Certification of Compliance

CFR 47 Part 15 Subpart C

Order No. : **CSTS-C1001-100**
Test Report No. : **CSTS-A10-FCC001**
Applicant : **Valups corp.**
Address of Applicant : **25F Construction Center, 44 boramae-gil, Dongjak-gu Seoul, 156-849 Korea**

Equipment Under Test (EUT)

Kind of Product : **T1000**
Model Name : **VTV-A10**
FCC ID : **X4CVTV-A10**
Buyer Model(s) : **VTV-A11, VTV-A12, VTV-A13**

Standards : **FCC Part 15 Subpart C(Section 15.247):2006**
ANSI C63.4:2003

Date of Receipt : 04 January, 2010
Date of Test : 13 January, 2010
Date of Issue : 15 January, 2010

Test Result : ■**Positive** □**Negative**

Jae Yeon, Choi / Testing By Engineer

Chang Woo, Kim / General Manager

In the configuration tested, the EUT complied with the standards specified above.

Remarks :
This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

Contents

1. General Information

1.1 Information of Test Laboratory.

FCC E-Failing : Registration Number:289252

Name	:	Certification Service Technology Inc.
Address 3mFullChamber Conducted Emission	:	2F/1055, Shingil-Dong, Danwon-Gu, Ansan-City, Gyeonggi-Do Korea, 425-839
Radiated Emission (OATS)	:	456 Sanhyeun-Dong, Sihung-City, Gyeonggi-Do Korea
Tel/Fax	:	+82-31-493-2001 / +82-31-493-2055

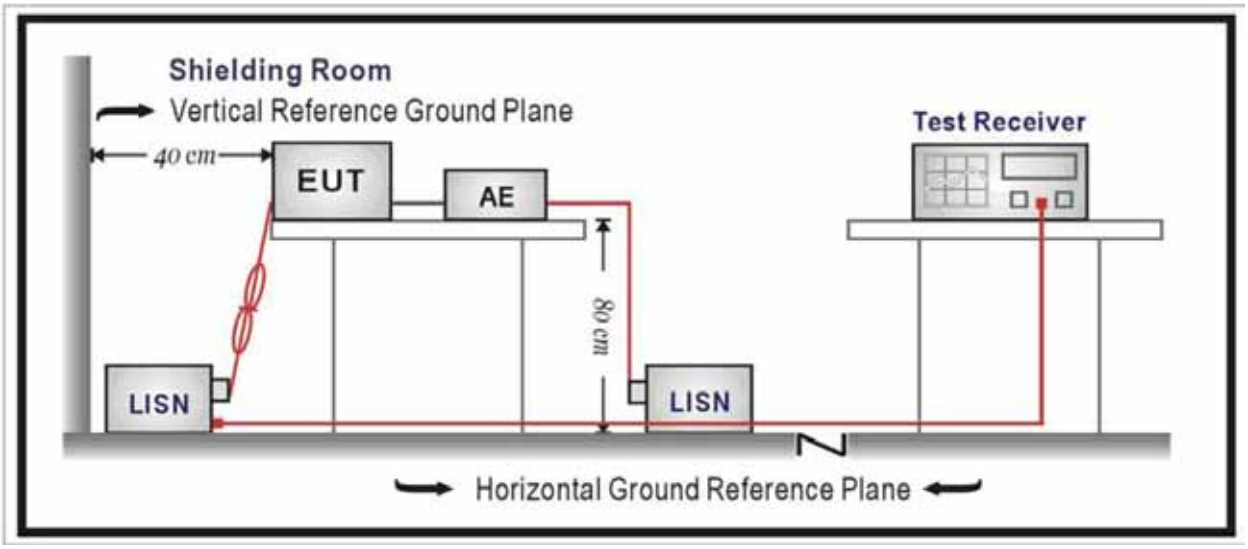
Web site : http://www.cstlab.co.kr E-mail : wwkim@cstlab.co.kr

We , Certification Service Technology Inc. are an independent EMC and RF consultancy that was established the whole facility in our laboratories. The test facility has been accredited by the following accreditation Bodies in compliance with ISO 17025:

1.2 Description of Test

Conducted Emissions:

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination.(Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.



Limit Of Conducted Emission:

Test Specification
: According to FCC CFR Title 47 Part 15 Subpart C Section 15.207

FREQUENCY (MHz)	Limit	
	Quasi-peak	Average
0.15 to 0.5	66 to 56*	56 to 46*
0.5 to 5.0	56	46
5.0 to 30.0	60	50

*Decreases with the logarithm of the frequency.

Radiated Emissions:

The measurement was performed over the frequency range of 30MHz to 1GHz using antenna as the input transducer to a Spectrum analyzer or a Field Intensity Meter. The measurement was made with the detector set for "quasi-peak" within a bandwidth of 120kHz.

Procedure of Test

Preliminary measurements were made at 3 meter using bi-log antennas, and spectrum analyzer to determine the frequency producing the max. emission in anechoic chamber. Appropriate precaution was taken to ensure that all emission from the EUT were maximized and investigated. The system configuration, mode of operation, turn-table azimuth and height with respect to the antenna were noted for each frequency found. The spectrum was scanned from 30MHz to 1000MHz using bi-log antenna. Above 1GHz, linearly polarized double ridge horn antennas were used. Final measurements were made at open site with 3-meters test distance using bi-log antenna or horn antenna. The OATS have been verified in regular for its normalized site attenuation. The test equipment was placed on a wooden table. Sufficient time for the EUT, peripheral equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. Each frequency found during pre-scan measurements was re-examined by manual. The detector function was set to CISPR quasi-peak mode and the bandwidth of the receiver was set to 120kHz or 1MHz depending on the frequency of type of signal. The EUT, peripheral equipment and interconnecting cables were re-configured to the set-up producing the max. emission for the frequency and were placed on top of a 0.8-meter high nonmetallic 1 x 1.5 meter table. The EUT, peripheral equipment, and interconnecting cables were re-arranged and manipulated to maximize each emission. The turntable containing the system was rotated; the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the maximum emission. Each emission was maximized by: varying the mode of operation to the EUT and/or peripheral equipment and changing the polarity of the antenna, whichever determined the worst-case emission.(The bandwidth below 1GHz setting on the field strength meter is 120kHz and above 1GHz is 1MHz.)

Limit Of Radiated Emission :

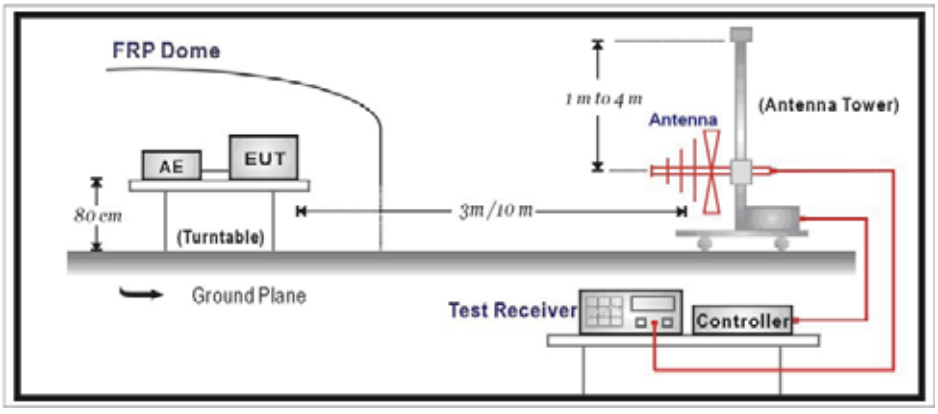
Test Specification
: According to FCC CFR Title 47 Part 15 Subpart C Section 15.209

FCC Part 15 Subpart C Section 15.209 Limits		
Frequency (MHz)	μV/meter	dBμV/meter
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

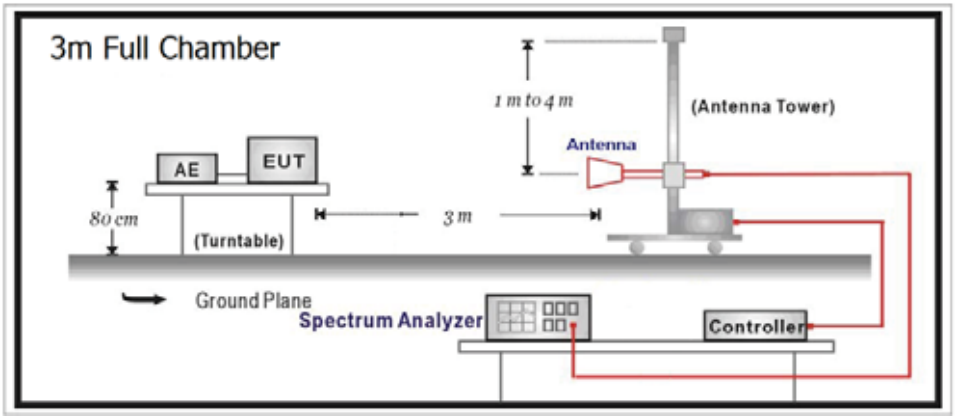
Remarks :

1. RF Voltage(dBuv)=20log RF Voltage(uV)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring Instrument antenna and the closed point of any part of the device or System.

Below 1GHz Test Setup:



Above 1GHz Test Setup:



1.3 Measurement Uncertainty Calculations

Conducted Emissions

TYPE	Contribution	Probability Distribution	Uncertainty	Remark
B	LISN Impedance Voltage Division Factor	 normal(k=2) normal(k=2)	 ±1.3 ±0.12	 CAL. CAL.
	cable	normal (k=2)	±0.2	NONCAL.
	Receiver Input Impedance QP Sine-Wave Voltage Accuracy QP-Pulse Amplitude Sensibility QP-Pulse Frequency Response Random Noise	 normal(k=1.64) normal(k=2) normal(k=2) normal(k=2) normal(k=2)	 ±0.0070 ±0.20 dB ±0.40 dB ±0.57 dB ±0.35 dB	CAL.
	Mismatch AMN to Receiver	U-Shaped	+0.7/-0.8	CISPR Theory
A	System Repeatability	Std deviation	±0.0721	
Combined Standard Uncertainty		normal	± 1.1155 [dB]	
Expanded Uncertainty U		normal(k=2)	*± 2.23*	*95.45 %*

Radiated Emission

TYPE	Contribution	Probability Distribution	Uncertainty 3/10m	Remark
B	Antenna factor frequency interpolation height variation direcvalupsy difference phase center location	 normal(k=2) rectangular rectangular rectangular	 ±0.5 dB ±0.1039 dB +1.5/-2.6 dB +0/-1.0 dB ±1.0 dB	 NPL NAMAS NAMAS
	Cable loss	normal(k=2)	±0.5 dB	
	Receiver Input Impedance QP Sine-Wave Voltage Accuracy QP-Pulse Amplitude Sensibility QP-Pulse Frequency Response Random Noise	 normal(k=1.64) normal(k=2) normal(k=2) normal(k=2) normal(k=2)	 ±0.0070 ±0.20 dB ±0.40 dB ±0.57 dB ±0.35 dB	
	Mismatch : AMN – receiver $\lvert\Gamma_{antenna}\rvert$ =0.33 $\lvert\Gamma_{receiver}\rvert$ =0.33	U-Shaped	+0.9/-1.0 dB	CISPR
A	System repeatibility	Std deviation	±0.1149 dB	
Combined standard Uncertainty		normal	±1.3193 [dB]	
Expanded Uncertainty U		normal(k=2)	*± 2.63*	*95.45 %*

1.4 Manufacturer Information

Manufacturer	:	Valups Corp.
Address	:	25F construction Center, 44 Boramae-gil, Dongjak-gu, Seoul, 156-849 Korea

1.5 General Description of EUT

Name : T1000
Model No. : VTV-A10
Alt. Name : VTV-A11, VTV-A12, VTV-A13
FCC ID : X4CVTV-A10
Serial No. : N/A

1.6 Details of EUT

Section	Specification
Port	USB mini B type port 1 set (for recharging Valups and Connecting to PC
Battery	Removable lithium ion battery (DC 3.7 V)
Input Voltage	DC 5 V (supplied through a USB cable)
Dimension	52X92X12mm(WXHXD) protruded parts excluded, when the antenna is not pulled out
Weight	Approx 70g (ancillary parts not included)
Functional Temp	0 - 35℃

- Please refer to user's manual.

1.7 Description of Support Units

Product	Model No.	Serial No.	Manufacturer	Certification
valups	VTV-A10	N/A	Valups corp.	EUT
Notebook computer	AVERATEC DD2	SZSV40SA292900005	TriGem Computer Inc.	DoC
AC ADAPTER	0335C2065	N/A	LI SHIN INTERNATIONAL ENTERPRISE CORP.	-
TTEST TRANSMITTER	SFE100	140021	R&D	-
Antenna	LP49-DTV	N/A	SPECTRUM Corp.	-
WCDMA Phone	A1303	N/A	APPLE INC.	-

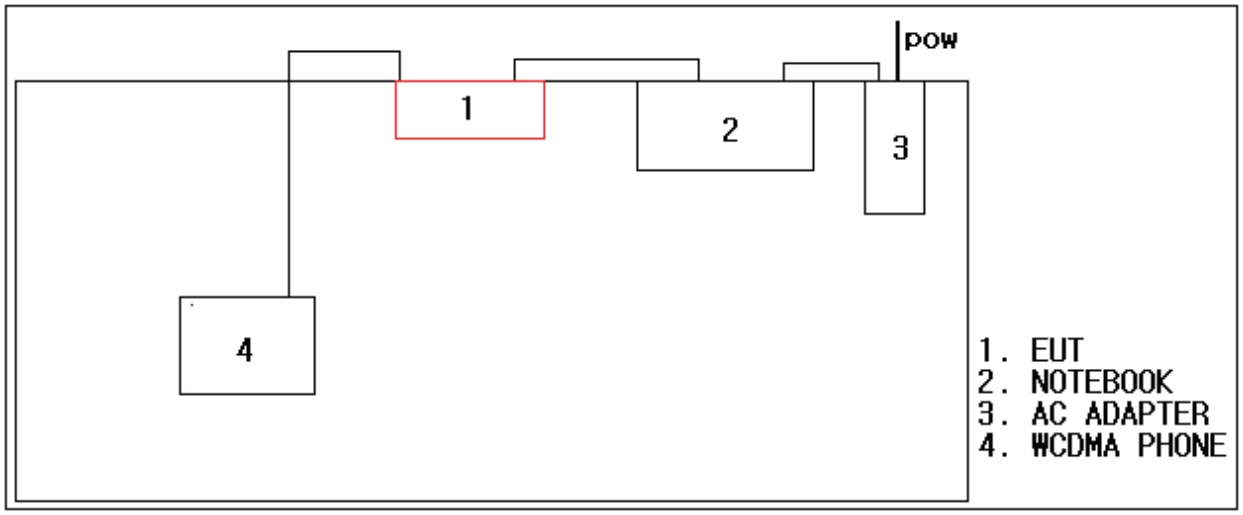
1.8 Cable List

Start		END		Cable Spec	
Name	I/O Port	Name	I/O Port	Lenth	Shield
EUT	USB A	Notebook Computer	USB	1.0	Shielded
	Mini USB B	WCDMA Phone	Micro USB	1.2	Shielded
Notebook Computer	AC-IN	AC-LINE	AC-POWER	2.0	Unshielded

1.9 System Configuration

Description	Model	Serial No.	Manufacturer
-	-	-	-

1.10 Test Set-Up Configuration



1.11 Test Methodology And Configuration

USB Connected EUT to personal computer. Normal operating & Charging mode.

1.12 Standards Applicable for Testing

Table of tests to be carried out under FCC Part 15 Subpart C

Test Standards	Status
FCC Part 15 Subpart C	A
Deviation from Standard	No Deviation

Note) N/A : Indicates that the test is not applicable
A : Indicates that the test is applicable

2. SUMMARY

Test Descriptions

– **Conducted Emission** **-Conducted Emission result**	PASS
– **Radiated Emission** **- Radiated Emission Result**	PASS
– **Peak power output** **- Test result**	PASS
– **Band edge** **- Test result**	PASS
– **6dB Band** **- Test Result**	PASS
– **Power Density** **- Test Result**	PASS

3. Equipment Under Test

3.1 Conducted Emission

3.1.1 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Next of Calibration
Test Receiver	LIG NEX1	ER-30	L0804A003	Sep. 24, 2010
LISN	EMCO	3825/2	8912-1576	Oct. 06, 2010
LISN	EMCO	3825/2	9006-1666	Mar. 30, 2010
Transient Limiter	HAMEG	HZ560	N/A	Jul. 30, 2010
Shielded Room	BRADEN	N/A	DAC-60-005	-

Note : 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to RRL, KRISS, KTL and HCT.

2. The calibration interval of horn ant. and loop ant. is 24 months

3.1.2 Test Area

Conducted Room(Shielded Room)

3.1.3 Operation of EUT

Operating Environment

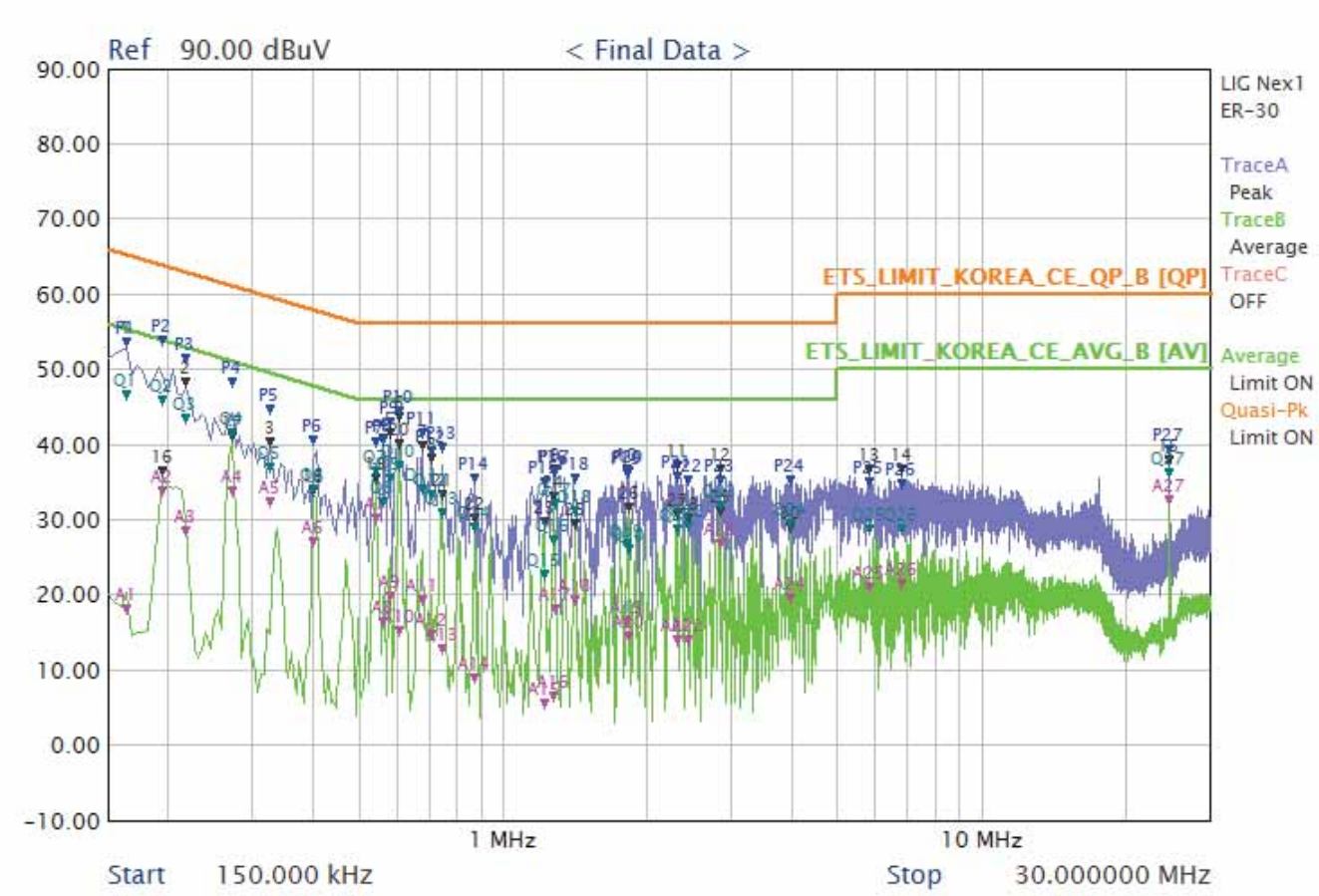
Temperature : 24.7 degree C
Humidity : 48 %RH
Atmospheric Pressure : 988 mBar

3.1.4 Test Date

January 05, 2010

3.1.5 Conducted Emissions Result

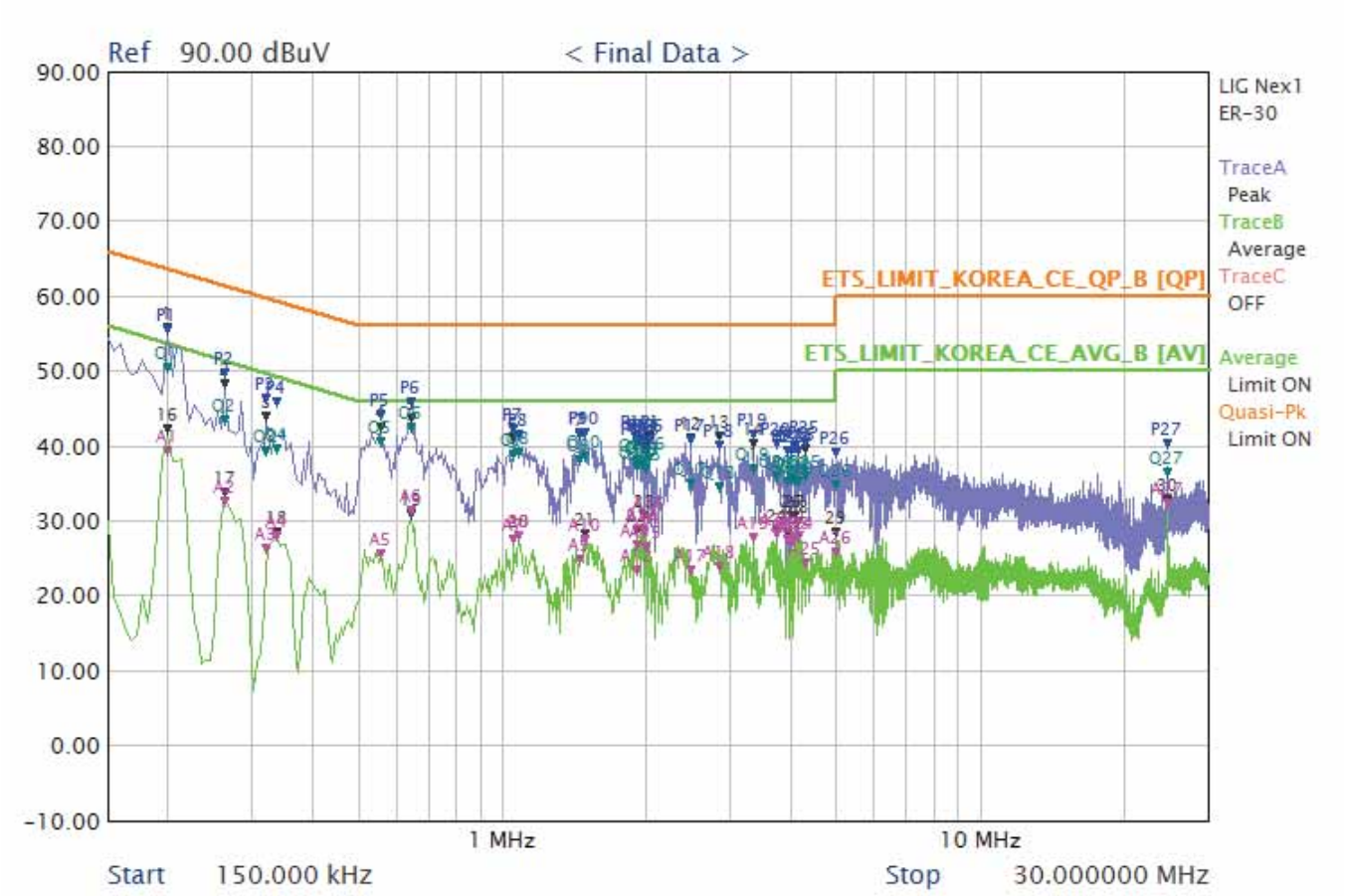
Phase : Live



Freq. [MHz]	Measurement [dB μV]		Limit [dB μV]		Insertion Loss	Cable Loss	Result [dB μV]		Margin [dB]	
	Q-peak	Average	Q-peak	Average	[dB]	[dB μV]	Q-peak	Average	Q-peak	Average
0.195	45.16	33.08	63.82	53.82	0.07	0.07	45.30	33.22	18.52	20.60
0.272	40.75	33.22	61.07	51.07	0.06	0.07	40.88	33.35	20.19	17.72
0.542	35.84	29.54	56.00	46.00	0.04	0.07	35.95	29.65	20.05	16.35
0.609	36.59	14.47	56.00	46.00	0.04	0.06	36.69	14.57	19.31	31.43
6.779	28.09	20.89	60.00	50.00	0.07	0.31	28.47	21.27	31.53	28.73
24.576	35.48	31.89	60.00	50.00	0.40	0.90	36.78	33.19	23.22	16.81

Note : Normal Operating & Charging Mode

Phase : Neutral



Freq. [MHz]	Measurement [dB μV]		Limit [dB μV]		Insertion Loss	Cable Loss	Result [dB μV]		Margin [dB]	
	Q-peak	Average	Q-peak	Average	[dB]	[dB μV]	Q-peak	Average	Q-peak	Average
0.263	42.85	31.97	61.35	51.35	0.10	0.07	43.02	32.14	18.33	19.21
0.339	39.02	27.34	59.23	49.23	0.06	0.07	39.15	27.47	20.08	21.76
1.055	38.29	26.75	56.00	46.00	0.06	0.06	38.41	26.87	17.59	19.13
1.496	37.92	26.82	56.00	46.00	0.07	0.05	38.04	26.94	17.96	19.06
4.988	34.06	25.19	56.00	46.00	0.10	0.14	34.30	25.43	21.70	20.57
24.576	35.88	31.74	60.00	50.00	0.50	0.90	37.28	33.14	22.72	16.86

Note : Normal Operating & Charging Mode

3.2 Radieted Emission

3.2.1 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Next of Calibration
Test Receiver	LIG NEX1	ER-265	L0804B002	Jul. 10, 2010
BICONILOG ANT.	EMCO	3142	9701-1128	Nov. 13, 2010
Horn Antenna	EMCO	3115	9012-3602	Jun. 26. 2011
Horn Antenna	R&S	HF906	100530	Jun. 26. 2011
BICONICAL ANT.	EMCO	3104C	9012-4380	Feb. 28, 2010
LOGPERIODIC ANT.	EMCO	3146	91071232	Feb. 28, 2010
Turn Table	EMCO	D-TT 06	N/A	-
Ant. Mast	EMCO	D-AM 06	N/A	-
Controller	EMCO	D-CTR 06	N/A	-
T-TABLE CONTROLLER	EMCO	1060-1.511	9101-1517	N/A
CHAMBER	BRADEN	RF Shielded door Assembly	DAC-60-004	N/A

Note : 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to RRL, KRISS, KTL and HCT.

2. The calibration interval of horn ant. and loop ant. is 24 months

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. For the limit is employed average value, therefore the peak value can be transferred to average value by subtracting the duty factor. The basic equation with a sample calculation is as follows:

Peak = Reading + Corrected Factor

Where

Corr. Factor = Antenna Factor + Cable Factor - Amplifier Gain (if any)

3.2.2 Test Area

3m Full Chamber

3.2.3 Operation of EUT

Operating Environment

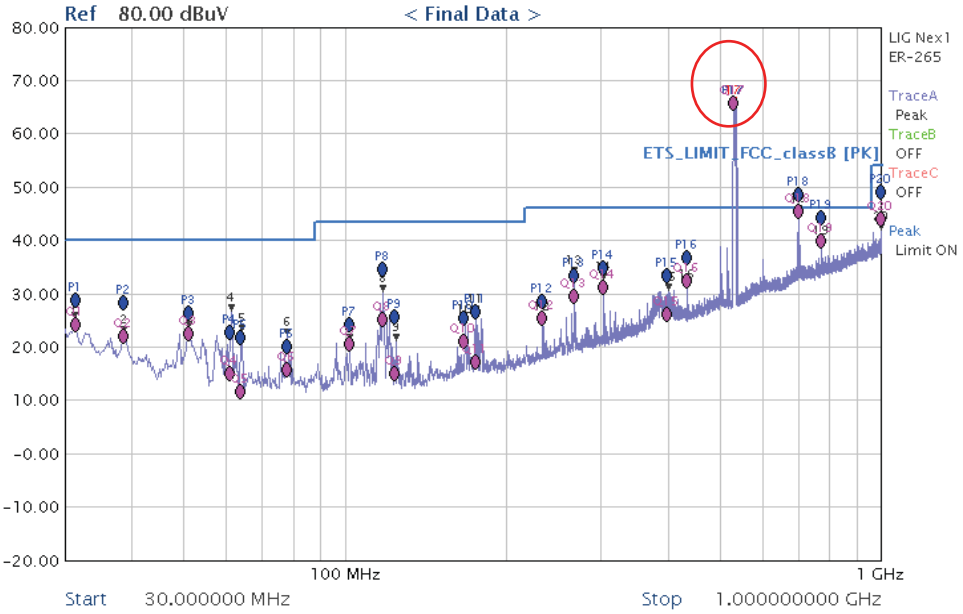
Temperature : 24.7 degree C
Humidity : 48 %RH
Atmospheric Pressure : 988 mBar

3.2.4 Test Date

January 07, 2010

3.2.5 Radiated Emission Result

Frequency	30 to 1000 MHz	Polarization	X-Plane
Note	Normal operating mode		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Limit dBuV	Total dBuV	Margin dB
101.91	14.71	H	12.97	1.67	0.0	43.50	29.35	14.15
117.73	15.21	H	13.16	1.75	0.0	43.50	30.12	13.38
223.60	14.07	H	15.05	2.79	0.0	46.00	31.91	14.09
267.01	17.52	H	17.36	3.11	0.0	46.00	37.99	8.01
302.37	17.56	H	13.55	3.54	0.0	46.00	34.65	11.35
433.33	15.57	H	15.26	3.89	0.0	46.00	34.72	11.28
700.00	18.45	H	20.47	4.89	0.0	46.00	43.81	2.19
774.87	12.14	H	20.68	5.29	0.0	46.00	38.11	7.89
999.97	16.75	H	23.45	6.11	0.0	54.00	46.31	7.69

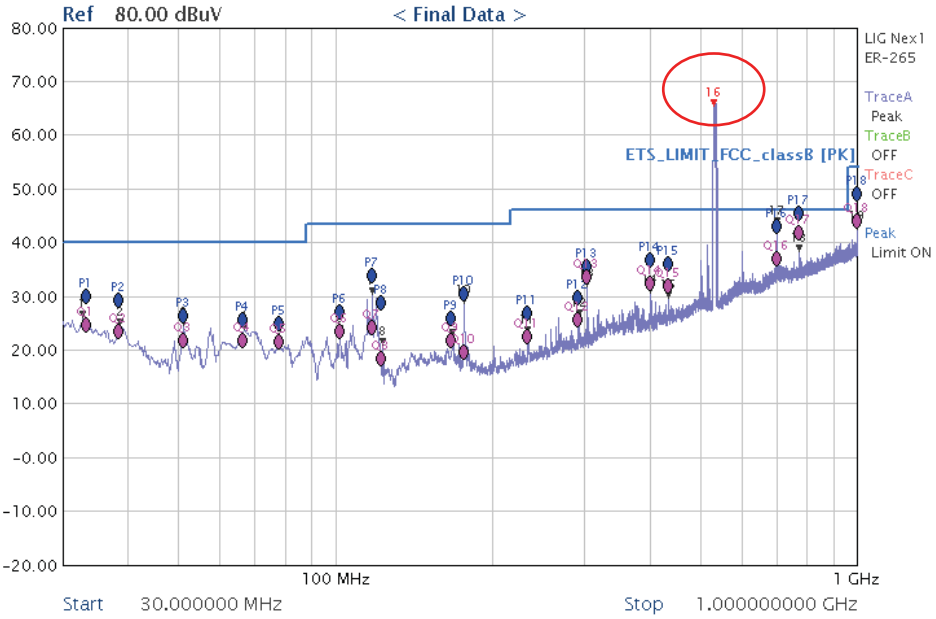
Note :

1. All reading levels are Quasi-peak value.

2. Measurement level = reading level + correct factor

3. Remark "◯" means that the data is SFE100(TEST TRANSMITTER)'s *fundamental frequency.*

Frequency	30 to 1000 MHz	Polarization	Y-Plane
Note	Normal operating mode		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Limit dBuV	Total dBuV	Margin dB
101.88	17.05	H	12.97	1.67	0.0	43.50	31.69	11.81
117.77	12.82	H	13.16	1.75	0.0	43.50	27.73	15.77
176.23	18.08	H	15.51	2.52	0.0	43.50	36.11	7.39
302.39	18.24	H	13.55	3.54	0.0	46.00	35.33	10.67
400.01	16.60	H	14.65	3.72	0.0	46.00	34.97	11.03
433.34	14.88	H	15.26	3.89	0.0	46.00	34.03	11.97
701.11	11.25	H	20.47	4.90	0.0	46.00	36.62	9.38
774.88	14.41	H	20.68	5.29	0.0	46.00	40.38	5.62

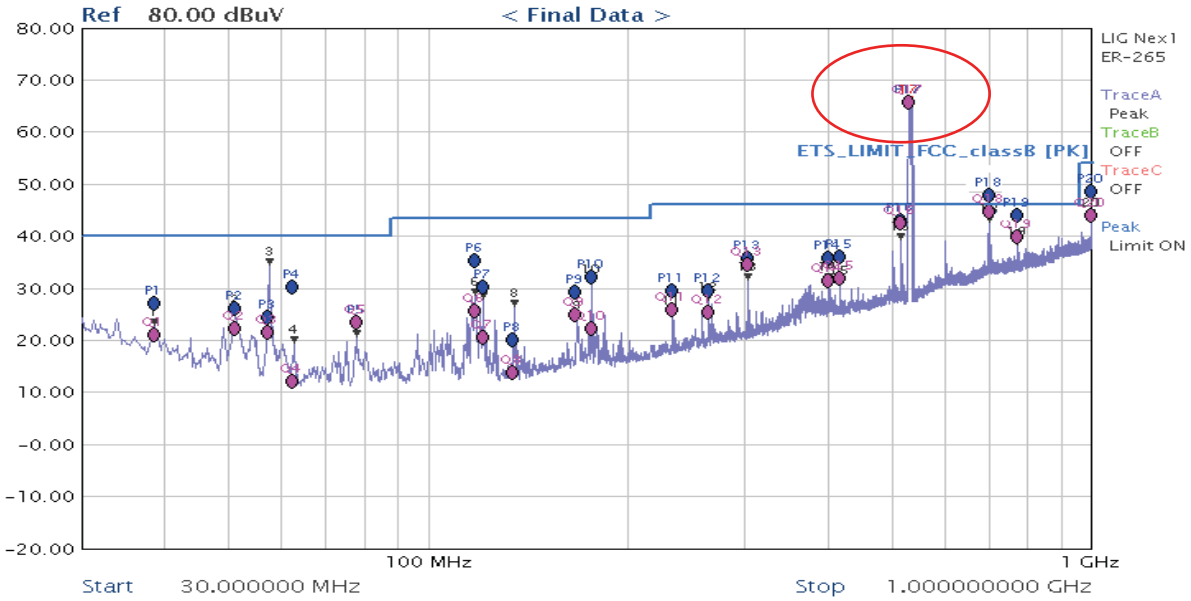
Note :

1. All reading levels are Quasi-peak value.

2. Measurement level = reading level + correct factor

3. Remark "◯" means that the data is SFE100(TEST TRANSMITTER)'s *fundamental frequency.*

Frequency	30 to 1000 MHz	Polarization	Z-Plane
Note	Normal operating mode		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Limit dBuV	Total dBuV	Margin dB
57.26	15.55	H	10.13	1.47	0.0	40.00	27.15	12.85
117.75	14.14	H	13.16	1.75	0.0	43.50	29.05	14.45
166.88	15.38	H	14.78	2.41	0.0	43.50	32.57	10.93
302.40	18.66	H	13.55	3.54	0.0	46.00	35.75	10.25
400.02	15.58	H	14.65	3.72	0.0	46.00	33.95	12.05
416.69	15.42	H	14.95	3.81	0.0	46.00	34.18	11.82
516.57	18.20	H	17.26	4.77	0.0	46.00	40.23	5.77
700.00	18.22	H	20.47	4.89	0.0	46.00	43.58	2.42
774.90	12.97	H	20.68	5.29	0.0	46.00	38.94	7.06
999.98	16.30	H	23.45	6.11	0.0	54.00	45.86	8.14

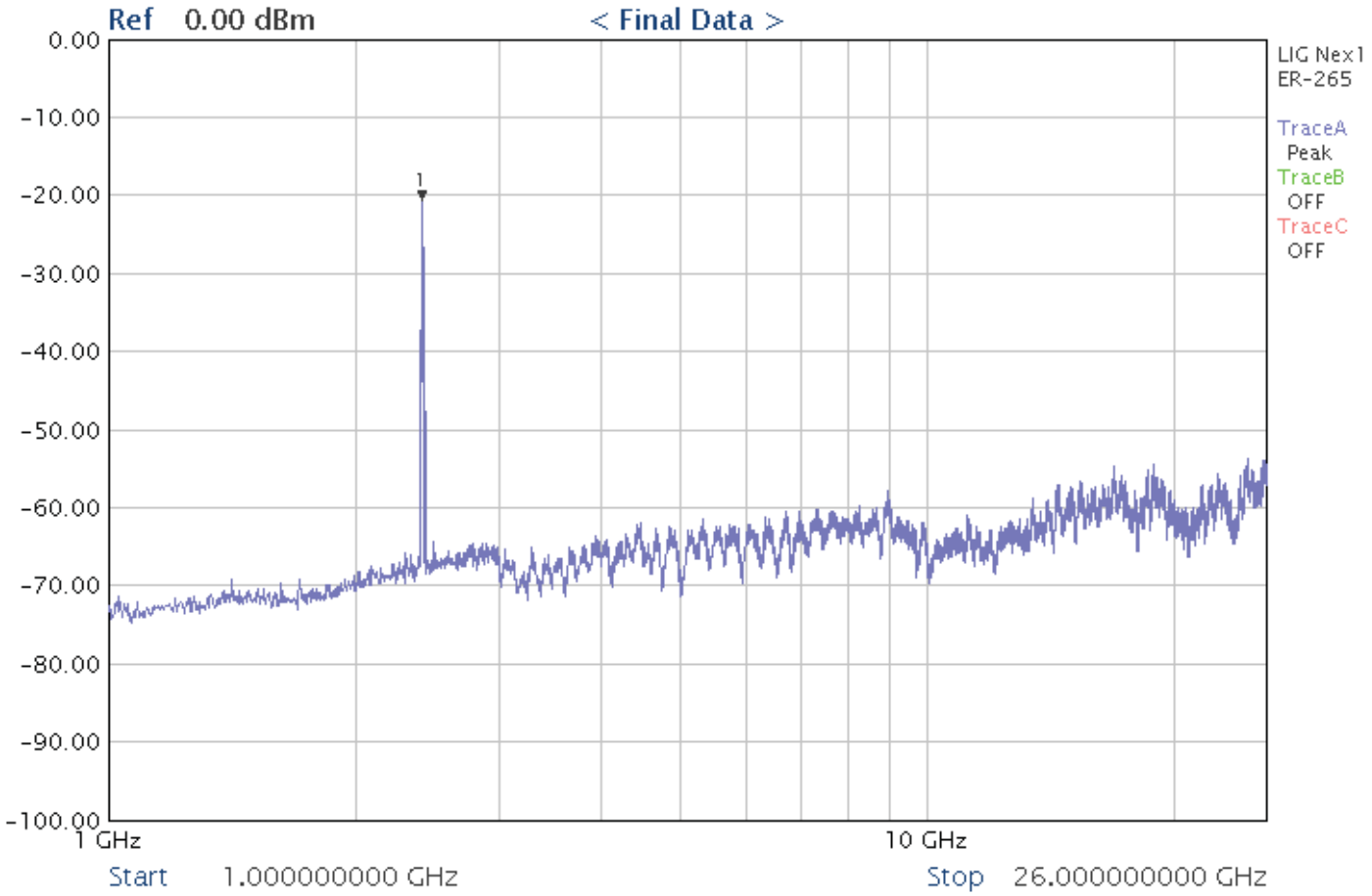
Note :

1. All reading levels are Quasi-peak value.

2. Measurement level = reading level + correct factor

3. Remark "◯" means that the data is SFE100(TEST TRANSMITTER)'s *fundamental frequency.*

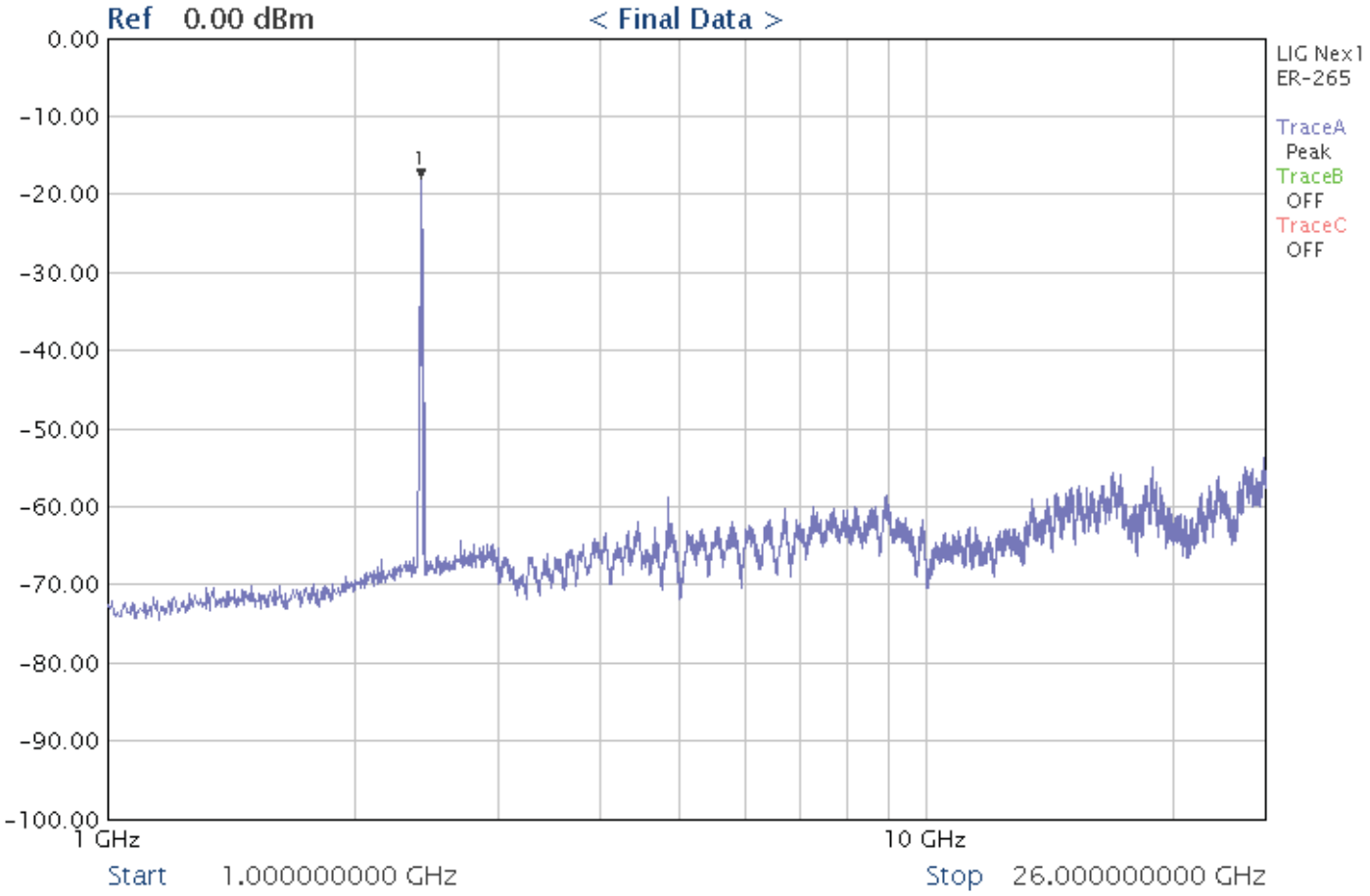
Frequency	1 to 26 GHz	Polarization	X-Plane
Note	IEEE802.11b – CH1 (2412 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

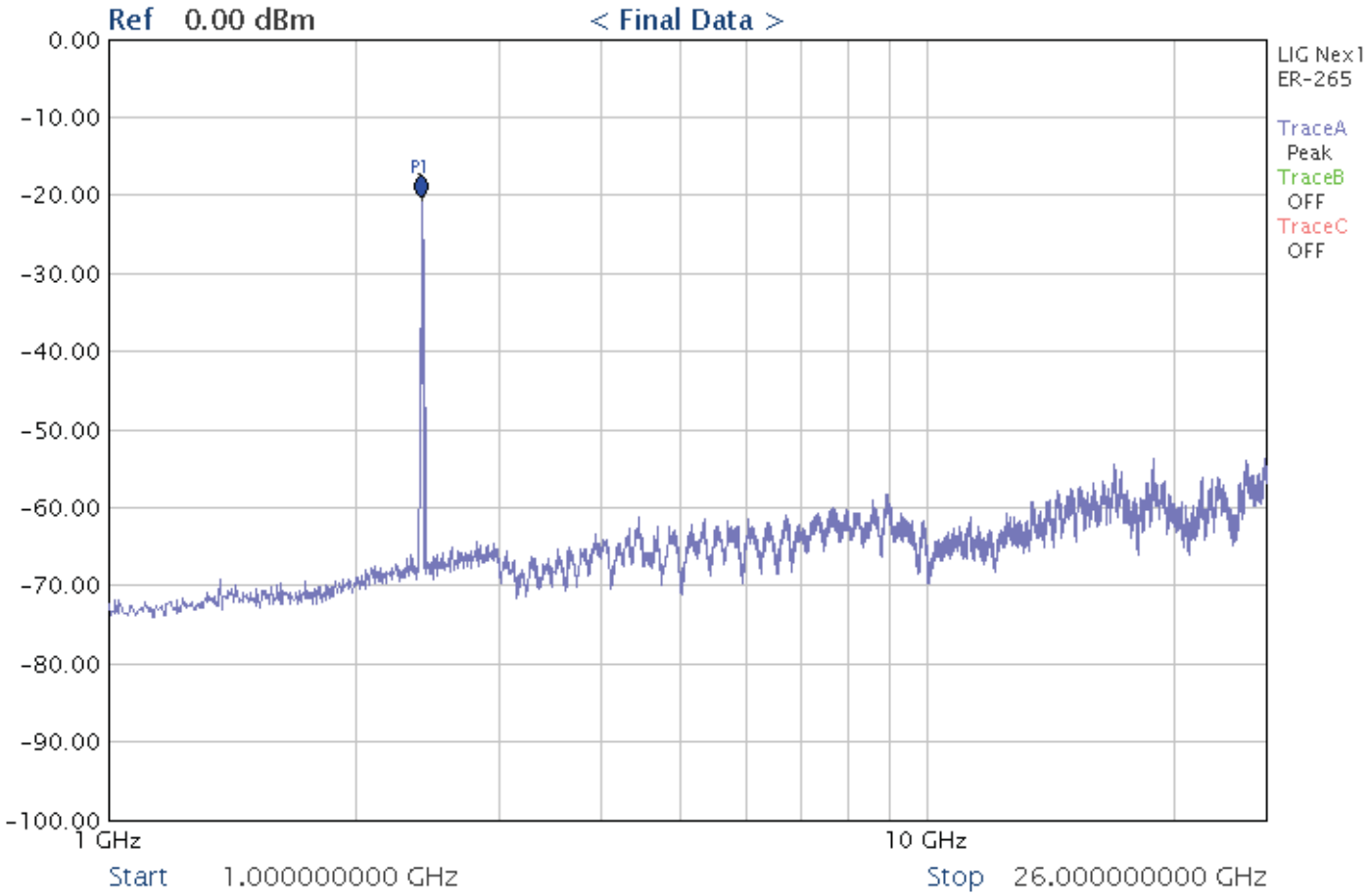
Frequency	1 to 26 GHz	Polarization	Y-Plane
Note	IEEE802.11b – CH1 (2412 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

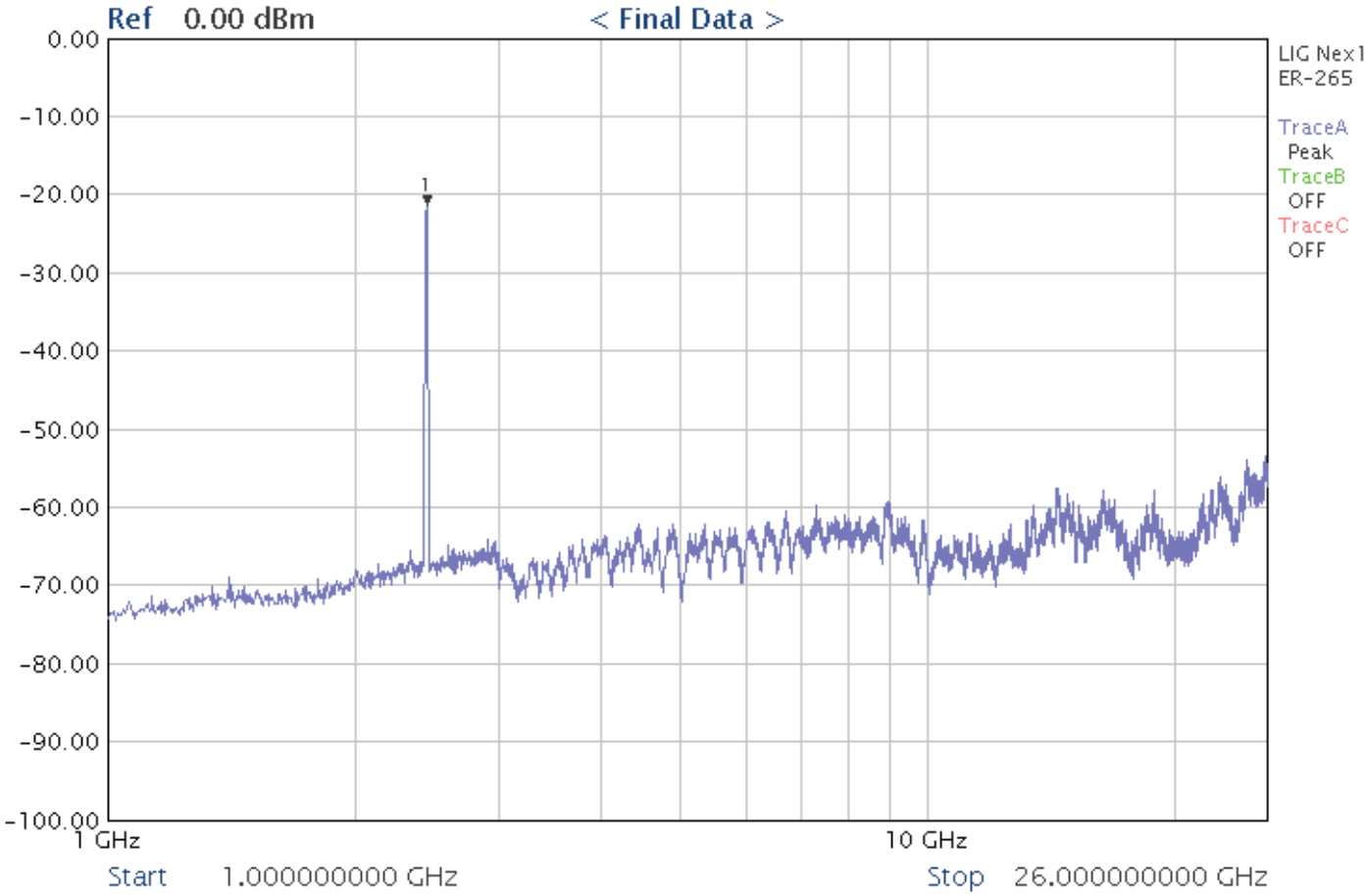
Frequency	1 to 26 GHz	Polarization	Z-Plane
Note	IEEE802.11b – CH1 (2412 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

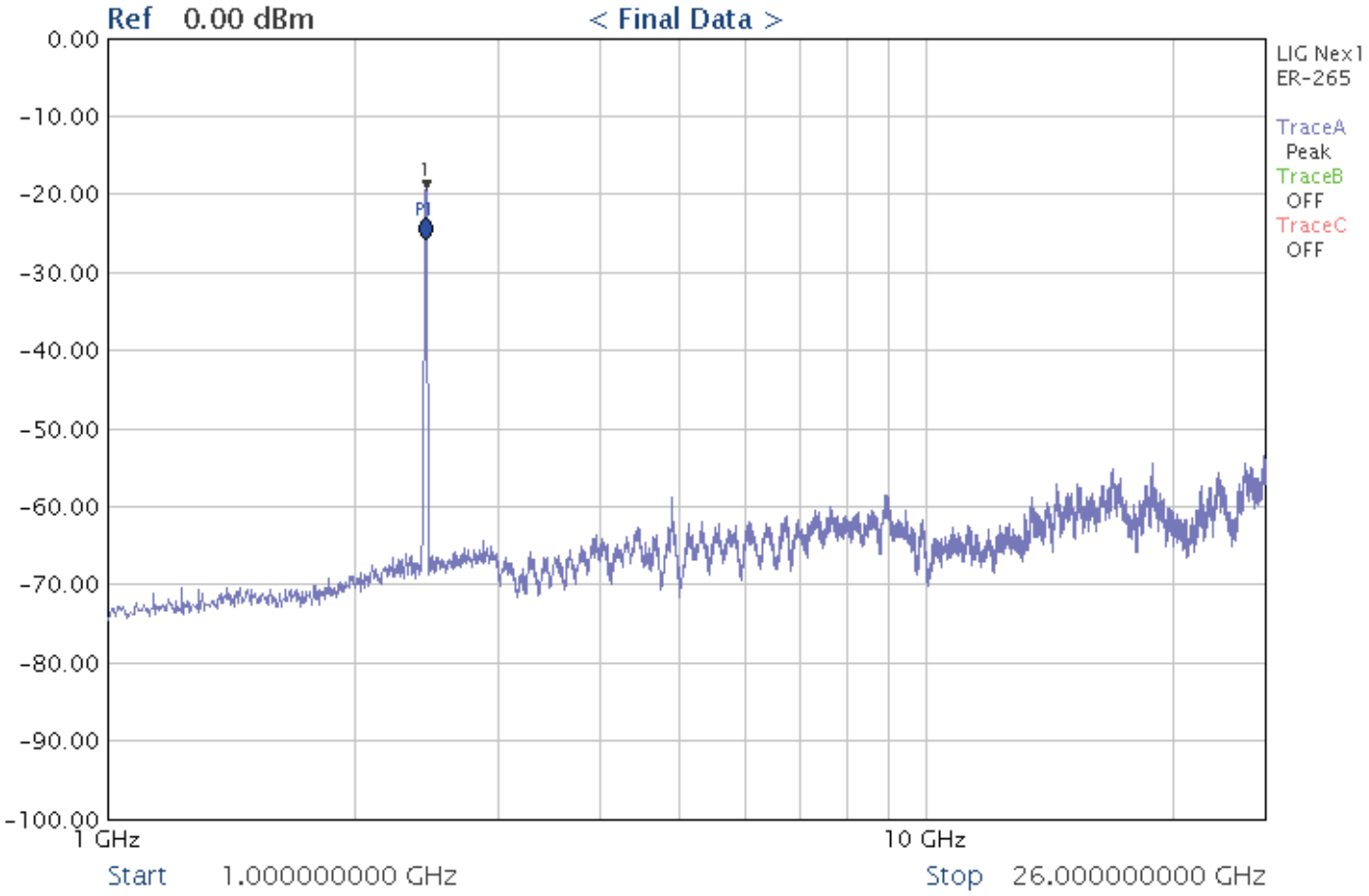
Frequency	1 to 26 GHz	Polarization	X-Plane
Note	IEEE802.11b – CH7 (2442 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

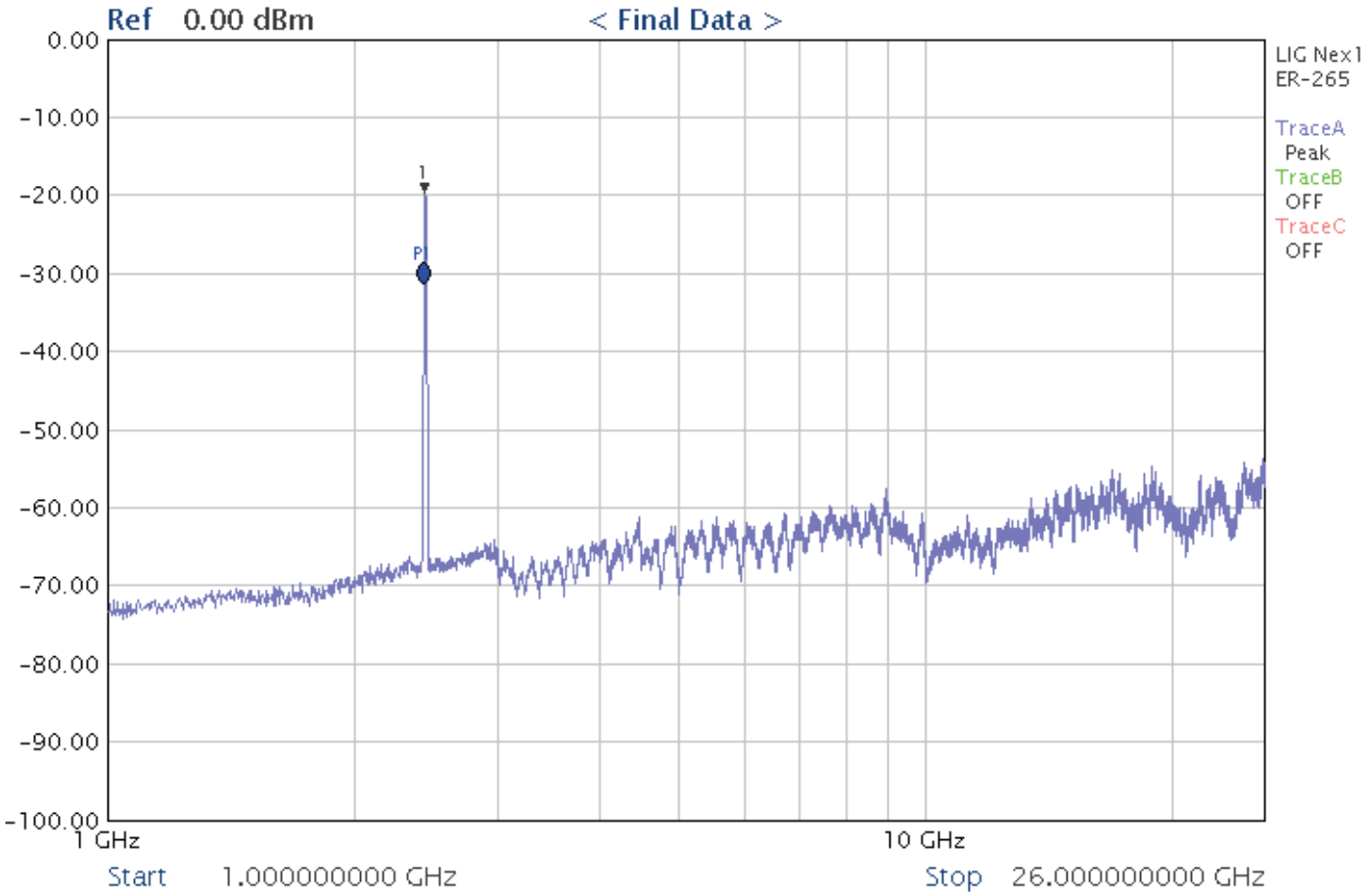
Frequency	1 to 26 GHz	Polarization	Y-Plane
Note	IEEE802.11b – CH7 (2442 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

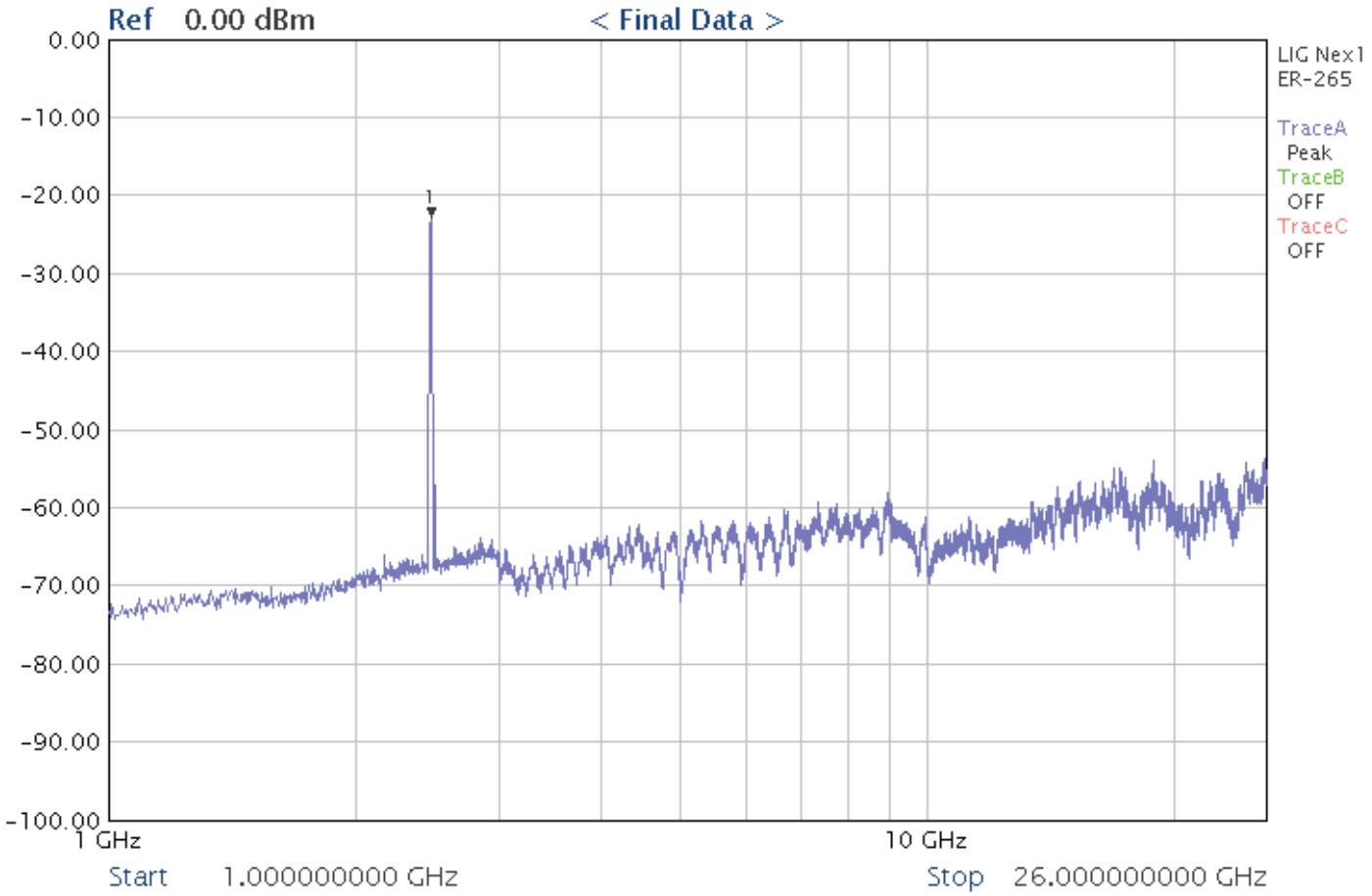
Frequency	1 to 26 GHz	Polarization	Z-Plane
Note	IEEE802.11b – CH7 (2442 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

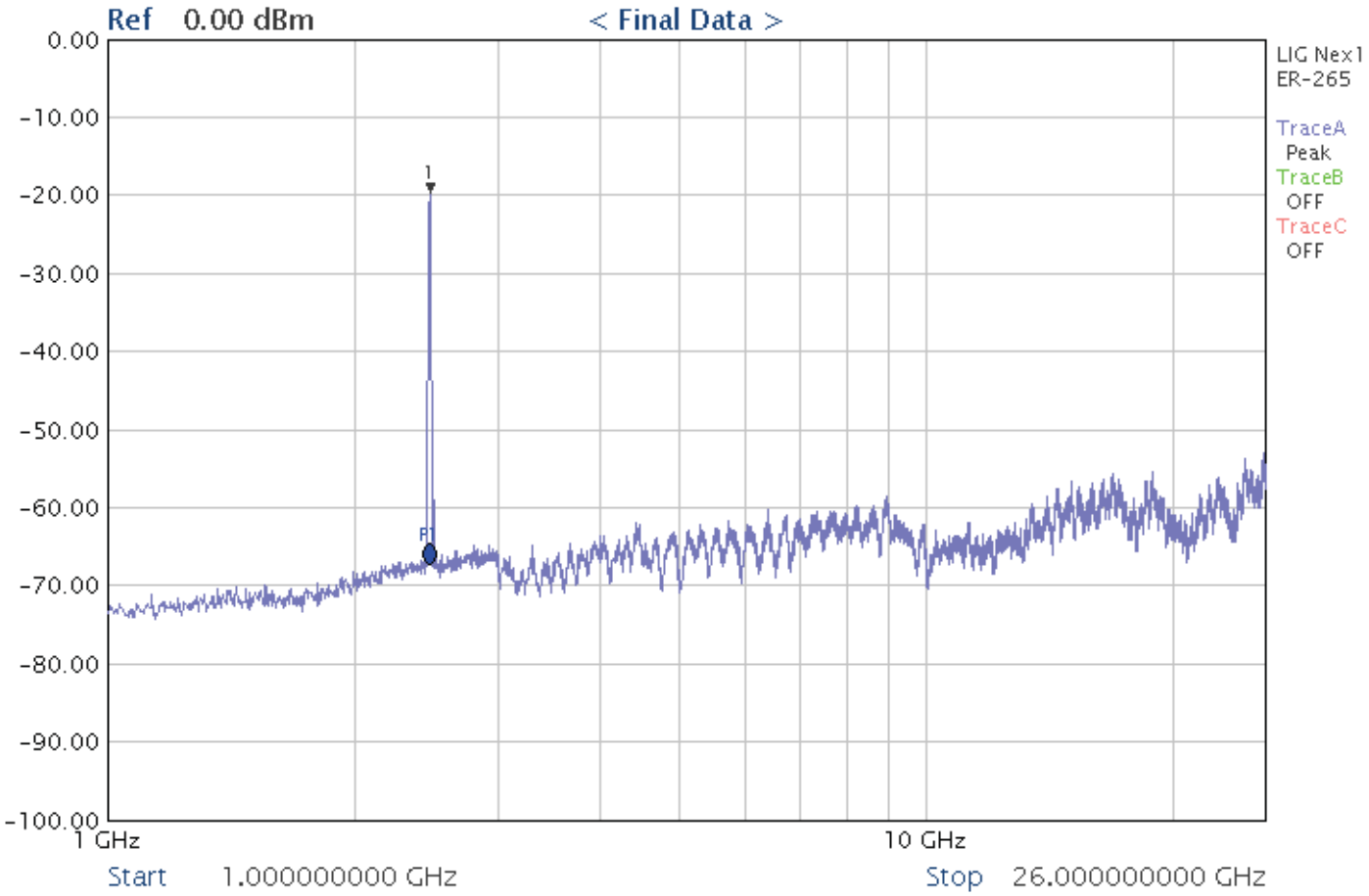
Frequency	1 to 26 GHz	Polarization	X-Plane
Note	IEEE802.11b – CH13 (2472 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

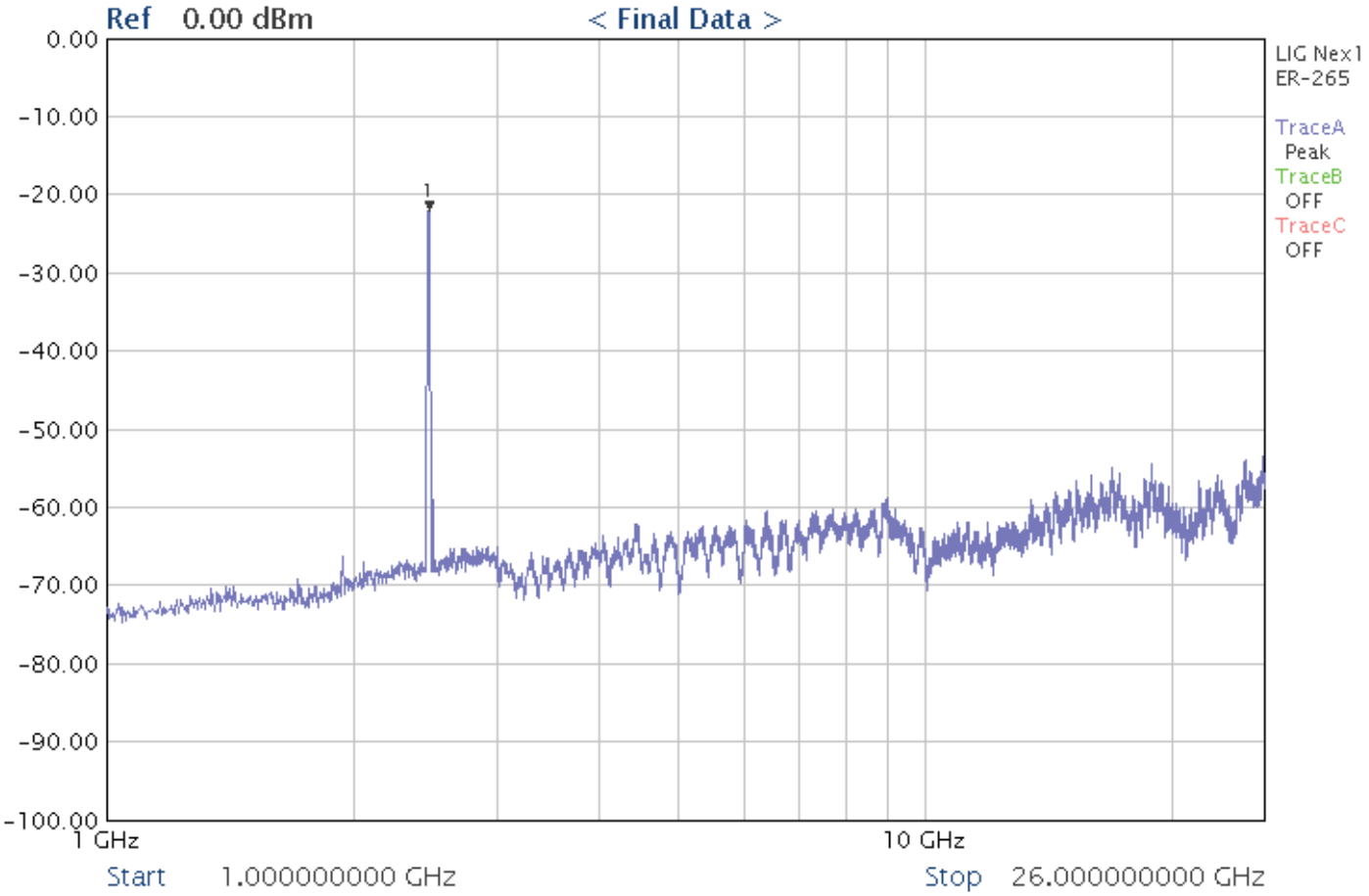
Frequency	1 to 26 GHz	Polarization	Y-Plane
Note	IEEE802.11b – CH13 (2472 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

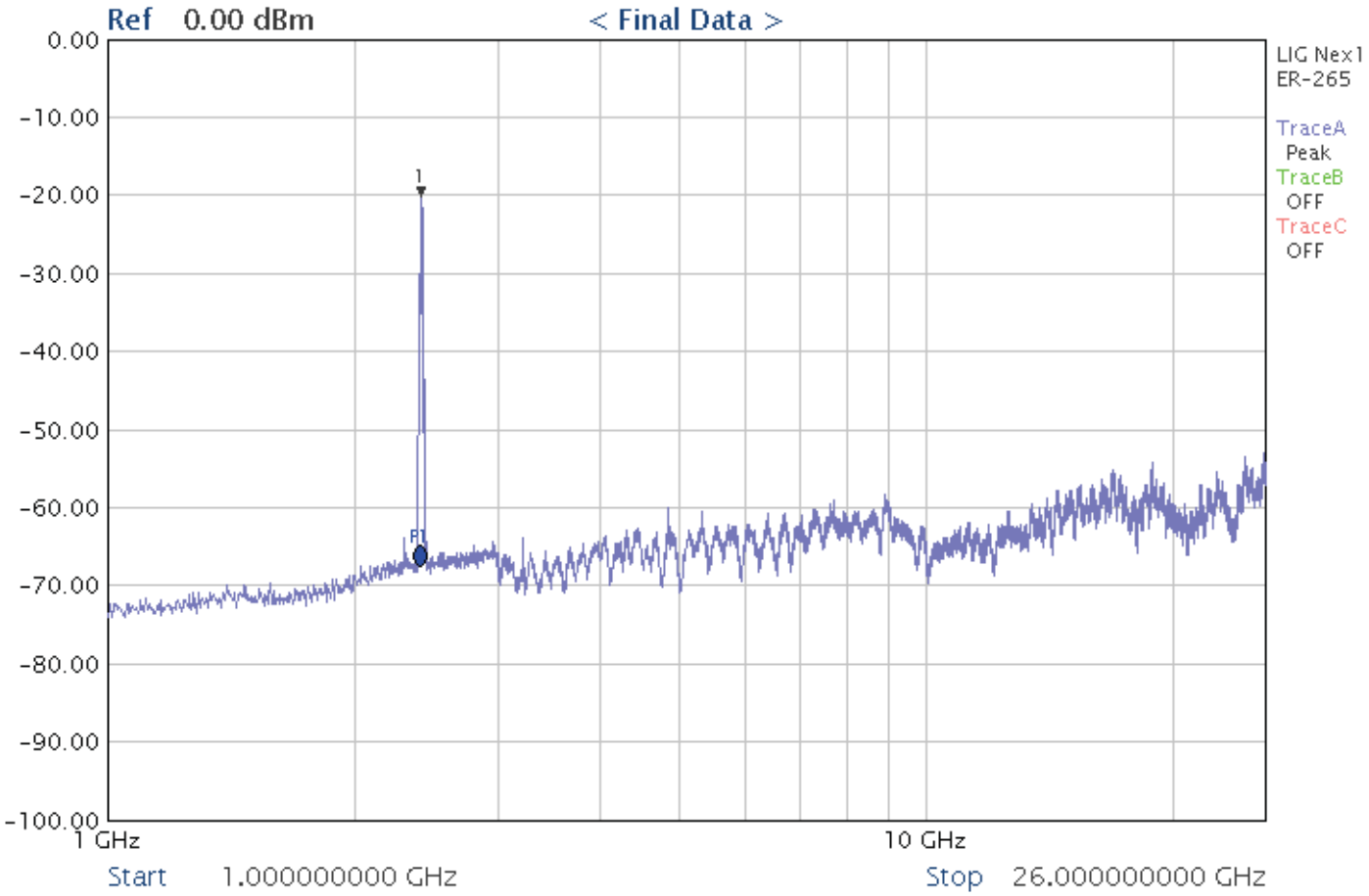
Frequency	1 to 26 GHz	Polarization	Z-Plane
Note	IEEE802.11b – CH13 (2472 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

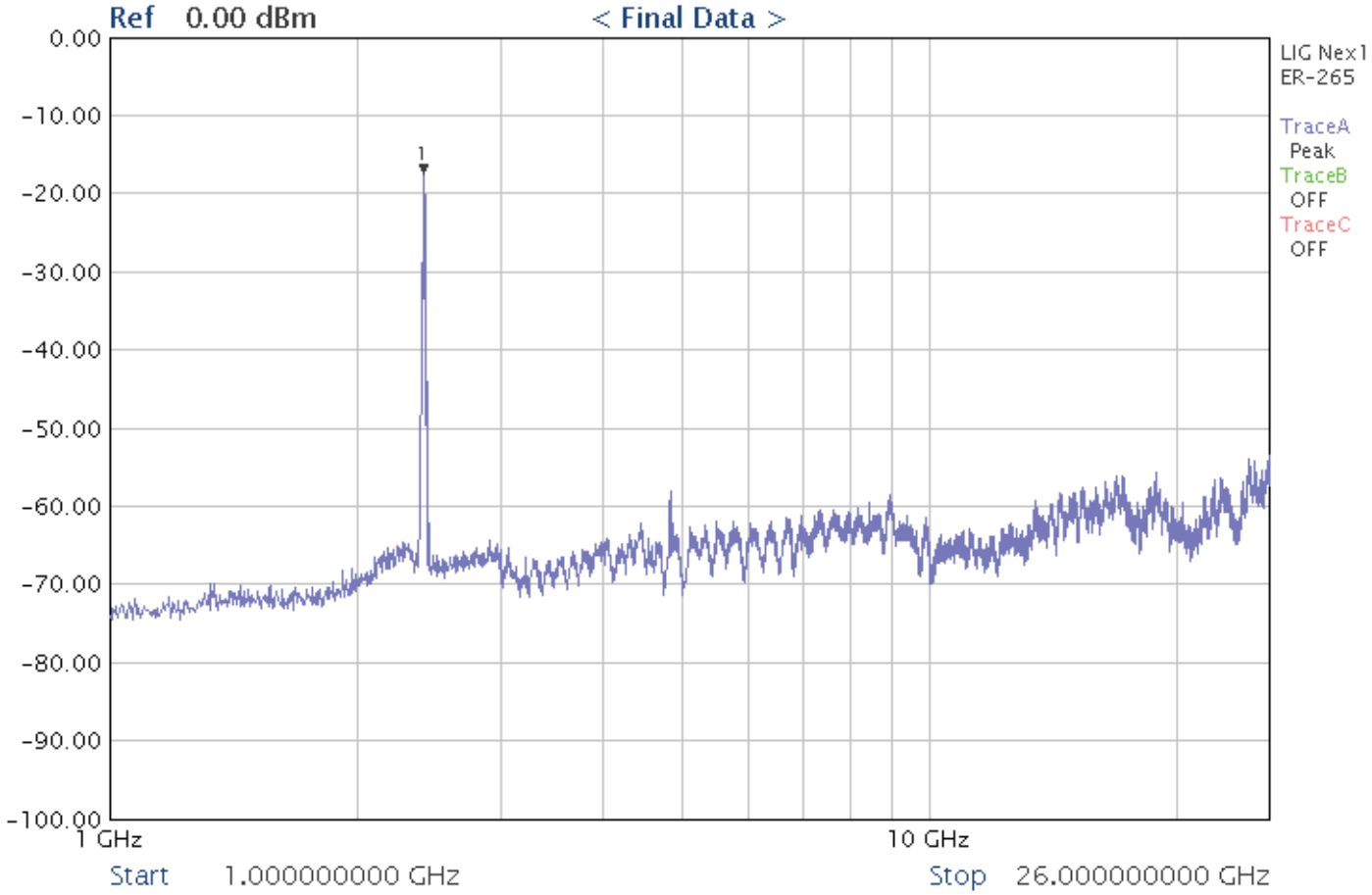
Frequency	1 to 26 GHz	Polarization	X-Plane
Note	IEEE802.11g – CH1 (2412 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

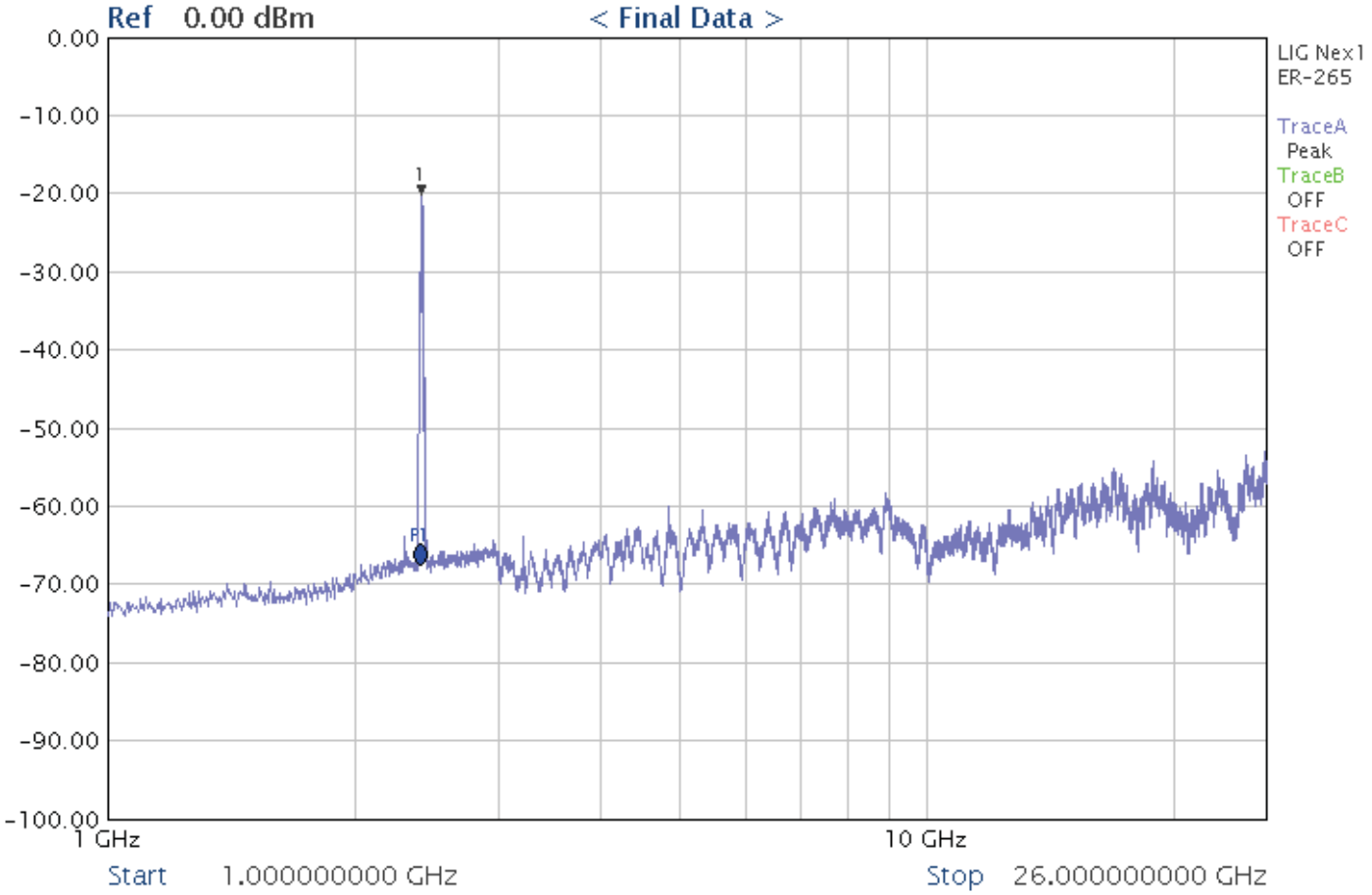
Frequency	1 to 26 GHz	Polarization	Y-Plane
Note	IEEE802.11g – CH1 (2412 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

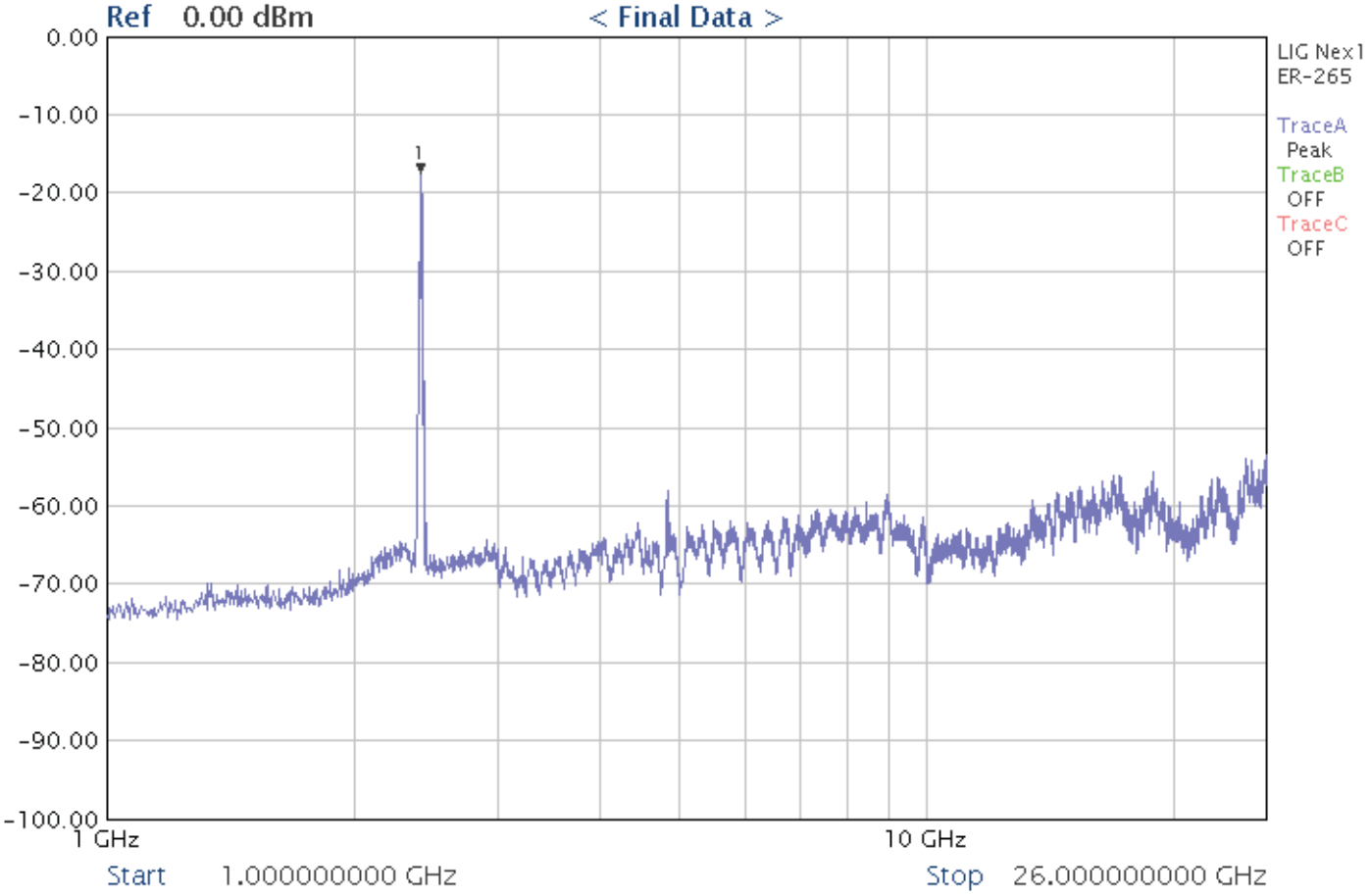
Frequency	1 to 26 GHz	Polarization	Z-Plane
Note	IEEE802.11g – CH1 (2412 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

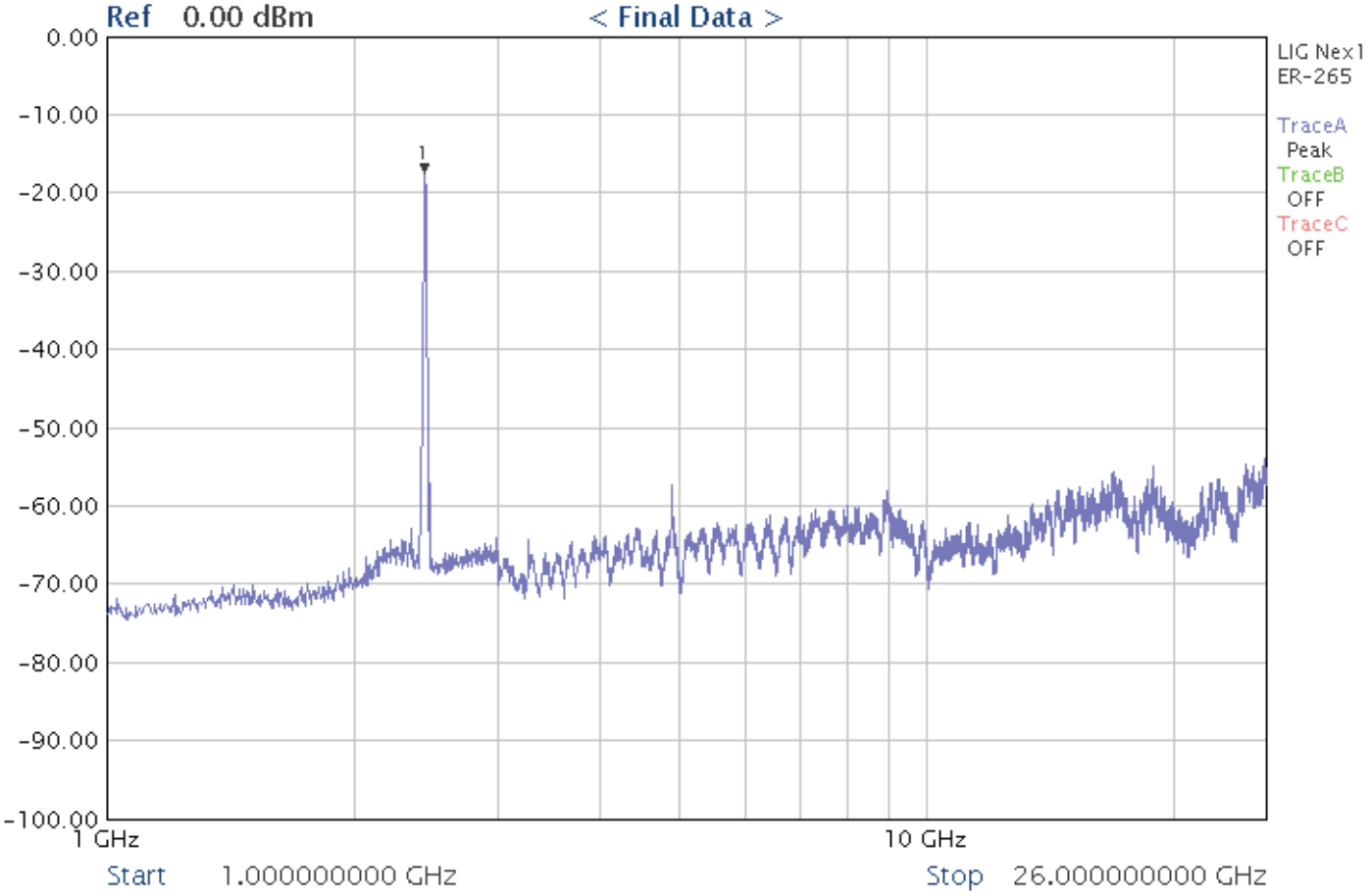
Frequency	1 to 26 GHz	Polarization	X-Plane
Note	IEEE802.11g – CH7 (2442 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

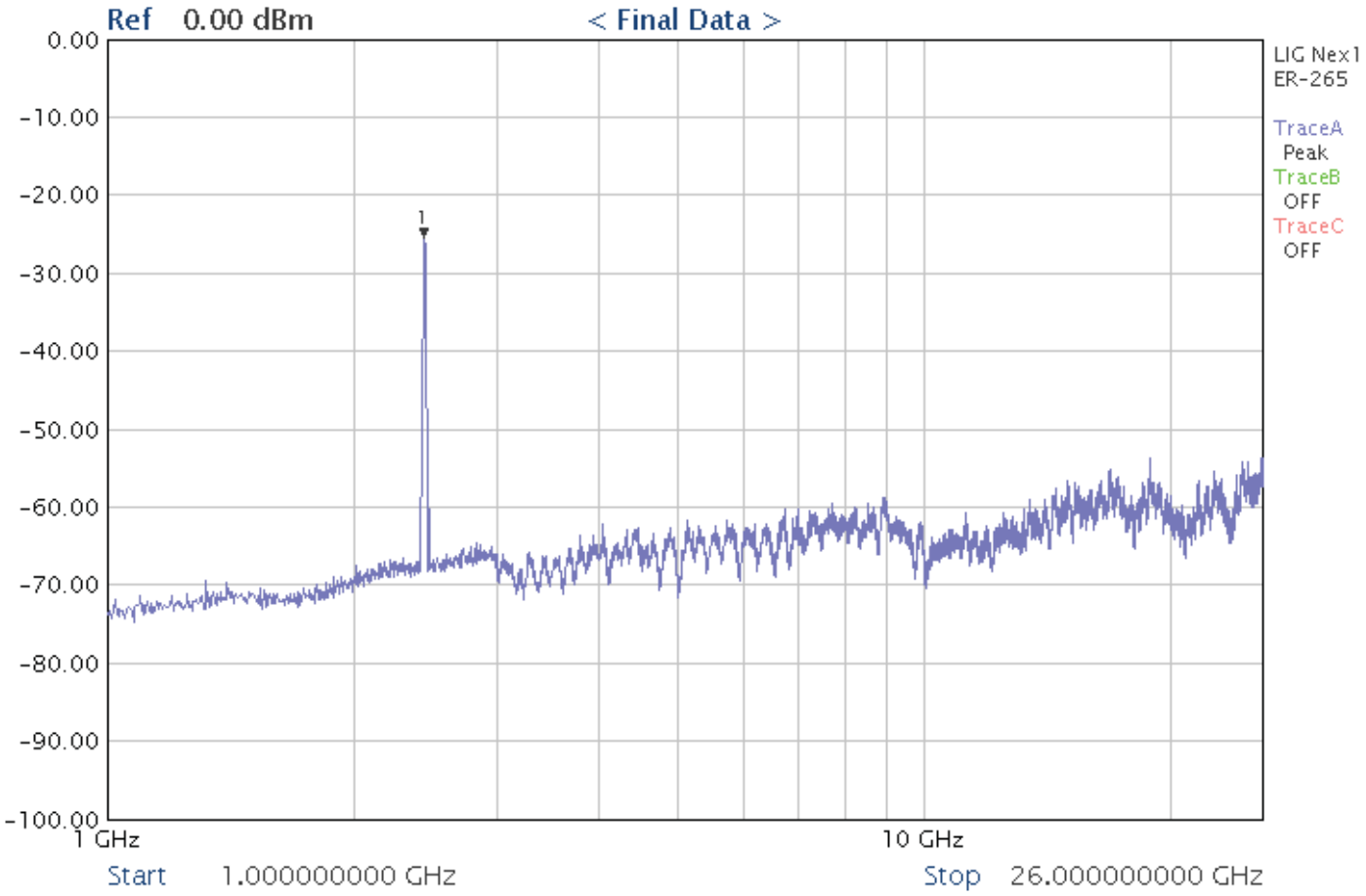
Frequency	1 to 26 GHz	Polarization	Y-Plane
Note	IEEE802.11g – CH7 (2442 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

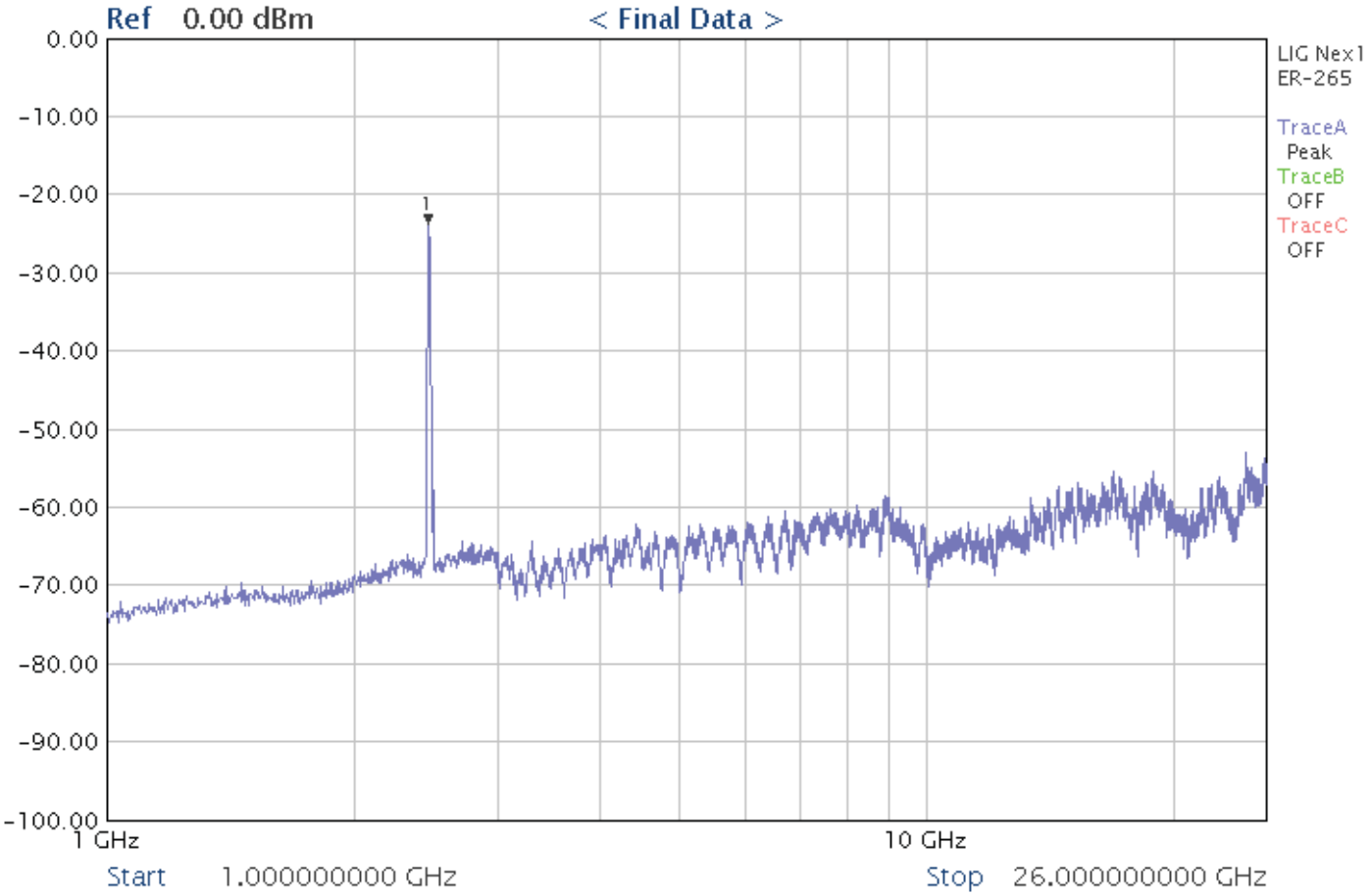
Frequency	1 to 26 GHz	Polarization	Z-Plane
Note	IEEE802.11g – CH7 (2442 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

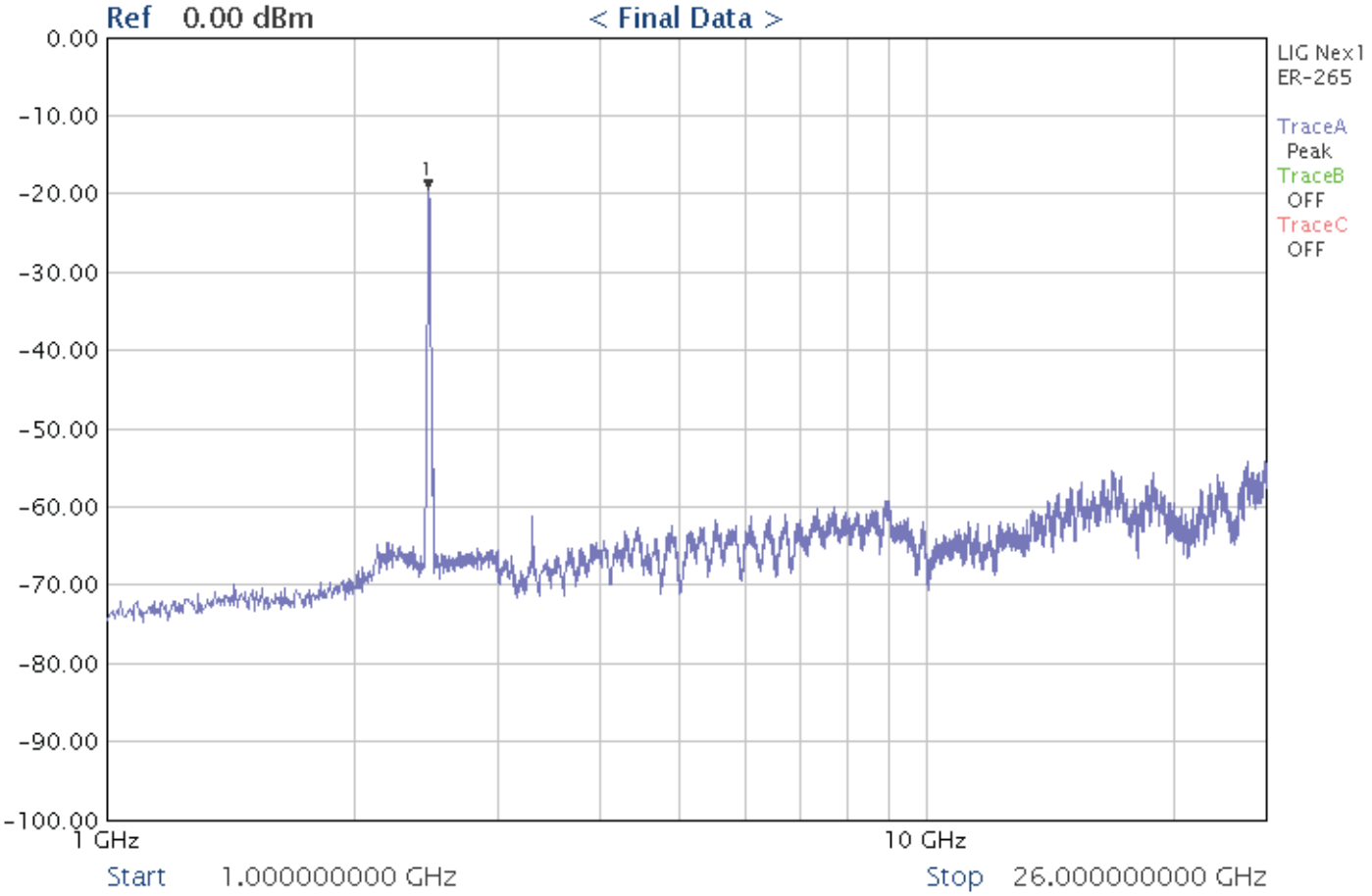
Frequency	1 to 26 GHz	Polarization	X-Plane
Note	IEEE802.11g – CH13 (2472 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

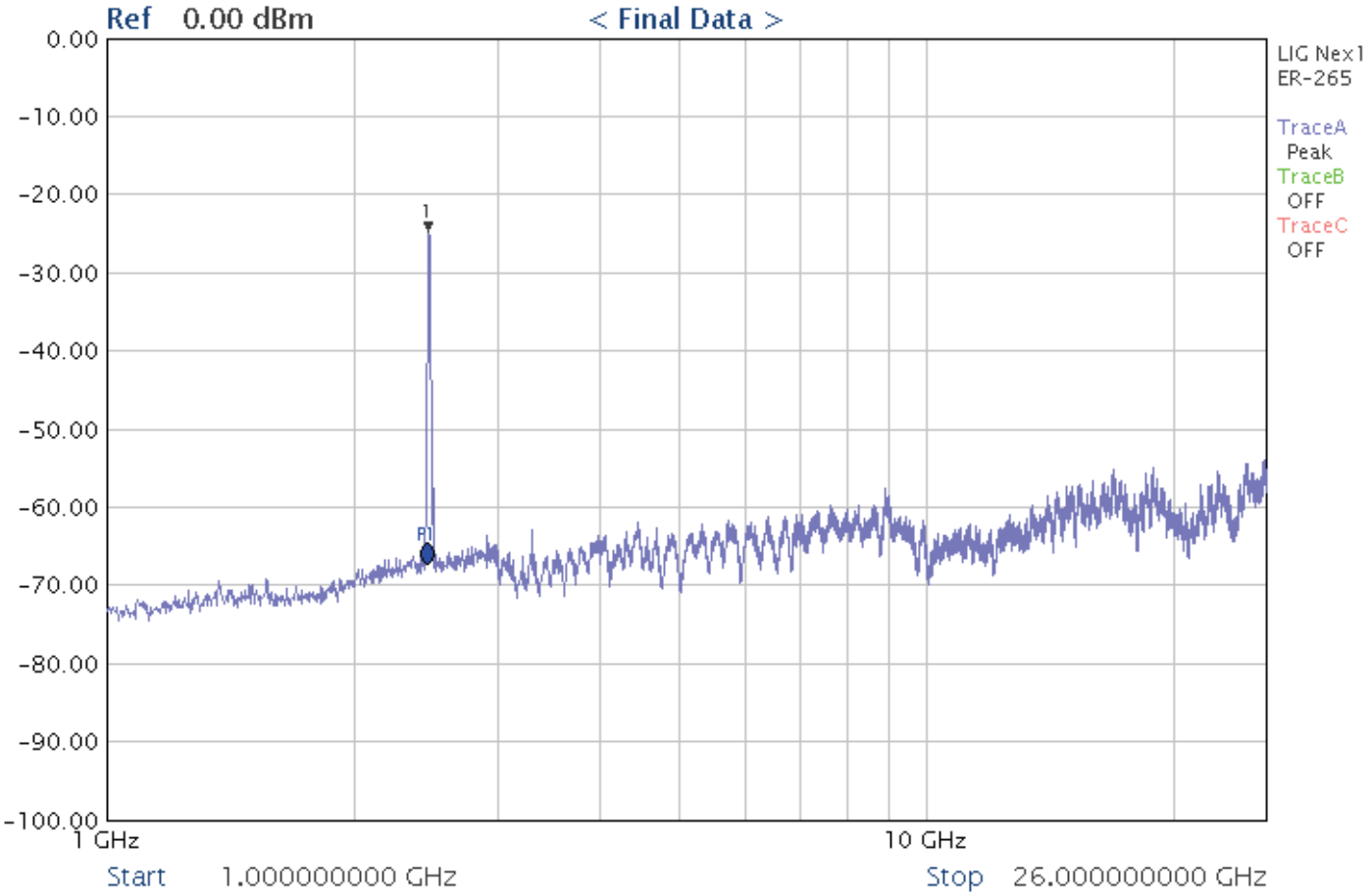
Frequency	1 to 26 GHz	Polarization	Y-Plane
Note	IEEE802.11g – CH13 (2472 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

Frequency	1 to 26 GHz	Polarization	Z-Plane
Note	IEEE802.11g – CH13 (2472 MHz)		



Frequency MHz	Reading dBuV	P (H, V)	Ant. Factor dB	Cable Loss dB	AMP GAIN dB	Total dBuV	Limit dBuV	Margin dB
-	-	-	-	-	-	-	-	-

Note : Other emissions don't exceed the level of 20 dB below the applicable Limit.

3.3 Peak Power Output

3.3.1 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Next of Calibration
Spectrum Analyzer	Advantest	R3273	121100554	Jun. 15, 2010
RF Test Room	-	-	-	-

Note : 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to RRL, KRISS, KTL and HCT.

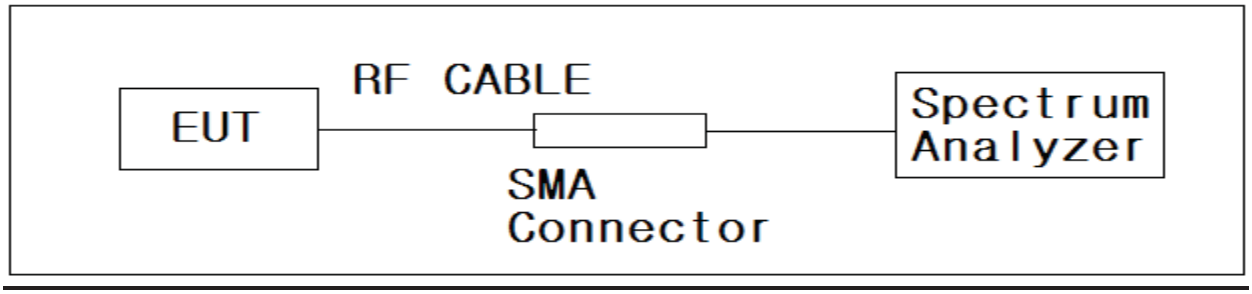
2. The calibration interval of horn ant. and loop ant. is 24 months

3.3.2 Limit

The maximum peak output power of the intentional radiator shall not exceed the following :

1. According to ∮15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz : 1Watt.
2. According to ∮15.247(b)(4), the conducted output power limit specified in paragraph(b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph(c) of this section, is transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs(b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi

3.3.3 Test Configuration



3.3.4 Test Procedure

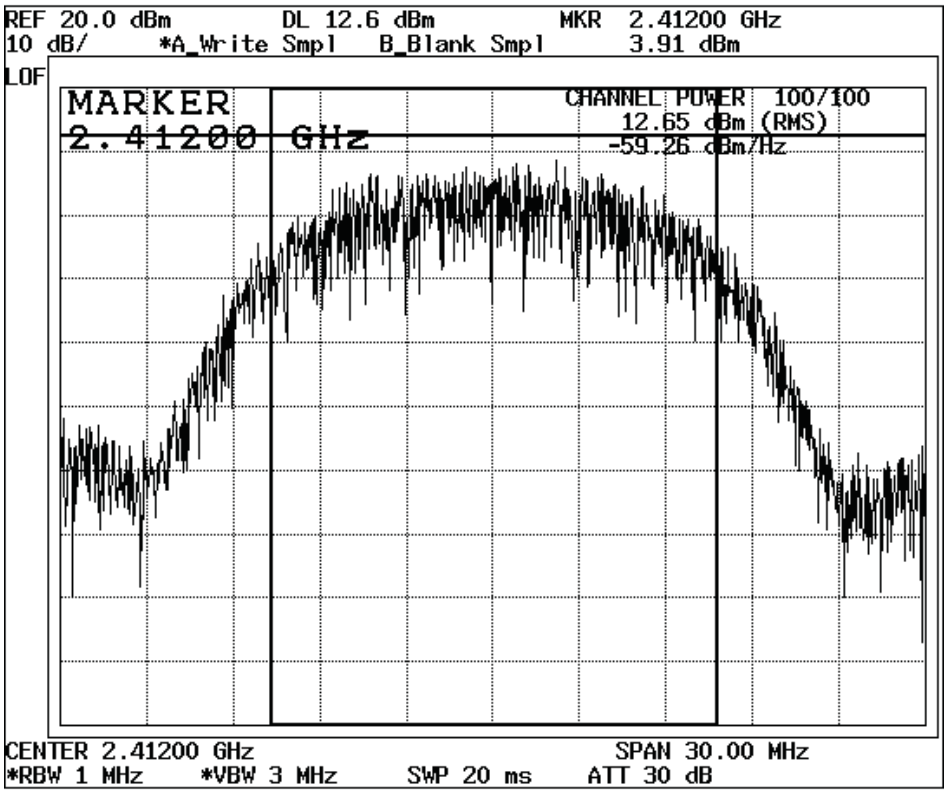
The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the peak power detection.

3.3.5 Peak Power Test Result

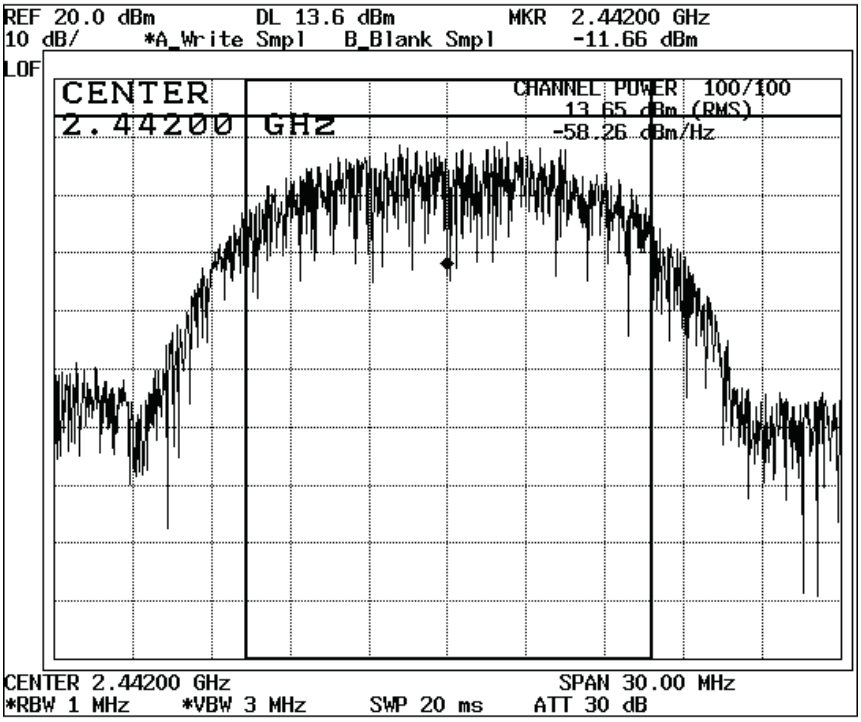
Test Item	Peak Power Output
Test Mode	802.11b
Test Site	RF Room
Measurement Method	Conducted

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	12.65	1Watt=30dBm	Pass
7	2442	13.65	1Watt=30dBm	Pass
13	2472	13.96	1Watt=30dBm	Pass

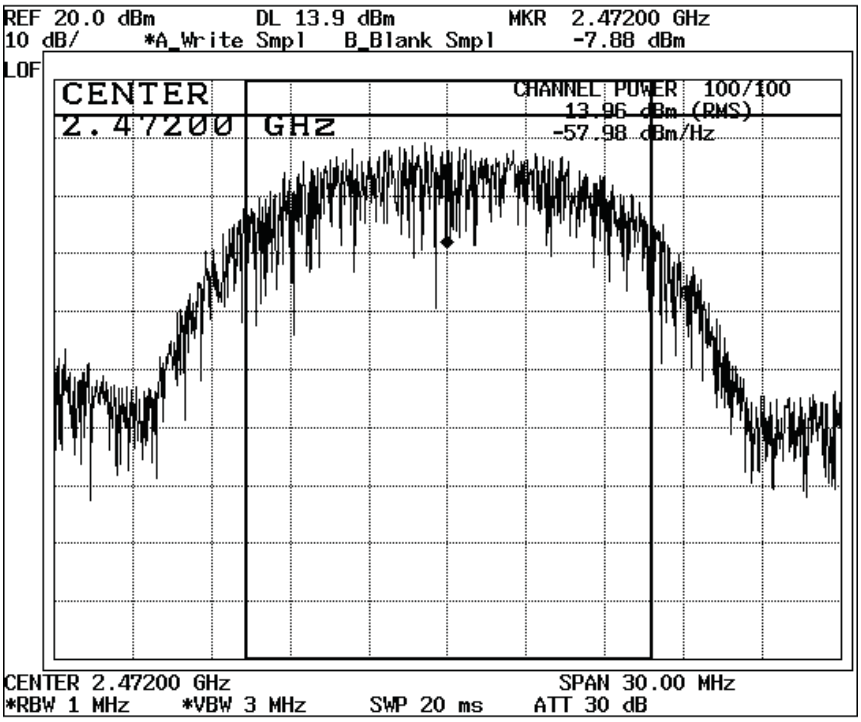
Channel 1.



Channel 7.



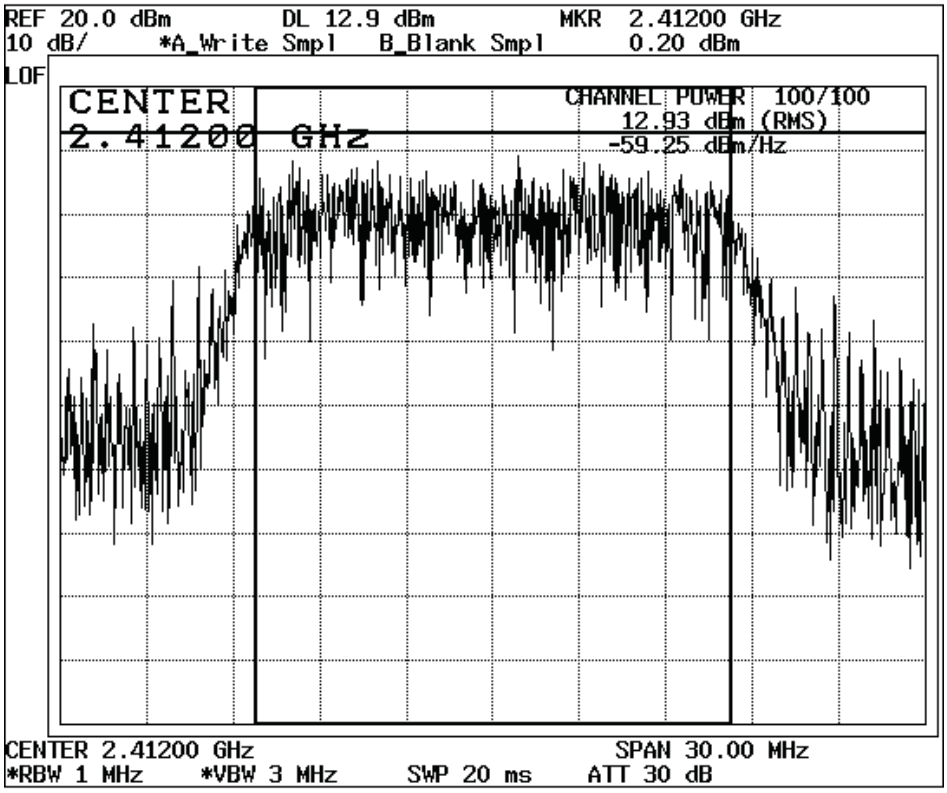
Channel 13.



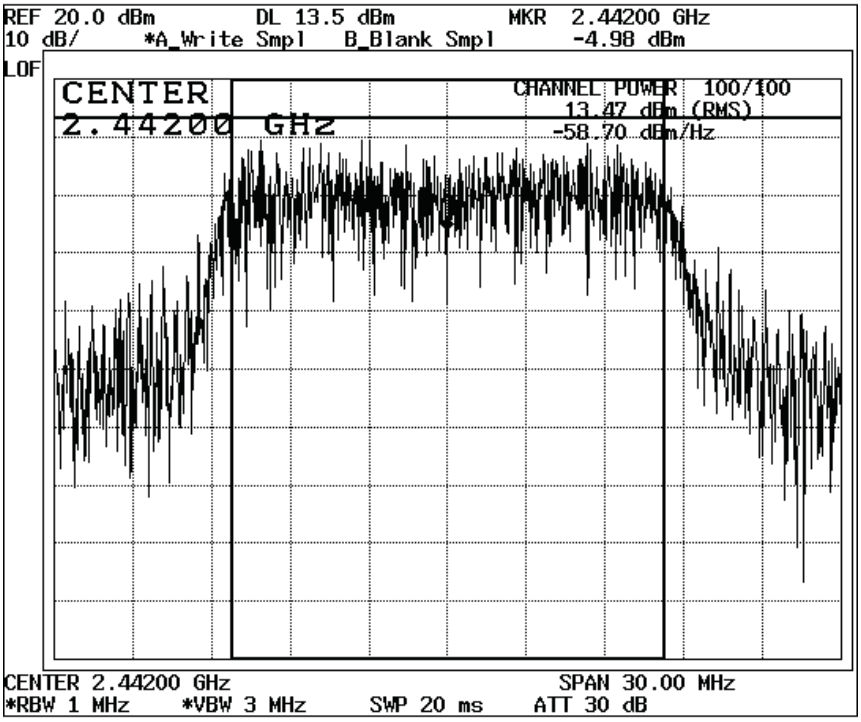
Test Item	Peak Power Output
Test Mode	802.11g
Test Site	RF Room
Measurement Method	Conducted

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	12.93	1Watt=30dBm	Pass
7	2442	13.47	1Watt=30dBm	Pass
13	2472	13.64	1Watt=30dBm	Pass

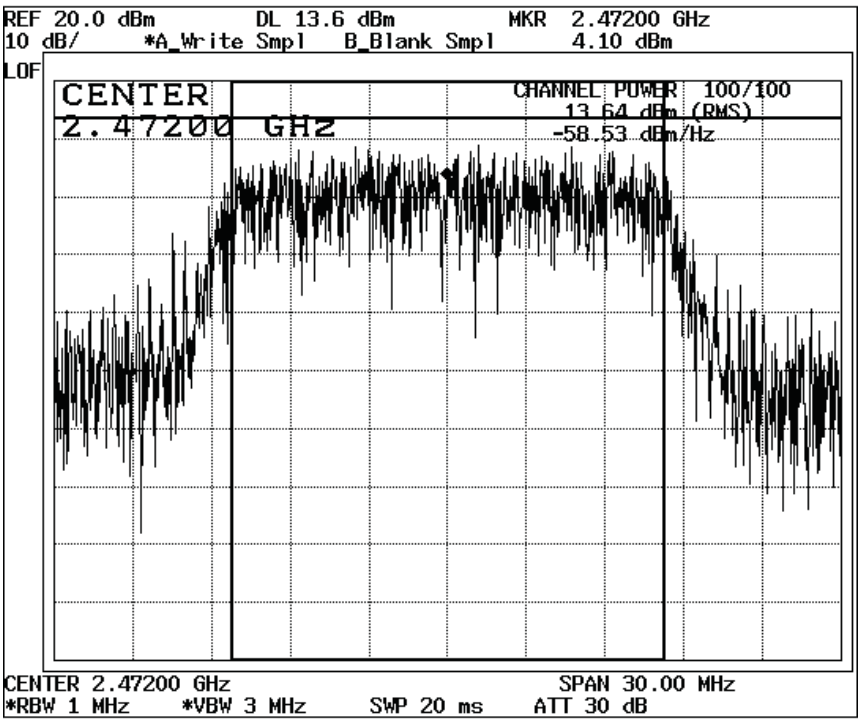
Channel 1.



Channel 7.



Channel 13.



3.4 Band Edge

3.4.1 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Next of Calibration
Test Receiver	LIG NEX1	ER-265	L0804A002	Jul. 10, 2010
Horn Antenna	EMCO	3115	9012-3602	Jun. 26. 2011
Horn Antenna	R&S	HF906	100530	Jun. 26. 2011

Note : 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to RRL, KRISS, KTL and HCT.

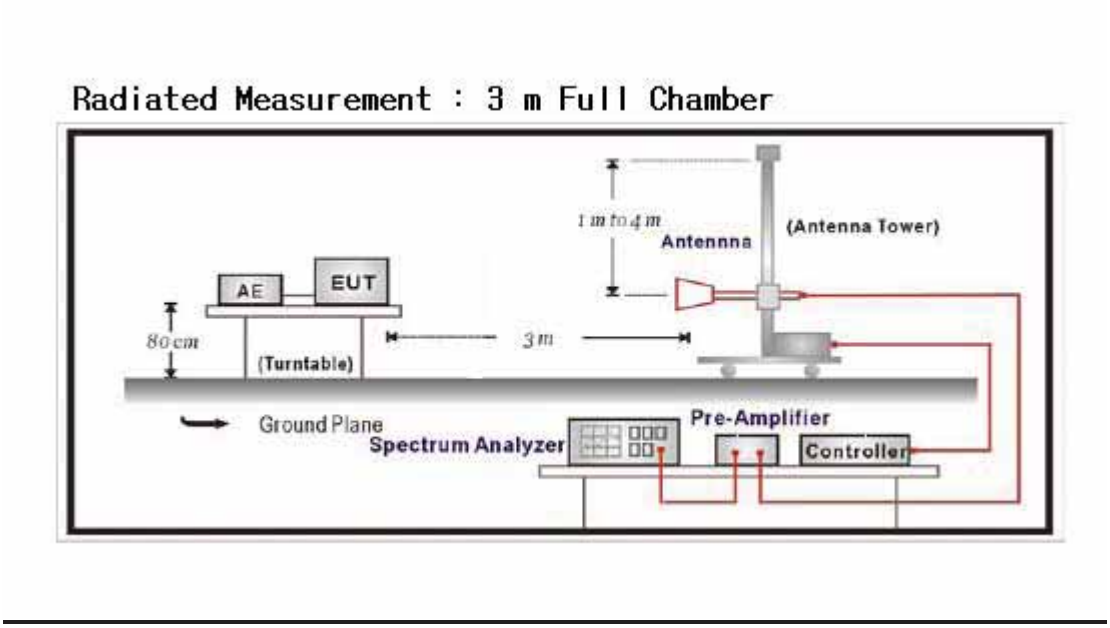
2. The calibration interval of horn ant. and loop ant. is 24 months

3.4.2 Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio Frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within The band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

Attenuation below the general limits specified in section 15.209(a) is not required. In addition, radiated emission which fall in the restricted bands, as defined in section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a)(see Section 15.205(c)).

3.4.3 Test Configuration



3.4.4 Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters. The antenna can move up and down between 1 meter and 4 meters to fine out the maximum emission level.

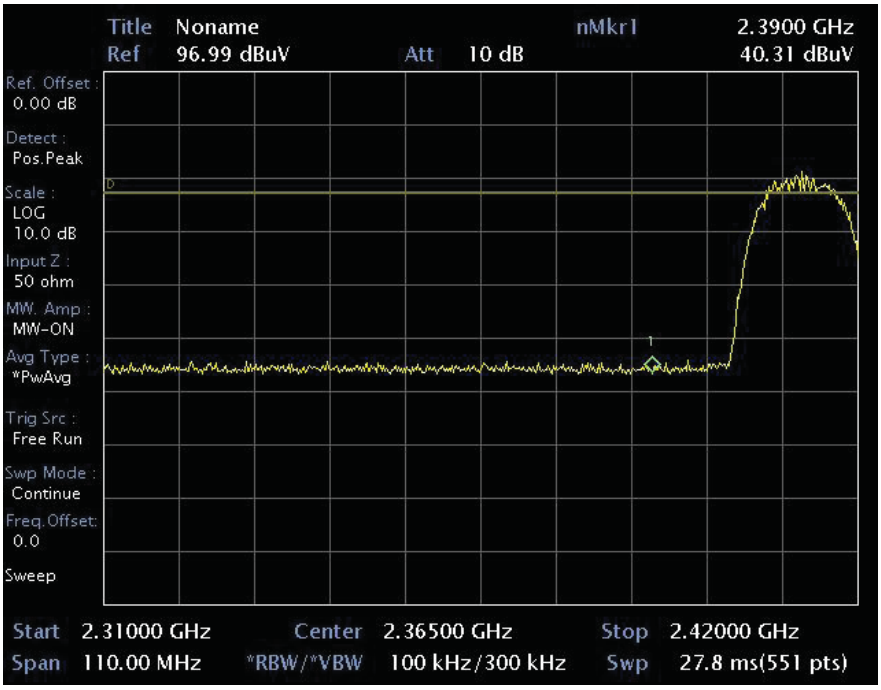
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

The bandwidth below 1 GHz setting on the field strength meter is 120 kHz, above 1GHz are 1MHz.

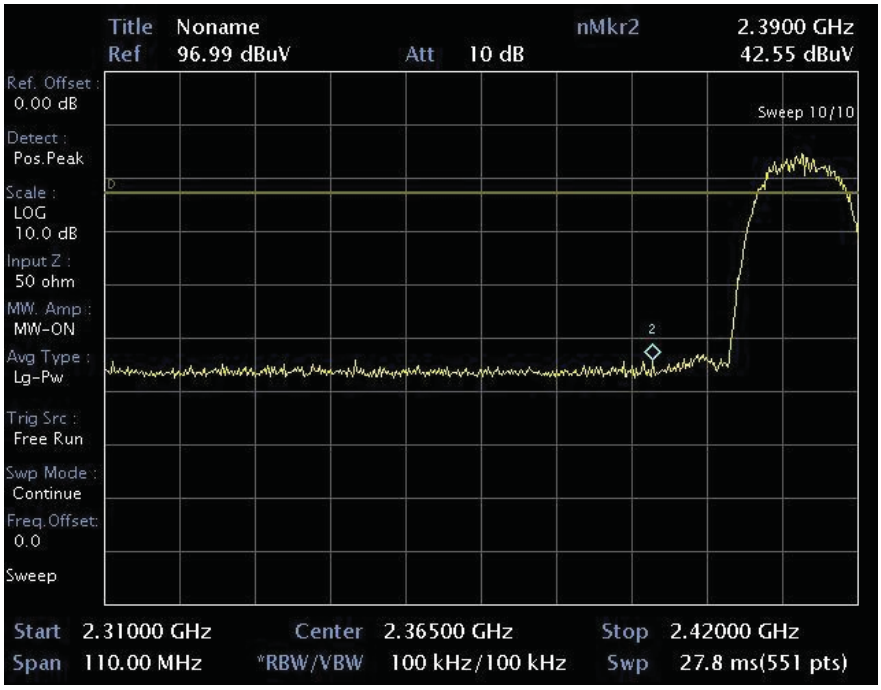
3.4.5 Band Edge Test Result

Detect mode	Peak	Polarization	X-Plane
Note	IEEE802.11b – CH1 (2412 MHz)		

HOR.

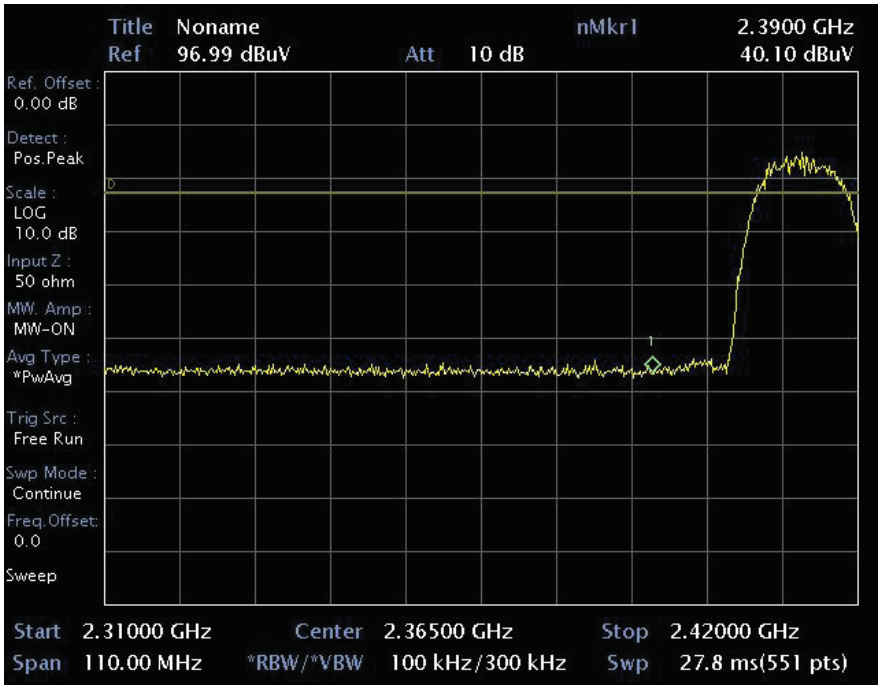


VER.

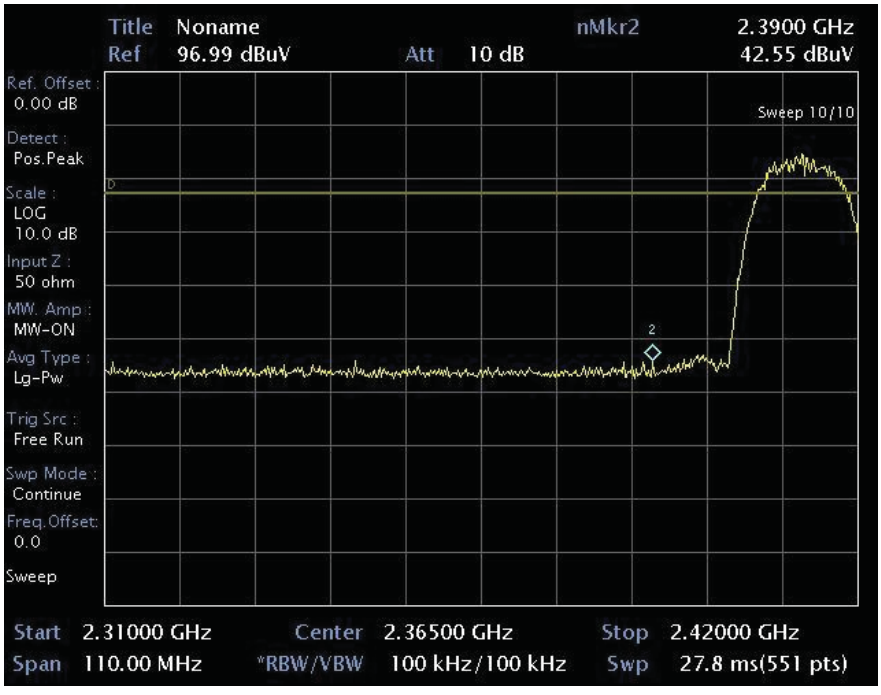


Detect mode	Peak	Polarization	Y-Plane
Note	IEEE802.11b – CH1 (2412 MHz)		

HOR.

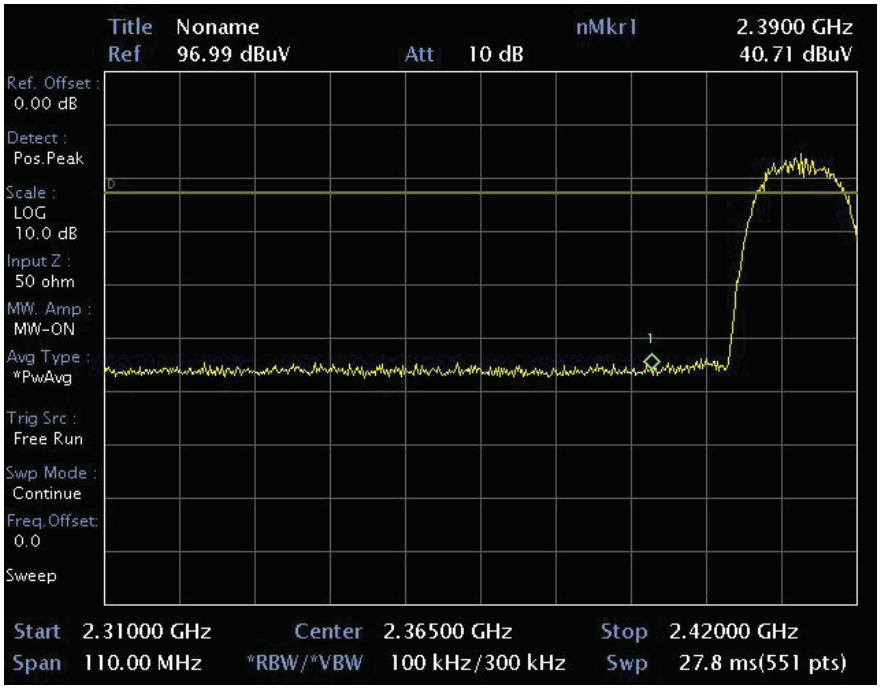


VER.

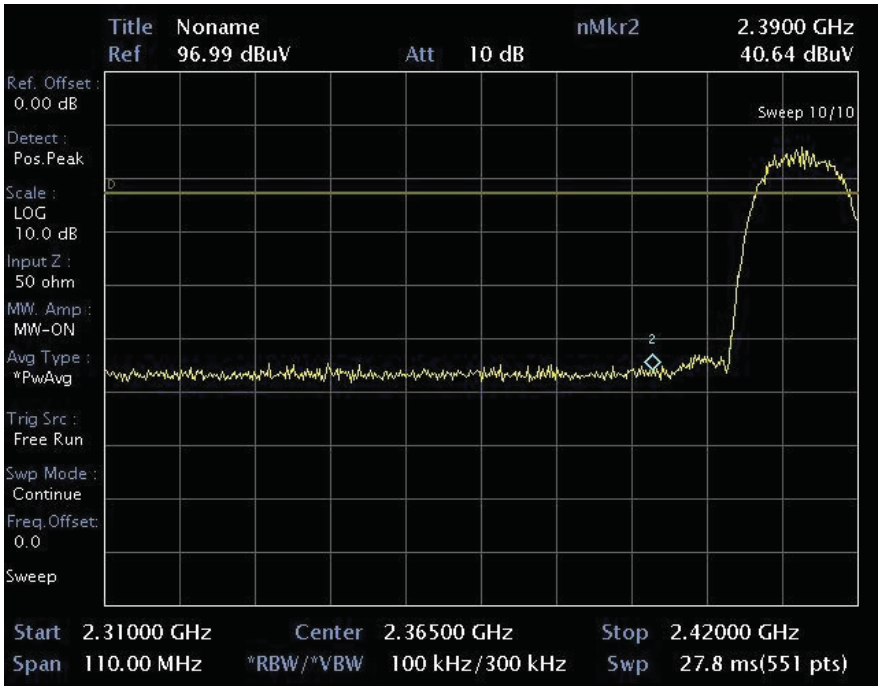


Detect mode	Peak	Polarization	Z-Plane
Note	IEEE802.11b – CH1 (2412 MHz)		

HOR.

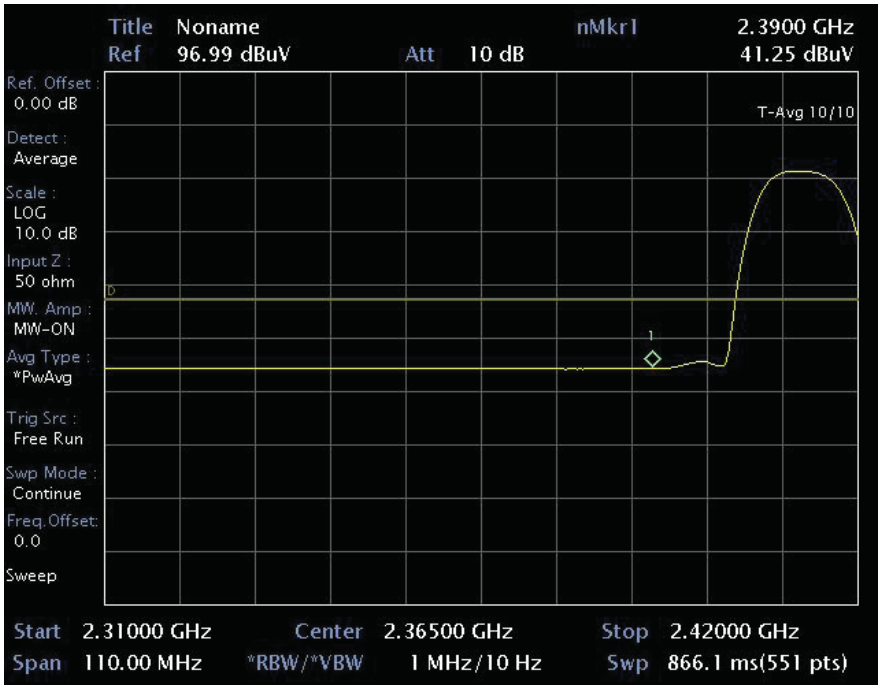


VER.

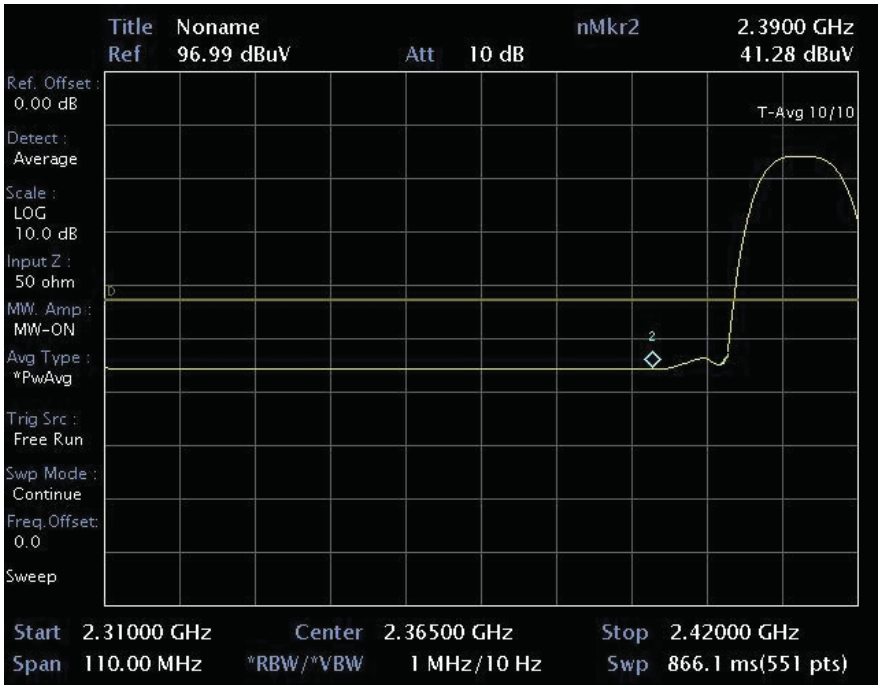


Detect mode	Average	Polarization	X-Plane
Note	IEEE802.11b – CH1 (2412 MHz)		

HOR.

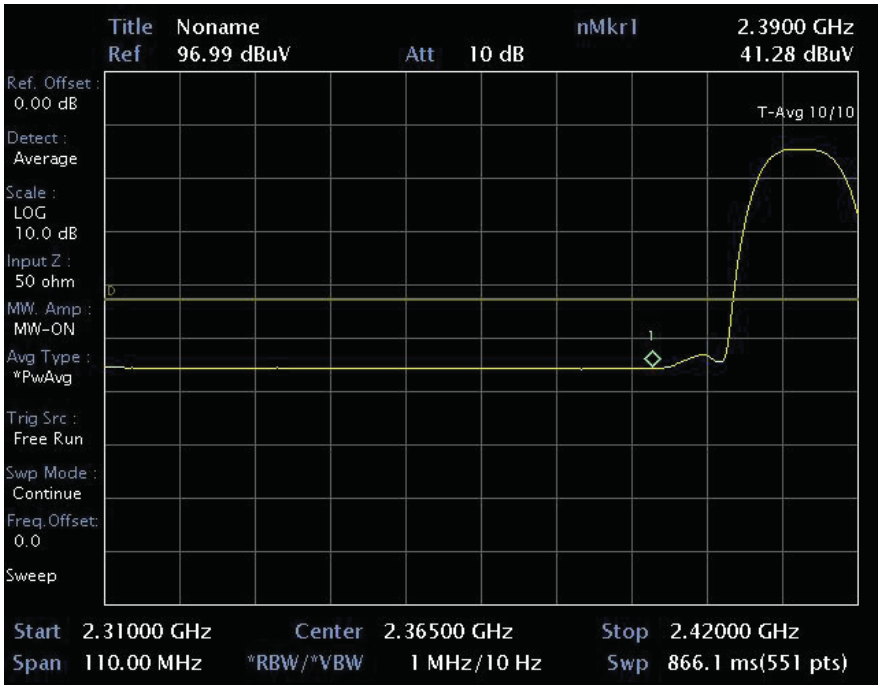


VER.

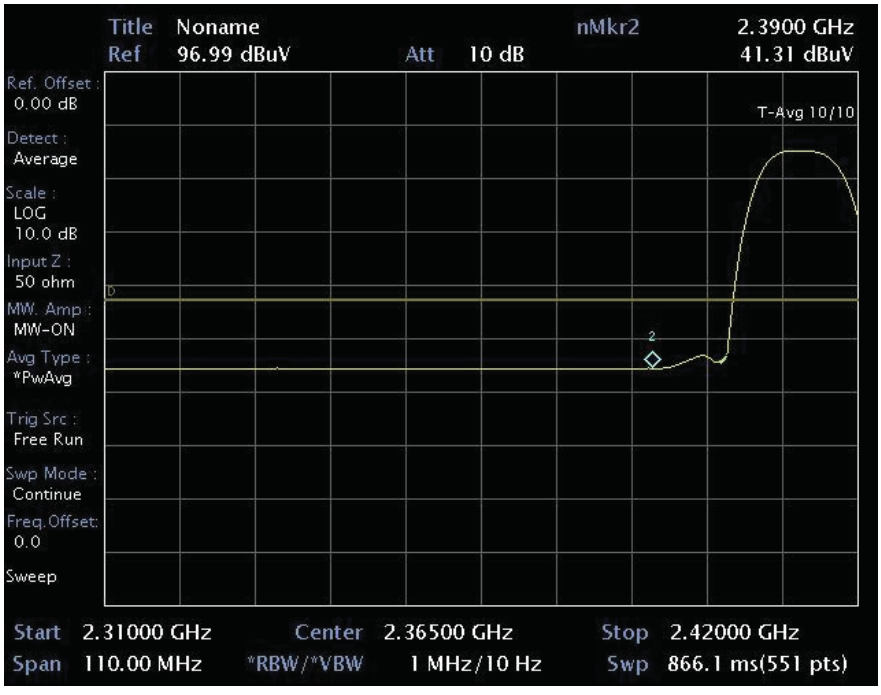


Detect mode	Average	Polarization	Y-Plane
Note	IEEE802.11b – CH1 (2412 MHz)		

HOR.

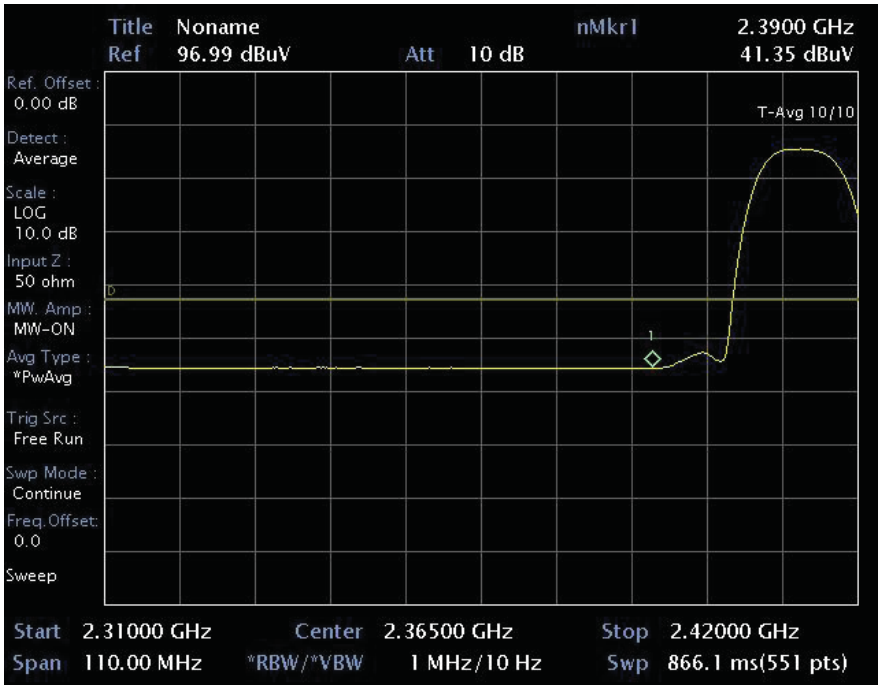


VER.

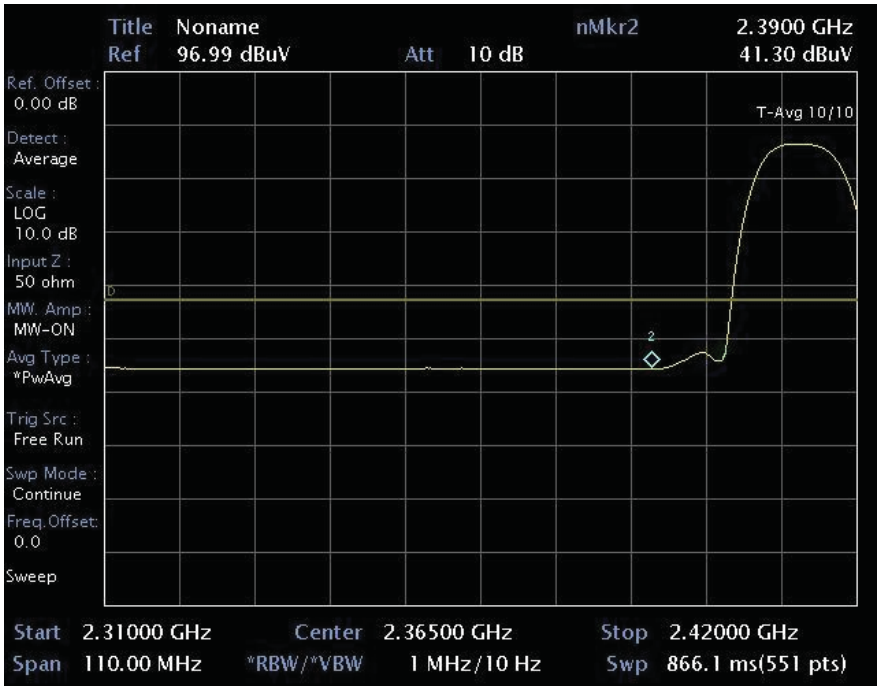


Detect mode	Average	Polarization	Z-Plane
Note	IEEE802.11b – CH1 (2412 MHz)		

HOR.

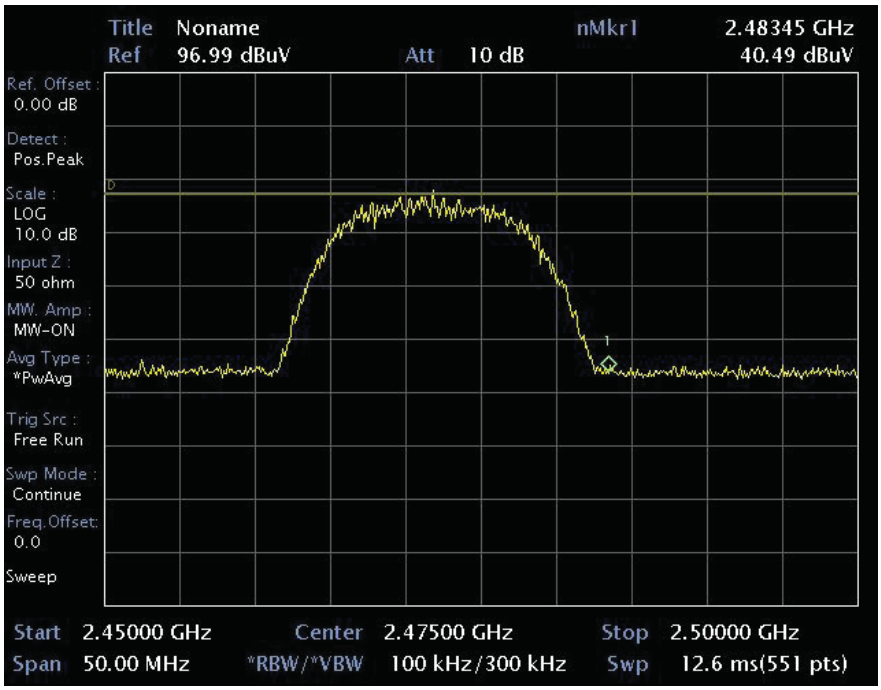


VER.

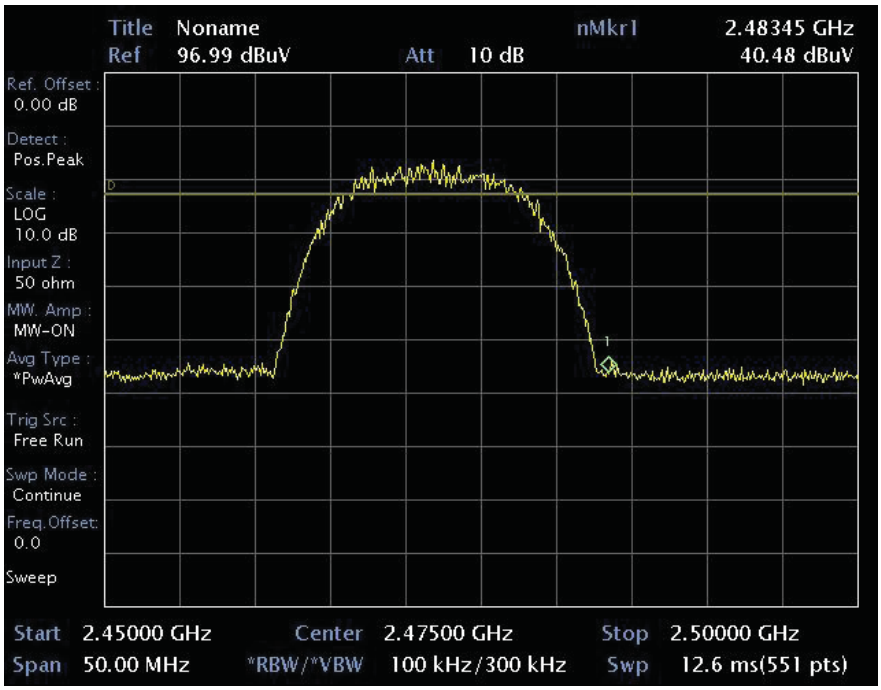


Detect mode	Peak	Polarization	X-Plane
Note	IEEE802.11b – CH13 (2472 MHz)		

HOR.

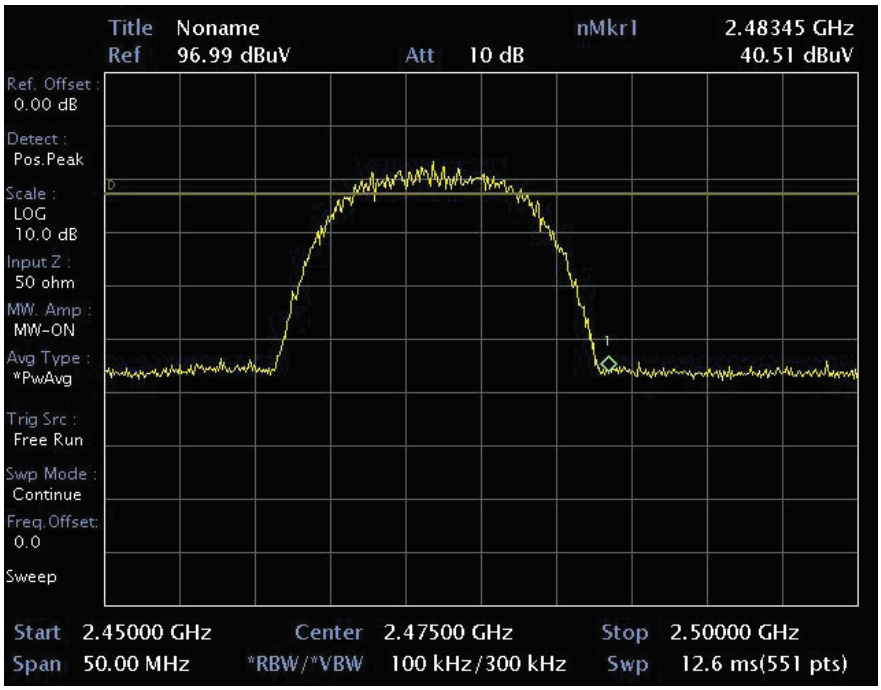


VER.

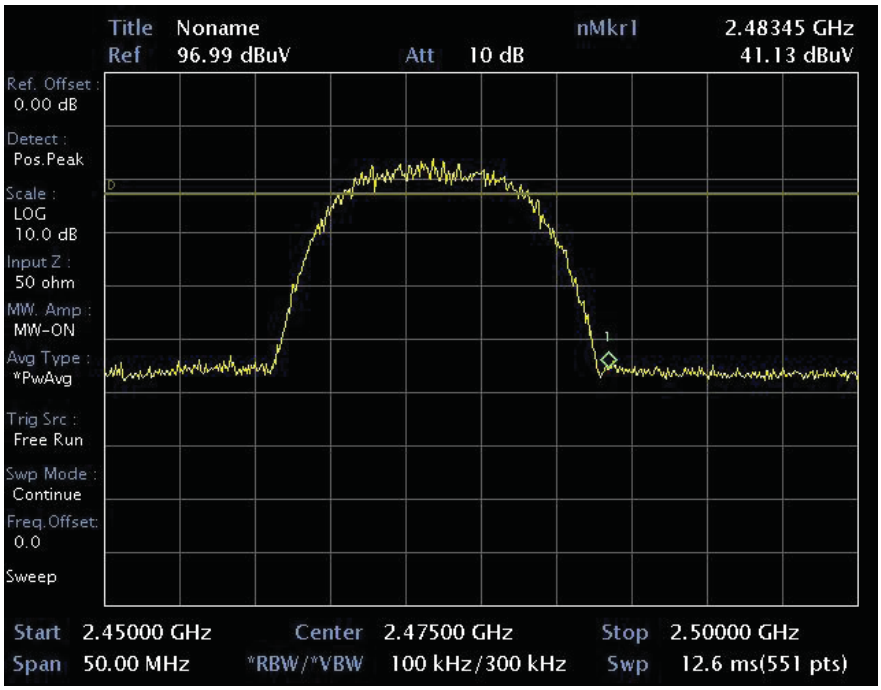


Detect mode	Peak	Polarization	Y-Plane
Note	IEEE802.11b – CH13 (2472 MHz)		

HOR.

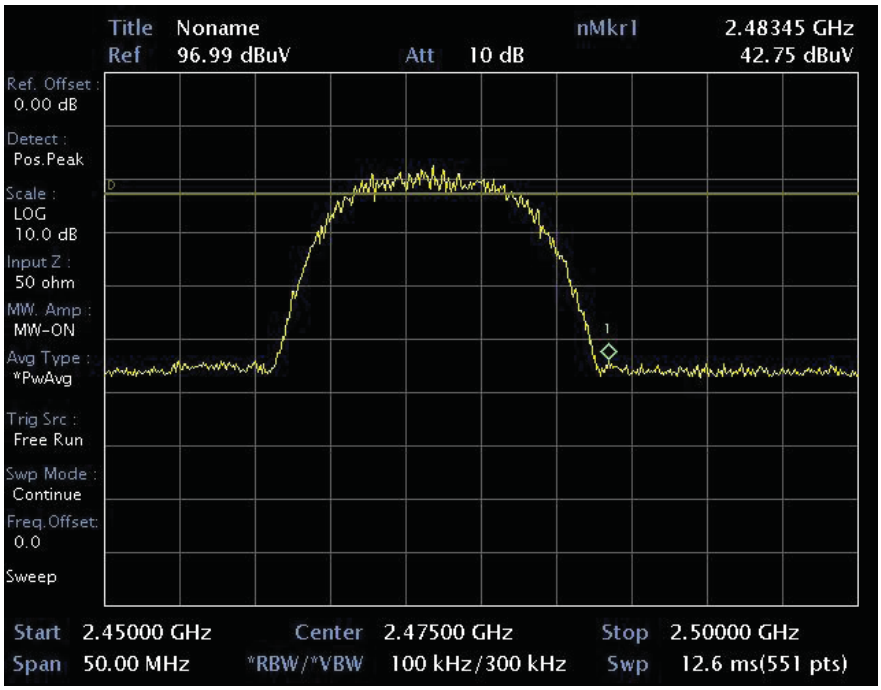


VER.

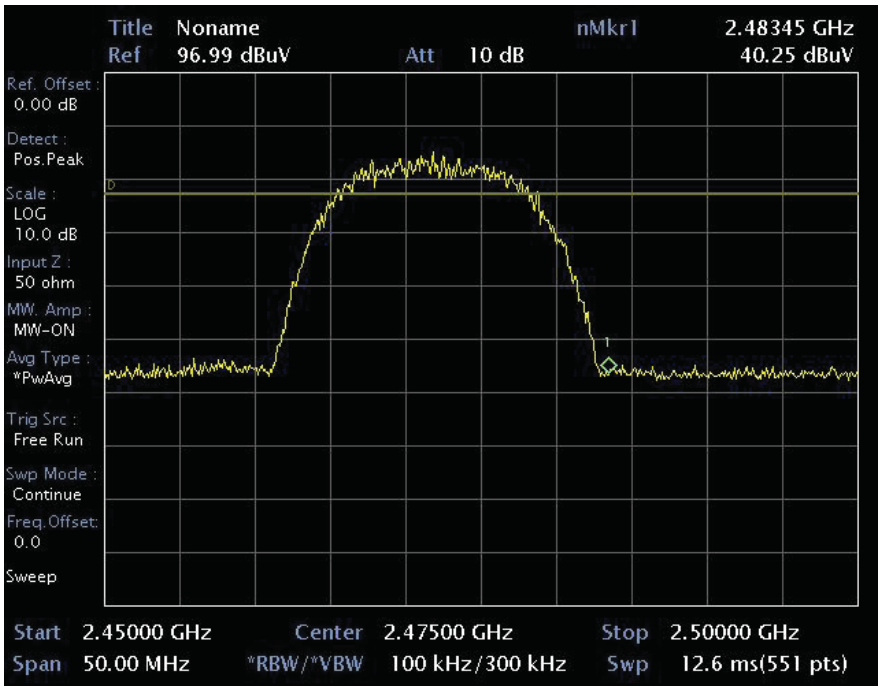


Detect mode	Peak	Polarization	Z-Plane
Note	IEEE802.11b – CH13 (2472 MHz)		

HOR.

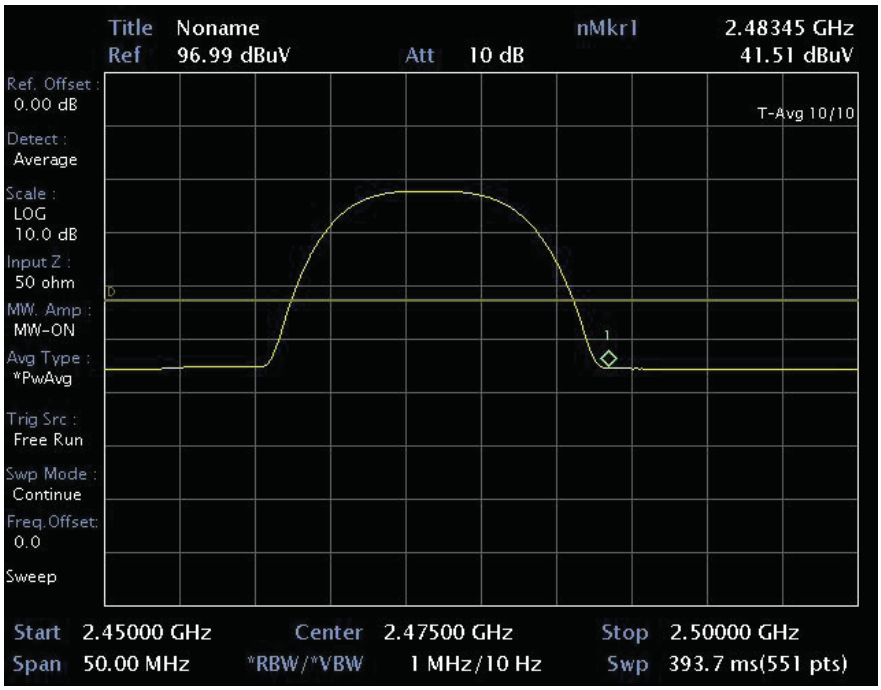


VER.

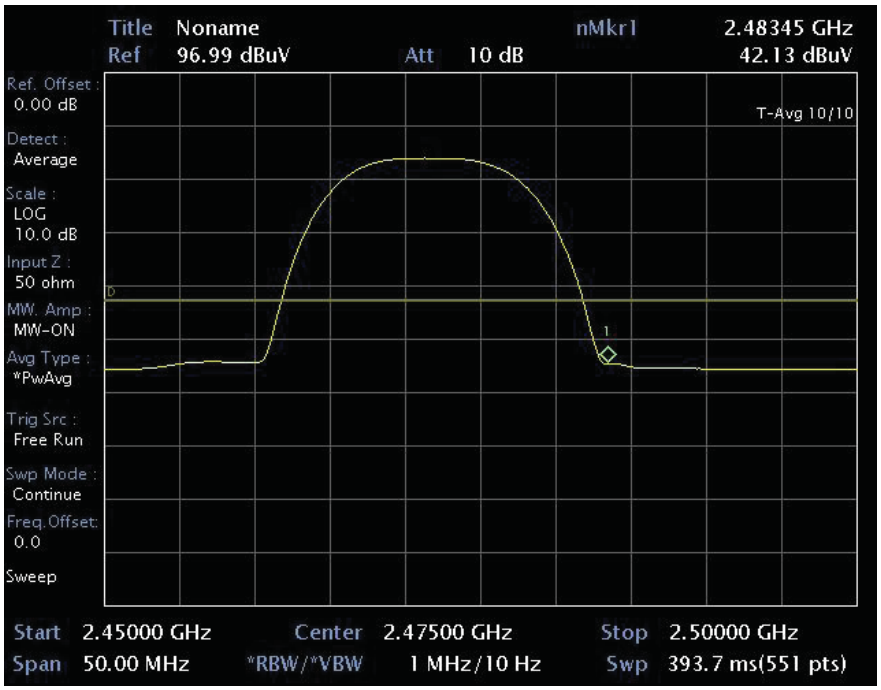


Detect mode	Average	Polarization	X-Plane
Note	IEEE802.11b – CH13 (2472 MHz)		

HOR.

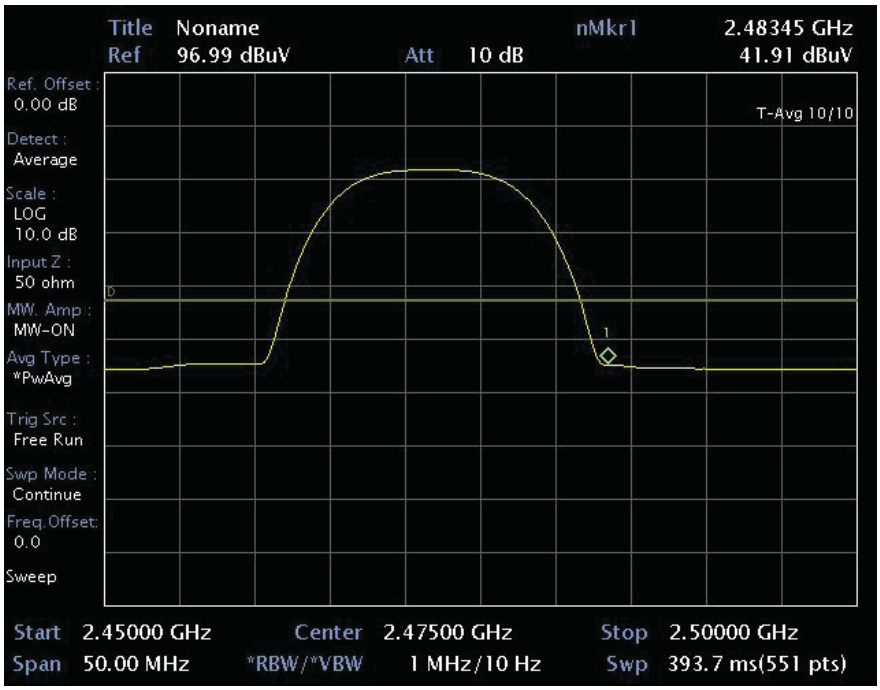


VER.

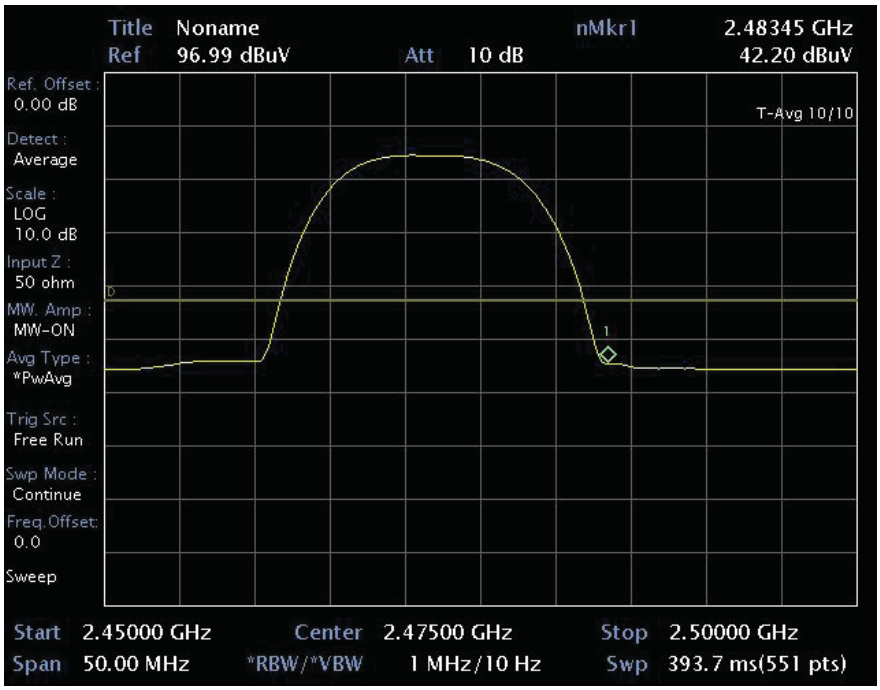


Detect mode	Average	Polarization	Y-Plane
Note	IEEE802.11b – CH13 (2472 MHz)		

HOR.

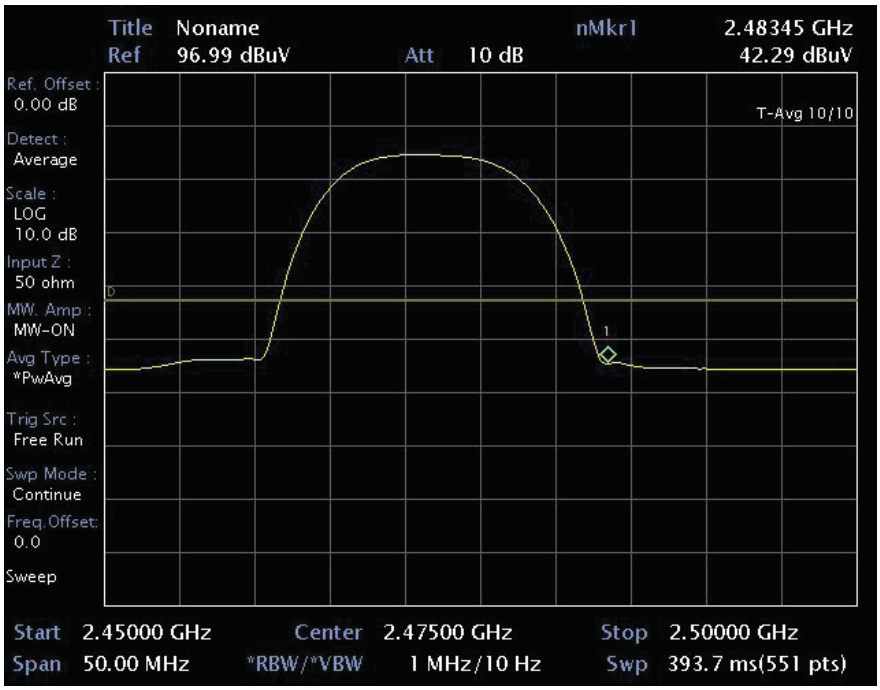


VER.



Detect mode	Average	Polarization	Z-Plane
Note	IEEE802.11b – CH13 (2472 MHz)		

HOR.



VER.