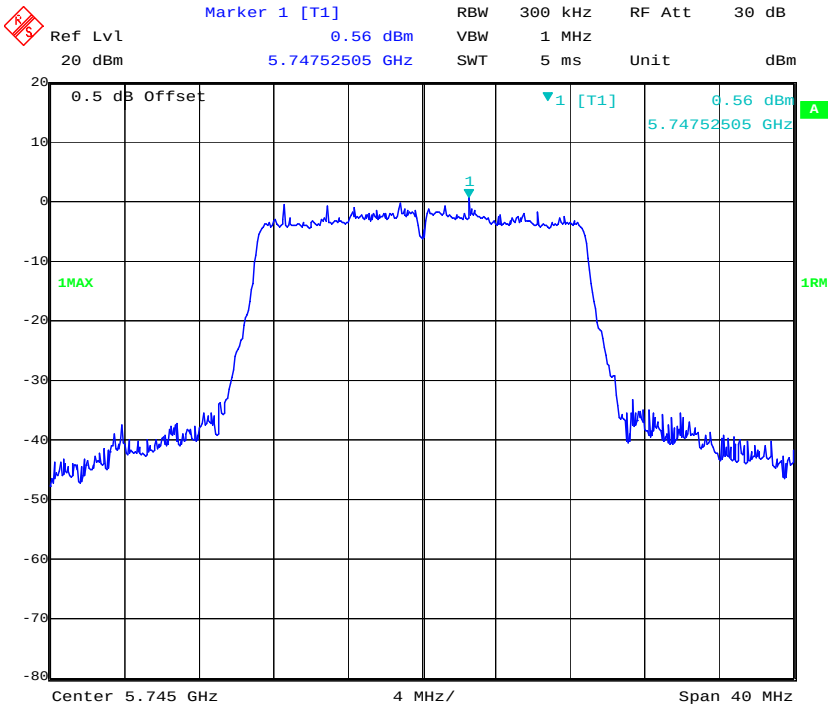
802.11a High Channel



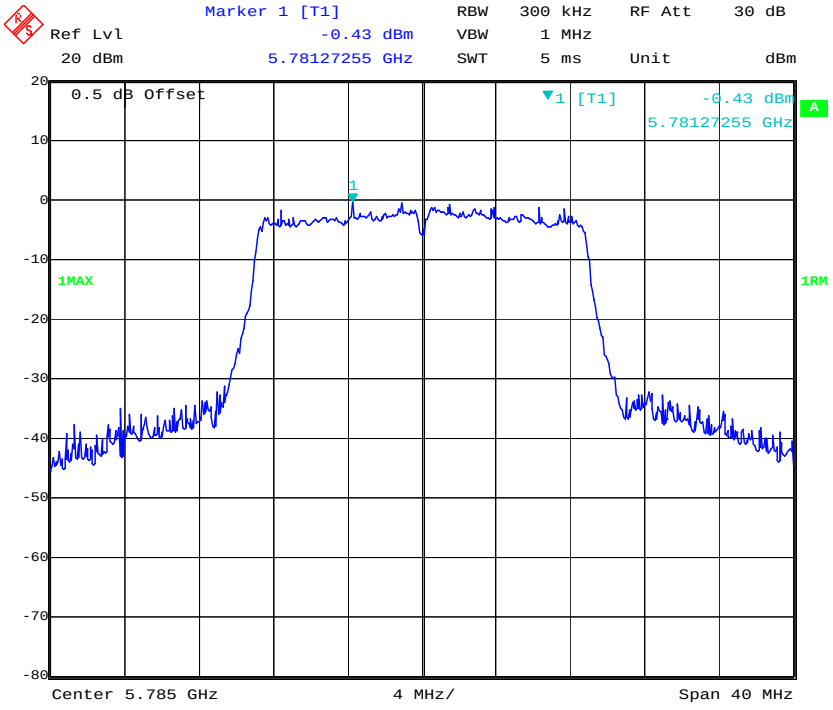
Date: 23.OCT.2017 14:09:59

802.11n ht20 Low Channel



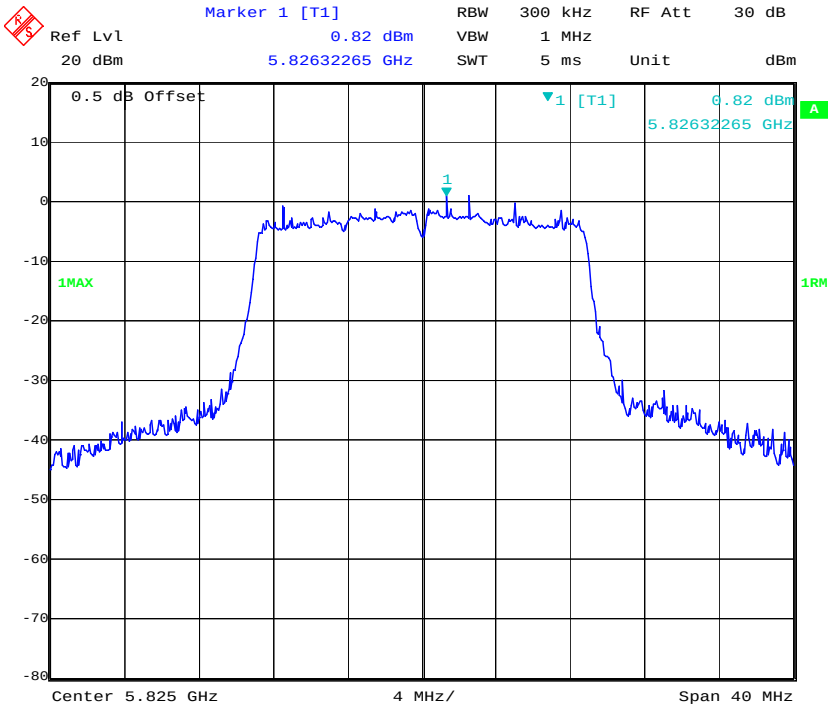
Date: 23.OCT.2017 14:17:36

802.11n ht20 Middle Channel



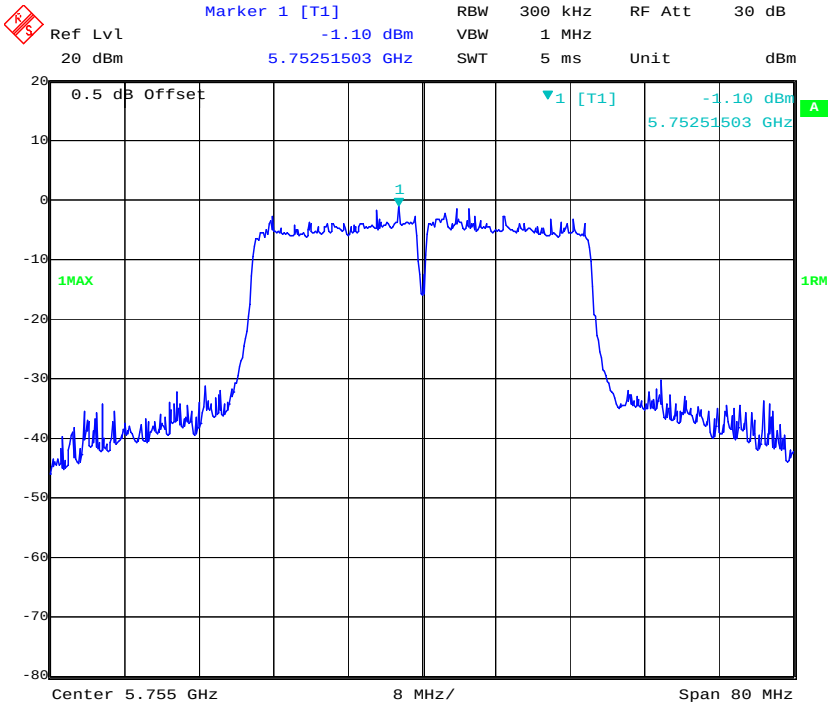
Date: 23.OCT.2017 14:21:49

802.11 n ht20 High Channel



Date: 23.OCT.2017 14:24:05

802.11n ht40 Low Channel



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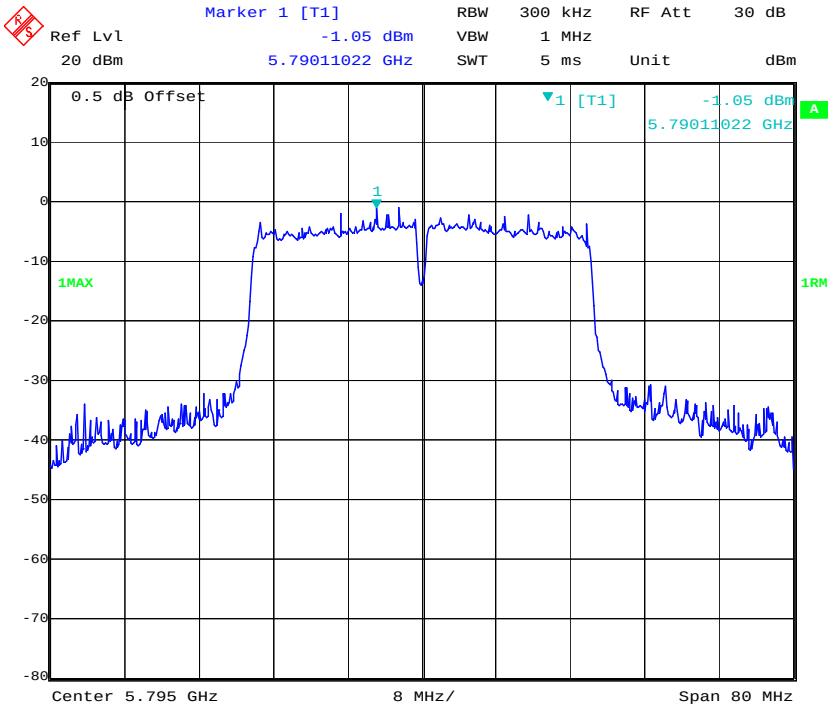
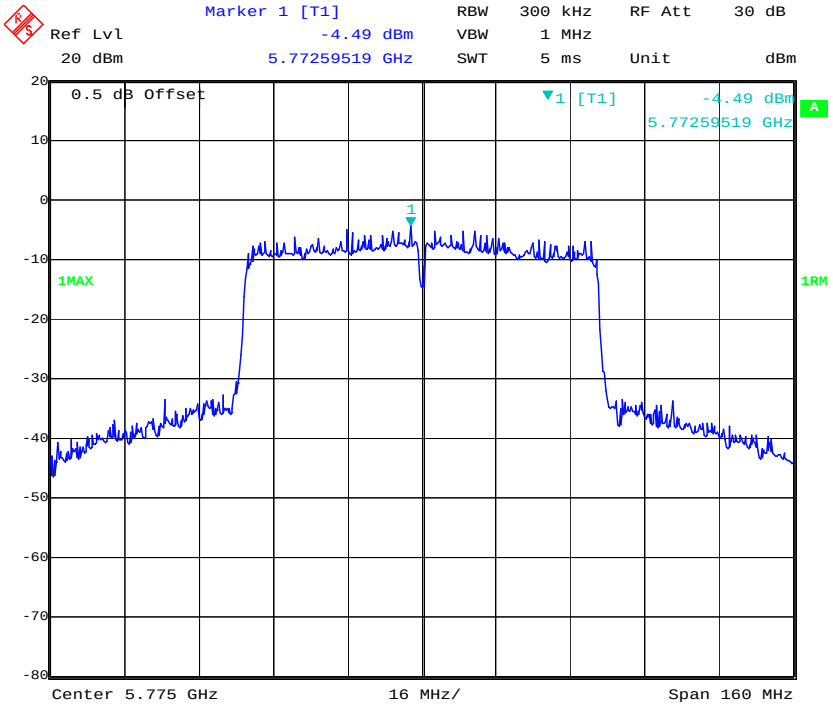
802.11n ht40 High Channel



Date: 23.OCT.2017 14:38:40

802.11ac80 Middle Channel



Date: 7.NOV.2017 20:25:15

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