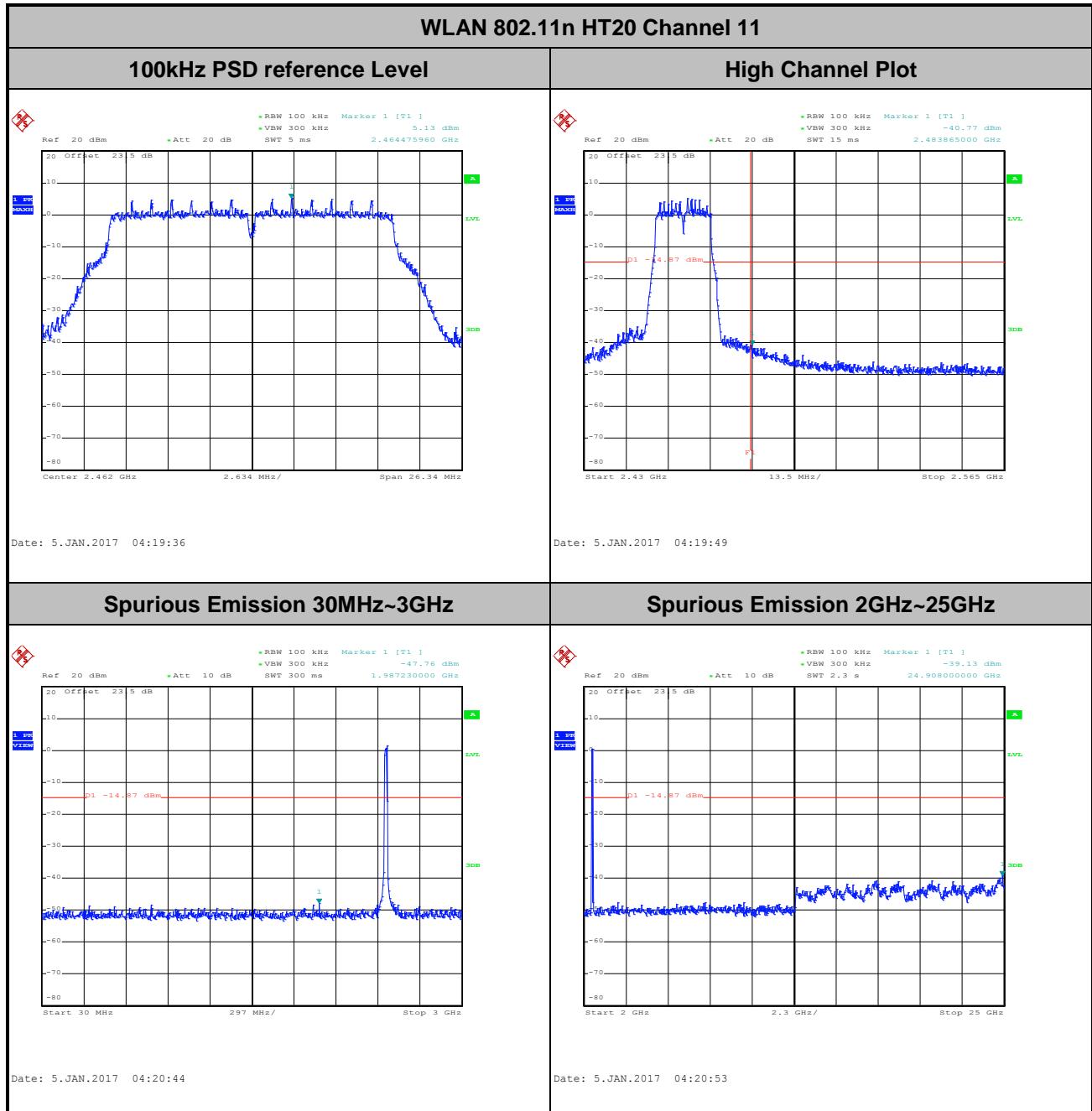


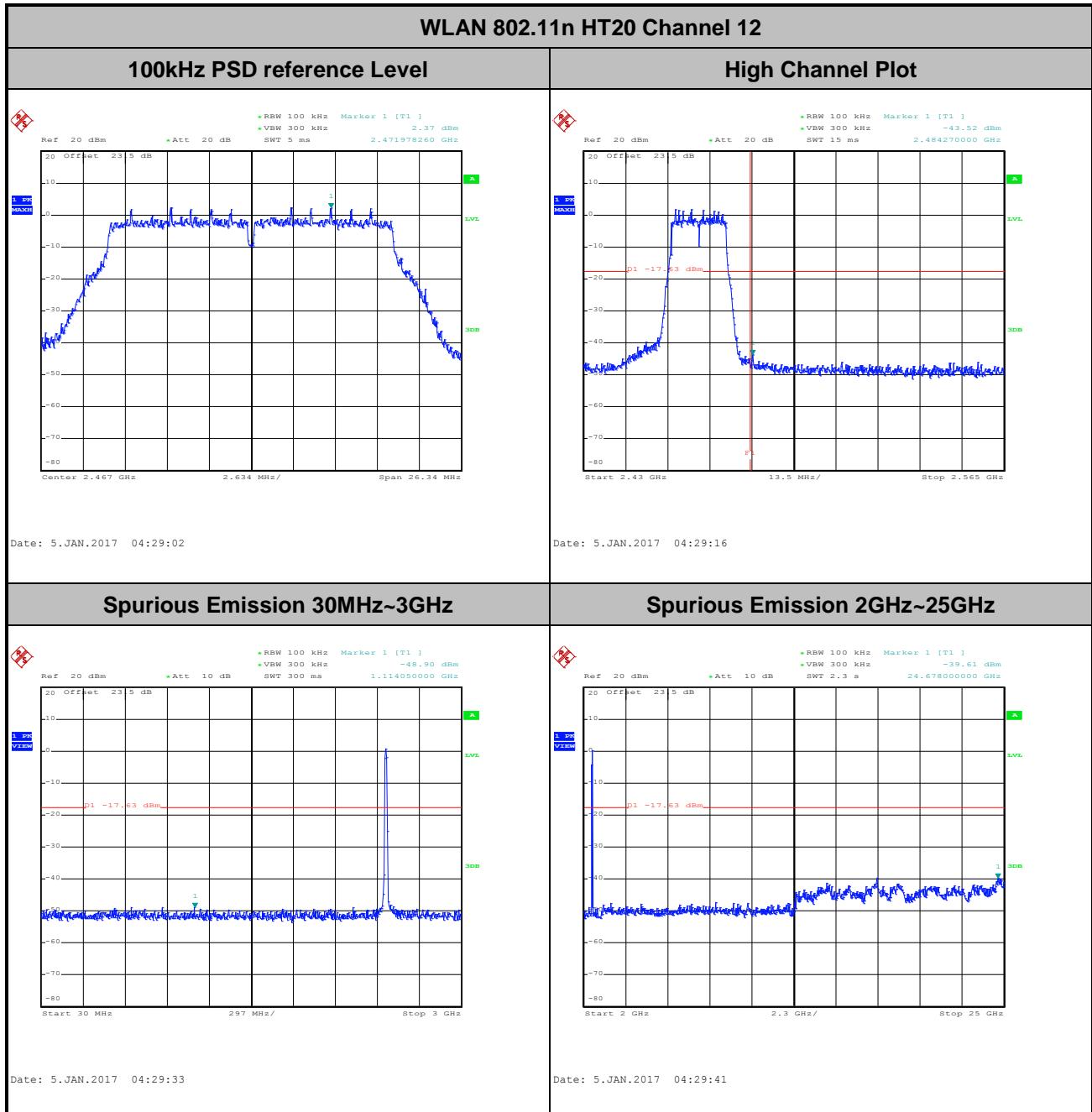


Number of TX :	2	Ant. :	0b
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu



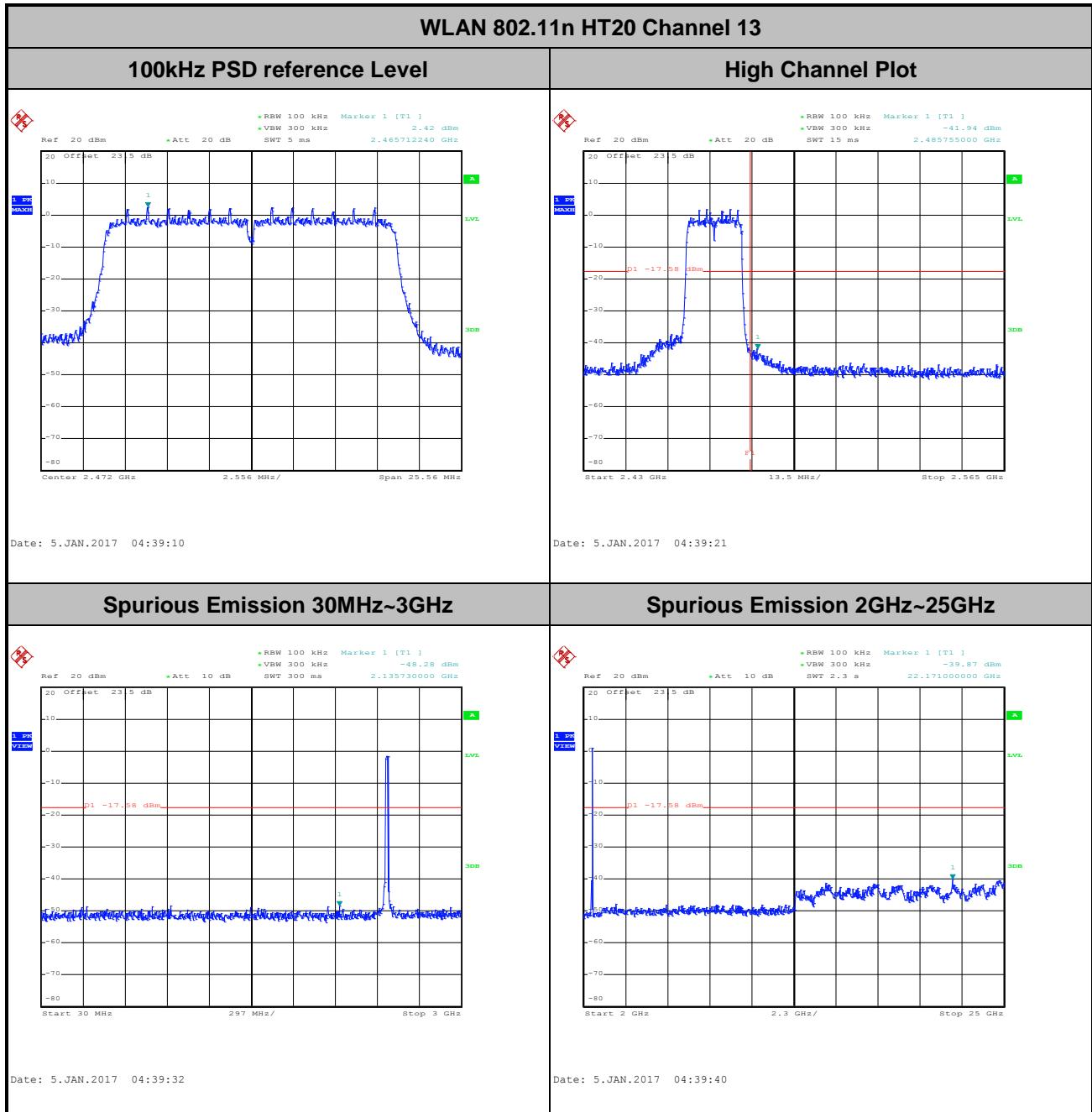


Number of TX :	2	Ant. :	0b
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	12	Test Engineer :	Derek Hsu





Number of TX :	2	Ant. :	0b
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	13	Test Engineer :	Derek Hsu

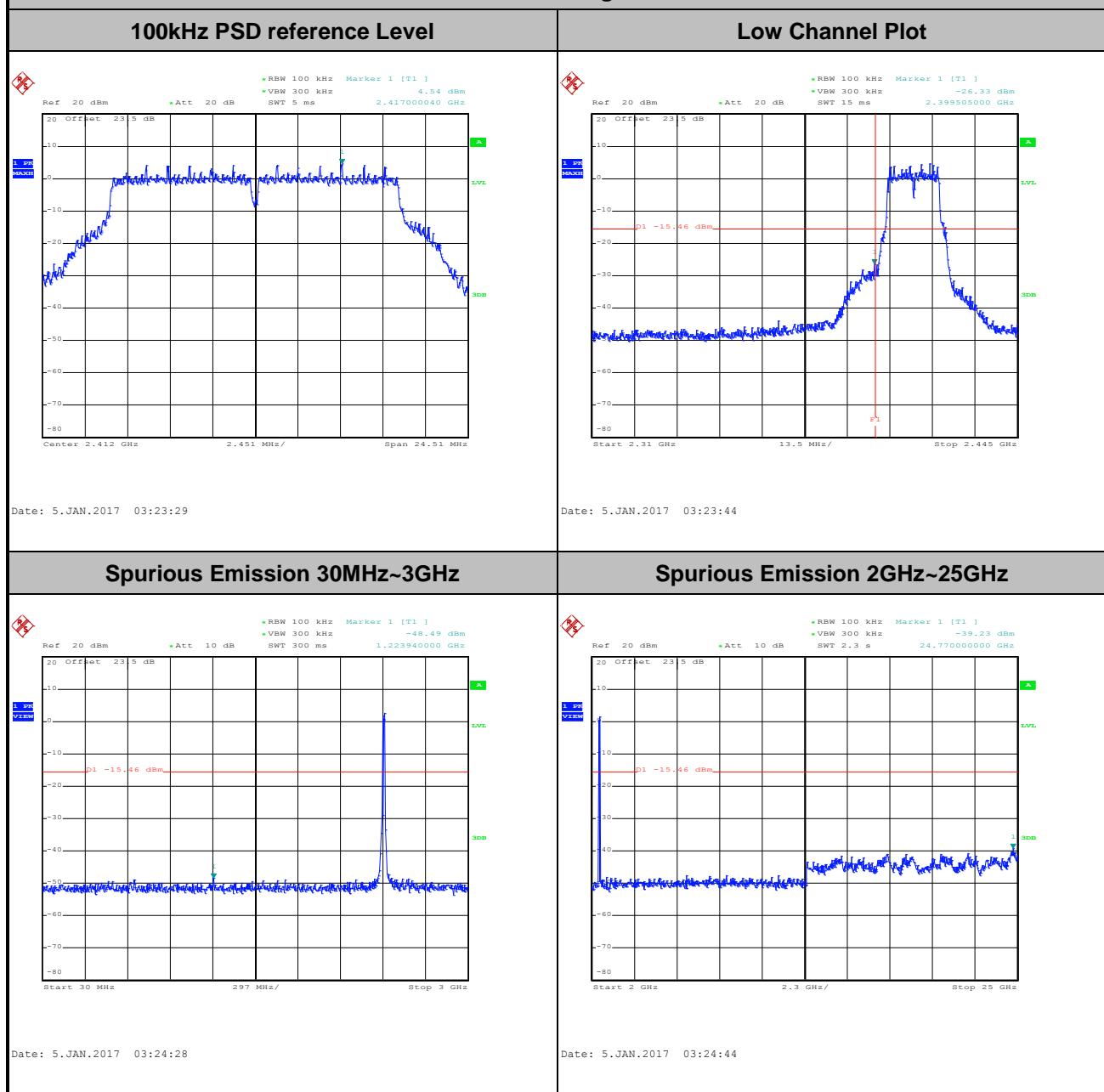




<MIMO Ant. 0b+1a(1a)>

Number of TX :	2	Ant. :	1a
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu

WLAN 802.11g Channel 01

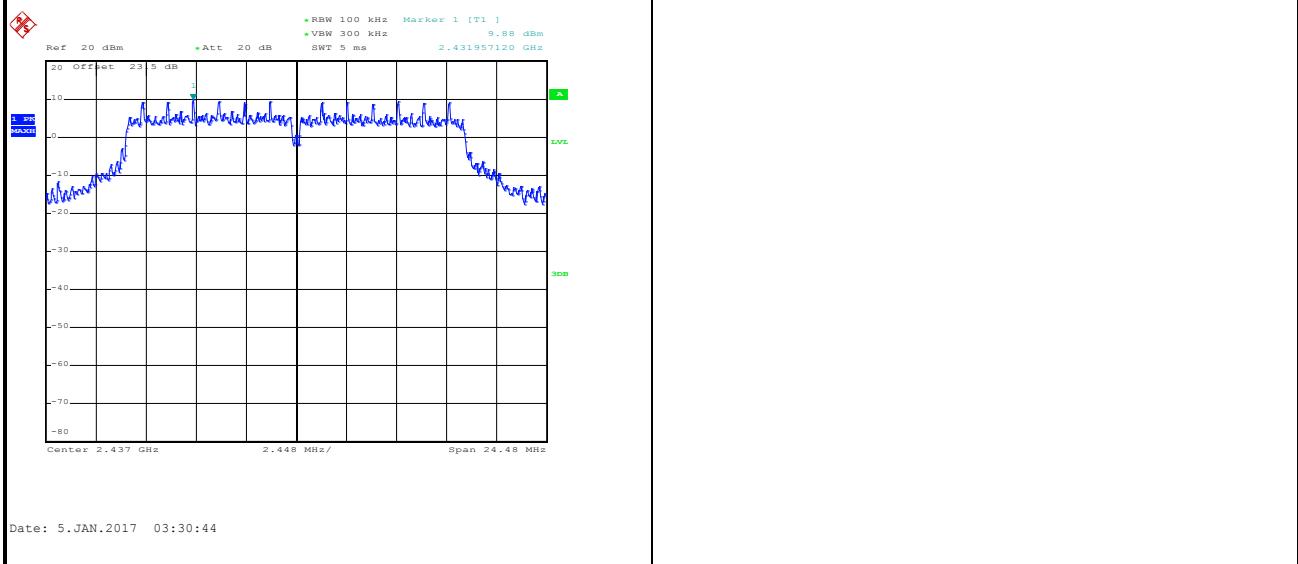




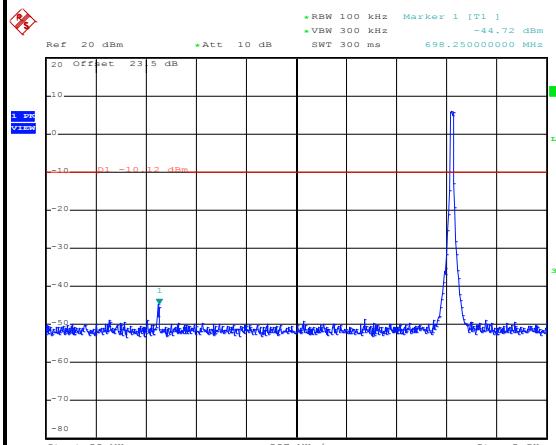
Number of TX :	2	Ant. :	1a
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

WLAN 802.11g Channel 06

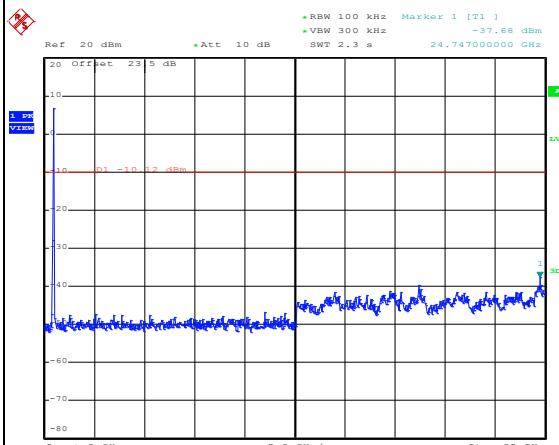
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

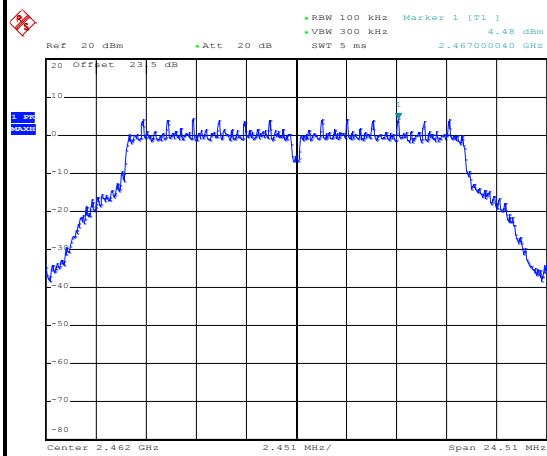




Number of TX :	2	Ant. :	1a
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

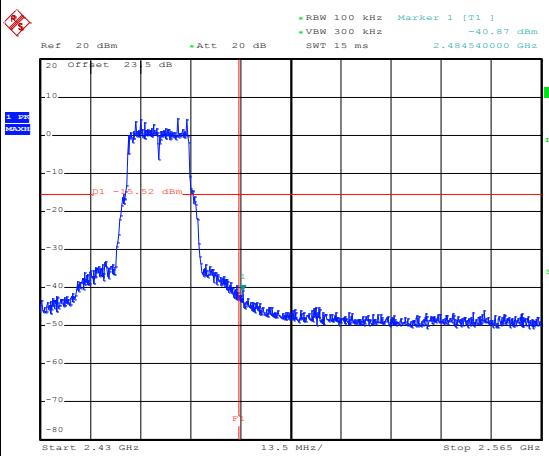
WLAN 802.11g Channel 11

100kHz PSD reference Level



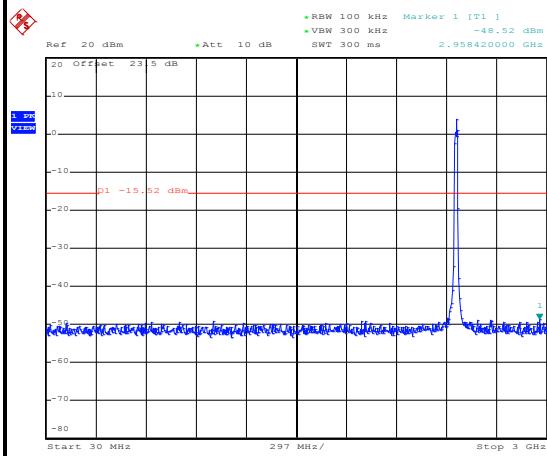
Date: 5.JAN.2017 03:36:25

High Channel Plot



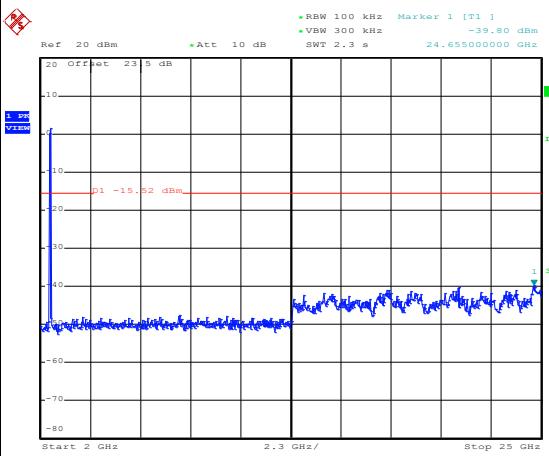
Date: 5.JAN.2017 03:36:36

Spurious Emission 30MHz~3GHz



Date: 5.JAN.2017 03:36:47

Spurious Emission 2GHz~25GHz



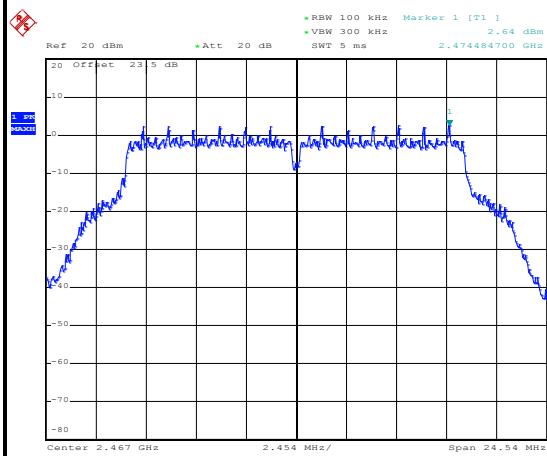
Date: 5.JAN.2017 03:36:55



Number of TX :	2	Ant. :	1a
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	12	Test Engineer :	Derek Hsu

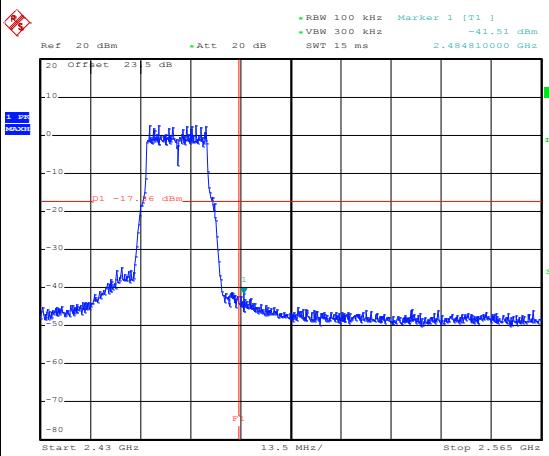
WLAN 802.11g Channel 12

100kHz PSD reference Level



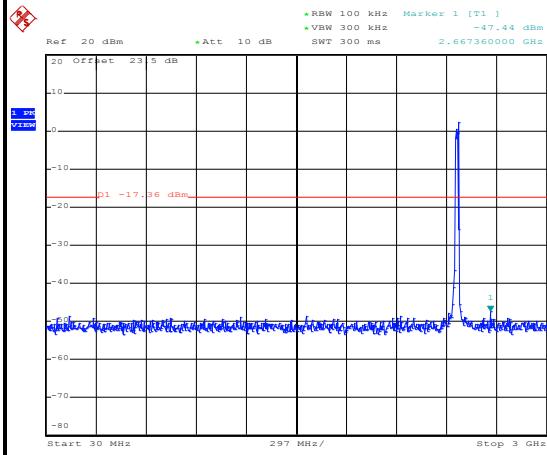
Date: 5.JAN.2017 03:43:08

High Channel Plot



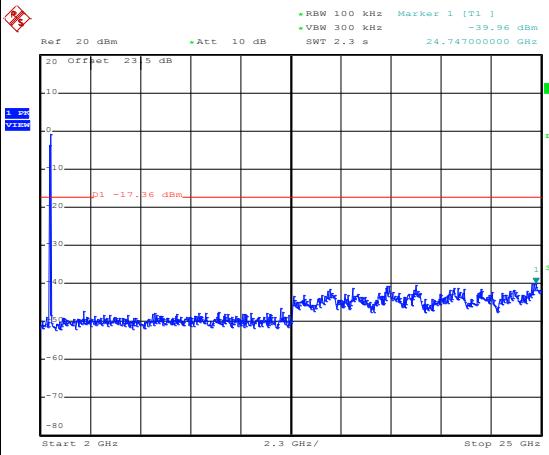
Date: 5.JAN.2017 03:43:27

Spurious Emission 30MHz~3GHz



Date: 5.JAN.2017 03:46:14

Spurious Emission 2GHz~25GHz



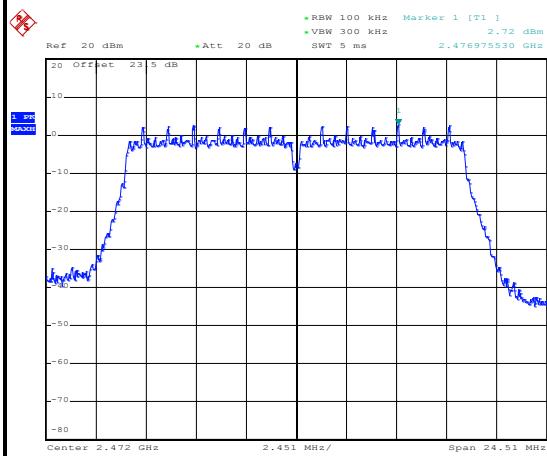
Date: 5.JAN.2017 03:46:23



Number of TX :	2	Ant. :	1a
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	13	Test Engineer :	Derek Hsu

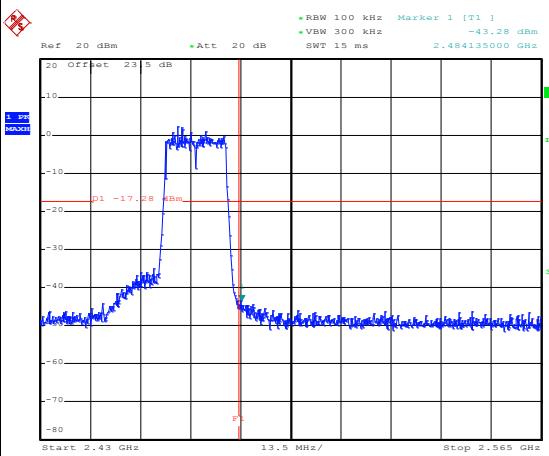
WLAN 802.11g Channel 13

100kHz PSD reference Level



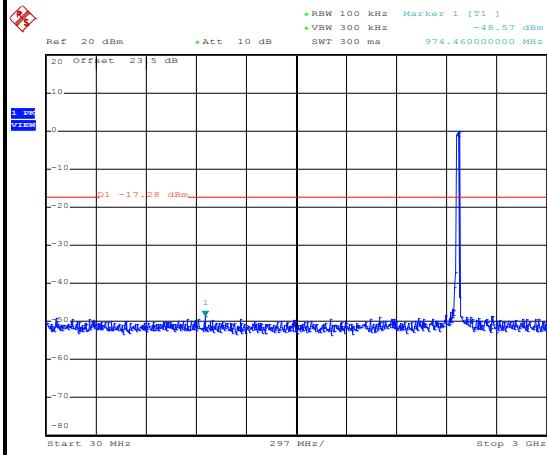
Date: 5.JAN.2017 03:54:27

High Channel Plot



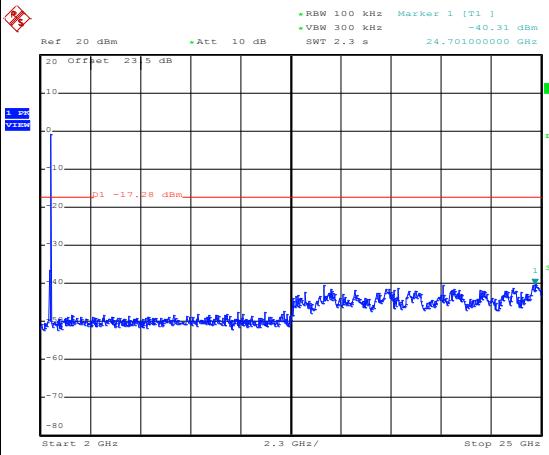
Date: 5.JAN.2017 03:54:42

Spurious Emission 30MHz~3GHz



Date: 5.JAN.2017 03:54:53

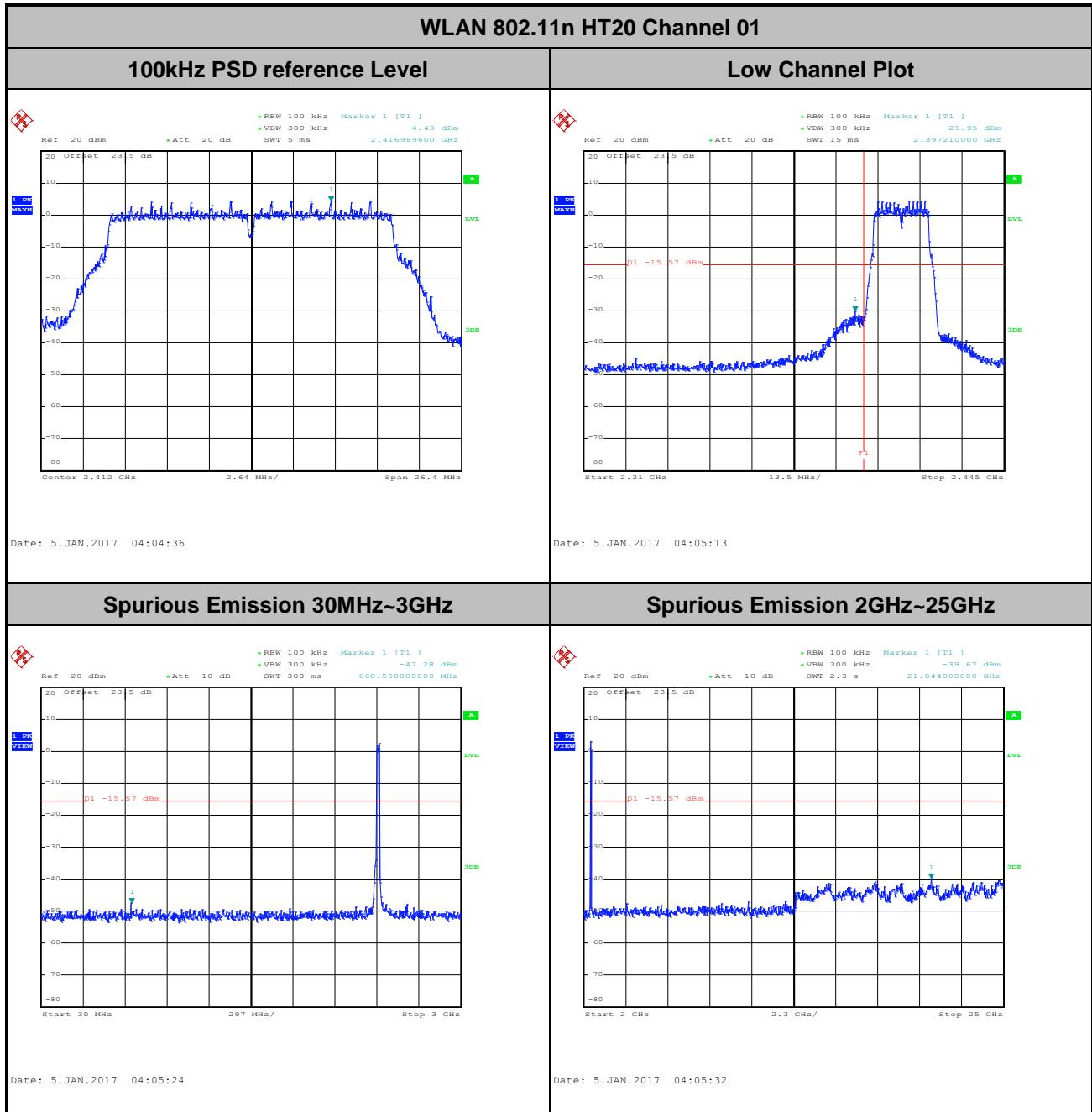
Spurious Emission 2GHz~25GHz



Date: 5.JAN.2017 03:55:02

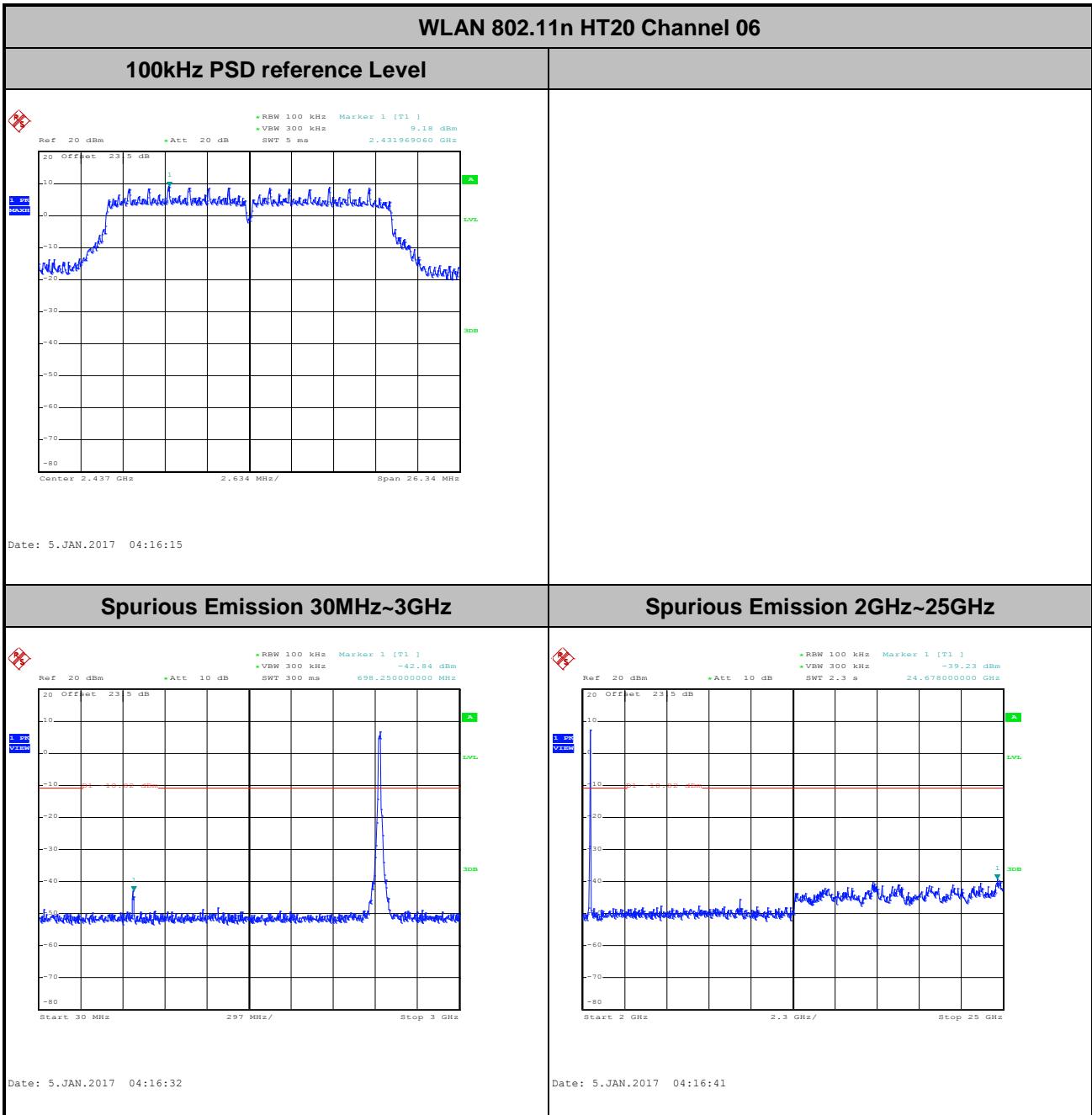


Number of TX :	2	Ant. :	1a
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu



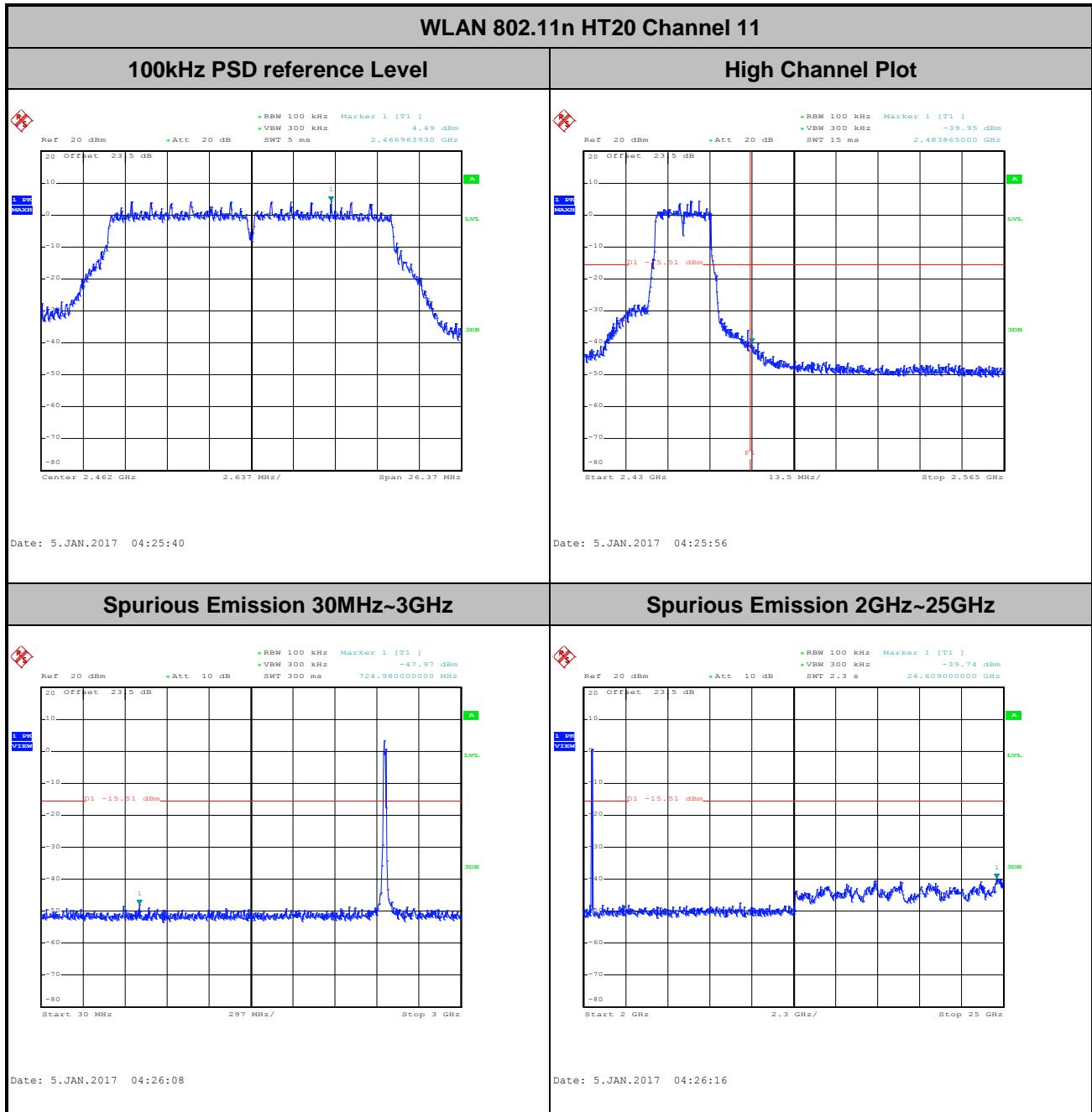


Number of TX :	2	Ant. :	1a
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu



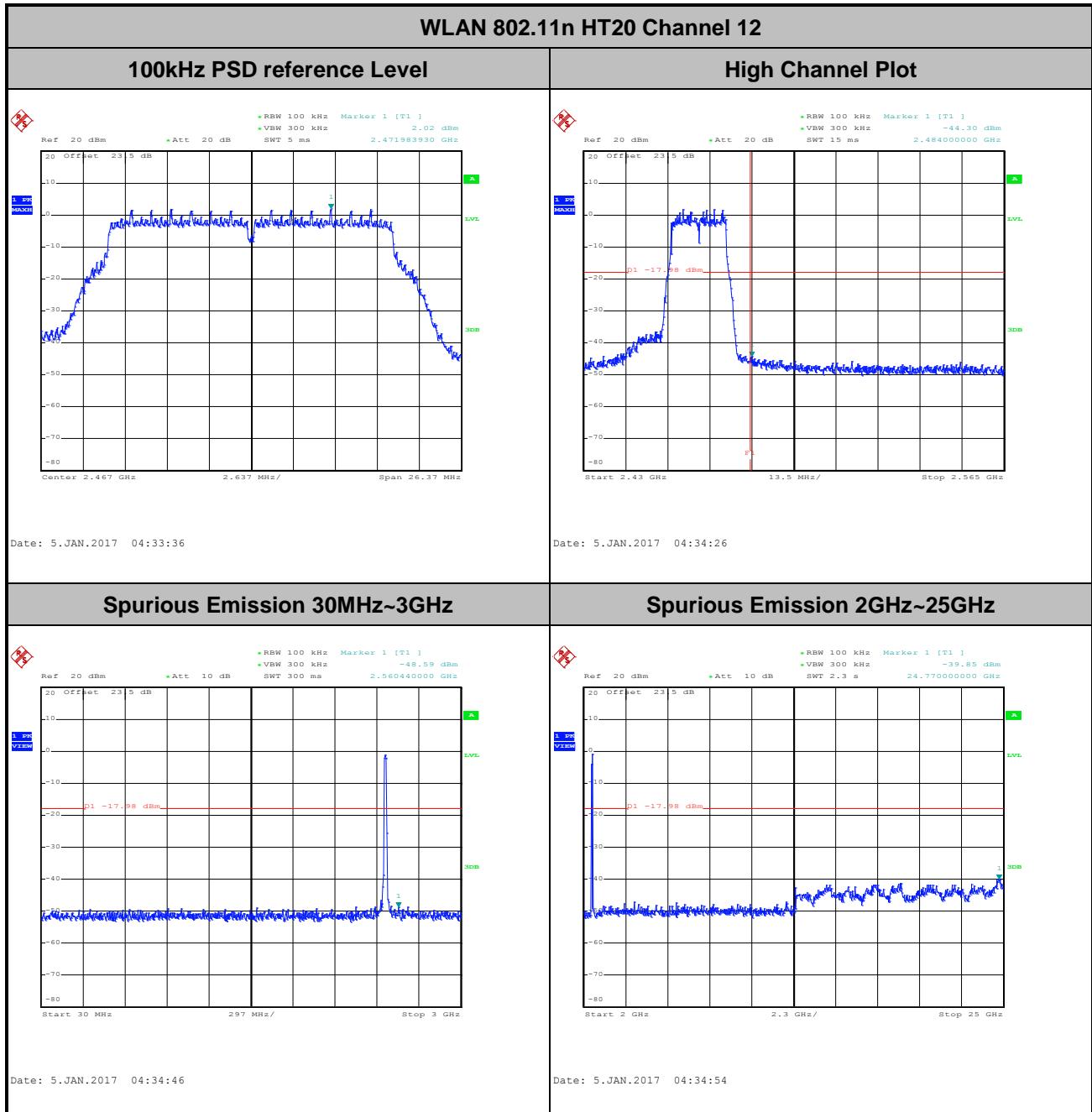


Number of TX :	2	Ant. :	1a
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu



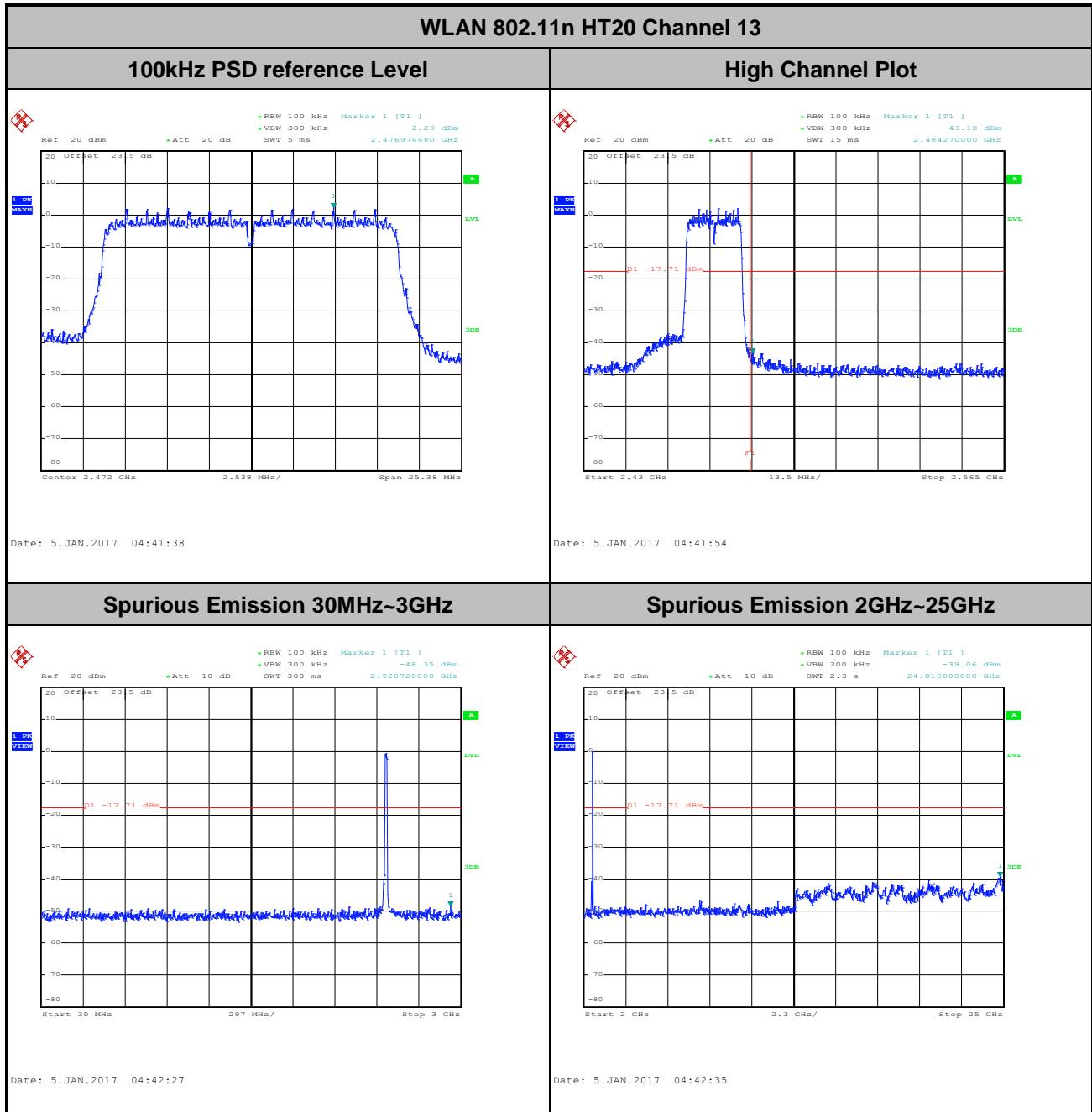


Number of TX :	2	Ant. :	1a
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	12	Test Engineer :	Derek Hsu





Number of TX :	2	Ant. :	1a
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	13	Test Engineer :	Derek Hsu

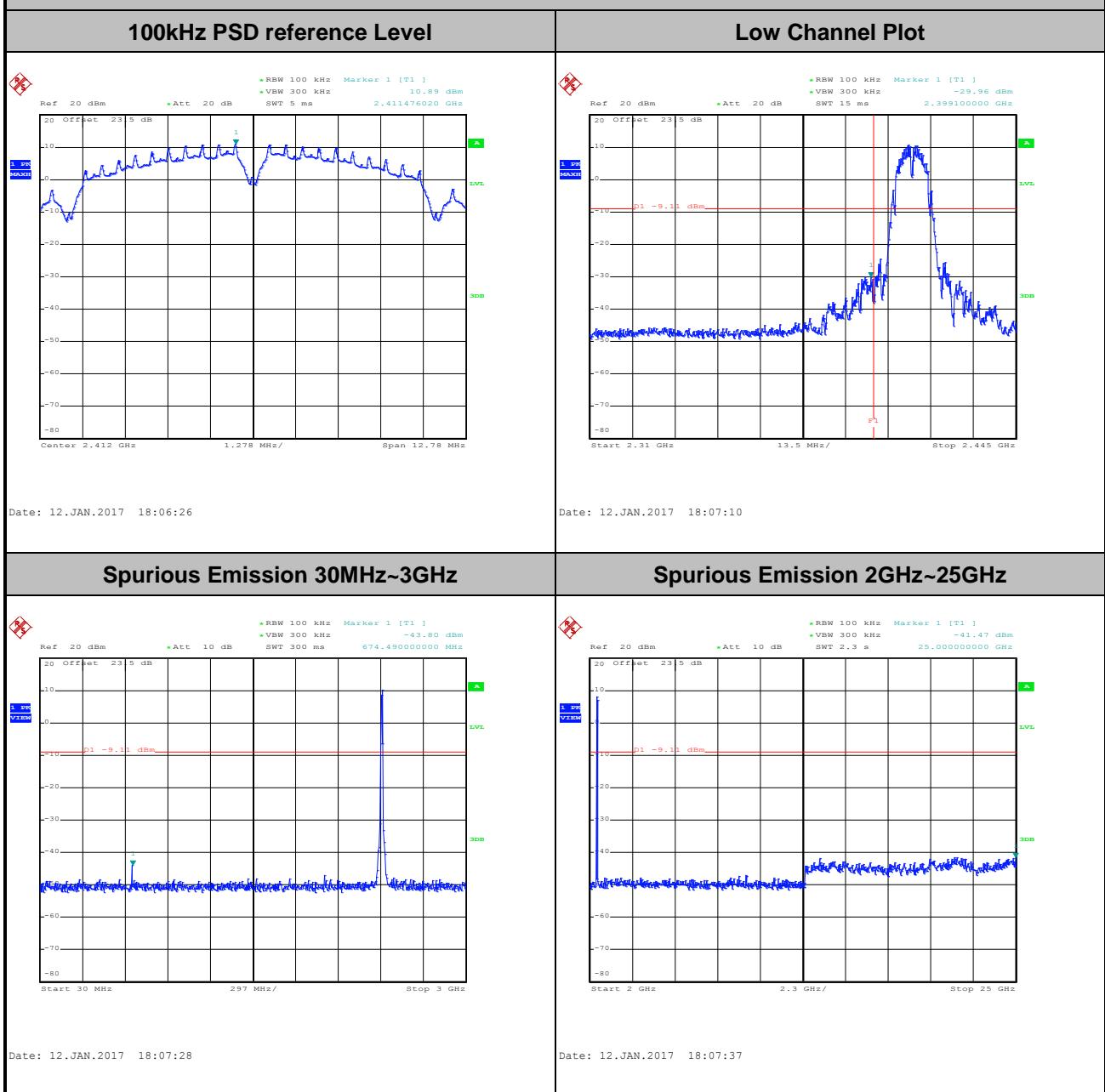




<Ant. 1b>

Number of TX	1	Ant. :	1b
Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu

WLAN 802.11b Channel 01

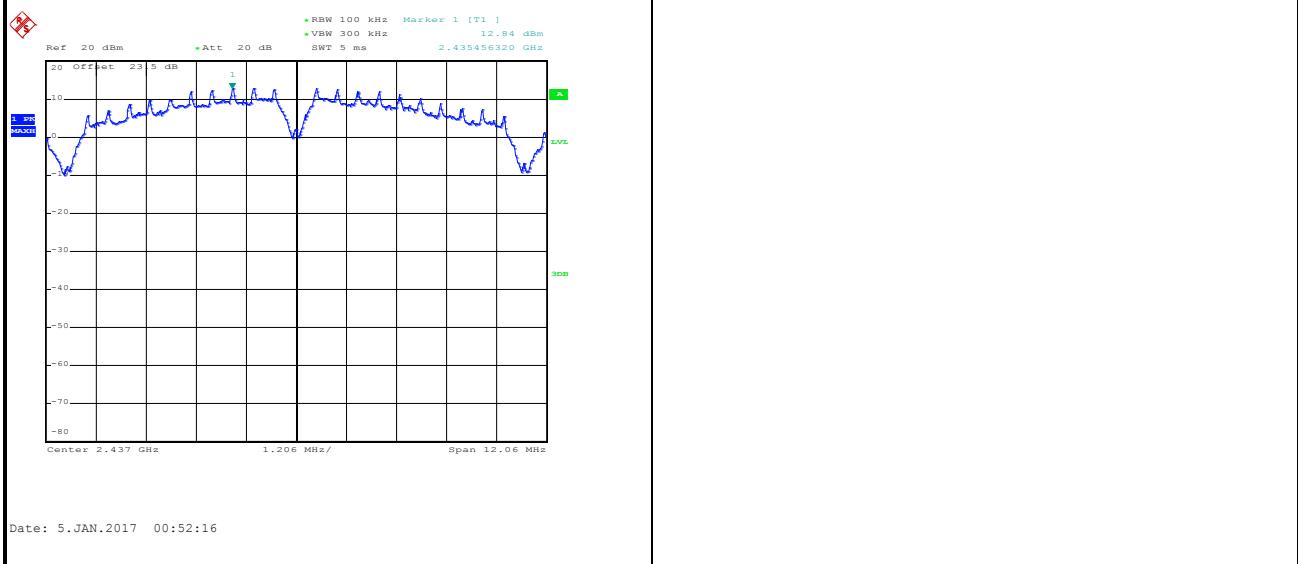




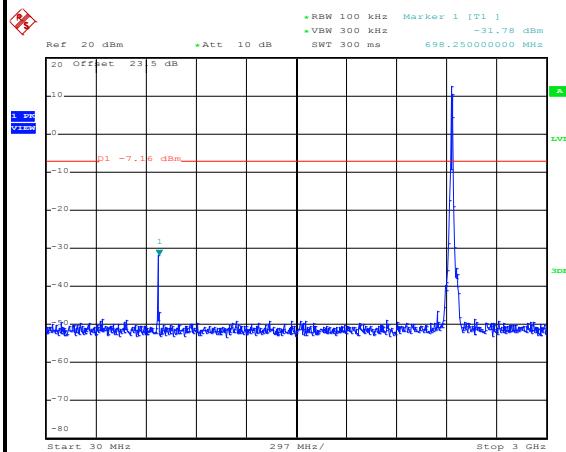
Number of TX :	1	Ant. :	1b
Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

WLAN 802.11b Channel 06

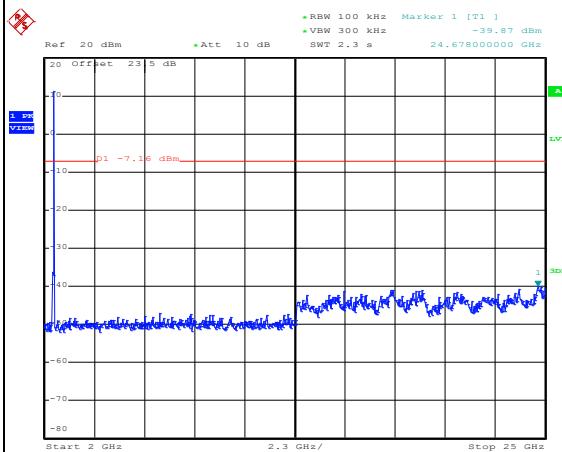
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

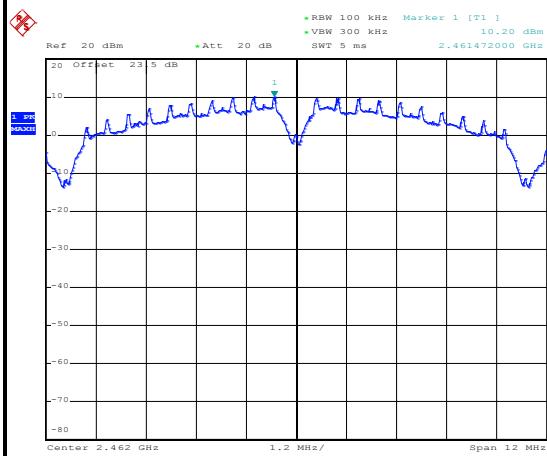




Number of TX :	1	Ant. :	1b
Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

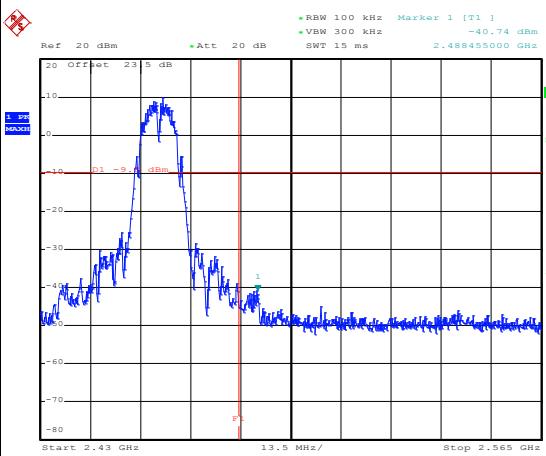
WLAN 802.11b Channel 11

100kHz PSD reference Level



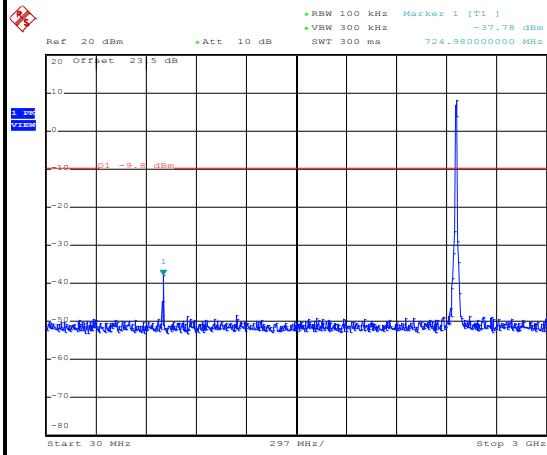
Date: 5.JAN.2017 00:54:33

High Channel Plot



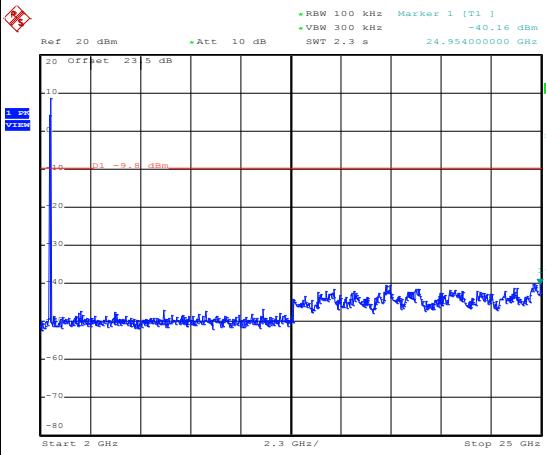
Date: 5.JAN.2017 00:55:08

Spurious Emission 30MHz~3GHz



Date: 5.JAN.2017 00:55:23

Spurious Emission 2GHz~25GHz



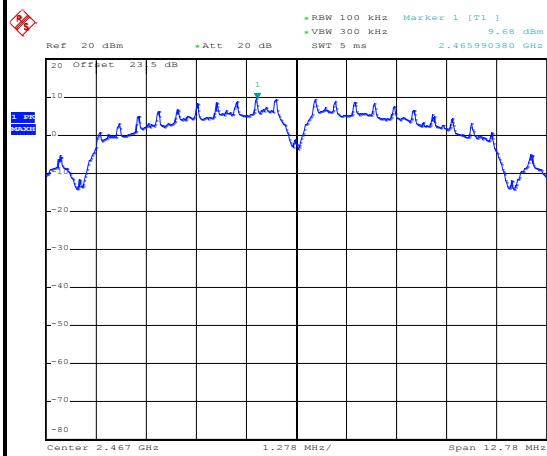
Date: 5.JAN.2017 00:55:32



Number of TX :	1	Ant. :	1b
Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	12	Test Engineer :	Derek Hsu

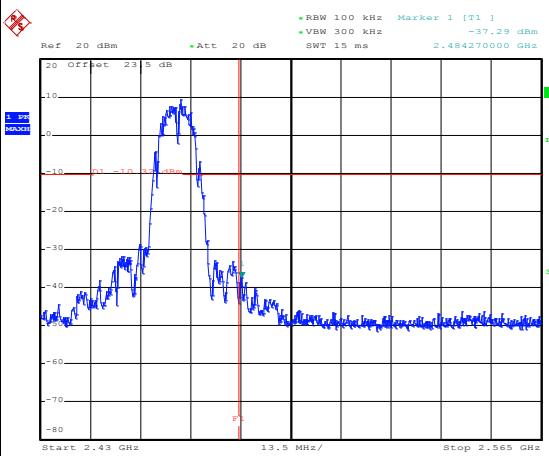
WLAN 802.11b Channel 12

100kHz PSD reference Level



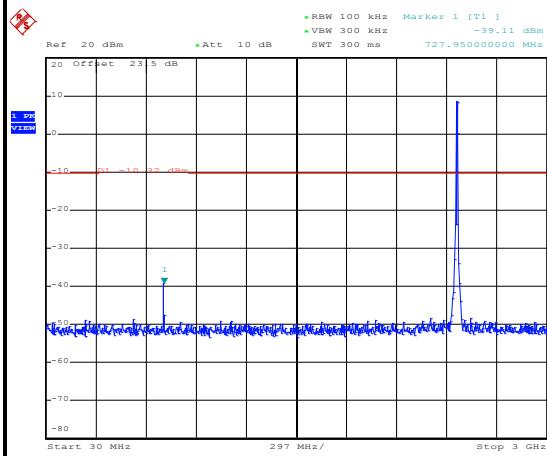
Date: 5.JAN.2017 00:57:15

High Channel Plot



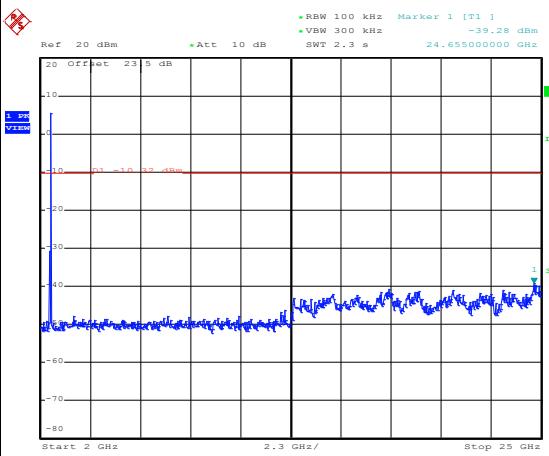
Date: 5.JAN.2017 00:57:28

Spurious Emission 30MHz~3GHz



Date: 5.JAN.2017 00:57:53

Spurious Emission 2GHz~25GHz



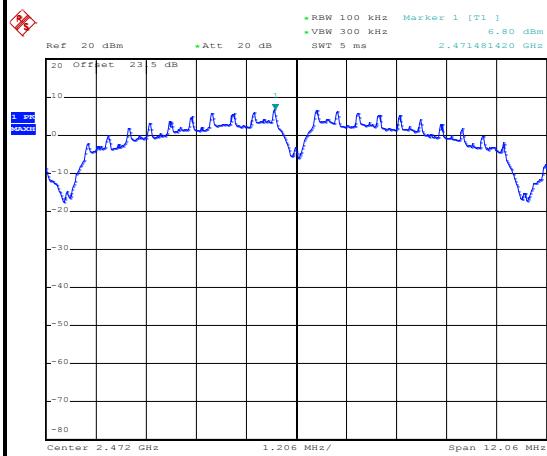
Date: 5.JAN.2017 00:58:01



Number of TX :	1	Ant. :	1b
Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	13	Test Engineer :	Derek Hsu

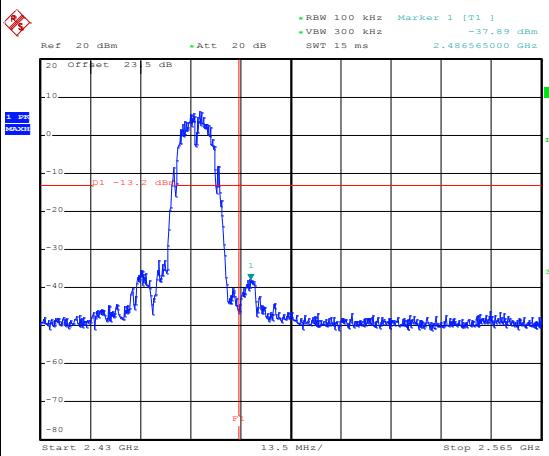
WLAN 802.11b Channel 13

100kHz PSD reference Level



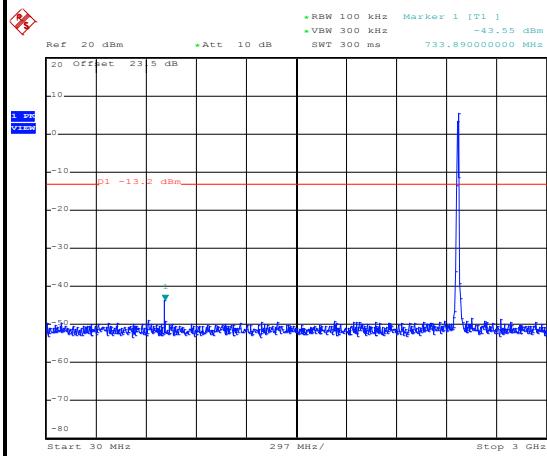
Date: 5.JAN.2017 01:00:01

High Channel Plot



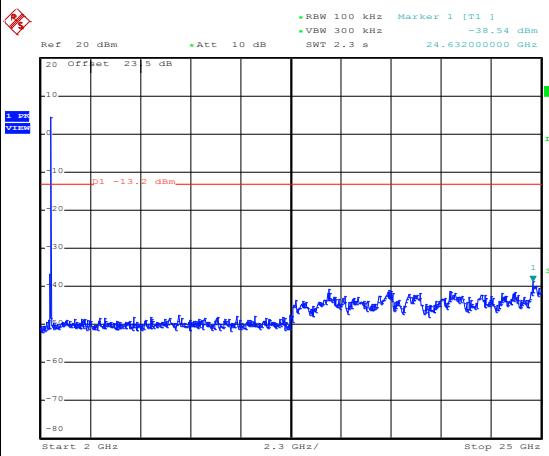
Date: 5.JAN.2017 01:00:11

Spurious Emission 30MHz~3GHz



Date: 5.JAN.2017 01:00:22

Spurious Emission 2GHz~25GHz



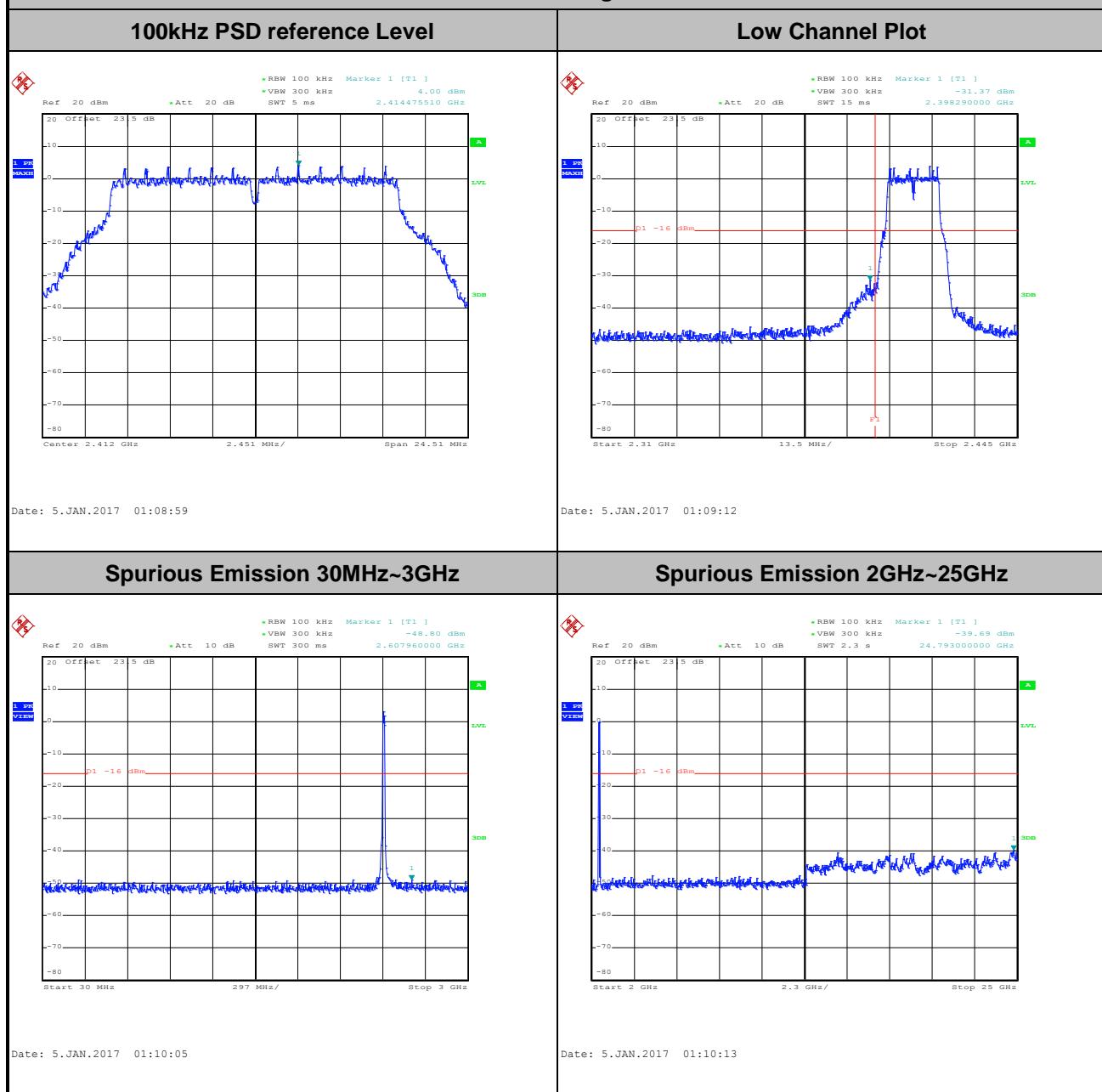
Date: 5.JAN.2017 01:00:31



<MIMO Ant. 0a+1b(0a)>

Number of TX :	2	Ant. :	0a
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu

WLAN 802.11g Channel 01

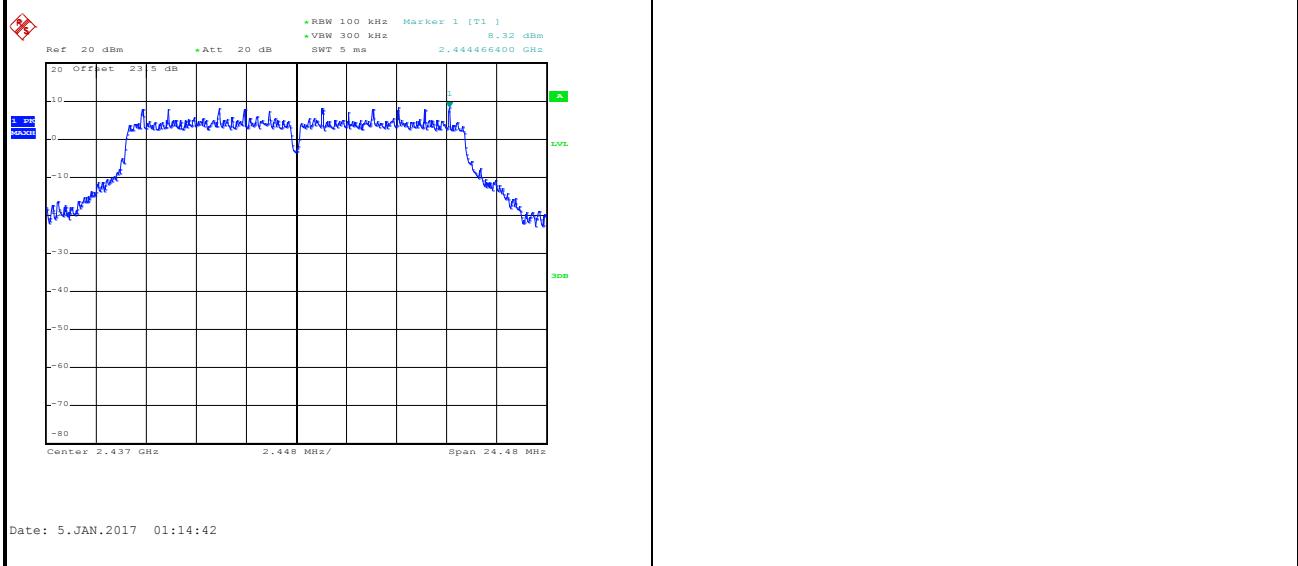




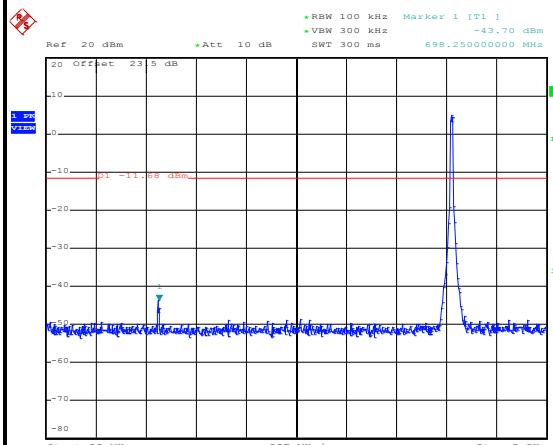
Number of TX :	2	Ant. :	0a
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

WLAN 802.11g Channel 06

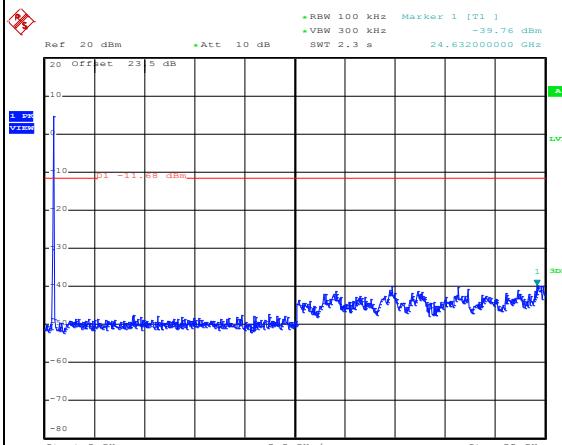
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

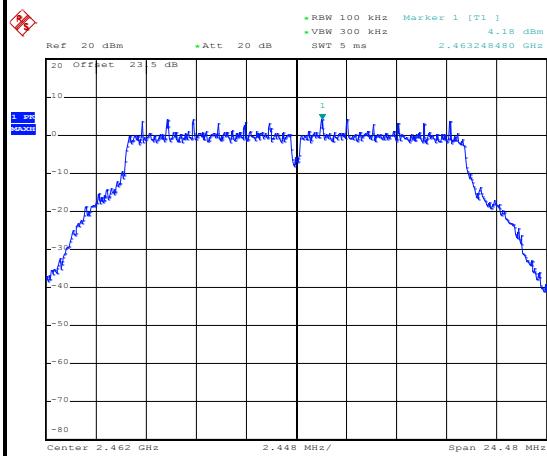




Number of TX :	2	Ant. :	0a
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

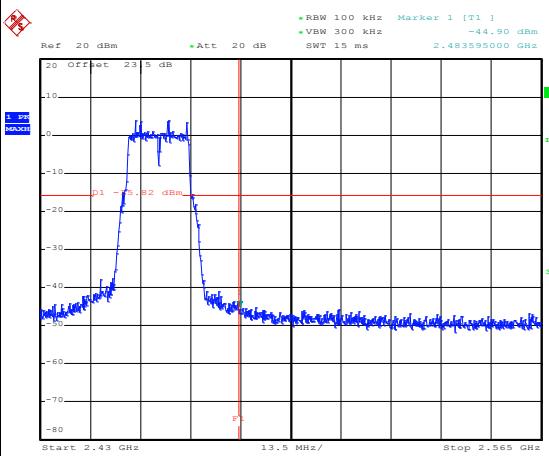
WLAN 802.11g Channel 11

100kHz PSD reference Level



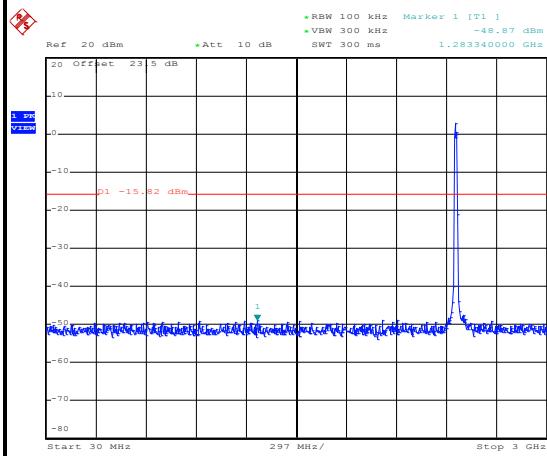
Date: 5.JAN.2017 01:19:18

High Channel Plot



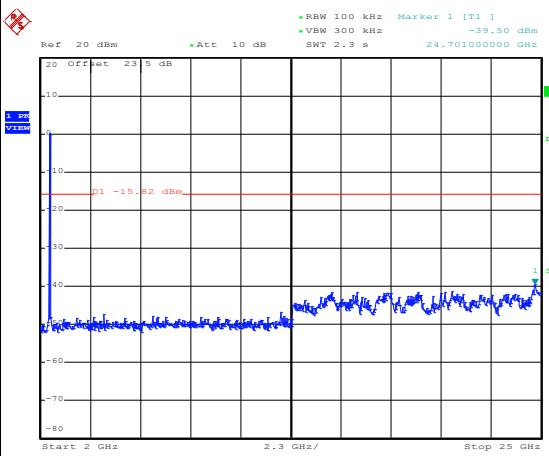
Date: 5.JAN.2017 01:19:27

Spurious Emission 30MHz~3GHz



Date: 5.JAN.2017 01:19:42

Spurious Emission 2GHz~25GHz



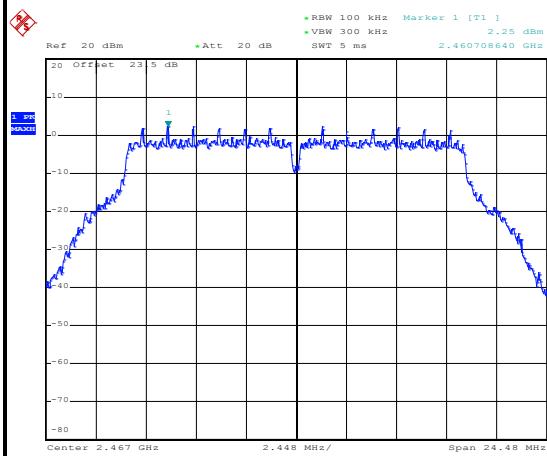
Date: 5.JAN.2017 01:19:50



Number of TX :	2	Ant. :	0a
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	12	Test Engineer :	Derek Hsu

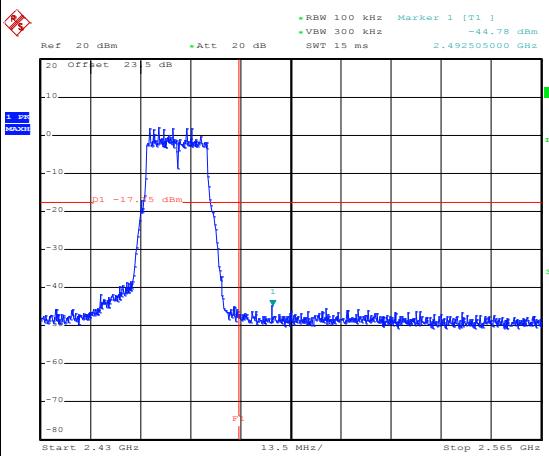
WLAN 802.11g Channel 12

100kHz PSD reference Level



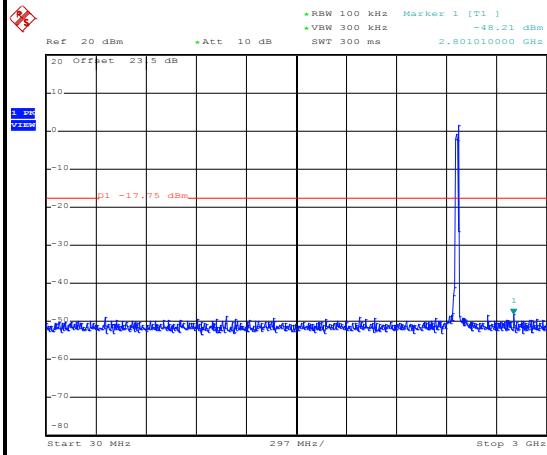
Date: 5.JAN.2017 01:26:04

High Channel Plot



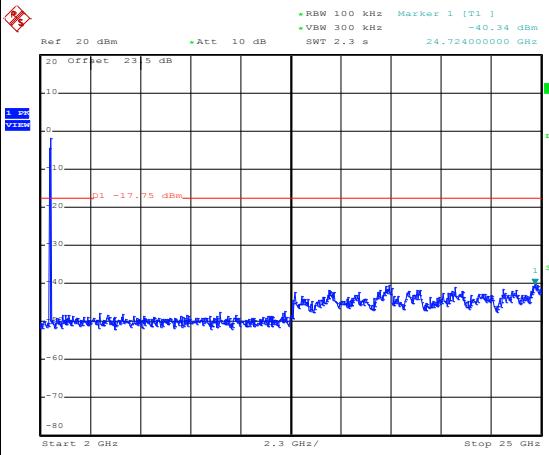
Date: 5.JAN.2017 01:26:17

Spurious Emission 30MHz~3GHz



Date: 5.JAN.2017 01:26:39

Spurious Emission 2GHz~25GHz



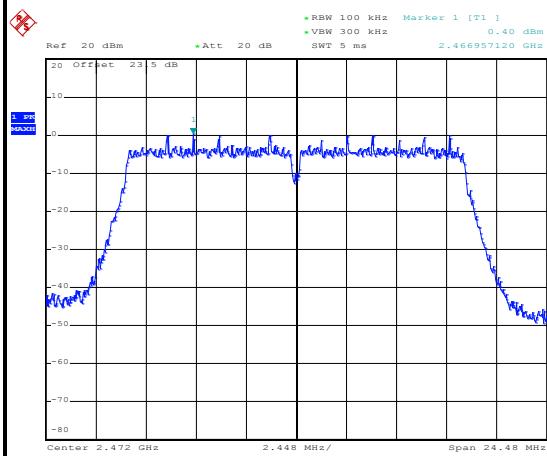
Date: 5.JAN.2017 01:26:48



Number of TX :	2	Ant. :	0a
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	13	Test Engineer :	Derek Hsu

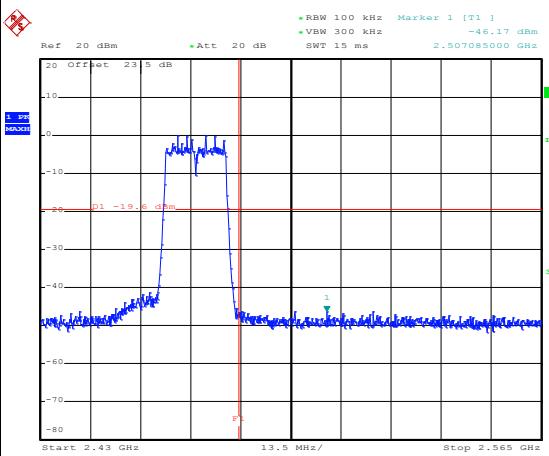
WLAN 802.11g Channel 13

100kHz PSD reference Level



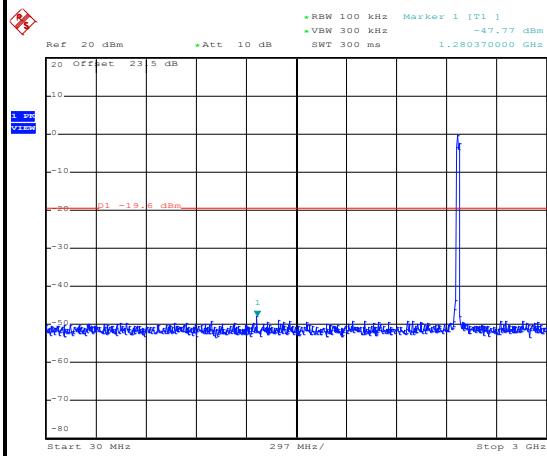
Date: 5.JAN.2017 01:32:15

High Channel Plot



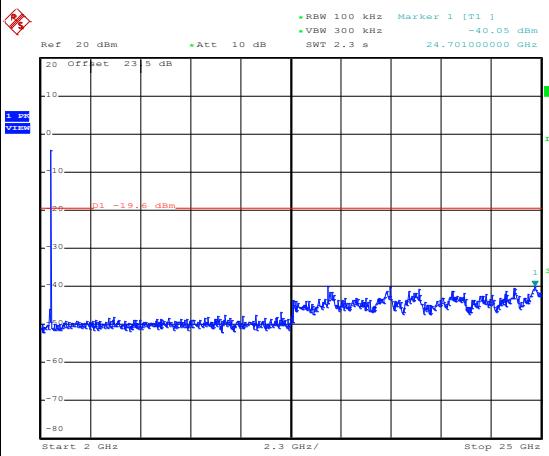
Date: 5.JAN.2017 01:32:26

Spurious Emission 30MHz~3GHz



Date: 5.JAN.2017 01:32:37

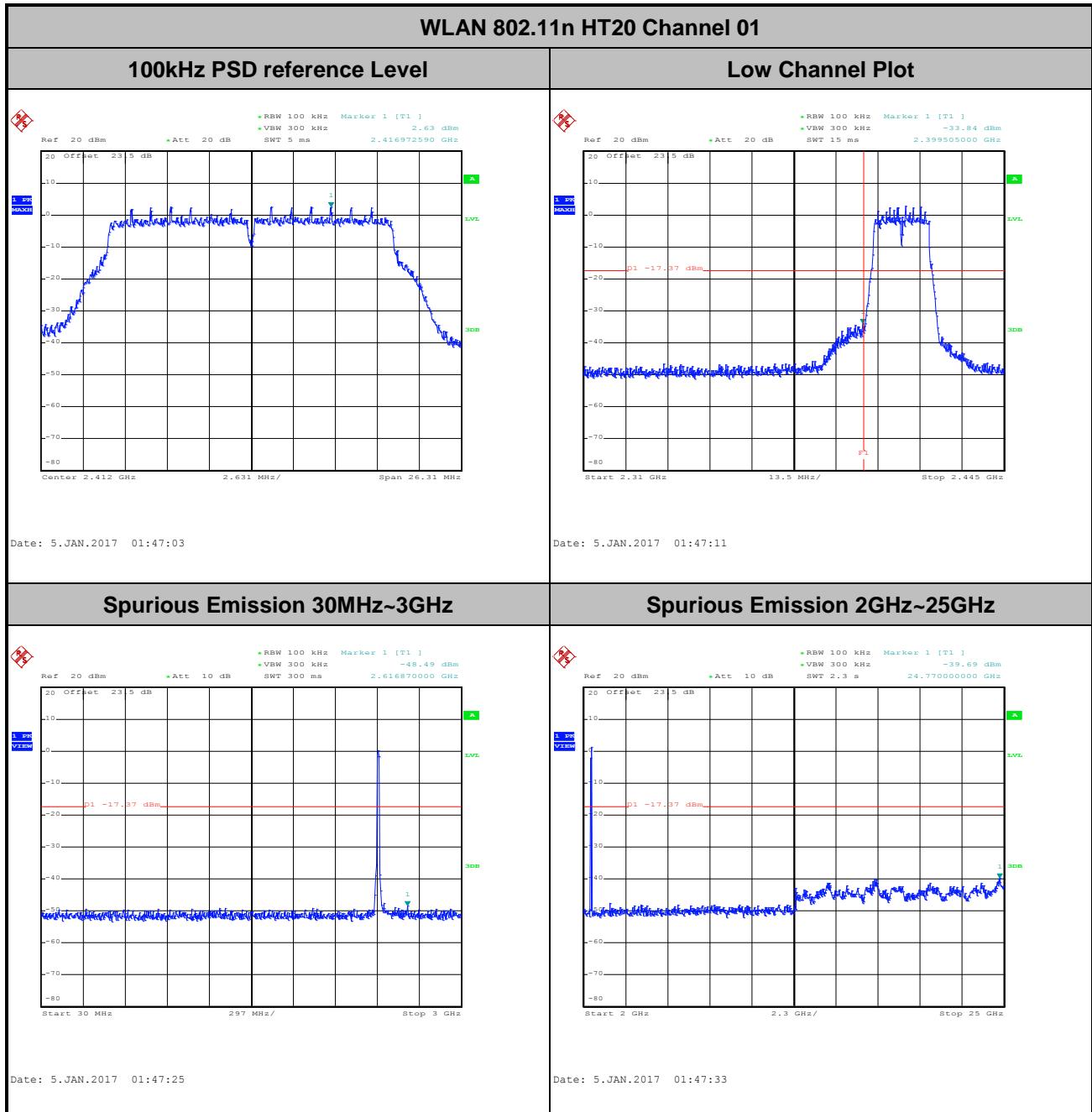
Spurious Emission 2GHz~25GHz



Date: 5.JAN.2017 01:32:46

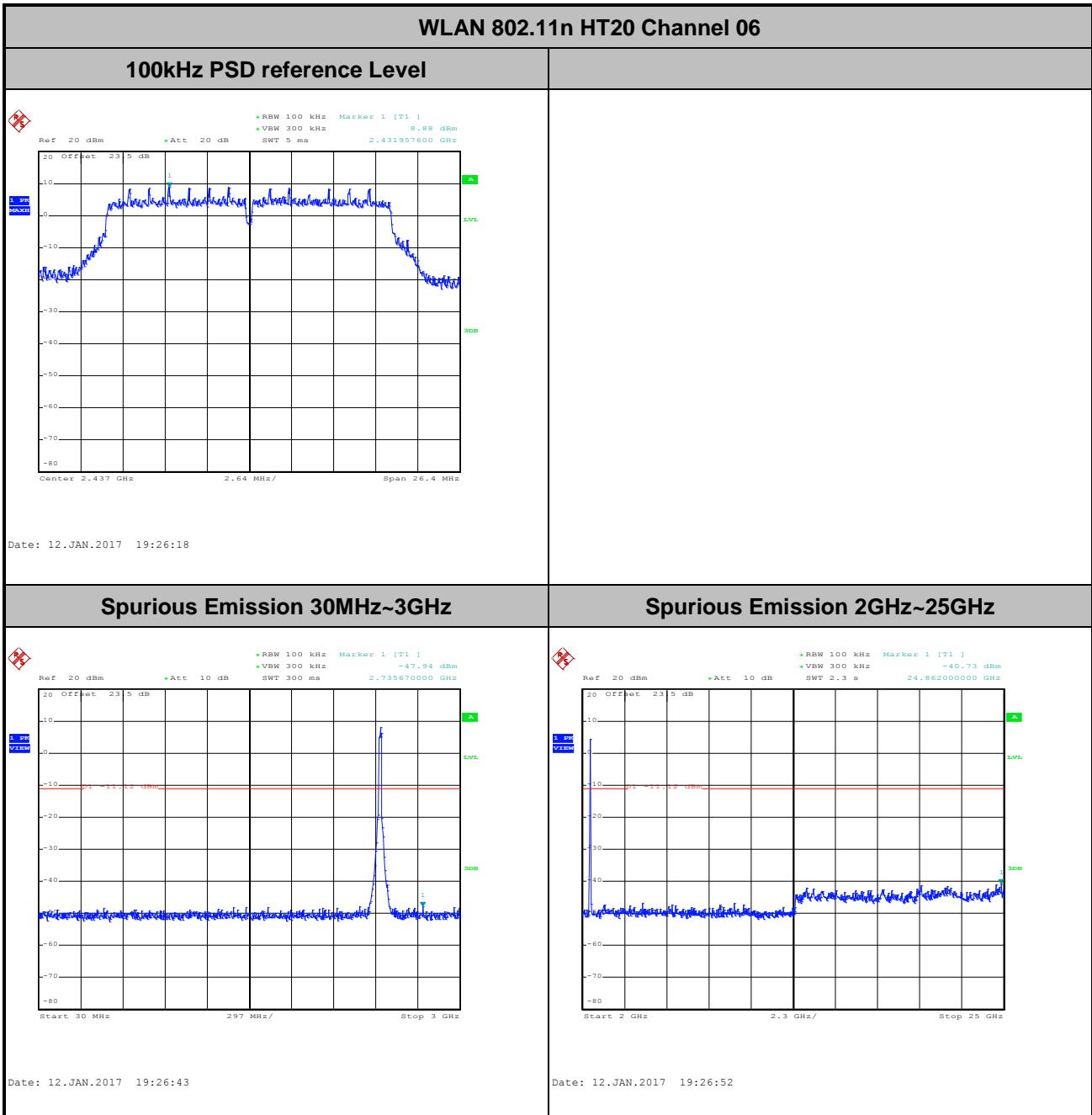


Number of TX :	2	Ant. :	0a
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu



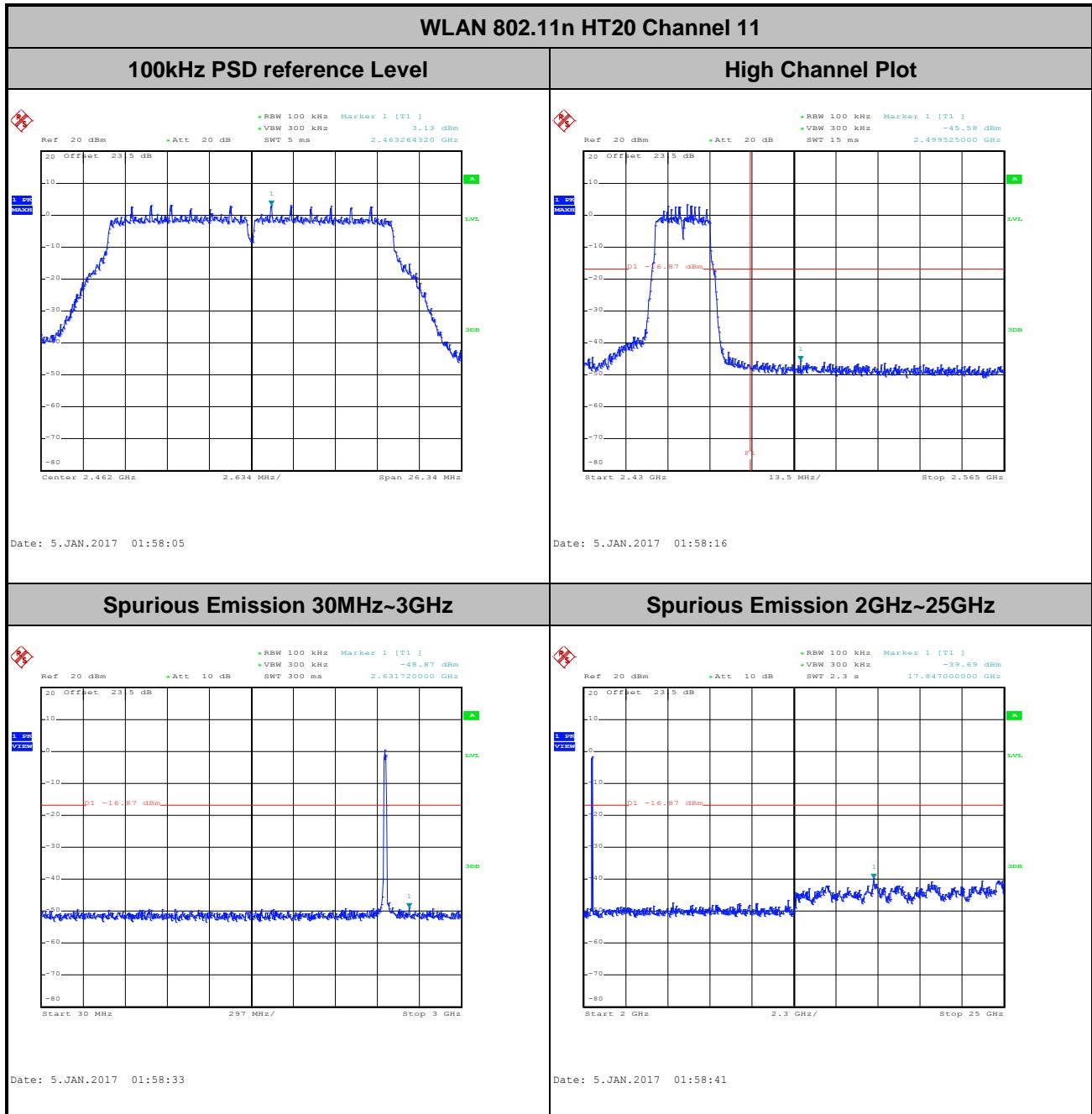


Number of TX :	2	Ant. :	0a
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu



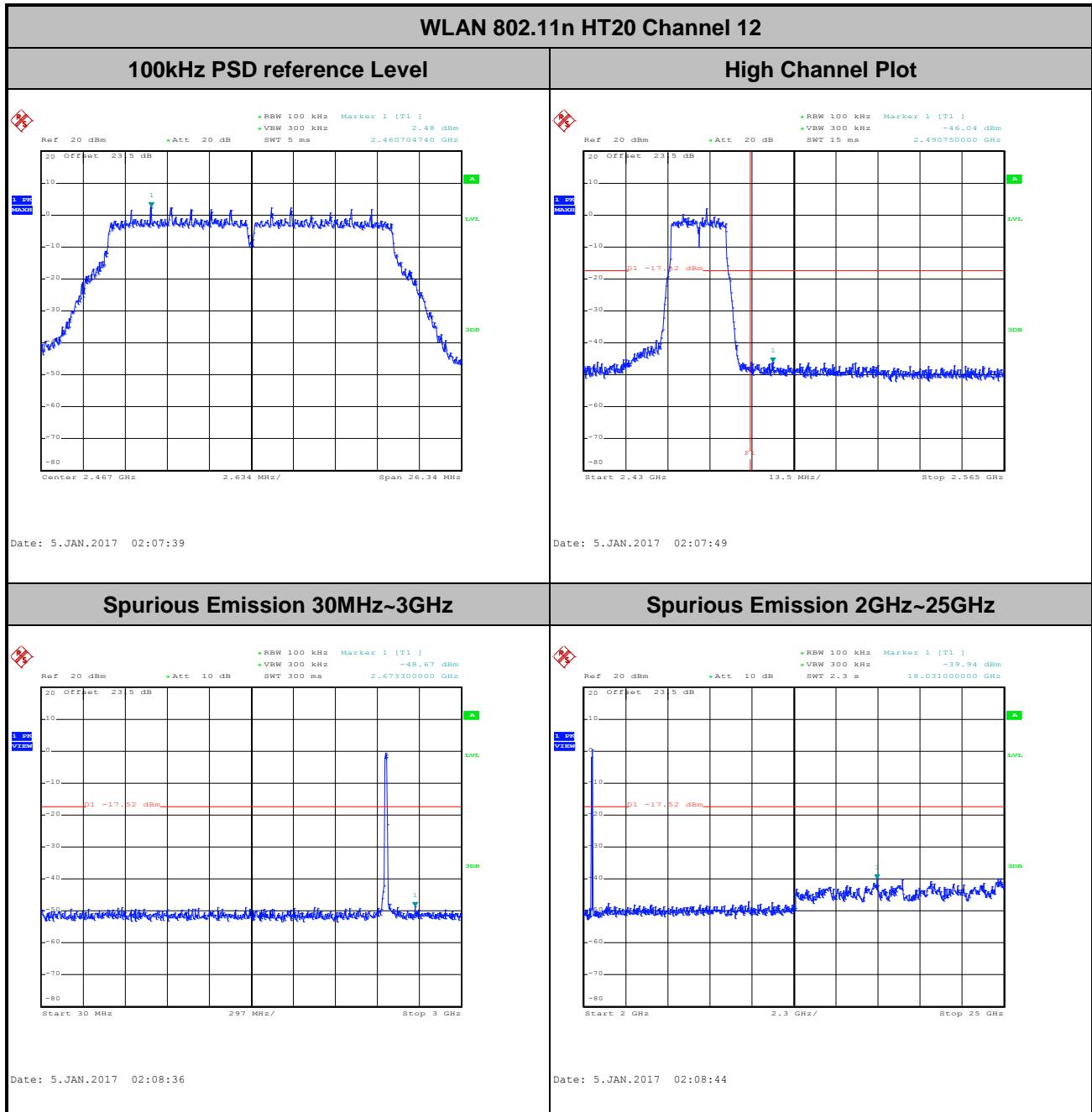


Number of TX :	2	Ant. :	0a
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu



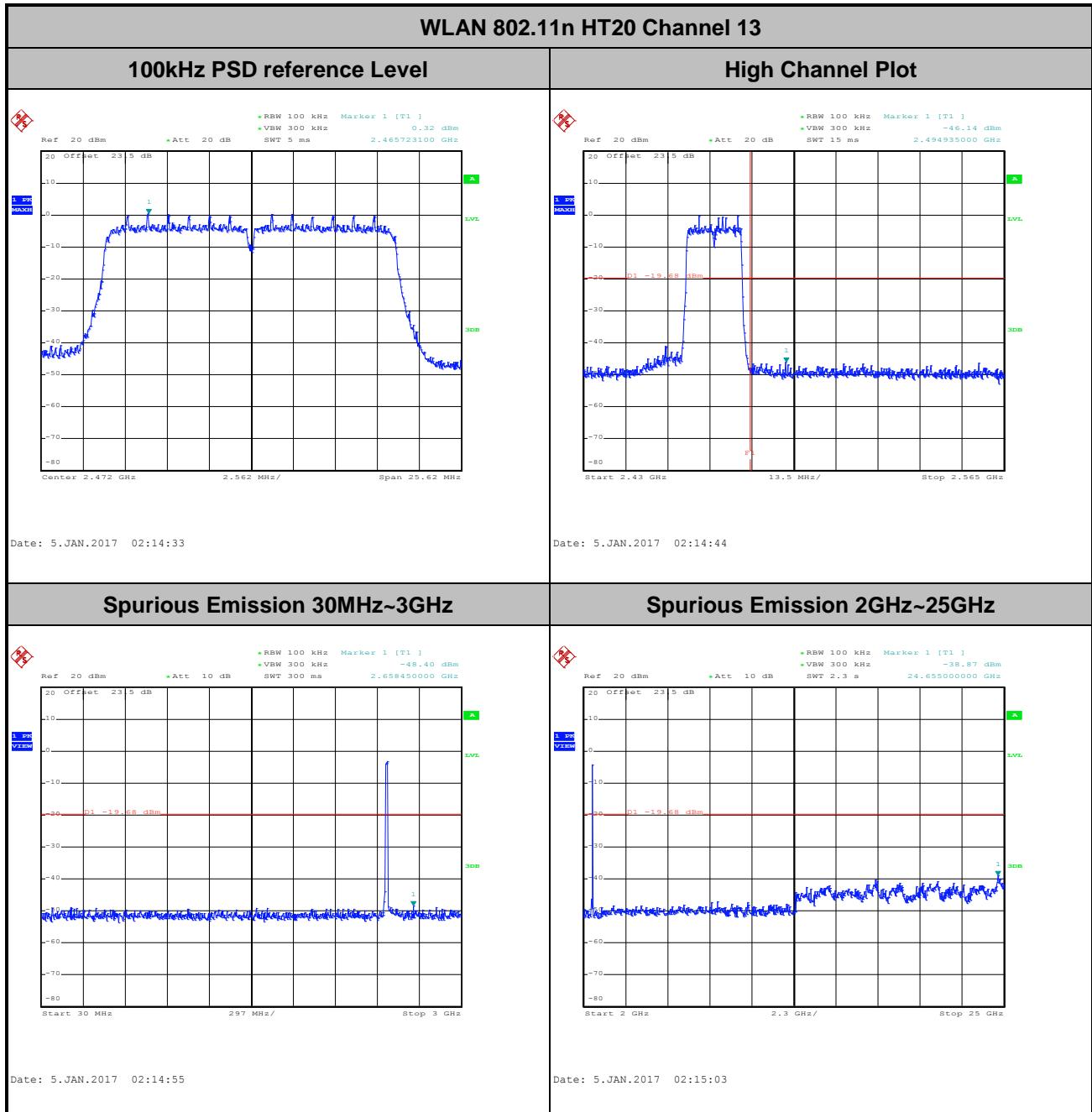


Number of TX :	2	Ant. :	0a
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	12	Test Engineer :	Derek Hsu





Number of TX :	2	Ant. :	0a
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	13	Test Engineer :	Derek Hsu

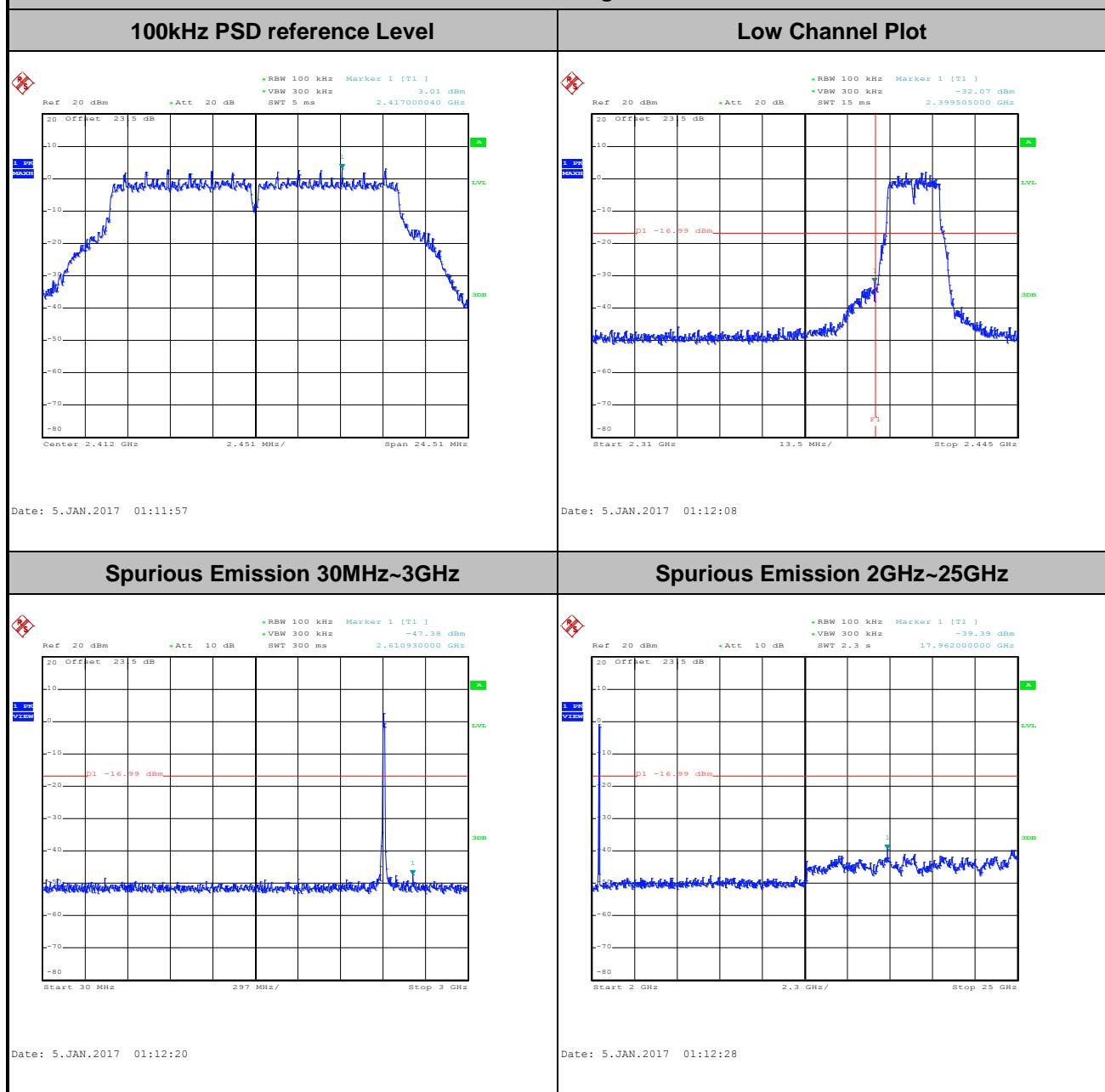




<MIMO Ant. 0a+1b(1b)>

Number of TX :	2	Ant. :	1b
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu

WLAN 802.11g Channel 01

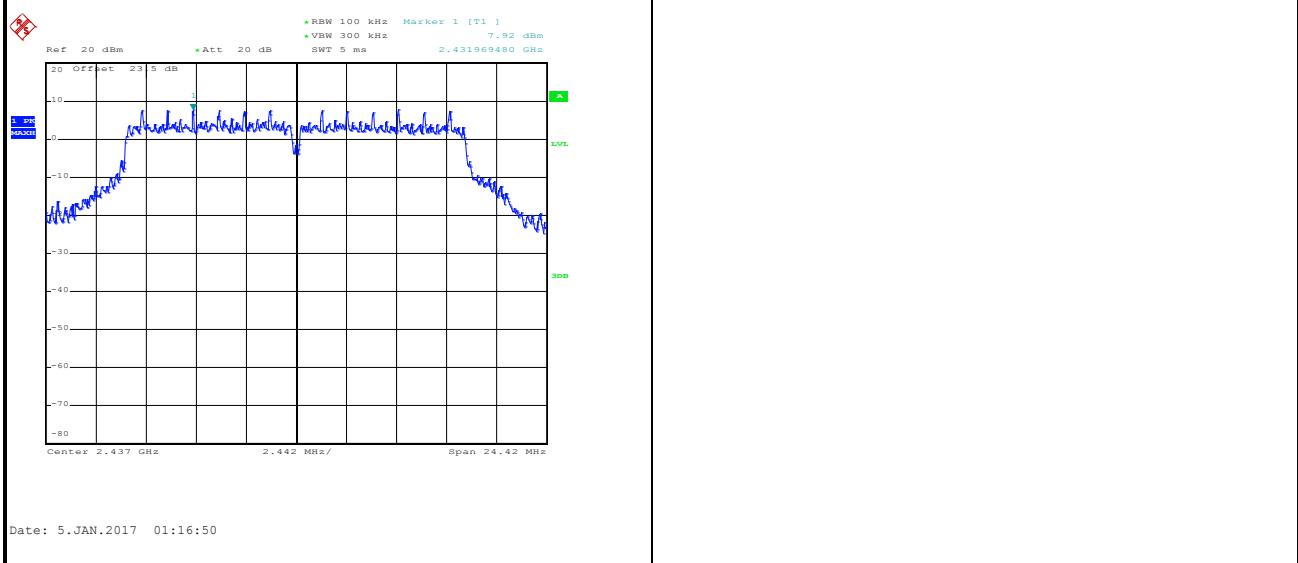




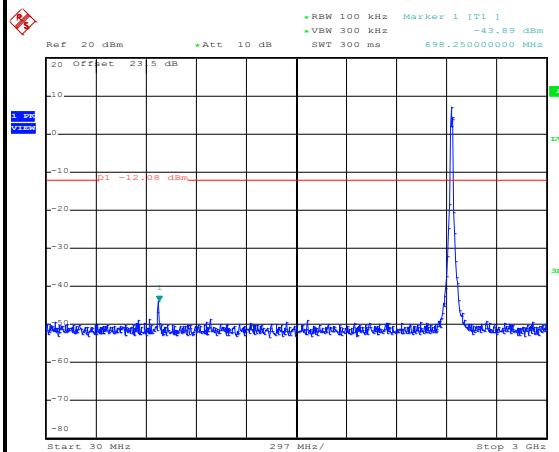
Number of TX :	2	Ant. :	1b
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

WLAN 802.11g Channel 06

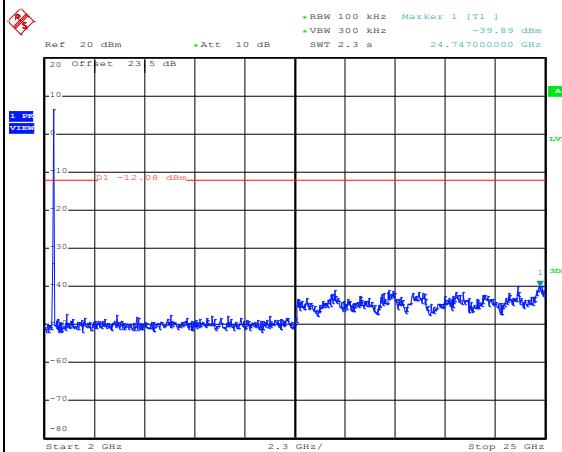
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

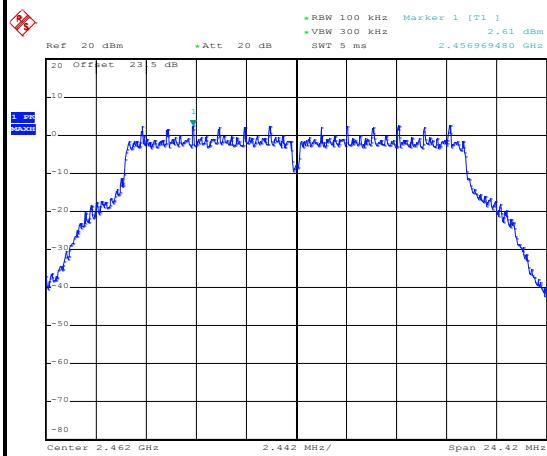




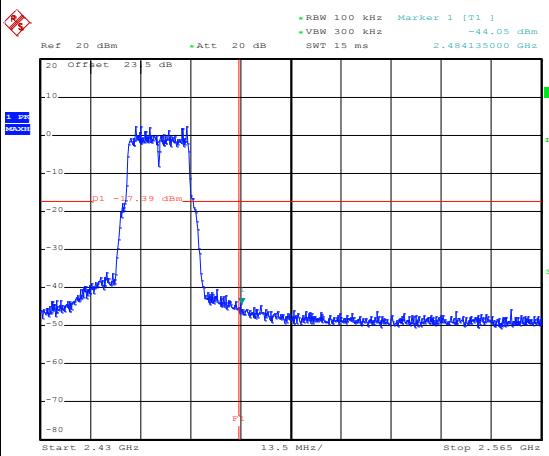
Number of TX :	2	Ant. :	1b
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

WLAN 802.11g Channel 11

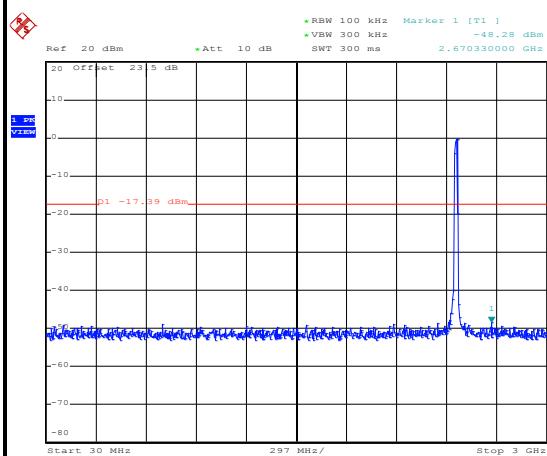
100kHz PSD reference Level



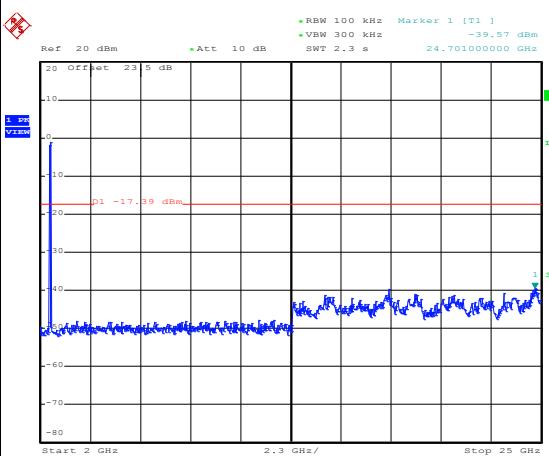
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

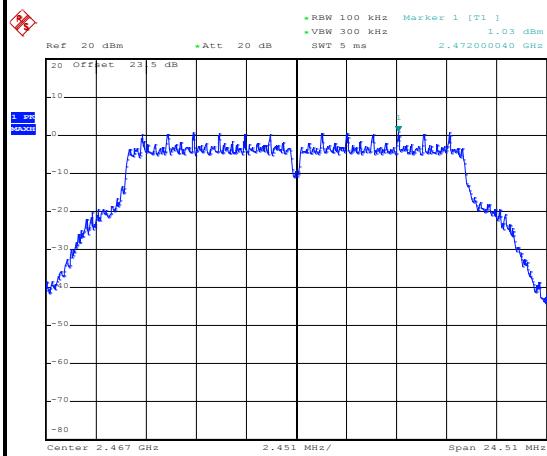




Number of TX :	2	Ant. :	1b
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	12	Test Engineer :	Derek Hsu

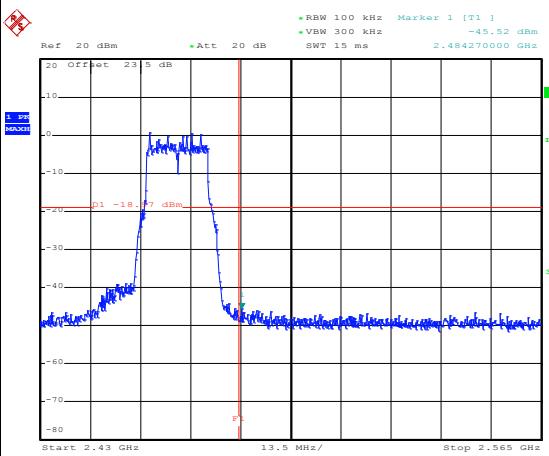
WLAN 802.11g Channel 12

100kHz PSD reference Level



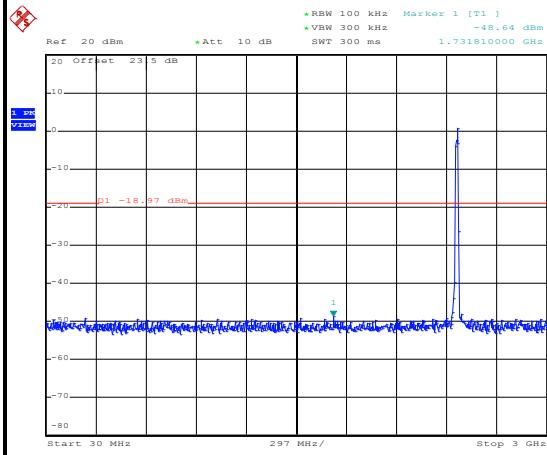
Date: 5.JAN.2017 01:28:24

High Channel Plot



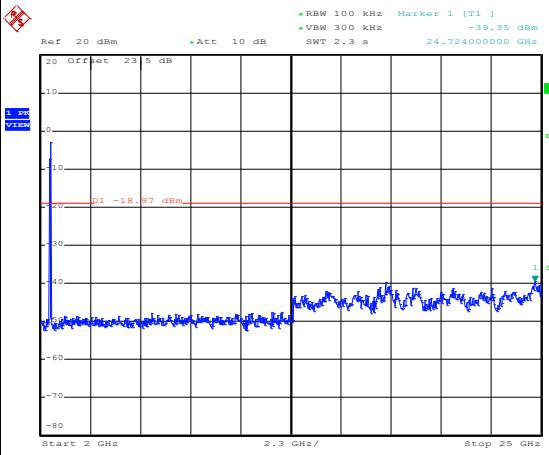
Date: 5.JAN.2017 01:28:41

Spurious Emission 30MHz~3GHz



Date: 5.JAN.2017 01:28:58

Spurious Emission 2GHz~25GHz



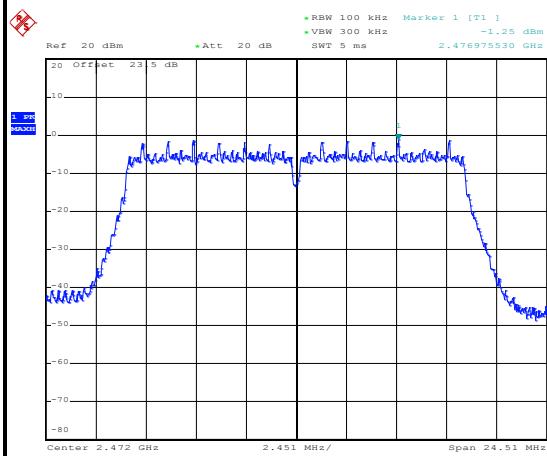
Date: 5.JAN.2017 01:29:06



Number of TX :	2	Ant. :	1b
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	13	Test Engineer :	Derek Hsu

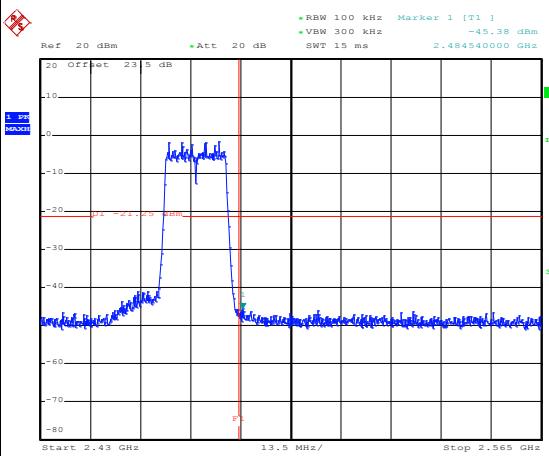
WLAN 802.11g Channel 13

100kHz PSD reference Level



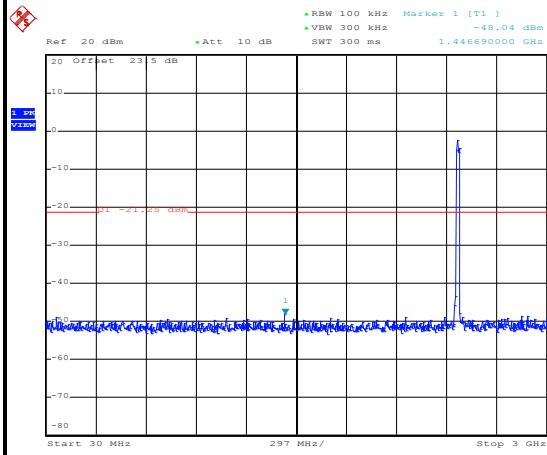
Date: 5.JAN.2017 01:38:35

High Channel Plot



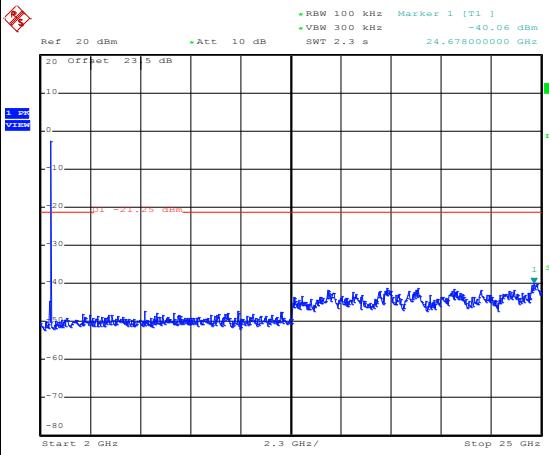
Date: 5.JAN.2017 01:38:48

Spurious Emission 30MHz~3GHz



Date: 5.JAN.2017 01:39:03

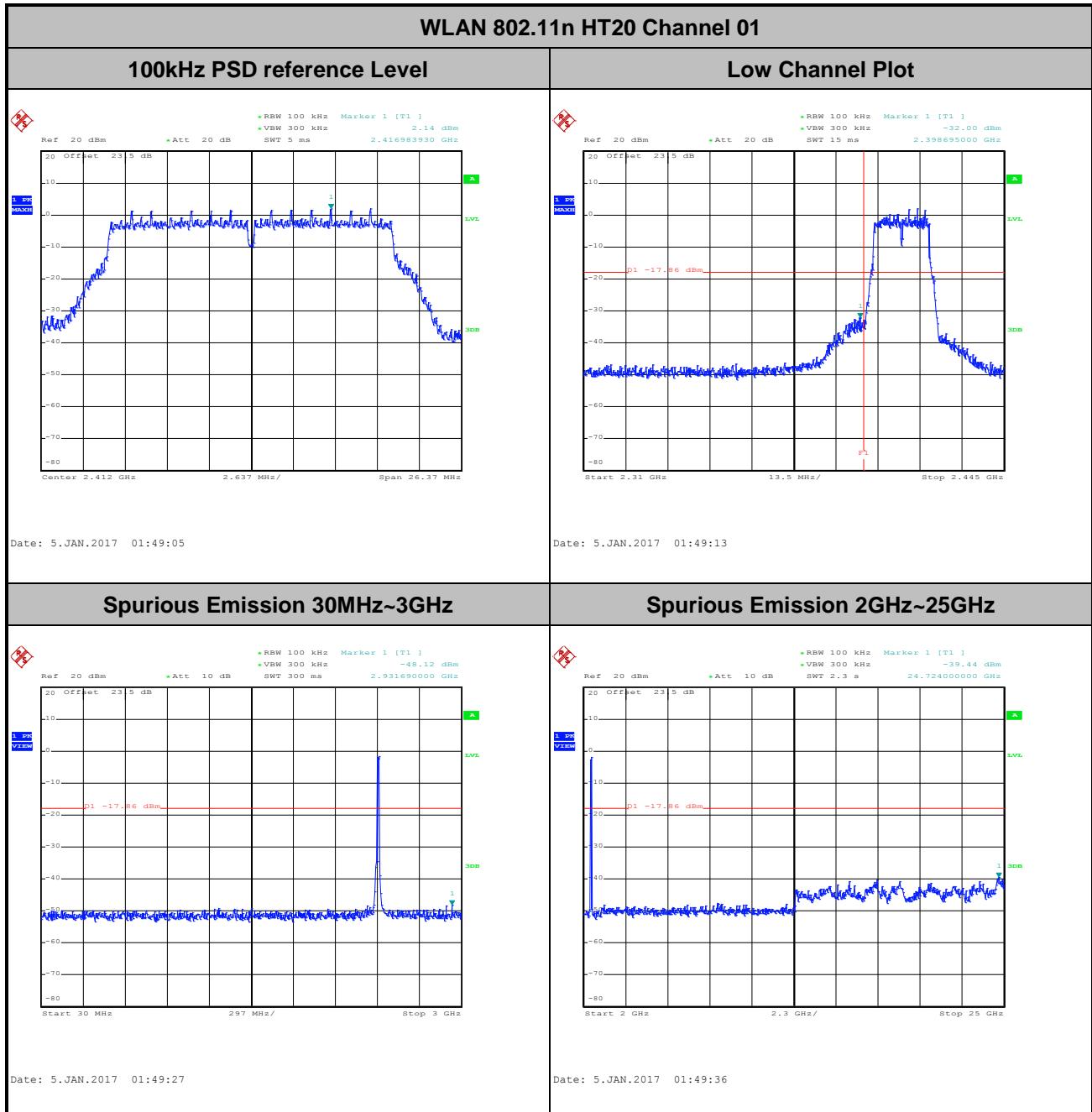
Spurious Emission 2GHz~25GHz



Date: 5.JAN.2017 01:39:11

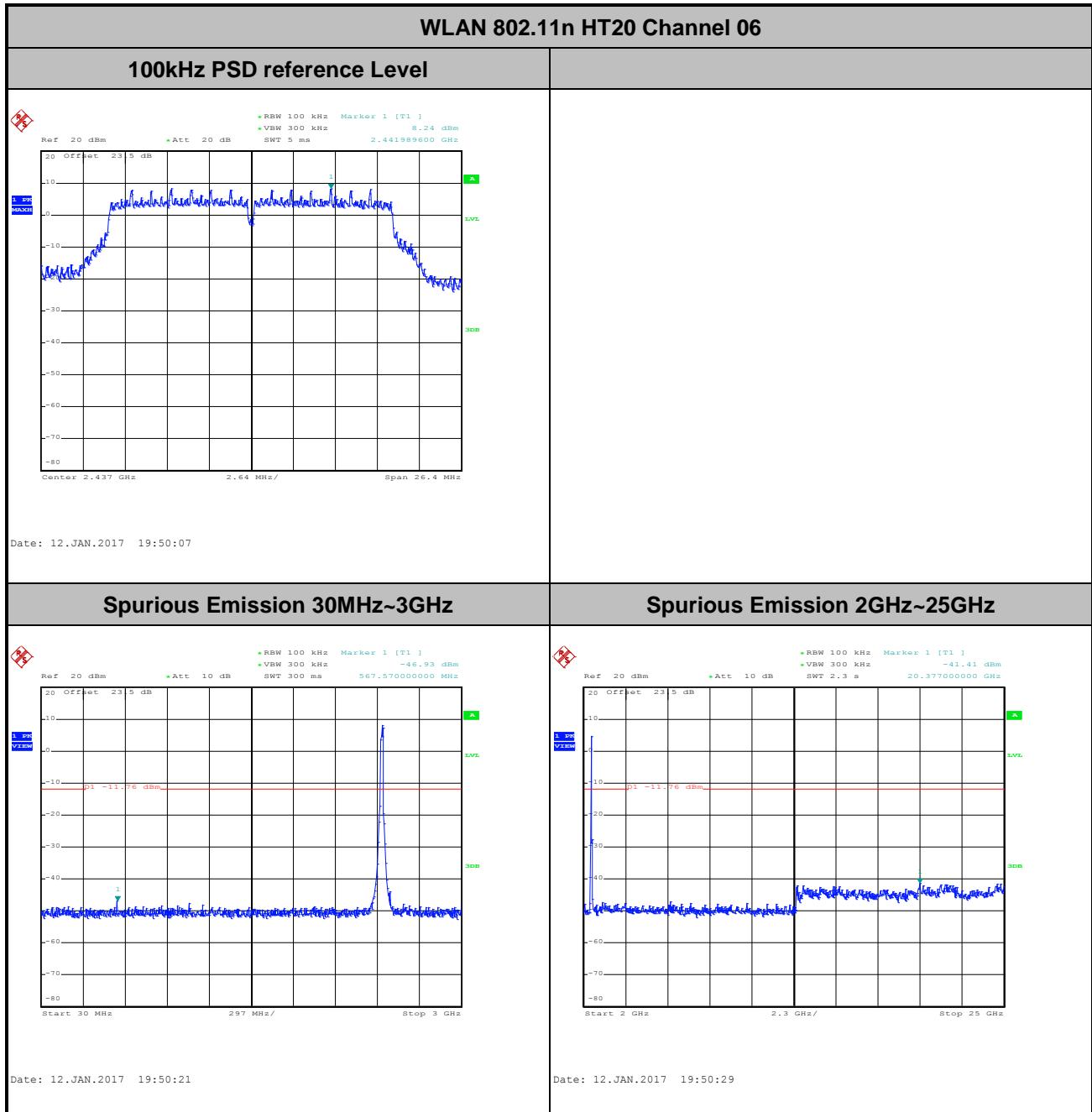


Number of TX :	2	Ant. :	1b
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu



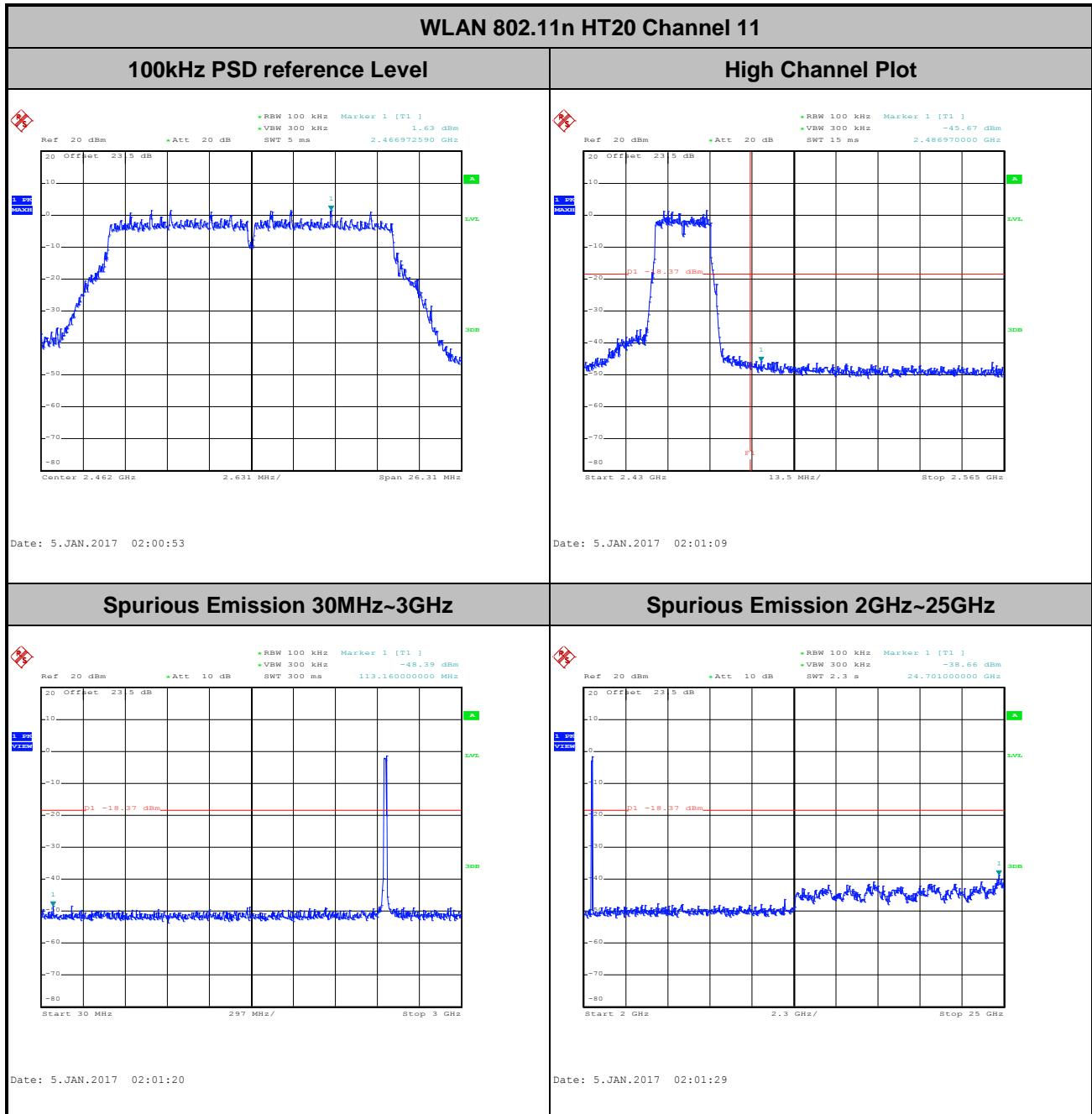


Number of TX :	2	Ant. :	1b
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu



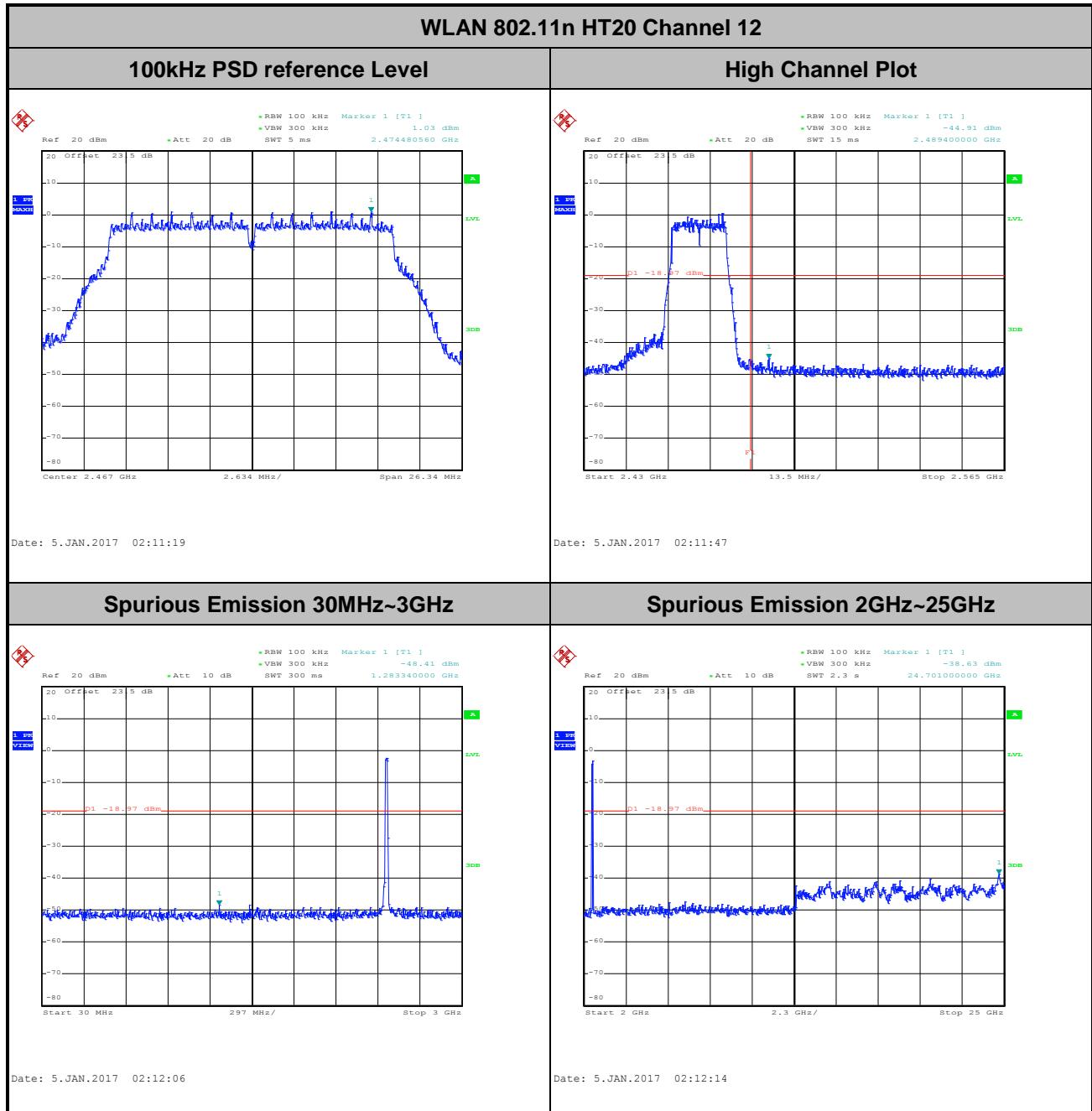


Number of TX :	2	Ant. :	1b
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu



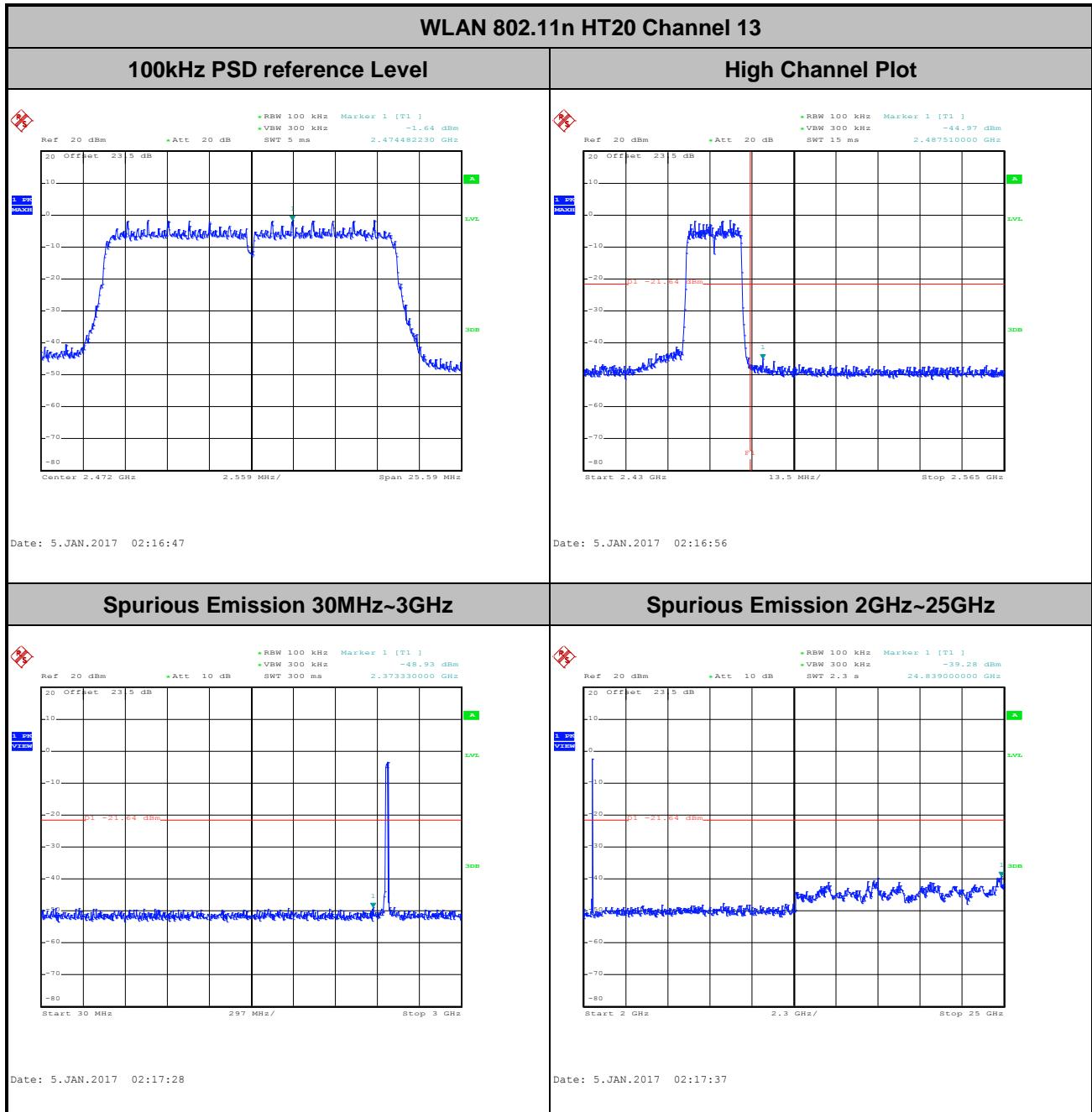


Number of TX :	2	Ant. :	1b
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	12	Test Engineer :	Derek Hsu





Number of TX :	2	Ant. :	1b
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	13	Test Engineer :	Derek Hsu





3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (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

3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.



3.5.3 Test Procedures

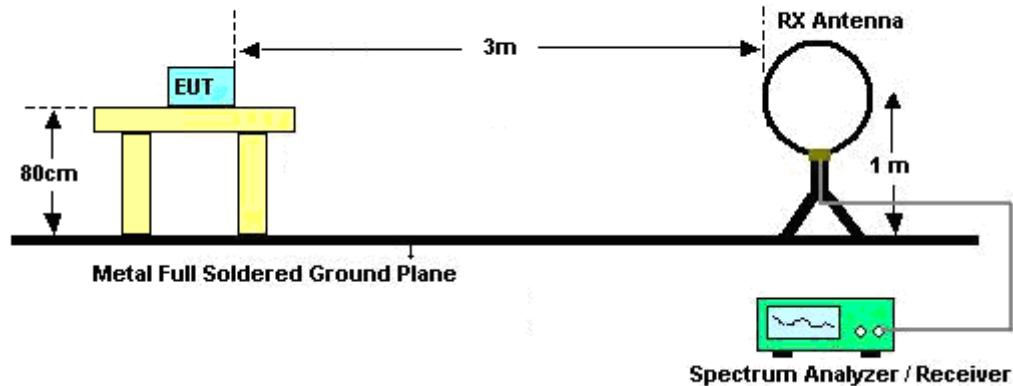
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.

For average measurement:

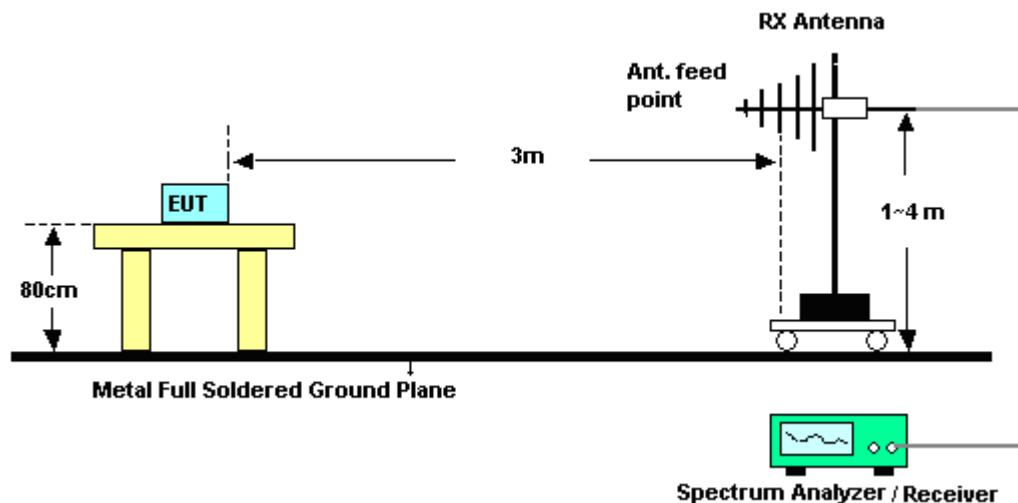
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- $VBW \geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

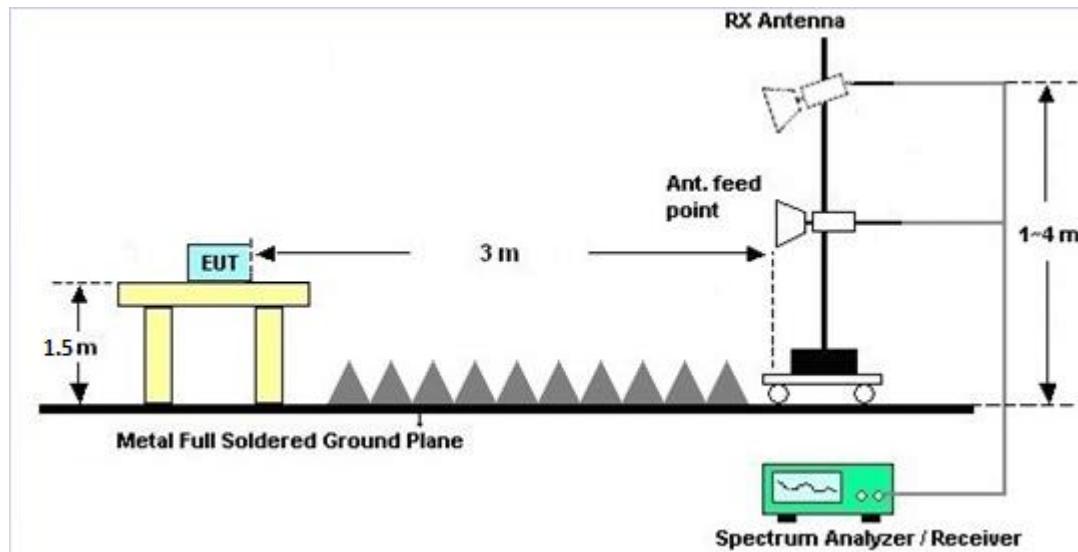
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated Spurious Emissions (9kHz ~ 30MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B and C.

3.5.7 Duty Cycle

Please refer to Appendix D.

3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix B and C.



3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

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

*Decreases with the logarithm of the frequency.

3.6.2 Measuring Instruments

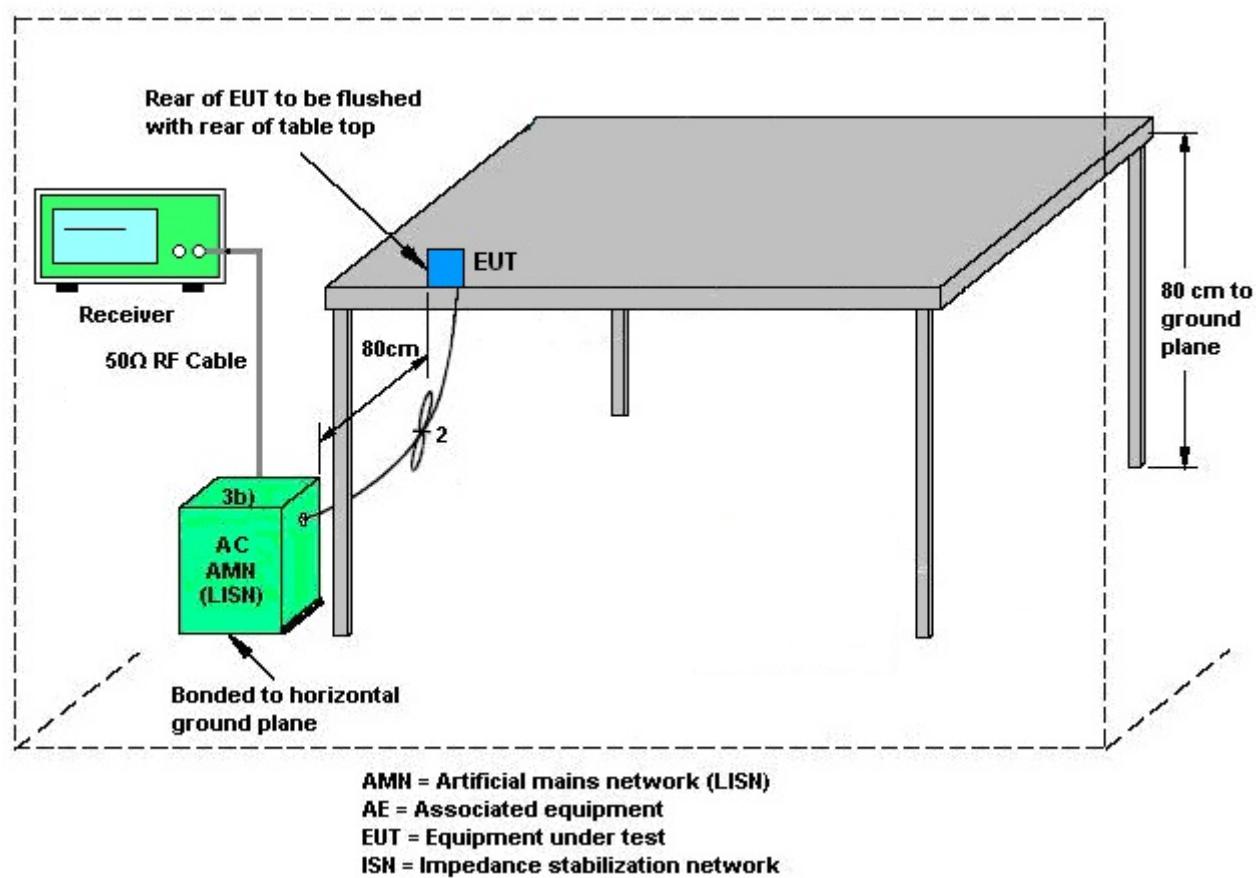
The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.



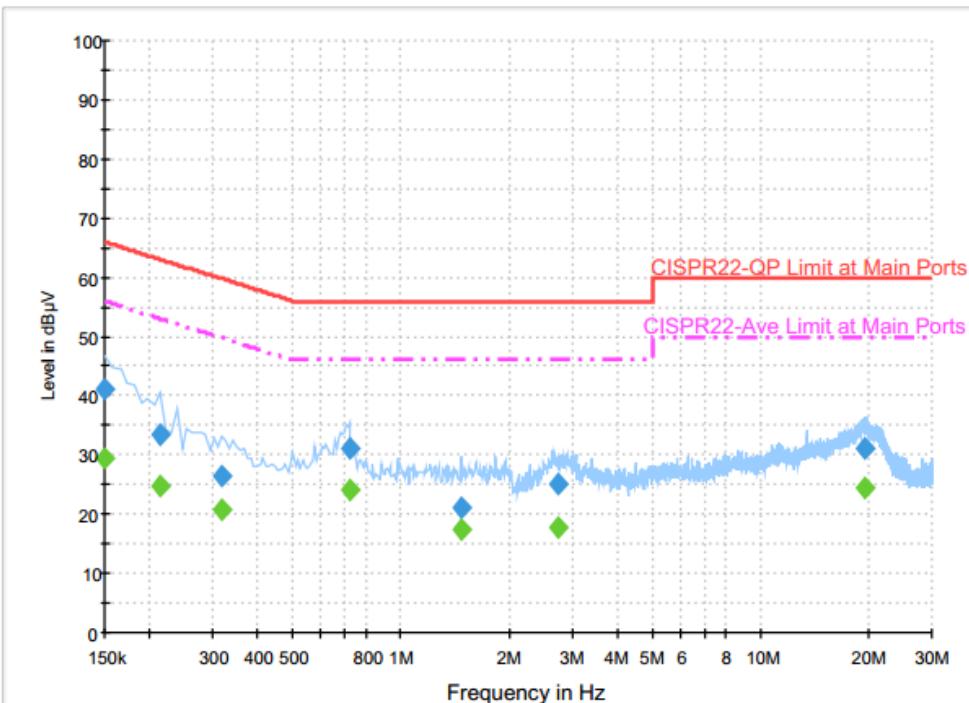
3.6.4 Test Setup





3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	48~49%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN (2.4GHz) Link + Bluetooth Link + Speaker On + Flash light On + Camera + Adapter		

**Final Result : Quasi-Peak**

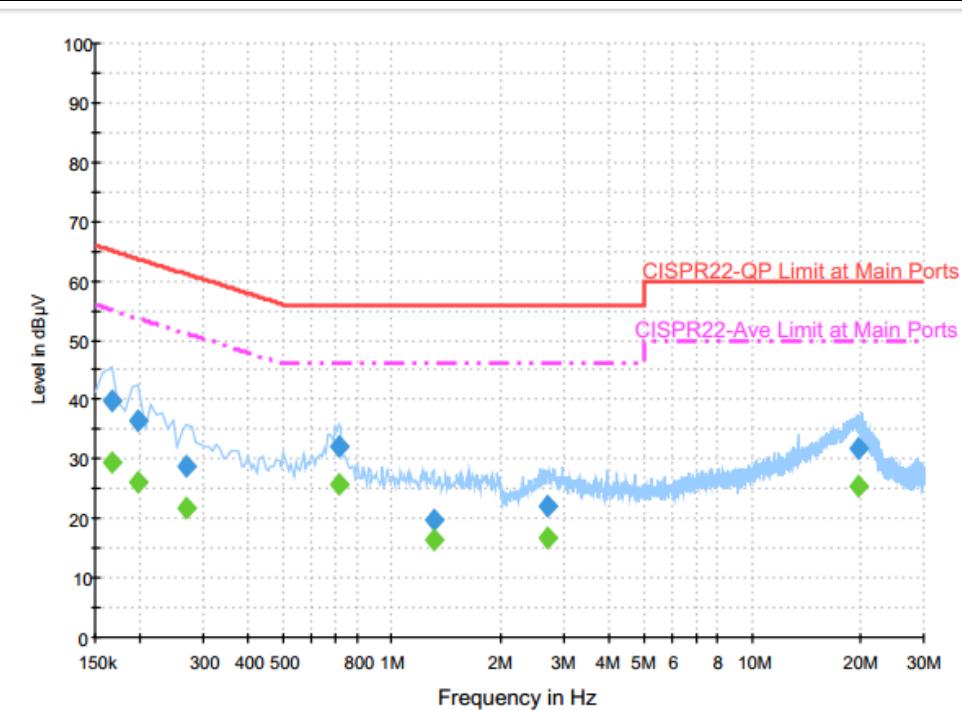
Frequency (MHz)	Quasi-Peak (dB μ V)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	41.3	Off	L1	19.6	24.7	66.0
0.214000	33.5	Off	L1	19.6	29.5	63.0
0.318000	26.5	Off	L1	19.6	33.3	59.8
0.718000	31.2	Off	L1	19.6	24.8	56.0
1.470000	21.1	Off	L1	19.6	34.9	56.0
2.742000	25.2	Off	L1	19.4	30.8	56.0
19.622000	31.2	Off	L1	20.6	28.8	60.0

Final Result : Average

Frequency (MHz)	Average (dB μ V)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	29.3	Off	L1	19.6	26.7	56.0
0.214000	24.6	Off	L1	19.6	28.4	53.0
0.318000	20.7	Off	L1	19.6	29.1	49.8
0.718000	24.2	Off	L1	19.6	21.8	46.0
1.470000	17.5	Off	L1	19.6	28.5	46.0
2.742000	17.6	Off	L1	19.4	28.4	46.0
19.622000	24.3	Off	L1	20.6	25.7	50.0



Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	48~49%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (2.4GHz) Link + Bluetooth Link + Speaker On + Flash light On + Camera + Adapter		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dB μ V)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.166000	40.0	Off	N	19.6	25.2	65.2
0.198000	36.3	Off	N	19.6	27.4	63.7
0.270000	28.7	Off	N	19.6	32.4	61.1
0.710000	32.2	Off	N	19.6	23.8	56.0
1.302000	19.6	Off	N	19.6	36.4	56.0
2.694000	22.2	Off	N	19.3	33.8	56.0
19.758000	31.8	Off	N	20.7	28.2	60.0

Final Result : Average

Frequency (MHz)	Average (dB μ V)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.166000	29.6	Off	N	19.6	25.6	55.2
0.198000	26.1	Off	N	19.6	27.6	53.7
0.270000	21.9	Off	N	19.6	29.2	51.1
0.710000	25.7	Off	N	19.6	20.3	46.0
1.302000	16.3	Off	N	19.6	29.7	46.0
2.694000	16.6	Off	N	19.3	29.4	46.0
19.758000	25.3	Off	N	20.7	24.7	50.0



3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the Antenna exceeds 6 dBi. The use of a permanently attached Antenna or of an Antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = $10 \log(N_{ANT}/N_{SS}=1)$ dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F2)f)i).

For PSD, the directional gain calculation is following F2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain “DG” is calculated as following table.



<Ant. 0a & MIMO Ant. 0a+1a>

			DG for Power	DG for PSD	Power Limit Reduction	PSD Limit Reduction
	Ant. 0a (dBi)	Ant. 1a (dBi)	(dBi)	(dBi)	(dB)	(dB)
2.4 GHz	1.32	2.05	2.05	4.70	0.00	0.00

<Ant. 0b & MIMO Ant. 0b+1b>

			DG for Power	DG for PSD	Power Limit Reduction	PSD Limit Reduction
	Ant. 0b (dBi)	Ant. 1b (dBi)	(dBi)	(dBi)	(dB)	(dB)
2.4 GHz	2.42	2.33	2.42	5.39	0.00	0.00

<Ant. 1a & MIMO Ant. 0b+1a>

			DG for Power	DG for PSD	Power Limit Reduction	PSD Limit Reduction
	Ant. 0b (dBi)	Ant. 1a (dBi)	(dBi)	(dBi)	(dB)	(dB)
2.4 GHz	2.42	2.05	2.42	5.25	0.00	0.00

<Ant. 1b & MIMO Ant. 0a+1b>

			DG for Power	DG for PSD	Power Limit Reduction	PSD Limit Reduction
	Ant. 0a (dBi)	Ant. 1b (dBi)	(dBi)	(dBi)	(dB)	(dB)
2.4 GHz	1.32	2.33	2.33	4.85	0.00	0.00

Power Limit Reduction = DG(Power) – 6dB_i, (min = 0)

PSD Limit Reduction = DG(PSD) – 6dB_i, (min = 0)



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	1218006	300MHz~40GHz	Oct. 06, 2016	Dec. 19, 2016 ~ Jan. 05, 2017	Oct. 05, 2017	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1207363	300MHz~40GHz	Oct. 06, 2016	Dec. 19, 2016 ~ Jan. 05, 2017	Oct. 05, 2017	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 25, 2016	Dec. 19, 2016 ~ Jan. 05, 2017	Nov. 24, 2017	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890001	1V~20V 0.5A~4A	Oct. 03, 2016	Dec. 19, 2016 ~ Jan. 05, 2017	Oct. 02, 2017	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Dec. 30, 2016	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 30, 2016	Dec. 30, 2016	Aug. 29, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 29, 2016	Dec. 30, 2016	Nov. 28, 2017	Conduction (CO05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Sep. 02, 2015	Dec. 21, 2016 ~ Jan. 09, 2017	Sep. 01, 2017	Radiation (03CH13-HY)
Amplifier	Sonomo-Instrument	310 N	187282	9KHz~1GHz	Dec. 21, 2016	Dec. 21, 2016 ~ Jan. 09, 2017	Dec. 20, 2017	Radiation (03CH13-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800 N1D01N-06	40103&04	30MHz to 1GHz	Jan. 13, 2016	Dec. 21, 2016 ~ Jan. 09, 2017	Jan. 12, 2017	Radiation (03CH13-HY)
EMI Test Receiver	Keysight	N9038A (MXE)	MY554201 70	N/A	Mar. 10, 2016	Dec. 21, 2016 ~ Jan. 09, 2017	Mar. 09, 2017	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-124 1	1GHz ~ 18GHz	Apr. 25, 2016	Dec. 21, 2016 ~ Jan. 09, 2017	Apr. 24, 2017	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590074	1GHz~18GHz	Jun. 27, 2016	Dec. 21, 2016 ~ Jan. 09, 2017	Jun. 26, 2017	Radiation (03CH13-HY)
Preamplifier	MITEQ	JS44-180040 00-33-8P	1840917	18GHz ~ 40GHz	Jun. 14, 2016	Dec. 21, 2016 ~ Jan. 09, 2017	Jun. 13, 2017	Radiation (03CH13-HY)
Preamplifier	Keysight	83017A	MY532701 47	1GHz~26.5GHz	Jan. 30, 2016	Dec. 21, 2016 ~ Jan. 09, 2017	Jan. 29, 2017	Radiation (03CH13-HY)
Spectrum Analyzer	Keysight	N9010A	MY553705 26	N/A	Mar. 14, 2016	Dec. 21, 2016 ~ Jan. 09, 2017	Mar. 13, 2017	Radiation (03CH13-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Dec. 21, 2016 ~ Jan. 09, 2017	N/A	Radiation (03CH13-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Dec. 21, 2016 ~ Jan. 09, 2017	N/A	Radiation (03CH13-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 584	18GHz- 40GHz	Nov. 08, 2016	Dec. 21, 2016 ~ Jan. 09, 2017	Nov. 07, 2017	Radiation (03CH13-HY)



5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_{C(y)}$)	2.7
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_{C(y)}$)	4.9
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_{C(y)}$)	5.4
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_{C(y)}$)	4.3
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Appendix A. Conducted Test Results

Test Engineer:	Derek Hsu	Temperature:	21-25	°C
Test Date:	2016/12/19-2017/01/05	Relative Humidity:	51-54	%

<Ant. 0a & Ant. 1a>

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					0a	1a	0a	1a		
11b	1Mbps	1	1	2412	11.65	-	8.04	-	0.50	Pass
11b	1Mbps	1	6	2437	14.35	-	9.02	-	0.50	Pass
11b	1Mbps	1	11	2462	11.65	-	8.06	-	0.50	Pass
11b	1Mbps	1	12	2467	11.55	-	8.04	-	0.50	Pass
11b	1Mbps	1	13	2472	11.55	-	8.02	-	0.50	Pass
11g	6Mbps	2	1	2412	18.25	18.20	16.34	16.34	0.50	Pass
11g	6Mbps	2	6	2437	19.20	19.25	16.34	16.32	0.50	Pass
11g	6Mbps	2	11	2462	18.10	17.95	16.28	16.34	0.50	Pass
11g	6Mbps	2	12	2467	18.25	18.00	16.32	16.34	0.50	Pass
11g	6Mbps	2	13	2472	17.30	17.15	16.30	16.34	0.50	Pass
HT20	MCS0	2	1	2412	19.05	19.00	17.56	17.58	0.50	Pass
HT20	MCS0	2	6	2437	19.55	19.35	17.56	17.56	0.50	Pass
HT20	MCS0	2	11	2462	18.85	19.00	17.56	17.54	0.50	Pass
HT20	MCS0	2	12	2467	18.95	18.90	17.52	17.58	0.50	Pass
HT20	MCS0	2	13	2472	18.00	18.05	17.04	17.02	0.50	Pass

TEST RESULTS DATA
Peak Output Power

2.4GHz Band																
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					0a	1a	SUM	0a	1a	0a	1a	0a	1a	0a	1a	
11b	1Mbps	1	1	2412	24.20			30.00	30.00	1.32	2.05	25.52		36.00	36.00	Pass
11b	1Mbps	1	6	2437	25.40			30.00	30.00	1.32	2.05	26.72		36.00	36.00	Pass
11b	1Mbps	1	11	2462	23.48			30.00	30.00	1.32	2.05	24.80		36.00	36.00	Pass
11b	1Mbps	1	12	2467	21.95			30.00	30.00	1.32	2.05	23.27		36.00	36.00	Pass
11b	1Mbps	1	13	2472	17.48			30.00	30.00	1.32	2.05	18.80		36.00	36.00	Pass
11g	6Mbps	2	1	2412	23.84	22.23	26.12	30.00		2.05		28.17		36.00		Pass
11g	6Mbps	2	6	2437	24.95	24.07	27.54	30.00		2.05		29.59		36.00		Pass
11g	6Mbps	2	11	2462	23.20	21.76	25.55	30.00		2.05		27.60		36.00		Pass
11g	6Mbps	2	12	2467	20.72	19.37	23.11	30.00		2.05		25.16		36.00		Pass
11g	6Mbps	2	13	2472	19.30	17.99	21.70	30.00		2.05		23.75		36.00		Pass
HT20	MCS0	2	1	2412	21.02	19.40	23.30	30.00		2.05		25.35		36.00		Pass
HT20	MCS0	2	6	2437	24.80	24.10	27.47	30.00		2.05		29.52		36.00		Pass
HT20	MCS0	2	11	2462	22.15	20.58	24.45	30.00		2.05		26.50		36.00		Pass
HT20	MCS0	2	12	2467	21.00	19.51	23.33	30.00		2.05		25.38		36.00		Pass
HT20	MCS0	2	13	2472	19.50	18.38	21.99	30.00		2.05		24.04		36.00		Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Average Output Power

2.4GHz Band									
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)		
					0a	1a	0a	1a	SUM
11b	1Mbps	1	1	2412	0.06		21.00		
11b	1Mbps	1	6	2437	0.06		23.12		
11b	1Mbps	1	11	2462	0.06		20.36		
11b	1Mbps	1	12	2467	0.06		18.76		
11b	1Mbps	1	13	2472	0.06		14.00		
11g	6Mbps	2	1	2412	0.32	0.32	16.32	15.26	18.83
11g	6Mbps	2	6	2437	0.32	0.32	20.69	20.00	23.37
11g	6Mbps	2	11	2462	0.32	0.32	16.14	14.90	18.58
11g	6Mbps	2	12	2467	0.32	0.32	13.72	12.43	16.13
11g	6Mbps	2	13	2472	0.32	0.32	11.52	10.20	13.92
HT20	MCS0	2	1	2412	0.34	0.34	13.25	12.07	15.71
HT20	MCS0	2	6	2437	0.34	0.34	20.29	19.32	22.84
HT20	MCS0	2	11	2462	0.34	0.34	14.76	13.25	17.08
HT20	MCS0	2	12	2467	0.34	0.34	13.51	12.34	15.98
HT20	MCS0	2	13	2472	0.34	0.34	11.48	10.19	13.90

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band												
Mod.	Data Rate	N _{Tx}	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					0a	1a	Worse + 3.01	0a	1a	0a	1a	
11b	1Mbps	1	1	2412	0.10	-	-	1.32	2.05	8.00	8.00	Pass
11b	1Mbps	1	6	2437	0.36	-		1.32	2.05	8.00	8.00	Pass
11b	1Mbps	1	11	2462	-1.76	-		1.32	2.05	8.00	8.00	Pass
11b	1Mbps	1	12	2467	-3.15	-		1.32	2.05	8.00	8.00	Pass
11b	1Mbps	1	13	2472	-7.47	-		1.32	2.05	8.00	8.00	Pass
11g	6Mbps	2	1	2412	-8.02	-9.07	-5.01	4.70		8.00		Pass
11g	6Mbps	2	6	2437	-4.57	-4.39	-1.38	4.70		8.00		Pass
11g	6Mbps	2	11	2462	-9.28	-10.63	-6.27	4.70		8.00		Pass
11g	6Mbps	2	12	2467	-10.52	-13.20	-7.51	4.70		8.00		Pass
11g	6Mbps	2	13	2472	-12.24	-14.68	-9.23	4.70		8.00		Pass
HT20	MCS0	2	1	2412	-12.45	-12.47	-9.44	4.70		8.00		Pass
HT20	MCS0	2	6	2437	-5.01	-6.13	-2.00	4.70		8.00		Pass
HT20	MCS0	2	11	2462	-9.69	-11.88	-6.68	4.70		8.00		Pass
HT20	MCS0	2	12	2467	-10.28	-12.57	-7.27	4.70		8.00		Pass
HT20	MCS0	2	13	2472	-13.45	-15.97	-10.44	4.70		8.00		Pass

Measured power density (dBm) has offset with cable loss.

<Ant. 0b & Ant. 1b>

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					0b	1b	0b	1b		
11b	1Mbps	1	1	2412	11.70	-	8.04	-	0.50	Pass
11b	1Mbps	1	6	2437	14.20	-	8.52	-	0.50	Pass
11b	1Mbps	1	11	2462	11.60	-	8.00	-	0.50	Pass
11b	1Mbps	1	12	2467	11.50	-	8.00	-	0.50	Pass
11b	1Mbps	1	13	2472	11.50	-	8.00	-	0.50	Pass
11g	6Mbps	2	1	2412	18.20	18.30	16.32	16.32	0.50	Pass
11g	6Mbps	2	6	2437	22.45	20.15	16.28	16.30	0.50	Pass
11g	6Mbps	2	11	2462	18.15	17.95	16.28	16.34	0.50	Pass
11g	6Mbps	2	12	2467	18.35	18.20	16.32	16.34	0.50	Pass
11g	6Mbps	2	13	2472	17.25	17.25	16.32	16.34	0.50	Pass
HT20	MCS0	2	1	2412	19.05	18.90	17.54	17.54	0.50	Pass
HT20	MCS0	2	6	2437	19.80	19.85	17.52	17.58	0.50	Pass
HT20	MCS0	2	11	2462	18.90	18.85	17.56	17.58	0.50	Pass
HT20	MCS0	2	12	2467	19.05	18.95	17.56	17.58	0.50	Pass
HT20	MCS0	2	13	2472	17.95	17.95	16.96	17.06	0.50	Pass

TEST RESULTS DATA
Peak Output Power

2.4GHz Band																
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					0b	1b	SUM	0b	1b	0b	1b	0b	1b	0b	1b	
11b	1Mbps	1	1	2412	24.04			30.00	30.00	2.42	2.33	26.46		36.00	36.00	Pass
11b	1Mbps	1	6	2437	25.00			30.00	30.00	2.42	2.33	27.42		36.00	36.00	Pass
11b	1Mbps	1	11	2462	23.63			30.00	30.00	2.42	2.33	26.05		36.00	36.00	Pass
11b	1Mbps	1	12	2467	20.74			30.00	30.00	2.42	2.33	23.16		36.00	36.00	Pass
11b	1Mbps	1	13	2472	16.60			30.00	30.00	2.42	2.33	19.02		36.00	36.00	Pass
11g	6Mbps	2	1	2412	23.13	22.77	25.96	30.00		2.42		28.38		36.00		Pass
11g	6Mbps	2	6	2437	24.17	23.91	27.05	30.00		2.42		29.47		36.00		Pass
11g	6Mbps	2	11	2462	22.94	22.11	25.56	30.00		2.42		27.98		36.00		Pass
11g	6Mbps	2	12	2467	21.96	21.29	24.65	30.00		2.42		27.07		36.00		Pass
11g	6Mbps	2	13	2472	22.20	20.92	24.62	30.00		2.42		27.04		36.00		Pass
HT20	MCS0	2	1	2412	22.31	21.82	25.08	30.00		2.42		27.50		36.00		Pass
HT20	MCS0	2	6	2437	24.07	23.92	27.01	30.00		2.42		29.43		36.00		Pass
HT20	MCS0	2	11	2462	23.44	22.66	26.08	30.00		2.42		28.50		36.00		Pass
HT20	MCS0	2	12	2467	22.48	21.57	25.06	30.00		2.42		27.48		36.00		Pass
HT20	MCS0	2	13	2472	21.75	20.60	24.22	30.00		2.42		26.64		36.00		Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Average Output Power

2.4GHz Band									
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)		
					0b	1b	0b	1b	SUM
11b	1Mbps	1	1	2412	0.06		21.01		
11b	1Mbps	1	6	2437	0.06		22.75		
11b	1Mbps	1	11	2462	0.06		20.50		
11b	1Mbps	1	12	2467	0.06		17.48		
11b	1Mbps	1	13	2472	0.06		13.50		
11g	6Mbps	2	1	2412	0.35	0.35	16.43	16.23	19.34
11g	6Mbps	2	6	2437	0.35	0.35	20.91	20.43	23.69
11g	6Mbps	2	11	2462	0.35	0.35	16.16	15.61	18.91
11g	6Mbps	2	12	2467	0.35	0.35	15.05	14.51	17.80
11g	6Mbps	2	13	2472	0.35	0.35	13.98	13.28	16.66
HT20	MCS0	2	1	2412	0.38	0.38	14.99	14.69	17.85
HT20	MCS0	2	6	2437	0.38	0.38	19.72	20.01	22.88
HT20	MCS0	2	11	2462	0.38	0.38	16.48	15.87	19.19
HT20	MCS0	2	12	2467	0.38	0.38	15.03	14.43	17.75
HT20	MCS0	2	13	2472	0.38	0.38	13.28	12.59	15.96

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band												
Mod.	Data Rate	N _{Tx}	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					0b	1b	Worse + 3.01	0b	1b	0b	1b	
11b	1Mbps	1	1	2412	-1.83	-	-	2.42	2.33	8.00	8.00	Pass
11b	1Mbps	1	6	2437	-0.13	-		2.42	2.33	8.00	8.00	Pass
11b	1Mbps	1	11	2462	-2.66	-		2.42	2.33	8.00	8.00	Pass
11b	1Mbps	1	12	2467	-4.54	-		2.42	2.33	8.00	8.00	Pass
11b	1Mbps	1	13	2472	-9.21	-		2.42	2.33	8.00	8.00	Pass
11g	6Mbps	2	1	2412	-8.74	-9.86	-5.73	5.39		8.00		Pass
11g	6Mbps	2	6	2437	-4.12	-5.02	-1.11	5.39		8.00		Pass
11g	6Mbps	2	11	2462	-10.02	-10.79	-7.01	5.39		8.00		Pass
11g	6Mbps	2	12	2467	-10.07	-11.73	-7.06	5.39		8.00		Pass
11g	6Mbps	2	13	2472	-12.29	-13.39	-9.28	5.39		8.00		Pass
HT20	MCS0	2	1	2412	-11.08	-11.17	-8.07	5.39		8.00		Pass
HT20	MCS0	2	6	2437	-6.52	-6.93	-3.51	5.39		8.00		Pass
HT20	MCS0	2	11	2462	-10.25	-10.17	-7.16	5.39		8.00		Pass
HT20	MCS0	2	12	2467	-11.14	-12.52	-8.13	5.39		8.00		Pass
HT20	MCS0	2	13	2472	-13.25	-13.98	-10.24	5.39		8.00		Pass

Measured power density (dBm) has offset with cable loss.

<Ant. 0b & Ant. 1a>

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					0b	1a	0b	1a		
11b	1Mbps	1	1	2412	-	11.70	-	8.04	0.50	Pass
11b	1Mbps	1	6	2437	-	13.30	-	9.00	0.50	Pass
11b	1Mbps	1	11	2462	-	11.85	-	8.06	0.50	Pass
11b	1Mbps	1	12	2467	-	11.65	-	8.02	0.50	Pass
11b	1Mbps	1	13	2472	-	11.60	-	8.06	0.50	Pass
11g	6Mbps	2	1	2412	18.30	18.30	16.32	16.34	0.50	Pass
11g	6Mbps	2	6	2437	20.35	20.15	16.30	16.32	0.50	Pass
11g	6Mbps	2	11	2462	18.30	18.10	16.32	16.34	0.50	Pass
11g	6Mbps	2	12	2467	18.30	18.15	16.32	16.36	0.50	Pass
11g	6Mbps	2	13	2472	17.30	17.25	16.36	16.34	0.50	Pass
HT20	MCS0	2	1	2412	19.10	19.05	17.52	17.60	0.50	Pass
HT20	MCS0	2	6	2437	20.05	19.70	17.58	17.56	0.50	Pass
HT20	MCS0	2	11	2462	19.10	19.10	17.56	17.58	0.50	Pass
HT20	MCS0	2	12	2467	19.20	19.00	17.56	17.58	0.50	Pass
HT20	MCS0	2	13	2472	17.95	18.00	17.04	16.92	0.50	Pass

TEST RESULTS DATA
Peak Output Power

2.4GHz Band																
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					0b	1a	SUM	0b	1a	0b	1a	0b	1a	0b	1a	
11b	1Mbps	1	1	2412	-	23.14		30.00	30.00	2.42	2.05	-	25.19	36.00	36.00	Pass
11b	1Mbps	1	6	2437	-	24.75		30.00	30.00	2.42	2.05	-	26.80	36.00	36.00	Pass
11b	1Mbps	1	11	2462	-	22.94		30.00	30.00	2.42	2.05	-	24.99	36.00	36.00	Pass
11b	1Mbps	1	12	2467	-	20.02		30.00	30.00	2.42	2.05	-	22.07	36.00	36.00	Pass
11b	1Mbps	1	13	2472	-	17.84		30.00	30.00	2.42	2.05	-	19.89	36.00	36.00	Pass
11g	6Mbps	2	1	2412	23.21	22.71	25.98	30.00	30.00	2.42	2.42	28.40	36.00	36.00	Pass	
11g	6Mbps	2	6	2437	24.30	24.18	27.25	30.00	30.00	2.42	2.42	29.67	36.00	36.00	Pass	
11g	6Mbps	2	11	2462	23.82	22.63	26.28	30.00	30.00	2.42	2.42	28.70	36.00	36.00	Pass	
11g	6Mbps	2	12	2467	22.00	21.30	24.67	30.00	30.00	2.42	2.42	27.09	36.00	36.00	Pass	
11g	6Mbps	2	13	2472	21.72	20.81	24.30	30.00	30.00	2.42	2.42	26.72	36.00	36.00	Pass	
HT20	MCS0	2	1	2412	23.66	22.70	26.22	30.00	30.00	2.42	2.42	28.64	36.00	36.00	Pass	
HT20	MCS0	2	6	2437	24.12	23.97	27.06	30.00	30.00	2.42	2.42	29.48	36.00	36.00	Pass	
HT20	MCS0	2	11	2462	23.51	22.91	26.23	30.00	30.00	2.42	2.42	28.65	36.00	36.00	Pass	
HT20	MCS0	2	12	2467	21.41	20.49	23.98	30.00	30.00	2.42	2.42	26.40	36.00	36.00	Pass	
HT20	MCS0	2	13	2472	22.49	21.31	24.95	30.00	30.00	2.42	2.42	27.37	36.00	36.00	Pass	

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Average Output Power

2.4GHz Band									
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)		
					0b	1a	0b	1a	SUM
11b	1Mbps	1	1	2412		0.04		20.12	
11b	1Mbps	1	6	2437		0.04		22.34	
11b	1Mbps	1	11	2462		0.04		19.92	
11b	1Mbps	1	12	2467		0.04		16.84	
11b	1Mbps	1	13	2472		0.04		14.61	
11g	6Mbps	2	1	2412	0.35	0.35	16.27	16.21	19.25
11g	6Mbps	2	6	2437	0.35	0.35	20.70	20.65	23.69
11g	6Mbps	2	11	2462	0.35	0.35	16.63	16.07	19.37
11g	6Mbps	2	12	2467	0.35	0.35	14.76	14.45	17.62
11g	6Mbps	2	13	2472	0.35	0.35	13.66	13.05	16.38
HT20	MCS0	2	1	2412	0.37	0.31	16.28	15.88	19.10
HT20	MCS0	2	6	2437	0.37	0.31	20.13	19.98	23.07
HT20	MCS0	2	11	2462	0.37	0.31	16.38	15.75	19.09
HT20	MCS0	2	12	2467	0.37	0.31	14.12	13.22	16.71
HT20	MCS0	2	13	2472	0.37	0.31	13.96	13.27	16.64

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band												
Mod.	Data Rate	N _{Tx}	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					0b	1a	Worse + 3.01	0b	1a	0b	1a	
11b	1Mbps	1	1	2412	-	-1.78	-	2.42	2.05	8.00	8.00	Pass
11b	1Mbps	1	6	2437	-	-0.72		2.42	2.05	8.00	8.00	Pass
11b	1Mbps	1	11	2462	-	-2.16		2.42	2.05	8.00	8.00	Pass
11b	1Mbps	1	12	2467	-	-5.72		2.42	2.05	8.00	8.00	Pass
11b	1Mbps	1	13	2472	-	-8.20		2.42	2.05	8.00	8.00	Pass
11g	6Mbps	2	1	2412	-9.54	-10.08	-6.53	5.25		8.00		Pass
11g	6Mbps	2	6	2437	-4.30	-5.59	-1.29	5.25		8.00		Pass
11g	6Mbps	2	11	2462	-9.04	-9.58	-6.03	5.25		8.00		Pass
11g	6Mbps	2	12	2467	-9.86	-11.80	-6.85	5.25		8.00		Pass
11g	6Mbps	2	13	2472	-10.22	-11.90	-7.21	5.25		8.00		Pass
HT20	MCS0	2	1	2412	-10.44	-10.00	-6.99	5.25		8.00		Pass
HT20	MCS0	2	6	2437	-6.20	-5.95	-2.94	5.25		8.00		Pass
HT20	MCS0	2	11	2462	-9.39	-10.16	-6.38	5.25		8.00		Pass
HT20	MCS0	2	12	2467	-11.91	-12.82	-8.90	5.25		8.00		Pass
HT20	MCS0	2	13	2472	-12.98	-13.25	-9.97	5.25		8.00		Pass

Measured power density (dBm) has offset with cable loss.

<Ant. 0a & Ant. 1b>

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					0a	1b	0a	1b		
11b	1Mbps	1	1	2412	-	11.75	-	8.52	0.50	Pass
11b	1Mbps	1	6	2437	-	12.80	-	8.04	0.50	Pass
11b	1Mbps	1	11	2462	-	11.70	-	8.00	0.50	Pass
11b	1Mbps	1	12	2467	-	11.70	-	8.52	0.50	Pass
11b	1Mbps	1	13	2472	-	11.60	-	8.04	0.50	Pass
11g	6Mbps	2	1	2412	18.15	18.20	16.34	16.34	0.50	Pass
11g	6Mbps	2	6	2437	18.80	18.55	16.32	16.28	0.50	Pass
11g	6Mbps	2	11	2462	18.05	18.00	16.32	16.28	0.50	Pass
11g	6Mbps	2	12	2467	18.25	18.25	16.32	16.34	0.50	Pass
11g	6Mbps	2	13	2472	17.25	17.20	16.32	16.34	0.50	Pass
HT20	MCS0	2	1	2412	18.95	18.80	17.54	17.58	0.50	Pass
HT20	MCS0	2	6	2437	19.75	19.45	17.60	17.60	0.50	Pass
HT20	MCS0	2	11	2462	19.20	18.85	17.56	17.54	0.50	Pass
HT20	MCS0	2	12	2467	18.90	18.80	17.56	17.56	0.50	Pass
HT20	MCS0	2	13	2472	17.90	18.00	17.08	17.06	0.50	Pass

TEST RESULTS DATA
Peak Output Power

2.4GHz Band																
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					0a	1b	SUM	0a	1b	0a	1b	0a	1b	0a	1b	
11b	1Mbps	1	1	2412		22.26		30.00	30.00	1.32	2.33		24.59	36.00	36.00	Pass
11b	1Mbps	1	6	2437		24.70		30.00	30.00	1.32	2.33		27.03	36.00	36.00	Pass
11b	1Mbps	1	11	2462		22.04		30.00	30.00	1.32	2.33		24.37	36.00	36.00	Pass
11b	1Mbps	1	12	2467		21.37		30.00	30.00	1.32	2.33		23.70	36.00	36.00	Pass
11b	1Mbps	1	13	2472		18.51		30.00	30.00	1.32	2.33		20.84	36.00	36.00	Pass
11g	6Mbps	2	1	2412	22.52	21.23	24.93	30.00		2.33		27.26		36.00		Pass
11g	6Mbps	2	6	2437	25.20	24.24	27.76	30.00		2.33		30.09		36.00		Pass
11g	6Mbps	2	11	2462	22.65	21.10	24.95	30.00		2.33		27.28		36.00		Pass
11g	6Mbps	2	12	2467	20.71	19.40	23.11	30.00		2.33		25.44		36.00		Pass
11g	6Mbps	2	13	2472	19.40	17.74	21.66	30.00		2.33		23.99		36.00		Pass
HT20	MCS0	2	1	2412	22.04	20.48	24.34	30.00		2.33		26.67		36.00		Pass
HT20	MCS0	2	6	2437	25.12	24.16	27.68	30.00		2.33		30.01		36.00		Pass
HT20	MCS0	2	11	2462	21.91	20.50	24.27	30.00		2.33		26.60		36.00		Pass
HT20	MCS0	2	12	2467	21.30	19.58	23.53	30.00		2.33		25.86		36.00		Pass
HT20	MCS0	2	13	2472	20.46	18.50	22.60	30.00		2.33		24.93		36.00		Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Average Output Power

2.4GHz Band									
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)		
					0a	1b	0a	1b	SUM
11b	1Mbps	1	1	2412		0.04		19.29	
11b	1Mbps	1	6	2437		0.04		22.22	
11b	1Mbps	1	11	2462		0.04		18.89	
11b	1Mbps	1	12	2467		0.04		18.28	
11b	1Mbps	1	13	2472		0.04		15.19	
11g	6Mbps	2	1	2412	0.30	0.30	15.50	14.30	17.95
11g	6Mbps	2	6	2437	0.30	0.30	20.75	20.20	23.49
11g	6Mbps	2	11	2462	0.30	0.30	15.53	14.28	17.96
11g	6Mbps	2	12	2467	0.30	0.30	13.80	12.48	16.20
11g	6Mbps	2	13	2472	0.30	0.30	11.45	10.37	13.95
HT20	MCS0	2	1	2412	0.31	0.37	14.67	13.47	17.12
HT20	MCS0	2	6	2437	0.31	0.37	20.21	19.23	22.76
HT20	MCS0	2	11	2462	0.31	0.37	14.42	13.52	17.01
HT20	MCS0	2	12	2467	0.31	0.37	13.91	12.64	16.33
HT20	MCS0	2	13	2472	0.31	0.37	11.96	10.22	14.19

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band												
Mod.	Data Rate	N _{Tx}	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					0a	1b	Worse + 3.01	0a	1b	0a	1b	
11b	1Mbps	1	1	2412	-	-3.18	-	1.32	2.33	8.00	8.00	Pass
11b	1Mbps	1	6	2437	-	-1.31		1.32	2.33	8.00	8.00	Pass
11b	1Mbps	1	11	2462	-	-4.09		1.32	2.33	8.00	8.00	Pass
11b	1Mbps	1	12	2467	-	-5.66		1.32	2.33	8.00	8.00	Pass
11b	1Mbps	1	13	2472	-	-8.32		1.32	2.33	8.00	8.00	Pass
11g	6Mbps	2	1	2412	-10.90	-11.36	-7.89	4.85		8.00		Pass
11g	6Mbps	2	6	2437	-4.93	-7.30	-1.92	4.85		8.00		Pass
11g	6Mbps	2	11	2462	-10.56	-11.29	-7.55	4.85		8.00		Pass
11g	6Mbps	2	12	2467	-12.36	-13.56	-9.35	4.85		8.00		Pass
11g	6Mbps	2	13	2472	-14.28	-14.93	-11.27	4.85		8.00		Pass
HT20	MCS0	2	1	2412	-12.16	-13.69	-9.15	4.85		8.00		Pass
HT20	MCS0	2	6	2437	-5.95	-6.49	-2.94	4.85		8.00		Pass
HT20	MCS0	2	11	2462	-11.93	-12.50	-8.92	4.85		8.00		Pass
HT20	MCS0	2	12	2467	-12.87	-14.18	-9.86	4.85		8.00		Pass
HT20	MCS0	2	13	2472	-13.66	-16.44	-10.65	4.85		8.00		Pass

Measured power density (dBm) has offset with cable loss.



Appendix B. Radiated Spurious Emission

Test Engineer :	Alex Jeng, Bill Chang and Wilson Wu					Temperature :			24.0~24.2°C		
						Relative Humidity :			50~52%		

2.4GHz 2400~2483.5MHz

<Bottom Side>

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant. 0a	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol.
802.11b CH 01 2412MHz		2387.07	58.2	-15.8	74	55.35	27.15	6.98	31.28	359	197	P	H
		2385.81	52.86	-1.14	54	50.01	27.15	6.98	31.28	359	197	A	H
	*	2412	108.61	-	-	105.69	27.19	7	31.27	359	197	P	H
	*	2412	105.54	-	-	102.62	27.19	7	31.27	359	197	A	H
													H
													H
		2385.81	54.96	-19.04	74	52.11	27.15	6.98	31.28	139	279	P	V
		2385.705	47.94	-6.06	54	45.09	27.15	6.98	31.28	139	279	A	V
	*	2412	102.57	-	-	99.65	27.19	7	31.27	139	279	P	V
	*	2412	99.52	-	-	96.6	27.19	7	31.27	139	279	A	V
802.11b CH 06 2437MHz		2389.24	54.74	-19.26	74	51.89	27.15	6.98	31.28	278	161	P	H
		2389.94	46.24	-7.76	54	43.38	27.15	6.98	31.27	278	161	A	H
	*	2437	112	-	-	108.95	27.28	7.03	31.26	281	177	P	H
	*	2437	108.74	-	-	105.69	27.28	7.03	31.26	278	161	A	H
		2485.58	55.55	-18.45	74	52.37	27.36	7.07	31.25	278	161	P	H
		2485.44	47.06	-6.94	54	43.88	27.36	7.07	31.25	278	161	A	H
		2387.98	53.79	-20.21	74	50.94	27.15	6.98	31.28	137	140	P	V
		2389.94	44.62	-9.38	54	41.76	27.15	6.98	31.27	137	140	A	V
	*	2437	107.71	-	-	104.66	27.28	7.03	31.26	137	140	P	V
	*	2437	104.5	-	-	101.45	27.28	7.03	31.26	137	140	A	V
		2485.58	53.64	-20.36	74	50.46	27.36	7.07	31.25	137	140	P	V
		2485.44	44.38	-9.62	54	41.2	27.36	7.07	31.25	137	140	A	V



802.11b CH 11 2462MHz	*	2462	109.5	-	-	106.39	27.32	7.05	31.26	194	187	P	H
	*	2462	107.7	-	-	104.59	27.32	7.05	31.26	194	187	A	H
		2484.64	63.68	-10.32	74	60.5	27.36	7.07	31.25	194	187	P	H
		2483.52	53.32	-0.68	54	50.14	27.36	7.07	31.25	194	187	A	H
													H
	*	2462	107.34	-	-	104.23	27.32	7.05	31.26	135	286	P	V
	*	2462	101.81	-	-	98.7	27.32	7.05	31.26	135	286	A	V
		2483.96	56.76	-17.24	74	53.58	27.36	7.07	31.25	135	286	P	V
		2483.52	47.07	-6.93	54	43.89	27.36	7.07	31.25	135	286	A	V
													V
802.11b CH 12 2467MHz	*	2467	107.72	-	-	104.6	27.32	7.05	31.25	339	192	P	H
	*	2467	104.18	-	-	101.06	27.32	7.05	31.25	339	192	A	H
		2484.4	63.84	-10.16	74	60.66	27.36	7.07	31.25	339	192	P	H
		2485.28	52.4	-1.6	54	49.22	27.36	7.07	31.25	339	192	A	H
													H
	*	2467	104.17	-	-	101.05	27.32	7.05	31.25	123	293	P	V
	*	2467	98.97	-	-	95.85	27.32	7.05	31.25	123	293	A	V
		2483.84	54.9	-19.1	74	51.72	27.36	7.07	31.25	123	293	P	V
		2485.36	45.88	-8.12	54	42.7	27.36	7.07	31.25	123	293	A	V
													V
802.11b CH 13 2472MHz	*	2472	103.52	-	-	100.34	27.36	7.07	31.25	379	179	P	H
	*	2472	100.43	-	-	97.25	27.36	7.07	31.25	379	179	A	H
		2483.52	64.07	-9.93	74	60.89	27.36	7.07	31.25	379	179	P	H
		2487.36	52.49	-1.51	54	49.31	27.36	7.07	31.25	379	179	A	H
													H
	*	2472	100.97	-	-	97.79	27.36	7.07	31.25	126	294	P	V
	*	2472	96.16	-	-	92.98	27.36	7.07	31.25	126	294	A	V
		2483.84	57.47	-16.53	74	54.29	27.36	7.07	31.25	126	294	P	V
		2487.28	45.67	-8.33	54	42.49	27.36	7.07	31.25	126	294	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 0a	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	36.16	-37.84	74	46.05	31.22	10.07	51.18	100	0	P	H
													H
													H
													H
		4824	35.86	-38.14	74	45.75	31.22	10.07	51.18	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	39.42	-34.58	74	49.15	31.31	10.11	51.15	100	0	P	H
		7311	42.31	-31.69	74	44.31	36.27	12.53	50.8	100	0	P	H
													H
		4874	38.19	-35.81	74	47.92	31.31	10.11	51.15	100	0	P	V
		7311	47.34	-26.66	74	49.34	36.27	12.53	50.8	100	0	P	V
													V
													V
													V
802.11b CH 11 2462MHz		4924	34.58	-39.42	74	44.18	31.39	10.14	51.13	100	0	P	H
		7386	37.35	-36.65	74	38.91	36.51	12.73	50.8	100	0	P	H
													H
		4924	31.43	-42.57	74	41.03	31.39	10.14	51.13	100	0	P	V
		7386	39.88	-34.12	74	41.44	36.51	12.73	50.8	100	0	P	V
													V
													V
													V



802.11b CH 12 2467MHz		4934	33.67	-40.33	74	43.27	31.39	10.14	51.13	100	0	P	H
		7401	36.83	-37.17	74	38.32	36.56	12.75	50.8	100	0	P	H
													H
													H
		4934	30.76	-43.24	74	40.36	31.39	10.14	51.13	100	0	P	V
		7401	37.54	-36.46	74	39.03	36.56	12.75	50.8	100	0	P	V
													V
													V
802.11b CH 13 2472MHz		4944	31.49	-42.51	74	41.05	31.42	10.15	51.13	100	0	P	H
		7416	36.32	-37.68	74	37.81	36.56	12.75	50.8	100	0	P	H
													H
													H
		4944	29.77	-44.23	74	39.33	31.42	10.15	51.13	100	0	P	V
		7416	35.41	-38.59	74	36.9	36.56	12.75	50.8	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11b (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
0a		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11b LF		104.79	31.61	-11.89	43.5	45.85	16.6	1.05	31.89	100	0	P	H
		139.35	25.83	-17.67	43.5	38.65	17.8	1.24	31.86	-	-	P	H
		264.09	27.54	-18.46	46	38.01	19.56	1.74	31.77	-	-	P	H
		398	27.54	-18.46	46	34.93	22.15	2.22	31.76	-	-	P	H
		674.5	26.7	-19.3	46	29.87	25.89	2.95	32.01	-	-	P	H
		935.6	31.87	-14.13	46	29.9	29.77	3.44	31.24	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
Remark	1.	No other spurious found.											
	2.	All results are PASS against limit line.											

**Note symbol**

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dB μ V/m) =

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

2. Over Limit(dB) = Level(dB μ V/m) – Limit Line(dB μ V/m)

For Peak Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 54.51(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 55.45 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 55.45(\text{dB μ V/m}) - 74(\text{dB μ V/m})$$

$$= -18.55(\text{dB})$$

For Average Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 42.6(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 43.54 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 43.54(\text{dB μ V/m}) - 54(\text{dB μ V/m})$$

$$= -10.46(\text{dB})$$

Both peak and average measured complies with the limit line, so test result is “PASS”.



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0b		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2387.175	57.7	-16.3	74	54.85	27.15	6.98	31.28	288	350	P	H
		2385.915	50.65	-3.35	54	47.8	27.15	6.98	31.28	288	350	A	H
	*	2412	108.47	-	-	105.55	27.19	7	31.27	288	350	P	H
	*	2412	105.42	-	-	102.5	27.19	7	31.27	288	350	A	H
													H
													H
		2385.18	54.44	-19.56	74	51.65	27.11	6.96	31.28	270	125	P	V
		2385.915	46.69	-7.31	54	43.84	27.15	6.98	31.28	270	125	A	V
	*	2412	105.91	-	-	102.99	27.19	7	31.27	270	125	P	V
	*	2412	102.59	-	-	99.67	27.19	7	31.27	270	125	A	V
802.11b CH 06 2437MHz													V
		2389.66	55.72	-18.28	74	52.87	27.15	6.98	31.28	279	191	P	H
		2389.94	49.39	-4.61	54	46.53	27.15	6.98	31.27	279	191	A	H
	*	2437	113.14	-	-	110.09	27.28	7.03	31.26	279	191	P	H
	*	2437	110.1	-	-	107.05	27.28	7.03	31.26	279	191	A	H
		2485.72	58.03	-15.97	74	54.85	27.36	7.07	31.25	279	191	P	H
		2485.44	52.24	-1.76	54	49.06	27.36	7.07	31.25	279	191	A	H
		2361.66	53.1	-20.9	74	50.39	27.07	6.93	31.29	263	97	P	V
		2389.94	43.37	-10.63	54	40.51	27.15	6.98	31.27	263	97	A	V
	*	2437	109.61	-	-	106.56	27.28	7.03	31.26	263	97	P	V
	*	2437	106.63	-	-	103.58	27.28	7.03	31.26	263	97	A	V
		2485.23	53.27	-20.73	74	50.09	27.36	7.07	31.25	263	97	P	V
		2485.44	45.15	-8.85	54	41.97	27.36	7.07	31.25	263	97	A	V



802.11b CH 11 2462MHz	*	2462	108.5	-	-	105.39	27.32	7.05	31.26	276	161	P	H
	*	2462	105.4	-	-	102.29	27.32	7.05	31.26	276	161	A	H
		2488.44	57.81	-16.19	74	54.57	27.4	7.09	31.25	276	161	P	H
		2488.48	52.06	-1.94	54	48.82	27.4	7.09	31.25	276	161	A	H
													H
	*	2462	107.35	-	-	104.24	27.32	7.05	31.26	211	72	P	V
	*	2462	103.82	-	-	100.71	27.32	7.05	31.26	211	72	A	V
		2485.04	57.43	-16.57	74	54.25	27.36	7.07	31.25	211	72	P	V
		2488.4	48.43	-5.57	54	45.19	27.4	7.09	31.25	211	72	A	V
													V
802.11b CH 12 2467MHz	*	2467	106.43	-	-	103.31	27.32	7.05	31.25	275	180	P	H
	*	2467	103.36	-	-	100.24	27.32	7.05	31.25	275	180	A	H
		2484.16	60.07	-13.93	74	56.89	27.36	7.07	31.25	275	180	P	H
		2484.08	52.62	-1.38	54	49.44	27.36	7.07	31.25	275	180	A	H
													H
	*	2467	103.33	-	-	100.21	27.32	7.05	31.25	257	85	P	V
	*	2467	100.22	-	-	97.1	27.32	7.05	31.25	257	85	A	V
		2485.12	57.69	-16.31	74	54.51	27.36	7.07	31.25	257	85	P	V
		2484.12	48.22	-5.78	54	45.04	27.36	7.07	31.25	257	85	A	V
													V
802.11b CH 13 2472MHz	*	2472	102.93	-	-	99.75	27.36	7.07	31.25	247	174	P	H
	*	2472	99.81	-	-	96.63	27.36	7.07	31.25	247	174	A	H
		2483.96	60.19	-13.81	74	57.01	27.36	7.07	31.25	247	174	P	H
		2487.16	51.75	-2.25	54	48.57	27.36	7.07	31.25	247	174	A	H
													H
	*	2472	99.02	-	-	95.84	27.36	7.07	31.25	246	100	P	V
	*	2472	95.91	-	-	92.73	27.36	7.07	31.25	246	100	A	V
		2485.64	57.54	-16.46	74	54.36	27.36	7.07	31.25	246	100	P	V
		2487.16	48.05	-5.95	54	44.87	27.36	7.07	31.25	246	100	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 0b	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	36.85	-37.15	74	46.74	31.22	10.07	51.18	100	0	P	H
													H
													H
													H
		4824	33.91	-40.09	74	43.8	31.22	10.07	51.18	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	41.18	-32.82	74	50.91	31.31	10.11	51.15	100	0	P	H
		7311	41.93	-32.07	74	43.93	36.27	12.53	50.8	100	0	P	H
													H
		4874	40.5	-33.5	74	50.23	31.31	10.11	51.15	100	0	P	V
		7311	42.67	-31.33	74	44.67	36.27	12.53	50.8	100	0	P	V
													V
													V
													V
802.11b CH 11 2462MHz		4924	33.04	-40.96	74	42.64	31.39	10.14	51.13	100	0	P	H
		7386	38.78	-35.22	74	40.34	36.51	12.73	50.8	100	0	P	H
													H
		4924	32.65	-41.35	74	42.25	31.39	10.14	51.13	100	0	P	V
		7386	38.79	-35.21	74	40.35	36.51	12.73	50.8	100	0	P	V
													V
													V
													V



802.11b CH 12 2467MHz		4934	31.78	-42.22	74	41.38	31.39	10.14	51.13	100	0	P	H
		7401	35.93	-38.07	74	37.42	36.56	12.75	50.8	100	0	P	H
													H
													H
		4934	30.72	-43.28	74	40.32	31.39	10.14	51.13	100	0	P	V
		7401	37.19	-36.81	74	38.68	36.56	12.75	50.8	100	0	P	V
													V
													V
802.11b CH 13 2472MHz		4944	29.51	-44.49	74	39.07	31.42	10.15	51.13	100	0	P	H
		7416	35.56	-38.44	74	37.05	36.56	12.75	50.8	100	0	P	H
													H
													H
		4944	29.78	-44.22	74	39.34	31.42	10.15	51.13	100	0	P	V
		7416	35.13	-38.87	74	36.62	36.56	12.75	50.8	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11b (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.	
0b		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
2.4GHz 802.11b LF		106.14	30.2	-13.3	43.5	44.33	16.7	1.06	31.89	100	0	P	H	
		129.36	26.69	-16.81	43.5	39.68	17.68	1.2	31.87	-	-	P	H	
		264.9	28.33	-17.67	46	38.86	19.5	1.74	31.77	-	-	P	H	
		398	28.34	-17.66	46	35.73	22.15	2.22	31.76	-	-	P	H	
		519.8	27.63	-18.37	46	32.83	24.12	2.56	31.88	-	-	P	H	
		953.1	31.5	-14.5	46	29.02	30.12	3.45	31.09	-	-	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
Remark	1.	No other spurious found.												
	2.	All results are PASS against limit line.												

**Note symbol**

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dB μ V/m) =

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

2. Over Limit(dB) = Level(dB μ V/m) – Limit Line(dB μ V/m)

For Peak Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 54.51(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 55.45 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 55.45(\text{dB μ V/m}) - 74(\text{dB μ V/m})$$

$$= -18.55(\text{dB})$$

For Average Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 42.6(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 43.54 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 43.54(\text{dB μ V/m}) - 54(\text{dB μ V/m})$$

$$= -10.46(\text{dB})$$

Both peak and average measured complies with the limit line, so test result is “PASS”.



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.								
												Ant.	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
0a+1a		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)								
802.11g CH 01 2412MHz		2389.065	62.25	-11.75	74	59.4	27.15	6.98	31.28	119	360	P	H								
		2389.38	51.28	-2.72	54	48.43	27.15	6.98	31.28	119	360	A	H								
	*	2412	106.38	-	-	103.46	27.19	7	31.27	119	360	P	H								
	*	2412	98.94	-	-	96.02	27.19	7	31.27	119	360	A	H								
													H								
													H								
		2390	61.25	-12.75	74	58.39	27.15	6.98	31.27	136	245	P	V								
		2390	51.03	-2.97	54	48.17	27.15	6.98	31.27	136	245	A	V								
	*	2412	106.48	-	-	103.56	27.19	7	31.27	136	245	P	V								
	*	2412	98.62	-	-	95.7	27.19	7	31.27	136	245	A	V								
802.11g CH 06 2437MHz		2389.8	61.05	-12.95	74	58.19	27.15	6.98	31.27	400	346	P	H								
		2389.66	51.45	-2.55	54	48.6	27.15	6.98	31.28	400	346	A	H								
	*	2437	112.53	-	-	109.48	27.28	7.03	31.26	400	346	P	H								
	*	2437	104.9	-	-	101.85	27.28	7.03	31.26	400	346	A	H								
		2485.09	59.64	-14.36	74	56.46	27.36	7.07	31.25	400	346	P	H								
		2483.62	48.4	-5.6	54	45.22	27.36	7.07	31.25	400	346	A	H								
		2387.42	61.61	-12.39	74	58.76	27.15	6.98	31.28	106	290	P	V								
		2389.94	51.06	-2.94	54	48.2	27.15	6.98	31.27	106	290	A	V								
	*	2437	111.99	-	-	108.94	27.28	7.03	31.26	106	290	P	V								
	*	2437	104.46	-	-	101.41	27.28	7.03	31.26	106	290	A	V								
		2483.48	59.29	-90.71	150	56.11	27.36	7.07	31.25	106	290	P	V								
		2485.02	48.22	-5.78	54	45.04	27.36	7.07	31.25	106	290	A	V								



802.11g CH 11 2462MHz	*	2462	107.77	-	-	104.66	27.32	7.05	31.26	392	345	P	H
	*	2462	100.15	-	-	97.04	27.32	7.05	31.26	392	345	A	H
		2484.48	63.07	-10.93	74	59.89	27.36	7.07	31.25	392	345	P	H
		2483.52	51.36	-2.64	54	48.18	27.36	7.07	31.25	392	345	A	H
													H
	*	2462	104.1	-	-	100.99	27.32	7.05	31.26	119	244	P	V
	*	2462	96.1	-	-	92.99	27.32	7.05	31.26	119	244	A	V
		2483.88	63.28	-10.72	74	60.1	27.36	7.07	31.25	119	244	P	V
		2483.6	51.01	-2.99	54	47.83	27.36	7.07	31.25	119	244	A	V
													V
802.11g CH 12 2467MHz	*	2467	106.48	-	-	103.36	27.32	7.05	31.25	389	347	P	H
	*	2467	99.01	-	-	95.89	27.32	7.05	31.25	389	347	A	H
		2484.8	63.06	-10.94	74	59.88	27.36	7.07	31.25	389	347	P	H
		2483.92	53.37	-0.63	54	50.19	27.36	7.07	31.25	389	347	A	H
													H
	*	2467	104.21	-	-	101.09	27.32	7.05	31.25	164	329	P	V
	*	2467	96.88	-	-	93.76	27.32	7.05	31.25	164	329	A	V
		2485.8	59.29	-14.71	74	56.11	27.36	7.07	31.25	164	329	P	V
		2483.64	49.75	-4.25	54	46.57	27.36	7.07	31.25	164	329	A	V
													V
802.11g CH 13 2472MHz	*	2472	103.24	-	-	100.06	27.36	7.07	31.25	277	307	P	H
	*	2472	95.49	-	-	92.31	27.36	7.07	31.25	277	307	A	H
		2483.52	61.22	-12.78	74	58.04	27.36	7.07	31.25	277	307	P	H
		2483.56	51.11	-2.89	54	47.93	27.36	7.07	31.25	277	307	A	H
													H
	*	2472	105.64	-	-	102.46	27.36	7.07	31.25	325	276	P	V
	*	2472	98.2	-	-	95.02	27.36	7.07	31.25	325	276	A	V
		2484.72	62.75	-11.25	74	59.57	27.36	7.07	31.25	325	276	P	V
		2484.32	52.69	-1.31	54	49.51	27.36	7.07	31.25	325	276	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 0a+1a	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	30.09	-43.91	74	39.98	31.22	10.07	51.18	100	0	P	H
													H
													H
													H
		4824	29.29	-44.71	74	39.18	31.22	10.07	51.18	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	30.12	-43.88	74	39.85	31.31	10.11	51.15	100	0	P	H
		7311	40.52	-33.48	74	42.52	36.27	12.53	50.8	100	0	P	H
													H
		4874	30.19	-43.81	74	39.92	31.31	10.11	51.15	100	0	P	V
		7311	38.13	-35.87	74	40.13	36.27	12.53	50.8	100	0	P	V
													V
													V
													V
802.11g CH 11 2462MHz		4960	28.53	-45.47	74	38.04	31.44	10.17	51.12	100	0	P	H
		7440	36.54	-37.46	74	37.88	36.66	12.8	50.8	100	0	P	H
													H
		4960	27.71	-46.29	74	37.22	31.44	10.17	51.12	100	0	P	V
		7440	36.52	-37.48	74	37.86	36.66	12.8	50.8	100	0	P	V
													V
													V
													V



802.11g CH 12 2467MHz		4934	30.58	-43.42	74	40.18	31.39	10.14	51.13	100	0	P	H
		7401	36.45	-37.55	74	37.94	36.56	12.75	50.8	100	0	P	H
													H
													H
		4934	28.42	-45.58	74	38.02	31.39	10.14	51.13	100	0	P	V
		7401	36.55	-37.45	74	38.04	36.56	12.75	50.8	100	0	P	V
													V
													V
802.11g CH 13 2472MHz		4944	29.1	-44.9	74	38.66	31.42	10.15	51.13	100	0	P	H
		7416	35.55	-38.45	74	37.04	36.56	12.75	50.8	100	0	P	H
													H
													H
		4944	28.45	-45.55	74	38.01	31.42	10.15	51.13	100	0	P	V
		7416	35.14	-38.86	74	36.63	36.56	12.75	50.8	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 0a+1a	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2390	62.97	-11.03	74	60.11	27.15	6.98	31.27	149	189	P	H
		2390	52.67	-1.33	54	49.81	27.15	6.98	31.27	149	189	A	H
	*	2412	105.1	-	-	102.18	27.19	7	31.27	149	189	P	H
	*	2412	98.03	-	-	95.11	27.19	7	31.27	149	189	A	H
													H
													H
		2388.75	59.82	-14.18	74	56.97	27.15	6.98	31.28	100	291	P	V
		2390	49.72	-4.28	54	46.86	27.15	6.98	31.27	100	291	A	V
	*	2412	104.07	-	-	101.15	27.19	7	31.27	100	291	P	V
	*	2412	97.15	-	-	94.23	27.19	7	31.27	100	291	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2386.86	62.14	-11.86	74	59.29	27.15	6.98	31.28	142	187	P	H
		2389.94	52.76	-1.24	54	49.9	27.15	6.98	31.27	142	187	A	H
	*	2437	110.55	-	-	107.5	27.28	7.03	31.26	142	187	P	H
	*	2437	103.04	-	-	99.99	27.28	7.03	31.26	142	187	A	H
		2484.67	60.76	-13.24	74	57.58	27.36	7.07	31.25	142	187	P	H
		2484.25	49.71	-4.29	54	46.53	27.36	7.07	31.25	142	187	A	H
		2387.98	61.68	-12.32	74	58.83	27.15	6.98	31.28	103	290	P	V
		2389.94	52.38	-1.62	54	49.52	27.15	6.98	31.27	103	290	A	V
	*	2437	112.76	-	-	109.71	27.28	7.03	31.26	103	290	P	V
	*	2437	105.31	-	-	102.26	27.28	7.03	31.26	103	290	A	V
		2483.62	60.66	-13.34	74	57.48	27.36	7.07	31.25	103	290	P	V
		2483.97	50.56	-3.44	54	47.38	27.36	7.07	31.25	103	290	A	V



802.11n HT20 CH 11 2462MHz	*	2462	105.81	-	-	102.7	27.32	7.05	31.26	139	200	P	H
	*	2462	98.55	-	-	95.44	27.32	7.05	31.26	139	200	A	H
		2484.56	63.6	-10.4	74	60.42	27.36	7.07	31.25	139	200	P	H
		2484.08	50.22	-3.78	54	47.04	27.36	7.07	31.25	139	200	A	H
													H
	*	2462	107.16	-	-	104.05	27.32	7.05	31.26	100	291	P	V
	*	2462	99.36	-	-	96.25	27.32	7.05	31.26	100	291	A	V
		2485.04	61.75	-12.25	74	58.57	27.36	7.07	31.25	100	291	P	V
		2484.68	48.83	-5.17	54	45.65	27.36	7.07	31.25	100	291	A	V
													V
802.11n HT20 CH 12 2467MHz	*	2467	103.19	-	-	100.07	27.32	7.05	31.25	140	204	P	H
	*	2467	95.69	-	-	92.57	27.32	7.05	31.25	140	204	A	H
		2484.24	61.12	-12.88	74	57.94	27.36	7.07	31.25	140	204	P	H
		2483.96	50.8	-3.2	54	47.62	27.36	7.07	31.25	140	204	A	H
													H
	*	2467	106.34	-	-	103.22	27.32	7.05	31.25	100	292	P	V
	*	2467	98.76	-	-	95.64	27.32	7.05	31.25	100	292	A	V
		2485.08	63.86	-10.14	74	60.68	27.36	7.07	31.25	100	292	P	V
		2484.84	52.56	-1.44	54	49.38	27.36	7.07	31.25	100	292	A	V
													V
802.11n HT20 CH 13 2472MHz	*	2472	100.91	-	-	97.73	27.36	7.07	31.25	125	217	P	H
	*	2472	92.95	-	-	89.77	27.36	7.07	31.25	125	217	A	H
		2486.72	63.83	-10.17	74	60.65	27.36	7.07	31.25	125	217	P	H
		2483.52	52.48	-1.52	54	49.3	27.36	7.07	31.25	125	217	A	H
													H
	*	2472	103.22	-	-	100.04	27.36	7.07	31.25	100	291	P	V
	*	2472	96.06	-	-	92.88	27.36	7.07	31.25	100	291	A	V
		2484.96	62.35	-11.65	74	59.17	27.36	7.07	31.25	100	291	P	V
		2484.96	51.18	-2.82	54	48	27.36	7.07	31.25	100	291	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 0a+1a	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	29.5	-44.5	74	39.39	31.22	10.07	51.18	100	0	P	H
													H
													H
													H
		4824	28.9	-45.1	74	38.79	31.22	10.07	51.18	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	31.71	-42.29	74	41.44	31.31	10.11	51.15	100	0	P	H
		7311	38.1	-35.9	74	40.1	36.27	12.53	50.8	100	0	P	H
													H
													H
		4874	29.9	-44.1	74	39.63	31.31	10.11	51.15	100	0	P	V
		7311	39.04	-34.96	74	41.04	36.27	12.53	50.8	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	30.11	-43.89	74	39.71	31.39	10.14	51.13	100	0	P	H
		7386	37.03	-36.97	74	38.59	36.51	12.73	50.8	100	0	P	H
													H
													H
		4924	29.4	-44.6	74	39	31.39	10.14	51.13	100	0	P	V
		7386	36.43	-37.57	74	37.99	36.51	12.73	50.8	100	0	P	V
													V
													V



2467MHz		4934	29.87	-44.13	74	39.47	31.39	10.14	51.13	100	0	P	H
		7401	36.57	-37.43	74	38.06	36.56	12.75	50.8	100	0	P	H
													H
													H
		4934	29.59	-44.41	74	39.19	31.39	10.14	51.13	100	0	P	V
		7401	36.75	-37.25	74	38.24	36.56	12.75	50.8	100	0	P	V
													V
													V
2472MHz		4944	29.21	-44.79	74	38.77	31.42	10.15	51.13	100	0	P	H
		7416	37.23	-36.77	74	38.72	36.56	12.75	50.8	100	0	P	H
													H
													H
		4944	28.56	-45.44	74	38.12	31.42	10.15	51.13	100	0	P	V
		7416	36.26	-37.74	74	37.75	36.56	12.75	50.8	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
0a+1a		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11g LF		104.52	29.64	-13.86	43.5	43.88	16.6	1.05	31.89	100	0	P	H
		130.44	27.41	-16.09	43.5	40.37	17.71	1.2	31.87	-	-	P	H
		262.74	28.64	-17.36	46	39.05	19.62	1.74	31.77	-	-	P	H
		397.3	27.07	-18.93	46	34.46	22.15	2.22	31.76	-	-	P	H
		518.4	26.69	-19.31	46	31.9	24.11	2.56	31.88	-	-	P	H
		712.3	28.3	-17.7	46	30.89	26.41	3.02	32.02	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

**Note symbol**

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dB μ V/m) =

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

2. Over Limit(dB) = Level(dB μ V/m) – Limit Line(dB μ V/m)

For Peak Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 54.51(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 55.45 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 55.45(\text{dB μ V/m}) - 74(\text{dB μ V/m})$$

$$= -18.55(\text{dB})$$

For Average Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 42.6(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 43.54 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 43.54(\text{dB μ V/m}) - 54(\text{dB μ V/m})$$

$$= -10.46(\text{dB})$$

Both peak and average measured complies with the limit line, so test result is “PASS”.



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.								
												Ant.	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
0a+1b		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)								
802.11g CH 01 2412MHz		2389.59	61.63	-12.37	74	58.78	27.15	6.98	31.28	100	159	P	H								
		2390	51.81	-2.19	54	48.95	27.15	6.98	31.27	100	159	A	H								
	*	2412	106.94	-	-	104.02	27.19	7	31.27	100	159	P	H								
	*	2412	99.47	-	-	96.55	27.19	7	31.27	100	159	A	H								
													H								
													H								
		2389.59	63.29	-10.71	74	60.44	27.15	6.98	31.28	100	292	P	V								
		2389.905	53.4	-0.6	54	50.54	27.15	6.98	31.27	100	292	A	V								
	*	2412	109.19	-	-	106.27	27.19	7	31.27	100	292	P	V								
	*	2412	101.77	-	-	98.85	27.19	7	31.27	100	292	A	V								
802.11g CH 06 2437MHz													V								
		2387.14	62.2	-11.8	74	59.35	27.15	6.98	31.28	109	14	P	H								
		2389.66	52.33	-1.67	54	49.48	27.15	6.98	31.28	109	14	A	H								
	*	2437	112.73	-	-	109.68	27.28	7.03	31.26	109	14	P	H								
	*	2437	105.44	-	-	102.39	27.28	7.03	31.26	109	14	A	H								
		2483.97	62.69	-11.31	74	59.51	27.36	7.07	31.25	109	14	P	H								
		2483.69	51.89	-2.11	54	48.71	27.36	7.07	31.25	109	14	A	H								
		2389.1	64.84	-9.16	74	61.99	27.15	6.98	31.28	102	290	P	V								
		2389.8	52.72	-1.28	54	49.86	27.15	6.98	31.27	102	290	A	V								
	*	2437	113.82	-	-	110.77	27.28	7.03	31.26	102	290	P	V								
	*	2437	106.46	-	-	103.41	27.28	7.03	31.26	102	290	A	V								
		2484.11	62.92	-11.08	74	59.74	27.36	7.07	31.25	102	290	P	V								
		2484.18	51.22	-2.78	54	48.04	27.36	7.07	31.25	102	290	A	V								



802.11g CH 11 2462MHz	*	2462	107.76	-	-	104.65	27.32	7.05	31.26	138	180	P	H
	*	2462	100.15	-	-	97.04	27.32	7.05	31.26	138	180	A	H
		2483.6	65.2	-8.8	74	62.02	27.36	7.07	31.25	138	180	P	H
		2483.52	52.24	-1.76	54	49.06	27.36	7.07	31.25	138	180	A	H
													H
	*	2462	108.75	-	-	105.64	27.32	7.05	31.26	100	291	P	V
	*	2462	101.38	-	-	98.27	27.32	7.05	31.26	100	291	A	V
		2483.68	63.4	-10.6	74	60.22	27.36	7.07	31.25	100	291	P	V
		2483.56	51.41	-2.59	54	48.23	27.36	7.07	31.25	100	291	A	V
													V
802.11g CH 12 2467MHz	*	2467	104.89	-	-	101.77	27.32	7.05	31.25	142	160	P	H
	*	2467	97.43	-	-	94.31	27.32	7.05	31.25	142	160	A	H
		2484.84	61.49	-12.51	74	58.31	27.36	7.07	31.25	142	160	P	H
		2483.56	50.89	-3.11	54	47.71	27.36	7.07	31.25	142	160	A	H
													H
	*	2467	106.6	-	-	103.48	27.32	7.05	31.25	100	293	P	V
	*	2467	99.02	-	-	95.9	27.32	7.05	31.25	100	293	A	V
		2484	61.66	-12.34	74	58.48	27.36	7.07	31.25	100	293	P	V
		2483.52	52.25	-1.75	54	49.07	27.36	7.07	31.25	100	293	A	V
													V
802.11g CH 13 2472MHz	*	2472	101.44	-	-	98.26	27.36	7.07	31.25	137	188	P	H
	*	2472	94.08	-	-	90.9	27.36	7.07	31.25	137	188	A	H
		2484.16	62.04	-11.96	74	58.86	27.36	7.07	31.25	137	188	P	H
		2483.56	51.52	-2.48	54	48.34	27.36	7.07	31.25	137	188	A	H
													H
	*	2472	103.93	-	-	100.75	27.36	7.07	31.25	100	291	P	V
	*	2472	96.34	-	-	93.16	27.36	7.07	31.25	100	291	A	V
		2483.68	61.42	-12.58	74	58.24	27.36	7.07	31.25	100	291	P	V
		2483.64	51.77	-2.23	54	48.59	27.36	7.07	31.25	100	291	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 0a+1b	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	29.23	-44.77	74	39.12	31.22	10.07	51.18	100	0	P	H
													H
													H
													H
		4824	29.23	-44.77	74	39.12	31.22	10.07	51.18	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	30.48	-43.52	74	40.21	31.31	10.11	51.15	100	0	P	H
		7311	38.05	-35.95	74	40.05	36.27	12.53	50.8	100	0	P	H
													H
		4874	30.34	-43.66	74	40.07	31.31	10.11	51.15	100	0	P	V
		7311	37.74	-36.26	74	39.74	36.27	12.53	50.8	100	0	P	V
													V
													V
													V
802.11g CH 11 2462MHz		4924	28.94	-45.06	74	38.54	31.39	10.14	51.13	100	0	P	H
		7386	35.23	-38.77	74	36.79	36.51	12.73	50.8	100	0	P	H
													H
		4924	29.85	-44.15	74	39.45	31.39	10.14	51.13	100	0	P	V
		7386	36.34	-37.66	74	37.9	36.51	12.73	50.8	100	0	P	V
													V
													V



802.11g CH 12 2467MHz		4934	29.44	-44.56	74	39.04	31.39	10.14	51.13	100	0	P	H
		7401	36.48	-37.52	74	37.97	36.56	12.75	50.8	100	0	P	H
													H
													H
		4934	29.88	-44.12	74	39.48	31.39	10.14	51.13	100	0	P	V
		7401	35.49	-38.51	74	36.98	36.56	12.75	50.8	100	0	P	V
													V
													V
802.11g CH 13 2472MHz		4944	30.32	-43.68	74	39.88	31.42	10.15	51.13	100	0	P	H
		7416	36.51	-37.49	74	38	36.56	12.75	50.8	100	0	P	H
													H
													H
		4944	32.02	-41.98	74	41.58	31.42	10.15	51.13	100	0	P	V
		7416	36.73	-37.27	74	38.22	36.56	12.75	50.8	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 0a+1b	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2389.38	64.38	-9.62	74	61.53	27.15	6.98	31.28	125	191	P	H
		2389.275	51.8	-2.2	54	48.95	27.15	6.98	31.28	125	191	A	H
	*	2412	104.79	-	-	101.87	27.19	7	31.27	125	191	P	H
	*	2412	97.32	-	-	94.4	27.19	7	31.27	125	191	A	H
													H
													H
		2389.065	64.5	-9.5	74	61.65	27.15	6.98	31.28	188	214	P	V
		2389.275	52.8	-1.2	54	49.95	27.15	6.98	31.28	188	214	A	V
	*	2412	105.39	-	-	102.47	27.19	7	31.27	188	214	P	V
	*	2412	98.24	-	-	95.32	27.19	7	31.27	188	214	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2389.8	63.95	-10.05	74	61.09	27.15	6.98	31.27	143	160	P	H
		2389.8	52.18	-1.82	54	49.32	27.15	6.98	31.27	143	160	A	H
	*	2437	111.97	-	-	108.92	27.28	7.03	31.26	143	160	P	H
	*	2437	104.37	-	-	101.32	27.28	7.03	31.26	143	160	A	H
		2484.95	62.3	-11.7	74	59.12	27.36	7.07	31.25	143	160	P	H
		2483.9	51.68	-2.32	54	48.5	27.36	7.07	31.25	143	160	A	H
		2389.8	62.1	-11.9	74	59.24	27.15	6.98	31.27	100	290	P	V
		2389.94	52.38	-1.62	54	49.52	27.15	6.98	31.27	100	290	A	V
	*	2437	111.38	-	-	108.33	27.28	7.03	31.26	100	290	P	V
	*	2437	103.95	-	-	100.9	27.28	7.03	31.26	100	290	A	V
		2486.7	60.74	-13.26	74	57.56	27.36	7.07	31.25	100	290	P	V
		2483.69	51.09	-2.91	54	47.91	27.36	7.07	31.25	100	290	A	V



802.11n HT20 CH 11 2462MHz	*	2462	105.89	-	-	102.78	27.32	7.05	31.26	162	172	P	H
	*	2462	98.5	-	-	95.39	27.32	7.05	31.26	162	172	A	H
		2483.6	61.14	-12.86	74	57.96	27.36	7.07	31.25	162	172	P	H
		2483.6	50.42	-3.58	54	47.24	27.36	7.07	31.25	162	172	A	H
													H
	*	2462	105.63	-	-	102.52	27.32	7.05	31.26	100	291	P	V
	*	2462	98.28	-	-	95.17	27.32	7.05	31.26	100	291	A	V
		2484.68	57.12	-16.88	74	53.94	27.36	7.07	31.25	100	291	P	V
		2484.44	46.97	-7.03	54	43.79	27.36	7.07	31.25	100	291	A	V
													V
802.11n HT20 CH 12 2467MHz	*	2467	104.52	-	-	101.4	27.32	7.05	31.25	163	210	P	H
	*	2467	97.36	-	-	94.24	27.32	7.05	31.25	163	210	A	H
		2485.56	63.58	-10.42	74	60.4	27.36	7.07	31.25	163	210	P	H
		2483.6	52.95	-1.05	54	49.77	27.36	7.07	31.25	163	210	A	H
													H
	*	2467	104.35	-	-	101.23	27.32	7.05	31.25	100	273	P	V
	*	2467	97.02	-	-	93.9	27.32	7.05	31.25	100	273	A	V
		2484.72	60.33	-13.67	74	57.15	27.36	7.07	31.25	100	273	P	V
		2484.44	50.39	-3.61	54	47.21	27.36	7.07	31.25	100	273	A	V
													V
802.11n HT20 CH 13 2472MHz	*	2472	103.38	-	-	100.2	27.36	7.07	31.25	137	217	P	H
	*	2472	96.17	-	-	92.99	27.36	7.07	31.25	137	217	A	H
		2485.24	66.13	-7.87	74	62.95	27.36	7.07	31.25	137	217	P	H
		2485	52.72	-1.28	54	49.54	27.36	7.07	31.25	137	217	A	H
													H
	*	2472	102.26	-	-	99.08	27.36	7.07	31.25	100	292	P	V
	*	2472	94.9	-	-	91.72	27.36	7.07	31.25	100	292	A	V
		2484.72	60.23	-13.77	74	57.05	27.36	7.07	31.25	100	292	P	V
		2484.6	49.95	-4.05	54	46.77	27.36	7.07	31.25	100	292	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 0a+1b	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	30.21	-43.79	74	40.1	31.22	10.07	51.18	100	0	P	H
													H
													H
													H
		4824	29.95	-44.05	74	39.84	31.22	10.07	51.18	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	31.12	-42.88	74	40.85	31.31	10.11	51.15	100	0	P	H
		7311	38.51	-35.49	74	40.51	36.27	12.53	50.8	100	0	P	H
													H
													H
		4874	31.6	-42.4	74	41.33	31.31	10.11	51.15	100	0	P	V
		7311	38.56	-35.44	74	40.56	36.27	12.53	50.8	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	30.91	-43.09	74	40.51	31.39	10.14	51.13	100	0	P	H
		7386	36.64	-37.36	74	38.2	36.51	12.73	50.8	100	0	P	H
													H
													H
		4924	30.25	-43.75	74	39.85	31.39	10.14	51.13	100	0	P	V
		7386	36.3	-37.7	74	37.86	36.51	12.73	50.8	100	0	P	V
													V
													V



2467MHz		4934	29.86	-44.14	74	39.46	31.39	10.14	51.13	100	0	P	H
		7401	36.29	-37.71	74	37.78	36.56	12.75	50.8	100	0	P	H
													H
													H
		4934	30.07	-43.93	74	39.67	31.39	10.14	51.13	100	0	P	V
		7401	36.29	-37.71	74	37.78	36.56	12.75	50.8	100	0	P	V
													V
													V
2472MHz		4944	30.73	-43.27	74	40.29	31.42	10.15	51.13	100	0	P	H
		7416	36.5	-37.5	74	37.99	36.56	12.75	50.8	100	0	P	H
													H
													H
		4944	30.23	-43.77	74	39.79	31.42	10.15	51.13	100	0	P	V
		7416	37.33	-36.67	74	38.82	36.56	12.75	50.8	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
0a+1b		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11g LF		104.25	29.72	-13.78	43.5	43.96	16.6	1.05	31.89	100	0	P	H
		131.79	27	-16.5	43.5	39.93	17.72	1.21	31.86	-	-	P	H
		261.39	28.34	-17.66	46	38.69	19.68	1.74	31.77	-	-	P	H
		393.8	26.82	-19.18	46	34.32	22.06	2.2	31.76	-	-	P	H
		749.4	28.73	-17.27	46	30.19	27.4	3.12	31.98	-	-	P	H
		863.5	30.65	-15.35	46	30.42	28.46	3.45	31.68	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
		41.88	33.62	-6.38	40	45.83	19.08	0.64	31.93	100	10	P	V
		83.19	26.63	-13.37	40	43.54	14.03	0.96	31.9	-	-	P	V
		153.66	25.16	-18.34	43.5	38.42	17.29	1.3	31.85	-	-	P	V
		351.8	26.93	-19.07	46	35.63	21.05	2.01	31.76	-	-	P	V
		570.9	27.65	-18.35	46	32.13	24.72	2.72	31.92	-	-	P	V
		948.2	31.09	-14.91	46	28.71	30.08	3.44	31.14	-	-	P	V
													V
													V
													V
													V
													V
	Remark												
	1. No other spurious found. 2. All results are PASS against limit line.												

**Note symbol**

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dB μ V/m) =

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

2. Over Limit(dB) = Level(dB μ V/m) – Limit Line(dB μ V/m)

For Peak Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 54.51(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 55.45 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 55.45(\text{dB μ V/m}) - 74(\text{dB μ V/m})$$

$$= -18.55(\text{dB})$$

For Average Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 42.6(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 43.54 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 43.54(\text{dB μ V/m}) - 54(\text{dB μ V/m})$$

$$= -10.46(\text{dB})$$

Both peak and average measured complies with the limit line, so test result is “PASS”.



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0b+1a		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11g CH 01 2412MHz		2390	57.36	-16.64	74	54.5	27.15	6.98	31.27	400	177	P	H
		2390	47.27	-6.73	54	44.41	27.15	6.98	31.27	400	177	A	H
	*	2412	108.7	-	-	105.78	27.19	7	31.27	400	177	P	H
	*	2412	101.25	-	-	98.33	27.19	7	31.27	400	177	A	H
													H
													H
		2389.8	62.41	-11.59	74	59.55	27.15	6.98	31.27	381	104	P	V
		2390	50.94	-3.06	54	48.08	27.15	6.98	31.27	381	104	A	V
	*	2412	106.76	-	-	103.84	27.19	7	31.27	381	104	P	V
	*	2412	99.33	-	-	96.41	27.19	7	31.27	381	104	A	V
802.11g CH 06 2437MHz													V
		2384.9	60.87	-13.13	74	58.08	27.11	6.96	31.28	400	151	P	H
		2389.94	49.71	-4.29	54	46.85	27.15	6.98	31.27	400	151	A	H
	*	2437	108.44	-	-	105.39	27.28	7.03	31.26	400	151	P	H
	*	2437	101.39	-	-	98.34	27.28	7.03	31.26	400	151	A	H
		2487.54	58.4	-15.6	74	55.16	27.4	7.09	31.25	400	151	P	H
		2484.67	47.88	-6.12	54	44.7	27.36	7.07	31.25	400	151	A	H
		2389.94	57.29	-16.71	74	54.43	27.15	6.98	31.27	332	227	P	V
		2389.52	46.86	-7.14	54	44.01	27.15	6.98	31.28	332	227	A	V
	*	2437	113.11	-	-	110.06	27.28	7.03	31.26	332	227	P	V
	*	2437	105.57	-	-	102.52	27.28	7.03	31.26	332	227	A	V
		2484.53	61.5	-12.5	74	58.32	27.36	7.07	31.25	332	227	P	V
		2483.5	50.91	-3.09	54	47.73	27.36	7.07	31.25	332	227	A	V



802.11g CH 11 2462MHz	*	2462	107.64	-	-	104.53	27.32	7.05	31.26	385	182	P	H
	*	2462	100.29	-	-	97.18	27.32	7.05	31.26	385	182	A	H
		2483.64	62.51	-11.49	74	59.33	27.36	7.07	31.25	385	182	P	H
		2483.52	51.62	-2.38	54	48.44	27.36	7.07	31.25	385	182	A	H
													H
	*	2462	108.9	-	-	105.79	27.32	7.05	31.26	359	351	P	V
	*	2462	101.09	-	-	97.98	27.32	7.05	31.26	359	351	A	V
		2483.56	64.36	-9.64	74	61.18	27.36	7.07	31.25	359	351	P	V
		2483.6	52.82	-1.18	54	49.64	27.36	7.07	31.25	359	351	A	V
													V
802.11g CH 12 2467MHz	*	2467	107.71	-	-	104.59	27.32	7.05	31.25	391	350	P	H
	*	2467	99.9	-	-	96.78	27.32	7.05	31.25	391	350	A	H
		2487.2	62.13	-11.87	74	58.95	27.36	7.07	31.25	391	350	P	H
		2483.52	52.36	-1.64	54	49.18	27.36	7.07	31.25	391	350	A	H
													H
	*	2467	107.38	-	-	104.26	27.32	7.05	31.25	361	343	P	V
	*	2467	99.71	-	-	96.59	27.32	7.05	31.25	361	343	A	V
		2483.68	60.83	-13.17	74	57.65	27.36	7.07	31.25	361	343	P	V
		2483.52	52.21	-1.79	54	49.03	27.36	7.07	31.25	361	343	A	V
													V
802.11g CH 13 2472MHz	*	2472	105.23	-	-	102.05	27.36	7.07	31.25	382	347	P	H
	*	2472	98.21	-	-	95.03	27.36	7.07	31.25	382	347	A	H
		2483.84	60.82	-13.18	74	57.64	27.36	7.07	31.25	382	347	P	H
		2486.6	51.83	-2.17	54	48.65	27.36	7.07	31.25	382	347	A	H
													H
	*	2472	104.79	-	-	101.61	27.36	7.07	31.25	360	349	P	V
	*	2472	97.14	-	-	93.96	27.36	7.07	31.25	360	349	A	V
		2483.64	60.31	-13.69	74	57.13	27.36	7.07	31.25	360	349	P	V
		2483.52	51.77	-2.23	54	48.59	27.36	7.07	31.25	360	349	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 0b+1a	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	31.44	-42.56	74	41.33	31.22	10.07	51.18	100	0	P	H
													H
													H
													H
		4824	31.26	-42.74	74	41.15	31.22	10.07	51.18	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	33.03	-40.97	74	42.76	31.31	10.11	51.15	100	0	P	H
		7311	41.43	-32.57	74	43.43	36.27	12.53	50.8	100	0	P	H
													H
		4874	32.13	-41.87	74	41.86	31.31	10.11	51.15	100	0	P	V
		7311	39.47	-34.53	74	41.47	36.27	12.53	50.8	100	0	P	V
													V
													V
													V
802.11g CH 11 2462MHz		4924	31.52	-42.48	74	41.12	31.39	10.14	51.13	100	0	P	H
		7311	36.42	-37.58	74	38.42	36.27	12.53	50.8	100	0	P	H
													H
		4924	30.87	-43.13	74	40.47	31.39	10.14	51.13	100	0	P	V
		7311	35.92	-38.08	74	37.92	36.27	12.53	50.8	100	0	P	V
													V
													V



802.11g CH 12 2467MHz		4934	29.7	-44.3	74	39.3	31.39	10.14	51.13	100	0	P	H
		7401	36.81	-37.19	74	38.3	36.56	12.75	50.8	100	0	P	H
													H
													H
		4934	31.43	-42.57	74	41.03	31.39	10.14	51.13	100	0	P	V
		7401	36.55	-37.45	74	38.04	36.56	12.75	50.8	100	0	P	V
													V
													V
802.11g CH 13 2472MHz		4944	31.29	-42.71	74	40.85	31.42	10.15	51.13	100	0	P	H
		7416	35.81	-38.19	74	37.3	36.56	12.75	50.8	100	0	P	H
													H
													H
		4944	30.21	-43.79	74	39.77	31.42	10.15	51.13	100	0	P	V
		7416	35.68	-38.32	74	37.17	36.56	12.75	50.8	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 0b+1a	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2388.54	62.98	-11.02	74	60.13	27.15	6.98	31.28	287	353	P	H
		2389.275	51.73	-2.27	54	48.88	27.15	6.98	31.28	287	353	A	H
	*	2412	106.88	-	-	103.96	27.19	7	31.27	287	353	P	H
	*	2412	99.1	-	-	96.18	27.19	7	31.27	287	353	A	H
													H
													H
		2390	65.85	-8.15	74	62.99	27.15	6.98	31.27	135	287	P	V
		2390	53.49	-0.51	54	50.63	27.15	6.98	31.27	135	287	A	V
	*	2412	105.78	-	-	102.86	27.19	7	31.27	135	287	P	V
	*	2412	98.34	-	-	95.42	27.19	7	31.27	135	287	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2387.56	60.19	-13.81	74	57.34	27.15	6.98	31.28	272	307	P	H
		2389.66	49.02	-4.98	54	46.17	27.15	6.98	31.28	272	307	A	H
	*	2437	108.08	-	-	105.03	27.28	7.03	31.26	272	307	P	H
	*	2437	100.84	-	-	97.79	27.28	7.03	31.26	272	307	A	H
		2483.5	60.75	-13.25	74	57.57	27.36	7.07	31.25	272	307	P	H
		2483.5	52.05	-1.95	54	48.87	27.36	7.07	31.25	272	307	A	H
		2389.1	60.1	-13.9	74	57.25	27.15	6.98	31.28	129	289	P	V
		2388.82	50.25	-3.75	54	47.4	27.15	6.98	31.28	129	289	A	V
	*	2437	111.62	-	-	108.57	27.28	7.03	31.26	129	289	P	V
	*	2437	104.08	-	-	101.03	27.28	7.03	31.26	129	289	A	V
		2483.48	62.22	-87.78	150	59.04	27.36	7.07	31.25	129	289	P	V
		2483.83	51.91	-2.09	54	48.73	27.36	7.07	31.25	129	289	A	V



2462MHz	*	2462	104.89	-	-	101.78	27.32	7.05	31.26	276	320	P	H	
	*	2462	98.08	-	-	94.97	27.32	7.05	31.26	276	320	A	H	
		2483.8	62.63	-11.37	74	59.45	27.36	7.07	31.25	276	320	P	H	
		2483.76	52.03	-1.97	54	48.85	27.36	7.07	31.25	276	320	A	H	
	HT20												H	
	CH 11	*	2462	102.24	-	-	99.13	27.32	7.05	31.26	122	212	P	V
		*	2462	94.79	-	-	91.68	27.32	7.05	31.26	122	212	A	V
			2483.88	59.51	-14.49	74	56.33	27.36	7.07	31.25	122	212	P	V
			2483.52	49.3	-4.7	54	46.12	27.36	7.07	31.25	122	212	A	V
													V	
2467MHz	*	2467	104.26	-	-	101.14	27.32	7.05	31.25	300	351	P	H	
	*	2467	97.29	-	-	94.17	27.32	7.05	31.25	300	351	A	H	
			2483.68	62.07	-11.93	74	58.89	27.36	7.07	31.25	300	351	P	H
			2483.8	52.52	-1.48	54	49.34	27.36	7.07	31.25	300	351	A	H
	HT20												H	
	CH 12	*	2467	105.16	-	-	102.04	27.32	7.05	31.25	106	289	P	V
		*	2467	97.56	-	-	94.44	27.32	7.05	31.25	106	289	A	V
			2484.24	61.9	-12.1	74	58.72	27.36	7.07	31.25	106	289	P	V
			2483.64	51.53	-2.47	54	48.35	27.36	7.07	31.25	106	289	A	V
													V	
2472MHz	*	2472	102.84	-	-	99.66	27.36	7.07	31.25	160	147	P	H	
	*	2472	94.79	-	-	91.61	27.36	7.07	31.25	160	147	A	H	
			2485.16	61.8	-12.2	74	58.62	27.36	7.07	31.25	160	147	P	H
			2485.28	51.41	-2.59	54	48.23	27.36	7.07	31.25	160	147	A	H
	HT20												H	
	CH 13	*	2472	105.31	-	-	102.13	27.36	7.07	31.25	129	287	P	V
		*	2472	97.2	-	-	94.02	27.36	7.07	31.25	129	287	A	V
			2484.08	63.15	-10.85	74	59.97	27.36	7.07	31.25	129	287	P	V
			2484.12	52.89	-1.11	54	49.71	27.36	7.07	31.25	129	287	A	V
													V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 0b+1a	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	31.04	-42.96	74	40.93	31.22	10.07	51.18	100	0	P	H
													H
													H
													H
		4824	31.64	-42.36	74	41.53	31.22	10.07	51.18	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	32.18	-41.82	74	41.91	31.31	10.11	51.15	100	0	P	H
		7311	36.04	-37.96	74	38.04	36.27	12.53	50.8	100	0	P	H
													H
													H
		4874	31.12	-42.88	74	40.85	31.31	10.11	51.15	100	0	P	V
		7311	40.07	-33.93	74	42.07	36.27	12.53	50.8	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	30.1	-43.9	74	39.7	31.39	10.14	51.13	100	0	P	H
		7386	35.5	-38.5	74	37.06	36.51	12.73	50.8	100	0	P	H
													H
													H
		4924	32.27	-41.73	74	41.87	31.39	10.14	51.13	100	0	P	V
		7386	38.46	-35.54	74	40.02	36.51	12.73	50.8	100	0	P	V
													V
													V



2467MHz		4934	30.71	-43.29	74	40.31	31.39	10.14	51.13	100	0	P	H
		7401	36.3	-37.7	74	37.79	36.56	12.75	50.8	100	0	P	H
													H
													H
		4934	31.92	-42.08	74	41.52	31.39	10.14	51.13	100	0	P	V
		7401	35.91	-38.09	74	37.4	36.56	12.75	50.8	100	0	P	V
													V
													V
2472MHz		4944	30.04	-43.96	74	39.6	31.42	10.15	51.13	100	0	P	H
		7416	35.96	-38.04	74	37.45	36.56	12.75	50.8	100	0	P	H
													H
													H
		4944	30.68	-43.32	74	40.24	31.42	10.15	51.13	100	0	P	V
		7416	35.91	-38.09	74	37.4	36.56	12.75	50.8	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
0b+1a		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11n HT20 LF		120.18	28.99	-14.51	43.5	42.2	17.5	1.16	31.87	100	0	P	H
		197.67	26.26	-17.24	43.5	41.17	15.4	1.5	31.81	-	-	P	H
		283.26	27.21	-18.79	46	38	19.19	1.78	31.76	-	-	P	H
		502.3	26.9	-19.1	46	32.25	24.01	2.5	31.86	-	-	P	H
		743.1	28.77	-17.23	46	30.43	27.22	3.1	31.98	-	-	P	H
		964.3	31.53	-22.47	54	28.89	30.16	3.48	31	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dB μ V/m) =

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

2. Over Limit(dB) = Level(dB μ V/m) – Limit Line(dB μ V/m)

For Peak Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 54.51(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 55.45 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 55.45(\text{dB μ V/m}) - 74(\text{dB μ V/m})$$

$$= -18.55(\text{dB})$$

For Average Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 42.6(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 43.54 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 43.54(\text{dB μ V/m}) - 54(\text{dB μ V/m})$$

$$= -10.46(\text{dB})$$

Both peak and average measured complies with the limit line, so test result is “PASS”.



<Rear Side>

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1a		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2386.125	58.78	-15.22	74	55.93	27.15	6.98	31.28	114	87	P	H
		2386.02	52.9	-1.1	54	50.05	27.15	6.98	31.28	114	87	A	H
	*	2412	107.87	-	-	104.95	27.19	7	31.27	114	87	P	H
	*	2412	104.74	-	-	101.82	27.19	7	31.27	114	87	A	H
													H
													H
		2386.02	56.84	-17.16	74	53.99	27.15	6.98	31.28	100	351	P	V
		2386.02	51.3	-2.7	54	48.45	27.15	6.98	31.28	100	351	A	V
	*	2412	105.73	-	-	102.81	27.19	7	31.27	100	351	P	V
	*	2412	102.71	-	-	99.79	27.19	7	31.27	100	351	A	V
802.11b CH 06 2437MHz		2389.94	52.98	-21.02	74	52.15	27.15	6.98	33.3	104	68	P	H
		2389.94	44.25	-9.75	54	43.42	27.15	6.98	33.3	104	68	A	H
	*	2437	110.27	-	-	109.55	27.28	7.03	33.59	104	68	P	H
	*	2437	107.12	-	-	106.4	27.28	7.03	33.59	104	68	A	H
		2484.04	51.4	-22.6	74	50.75	27.36	7.07	33.78	104	68	P	H
		2483.9	41.38	-12.62	54	40.73	27.36	7.07	33.78	104	68	A	H
		2385.18	51.02	-22.98	74	50.16	27.11	6.96	33.21	100	4	P	V
		2389.94	42.42	-11.58	54	41.59	27.15	6.98	33.3	100	4	A	V
	*	2437	107.96	-	-	107.24	27.28	7.03	33.59	100	4	P	V
	*	2437	104.81	-	-	104.09	27.28	7.03	33.59	100	4	A	V
		2485.09	50.83	-23.17	74	50.18	27.36	7.07	33.78	100	4	P	V
		2484.04	40.91	-13.09	54	40.26	27.36	7.07	33.78	100	4	A	V



802.11b CH 11 2462MHz	*	2462	107.8	-	-	107.12	27.32	7.05	33.69	100	69	P	H
	*	2462	104.77	-	-	104.09	27.32	7.05	33.69	100	69	A	H
		2488.64	56.32	-17.68	74	55.71	27.4	7.09	33.88	100	69	P	H
		2488.52	51.53	-2.47	54	50.92	27.4	7.09	33.88	100	69	A	H
													H
	*	2462	105.06	-	-	104.38	27.32	7.05	33.69	100	146	P	V
	*	2462	101.62	-	-	100.94	27.32	7.05	33.69	100	146	A	V
		2486.24	55.29	-18.71	74	54.64	27.36	7.07	33.78	100	146	P	V
		2488.52	49.52	-4.48	54	48.91	27.4	7.09	33.88	100	146	A	V
													V
802.11b CH 12 2467MHz	*	2467	103.47	-	-	102.79	27.32	7.05	33.69	130	95	P	H
	*	2467	100.37	-	-	99.69	27.32	7.05	33.69	130	95	A	H
		2484.04	55.29	-18.71	74	54.64	27.36	7.07	33.78	130	95	P	H
		2484.08	48.48	-5.52	54	47.83	27.36	7.07	33.78	130	95	A	H
													H
	*	2467	102.67	-	-	101.99	27.32	7.05	33.69	100	3	P	V
	*	2467	99.54	-	-	98.86	27.32	7.05	33.69	100	3	A	V
		2483.72	55.2	-18.8	74	54.55	27.36	7.07	33.78	100	3	P	V
		2484.12	48.6	-5.4	54	47.95	27.36	7.07	33.78	100	3	A	V
													V
802.11b CH 13 2472MHz	*	2472	101.38	-	-	100.73	27.36	7.07	33.78	111	98	P	H
	*	2472	98.3	-	-	97.65	27.36	7.07	33.78	111	98	A	H
		2485	57.4	-16.6	74	56.75	27.36	7.07	33.78	111	98	P	H
		2487.08	51.55	-2.45	54	50.9	27.36	7.07	33.78	111	98	A	H
													H
	*	2472	99.82	-	-	99.17	27.36	7.07	33.78	100	3	P	V
	*	2472	96.73	-	-	96.08	27.36	7.07	33.78	100	3	A	V
		2483.52	56.62	-17.38	74	55.97	27.36	7.07	33.78	100	3	P	V
		2487.12	50.31	-3.69	54	49.66	27.36	7.07	33.78	100	3	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 1a	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	31.38	-42.62	74	41.27	31.22	10.07	51.18	100	0	P	H
													H
													H
													H
		4824	30.88	-43.12	74	40.77	31.22	10.07	51.18	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	36.11	-37.89	74	45.84	31.31	10.11	51.15	100	0	P	H
		7311	38.9	-35.1	74	40.9	36.27	12.53	50.8	100	0	P	H
													H
		4874	30.74	-43.26	74	40.47	31.31	10.11	51.15	100	0	P	V
		7311	40.73	-33.27	74	42.73	36.27	12.53	50.8	100	0	P	V
													V
													V
													V
802.11b CH 11 2462MHz		4924	33.87	-40.13	74	43.47	31.39	10.14	51.13	100	0	P	H
		7386	38.76	-35.24	74	40.32	36.51	12.73	50.8	100	0	P	H
													H
		4924	32.38	-41.62	74	41.98	31.39	10.14	51.13	100	0	P	V
		7386	48.87	-25.13	74	50.43	36.51	12.73	50.8	100	0	P	V
													V
													V



802.11b CH 12 2467MHz		4934	34.25	-39.75	74	43.85	31.39	10.14	51.13	100	0	P	H
		7401	36.76	-37.24	74	38.25	36.56	12.75	50.8	100	0	P	H
													H
													H
		4934	33.89	-40.11	74	43.49	31.39	10.14	51.13	100	0	P	V
		7401	42.26	-31.74	74	43.75	36.56	12.75	50.8	100	0	P	V
													V
													V
802.11b CH 13 2472MHz		4944	33.26	-40.74	74	42.82	31.42	10.15	51.13	100	0	P	H
		7416	36.52	-37.48	74	38.01	36.56	12.75	50.8	100	0	P	H
													H
													H
		4944	32.51	-41.49	74	42.07	31.42	10.15	51.13	100	0	P	V
		7416	38.42	-35.58	74	39.91	36.56	12.75	50.8	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11b (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1a		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11b LF		108.84	32.59	-10.91	43.5	46.8	17	1.08	32.29	100	0	P	H
		198.21	25.51	-17.99	43.5	40.88	15.4	1.5	32.27	-	-	P	H
		282.72	27.5	-18.5	46	38.68	19.19	1.78	32.15	-	-	P	H
		392.4	26.67	-19.33	46	34.58	22.04	2.2	32.15	-	-	P	H
		519.1	26.69	-19.31	46	32.22	24.11	2.56	32.2	-	-	P	H
		937.7	31.74	-14.26	46	29.64	29.82	3.44	31.16	-	-	P	H
													H
													H
													H
													H
													H
													H
													V
		54.57	36.33	-3.67	40	54.24	13.6	0.81	32.32	100	0	P	V
		81.3	27.92	-12.08	40	45.48	13.81	0.93	32.3	-	-	P	V
		97.23	27.36	-16.14	43.5	42.92	15.71	1.02	32.29	-	-	P	V
		407.8	27.3	-18.7	46	34.89	22.31	2.25	32.15	-	-	P	V
		538.7	27.35	-18.65	46	32.69	24.23	2.63	32.2	-	-	P	V
		926.5	31.67	-14.33	46	29.96	29.54	3.44	31.27	-	-	P	V
													V
													V
													V
													V
	1. No other spurious found. 2. All results are PASS against limit line.												
Remark													

**Note symbol**

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1a		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dB μ V/m) =

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

2. Over Limit(dB) = Level(dB μ V/m) – Limit Line(dB μ V/m)

For Peak Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 54.51(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 55.45 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 55.45(\text{dB μ V/m}) - 74(\text{dB μ V/m})$$

$$= -18.55(\text{dB})$$

For Average Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 42.6(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 43.54 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 43.54(\text{dB μ V/m}) - 54(\text{dB μ V/m})$$

$$= -10.46(\text{dB})$$

Both peak and average measured complies with the limit line, so test result is “PASS”.



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1b		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2386.02	57.02	-16.98	74	54.17	27.15	6.98	31.28	170	167	P	H
		2385.915	51.19	-2.81	54	48.34	27.15	6.98	31.28	170	167	A	H
	*	2412	105.89	-	-	102.97	27.19	7	31.27	170	167	P	H
	*	2412	102.77	-	-	99.85	27.19	7	31.27	170	167	A	H
													H
													H
		2386.125	58.26	-15.74	74	55.41	27.15	6.98	31.28	348	248	P	V
		2386.02	52.68	-1.32	54	49.83	27.15	6.98	31.28	348	248	A	V
	*	2412	107.91	-	-	104.99	27.19	7	31.27	348	248	P	V
	*	2412	104.8	-	-	101.88	27.19	7	31.27	348	248	A	V
802.11b CH 06 2437MHz													V
		2376.08	51.29	-22.71	74	50.43	27.11	6.96	33.21	215	166	P	H
		2389.94	42.15	-11.85	54	41.32	27.15	6.98	33.3	215	166	A	H
	*	2437	106.74	-	-	106.02	27.28	7.03	33.59	215	166	P	H
	*	2437	103.68	-	-	102.96	27.28	7.03	33.59	215	166	A	H
		2491.53	50.94	-23.06	74	50.33	27.4	7.09	33.88	215	166	P	H
		2483.69	40.4	-13.6	54	39.75	27.36	7.07	33.78	215	166	A	H
		2389.94	53.3	-20.7	74	52.47	27.15	6.98	33.3	336	231	P	V
		2389.94	44.84	-9.16	54	44.01	27.15	6.98	33.3	336	231	A	V
	*	2437	111.32	-	-	110.6	27.28	7.03	33.59	336	231	P	V
	*	2437	108.22	-	-	107.5	27.28	7.03	33.59	336	231	A	V
		2487.68	51.55	-22.45	74	50.94	27.4	7.09	33.88	336	231	P	V
		2483.83	42.29	-11.71	54	41.64	27.36	7.07	33.78	336	231	A	V



802.11b CH 11 2462MHz	*	2462	106.2	-	-	105.52	27.32	7.05	33.69	163	249	P	H
	*	2462	103.13	-	-	102.45	27.32	7.05	33.69	163	249	A	H
		2488.4	54.55	-19.45	74	53.94	27.4	7.09	33.88	163	249	P	H
		2488.24	47.76	-6.24	54	47.15	27.4	7.09	33.88	163	249	A	H
													H
	*	2462	106.42	-	-	105.74	27.32	7.05	33.69	387	198	P	V
	*	2462	103.36	-	-	102.68	27.32	7.05	33.69	387	198	A	V
		2488.24	54.35	-19.65	74	53.74	27.4	7.09	33.88	387	198	P	V
		2488.28	46.65	-7.35	54	46.04	27.4	7.09	33.88	387	198	A	V
													V
802.11b CH 12 2467MHz	*	2467	103.44	-	-	102.76	27.32	7.05	33.69	163	248	P	H
	*	2467	100.39	-	-	99.71	27.32	7.05	33.69	163	248	A	H
		2484	54.34	-19.66	74	53.69	27.36	7.07	33.78	163	248	P	H
		2484.12	47.4	-6.6	54	46.75	27.36	7.07	33.78	163	248	A	H
													H
	*	2467	106.77	-	-	106.09	27.32	7.05	33.69	388	217	P	V
	*	2467	103.73	-	-	103.05	27.32	7.05	33.69	388	217	A	V
		2484.84	57.45	-16.55	74	56.8	27.36	7.07	33.78	388	217	P	V
		2484.08	50.08	-3.92	54	49.43	27.36	7.07	33.78	388	217	A	V
													V
802.11b CH 13 2472MHz	*	2472	102.14	-	-	101.49	27.36	7.07	33.78	111	246	P	H
	*	2472	99.08	-	-	98.43	27.36	7.07	33.78	111	246	A	H
		2486	58.24	-15.76	74	57.59	27.36	7.07	33.78	111	246	P	H
		2487.16	51.49	-2.51	54	50.84	27.36	7.07	33.78	111	246	A	H
													H
	*	2472	102.47	-	-	101.82	27.36	7.07	33.78	379	170	P	V
	*	2472	99.39	-	-	98.74	27.36	7.07	33.78	379	170	A	V
		2483.92	57.87	-16.13	74	57.22	27.36	7.07	33.78	379	170	P	V
		2487.16	51.44	-2.56	54	50.79	27.36	7.07	33.78	379	170	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 1b	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	30.79	-43.21	74	40.68	31.22	10.07	51.18	100	0	P	H
													H
													H
													H
		4824	30.08	-43.92	74	39.97	31.22	10.07	51.18	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	35.17	-38.83	74	44.9	31.31	10.11	51.15	100	0	P	H
		7311	37.61	-36.39	74	39.61	36.27	12.53	50.8	100	0	P	H
													H
		4874	36.67	-37.33	74	46.4	31.31	10.11	51.15	100	0	P	V
		7311	46.11	-27.89	74	48.11	36.27	12.53	50.8	100	0	P	V
													V
													V
													V
802.11b CH 11 2462MHz		4924	33.48	-40.52	74	43.08	31.39	10.14	51.13	100	0	P	H
		7386	36.95	-37.05	74	38.51	36.51	12.73	50.8	100	0	P	H
													H
		4924	34.97	-39.03	74	44.57	31.39	10.14	51.13	100	0	P	V
		7386	55.32	-18.68	74	56.88	36.51	12.73	50.8	229	360	P	V
		7386	33.52	-20.48	54	35.08	36.51	12.73	50.8	229	360	A	V
													V



802.11b CH 12 2467Hz		4934	38.43	-35.57	74	48.03	31.39	10.14	51.13	100	0	P	H
		7401	46.26	-27.74	74	47.75	36.56	12.75	50.8	100	0	P	H
													H
													H
		4934	36.21	-37.79	74	45.81	31.39	10.14	51.13	100	0	P	V
		7401	41.56	-32.44	74	43.05	36.56	12.75	50.8	100	0	P	V
													V
													V
802.11b CH 13 247MHz		4944	32.82	-41.18	74	42.38	31.42	10.15	51.13	100	0	P	H
		7416	36.66	-37.34	74	38.15	36.56	12.75	50.8	100	0	P	H
													H
													H
		4944	34.32	-39.68	74	43.88	31.42	10.15	51.13	100	0	P	V
		7416	37.81	-36.19	74	39.3	36.56	12.75	50.8	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11b (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1b		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11b LF		109.65	32.76	-10.74	43.5	46.86	17.1	1.09	32.29	100	0	P	H
		200.1	25.04	-18.46	43.5	40.4	15.4	1.51	32.27	-	-	P	H
		281.1	29.78	-16.22	46	41.03	19.13	1.78	32.16	-	-	P	H
		321.7	25.03	-20.97	46	35.1	20.16	1.9	32.13	-	-	P	H
		395.2	26.63	-19.37	46	34.49	22.08	2.21	32.15	-	-	P	H
		937.7	31.28	-14.72	46	29.18	29.82	3.44	31.16	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
		55.11	34.41	-5.59	40	52.62	13.3	0.81	32.32	100	0	P	V
		122.34	29.1	-14.4	43.5	42.68	17.54	1.17	32.29	-	-	P	V
		196.59	24.57	-18.93	43.5	39.94	15.4	1.5	32.27	-	-	P	V
		373.5	23.8	-22.2	46	32.27	21.56	2.11	32.14	-	-	P	V
		406.4	26.3	-19.7	46	33.91	22.29	2.25	32.15	-	-	P	V
		904.1	33.66	-12.34	46	32.7	28.99	3.44	31.47	-	-	P	V
													V
													V
													V
													V
													V
	Remark												
	1. No other spurious found. 2. All results are PASS against limit line.												



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1b		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dB μ V/m) =

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

2. Over Limit(dB) = Level(dB μ V/m) – Limit Line(dB μ V/m)

For Peak Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 54.51(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 55.45 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 55.45(\text{dB μ V/m}) - 74(\text{dB μ V/m})$$

$$= -18.55(\text{dB})$$

For Average Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 42.6(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 43.54 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 43.54(\text{dB μ V/m}) - 54(\text{dB μ V/m})$$

$$= -10.46(\text{dB})$$

Both peak and average measured complies with the limit line, so test result is “PASS”.



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0b+1b		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11g CH 01 2412MHz		2389.59	59.84	-14.16	74	59.01	27.15	6.98	33.3	400	215	P	H
		2389.59	50.01	-3.99	54	49.18	27.15	6.98	33.3	400	215	A	H
	*	2412	108.33	-	-	107.54	27.19	7	33.4	400	215	P	H
	*	2412	100.7	-	-	99.91	27.19	7	33.4	400	215	A	H
													H
													H
		2389.485	62.38	-11.62	74	61.55	27.15	6.98	33.3	209	193	P	V
		2389.8	51.69	-2.31	54	50.86	27.15	6.98	33.3	209	193	A	V
	*	2412	107.32	-	-	106.53	27.19	7	33.4	209	193	P	V
	*	2412	99.42	-	-	98.63	27.19	7	33.4	209	193	A	V
802.11g CH 06 2437MHz		2389.38	61.3	-12.7	74	58.45	27.15	6.98	31.28	353	195	P	H
		2389.66	51.71	-2.29	54	48.86	27.15	6.98	31.28	353	195	A	H
	*	2437	112.5	-	-	109.45	27.28	7.03	31.26	353	195	P	H
	*	2437	105.08	-	-	102.03	27.28	7.03	31.26	353	195	A	H
		2483.62	59.25	-14.75	74	56.07	27.36	7.07	31.25	353	195	P	H
		2483.76	49.22	-4.78	54	46.04	27.36	7.07	31.25	353	195	A	H
		2389.24	62.75	-11.25	74	59.9	27.15	6.98	31.28	134	252	P	V
		2389.66	53.31	-0.69	54	50.46	27.15	6.98	31.28	134	252	A	V
	*	2437	113.31	-	-	110.26	27.28	7.03	31.26	134	252	P	V
	*	2437	105.46	-	-	102.41	27.28	7.03	31.26	134	252	A	V
		2483.76	61.57	-12.43	74	58.39	27.36	7.07	31.25	134	252	P	V
		2483.5	51.27	-2.73	54	48.09	27.36	7.07	31.25	134	252	A	V



802.11g CH 11 2462MHz	*	2462	107.02	-	-	106.34	27.32	7.05	33.69	341	216	P	H
	*	2462	99.75	-	-	99.07	27.32	7.05	33.69	341	216	A	H
		2483.56	59.64	-14.36	74	58.99	27.36	7.07	33.78	341	216	P	H
		2483.52	48.32	-5.68	54	47.67	27.36	7.07	33.78	341	216	A	H
													H
	*	2462	105.78	-	-	105.1	27.32	7.05	33.69	295	182	P	V
	*	2462	97.65	-	-	96.97	27.32	7.05	33.69	295	182	A	V
		2483.52	55.57	-18.43	74	54.92	27.36	7.07	33.78	295	182	P	V
		2483.52	44.52	-9.48	54	43.87	27.36	7.07	33.78	295	182	A	V
													V
802.11g CH 12 2467MHz	*	2467	106.79	-	-	106.11	27.32	7.05	33.69	343	210	P	H
	*	2467	99.83	-	-	99.15	27.32	7.05	33.69	343	210	A	H
		2484.48	62.06	-11.94	74	61.41	27.36	7.07	33.78	343	210	P	H
		2483.64	52.36	-1.64	54	51.71	27.36	7.07	33.78	343	210	A	H
													H
	*	2467	103.98	-	-	103.3	27.32	7.05	33.69	295	178	P	V
	*	2467	96.25	-	-	95.57	27.32	7.05	33.69	295	178	A	V
		2485.12	57.84	-16.16	74	57.19	27.36	7.07	33.78	295	178	P	V
		2485.16	47.13	-6.87	54	46.48	27.36	7.07	33.78	295	178	A	V
													V
802.11g CH 13 2472MHz	*	2472	103.94	-	-	103.29	27.36	7.07	33.78	346	208	P	H
	*	2472	96.91	-	-	96.26	27.36	7.07	33.78	346	208	A	H
		2484.6	59.94	-14.06	74	59.29	27.36	7.07	33.78	346	208	P	H
		2483.92	50.09	-3.91	54	49.44	27.36	7.07	33.78	346	208	A	H
													H
	*	2472	101.9	-	-	101.25	27.36	7.07	33.78	294	208	P	V
	*	2472	94.19	-	-	93.54	27.36	7.07	33.78	294	208	A	V
		2484.52	55.65	-18.35	74	55	27.36	7.07	33.78	294	208	P	V
		2485.28	46.82	-7.18	54	46.17	27.36	7.07	33.78	294	208	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 0b+1b	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	31.38	-42.62	74	41.27	31.22	10.07	51.18	100	0	P	H
													H
													H
													H
		4824	30.44	-43.56	74	40.33	31.22	10.07	51.18	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	32.51	-41.49	74	42.24	31.31	10.11	51.15	100	0	P	H
		7311	38.1	-35.9	74	40.1	36.27	12.53	50.8	100	0	P	H
													H
		4874	31.59	-42.41	74	41.32	31.31	10.11	51.15	100	0	P	V
		7311	38.56	-35.44	74	40.56	36.27	12.53	50.8	100	0	P	V
													V
													V
													V
802.11g CH 11 2462MHz		4924	31.13	-42.87	74	40.73	31.39	10.14	51.13	100	0	P	H
		7386	36.54	-37.46	74	38.1	36.51	12.73	50.8	100	0	P	H
													H
		4924	31.87	-42.13	74	41.47	31.39	10.14	51.13	100	0	P	V
		7386	36.36	-37.64	74	37.92	36.51	12.73	50.8	100	0	P	V
													V
													V



802.11g CH 12 2467MHz		4934	30.7	-43.3	74	40.3	31.39	10.14	51.13	100	0	P	H
		7401	36.69	-37.31	74	38.18	36.56	12.75	50.8	100	0	P	H
													H
													H
		4934	32.52	-41.48	74	42.12	31.39	10.14	51.13	100	0	P	V
		7401	36.31	-37.69	74	37.8	36.56	12.75	50.8	100	0	P	V
													V
													V
802.11g CH 13 2472MHz		4944	31.14	-42.86	74	40.7	31.42	10.15	51.13	100	0	P	H
		7416	36.74	-37.26	74	38.23	36.56	12.75	50.8	100	0	P	H
													H
													H
		4944	31.34	-42.66	74	40.9	31.42	10.15	51.13	100	0	P	V
		7416	36.53	-37.47	74	38.02	36.56	12.75	50.8	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 0b+1b	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2389.695	53.33	-20.67	74	52.5	27.15	6.98	33.3	400	199	P	H
		2364.915	47.03	-6.97	54	46.14	27.07	6.93	33.11	400	199	A	H
	*	2412	104.68	-	-	103.89	27.19	7	33.4	400	199	P	H
	*	2412	95.09	-	-	94.3	27.19	7	33.4	400	199	A	H
													H
													H
		2388.435	51.4	-22.6	74	50.57	27.15	6.98	33.3	299	72	P	V
		2390	42.33	-11.67	54	41.5	27.15	6.98	33.3	299	72	A	V
	*	2412	99.48	-	-	98.69	27.19	7	33.4	299	72	P	V
	*	2412	91.49	-	-	90.7	27.19	7	33.4	299	72	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2389.38	52.58	-21.42	74	51.75	27.15	6.98	33.3	391	180	P	H
		2389.38	48.01	-5.99	54	47.18	27.15	6.98	33.3	391	180	A	H
	*	2437	108.47	-	-	107.75	27.28	7.03	33.59	391	180	P	H
	*	2437	100.09	-	-	99.37	27.28	7.03	33.59	391	180	A	H
		2484.32	55.35	-18.65	74	54.7	27.36	7.07	33.78	391	180	P	H
		2484.53	46.34	-7.66	54	45.69	27.36	7.07	33.78	391	180	A	H
		2389.38	55.04	-18.96	74	54.21	27.15	6.98	33.3	388	244	P	V
		2389.38	51.67	-2.33	54	50.84	27.15	6.98	33.3	388	244	A	V
	*	2437	109.17	-	-	108.45	27.28	7.03	33.59	388	244	P	V
	*	2437	97.17	-	-	96.45	27.28	7.03	33.59	388	244	A	V
		2487.75	53.52	-20.48	74	52.91	27.4	7.09	33.88	388	244	P	V
		2484.6	48.8	-5.2	54	48.15	27.36	7.07	33.78	388	244	A	V



802.11n HT20 CH 11 2462MHz	*	2462	105.77	-	-	105.09	27.32	7.05	33.69	383	181	P	H
	*	2462	96.5	-	-	95.82	27.32	7.05	33.69	383	181	A	H
		2483.6	62.59	-11.41	74	61.94	27.36	7.07	33.78	383	181	P	H
		2483.56	51.43	-2.57	54	50.78	27.36	7.07	33.78	383	181	A	H
													H
	*	2462	102.6	-	-	101.92	27.32	7.05	33.69	400	101	P	V
	*	2462	93.74	-	-	93.06	27.32	7.05	33.69	400	101	A	V
		2484.24	55.32	-18.68	74	54.67	27.36	7.07	33.78	400	101	P	V
		2483.52	45.5	-8.5	54	44.85	27.36	7.07	33.78	400	101	A	V
													V
802.11n HT20 CH 12 2467MHz	*	2467	104.44	-	-	103.76	27.32	7.05	33.69	384	202	P	H
	*	2467	94.62	-	-	93.94	27.32	7.05	33.69	384	202	A	H
		2483.84	60.36	-13.64	74	59.71	27.36	7.07	33.78	384	202	P	H
		2483.68	49.8	-4.2	54	49.15	27.36	7.07	33.78	384	202	A	H
													H
	*	2467	100.92	-	-	100.24	27.32	7.05	33.69	400	102	P	V
	*	2467	92.82	-	-	92.14	27.32	7.05	33.69	400	102	A	V
		2484.04	54.84	-19.16	74	54.19	27.36	7.07	33.78	400	102	P	V
		2483.52	45.45	-8.55	54	44.8	27.36	7.07	33.78	400	102	A	V
													V
802.11n HT20 CH 13 2472MHz	*	2472	103.67	-	-	103.02	27.36	7.07	33.78	384	217	P	H
	*	2472	92.76	-	-	92.11	27.36	7.07	33.78	384	217	A	H
		2485.12	58.01	-15.99	74	57.36	27.36	7.07	33.78	384	217	P	H
		2483.52	48.6	-5.4	54	47.95	27.36	7.07	33.78	384	217	A	H
													H
	*	2472	99.2	-	-	98.55	27.36	7.07	33.78	400	100	P	V
	*	2472	90.35	-	-	89.7	27.36	7.07	33.78	400	100	A	V
		2483.96	54.45	-19.55	74	53.8	27.36	7.07	33.78	400	100	P	V
		2484.8	44.5	-9.5	54	43.85	27.36	7.07	33.78	400	100	A	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 0b+1b	Note	Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	30.08	-43.92	74	39.97	31.22	10.07	51.18	100	0	P	H
													H
													H
													H
		4824	30.19	-43.81	74	40.08	31.22	10.07	51.18	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	31.12	-42.88	74	40.85	31.31	10.11	51.15	100	0	P	H
		7311	36.59	-37.41	74	38.59	36.27	12.53	50.8	100	0	P	H
													H
													H
		4874	31.54	-42.46	74	41.27	31.31	10.11	51.15	100	0	P	V
		7311	36.8	-37.2	74	38.8	36.27	12.53	50.8	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	30.81	-43.19	74	40.41	31.39	10.14	51.13	100	0	P	H
		7386	36.85	-37.15	74	38.41	36.51	12.73	50.8	100	0	P	H
													H
													H
		4924	32.05	-41.95	74	41.65	31.39	10.14	51.13	100	0	P	V
		7386	37.15	-36.85	74	38.71	36.51	12.73	50.8	100	0	P	V
													V
													V



2467MHz		4934	31.48	-42.52	74	41.08	31.39	10.14	51.13	100	0	P	H
		7401	37.8	-36.2	74	39.29	36.56	12.75	50.8	100	0	P	H
													H
													H
		4934	31.03	-42.97	74	40.63	31.39	10.14	51.13	100	0	P	V
		7401	37.04	-36.96	74	38.53	36.56	12.75	50.8	100	0	P	V
													V
													V
2472MHz		4944	31.33	-42.67	74	40.89	31.42	10.15	51.13	100	0	P	H
		7416	37.45	-36.55	74	38.94	36.56	12.75	50.8	100	0	P	H
													H
													H
		4944	31.85	-42.15	74	41.41	31.42	10.15	51.13	100	0	P	V
		7416	38.56	-35.44	74	40.05	36.56	12.75	50.8	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
0b+1b		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11g LF		109.11	32.9	-10.6	43.5	47	17.1	1.09	32.29	100	0	P	H
		141.78	25.7	-17.8	43.5	38.98	17.75	1.25	32.28	-	-	P	H
		281.64	30.21	-15.79	46	41.46	19.13	1.78	32.16	-	-	P	H
		319.6	25.14	-20.86	46	35.27	20.11	1.89	32.13	-	-	P	H
		542.2	27.65	-18.35	46	32.96	24.25	2.64	32.2	-	-	P	H
		942.6	32.47	-13.53	46	30.21	29.94	3.44	31.12	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

**Note symbol**

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0b+1b		(MHz)	(dB μ V/m)	(dB)	(dB μ V/m)	(dB μ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dB μ V/m) =

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

2. Over Limit(dB) = Level(dB μ V/m) – Limit Line(dB μ V/m)

For Peak Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 54.51(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 55.45 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 55.45(\text{dB μ V/m}) - 74(\text{dB μ V/m})$$

$$= -18.55(\text{dB})$$

For Average Limit @ 2390MHz:

1. Level(dB μ V/m)

$$= \text{Antenna Factor(dB/m)} + \text{Cable Loss(dB)} + \text{Read Level(dB μ V)} - \text{Preamp Factor(dB)}$$

$$= 32.22(\text{dB/m}) + 4.58(\text{dB}) + 42.6(\text{dB μ V}) - 35.86 (\text{dB})$$

$$= 43.54 (\text{dB μ V/m})$$

2. Over Limit(dB)

$$= \text{Level(dB μ V/m)} - \text{Limit Line(dB μ V/m)}$$

$$= 43.54(\text{dB μ V/m}) - 54(\text{dB μ V/m})$$

$$= -10.46(\text{dB})$$

Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix C. Radiated Spurious Emission Plots

Test Engineer :	Alex Jeng, Bill Chang and Wilson Wu	Temperature :	24.0~24.2°C
		Relative Humidity :	50~52%

Note symbol

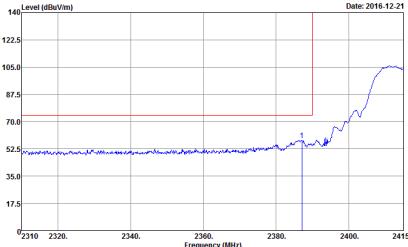
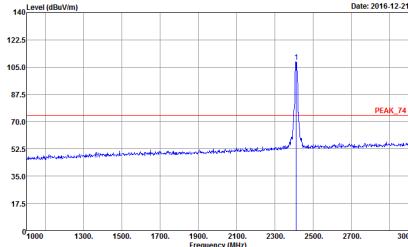
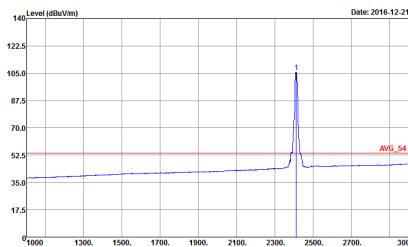
-L	Low channel location
-R	High channel location

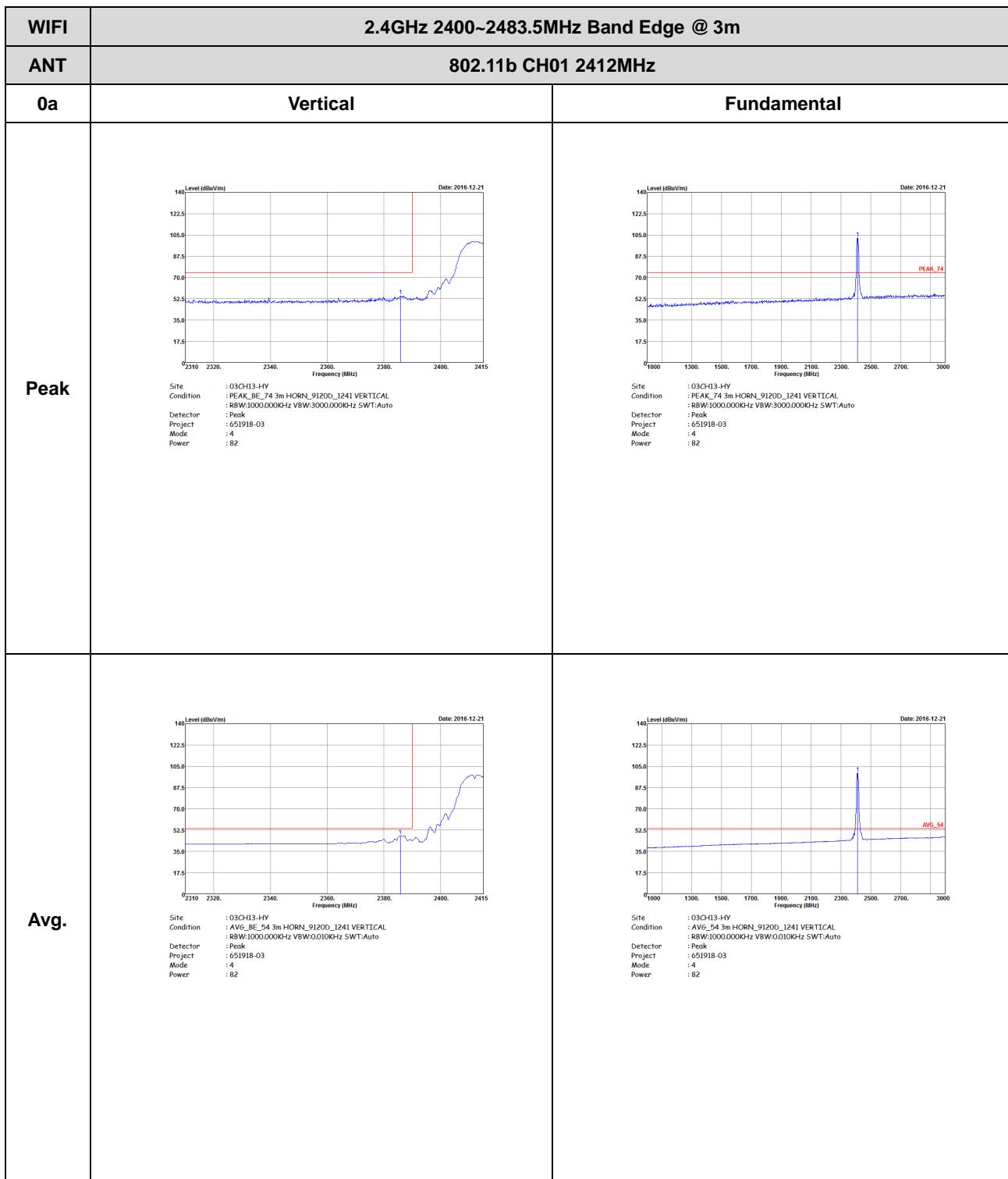


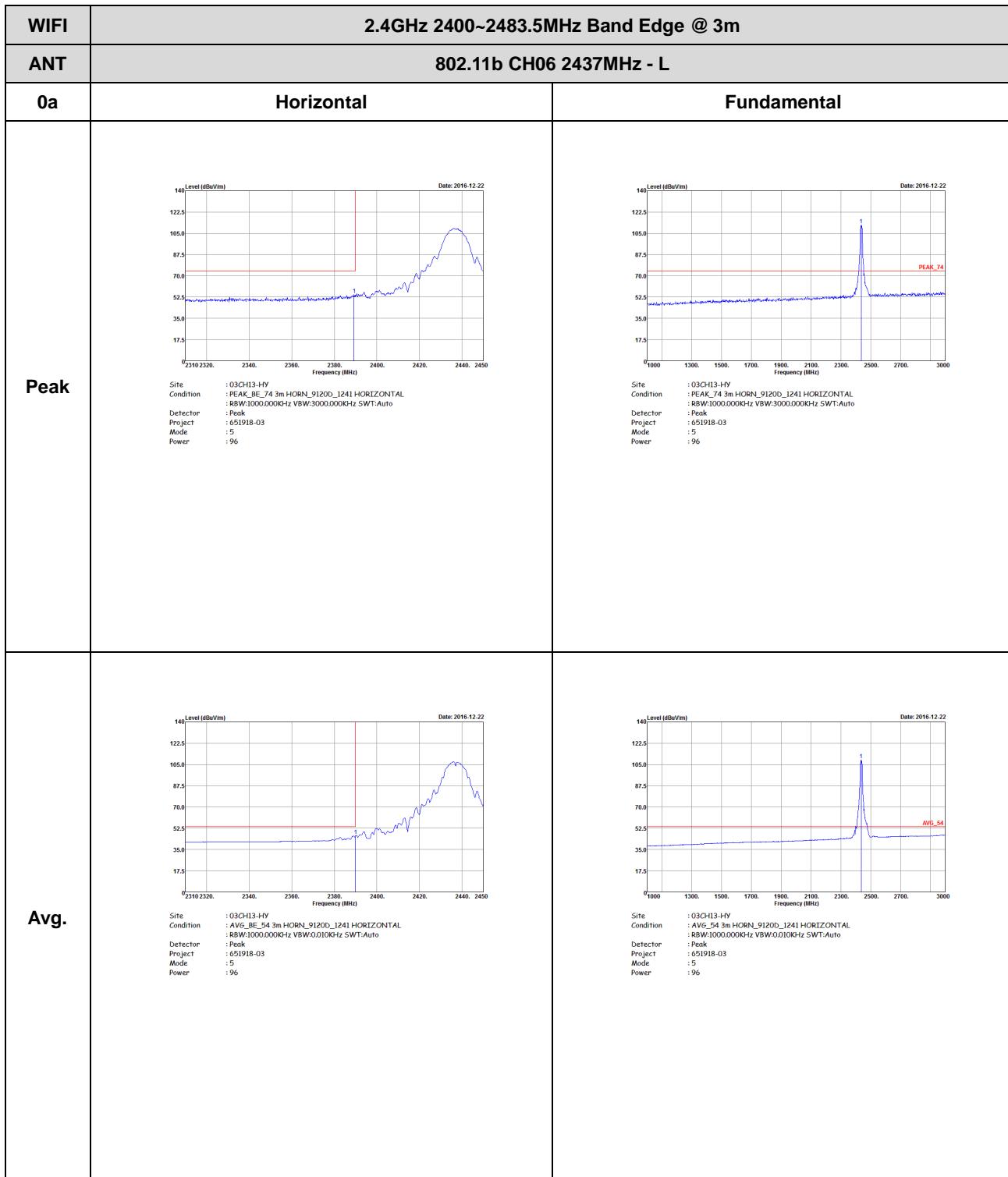
<Bottom Side>

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

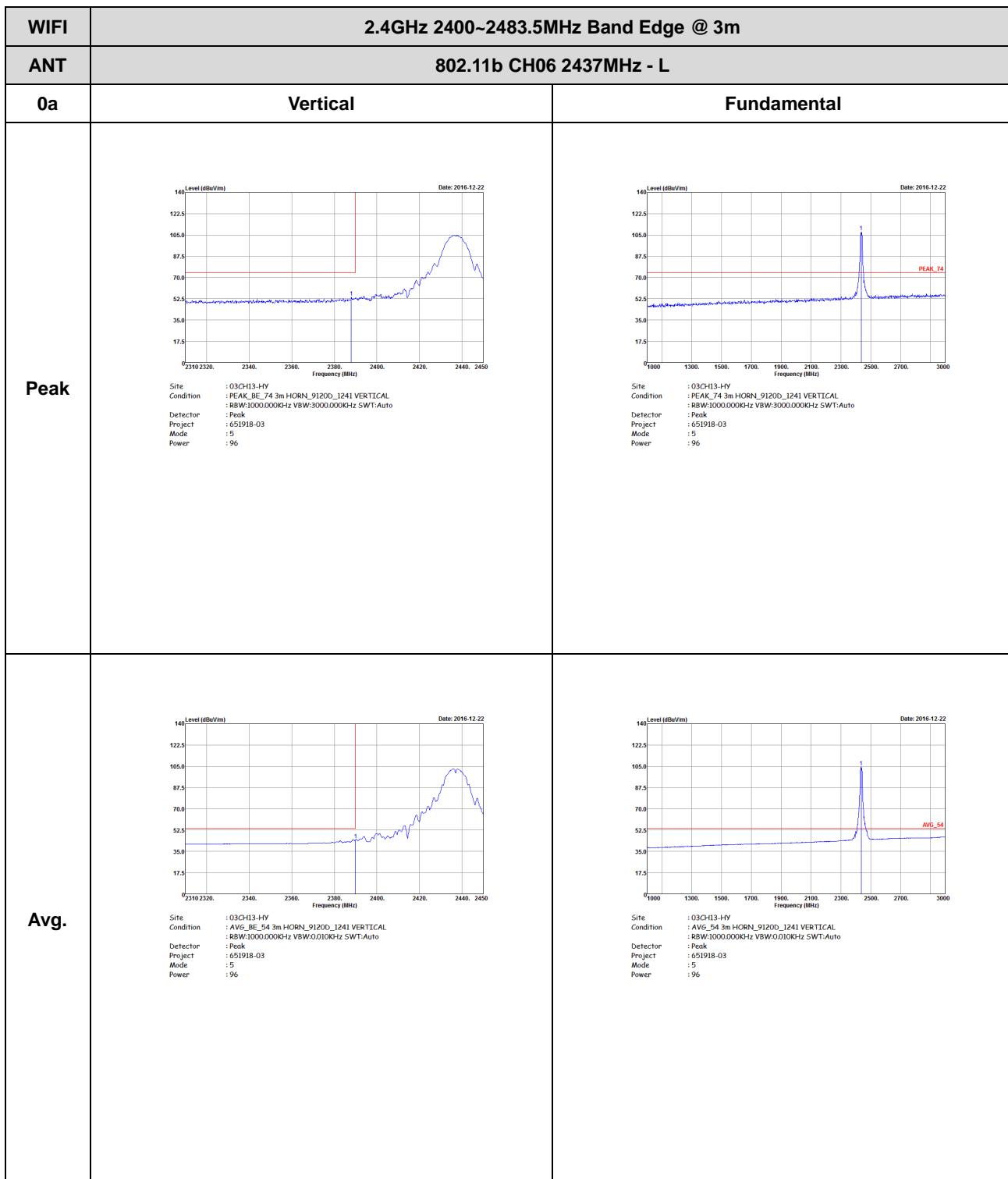
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
0a	Horizontal	Fundamental
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL Detector : Peak Project : 651918-03 Mode : 4 Power : 82</p>	 <p>Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL Detector : Peak Project : 651918-03 Mode : 4 Power : 82</p>
Avg.	 <p>Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL Detector : Peak Project : 651918-03 Mode : 4 Power : 82</p>	 <p>Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL Detector : Peak Project : 651918-03 Mode : 4 Power : 82</p>



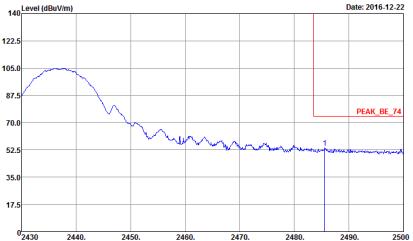
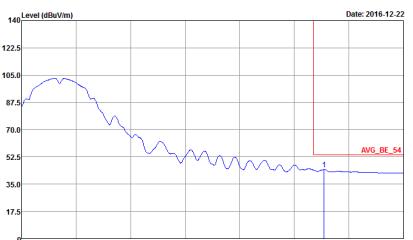




WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
0a	Horizontal	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 HORIZONTAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 051918-03 Mode : 5 Power : 96</p>	Left blank
Avg.	<p>Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 HORIZONTAL Detector : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Project : 051918-03 Mode : 5 Power : 96</p>	Left blank





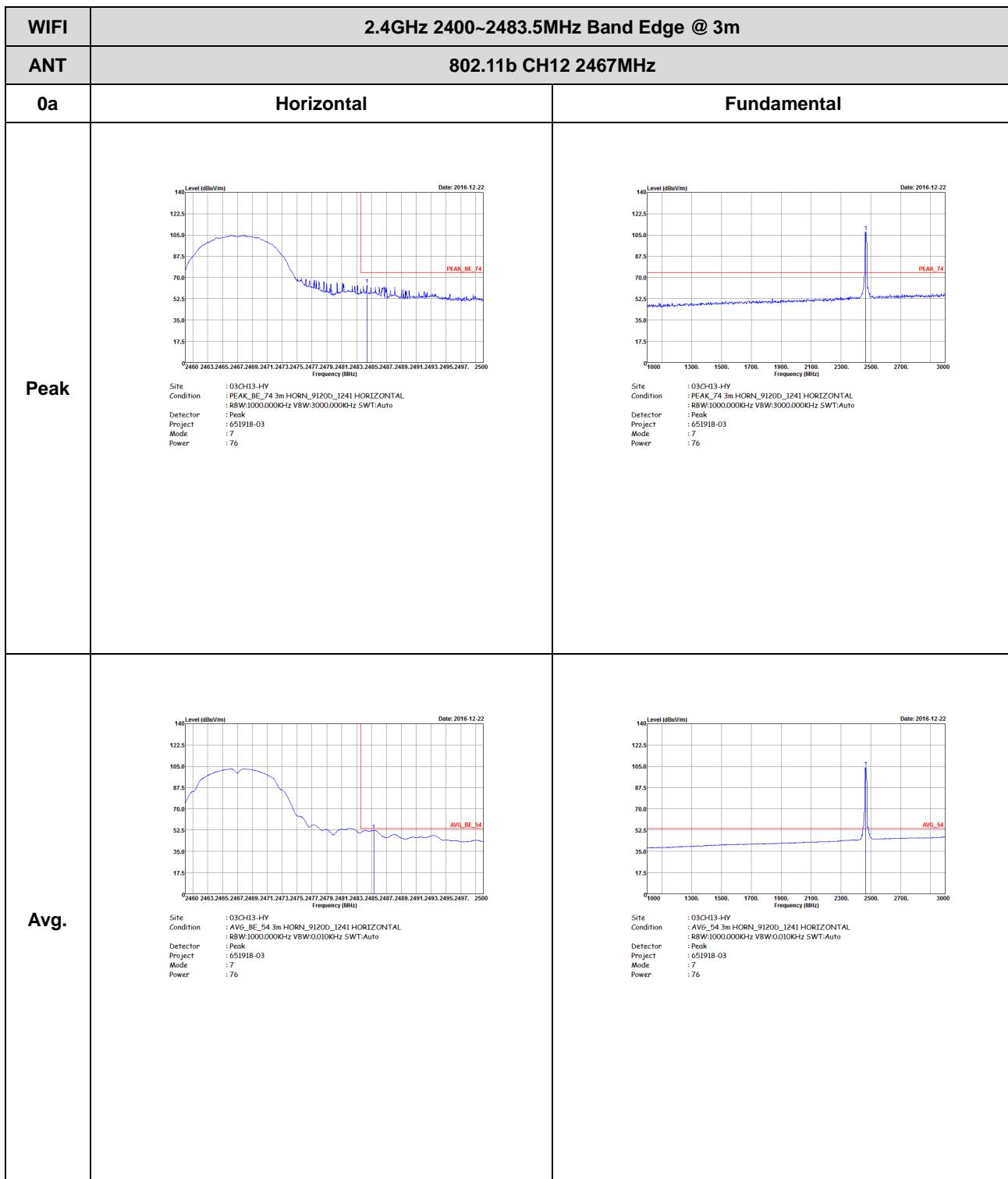
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
0a	Vertical	Fundamental
Peak	 <p>Level (dBuV/m)</p> <p>Date: 2016-12-22</p> <p>PEAK_BE_74</p> <p>Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_91200_1241 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 051918-03 Mode : 5 Power : 96</p>	Left blank
Avg.	 <p>Level (dBuV/m)</p> <p>Date: 2016-12-22</p> <p>AVG_BE_54</p> <p>Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_91200_1241 VERTICAL Detector : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Project : 051918-03 Mode : 5 Power : 96</p>	Left blank



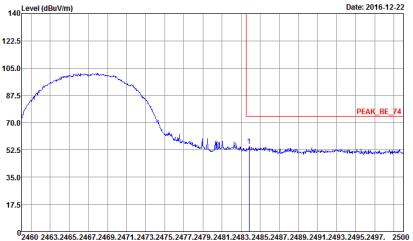
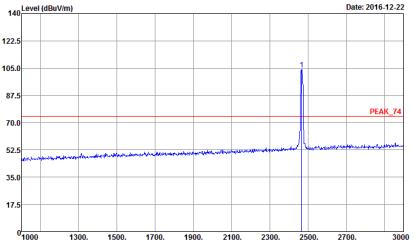
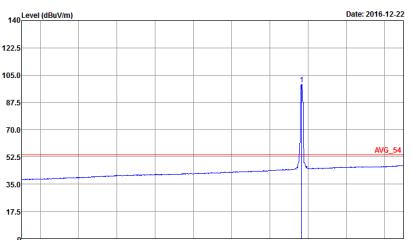
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
0a	Horizontal	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 HORIZONTAL Detector : Peak Project : 051918-03 Mode : 6 Power : 80</p>	<p>Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 HORIZONTAL Detector : Peak Project : 051918-03 Mode : 6 Power : 80</p>
Avg.	<p>Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 HORIZONTAL Detector : Peak Project : 051918-03 Mode : 6 Power : 80</p>	<p>Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 HORIZONTAL Detector : Peak Project : 051918-03 Mode : 6 Power : 80</p>



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
0a	Vertical	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL Detector : Peak Project : 051918-03 Mode : 6 Power : 80</p>	<p>Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL Detector : Peak Project : 051918-03 Mode : 6 Power : 80</p>
Avg.	<p>Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL Detector : Peak Project : 051918-03 Mode : 6 Power : 80</p>	<p>Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL Detector : Peak Project : 051918-03 Mode : 6 Power : 80</p>





WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH12 2467MHz	
0a	Vertical	Fundamental
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE_74 3m HORN_9120D_1241 VERTICAL Detector : Peak Project : 051918-03 Mode : 7 Power : 76</p>	 <p>Site : 03CH13-HY Condition : PEAK_74 3m HORN_9120D_1241 VERTICAL Detector : Peak Project : 051918-03 Mode : 7 Power : 76</p>
Avg.	 <p>Site : 03CH13-HY Condition : AVG_BE_54 3m HORN_9120D_1241 VERTICAL Detector : Peak Project : 051918-03 Mode : 7 Power : 76</p>	 <p>Site : 03CH13-HY Condition : AVG_54 3m HORN_9120D_1241 VERTICAL Detector : Peak Project : 051918-03 Mode : 7 Power : 76</p>