5. BAND EDGE COMPLIANCE TEST

5.1. Limits

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 30dB below the fundamental emissions, or comply with 15.209 limits.

5.2. Test setup

The EUT was placed on a turn table which was 1.5 m above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 m away from the receiving antenna which was mounted on an antenna tower. The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 m to 4 m for both horizontal and vertical polarizations.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure.
For conduct test, VBW is set at 300kHz and RBW is set at 100kHz for measurement.
Note: 1. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

2. For Both PK and AV value above 1GHz，PK detector is used。

Remark: All emission out of band are more than 30dB lower than fundamental.

For radiated test as follows:

	Frequency (MHz)	Antenna polarization (H/V)	Emission (dBuV/m)	Band edge Limit (dBuV/m)		Result
			PK	PK	AV	Pass
802.11b	<2400	H	51.11	74.00	54.00	Pass
	<2400	V	50.28	74.00	54.00	Pass
	>2483.5	H	50.35	74.00	54.00	Pass
	>2483.5	V	50.07	74.00	54.00	Pass
802.11g	<2400	H	51.25	74.00	54.00	Pass
	<2400	V	50.38	74.00	54.00	Pass
	>2483.5	H	50.11	74.00	54.00	Pass
	>2483.5	V	49.89	74.00	54.00	Pass
802.11n(HT20)	<2400	H	51.34	74.00	54.00	Pass
	<2400	V	50.61	74.00	54.00	Pass
	>2483.5	H	50.74	74.00	54.00	Pass
	>2483.5	V	50.18	74.00	54.00	Pass
802.11n(HT40)	<2400	H	50.89	74.00	54.00	Pass
	<2400	V	50.41	74.00	54.00	Pass
	>2483.5	H	50.33	74.00	54.00	Pass
	>2483.5	V	50.26	74.00	54.00	Pass

If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

6. 6DB OCCUPY BANDWIDTH

6.1. Limits

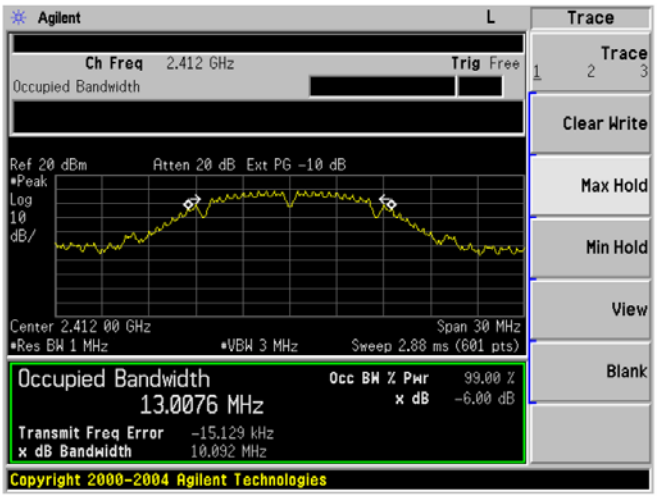
For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz
Test data:

	Frequency (MHz)	**6dB Bandwidth (MHz)**	**99% Bandwidth (MHz**	**Limit (MHz)**	**Result**
802.11b	2412	10.05	13.01	>0.5	Pass
	2437	10.02	12.99	>0.5	Pass
	2462	10.05	12.68	>0.5	Pass
802.11g	2412	16.49	16.36	>0.5	Pass
	2437	16.49	16.40	>0.5	Pass
	2462	16.44	16.38	>0.5	Pass
802.11n (HT20)	2412	17.69	17.55	>0.5	Pass
	2437	17.64	17.56	>0.5	Pass
	2462	17.69	17.53	>0.5	Pass
802.11n (HT40)	2422	36.38	35.73	>0.5	Pass
	2437	36.34	35.81	>0.5	Pass
	2452	36.39	35.74	>0.5	Pass

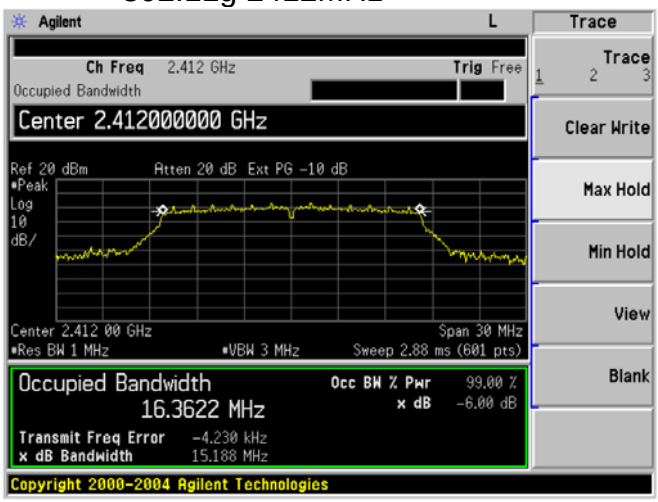
Test plot as follows:

99% bandwith

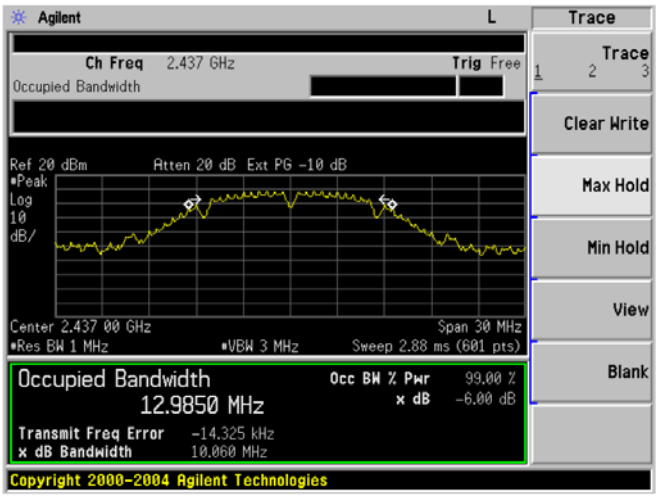
802.11b 2412MHz



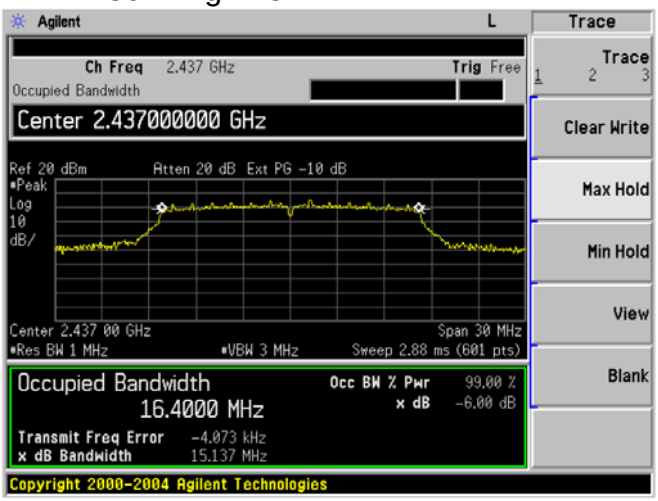
802.11g 2412MHz



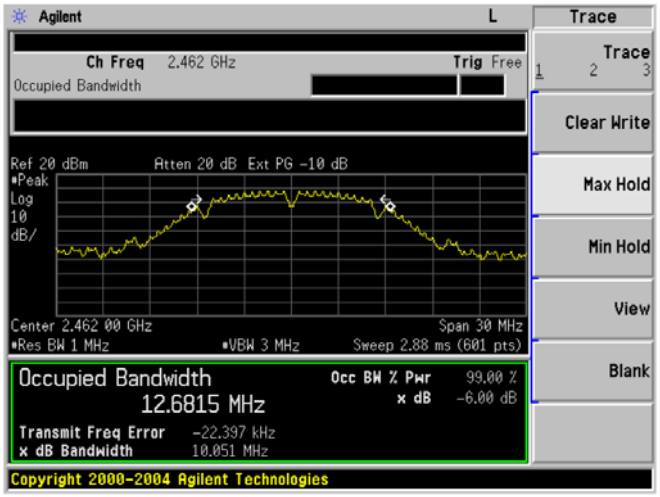
802.11b 2437MHz



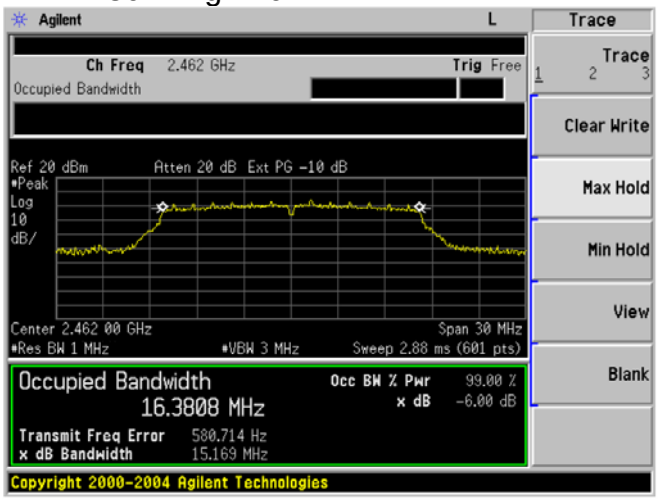
802.11g 2437MHz



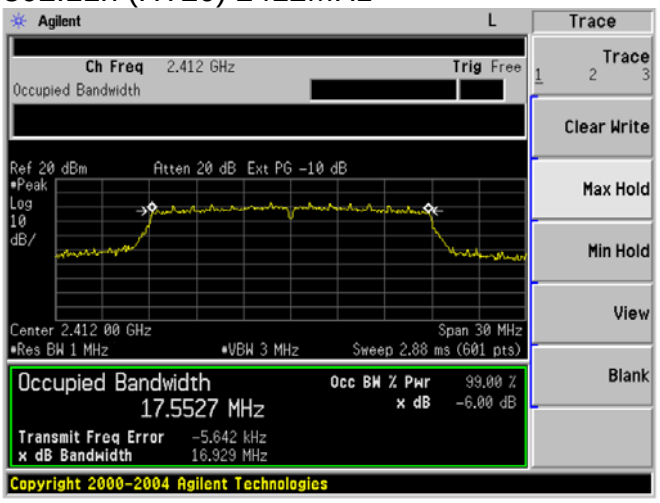
802.11b 2462MHz



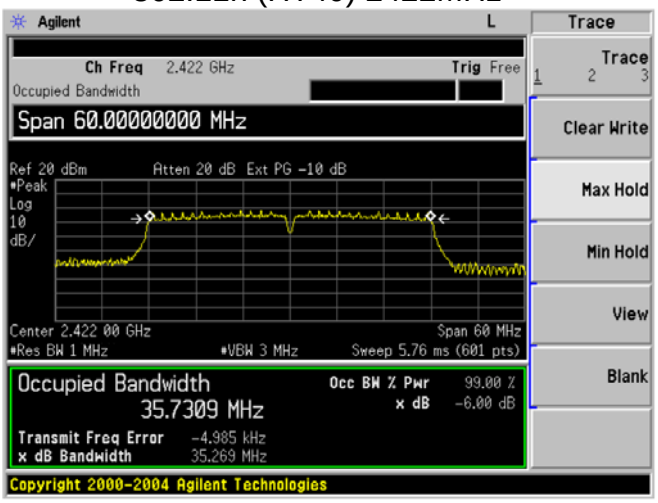
802.11g 2462MHz



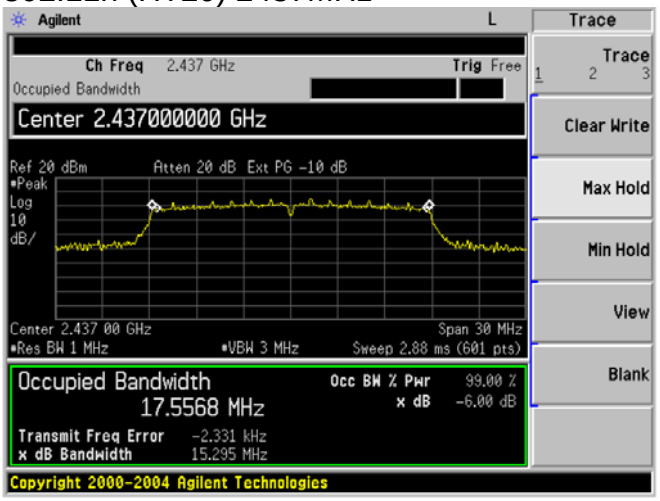
802.11n (HT20) 2412MHz



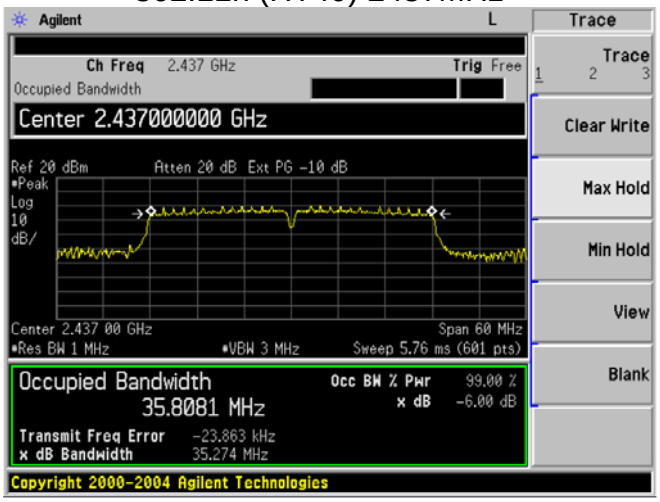
802.11n (HT40) 2422MHz



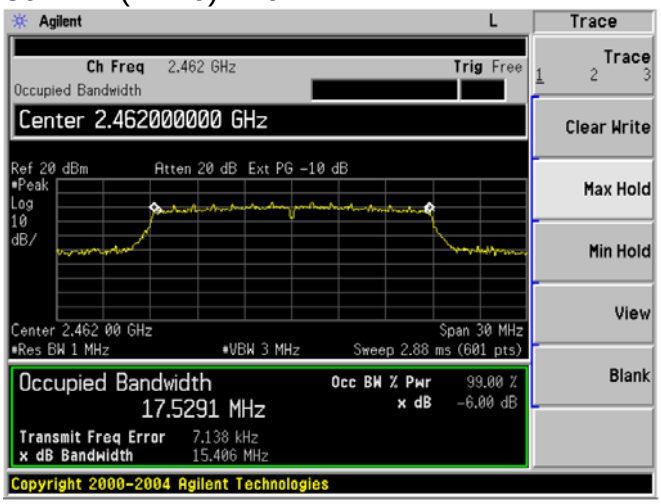
802.11n (HT20) 2437MHz



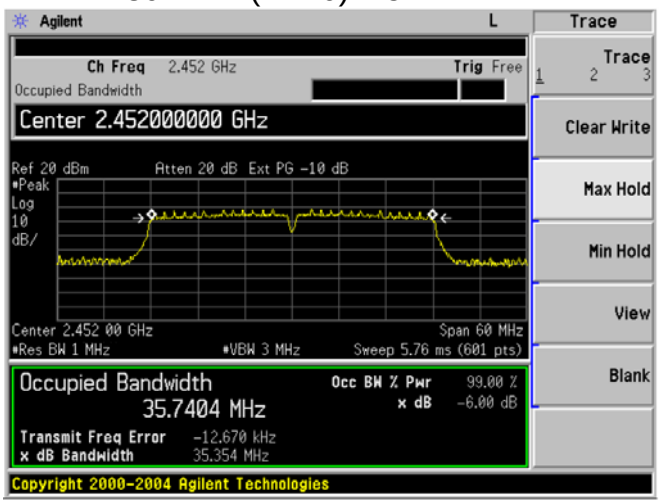
802.11n (HT40) 2437MHz



802.11n(HT20) 2462MHz

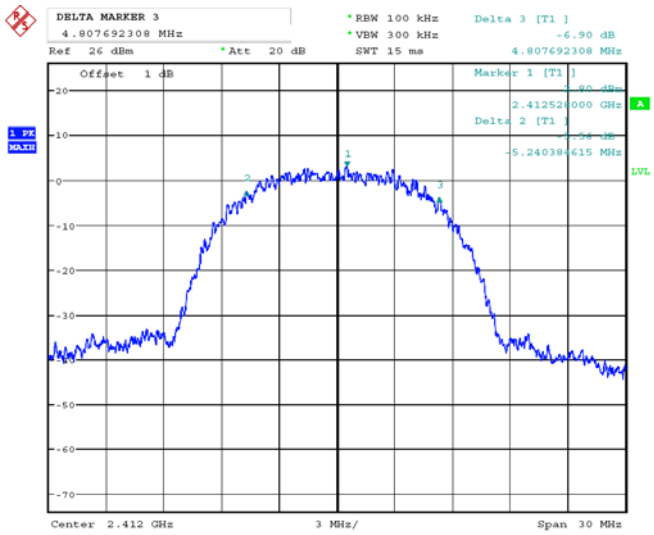


802.11n (HT40)2452MHz

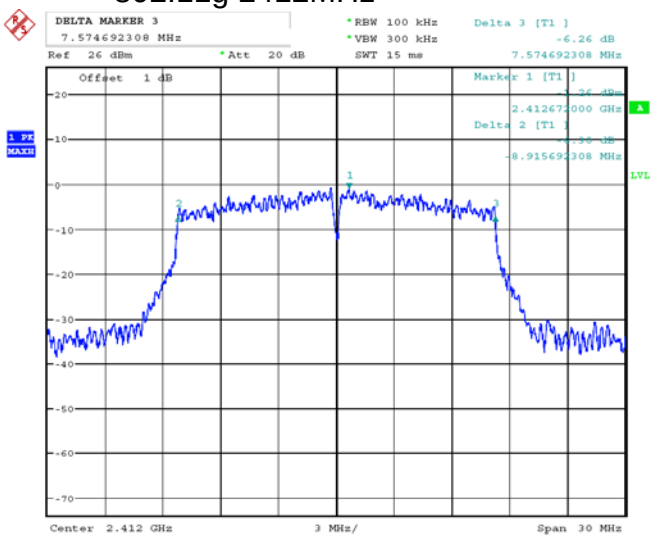


6dB bandwith

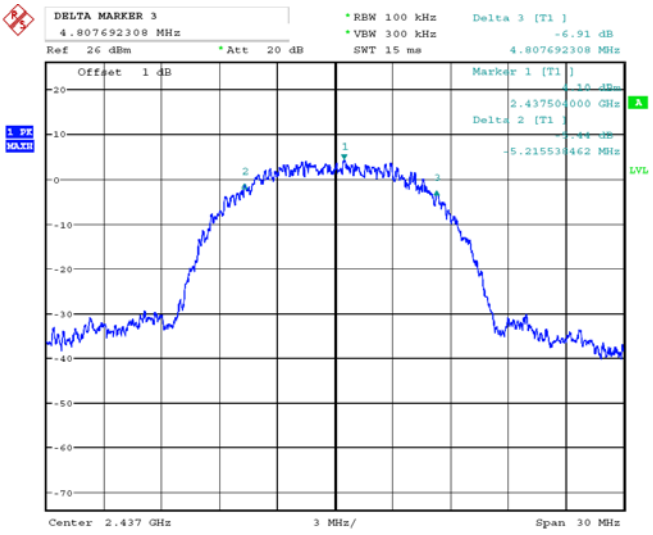
802.11b 2412MHz



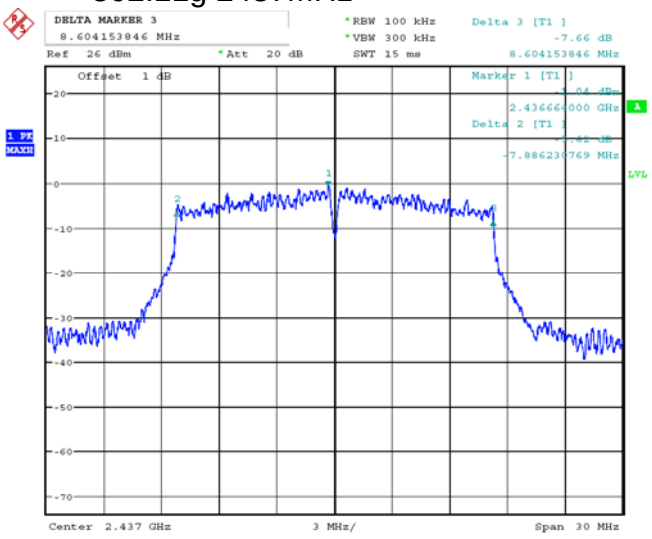
802.11g 2412MHz



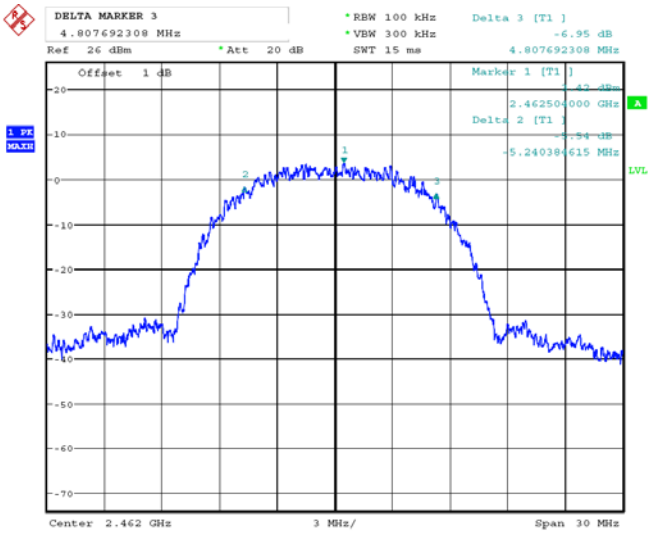
802.11b 2437MHz



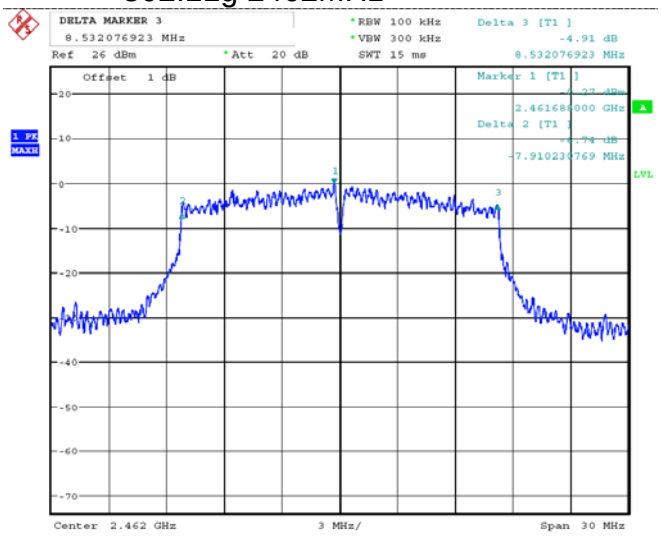
802.11g 2437MHz



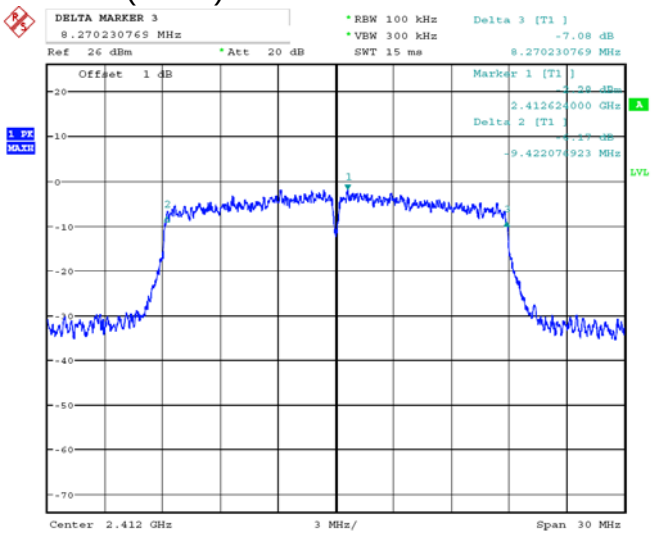
802.11b 2462MHz



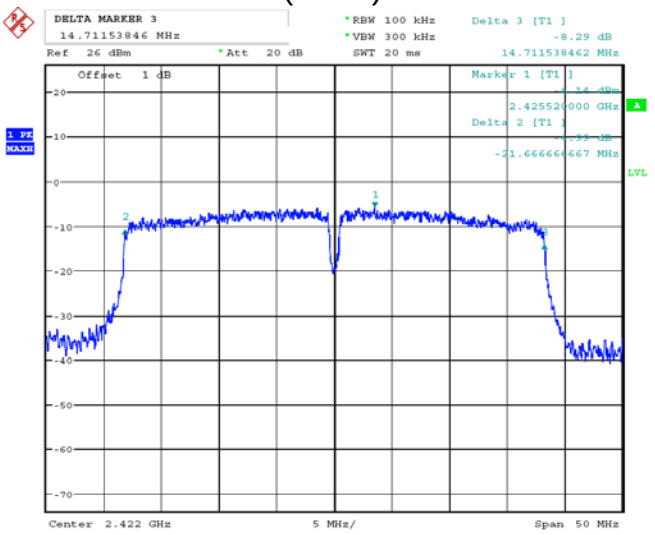
802.11g 2462MHz



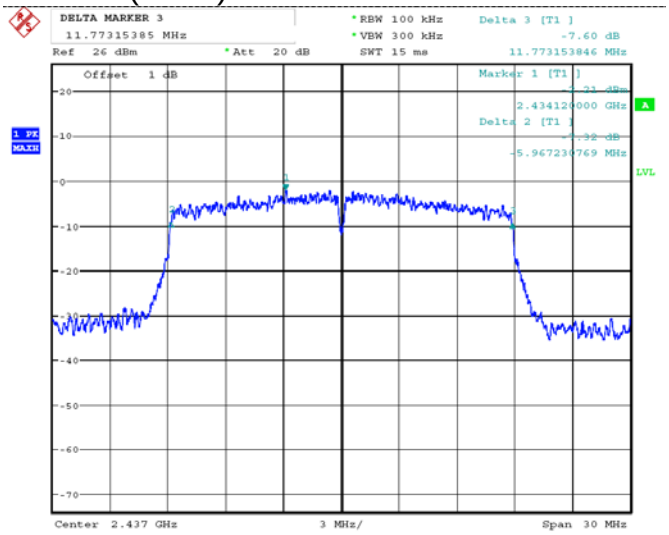
802.11n (HT20) 2412MHz



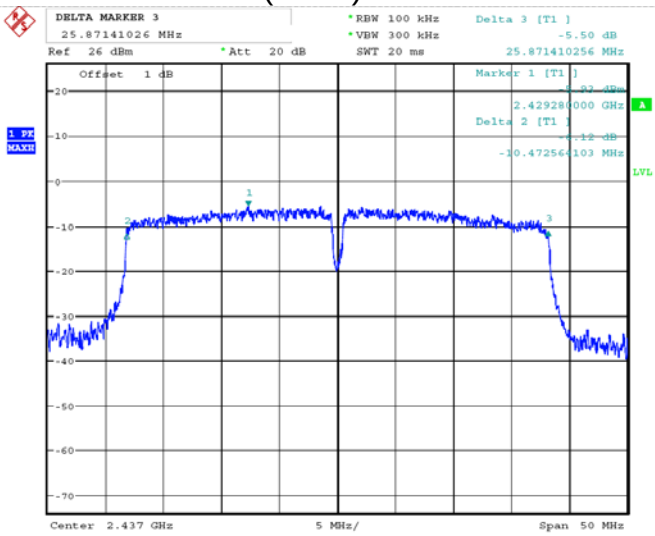
802.11n (HT40) 2422MHz



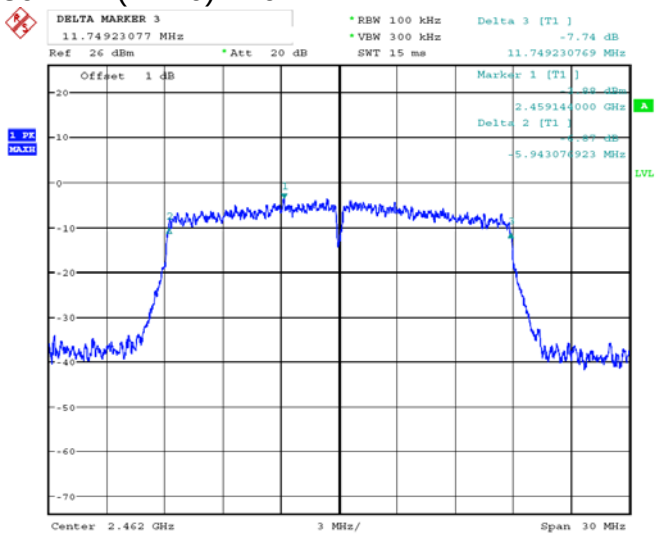
802.11n (HT20) 2437MHz



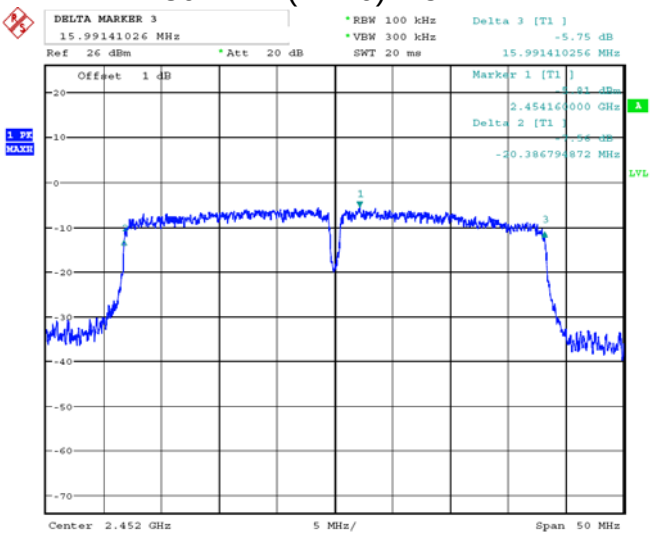
802.11n (HT40) 2437MHz



802.11n(HT20) 2462MHz



802.11n (HT40)2452MHz



7. OUTPUT POWER TEST

7.1. Limits

For systems using digital modulation in the 2400~2483.5MHz, The out put Power shall not exceed 1W (30dBm)

7.2. Test setup

1. The Transmitter output (antenna port) was connected to the power meter.
2. Turn on the EUT and power meter and then record the power value.
3. Repeat above procedures on all channels needed to be tested.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

7.3. Test result

	Frequency (MHz)	**Output Power(dBm)**	**Limit (dBm)**	**Result**
802.11b	2412	15.45	30	Pass
	2437	15.47	30	Pass
	2462	15.38	30	Pass
802.11g	2412	14.33	30	Pass
	2437	14.07	30	Pass
	2462	13.99	30	Pass
802.11n(HT20)	2412	12.94	30	Pass
	2437	13.06	30	Pass
	2462	13.09	30	Pass
802.11n(HT40)	2422	11.05	30	Pass
	2437	11.37	30	Pass
	2452	11.28	30	Pass

8. POWER SPECTRAL DENSITY TEST

8.1. Limits

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

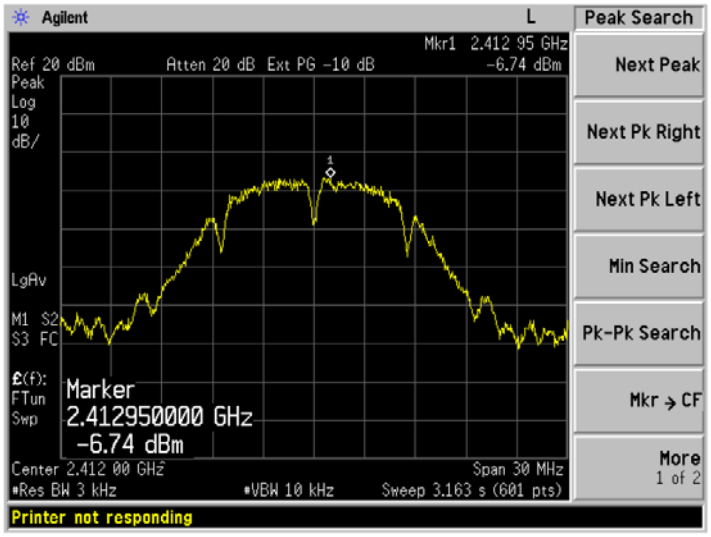
8.2. Test setup

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW =3kHz.
4. Set the VBW ≥3 times RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.

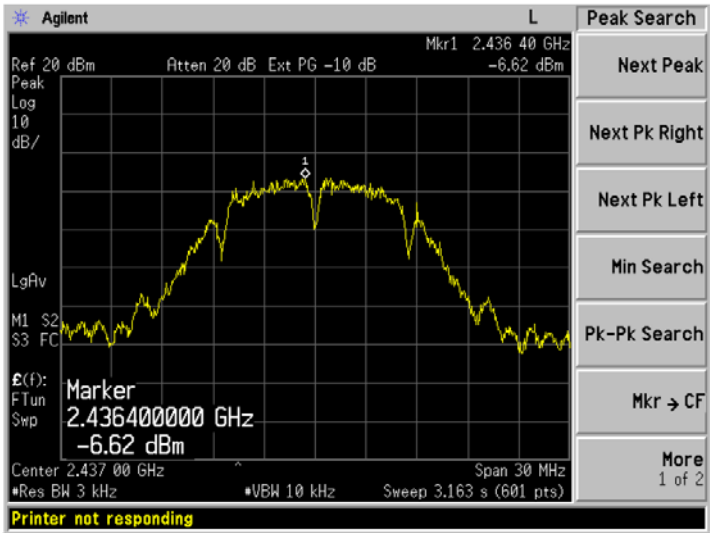
8.3. Test result

	Channel Frequency (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Result
802.11b	2412	-6.74	8	Pass
	2437	-6.62	8	Pass
	2462	-3.31	8	Pass
802.11g	2412	-11.41	8	Pass
	2437	-9.97	8	Pass
	2462	-10.68	8	Pass
802.11n (HT20)	2412	-17.14	8	Pass
	2437	-9.57	8	Pass
	2462	-10.48	8	Pass
802.11n (HT40)	2422	-16.46	8	Pass
	2437	-14.50	8	Pass
	2452	-15.58	8	Pass

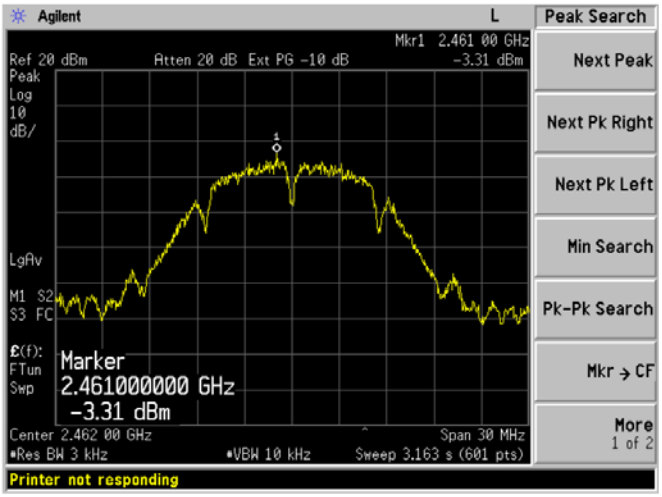
802.11b 2412MHz



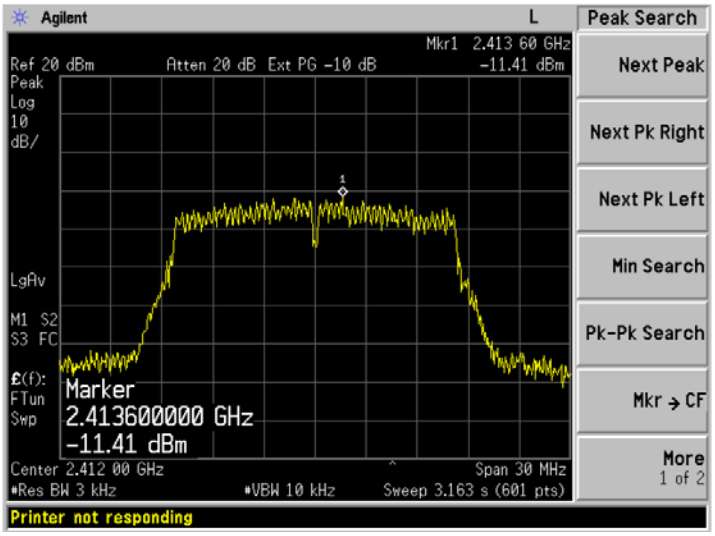
802.11b 2437MHz



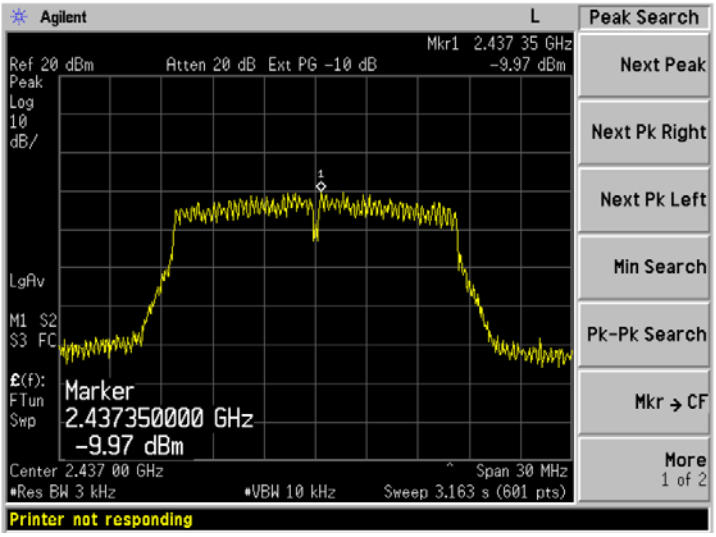
802.11b 2462MHz



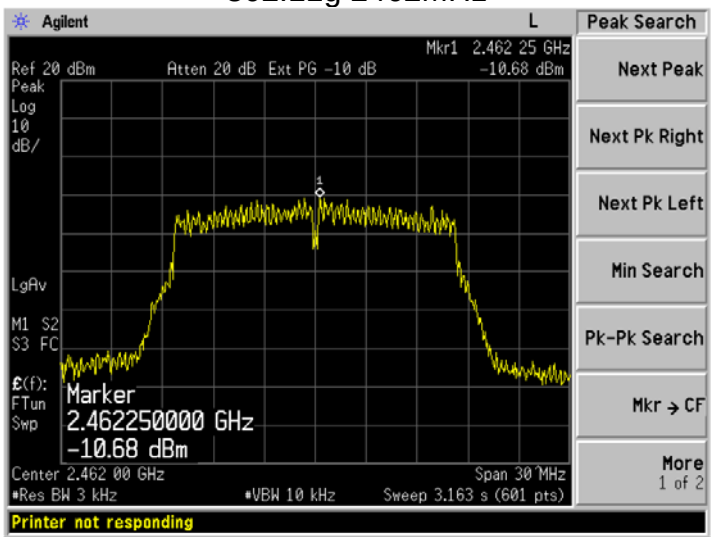
802.11g 2412MHz



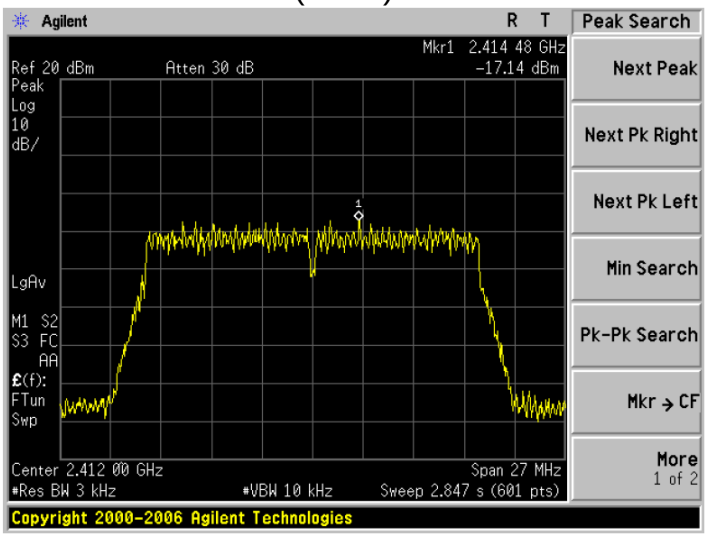
802.11g 2437MHz



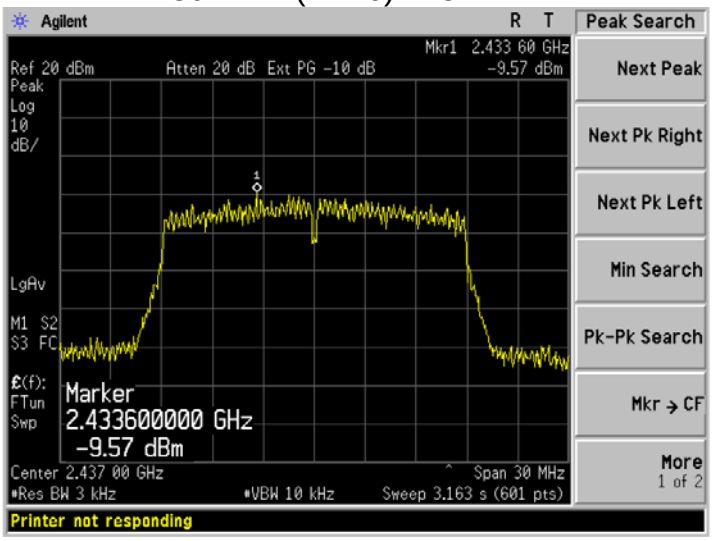
802.11g 2462MHz



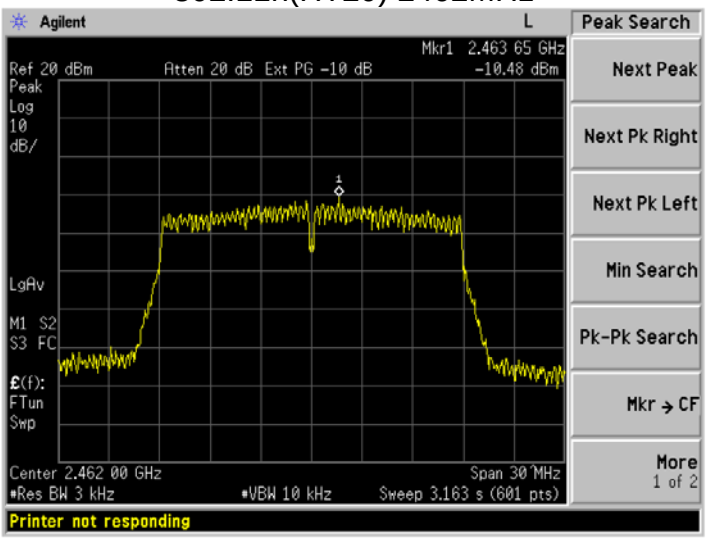
802.11n (HT20) 2412MHz



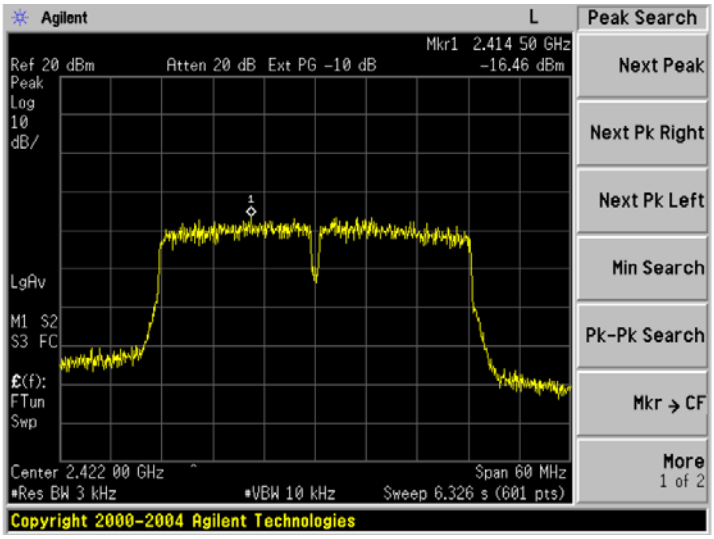
802.11n (HT20) 2437MHz



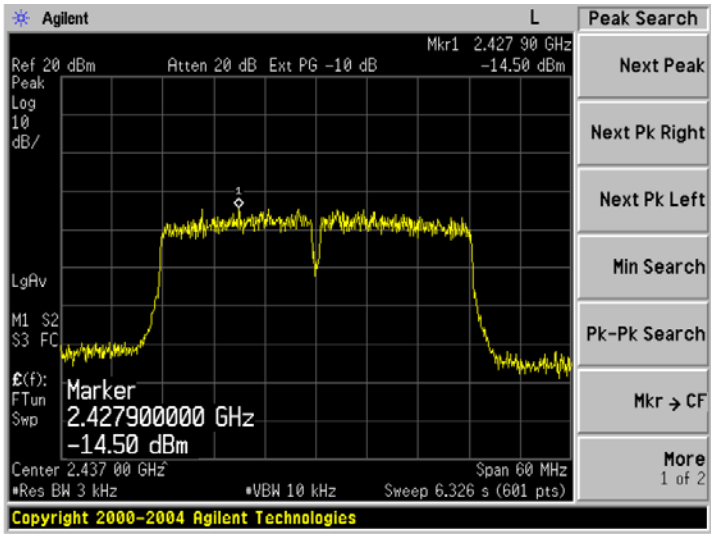
802.11n(HT20) 2462MHz



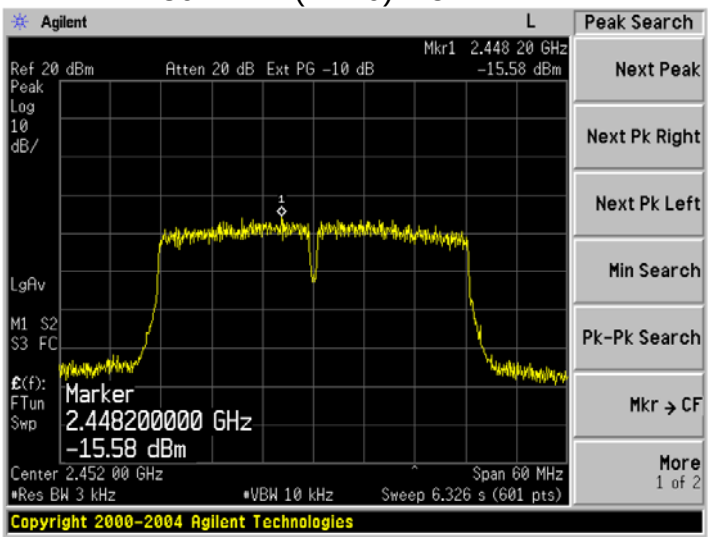
802.11 n (HT40) 2422MHz



802.11 n (HT40) 2437MHz



802.11 n (HT40)2452MHz



9. ANTENNA REQUIREMENTS

9.1. Limits

For intentional device, according to FCC 47 CFR Section 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

9.2. Result

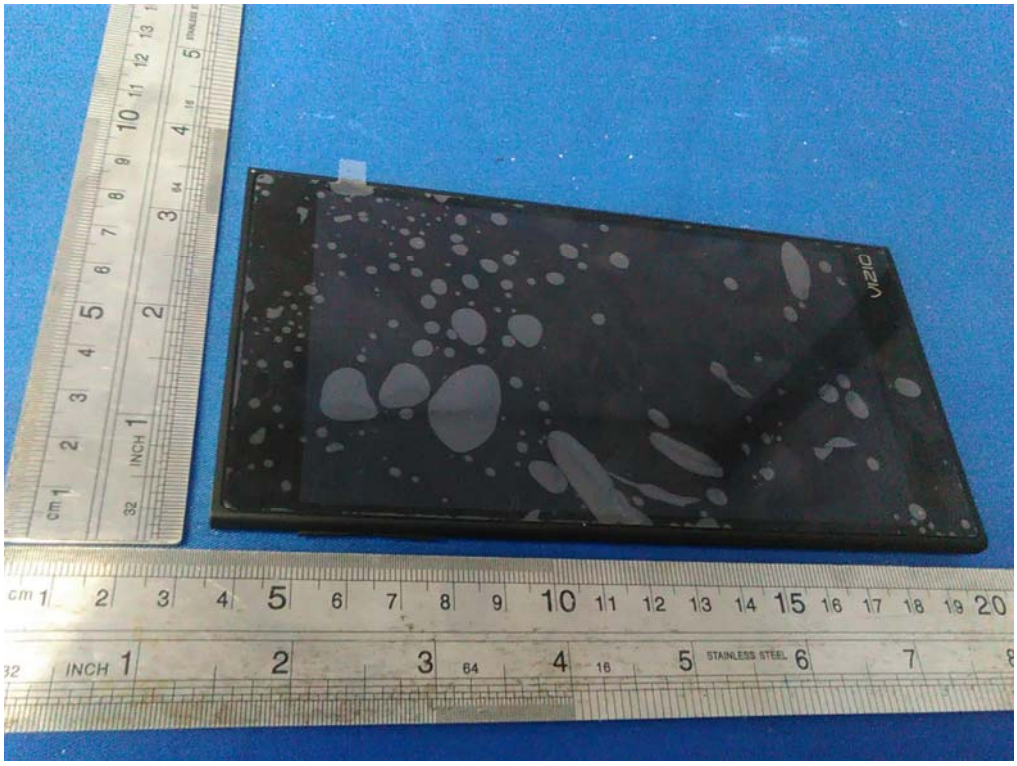
The antennas used for this product are permanent attached antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 1.0dBi.

10. PHOTOGRAPHS OF TEST SET-UP

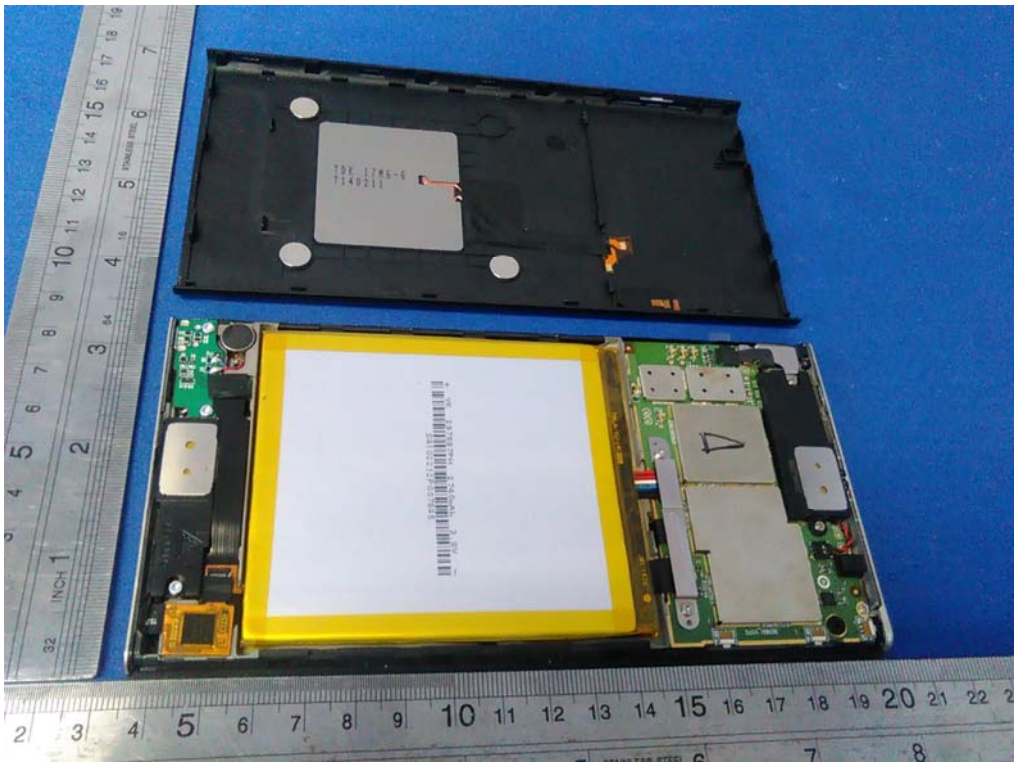
Conducted Emission

Radiated Emission Test

11. PHOTOGRAPHS OF THE EUT


VIZIO
STAINLESS STEEL


STAINLESS STEEL



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