

FCC RF Test Report

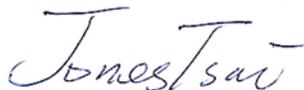
APPLICANT : ZTE CORPORATION
EQUIPMENT : 4G Wireless Router
BRAND NAME : ZTE
MODEL NAME : MF253L
FCC ID : SRQ-ZTEMF253L
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was completed testing on Dec. 02, 2013. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown to be compliant with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.



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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	Conducted Band Edges	$\leq 20\text{dBc}$	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.66 dB at 2389.920 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 14.69 dB at 0.410 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

1.2 Manufacturer

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	4G Wireless Router
Brand Name	ZTE
Model Name	MF253L
FCC ID	SRQ-ZTEMF253L
EUT supports Radios application	GPRS/EGPRS/WCDMA/HSPA/HSPA+/DC-HSDPA/LTE/WLAN2.4GHz 802.11bgn (HT20/HT40)
HW Version	d68A
SW Version	EN_ZTE_MF253V1.0.0B05
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard			
Tx/Rx Channel Frequency Range	802.11b/g/n : 2412 MHz ~ 2462 MHz		
Maximum Output Power to antenna	802.11b : 17.31 dBm (0.0538 W) 802.11g : 23.78 dBm (0.2388 W) 802.11n HT20 : 23.89 dBm (0.2449 W) 802.11n HT40 : 24.34 dBm (0.2716 W)		
Antenna Type	Chain Port 0: PCB Antenna Chain Port 1: PCB Antenna		
Antenna Gain	Chain Port 0 : 2.90 dBi Chain Port 1: 2.50 dBi		
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)		
Antenna Function for Transmitter		Ant.0	Ant.1
	802.11 b	V	V
	802.11 g	V	V
	802.11 n SISO	V	V
	802.11 n MIMO	V	V

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.			
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958			
Test Site No.	Sporton Site No.			FCC Registration No.
	TH01-KS	03CH01-KS	CO01-KS	149928

1.7 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ ANSI C63.4-2003

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437		



2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and data rate associated with the highest power were chosen for full test shown in the following tables.

Channel	Frequency	Ant. Chain	2.4GHz 802.11b RF Power (dBm)			
			DSSS Data Rate			
			1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	Port 0	17.31	16.99	17.12	17.20
CH 06	2437 MHz	Port 0	17.06	16.98	17.02	17.21
CH 11	2462 MHz	Port 0	15.33	14.95	15.05	15.31
CH 01	2412 MHz	Port 1	16.93	17.01	17.15	17.10
CH 06	2437 MHz	Port 1	16.13	16.15	16.16	16.35
CH 11	2462 MHz	Port 1	15.01	15.11	15.11	15.27

Channel	Frequency	Ant. Chain	2.4GHz 802.11g RF Power (dBm)							
			OFDM Data Rate							
			6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	Port 0	23.66	23.04	23.05	23.01	23.55	23.21	23.59	23.60
CH 06	2437 MHz	Port 0	23.78	23.00	23.02	22.95	23.64	23.17	23.72	23.54
CH 11	2462 MHz	Port 0	22.25	21.68	21.54	21.43	22.41	21.84	22.43	22.16
CH 01	2412 MHz	Port 1	23.67	23.34	23.21	23.35	23.55	23.52	23.60	23.64
CH 06	2437 MHz	Port 1	23.21	22.66	22.97	22.62	23.56	22.99	23.59	23.41
CH 11	2462 MHz	Port 1	22.21	21.84	21.99	21.63	22.72	22.03	22.71	22.51

Ch.	Fre.	Ant. Chain	2.4GHz 802.11n HT-20 RF Power (dBm)							
			OFDM Data Rate							
			MCS=0 6.5 Mbps	MCS=1 13 Mbps	MCS=2 19.5 Mbps	MCS=3 26 Mbps	MCS=4 39 Mbps	MCS=5 52 Mbps	MCS=6 58.5 Mbps	MCS=7 65 Mbps
CH 01	2412 MHz	Port 0	23.23	22.90	22.98	22.56	22.63	23.01	23.01	23.21
CH 06	2437 MHz	Port 0	22.97	22.93	22.91	22.71	22.63	22.06	22.51	22.61
CH 11	2462 MHz	Port 0	21.35	21.82	21.26	21.54	20.76	20.61	21.39	21.34
CH 01	2412 MHz	Port 1	23.38	23.26	23.35	22.86	22.82	23.01	23.12	23.20
CH 06	2437 MHz	Port 1	22.55	22.77	22.60	21.86	22.05	22.62	22.49	22.31
CH 11	2462 MHz	Port 1	21.36	21.70	21.68	21.35	21.24	20.98	21.72	21.71
Ch.	Fre.	Ant. Chain	MCS=8	MCS=9	MCS=10	MCS=11	MCS=12	MCS=13	MCS=14	MCS=15
			13 Mbps	26 Mbps	39 Mbps	52 Mbps	78 Mbps	104 Mbps	117 Mbps	130 Mbps
CH 01	2412 MHz	Port 0+1(0)	19.53	20.30	19.13	19.98	20.58	20.16	20.39	20.79
		Port 0+1(1)	19.80	19.48	20.60	20.52	20.87	21.17	21.30	20.96
		Port 0+1	22.68	22.92	22.94	23.27	23.74	23.70	23.88	23.89
CH 06	2437 MHz	Port 0+1(0)	20.01	20.02	19.98	20.26	21.26	20.38	20.11	20.30
		Port 0+1(1)	18.99	19.07	20.16	20.29	20.18	20.71	20.38	20.52
		Port 0+1	22.54	22.58	23.08	23.29	23.76	23.56	23.26	23.42
CH 11	2462 MHz	Port 0+1(0)	17.09	17.85	17.59	18.12	19.07	18.50	18.57	18.79
		Port 0+1(1)	17.82	18.06	18.76	18.88	18.86	19.11	18.33	18.97
		Port 0+1	20.48	20.97	21.22	21.53	21.98	21.83	21.46	21.89

Ch.	Fre.	Ant. Chain	2.4GHz 802.11n HT-40 RF Power (dBm)							
			OFDM Data Rate							
			MCS=0 13.5 Mbps	MCS=1 27 Mbps	MCS=2 40.5 Mbps	MCS=3 54 Mbps	MCS=4 81 Mbps	MCS=5 108 Mbps	MCS=6 121.5 Mbps	MCS=7 135 Mbps
CH 03	2422 MHz	Port 0	22.28	22.14	20.98	21.67	21.70	21.84	22.15	22.20
CH 06	2437 MHz	Port 0	21.60	21.52	20.42	21.27	21.39	21.59	21.21	21.14
CH 09	2452 MHz	Port 0	20.50	21.05	19.73	20.36	20.88	20.82	21.02	20.57
CH 03	2422 MHz	Port 1	21.59	22.23	21.43	21.19	21.66	22.17	21.30	21.22
CH 06	2437 MHz	Port 1	21.35	21.50	20.32	20.83	21.18	21.79	21.22	21.12
CH 09	2452 MHz	Port 1	20.30	20.73	19.45	19.88	20.52	21.22	20.15	20.21
Ch.	Fre.	Ant. Chain	MCS=8	MCS=9	MCS=10	MCS=11	MCS=12	MCS=13	MCS=14	MCS=15
			27 Mbps	54 Mbps	81 Mbps	108 Mbps	162 Mbps	216 Mbps	243 Mbps	270 Mbps
CH 03	2422 MHz	Port 0+1(0)	16.61	17.13	17.08	19.21	21.15	19.63	18.98	18.78
		Port 0+1(1)	17.26	17.88	18.16	18.82	21.51	19.23	19.57	19.20
		Port 0+1	19.96	20.53	20.66	22.03	24.34	22.44	22.30	22.01
CH 06	2437 MHz	Port 0+1(0)	16.53	17.16	16.98	19.02	20.84	19.53	18.84	18.44
		Port 0+1(1)	16.35	16.97	17.12	18.14	20.93	18.65	19.01	18.97
		Port 0+1	19.45	20.08	20.06	21.61	23.90	22.12	21.94	21.72
CH 09	2452 MHz	Port 0+1(0)	15.52	16.03	16.41	18.02	19.95	18.24	18.11	17.34
		Port 0+1(1)	16.23	15.98	16.00	17.41	20.12	17.88	17.21	16.85
		Port 0+1	18.90	19.02	19.22	20.74	23.05	21.07	20.69	20.11

Note:

1. Chain Port 0+1 is a calculated result from sum of the power Chain Port 0+1(0) and Chain Port 0+1(1).
2. The data rates of WLAN 802.11b/g/n were set in 1Mbps for 2.4GHz 802.11b (Chain Port 0), 5.5Mbps for 2.4GHz 802.11b (Chain Port 1), 6Mbps for 2.4GHz 802.11g (Chain Port 0), 6Mbps for 2.4GHz 802.11g (Chain Port 1), MCS0 for 2.4GHz 802.11n HT20 (Chain Port 0), MCS0 for 2.4GHz 802.11n HT20 (Chain Port 1), MCS15 for 2.4GHz 802.11n HT20 (Chain Port 0+1), MCS0 for 2.4GHz 802.11n HT40 (Chain Port 0), MCS1 for 2.4GHz 802.11n HT40 (Chain Port 1), MCS12 for 2.4GHz 802.11n HT40 (Chain Port 0+1), due to the highest RF output power.



2.3 Test Mode

Final results of test modes, data rates and test channels are shown as following table.

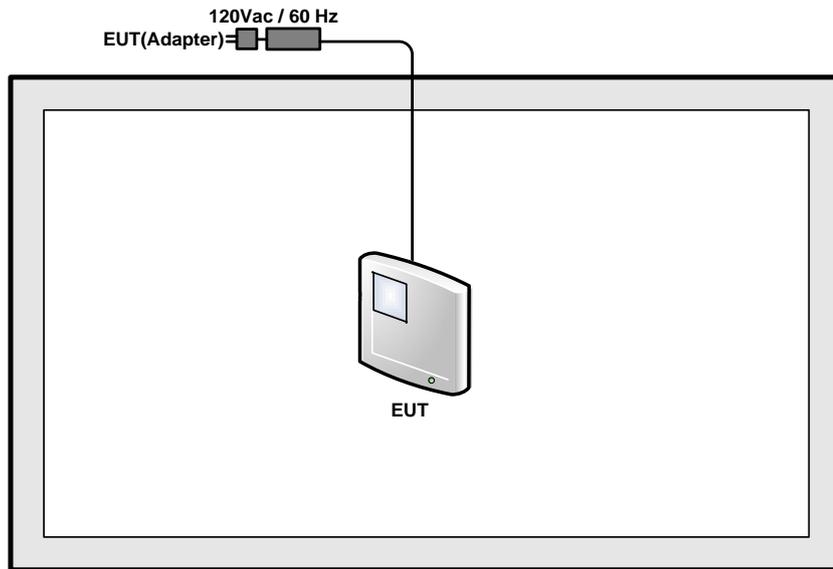
Test Cases					
	Test Items	Mode	Data Rate	Test Channel	Remark
Conducted TCs	6dB BW Power Spectral Density	802.11b	1 Mbps	1/6/11	Chain Port 0
		802.11g	6 Mbps	1/6/11	Chain Port 0
		802.11n HT20	MCS15	1/6/11	Chain Port 1
		802.11n HT20	MCS15	1/6/11	Chain Port 0+1 (0)
		802.11n HT20	MCS15	1/6/11	Chain Port 0+1 (1)
		802.11n HT40	MCS12	3/6/9	Chain Port 0
		802.11n HT40	MCS12	3/6/9	Chain Port 0+1 (0)
		802.11n HT40	MCS12	3/6/9	Chain Port 0+1 (1)
	Output Power	802.11b	1 Mbps	1/6/11	Chain Port 0
		802.11b	1 Mbps	1/6/11	Chain Port 1
		802.11g	6 Mbps	1/6/11	Chain Port 0
		802.11g	6 Mbps	1/6/11	Chain Port 1
		802.11n HT20	MCS15	1/6/11	Chain Port 0
		802.11n HT20	MCS15	1/6/11	Chain Port 1
		802.11n HT20	MCS15	1/6/11	Chain Port 0+1 (0)
		802.11n HT20	MCS15	1/6/11	Chain Port 0+1 (1)
		802.11n HT20	MCS15	1/6/11	Chain Port 0+1
		802.11n HT40	MCS12	3/6/9	Chain Port 0
		802.11n HT40	MCS12	3/6/9	Chain Port 1
		802.11n HT40	MCS12	3/6/9	Chain Port 0+1 (0)
		802.11n HT40	MCS12	3/6/9	Chain Port 0+1 (1)
		802.11n HT40	MCS12	3/6/9	Chain Port 0+1
	Conducted Band Edge	802.11b	1 Mbps	1/11	Chain Port 0
		802.11g	6 Mbps	1/11	Chain Port 0
		802.11n HT20	MCS15	1/11	Chain Port 1
		802.11n HT20	MCS15	1/11	Chain Port 0+1 (0)
		802.11n HT20	MCS15	1/11	Chain Port 0+1 (1)
		802.11n HT40	MCS12	3/9	Chain Port 0
		802.11n HT40	MCS12	3/9	Chain Port 0+1 (0)
		802.11n HT40	MCS12	3/9	Chain Port 0+1 (1)
	Conducted Spurious Emission	802.11b	1 Mbps	1/6/11	Chain Port 0
		802.11g	6 Mbps	1/6/11	Chain Port 0
		802.11n HT20	MCS15	1/6/11	Chain Port 1
		802.11n HT20	MCS15	1/6/11	Chain Port 0+1 (0)
		802.11n HT20	MCS15	1/6/11	Chain Port 0+1 (1)
		802.11n HT40	MCS12	3/6/9	Chain Port 0
		802.11n HT40	MCS12	3/6/9	Chain Port 0+1 (0)
		802.11n HT40	MCS12	3/6/9	Chain Port 0+1 (1)



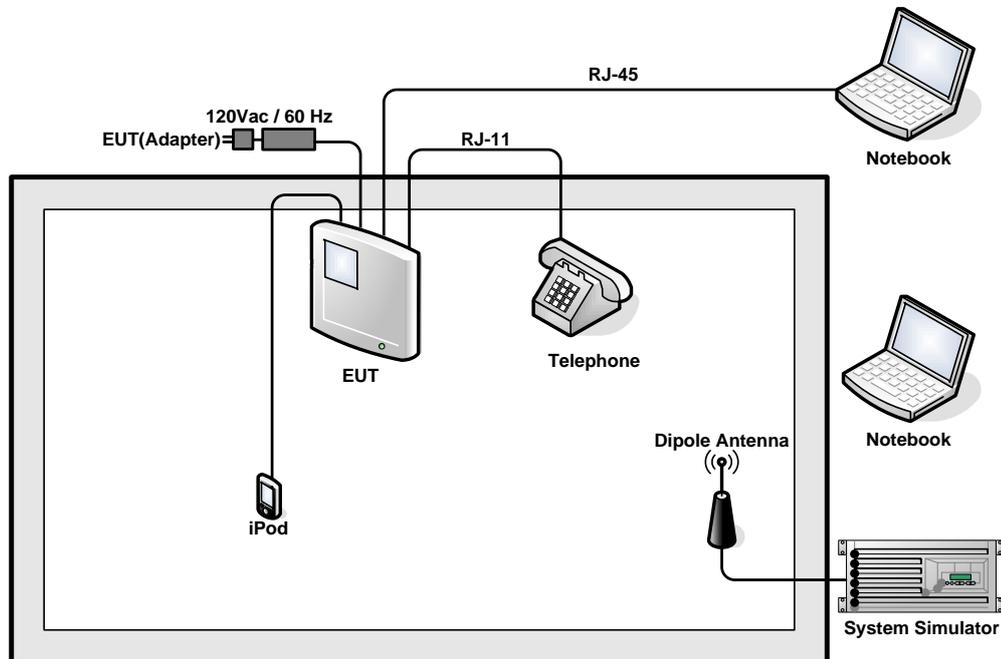
	Test Items	Mode	Data Rate	Test Channel	Remark
Radiated TCs	Radiated Band Edge	802.11b	1 Mbps	1/11	Chain Port 0
		802.11g	6 Mbps	1/11	Chain Port 0
		802.11n HT20	MCS15	1/11	Chain Port 1
		802.11n HT20	MCS15	1/11	Chain Port 0+1
		802.11n HT40	MCS12	3/9	Chain Port 0
		802.11n HT40	MCS12	3/9	Chain Port 0+1
	Radiated Spurious Emission	802.11b	1 Mbps	1/6/11	Chain Port 0
		802.11g	6 Mbps	1/6/11	Chain Port 0
		802.11n HT20	MCS15	1/6/11	Chain Port 1
		802.11n HT20	MCS15	1/6/11	Chain Port 0+1
		802.11n HT40	MCS12	3/6/9	Chain Port 0
		802.11n HT40	MCS12	3/6/9	Chain Port 0+1
AC Conducted Emission	Mode 1 : WCDMA Band II Idle + Lan Link + Adapter + WLAN Link + USB Link + TC + Phone				
Remark: TC stands for Test Configuration.					

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Telephone	Bubugao	HCD007(6082)TSD	N/A	N/A	N/A
3.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 0.9 m DC O/P: Shielded, 1.8 m
4.	Notebook	DELL	VOSTRO1450	PPD-AR5B195	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
5.	iPod	Apple	A1199	FCC DoC	Unshielded, 1.2 m	N/A

2.6 EUT Operation Test Setup

For WLAN function, turn on the software of Manual Tool to make the EUT provides functions like channel selection and power level for continuous transmitting and receiving signals.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

2.7 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 5.6 dB and 10dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 5.6 + 10 = 15.6 \text{ (dB)} \end{aligned}$$

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

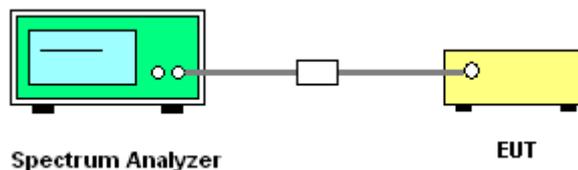
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v03r01.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. Measure and record the results in the test report.

3.1.4 Test Setup

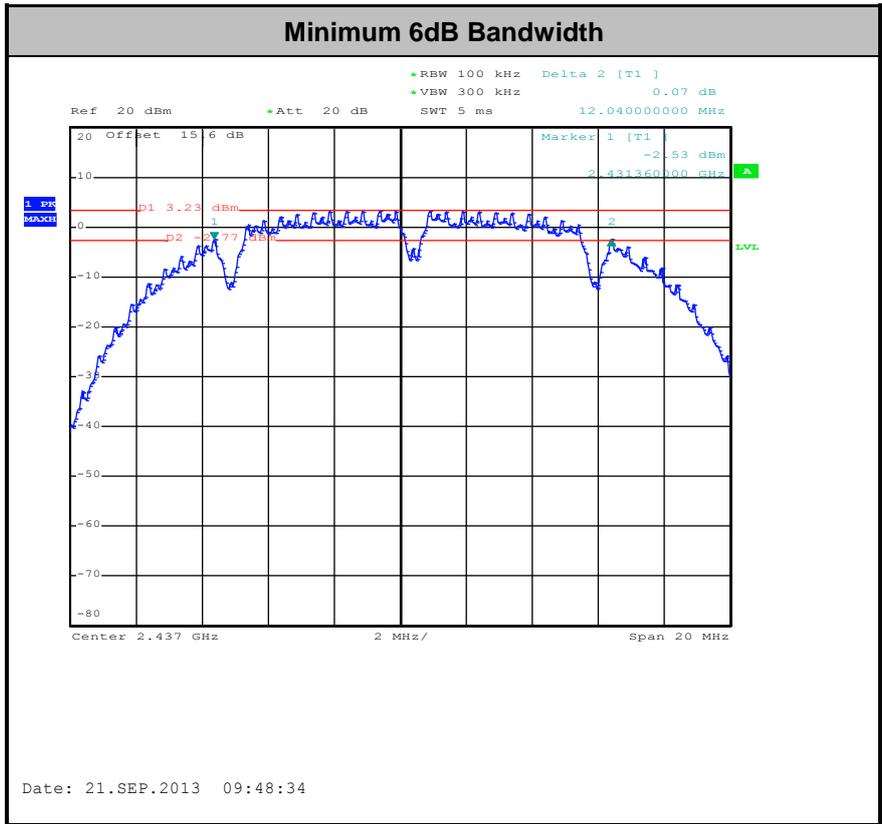




3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Test Band :	2.4GHz	Temperature :	23~24°C
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
					Chain Port 0	Chain Port 1		
11b	1Mbps	1	1	2412	12.10	-	0.5	Pass
11b	1Mbps	1	6	2437	12.04	-	0.5	Pass
11b	1Mbps	1	11	2462	12.04	-	0.5	Pass
11g	6Mbps	1	1	2412	16.04	-	0.5	Pass
11g	6Mbps	1	6	2437	15.84	-	0.5	Pass
11g	6Mbps	1	11	2462	15.72	-	0.5	Pass
HT20	MCS0	1	1	2412	-	16.64	0.5	Pass
HT20	MCS0	1	6	2437	-	16.88	0.5	Pass
HT20	MCS0	1	11	2462	-	16.92	0.5	Pass
HT40	MCS0	1	3	2422	35.04	-	0.5	Pass
HT40	MCS0	1	6	2437	35.04	-	0.5	Pass
HT40	MCS0	1	9	2452	35.04	-	0.5	Pass
HT20	MCS15	2	1	2412	16.56	16.60	0.5	Pass
HT20	MCS15	2	6	2437	16.60	16.92	0.5	Pass
HT20	MCS15	2	11	2462	16.36	16.64	0.5	Pass
HT40	MCS12	2	3	2422	35.12	35.12	0.5	Pass
HT40	MCS12	2	6	2437	35.04	35.04	0.5	Pass
HT40	MCS12	2	9	2452	35.04	35.04	0.5	Pass



3.2 Peak Output Power Measurement

3.2.1 Limit of Peak Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

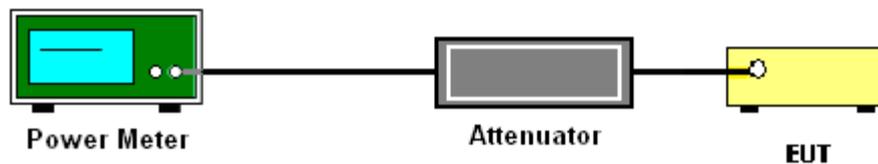
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r01.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.2.4 Test Setup





3.2.5 Test Result of Peak Output Power

Test Band :	2.4GHz	Temperature :	23~24°C
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)			Power Limit (dBm)	DG (dBi)	Pass/Fail
					Chain Port 0	Chain Port 1	Sum Power			
11b	1Mbps	1	1	2412	17.31	16.93	-	30	2.90	Pass
11b	1Mbps	1	6	2437	17.06	16.13	-	30	2.90	Pass
11b	1Mbps	1	11	2462	15.33	15.01	-	30	2.90	Pass
11g	6Mbps	1	1	2412	23.66	23.67	-	30	2.90	Pass
11g	6Mbps	1	6	2437	23.78	23.21	-	30	2.90	Pass
11g	6Mbps	1	11	2462	22.25	22.21	-	30	2.90	Pass
HT20	MCS0	1	1	2412	23.23	23.38	-	30	2.90	Pass
HT20	MCS0	1	6	2437	22.97	22.55	-	30	2.90	Pass
HT20	MCS0	1	11	2462	21.35	21.36	-	30	2.90	Pass
HT40	MCS0	1	3	2422	22.28	21.59	-	30	2.90	Pass
HT40	MCS1	1	3	2422	22.14	22.23	-	30	2.90	Pass
HT40	MCS0	1	6	2437	21.60	21.35	-	30	2.90	Pass
HT40	MCS1	1	6	2437	21.52	21.50	-	30	2.90	Pass
HT40	MCS0	1	9	2452	20.50	20.30	-	30	2.90	Pass
HT40	MCS1	1	9	2452	21.05	20.73	-	30	2.90	Pass
HT20	MCS15	2	1	2412	20.79	20.96	23.89	30	2.70	Pass
HT20	MCS15	2	6	2437	20.30	20.52	23.42	30	2.70	Pass
HT20	MCS15	2	11	2462	18.79	18.97	21.89	30	2.70	Pass
HT40	MCS12	2	3	2422	21.15	21.51	24.34	30	2.70	Pass
HT40	MCS12	2	6	2437	20.84	20.93	23.90	30	2.70	Pass
HT40	MCS12	2	9	2452	19.95	20.12	23.05	30	2.70	Pass

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

3.2.6 Test Result of Average output Power (Reporting Only)

Test Band :	2.4GHz	Temperature :	23~24°C
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)		RF Output Power (dBm)			Power Limit (dBm)	DG (dBi)	Pass/Fail
					Chain	Chain	Chain	Chain	Sum			
					Port 0	Port 1	Port 0	Port 1	Power			
11b	1Mbps	1	1	2412	0.10	0.10	14.89	14.72	-	30	2.90	Pass
11b	1Mbps	1	6	2437	0.10	0.10	14.96	14.02	-	30	2.90	Pass
11b	1Mbps	1	11	2462	0.10	0.10	12.68	12.55	-	30	2.90	Pass
11g	6Mbps	1	1	2412	3.29	3.29	14.11	14.50	-	30	2.90	Pass
11g	6Mbps	1	6	2437	3.29	3.29	14.15	13.64	-	30	2.90	Pass
11g	6Mbps	1	11	2462	3.29	3.29	12.23	12.45	-	30	2.90	Pass
HT20	MCS0	1	1	2412	0.63	-	13.71	-	-	30	2.90	Pass
HT20	MCS7	1	1	2412	-	0.58	-	13.94	-	30	2.90	Pass
HT20	MCS0	1	6	2437	0.63	-	13.08	-	-	30	2.90	Pass
HT20	MCS7	1	6	2437	-	0.58	-	13.09	-	30	2.90	Pass
HT20	MCS0	1	11	2462	0.63	-	11.18	-	-	30	2.90	Pass
HT20	MCS7	1	11	2462	-	0.58	-	11.95	-	30	2.90	Pass
HT40	MCS0	1	3	2422	1.15	-	12.11	-	-	30	2.90	Pass
HT40	MCS7	1	3	2422	-	4.89	-	11.95	-	30	2.90	Pass
HT40	MCS0	1	6	2437	1.15	-	11.13	-	-	30	2.90	Pass
HT40	MCS7	1	6	2437	-	4.89	-	11.42	-	30	2.90	Pass
HT40	MCS0	1	9	2452	1.15	-	10.30	-	-	30	2.90	Pass
HT40	MCS7	1	9	2452	-	4.89	-	10.45	-	30	2.90	Pass
HT20	MCS15	2	1	2412	4.56	4.61	11.15	11.22	14.19	30	2.70	Pass
HT20	MCS15	2	6	2437	4.56	4.61	11.06	10.67	13.88	30	2.70	Pass
HT20	MCS15	2	11	2462	4.56	4.61	9.18	9.16	12.18	30	2.70	Pass
HT40	MCS12	2	3	2422	5.80	5.84	9.68	9.76	12.73	30	2.70	Pass
HT40	MCS12	2	6	2437	5.80	5.84	9.36	9.63	12.51	30	2.70	Pass
HT40	MCS12	2	9	2452	5.80	5.84	8.65	8.71	11.69	30	2.70	Pass

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

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

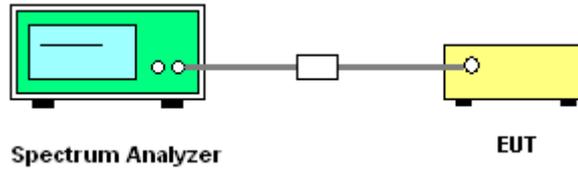
If measurements performed using method (2) plus $10 \log(N)$ exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

Method (1): Measure and sum the spectra across the outputs.

The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

Method (2): Measure and add $10 \log(N)$ dB, where N is the number of outputs. (N=2)

3.3.4 Test Setup



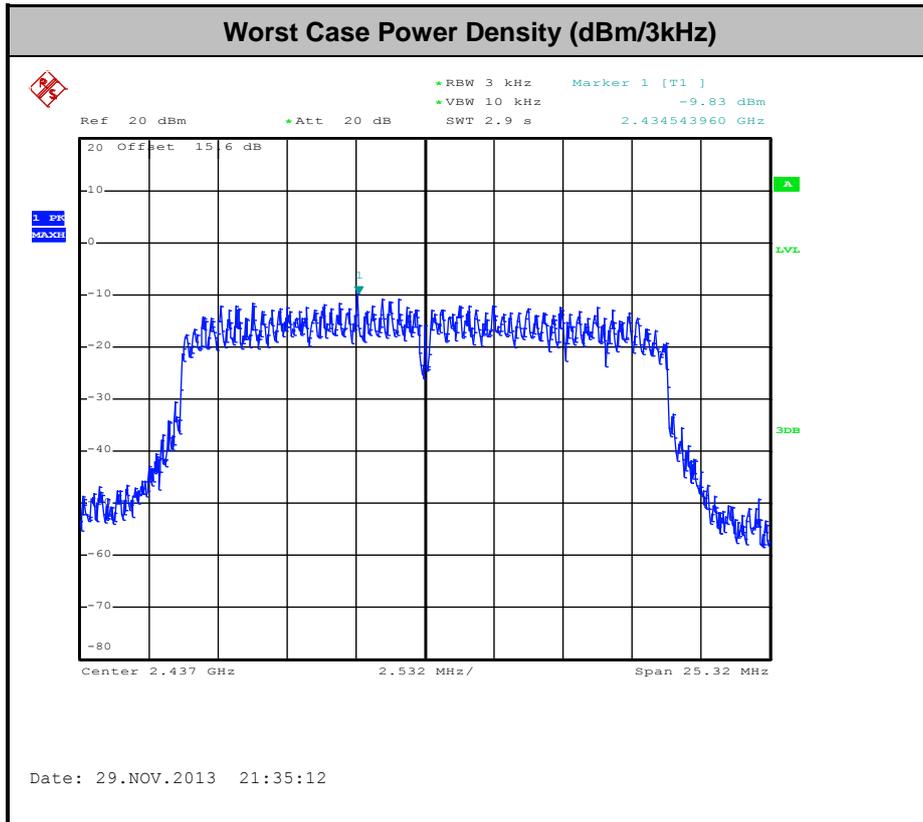


3.3.5 Test Result of Power Spectral Density

Test Band :	2.4GHz	Temperature :	23~24°C
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Peak Power Density (dBm/3kHz)			Max. Limits (dBm/3kHz)	DG (dBi)	Pass/Fail
					Chain	Chain	Worst			
					Port 0	Port 1	+10log(2)			
11b	1Mbps	1	1	2412	-13.34	-	-	8	2.90	Pass
11b	1Mbps	1	6	2437	-12.00	-	-	8	2.90	Pass
11b	1Mbps	1	11	2462	-15.07	-	-	8	2.90	Pass
11g	6Mbps	1	1	2412	-13.34	-	-	8	2.90	Pass
11g	6Mbps	1	6	2437	-12.83	-	-	8	2.90	Pass
11g	6Mbps	1	11	2462	-15.35	-	-	8	2.90	Pass
HT20	MCS0	1	1	2412	-	-10.03	-	8	2.90	Pass
HT20	MCS0	1	6	2437	-	-9.83	-	8	2.90	Pass
HT20	MCS0	1	11	2462	-	-11.06	-	8	2.90	Pass
HT40	MCS0	1	3	2422	-14.38	-	-	8	2.90	Pass
HT40	MCS0	1	6	2437	-15.30	-	-	8	2.90	Pass
HT40	MCS0	1	9	2452	-16.33	-	-	8	2.90	Pass
HT20	MCS15	2	1	2412	-17.97	-16.03	-13.02	8	5.71	Pass
HT20	MCS15	2	6	2437	-17.72	-17.30	-14.29	8	5.71	Pass
HT20	MCS15	2	11	2462	-19.48	-19.61	-16.47	8	5.71	Pass
HT40	MCS12	2	3	2422	-23.95	-22.47	-19.46	8	5.71	Pass
HT40	MCS12	2	6	2437	-23.45	-22.16	-19.15	8	5.71	Pass
HT40	MCS12	2	9	2452	-23.75	-23.26	-20.25	8	5.71	Pass

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



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

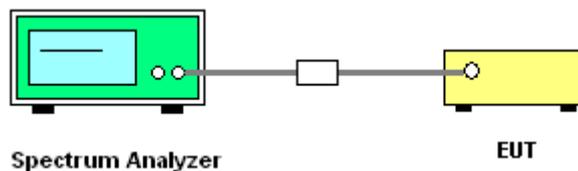
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup

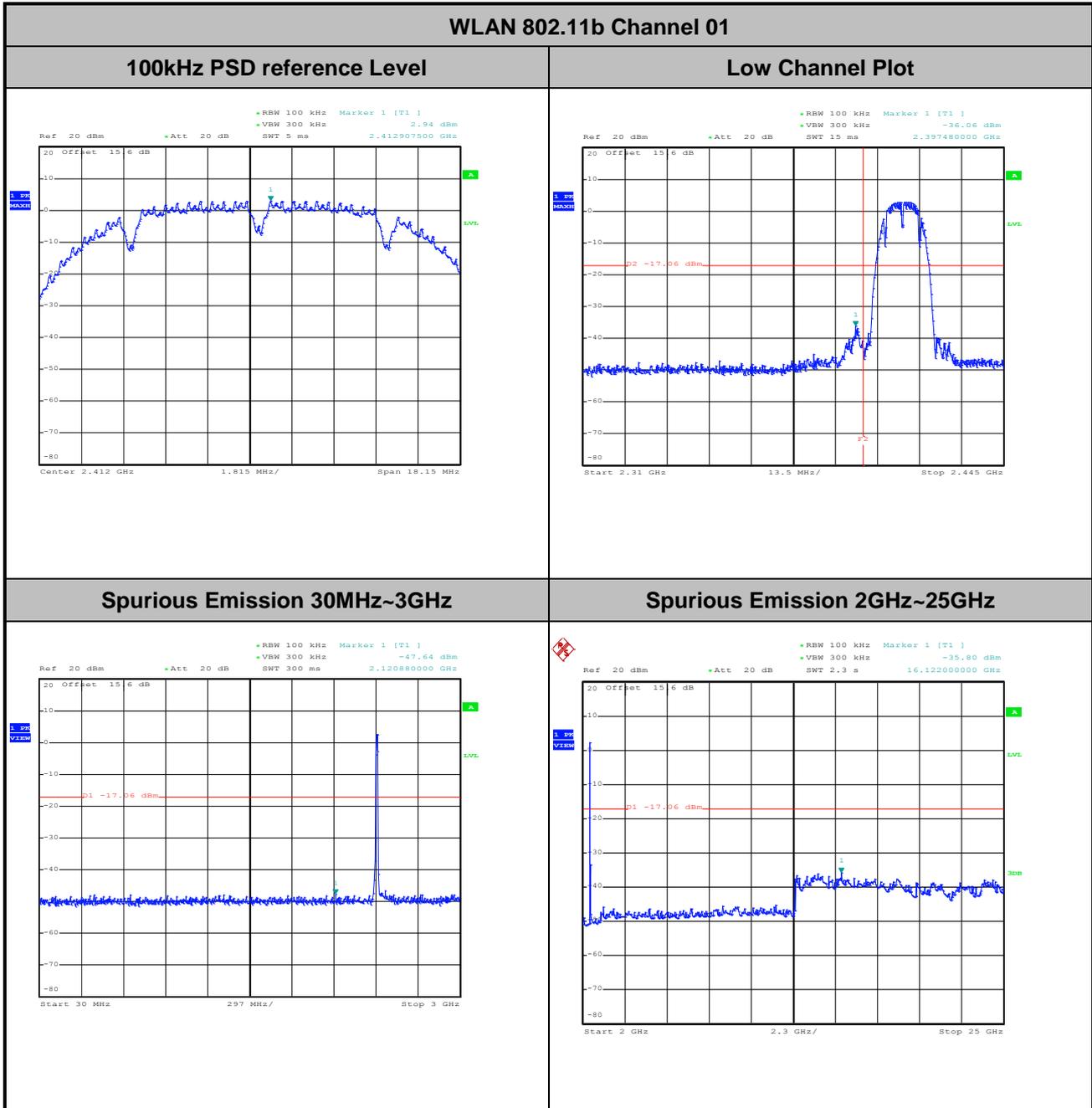




3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Number of TX = 1, Chain Port 0

Number of TX	1	Chain Port	0
Test Mode :	802.11b	Temperature :	23~24°C
Test Band :	2.4GHz Low	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Adonis Li

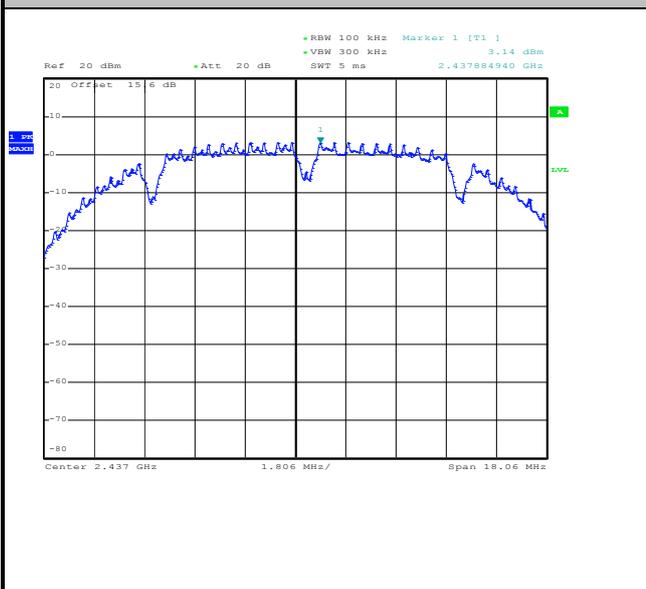




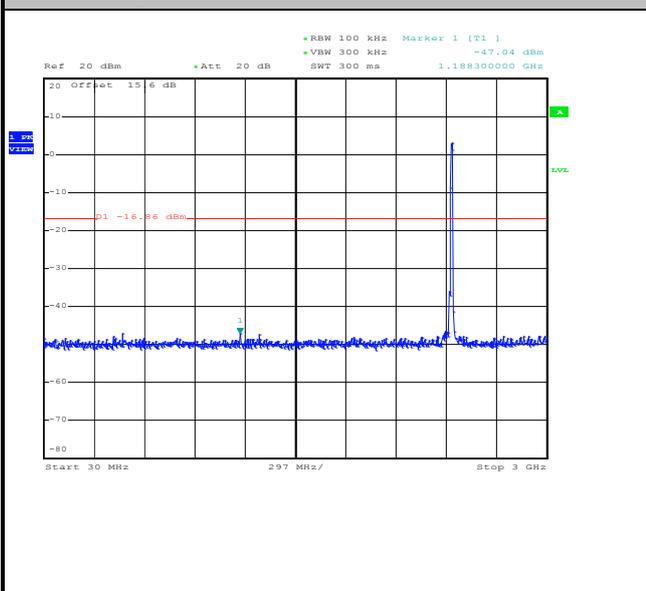
Number of TX :	1	Chain Port	0
Test Mode :	802.11b	Temperature :	23~24°C
Test Band :	2.4GHz Mid	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Adonis Li

WLAN 802.11b Channel 06

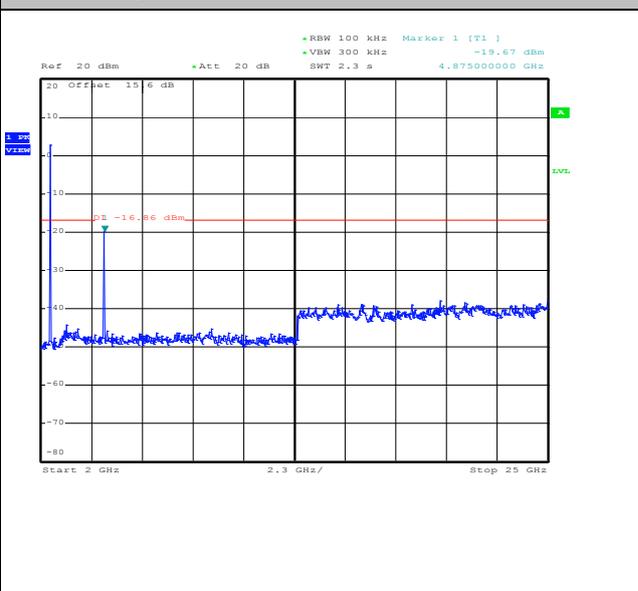
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

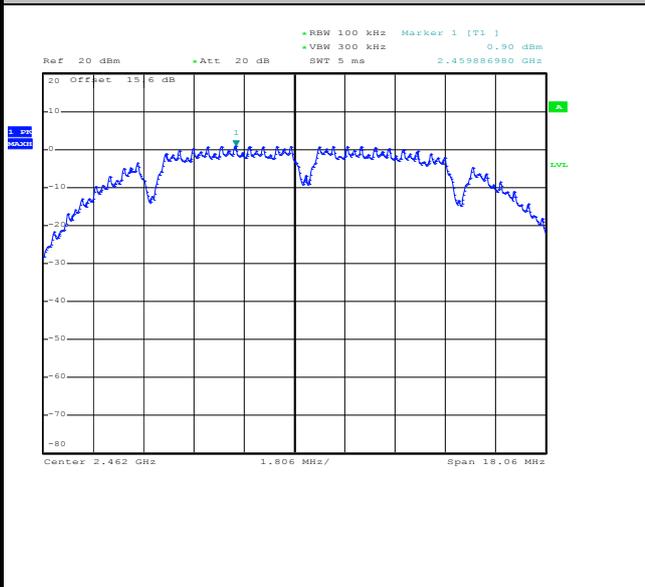




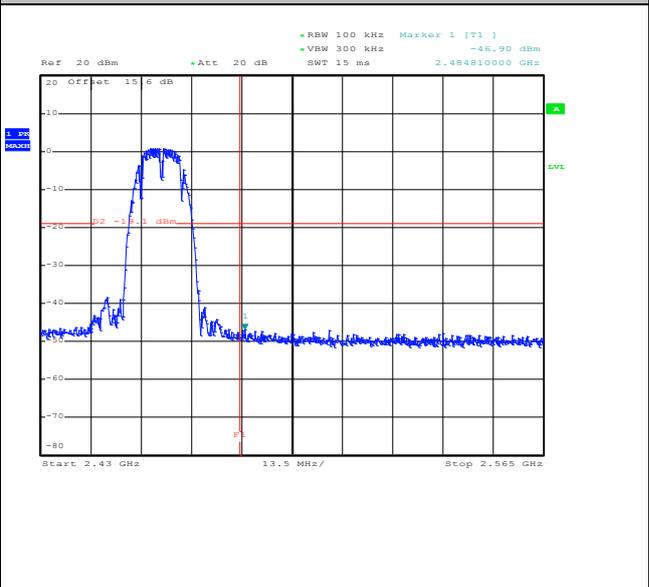
Number of TX :	1	Chain Port	0
Test Mode :	802.11b	Temperature :	23~24°C
Test Band :	2.4GHz High	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Adonis Li

WLAN 802.11b Channel 11

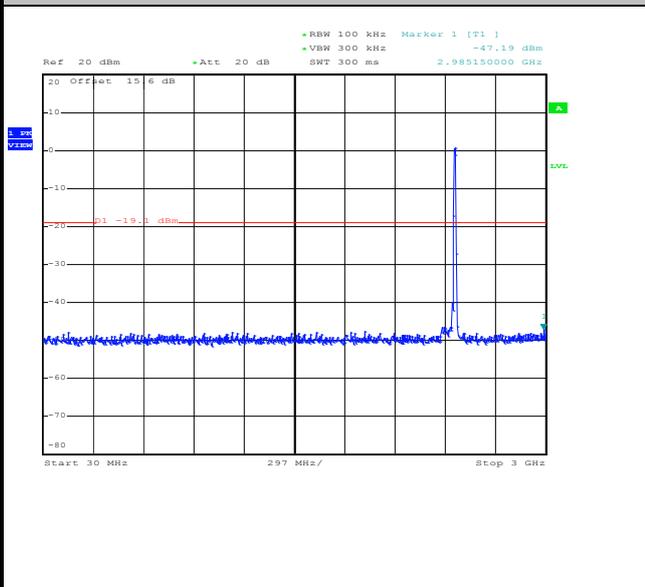
100kHz PSD reference Level



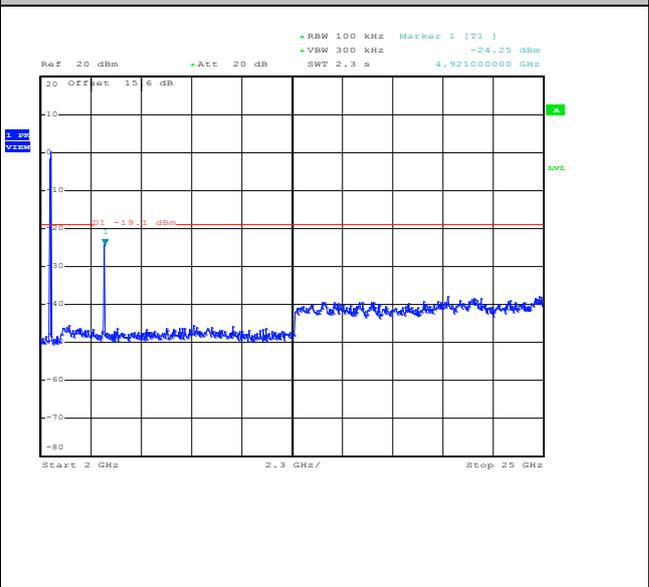
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

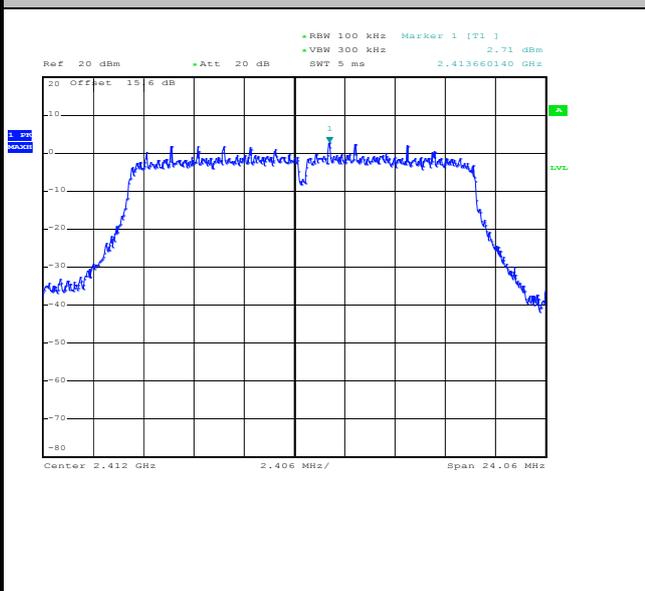




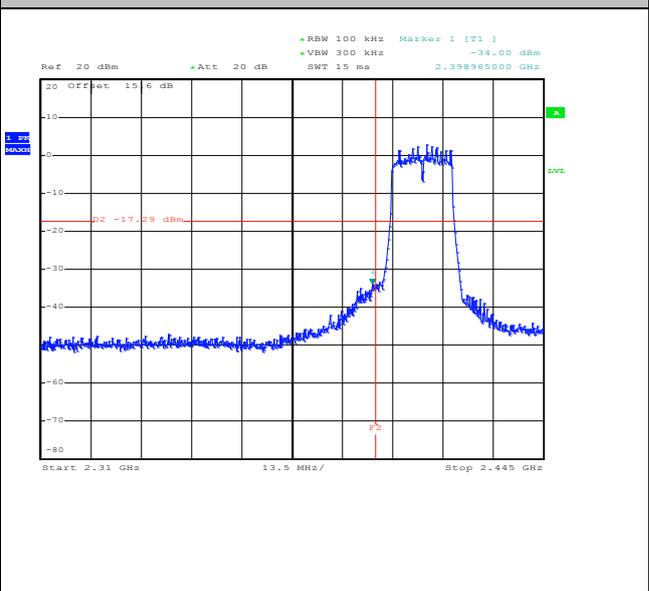
Number of TX :	1	Chain Port	0
Test Mode :	802.11g	Temperature :	23~24°C
Test Band :	2.4GHz Low	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Adonis Li

WLAN 802.11g Channel 01

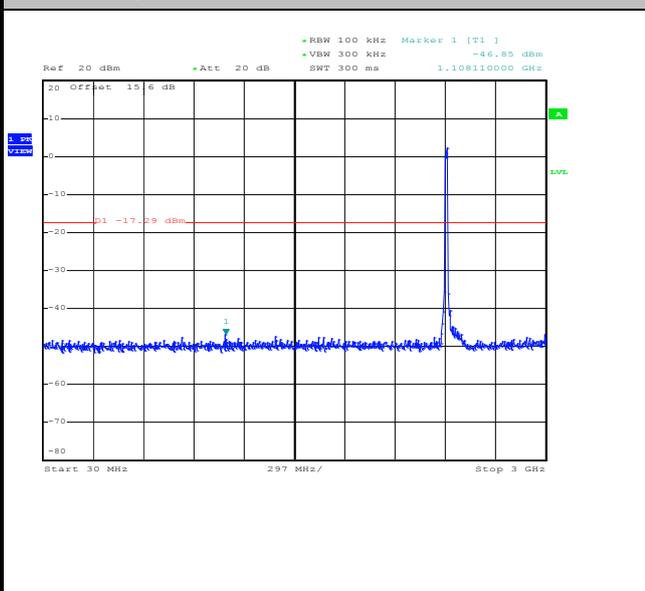
100kHz PSD reference Level



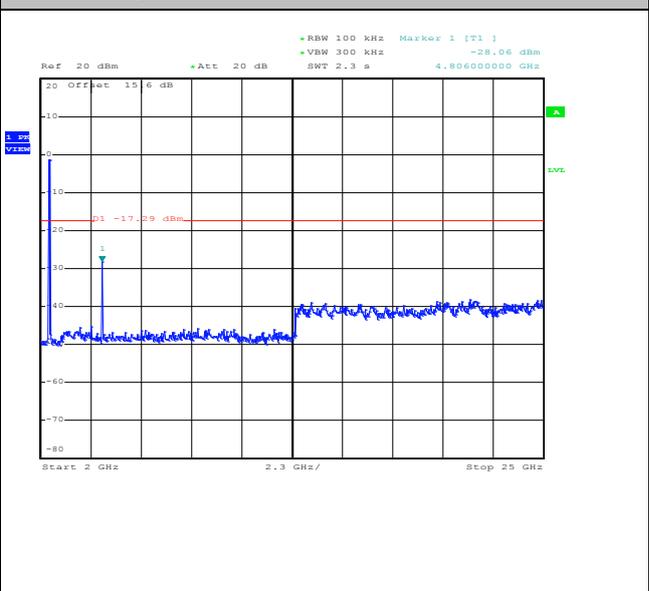
Low Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

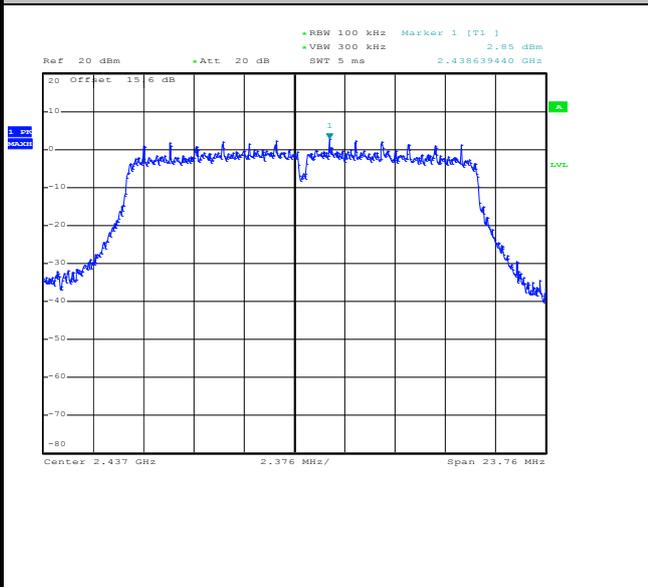




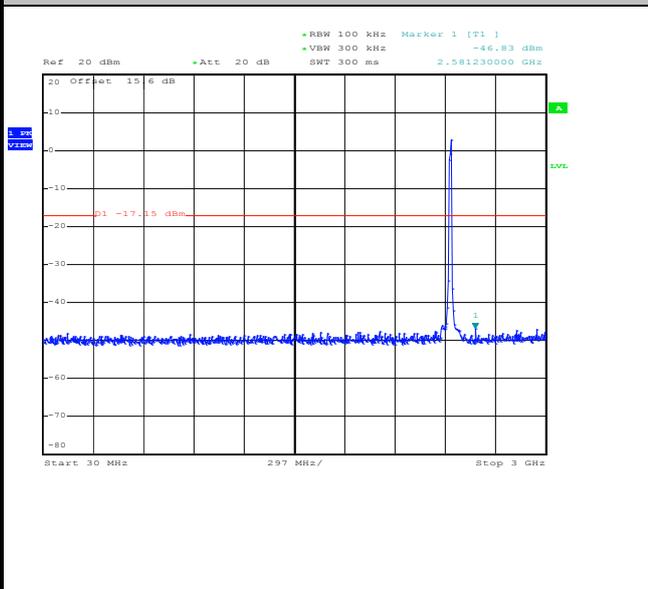
Number of TX :	1	Chain Port	0
Test Mode :	802.11g	Temperature :	23~24°C
Test Band :	2.4GHz Mid	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Adonis Li

WLAN 802.11g Channel 06

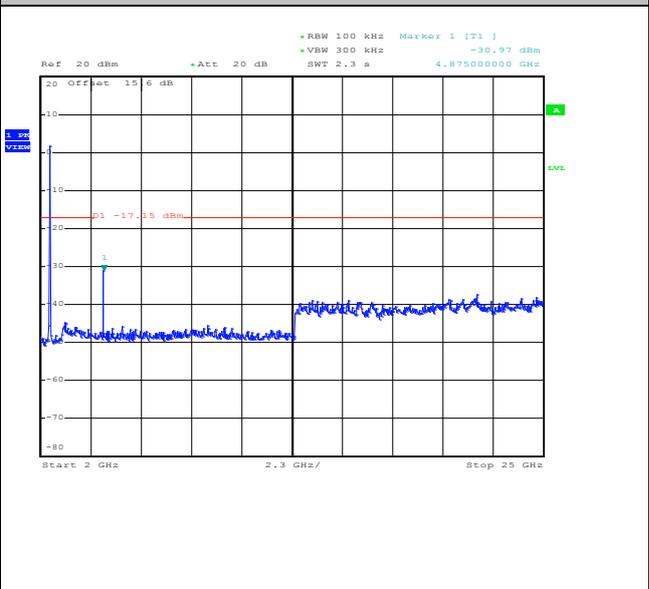
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

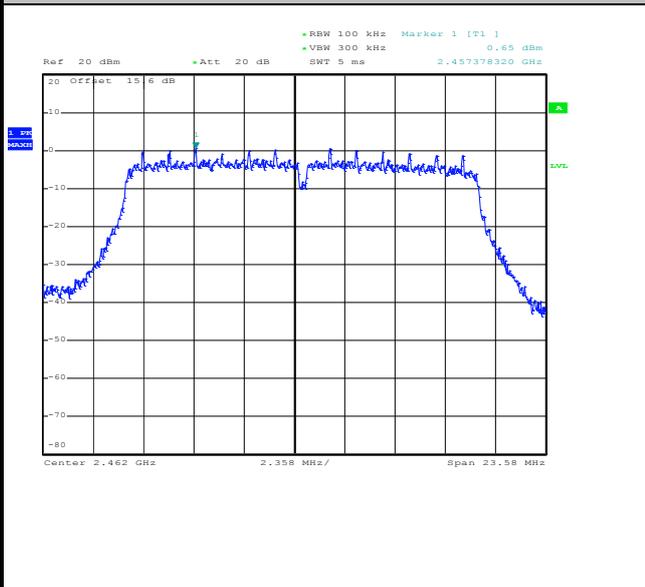




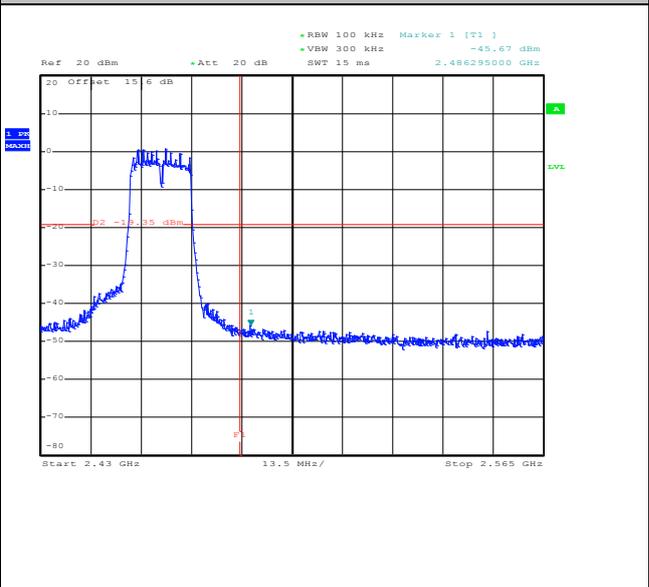
Number of TX :	1	Chain Port	0
Test Mode :	802.11g	Temperature :	23~24°C
Test Band :	2.4GHz High	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Adonis Li

WLAN 802.11g Channel 11

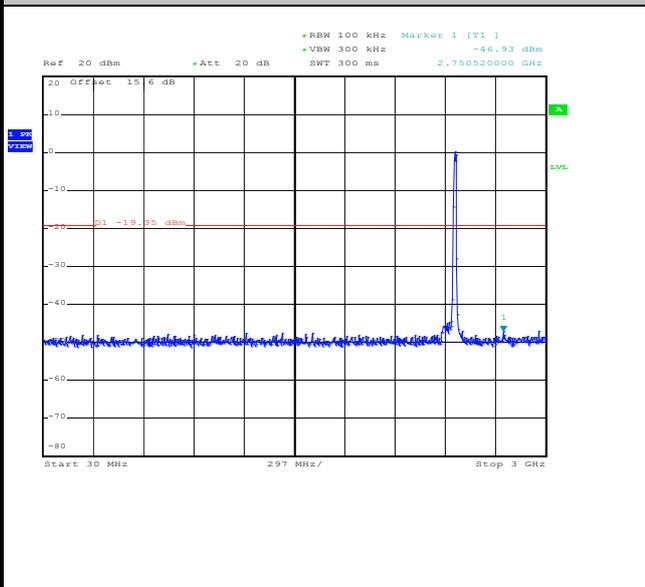
100kHz PSD reference Level



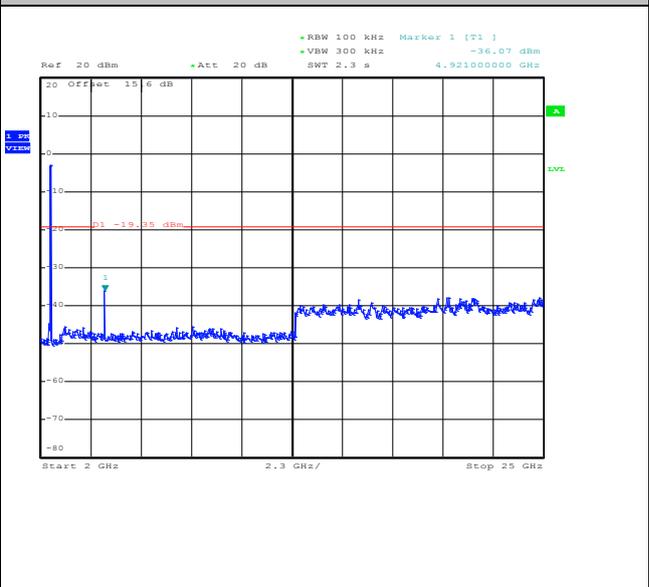
High Channel Plot



Spurious Emission 30MHz~3GHz



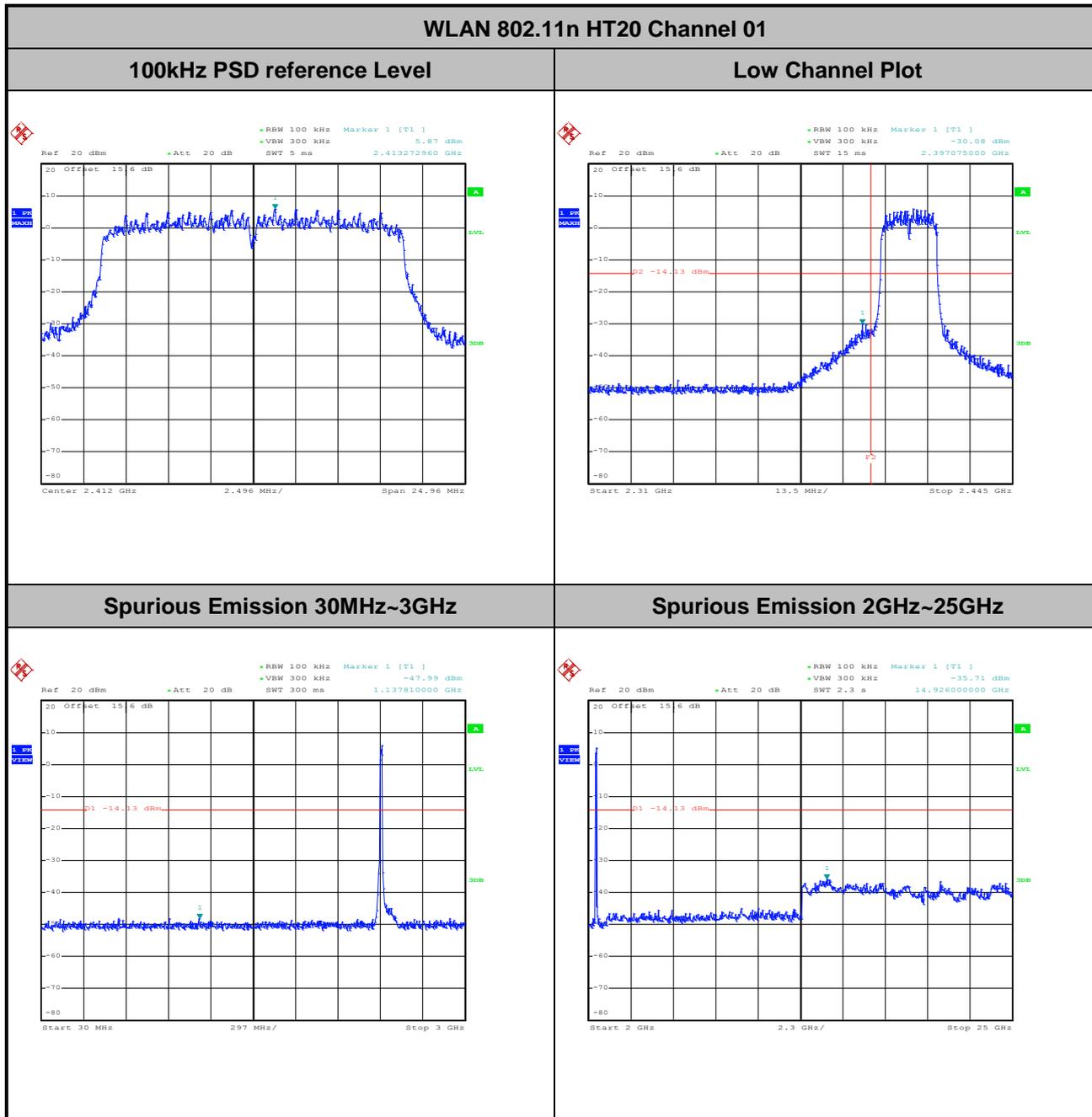
Spurious Emission 2GHz~25GHz





Number of TX = 1, Chain Port 1

Number of TX :	1	Chain Port	1
Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	2.4GHz Low	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Adonis Li

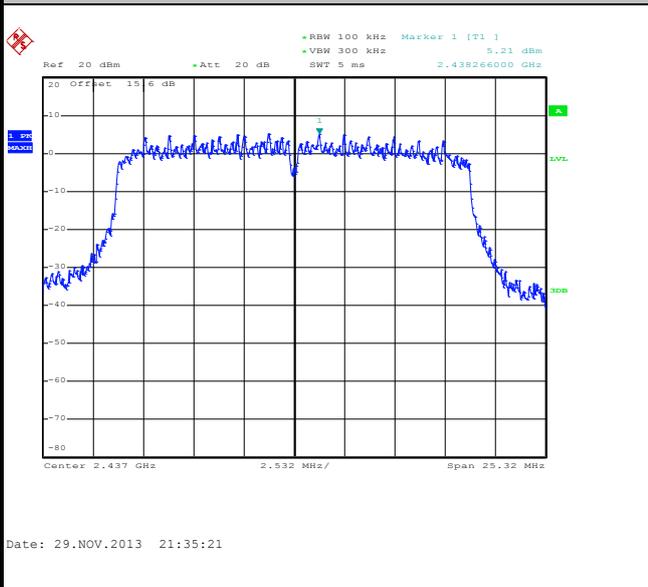




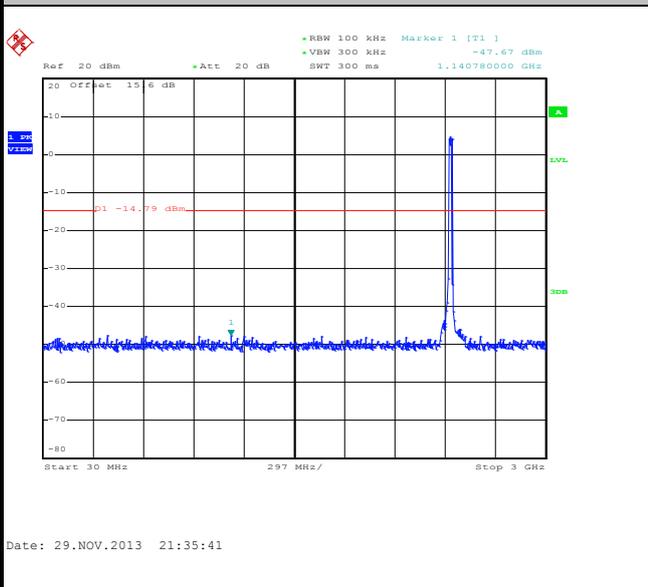
Number of TX :	1	Chain Port	1
Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	2.4GHz Mid	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Adonis Li

WLAN 802.11n HT20 Channel 06

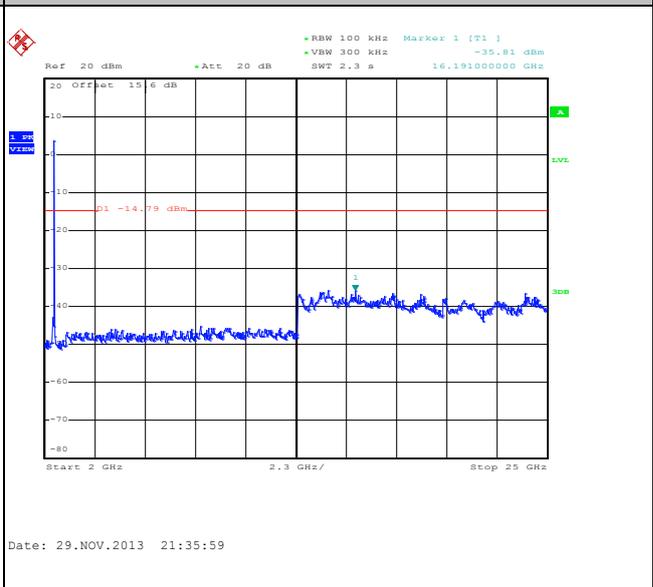
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

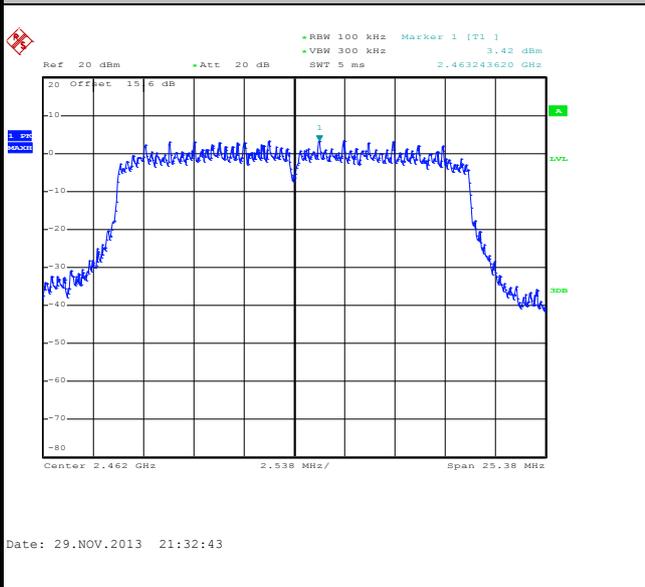




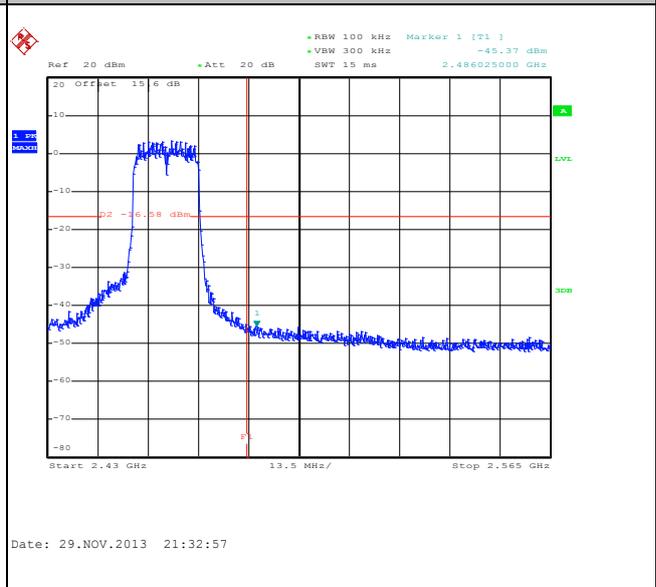
Number of TX :	1	Chain Port	1
Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	2.4GHz High	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Adonis Li

WLAN 802.11n HT20 Channel 11

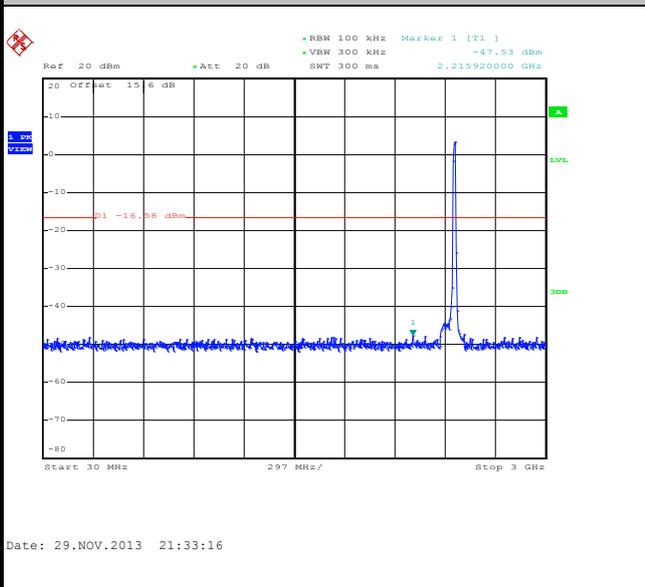
100kHz PSD reference Level



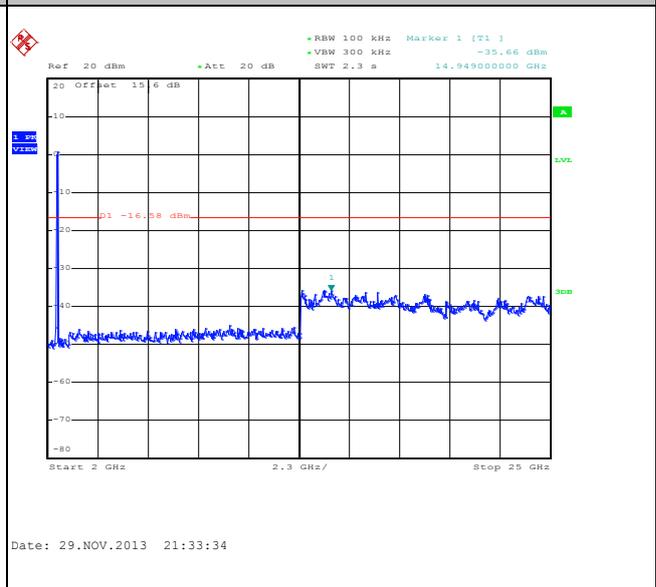
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz



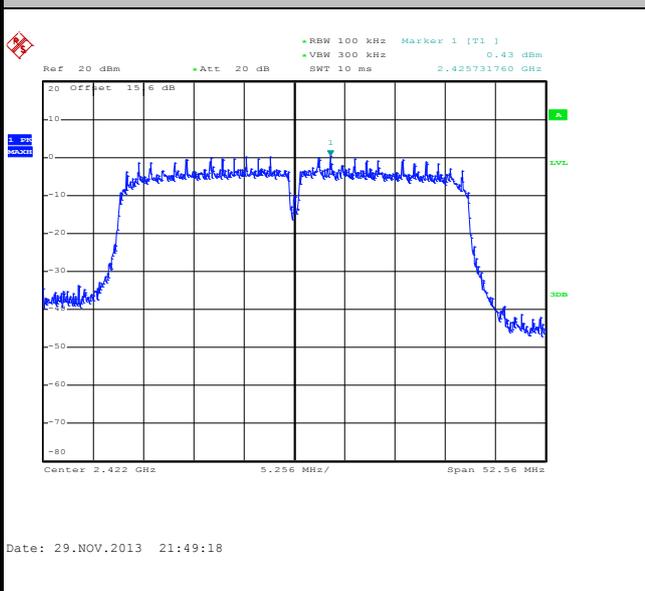


Number of TX = 1, Chain Port 0

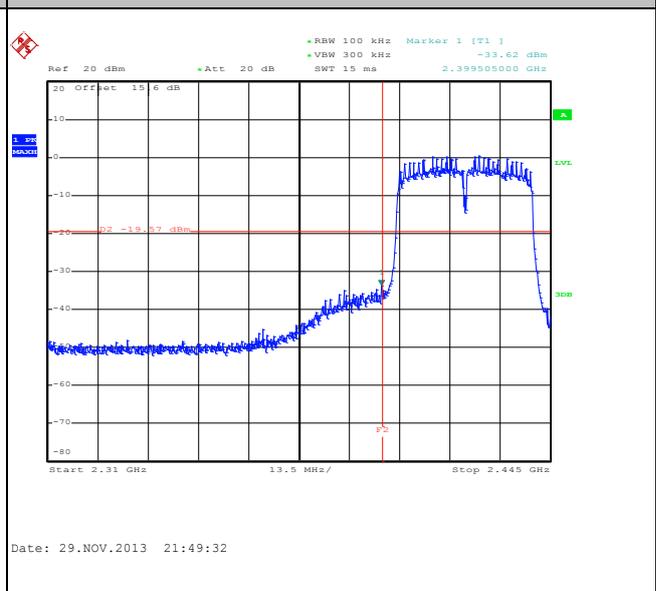
Number of TX :	1	Chain Port	0
Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Band :	2.4GHz Low	Relative Humidity :	47~48%
Test Channel :	03	Test Engineer :	Adonis Li

WLAN 802.11n HT40 Channel 03

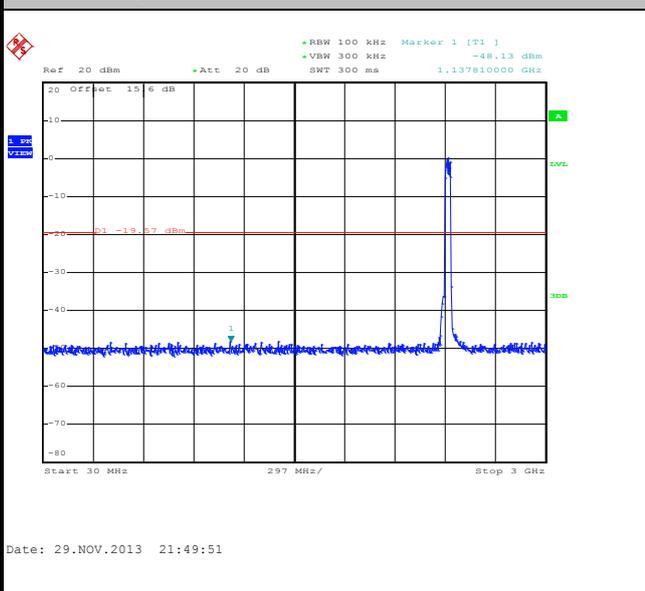
100kHz PSD reference Level



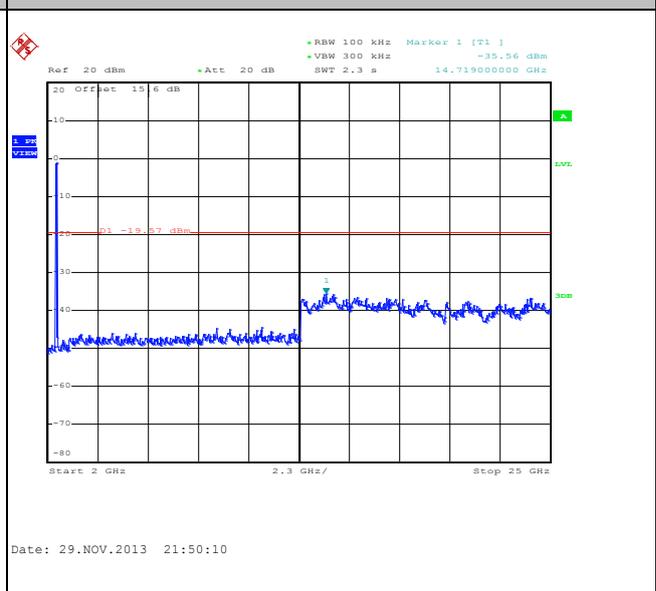
Low Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

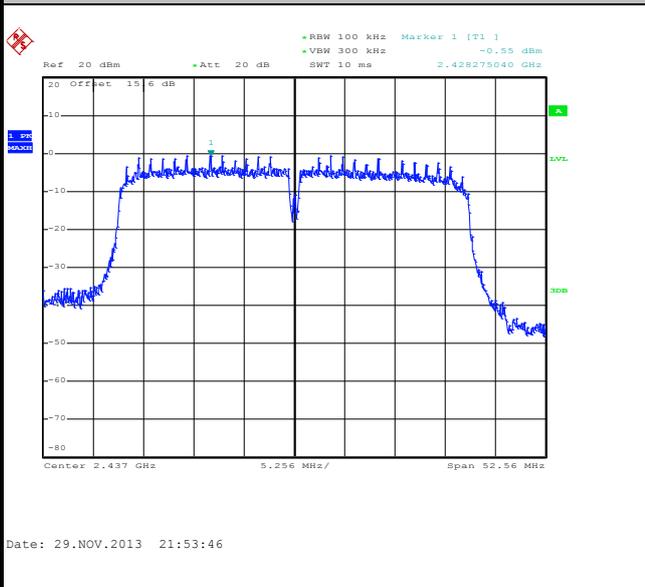




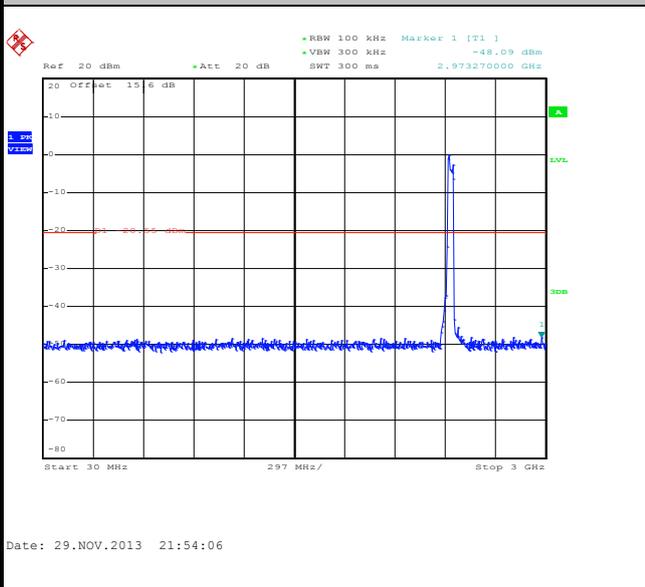
Number of TX :	1	Chain Port	0
Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Band :	2.4GHz Mid	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Adonis Li

WLAN 802.11n HT40 Channel 06

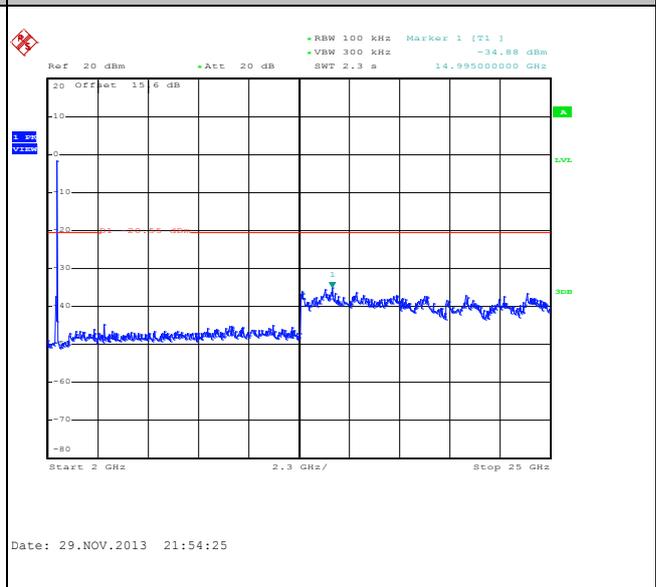
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz

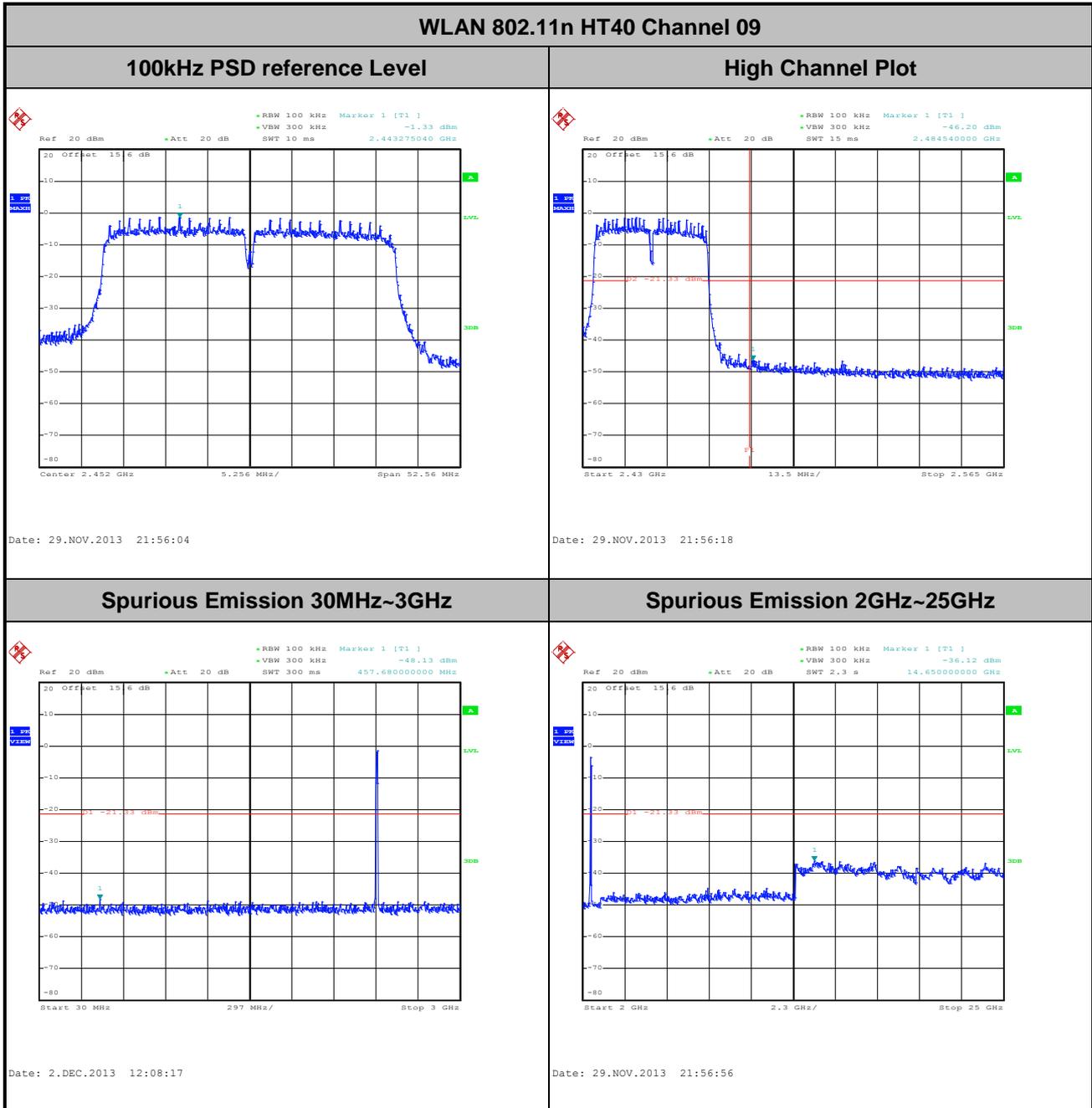


Spurious Emission 2GHz~25GHz





Number of TX :	1	Chain Port	0
Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Band :	2.4GHz High	Relative Humidity :	47~48%
Test Channel :	09	Test Engineer :	Adonis Li



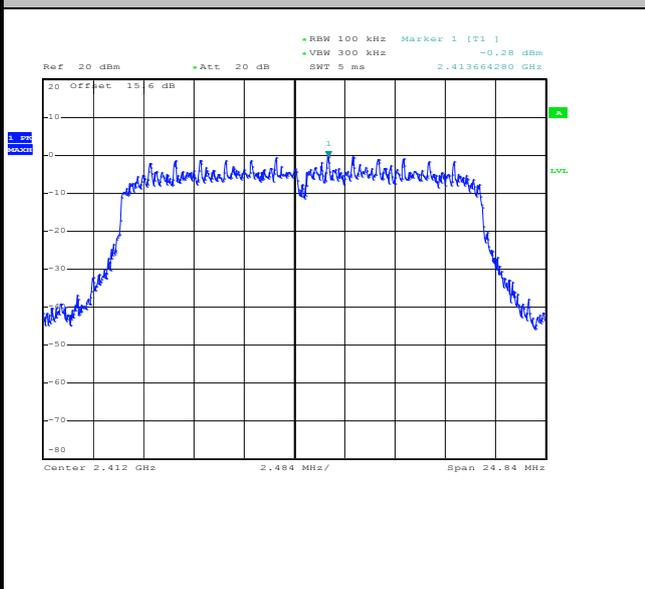


Number of TX = 2, Chain Port 0

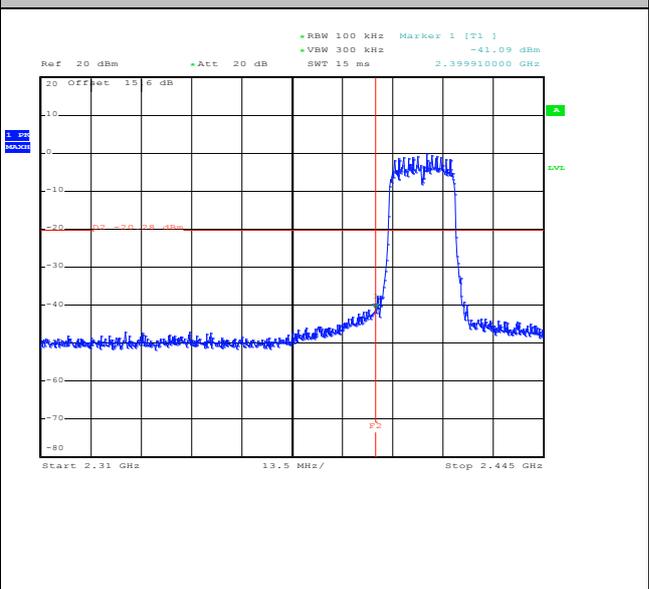
Number of TX :	2	Chain Port	0
Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	2.4GHz Low	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Adonis Li

WLAN 802.11n HT20 Channel 01

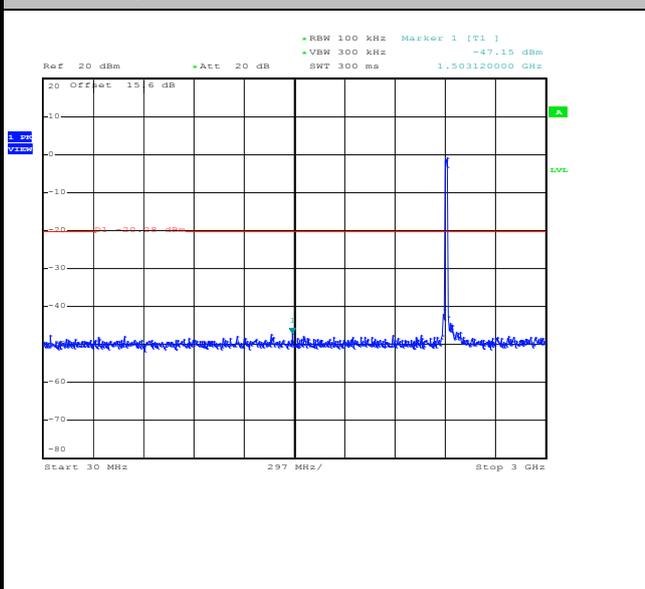
100kHz PSD reference Level



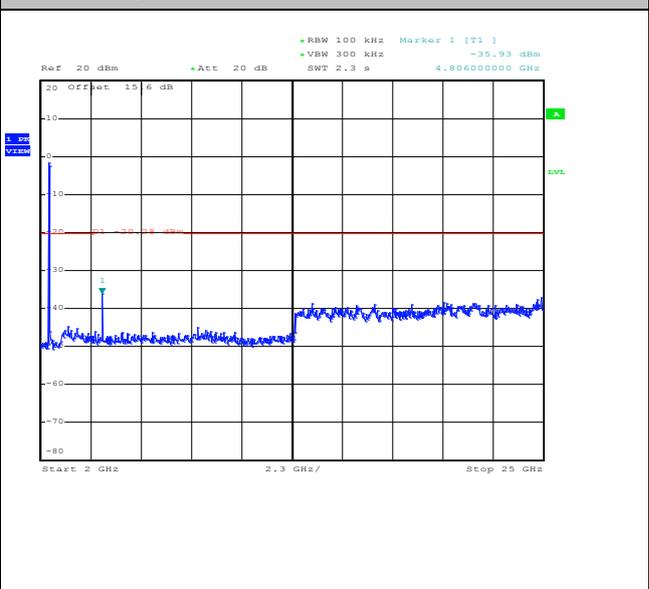
Low Channel Plot



Spurious Emission 30MHz~3GHz

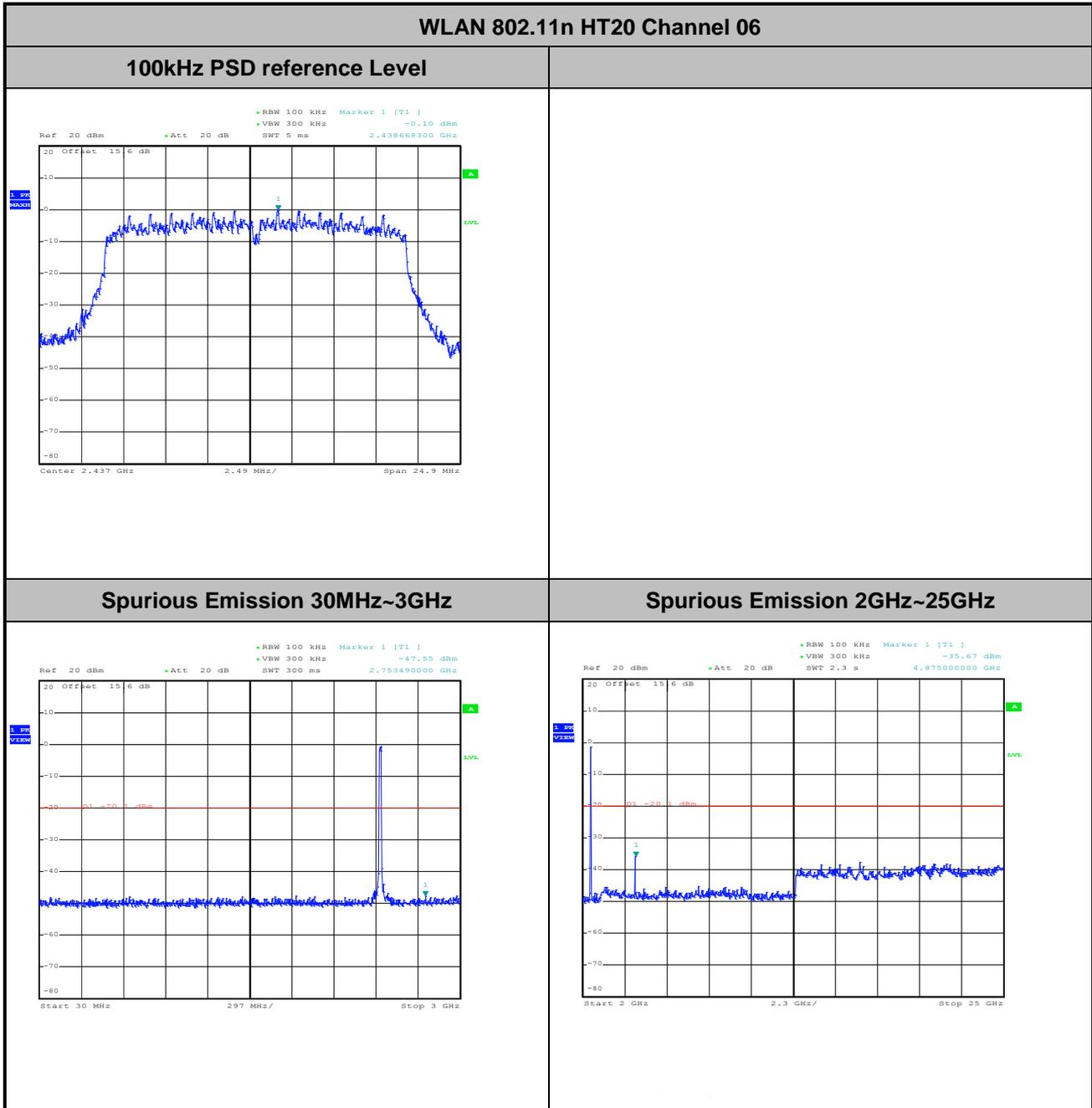


Spurious Emission 2GHz~25GHz



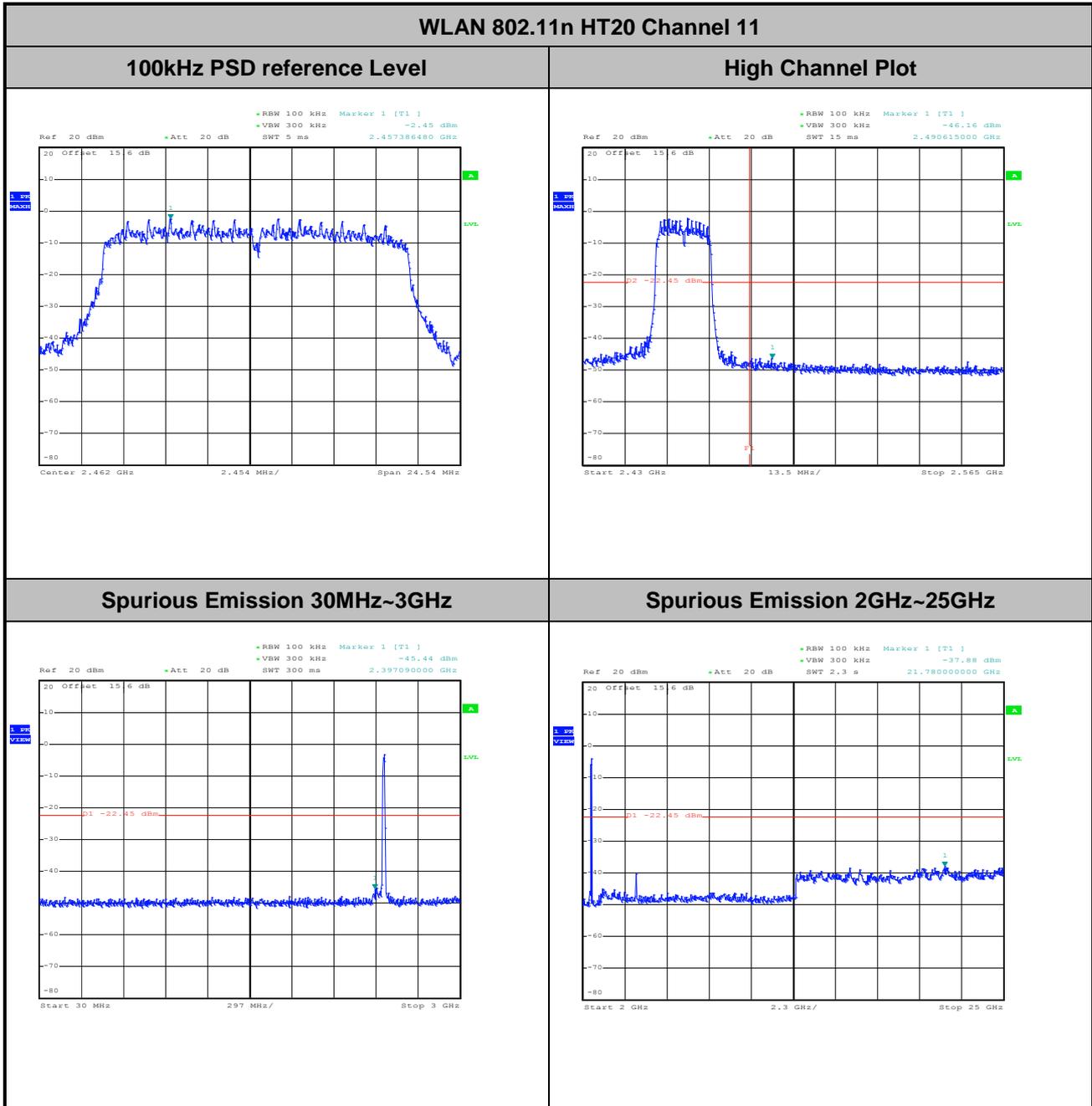


Number of TX :	2	Chain Port	0
Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	2.4GHz Mid	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Adonis Li



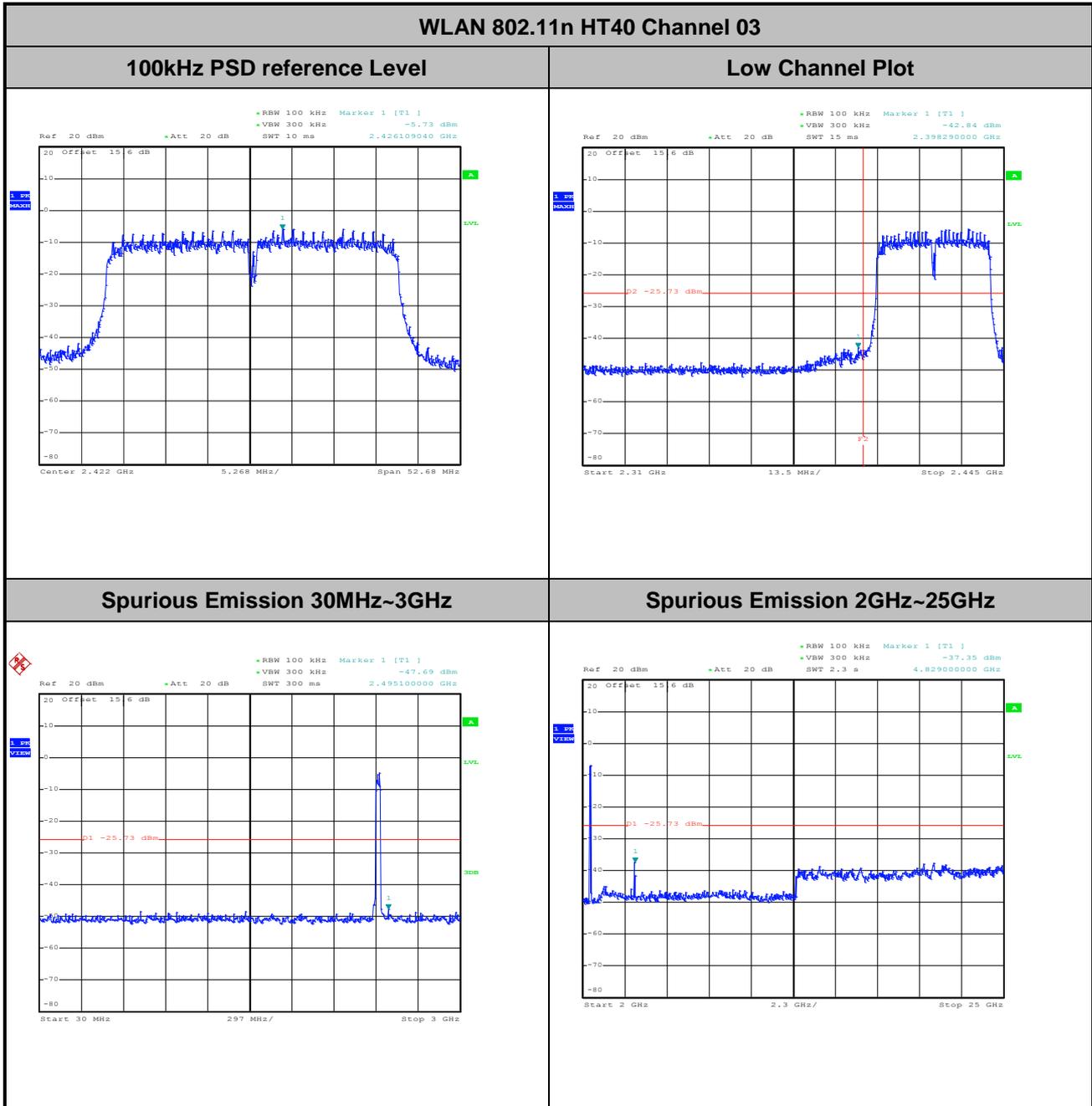


Number of TX :	2	Chain Port	0
Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	2.4GHz High	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Adonis Li



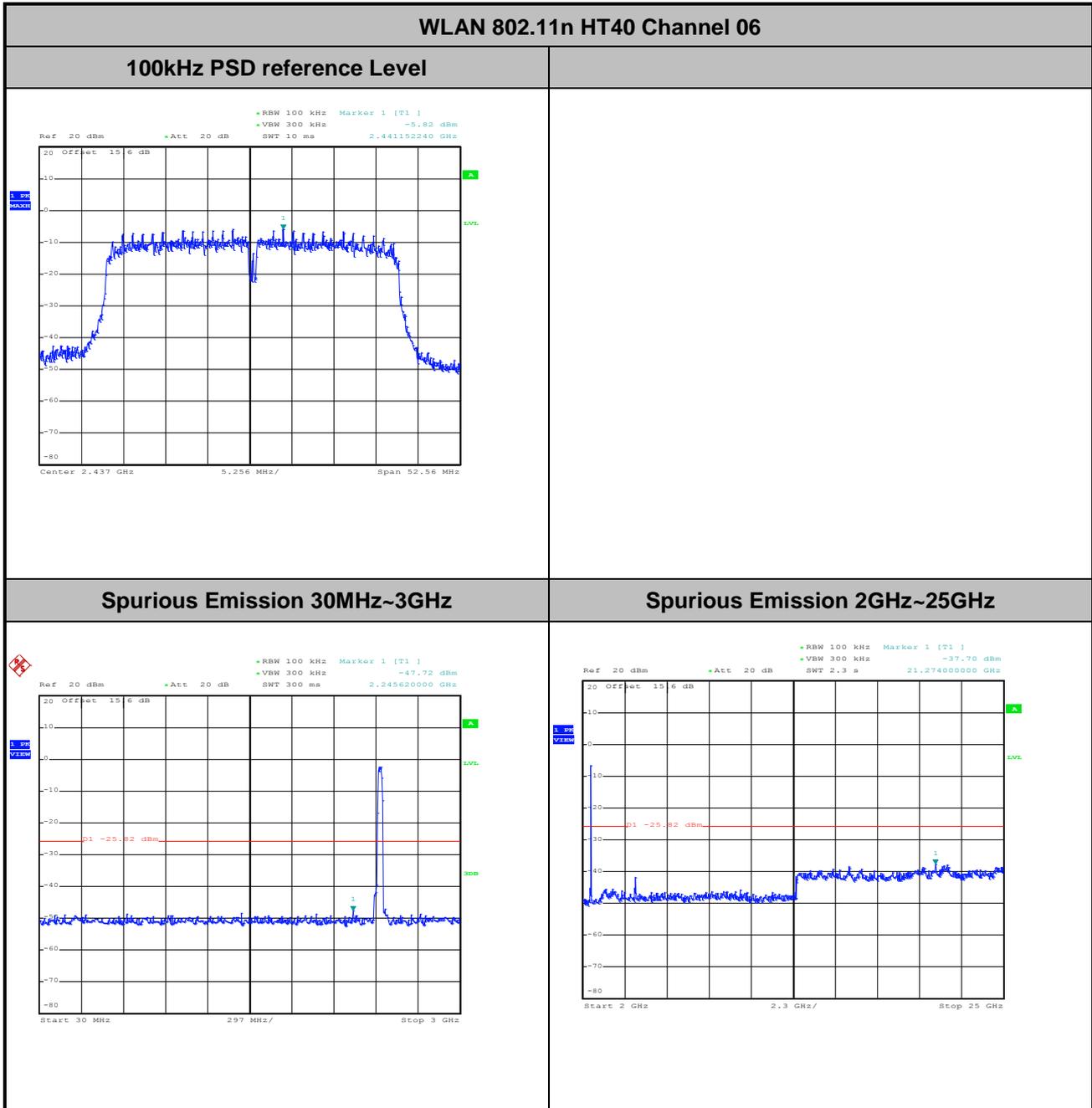


Number of TX :	2	Chain Port	0
Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Band :	2.4GHz Low	Relative Humidity :	47~48%
Test Channel :	03	Test Engineer :	Adonis Li



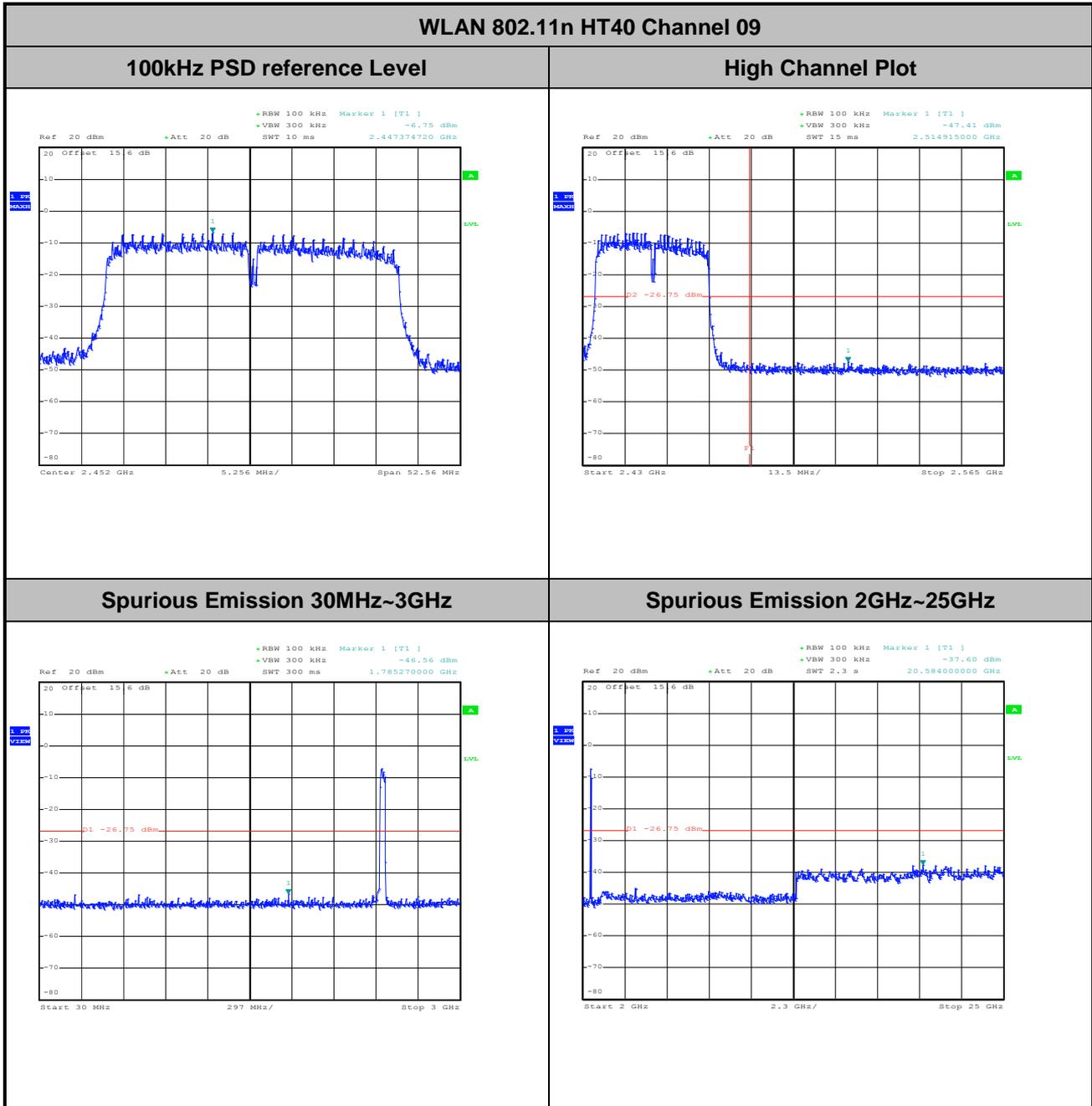


Number of TX :	2	Chain Port	0
Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Band :	2.4GHz Mid	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Adonis Li





Number of TX :	2	Chain Port	0
Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Band :	2.4GHz High	Relative Humidity :	47~48%
Test Channel :	09	Test Engineer :	Adonis Li



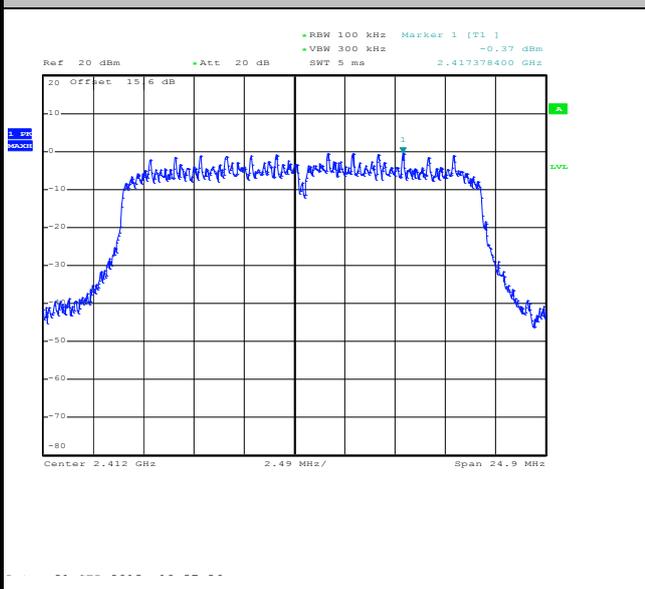


Number of TX = 2, Chain Port 1

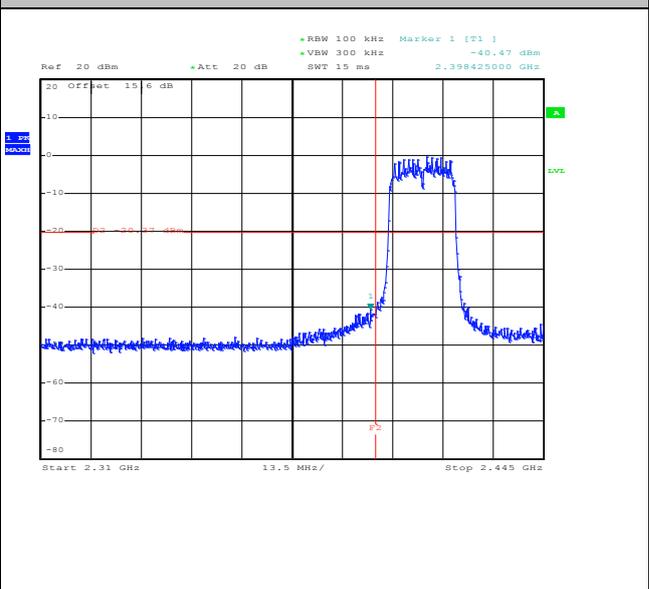
Number of TX :	2	Chain Port	1
Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	2.4GHz Low	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Adonis Li

WLAN 802.11n HT20 Channel 01

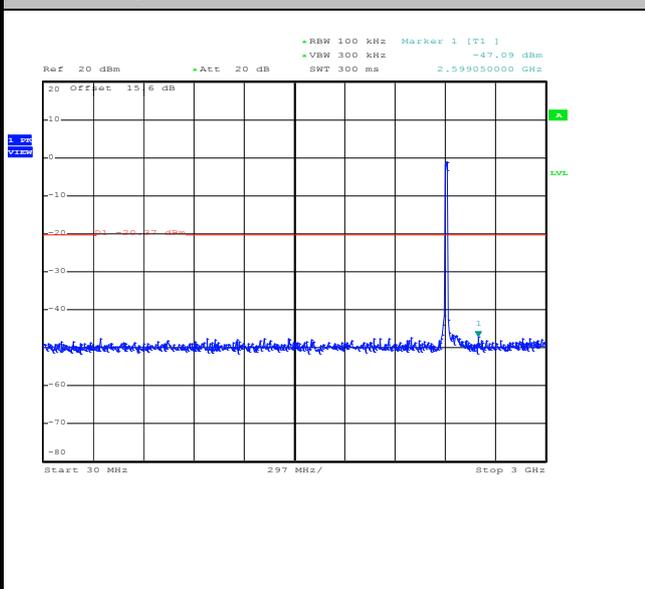
100kHz PSD reference Level



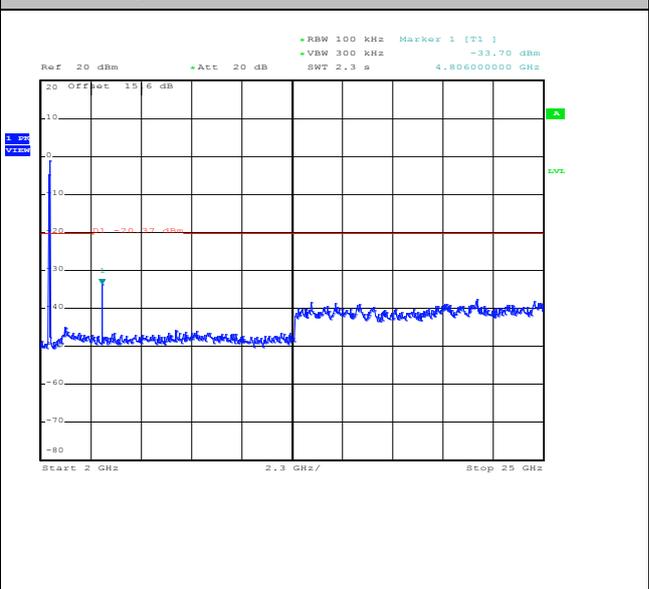
Low Channel Plot



Spurious Emission 30MHz~3GHz

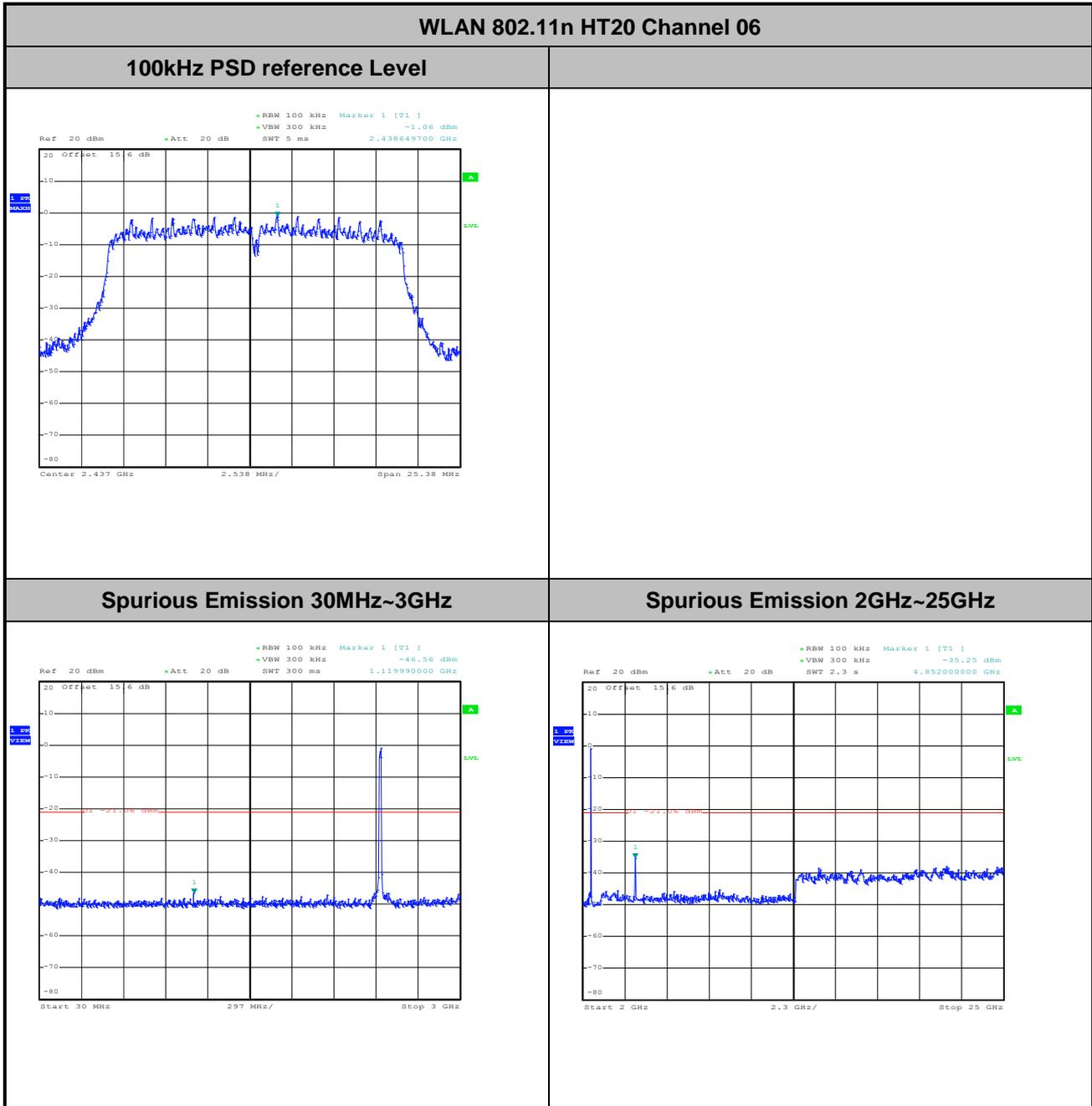


Spurious Emission 2GHz~25GHz



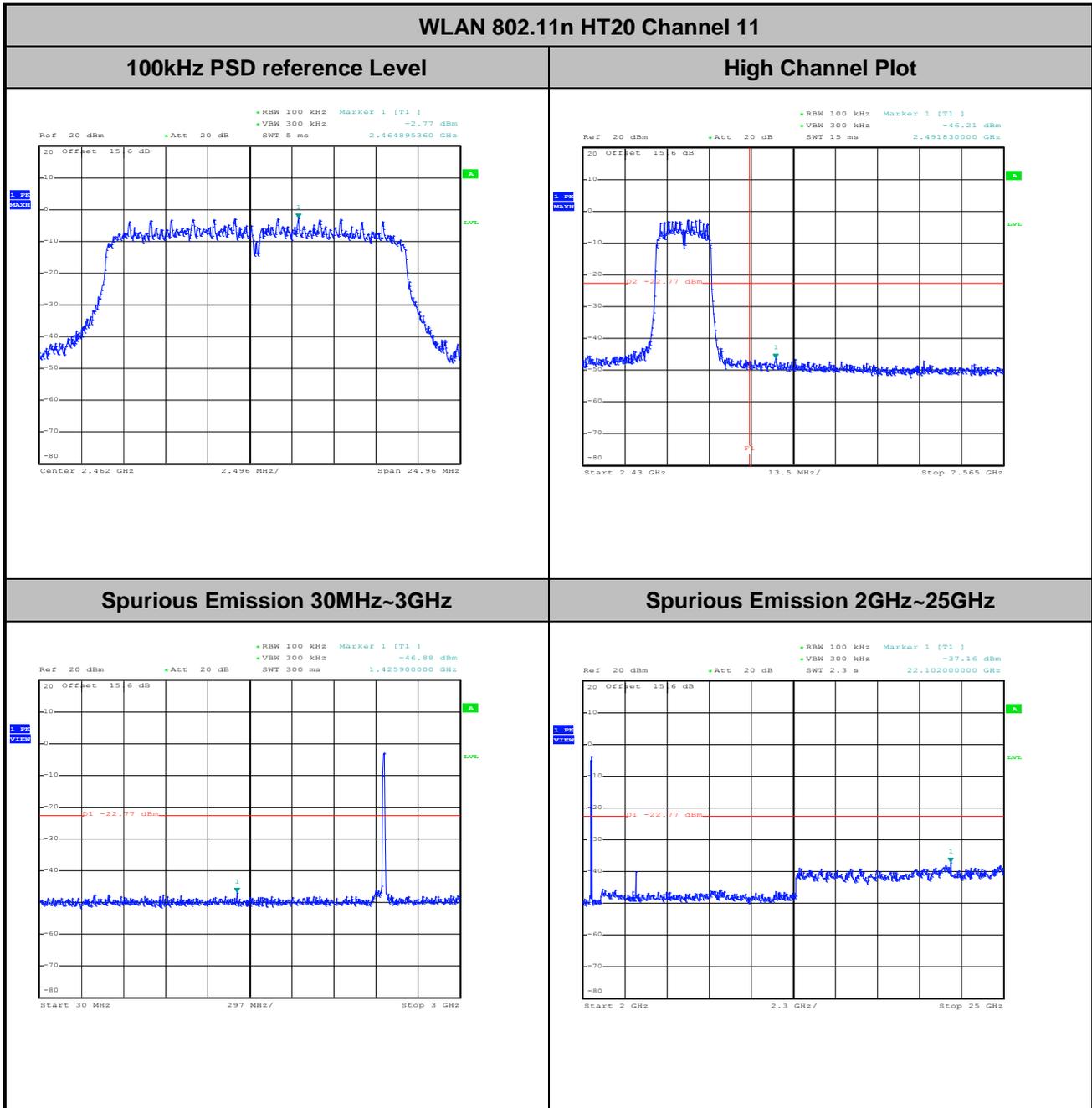


Number of TX :	2	Chain Port	1
Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	2.4GHz Mid	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Adonis Li





Number of TX :	2	Chain Port	1
Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	2.4GHz High	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Adonis Li

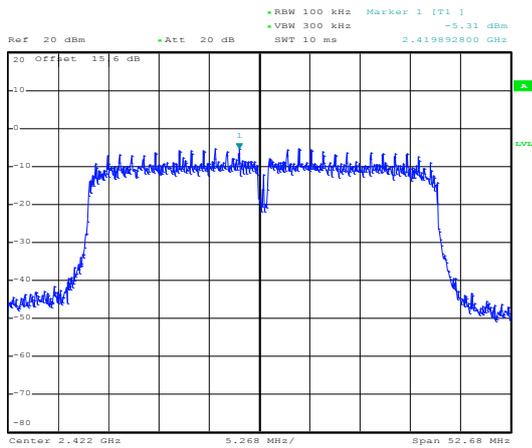




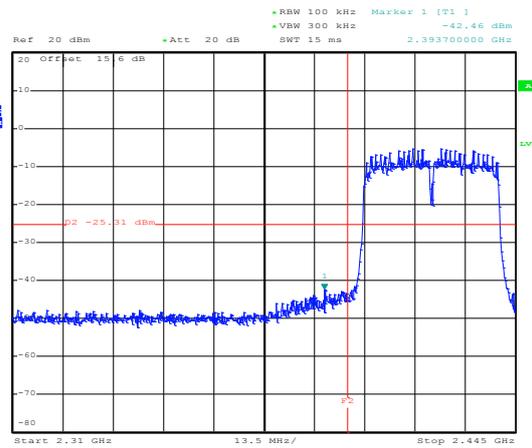
Number of TX :	2	Chain Port	1
Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Band :	2.4GHz Low	Relative Humidity :	47~48%
Test Channel :	03	Test Engineer :	Adonis Li

WLAN 802.11n HT40 Channel 03

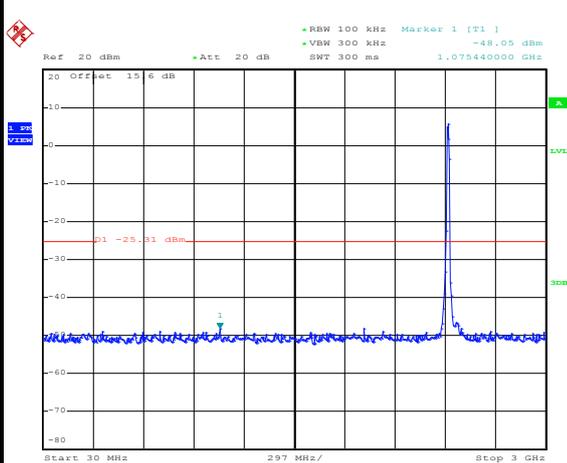
100kHz PSD reference Level



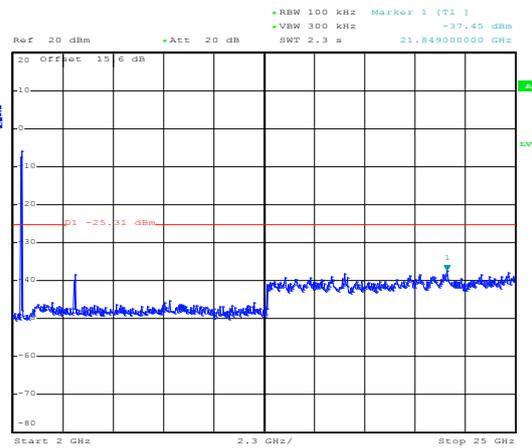
Low Channel Plot



Spurious Emission 30MHz~3GHz

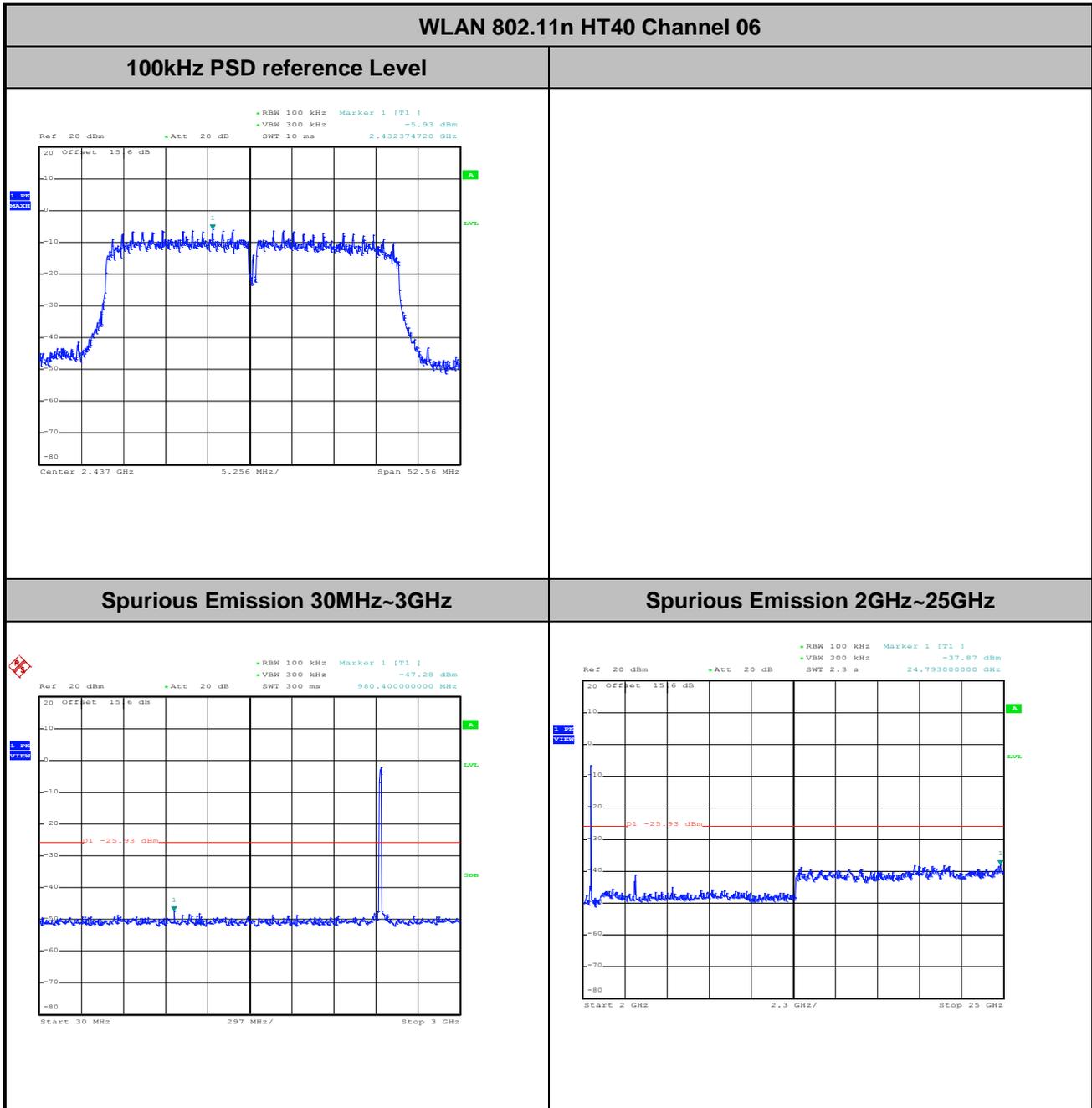


Spurious Emission 2GHz~25GHz



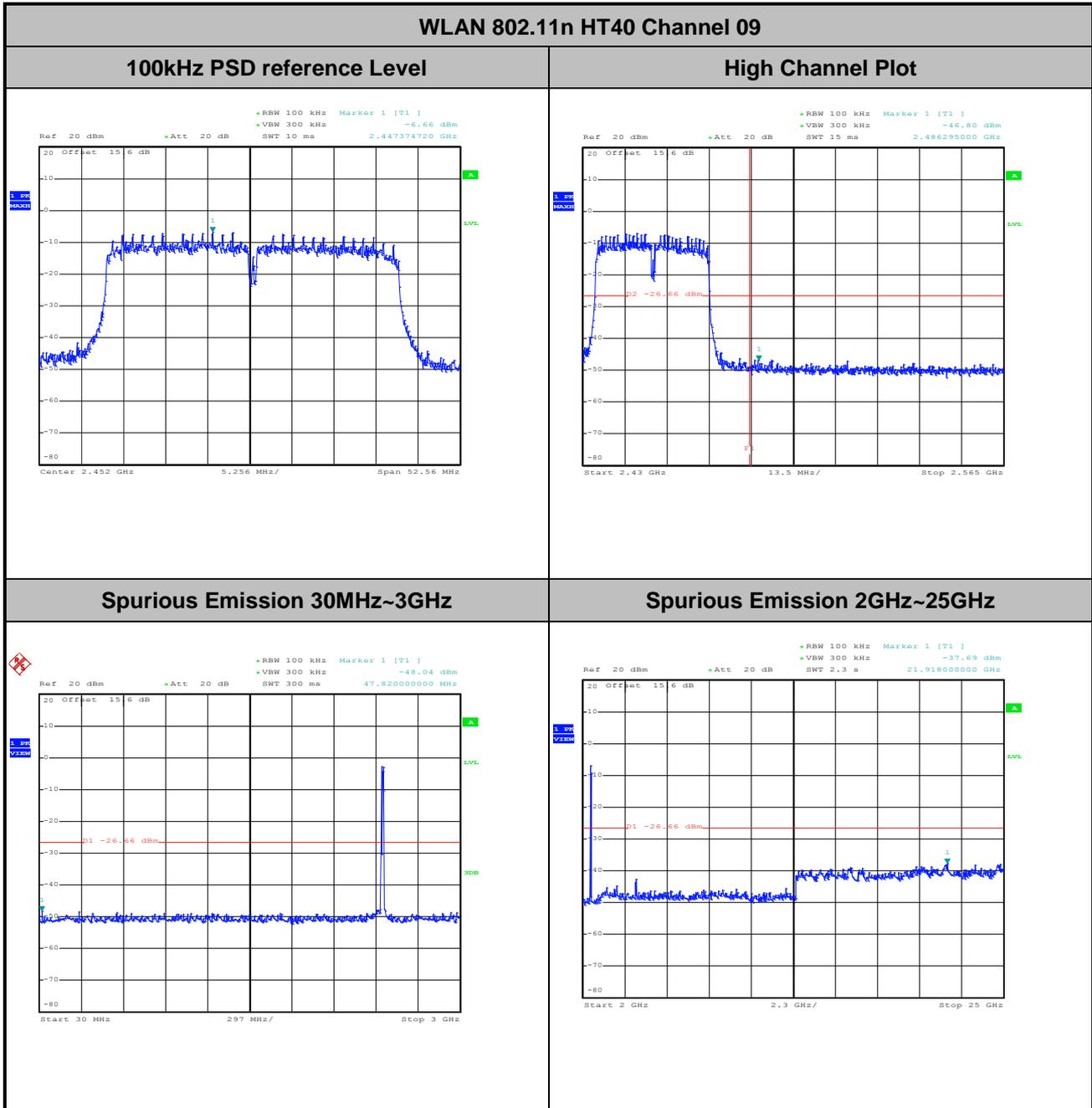


Number of TX :	2	Chain Port	1
Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Band :	2.4GHz Mid	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Adonis Li





Number of TX :	2	Chain Port	1
Test Mode :	802.11n HT40	Temperature :	23~24°C
Test Band :	2.4GHz High	Relative Humidity :	47~48%
Test Channel :	09	Test Engineer :	Adonis Li



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.

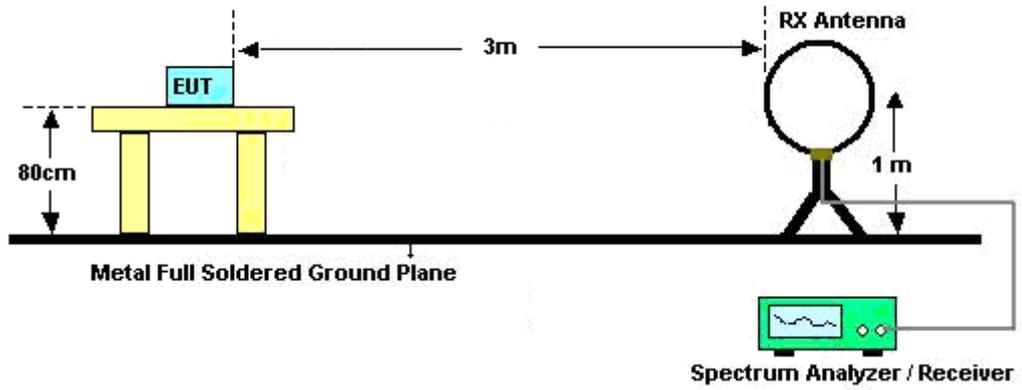
3.5.3 Test Procedure

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
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 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.

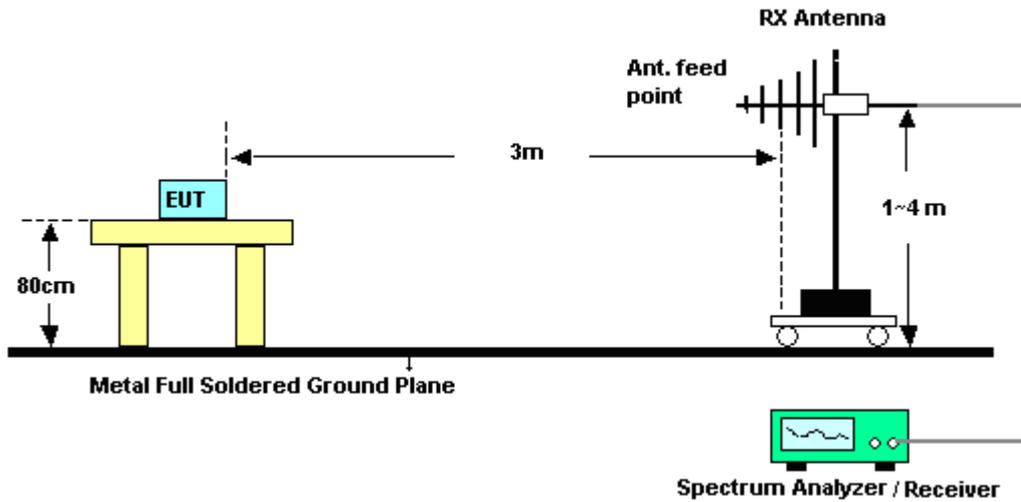
Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
0	802.11b	97.758	8.720	0.115	300Hz
0	802.11g	87.666	1.450	0.690	1kHz
1	2.4G 802.11n HT20	87.564	1.366	0.732	1kHz
0+1	2.4G 802.11n HT20	35.032	0.110	9.091	10kHz
0	2.4G 802.11n HT40	76.712	0.672	1.488	3kHz
0+1	2.4G 802.11n HT40	32.667	0.098	10.204	10kHz

3.5.4 Test Setup

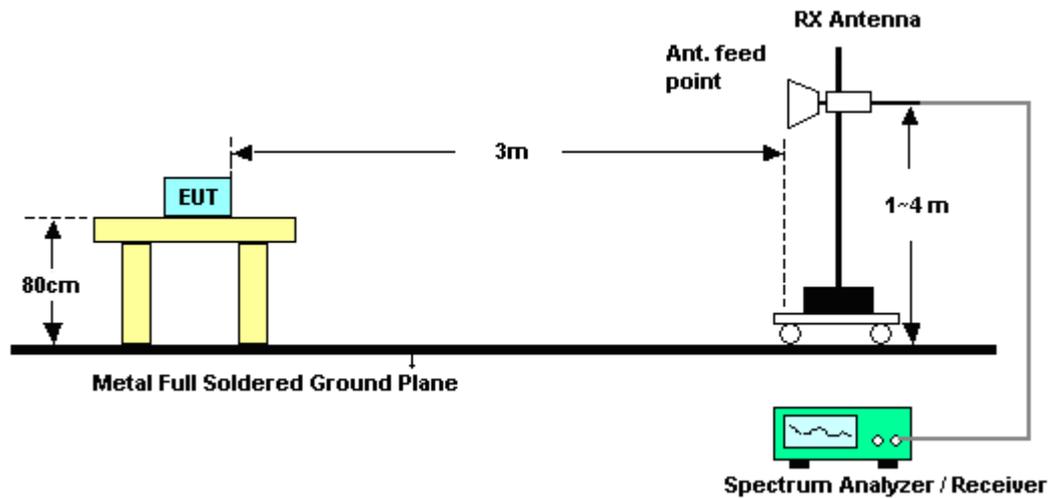
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated 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

Test Mode :	802.11b Chain Port 0	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Star Wei

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.92	58.14	-15.86	74	52.79	32.86	3.17	30.68	179	18	Peak
2390	46.2	-7.8	54	40.85	32.86	3.17	30.68	179	18	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2385.24	59.3	-14.7	74	54.01	32.83	3.16	30.7	200	287	Peak
2389.83	47.35	-6.65	54	42	32.86	3.17	30.68	200	287	Average

Test Mode :	802.11b Chain Port 0	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Star Wei

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2486.17	54.47	-19.53	74	48.84	33.01	3.22	30.6	200	16	Peak
2487.28	42.14	-11.86	54	36.51	33.01	3.22	30.6	200	19	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2489.74	56.82	-17.18	74	51.13	33.05	3.23	30.59	176	25	Peak
2487.34	43.54	-10.46	54	37.91	33.01	3.22	30.6	200	25	Average



Test Mode :	802.11g Chain Port 0	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Star Wei

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	66.77	-7.23	74	61.42	32.86	3.17	30.68	120	0	Peak
2390	48.06	-5.94	54	42.71	32.86	3.17	30.68	115	0	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.48	68.45	-5.55	74	63.1	32.86	3.17	30.68	200	295	Peak
2389.92	50.34	-3.66	54	44.99	32.86	3.17	30.68	200	295	Average

Test Mode :	802.11g Chain Port 0	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Star Wei

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.7	58.11	-15.89	74	52.48	33.01	3.22	30.6	193	22	Peak
2486.56	44.15	-9.85	54	38.52	33.01	3.22	30.6	195	22	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2485.21	58.66	-15.34	74	53.03	33.01	3.22	30.6	162	0	Peak
2493.94	44.96	-9.04	54	39.27	33.05	3.23	30.59	162	0	Average



Test Mode :	802.11n HT20 Chain Port 1	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Star Wei

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.83	60.27	-13.73	74	54.92	32.86	3.17	30.68	112	339	Peak
2389.83	46.59	-7.41	54	41.24	32.86	3.17	30.68	112	339	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.57	56.63	-17.37	74	51.28	32.86	3.17	30.68	100	286	Peak
2389.99	43.95	-10.05	54	38.6	32.86	3.17	30.68	100	286	Average

Test Mode :	802.11n HT20 Chain Port 1	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Star Wei

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2492.83	62.59	-11.41	74	56.9	33.05	3.23	30.59	111	342	Peak
2491.48	49.56	-4.44	54	43.87	33.05	3.23	30.59	111	346	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2494.78	59.32	-14.68	74	53.63	33.05	3.23	30.59	120	260	Peak
2495.74	46.48	-7.52	54	40.79	33.05	3.23	30.59	126	265	Average



Test Mode :	802.11n HT20 Chain Port 0+1	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Star Wei

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.92	62.8	-11.2	74	57.45	32.86	3.17	30.68	176	0	Peak
2389.92	49.64	-4.36	54	44.29	32.86	3.17	30.68	176	0	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.05	59.59	-14.41	74	54.24	32.86	3.17	30.68	200	272	Peak
2387.67	48.38	-5.62	54	43.03	32.86	3.17	30.68	200	272	Average

Test Mode :	802.11n HT20 Chain Port 0+1	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Star Wei

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2492.74	61.49	-12.51	74	55.8	33.05	3.23	30.59	168	335	Peak
2484.07	50.1	-3.9	54	44.47	33.01	3.22	30.6	168	335	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.9	61.31	-12.69	74	55.62	33.05	3.23	30.59	154	263	Peak
2484.01	49.51	-4.49	54	43.88	33.01	3.22	30.6	154	263	Average



Test Mode :	802.11n HT40 Chain Port 0	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	03	Test Engineer :	Star Wei

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.56	61.03	-12.97	74	55.68	32.86	3.17	30.68	185	225	Peak
2389.47	46.99	-7.01	54	41.64	32.86	3.17	30.68	185	225	Average
2489.44	54.95	-19.05	74	49.26	33.05	3.23	30.59	154	37	Peak
2484.43	42.79	-11.21	54	37.16	33.01	3.22	30.6	154	37	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2387.49	65.81	-8.19	74	60.46	32.86	3.17	30.68	200	316	Peak
2389.74	49.34	-4.66	54	43.99	32.86	3.17	30.68	200	316	Average
2493.97	53.84	-20.16	74	48.15	33.05	3.23	30.59	100	147	Peak
2488.63	42.22	-11.78	54	36.53	33.05	3.23	30.59	100	147	Average



Test Mode :	802.11n HT40 Chain Port 0	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	09	Test Engineer :	Star Wei

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2375.7	55.15	-18.85	74	49.86	32.83	3.16	30.7	104	52	Peak
2389.92	42.63	-11.37	54	37.28	32.86	3.17	30.68	104	52	Average
2485.36	55.96	-18.04	74	50.33	33.01	3.22	30.6	104	42	Peak
2490.52	43.23	-10.77	54	37.54	33.05	3.23	30.59	104	42	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.95	55.57	-18.43	74	50.22	32.86	3.17	30.68	100	258	Peak
2387.4	44.28	-9.72	54	38.93	32.86	3.17	30.68	100	258	Average
2484.4	56.46	-17.54	74	50.83	33.01	3.22	30.6	186	220	Peak
2492.65	44.41	-9.59	54	38.72	33.05	3.23	30.59	186	220	Average



Test Mode :	802.11n HT40 Chain Port 0+1	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	03	Test Engineer :	Star Wei

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.74	62.25	-11.75	74	56.9	32.86	3.17	30.68	135	223	Peak
2389.65	48.21	-5.79	54	42.86	32.86	3.17	30.68	135	223	Average
2487.07	60.21	-13.79	74	54.58	33.01	3.22	30.6	106	186	Peak
2484.28	50.11	-3.89	54	44.48	33.01	3.22	30.6	106	186	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.92	61.69	-12.31	74	56.34	32.86	3.17	30.68	199	265	Peak
2388.57	48.57	-5.43	54	43.22	32.86	3.17	30.68	199	265	Average
2488.21	60.09	-13.91	74	54.4	33.05	3.23	30.59	181	263	Peak
2492.98	48.7	-5.3	54	43.01	33.05	3.23	30.59	181	263	Average



Test Mode :	802.11n HT40 Chain Port 0+1	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	09	Test Engineer :	Star Wei

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2387.76	57.87	-16.13	74	52.52	32.86	3.17	30.68	168	195	Peak
2389.2	47.27	-6.73	54	41.92	32.86	3.17	30.68	168	195	Average
2487.01	61.03	-12.97	74	55.4	33.01	3.22	30.6	135	187	Peak
2484.61	49.04	-4.96	54	43.41	33.01	3.22	30.6	135	187	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.59	59.06	-14.94	74	53.71	32.86	3.17	30.68	197	253	Peak
2387.31	47.51	-6.49	54	42.16	32.86	3.17	30.68	197	253	Average
2487.97	60.65	-13.35	74	54.96	33.05	3.23	30.59	100	260	Peak
2485.33	48.92	-5.08	54	43.29	33.01	3.22	30.6	100	260	Average

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

Note: Pre-scanned all test modes and only choose the worst case mode recorded in the test report for radiated spurious emission below 1GHz.

Test Mode :	802.11b Chain Port 0	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	106.6	-	-	101.19	32.89	3.18	30.66	170	164	Peak
2412	101.81	-	-	96.4	32.89	3.18	30.66	170	164	Average
4824	50.86	-23.14	74	40.43	35.17	4.58	29.32	100	151	Peak

Test Mode :	802.11b Chain Port 0	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	107.55	-	-	102.14	32.89	3.18	30.66	136	327	Peak
2412	102.73	-	-	97.32	32.89	3.18	30.66	136	327	Average
4824	51.42	-22.58	74	40.99	35.17	4.58	29.32			Peak

Test Mode :	802.11b Chain Port 0	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	106.43	-	-	100.91	32.95	3.2	30.63	103	178	Peak
2437	101.24	-	-	95.72	32.95	3.2	30.63	103	178	Average
4874	50.03	-23.97	74	39.57	35.18	4.6	29.32	120	0	Peak
7312	50.53	-23.47	74	38.87	36.2	5.64	30.18	115	121	Peak

Test Mode :	802.11b Chain Port 0	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	109.93	-	-	104.41	32.95	3.2	30.63	158	284	Peak
2437	105.52	-	-	100	32.95	3.2	30.63	158	284	Average
4874	50.66	-23.34	74	40.2	35.18	4.6	29.32	101	121	Peak
7311	48.9	-25.1	74	37.24	36.2	5.64	30.18	112	196	Peak



Test Mode :	802.11b Chain Port 0	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	103.72	-	-	98.15	32.98	3.21	30.62	102	217	Peak
2462	99.5	-	-	93.93	32.98	3.21	30.62	102	217	Average
4924	50.65	-23.35	74	40.16	35.19	4.61	29.31	122	307	Peak
7386	49.15	-24.85	74	37.47	36.24	5.66	30.22	102	223	Peak

Test Mode :	802.11b Chain Port 0	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	107.2	-	-	101.63	32.98	3.21	30.62	158	316	Peak
2462	102.39	-	-	96.82	32.98	3.21	30.62	158	316	Average
4924	50.04	-23.96	74	39.55	35.19	4.61	29.31	114	120	Peak
7386	50.25	-23.75	74	38.57	36.24	5.66	30.22	100	203	Peak



Test Mode :	802.11g Chain Port 0	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
92.08	28.81	-14.69	43.5	52.2	9.35	0.88	33.62	100	0	Peak
101.78	25.38	-18.12	43.5	47.32	10.74	0.93	33.61	-	-	Peak
225.94	24.01	-21.99	46	45.54	10.59	1.38	33.5	-	-	Peak
375.32	21.08	-24.92	46	37.4	15.25	1.76	33.33	-	-	Peak
929.19	29.13	-16.87	46	38.16	20.63	2.78	32.44	-	-	Peak
957.32	27.48	-18.52	46	36.33	20.77	2.82	32.44	-	-	Peak
2412	108.5	-	-	103.09	32.89	3.18	30.66	140	157	Peak
2412	97.23	-	-	91.82	32.89	3.18	30.66	140	157	Average
4824	50.03	-23.97	74	39.6	35.17	4.58	29.32	112	151	Peak



Test Mode :	802.11g Chain Port 0	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.97	27.45	-12.55	40	44.12	17.29	-0.38	33.58	-	-	Peak
48.43	28.32	-11.68	40	53.14	8.12	0.65	33.59	200	0	Peak
110.51	25.12	-18.38	43.5	45.95	11.8	0.98	33.61	-	-	Peak
128.94	26.86	-16.64	43.5	47.7	11.71	1.04	33.59	-	-	Peak
225.94	21.68	-24.32	46	43.21	10.59	1.38	33.5	-	-	Peak
944.71	28.92	-17.08	46	37.84	20.71	2.81	32.44	-	-	Peak
2412	111.4	-	-	105.99	32.89	3.18	30.66	160	285	Peak
2412	99.21	-	-	93.8	32.89	3.18	30.66	160	285	Average
4824	50.3	-23.7	74	39.87	35.17	4.58	29.32	123	356	Peak



Test Mode :	802.11g Chain Port 0	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	107.72	-	-	102.2	32.95	3.2	30.63	101	184	Peak
2437	97.04	-	-	91.52	32.95	3.2	30.63	101	184	Average
4874	50.54	-23.46	74	40.08	35.18	4.6	29.32	120	115	Peak
7312	48.56	-25.44	74	36.9	36.2	5.64	30.18	100	230	Peak

Test Mode :	802.11g Chain Port 0	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	112.82	-	-	107.3	32.95	3.2	30.63	160	287	Peak
2437	102	-	-	96.48	32.95	3.2	30.63	160	287	Average
4874	50.3	-23.7	74	39.84	35.18	4.6	29.32	112	114	Peak
7312	49.16	-24.84	74	37.5	36.2	5.64	30.18	100	121	Peak



Test Mode :	802.11g Chain Port 0	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	107.31	-	-	101.74	32.98	3.21	30.62	100	221	Peak
2462	95.36	-	-	89.79	32.98	3.21	30.62	100	221	Average
4924	50.1	-23.9	74	39.61	35.19	4.61	29.31	101	215	Peak
7386	49.14	-24.86	74	37.46	36.24	5.66	30.22	145	112	Peak

Test Mode :	802.11g Chain Port 0	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	109.75	-	-	104.18	32.98	3.21	30.62	164	314	Peak
2462	97.95	-	-	92.38	32.98	3.21	30.62	164	314	Average
4924	50.13	-23.87	74	39.64	35.19	4.61	29.31	100	311	Peak
7386	48.77	-25.23	74	37.09	36.24	5.66	30.22	101	100	Peak



Test Mode :	802.11n HT20 Chain Port 1	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	103.3	-	-	97.89	32.89	3.18	30.66	181	143	Peak
2412	92.33	-	-	86.92	32.89	3.18	30.66	181	143	Average
4824	50.31	-23.69	74	39.88	35.17	4.58	29.32	114	360	Peak

Test Mode :	802.11n HT20 Chain Port 1	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	104.23	-	-	98.82	32.89	3.18	30.66	100	262	Peak
2412	93.17	-	-	87.76	32.89	3.18	30.66	100	262	Average
4824	50.38	-23.62	74	39.95	35.17	4.58	29.32	120	100	Peak



Test Mode :	802.11n HT20 Chain Port 1	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	104.49	-	-	98.97	32.95	3.2	30.63	114	139	Peak
2437	93.53	-	-	88.01	32.95	3.2	30.63	114	139	Average
4874	50.96	-23.04	74	40.5	35.18	4.6	29.32	111	321	Peak
7312	49.6	-24.4	74	37.94	36.2	5.64	30.18	102	324	Peak

Test Mode :	802.11n HT20 Chain Port 1	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	103.6	-	-	98.08	32.95	3.2	30.63	100	260	Peak
2437	92.9	-	-	87.38	32.95	3.2	30.63	100	260	Average
4874	51	-23	74	40.54	35.18	4.6	29.32	100	40	Peak
7312	49.27	-24.73	74	37.61	36.2	5.64	30.18	105	112	Peak



Test Mode :	802.11n HT20 Chain Port 1	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	107.67	-	-	102.1	32.98	3.21	30.62	138	179	Peak
2462	97.08	-	-	91.51	32.98	3.21	30.62	138	179	Average
4924	50.63	-23.37	74	40.14	35.19	4.61	29.31	115	121	Peak
7386	48.9	-25.1	74	37.22	36.24	5.66	30.22	115	261	Peak

Test Mode :	802.11n HT20 Chain Port 1	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	106.12	-	-	100.55	32.98	3.21	30.62	122	272	Peak
2462	95.98	-	-	90.41	32.98	3.21	30.62	122	272	Average
4924	49.92	-24.08	74	39.43	35.19	4.61	29.31	100	360	Peak
7386	48.32	-25.68	74	36.64	36.24	5.66	30.22	100	251	Peak



Test Mode :	802.11n HT20 Chain Port 0+1	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	107.55	-	-	102.14	32.89	3.18	30.66	116	0	Peak
2412	97.06	-	-	91.65	32.89	3.18	30.66	116	0	Average
4824	50.39	-23.61	74	39.96	35.17	4.58	29.32	115	215	Peak

Test Mode :	802.11n HT20 Chain Port 0+1	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	107.33	-	-	101.92	32.89	3.18	30.66	137	269	Peak
2412	96.38	-	-	90.97	32.89	3.18	30.66	137	269	Average
4824	49.98	-24.02	74	39.55	35.17	4.58	29.32	151	141	Peak



Test Mode :	802.11n HT20 Chain Port 0+1	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	107.52	-	-	102	32.95	3.2	30.63	174	2	Peak
2437	97.28	-	-	91.76	32.95	3.2	30.63	174	2	Average
4874	50.05	-23.95	74	39.59	35.18	4.6	29.32	151	145	Peak
7312	49.86	-24.14	74	38.2	36.2	5.64	30.18	100	215	Peak

Test Mode :	802.11n HT20 Chain Port 0+1	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	108.26	-	-	102.74	32.95	3.2	30.63	160	263	Peak
2437	97.64	-	-	92.12	32.95	3.2	30.63	160	263	Average
4874	49.38	-24.62	74	38.92	35.18	4.6	29.32	100	200	Peak
7312	49.61	-24.39	74	37.95	36.2	5.64	30.18	156	98	Peak

Test Mode :	802.11n HT20 Chain Port 0+1	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	105.64	-	-	100.07	32.98	3.21	30.62	108	0	Peak
2462	95.32	-	-	89.75	32.98	3.21	30.62	108	0	Average
4924	50.36	-23.64	74	39.87	35.19	4.61	29.31	100	100	Peak
7386	49.87	-24.13	74	38.19	36.24	5.66	30.22	120	152	Peak

Test Mode :	802.11n HT20 Chain Port 0+1	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	105.92	-	-	100.35	32.98	3.21	30.62	126	288	Peak
2462	95.04	-	-	89.47	32.98	3.21	30.62	126	288	Average
4924	50.05	-23.95	74	39.56	35.19	4.61	29.31	132	332	Peak
7386	51.94	-22.06	74	40.26	36.24	5.66	30.22	115	140	Peak

Test Mode :	802.11n HT40 Chain Port 0	Temperature :	22~23°C
Test Channel :	03	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2422	100.21	-	-	94.75	32.92	3.19	30.65	108	0	Peak
2422	89.78	-	-	84.32	32.92	3.19	30.65	108	0	Average
4844	50.25	-23.75	74	39.8	35.18	4.59	29.32	119	256	Peak
7266	50.09	-23.91	74	38.43	36.19	5.63	30.16	151	69	Peak

Test Mode :	802.11n HT40 Chain Port 0	Temperature :	22~23°C
Test Channel :	03	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2422	101.82	-	-	96.36	32.92	3.19	30.65	200	320	Peak
2422	91.87	-	-	86.41	32.92	3.19	30.65	200	320	Average
4844	50.68	-23.32	74	40.23	35.18	4.59	29.32	151	200	Peak
7266	49.8	-24.2	74	38.14	36.19	5.63	30.16	100	203	Peak



Test Mode :	802.11n HT40 Chain Port 0	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	101.09	-	-	95.57	32.95	3.2	30.63	109	15	Peak
2437	91.42	-	-	85.9	32.95	3.2	30.63	109	15	Average
4874	50.2	-23.8	74	39.74	35.18	4.6	29.32	151	231	Peak
7312	48.43	-25.57	74	36.77	36.2	5.64	30.18	151	48	Peak

Test Mode :	802.11n HT40 Chain Port 0	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	102.61	-	-	97.09	32.95	3.2	30.63	159	277	Peak
2437	93.33	-	-	87.81	32.95	3.2	30.63	159	277	Average
4874	49.37	-24.63	74	38.91	35.18	4.6	29.32	100	123	Peak
7312	49.05	-24.95	74	37.39	36.2	5.64	30.18	100	251	Peak



Test Mode :	802.11n HT40 Chain Port 0	Temperature :	22~23°C
Test Channel :	09	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2452	98.35	-	-	92.83	32.95	3.2	30.63	100	220	Peak
2452	88.41	-	-	82.89	32.95	3.2	30.63	100	220	Average
4904	50.33	-23.67	74	39.85	35.19	4.61	29.32	112	320	Peak
7356	51.29	-22.71	74	39.63	36.22	5.65	30.21	151	245	Peak

Test Mode :	802.11n HT40 Chain Port 0	Temperature :	22~23°C
Test Channel :	09	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2452	101.92	-	-	96.4	32.95	3.2	30.63	159	308	Peak
2452	92.52	-	-	87	32.95	3.2	30.63	159	308	Average
4904	50.04	-23.96	74	39.56	35.19	4.61	29.32	100	151	Peak
7356	50.66	-23.34	74	39	36.22	5.65	30.21	100	151	Peak



Test Mode :	802.11n HT40 Chain Port 0+1	Temperature :	22~23°C
Test Channel :	03	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2422	104.66	-	-	99.2	32.92	3.19	30.65	139	187	Peak
2422	93.58	-	-	88.12	32.92	3.19	30.65	139	187	Average
4844	50	-24	74	39.55	35.18	4.59	29.32	115	189	Peak
7266	49.8	-24.2	74	38.14	36.19	5.63	30.16	151	62	Peak

Test Mode :	802.11n HT40 Chain Port 0+1	Temperature :	22~23°C
Test Channel :	03	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2422	104.42	-	-	98.96	32.92	3.19	30.65	100	262	Peak
2422	92.79	-	-	87.33	32.92	3.19	30.65	100	262	Average
4844	50.48	-23.52	74	40.03	35.18	4.59	29.32	122	332	Peak
7266	50.48	-23.52	74	38.82	36.19	5.63	30.16	100	155	Peak



Test Mode :	802.11n HT40 Chain Port 0+1	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	102.16	-	-	96.64	32.95	3.2	30.63	168	193	Peak
2437	91.78	-	-	86.26	32.95	3.2	30.63	168	193	Average
4874	50.29	-23.71	74	39.83	35.18	4.6	29.32	151	262	Peak
7311	49.47	-24.53	74	37.81	36.2	5.64	30.18	100	203	Peak

Test Mode :	802.11n HT40 Chain Port 0+1	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	105.04	-	-	99.52	32.95	3.2	30.63	158	259	Peak
2437	93.73	-	-	88.21	32.95	3.2	30.63	158	259	Average
4874	50.34	-23.66	74	39.88	35.18	4.6	29.32	200	113	Peak
7312	49.42	-24.58	74	37.76	36.2	5.64	30.18	100	145	Peak

Test Mode :	802.11n HT40 Chain Port 0+1	Temperature :	22~23°C
Test Channel :	09	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Horizontal
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2452	100.69	-	-	95.17	32.95	3.2	30.63	103	217	Peak
2452	89.51	-	-	83.99	32.95	3.2	30.63	103	217	Average
4904	50.43	-23.57	74	39.95	35.19	4.61	29.32	100	230	Peak
7356	49.64	-24.36	74	37.98	36.22	5.65	30.21	132	151	Peak

Test Mode :	802.11n HT40 Chain Port 0+1	Temperature :	22~23°C
Test Channel :	09	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2452	103.5	-	-	97.98	32.95	3.2	30.63	100	260	Peak
2452	92.53	-	-	87.01	32.95	3.2	30.63	100	260	Average
4904	50.35	-23.65	74	39.87	35.19	4.61	29.32	100	150	Peak
7356	49.96	-24.04	74	38.3	36.22	5.65	30.21	100	151	Peak

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.

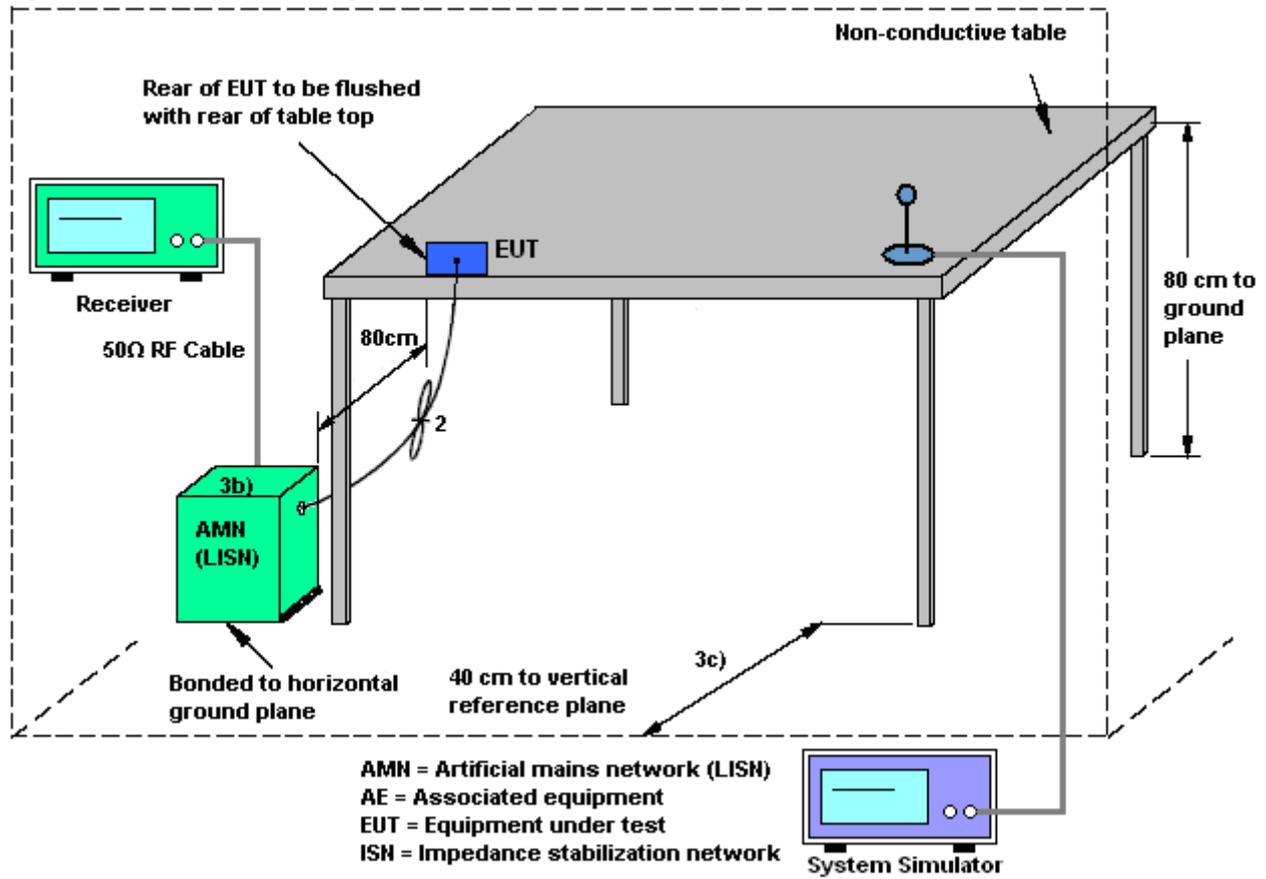
3.6.2 Measuring Instruments

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 with Maximum Hold Mode.

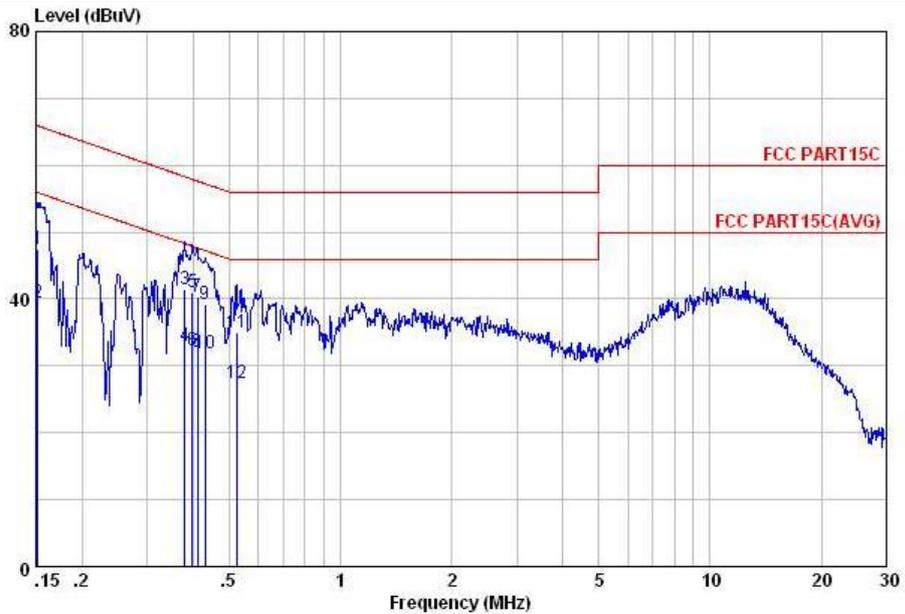
3.6.4 Test Setup





3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Harvey Tang	Relative Humidity :	47~49%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band II Idle + Lan Link + Adapter + WLAN Link + USB Link + TC + Phone		

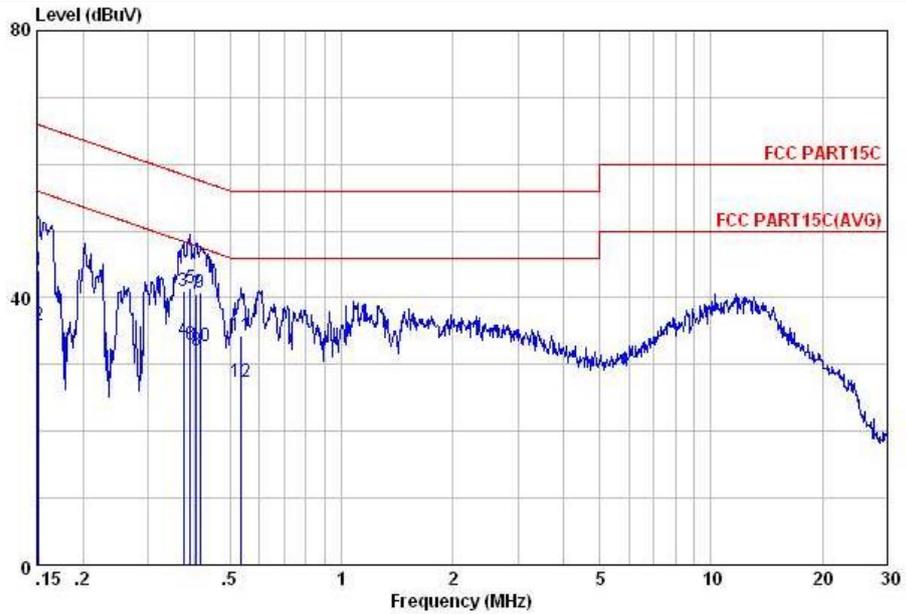


Site : C001-KS
 Condition: FCC PART15C LISN-L20130306 LINE
 Project : (FR) 300907
 mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.15	47.44	-18.47	65.91	34.80	1.93	10.71	QP
2	0.15	39.54	-16.37	55.91	26.90	1.93	10.71	Average
3	0.38	41.55	-16.75	58.30	30.89	0.36	10.30	QP
4	0.38	32.95	-15.35	48.30	22.29	0.36	10.30	Average
5	0.40	41.10	-16.80	57.90	30.50	0.32	10.28	QP
6	0.40	32.40	-15.50	47.90	21.80	0.32	10.28	Average
7	0.41	40.38	-17.26	57.64	29.80	0.30	10.28	QP
8	0.41	32.08	-15.56	47.64	21.50	0.30	10.28	Average
9	0.43	39.15	-18.09	57.24	28.60	0.27	10.28	QP
10	0.43	31.85	-15.39	47.24	21.30	0.27	10.28	Average
11	0.52	35.06	-20.94	56.00	24.60	0.20	10.26	QP
12	0.52	27.36	-18.64	46.00	16.90	0.20	10.26	Average



Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Harvey Tang	Relative Humidity :	47~49%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band II Idle + Lan Link + Adapter + WLAN Link + USB Link + TC + Phone		



Site : C001-KS
 Condition: FCC PART15C LISN-N20130306 NEUTRAL
 Project : (FR) 300907
 mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.15	44.09	-21.82	65.91	31.50	1.88	10.71	QP
2	0.15	35.99	-19.92	55.91	23.40	1.88	10.71	Average
3	0.37	40.95	-17.48	58.43	30.20	0.45	10.30	QP
4	0.37	33.55	-14.88	48.43	22.80	0.45	10.30	Average
5	0.39	41.41	-16.67	58.08	30.70	0.42	10.29	QP
6	0.39	33.01	-15.07	48.08	22.30	0.42	10.29	Average
7	0.40	40.48	-17.29	57.77	29.80	0.40	10.28	QP
8	0.40	32.08	-15.69	47.77	21.40	0.40	10.28	Average
9	0.41	40.76	-16.79	57.55	30.10	0.38	10.28	QP
10	0.41	32.86	-14.69	47.55	22.20	0.38	10.28	Average
11	0.53	34.34	-21.66	56.00	23.80	0.28	10.26	QP
12	0.53	27.44	-18.56	46.00	16.90	0.28	10.26	Average

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

Non-standard antenna connector is used.

3.7.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

For CDD transmissions, directional gain is calculated as

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k / 20}$ if the k th antenna is being fed by spatial stream j , or zero if it is not;

G_k is the gain in dBi of the k th antenna.

The EUT supports CDD mode.

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 0 Ant 1 (dBi)	Chain Port 1 Ant 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.90	2.50	5.71	5.71	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	FSP40	100319	9kHz~40GHz	Dec. 29, 2012	Nov. 29, 2013~ Dec. 02, 2013	Dec. 28, 2013	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	N/A	Feb. 28, 2013	Nov. 29, 2013~ Dec. 02, 2013	Feb. 27, 2014	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	N/A	Feb. 28, 2013	Nov. 29, 2013~ Dec. 02, 2013	Feb. 27, 2014	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 07, 2013	Nov. 26, 2013	Nov. 06, 2014	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	May 23, 2013	Nov. 26, 2013	May 22, 2014	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 07, 2012	Nov. 26, 2013	Dec. 06, 2013	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 21, 2013	Nov. 26, 2013	Oct. 20, 2014	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	75959	1GHz~18GHz	Dec. 07, 2012	Nov. 26, 2013	Dec. 06, 2013	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161069	1MHz~1GHz	May 23, 2013	Nov. 26, 2013	May 22, 2014	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A023 70	1GHz~26.5GHz	Dec. 29, 2012	Nov. 26, 2013	Dec. 28, 2013	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 06, 2013	Nov. 26, 2013	Nov. 05, 2014	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA1702 49	15GHz~40GHz	Nov. 22, 2013	Nov. 26, 2013	Nov. 21, 2014	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0 ~ 360 degree	N/A	Nov. 26, 2013	N/A	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m - 4 m	N/A	Nov. 26, 2013	N/A	Radiation (03CH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	May 23, 2013	Oct. 22, 2013	May 22, 2014	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 29, 2012	Oct. 22, 2013	Dec. 28, 2013	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	60105	9kHz~30MHz	Dec. 29, 2012	Oct. 22, 2013	Dec. 28, 2013	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000 0811	N/A	Nov. 15, 2012	Oct. 22, 2013	Nov. 14, 2013	Conduction (CO01-KS)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.26
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Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.54
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