Test Mode: TX / IEEE 802.11g (CH High) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** Junary 1, 2018

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1252.000	51.07	-7.60	43.47	74.00	-30.53	V	Peak
2467.000	46.52	-2.44	44.08	74.00	-29.92	V	Peak
4933.000	46.77	4.76	51.53	74.00	-22.47	V	Peak
6490.000	41.19	6.87	48.06	74.00	-25.94	V	Peak
7390.000	42.21	8.46	50.67	74.00	-23.33	V	Peak
8092.000	41.15	9.60	50.75	74.00	-23.25	V	Peak
1252.000	50.05	-7.60	42.45	74.00	-31.55	H	Peak
2458.000	48.55	-2.49	46.06	74.00	-27.94	H	Peak
4933.000	41.64	4.76	46.40	74.00	-27.60	H	Peak
5482.000	41.00	5.84	46.84	74.00	-27.16	H	Peak
7165.000	40.84	8.02	48.86	74.00	-25.14	H	Peak
7381.000	43.24	8.44	51.68	74.00	-22.32	H	Peak

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Combine with antenna 0, antenna 1, antenna 2 and Antenna 3

Test Mode: TX / IEEE 802.11n HT20 MHz (CH Low) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** Junary 1, 2018

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1252.000	51.40	-7.60	43.80	74.00	-30.20	V	Peak
2215.000	46.38	-3.82	42.56	74.00	-31.44	V	Peak
2413.000	57.32	-2.74	54.58	74.00	-19.42	V	Peak
2413.000	49.20	-2.74	46.46	54.00	-7.54	V	AVG
4834.000	46.32	4.44	50.76	74.00	-23.24	V	Peak
7237.000	44.65	8.16	52.81	74.00	-21.19	V	Peak
7237.000	42.53	8.16	50.69	54.00	-3.31	V	AVG
8002.000	40.98	9.65	50.63	74.00	-23.37	V	Peak
1252.000	49.59	-7.60	41.99	74.00	-32.01	H	Peak
1999.000	46.09	-5.01	41.08	74.00	-32.92	H	Peak
2422.000	51.31	-2.69	48.62	74.00	-25.38	H	Peak
4825.000	45.31	4.41	49.72	74.00	-24.28	H	Peak
6472.000	40.56	6.84	47.40	74.00	-26.60	H	Peak
7237.000	41.56	8.16	49.72	74.00	-24.28	H	Peak

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Test Mode: TX / IEEE 802.11n HT20 MHz (CH Mid) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** Junary 1, 2018

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1252.000	51.83	-7.60	44.23	74.00	-29.77	V	Peak
2440.000	52.10	-2.59	49.51	74.00	-24.49	V	Peak
4870.000	45.28	4.56	49.84	74.00	-24.16	V	Peak
6796.000	41.34	7.37	48.71	74.00	-25.29	V	Peak
7309.000	44.55	8.30	52.85	74.00	-21.15	V	Peak
7309.000	41.01	8.30	49.31	54.00	-4.69	V	AVG
7921.000	41.85	9.50	51.35	74.00	-22.65	V	Peak
1252.000	49.11	-7.60	41.51	74.00	-32.49	H	Peak
2431.000	52.57	-2.64	49.93	74.00	-24.07	H	Peak
4870.000	45.24	4.56	49.80	74.00	-24.20	H	Peak
5419.000	40.41	5.73	46.14	74.00	-27.86	H	Peak
6778.000	40.51	7.34	47.85	74.00	-26.15	H	Peak
7318.000	42.19	8.32	50.51	74.00	-23.49	H	Peak

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Test Mode: TX / EEE 802.11n HT20 MHz (CH High) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** Junary 1, 2018

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1252.000	51.34	-7.60	43.74	74.00	-30.26	V	Peak
2458.000	54.15	-2.49	51.66	74.00	-22.34	V	Peak
3745.000	42.01	0.51	42.52	74.00	-31.48	V	Peak
4924.000	45.11	4.73	49.84	74.00	-24.16	V	Peak
7390.000	42.69	8.46	51.15	74.00	-22.85	V	Peak
8398.000	41.04	9.43	50.47	74.00	-23.53	V	Peak
1252.000	50.01	-7.60	42.41	74.00	-31.59	H	Peak
2467.000	50.12	-2.44	47.68	74.00	-26.32	H	Peak
4924.000	44.97	4.73	49.70	74.00	-24.30	H	Peak
5500.000	40.86	5.87	46.73	74.00	-27.27	H	Peak
6544.000	40.10	6.96	47.06	74.00	-26.94	H	Peak
7390.000	45.69	8.46	54.15	74.00	-19.85	H	Peak
7390.000	41.06	8.46	49.52	54.00	-4.48	H	AVG

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Combine with antenna 0, antenna 1, antenna 2 and Antenna 3

Test Mode: TX/ IEEE 802.11n HT40 MHz (CH Low) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** Junary 1, 2018

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1252.000	50.83	-7.60	43.23	74.00	-30.77	V	Peak
2422.000	50.71	-2.69	48.02	74.00	-25.98	V	Peak
4861.000	41.78	4.53	46.31	74.00	-27.69	V	Peak
5446.000	40.48	5.77	46.25	74.00	-27.75	V	Peak
7264.000	40.86	8.21	49.07	74.00	-24.93	V	Peak
8425.000	40.38	9.42	49.80	74.00	-24.20	V	Peak
1252.000	49.83	-7.60	42.23	74.00	-31.77	H	Peak
2440.000	48.96	-2.59	46.37	74.00	-27.63	H	Peak
3790.000	42.03	0.70	42.73	74.00	-31.27	H	Peak
4843.000	43.04	4.47	47.51	74.00	-26.49	H	Peak
6850.000	40.59	7.46	48.05	74.00	-25.95	H	Peak
7984.000	41.24	9.62	50.86	74.00	-23.14	H	Peak

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Test Mode: TX / IEEE 802.11n HT40 MHz (CH Mid) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** Junary 1, 2018

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1252.000	51.31	-7.60	43.71	74.00	-30.29	V	Peak
2431.000	50.56	-2.64	47.92	74.00	-26.08	V	Peak
4870.000	43.27	4.56	47.83	74.00	-26.17	V	Peak
6346.000	41.42	6.64	48.06	74.00	-25.94	V	Peak
7309.000	41.75	8.30	50.05	74.00	-23.95	V	Peak
8371.000	42.06	9.45	51.51	74.00	-22.49	V	Peak
1252.000	50.40	-7.60	42.80	74.00	-31.20	H	Peak
2431.000	50.20	-2.64	47.56	74.00	-26.44	H	Peak
4870.000	43.25	4.56	47.81	74.00	-26.19	H	Peak
5563.000	41.06	5.90	46.96	74.00	-27.04	H	Peak
7318.000	41.60	8.32	49.92	74.00	-24.08	H	Peak
7867.000	40.69	9.39	50.08	74.00	-23.92	H	Peak

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Test Mode: TX / IEEE 802.11n HT40 MHz (CH High) **Tested by:** Darry Wu

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** Junary 1, 2018

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1252.000	51.86	-7.60	44.26	74.00	-29.74	V	Peak
1900.000	45.91	-5.63	40.28	74.00	-33.72	V	Peak
2458.000	51.60	-2.49	49.11	74.00	-24.89	V	Peak
4879.000	42.94	4.59	47.53	74.00	-26.47	V	Peak
7363.000	42.77	8.41	51.18	74.00	-22.82	V	Peak
8119.000	40.30	9.58	49.88	74.00	-24.12	V	Peak
1252.000	49.67	-7.60	42.07	74.00	-31.93	H	Peak
1729.000	51.77	-6.42	45.35	74.00	-28.65	H	Peak
2440.000	50.98	-2.59	48.39	74.00	-25.61	H	Peak
4888.000	42.61	4.61	47.22	74.00	-26.78	H	Peak
7363.000	41.36	8.41	49.77	74.00	-24.23	H	Peak
8956.000	41.29	9.12	50.41	74.00	-23.59	H	Peak

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

7.3. 6dB BANDWIDTH MEASUREMENT

7.3.1. LIMITS

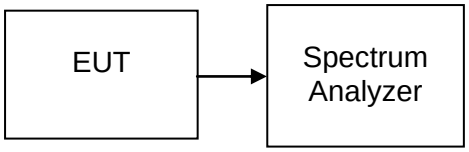
According to §15.247(a) (2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz.

7.3.2. TEST PROCEDURES (please refer to measurement standard)

8.1 Option 2:

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW ≥ 3 RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

7.3.3. TEST SETUP



This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

7.3.4. TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b

Channel	Frequency (MHz)	Bandwidth (kHz)				Limit (kHz)	Test Result
		antenna 0	antenna 1	antenna 2	antenna 3		
Low	2412	8030	7100	8027	8053	>500	PASS
Mid	2437	7136	8053	8031	7110		PASS
High	2462	8038	7550	8050	7100		PASS

Test mode: IEEE 802.11g

Channel	Frequency (MHz)	Bandwidth (kHz)				Limit (kHz)	Test Result
		antenna 0	antenna 1	antenna 2	antenna 3		
Low	2412	16340	16330	16330	16310	>500	PASS
Mid	2437	16310	16310	16320	16340		PASS
High	2462	16320	16320	16340	16320		PASS

Test mode: IEEE 802.11n HT20 MHz

Channel	Frequency (MHz)	Bandwidth (kHz)				Limit (kHz)	Test Result
		antenna 0	antenna 1	antenna 2	antenna 3		
Low	2412	17560	17530	17540	17580	>500	PASS
Mid	2437	17280	17030	17560	17550		PASS
High	2462	17250	17160	17560	16930		PASS

Test mode: IEEE 802.11n HT40 MHz

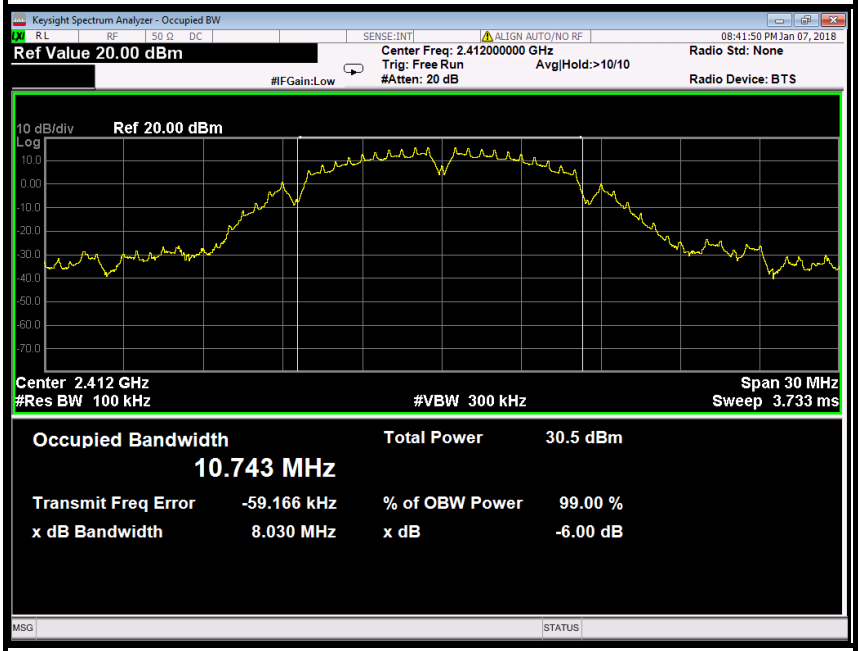
Channel	Frequency (MHz)	Bandwidth (kHz)				Limit (kHz)	Test Result
		antenna 0	antenna 1	antenna 2	antenna 3		
Low	2422	35910	36310	36320	36310	>500	PASS
Mid	2437	36030	36270	36320	36270		PASS
High	2452	35920	36280	36320	36310		PASS

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

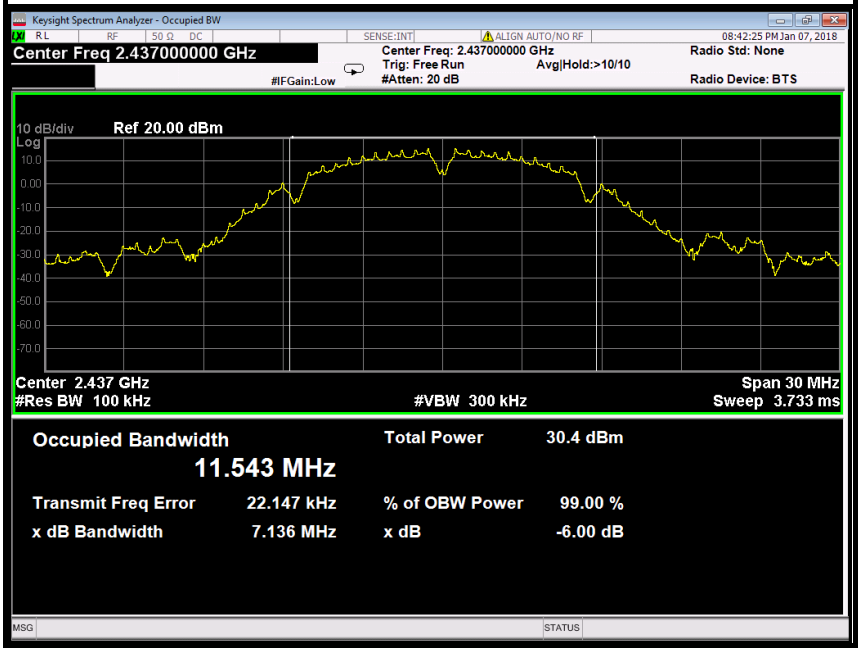
Test Plot

IEEE 802.11b mode (antenna 0)

6dB Bandwidth (CH Low)

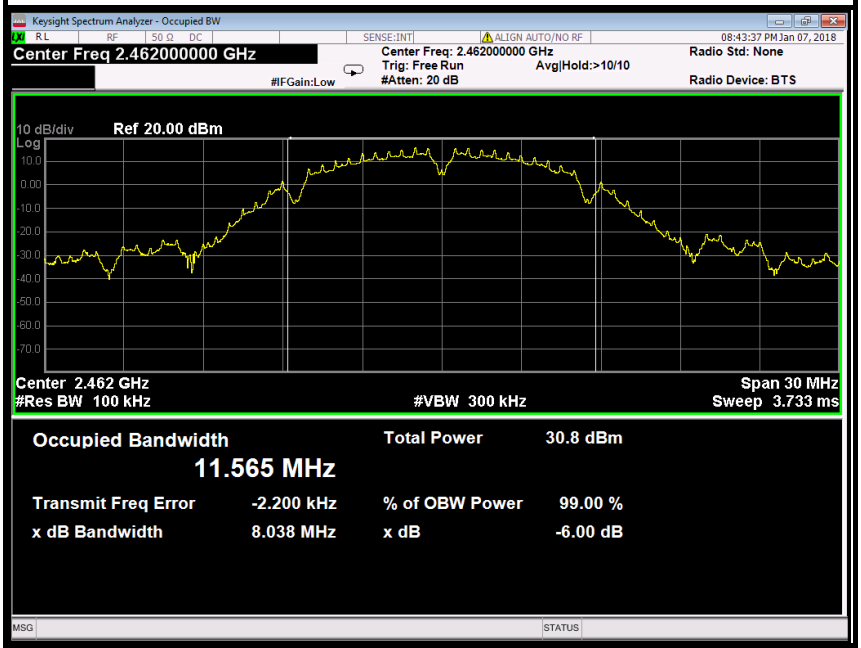


6dB Bandwidth (CH Mid)



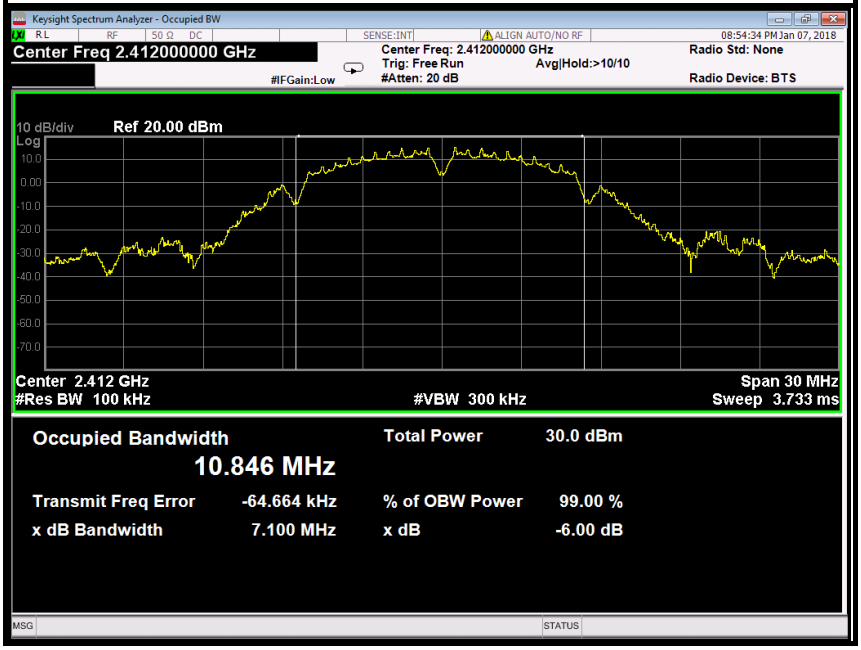
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH High)



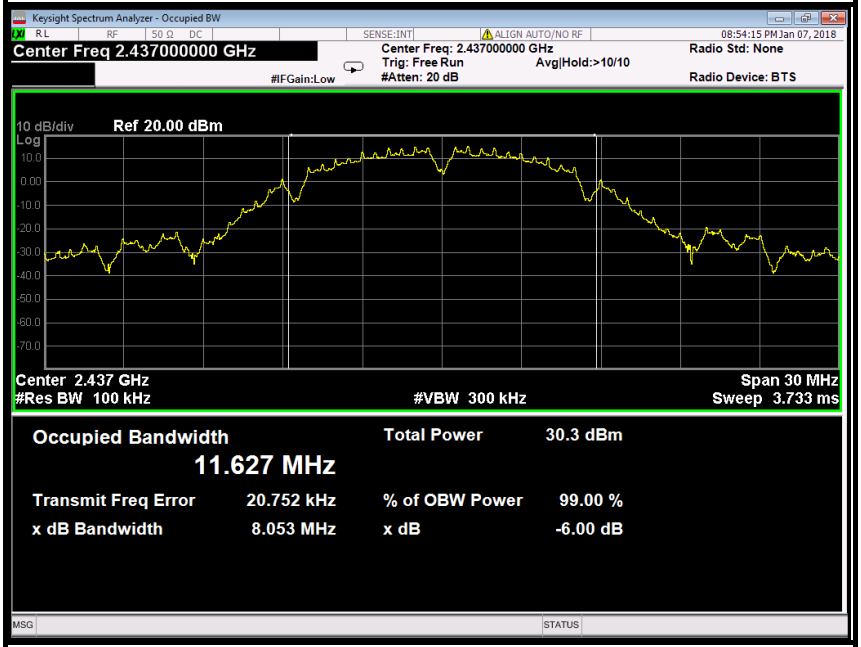
IEEE 802.11b mode (antenna 1)

6dB Bandwidth (CH Low)

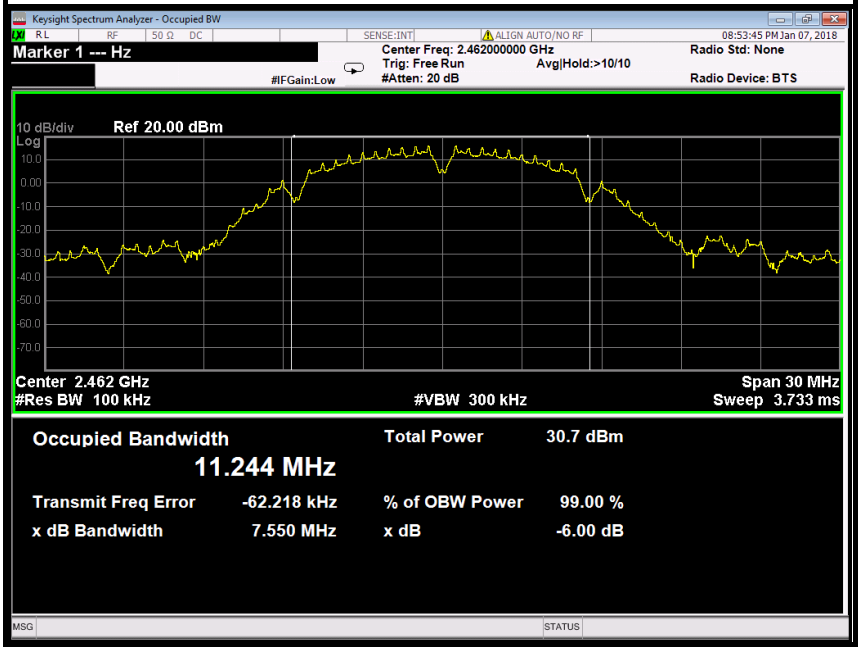


This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH Mid)



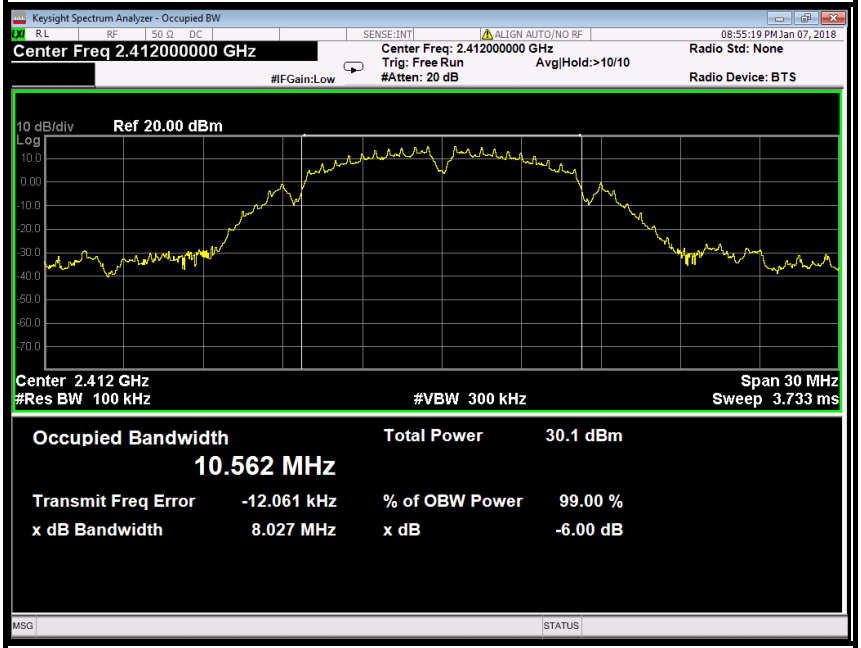
6dB Bandwidth (CH High)



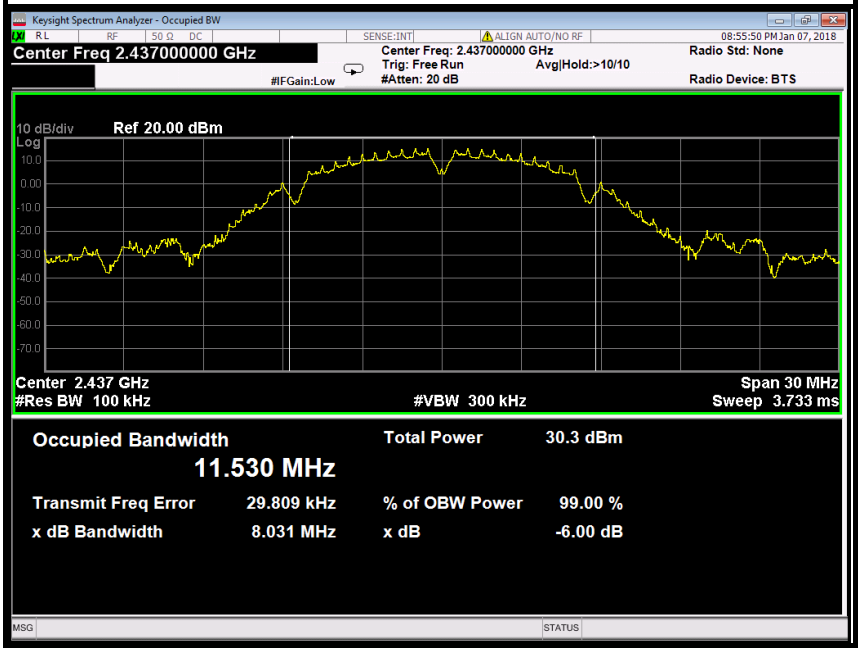
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

IEEE 802.11b mode (antenna 2)

6dB Bandwidth (CH Low)

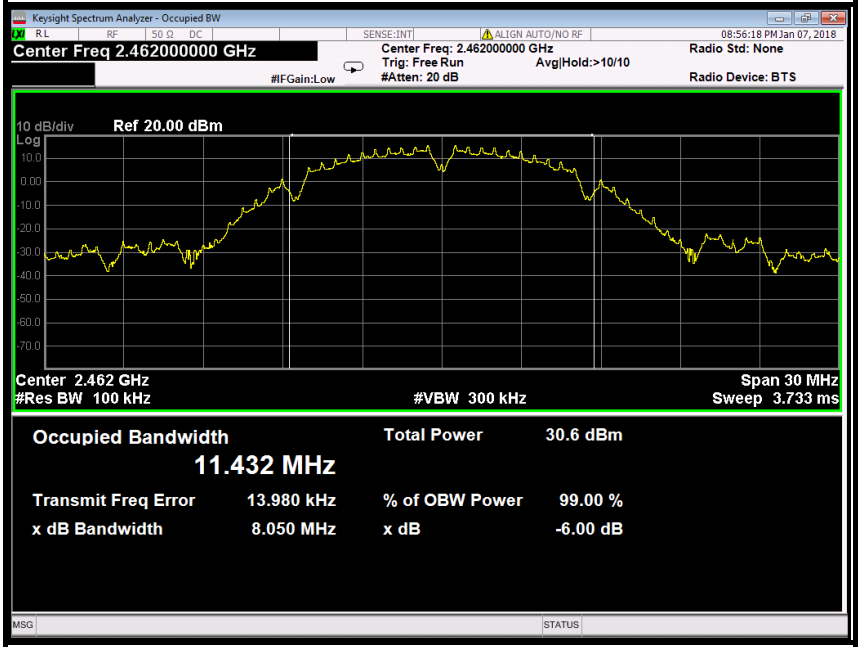


6dB Bandwidth (CH Mid)



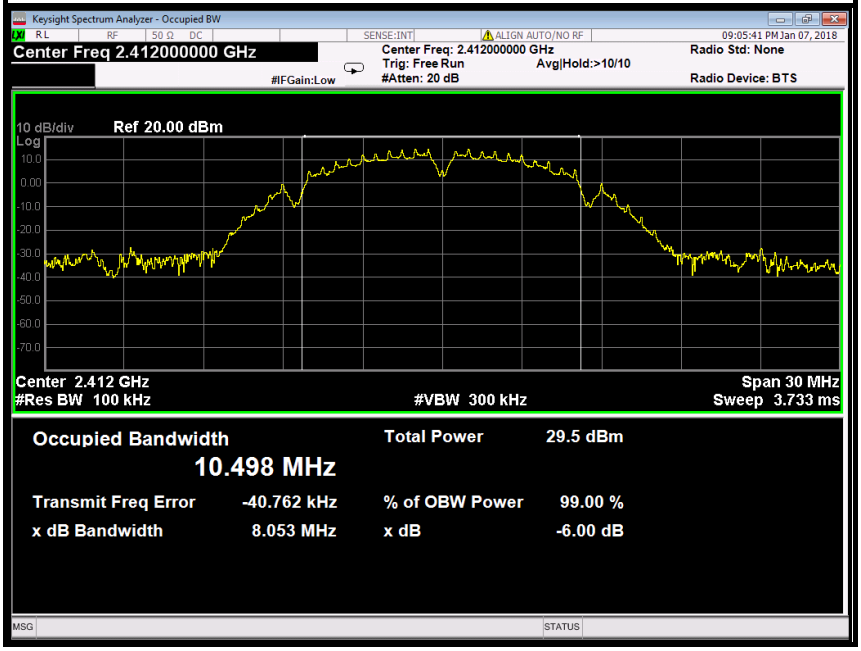
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH High)



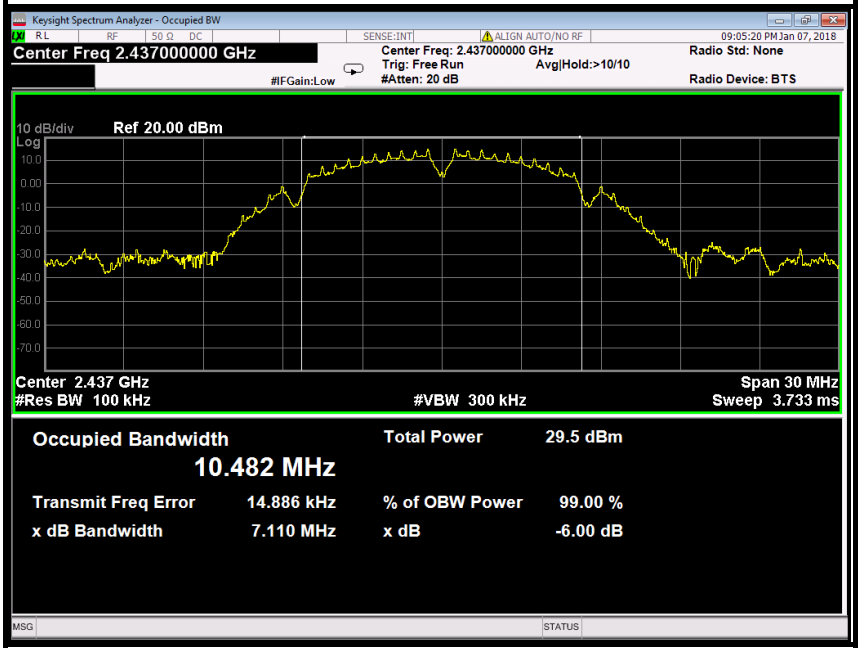
IEEE 802.11b mode (antenna 3)

6dB Bandwidth (CH Low)

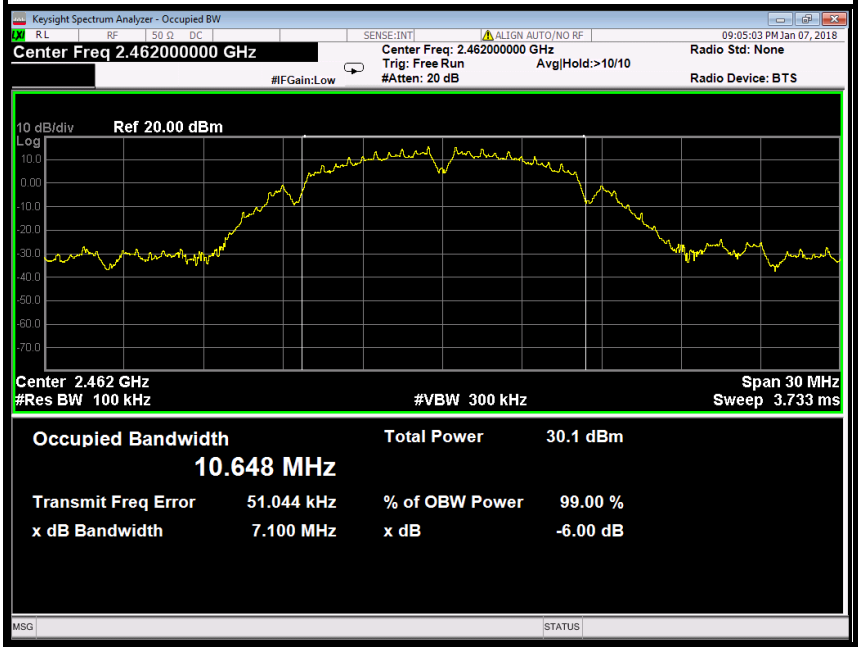


This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH Mid)



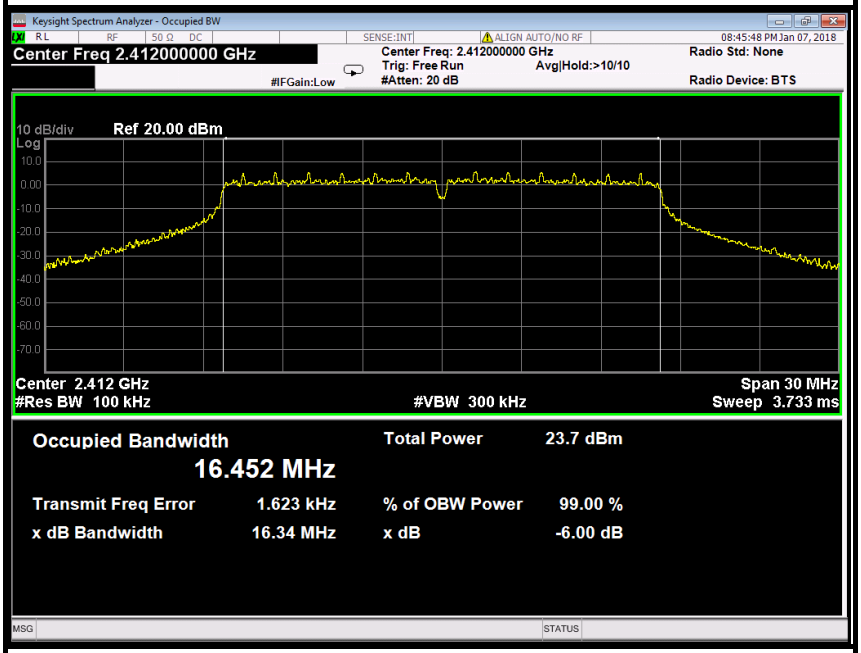
6dB Bandwidth (CH High)



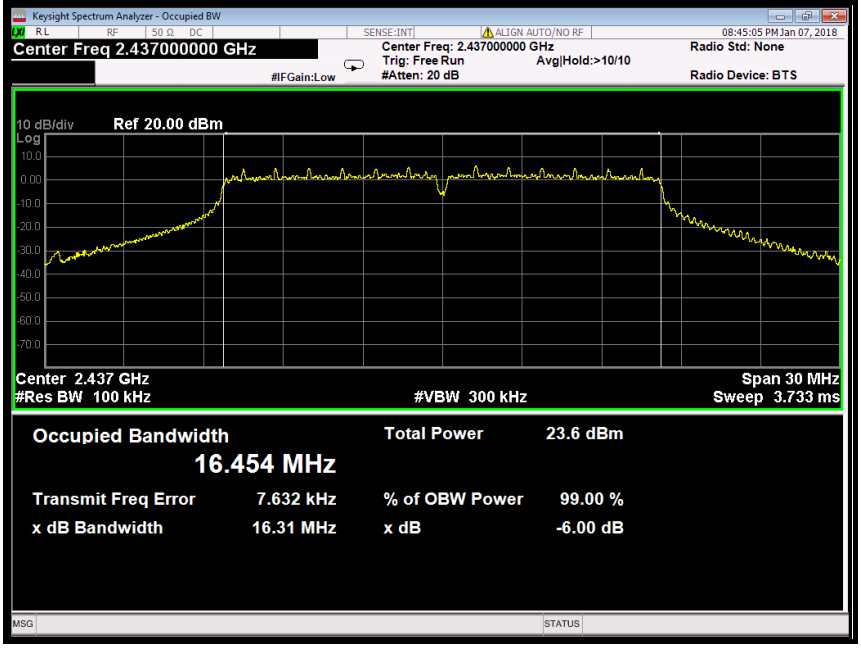
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

IEEE 802.11g mode (antenna 0)

6dB Bandwidth (CH Low)

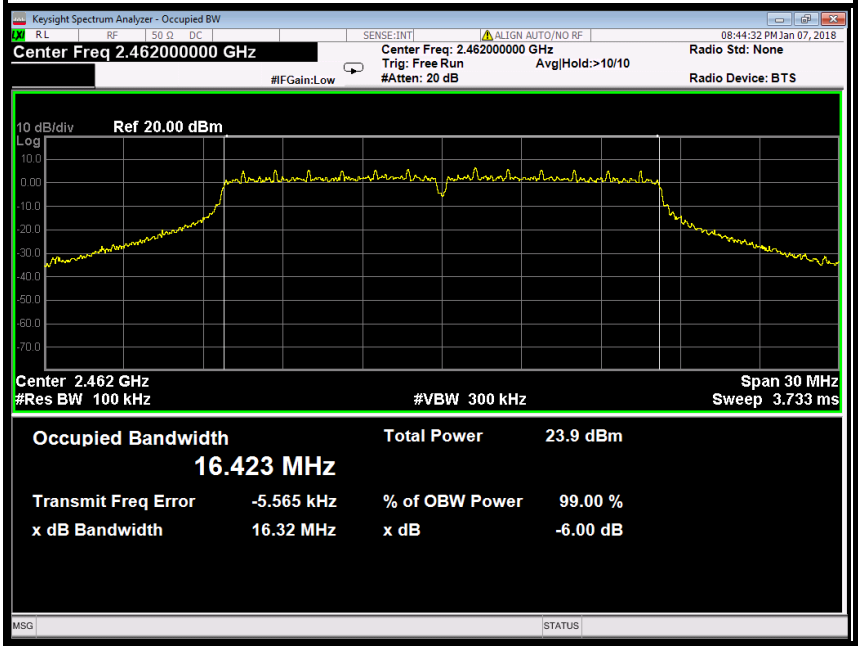


6dB Bandwidth (CH Mid)



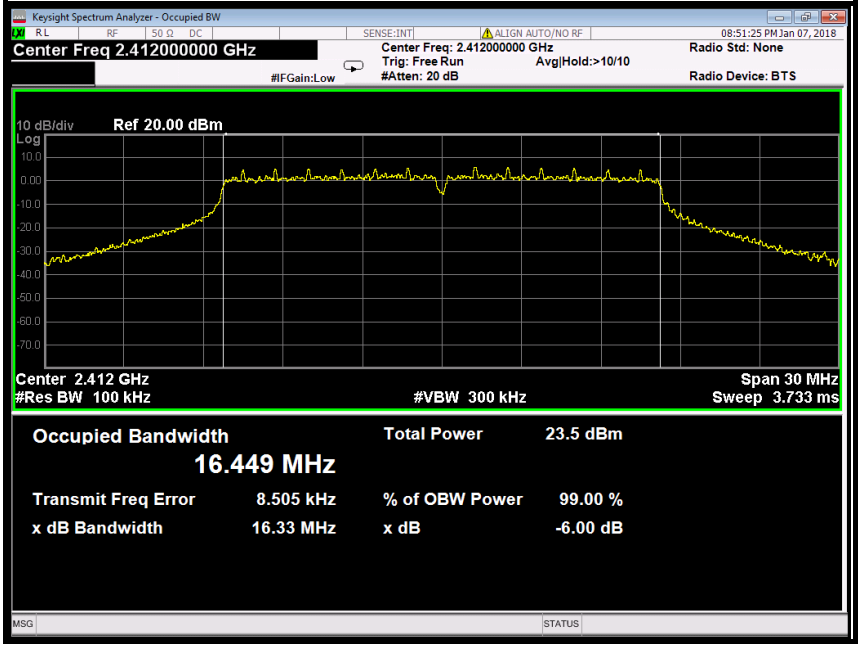
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH High)



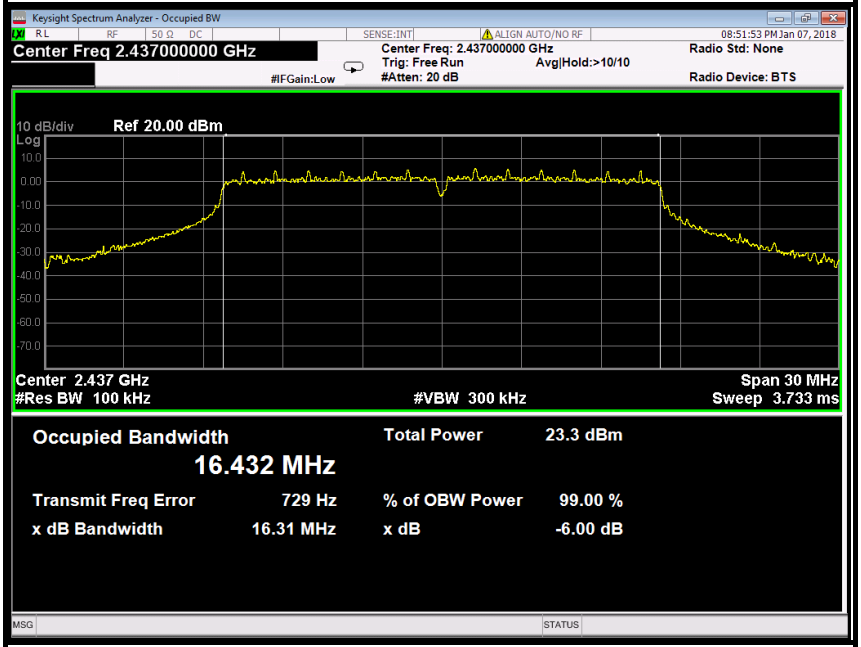
IEEE 802.11g mode (antenna 1)

6dB Bandwidth (CH Low)

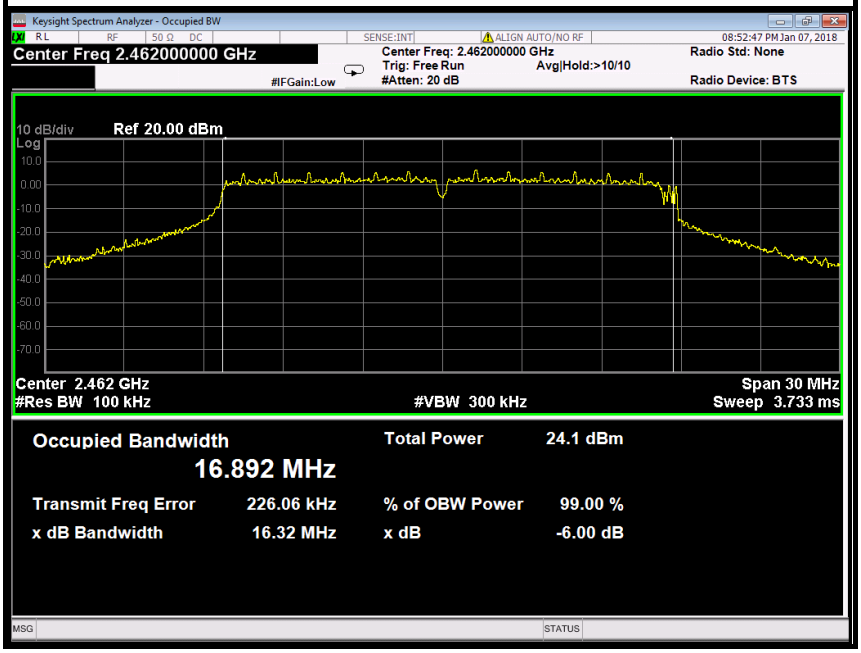


This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH Mid)



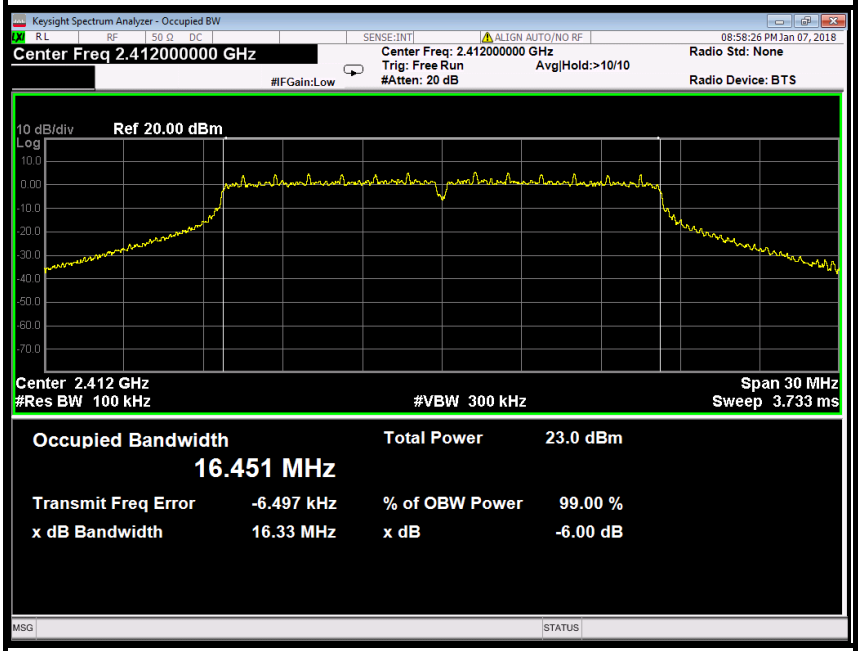
6dB Bandwidth (CH High)



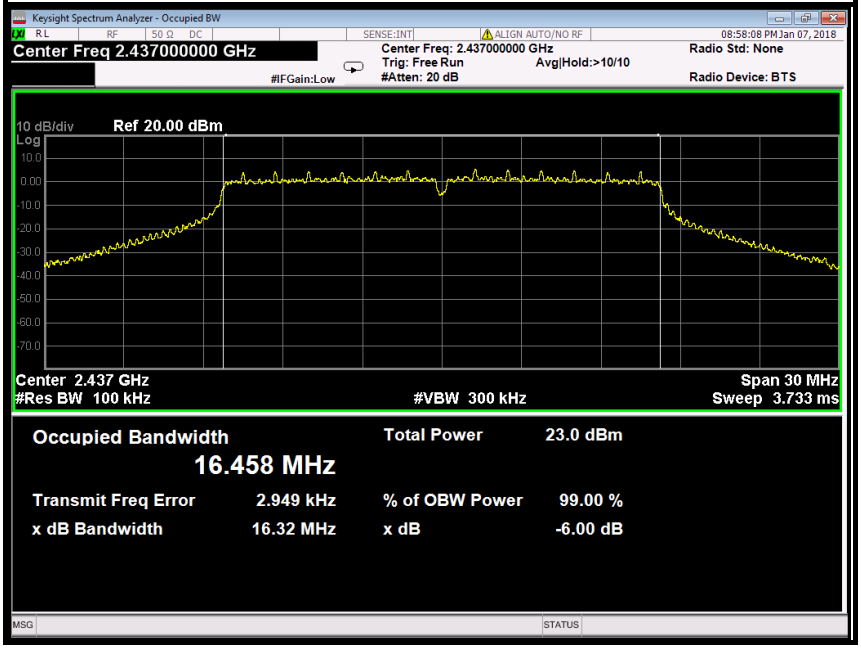
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

IEEE 802.11g mode (antenna 2)

6dB Bandwidth (CH Low)

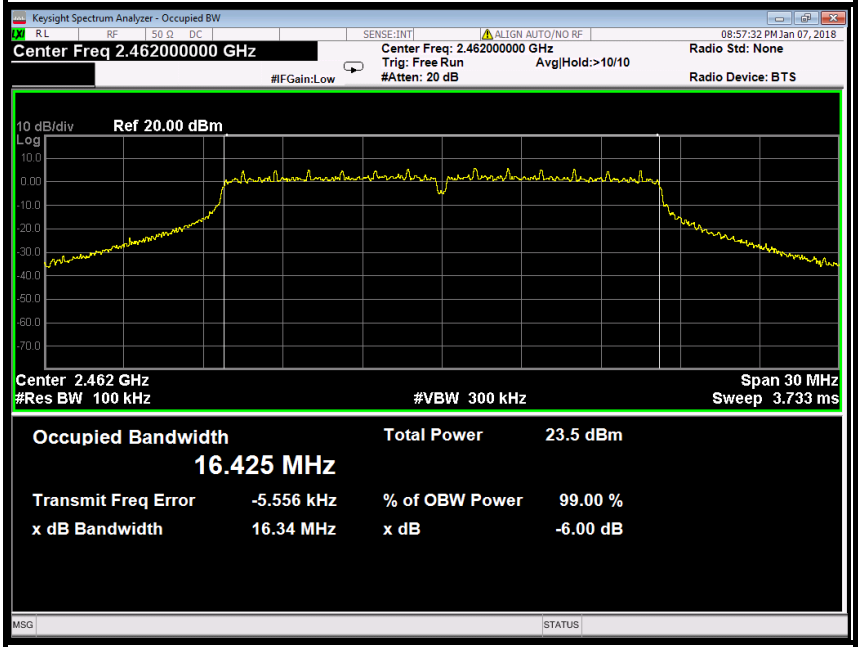


6dB Bandwidth (CH Mid)



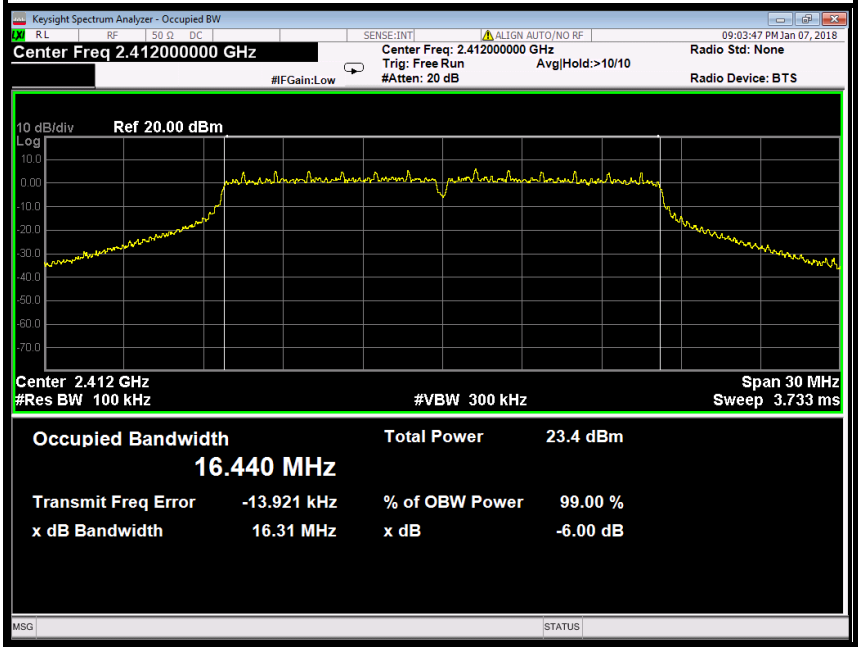
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH High)



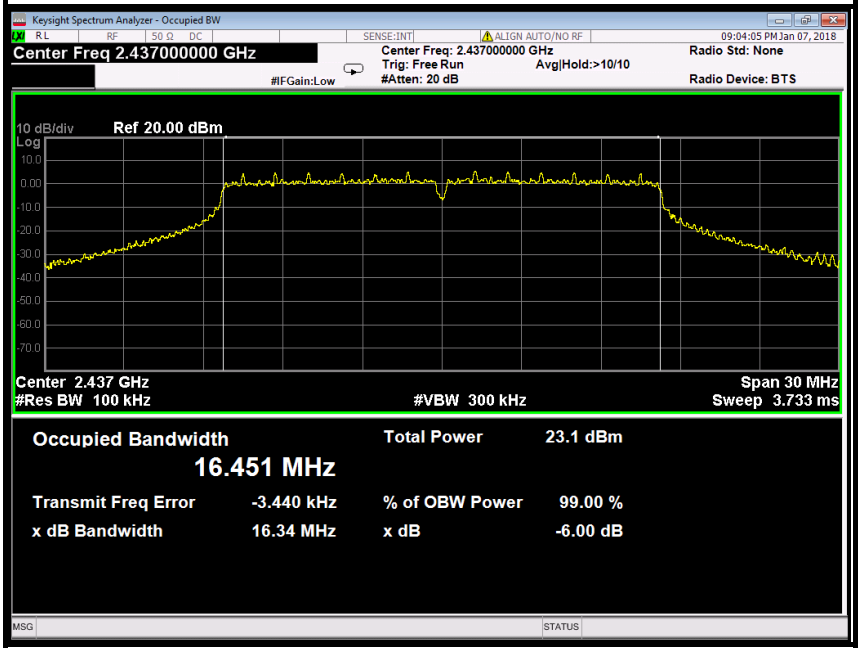
IEEE 802.11g mode (antenna 3)

6dB Bandwidth (CH Low)

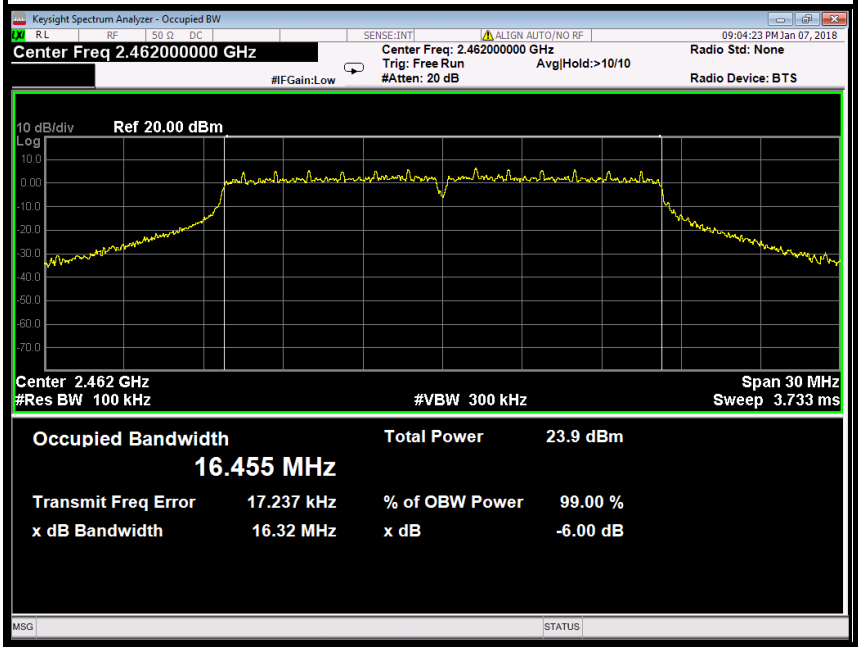


This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH Mid)



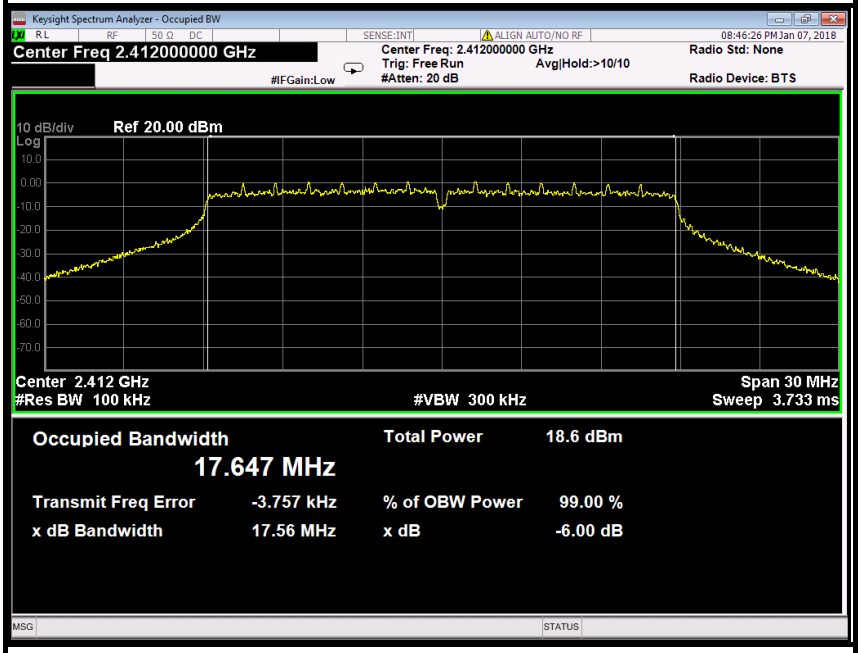
6dB Bandwidth (CH High)



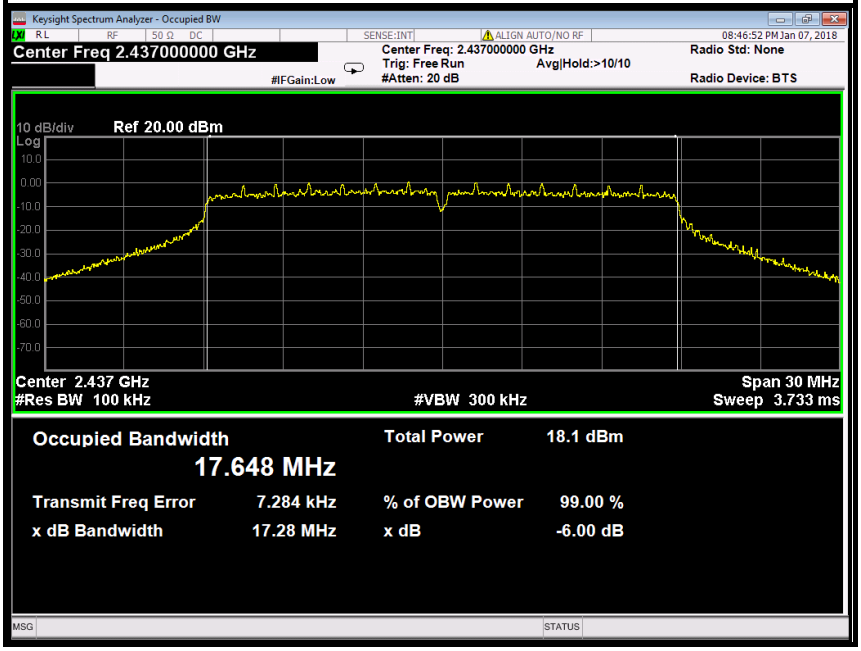
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

IEEE 802.11n HT20 MHz mode (antenna 0)

6dB Bandwidth (CH Low)

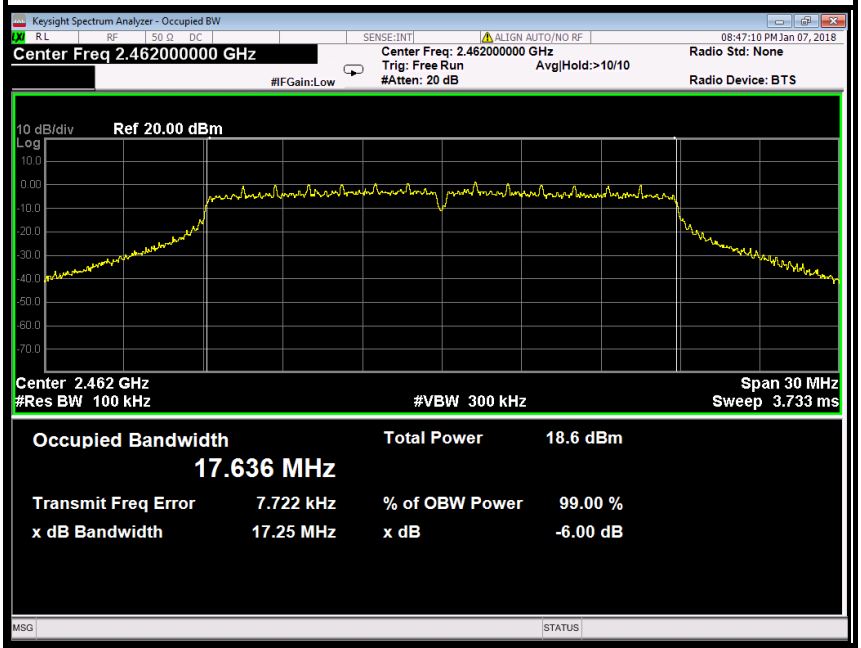


6dB Bandwidth (CH Mid)



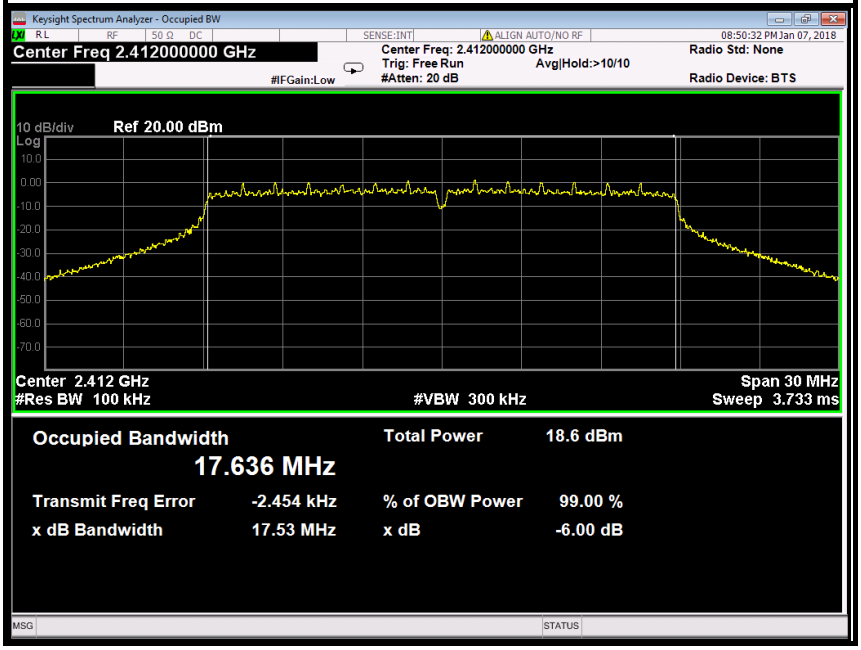
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH High)



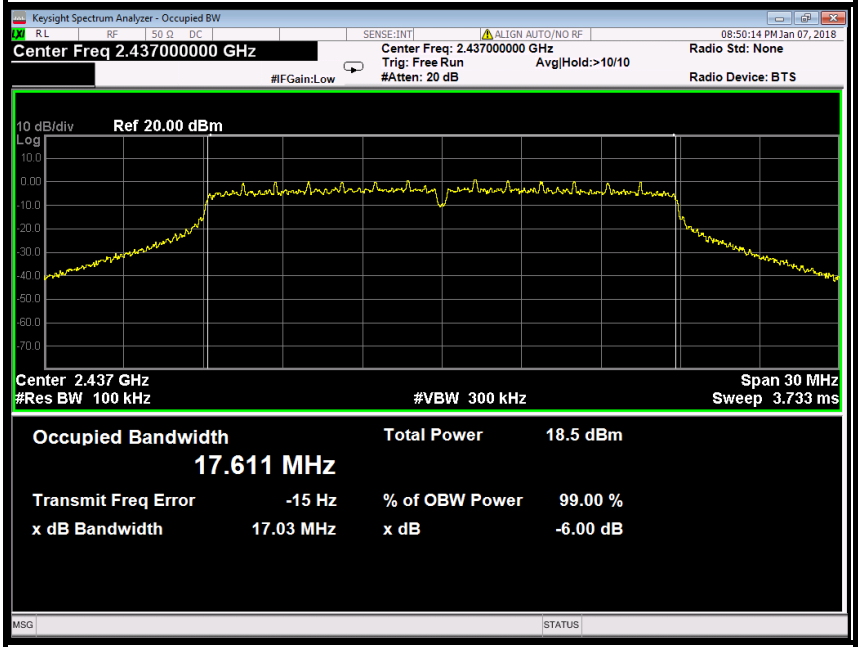
IEEE 802.11n HT20 MHz mode (antenna 1)

6dB Bandwidth (CH Low)

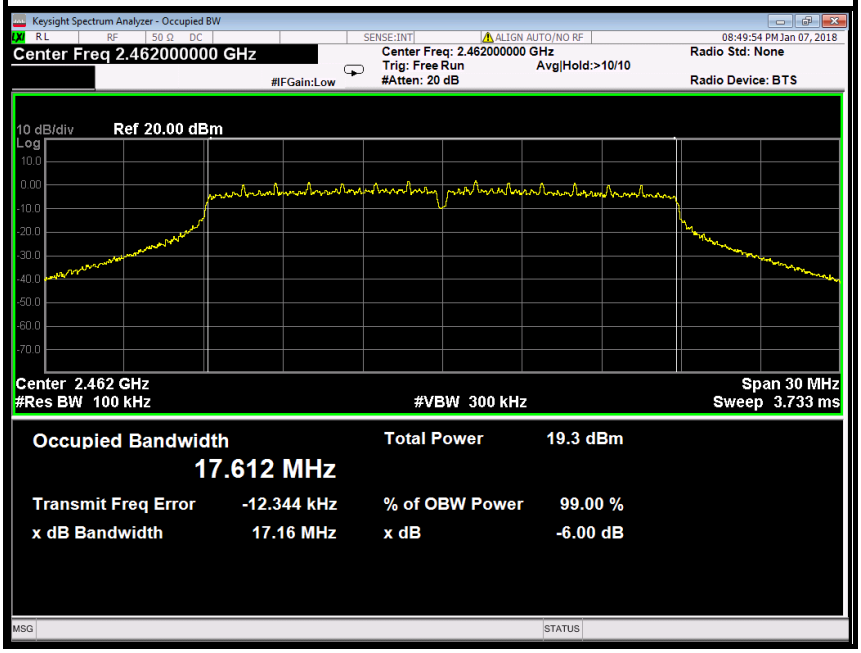


This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH Mid)



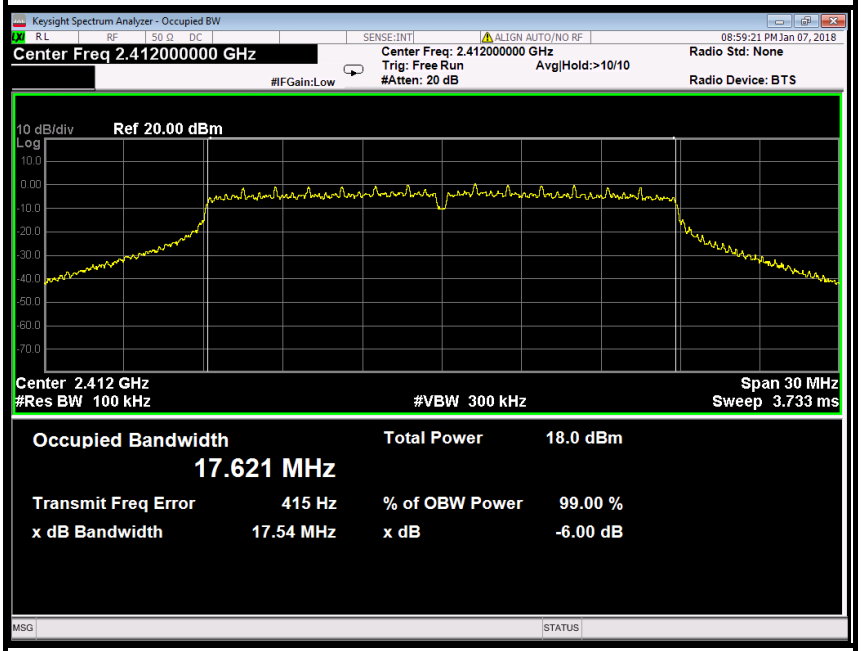
6dB Bandwidth (CH High)



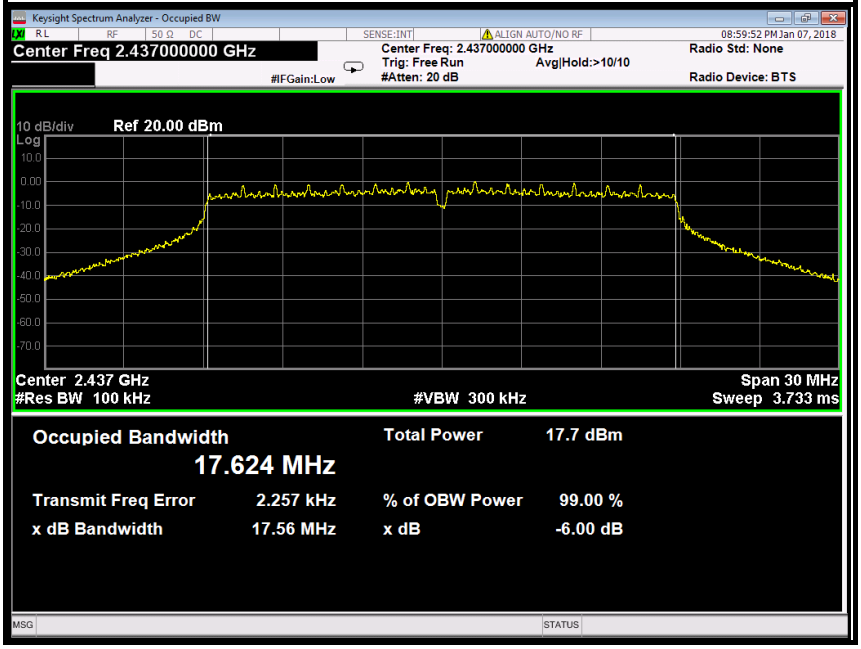
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

IEEE 802.11n HT20 MHz mode (antenna 2)

6dB Bandwidth (CH Low)

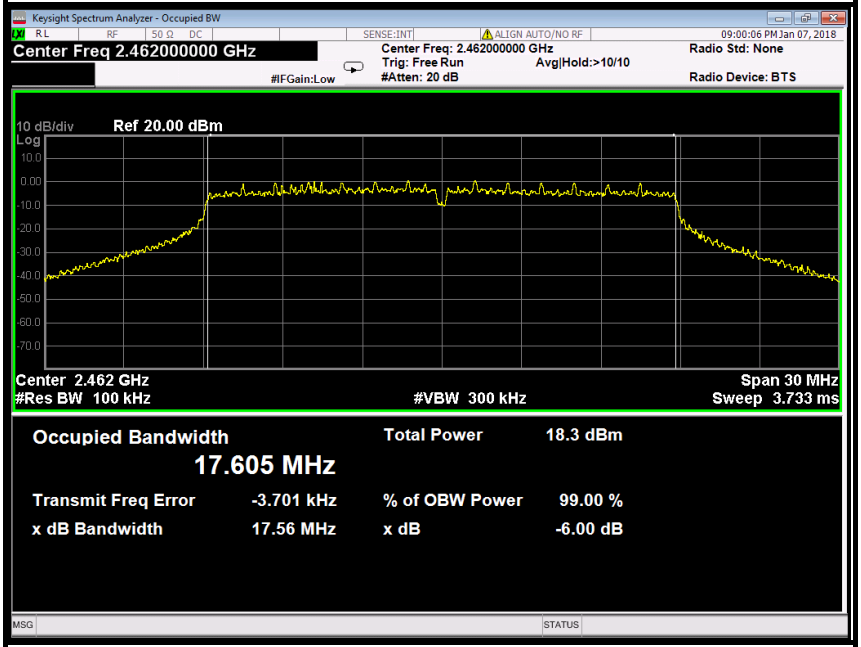


6dB Bandwidth (CH Mid)



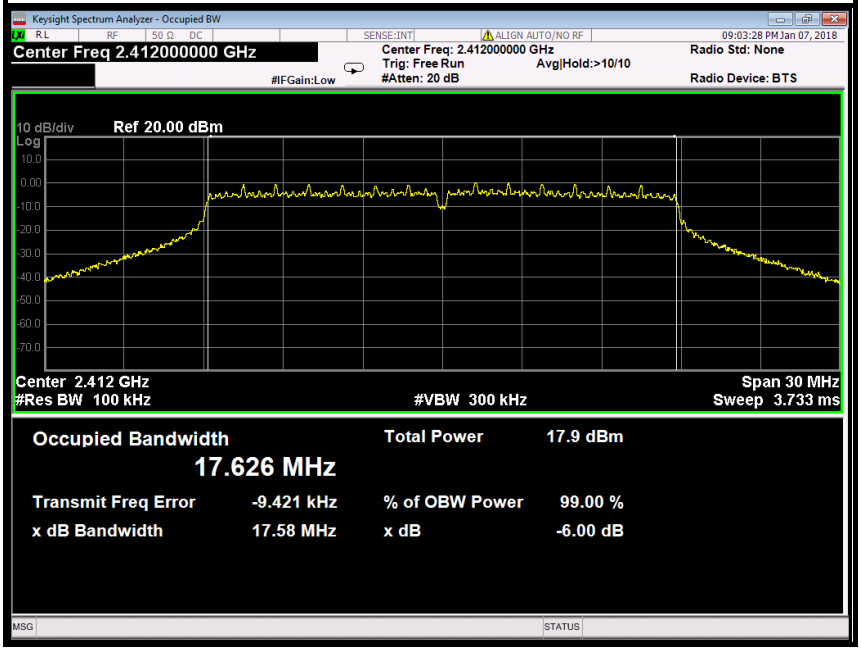
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH High)



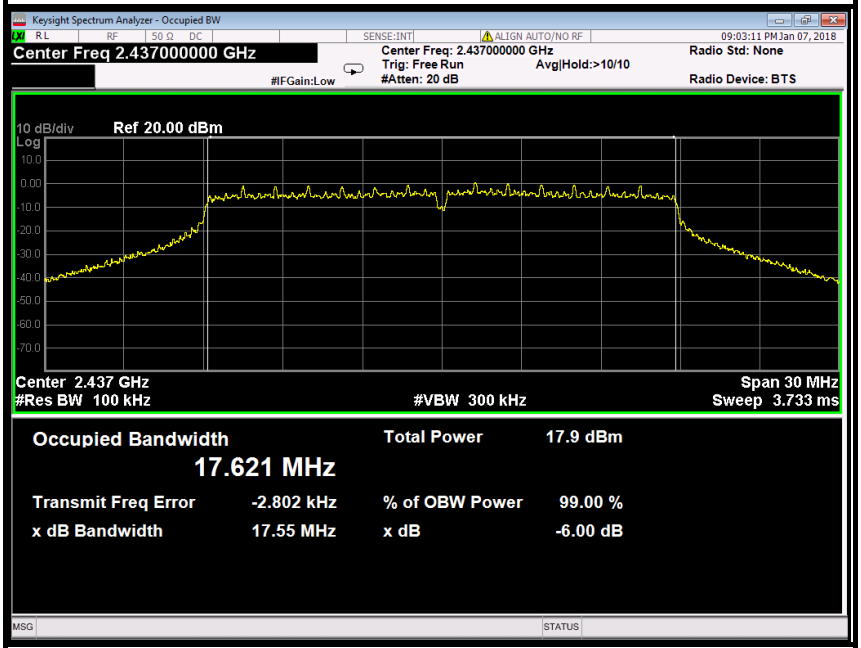
IEEE 802.11n HT20 MHz mode (antenna 3)

6dB Bandwidth (CH Low)

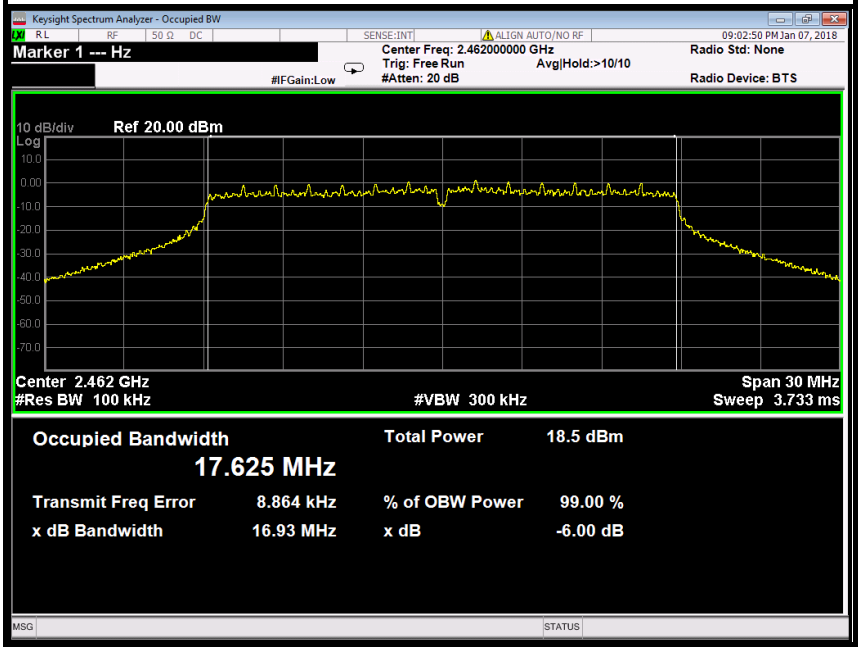


This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH Mid)



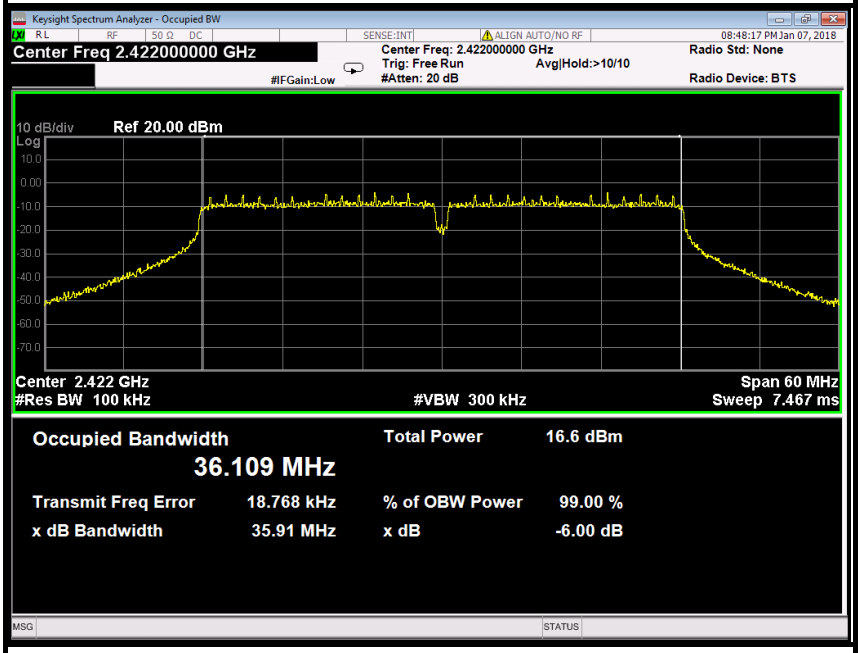
6dB Bandwidth (CH High)



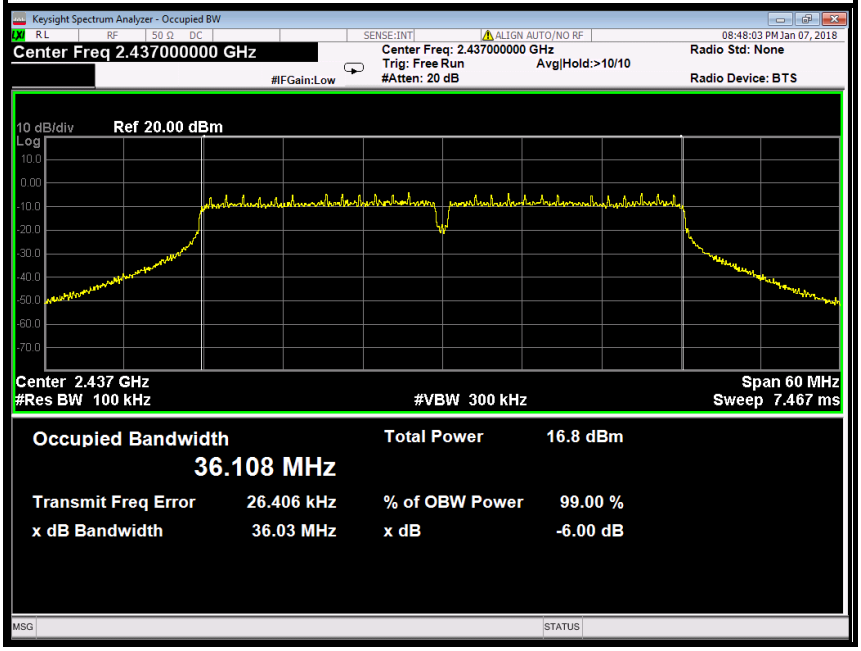
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

IEEE 802.11n HT40 MHz mode (antenna 0)

6dB Bandwidth (CH Low)

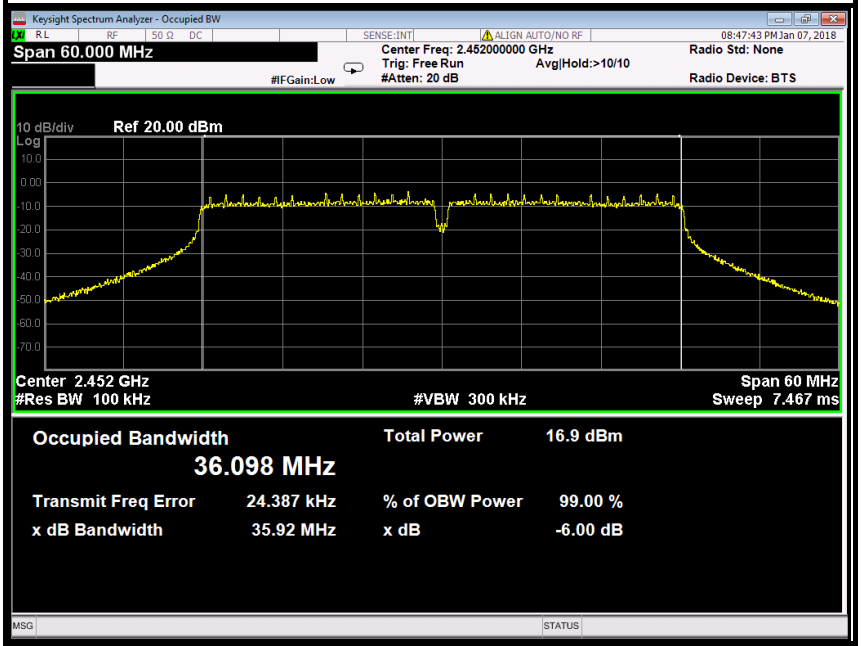


6dB Bandwidth (CH Mid)



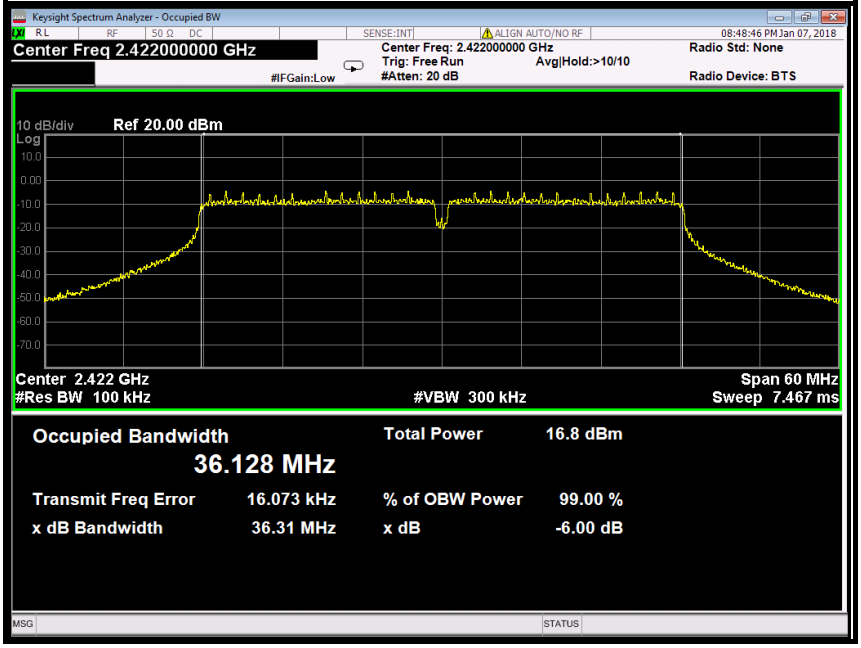
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH High)



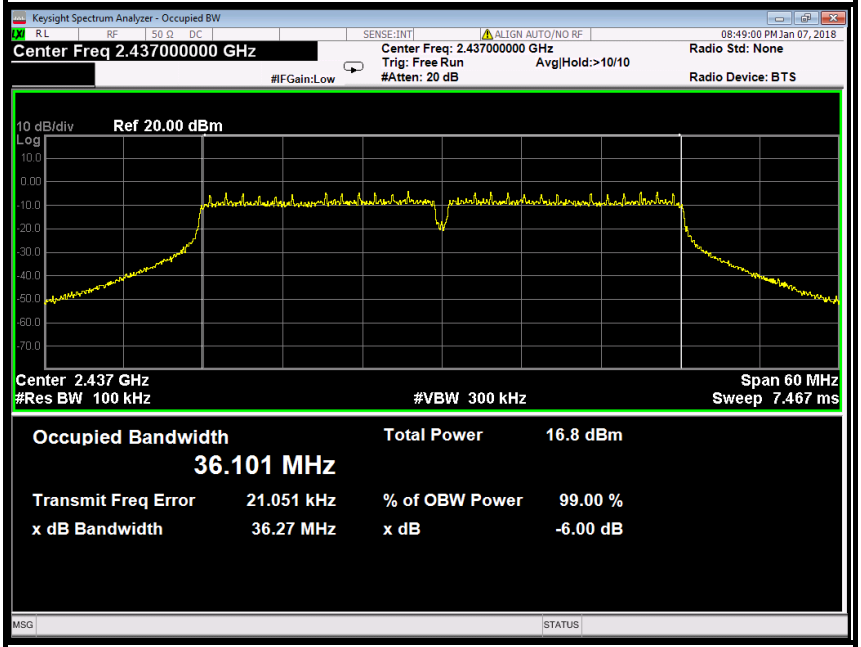
IEEE 802.11n HT40 MHz mode (antenna 1)

6dB Bandwidth (CH Low)

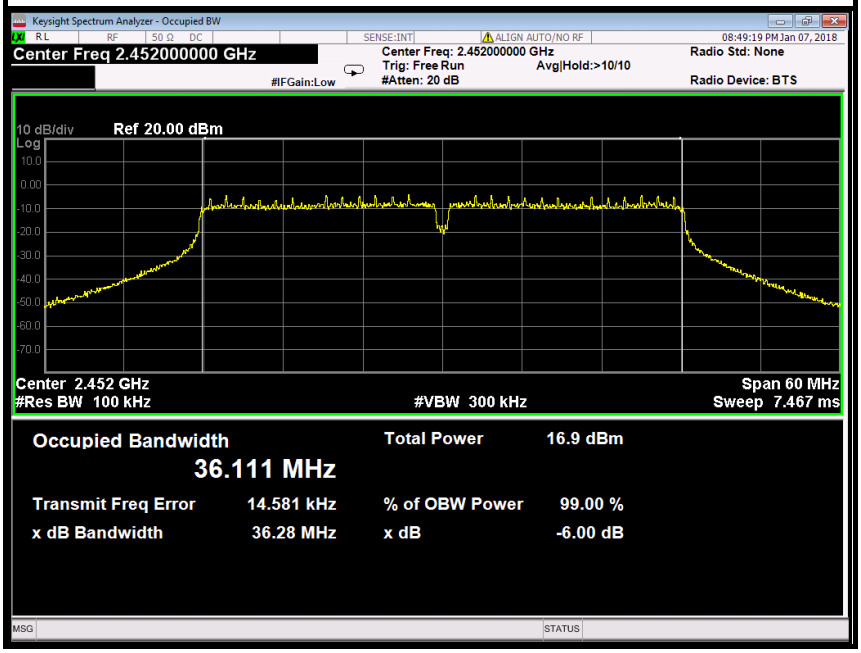


This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH Mid)



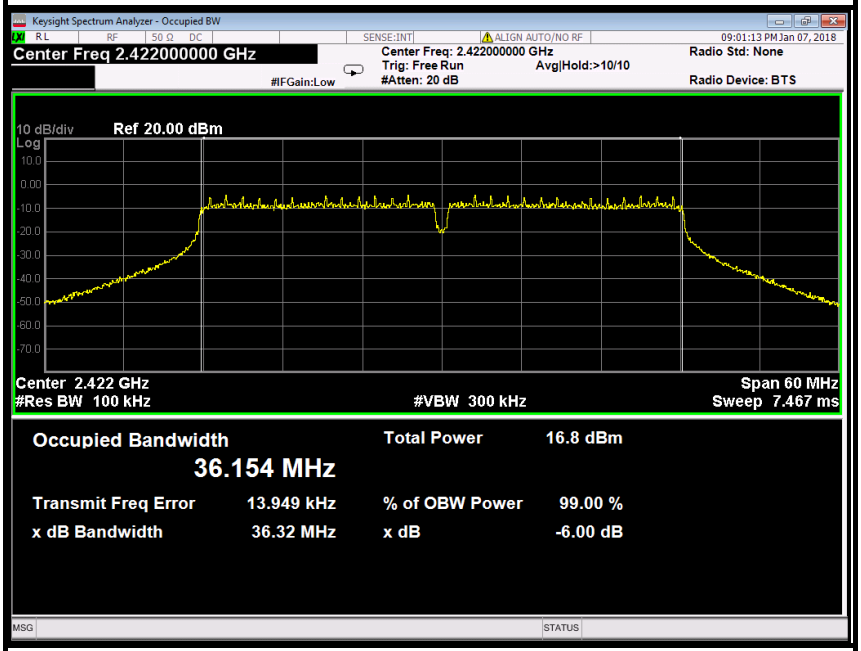
6dB Bandwidth (CH High)



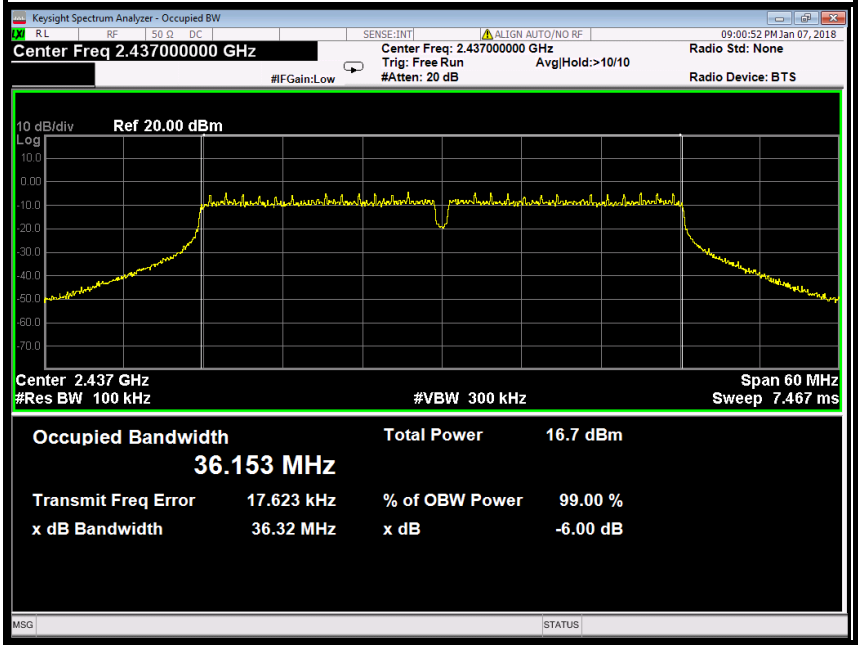
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

IEEE 802.11n HT40 MHz mode (antenna 2)

6dB Bandwidth (CH Low)

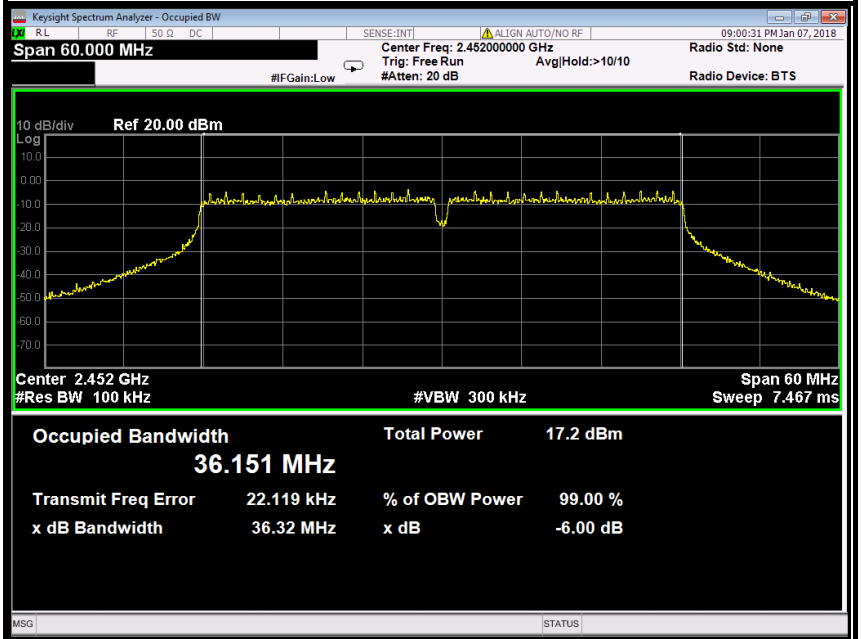


6dB Bandwidth (CH Mid)



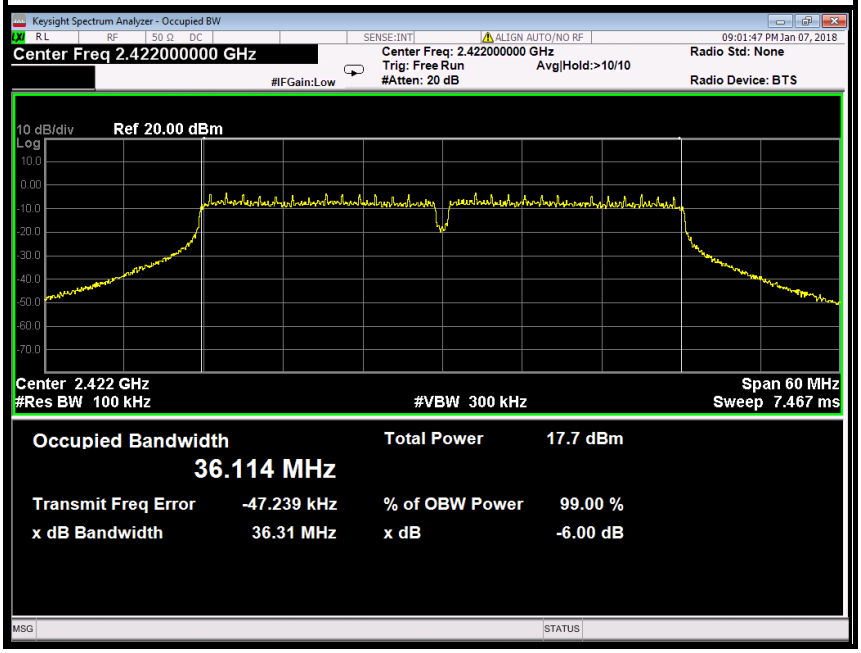
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH High)



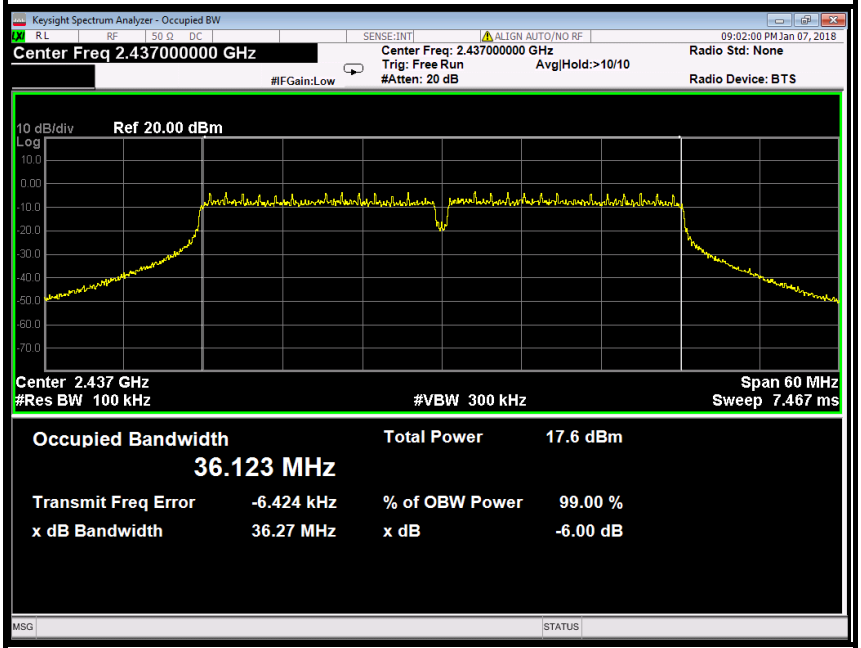
IEEE 802.11n HT40 MHz mode (antenna 3)

6dB Bandwidth (CH Low)

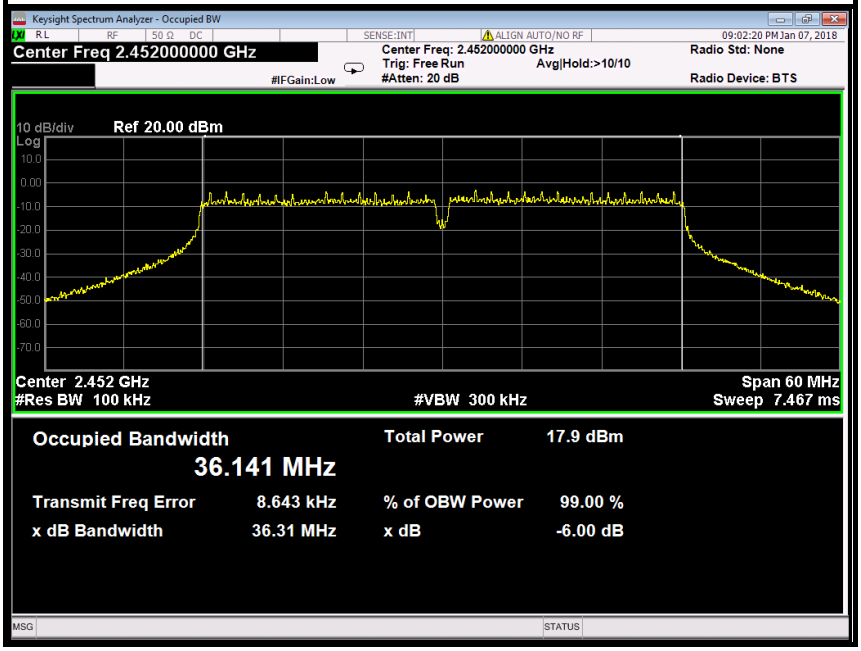


This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)



This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

7.4. ANTENNA GAIN

MEASUREMENT

The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module. For normal WLAN devices, the DSSS mode is used.

MEASUREMENT PARAMETERS

Measurement parameter	
Detector	Peak
Sweep time	Auto
Resolution bandwidth	3 MHz
Video bandwidth	3 MHz
Trace-Mode	Max hold

LIMITS

FCC	IC
Antenna Gain	
6 dBi	

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

TEST RESULTS

IEEE 802.11b mode

Antenna 0

T_{nom}	V_{nom}	Lowest channel 2412MHz	Middle channel 2437MHz	Highest channel 2462MHz
Conducted power [dBm/MHz] Measured with DSSS modulation		25.78	26.26	25.50
Radiated power [dBm/MHz] Measured with DSSS modulation		28.73	28.51	28.28
Gain [dBi] Calculated		2.95	2.25	2.78
Measurement uncertainty		± 1.5 dB (cond.) / ± 3 dB (rad.)		

Antenna 1

T_{nom}	V_{nom}	Lowest channel 2412MHz	Middle channel 2437MHz	Highest channel 2462MHz
Conducted power [dBm/MHz] Measured with DSSS modulation		25.73	26.27	26.38
Radiated power [dBm/MHz] Measured with DSSS modulation		28.58	29.06	29.53
Gain [dBi] Calculated		2.85	2.79	3.15
Measurement uncertainty		± 1.5 dB (cond.) / ± 3 dB (rad.)		

Antenna 2

T_{nom}	V_{nom}	Lowest channel 2412MHz	Middle channel 2437MHz	Highest channel 2462MHz
Conducted power [dBm/MHz] Measured with DSSS modulation		25.07	25.62	25.70
Radiated power [dBm/MHz] Measured with DSSS modulation		28.06	28.15	28.24
Gain [dBi] Calculated		2.99	2.53	2.54
Measurement uncertainty		± 1.5 dB (cond.) / ± 3 dB (rad.)		

Antenna 3

T_{nom}	V_{nom}	Lowest channel 2412MHz	Middle channel 2437MHz	Highest channel 2462MHz
Conducted power [dBm/MHz] Measured with DSSS modulation		25.26	25.53	25.83
Radiated power [dBm/MHz] Measured with DSSS modulation		28.01	28.35	28.68
Gain [dBi] Calculated		2.75	2.82	2.85
Measurement uncertainty		± 1.5 dB (cond.) / ± 3 dB (rad.)		

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

7.5. PEAK OUTPUT POWER

7.5.1. LIMITS

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.

2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

7.5.2. TEST PROCEDURES (please refer to measurement standard)

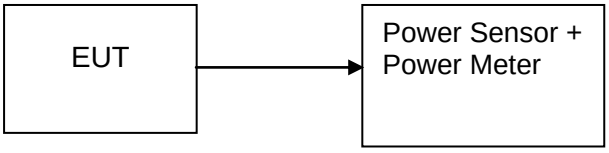
9.1.1 RBW ≥ *DTS bandwidth*

This procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the *DTS bandwidth*.
a) Set the RBW ≥ *DTS bandwidth*.
b) Set VBW ≥ 3 RBW.
c) Set span ≥ 3 x RBW
d) Sweep time = auto couple.
e) Detector = peak.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use peak marker function to determine the peak amplitude level.

9.1.2 PKPM1 Peak power meter method

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

7.5.3. TEST SETUP



This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

7.5.4. TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b (antenna 0)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Peak / AVG	Limit (W)	Result
Low	2412	25.78	0.37844	Peak	1	PASS
Mid	2437	26.26	0.42267			PASS
High	2462	25.50	0.35481			PASS
Low	2412	23.26	0.21184	AVG	1	PASS
Mid	2437	23.66	0.23227			PASS
High	2462	22.87	0.19364			PASS

Test mode: IEEE 802.11b (antenna 1)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Peak / AVG	Limit (W)	Result
Low	2412	25.73	0.37411	Peak	1	PASS
Mid	2437	26.27	0.42364			PASS
High	2462	26.38	0.43451			PASS
Low	2412	23.08	0.20324	AVG	1	PASS
Mid	2437	23.71	0.23496			PASS
High	2462	23.73	0.23605			PASS

Test mode: IEEE 802.11b (antenna 2)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Peak / AVG	Limit (W)	Result
Low	2412	25.07	0.32137	Peak	1	PASS
Mid	2437	25.62	0.36475			PASS
High	2462	25.70	0.37154			PASS
Low	2412	22.22	0.16672	AVG	1	PASS
Mid	2437	22.88	0.19409			PASS
High	2462	23.00	0.19953			PASS

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Test mode: IEEE 802.11b (antenna 3)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Peak / AVG	Limit (W)	Result
Low	2412	25.26	0.33574	Peak	1	PASS
Mid	2437	25.53	0.35727			PASS
High	2462	25.83	0.38282			PASS
Low	2412	22.50	0.17783	AVG	1	PASS
Mid	2437	22.80	0.19055			PASS
High	2462	23.31	0.21429			PASS

Test mode: IEEE 802.11g (antenna 0)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Peak / AVG	Limit (W)	Result
Low	2412	26.07	0.40458	Peak	1	PASS
Mid	2437	26.17	0.41400			PASS
High	2462	26.26	0.42267			PASS
Low	2412	17.24	0.05297	AVG	1	PASS
Mid	2437	17.28	0.05346			PASS
High	2462	17.28	0.05346			PASS

Test mode: IEEE 802.11g (antenna 1)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Peak / AVG	Limit (W)	Result
Low	2412	26.07	0.40458	Peak	1	PASS
Mid	2437	26.11	0.40832			PASS
High	2462	26.38	0.43451			PASS
Low	2412	17.14	0.05176	AVG	1	PASS
Mid	2437	17.12	0.05152			PASS
High	2462	17.48	0.05598			PASS

Test mode: IEEE 802.11g (antenna 2)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Peak / AVG	Limit (W)	Result
Low	2412	25.95	0.39355	Peak	1	PASS
Mid	2437	26.23	0.41976			PASS
High	2462	20.66	0.11641			PASS
Low	2412	16.89	0.04887	AVG	1	PASS
Mid	2437	17.71	0.05902			PASS
High	2462	11.95	0.01567			PASS

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Test mode: IEEE 802.11g (antenna 3)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Peak / AVG	Limit (W)	Result
Low	2412	26.28	0.42462	Peak	1	PASS
Mid	2437	26.09	0.40644			PASS
High	2462	26.21	0.41783			PASS
Low	2412	17.37	0.05458	AVG	1	PASS
Mid	2437	16.97	0.04977			PASS
High	2462	17.43	0.05534			PASS

Test mode: IEEE 802.11n HT20 MHz(Combine with antenna 0, antenna 1, antenna 2 and antenna 3)

Channel	Frequency (MHz)	Output Power (dBm)					Output Power (W)	Peak / AVG	Limit (W)	Result
		antenna	antenna	antenna 2	antenna 3	total				
Low	2412	20.40	20.28	20.71	21.45	26.76	0.47370	Peak	1	PASS
Mid	2437	20.64	20.24	21.31	20.87	26.80	0.47895			PASS
High	2462	20.45	20.69	20.66	21.47	26.86	0.48483			PASS
Low	2412	11.15	10.68	11.25	11.46	17.16	0.05206	AVG	1	PASS
Mid	2437	11.54	10.77	11.57	11.55	17.39	0.05484			PASS
High	2462	11.56	10.90	11.95	12.20	17.70	0.05889			PASS

Test mode: IEEE 802.11n HT40 MHz(Combine with antenna 0, antenna 1, antenna 2 and antenna 3)

Channel	Frequency (MHz)	Output Power (dBm)					Output Power (W)	Peak / AVG	Limit (W)	Result
		antenna 0	antenna 1	antenna 2	antenna	total				
Low	2422	20.06	20.26	20.68	21.31	26.62	0.45972	Peak	1	PASS
Mid	2437	20.38	20.51	20.36	21.75	26.81	0.47987			PASS
High	2452	20.52	20.26	20.97	21.32	26.81	0.47943			PASS
Low	2422	10.31	10.73	10.93	11.97	17.05	0.05070	AVG	1	PASS
Mid	2437	10.39	10.73	11.02	11.81	17.04	0.05059			PASS
High	2452	10.63	10.95	11.15	11.86	17.19	0.05238			PASS

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

7.6. BAND EDGES MEASUREMENT

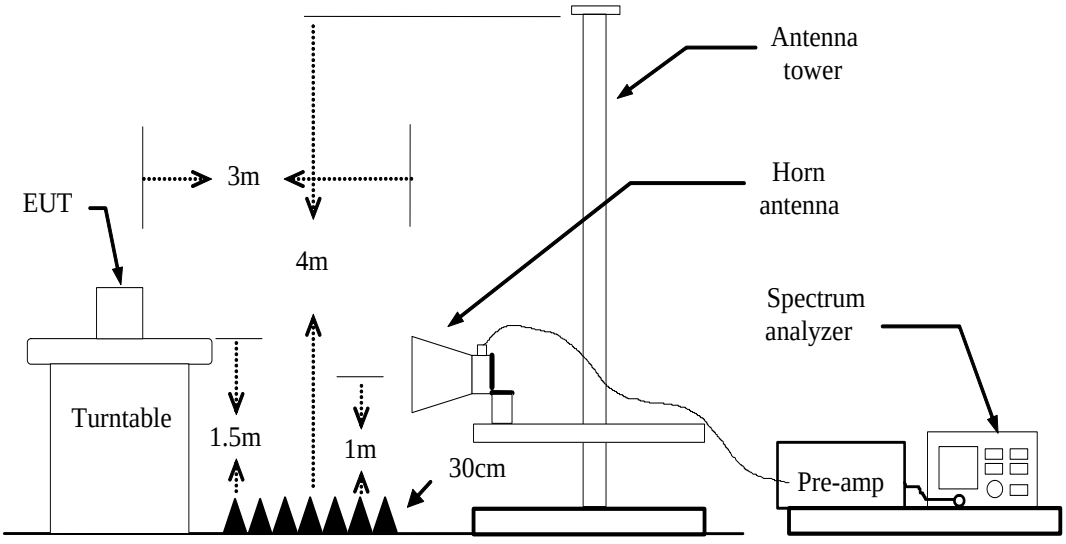
7.6.1. LIMITS

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

7.6.2. TEST PROCEDURES (please refer to measurement standard)

1. The EUT is placed on a turntable, which is 1.5m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   (a) PEAK: RBW=1MHz / VBW=3MHz / Sweep=AUTO
   (b) AVERAGE: RBW=1MHz / VBW=1/T / Sweep=AUTO / Detector=PEAK
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are

7.6.3. TEST SETUP



This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

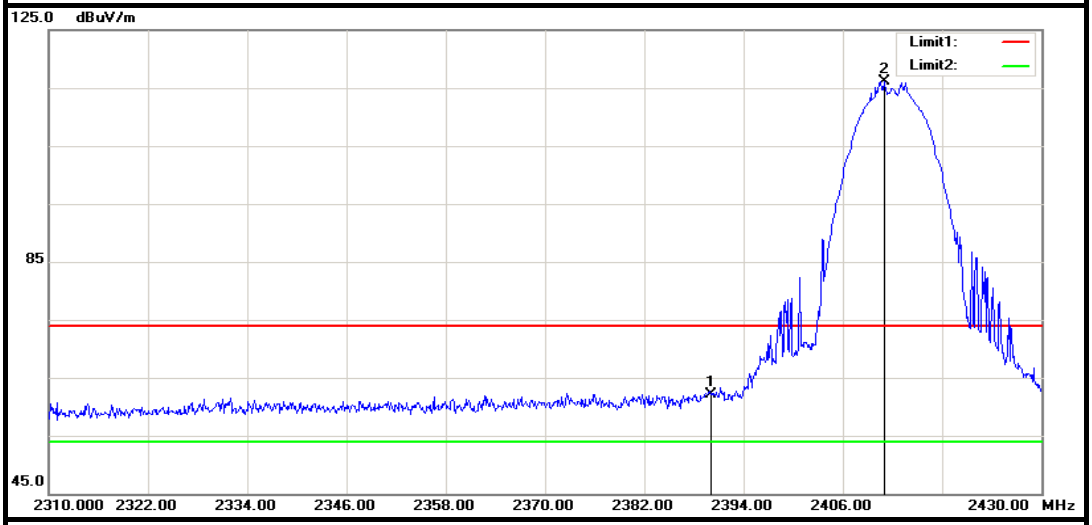
7.6.4. TEST RESULTS

Test Plot

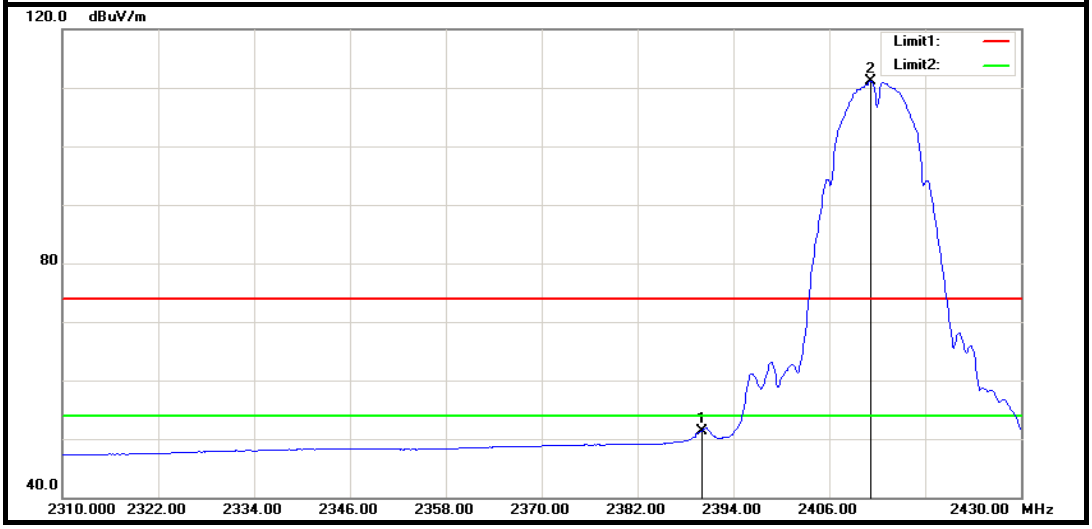
IEEE 802.11b mode (antenna 0)

Band Edges (CH Low)

Detector mode: Peak **Polarity: Vertical**



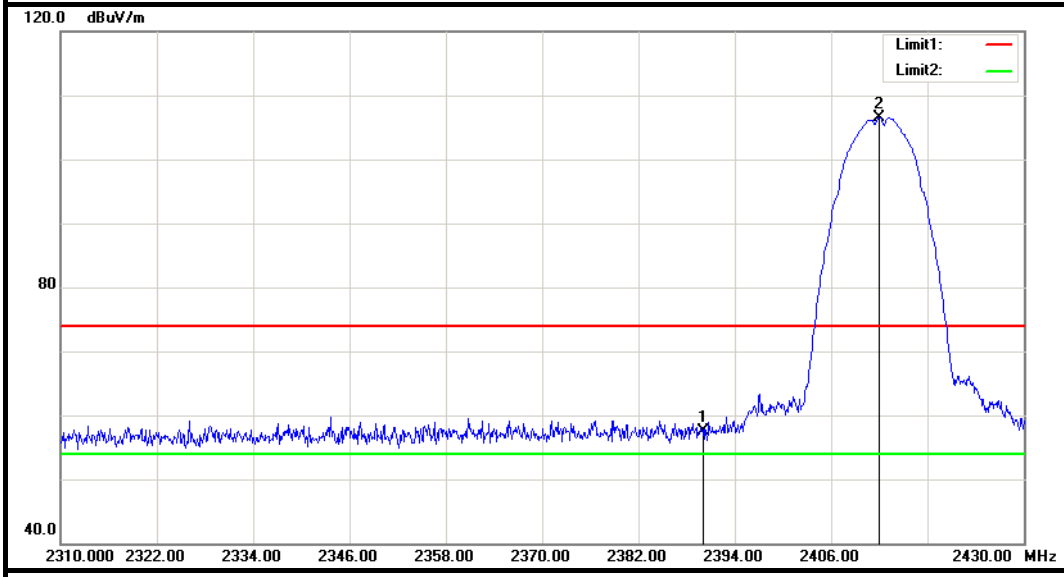
Detector mode: Average **Polarity: Vertical**



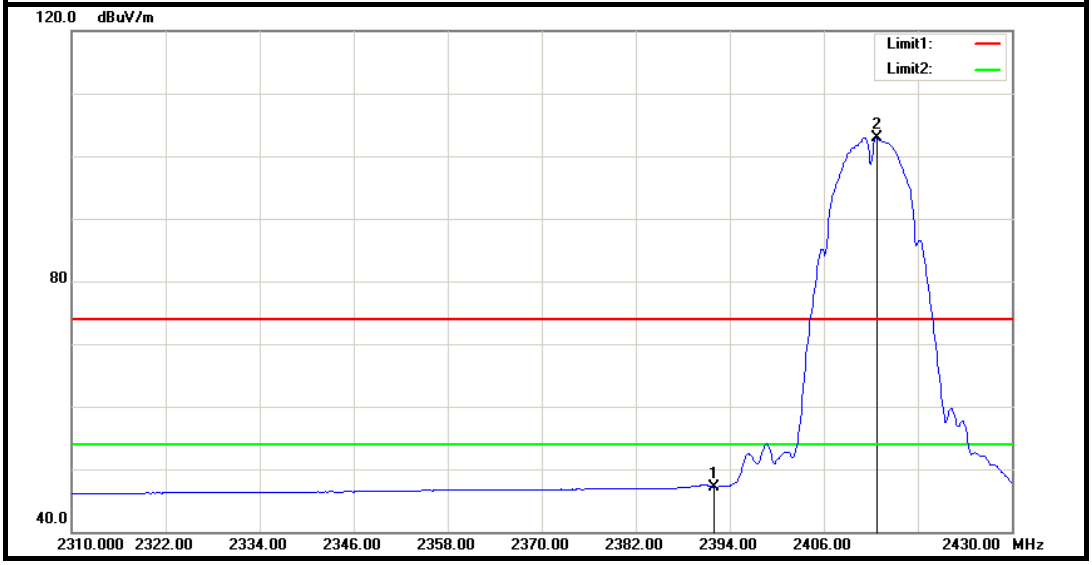
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	64.91	-2.86	62.05	74.00	-11.95	Peak	Vertical
2	2411.040	118.94	-2.75	116.19	---	---	Peak	Vertical
1	2390.000	54.18	-2.86	51.32	54.00	-2.68	Average	Vertical
2	2411.160	113.94	-2.75	111.19	---	---	Average	Vertical

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**

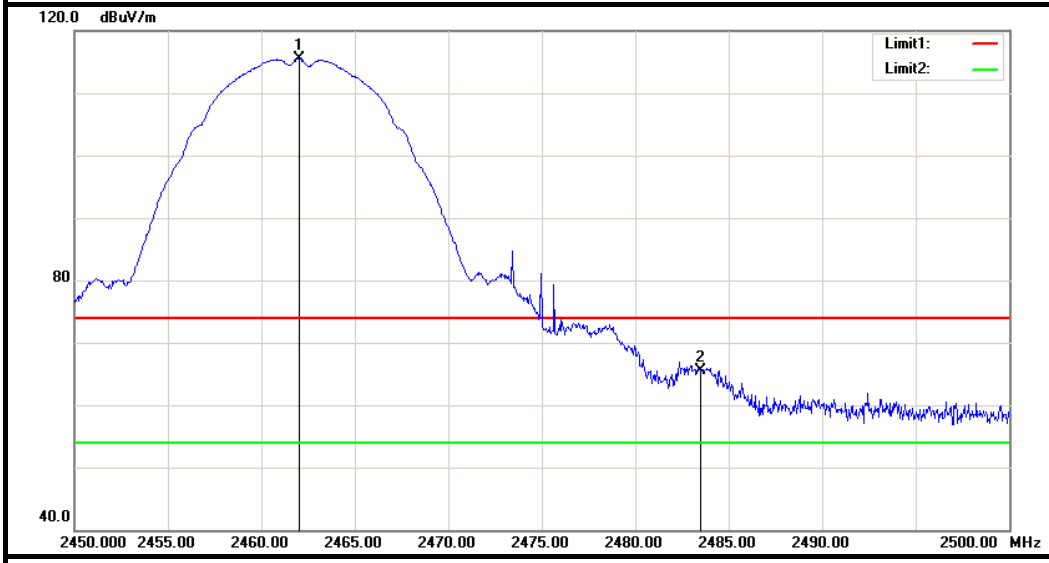


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	60.32	-2.86	57.46	74.00	-16.54	Peak	Horizontal
2	2412.000	109.22	-2.74	106.48	---	---	Peak	Horizontal
1	2392.000	50.01	-2.85	47.16	54.00	-6.84	Average	Horizontal
2	2412.720	105.70	-2.74	102.96	---	---	Average	Horizontal

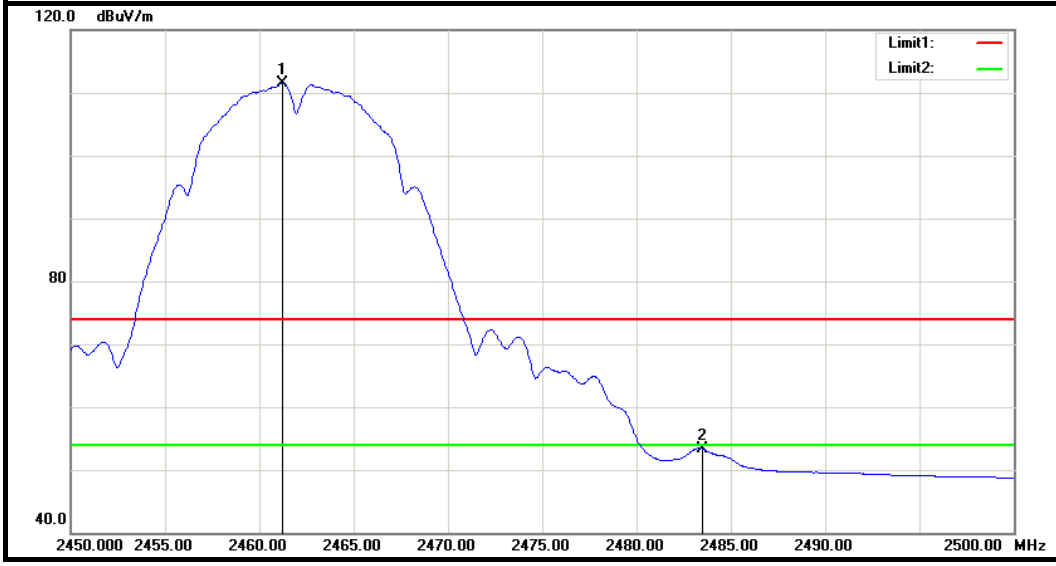
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Band Edges (CH High)

Detector mode: Peak **Polarity: Vertical**



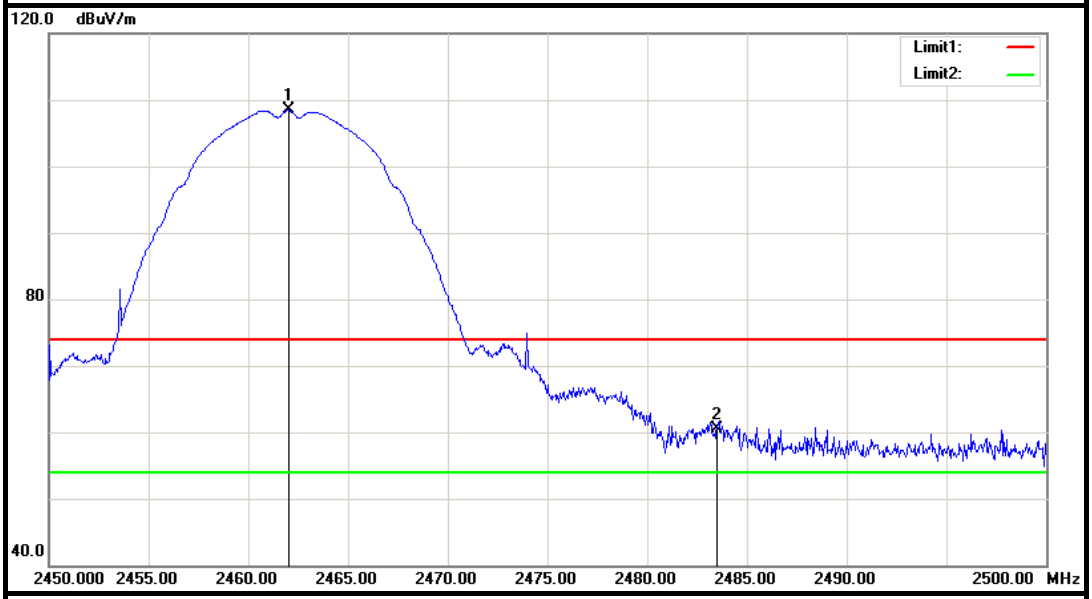
Detector mode: Average **Polarity: Vertical**



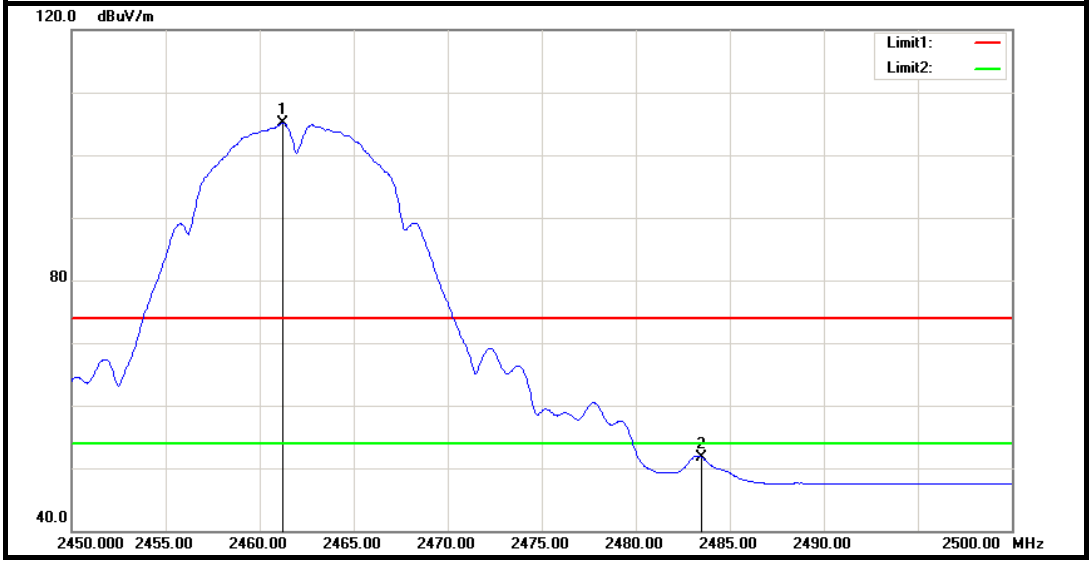
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2462.000	117.99	-2.47	115.52	---	---	Peak	Vertical
2	2483.500	67.87	-2.35	65.52	74.00	-8.48	Peak	Vertical
1	2461.200	113.98	-2.47	111.51	---	---	Average	Vertical
2	2483.500	55.72	-2.35	53.37	54.00	-0.63	Average	Vertical

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**

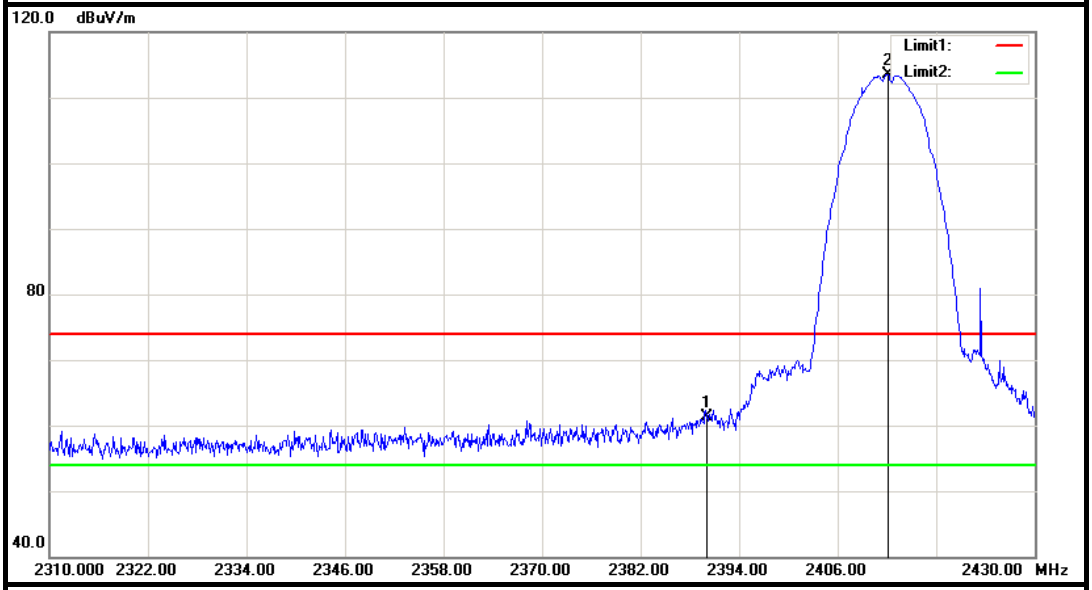


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2462.050	110.91	-2.47	108.44	---	---	Peak	Horizontal
2	2483.500	62.87	-2.35	60.52	74.00	-13.48	Peak	Horizontal
1	2461.250	107.51	-2.47	105.04	---	---	Average	Horizontal
2	2483.500	54.12	-2.35	51.77	54.00	-2.23	Average	Horizontal

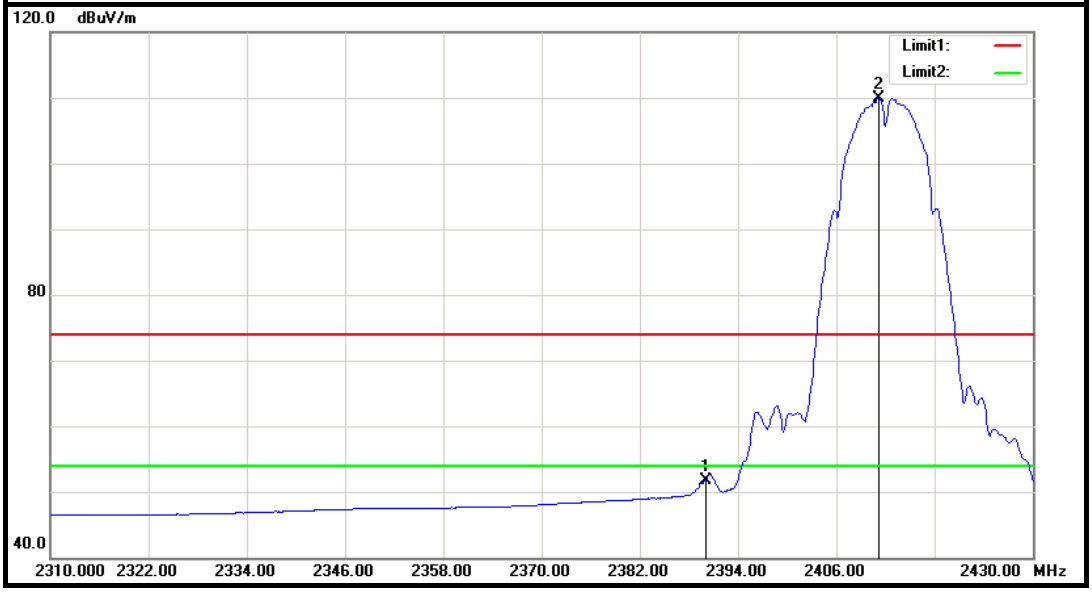
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

IEEE 802.11b mode (antenna 1)
Band Edges (CH Low)

Detector mode: Peak **Polarity: Vertical**



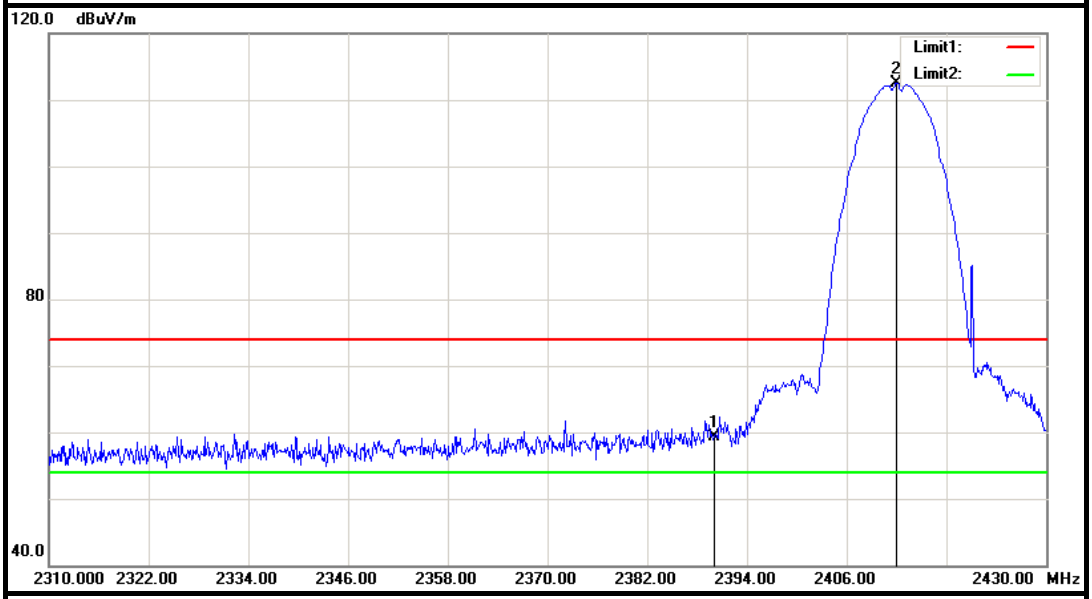
Detector mode: Average **Polarity: Vertical**



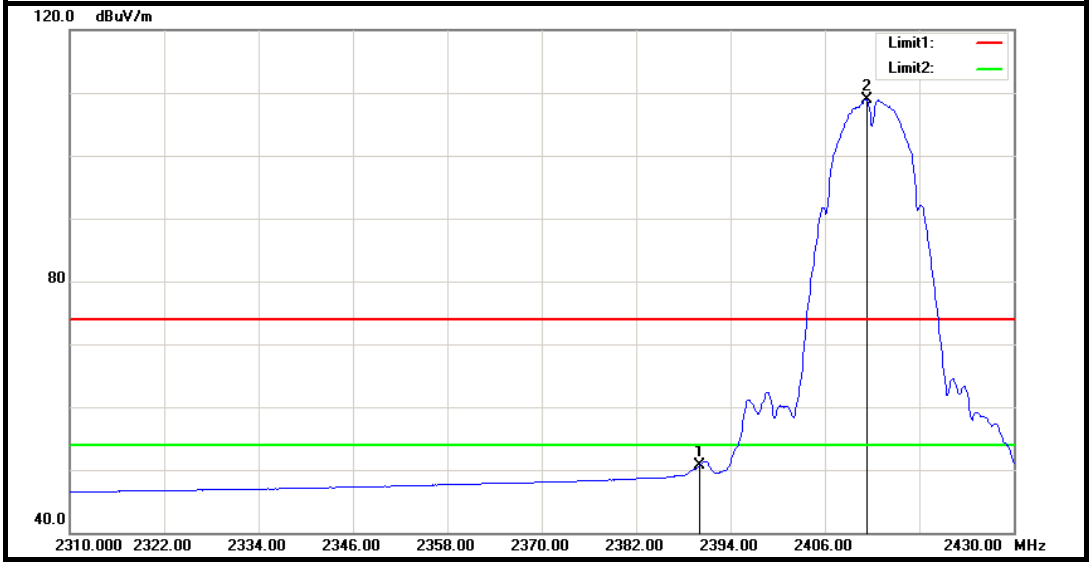
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	64.25	-2.86	61.39	74.00	-12.61	Peak	Vertical
2	2412.120	116.32	-2.74	113.58	---	---	Peak	Vertical
1	2390.000	54.66	-2.86	51.80	54.00	-2.20	Average	Vertical
2	2411.160	112.75	-2.75	110.00	---	---	Average	Vertical

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**

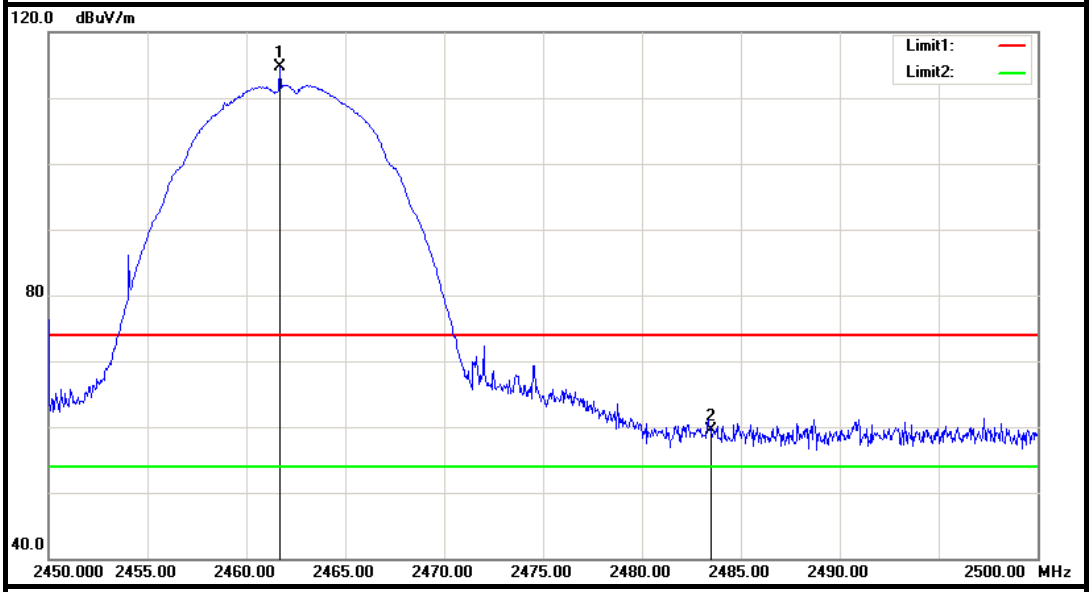


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	62.17	-2.86	59.31	74.00	-14.69	Peak	Horizontal
2	2412.000	115.22	-2.74	112.48	---	---	Peak	Horizontal
1	2390.000	53.46	-2.86	50.60	54.00	-3.40	Average	Horizontal
2	2411.280	111.72	-2.75	108.97	---	---	Average	Horizontal

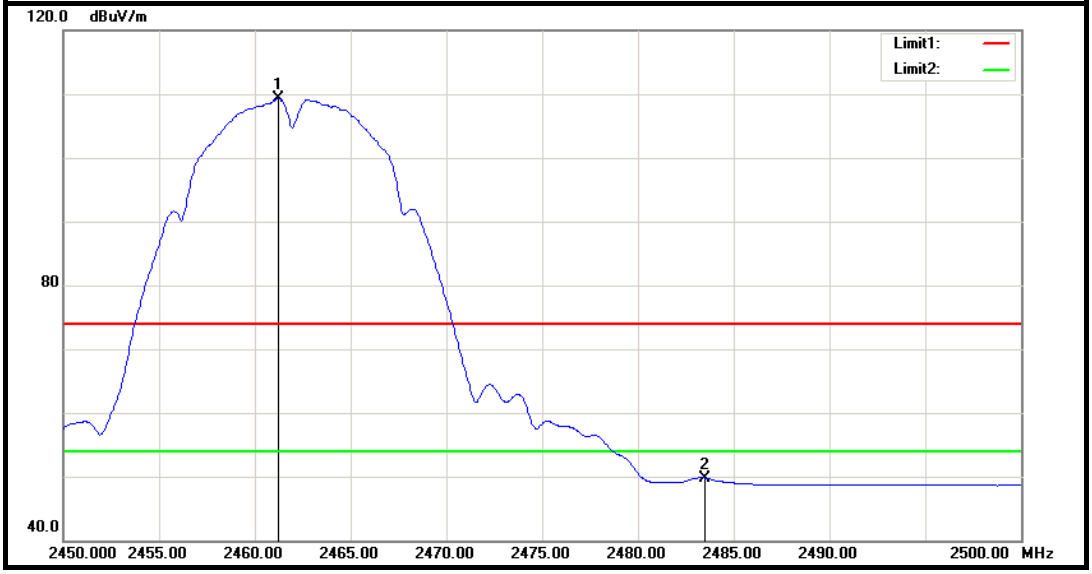
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Band Edges (CH High)

Detector mode: Peak **Polarity: Vertical**



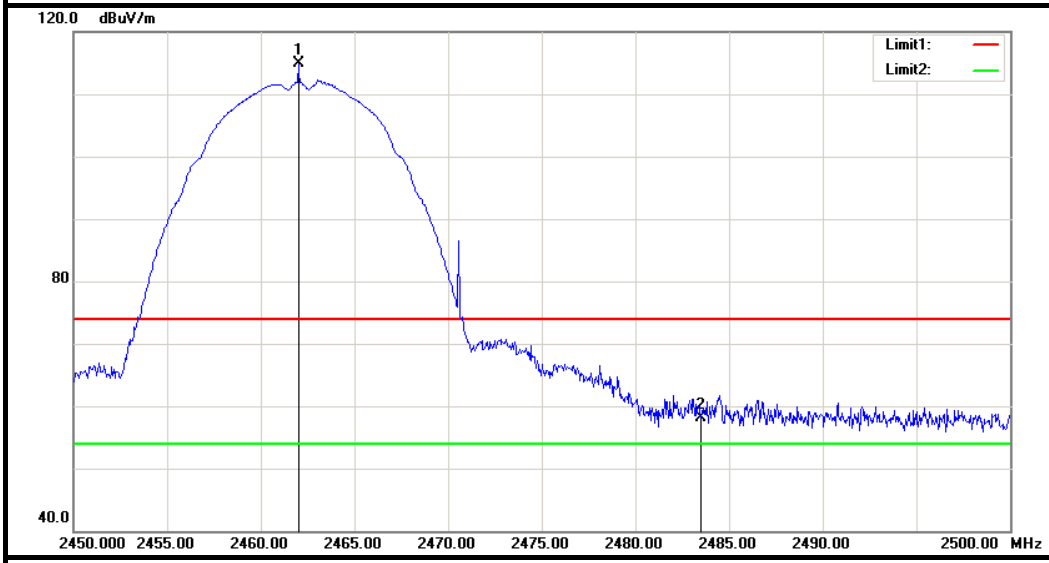
Detector mode: Average **Polarity: Vertical**



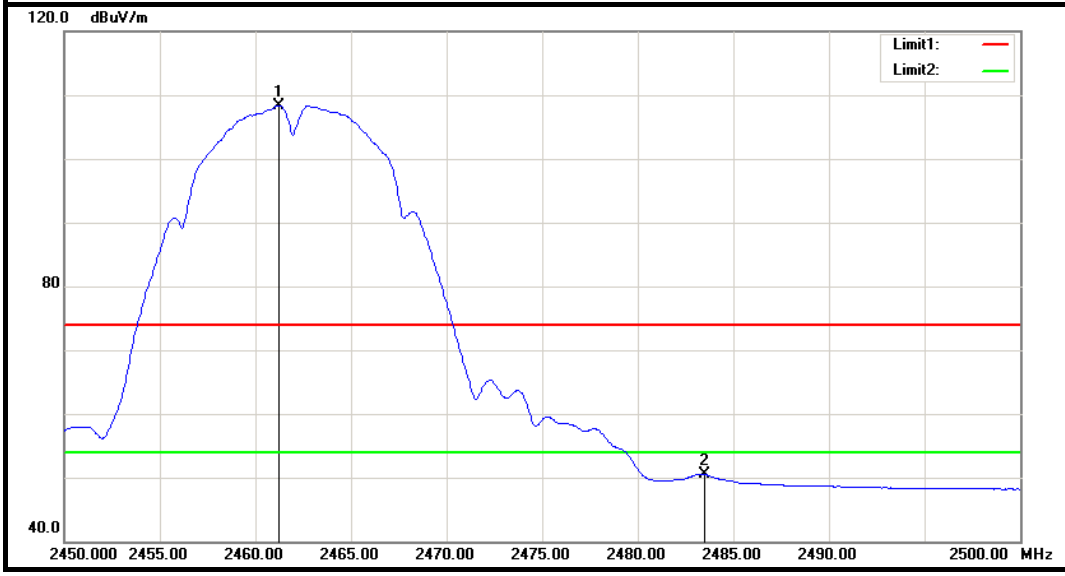
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2461.700	117.27	-2.47	114.80	---	---	Peak	Vertical
2	2483.500	61.79	-2.35	59.44	74.00	-14.56	Peak	Vertical
1	2461.250	111.74	-2.47	109.27	---	---	Average	Vertical
2	2483.500	52.13	-2.35	49.78	54.00	-4.22	Average	Vertical

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**

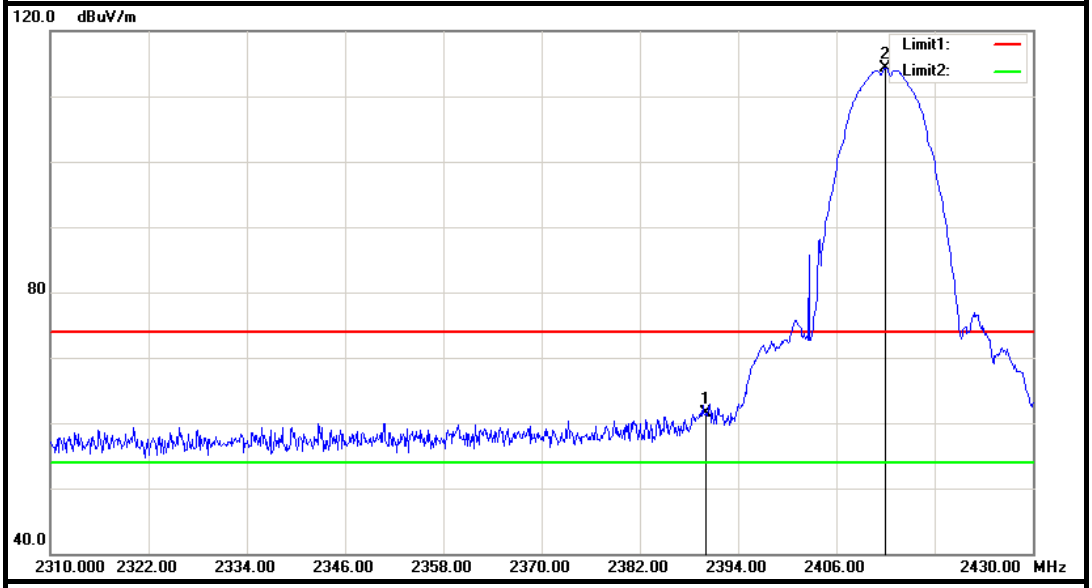


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2462.000	117.41	-2.47	114.94	---	---	Peak	Horizontal
2	2483.500	60.47	-2.35	58.12	74.00	-15.88	Peak	Horizontal
1	2461.200	110.86	-2.47	108.39	---	---	Average	Horizontal
2	2483.500	52.83	-2.35	50.48	54.00	-3.52	Average	Horizontal

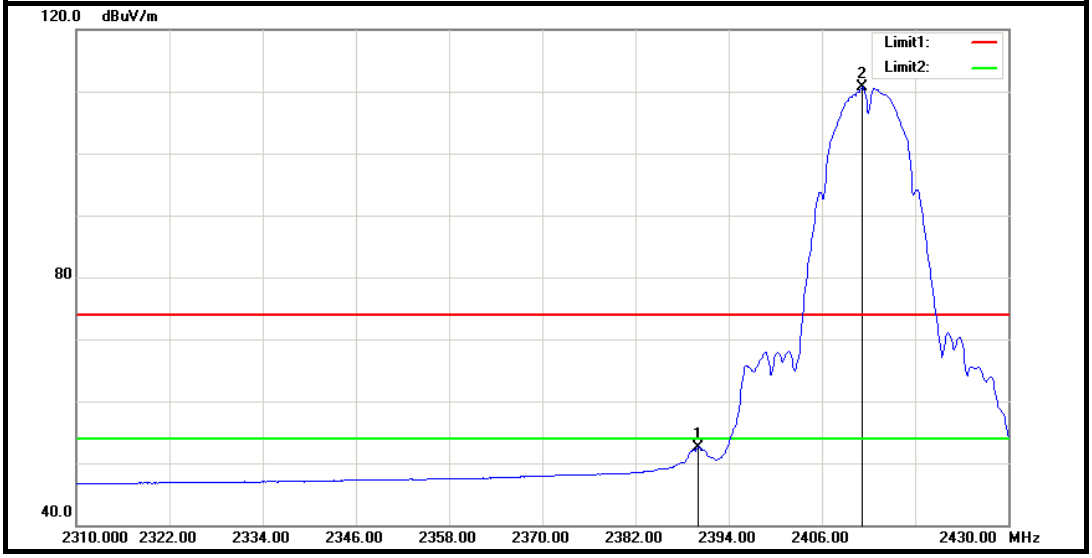
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

IEEE 802.11b mode (antenna 2)
Band Edges (CH Low)

Detector mode: Peak **Polarity: Vertical**



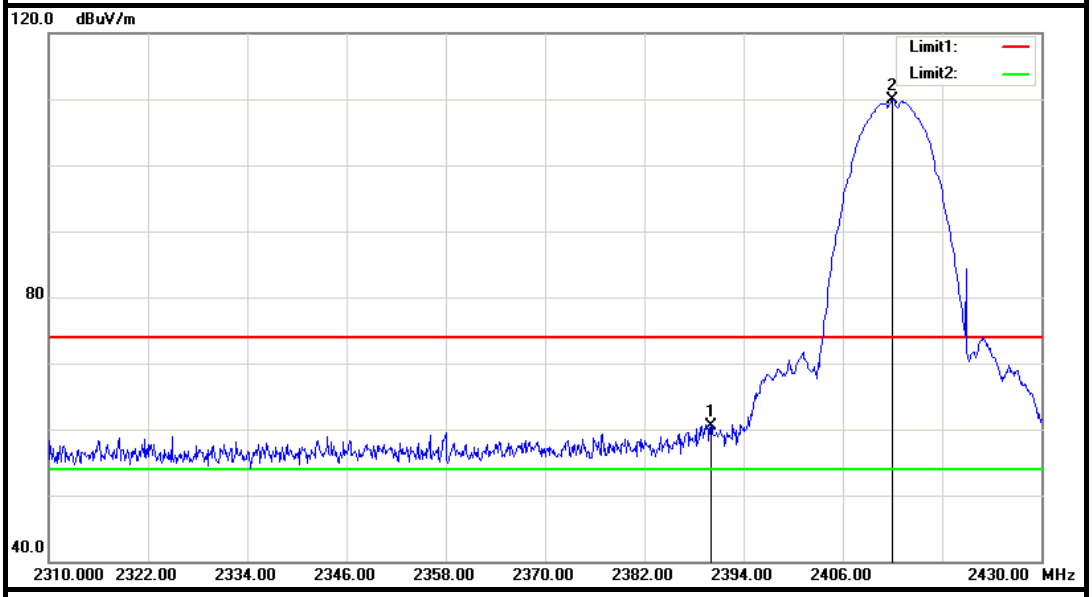
Detector mode: Average **Polarity: Vertical**



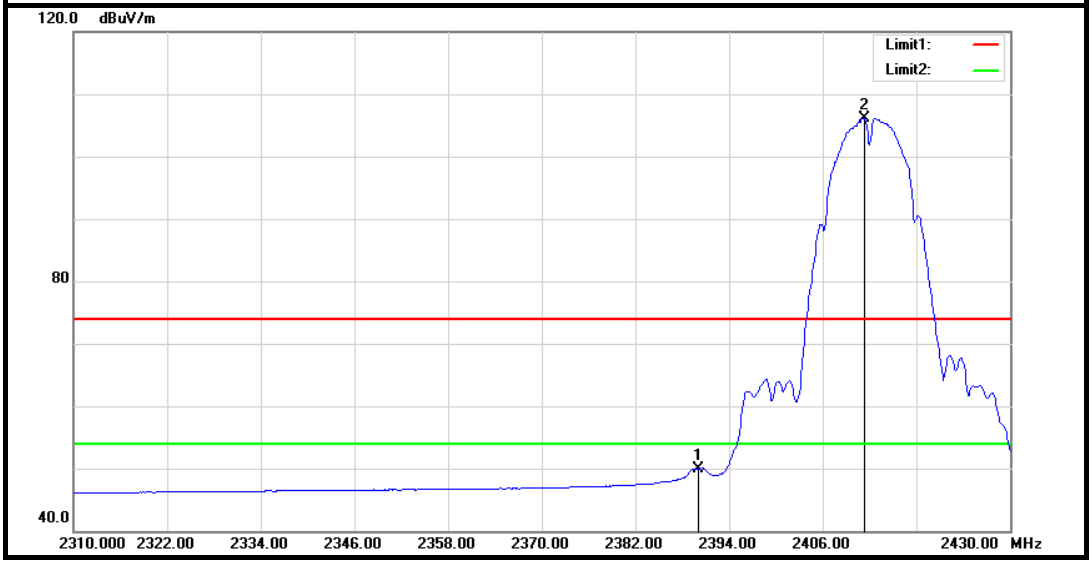
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	64.44	-2.86	61.58	74.00	-12.42	Peak	Vertical
2	2412.000	117.13	-2.74	114.39	---	---	Peak	Vertical
1	2390.000	55.29	-2.86	52.43	54.00	-1.57	Average	Vertical
2	2411.160	113.43	-2.75	110.68	---	---	Average	Vertical

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.

Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	63.28	-2.86	60.42	74.00	-13.58	Peak	Horizontal
2	2412.000	112.63	-2.74	109.89	---	---	Peak	Horizontal
1	2390.000	52.74	-2.86	49.88	54.00	-4.12	Average	Horizontal
2	2411.280	108.94	-2.75	106.19	---	---	Average	Horizontal

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services (Shenzhen) Inc.