FCC TEST REPORT

According to

CFR47 §15.247

Applicant	:	**Amcrest Technologies LLC**
Address	:	**16727 Park Row Dr.Houston, TX 77084**
Manufacturer	:	**Zhejiang Dahua Vision Technology Co., Ltd.**
Address	:	**No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China**
Equipment	:	**2K Dual Band Pan/Tilt Wireless IP Camera**
Model No.	:	**IP3M-941B, IP3M-941W, IP3M-941S, IP3M-941B-UK, IP3M-941W-UK, IP3M-941S-UK, IP3M-941B-EU, IP3M-941W-EU, IP3M-941S-EU, IP3M-941B-******, IP3M-941W-******, IP3M-941S-******(****** can be "A-Z", or "-" or blank)**
FCC ID	:	**AMCREST**

■ The test result refers exclusively to the test presented test model / sample.

■ Without written approval of ***Cerpass Technology Corp.*** the test report shall not be reproduced exc- ept in full.

I HEREBY CERTIFY THAT :
The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.10 – 2013** and the energy emitted by this equipment was ***passed.***
FCC Part 15 in both radiated and conducted emission class B limits. Testing was carried out on Jul 08,2016~Aug 23, 2016 at ***Cerpass Technology Corp.***

Prepared By:

Kerry Zhou

Approved by:

Miro Chueh (EMC/RF Manager)

Laboratory Accreditation:

☐ Cerpass Technology Corporation Test Laboratory

NVLAP LAB Code:	**200954-0**
TAF LAB Code:	**1439**

☒ Cerpass Technology (SuZhou) Co., Ltd.

NVLAP LAB Code:	**200814-0**
CNAS LAB Code:	**L5515**

Release History

Attachment No.	Version	Date	Description
SEFI1607040	Rev 01	2016-08-08	Initial release

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1. Report of Measurements and Examinations

1.1 List of Measurements and Examinations

Performed Test Item	Normative References	Test Performed	Deviation	Result
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.207	Yes	N/A	Pass
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.209 RSS-Gen Issue 4 November 2014 Section 6.13	Yes	No	Pass
RF Antenna Conducted Spurious	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(d) RSS-247 Issue 1 May 2015 Section 5.5	Yes	No	Pass
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2014 15.247(d) RSS-247 Issue 1 May 2015 Section 5.5	Yes	No	Pass
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2014 15.215(c)	Yes	No	Pass
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(a)(2) RSS-247 Issue 1 May 2015 Section 5.2(1)	Yes	No	Pass
Output Power	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(b)(3) RSS-247 Issue 1 May 2015 Section 5.4(4)	Yes	No	Pass
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(e) RSS-247 Issue 1 May 2015 Section 5.2(2)	Yes	No	Pass

2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

WIFI Module	Realtek RTL8811AU-VS
Spreading	802.11b: CCK, DQPSK, DBPSK 802.11g: 64 QAM, 16 QAM, QPSK, BPSK 802.11n: BPSK, QPSK,16-QAM, 64-QAM
Frequency Range	802.11b/g/n(20MHz): 2412-2462MHz 802.11n(40MHz): 2422-2452MHz
Number of Channels	802.11b/g/n (20MHz):11 802.11n (40MHz): 7
Data Rate	802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: up to 300Mbps
Antenna Type	See antenna requirement

Power supply	Model No:	HKC0115020-2B
	Input:	100~240V~50-60Hz Max0.5A
	Output:	5V⎓2.0A

2.2 Carrier Frequency of Channels

For 2.4G 802.11b, 802.11g, 802.11n (20MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437	---	---

For 2.4G 802.11n (40MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	---	08	2447
02	---	09	2452
03	2422	---	---
04	2427	---	---
05	2432	---	---
06	2437	---	---
07	2442	---	---

2.3 Power Setting Levels

Mode	Frequency (MHz)	Power Setting
802.11b	2412	48
	2437	63
	2462	48
802.11g	2412	54
	2437	63
	2462	54
802.11n20	2412	54
	2437	63
	2462	55
802.11n40	2422	53
	2437	63
	2452	53

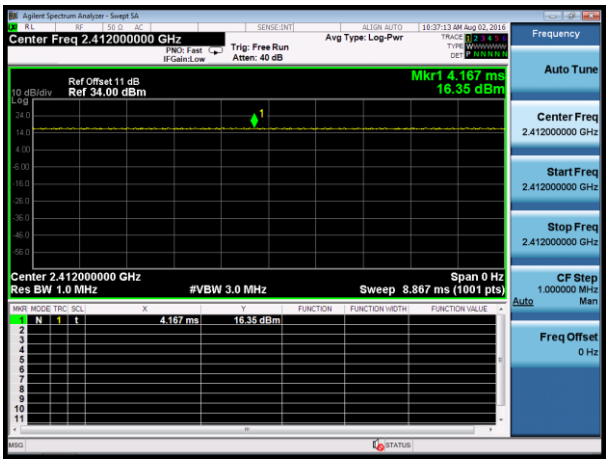
Note:Telnet software is used for power transmition control offered by the manufactory.

2.4 Duty cycle

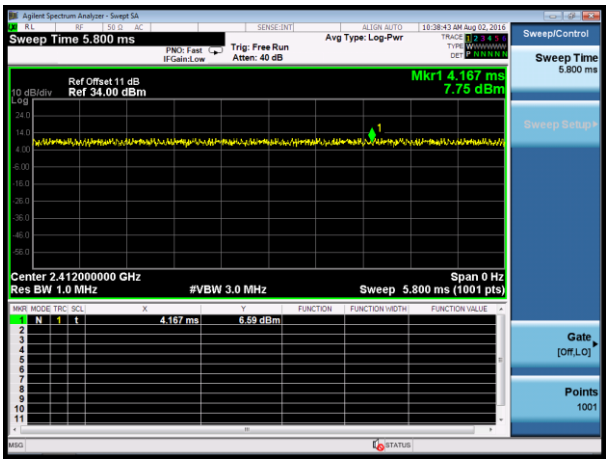
Test Item	Duty cycle

Mode	Frequency (MHz)	Measurement (%)
802.11b	2412	100%
802.11g	2412	100%
802.11n(20MHz)	2412	100%
802.11n(40MHz)	2422	100%

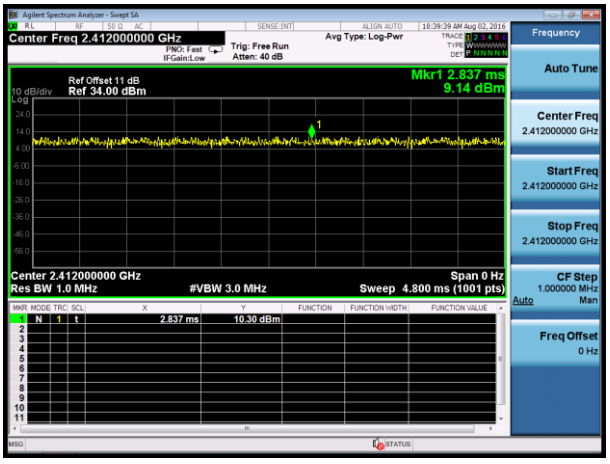
Transmit at 2412MHz by 802.11b



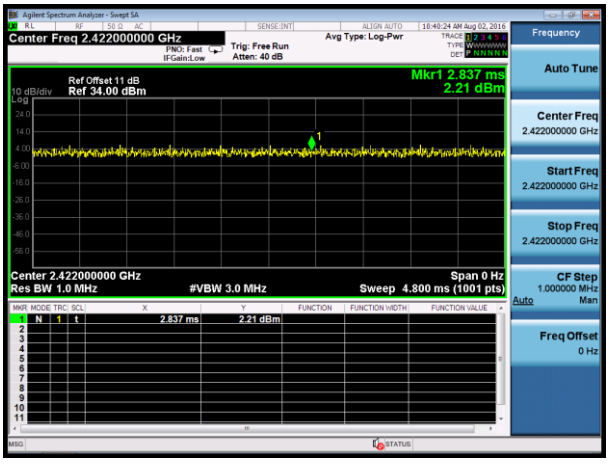
Transmit at 2412MHz by 802.11g



Transmit at 2412MHz by 802.11n(20MHz)



Transmit at 2422MHz by 802.11 n(40MHz)



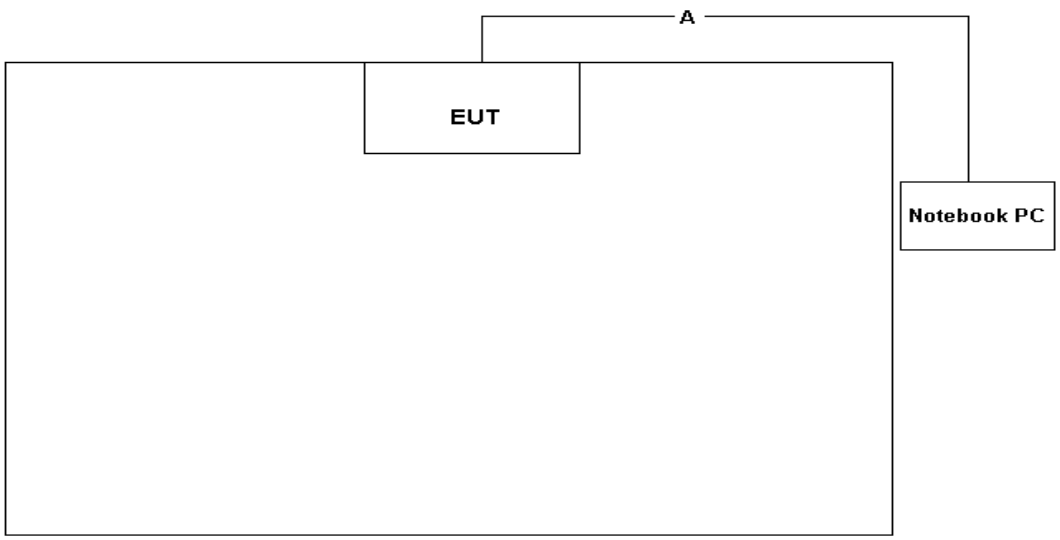
2.5 Test Manner

Test Manner	
1	During testing, the interface cables and equipment positions were varied according to C63.10.
2	Adjust the EUT at the test mode and the test channel. Then test.
Test mode	
1	Transmit by 802.11b
2	Transmit by 802.11g
3	Transmit by 802.11n (20MHz)
4	Transmit by 802.11n (40MHz)

2.6 Description of Test System

No	Device	Manufacturer	Model No.	Description
1	Notebook PC	SONY	PCG-71811P	Non-Shielded,1.5m (R33021)

2.7 Configuration of Tested System

Connection Diagram


Signal Cable Type		Signal cable Description
A	LAN Cable	Non-Shielded>3.0 m

2.8 General Information of Test

Test Site:	Cerpass Technology（SuZhou）Co., LTD
Performand Location :	No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China
NVLAP LAB Code :	200814-0
FCC Registration Number :	916572, 331395
IC Registration Number :	7290A-1, 7290A-2

2.9 Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	LINE/NEUTRAL	±2.71 dB
Radiated Emission	9 kHz ~ 30 MHz	Vertical	±1.60 dB
		Horizontal	±1.60 dB
	30 MHz ~ 25GHz	Vertical	±4.11 dB
		Horizontal	±4.10 dB
Occupied Bandwidth	---	---	±7500 Hz
Maximum Peak Output Power	---	---	±1.4 dB
Power Spectral Density	---	---	±2.2 dB

3. Antenna Requirements

3.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

3.2 Antenna Construction and Directional Gain

Antenna	Manufacturer	Model No.	Peak Gain
PCB Antenna	ShenZhen VLG Wireless Technology Co,.Ltd	V1350-003-A-1	6.12dBi for 2400~2500MHz band 2.83dBi for 5150~5250MHz band 3.15dBi for 5725~5850MHz band

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4. Test of Conducted Emission

4.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.10-2013. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 6.2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

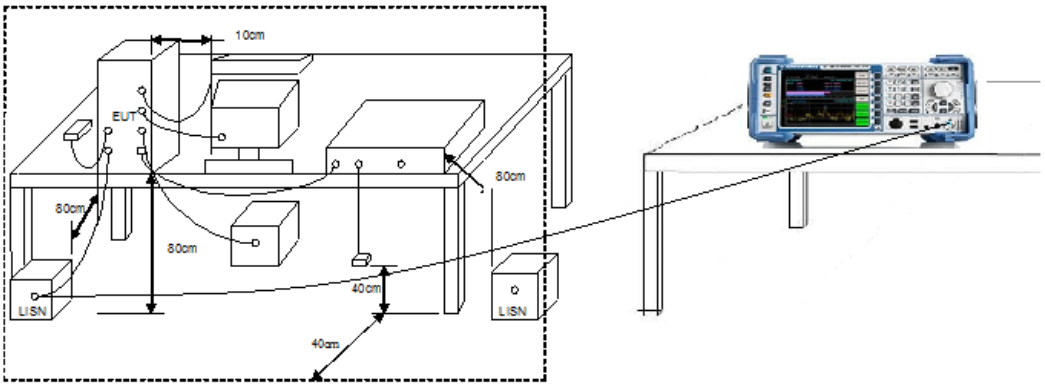
Frequency (MHz)	Quasi Peak (dB μ V)	AVG (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

4.2 Test Procedures

The EUT was setup according to ANSI C63.10, 2013. 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 9kHz.

4.3 Typical Test Setup

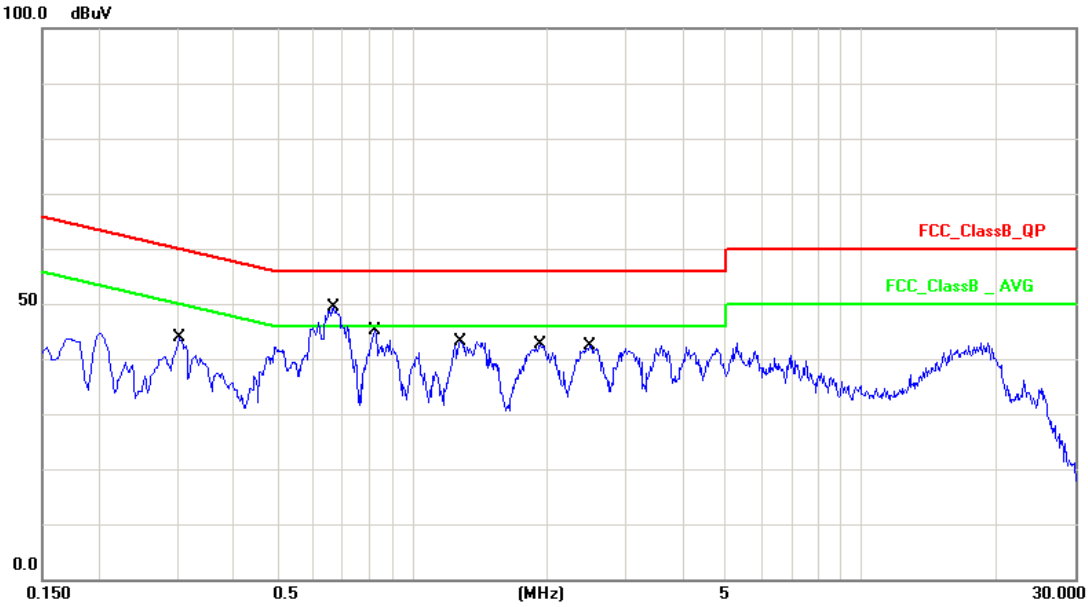


4.4 Measurement Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Test Receiver	R&S	ESCI	100565	2016.03.24	2017.03.23
AMN	R&S	ESH2-Z5	100182	2015.09.04	2016.09.03
Two-Line V-Network	R&S	ENV216	100325	2015.12.04	2016.12.03
ISN	FCC	FCC-TLISN-T2-02	20379	2016.03.24	2017.03.23
ISN	FCC	FCC-TLISN-T4-02	20380	2016.03.24	2017.03.23
ISN	FCC	FCC-TLISN-T8-02	20381	2016.03.24	2017.03.23
ISN	TESEQ	ISN ST08	30175	2016.03.24	2017.03.23
Current Probe	R&S	EZ-17	100303	2016.04.04	2017.04.03
Passive Voltage Probe	R&S	ESH2-Z3	100026	2016.03.29	2017.03.28
Pulse Limiter	R&S	ESH3-Z2	100529	2016.03.29	2017.03.28
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-004	2016.03.31	2017.03.30

4.5 Test Result and Data

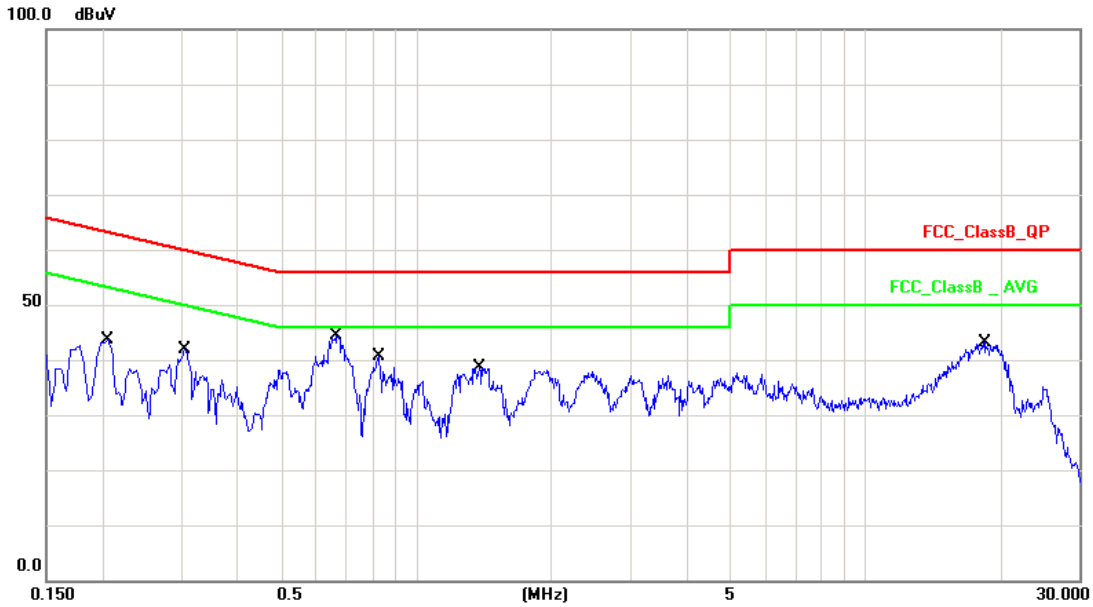
Test Mode :	Mode 1: Normal Operation with wifi on		
AC Power :	AC 120V/60Hz	Phase :	LINE
Temperature :	22°C	Humidity :	50%
Pressure(mbar) :	1002	Date:	2016/08/06



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3020	10.14	31.15	41.29	60.19	-18.90	QP
2	0.3020	10.14	22.30	32.44	50.19	-17.75	AVG
3	0.6700	10.15	36.15	46.30	56.00	-9.70	QP
4	0.6700	10.15	25.40	35.55	46.00	-10.45	AVG
5	0.8300	10.15	32.10	42.25	56.00	-13.75	QP
6	0.8300	10.15	19.48	29.63	46.00	-16.37	AVG
7	1.2860	10.16	29.71	39.87	56.00	-16.13	QP
8	1.2860	10.16	16.86	27.02	46.00	-18.98	AVG
9	1.9300	10.17	26.39	36.56	56.00	-19.44	QP
10	1.9300	10.17	15.68	25.85	46.00	-20.15	AVG
11	2.4980	10.18	27.77	37.95	56.00	-18.05	QP
12	2.4980	10.18	17.32	27.50	46.00	-18.50	AVG

Note: Measurement Level = Reading Level + Correct Factor

Test Mode :	Mode 1: Normal Operation with wifi on		
AC Power :	AC 120V/60Hz	Phase :	NEUTRAL
Temperature :	22°C	Humidity :	50%
Pressure(mbar) :	1002	Date:	2016/08/06



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2060	10.13	29.24	39.37	63.36	-23.99	QP
2	0.2060	10.13	16.71	26.84	53.36	-26.52	AVG
3	0.3060	10.14	27.15	37.29	60.08	-22.79	QP
4	0.3060	10.14	18.50	28.64	50.08	-21.44	AVG
5	0.6660	10.16	31.34	41.50	56.00	-14.50	QP
6	0.6660	10.16	22.30	32.46	46.00	-13.54	AVG
7	0.8300	10.16	27.17	37.33	56.00	-18.67	QP
8	0.8300	10.16	17.02	27.18	46.00	-18.82	AVG
9	1.3860	10.18	23.98	34.16	56.00	-21.84	QP
10	1.3860	10.18	15.16	25.34	46.00	-20.66	AVG
11	18.5780	10.47	25.32	35.79	60.00	-24.21	QP
12	18.5780	10.47	13.62	24.09	50.00	-25.91	AVG

Note: Measurement Level = Reading Level + Correct Factor

5. Test of Radiated Emission

5.1 Test Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output Average power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

FREQUENCIES(MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE(meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

5.2 Test Procedures

KDB 558074 D01v03r05 - Section 12.0 & Section 12.1

5.3 Test Setting

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120 kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz

7.8.3. Average Field Strength Measurements

1.Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

2.RBW = 1MHz

3.VBW = 10Hz

4.De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to “Voltage” regardless of the display mode

5.Detector = Peak

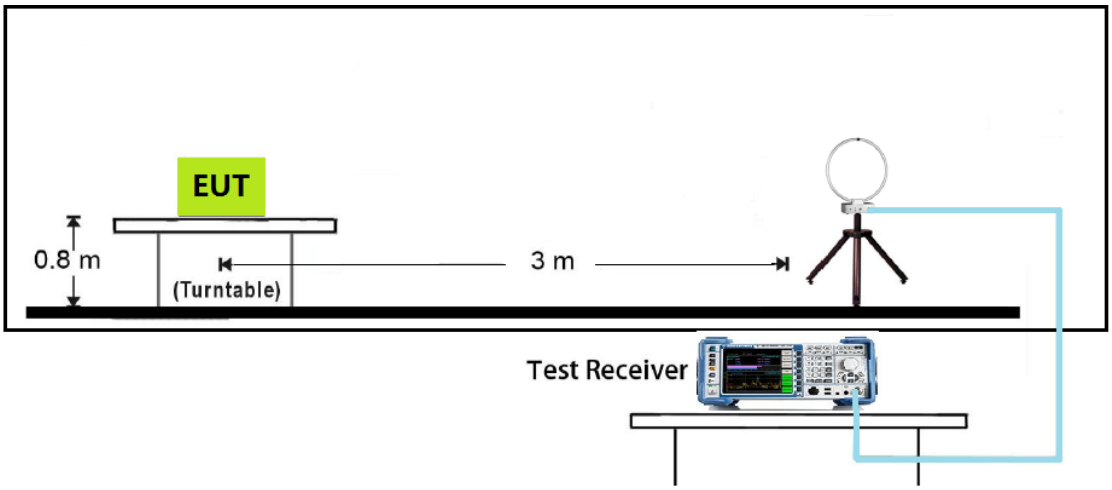
6.Sweep time = auto

7.Trace mode = max hold

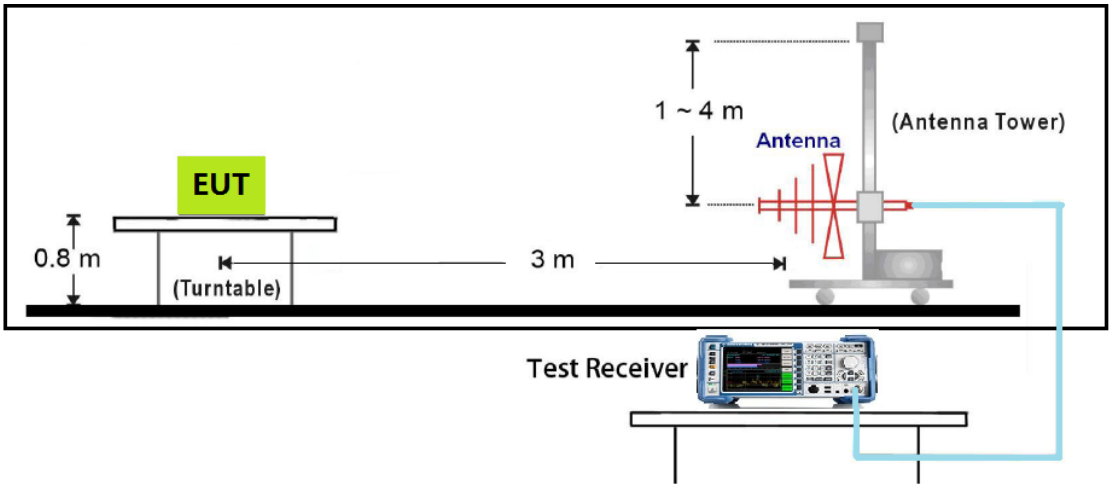
8.Allow max hold to run for at least 50 times (1/duty cycle) traces

5.4 Typical Test Setup

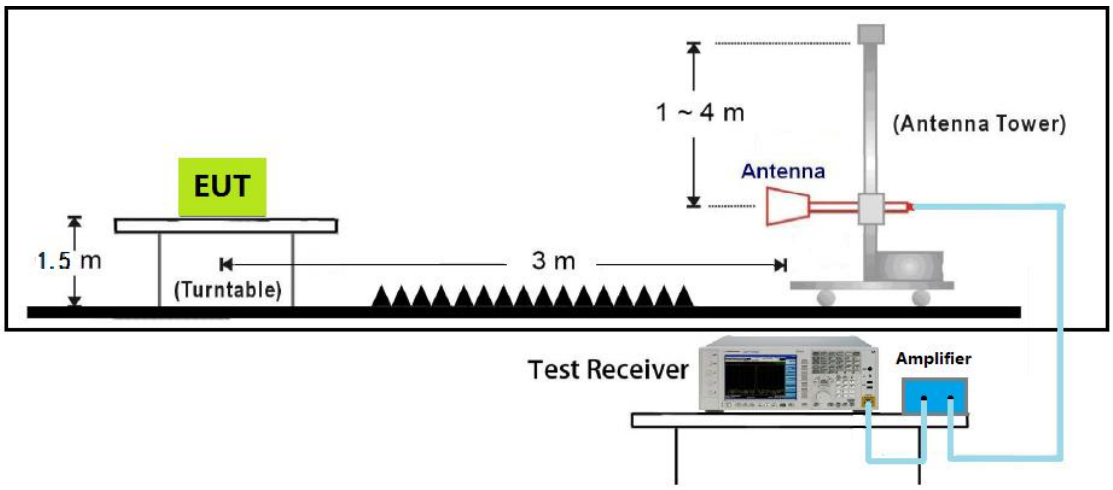
9kHZ~30MHz Test Setup



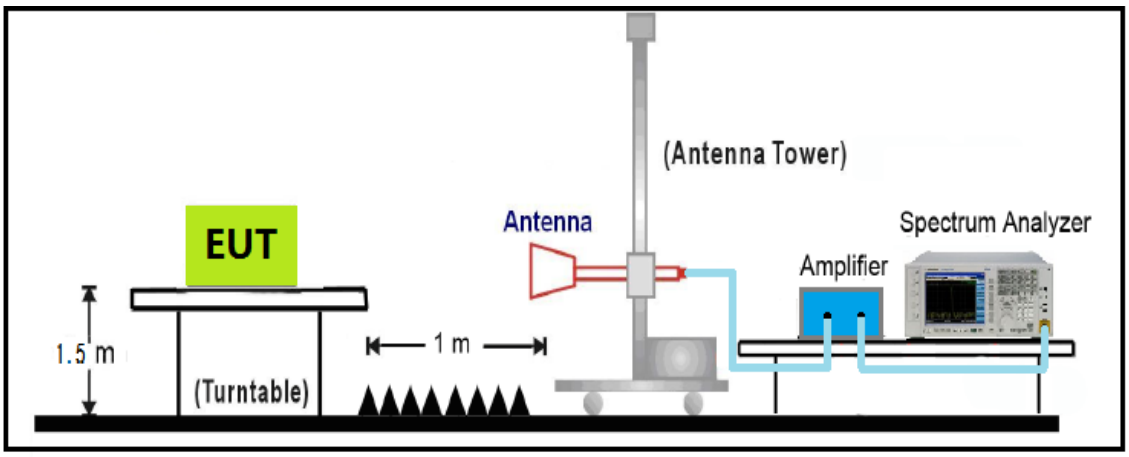
Below 1GHz Test Setup



1GHz~18GHz Test Setup



18GHz~40GHz Test Setup

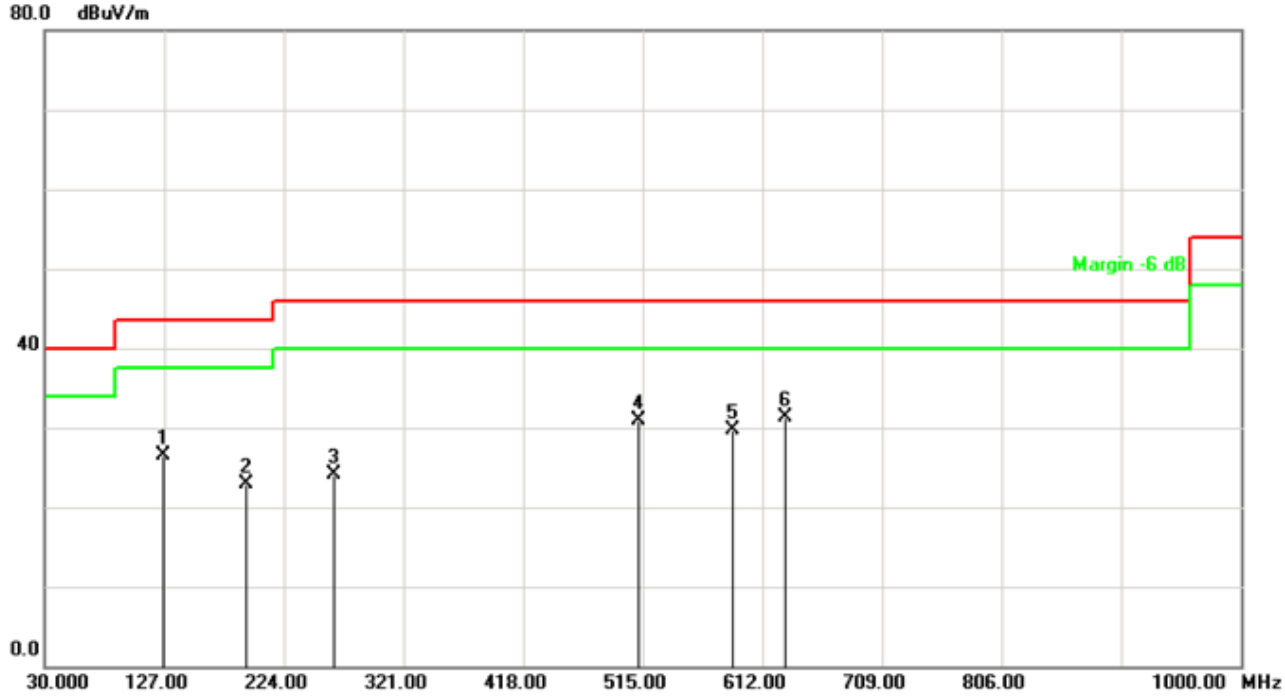


5.5 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EMI Test Receiver	R&S	ESCI	101183	2016.03.28	2017.03.29
Spectrum Analyzer	N9010A	Agilent	MY53400169	2015.11.11	2016.11.11
Spectrum Analyzer	R&S	FSP40	100324	2016.03.23	2017.03.24
H64 Preamplifier	HP	8447F	3113A05582	2016.03.24	2017.03.23
Preamplifier	songyi	EM330	60618	2016.03.29	2017.03.28
Preamplifier	Agilent	8449B	3008A02342	2016.03.29	2017.03.28
Preamplifier	COM-POWER	PA-840	711885	2016.03.29	2017.03.28
Loop Antenna	R&S	HFH2-Z2	100150	2015.09.10	2016.09.09
Bilog Antenna	Sunol Science	JB1	A072414-1	2016.04.22	2017.04.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2016.04.20	2017.04.19
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-347	2016.04.20	2017.04.19
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2016.03.31	2017.03.30
EZ-EMC	Fala	Ver CT3A1	N/A	N/A	N/A

5.6 Test Result and Data

The worst case of Radiated Emission below 1GHz:

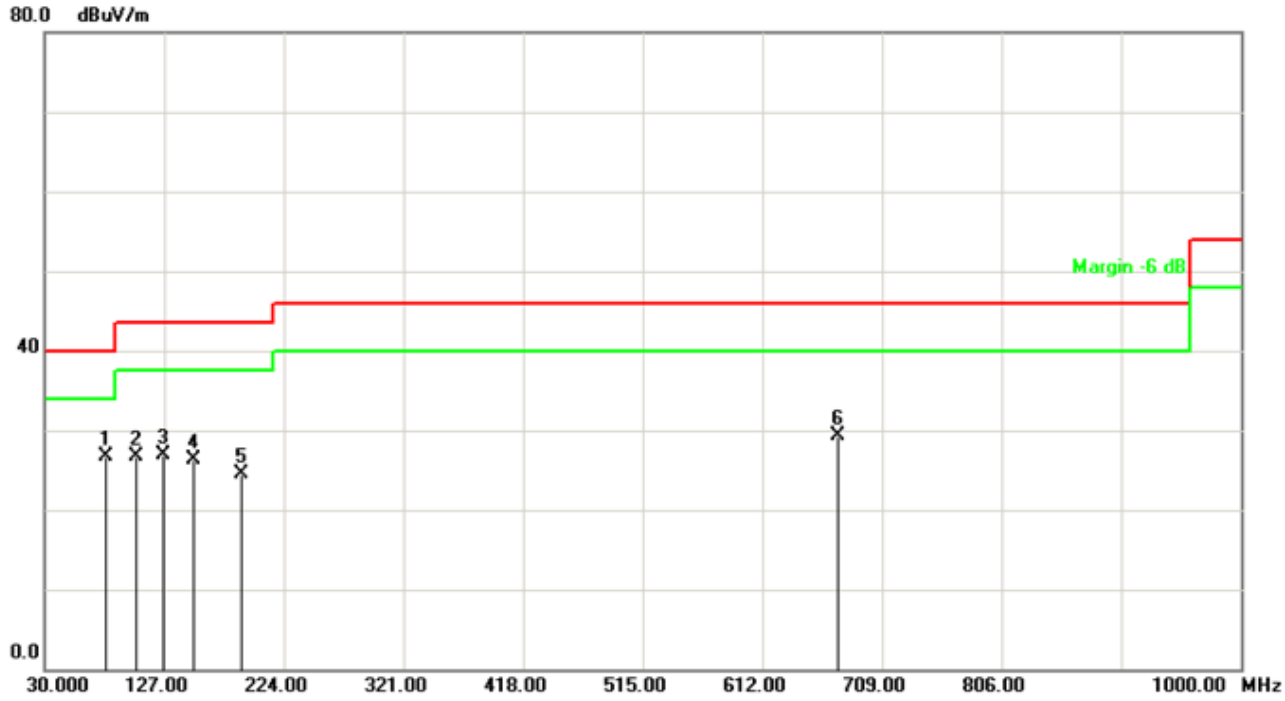


Test Standard:	FCC-part15.209	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2016.08.05
Product:	IP3M-941W/941B	Power Rating:	AC 120V/60Hz
Test Mode:	Transmit at 2412MHz by 802.11g	Temp.(C)/Hum.(%):	26( )/60%

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	126.0300	-14.10	40.65	26.55	43.50	-16.95	QP
2	193.9299	-15.44	38.42	22.98	43.50	-20.52	QP
3	264.7400	-12.19	36.38	24.19	46.00	-21.81	QP
4	511.1200	-4.58	35.53	30.95	46.00	-15.05	QP
5	588.7199	-2.89	32.56	29.67	46.00	-16.33	QP
6	631.3999	-1.98	33.30	31.32	46.00	-14.68	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)



Test Standard:	FCC-part15.209	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2016.08.05
Product:	IP3M-941W/941B	Power Rating:	AC 120V/60Hz
Test Mode:	Transmit at 2412MHz by 802.11g	Temp.(C)/Hum.(%):	26( )/60%

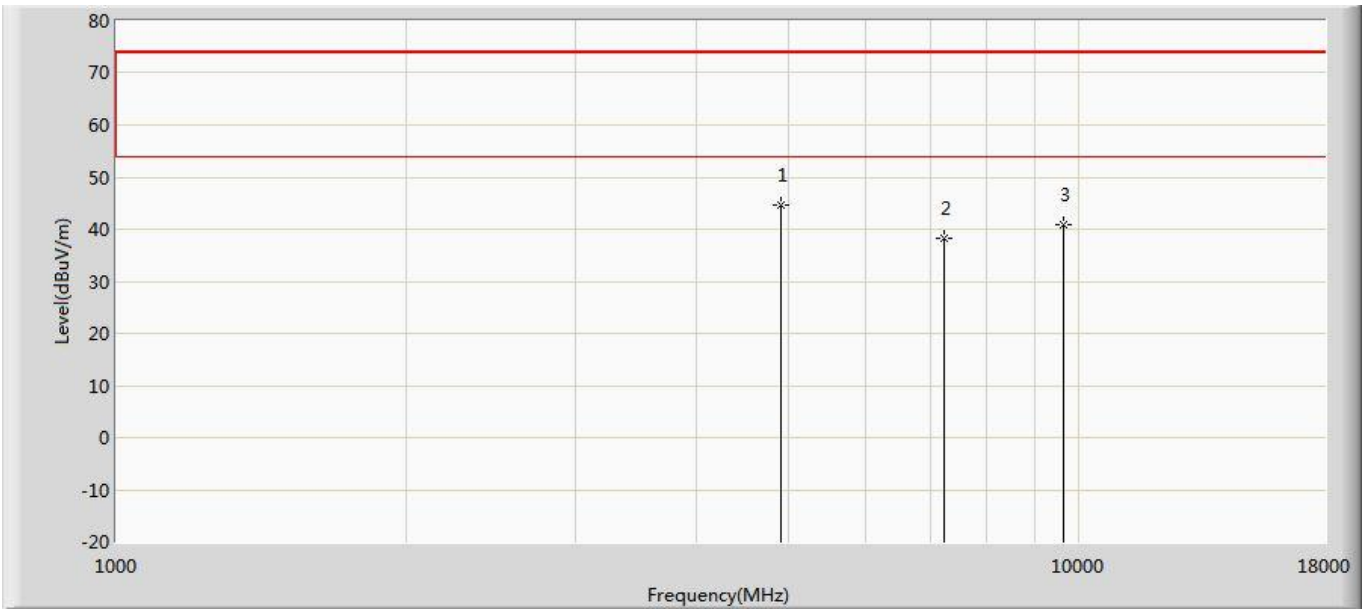
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	80.4399	-15.55	42.32	26.77	40.00	-13.23	QP
2	104.6900	-14.24	40.99	26.75	43.50	-16.75	QP
3	126.0300	-14.10	41.08	26.98	43.50	-16.52	QP
4	151.2500	-15.45	41.77	26.32	43.50	-17.18	QP
5	189.0800	-15.40	39.95	24.55	43.50	-18.95	QP
6	673.1100	-1.10	30.48	29.38	46.00	-16.62	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Above 1GHz

Site: AC102	Time: 2016/08/05 - 14:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 1: Transmit at channel 2412MHz by 802.11b	

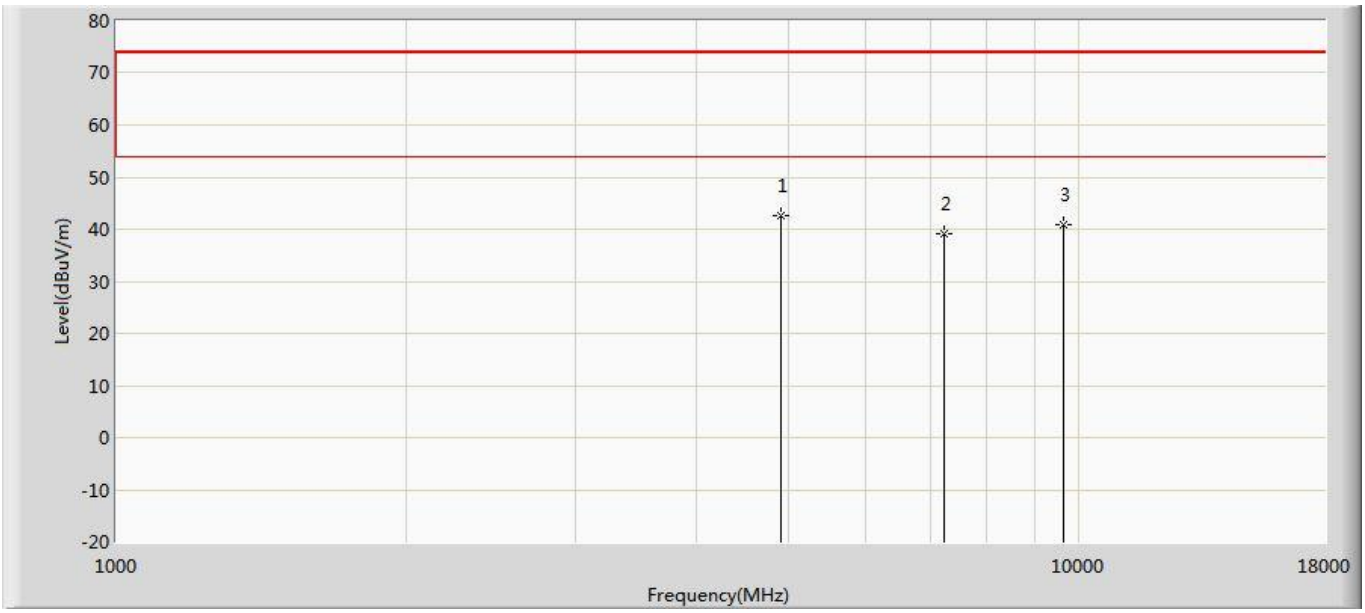


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4910.000	44.637	34.234	-29.363	74.000	10.403	PK
2		7236.000	38.351	26.480	-35.649	74.000	11.871	PK
3		9648.000	40.931	26.962	-33.069	74.000	13.970	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 1: Transmit at channel 2412MHz by 802.11b	

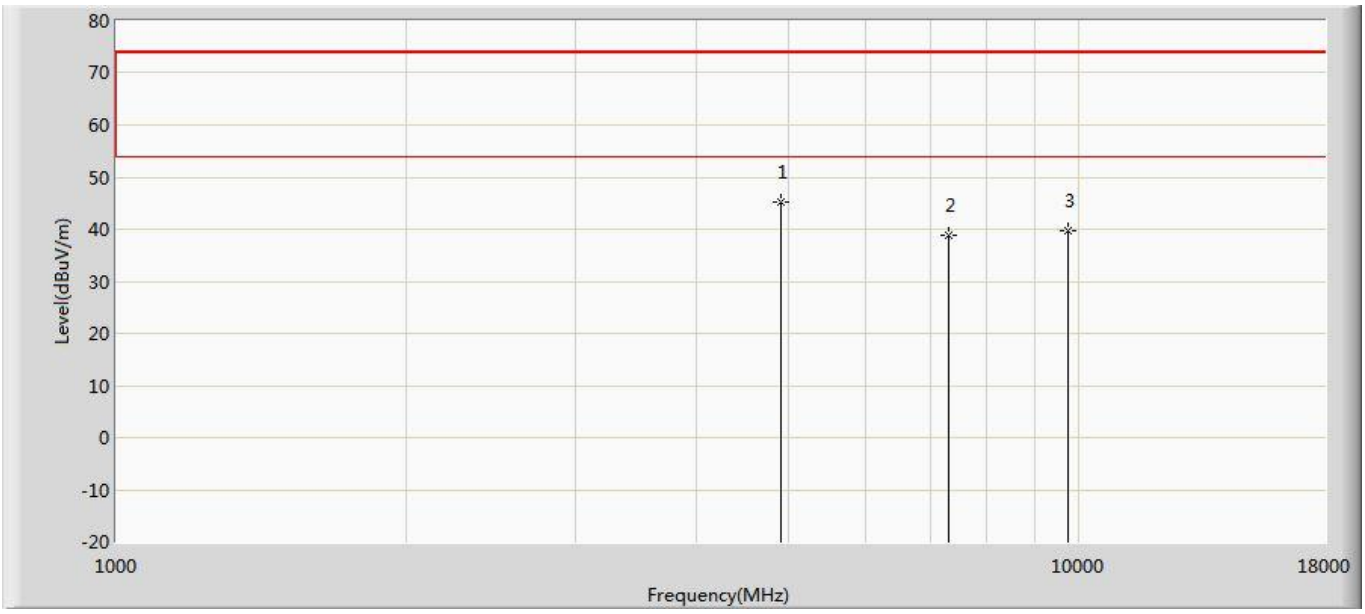


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4910.000	42.551	32.148	-31.449	74.000	10.403	PK
2		7236.000	39.038	27.167	-34.962	74.000	11.871	PK
3		9648.000	40.731	26.762	-33.269	74.000	13.970	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 1: Transmit at channel 2437MHz by 802.11b	

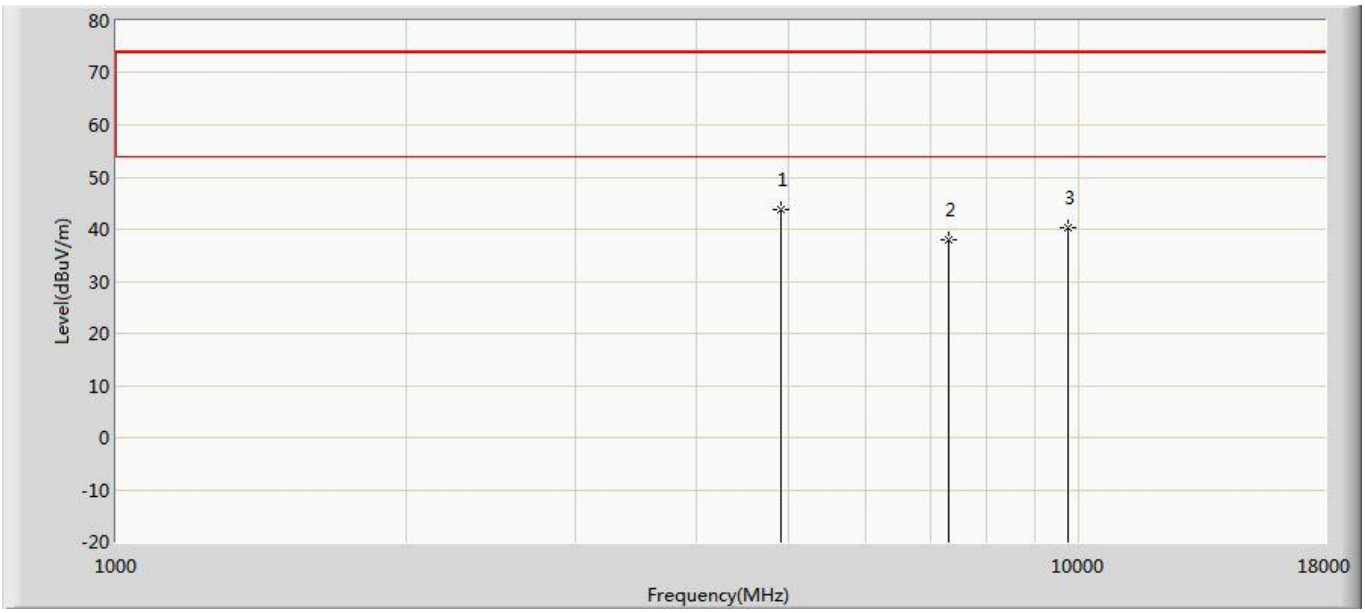


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4910.000	45.261	34.858	-28.739	74.000	10.403	PK
2		7311.000	38.751	26.766	-35.249	74.000	11.986	PK
3		9748.000	39.609	25.548	-34.391	74.000	14.061	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 1: Transmit at channel 2437MHz by 802.11b	

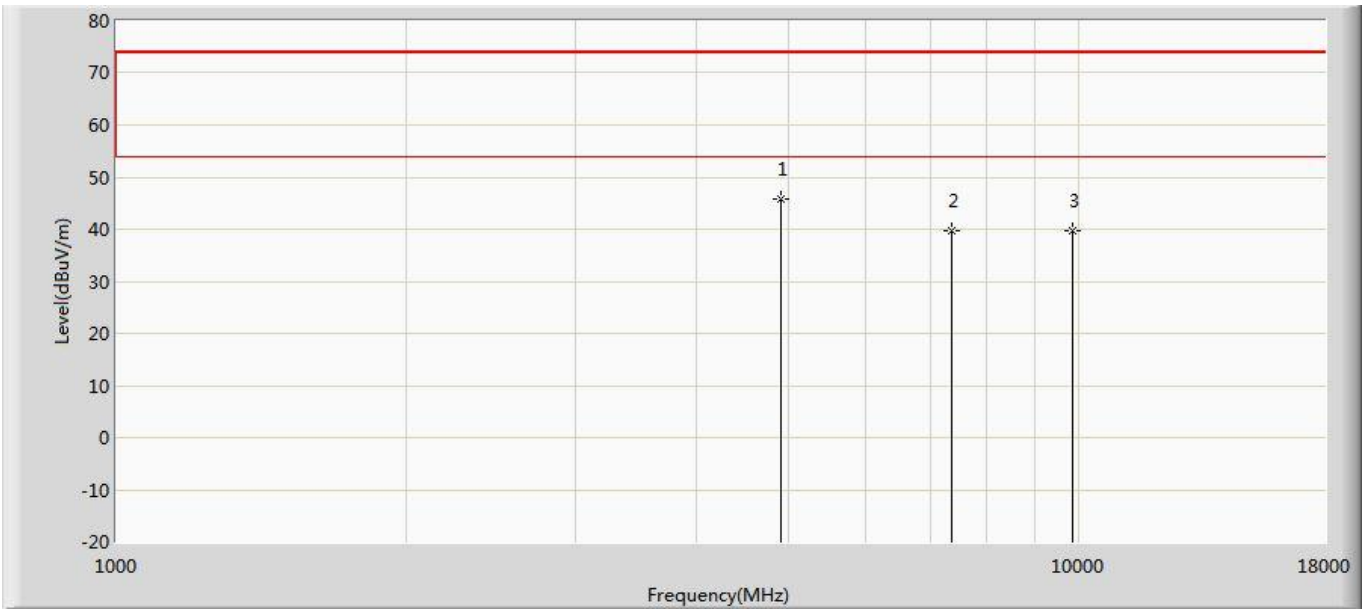


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4910.000	43.631	33.228	-30.369	74.000	10.403	PK
2		7311.000	37.979	25.994	-36.021	74.000	11.986	PK
3		9748.000	40.158	26.097	-33.842	74.000	14.061	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 1: Transmit at channel 2462MHz by 802.11b	

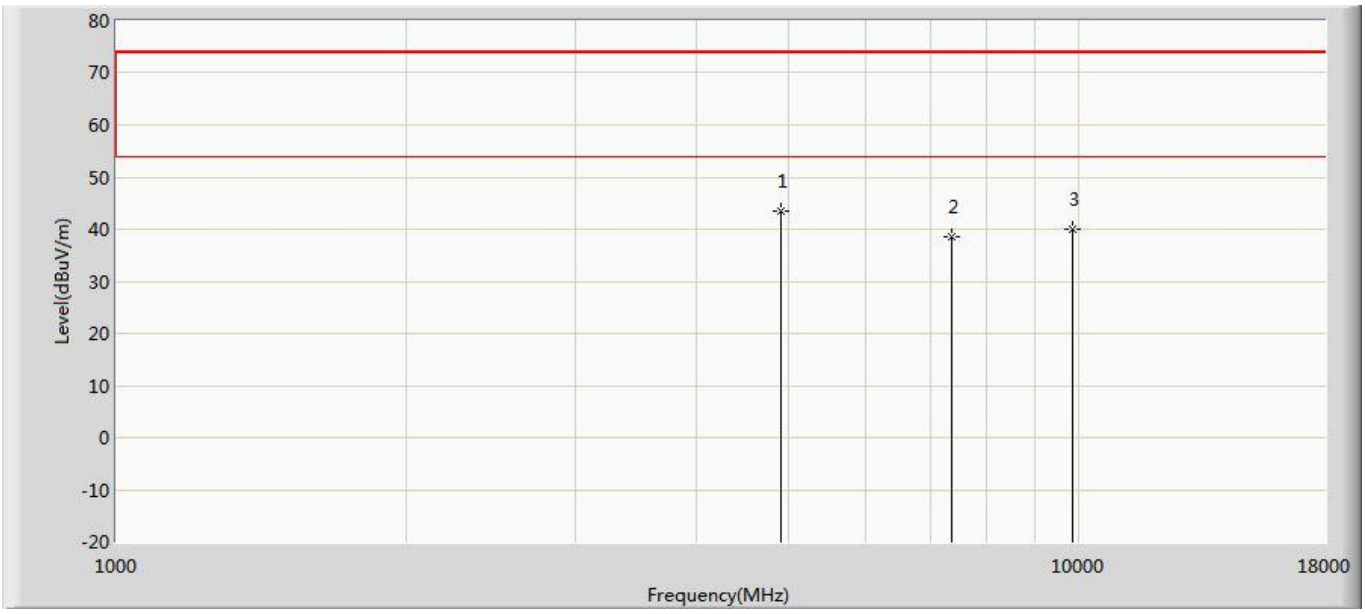


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4910.000	45.890	35.487	-28.110	74.000	10.403	PK
2		7386.000	39.687	27.593	-34.313	74.000	12.094	PK
3		9848.000	39.724	25.561	-34.276	74.000	14.163	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 1: Transmit at channel 2462MHz by 802.11b	

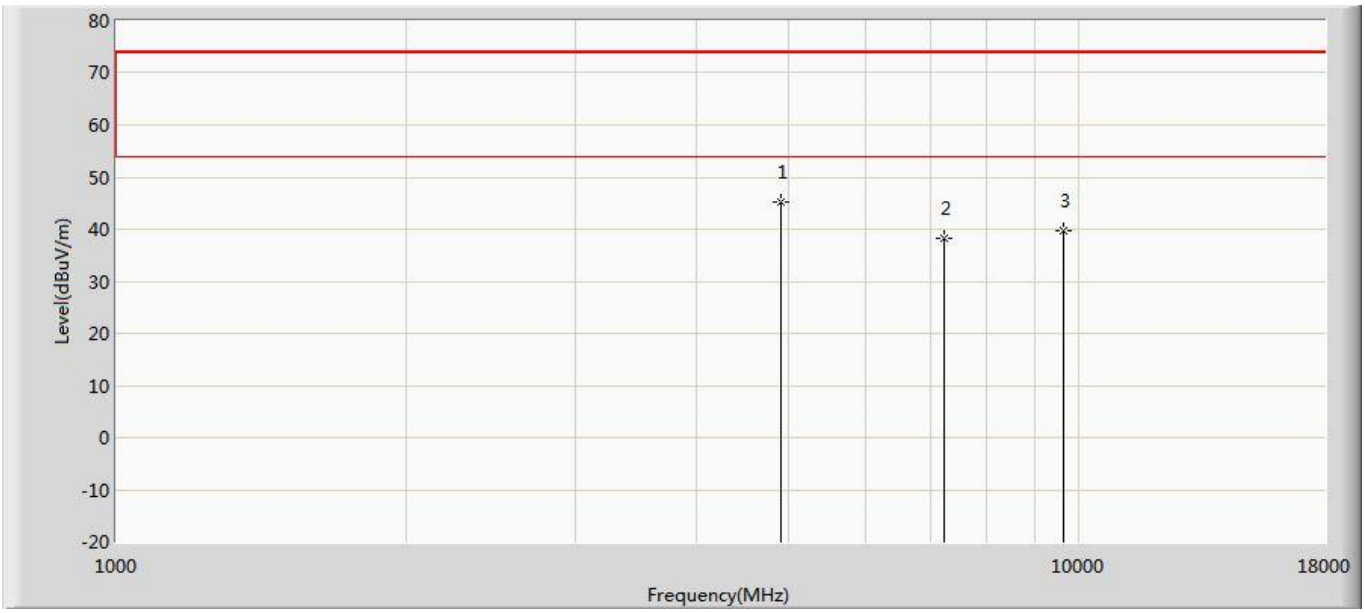


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4910.000	43.440	33.037	-30.560	74.000	10.403	PK
2		7386.000	38.690	26.596	-35.310	74.000	12.094	PK
3		9848.000	40.130	25.967	-33.870	74.000	14.163	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 2: Transmit at channel 2412MHz by 802.11g	

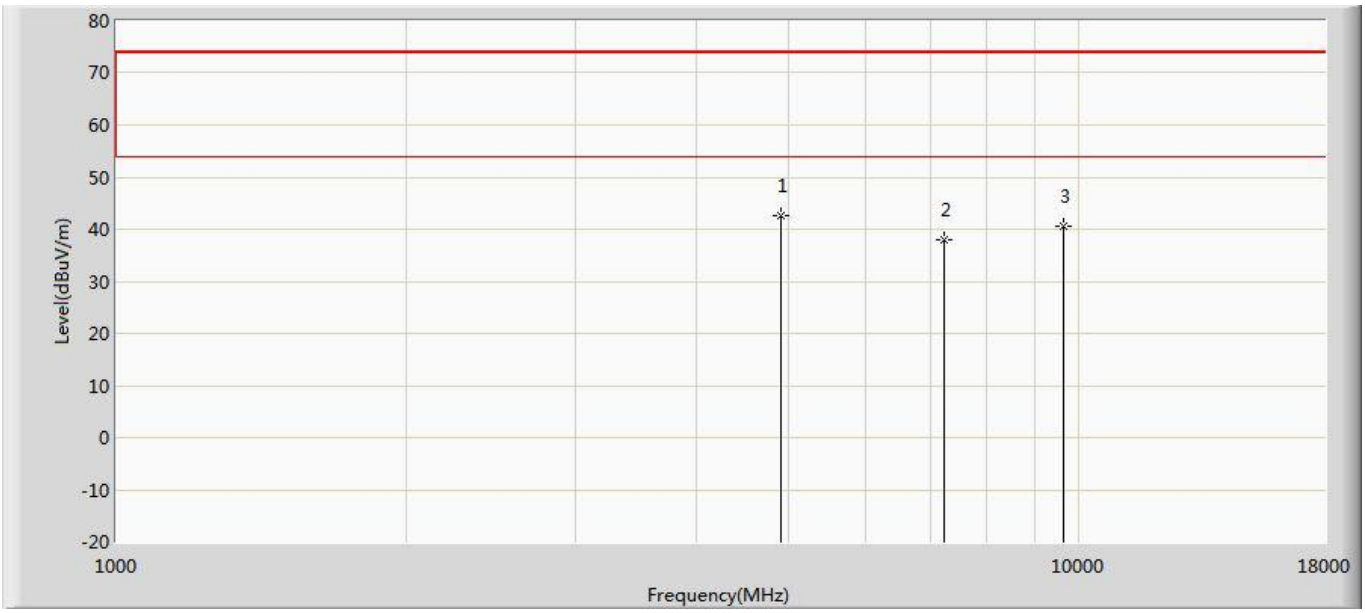


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4910.000	45.136	34.733	-28.864	74.000	10.403	PK
2		7236.000	38.132	26.261	-35.868	74.000	11.871	PK
3		9648.000	39.739	25.770	-34.261	74.000	13.970	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 2: Transmit at channel 2412MHz by 802.11g	

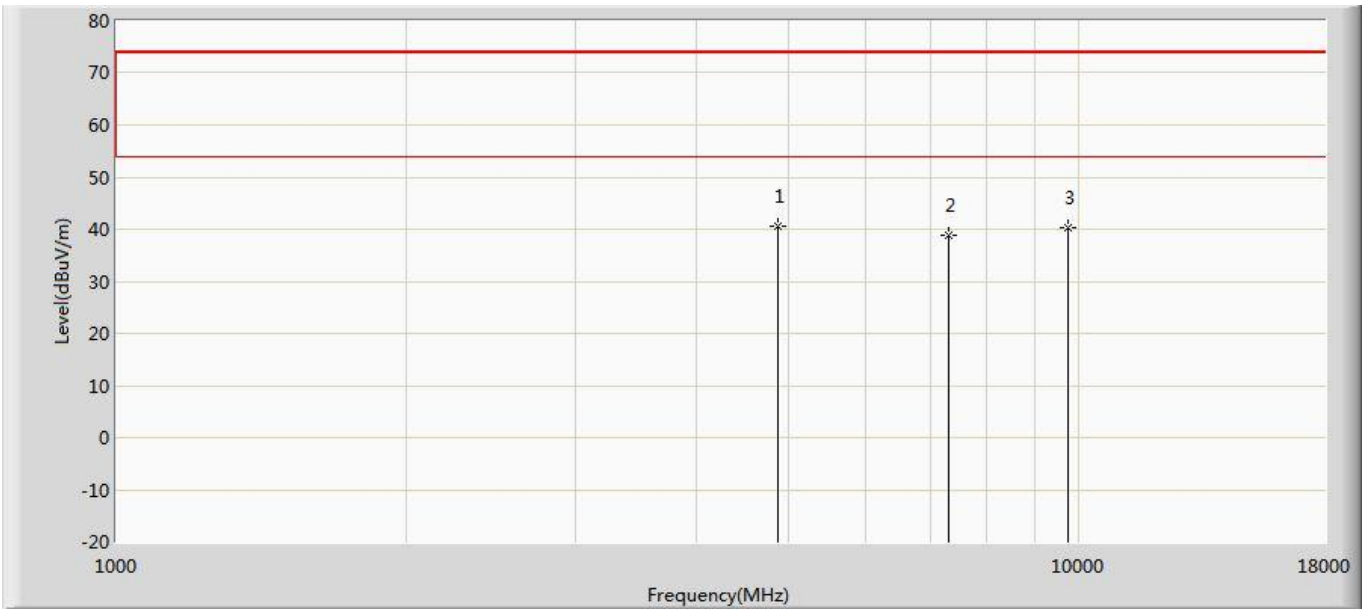


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4910.000	42.663	32.260	-31.337	74.000	10.403	PK
2		7236.000	37.967	26.096	-36.033	74.000	11.871	PK
3		9648.000	40.650	26.681	-33.350	74.000	13.970	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 2: Transmit at channel 2437MHz by 802.11g	

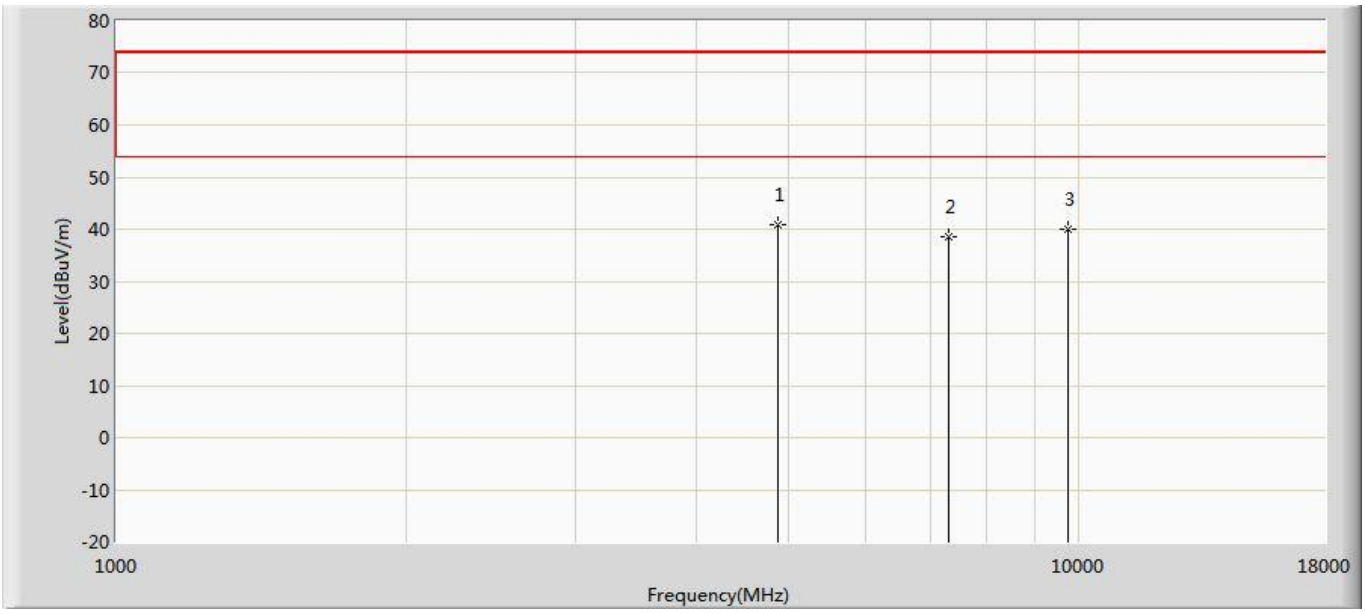


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4874.000	40.593	30.419	-33.407	74.000	10.174	PK
2		7311.000	38.802	26.817	-35.198	74.000	11.986	PK
3		9748.000	40.395	26.334	-33.605	74.000	14.061	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 2: Transmit at channel 2437MHz by 802.11g	

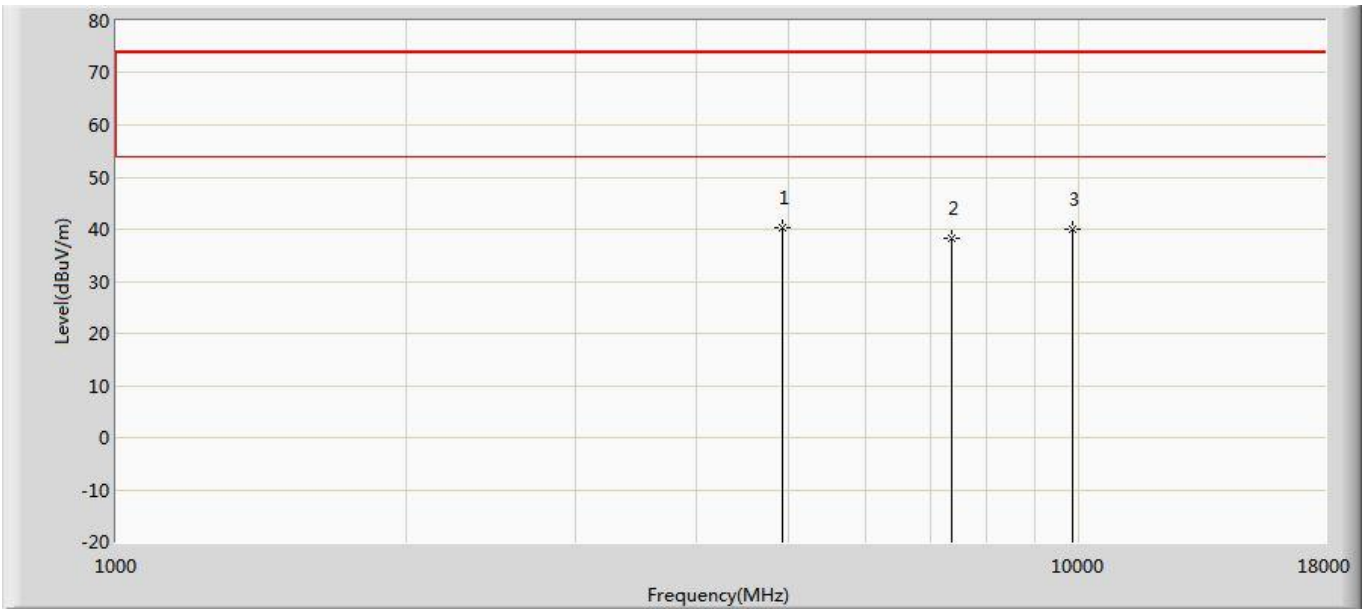


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4874.000	40.795	30.621	-33.205	74.000	10.174	PK
2		7311.000	38.669	26.684	-35.331	74.000	11.986	PK
3		9748.000	39.959	25.898	-34.041	74.000	14.061	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 2: Transmit at channel 2462MHz by 802.11g	

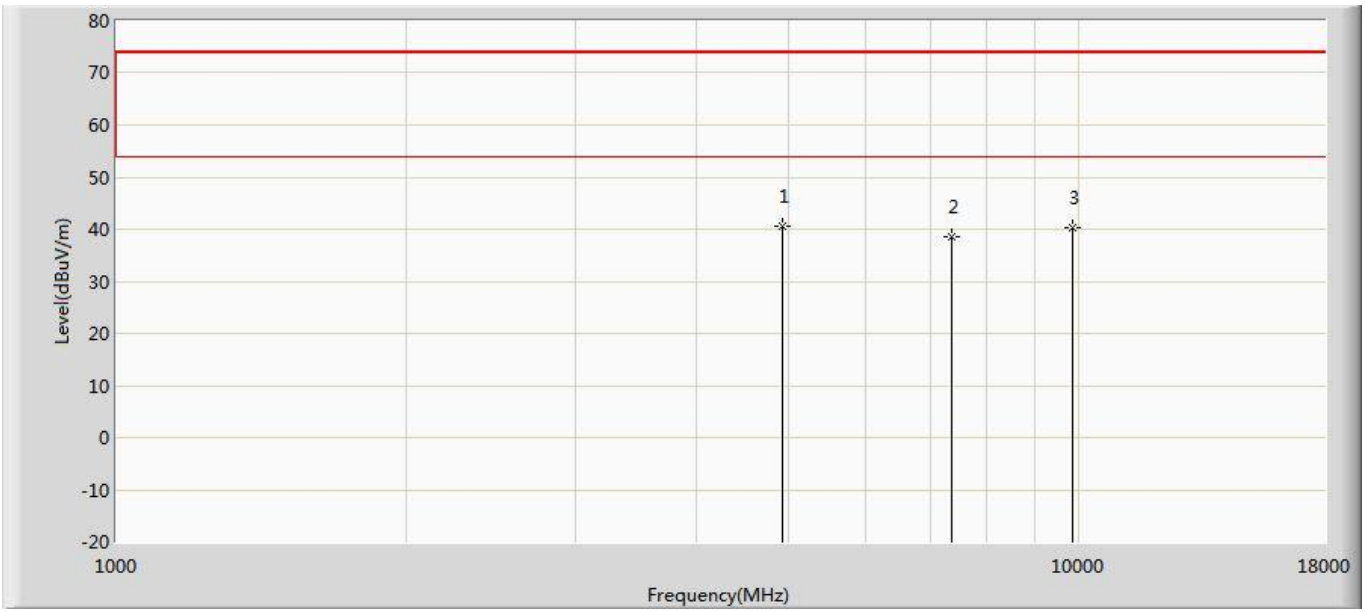


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4924.000	40.184	29.750	-33.816	74.000	10.434	PK
2		7386.000	38.317	26.223	-35.683	74.000	12.094	PK
3		9848.000	40.114	25.951	-33.886	74.000	14.163	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 2: Transmit at channel 2462MHz by 802.11g	

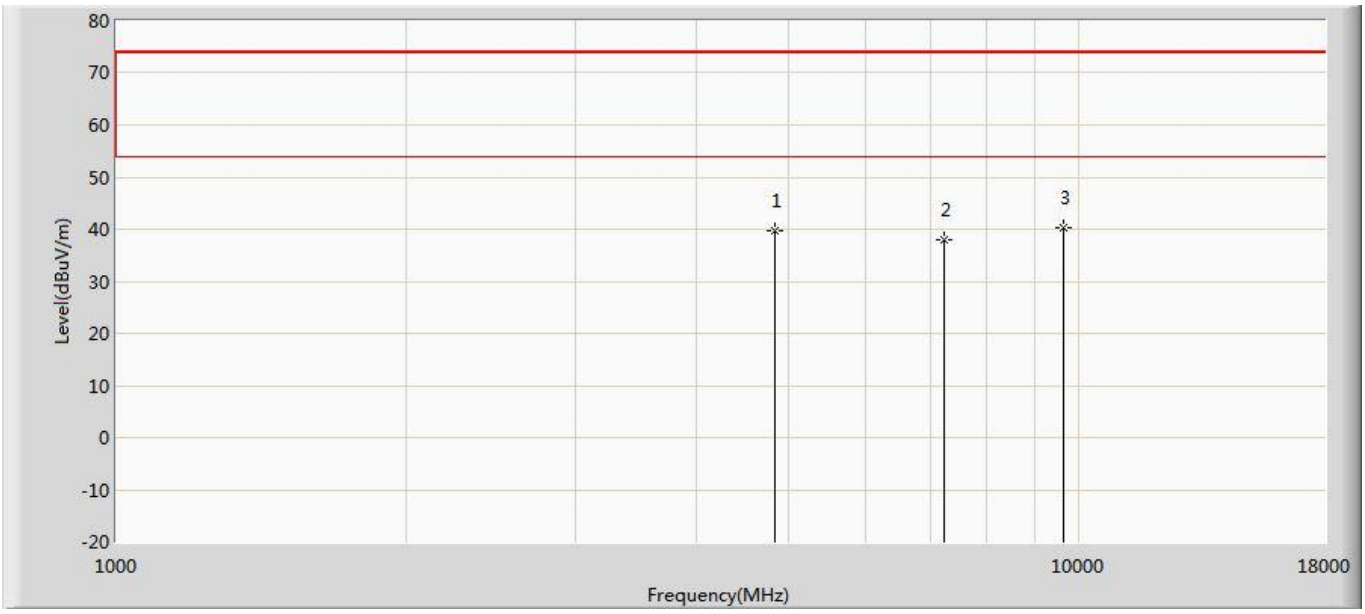


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4924.000	40.516	30.082	-33.484	74.000	10.434	PK
2		7386.000	38.449	26.355	-35.551	74.000	12.094	PK
3		9848.000	40.255	26.092	-33.745	74.000	14.163	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 3: Transmit at channel 2412MHz by 802.11n20	

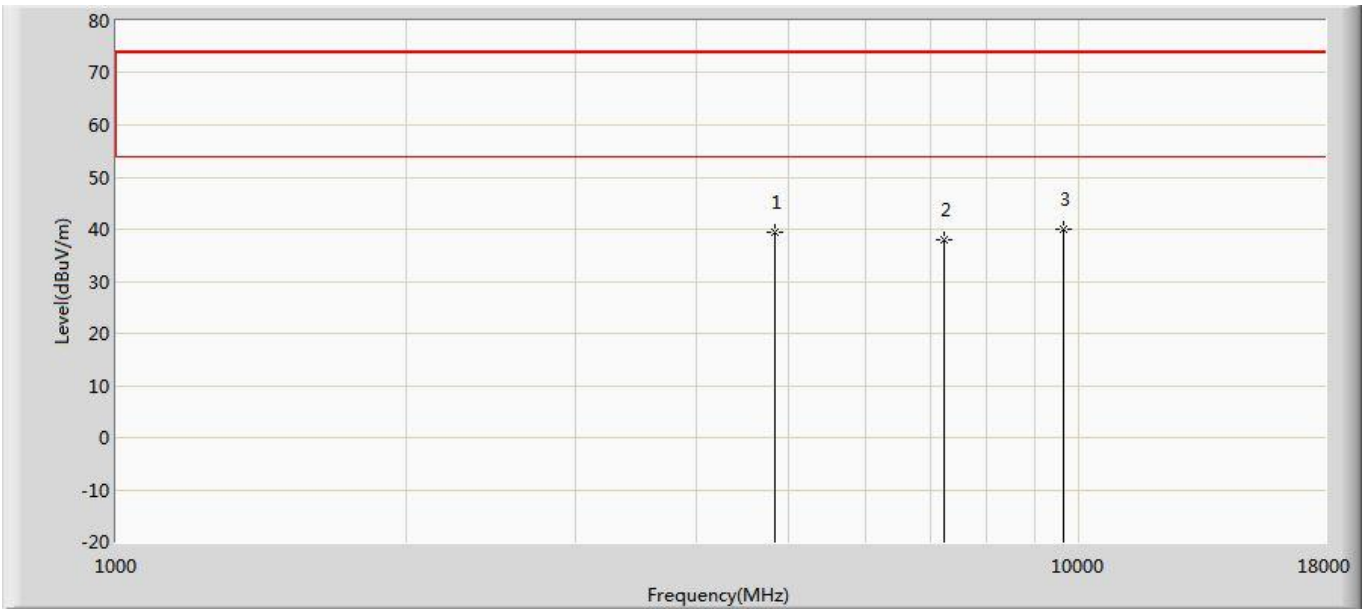


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	39.754	29.914	-34.246	74.000	9.840	PK
2		7236.000	37.848	25.977	-36.152	74.000	11.871	PK
3	*	9648.000	40.376	26.407	-33.624	74.000	13.970	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 3: Transmit at channel 2412MHz by 802.11n20	

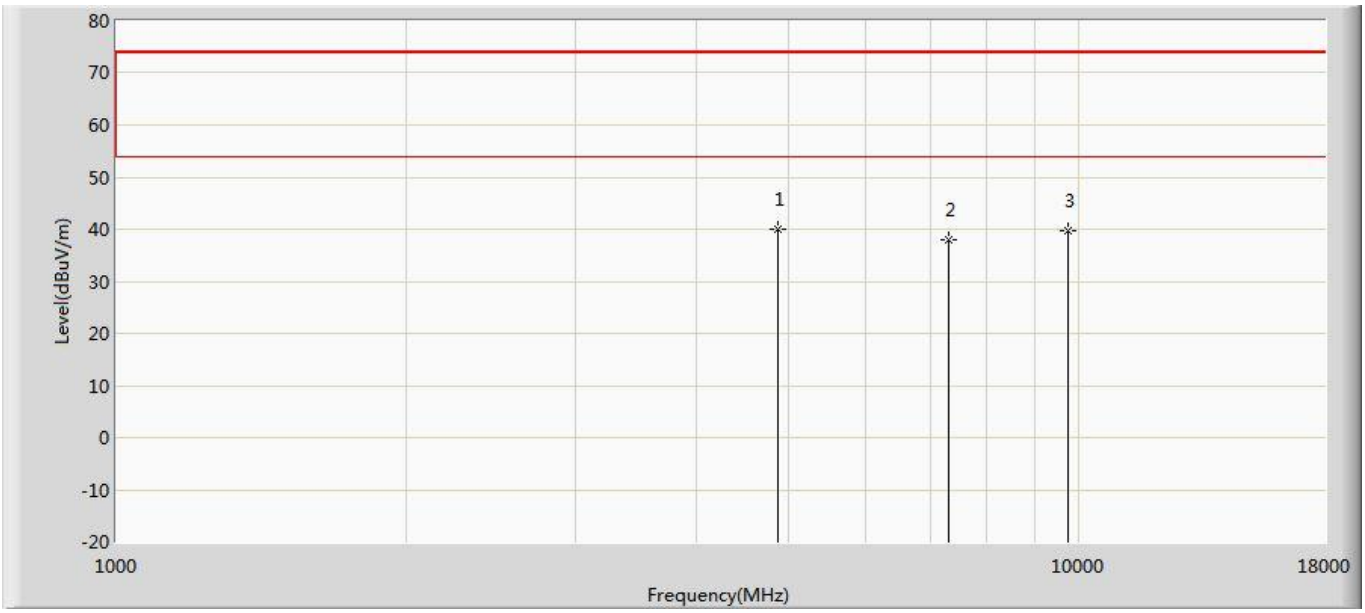


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4824.000	39.523	29.683	-34.477	74.000	9.840	PK
2		7236.000	37.913	26.042	-36.087	74.000	11.871	PK
3	*	9648.000	40.091	26.122	-33.909	74.000	13.970	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 3: Transmit at channel 2437MHz by 802.11n20	

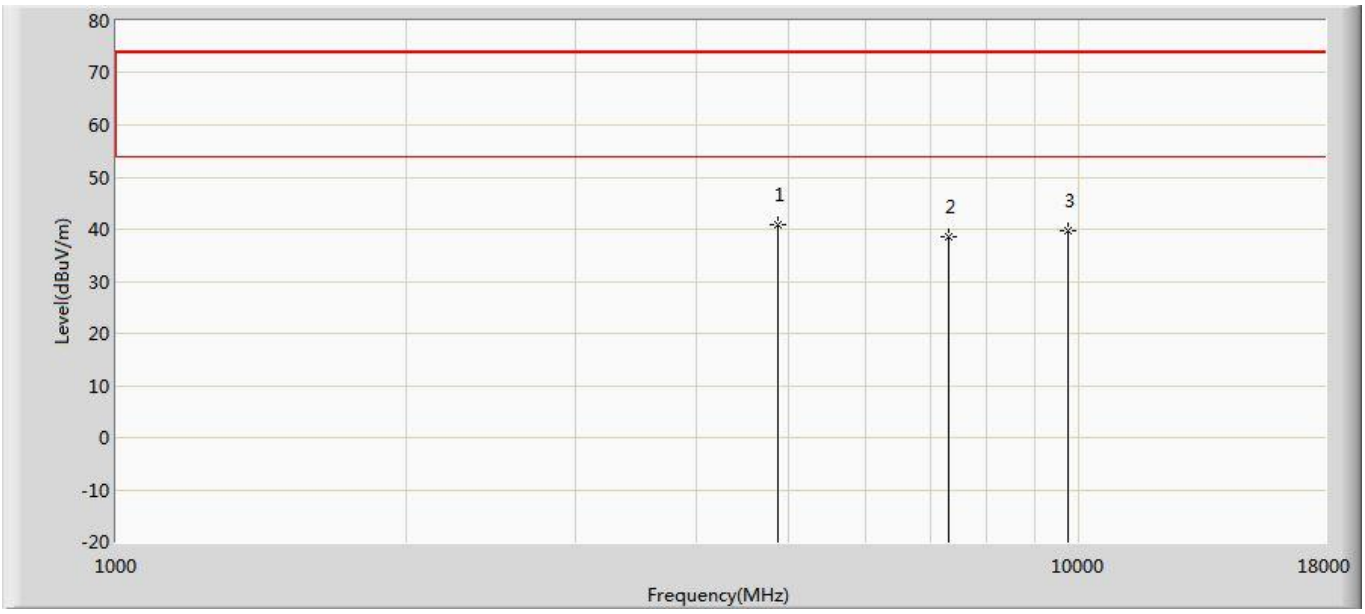


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4874.000	39.945	29.771	-34.055	74.000	10.174	PK
2		7311.000	38.111	26.126	-35.889	74.000	11.986	PK
3		9748.000	39.743	25.682	-34.257	74.000	14.061	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 3: Transmit at channel 2437MHz by 802.11n20	

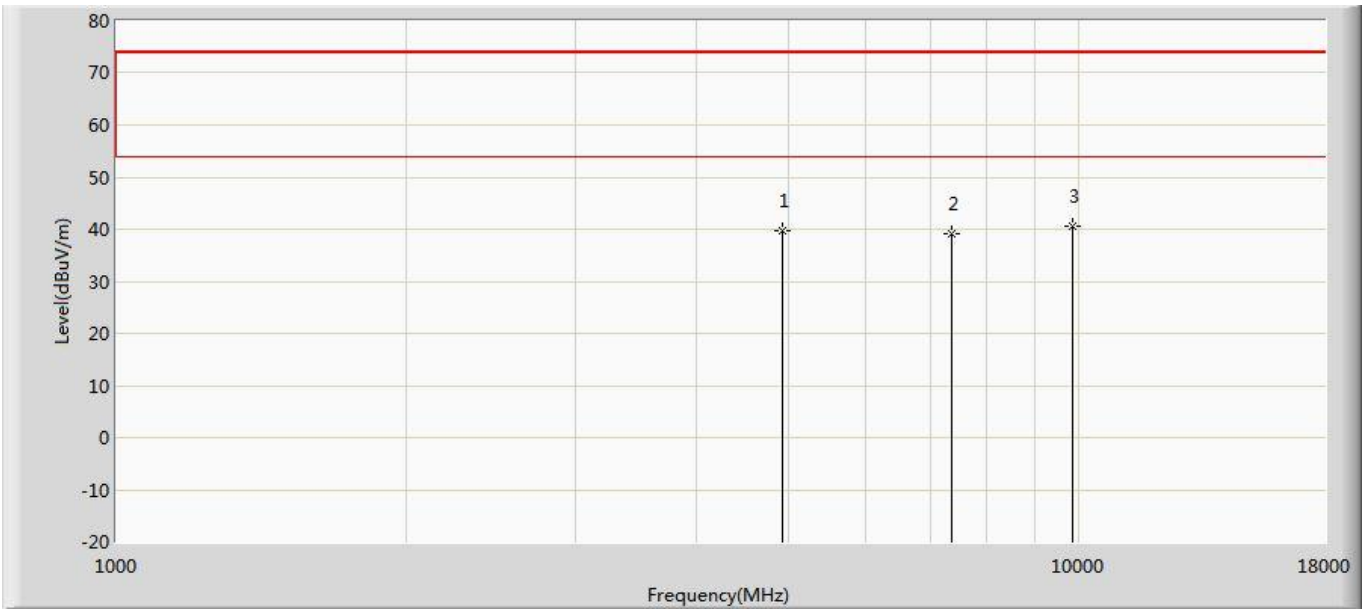


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4874.000	40.879	30.705	-33.121	74.000	10.174	PK
2		7311.000	38.640	26.655	-35.360	74.000	11.986	PK
3		9748.000	39.844	25.783	-34.156	74.000	14.061	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 3: Transmit at channel 2462MHz by 802.11n20	

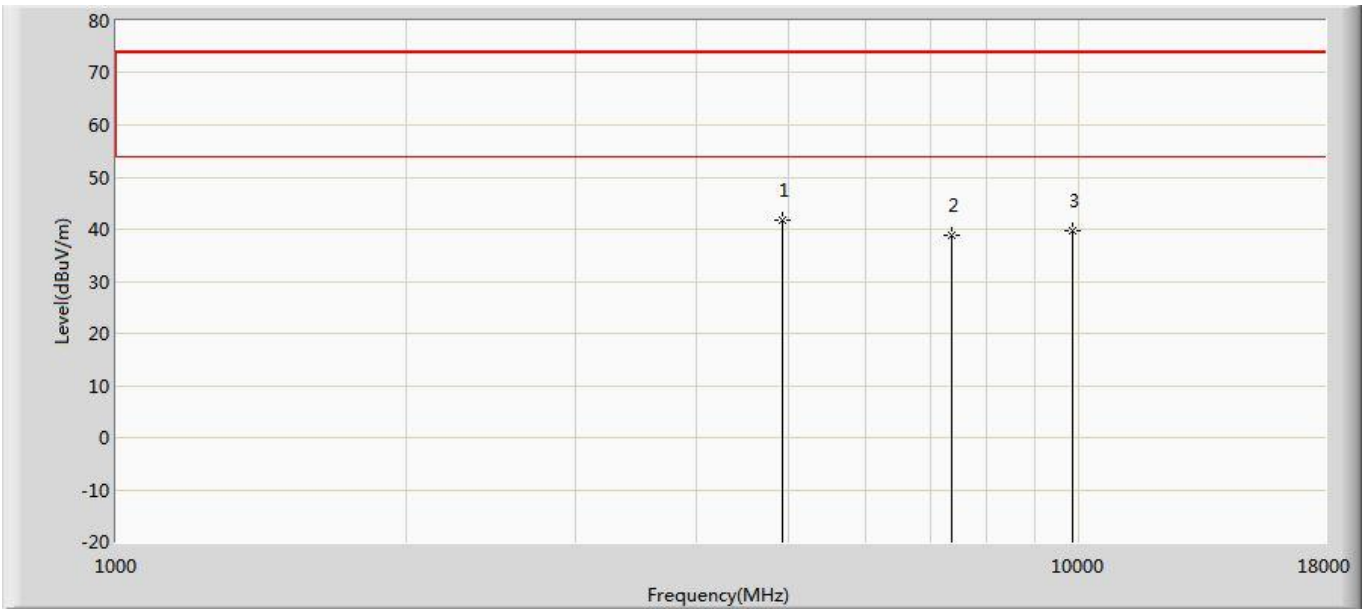


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4924.000	39.770	29.336	-34.230	74.000	10.434	PK
2		7386.000	39.045	26.951	-34.955	74.000	12.094	PK
3	*	9848.000	40.564	26.401	-33.436	74.000	14.163	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 3: Transmit at channel 2462MHz by 802.11n20	

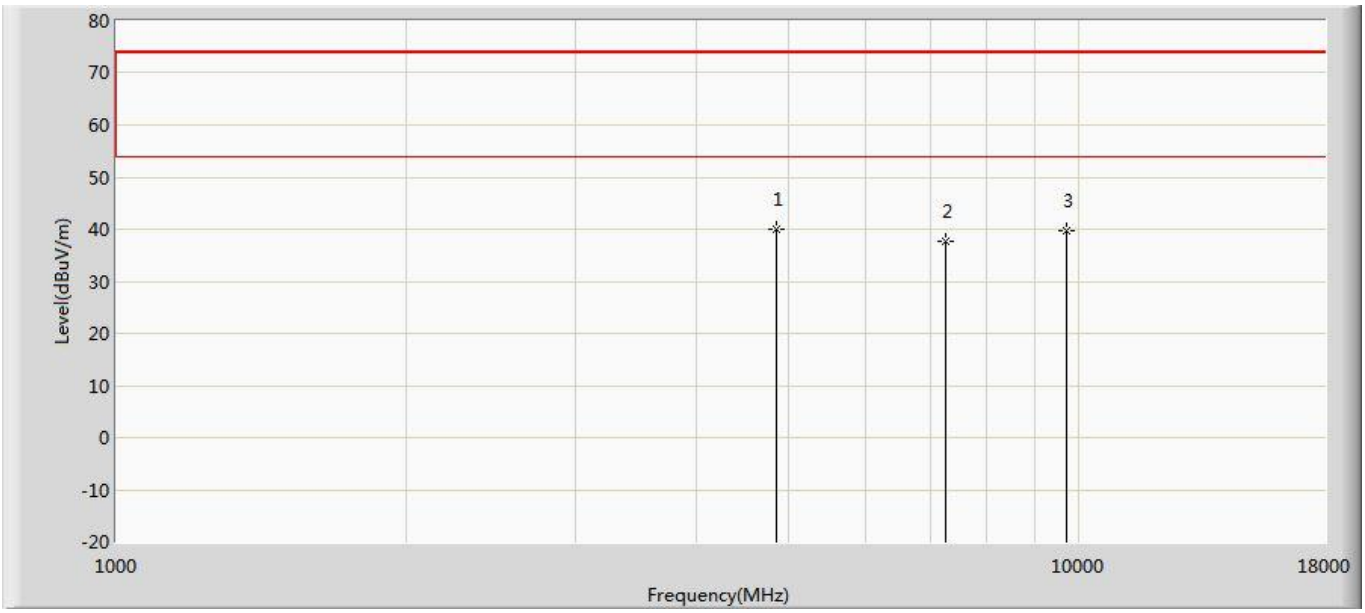


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4924.000	41.844	31.410	-32.156	74.000	10.434	PK
2		7386.000	38.806	26.712	-35.194	74.000	12.094	PK
3		9848.000	39.773	25.610	-34.227	74.000	14.163	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 4: Transmit at channel 2422MHz by 802.11n40	

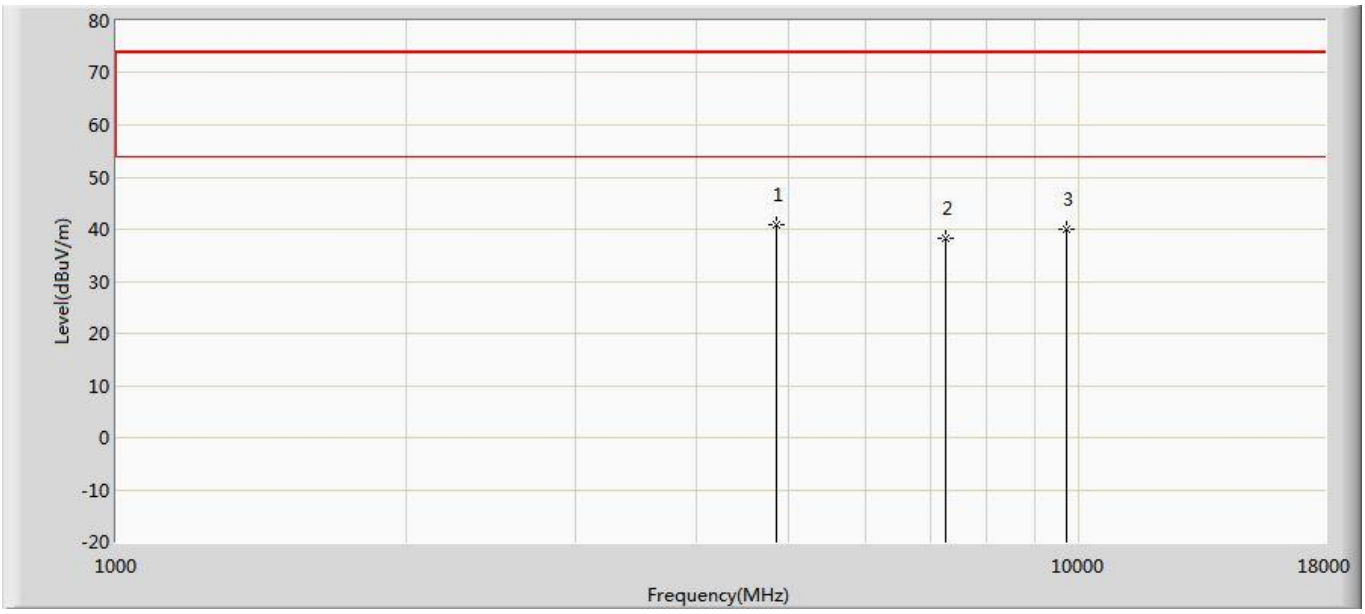


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4844.000	39.920	29.935	-34.080	74.000	9.984	PK
2		7266.000	37.602	25.682	-36.398	74.000	11.919	PK
3		9688.000	39.593	25.548	-34.407	74.000	14.045	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 4: Transmit at channel 2422MHz by 802.11n40	

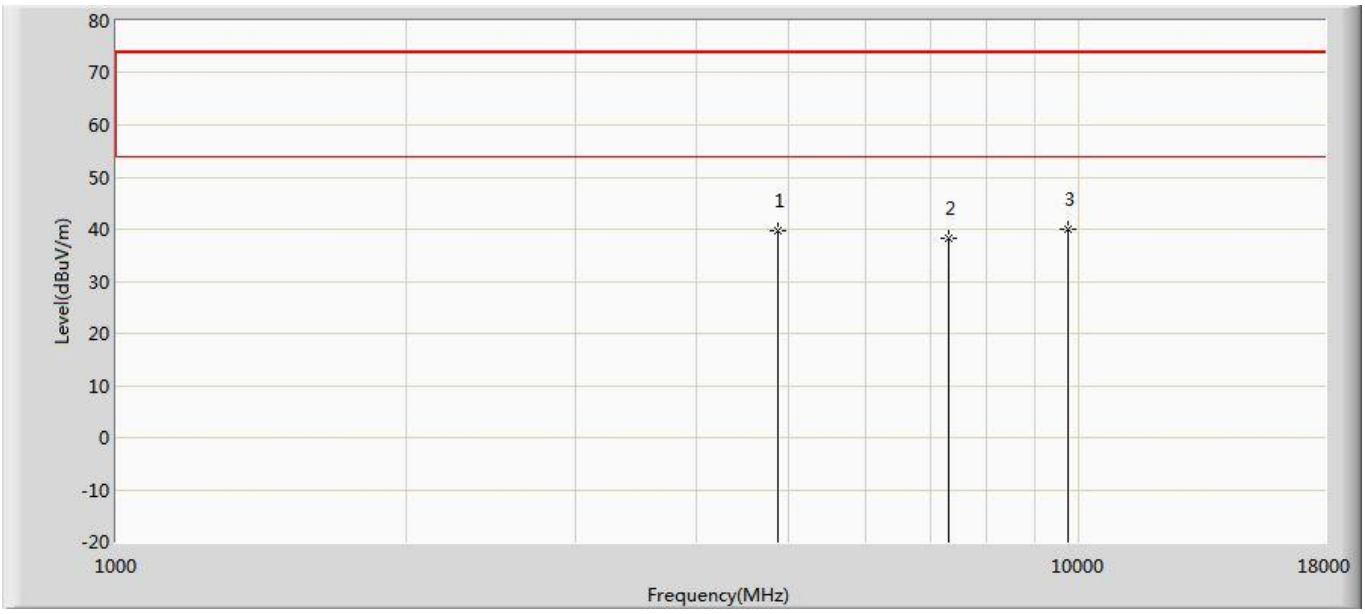


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4844.000	40.759	30.774	-33.241	74.000	9.984	PK
2		7266.000	38.277	26.357	-35.723	74.000	11.919	PK
3		9688.000	39.956	25.911	-34.044	74.000	14.045	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 4: Transmit at channel 2437MHz by 802.11n40	

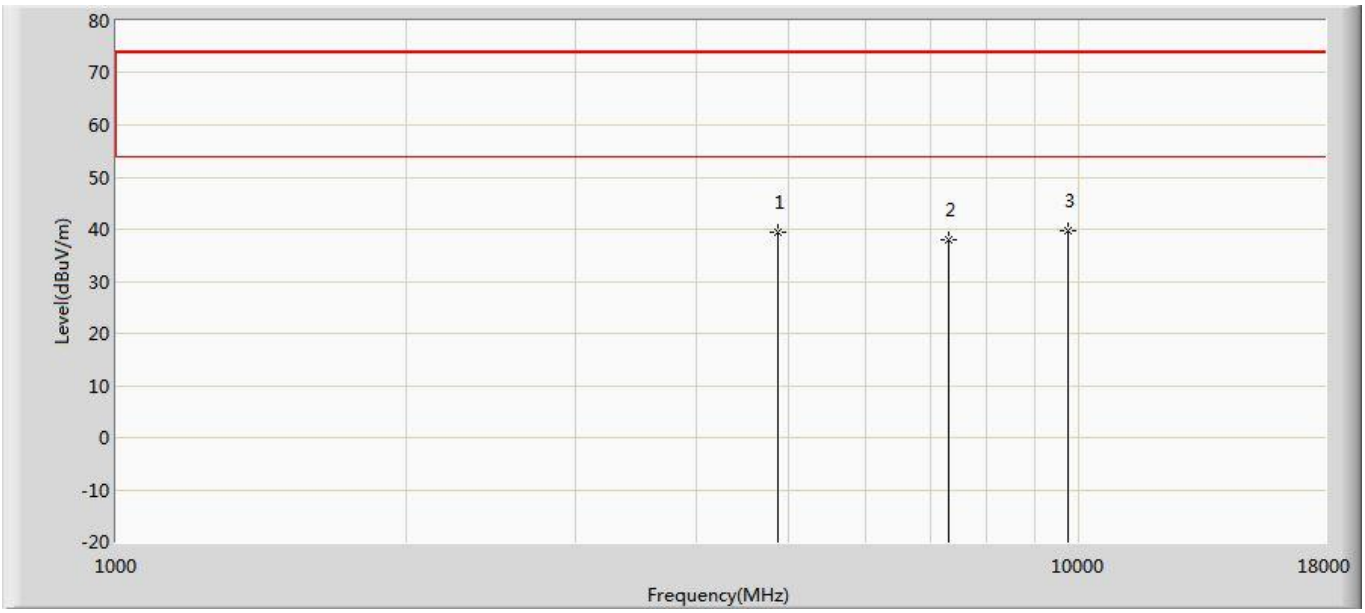


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	39.778	29.604	-34.222	74.000	10.174	PK
2		7311.000	38.226	26.241	-35.774	74.000	11.986	PK
3	*	9748.000	39.883	25.822	-34.117	74.000	14.061	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 4: Transmit at channel 2437MHz by 802.11n40	

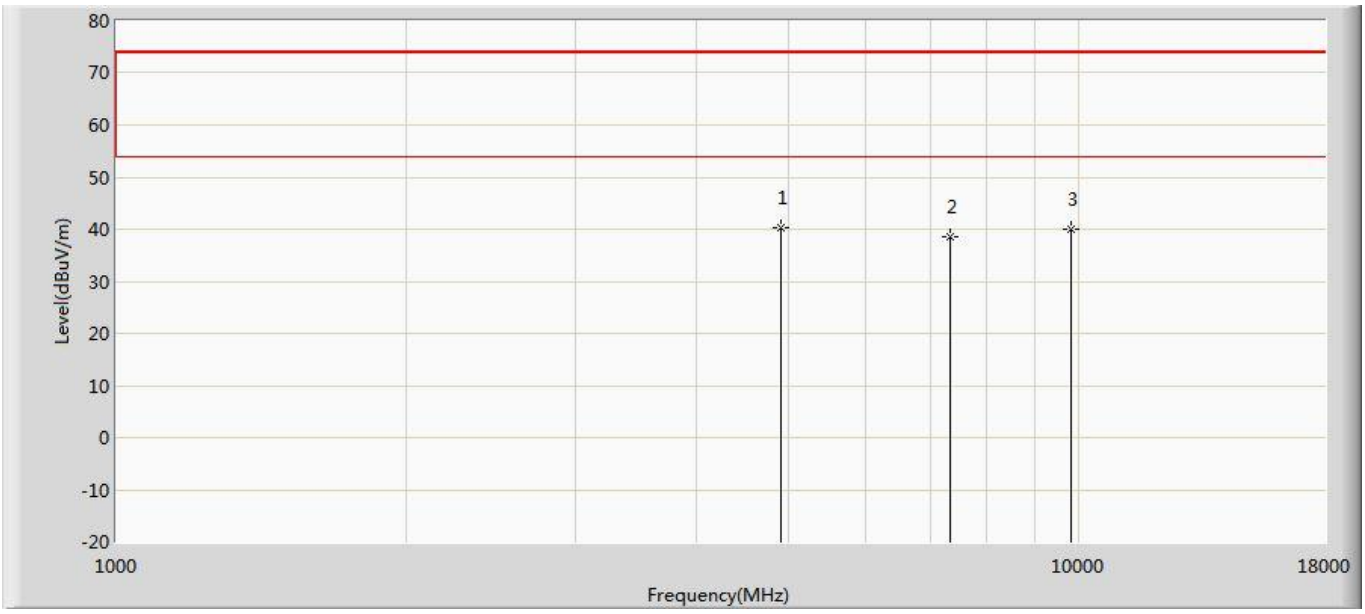


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4874.000	39.489	29.315	-34.511	74.000	10.174	PK
2		7311.000	38.081	26.096	-35.919	74.000	11.986	PK
3	*	9748.000	39.801	25.740	-34.199	74.000	14.061	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 4: Transmit at channel 2452MHz by 802.11n40	

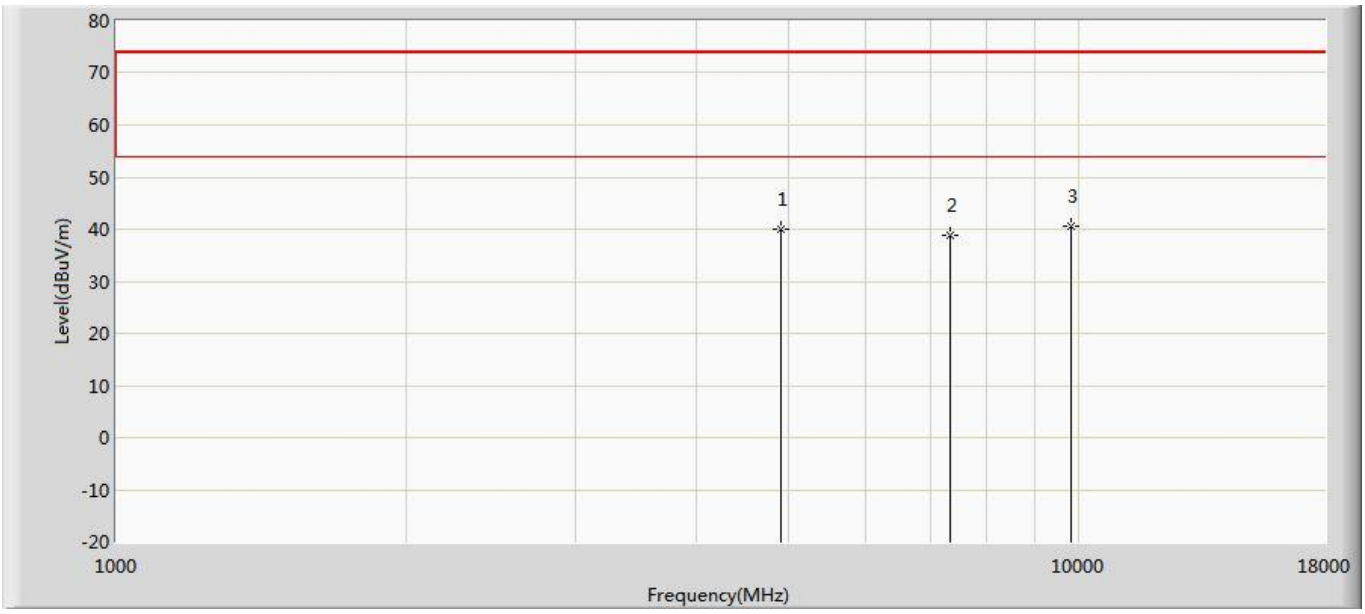


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4904.000	40.160	29.791	-33.840	74.000	10.370	PK
2		7356.000	38.432	26.395	-35.568	74.000	12.037	PK
3		9808.000	40.122	25.986	-33.878	74.000	14.137	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/08/05 - 14:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: IP3M-941W/941B	Power: AC 120V/60Hz
Note: Mode 4: Transmit at channel 2452MHz by 802.11n40	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4904.000	39.985	29.616	-34.015	74.000	10.370	PK
2		7356.000	38.722	26.685	-35.278	74.000	12.037	PK
3	*	9808.000	40.653	26.517	-33.347	74.000	14.137	PK

Note:

1. Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)
2. Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)
3. There is the ambient noise within frequency range （9KHz~30MHz,18GHz~40GHz）.
4. The data above is worst case.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

6. Maximum Output Power

6.1 Test Limit

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

The conducted output power limits specified in §15.247(b) are based on the use of transmit antennae with directional gains that do not exceed 6 dBi. If transmit antennae with an effective directional gain greater than 6 dBi are used, then the conducted output power from the EUT shall be reduced as specified in §15.247(b) and (c).

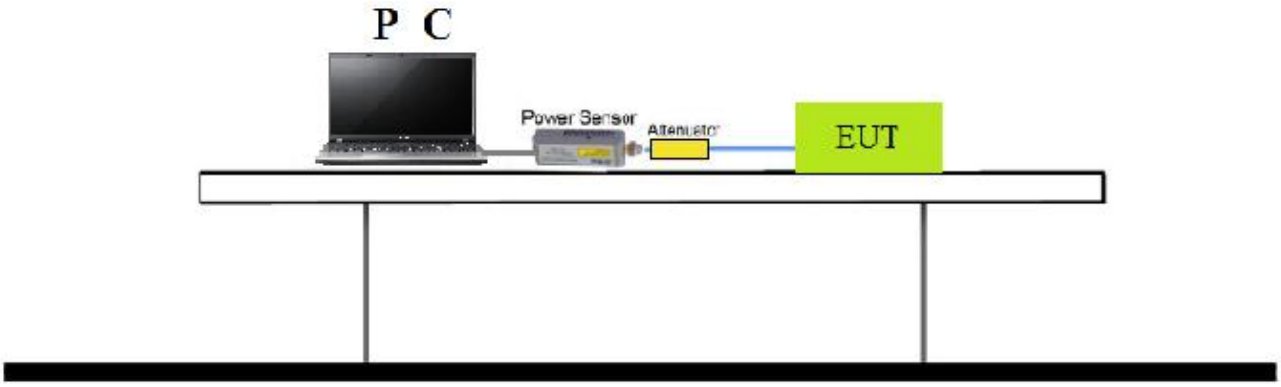
Per RSS247 Issue 1 Section 5.4(4), for DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum conducted output power shall not exceed 1W.

Limit (dBm) = 30dBm-(6.12dBi-6dBi)=29.88dBm

6.2 Test Procedure

According to KDB558074 D01v03r05 Section 9.1.2- PKPM1 Peak power meter method.

6.3 Test Setup Layout



6.4 Measurement Equipment

Instrument	Manufacturer	Type No.	Serial No.	Calibration Date	Valid Date.
PC	Lenovo	E40-70	MP078UQV	N/A	N/A
POWER SENSOR	Agilent	U2021XA	MY53260020	2016/03/27	2017/03/26
Series Power Meter	Boonton	55006	9778	2016/06/08	2017/06/07
Temperature/Humidity Meter	Zhicheng	ZC1-11	CEP-TH-003	2016/03/31	2017/03/30

6.5 Test Result and Data

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
8	2	--	--	13.0	14.4	27.0	30.0
9	2	--	--	26.0	28.9	54.0	60.0
10	2	--	--	39.0	43.3	81.0	90.0
11	2	--	--	52.0	57.8	108.0	120.0
12	2	--	--	78.0	86.7	162.0	180.0
13	2	--	--	104.0	115.6	216.0	240.0
14	2	--	--	117.0	130.0	243.0	270.0
15	2	--	--	130.0	144.0	270.0	300.0

Test Item	Maximum Output Power
Test Mode	Transmit by 802.11b
Test Date	2016-08-02

Channel No.	Frequency (MHz)	Peak Power (dBm)	Required Limit (dBm)	Result
01	2412	21.19	29.88	Pass
06	2437	25.11	29.88	Pass
11	2462	22.05	29.88	Pass

Test Item	Maximum Output Power
Test Mode	Transmit by 802.11g
Test Date	2016-08-02

Channel No.	Frequency (MHz)	Peak Power (dBm)	Required Limit (dBm)	Result
01	2412	24.47	29.88	Pass
06	2437	25.39	29.88	Pass
11	2462	24.74	29.88	Pass

Test Item	Maximum Output Power
Test Mode	Transmit by 802.11n (20MHz)
Test Date	2016-08-02

Channel No.	Frequency (MHz)	Peak Power (dBm)	Required Limit (dBm)	Result
01	2412	24.34	29.88	Pass
06	2437	25.39	29.88	Pass
11	2462	24.81	29.88	Pass

Test Item	Maximum Output Power
Test Mode	Transmit by 802.11n (40MHz)
Test Date	2016-08-02

Channel No.	Frequency (MHz)	Peak Power (dBm)	Required Limit (dBm)	Result
03	2422	24.11	29.88	Pass
06	2437	25.37	29.88	Pass
09	2452	24.41	29.88	Pass

7. Occupied Bandwidth

7.1 Test Limit

Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725- 5850 MHz band. The minimum 6 dB bandwidth shall be at least 500 kHz.

7.2 Test Procedures

According to KDB 558074 D01v03r05 - Section 8.1.

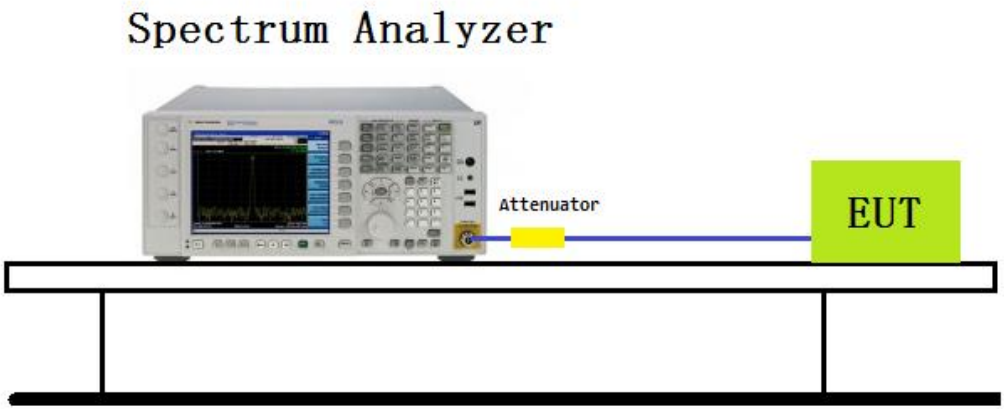
a. The transmitter output was connected to the spectrum analyzer.

b. Set RBW of spectrum analyzer to 100KHz and VBW ≥ 3x RBW.

c. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

d. The 6dB Bandwidth was measured and recorded.

7.3 Test Setup Layout



7.4 Measurement Equipment

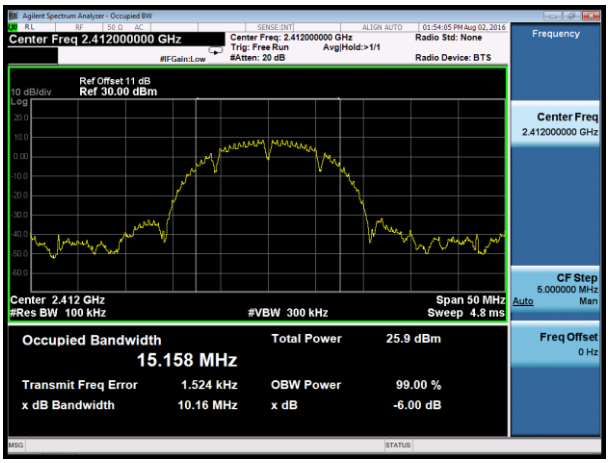
Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	N9010A	Agilent	MY53400169	2015.11.11	2016.11.11

7.5 Test Result and Data

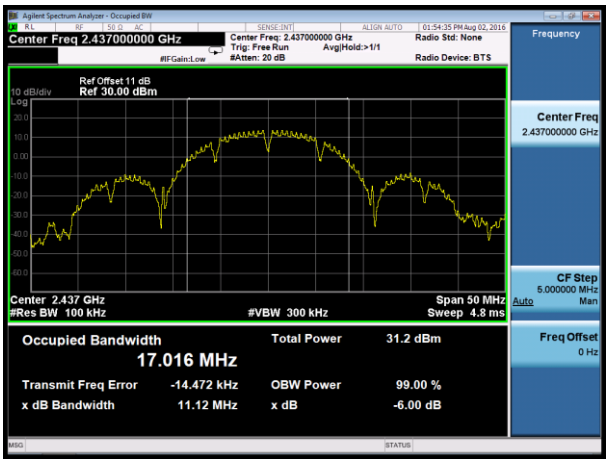
Test Item	Occupied Bandwidth
Test Mode	Transmit by 802.11b
Test Date	2016-08-02

Channel No.	Frequency (MHz)	6dB Measurement Level (MHz)	99% Occupied Bandwidth (MHz)	Result
01	2412	10.16	15.158	Pass
06	2437	11.12	17.016	Pass
11	2462	10.16	15.174	Pass

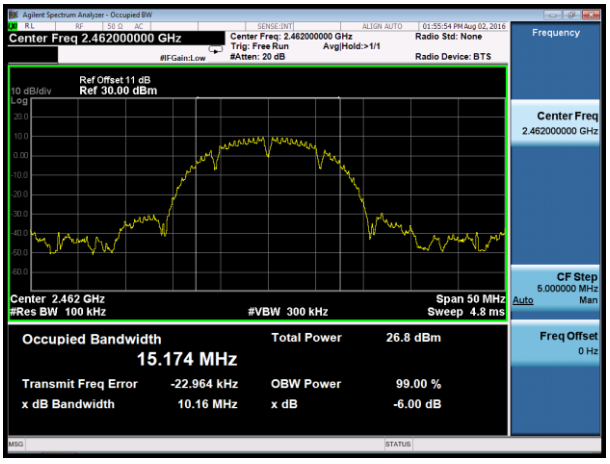
Channel 01 (2412MHz)



Channel 06 (2437MHz)



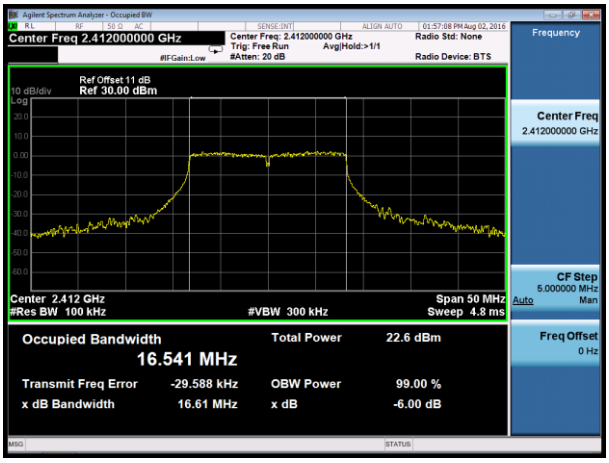
Channel11(2462MHz)



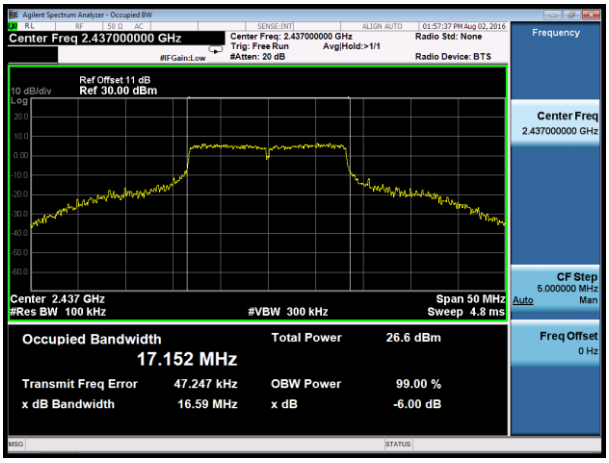
Test Item	Occupied Bandwidth
Test Mode	Transmit by 802.11g
Test Date	2016-08-02

Channel No.	Frequency (MHz)	6dB Measurement Level(MHz)	99% Occupied Bandwidth (MHz)	Result
01	2412	16.61	16.541	Pass
06	2437	16.59	17.152	Pass
11	2462	16.61	16.526	Pass

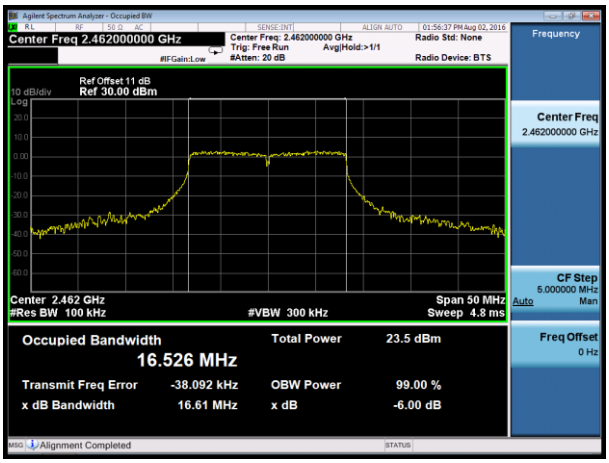
Channel 01 (2412MHz)



Channel 06 (2437MHz)



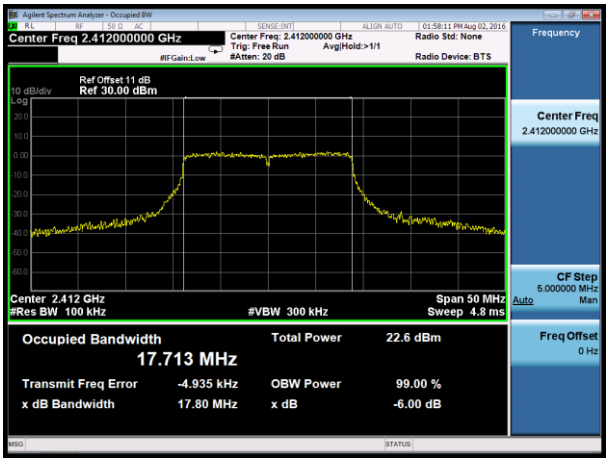
Channel11(2462MHz)



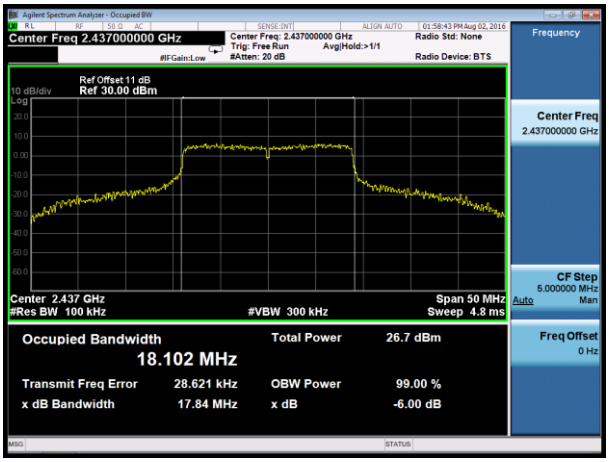
Test Item	Occupied Bandwidth
Test Mode	Transmit by 802.11n (20MHz)
Test Date	2016-08-02

Channel No.	Frequency (MHz)	6dB Measurement Level(MHz)	99% Occupied Bandwidth (MHz)	Result
01	2412	17.80	17.713	Pass
06	2437	17.84	18.102	Pass
11	2462	17.83	17.738	Pass

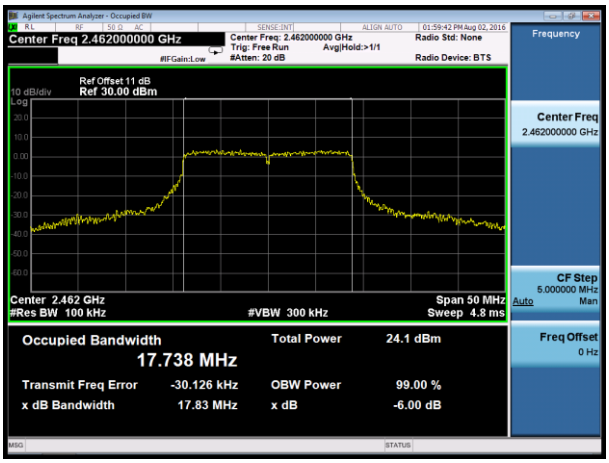
Channel 01 (2412MHz)



Channel 06 (2437MHz)



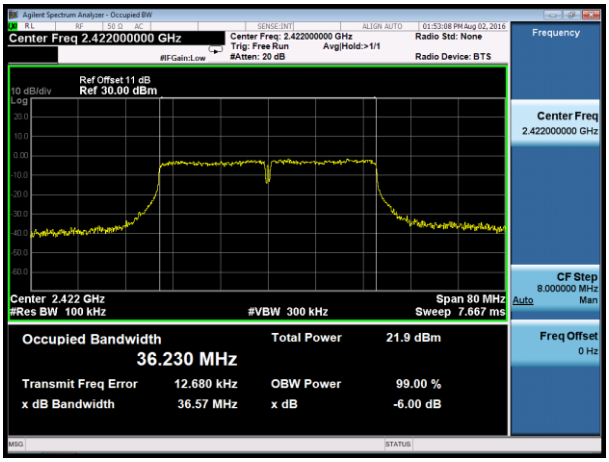
Channel11(2462MHz)



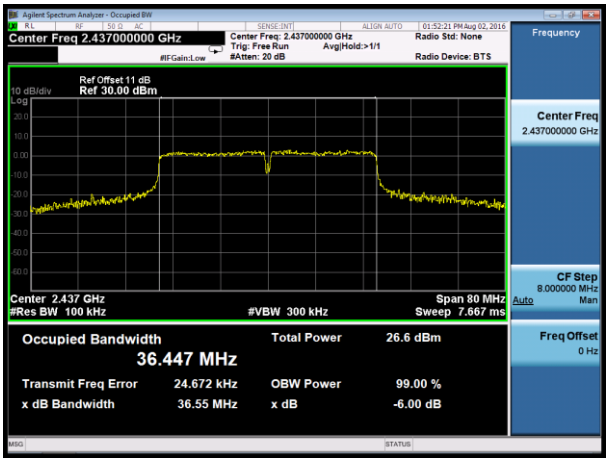
Test Item	Occupied Bandwidth
Test Mode	Transmit by 802.11n (40MHz)
Test Date	2016-08-02

Channel No.	Frequency (MHz)	6dB Measurement Level(MHz)	99% Occupied Bandwidth (kHz)	Result
03	2422	36.57	36.230	Pass
06	2437	36.55	36.447	Pass
09	2452	36.58	36.237	Pass

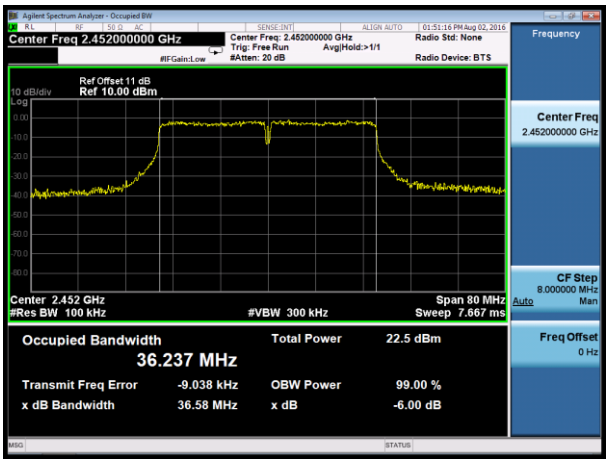
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



8. Power Spectral Density

8.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

Limit (dBm) = 8dBm-(6.12dBi-6dBi)=7.88dBm

8.2 Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

a) Set analyzer center frequency to DTS channel center frequency.

b) Set the span to 1.5 times the DTS bandwidth.

c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz. (Actually we use 3kHz RBW)

d) Set the VBW ≥ 3 × RBW.

e) Detector = peak.

f) Sweep time = auto couple.

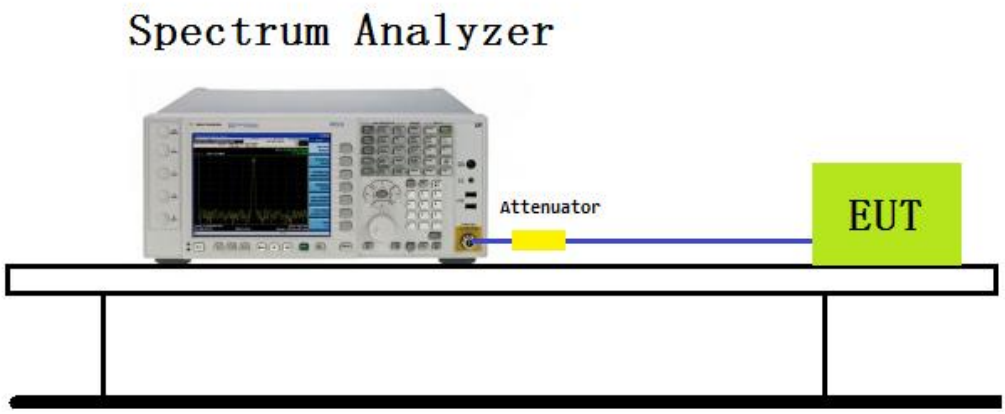
g) Trace mode = max hold.

h) Allow trace to fully stabilize.

i) Use the peak marker function to determine the maximum amplitude level within the band.

j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

8.3 Test Setup Layout



8.4 Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	N9010A	Agilent	MY53400169	2015.11.11	2016.11.11

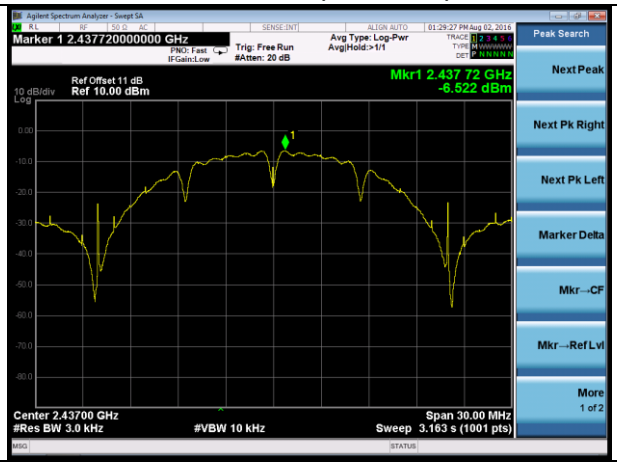
8.5 Test Result and Data

Test Item	Power Spectral Density
Test Mode	Transmit by 802.11b
Test Date	2016-08-02

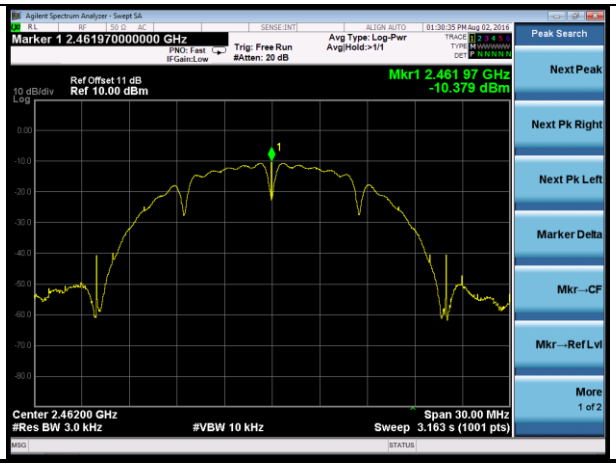
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
01	2412	-10.938	7.88	Pass
06	2437	-6.522	7.88	Pass
11	2462	-10.379	7.88	Pass

Channel 01 (2412MHz)

Channel 06 (2437MHz)



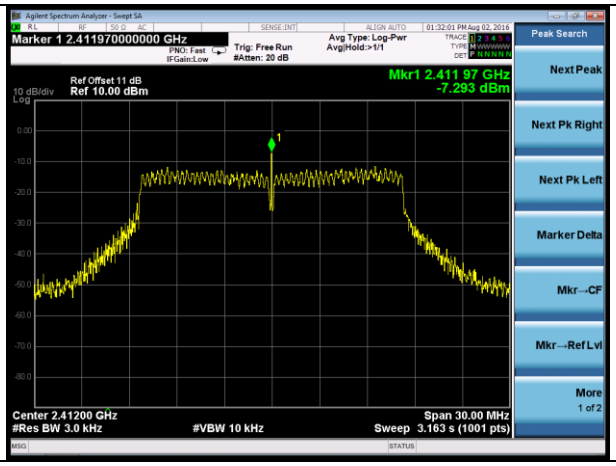
Channel 11 (2462MHz)



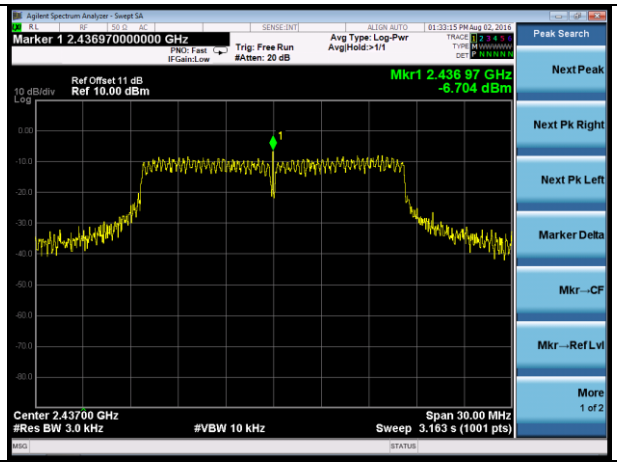
Test Item	Power Spectral Density
Test Mode	Transmit by 802.11g
Test Date	2016-08-02

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
01	2412	-7.293	7.88	Pass
06	2437	-6.704	7.88	Pass
11	2462	-6.395	7.88	Pass

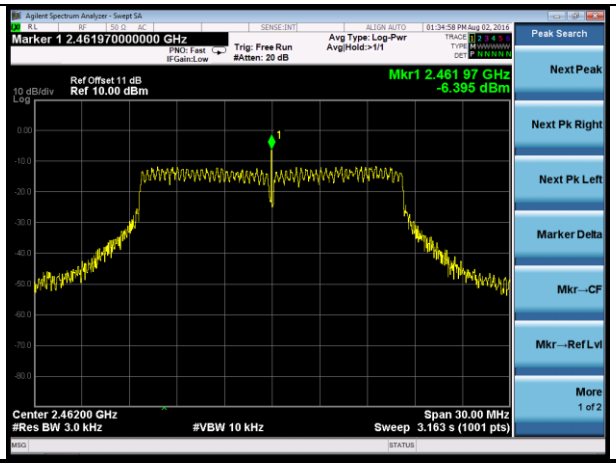
Channel 01 (2412MHz)



Channel 06 (2437MHz)



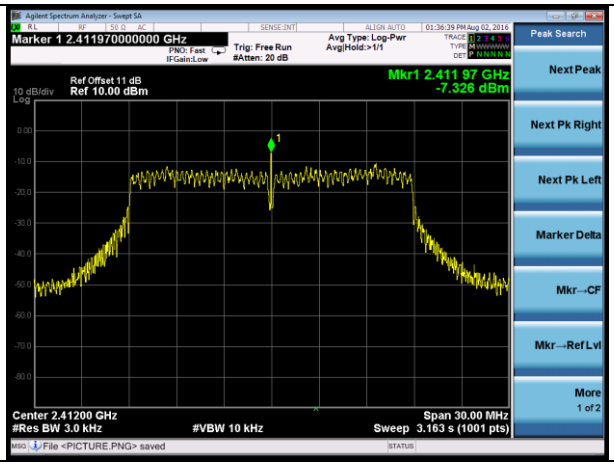
Channel 11 (2462MHz)



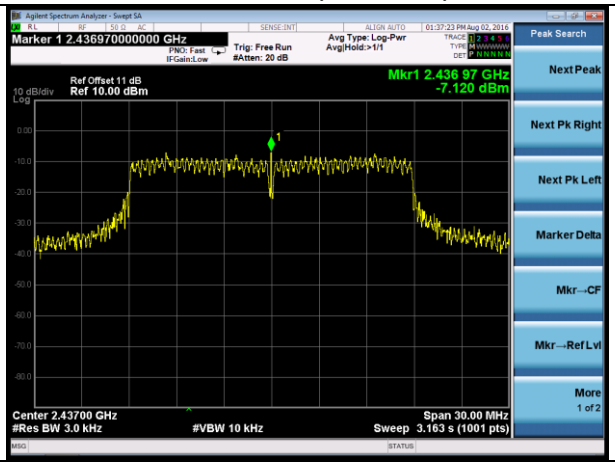
Test Item	Power Spectral Density
Test Mode	Transmit by 802.11n (20MHz)
Test Date	2016-08-02

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
01	2412	-7.326	7.88	Pass
06	2437	-7.120	7.88	Pass
11	2462	-6.441	7.88	Pass

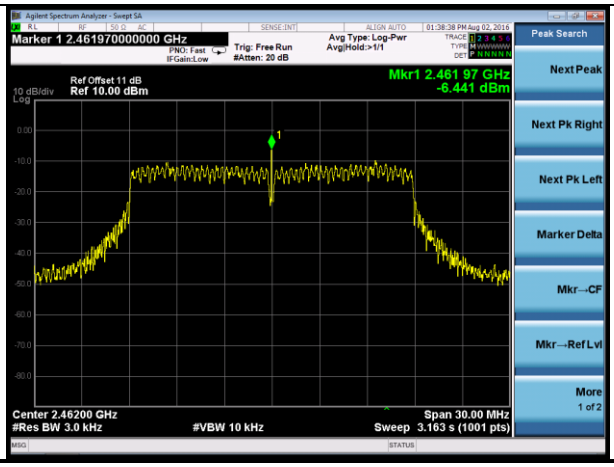
Channel 01 (2412MHz)



Channel 06 (2437MHz)



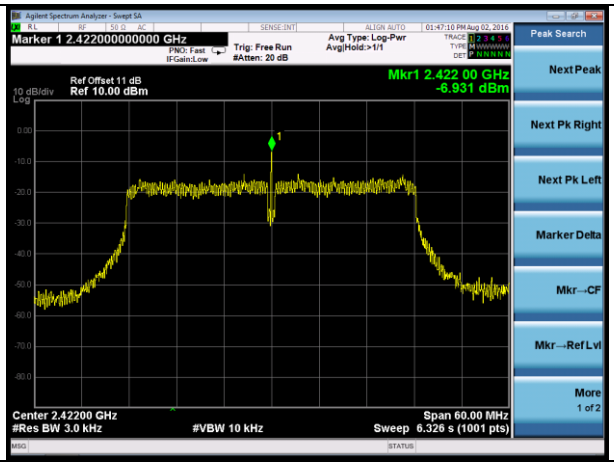
Channel 11 (2462MHz)



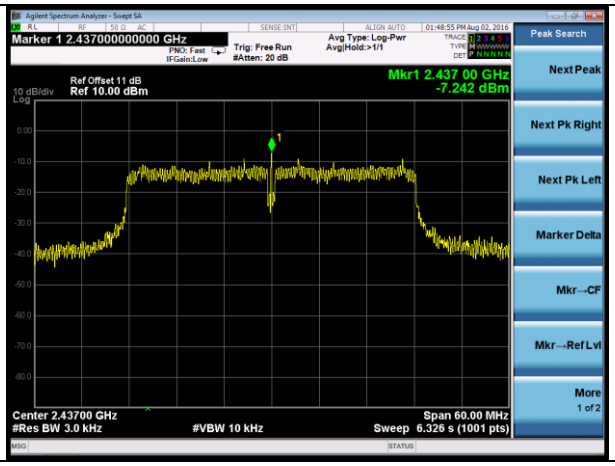
Test Item	Power Spectral Density
Test Mode	Transmit by 802.11n (40MHz)
Test Date	2016-08-02

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
03	2422	-6.931	7.88	Pass
06	2437	-7.242	7.88	Pass
09	2452	-6.446	7.88	Pass

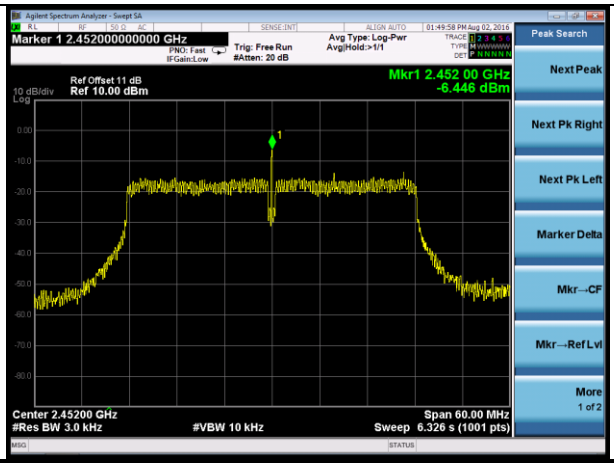
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



9. Band Edges Measurement

9.1 Test Limit

1. If the maximum peak conducted output power procedure was used to determine compliance as described in 11.9.1, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum.
2. If maximum conducted (average) output power was used to determine compliance as described in 11.9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

9.2 Test Procedure

KDB 558074 D01v03r05 – Section 12.2.4 (peak power measurements)

KDB 558074 D01v03r05 – Section 12.2.5 (average power measurements)

9.3 Test Setting

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz

1.Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

2.RBW = 1MHz

3.VBW ≥ 1/T

Note: For b mode VBW=10Hz; For g mode VBW=10Hz; For n(20MHz) mode VBW=10Hz; For n(40MHz) mode VBW=10Hz.

4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to “Voltage” regardless of the display mode

5.Detector = Peak

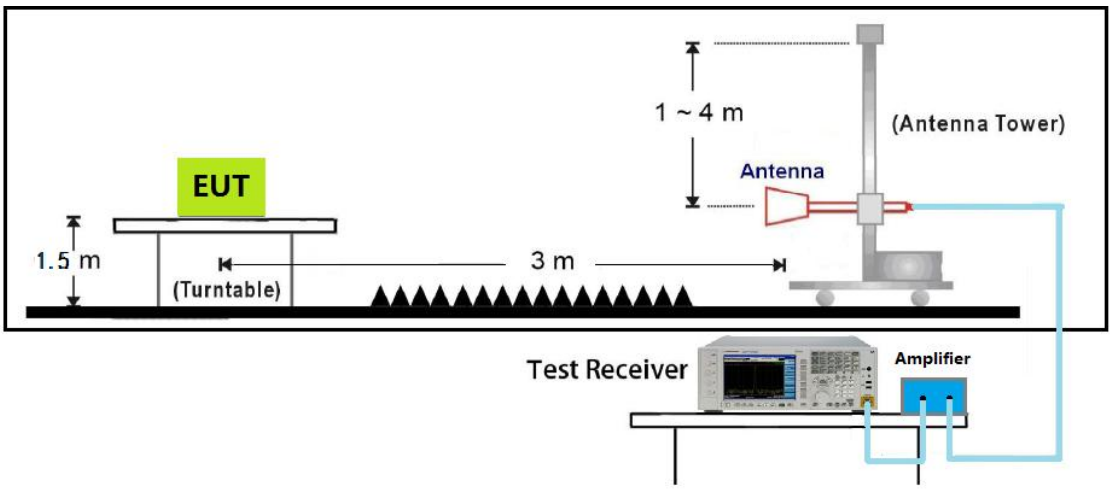
6.Sweep time = auto

7.Trace mode = max hold

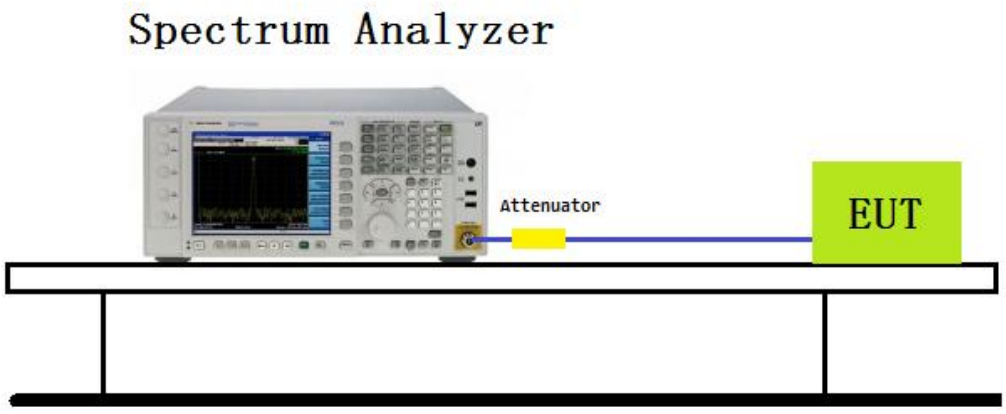
8.Allow max hold to run for at least 50 times (1/duty cycle) traces

9.4 Test Setup Layout

Radiated



Conducted



9.5 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EMI Test Receiver	R&S	ESCI	101183	2016.03.28	2017.03.29
Spectrum Analyzer	N9010A	Agilent	MY53400169	2015.11.11	2016.11.11
Spectrum Analyzer	R&S	FSP40	100324	2016.03.23	2017.03.24
H64 Preamplifier	HP	8447F	3113A05582	2016.03.24	2017.03.23
Preamplifier	songyi	EM330	60618	2016.03.29	2017.03.28
Preamplifier	Agilent	8449B	3008A02342	2016.03.29	2017.03.28
Preamplifier	COM-POWER	PA-840	711885	2016.03.29	2017.03.28
Bilog Antenna	Sunol Science	JB1	A072414-1	2016.04.22	2017.04.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2016.04.20	2017.04.19
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-347	2016.04.20	2017.04.19
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2016.03.31	2017.03.30