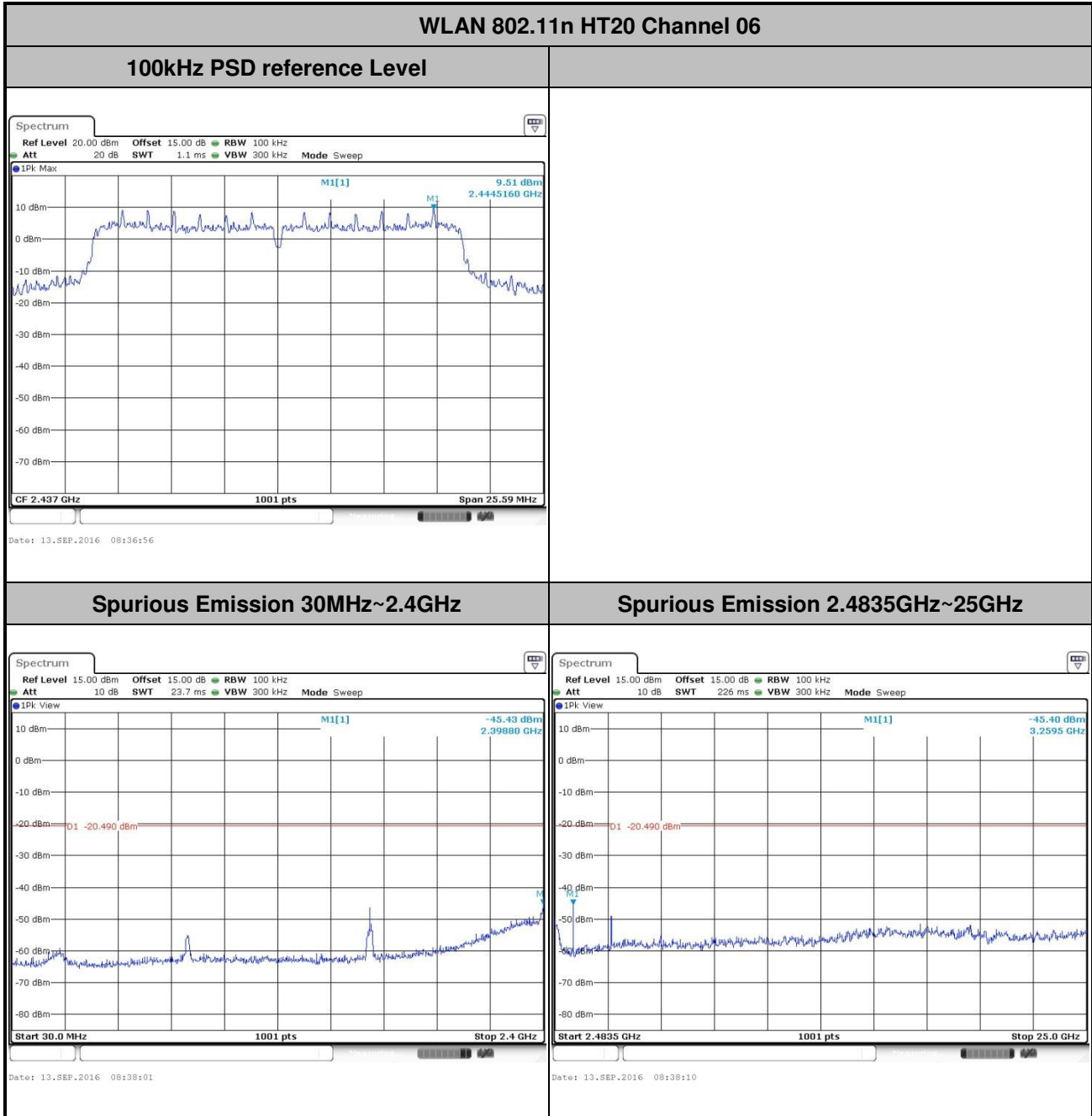


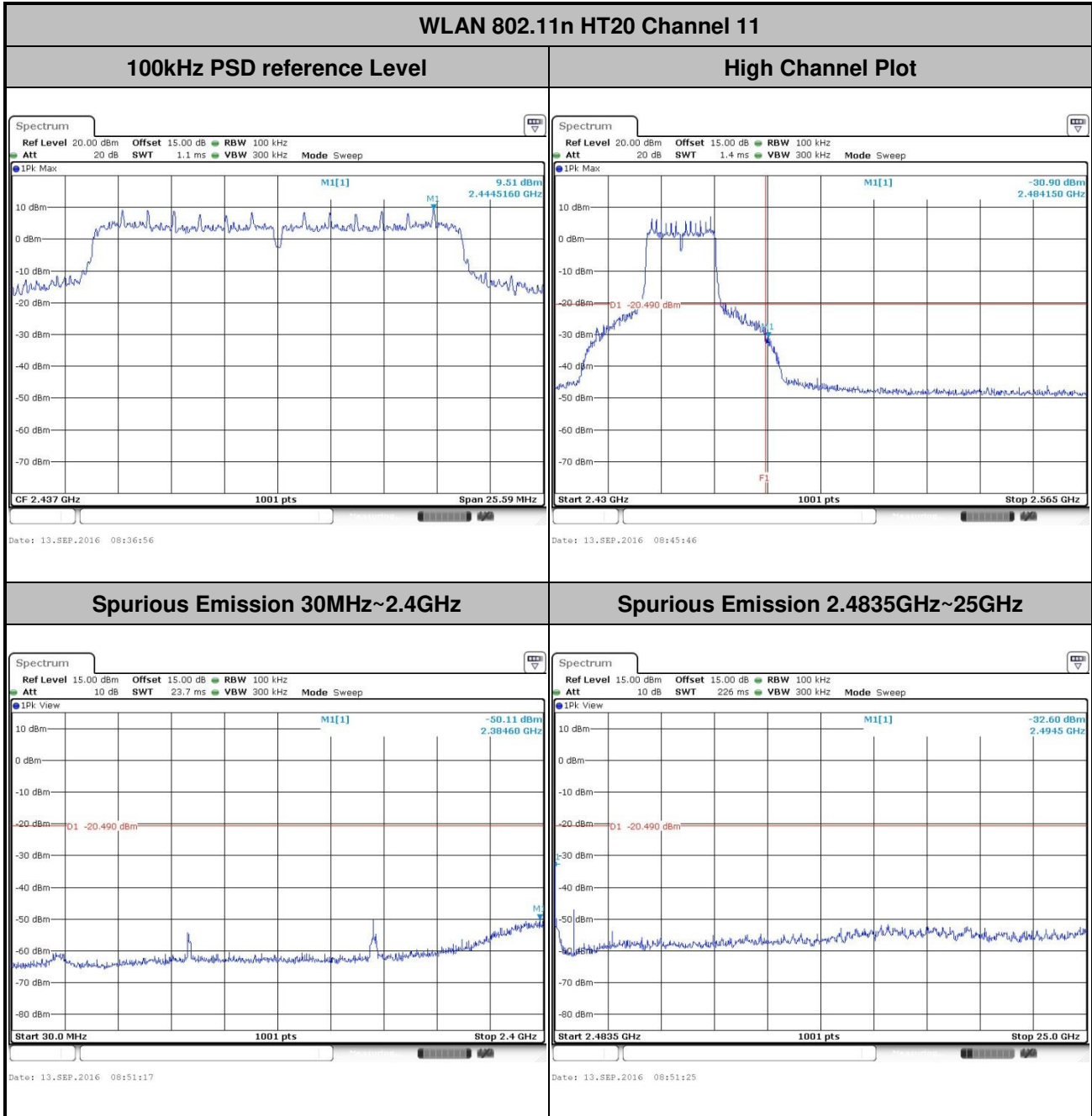


Number of TX :	2	Chain Port :	2
Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Sam Zheng



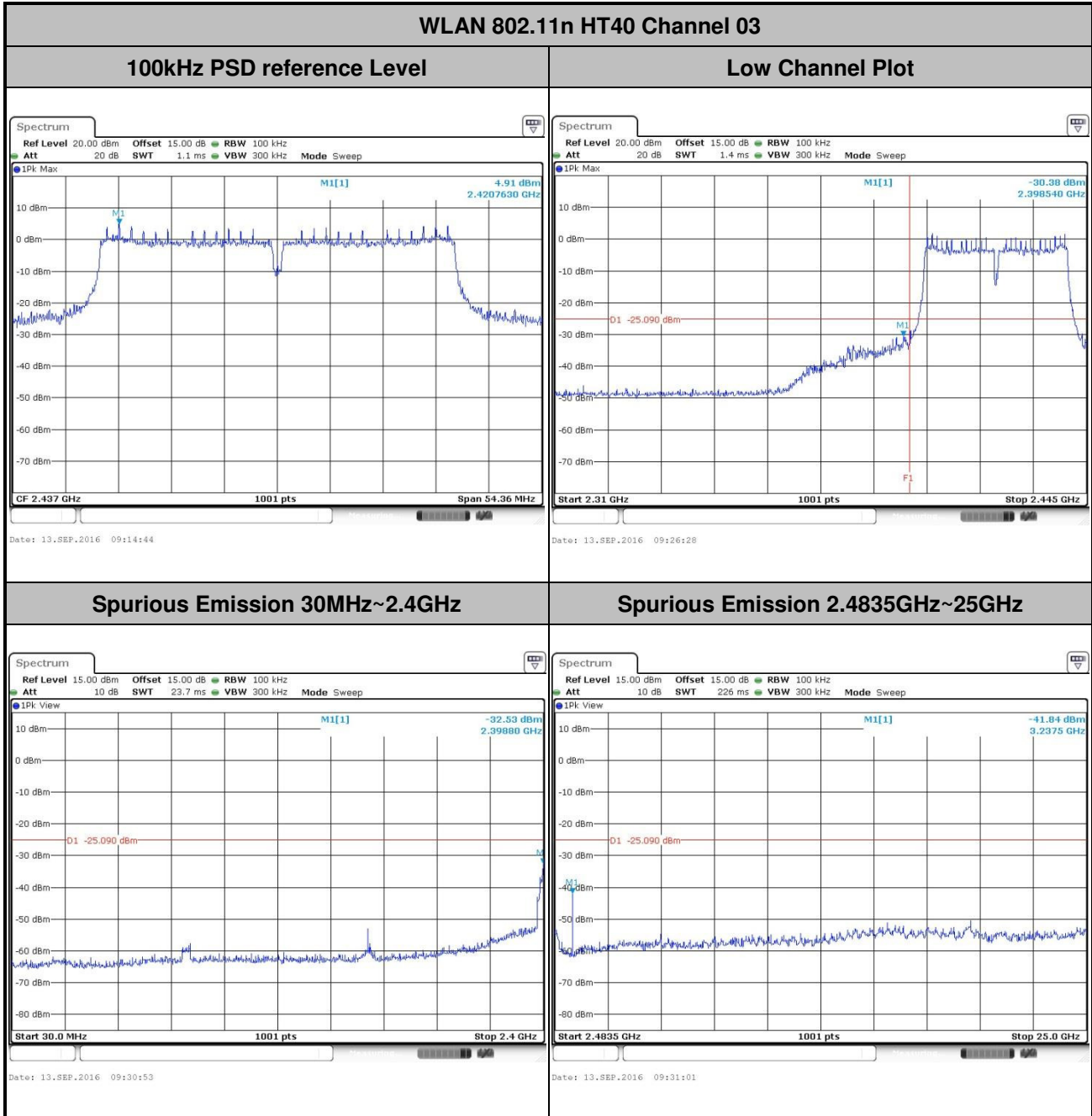


Number of TX :	2	Chain Port :	2
Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Band :	2.4GHz High	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Sam Zheng



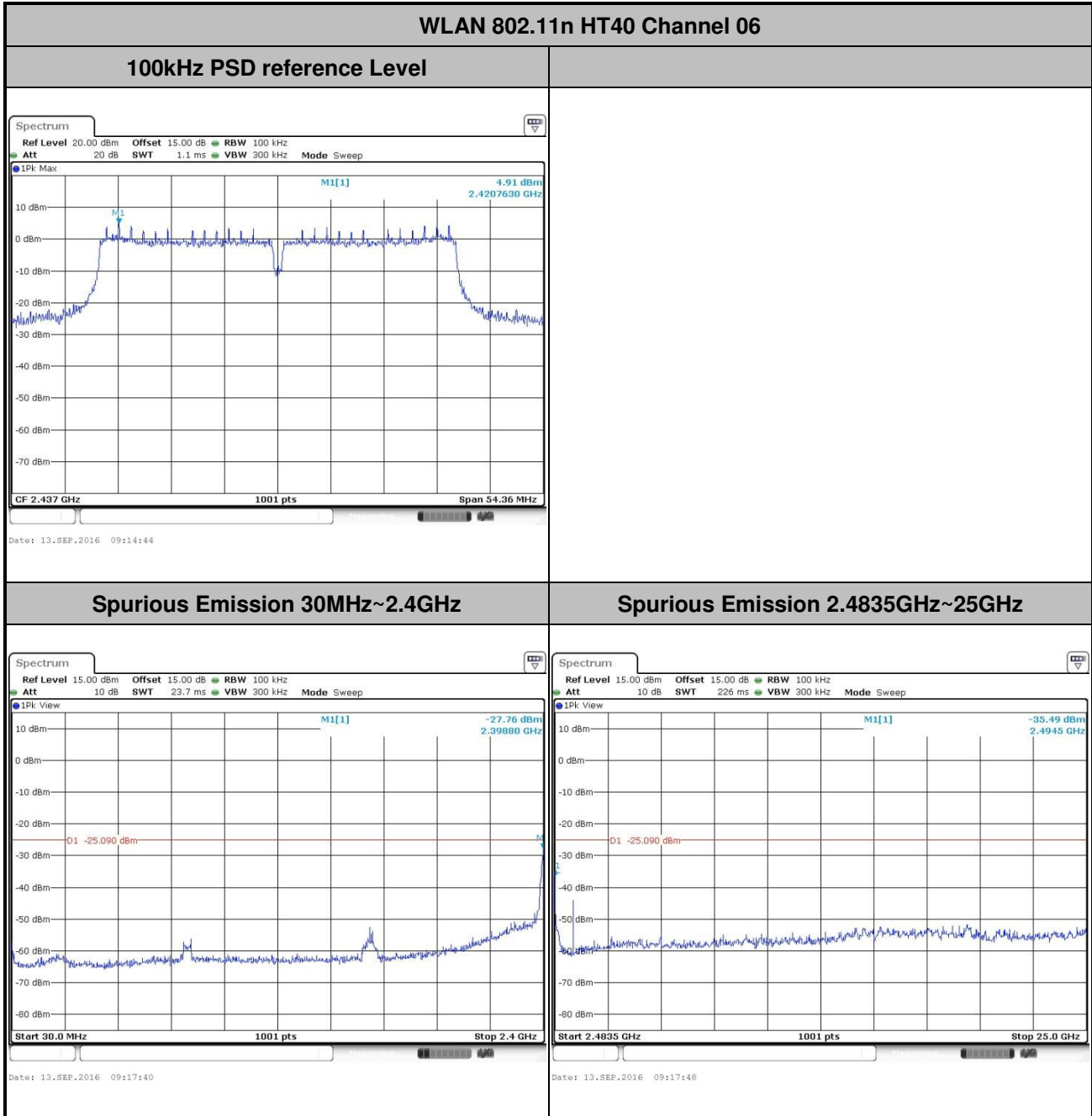


Number of TX :	2	Chain Port :	2
Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Band :	2.4GHz Low	Relative Humidity :	50~53%
Test Channel :	03	Test Engineer :	Sam Zheng



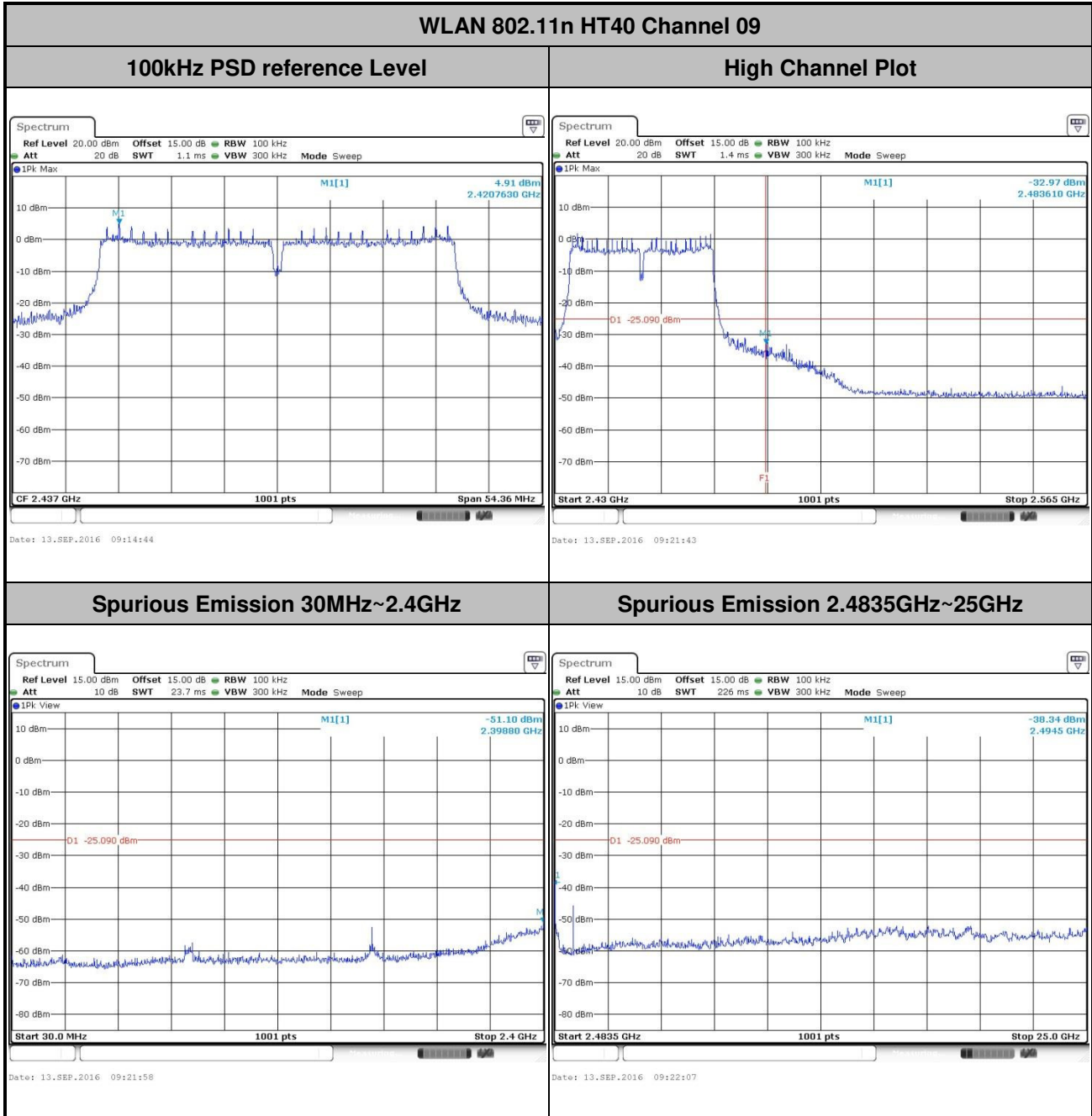


Number of TX :	2	Chain Port :	2
Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Sam Zheng





Number of TX :	2	Chain Port :	2
Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Band :	2.4GHz High	Relative Humidity :	50~53%
Test Channel :	09	Test Engineer :	Sam Zheng





### 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.

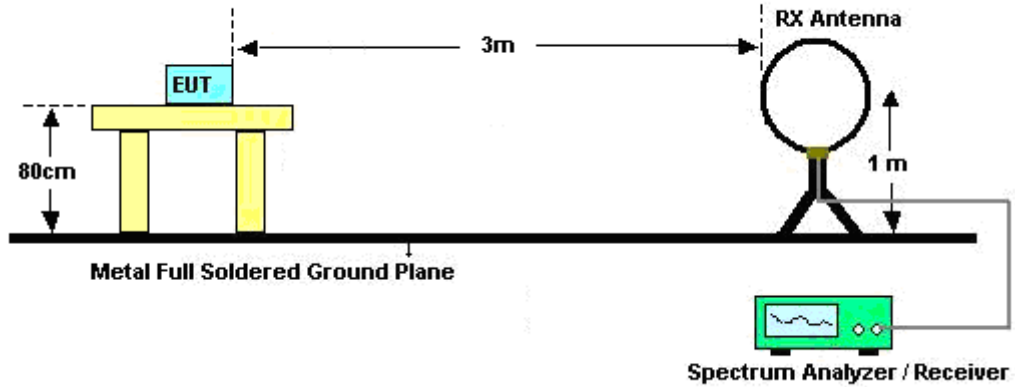


### 3.5.3 Test Procedures

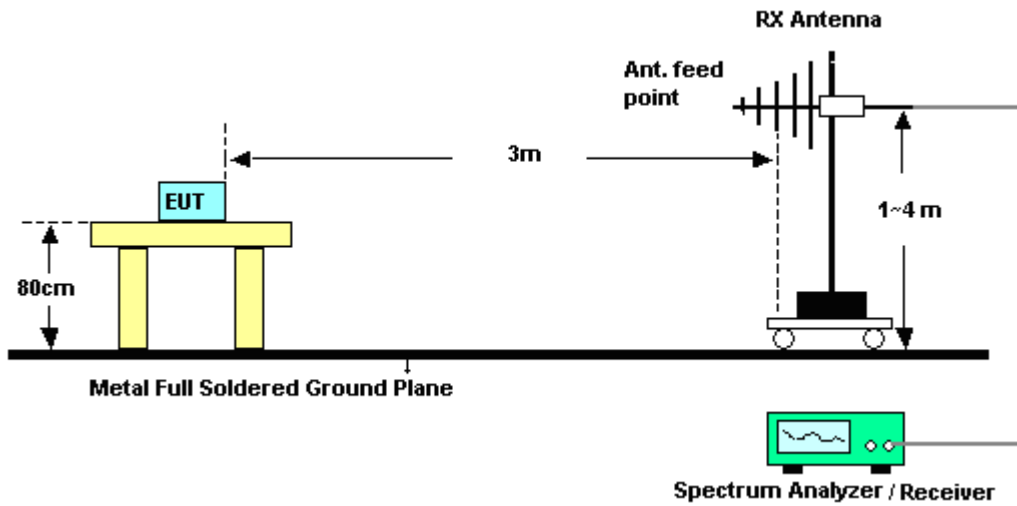
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the 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

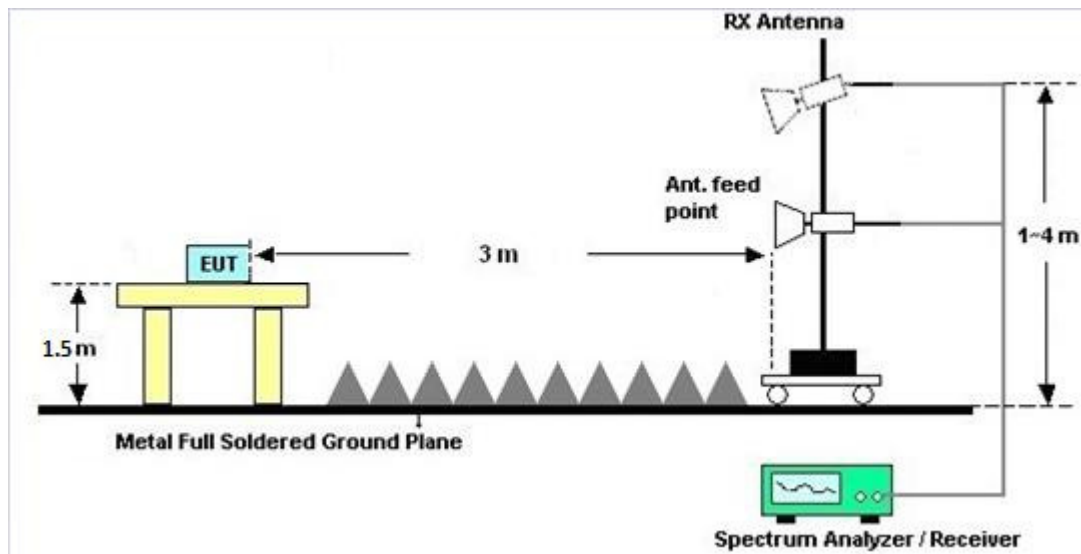


For radiated emissions from 30MHz to 1GHz





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

### 3.5.7 Duty Cycle

Please refer to Appendix C

### 3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10<sup>th</sup> Harmonic)

Please refer to Appendix B.



### 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 $\mu$ 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.

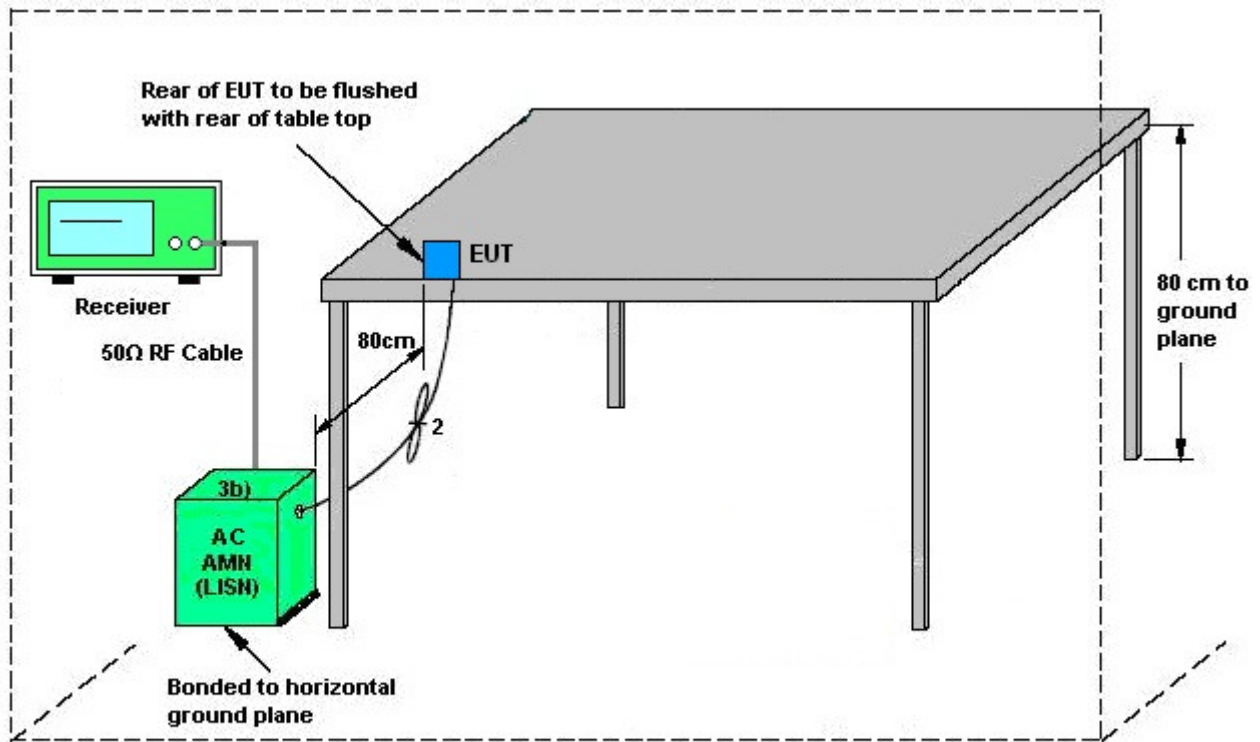
#### 3.6.2 Measuring Instruments

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

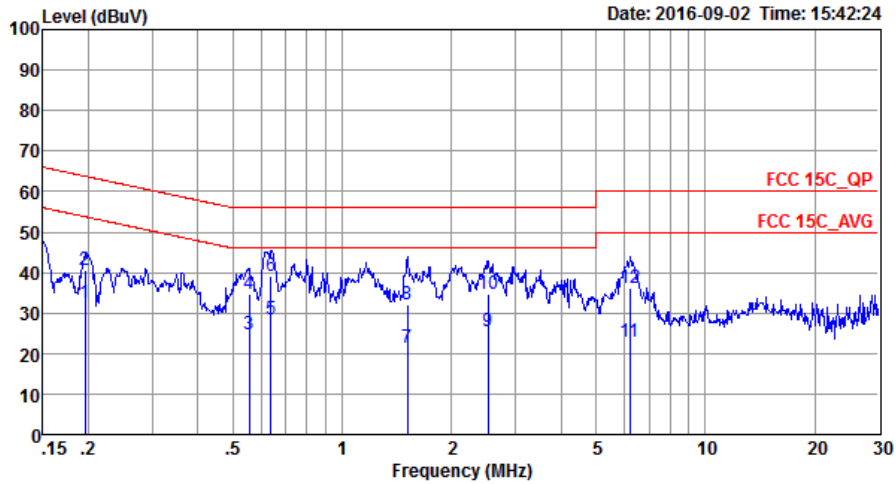


AMN = Artificial mains network (LISH)  
AE = Associated equipment  
EUT = Equipment under test  
ISN = Impedance stabilization network



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Tao Cheng	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN 2.4G Link (Client) + WLAN 2.4G Link (Master) + AC Load + RJ45 Link		

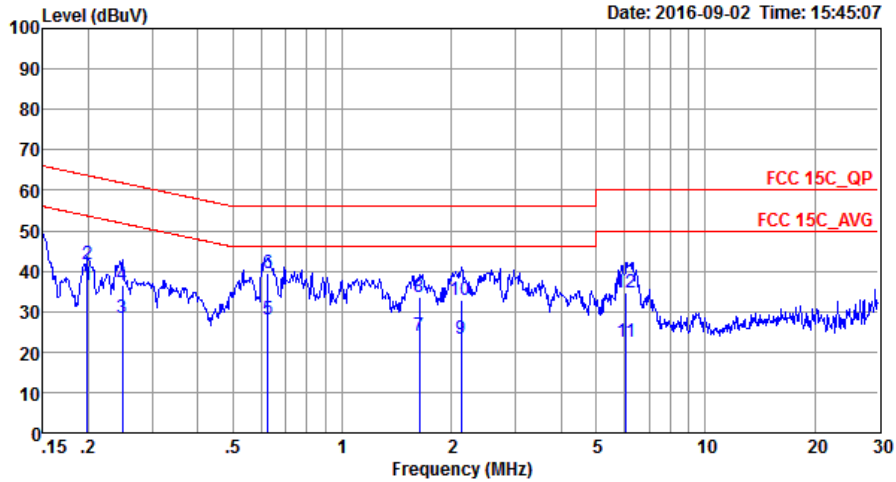


Site : C001-SZ  
 Condition: FCC 15C\_QP LISN\_20160509 LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.20	32.52	-21.28	53.80	21.90	0.11	10.51	Average
2	0.20	40.52	-23.28	63.80	29.90	0.11	10.51	QP
3	0.56	24.81	-21.19	46.00	14.50	0.11	10.20	Average
4	0.56	34.51	-21.49	56.00	24.20	0.11	10.20	QP
5	0.64	28.59	-17.41	46.00	18.30	0.11	10.18	Average
6 *	0.64	38.99	-17.01	56.00	28.70	0.11	10.18	QP
7	1.51	21.58	-24.42	46.00	11.30	0.11	10.17	Average
8	1.51	31.98	-24.02	56.00	21.70	0.11	10.17	QP
9	2.53	25.30	-20.70	46.00	14.99	0.12	10.19	Average
10	2.53	34.80	-21.20	56.00	24.49	0.12	10.19	QP
11	6.19	23.04	-26.96	50.00	12.60	0.16	10.28	Average
12	6.19	36.34	-23.66	60.00	25.90	0.16	10.28	QP



Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Tao Cheng	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN 2.4G Link (Client) + WLAN 2.4G Link (Master) + AC Load + RJ45 Link		



Site : CO01-SZ  
 Condition: FCC 15C\_QP LISN\_20160509 NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.20	36.51	-17.16	53.67	25.90	0.11	10.50	Average
2	0.20	41.61	-22.06	63.67	31.00	0.11	10.50	QP
3	0.25	28.37	-23.45	51.82	17.80	0.11	10.46	Average
4	0.25	36.47	-25.35	61.82	25.90	0.11	10.46	QP
5	0.62	28.19	-17.81	46.00	17.90	0.11	10.18	Average
6 *	0.62	39.59	-16.41	56.00	29.30	0.11	10.18	QP
7	1.63	24.08	-21.92	46.00	13.80	0.11	10.17	Average
8	1.63	33.48	-22.52	56.00	23.20	0.11	10.17	QP
9	2.12	23.39	-22.61	46.00	13.11	0.11	10.17	Average
10	2.12	32.79	-23.21	56.00	22.51	0.11	10.17	QP
11	6.06	22.64	-27.36	50.00	12.20	0.16	10.28	Average
12	6.06	34.54	-25.46	60.00	24.10	0.16	10.28	QP



### 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 power, the directional gain  $G_{ANT}$  is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)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.

	Chain Port. 1 (dBi)	Chain Port. 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4 GHz	1.91	1.94	1.94	4.94	0.00	0.00

$Power\ Limit\ Reduction = DG(Power) - 6dBi, (min = 0)$

$PSD\ Limit\ Reduction = DG(PSD) - 6dBi, (min = 0)$



### 4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	9kHz~40GHz	May 07, 2016	Sep. 12, 2016~ Sep. 18, 2016	May 06, 2017	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1207253	30MHz~40GHz	Jan. 12, 2016	Sep. 12, 2016~ Sep. 18, 2016	Jan. 11, 2017	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Jan. 12, 2016	Sep. 12, 2016~ Sep. 18, 2016	Jan. 11, 2017	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY544500 83	20Hz~8.4GHz	May 07, 2016	Sep. 18, 2016	May 06, 2017	Radiation (03CH03-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY551502 46	10Hz~44GHz	May 07, 2016	Sep. 18, 2016	May 06, 2017	Radiation (03CH03-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 07, 2016	Sep. 18, 2016	May 06, 2017	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz~2GHz	May 21, 2016	Sep. 18, 2016	May 20, 2017	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-135 5	1GHz~18GHz	May 07, 2016	Sep. 18, 2016	May 06, 2017	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Aug. 10, 2016	Sep. 18, 2016	Aug. 09, 2017	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102210	0.01Hz ~3000MHz	Oct. 20, 2015	Sep. 18, 2016	Oct. 19, 2016	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-0010 1800-30-10P-R	1943528	1GHz~18GHz	Oct. 20, 2015	Sep. 18, 2016	Oct. 19, 2016	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY395013 02	500MHz~26.5G Hz	Jan. 12, 2016	Sep. 18, 2016	Jan. 11, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-H G	1871923	18GHz~40GHz	Jul. 16, 2016	Sep. 18, 2016	Jul. 15, 2017	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001 985	N/A	NCR	Sep. 18, 2016	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Sep. 18, 2016	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Sep. 18, 2016	NCR	Radiation (03CH03-SZ)
EMI Receiver	R&S	ESCI7	100724	9kHz~3GHz;	Nov. 23, 2015	Sep. 02, 2016	Nov. 22, 2016	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103892	9kHz~30MHz	Jan. 12, 2016	Sep. 02, 2016	Jan. 11, 2017	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103912	9kHz~30MHz	Jan. 12, 2016	Sep. 02, 2016	Jan. 11, 2017	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000 891	100Vac~250Vac	Jul. 16, 2016	Sep. 02, 2016	Jul. 15, 2017	Conduction (CO01-SZ)
Pulse Limiter	COM-POWER	LIT-153 Transient Limiter	53139	150kHz~30MHz	Oct. 20, 2015	Sep. 02, 2016	Oct. 19, 2016	Conduction (CO01-SZ)

NCR: No Calibration Required



## 5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.5 dB
---	--------

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.0dB
---	-------

### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.8dB
---	-------

### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.0dB
---	-------





## **Appendix A. Conducted Test Results**

Test Engineer:	Sam Zheng	Temperature:	24~26	°C
Test Date:	2016/9/12~2016/9/18	Relative Humidity:	50~53	%

**TEST RESULTS DATA**  
**6dB and 99% Occupied Bandwidth**

2.4GHz Band										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Chain Port 1	Chain Port 2	Chain Port 1	Chain Port 2		
11b	1Mbps	2	1	2412	13.59	13.89	10.03	10.07	0.50	Pass
11b	1Mbps	2	6	2437	13.49	13.89	10.05	10.03	0.50	Pass
11b	1Mbps	2	11	2462	13.39	13.89	10.05	10.05	0.50	Pass
11g	6Mbps	2	1	2412	18.43	18.43	16.30	16.32	0.50	Pass
11g	6Mbps	2	6	2437	25.32	23.43	16.32	16.32	0.50	Pass
11g	6Mbps	2	11	2462	18.38	18.48	16.32	16.32	0.50	Pass
HT20	MCS0	2	1	2412	19.03	18.83	17.08	17.04	0.50	Pass
HT20	MCS0	2	6	2437	28.17	28.42	17.02	17.06	0.50	Pass
HT20	MCS0	2	11	2462	18.98	19.18	17.06	17.04	0.50	Pass
HT40	MCS0	2	3	2422	36.96	37.16	36.28	36.24	0.50	Pass
HT40	MCS0	2	6	2437	37.76	37.66	36.24	36.24	0.50	Pass
HT40	MCS0	2	9	2452	37.16	37.16	36.24	36.24	0.50	Pass

**TEST RESULTS DATA**  
**Peak Output Power**

2.4GHz Band											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	
					Chain Port 1	Chain Port 2	SUM	Chain Port 1	Chain Port 2	Chain Port 1	Chain Port 2
11b	1Mbps	2	1	2412	24.02	23.17	26.63	1.94		28.57	
11b	1Mbps	2	6	2437	24.11	23.27	26.72	1.94		28.66	
11b	1Mbps	2	11	2462	24.16	23.08	26.66	1.94		28.60	
11g	6Mbps	2	1	2412	23.55	24.00	26.79	1.94		28.73	
11g	6Mbps	2	6	2437	24.36	24.38	27.38	1.94		29.32	
11g	6Mbps	2	11	2462	23.73	24.07	26.91	1.94		28.85	
HT20	MCS0	2	1	2412	23.78	23.81	26.81	1.94		28.75	
HT20	MCS0	2	6	2437	24.22	24.28	27.26	1.94		29.20	
HT20	MCS0	2	11	2462	23.48	23.72	26.61	1.94		28.55	
HT40	MCS0	2	3	2422	22.55	22.66	25.62	1.94		27.56	
HT40	MCS0	2	6	2437	23.57	23.86	26.73	1.94		28.67	
HT40	MCS0	2	9	2452	22.96	23.05	26.02	1.94		27.96	

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)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Chain Port 1	Chain Port 2	Chain Port 1	Chain Port 2	SUM	Chain Port 1	Chain Port 2	Chain Port 1	Chain Port 2	Chain Port 1	Chain Port 2	Chain Port 1	Chain Port 2	
11b	1Mbps	2	1	2412	0.00	0.00	20.34	20.56	23.46	30.00		1.94		25.40		36.00	Pass	
11b	1Mbps	2	6	2437	0.00	0.00	20.38	20.63	23.52	30.00		1.94		25.46		36.00	Pass	
11b	1Mbps	2	11	2462	0.00	0.00	20.40	20.38	23.40	30.00		1.94		25.34		36.00	Pass	
11g	6Mbps	2	1	2412	0.05	0.05	16.75	16.99	19.88	30.00		1.94		21.82		36.00	Pass	
11g	6Mbps	2	6	2437	0.05	0.05	19.48	19.57	22.53	30.00		1.94		24.47		36.00	Pass	
11g	6Mbps	2	11	2462	0.05	0.05	16.53	17.17	19.87	30.00		1.94		21.81		36.00	Pass	
HT20	MCS0	2	1	2412	0.04	0.04	16.04	16.02	19.04	30.00		1.94		20.98		36.00	Pass	
HT20	MCS0	2	6	2437	0.04	0.04	19.41	19.71	22.57	30.00		1.94		24.51		36.00	Pass	
HT20	MCS0	2	11	2462	0.04	0.04	16.04	16.37	19.22	30.00		1.94		21.16		36.00	Pass	
HT40	MCS0	2	3	2422	0.08	0.08	13.98	14.04	17.02	30.00		1.94		18.96		36.00	Pass	
HT40	MCS0	2	6	2437	0.08	0.08	17.09	17.28	20.19	30.00		1.94		22.13		36.00	Pass	
HT40	MCS0	2	9	2452	0.08	0.08	14.80	14.96	17.89	30.00		1.94		19.83		36.00	Pass	

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

**TEST RESULTS DATA**  
**Average Power Spectral Density**

2.4GHz Band												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average PSD (dBm/3kHz)			DG (dBi)		Average PSD Limit (dBm/3kHz)		Pass/Fail
					Chain Port 1	Chain Port 2	Worse + 3.01	Chain Port 1	Chain Port 2	Chain Port 1	Chain Port 2	
11b	1Mbps	2	1	2412	-7.45	-7.01	-4.00	4.94		8.00		Pass
11b	1Mbps	2	6	2437	-7.02	-7.51	-4.01	4.94		8.00		Pass
11b	1Mbps	2	11	2462	-6.96	-6.97	-3.95	4.94		8.00		Pass
11g	6Mbps	2	1	2412	-11.36	-10.50	-7.49	4.94		8.00		Pass
11g	6Mbps	2	6	2437	-8.20	-7.83	-4.82	4.94		8.00		Pass
11g	6Mbps	2	11	2462	-11.20	-10.58	-7.57	4.94		8.00		Pass
HT20	MCS0	2	1	2412	-11.96	-11.82	-8.81	4.94		8.00		Pass
HT20	MCS0	2	6	2437	-9.27	-8.63	-5.62	4.94		8.00		Pass
HT20	MCS0	2	11	2462	-12.03	-11.41	-8.40	4.94		8.00		Pass
HT40	MCS0	2	3	2422	-16.44	-16.13	-13.12	4.94		8.00		Pass
HT40	MCS0	2	6	2437	-12.75	-12.57	-9.56	4.94		8.00		Pass
HT40	MCS0	2	9	2452	-16.32	-15.51	-12.50	4.94		8.00		Pass

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



## Appendix B. Radiated Spurious Emission

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Chain Port	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
802.11b CH 01 2412MHz		2389.275	57.05	-16.95	74	59.92	27.29	4.86	35.02	222	226	P	H
		2389.38	39.92	-14.08	54	42.79	27.29	4.86	35.02	222	226	A	H
		2412	100.03	-	-	102.82	27.33	4.88	35	222	226	P	H
		2412	97.41	-	-	100.2	27.33	4.88	35	222	226	A	H
		2388.015	63.52	-10.48	74	66.39	27.29	4.86	35.02	227	360	P	V
		2389.275	42.52	-11.48	54	45.39	27.29	4.86	35.02	227	360	A	V
		2412	105.79	-	-	108.58	27.33	4.88	35	227	360	P	V
		2412	103.47	-	-	106.26	27.33	4.88	35	227	360	A	V
802.11b CH 06 2437MHz		2324	50.16	-23.84	74	53.28	27.16	4.79	35.07	221	230	P	H
		2336.04	37.81	-16.19	54	40.87	27.19	4.82	35.07	221	230	A	H
		2437	99.24	-	-	101.93	27.4	4.88	34.97	221	230	P	H
		2437	96.73	-	-	99.42	27.4	4.88	34.97	221	230	A	H
		2496.64	48.61	-25.39	74	51.09	27.5	4.92	34.9	221	230	P	H
		2485.16	36.65	-17.35	54	39.2	27.47	4.9	34.92	221	230	A	H
		2385.46	58.57	-15.43	74	61.47	27.26	4.86	35.02	224	360	P	V
		2342.06	40.49	-13.51	54	43.53	27.19	4.82	35.05	224	360	A	V
		2437	106.01	-	-	108.7	27.4	4.88	34.97	224	360	P	V
		2437	103.74	-	-	106.43	27.4	4.88	34.97	224	360	A	V
	2486.21	59.07	-14.93	74	61.62	27.47	4.9	34.92	224	360	P	V	
	2485.93	40.51	-13.49	54	43.06	27.47	4.9	34.92	224	360	A	V	



802.11b CH 11 2462MHz	2462	97.78	-	-	100.4	27.43	4.9	34.95	250	228	P	H
	2462	95.23	-	-	97.85	27.43	4.9	34.95	250	228	A	H
	2484.28	51.91	-22.09	74	54.46	27.47	4.9	34.92	250	228	P	H
	2483.52	37.25	-16.75	54	39.8	27.47	4.9	34.92	250	228	A	H
	2462	106.44	-	-	109.06	27.43	4.9	34.95	250	360	P	V
	2462	104.1	-	-	106.72	27.43	4.9	34.95	250	360	A	V
	2483.56	66.37	-7.63	74	68.92	27.47	4.9	34.92	250	360	P	V
	2483.52	43.31	-10.69	54	45.86	27.47	4.9	34.92	250	360	A	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 Chain Port 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	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	48.55	-25.45	74	67.41	32.56	6.97	58.39	250	0	P	H
		4824	48.04	-25.96	74	66.9	32.56	6.97	58.39	150	360	P	V
802.11b CH 06 2437MHz		4874	50.41	-23.59	74	69.42	32.66	6.99	58.66	250	0	P	H
		7311	51.11	-22.89	74	63.14	37.66	8.93	58.62	150	0	P	H
		7311	44.49	-9.51	54	56.52	37.66	8.93	58.62	150	0	A	H
		4874	46.82	-27.18	74	65.83	32.66	6.99	58.66	150	360	P	V
		7311	51.53	-22.47	74	63.56	37.66	8.93	58.62	174	100	P	V
		7311	44.38	-9.62	54	56.41	37.66	8.93	58.62	174	100	A	V
802.11b CH 11 2462MHz		4924	50.61	-23.39	74	69.37	32.76	7	58.52	250	0	P	H
		7386	51.99	-22.01	74	63.7	37.68	9.15	58.54	150	274	P	H
		7386	44.83	-9.17	54	56.54	37.68	9.15	58.54	150	274	A	H
		4924	49.15	-24.85	74	67.91	32.76	7	58.52	150	347	P	V
		7386	53.12	-20.88	74	64.83	37.68	9.15	58.54	150	0	P	V
		7386	46.83	-7.17	54	58.54	37.68	9.15	58.54	150	0	A	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 (Band Edge @ 3m)

Table with 14 columns: WIFI Chain Port 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include data for 802.11g CH 01 (2412MHz) and 802.11g CH 06 (2437MHz).



<b>802.11g</b> <b>CH 11</b> <b>2462MHz</b>	2462	101.64	-	-	104.26	27.43	4.9	34.95	159	350	P	H
	2462	93.95	-	-	96.57	27.43	4.9	34.95	159	350	A	H
	2483.68	64.87	-9.13	74	67.42	27.47	4.9	34.92	159	350	P	H
	2483.64	47.26	-6.74	54	49.81	27.47	4.9	34.92	159	350	A	H
	2462	108.27	-	-	110.89	27.43	4.9	34.95	250	360	P	V
	2462	100.23	-	-	102.85	27.43	4.9	34.95	250	360	A	V
	2484.04	70.56	-3.44	74	73.11	27.47	4.9	34.92	250	360	P	V
	2483.52	53.36	-0.64	54	55.91	27.47	4.9	34.92	250	360	A	V
<b>Remark</b>	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 Chain Port 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	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	56.28	-17.72	74	75.14	32.56	6.97	58.39	150	214	P	H
		4824	45.66	-8.34	54	64.52	32.56	6.97	58.39	150	214	A	H
		4824	48.45	-25.55	74	67.31	32.56	6.97	58.39	150	360	P	V
802.11g CH 06 2437MHz		4874	56.01	-17.99	74	75.02	32.66	6.99	58.66	165	213	P	H
		4874	45.44	-8.56	54	64.45	32.66	6.99	58.66	165	213	A	H
		7311	53.36	-20.64	74	65.39	37.66	8.93	58.62	241	21	P	H
		7311	42.49	-11.51	54	54.52	37.66	8.93	58.62	241	21	A	H
		4874	48.93	-25.07	74	67.94	32.66	6.99	58.66	150	360	P	V
		7311	55.68	-18.32	74	67.71	37.66	8.93	58.62	174	100	P	V
802.11g CH 11 2462MHz		7311	45.49	-8.51	54	57.52	37.66	8.93	58.62	174	100	A	V
		4924	53.75	-20.25	74	72.51	32.76	7	58.52	150	347	P	H
		4924	44.26	-9.74	54	63.02	32.76	7	58.52	150	347	A	H
		7386	50.68	-23.32	74	62.39	37.68	9.15	58.54	150	274	P	H
		4924	48.87	-25.13	74	67.63	32.76	7	58.52	150	347	P	V
		7386	56.43	-17.57	74	68.14	37.68	9.15	58.54	150	274	P	V
		7386	45.97	-8.03	54	57.68	37.68	9.15	58.54	150	274	A	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 Chain Port 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	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		2389.28	64.53	-9.47	74	67.4	27.29	4.86	35.02	150	231	P	H
		2390	48.89	-5.11	54	51.74	27.29	4.86	35	150	231	A	H
		2412	98.03	-	-	100.82	27.33	4.88	35	150	231	P	H
		2412	92.04	-	-	94.83	27.33	4.88	35	150	231	A	H
		2388.54	69.24	-4.76	74	72.11	27.29	4.86	35.02	150	3	P	V
		2390	53.12	-0.88	54	55.97	27.29	4.86	35	150	3	A	V
		2412	105.79	-	-	108.58	27.33	4.88	35	150	3	P	V
802.11n HT20 CH 06 2437MHz		2412	98.39	-	-	101.18	27.33	4.88	35	150	3	A	V
		2364.04	51.33	-22.67	74	54.34	27.22	4.82	35.05	247	222	P	H
		2333.66	38.99	-15.01	54	42.08	27.16	4.82	35.07	247	222	A	H
		2437	101.87	-	-	104.56	27.4	4.88	34.97	247	222	P	H
		2437	93.45	-	-	96.14	27.4	4.88	34.97	247	222	A	H
		2488.1	51.84	-22.16	74	54.36	27.5	4.9	34.92	247	222	P	H
		2488.59	38.55	-15.45	54	41.05	27.5	4.92	34.92	247	222	A	H
		2380.98	54.64	-19.36	74	57.54	27.26	4.86	35.02	150	351	P	V
		2385.18	42.09	-11.91	54	44.99	27.26	4.86	35.02	150	351	A	V
		2437	109.12	-	-	111.81	27.4	4.88	34.97	150	351	P	V
		2437	103.42	-	-	106.11	27.4	4.88	34.97	150	351	A	V
	2487.68	57.1	-16.9	74	59.62	27.5	4.9	34.92	150	351	P	V	
	2483.62	42.6	-11.4	54	45.15	27.47	4.9	34.92	150	351	A	V	



<b>802.11n</b> <b>HT20</b> <b>CH 11</b> <b>2462MHz</b>		2462	98.56	-	-	101.18	27.43	4.9	34.95	236	227	P	H
		2462	93	-	-	95.62	27.43	4.9	34.95	236	227	A	H
		2483.72	61.39	-12.61	74	63.94	27.47	4.9	34.92	236	227	P	H
		2483.68	45.13	-8.87	54	47.68	27.47	4.9	34.92	236	227	A	H
		2462	106.45	-	-	109.07	27.43	4.9	34.95	150	354	P	V
		2462	98.68	-	-	101.3	27.43	4.9	34.95	150	354	A	V
		2483.52	69.42	-4.58	74	71.97	27.47	4.9	34.92	150	354	P	V
	2483.52	53.24	-0.76	54	55.79	27.47	4.9	34.92	150	354	A	V	
<b>Remark</b>	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 Chain Port 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	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	52.55	-21.45	74	71.41	32.56	6.97	58.39	150	360	P	H
		4824	45.6	-8.4	54	64.46	32.56	6.97	58.39	150	360	A	H
		4824	48.05	-25.95	74	66.91	32.56	6.97	58.39	150	360	P	V
802.11n HT20 CH 06 2437MHz		4874	55	-19	74	74.01	32.66	6.99	58.66	150	360	P	H
		4874	46.4	-7.6	54	65.41	32.66	6.99	58.66	150	360	A	H
		7311	52.31	-21.69	74	64.34	37.66	8.93	58.62	174	100	P	H
		7311	42.78	-11.22	54	54.81	37.66	8.93	58.62	174	100	A	H
		4874	48.2	-25.8	74	67.21	32.66	6.99	58.66	150	360	P	V
		7311	53.79	-20.21	74	65.82	37.66	8.93	58.62	174	100	P	V
802.11n HT20 CH 11 2462MHz		4924	52.53	-21.47	74	71.29	32.76	7	58.52	150	347	P	H
		4924	45.45	-8.55	54	64.21	32.76	7	58.52	150	347	A	H
		7386	49.73	-24.27	74	61.44	37.68	9.15	58.54	150	274	P	H
		4924	47.71	-26.29	74	66.47	32.76	7	58.52	150	347	P	V
		7386	50.74	-23.26	74	62.45	37.68	9.15	58.54	150	274	P	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 HT40 (Band Edge @ 3m)

WIFI Chain Port 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	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 HT40 CH 03 2422MHz		2389.94	61.33	-12.67	74	64.18	27.29	4.86	35	150	57	P	H
		2389.94	46.15	-7.85	54	49	27.29	4.86	35	150	57	A	H
		2422	92.26	-	-	94.99	27.36	4.88	34.97	150	57	P	H
		2422	87.61	-	-	90.34	27.36	4.88	34.97	150	57	A	H
		2496.43	48.76	-25.24	74	51.24	27.5	4.92	34.9	150	57	P	H
		2497.76	36.93	-17.07	54	39.41	27.5	4.92	34.9	150	57	A	H
		2386.58	65.9	-8.1	74	68.77	27.29	4.86	35.02	201	6	P	V
		2389.94	51.74	-2.26	54	54.59	27.29	4.86	35	201	6	A	V
		2422	101.74	-	-	104.47	27.36	4.88	34.97	201	6	P	V
		2422	96.85	-	-	99.58	27.36	4.88	34.97	201	6	A	V
		2483.97	51.72	-22.28	74	54.27	27.47	4.9	34.92	201	6	P	V
		2489.29	40.24	-13.76	54	42.74	27.5	4.92	34.92	201	6	A	V
802.11n HT40 CH 06 2437MHz		2388.12	61.36	-12.64	74	64.23	27.29	4.86	35.02	230	233	P	H
		2389.38	47.83	-6.17	54	50.7	27.29	4.86	35.02	230	233	A	H
		2437	97.07	-	-	99.76	27.4	4.88	34.97	230	233	P	H
		2437	91.93	-	-	94.62	27.4	4.88	34.97	230	233	A	H
		2485.58	59.17	-14.83	74	61.72	27.47	4.9	34.92	230	233	P	H
		2483.5	44.31	-9.69	54	46.86	27.47	4.9	34.92	230	233	A	H
		2388.4	68.02	-5.98	74	70.89	27.29	4.86	35.02	229	359	P	V
		2389.94	53.53	-0.47	54	56.38	27.29	4.86	35	229	359	A	V
		2437	105.93	-	-	108.62	27.4	4.88	34.97	229	359	P	V
		2437	98.3	-	-	100.99	27.4	4.88	34.97	229	359	A	V
	2484.18	68.14	-5.86	74	70.69	27.47	4.9	34.92	229	359	P	V	
	2483.5	52.14	-1.86	54	54.69	27.47	4.9	34.92	229	359	A	V	





<b>802.11n</b>  <b>HT40</b>  <b>CH 09</b>  <b>2452MHz</b>		2341.78	49.76	-24.24	74	52.8	27.19	4.82	35.05	161	223	P	H
		2336.74	37.73	-16.27	54	40.79	27.19	4.82	35.07	161	223	A	H
		2452	94.58	-	-	97.23	27.4	4.9	34.95	161	223	P	H
		2452	91.73	-	-	94.38	27.4	4.9	34.95	161	223	A	H
		2484.53	62.69	-11.31	74	65.24	27.47	4.9	34.92	161	223	P	H
		2483.62	46.76	-7.24	54	49.31	27.47	4.9	34.92	161	223	A	H
		2383.92	52.28	-21.72	74	55.18	27.26	4.86	35.02	150	358	P	V
		2389.66	39.91	-14.09	54	42.78	27.29	4.86	35.02	150	358	A	V
		2452	102.52	-	-	105.17	27.4	4.9	34.95	150	358	P	V
		2452	95.95	-	-	98.6	27.4	4.9	34.95	150	358	A	V
		2484.32	69.04	-4.96	74	71.59	27.47	4.9	34.92	150	358	P	V
		2483.5	52.75	-1.25	54	55.3	27.47	4.9	34.92	150	358	A	V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Chain Port 1+2	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	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		4844	46.99	-27.01	74	65.91	32.59	6.97	58.48	150	360	P	H
HT40		7266	48.48	-25.52	74	60.4	37.66	8.95	58.53	150	0	P	H
CH 03		4844	42.49	-31.51	74	61.41	32.59	6.97	58.48	150	360	P	V
2422MHz		7266	48.41	-25.59	74	60.33	37.66	8.95	58.53	200	360	P	V
802.11n		4874	50.52	-23.48	74	69.53	32.66	6.99	58.66	221	0	P	H
HT40		7311	48.35	-25.65	74	60.38	37.66	8.93	58.62	150	0	P	H
CH 06		4874	45.21	-28.79	74	64.22	32.66	6.99	58.66	231	357	P	V
2437MHz		7311	49.59	-24.41	74	61.62	37.66	8.93	58.62	150	0	P	V
802.11n		4904	49.12	-24.88	74	68.03	32.73	7	58.64	150	360	P	H
HT40		7356	48.21	-25.79	74	60.07	37.67	9.04	58.57	150	320	P	H
CH 09		4904	43.03	-30.97	74	61.94	32.73	7	58.64	150	360	P	V
2452MHz		7356	49.09	-24.91	74	60.95	37.67	9.04	58.57	150	320	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain Port				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	(dBμV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
2.4GHz 802.11g LF		30.97	26.85	-13.15	40	31.73	26.28	0.62	31.78	100	0	P	H
		159.01	19.61	-23.89	43.5	32.43	17.41	1.15	31.38	-	-	P	H
		397.63	28.86	-17.14	46	32.5	25.78	1.82	31.24	-	-	P	H
		482.99	27.87	-18.13	46	33.59	23.46	1.99	31.17	-	-	P	H
		749.74	31.39	-14.61	46	32.8	27.3	2.52	31.23	-	-	P	H
		946.65	32.16	-13.84	46	31.2	29.35	2.88	31.27	-	-	P	H
		32.91	25.53	-14.47	40	31.25	25.44	0.62	31.78	100	200	P	V
		103.72	19.47	-24.03	43.5	31.33	18.72	0.99	31.57	-	-	P	V
		405.39	27.42	-18.58	46	30.96	25.87	1.82	31.23	-	-	P	V
		596.48	27.13	-18.87	46	31.03	25.09	2.25	31.24	-	-	P	V
		671.17	28.95	-17.05	46	31.49	26.32	2.37	31.23	-	-	P	V
		875.84	31.28	-14.72	46	31.53	28.31	2.71	31.27	-	-	P	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.
Chain Port				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( 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		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H
2412MHz													

- Level(dBμV/m) =  
Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

**For Peak Limit @ 2390MHz:**

- Level(dBμV/m)  
= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)  
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)  
= 55.45 (dBμV/m)
- Over Limit(dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 55.45(dBμV/m) – 74(dBμV/m)  
= -18.55(dB)

**For Average Limit @ 2390MHz:**

- Level(dBμV/m)  
= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)  
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)  
= 43.54 (dBμV/m)
- Over Limit(dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 43.54(dBμV/m) – 54(dBμV/m)  
= -10.46(dB)

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



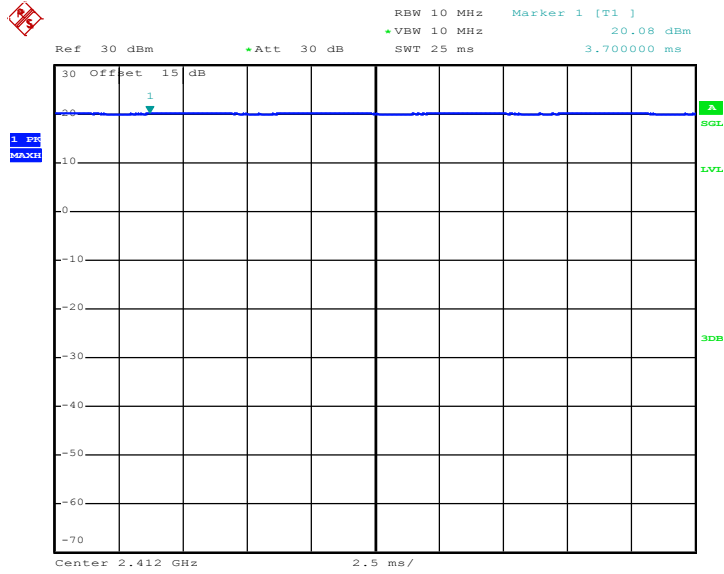
### Appendix C. Duty Cycle Plots

Chain Port	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1+2(1)	802.11b	100	-	-	10Hz
1+2(1)	802.11g	98.90	-	-	10Hz
1+2(1)	2.4GHz 802.11n HT20	99.12	-	-	10Hz
1+2(1)	2.4GHz 802.11n HT40	98.25	-	-	10Hz
1+2(2)	802.11b	100	-	-	10Hz
1+2(2)	802.11g	98.90	-	-	10Hz
1+2(2)	2.4GHz 802.11n HT20	99.12	-	-	10Hz
1+2(2)	2.4GHz 802.11n HT40	98.27	-	-	10Hz

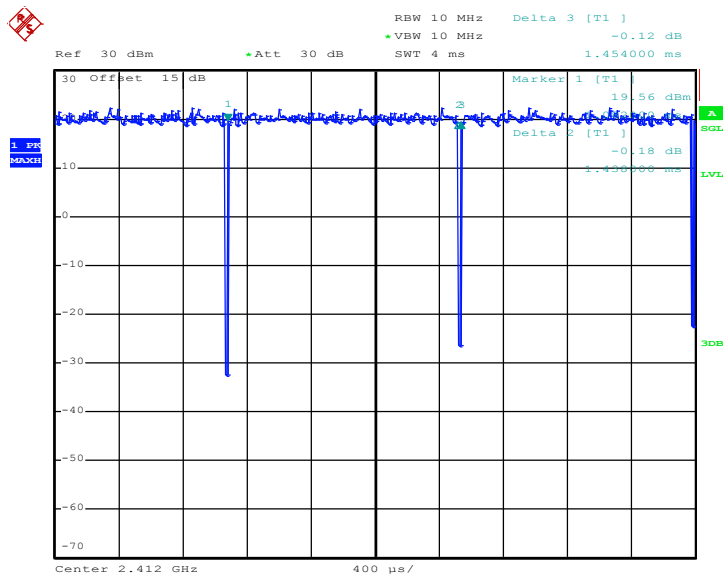


<Chain Port 1+2(1)>

802.11b

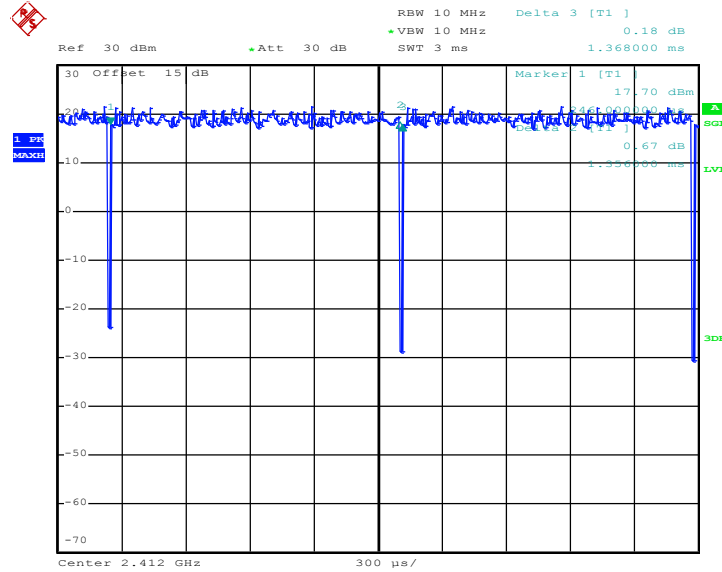


802.11g

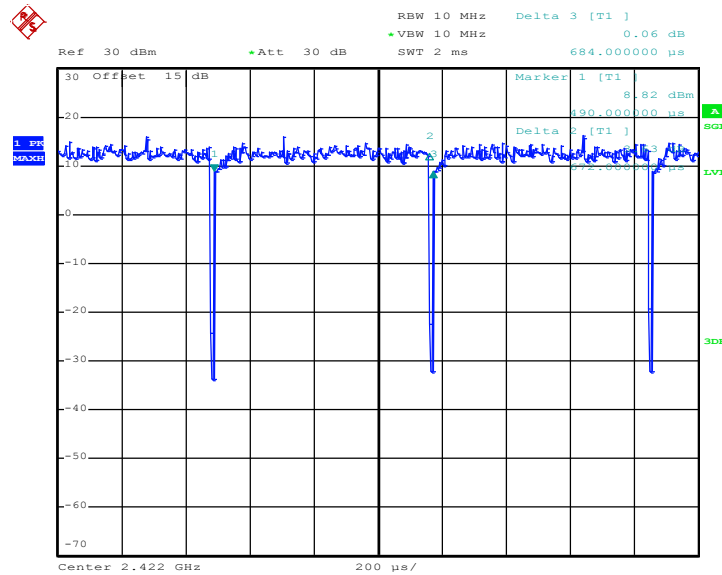




### 802.11n HT20



### 802.11n HT40

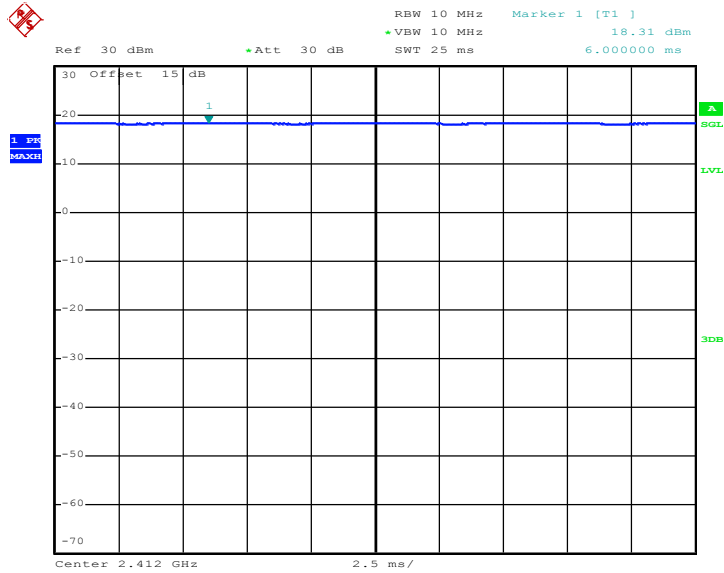




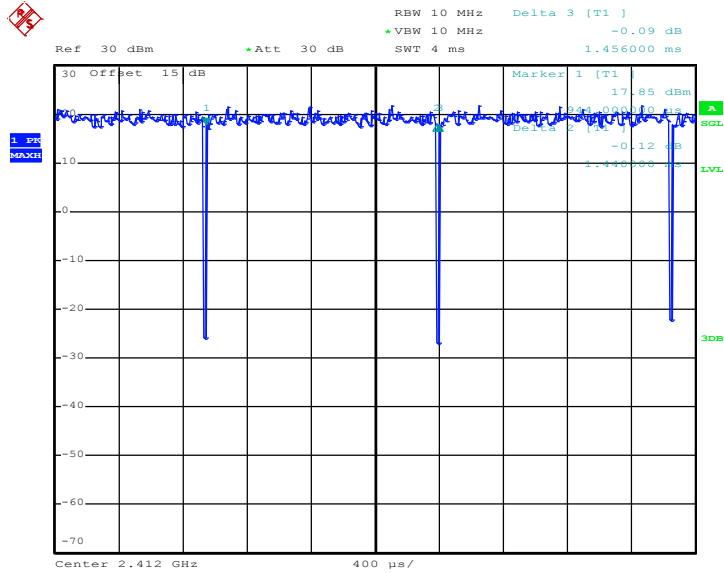


<Chain Port 1+2(2)>

802.11b

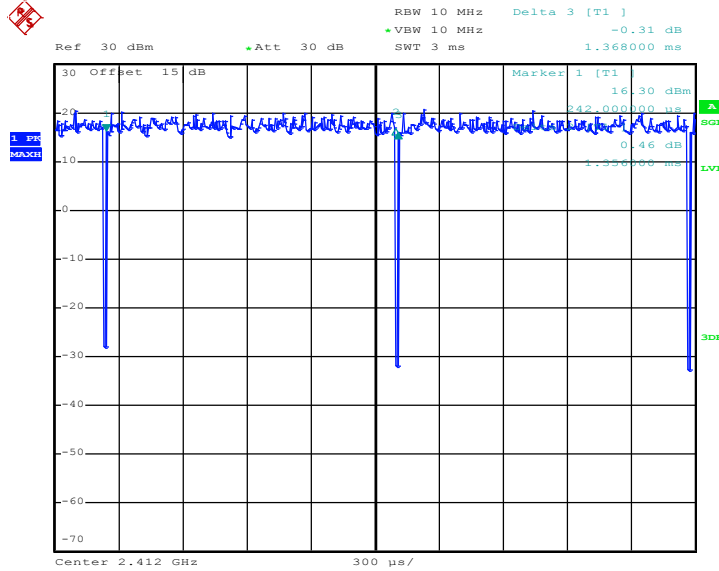


802.11g





802.11n HT20



802.11n HT40

