

FCC Radio Test Report FCC ID: T58WF2113R

This report concerns (check one) : Original Grant Class II Change

Issued Date	: May. 26, 2011
Project No.	: 1104C220
Equipment	: 300Mbps Wireless-N PCI-E Adapter
Model Name	: WF-2113
Applicant	: NETIS SYSTEMS CO., LTD.
Address	: 9F,B Block, Tsinghua Information Park, High-tech Industrial Park, Nanshan, Shenzhen, China
Manufacturer	Shenzhen Netcore Industrial Ltd.
Address	: 9F,B Block, Tsinghua Information Park, High-tech Industrial Park, Nanshan, Shenzhen, China

Tested by:

Neutron Engineering Inc. EMC Laboratory

Date of Receipt: May. 04, 2011

Date of Test:

May. 04, 2011 ~ May. 23, 2011

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Authorized Signatory

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Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**, or National Institute of Standards and Technology (**NIST**) of **U.S.A**.

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1. CERTIFICATION

Brand Name :	
Model Name :	NETIS SYSTEMS CO., LTD.
	Dongguan City Netcore Network Technology Co., Ltd.
	No.10-1,Sankeng Road,Qinghutou,Tangxia Town,Dongguan City
	May. 04, 2011 ~ May. 23, 2011
	ENGINEERING SAMPLE
Standards:	FCC Part15, Subpart C(15.247) / ANSI C63.4 : 2003

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-1104C220) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C				
Standard Section	Test Item	Judgment	Remark	
15.207	Conducted Emission	PASS		
15.247(d)	Antenna conducted Spurious Emission	PASS		
15.247(a)(2)	6dB Bandwidth	PASS		
15.247(b)(3)	Peak Output Power	PASS		
15.209/15.205	Radiated Spurious Emission	PASS		
15.247(e)	Power Spectral Density	PASS		
15.203	Antenna Requirement	PASS		

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report



2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **DG-CB03/DG-C03** at the location of No.3, Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.523792 Neutron's test firm number is 319330

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

The reported uncertainty of measurement y \pm U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $\,$ k=2 , providing a level of confidence of approximately 95 % $_{\circ}$

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
DG-C03	CISPR	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)	NOTE
		30MHz ~ 200MHz	V	3.82	
DG-CB03	CISPR	30MHz ~ 200MHz	Н	3.60	
DG-CB03	CISER	200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	Н	3.94	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	300Mbps Wireless-N PCI-E Adapter			
Brand Name	netis			
Model Name	WF-2113			
OEM Brand/Model Name	N/A			
Model Difference	N/A			
Product Description	Operation Frequency: Modulation Type: Bit Rate of Transmitter Number of Channel Antenna Designation: Antenna Gain(Peak) Output Power: Based on the applicatior in User's Manual, the EU ITE/Computing Device. specification, please refe	More details of EUT technical er to the User's Manual.		
Power Source	DC Voltage supplied from Host System			
Power Rating	I/P AC 120V/60Hz O/P DC 5V			
Connecting I/O Port(s)	Please refer to the User	's Manual		
Products Covered	N/A			
Products Covered	N/A			

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2. CH 01 – CH 11 for 802.11b, 802.11g, 802.11n(20MHz) CH 03 – CH 09 for 802.11n(40MHz)

	Channel List						
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

3.

Table for Filed Antenna

-		/ interina				
	Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
	1	Cortec	AN2400-5701RS	Dipole Antenna	R-SMA	2.0

4. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers (2T2R).

Operating Mode TX Mode	1TX	2TX
802.11b	V (ANT1 or ANT2)	-
802.11g	V (ANT1 or ANT2)	-
802.11n(20MHz)	-	V (ANT1 & ANT2)
802.11n(40MHz)	-	V (ANT1 & ANT2)

3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX B MODE CHANNEL 01//06/11
Mode 2	TX G MODE CHANNEL 01/06/11
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09
Mode 5	Normal Link

The EUT system operated these modes were found to be the worst case during the pre-scanning test as Following:

For Conducted Test				
Final Test Mode	Description			
Mode 5	Normal Link			

For Radiated Test					
Final Test Mode	Description				
Mode 1	TX B MODE CHANNEL 01//06/11				
Mode 2	TX G MODE CHANNEL 01/06/11				
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11				
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09				

Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) During the output power test, all data rates have been investigated and the highest output powers were recorded are as follows:
 - 802.11b mode: DBPSK (1Mbps)
 - 802.11g mode: OFDM (6Mbps)

802.11n HT20/HT40 mode : MCS8 (6Mbps)

- For radiated emission tests, the highest output powers were set for final test.
- (3) Worst-case mode and channel used for 30-1000 MHz radiated and power line conducted emissions was the mode and channel with the highest output power, that was determined to be 11N(HT20) Channel 06

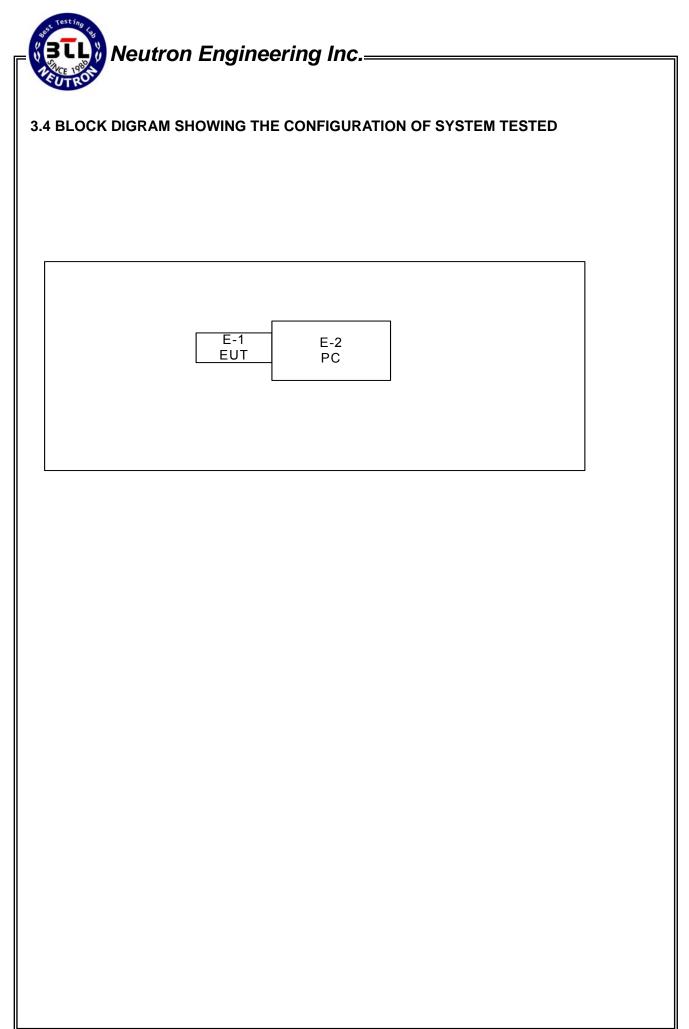


3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of WLAN

Test software Version	Test Program: REALTEK 11n Single Chip 9xC PCIE WLAN NIC Massproduction Kit					
Frequency	2412 MHz 2437 MHz 2462 MHz					
IEEE 802.11b DSSS	42	42	42			
IEEE 802.11g OFDM	45	45	46			

Test software Version		EALTEK 11n Single			
Frequency (MHz)	2412 MHz 2437 MHz 2462 MHz 40(ANT1) 41(ANT1) 42(ANT1) 40(ANT2) 41(ANT2) 42(ANT2)				
IEEE 802.11n (20MHz)	40(ANT1)	41(ANT1)	42(ANT1)		
IEEE OUZ.IIII(ZUWIIIZ)	40(ANT2)	41(ANT2)	42(ANT2)		
Frequency (MHz)	2422 MHz	2437 MHz	2452 MHz		
IEEE 802.11n (40MHz)	41(ANT1)	42(ANT1)	42(ANT1)		
	41(ANT2)	42(ANT2)	42(ANT2)		





3.5 DESCRIPTION OF SUPPORT UNITS (RADIATED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	300Mbps Wireless-N PCI-E Adapter	netis	WF-2113	T58WF2113R	N/A	EUT
E-2	PC	Lenovo	M4600V	DOC	SS0840636	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	YES	NO	1.5M	

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in ^[]Length ^[] column.

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A	(dBuV)	Class B	Standard	
	Quasi-peak	Average	Quasi-peak	Average	Stanuaru
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

4.1.2 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00052765	May.26.2011
2	LISN	Rolf Heine	NNB-2-16Z	99044	May.26.2011
3	50Ω Terminator	SHX	TF2-3G-A	08122901	May.26.2011
4	Transient Limiter	Agilent	11947A	3107A03668	May.26.2011
5	Test Cable	N/A	C-06_C03	N/A	Nov.15.2011
6	Test Receiver	R&S	ESCI	100382	May.26.2011

Remark: " N/A" denotes No Model Name. , Serial No. or No Calibration specified.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

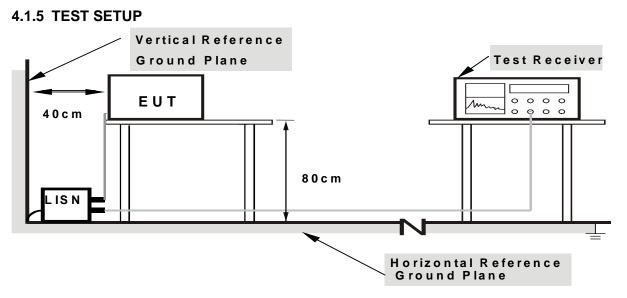


4.1.3 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.1.6 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

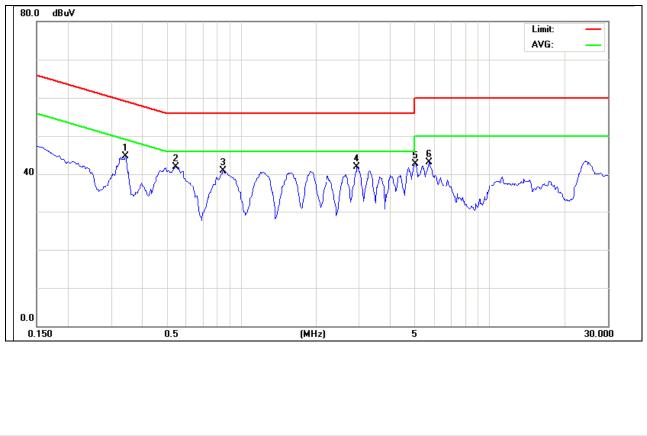
The EUT was programmed to be in continuously transmitting mode.

4.1.7 TEST RESULTS

EUT :		300Mbps Wireless-N PCI-E Adapter			Model Name :		WF-2113		
Temperatu	ure :	21	°C		Relative Hu	midity:	50%		
Pressure :		101	I0hPa		Test Power	:	AC 1	20V/60Hz	
Test Mode):	Nor	rmal Link				•		
Freq.	Termir	nal	Measure	d(dBuV)	Limits(dBuV)			Margin	Note
(MHz)	L/N		QP-Mode	AV-Mode	QP-Mode	AV-Mo	ode	(dB)	NOLE
0.34	Line		44.66	*	59.18	49.1	8	-14.52	(QP)
0.54	Line		41.87	*	56.00	46.0	0	-14.13	(QP)
0.84	Line		40.87	*	56.00	46.0	0	-15.13	(QP)
2.93	Line		41.95	*	56.00	46.0	0	-14.05	(QP)
5.03	Line		42.69 *		60.00	50.0	0	-17.31	(QP)
5.71	Line		43.04	*	60.00	50.0	0	-16.96	(QP)

Remark

(1) All readings are QP Mode value unless otherwise stated AVG in column of ^ℂNote _J. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ∘ In this case, a "*" marked in AVG Mode column of Interference Voltage Measured ∘



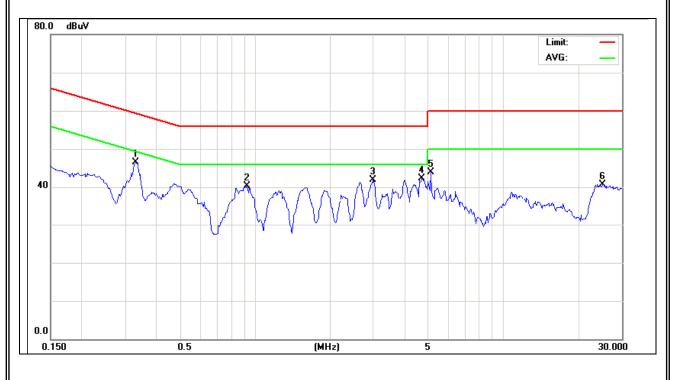
(2) Measuring frequency range from 150KHz to 30MHz \circ



EUT :		300Mbps Wireless-N PCI-E Adapter			Model Nam	e :	WF-2	2113	
Temperatu	ure :	21	°C		Relative Hu	midity:	50%		
Pressure :		101	0hPa		Test Power	:	AC 1	20V/60Hz	
Test Mode : Normal Link									
Freq.	Termir	nal	Measure	Limits(dBuV)			Margin	Note	
(MHz)	L/N		QP-Mode	AV-Mode	QP-Mode	AV-Mo	bde	(dB)	NOLE
0.33	Neutr	al	46.59	*	59.49	49.4	9	-12.90	(QP)
0.92	Neutr	al	40.39	*	56.00	46.0	0	-15.61	(QP)
2.99	Neutr	al	41.86	*	56.00	46.0	0	-14.14	(QP)
4.70	Neutr	al	42.25	*	56.00	46.0	0	-13.75	(QP)
5.11	Neutr	al	43.91	*	60.00	50.0	0	-16.09	(QP)
25.05	Neutr	al	40.70	*	60.00	50.0	0	-19.30	(QP)

Remark

- (1) All readings are QP Mode value unless otherwise stated AVG in column of ^ℂNote J. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ∘ In this case, a "*" marked in AVG Mode column of Interference Voltage Measured ∘
- (2) Measuring frequency range from 150KHz to 30MHz \circ



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS (Frequency Range 9KHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies	Field Strength	Measurement Distance
(MHz)	(micorvolts/meter)	(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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

	(dBuV/n	n) (at 3m)
FREQUENCY (MHz)	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

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4.2.2 MEASUREMENT INSTRUMENTS LIST ANS SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Triple Loop Antenna	R&S	HFH2-Z2	830749/020	May.27.2011
2	Bi-log Antenna	Schwarbeck	VULB9160	9160-3232	May.26.2011
3	Horn Antenna	ETS	3115	00075789	May.11.2012
4	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170340	Dec.15.2011
5	Amplifier	HP	8447D	2944A09673	May.26.2011
6	Amplifier	Agilent	8449B	3008A02274	May.26.2011
7	Amplifier	EMC	EMC265404 5	980039	Aug.12.2011
8	Test Receiver	R&S	ESCI	100895	May.26.2011
9	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2011
10	Test Cable	N/A	C-01_CB03	N/A	Jul.05.2011
11	Test Cable	HUBER+SUHNER	SUCOFLEX_ 8m	313794/4	Apr.12.2011
12	Controller	СТ	SC100	N/A	N/A

Remark: " N/A" denotes No Model Name / Serial No. and No Calibration specified.

Spectrum Parameter	Setting		
Attenuation	Auto		
Start Frequency	1000 MHz		
Stop Frequency	10th carrier harmonic		
RB / VB	1MHz / 1MHz for Dook, 1 MHz / 10Hz for Average		
(Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average		

Receiver Parameter	Setting		
Attenuation	Auto		
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP		
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP		
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP		



4.2.3 TEST PROCEDURE

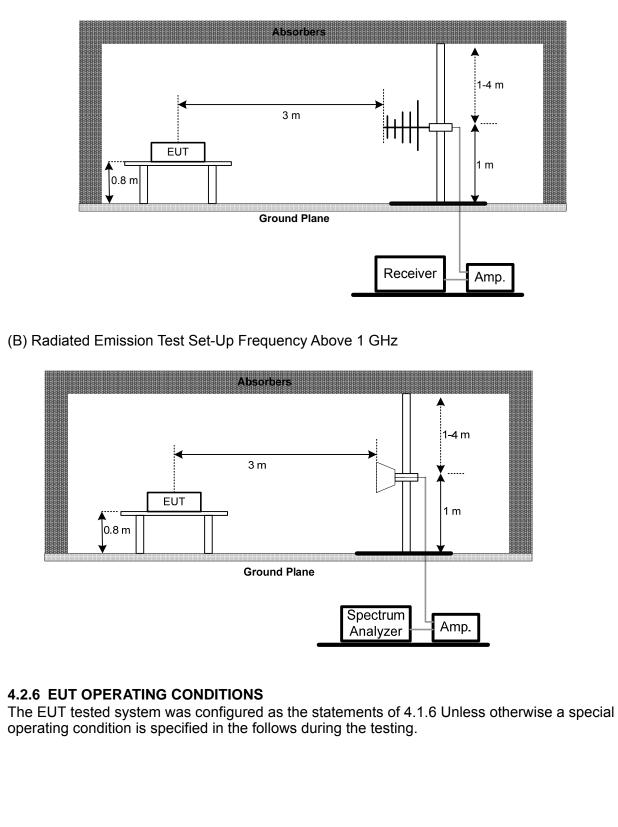
- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item -EUT Test Photos.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



4.2.7 TEST RESULTS (BETWEEN 30 – 1000 MHZ)

EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113		
Temperature :	21 ℃	Relative Humidity:	50 %		
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-20MHZ MODE CHANNEL 06				

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
125.61	V	43.37	-13.22	30.15	43.50	- 13.35	
199.78	V	42.51	-12.60	29.91	43.50	- 13.59	
248.64	V	37.13	-11.99	25.14	46.00	- 20.86	
347.25	V	36.38	-9.29	27.09	46.00	- 18.91	
453.37	V	37.77	-7.52	30.25	46.00	- 15.75	
678.29	V	37.55	-3.38	34.17	46.00	- 11.83	

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz \circ
- (2) All readings are Peak unless otherwise stated QP in column of <code>『Note』</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform \circ
- (3) Measuring frequency range from 30MHz to 1000MHz \circ
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table \circ

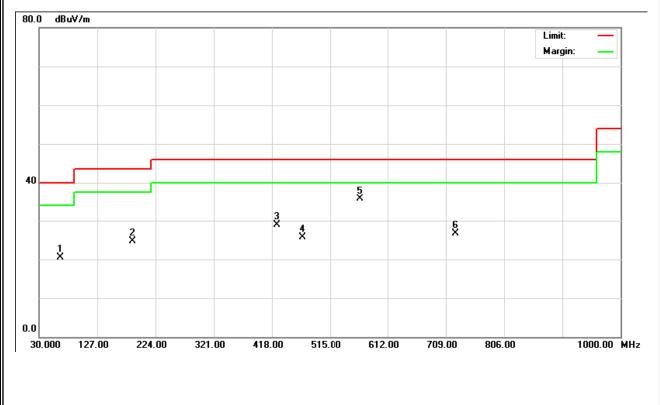




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113		
Temperature :	21 ℃	Relative Humidity:	50 %		
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-20MHZ MODE CHANNEL 06				

Freq.	Ant.	Reading(RA)	Corr.Factor(CF)	Measured(FS)	Limits(QP)	Margin	Note
(MHz)	H/V	(dBuV)	(dB) (dBuV/m) (dBuV/m)		(dB)	NOIC	
64.92	Н	36.58	-16.16	20.42	40.00	- 19.58	
185.20	Н	37.44	-12.74	24.70	43.50	- 18.80	
425.76	Н	37.01	-8.08	28.93	46.00	- 17.07	
468.44	H	32.89	-7.09	25.80	46.00	- 20.20	
565.44	Н	40.45	-4.65	35.80	46.00	- 10.20	
724.52	Н	29.69	-2.93	26.76	46.00	- 19.24	

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz ∘
- (2) All readings are Peak unless otherwise stated QP in column of <code>『Note』</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform \circ
- (3) Measuring frequency range from 30MHz to 1000MHz \circ
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table \circ



4.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX B MODE 2412MHz	·	

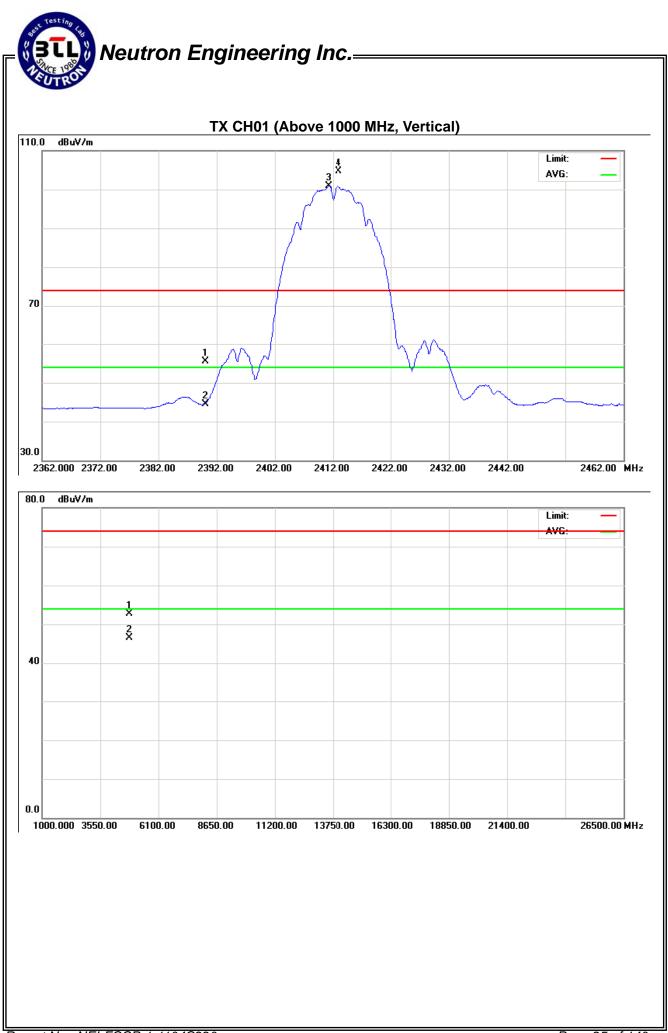
Freq. Ant.Pol.		Rea	ding	Ant./CF	A	ct.	Lir	mit	
TTEQ.		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	23.75	12.92	31.67	55.42	44.59	74.00	54.00	X/E
2411.30	V	73.04	69.32	31.64	104.67	100.96			X/F
4823.99	V	46.46	40.36	6.24	52.70	46.60	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of <code>『Note』</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform \circ
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:

"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

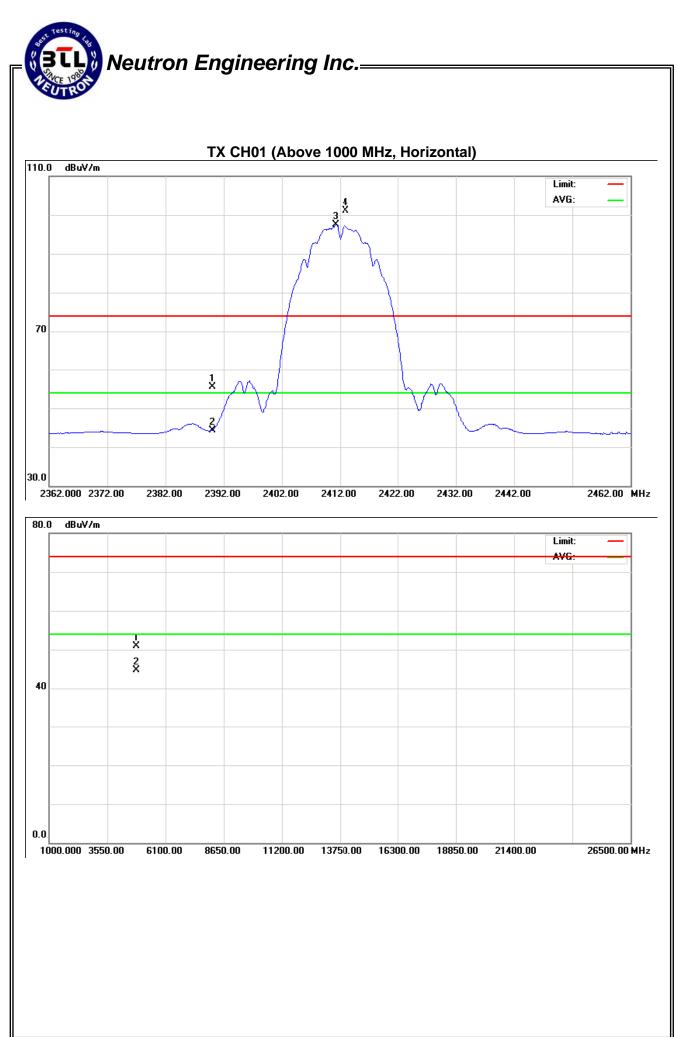




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX B MODE 2412MHz		

Freq. Ant.Pol.	Reading		Ant./CF	Act.		Lir			
rieq.	AIL.FUI.	Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	Н	23.84	12.69	31.67	55.51	44.36	74.00	54.00	X/E
2411.30	Н	69.42	65.83	31.64	101.05	97.47			X/F
4823.91	Н	44.76	38.44	6.24	51.00	44.68	74.00	54.00	X/H

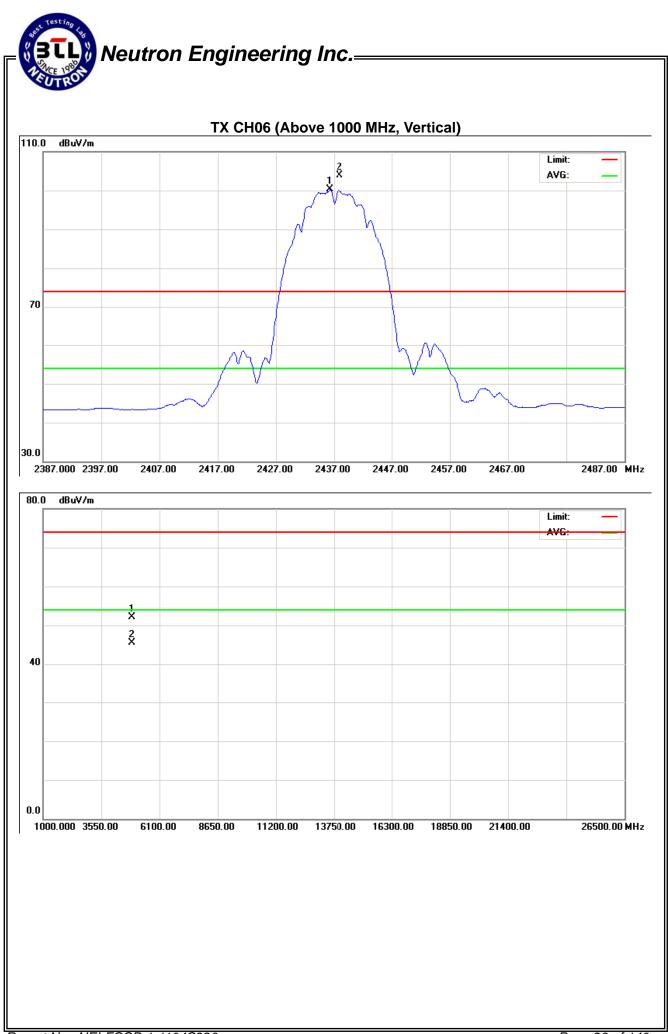
- (1) All readings are Peak unless otherwise stated QP in column of <code>『Note』</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform \circ
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency.
 "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX B MODE 2437MHz		

Freq.	Ant.Pol.	Reading Ant		Ant./CF	A	Act.		Limit	
rieq.	AIL.FUI.	Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2436.30	V	72.25	68.63	31.59	103.83	100.22			X/F
4873.60	V	45.71	39.05	6.47	52.18	45.52	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of <code>『Note』</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform \circ
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis : "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within
- the 3 dB cone of radiation BW of the used antenna

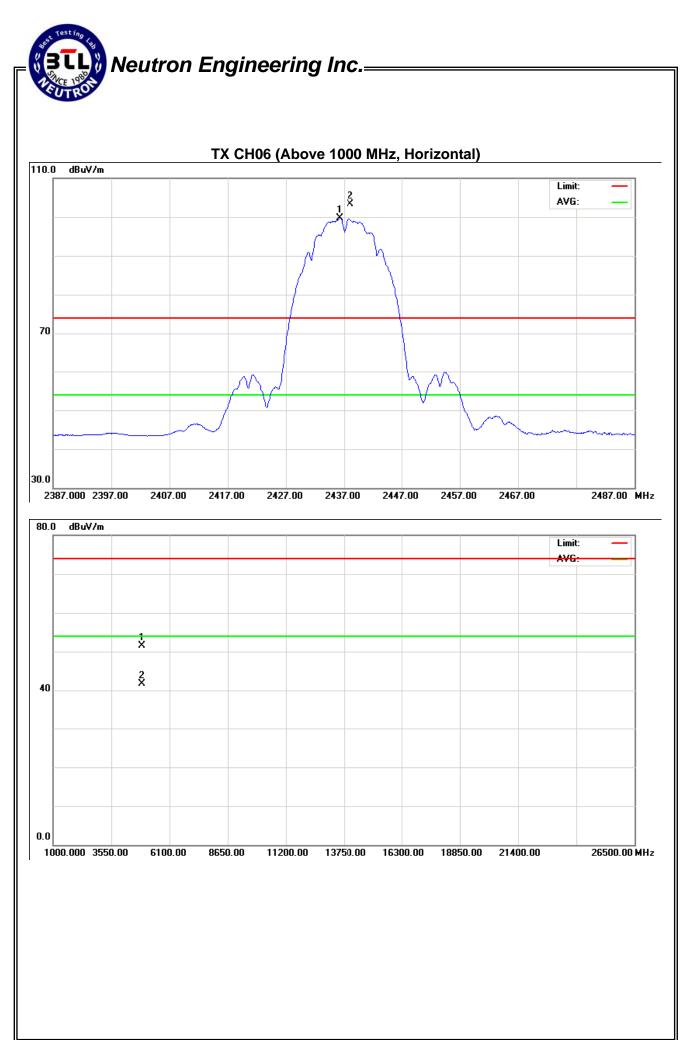




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX B MODE 2437MHz		

Freq. Ant.Pol	Ant Pol	Ant.Pol. Reading		Ant./CF	Act.		Limit		
Fieq.	AIILFUI.	Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2436.30	Н	71.78	68.19	31.59	103.36	99.78			X/F
4873.57	H	45.11	35.27	6.47	51.58	41.74	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of $\[\]$ Note $\]$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $\[\circ\]$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

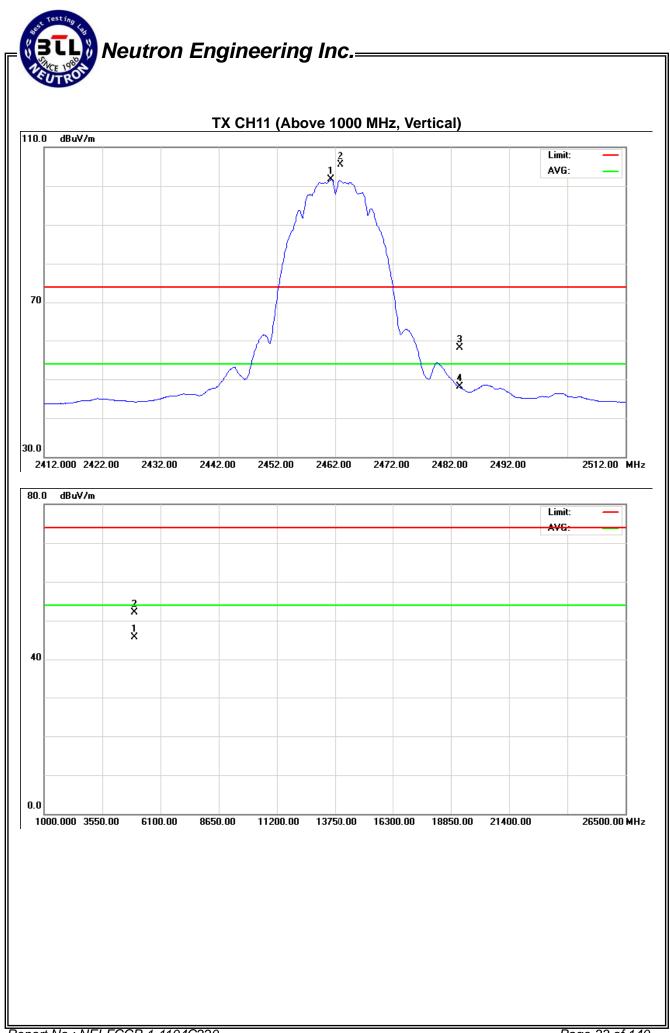




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX B MODE 2462MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2461.30	V	73.89	70.10	31.53	105.41	101.63			X/F
2483.50	V	26.52	16.53	31.50	58.02	48.03	74.00	54.00	X/E
4923.98	V	45.47	39.00	6.72	52.19	45.72	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of $\[\]$ Note $\]$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $\[\circ\]$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

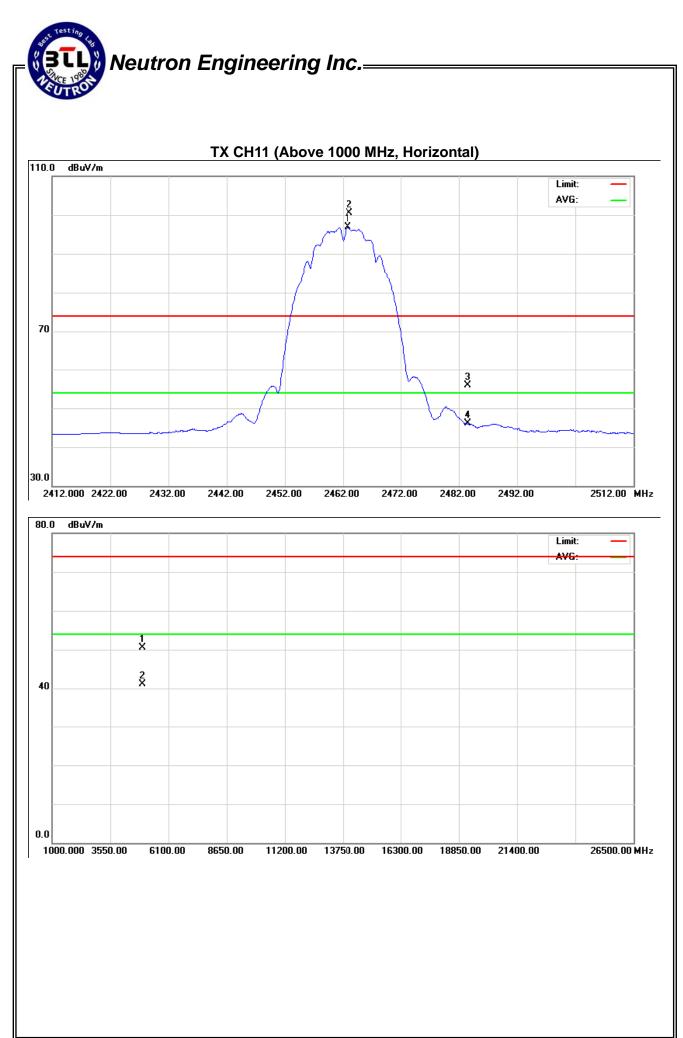




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX B MODE 2462MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2463.10	Н	69.08	65.30	31.52	100.60	96.82			X/F
2483.50	Н	24.44	14.61	31.50	55.94	46.11	74.00	54.00	X/E
4924.04	Н	43.78	34.42	6.72	50.50	41.14	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ∘
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

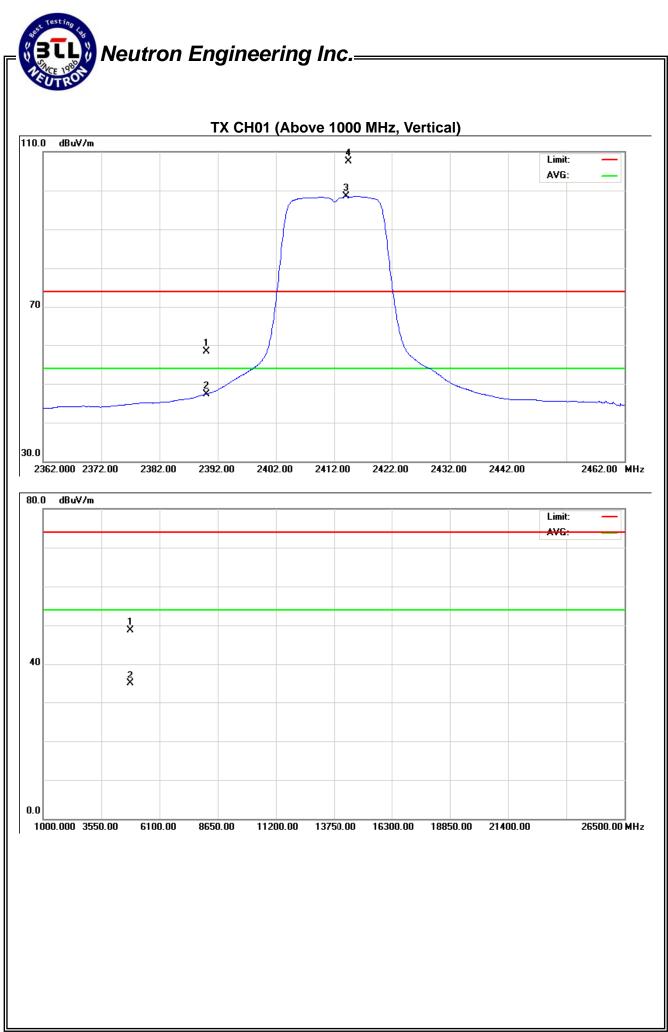




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX G MODE 2412MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	26.77	15.70	31.61	58.38	47.31	74.00	54.00	X/E
2414.20	V	75.85	66.92	31.58	107.43	98.50			X/F
4824.07	V	42.53	28.65	6.24	48.77	34.89	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of $\[\]$ Note $\]$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $\[\circ\]$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna





EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX G MODE 2412MHz	·	

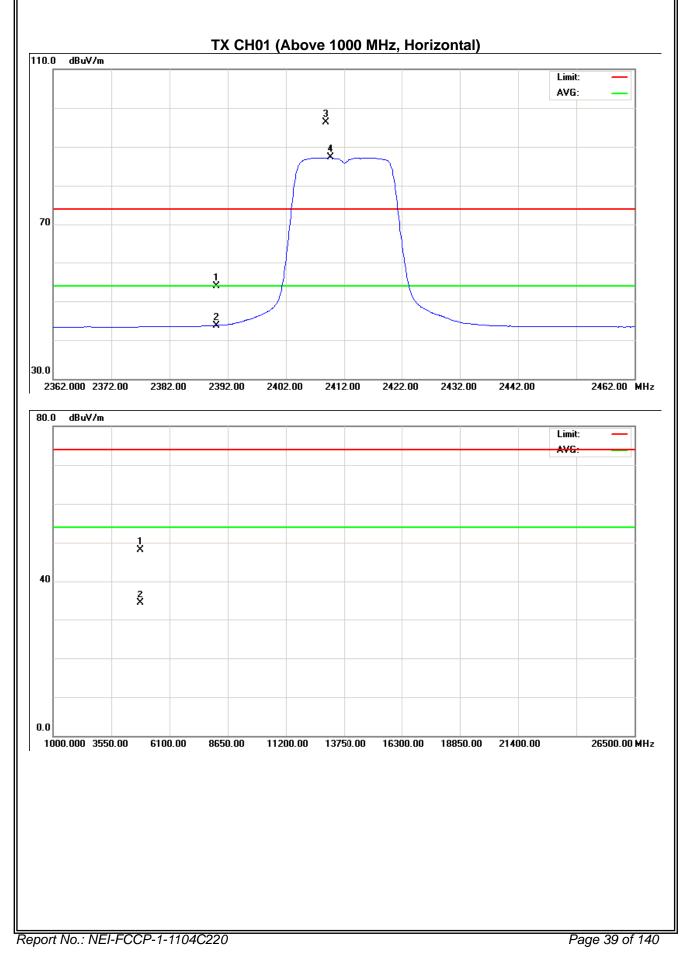
Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	Н	22.20	12.19	31.61	53.81	43.80	74.00	54.00	X/E
2408.90	Н	64.65	55.65	31.59	96.24	87.24			X/F
4824.06	Н	41.85	27.98	6.24	48.09	34.22	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of <code>『Note』</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform \circ
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:

"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



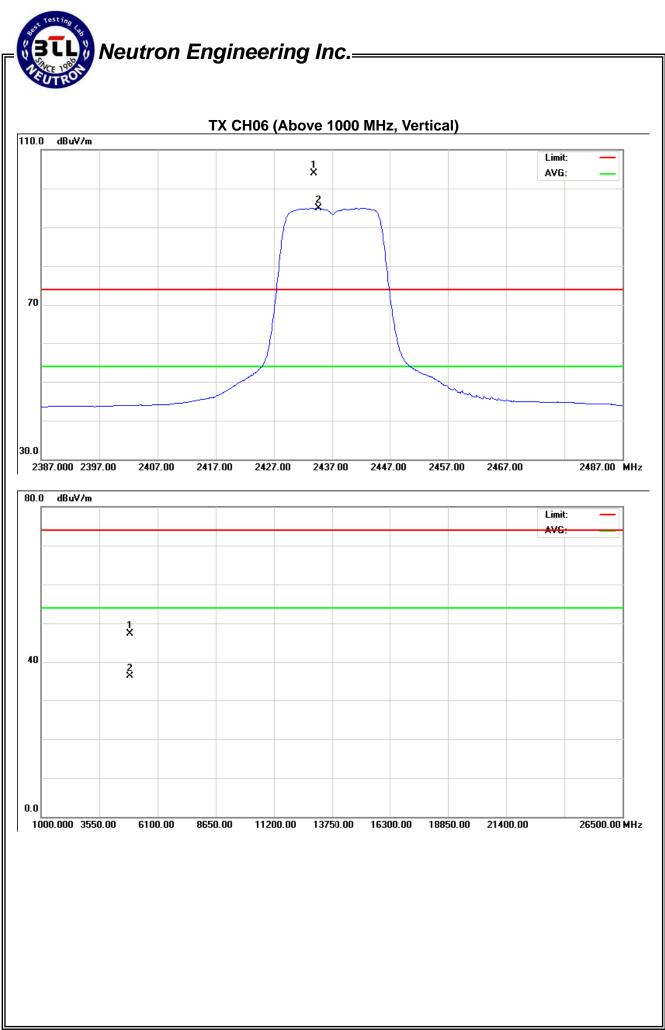




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX G MODE 2437MHz		

Freq. Ant.Pol	Ant Dol	Reading		Ant./CF	A	Act.		Limit		
	AIILFUI.	Peak	AV		Peak	AV	Peak	AV	Note	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)		
2433.80	V	72.44	63.42	31.56	104.00	94.98			X/F	
4873.90	V	40.76	29.86	6.48	47.24	36.34	74.00	54.00	X/H	

- (1) All readings are Peak unless otherwise stated QP in column of <code>『Note』</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform \circ
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



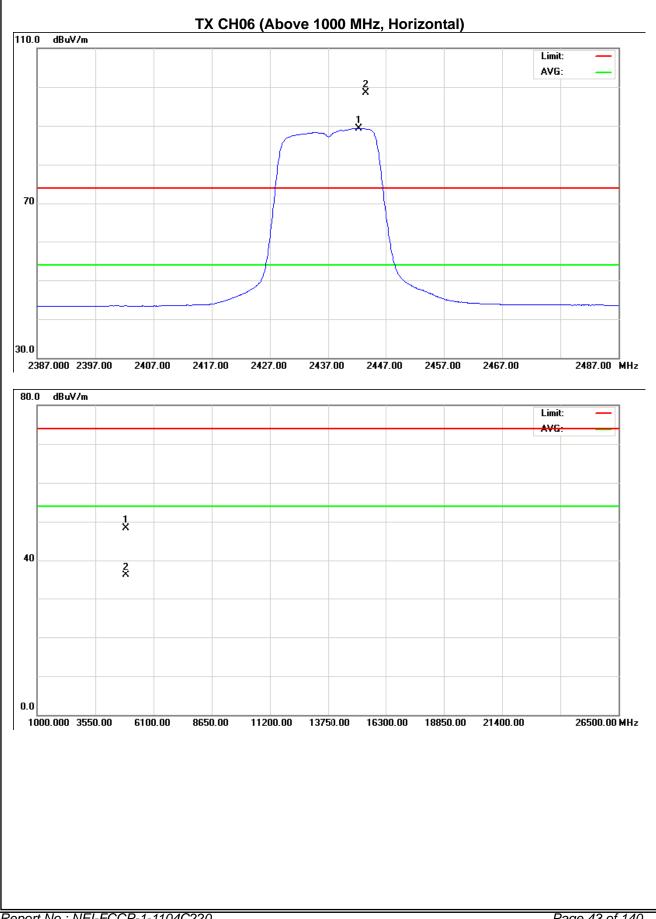


EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX G MODE 2437MHz		

Freq.	Ant.Pol.	Ant Pol Reading		Ant./CF	A	Act.		Limit		
		Peak	AV		Peak	AV	Peak	AV	Note	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)		
2442.40	Н	66.90	57.77	31.56	98.45	89.33			X/F	
4873.99	Н	41.87	29.63	6.48	48.35	36.11	74.00	54.00	X/H	

- (1) All readings are Peak unless otherwise stated QP in column of $\[\]$ Note $\]$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $\[\circ\]$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



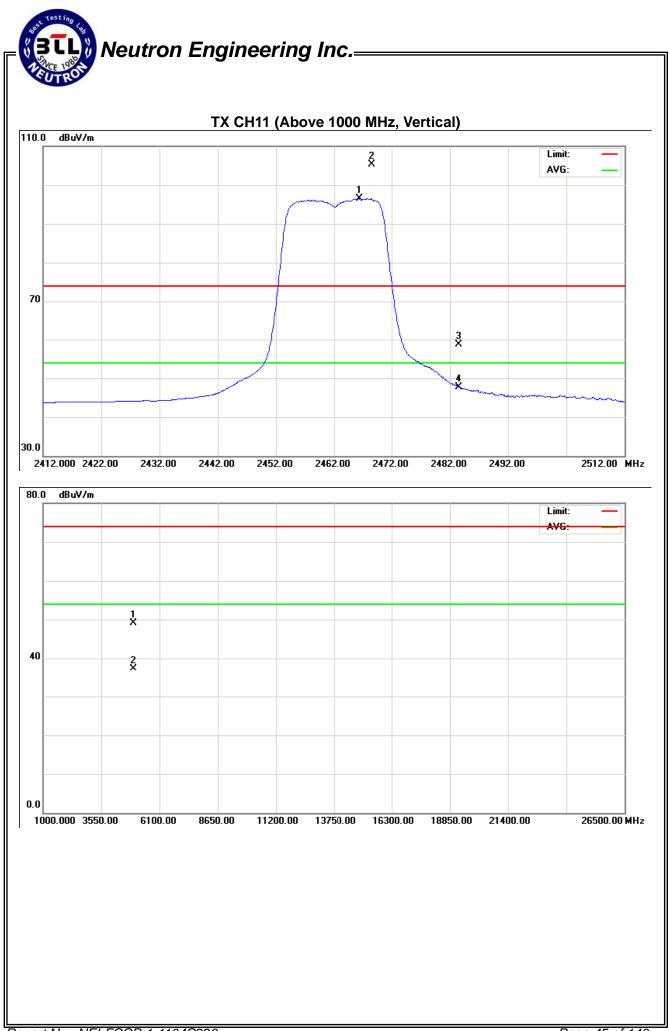




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX G MODE 2462MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2466.40	V	73.81	64.99	31.52	105.33	96.51			X/F
2483.50	V	27.18	16.20	31.50	58.68	47.70	74.00	54.00	X/E
4924.01	V	42.46	30.50	6.72	49.18	37.22	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of $\[\]$ Note $\]$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $\[\circ\]$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna





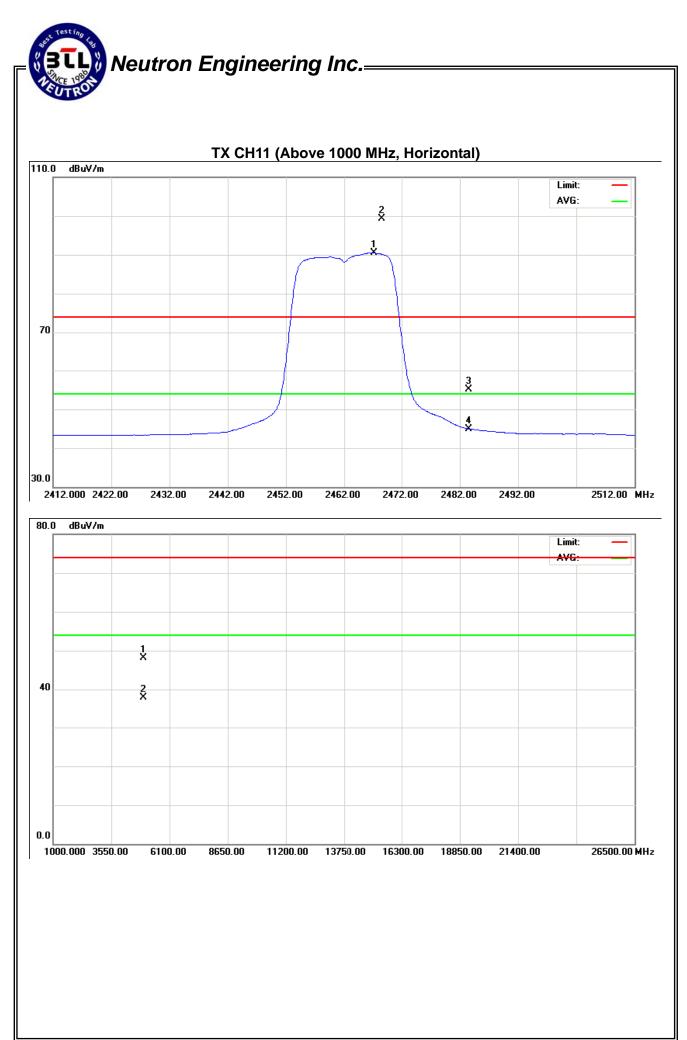
EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX G MODE 2462MHz	·	

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2467.20	н	67.82	58.91	31.52	99.34	90.43			X/F
2483.50	Н	23.55	13.47	31.50	55.05	44.97	74.00	54.00	X/E
4924.14	Н	41.40	31.24	6.72	48.12	37.96	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of <code>『Note』</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform \circ
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:

"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand

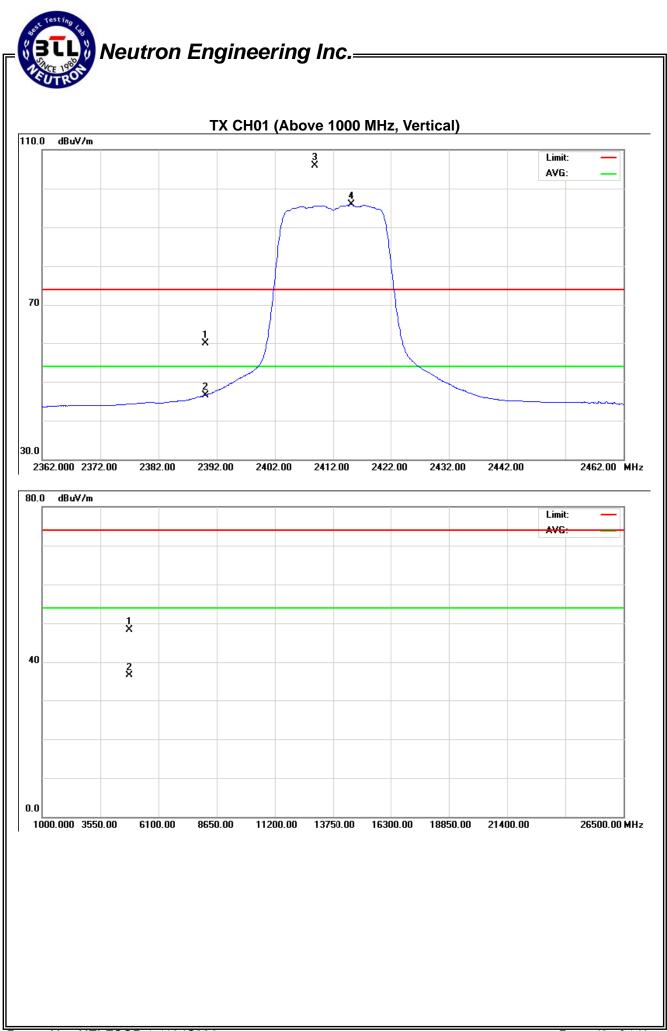
(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE 2412MHz		

	Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
			Peak	AV		Peak	AV	Peak	AV	Note
Γ	(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
	2390.00	V	28.31	14.96	31.61	59.92	46.57	74.00	54.00	X/E
	2408.90	V	74.30	64.30	31.59	105.89	95.88			X/F
	4824.50	V	42.12	30.20	6.24	48.36	36.44	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of <code>『Note』</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform \circ
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
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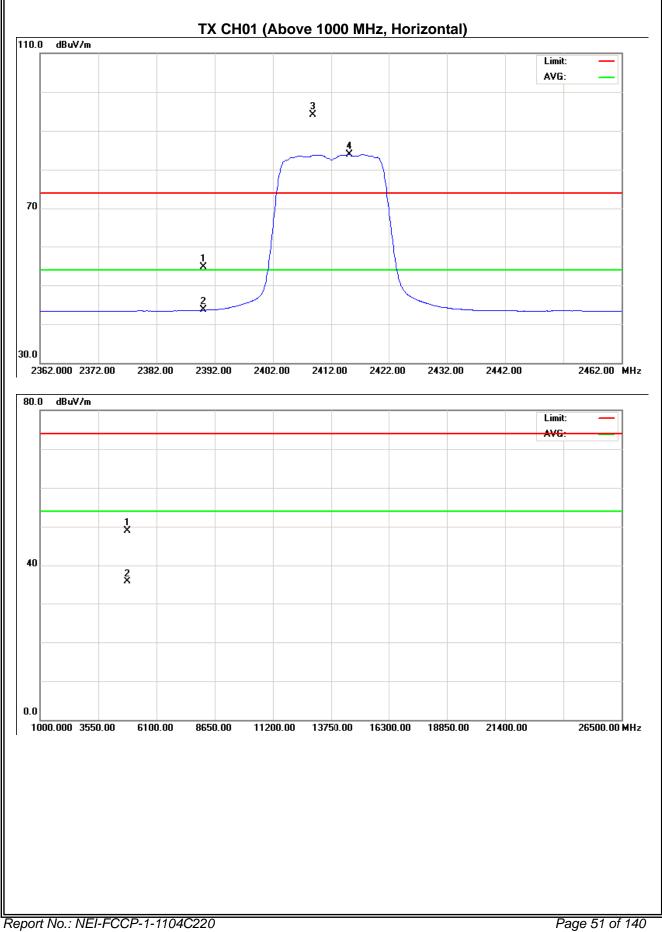


EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE 2412MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lii		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	Н	23.06	12.01	31.61	54.67	43.62	74.00	54.00	X/E
2408.90	Н	62.47	52.36	31.59	94.06	83.94			X/F
4824.46	Н	42.68	29.46	6.24	48.92	35.70	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of $\[\]$ Note $\]$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $\[\circ\]$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
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- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

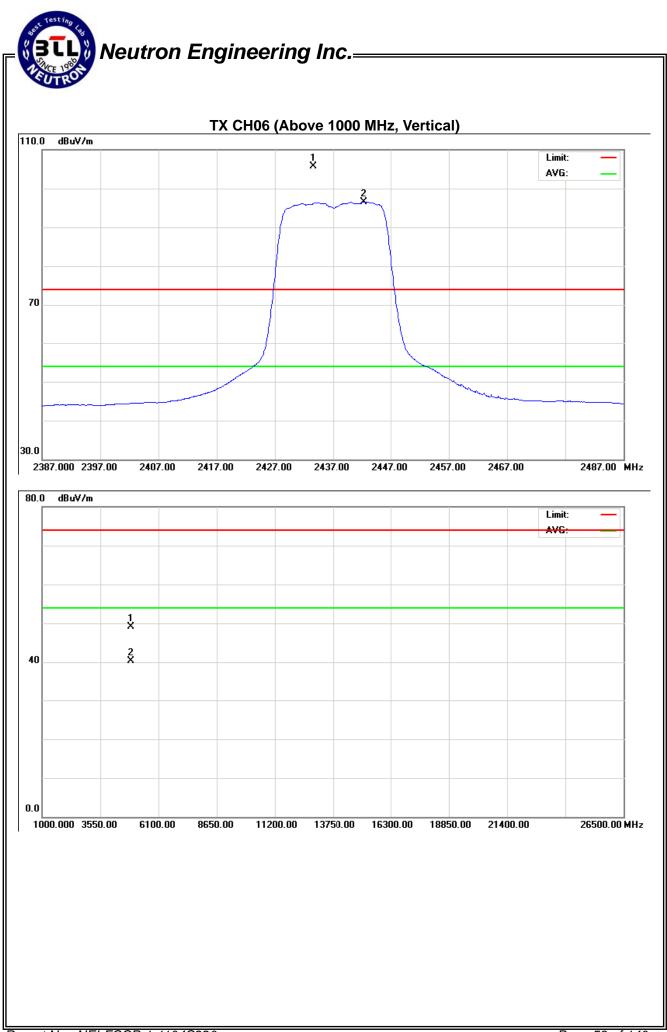




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE 2437MHz		

Freg. Ant.Pol.		Reading		Ant./CF	A	Act.		Limit	
Fieq.	AIILFUI.	Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2433.60	V	74.21	65.00	31.56	105.77	96.56			X/F
4874.13	V	42.65	33.91	6.48	49.13	40.39	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of <code>『Note』</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform \circ
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
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- (6) EUT Orthogonal Axis:
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- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



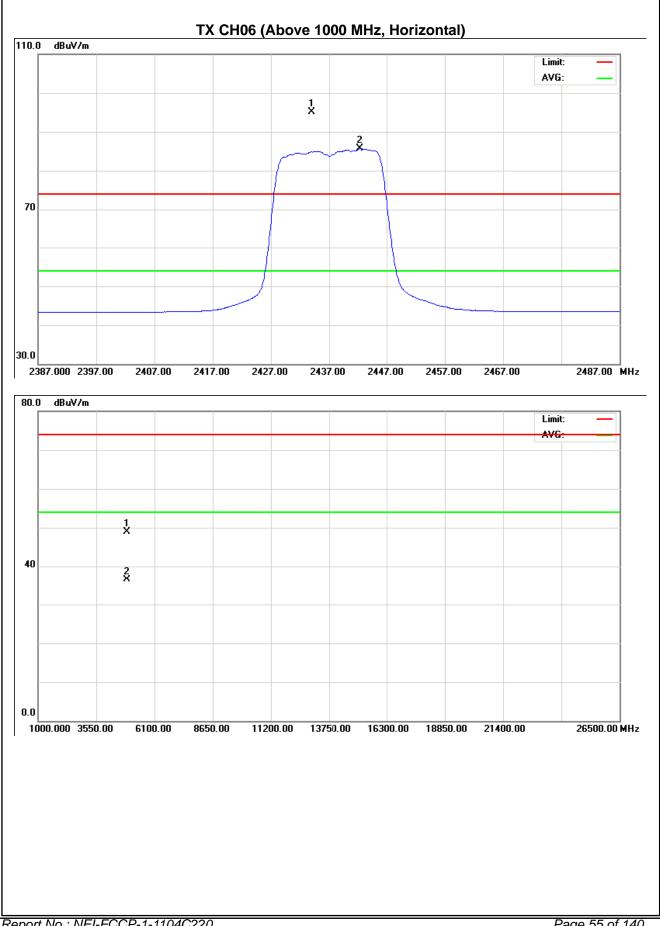


EUI.	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE 2437MHz		

Freq. Ant.Po	Ant Pol	Ant.Pol. Reading		Ant./CF	Act.		Limit		
Fieq.	AIILFUI.	Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2434.00	Н	63.61	54.05	31.56	95.17	85.61			X/F
4874.23	H	42.42	30.12	6.48	48.90	36.60	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of $\[\]$ Note $\]$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $\[\circ\]$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission •
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- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



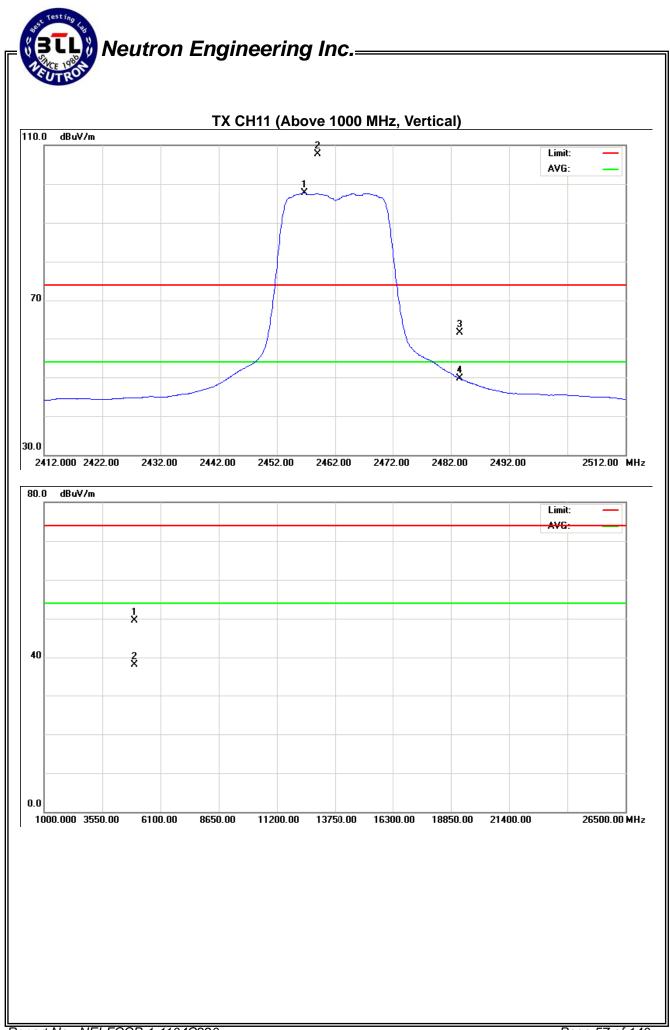




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE 2462MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2456.70	V	76.26	66.12	31.54	107.79	97.66			X/F
2483.50	V	29.97	18.15	31.50	61.47	49.65	74.00	54.00	X/E
4924.13	V	42.76	31.40	6.72	49.48	38.12	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of $\[\]$ Note $\]$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $\[\circ\]$
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- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

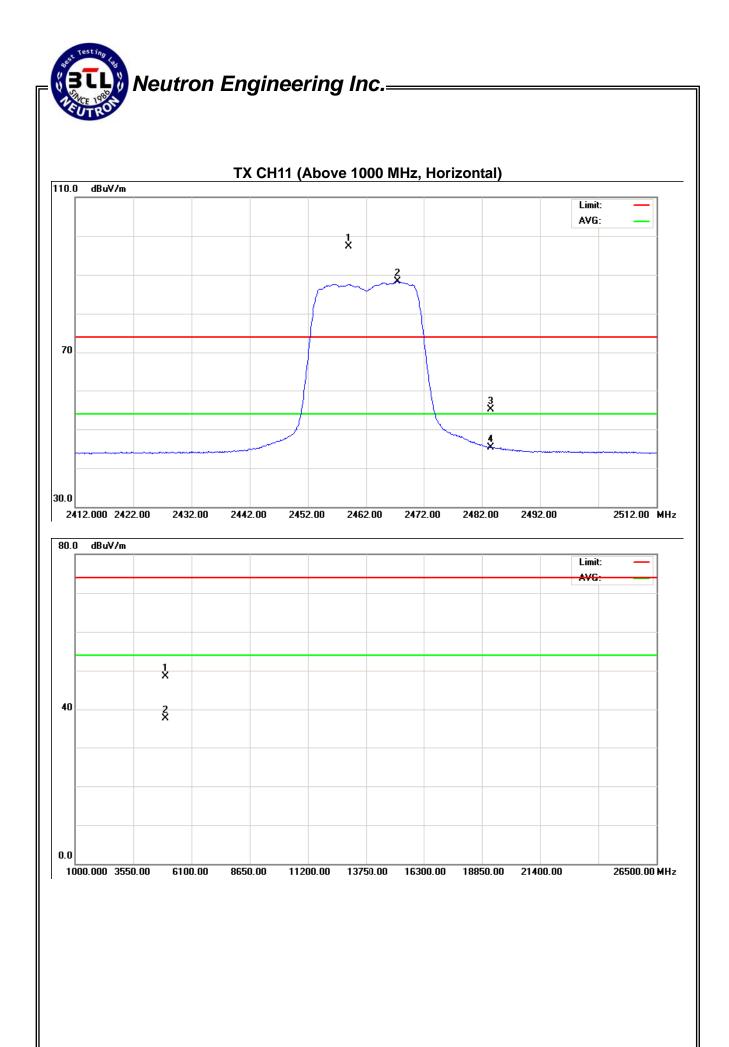




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	25 ℃	Relative Humidity:	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE 2462MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lii		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2459.00	н	65.78	56.84	31.53	97.31	88.36			X/F
2483.50	Н	23.61	13.88	31.50	55.11	45.38	74.00	54.00	X/E
4924.10	Н	41.85	31.04	6.72	48.57	37.76	74.00	54.00	X/H

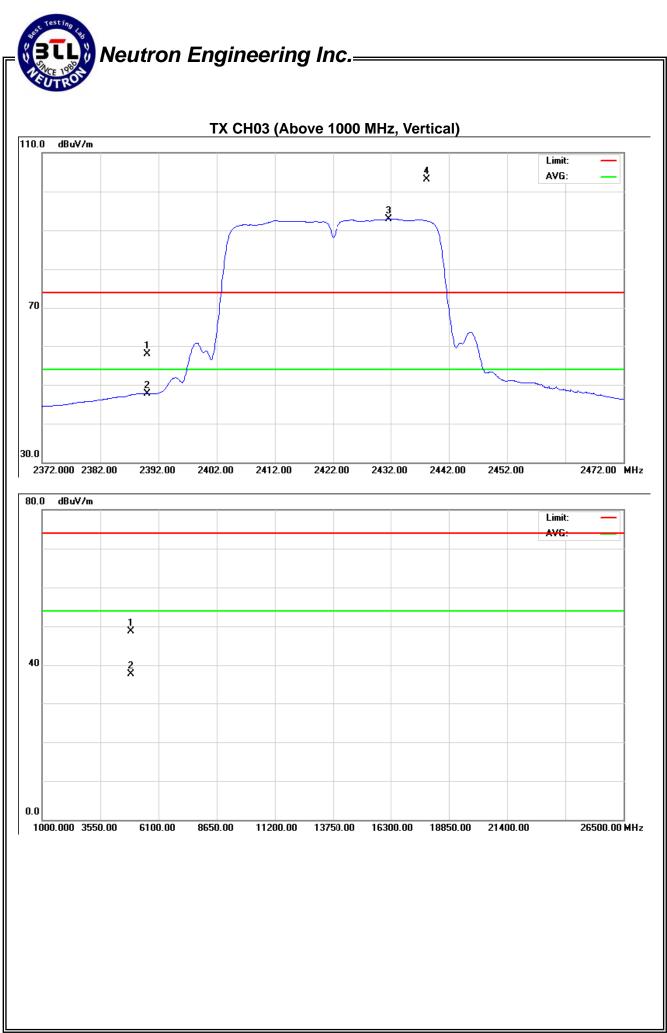
- (1) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ∘
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
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- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	20 ℃	Relative Humidity:	45 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE 2422MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	26.38	16.12	31.61	57.99	47.73	74.00	54.00	X/E
2431.60	V	71.64	61.36	31.55	103.19	92.93			X/F
4843.36	V	42.34	31.36	6.33	48.67	37.69	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of <code>『Note』</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform \circ
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
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- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



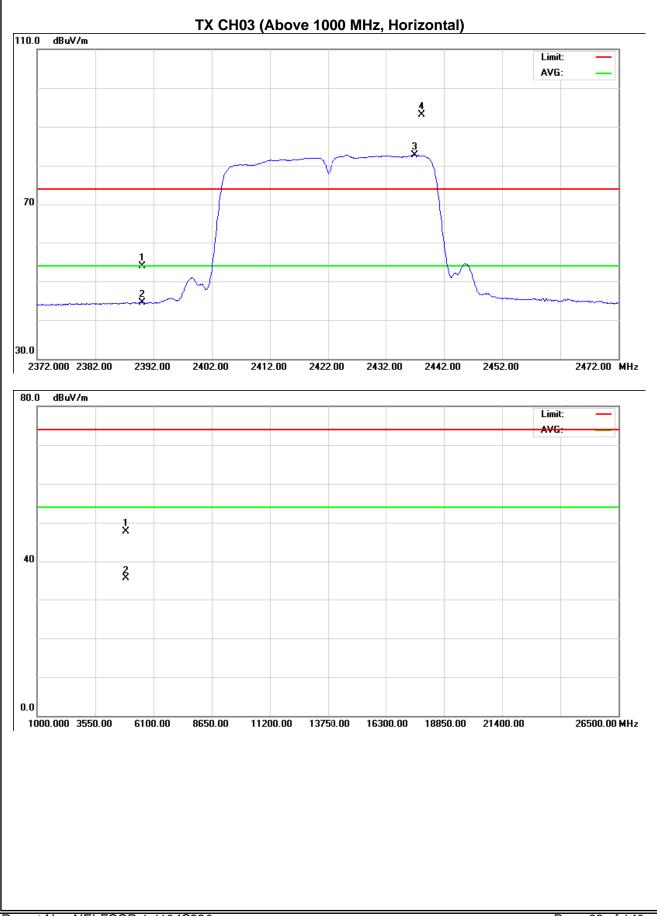


EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	20 ℃	Relative Humidity:	45 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE 2422MHz		

Freq.	Ant.Pol.	Rea	ding	Ant./CF	A	ct.	Lir	nit	
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	Н	22.36	12.84	31.61	53.97	44.45	74.00	54.00	X/E
2437.00	Н	61.62	51.13	31.56	93.17	82.69			X/F
4843.76	Н	41.30	29.17	6.33	47.63	35.50	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ∘
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
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- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
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- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

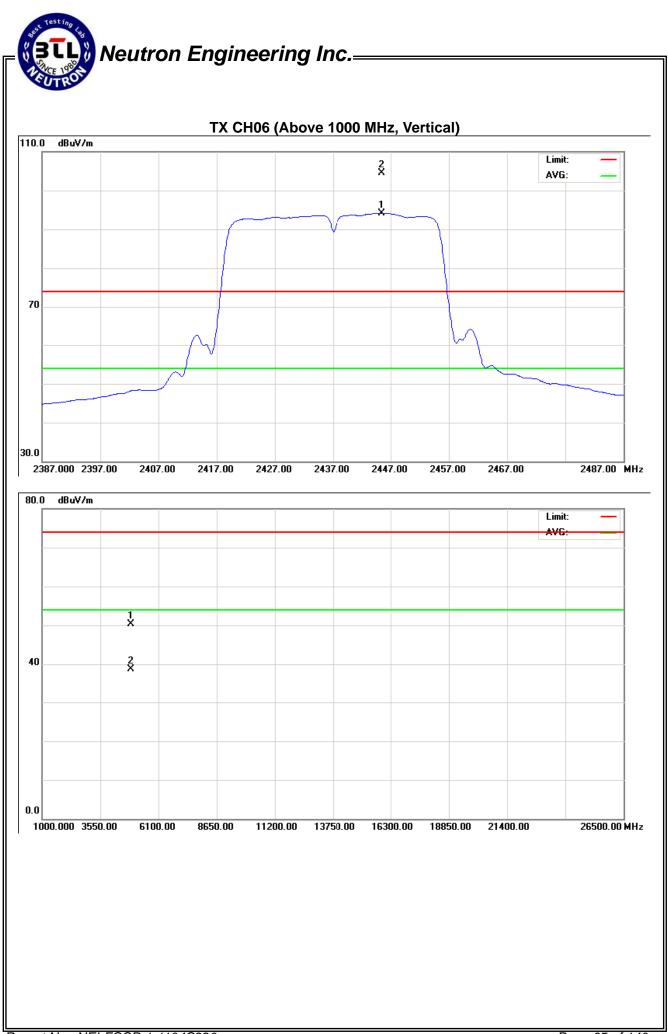




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	20 ℃	Relative Humidity:	45 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE 2437MHz		·

Freq.	Ant.Pol.	Rea	ding	Ant./CF	A	ct.	Lir	nit	
Fieq.	AIILFUI.	Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2445.40	V	72.87	62.61	31.55	104.42	94.16			X/F
4874.56	V	43.84	32.24	6.48	50.32	38.72	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of <code>"Note_"</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform \circ
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
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- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



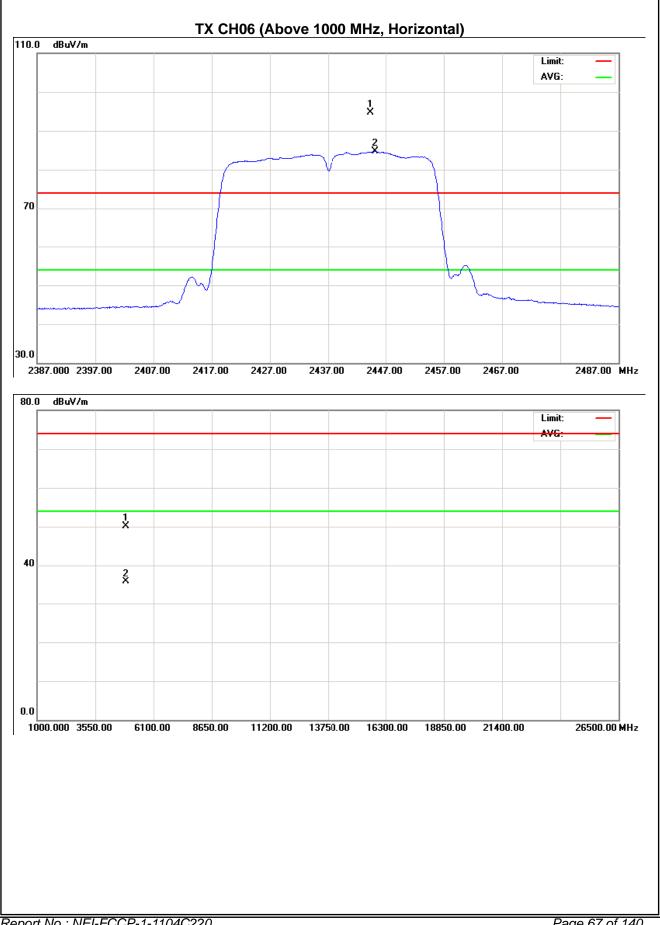


EUI.	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	20 ℃	Relative Humidity:	45 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE 2437MHz		

Freq.	Ant.Pol.	Rea	ding	Ant./CF	A	ct.	Lir	nit	
Fieq.	AIILFUI.	Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2444.40	Н	63.12	53.10	31.55	94.67	84.65			X/F
4874.21	H	43.71	29.26	6.48	50.19	35.74	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of $\[\]$ Note $\]$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $\[\circ\]$
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- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



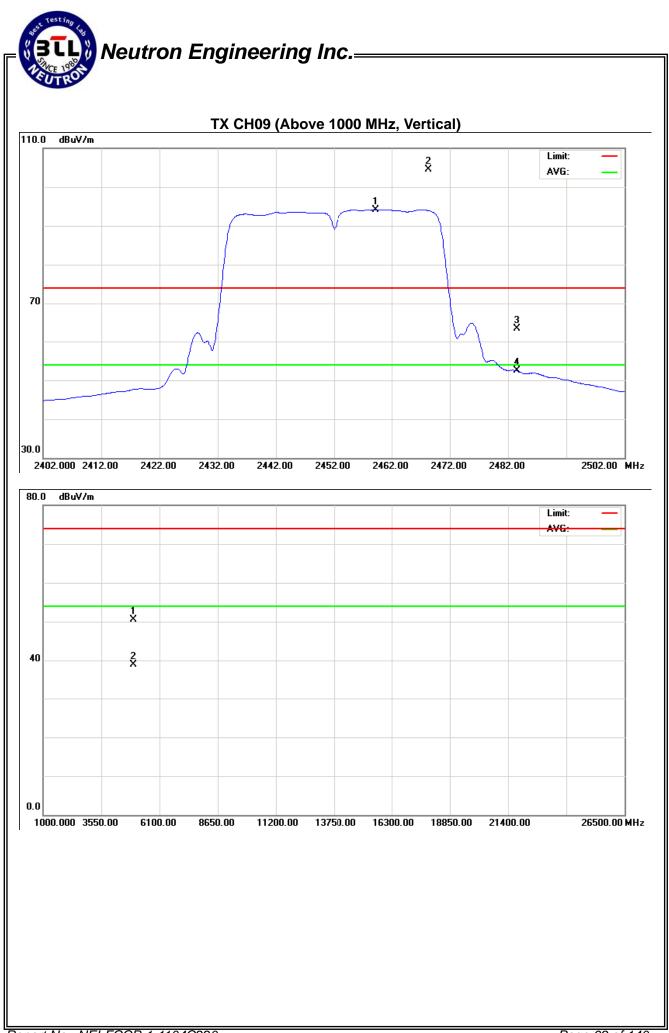




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	20 ℃	Relative Humidity:	45 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE 2452MHz		

Freq.	Ant.Pol.	Rea	ding	Ant./CF	Ad	ot.	Lir	nit	
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2459.20	V	73.07	62.67	31.53	104.59	94.20			X/F
2483.50	V	31.86	20.92	31.50	63.36	52.42	74.00	54.00	X/E
4904.76	V	43.86	32.33	6.63	50.49	38.96	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of $\[\]$ Note $\]$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $\[\circ\]$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
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- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



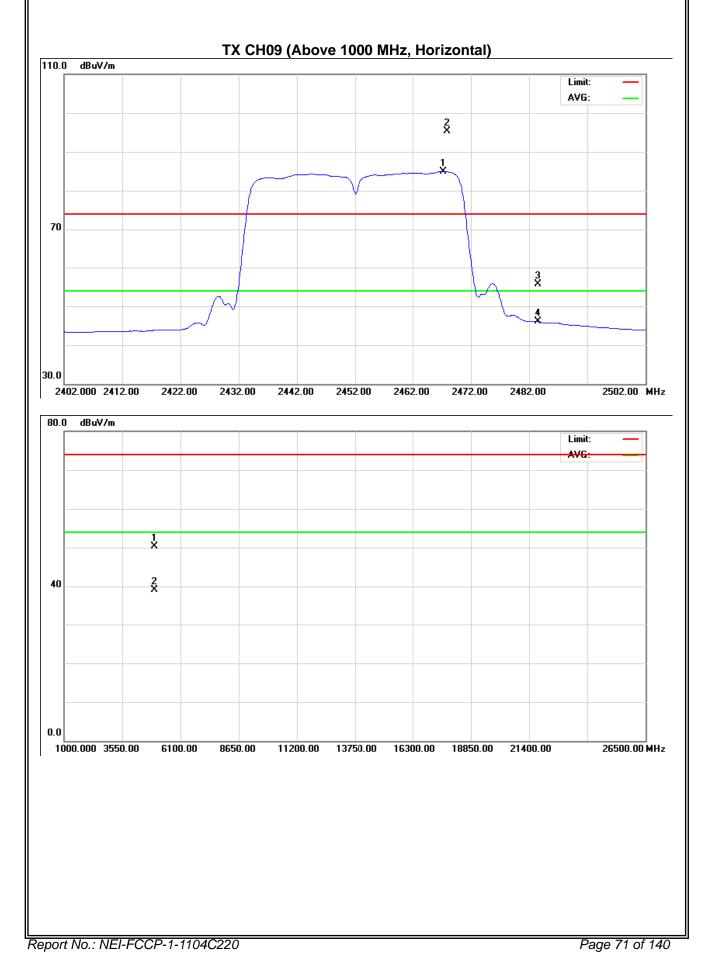


EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	20 ℃	Relative Humidity:	45 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE 2452MHz		

Freq.	Ant.Pol.	Rea	ding	Ant./CF	A	ct.	Lii	nit	
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2467.30	Н	63.88	53.40	31.52	95.39	84.92			X/F
2483.50	Н	24.20	14.54	31.50	55.70	46.04	74.00	54.00	X/E
4904.65	Н	43.68	32.46	6.63	50.31	39.09	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ∘
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency^o"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna





5. BANDWIDTH TEST

5.1 Applied procedures / limit

	FCC Part15 (15.247) , Subpart C						
Section	Test Item	Limit	Frequency Range (MHz)	Result			
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS			

5.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Jan. 04, 2012

Remark: " N/A" denotes No Model Name. , Serial No. or No Calibration specified.

5.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = 5 ms.

5.1.3 DEVIATION FROM STANDARD

No deviation.

5.1.4 TEST SETUP



5.1.5 EUT OPERATION CONDITIONS

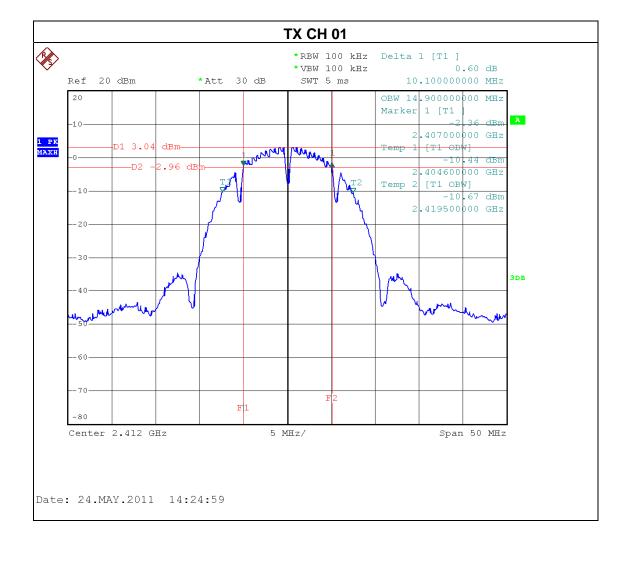
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

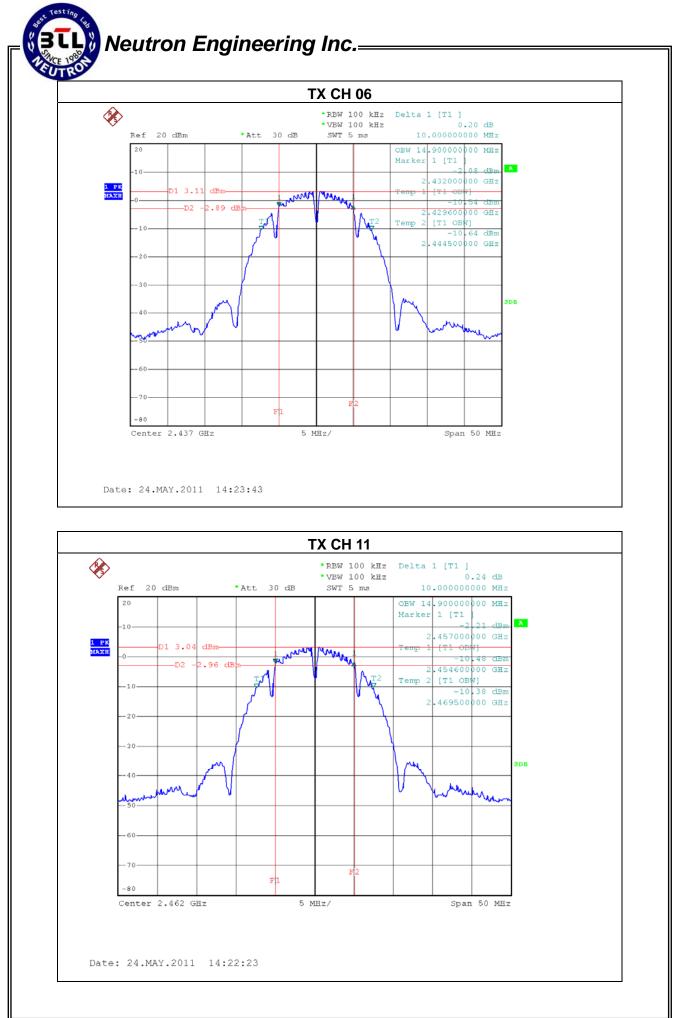


5.1.6 TEST RESULTS

EUI.	300Mbps Wireless-N PCI-E Adapter	Model Name. :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX B MODE /CH01, CH06, CH11		

Test Channel	Frequency (MHz)	Bandwidth (MHz)	LIMIT (MHz)
CH01	2412	14.90	>=500KHz
CH06	2437	14.90	>=500KHz
CH11	2462	14.90	>=500KHz



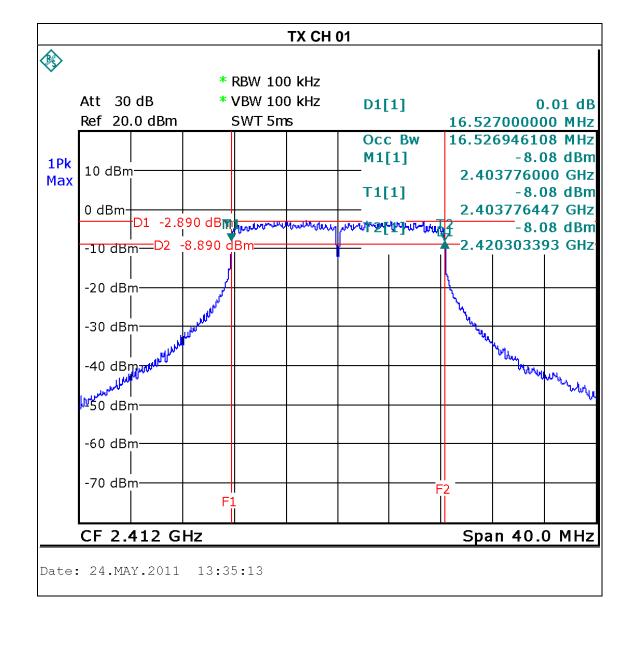


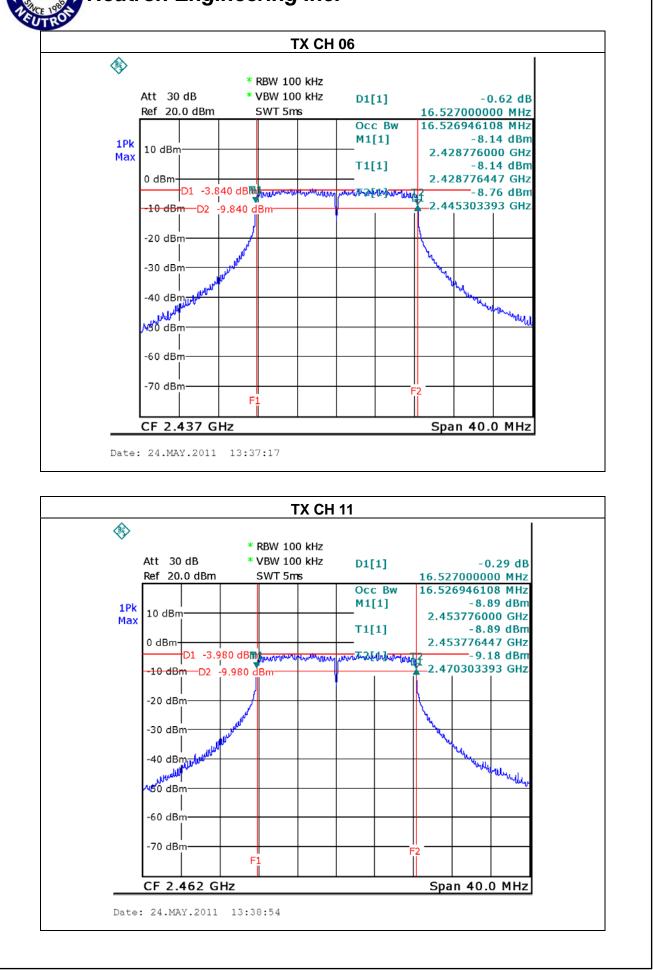
Report No.: NEI-FCCP-1-1104C220



EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name. :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX G MODE /CH01, CH06, CH11		

Test Channel	Frequency (MHz)	Bandwidth (MHz)	LIMIT (MHz)
CH01	2412	16.53	>=500KHz
CH06	2437	16.53	>=500KHz
CH11	2462	16.53	>=500KHz



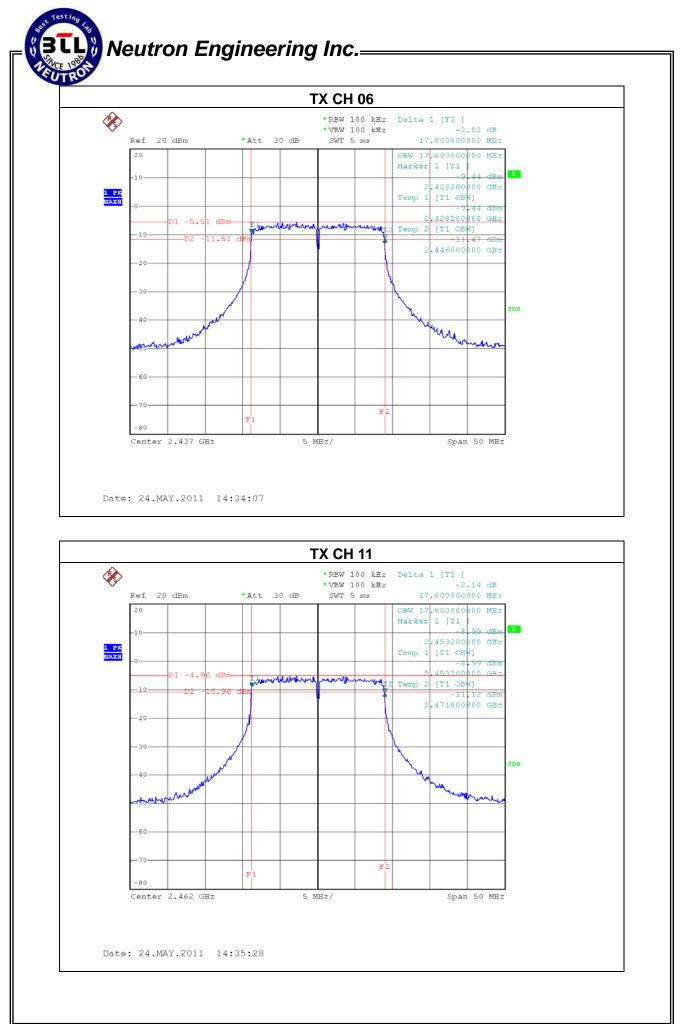




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name. :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N MODE -20MHz/ CH01, CH06, CH11		

Test Channel	Frequency (MHz)	Bandwidth (MHz)	LIMIT (MHz)
CH01	2412	17.80	>=500KHz
CH06	2437	17.80	>=500KHz
CH11	2462	17.80	>=500KHz

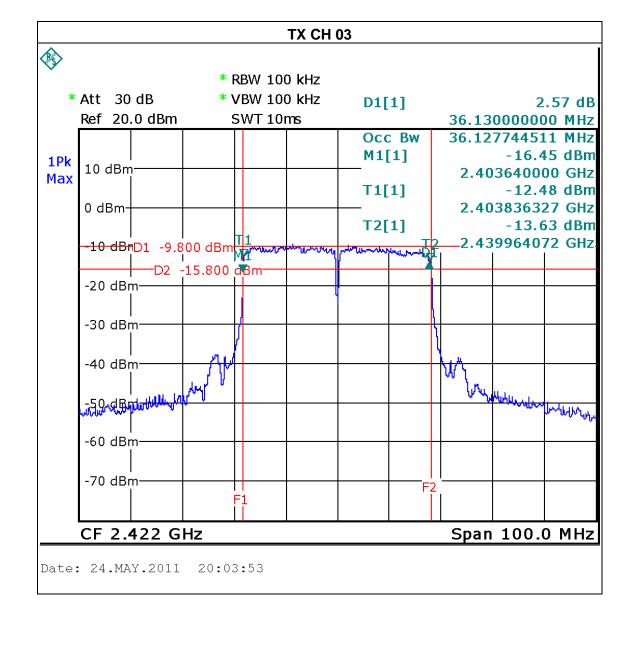


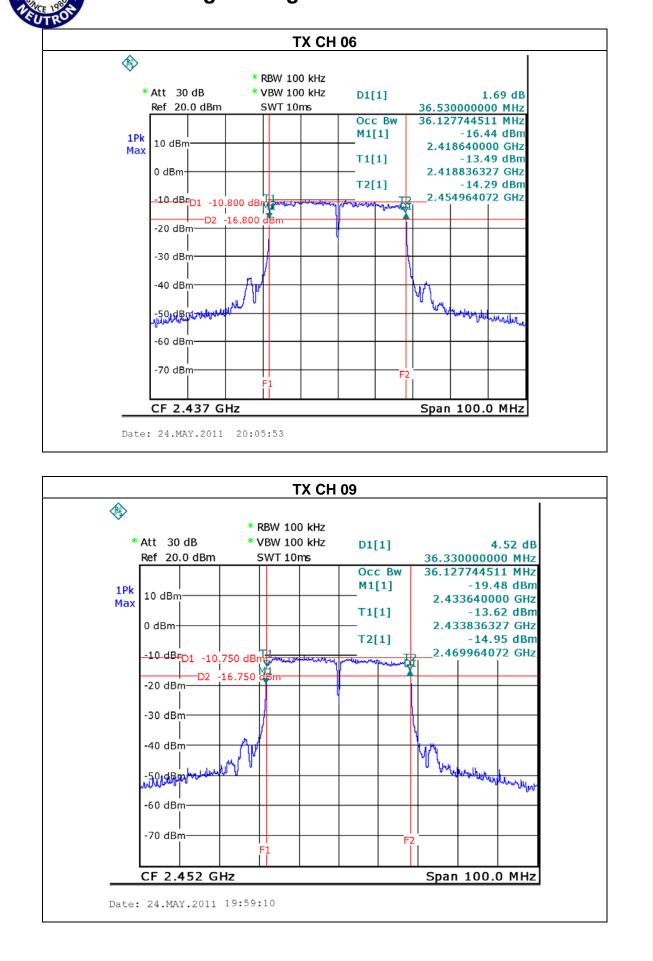




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name. :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N MODE -40MHz/ CH03, CH06, CH09		

Test Channel	Frequency (MHz)	Bandwidth (MHz)	LIMIT (MHz)
CH03	2422	36.13	>=500KHz
CH06	2437	36.13	>=500KHz
CH09	2452	36.13	>=500KHz





6. MAXIMUM OUTPUT POWER TEST

6.1 Applied procedures / limit

FCC Part15 (15.247), Subpart C					
Section	Test Item	Limit	Frequency Range (MHz)	Result	
15.247(b)(3)	Maximum Output Power	1 watt or 30dBm	2400-2483.5	PASS	

6.1.1 MEASUREMENT INSTRUMENTS LIST

Ite	m Kind of Equipmen	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyze	- R&S	FSP_40	100129	Jan. 04, 2012

Remark: " N/A" denotes No Model Name. , Serial No. or No Calibration specified.

6.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 1MHz, VBW=3MHz, Sample detector, Sweep time = 5 ms.

6.1.3 DEVIATION FROM STANDARD

No deviation.

6.1.4 TEST SETUP



6.1.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

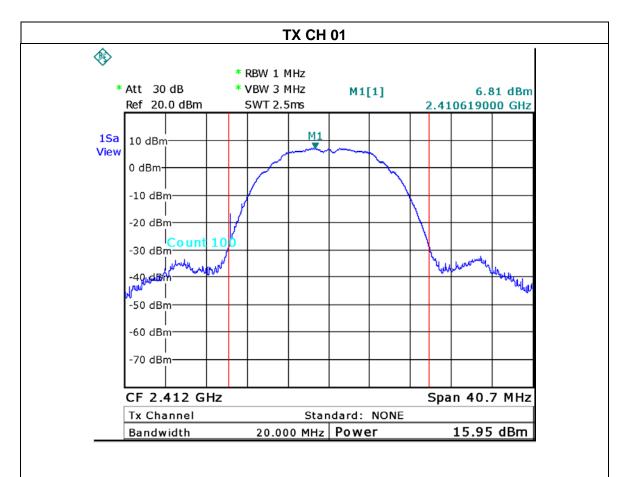
Transmit output power was measured while the host equipment supply voltage was varied from 85 % to 115 % of the nominal rated supply voltage. No change in transmit output power was observed.

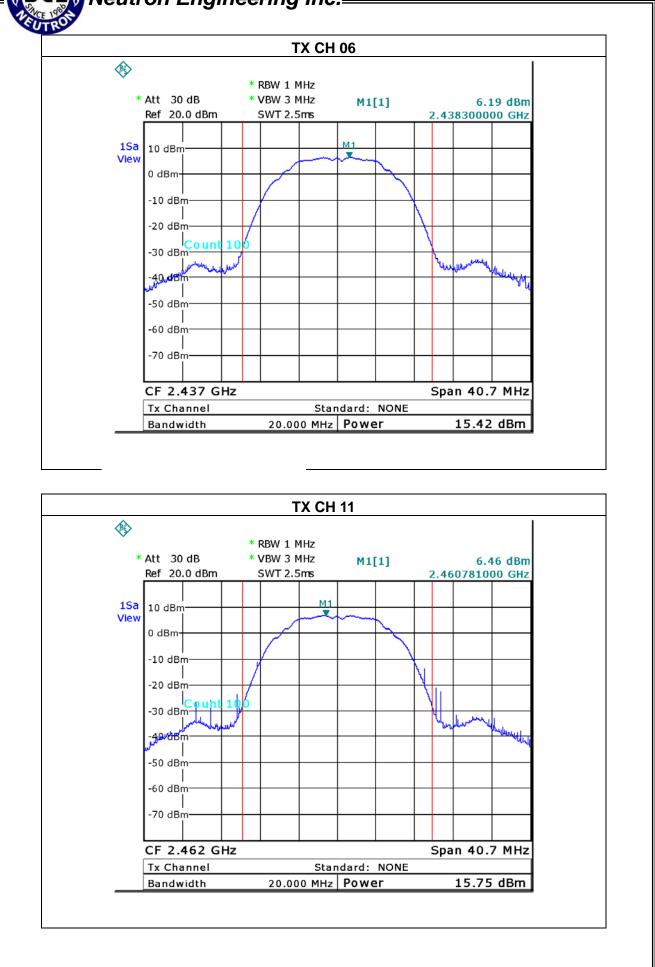


6.1.6 TEST RESULTS

EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113	
Temperature :	24 ℃	Relative Humidity:	60 %	
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz	
Test Mode :	Test Mode : TX B MODE /CH01, CH06, CH11			
Maximum Output Power				

Test Cha	annel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH0	1	2412 MHz	15.95	30	1
CH0	6	2437 MHz	15.42	30	1
CH1	1	2462 MHz	15.75	30	1

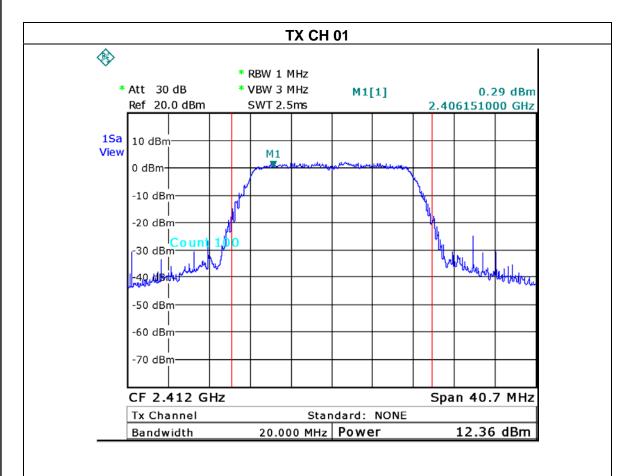


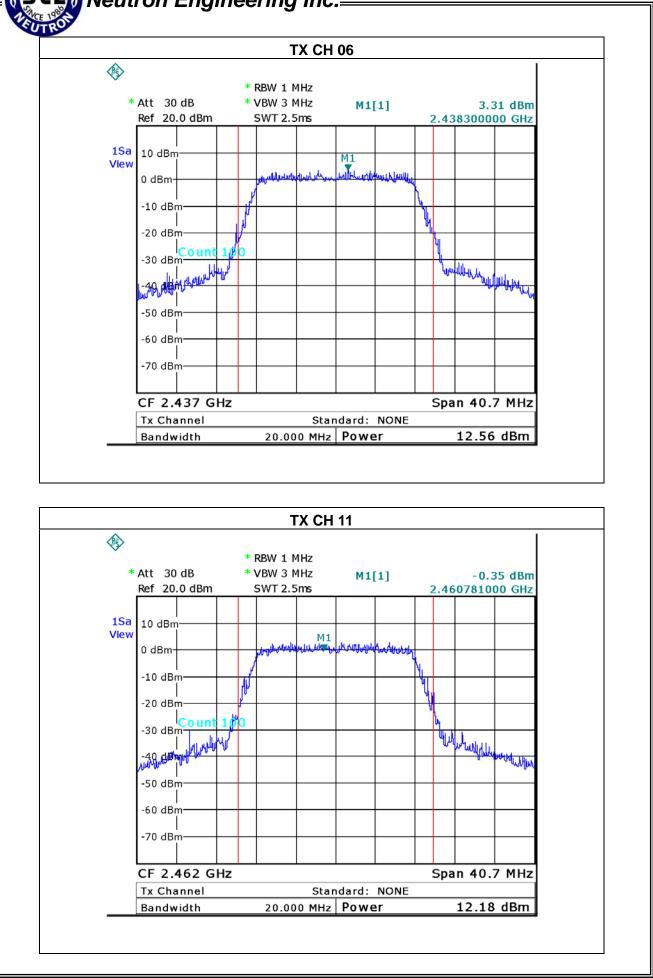




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX G MODE /CH01, CH06, CH11		

Test Channel	Frequency	Output Power	LIMIT	LIMIT
	(MHz)	(dBm)	(dBm)	(W)
CH01	2412 MHz	12.36	30	1
CH06	2437 MHz	12.56	30	1
CH11	2462 MHz	12.18	30	1

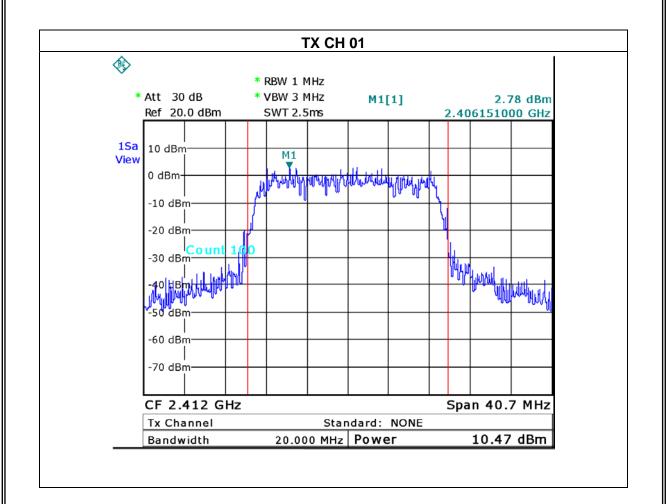


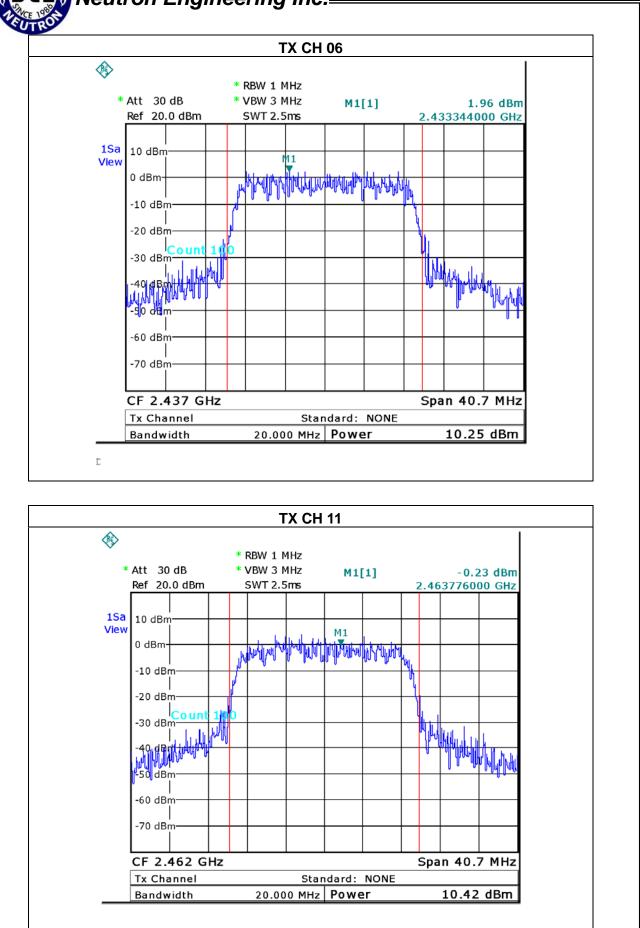




FUI	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE /CH01, CH06, CH11-ANT1		

Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2412 MHz	10.47	30	1
CH06	2437 MHz	10.25	30	1
CH11	2462 MHz	10.42	30	1

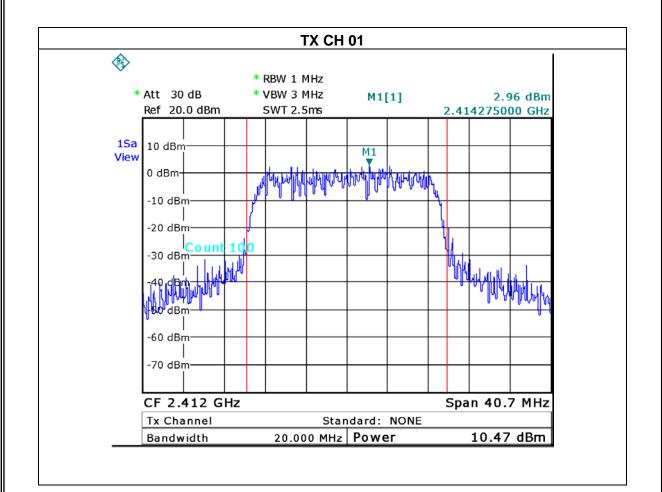


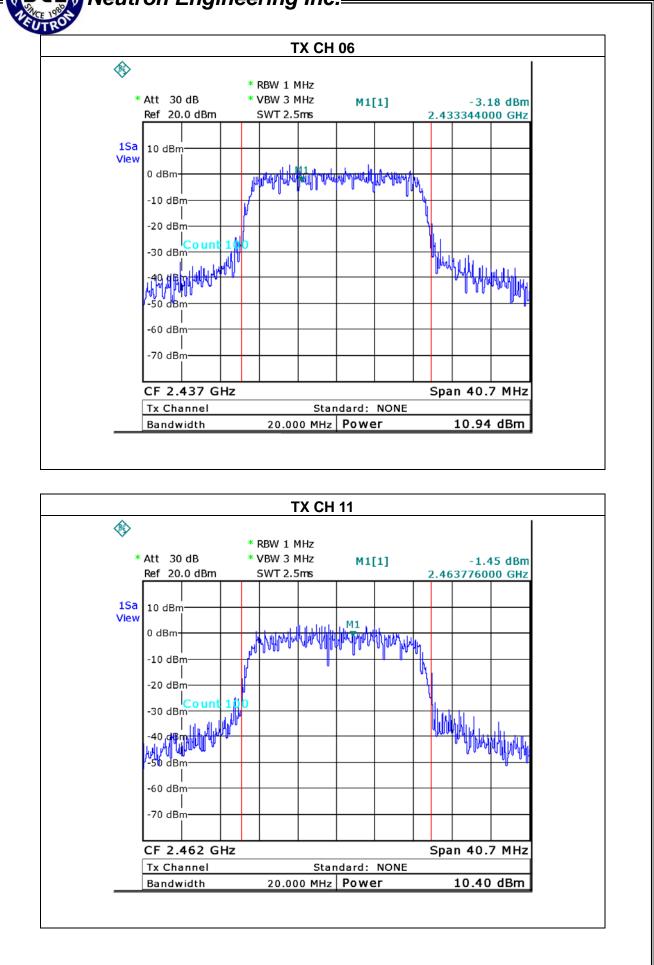




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE /CH01, CH06, CH11-ANT2		

Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2412 MHz	10.47	30	1
CH06	2437 MHz	10.94	30	1
CH11	2462 MHz	10.40	30	1

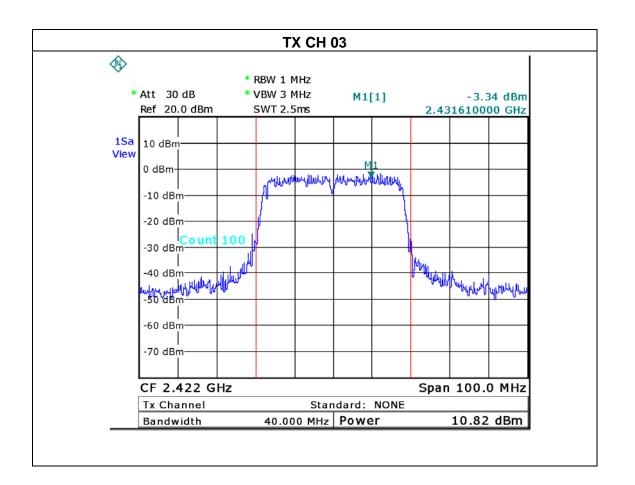


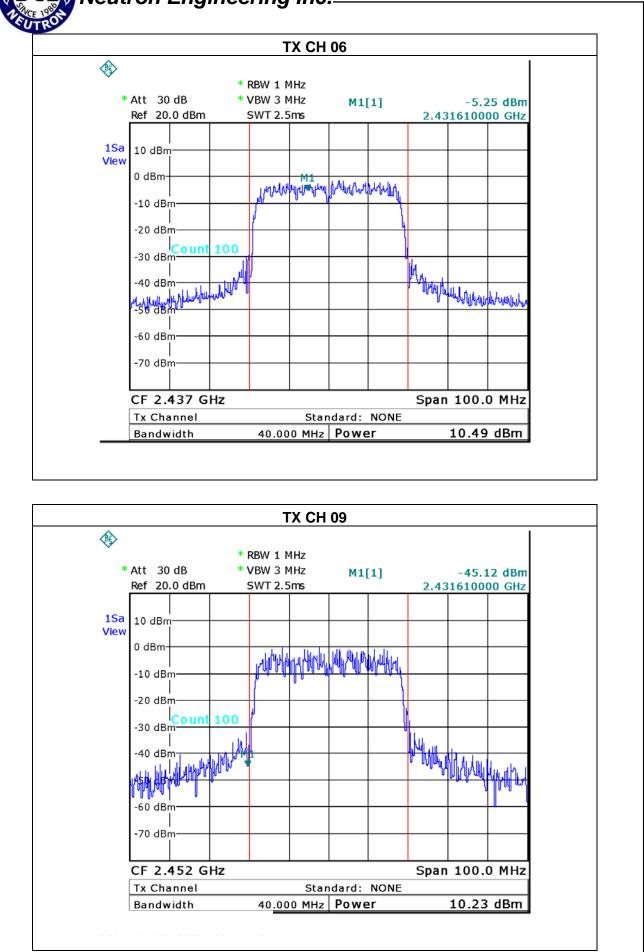




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE /CH03, CH06, CH09 - ANT 1		

Test Channel	Frequency	AV Output Power	LIMIT	LIMIT
Test Channel	(MHz)	(dBm)	(dBm)	(W)
CH03	2422 MHz	10.82	30	1
CH06	2437 MHz	10.49	30	1
CH09	2452 MHz	10.23	30	1

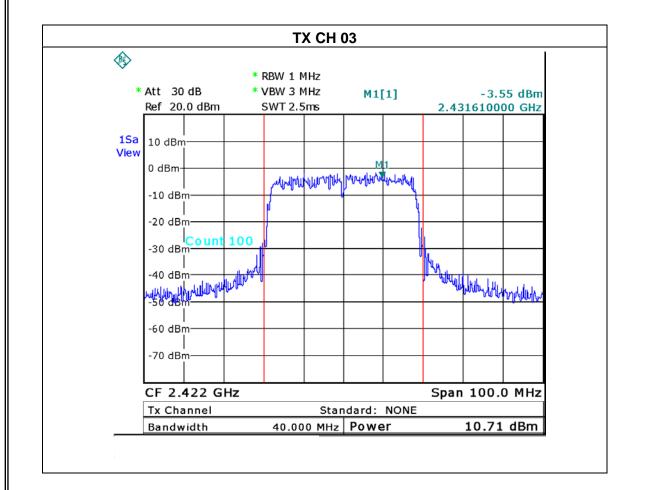


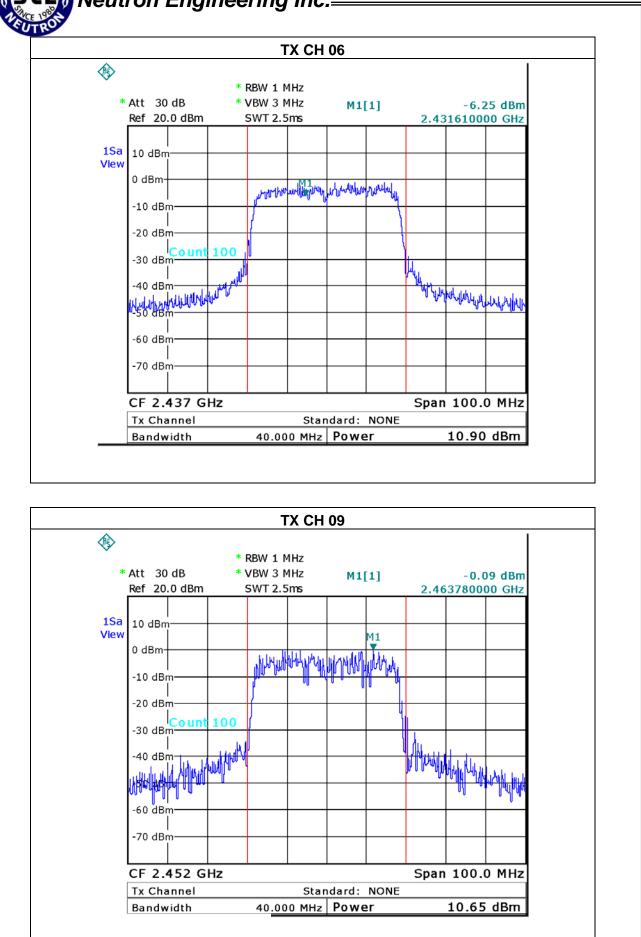




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113	
Temperature :	24 ℃	Relative Humidity:	60 %	
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz	
Test Mode :	TX N-40M MODE /CH03, CH06, CH09 - ANT 2			

Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH03	2422 MHz	10.71	30	1
CH06	2437 MHz	10.90	30	1
CH09	2452 MHz	10.65	30	1





Report No.: NEI-FCCP-1-1104C220



EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE /CH01, CH06, CH11 - ANT 1+ ANT 2		

Maximum Output Power

Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2412 MHz	13.48	30	1
CH06	2437 MHz	13.62	30	1
CH11	2462 MHz	13.42	30	1

IFUI .	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE /CH03, CH06, CH09 - ANT 1+ ANT 2		

Maximum Output Power

Test Channel	Frequency (MHz)	Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH03	2422 MHz	13.78	30	1
CH06	2437 MHz	13.71	30	1
CH09	2452 MHz	13.46	30	1

Note: Each antenna port was measured individually, and the aggregated power was summed up mathematically.



7. ANTENNA CONDUCTED SPURIOUS EMISSION

7.1 Applied procedures / limit

30dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

7.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Jan. 04, 2012

Remark: " N/A" denotes No Model Name. , Serial No. or No Calibration specified.

7.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = 10 ms.

7.1.3 DEVIATION FROM STANDARD

No deviation.

7.1.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

7.1.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

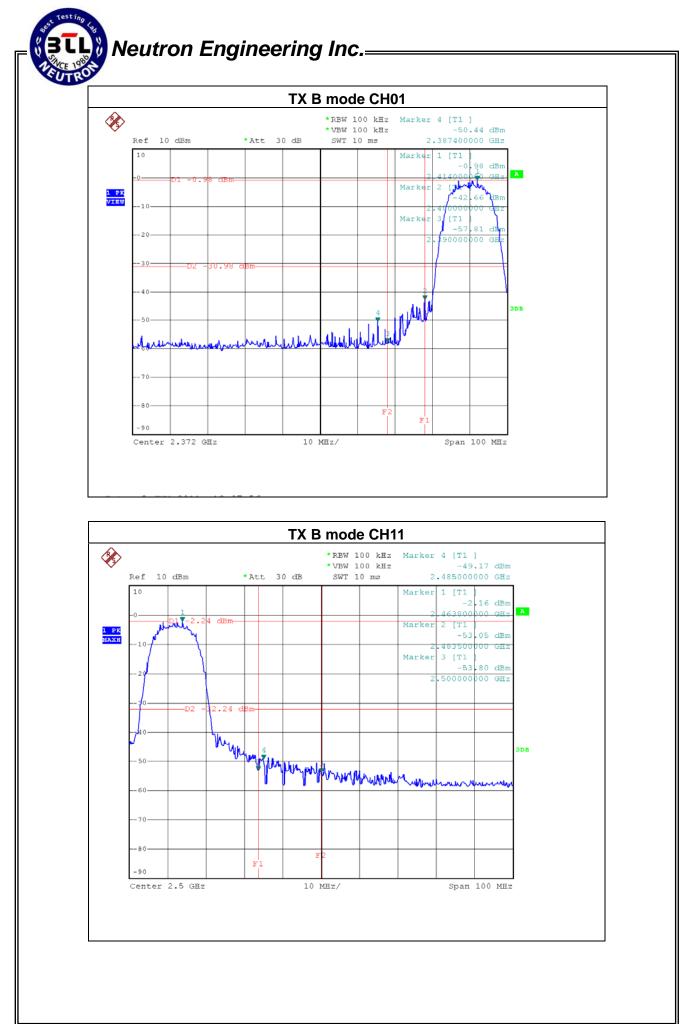


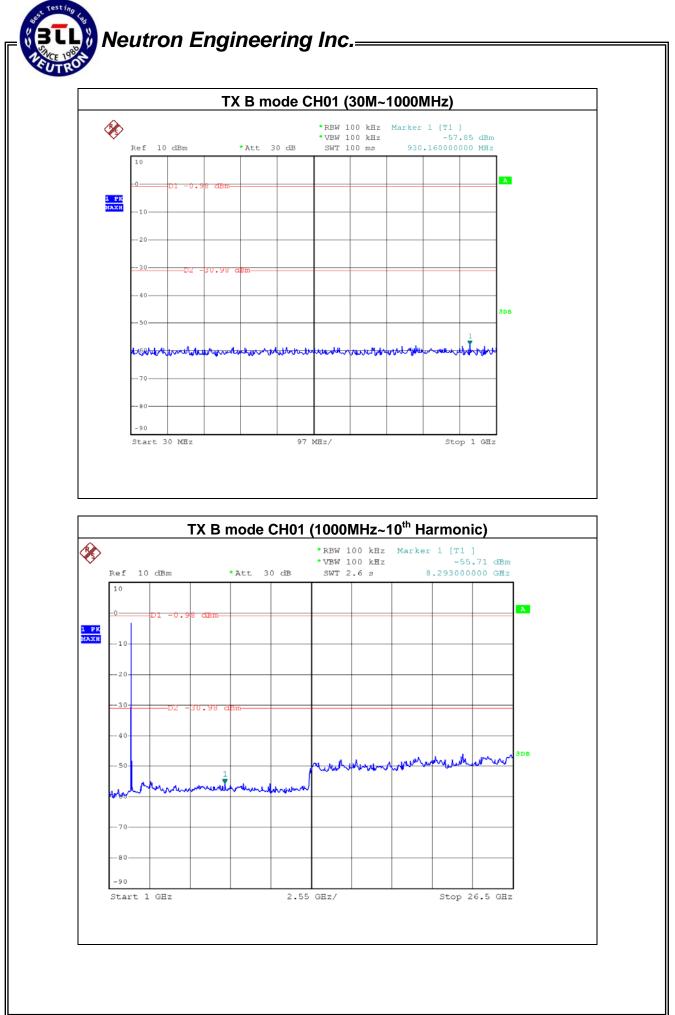
7.1.6 TEST RESULTS

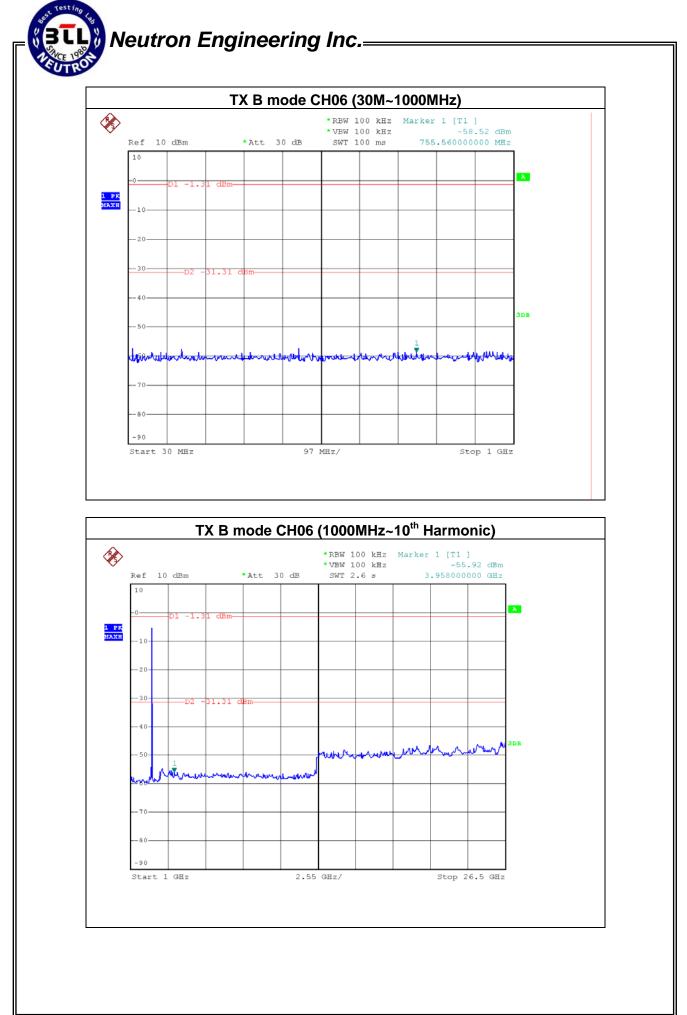
EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX B MODE /CH01, CH06 , CH11		

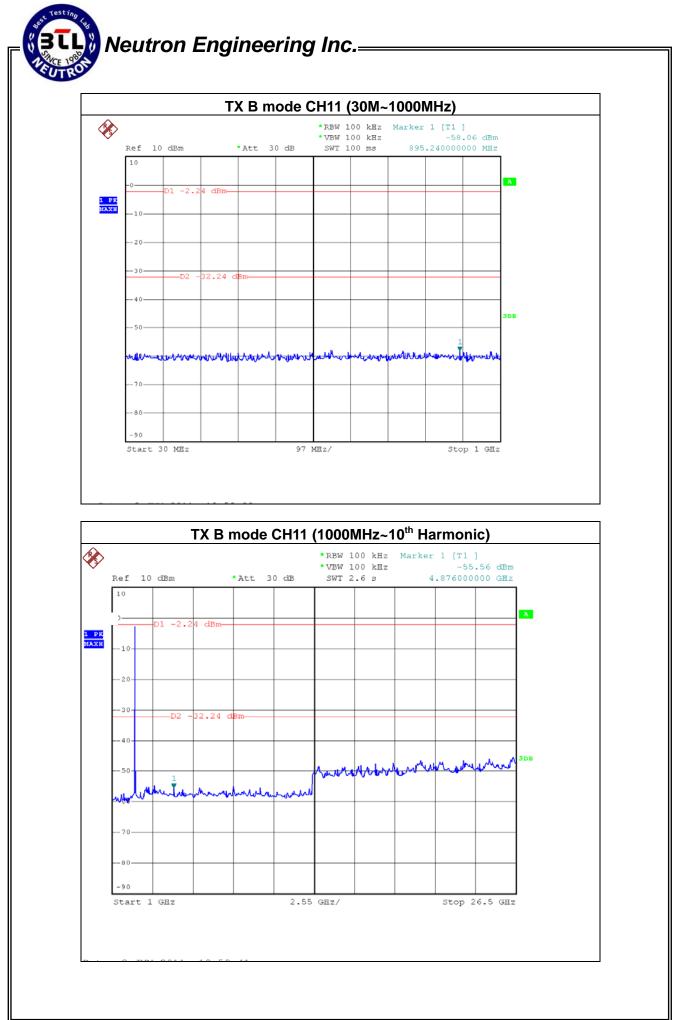
Channel of Worst Data: CH11				
The max. radio frequency power in any 100kHz bandwidth outside the frequency band				
FREQUENCY(MHz) POWER(dBm) FREQUENCY(MHz) POWER(dBm)				
2387.40 -50.44 2485.00 -49.17				
Result				

In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 30dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.







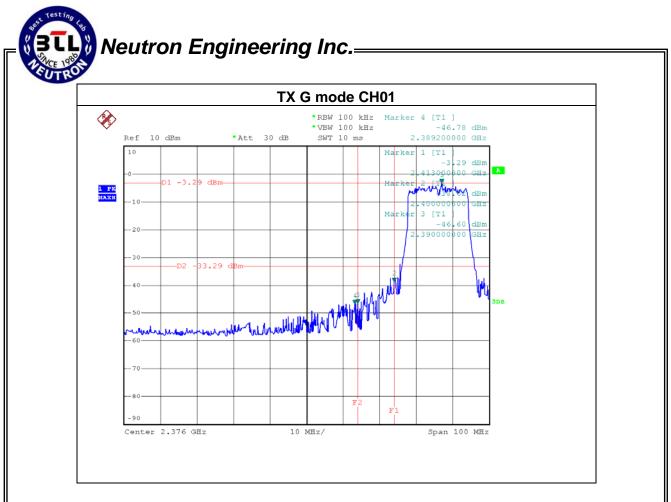


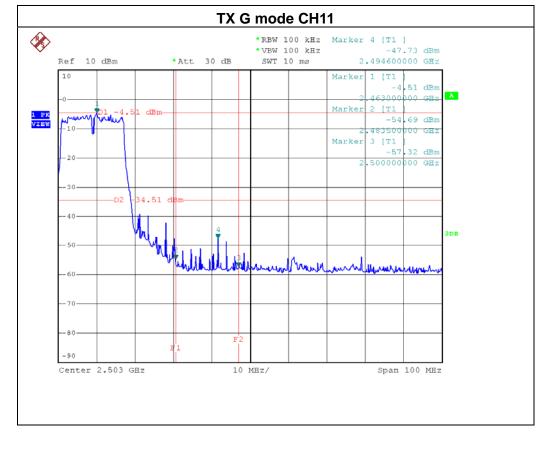


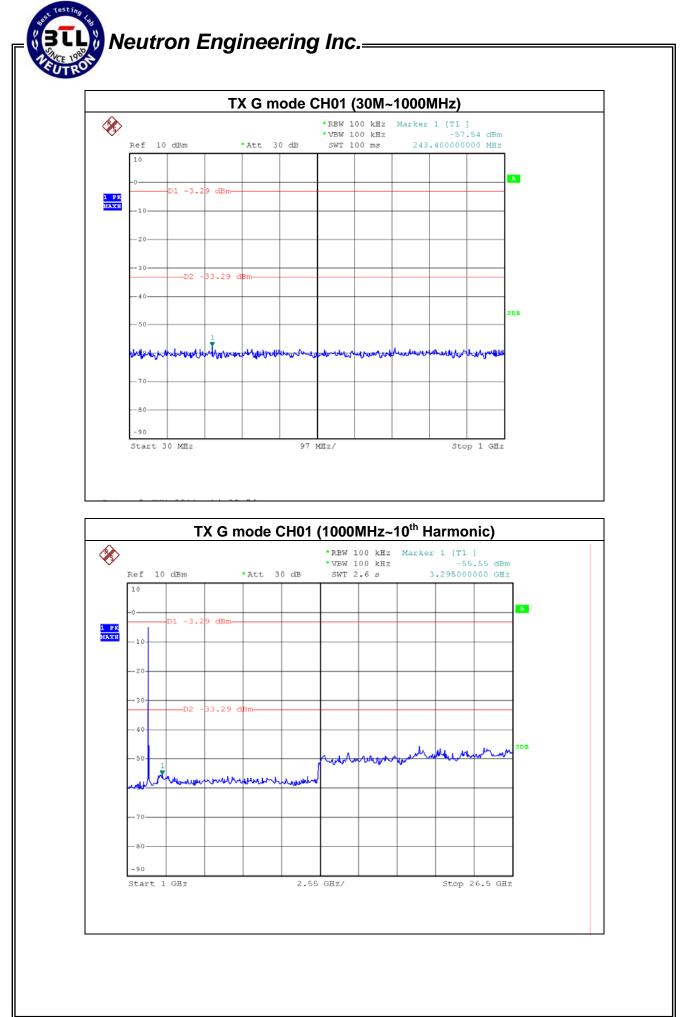
EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX G MODE / CH01, CH06 , CH11		

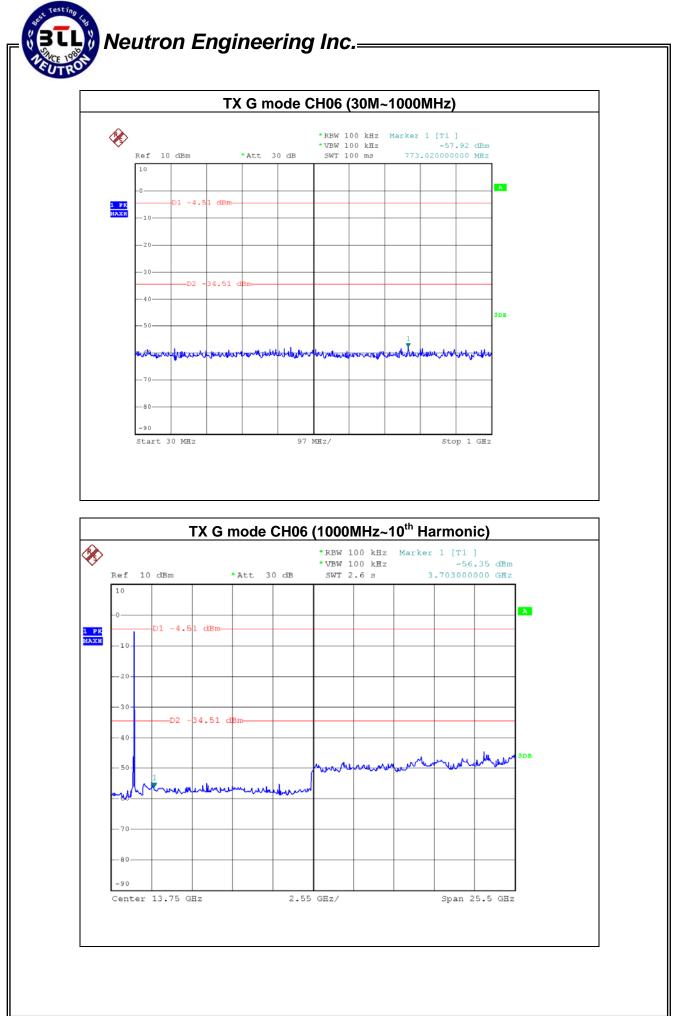
Channel of Worst Data: CH01				
The max. radio frequency power in any 100kHz The max. radio frequency power in any 100 kHz bandwidth outside the frequency band bandwidth within the frequency band.				
FREQUENCY(MHz) POWER(dBm) FREQUENCY(MHz)			POWER(dBm)	
2390.00 -46.60 2494.60 -47.73				
Result				

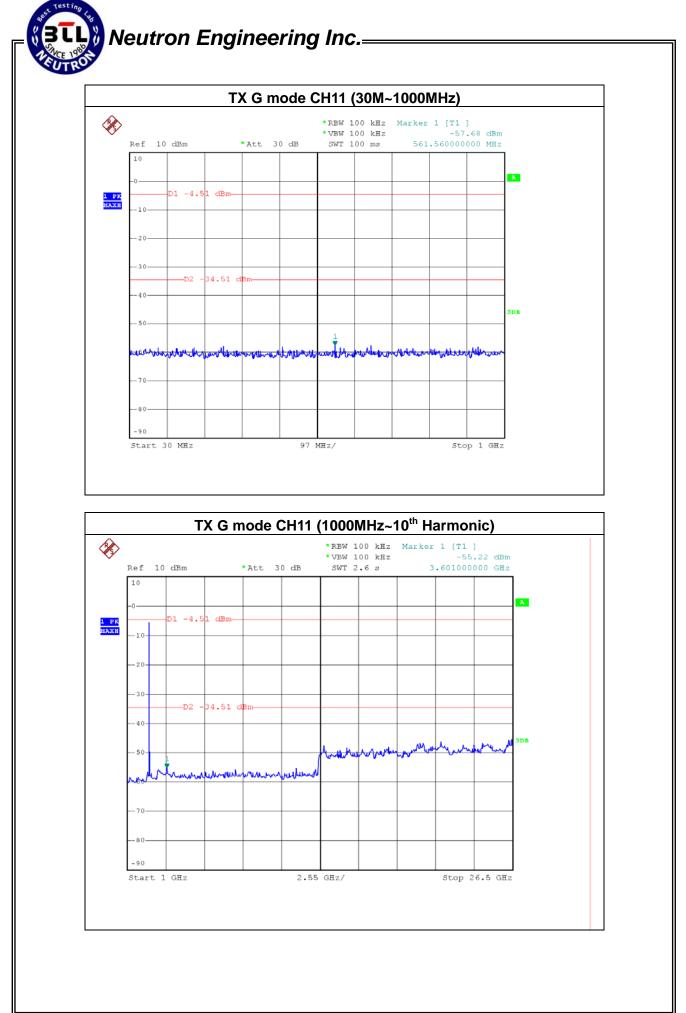
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 30dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.









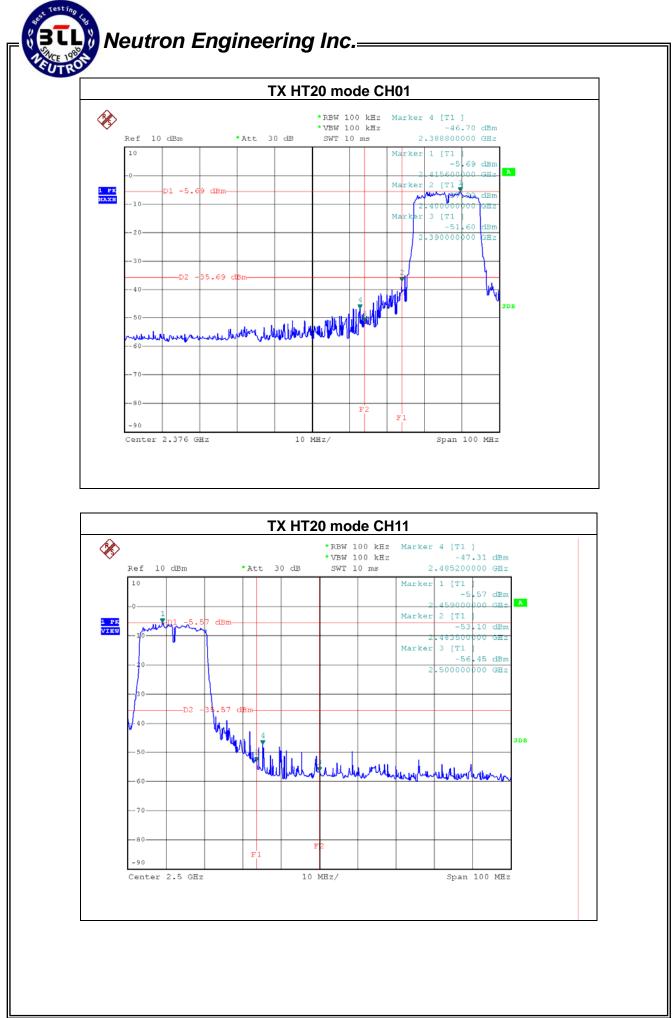


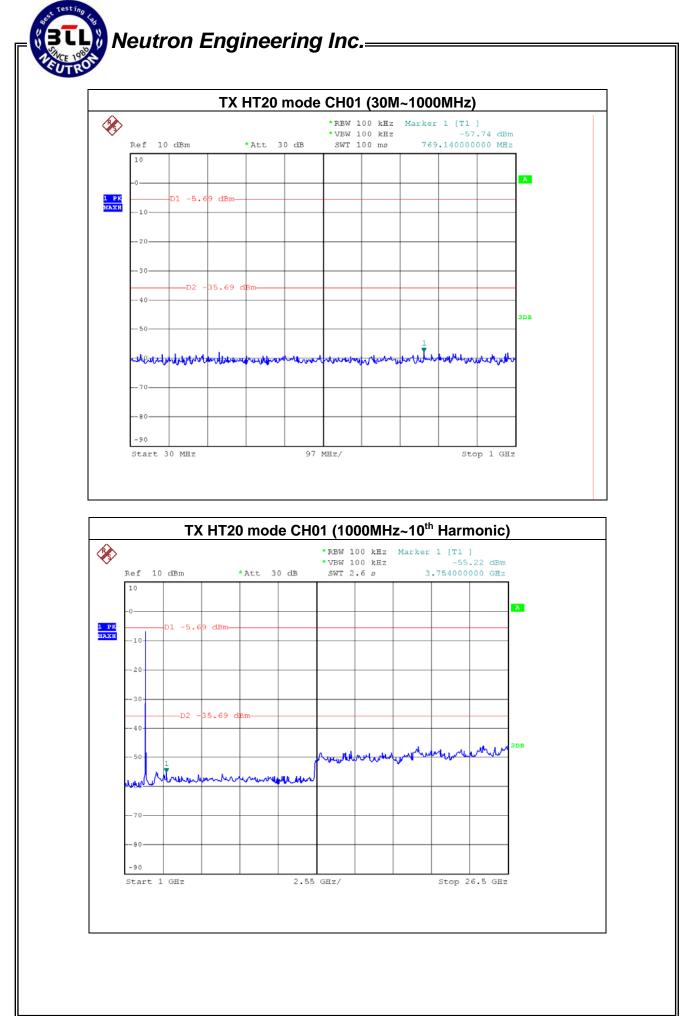


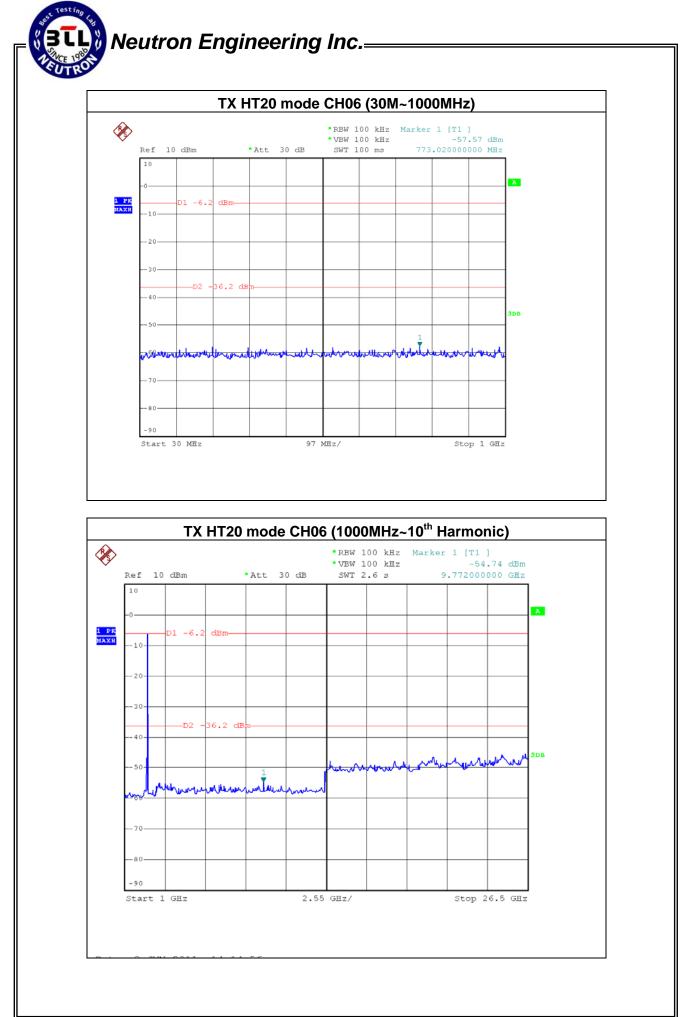
EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity :	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE / CH01, CH06 , CH11 ANT1(Worst Case)		

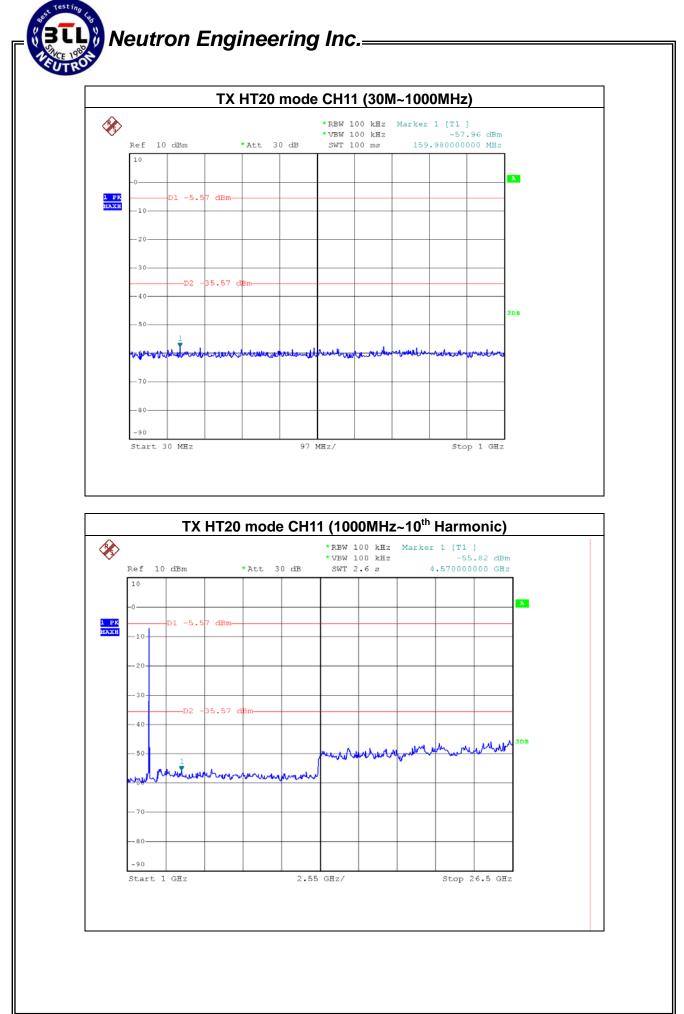
Channel of Worst Data: CH01				
The max. radio frequency power in any 100kHz The max. radio frequency power in any 100 kHz bandwidth outside the frequency band				
FREQUENCY(MHz) POWER(dBm) FREQUENCY(MHz) POWER(dBm)				
2388.80 -46.70 2485.20 -47.31				
Result				

In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 30dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.







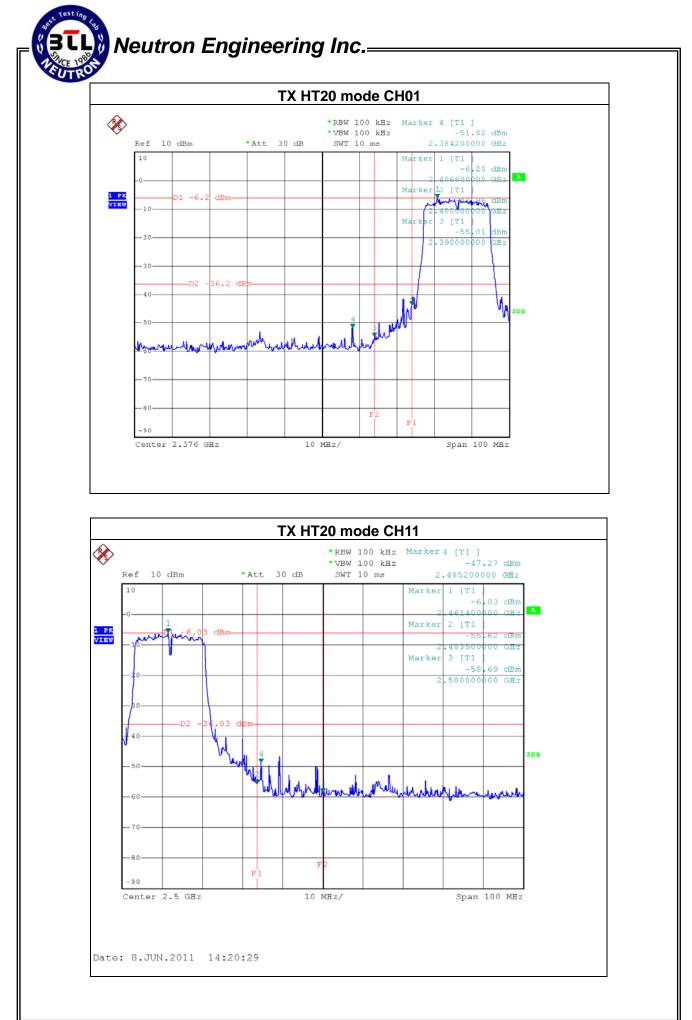


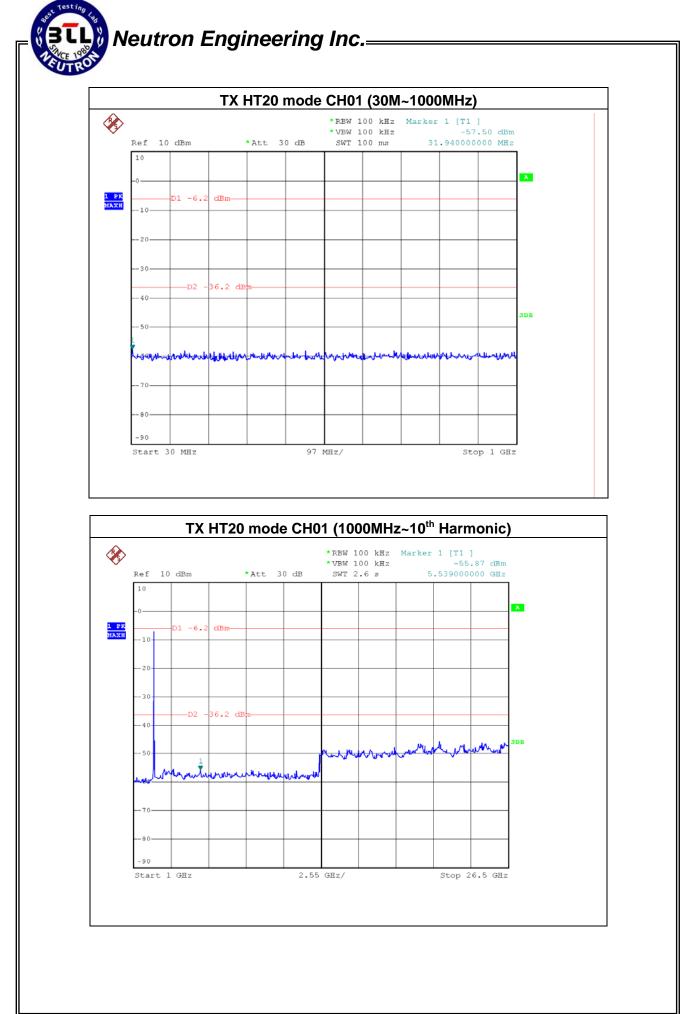


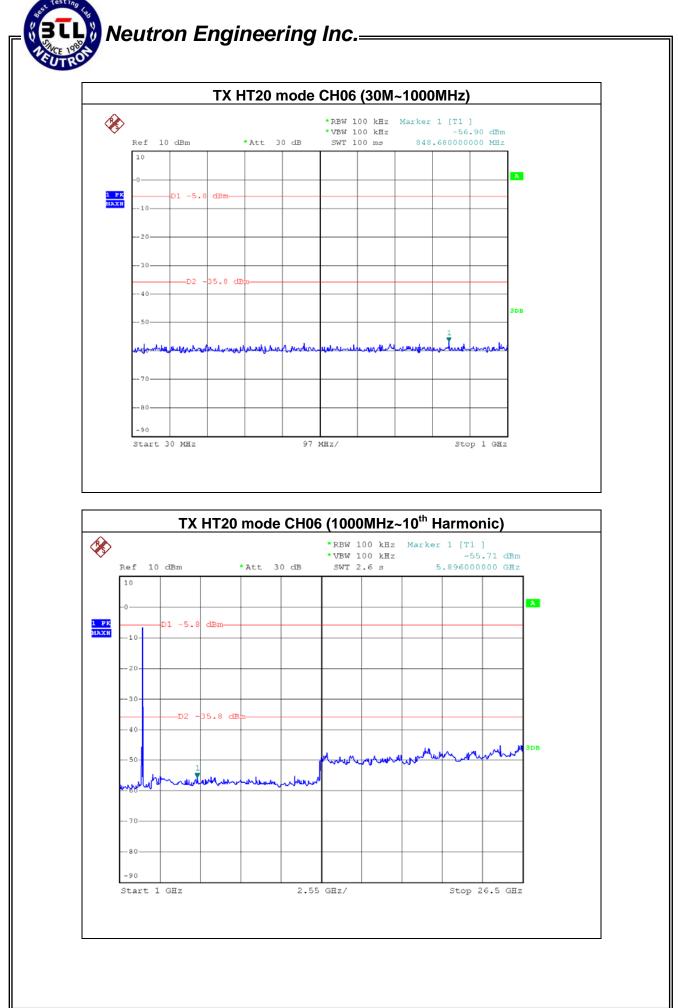
EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE / CH01, CH06 , CH11 ANT2		

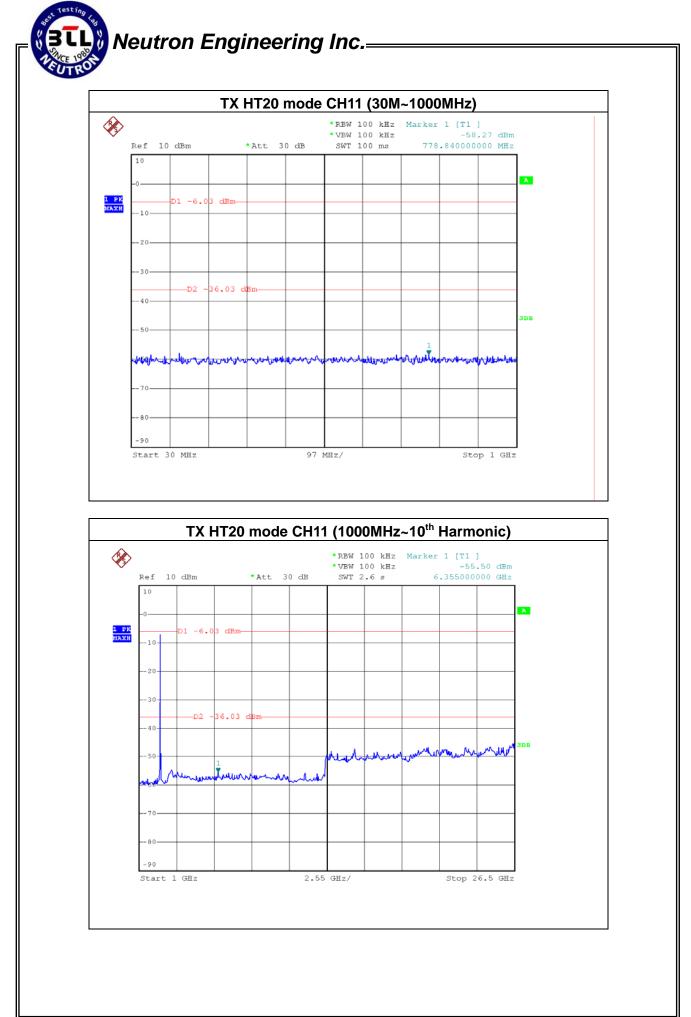
Channel of Worst Data: CH11				
The max. radio frequency power in any 100kHz The max. radio frequency power in any 100 kHz bandwidth outside the frequency band				
FREQUENCY(MHz)POWER(dBm)FREQUENCY(MHz)POWER(dBm)				
2384.20 -51.82 2485.20 -47.27				
	Re	sult		

In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 30dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.







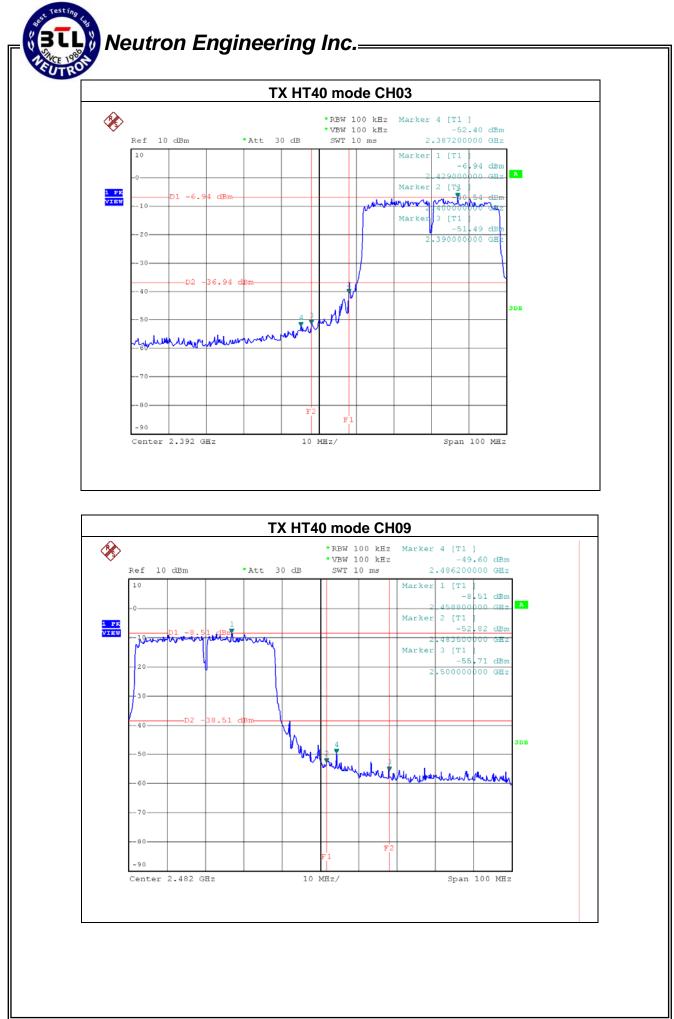


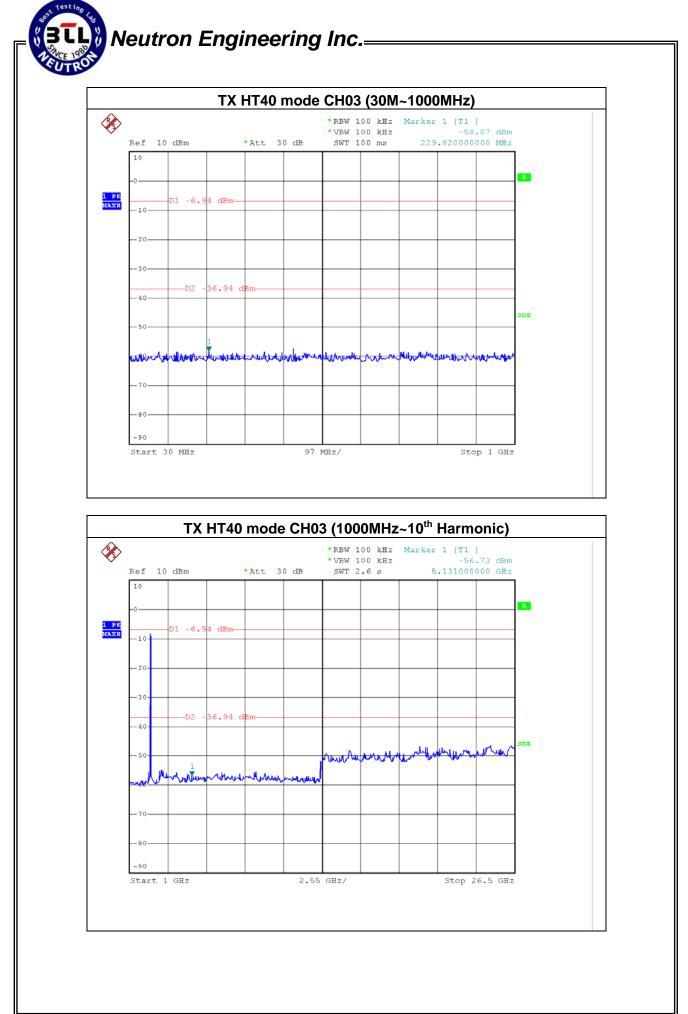


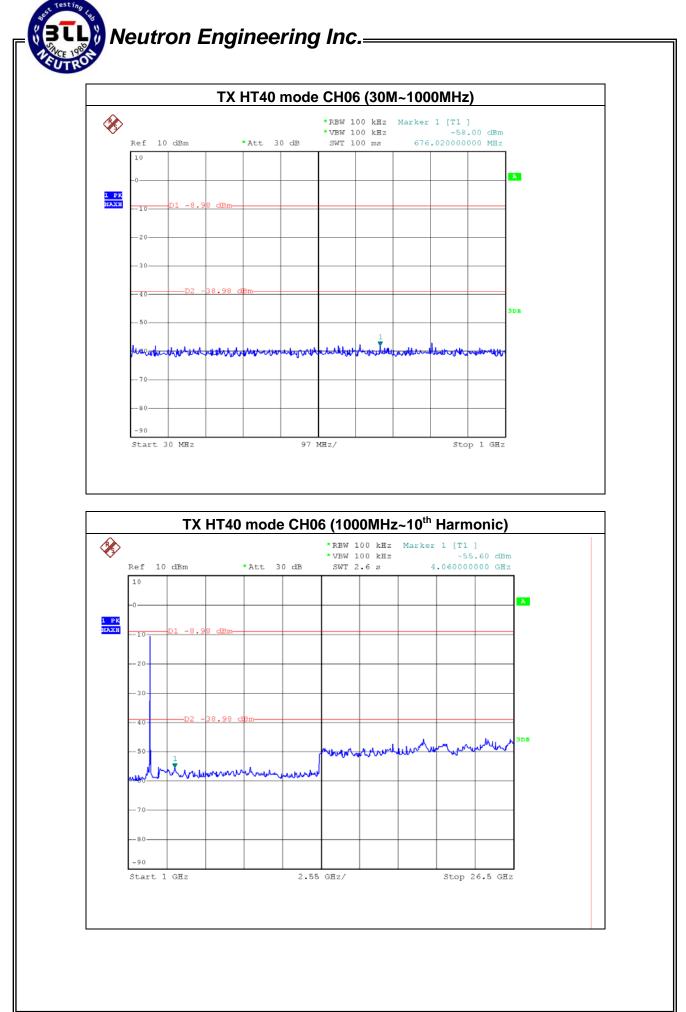
EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE /CH03, CH06, CH09 ANT1		

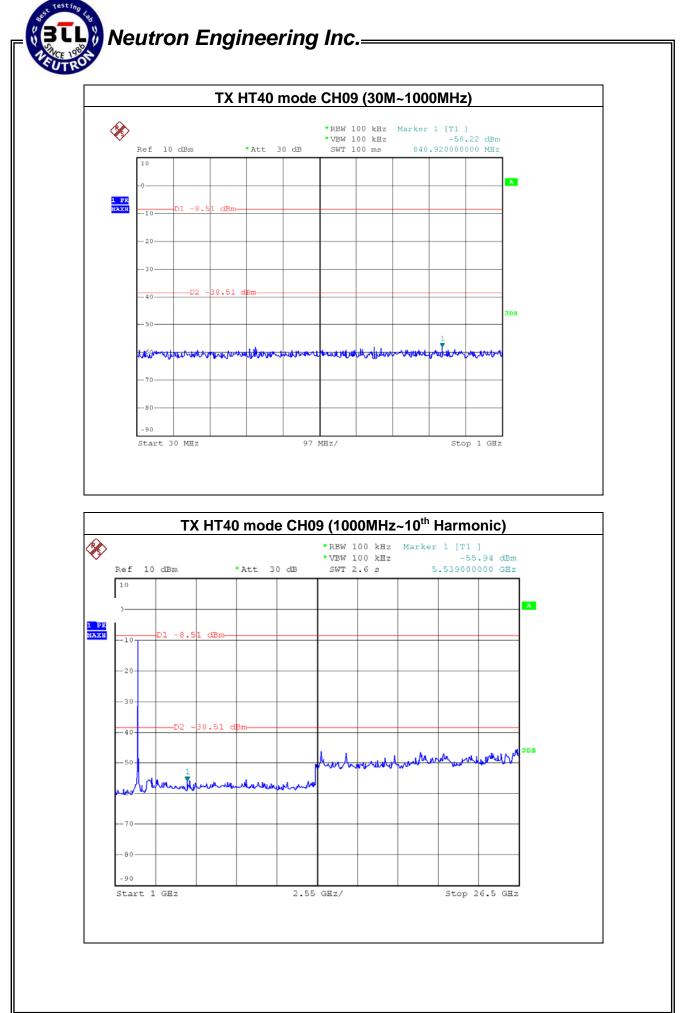
Channel of Worst Data: CH09				
The max. radio frequency power in any 100kHz bandwidth outside the frequency band bandwidth within the frequency band.				
FREQUENCY(MHz) POWER(dBm) FREQUENCY(MHz) POWER(dBm)				
2390.00 -51.49 2486.20 -49.60				
Result				

In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 30dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.







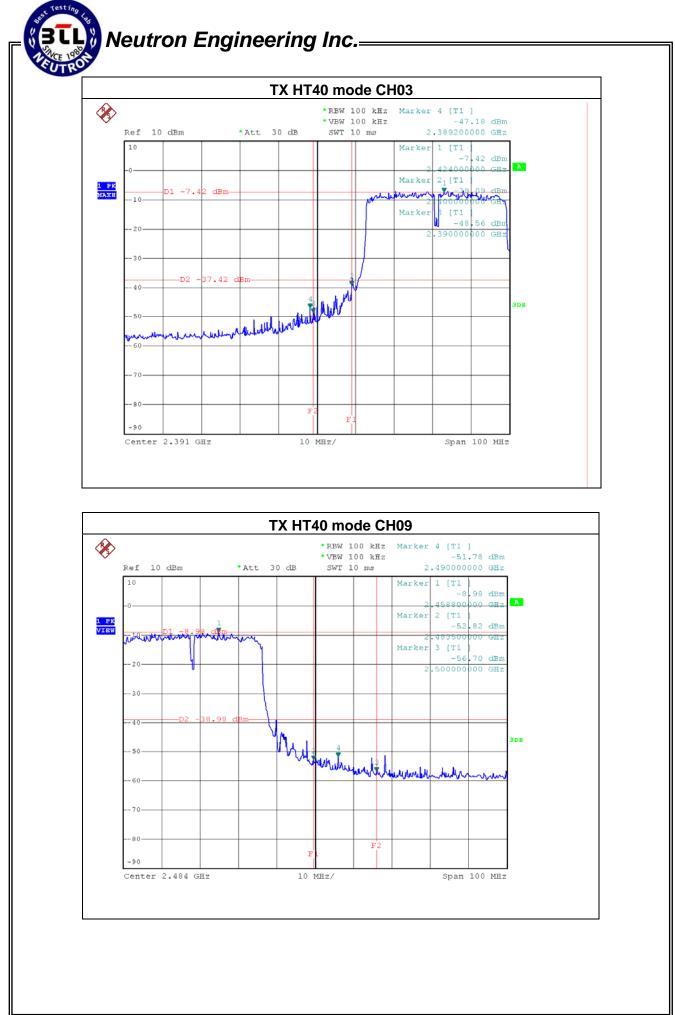


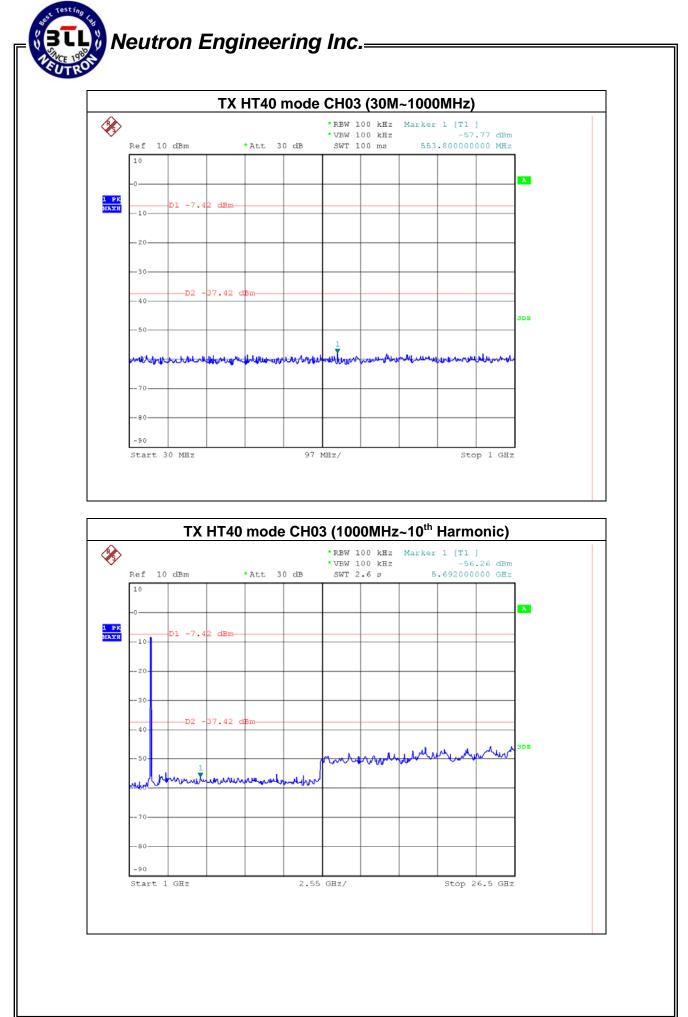


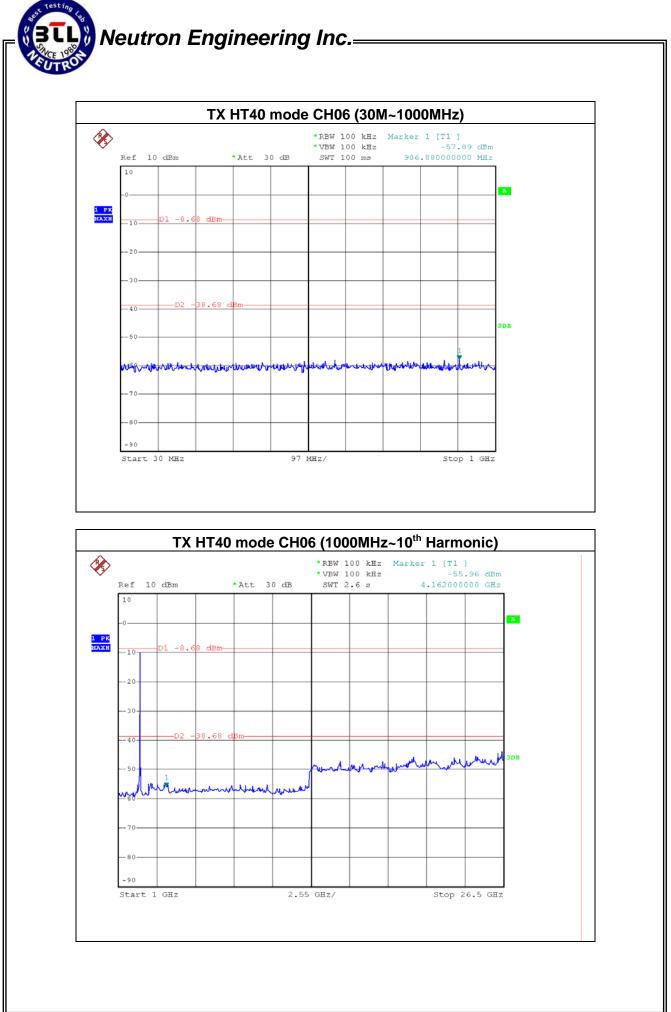
EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE /CH03, CH06, CH09 ANT2 (Worst Case)		

Channel of Worst Data: CH03				
The max. radio frequency power in any 100kHz bandwidth outside the frequency band bandwidth within the frequency band.				
FREQUENCY(MHz)POWER(dBm)FREQUENCY(MHz)POWER(dBm)				
2389.20 -47.18 2490.00 -51.78				
Result				

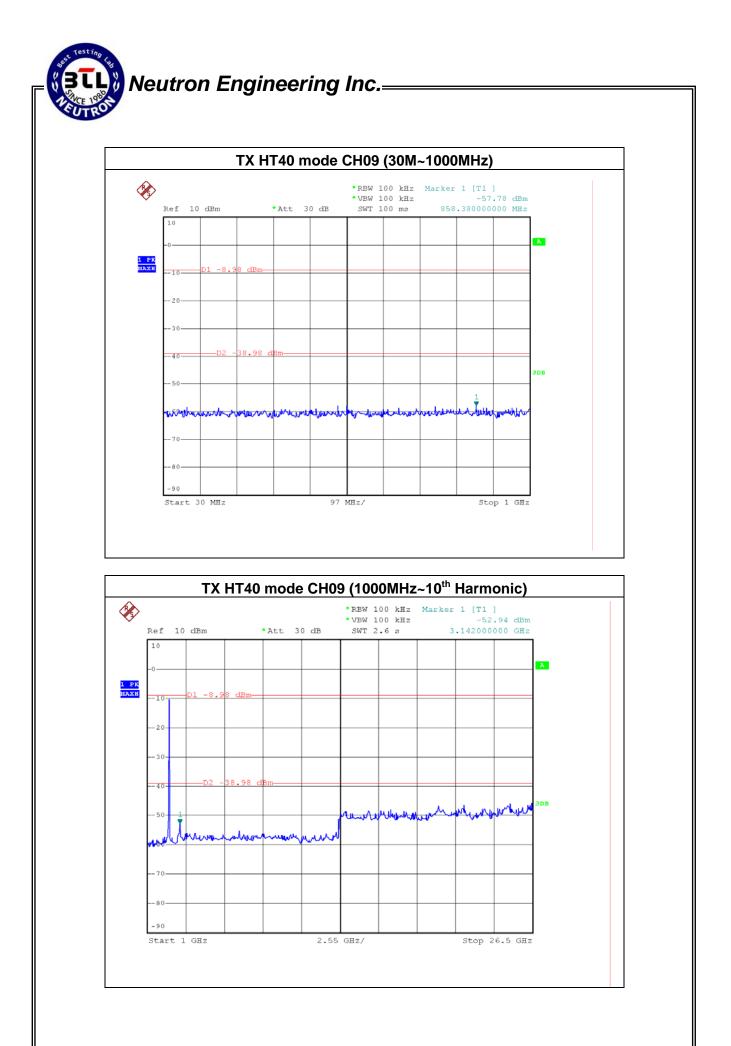
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 30dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.







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8. POWER SPECTRAL DENSITY TEST

8.1 Applied procedures / limit

	FCC Part15 (15.247), Subpart C					
Section	Test Item	Limit	Frequency Range (MHz)	Result		
15.247(e)	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS		

8.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Jan. 04, 2012

Remark: " N/A" denotes No Model Name. , Serial No. or No Calibration specified.

8.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW=3KHz, VBW=30 KHz, Sweep time = 500s.

8.1.3 DEVIATION FROM STANDARD

No deviation.

8.1.4 TEST SETUP



8.1.5 EUT OPERATION CONDITIONS

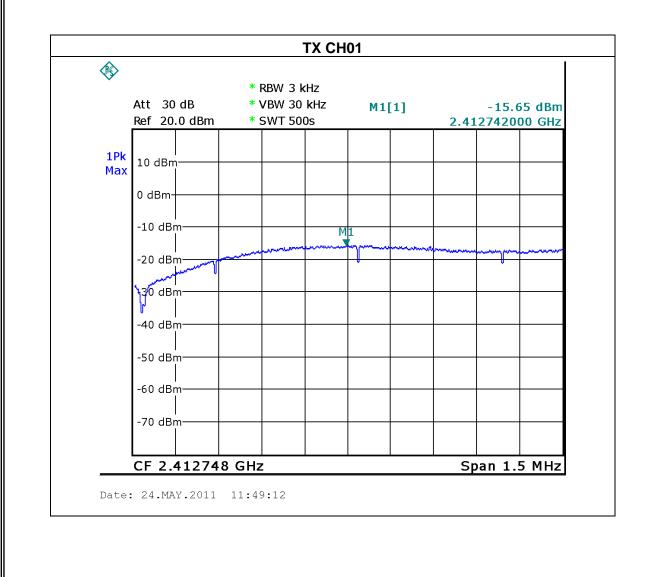
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

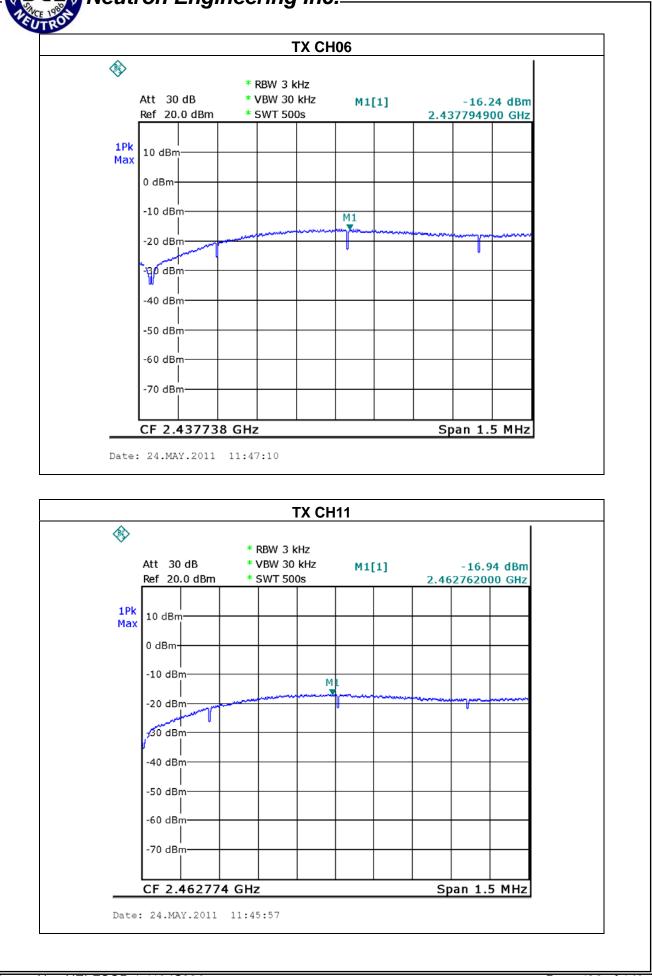


8.1.6 TEST RESULTS

EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX B MODE /CH01, CH06, CH11		

Test Channel	Frequency	Power Density	LIMIT
	(MHz)	(dBm)	(dBm)
CH01	2412 MHz	-15.65	8
CH06	2437 MHz	-16.24	8
CH11	2462 MHz	-16.94	8

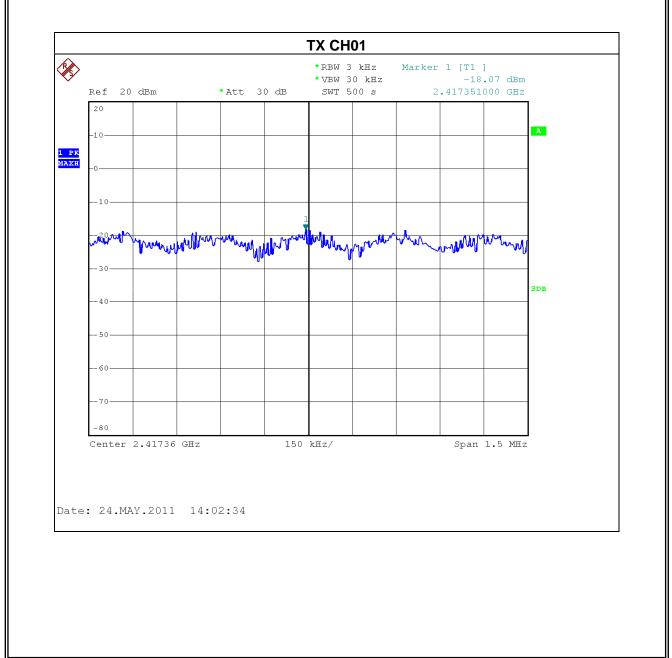


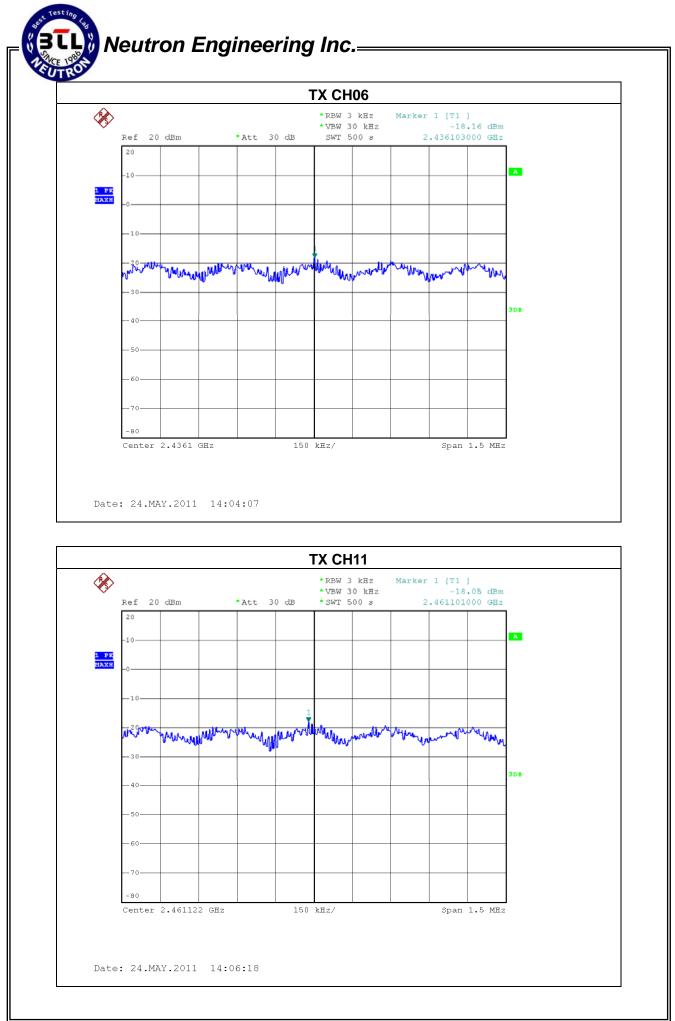




EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113
Temperature :	24 ℃	Relative Humidity:	60 %
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX G MODE /CH01, CH06, CH11		

Test Channel	Frequency	Power Density	LIMIT
	(MHz)	(dBm)	(dBm)
CH01	2412 MHz	-18.07	8
CH06	2437 MHz	-18.16	8
CH11	2462 MHz	-18.05	8





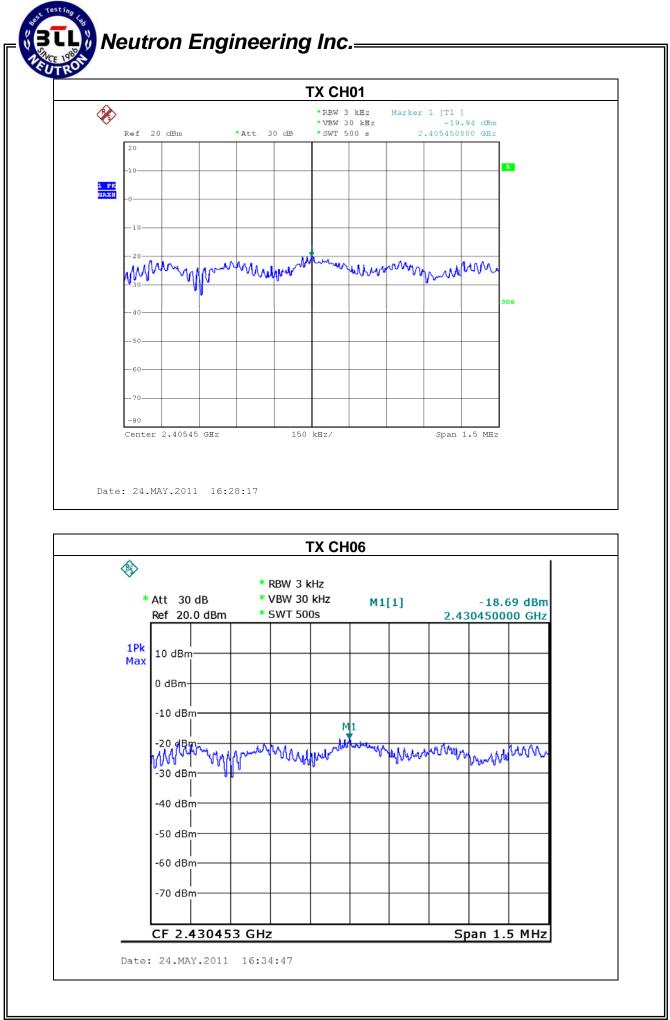


EUT :	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113		
Temperature :	24 ℃	Relative Humidity:	60 %		
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N MODE-20MHz /CH01, CH06, CH11				

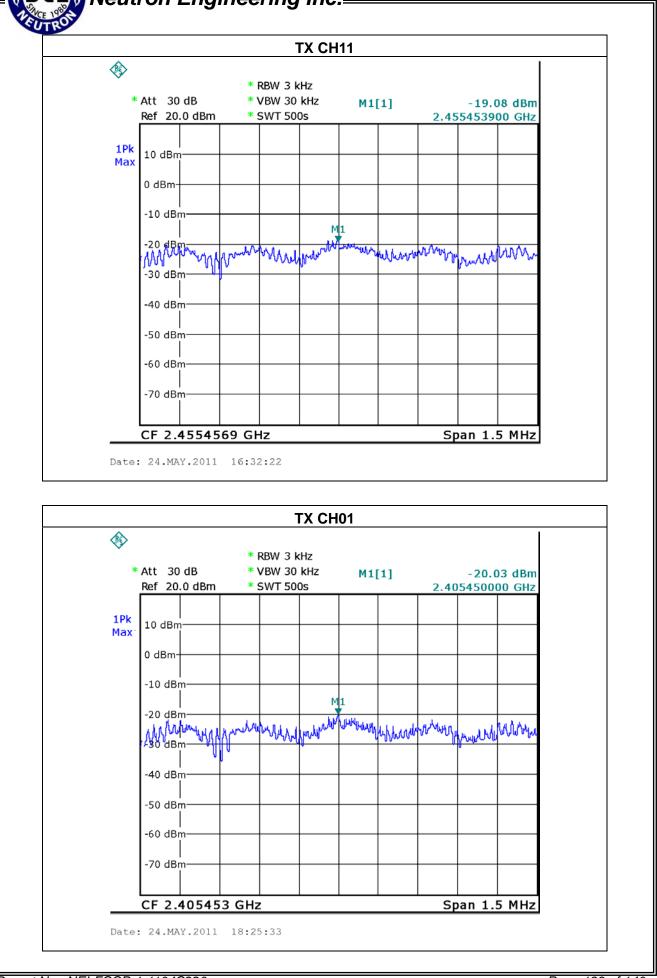
Ant 1							
Test Channel	Frequency Power density (MHz) (dBm) (mW)			LIMIT (dBm)	PASS/FAIL		
CH01	2412	-19.94	0.010139	8	PASS		
CH06	2437	-18.69	0.013521	8	PASS		
CH11	2462	-19.08	0.012359	8	PASS		

Ant 2							
Test Channel	Frequency (MHz)	Power (dBm)	^r density (mW)	LIMIT (dBm)	PASS/FAIL		
CH01	2412	-19.22	0.011967	8	PASS		
CH06	2437	-18.73	0.013397	8	PASS		
CH11	2462	-19.34	0.011641	8	PASS		

Total (Ant 1 + Ant 2)							
Test Channel	Frequency (MHz)	•			PASS/FAIL		
CH01	2412	-16.55	0.022107	8	PASS		
CH06	2437	-15.70	0.026917	8	PASS		
CH11	2462	-16.20	0.024001	8	PASS		

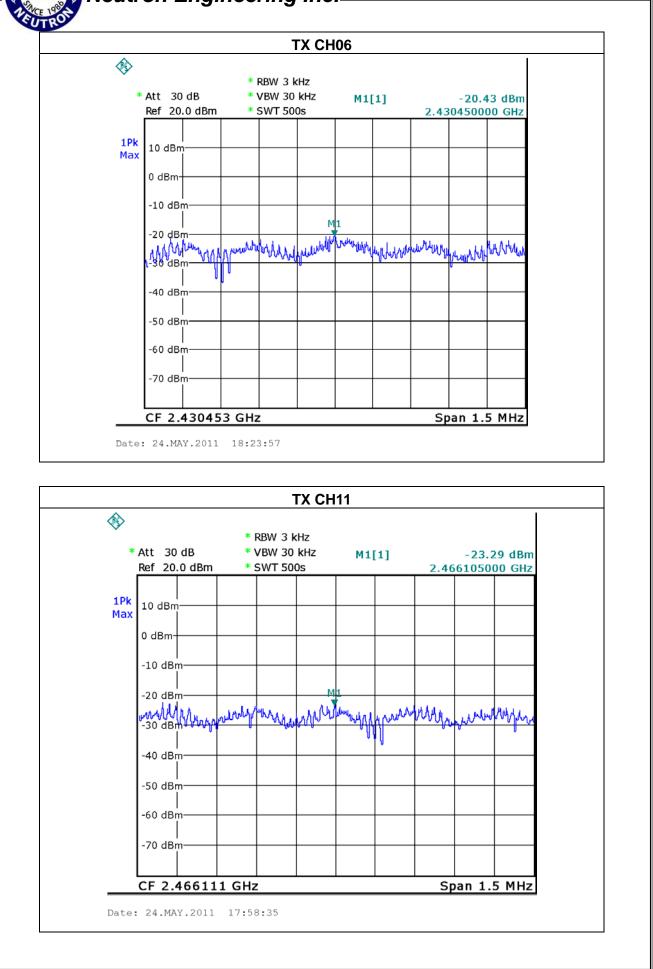


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	300Mbps Wireless-N PCI-E Adapter	Model Name :	WF-2113		
Temperature :	24 ℃	Relative Humidity:	60 %		
Pressure :	1016 hPa	Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N MODE-40MHz /CH03, CH06, CH09				

Ant 1						
Test Channel	Test ChannelFrequencyPower density(MHz)(dBm)(mW)				PASS/FAIL	
CH03	2422	-19.77	0.01054	8	PASS	
CH06	2437	-18.40	0.01445	8	PASS	
CH09	2452	-18.92	0.01282	8	PASS	

Ant 2							
Test ChannelFrequencyPower density(MHz)(dBm)(mW)				LIMIT (dBm)	PASS/FAIL		
CH03	2422	-18.40	0.01445	8	PASS		
CH06	2437	-19.08	0.01236	8	PASS		
CH09	2452	-19.21	0.01199	8	PASS		

Total (Ant 1 + Ant 2)							
Test Channel	Frequency Power density (MHz) (dBm) (mW)			LIMIT (dBm)	PASS/FAIL		
CH03	2422	-16.02	0.024998	8	PASS		
CH06	2437	-15.72	0.026814	8	PASS		
CH09	2452	-16.05	0.024818	8	PASS		

