

FCC PART 15 SUBPART C TEST REPORT

for

IDEAL LIFE POD

Model No.: ILP 0001B.

FCC ID: TS8ILP0001B

of

Applicant: 3JTech Co., Ltd

Address: 342, Fusing N. Rd., 2F, Taipei, Taiwan

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: 930600

Industry Canada filed test laboratory Reg. No. IC 5679A-1

A2LA Accredited No.: 2732.01



Report No.: W6M21203-12273-C-1

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
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1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.

The test report may only be reproduced or published in full.

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Tester:

March 09, 2012

Robert Ren

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

March 09, 2012

Danny Sung

Date

WTS

Name

Signature



Worldwide Testing Services(Taiwan) Co., Ltd.

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1.2 Testing laboratory

1.2.1 Location

OATS

No.5-1, Lishui, Shuang Sing Village,
Wanli Dist., New Taipei City 207,
Taiwan (R.O.C.)

3 meter semi-anechoic chamber

No.35, Aly. 21, Ln. 228, Ankang Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

TEL:886-2-6613-0228

FAX:886-2-2791-5046

Company

Worldwide Testing Services(Taiwan) Co., Ltd.

6F, NO. 58, LANE 188, RUEY-KUANG RD.

NEIHU, TAIPEI 114, TAIWAN R.O.C.

Tel : 886-2-66068877

Fax : 886-2-66068879

1.2.2 Details of accreditation status

Accredited testing laboratory

A2LA accredited number: 2732.01

FCC filed test laboratory Reg. No. 930600

Industry Canada filed test laboratory Reg. No. IC 5679A-1

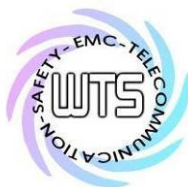


Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd. :

Name: ./.
Accredited number: ./.
Street: ./.
Town: ./.
Country: ./.
Telephone: ./.
Fax: ./.

1.3 Details of approval holder

Name: 3JTech Co., Ltd
Street: 342, Fusing N. Rd., 2F,
Town: Taipei,
Country: Taiwan
Telephone: (02) 2692-2216
Fax: (02) 2695-8960



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1.4 Application details

Date of receipt of test item: March 03, 2012
Date of test: from March 05, 2012 to March 08, 2012

1.5 General information of Test item

Type of test item: IDEAL LIFE POD
Model Number: ILP 0001B.
Multi-listing model number: ./.
Photos: see Annex

Technical data

Frequency band: 2402 - 2480 MHz
Frequency (ch A): 2.402 GHz
Frequency (ch B): 2.441 GHz
Frequency (ch C): 2.480 GHz

Transmitter

Unom

Normal Mode

Power (ch A or ch 0): Conducted: 10.53 dBm
Power (ch B or ch 39): Conducted: 11.27 dBm
Power (ch C or ch 78): Conducted: 11.61 dBm

EDR Mode

Power (ch A or ch 0): Conducted: 11.49 dBm
Power (ch B or ch 39): Conducted: 12.19 dBm
Power (ch C or ch 78): Conducted: 12.43 dBm

Power supply: 5 Vdc (from DC power supply)

Operation modes: duplex

Modulation Type: GFSK、 $\pi/4$ QPSK、8DPSK

Antenna Type: Multilayer Chip Antenna

Antenna gain: 3.0 dBi



Worldwide Testing Services(Taiwan) Co., Ltd.

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Host device: none

Classification:

Fixed Device	<input type="checkbox"/>
Mobile Device (Human Body distance > 20cm)	<input type="checkbox"/>
Portable Device (Human Body distance < 20cm)	<input type="checkbox"/>
Modular Radio Device	<input checked="" type="checkbox"/>

Manufacturer: (if applicable)

Name: 3JTech Co., Ltd Tsi-Tze Factory
Street: 7F, NO.29, 169 Lane, Kang Ling Rd.,
Town: 221, Shi Tse, Taipei County,
Country: Taiwan

Additional information: ./.

1.6 Test standards

Technical standard : FCC RULES PART 15 Subpart B / SUBPART C § 15.247 (2010-10)



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2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.



or

The deviations as specified in 3 were ascertained in the course of the tests performed.



2.2 Test environment

Temperature:	23 °C
Relative humidity content:	20 ... 75 %
Air pressure:	86 ... 103 kPa
Details of power supply	5 Vdc (from DC power supply)
Extreme conditions parameters:	test voltage : -- extreme min : -- V max : -- V



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2.3 Test Equipment List

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2011/9/2	2012/9/1
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2011/12/28	2012/12/27
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2011/9/5	2012/9/4
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2012/3/5	2013/3/4
ETSTW-CE 007	SPECTRUM ANALYZER 5GHz	FSB	849670/001	R&S	Pre-test Use	
ETSTW-CE 008	HF-EICHLITUNG RF STEP ATTENUATOR 139dB DPSP	334.6010.02	844581/024	R&S	Function Test	
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2011/7/13	2012/7/12
ETSTW-CE 013	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T4-02	20242	FCC	2011/9/6	2012/9/5
ETSTW-CE 024	IMPEDANCE STABILIZATION NETWORK	ISN T800	29454	TESEQ	2012/1/4	2013/1/3
ETSTW-CS 004	COUPLING AND DECOUPLING NETWORK	CDN M016	20053	SCHAFFNER	2011/8/12	2012/8/11
ETSTW-CS 005	RF Power Amplifier	100A250A	306547	AR	Function Test	
ETSTW-CS 010	6 dB Attenuator	SA3N1007-06	None	AISI	2011/7/29	2012/7/28
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2011/8/16	2012/8/15
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2011/9/5	2012/9/4
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2011/9/2	2012/9/1
ETSTW-RE 010	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2011/9/7	2012/9/6
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function Test	
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Function Test	
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2010/10/4	2012/10/3
ETSTW-RE 019	MICROWAVE HORN ANTENNA	22240-25	121074	FM	2011/4/25	2012/4/24
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2011/7/19	2012/7/18
ETSTW-RE 028	Log-Periodic Dipole Array Antenna	3148	34429	EMCO	Function Test	
ETSTW-RE 029	Biconical Antenna	3109	33524	EMCO	Function Test	
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2012/2/21	2013/2/20
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2011/10/4	2012/10/3
ETSTW-RE 033	WaveRunner 6000A Serise Oscilloscope	WAVERUNNER 6100A	LCRY0604P1450 8	LeCroy	Function Test	
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2011/10/4	2012/10/3
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2012/1/10	2013/1/9



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ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2011/4/26	2012/4/25
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2011/4/25	2012/4/24
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2011/8/29	2012/8/28
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2011/4/8	2012/4/7
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2012/3/3	2013/3/2
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2012/3/3	2013/3/2
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2012/3/3	2013/3/2
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2011/5/30	2012/5/29
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2012/3/3	2013/3/2
ETSTW-RE 061	Amplifier Module	CHC 1	None	ETS	2011/5/18	2012/5/17
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2011/11/29	2012/11/28
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 065	Amplifier	AMF-6F-18002650-25-10P	941608	MITEQ	2011/4/8	2012/4/7
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	EMCO	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2011/10/5	2012/10/4
ETSTW-RE 073	Power Meter	N1911A	MY45100769	Agilent	2012/1/4	2013/1/3
ETSTW-RE 074	Power Sensor	N1921A	MY45241198	Agilent	2012/1/4	2013/1/3
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2011/10/13	2012/10/12
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2012/3/5	2013/3/4
ETSTW-RE 105	2.4GHz Notch Filter	NO124411	39555	MICROWAVE CIRCUITS, INC.	2012/3/5	2013/3/4
ETSTW-RE 106	Humidity Temperature Meter	TES-1366	091011113	TES	2011/12/1	2012/11/30
ETSTW-RE 111	TRILOG Super Broadband test Antenna	VULB 9160	9160-3309	Schwarz beck	2011/12/27	2012/12/26
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	None	T-Power	Function test	
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2012/1/12	2013/1/11
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	Function test	
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2011/7/4	2012/7/3
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2011/8/19	2012/8/18
ETSTW-RE 126	5GHz Notch filter	5NSL11-5800/E221.3-O/O	1	K&L Microwave	2011/8/19	2012/8/18
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2012/3/3	2013/3/2
ETSTW-EMI 001	HARMONICS 1000	HAR1000-1P	093	EMC-PARTNER	2011/9/1	2012/8/31
ETSTW-EMS 001	BASELSTRASSE 160 CH-4242 LAUFEN	CN-EFT1000	354	EMC-PARTNER	Function Test	
ETSTW-EMS 002	Frequency Converter	YF-6020	0308014	None	Function Test	
ETSTW-EMS 003	EMC Immunity Test System	TRA2000IN6	579	EMC-PARTNER	2011/11/2	2012/11/1
ETSTW-EMS 009	Magnetic Field Antenna	MF1000-1	104	EMC-PARTNER	Function Test	



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ETSTW-EMS 010	Coupling De-coupling Network	CDN-UTP8	014	EMC-PARTNER	Function Test	
ETSTW-EMS 012	EM Injection Clamp	F-203I-23MM	476	FCC	2011/6/1	2012/5/31
ETSTW-EMS 016	EMF Tester	1390	071208732	TES	2011/10/6	2012/10/5
ETSTW-EMS 017	Multimeter	DM-1220	518614	HOLA	2011/8/11	2012/8/10
ETSTW-EMS 019	Electrostatic Discharge Simulator	ESS-2002	ESS06Y6300	NoiseKen	2011/10/31	2012/10/30
ETSTW-EMS 020	Humidity Temperature Meter	TES-1366	091011116	TES	2011/12/20	2012/12/19
ETSTW-RS 003	RF Power Amplifier	30S1G3	306933	AR	Function Test	
ETSTW-RS 004	RF Power Amplifier	150W1000	307009	AR	Function Test	
ETSTW-RS 006	SIGNAL GENERATOR	SML03	101551	R&S	2012/2/29	2013/2/28
ETSTW-RS 007	14" COLOR VIDEO MONITOR	HS-CM145A	0512011548	None	Function Test	
ETSTW-RS 009	SIGNAL GENERATOR	8648C	3642U01656	HP	2012/2/20	2013/2/19
ETSTW-RS 010	Broadband Field Meter	NBM-520	C-0195	Narda	2011/9/8	2012/9/7
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2011/10/4	2012/10/3
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2012/1/13	2013/1/12
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2012/1/13	2013/1/12
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2012/1/13	2013/1/12
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2012/1/13	2013/1/12
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2011/9/19	2012/9/18
ETSTW-Cable 002	Microwave Cable	SUCOFLEX 104 (S_Cable 7)	238093	HUBER+SUHNER	2011/5/18	2012/5/17
ETSTW-Cable 003	Microwave Cable	SUCOFLEX 104 (S_Cable 11)	209953	HUBER+SUHNER	2011/5/18	2012/5/17
ETSTW-Cable 010	BNC Cable	5 M BNC Cable	None	JYE BAO CO.,LTD.	2012/3/5	2013/3/4
ETSTW-Cable 011	BNC Cable	BNC Cable 1	None	JYE BAO CO.,LTD.	Pre-test Use NCR	
ETSTW-Cable 012	N TYPE To SMA Cable	Cable 012	None	JYE BAO CO.,LTD.	2012/3/5	2013/3/4
ETSTW-Cable 013	Microwave Cable	SUCOFLEX 104 (S_Cable 5)	232345	HUBER+SUHNER	Function Test	
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2012/3/3	2013/3/2
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2012/3/3	2013/3/2
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2012/3/3	2013/3/2
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2012/3/3	2013/3/2
ETSTW-Cable 022	N TYPE Cable	5006	0002	JYE BAO CO.,LTD.	2012/3/3	2013/3/2
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2012/3/5	2013/3/4
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2012/3/5	2013/3/4
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2011/10/13	2012/10/12
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2011/10/13	2012/10/12
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S_Cable 9)	279067	HUBER+SUHNER	2012/3/5	2013/3/4
ETSTW-Cable 031	Microwave Cable	SUCOFLEX 104 (S_Cable 10)	238092	HUBER+SUHNER	2011/11/29	2012/11/28



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ETSTW-Cable 032	Microwave Cable	SUCOFLEX 104 (S_Cable 12)	237301	HUBER+SUHNER	Function Test	
ETSTW-Cable 039	Microwave Cable	SUCOFLEX 104 (S_Cable 19)	316739	HUBER+SUHNER	2011/5/18	2012/5/17
ETSTW-Cable 040	Microwave Cable	SUCOFLEX 104 (S_Cable 20)	316738	HUBER+SUHNER	Function Test	
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2011/11/29	2012/11/28
ETSTW-Cable 047	Microwave Cable	SUCOFLEX 104	325518	HUBER+SUHNER	2011/11/29	2012/11/28
ETSTW-Cable 051	BNC Cable	BNC Cable 6	None	JYE BAO CO.,LTD.	2011/3/31	2012/3/30
ETSTW-Cable 052	BNC Cable	Clamp Cable	None	Schwarz beck	2011/3/31	2012/3/30
ETSTW-Cable 053	N TYPE To SMA Cable	RG142	None	JYE BAO CO.,LTD.	2012/3/3	2013/3/2
ETSTW-Cable 054	BNC To SMA Cable	RG142	None	JYE BAO CO.,LTD.	2012/3/3	2013/3/2
ETSTW-Cable 055	NTYPE Cable	N30N30-JBY240-80CM	20110621-1.1	JYE BAO CO.,LTD.	Function Test	
ETSTW-Cable 056	N TYPE Cable	N30N30-JBY240-80CM	20110621-1.0	JYE BAO CO.,LTD.	Function Test	
ETSTW-Cable 057	N TYPE Cable	N30N30-JBY240-80CM	20110621-1.1	JYE BAO CO.,LTD.	Function Test	
WTSTW-SW 001	EMI TEST SOFTWARE	Harmonics-1000	None	EMC PARTNER	HARCS Version 4.16 Firmware Version 2.18	
WTSTW-SW 002	EMI TEST SOFTWARE	EZ EMC	None	Farad	Version ETS-03A1	
WTSTW-SW 003	EMS TEST SOFTWARE	i2	None	AUDIX	Version 3.2007-8-17b	



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2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2009 5.2 using a 50 μ H LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

RADIATION INTERFERENCE: The test procedure used was according to ANSI STANDARD C63.4-2009 6.4 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 23°C with a humidity of 40 %.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dB μ V) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

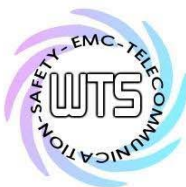
Freq (MHz)	METER READING + ACF + CABLE LOSS (to the receiver) = FS
33	20 dB μ V + 10.36 dB + 6 dB = 36.36 dB μ V/m @3m

The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table) and arranged according to ANSI C63.4-2009 6.3.1. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
- (3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.
- (4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1)-(a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this Section, whichever is the higher frequency range of investigation.

For hand-held devices, a exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.

Measurements were made by Worldwide Testing Services(Taiwan) Co., Ltd. at the registered open field test site located No.5-1, Lishui, Shuang Sing Village, Wanli Dist., New Taipei City 207, Taiwan (R.O.C.). The Registration Number: **930600**.



Worldwide Testing Services(Taiwan) Co., Ltd.

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When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

The formula is as follows:

Average = Peak + Duty Factor

Duty Factor = $20 \log (\text{dwell time}/T)$

T = 100ms when the pulse train period is over 100 ms or the period of the pulse train.

Modified Limits for peak according to 15.35 (b) = Max Permitted average Limits + 20dB

ANSI STANDARD C63.4-2009 10.2.7: Any measurements that utilize special test software shall be indicated and referenced in the test report. During testing, test software 'EZ EMC' was used for setting up different operation modes.



Registration number: W6M21203-12273-C-1
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3 Test results (enclosure)

TEST CASE	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.247(b)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Equivalent radiated Power	15.247(b)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions radiated – Transmitter operating	15.247(c)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions conducted – Transmitter operating	15.247	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carrier Frequency Separation	15.247(a) (1)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Number of Hopping Frequencies	15.247(a) (1)(i)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Time of Occupancy (Dwell Time)	15.247(a) (1)(i)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20 dB Bandwidth	15.247(a) (1)(i)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Band-edge Compliance of RF Emission	15.247(c)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emission from Digital Part	15.109	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Power Line Conducted Emission	15.207(a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The follows is intended to leave blank.



Registration number: W6M21203-12273-C-1
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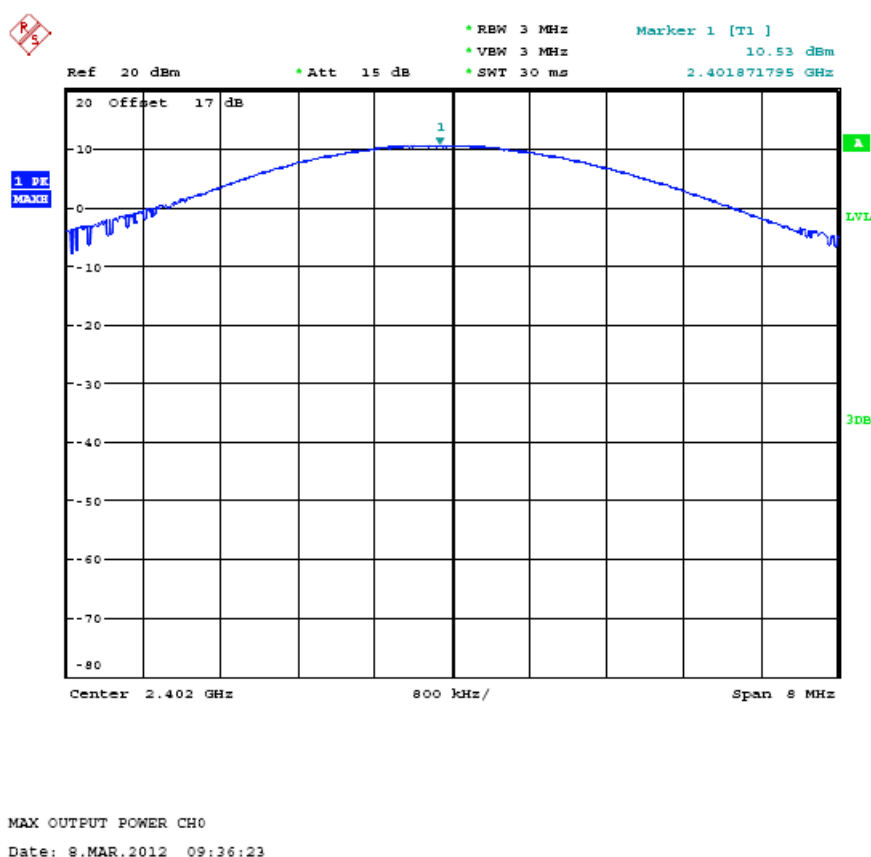
3.1 Peak Output Power (transmitter)

FCC Rule: 15.247

This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.

The power was measured with modulation (declared by the applicant).

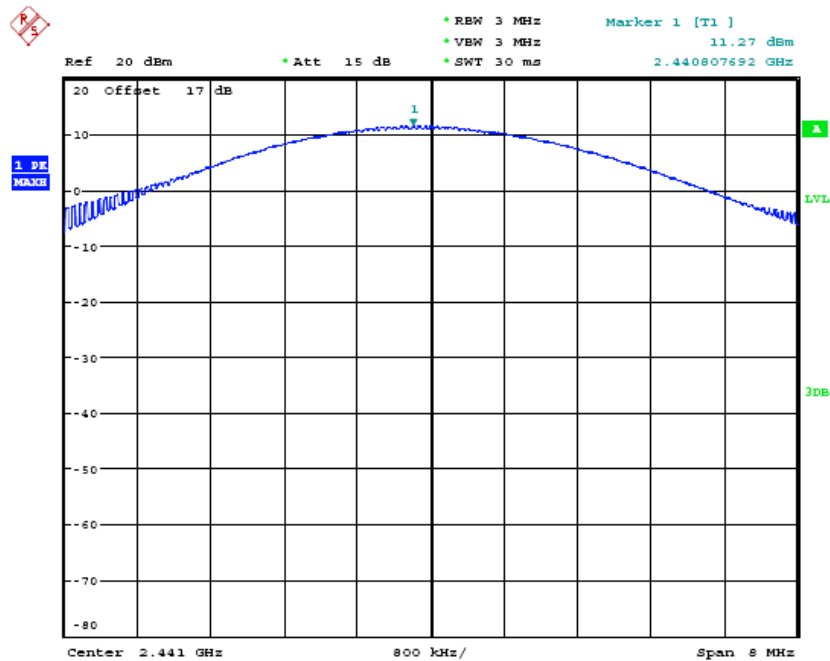
Normal mode



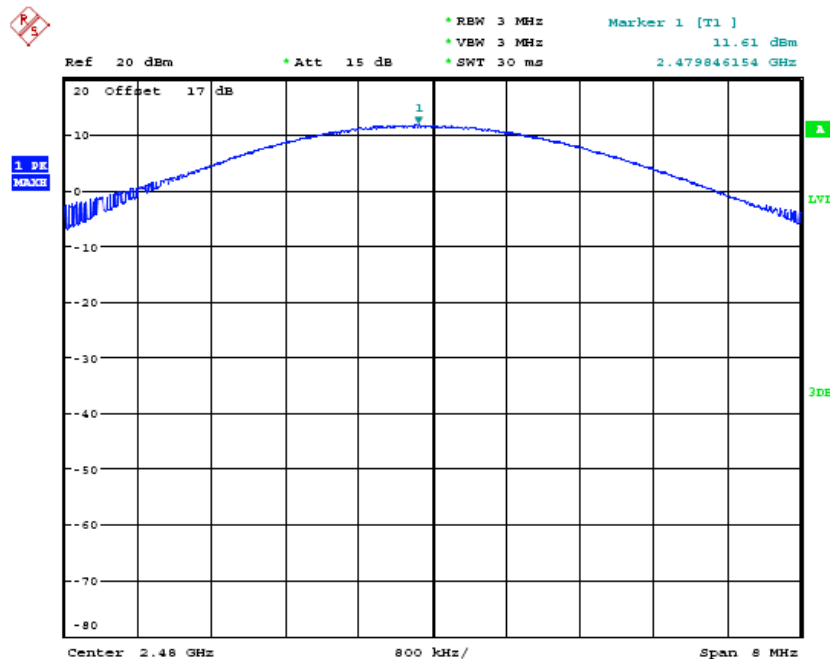


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



MAX OUTPUT POWER CH39
Date: 8.MAR.2012 09:36:59

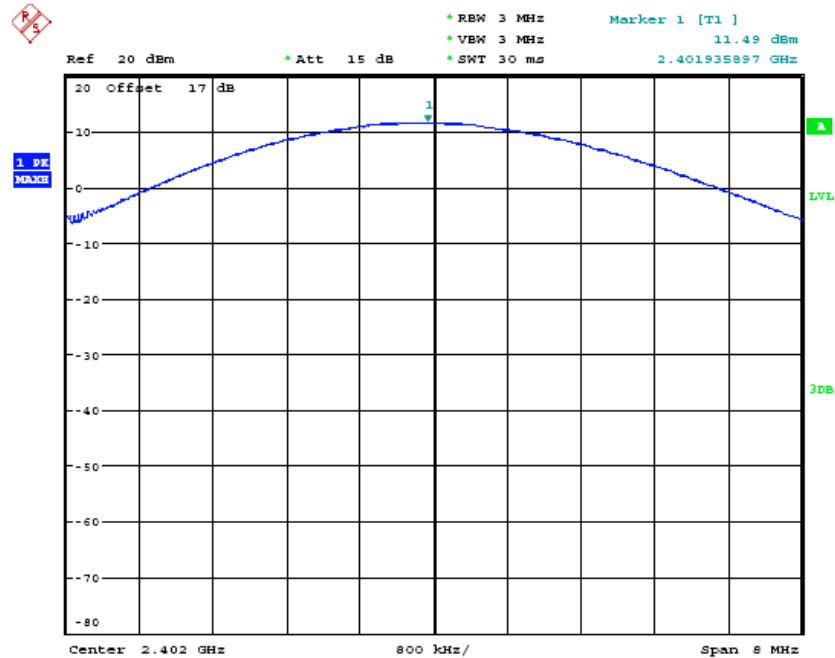


MAX OUTPUT POWER CH78
Date: 8.MAR.2012 09:37:35

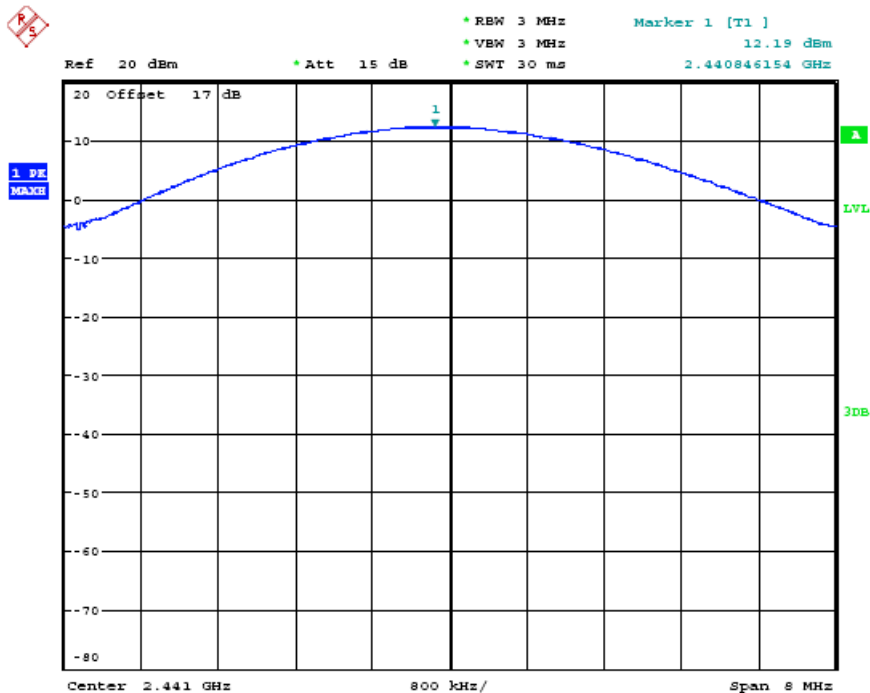


Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

EDR mode



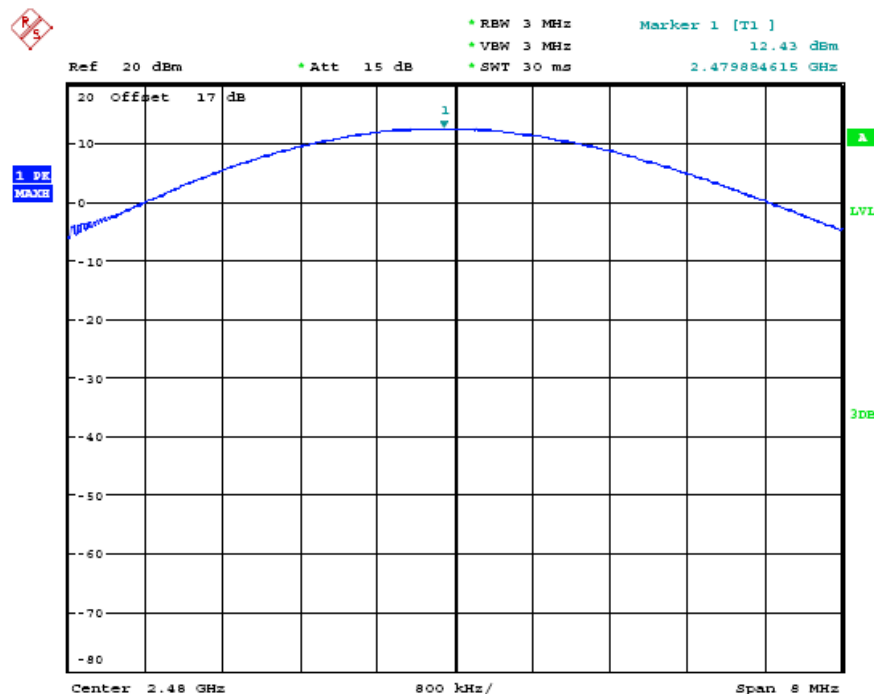
MAX OUTPUT POWER CH0 EDR MODE
Date: 8.MAR.2012 09:43:15



MAX OUTPUT POWER CH39 EDR MODE
Date: 8.MAR.2012 09:43:51



Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



MAX OUTPUT POWER CH78 EDR MODE
Date: 8.MAR.2012 09:44:40

Maximum Peak Output Power

Limits:

Frequency MHz	Number of hopping channels			
	≥ 75	≥ 50	$49 \geq 25$	$74 \geq 15$
902-928		30 dBm	24 dBm	
2400-2483.5 MHz	30 dBm	-		21 dBm
5725-5850 MHz	30 dBm	-		

In case of employing transmitter antennas having antenna gain >dBi and using fixed poin-to point operation consider §15.247 (b)(4).

Test equipment used: ETSTW-RE 055, ETSTW-RE 050, ETSTW-RE 064



Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

3.2 RF Exposure Compliance Requirements

According to Supplement C, Edition 01-01 to OET Bulletin 65, Edition 97-01 this spread spectrum transmitter is categorically excluded from routine environmental evaluation because of the low power level, where there is a high likelihood of compliance with RF exposure standards.

The antenna used for this Bluetooth transceiver module must not be co-located or operating in conjunction with any other antenna or transmitter.

3.3 Out of Band Radiated Emissions

FCC Rule: 15.247(c) , 15.35

For out of band emissions that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at a 3 m separation distance to determine whether these emissions complied with the general radiated emission requirement.

Limits:

For frequencies below 1GHz :

Max. reading – 20 dB

Guidance on Measurement of FHSS Systems:

“If the emission is pulsed, modify the unit for continuous operation , use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.” Here the correction was added to the limit instead subtracted from the reading.

Duty Cycle correction = $20 \log (\text{dwell time}/100\text{ms})$

For frequencies above 1GHz (Peak measurements).

Limit = max. aver. reading-20dB +20dB(because Peak detector is used)

For frequencies above 1GHz (Average measurements).

Max. reading – 20 dB - duty cycle correction:

No duty cycle correction was added to the reading

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 111, ETSTW-RE 030, ETSTW-RE 064

Explanation: See attached diagrams in appendix.



Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

3.4 Transmitter Radiated Emissions in restricted Bands

FCC Rules: 15.247 (c), 15.205, 15.209, 15.35

Radiated emission measurements were performed from 30 MHz to 26000 MHz.

For radiated emission tests, the analyzer setting was as followings:

RES BW VID BW

Frequency <1 GHz 100 kHz 100 kHz (Peak measurements)

Frequency >1 GHz 1 MHz 1 MHz (Peak measurements)

1 MHz 1 MHz (Average measurements)

Limits:

For frequencies below 1GHz :

Frequency of Emission (MHz)	Field strength (microvolts/meter)	Field Strength (dB microvolts/meter)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

For frequencies above 1GHz (Average measurements).

Guidance on Measurement of FHSS Systems:

“If the emission is pulsed, modify the unit for continues operation , use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.” Here the correction was added to the limit instead subtracted from the reading.

Duty cycle correction = $20 \log (\text{dwell time}/100\text{ms})$

For frequencies above 1GHz (Average measurements).

Limit – duty cycle correction

No duty cycle correction was added to the reading.

54.0dB μ V/m

For frequencies above 1GHz (Peak measurements).

Limit + 20dB

54.0dB μ V/m + 20 dB= 74 dB μ V/m

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 111, ETSTW-RE 064

Explanation: See attached diagrams in appendix.



Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

3.5 Spurious emissions (tx)

Spurious emission was measured with modulation (declared by manufacturer).

In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB 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 § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c))

SAMPLE CALCULATION OF LIMIT. All results will be updated by an automatic measuring system in accordance to point 2.3.

Calculation of test results:

Such factors like antenna correction, cable loss, external attenuation etc. are already included in the provided measurement results. This is done by using validated test software and calibrated test system according the accreditation requirements.

The peak and average spurious emission plots was measured with the average limits.

In the Table being listed the critical peak and average value an exhibit the compliance with the above calculated Limits.

If in the column's correction factor states a value then the max. Field strength in the same row is corrected by a value gained from the "Marker-Delta-Method" or the „Duty-Cycle Correction Factor“.

Summary table with radiated data of the test plots

Model: ILP 0001B. Date: 2012/3/6
Mode: 2402MHz Temperature: 24 °C Engineer: Vic
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
250.2204	17.27	peak	14.00	31.27	46.00	-14.73	245	100
995.7916	16.41	peak	27.83	44.24	54.00	-9.76	235	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4804.0100	59.36	53.65	-1.38	57.98	52.27	74.00	54.00	-1.73	250	100
7206.0000	40.16	---	4.16	44.32	---	74.00	54.00	-29.68	40	100
9608.0000	35.26	---	6.44	41.7	---	74.00	54.00	-32.30	120	100
12010.0000	33.38	---	11.23	44.61	---	74.00	54.00	-29.39	40	100



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1

FCC ID: TS8ILP0001B

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
37.5752	20.31	peak	13.51	33.82	40.00	-6.18	130	100
1000.0000	56.43	peak	-7.91	48.52	54.00	-5.48	210	100

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
4804.0000	59.06	51.97	-1.38	57.68	50.59	74.00	54.00	-3.41	118	100
7206.0000	40.74	---	4.16	44.90	---	74.00	54.00	-29.10	230	100
9608.0000	34.21	---	6.44	40.65	---	74.00	54.00	-33.35	220	100
12010.0000	33.21	---	11.23	44.44	---	74.00	54.00	-29.56	50	100

Mode: 2441MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
252.3848	15.50	peak	14.05	29.55	46.00	-16.45	205	100
997.1943	12.10	peak	27.84	39.94	54.00	-14.06	175	100

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
4882.0510	60.23	53.70	-1.13	59.10	52.57	74.00	54.00	-1.43	225	100
7326.6530	41.67	---	4.40	46.07	---	74.00	54.00	-27.93	300	100
9764.0000	33.35	---	6.83	40.18	---	74.00	54.00	-33.82	230	100
12205.0000	32.6	---	12.44	45.04	---	74.00	54.00	-28.96	40	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
37.5752	19.91	peak	13.51	33.42	40.00	-6.58	120	100
992.9860	16.18	peak	27.81	43.99	54.00	-10.01	195	100

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
4882.0270	59.26	52.27	-1.13	58.13	51.14	74.00	54.00	-2.86	114	100
7326.6530	41.17	---	4.40	45.57	---	74.00	54.00	-28.43	220	100
9764.0000	33.15	---	6.83	39.98	---	74.00	54.00	-34.02	220	100
12205.0000	32.8	---	12.44	45.24	---	74.00	54.00	-28.76	300	100



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

Mode: 2480MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
170.1402	13.82	peak	14.61	28.43	43.50	-15.07	290	100
998.5972	13.70	peak	27.85	41.55	54.00	-12.45	215	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4960.0100	61.39	53.78	-0.84	60.55	52.94	74.00	54.00	-1.06	260	100
7440.0000	39.87	---	4.56	44.43	---	74.00	54.00	-29.57	220	100
9920.0000	35.25	---	7.22	42.47	---	74.00	54.00	-31.53	105	100
12400.0000	31.72	---	12.88	44.6	---	74.00	54.00	-29.40	260	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
37.5752	20.54	peak	13.51	34.05	40.00	-5.95	185	100
997.1944	16.53	peak	27.84	44.37	54.00	-9.63	135	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4960.0500	62.59	49.85	-0.84	61.75	49.01	74.00	54.00	-4.99	180	100
7440.0000	39.93	---	4.56	44.49	---	74.00	54.00	-29.51	220	100
9920.0000	33.54	---	7.22	40.76	---	74.00	54.00	-33.24	120	100
12400.0000	32.74	---	12.88	45.62	---	74.00	54.00	-28.48	70	100

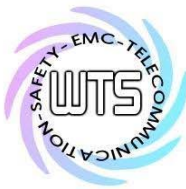
Note

1. **Correction Factor = Antenna factor + Cable loss - Preamplifier**
2. **The formula of measured value as: Test Result = Reading + Correction Factor**
3. **Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average**
4. **All not in the table noted test results are more than 20 dB below the relevant limits.**
5. **Measurement uncertainty above 1GHz: 30-1000 MHz = ± 3.72 dB, 1-18 GHz = ± 5.56 dB, 18-40 GHz = ± 3.46 dB ; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.**
6. **See attached diagrams in appendix.**

All other not noted test plots do not contain significant test results in relation to the limits.

TEST RESULT (Transmitter): The unit DOES meet the FCC requirements.

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 111, ETSTW-RE 064
ETSTW-RE 088, ETSTW-RE 018

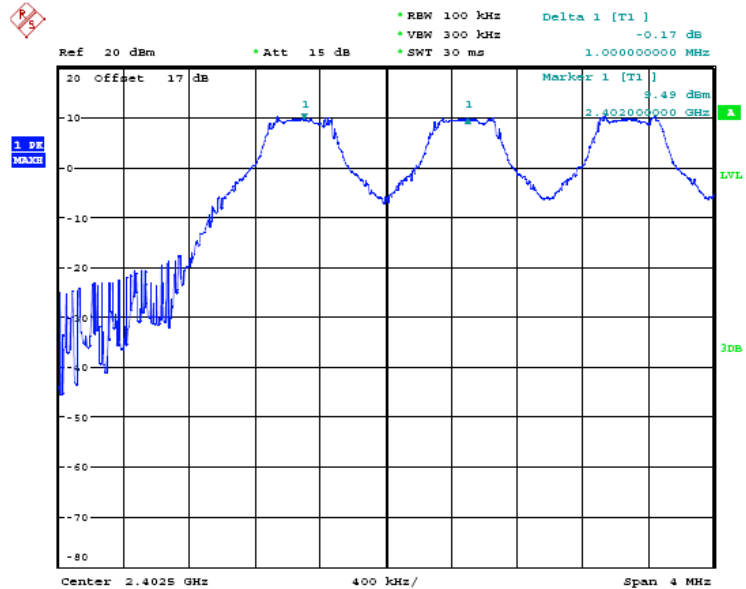


Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

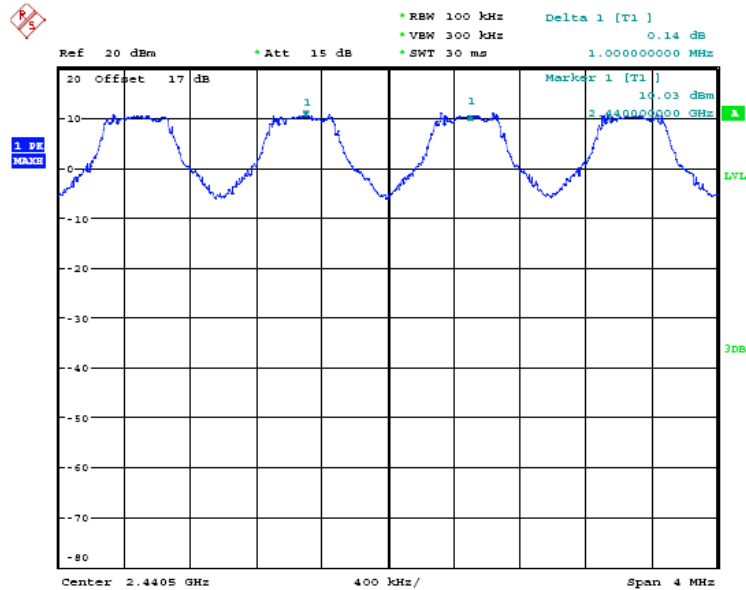
3.6 Carrier Frequency Separation

Carrier Frequency Separation was measured with modulation (declared by manufacturer).

According to FCC rules part 15 subpart C §15.247 frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or 20 dB bandwidth of the hopping channel, whichever is greater.



FREQUENCY SEPARATION CH0
Date: 8.MAR.2012 09:41:15

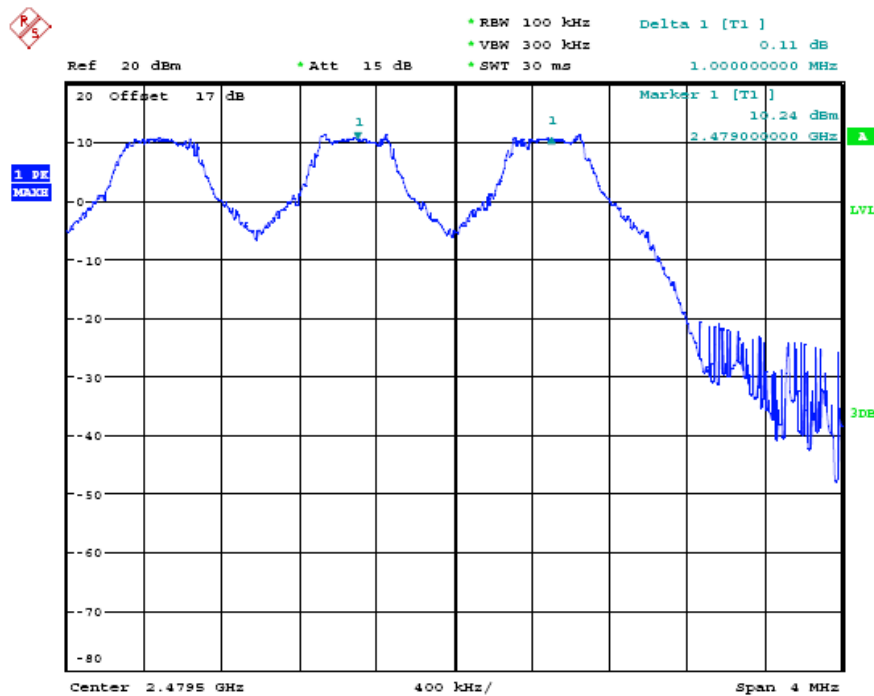


FREQUENCY SEPARATION CH39
Date: 8.MAR.2012 09:41:59



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

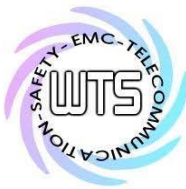


FREQUENCY SEPARATION CH78
Date: 8.MAR.2012 09:42:47

Limits:

Frequency Range MHz	Limits	
	20 dB bandwidth < 25 kHz	20 dB bandwidth > 25 kHz
902-928	25 kHz	20 dB bandwidth
2400-2483.5 5725-5850.0	25 kHz	20 dB bandwidth

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

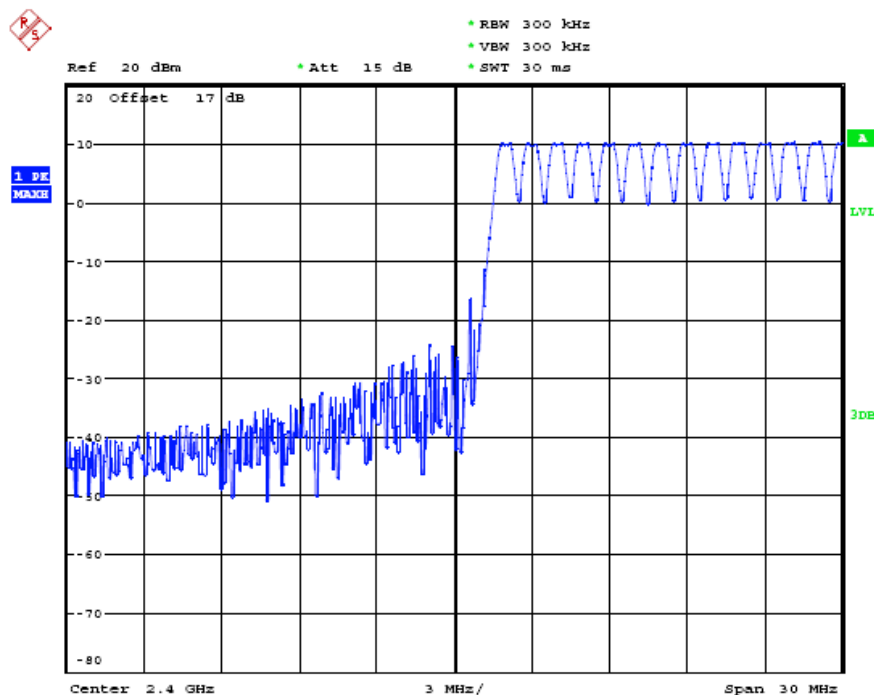


Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

3.7 Number of Hopping Frequencies

According to FCC rules part 15 subpart C §15.247 frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies. Frequency hopping systems in 5725-5850 MHz bands shall use least 75 hopping frequencies.

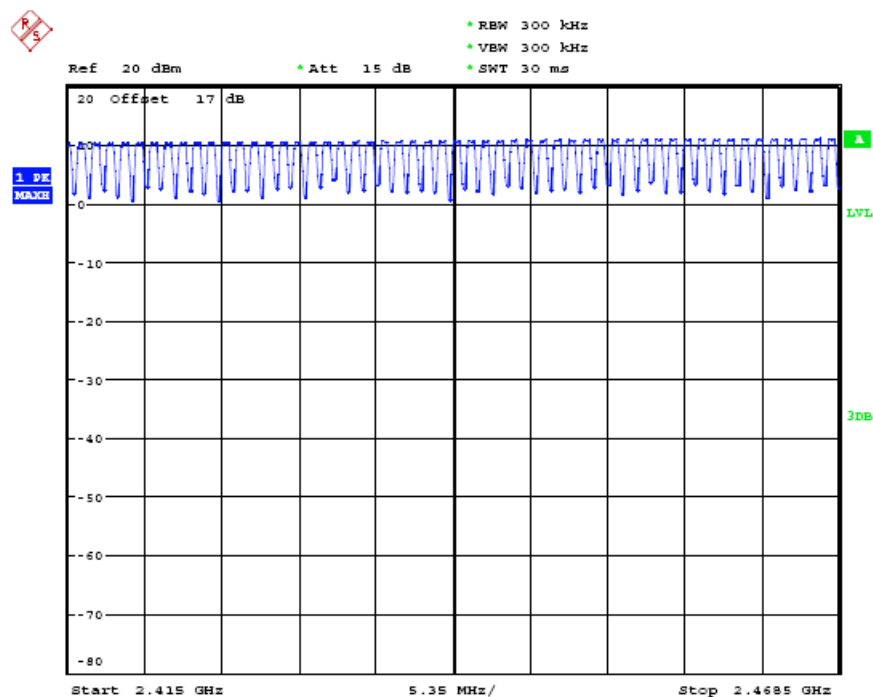
For frequency hopping systems operating in the 902-928 MHz band: if the 20dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies; if the 20dB bandwidth of the hopping channel 250 kHz or greater, the system shall use at least 25 hopping frequencies.



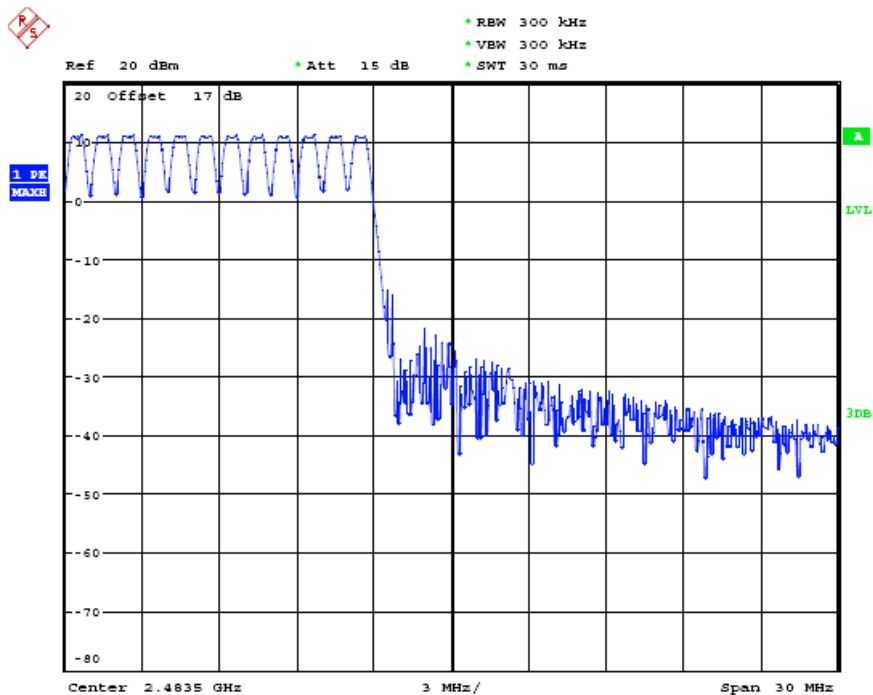
NUMBER OF HOPPING CH0-13
Date: 9.MAR.2012 09:39:36



Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



NUMBER OF HOPPING CH14-66
Date: 8.MAR.2012 09:40:23



NUMBER OF HOPPING CH67-78
Date: 8.MAR.2012 09:39:16



Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

Limits:

Frequency Range MHz	Limit	
	20dB Bandwidth	Number of Channels
902-928 MHz	Bandwidth < 250 kHz	≥ 50
	Bandwidth ≥ 250 kHz	≥ 25
2400-2483.5	not defined	15
5725-5850.0 MHz	1 MHz	75

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

3.7.1 Pseudorandom Frequency Hopping Sequence

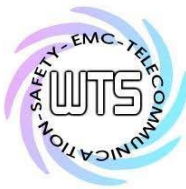
The generation of the hopping sequence is determined by the Bluetooth cord specification and complies with the FCC requirements.

3.7.2 Coordination of hopping sequences to other transmitters

According to the Bluetooth core specification V1.1 such a coordination is not possible. During scatternet function only one of the two hopping sequences will be used at a definite moment.

3.7.3 System Receiver Hopping Capability

According to the Bluetooth core specification. The system receivers shift frequencies in synchronization with the transmitted signals.



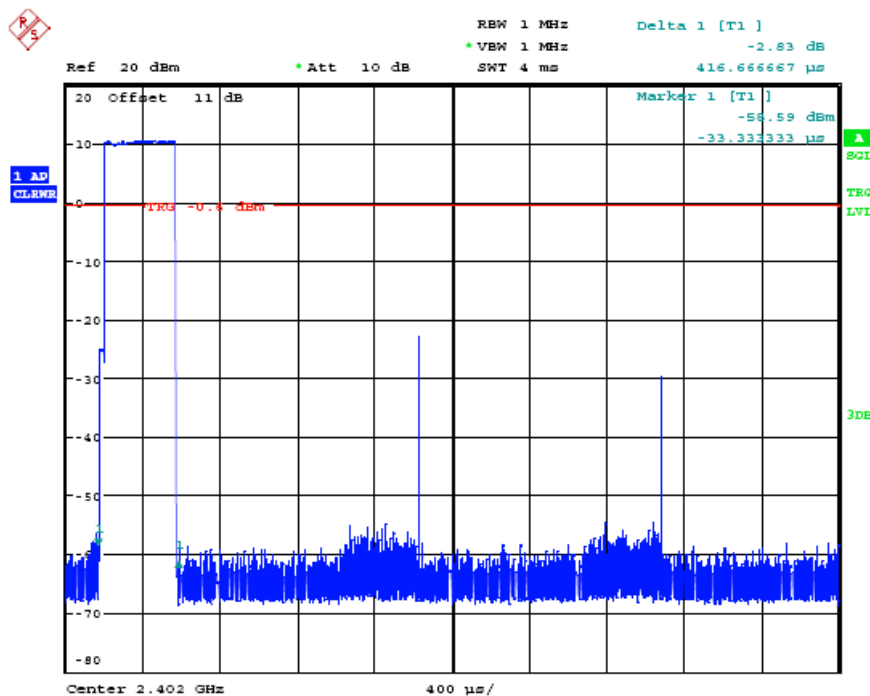
Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

3.8 Time of Occupancy (Dwell Time)

Frequency hopping systems operating in the 5725-5850 MHz band shall use an average time of occupancy on any frequency not greater than 0.4 seconds within a 30 second period.

In 2400-2483.5 MHz band the average time of occupancy on any channel shall not be greater than 0.4 seconds multiplied by the number of hopping channels employed.

For frequency hopping systems operating in the 902-928 MHz band: if the 20dB bandwidth of the hopping channel is less than 250 kHz, the average time of occupancy on any frequency shall not greater than 0.4 seconds within a 20 second period; if the 20dB bandwidth of the hopping channel is 250 kHz or greater, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.



DWELL TIME CH0 DH1 (0.416ms * 320event = 133.12ms)
Date: 8.MAR.2012 08:11:20



RBW 1 MHz Delta 1 [T1]
 VBW 1 MHz 5.69 dB
 SWT 4 ms 1.673077 ms

Ref 20 dBm * Att 10 dB

20 Offset 11 dB

Marker 1 [T1]
 -55.90 dBm
 -33.333333 μs

1 AD
 CLEWR

100% -0.4 dBm

Center 2.402 GHz 400 μs/

RBW 1 MHz Delta 1 [T1]
 * VBW 1 MHz -6.65 dBm
 * Att 10 dB
 Ref 20 dBm
 SWT 4 ms 2.929487 ms

20 Offset 11 dB
 Marker 1 [T1]
 -54.62 dBm
 -33.333333 us

1 AD
 CLEWR

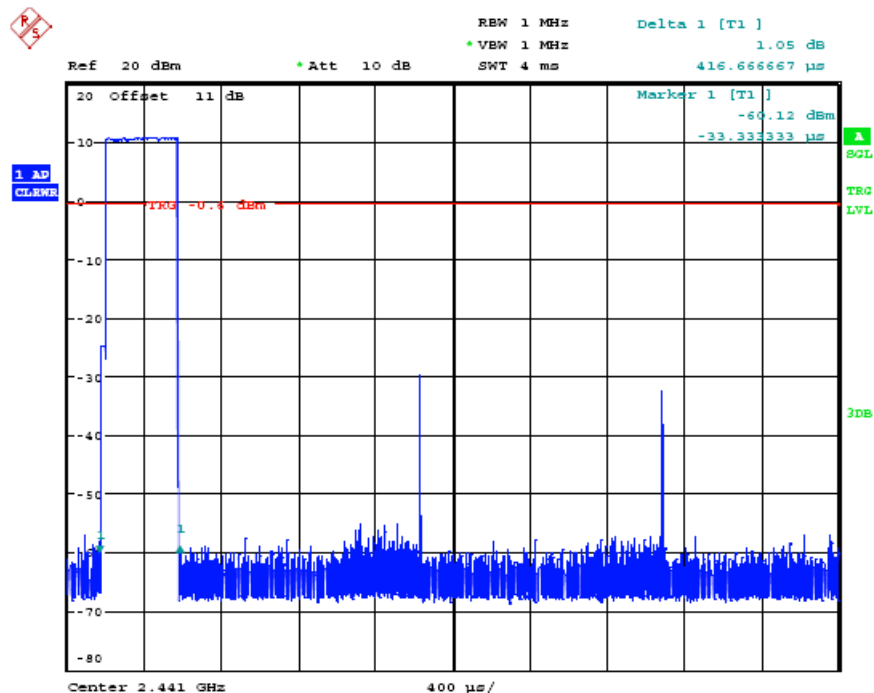
TRG LVL
 30dB

Center 2.402 GHz 400 us/

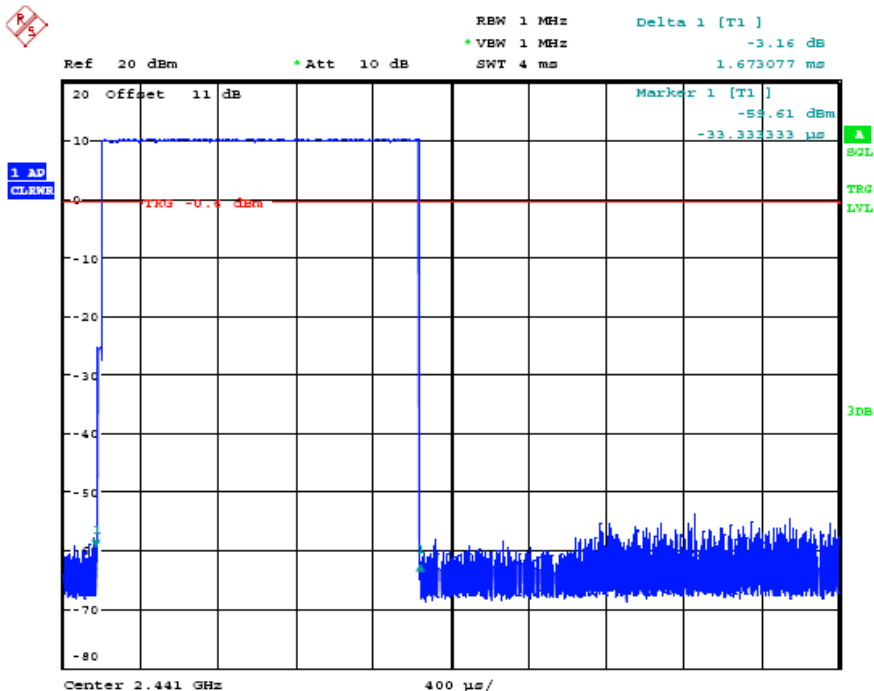
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Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



DWELL TIME CH39 DH1 (0.416ms * 320event = 133.12ms)
Date: 8.MAR.2012 08:11:45



DWELL TIME CH39 DH3 (1.673ms * 160event = 267.68ms)
Date: 8.MAR.2012 08:15:48



Ref 20 dBm Att 10 dB RBW 1 MHz Delta 1 [T1] -0.87 dB
 VBW 1 MHz SWT 4 ms 2.929487 ms

20 Offset 11 dB

Marker 1 [T1]
 -63.44 dBm
 -33.333333 μ s

1 AD
 CLEW

3dB

Center 2.441 GHz 400 μ s/

RBW 1 MHz
VBW 1 MHz
SWT 4 ms

Delta 1 [T1]
0.82 dB
416.666667 μ s

Ref 20 dBm
Att 10 dB

20 Offset 11 dB

Marker 1 [T1]
-60.72 dBm
-33.333333 μ s

1 AD
CLRWR

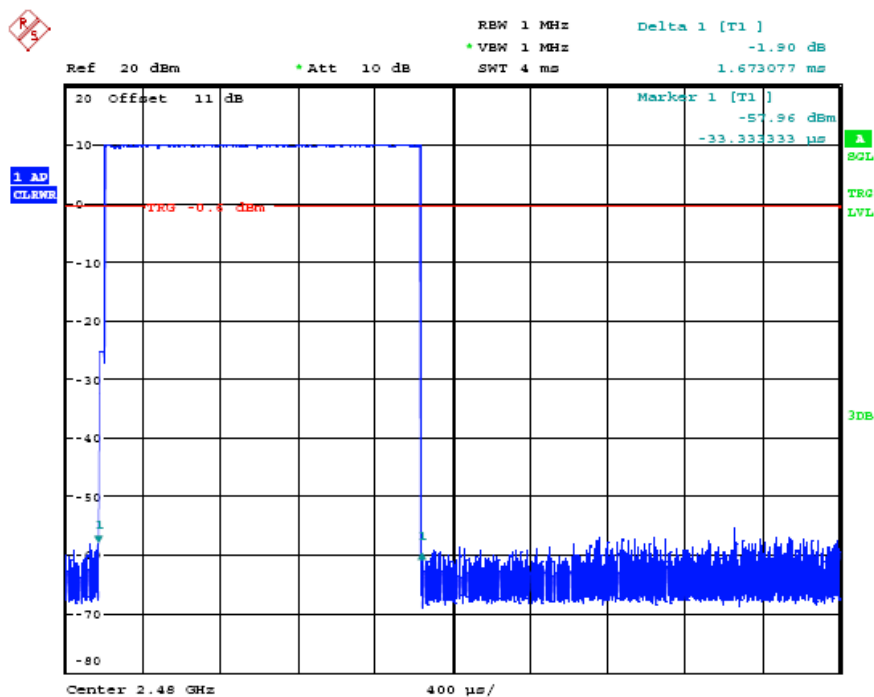
TRG -0.0 dBm

Center 2.48 GHz
400 μ s/

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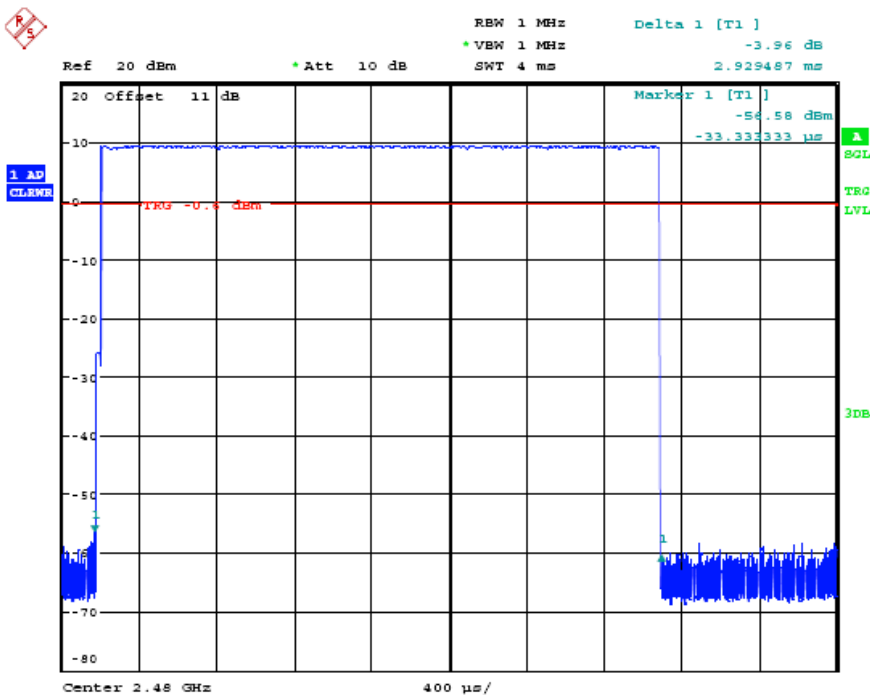


Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



DWELL TIME CH79 DH3 (1.673ms * 160event = 267.68ms)

Date: 9.MAR.2012 09:14:16



DWELL TIME CH79 DH5 (2.929ms * 110event = 322.19ms)

Date: 9.MAR.2012 09:21:02



Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

Limits and measurement periods:

Frequency MHz	Number of channels	Measurement Period	Limit
902 – 928	≥ 50	20 s	0.4 s
	$49 \geq 25$	10 s	0.4 s
2400 – 2483.5	≥ 15	0.4 s * number of used channels	0.4 s
5725- 5850	≥ 75	30 s	0.4s

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

Explanation: which show the On-time and the number of counted events during the measurement period



Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

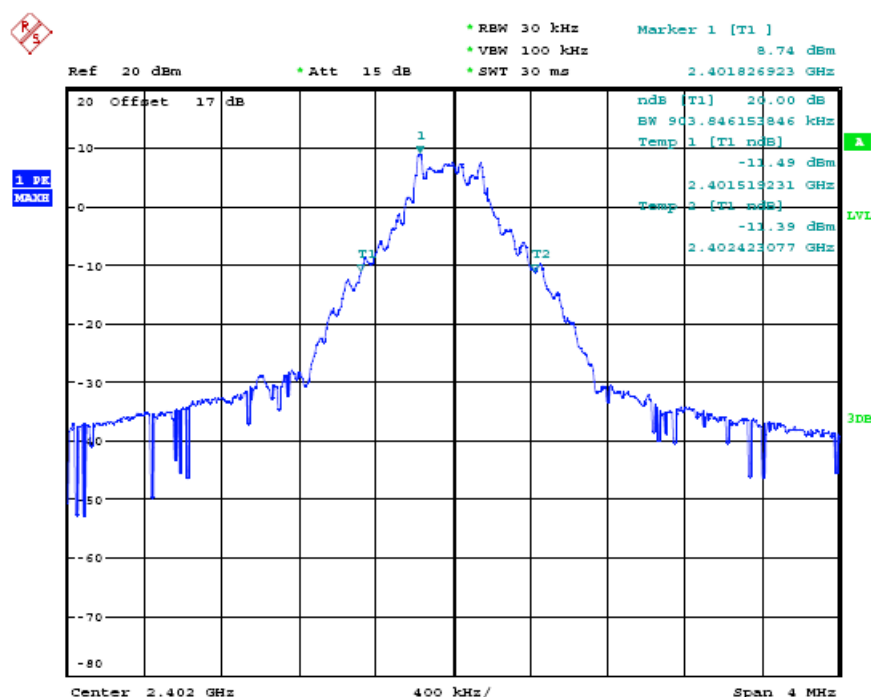
3.9 20dB Bandwidth

Frequency hopping systems operating in the 5725-5850 MHz bands shall use a maximum 20dB bandwidth of 1 MHz.

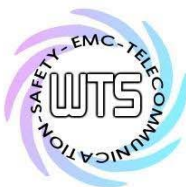
The 20dB bandwidth is measured on the lowest, middle and highest hopping channel.

For frequency hopping systems operating in the 902-928 MHz band the maximum 20dB bandwidth of the hopping channel is 500 kHz.

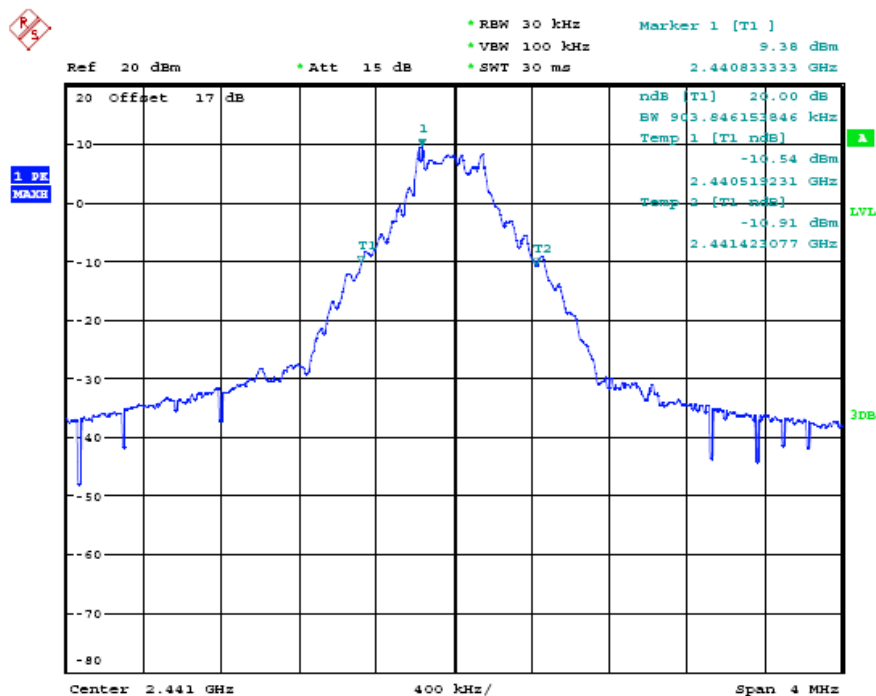
Normal mode



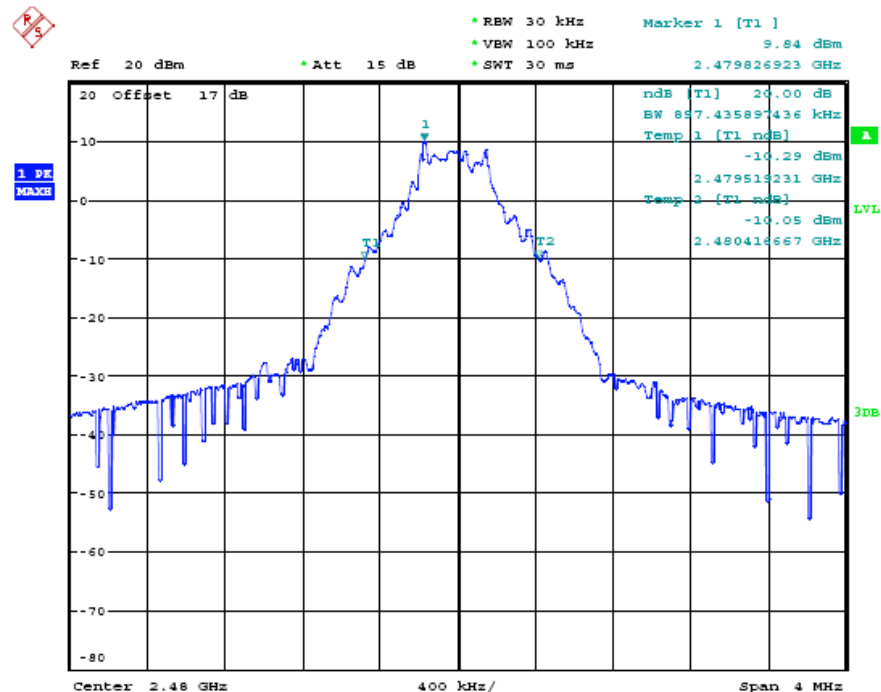
20DB BANDWIDTH CH0
Date: 8.MAR.2012 09:36:32



Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



20DB BANDWIDTH CH39
Date: 8.MAR.2012 09:37:07

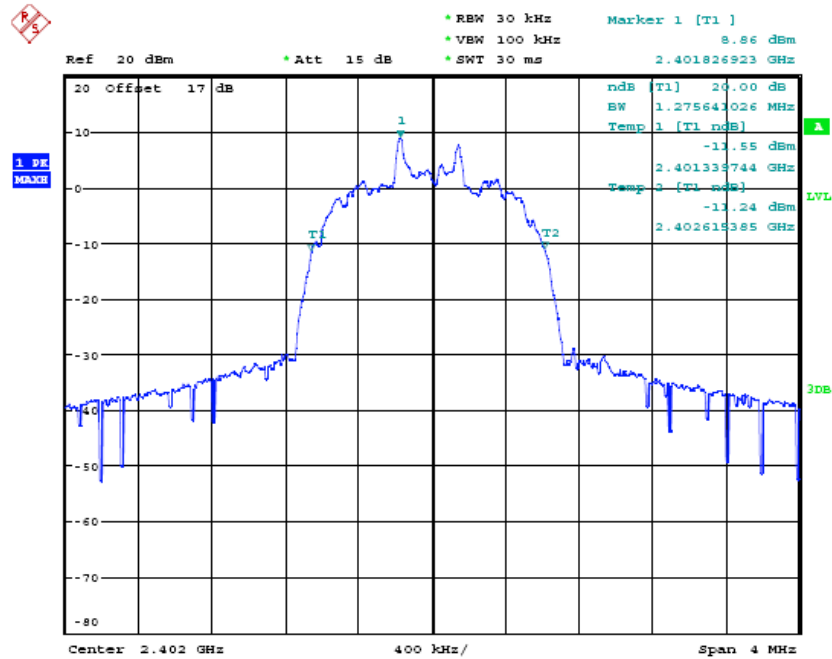


20DB BANDWIDTH CH78
Date: 8.MAR.2012 09:37:44

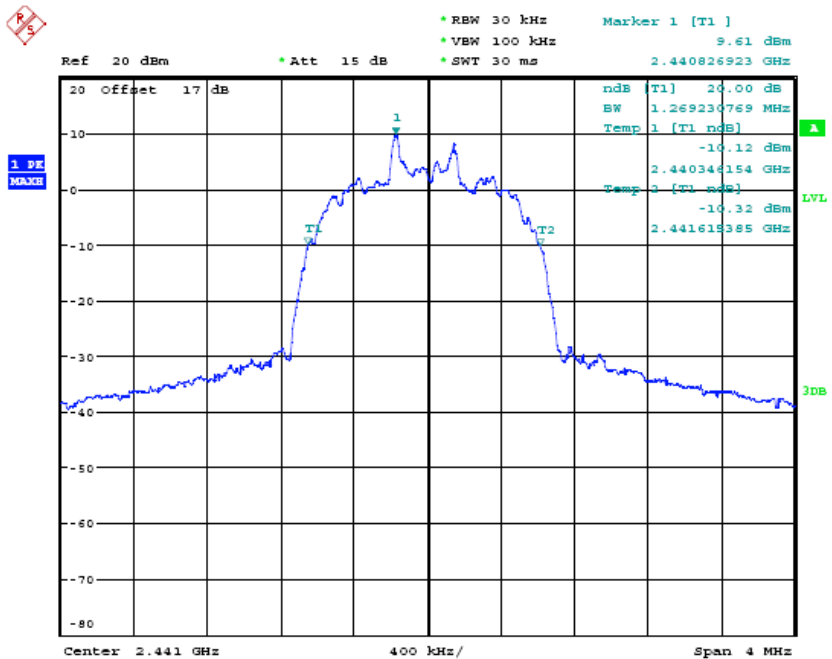


Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

EDR mode

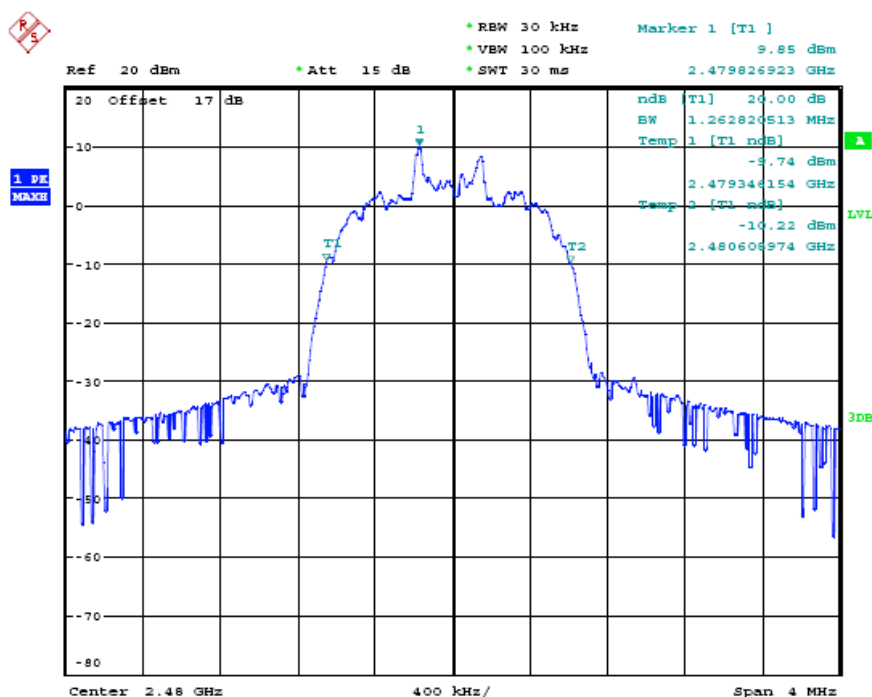


20dB BANDWIDTH CH0 EDR MODE
Date: 8.MAR.2012 09:43:23



20dB BANDWIDTH CH39 EDR MODE
Date: 8.MAR.2012 09:43:59

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



20DB BANDWIDTH CH78 EDR MODE
Date: 9.MAR.2012 09:44:47

Limits:

Frequency Range / MHz	Limit
902-928	≤ 500 kHz
2400-2483.5	not defined
5725-5850	≤ 1 MHz

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

3.9.1 System Receiver Input Bandwidth

It is determined in the Bluetooth core specification. The value matches to the bandwidth of transmitter signal.



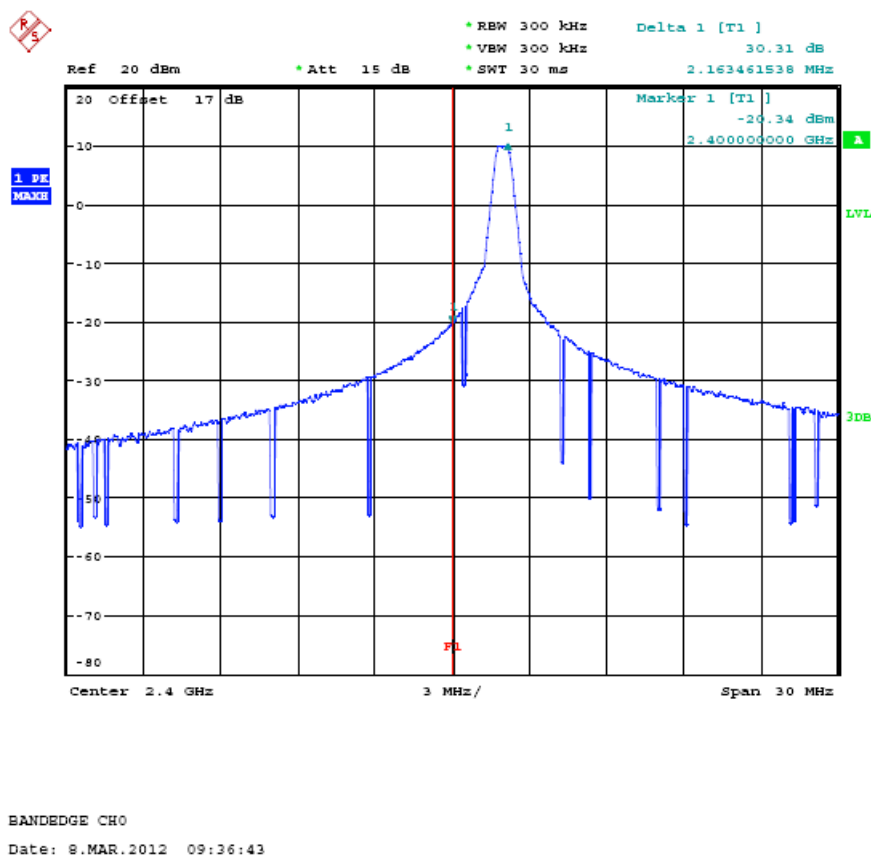
Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

3.10 Band-edge Compliance of RF Emissions

According to FCC rules part 15 subpart C §15.247(c) in any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB 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 § 15.209(a) is not required.

In addition radiated emission which fall in the restricted bands, as defined in section 15.205(a), must also with the radiated emission limits.

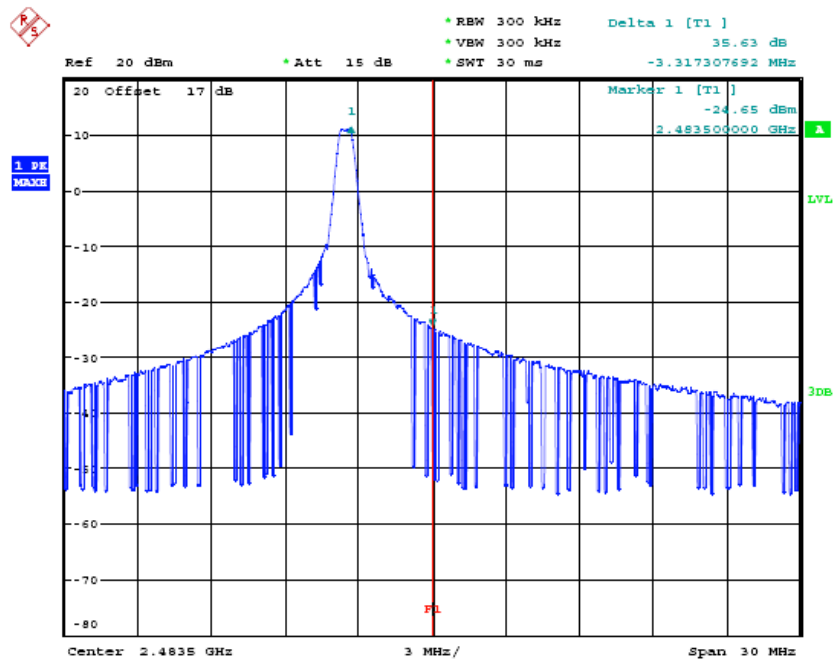
Normal mode



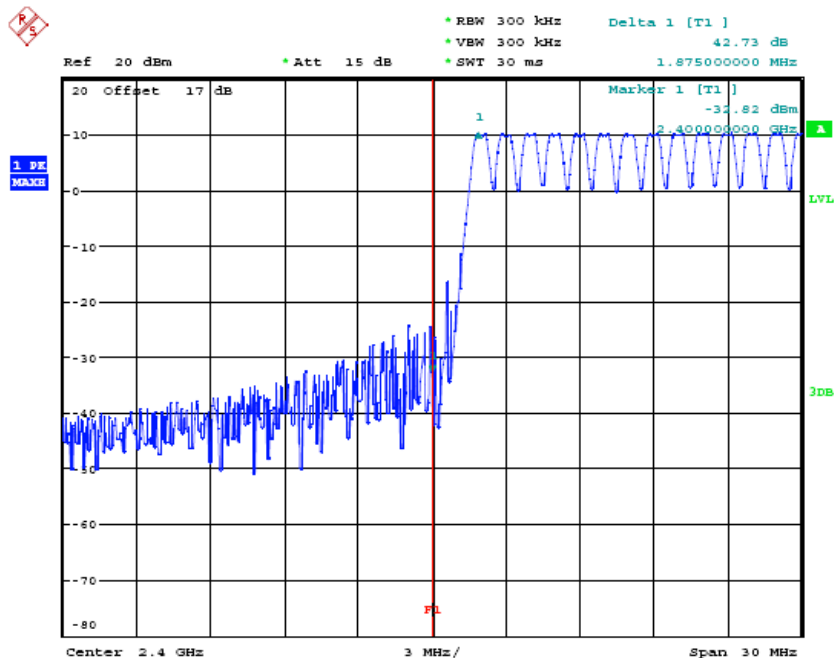


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FCC ID: TS8ILP0001B



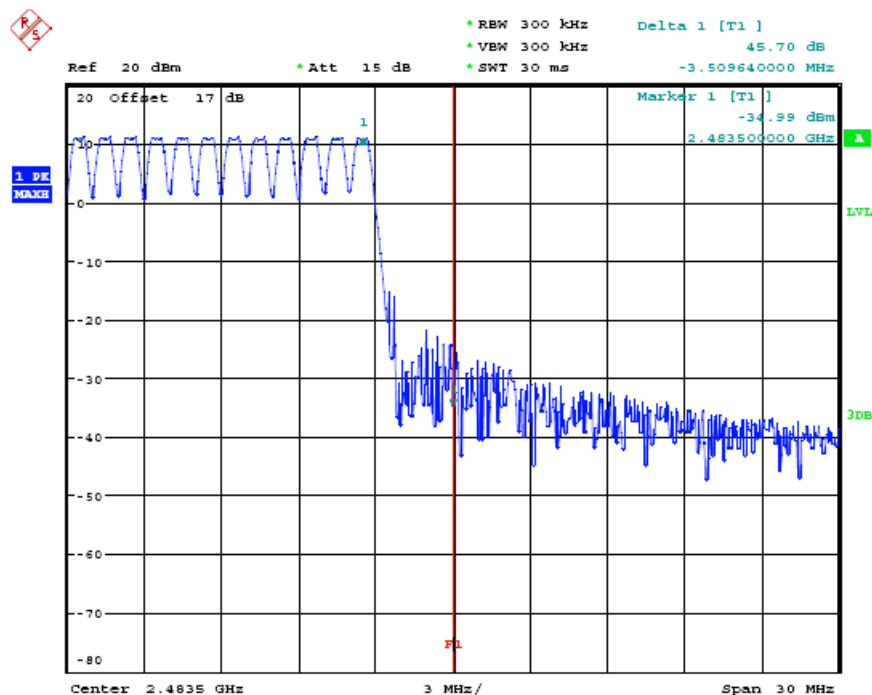
BANDEGE CH78
Date: 8.MAR.2012 09:37:52



BANDEGE CH0 HOPPING MODE
Date: 8.MAR.2012 09:38:37

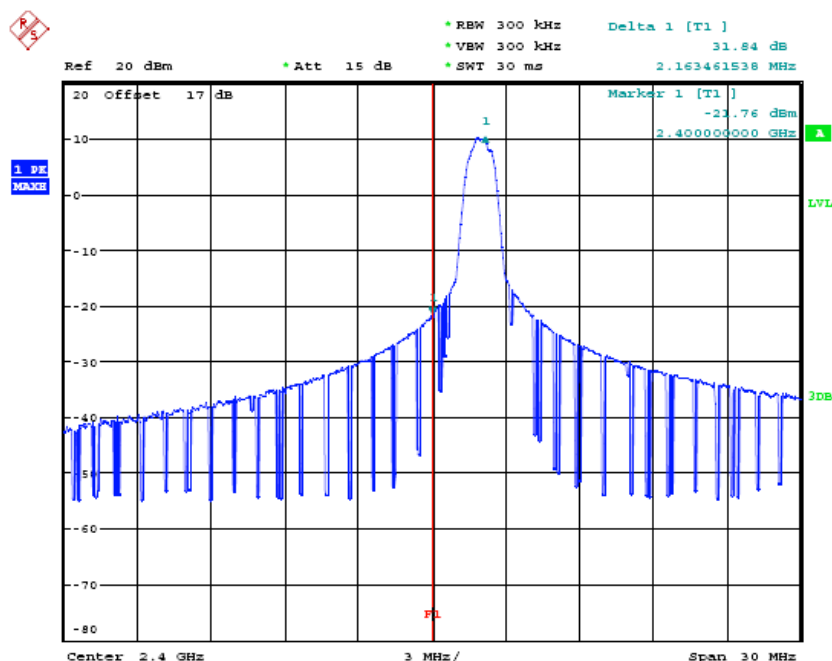


Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



BANDEDGE CH78 HOPPING MODE
Date: 8.MAR.2012 09:39:16

EDR mode

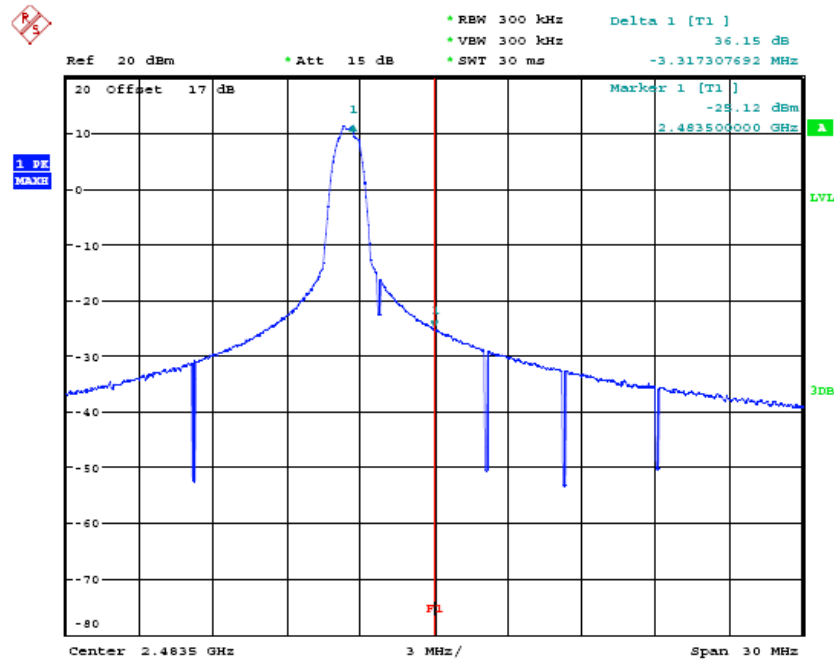


BANDEDGE CH0 EDR MODE
Date: 8.MAR.2012 09:43:31

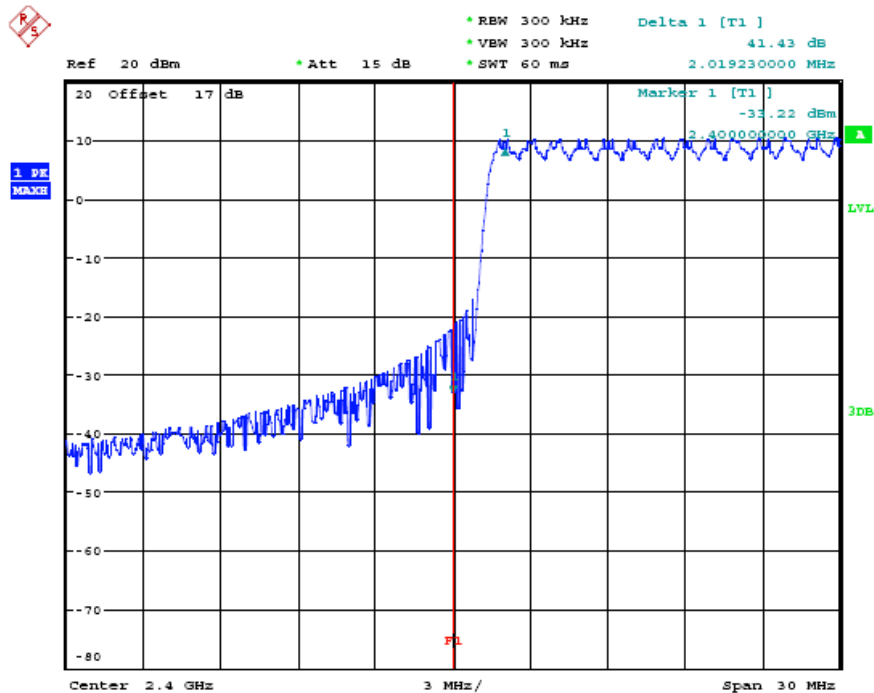


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



BANDEDGE CH78 EDR MODE
Date: 8.MAR.2012 09:44:59

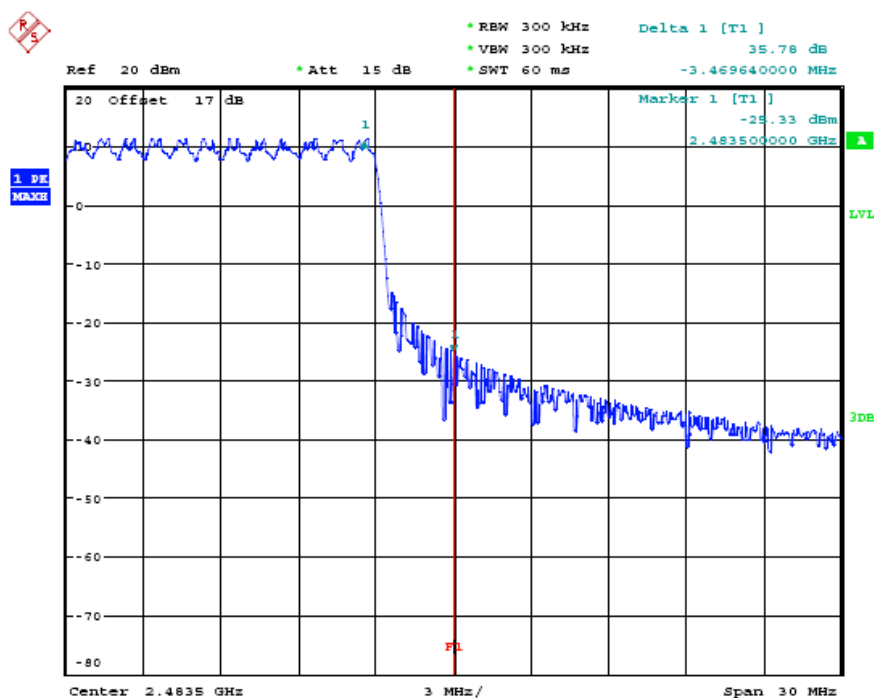


BANDEDGE CH0 EDR HOPPING MODE
Date: 8.MAR.2012 09:46:55



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



BANDEDGE CH78 EDR HOPPING MODE
Date: 9.MAR.2012 09:49:39

Limits:

Frequency Range / MHz	Limit
902 - 928	- 20 dB
2400 - 2483.5	
5725 - 5850	

Test equipment used: ETSTW-RE 055, ETSTW-RE 064



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

3.11 Radiated Emissions from Receiver Part

FCC Rule: 15.109

Summary table with radiated data of the test plots

Model: ILP 0001B. Date: 2012/3/6
Mode: 2402MHz Temperature: 24 °C Engineer: Vic
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
39.7194	6.49	peak	13.65	20.14	40.00	-19.86	275	100
154.4088	2.40	peak	15.06	17.46	43.50	-26.04	150	100
453.7674	5.68	peak	19.65	25.33	46.00	-20.67	220	100
780.3406	4.80	peak	25.10	29.90	46.00	-16.10	125	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1995.9920	45.91	---	-6.82	39.09	---	74.00	54.00	-34.91	120	100
4450.9020	42.48	---	-1.67	40.81	---	74.00	54.00	-33.19	40	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
39.7194	7.10	peak	13.65	20.75	40.00	-19.25	310	100
158.2966	2.39	peak	15.05	17.44	43.50	-26.06	220	100
480.9820	3.98	peak	19.93	23.91	46.00	-22.09	325	100
745.3506	3.69	peak	24.59	28.28	46.00	-17.72	125	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1981.9640	46.92	---	-6.84	40.08	---	74.00	54.00	-33.92	130	100
4464.9300	42.64	---	-1.60	41.04	---	74.00	54.00	-32.96	250	100



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1

FCC ID: TS8ILP0001B

Mode: 2441MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
39.7194	7.65	peak	13.65	21.30	40.00	-18.70	145	100
160.2404	2.62	peak	15.03	17.65	43.50	-25.85	315	100
578.1763	3.66	peak	21.76	25.42	46.00	-20.58	175	100
790.0601	4.40	peak	25.24	29.64	46.00	-16.36	220	100

Frequency (MHz)	Reading (dBuV) Peak Ave.		Factor (dB) Corr.	Result @3m (dBuV/m) Peak Ave.		Limit @3m (dBuV/m) Peak Ave.		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
1995.9920	45.54	---	-6.82	38.72	---	74.00	54.00	-35.28	210	100
4563.1260	42.91	---	-1.45	41.46	---	74.00	54.00	-32.54	30	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
39.7194	7.60	peak	13.65	21.25	40.00	-18.75	155	100
162.1844	3.57	peak	14.95	18.52	43.50	-24.98	265	100
597.6152	5.10	peak	22.51	27.61	46.00	-18.39	325	100
805.6112	3.34	peak	25.44	28.78	46.00	-17.22	220	100

Frequency (MHz)	Reading (dBuV) Peak Ave.		Factor (dB) Corr.	Result @3m (dBuV/m) Peak Ave.		Limit @3m (dBuV/m) Peak Ave.		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
1981.9640	47.93	---	-6.84	41.09	---	74.00	54.00	-32.91	110	100
4478.9580	43.34	---	-1.52	41.82	---	74.00	54.00	-32.18	70	100

Mode: 2480MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
39.7194	7.13	peak	13.65	20.78	40.00	-19.22	165	100
144.6894	3.47	peak	14.94	18.41	43.50	-25.09	350	100
457.6553	3.46	peak	19.71	23.17	46.00	-22.83	220	100
718.1362	3.90	peak	24.10	28.00	46.00	-18.00	125	100



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Frequency (MHz)	Reading (dBuV) Peak Ave.		Factor (dB) Corr.	Result @3m (dBuV/m) Peak Ave.		Limit @3m (dBuV/m) Peak Ave.		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
1981.9640	45.83	---	-6.84	38.99	---	74.00	54.00	-35.01	30	100
4478.9580	42.79	---	-1.52	41.27	---	74.00	54.00	-32.73	110	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
39.7194	7.48	peak	13.65	21.13	40.00	-18.87	175	100
166.0721	2.97	peak	14.79	17.76	43.50	-25.74	220	100
471.2625	2.75	peak	19.85	22.60	46.00	-23.40	320	100
747.2945	3.67	peak	24.63	28.30	46.00	-17.70	125	100

Frequency (MHz)	Reading (dBuV) Peak Ave.		Factor (dB) Corr.	Result @3m (dBuV/m) Peak Ave.		Limit @3m (dBuV/m) Peak Ave.		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
1981.9640	46.61	---	-6.84	39.77	---	74.00	54.00	-34.23	105	100
4675.3510	42.76	---	-1.61	41.15	---	74.00	54.00	-32.85	25	100

Note

1. Correction Factor = Antenna factor + Cable loss - Preamplifier
2. The formula of measured value as: Test Result = Reading + Correction Factor
3. Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average
4. All not in the table noted test results are more than 20 dB below the relevant limits.
5. Measurement uncertainty above 1GHz: 30-1000 MHz = ± 3.72 dB, 1-18 GHz = ± 5.56 dB, 18-40 GHz = ± 3.46 dB ; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.
6. See attached diagrams in appendix.

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 of Emission (MHz)	Field Strength (microvolts/meter)	Field Strength (dBmicrovolts/meter)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

Test equipment used: ETSTW-RE 055, ETSTW-RE 064, ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 030
ETSTW-RE 111



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FCC ID: TS8ILP0001B

3.12 Power Line Conducted Emission

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 line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

Frequency	Level (dBμV)	
	quasi-peak	average
150 kHz	lower limit line	Lower limit line

Model: -- Date: --
Mode: -- Temperature: -- °C Engineer: --
Polarization: -- Humidity: -- %

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV)		Limit (dBuV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

Polarization: --

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV)		Limit (dBuV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

Limits:

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- Note:** 1.The formula of measured value as: $\text{Test Result} = \text{Reading} + \text{Correction Factor}$
2.The Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss
3.Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average
4.All not in the table noted test results are more than 20 dB below the relevant limits.
5.Measurement uncertainty = ± 1.10 dB; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.
6. This test is not required because there is no AC power line or signal line for this EUT.

Test equipment used: ETSTW-CE 001, ETSTW-CE 004, ETSTW-CE 006, ETSTW-CE 007, ETSTW-RE 064



Appendix

A Measurement diagrams

Spurious Emissions radiated

B Photos

1. External Photos
2. Internal Photos
3. Set Up Photo of Radiated Emission

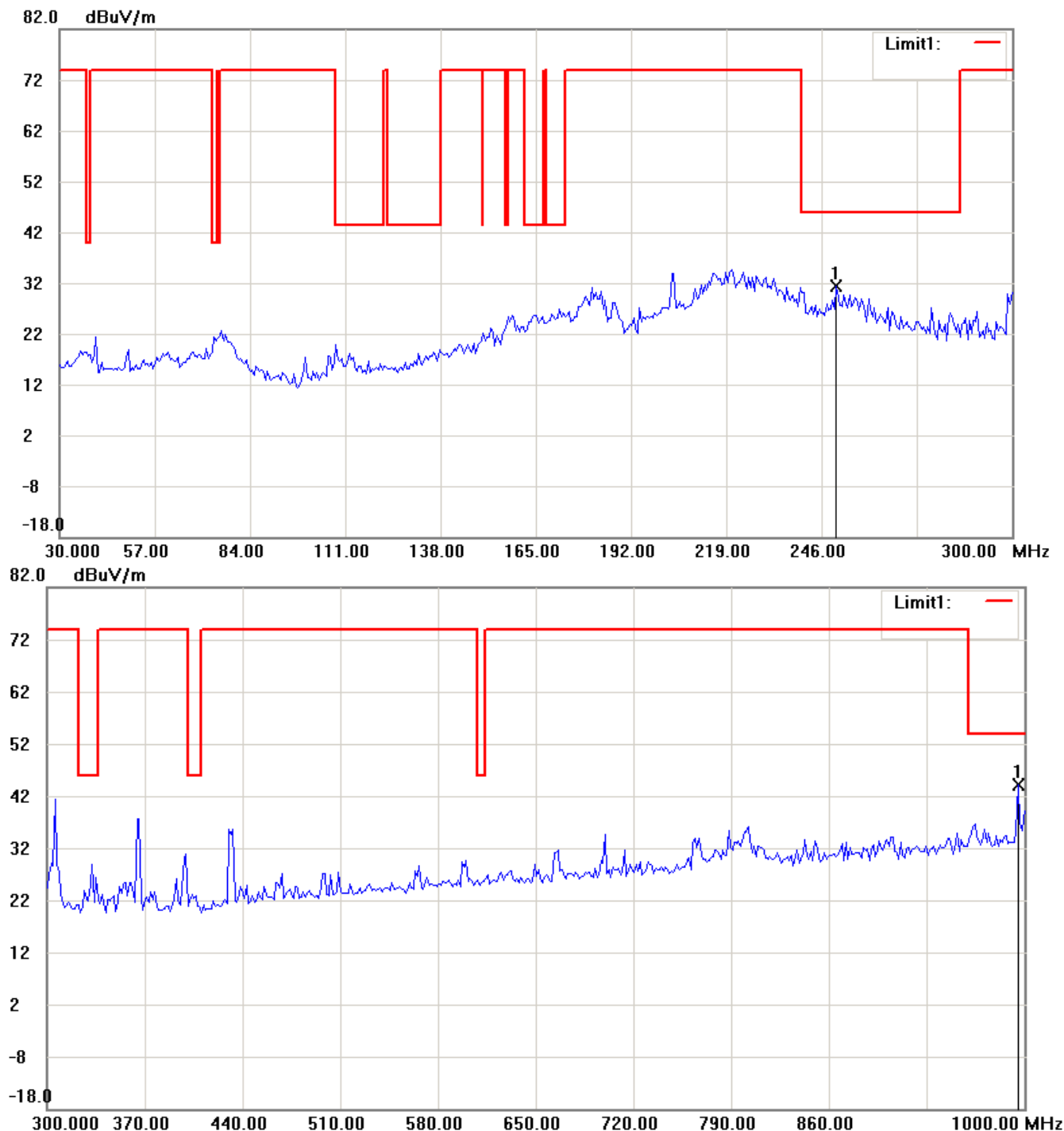


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

TX_2402MHz

Antenna Polarization H



Note:

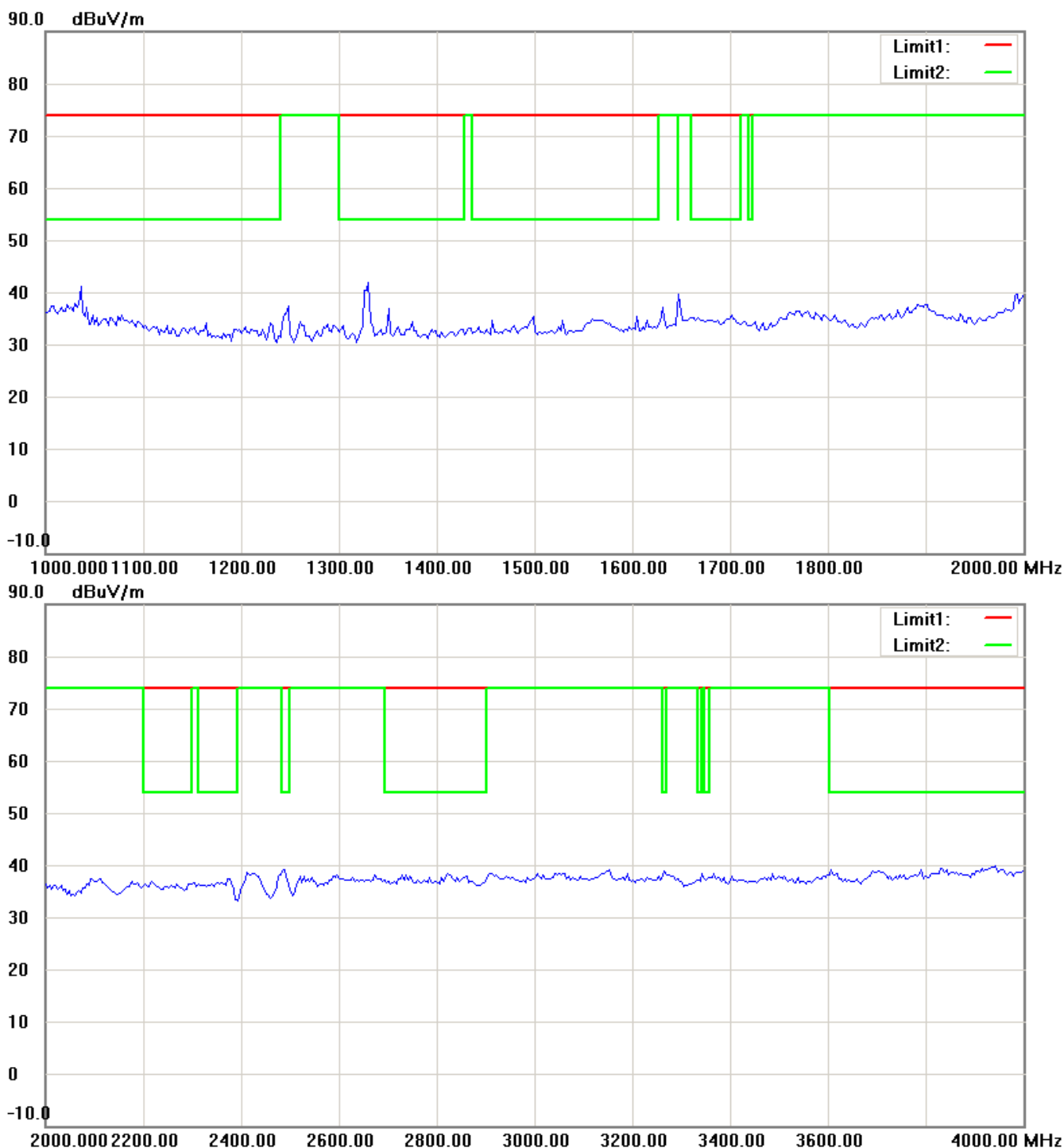
Up Line: Peak Limit Line, Down Line: Ave Limit Line

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of Field Strength test data of this test report.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



Note:

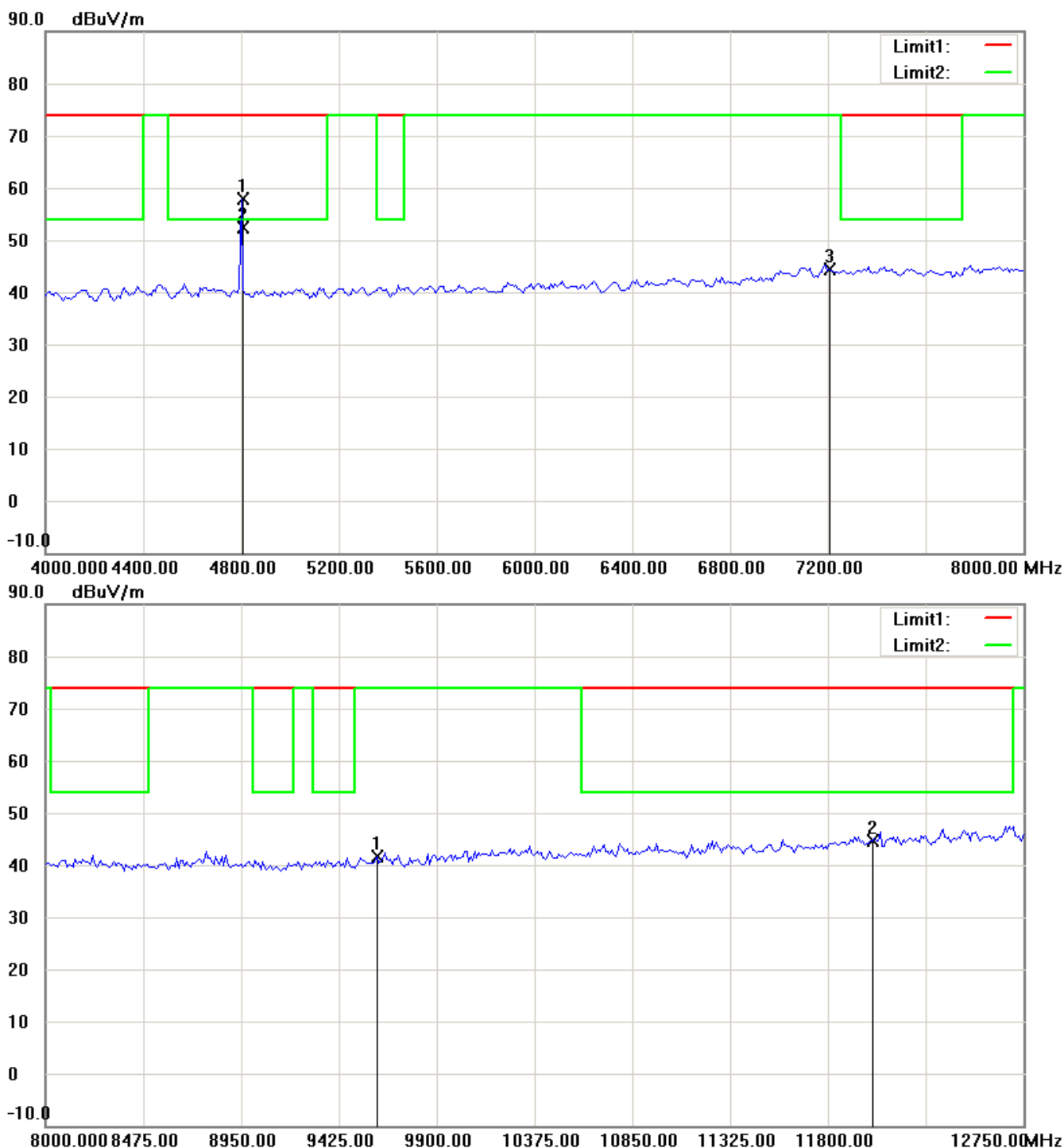
Up Line: Peak Limit Line, Down Line: Ave Limit Line

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of Field Strength test data of this test report.



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FCC ID: TS8ILP0001B



Note:

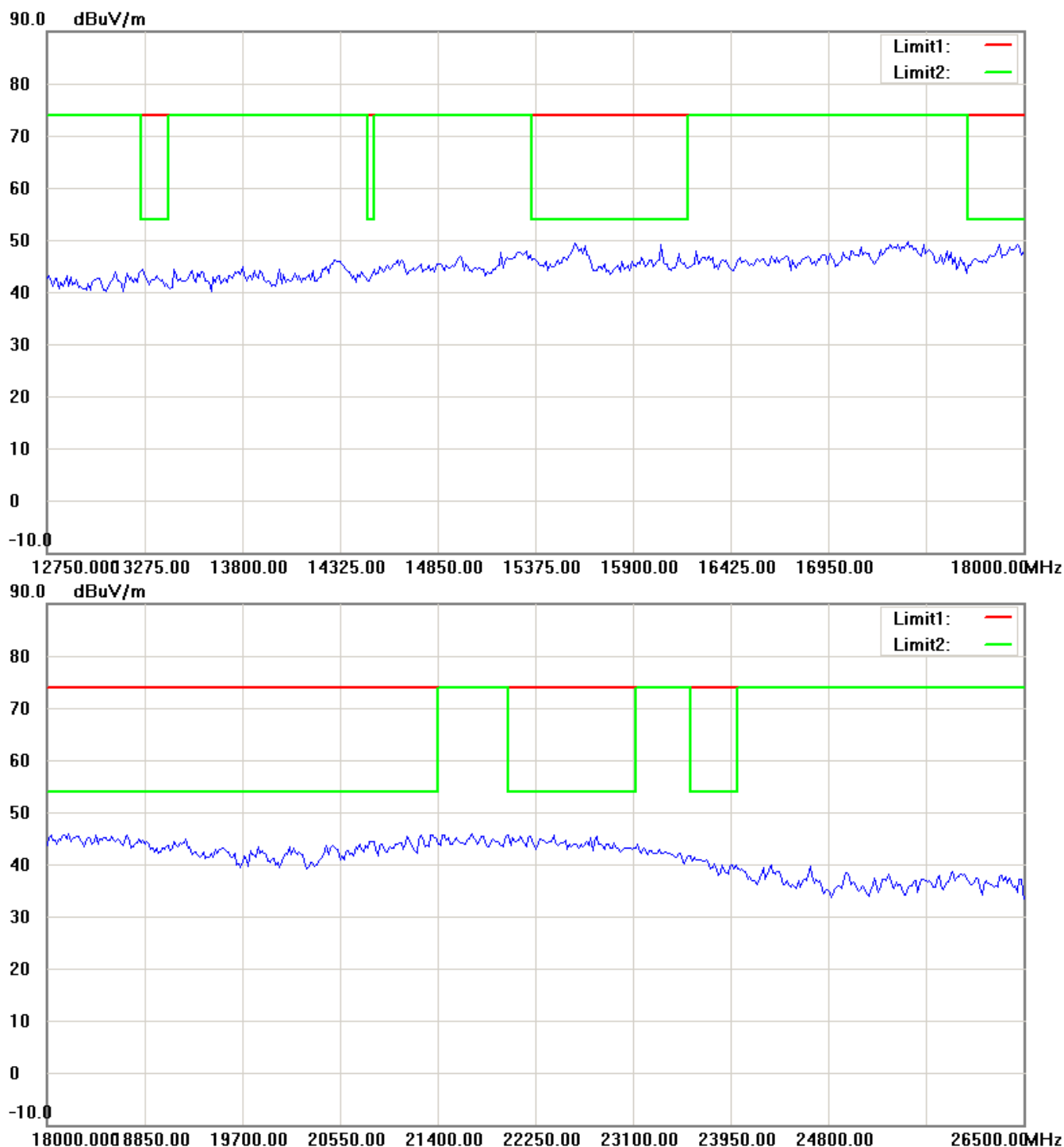
Up Line: Peak Limit Line, Down Line: Ave Limit Line

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of Field Strength test data of this test report.



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Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



Note:

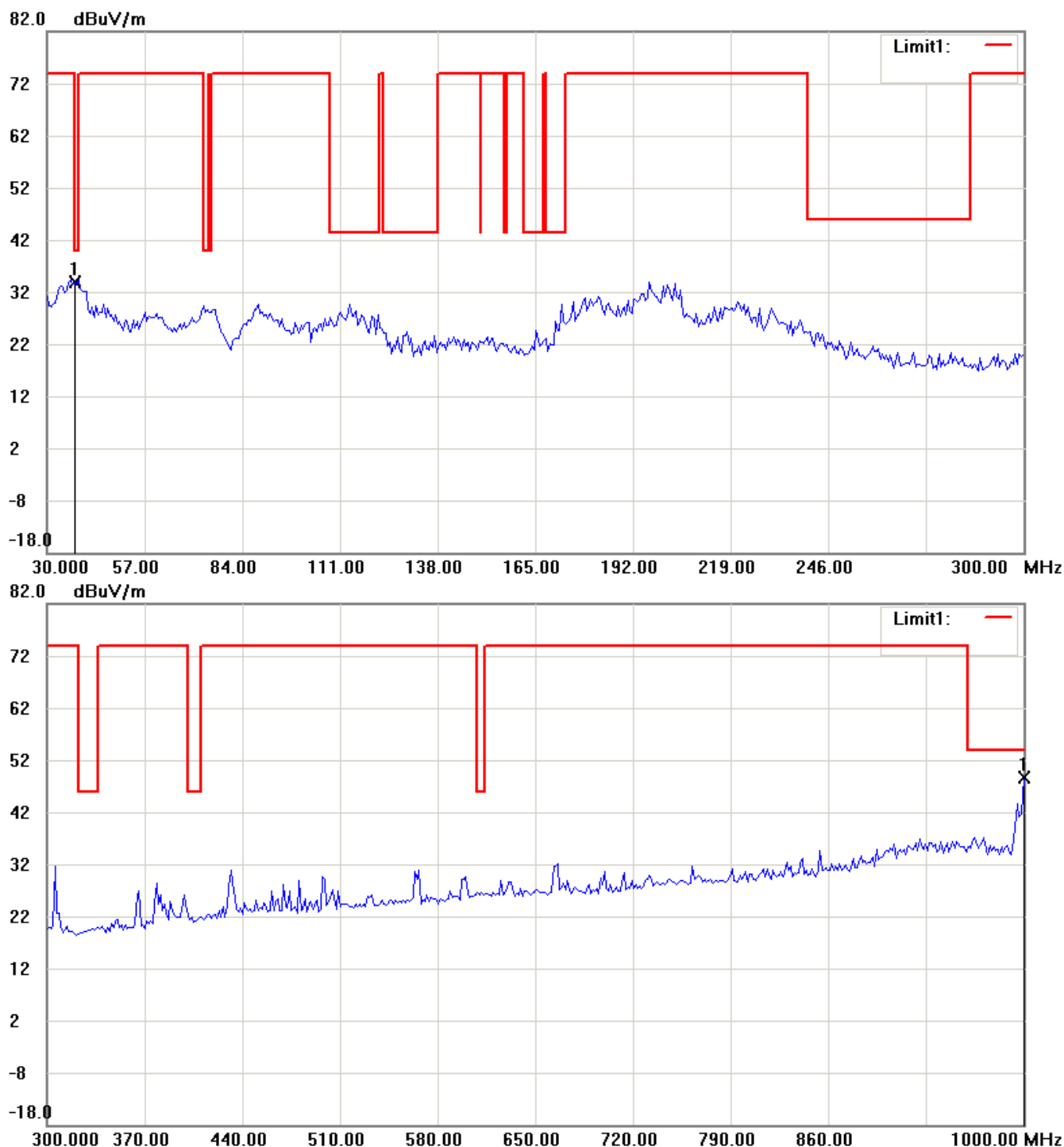
Up Line: Peak Limit Line, Down Line: Ave Limit Line

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of Field Strength test data of this test report.



Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

Antenna Polarization V



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of Field Strength test data of this test report.



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Registration number: W6M21203-12273-C-1

FCC ID: TS8ILP0001B



Note:

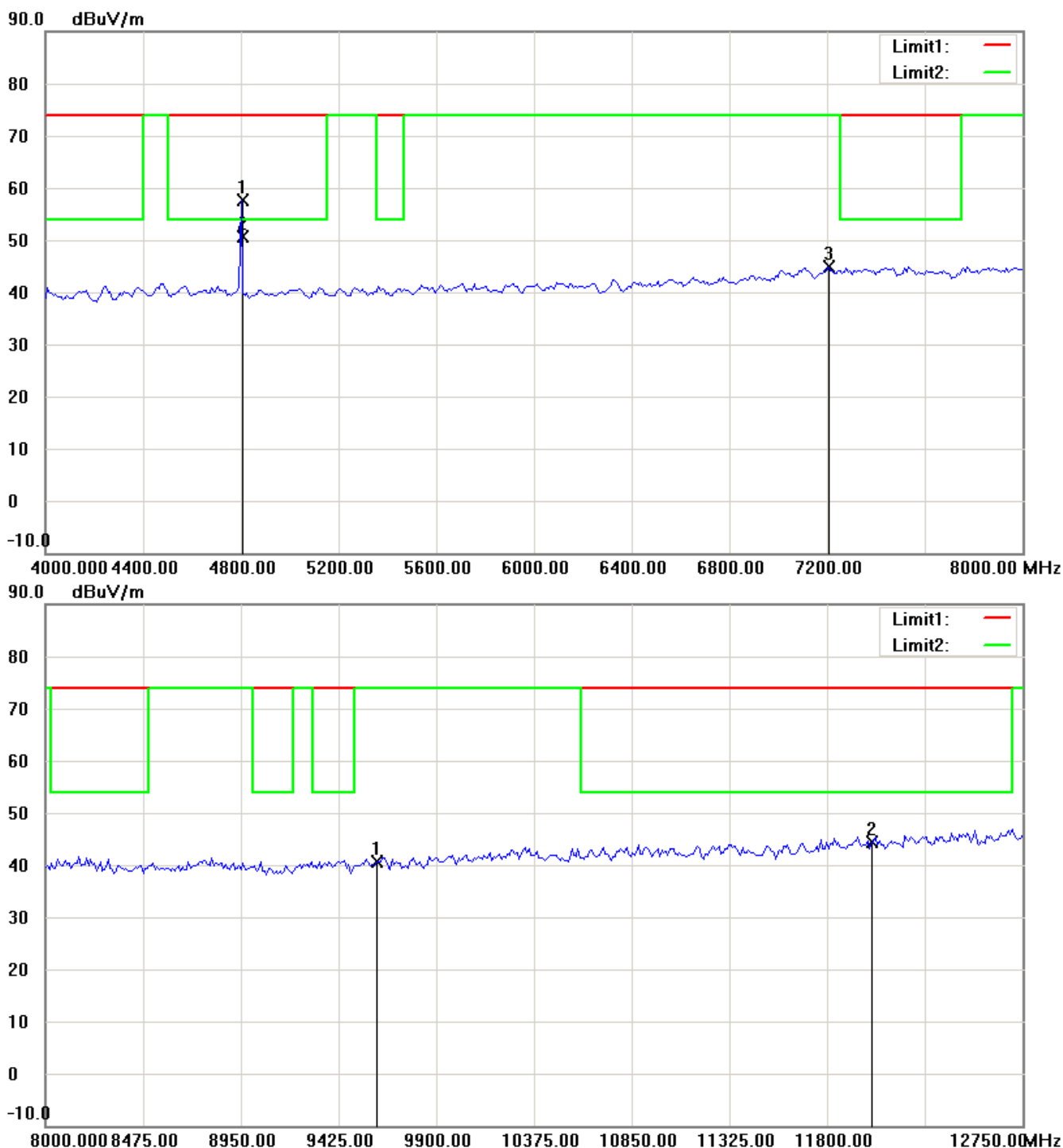
Up Line: Peak Limit Line, Down Line: Ave Limit Line

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



Note:

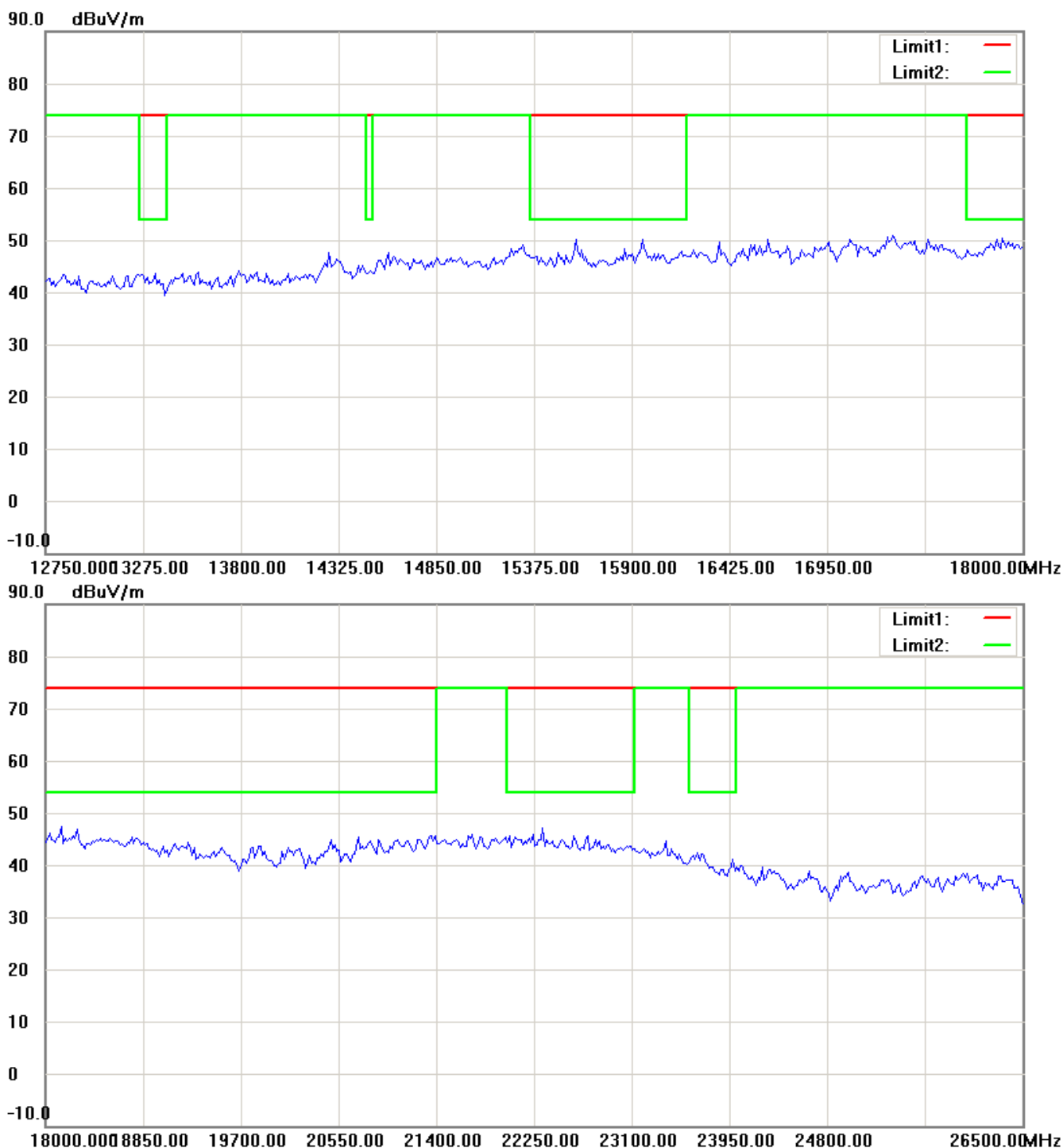
Up Line: Peak Limit Line, Down Line: Ave Limit Line

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Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

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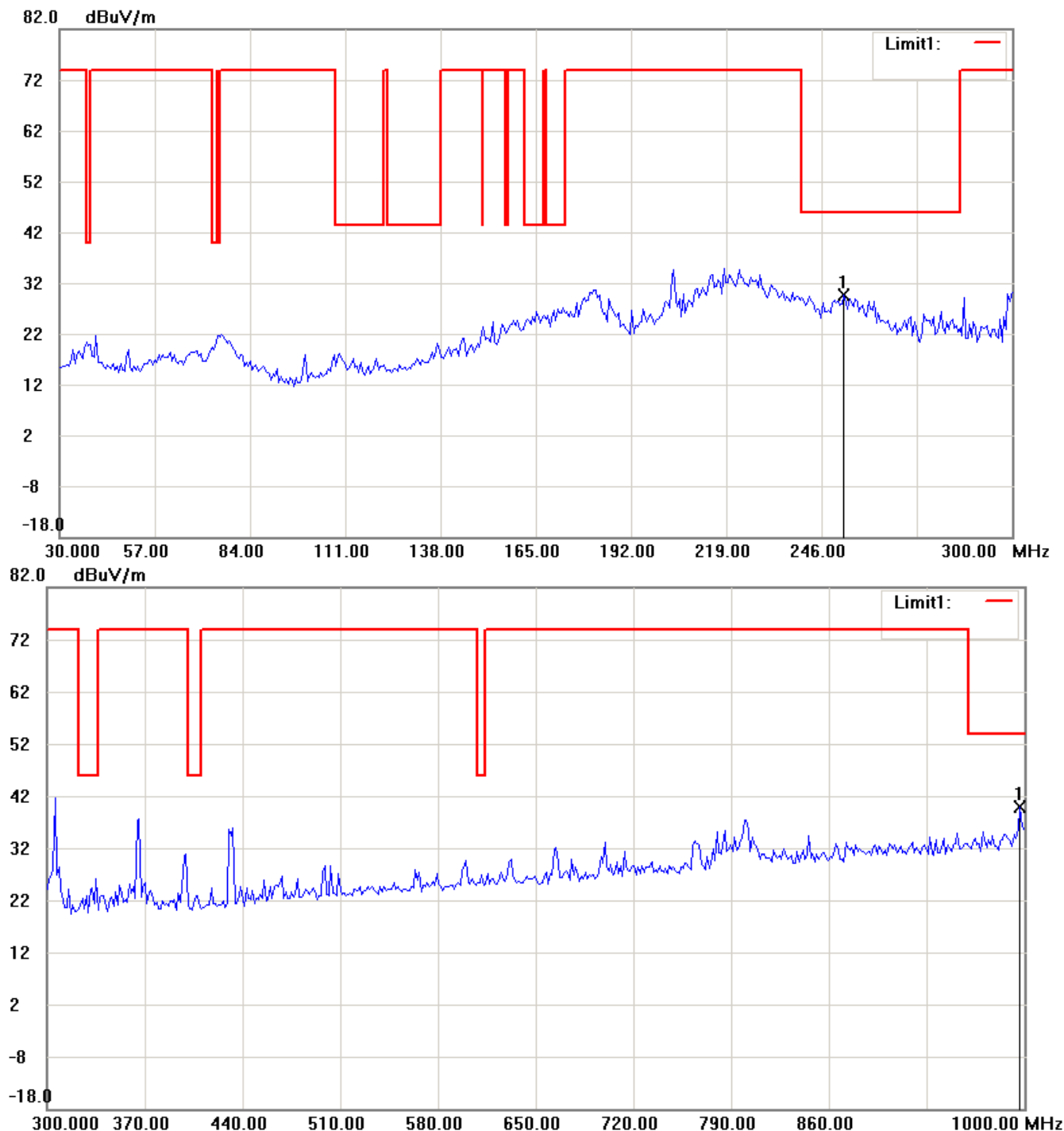


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

TX_2441MHz

Antenna Polarization H



Note:

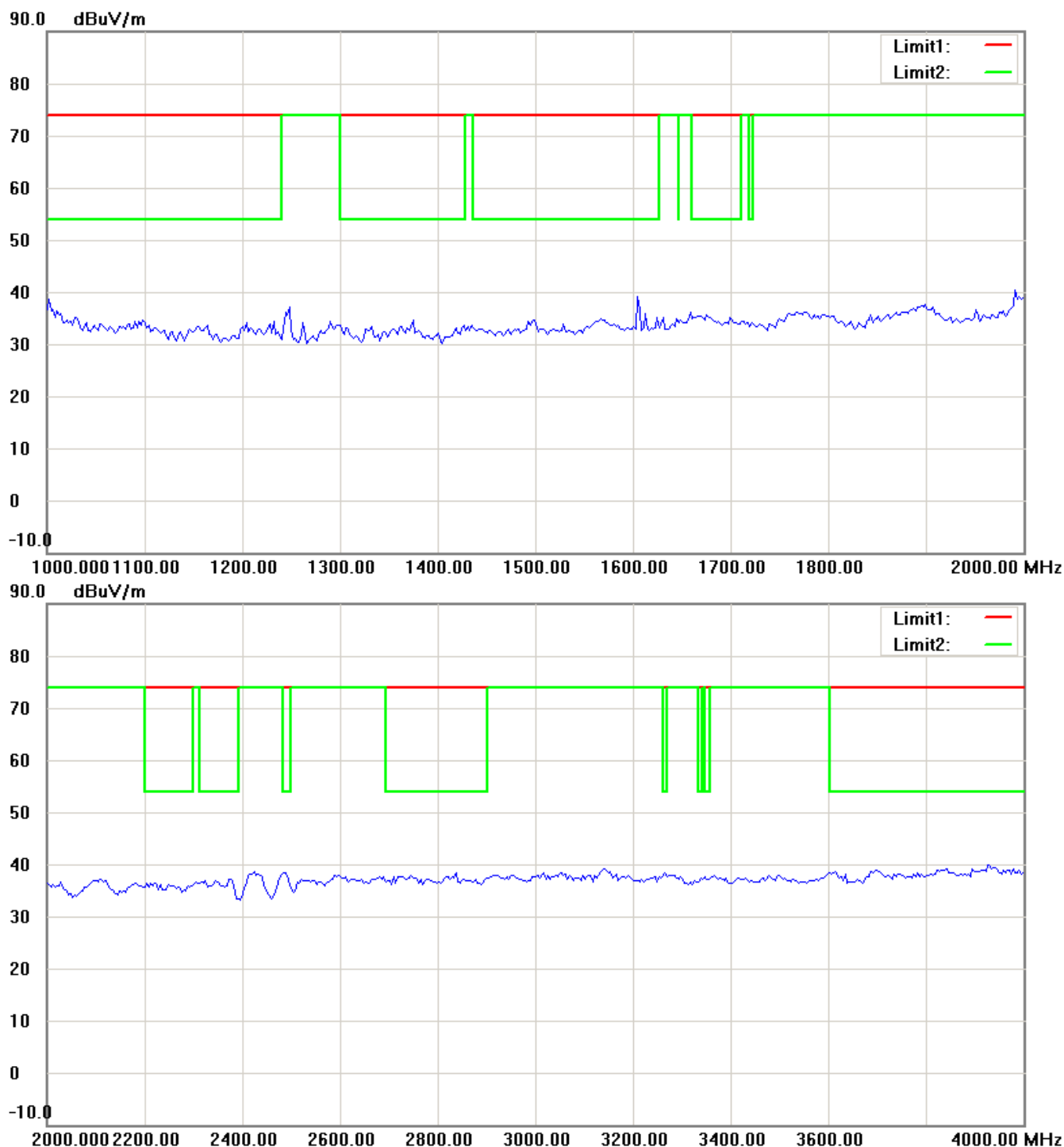
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



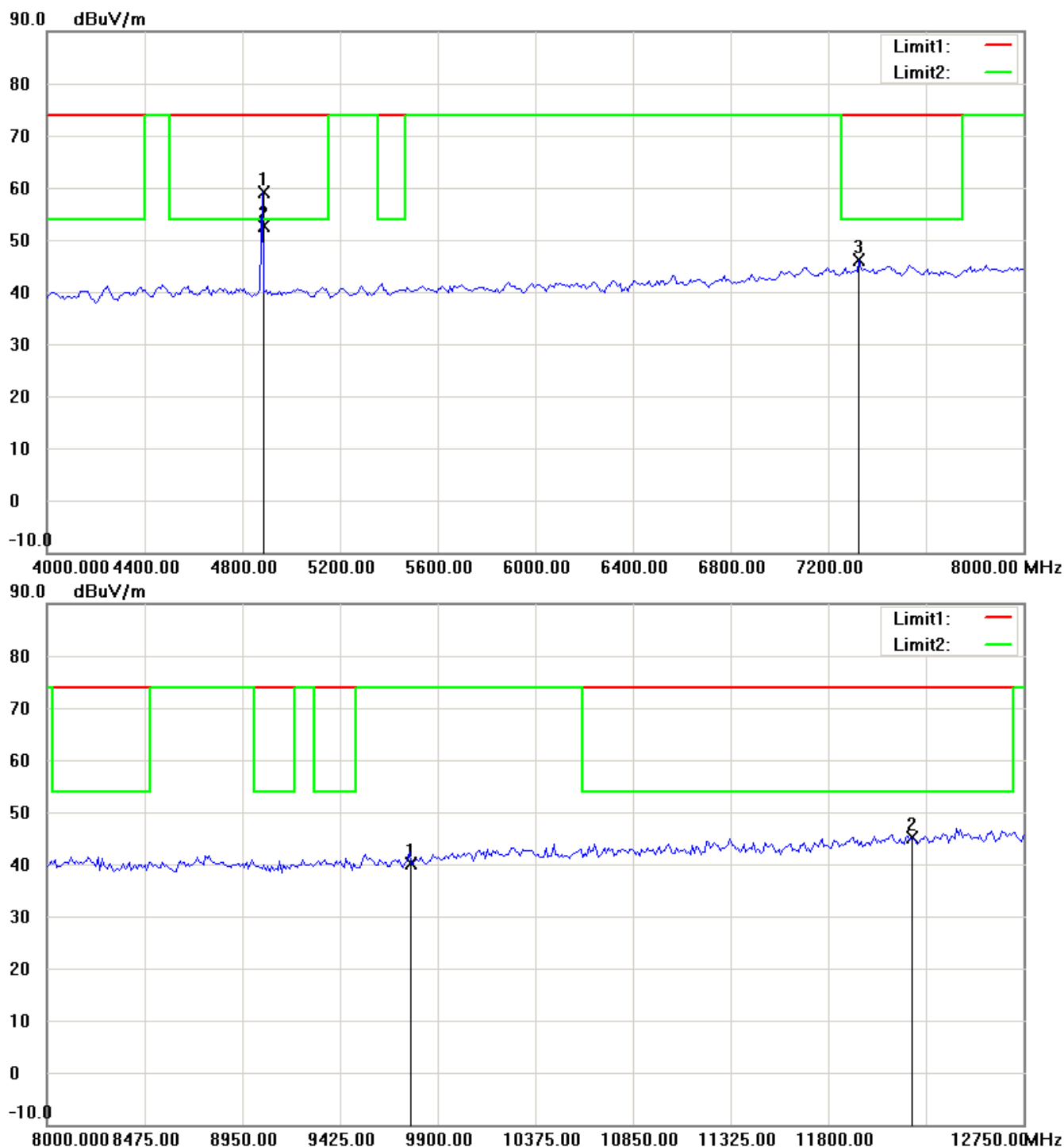
Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

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Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



Note:

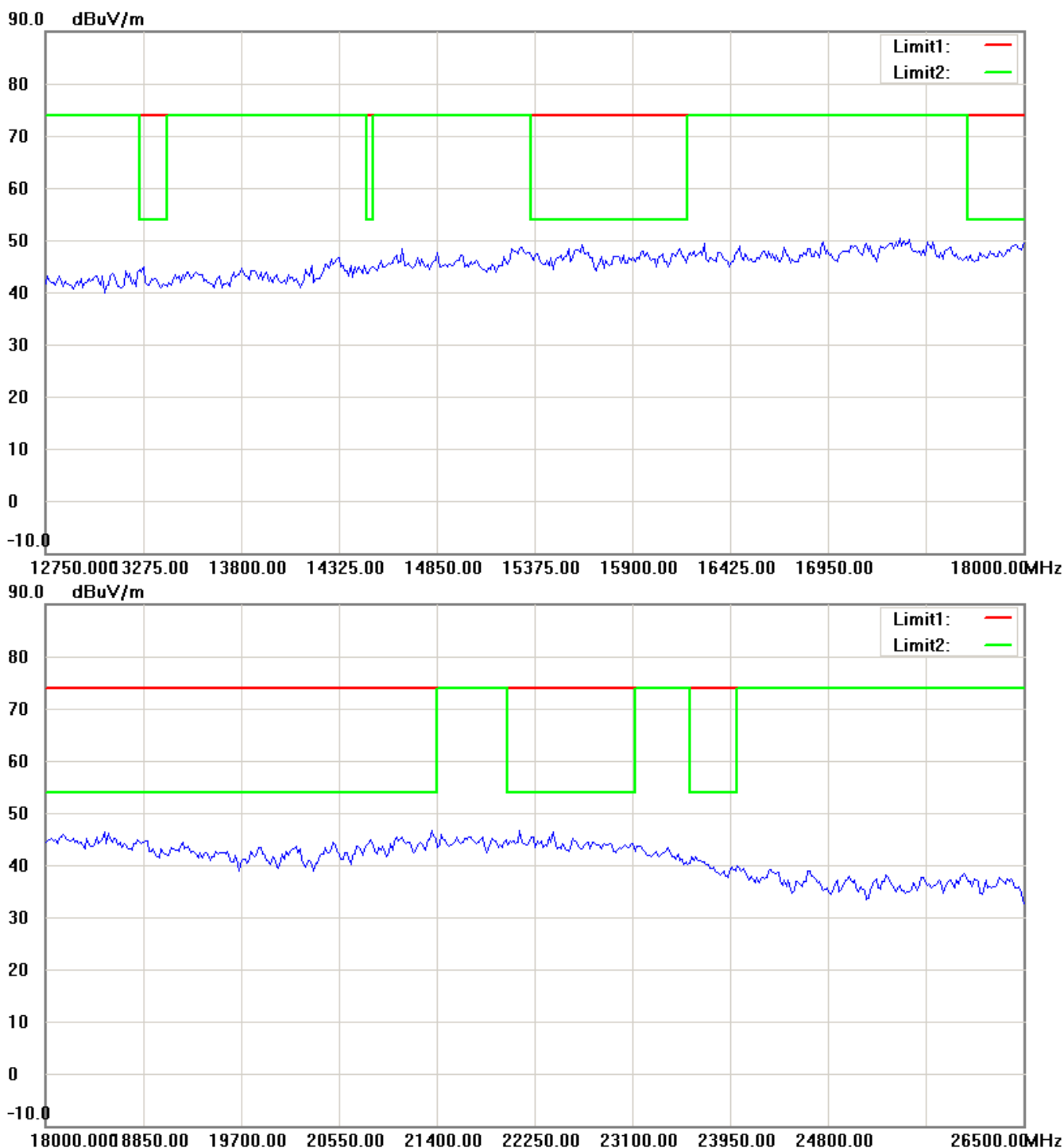
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



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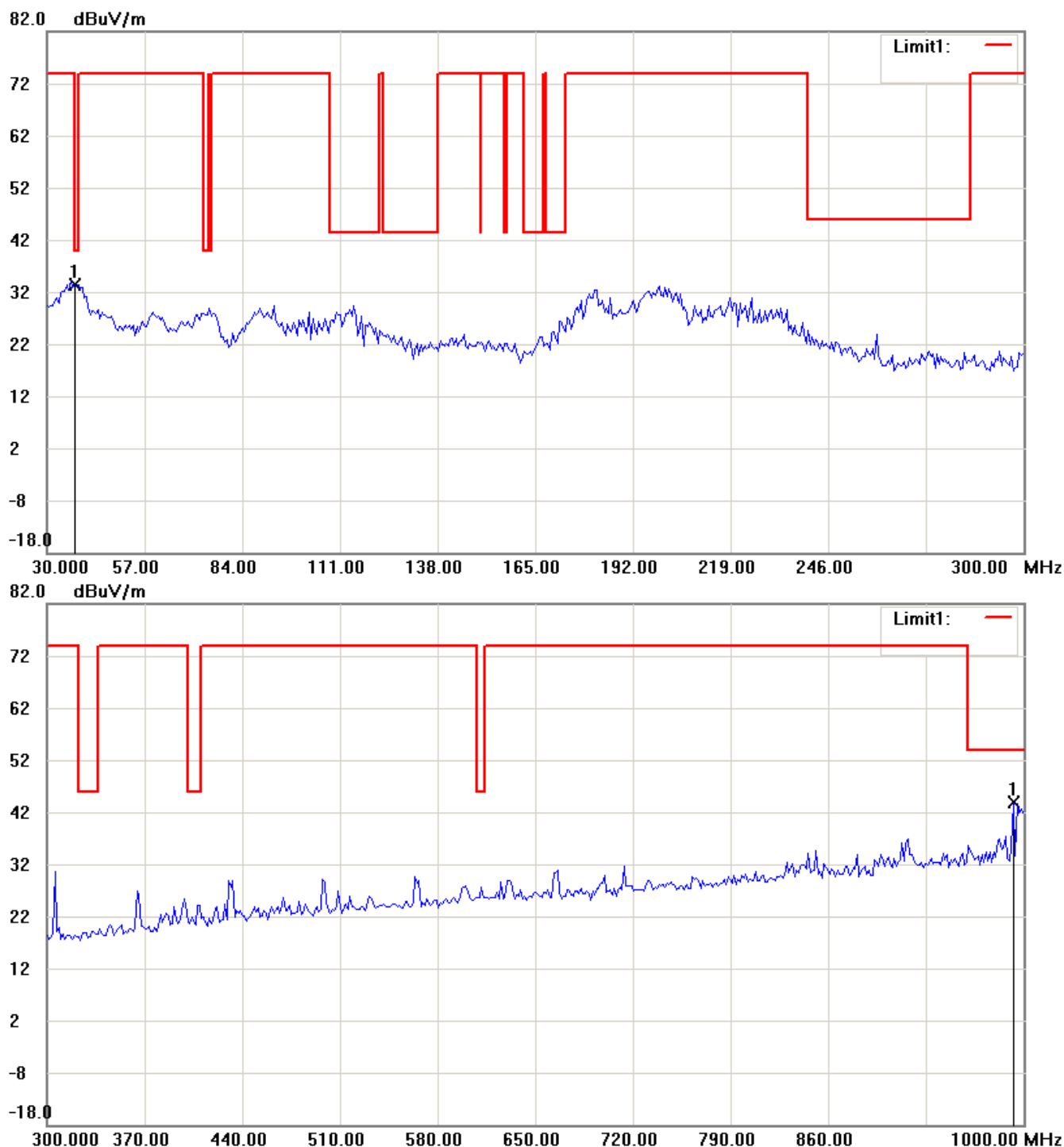
Up Line: Peak Limit Line, Down Line: Ave Limit Line

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Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

Antenna Polarization V



Note:

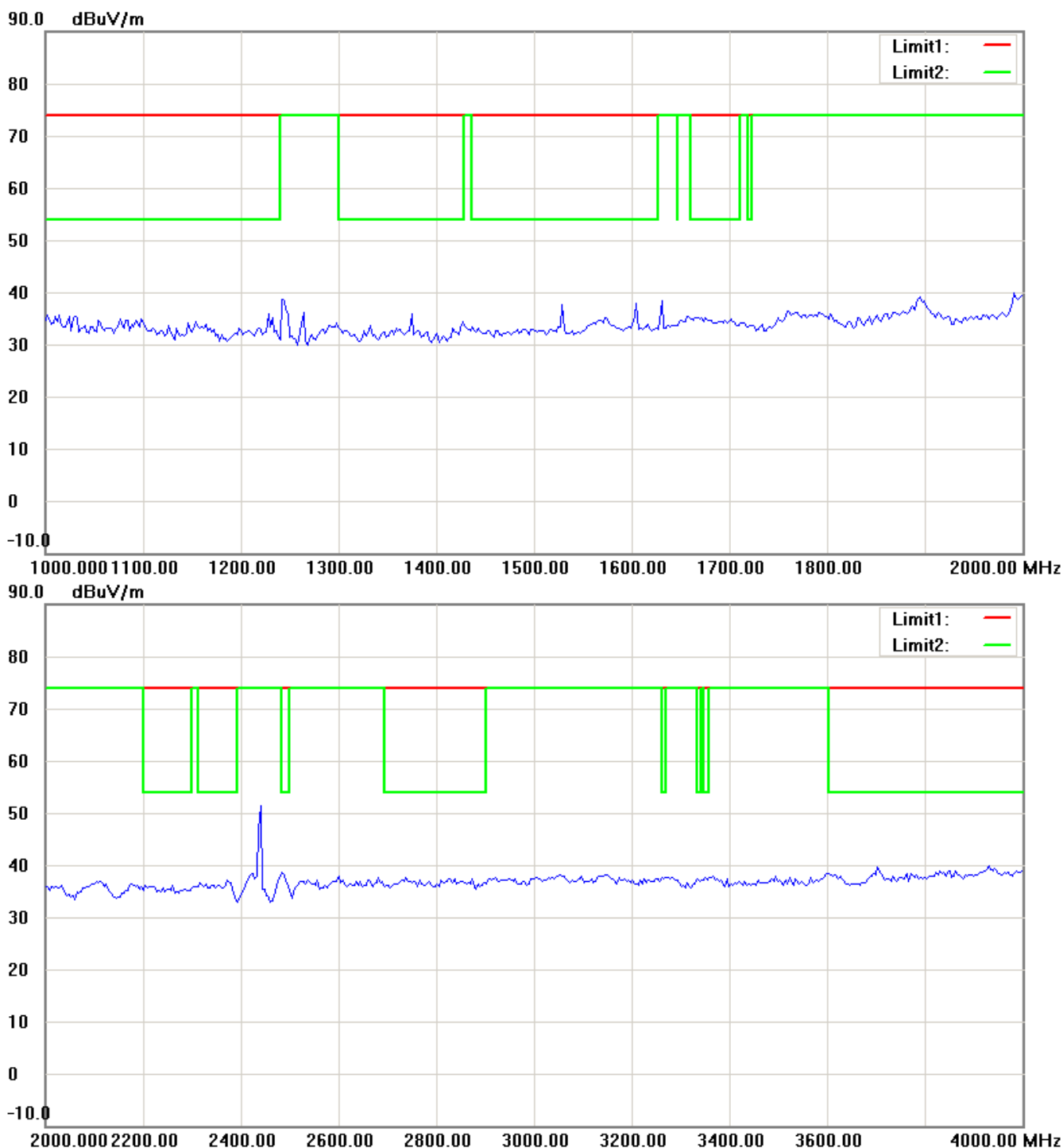
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



Note:

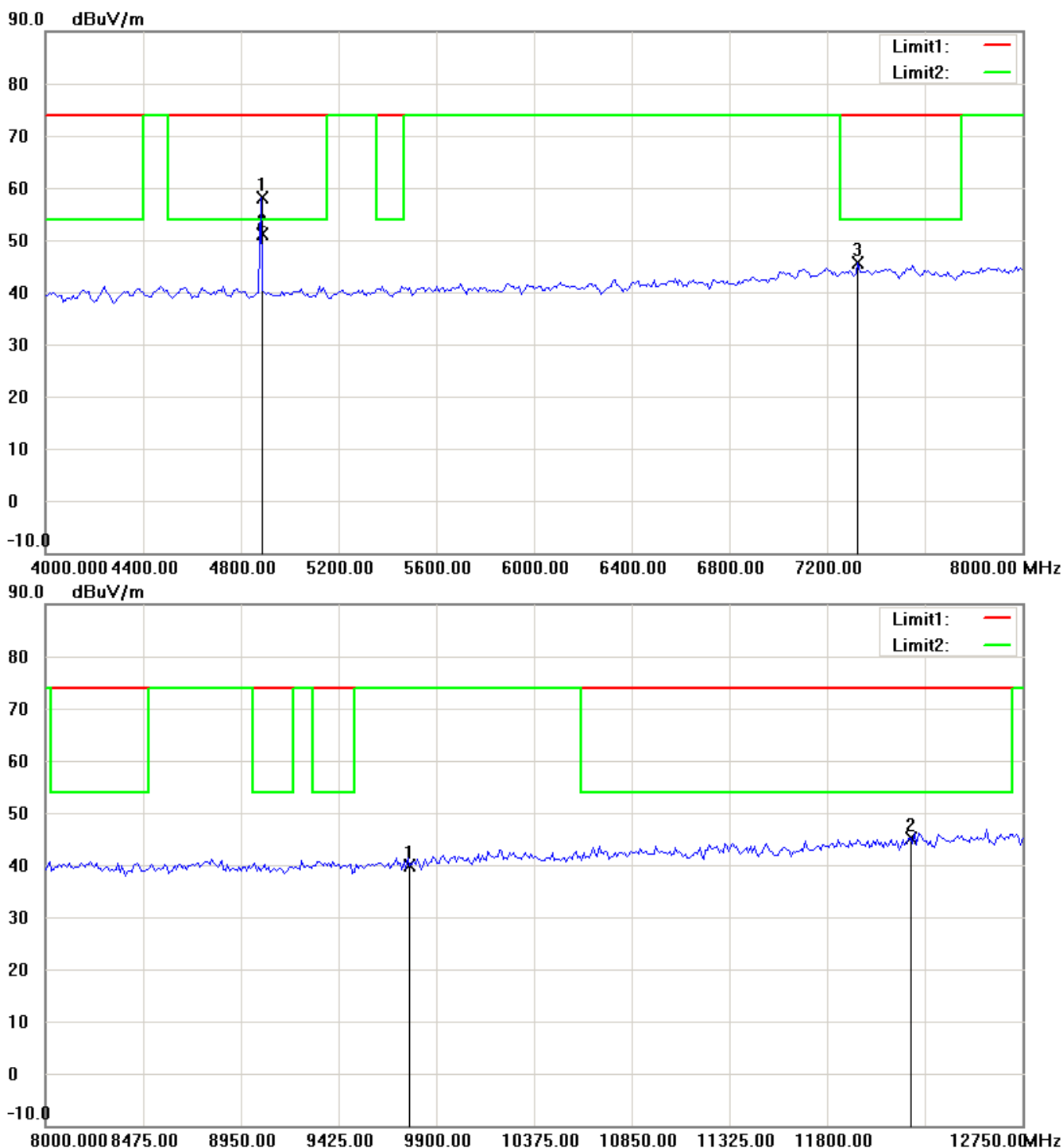
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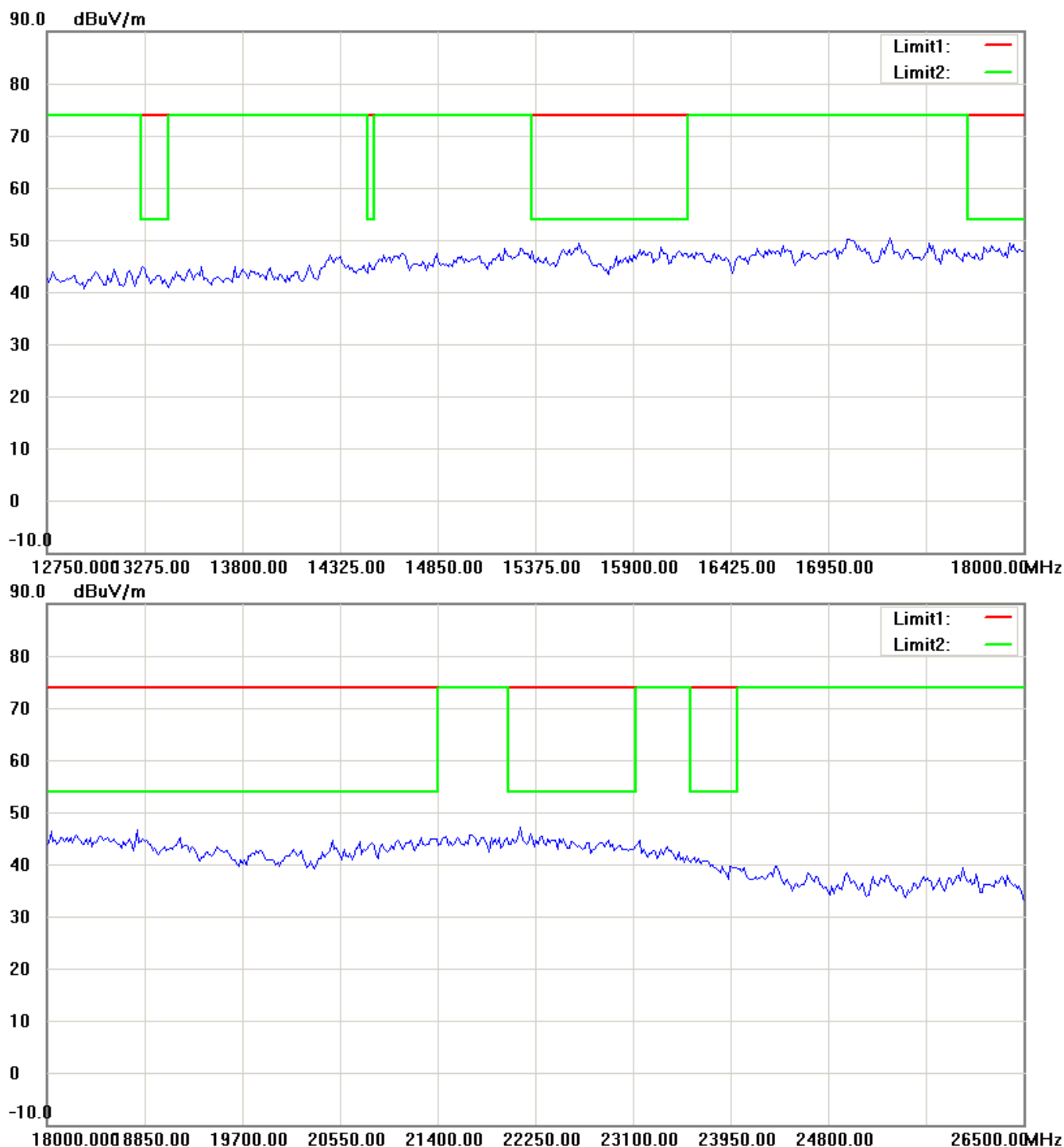
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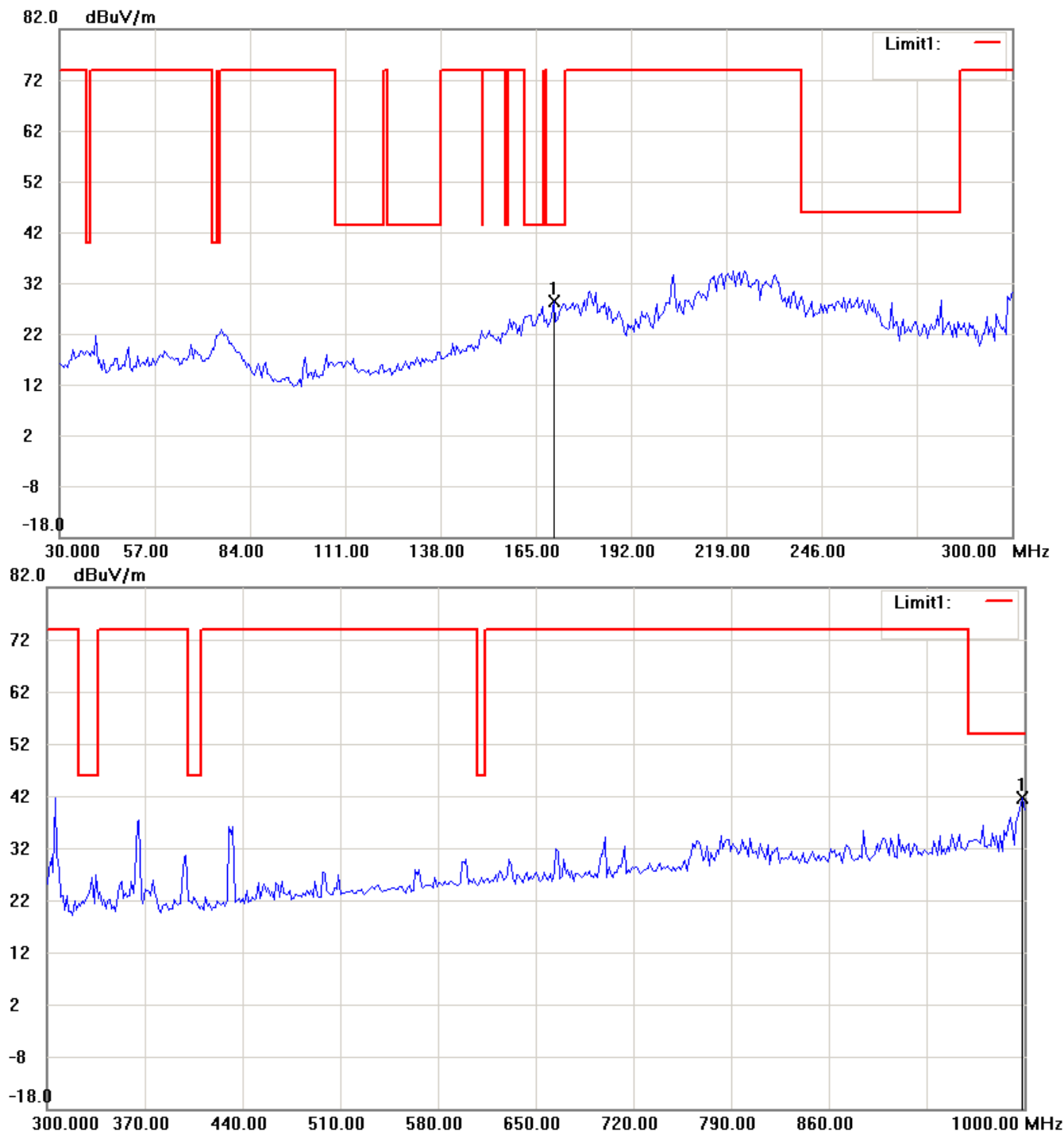


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

TX_2480MHz

Antenna Polarization H



Note:

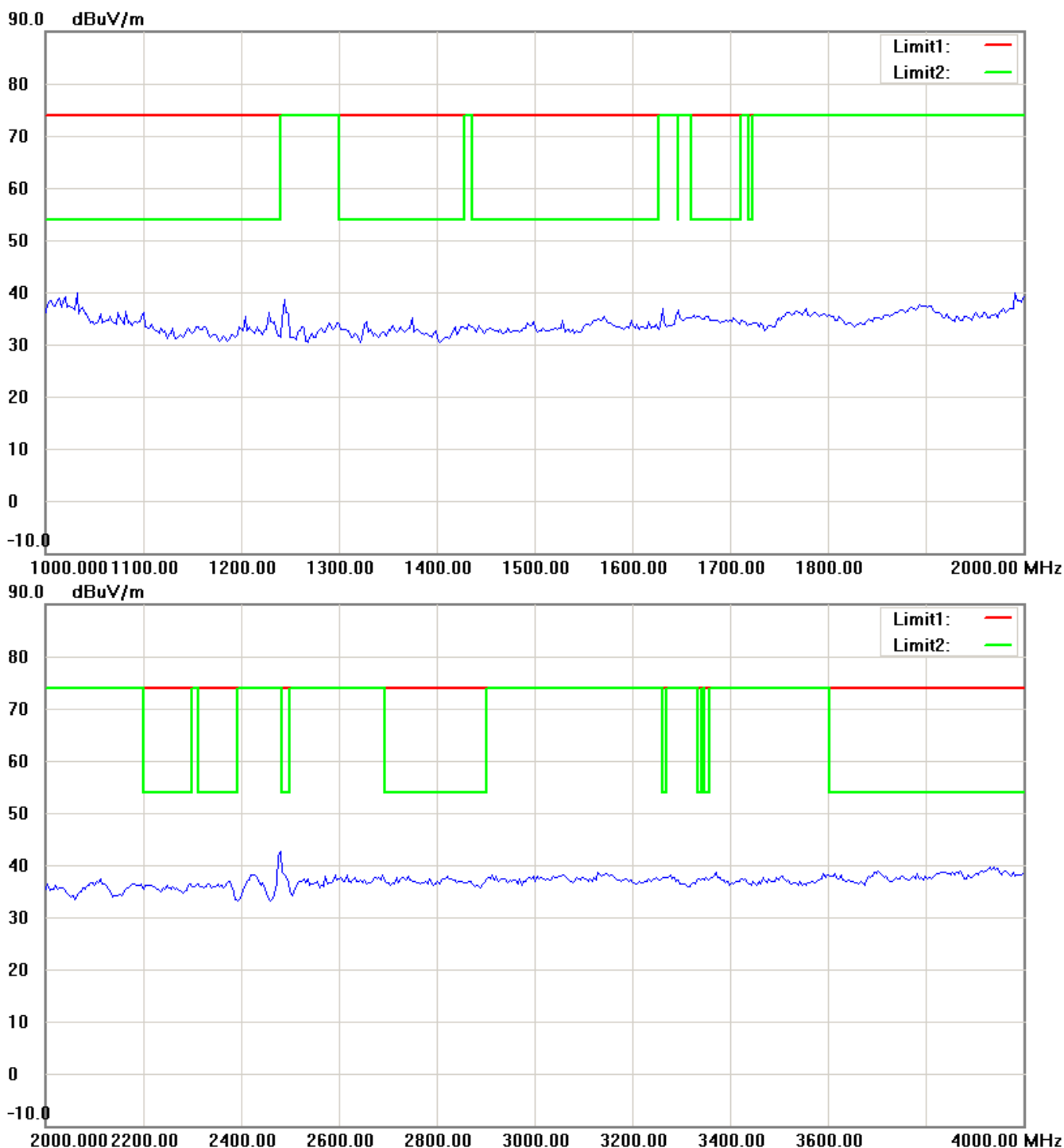
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Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



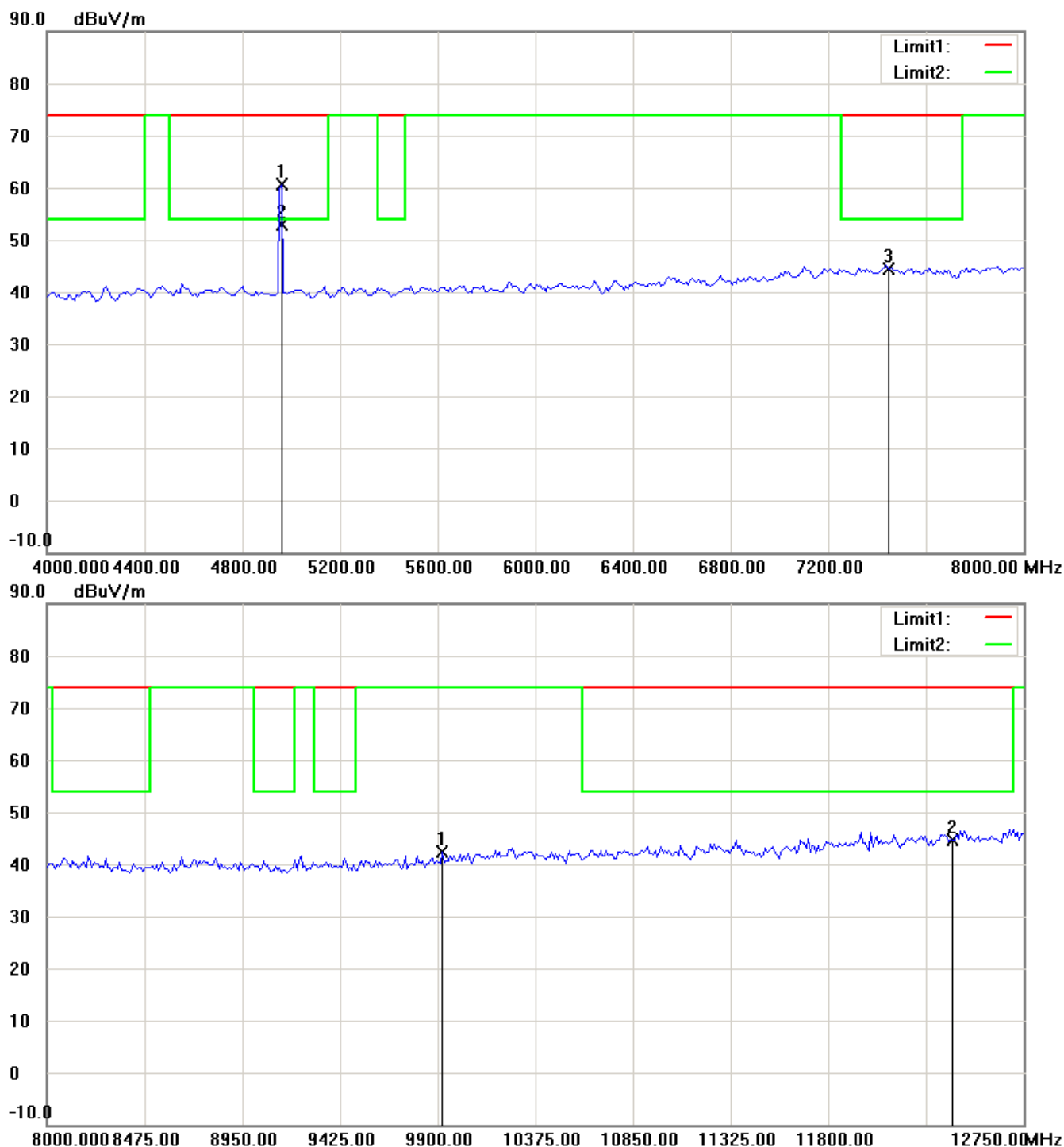
Note:

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FCC ID: TS8ILP0001B



Note:

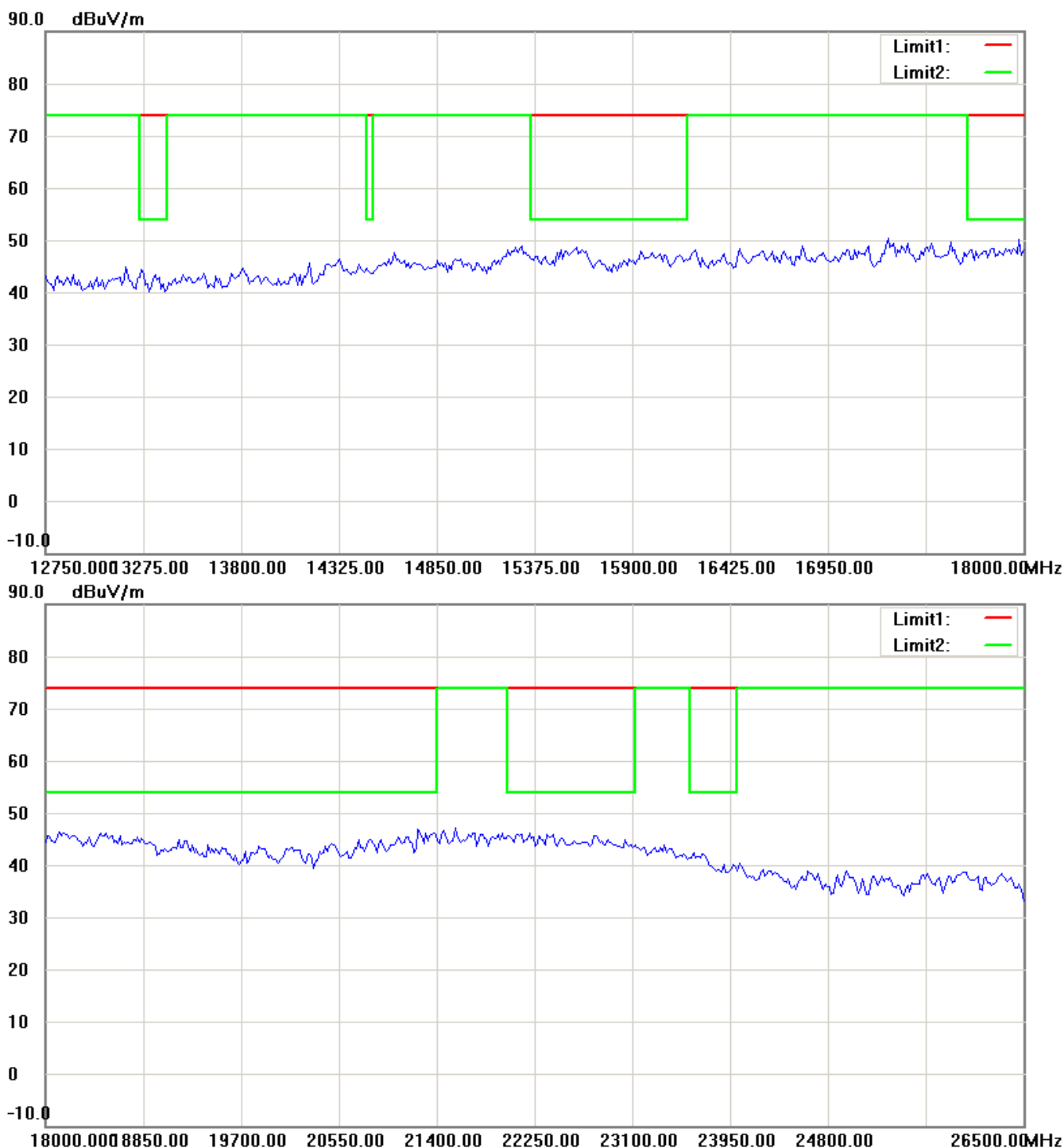
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



Note:

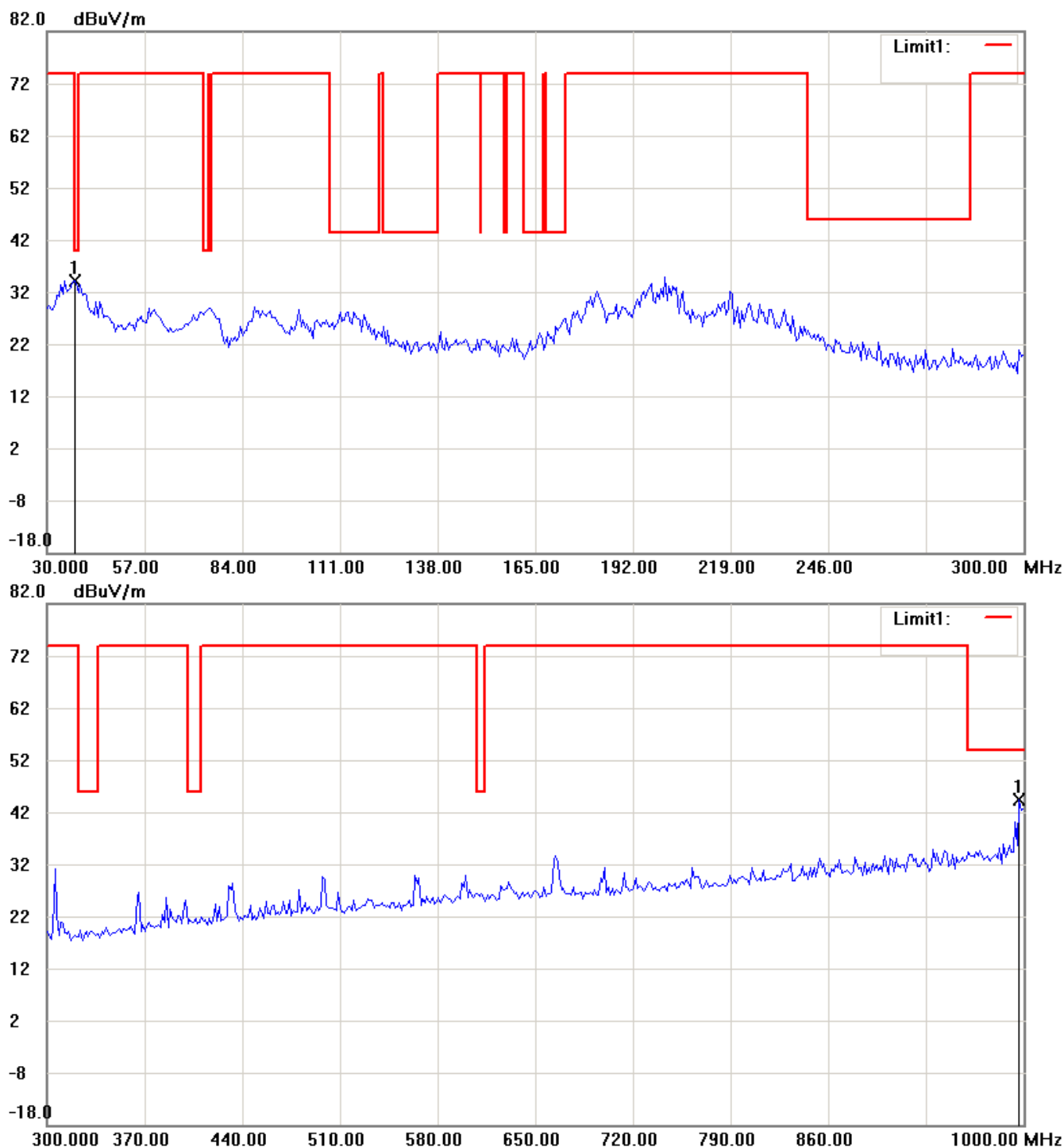
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Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

Antenna Polarization V



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

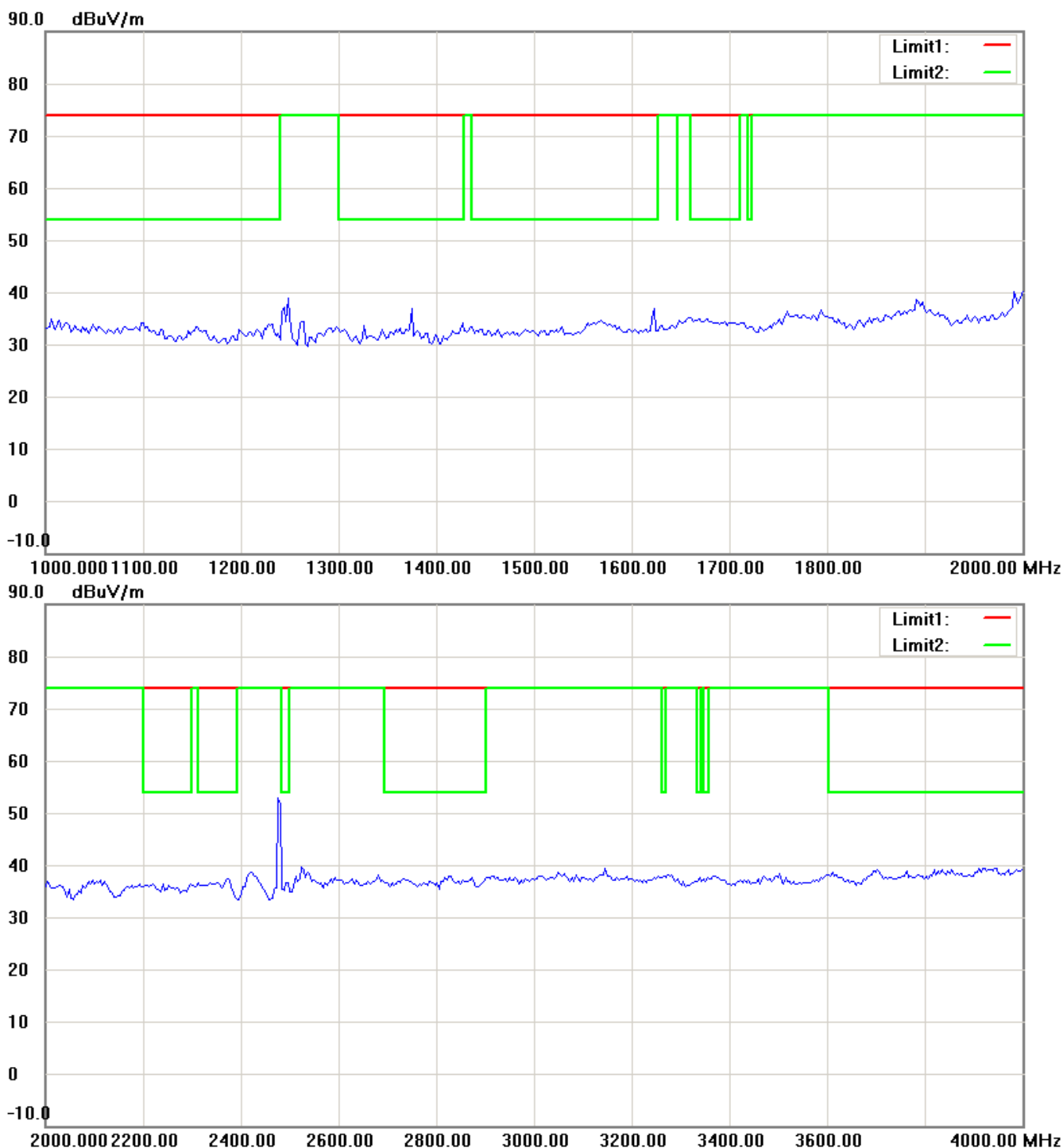
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Registration number: W6M21203-12273-C-1

FCC ID: TS8ILP0001B



Note:

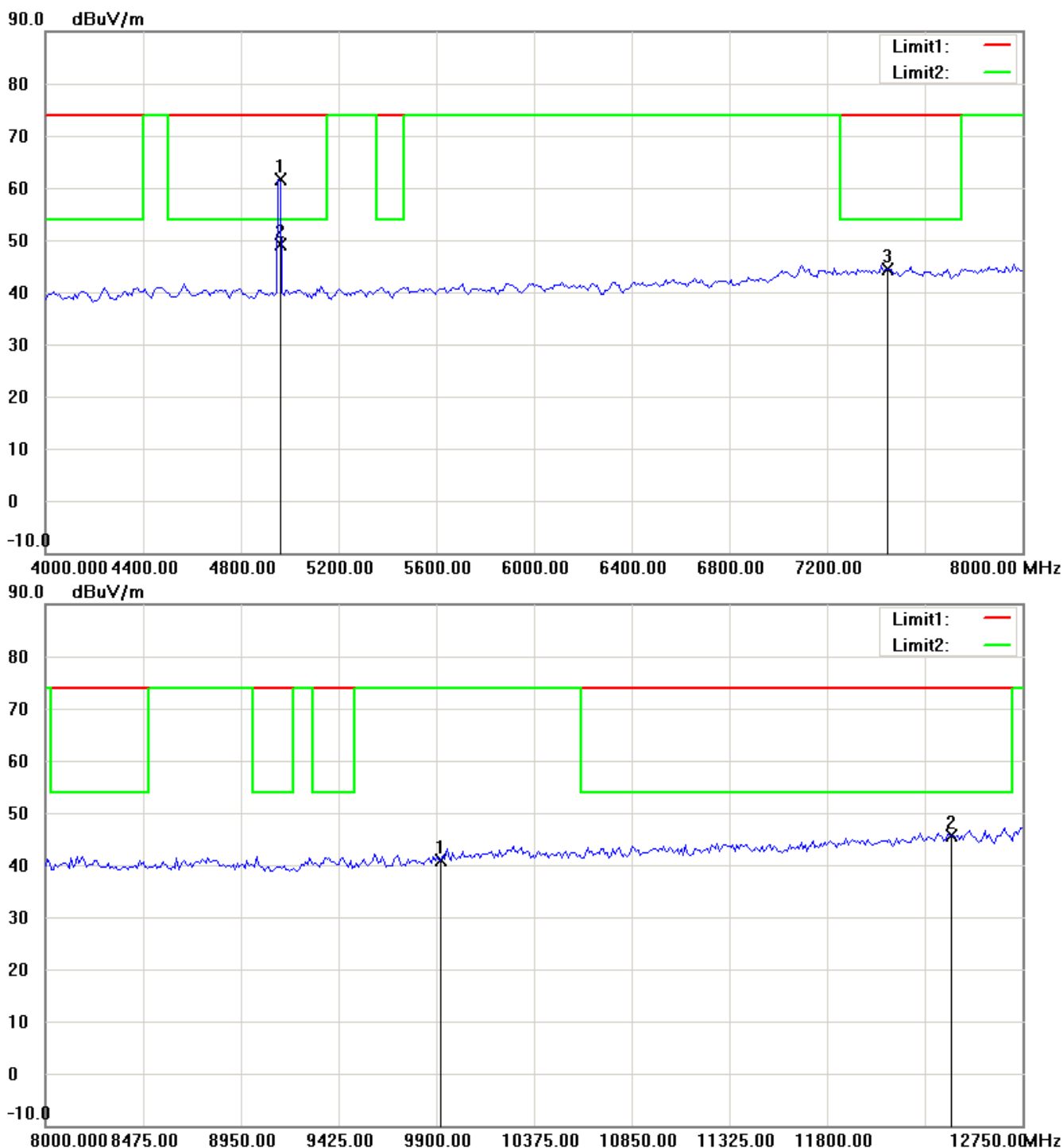
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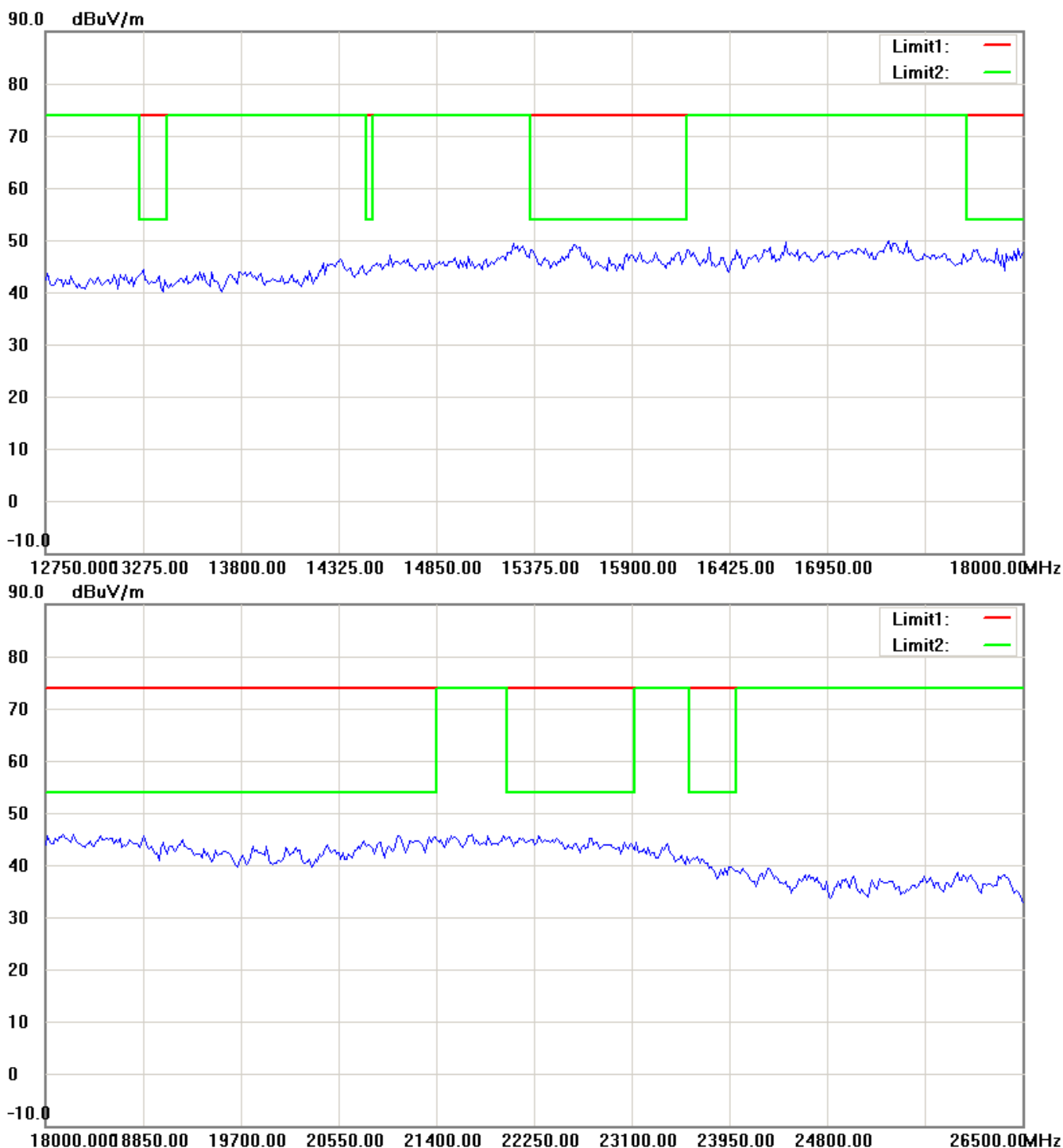
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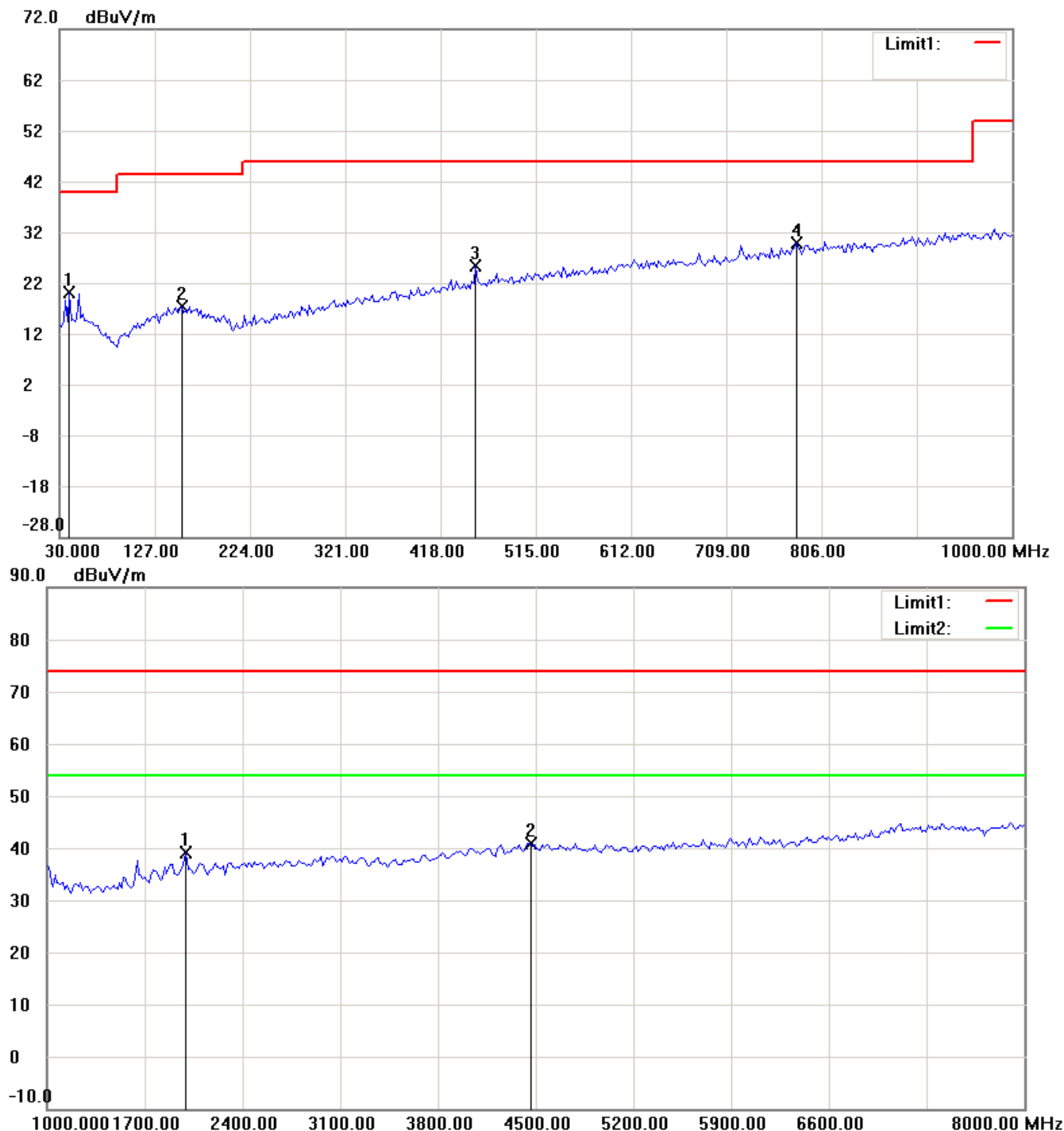


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

RX_2402MHz

Antenna Polarization H



Note:

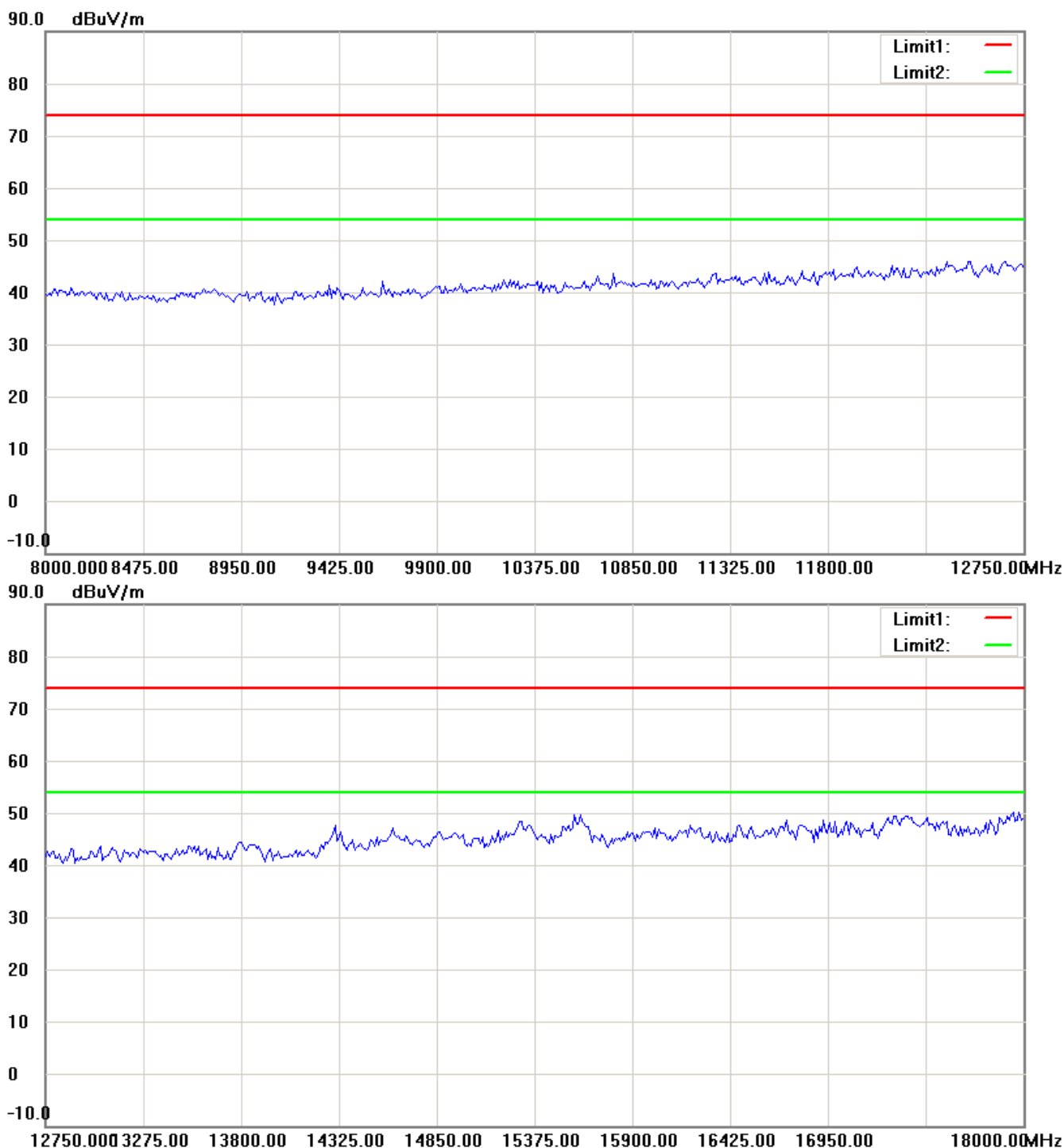
Up Line: Peak Limit Line, Down Line: Ave Limit Line

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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



Note:

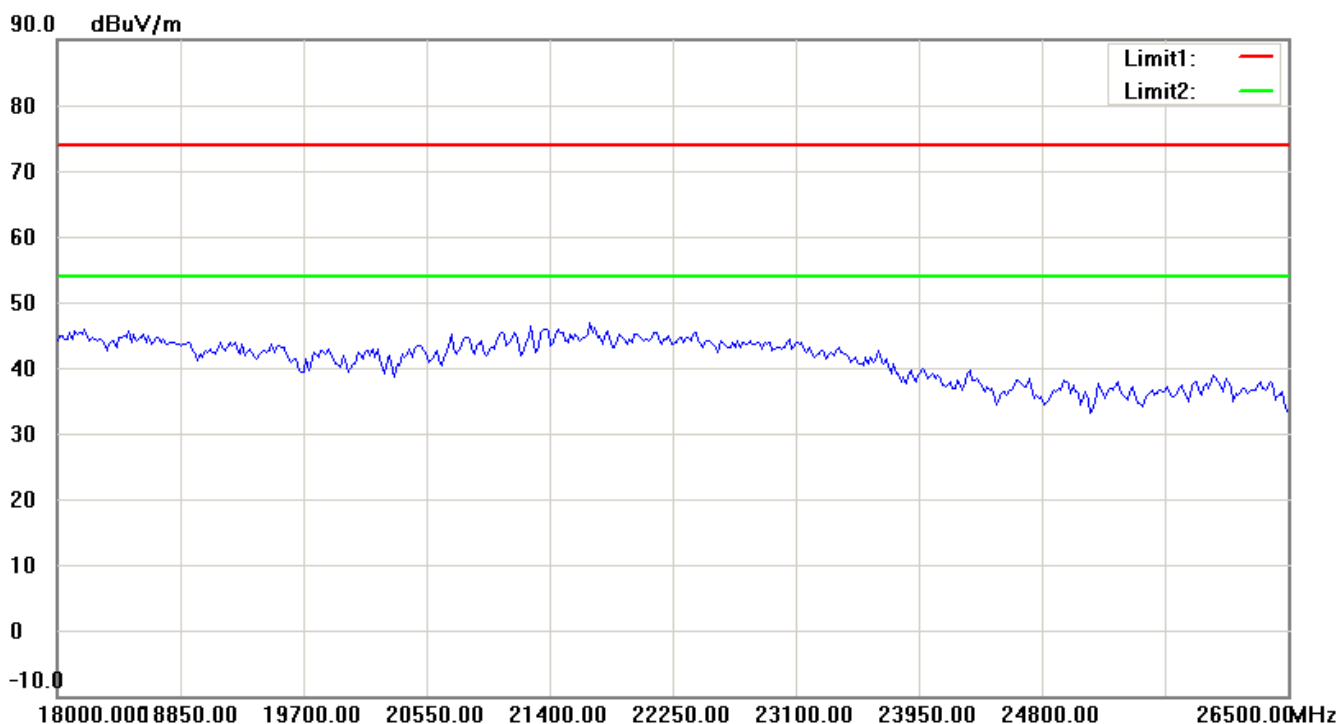
Up Line: Peak Limit Line, Down Line: Ave Limit Line

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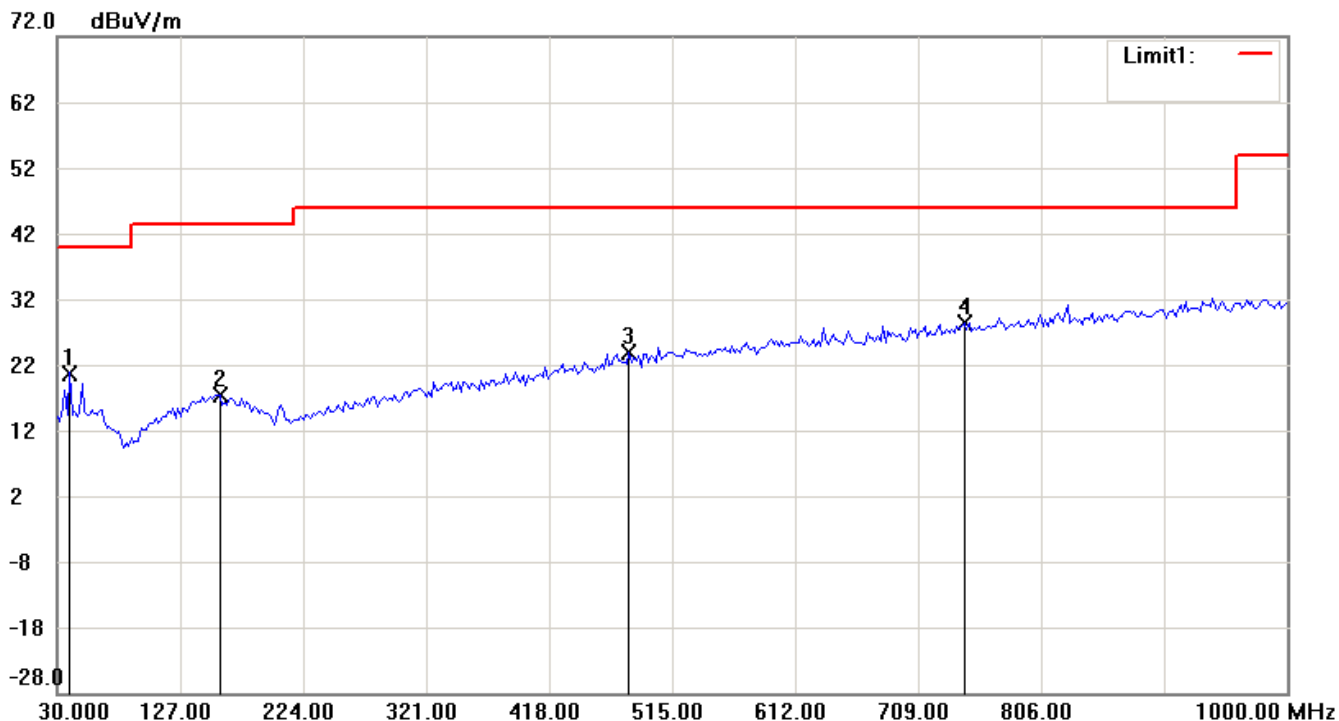


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



Antenna Polarization V



Note:

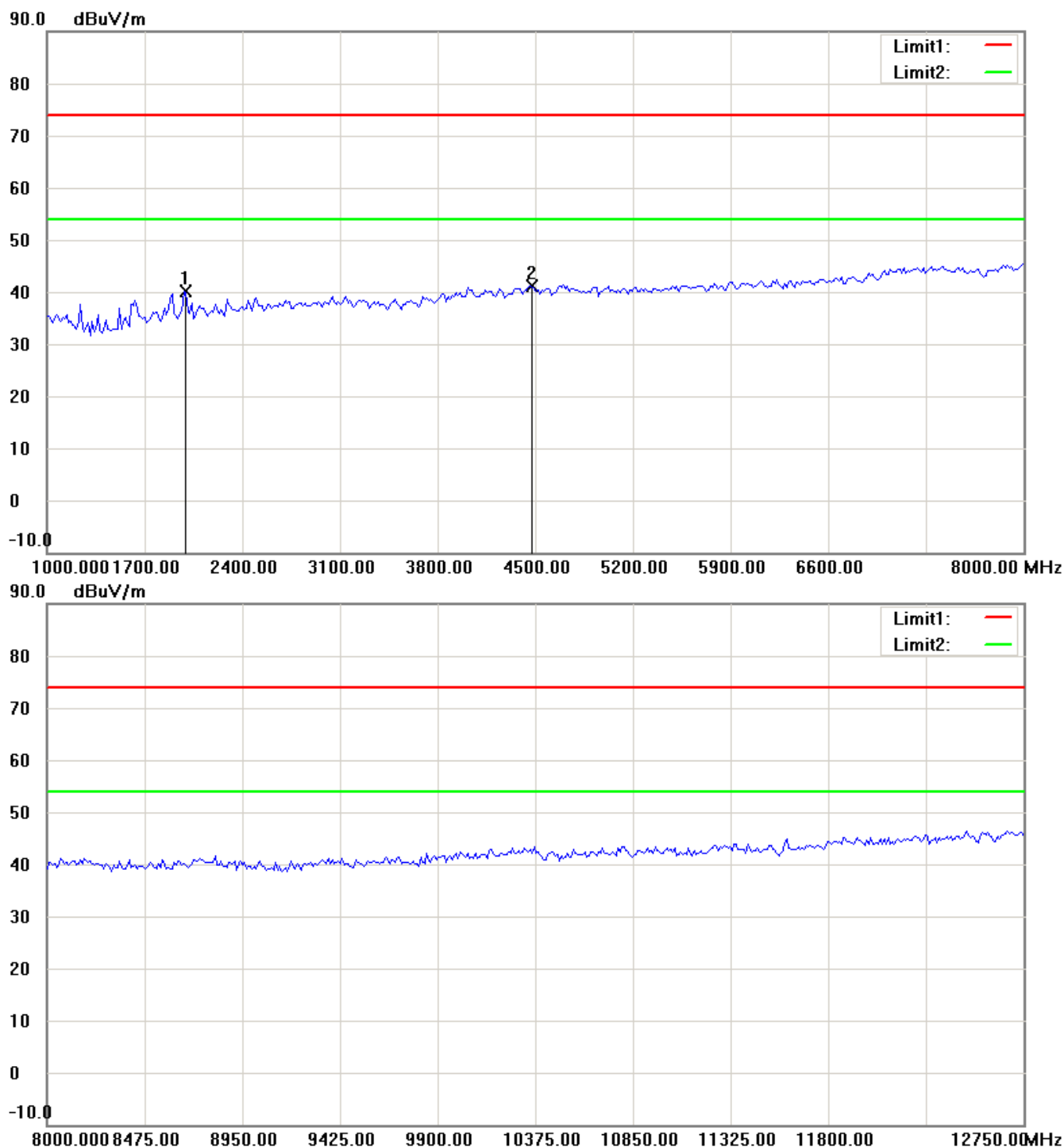
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Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



Note:

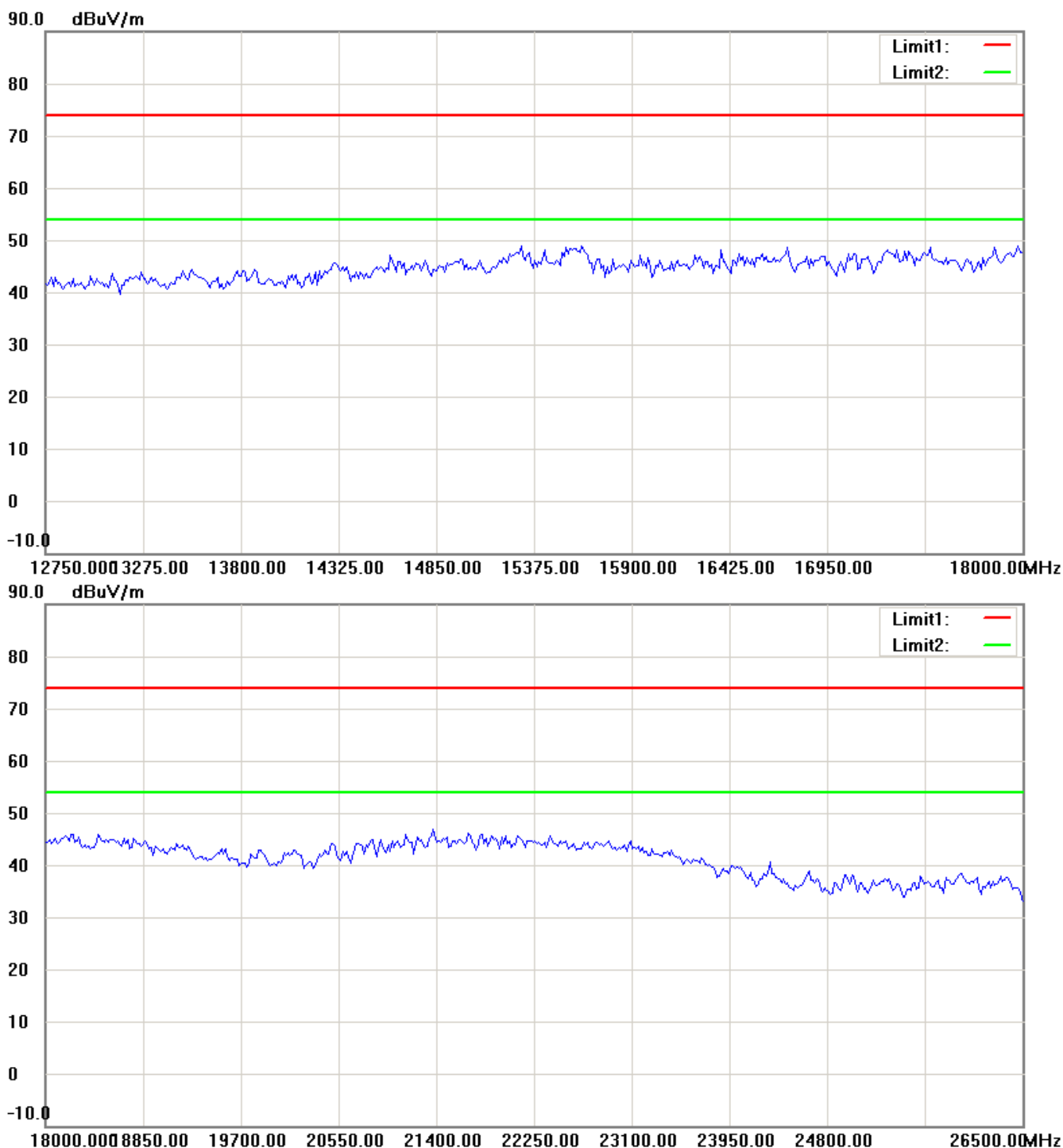
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FCC ID: TS8ILP0001B



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

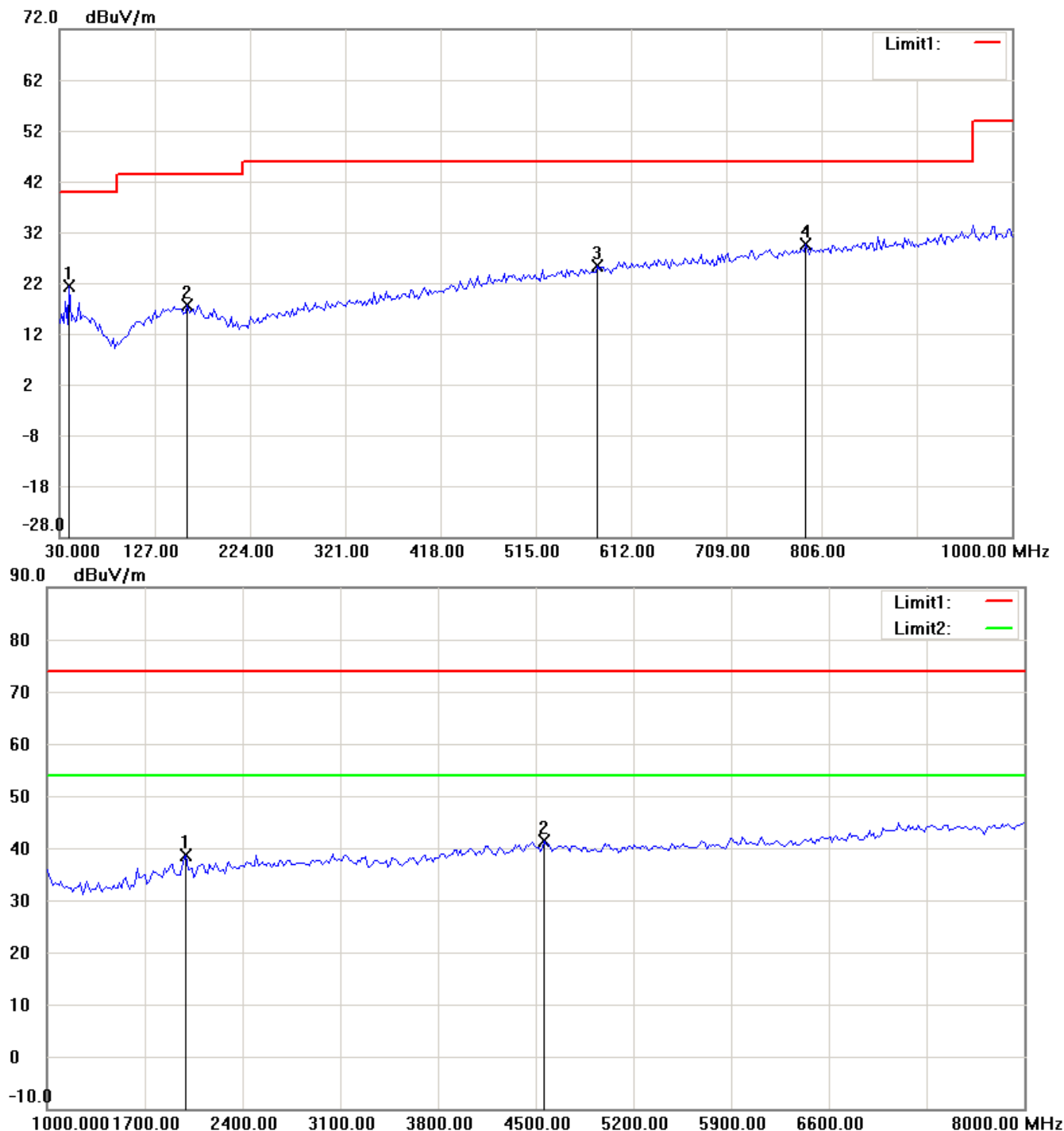
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Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

RX_2441MHz

Antenna Polarization H



Note:

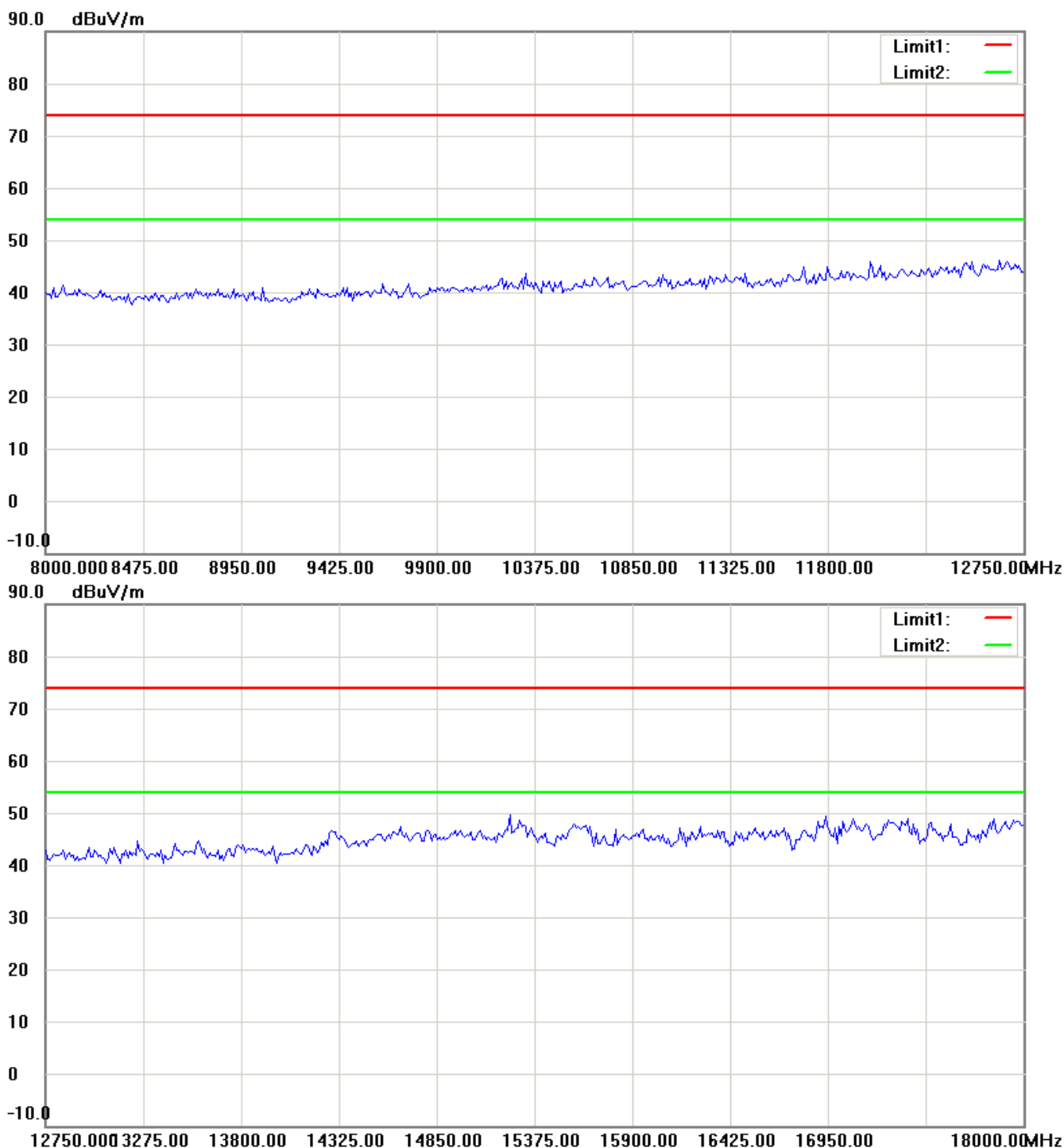
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B



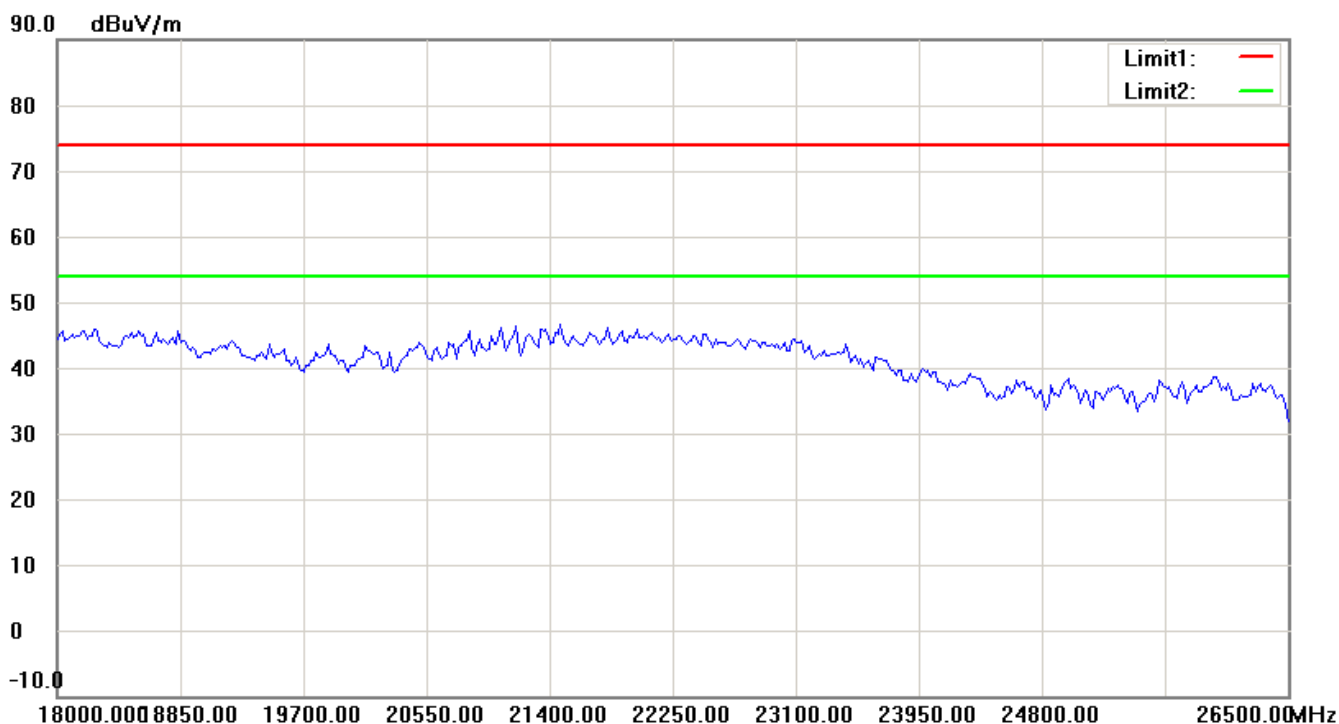
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Up Line: Peak Limit Line, Down Line: Ave Limit Line

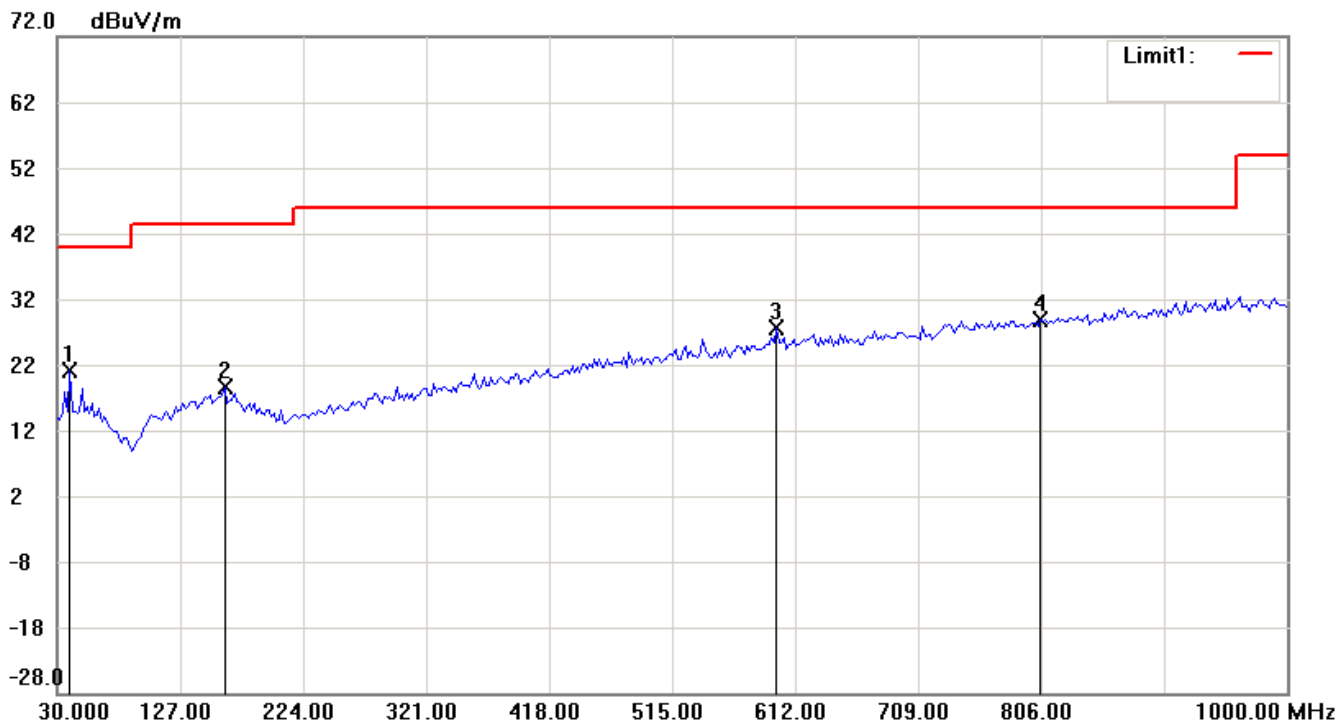
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FCC ID: TS8ILP0001B



Antenna Polarization V



Note:

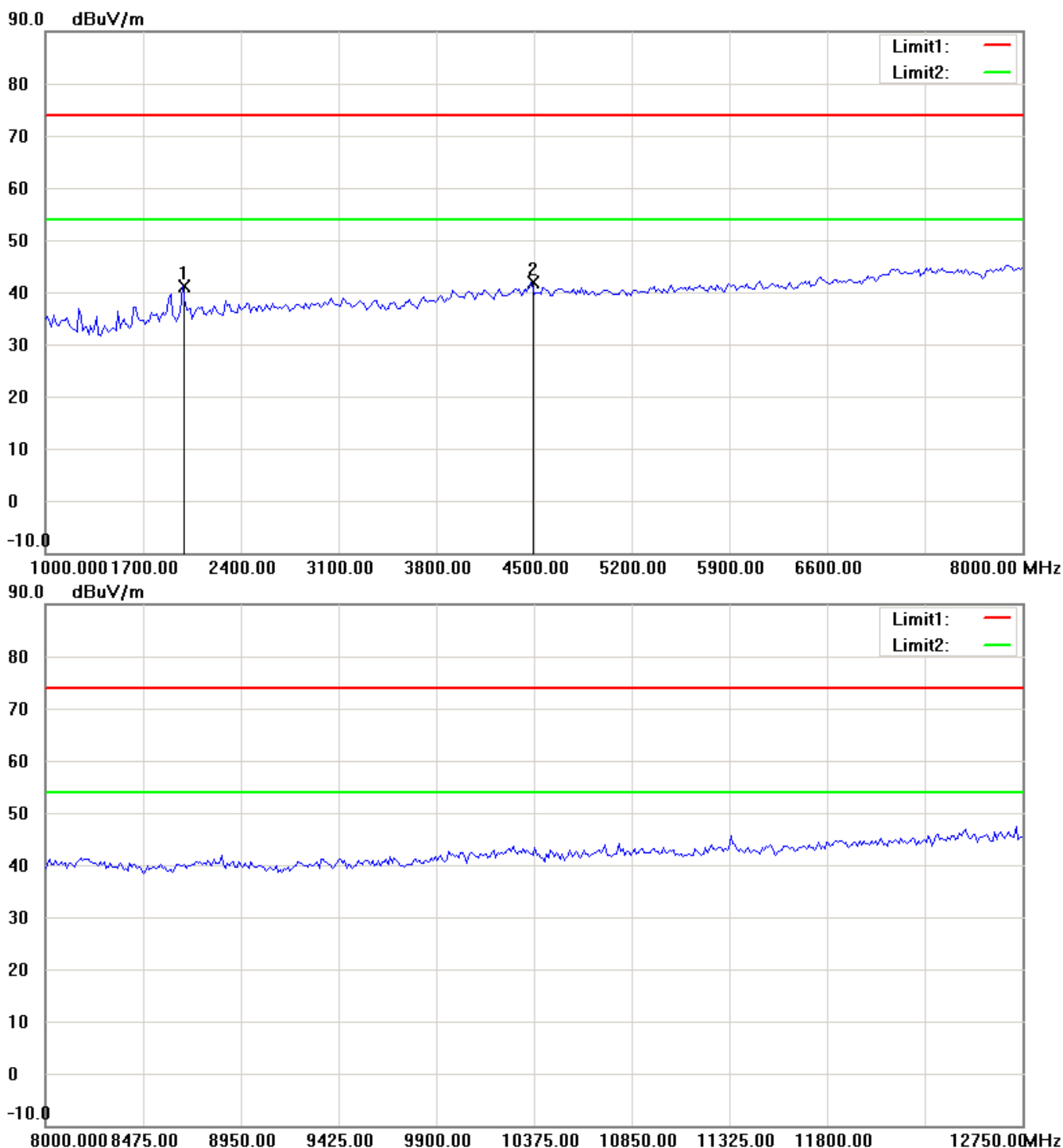
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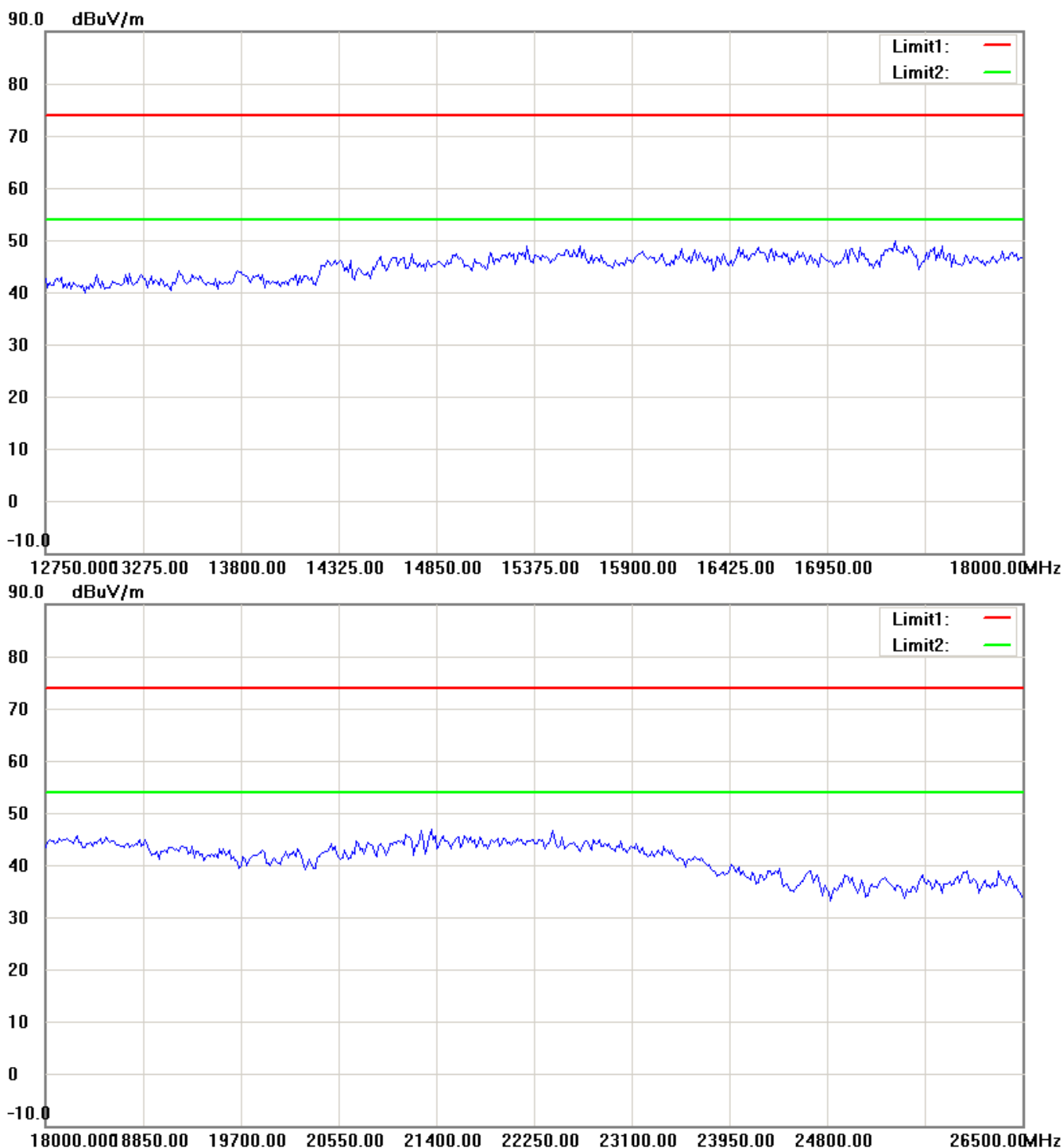
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Registration number: W6M21203-12273-C-1
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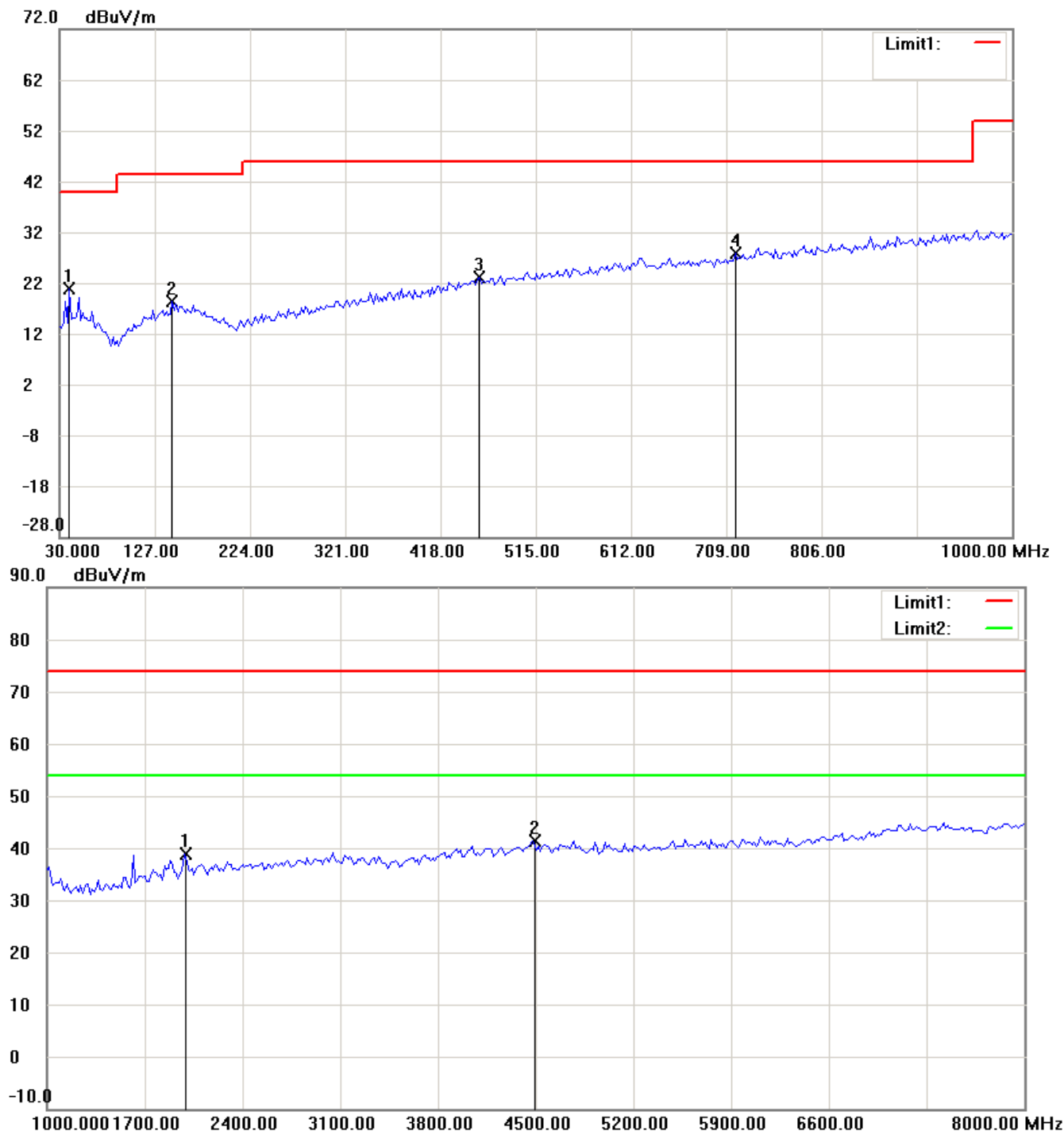


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

RX_2480MHz

Antenna Polarization H



Note:

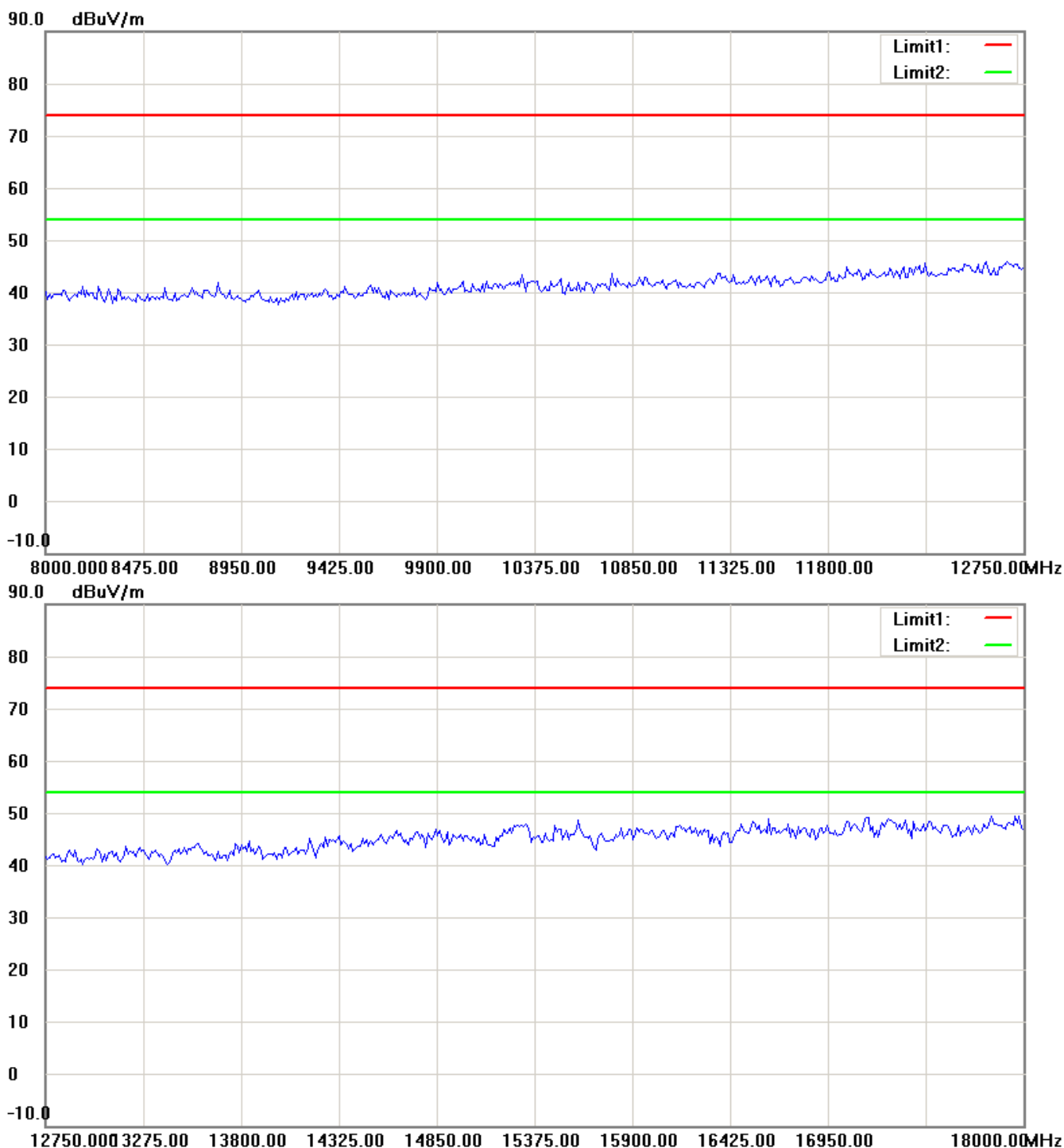
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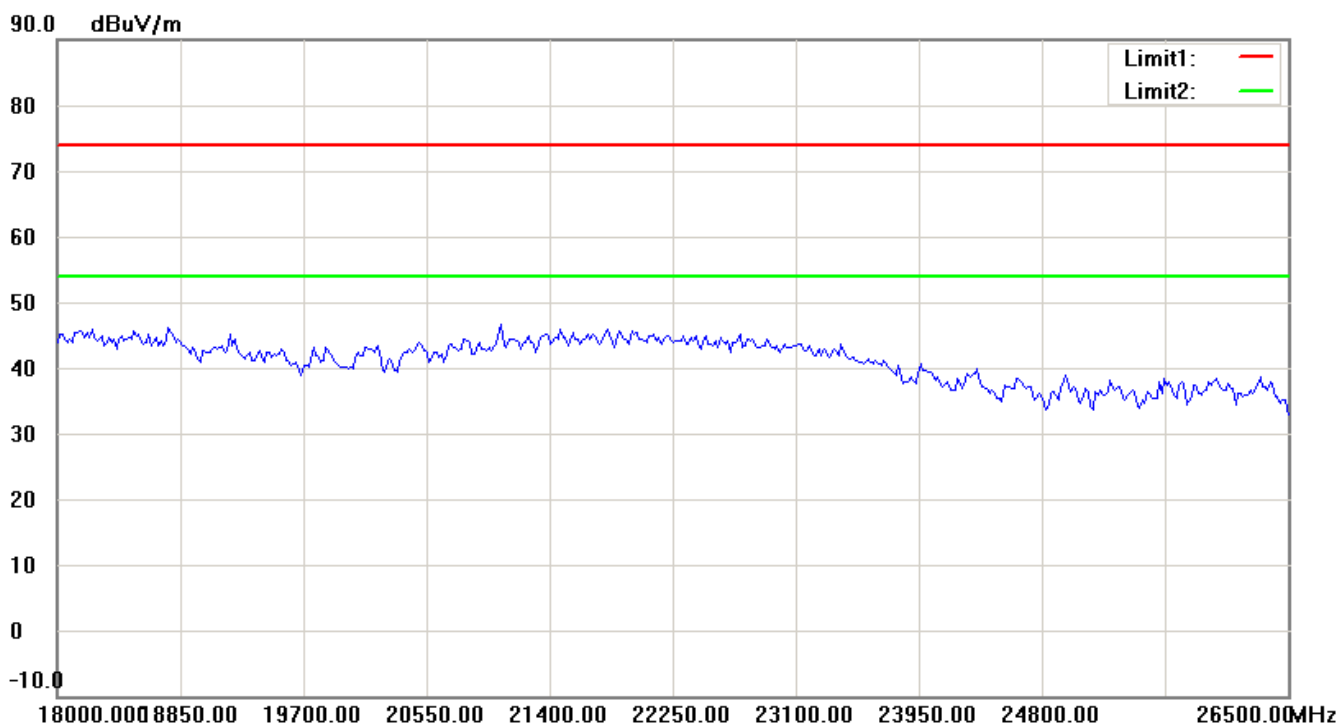
Note:

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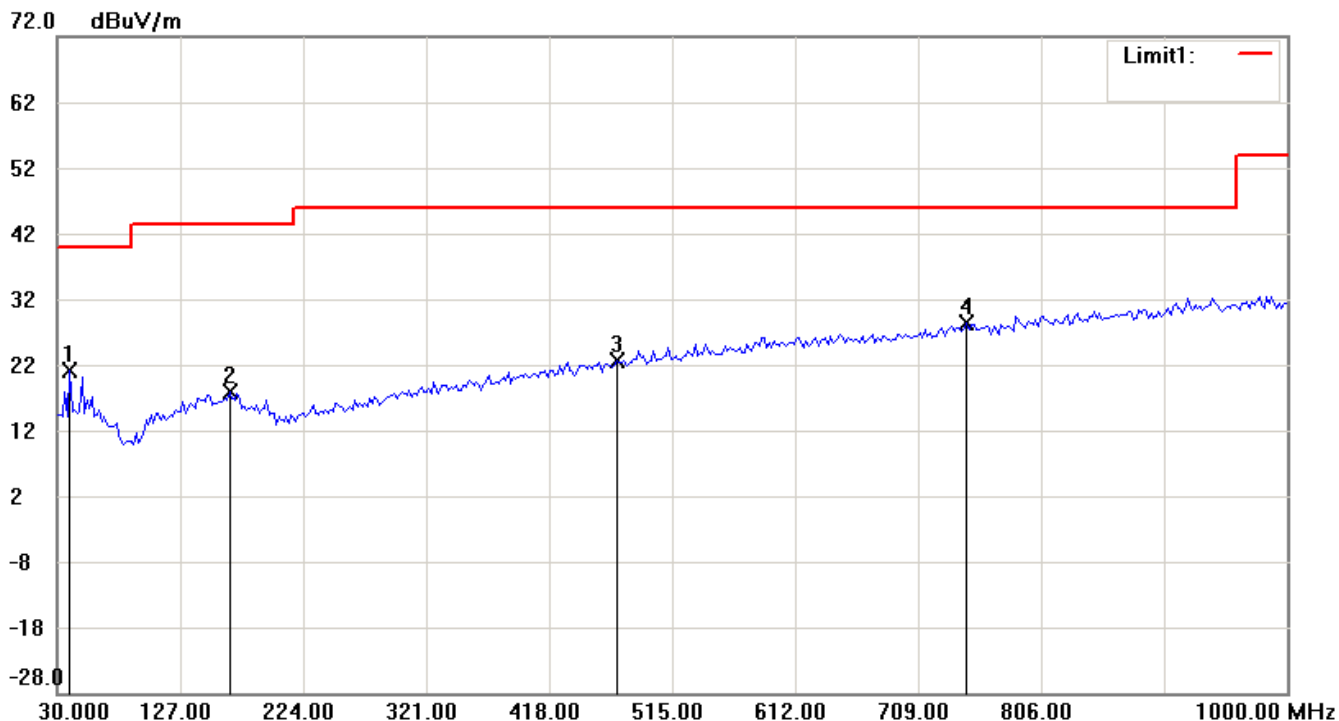
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FCC ID: TS8ILP0001B



Antenna Polarization V



Note:

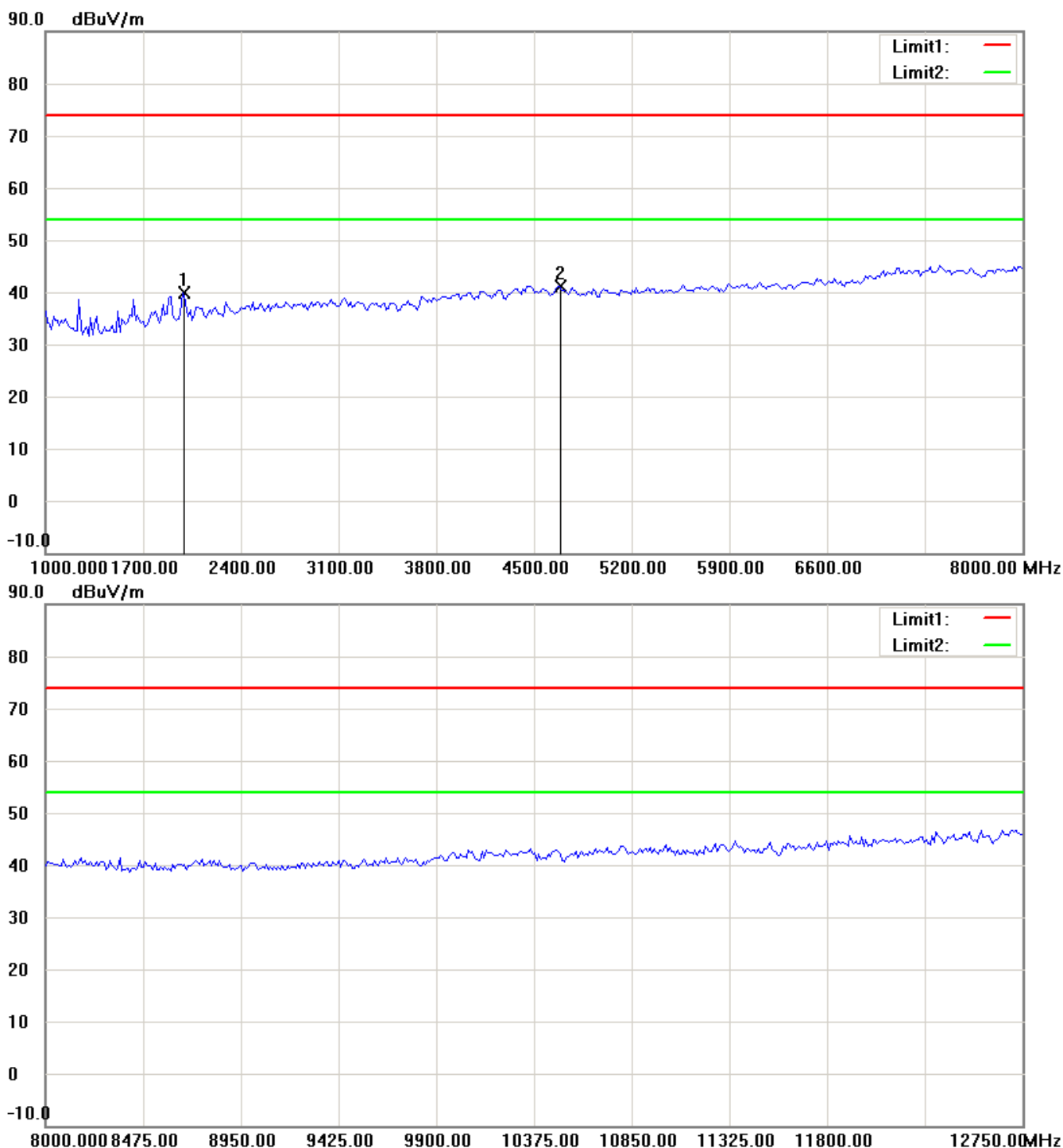
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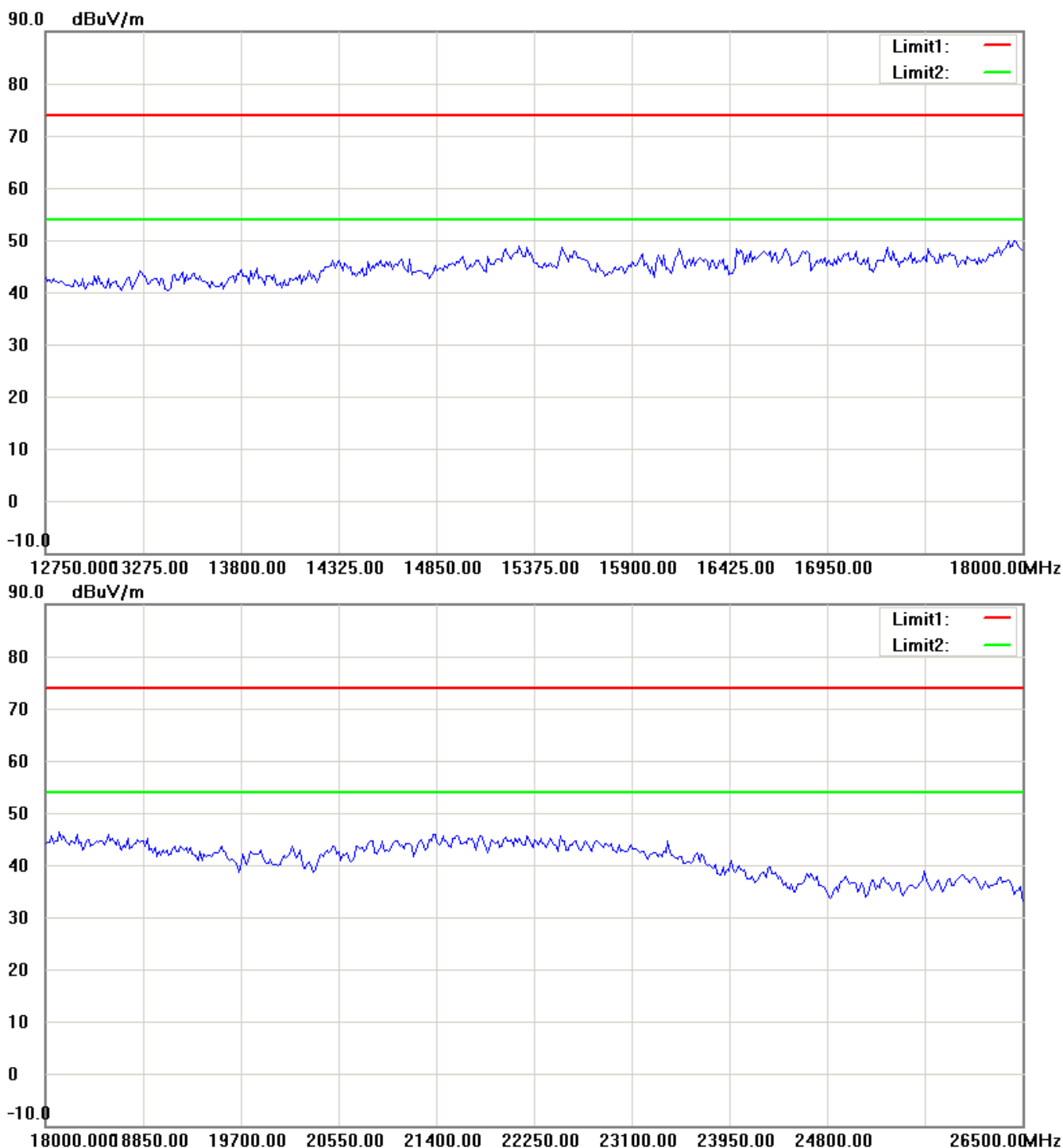
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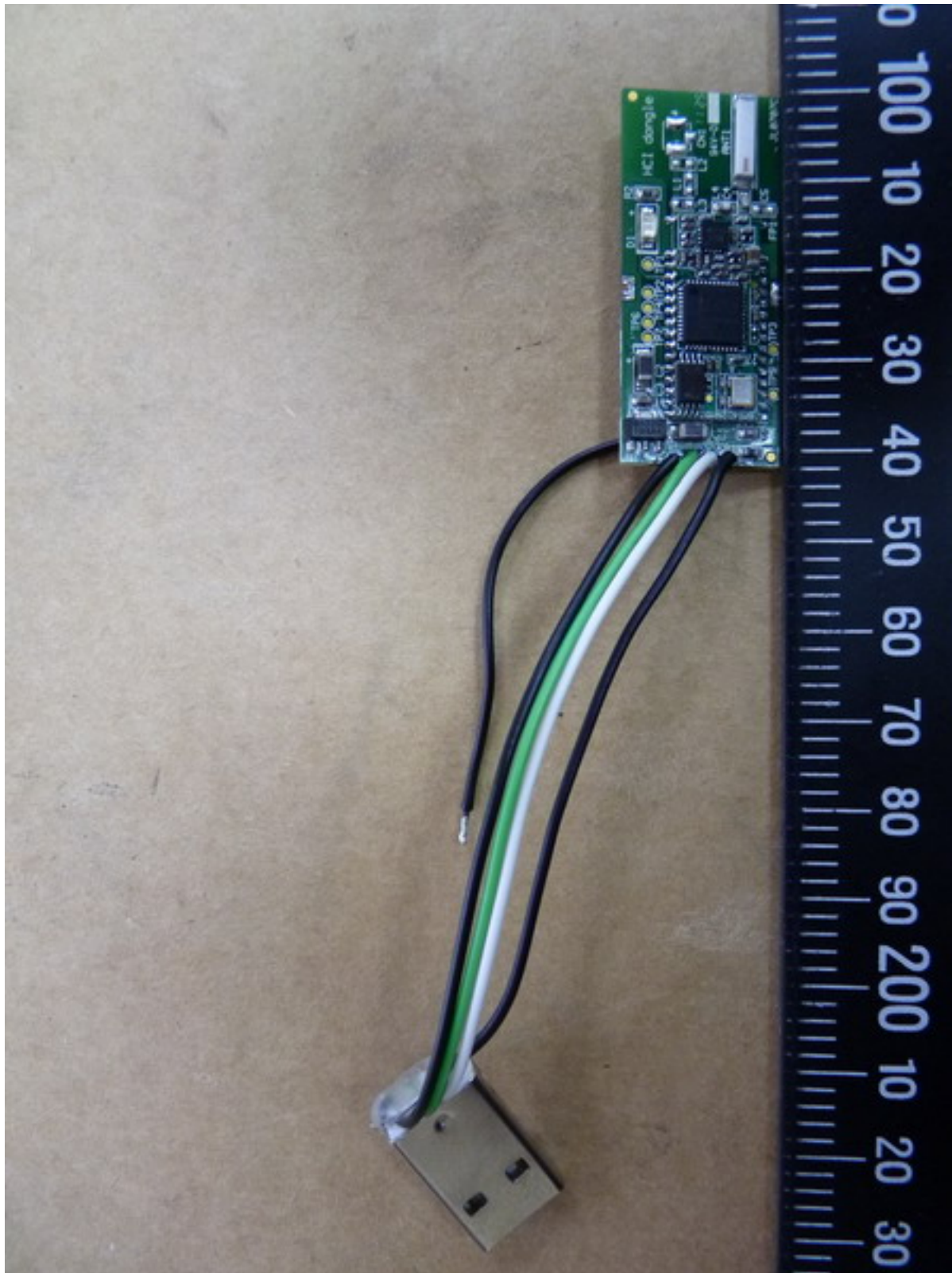
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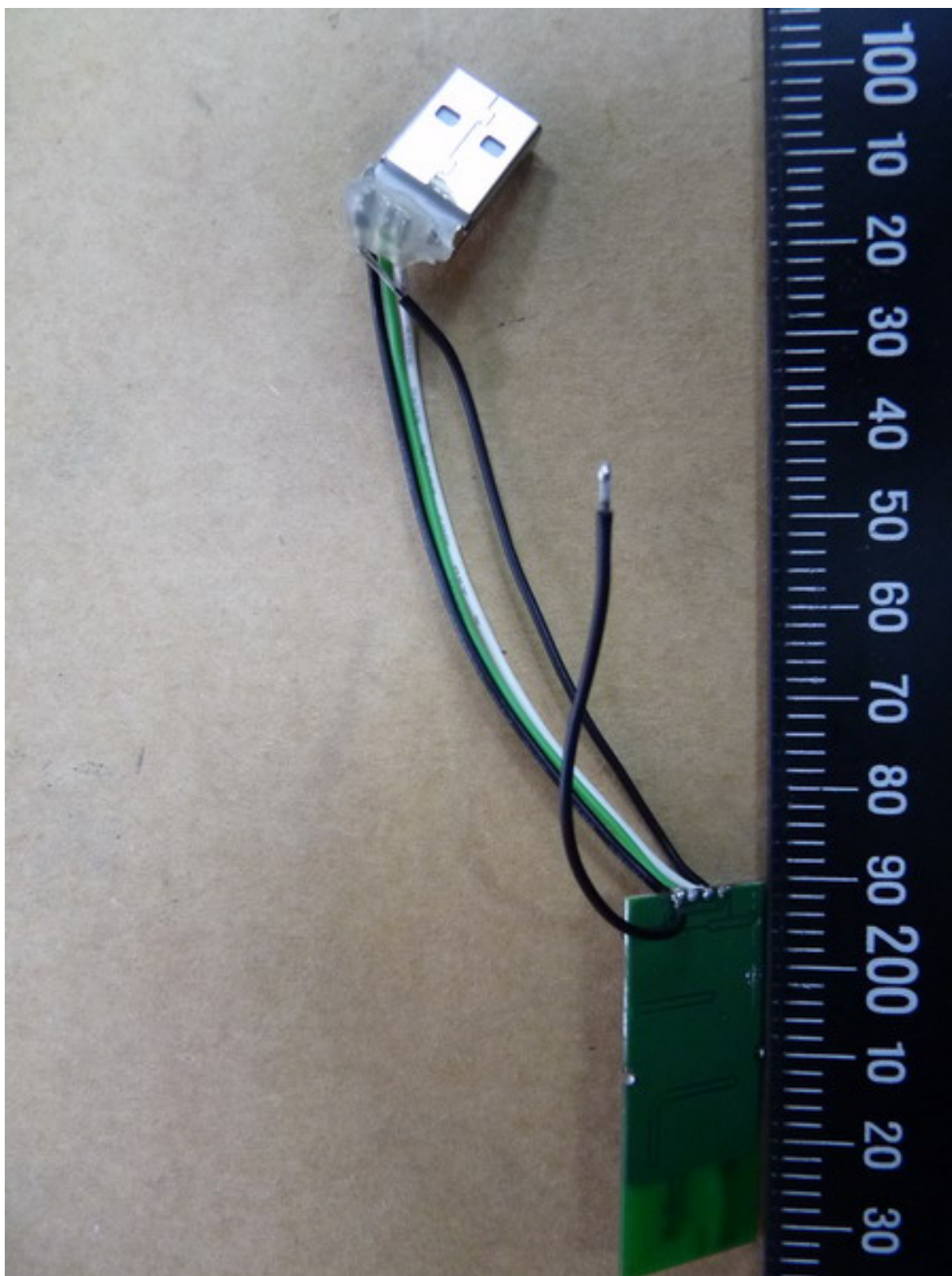
Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

External Photos





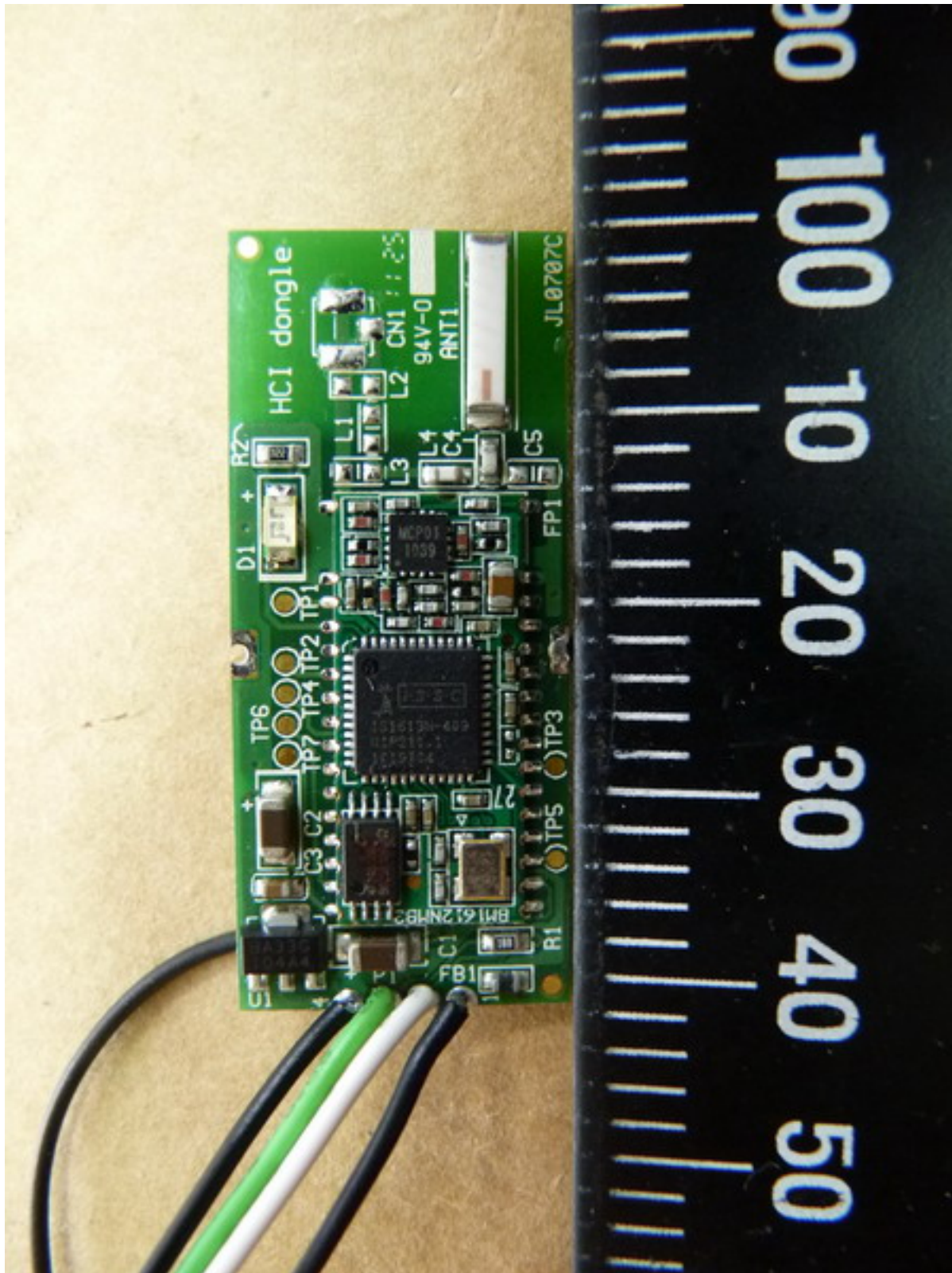
Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B





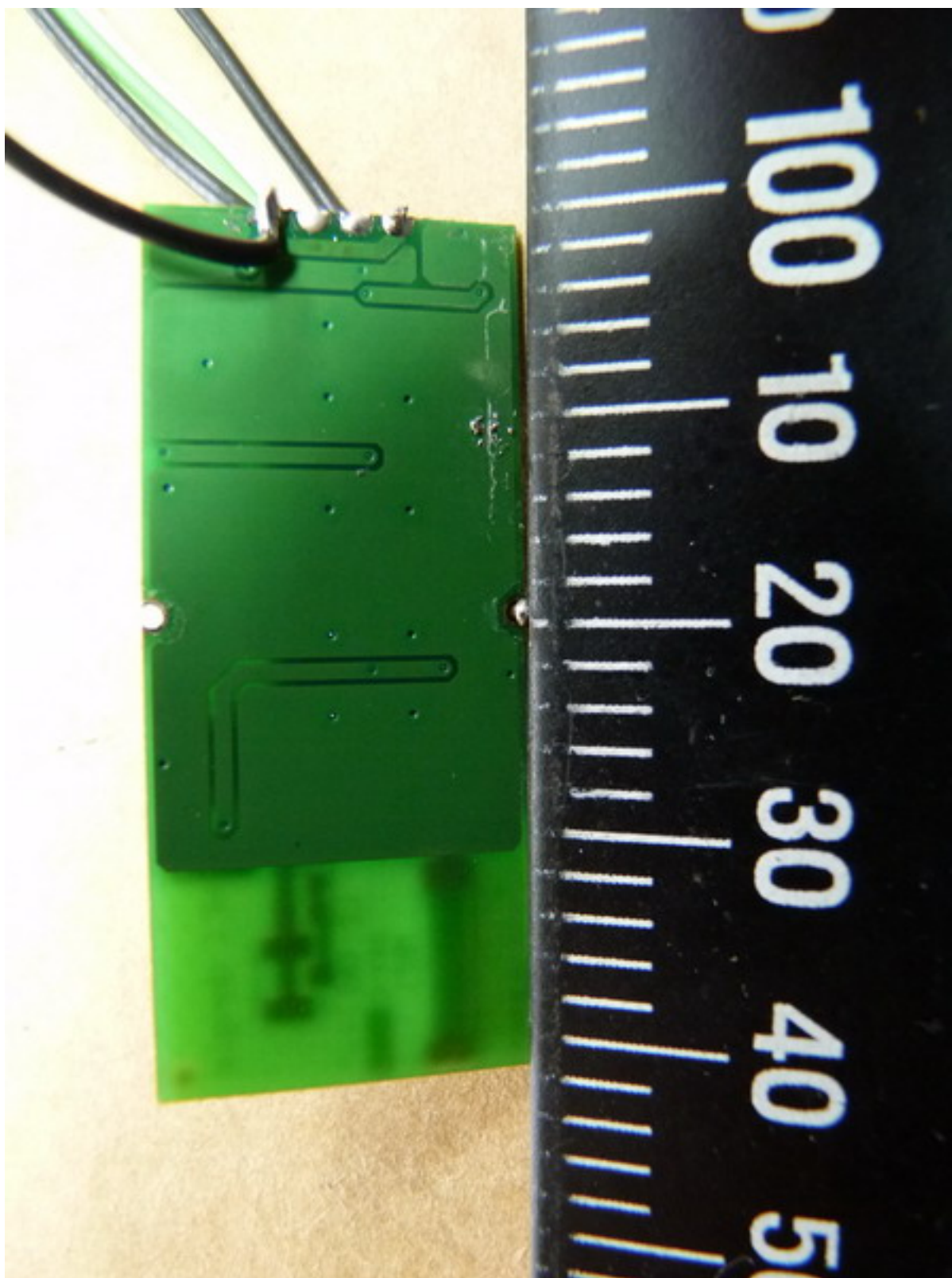
Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

Internal Photos





Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B





Registration number: W6M21203-12273-C-1
FCC ID: TS8ILP0001B

Set Up Photo of Radiated Emission

