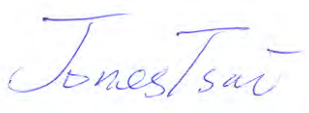
FCC RF Test Report

APPLICANT	:	Zebra Technologies Corporation
EQUIPMENT	:	Touch computer
BRAND NAME	:	Zebra
MODEL NAME	:	TC510K
FCC ID	:	UZ7TC510K
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Jun. 18, 2016 and testing was completed on Aug. 26, 2016. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager

SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR672014-01C	Rev. 01	Initial issue of report	Sep. 19, 2016

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.1	-	99% Bandwidth	-	Pass	-
3.2	15.247(b)	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	Conducted Band Edges	≤ 30dBc	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 1.02 dB at 2389.520 MHz & 2389.940 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 12.30 dB at 0.182 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Zebra Technologies Corporation
1 Zebra Plaza Holtsville, NY 11742

1.2 Manufacturer

Wistron Corporation
21F, No. 88, Sec. 1, Hsin Tai Wu Rd., Hsichih Dist, New Taipei City 221,Taiwan R.O.C.

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Touch computer
Brand Name	Zebra
Model Name	TC510K
FCC ID	UZ7TC510K
EUT supports Radios application	NFC WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
HW Version	EV2
SW Version	91-10-03-MG-00
FW Version	FUSION_BA_2.00.0.0.008
EUT Stage	Engineering sample

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

Specification of Accessories				
Adapter 1 (5V/2.5A)	**Brand Name**	Zebra	**Model Number**	SAWA-65-20005A
Adapter 2 (5V/1.2A)	**Brand Name**	Zebra	**Model Number**	PS000081A01
Headset Jumper 1	**Brand Name**	Zebra	**Part Number**	CBL-TC51-HDST25-01
Headset Jumper 2	**Brand Name**	Zebra	**Part Number**	CBL-TC51-HDST35-01
Battery	**Brand Name**	Zebra	**Part Number**	BT-000314-01
2.5mm Earphone	**Brand Name**	Zebra	**Part Number**	HDST-25MM-PTVP-01
3.5mm Earphone	**Brand Name**	Zebra	**Part Number**	HDST-35MM-PTVP-01
Trigger Handle	**Brand Name**	Zebra	**Part Number**	TRG-TC51-SNP1-01
USB cable	**Brand Name**	Zebra	**Part Number**	CBL-TC51-USB1-01
Soft Holster	**Brand Name**	Zebra	**Part Number**	SG-TC51-HLSTR1-01
Exoskeleton	**Brand Name**	Zebra	**Part Number**	SG-TC51-EX01-01
Hand strap	**Brand Name**	Zebra	**Part Number**	SG-TC51-BHDSTP1-03

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2462 MHz
Maximum (Average) Output Power to antenna <CDD Modes>	**<Ant. 1>** 802.11b : 18.78 dBm (0.0755 W) 802.11g : 17.76 dBm (0.0597 W) 802.11n HT20 : 17.54 dBm (0.0568 W) 802.11n HT40 : 14.50 dBm (0.0282 W) 802.11ac VHT20 : 17.58 dBm (0.0573 W) 802.11ac VHT40 : 14.50 dBm (0.0282 W) **<Ant. 2>** 802.11b : 18.98 dBm (0.0791 W) 802.11g : 17.94 dBm (0.0622 W) 802.11n HT20 : 17.59 dBm (0.0574 W) 802.11n HT40 : 14.73 dBm (0.0297 W) 802.11ac VHT20 : 17.71 dBm (0.0590 W) 802.11ac VHT40 : 14.90 dBm (0.0309 W) **MIMO <Ant. 1 + 2>** 802.11b : 21.78 dBm (0.1507 W) 802.11g : 20.79 dBm (0.1199 W) 802.11n HT20 : 20.82 dBm (0.1208 W) 802.11n HT40 : 17.82 dBm (0.0605 W) 802.11ac VHT20 : 20.83 dBm (0.1211 W) 802.11ac VHT40 : 17.88 dBm (0.0614 W)
Maximum (Average) Output Power to antenna <TXBF Modes>	**MIMO <Ant. 1 + 2>** 802.11n HT20 : 20.61 dBm (0.1151 W) 802.11n HT40 : 20.46 dBm (0.1112 W) 802.11ac VHT20 : 20.81 dBm (0.1205 W) 802.11ac VHT40 : 20.51 dBm (0.1125 W)
99% Occupied Bandwidth <CDD Modes>	802.11b : 12.30MHz 802.11g : 18.95MHz 802.11n HT20 : 19.75MHz 802.11n HT40 : 36.80MHz 802.11ac VHT20 : 19.75MHz 802.11ac VHT40 : 36.90MHz
99% Occupied Bandwidth <TXBF Modes>	802.11n HT20 : 19.20MHz 802.11n HT40 : 36.90MHz 802.11ac VHT20 : 19.15MHz 802.11ac VHT40 : 36.90MHz
Antenna Type / Gain	**Ant. 1 :** Loop Antenna with gain 2.50 dBi **Ant. 2 :** PIFA Antenna with gain 1.79 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Antenna Function for Transmitter	

	Ant. 1	Ant. 2
802.11 b/g/n/ac	V	V
802.11 b/g/n/ac MIMO	V	V

Note: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

1.5 Modification of EUT

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

1.6 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	**Sporton Site No.**	
	TH05-HY	CO05-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH12-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

1.7 Applicable 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 v03r05
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01
- ANSI C63.10-2013

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). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane for CDD Mode ANT 2, Z plane for CDD Mode Ant. 1 / MIMO Ant. 1+2 and TXBF MIMO Ant. 1+2) were recorded in this report.

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.

<CDD Modes>

<Ant. 1>

802.11b mode						
Power vs. Channel			Power vs. Data Rate			
Channel	Frequency (MHz)	Data Rate (bps)	Channel	Data Rate (bps)		
		1M		2M	5.5M	11M
CH 01	2412	18.48	CH 11	18.73	18.76	18.76
CH 02	2417	18.58				
CH 06	2437	18.73				
CH 10	2457	18.72				
CH 11	2462	**18.78**				

802.11g mode									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	Data Rate (bps)	Channel	Data Rate (bps)					
		6M		9M	12M	18M	24M	36M	48M	54M
CH 01	2412	15.77	CH 06	17.74	17.71	17.72	17.74	17.75	17.74	17.70
CH 02	2417	17.42								
CH 06	2437	**17.76**								
CH 10	2457	17.54								
CH 11	2462	17.75								

802.11n HT20 mode									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	MCS Index	Channel	MCS Index					
		MCS0		MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412	12.80	CH 06	17.42	17.25	17.50	17.51	17.49	17.44	17.49
CH 02	2417	17.52								
CH 06	2437	**17.54**								
CH 10	2457	16.23								
CH 11	2462	15.08								

802.11n HT40 mode									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 03	2422	11.10	CH 06	14.30	14.31	14.47	14.43	14.30	14.46	14.41
CH 04	2427	10.93								
CH 06	2437	**14.50**								
CH 08	2447	13.59								
CH 09	2452	13.90								

802.11ac VHT20 mode									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
CH 01	2412	12.90	CH 06	17.56	17.45	17.51	17.56	17.57	17.54	17.53	17.54
CH 02	2417	17.56									
CH 06	2437	**17.58**									
CH 10	2457	16.26									
CH 11	2462	15.07									

802.11ac VHT40 mode										
Power vs. Channel			Power vs. Data Rate							
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
CH 03	2422	11.13	CH 06	14.42	14.40	14.42	14.43	14.48	14.38	14.45	14.39	14.40
CH 04	2427	10.66										
CH 06	2437	**14.50**										
CH 08	2447	13.80										
CH 09	2452	14.03										

<Ant. 2>

802.11b mode						
Power vs. Channel			Power vs. Data Rate			
Channel	Frequency (MHz)	Data Rate (bps)	Channel	Data Rate (bps)		
		1M		2M	5.5M	11M
CH 01	2412	18.96	CH 06	18.97	18.97	18.97
CH 02	2417	18.94				
CH 06	2437	**18.98**				
CH 10	2457	18.89				
CH 11	2462	18.67				

802.11g mode									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	Data Rate (bps)	Channel	Data Rate (bps)					
		6M		9M	12M	18M	24M	36M	48M	54M
CH 01	2412	15.34	CH 06	17.85	17.92	17.92	17.88	17.93	17.93	17.92
CH 02	2417	17.82								
CH 06	2437	**17.94**								
CH 10	2457	17.91								
CH 11	2462	16.71								

802.11n HT20 mode									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	MCS Index	Channel	MCS Index						
		MCS0		MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412	13.19	CH 06	17.58	17.56	17.51	17.56	17.51	17.44	17.50
CH 02	2417	17.58								
CH 06	2437	**17.59**								
CH 10	2457	16.29								
CH 11	2462	14.89								

802.11n HT40 mode									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 03	2422	11.42	CH 06	14.66	14.67	14.72	14.69	14.69	14.71	14.71
CH 04	2427	11.43								
CH 06	2437	**14.73**								
CH 08	2447	13.93								
CH 09	2452	13.93								

802.11ac VHT20 mode									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
CH 01	2412	13.62	CH 06	17.63	17.51	17.63	17.60	17.61	17.61	17.64	17.64
CH 02	2417	17.65									
CH 06	2437	**17.71**									
CH 10	2457	16.27									
CH 11	2462	15.16									

802.11ac VHT40 mode										
Power vs. Channel			Power vs. Data Rate							
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
CH 03	2422	11.70	CH 06	14.88	14.89	14.85	14.88	14.89	14.87	14.82	14.87	14.88
CH 04	2427	11.37										
CH 06	2437	**14.90**										
CH 08	2447	14.19										
CH 09	2452	14.03										

MIMO <Ant. 1+2>

802.11b mode						
Power vs. Channel			Power vs. Data Rate			
Channel	Frequency (MHz)	Data Rate (bps)	Channel	Data Rate (bps)		
		1M		2M	5.5M	11M
CH 01	2412	21.72	CH 06	21.75	21.74	21.74
CH 02	2417	21.65				
CH 06	2437	**21.78**				
CH 10	2457	21.75				
CH 11	2462	21.76				

802.11g mode									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	Data Rate (bps)	Channel	Data Rate (bps)					
		6M		9M	12M	18M	24M	36M	48M	54M
CH 01	2412	16.98	CH 06	20.77	20.76	20.77	20.78	20.72	20.74	20.74
CH 02	2417	20.45								
CH 06	2437	**20.79**								
CH 10	2457	19.74								
CH 11	2462	19.14								

802.11n HT20 mode									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	MCS Index	Channel	MCS Index						
		MCS0		MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412	16.18	CH 06	20.77	20.77	20.79	20.79	20.75	20.75	20.76
CH 02	2417	20.81								
CH 06	2437	**20.82**								
CH 10	2457	19.31								
CH 11	2462	18.12								

802.11n HT40 mode										
Power vs. Channel			Power vs. Data Rate							
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 03	2422	14.45	CH 06	17.76	17.70	17.72	17.73	17.75	17.75	17.80
CH 04	2427	14.28								
CH 06	2437	**17.82**								
CH 08	2447	16.85								
CH 09	2452	17.15								

802.11ac VHT20 mode										
Power vs. Channel			Power vs. Data Rate							
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
CH 01	2412	16.36	CH 06	20.80	20.69	20.73	20.81	20.79	20.70	20.70	20.71
CH 02	2417	20.82									
CH 06	2437	**20.83**									
CH 10	2457	19.47									
CH 11	2462	18.17									

802.11ac VHT40 mode											
Power vs. Channel			Power vs. Data Rate								
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
CH 03	2422	14.61	CH 06	17.87	17.84	17.85	17.87	17.85	17.87	17.84	17.87	17.86
CH 04	2427	14.47										
CH 06	2437	**17.88**										
CH 08	2447	17.04										
CH 09	2452	17.21										

Note: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

<TXBF Modes>

MIMO <Ant. 1+2>

802.11n HT20 mode										
Power vs. Channel			Power vs. Data Rate							
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412	18.11	CH 06	20.51	20.51	20.51	20.41	20.51	20.51	20.51
CH 02	2417	**20.61**								
CH 06	2437	**20.61**								
CH 10	2457	20.56								
CH 11	2462	19.06								

802.11n HT40 mode										
Power vs. Channel			Power vs. Data Rate							
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 03	2422	18.71	CH 06	20.36	20.31	20.31	20.21	20.31	20.31	20.31
CH 04	2427	19.86								
CH 06	2437	**20.46**								
CH 08	2447	17.41								
CH 09	2452	18.37								

802.11ac VHT20 mode										
Power vs. Channel			Power vs. Data Rate							
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
CH 01	2412	18.26	CH 06	20.71	20.71	20.71	20.66	20.71	20.66	20.71	20.71
CH 02	2417	20.76									
CH 06	2437	**20.81**									
CH 10	2457	20.71									
CH 11	2462	19.16									

802.11ac VHT40 mode											
Power vs. Channel			Power vs. Data Rate								
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS Index MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
CH 03	2422	18.76	CH 06	20.41	20.41	20.41	20.41	20.31	20.41	20.41	20.41	20.41
CH 04	2427	19.91										
CH 06	2437	**20.51**										
CH 08	2447	17.46										
CH 09	2452	18.52										

Note: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

2.3 Test Mode

Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates from the power table described in section 2.2.

Single Antenna

Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0

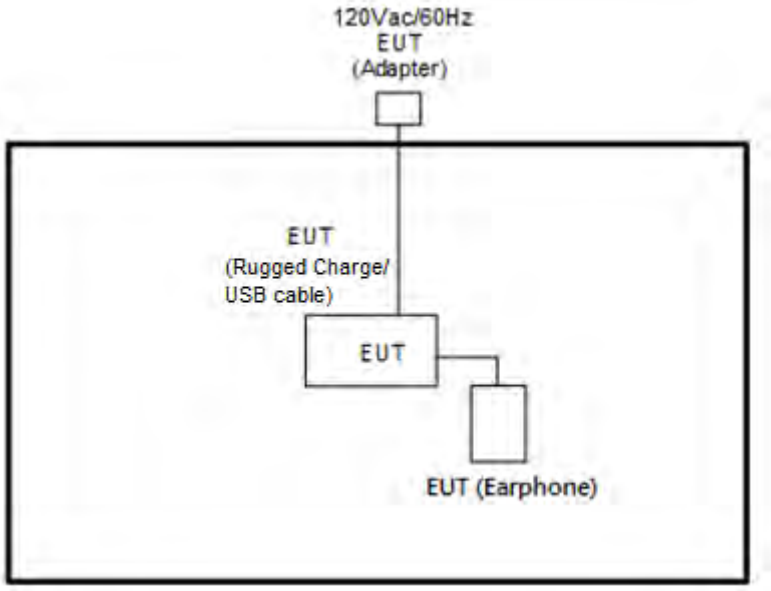
MIMO Antenna

Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0

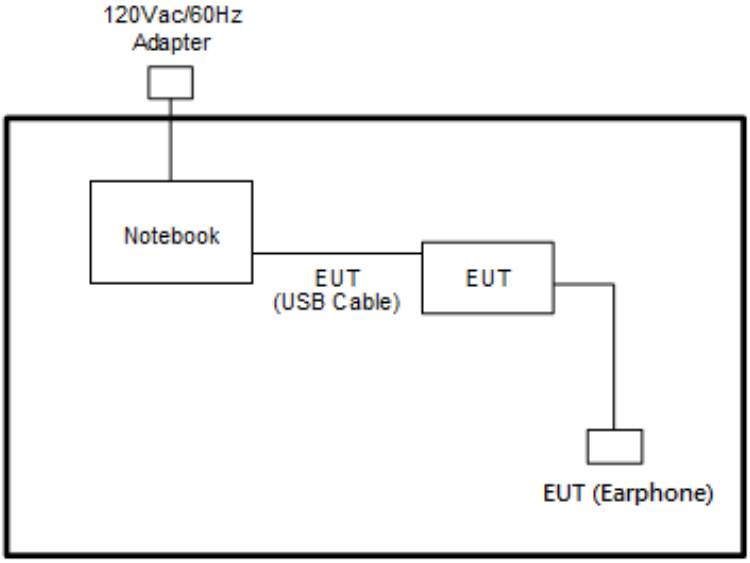
Test Cases	
AC Conducted Emission	Mode 1 :WLAN (2.4GHz) Link + Bluetooth Link + Battery + Scanner + without Exoskeleton + Headset Jumper (CBL-TC51-HDST25-01) + Earphone (HDST-25MM-PTVP-01) + Rugged Charge/USB Cable + Adapter 1 (SAWA-65-20005A (5V/2.5A))

2.4 Connection Diagram of Test System

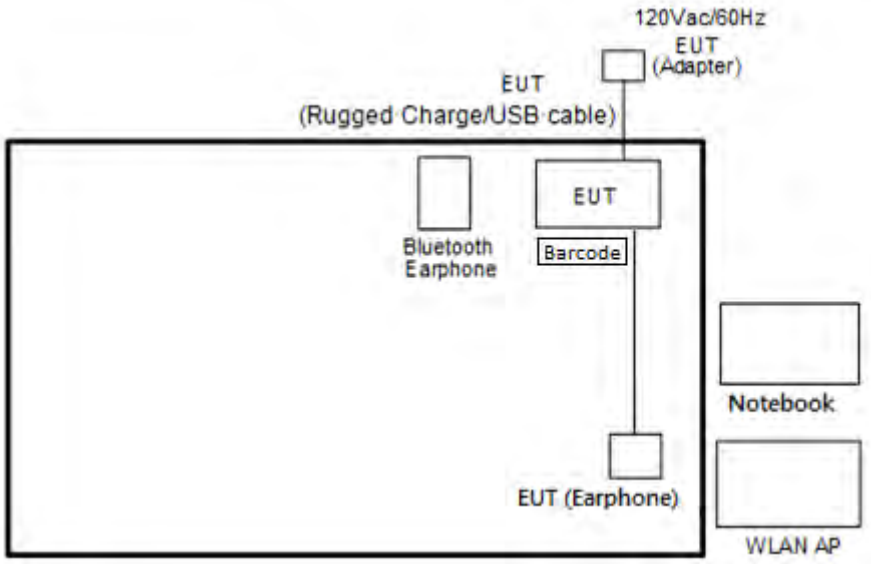
<WLAN Tx CDD Mode>



<WLAN Tx TXBF 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.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
2.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Notebook	Lenovo	M490S(E330)	QDS-BRCM1063	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A
6.	Touch computer	Zebra	TC510K	UZ7TC510K	N/A	N/A

2.6 EUT Operation Test Setup

For WLAN CDD modes, programmed RF utility, “CMD” installed in the notebook make the EUT provide functions like channel selection and power level for continuous transmitting and receiving signals.

For WLAN MIMO TXBF modes, the EUT was tested under normal operation and link to another device with power, modulation modes and data rates controlled by engineer mode command lines. The “CMD” software tool was used to make EUT continuous transmitting signals.

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 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

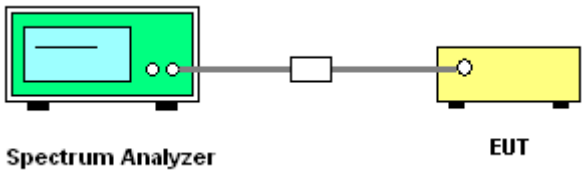
3.1.2 Measuring Instruments

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 v03r05.
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. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 1MHz and set the Video bandwidth (VBW) = 3MHz.
6. Measure and record the results in the test report.

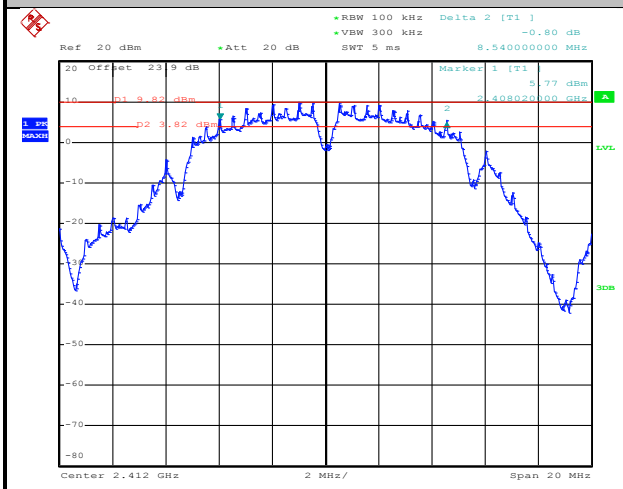
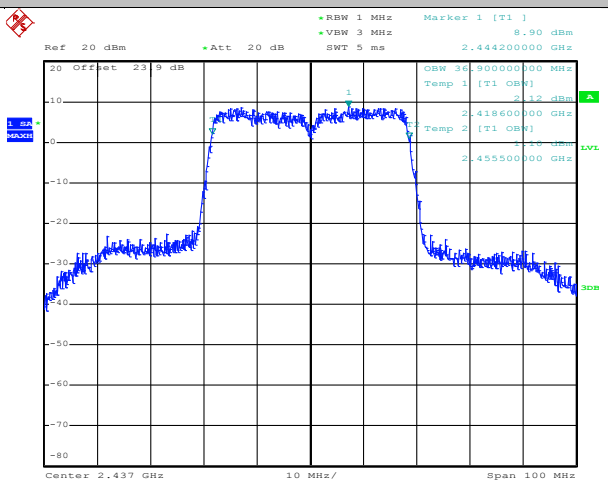
3.1.4 Test Setup



3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

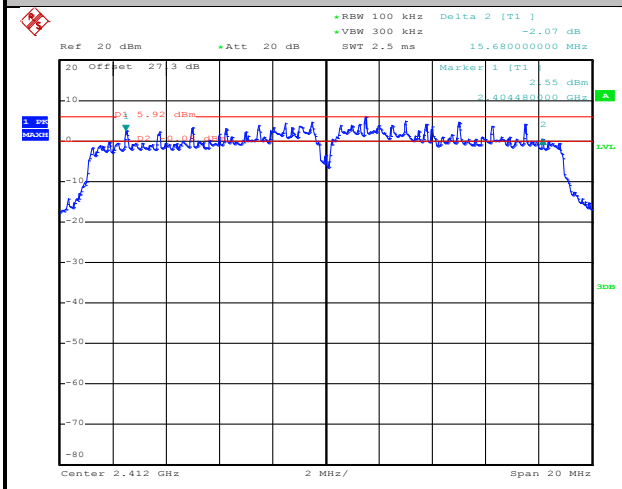
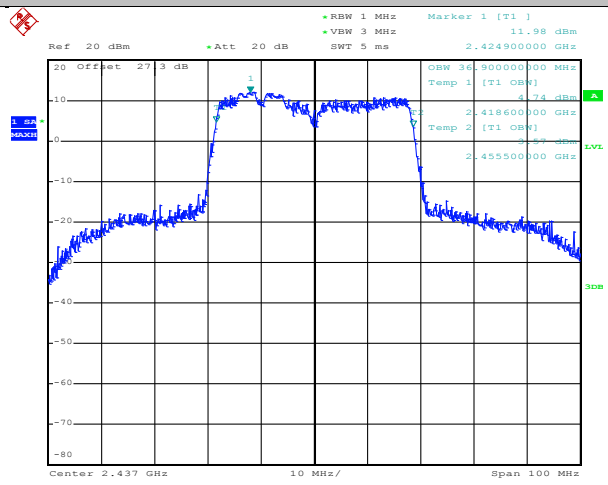
Please refer to Appendix A.

<CDD Modes>

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	
Date: 17.JUL.2016 14:29:12	Date: 22.JUL.2016 15:19:41

Note : The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

<TXBF Modes>

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	
Date: 28.JUL.2016 15:01:19	Date: 28.JUL.2016 16:24:23

Note : The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the 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

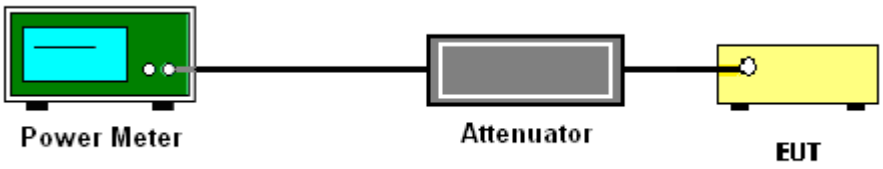
CDD Modes

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r05 section 9.2.3.1 Method AVGPM.
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.

TXBF Modes

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r05 section 9.2.3.2 Method AVGPM-G.
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 (Reporting Only)

Please refer to Appendix A.

3.2.6 Test Result of Average output Power

Please refer to Appendix A.

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

CDD Modes

Method AVGPSD-2

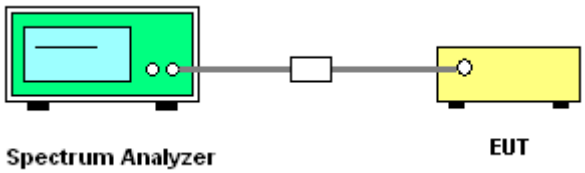
1. The testing follows Measurement Procedure 10.5 Method AVGPSD-2 of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 10 kHz. Video bandwidth VBW = 30 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW).
5. Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins).
6. Detector = RMS, Sweep time = auto couple.
7. Trace average at least 100 traces in power averaging mode.
8. Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.
9. Measure and record the results in the test report.For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
   Method (c): Measure and add 10 log(N_{ANT}) dB.
   With this technique, spectrum measurements are performed at each output of the device, but rather than summing the spectra or the spectral peaks across the outputs, the quantity 10 log(N_{ANT}) dB is added to each spectrum value before comparing to the emission limit. The addition of 10 log(N_{ANT}) dB serves to apportion the emission limit among the N_{ANT} outputs so that each output is permitted to contribute no more than $1/N_{ANT}$ th of the PSD limit .

TXBF Modes

Method AVGPSD-3

1. The testing follows Measurement Procedure 10.7 Method AVGPSD-3 of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05.
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) = 10 kHz. Video bandwidth VBW = 30 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW).
5. Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins).
6. Detector = RMS, Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.
9. Measure and record the results in the test report.For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
   Method (c): Measure and add 10 log(N_{ANT}) dB.
   With this technique, spectrum measurements are performed at each output of the device, but rather than summing the spectra or the spectral peaks across the outputs, the quantity 10 log(N_{ANT}) dB is added to each spectrum value before comparing to the emission limit. The addition of 10 log(N_{ANT}) dB serves to apportion the emission limit among the N_{ANT} outputs so that each output is permitted to contribute no more than $1/N_{ANT}$ th of the PSD limit .

3.3.4 Test Setup

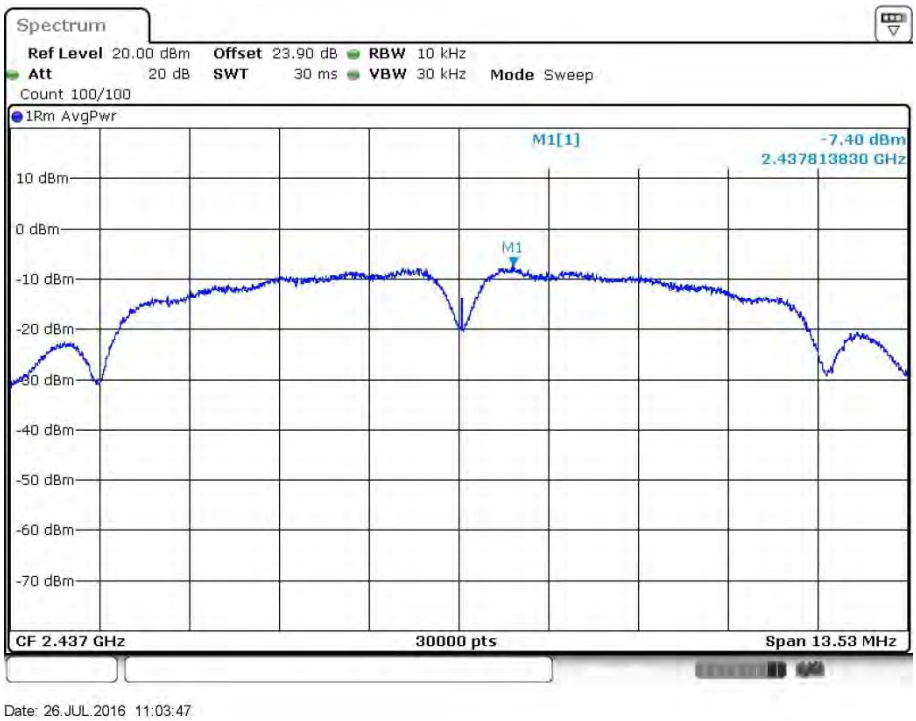


3.3.5 Test Result of Power Spectral Density

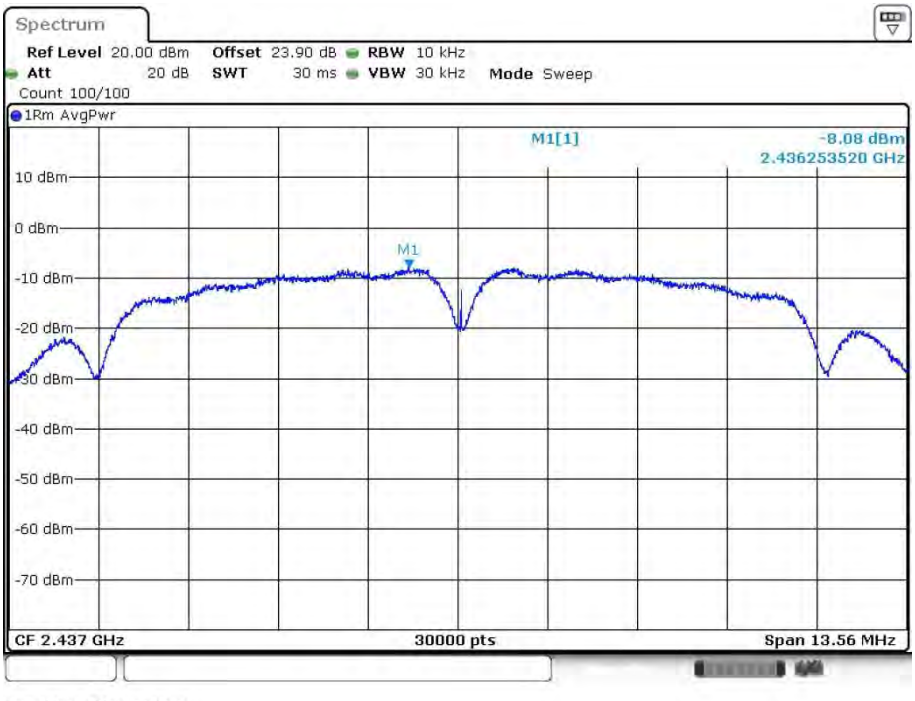
Please refer to Appendix A.

<CDD Modes>

Worst Case Power Density (dBm/3kHz) for MIMO Ant. 1

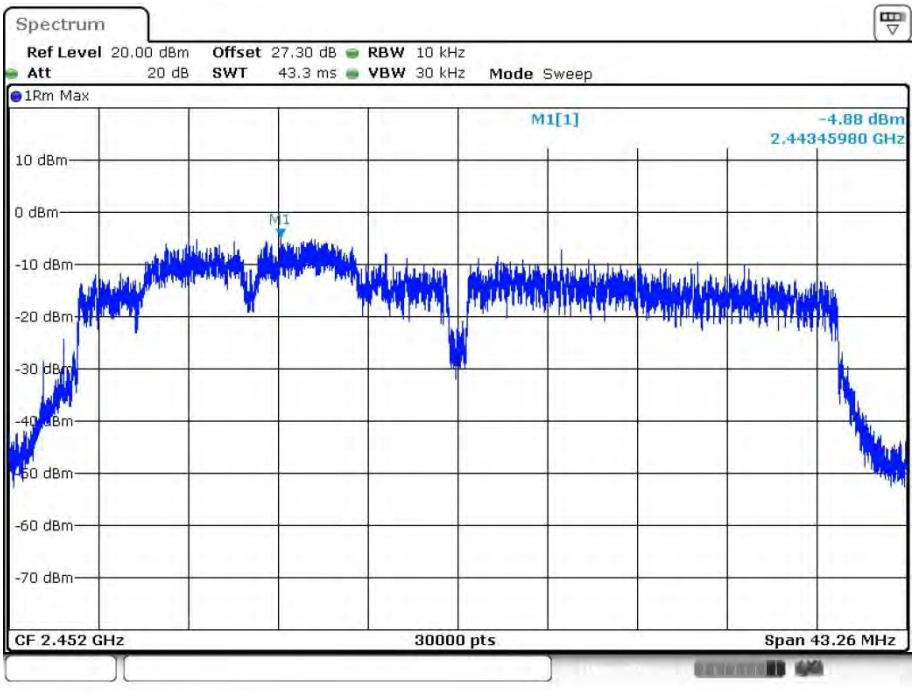


Worst Case Power Density (dBm/3kHz) for MIMO Ant. 2

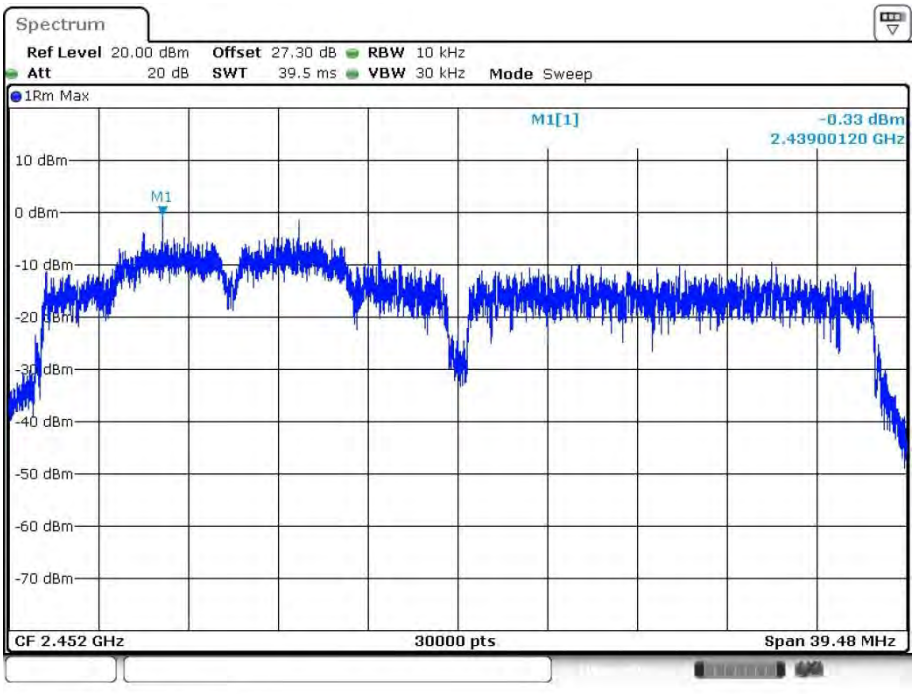


<TXBF Modes>

Worst Case Power Density (dBm/3kHz) for MIMO Ant. 1



Worst Case Power Density (dBm/3kHz) for MIMO Ant. 2



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).

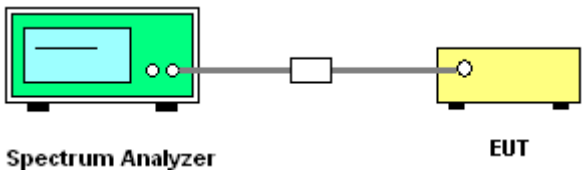
3.4.2 Measuring Instruments

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 v03r05.
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

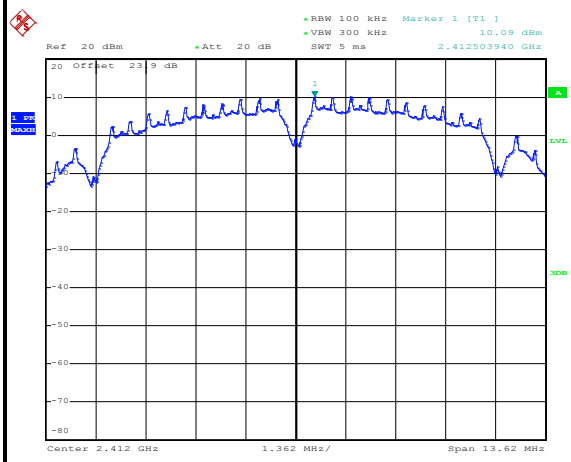
<CDD Modes>

Number of TX = 1, Ant. 1 (Measured)

Number of TX	1	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

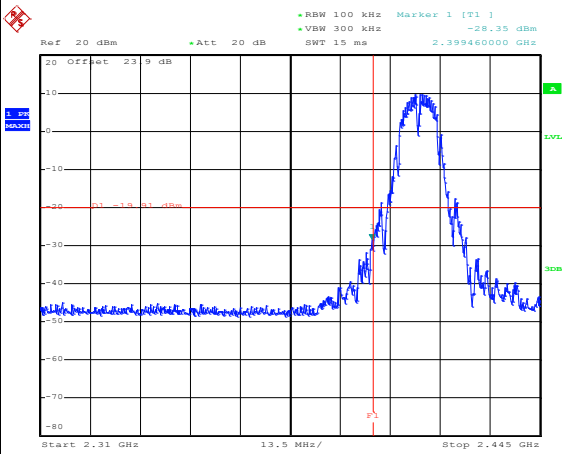
WLAN 802.11b Channel 01

100kHz PSD reference Level



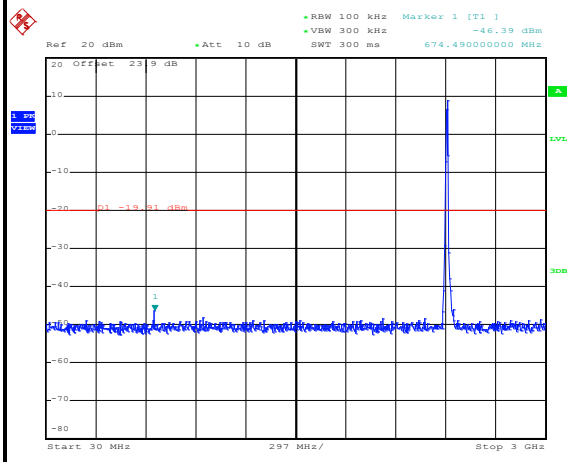
Date: 22.JUL.2016 15:53:09

Low Channel Plot



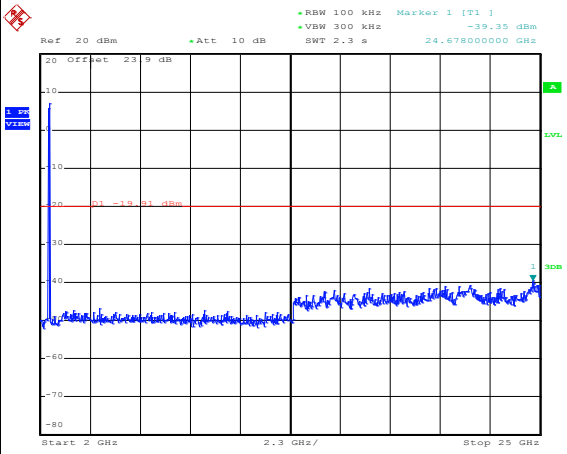
Date: 22.JUL.2016 15:54:23

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 15:54:53

Spurious Emission 2GHz~25GHz

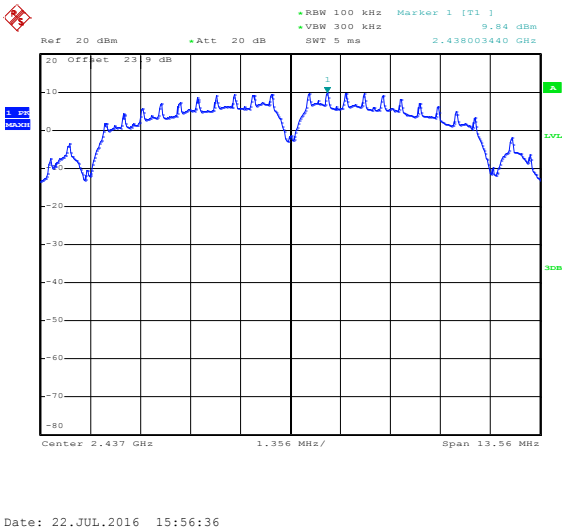


Date: 22.JUL.2016 15:55:02

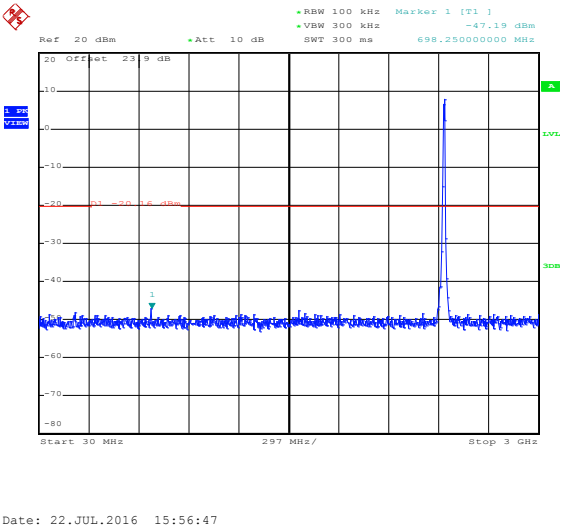
Number of TX :	1	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11b Channel 06

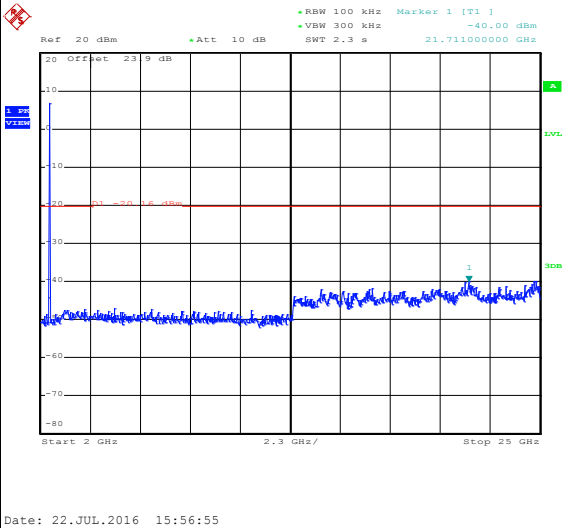
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



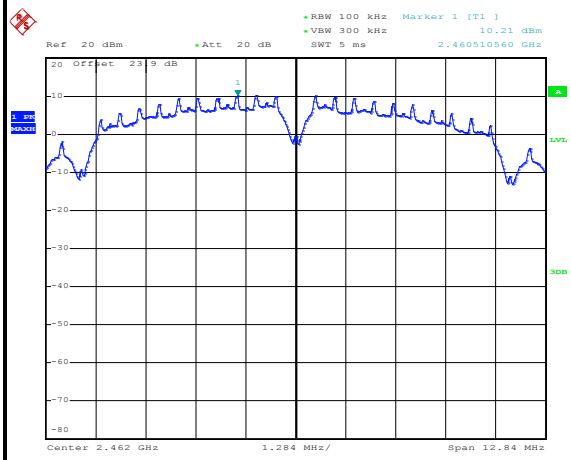
Spurious Emission 2GHz~25GHz



Number of TX :	1	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

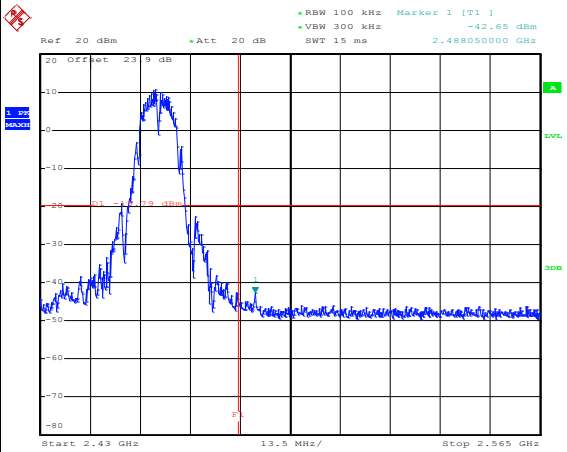
WLAN 802.11b Channel 11

100kHz PSD reference Level



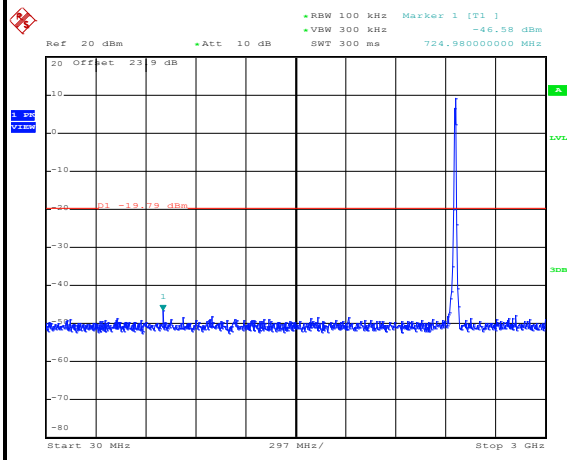
Date: 22.JUL.2016 15:58:33

High Channel Plot



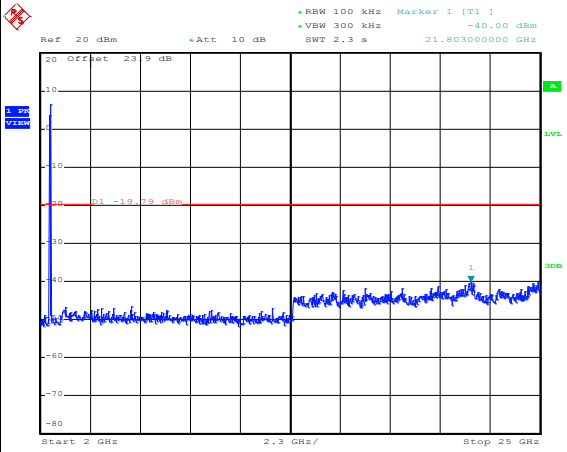
Date: 22.JUL.2016 15:59:04

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 15:59:16

Spurious Emission 2GHz~25GHz

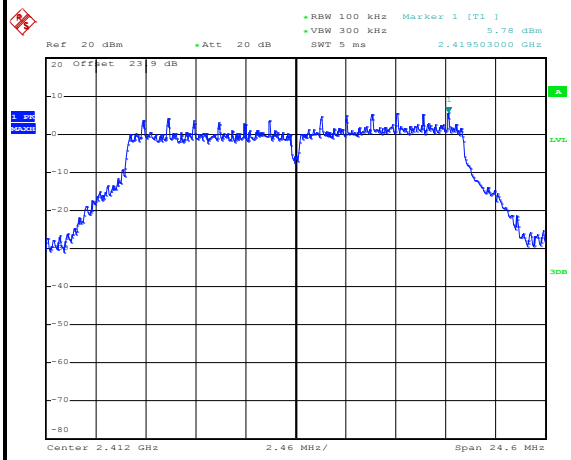


Date: 22.JUL.2016 15:59:24

Number of TX :	1	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

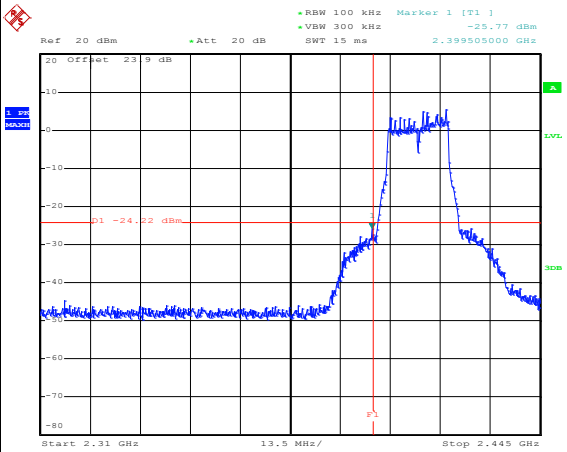
WLAN 802.11g Channel 01

100kHz PSD reference Level



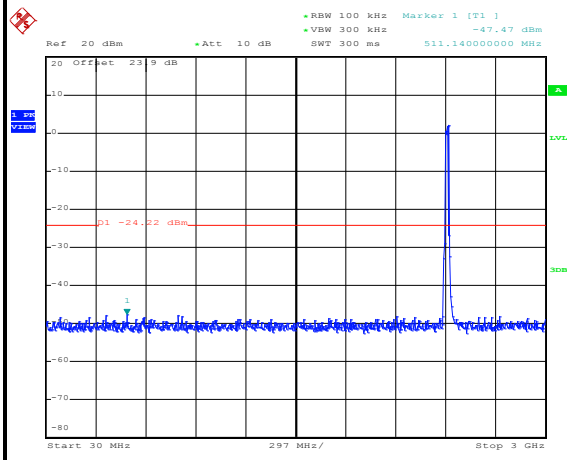
Date: 22.JUL.2016 16:29:48

Low Channel Plot



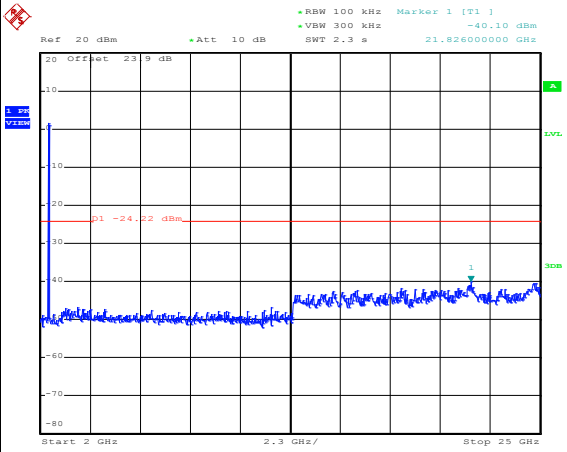
Date: 22.JUL.2016 16:30:04

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 16:30:16

Spurious Emission 2GHz~25GHz

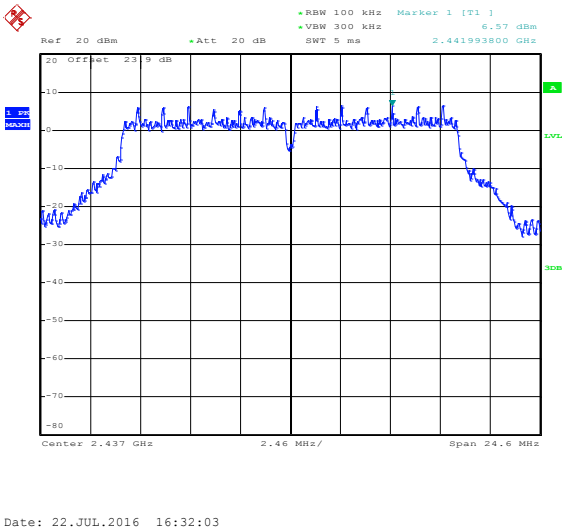


Date: 22.JUL.2016 16:30:25

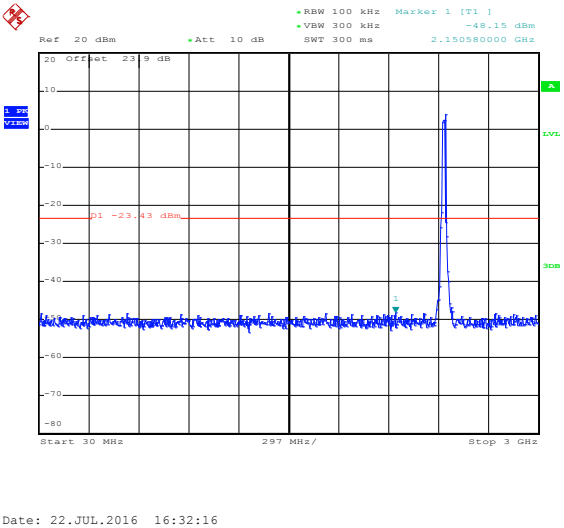
Number of TX :	1	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11g Channel 06

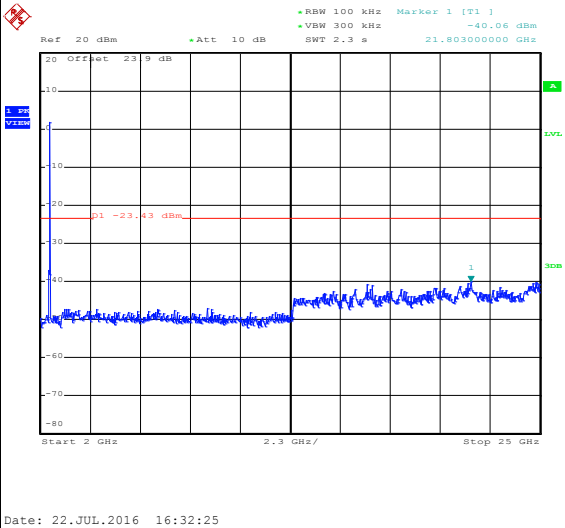
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



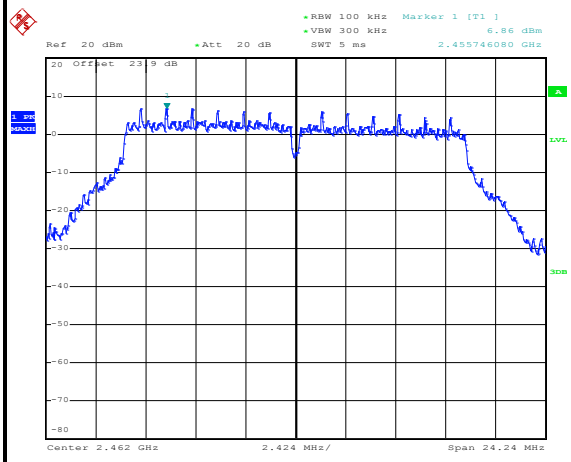
Spurious Emission 2GHz~25GHz



Number of TX :	1	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

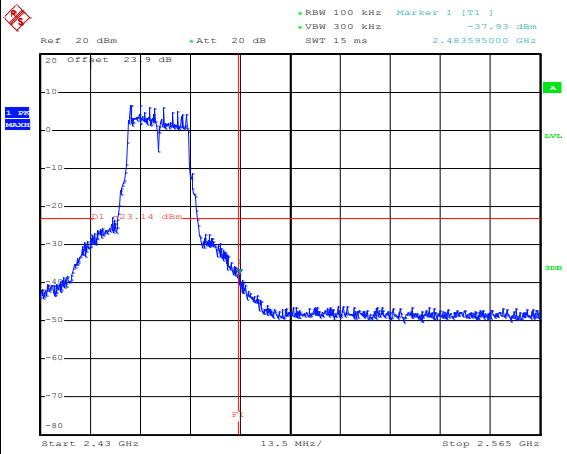
WLAN 802.11g Channel 11

100kHz PSD reference Level



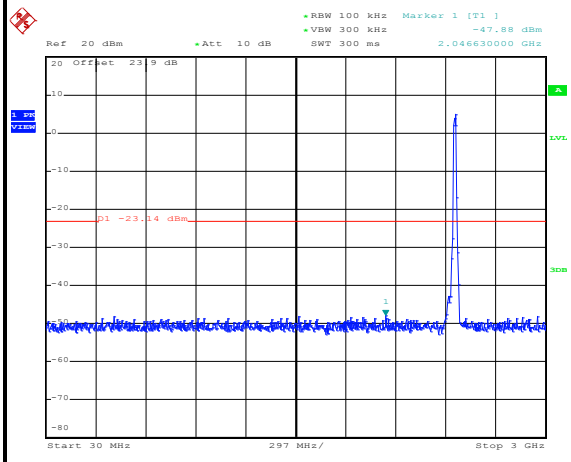
Date: 22.JUL.2016 16:34:26

High Channel Plot



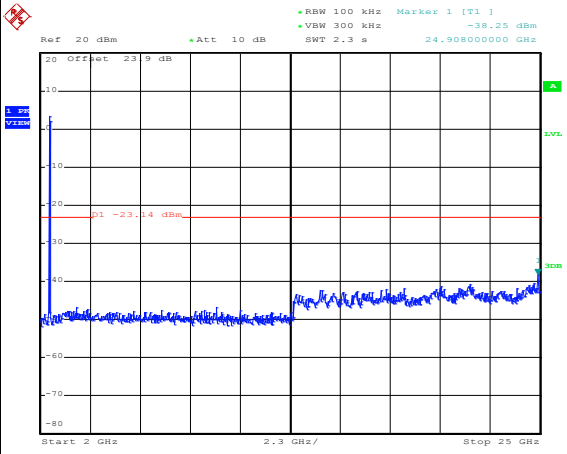
Date: 22.JUL.2016 16:34:39

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 16:34:54

Spurious Emission 2GHz~25GHz



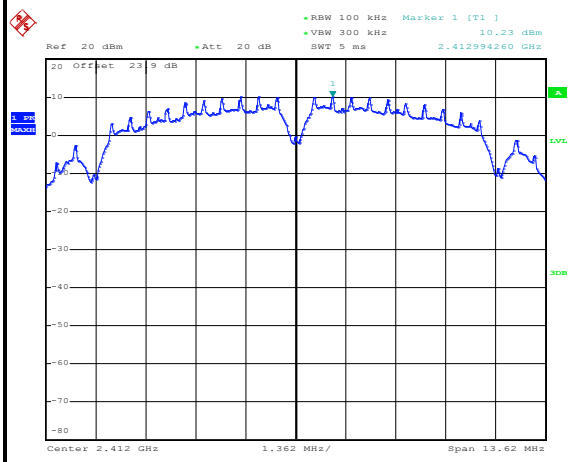
Date: 22.JUL.2016 16:35:02

Number of TX = 1, Ant. 2 (Measured)

Number of TX	1	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

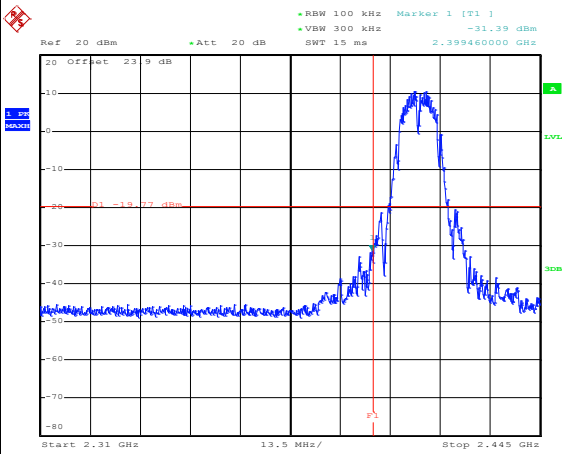
WLAN 802.11b Channel 01

100kHz PSD reference Level



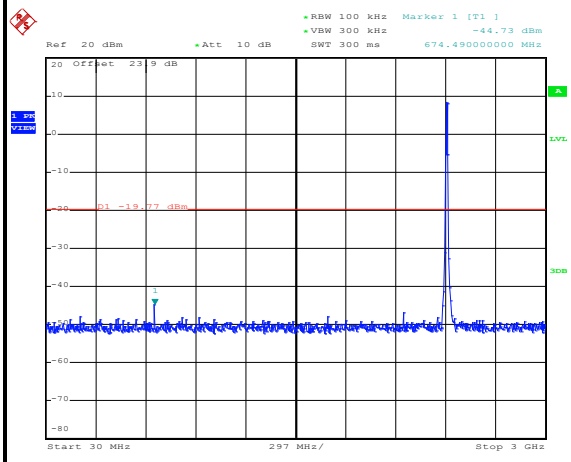
Date: 22.JUL.2016 16:06:49

Low Channel Plot



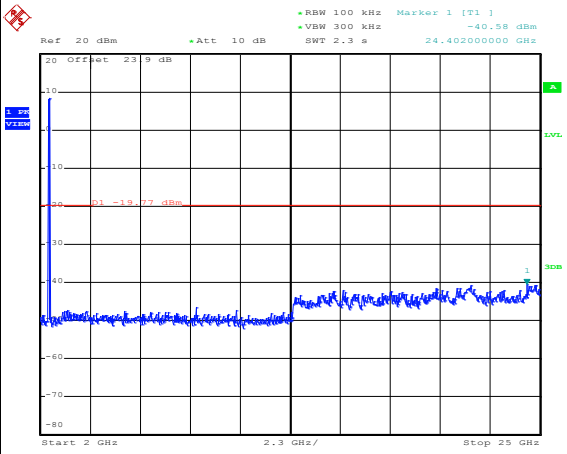
Date: 22.JUL.2016 16:07:42

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 16:08:21

Spurious Emission 2GHz~25GHz

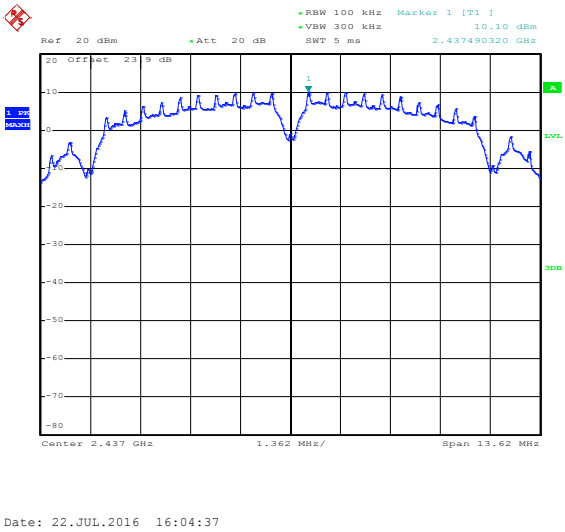


Date: 22.JUL.2016 16:08:29

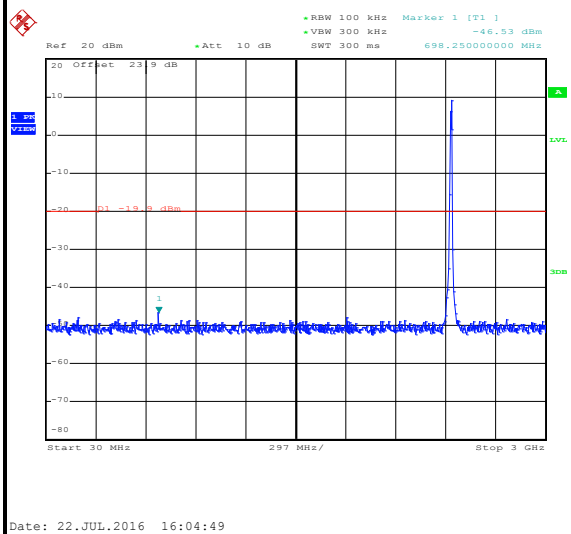
Number of TX :	1	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11b Channel 06

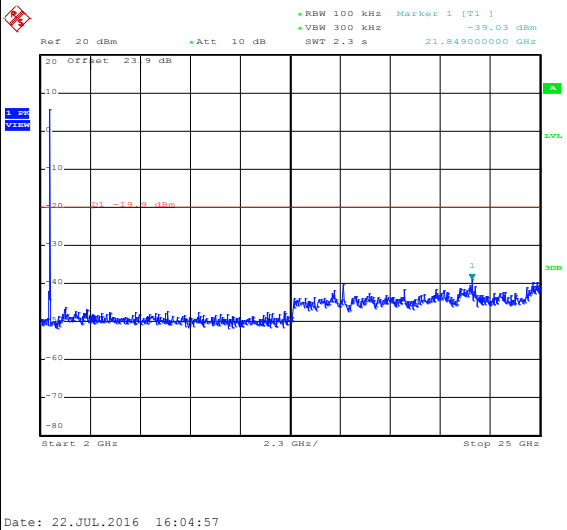
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



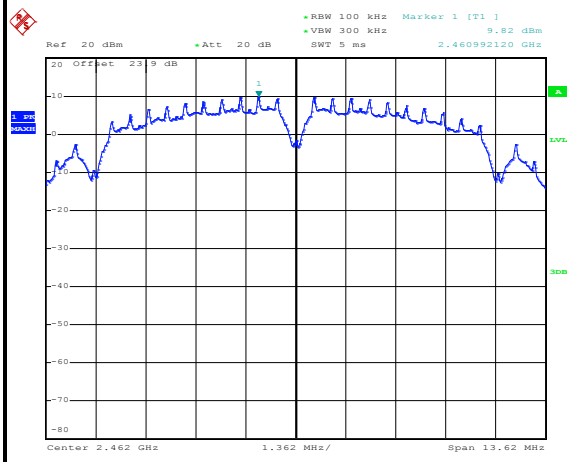
Spurious Emission 2GHz~25GHz



Number of TX :	1	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

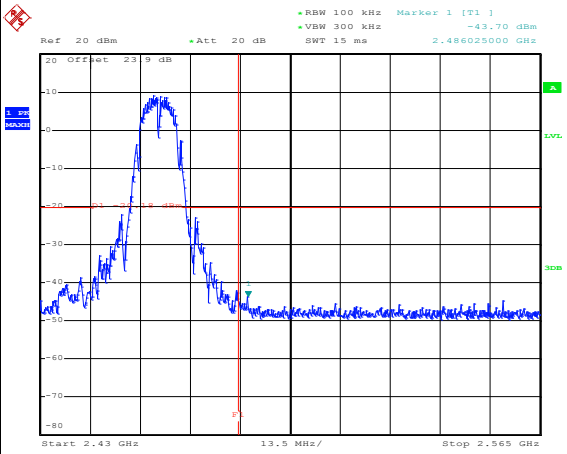
WLAN 802.11b Channel 11

100kHz PSD reference Level



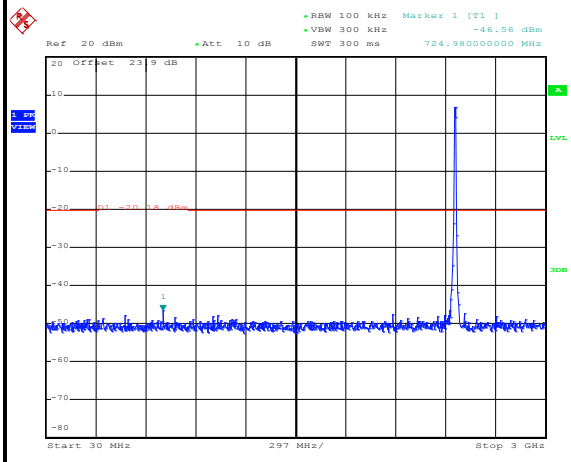
Date: 22.JUL.2016 16:01:22

High Channel Plot



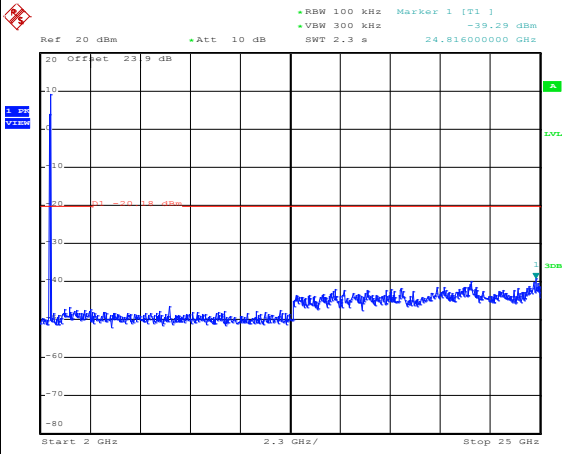
Date: 22.JUL.2016 16:02:19

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 16:02:47

Spurious Emission 2GHz~25GHz

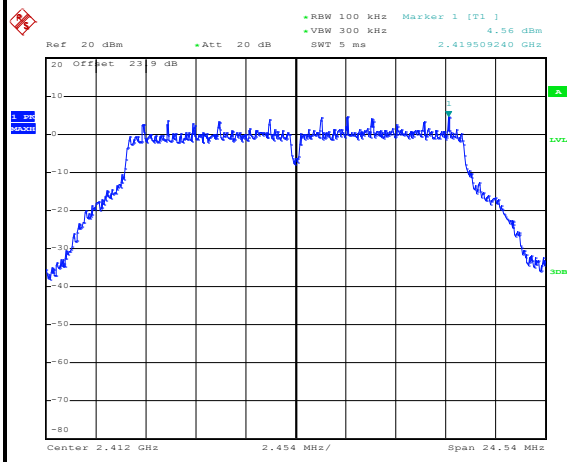


Date: 22.JUL.2016 16:02:55

Number of TX :	1	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

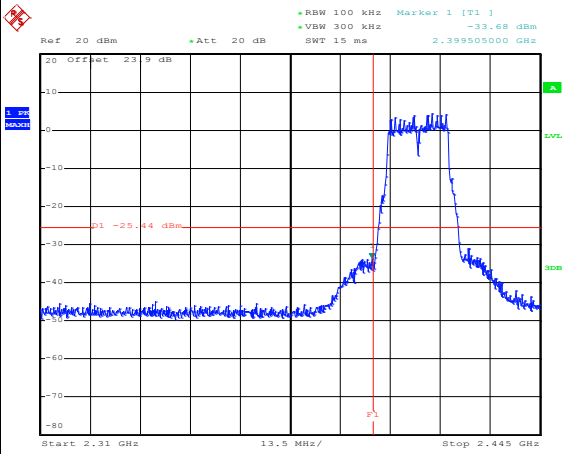
WLAN 802.11g Channel 01

100kHz PSD reference Level



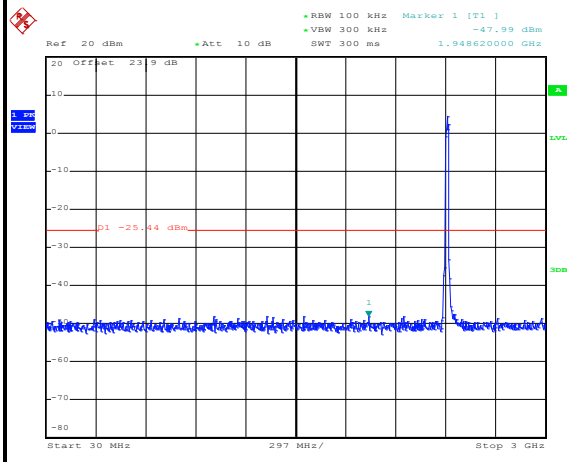
Date: 22.JUL.2016 16:44:41

Low Channel Plot



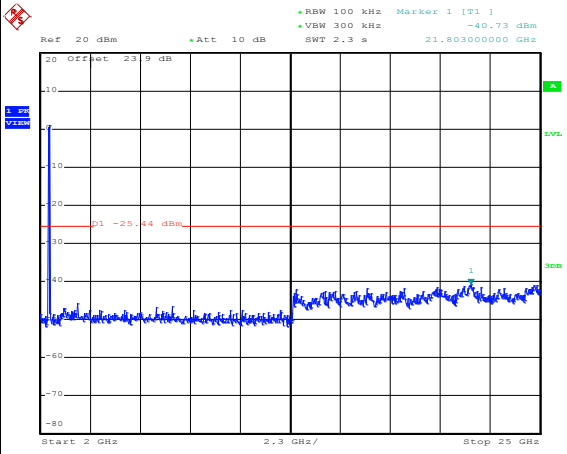
Date: 22.JUL.2016 16:44:59

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 16:45:13

Spurious Emission 2GHz~25GHz

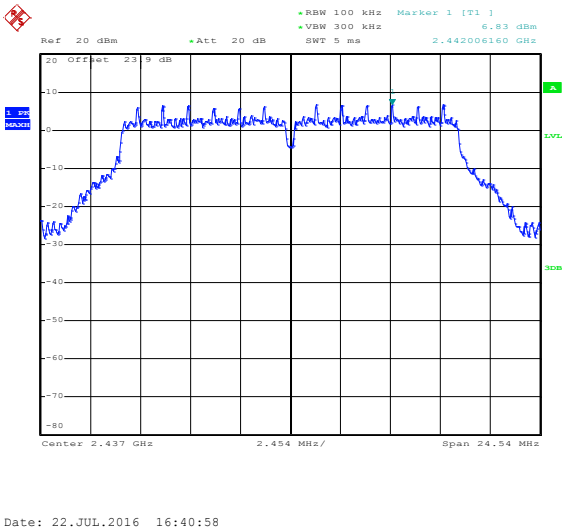


Date: 22.JUL.2016 16:45:21

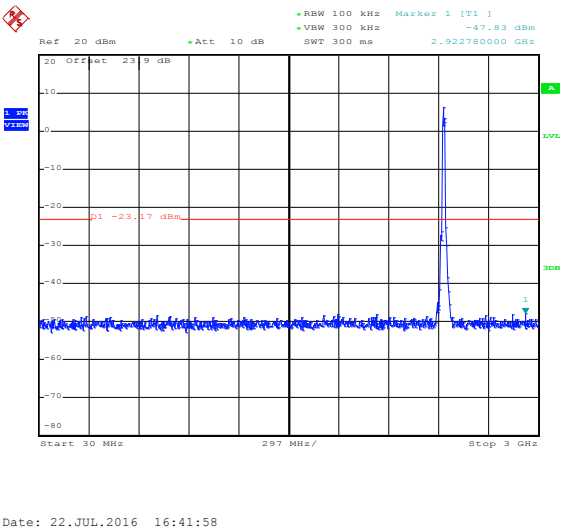
Number of TX :	1	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11g Channel 06

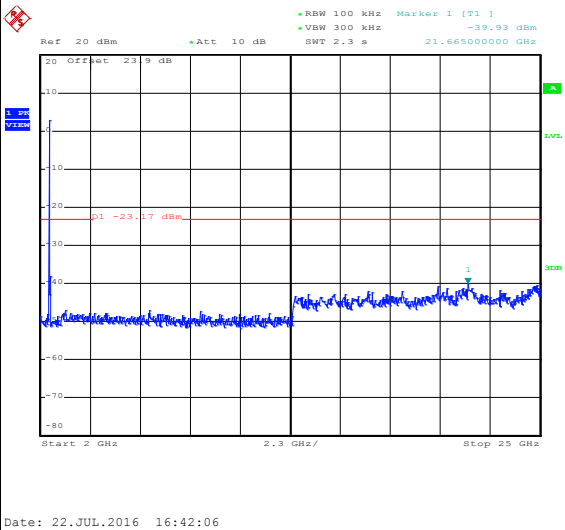
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



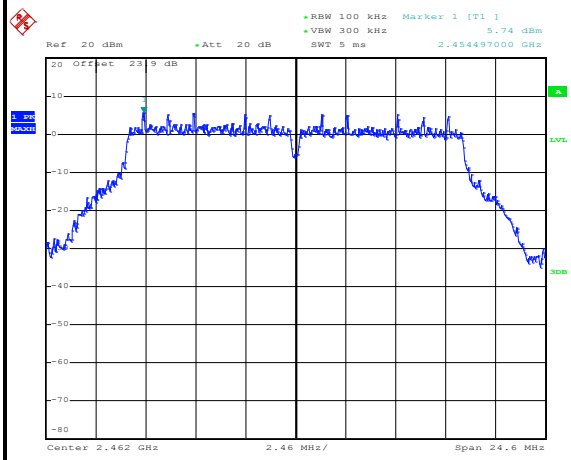
Spurious Emission 2GHz~25GHz



Number of TX :	1	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

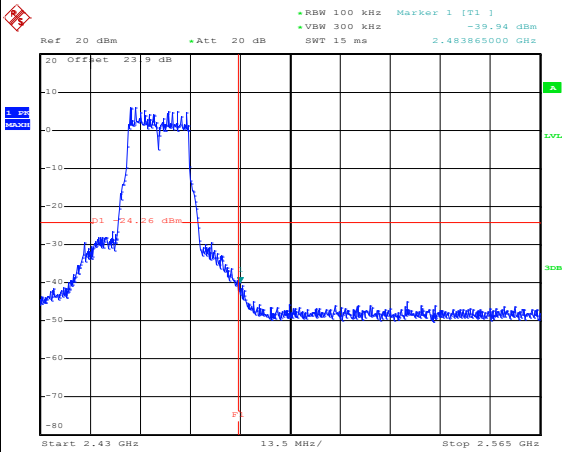
WLAN 802.11g Channel 11

100kHz PSD reference Level



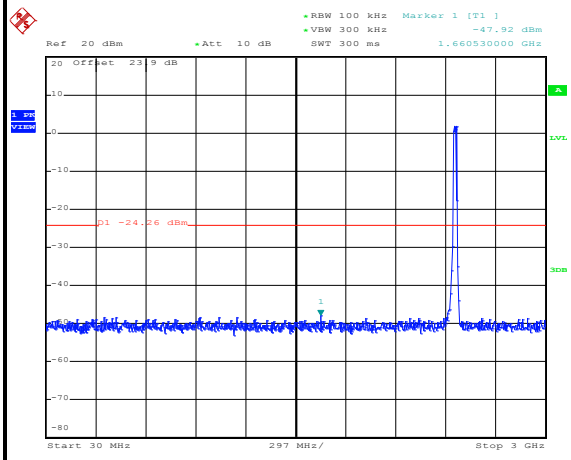
Date: 22.JUL.2016 16:37:56

High Channel Plot



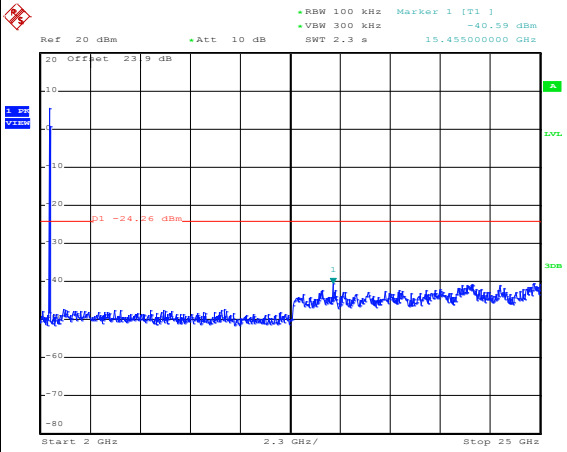
Date: 22.JUL.2016 16:38:11

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 16:38:44

Spurious Emission 2GHz~25GHz



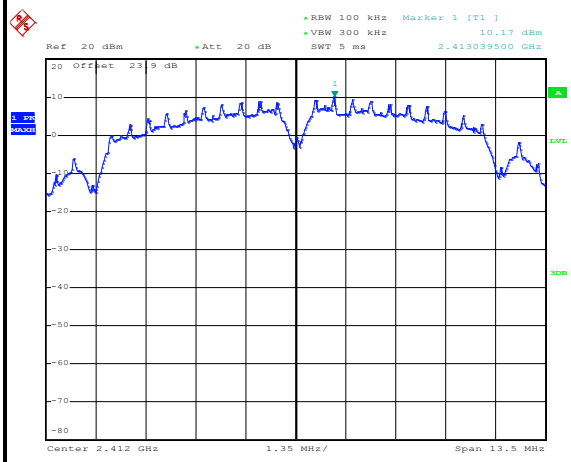
Date: 22.JUL.2016 16:38:52

Number of TX = 2, Ant. 1 (Measured)

Number of TX	2	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

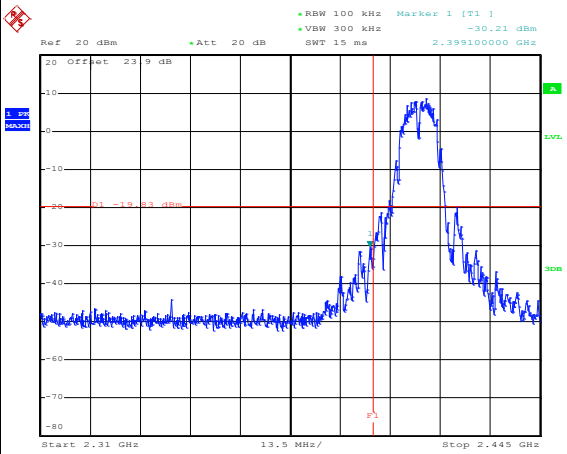
WLAN 802.11b Channel 01

100kHz PSD reference Level



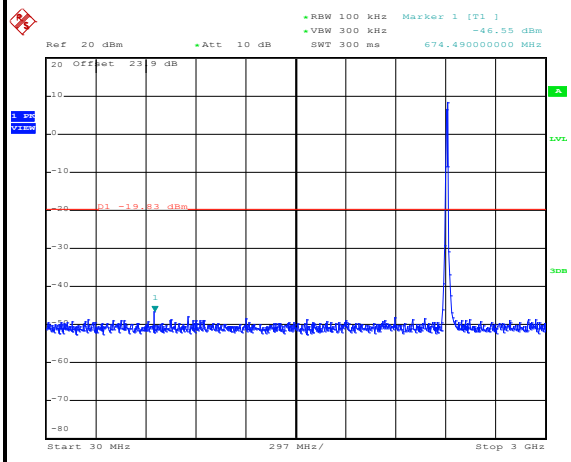
Date: 17.JUL.2016 14:27:20

Low Channel Plot



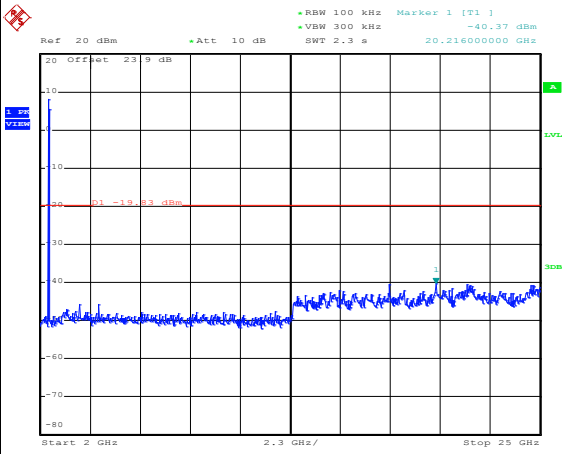
Date: 17.JUL.2016 14:27:38

Spurious Emission 30MHz~3GHz



Date: 17.JUL.2016 14:27:56

Spurious Emission 2GHz~25GHz

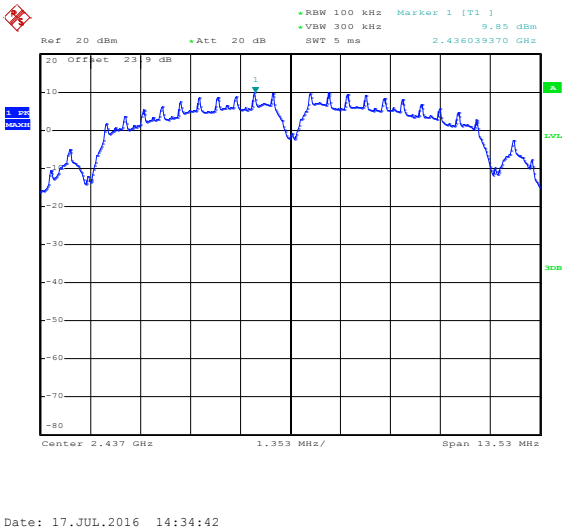


Date: 17.JUL.2016 14:28:05

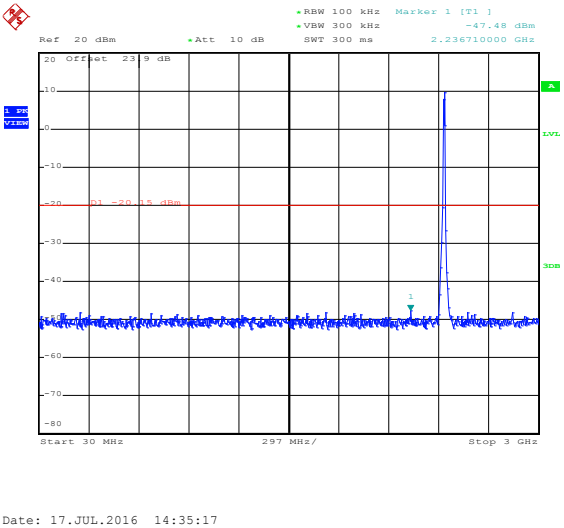
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11b Channel 06

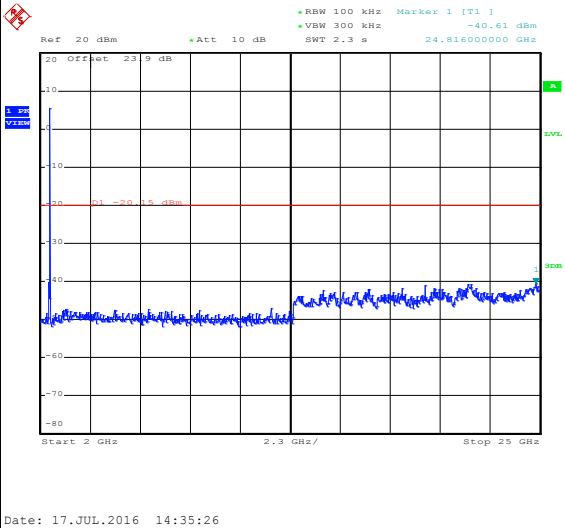
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



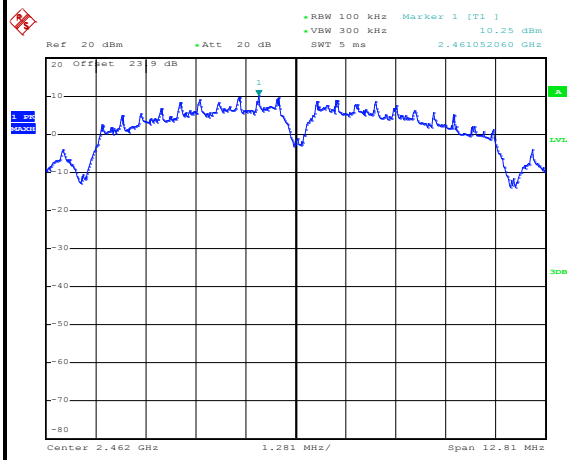
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

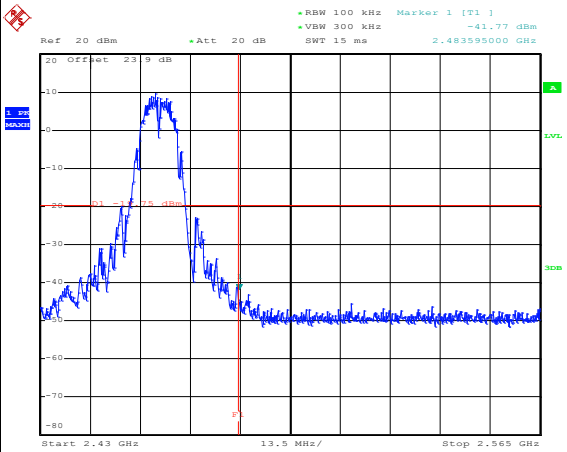
WLAN 802.11b Channel 11

100kHz PSD reference Level



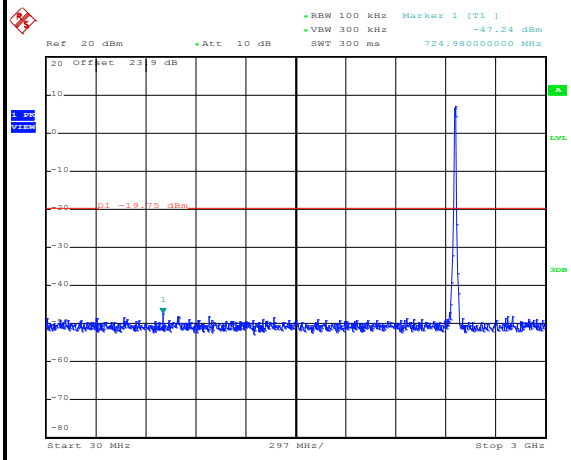
Date: 17.JUL.2016 14:45:10

High Channel Plot



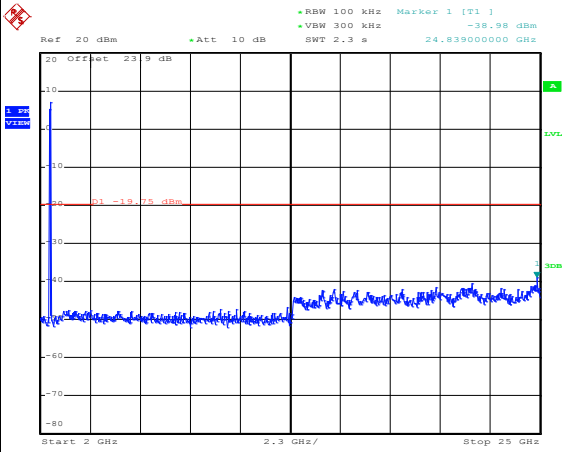
Date: 17.JUL.2016 14:45:19

Spurious Emission 30MHz~3GHz



Date: 17.JUL.2016 14:45:31

Spurious Emission 2GHz~25GHz

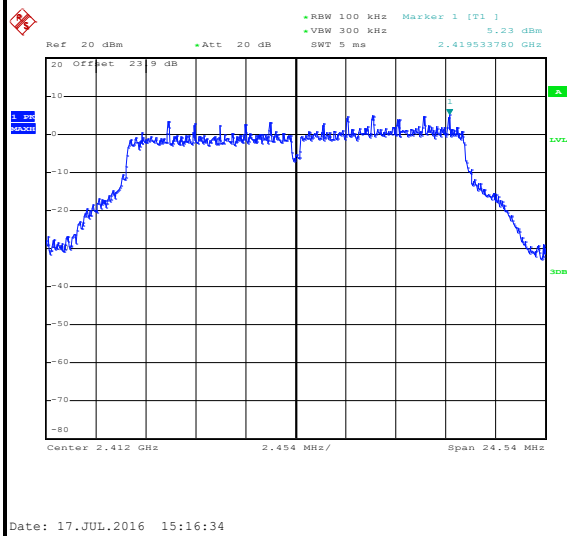


Date: 17.JUL.2016 14:45:39

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

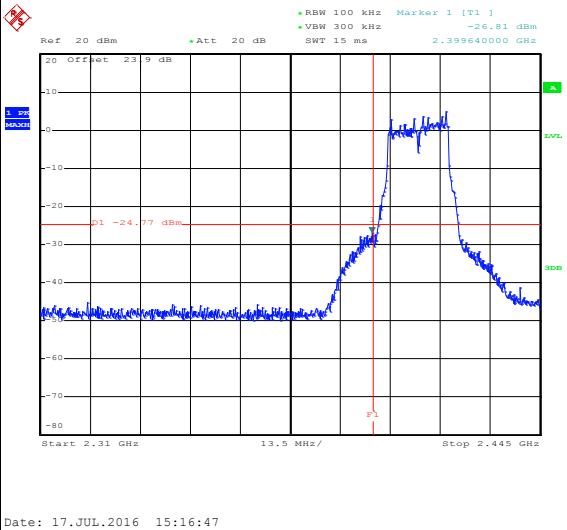
WLAN 802.11g Channel 01

100kHz PSD reference Level



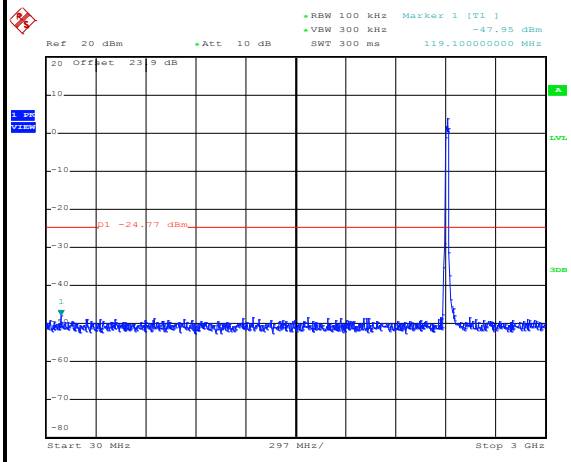
Date: 17.JUL.2016 15:16:34

Low Channel Plot



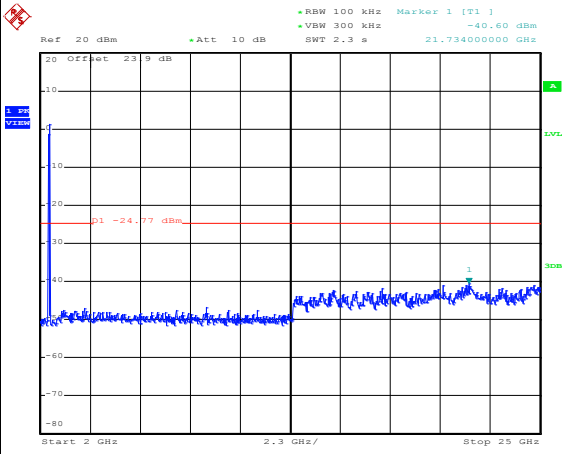
Date: 17.JUL.2016 15:16:47

Spurious Emission 30MHz~3GHz



Date: 17.JUL.2016 15:17:00

Spurious Emission 2GHz~25GHz

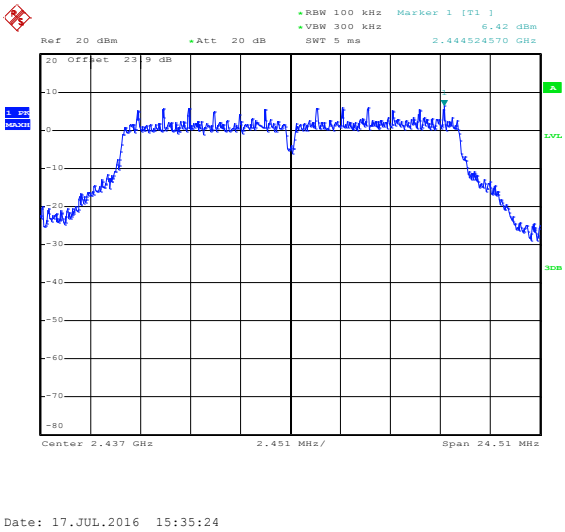


Date: 17.JUL.2016 15:17:09

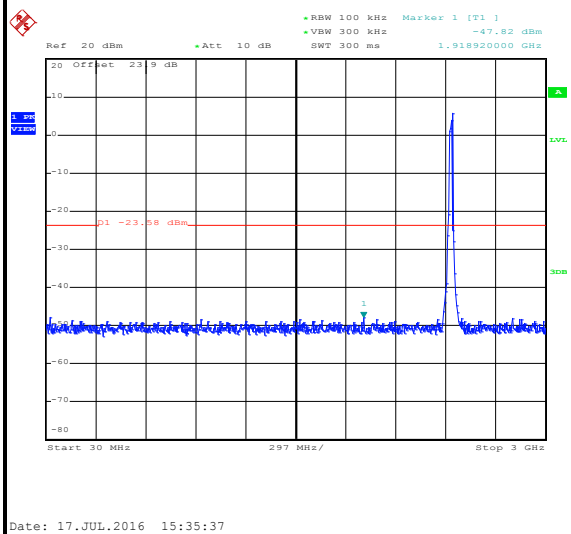
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11g Channel 06

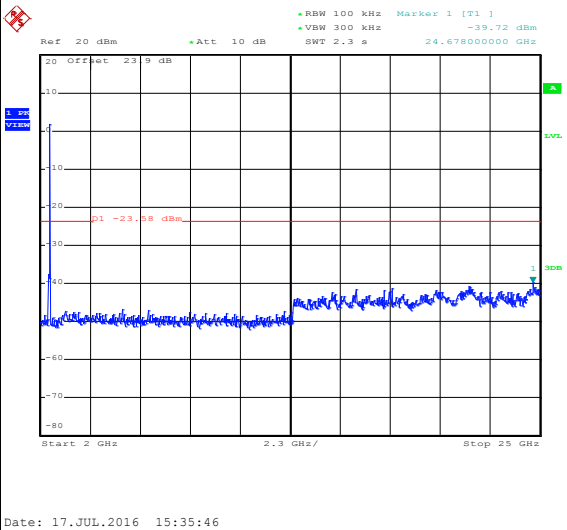
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



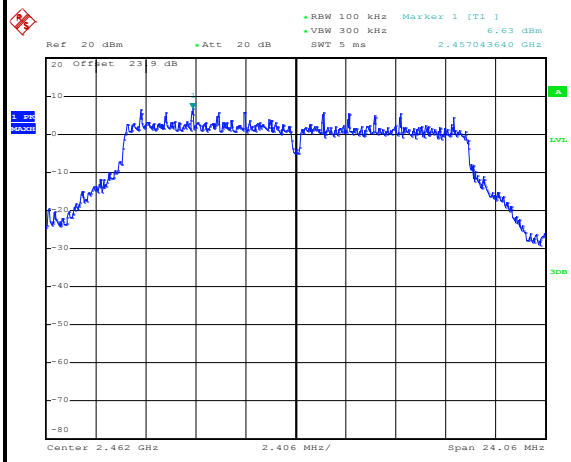
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

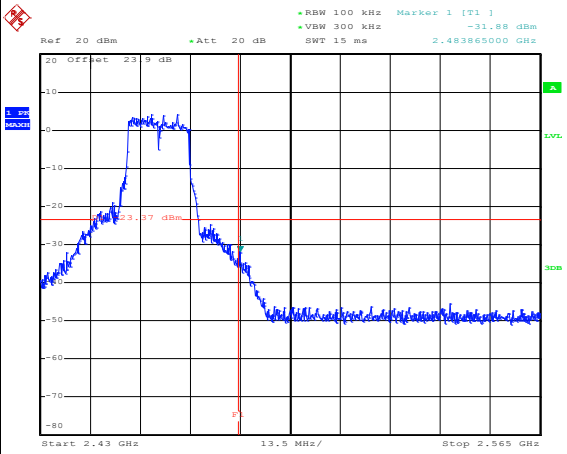
WLAN 802.11g Channel 11

100kHz PSD reference Level



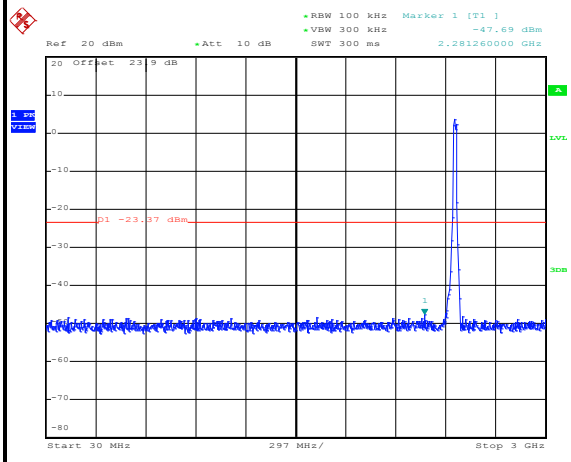
Date: 17.JUL.2016 15:41:20

High Channel Plot



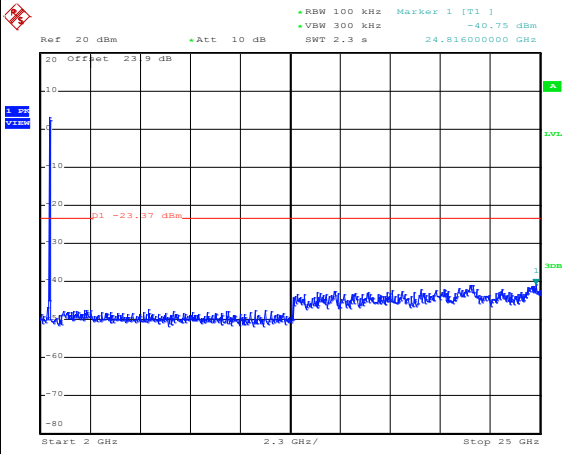
Date: 17.JUL.2016 15:41:29

Spurious Emission 30MHz~3GHz



Date: 17.JUL.2016 15:41:41

Spurious Emission 2GHz~25GHz

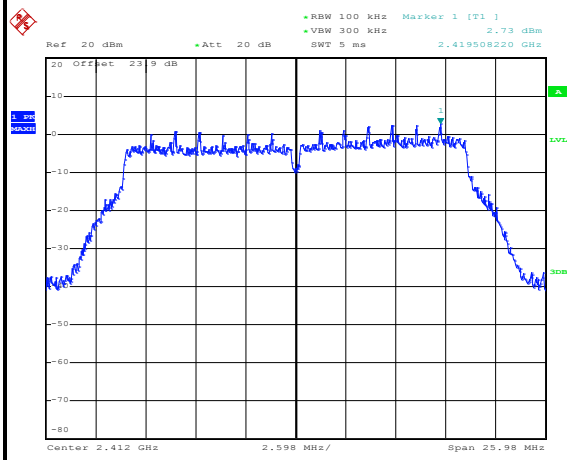


Date: 17.JUL.2016 15:41:49

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

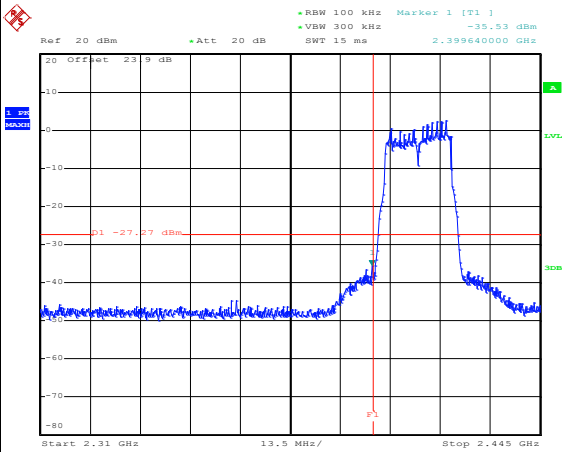
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



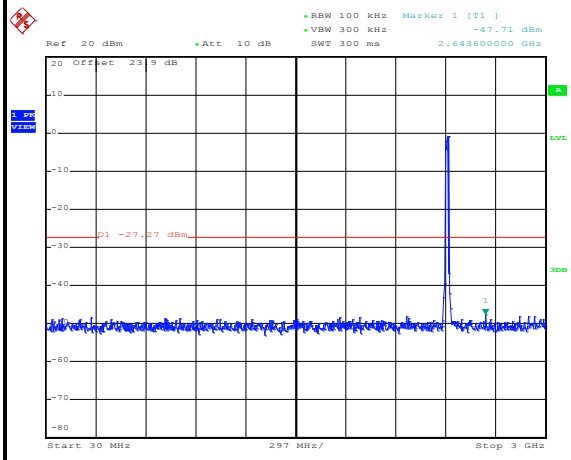
Date: 22.JUL.2016 14:08:42

Low Channel Plot



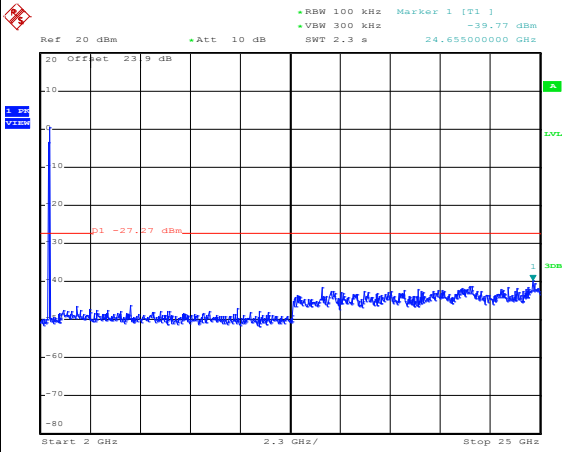
Date: 22.JUL.2016 14:09:02

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 14:09:14

Spurious Emission 2GHz~25GHz

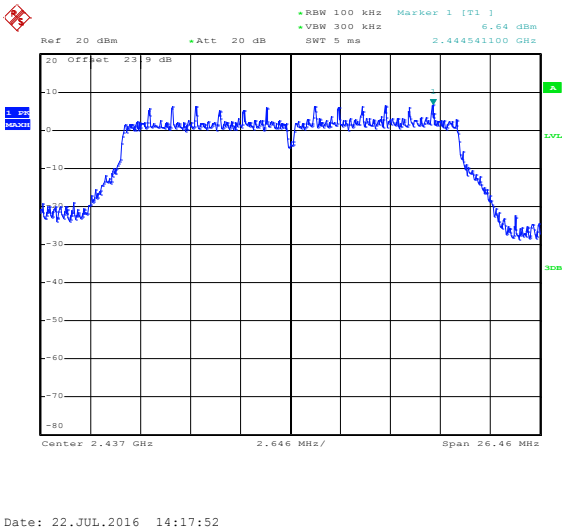


Date: 22.JUL.2016 14:09:23

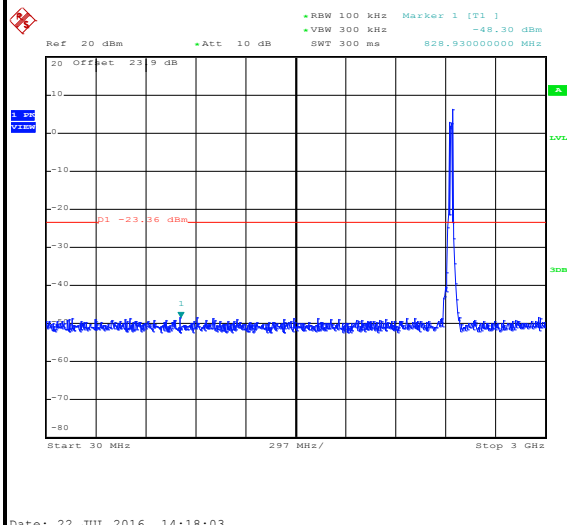
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11n HT20 Channel 06

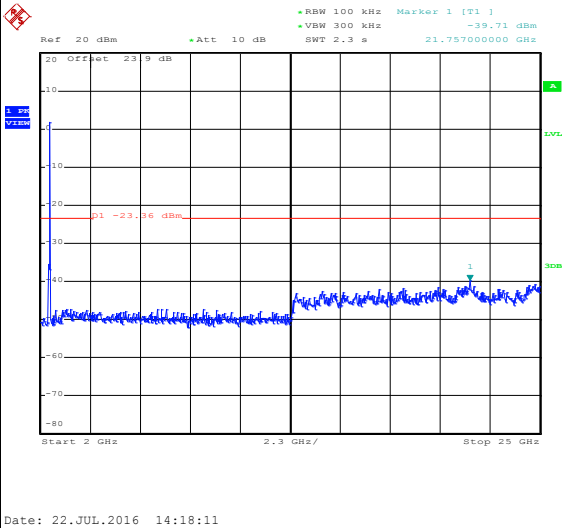
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



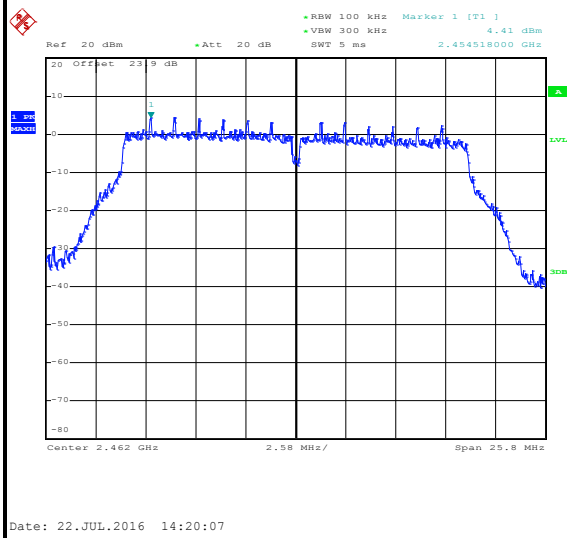
Spurious Emission 2GHz~25GHz



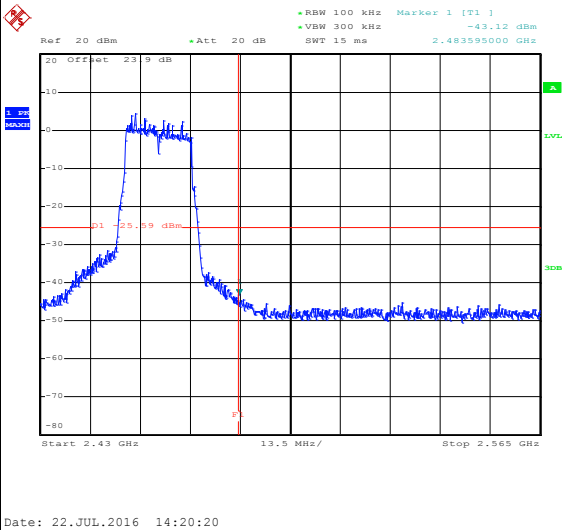
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

WLAN 802.11n HT20 Channel 11

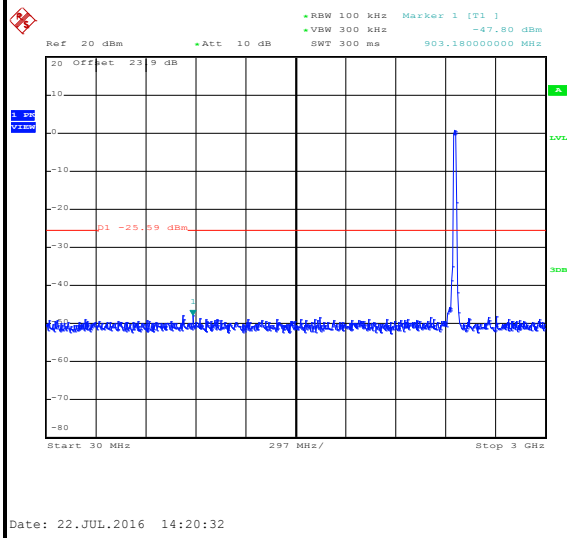
100kHz PSD reference Level



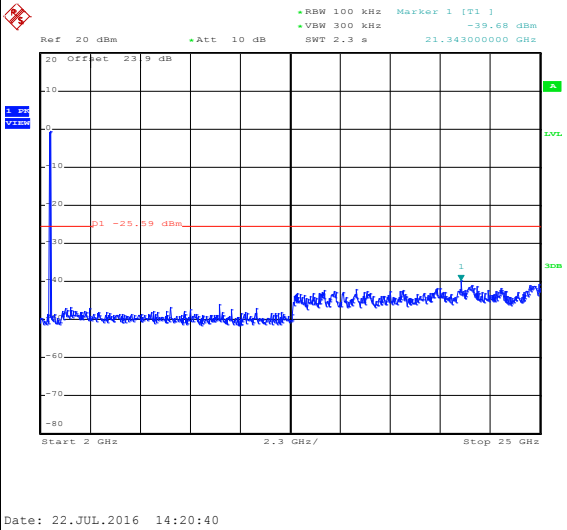
High Channel Plot



Spurious Emission 30MHz~3GHz



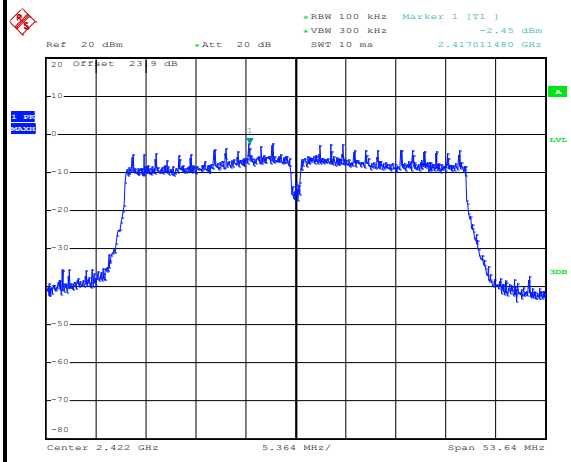
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	03	**Test Engineer :**	Bill Kuo

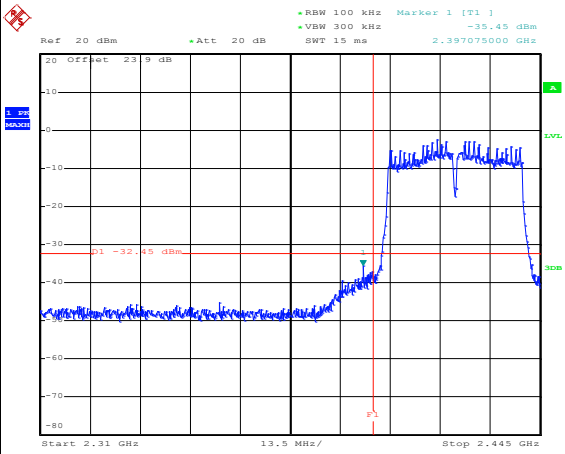
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



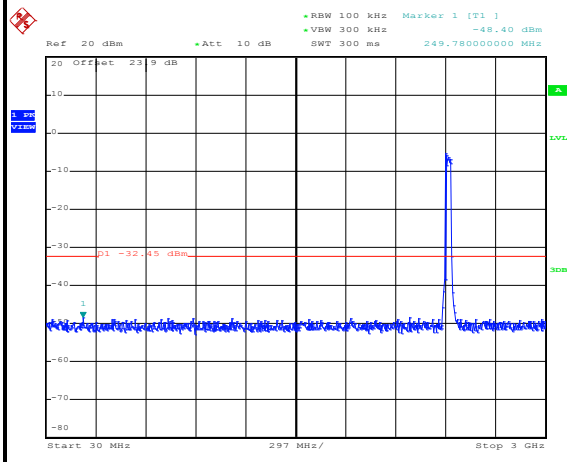
Date: 22.JUL.2016 14:25:34

Low Channel Plot



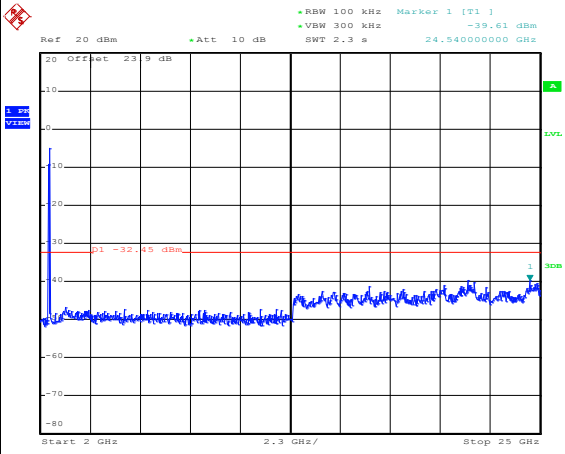
Date: 22.JUL.2016 14:26:02

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 14:26:13

Spurious Emission 2GHz~25GHz

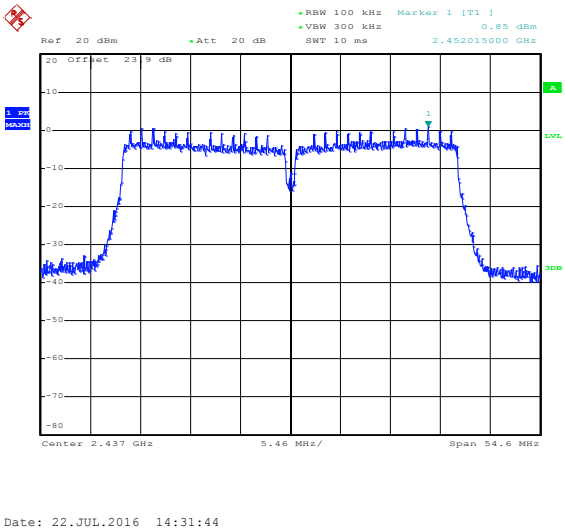


Date: 22.JUL.2016 14:26:21

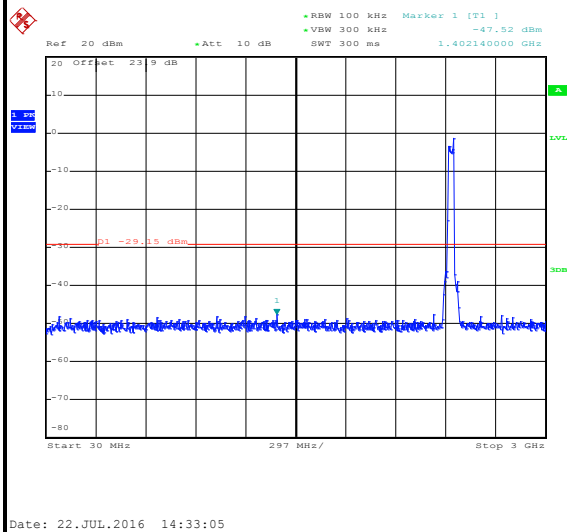
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11n HT40 Channel 06

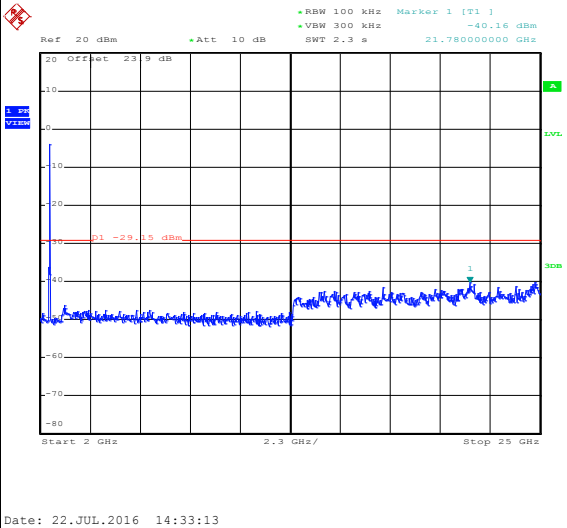
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



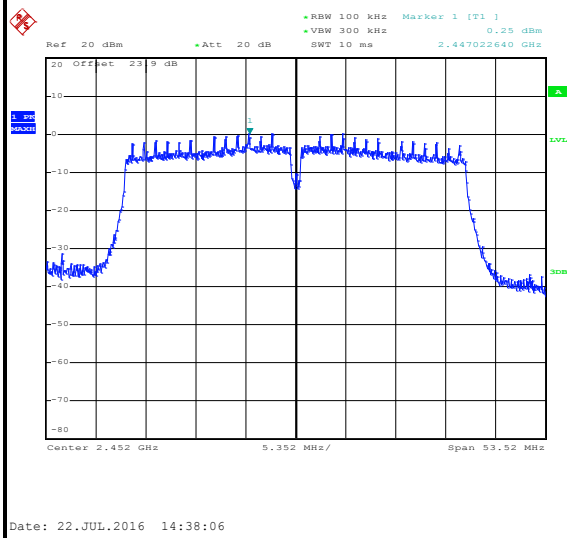
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	09	**Test Engineer :**	Bill Kuo

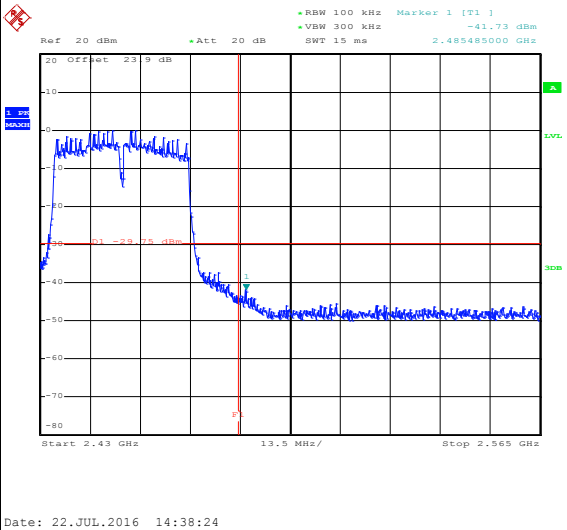
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



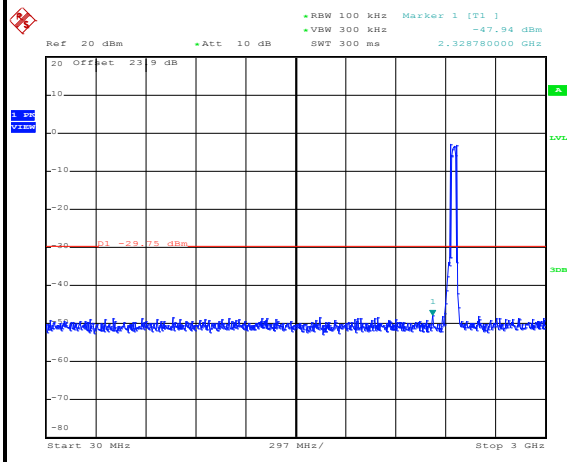
Date: 22.JUL.2016 14:38:06

High Channel Plot



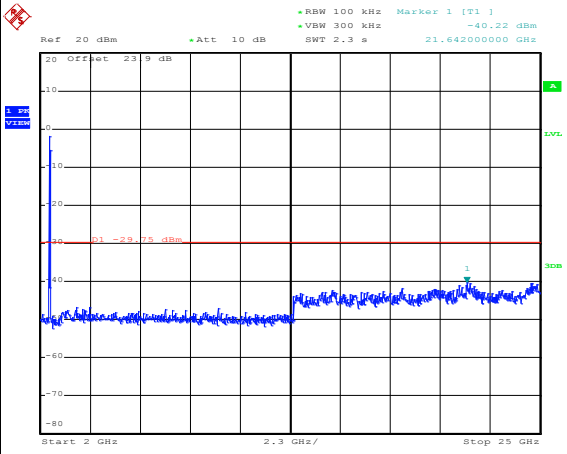
Date: 22.JUL.2016 14:38:24

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 14:40:36

Spurious Emission 2GHz~25GHz

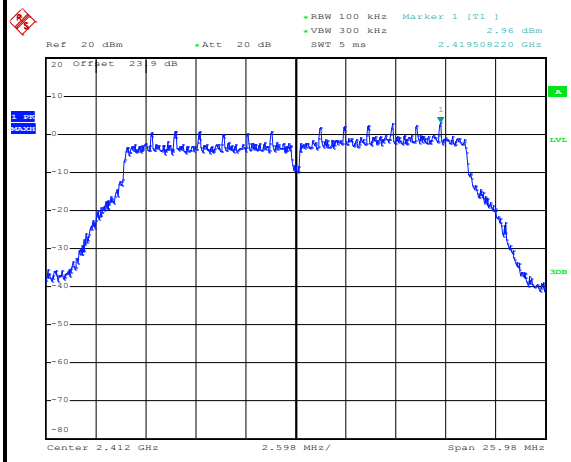


Date: 22.JUL.2016 14:40:45

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

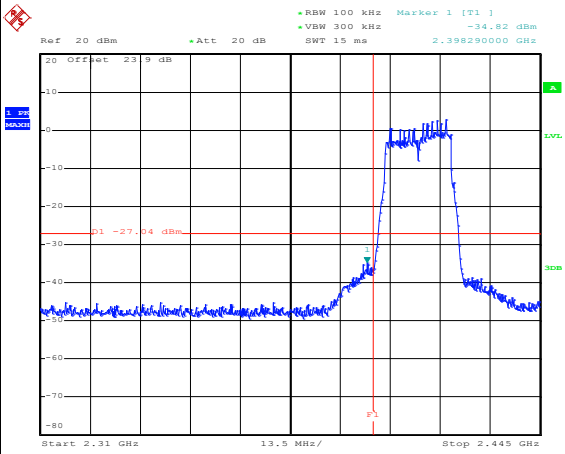
WLAN 802.11ac VHT20 Channel 01

100kHz PSD reference Level



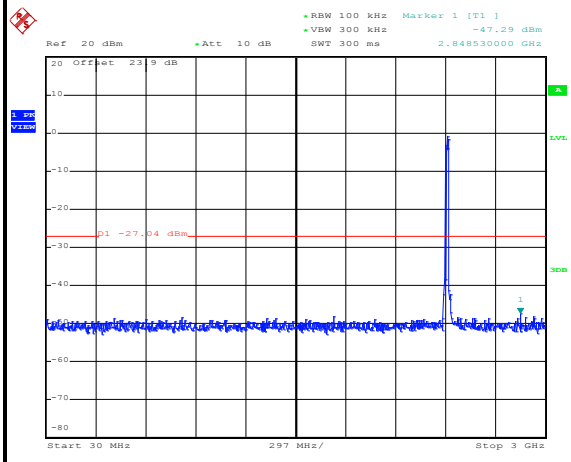
Date: 22.JUL.2016 14:49:51

Low Channel Plot



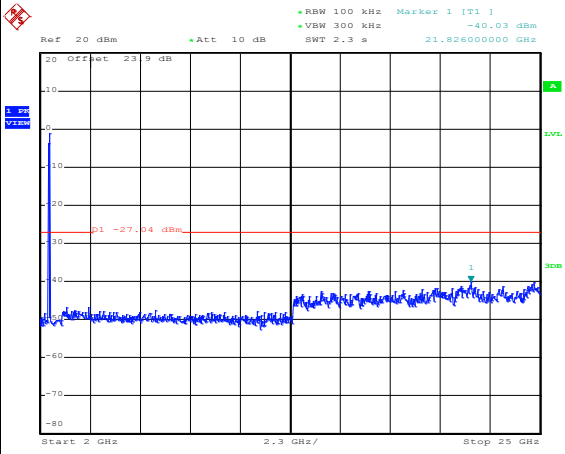
Date: 22.JUL.2016 14:50:15

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 14:50:28

Spurious Emission 2GHz~25GHz

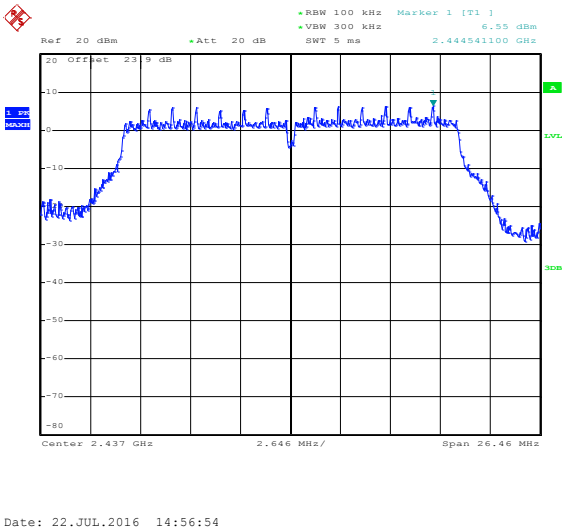


Date: 22.JUL.2016 14:50:36

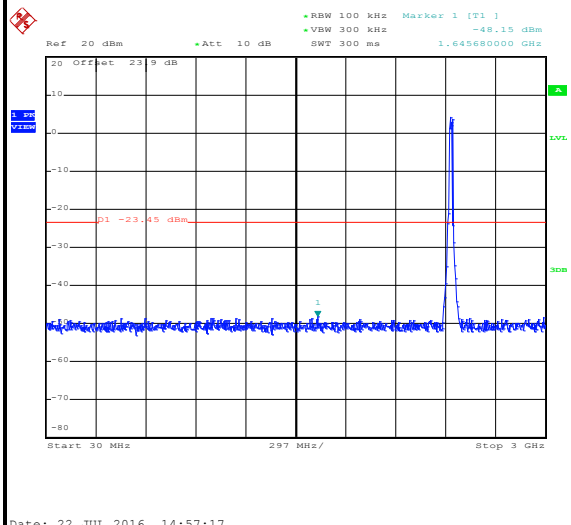
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11ac VHT20 Channel 06

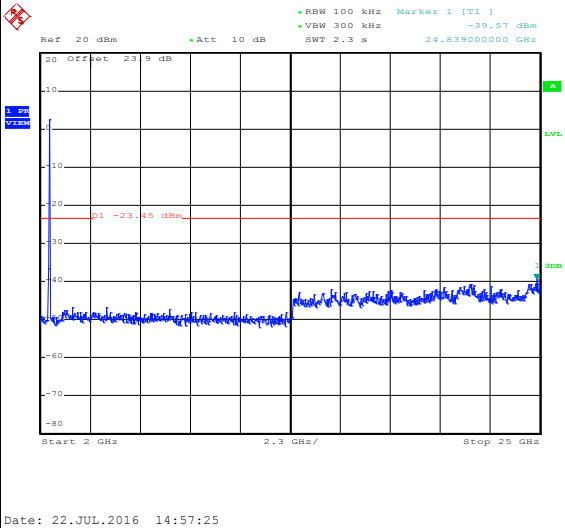
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



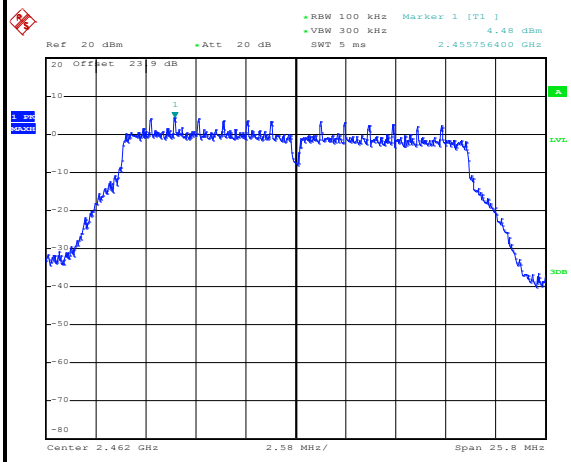
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

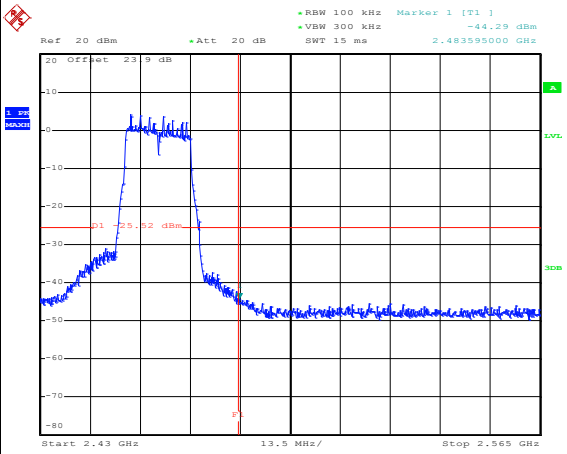
WLAN 802.11ac VHT20 Channel 11

100kHz PSD reference Level



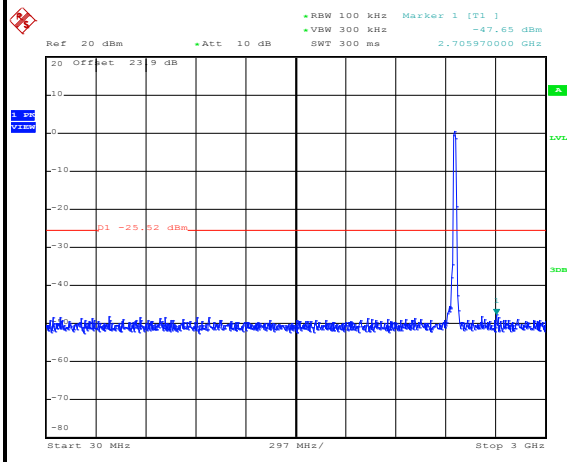
Date: 22.JUL.2016 15:00:07

High Channel Plot



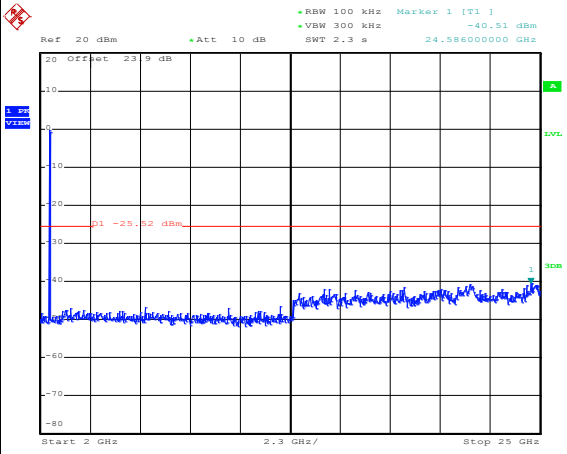
Date: 22.JUL.2016 15:00:25

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 15:00:36

Spurious Emission 2GHz~25GHz

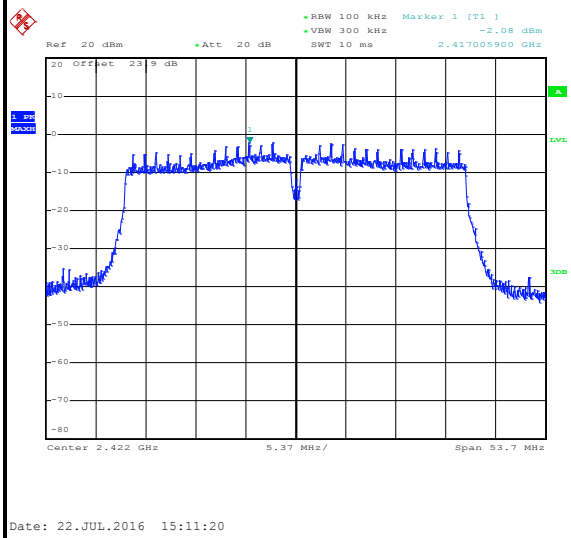


Date: 22.JUL.2016 15:00:45

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	03	**Test Engineer :**	Bill Kuo

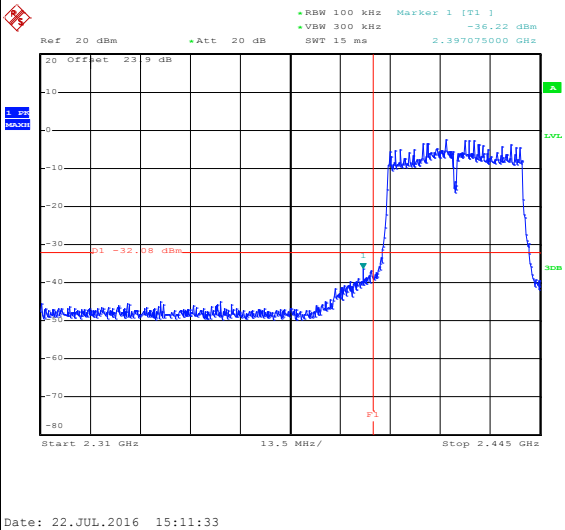
WLAN 802.11ac VHT40 Channel 03

100kHz PSD reference Level



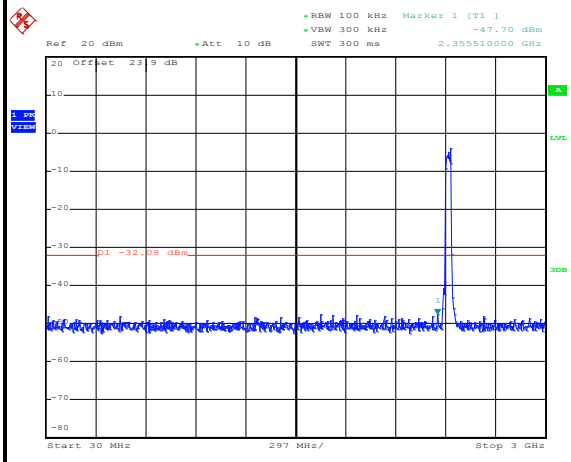
Date: 22.JUL.2016 15:11:20

Low Channel Plot



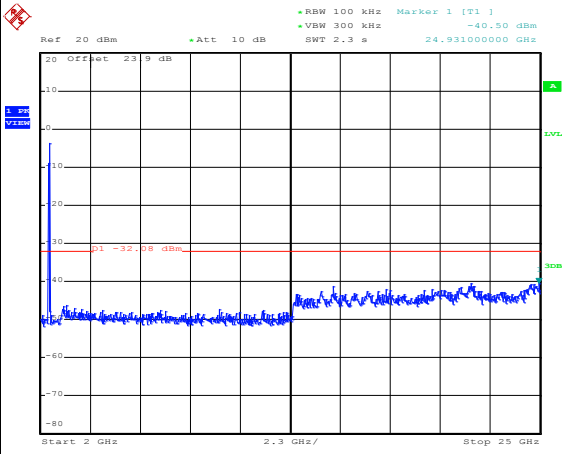
Date: 22.JUL.2016 15:11:33

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 15:11:45

Spurious Emission 2GHz~25GHz

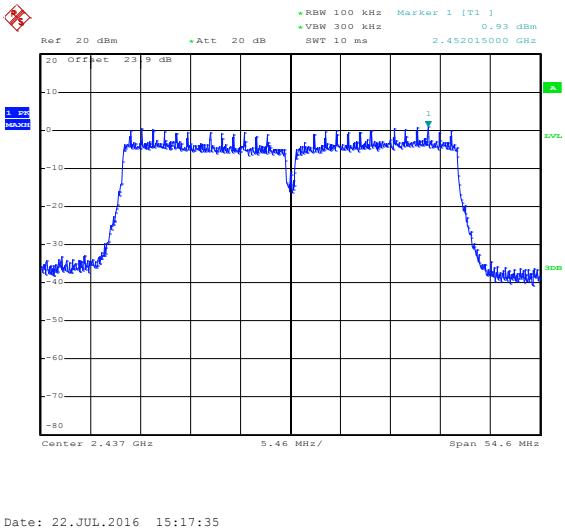


Date: 22.JUL.2016 15:11:53

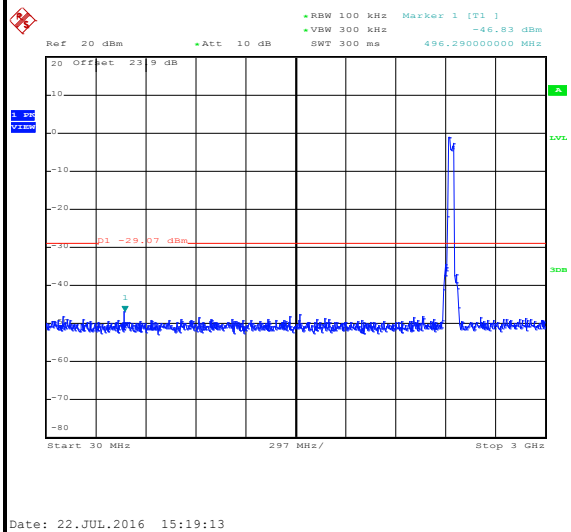
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11ac VHT40 Channel 06

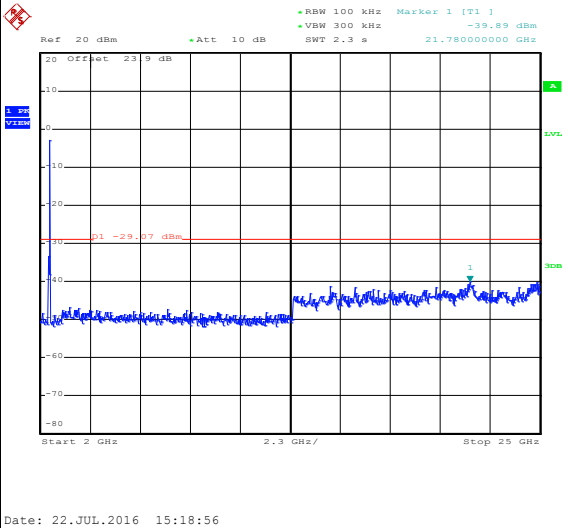
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



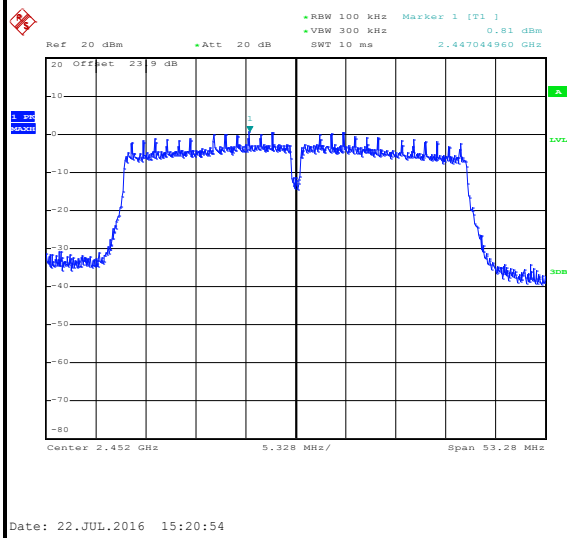
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT40	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	09	**Test Engineer :**	Bill Kuo

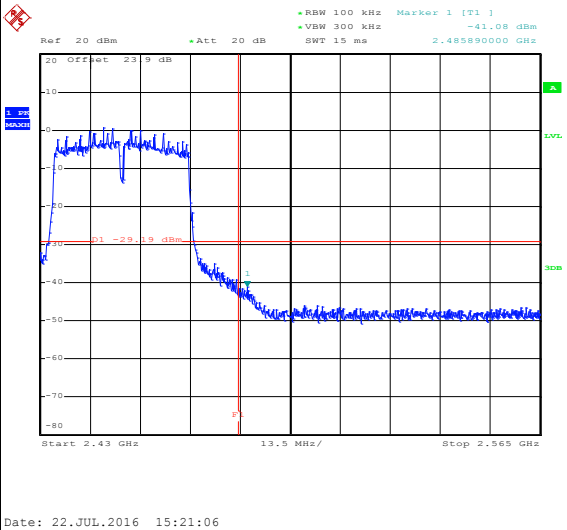
WLAN 802.11ac VHT40 Channel 09

100kHz PSD reference Level



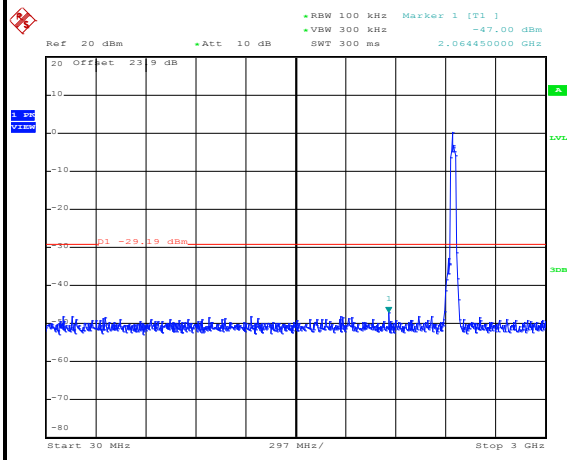
Date: 22.JUL.2016 15:20:54

High Channel Plot



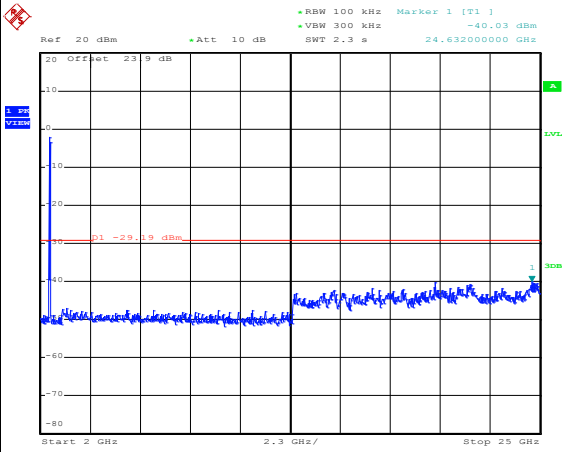
Date: 22.JUL.2016 15:21:06

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 15:21:39

Spurious Emission 2GHz~25GHz



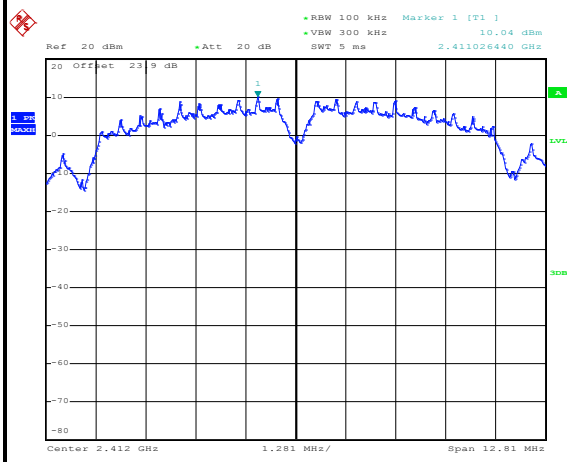
Date: 22.JUL.2016 15:21:26

Number of TX = 2, Ant. 2 (Measured)

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

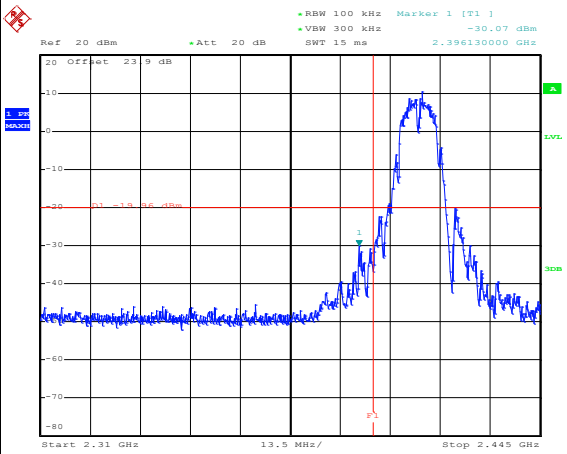
WLAN 802.11b Channel 01

100kHz PSD reference Level



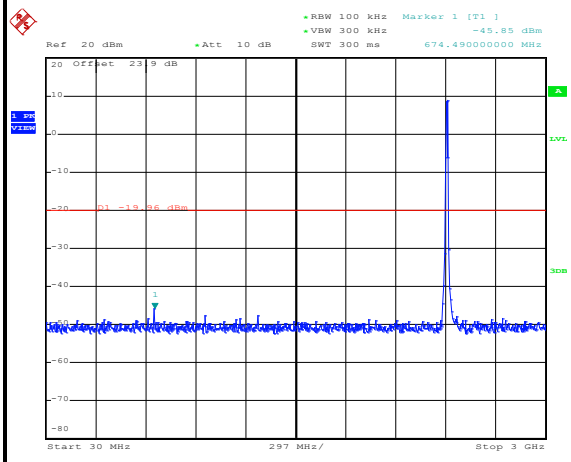
Date: 17.JUL.2016 14:29:55

Low Channel Plot



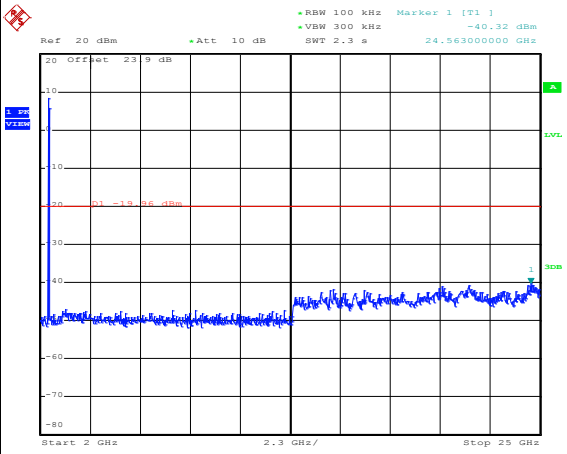
Date: 17.JUL.2016 14:30:03

Spurious Emission 30MHz~3GHz



Date: 17.JUL.2016 14:30:16

Spurious Emission 2GHz~25GHz

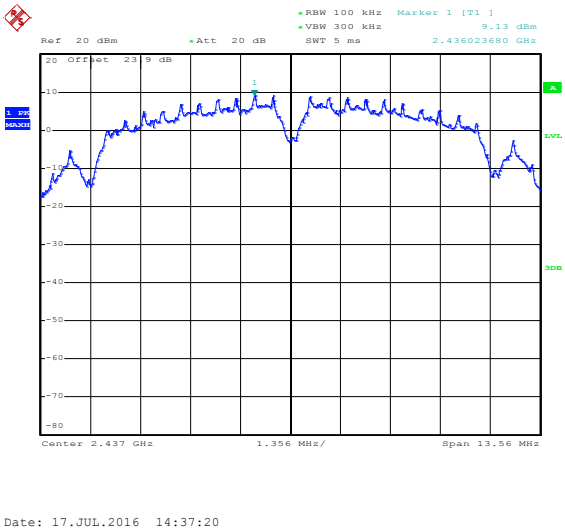


Date: 17.JUL.2016 14:30:25

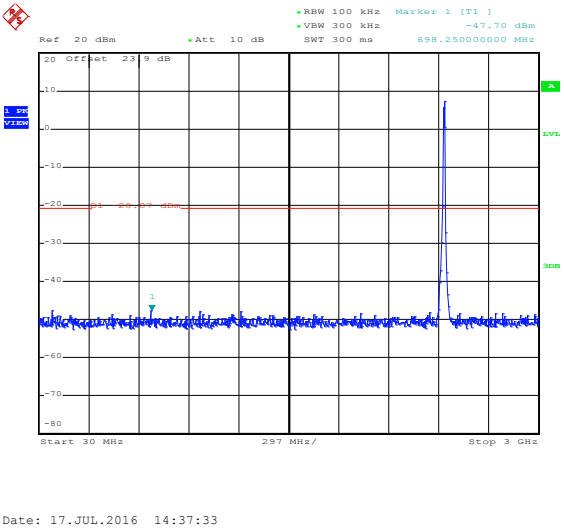
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11b Channel 06

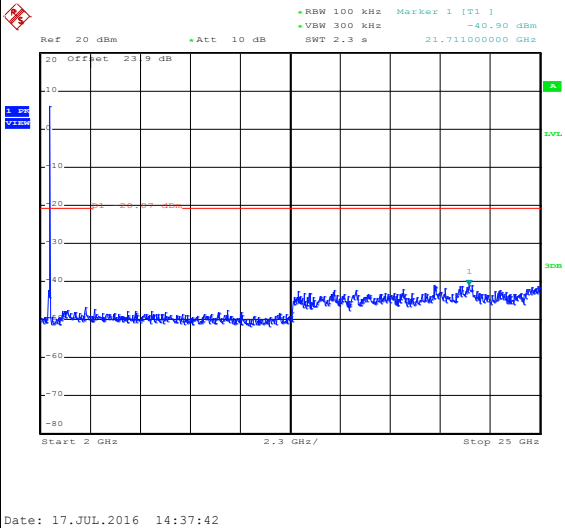
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



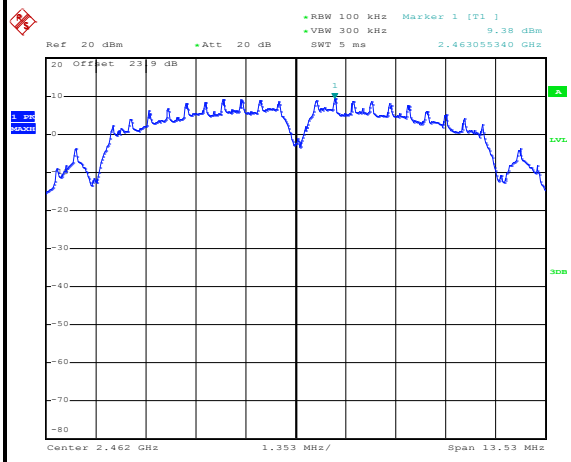
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

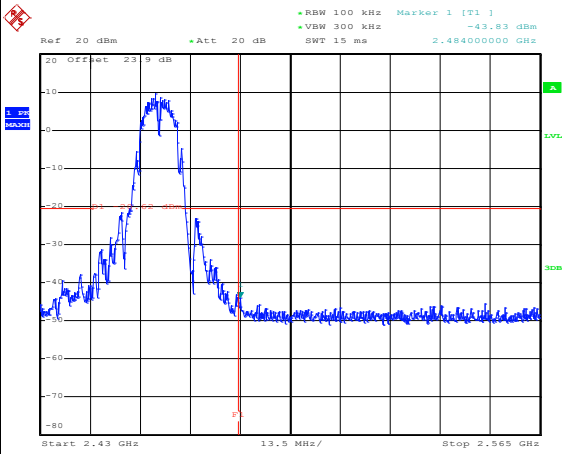
WLAN 802.11b Channel 11

100kHz PSD reference Level



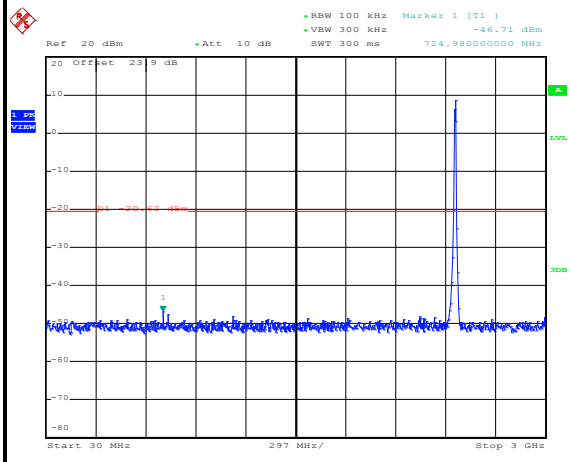
Date: 17.JUL.2016 14:47:51

High Channel Plot



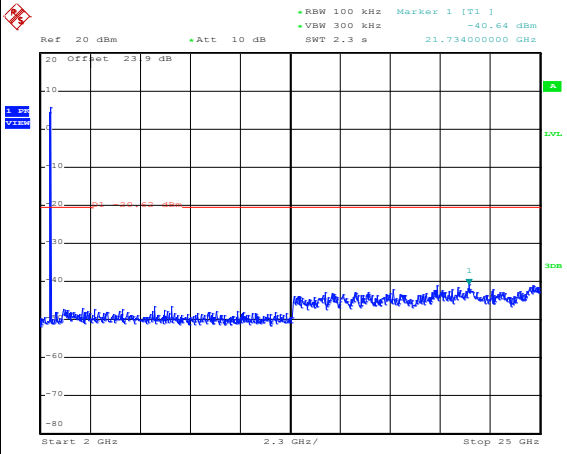
Date: 17.JUL.2016 14:48:12

Spurious Emission 30MHz~3GHz



Date: 17.JUL.2016 14:48:26

Spurious Emission 2GHz~25GHz

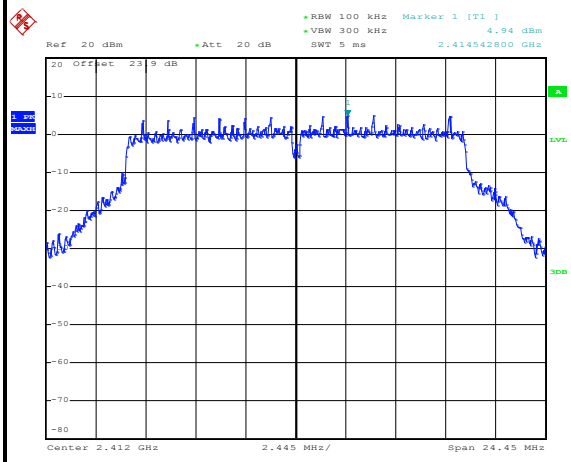


Date: 17.JUL.2016 14:48:35

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

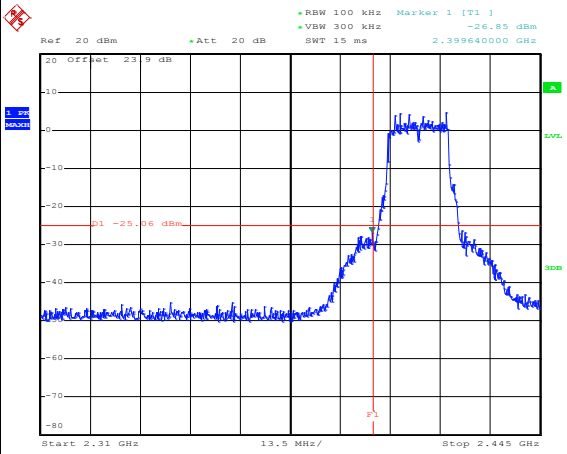
WLAN 802.11g Channel 01

100kHz PSD reference Level



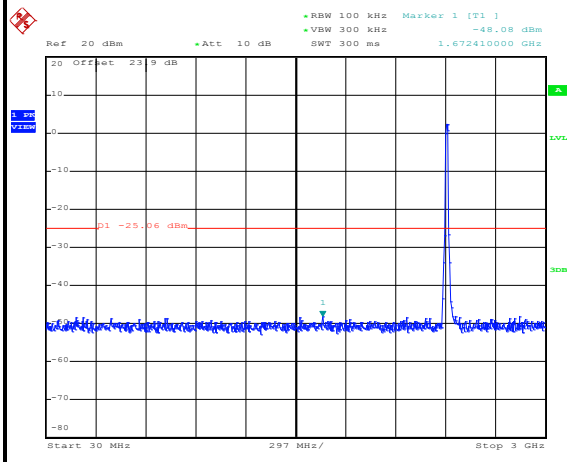
Date: 17.JUL.2016 15:30:30

Low Channel Plot



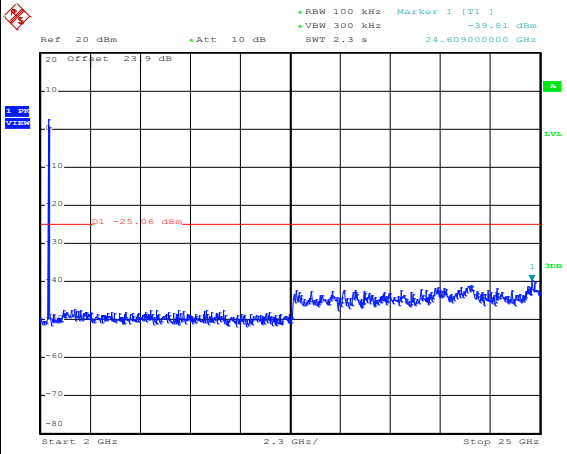
Date: 17.JUL.2016 15:30:40

Spurious Emission 30MHz~3GHz



Date: 17.JUL.2016 15:30:51

Spurious Emission 2GHz~25GHz

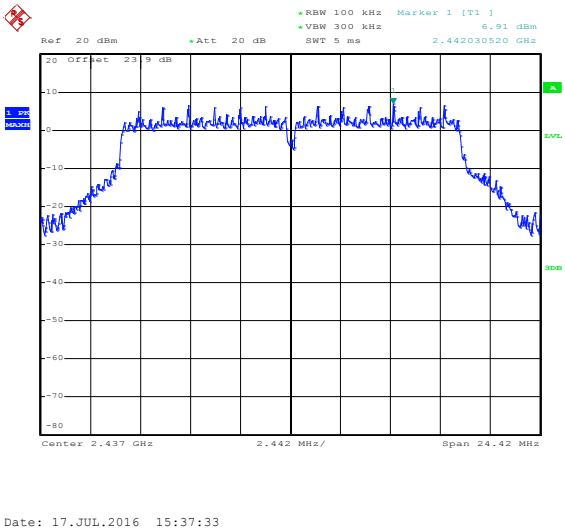


Date: 17.JUL.2016 15:31:00

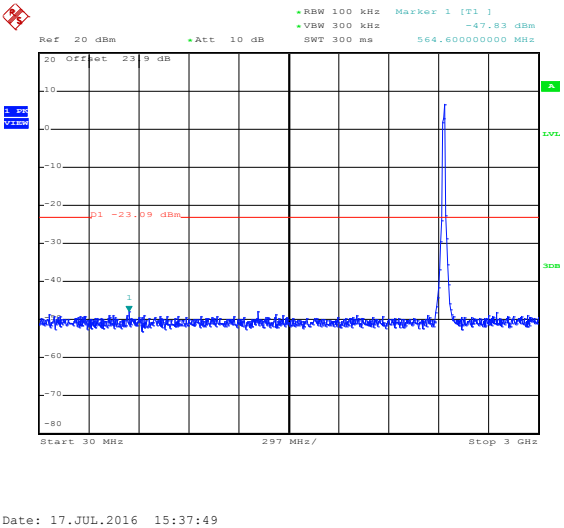
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11g Channel 06

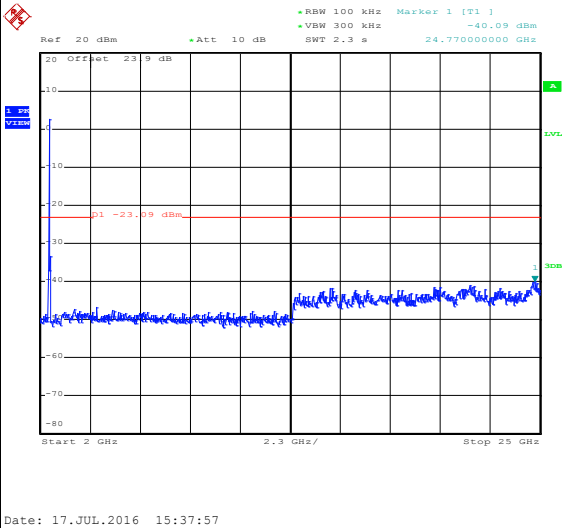
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



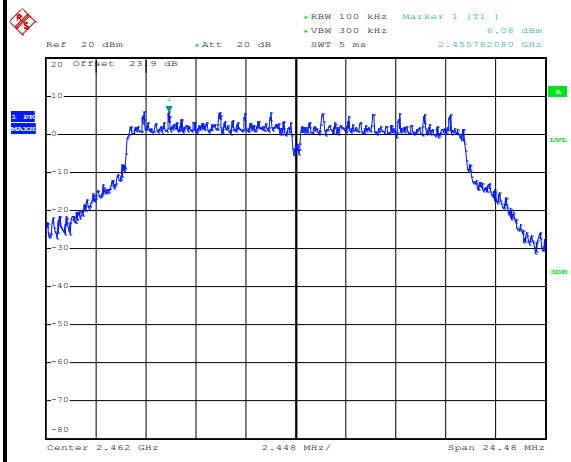
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

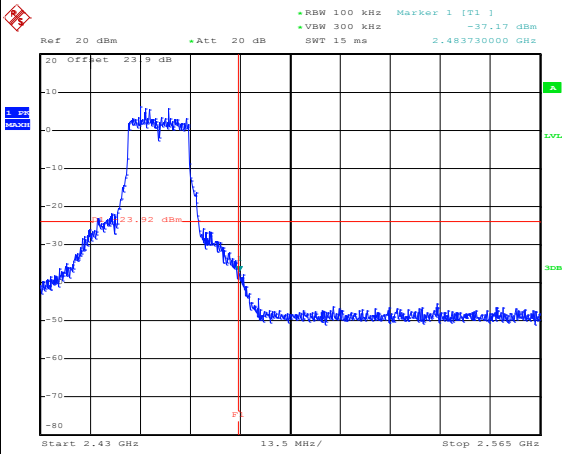
WLAN 802.11g Channel 11

100kHz PSD reference Level



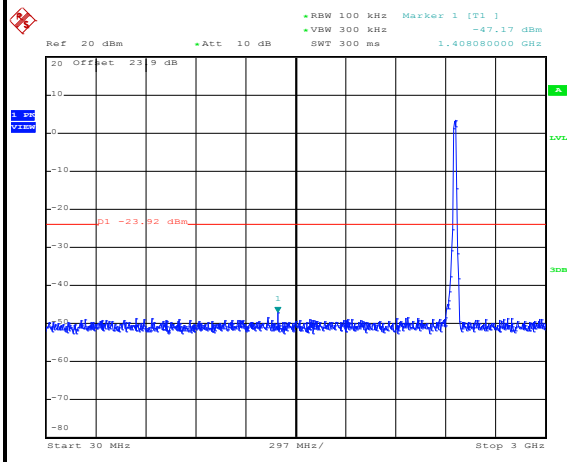
Date: 17.JUL.2016 15:44:09

High Channel Plot



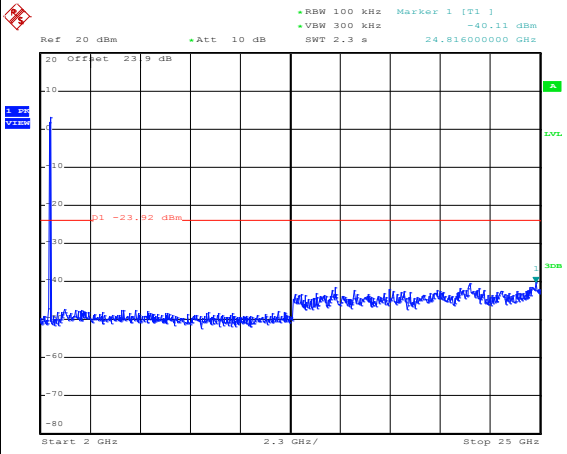
Date: 17.JUL.2016 15:44:27

Spurious Emission 30MHz~3GHz



Date: 17.JUL.2016 15:44:40

Spurious Emission 2GHz~25GHz

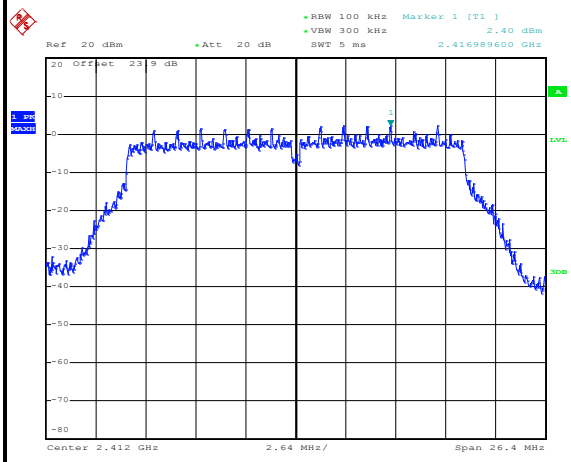


Date: 17.JUL.2016 15:44:49

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

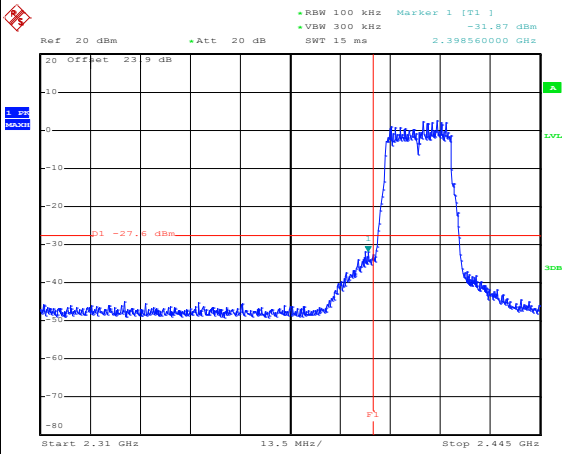
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



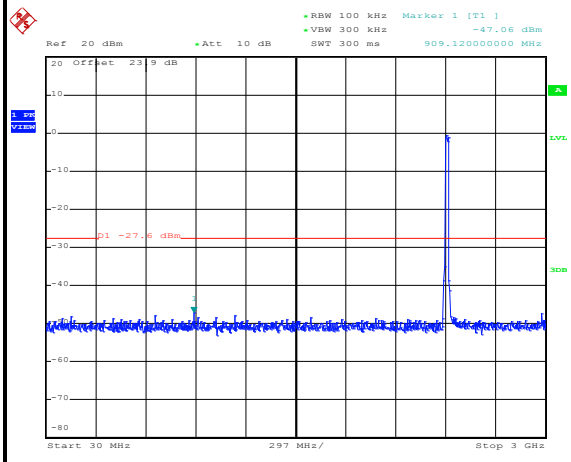
Date: 22.JUL.2016 14:11:00

Low Channel Plot



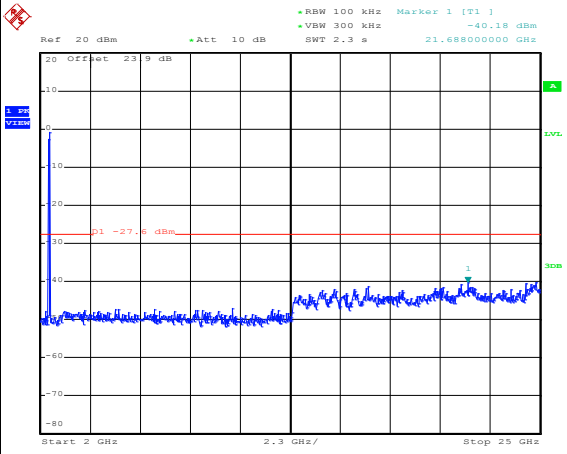
Date: 22.JUL.2016 14:11:22

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 14:11:34

Spurious Emission 2GHz~25GHz

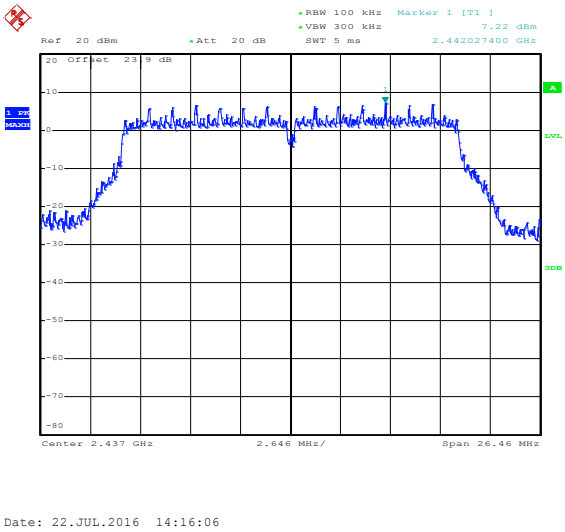


Date: 22.JUL.2016 14:11:42

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

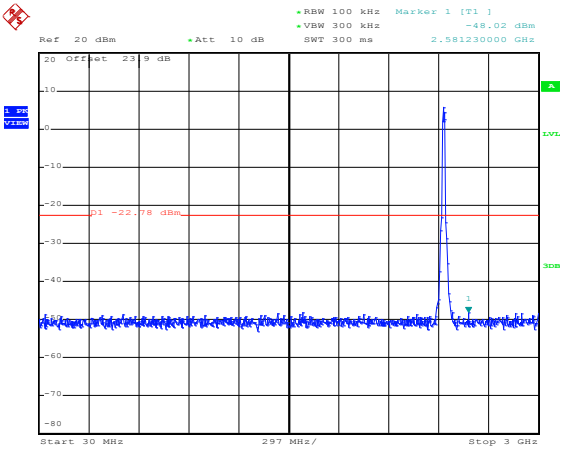
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



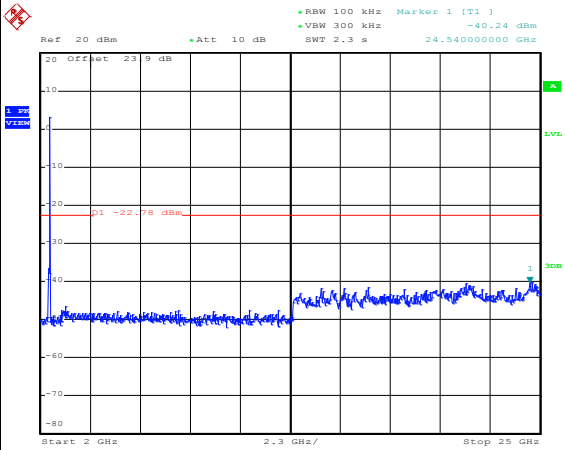
Date: 22.JUL.2016 14:16:06

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 14:16:18

Spurious Emission 2GHz~25GHz

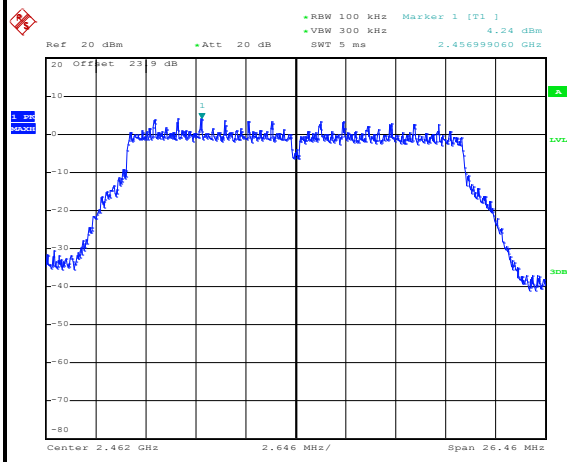


Date: 22.JUL.2016 14:16:27

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

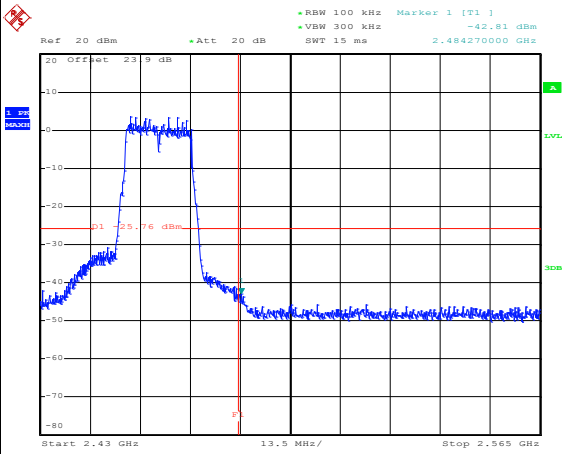
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



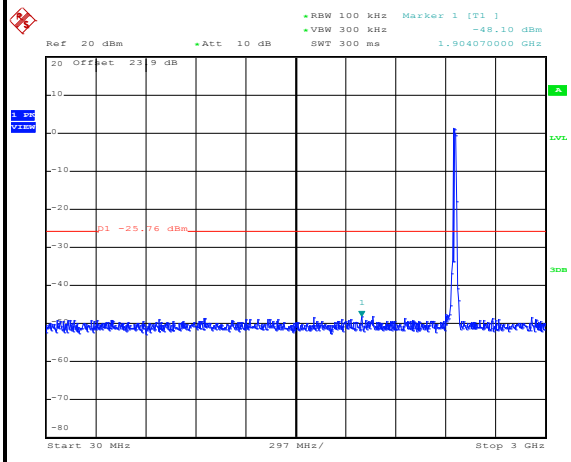
Date: 22.JUL.2016 14:22:03

High Channel Plot



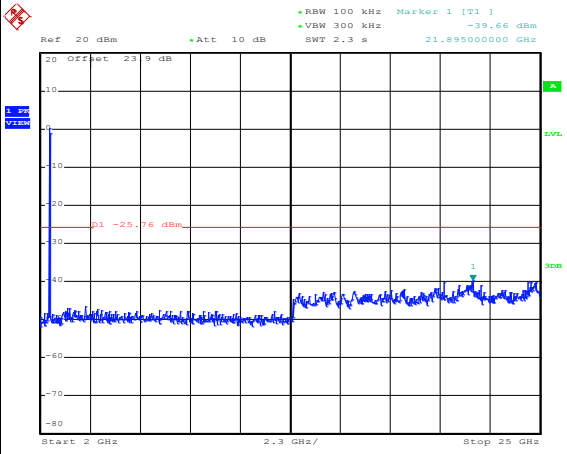
Date: 22.JUL.2016 14:22:16

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 14:22:28

Spurious Emission 2GHz~25GHz

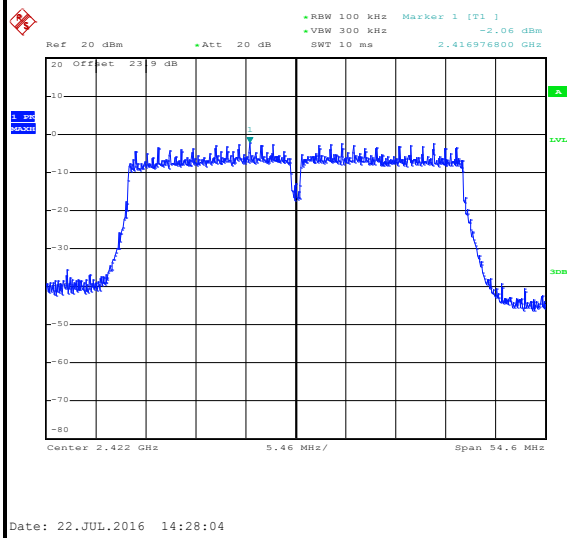


Date: 22.JUL.2016 14:22:36

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	03	**Test Engineer :**	Bill Kuo

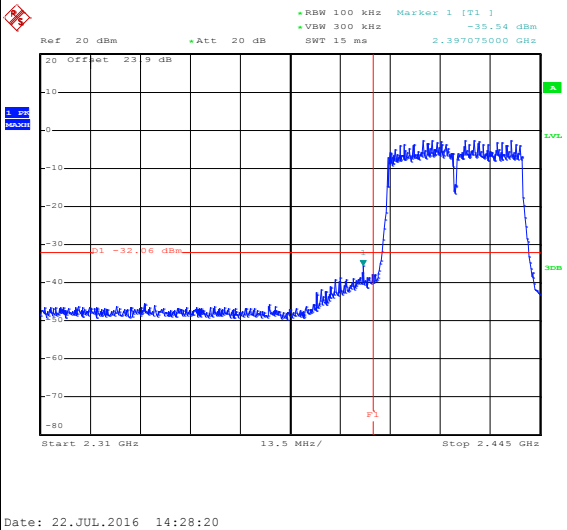
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



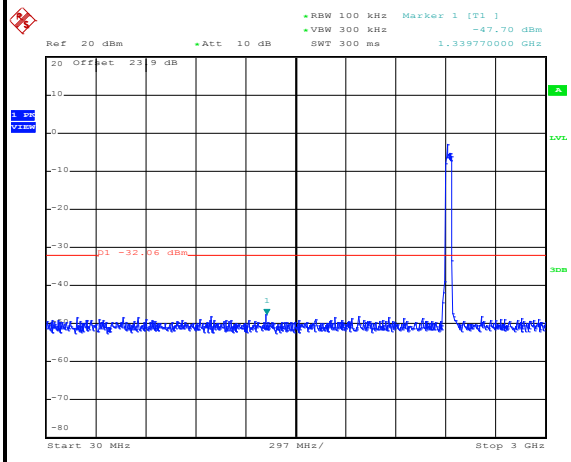
Date: 22.JUL.2016 14:28:04

Low Channel Plot



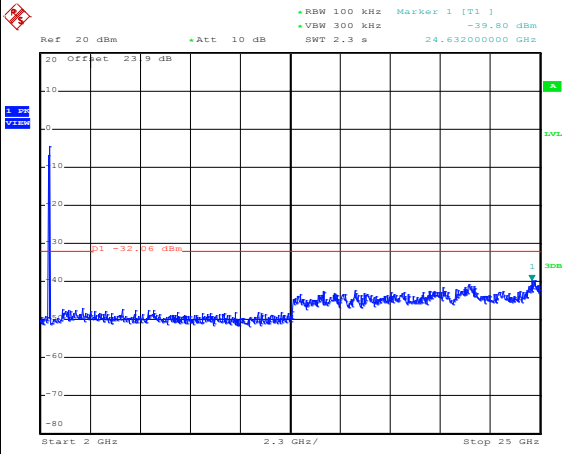
Date: 22.JUL.2016 14:28:20

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 14:28:32

Spurious Emission 2GHz~25GHz

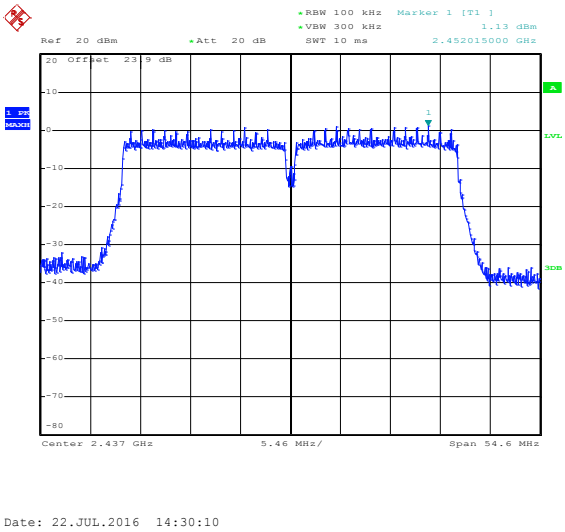


Date: 22.JUL.2016 14:28:40

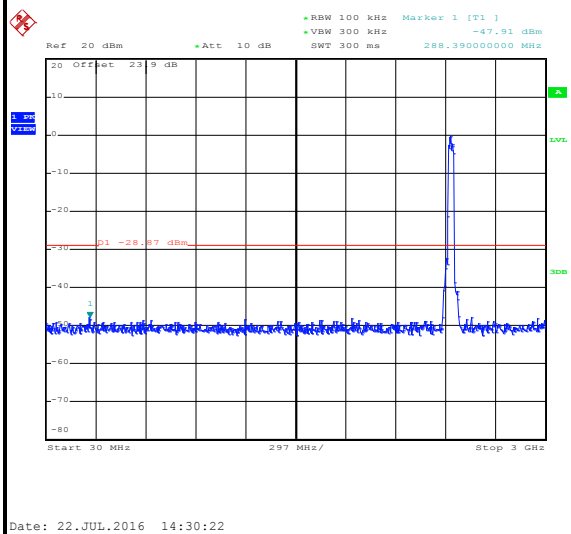
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11n HT40 Channel 06

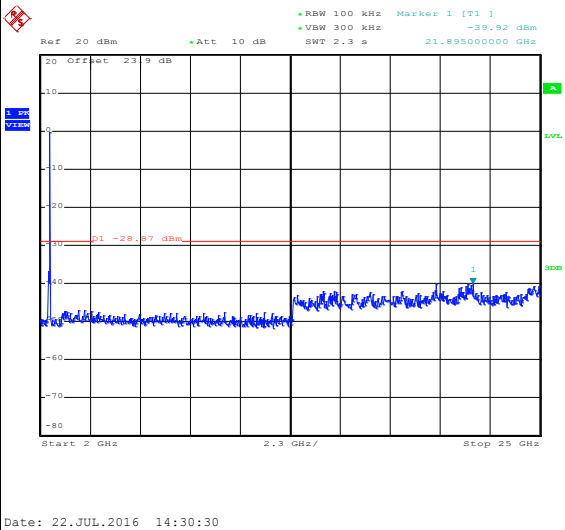
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



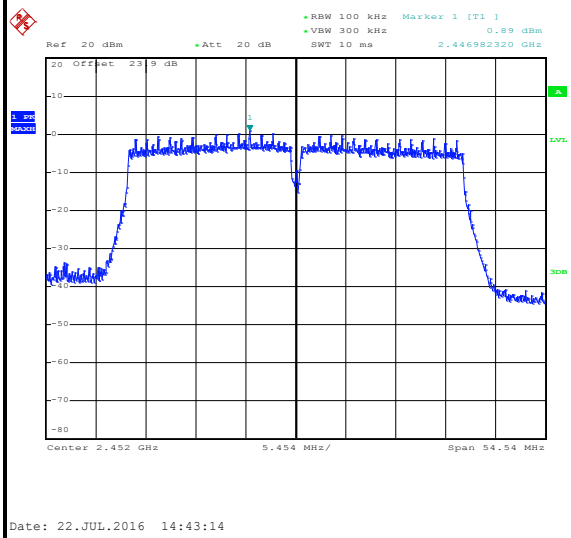
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	09	**Test Engineer :**	Bill Kuo

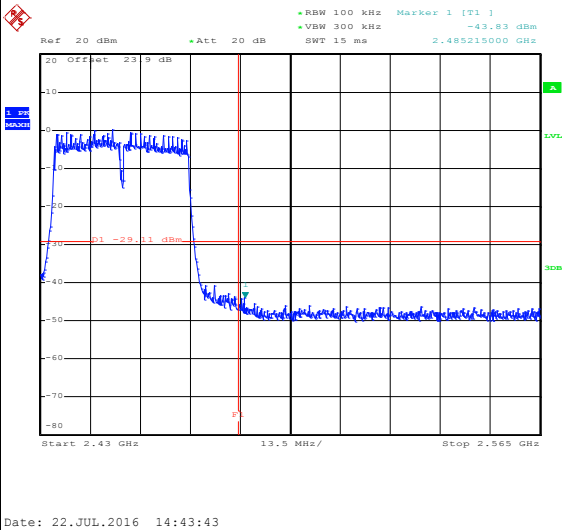
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



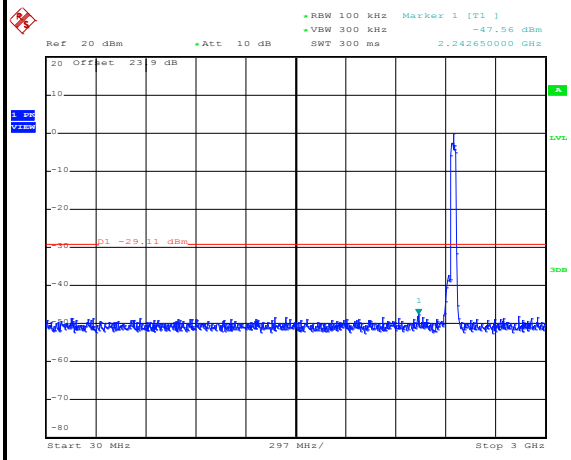
Date: 22.JUL.2016 14:43:14

High Channel Plot



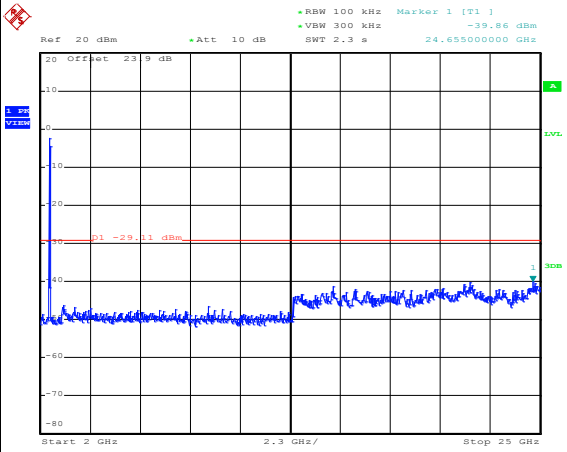
Date: 22.JUL.2016 14:43:43

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 14:43:54

Spurious Emission 2GHz~25GHz

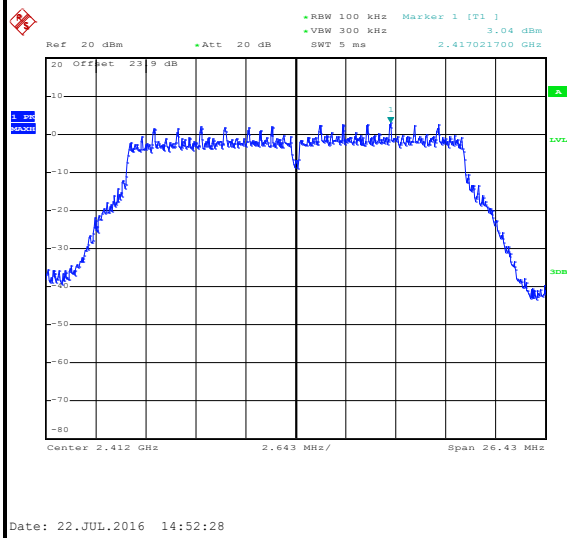


Date: 22.JUL.2016 14:44:03

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

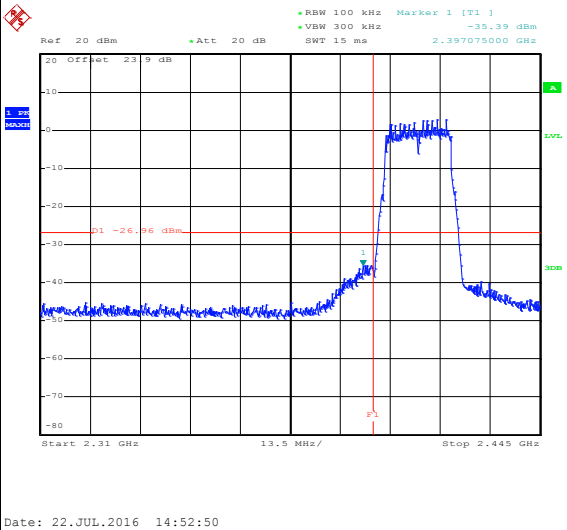
WLAN 802.11ac VHT20 Channel 01

100kHz PSD reference Level



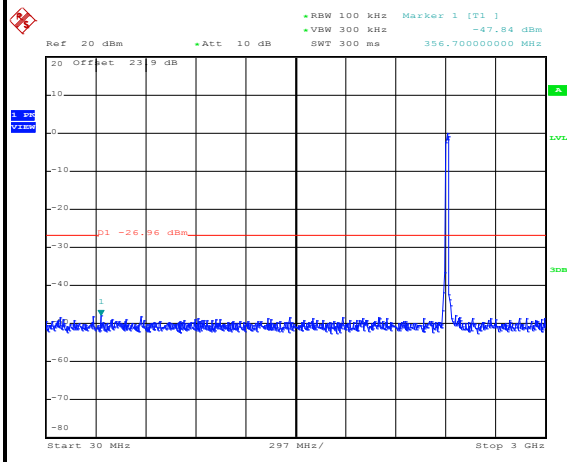
Date: 22.JUL.2016 14:52:28

Low Channel Plot



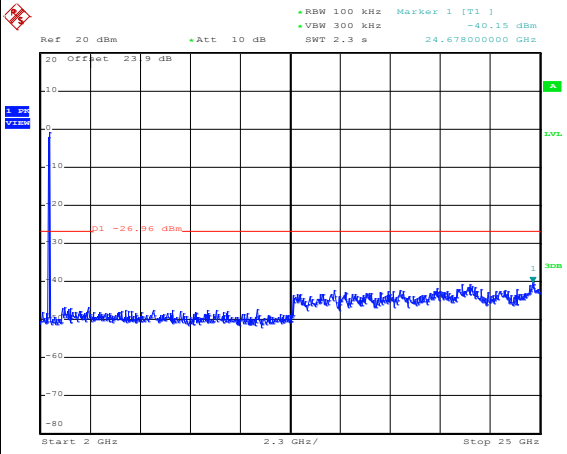
Date: 22.JUL.2016 14:52:50

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 14:53:01

Spurious Emission 2GHz~25GHz

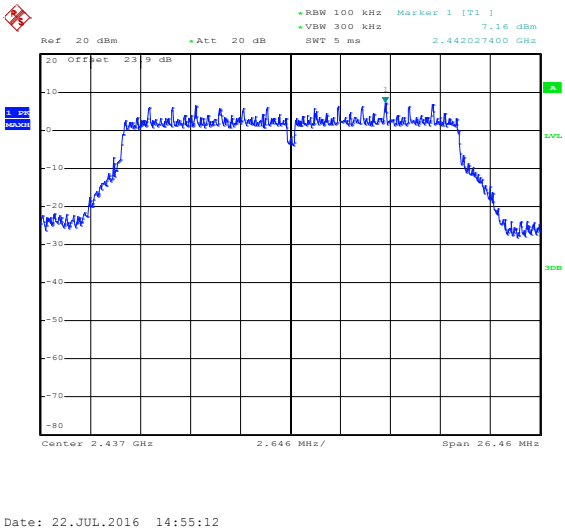


Date: 22.JUL.2016 14:53:09

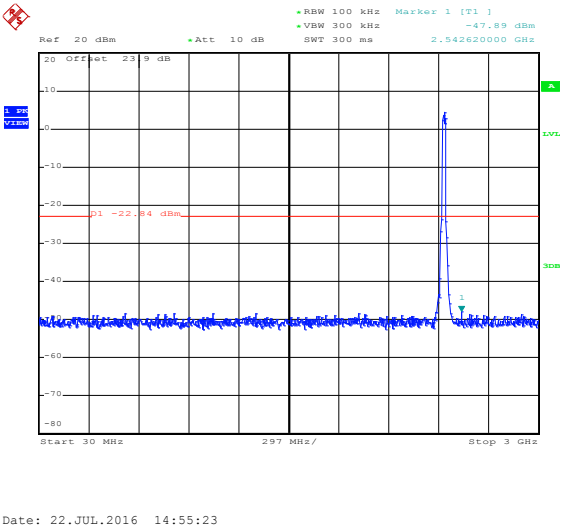
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11ac VHT20 Channel 06

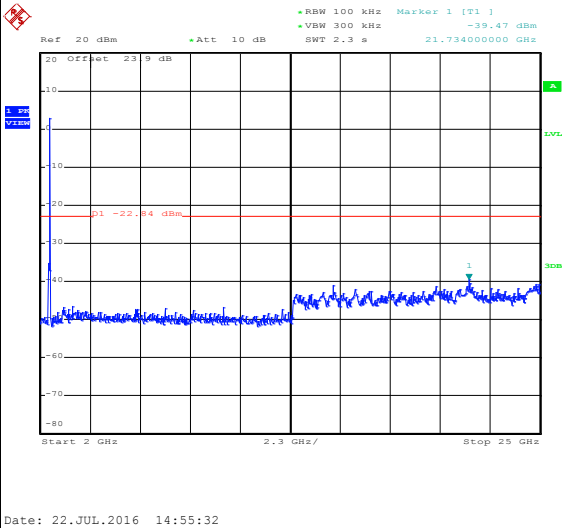
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



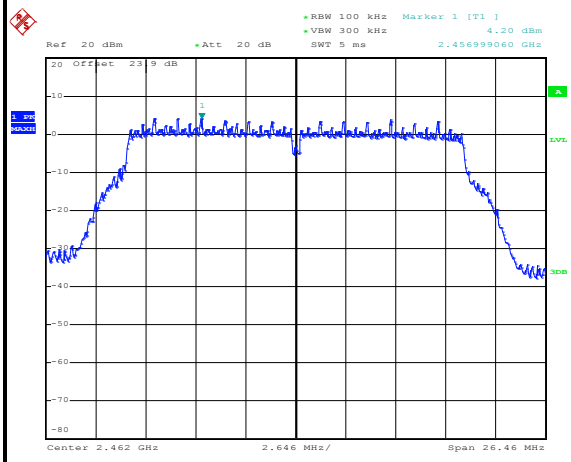
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

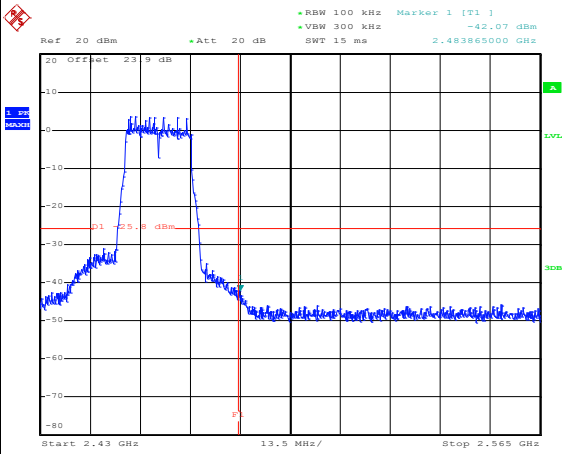
WLAN 802.11ac VHT20 Channel 11

100kHz PSD reference Level



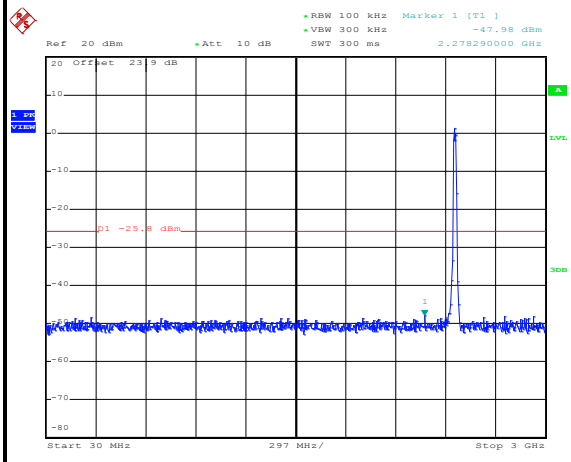
Date: 22.JUL.2016 15:07:46

High Channel Plot



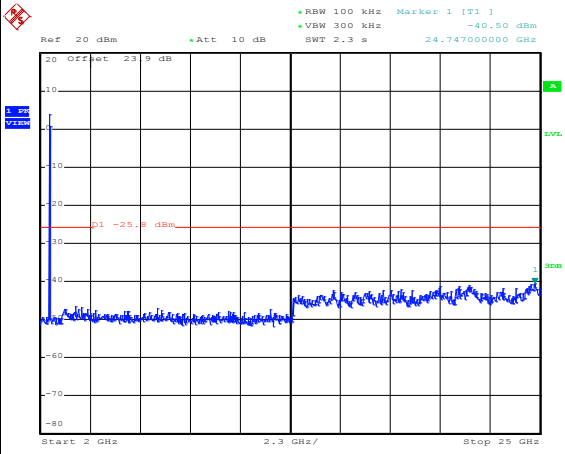
Date: 22.JUL.2016 15:08:18

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 15:08:45

Spurious Emission 2GHz~25GHz

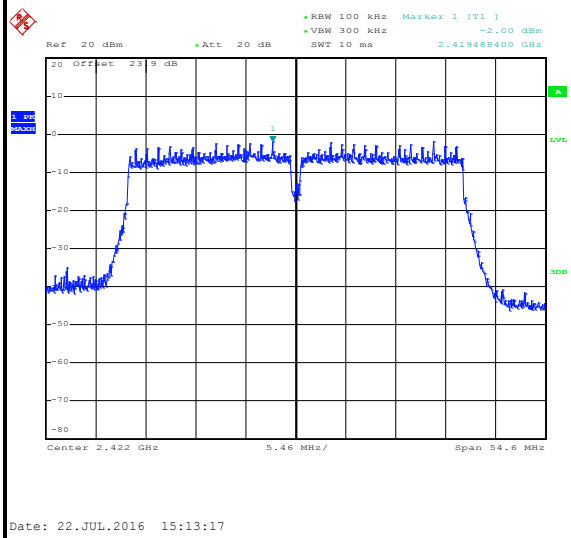


Date: 22.JUL.2016 15:08:54

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	03	**Test Engineer :**	Bill Kuo

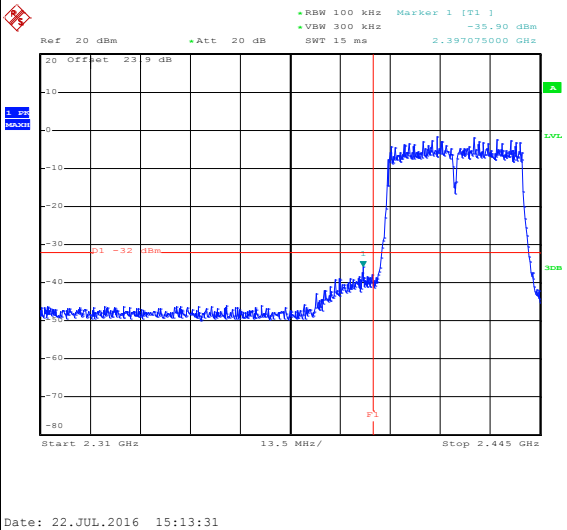
WLAN 802.11ac VHT40 Channel 03

100kHz PSD reference Level



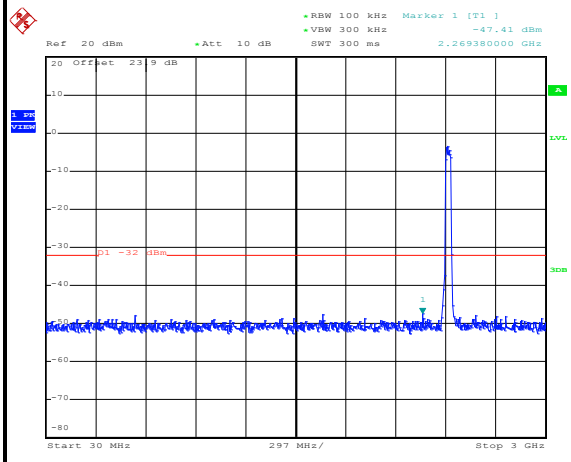
Date: 22.JUL.2016 15:13:17

Low Channel Plot



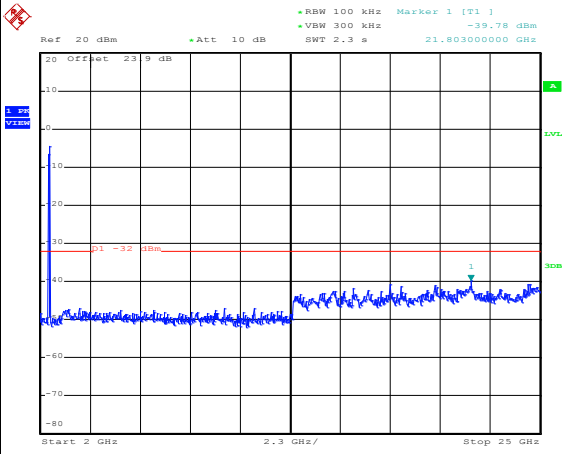
Date: 22.JUL.2016 15:13:31

Spurious Emission 30MHz~3GHz



Date: 22.JUL.2016 15:14:27

Spurious Emission 2GHz~25GHz

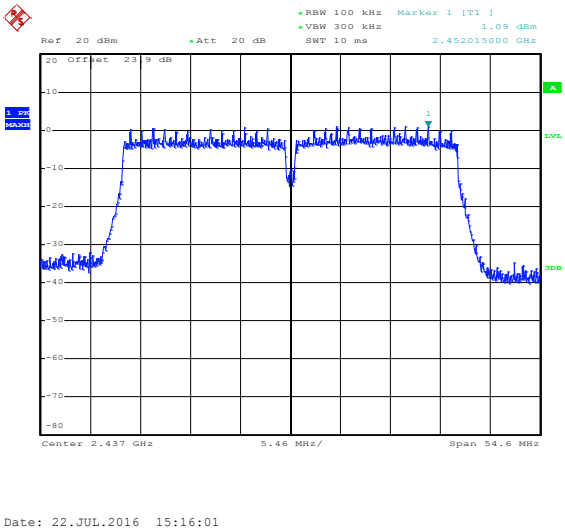


Date: 22.JUL.2016 15:14:36

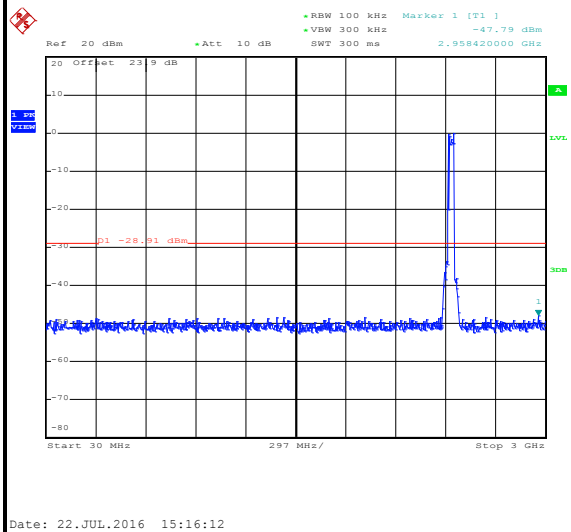
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11ac VHT40 Channel 06

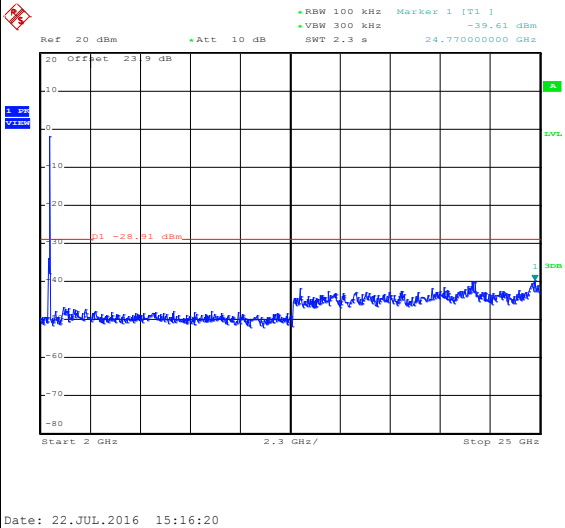
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



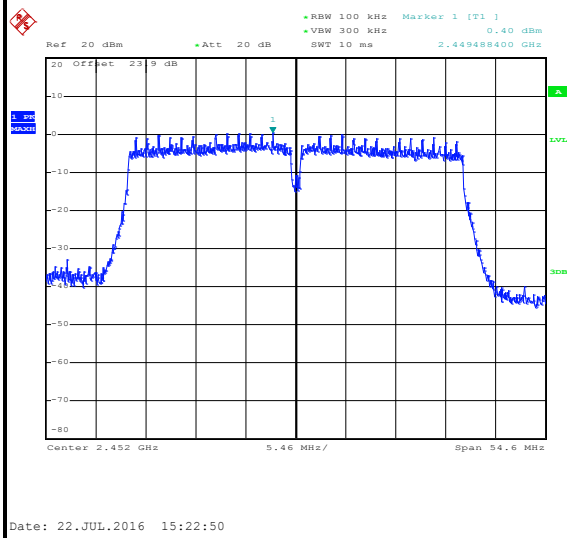
Spurious Emission 2GHz~25GHz



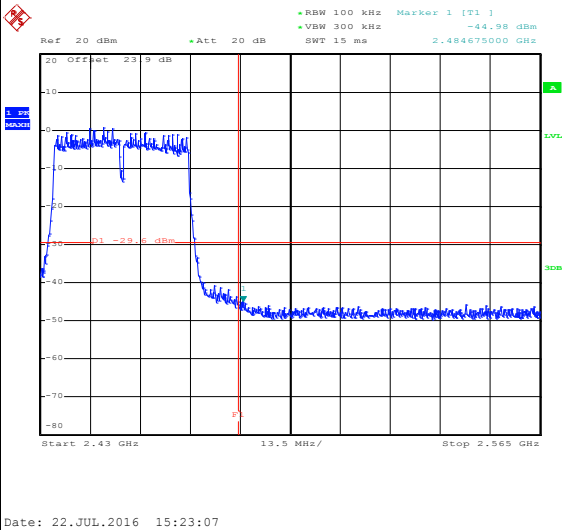
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT40	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	09	**Test Engineer :**	Bill Kuo

WLAN 802.11ac VHT40 Channel 09

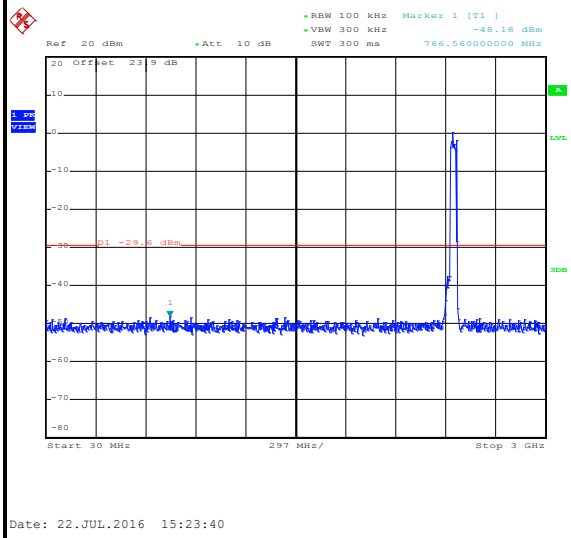
100kHz PSD reference Level



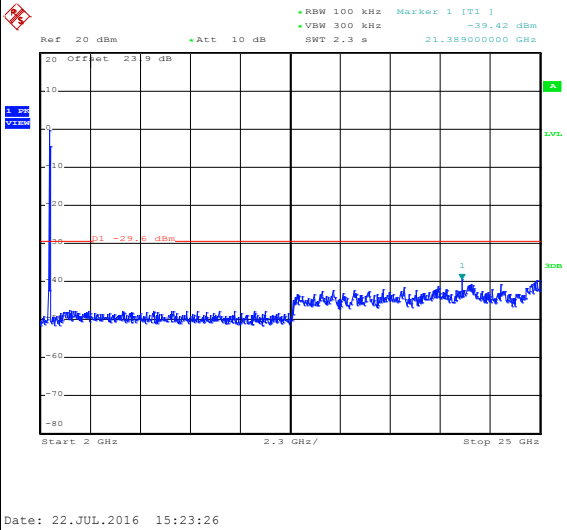
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz



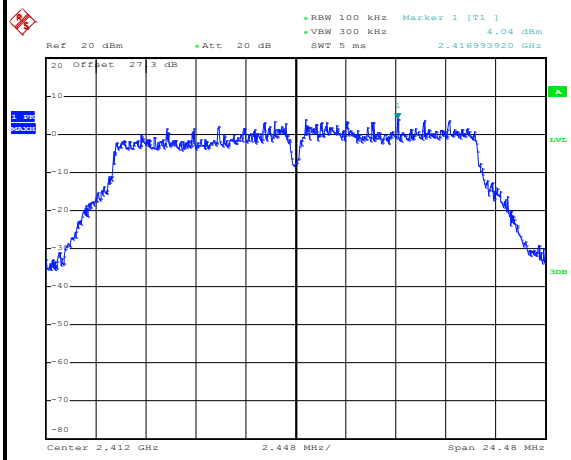
<TXBF Modes>

Number of TX = 2, Ant. 1 (Measured)

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

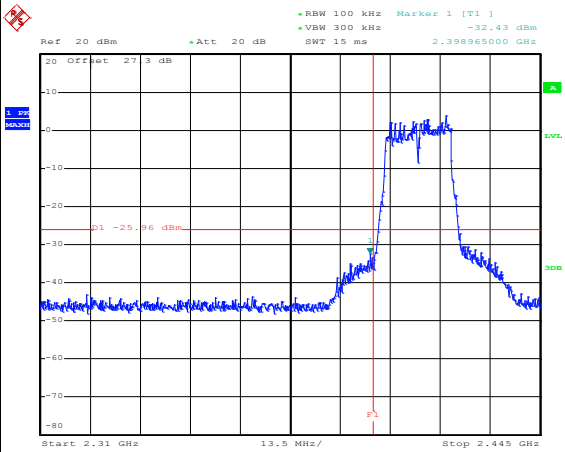
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



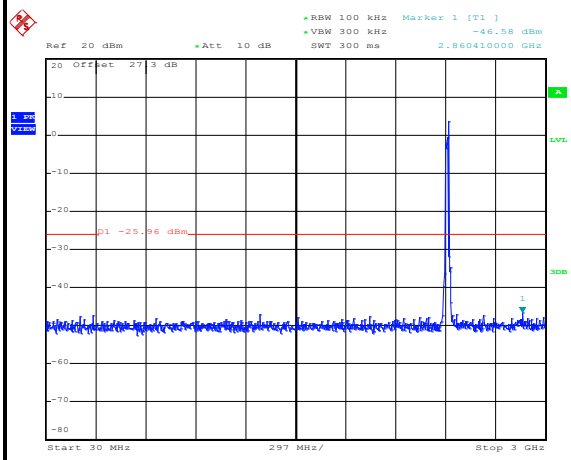
Date: 28.JUL.2016 14:58:06

Low Channel Plot



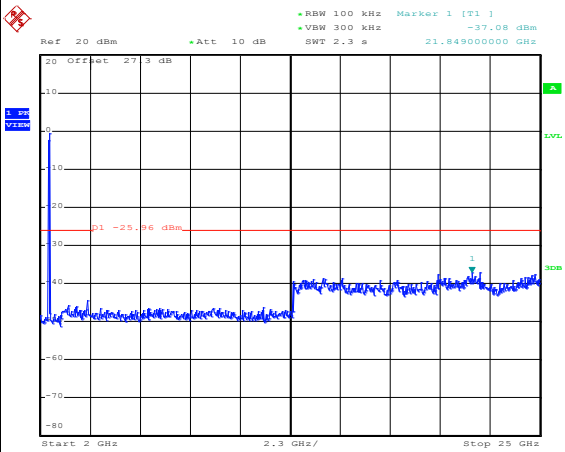
Date: 28.JUL.2016 14:58:21

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 14:58:33

Spurious Emission 2GHz~25GHz

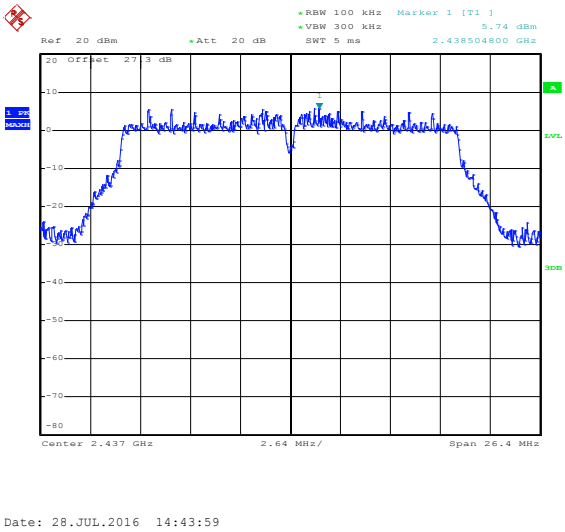


Date: 28.JUL.2016 14:59:17

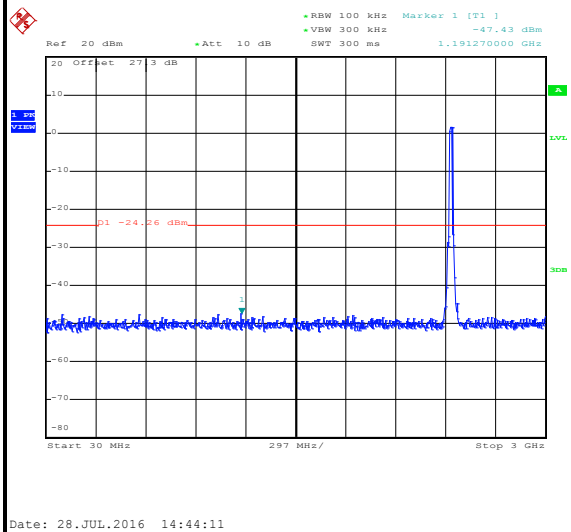
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11n HT20 Channel 06

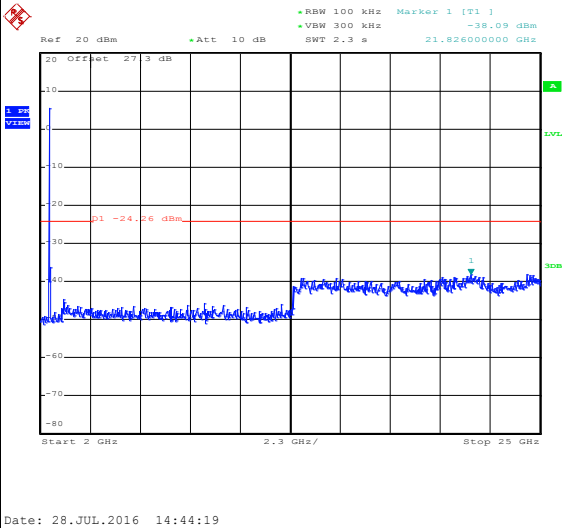
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



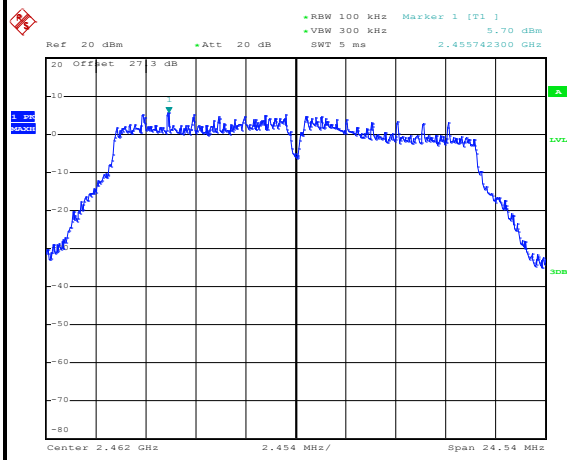
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

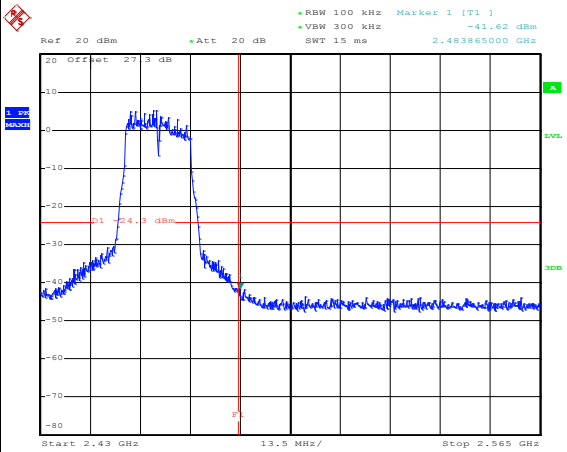
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



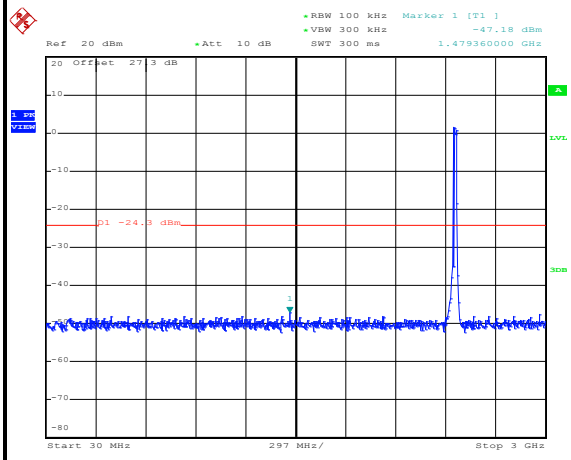
Date: 28.JUL.2016 14:40:24

High Channel Plot



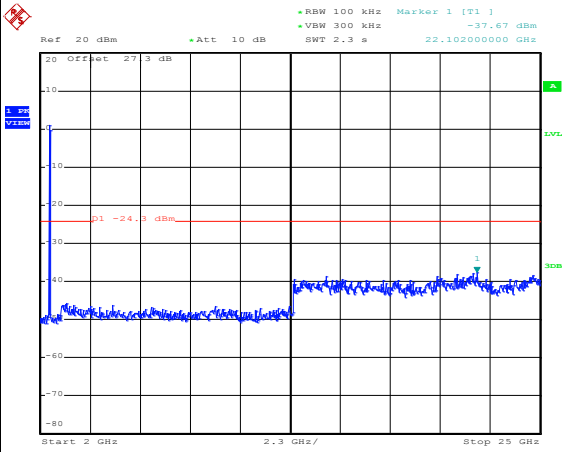
Date: 28.JUL.2016 14:40:48

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 14:41:47

Spurious Emission 2GHz~25GHz

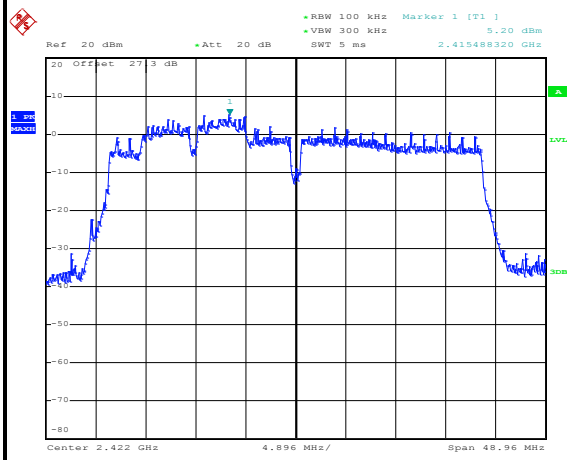


Date: 28.JUL.2016 14:41:56

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	03	**Test Engineer :**	Bill Kuo

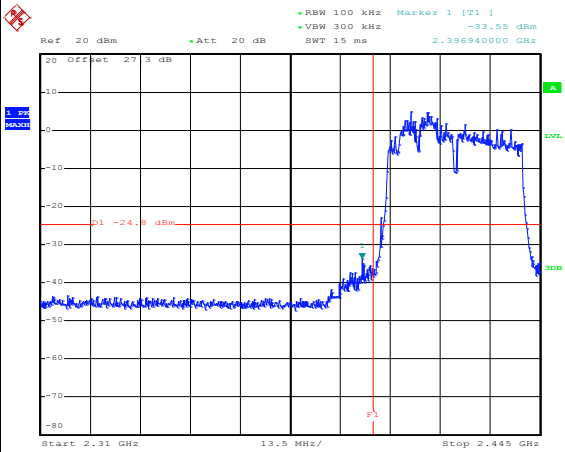
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



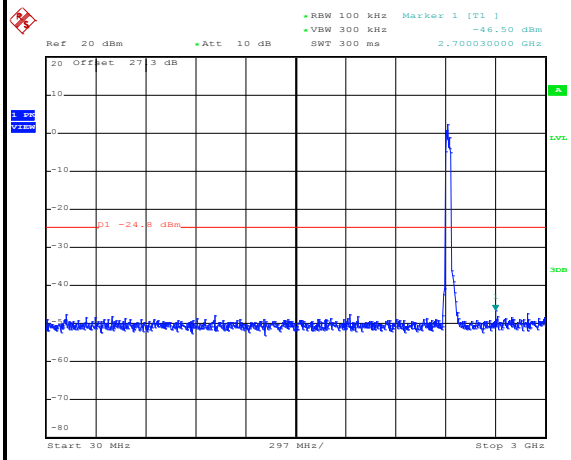
Date: 28.JUL.2016 15:59:37

Low Channel Plot



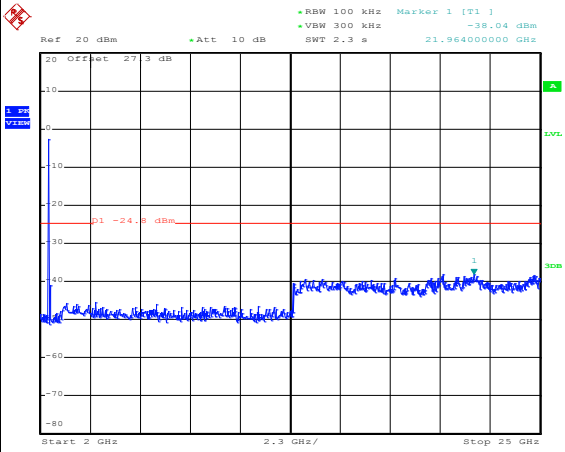
Date: 28.JUL.2016 16:00:08

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 16:01:04

Spurious Emission 2GHz~25GHz

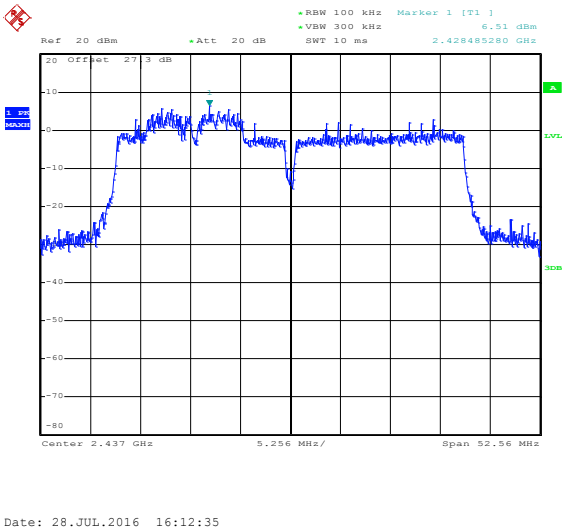


Date: 28.JUL.2016 16:00:28

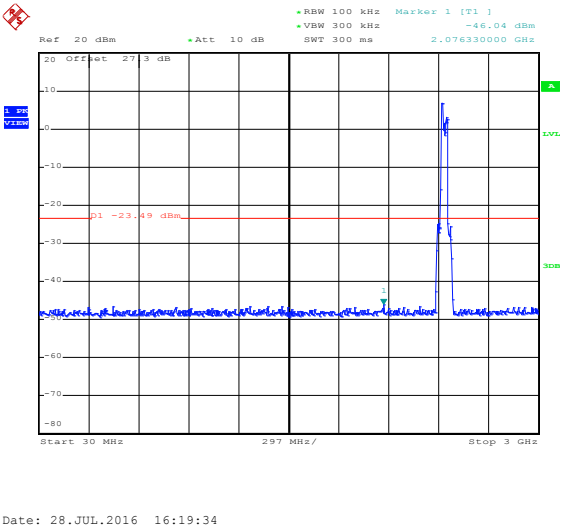
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11n HT40 Channel 06

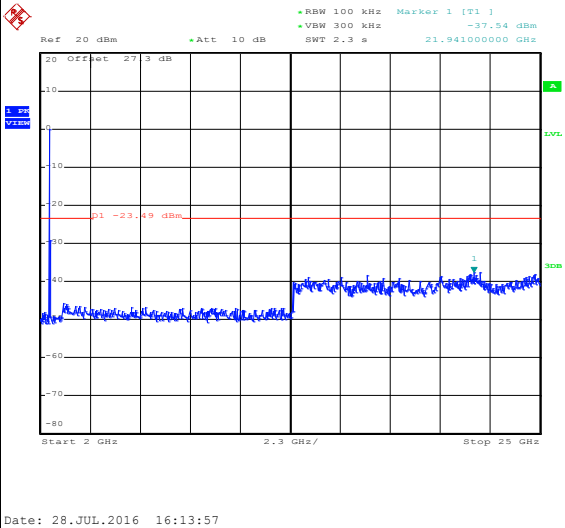
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



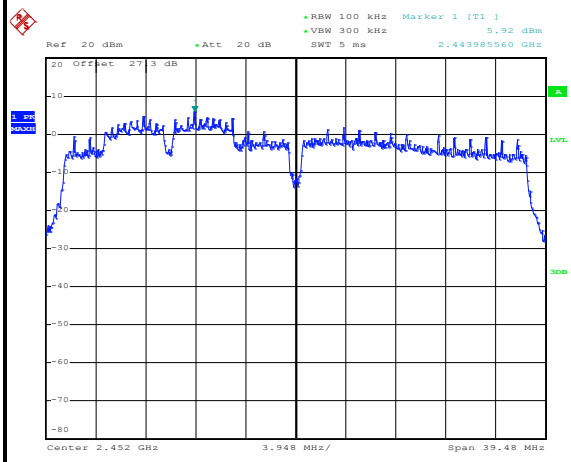
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	09	**Test Engineer :**	Bill Kuo

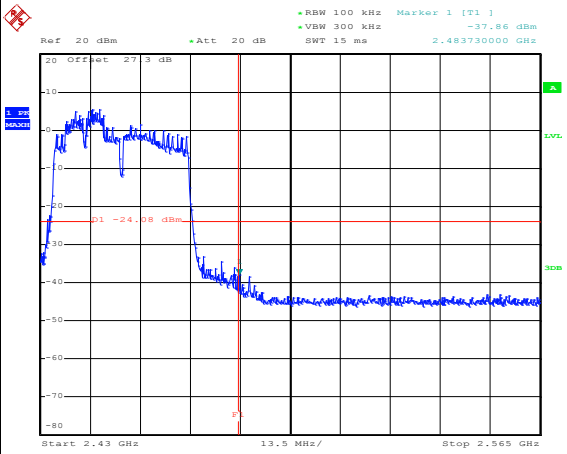
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



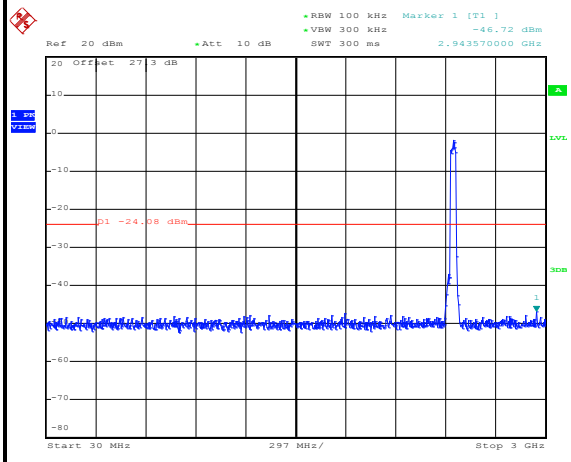
Date: 28.JUL.2016 16:33:13

High Channel Plot



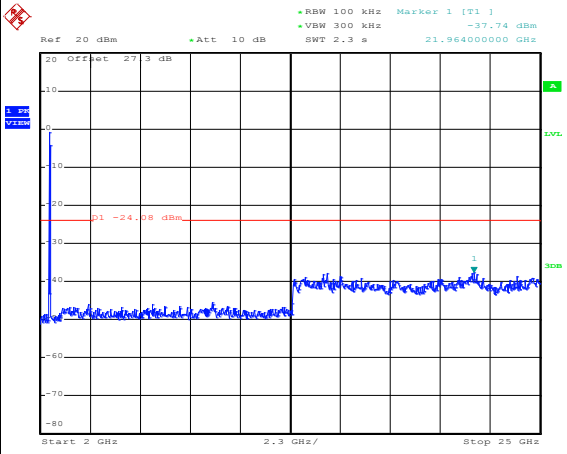
Date: 28.JUL.2016 16:35:32

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 16:36:20

Spurious Emission 2GHz~25GHz

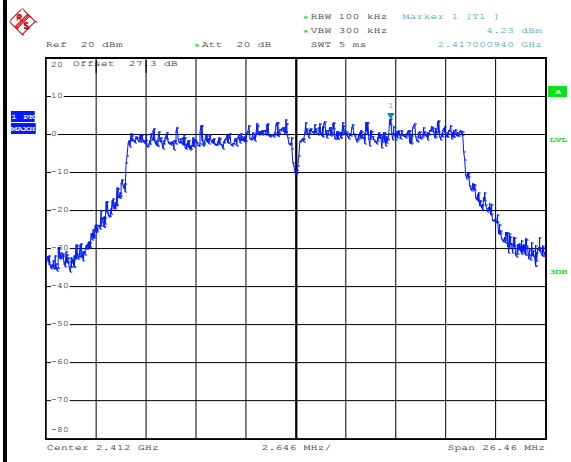


Date: 28.JUL.2016 16:36:45

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

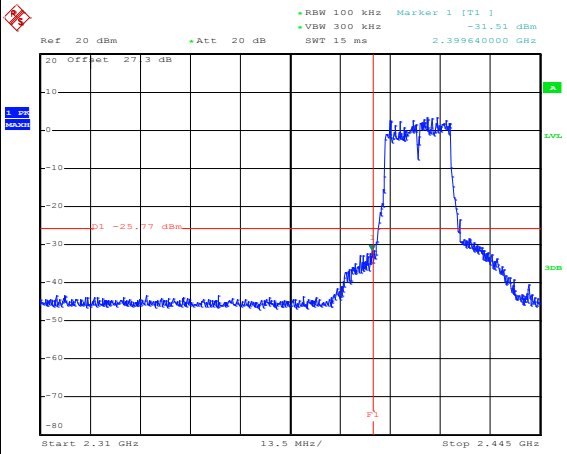
WLAN 802.11ac VHT20 Channel 01

100kHz PSD reference Level



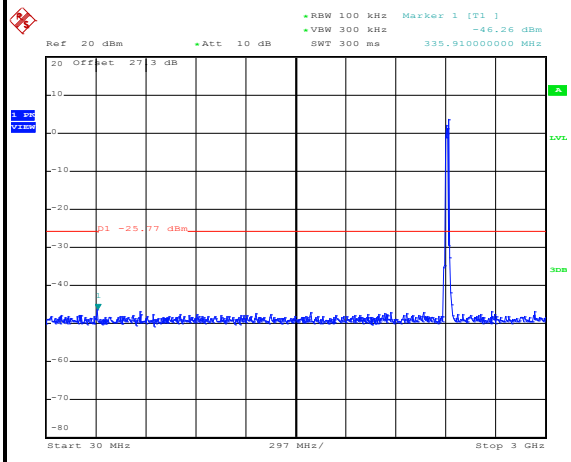
Date: 28.JUL.2016 13:51:46

Low Channel Plot



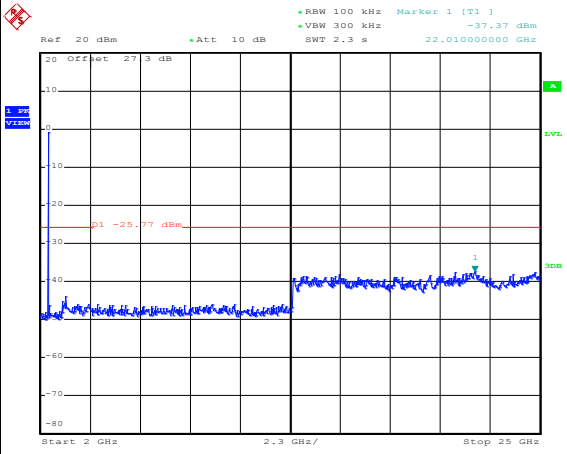
Date: 28.JUL.2016 13:55:13

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 13:58:58

Spurious Emission 2GHz~25GHz

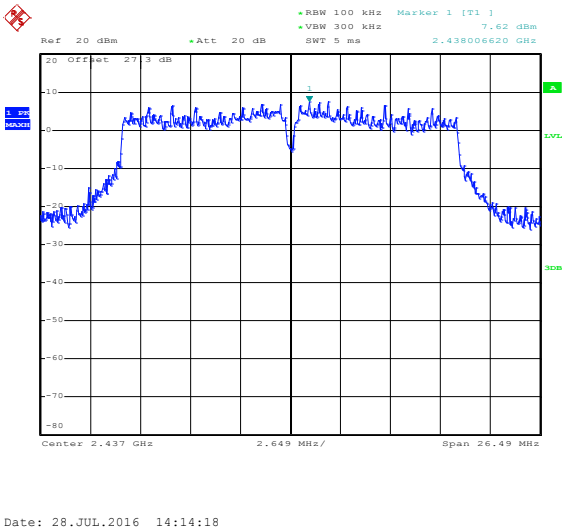


Date: 28.JUL.2016 13:59:43

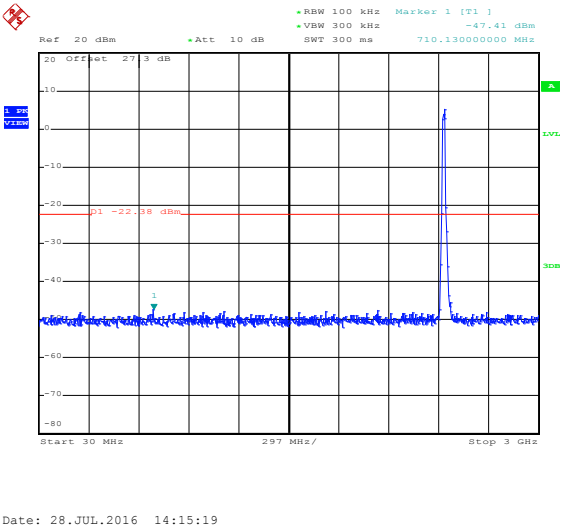
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11ac VHT20 Channel 06

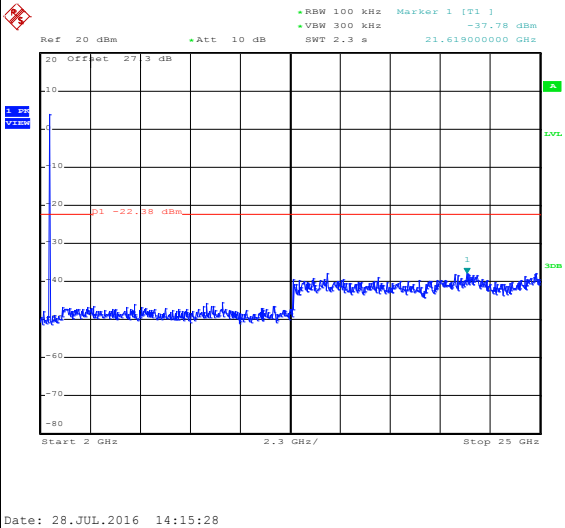
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



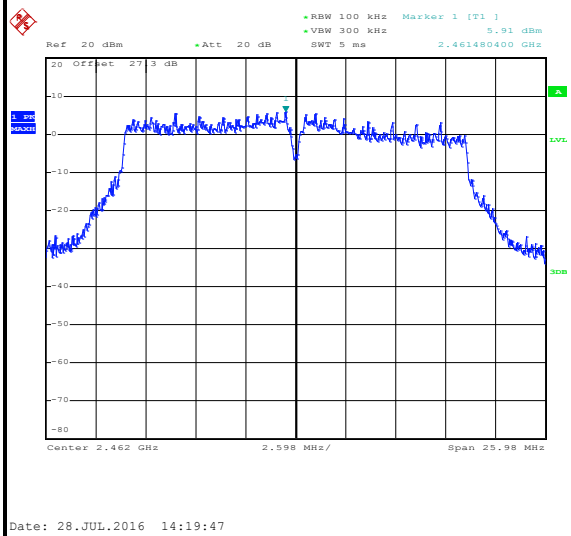
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

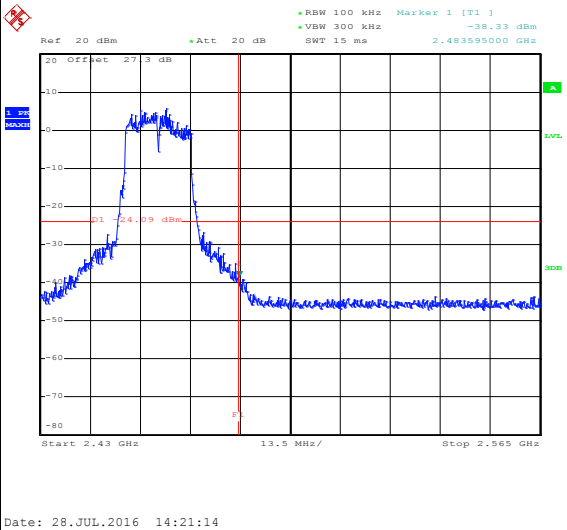
WLAN 802.11ac VHT20 Channel 11

100kHz PSD reference Level



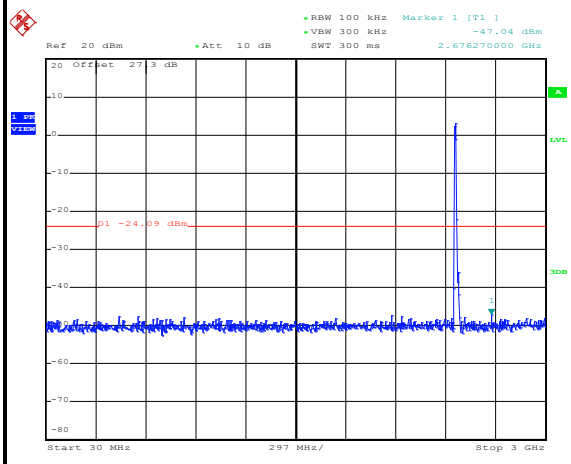
Date: 28.JUL.2016 14:19:47

High Channel Plot



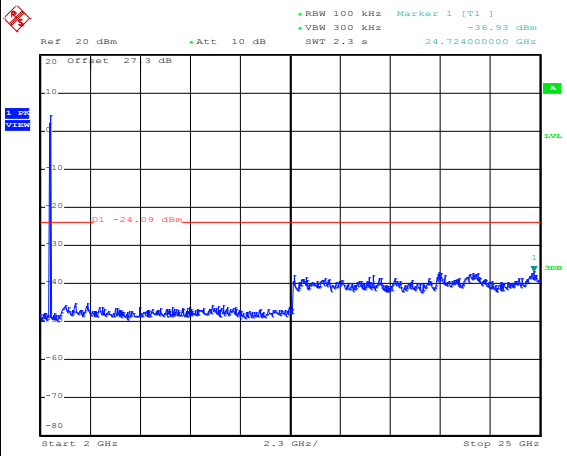
Date: 28.JUL.2016 14:21:14

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 14:23:23

Spurious Emission 2GHz~25GHz

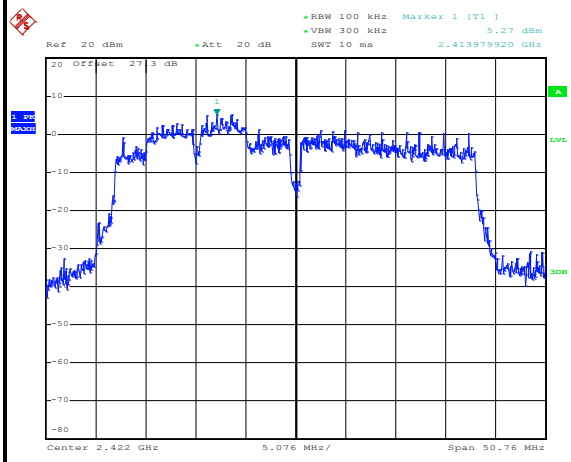


Date: 28.JUL.2016 14:24:07

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	03	**Test Engineer :**	Bill Kuo

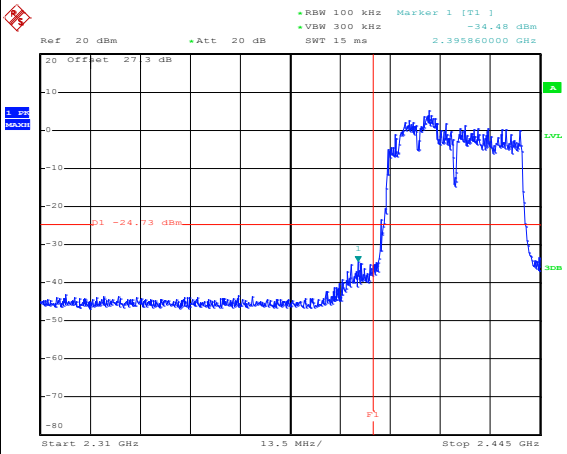
WLAN 802.11ac VHT40 Channel 03

100kHz PSD reference Level



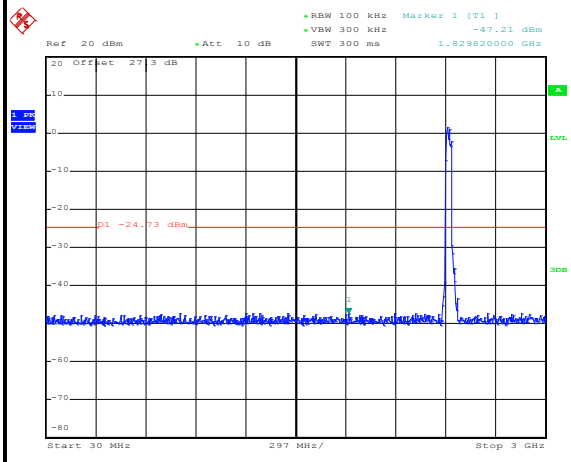
Date: 28.JUL.2016 15:14:11

Low Channel Plot



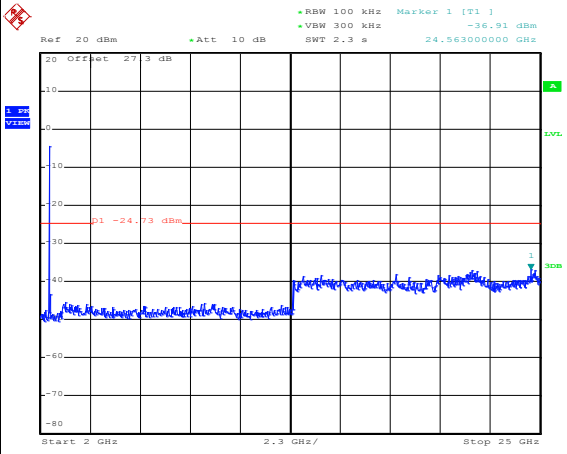
Date: 28.JUL.2016 15:14:49

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 15:16:20

Spurious Emission 2GHz~25GHz

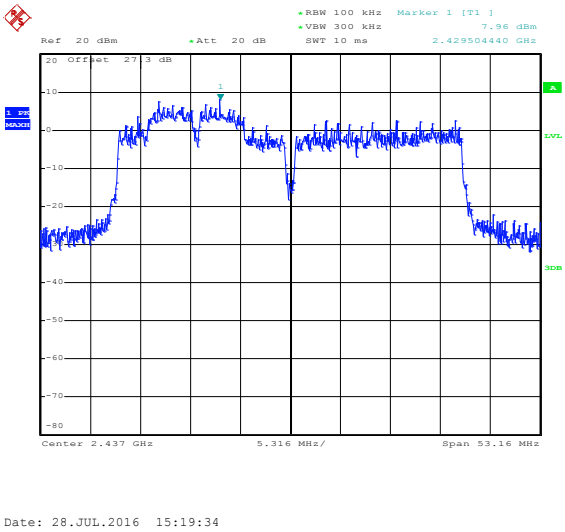


Date: 28.JUL.2016 15:15:32

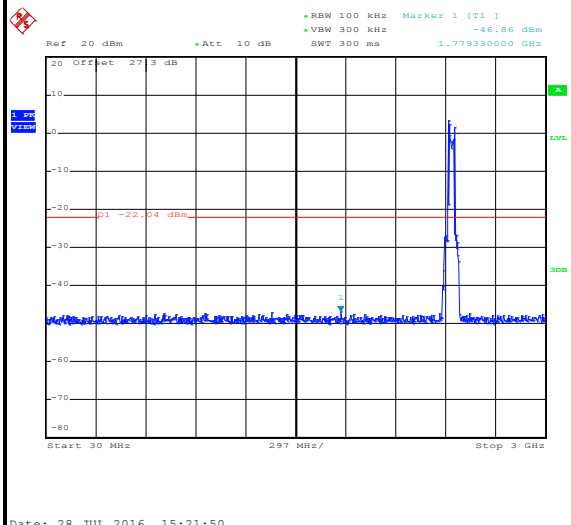
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11ac VHT40 Channel 06

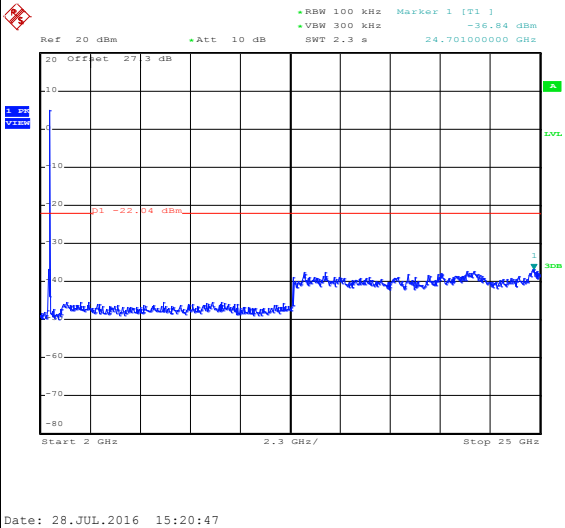
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



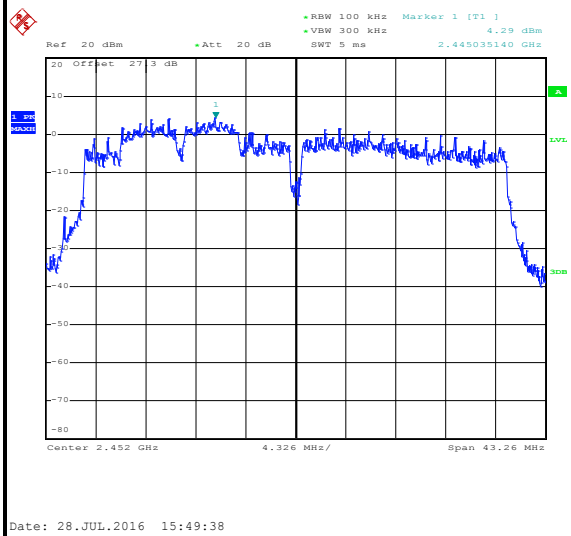
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT40	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	09	**Test Engineer :**	Bill Kuo

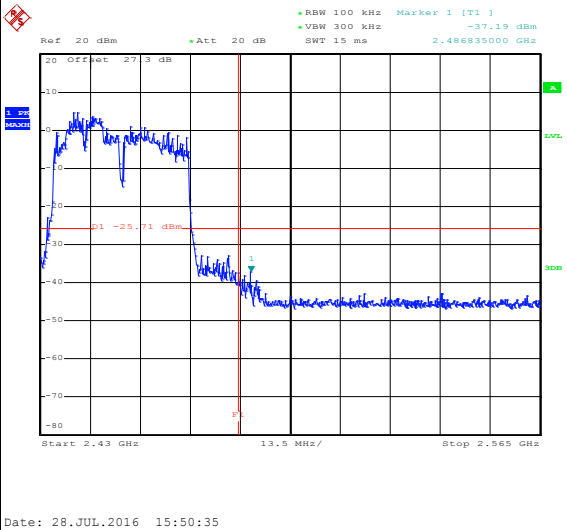
WLAN 802.11ac VHT40 Channel 09

100kHz PSD reference Level



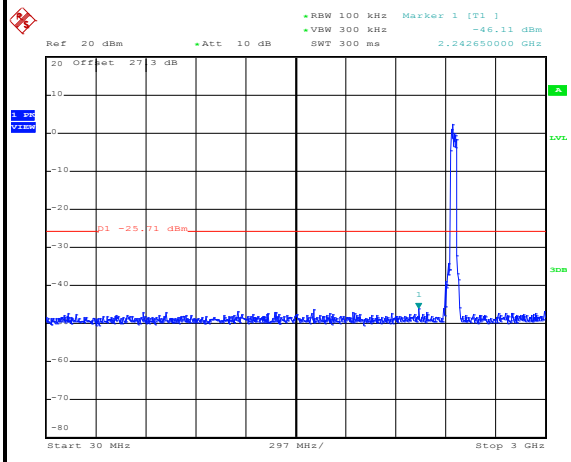
Date: 28.JUL.2016 15:49:38

High Channel Plot



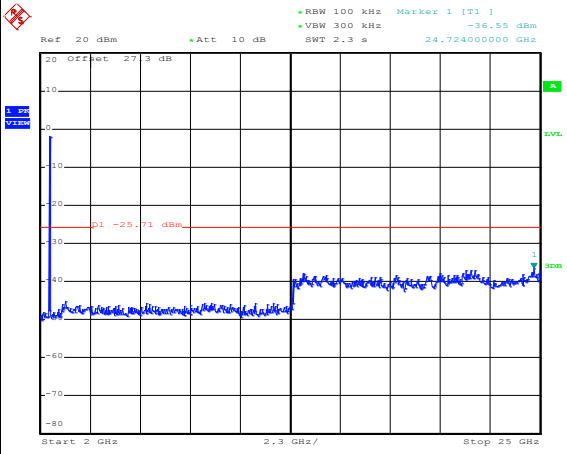
Date: 28.JUL.2016 15:50:35

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 15:53:15

Spurious Emission 2GHz~25GHz



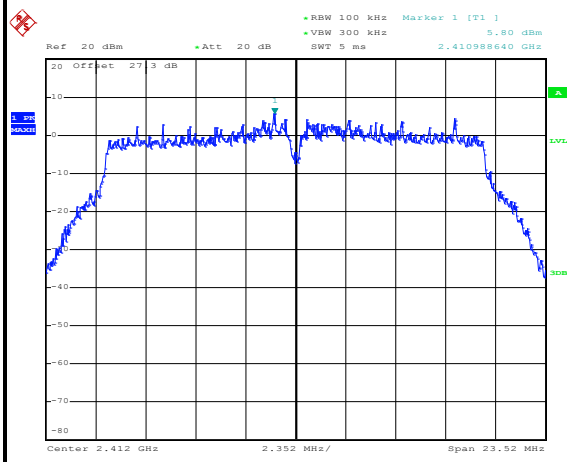
Date: 28.JUL.2016 15:52:00

Number of TX = 2, Ant. 2 (Measured)

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

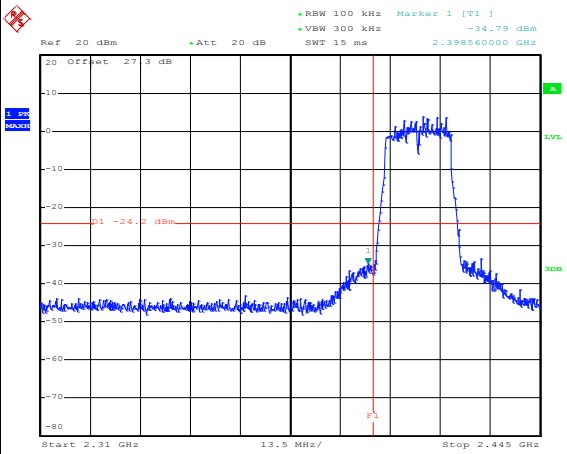
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



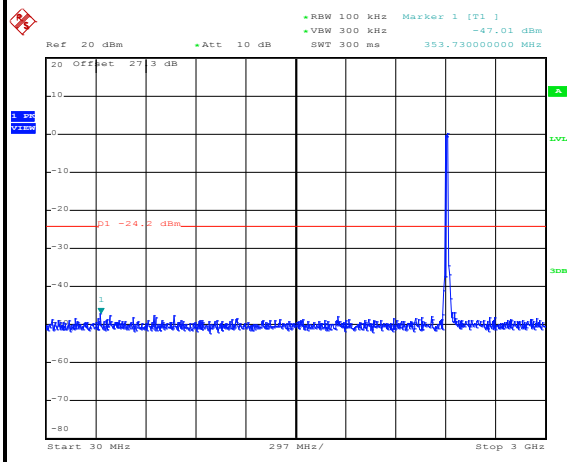
Date: 28.JUL.2016 15:01:37

Low Channel Plot



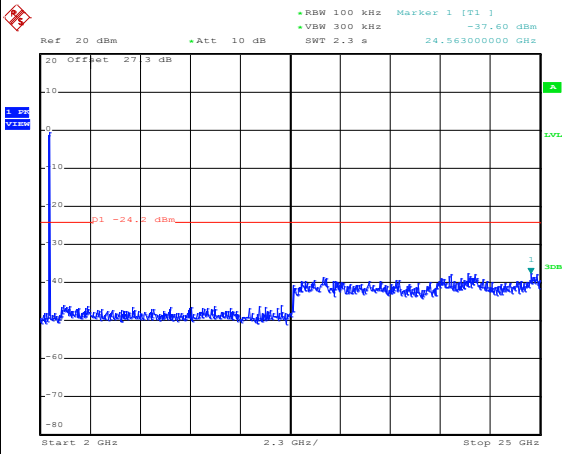
Date: 28.JUL.2016 15:01:53

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 15:02:05

Spurious Emission 2GHz~25GHz

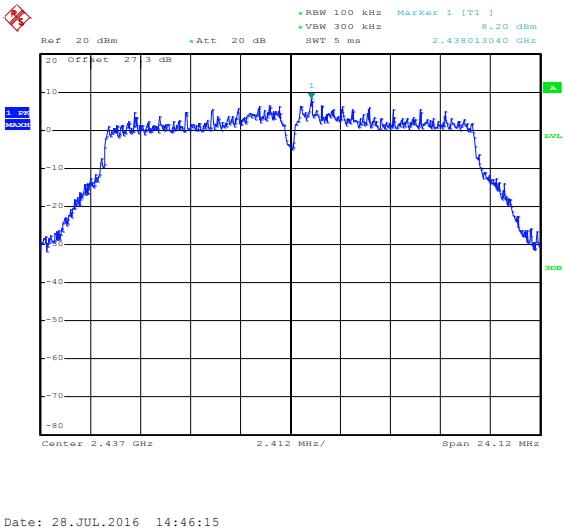


Date: 28.JUL.2016 15:02:13

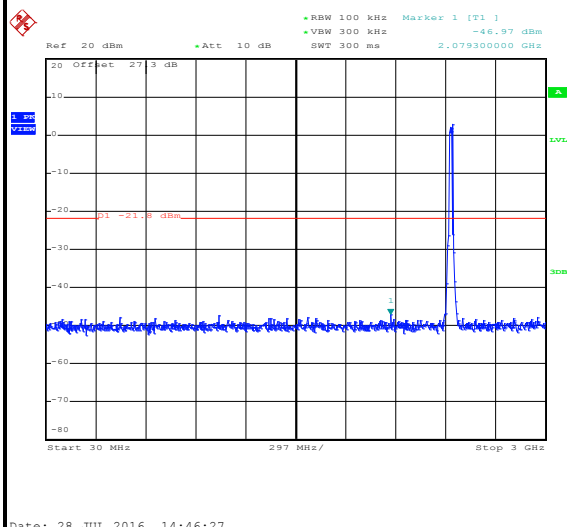
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11n HT20 Channel 06

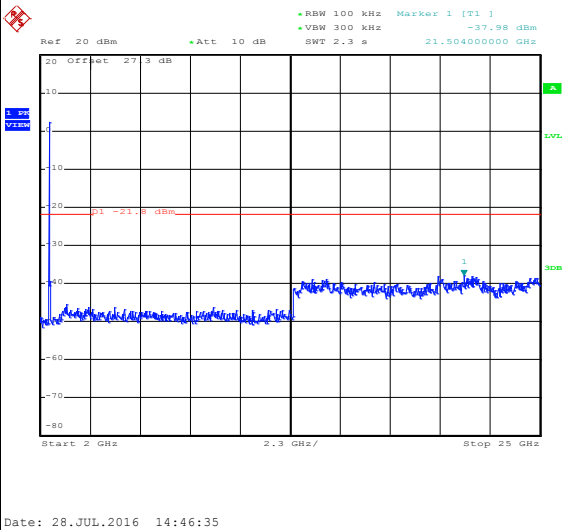
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



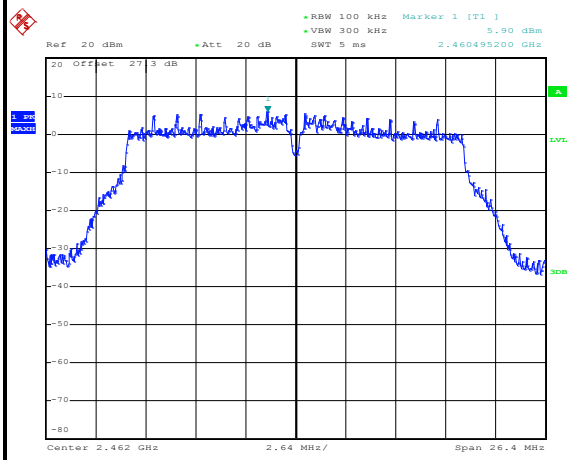
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

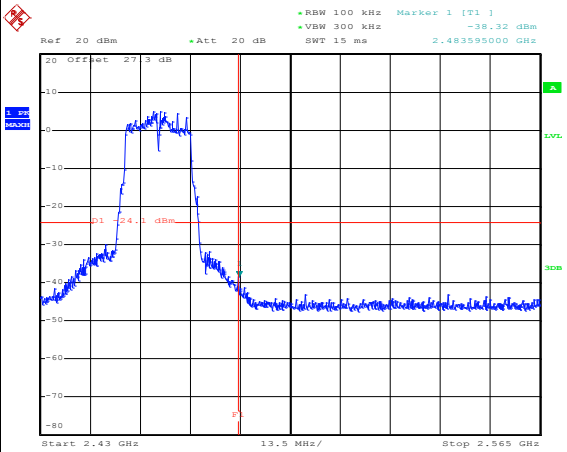
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



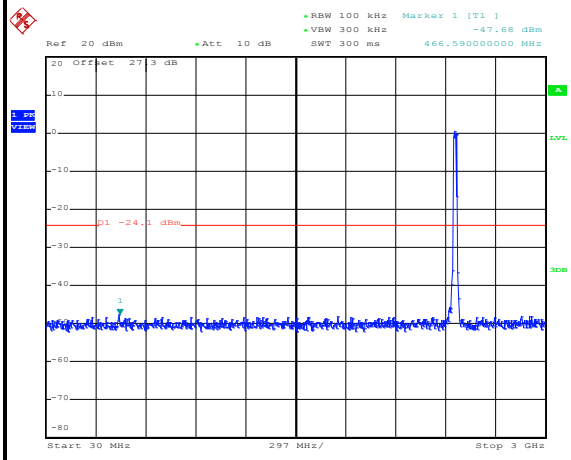
Date: 28.JUL.2016 14:37:04

High Channel Plot



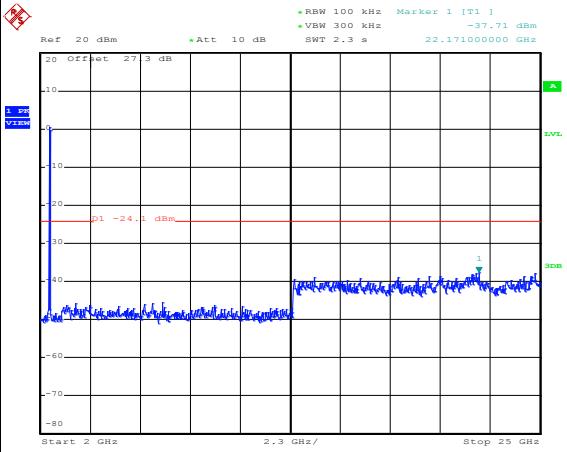
Date: 28.JUL.2016 14:37:27

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 14:37:39

Spurious Emission 2GHz~25GHz

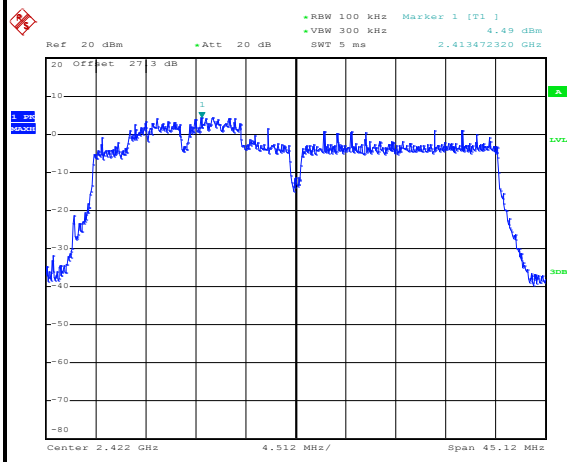


Date: 28.JUL.2016 14:37:47

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	03	**Test Engineer :**	Bill Kuo

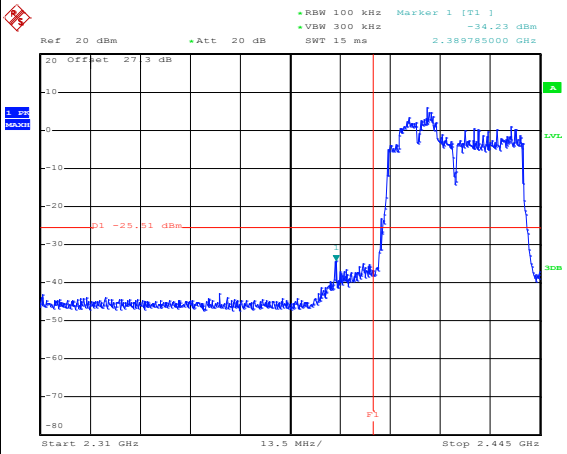
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



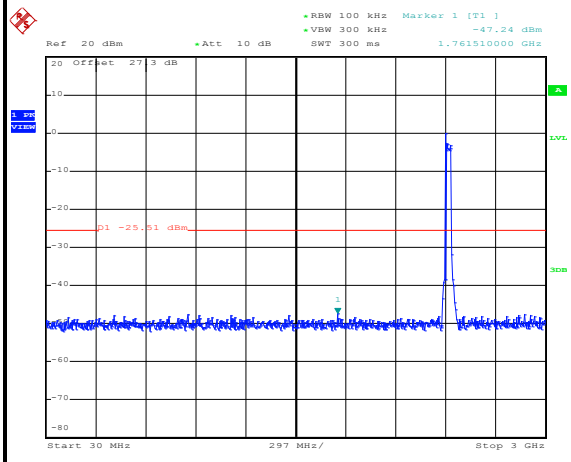
Date: 28.JUL.2016 16:04:30

Low Channel Plot



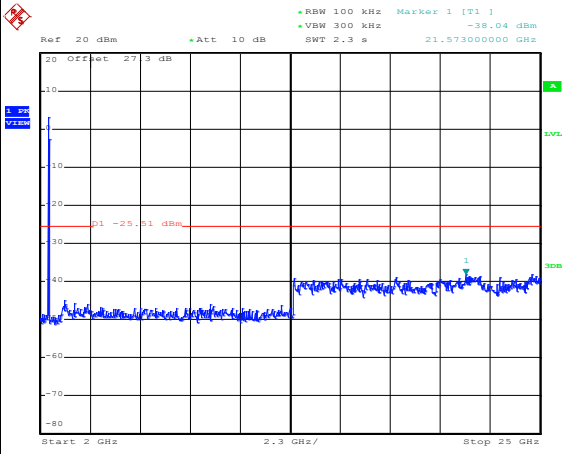
Date: 28.JUL.2016 16:05:43

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 16:05:55

Spurious Emission 2GHz~25GHz

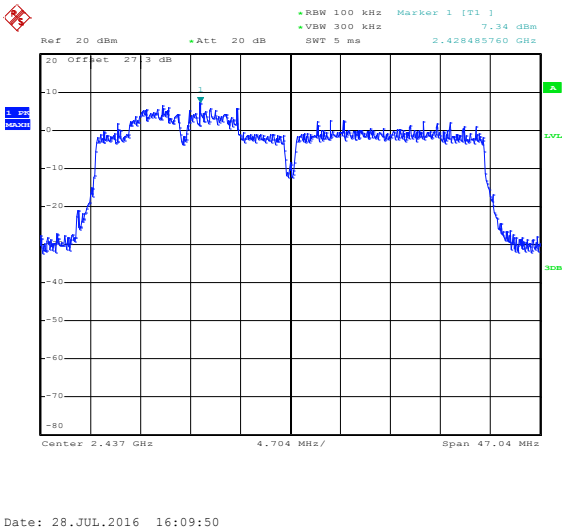


Date: 28.JUL.2016 16:06:04

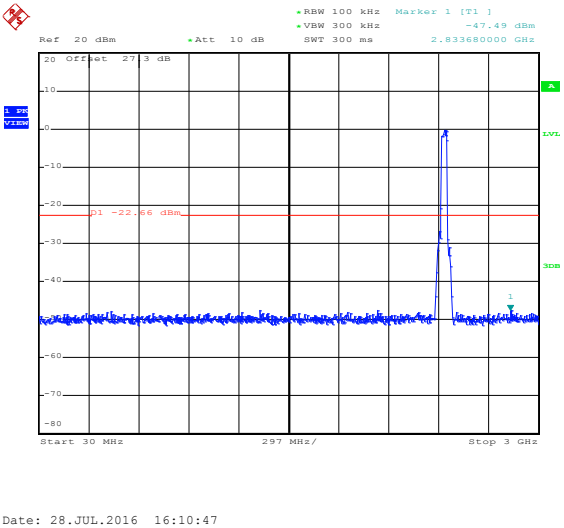
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11n HT40 Channel 06

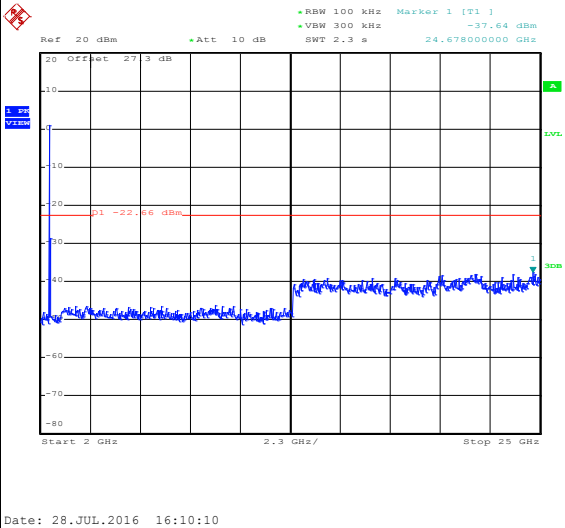
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



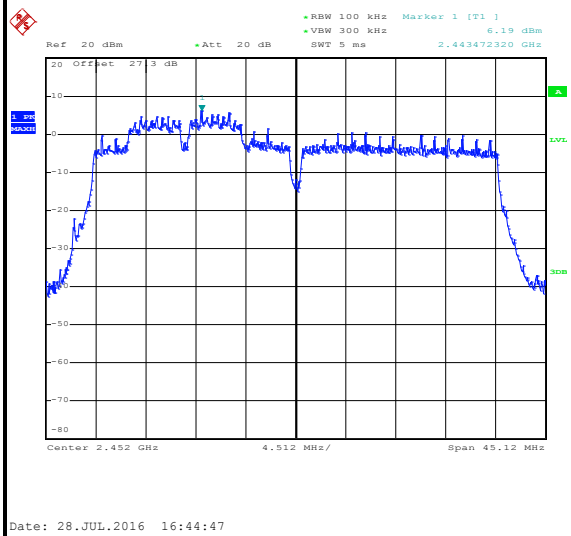
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT40	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	09	**Test Engineer :**	Bill Kuo

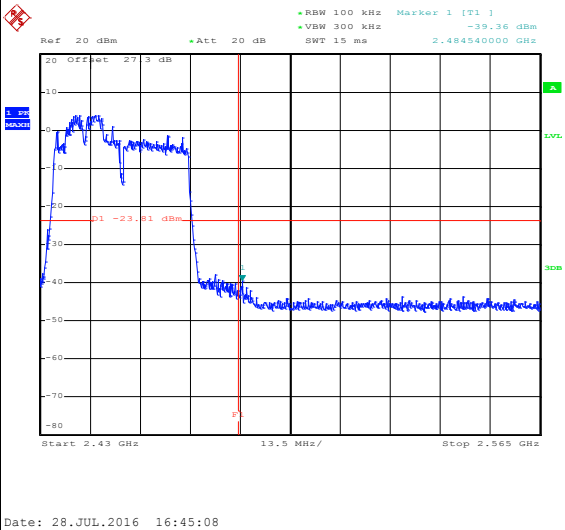
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



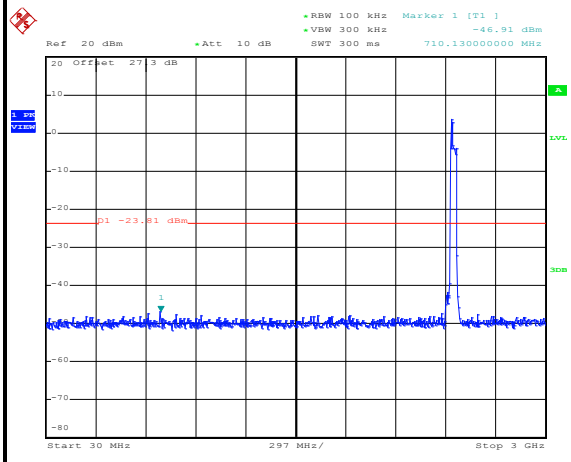
Date: 28.JUL.2016 16:44:47

High Channel Plot



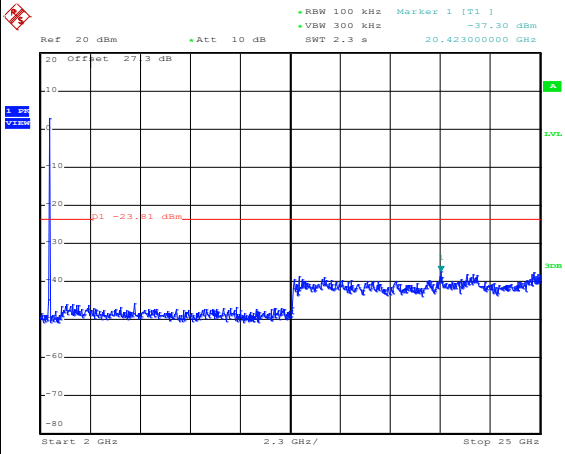
Date: 28.JUL.2016 16:45:08

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 16:47:00

Spurious Emission 2GHz~25GHz

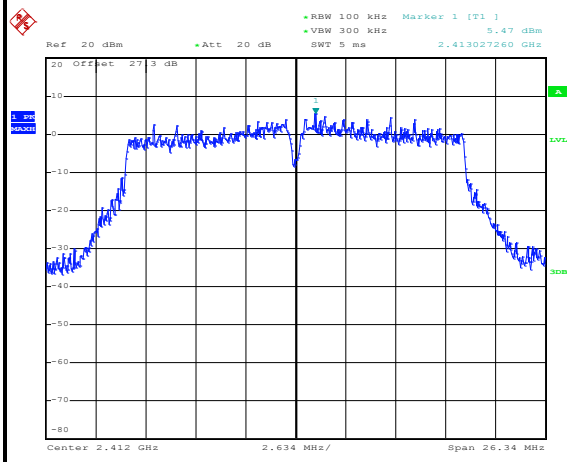


Date: 28.JUL.2016 16:45:28

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Bill Kuo

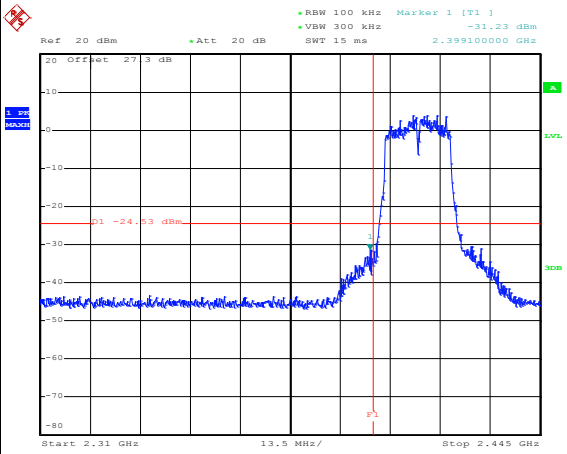
WLAN 802.11ac VHT20 Channel 01

100kHz PSD reference Level



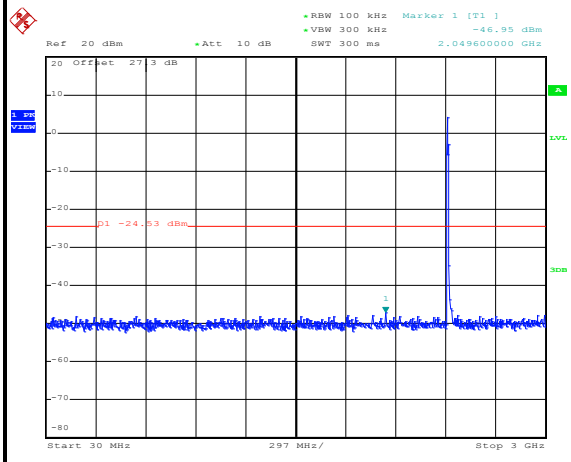
Date: 28.JUL.2016 14:02:21

Low Channel Plot



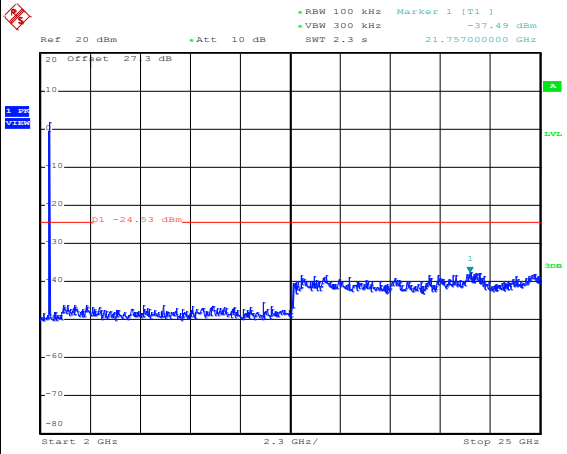
Date: 28.JUL.2016 14:03:00

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 14:03:12

Spurious Emission 2GHz~25GHz

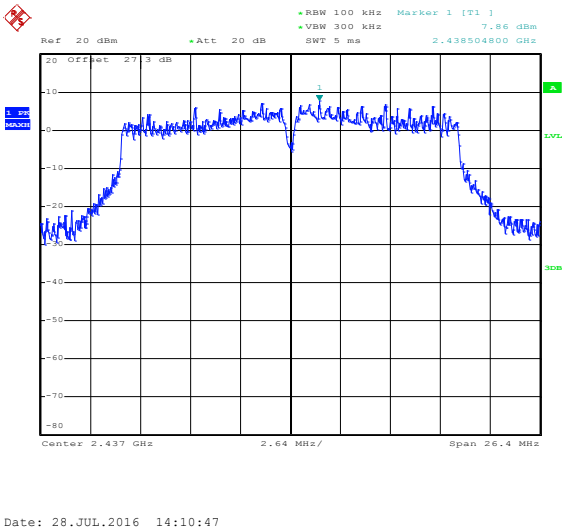


Date: 28.JUL.2016 14:05:29

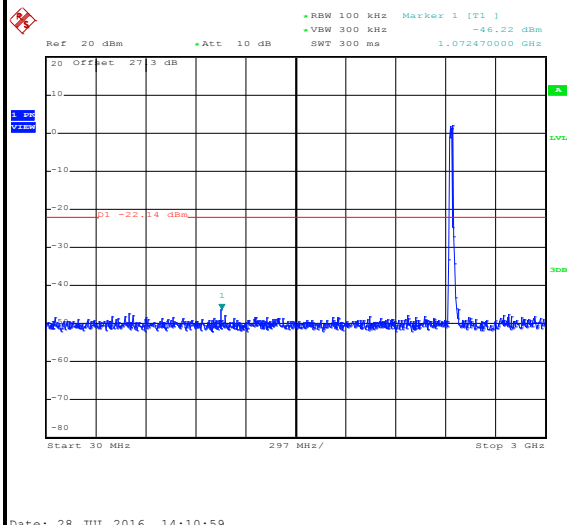
Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

WLAN 802.11ac VHT20 Channel 06

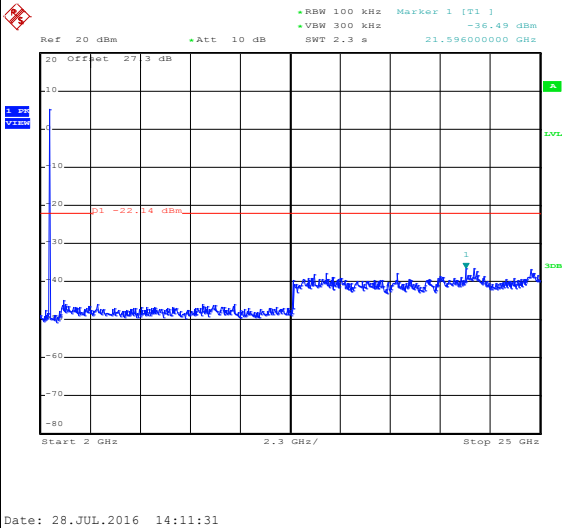
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



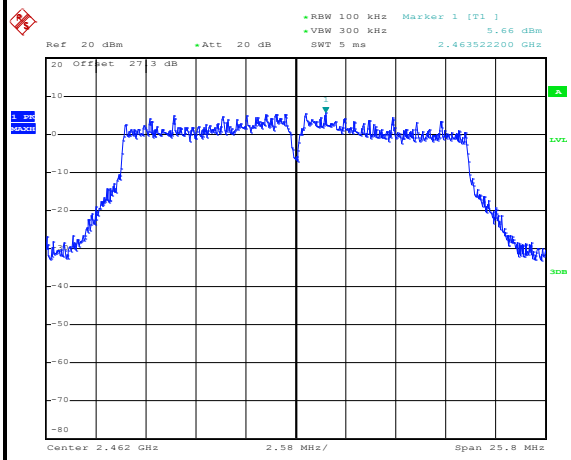
Spurious Emission 2GHz~25GHz



Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

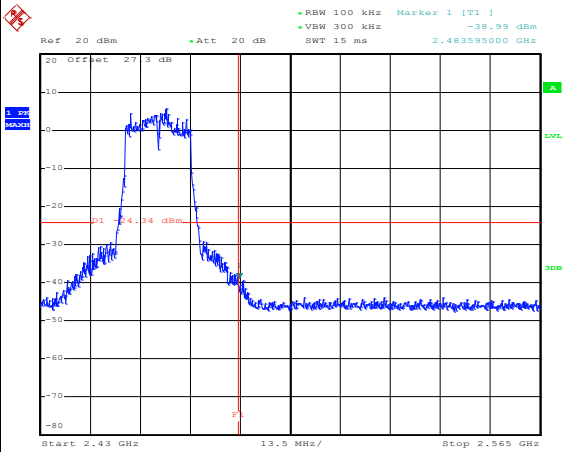
WLAN 802.11ac VHT20 Channel 11

100kHz PSD reference Level



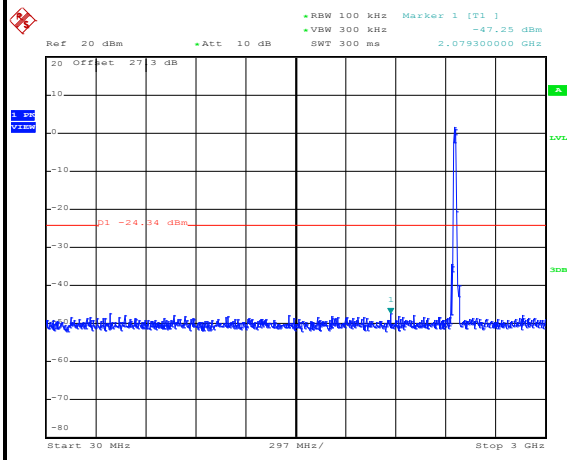
Date: 28.JUL.2016 14:26:50

High Channel Plot



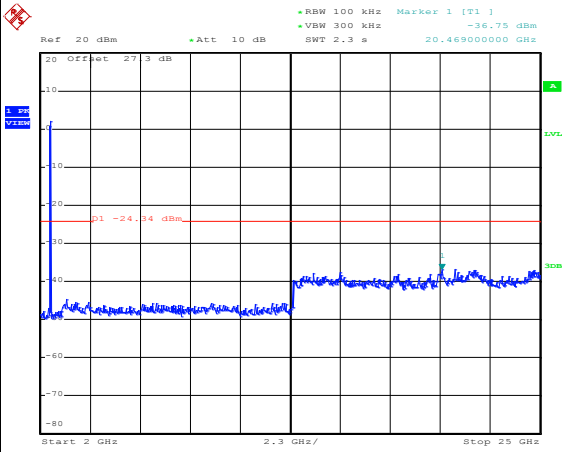
Date: 28.JUL.2016 14:27:21

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 14:30:23

Spurious Emission 2GHz~25GHz

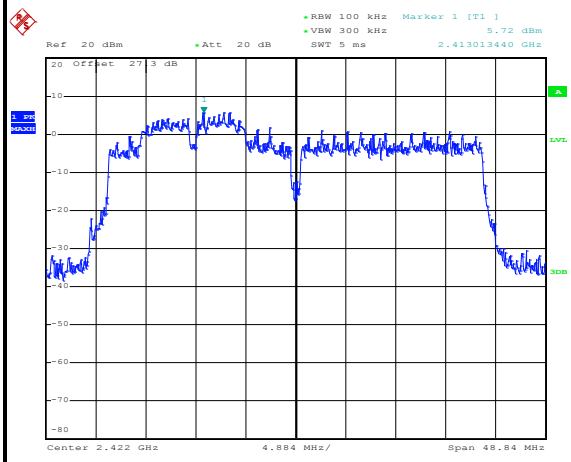


Date: 28.JUL.2016 14:31:18

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	03	**Test Engineer :**	Bill Kuo

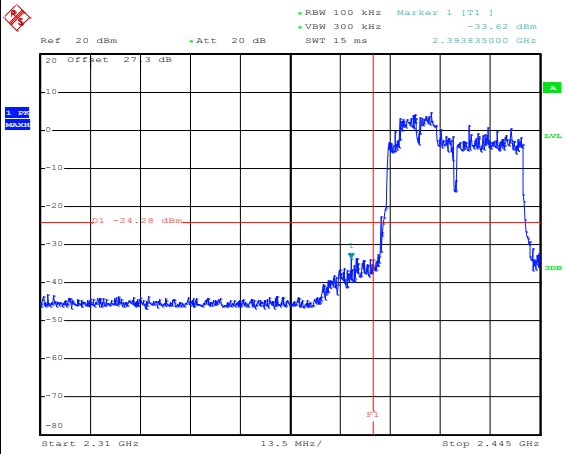
WLAN 802.11ac VHT40 Channel 03

100kHz PSD reference Level



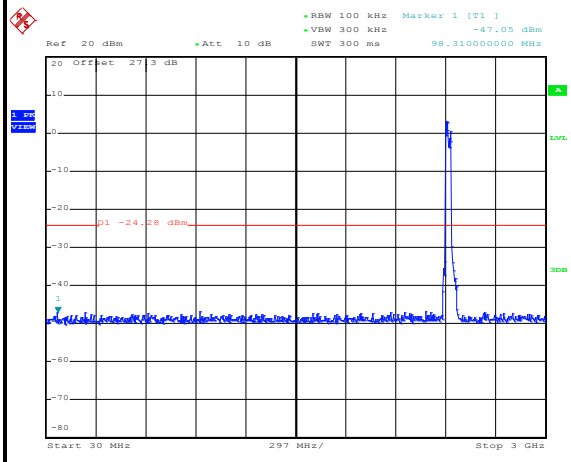
Date: 28.JUL.2016 15:08:25

Low Channel Plot



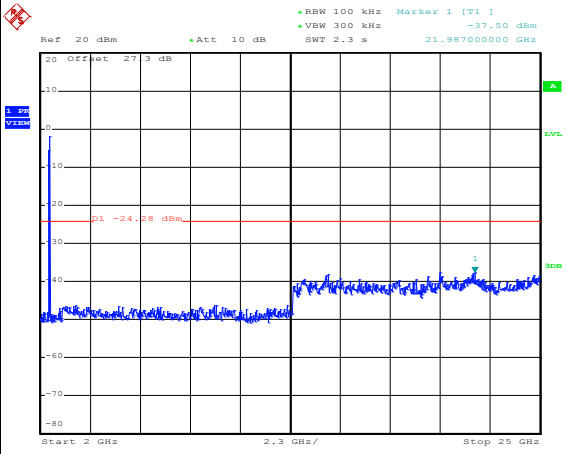
Date: 28.JUL.2016 15:09:02

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 15:11:01

Spurious Emission 2GHz~25GHz

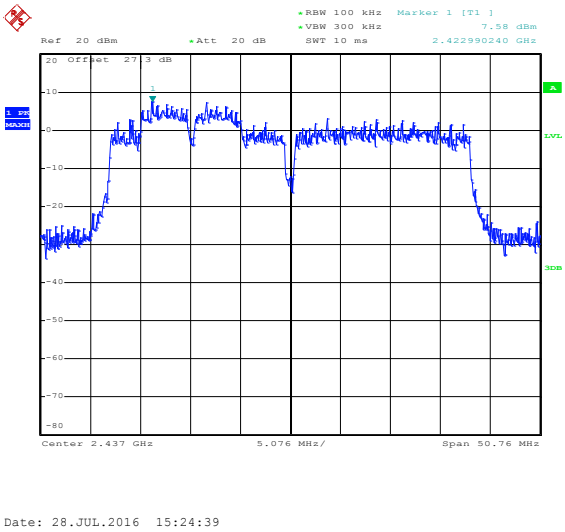


Date: 28.JUL.2016 15:09:22

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT40	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

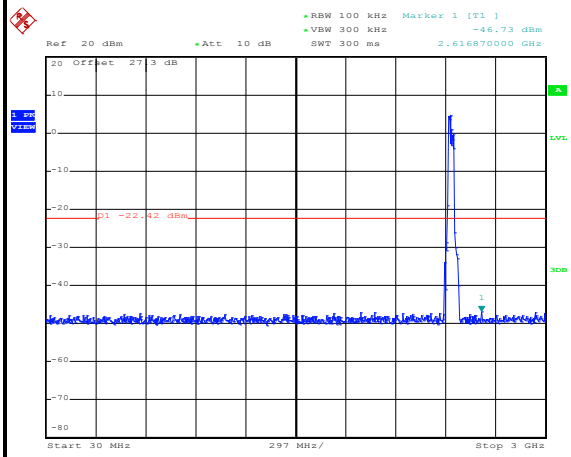
WLAN 802.11ac VHT40 Channel 06

100kHz PSD reference Level



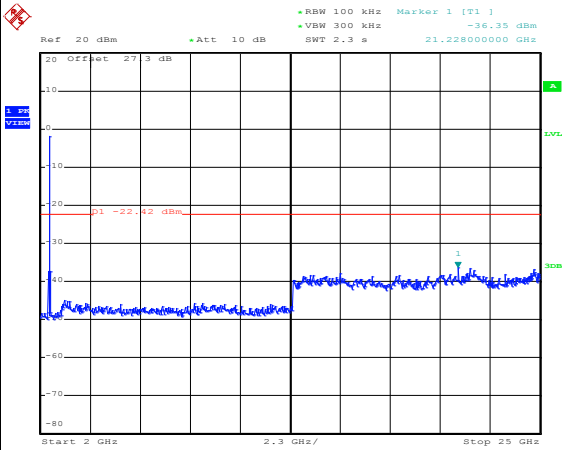
Date: 28.JUL.2016 15:24:39

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 15:26:44

Spurious Emission 2GHz~25GHz

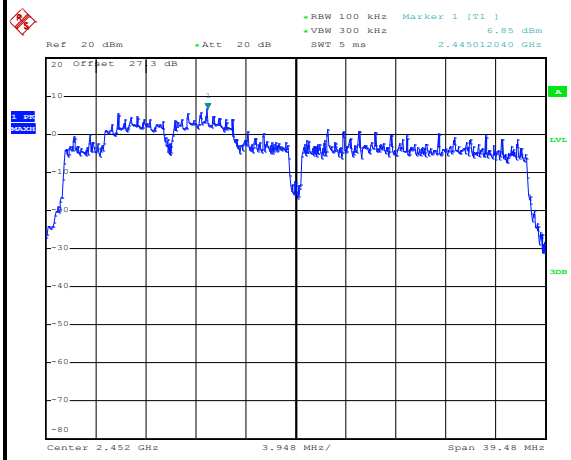


Date: 28.JUL.2016 15:25:40

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT40	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	09	**Test Engineer :**	Bill Kuo

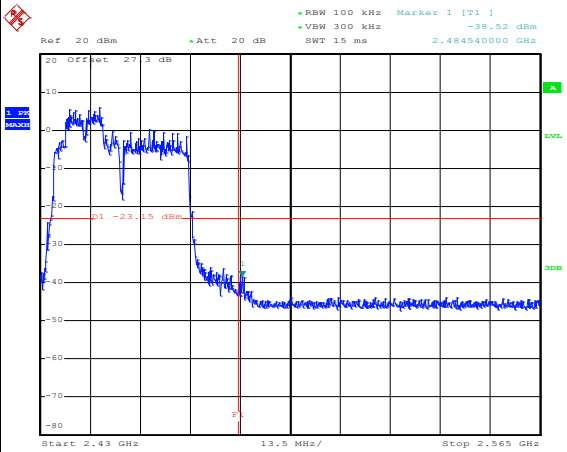
WLAN 802.11ac VHT40 Channel 09

100kHz PSD reference Level



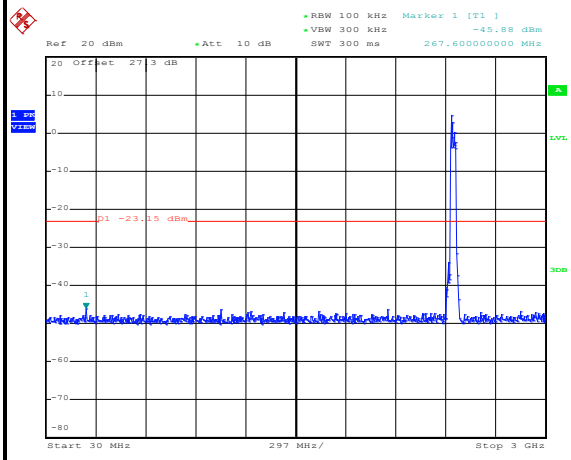
Date: 28.JUL.2016 15:42:23

High Channel Plot



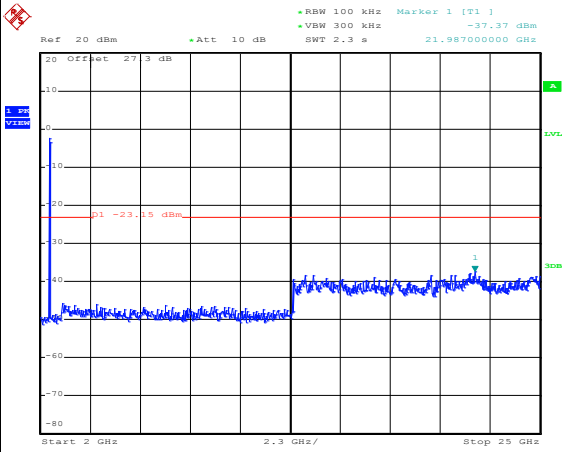
Date: 28.JUL.2016 15:43:00

Spurious Emission 30MHz~3GHz



Date: 28.JUL.2016 15:44:40

Spurious Emission 2GHz~25GHz



Date: 28.JUL.2016 15:43:21

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.5.2 Measuring Instruments

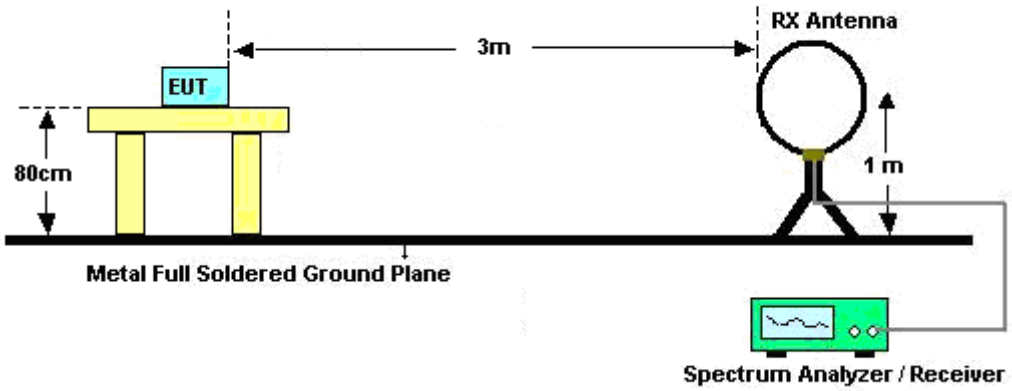
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

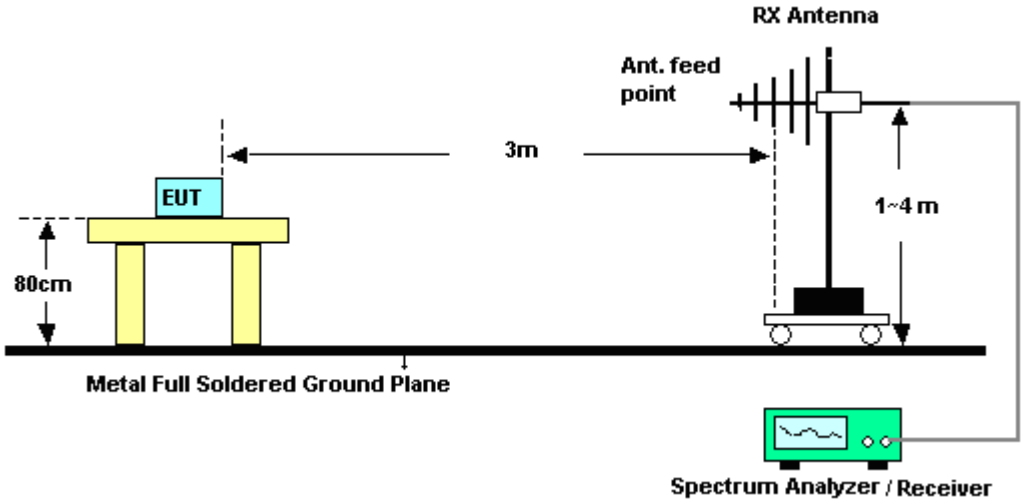
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

For radiated emissions below 30MHz

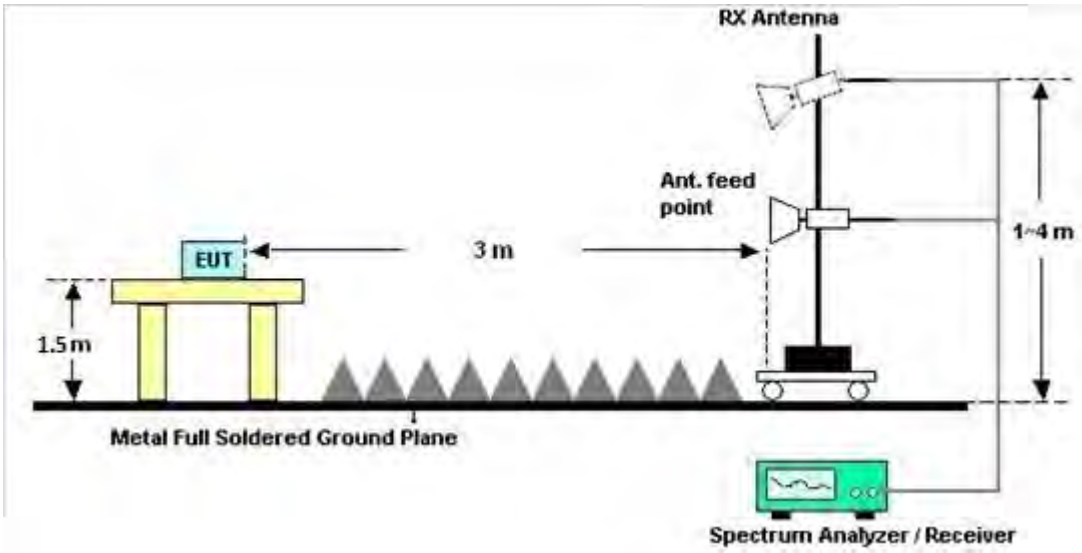


For radiated emissions from 30MHz to 1GHz

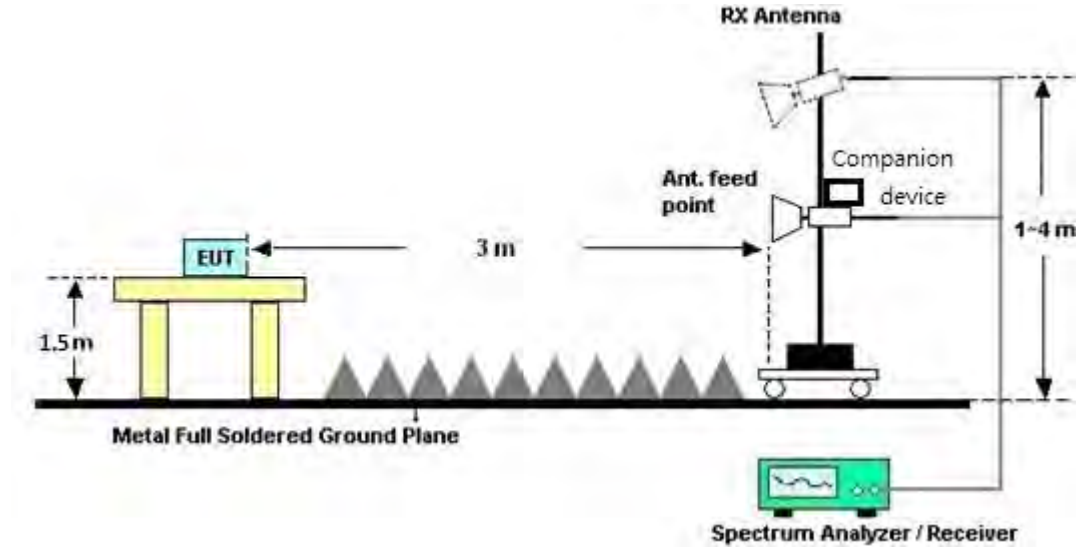


For radiated emissions above 1GHz

<CDD Modes>



<TXBF Modes>



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

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

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B and C.

3.5.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix B and C.

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

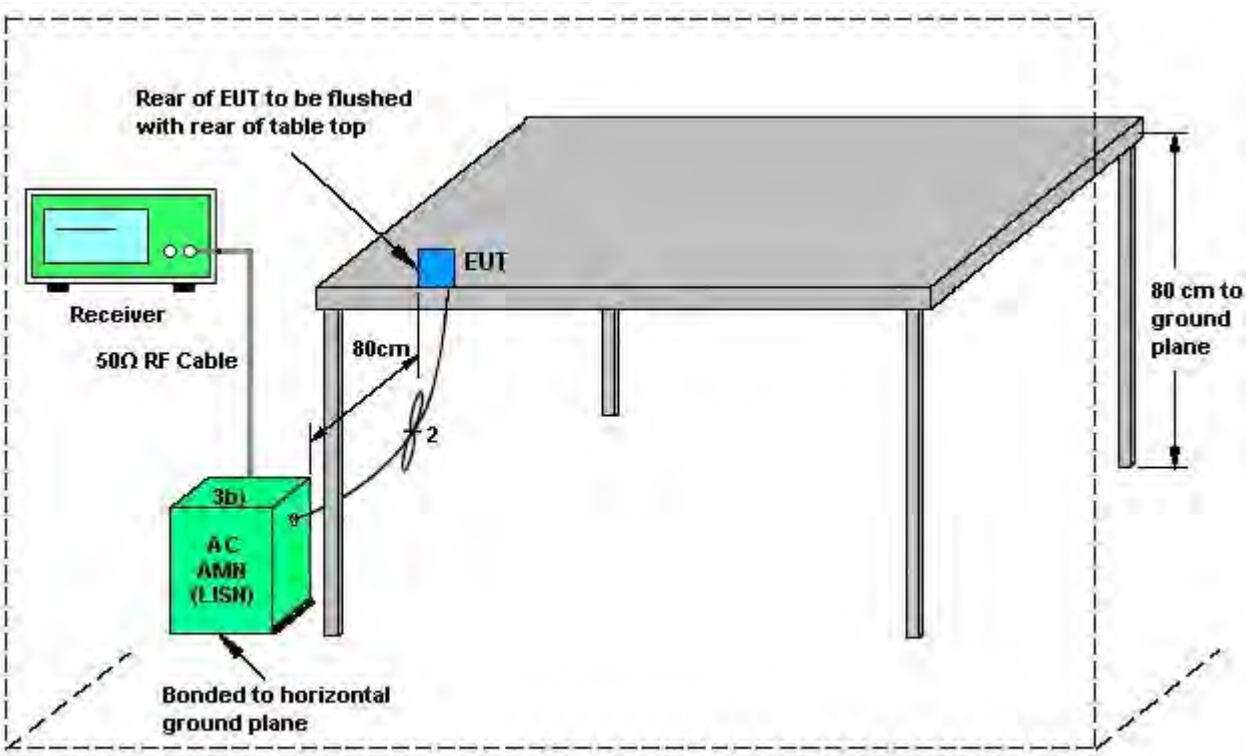
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

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

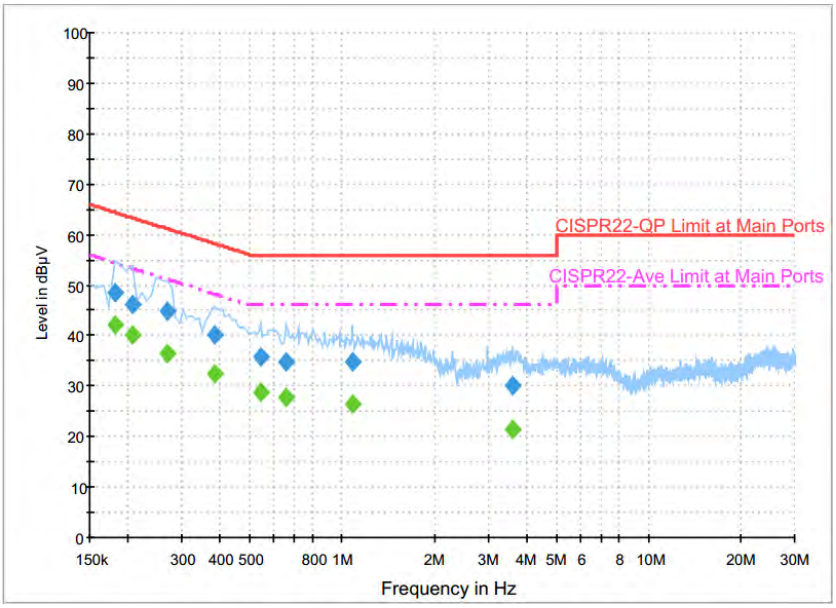
3.6.4 Test Setup



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

3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	24~25℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	45~46%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	WLAN (2.4GHz) Link + Bluetooth Link + Battery + Scanner + without Exoskeleton + Headset Jumper (CBL-TC51-HDST25-01) + Earphone (HDST-25MM-PTVP-01) + Rugged Charge/USB Cable + Adapter 1 (SAWA-65-20005A (5V/2.5A))		



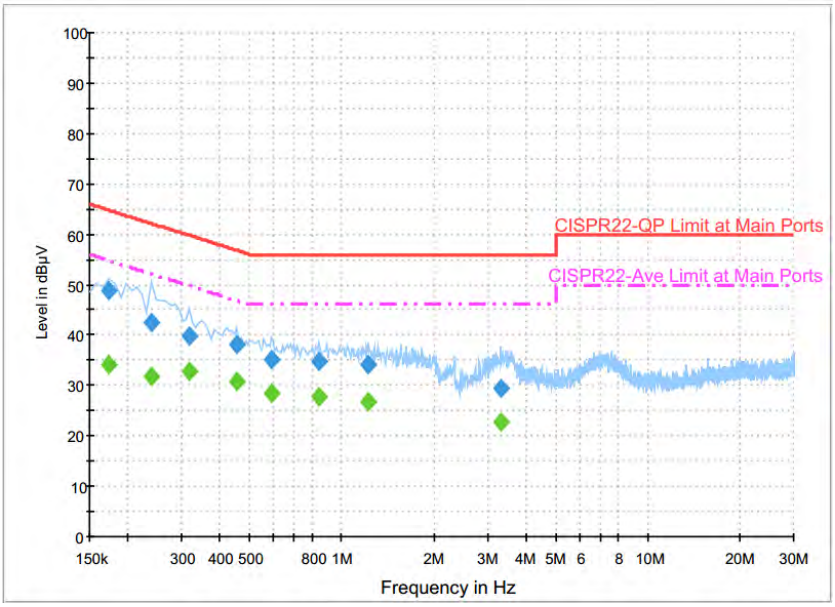
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	48.4	Off	L1	19.6	16.0	64.4
0.206000	46.1	Off	L1	19.6	17.3	63.4
0.270000	45.0	Off	L1	19.6	16.1	61.1
0.382000	40.0	Off	L1	19.6	18.2	58.2
0.542000	35.8	Off	L1	19.6	20.2	56.0
0.654000	34.6	Off	L1	19.6	21.4	56.0
1.078000	34.6	Off	L1	19.7	21.4	56.0
3.622000	30.2	Off	L1	19.8	25.8	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	42.1	Off	L1	19.6	12.3	54.4
0.206000	40.1	Off	L1	19.6	13.3	53.4
0.270000	36.6	Off	L1	19.6	14.5	51.1
0.382000	32.5	Off	L1	19.6	15.7	48.2
0.542000	28.8	Off	L1	19.6	17.2	46.0
0.654000	27.6	Off	L1	19.6	18.4	46.0
1.078000	26.5	Off	L1	19.7	19.5	46.0
3.622000	21.3	Off	L1	19.8	24.7	46.0

Test Mode :	Mode 1	Temperature :	24~25℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	45~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (2.4GHz) Link + Bluetooth Link + Battery + Scanner + without Exoskeleton + Headset Jumper (CBL-TC51-HDST25-01) + Earphone (HDST-25MM-PTVP-01) + Rugged Charge/USB Cable + Adapter 1 (SAWA-65-20005A (5V/2.5A))		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	48.8	Off	N	19.6	16.0	64.8
0.238000	42.5	Off	N	19.6	19.7	62.2
0.318000	39.9	Off	N	19.6	19.9	59.8
0.454000	38.2	Off	N	19.6	18.6	56.8
0.590000	35.3	Off	N	19.6	20.7	56.0
0.846000	34.8	Off	N	19.6	21.2	56.0
1.222000	34.2	Off	N	19.6	21.8	56.0
3.310000	29.5	Off	N	19.7	26.5	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	34.0	Off	N	19.6	20.8	54.8
0.238000	31.7	Off	N	19.6	20.5	52.2
0.318000	32.9	Off	N	19.6	16.9	49.8
0.454000	30.8	Off	N	19.6	16.0	46.8
0.590000	28.5	Off	N	19.6	17.5	46.0
0.846000	27.8	Off	N	19.6	18.2	46.0
1.222000	26.9	Off	N	19.6	19.1	46.0
3.310000	22.7	Off	N	19.7	23.3	46.0

3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

CDD modes

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

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

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

For power measurements on IEEE 802.11 devices,

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

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

The EUT supports CDD mode.

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

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

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

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

	Ant. 1 (dBi)	Ant. 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4 GHz	2.50	1.79	2.50	5.16	0.00	0.00

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

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

TXBF modes

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

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 kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

The EUT supports beamforming for 802.11ac modes.

The directional gain calculation is following F)2)e)ii) of KDB 662911 D01 v02r01.

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

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

	Ant. 1 (dBi)	Ant. 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4 GHz	2.50	1.79	5.16	5.16	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
Power Meter	Anritsu	ML2495A	1218006	300MHz~40GHz	Oct. 07, 2015	Jul. 5, 2016 ~ Jul. 28, 2016	Oct. 06, 2016	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	0846202	300MHz~40GHz	Oct. 05, 2015	Jul. 5, 2016 ~ Jul. 28, 2016	Oct. 04, 2016	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 23, 2015	Jul. 5, 2016 ~ Jul. 28, 2016	Nov. 22, 2016	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Sep. 11, 2015	Jul. 5, 2016 ~ Jul. 28, 2016	Sep. 10, 2016	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	13I00030SNO31	9kHz~6GHz	Sep. 17, 2015	Jul. 21, 2016 ~ Jul. 28, 2016	Sep. 16, 2016	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Aug. 26, 2016	N/A	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 02, 2015	Aug. 26, 2016	Dec. 01, 2016	Conduction (CO05-HY)
EMI Test Receiver	Keysight	N9038A (MXE)	MY54130085	20Hz ~ 8.4GHz	Nov. 04, 2015	Aug. 26, 2016	Nov. 03, 2016	Conduction (CO05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Sep. 02, 2015	Jul. 02, 2016 ~ Aug. 18, 2016	Sep. 01, 2016	Radiation (03CH12-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz ~ 44GHZ	Sep. 24, 2015	Jul. 02, 2016 ~ Aug. 18, 2016	Sep. 23, 2016	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D	37059	30MHz~1GHz	Dec. 29, 2015	Jul. 02, 2016 ~ Aug. 18, 2016	Dec. 28, 2016	Radiation (03CH12-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100390	20Hz~26.5GHz	Dec. 21, 2015	Jul. 02, 2016 ~ Aug. 18, 2016	Dec. 20, 2016	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1328	1GHz ~ 18GHz	Nov. 02, 2015	Jul. 02, 2016 ~ Aug. 18, 2016	Nov. 01, 2016	Radiation (03CH12-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	1815698	1GHz~18GHz	Dec. 14, 2015	Jul. 02, 2016 ~ Aug. 18, 2016	Dec. 13, 2016	Radiation (03CH12-HY)
Preamplifier	Keysight	83017A	MY53270148	1GHz~26.5GHz	Jan. 30, 2016	Jul. 02, 2016 ~ Aug. 18, 2016	Jan. 29, 2017	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jul. 02, 2016 ~ Aug. 18, 2016	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jul. 02, 2016 ~ Aug. 18, 2016	N/A	Radiation (03CH12-HY)
Preamplifier	MITEQ	JS44-18004000-33-8P	1840917	18GHz ~ 40GHz	Jun. 14, 2016	Jul. 02, 2016 ~ Aug. 18, 2016	Jun. 13, 2017	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 02, 2015	Jul. 02, 2016 ~ Aug. 18, 2016	Nov. 01, 2016	Radiation (03CH12-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.70**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.10**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.20**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.70**

Appendix A. Conducted Test Results

<CDD Modes>

<TXBF Modes>