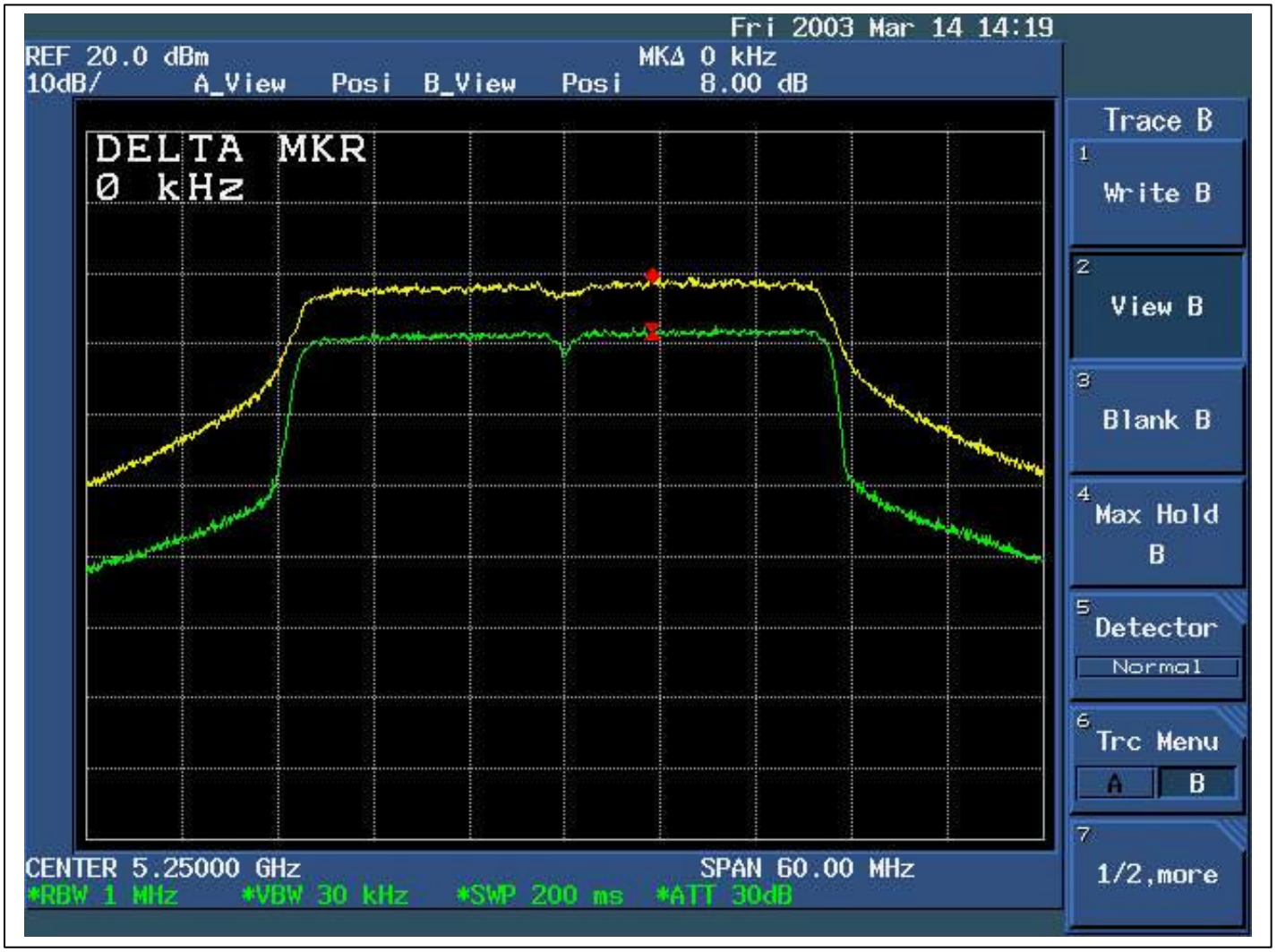
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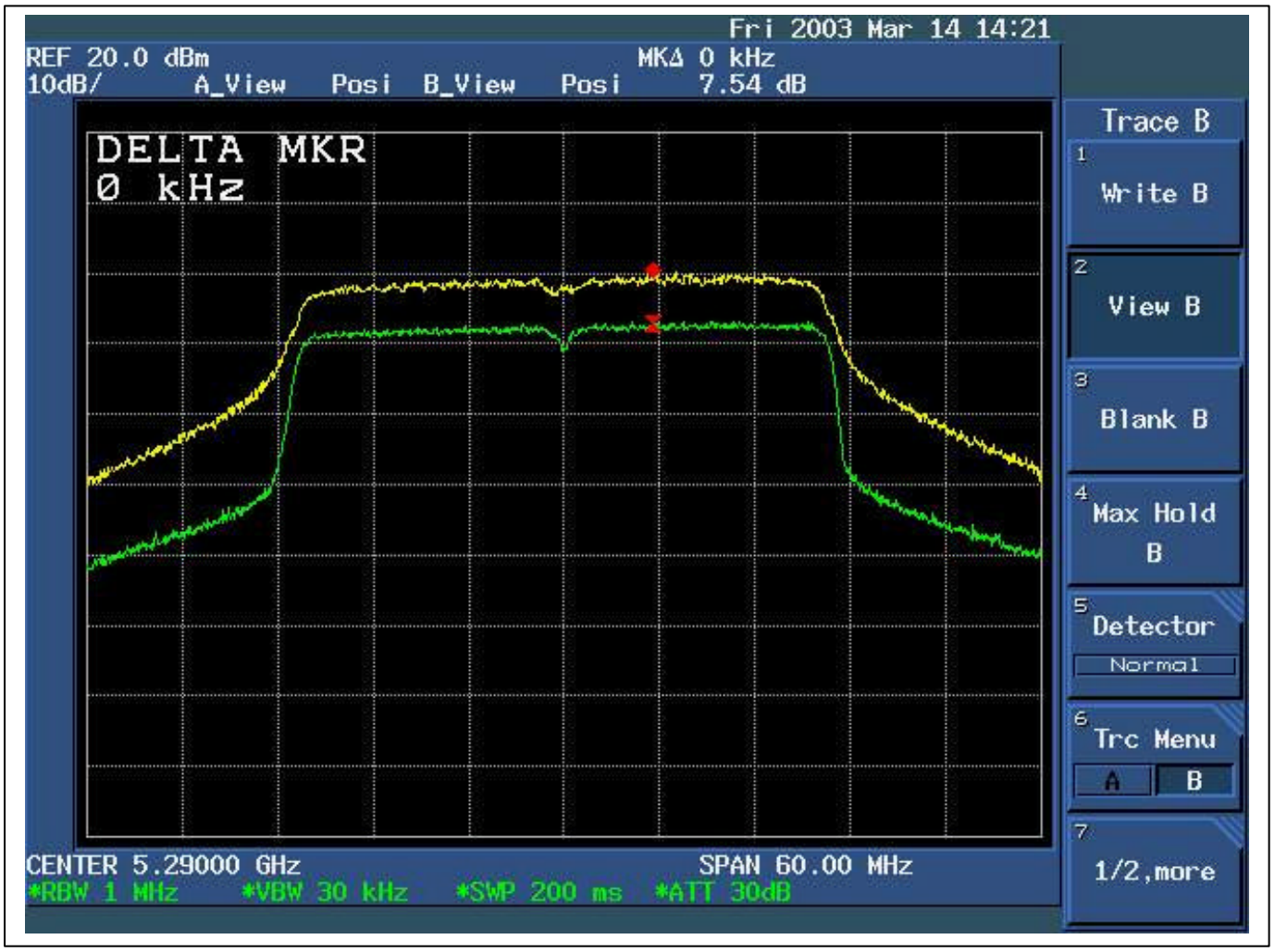
10dB/ A_View Posi B_View Posi 8.00 dB
DELTA MKR
0 kHz
Trace B
1 Write B
2 View B
3 Blank B
4 Max Hold B
5 Detector
Normal
6 Trc Menu
A B
7 1/2,more
CENTER 5.25000 GHz
SPAN 60.00 MHz
*RBW 1 MHz *VBW 30 kHz *SWP 200 ms *ATT 30dB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10dB/
A_View
Posi
B_View
Posi
MKΔ 0 kHz
7.54 dB
DELTA MKR
0 kHz
CENTER 5.29000 GHz
SPAN 60.00 MHz
*RBW 1 MHz
*VBW 30 kHz
*SWP 200 ms
*ATT 30dB
Trace B
1 Write B
2 View B
3 Blank B
4 Max Hold B
5 Detector
Normal
6 Trc Menu
A
B
7 1/2,more

6.4 Powerline Conducted Emissions [Section 15.207 & 15.407 (b)(5)]

6.4.1 EUT Configuration

The EUT was set up on the non-conductive table that is 1.0 by 1.5 meter, 80cm above ground. The wall of the shielded room was located 40cm to the rear of the EUT.

Power to the EUT was provided through the LISN. The impedance vs. frequency characteristic of the LISN is complied with the limit shown on the figure 1 of ANSI C63.4-2001.

Both lines (neutral and hot) were connected to the LISN in series at testing. A coaxial-type connector which provides one 50 ohms terminating impedance was provided for connecting the test instrument. The excess length of the power cord was folded back and forth at the center of the lead so as to form a bundle not exceeding 40cm in length.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

If the EUT is a Personal Computer or a peripheral of personal computer, and the personal computer has an auxiliary AC outlet which can be used for providing power to an external monitor, then all measurements will be made with the monitor power from first the computer-mounted AC outlet and then a floor-mounted AC outlet.

6.4.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. The main power line conducted EMI tests were run on the hot and neutral conductors of the power cord and the results were recorded. The effect of varying the position of the interface cables has been investigated to find the configuration that produces maximum emission.

At the frequencies where the peak values of the emissions were higher than 6dß below the applicable limits, the emissions were also measured with the quasi-peak detectors. At the frequencies where the quasi-peak values of the emissions were higher than 6dß below the applicable average limits, the emissions were also measured with the average detectors.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

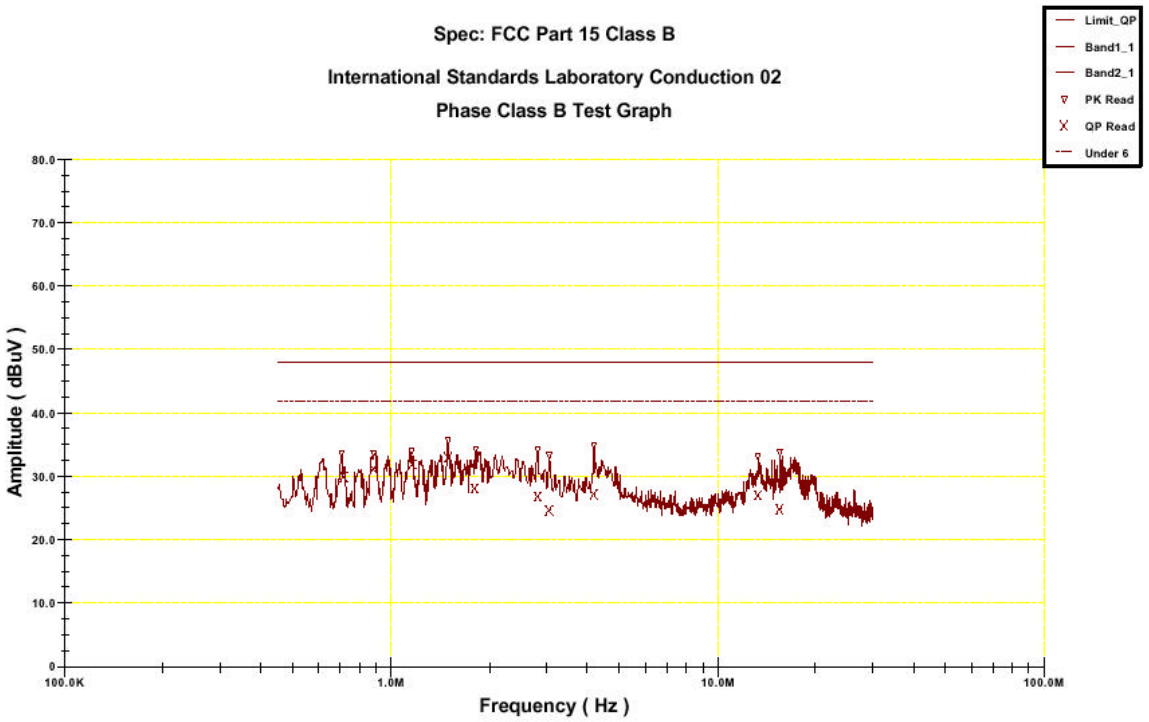
6.4.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range:	450KHz--30MHz
Detector Function:	Quasi-Peak
Bandwidth (RBW):	9KHz

6.4.4 Test Data:

Table 2.2.1 Power Line Conducted Emissions (Hot)

	Corrective Factor		Quasi-Peak		
Frequency (MHz)	LISN Loss (dB)	Cable Loss (dB)	Corrected Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
0.71566	0.54	0.33	29.98	47.96	-17.98
0.88353	0.48	0.34	31.28	47.96	-16.68
1.16076	0.44	0.34	32.02	47.96	-15.94
1.49366	0.44	0.35	33.01	47.96	-14.95
1.79908	0.45	0.36	28.16	47.96	-19.80
2.81584	0.45	0.41	26.89	47.96	-21.07
3.05705	0.45	0.42	24.68	47.96	-23.28
4.18884	0.46	0.47	27.18	47.96	-20.78
13.3014	0.80	0.61	27.03	47.96	-20.93
15.5751	0.96	0.63	24.90	47.96	-23.06



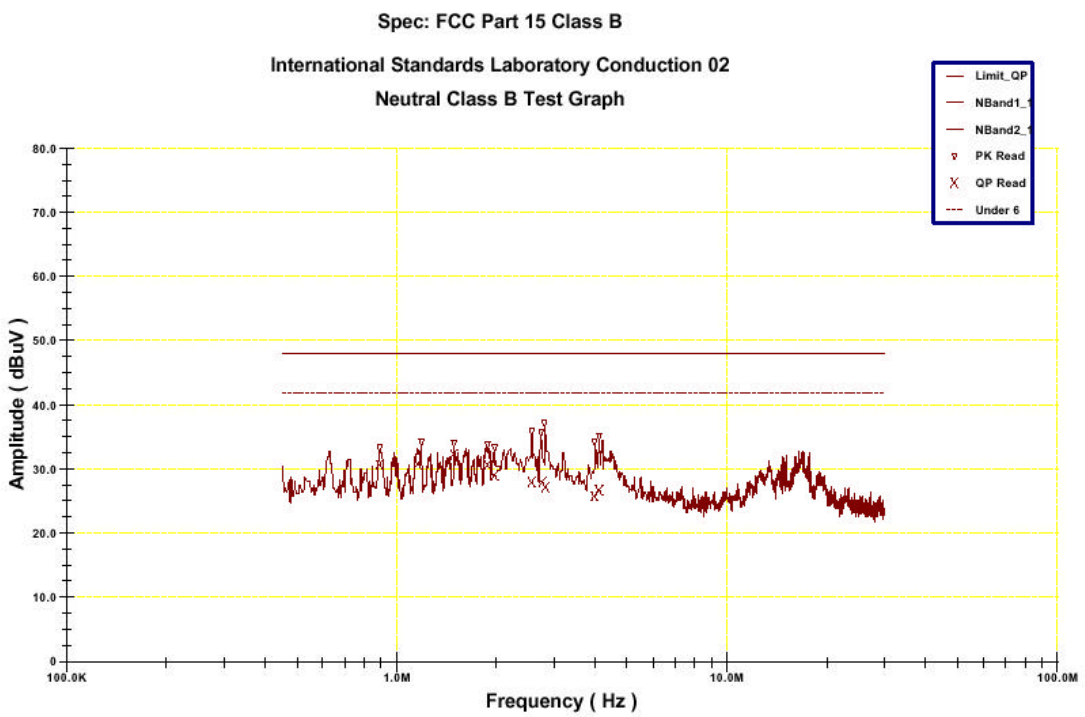
Operator: Jerry Chiou

Note: The EUT was set to Channel 1, 4, 5, 8 of Normal Mode and Channel 1 , 2, 3 of Turbo Mode respectively. The max. test data are listed above.

Table 2.2.2 Power Line Conducted Emissions (Neutral)

	Corrective Factor		Quasi-Peak		
Frequency (MHz)	LISN Loss (dB)	Cable Loss (dB)	Corrected Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
0.88785	0.45	0.34	30.61	47.96	-17.35
1.16368	0.41	0.34	30.77	47.96	-17.19
1.49183	0.41	0.35	32.22	47.96	-15.74
1.87888	0.42	0.37	30.63	47.96	-17.33
1.97388	0.42	0.37	29.05	47.96	-18.91
2.5579	0.42	0.40	27.96	47.96	-20.00
2.75724	0.42	0.41	28.03	47.96	-19.93
2.82304	0.42	0.41	27.32	47.96	-20.64
3.98363	0.43	0.47	25.81	47.96	-22.15
4.1174	0.43	0.47	26.66	47.96	-21.30

Note: The EUT was set to Channel 1, 4, 5, 8 of Normal Mode and Channel 1 , 2, 3 of Turbo Mode respectively. The max. test data are listed above.



Operator: Jerry Chiou

* NOTE: During the test, the EMI receiver was set to Max. Hold then switch the EUT between Main antenna , Aux antenna Channel 1 , 4, 5, 8 of Normal
Mode and Channel 1, 2, 3 of Turbo Mode to get the maximum reading of all these channels.
Margin = Amplitude + Insertion Loss- Limit
A margin of -8dB means that the emission is 8dB below the limit

6.5 Radiated Emission Measurement [Section 15.209 & 15.407(b)(5)]

6.5.1 EUT Configuration

The equipment under test was set up on the 10 meter chamber with measurement distance of 3 meters. The EUT was placed on a non-conductive table 80cm above ground.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

6.5.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. We found the maximum readings by varying the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured.

30M to 1GHz: The highest emissions between 30 MHz to 1000 MHz were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission.

1GHz – 40GHz: The highest emissions were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in peak mode to determine the precise amplitude of the emission. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission. During test the EMI receiver and spectrum was setup according to para. 6.5.3.

For the test of 2nd to 10th harmonics frequencies , the equipment setup was also refer to para.6.5.3. The frequencies were tested using Peak mode first, if the test data is higher than the emissions limit, an additional measurement using Average mode will be performed and the average reading will be compared to the limit and record in test report.

6.5.3 EMI Receiver/Spectrum Analyzer Configuration

Frequency Range Tested:	30MHz~1000MHz
Detector Function:	Quasi-Peak Mode
Resolution Bandwidth (RBW):	120KHz
Video Bandwidth (VBW)	1MHz

Frequency Range Tested:	1GHz – 40 GHz
Detector Function:	Peak Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	1MHz

Frequency Range Tested:	30MHz – 40 GHz
Detector Function:	Average Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	10 Hz

6.5.4 Test Data (30MHz – 1GHz) .

Table 6.5.4.1 30M – 1GHz Open Field Radiated Emissions (Horizontal)

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin* (dB)	Height (cm)	Position (°)
231.76	18.44	10.08	2.82	0.00	31.34	46.00	-14.66	99.00	107.00
360.77	16.34	14.52	3.57	0.00	34.43	46.00	-11.57	99.00	162.00
399.57	13.57	15.58	3.80	0.00	32.95	46.00	-13.05	99.00	245.00
626.55	5.63	19.00	4.84	0.00	29.47	46.00	-16.53	99.00	25.00
715.79	14.95	19.29	5.24	0.00	39.48	46.00	-6.52	99.00	245.00
775.93	7.30	19.90	5.52	0.00	32.72	46.00	-13.28	99.00	272.00
898.15	9.71	20.40	5.96	0.00	36.07	46.00	-9.93	99.00	327.00

Table 6.5.4.2 30M – 1GHz Open Field Radiated Emissions (Vertical)

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin* (dB)	Height (cm)	Position (°)
45.52	12.38	9.64	1.13	0.00	23.15	40.00	-16.85	100.00	272.00
496.57	11.65	17.30	4.24	0.00	33.19	46.00	-12.81	100.00	135.00
540.22	10.67	18.41	4.44	0.00	33.52	46.00	-12.48	100.00	217.00
626.55	8.33	19.00	4.84	0.00	32.17	46.00	-13.83	100.00	355.00
716.76	17.62	19.32	5.25	0.00	42.19	46.00	-3.81	100.00	217.00
815.70	2.84	20.01	5.68	0.00	28.53	46.00	-17.47	150.00	135.00
898.15	3.88	20.40	5.96	0.00	30.24	46.00	-15.76	150.00	25.00

* NOTE:
During the Pre-test, the EUT has been tested for Channel 1 , 4, 5, 8 of Normal Mode and Channel 1, 2, 3 of Turbo mode and transmit from Main and Aux antenna respectively to get all the critical emission frequencies. In the final test all the critical emission frequencies has been tested and the test data are listed above.
Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 30MHz to 1GHz have been tested

6.5.5 Test Data (1GHz – 40 GHz, Transmitting from Main antenna) .

1GHz~ 40 GHz (Horizontal), Normal Mode, Main antenna , Channel 1 : 5180 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5175.6	102.35(pk)	34.84	2.03	49.37	89.85	---	----	103	25
*5175.6	93.58 (av)	34.84	2.03	49.37	81.08	---	---	100	25
6216.5	54.96(pk)	35.65	2.21	49.61	43.21	68.3	-25.09	104	82
10361.3	61.24(pk)	38.94	2.93	44.22	58.89	68.3	-9.41	102	120
15536.6	51.28(pk)	42.25	3.62	47.52	49.63	54	-4.37	100	110

1GHz~ 40 GHz (Vertical), Normal Mode, Main antenna , Channel 1: 5180 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5175.6	104.66 (pk)	34.84	2.03	49.37	92.16	---	---	108	25
*5175.6	96.18 (av)	34.84	2.03	49.37	83.68	---	---	102	25
6216.5	55.47(pk)	35.65	2.21	49.61	43.72	68.3	-24.58	106	82
10361.3	63.74(pk)	38.94	2.93	44.22	61.39	68.3	-6.91	101	118
15536.6	52.34(pk)	42.25	3.62	47.52	50.69	54	-3.31	100	110

Note: " * " : Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level + Correction Factor < Limit - 6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Normal Mode, Main antenna , Channel 4: 5240 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5242.7	102.36(pk)	35.06	2.07	49.43	90.06	----	----	106	24
*5242.7	94.82(av)	35.06	2.07	49.43	82.52	----	----	106	24
6288.3	53.96(pk)	35.67	2.21	49.59	42.25	68.3	-26.05	107	71
10486.2	62.85(pk)	39.04	2.99	44.32	60.56	68.3	-7.74	109	125
15729.3	48.20(pk)	44.34	3.71	47.69	48.56	54	-5.44	112	108

1GHz~ 40 GHz (Vertical), Normal Mode, Main antenna , Channel 4: 5240 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5242.7	102.36(pk)	35.06	2.07	49.43	93.56	----	----	103	24
*5242.7	94.82(av)	35.06	2.07	49.43	85.11	----	----	103	24
6288.3	55.86(pk)	35.67	2.21	49.59	44.15	68.3	-24.15	100	71
10486.2	64.55(pk)	39.04	2.99	44.32	64.07	68.3	-4.23	102	125
15729.3	49.20(pk)	44.34	3.71	47.69	50.88	54	-3.12	105	108

Note: " * " : Fundamental Frequency

" pk": peak reading

"av": average reading

The Spectrum noise level + Correction Factor < Limit - 6 dB

Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Normal Mode, Main antenna , Channel 5 : 5260 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
5263.4	100.98(pk)	35.14	2.08	49.47	88.73	----	----	105	30
5263.4	92.48(av)	35.14	2.08	49.47	80.23	----	----	105	30
6312.7	53.39(pk)	35.68	2.21	49.58	41.7	68.3	-26.6	100	75
10524.6	61.73(pk)	39.17	3.01	44.38	59.53	68.3	-8.77	109	140
15786.1	49.22(pk)	44.53	3.73	47.75	49.73	54	-4.27	112	130

1GHz~ 40 GHz (Vertical), Normal Mode, Main antenna, Channel 5 : 5260 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
5263.4	103.36(pk)	35.14	2.08	49.47	91.11	----	----	102	30
5263.4	94.82(av)	35.14	2.08	49.47	82.57	----	----	102	30
6312.7	54.86(pk)	35.68	2.21	49.58	43.17	68.3	-25.13	100	75
10524.6	63.56(pk)	39.17	3.01	44.38	61.36	68.3	-6.94	116	140
15786.1	50.58(pk)	44.53	3.73	47.75	51.09	54	-2.91	105	130

Note: " * " : Fundamental Frequency

" pk": peak reading

"av": average reading

The Spectrum noise level + Correction Factor < Limit - 6 dB

Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Normal Mode, Main antenna, Channel 8: 5320 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
5323.1	100.05(pk)	35.29	2.11	49.55	87.9	----	----	100	23
5323.1	90.24(av)	35.29	2.11	49.55	78.09	----	----	100	23
6384.5	52.95(pk)	35.69	2.22	49.5	41.36	68.3	-26.94	106	70
10649.3	63.69(pk)	39.34	3.05	44.51	61.57	74	-12.43	107	124
10649.3	51.15(av)	39.34	3.05	44.51	51.03	54	-2.97	107	124
15962.6	48.96(pk)	44.59	3.79	47.94	49.4	54	-4.60	101	113

1GHz~ 40 GHz (Vertical), Normal Mode, Main antenna, Channel 8: 5320 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
5323.1	101.88(pk)	35.29	2.11	49.55	89.73	----	----	106	23
5323.1	91.15(av)	35.29	2.11	49.55	79	----	----	106	23
6384.5	54.66(pk)	35.69	2.22	49.5	43.07	68.3	-25.23	100	70
10649.3	64.23(pk)	39.34	3.05	44.51	62.11	74	-11.89	109	124
10649.3	52.51(av)	39.34	3.05	44.51	50.39	54	-3.61	109	124
15962.6	50.28(pk)	44.59	3.79	47.94	50.72	54	-3.28	119	113

Note: " * " : Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level + Correction Factor < Limit - 6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Turbo Mode, Main antenna, Channel 1: 5210 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
5205.2	105.46(pk)	34.95	2.05	49.4	93.06	----	----	100	15
5205.2	95.28(av)	35.06	2.07	49.43	82.98	----	----	100	15
6252.5	52.89(pk)	35.66	2.21	49.6	41.16	68.3	-27.14	113	72
10418.6	62.67(pk)	38.99	2.96	44.27	60.35	68.3	-7.95	109	121
15626.5	48.26(pk)	43.36	3.67	47.61	47.68	54	-6.32	111	115

1GHz~ 40 GHz (Vertical), Turbo Mode, Main antenna, Channel 1: 5210 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
5205.2	108.36(pk)	34.95	2.05	49.4	95.96	----	----	107	15
5205.2	98.81(av)	35.06	2.07	49.43	86.51	----	----	107	15
6252.5	53.42(pk)	35.66	2.21	49.6	41.69	68.3	-26.61	116	72
10418.6	64.72(pk)	38.99	2.96	44.27	62.4	68.3	-5.90	109	121
15626.5	49.61(pk)	43.36	3.67	47.61	49.03	54	-4.97	102	115

Note: " * " : Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level + Correction Factor < Limit - 6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal) , Turbo Mode, Main antenna, Channel 2 : 5250 MHZ

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5247.6	103.75(pk)	35.06	2.07	49.43	91.45	----	----	108	10
*5247.6	94.28(av)	35.06	2.07	49.43	81.98	----	----	108	10
6300.6	53.52(pk)	35.67	2.21	49.58	41.82	68.3	-26.48	116	65
10494.3	62.66(pk)	39.04	2.99	44.32	60.37	68.3	-7.93	113	115
15748.8	47.25(pk)	44.34	3.71	47.69	47.61	54	-6.39	105	110

1GHz~ 40 GHz (Vertical), Turbo Mode, Main antenna, Channel 2: 5250 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5247.6	106.73(pk)	35.06	2.07	49.43	94.43	----	----	101	10
*5247.6	96.31(av)	35.06	2.07	49.43	84.01	----	----	101	10
6300.6	55.27(pk)	35.67	2.21	49.58	43.57	68.3	-24.73	113	65
10494.3	64.47(pk)	39.04	2.99	44.32	62.18	68.3	-6.12	106	115
15748.8	48.92(pk)	44.34	3.71	47.69	49.28	54	-4.72	101	110

Note: " * " : Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level + Correction Factor < Limit - 6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Turbo Mode, Main antenna, Channel 3 : 5290 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5297.9	103.26(pk)	35.21	2.1	49.51	91.06	----	----	109	25
*5297.9	92.34(av)	35.21	2.1	49.51	80.14	----	----	109	25
6347.7	50.67(pk)	35.65	2.21	49.57	38.96	68.3	-29.34	100	70
10586.2	62.74(pk)	39.24	3.03	44.45	60.56	68.3	-7.74	103	130
10602.3	60.84(pk)	39.25	3.03	44.47	58.65	74	-15.35	100	90
10602.3	51.54(av)	39.25	3.03	44.47	49.35	54	-4.65	100	90
15878.6	48.67(pk)	44.56	3.76	47.84	49.15	54	-4.85	108	85

1GHz~ 40 GHz (Vertical) , Turbo Mode, Main antenna, Channel 3: 5290 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
5297.9	105.71(pk)	35.21	2.1	49.51	93.51	----	----	103	25
5297.9	95.70(av)	35.21	2.1	49.51	83.5	----	----	103	25
6347.7	52.11(pk)	35.69	2.21	49.57	40.44	68.3	-27.86	100	70
10586.2	63.89(pk)	39.24	3.03	44.45	61.71	68.3	-6.59	106	130
10602.3	62.26(pk)	39.25	3.03	44.47	60.07	74	-13.93	115	90
10602.3	52.84(av)	39.25	3.03	44.47	50.65	54	-3.35	115	90
15878.6	49.50(pk)	44.56	3.76	47.84	49.98	54	-4.02	103	85

Note: " * " : Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level + Correction Factor < Limit - 6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

6.5.6 Test Data (1GHz – 40 GHz, Transmitting from Aux antenna) .

1GHz~ 40 GHz (Horizontal), Normal Mode, Aux antenna Channel 1 : 5180 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5175.6	101.19(pk)	34.84	2.03	49.37	88.69	----	----	103	185
*5175.6	92.73(av)	34.84	2.03	49.37	80.23	----	----	103	185
6216.5	53.38(pk)	35.65	2.21	49.61	41.63	68.3	-26.67	116	265
10361.3	60.21(av)	38.94	2.93	44.22	57.86	68.3	-10.44	102	280
15536.6	50.78(pk)	42.25	3.62	47.52	49.13	54	-4.87	100	255

1GHz~ 40 GHz (Vertical), Normal Mode, Aux antenna Channel 1: 5180 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5175.6	102.51(pk)	34.84	2.03	49.37	90.01	----	----	100	185
*5175.6	94.25(av)	34.84	2.03	49.37	81.75	----	----	100	185
6216.5	54.62(pk)	35.65	2.21	49.61	42.87	68.3	-25.43	109	265
10361.3	62.88(pk)	38.94	2.93	44.22	60.53	68.3	-7.77	100	280
15536.6	51.67(pk)	42.25	3.62	47.52	50.02	54	-3.98	103	255

Note: " * " : Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level + Correction Factor < Limit - 6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Normal Mode, Aux antenna , Channel 4: 5240 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5242.7	101.95(pk)	35.06	2.07	49.43	89.65	----	----	101	170
*5242.7	92.63(av)	35.06	2.07	49.43	80.33	----	----	101	170
6288.3	52.12(pk)	35.67	2.21	49.59	40.41	68.3	-27.89	100	74
10486.2	60.57(pk)	39.04	2.99	44.32	58.28	68.3	-10.02	113	193
15729.3	47.94(pk)	44.34	3.71	47.69	48.3	54	-5.7	107	205

1GHz~ 40 GHz (Vertical), Normal Mode, Aux antenna , Channel 4: 5240 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5242.7	104.22(pk)	35.06	2.07	49.43	91.92	----	----	102	170
*5242.7	95.96(av)	35.06	2.07	49.43	83.66	----	----	102	170
6288.3	54.24(pk)	35.67	2.21	49.59	42.53	68.3	-25.77	100	74
10486.2	62.24(pk)	39.04	2.99	44.32	59.95	68.3	-8.35	106	193
15729.3	47.82(pk)	44.34	3.71	47.69	48.18	54	-5.82	102	205

Note: " * " : Fundamental Frequency

" pk": peak reading

"av": average reading

The Spectrum noise level + Correction Factor < Limit - 6 dB

Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Normal Mode, Aux antenna , Channel 5 : 5260 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5263.4	100.03(pk)	35.14	2.08	49.47	87.78	----	----	100	202
*5263.4	91.16av)	35.14	2.08	49.47	78.91	----	----	100	202
6312.7	52.55(pk)	35.68	2.21	49.58	40.86	68.3	-27.44	109	76
10524.6	61.48(pk)	39.17	3.01	44.38	59.28	68.3	-9.02	100	210
15786.1	47.81(pk)	44.53	3.73	47.75	48.32	54	-5.68	110	305

1GHz~ 40 GHz (Vertical), Normal Mode, Aux antenna, Channel 5 : 5260 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5263.4	102.53(pk)	35.14	2.08	49.47	90.28	----	----	104	202
*5263.4	93.65(av)	35.14	2.08	49.47	81.4	----	----	104	202
6312.7	53.05(pk)	35.68	2.21	49.58	41.36	68.3	-26.94	100	76
10524.6	64.46(pk)	39.17	3.01	44.38	62.26	68.3	-6.04	118	210
15786.1	50.24(pk)	44.53	3.73	47.75	50.75	54	-3.25	107	305

Note: " * " : Fundamental Frequency

" pk": peak reading

"av": average reading

The Spectrum noise level + Correction Factor < Limit - 6 dB

Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Normal Mode, Aux antenna, Channel 8: 5320 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5323.1	99.83(pk)	35.29	2.11	49.55	87.68	----	----	108	195
*5323.1	89.62(av)	35.29	2.11	49.55	77.47	----	----	108	195
6384.5	50.71(pk)	35.69	2.22	49.57	39.05	68.3	-29.25	100	68
10649.3	62.49(pk)	39.34	3.05	44.51	60.37	74	-13.63	102	312
10649.3	49.68(av)	39.34	3.05	44.51	47.56	54	-6.44	102	312
15962.6	47.25(pk)	44.59	3.79	47.94	47.69	54	-6.31	108	275

1GHz~ 40 GHz (Vertical), Normal Mode, Aux antenna, Channel 8: 5320 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5323.1	101.52(pk)	35.29	2.11	49.55	89.37	----	----	100	195
*5323.1	90.84(av)	35.29	2.11	49.55	78.69	----	----	100	195
6384.5	53.28(pk)	35.69	2.22	49.57	41.62	68.3	-26.68	100	68
10649.3	63.01(pk)	39.34	3.05	44.51	60.89	74	-13.11	105	312
10649.3	50.93(av)	39.34	3.05	44.51	48.81	54	-5.19	105	312
15962.6	47.32(pk)	44.59	3.79	47.94	47.76	54	-6.24	101	275

Note: " * " : Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level + Correction Factor < Limit - 6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Turbo Mode, Aux antenna, Channel 1: 5210 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5205.2	103.25	34.95	2.05	49.4	90.85	----	----	104	178
*5205.2	93.64	35.06	2.07	49.43	81.34	----	----	104	178
6252.5	51.93	35.66	2.21	49.6	40.2	68.3	-28.1	100	80
10418.6	62.32	38.99	2.96	44.27	60	68.3	-8.3	113	256
15626.5	48.71	43.36	3.67	47.61	48.13	54	-5.87	111	256

1GHz~ 40 GHz (Vertical), Turbo Mode, Aux antenna, Channel 1: 5210 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5205.2	106.59	34.95	2.05	49.4	94.19	----	----	100	178
*5205.2	97.38	35.06	2.07	49.43	85.08	----	----	100	178
6252.5	52.26	35.66	2.21	49.6	40.53	68.3	-27.77	112	80
10418.6	61.85	38.99	2.96	44.27	59.53	68.3	-8.77	103	256
15626.5	48.52	43.36	3.67	47.61	47.94	54	-6.06	110	256

Note: " * " : Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level + Correction Factor < Limit - 6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal) , Turbo Mode, Aux antenna, Channel 2 : 5250 MHZ

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5247.6	102.42(pk)	35.06	2.07	49.43	90.12	----	----	106	189
*5247.6	92.16(av)	35.06	2.07	49.43	79.86	----	----	106	189
6300.6	51.63(pk)	35.67	2.21	49.58	39.93	68.3	-28.37	100	73
10494.3	60.23(pk)	39.04	2.99	44.32	57.94	68.3	-10.36	118	285
15748.8	46.47(pk)	44.34	3.71	47.69	46.83	54	-7.17	106	255

1GHz~ 40 GHz (Vertical), Turbo Mode, Aux antenna, Channel 2: 5250 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5247.6	104.25(pk)	35.06	2.07	49.43	91.95	----	----	105	189
*5247.6	94.72(av)	35.06	2.07	49.43	82.42	----	----	105	189
6300.6	55.05(pk)	35.67	2.21	49.58	43.35	68.3	-24.95	102	73
10494.3	61.36(pk)	39.04	2.99	44.32	59.07	68.3	-9.23	115	285
15748.8	48.63(pk)	44.34	3.71	47.69	48.99	54	-5.01	106	255

Note: " * " : Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level + Correction Factor < Limit - 6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Turbo Mode, Aux antenna, Channel 3 : 5290 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
*5297.9	102.15(pk)	35.21	2.1	49.51	89.95	----	----	102	195
*5297.9	91.24(av)	35.21	2.1	49.51	79.04	----	----	102	195
6347.7	49.36(pk)	35.65	2.21	49.57	37.65	68.3	-30.65	113	75
10586.2	61.21(pk)	39.24	3.03	44.45	59.03	68.3	-9.27	103	302
10602.3	59.42(pk)	39.25	3.03	44.47	57.23	74	-16.77	100	261
10602.3	50.01(av)	39.25	3.03	44.47	47.82	54	-6.18	100	261
15878.6	47.45(pk)	44.56	3.76	47.84	47.93	54	-6.07	107	243

1GHz~ 40 GHz (Vertical) , Turbo Mode, Aux antenna, Channel 3: 5290 MHz

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Position (°)
5297.9	103.41(pk)	35.21	2.1	49.51	91.21	----	----	101	195
5297.9	94.42(av)	35.21	2.1	49.51	82.22	----	----	101	195
6347.7	50.32(pk)	35.65	2.21	49.57	38.61	68.3	-29.69	100	75
10586.2	62.36(pk)	39.24	3.03	44.45	60.18	68.3	-8.12	106	302
10602.3	60.53(pk)	39.25	3.03	44.47	58.34	54	4.34	115	261
10602.3	51.32(av)	39.25	3.03	44.47	49.13	54	-4.87	115	261
15878.6	47.92(pk)	44.56	3.76	47.84	48.4	54	-5.60	100	243

Note: " * " : Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level + Correction Factor < Limit - 6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 40 GHz have been tested.

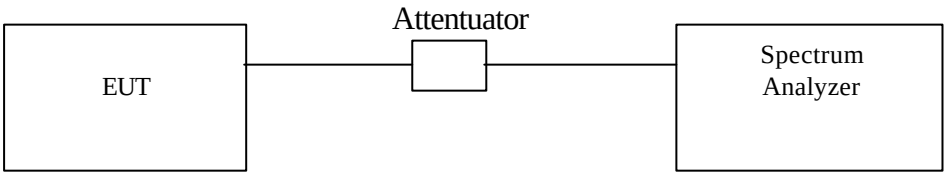
6.6 Band Edge Measurement (Section 15.407 (b) (1) (2))

6.6.1 Test Procedure (Conducted)

1. The Transmitter output of EUT was connected to the spectrum analyzer.
   Equipment mode: Spectrum analyzer
   Detector function: Peak mode
   SPAN: 100MHz
   RBW: 1 MHHz
   VBW: 1 MHz
   Center frequency: 5.14 GHz, 5.36 GHz, 5.175 GHz, 5.325 GHz.
   Sweep time= 200 sec.

2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed.
3. Find the next peak frequency outside the operation frequency band.

6.6.2 Test Setup (Conducted)



6.6.3 Test Data (conducted):

Band Edge measurement (Conducted)

Outside Channel	Frequency (MHz)	Spectrum Reading (dBuV)	Corrected Factor (dB)	Corrected Emissions (dBuV ERP)	Limit: (dBuV ERP)	Pass or Fail
1 (Normal)	5149.1	64.15	3.98	68.13	80	Pass
8 (Normal)	5353.2	67.97	3.98	71.95	80	Pass
1 (Turbo)	5139.0	56.98	3.98	60.96	80	Pass
3 (Turbo)	5363.2	60.65	3.98	64.63	80	Pass

Note: Corrected Emissions = Spectrum + Corrected Factor
Corrected Factor = Cable Loss + Antenna Peak Gain (dBi)

Band Edge Conducted measurement (Normal Mode Channel 1)

Band Edge Conducted Measurement (Normal Mode Channel 8)

Band Edge Conducted measurement (Turbo Mode Channel 1)

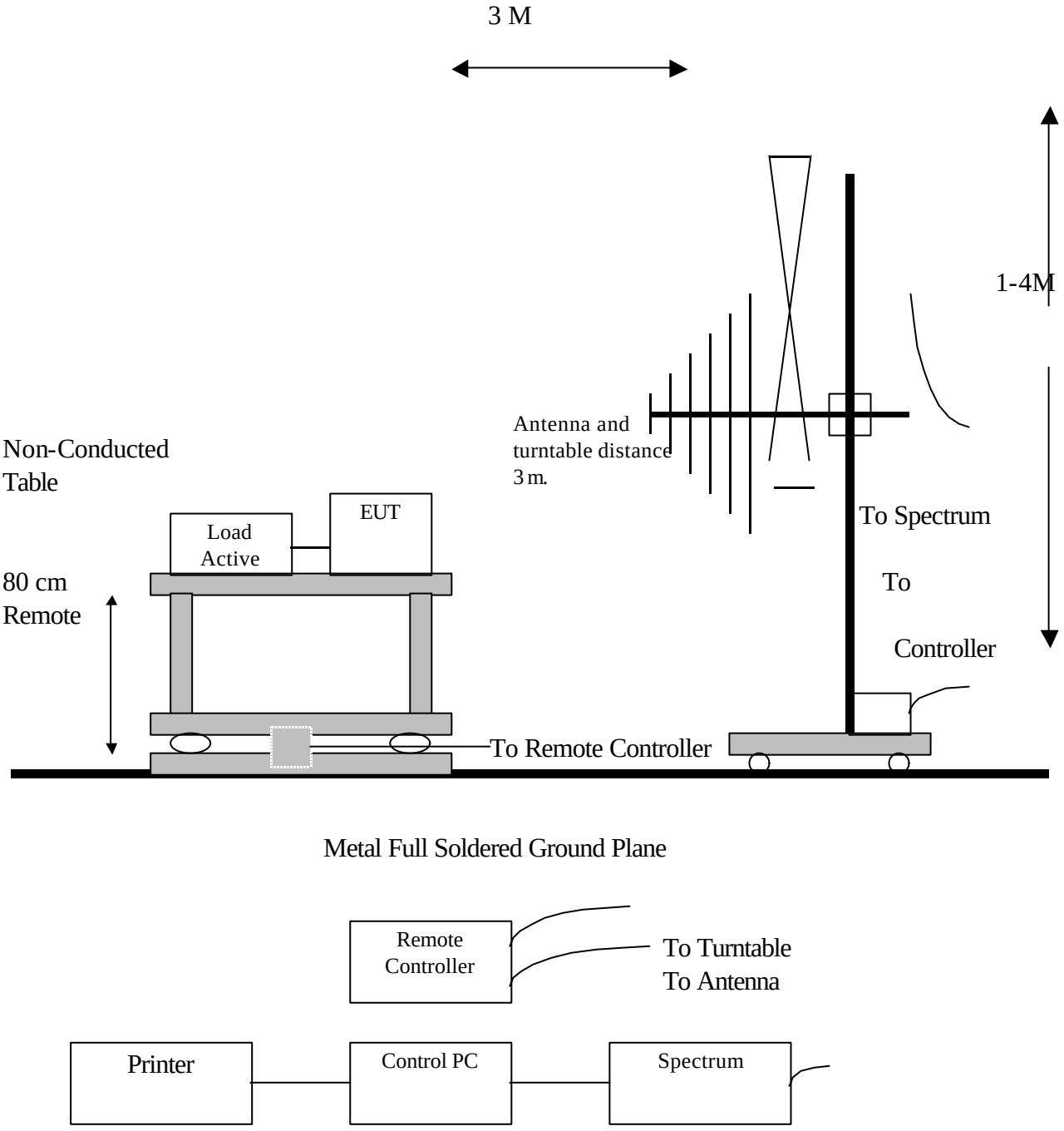
Band Edge Conducted Measurement (Turbo Mode Channel 3)

6.6.4 Bandedge Measurement Test Procedure (Radiated)

1. Antenna and Turntable test procedure same as Radiated Emissions measurement listed in Para. 6.5

   Equipment mode: Spectrum analyzer
   Detector function: Peak mode SPAN: 100MHz
   RBW=1 MHz, VBW = 1MHz for Peak measurement
   RBW=1 MHz, VBW = 10 Hz for Average measurement
   Center frequency: 5.14 GHz, 5.36 GHz, 5.175 GHz, 5.325 GHz.
   Sweep time= 200 msec for peak measurement, 20 sec. for Average
2. Using Peak Search to read the peak power of Carrier frequencies after Maximun Hold function is completed.
3. Find the next peak frequency outside the operation frequency band.
4. Get the spectrum reading after Maximun Hold function is completed.

6.6.5 Test Setup (Radiated)



6.6.6 Test Data (Radiated):

Band Edge measurement (Radiated)

Outside Channel	Frequency (MHz)	Spectrum Reading (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Pass/Fail
1 (Normal)	5147.6	67.78 (pk)	-12.49	55.29	74	Pass
1 (Normal)	5148.0	53.62 (av)	-12.49	41.13	54	Pass
8 (Normal)	5352.4	63.79(pk)	-12.15	51.64	74	Pass
8 (Normal)	5376.0	48.66	-12.15	36.51	54	Pass
1 (Turbol)	5147.4	66.29(pk)	-12.49	53.80	74	Pass
1 (Turbo)	5147.6	49.31 (av)	-12.49	36.82	54	Pass
3 (Turbo)	5350.0	60.78 (pk)	-12.15	48.63	74	Pass
3 (Turbo)	5376.1	48.29 (av)	-12.15	36.14	54	Pass

Note: " pk": peak reading
"av": average reading
Emission Level = Spectrum Reading + Correction Factor
Correction Factor = Antenna Factor + cable loss – amplifier gain
Both Horizontal and Vertical polarizaion have been tested and the worst data is listed above.

Band Edge measurement for radiated emission in Restricted Band(Radiated)

Normal Mode (Channel 1) Peak data

Band Edge measurement for radiated emission in Restricted Band(Radiated)

Normal Mode (Channel 1) Average Data

Band Edge measurement for radiated emission in Ristricted Band(Radiated)

Normal Mode (Channel 8) Peak data

Band Edge measurement for radiated emission in Ristricted Band(Radiated)

Normal Mode (Channel 8) , Average data

Band Edge measurement for radiated emission in Restricted Band(Radiated)

Turbo Mode (Channel 1) Peak data

Band Edge measurement for radiated emission in Restricted Band(Radiated)

Turbo Mode (Channel 1) Average Data