



7.2.2.3. Measuring Instruments and Setting

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/T for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/T for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP/AVG
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP/AVG
Start ~ Stop Frequency	30MHz~1000MHz / RB 100kHz for QP

7.2.2.4. TEST PROCEDURE (please refer to measurement standard)

1) Sequence of testing 9 kHz to 30 MHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.
- If the EUT is a floor standing device, it is placed on the ground.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

Pre measurement:

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna height is 0.8 meter.
- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions



Final measurement:

--- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0° to 360°) and by rotating the elevation axes (0° to 360°).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

2) Sequence of testing 30 MHz to 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 3 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.



Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position ($\pm 45^\circ$) and antenna movement between 1 and 4 meter.
- The final measurement will be done with QP detector with an EMI receiver.
- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) Sequence of testing 1 GHz to 18 GHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

Pre measurement:

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height scan range is 1 meter to 2.5 meter.
- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.



Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position ($\pm 45^\circ$) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.
- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

4) Sequence of testing above 18 GHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 1 meter.
- The EUT was set into operation.

Pre measurement:

- The antenna is moved spherical over the EUT in different polarisations of the antenna.

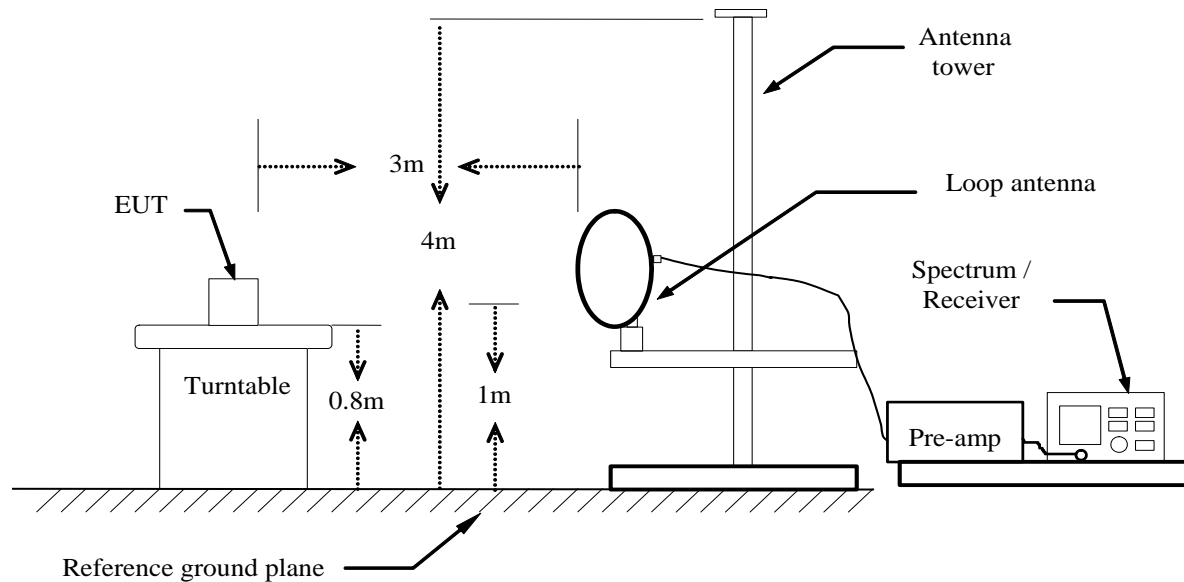
Final measurement:

- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

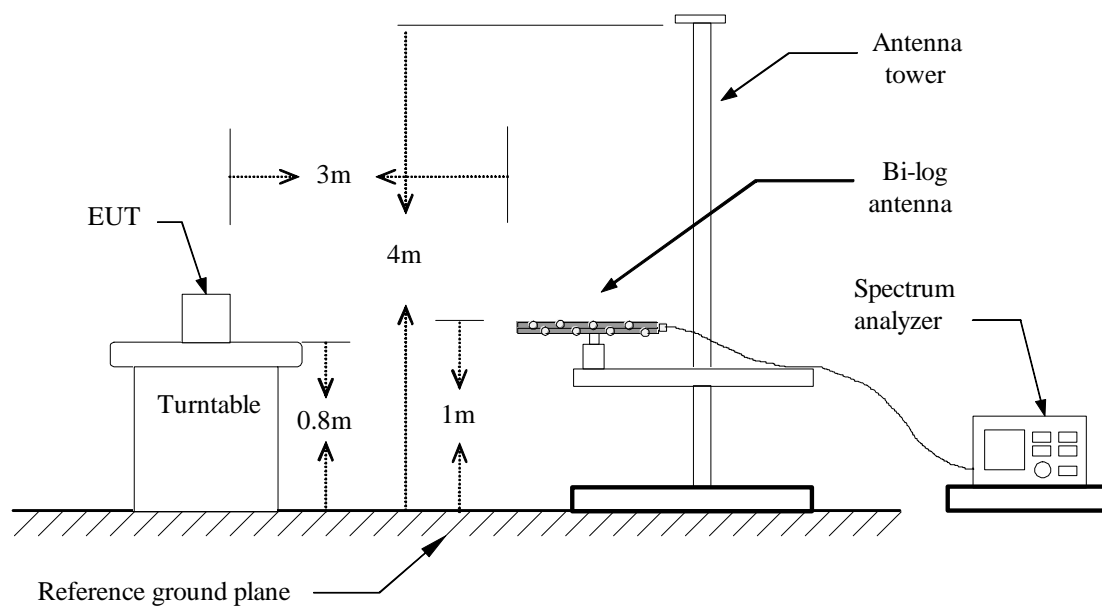


7.2.2.5. TEST SETUP

Below 30MHz

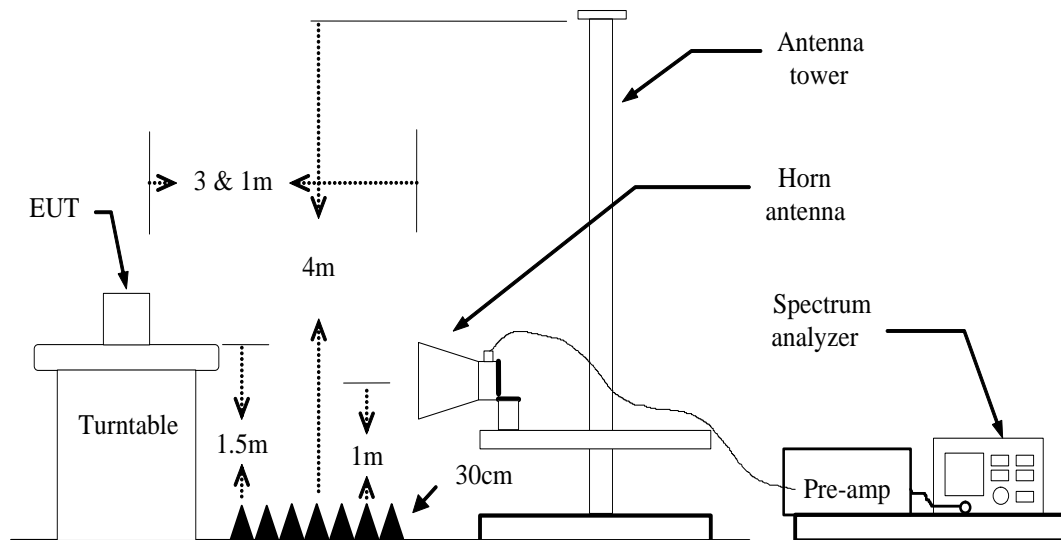


Below 1 GHz





Above 1 GHz



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

**7.2.2.6. DATA SAPLE****Below 1GHz**

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
XXXX	36.37	-12.20	24.17	40.00	-15.83	V	QP

Frequency (MHz) = Emission frequency in MHz
 Reading (dBuV) = Uncorrected Analyzer / Receiver reading
 Correct Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
 Result (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
 Limit (dBuV/m) = Limit stated in standard
 Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)
 Q.P. = Quasi-peak Reading

Above 1GHz

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
XXXX	62.09	-11.42	50.67	74.00	-23.33	V	Peak
XXXX	49.78	-11.42	38.36	54.00	-15.64	V	AVG

Frequency (MHz) = Emission frequency in MHz
 Reading (dBuV) = Uncorrected Analyzer / Receiver reading
 Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
 Result (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
 Limit (dBuV/m) = Limit stated in standard
 Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)
 Peak = Peak Reading
 AVG = Average Reading

Calculation Formula

Margin (dB) = Result (dBuV/m) – Limits (dBuV/m)
 Result (dBuV/m) = Reading (dBuV) + Correction Factor

**7.2.2.7. TEST RESULTS****Below 1 GHz****Test Mode:** TX / IEEE 802.11b(CH Low)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** June 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
37.7600	50.20	-15.48	34.72	40.00	-5.28	V	QP
93.0500	53.15	-24.42	28.73	43.50	-14.77	V	QP
375.3200	41.77	-16.82	24.95	46.00	-21.05	V	QP
433.5200	41.48	-15.62	25.86	46.00	-20.14	V	QP
540.2200	38.91	-13.28	25.63	46.00	-20.37	V	QP
624.6100	38.91	-12.73	26.18	46.00	-19.82	V	QP
38.7300	40.57	-15.79	24.78	40.00	-15.22	H	QP
105.6600	46.84	-22.63	24.21	43.50	-19.29	H	QP
375.3200	44.46	-16.82	27.64	46.00	-18.36	H	QP
500.4500	38.36	-14.35	24.01	46.00	-21.99	H	QP
540.2200	35.92	-13.28	22.64	46.00	-23.36	H	QP
624.6100	41.61	-12.73	28.88	46.00	-17.12	H	QP

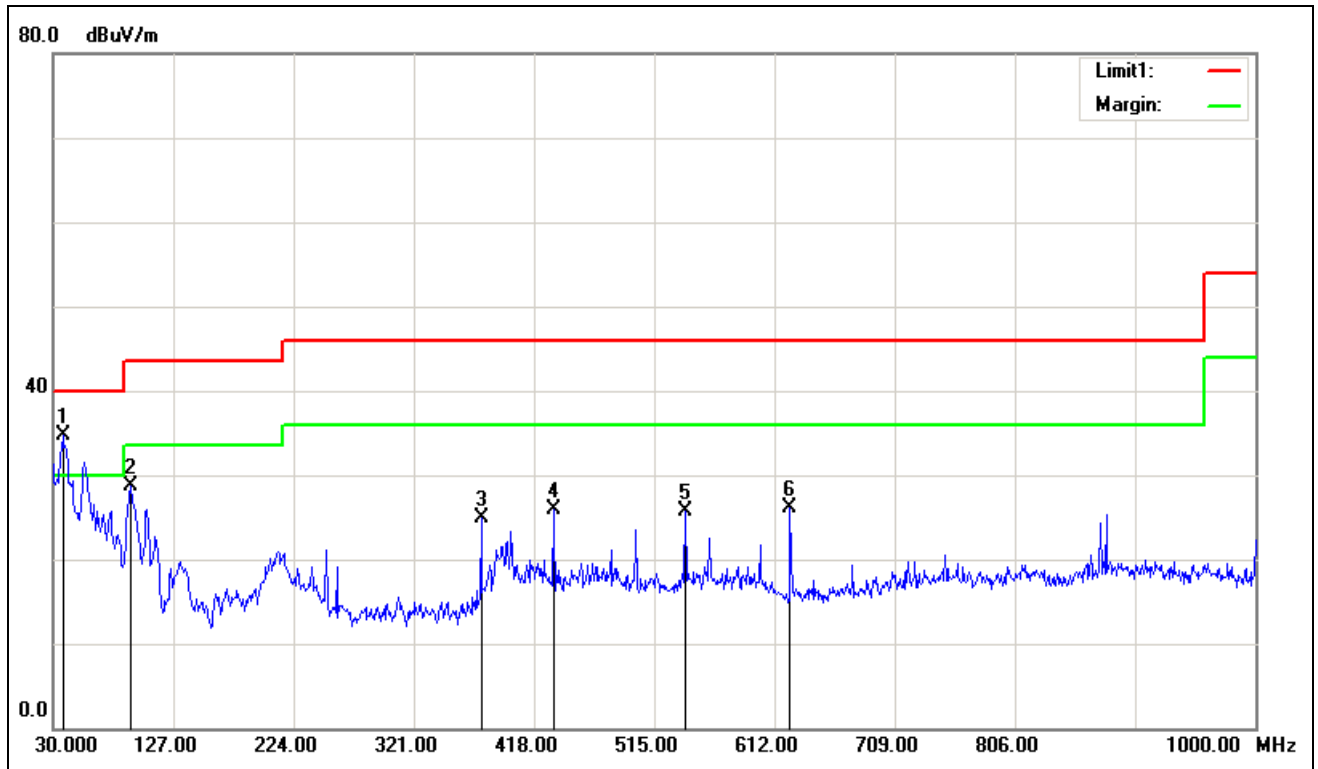
Pre-scan all mode and recorded the worst case results in this report (802.11b (Low Mid))

Remark:

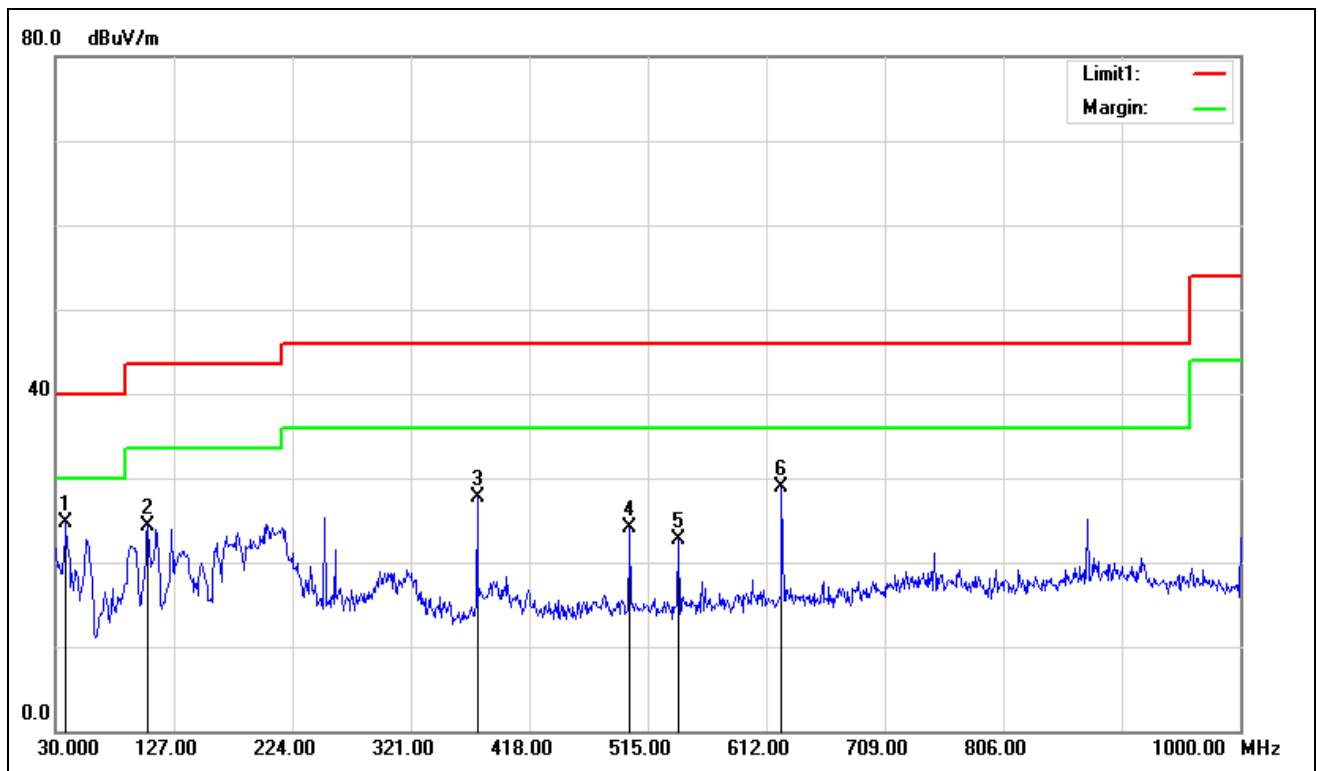
- No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz)
- Radiated emissions measured in frequency range from 9kHz to 1GHz were made with an instrument using Quasi-peak detector mode.
- Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- The IF bandwidth of Receiver between 30MHz to 1GHz was 120kHz.
- | | |
|------------------------|--|
| Frequency (MHz) | = Emission frequency in MHz |
| Reading (dBuV/m) | = Receiver reading |
| Correction Factor (dB) | = Antenna factor + Cable loss – Amplifier gain |
| Limit (dBuV/m) | = Limit stated in standard |
| Margin (dB) | = Measured (dBuV/m) – Limits (dBuV/m) |
| Antenna Pol e(H/V) | = Current carrying line of reading |



Vertical



Horizontal



**Above 1 GHz****Antenna 0****Test Mode:** TX / IEEE 802.11b(CH Low)**Tested by:** Fade Zhong**Ambient temperature:** 24°C **Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1351.000	47.20	-7.24	39.96	74.00	-34.04	V	peak
2089.000	45.81	-4.51	41.30	74.00	-32.70	V	peak
2485.000	46.18	-2.34	43.84	74.00	-30.16	V	peak
3691.000	43.32	0.29	43.61	74.00	-30.39	V	peak
5005.000	42.34	4.99	47.33	74.00	-26.67	V	peak
5536.000	40.79	5.89	46.68	74.00	-27.32	V	peak
1765.000	54.58	-6.35	48.23	74.00	-25.77	H	Peak
2566.000	46.03	-2.14	43.89	74.00	-30.11	H	Peak
3619.000	44.27	-0.02	44.25	74.00	-29.75	H	Peak
5077.000	41.54	5.12	46.66	74.00	-27.34	H	peak
5806.000	41.29	6.00	47.29	74.00	-26.71	H	peak
6778.000	41.21	7.34	48.55	74.00	-25.45	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).

**Test Mode:** TX / IEEE 802.11b (CH Mid)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1747.000	48.01	-6.38	41.63	74.00	-32.37	V	Peak
2440.000	44.62	-2.59	42.03	74.00	-31.97	V	Peak
2836.000	45.41	-1.66	43.75	74.00	-30.25	V	Peak
3862.000	42.46	1.01	43.47	74.00	-30.53	V	Peak
4825.000	41.18	4.41	45.59	74.00	-28.41	V	Peak
5653.000	40.88	5.93	46.81	74.00	-27.19	V	Peak
1765.000	48.14	-6.35	41.79	74.00	-32.21	H	Peak
2539.000	45.72	-2.19	43.53	74.00	-30.47	H	Peak
3655.000	44.30	0.13	44.43	74.00	-29.57	H	Peak
3997.000	43.23	1.58	44.81	74.00	-29.19	H	Peak
4384.000	42.17	2.94	45.11	74.00	-28.89	H	Peak
5662.000	42.04	5.94	47.98	74.00	-26.02	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).

**Test Mode:** TX / IEEE 802.11b (CH High)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1765.000	47.52	-6.35	41.17	74.00	-32.83	V	Peak
2458.000	47.32	-2.49	44.83	74.00	-29.17	V	Peak
3610.000	42.83	-0.06	42.77	74.00	-31.23	V	Peak
4573.000	43.00	3.59	46.59	74.00	-27.41	V	Peak
5518.000	41.15	5.88	47.03	74.00	-26.97	V	Peak
6535.000	40.83	6.95	47.78	74.00	-26.22	V	Peak
1765.000	47.20	-6.35	40.85	74.00	-33.15	H	Peak
2512.000	46.07	-2.24	43.83	74.00	-30.17	H	Peak
3691.000	44.93	0.29	45.22	74.00	-28.78	H	Peak
4546.000	42.70	3.50	46.20	74.00	-27.80	H	Peak
5320.000	41.68	5.55	47.23	74.00	-26.77	H	Peak
6328.000	40.90	6.61	47.51	74.00	-26.49	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).

**Antenna 1****Test Mode:** TX / IEEE 802.11b(CH Low)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1765.000	48.01	-6.35	41.66	74.00	-32.34	V	peak
2512.000	47.11	-2.24	44.87	74.00	-29.13	V	peak
3763.000	42.62	0.59	43.21	74.00	-30.79	V	peak
4825.000	41.43	4.41	45.84	74.00	-28.16	V	peak
5626.000	40.89	5.92	46.81	74.00	-27.19	V	peak
6508.000	40.84	6.90	47.74	74.00	-26.26	V	peak
1621.000	48.24	-6.65	41.59	74.00	-32.41	H	Peak
2557.000	46.57	-2.16	44.41	74.00	-29.59	H	Peak
3619.000	45.15	-0.02	45.13	74.00	-28.87	H	Peak
4825.000	43.11	4.41	47.52	74.00	-26.48	H	peak
5869.000	41.05	6.02	47.07	74.00	-26.93	H	peak
6481.000	41.14	6.86	48.00	74.00	-26.00	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).



Test Mode: TX / IEEE 802.11b (CH Mid)

Tested by: Fade Zhong

Ambient temperature: 24°C

Relative humidity: 52% RH

Date: August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1765.000	48.16	-6.35	41.81	74.00	-32.19	V	Peak
2827.000	45.37	-1.67	43.70	74.00	-30.30	V	Peak
3367.000	43.85	-0.74	43.11	74.00	-30.89	V	Peak
4141.000	42.63	2.09	44.72	74.00	-29.28	V	Peak
5041.000	41.72	5.05	46.77	74.00	-27.23	V	Peak
6202.000	41.67	6.41	48.08	74.00	-25.92	V	Peak
1756.000	47.56	-6.36	41.20	74.00	-32.80	H	Peak
2800.000	45.10	-1.72	43.38	74.00	-30.62	H	Peak
3655.000	45.34	0.13	45.47	74.00	-28.53	H	Peak
4186.000	41.83	2.24	44.07	74.00	-29.93	H	Peak
4978.000	41.49	4.91	46.40	74.00	-27.60	H	Peak
5617.000	41.48	5.92	47.40	74.00	-26.60	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).

**Test Mode:** TX / IEEE 802.11b (CH High)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1756.000	47.40	-6.36	41.04	74.00	-32.96	V	Peak
2503.000	46.01	-2.25	43.76	74.00	-30.24	V	Peak
3376.000	43.51	-0.73	42.78	74.00	-31.22	V	Peak
4231.000	43.29	2.40	45.69	74.00	-28.31	V	Peak
5212.000	41.37	5.36	46.73	74.00	-27.27	V	Peak
6526.000	40.77	6.93	47.70	74.00	-26.30	V	Peak
1765.000	50.21	-6.35	43.86	74.00	-30.14	H	Peak
2818.000	45.11	-1.69	43.42	74.00	-30.58	H	Peak
3691.000	45.32	0.29	45.61	74.00	-28.39	H	Peak
4699.000	42.30	4.00	46.30	74.00	-27.70	H	Peak
5356.000	41.15	5.61	46.76	74.00	-27.24	H	Peak
5914.000	41.27	6.04	47.31	74.00	-26.69	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).

**Antenna 2****Test Mode:** TX / IEEE 802.11b(CH Low)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1765.000	47.64	-6.35	41.29	74.00	-32.71	V	peak
2512.000	45.70	-2.24	43.46	74.00	-30.54	V	peak
3700.000	43.18	0.32	43.50	74.00	-30.50	V	peak
5005.000	41.81	4.99	46.80	74.00	-27.20	V	peak
5518.000	41.89	5.88	47.77	74.00	-26.23	V	peak
6031.000	42.38	6.13	48.51	74.00	-25.49	V	peak
1756.000	50.96	-6.36	44.60	74.00	-29.40	H	Peak
2521.000	46.29	-2.22	44.07	74.00	-29.93	H	Peak
3646.000	43.98	0.10	44.08	74.00	-29.92	H	Peak
4915.000	42.09	4.70	46.79	74.00	-27.21	H	peak
5950.000	41.28	6.06	47.34	74.00	-26.66	H	peak
6958.000	40.93	7.63	48.56	74.00	-25.44	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).

**Test Mode:** TX / IEEE 802.11b (CH Mid)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1756.000	49.64	-6.36	43.28	74.00	-30.72	V	Peak
2512.000	45.73	-2.24	43.49	74.00	-30.51	V	Peak
3790.000	43.02	0.70	43.72	74.00	-30.28	V	Peak
4339.000	42.44	2.78	45.22	74.00	-28.78	V	Peak
4933.000	42.12	4.76	46.88	74.00	-27.12	V	Peak
6670.000	40.88	7.17	48.05	74.00	-25.95	V	Peak
1747.000	48.89	-6.38	42.51	74.00	-31.49	H	Peak
2647.000	44.29	-2.00	42.29	74.00	-31.71	H	Peak
3214.000	44.87	-1.00	43.87	74.00	-30.13	H	Peak
4285.000	41.73	2.59	44.32	74.00	-29.68	H	Peak
5212.000	41.49	5.36	46.85	74.00	-27.15	H	Peak
6274.000	41.22	6.52	47.74	74.00	-26.26	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).

**Test Mode:** TX / IEEE 802.11b (CH High)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1747.000	48.91	-6.38	42.53	74.00	-31.47	V	Peak
2521.000	46.44	-2.22	44.22	74.00	-29.78	V	Peak
3349.000	43.54	-0.77	42.77	74.00	-31.23	V	Peak
4330.000	43.72	2.75	46.47	74.00	-27.53	V	Peak
5059.000	41.16	5.09	46.25	74.00	-27.75	V	Peak
5491.000	41.63	5.85	47.48	74.00	-26.52	V	Peak
1765.000	52.66	-6.35	46.31	74.00	-27.69	H	Peak
2557.000	45.60	-2.16	43.44	74.00	-30.56	H	Peak
3691.000	44.74	0.29	45.03	74.00	-28.97	H	Peak
4825.000	41.77	4.41	46.18	74.00	-27.82	H	Peak
5797.000	40.85	5.99	46.84	74.00	-27.16	H	Peak
6445.000	41.05	6.80	47.85	74.00	-26.15	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).

**Antenna 0****Test Mode:** TX / IEEE 802.11g(CH Low)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1765.000	48.07	-6.35	41.72	74.00	-32.28	V	Peak
2530.000	45.15	-2.21	42.94	74.00	-31.06	V	Peak
3061.000	44.35	-1.26	43.09	74.00	-30.91	V	Peak
3772.000	42.90	0.63	43.53	74.00	-30.47	V	Peak
4807.000	41.38	4.35	45.73	74.00	-28.27	V	Peak
5608.000	41.35	5.92	47.27	74.00	-26.73	V	Peak
1594.000	47.58	-6.71	40.87	74.00	-33.13	H	Peak
2647.000	45.11	-2.00	43.11	74.00	-30.89	H	Peak
3619.000	44.70	-0.02	44.68	74.00	-29.32	H	Peak
4411.000	42.41	3.04	45.45	74.00	-28.55	H	Peak
5464.000	42.30	5.81	48.11	74.00	-25.89	H	Peak
6310.000	41.11	6.58	47.69	74.00	-26.31	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).

**Test Mode:** TX / IEEE 802.11g (CH Mid)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
2035.000	45.77	-4.81	40.96	74.00	-33.04	V	Peak
2503.000	45.53	-2.25	43.28	74.00	-30.72	V	Peak
3646.000	43.43	0.10	43.53	74.00	-30.47	V	Peak
4555.000	42.36	3.53	45.89	74.00	-28.11	V	Peak
5302.000	41.30	5.52	46.82	74.00	-27.18	V	Peak
5707.000	42.38	5.96	48.34	74.00	-25.66	V	Peak
1765.000	48.20	-6.35	41.85	74.00	-32.15	H	Peak
2521.000	46.44	-2.22	44.22	74.00	-29.78	H	Peak
3223.000	44.20	-0.99	43.21	74.00	-30.79	H	Peak
4411.000	42.66	3.04	45.70	74.00	-28.30	H	Peak
4996.000	42.45	4.97	47.42	74.00	-26.58	H	Peak
5941.000	41.40	6.06	47.46	74.00	-26.54	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).

**Test Mode:** TX / IEEE 802.11g (CH High)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1765.000	50.62	-6.35	44.27	74.00	-29.73	V	Peak
2458.000	46.29	-2.49	43.80	74.00	-30.20	V	Peak
2818.000	45.32	-1.69	43.63	74.00	-30.37	V	Peak
3619.000	42.93	-0.02	42.91	74.00	-31.09	V	Peak
4501.000	42.30	3.35	45.65	74.00	-28.35	V	Peak
5122.000	41.61	5.20	46.81	74.00	-27.19	V	Peak
1747.000	47.41	-6.38	41.03	74.00	-32.97	H	Peak
2521.000	46.89	-2.22	44.67	74.00	-29.33	H	Peak
3772.000	43.40	0.63	44.03	74.00	-29.97	H	Peak
4996.000	43.31	4.97	48.28	74.00	-25.72	H	Peak
5455.000	41.48	5.79	47.27	74.00	-26.73	H	Peak
6607.000	40.63	7.06	47.69	74.00	-26.31	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).

**Antenna 1****Test Mode:** TX / IEEE 802.11g(CH Low)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1765.000	47.55	-6.35	41.20	74.00	-32.80	V	Peak
2512.000	45.92	-2.24	43.68	74.00	-30.32	V	Peak
3070.000	43.57	-1.24	42.33	74.00	-31.67	V	Peak
4042.000	43.24	1.74	44.98	74.00	-29.02	V	Peak
4996.000	42.92	4.97	47.89	74.00	-26.11	V	Peak
5923.000	41.31	6.05	47.36	74.00	-26.64	V	Peak
1747.000	48.15	-6.38	41.77	74.00	-32.23	H	Peak
2917.000	44.79	-1.51	43.28	74.00	-30.72	H	Peak
3997.000	42.63	1.58	44.21	74.00	-29.79	H	Peak
4591.000	42.84	3.65	46.49	74.00	-27.51	H	Peak
4996.000	42.46	4.97	47.43	74.00	-26.57	H	Peak
6364.000	41.40	6.67	48.07	74.00	-25.93	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).



Test Mode: TX / IEEE 802.11g (CH Mid)

Tested by: Fade Zhong

Ambient temperature: 24°C

Relative humidity: 52% RH

Date: August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1765.000	50.22	-6.35	43.87	74.00	-30.13	V	Peak
2521.000	45.98	-2.22	43.76	74.00	-30.24	V	Peak
3214.000	45.14	-1.00	44.14	74.00	-29.86	V	Peak
4393.000	42.66	2.97	45.63	74.00	-28.37	V	Peak
4897.000	42.32	4.64	46.96	74.00	-27.04	V	Peak
5905.000	41.47	6.04	47.51	74.00	-26.49	V	Peak
1765.000	47.46	-6.35	41.11	74.00	-32.89	H	Peak
2530.000	45.50	-2.21	43.29	74.00	-30.71	H	Peak
3061.000	43.85	-1.26	42.59	74.00	-31.41	H	Peak
4699.000	42.59	4.00	46.59	74.00	-27.41	H	Peak
5347.000	41.62	5.60	47.22	74.00	-26.78	H	Peak
6706.000	40.61	7.22	47.83	74.00	-26.17	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).

**Test Mode:** TX / IEEE 802.11g (CH High)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1747.000	48.33	-6.38	41.95	74.00	-32.05	V	Peak
2503.000	45.74	-2.25	43.49	74.00	-30.51	V	Peak
3214.000	43.24	-1.00	42.24	74.00	-31.76	V	Peak
4474.000	41.46	3.26	44.72	74.00	-29.28	V	Peak
5500.000	41.19	5.87	47.06	74.00	-26.94	V	Peak
6670.000	41.66	7.17	48.83	74.00	-25.17	V	Peak
1765.000	53.44	-6.35	47.09	74.00	-26.91	H	Peak
2539.000	45.89	-2.19	43.70	74.00	-30.30	H	Peak
2818.000	44.68	-1.69	42.99	74.00	-31.01	H	Peak
3691.000	43.87	0.29	44.16	74.00	-29.84	H	Peak
4312.000	42.09	2.69	44.78	74.00	-29.22	H	Peak
4933.000	43.04	4.76	47.80	74.00	-26.20	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).

**Antenna 2****Test Mode:** TX / IEEE 802.11g(CH Low)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1747.000	54.42	-6.38	48.04	74.00	-25.96	V	Peak
2548.000	45.74	-2.17	43.57	74.00	-30.43	V	Peak
3358.000	43.74	-0.76	42.98	74.00	-31.02	V	Peak
4636.000	42.96	3.79	46.75	74.00	-27.25	V	Peak
5482.000	42.49	5.84	48.33	74.00	-25.67	V	Peak
6328.000	41.26	6.61	47.87	74.00	-26.13	V	Peak
1747.000	49.18	-6.38	42.80	74.00	-31.20	H	Peak
2548.000	45.97	-2.17	43.80	74.00	-30.20	H	Peak
3205.000	43.17	-1.02	42.15	74.00	-31.85	H	Peak
3889.000	43.19	1.12	44.31	74.00	-29.69	H	Peak
5212.000	41.68	5.36	47.04	74.00	-26.96	H	Peak
6103.000	41.51	6.25	47.76	74.00	-26.24	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).



Test Mode: TX / IEEE 802.11g (CH Mid)

Tested by: Fade Zhong

Ambient temperature: 24°C

Relative humidity: 52% RH

Date: August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1756.000	47.40	-6.36	41.04	74.00	-32.96	V	Peak
2647.000	46.73	-2.00	44.73	74.00	-29.27	V	Peak
3358.000	43.96	-0.76	43.20	74.00	-30.80	V	Peak
4213.000	42.12	2.34	44.46	74.00	-29.54	V	Peak
5041.000	41.95	5.05	47.00	74.00	-27.00	V	Peak
5698.000	41.65	5.95	47.60	74.00	-26.40	V	Peak
1765.000	51.58	-6.35	45.23	74.00	-28.77	H	Peak
2629.000	45.48	-2.03	43.45	74.00	-30.55	H	Peak
3655.000	44.80	0.13	44.93	74.00	-29.07	H	Peak
4078.000	42.20	1.86	44.06	74.00	-29.94	H	Peak
5041.000	42.91	5.05	47.96	74.00	-26.04	H	Peak
6013.000	41.76	6.10	47.86	74.00	-26.14	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).

**Test Mode:** TX / IEEE 802.11g (CH High)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1765.000	46.95	-6.35	40.60	74.00	-33.40	V	Peak
2638.000	46.62	-2.01	44.61	74.00	-29.39	V	Peak
3259.000	43.03	-0.92	42.11	74.00	-31.89	V	Peak
4438.000	42.26	3.13	45.39	74.00	-28.61	V	Peak
5140.000	41.59	5.23	46.82	74.00	-27.18	V	Peak
5959.000	41.35	6.06	47.41	74.00	-26.59	V	Peak
1765.000	51.48	-6.35	45.13	74.00	-28.87	H	Peak
2665.000	46.08	-1.96	44.12	74.00	-29.88	H	Peak
3691.000	44.65	0.29	44.94	74.00	-29.06	H	Peak
4771.000	42.04	4.23	46.27	74.00	-27.73	H	Peak
5518.000	41.72	5.88	47.60	74.00	-26.40	H	Peak
6166.000	41.21	6.35	47.56	74.00	-26.44	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).

**Combine with Antenna 0 and Antenna 1 and Antenna 2****Test Mode:** TX / IEEE 802.11n HT20 MHz (CH Low)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1756.000	47.75	-6.36	41.39	74.00	-32.61	V	Peak
2422.000	48.28	-2.69	45.59	74.00	-28.41	V	Peak
2638.000	47.21	-2.01	45.20	74.00	-28.80	V	Peak
3412.000	43.16	-0.67	42.49	74.00	-31.51	V	Peak
4231.000	43.52	2.40	45.92	74.00	-28.08	V	Peak
5095.000	41.57	5.15	46.72	74.00	-27.28	V	Peak
1927.000	46.20	-5.46	40.74	74.00	-33.26	H	Peak
2656.000	46.79	-1.98	44.81	74.00	-29.19	H	Peak
3376.000	43.44	-0.73	42.71	74.00	-31.29	H	Peak
4078.000	41.85	1.86	43.71	74.00	-30.29	H	Peak
4816.000	44.38	4.38	48.76	74.00	-25.24	H	Peak
6247.000	40.92	6.48	47.40	74.00	-26.60	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).

**Test Mode:** TX / IEEE 802.11n HT20 MHz (CH Mid)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1765.000	48.31	-6.35	41.96	74.00	-32.04	V	Peak
2683.000	47.46	-1.93	45.53	74.00	-28.47	V	Peak
2917.000	44.46	-1.51	42.95	74.00	-31.05	V	Peak
4168.000	42.58	2.18	44.76	74.00	-29.24	V	Peak
5437.000	41.96	5.76	47.72	74.00	-26.28	V	Peak
6409.000	41.54	6.74	48.28	74.00	-25.72	V	Peak
1747.000	48.01	-6.38	41.63	74.00	-32.37	H	Peak
2440.000	46.47	-2.59	43.88	74.00	-30.12	H	Peak
2620.000	45.64	-2.04	43.60	74.00	-30.40	H	Peak
3376.000	43.21	-0.73	42.48	74.00	-31.52	H	Peak
4321.000	42.16	2.72	44.88	74.00	-29.12	H	Peak
4870.000	46.23	4.56	50.79	74.00	-23.21	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).

**Test Mode:** TX / EEE 802.11n HT20 MHz (CH High)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1756.000	47.46	-6.36	41.10	74.00	-32.90	V	Peak
2656.000	46.25	-1.98	44.27	74.00	-29.73	V	Peak
3691.000	43.64	0.29	43.93	74.00	-30.07	V	Peak
4780.000	41.40	4.26	45.66	74.00	-28.34	V	Peak
5455.000	41.77	5.79	47.56	74.00	-26.44	V	Peak
6499.000	41.55	6.89	48.44	74.00	-25.56	V	Peak
1765.000	48.71	-6.35	42.36	74.00	-31.64	H	Peak
2674.000	46.13	-1.95	44.18	74.00	-29.82	H	Peak
2836.000	44.99	-1.66	43.33	74.00	-30.67	H	Peak
4033.000	42.19	1.71	43.90	74.00	-30.10	H	Peak
5500.000	41.25	5.87	47.12	74.00	-26.88	H	Peak
6445.000	41.55	6.80	48.35	74.00	-25.65	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).

**Combine with Antenna 0 and Antenna 1 and Antenna 2****Test Mode:** TX/ IEEE 802.11n HT40 MHz (CH Low)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1765.000	52.53	-6.35	46.18	74.00	-27.82	V	Peak
2665.000	46.27	-1.96	44.31	74.00	-29.69	V	Peak
3637.000	43.36	0.06	43.42	74.00	-30.58	V	Peak
4303.000	42.23	2.66	44.89	74.00	-29.11	V	Peak
4861.000	42.11	4.53	46.64	74.00	-27.36	V	Peak
5428.000	41.54	5.74	47.28	74.00	-26.72	V	Peak
1765.000	52.16	-6.35	45.81	74.00	-28.19	H	Peak
2656.000	46.45	-1.98	44.47	74.00	-29.53	H	Peak
3637.000	44.32	0.06	44.38	74.00	-29.62	H	Peak
4258.000	42.12	2.50	44.62	74.00	-29.38	H	Peak
4825.000	43.56	4.41	47.97	74.00	-26.03	H	Peak
5563.000	42.30	5.90	48.20	74.00	-25.80	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).

**Test Mode:** TX / IEEE 802.11n HT40 MHz (CH Mid)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1756.000	48.58	-6.36	42.22	74.00	-31.78	V	Peak
2656.000	45.81	-1.98	43.83	74.00	-30.17	V	Peak
3691.000	43.03	0.29	43.32	74.00	-30.68	V	Peak
4888.000	42.76	4.61	47.37	74.00	-26.63	V	Peak
5725.000	40.73	5.96	46.69	74.00	-27.31	V	Peak
6553.000	40.77	6.98	47.75	74.00	-26.25	V	Peak
1756.000	53.51	-6.36	47.15	74.00	-26.85	H	Peak
2656.000	46.11	-1.98	44.13	74.00	-29.87	H	Peak
3664.000	43.91	0.17	44.08	74.00	-29.92	H	Peak
4330.000	42.30	2.75	45.05	74.00	-28.95	H	Peak
4888.000	43.78	4.61	48.39	74.00	-25.61	H	Peak
5626.000	40.84	5.92	46.76	74.00	-27.24	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).

**Test Mode:** TX / IEEE 802.11n HT40 MHz (CH High)**Tested by:** Fade Zhong**Ambient temperature:** 24°C**Relative humidity:** 52% RH**Date:** August 8, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1351.000	48.23	-7.24	40.99	74.00	-33.01	V	Peak
2458.000	46.30	-2.49	43.81	74.00	-30.19	V	Peak
2674.000	45.58	-1.95	43.63	74.00	-30.37	V	Peak
3691.000	43.07	0.29	43.36	74.00	-30.64	V	Peak
4222.000	43.16	2.37	45.53	74.00	-28.47	V	Peak
4906.000	42.19	4.67	46.86	74.00	-27.14	V	Peak
1765.000	49.79	-6.35	43.44	74.00	-30.56	H	Peak
2917.000	44.79	-1.51	43.28	74.00	-30.72	H	Peak
3691.000	44.66	0.29	44.95	74.00	-29.05	H	Peak
4222.000	43.03	2.37	45.40	74.00	-28.60	H	Peak
4924.000	45.47	4.73	50.20	74.00	-23.80	H	Peak
5851.000	40.34	6.02	46.36	74.00	-27.64	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).



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 INSTRUMENTS

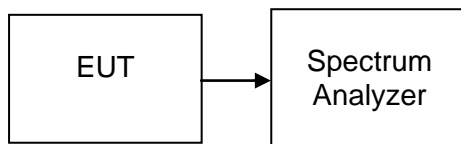
Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	N9010A	MY52221469	02/21/2017	02/20/2018

7.3.3. 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 \geq 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 \geq 6 dB.

7.3.4. TEST SETUP





7.3.5. 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		
Low	2412	8535	8069	8546	>500	PASS
Mid	2437	8554	8535	8575		PASS
High	2462	8564	8562	8541		PASS

Test mode: IEEE 802.11g

Channel	Frequency (MHz)	Bandwidth (kHz)			Limit (kHz)	Test Result
		Antenna 0	Antenna 1	Antenna 2		
Low	2412	16320	16300	16320	>500	PASS
Mid	2437	16360	16090	16400		PASS
High	2462	16320	15790	15750		PASS

Test mode: IEEE 802.11n HT20 MHz

Channel	Frequency (MHz)	Bandwidth (kHz)			Limit (kHz)	Test Result
		Antenna 0	Antenna 1	Antenna 2		
Low	2412	17560	17560	17290	>500	PASS
Mid	2437	17590	17580	17620		PASS
High	2462	17150	16980	17620		PASS

Test mode: IEEE 802.11n HT40 MHz

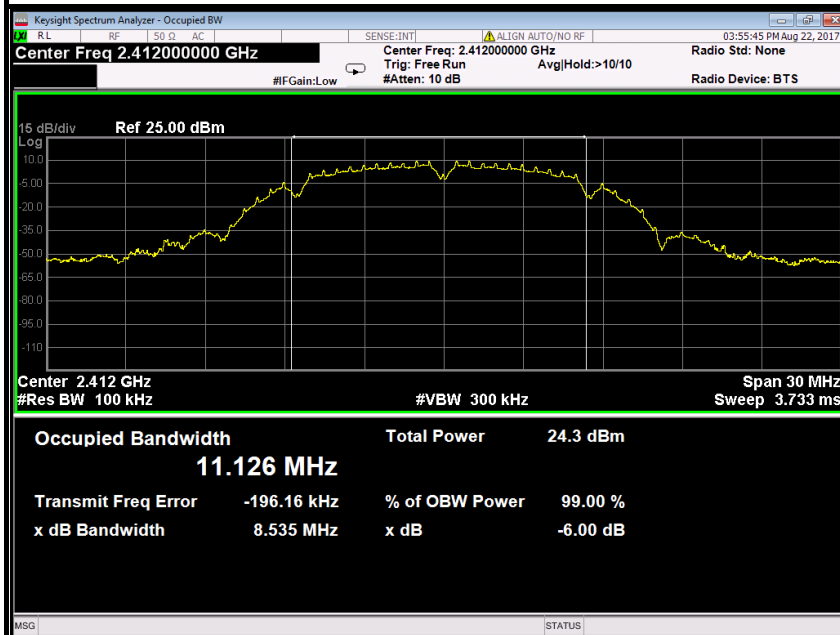
Channel	Frequency (MHz)	Bandwidth (kHz)			Limit (kHz)	Test Result
		Antenna 0	Antenna 1	Antenna 2		
Low	2422	35730	35270	35660	>500	PASS
Mid	2437	36390	35780	36380		PASS
High	2452	35670	36310	35730		PASS



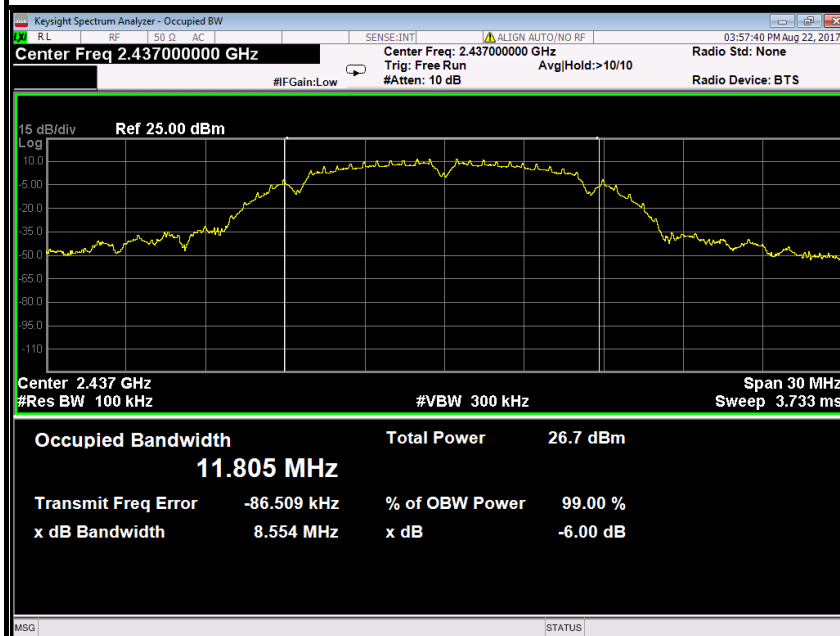
Test Plot
Antenna 0

IEEE 802.11b mode

6dB Bandwidth (CH Low)

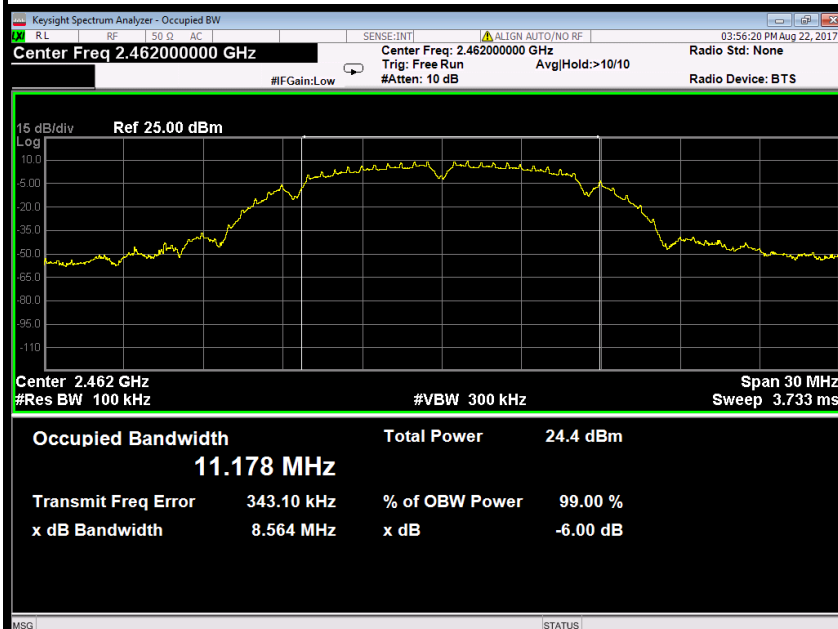


6dB Bandwidth (CH Mid)



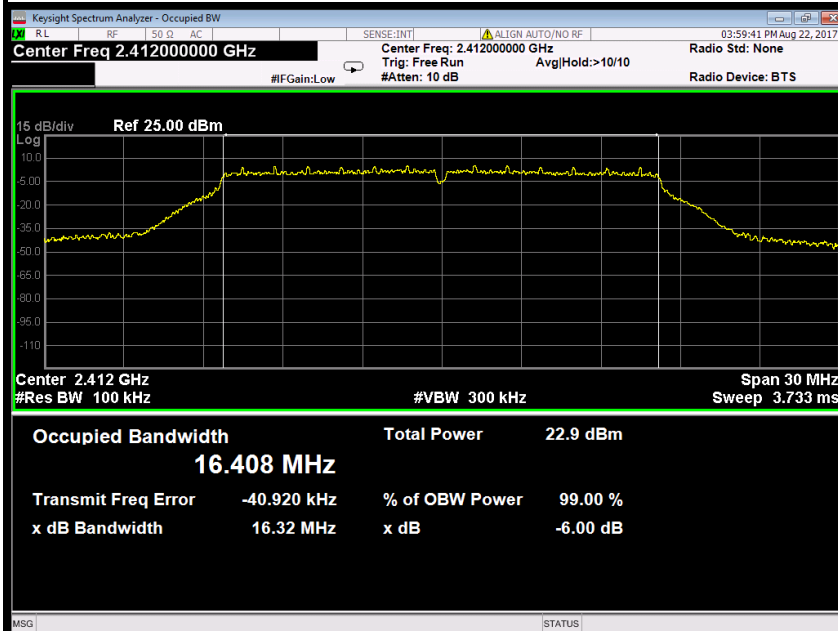


6dB Bandwidth (CH High)



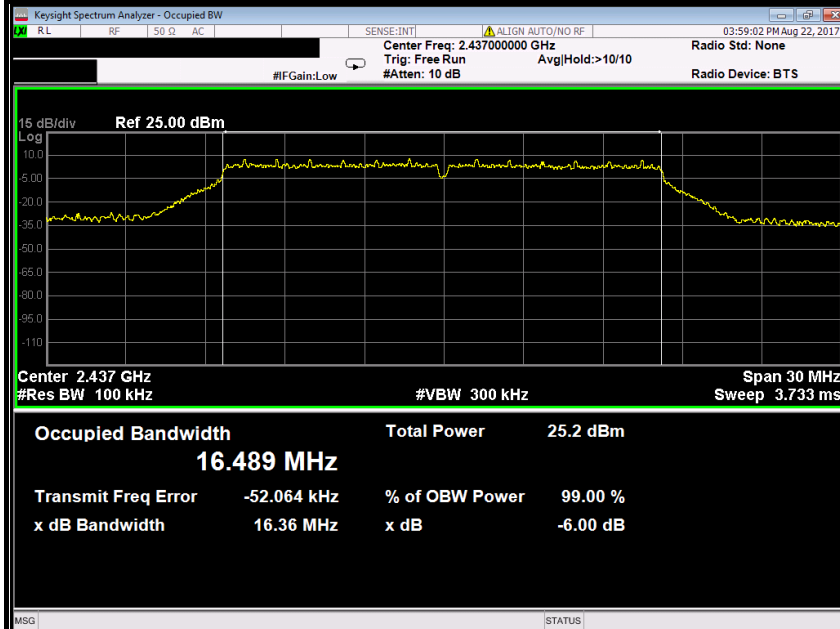
IEEE 802.11g mode

6dB Bandwidth (CH Low)

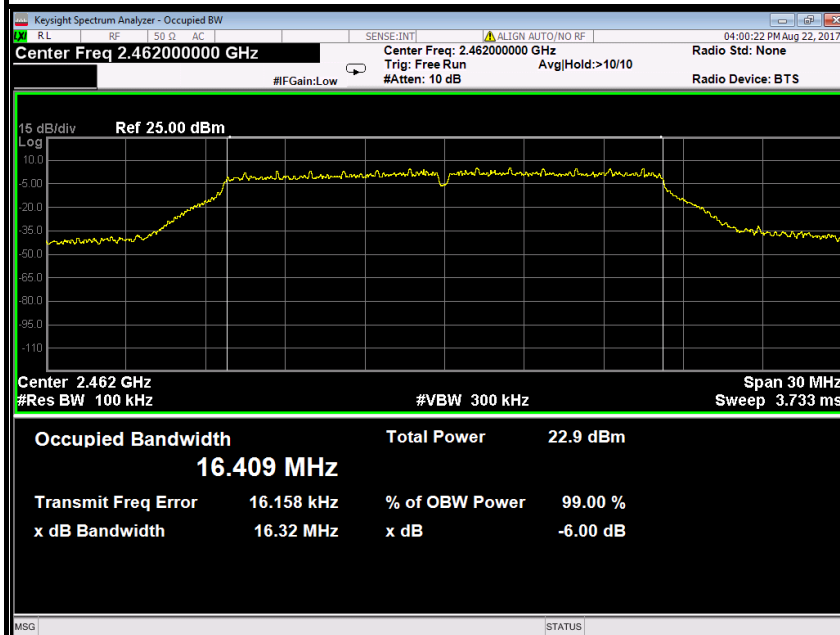




6dB Bandwidth (CH Mid)



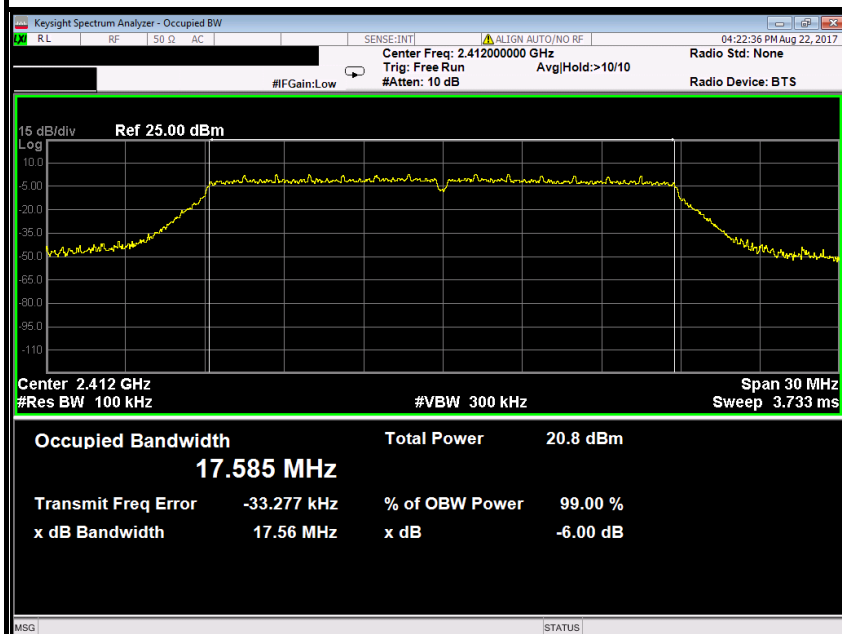
6dB Bandwidth (CH High)



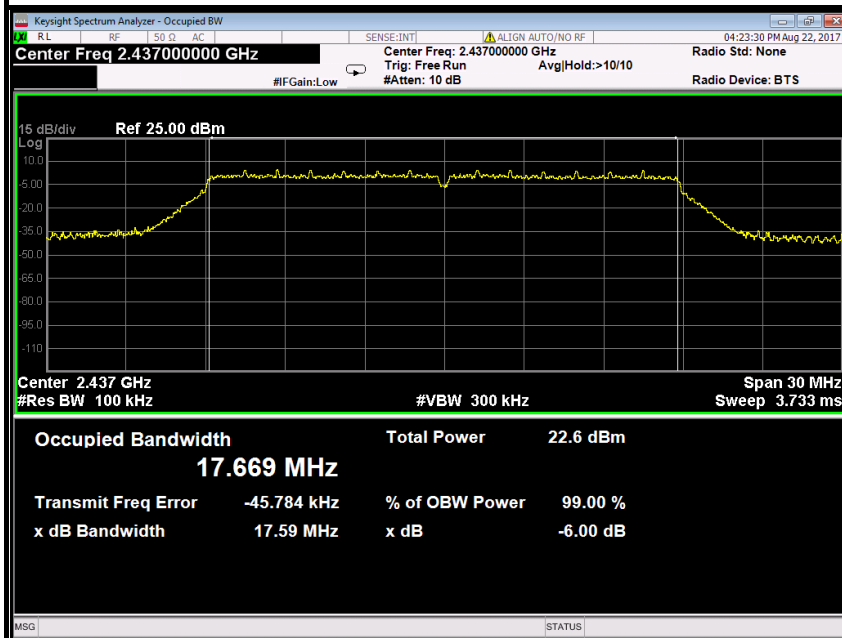


IEEE 802.11n HT20 MHz mode

6dB Bandwidth (CH Low)

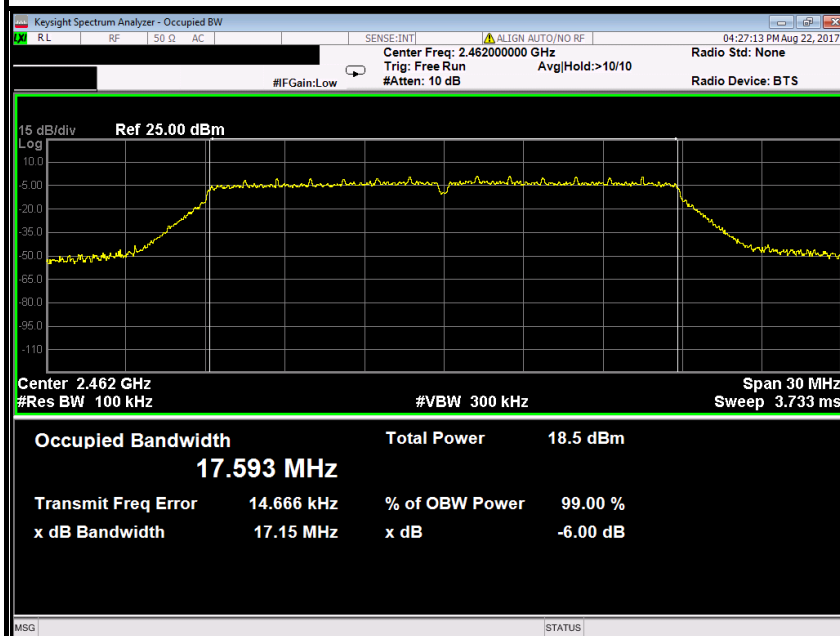


6dB Bandwidth (CH Mid)



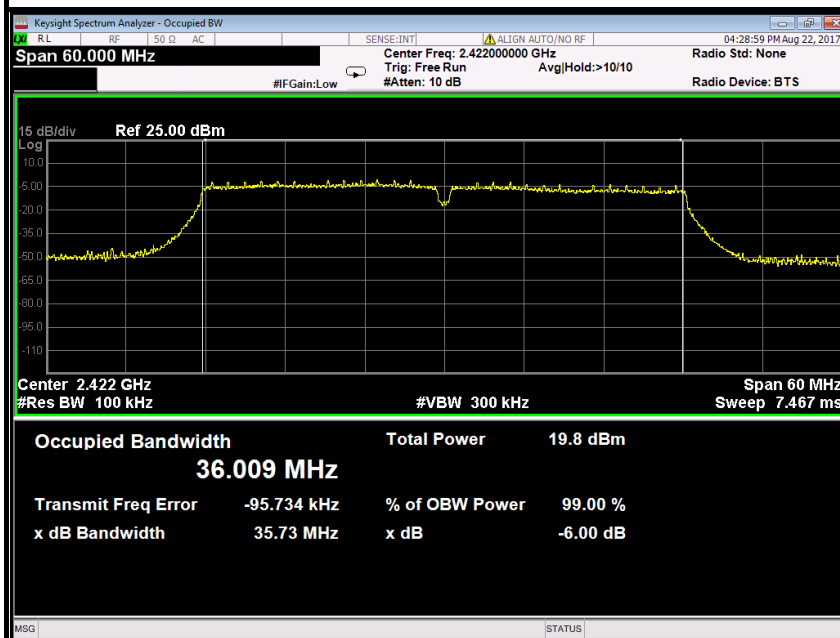


6dB Bandwidth (CH High)



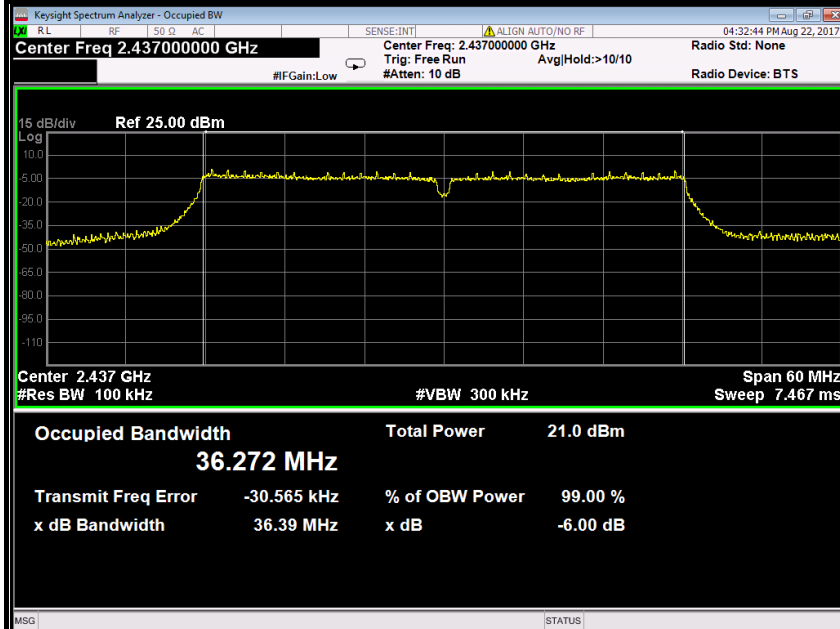
IEEE 802.11n HT40 MHz mode

6dB Bandwidth (CH Low)

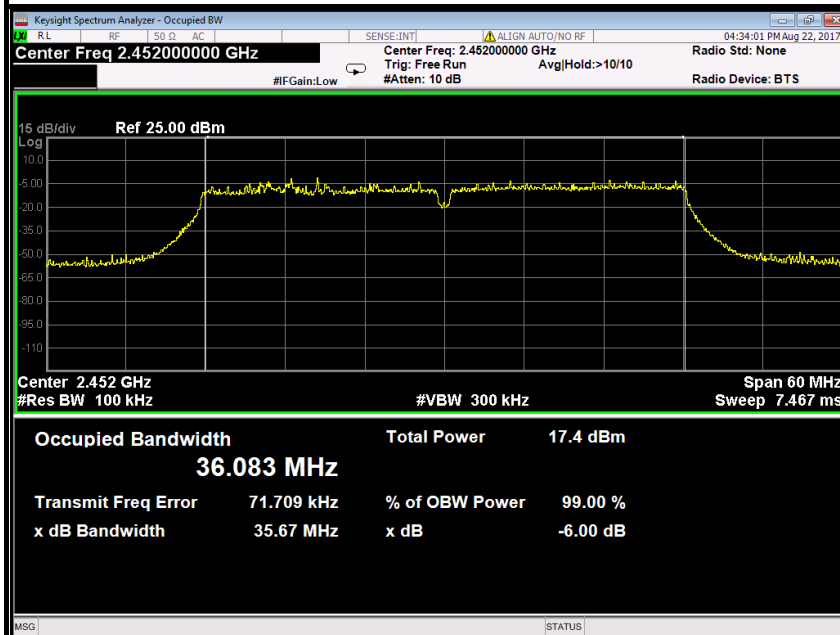




6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)

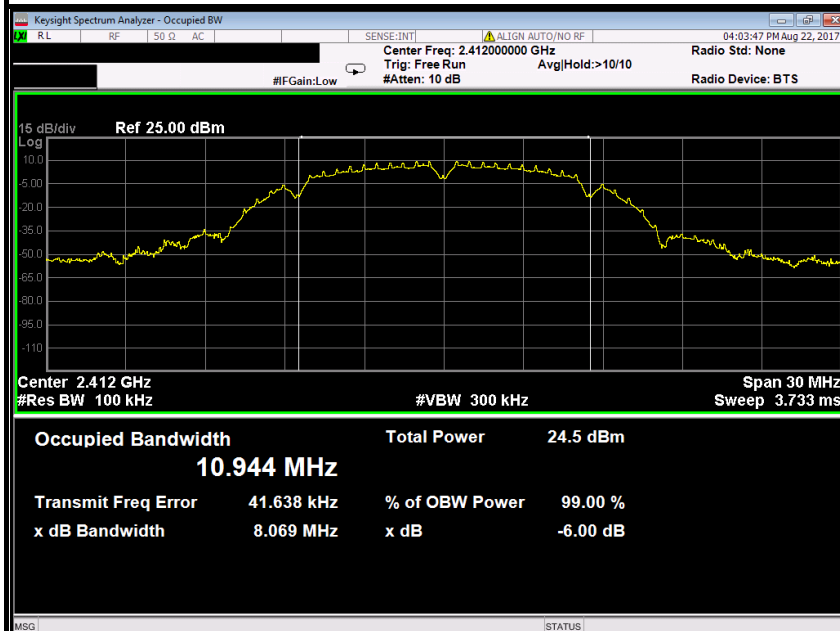




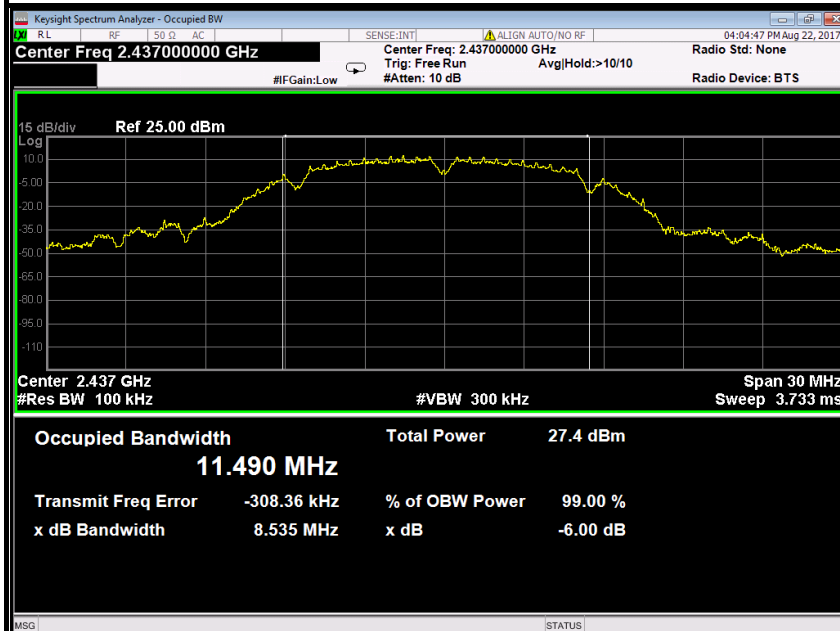
Antenna 1

IEEE 802.11b mode

6dB Bandwidth (CH Low)

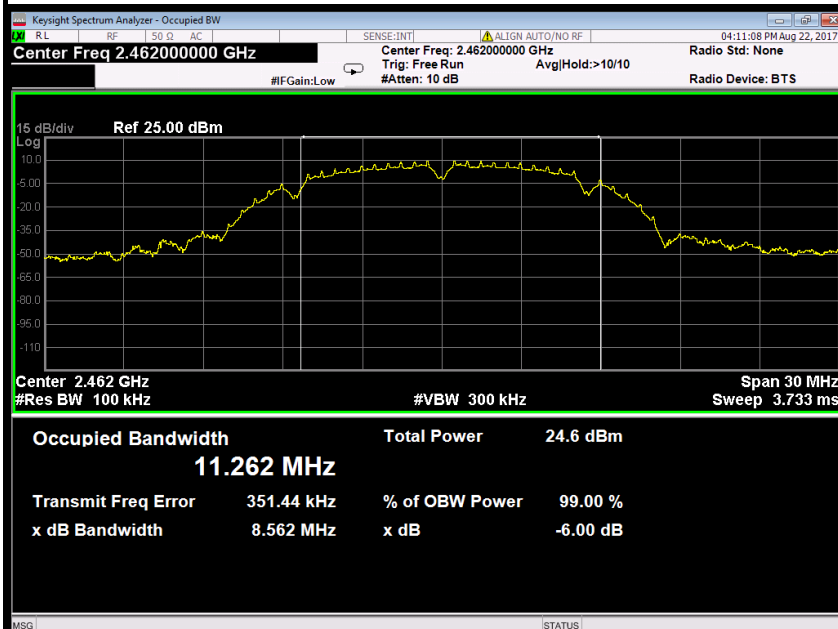


6dB Bandwidth (CH Mid)



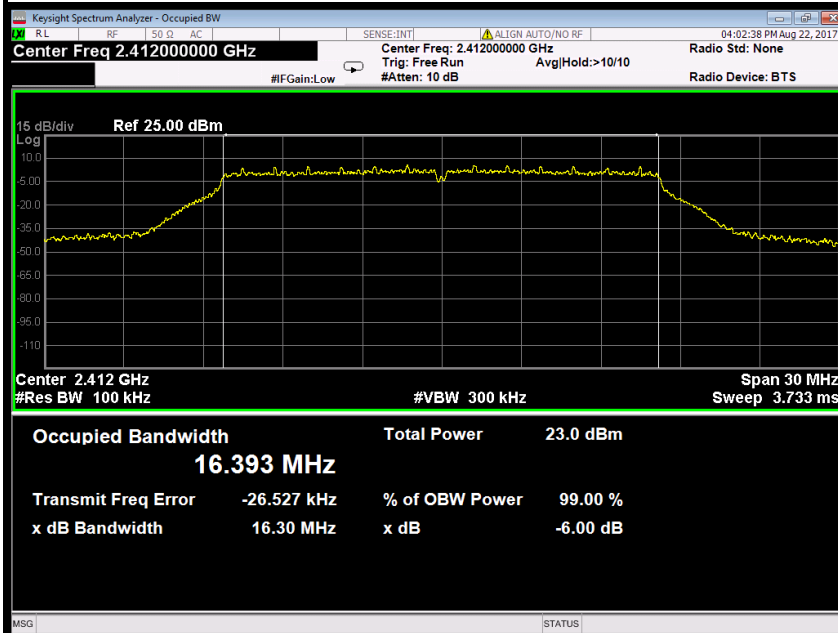


6dB Bandwidth (CH High)



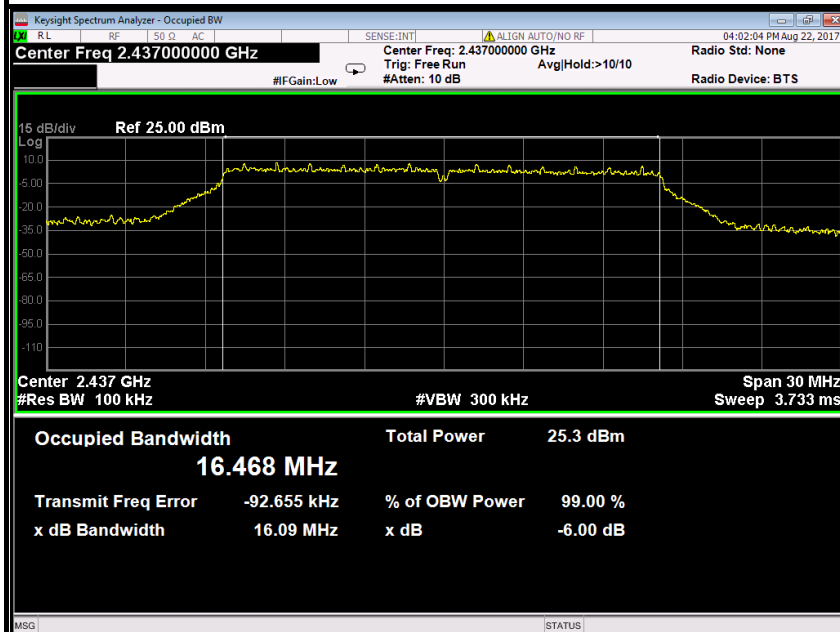
IEEE 802.11g mode

6dB Bandwidth (CH Low)

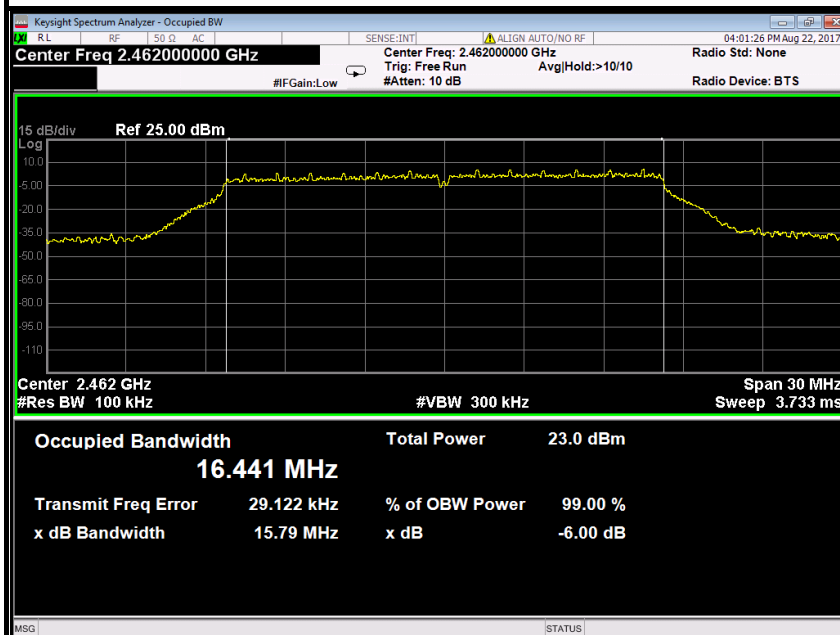




6dB Bandwidth (CH Mid)



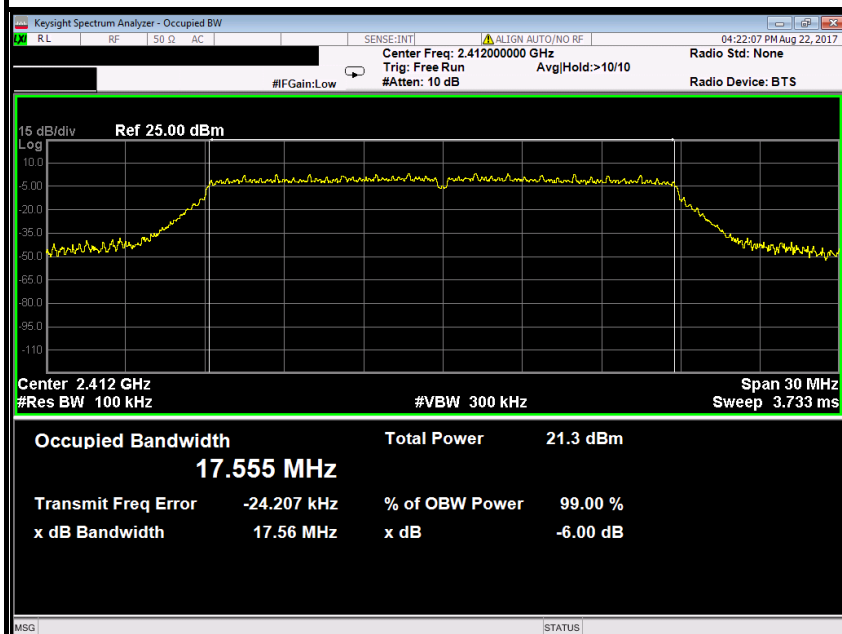
6dB Bandwidth (CH High)



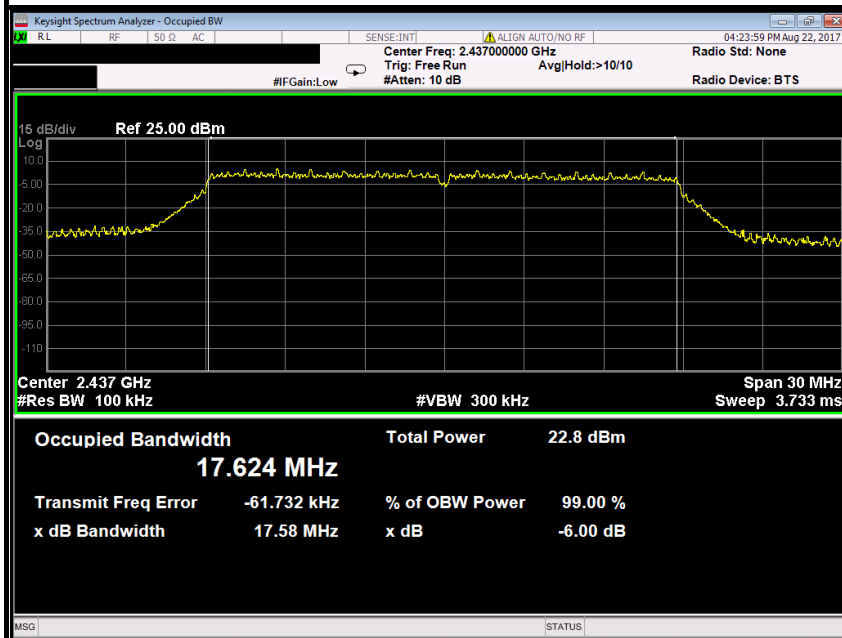


IEEE 802.11n HT20 MHz mode

6dB Bandwidth (CH Low)

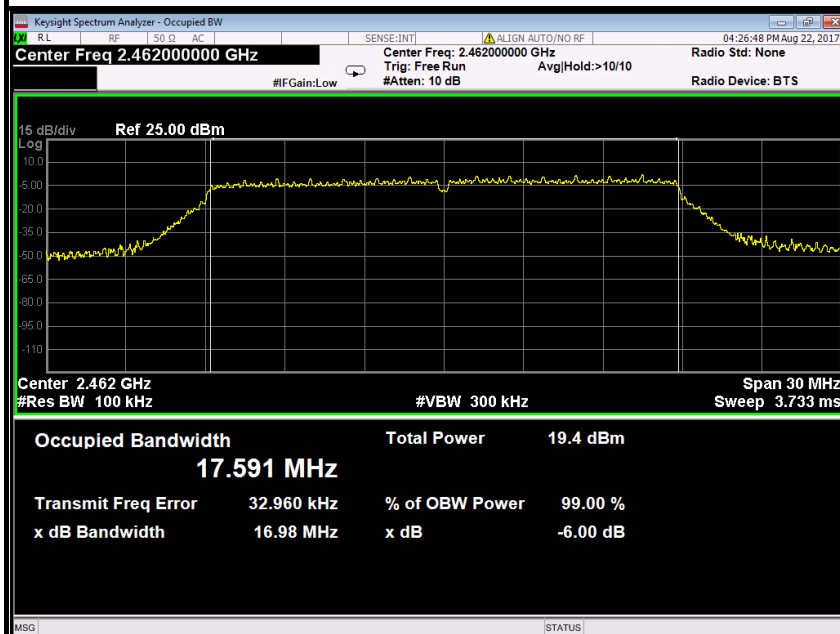


6dB Bandwidth (CH Mid)



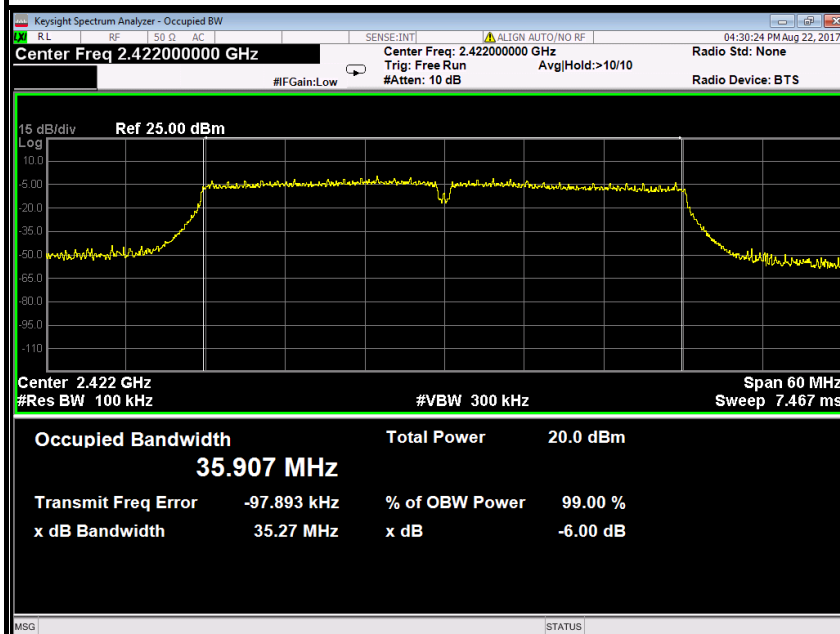


6dB Bandwidth (CH High)



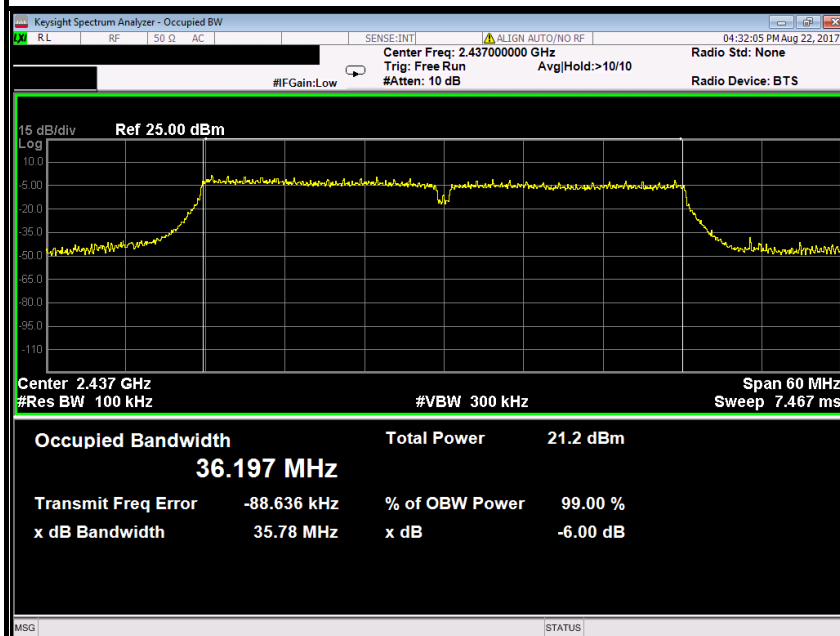
IEEE 802.11n HT40 MHz mode

6dB Bandwidth (CH Low)





6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)

