5. Test of Radiated Emission

5.1. Test Limit

Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defines in ANSI C63.4-2003. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance Meters	Radiated (μ V / M)	Radiated (dB μ V/ M)
30-88	3	100	40.0
88-216	3	150	43.5
216-960	3	200	46.0
Above 960	3	500	54.0

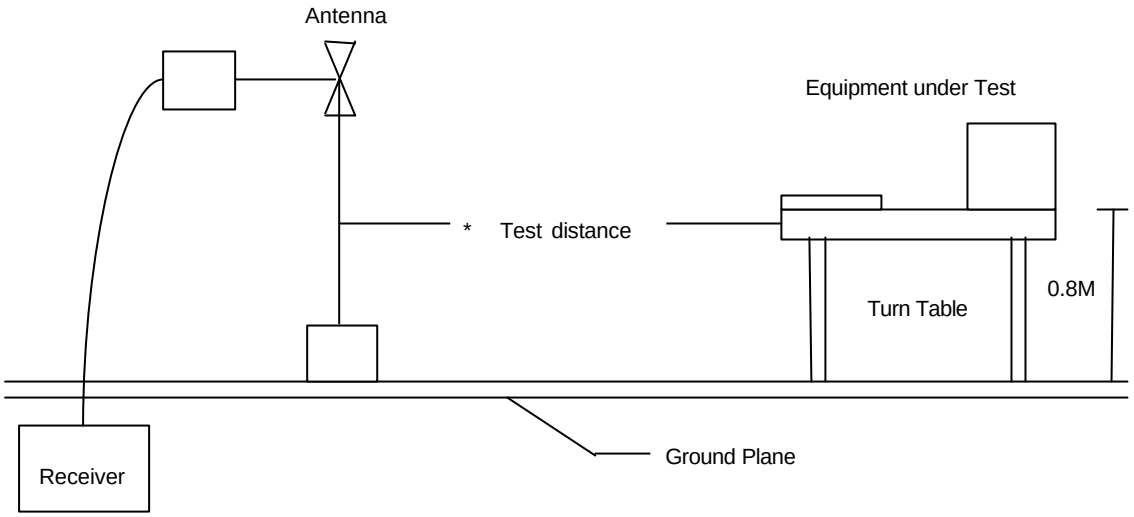
For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the above table.

Frequency (MHz)	Distance Meters	Radiated (dB μ V/ M)
30-230	10	30
230-1000	10	37

5.2. Test Procedures

1. The EUT was placed on a rotatable table top 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
5. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

5.3. Typical Test Setup

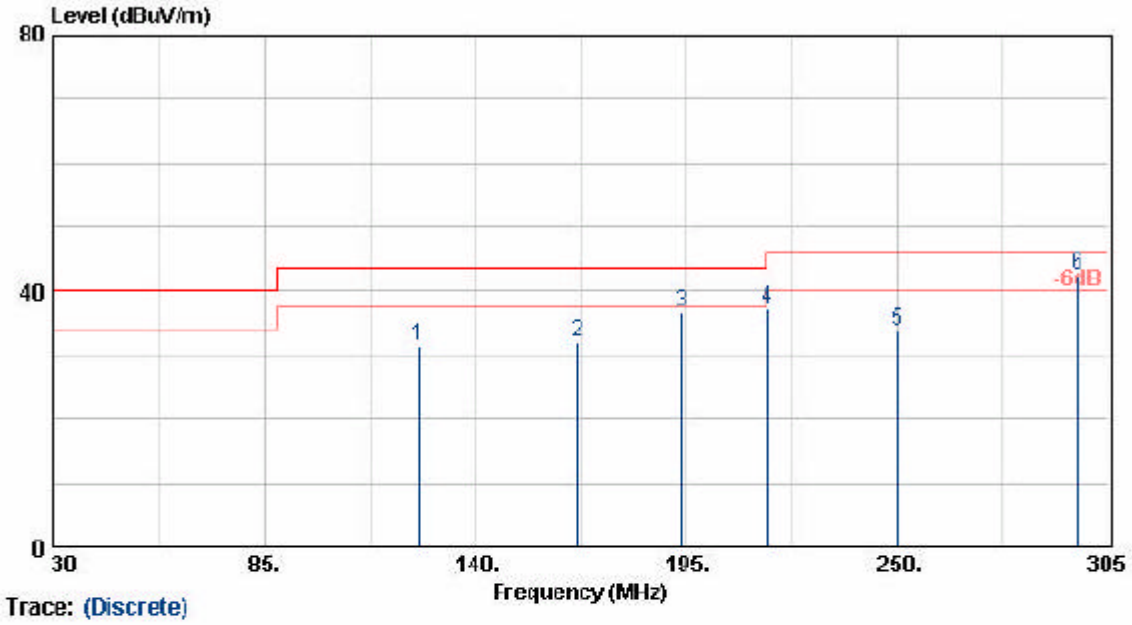


5.4. Measurement equipment

Instrument/Ancillary	Type	Manufacturer	Valid Date
EMI Receiver	8546A	HP	2006/04/13
Spectrum Analyzer	FSP40	R&S	2005/12/28
Horn Antenna	3115	EMCO	2006/02/21
Horn Antenna	3116	EMCO	2006/02/21
Bilog Antenna	CBL6112B	Schaffner	2006/04/12
Amplifier	8447D	Agilent	2005/06/30
Amplifier	8449B	Agilent	2005/12/27

5.5. Test Result and Data

EUT	: MR1000		
Power	: 110V	Pol/Phase	: HORIZONTAL
Test Mode	: Transmit/Receive	Temperature	: 24 ℃
Operation Channel	: 1	Humidity	: 68 %
Modulation Type	: 802.11b/g	Atmospheric Pressure	: 1028 mmHg
Rate	: 11/54 Mbps	Memo	:



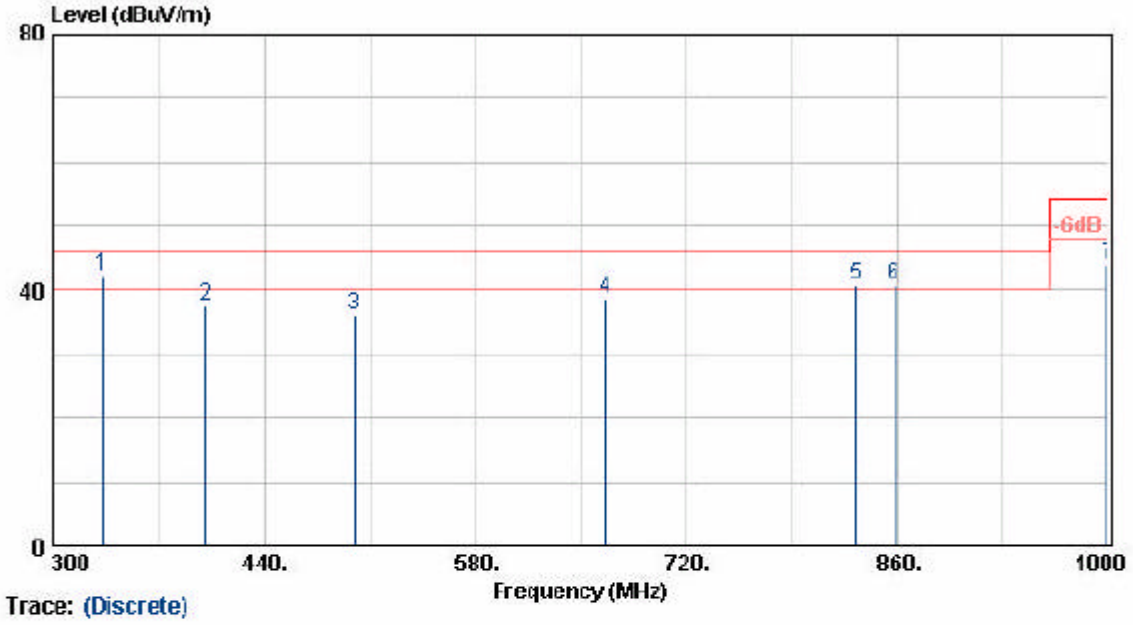
Trace: (Discrete)

Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
125.00	47.39	-15.94	31.45	43.50	-12.05	Peak	180	100
166.50	48.19	-16.30	31.89	43.50	-11.61	Peak	200	100
193.65	53.80	-17.01	36.79	43.50	-6.71	Peak	200	100
216.23	54.40	-17.17	37.23	46.00	-8.77	Peak	200	100
250.00	46.91	-13.17	33.74	46.00	-12.26	Peak	180	100
296.98	53.61	-11.11	42.50	46.00	-3.50	QP	200	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Anplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency belov 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.

EUT	: MR1000		
Power	: 110V	Pol/Phase	: HORIZONTAL
Test Mode	: Transmit/Receive	Temperature	: 24 ℃
Operation Channel	: 1	Humidity	: 68 %
Modulation Type	: 802.11b/g	Atmospheric Pressure	: 1028 mmHg
Rate	: 11/54 Mbps	Memo	:

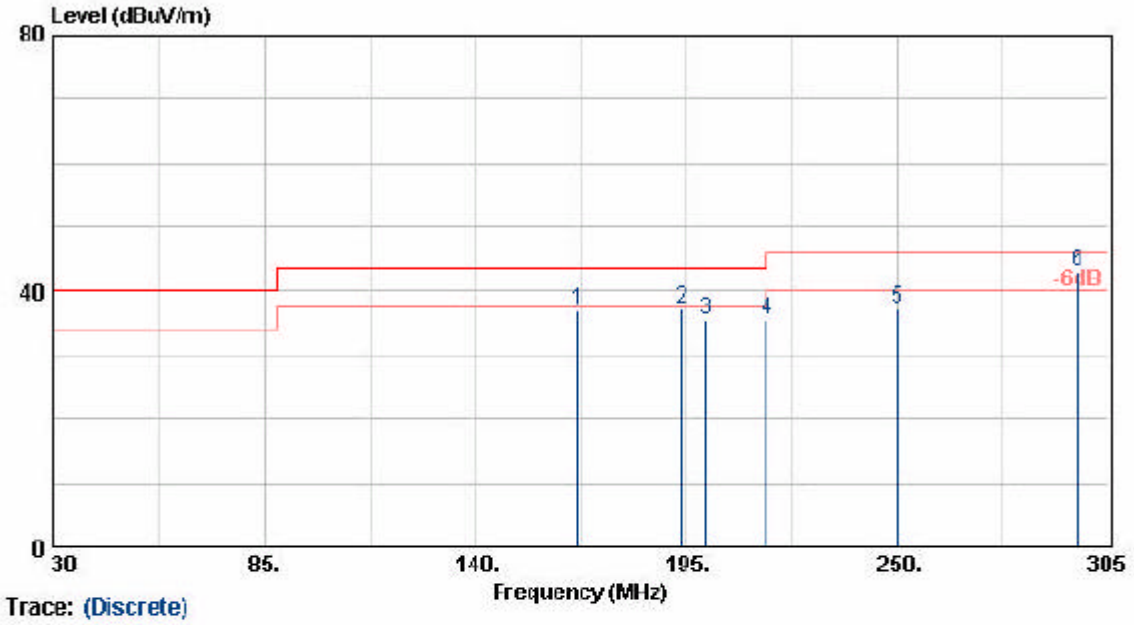


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
333.00	52.67	-10.52	42.15	46.00	-3.85	QP	200	100
400.00	46.08	-8.59	37.49	46.00	-8.51	Peak	180	100
499.50	42.76	-6.78	35.98	46.00	-10.02	Peak	180	100
666.00	42.20	-3.42	38.78	46.00	-7.22	Peak	200	100
832.48	40.91	-0.22	40.69	46.00	-5.31	QP	200	100
858.02	40.39	0.46	40.85	46.00	-5.15	QP	155	100
998.97	40.92	3.04	43.96	54.00	-10.04	Peak	250	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.

EUT	: MR1000		
Power	: 110V	Pol/Phase	: VERTICAL
Test Mode	: Transmit/Receive	Temperature	: 24 ℃
Operation Channel	: 1	Humidity	: 68 %
Modulation Type	: 802.11b/g	Atmospheric Pressure	: 1028 mmHg
Rate	: 11/54 Mbps	Memo	:



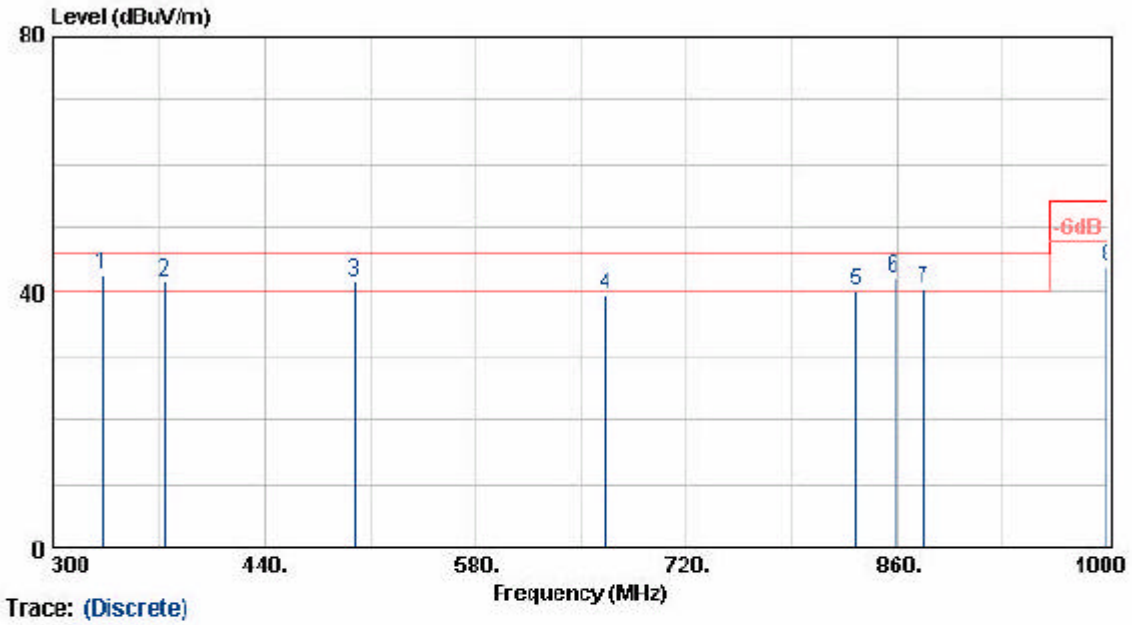
Trace: (Discrete)

Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
166.50	53.26	-16.30	36.96	43.50	-6.54	Peak	200	100
193.64	54.13	-17.01	37.12	43.50	-6.38	Peak	200	100
199.98	52.46	-17.02	35.44	43.50	-8.06	Peak	180	100
216.00	52.79	-17.19	35.60	43.50	-7.90	Peak	180	100
250.00	50.39	-13.17	37.22	46.00	-8.78	Peak	180	100
296.99	54.10	-11.11	42.99	46.00	-3.01	QP	200	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Anplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.

EUT	: MR1000		
Power	: 110V	Pol/Phase	: VERTICAL
Test Mode	: Transmit/Receive	Temperature	: 24 ℃
Operation Channel	: 1	Humidity	: 68 %
Modulation Type	: 802.11b/g	Atmospheric Pressure	: 1028 mmHg
Rate	: 11/54 Mbps	Memo	:



Trace: (Discrete)

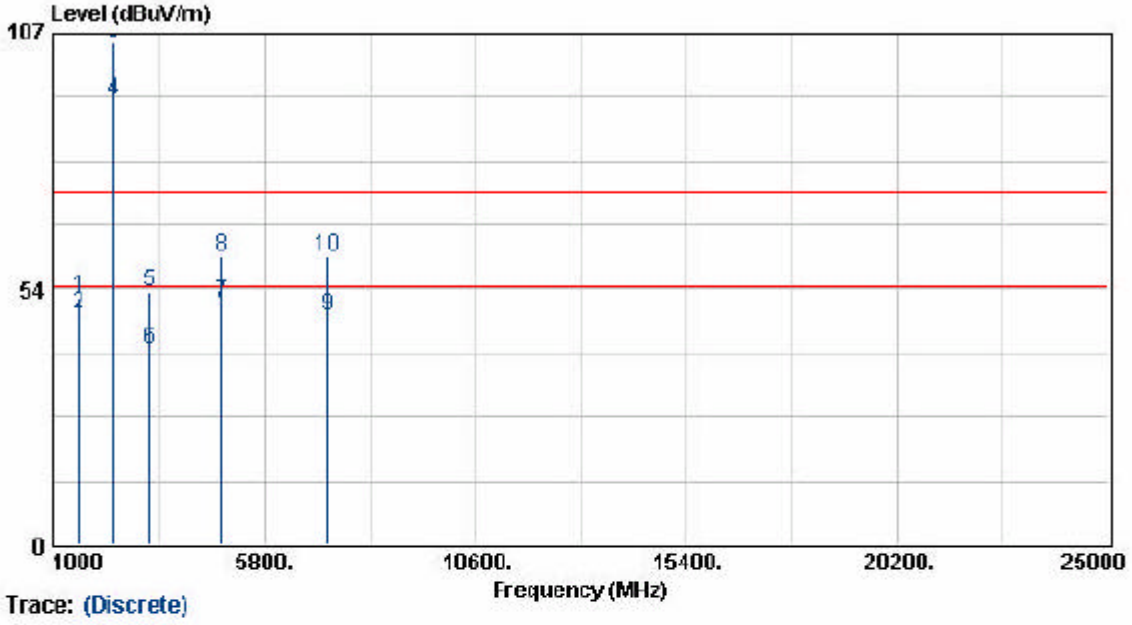
Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
333.00	53.32	-10.52	42.80	46.00	-3.20	QP	200	100
375.00	50.88	-9.29	41.59	46.00	-4.41	QP	180	100
499.50	48.38	-6.78	41.60	46.00	-4.40	QP	180	100
666.00	42.87	-3.42	39.45	46.00	-6.55	Peak	200	100
832.48	40.36	-0.22	40.14	46.00	-5.86	QP	200	100
857.97	41.65	0.46	42.11	46.00	-3.89	QP	155	100
877.26	39.59	0.71	40.30	46.00	-5.70	QP	120	100
998.97	40.97	3.04	44.01	54.00	-9.99	Peak	250	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.

EUT : MR1000
Power : 110V
Test Mode : Transmit/Receive
Operation Channel: 1
Modulation Type : 802.11b
Rate : 11 Mbps

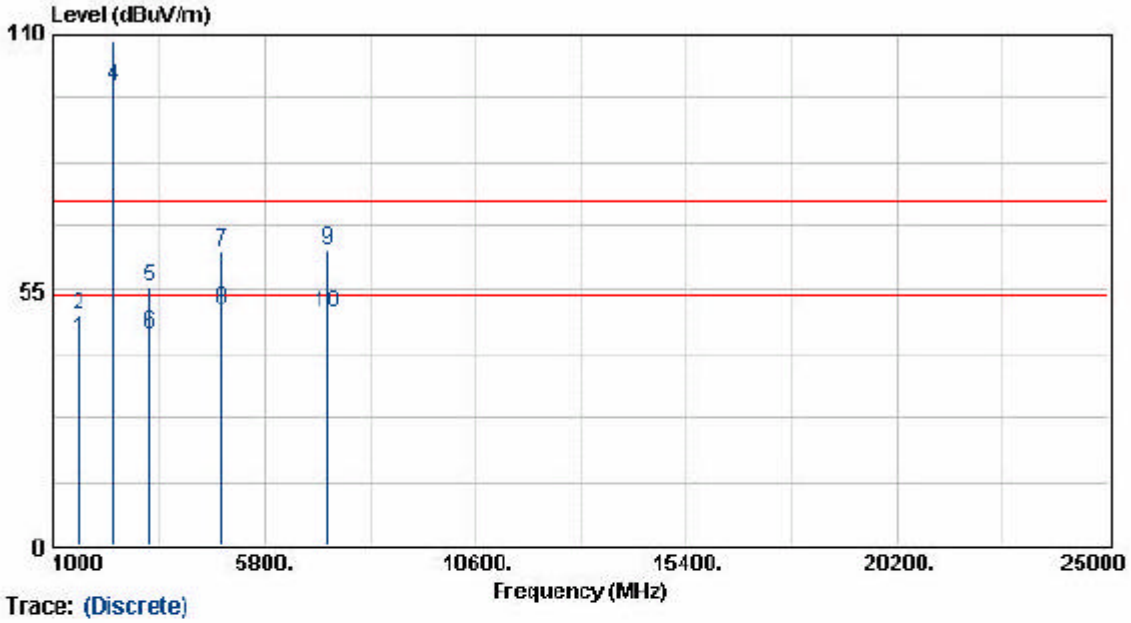
Pol/Phase : HORIZONTAL
Temperature : 24 ℃
Humidity : 68 %
Atmospheric Pressure: 1028 mmHg



Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
1608.00	54.11	-2.37	51.74	74.00	-22.26	Peak	102	100
1608.00	50.47	-2.37	48.10	54.00	-5.90	Average	102	100
2415.40	103.56	1.34	104.90	74.00	30.90	Peak	64	100
2415.40	91.59	1.34	92.93	54.00	38.93	Average	64	100
3216.00	48.76	4.09	52.85	74.00	-21.15	Peak	246	100
3216.00	36.61	4.09	40.70	54.00	-13.30	Average	246	100
4824.80	42.47	8.13	50.60	54.00	-3.40	Average	64	100
4824.80	52.17	8.13	60.30	74.00	-13.70	Peak	64	100
7238.70	36.08	11.90	47.98	54.00	-6.02	Average	64	100
7238.70	48.54	11.90	60.44	74.00	-13.56	Peak	64	100

Notes:
1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.
7. 2412,2437,2462 MHz is fundanental frequency.

EUT	: MR1000		
Power	: 110V	Pol/Phase	: VERTICAL
Test Mode	: Transmit/Receive	Temperature	: 24 ℃
Operation Channel	: 1	Humidity	: 68 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1028 mmHg
Rate	: 11 Mbps		

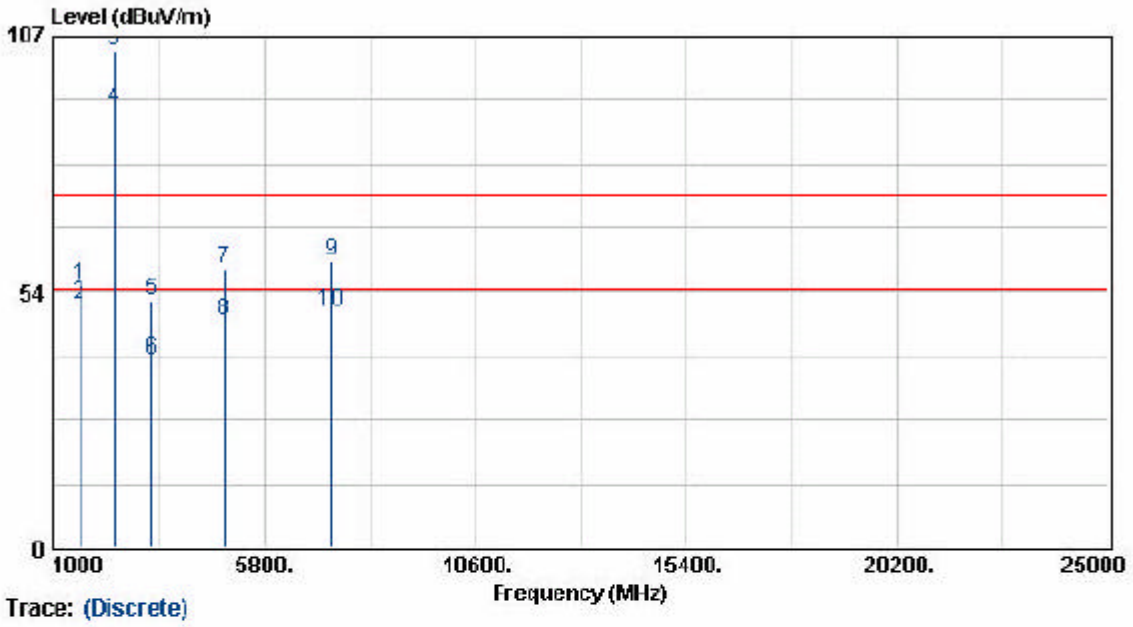


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
1608.00	47.36	-2.92	44.44	54.00	-9.56	Average	308	100
1608.00	52.68	-2.92	49.76	74.00	-24.24	Peak	308	100
2413.70	107.76	0.63	108.39	74.00	34.39	Peak	129	100
2413.70	97.98	0.63	98.61	54.00	44.61	Average	129	100
3215.90	52.28	3.29	55.57	74.00	-18.43	Peak	170	100
3215.90	42.46	3.29	45.75	54.00	-8.25	Average	170	100
4824.90	55.78	7.36	63.14	74.00	-10.86	Peak	129	100
4824.90	43.53	7.36	50.89	54.00	-3.11	Average	129	100
7233.80	52.60	11.05	63.65	74.00	-10.35	Peak	129	100
7233.80	39.08	11.05	50.13	54.00	-3.87	Average	129	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.
7. 2412,2437,2462 MHz is fundanental frequency.

EUT	: MR1000		
Power	: 110V	Pol/Phase	: HORIZONTAL
Test Mode	: Transmit/Receive	Temperature	: 24 ℃
Operation Channel	: 6	Humidity	: 68 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1028 mmHg
Rate	: 11 Mbps		

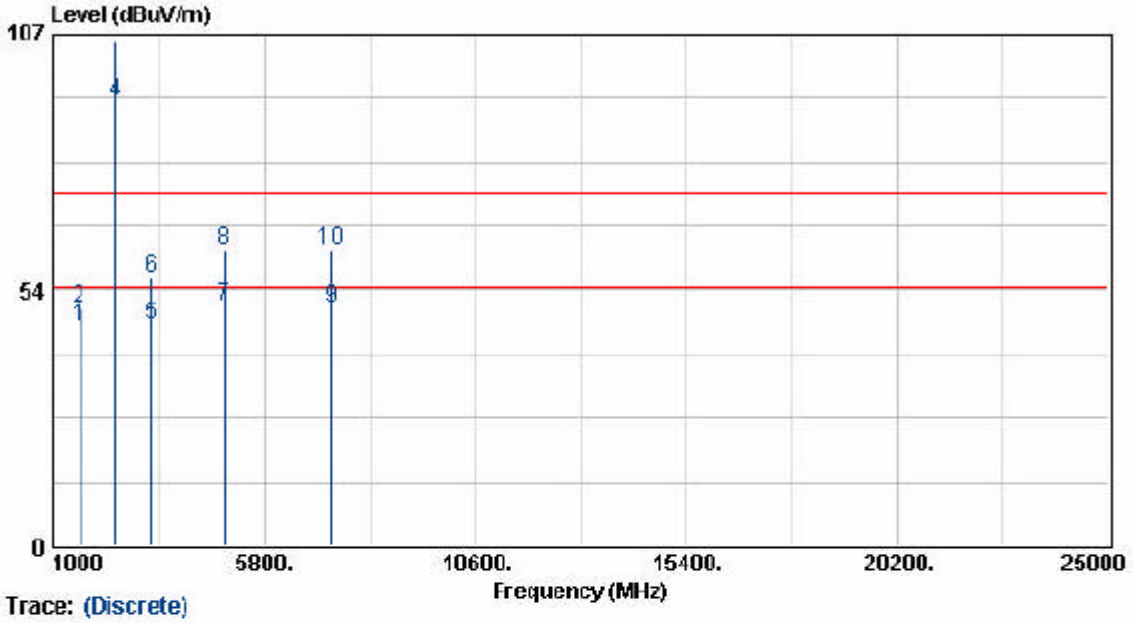


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
1624.80	57.21	-2.28	54.93	74.00	-19.07	Peak	102	100
1624.80	53.20	-2.28	50.92	54.00	-3.08	Average	102	100
2434.20	102.50	1.40	103.90	74.00	29.90	Peak	64	100
2434.20	90.54	1.40	91.94	54.00	37.94	Average	64	100
3249.40	47.49	4.19	51.68	74.00	-22.32	Peak	246	100
3249.40	35.29	4.19	39.48	54.00	-14.52	Average	246	100
4873.30	49.98	8.31	58.29	74.00	-15.71	Peak	64	100
4873.30	39.15	8.31	47.46	54.00	-6.54	Average	64	100
7314.50	48.05	12.06	60.11	74.00	-13.89	Peak	64	100
7314.50	37.40	12.06	49.46	54.00	-4.54	Average	64	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Anplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.
7. 2412,2437,2462 MHz is fundanental frequency.

EUT	: MR1000		
Power	: 110V	Pol/Phase	: VERTICAL
Test Mode	: Transmit/Receive	Temperature	: 24 ℃
Operation Channel	: 6	Humidity	: 68 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1028 mmHg
Rate	: 11 Mbps		

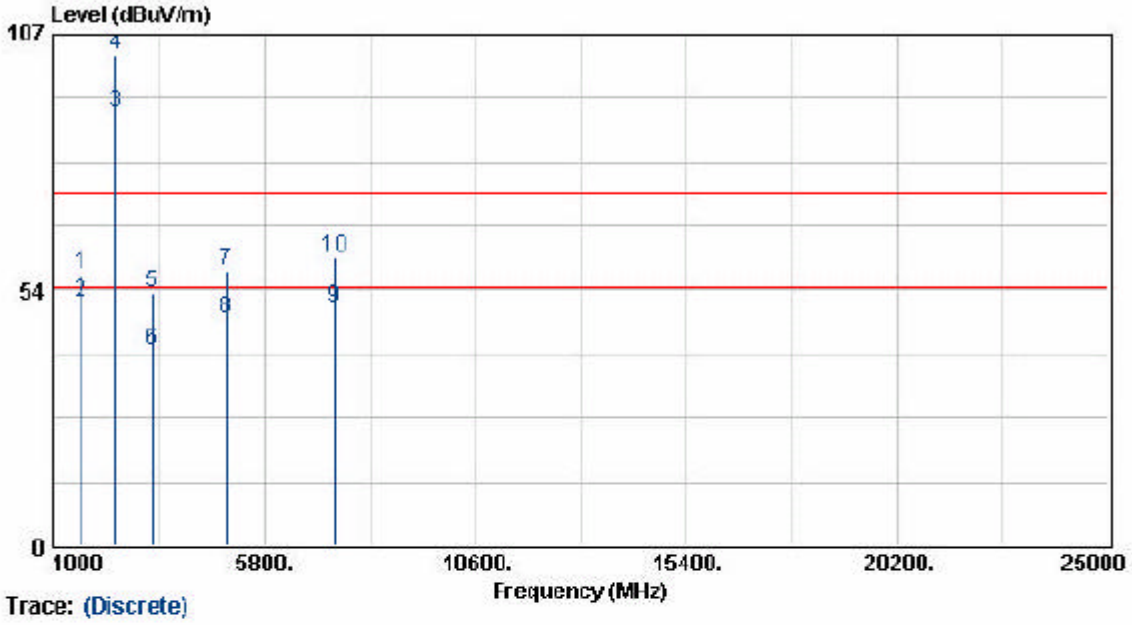


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
1624.60	48.77	-2.83	45.94	54.00	-8.06	Average	308	100
1624.60	52.76	-2.83	49.93	74.00	-24.07	Peak	308	100
2439.70	104.74	0.72	105.46	74.00	31.46	Peak	129	100
2439.70	92.13	0.72	92.85	54.00	38.85	Average	129	100
3249.30	42.90	3.39	46.29	54.00	-7.71	Average	170	100
3249.30	52.70	3.39	56.09	74.00	-17.91	Peak	170	100
4873.60	42.50	7.54	50.04	54.00	-3.96	Average	129	100
4873.60	54.21	7.54	61.75	74.00	-12.25	Peak	129	100
7311.70	38.73	11.14	49.87	54.00	-4.13	Average	129	100
7311.70	50.71	11.14	61.85	74.00	-12.15	Peak	129	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Anplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency belov 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.
7. 2412,2437,2462 MHz is fundanental frequency.

EUT	: MR1000		
Power	: 110V	Pol/Phase	: HORIZONTAL
Test Mode	: Transmit/Receive	Temperature	: 24 ℃
Operation Channel	: 11	Humidity	: 68 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1028 mmHg
Rate	: 11 Mbps		

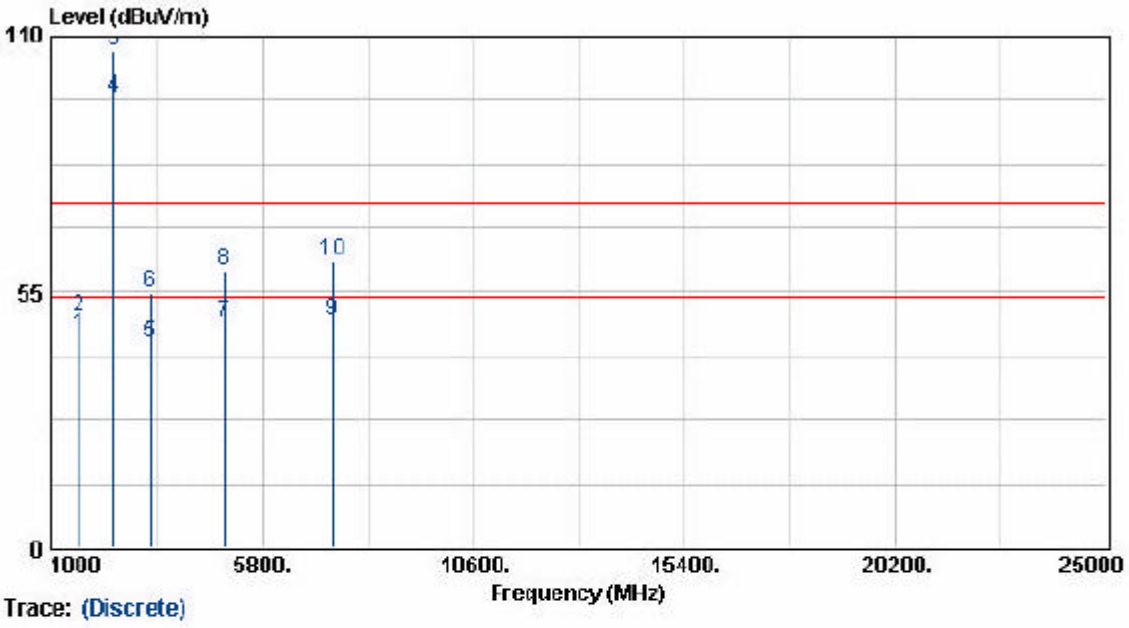


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
1641.30	58.86	-2.18	56.68	74.00	-17.32	Peak	102	100
1641.30	53.03	-2.18	50.85	54.00	-3.15	Average	102	100
2459.70	89.28	1.49	90.77	54.00	36.77	Average	64	100
2459.70	101.17	1.49	102.66	74.00	28.66	Peak	64	100
3282.60	48.68	4.29	52.97	74.00	-21.03	Peak	246	100
3282.60	36.75	4.29	41.04	54.00	-12.96	Average	246	100
4923.50	49.14	8.51	57.65	74.00	-16.35	Peak	64	100
4923.50	38.87	8.51	47.38	54.00	-6.62	Average	64	100
7384.00	37.54	12.20	49.74	54.00	-4.26	Average	64	100
7384.00	48.03	12.20	60.23	74.00	-13.77	Peak	64	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.
7. 2412,2437,2462 MHz is fundanental frequency.

EUT	: MR1000		
Power	: 110V	Pol/Phase	: VERTICAL
Test Mode	: Transmit/Receive	Temperature	: 24 ℃
Operation Channel	: 11	Humidity	: 68 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1028 mmHg
Rate	: 11 Mbps		



Trace: (Discrete)

Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Nargin (dB)	Remark	Table Deg.	Ant High (cm)
1641.40	48.26	-2.74	45.52	54.00	-8.48	Average	308	100
1641.40	52.48	-2.74	49.74	74.00	-24.26	Peak	308	100
2459.90	106.03	0.79	106.82	74.00	32.82	Peak	129	100
2459.90	96.08	0.79	96.87	54.00	42.87	Average	129	100
3282.50	40.64	3.49	44.13	54.00	-9.87	Average	170	100
3282.50	51.51	3.49	55.00	74.00	-19.00	Peak	170	100
4923.10	40.84	7.72	48.56	54.00	-5.44	Average	129	100
4923.10	52.07	7.72	59.79	74.00	-14.21	Peak	129	100
7383.90	37.57	11.22	48.79	54.00	-5.21	Average	129	100
7383.90	50.52	11.22	61.74	74.00	-12.26	Peak	129	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.
7. 2412,2437,2462 MHz is fundanental frequency.