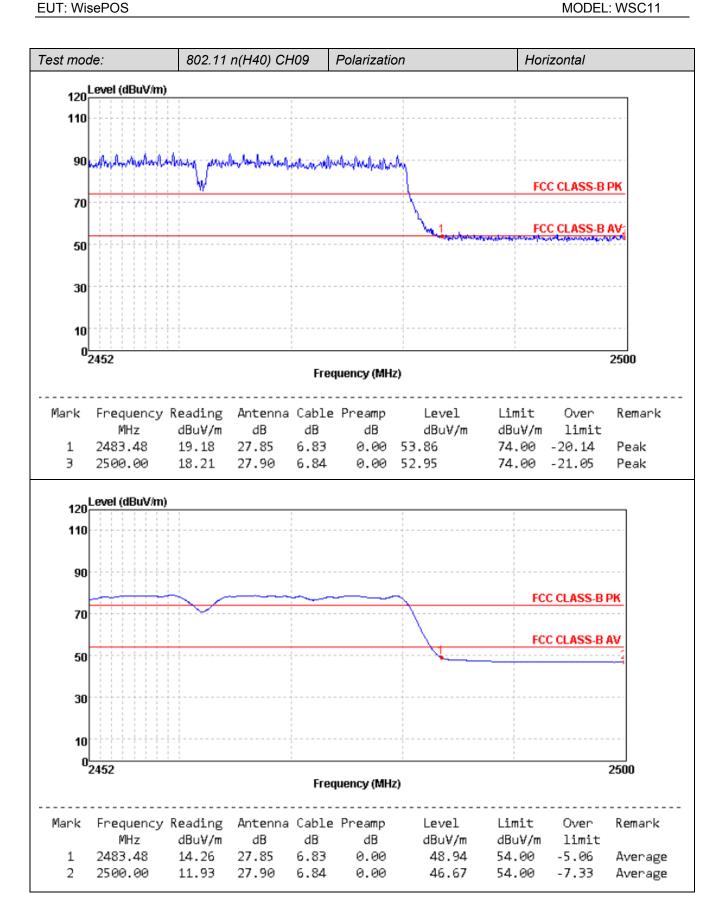
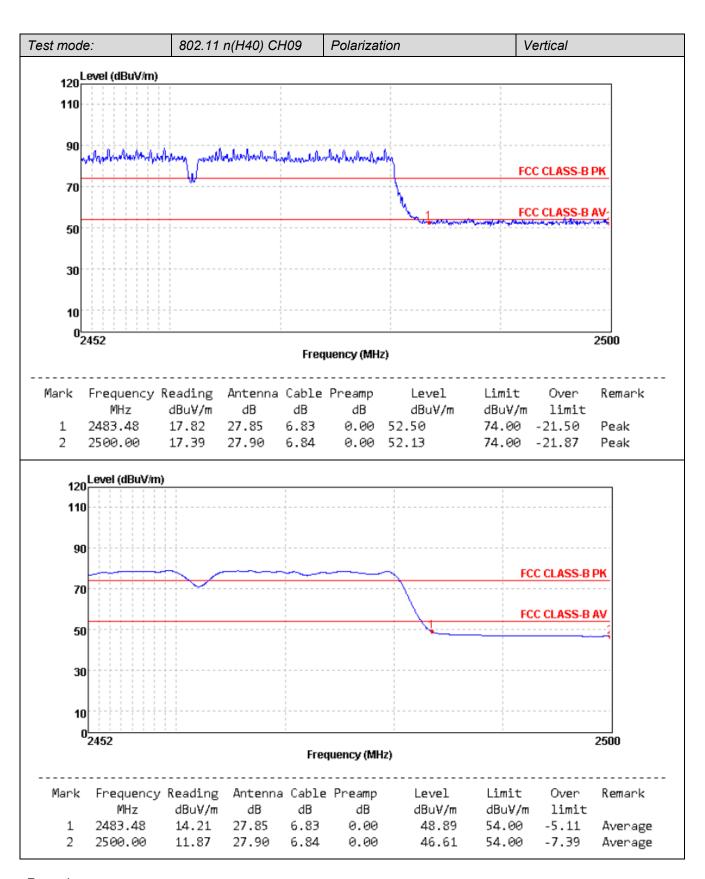


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Remark; Final Level = Receiver Reading + Antenna Factor + Cable Loss - Preamplifier Factor

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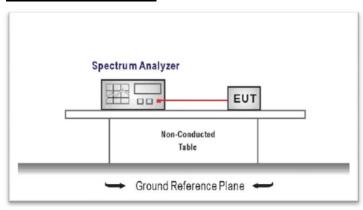
## 4.7. Band edge and Spurious Emission (conducted)

#### **LIMIT**

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d):

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

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1. Connect the antenna port(s) to the spectrum analyzer input.
- 2. Establish a reference level by using the following procedure

Center frequency=DTS channel center frequency

The span = 1.5 times the DTS bandwidth.

RBW = 100 kHz, VBW ≥ 3 x RBW

Detector = peak, Sweep time = auto couple, Trace mode = max hold

Allow trace to fully stabilize

Use the peak marker function to determine the maximum PSD level

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

#### 3. Emission level measurement

Set the center frequency and span to encompass frequency range to be measured

RBW = 100 kHz, VBW ≥ 3 x RBW

Detector = peak, Sweep time = auto couple, Trace mode = max hold

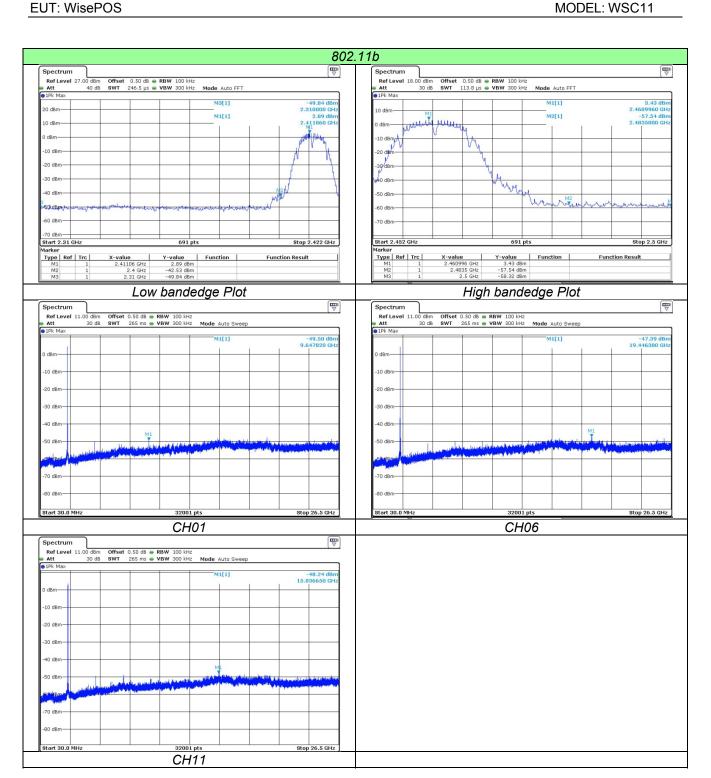
Allow trace to fully stabilize

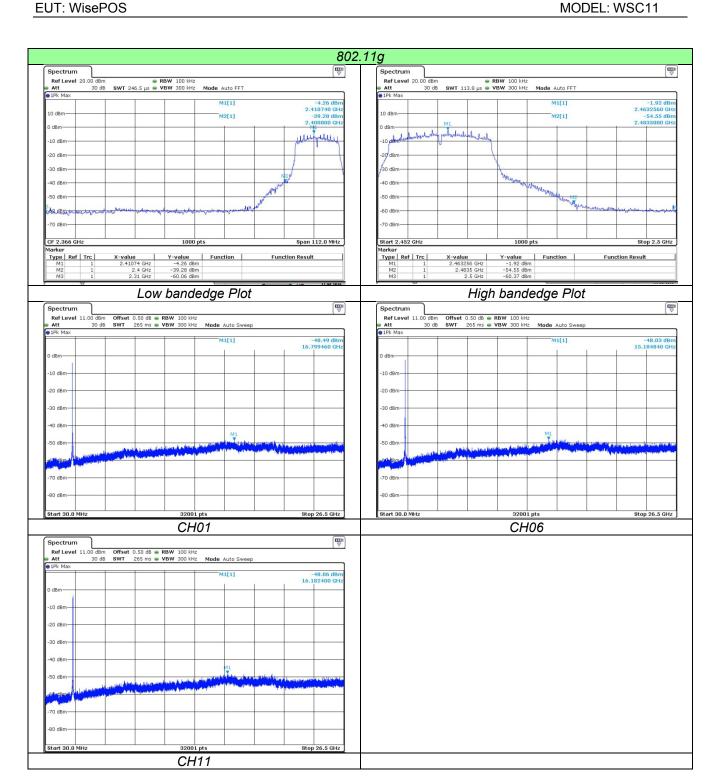
Use the peak marker function to determine the maximum amplitude level.

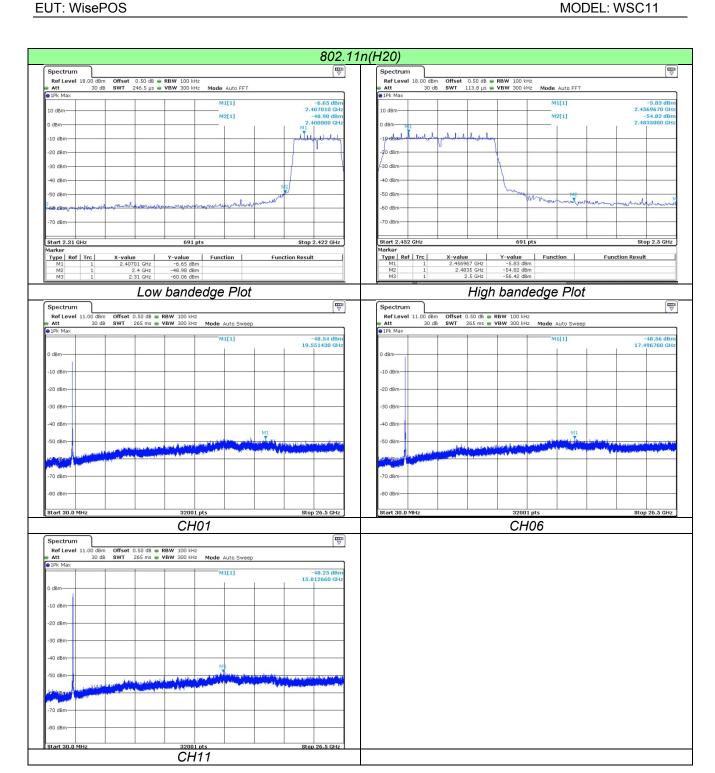
- 4. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter waveform on the spectrum analyzer.
- 5. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band excluding restricted frequency bands) are attenuated by at least the minimum requirements specified (at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz). Report the three highest emissions relative to the limit.

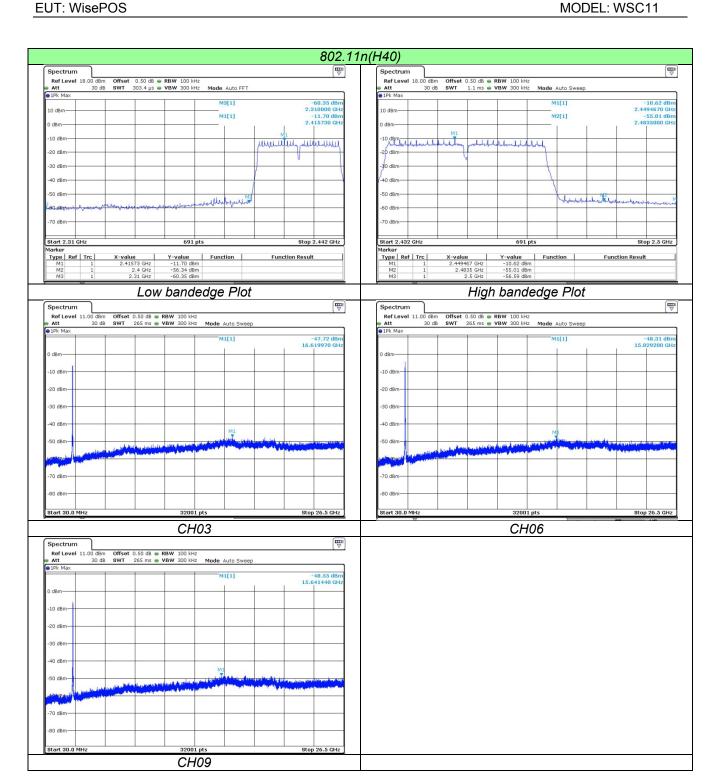
#### **TEST RESULTS**

Test plot as follows:









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# 4.8. Spurious Emission (radiated)

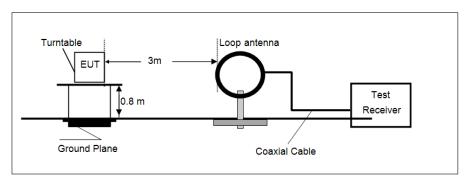
# **LIMIT**

FCC CFR Title 47 Part 15 Subpart C Section 15.209

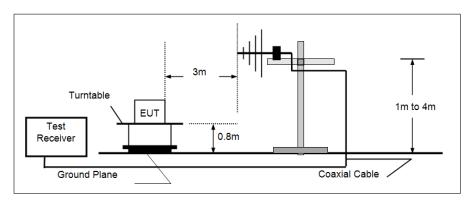
Frequency	Limit (dBuV/m @3m)	Value
30MHz-88MHz	40.00	Quasi-peak
88MHz-216MHz	43.50	Quasi-peak
216MHz-960MHz	46.00	Quasi-peak
960MHz-1GHz	54.00	Quasi-peak
Above 4CLI-	54.00	Average
Above 1GHz	74.00	Peak

# **TEST CONFIGURATION**

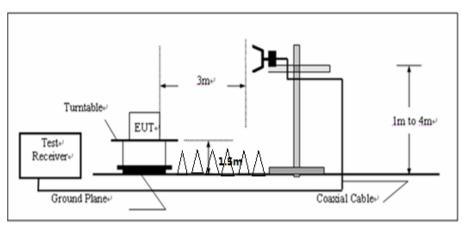
#### ● 9KHz ~30MHz



#### • 30MHz ~ 1GHz



## Above 1GHz



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#### **TEST PROCEDURE**

- The EUT was setup and tested according to ANSI C63.10:2013 for compliance to FCC 47CFR 15.247 requirements.
- 2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1GHz, and 1.5m for above 1GHz. The turn table is rotated360 degrees to determine the position of the maximum emission level.
- 3. The EUT waspositioned such that the distance from antenna to the EUT was 3 meters.
- 4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. Thisis repeated for both horizontal and vertical polarization of the antenna. In order to find themaximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
- 5. Use the following spectrum analyzer settings
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Below 1GHz, RBW=120KHz, VBW=300KHz, Sweep=auto, Detector function=peak, Trace=max hold; 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, theemission measurement will be repeated using the quasi-peak detector and reported.
  - (3) Above 1GHz, RBW=1MHz, VBW=3MHz for Peak value

RBW=1MHz, VBW=10Hz for Average value.

#### **TEST RESULTS**

Noted:

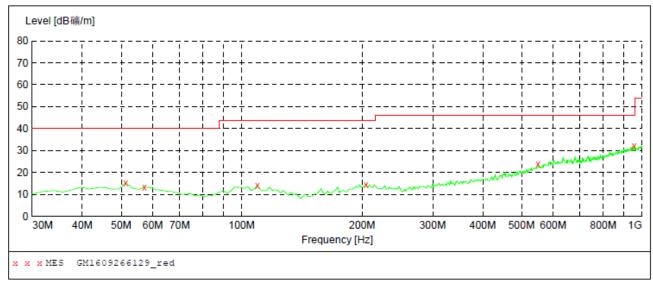
Below 1GHz, Have pre-scan all modulation mode, found the 802.11b mode CH01 which it was worst case, so only the worst case's data on the test report.

#### Measurement data:

#### ■ 9kHz ~ 30MHz

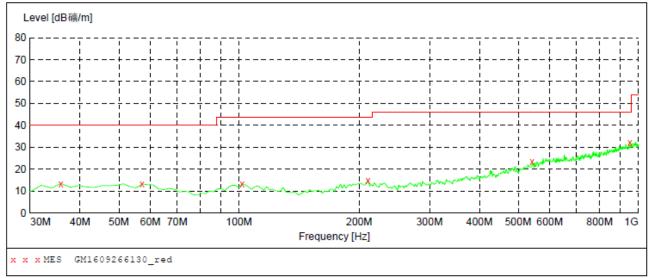
The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

## ■ 30MHz ~ 1GHz



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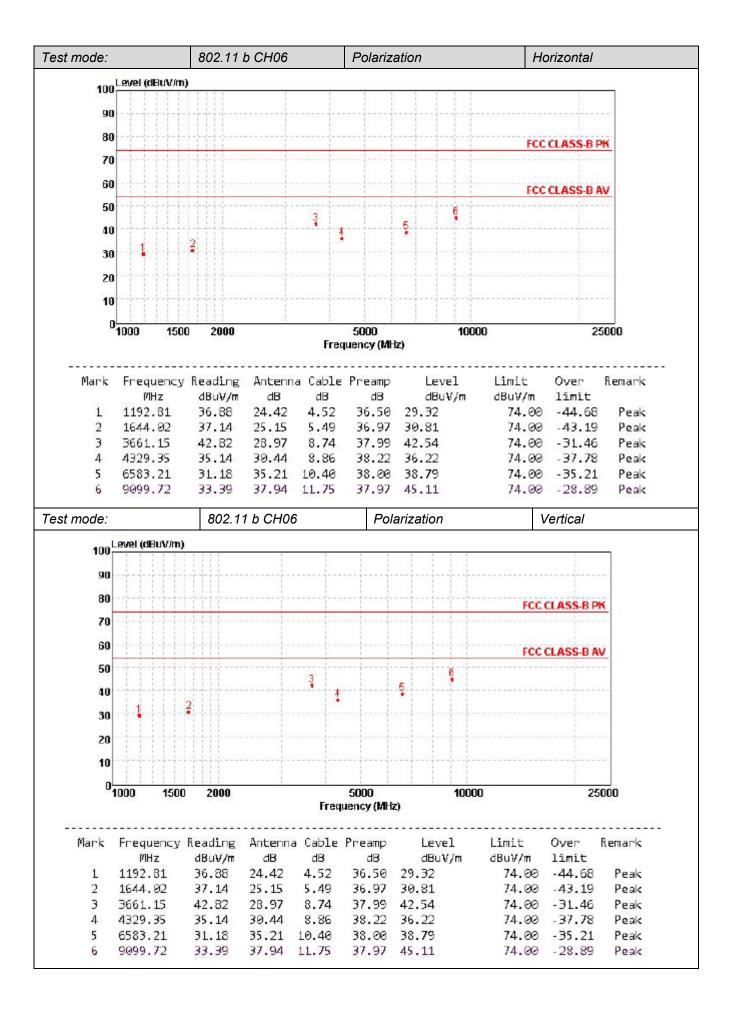
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	_	Det.	Height cm	Azimuth deg	Polarization
51.340000	15.30	-14.4	40.0	24.7	QP	300.0	66.00	HORIZONTAL
57.160000	13.20	-14.7	40.0	26.8	QP	100.0	27.00	HORIZONTAL
109.540000	14.00	-15.1	43.5	29.5	QP	100.0	212.00	HORIZONTAL
204.600000	14.40	-13.8	43.5	29.1	QP	300.0	360.00	HORIZONTAL
549.920000	23.70	-4.8	46.0	22.3	QP	100.0	340.00	HORIZONTAL
955.380000	32.10	3.8	46.0	13.9	QP	300.0	360.00	HORIZONTAL

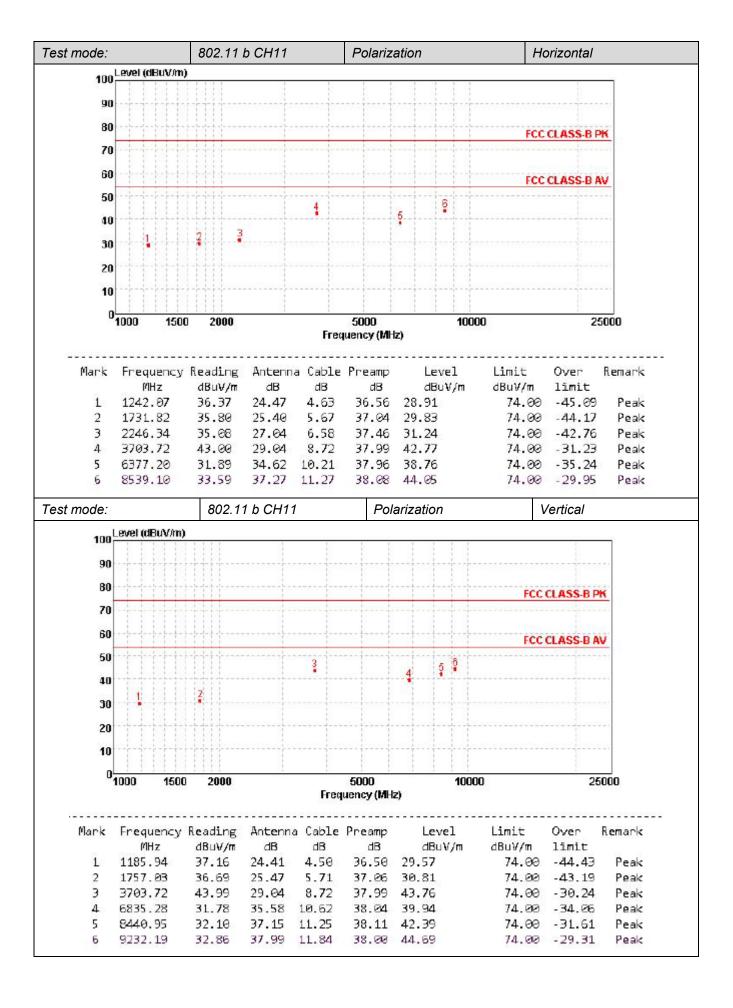


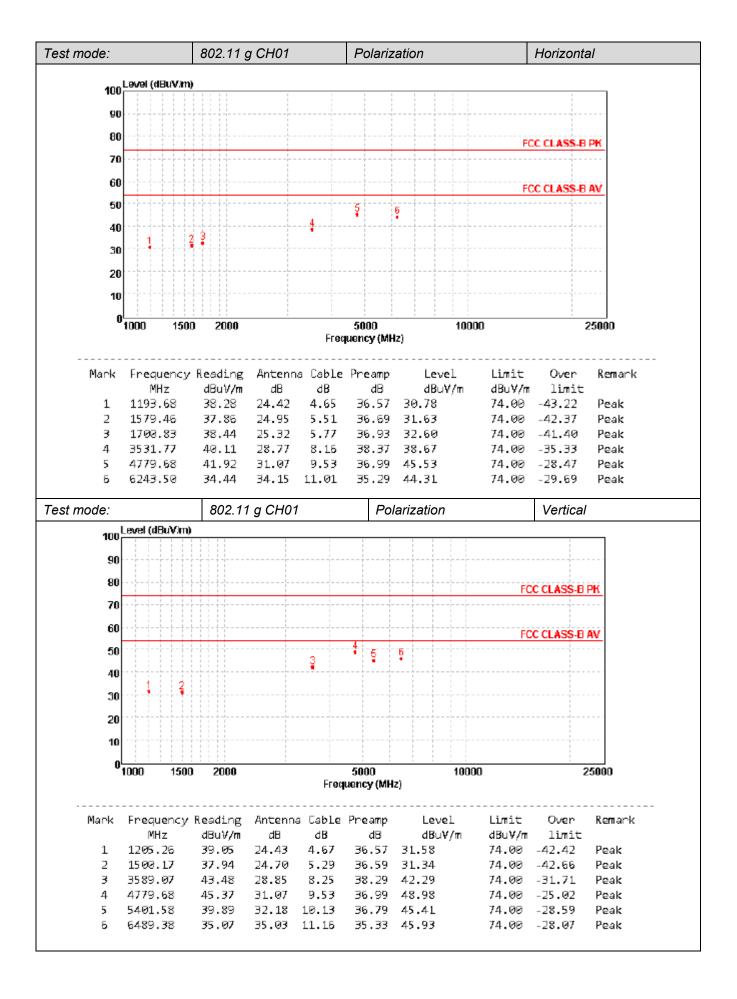
Frequency MHz	Level dBµV/m		Limit dBµV/m		Det.	Height cm	Azimuth deg	Polarization
35.820000	13.40	-15.9	40.0	26.6	QP	100.0	44.00	VERTICAL
57.160000	13.20	-14.7	40.0	26.8	QP	100.0	23.00	VERTICAL
101.780000	13.20	-14.4	43.5	30.3	QP	100.0	160.00	VERTICAL
210.420000	14.90	-14.0	43.5	28.6	QP	100.0	206.00	VERTICAL
542.160000	23.30	-5.2	46.0	22.7	QP	100.0	275.00	VERTICAL
951.500000	32.10	3.7	46.0	13.9	QP	100.0	23.00	VERTICAL

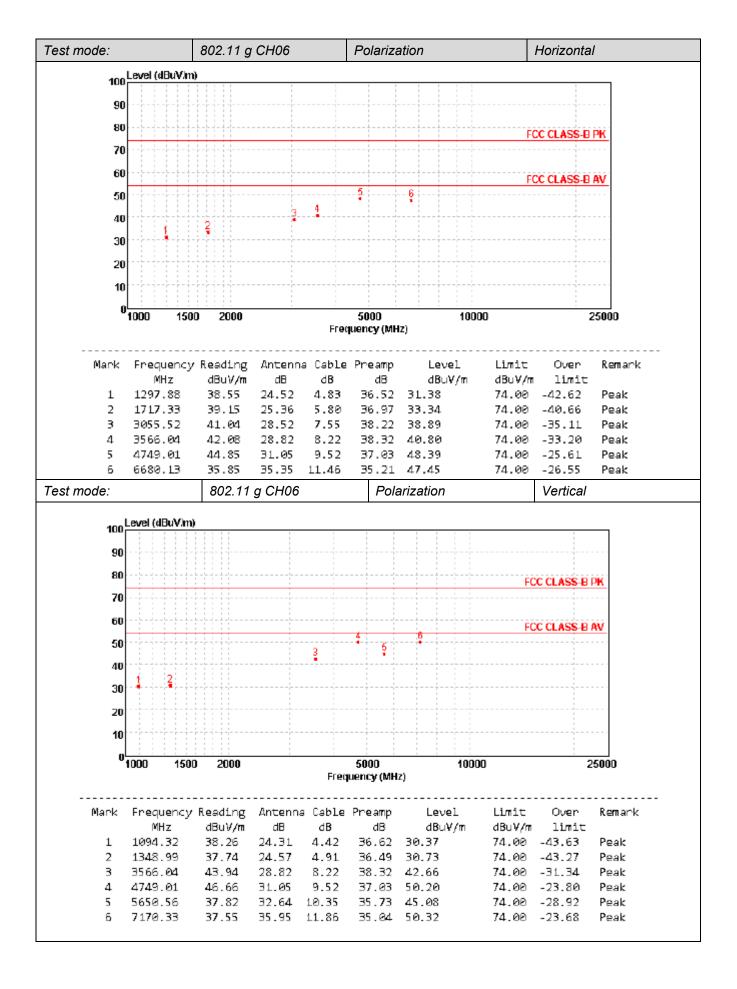
## **Above 1GHz**

st mode:		802.11	802.11 b CH01			Polarization				Horizontal		
400	Level (dBuV/r	n)					S-100 - 100					
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90							+++					
00												
80								FCC	CLASS-B	PK		
70							+++					
co												
60			78287829					FCC	CLASS-B	AV		
50						5	6			- 4.40		
40				3 1		5				2.2.		
	1 1 1 1 1			•								
30										1331		
20										292.0		
10							11					
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	1000 15	00 2000		Fred	5000 Juency (MH	z)	1000	U	-	25000		
44	F		п.		D.					n		
Mark	Frequenc					Lev		Limit	Over	Remark		
	MHz	dBuV/m	dB	dB	dB 36_61	dBu	wym	dBuV/m 74 ⊝⊝	limit	D		
1	1282.19	36.40	24.51	4.72	36.61			74.00				
2 3	3177.67 3619.06	36.20 41.37	28.58 28.90	8.41 8. <b>7</b> 5	37.99 37.99	35.20 41.03		74.00 74.00				
4	4354.45	35.16	30.51	8.88	38.24	36.31		74.00				
						43.30						
5 6	7242.05 9669.16	34.54 33.85	36.00 38.20	10.87	38.08	46.14		74.00 74.00	-30 <b>.7</b> 6			
17	5009. IO	ternaryosa	the or district to	40000000	the section of	1000000000		W. HOLLES SEE	CRANTWA	FEBR		
t mode:			1 b CH01	1	Pola	arization		1	/ertical			
100 L	evel (dBuV/m	1)										
.00		3 1333		18	1 1	1 1	1 1					
90							+-+					
80	-1-1-1-1	1.1.1.1										
								FCC	CLASS-B P	NK		
70	-1-1-1-1	11111					1-1					
60		1.1111					1.1.					
								FCC	CLASS-B A	W		
50		11111					5			4.4.7		
40				3	45		7			. + +		
200000	1	2					11					
30	•									3.31		
20										W.41		
0.00										22.0		
10												
o.	1000 150	0 2000			5000		10000	B	24	5000		
				Frequ	uency (MHz	)			-			
M==1-	E		Not	, 0=414	Dae	(4.2			0	R om sels		
Mark	Frequency	The state of the s		a Cable		Leve		Limit	Over	Remark		
	MHz	dBuV/m	dB	dB 4 41	dB 36 45	dBu∜	γm	dBuV/m	limit	D		
1	1152.15	36.98	24.38	4.41	36.45	29.24		74.00		Peak		
2	1644.02	37.30	25.15	5.49	36.97	30.97		74.00	-43.03	Peak		
3	3619.06	40.61	28.90	8.75	37.99	40.27		74.00	-33.73	Peak		
4	5179.05 6088.99	33.27	31.64	9.45	38.51	35.85		74.00	-38.15	Peak		
	PARTITION OF LAKE	32.58	33.54	9.85	37.92	38.05		74.00	-35.95	Peak		
5	9258.91	32.89	38.01	11.84	38.00	44.74		74.00	-29.26	Peak		

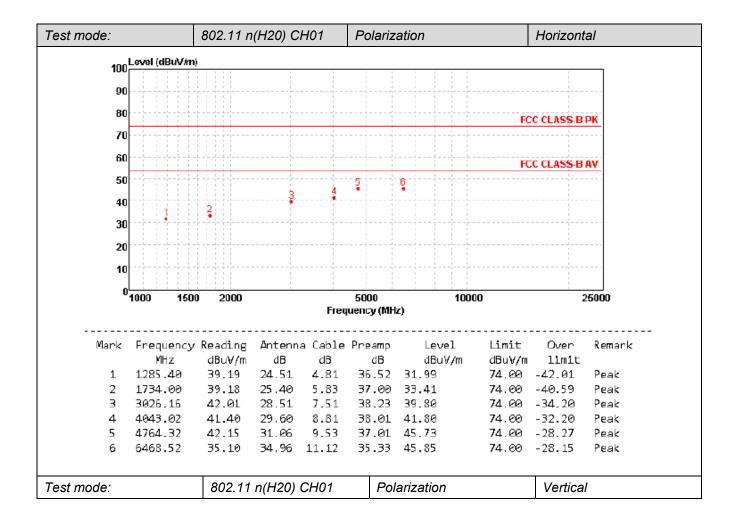




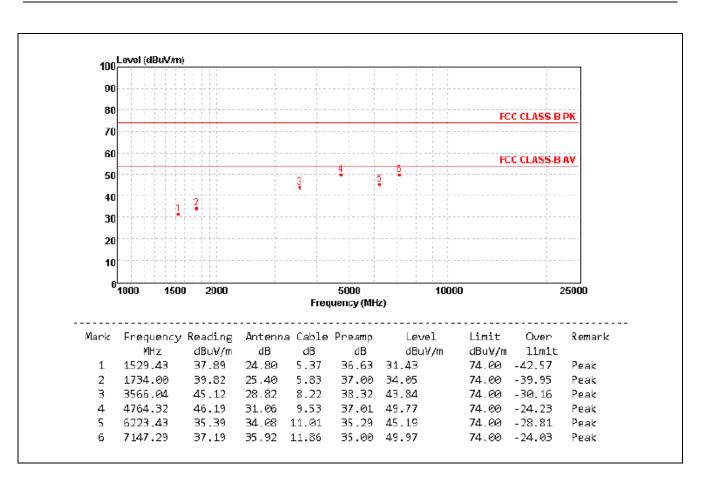




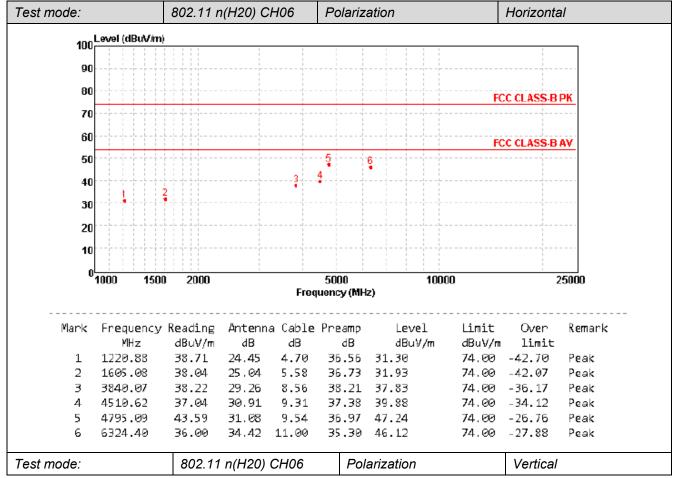
DATE: Nov. 09, 2016 MODEL: WSC11



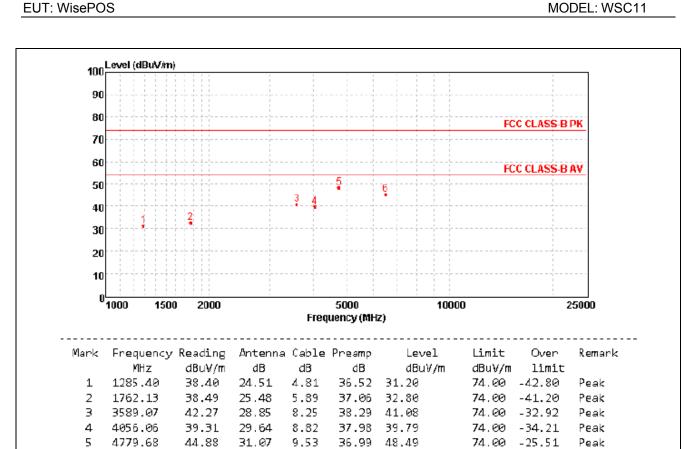
DATE: Nov. 09, 2016 MODEL: WSC11



DATE: Nov. 09, 2016 MODEL: WSC11



6510.30

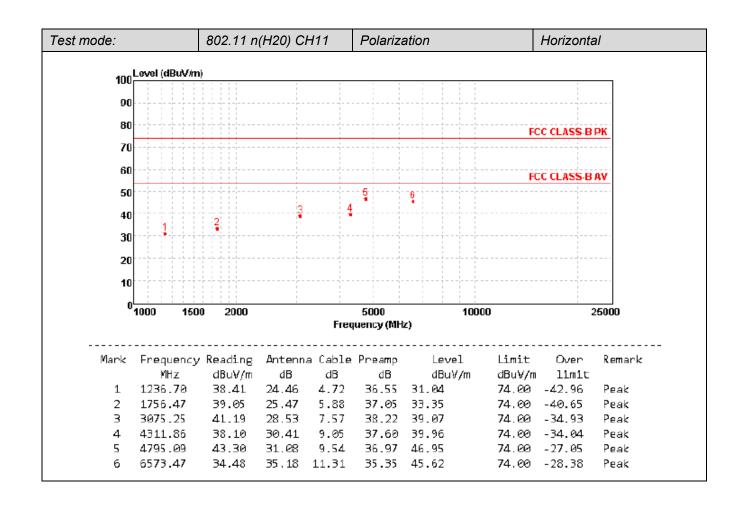


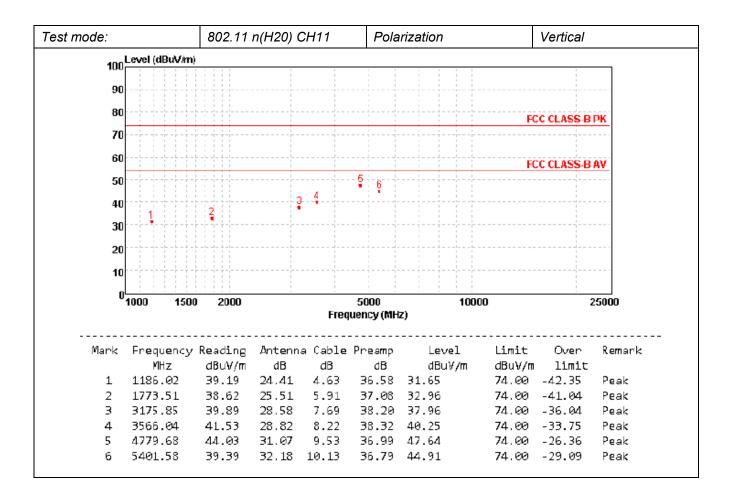
35.34 45.38

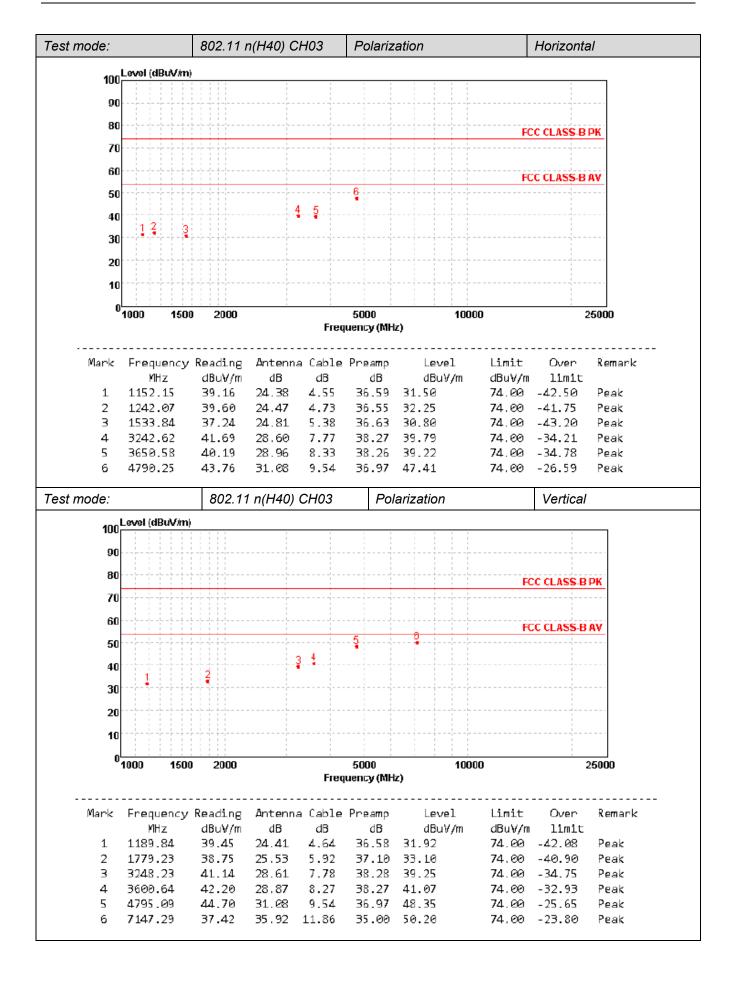
74.00 -28.62

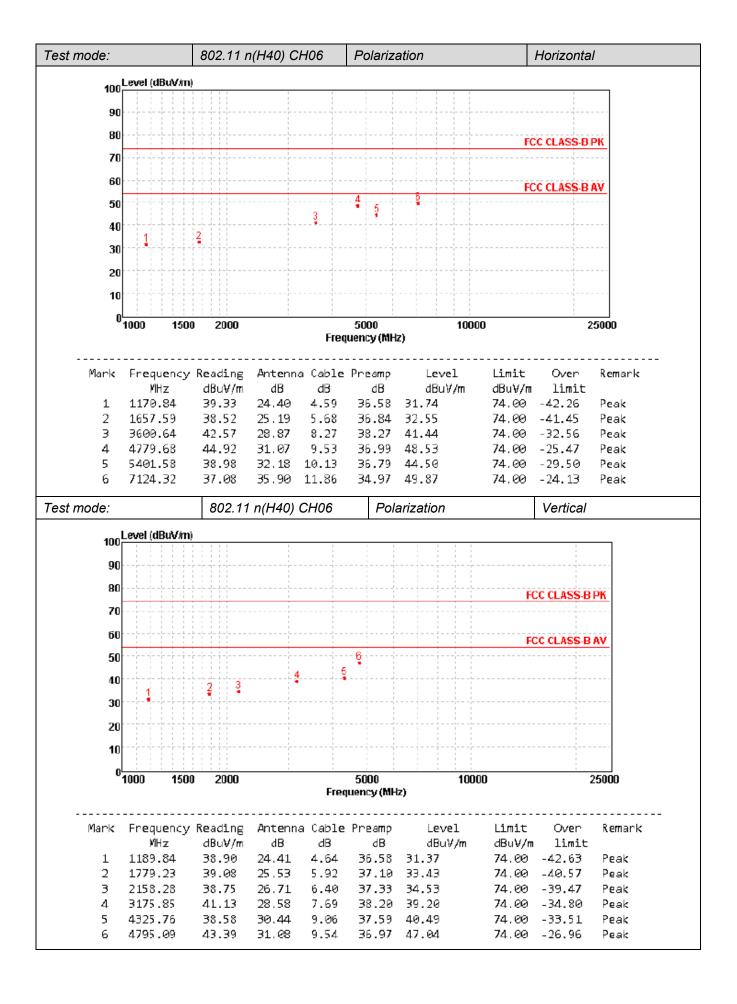
Peak

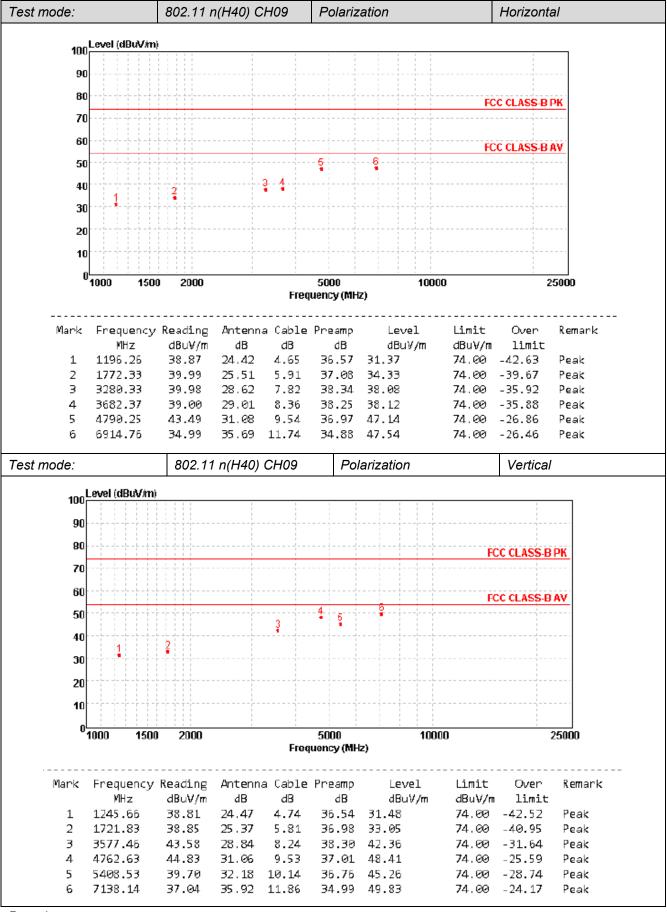
34.43 35.10 11.19











#### Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The measurement result of peak value is smaller than the AVG Limit, so the AVG value is not show in the test report.
- 3. The emission levels of other frequencies are very lower than the limit and not show in test report.

# 5. Test Setup Photos of the EUT

Radiated Emission



DATE: Nov. 09, 2016





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# Conducted Emission (PC Charge)



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# 6. External and Internal Photos of the EUT

Reference to Test Report TRE16	11003501
•	
	End of Report