

FCC §15.407(a) –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	FSEM	DE31388	2014-05-09	2015-05-09

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

Test Procedure

1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01

Test Data

Environmental Conditions

Temperature:	25.4°C ~26.2 °C
Relative Humidity:	47%~56 %
ATM Pressure:	101.2 kPa ~101.6 kPa

The testing was performed by Dean Liu from 2014-11-12 & 2014-11-19.

Test Result: Pass.

Please refer to the following tables and plots.

Test mode: Transmitting

5150MHz-5250MHz:

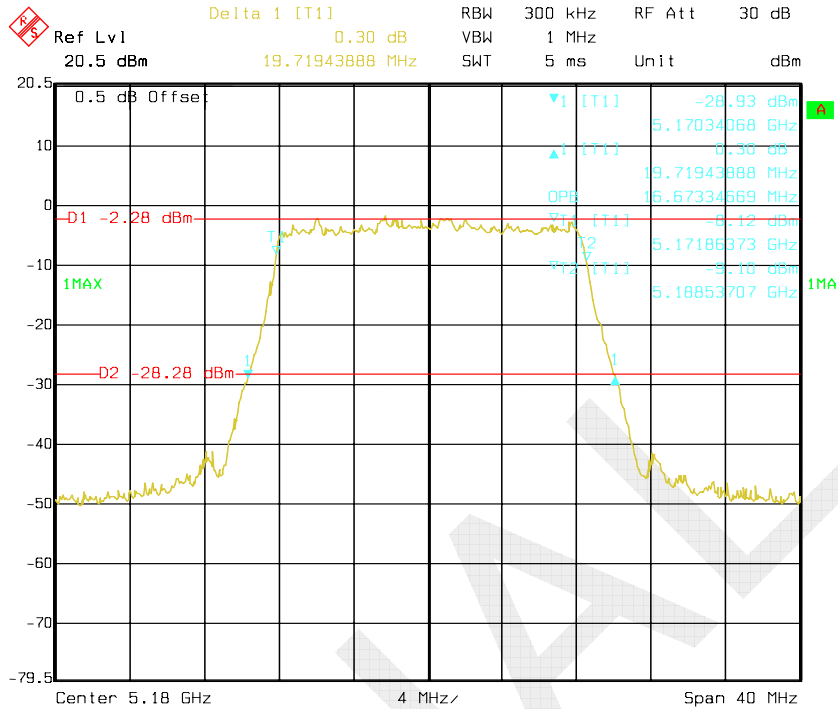
Mode	Channel	Frequency MHz	26 dB Bandwidth MHz	99% occupied bandwidth MHz	Result
802.11a	Low	5180	19.71	16.67	PASS
	Middle	5200	19.48	16.67	PASS
	High	5240	19.80	16.67	PASS
802.11n20	Low	5180	20.52	17.63	PASS
	Middle	5200	20.52	17.63	PASS
	High	5240	20.52	17.63	PASS
802.11n40	Low	5190	40.56	36.23	PASS
	High	5230	40.56	36.23	PASS
802.11ac80	/	5210	82.40	75.99	PASS

5725MHz-5850MHz:

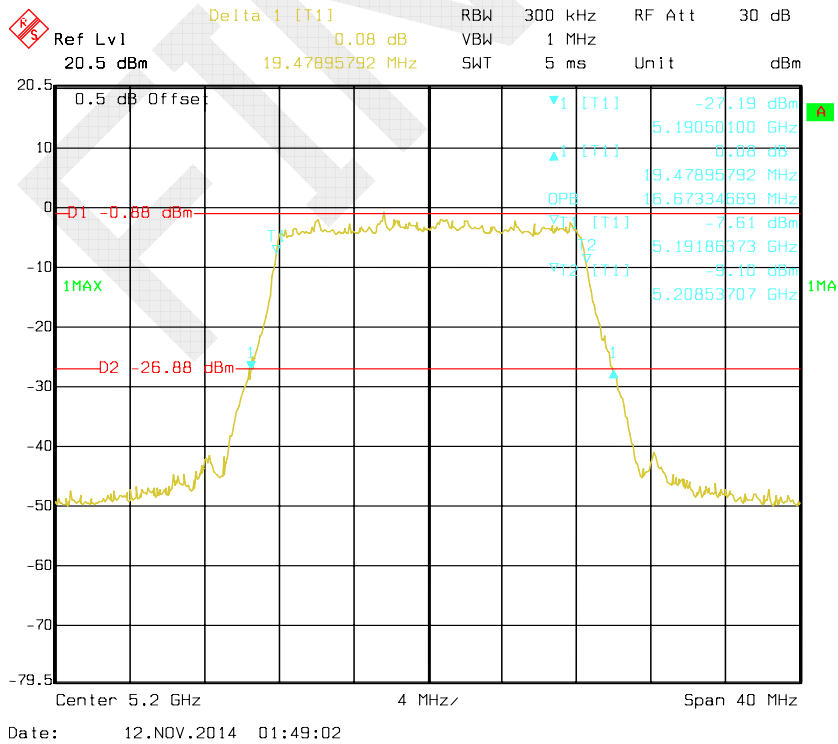
Mode	Channel	Frequency MHz	26 dB Bandwidth MHz	6 dB Bandwidth MHz	99% occupied bandwidth MHz	Result
802.11a	Low	5745	19.88	16.67	16.83	PASS
	Middle	5785	19.80	16.67	16.67	PASS
	High	5825	19.72	16.67	16.67	PASS
802.11n20	Low	5745	20.20	16.67	17.64	PASS
	Middle	5785	20.04	16.67	17.64	PASS
	High	5825	20.04	16.67	17.56	PASS
802.11n40	Low	5755	40.56	36.23	36.39	PASS
	High	5795	40.80	36.15	36.39	PASS
802.11ac80	/	5775	82.72	76.63	75.99	PASS

5150MHz-5250MHz:

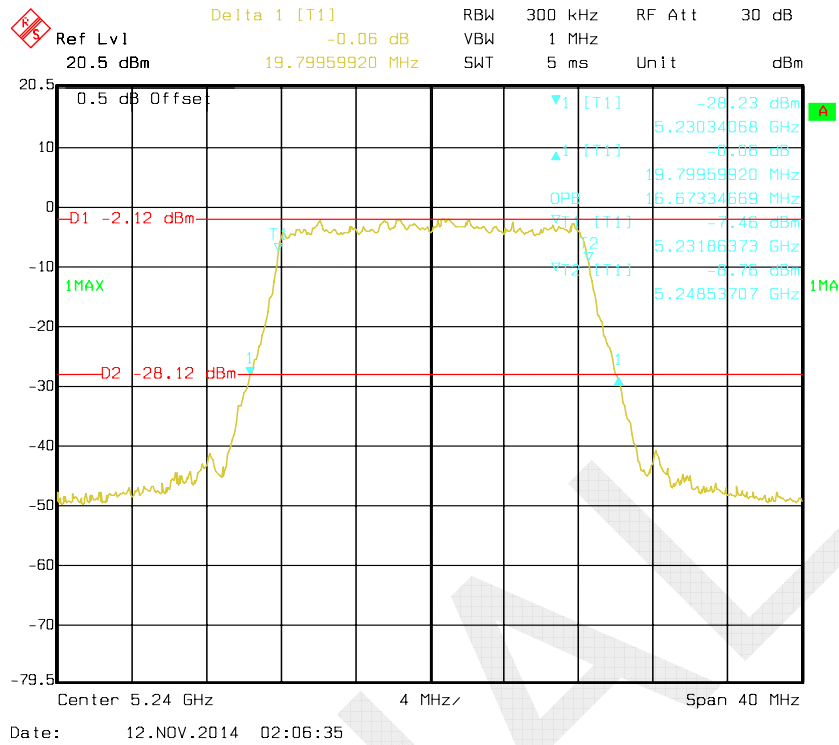
802.11a Low Channel



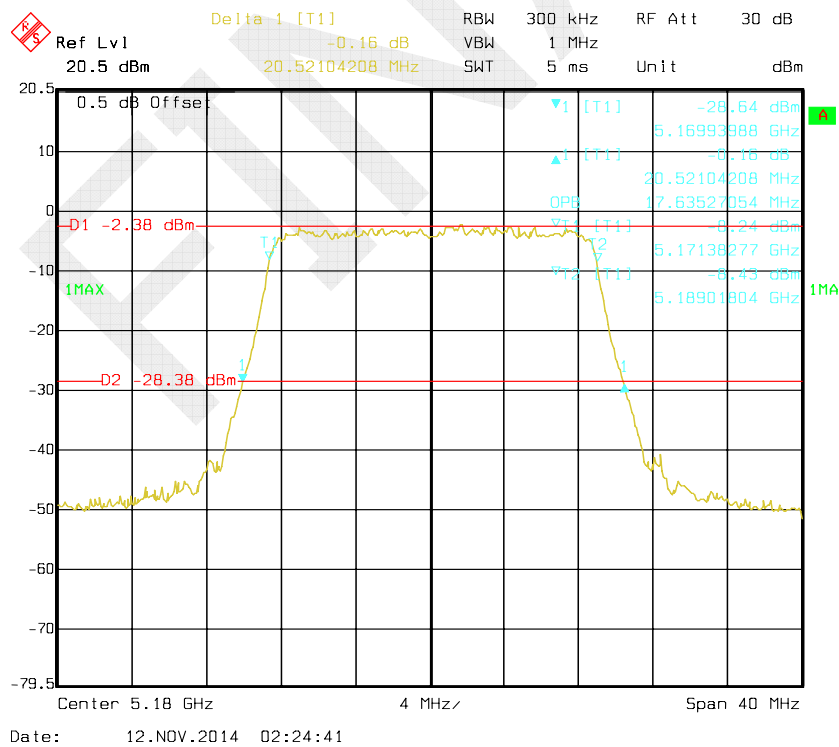
802.11a Middle Channel



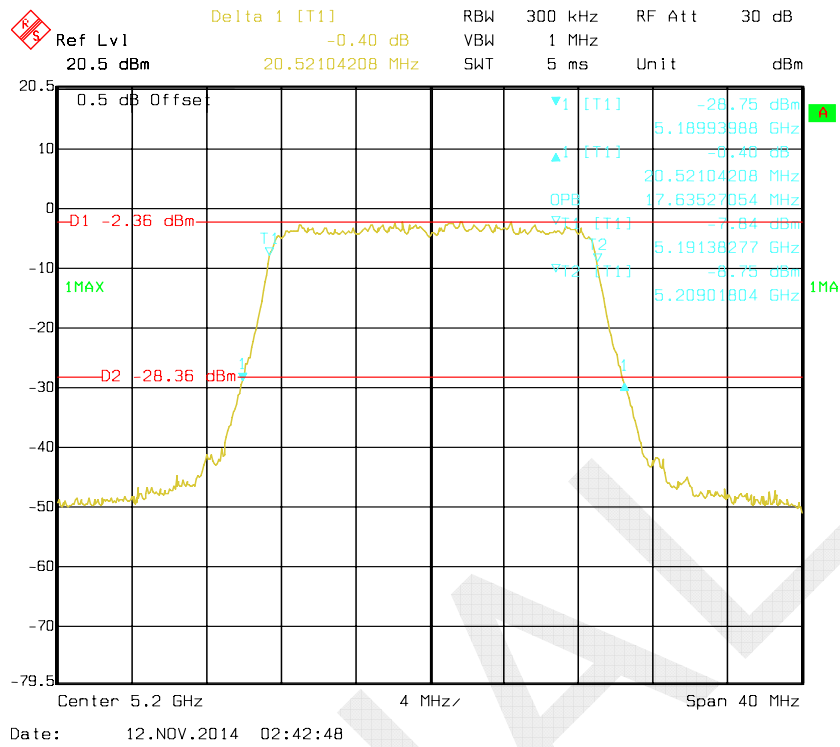
802.11a High Channel



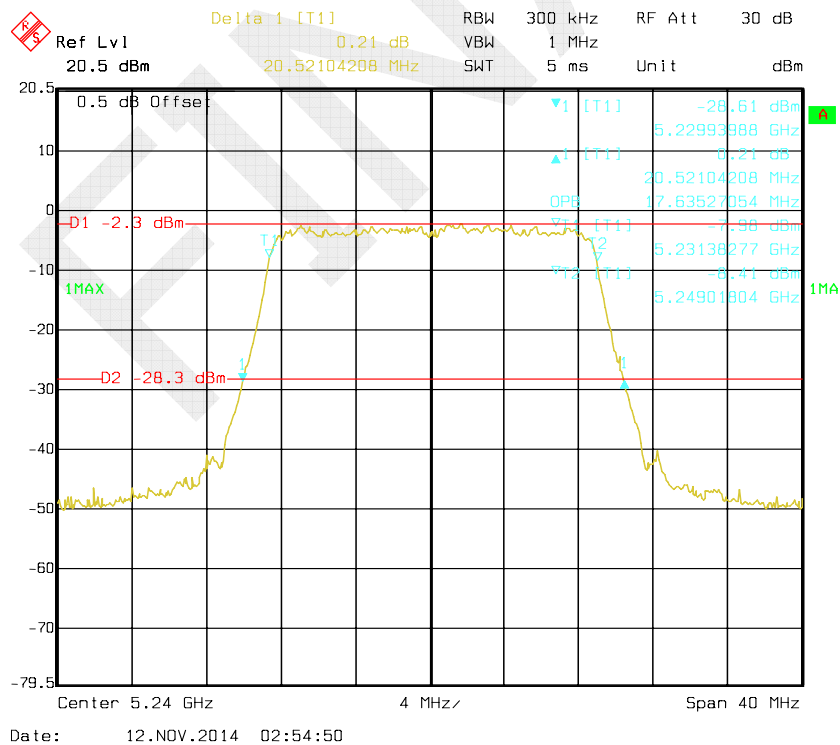
802.11n ht20 Low Channel



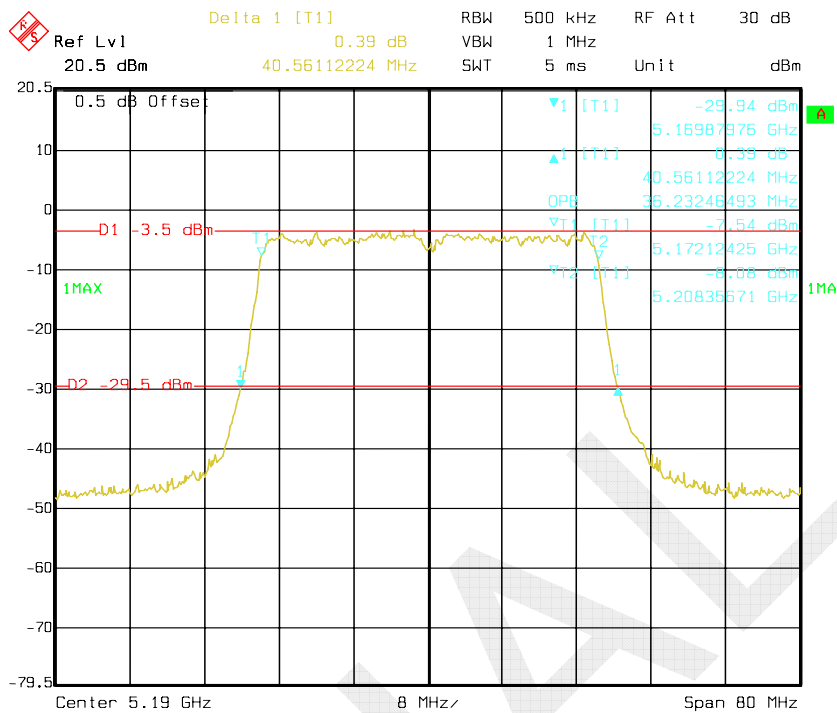
802.11n ht20 Middle Channel



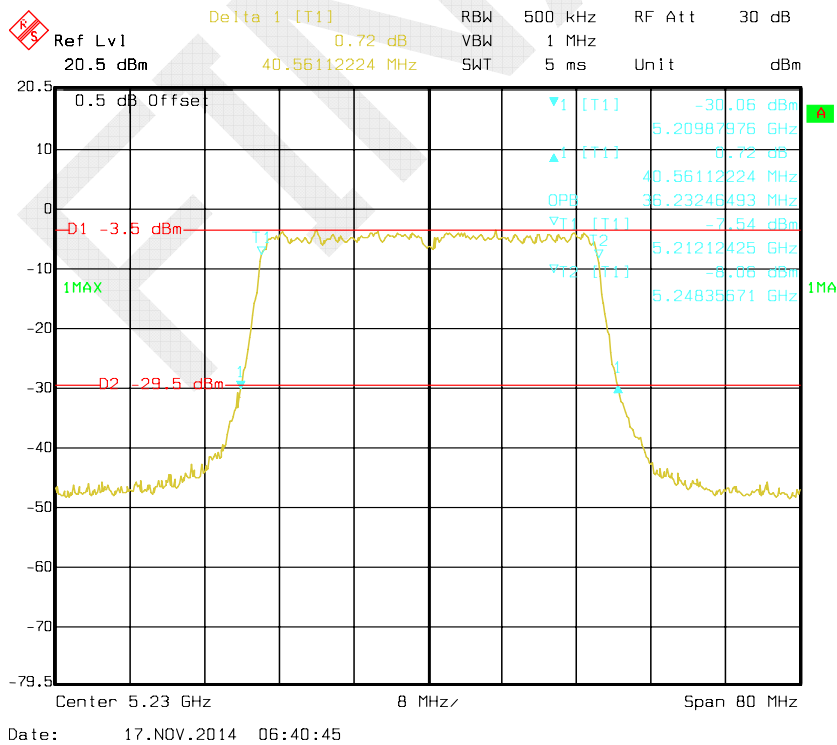
802.11n ht20 High Channel



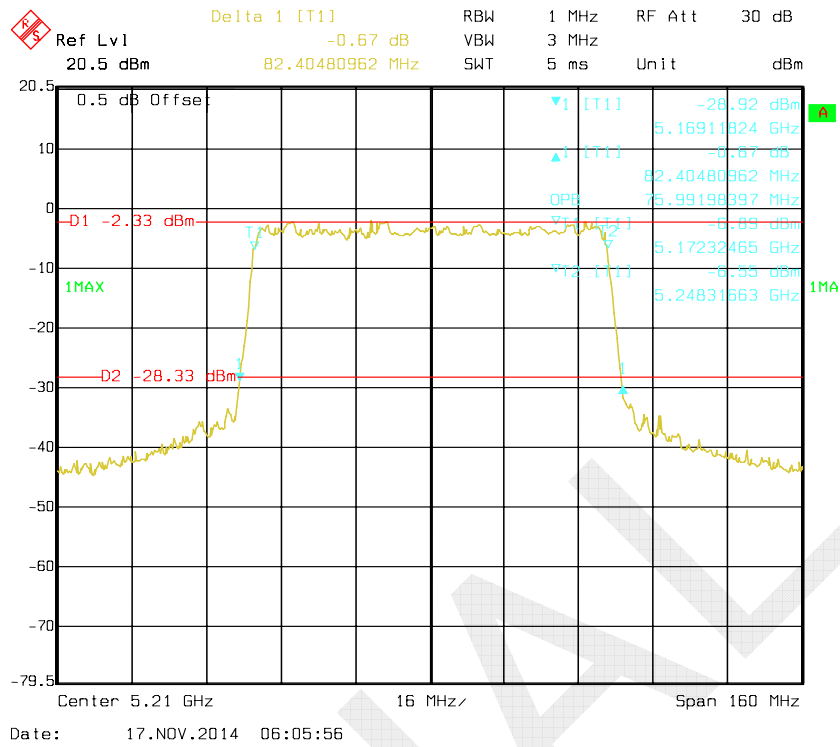
802.11n ht40 Low Channel



802.11n ht40 High Channel

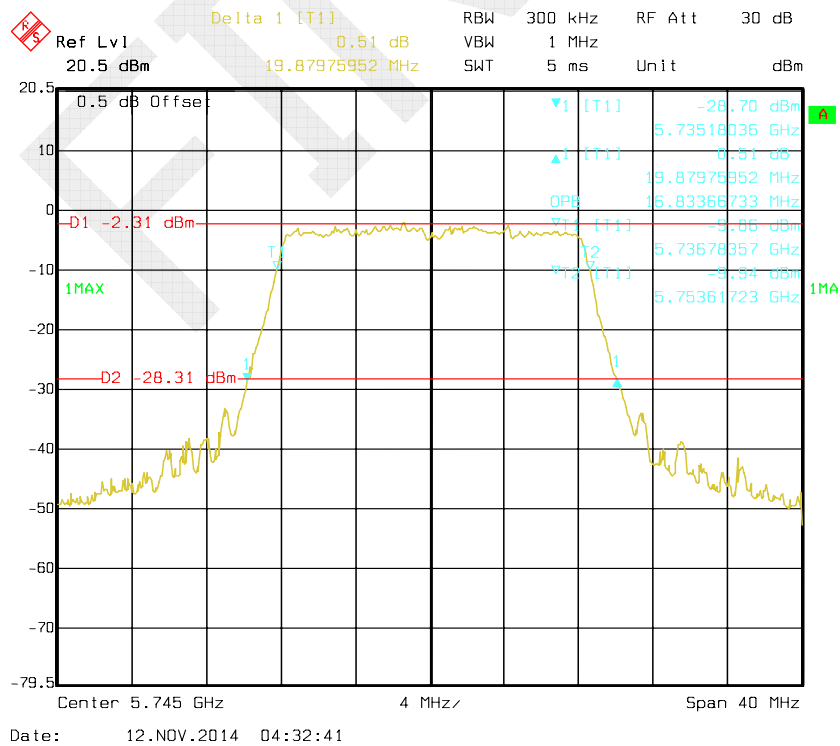


802.11n ac80

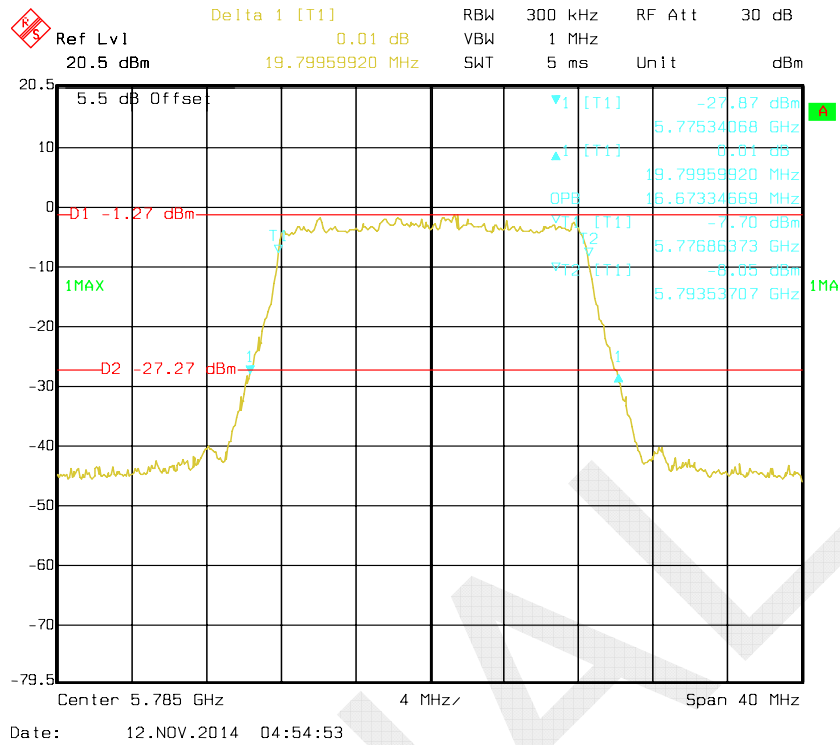


5725MHz-5850MHz: 26 dB Bandwidth

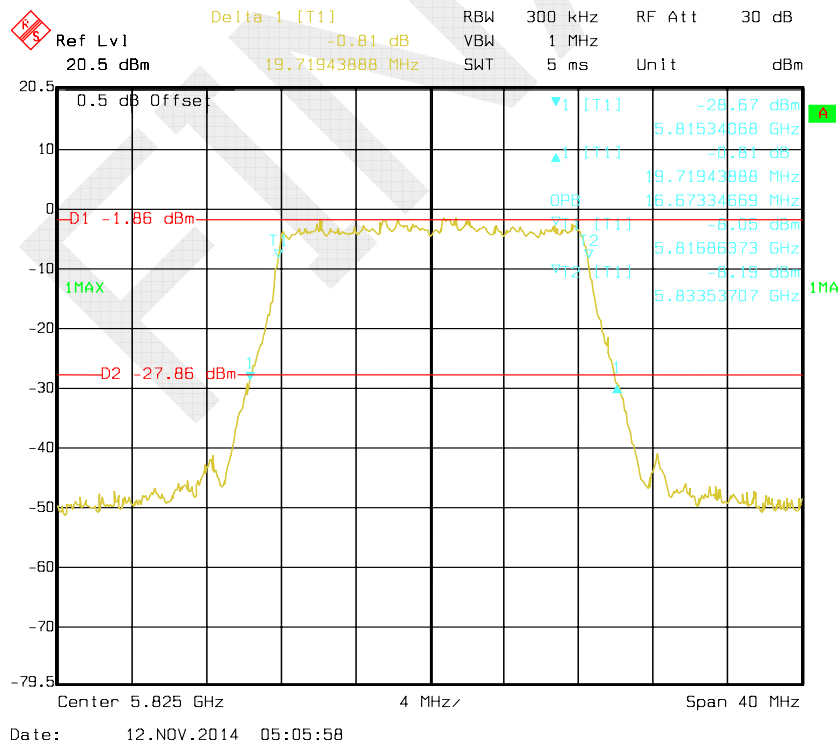
802.11a Low Channel



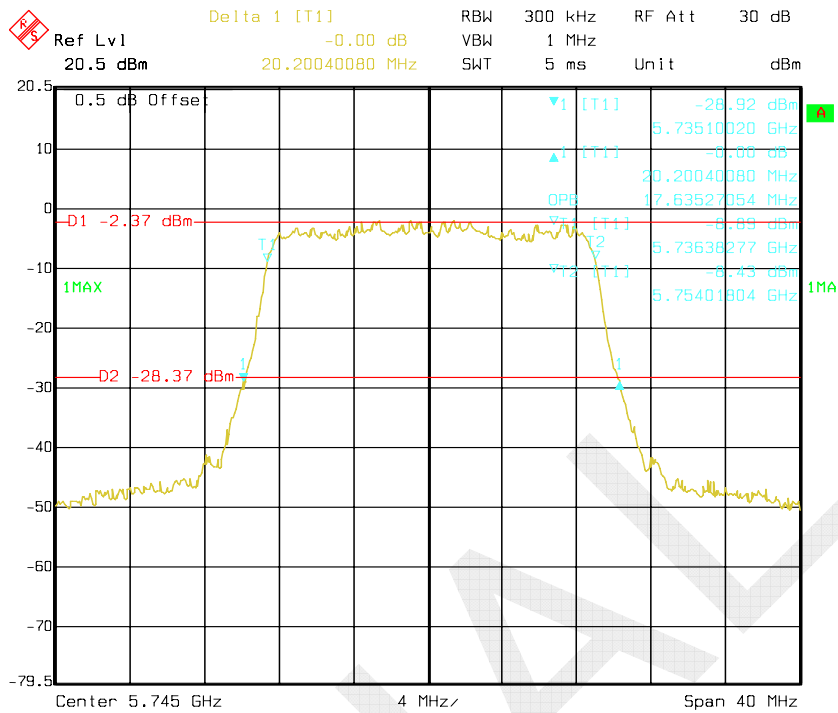
802.11a Middle Channel



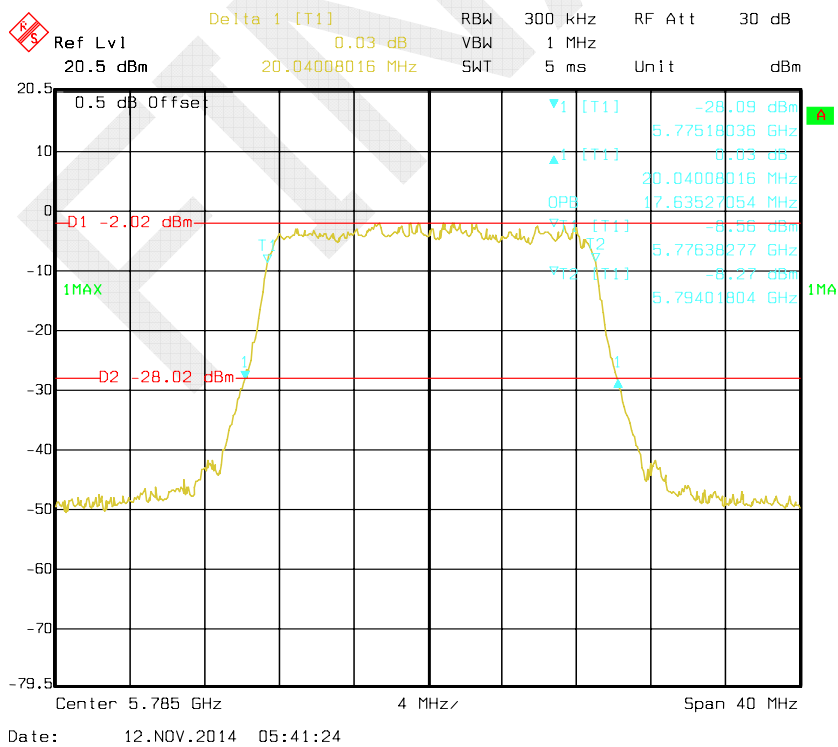
802.11a High Channel



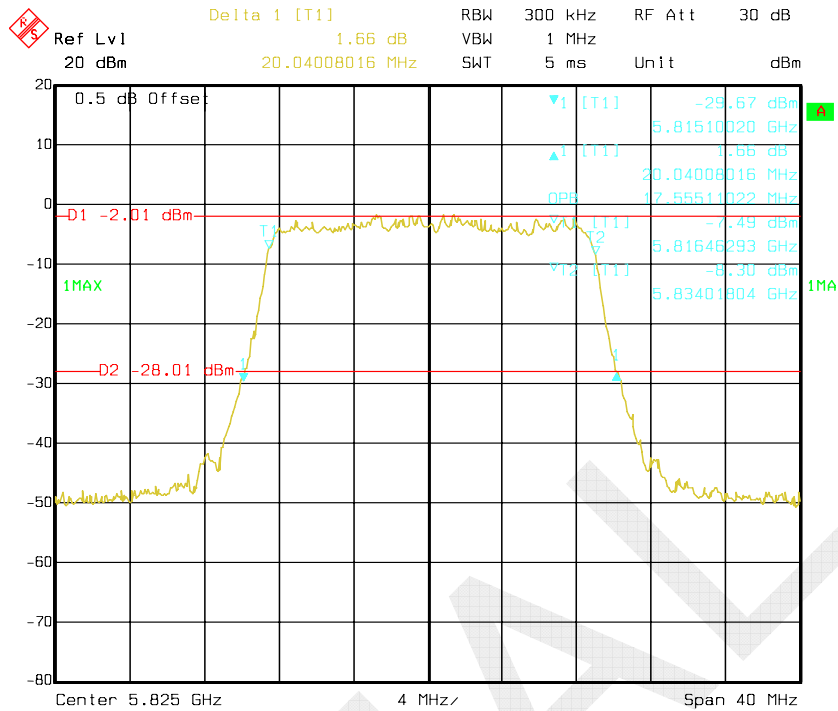
802.11n ht20 Low Channel



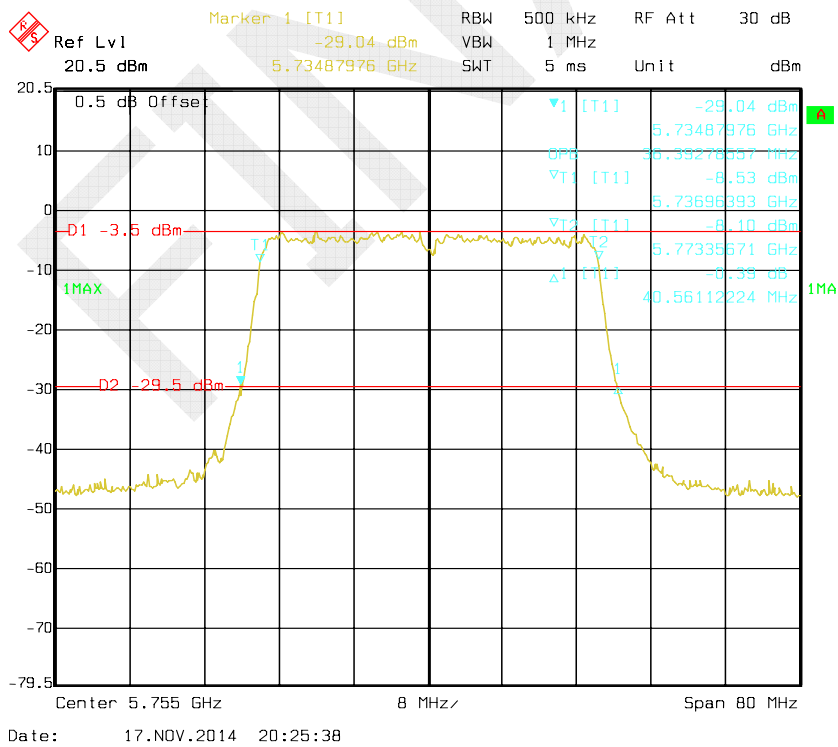
802.11n ht20 Middle Channel



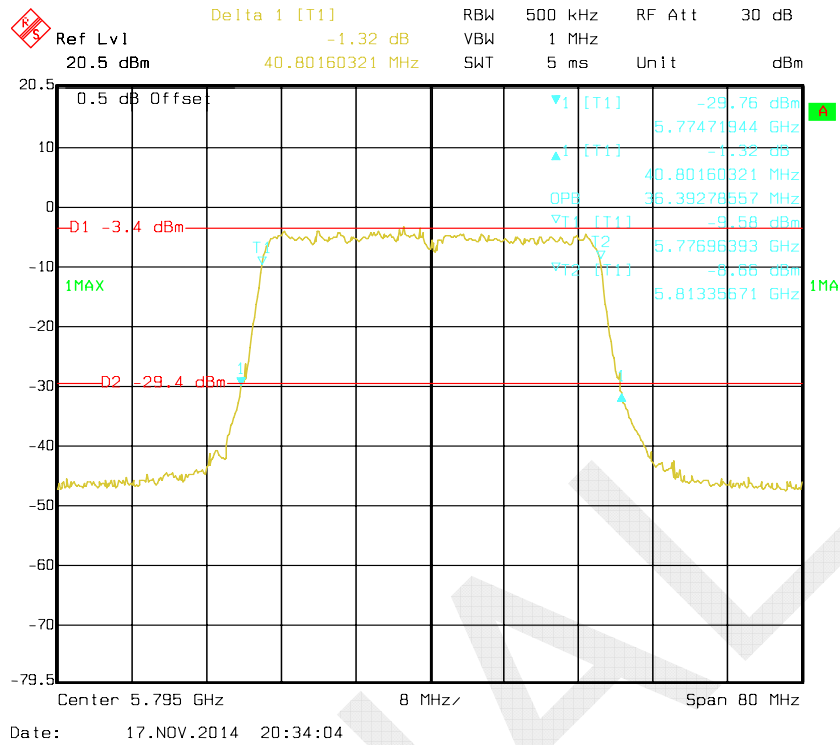
802.11n ht20 High Channel



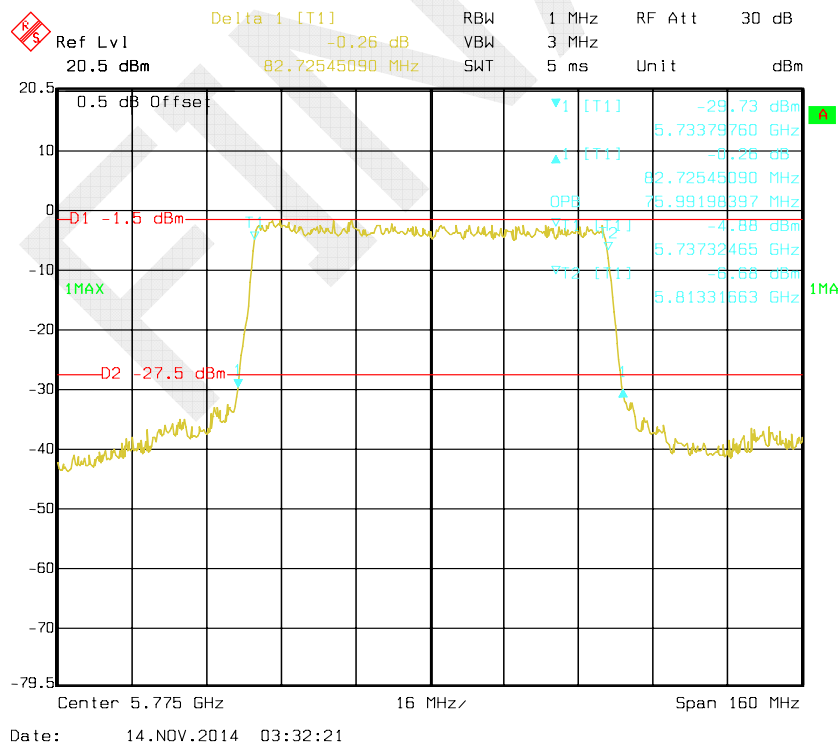
802.11n ht40 Low Channel



802.11n ht40 High Channel

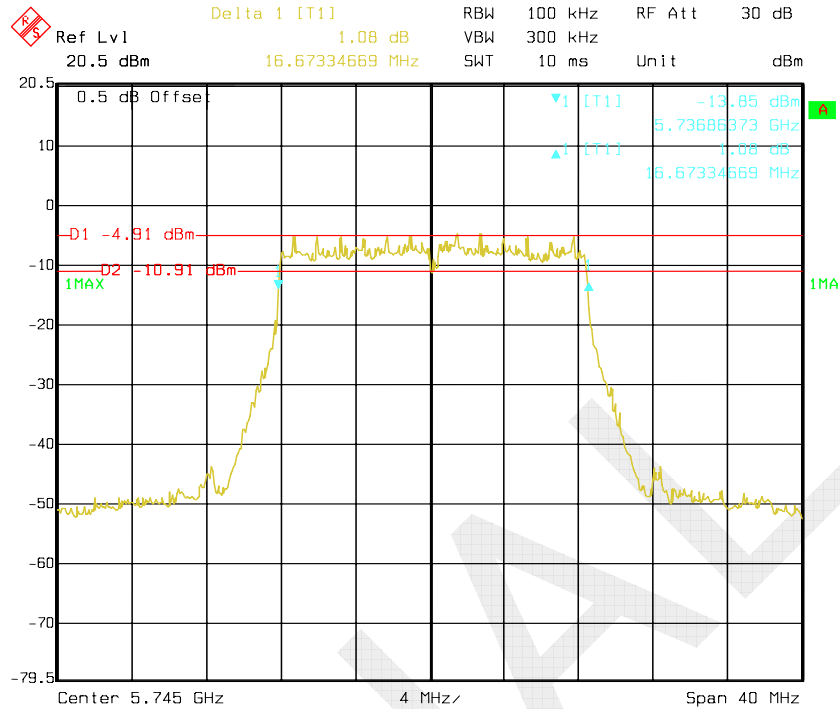


802.11n ac80



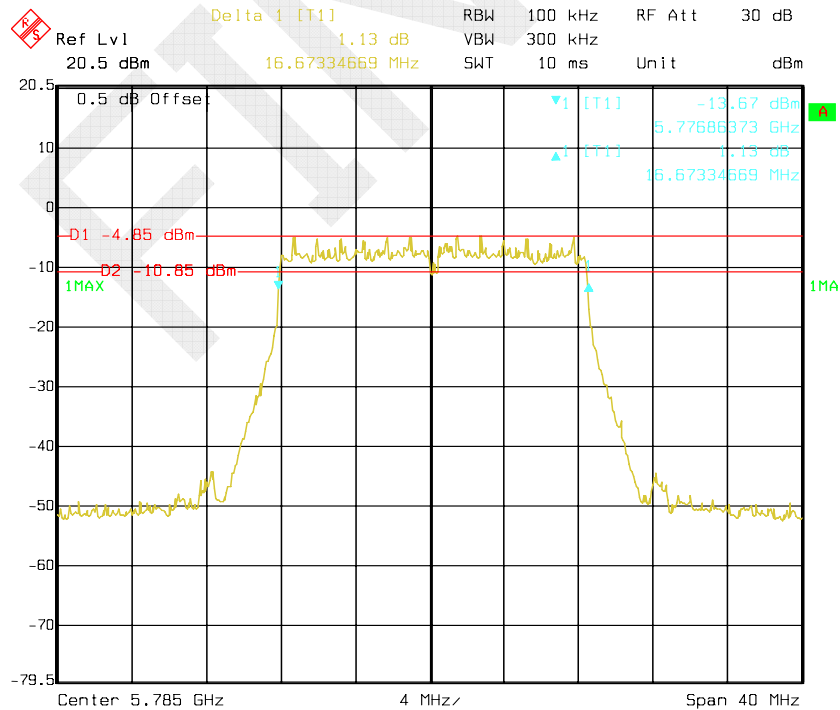
6 dB Bandwidth

802.11a Low Channel



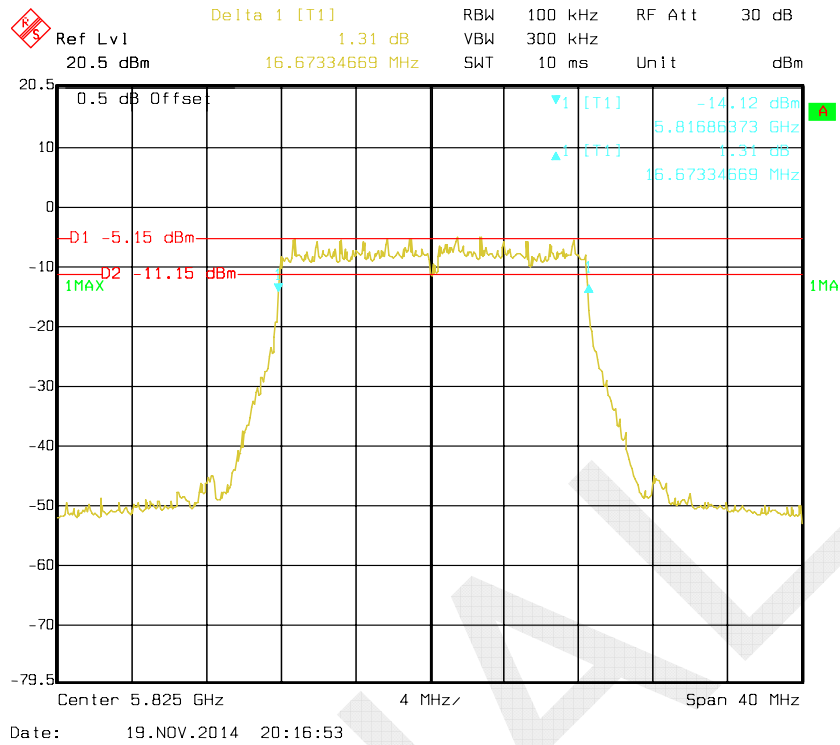
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802.11a Middle Channel

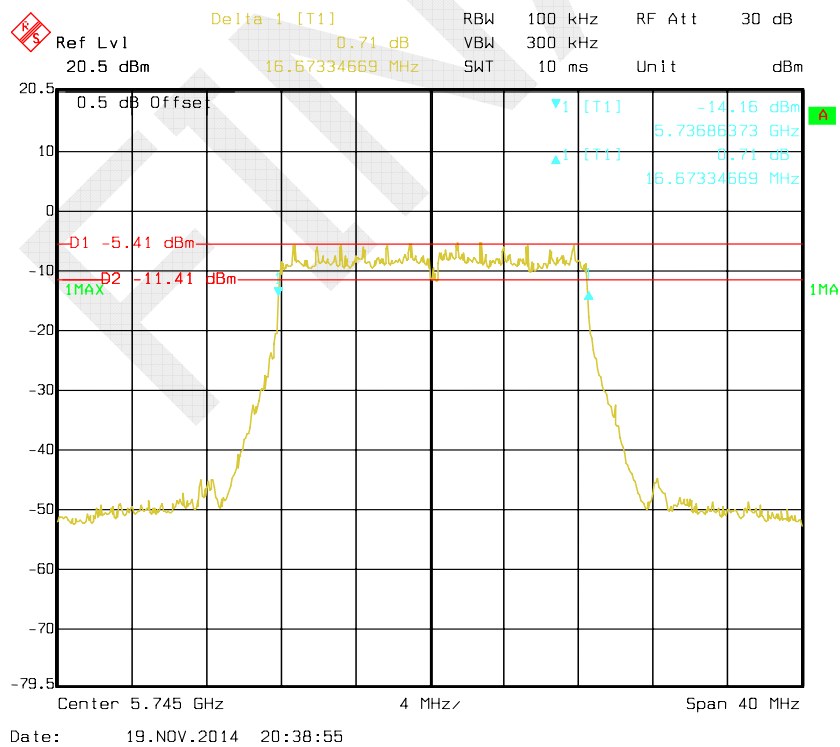


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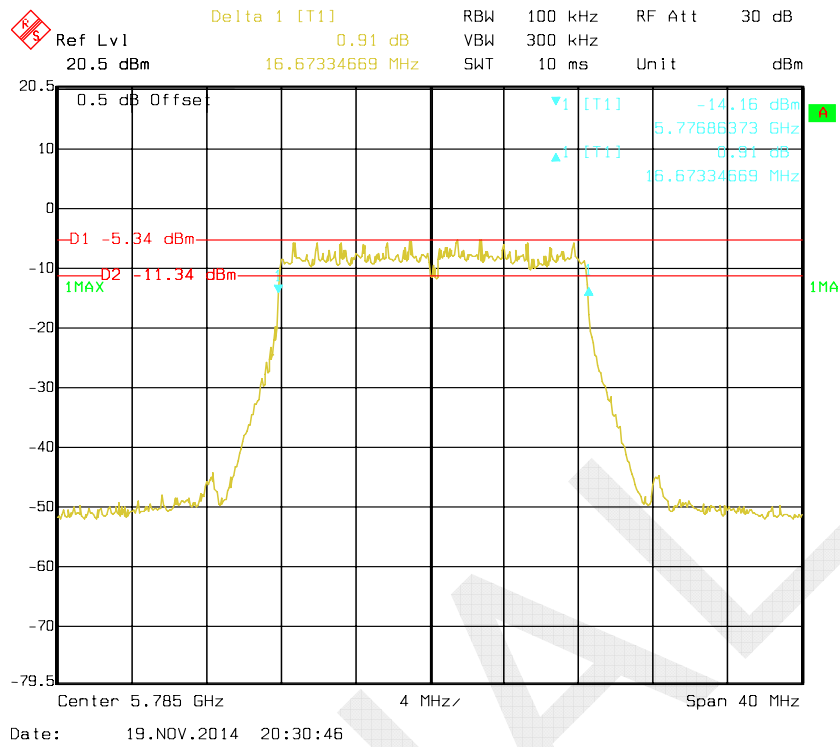
802.11a High Channel



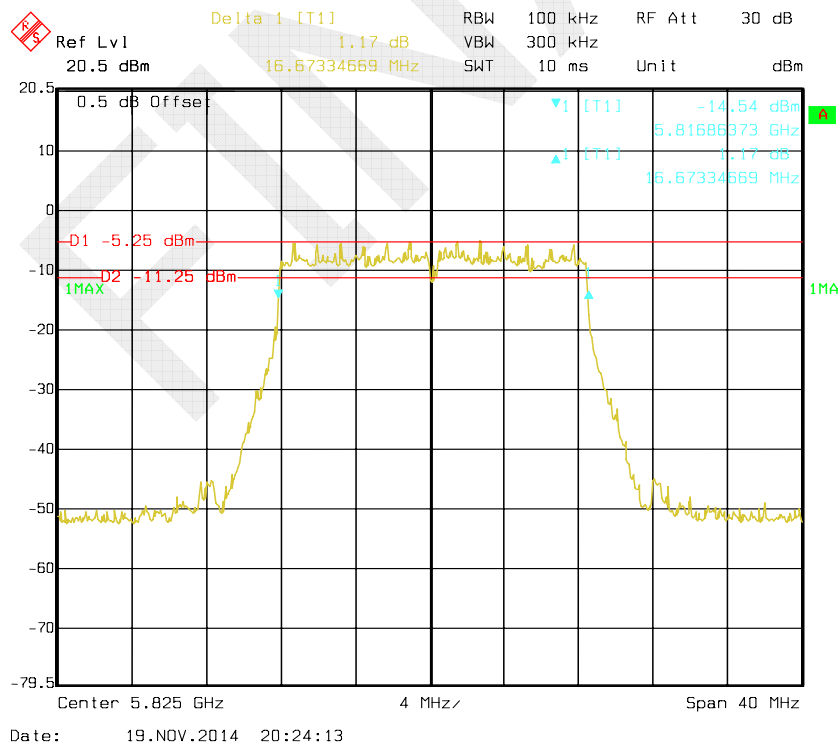
802.11n ht20 Low Channel



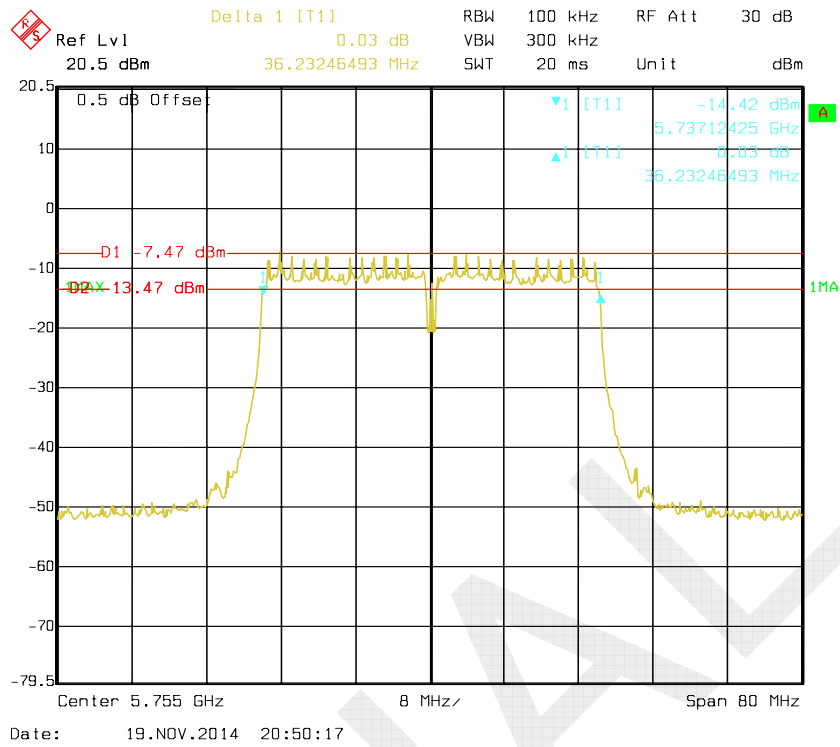
802.11n ht20 Middle Channel



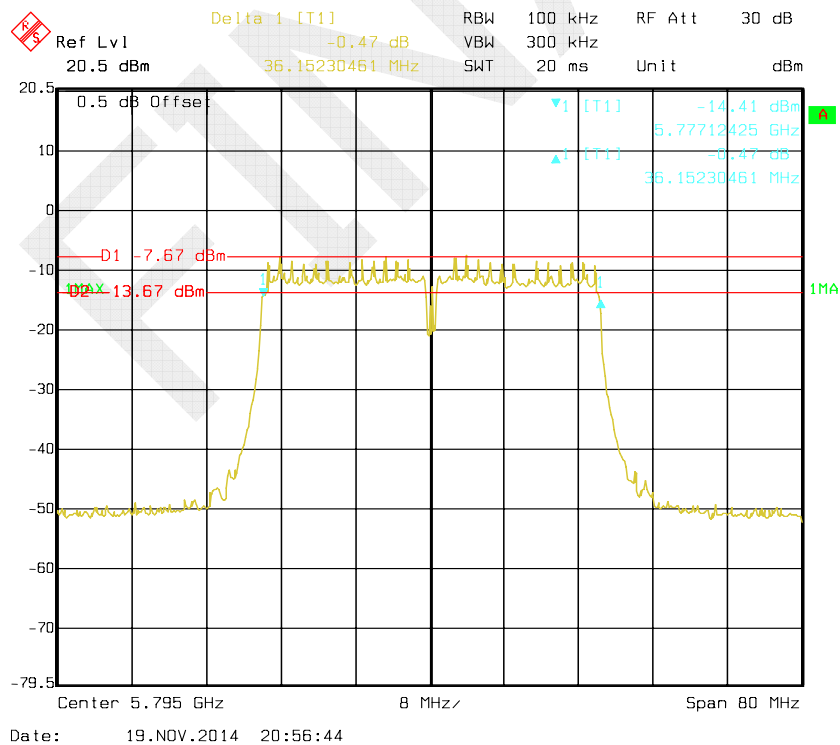
802.11n ht20 High Channel



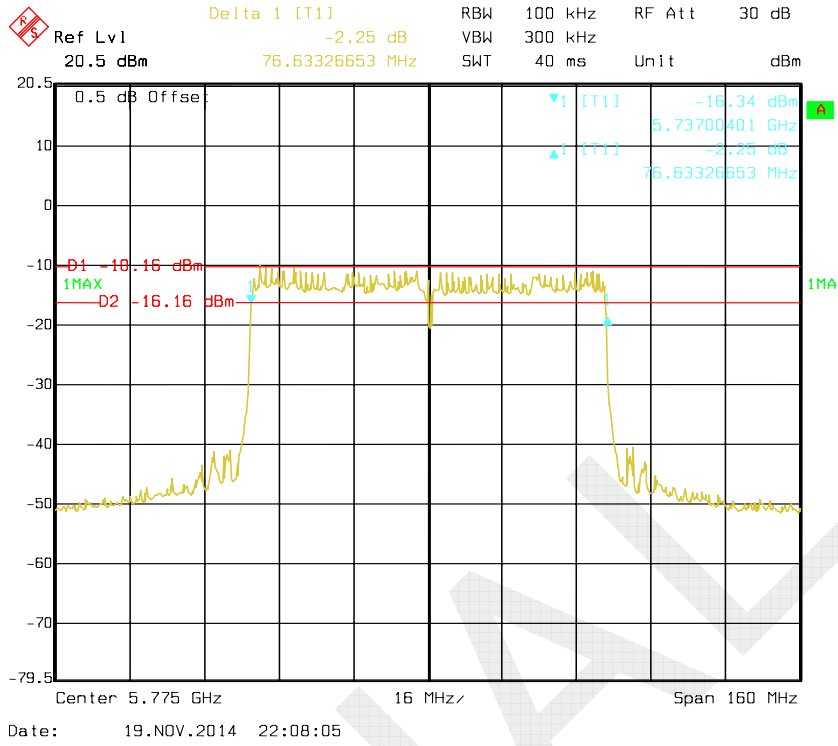
802.11n ht40 Low Channel



802.11n ht40 High Channel



802.11n ac80



FCC §15.407(a) (1) (ii) (4) –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 $11 \text{ dBm} + 10 \log B$, 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
R&S	Spectrum Analyzer	FSEM	DE31388	2014-05-09	2015-05-09

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

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01.

Test Data

Environmental Conditions

Temperature:	25.4°C ~26.2 °C
Relative Humidity:	47%~56 %
ATM Pressure:	101.2 kPa ~101.6 kPa

The testing was performed by Dean Liu from 2014-11-12 & 2014-11-17.

Test Mode: Transmitting

5150MHz-5250MHz:

Mode	Channel	Frequency MHz	Conducted Output Power dBm	Limit dBm	Result
802.11a	Low	5180	7.31	30	PASS
	Middle	5200	7.44	30	PASS
	High	5240	7.44	30	PASS
802.11n20	Low	5180	7.46	30	PASS
	Middle	5200	7.43	30	PASS
	High	5240	7.47	30	PASS
802.11n40	Low	5190	7.35	30	PASS
	High	5230	7.61	30	PASS
802.11ac80	/	5210	7.53	30	PASS

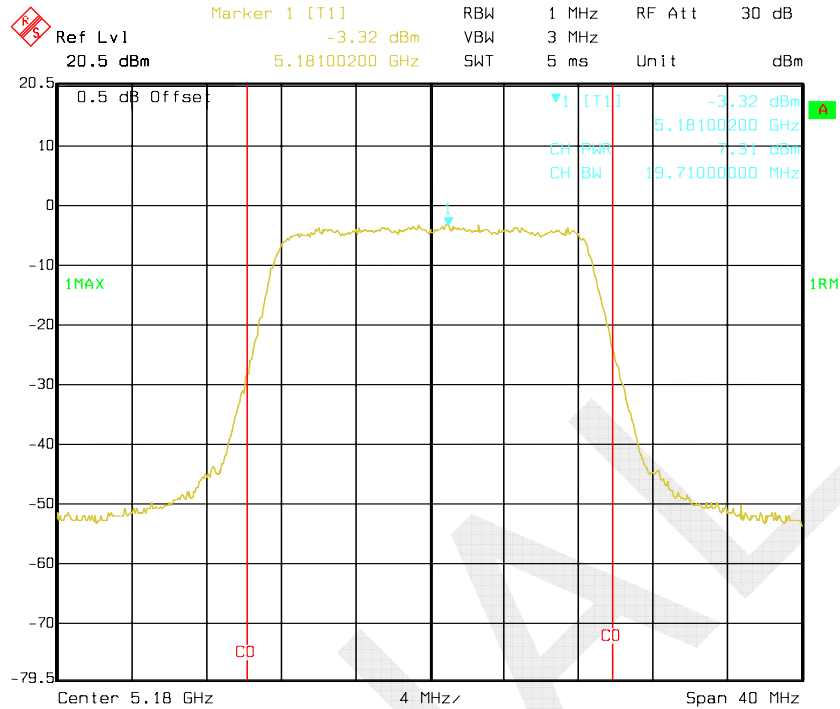
5725MHz-5850MHz:

Mode	Channel	Frequency MHz	Conducted Output Power dBm	Limit dBm	Result
802.11a	Low	5745	7.40	30	PASS
	Middle	5785	7.55	30	PASS
	High	5825	7.59	30	PASS
802.11n20	Low	5745	7.36	30	PASS
	Middle	5785	7.38	30	PASS
	High	5825	7.49	30	PASS
802.11n40	Low	5755	7.56	30	PASS
	High	5795	7.38	30	PASS
802.11ac80	/	5775	7.51	30	PASS

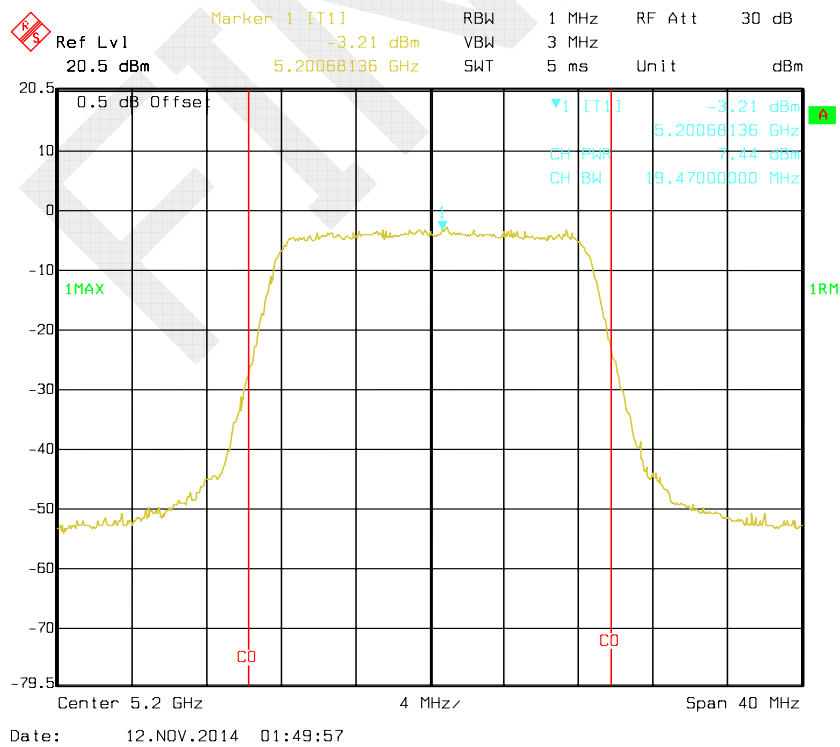
Note: 1. The duty cycle is 100%.
1. The EUT is only for indoor use.

5150MHz-5250MHz:

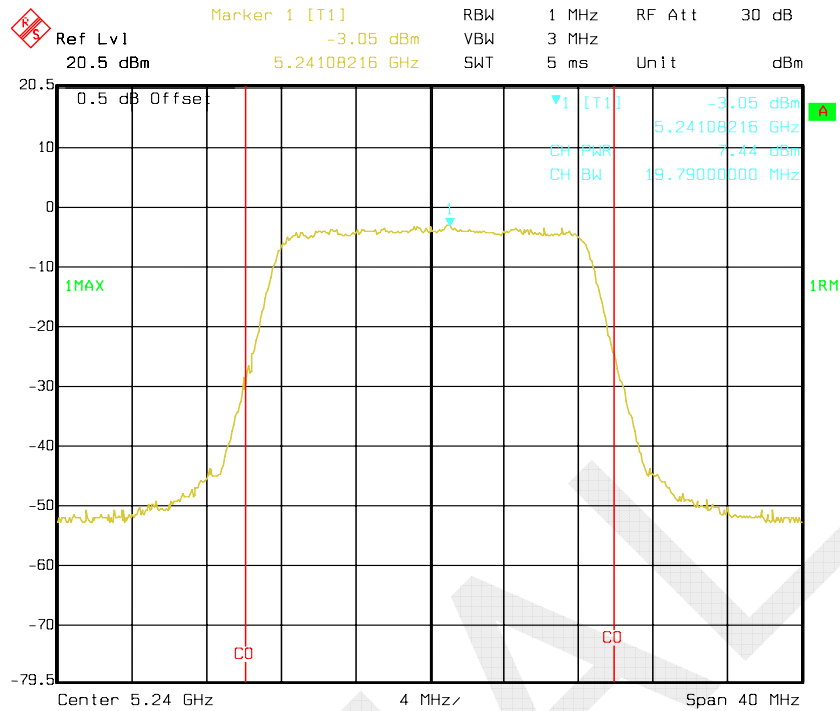
802.11a Low Channel



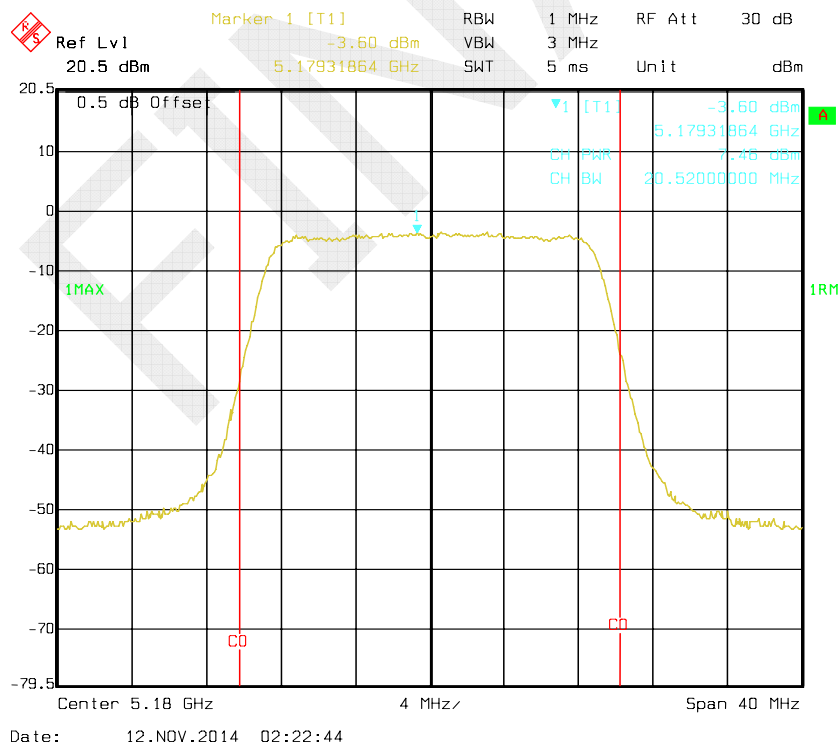
802.11a Middle Channel



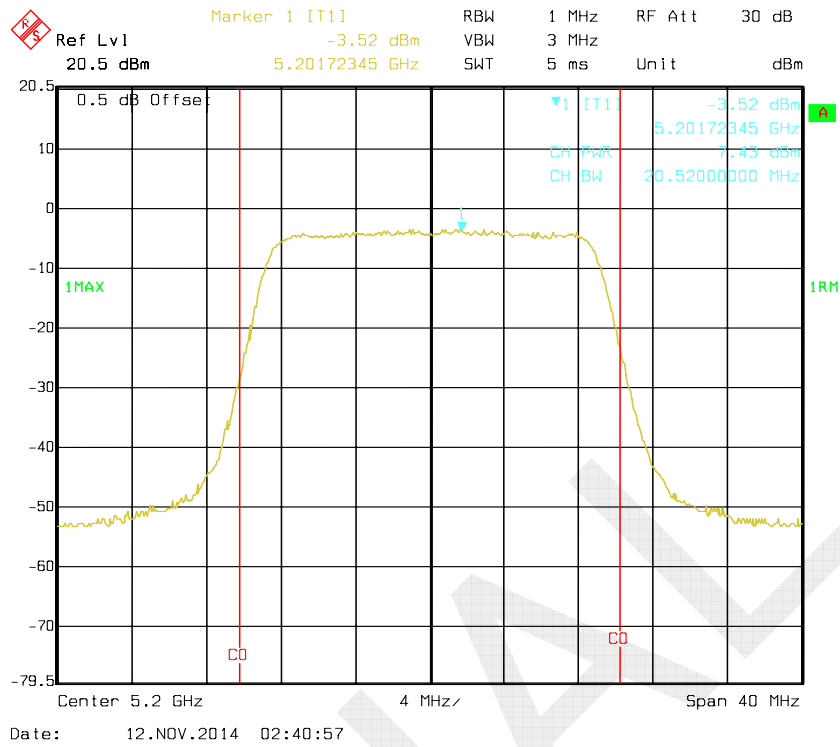
802.11a High Channel



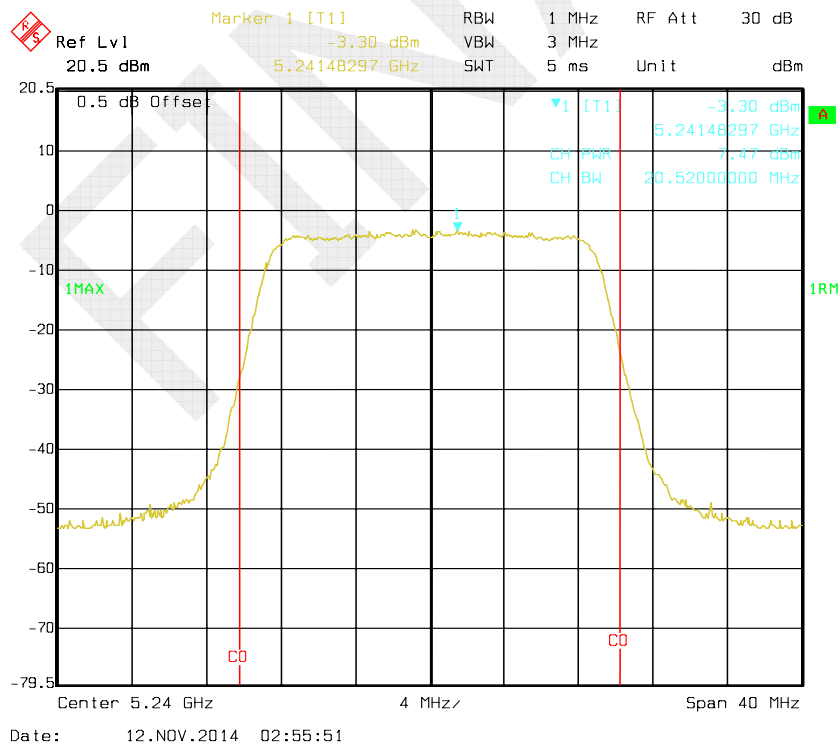
802.11n ht20 Low Channel



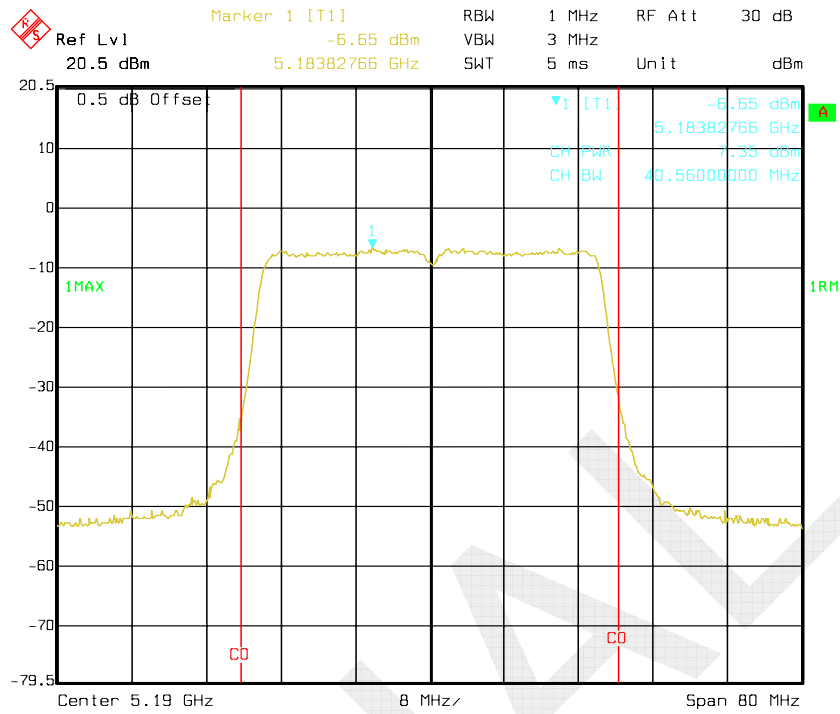
802.11n ht20 Middle Channel



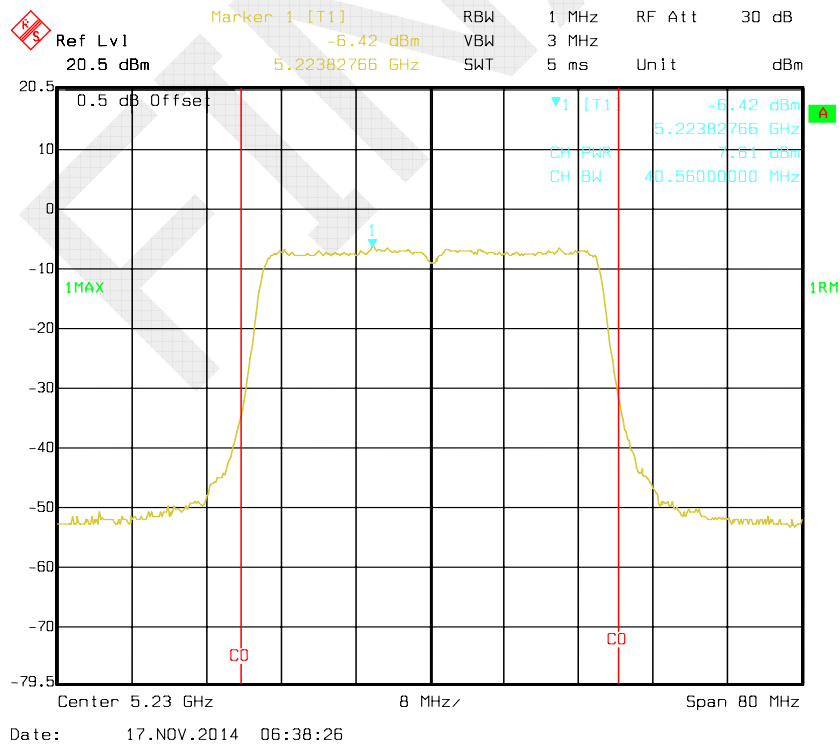
802.11n ht20 High Channel



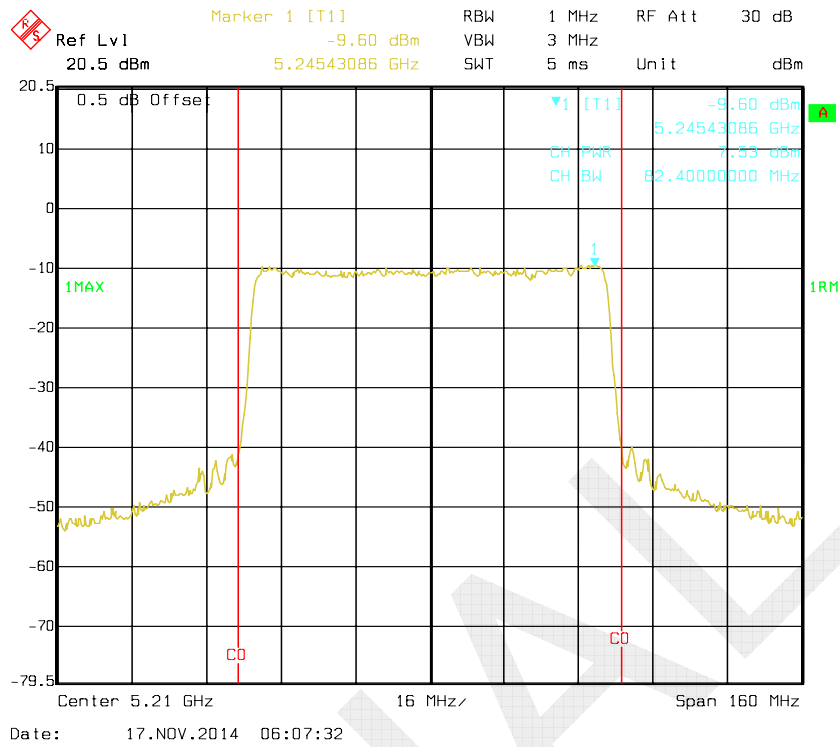
802.11n ht40 Low Channel



802.11n ht40 High Channel

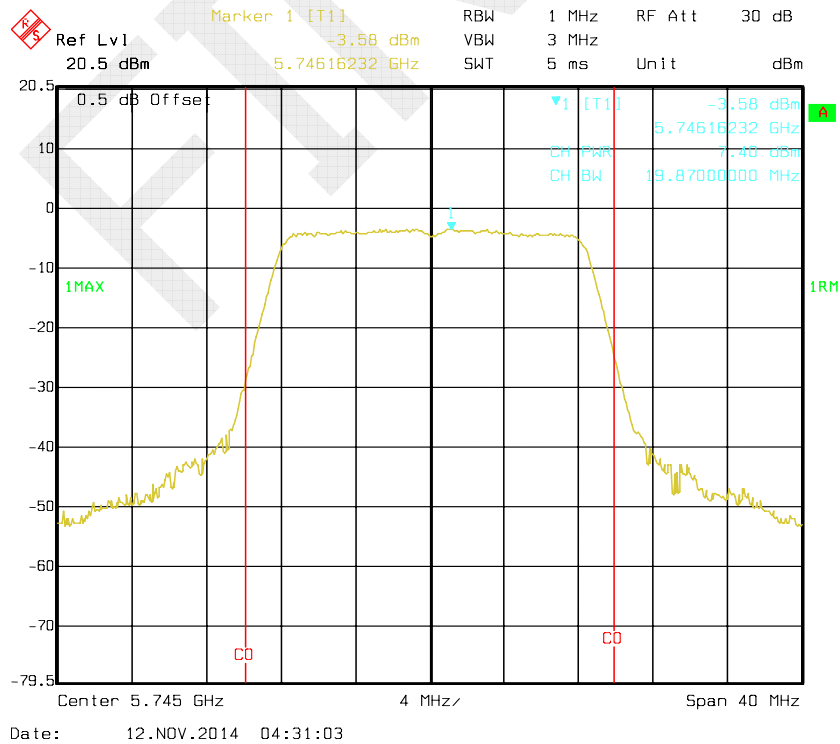


802.11n ac80

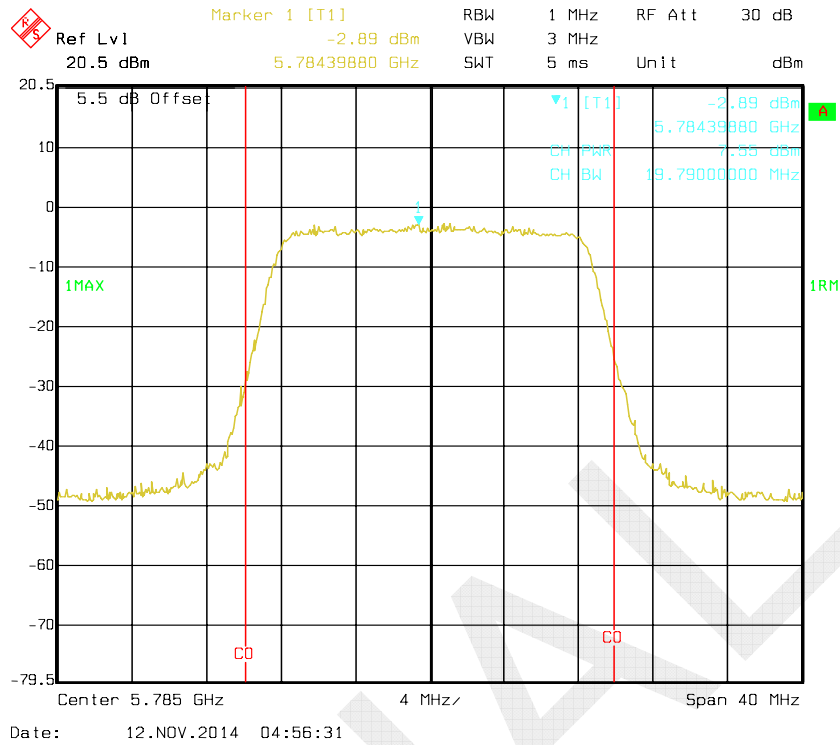


5725MHz-5850MHz:

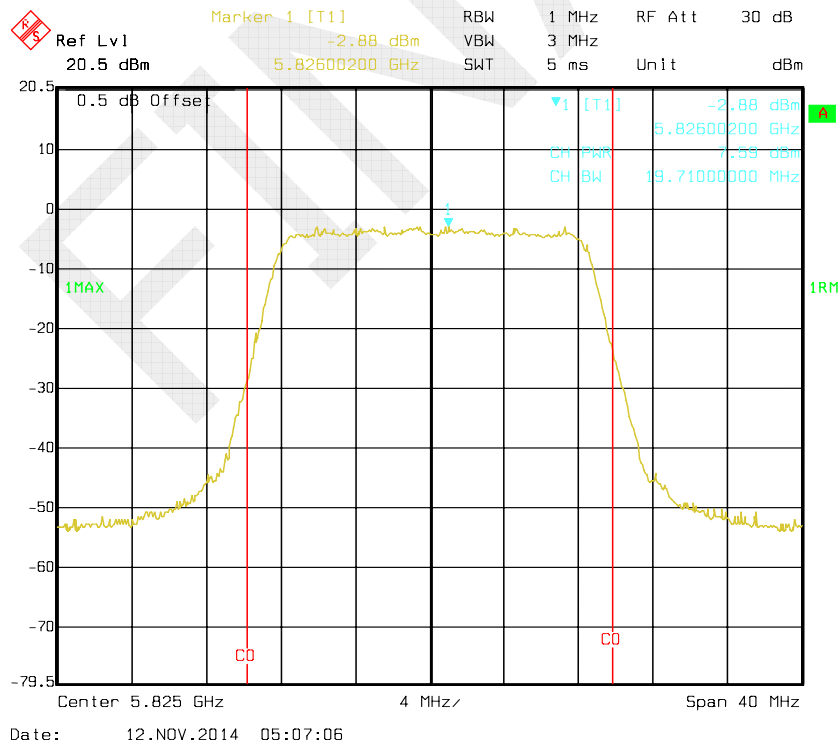
802.11a Low Channel



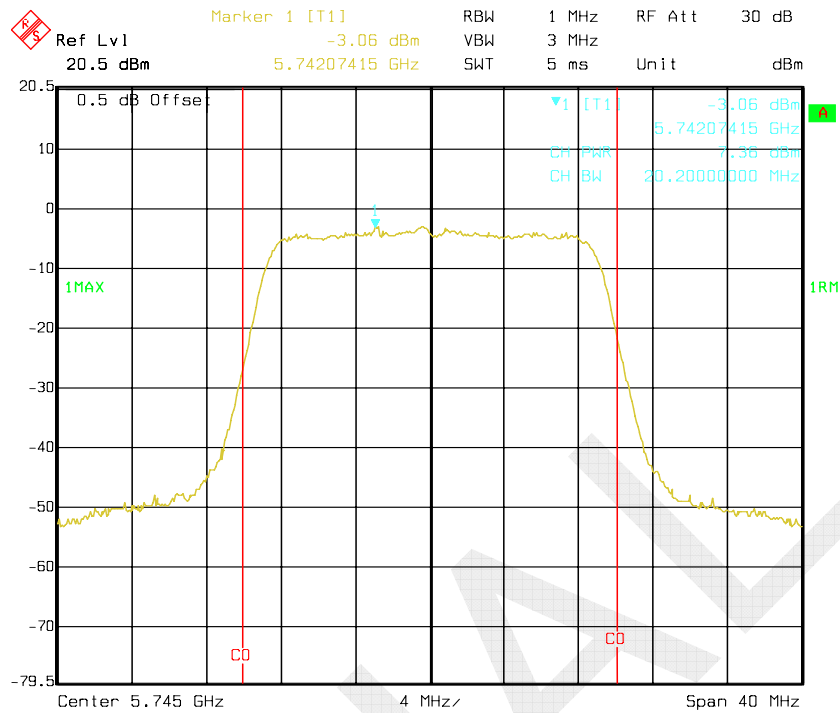
802.11a Middle Channel



802.11a High Channel

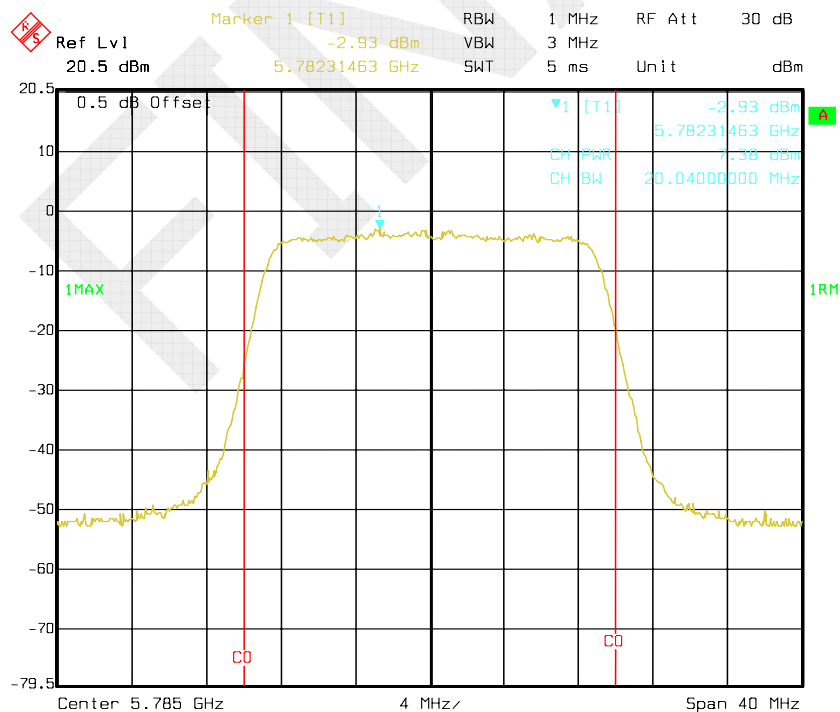


802.11n ht20 Low Channel



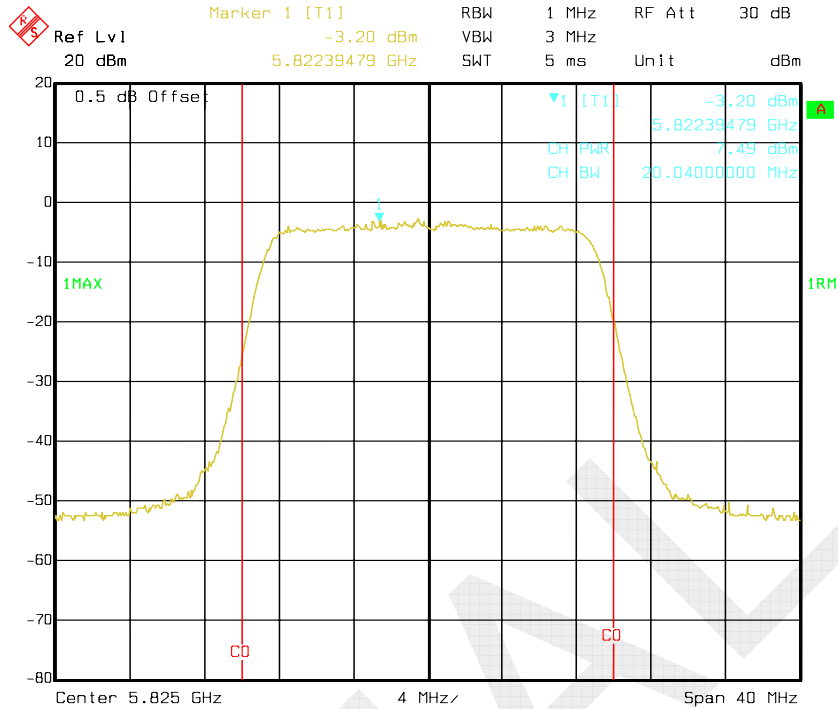
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802.11n ht20 Middle Channel

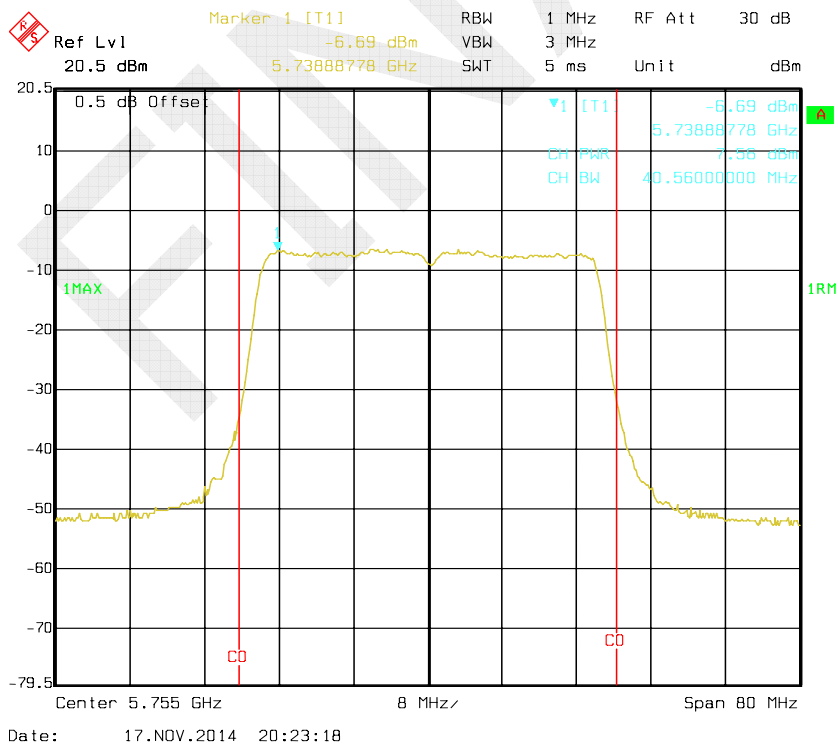


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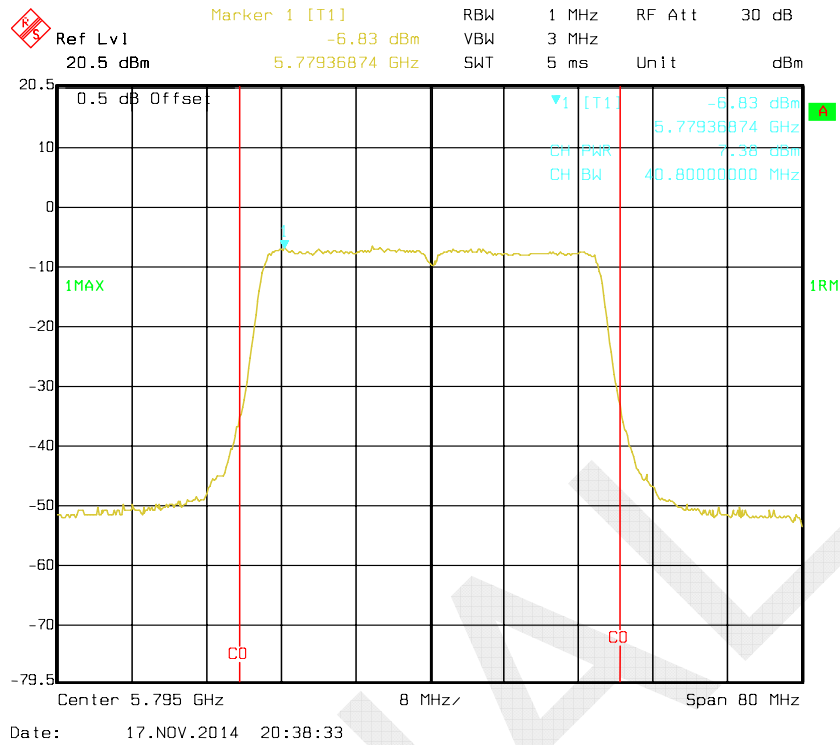
802.11n ht20 High Channel



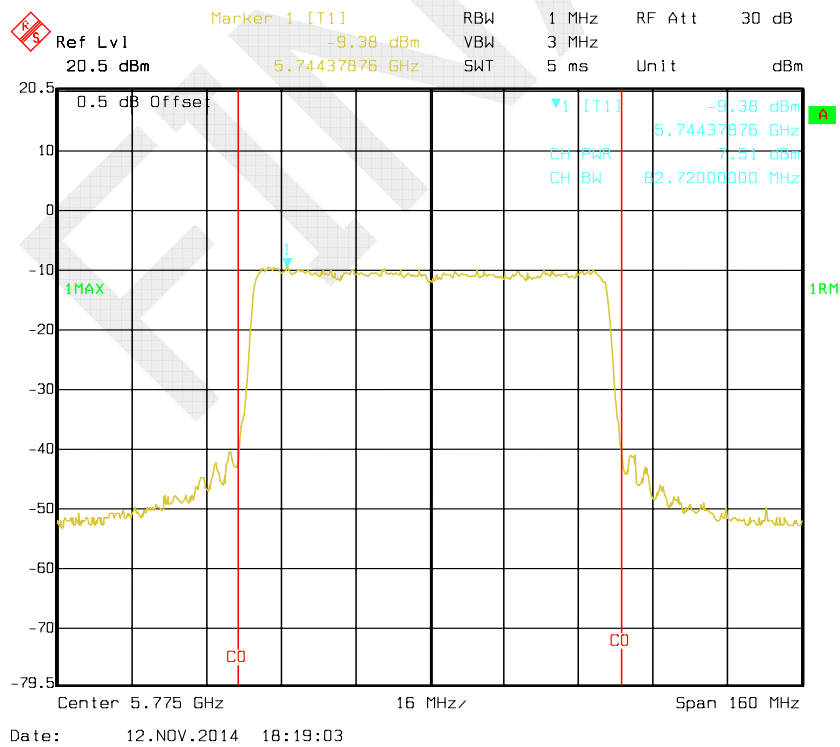
802.11n ht40 Low Channel



802.11n ht40 High Channel



802.11n ac80



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 colocated 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 $11 \text{ dBm} + 10 \log B$, 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 v01

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	DE31388	2014-05-09	2015-05-09

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

Test Data

Environmental Conditions

Temperature:	25.4°C ~26.2 °C
Relative Humidity:	47%~56 %
ATM Pressure:	101.2 kPa ~101.6 kPa

The testing was performed by Dean Liu from 2014-11-12 & 2014-11-19.

Test Mode: Transmitting

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

5150MHz-5250MHz:

Mode	Channel	Frequency MHz	PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	Low	5180	-3.30	17	PASS
	Middle	5200	-2.93	17	PASS
	High	5240	-2.67	17	PASS
802.11n20	Low	5180	-3.61	17	PASS
	Middle	5200	-3.47	17	PASS
	High	5240	-3.43	17	PASS
802.11n40	Low	5190	-6.56	17	PASS
	High	5230	-6.59	17	PASS
802.11ac80	/	5210	-9.15	17	PASS

Note: the duty cycle is 100%.

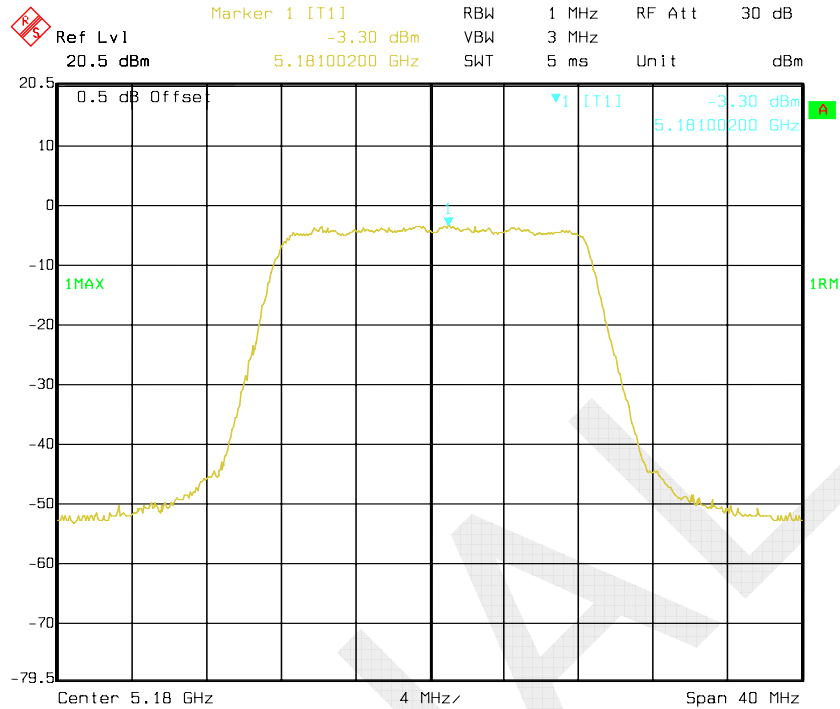
5725MHz-5850MHz:

Mode	Channel	Frequency (MHz)	PSD (dBm/500 kHz)	PSD (dBm/500kHz)	Result
802.11a	Low	5745	-4.46	30	PASS
	Middle	5785	-4.85	30	PASS
	High	5825	-4.68	30	PASS
802.11n20	Low	5745	-4.71	30	PASS
	Middle	5785	-4.68	30	PASS
	High	5825	-4.67	30	PASS
802.11n40	Low	5755	-7.81	30	PASS
	High	5795	-8.10	30	PASS
802.11ac80	/	5775	-10.37	30	PASS

Note:
The duty cycle is 100%.

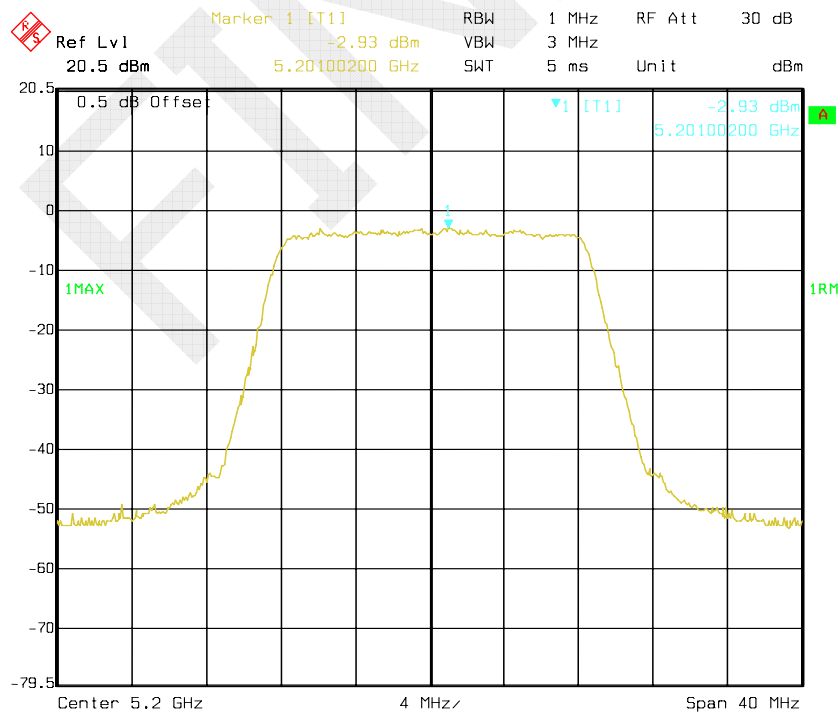
5150MHz-5250MHz:

802.11a Low Channel



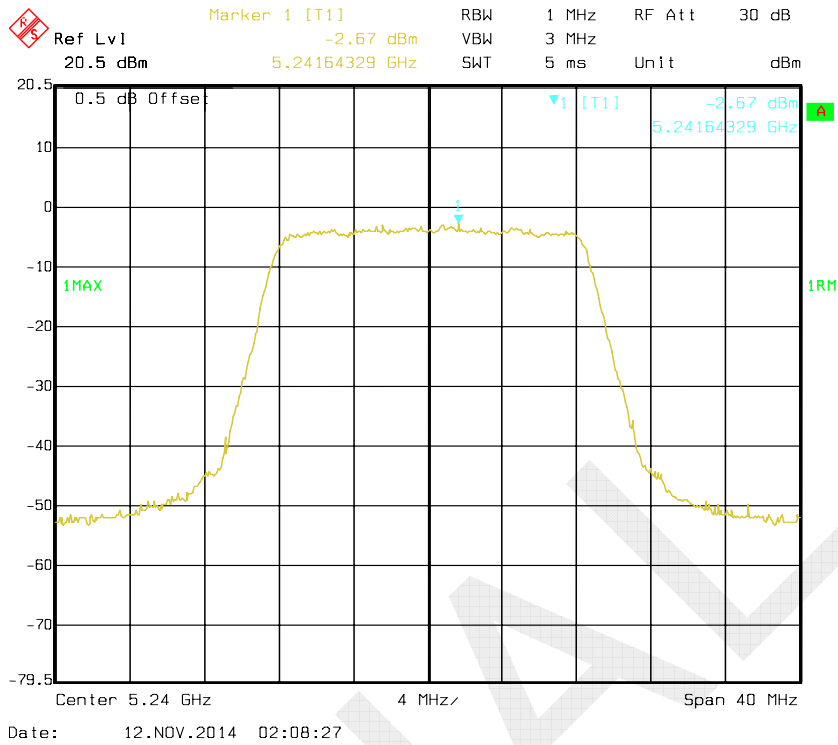
Date: 12.NOV.2014 01:28:33

802.11a Middle Channel

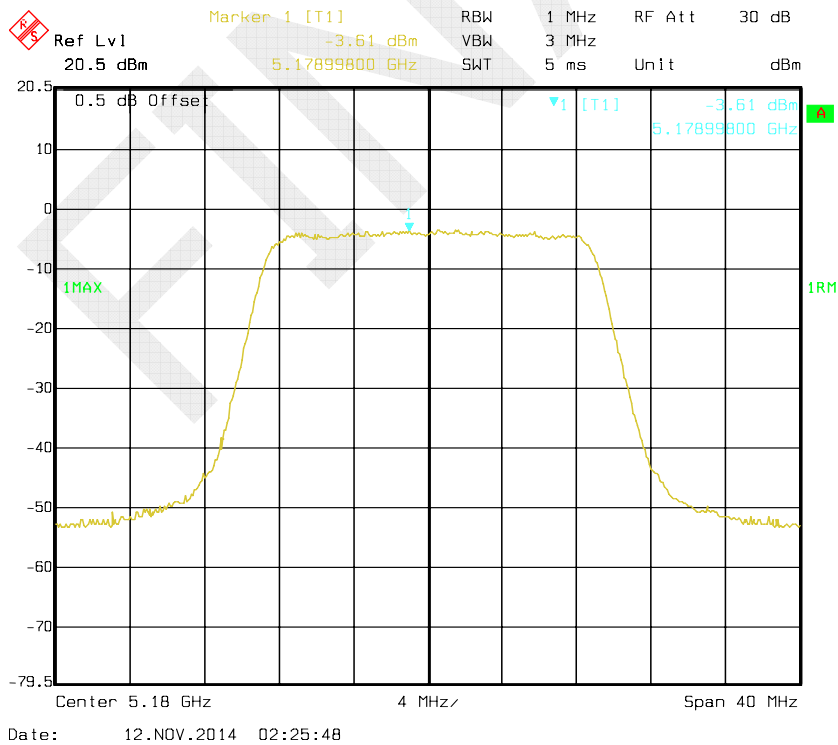


Date: 12.NOV.2014 01:51:06

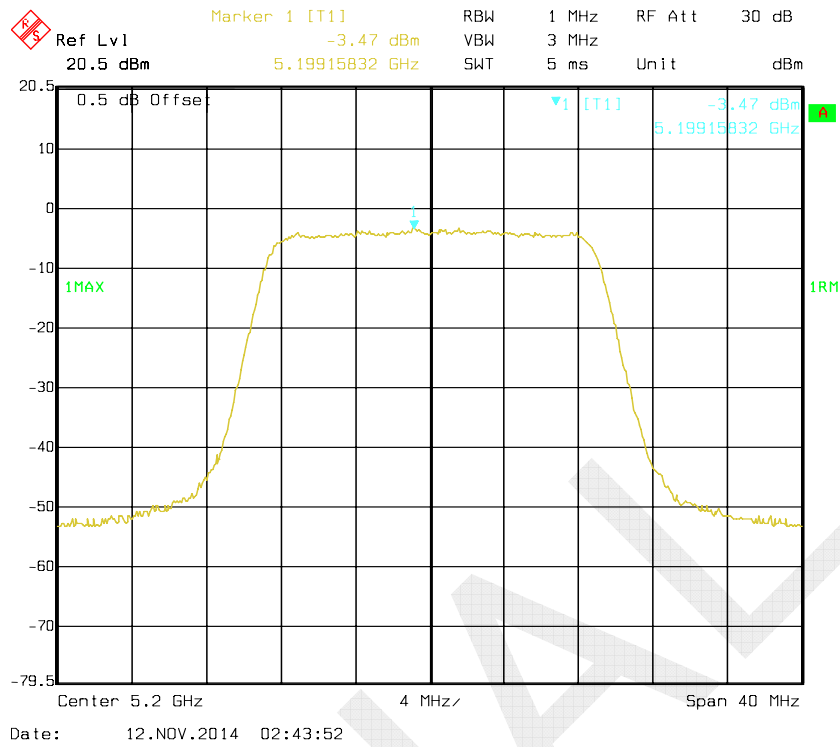
802.11a High Channel



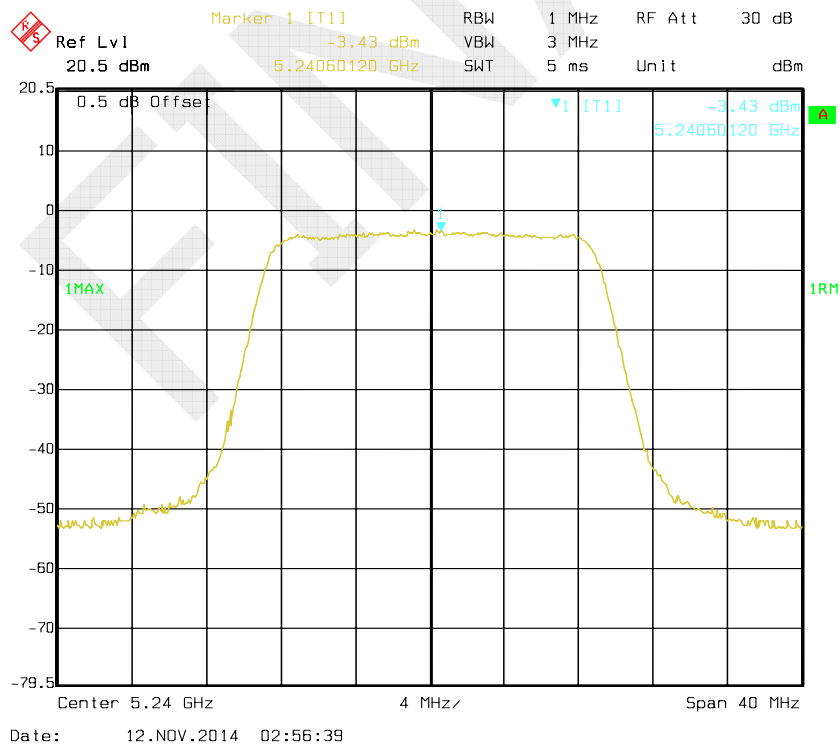
802.11n ht20 Low Channel



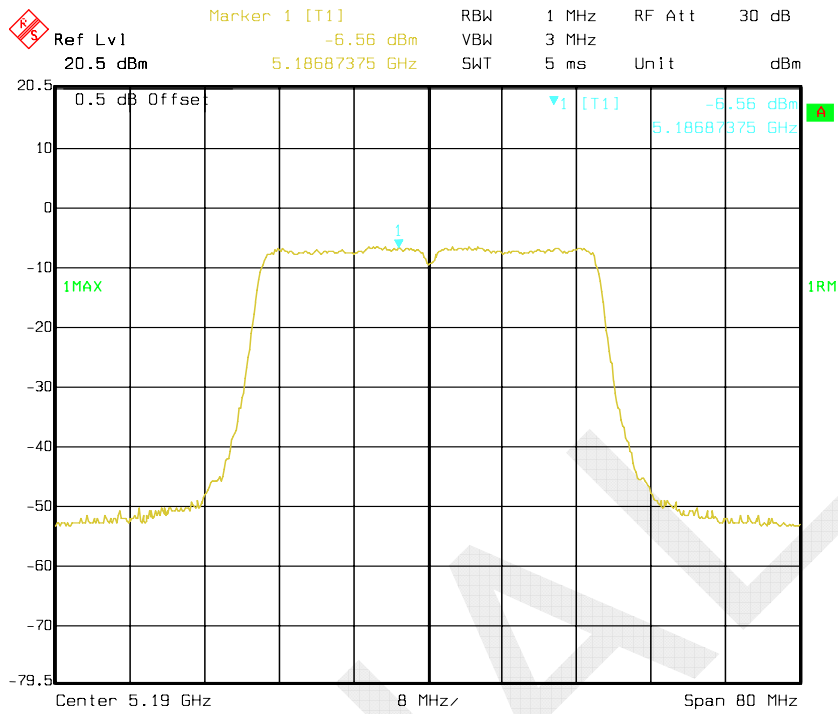
802.11n ht20 Middle Channel



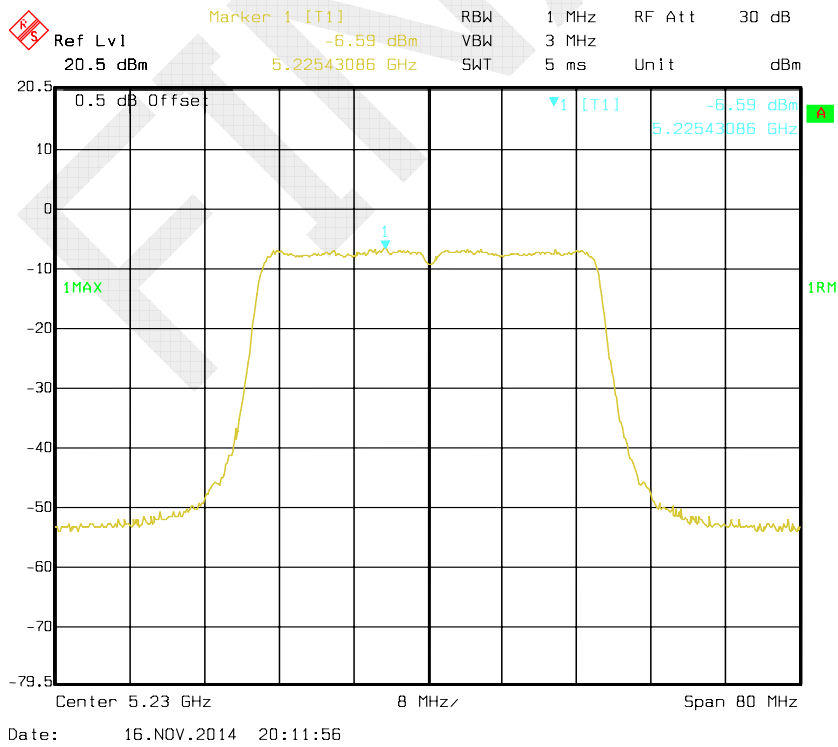
802.11n ht20 High Channel



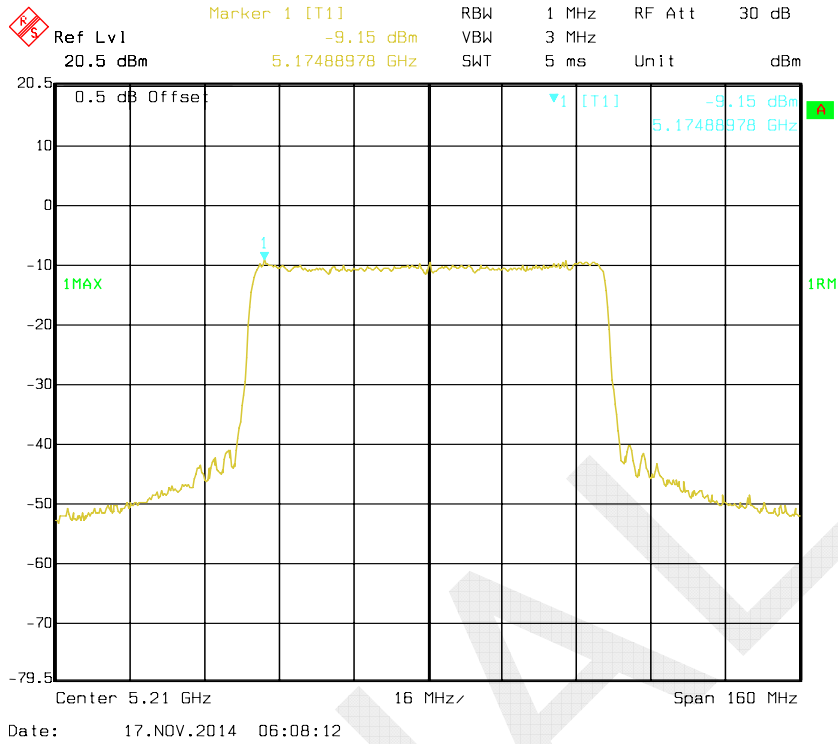
802.11n ht40 Low Channel



802.11n ht40 High Channel

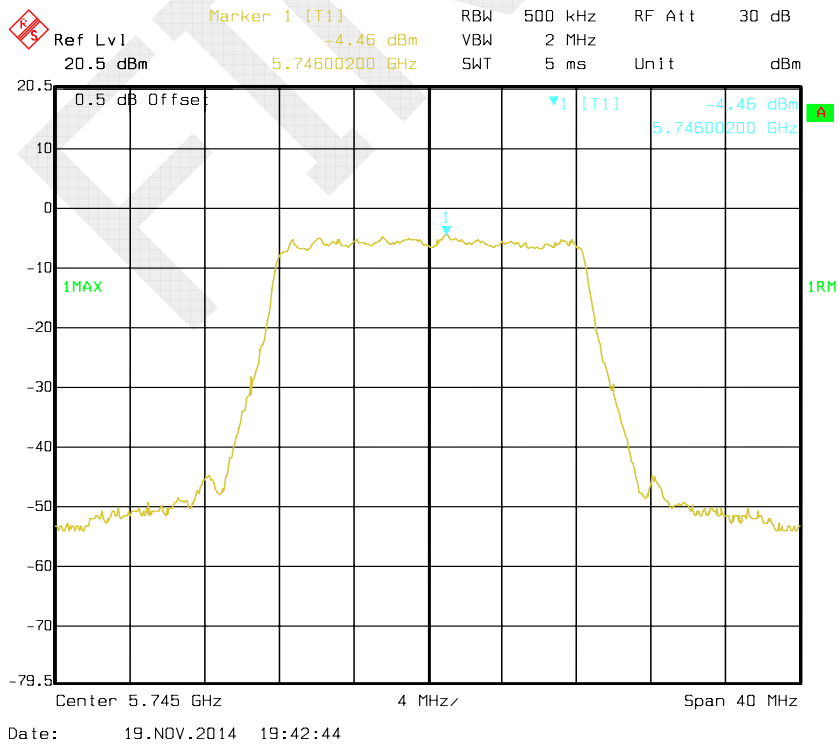


802.11n ac80

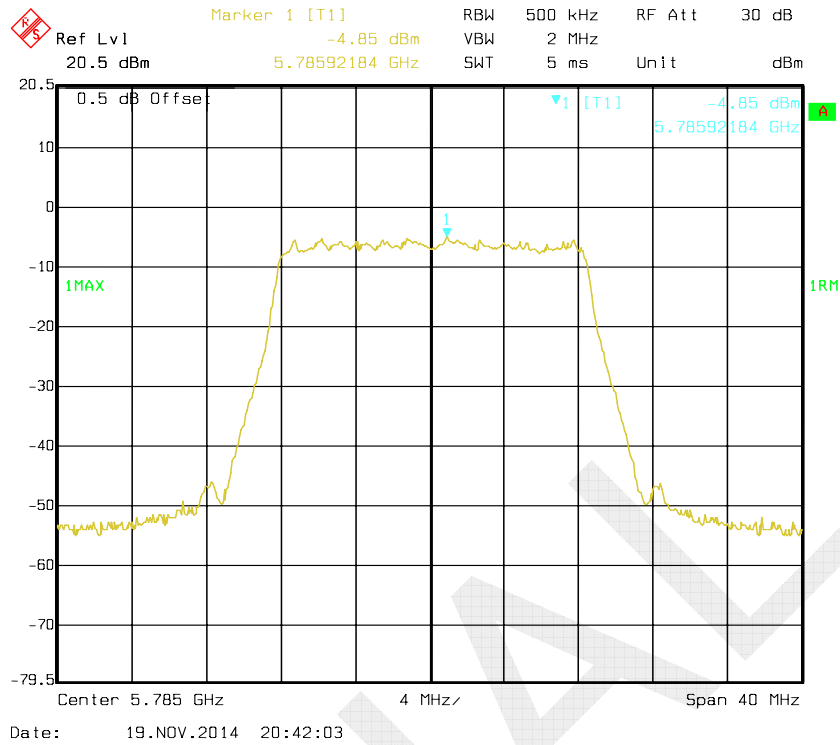


5725MHz-5850MHz:

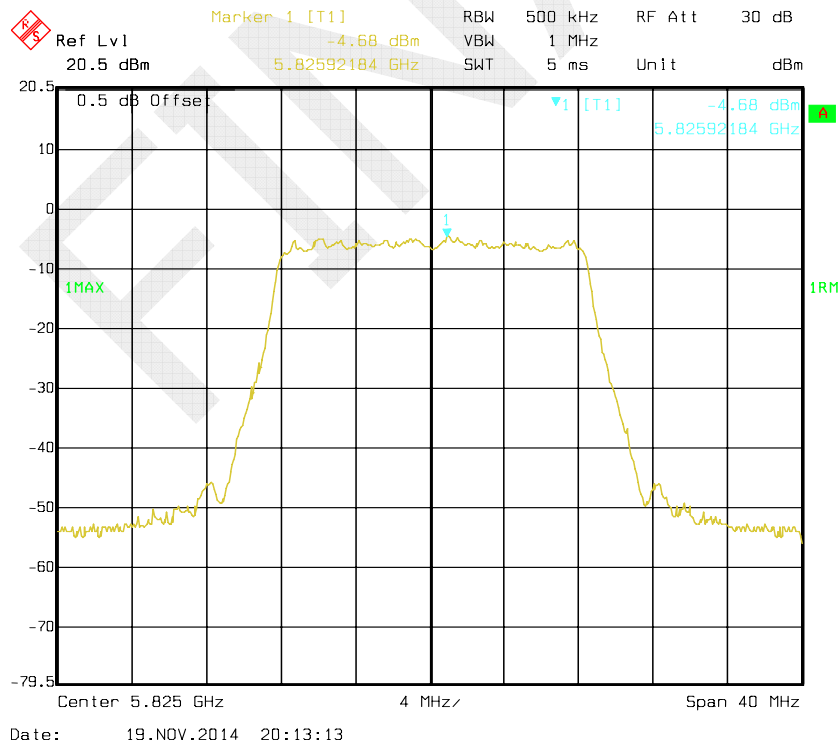
802.11a Low Channel



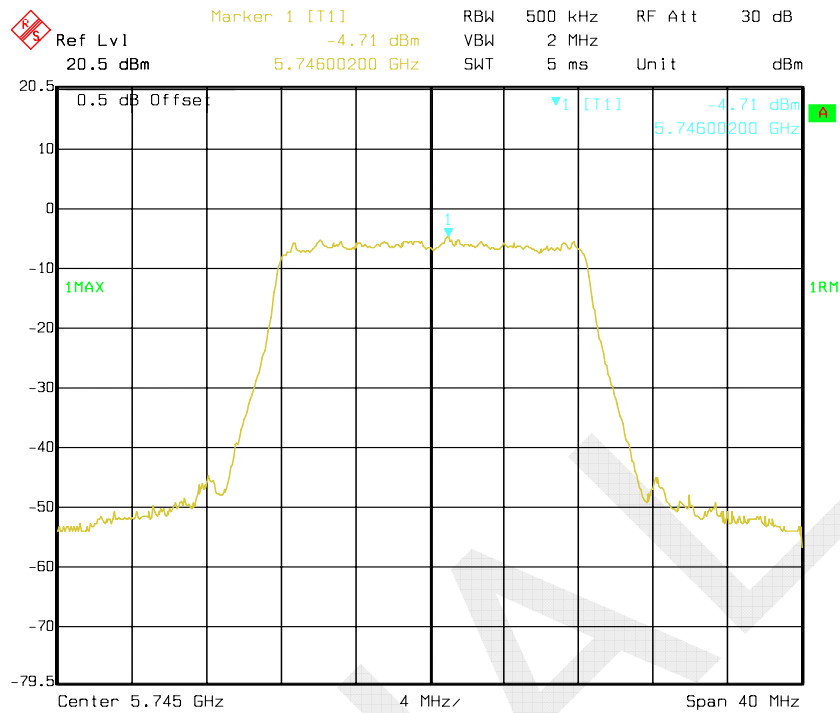
802.11a Middle Channel



802.11a High Channel

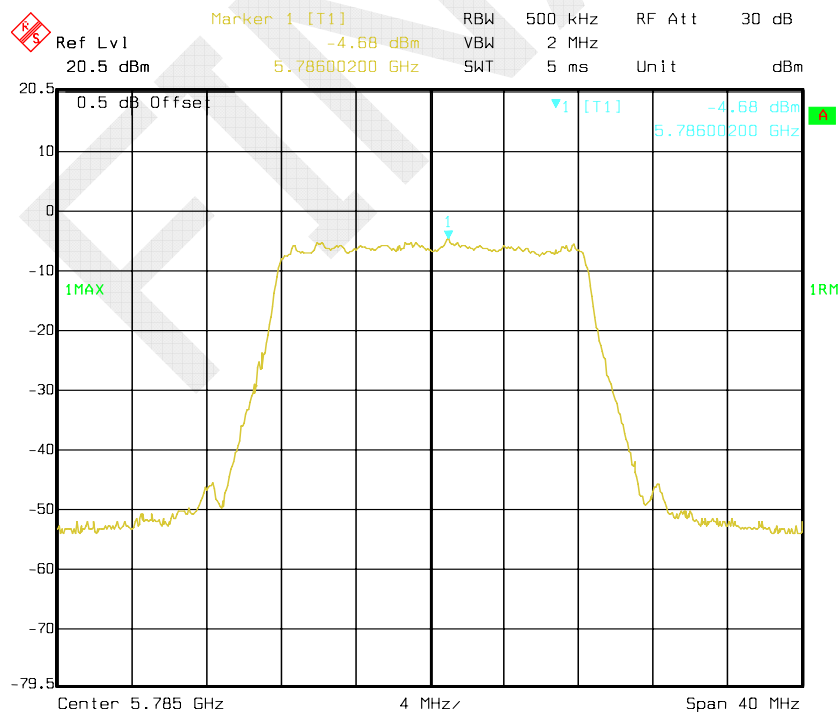


802.11n ht20 Low Channel



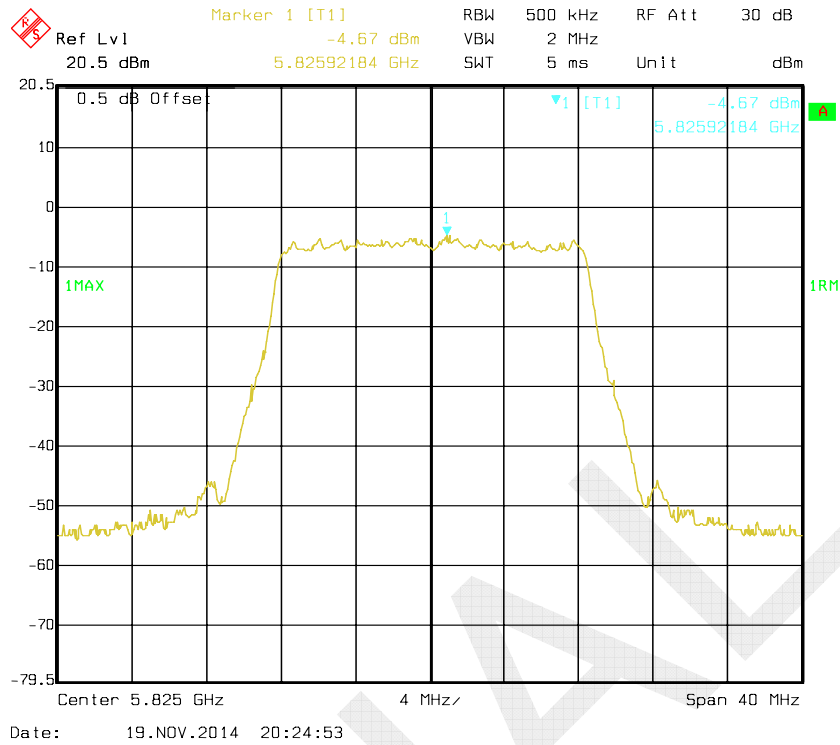
Date: 19.NOV.2014 20:37:38

802.11n ht20 Middle Channel

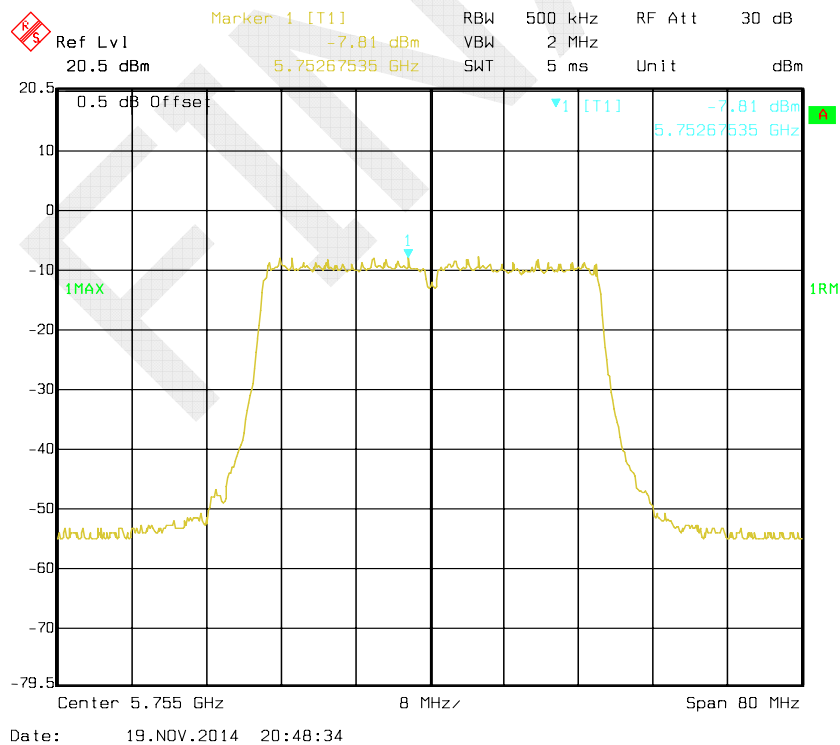


Date: 19.NOV.2014 20:28:38

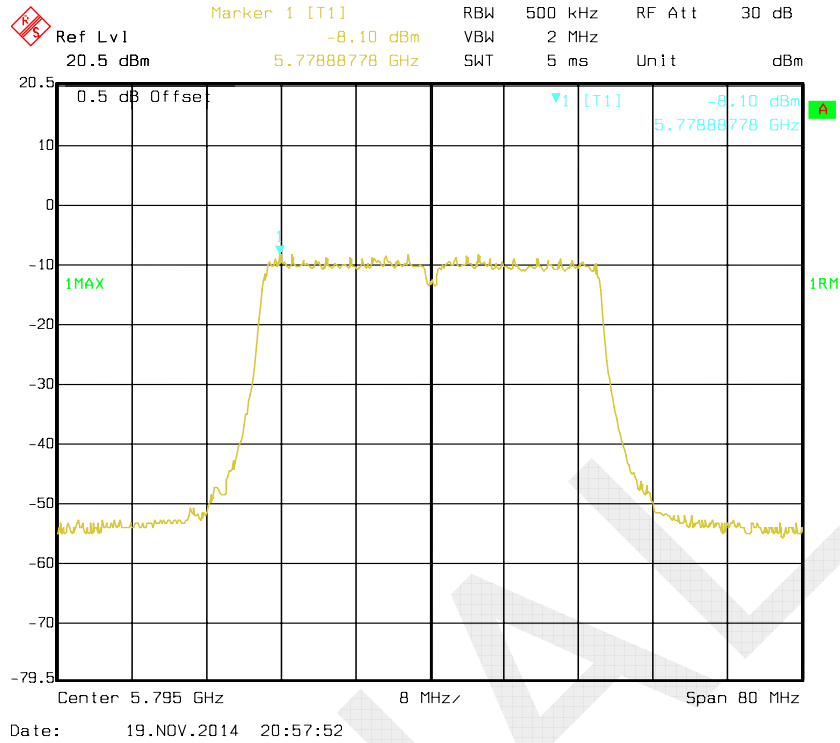
802.11n ht20 High Channel



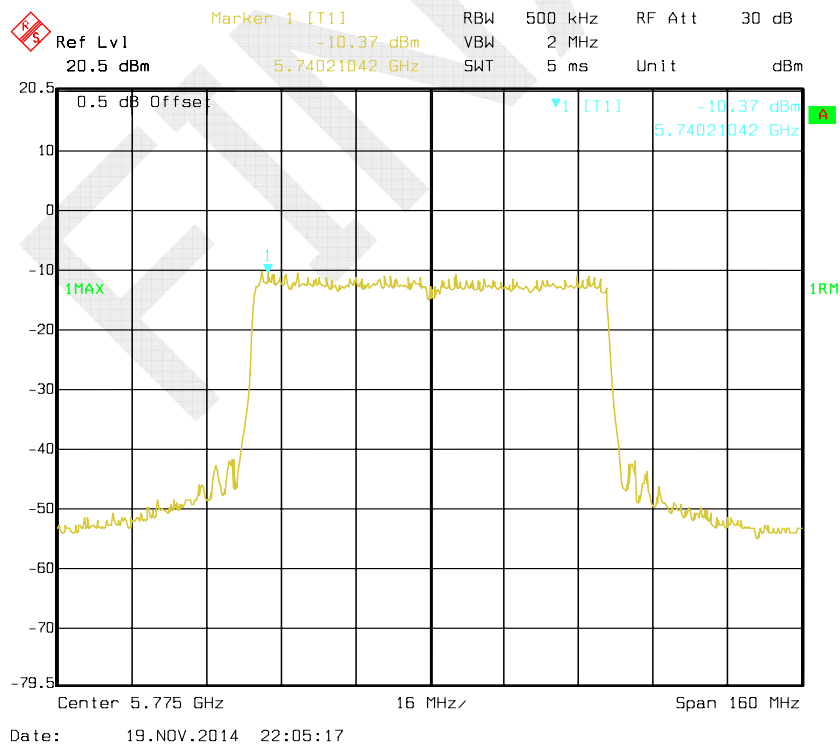
802.11n ht40 Low Channel



802.11n ht40 High Channel



802.11n ac80



DECLARATION LETTER



ZIONCOM ELECTRONICS (SHENZHEN) LTD.

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Product Similarity[®] Declaration

Date: 2014-11-18

To Whom It May Concern,

We, ZIONCOM ELECTRONICS (SHENZHEN) LTD., hereby declare that our product AC600 Wireless Dual Band USB Adapter, Model Number: A1000UA, WL0273 are electrically identical with the same electromagnetic emissions and electromagnetic compatibility characteristics. They are certified by BACL. Their only difference is the model name.

The rest are the same.

Please contact me if you have any question.

Signature:

A handwritten signature in black ink, appearing to read "Stone Xu", is written over a light gray grid background.

Stone Xu

Project Manager

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