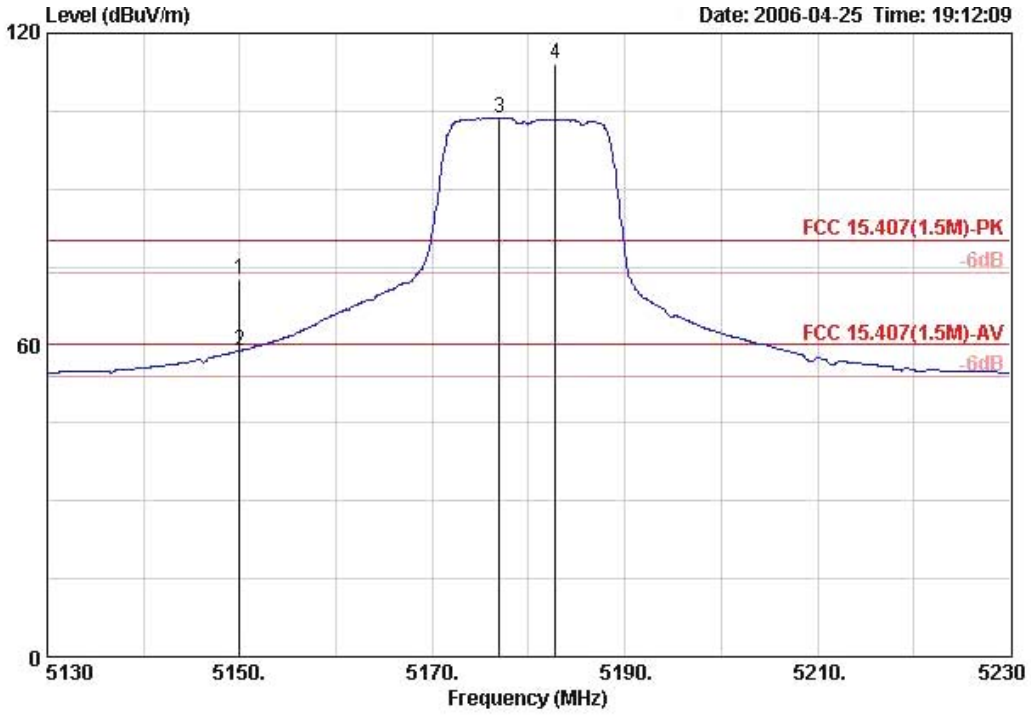
Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 36, 48 / Ant. 2

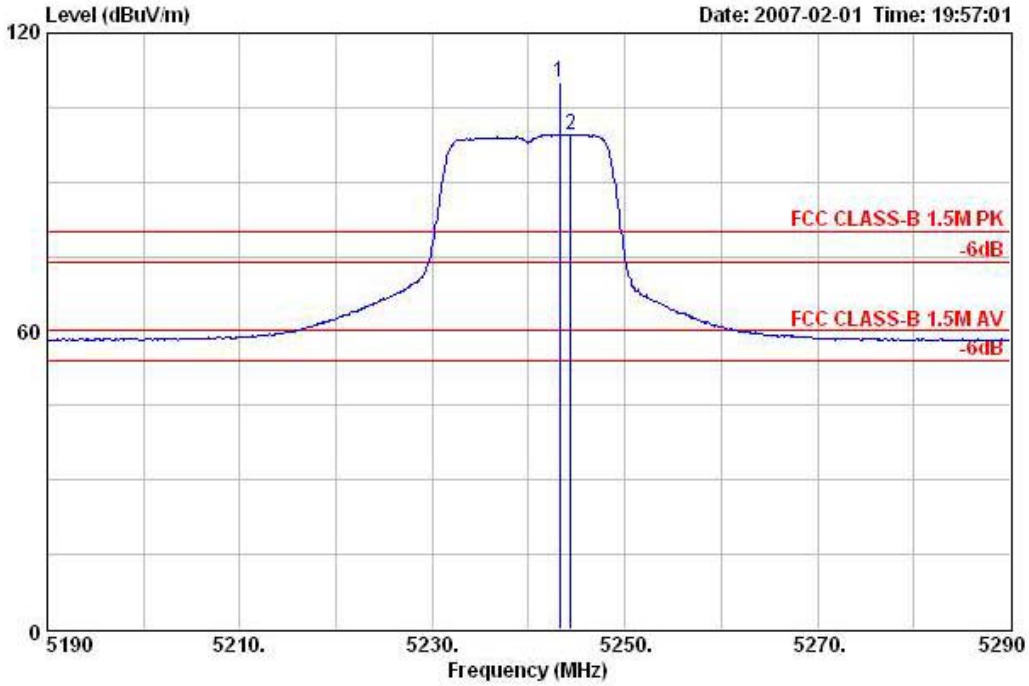
Channel 36



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			m
1 @	5150.000	72.62	-7.38	80.00	34.80	33.45	4.37	0.00	PEAK	VERTICAL	3
2 @	5150.000	58.76	-1.24	60.00	20.95	33.45	4.37	0.00	AVERAGE	VERTICAL	3
3 @	5177.000	103.66			65.74	33.55	4.37	0.00	AVERAGE	VERTICAL	3
4 @	5182.800	114.25			76.31	33.55	4.38	0.00	PEAK	VERTICAL	3

Item 3, 4 are the fundamental frequency at 5180 MHz.

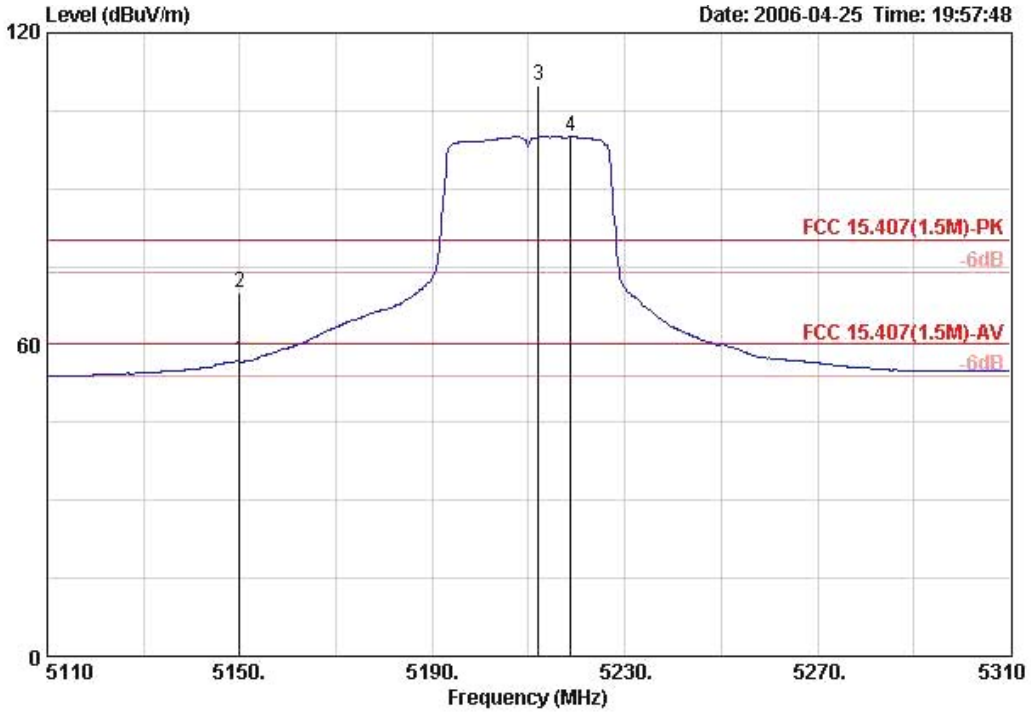
Channel 48



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1 @	5243.200	110.03			3	71.33	0.00	4.42	34.28	PEAK	122	305	VERTIC
2 @	5244.400	99.59			3	60.85	0.00	4.42	34.32	AVERAGE	122	305	VERTIC

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Turbo Channel 42 / Ant. 2

Turbo Channel 42



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			m
1 @	5150.000	56.77	-3.23	60.00	18.95	33.45	4.37	0.00	AVERAGE	VERTICAL	3
2 @	5150.000	69.81	-10.19	80.00	32.00	33.45	4.37	0.00	PEAK	VERTICAL	3
3 @	5212.000	109.73			71.69	33.65	4.38	0.00	PEAK	VERTICAL	3
4 @	5218.800	100.01			61.96	33.65	4.40	0.00	AVERAGE	VERTICAL	3

Item 3, 4 are the fundamental frequency at 5210 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Receiving maximum band edge emissions are Vertical Polarization.

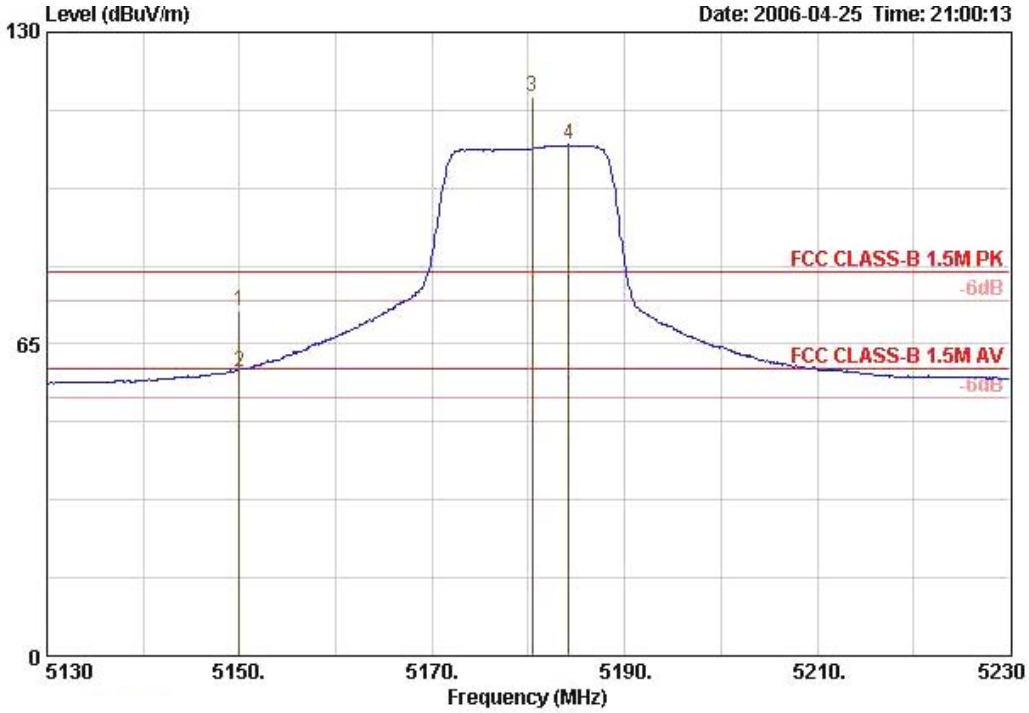
The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m.

Distance extrapolation factor = 20 log (specific distanc [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 36, 48 / Ant.4

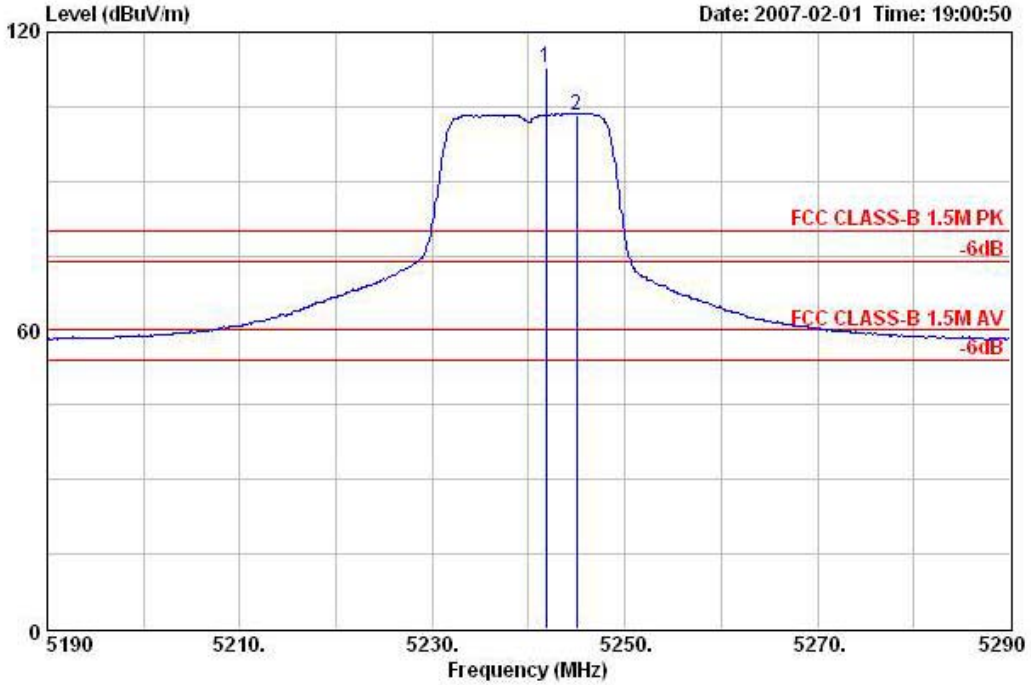
Channel 36



	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	5150.000	71.82	-8.18	80.00	33.84	4.88	0.00	33.10	PEAK	139	183
2 !	5150.000	59.26	-0.74	60.00	33.84	4.88	0.00	20.54	AVERAGE	139	183
3 @	5180.400	116.65			33.89	4.92	0.00	77.84	PEAK	139	183
4 @	5184.200	106.45			33.89	4.92	0.00	67.64	Average	---	---

Item 3, 4 are the fundamental frequency at 5180 MHz.

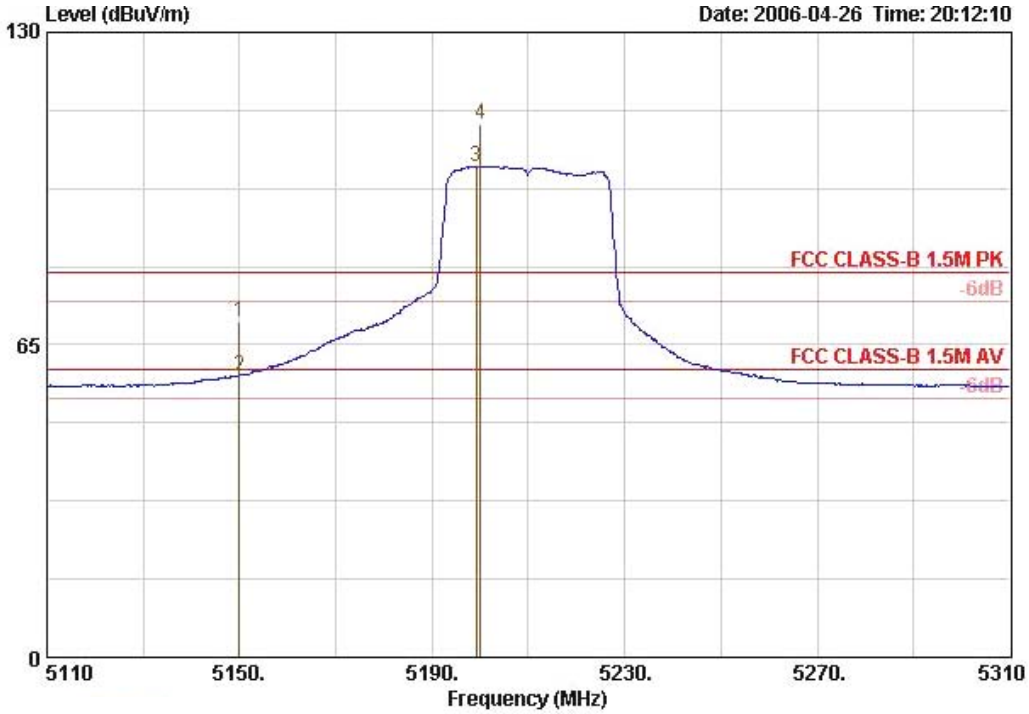
Channel 48



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1 @	5241.800	112.95			3	74.25	0.00	4.42	34.28	PEAK	129	0	VERTIC
2 @	5245.000	103.31			3	64.57	0.00	4.42	34.32	AVERAGE	129	0	VERTIC

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Turbo Channel 42 / Ant.4

Turbo Channel 42



	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	5150.000	69.82	-10.18	80.00	33.84	4.88	0.00	31.10	PEAK	105	195
2 !	5150.000	58.44	-1.56	60.00	33.84	4.88	0.00	19.72	AVERAGE	105	195
3 @	5199.200	102.17			33.92	4.96	0.00	63.30	Average	---	---
4	5200.000	110.85			33.92	4.96	0.00	71.97	PEAK	105	195

Item 3, 4 are the fundamental frequency at 5210 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Receiving maximum band edge emissions are Horizontal Polarization.

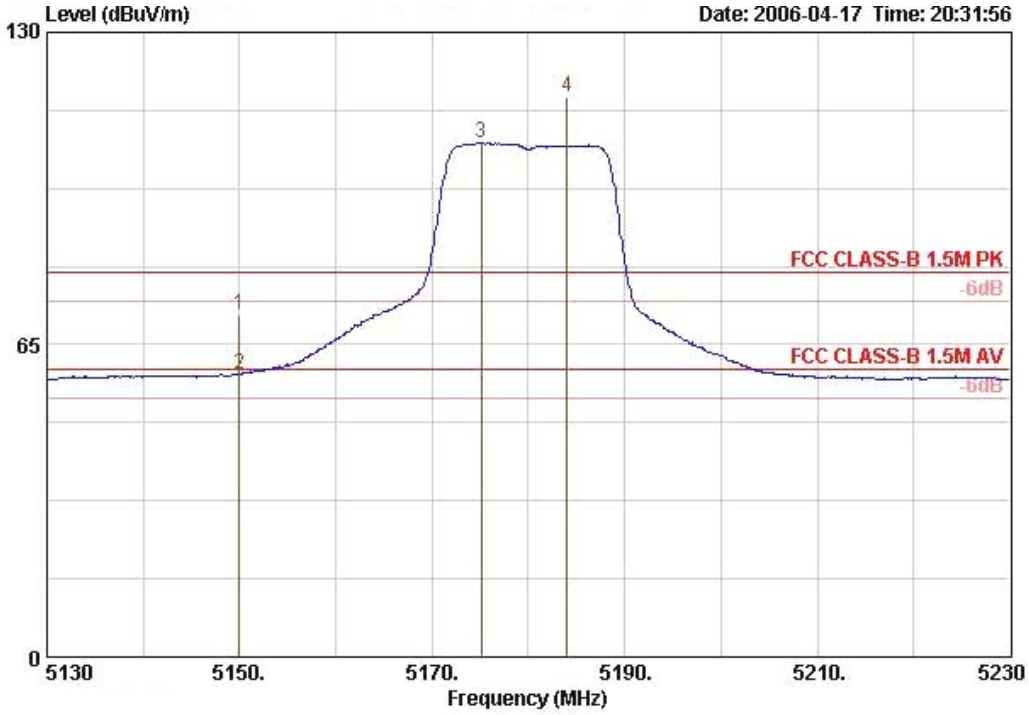
The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m.

Distance extrapolation factor = 20 log (specific distanc [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 36, 48 / Ant.5

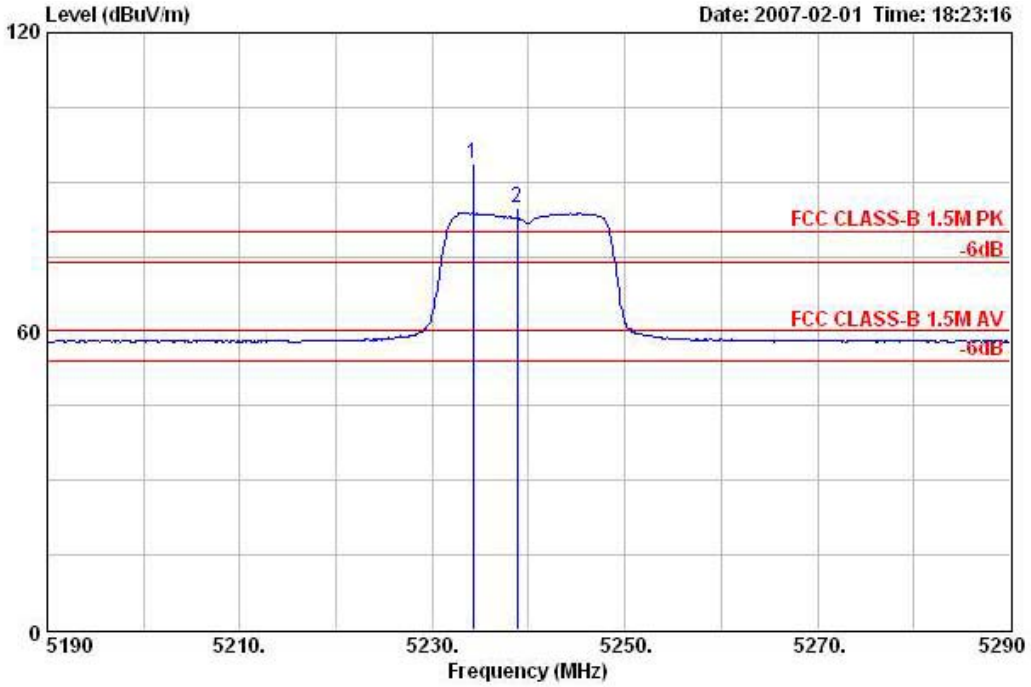
Channel 36



	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	5150.000	71.11	-8.89	80.00	33.84	4.88	0.00	32.39	PEAK	100	360
2 !	5150.000	58.86	-1.14	60.00	33.84	4.88	0.00	20.14	AVERAGE	100	360
3	5175.100	106.91			33.89	4.92	0.00	68.10	Average	---	---
4	5184.000	116.37			33.89	4.92	0.00	77.56	PEAK	100	360

Item 3, 4 are the fundamental frequency at 5180 MHz.

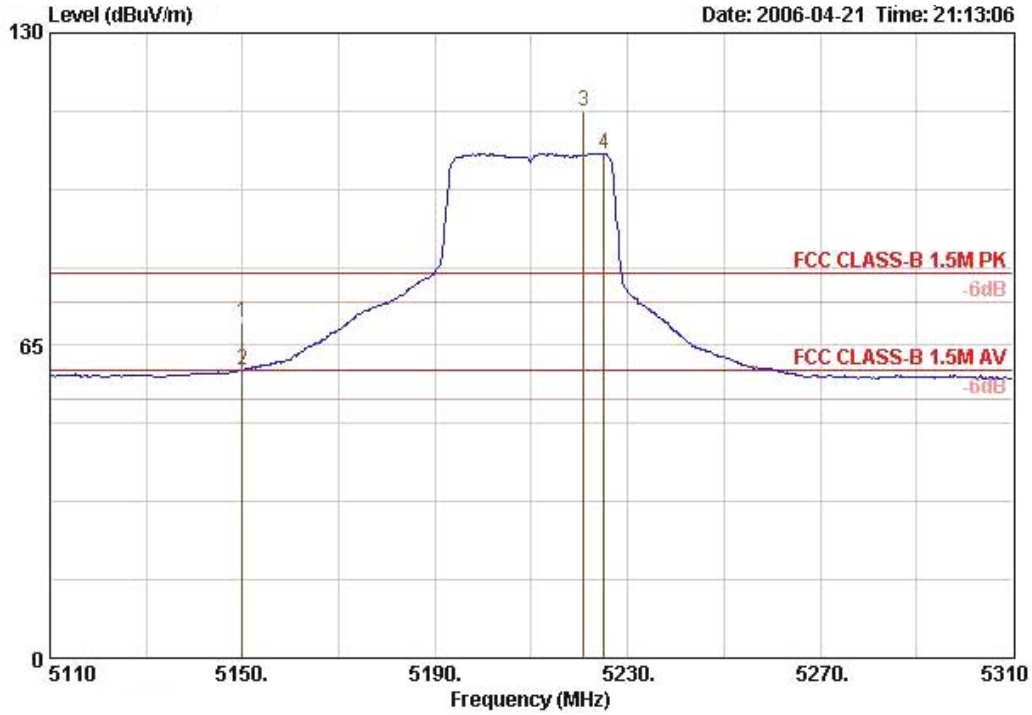
Channel 48



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1	5234.200	93.70			3	55.00	0.00	4.42	34.28	PEAK	110	360	VERTIC
2 @	5238.800	84.82			3	46.12	0.00	4.42	34.28	AVERAGE	110	360	VERTIC

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Turbo Channel 42 / Ant.5

Turbo Channel 42



	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	5150.000	69.94	-10.06	80.00	33.84	4.88	0.00	31.22	PEAK	100	12
2 !	5150.000	59.97	-0.03	60.00	33.84	4.88	0.00	21.25	AVERAGE	100	12
3	5220.800	113.54			33.95	4.96	0.00	74.64	PEAK	100	12
4	5225.000	104.89			33.97	4.96	0.00	65.96	Average	---	---

Item 3, 4 are the fundamental frequency at 5210 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Receiving maximum band edge emissions are Horizontal Polarization.

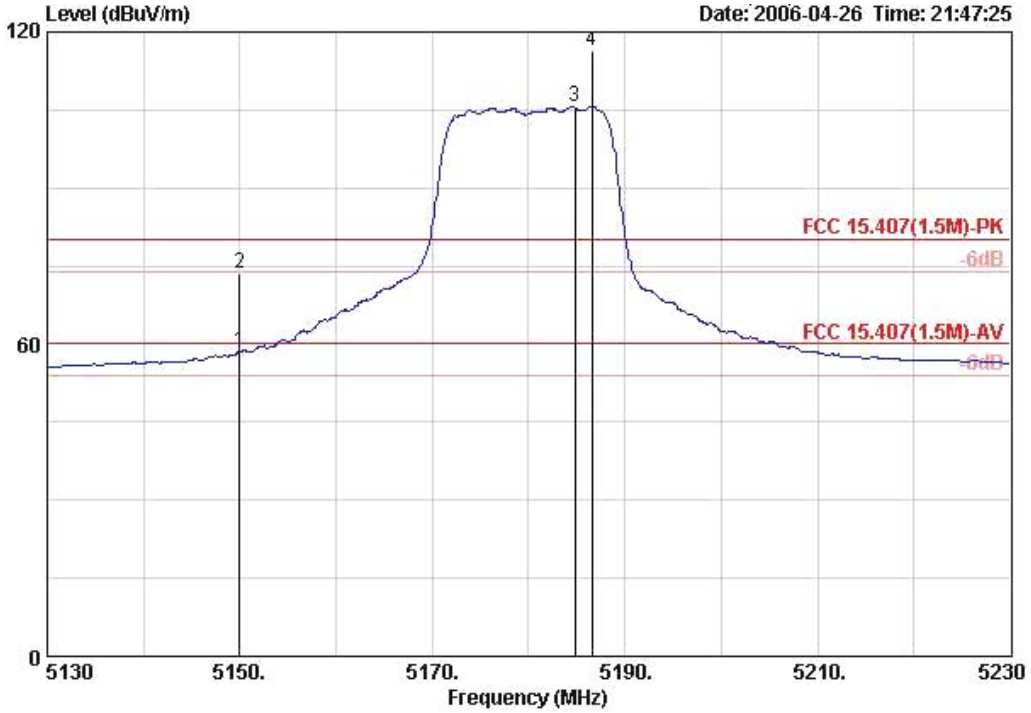
The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m.

Distance extrapolation factor = 20 log (specific distanc [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 36, 48 / Ant.6

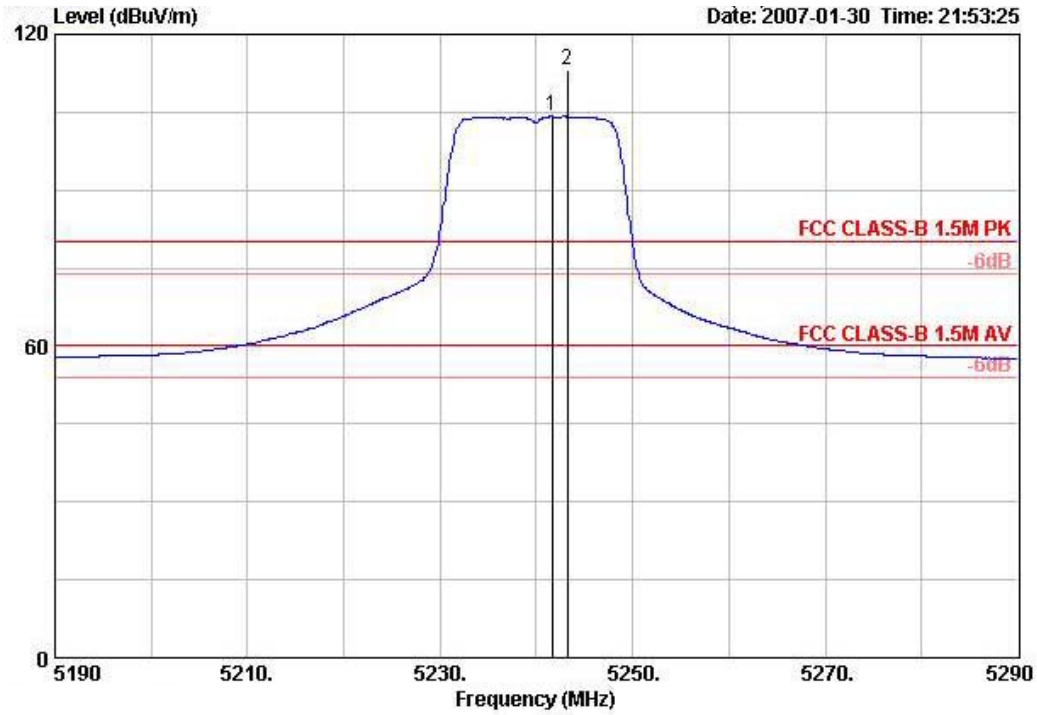
Channel 36



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			m
1 @	5150.000	58.53	-1.47	60.00	20.71	33.45	4.37	0.00	AVERAGE	VERTICAL	3
2	5150.000	73.53	-6.47	80.00	35.71	33.45	4.37	0.00	PEAK	VERTICAL	3
3 @	5184.800	105.53			67.59	33.55	4.38	0.00	AVERAGE	VERTICAL	3
4 @	5186.600	116.37			78.44	33.55	4.38	0.00	PEAK	VERTICAL	3

Item 3, 4 are the fundamental frequency at 5180 MHz.

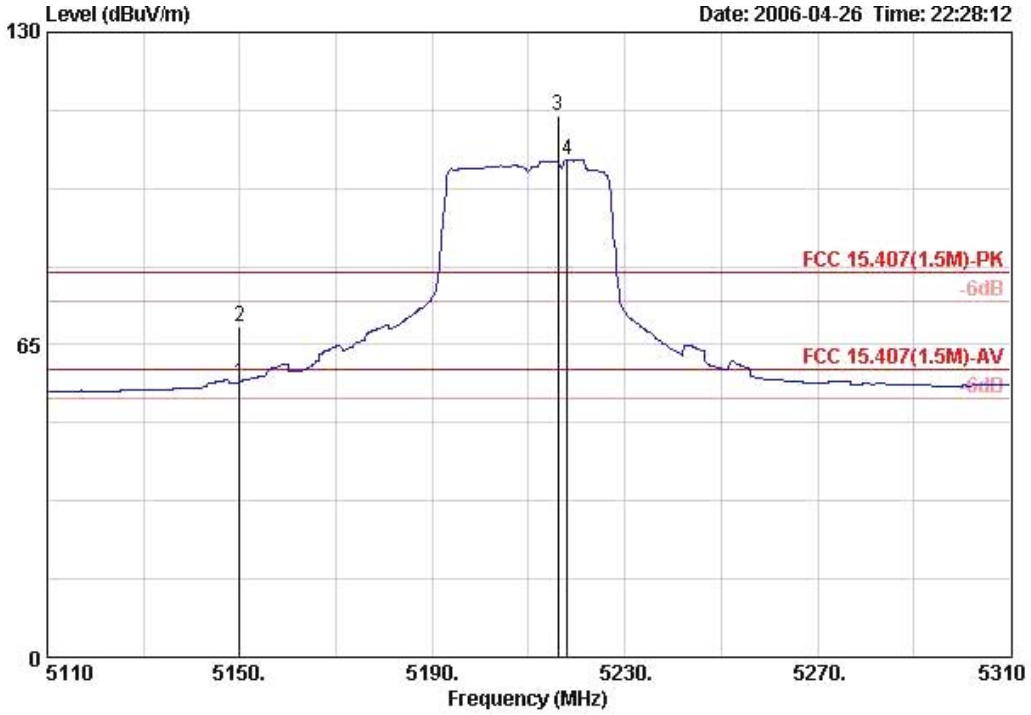
Channel 48



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	5241.600	104.19			63.11	33.70	7.38	0.00	AVERAGE	100	184
2 @	5243.200	113.03			71.96	33.70	7.38	0.00	PEAK	100	184

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Turbo Channel 42 / Ant.6

Turbo Channel 42



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			m
1 @	5150.000	57.16	-2.84	60.00	19.34	33.45	4.37	0.00	AVERAGE	VERTICAL	3
2	5150.000	68.89	-11.11	80.00	31.08	33.45	4.37	0.00	PEAK	VERTICAL	3
3 @	5216.000	112.73			74.68	33.65	4.40	0.00	PEAK	VERTICAL	3
4 @	5218.000	103.40			65.35	33.65	4.40	0.00	AVERAGE	VERTICAL	3

Item 3, 4 are the fundamental frequency at 5210 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Receiving maximum band edge emissions are Horizontal Polarization.

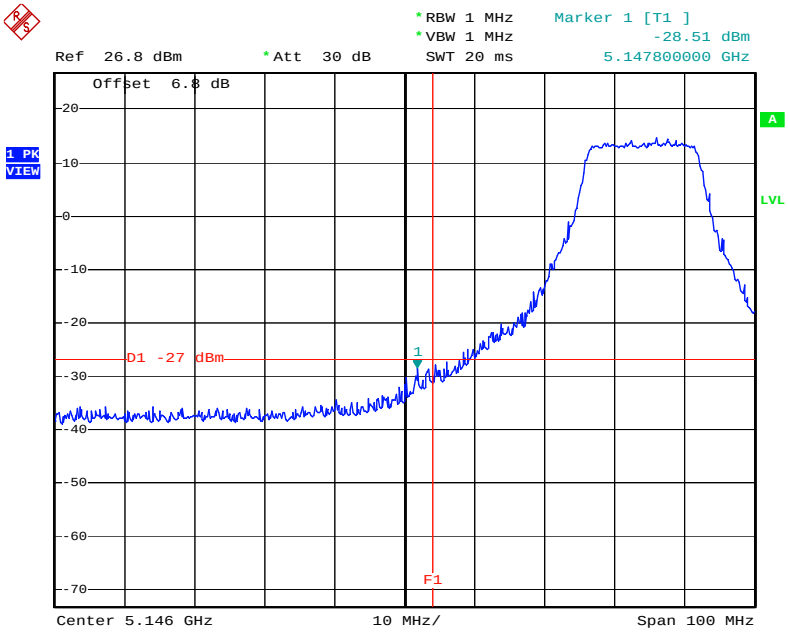
The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m.

Distance extrapolation factor = 20 log (specific distanc [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

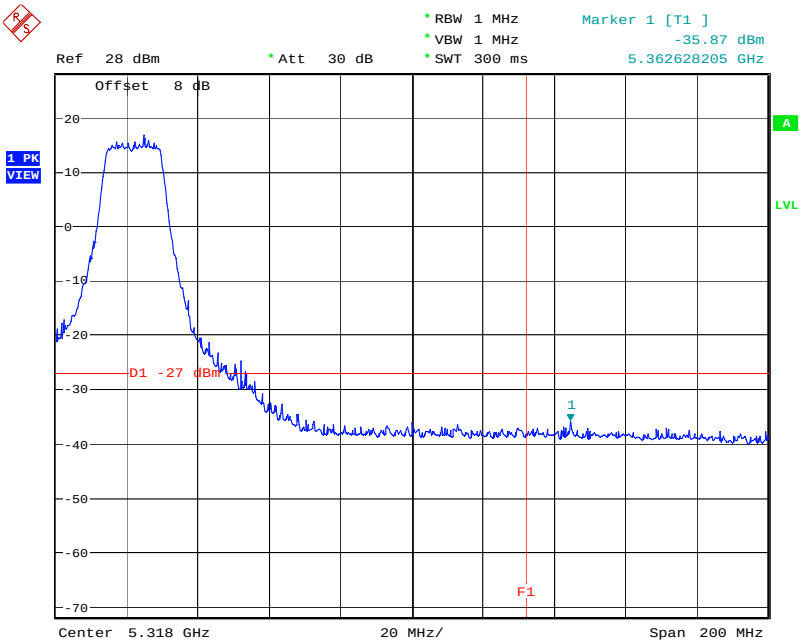
Ant. 1

EIRP Emission in Band on Configuration IEEE 802.11a / 5180 MHz



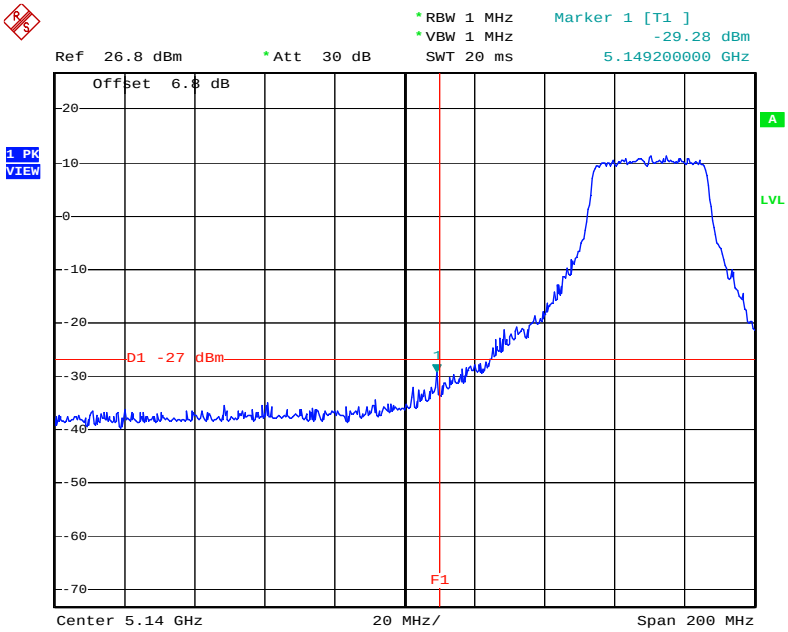
Date: 4.MAY.2006 20:13:03

EIRP Emission in Band on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:43:29

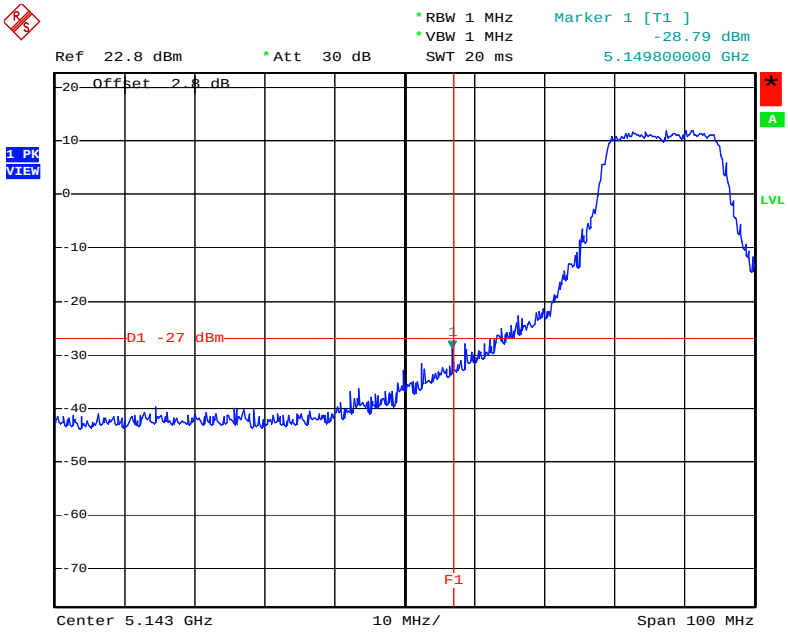
EIRP Emission in Band on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 4.MAY.2006 21:52:05

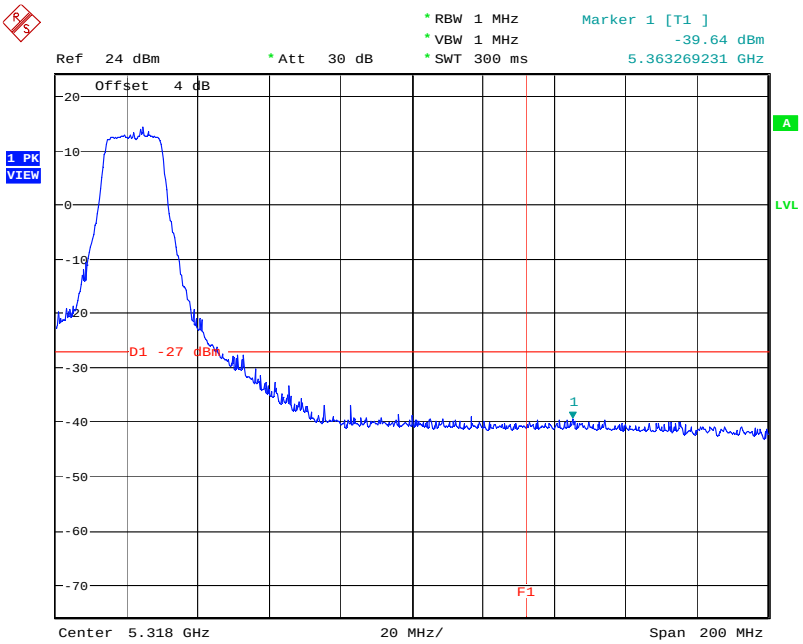
Ant. 2

EIRP Emission in Band on Configuration IEEE 802.11a / 5180 MHz



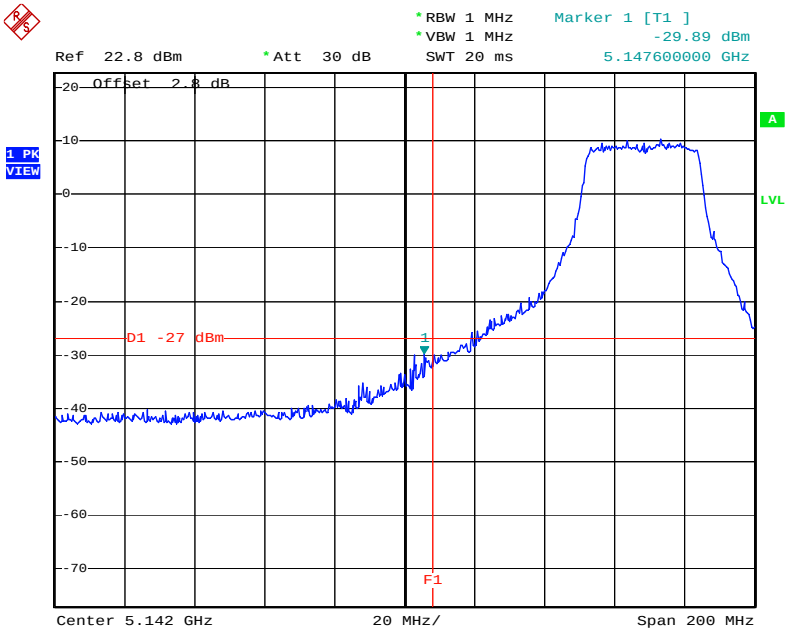
Date: 4.MAY.2006 20:33:59

EIRP Emission in Band on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:42:55

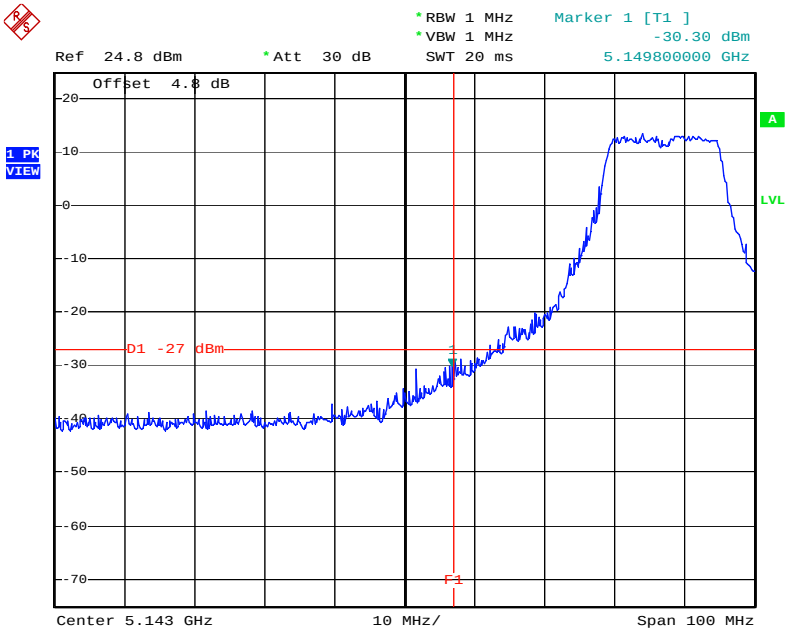
EIRP Emission in Band on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 4.MAY.2006 22:09:19

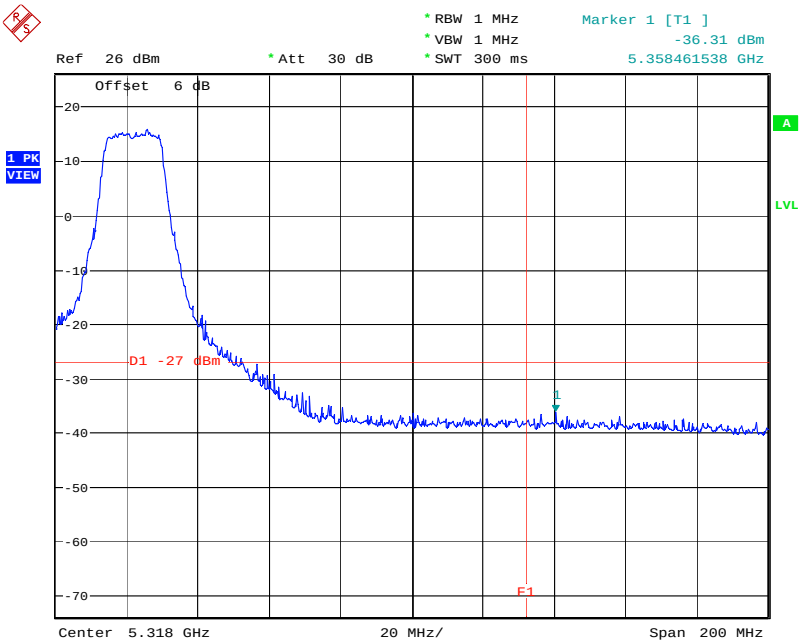
Ant. 4

EIRP Emission in Band on Configuration IEEE 802.11a / 5180 MHz



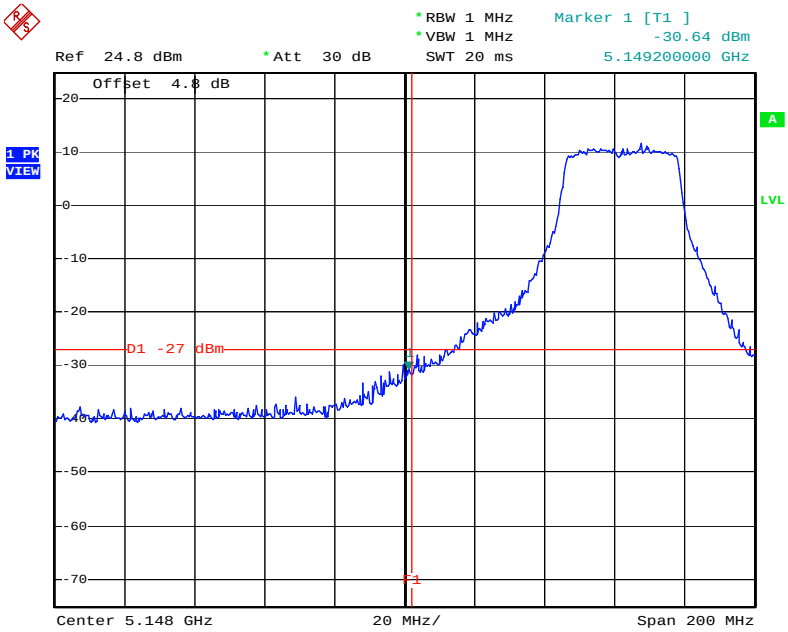
Date: 27.APR.2006 22:13:50

EIRP Emission in Band on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:42:00

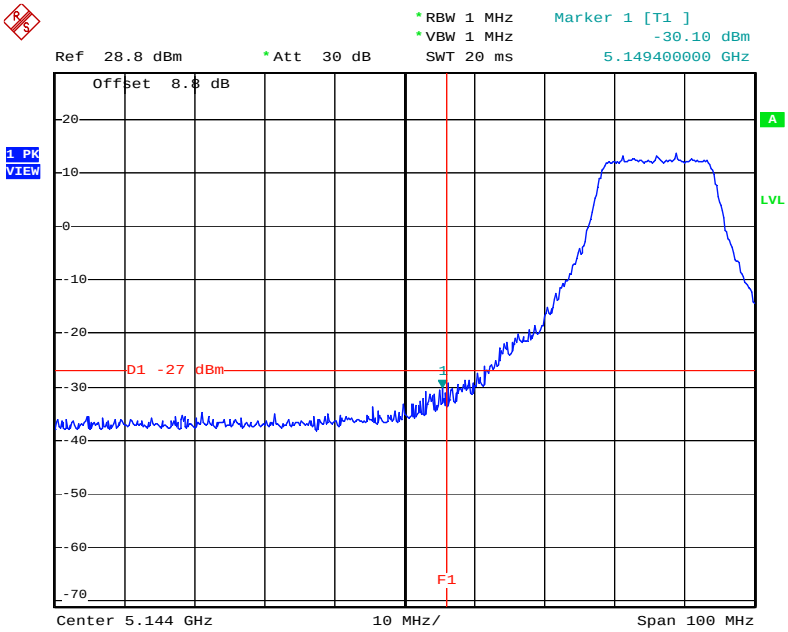
EIRP Emission in Band on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 27.APR.2006 22:51:58

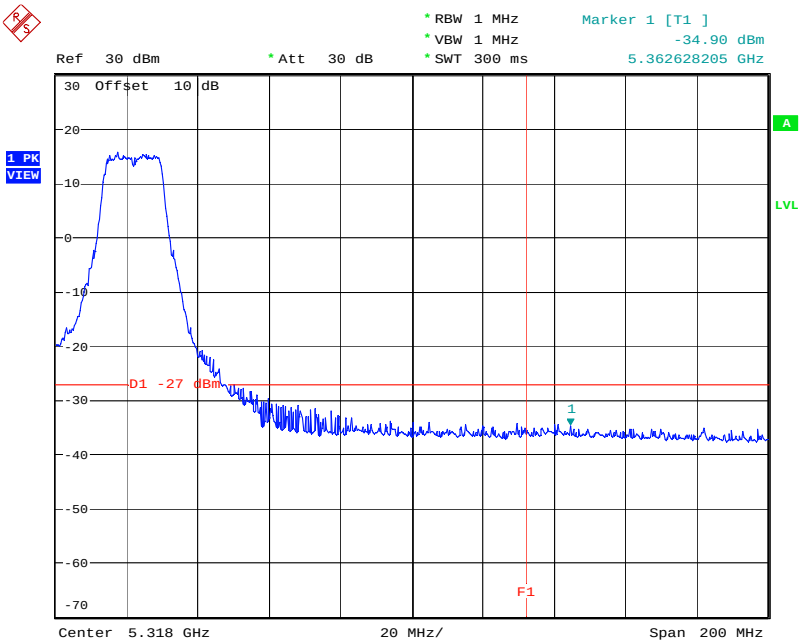
Ant. 5

EIRP Emission in Band on Configuration IEEE 802.11a / 5180 MHz



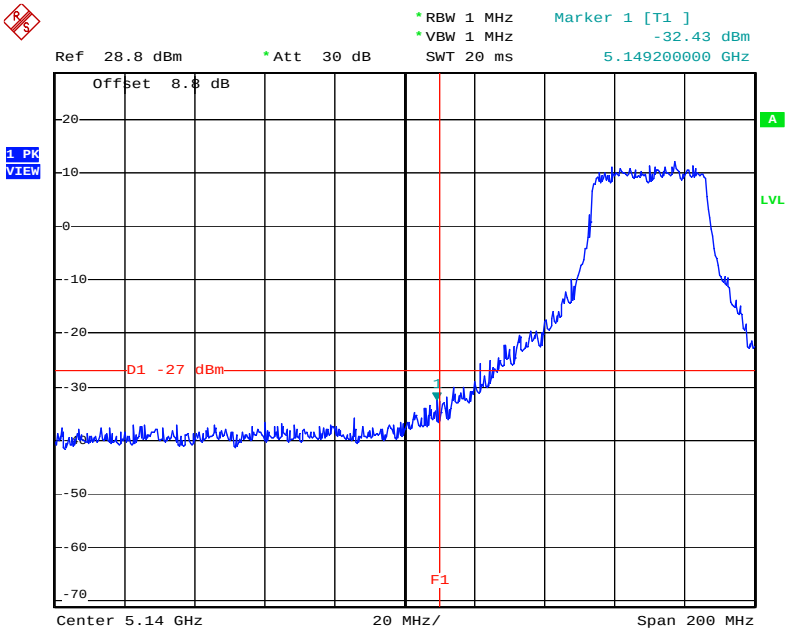
Date: 5.MAY.2006 21:34:05

EIRP Emission in Band on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:44:22

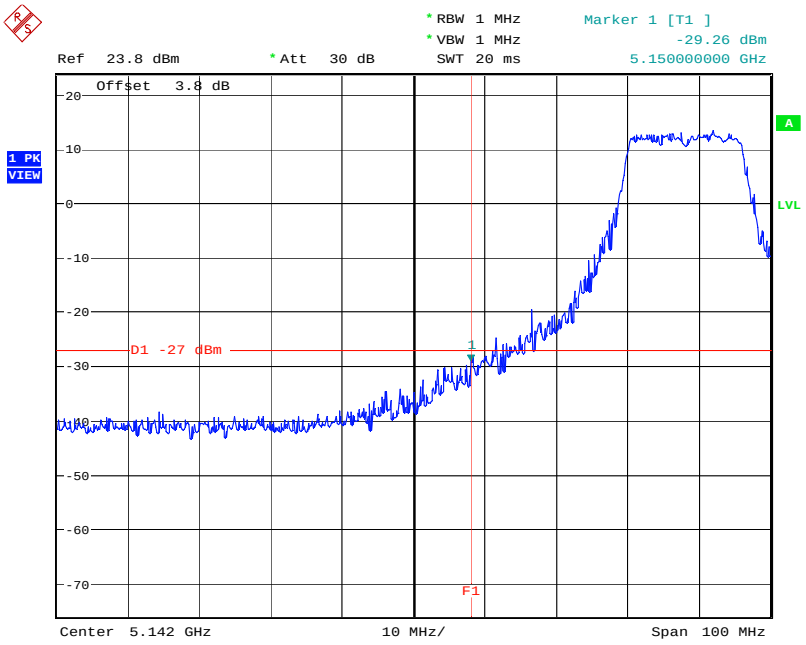
EIRP Emission in Band on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 5.MAY.2006 21:51:40

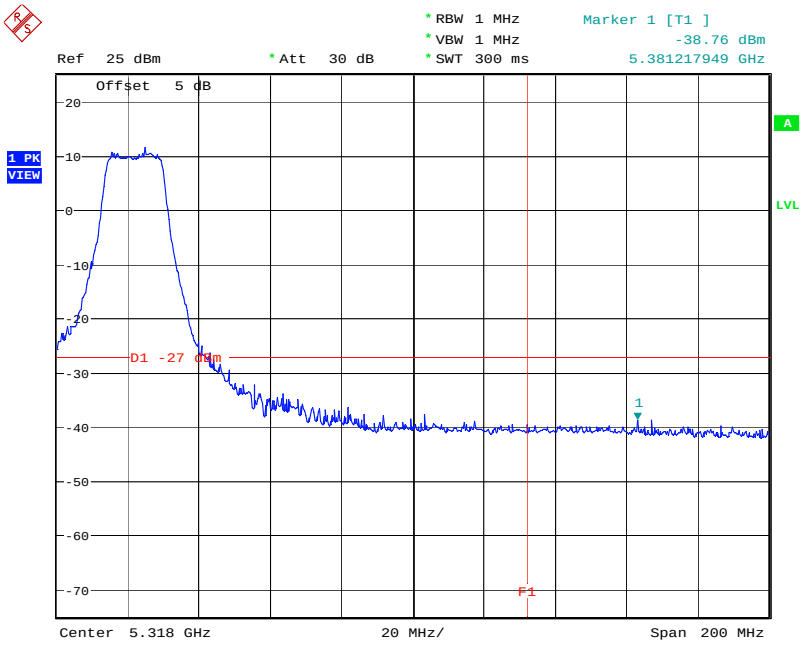
Ant. 6

EIRP Emission in Band on Configuration IEEE 802.11a / 5180 MHz



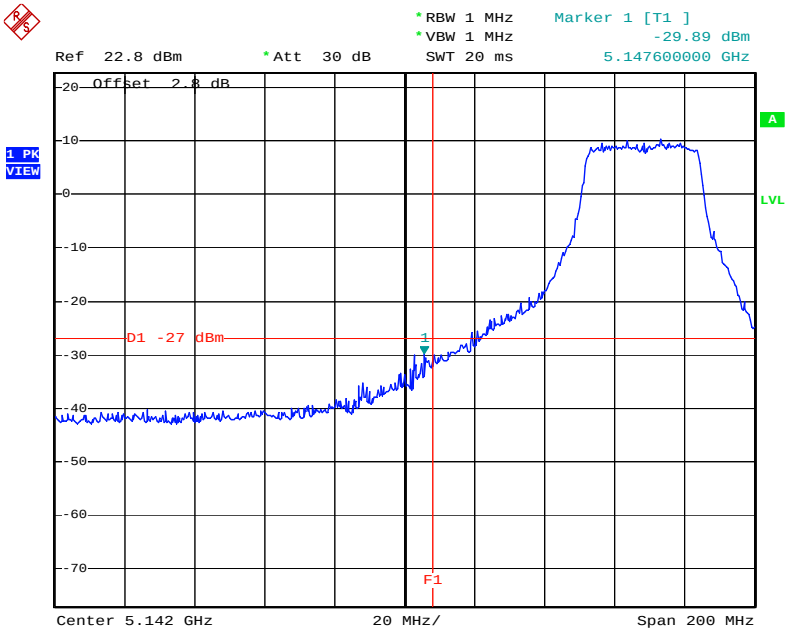
Date: 8.MAY.2006 15:50:12

EIRP Emission in Band on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:38:54

EIRP Emission in Band on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 4.MAY.2006 22:09:19

4.8. Frequency Stability Measurement

4.8.1. Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emissions is maintained within the band of operation under all conditions of normal operation as specified in the user's manual or ±20ppm (IEEE 802.11a specification).

4.8.2. Measuring Instruments and Setting

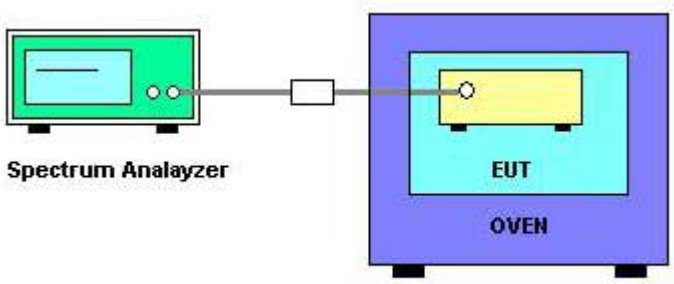
Please refer to section 5 in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RB	10 kHz
VB	10 kHz
Sweep Time	Auto

4.8.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (IEEE 802.11a specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature rule is -30°C~50°C.

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

The EUT was programmed to be in continuously un-modulation transmitting mode.

4.8.7. Test Result of Frequency Stability

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	**5240**
126.50	5240.0166
110.00	5240.0168
93.50	5240.0142
Max. Deviation (MHz)	**0.0168**
Max. Deviation (ppm)	**3.2061**

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(℃)	**5240**
-30	5240.0468
-20	5240.0432
-10	5240.0426
0	5240.0390
10	5240.0228
20	5240.0168
30	5240.0054
40	5239.9964
50	5239.9958
Max. Deviation (MHz)	**0.0468**
Max. Deviation (ppm)	**8.9313**

4.9. Antenna Requirements

4.9.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

4.9.2. Antenna Connector Construction

Please refer to section 3.3 in this test report, all antenna connectors comply with the requirements.

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	Feb. 22, 2006	Conduction (CO04-HY)
LISN	MessTec	NNB-2/16Z	99079	9kHz – 30MHz	Dec. 19, 2005	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9708-1839	9kHz – 30MHz	Mar. 18, 2006	Conduction (CO04-HY)
RF Cable-CON	Suhner Switzerland	RG223/U	CB029	9kHz – 30MHz	Dec. 22, 2005	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30 MHz - 1 GHz 3m	Jun. 16, 2005	Radiation (03CH03-HY)
Amplifier	SCHAFFNER	CPA9231A	3565	9 kHz - 2 GHz	Jan. 18, 2006	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1 GHz - 26.5 GHz	May 31, 2005	Radiation (03CH03-HY)
Amplifier	MITEQ	AMF-6F-260400	923364	26.5 GHz - 40 GHz	Jan. 24, 2006*	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP40	100004/040	9 kHZ - 40 GHz	Sep. 30, 2005	Radiation (03CH03-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	May 24, 2004*	Radiation (03CH03-HY)
Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30 MHz - 200 MHz	Jul. 22, 2005	Radiation (03CH03-HY)
Log Antenna	SCHWARZBECK	VUSLP 9111	221	200 MHz - 1 GHz	Jul. 22, 2005	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6903	1GHz ~ 18GHz	Mar. 15, 2006	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15 GHz - 40 GHz	Jun. 09, 2004*	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz - 1 GHz	Dec.02, 2005	Radiation (03CH03-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1 GHz - 40 GHz	Dec.02, 2005	Radiation (03CH03-HY)
Turn Table	HD	DS 420	420/650/00	0 - 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
Spectrum analyzer	R&S	FSP30	100023	9kHz ~ 30GHz	Nov. 26, 2005	Conducted (TH01-HY)
Power meter	R&S	NRVS	100444	DC ~ 40GHz	Jul. 06, 2005	Conducted (TH01-HY)
Power sensor	R&S	NRV-Z55	100049	DC ~ 40GHz	Jul. 06, 2005	Conducted (TH01-HY)
Power Sensor	R&S	NRV-Z32	100057	30MHz ~ 6GHz	Apr. 27, 2006	Conducted (TH01-HY)
AC power source	HPC	HPA-500W	HPA-9100024	AC 0 ~ 300V	Apr. 21, 2005*	Conducted (TH01-HY)
DC power source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Dec. 28, 2005	Conducted (TH01-HY)
Temp. and Humidity Chamber	KSON	THS-C3L	612	N/A	Oct. 01, 2005	Conducted (TH01-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF CABLE-1m	Jye Bao	RG142	CB034-1m	20MHz ~ 7GHz	Dec. 30, 2005	Conducted (TH01-HY)
RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz ~ 1GHz	Dec. 30, 2005	Conducted (TH01-HY)
Oscilloscope	Tektronix	TDS1012	CO38515	100MHz / 1GS/s	Apr. 15, 2005*	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Dec. 30, 2005	Conducted (TH01-HY)
Data Generator	Tektronix	DG2030	063-2920-50	0.1Hz~400MHz	Jun. 01, 2006	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is one year.

Note: * Calibration Interval of instruments listed above is two year.

6. SPORTON COMPANY PROFILE

SPORTON Lab. was established in 1986 with one shielded room: the first private EMI test facility, offering local manufacturers an alternative EMI test familial apart from ERSO. In 1988, one 3M and 10M/3M open area test site were setup and also obtained official accreditation from FCC, VCCI and NEMKO. In 1993, a Safety laboratory was founded and obtained accreditation from UL of USA, CSA of Canada and TUV (Rhineland & PS) of Germany. In 1995, one EMC lab, including EMI and EMS test facilities was setup. In 1997, SPORTON Group has provided financial expense to relocate the headquarter to Orient Scientific Park in Taipei Hsien to offer more comprehensive, more qualified and better service to local suppliers and manufactures. In 1999, Safety Group and Component Group were setup. In 2001, SPORTON has established 3M/10M chamber in Hwa Ya Technology Park.

6.1. Test Location

SHIJR	ADD	:	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C.
	TEL	:	02-2696-2468
	FAX	:	02-2696-2255
HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
	TEL	:	03-327-3456
	FAX	:	03-318-0055
LINKOU	ADD	:	No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C
	TEL	:	02-2601-1640
	FAX	:	02-2601-1695
DUNGHU	ADD	:	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C.
	TEL	:	02-2631-4739
	FAX	:	02-2631-9740
JUNGHE	ADD	:	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C.
	TEL	:	02-8227-2020
	FAX	:	02-8227-2626
NEIHU	ADD	:	4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C.
	TEL	:	02-2794-8886
	FAX	:	02-2794-9777
JHUBEI	ADD	:	No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.
	TEL	:	03-656-9065
	FAX	:	03-656-9085