Test Report

FCC Part15 Subpart C

Product Name	:	Mobile POS Kiosk
Model No.	:	PA02
FCC ID	:	2AAIUPA0200014201U1

Applicant	:	OFFICIAL RECHARGE
Address	:	4800 Sugar Grove Boulevard, Suite 450 Stafford, TX 77477

Date of Receipt	:	14/06/2013
Test Date	:	15/06/2013~07/03/2013
Issued Date	:	06/07/2013
Report No.	:	136S018R-RF-US-P05V01
Report Version	:	V2.0

The test results relate only to the samples tested.
The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.
This report must not be used to claim product endorsement by TAF, CNAS or any agency of the Government.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

Test Report Certification

Issued Date : 06/07/2013
Report No. : 136S018R-RF-US-P05V01

Product Name	:	Mobile POS Kiosk
Applicant	:	OFFICIAL RECHARGE
Address	:	4800 Sugar Grove Boulevard, Suite 450 Stafford, TX 77477
Manufacturer	:	CYNOVO, Inc
Address	:	4th Floor, B Section, Sagittair Building, Wuxi National Software Park, No.18 Zhenze Road, Wuxi City,Jiangsu Province,P.R.C.
Model No.	:	PA02
FCC ID	:	2AAIUPA0200014201U1
EUT Voltage	:	12V
Brand Name	:	OR
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C: 2012 ANSI C63.4: 2009; KDB 558074
Test Result	:	Complied
Performed Location	:	Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392

Documented By	:	Alice Ni
Reviewed By	:	Jame yuan
Approved By	:	Robin Wu

Laboratory Information

We, **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC**
Japan	**:**	**VCCI**
China	**:**	**CNAS**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site :http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory :
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TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : service@quietek.com

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1. General Information

1.1. EUT Description

Product Name	Mobile POS Kiosk
Brand Name	OR
Model No.	PA02
EUT Voltage	12V
2G	
Support Band	GSM850/PCS1900
GPRS Class	Class 12
Uplink	GSM 850: 824~849MHz PCS 1900: 1850~1910MHz
Downlink	GSM 850: 869~894MHz PCS 1900: 1930~1990MHz
Release Version	R99
Type of modulation	GMSK for GSM/GPRS; 8PSK for EDGE
Antenna Gain	GSM 850: -0.5dBi PCS1900: -0.2dBi
3G	
Support Band	WCDMA Band II/WCDMA Band V
Uplink	WCDMA Band II: 1850~1910MHz WCDMA Band V: 824~849MHz
Downlink	WCDMA Band II: 1930~1990MHz WCDMA Band V: 869~894MHz
Release Version	Rel-6
Type of modulation	QPSK
Antenna Gain	WCDMA Band II: 1.5dBi WCDMA Band V: 0.5dBi
Wi-Fi	
Wi-Fi Frequency	802.11b/g/n(20MHz): 2412 ~ 2462 MHz 802.11n(40MHz): 2422 ~ 2452 MHz
Type of modulation	802.11b: DSSS; 802.11g/n: OFDM
Data Rate	802.11b: 1/2/5.5/11 Mbps
	802.11g: 6/9/12/18/24/36/48/54 Mbps
	802.11n: up to 135 Mbps
Channel Control	Auto

Antenna Delivery	1*Tx + 1*Rx
Antenna Type	PCB Antenna
Peak Antenna Gain	-3.4dBi for 2.4G~2.5G
Components	
Adapter	M/N: P36-120300 Input: 100-240V~50/60Hz 1.5A Output: 12.0V, 3.0A

For 2.4GHz Band

802.11b/g/n(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz	04	2427 MHz
05	2432 MHz	06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	10	2457 MHz	11	2462 MHz	N/A	N/A
802.11n(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz	N/A	N/A

Power Parameter Value of the test software

Test Mode	Test Channel	Setup Value
802.11b	2412	42
	2437	42
	2462	43
802.11g	2412	35
	2437	34
	2462	34
802.11n(20MHz)	2412	34
	2437	34
	2462	35
802.11n(40MHz)	2422	36
	2437	34
	2452	34

Duty Cycle

Test Mode	Duty Cycle
802.11b	100%
802.11g	100%
802.11n(20MHz)	100%
802.11n(40MHz)	100%

1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit by 802.11b
Mode 2: Transmit by 802.11g
Mode 3: Transmit by 802.11n (20MHz)
Mode 4: Transmit by 802.11n (40MHz)

Note:

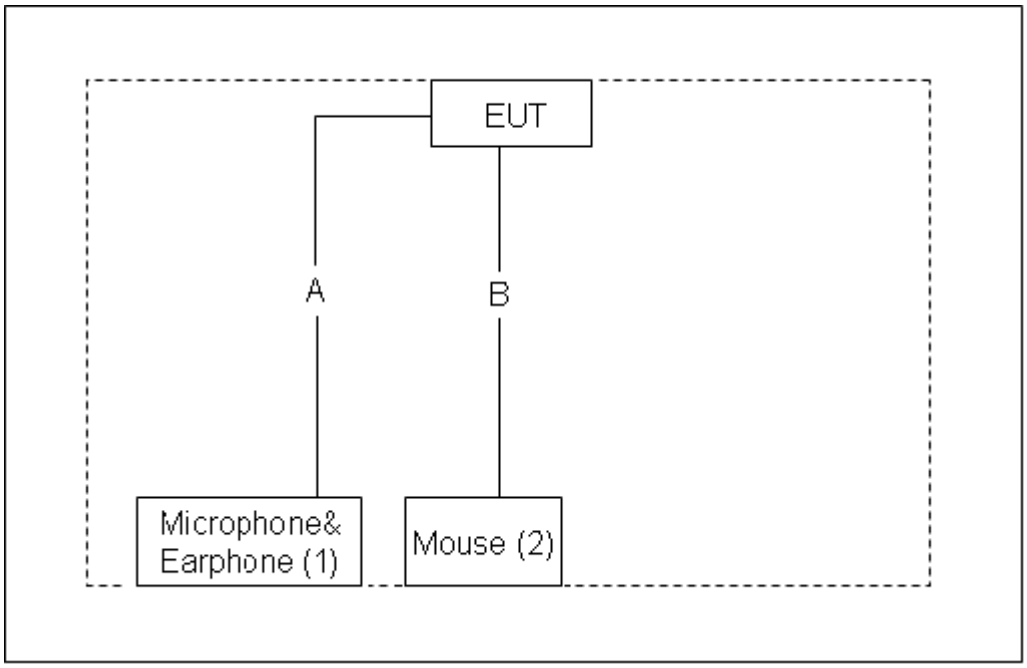
1. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test report that the report number is 135320R-ITUSP01V02.

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Microphone & Earphone	Lenovo	P710	os1308015202297	Power by EUT
2	Mouse	Dell	L100	CN0RH65665890968042R	Power by EUT

1.4. Configuration of Tested System

Connection Diagram


Signal Cable Type		Signal cable Description
A	Microphone & Earphone Cable	No-Shielded,1.8m
B	Mouse Cable	No-Shielded,1.8m

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Execute some commands on the PC provided by applicant.
4	Setup the test channel and the test mode press ok to start the continue transmit.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.207	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.209	Yes	No
RF Antenna Conducted Spurious	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(d)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2012 15.247(d)	Yes	No
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2012 15.215(c)	Yes	No
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(a)(2)	Yes	No
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(b)(3)	Yes	No
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.247(e)	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission

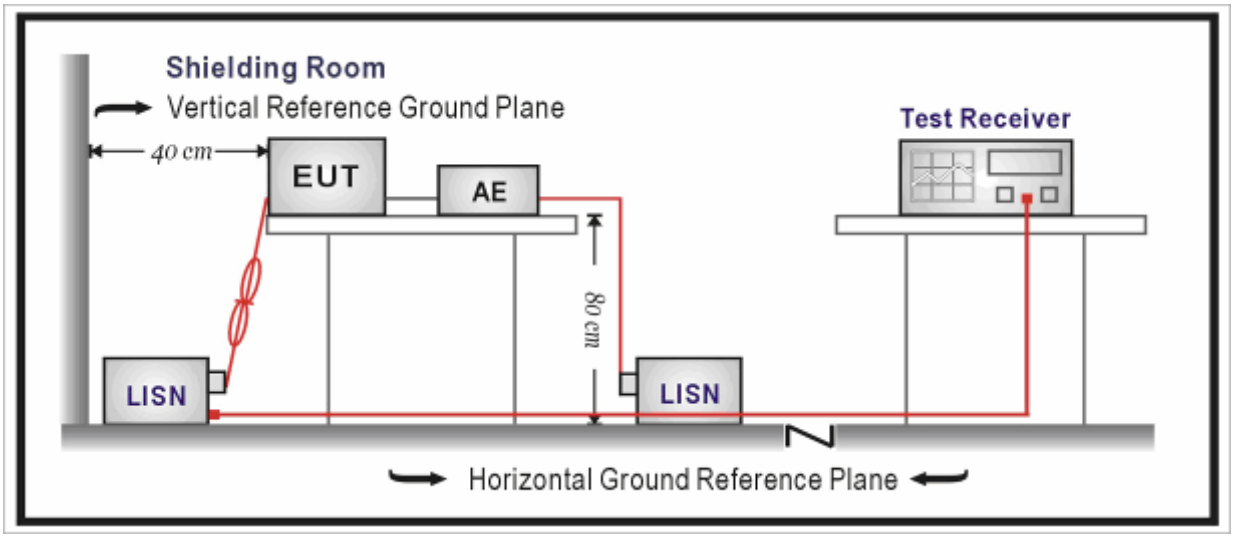
3.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
EMI Test Receiver	R&S	ESCI	100726	2014.03.30
Two-Line V-Network	R&S	ENV216	100043	2014.03.30
Two-Line V-Network	R&S	ENV216	100044	2013.09.17
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2014.03.01
50ohm Termination	SHX	TF2	07081401	2013.09.17
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2014.01.10

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. Test Setup



3.3. Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 – 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

3.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

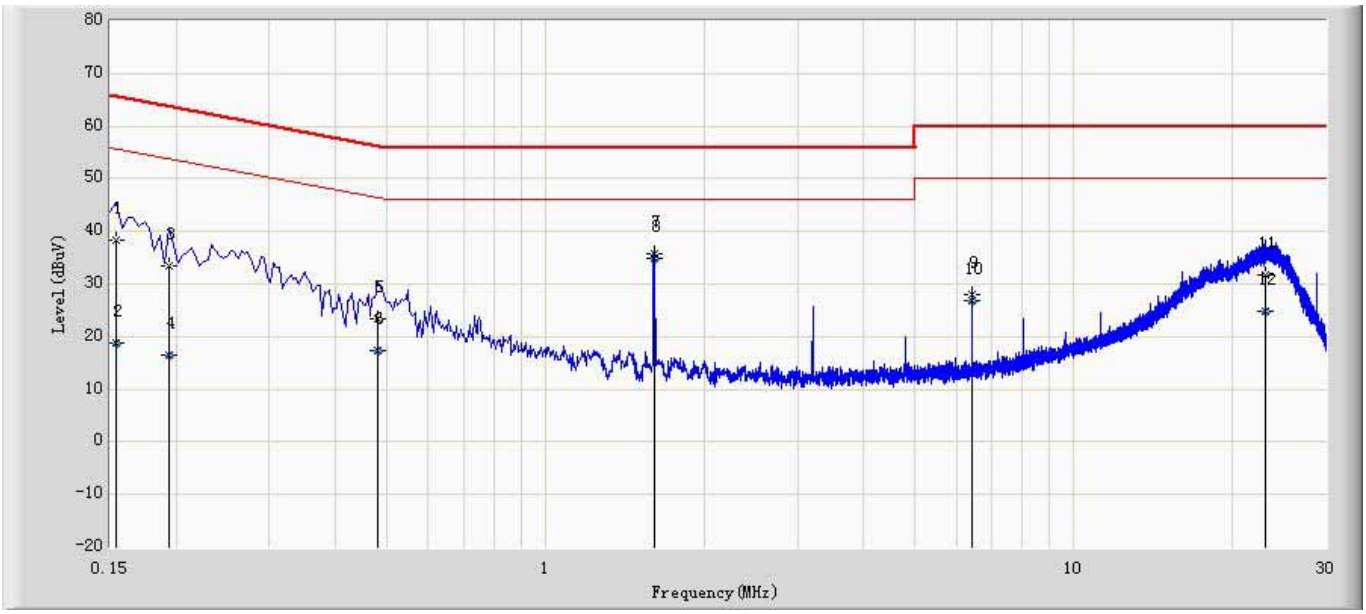
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

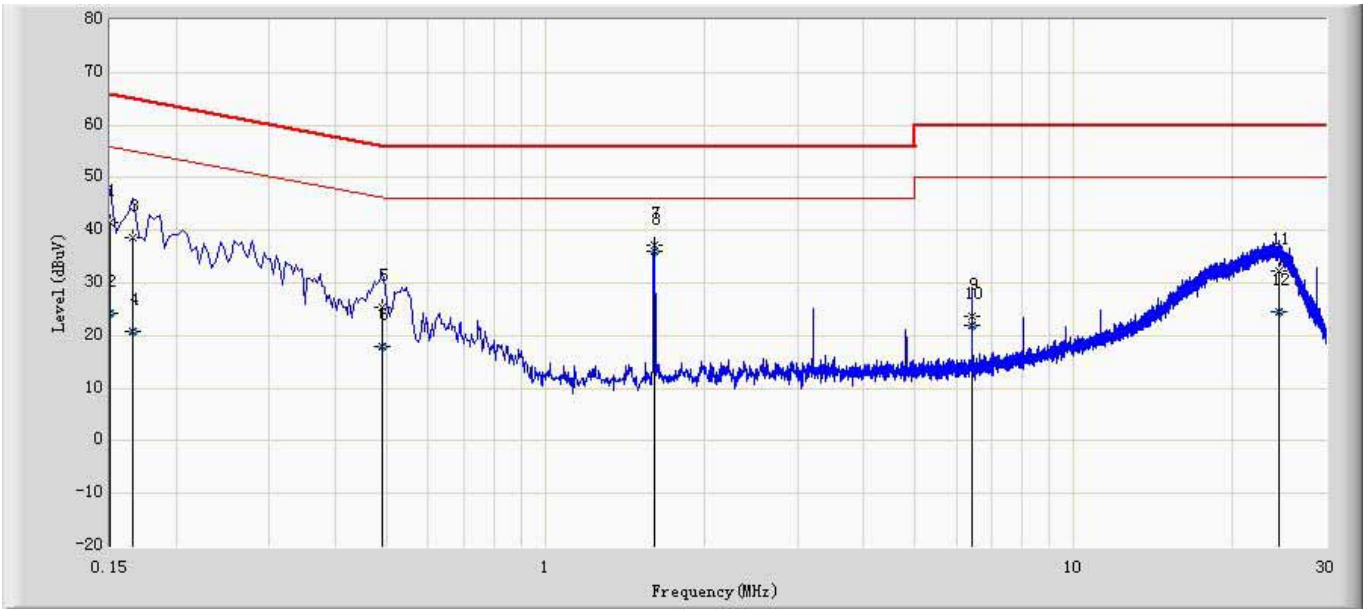
3.6. Test Result

Engineer: Milo	
Site: TR1	Time: 2013/07/05 - 08:40
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode1: Normal Operation	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.154	38.256	28.410	-27.525	65.781	9.846	QP
2		0.154	18.674	8.828	-37.107	55.781	9.846	AV
3		0.194	33.373	23.514	-30.491	63.864	9.859	QP
4		0.194	16.558	6.699	-37.306	53.864	9.859	AV
5		0.482	23.496	13.588	-32.809	56.305	9.908	QP
6		0.482	17.352	7.444	-28.953	46.305	9.908	AV
7		1.606	35.658	25.862	-20.342	56.000	9.796	QP
8	*	1.606	34.742	24.946	-11.258	46.000	9.796	AV
9		6.418	27.868	17.957	-32.132	60.000	9.911	QP
10		6.418	26.829	16.918	-23.171	50.000	9.911	AV
11		23.106	31.802	21.252	-28.198	60.000	10.550	QP
12		23.106	24.704	14.154	-25.296	50.000	10.550	AV

Engineer: Milo	
Site: TR1	Time: 2013/07/05 - 08:36
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode1: Normal Operation	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.150	41.480	31.505	-24.520	66.000	9.975	QP
2		0.150	24.233	14.258	-31.767	56.000	9.975	AV
3		0.166	38.628	28.650	-26.530	65.158	9.977	QP
4		0.166	20.924	10.947	-34.234	55.158	9.977	AV
5		0.490	25.348	15.294	-30.820	56.168	10.054	QP
6		0.490	17.802	7.749	-28.366	46.168	10.054	AV
7		1.606	37.060	27.077	-18.940	56.000	9.983	QP
8	*	1.606	36.135	26.152	-9.865	46.000	9.983	AV
9		6.426	23.808	13.614	-36.192	60.000	10.194	QP
10		6.426	22.037	11.843	-27.963	50.000	10.194	AV
11		24.402	32.265	21.840	-27.735	60.000	10.425	QP
12		24.402	24.570	14.145	-25.430	50.000	10.425	AV

4. Radiated Emission

4.1. Test Equipment

Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2014.04.30
Loop Antenna	R&S	HFH2-Z2	833799/003	2013.11.17
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2013.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2014.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2014.05.08

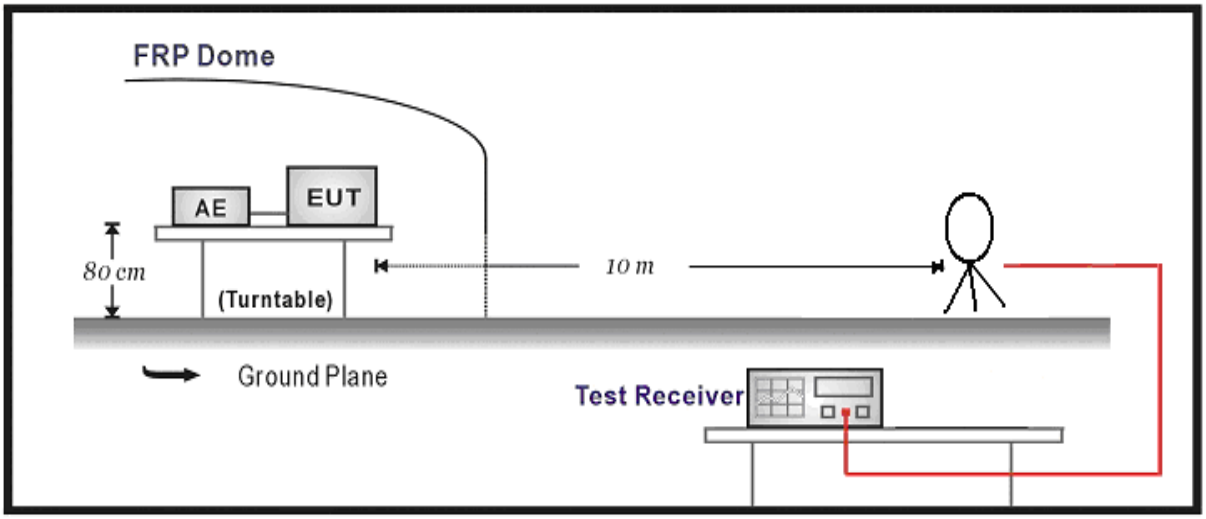
Radiated Emission / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2014.03.30
Preamplifier	Miteq	NSP1800-25	1364185	2014.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2014.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2013.10.15
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.06.08
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2013.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2014.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2014.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2014.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2014.01.11

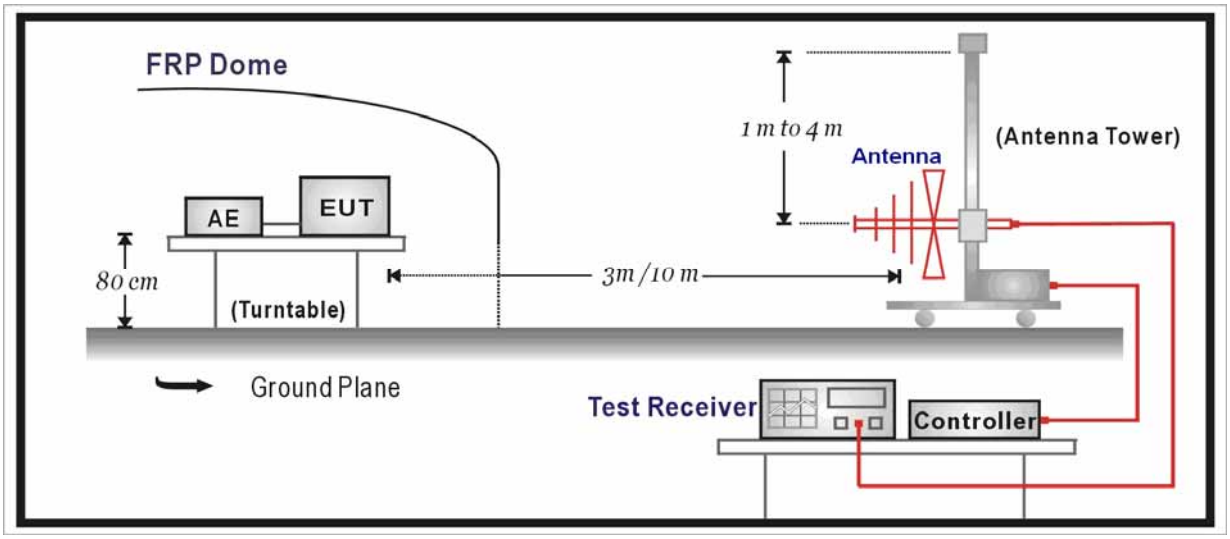
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

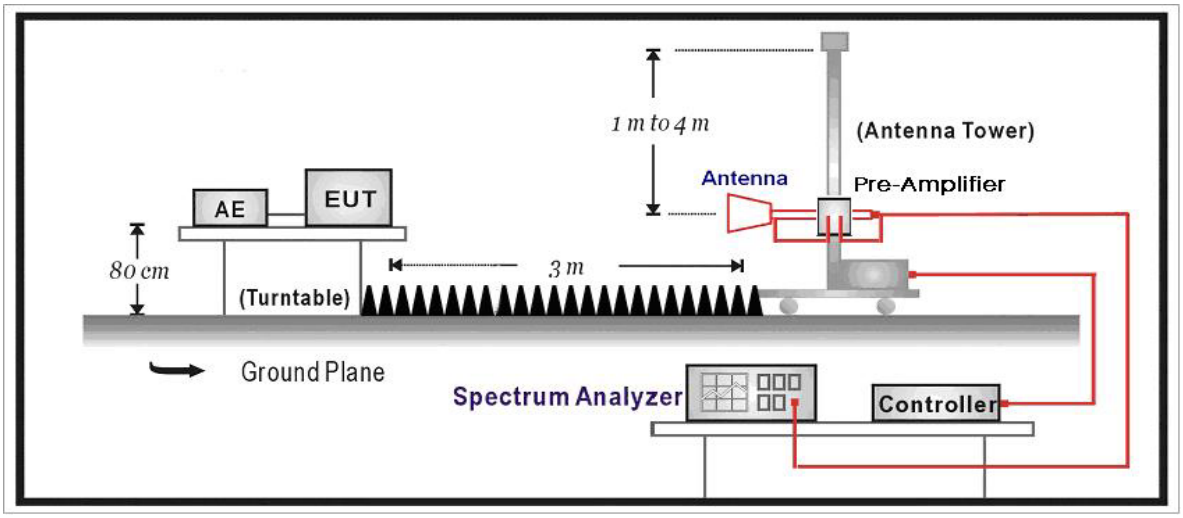
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Distance (m)	Level (dBuV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)

4.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 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 is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the

maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2009 on radiated measurement.

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

The frequency range from 30MHz to 10th harmonic is checked.

Note: When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the “cone of radiation” of EUT. The 3dB beamwidth is 60 degrees for H-plane and 90 degrees for E-plane.

4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB

below 1G is defined as ± 3.8 dB

4.6. Test Result

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:

Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Measure Level = Reading Level + Cable Loss + Antenna Factor - Preamplifier Gain

802.11b

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
01	H	4824.0	63.8	-7.1	56.7	74	-17.3	PK
	H	4824.0	59.2	-7.1	52.1	54	-1.9	AV
	V	4824.0	61.9	-7.1	54.8	74	-19.2	PK
	V	4824.0	57.2	-7.1	50.1	54	-3.9	AV
	H	7236.0	42.1	-1.7	40.4	54(Note3)	-13.6	PK
	V	7236.0	42.3	-1.8	40.5	54(Note3)	-13.5	PK
	H	9648.0	38.1	4.3	42.4	54(Note3)	-11.6	PK
	V	9648.0	38.2	4.4	42.6	54(Note3)	-11.4	PK
06	H	4874.0	64.3	-7.0	57.3	74	-16.7	PK
	H	4874.0	60.7	-7.0	53.7	54	-0.3	AV
	V	4874.0	63.8	-7.0	56.8	74	-17.2	PK
	V	4874.0	58.9	-7.0	51.9	54	-2.1	AV
	H	7311.0	42.4	-1.6	40.8	54(Note3)	-13.2	PK
	V	7311.0	42.9	-1.6	41.3	54(Note3)	-12.7	PK
	H	9748.0	36.7	4.5	41.2	54(Note3)	-12.8	PK
	V	9748.0	38.5	4.6	43.1	54(Note3)	-10.9	PK
11	H	4924.0	64.3	-7.1	57.2	74	-16.8	PK
	H	4924.0	60.1	-7.1	53.0	54	-1.0	AV
	V	4924.0	62.7	-7.1	55.6	74	-18.4	PK
	V	4924.0	59.2	-7.1	52.1	54	-1.9	AV
	H	7386.0	42.2	-1.3	40.9	54(Note3)	-13.1	PK
	V	7386.0	42.5	-1.3	41.2	54(Note3)	-12.8	PK
	H	9848.0	36.2	4.9	41.1	54(Note3)	-12.9	PK
	V	9848.0	38.5	5.0	43.5	54(Note3)	-10.5	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

802.11g

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
01	H	4824.0	56.6	-7.1	49.5	54(Note3)	-4.5	PK
	V	4824.0	54.0	-7.2	46.8	54(Note3)	-7.2	PK
	H	7236.0	42.4	-1.7	40.7	54(Note3)	-13.3	PK
	V	7236.0	42.0	-1.8	40.2	54(Note3)	-13.8	PK
	H	9648.0	38.5	4.3	42.8	54(Note3)	-11.2	PK
	V	9648.0	38.0	4.4	42.4	54(Note3)	-11.6	PK
06	H	4874.0	63.3	-7.0	56.3	74	-17.7	PK
	H	4874.0	49.7	-7.0	42.7	54	-11.3	AV
	V	4874.0	62.6	-7.0	55.6	74	-18.4	PK
	V	4874.0	50.2	-7.0	43.2	54	-10.8	AV
	H	7311.0	43.2	-1.6	41.6	54(Note3)	-12.4	PK
	V	7311.0	42.9	-1.6	41.3	54(Note3)	-12.7	PK
	H	9748.0	38.7	4.5	43.2	54(Note3)	-10.8	PK
	V	9748.0	38.2	4.6	42.8	54(Note3)	-11.2	PK
11	H	4924.0	67.0	-7.1	59.9	74	-14.1	PK
	H	4924.0	52.4	-7.1	45.3	54	-8.7	AV
	V	4924.0	66.5	-7.1	59.4	74	-14.6	PK
	V	4924.0	52.5	-7.1	45.4	54	-8.6	AV
	H	7386.0	42.2	-1.3	40.9	54(Note3)	-13.1	PK
	V	7386.0	43.0	-1.3	41.7	54(Note3)	-12.3	PK
	H	9848.0	37.2	4.9	42.1	54(Note3)	-11.9	PK
	V	9848.0	37.0	5.0	42.0	54(Note3)	-12.0	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

802.11n(20MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
01	H	4824.0	53.9	-7.1	46.8	54(Note3)	-7.2	PK
	V	4824.0	51.8	-7.1	44.7	54(Note3)	-9.3	PK
	H	7236.0	42.6	-1.7	40.9	54(Note3)	-13.1	PK
	V	7236.0	42.8	-1.8	41.0	54(Note3)	-13.0	PK
	H	9648.0	38.9	4.3	43.2	54(Note3)	-10.8	PK
	V	9648.0	38.1	4.4	42.5	54(Note3)	-11.5	PK
06	H	4874.0	63.4	-7.0	56.4	74	-17.6	PK
	H	4874.0	51.0	-7.0	44.0	54	-10.0	AV
	V	4874.0	62.3	-7.0	55.3	74	-18.7	PK
	V	4874.0	51.6	-7.0	44.6	54	-9.4	AV
	H	7311.0	43.7	-1.6	42.1	54(Note3)	-11.9	PK
	V	7311.0	44.2	-1.6	42.6	54(Note3)	-11.4	PK
	H	9748.0	38.5	4.5	43.0	54(Note3)	-11.0	PK
	V	9748.0	38.3	4.6	42.9	54(Note3)	-11.1	PK
11	H	4924.0	68.4	-7.1	61.3	74	-12.7	PK
	H	4924.0	53.4	-7.1	46.3	54	-7.7	AV
	V	4924.0	65.8	-7.1	58.7	74	-15.3	PK
	V	4924.0	52.4	-7.1	45.3	54	-8.7	AV
	H	7386.0	42.5	-1.3	41.2	54(Note3)	-12.8	PK
	V	7386.0	42.2	-1.3	40.9	54(Note3)	-13.1	PK
	H	9848.0	37.5	4.9	42.4	54(Note3)	-11.6	PK
	V	9848.0	37.4	5.0	42.4	54(Note3)	-11.6	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

802.11n(40MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
03	H	4844.0	57.3	-7.0	50.3	54(Note3)	-3.7	PK
	V	4844.0	56.6	-7.0	49.6	54(Note3)	-4.4	PK
	H	7266.0	41.7	-1.7	40.0	54(Note3)	-14.0	PK
	V	7266.0	41.7	-1.7	40.0	54(Note3)	-14.0	PK
	H	9688.0	38.4	4.5	42.9	54(Note3)	-11.1	PK
	V	9688.0	38.5	4.5	43.0	54(Note3)	-11.0	PK
06	H	4874.0	59.4	-7.0	52.4	54(Note3)	-1.6	PK
	V	4874.0	59.7	-7.0	52.7	54(Note3)	-1.3	PK
	H	7311.0	43.2	-1.6	41.6	54(Note3)	-12.4	PK
	V	7311.0	42.8	-1.6	41.2	54(Note3)	-12.8	PK
	H	9748.0	38.7	4.5	43.2	54(Note3)	-10.8	PK
	V	9748.0	38.0	4.6	42.6	54(Note3)	-11.4	PK
09	H	4904.0	63.3	-7.1	56.2	74	-17.8	PK
	H	4904.0	50.3	-7.1	43.2	54	-10.8	AV
	V	4904.0	61.1	-7.0	54.1	74	-19.9	PK
	V	4904.0	49.2	-7.0	42.2	54	-11.8	AV
	H	7356.0	42.6	-1.4	41.2	54(Note3)	-12.8	PK
	V	7356.0	41.8	-1.4	40.4	54(Note3)	-13.6	PK
	H	9808.0	36.9	4.8	41.7	54(Note3)	-12.3	PK
	V	9808.0	36.4	4.9	41.3	54(Note3)	-12.7	PK

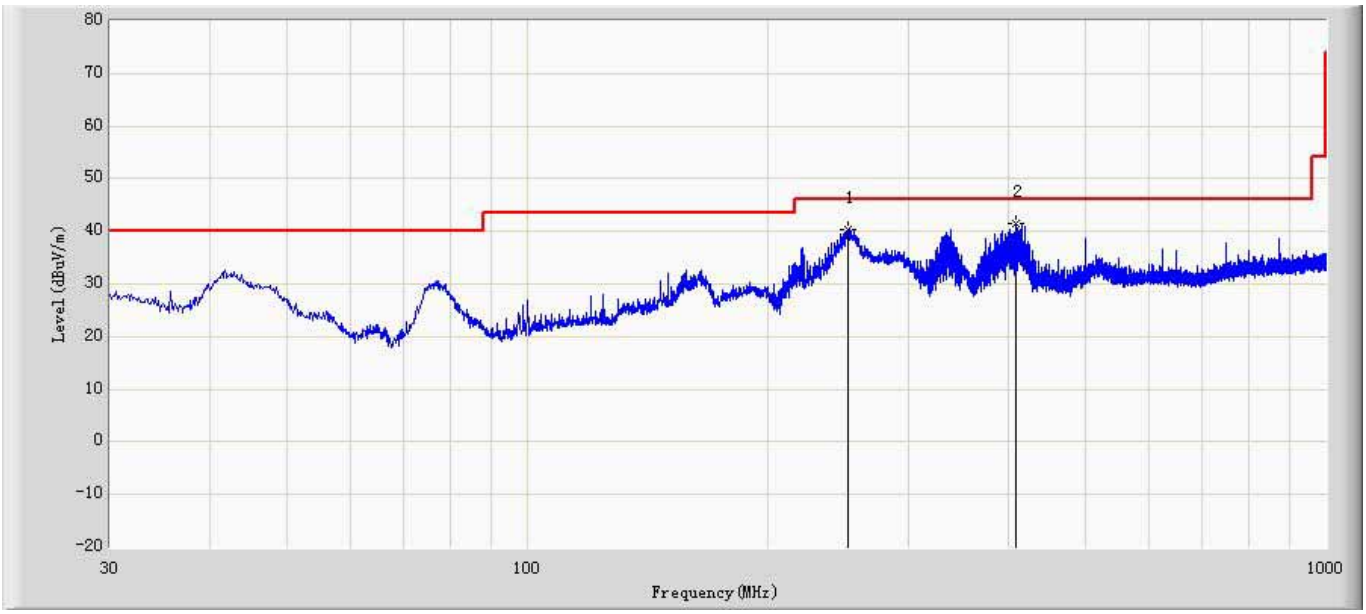
Note: 1. Measure Level = Reading Level + Factor.

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

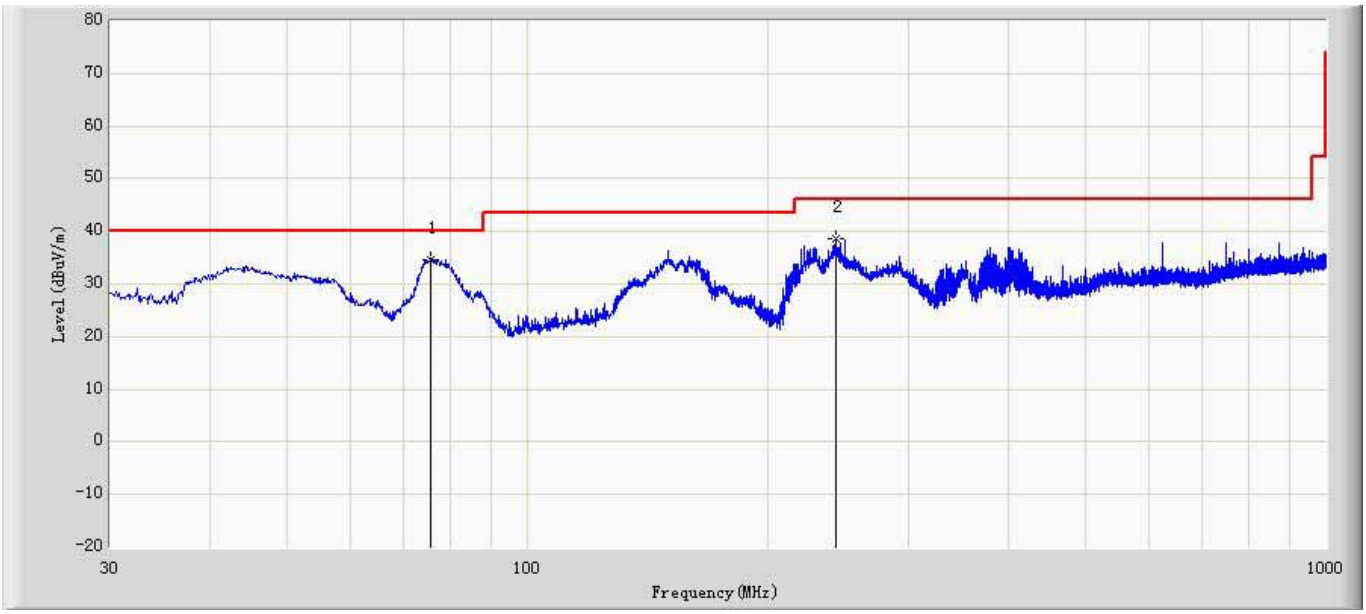
The worst case of Radiated Emission below 1GHz:

Engineer: Milo	
Site: AC2	Time: 2013/07/04 - 16:06
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: CBL6112D_27613(30-1000MHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 2437MHz by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		251.766	40.318	19.949	-5.682	46.000	20.368	QP
2	*	408.421	41.476	17.444	-4.524	46.000	24.031	QP

Engineer: Milo	
Site: AC2	Time: 2013/07/04 - 16:17
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: CBL6112D_27613(30-1000MHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 2437MHz by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	75.469	34.527	21.085	-5.473	40.000	13.442	QP
2		243.279	38.497	19.134	-7.503	46.000	19.363	QP

5. RF Antenna Conducted Spurious

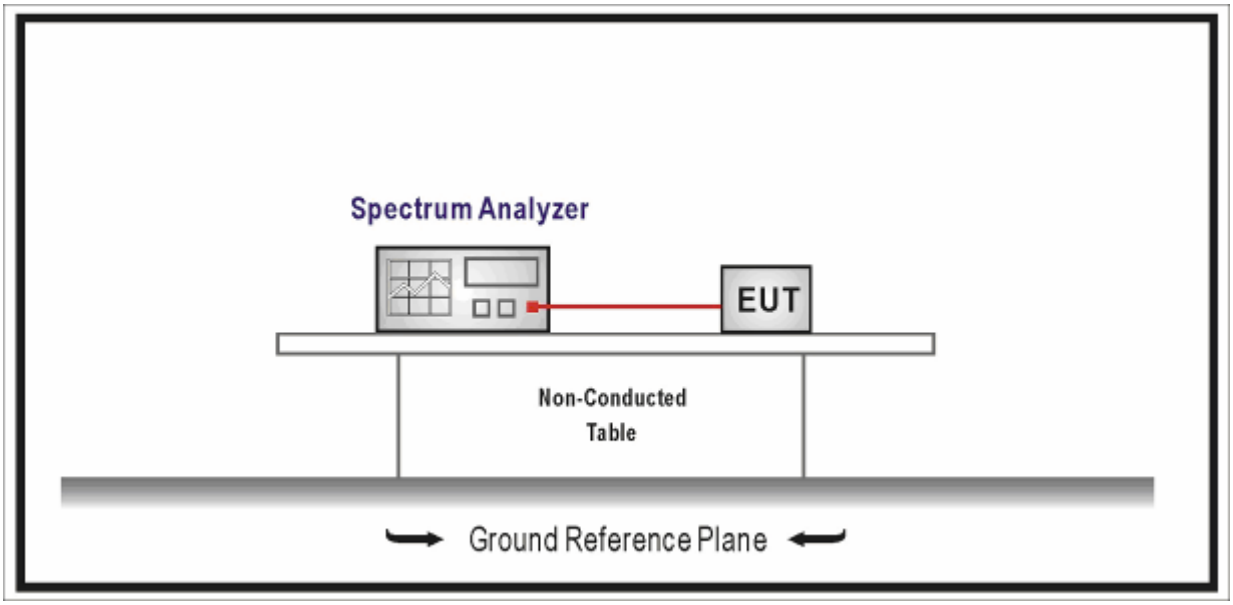
5.1. Test Equipment

RF Antenna Conducted Spurious / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

5.2. Test Setup



5.3. 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.

5.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

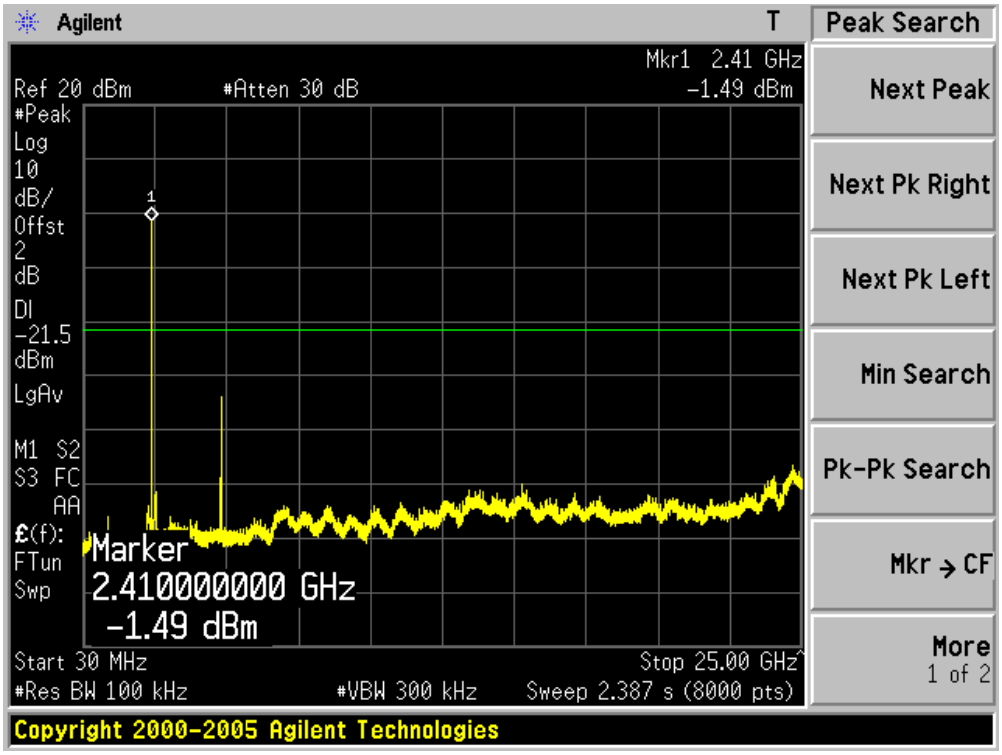
5.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

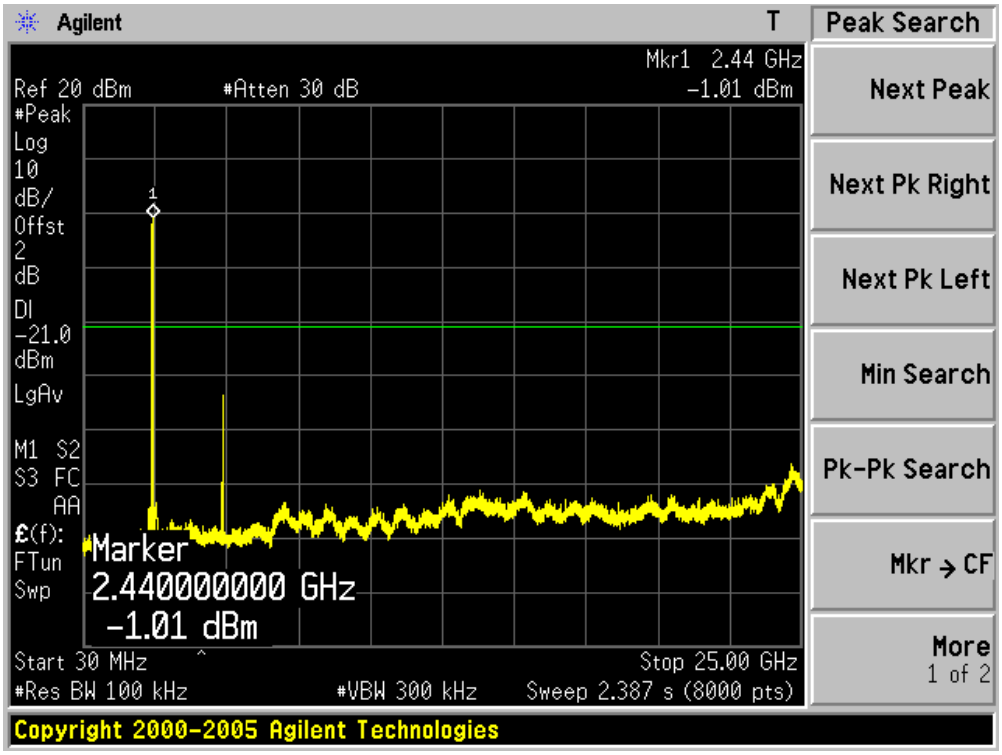
5.6. Test Result

Product	:	Mobile POS Kiosk
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

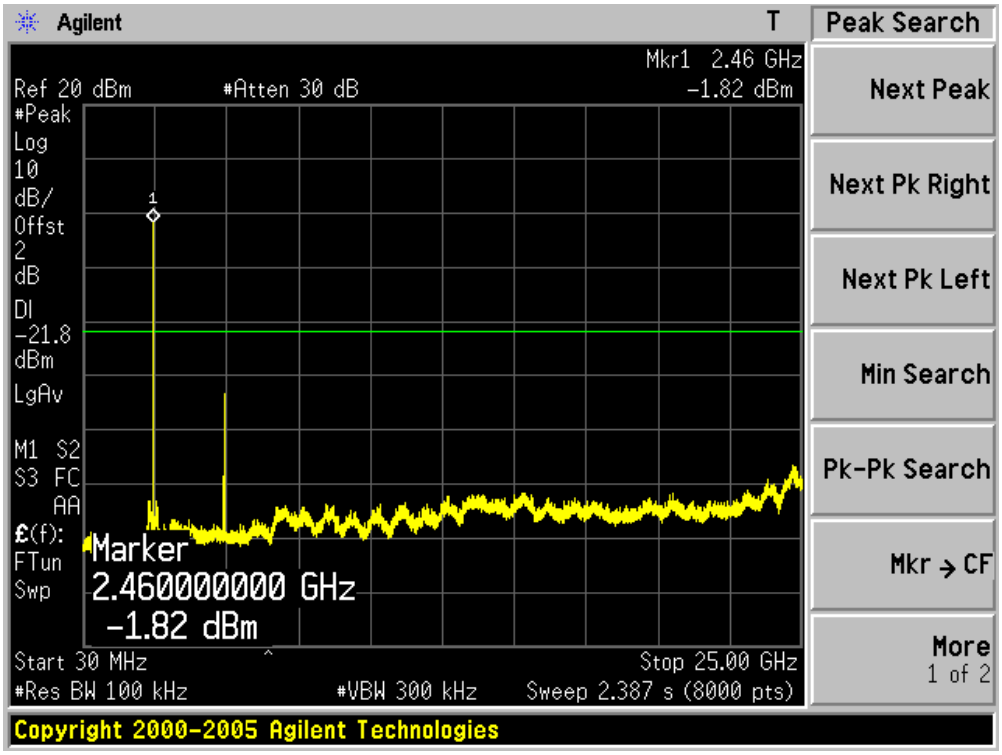
Channel 01 (2412MHz)



Channel 06 (2437MHz)

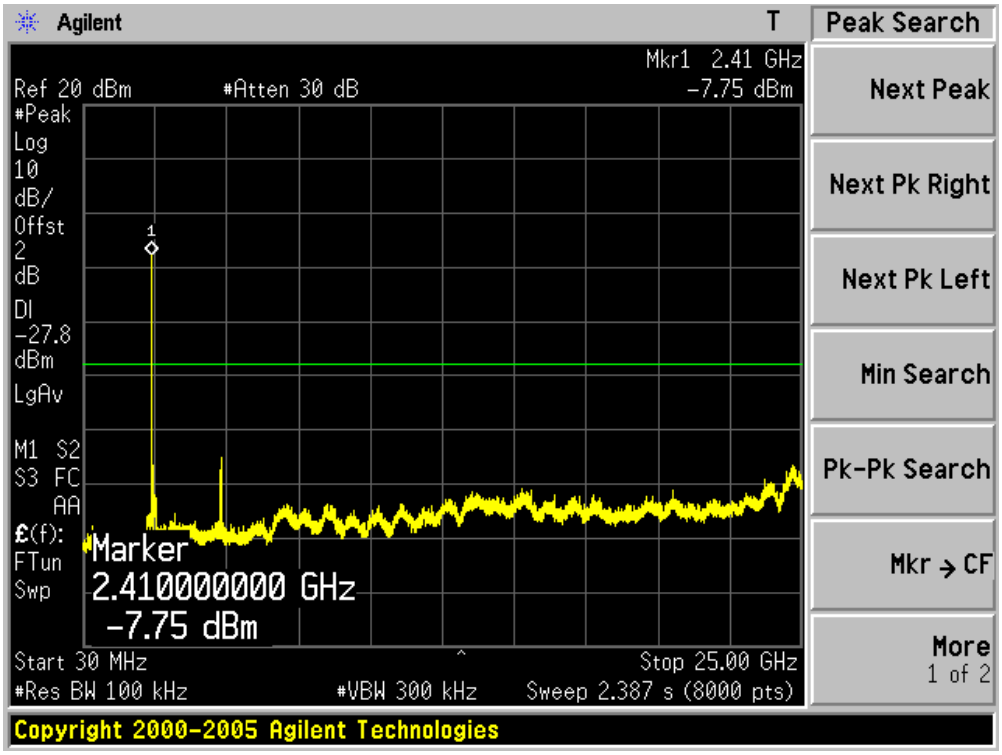


Channel 11 (2462MHz)

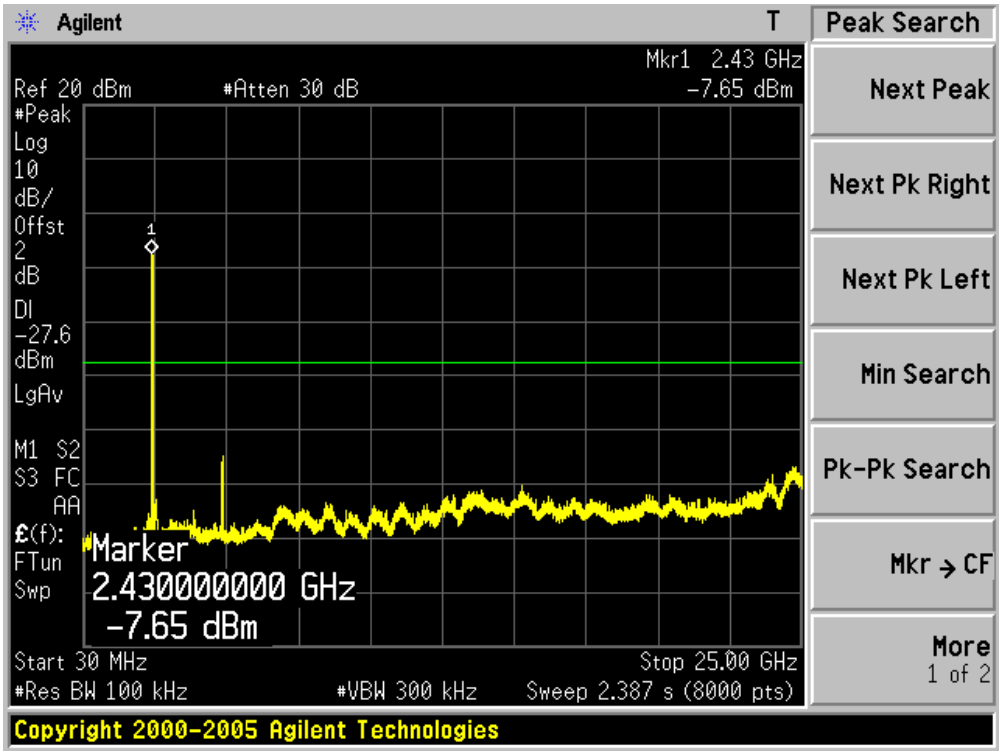


Product	:	Mobile POS Kiosk
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

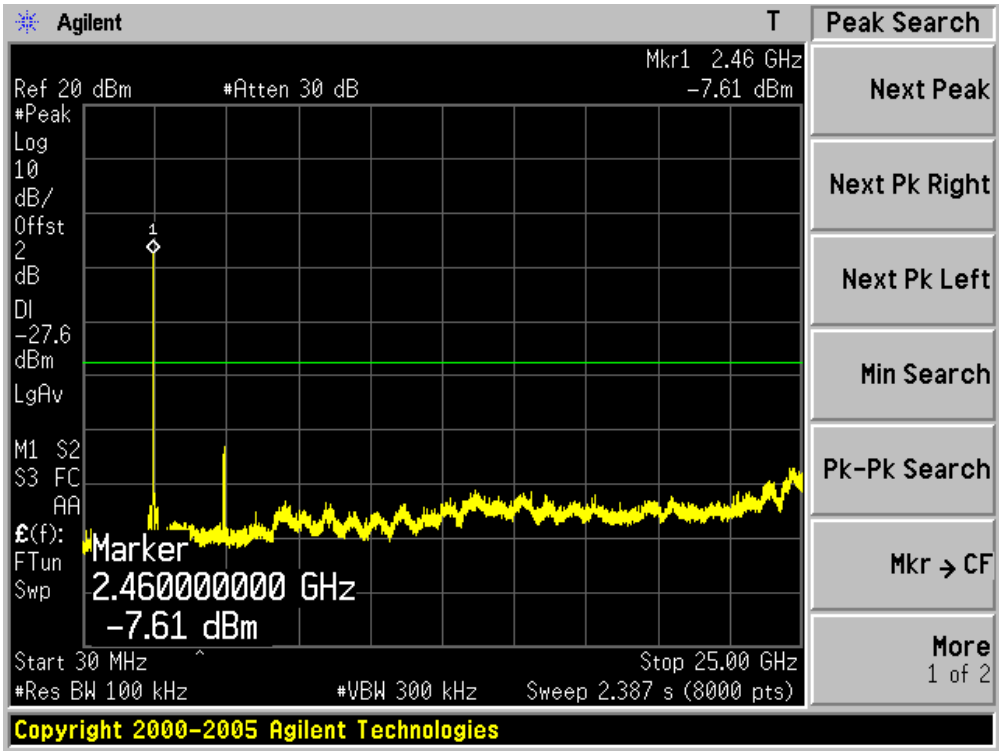
Channel 01 (2412MHz)



Channel 06 (2437MHz)

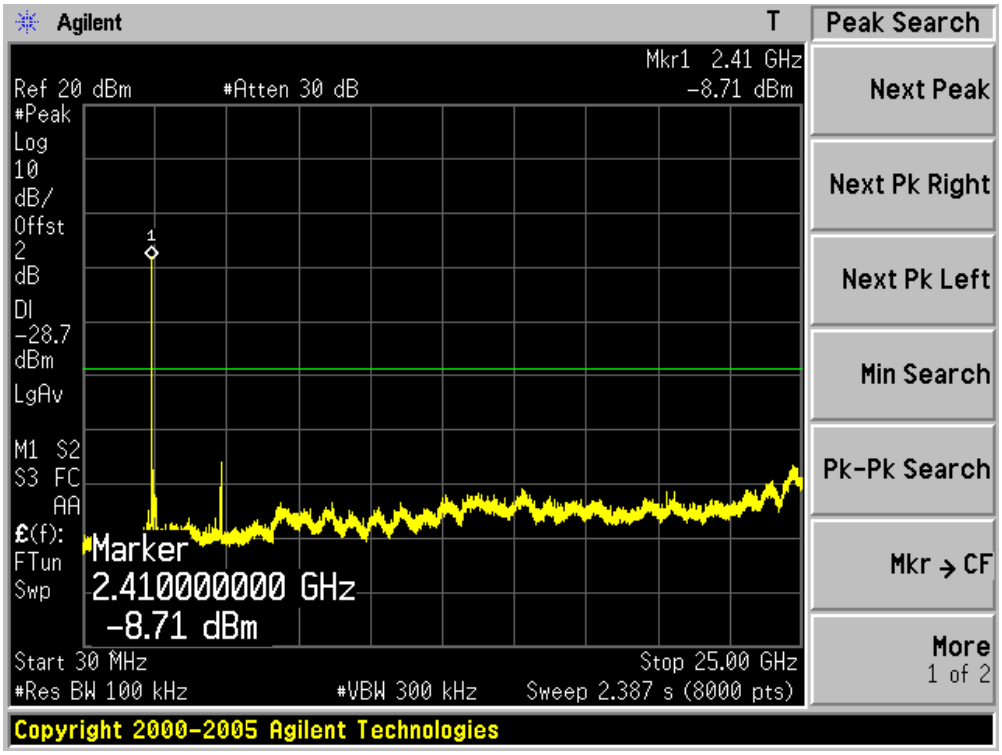


Channel 11 (2462MHz)

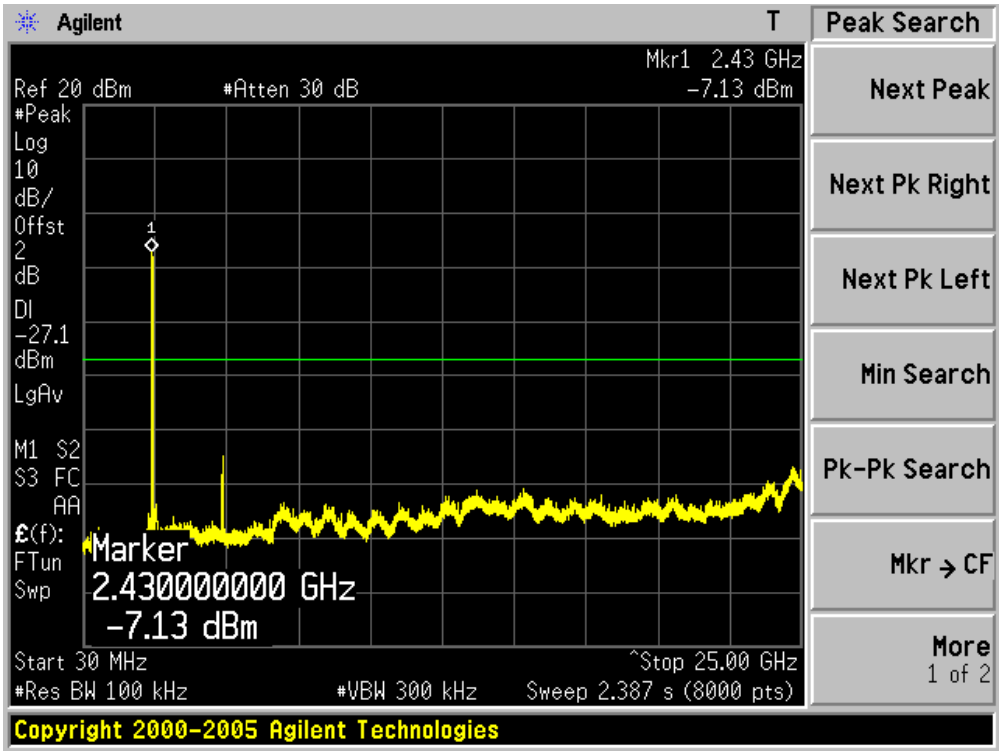


Product	:	Mobile POS Kiosk
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

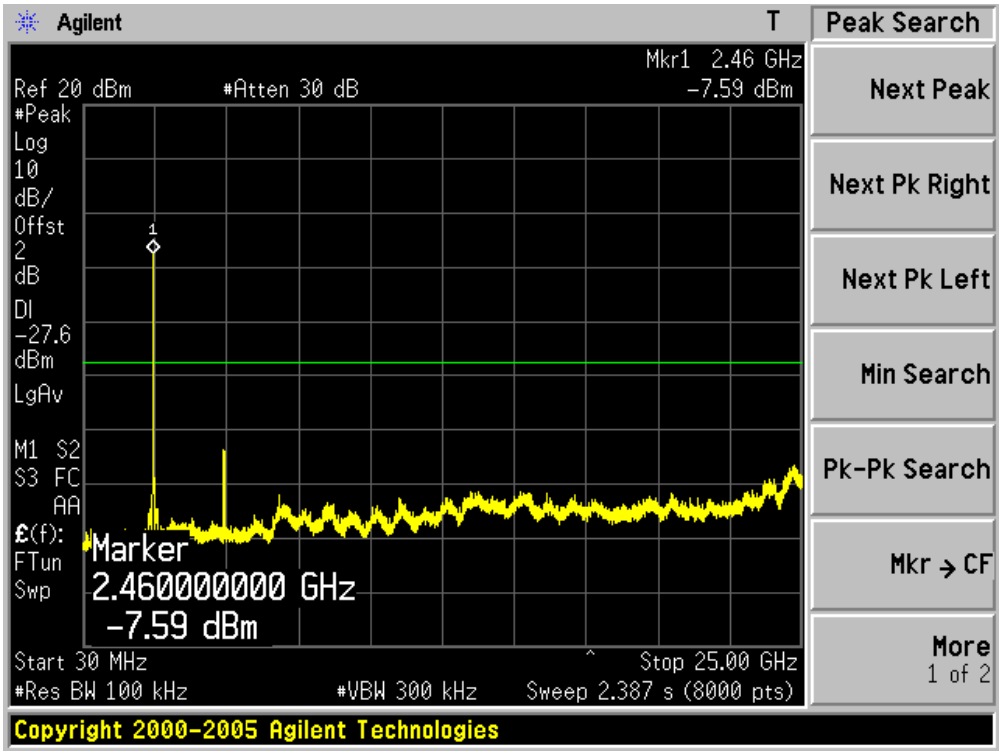
Channel 01 (2412MHz)



Channel 06 (2437MHz)

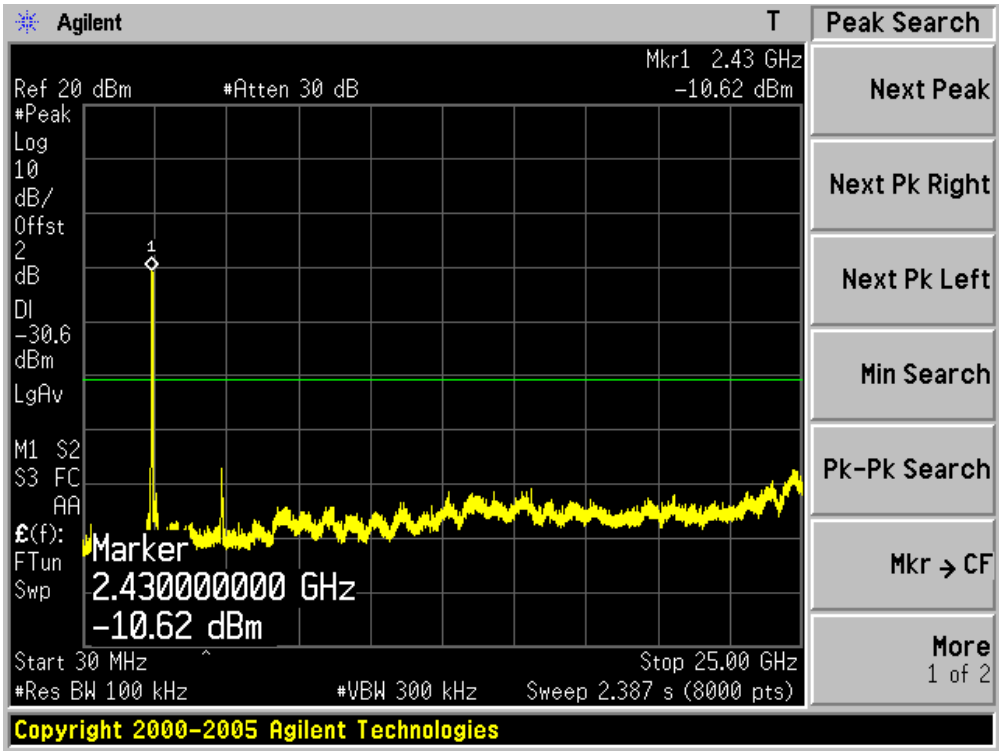


Channel 11 (2462MHz)

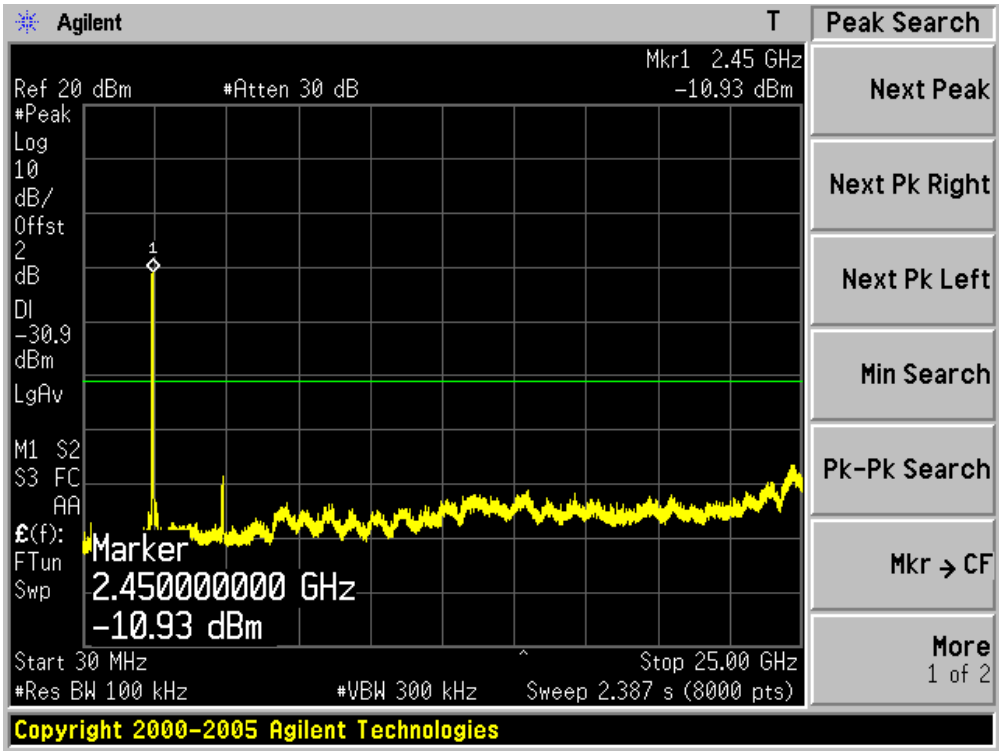


Product	:	Mobile POS Kiosk
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz)

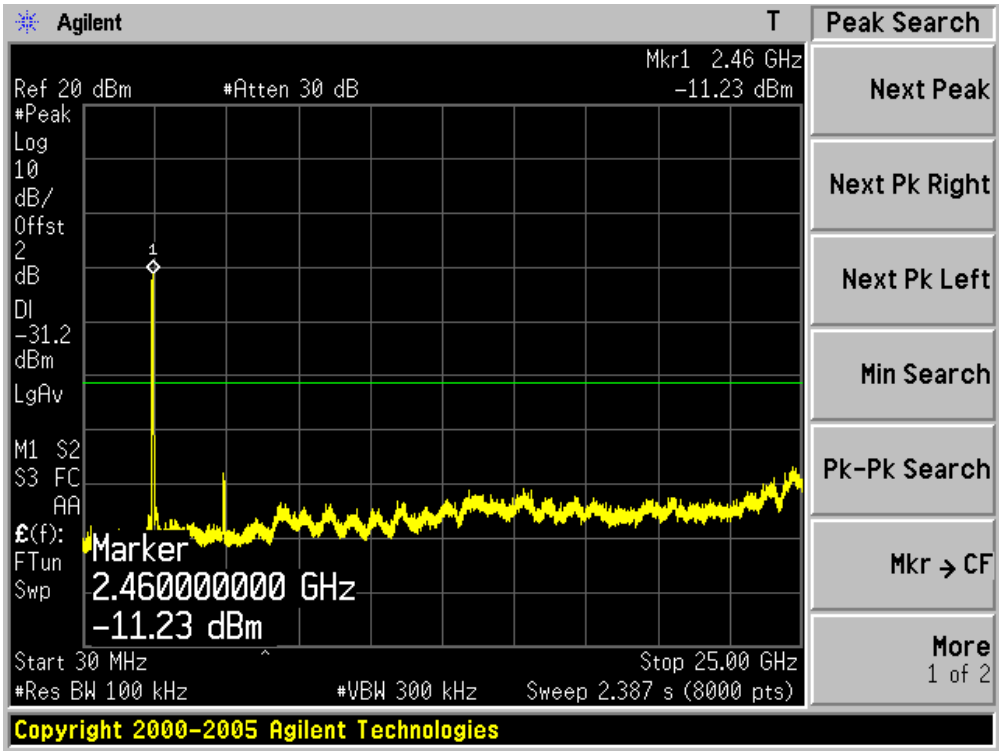
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



6. Radiated Emission Band Edge

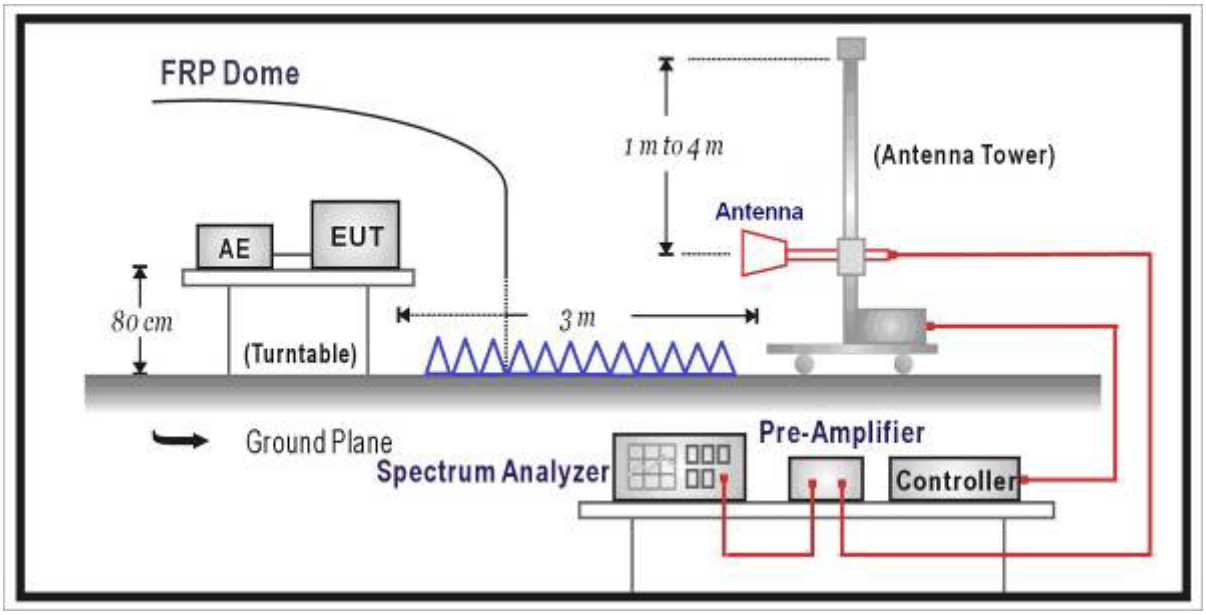
6.1. Test Equipment

☒Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2014.03.30
EMI Test Receiver	R&S	ESCI	100573	2014.03.30
Preamplifier	Miteq	NSP1800-25	1364185	2014.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2014.05.03
Bilog Type Antenna	Schaffner	CBL6112B	2932	2013.10.15
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.06.08
DRG Horn	ETS-Lindgren	3117	00123988	2014.01.21
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2014.03.01
Temperature/Humidity Meter	zhicheng	ZC1-2	AC5-TH	2014.01.11

Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

6.2. Test Setup



6.3. Limit

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.4. Test Procedure

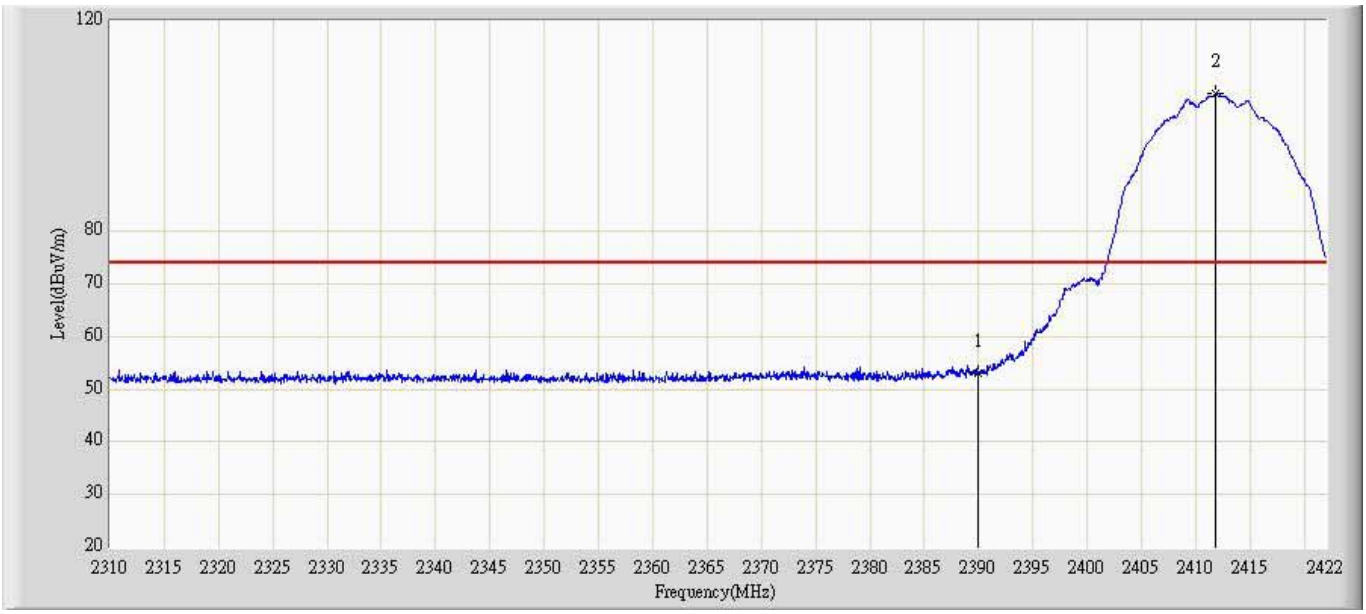
The EUT was setup according to ANSI C63.4: 2009 and tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.
The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2009 on radiated measurement.

6.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB

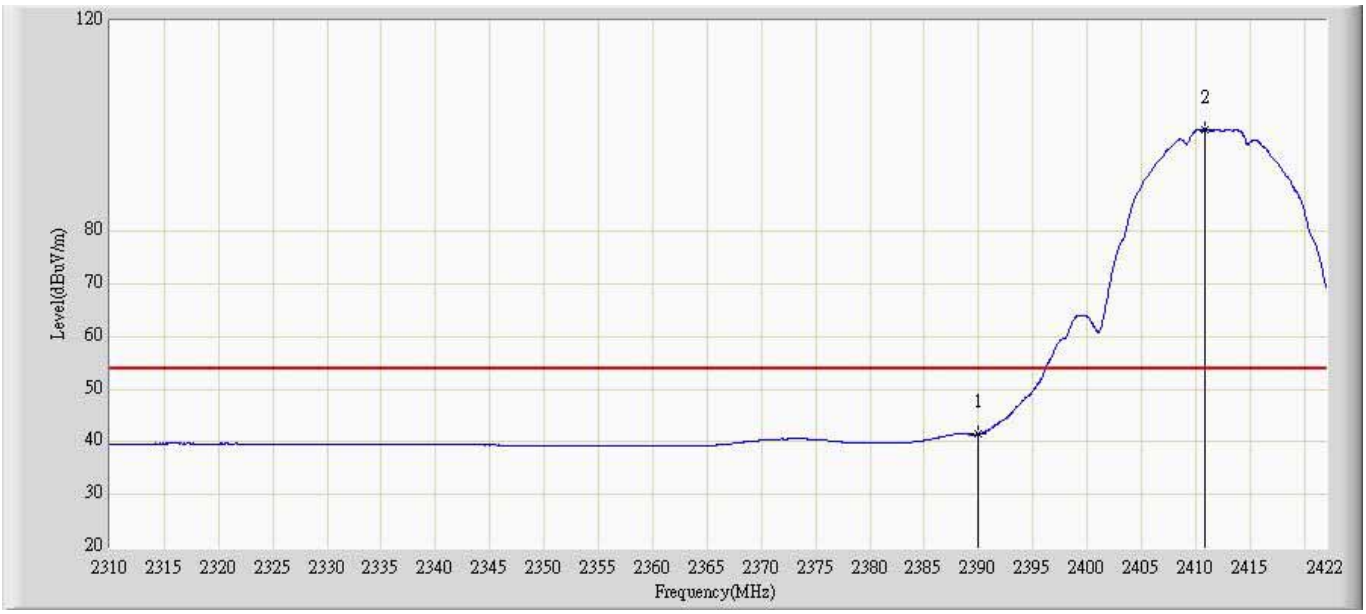
6.6. Test Result

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 18:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 2412MHz by 802.11b	



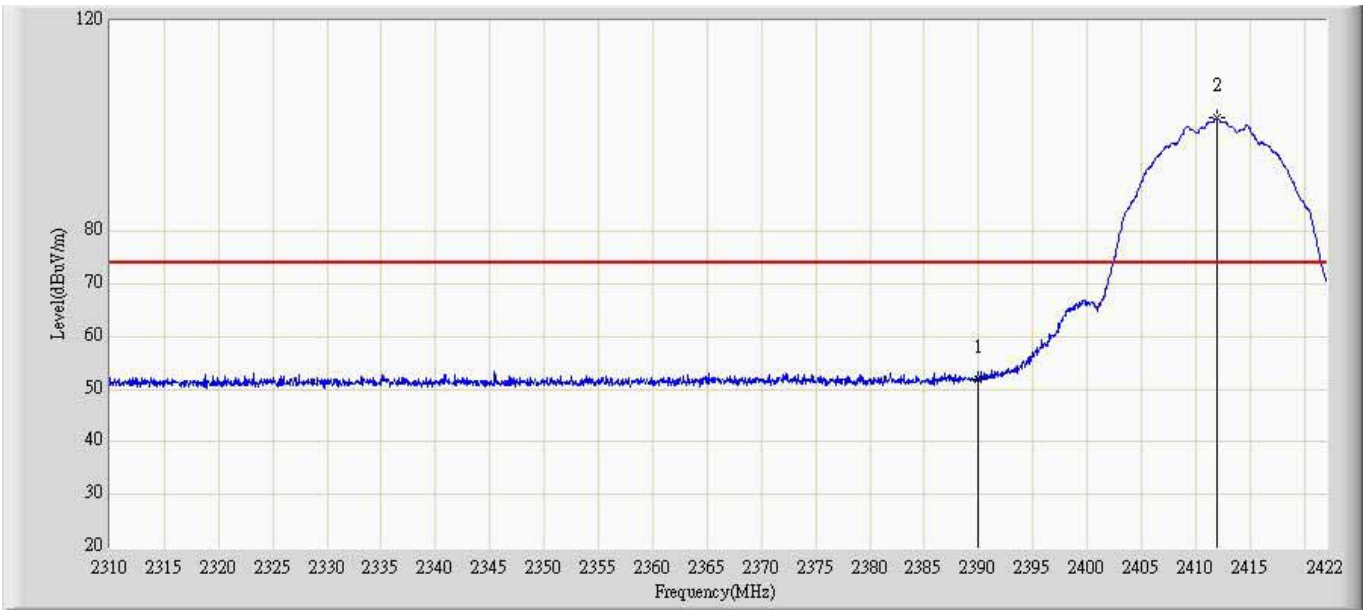
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	53.068	15.909	-20.932	74.000	37.159	PK
2		*	2411.864	106.312	68.960	N/A	N/A	37.352	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 2412MHz by 802.11b	



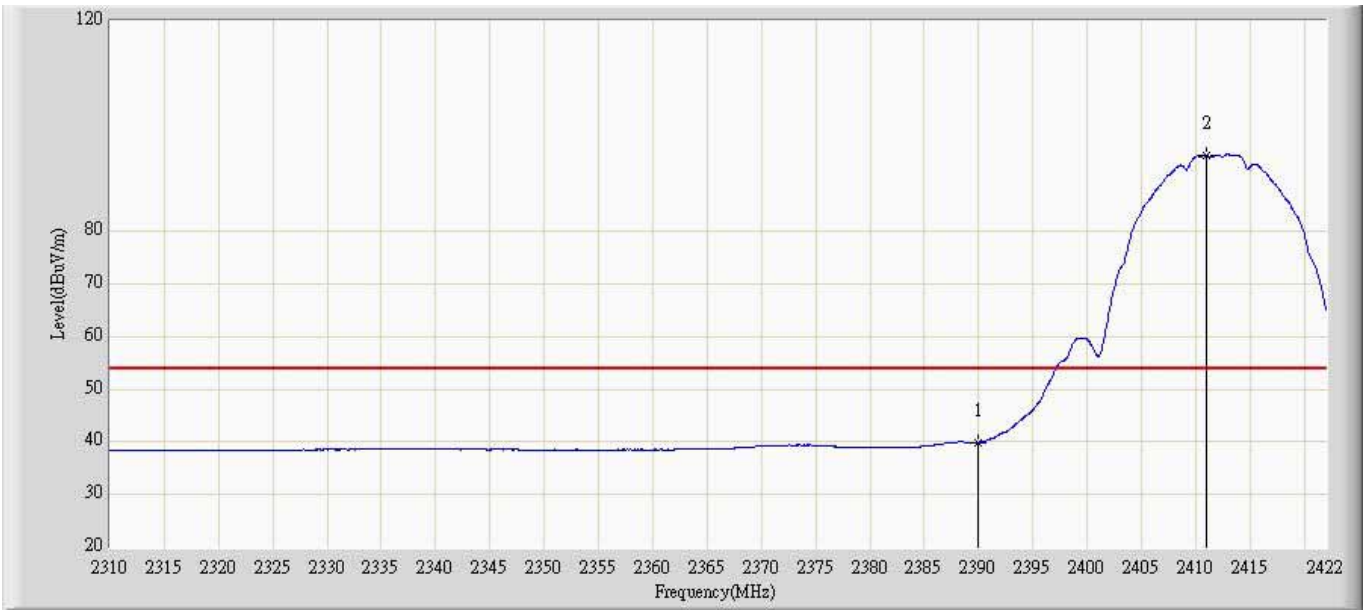
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	41.512	4.353	-12.488	54.000	37.159	AV
2		*	2410.800	99.389	62.047	N/A	N/A	37.342	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 2412MHz by 802.11b	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	51.976	15.477	-22.024	74.000	36.499	PK
2		*	2412.032	101.469	64.864	N/A	N/A	36.605	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 2412MHz by 802.11b	

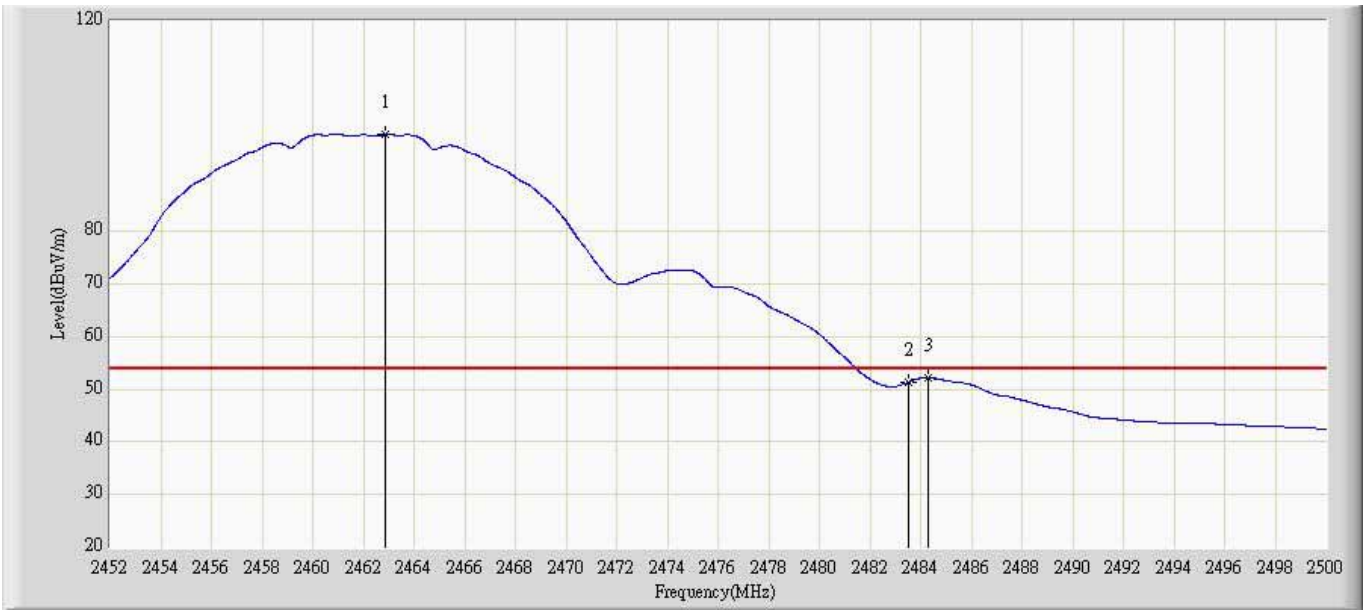


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	39.901	3.402	-14.099	54.000	36.499	AV
2		*	2410.968	94.544	57.944	N/A	N/A	36.600	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 2462MHz by 802.11b	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2462.128	105.033	67.251	N/A	N/A	37.782	PK
2			2483.500	63.366	25.396	-10.634	74.000	37.969	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 2462MHz by 802.11b	

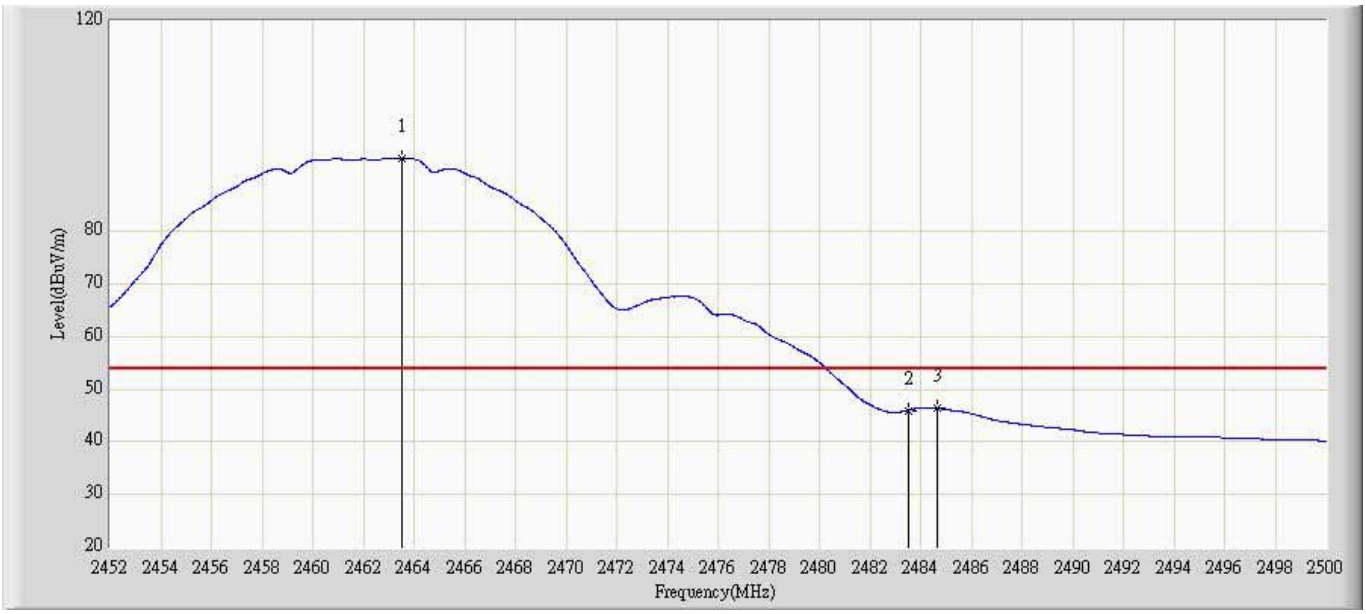


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2462.872	98.434	60.645	N/A	N/A	37.789	AV
2			2483.500	51.337	13.367	-2.663	54.000	37.969	AV
3			2484.304	52.147	14.170	-1.853	54.000	37.977	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 2462MHz by 802.11b	

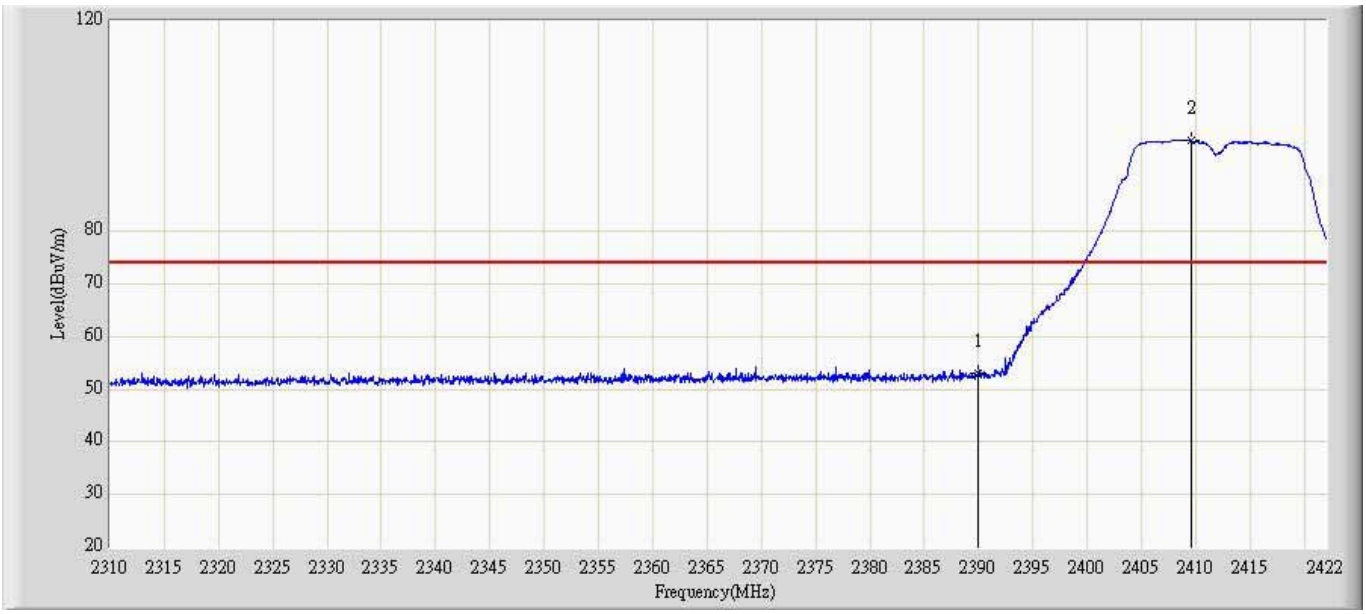
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2461.792	100.604	63.772	N/A	N/A	36.832	PK
2			2483.500	59.419	22.483	-14.581	74.000	36.935	PK
3			2487.256	61.299	24.345	-12.701	74.000	36.954	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 2462MHz by 802.11b	



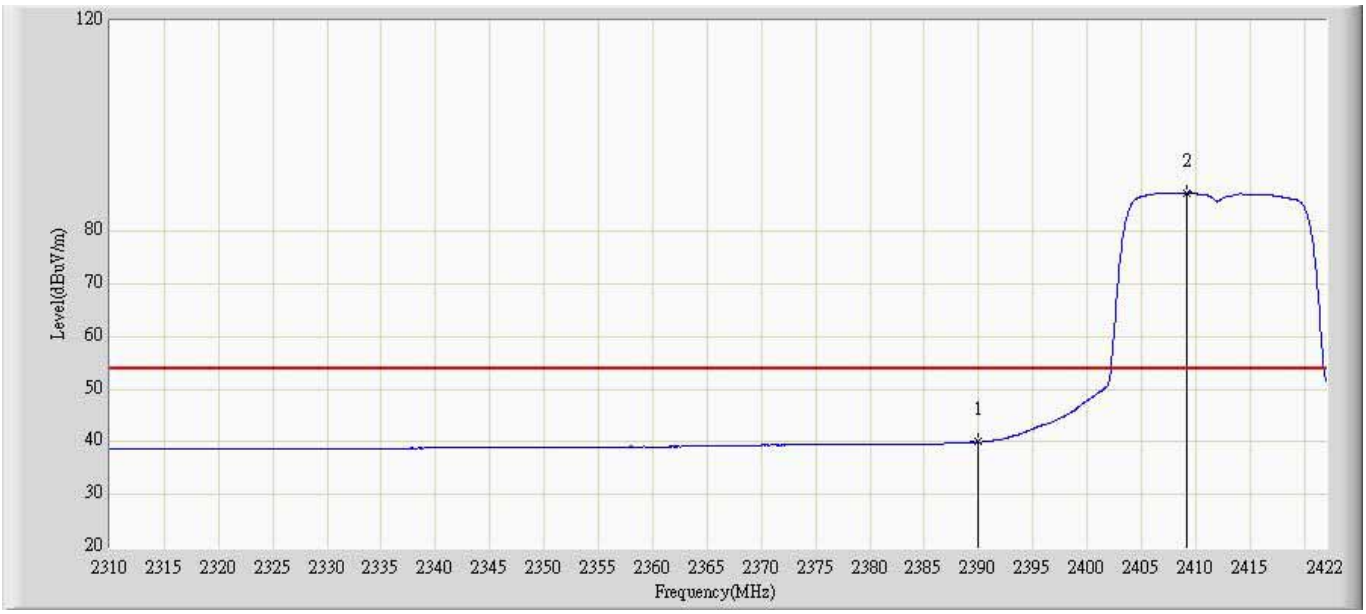
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2463.496	93.763	56.923	N/A	N/A	36.840	AV
2			2483.500	45.998	9.062	-8.002	54.000	36.935	AV
3			2484.664	46.392	9.451	-7.608	54.000	36.942	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2412MHz by 802.11g	



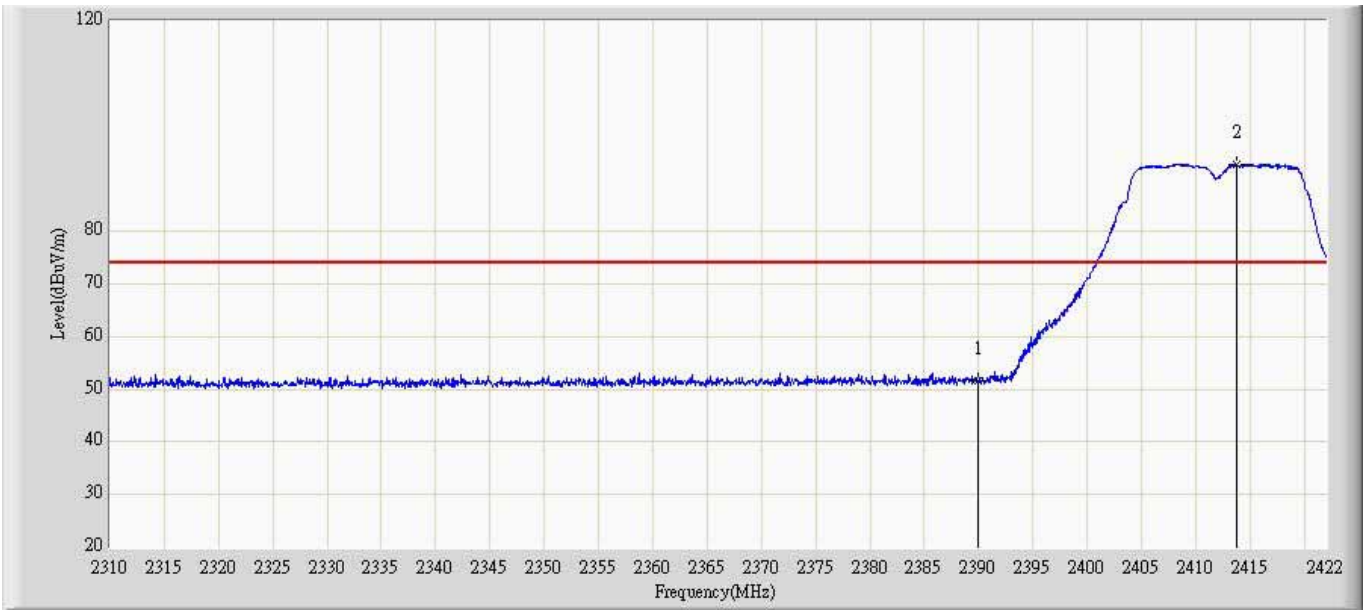
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	53.146	15.987	-20.854	74.000	37.159	PK
2		*	2409.568	97.177	59.846	N/A	N/A	37.331	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2412MHz by 802.11g	



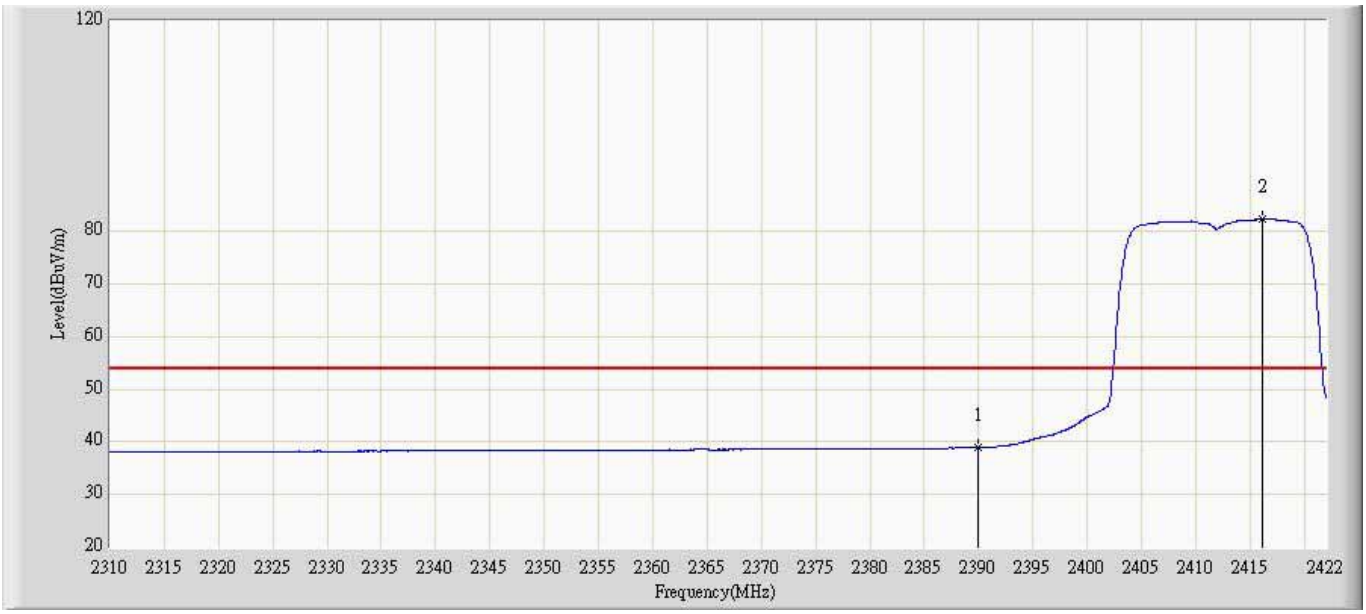
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	39.973	2.814	-14.027	54.000	37.159	AV
2		*	2409.120	87.249	49.922	N/A	N/A	37.328	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2412MHz by 802.11g	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	51.507	15.008	-22.493	74.000	36.499	PK
2		*	2413.824	92.581	55.968	N/A	N/A	36.613	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2412MHz by 802.11g	

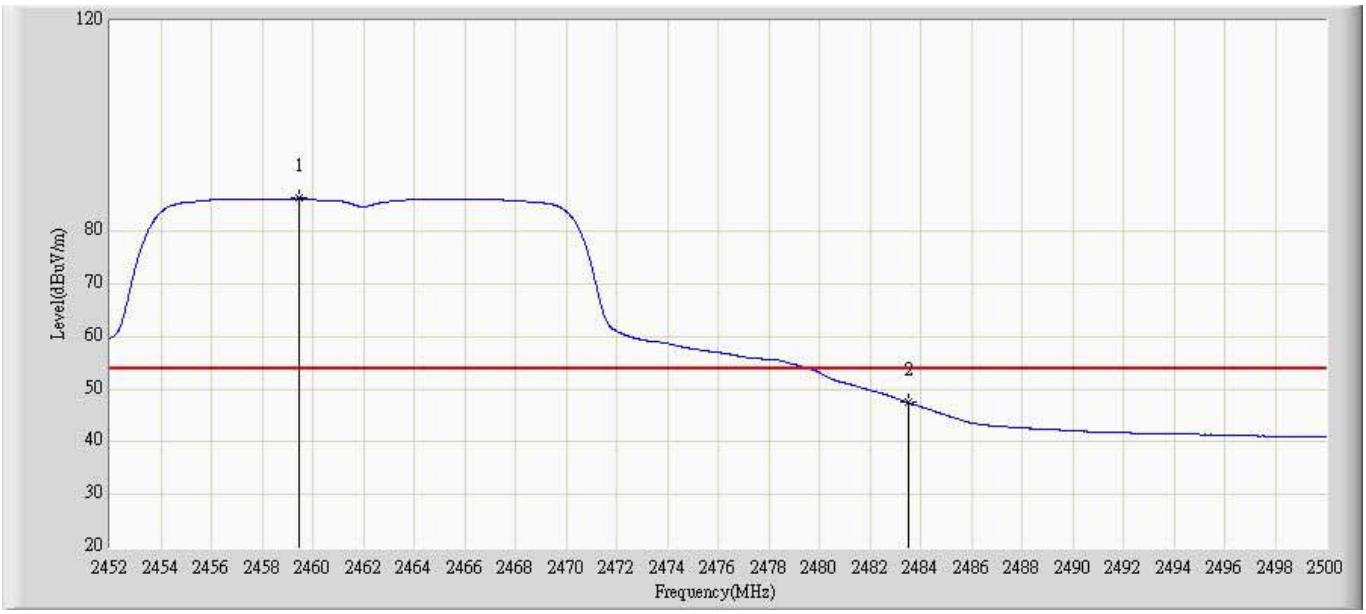


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	38.963	2.464	-15.037	54.000	36.499	AV
2		*	2416.120	82.273	45.649	N/A	N/A	36.624	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2462MHz by 802.11g	

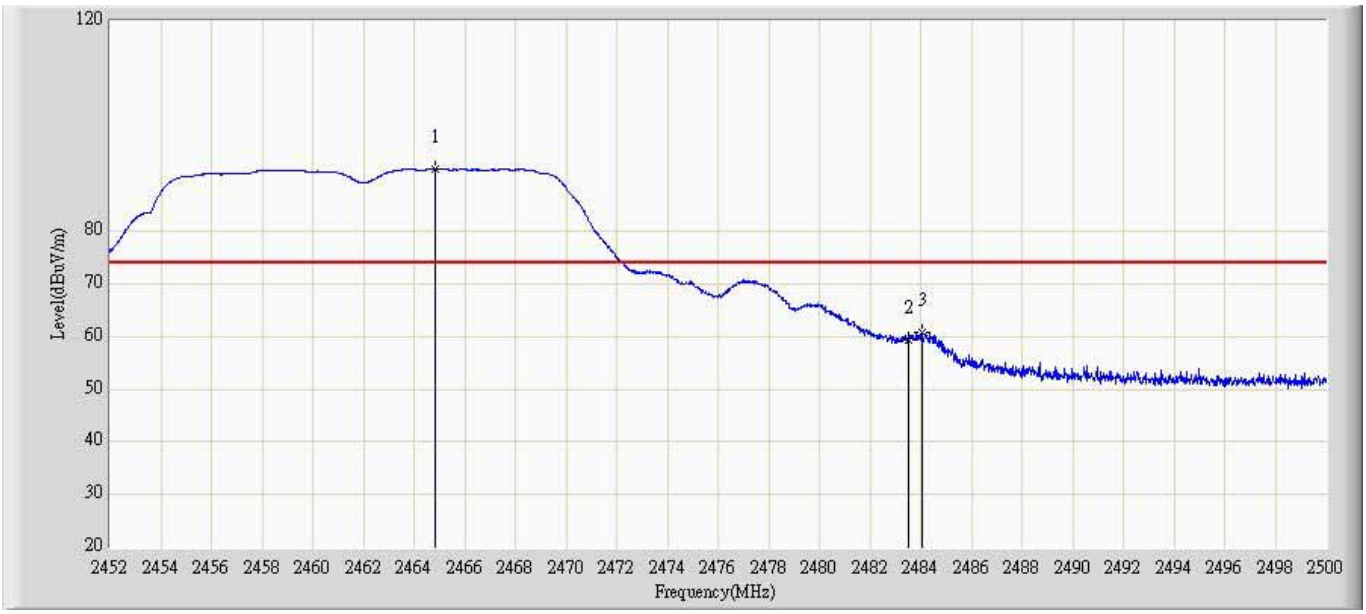
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2459.368	96.256	58.497	N/A	N/A	37.759	PK
2			2483.500	64.447	26.477	-9.553	74.000	37.969	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2462MHz by 802.11g	



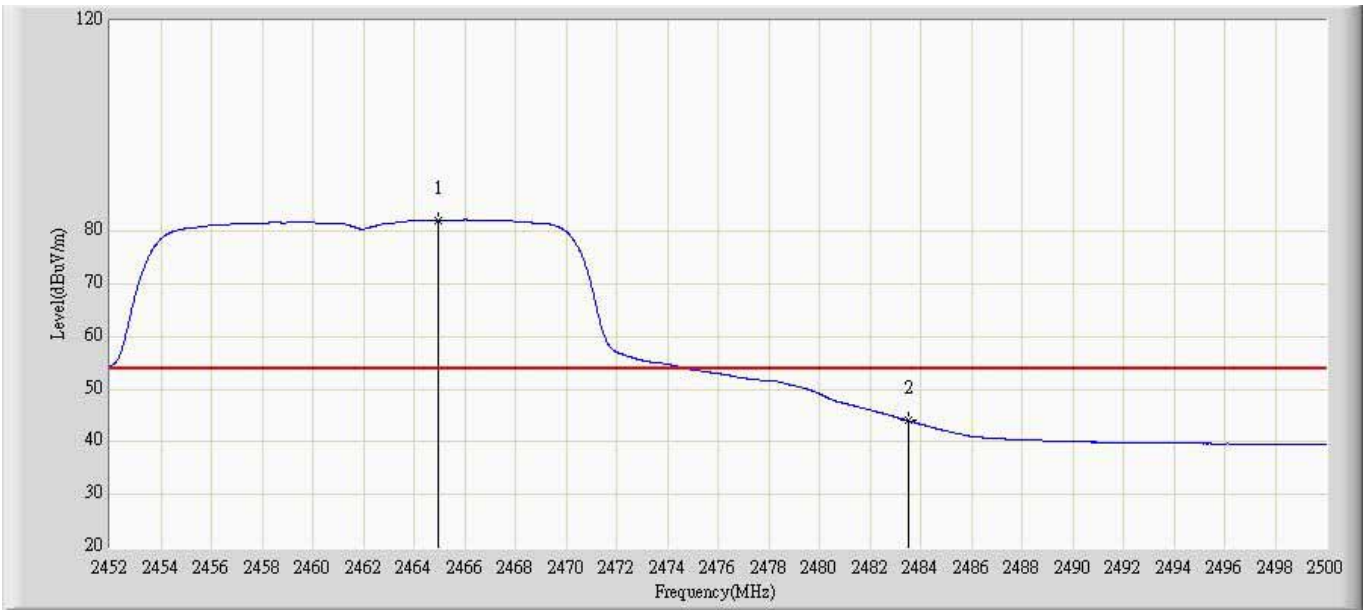
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2459.440	86.247	48.487	N/A	N/A	37.760	AV
2			2483.500	47.493	9.523	-6.507	54.000	37.969	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2462MHz by 802.11g	



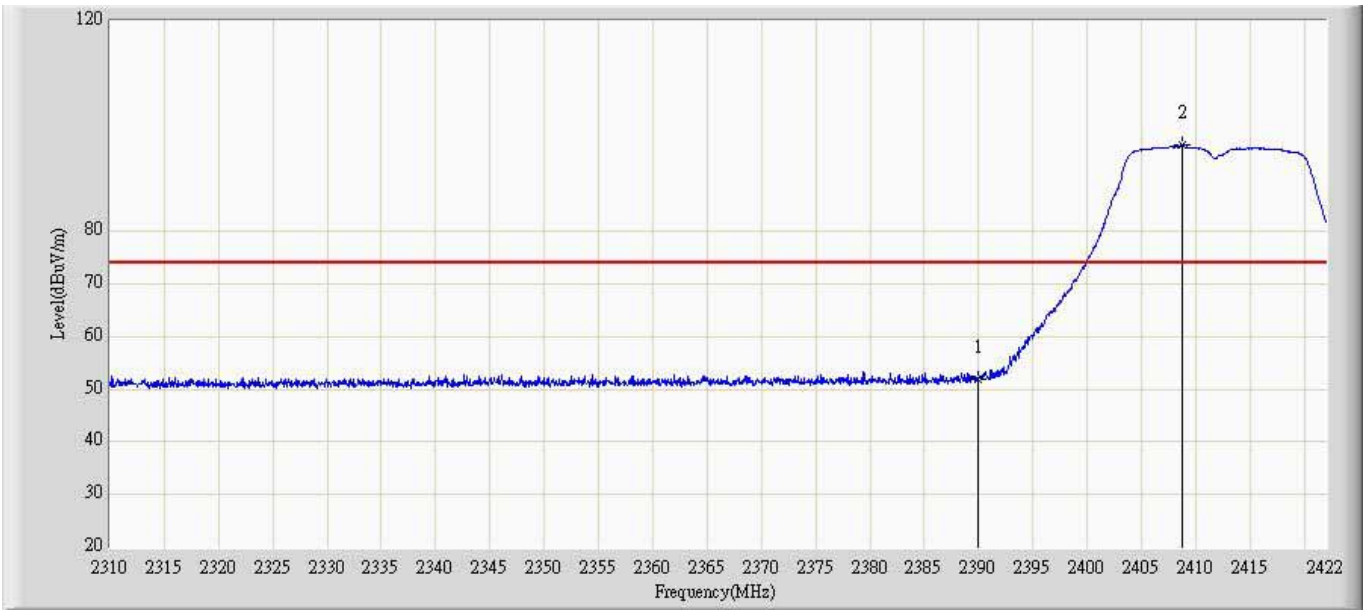
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2464.840	91.907	55.060	N/A	N/A	36.846	PK
2			2483.500	59.394	22.458	-14.606	74.000	36.935	PK
3			2484.064	60.892	23.954	-13.108	74.000	36.938	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 2462MHz by 802.11g	



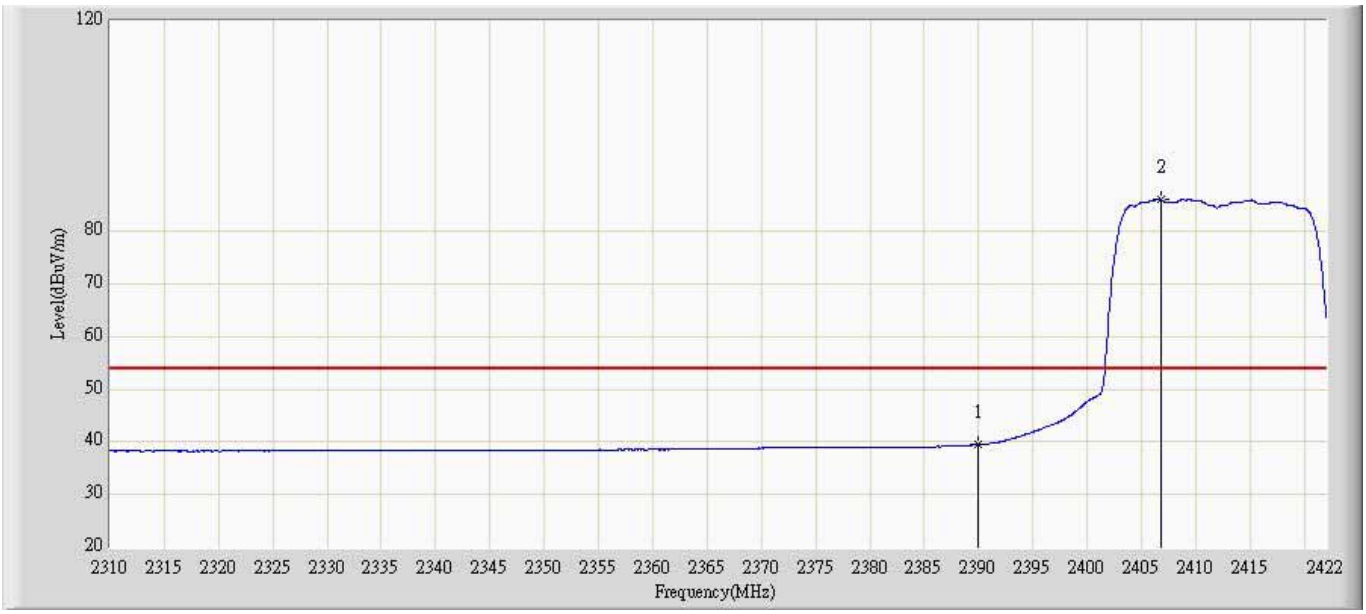
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2464.936	81.964	45.117	N/A	N/A	36.847	AV
2			2483.500	44.053	7.117	-9.947	54.000	36.935	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)	



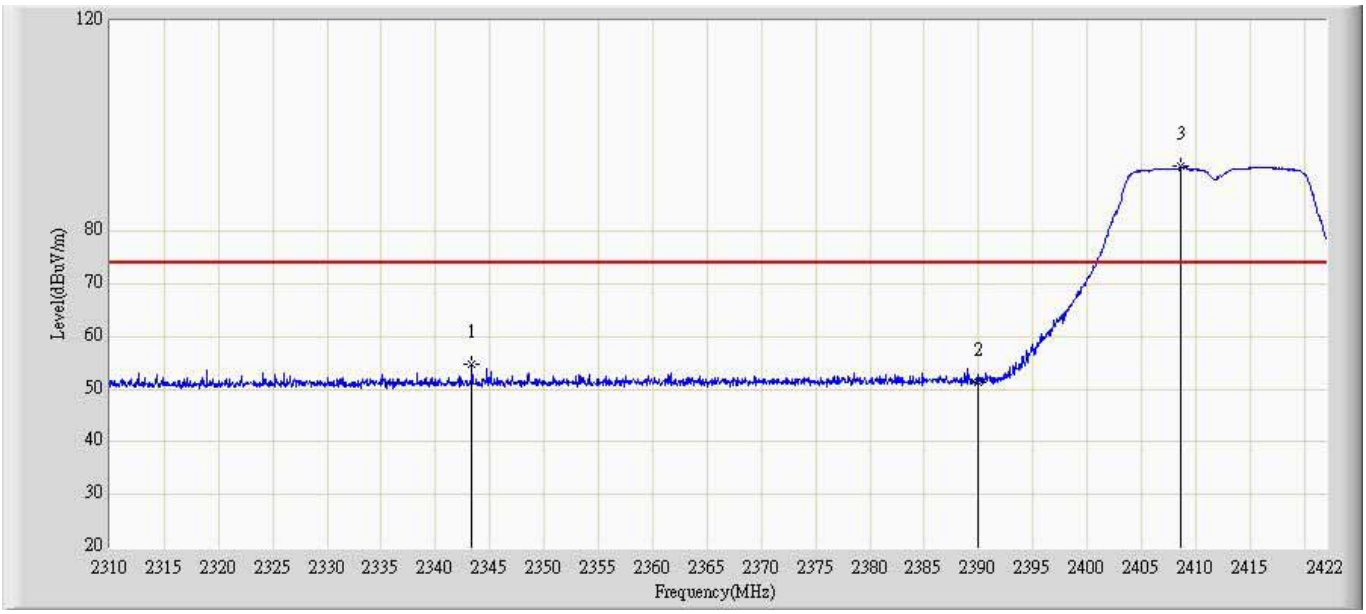
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	51.933	14.774	-22.067	74.000	37.159	PK
2		*	2408.784	96.559	59.235	N/A	N/A	37.324	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)	



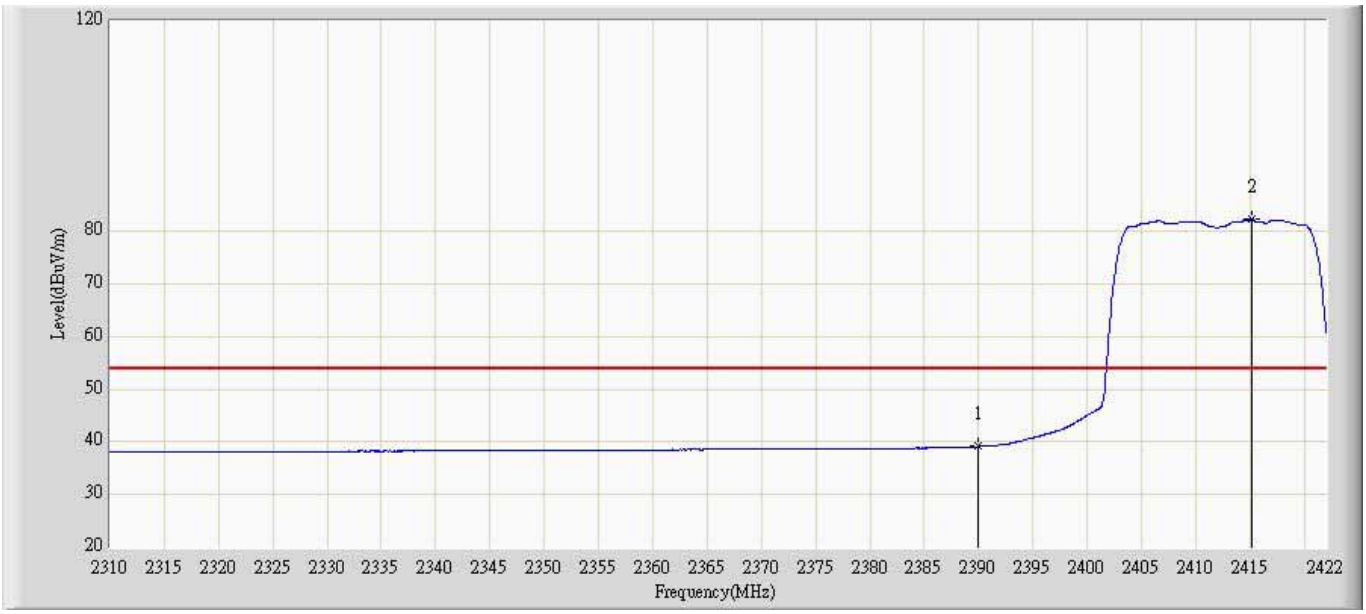
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	39.495	2.336	-14.505	54.000	37.159	AV
2		*	2406.768	86.009	48.702	N/A	N/A	37.307	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2343.320	54.631	18.354	-19.369	74.000	36.276	PK
2			2390.000	51.218	14.719	-22.782	74.000	36.499	PK
3		*	2408.672	92.301	55.712	N/A	N/A	36.589	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2412MHz by 802.11n(20MHz)	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	39.117	2.618	-14.883	54.000	36.499	AV
2		*	2415.168	82.270	45.650	N/A	N/A	36.620	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2459.224	96.865	59.107	N/A	N/A	37.758	PK
2			2483.500	69.324	31.354	-4.676	74.000	37.969	PK

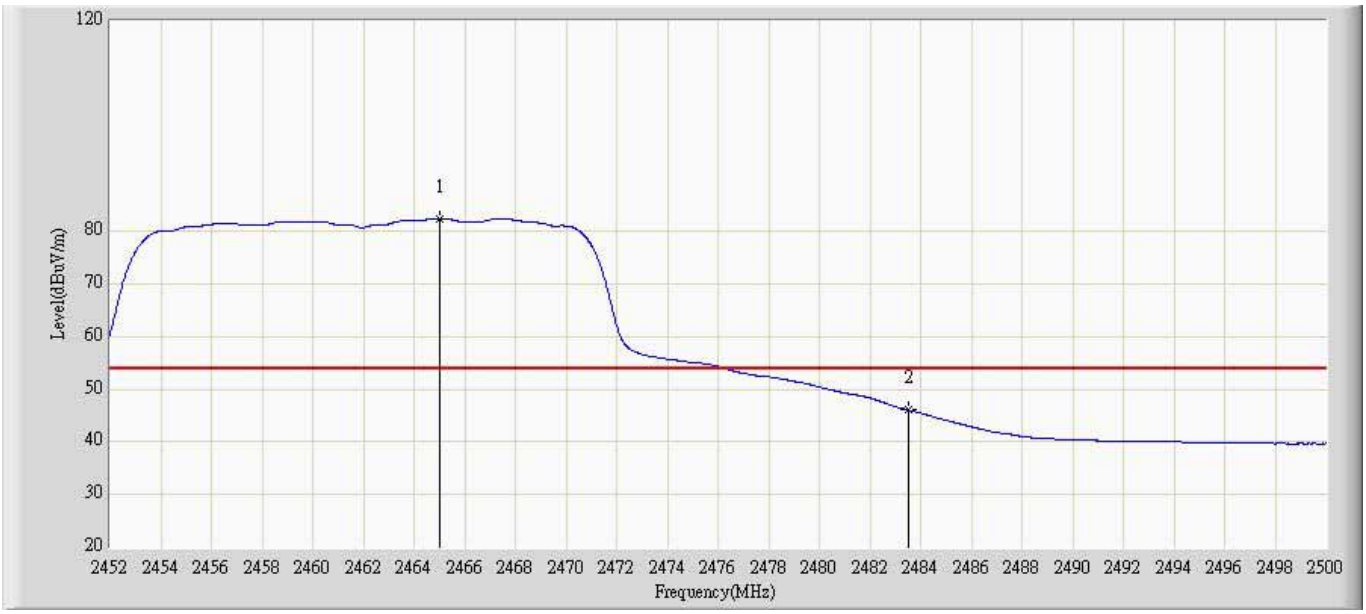
Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2459.584	86.617	48.856	N/A	N/A	37.762	AV
2			2483.500	50.150	12.180	-3.850	54.000	37.969	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)	

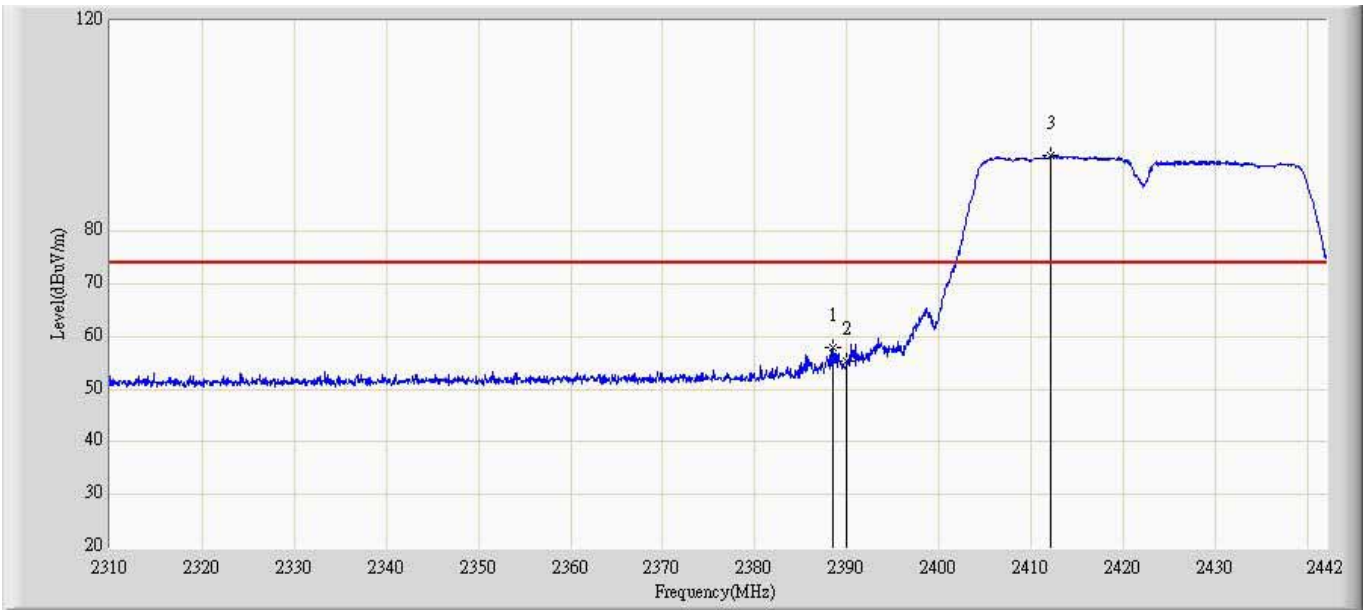
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2459.032	92.567	55.746	N/A	N/A	36.820	PK
2			2483.500	64.798	27.862	-9.202	74.000	36.935	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 2462MHz by 802.11n(20MHz)	



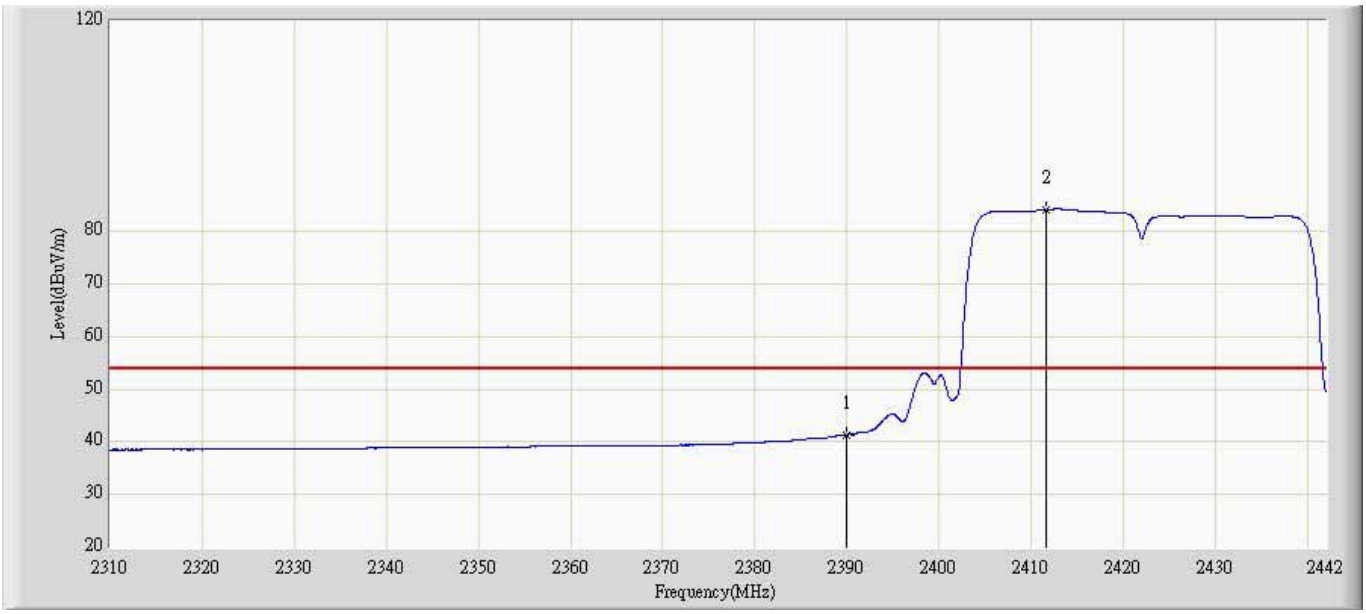
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2465.032	82.483	45.636	N/A	N/A	36.848	AV
2			2483.500	46.072	9.136	-7.928	54.000	36.935	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode4: Transmit at channel 2422MHz by 802.11n(40MHz)	



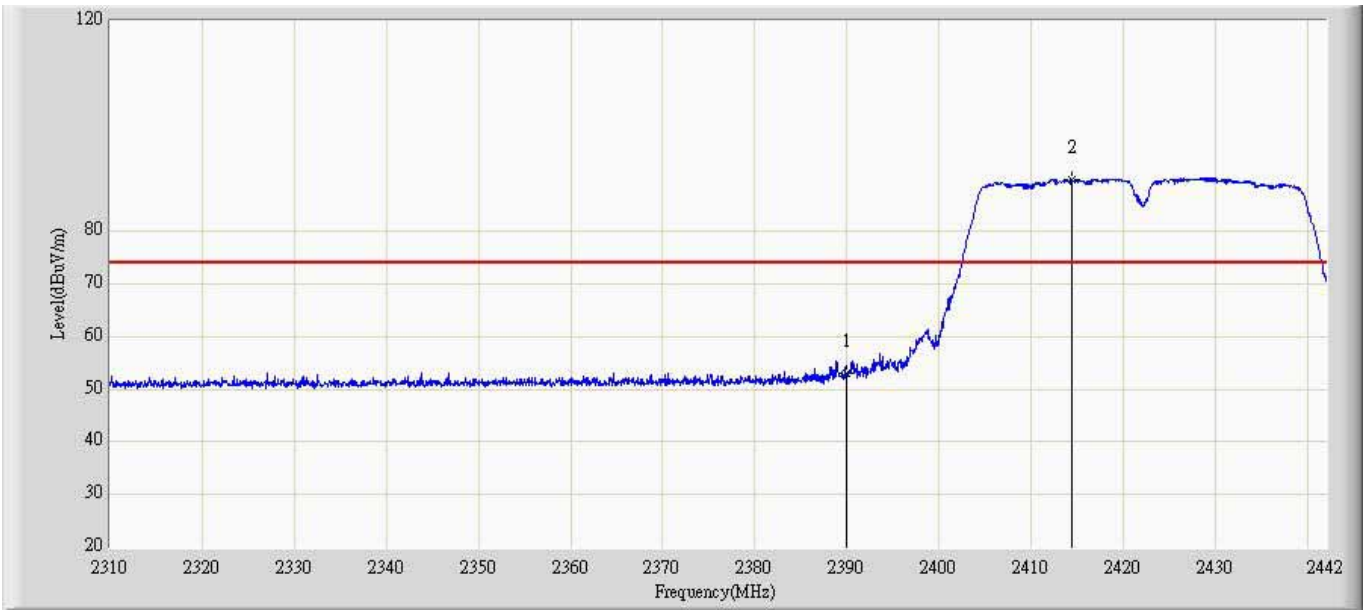
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2388.474	57.968	20.822	-16.032	74.000	37.145	PK
2			2390.000	55.214	18.055	-18.786	74.000	37.159	PK
3		*	2412.102	94.424	57.070	N/A	N/A	37.353	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode4: Transmit at channel 2422MHz by 802.11n(40MHz)	



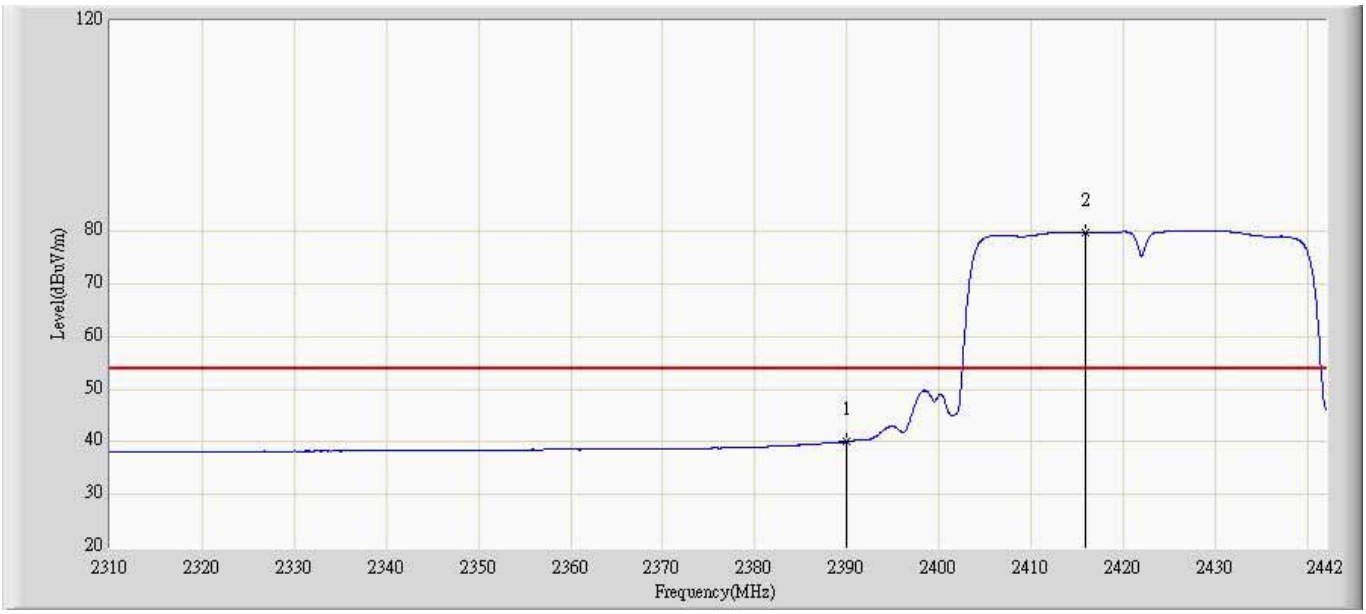
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	41.292	4.133	-12.708	54.000	37.159	AV
2		*	2411.574	84.147	46.798	N/A	N/A	37.349	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode4: Transmit at channel 2422MHz by 802.11n(40MHz)	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	53.035	16.536	-20.965	74.000	36.499	PK
2		*	2414.346	89.752	53.136	N/A	N/A	36.616	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode4: Transmit at channel 2422MHz by 802.11n(40MHz)	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	40.048	3.549	-13.952	54.000	36.499	AV
2		*	2415.930	79.783	43.160	N/A	N/A	36.624	AV

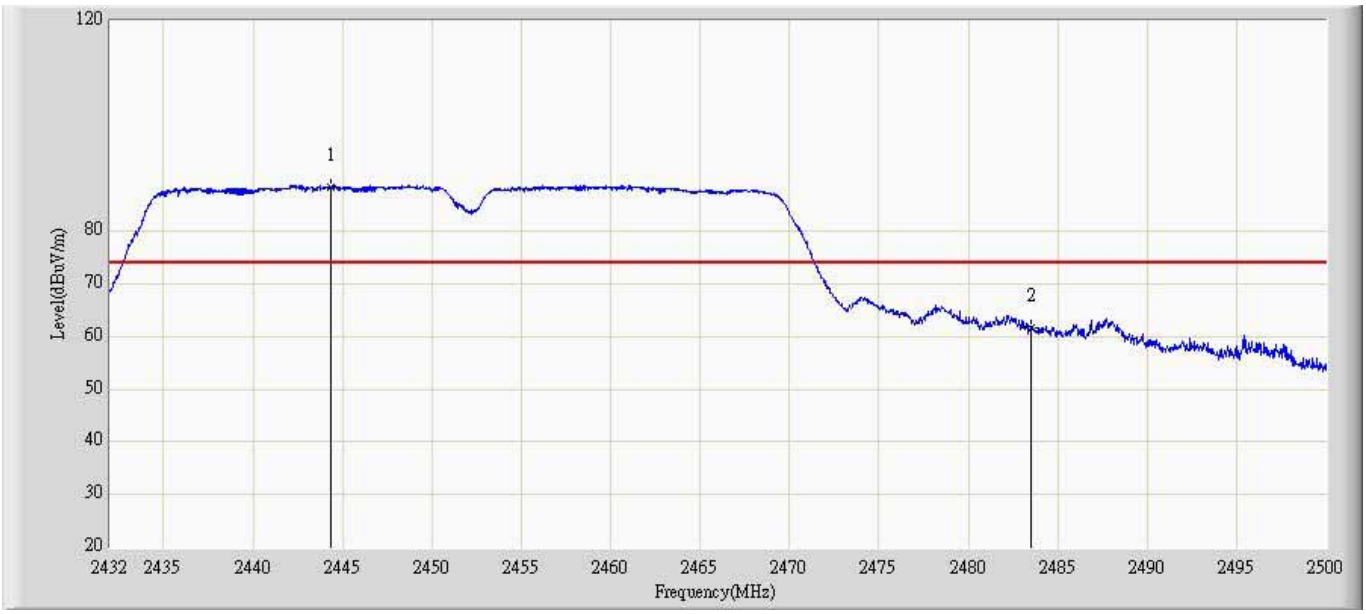
Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 19:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode4: Transmit at channel 2452MHz by 802.11n(40MHz)	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2442.540	92.594	54.974	N/A	N/A	37.620	PK
2			2483.500	65.034	27.064	-8.966	74.000	37.969	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 20:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Horizontal
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode4: Transmit at channel 2452MHz by 802.11n(40MHz)	

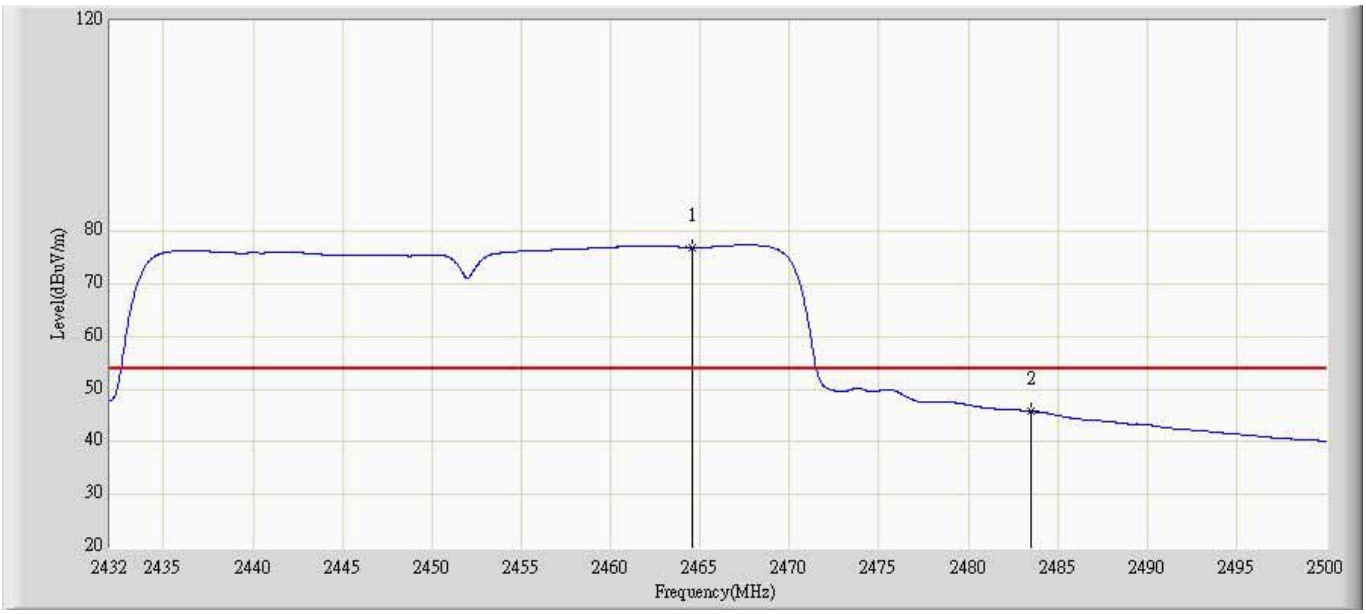
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2445.804	82.404	44.755	N/A	N/A	37.648	AV
2			2483.500	50.043	12.073	-3.957	54.000	37.969	AV

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 20:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode4: Transmit at channel 2452MHz by 802.11n(40MHz)	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2444.376	88.499	51.740	N/A	N/A	36.759	PK
2			2483.500	61.736	24.800	-12.264	74.000	36.935	PK

Engineer: Milo	
Site: AC5	Time: 2013/07/03 - 20:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_988(1-18GHz)	Polarity: Vertical
EUT: Mobile POS Kiosk	Power: AC 120V/60Hz
Note: Mode4: Transmit at channel 2452MHz by 802.11n(40MHz)	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2464.538	77.016	40.171	N/A	N/A	36.845	AV
2			2483.500	45.787	8.851	-8.213	54.000	36.935	AV

7. Operation Frequency Range of 20dB Bandwidth

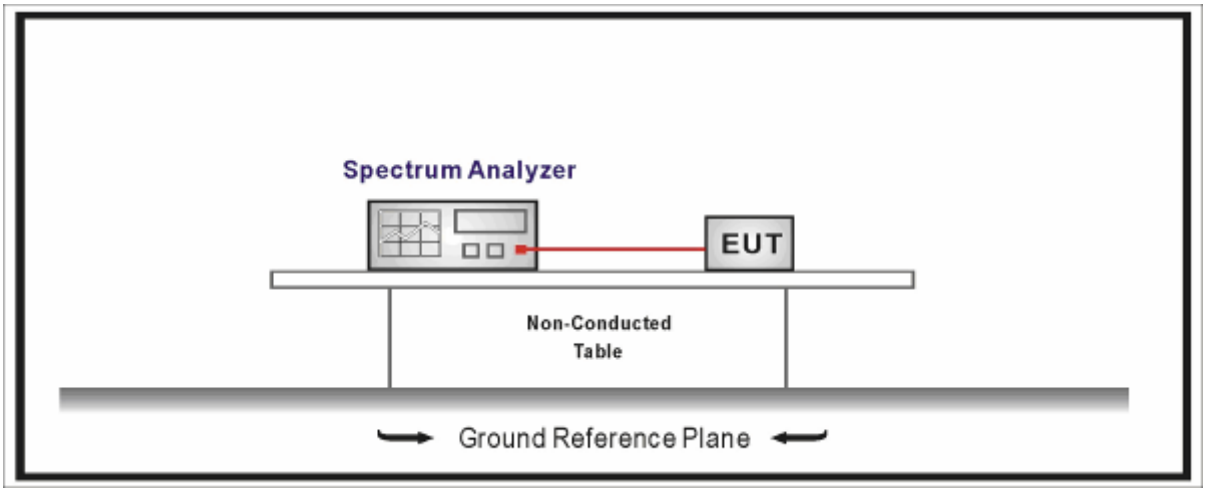
7.1. Test Equipment

Operation Frequency Range of 20dB Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

7.2. Test Setup



7.3. Limit

20 dB bandwidth of the emission is contained within the operation frequency band.

7.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Span greater than RBW.

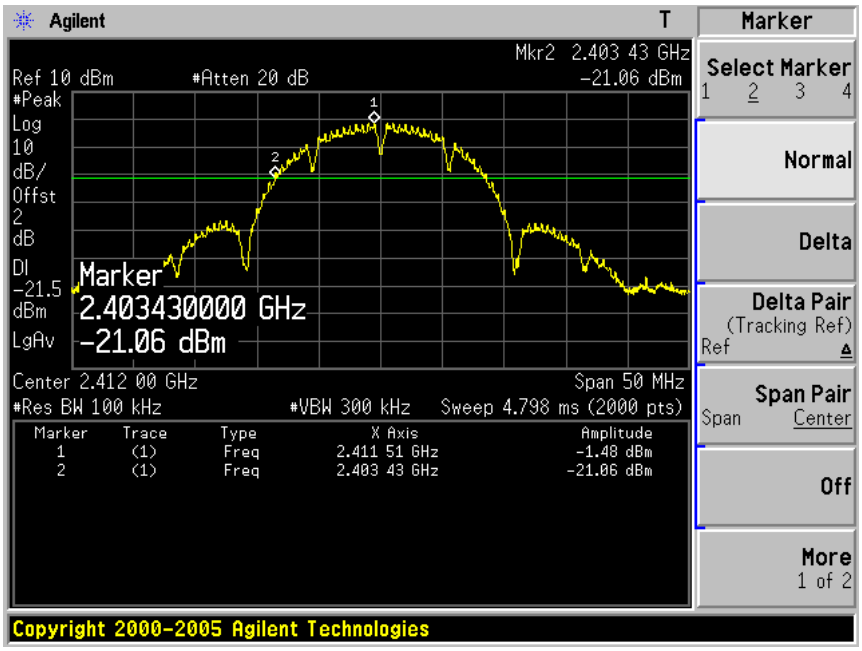
7.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

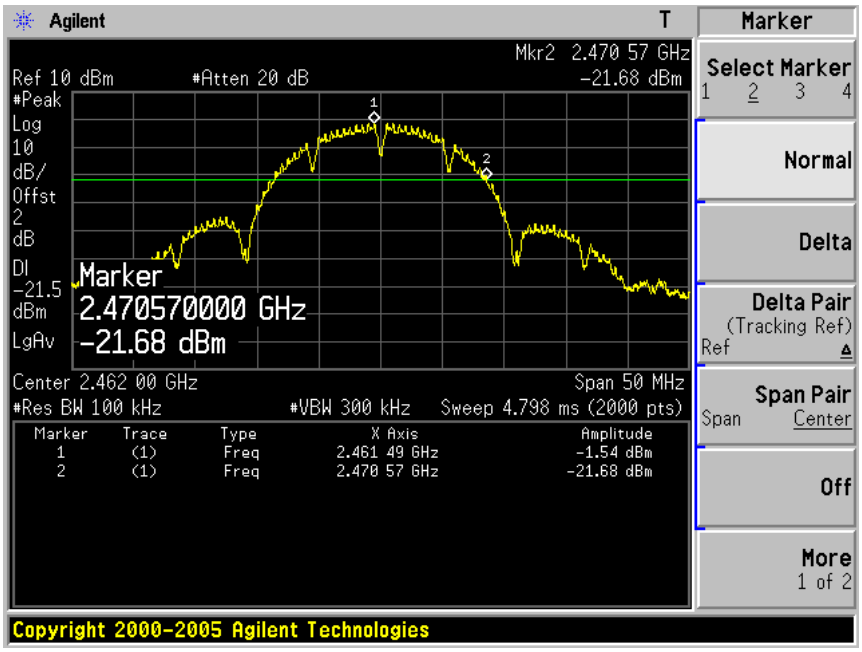
7.6. Test Result

Product	:	Mobile POS Kiosk
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel 01 (2412MHz)

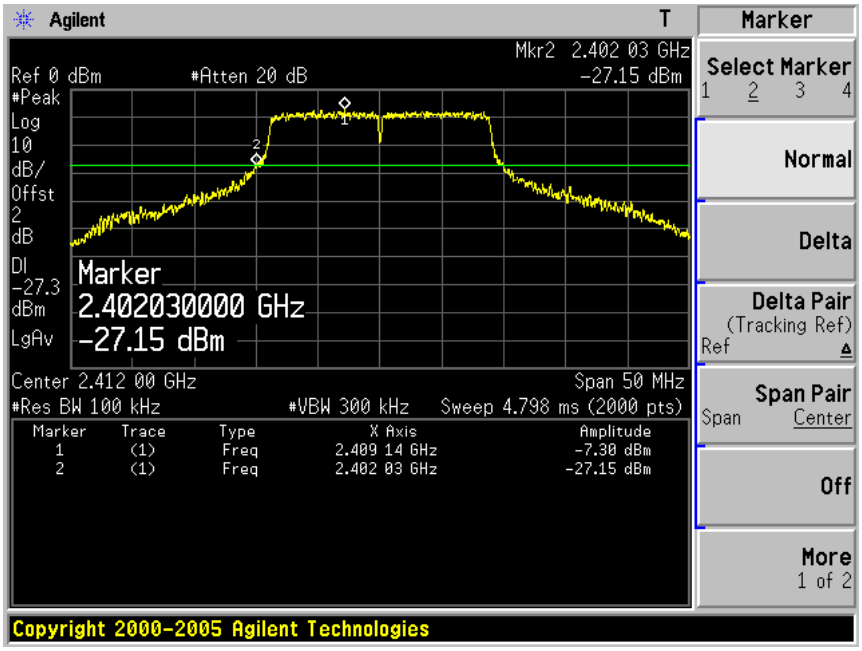


Channel 11 (2462MHz)

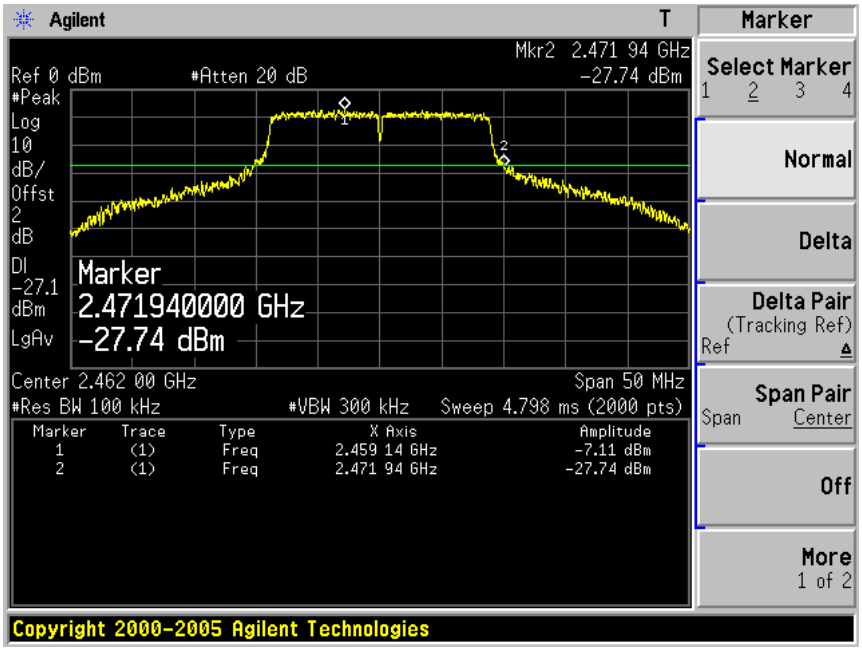


Product	:	Mobile POS Kiosk
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel 01 (2412MHz)

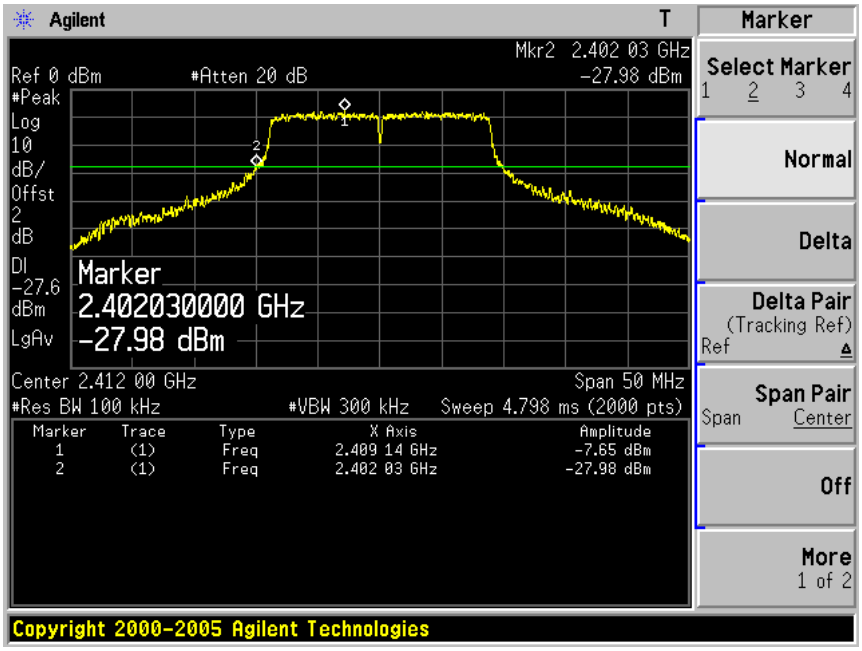


Channel 11 (2462MHz)

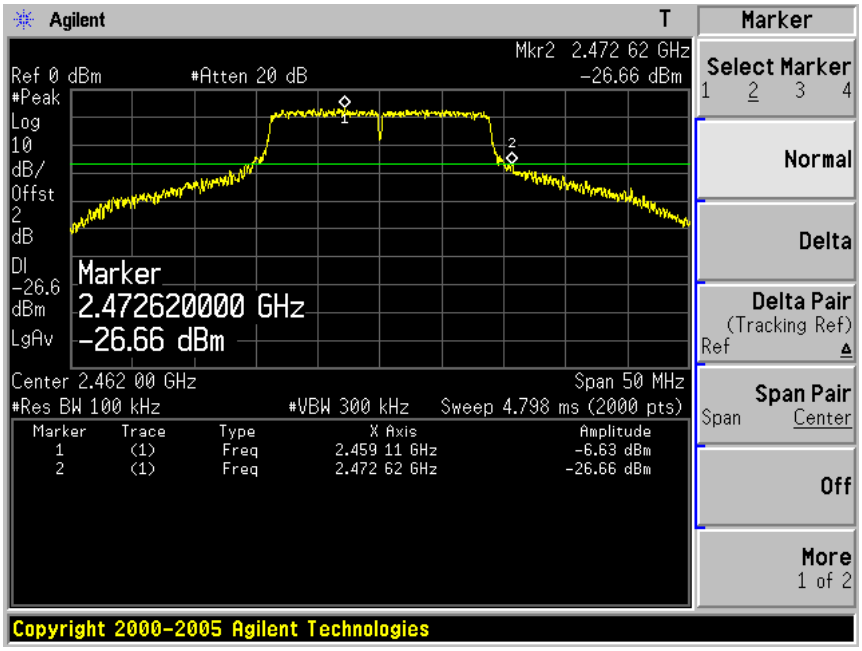


Product	:	Mobile POS Kiosk
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

Channel 01 (2412MHz)

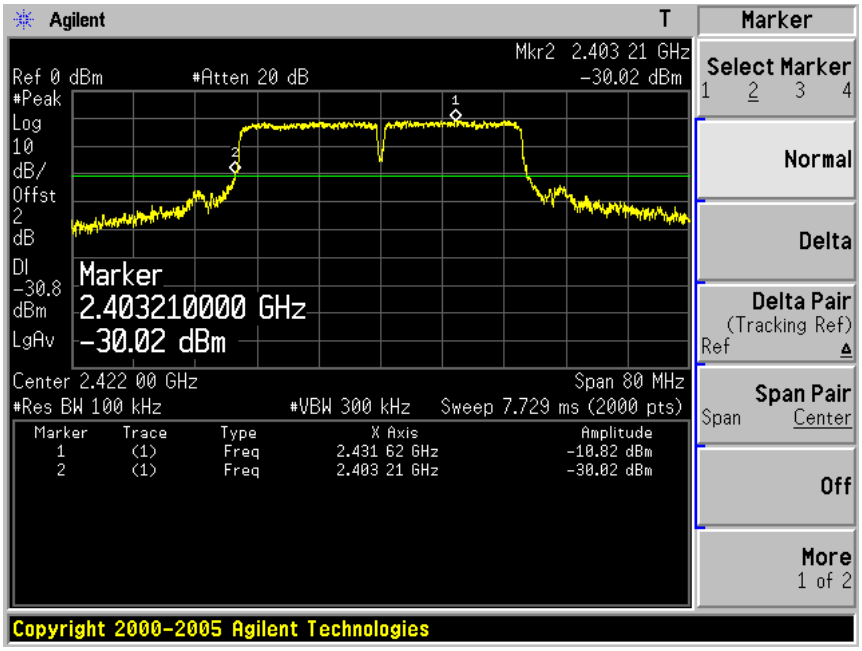


Channel 11 (2462MHz)

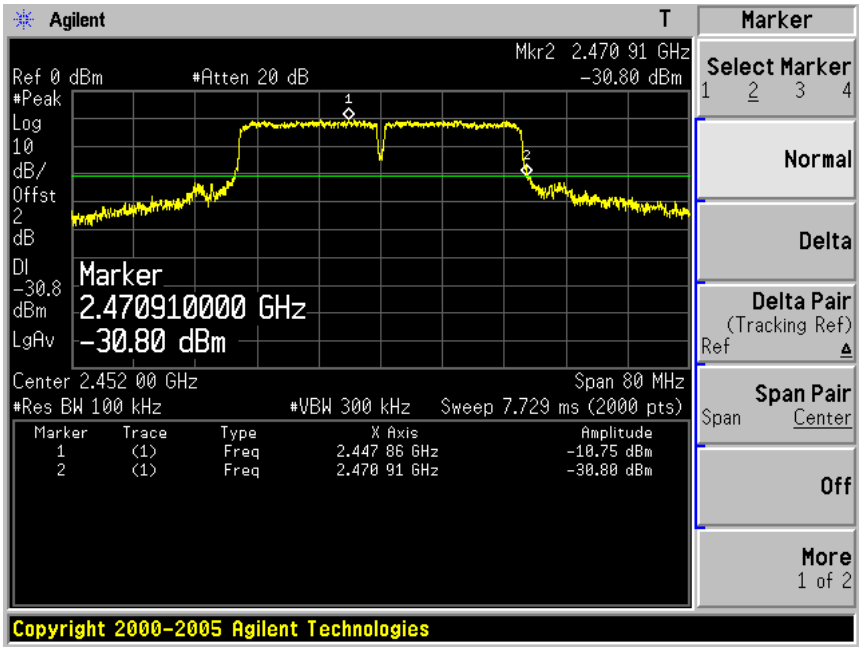


Product	:	Mobile POS Kiosk
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz)

Channel 03 (2422MHz)



Channel 09 (2452MHz)



8. Occupied Bandwidth

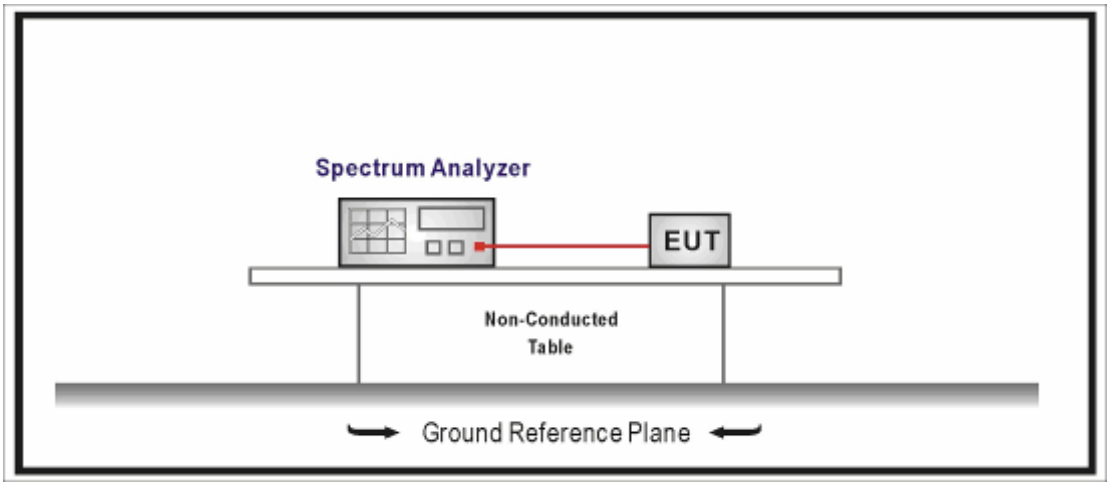
8.1. Test Equipment

Occupied Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

8.2. Test Setup



8.3. Limit

The minimum 6 dB bandwidth shall be at least 500 kHz.

8.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Span greater than RBW.

8.5. Uncertainty

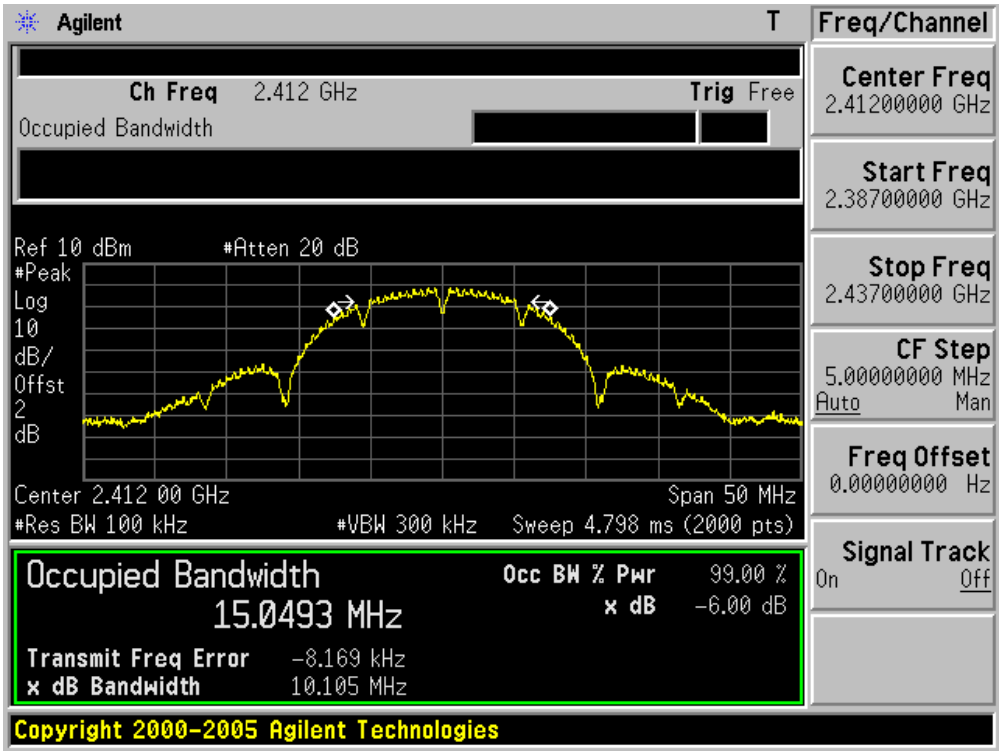
The measurement uncertainty is defined as ± 1 kHz

8.6. Test Result

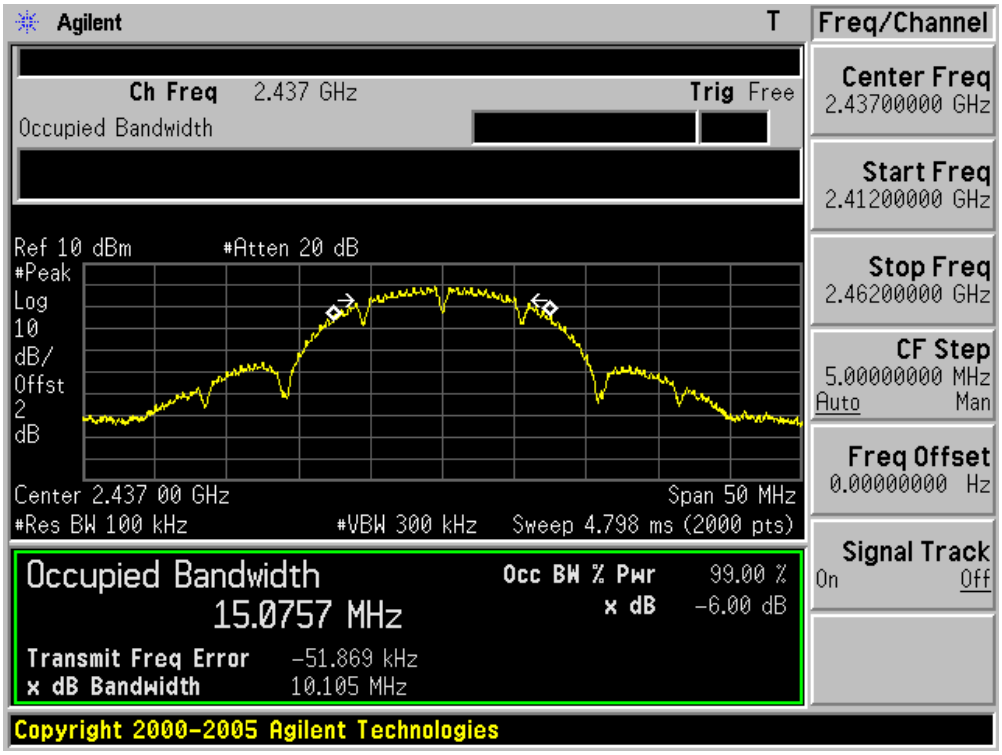
Product	:	Mobile POS Kiosk
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	99% Bandwidth (kHz)	Result
01	2412	10105.0	500	15049.3	Pass
06	2437	10105.0	500	15075.7	Pass
11	2462	10096.0	500	15139.2	Pass

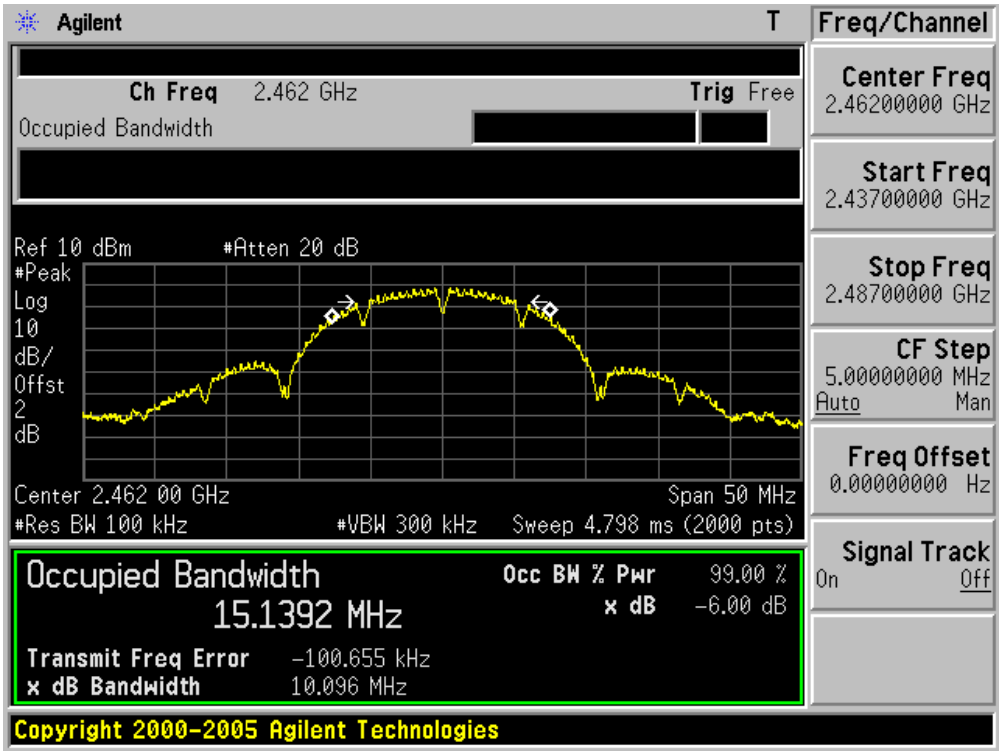
Channel 01 (2412MHz)



Channel 06 (2437MHz)



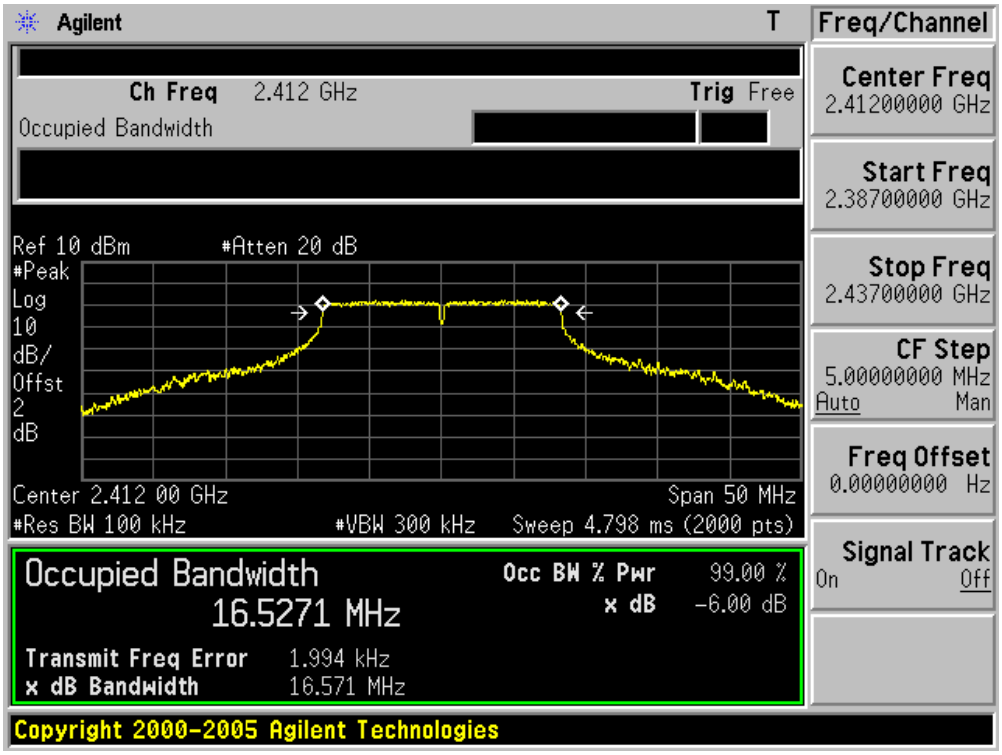
Channel 11 (2462MHz)



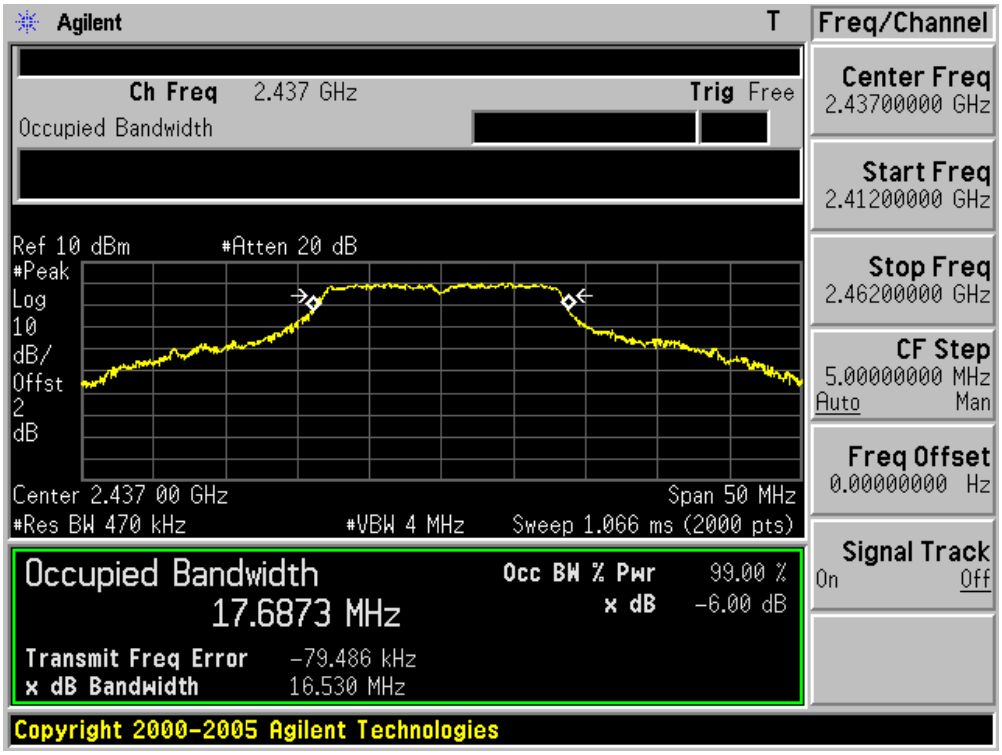
Product	:	Mobile POS Kiosk
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	99% Bandwidth (kHz)	Result
01	2412	16571.0	500	16527.1	Pass
06	2437	16530.0	500	17687.3	Pass
11	2462	16561.0	500	16587.8	Pass

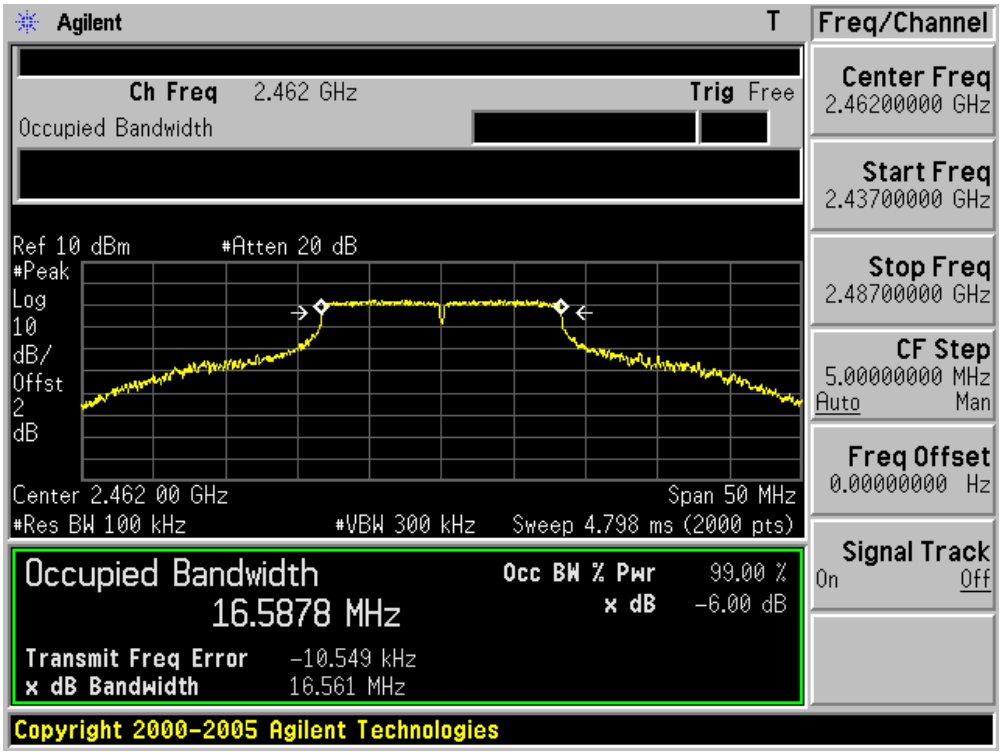
Channel 01 (2412MHz)



Channel 06 (2437MHz)



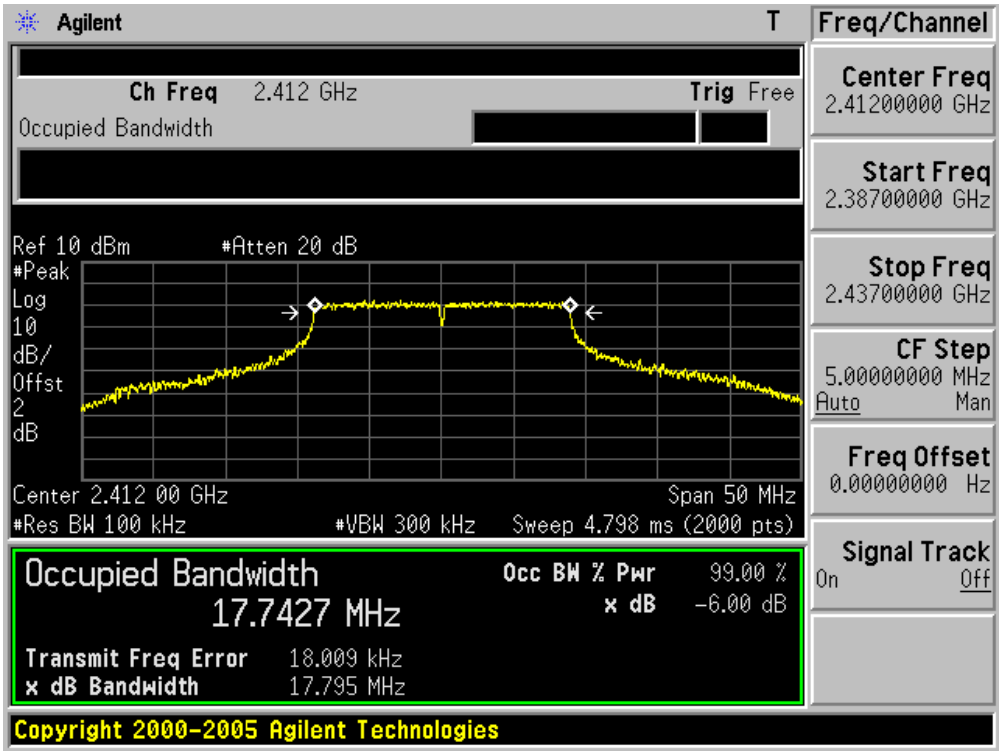
Channel 11 (2462MHz)



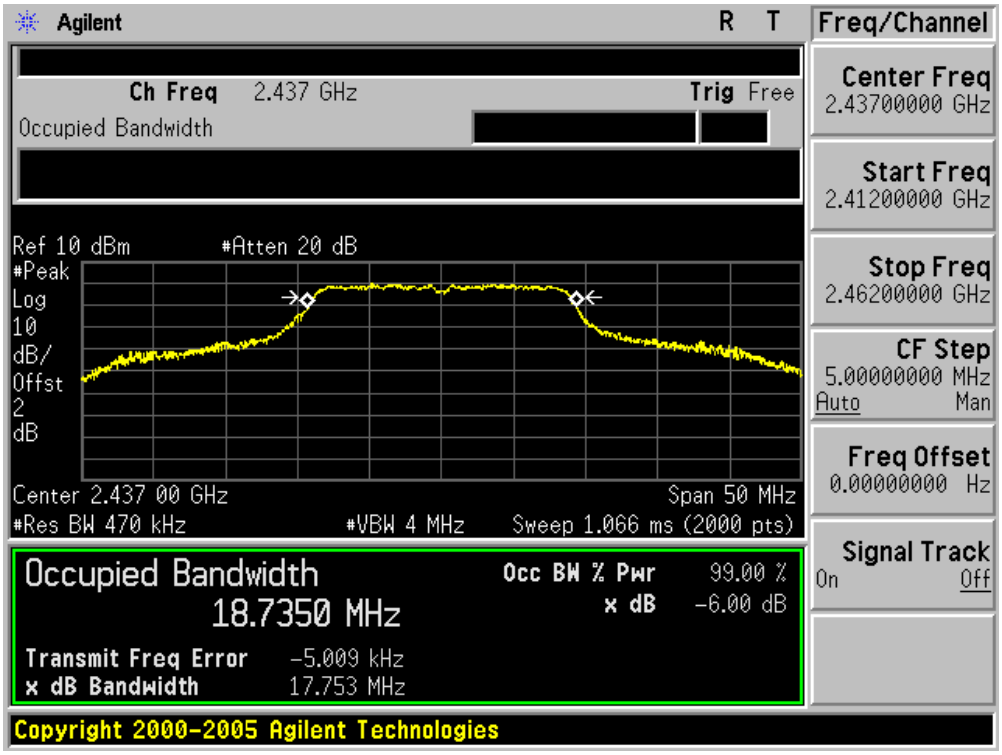
Product	:	Mobile POS Kiosk
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	99% Bandwidth (kHz)	Result
01	2412	17795.0	500	17742.7	Pass
06	2437	17753.0	500	18735.0	Pass
11	2462	17753.0	500	17887.9	Pass

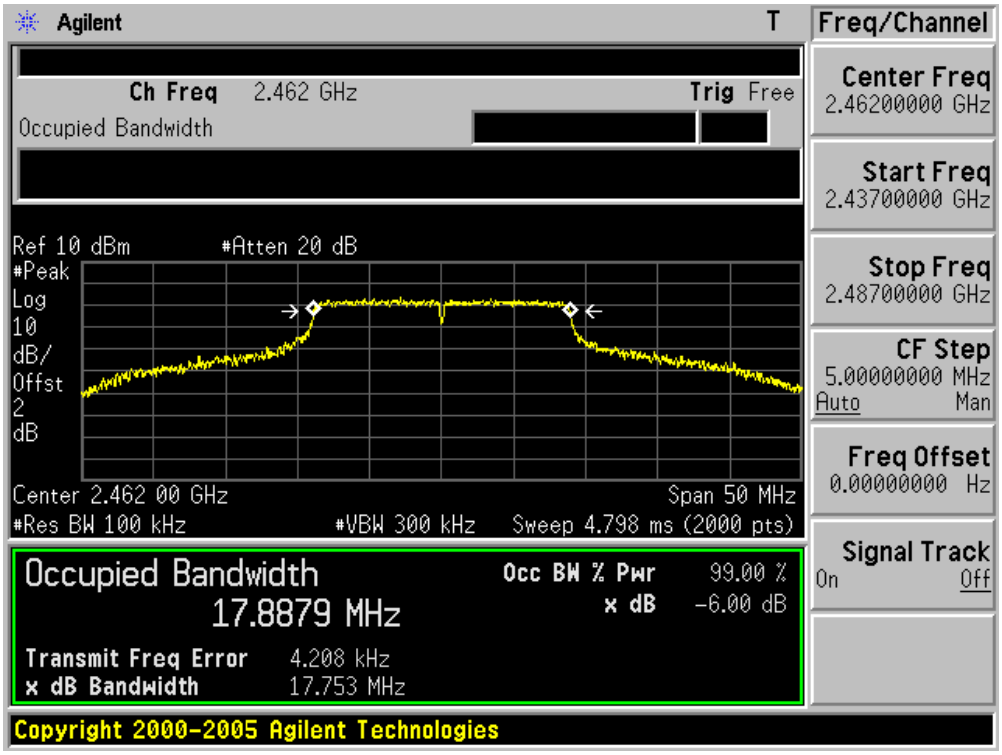
Channel 01 (2412MHz)



Channel 06 (2437MHz)



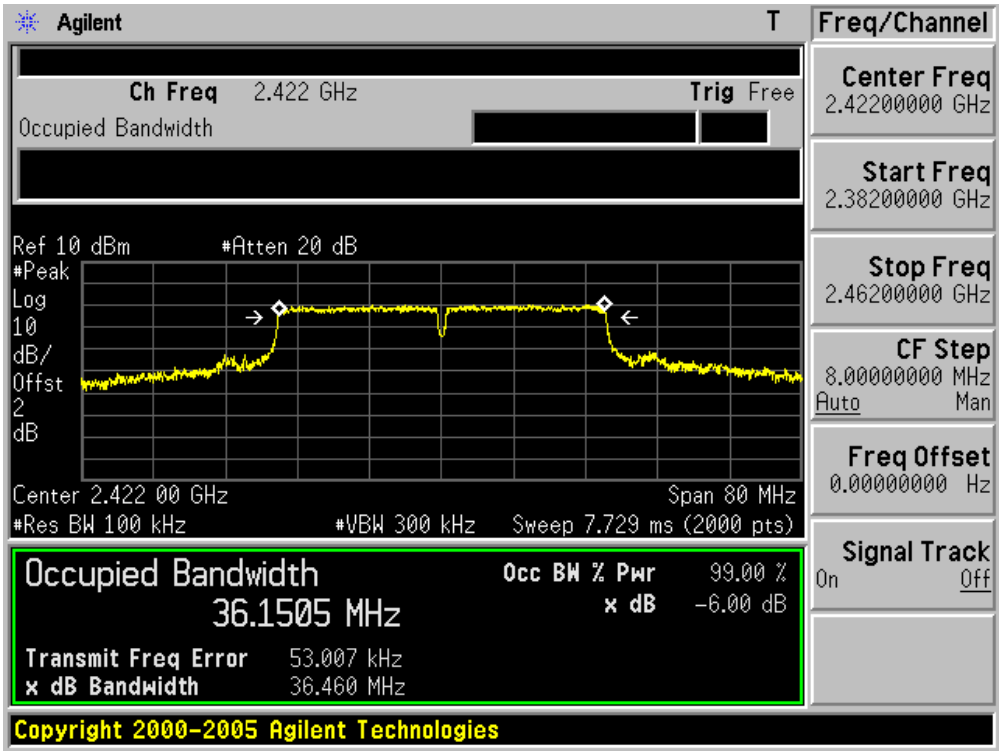
Channel 11 (2462MHz)



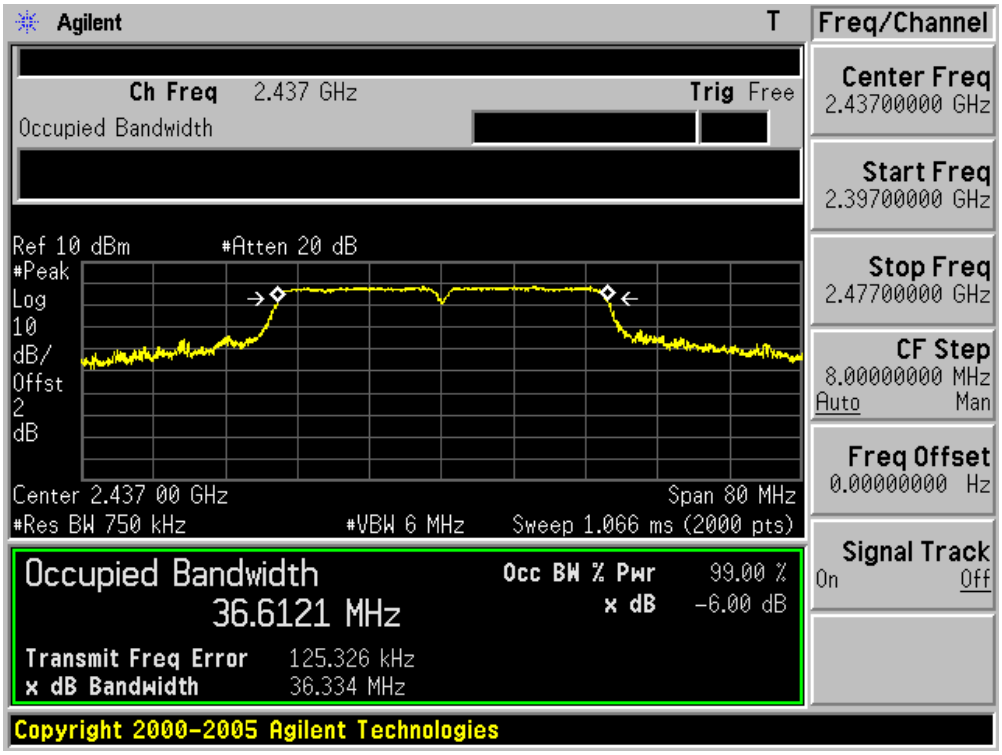
Product	:	Mobile POS Kiosk
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	99% Bandwidth (kHz)	Result
03	2422	36460.0	500	36150.5	Pass
06	2437	36334.0	500	36612.1	Pass
09	2452	36457.0	500	36223.6	Pass

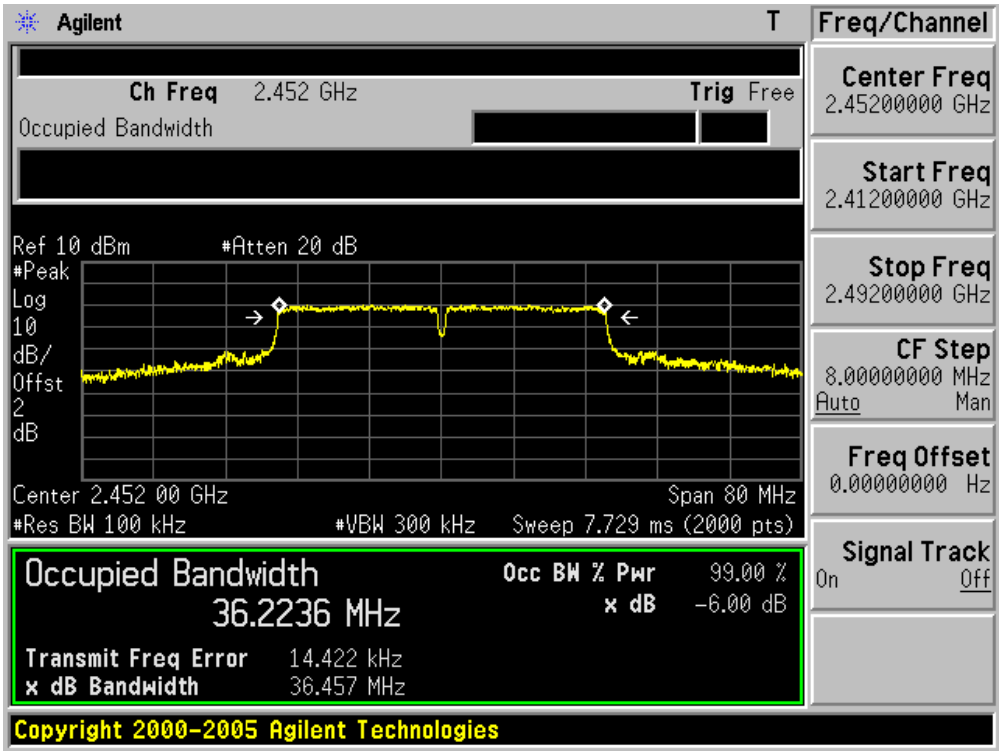
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



9. Power Output

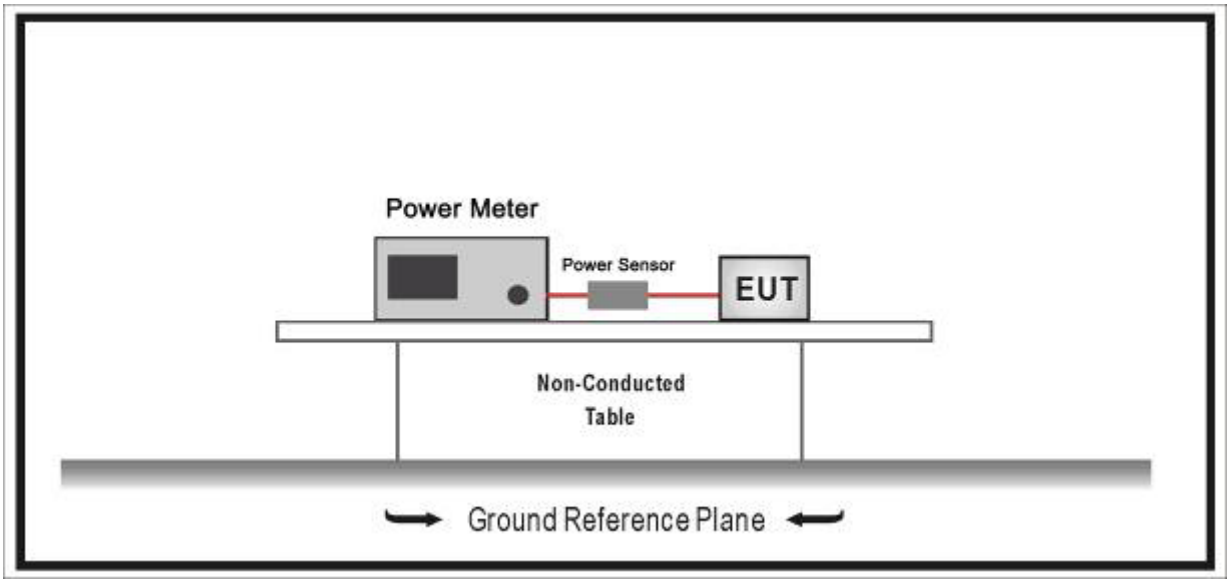
9.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2013/11/10
Power Sensor	Anritsu	MA2411B	0846014	2013/11/10
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014/05/08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

9.2. Test Setup



9.3. Limit

The maximum peak power shall be less 1 Watt (30dBm).

Note: the conducted output power limit specified above is based on the use the antennas with directional gains that do not exceed 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values above, as appropriate, by the amount in dB that the directional gain of antenna exceeds 6 dBi.

9.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

Use the wideband power meter to test peak power and record the result.

9.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

9.6. Test Result

Power output test was verified over all data rates of each mode shown as below, and then choose the maximum power output (blue marker) for final test of each channel.

MCS Index for 802.11n	Spatial Streams	Data Rate (Mbps)					
		802.11b	802.11g	20MHz Bandwidth		40MHz Bandwidth	
				800ns GI	400ns GI	800ns GI	400ns GI
0	1	1	6	6.5	7.2	13.5	15.0
1	1	2	9	13.0	14.4	27.0	30.0
2	1	5.5	12	19.5	21.7	40.5	45.0
3	1	11	18	26.0	28.9	54.0	60.0
4	1	---	24	39.0	43.3	81.0	90.0
5	1	---	36	52.0	57.8	108.0	120.0
6	1	---	48	58.5	65.0	121.5	135.0
7	1	---	54	65.0	72.2	135.0	150.0

Power output at various data rates:

Test Mode	Bandwidth	Frequency (MHz)	Channel	Data Rate	Peak Power (dBm)
802.11b	20	2437	6	1	16.92
				5.5	16.75
				11	16.64
802.11g	20	2437	6	6	16.26
				24	16.04
				54	15.98
802.11n	20	2437	6	MCS0	15.64
				MCS4	15.43
				MCS7	15.26
802.11n	40	2437	6	MCS0	15.27
				MCS4	15.03
				MCS7	15.14

Product	:	Mobile POS Kiosk
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	Limit (dBm)	Result
01	2412	16.39	16.39	30.00	Pass
06	2437	16.92	16.92	30.00	Pass
11	2462	16.36	16.36	30.00	Pass

Product	:	Mobile POS Kiosk
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	Limit (dBm)	Result
01	2412	16.04	16.04	30.00	Pass
06	2437	16.26	16.26	30.00	Pass
11	2462	15.43	15.43	30.00	Pass

Product	:	Mobile POS Kiosk
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	Limit (dBm)	Result
01	2412	15.44	15.44	30.00	Pass
06	2437	15.64	15.64	30.00	Pass
11	2462	15.29	15.29	30.00	Pass

Product	:	Mobile POS Kiosk
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	Limit (dBm)	Result
03	2422	15.58	15.58	30.00	Pass
06	2437	15.27	15.27	30.00	Pass
09	2452	14.92	14.92	30.00	Pass

10. Power Spectral Density

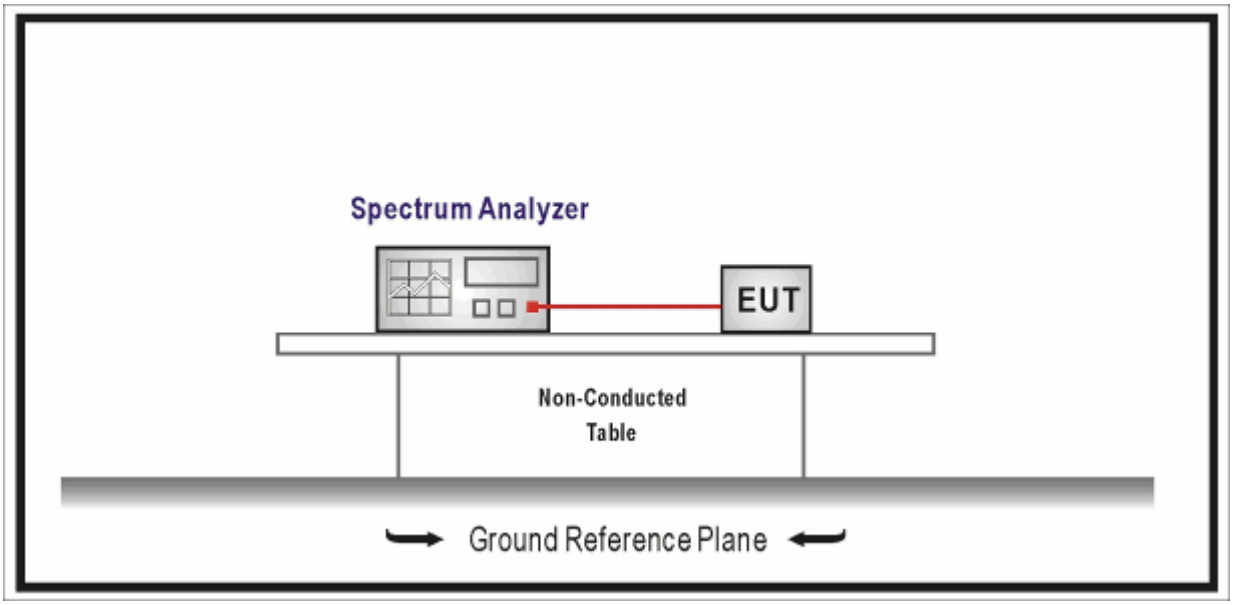
10.1. Test Equipment

Power Spectral Density / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2014.01.21
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2014.05.08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

10.2. Test Setup



10.3. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiated to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

10.4. Test Procedure

The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.
Set analyzer center frequency to DTS channel center frequency, the span to 1.5 times the DTS channel bandwidth, RBW ≧ 3 kHz, Set VBW ≧ 3 * RBW, Sweep time = auto couple, Detector = peak, Trace mode = max hold, Allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level. If measured value exceed limit reduce RBW (no less than 3kHz) and repeat.

10.5. Uncertainty

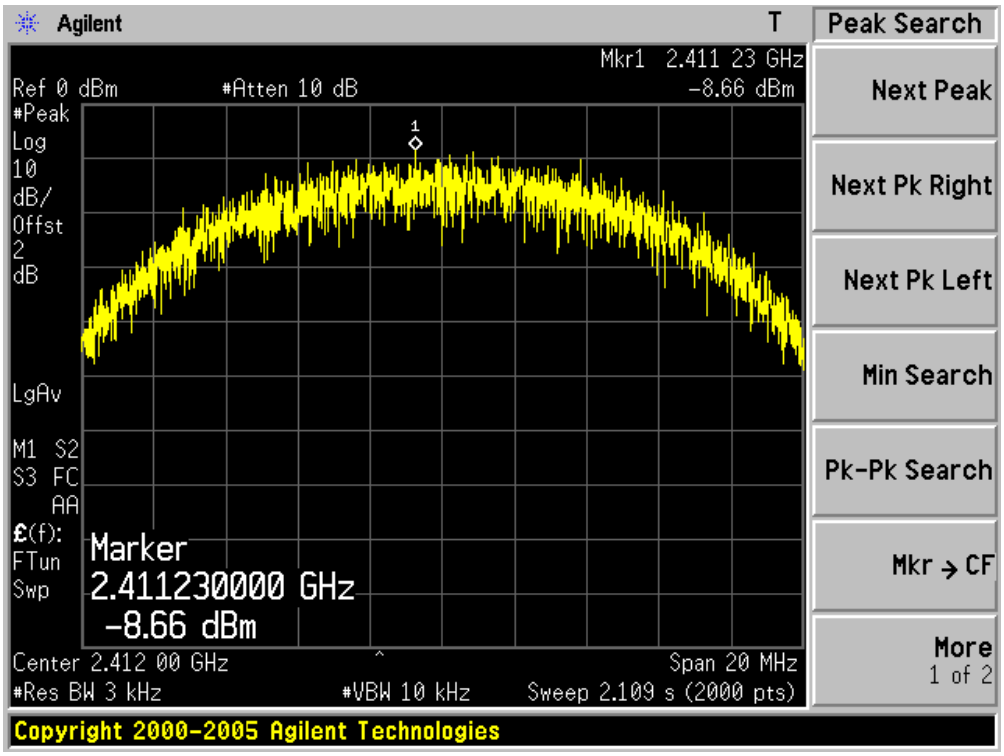
The measurement uncertainty is defined as ± 1.27 dB

10.6. Test Result

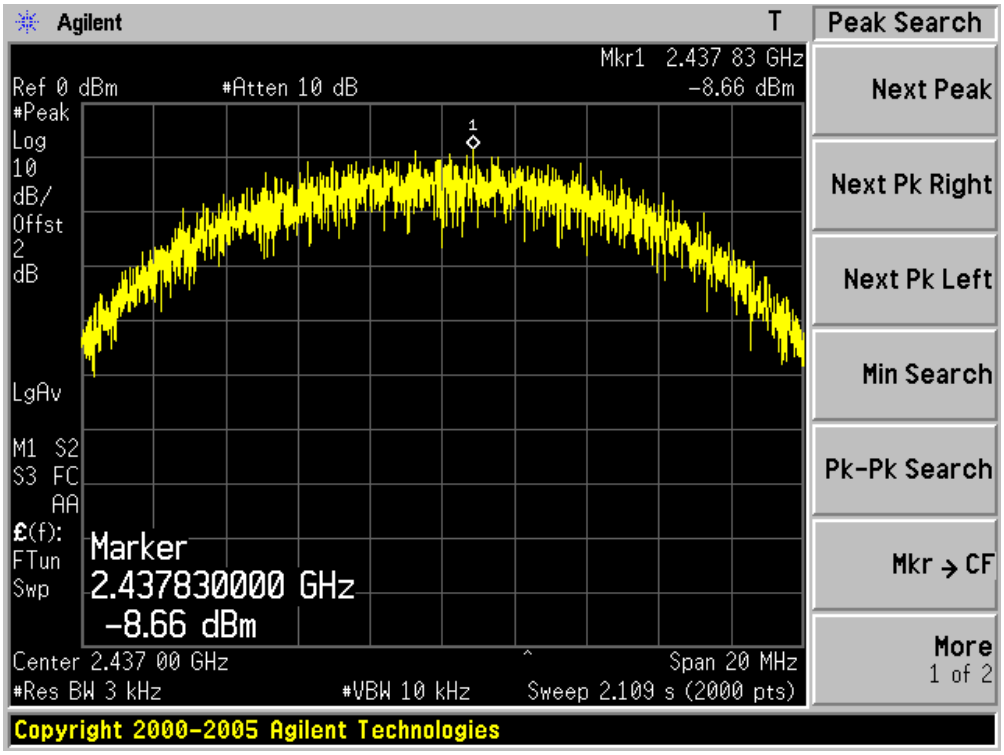
Product	:	Mobile POS Kiosk
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
01	2402	-8.66	8	Pass
06	2440	-8.66	8	Pass
11	2480	-8.85	8	Pass

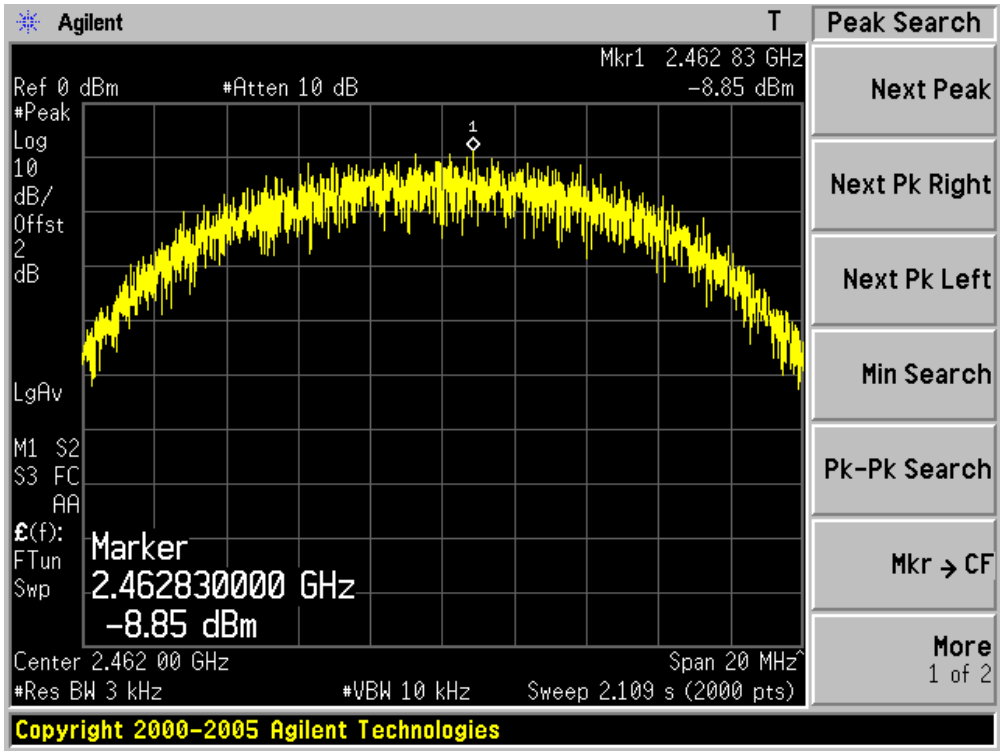
Channel 01 (2412MHz)



Channel 06 (2437MHz)



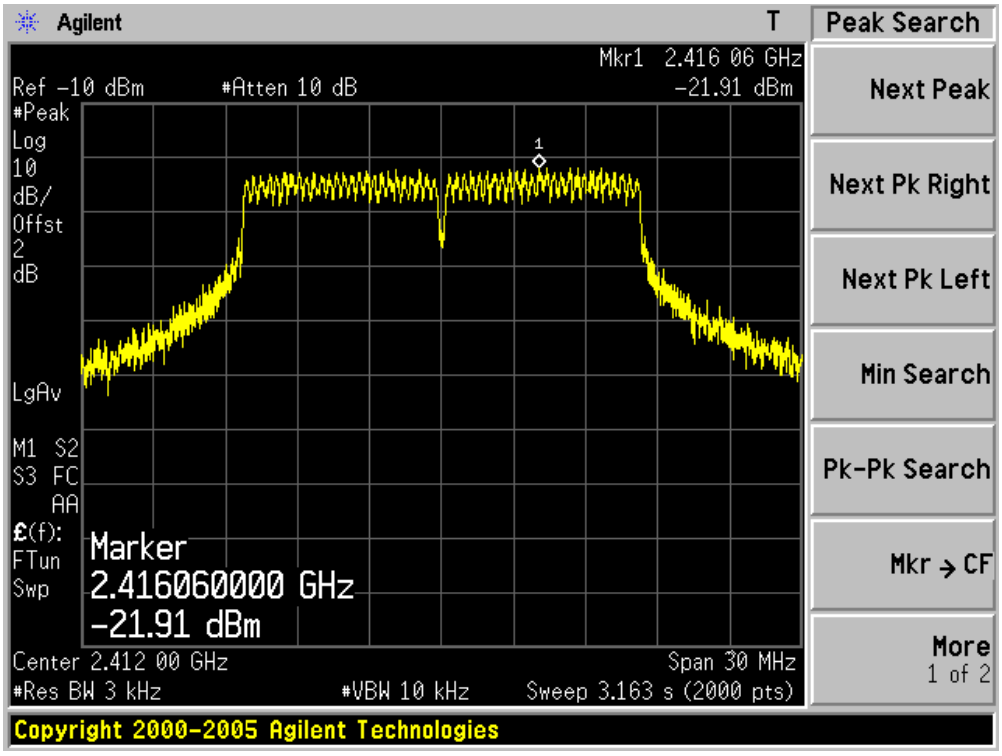
Channel 11 (2462MHz)



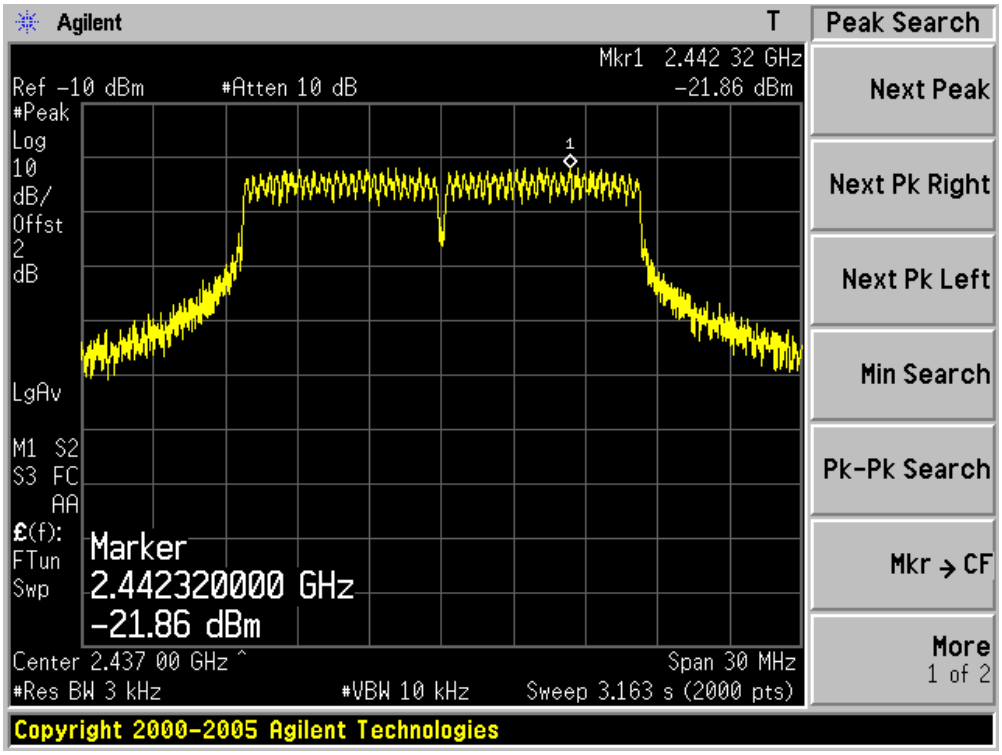
Product	:	Mobile POS Kiosk
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
01	2402	-21.91	8	Pass
06	2440	-21.86	8	Pass
11	2480	-21.85	8	Pass

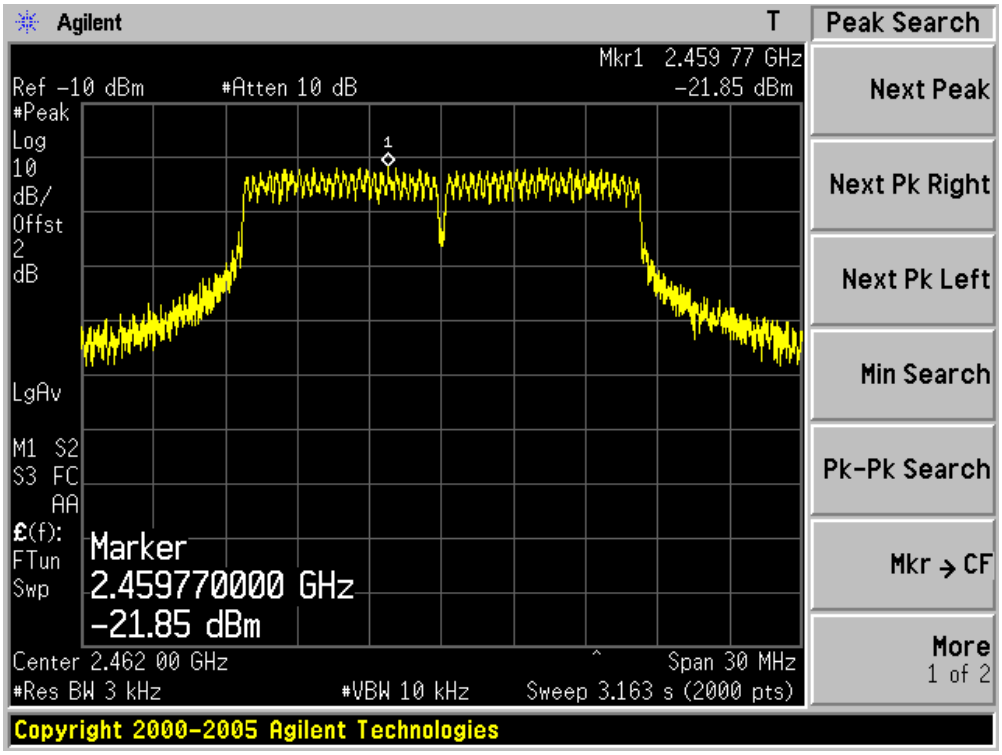
Channel 01 (2412MHz)



Channel 06 (2437MHz)



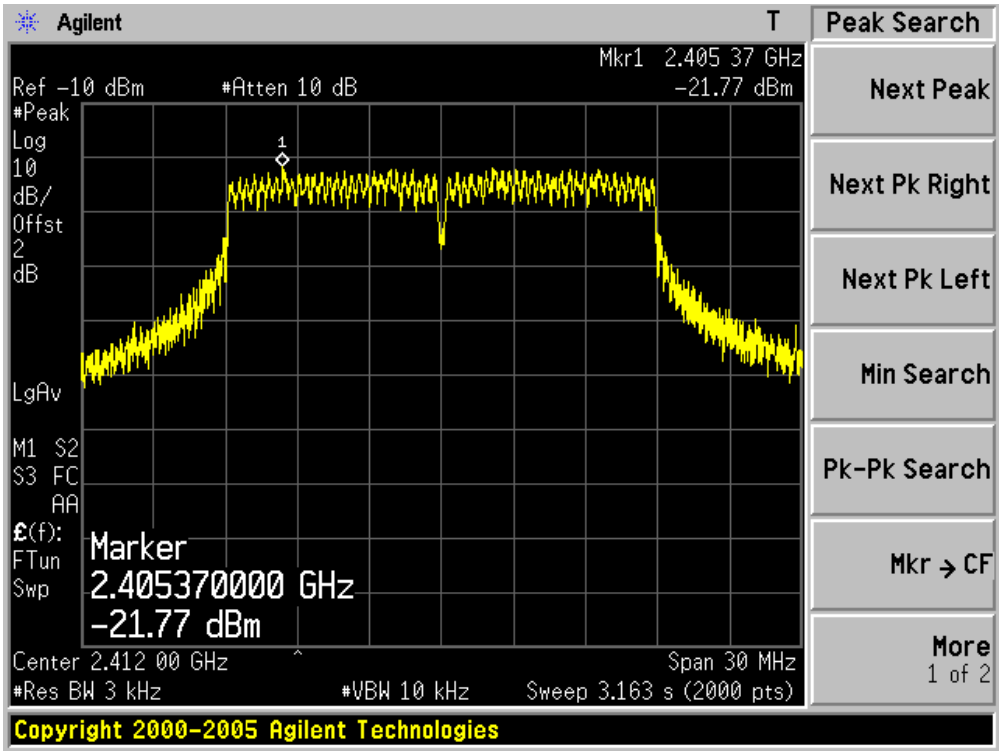
Channel 11 (2462MHz)



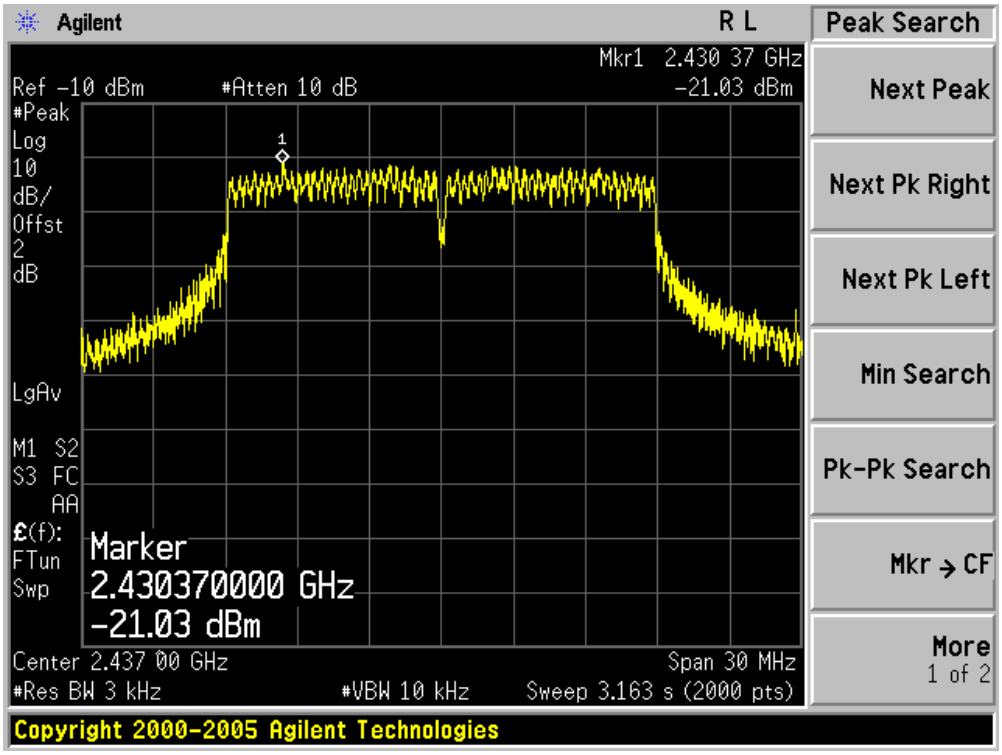
Product	:	Mobile POS Kiosk
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

Channel No.	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
01	2402	-21.77	8	Pass
06	2440	-21.03	8	Pass
11	2480	-20.55	8	Pass

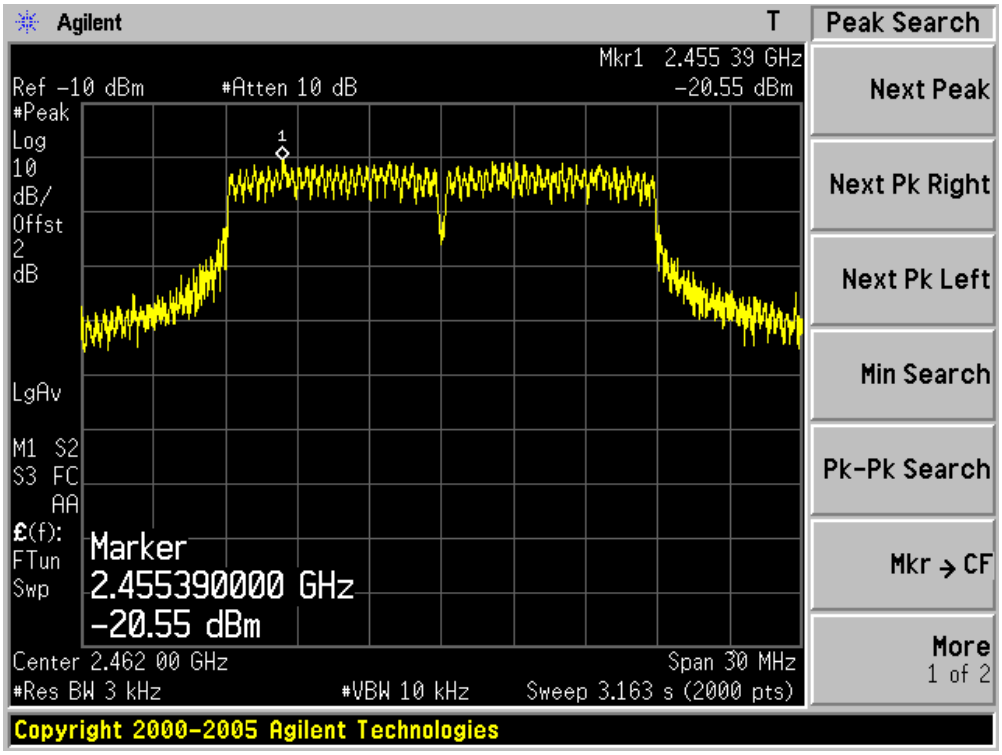
Channel 01 (2412MHz)



Channel 06 (2437MHz)



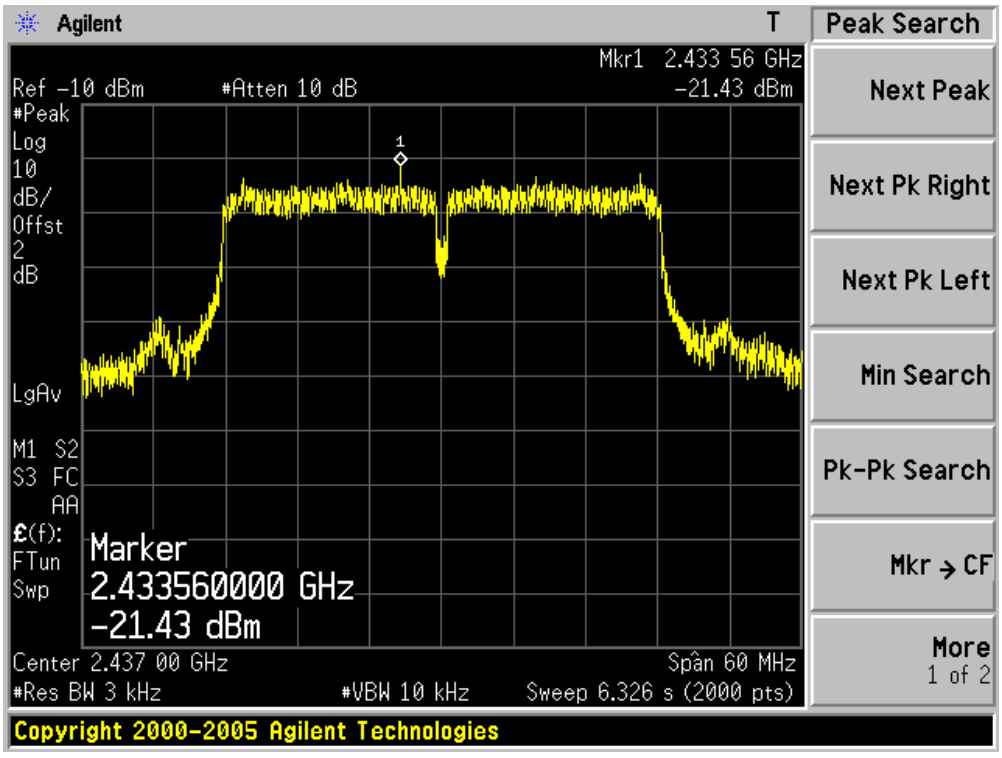
Channel 11 (2462MHz)



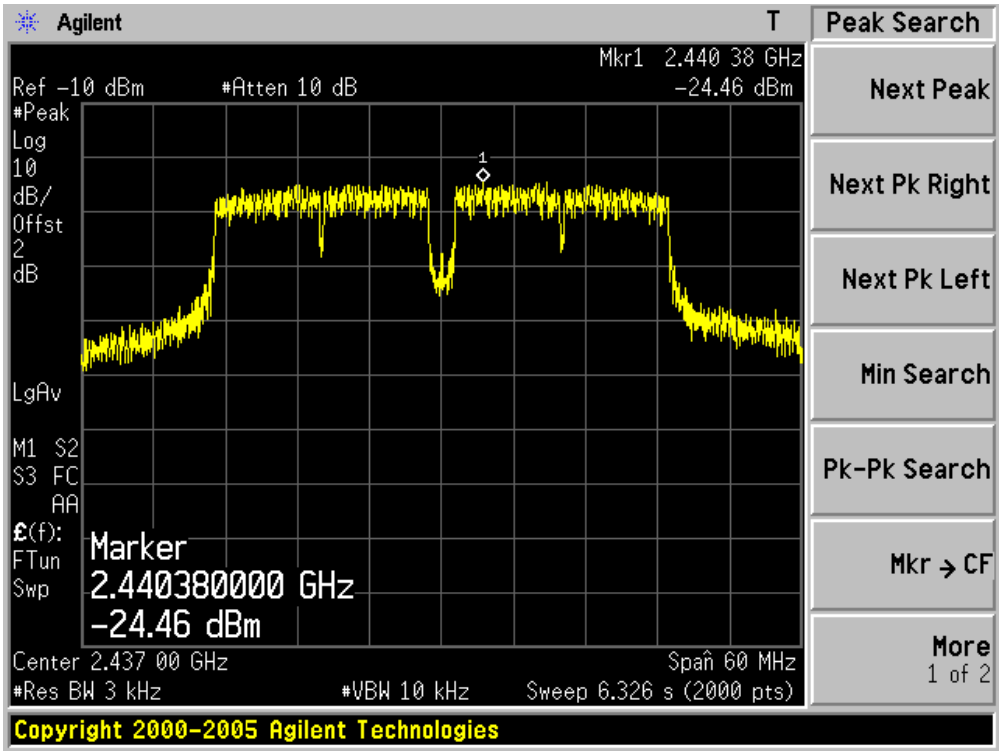
Product	:	Mobile POS Kiosk
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz)

Channel No.	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
03	2402	-21.43	8	Pass
06	2440	-24.46	8	Pass
09	2480	-21.41	8	Pass

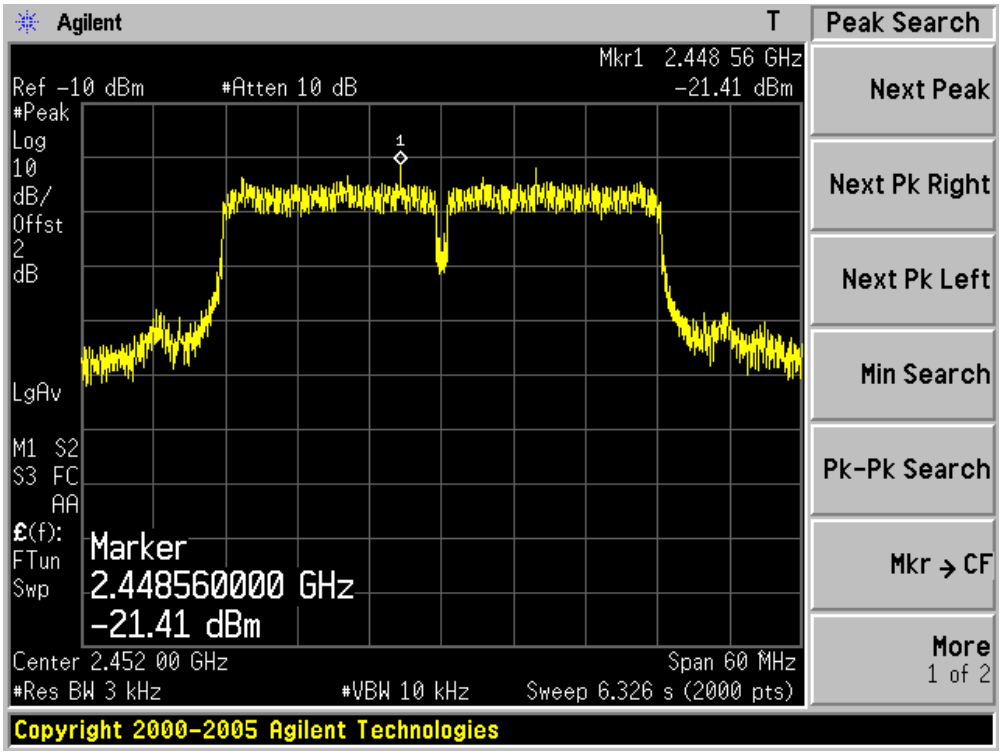
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



The End