Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low **Test Date:** December 27, 2014

Temperature: 27°C **Tested by:** Andy Shi

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1952.000	51.12	-5.13	45.99	74.00	-28.01	peak	V
3215.000	50.34	-1.59	48.75	74.00	-25.25	peak	V
N/A							
1700.000	50.48	-6.47	44.01	74.00	-29.99	peak	H
3215.000	51.48	-1.59	49.89	74.00	-24.11	peak	H
N/A							

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).*

Operation Mode: TX / IEEE 802.11b / CH Mid **Test Date:** December 27, 2014

Temperature: 27°C **Tested by:** Andy Shi

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1334.000	52.43	-8.26	44.17	74.00	-29.83	peak	V
3250.000	51.93	-1.51	50.42	74.00	-23.58	peak	V
N/A							
1946.000	53.43	-5.17	48.26	74.00	-25.74	peak	H
3250.000	52.44	-1.51	50.93	74.00	-23.07	peak	H
N/A							

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).*

Operation Mode: TX / IEEE 802.11b / CH High **Test Date:** December 27, 2014

Temperature: 27°C **Tested by:** Andy Shi

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1948.000	51.75	-5.16	46.59	74.00	-27.41	peak	V
3285.000	50.64	-1.43	49.21	74.00	-24.79	peak	V
N/A							
2122.000	50.41	-4.86	45.55	74.00	-28.45	peak	H
3285.000	52.19	-1.43	50.76	74.00	-23.24	peak	H
N/A							

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).*

Operation Mode: TX / IEEE 802.11g / CH Low **Test Date:** December 27, 2014

Temperature: 27°C **Tested by:** Andy Shi

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1800.000	52.45	-5.94	46.51	74.00	-27.49	peak	V
3215.000	46.96	-1.59	45.37	74.00	-28.63	peak	V
N/A							
1334.000	51.52	-8.26	43.26	74.00	-30.74	peak	H
3215.000	51.30	-1.59	49.71	74.00	-24.29	peak	H
N/A							

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).*

Operation Mode: TX / IEEE 802.11g / CH Mid **Test Date:** December 27, 2014

Temperature: 27°C **Tested by:** Andy Shi

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1958.000	51.96	-5.10	46.86	74.00	-27.14	peak	V
3250.000	48.35	-1.51	46.84	74.00	-27.16	peak	V
N/A							
2150.000	51.03	-4.71	46.32	74.00	-27.68	peak	H
3250.000	50.94	-1.51	49.43	74.00	-24.57	peak	H
N/A							

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).*

Operation Mode: TX / IEEE 802.11g / CH High **Test Date:** December 27, 2014

Temperature: 27°C **Tested by:** Andy Shi

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1954.000	51.46	-5.12	46.34	74.00	-27.66	peak	V
3285.000	46.78	-1.43	45.35	74.00	-28.65	peak	V
N/A							
1956.000	51.67	-5.11	46.56	74.00	-27.44	peak	H
3285.000	48.19	-1.43	46.76	74.00	-27.24	peak	H
N/A							

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).*

Operation Mode: TX / IEEE 802.11n HT 20 MHz mode / CH Low **Test Date:** December 27, 2014

Temperature: 27°C **Tested by:** Andy Shi

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1996.000	51.50	-4.90	46.60	74.00	-27.40	peak	V
3215.000	50.14	-1.59	48.55	74.00	-25.45	peak	V
N/A							
2038.000	50.24	-4.92	45.32	74.00	-28.68	peak	H
3215.000	51.37	-1.59	49.78	74.00	-24.22	peak	H
N/A							

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).*

Operation Mode: TX / IEEE 802.11n HT 20 MHz mode / CH Mid **Test Date:** December 27, 2014

Temperature: 27°C **Tested by:** Andy Shi

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1958.000	51.88	-5.10	46.78	74.00	-27.22	peak	V
3250.000	50.02	-1.51	48.51	74.00	-25.49	peak	V
N/A							
1498.000	51.38	-7.54	43.84	74.00	-30.16	peak	H
3250.000	50.47	-1.51	48.96	74.00	-25.04	peak	H
N/A							

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).*

Operation Mode: TX / IEEE 802.11n HT 20 MHz mode / CH High **Test Date:** December 27, 2014

Temperature: 27°C **Tested by:** Andy Shi

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1948.000	51.78	-5.16	46.62	74.00	-27.38	peak	V
3285.000	48.23	-1.43	46.80	74.00	-27.20	peak	V
N/A							
2000.000	51.06	-4.88	46.18	74.00	-27.82	peak	H
3285.000	47.65	-1.43	46.22	74.00	-27.78	peak	H
N/A							

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).*

Operation Mode:	TX / IEEE 802.11n HT 40 MHz mode / CH Low	**Test Date:**	December 27, 2014
Temperature:	27°C	**Tested by:**	Andy Shi
Humidity:	53 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1948.000	51.37	-5.16	46.21	74.00	-27.79	peak	V
3230.000	48.09	-1.56	46.53	74.00	-27.47	peak	V
N/A							
1538.000	51.24	-7.33	43.91	74.00	-30.09	peak	H
3230.000	48.37	-1.56	46.81	74.00	-27.19	peak	H
N/A							

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).*

Operation Mode:	TX / IEEE 802.11n HT 40 MHz mode / CH Mid	**Test Date:**	December 27, 2014
Temperature:	27°C	**Tested by:**	Andy Shi
Humidity:	53 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1948.000	50.09	-5.16	44.93	74.00	-29.07	peak	V
3250.000	51.14	-1.51	49.63	74.00	-24.37	peak	V
N/A							
1334.000	52.63	-8.26	44.37	74.00	-29.63	peak	H
3250.000	50.23	-1.51	48.72	74.00	-25.28	peak	H
N/A							

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).*

Operation Mode:	TX / IEEE 802.11n HT 40 MHz mode / CH High	**Test Date:**	December 27, 2014
Temperature:	27°C	**Tested by:**	Andy Shi
Humidity:	53 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant. Pol. (H/V)
1332.000	52.56	-8.27	44.29	74.00	-29.71	peak	V
3270.000	49.97	-1.46	48.51	74.00	-25.49	peak	V
N/A							
1332.000	53.49	-8.27	45.22	74.00	-28.78	peak	H
3270.000	49.10	-1.46	47.64	74.00	-26.36	peak	H
N/A							

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).*

7.8 POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

** Decreases with the logarithm of the frequency.*

Test Configuration

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

For printed Antenna

Test Data

Operation Mode:	Normal Link	**Test Date:**	January 5, 2015
Temperature:	24°C	**Tested by:**	Sehni Hu
Humidity:	50% RH		

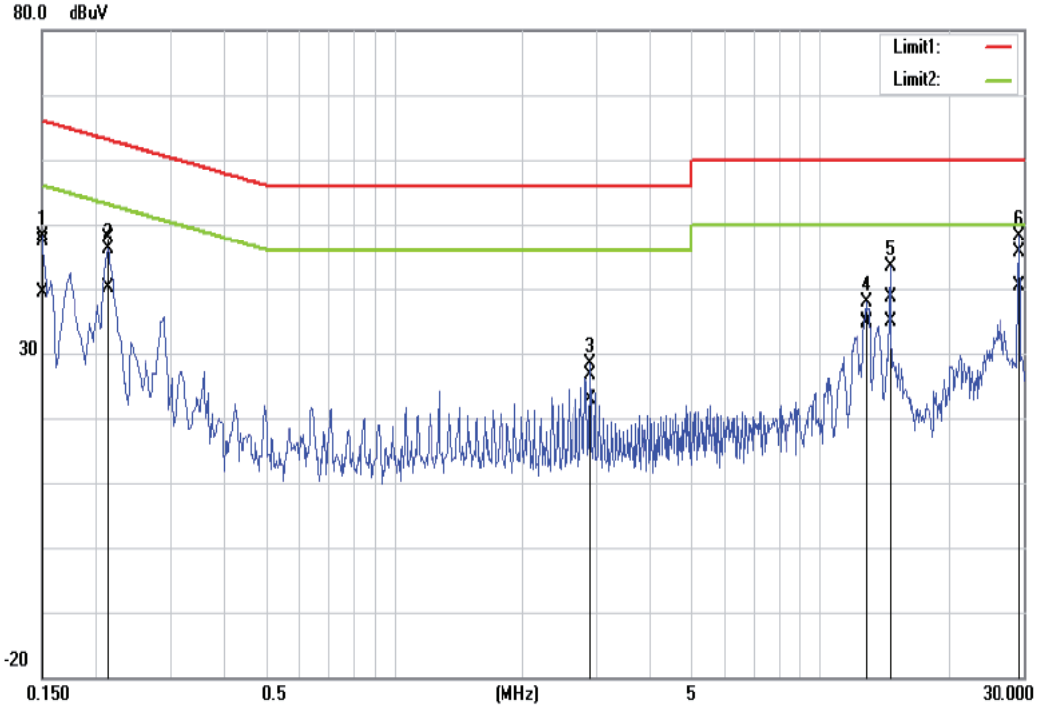
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.1500	37.49	29.61	9.87	47.36	39.48	65.99	56.00	-18.63	-16.52	L1
0.2123	38.01	30.21	9.87	47.88	40.08	63.11	53.11	-15.23	-13.03	L1
2.9095	16.71	12.95	9.98	26.69	22.93	56.00	46.00	-29.31	-23.07	L1
12.8623	24.72	24.37	10.22	34.94	34.59	60.00	50.00	-25.06	-15.41	L1
14.6266	28.33	24.57	10.26	38.59	34.83	60.00	50.00	-21.41	-15.17	L1
29.2502	34.95	29.67	10.74	45.69	40.41	60.00	50.00	-14.31	-9.59	L1
0.1539	32.97	24.50	9.63	42.60	34.13	65.78	55.79	-23.18	-21.66	L2
0.2136	37.94	30.19	9.64	47.58	39.83	63.06	53.06	-15.48	-13.23	L2
2.9103	17.32	13.83	9.76	27.08	23.59	56.00	46.00	-28.92	-22.41	L2
12.9290	24.42	23.95	10.06	34.48	34.01	60.00	50.00	-25.52	-15.99	L2
14.6262	30.40	26.67	10.11	40.51	36.78	60.00	50.00	-19.49	-13.22	L2
29.2498	36.39	31.12	10.64	47.03	41.76	60.00	50.00	-12.97	-8.24	L2

Remark:

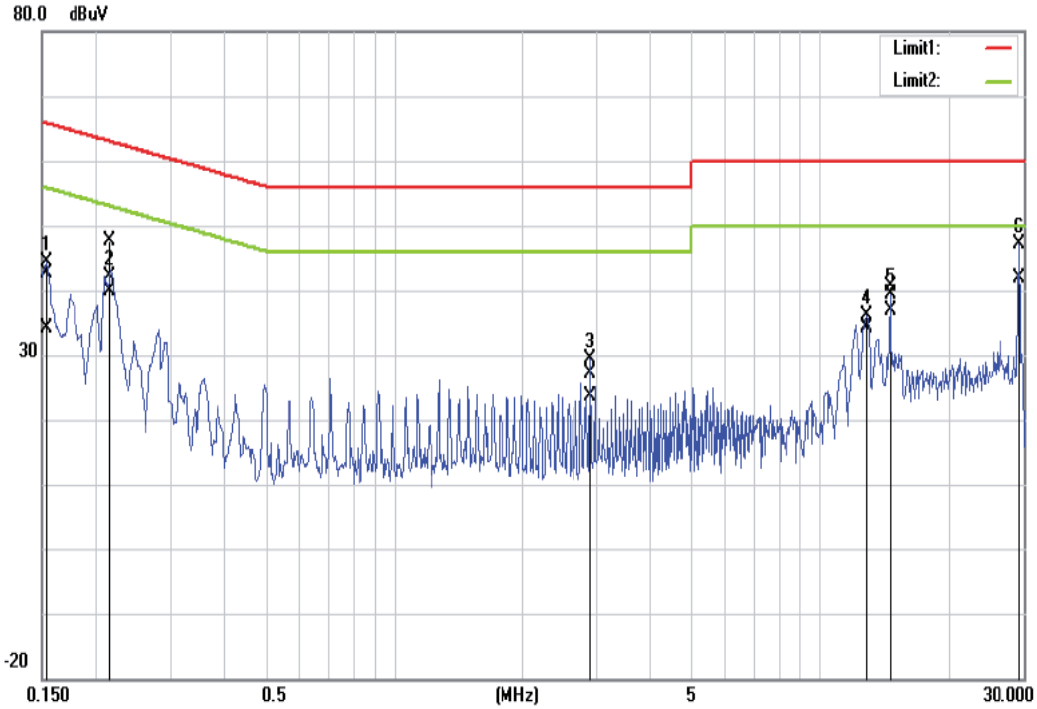
1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz;*
4. *L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)*

Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)



For Dipole Antenna

Test Data

Operation Mode:	Normal Link	**Test Date:**	January 5, 2015
Temperature:	24°C	**Tested by:**	Sehni Hu
Humidity:	50% RH		

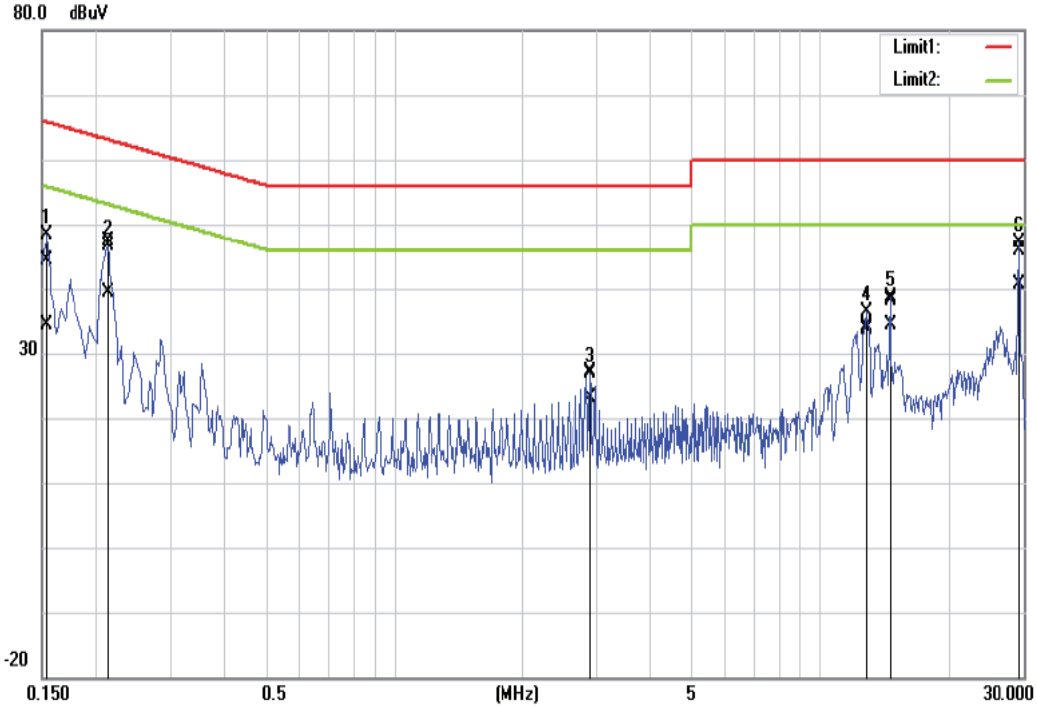
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB/m)	QP Result (dBuV/m)	AV Result (dBuV/m)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.1539	34.40	24.61	9.87	44.27	34.48	65.78	55.79	-21.51	-21.31	L1
0.2110	37.60	29.39	9.87	47.47	39.26	63.16	53.17	-15.69	-13.91	L1
2.9089	17.03	13.10	9.98	27.01	23.08	56.00	46.00	-28.99	-22.92	L1
12.8598	23.80	23.37	10.22	34.02	33.59	60.00	50.00	-25.98	-16.41	L1
14.6243	27.86	24.14	10.26	38.12	34.40	60.00	50.00	-21.88	-15.60	L1
29.2500	35.16	29.87	10.74	45.90	40.61	60.00	50.00	-14.10	-9.39	L1
0.1539	34.11	25.47	9.63	43.74	35.10	65.78	55.79	-22.04	-20.69	L2
0.2124	38.20	30.33	9.64	47.84	39.97	63.11	53.11	-15.27	-13.14	L2
2.7670	16.21	13.15	9.76	25.97	22.91	56.00	46.00	-30.03	-23.09	L2
12.9270	25.70	25.12	10.06	35.76	35.18	60.00	50.00	-24.24	-14.82	L2
14.6250	28.54	24.79	10.11	38.65	34.90	60.00	50.00	-21.35	-15.10	L2
29.2490	35.86	30.57	10.64	46.50	41.21	60.00	50.00	-13.50	-8.79	L2

Remark:

1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz;*
4. *L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)*

Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)