

FCC 47 CFR PART 15 SUBPART C 15.247

TEST REPORT

FOR

Product Name: WiFiHuberPro

Model : Module_WH_02

Trade Name: Trend

Issued to

TREND ELECTRONICS CO., LTD.

Rm. 309, 3F., No.232, Sec. 3, Chengde Rd., Datong Dist., Taipei City 10367, Taiwan
(R.O.C.)

Issued by

WH Technology Corp.

Open Site		No. 120, Ln. 5, Hudong St., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
EMC Test Site	Xizhi Office and Lab	4F, No.27-1, Ln. 169, Kangning St., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)

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Contents

1. General Information	2
2. Report of Measurements and Examinations	4
2.1 List of Measurements and Examinations	4
3. Test Configuration of Equipment under Test	5
3.1 Description of the tested samples	5
3.2 Carrier Frequency of Channels	6
3.3 Test Mode and Test Software	7
3.4 TEST Methodology & General Test Procedures	8
3.5 Measurement Uncertainty	9
3.6 Description of the Support Equipments	9
4. Test and measurement equipment	10
4.1 calibration	10
4.2 equipment	10
5. Antenna Requirements	12
5.1 Standard Applicable	12
5.2 Antenna Construction and Directional Gain	12
6. Test of Radiated Emission	13
6.1 Test Limit	13
6.2 Test Procedures	13
6.3 Typical Test Setup	14
6.4 Test Result and Data (9kHz ~ 30MHz)	15
6.5 Test Result and Data (30MHz ~ 1GHz, worst emissions found)	15
6.6 Test Result and Data (Above 1GHz)	17
6.7 Restrict Band Emission Measurement Data	41
7. Restricted Bands of Operation	44
7.1 Labeling Requirement	44

Appendix A.

1. General Information

Applicant : Trend Electronics Co., Ltd.
Address : Rm. 309, 3F., No.232, Sec. 3, Chengde Rd., Datong
Dist., Taipei City 10367, Taiwan (R.O.C.)
Manufacturer : Trend Electronics Co., Ltd.

Address : Rm. 309, 3F., No.232, Sec. 3, Chengde Rd., Datong
Dist., Taipei City 10367, Taiwan (R.O.C.)
EUT : WiFiHuberPro
Model Name : Module_WH_02
Model Differences : N/A

Is here with confirmed to comply with the requirements set out in the FCC Rules and Regulations Part 15 Subpart C and the measurement procedures were according to ANSI C63.4-2003. The said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

FCC part 15 subpart C

Receipt Date : 03/27/2015

Final Test Date : 04/08/2015

Tested By:**Reviewed by:**

APR 10, 2015

Date

Husbert/ Engineer

APR 10, 2015

DateBen Lu / Manager
Designation Number: TW1083

2. Report of Measurements and Examinations**2.1 List of Measurements and Examinations**

FCC Rule	Description of Test	Result
15.203	. Antenna Requirement	Pass
15.209 15.247(d)	. Radiated Emission	Pass

3. Test Configuration of Equipment under Test

3.1 Description of the tested samples

EUT Name : WiFiHuberPro

Model Number : Module_WH_02

FCCID : QUYMODULEWH02

Receipt Date : 03/27/2015

Input Voltage : 5 Vdc (From PC or NB)

RF Output Power(e.i.r.p) : 802.11n 15dBm OFDM; 802.11g 17dBm OFDM mode;
802.11b 20dBm, CCK mode

Power From : ☐Inside ☒Outside
☐Adaptor ☐Battery ☐AC Power Source ☐DC Power Source
☒Support Unit PC or NB

Operate Frequency : Refer to the channel list as described below (2.412 ~2.462 GHz)

Modulation Technique : OFDM

Number of Channels : 11

Channel spacing : ☐N/A ☒ 5 MHz

Operating Mode : ☐Simplex ☒Half Duplex

Antenna Type : both PCB and External

Antenna gain : 2.43 dBi (Dipole Antenna)
3.3 dBi

3.2 Carrier Frequency of Channels

802.11b, 802.11g, 802.11n HT 20 (2412MHz~2462MHz)

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	---	---

802.11n, HT 40 (2422MHz~2452MHz)

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

3.3 Test Mode and Test Software

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- b. The complete test system included Notebook and EUT for RF test.
- c. An executive "QATEST" under WIN8 was executed to keep transmitting and receiving data via Wireless.
- d. The following test modes were performed for test:
 - 802.11b/g/n HT20: CH01: 2412MHz, CH06: 2437MHz, CH11: 2462MHz
 - 802.11n HT40: CH03: 2422MHz, CH06: 2437MHz, CH09: 2452MHz

3.4 TEST Methodology & General Test Procedures

All testing as described bellowed were performed in accordance with ANSI C63.4:2003 and FCC CFR 47 Part 15 Subpart C.

Conducted Emissions

The EUT is placed on a wood table, which is at 0.8 m above ground plane acceding to clause 15.207 and requirements of ANSI C63.4:2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz are using CISPR Quasi-Peak / Average detectors.

Radiated Emissions

The EUT is a placed on a turn table, which is 0.8 m above ground plane. The turntable was rotated through 360 degrees to determine the position of maximum emission level. The EUT is placed at 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

- 1) Putting the EUT on the platform and turning on the EUT (on/off button on the bottom of the EUT).
- 2) Setting test channel described as "Channel setting and operating condition", and testing channel by channel.
- 3) For the maximum output power measurement, we followed the method of measurement KDB558074 D01.
- 4) For the spurious emission test based on ANSI(2003), at the frequency where below 1GHz used quasi-peak detector mode; where above 1GHz used the peak and average detector mode. IF the peak value may be under average limit, the average mode will not be performed.

3.5 Measurement Uncertainty

Measurement Item	Uncertainty
Radiated emission	$\pm 4.11\text{dB}$
Peak Output Power(conducted)	$\pm 1.38\text{dB}$
Peak Output Power(Radiated)	$\pm 1.70\text{dB}$
Power Spectral Density	$\pm 1.39\text{dB}$
Radiated emission(3m)	$\pm 4.11\text{dB}$
Radiated emission(10m)	$\pm 3.89\text{dB}$

3.6 Description of the Support Equipments

Setup Diagram

See test photographs attached in appendix 1 for the actual connections between EUT and support equipment.

Support Equipment

Peripherals Devices:

OUTSIDE SUPPORT EQUIPMENT							
No.	Equipment	Model	Serial No.	FCC ID/ BSMI ID	Trade name	Data Cable	Power Cord
1.	Notebook	K43B	N/A	N/A	ASUS	N/A	Unshielded 1.8m
2.	Printer	D4360	N/A	R33001	HP	Shielded 1.8m	Unshielded 1.8m
3.	USB Flash	TS2GJFV30	156511-6400	D33193	TRANSCEND	Shielded/ 1m	N/A

Note: All the above equipment /cable were placed in worse case position to maximize emission signals during emission test

Grounding: Grounding was in accordance with the manufacturer's requirement and conditions for the intended use.

4. Test and measurement equipment

4.1 calibration

The measuring equipment utilized to perform the tests documented in the report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2 equipment

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and. Other required standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective.

TABLELIST OF TEST AND MEASUREMENT EQUIPMENT

Test Site	Instrument	Manufacturer	Model No.	S/N	Next Cal. Date
Conduction	EMI Test Receiver	R&S	ESHS10	830223/008	Apr. 06, 2016
	Spectrum Analyzer	R&S	FSP3	833387	Sep. 04, 2015
	RF Cable	N/A	EMI-3	N/A	Oct. 08, 2015
	L.I.S.N	Rolf Heine Hochfrequenztechnik	NNB-2/16z	98062	Apr. 01, 2016
Radiation	EMI Test Receiver	R&S	ESVS30	863342/012	Oct. 12, 2015
	Spectrum Analyzer	Nex1	NS-265	N05044006	Oct. 30, 2015
	Antenna	Schwarzbeck	VULB 9160	3074	Oct. 15, 2015
	RF Cable	N/A	N/A	N/A	Oct. 17, 2015
	Pre-Amplifier 30MHz~1GHz	Anritsu	MH648A	M15180	Oct. 08, 2015
	RF Cable 1GHz~18GHz	EMCI	N/A	N/A	July 30, 2015
	Horn Antenna 1GHz~18GHz	COM-POWER	AH-118	10056	Oct. 19, 2015
	Pre-Amplifier 500MHz~18GHz	EMCI	EMC051845	980108	Oct. 08, 2015
	RF Cable 18GHz~26GHz	YEIDA WIRE CABLE	N/A	N/A	July 30, 2015
	Horn Antenna 18GHz~26GHz	COM-Power	AH-826	081000	Aug. 05, 2015
	Pre-Amplifier 18GHz~26GHz	MITEQ	30-5A	808329	July 31, 2015

● **CALIBRATION INTERVAL OF INSTRUMENTS LISTED ABOVE IS ONE YEAR**

5. Antenna Requirements

5.1 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.

5.2 Antenna Construction and Directional Gain

802.11b/g/n:

ANT R, ANT L

Antenna Type: PCB Antenna

Antenna Gain: 3.3 dBi

Note: Directional gain = $G^{\text{ANT}} + 10 \log(N)$ dBi = $3.3 + 10 \log(2) = 6.31$ (dBi)

6. Test of Radiated Emission

6.1 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 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).

Frequency (MHz)	Field Strength (microvolt/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

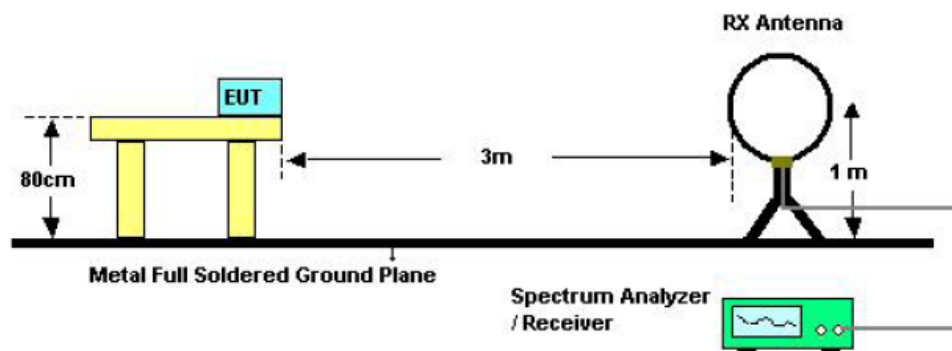
6.2 Test Procedures

- The EUT was placed on a rotatable table top 0.8 meter above ground.
- The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- The table was rotated 360 degrees to determine the position of the highest radiation.
- The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

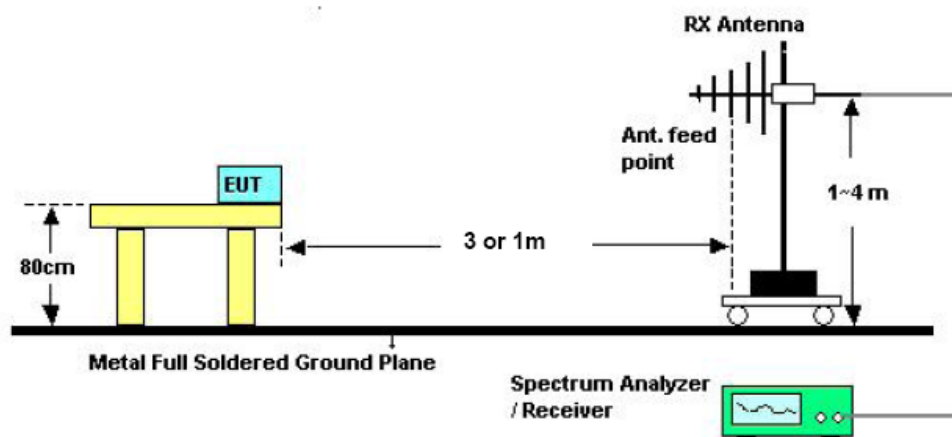
- i. "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

6.3 Typical Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.

Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB);

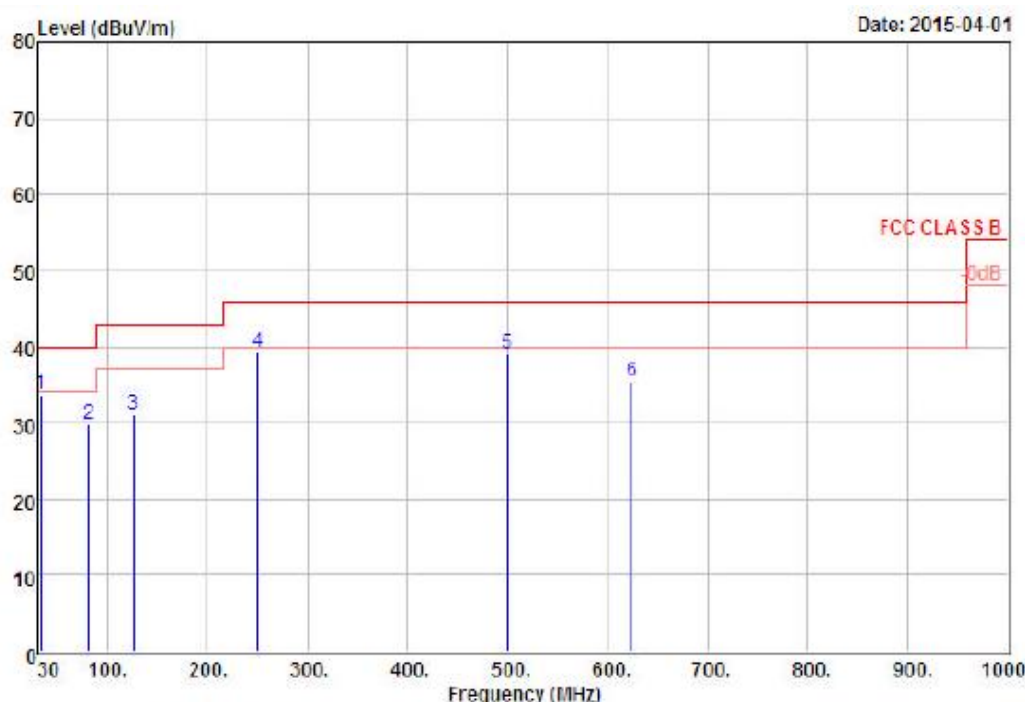
Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

6.4 Test Result and Data (9kHz ~ 30MHz)

The 9kHz - 30MHz spurious emission is under limit 20dB more.

6.5 Test Result and Data (30MHz ~ 1GHz, worst emissions found)

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11n HT40, CH3	Temperature	: 26 °C
Memo	:	Humidity	: 55 %

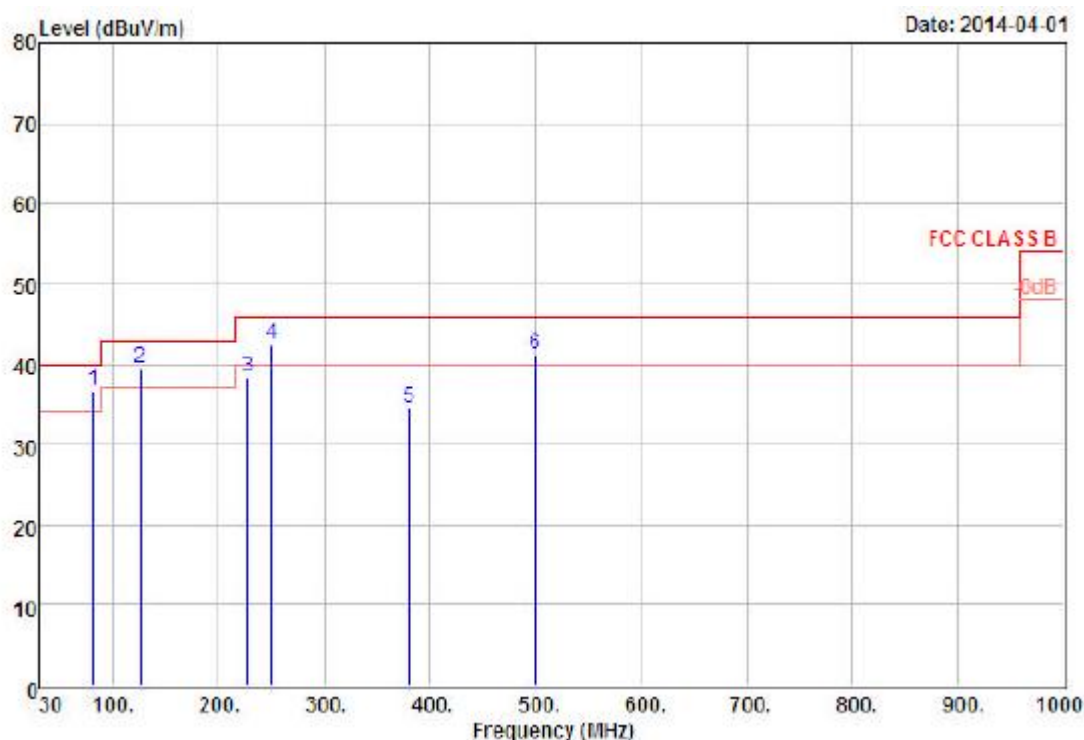


Site : Opensite
 Condition : FCC CLASS B VULB9160(30-1G)-104 VERTICAL
 EUT : 14010803
 Power : AC 120V
 Mode : Transmit
 Temperature : 26
 Humidity : 55
 Memo : 802.11n HT40 CH3

Remarks: : 1.Result=Read Value+Factor
 : 2.Factor=Antenna Factor+Cable loss-
 : Amplifier Factor

	Freq	Read Level	Level Factor	Over Limit	Limit	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	33.22	50.32	33.74	-16.58	-6.26	40.00 QP
2	80.55	49.57	29.83	-19.74	-10.17	40.00 QP
3	125.22	47.31	31.20	-16.11	-11.80	43.00 QP
4	249.75	54.76	39.24	-15.52	-6.76	46.00 QP
5	499.85	47.65	39.09	-8.56	-6.91	46.00 QP
6	624.61	41.41	35.34	-6.07	-10.66	46.00 QP

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11n HT40, CH3	Temperature	: 26 °C
Memo	:	Humidity	: 55 %



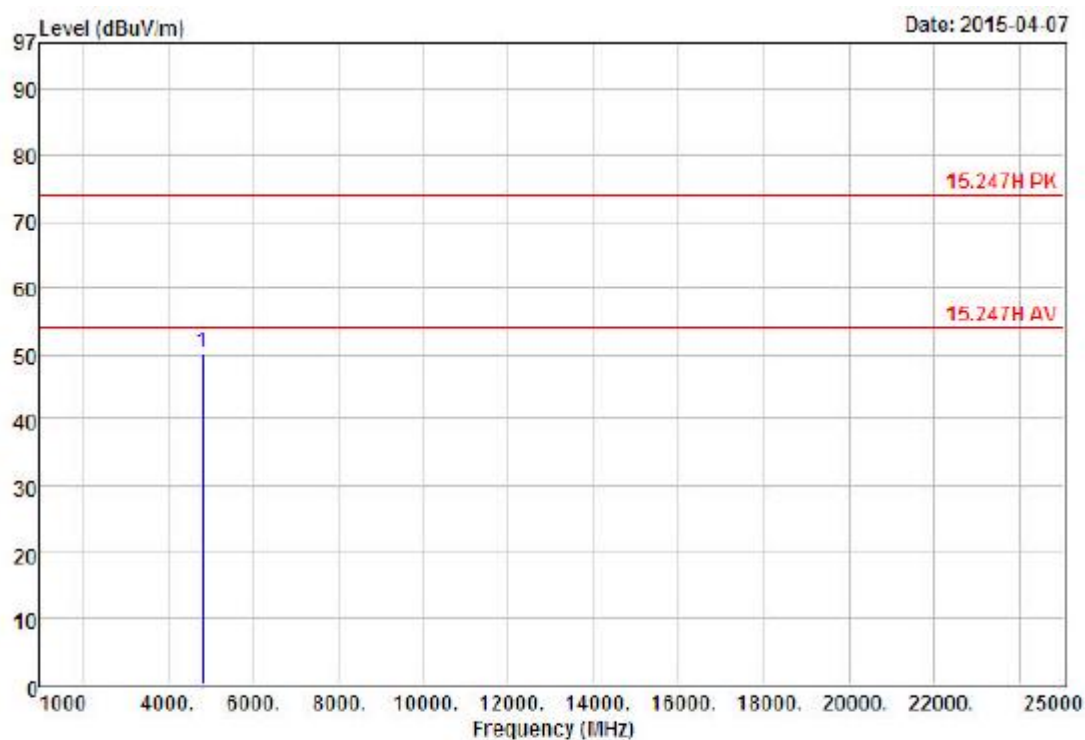
Site : Opensite
 Condition : FCC CLASS B VULB9160(30-1G)-104 HORIZONTAL
 EUT : 14010803
 Power : AC 120V
 Mode : Transmit
 Temperature : 26
 Humidity : 55
 Memo : 802.11n HT40 CH3

Remarks: : 1.Result=Read Value+Factor
 : 2.Factor=Antenna Factor+Cable loss-
 : Amplifier Factor

	Freq	Read Level	Level Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1 !	80.60	56.45	36.71	-19.74	-3.29	40.00 QP
2 !	125.25	55.54	39.43	-16.11	-3.57	43.00 QP
3	227.00	54.60	38.49	-16.11	-7.51	46.00 QP
4 !	249.75	57.95	42.43	-15.52	-3.57	46.00 QP
5	380.30	46.20	34.43	-11.77	-11.57	46.00 QP
6 !	499.88	49.65	41.09	-8.56	-4.91	46.00 QP

6.6 Test Result and Data (Above 1GHz)

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11b, CH1	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 VERTICAL

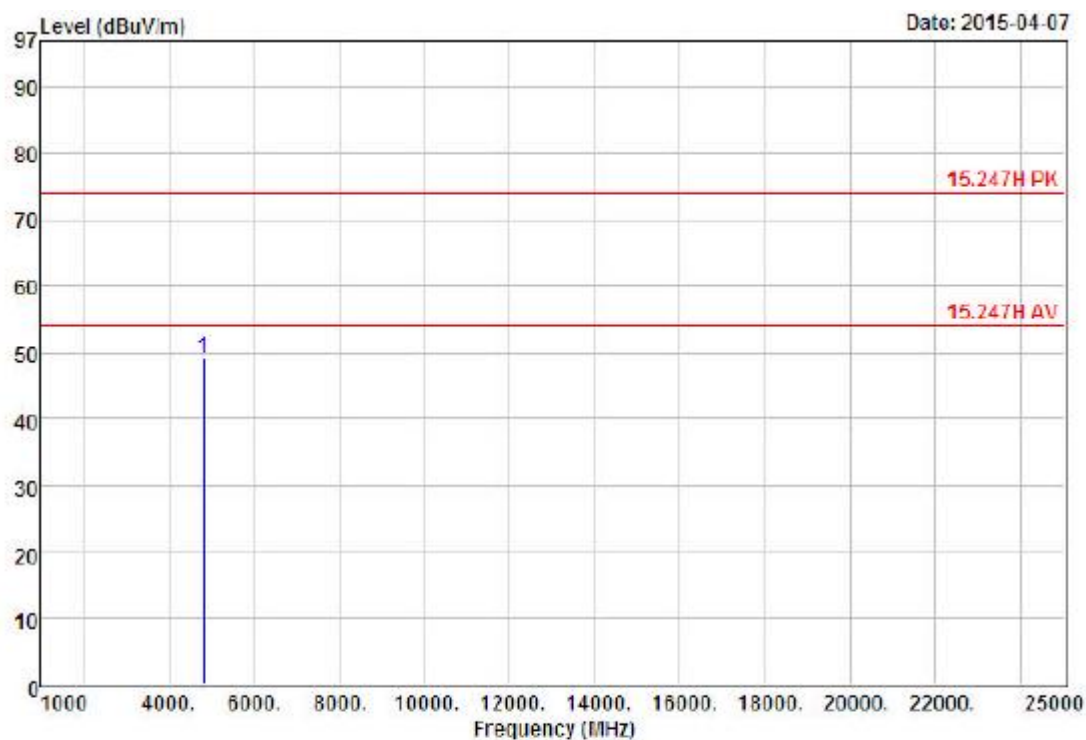
cut : 14010803

mode : Transmit

memo : 802.11b CH1

	Freq	Read Level	Level Factor	Over Limit	Limit	Line Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4824.22	57.62	50.21	-7.41	-23.79	74.00 Peak

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11b, CH1	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL

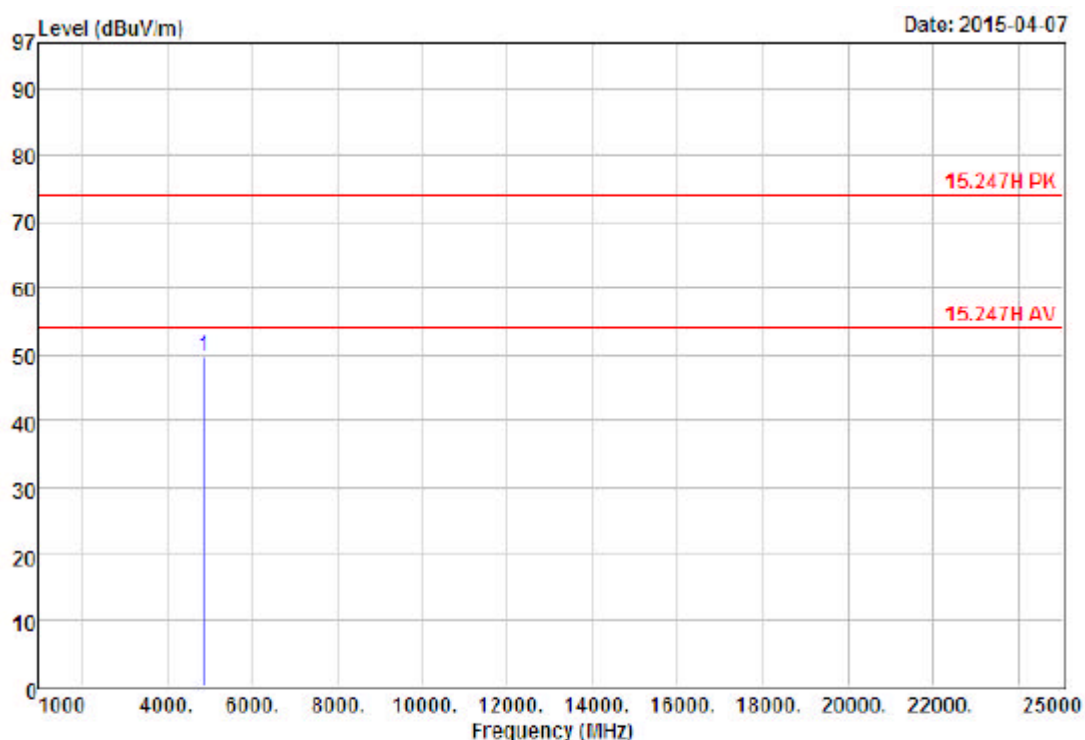
cut : 14010803

mode : Transmit

memo : 802.11b CH1

	Freq	Read Level	Level Factor	Over Limit	Limit	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4824.08	56.56	49.15	-7.41	-24.85	74.00 Peak

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11b, CH6	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 VERTICAL

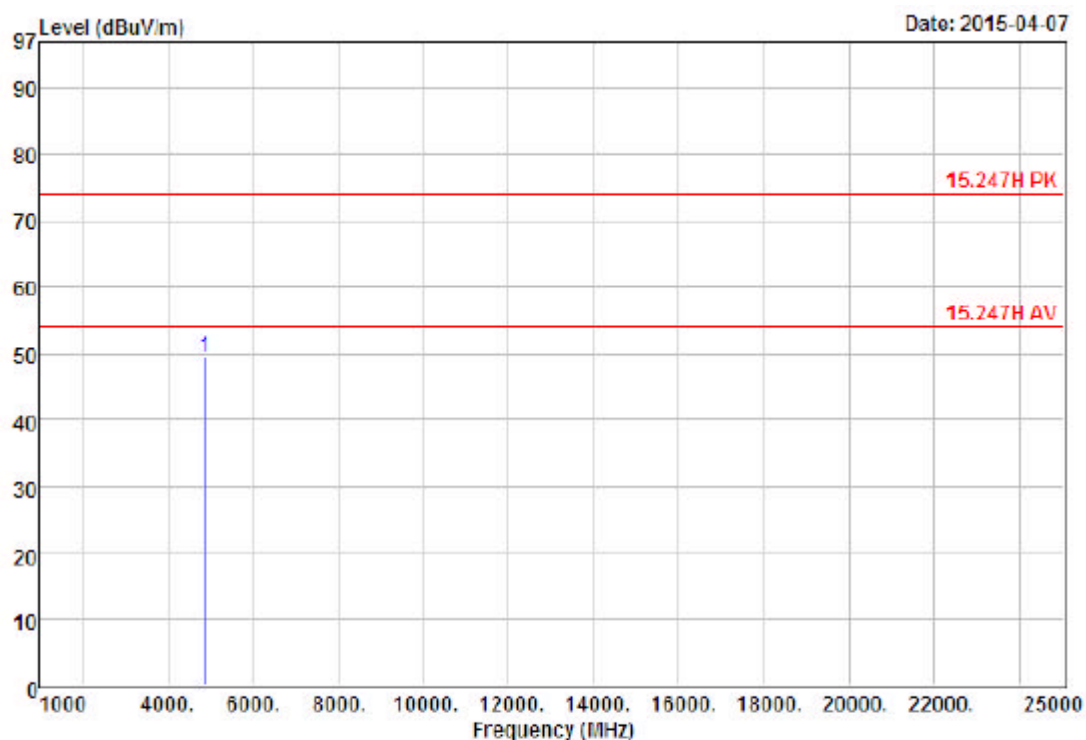
ent : 14010803

mode : Transmit

memo : 802.11b CH6

	Read			Over	Limit	
Freq	Level	Level	Factor	Limit	Line	Remark
MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1 4874.11	56.89	49.73	-7.16	-24.27	74.00	Peak

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11b, CH6	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL

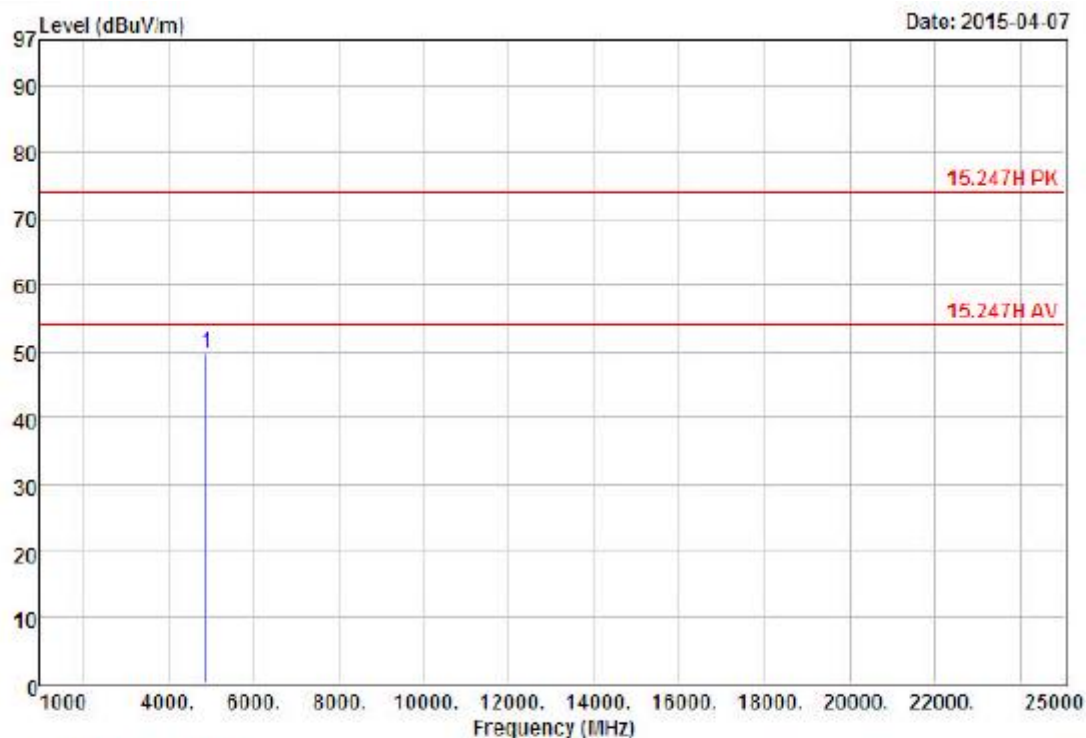
cut : 14010803

mode : Transmit

memo : 802.11b CH6

		Read			Over	Limit	
	Freq	Level	Level	Factor	Limit	Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4874.22	56.50	49.34	-7.16	-24.66	74.00	Peak

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11b, CH11	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 VERTICAL

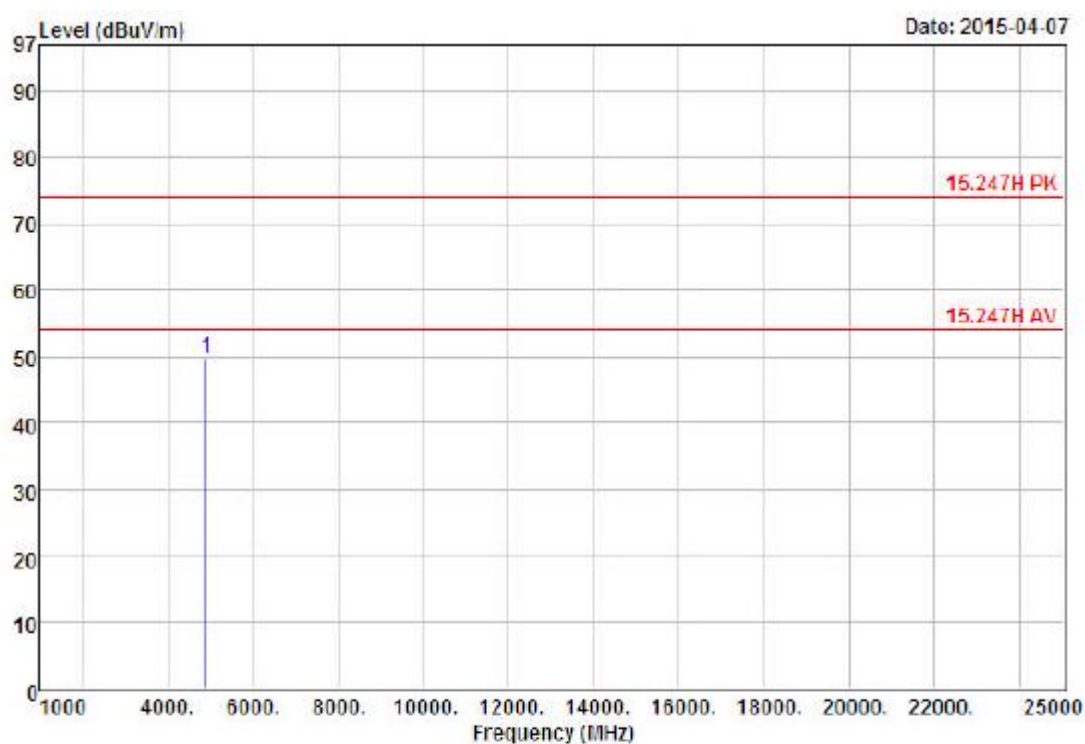
ent : 14010803

mode : Transmit

memo : 802.11b CH11

		Read			Over	Limit	
	Freq	Level	Level Factor		Limit	Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4924.03	56.70	49.78	-6.92	-24.22	74.00	Peak

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11b, CH11	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL

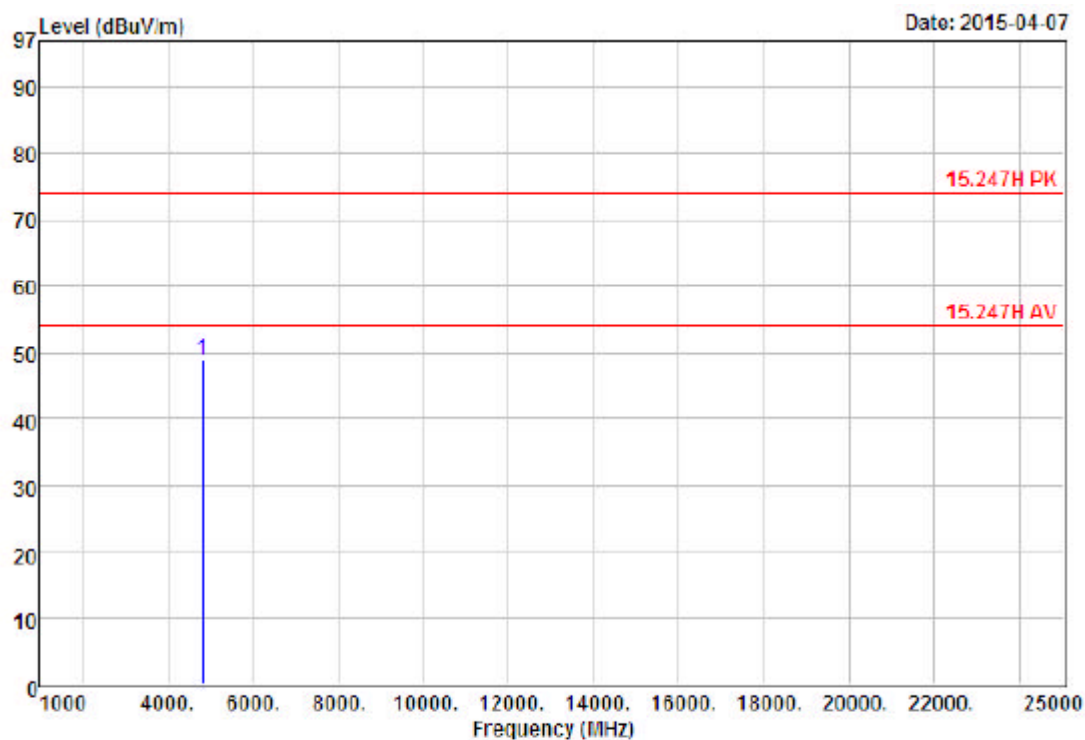
cut : 14010803

mode : Transmit

memo : 802.11b CH11

	Read	Over	Limit	
Freq	Level	Level	Factor	Limit
MHz	dBuV	dBuV/m	dB/m	dB dBuV/m
1	4924.25	56.49	49.57	-6.92 -24.43 74.00 Peak

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 2	: 802.11g, CH1	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 VERTICAL

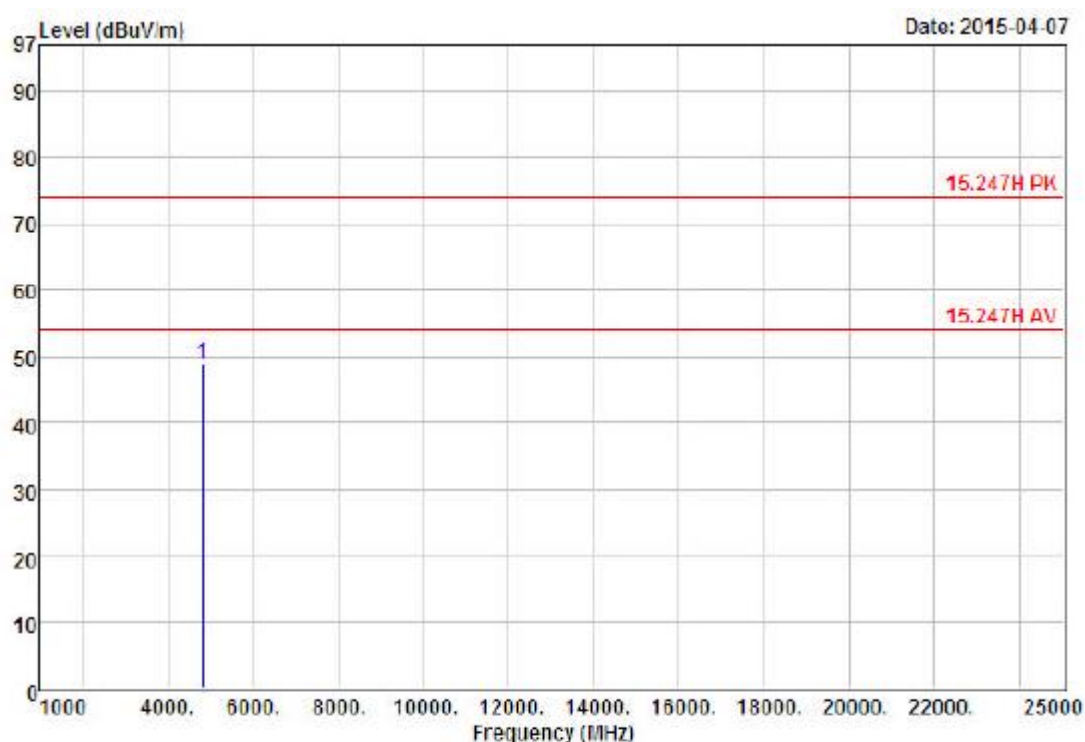
cut : 14010803

mode : Transmit

memo : 802.11g CH1

	Freq	Read Level	Level Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4824.15	56.42	49.01	-7.41	-24.99	74.00 Peak

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 2	: 802.11g, CH1	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL

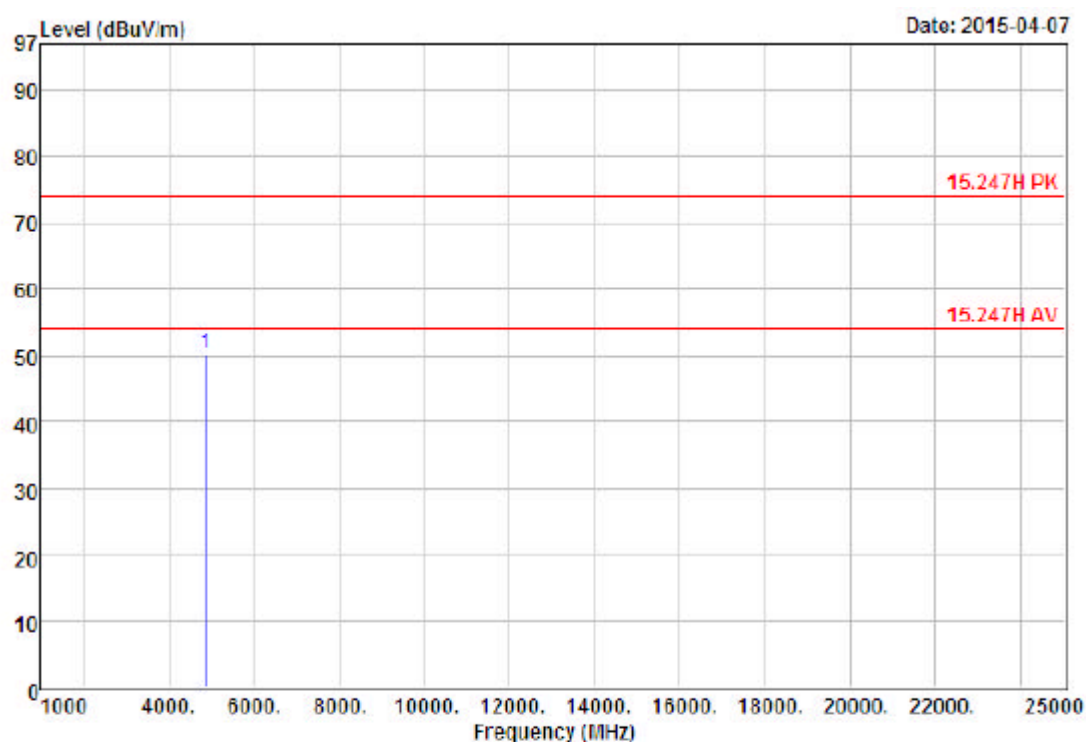
ent : 14010803

mode : Transmit

memo : 802.11g CH1

		Read			Over	Limit	
	Freq	Level	Level	Factor	Limit	Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4824.18	56.39	48.98	-7.41	-25.02	74.00	Peak

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 2	: 802.11g, CH6	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 VERTICAL

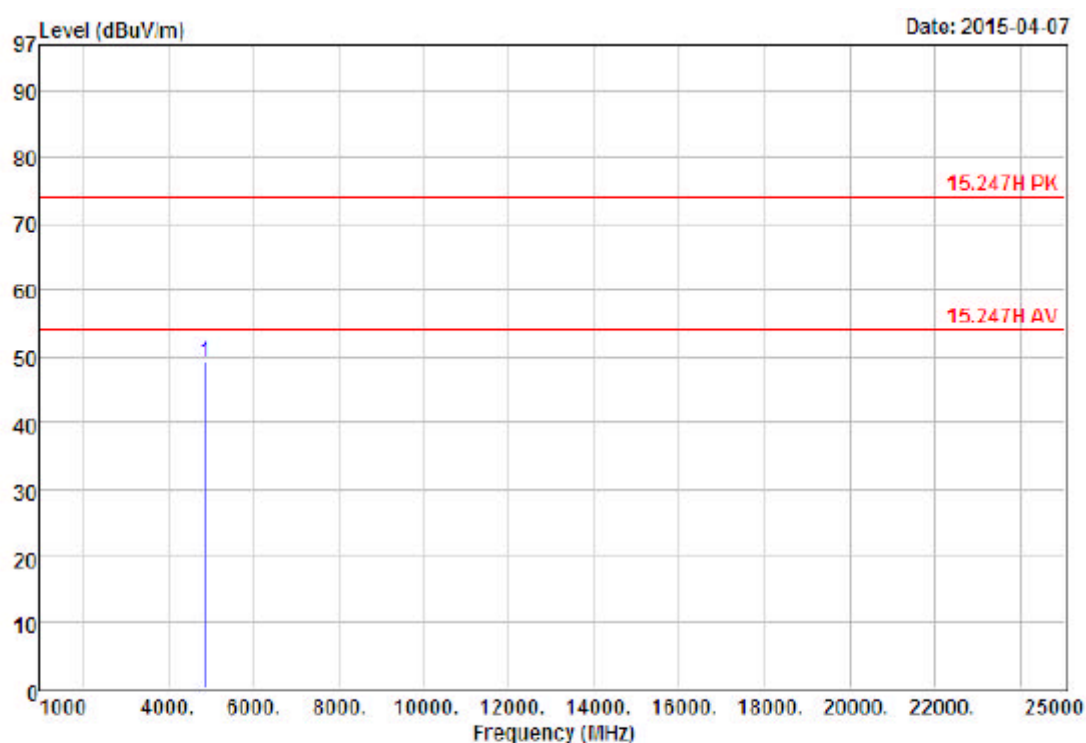
cut : 14010803

mode : Transmit

memo : 802.11g CH6

	Freq	Read Level	Level Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4874.15	57.41	50.25	-7.16	-23.75	74.00 Peak

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 2	: 802.11g, CH6	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL

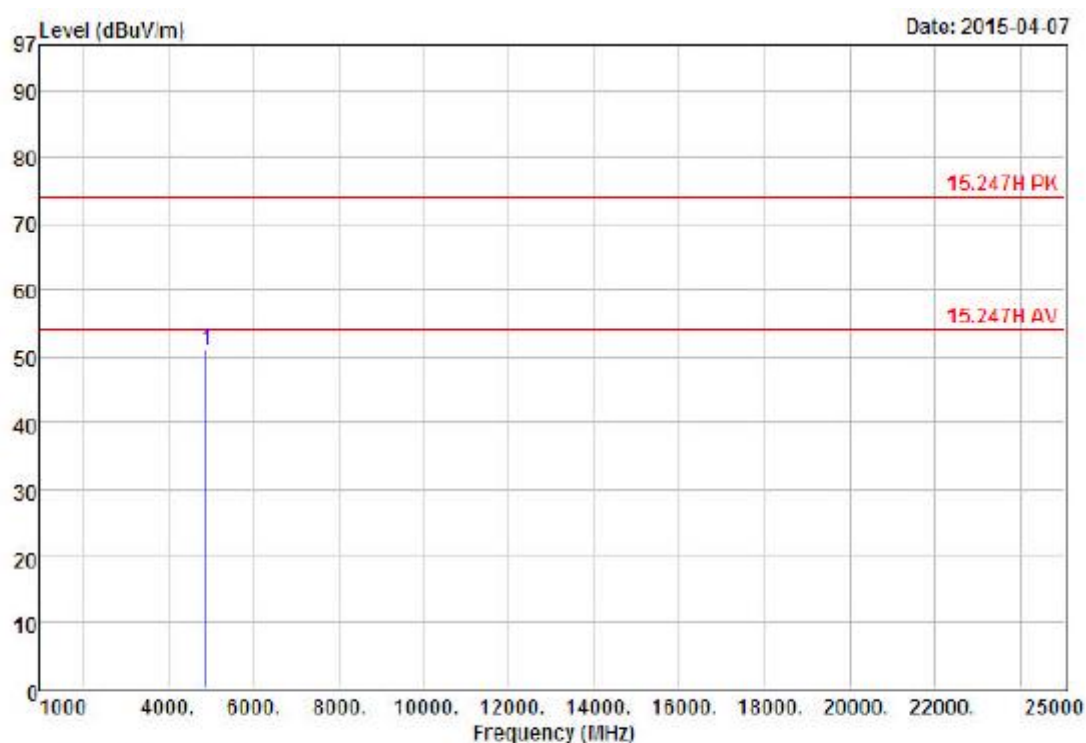
ent : 14010803

mode : Transmit

memo : 802.11g CH6

	Freq	Read Level	Level Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4874.23	56.37	49.21	-7.16	-24.79	74.00 Peak

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 2	: 802.11g, CH11	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 VERTICAL

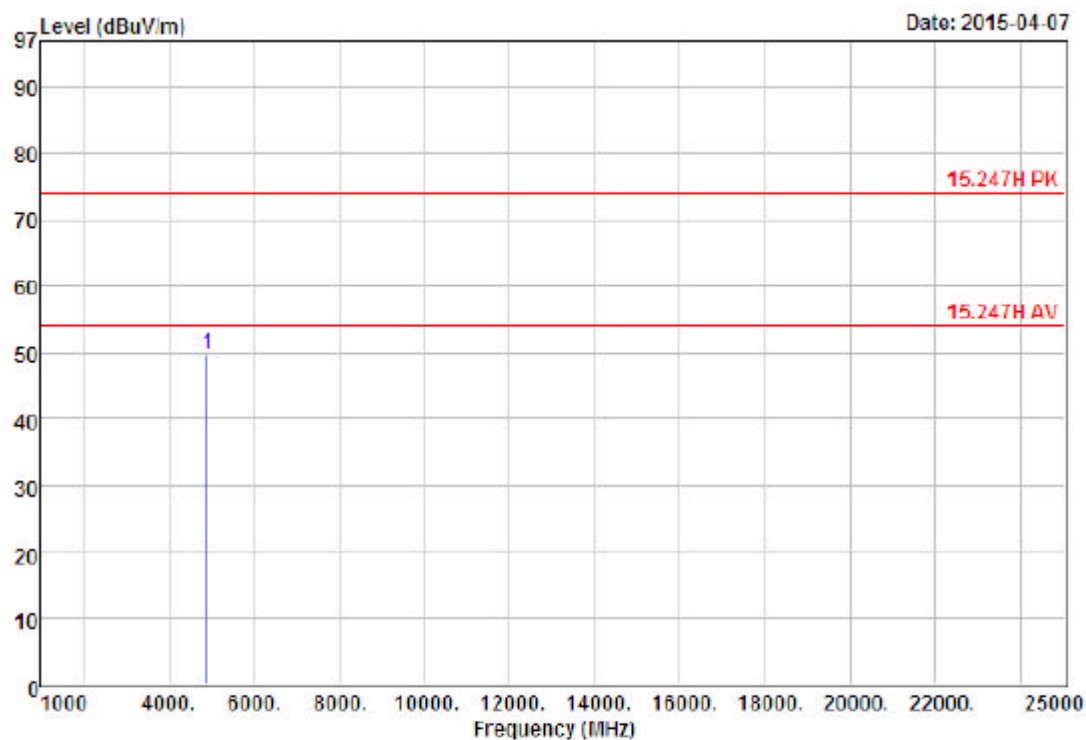
cut : 14010803

mode : Transmit

memo : 802.11g CH11

	Freq	Read Level	Level Factor	Over Limit	Limit	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4924.14	57.83	50.91	-6.92	-23.09	74.00 Peak

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 2	: 802.11g, CH11	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL

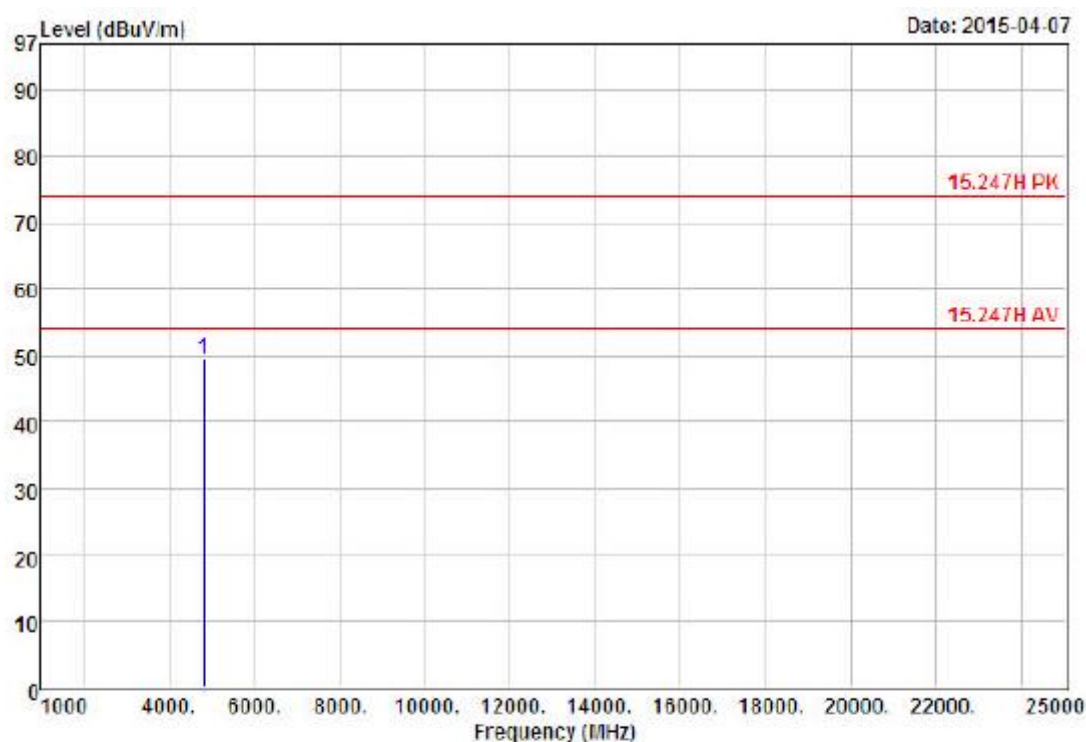
cut : 14010803

mode : Transmit

memo : 802.11g CH11

	Freq	Read Level	Level Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4924.08	56.62	49.70	-6.92	-24.30	74.00 Peak

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 3	: 802.11n HT20, CH1	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 VERTICAL

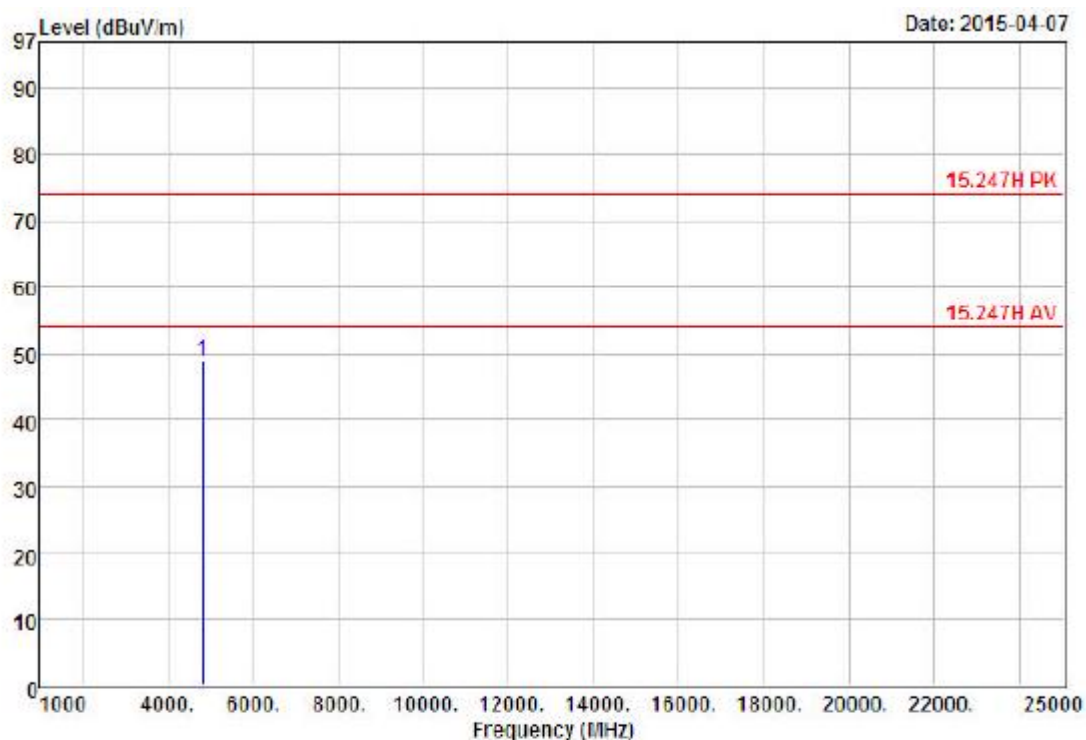
ent : 14010803

mode : Transmit

memo : 802.11n HT20 CH1

	Freq	Read Level	Level Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4824.17	56.73	49.32	-7.41	-24.68	74.00 Peak

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 3	: 802.11n HT20, CH1	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL

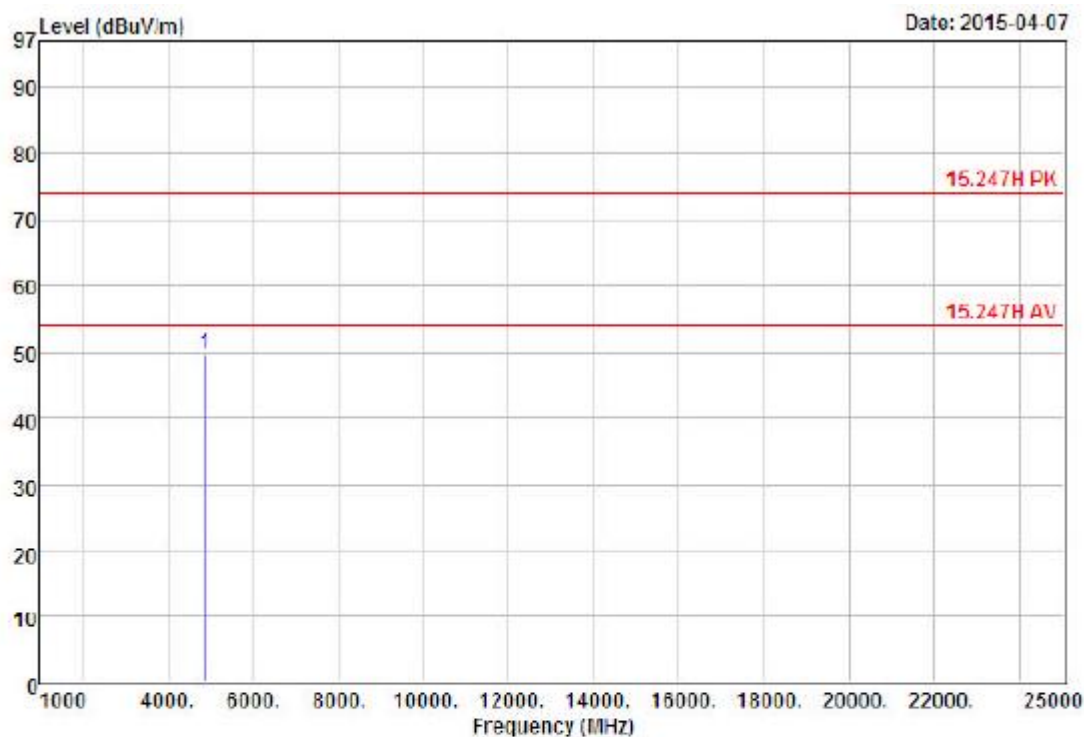
cut : 14010803

mode : Transmit

memo : 802.11n HT20 CH1

	Freq	Read Level	Level Factor	Over Limit	Limit	Line Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4824.10	56.43	49.02	-7.41	-24.98	74.00 Peak

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 3	: 802.11n HT20, CH6	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 VERTICAL

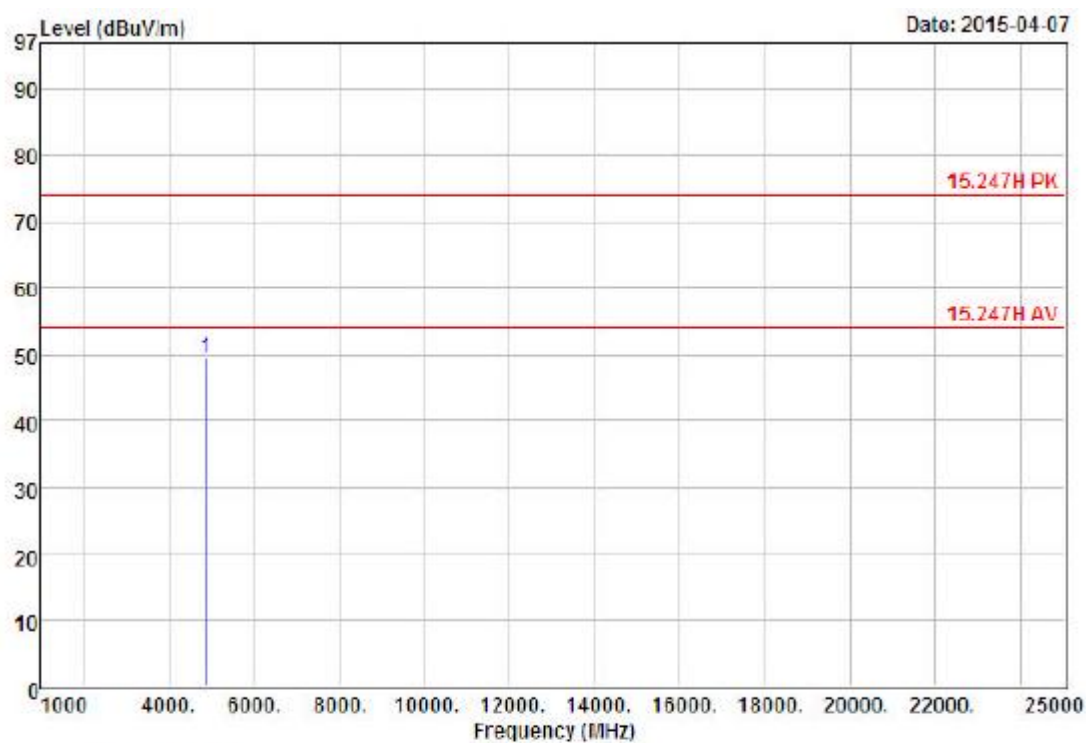
cut : 14010803

mode : Transmit

memo : 802.11n HT20 CH6

	Freq	Read Level	Level Factor	Over Limit	Limit	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4874.03	56.90	49.74	-7.16	-24.26	74.00 Peak

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 3	: 802.11n HT20, CH6	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL

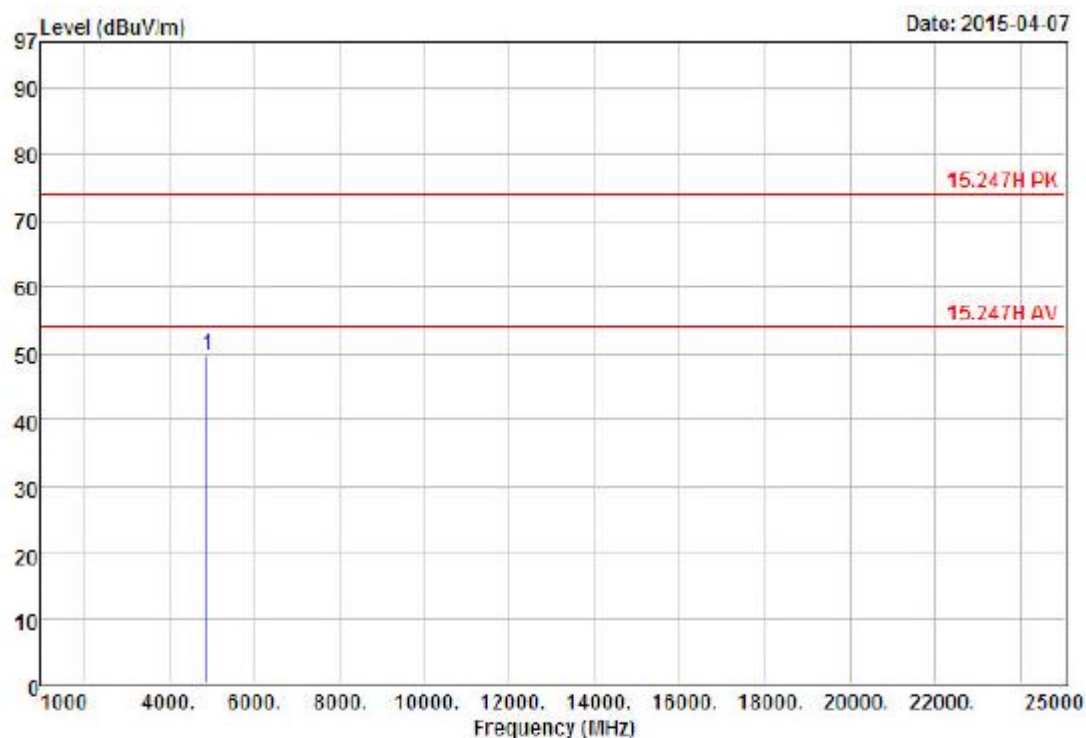
cut : 14010803

mode : Transmit

memo : 802.11n HT20 CH6

	Freq	Read Level	Level Factor	Over Limit	Limit	Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4874.15	56.48	49.32	-7.16	-24.68	74.00	Peak

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 3	: 802.11n HT20, CH11	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 VERTICAL

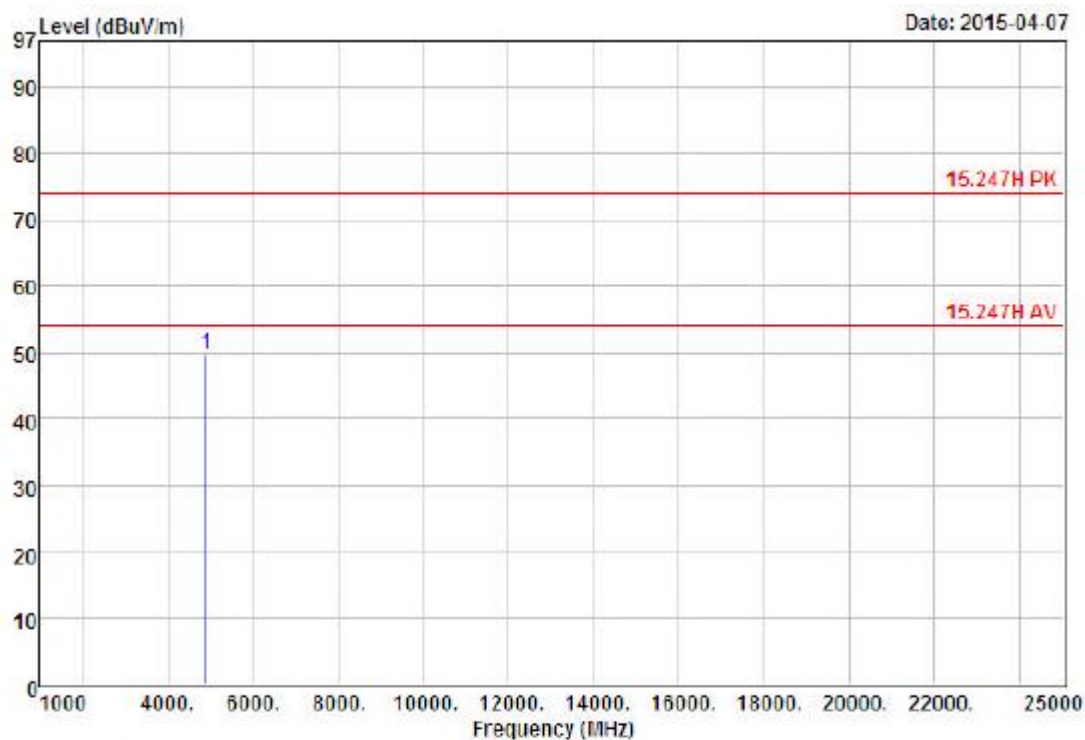
ent : 14010803

mode : Transmit

memo : 802.11n HT20 CH11

	Freq	Read Level	Level Factor	Over Limit	Limit	Line Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4924.11	56.61	49.69	-6.92	-24.31	74.00 Peak

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 3	: 802.11n HT20, CH11	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL

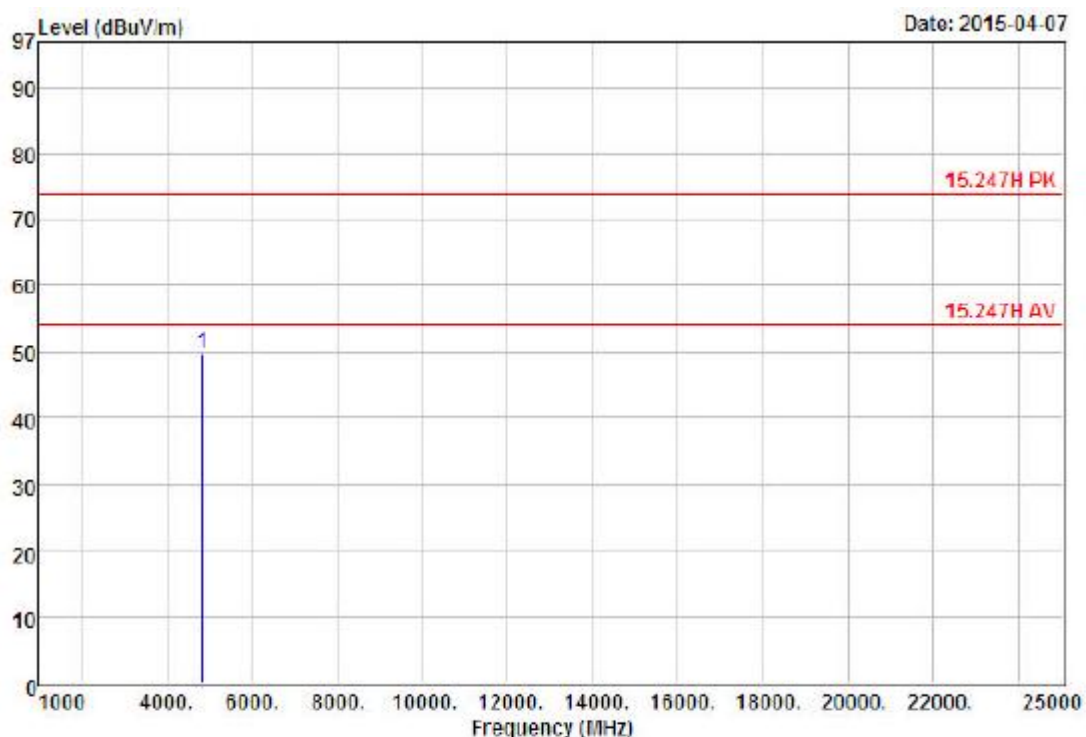
cut : 14010803

mode : Transmit

memo : 802.11n HT20 CH11

	Freq	Read Level	Level Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4924.20	56.57	49.65	-6.92	-24.35	74.00 Peak

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 4	: 802.11n HT40 CH3	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 VERTICAL

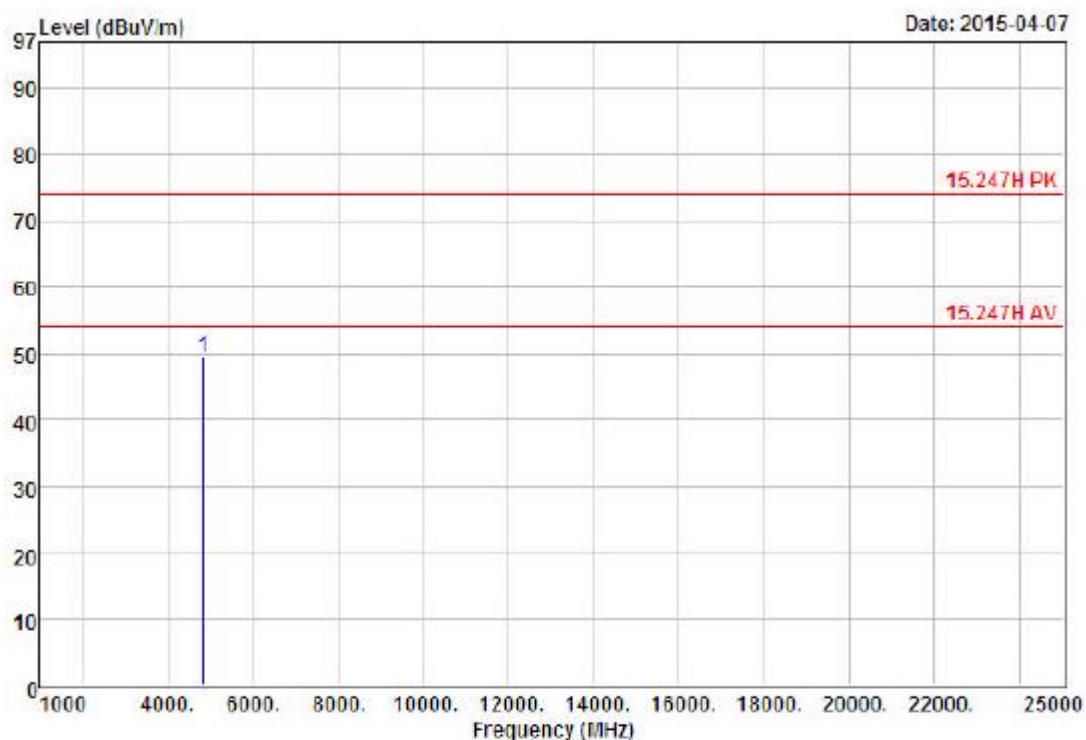
ent : 14010803

mode : Transmit

memo : 802.11n HT40 CH3

	Freq	Read Level	Level Factor	Over Limit	Limit	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4844.22	57.05	49.74	-7.31	-24.26	74.00 Peak

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 4	: 802.11n HT40 CH3	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL

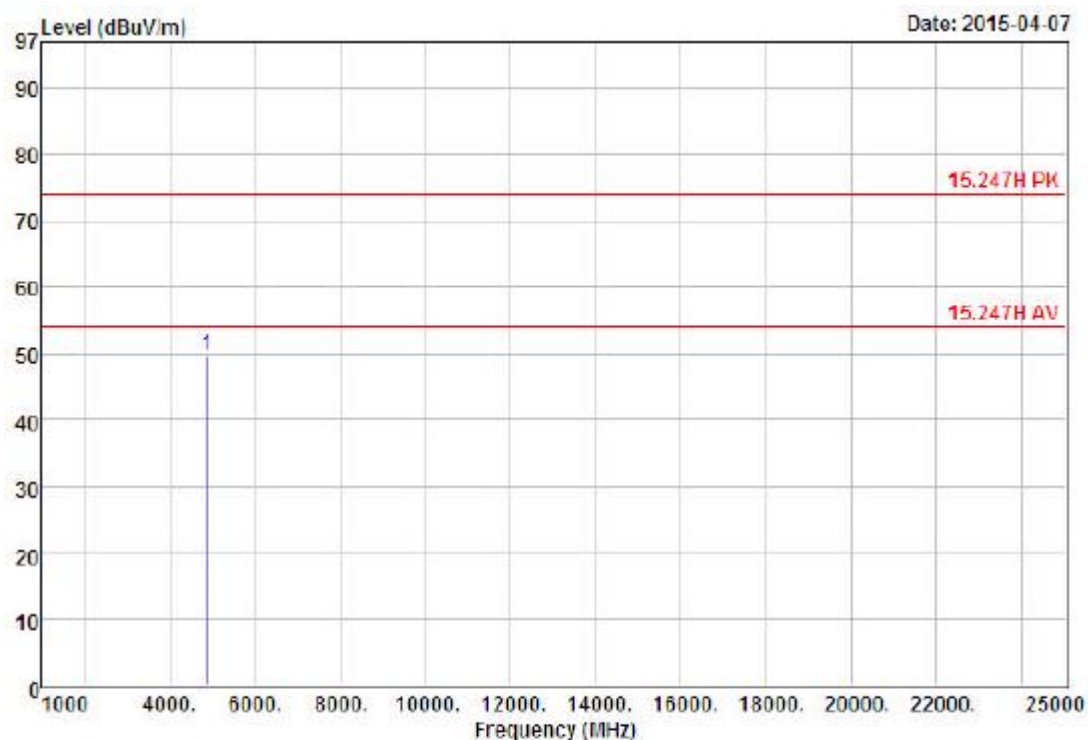
cut : 14010803

mode : Transmit

memo : 802.11n HT40 CH3

	Freq	Read Level	Level Factor	Over Limit	Limit	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4844.07	56.62	49.31	-7.31	-24.69	74.00 Peak

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 4	: 802.11n HT40 CH6	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 VERTICAL

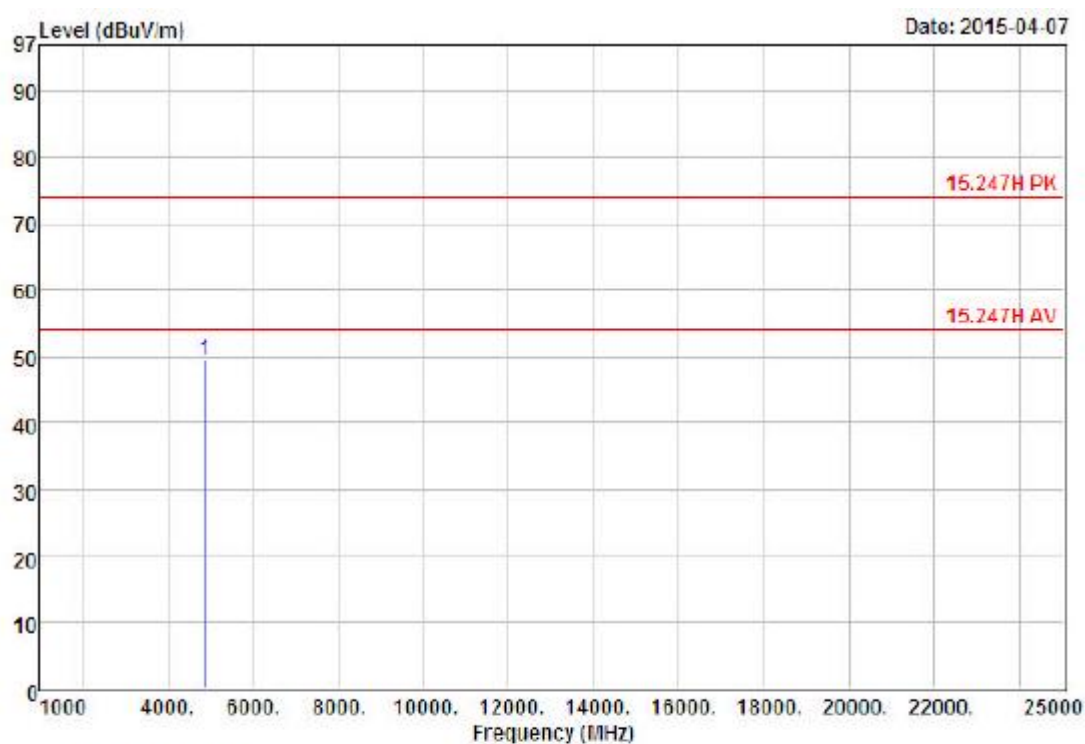
cut : 14010803

mode : Transmit

memo : 802.11n HT40 CH6

	Freq	Read Level	Level Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dBuV/m	
1	4874.15	56.85	49.69	-7.16	-24.31	74.00 Peak

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 4	: 802.11n HT40 CH6	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL

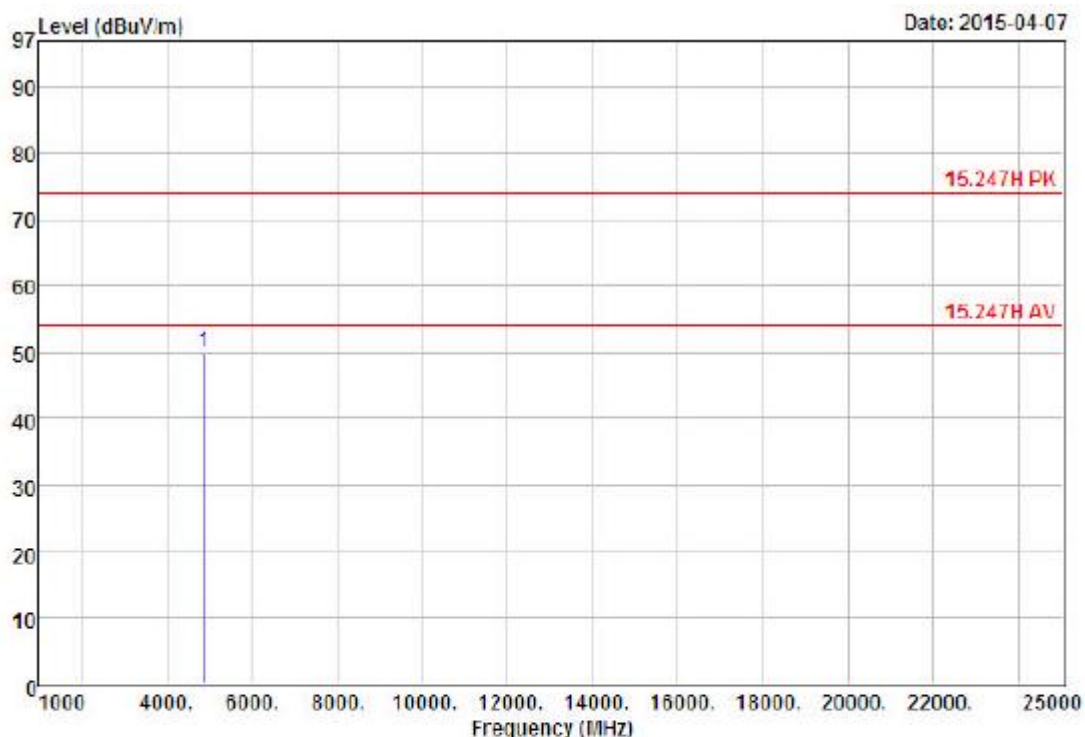
ent : 14010803

mode : Transmit

memo : 802.11n HT40 CH6

	Freq	Read Level	Level Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m
1	4874.25	56.46	49.30	-7.16	-24.70	74.00 Peak

Power	: DC 5V	Pol/Phase	: VERTICAL
Test Mode 4	: 802.11n HT40, CH9	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 VERTICAL

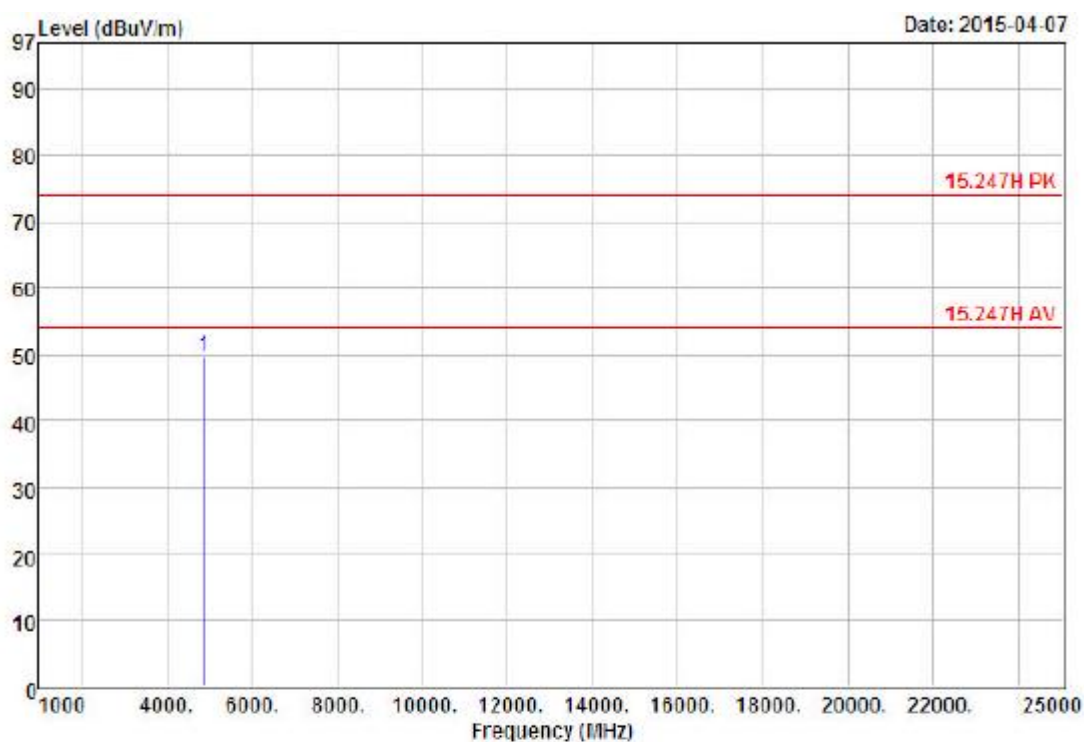
ent : 14010803

mode : Transmit

memo : 802.11n HT40 CH9

		Read			Over	Limit	
	Freq	Level	Level	Factor	Limit	Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4904.27	57.01	50.00	-7.01	-24.00	74.00	Peak

Power	: DC 5V	Pol/Phase	: HORIZONTAL
Test Mode 4	: 802.11n HT40, CH9	Temperature	: 22 °C
Memo	:	Humidity	: 65 %



Site : OPEN SITE

Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL

ent : 14010803

mode : Transmit

memo : 802.11n HT40 CH9

	Freq	Read Level	Level Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dBuV/m	
1	4904.10	56.59	49.58	-7.01	-24.42 74.00	Peak

6.7 Restrict Band Emission Measurement Data

Power	:	DC 5V	Test Date	Apr. 08, 2015
Test Mode	:	Transmit	Temperature	: 22 °C
Memo	:		Humidity	: 65 %

IEEE 802.11b

Channel 1						Fundamental Frequency: 2412 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2389.76	H	85.70	-15.26	70.44	Peak	74	54	-3.56	122	1.0
2389.80	H	65.63	-15.26	50.37	Ave	74	54	-3.63	122	1.0
2389.76	V	65.70	-15.26	50.44	Peak	74	54	-23.56	56	1.0
---	V	---	---	---	Ave	74	54	---	---	---
Channel 11						Fundamental Frequency: 2462 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2488.14	H	65.30	-14.95	50.35	Peak	74	54	-23.65	129	1.0
---	H	---	---	---	Ave	74	54	---	---	---
2483.74	V	63.68	-14.98	48.70	Peak	74	54	-25.30	60	1.0
---	V	---	---	---	Ave	74	54	---	---	---

IEEE 802.11g

Channel 1						Fundamental Frequency: 2412 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2389.15	H	85.70	-15.26	70.44	Peak	74	54	-3.56	120	1.0
2389.80	H	65.69	-15.26	50.43	Ave	74	54	-3.57	120	1.0
2389.56	V	84.59	-15.26	69.33	Peak	74	54	-4.67	56	1.0
2389.80	V	65.60	-15.26	50.34	Ave	74	54	-3.66	56	1.0
Channel 11						Fundamental Frequency: 2462 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2383.74	H	84.04	-14.98	69.06	Peak	74	54	-4.94	128	1.0
2483.51	H	63.63	-14.98	48.65	Ave	74	54	-5.35	128	1.0
2483.81	V	85.23	-14.98	70.25	Peak	74	54	-3.75	60	1.0
2483.51	V	64.48	-14.98	49.50	Ave	74	54	-4.50	60	1.0

IEEE 802.11n HT20

Channel 1						Fundamental Frequency: 2412 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2389.97	H	85.40	-15.26	70.14	Peak	74	54	-3.86	120	1.0
2389.80	H	64.46	-15.26	49.20	Ave	74	54	-4.80	120	1.0
2388.54	V	85.34	-15.26	70.08	Peak	74	54	-3.92	56	1.0
2389.80	V	63.71	-15.26	48.45	Ave	74	54	-5.55	56	1.0
Channel 11						Fundamental Frequency: 2462 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2483.96	H	85.37	-14.98	70.39	Peak	74	54	-3.61	128	1.0
2483.51	H	64.79	-14.98	49.81	Ave	74	54	-4.19	128	1.0
2483.66	V	84.43	-14.98	69.45	Peak	74	54	-4.55	60	1.0
2483.51	V	63.88	-14.98	48.90	Ave	74	54	-5.10	60	1.0

IEEE 802.11n HT40

Channel 3						Fundamental Frequency: 2422 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2388.54	H	84.67	-15.26	69.41	Peak	74	54	-4.59	125	1.0
2389.80	H	66.14	-15.26	50.88	Ave	74	54	-3.12	125	1.0
2384.66	V	83.84	-15.27	68.57	Peak	74	54	-5.43	55	1.0
2389.80	V	65.72	-15.26	50.46	Ave	74	54	-3.54	55	1.0
Channel 9						Fundamental Frequency: 2452 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2484.95	H	84.98	-14.97	70.01	Peak	74	54	-3.99	128	1.0
2483.51	H	65.29	-14.98	50.31	Ave	74	54	-3.69	128	1.0
2488.22	V	83.99	-14.95	69.04	Peak	74	54	-4.96	61	1.0
2483.51	V	64.74	-14.98	49.76	Ave	74	54	-4.24	61	1.0

Note:

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, Pre-Amp, etc.

3. All emissions as described above were determining by rotating the EUT through three orthogonal axes to maximizing the emissions if the EUT belongs to hand-held or body-worn devices.
4. Measurements above 1000 MHz, Peak detector setting:
1 MHz RBW with 1 MHz VBW (Peak Detector).
5. Measurements above 1000 MHz, Average detector setting:
1 MHz RBW with 1 MHz VBW (RMS Detector).
6. Peak detector measurement data will represent the worst case results.
7. Where limits are specified for both average and peak detector functions, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.

7. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.150
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

7.1 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.