Conducted Output Power (802.11n-CH 100) 58.5 Mbps

Conducted Output Power (802.11n-CH 100) 65 Mbps

Conducted Output Power (802.11n-CH 120) 6.5 Mbps

Conducted Output Power (802.11n-CH 120) 13 Mbps

Conducted Output Power (802.11n-CH 120) 19.5 Mbps

Conducted Output Power (802.11n-CH 120) 26 Mbps

Conducted Output Power (802.11n-CH 120) 39 Mbps

Conducted Output Power (802.11n-CH 120) 52 Mbps

Conducted Output Power (802.11n-CH 120) 58.5 Mbps

Conducted Output Power (802.11n-CH 120) 65 Mbps

Conducted Output Power (802.11n-CH 140) 6.5 Mbps

Conducted Output Power (802.11n-CH 140) 13 Mbps

Conducted Output Power (802.11n-CH 140) 19.5 Mbps

Conducted Output Power (802.11n-CH 140) 26 Mbps

Conducted Output Power (802.11n-CH 140) 39 Mbps

Conducted Output Power (802.11n-CH 140) 52 Mbps

Conducted Output Power (802.11n-CH 140) 58.5 Mbps

Conducted Output Power (802.11n-CH 140) 65 Mbps

40 MHz BW

▣ RESULT PLOTS (5190 MHz ~5230 MHz)

Conducted Output Power (802.11n-CH 36) 13.5 Mbps

Conducted Output Power (802.11n-CH 36) 27 Mbps

Conducted Output Power (802.11n-CH 36) 40.5 Mbps

Conducted Output Power (802.11n-CH 36) 54 Mbps

Conducted Output Power (802.11n-CH 36) 81 Mbps

Conducted Output Power (802.11n-CH 36) 108 Mbps

Conducted Output Power (802.11n-CH 36) 121.5 Mbps

Conducted Output Power (802.11n-CH 36) 135 Mbps

Conducted Output Power (802.11n-CH 36) 13.5 Mbps

Conducted Output Power (802.11n-CH 36) 27 Mbps

Conducted Output Power (802.11n-CH 36) 40.5 Mbps

Conducted Output Power (802.11n-CH 36) 54 Mbps

Conducted Output Power (802.11n-CH 36) 81 Mbps

Conducted Output Power (802.11n-CH 36) 108 Mbps

Conducted Output Power (802.11n-CH 36) 121.5 Mbps

Conducted Output Power (802.11n-CH 36) 135 Mbps

▣ RESULT PLOTS (5270 MHz ~5310 MHz)

Conducted Output Power (802.11n-CH 52) 13.5 Mbps

Conducted Output Power (802.11n-CH 52) 27 Mbps

Conducted Output Power (802.11n-CH 52) 40.5 Mbps

Conducted Output Power (802.11n-CH 52) 54 Mbps

Conducted Output Power (802.11n-CH 52) 81 Mbps

Conducted Output Power (802.11n-CH 52) 108 Mbps

Conducted Output Power (802.11n-CH 52) 121.5 Mbps

Conducted Output Power (802.11n-CH 60) 135 Mbps

Conducted Output Power (802.11n-CH 52) 13.5 Mbps

Conducted Output Power (802.11n-CH 52) 27 Mbps

Conducted Output Power (802.11n-CH 52) 40.5 Mbps

Conducted Output Power (802.11n-CH 52) 54 Mbps

Conducted Output Power (802.11n-CH 52) 81 Mbps

Conducted Output Power (802.11n-CH 52) 108 Mbps

Conducted Output Power (802.11n-CH 52) 121.5 Mbps

Conducted Output Power (802.11n-CH 60) 135 Mbps

▣ RESULT PLOTS (5510 MHz ~5670 MHz)

Conducted Output Power (802.11n-CH 100) 13.5 Mbps

Conducted Output Power (802.11n-CH 100) 27 Mbps

Conducted Output Power (802.11n-CH 100) 40.5 Mbps

Conducted Output Power (802.11n-CH 100) 54 Mbps

Conducted Output Power (802.11n-CH 100) 81 Mbps

Conducted Output Power (802.11n-CH 100) 108 Mbps

Conducted Output Power (802.11n-CH 100) 121.5 Mbps

Conducted Output Power (802.11n-CH 100) 135 Mbps

Conducted Output Power (802.11n-CH 100) 13.5 Mbps

Conducted Output Power (802.11n-CH 100) 27 Mbps

Conducted Output Power (802.11n-CH 100) 40.5 Mbps

Conducted Output Power (802.11n-CH 100) 54 Mbps

Conducted Output Power (802.11n-CH 100) 81 Mbps

Conducted Output Power (802.11n-CH 100) 108 Mbps

Conducted Output Power (802.11n-CH 100) 121.5 Mbps

Conducted Output Power (802.11n-CH 100) 135 Mbps

Conducted Output Power (802.11n-CH 100) 13.5 Mbps

Conducted Output Power (802.11n-CH 100) 27 Mbps

Conducted Output Power (802.11n-CH 100) 40.5 Mbps

Conducted Output Power (802.11n-CH 100) 54 Mbps

Conducted Output Power (802.11n-CH 100) 81 Mbps

Conducted Output Power (802.11n-CH 100) 108 Mbps

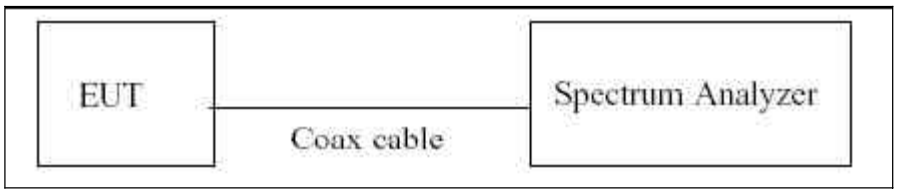
Conducted Output Power (802.11n-CH 100) 121.5 Mbps

Conducted Output Power (802.11n-CH 100) 135 Mbps

8.3 POWER SPECTRAL DENSITY

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies. The maximum permissible peak power spectral density is 4 dBm/ MHz in the 5.15 GHz – 5.25 GHz band and 11 dBm/ MHz in the 5.25 GHz – 5.35 GHz and 5.47 GHz – 5.725 GHz bands

▣ TEST CONFIGURATION



▣ TEST PROCEDURE

The spectrum analyzer is set to :

RBW = 1 MHz

VBW = 3 MHz

SPAN = to encompass the entire EBW of the signal

Sweep Time = auto

Sweep Point = 1001

Detector Mode = Average

Trace average at least 100 traces in power averaging(RMS) mode

▣ Sample Calculation

PSD = Reading Value + ATT loss + Cable loss(1 ea)

= -5 dBm + 10 dB + 0.8 dB = 15.8 dBm

Note :

1. Spectrum reading values are not plot data. The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Spectrum offset = Attenuator loss + Cable loss
3. We apply to the offset in the 2.4 GHz and 5 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is 11 dB at 2.4 GHz and 12 dB at 5 GHz. We used the particular cable type that is supported by manufacture.

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Power Density (dBm)	Limit (dBm)	Pass/Fail
5180	36	802.11a	-0.176	4	Pass
5200	40		0.527	4	Pass
5240	48		-0.222	4	Pass
5260	52	802.11a	0.605	11	Pass
5300	60		-0.025	11	Pass
5320	64		-0.260	11	Pass
5500	100	802.11a	0.261	11	Pass
5600	120		-0.123	11	Pass
5700	140		0.366	11	Pass

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Power Density (dBm)	Limit (dBm)	Pass/Fail
5180	36	802.11n_20MHz BW	-0.446	4	Pass
5200	40		0.234	4	Pass
5240	48		-0.606	4	Pass
5260	52	802.11n_20MHz BW	0.160	11	Pass
5300	60		-0.114	11	Pass
5320	64		-0.439	11	Pass
5500	100	802.11n_20MHz BW	-0.197	11	Pass
5600	120		-1.162	11	Pass
5700	140		0.009	11	Pass

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Power Density (dBm)	Limit (dBm)	Pass/Fail
5190	38	802.11n_40 MHz BW	-9.585	4	Pass
5230	46		-8.792	4	Pass
5270	54	802.11n_40 MHz BW	-9.016	4	Pass
5310	62		-8.159	11	Pass
5510	102	802.11n_40 MHz BW	-9.266	11	Pass
5590	118		-7.857	11	Pass
5670	134		-8.998	11	Pass

▣ RESULT PLOTS

Power Spectral Density (802.11a-CH 36)

Power Spectral Density (802.11a-CH 40)

Power Spectral Density (802.11a-CH 48)

Power Spectral Density (802.11a-CH 52)

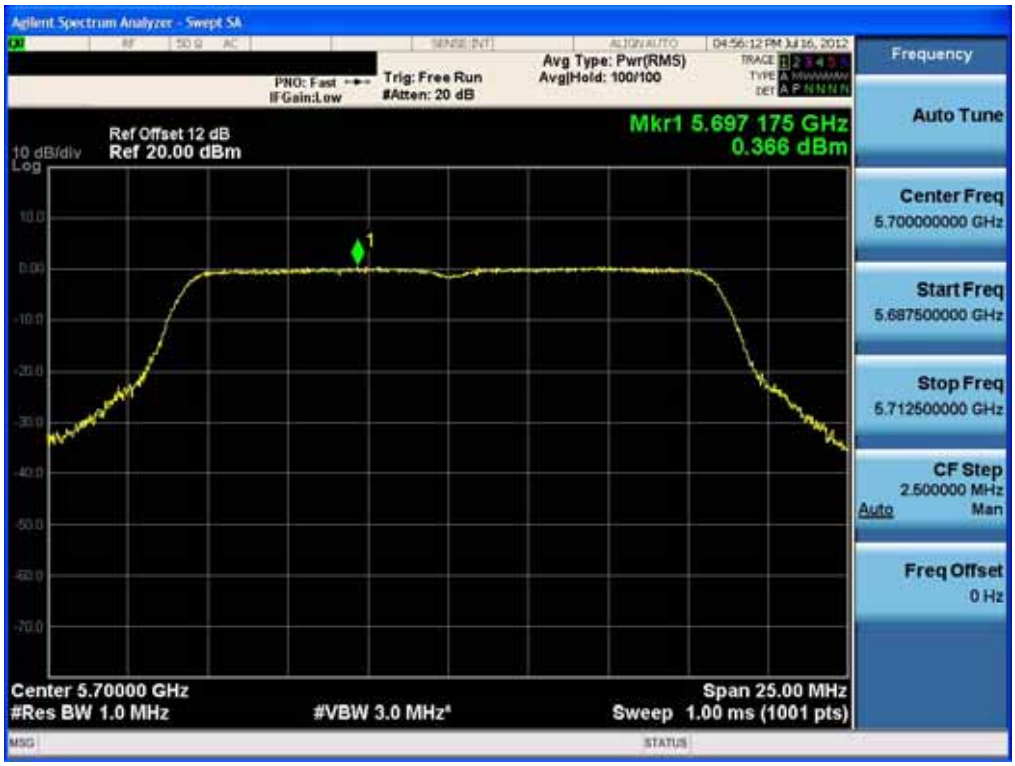
Power Spectral Density (802.11a-CH 60)

Power Spectral Density (802.11a-CH 64)

Power Spectral Density (802.11a-CH 100)

Power Spectral Density (802.11a-CH 120)

Power Spectral Density (802.11a-CH 140)



20 MHz BW

Power Spectral Density (802.11n-CH 36)

Power Spectral Density (802.11n-CH 40)

Power Spectral Density (802.11n-CH 48)

Power Spectral Density (802.11n-CH 52)

Power Spectral Density (802.11n-CH 60)

Power Spectral Density (802.11n-CH 64)

Power Spectral Density (802.11n-CH 100)

Power Spectral Density (802.11n-CH 120)

Power Spectral Density (802.11n-CH 140)

40 MHz BW

Power Spectral Density (802.11n-CH 38)

Power Spectral Density (802.11n-CH 46)

Power Spectral Density (802.11n-CH 54)

Power Spectral Density (802.11n-CH 62)

Power Spectral Density (802.11n-CH 102)

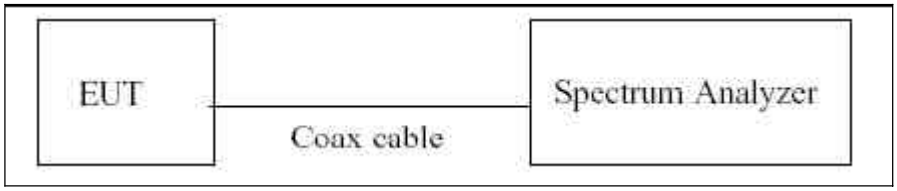
Power Spectral Density (802.11n-CH 118)

Power Spectral Density (802.11n-CH 134)

8.4 PEAK EXCURSION RATIO

The spectrum analyzer was connected to the antenna terminal while the EUT was operating in the continuous transmission mode at the appropriate center frequencies. The largest permissible difference between the modulation envelope(measured using a peak hold function) and the maximum conducted output power 13 dB/MHz.

▣ TEST CONFIGURATION



▣ TEST PROCEDURE

We tested according to KDB 789033(issued 03/05/2012).

The spectrum analyzer is set to :

1. Span = Set the span to view the entire emission bandwidth.
2. RBW = 1 MHz
3. VBW = 3 MHz
4. Sweep = Auto couple
5. Detector Mode = Peak
6. Trace Mode = Max hold
7. Use the procedure to measure the PPSD
8. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

Note :

1. The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Spectrum offset = Attenuator loss + Cable loss
3. We apply to the offset in the 2.4 GHz and 5 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is 11 dB at 2.4 GHz and 12 dB at 5 GHz. We used the particular cable type that is supported by manufacture.

▣ RESULT PLOTS

Peak Excursion Ratio (802.11a-CH 36)

Peak Excursion Ratio (802.11a-CH 40)

Peak Excursion Ratio (802.11a-CH 48)

Peak Excursion Ratio (802.11a-CH 52)

Peak Excursion Ratio (802.11a-CH 60)

Peak Excursion Ratio (802.11a-CH 64)

Peak Excursion Ratio (802.11a-CH 100)

Peak Excursion Ratio (802.11a-CH 120)

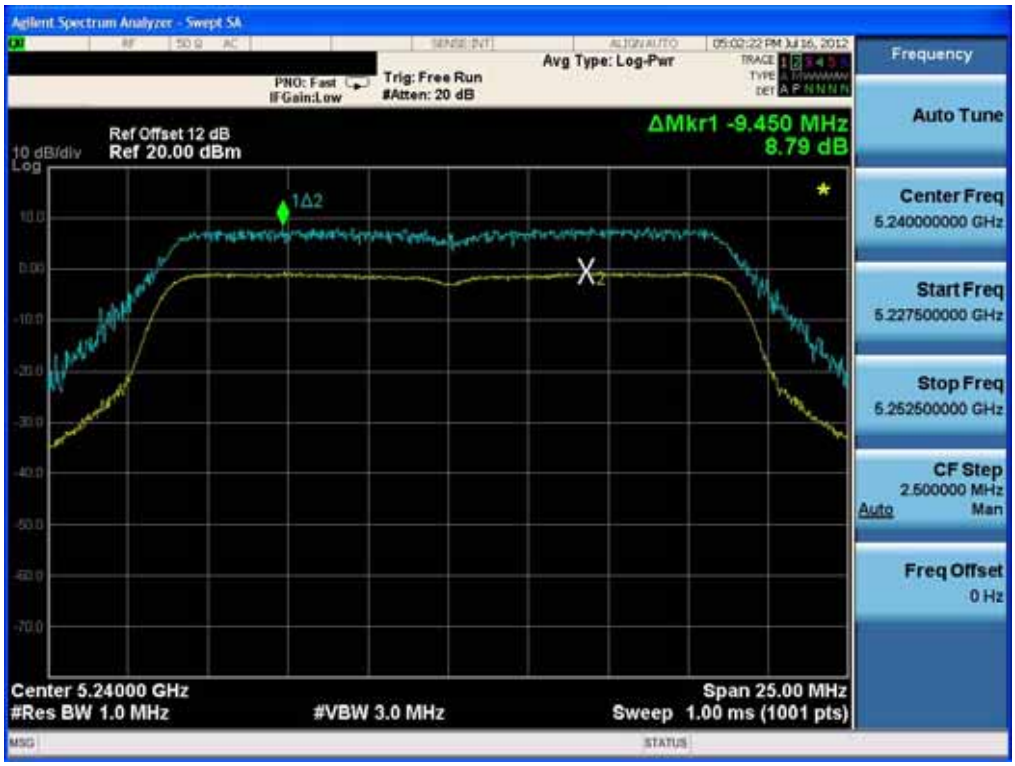
Peak Excursion Ratio (802.11a-CH 140)

20 MHz BW

Peak Excursion Ratio (802.11n-CH 36)

Peak Excursion Ratio (802.11n-CH 40)

Peak Excursion Ratio (802.11n-CH 48)



Peak Excursion Ratio (802.11n-CH 52)

Peak Excursion Ratio (802.11n-CH 60)

Peak Excursion Ratio (802.11n-CH 64)

Peak Excursion Ratio (802.11n-CH 100)

Peak Excursion Ratio (802.11n-CH 120)

Peak Excursion Ratio (802.11n-CH 140)

40 MHz BW

Peak Excursion Ratio (802.11n-CH 38)

Peak Excursion Ratio (802.11n-CH 46)

Peak Excursion Ratio (802.11n-CH 54)

Peak Excursion Ratio (802.11n-CH 62)

Peak Excursion Ratio (802.11n-CH 102)

Peak Excursion Ratio (802.11n-CH 118)

Peak Excursion Ratio (802.11n-CH 134)

8.5 FREQUENCY STABILITY.

The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between -30 ℃ and 50 ℃. The temperature was incremented by 10 ℃ intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.

OPERATING FREQUENCY: 5,200,000,000 Hz
CHANNEL: 40
REFERENCE VOLTAGE: 3.7 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.7	+20(Ref)	5 200 027	27.00
100%		-30	5 200 016	15.90
100%		-20	5 200 026	26.30
100%		-10	5 200 023	23.01
100%		0	5 199 972	-28.02
100%		+10	5 199 975	-24.62
100%		+30	5 200 019	18.72
100%		+40	5 199 980	-19.65
100%		+50	5 200 026	26.49
115%	3.3	+20	5 199 976	-23.71
Batt. Endpoint	4.7	+20	5 199 975	-25.18

OPERATING FREQUENCY: 5,300,000,000 Hz

CHANNEL: 60

REFERENCE VOLTAGE: 3.7 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.7	+20(Ref)	5 300 027	27.00
100%		-30	5 300 022	22.02
100%		-20	5 299 980	-20.04
100%		-10	5 300 023	23.46
100%		0	5 299 973	-26.77
100%		+10	5 300 027	27.49
100%		+30	5 300 022	22.43
100%		+40	5 299 975	-24.52
100%		+50	5 299 978	-21.64
115%	3.3	+20	5 299 976	-23.64
Batt. Endpoint	4.7	+20	5 299 980	-20.04

OPERATING FREQUENCY: 5,600,000,000 Hz

CHANNEL: 120

REFERENCE VOLTAGE: 3.7 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.7	+20(Ref)	5 600 029	29.00
100%		-30	5 599 972	-28.04
100%		-20	5 600 021	21.47
100%		-10	5 600 026	26.25
100%		0	5 600 025	24.72
100%		+10	5 599 974	-25.60
100%		+30	5 599 976	-24.23
100%		+40	5 600 021	21.05
100%		+50	5 599 980	-20.49
115%	3.3	+20	5 600 020	20.00
Batt. Endpoint	4.7	+20	5 600 020	19.65

8.6 RADIATED MEASUREMENT.

8.6.1 RADIATED SPURIOUS EMISSIONS.

Test Requirements and limit, §15.205, §15.209, §15.407

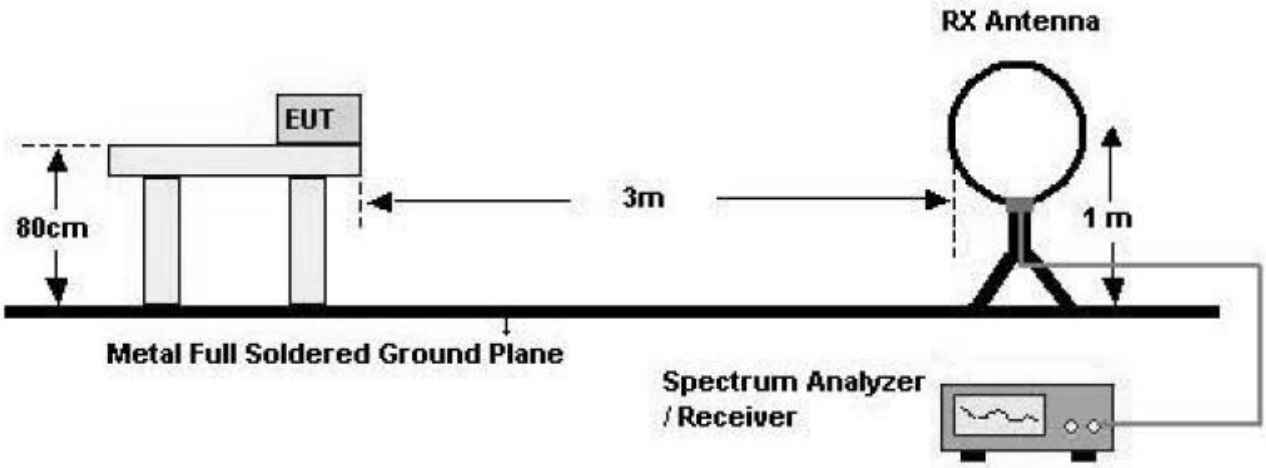
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

▣ §15.407, KDB 789033

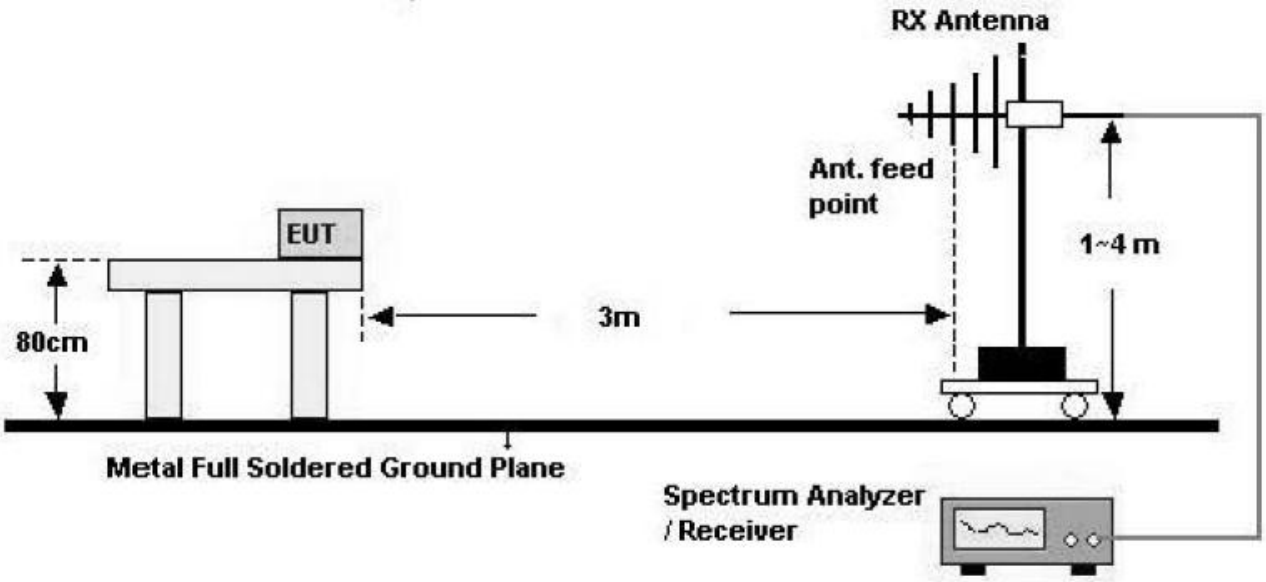
All harmonics that do not lie in a restricted band are subject to a peak limit of -27 dBm/MHz. At a distance of 3 meters the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2 dB to the EIRP limit of -27 dBm/MHz to obtain the limit for out of band spurious emissions of 68.2 dBμV/m.

Test Configuration

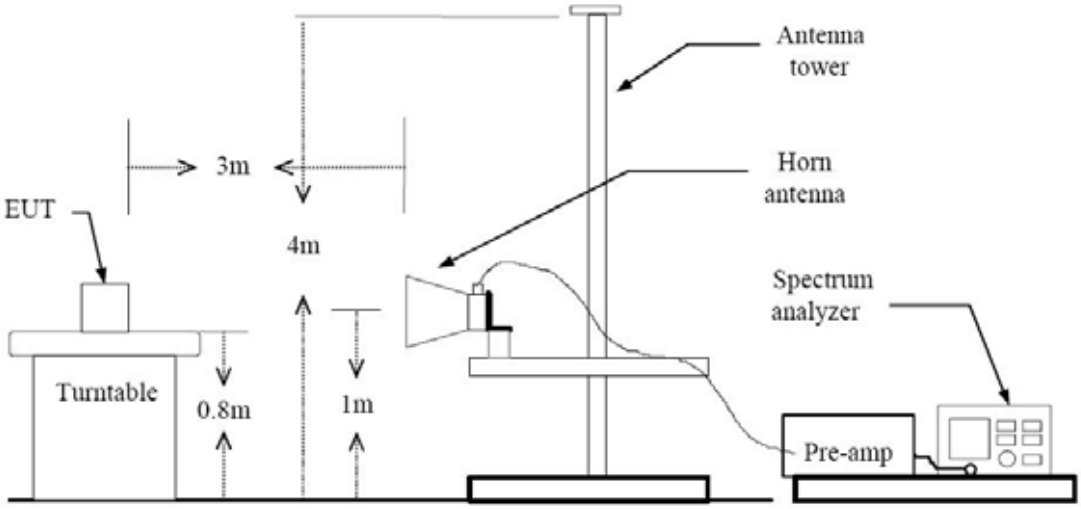
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8 m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

TEST RESULTS

9 kHz – 30MHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
㎒	dB㎶	dB /m	dB	(H/V)	dB㎶/m	dB㎶/m	dB
No Critical peaks found							

Notes:

1. Measuring frequencies from 9 kHz to the 30MHz.
2. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB)
4. Limit line = specific Limits (dBuV) + Distance extrapolation factor
5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

TEST RESULTS

Below 1 GHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
㎒	dB㎶	dB /m	dB	(H/V)	dB㎶/m	dB㎶/m	dB
No Critical peaks found							

Notes:

1. Measuring frequencies from 30 MHz to the 1 GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Above 1 GHz

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10360	42.74	9.30	V	52.04	68.2	16.16	PK
10360	32.50	9.30	V	41.80	54.0	12.20	AV
15540	43.95	15.04	V	58.99	74.0	15.01	PK
15540	30.82	15.04	V	45.86	54.0	8.14	AV
10360	43.69	9.30	H	52.99	68.2	15.21	PK
10360	34.80	9.30	H	44.10	54.0	9.90	AV
15540	44.39	15.04	H	59.43	74.0	14.57	PK
15540	30.78	15.04	H	45.82	54.0	8.18	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10400	42.12	9.60	V	51.72	68.20	16.48	PK
10400	31.22	9.60	V	40.82	54.00	13.18	AV
15600	44.72	14.81	V	59.53	74.00	14.47	PK
15600	30.99	14.81	V	45.80	54.00	8.20	AV
10400	42.27	9.60	H	51.87	68.20	16.33	PK
10400	33.27	9.60	H	42.87	54.00	11.13	AV
15600	44.56	14.81	H	59.37	74.00	14.63	PK
15600	31.00	14.81	H	45.81	54.00	8.19	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10480	42.23	9.83	V	52.06	68.2	16.14	PK
10480	32.65	9.83	V	42.48	54.0	11.52	AV
15720	45.56	14.83	V	60.39	74.0	13.61	PK
15720	32.19	14.83	V	47.02	54.0	6.98	AV
10480	42.07	9.83	H	51.90	68.2	16.30	PK
10480	32.11	9.83	H	41.94	54.0	12.06	AV
15720	45.66	14.83	H	60.49	74.0	13.51	PK
15720	32.20	14.83	H	47.03	54.0	6.97	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (i.e.: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10380	41.45	9.43	V	50.88	68.2	17.32	PK
10380	31.77	9.43	V	41.20	54.0	12.80	AV
15570	44.30	14.93	V	59.23	74.0	14.77	PK
15570	30.87	14.93	V	45.80	54.0	8.20	AV
10380	43.16	9.43	H	52.59	68.2	15.61	PK
10380	35.88	9.43	H	45.31	54.0	8.69	AV
15570	45.01	14.93	H	59.94	74.0	14.06	PK
15570	30.88	14.93	H	45.81	54.0	8.19	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5230 MHz
Channel No.	46 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10460	42.43	9.72	V	52.15	68.2	16.05	PK
10460	33.85	9.72	V	43.57	54.0	10.43	AV
15690	45.63	14.81	V	60.44	74.0	13.56	PK
15690	32.06	14.81	V	46.87	54.0	7.13	AV
10460	42.74	9.72	H	52.46	68.2	15.74	PK
10460	34.43	9.72	H	44.15	54.0	9.85	AV
15690	45.89	14.81	H	60.70	74.0	13.30	PK
15690	32.09	14.81	H	46.90	54.0	7.10	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5260 MHz
Channel No.	52 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10520	43.47	9.86	V	53.33	68.2	14.87	PK
10520	34.31	9.86	V	44.17	54.0	9.83	AV
15780	45.88	14.94	V	60.82	74.0	13.18	PK
15780	32.11	14.94	V	47.05	54.0	6.95	AV
10520	43.41	9.86	H	53.27	68.2	14.93	PK
10520	33.82	9.86	H	43.68	54.0	10.32	AV
15780	45.72	14.94	H	60.66	74.0	13.34	PK
15780	32.10	14.94	H	47.04	54.0	6.96	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10600	43.21	9.350	V	52.56	68.2	15.64	PK
10600	33.97	9.350	V	43.32	54.0	10.68	AV
15900	44.32	14.890	V	59.21	74.0	14.79	PK
15900	30.54	14.890	V	45.43	54.0	8.57	AV
10600	42.11	9.350	H	51.46	68.2	16.74	PK
10600	31.91	9.350	H	41.26	54.0	12.74	AV
15900	44.42	14.890	H	59.31	74.0	14.69	PK
15900	30.54	14.890	H	45.43	54.0	8.57	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10640	43.44	9.46	V	52.90	74	21.10	PK
10640	34.29	9.46	V	43.75	54	10.25	AV
15960	44.01	15.06	V	59.07	74	14.93	PK
15960	30.28	15.06	V	45.34	54	8.66	AV
10640	42.03	9.46	H	51.49	74	22.51	PK
10640	31.32	9.46	H	40.78	54	13.22	AV
15960	43.38	15.06	H	58.44	74	15.56	PK
15960	30.29	15.06	H	45.35	54	8.65	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5270 MHz
Channel No.	54 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10540	43.14	9.84	V	52.98	68.2	15.22	PK
10540	33.86	9.84	V	43.70	54.0	10.30	AV
15810	44.82	14.93	V	59.75	74.0	14.25	PK
15810	31.70	14.93	V	46.63	54.0	7.37	AV
10540	42.17	9.84	H	52.01	68.2	16.19	PK
10540	32.39	9.84	H	42.23	54.0	11.77	AV
15810	45.23	14.93	H	60.16	74.0	13.84	PK
15810	31.68	14.93	H	46.61	54.0	7.39	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10620	42.96	9.32	V	52.28	68.2	15.92	PK
10620	34.41	9.32	V	43.73	54.0	10.27	AV
15930	44.15	14.98	V	59.13	74.0	14.87	PK
15930	30.33	14.98	V	45.31	54.0	8.69	AV
10620	41.62	9.32	H	50.94	68.2	17.26	PK
10620	31.46	9.32	H	40.78	54.0	13.22	AV
15930	44.05	14.98	H	59.03	74.0	14.97	PK
15930	30.34	14.98	H	45.32	54.0	8.68	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11000	42.99	10.5	V	53.53	74.0	20.47	PK
11000	34.81	10.5	V	45.35	54.0	8.65	AV
16500	45.36	16.4	V	61.73	68.2	6.47	PK
16500	31.60	16.4	V	47.97	54.0	6.03	AV
11000	42.17	10.5	H	52.71	74.0	21.29	PK
11000	34.08	10.5	H	44.62	54.0	9.38	AV
16500	45.23	16.4	H	61.60	68.2	6.60	PK
16500	31.59	16.4	H	47.96	54.0	6.04	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5600 MHz
Channel No.	120 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11200	41.04	10.16	V	51.20	74.0	22.80	PK
11200	32.02	10.16	V	42.18	54.0	11.82	AV
16800	45.39	18.26	V	63.65	68.2	4.55	PK
16800	31.61	18.26	V	49.87	54.0	4.13	AV
11200	42.02	10.16	H	52.18	74.0	21.82	PK
11200	33.44	10.16	H	43.60	54.0	10.40	AV
16800	45.13	18.26	H	63.39	68.2	4.81	PK
16800	31.63	18.26	H	49.89	54.0	4.11	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5700 MHz
Channel No.	140 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11400	42.22	10.21	V	52.43	74.0	21.57	PK
11400	33.04	10.21	V	43.25	54.0	10.75	AV
17100	45.05	18.86	V	63.91	68.2	4.29	PK
17100	31.34	18.86	V	50.20	54.0	3.80	AV
11400	41.63	10.21	H	51.84	74.0	22.16	PK
11400	33.11	10.21	H	43.32	54.0	10.68	AV
17100	45.01	18.86	H	63.87	68.2	4.33	PK
17100	31.36	18.86	H	50.22	54.0	3.78	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11a, 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11020	42.57	10.45	V	53.02	74.0	20.98	PK
11020	35.29	10.45	V	45.74	54.0	8.26	AV
16530	44.93	16.23	V	61.16	68.2	7.04	PK
16530	31.40	16.23	V	47.63	54.0	6.37	AV
11020	41.84	10.45	H	52.29	74.0	21.71	PK
11020	32.92	10.45	H	43.37	54.0	10.63	AV
16530	44.61	16.23	H	60.84	68.2	7.36	PK
16530	31.40	16.23	H	47.63	54.0	6.37	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5590 MHz
Channel No.	118 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11180	41.07	10.19	V	51.26	74.0	22.74	PK
11180	32.52	10.19	V	42.71	54.0	11.29	AV
16770	45.01	17.3	V	62.31	68.2	5.89	PK
16770	31.63	17.3	V	48.93	54.0	5.07	AV
11180	41.29	10.19	H	51.48	74.0	22.52	PK
11180	32.96	10.19	H	43.15	54.0	10.85	AV
16770	45.33	17.3	H	62.63	68.2	5.57	PK
16770	31.62	17.3	H	48.92	54.0	5.08	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5670 MHz
Channel No.	134 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11340	41.27	10.3	V	51.57	74.0	22.43	PK
11340	32.46	10.3	V	42.76	54.0	11.24	AV
17010	44.56	18.9	V	63.46	68.2	4.74	PK
17010	31.04	18.9	V	49.94	54.0	4.06	AV
11340	41.00	10.3	H	51.30	74.0	22.70	PK
11340	32.83	10.3	H	43.13	54.0	10.87	AV
17010	45.01	18.9	H	63.91	68.2	4.29	PK
17010	31.06	18.9	H	49.96	54.0	4.04	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

8.6.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS

Test Requirements and limit, §15.247(d) §15.205, §15.209

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum is 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a) (See section 15.205(c)).

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
5150	61.86	4.18	H	66.04	74	7.96	PK
5150	43.83	4.18	H	48.01	54	5.99	AV
5150	64.03	4.18	V	68.21	74	5.79	PK
5150	45.85	4.18	V	50.03	54	3.97	AV

Band :	UNII 2
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
5350	60.22	4.80	H	65.02	74	8.98	PK
5350	42.83	4.80	H	47.63	54	6.37	AV
5350	62.12	4.80	V	66.92	74	7.08	PK
5350	44.93	4.80	V	49.73	54	4.27	AV

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
5460	52.03	5.04	H	57.07	68.2	11.13	PK
5460	36.39	5.04	H	41.43	54.0	12.57	AV
5460	54.30	5.04	V	59.34	68.2	8.86	PK
5460	37.53	5.04	V	42.57	54.0	11.43	AV

Notes:

1. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + ATT
2. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
3. We have done 802.11a and 802.11n_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
5150	63.77	4.18	H	67.95	74	6.05	PK
5150	43.37	4.18	H	47.55	54	6.45	AV
5150	66.60	4.18	V	70.78	74	3.22	PK
5150	46.80	4.18	V	50.98	54	3.02	AV

Band :	UNII 2
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
5350	63.29	4.8	H	68.09	74	5.91	PK
5350	41.39	4.8	H	46.19	54	7.81	AV
5350	61.71	4.8	V	66.51	74	7.49	PK
5350	43.63	4.8	V	48.43	54	5.57	AV

Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
5460	50.32	5.04	H	55.36	74	18.64	PK
5460	36.44	5.04	H	41.48	54	12.52	AV
5460	50.86	5.04	V	55.90	74	18.10	PK
5460	36.50	5.04	V	41.54	54	12.46	AV

Notes:

1. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + ATT
2. Spectrum setting:
   a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
   b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
3. We have done all data rate in 802.11n_40 MHz BW mode test. Worst case of EUT is 13.5 Mbps in 802.11n_40 MHz BW.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

8.7 POWERLINE CONDUCTED EMISSIONS

Test Requirements and limit, §15.207

For an intentional radiator which 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 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

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

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT is placed on a wooden table 80 cm above the reference groundplane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors – Quasi Peak and Average Detector.
5. We are performed the AC Power Line Conducted Emission test for 6 Mbps, Ch.100 and 802.11a mode in UNII 3. Because 802.11a mode in UNII 3 is worst case.

▣ RESULT PLOTS

Conducted Emissions (Line 1)

HCT

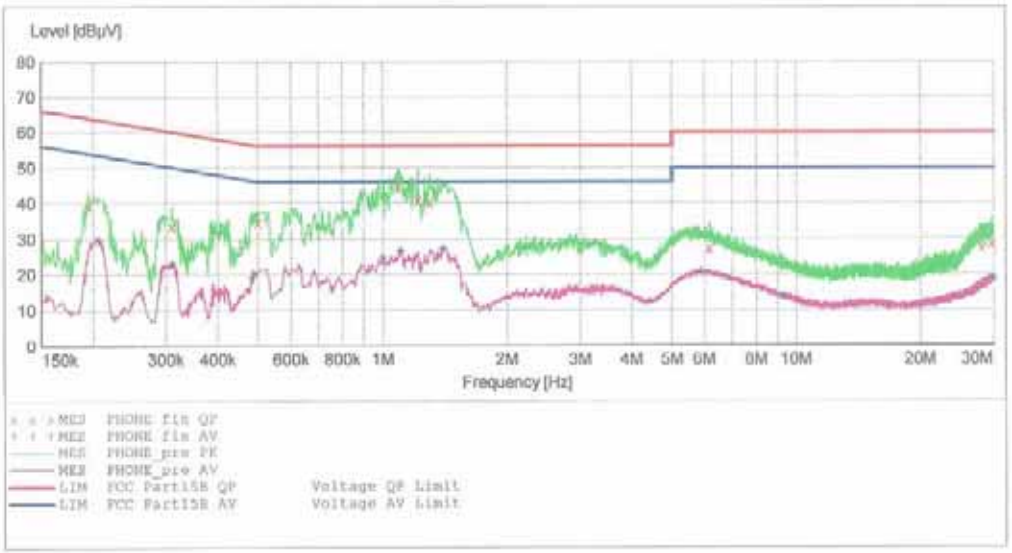
EMC

```
EUT:                    CDMA PTL21
Manufacturer:           PANTECH
Operating Condition:    WLAN MODE(5 GHz)
Test Site:              SHIELD ROOM
Operator:               JS LEE
Test Specification:     FCC PART 15 B
Comment:                H
```

SCAN TABLE: "FCC PART 15 B(H)"

Short Description: FCC PART 15 CLASS B

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	1.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "PHONE_fin QP"

8/14/2012 12:05PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.195010	39.10	9.7	64	24.8	---	---
0.310010	33.60	9.7	60	26.3	---	---
0.500000	34.60	9.8	56	21.4	---	---
1.092000	44.30	9.8	56	11.7	---	---
1.220000	40.70	9.8	56	15.3	---	---
1.304000	40.40	9.8	56	15.6	---	---
6.160000	27.20	10.2	60	32.8	---	---
28.112000	27.90	12.1	60	32.1	---	---
29.676000	28.80	12.2	60	31.2	---	---

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MEASUREMENT RESULT: "PHONE_fin AV"

8/14/2012 12:05PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.206010	29.70	9.7	53	23.7	---	---
0.311010	23.00	9.7	50	27.0	---	---
0.485010	19.40	9.8	46	26.9	---	---
1.004000	24.70	9.8	46	21.3	---	---
1.108000	26.70	9.8	46	19.3	---	---
1.400000	27.10	9.8	46	18.9	---	---
5.880000	20.70	10.2	50	29.3	---	---
9.344000	14.00	10.4	50	36.0	---	---
29.988000	18.80	12.2	50	31.2	---	---

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Conducted Emissions (Line 2)

HCT

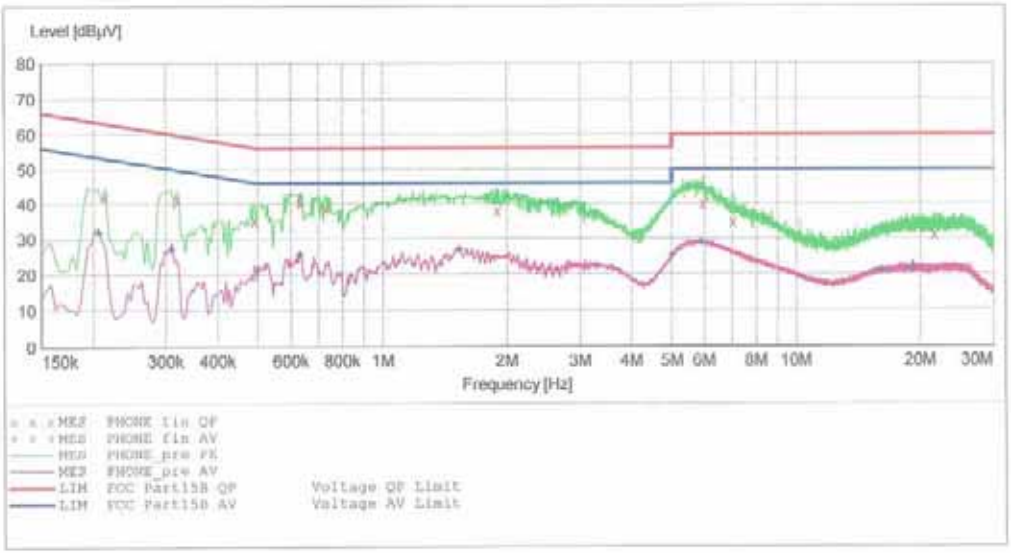
EMC

```
EUT:                    CDMA PTL21
Manufacturer:           PANTECH
Operating Condition:    WLAN MODE(5 GHz)
Test Site:              SHIELD ROOM
Operator:               JS LEE
Test Specification:     FCC PART 15 CLASS B
Comment:                N
```

SCAN TABLE: "FCC PART 15 B(N)"

Short Description: FCC PART 15 CLASS B

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "PHONE_fin QP"

8/14/2012 11:40AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.214010	42.00	9.9	63	21.0	---	---
0.318010	41.40	9.9	60	18.3	---	---
0.490010	35.30	10.0	56	20.9	---	---
0.632000	40.20	10.0	56	15.8	---	---
0.728000	38.70	10.0	56	17.3	---	---
1.900000	38.00	10.1	56	18.0	---	---
5.972000	40.10	10.4	60	19.9	---	---
7.036000	34.70	10.5	60	25.3	---	---
21.656000	31.20	12.2	60	28.8	---	---

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MEASUREMENT RESULT: "PHONE_fin AV"

8/14/2012 11:40AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.206010	31.90	9.9	53	21.5	---	---
0.310010	27.00	9.9	50	22.9	---	---
0.500000	21.20	10.0	46	24.8	---	---
0.632000	25.70	10.0	46	20.3	---	---
1.536000	27.10	10.1	46	18.9	---	---
5.000000	25.20	10.4	46	20.8	---	---
5.904000	29.00	10.4	50	21.0	---	---
16.120000	20.90	11.4	50	29.1	---	---
19.044000	21.60	11.9	50	28.4	---	---

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9. LIST OF TEST EQUIPMENT

Manufacturer	Model / Equipment	Calibration Interval	Calibration Due	Serial No.
Rohde & Schwarz	ENV216/ LISN	Annual	02/09/2013	100073
Schwarzbeck	VULB 9168/ TRILOG Antenna	Biennial	02/09/2013	200
Rohde & Schwarz	ESI 40 / EMI TEST RECEIVER	Annual	05/03/2013	831564103
Agilent	E4440A/ Spectrum Analyzer	Annual	05/02/2013	US45303008
Agilent	N9020A/ SIGNAL ANALYZER	Annual	07/31/2013	MY51110020
HD	MA240/ Antenna Position Tower	N/A	N/A	556
EMCO	1050/ Turn Table	N/A	N/A	114
HD GmbH	HD 100/ Controller	N/A	N/A	13
HD GmbH	KMS 560/ SlideBar	N/A	N/A	12
Rohde & Schwarz	SCU-18/ Signal Conditioning Unit	Annual	09/19/2012	10094
MITEQ	AMF-6B-180265-35-10P / POWER AMP	Annual	04/16/2013	667624
CERNEX	CBL26405040 / POWER AMP	Annual	04/16/2013	19660
Schwarzbeck	BBHA 9120D/ Horn Antenna	Biennial	10/17/2013	937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	Biennial	10/26/2012	BBHA9170342
Rohde & Schwarz	FSP / Spectrum Analyzer	Annual	02/09/2013	839117/011
Agilent	E4416A /Power Meter	Annual	11/07/2012	GB41291412
Agilent	E9327A /POWER SENSOR	Annual	05/02/2013	MY4442009
Wainwright Instrument	WHF3.3/18G-10EF / High Pass Filter	Annual	05/02/2013	1
Wainwright Instrument	WHNX6.0/26.5G-6SS / High Pass Filter	Annual	05/02/2013	1
Wainwright Instrument	WHNX7.0/18G-8SS / High Pass Filter	Annual	05/02/2013	29
Wainwright Instrument	WRCJ2400/2483.5-2370/2520-60/14SS / Band Reject Filter	Annual	05/02/2013	1
Hewlett Packard	11636B/Power Divider	Annual	11/07/2012	11377
Hewlett Packard	11667B / Power Splitter	Annual	06/05/2013	05001
DIGITAL	EP-3010 /DC POWER SUPPLY	Annual	11/07/2012	3110117
ITECH	IT6720 / DC POWER SUPPLY	Annual	11/07/2012	010002156287001199
TESCOM	TC-3000C / BLUETOOTH TESTER	Annual	11/14/2012	3000C000276
Rohde & Schwarz	CBT / BLUETOOTH TESTER	Annual	05/02/2013	100422
EMCO	6502.LOOP ANTENNA	Biennial	01/11/2014	9009-2536
MITEQ	AMF-6D-001180-35-20P/ POWER AMP	Annual	07/30/2013	990893
Agilent	8493C / Attenuator(10 dB)	Annual	07/30/2013	76649
WEINSCHEL	2-3 / Attenuator(3 dB)	Annual	11/07/2013	BR0617
CERNEX	CBLU1183540 / POWER AMP	Annual	07/27/2013	21691