







# ISO/IEC17025Accredited Lab.

Report No: FCC 1501227 File reference No: 2015-01-29

Applicant: ZMODO Technology Shenzhen Corp. Ltd.

Product: NVR

Model No: ZX-NXYY-X (note: The first X=H,P,X; the second X=A-Z; The

first Y=0-9; the second Y=4,8,6; the third X=W

Trademark: N/A

Test Standards: FCC Part 15 Subpart C, Paragraph 15.247

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.4,FCC Part 15 Subpart C, Paragraph 15.247 regulations for the evaluation of

electromagnetic compatibility

Approved By

Jack Chung

Jack Chung

Manager

Dated: January 29, 2015

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD

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# **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

#### **CNAL-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

# FCC-Registration No.: 899988

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 899988.

## IC- Registration No.: IC5205A-02

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205A-02.

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# **Test Report Conclusion**

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#### 1.0 General Details

#### 1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD

Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District,

Shenzhen, CHINA.

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-02

For 3m & 10 m OATS

#### 1.2 Applicant Details

Applicant: ZMODO Technology Shenzhen Corp. Ltd.

Address: 17/F, Office Tower A, Financial Technology Building, 11 Keyuan Road, Nanshan District,

Shenzhen, P.R.China

Telephone: -Fax: --

#### 1.3 Description of EUT

Product: NVR

Manufacturer: ZMODO Technology Shenzhen Corp. Ltd.

Address: 17/F, Office Tower A, Financial Technology Building, 11 Keyuan Road,

Nanshan District, Shenzhen, P.R.China

Brand Name: N/A
Additional Brand Name: N/A

Model Number: ZX-NXYY-X (note: The first X=H,P,X; the second X=A-Z; The first Y=0-9;

the second Y=4,8,6; the third X=W)

Additional Model Number: N/A

Type of Modulation IEEE 802.11b : DSSS (CCK, QPSK, DBPSK)

 $IEEE\ 802.11g/n\ (HT20/HT40): OFDM(64QAM,\ 16QAM,\ QPSK,\ BPSK)$ 

Frequency range IEEE 802.11b/g/n (HT20) : 2412-2462MHz;

IEEE 802.11n HT40 : 2422MHz-2452MHz

Channel Spacing IEEE 802.11b/g/n (HT20/HT40) : 5MHz

Antenna: PCB antenna used.
Antenna Gain: Maximum 2.0dBi

Air Data Rate IEEE 802.11b : 11, 5.5, 2, 1 Mbps

IEEE 802.11g: 54, 48,36, 24, 18, 12, 9, 6 Mbps

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IEEE 802.11n HT20: 150, 117, 104, 78, 65, 58.5, 52, 39, 26, 19.5, 13, 6 Mbps IEEE 802.11n HT40: 150, 117, 104, 78, 65, 58.5, 52, 39, 26, 19.5, 13, 6 Mbps

Frequency Selection By software

Power Supply: DZ036DL120300G Input: 100-240V, 50/60Hz, 1.2A; Output: 12V, 3.0mA

Channel Number IEEE 802.11b/g/n (HT20): 11 Channels

IEEE 802.11n HT40: 7 Channels

1.4 Submitted Sample: 2 Samples

1.5 Test Duration

2015-01-26 to 2015-01-29

1.6 Test Uncertainty

Conducted Emissions Uncertainty = 3.6dB Radiated Emissions Uncertainty = 4.7dB

1.7 Test Engineer

Terry Tang

The sample tested by

Print Name: Terry Tang

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2.0	Test Equipments								
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date				
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2014-08-22	2015-08-21				
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2014-08-22	2015-08-21				
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2014-08-22	2015-08-21				
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2014-08-22	2015-08-21				
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2014-08-22	2015-08-21				
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2014-08-22	2015-08-21				
System Controller	CT	SC100	-						
Printer	EPSON	РНОТО ЕХЗ	CFNH234850						
Computer	IBM	8434	1S8434KCE99BLXL - O*		-				
Loop Antenna	EMCO	6502	00042960	2014-08-22	2015-08-21				
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2014-08-22	2015-08-21				
3m OATS			N/A	2014-08-22	2015-08-21				
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2014-08-22	2015-08-21				
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2014-08-22	2015-08-21				
Power meter	Anritsu	ML2487A	6K00003613	2014-08-22	2015-08-21				
Power sensor	Anritsu	MA2491A	32263	2014-08-22	2015-08-21				
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2014-08-22	2015-08-21				
LISN	AFJ	LS16C	10010947251	2014-08-22	2015-08-21				
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2014-08-22	2015-08-21				
9*6*6 Anechoic			N/A	2014-08-22	2015-08-21				
EMI Test Receiver	RS	ESCS30	100139	2014-08-22	2015-08-21				
LISN	AFJ	LS16C	10010947251	2014-08-22	2015-08-21				
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2014-08-22	2015-08-21				

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#### 2.1 **Auxiliary Equipment**

Name	Model No.	Serial No.	Manufacturer	Cable	FCC ID/DOC
Monitor	PH2450		SAMSUNG		DOC
Mouse	V-3100		ETPC		DOC

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#### 3. DESCRIPTION OF TEST MODES

#### IEEE 802.11b, 802.11g, 802.11n (HT20) mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2412
Middle	2437
High	2462

IEEE 802.11b mode: 11Mbps data rate (worst case) was chosen for full testing. IEEE 802.11g mode: 6Mbps data rate (worst case) was chosen for full testing. IEEE 802.11n (HT20) mode: 65Mbps data rate (worst case) were chosen for full testing

#### IEEE 802.11n HT40

The EUT had been tested under operating condition. There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2422
Mid	2437
High	2452

IEEE 802.11n HT40 mode: 65Mbps data rate (worst case) was chosen for full testing.

The worst-case data rates are determined according to the description above, based on the investigations by measuring the PSD and average power across all the data rates, bandwidths, modulations and spatial stream modes.

Note: EUT Test With 100% Duty cycle.

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#### 3.0 **Technical Details**

#### 3.1 **Summary of test results**

Standard	Test Type	Result	Notes
CC Part 15, Paragraph 15.107 & 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	PASS	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	PASS	Complies
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	PASS	Complies
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Complies
FCC Part 15, Paragraph 15.247(d)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	PASS	Complies

#### 3.2 **Test Standards**

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

#### **EUT Modification** 4.0

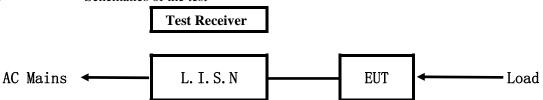
No modification by Shenzhen Timeway Technology Consulting Co., Ltd

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#### 5. Power Line Conducted Emission Test

#### 5.1 Schematics of the test

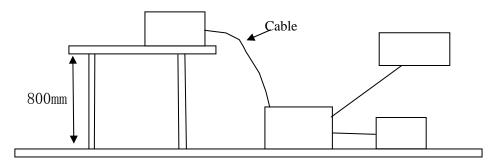


**EUT: Equipment Under Test** 

#### 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2009. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4-2009.

Test Voltage: 120V~, 60Hz Block diagram of Test setup



# 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2009. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

#### A. EUT

Device	Manufacturer	Model	FCC
NVR	ZMODO Technology Shenzhen Corp. Ltd.	ZX-NXYY-X (note: The first X=H,P,X; the second X=A-Z; The first Y=0-9; the second Y=4,8,6;the third X=W	ZK8-NI14-W

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#### B. Internal Device

Device	Manufacturer	Model	Rating

## C. Peripherals

Device	Manufacturer	Model	Rating

## 5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2009.

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

## 5.5 Power line conducted Emission Limit according to Paragraph 15.207 and 15.107 and RSS-210

0 0 1								
Frequency		Class A Lim	its (dB µ V)	Class B Limits (dB $\mu$ V)				
(MHz)	)	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level			
$0.15 \sim 0.5$	50	79.0	66.0	66.0~56.0*	56.0~46.0*			
$0.50 \sim 5.0$	00	73.0	60.0	56.0	46.0			
$5.00 \sim 30$	.00	73.0	60.0	60.0	50.0			

Notes:

- 1. \*Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

## 5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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# A: Conducted Emission on Live Terminal (150kHz to 30MHz)

# **EUT Operating Environment**

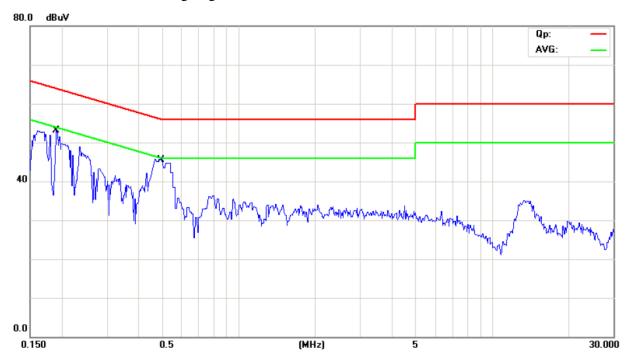
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

**EUT set Condition: Keeping WIFI Transmitting** 

**Equipment Level: Class B** 

**Results: PASS** 

Please refer to following diagram for individual



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBu∀	dBuV	dB	Detector	Comment
1 *	0.5076	26.90	11.38	38.28	56.00	-17.72	QP	
2	0.5076	8.30	11.38	19.68	46.00	-26.32	AVG	
3	0.1906	28.60	11.04	39.64	64.01	-24.37	QP	
4	0.1906	-7.50	11.04	3.54	54.01	-50.47	AVG	

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# B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

**EUT Operating Environment** 

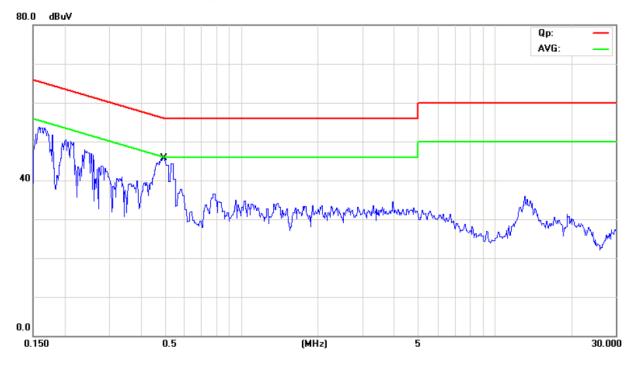
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

**EUT set Condition: Keeping WIFI Transmitting** 

**Equipment Level: Class B** 

**Results: Pass** 

Please refer to following diagram for individual



No. Mk.	Freq.			Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.4918	32.30	11.36	43.66	56.14	-12.48	QP	
2	0.4918	20.00	11.36	31.36	46.14	-14.78	AVG	

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#### 6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.4 –2009. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2009.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization : Vertical polarization and Horizontal polarization.

# Block diagram of Test setup Distance = 3m Computer Pre – Amplifier Furn-table Receiver

- 6.2 Configuration of The EUT

  Same as section 5.3 of this report
- 6.3 EUT Operating Condition
  Same as section 5.4 of this report.

The report refers only to the sample tested and does not apply to the bulk.

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#### 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

#### Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109 and RSS-210

	Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)
I	30-88	3	40.0
	88-216	3	43.5
	216-960	3	46.0
I	Above 960	3	54.0

Note:

- 1. RF Voltage  $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2. In the Above Table, the higher limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

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#### Test result

## General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

**EUT set Condition: Keeping WIFI Transmitting** 

**Results: Pass** 

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \( \mu \) V/m)
74.560	29.15	Н	40.00
183.000	31.32	Н	43.50
324.000	34.95	Н	46.00
56.240	30.88	V	40.00
324.000	33.03	V	46.00
72.760	30.99	V	40.00

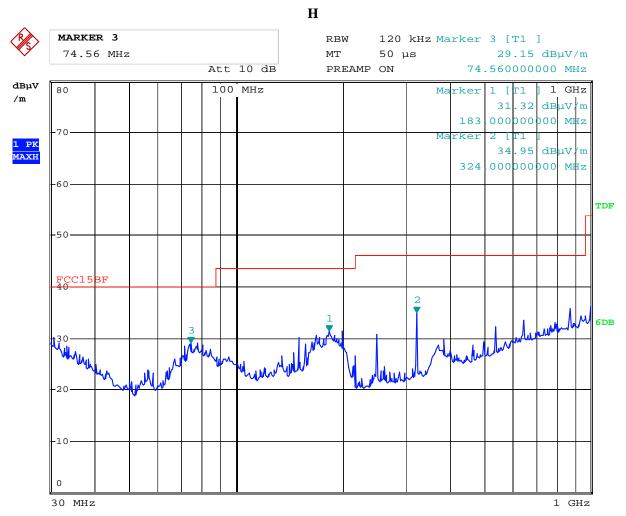
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#### Test Figure:



Date: 27.JAN.2015 11:04:01

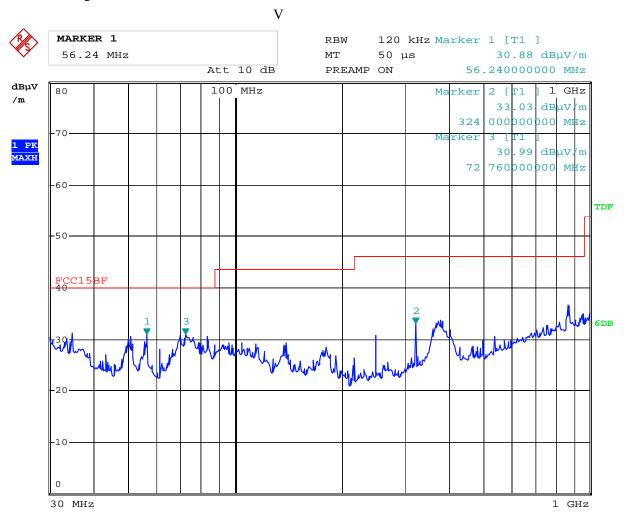
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#### Test Figure:



Date: 27.JAN.2015 11:07:45

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## Operation Mode: Keeping WIFI Transmitting under CH01 for 11g at 6Mbps

	<u> </u>	0	
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \mu V/m)
4824.00	48.28 (PK)	Н	74(Peak)/ 54(AV)
4824.00	48.82 (PK)	V	74(Peak)/ 54(AV)
7236.00		H/V	74(Peak)/ 54(AV)
9648.00		H/V	74(Peak)/ 54(AV)
12060		H/V	74(Peak)/ 54(AV)
14472		H/V	74(Peak)/ 54(AV)
16884		H/V	74(Peak)/ 54(AV)
19296		H/V	74(Peak)/ 54(AV)
21708		H/V	74(Peak)/ 54(AV)
24120		H/V	74(Peak)/ 54(AV)

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11g mode 6Mbps

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## Operation Mode: Keeping WIFI Transmitting under CH06 for 11g at 6Mbps

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4874.00	48.65 (PK)	Н	74(Peak)/ 54(AV)
4874.00	48.70 (PK)	V	74(Peak)/ 54(AV)
7311.00	1	H/V	74(Peak)/ 54(AV)
9748.00		H/V	74(Peak)/ 54(AV)
12185		H/V	74(Peak)/ 54(AV)
14622		H/V	74(Peak)/ 54(AV)
17059		H/V	74(Peak)/ 54(AV)
19496	-	H/V	74(Peak)/ 54(AV)
21933		H/V	74(Peak)/ 54(AV)
24370		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11g mode 6 Mbps

## Operation Mode: Keeping WIFI Transmitting under CH11 for 11g at 6Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \u03ba V/m)
4924	48.58 (PK)	Н	74(Peak)/ 54(AV)
4924	48.64 (PK)	V	74(Peak)/ 54(AV)
7368	-	H/V	74(Peak)/ 54(AV)
9848	-	H/V	74(Peak)/ 54(AV)
12310	-	H/V	74(Peak)/ 54(AV)
14772	-	H/V	74(Peak)/ 54(AV)
17234	-	H/V	74(Peak)/ 54(AV)
19696	-	H/V	74(Peak)/ 54(AV)
22158		H/V	74(Peak)/ 54(AV)
24650		H/V	74(Peak)/ 54(AV)

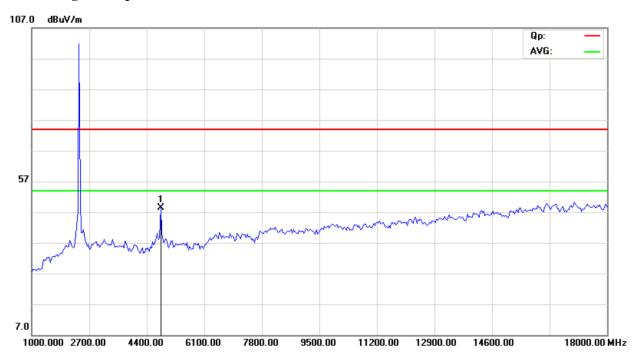
- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11g mode at 6 Mbps

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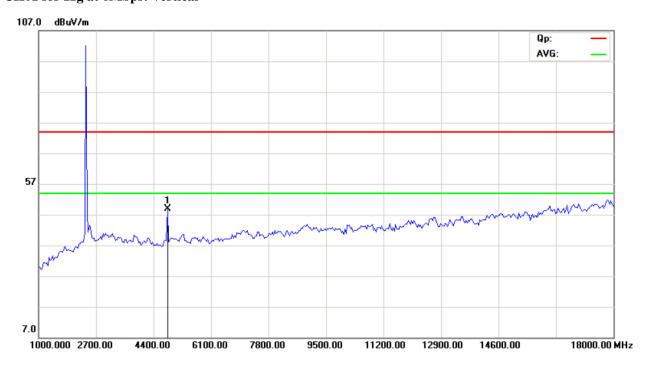


Please refer to the following test plots for details:

## CH01 for 11g at 6Mbps: Horizontal



# CH01 for 11g at 6Mbps: Vertical



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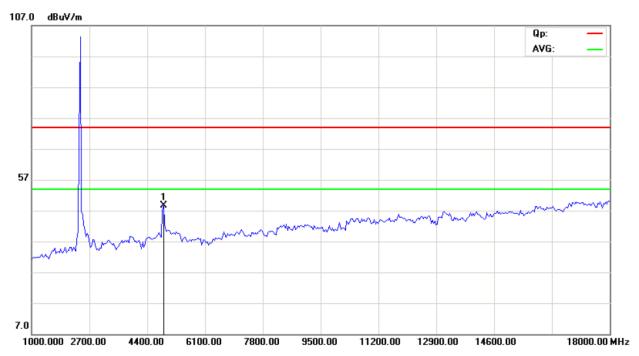
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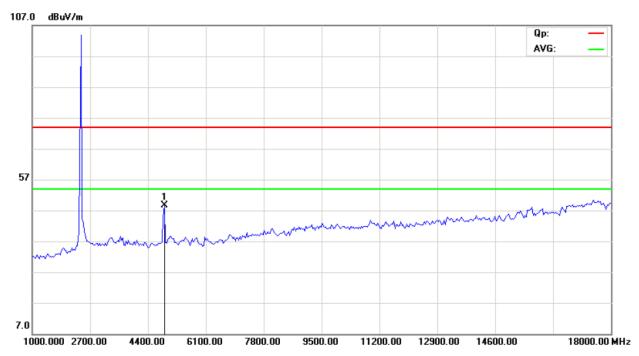
Date: 2015-01-29



# CH06 for 11g at 6Mbps: Vertical



# CH06 for 11g at 6Mbps: Horizontal



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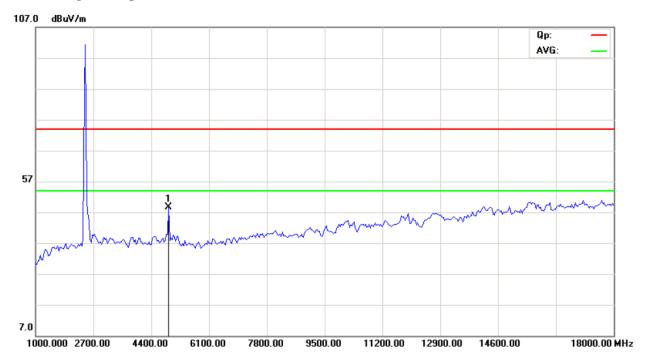
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Report No: FCC1501227

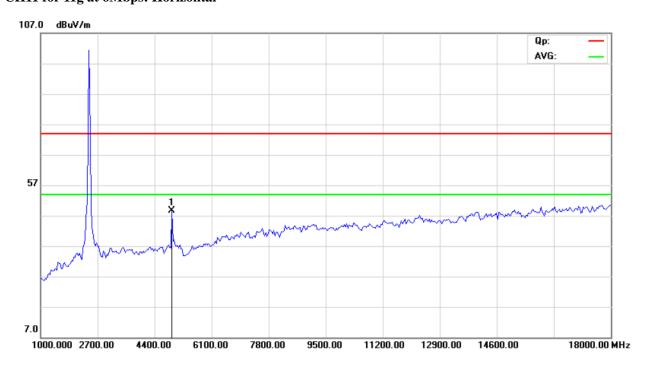
Date: 2015-01-29



## CH11 for 11g at 6Mbps: Vertical



# CH11 for 11g at 6Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

Date: 2015-01-29



## Operation Mode: Keeping WIFI Transmitting under CH01 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4824.00	48.82 (PK)	Н	74(Peak)/ 54(AV)
4824.00	48.59 (PK)	V	74(Peak)/ 54(AV)
7236.00	1	H/V	74(Peak)/ 54(AV)
9648.00		H/V	74(Peak)/ 54(AV)
12060		H/V	74(Peak)/ 54(AV)
14472		H/V	74(Peak)/ 54(AV)
16684		H/V	74(Peak)/ 54(AV)
19296	-	H/V	74(Peak)/ 54(AV)
21708		H/V	74(Peak)/ 54(AV)
24120		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode 11Mbps

# Operation Mode: Keeping WIFI Transmitting under CH06 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \( \mu \) V/m)
4874.00	48.51 (PK)	Н	74(Peak)/ 54(AV)
4874.00	48.58 (PK)	V	74(Peak)/ 54(AV)
7311.00		H/V	74(Peak)/ 54(AV)
9748.00		H/V	74(Peak)/ 54(AV)
12185		H/V	74(Peak)/ 54(AV)
14622	-	H/V	74(Peak)/ 54(AV)
17059		H/V	74(Peak)/ 54(AV)
19496		H/V	74(Peak)/ 54(AV)
21933		H/V	74(Peak)/ 54(AV)
24370		H/V	74(Peak)/ 54(AV)

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode 11Mbps

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# Operation Mode: Keeping WIFI Transmitting under CH11 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4924	48.29 (PK)	Н	74(Peak)/ 54(AV)
4924	48.63 (PK)	V	74(Peak)/ 54(AV)
7368		H/V	74(Peak)/ 54(AV)
9848		H/V	74(Peak)/ 54(AV)
12310		H/V	74(Peak)/ 54(AV)
14772		H/V	74(Peak)/ 54(AV)
17234		H/V	74(Peak)/ 54(AV)
19696		H/V	74(Peak)/ 54(AV)
22158		H/V	74(Peak)/ 54(AV)
24620		H/V	74(Peak)/ 54(AV)

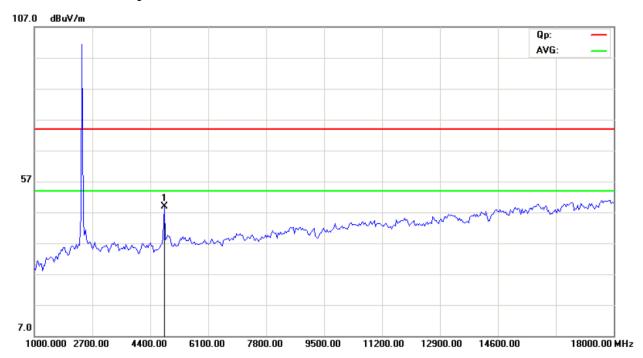
- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode at 11Mbps

Date: 2015-01-29

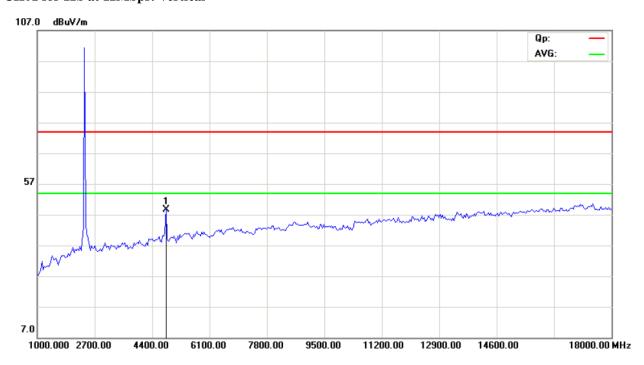


Please refer to the following test plots for details:

# CH01 for 11b at 11Mbps: Horizontal



# CH01 for 11b at 11Mbps: Vertical



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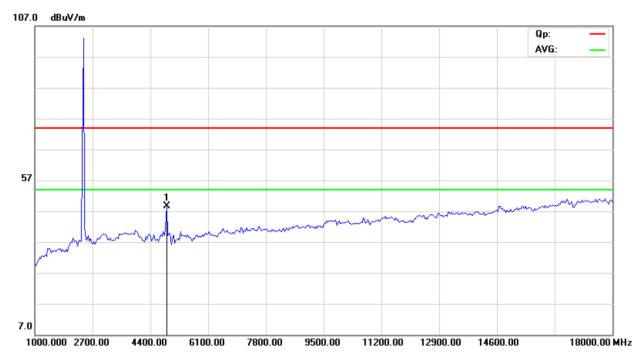
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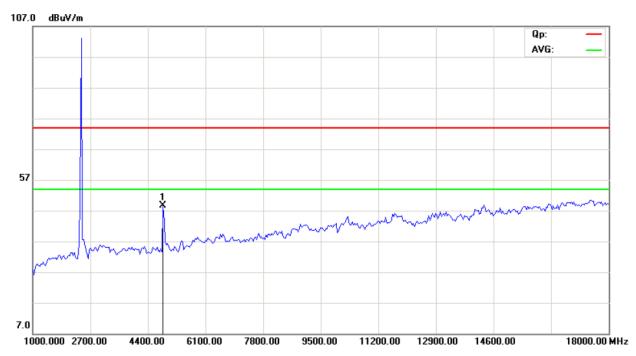
Date: 2015-01-29



# CH06 for 11b at 11Mbps: Vertical



# CH06 for 11b at 11Mbps: Horizontal



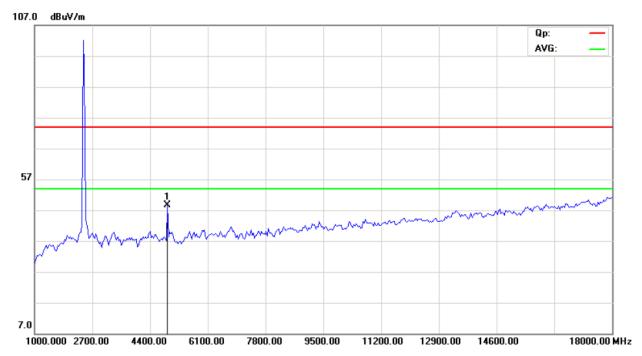
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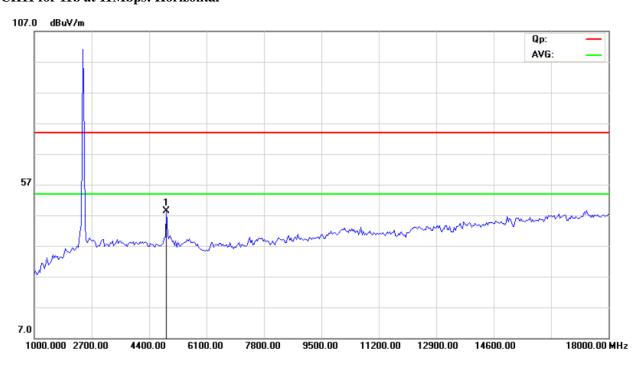
Date: 2015-01-29



# CH11 for 11b at 11Mbps: Vertical



# CH11 for 11b at 11Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

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#### Operation Mode: Keeping WIFI Transmitting under CH01 for 11n HT20 at 65Mbps

Frequency (MHz)	Level@3m (dB \u03bc V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4824.00	48.35 (PK)	Н	74(Peak)/ 54(AV)
4824.00	48.59 (PK)	V	74(Peak)/ 54(AV)
7236.00		H/V	74(Peak)/ 54(AV)
9648.00		H/V	74(Peak)/ 54(AV)
12060		H/V	74(Peak)/ 54(AV)
14472		H/V	74(Peak)/ 54(AV)
16684		H/V	74(Peak)/ 54(AV)
19296		H/V	74(Peak)/ 54(AV)
21708		H/V	74(Peak)/ 54(AV)
24120		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT20) mode 65Mbps

## Operation Mode: Keeping WIFI Transmitting under CH06 for 11n HT20 at 65Mbps

Frequency (MHz)	Level@3m (dB \u03ba V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
4874.00	48.04 (PK)	Н	74(Peak)/ 54(AV)
4874.00	48.69 (PK)	V	74(Peak)/ 54(AV)
7311.00		H/V	74(Peak)/ 54(AV)
9748.00		H/V	74(Peak)/ 54(AV)
12185		H/V	74(Peak)/ 54(AV)
14622	-	H/V	74(Peak)/ 54(AV)
17059		H/V	74(Peak)/ 54(AV)
19496		H/V	74(Peak)/ 54(AV)
21933	-	H/V	74(Peak)/ 54(AV)
24370		H/V	74(Peak)/ 54(AV)

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT20) mode 65Mbps

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# Operation Mode: Keeping WIFI Transmitting under CH11 for 11n HT20 at 65Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4924	48.69 (PK)	Н	74(Peak)/ 54(AV)
4924	48.64 (PK)	V	74(Peak)/ 54(AV)
7368		H/V	74(Peak)/ 54(AV)
9848		H/V	74(Peak)/ 54(AV)
12310		H/V	74(Peak)/ 54(AV)
14772		H/V	74(Peak)/ 54(AV)
17234		H/V	74(Peak)/ 54(AV)
19696		H/V	74(Peak)/ 54(AV)
22158		H/V	74(Peak)/ 54(AV)
24650		H/V	74(Peak)/ 54(AV)

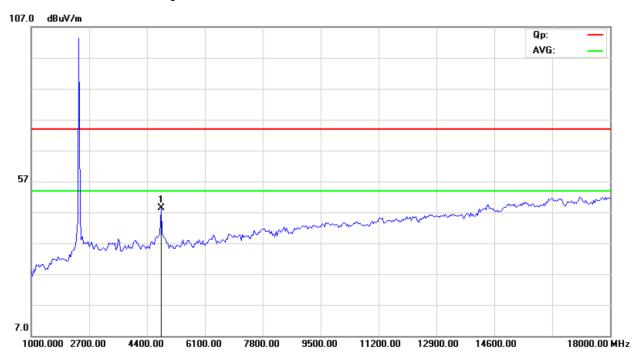
- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT20) mode 65Mbps

Date: 2015-01-29

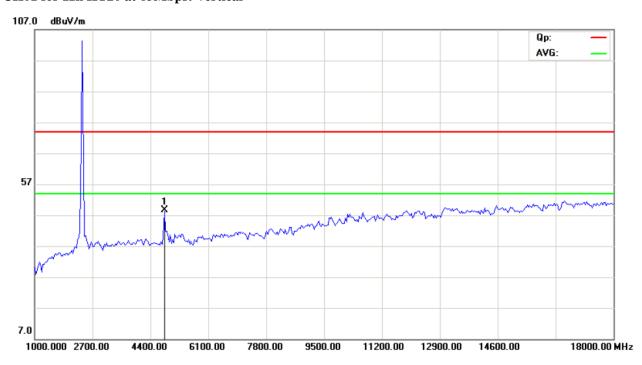


Please refer to the following test plots for details:

## CH01 for 11n HT20 at 65Mbps: Horizontal



## CH01 for 11n HT20 at 65Mbps: Vertical



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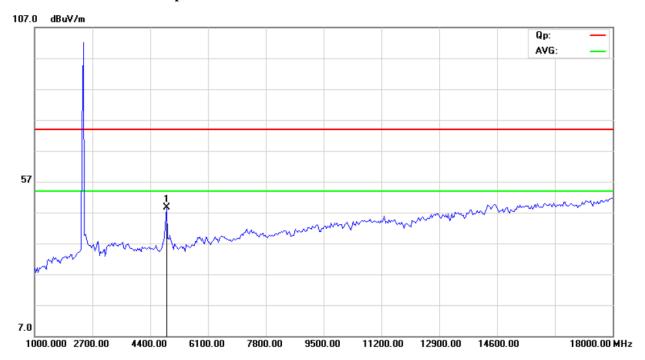
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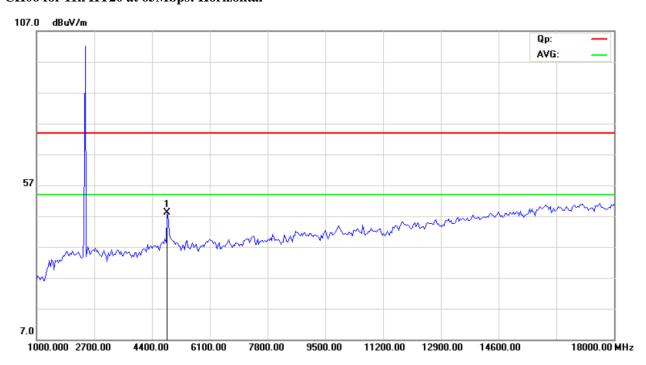
Date: 2015-01-29



## CH06 for 11n HT20 at 65Mbps: Vertical



# CH06 for 11n HT20 at 65Mbps: Horizontal



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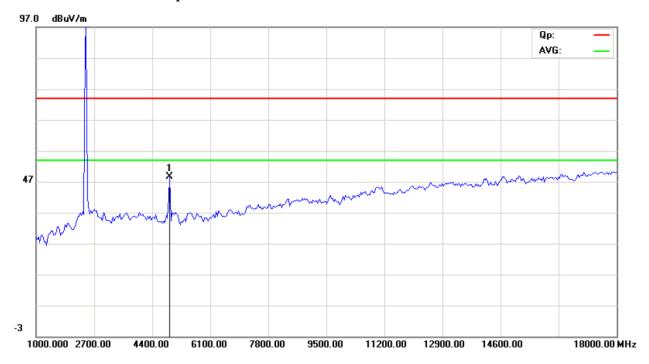
Page 33 of 105

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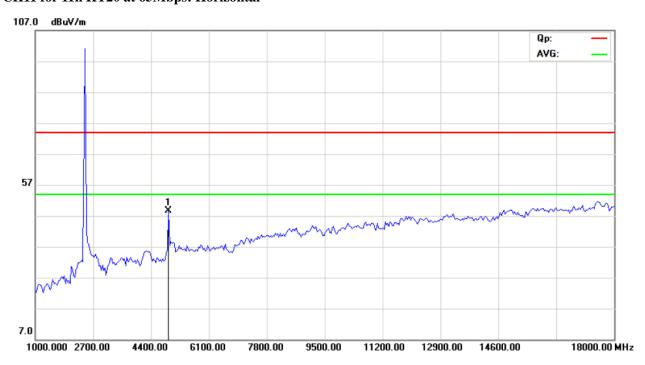
Date: 2015-01-29



## CH11 for 11n HT20 at 65Mbps: Vertical



# CH11 for 11n HT20 at 65Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

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#### Operation Mode: Transmitting under CH01 for 11n HT40 at 65Mbps

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4844.00	48.51 (PK)	Н	74(Peak)/ 54(AV)
4844.00	48.27 (PK)	V	74(Peak)/ 54(AV)
7266.00	1	H/V	74(Peak)/ 54(AV)
9688.00		H/V	74(Peak)/ 54(AV)
12110		H/V	74(Peak)/ 54(AV)
14532		H/V	74(Peak)/ 54(AV)
16954		H/V	74(Peak)/ 54(AV)
19376	-	H/V	74(Peak)/ 54(AV)
21798		H/V	74(Peak)/ 54(AV)
24220		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT40) mode 65Mbps

## Operation Mode: Transmitting under CH04 for 11n HT40 at 65Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \( \mu \)V/m)
4874.00	48.66 (PK)	Н	74(Peak)/ 54(AV)
4874.00	48.03 (PK)	V	74(Peak)/ 54(AV)
7311.00		H/V	74(Peak)/ 54(AV)
9748.00		H/V	74(Peak)/ 54(AV)
12185		H/V	74(Peak)/ 54(AV)
14622		H/V	74(Peak)/ 54(AV)
17059		H/V	74(Peak)/ 54(AV)
19496		H/V	74(Peak)/ 54(AV)
21933		H/V	74(Peak)/ 54(AV)
24370		H/V	74(Peak)/ 54(AV)

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT40) mode 65Mbps

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# Operation Mode: Transmitting under CH07 for 11n HT40 at 65Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
4904	48.32 (PK)	Н	74(Peak)/ 54(AV)
4904	48.08 (PK)	V	74(Peak)/ 54(AV)
7356		H/V	74(Peak)/ 54(AV)
9808		H/V	74(Peak)/ 54(AV)
12260		H/V	74(Peak)/ 54(AV)
14712		H/V	74(Peak)/ 54(AV)
17164		H/V	74(Peak)/ 54(AV)
19616		H/V	74(Peak)/ 54(AV)
22068		H/V	74(Peak)/ 54(AV)
24520		H/V	74(Peak)/ 54(AV)

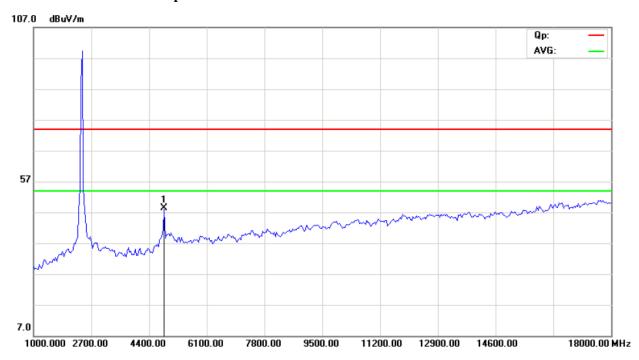
- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT40) mode 65Mbps

Date: 2015-01-29

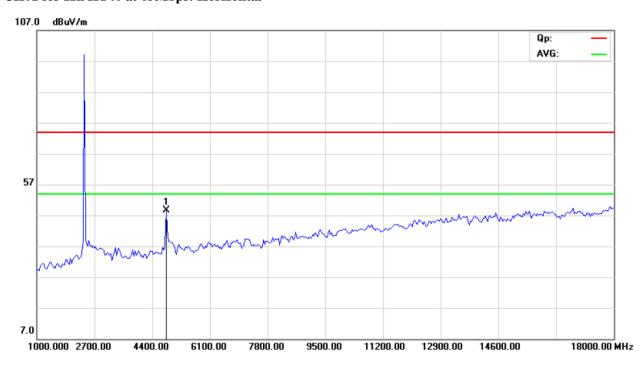


Please refer to the following test plots for details:

## CH01 for 11n HT40 at 65Mbps: Vertical



## CH01 for 11n HT40 at 65Mbps: Horizontal



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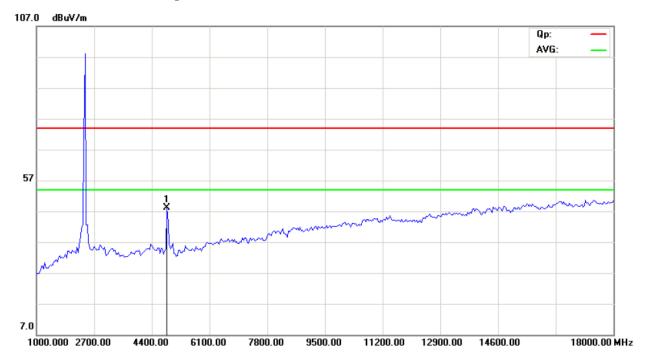
Page 37 of 105

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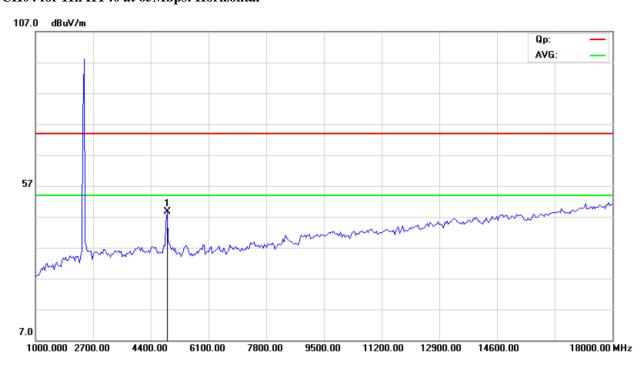
Date: 2015-01-29



## CH04 for 11n HT40 at 65Mbps: Vertical



# CH04 for 11n HT40 at 65Mbps: Horizontal



The report refers only to the sample tested and does not apply to the bulk.

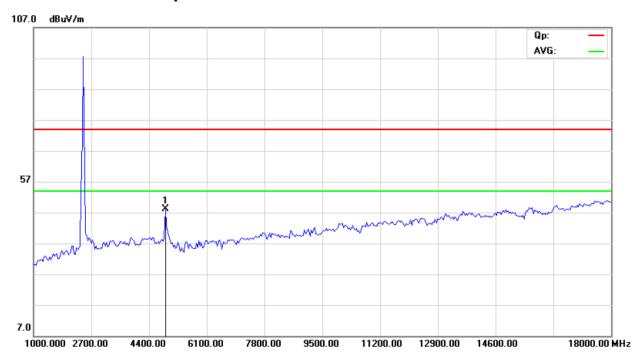
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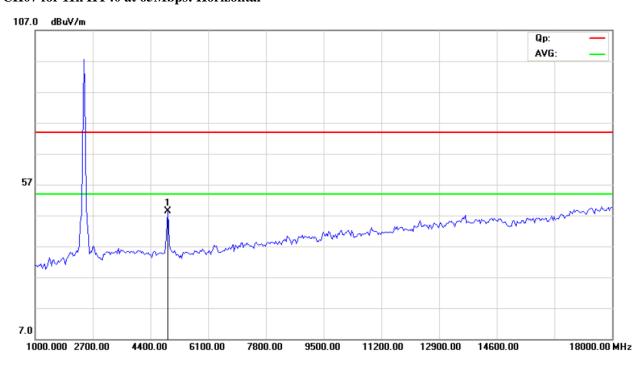
Date: 2015-01-29



## CH07 for 11n HT40 at 65Mbps: Vertical



## CH07 for 11n HT40 at 65Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

The report refers only to the sample tested and does not apply to the bulk.

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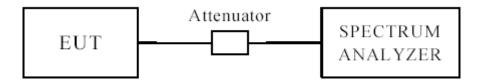
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# 7.0 6dB Bandwidth Measurement

## 7.1 Test Setup



#### 7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500 kHz

#### 7.3 Test Procedure

- 1. Set resolution bandwidth (RBW) = 100 kHz
- 2. Set the video bandwidth (VBW)  $\geq$  3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.
- 7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 7.4 Test Result

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## 6dB Occupied Bandwidth

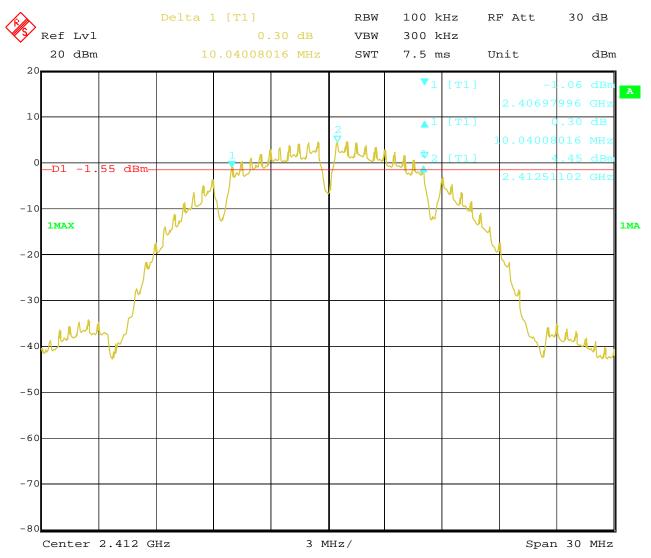
EUT		NVR		Model			•	st X=H,P,X; the second X=A-Z; cond Y=4,8,6;the third X=W
Mode		802.11b		Inpu	t Voltage	AC120V		
Temperati	ure	24 deg. C,		Hum	idity		56	5% RH
Channel	Char	nnel Frequency (MHz)	Tra R	ata nsfer ate bps)	6 dB Band (MHz		Minimum Limit (MHz)	Pass/ Fail
1		2412		1	10.04	ļ	0.5	Pass
6		2437		1	10.04	ļ	0.5	Pass
11		2462		1	10.04	ŀ	0.5	Pass
1		2412	,	11	9.32		0.5	Pass
6		2437		11	9.32		0.5	Pass
11		2462		11	9.32		0.5	Pass

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## 1. 802.11b at 1Mbps of CH01



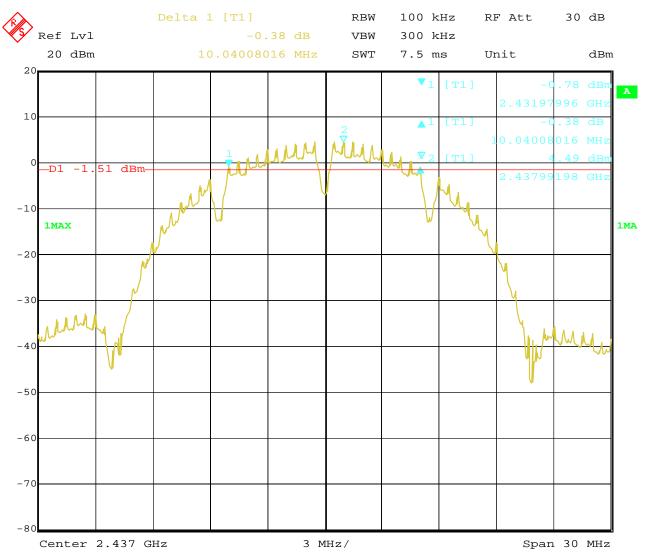
Date: 26.JAN.2015 10:48:44

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Date: 2015-01-29



## 2. 802.11b at 1Mbps of CH06



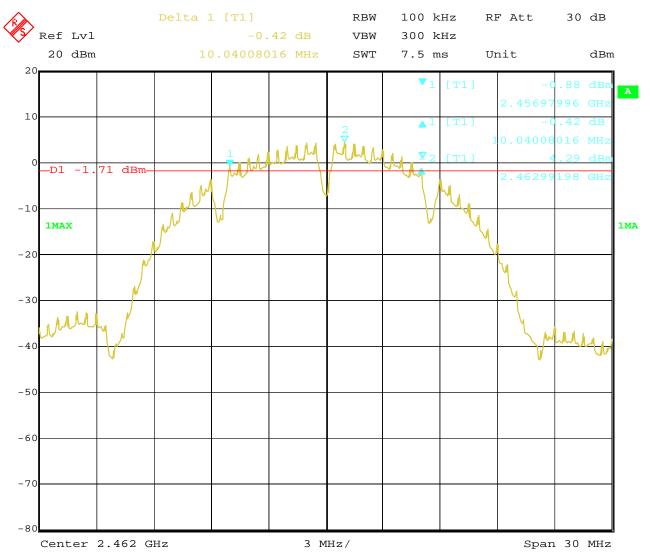
Date: 26.JAN.2015 11:01:57

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## 3. 802.11b at 1Mbps of CH11



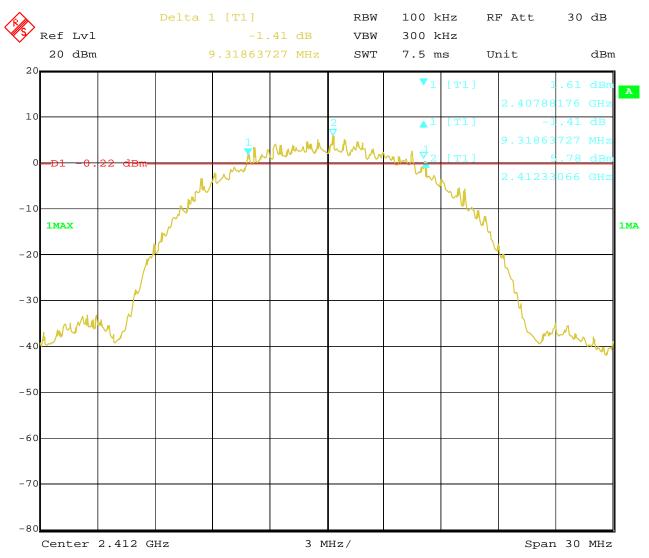
Date: 26.JAN.2015 11:04:52

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Date: 2015-01-29



## 4. 802.11b at 11Mbps of CH01



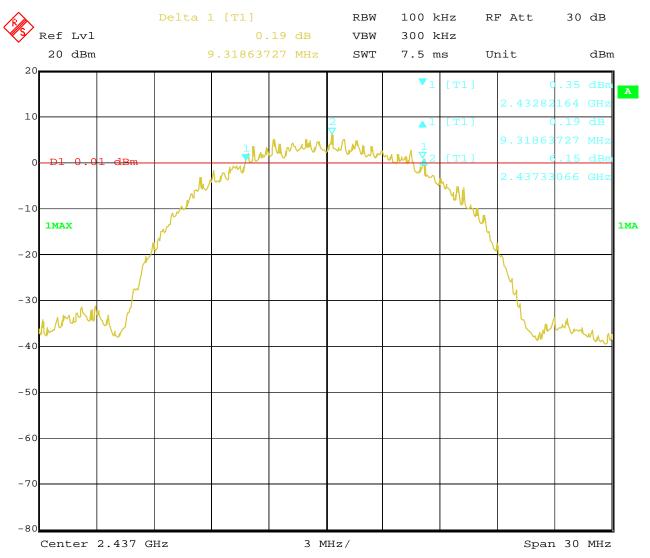
Date: 26.JAN.2015 10:55:32

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Date: 2015-01-29



## 5. 802.11b at 11Mbps of CH06



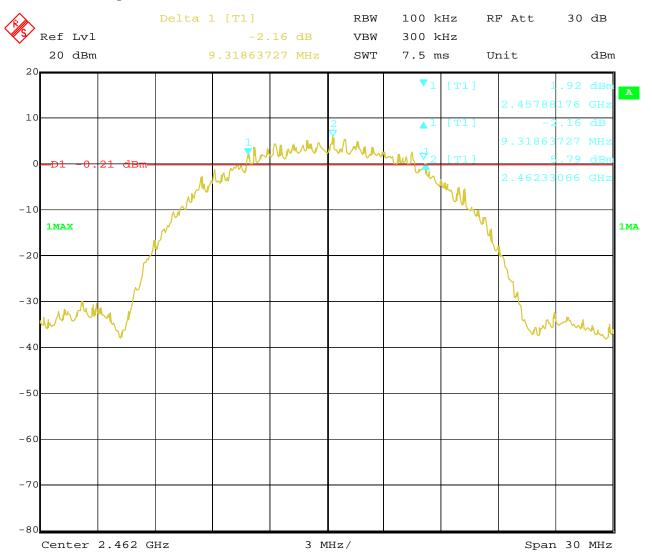
Date: 26.JAN.2015 10:57:33

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## 6. 802.11b at 11Mbps of CH11



Date: 26.JAN.2015 11:09:19

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Date: 2015-01-29



## 6dB Occupied Bandwidth

EUT		NVR		Model		ZX-NXYY-X (note: The first X=H,P,X; the second X=A-Z; The first Y=0-9; the second Y=4,8,6;the third X=W			
Mode		802.11g		Input	Voltage	AC120V			
Temperate	ure	24 deg. C,		Humi	idity	y 56% RH			
Channel	Char	nnel Frequency (MHz)	Tran Ra	Data Fransfer 6 dB Band Rate (MHz (Mbps)			Minimum Limit (MHz)	Pass/ Fail	
1		2412	6	5	16.41		0.5	Pass	
6		2437	6	5	16.41		0.5	Pass	
11		2462	6	5	16.41		0.5	Pass	

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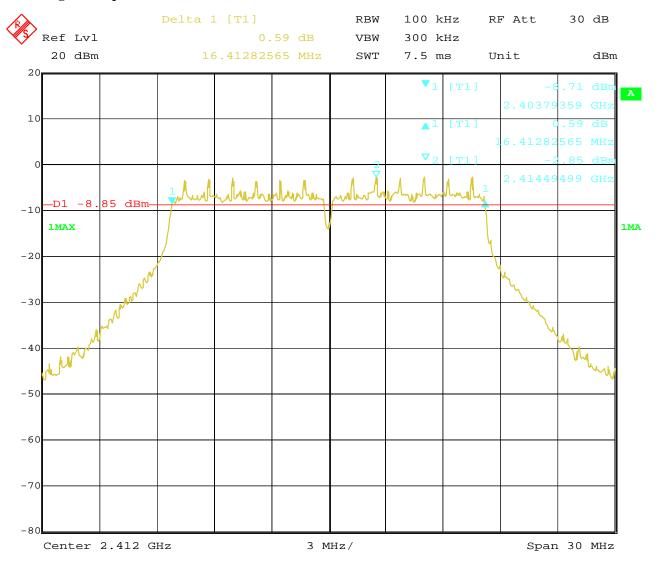
Report No: FCC1501227

Date: 2015-01-29



### **Test Plots:**

### 1. 802.11g at 6Mbps of CH01



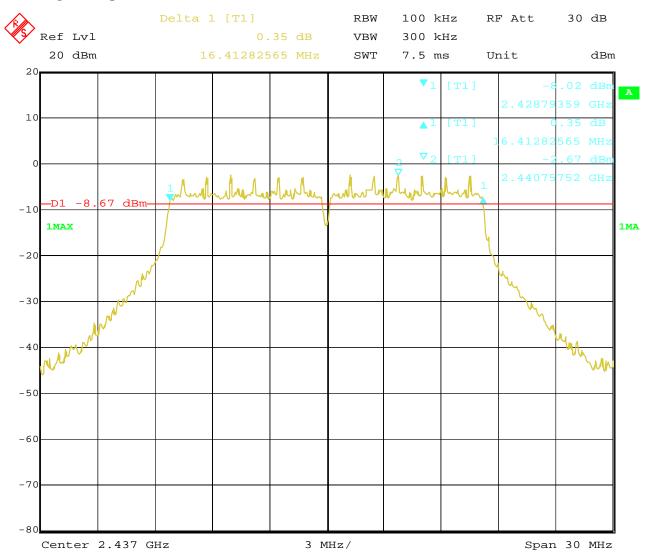
Date: 26.JAN.2015 10:52:08

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## 2. 802.11g at 6Mbps of CH06



Date: 26.JAN.2015 11:00:19

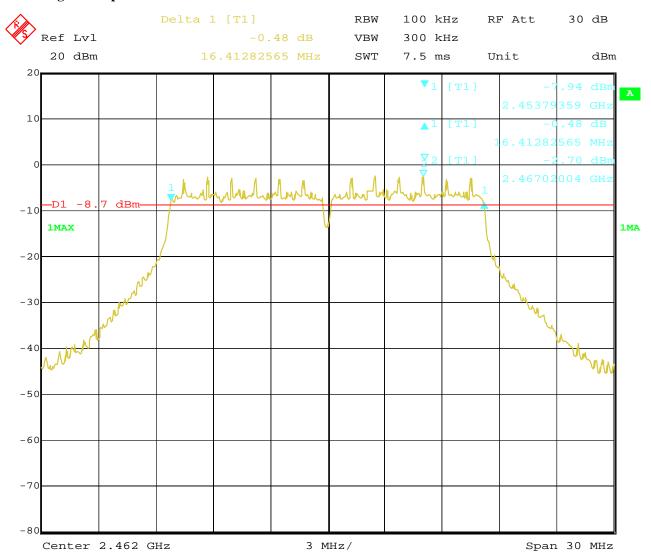
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## 3. 802.11g at 6Mbps of CH11



Date: 26.JAN.2015 11:06:59

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# 6dB Occupied Bandwidth

EUT		NVR		Mo	odel			rst X=H,P,X; the second X=A-Z;	
Mode		802.11n HT20/HT40		Input Voltage		The first Y=0-9; the second Y=4,8,6;the third X=W  AC120V			
Temperati	ure	24 deg. C,	,	Hu	midity		56% RH		
Channel	Char	nnel Frequency (MHz)	Dat Trans Rat (Mbj	e e	6 dB Band (MHz		Minimum Limit (MHz)	Pass/ Fail	
1		2412	65		17.56	5	0.5	Pass	
6		2437	65		17.56	5	0.5	Pass	
11		2462	65		17.56	5	0.5	Pass	
1		2422	65		35.39	)	0.5	Pass	
4		2437	65		35.36	6	0.5	Pass	
7		2452	65		35.39	)	0.5	Pass	

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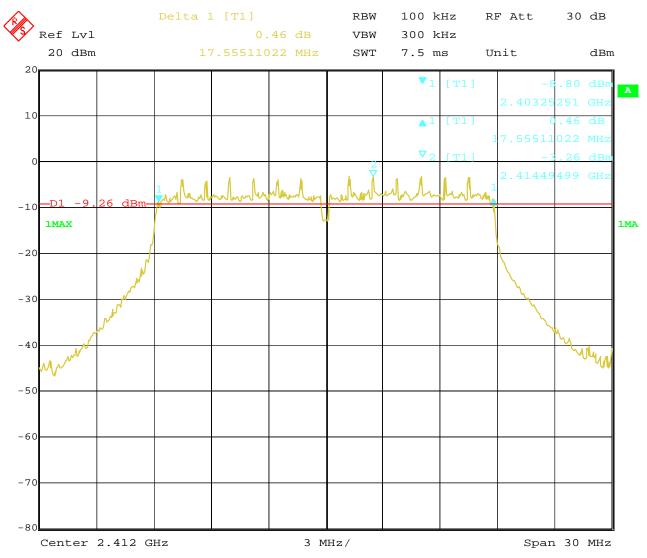
Report No: FCC1501227

Date: 2015-01-29



### **Test Plots:**

### 1. 802.11n at HT20 of CH01



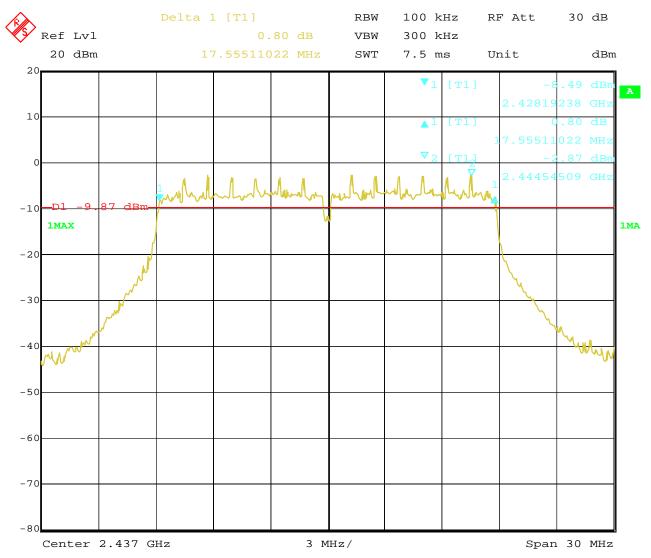
Date: 26.JAN.2015 11:14:55

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### 2. 802.11n at HT20 of CH06



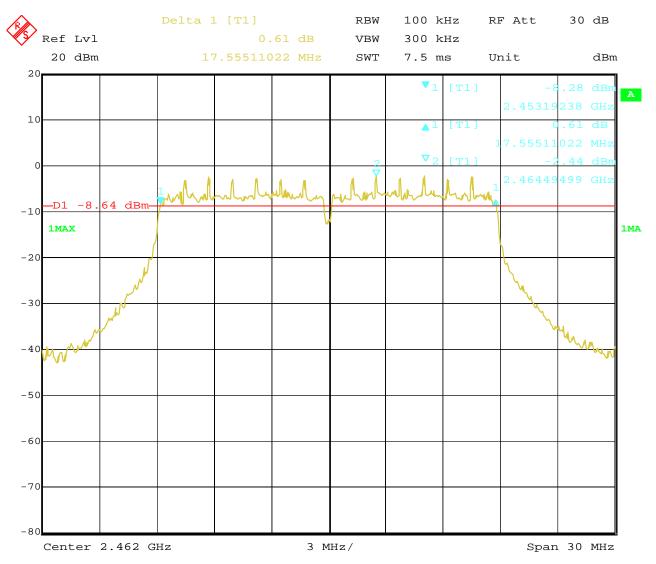
Date: 26.JAN.2015 11:13:05

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### 3. 802.11n at HT20 of CH11



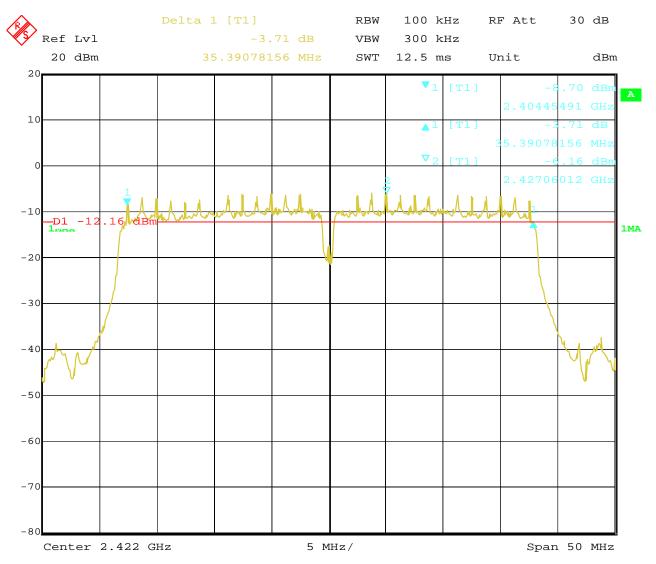
Date: 26.JAN.2015 11:11:26

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### 4. 802.11n at HT40 of CH03



Date: 26.JAN.2015 11:17:56

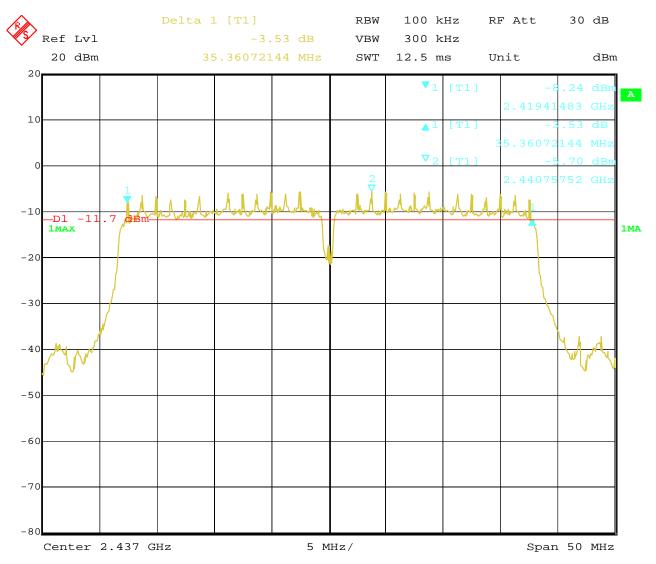
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### 5. 802.11n at HT40 of CH06



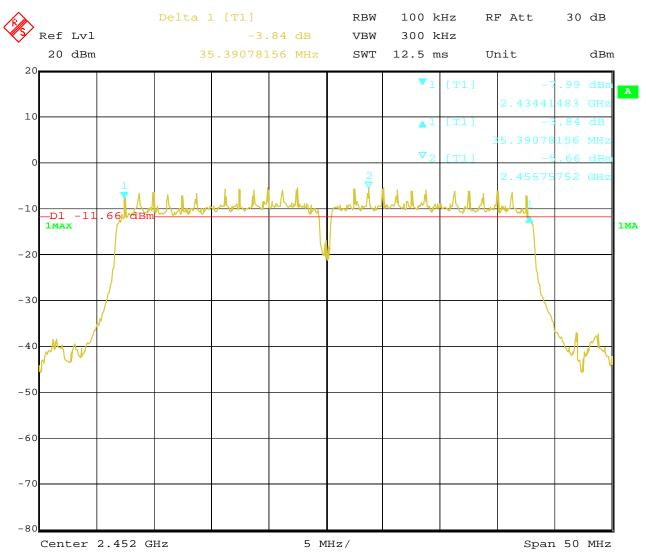
Date: 26.JAN.2015 11:20:14

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### 6. 802.11n at HT40 of CH09



Date: 26.JAN.2015 11:22:37

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## 8. Maximum Peak Output Power

## 8.1 Test Setup



## 8.2 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.

### **8.3 Test Procedure**

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: the peak power was measured

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### **8.4Test Results**

EUT	NVR	Model	ZX-NXYY-X (note: The first X=H,P,X; the second X=A-Z; The first Y=0-9; the second Y=4,8,6; the third X=W		
Mode	802.11b	Input Voltage			
Temperature	24 deg. C,	Humidity		56% RH	
Channel	Channel Frequency	Max. Power (	Output	Power Limit	Pass/ Fail
Chamier	(MHz)	(dBm)		(dBm)	
1	2412	18.48		30	Pass
6	2437	19.04		30	Pass
11	2462	19.34		30	Pass

Note: 1. At finial test to get the worst-case emission at 11Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT	EUT NVR		ZX-NXY	ZX-NXYY-X (note: The first X=H,P,X; the second X=A-Z;			
			The first Y=0-9; the second Y=4,8,6; the third X=W				
Mode	802.11g	Input Voltage	out Voltage AC120V		V		
Temperature	24 deg. C,	Humidity		56% RH			
Channel	Channel Frequency	Max. Powe	r Output	Power Limit	Pass/ Fail		
Chamie	(MHz)	(dBn	n)	(dBm)			
1	2412	15.1	1	30	Pass		
6	2437	15.7	8	30	Pass		
11	2462	15.9	0	30	Pass		

Note: 1. At finial test to get the worst-case emission at 6Mbps for CH01, CH06 and CH11

- 2. The result basic equation calculation as follow:

  Peak Power Output = Peak Power Reading + Cable loss + Attenuator
- 3. The worse case was recorded

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EUT	NVR	Model	ZX-NXY	ZX-NXYY-X (note: The first X=H,P,X; the second X=A-Z;				
			The fi	The first Y=0-9; the second Y= $4,8,6$ ; the third X=W				
Mode	Mode 802.11n			AC120V				
	(HT20)							
Temperature	24 deg. C,	Humidity		56% RH				
Champal	Channel Frequency	Max. Power	Output	Power Limit	Pass/ Fail			
Channel	(MHz)	(dBm	1)	(dBm)				
1	2412	15.42	2	30	Pass			
6	2437	16.03	3	30	Pass			
11	2462	16.29	)	30	Pass			

Note: 1. At finial test to get the worst-case emission at 65Mbps 11n HT20 for CH01, CH06 and CH11

The result basic equation calculation as follow:
 Peak Power Output = Peak Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT	NVR	Model	ZX-NXYY-X (note: The first X=H,P,X; the second X=A-Z;					
			Th	The first Y=0-9; the second Y=4,8,6; the third $X=W$				
Mode	802.11n (HT40)	Input Voltage		Input Voltage AC120V				
Temperature	24 deg. C,	Humidity		56% RH				
Channel	Channel Frequency	Max. Power Out	tput	Power Limit	Pass/ Fail			
Chamiei	(MHz)	(dBm)		(dBm)				
1	2422	15.38		30	Pass			
4	2437	15.62		30	Pass			
7	2452	15.96		30	Pass			

Note: 1. At finial test to get the worst-case emission at 65Mbps 11n HT40 for CH01, CH04 and CH07

- 2. The result basic equation calculation as follow:

  Peak Power Output = Peak Power Reading + Cable loss + Attenuator
- 3. The worse case was recorded

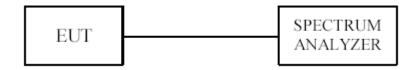
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# 9. Power Spectral Density Measurement

## 9.1 Test Setup



# 9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm.

#### 9.3 Test Procedure

- 1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
- 2. Set the RBW = 10 kHz.
- 3. Set the VBW  $\geq$  30 kHz.
- 4. Set the span to 1.5 times the DTS channel bandwidth.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode =  $\max$  hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
- 11. The resulting peak PSD level must be  $\leq 8$  dBm.

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### 9.4Test Result

EUT	JT NVR Model		ZX-NXYY-X (note: The first X=H,P,X; the second X=A-Z; The first Y=0-9; the second Y=4,8,6;the third X=W		
Mode	802.11b 11Mbps	Input Voltage	AC1	20V	
Temperatur	e 24 deg. C,	Humidity	56%	RH	
Channel	Channel Channel Frequency (MHz)		Maximum Limit (dBm)	Pass/ Fail	
		11	Mbps		
1	2412	-5.42	8	Pass	
6	2437	-5.42	8	Pass	
11	2462	-4.63	8	Pass	

EUT	NVR	Model	Model $ZX$ -NXYY-X (note: The first X=H,P,X; the second X=A-Z;			
			The first Y=0-9; the second Y=4,8,6;the third X=W			
Mode	802.11b 1Mbps	Input Voltage	AC	C120V		
Temperatur	e 24 deg. C,	Humidity	56	% RH		
Channal	Channel Frequency	Final RF Power	Maximum Limit	Pass/ Fail		
Channel	(MHz)	Level (dBm)	(dBm)			
		1	Mbps			
1	2412	-6.81	8	Pass		
6	2437	-6.06	8	Pass		
11	2462	-5.84	8	Pass		

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EUT	NVR	Model	ZX-NXYY-X (note: The first	X=H,P,X; the second X=A-Z;
			The first Y=0-9; the second Y=4,8,6;the third X=W	
Mode	802.11g 6Mbps	Input Voltage	AC1	20V
Temperatur	e 24 deg. C,	Humidity	56%	RH
Channel	Channel Frequency	Final RF Power	Maximum Limit	Pass/ Fail
Channel	(MHz)	Level (dBm)	(dBm)	
		6	Mbps	
1	2412 -13.79		8	Pass
6	2437	-12.98	8	Pass
11	2462	-12.93	8	Pass

EUT	NVR	Model	ZX-NXYY-X (note: The first	X=H,P,X; the second X=A-Z;
			The first Y=0-9; the secon	nd Y=4,8,6;the third X=W
Mode	802.11n HT20	Input Voltage	AC	120V
	65Mbps			
Temperatur	e 24 deg. C,	Humidity	56%	6 RH
Channel	Channel Frequency	Final RF Power	Maximum Limit	Pass/ Fail
Chamiei	(MHz)	Level (dBm)	(dBm)	
		65	Mbps	
1	2412	-12.23	8	Pass
6	2437	-11.60	8	Pass
11	2462	-11.95	8	Pass

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EUT	NVR	Model	ZX-NXYY-X (note: The first X=H,P,X; the second X=A-Z		
			The first Y=0-9; the secon	nd Y=4,8,6;the third X=W	
Mode	802.11n HT40	Input Voltage	AC1	20V	
	65Mbps				
Temperatur	re 24 deg. C,	Humidity	56%	6 RH	
Channel	Channel Frequency	Final RF Power	Maximum Limit	Pass/ Fail	
Chamilei	(MHz)	Level (dBm)	(dBm)		
		65]	Mbps		
1	2422	-15.66	8	Pass	
4	2437	-15.09	8	Pass	
7	2452	-15.16	8	Pass	

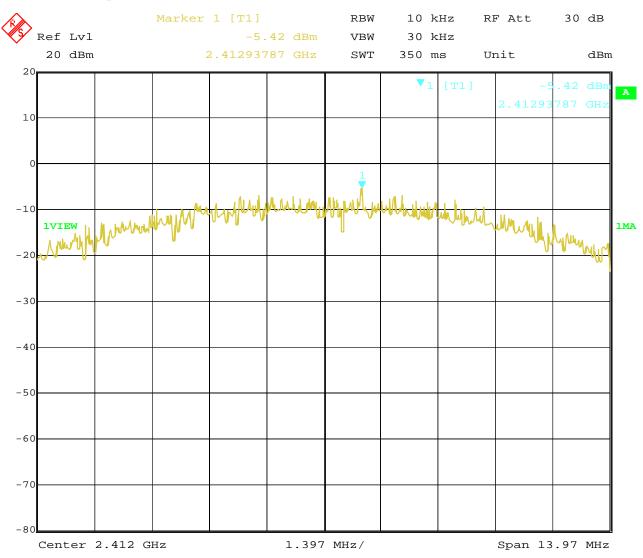
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## 9.5 Photo of Power Spectral Density Measurement

1.802.11b at 11Mbps of CH01



Date: 26.JAN.2015 15:04:29

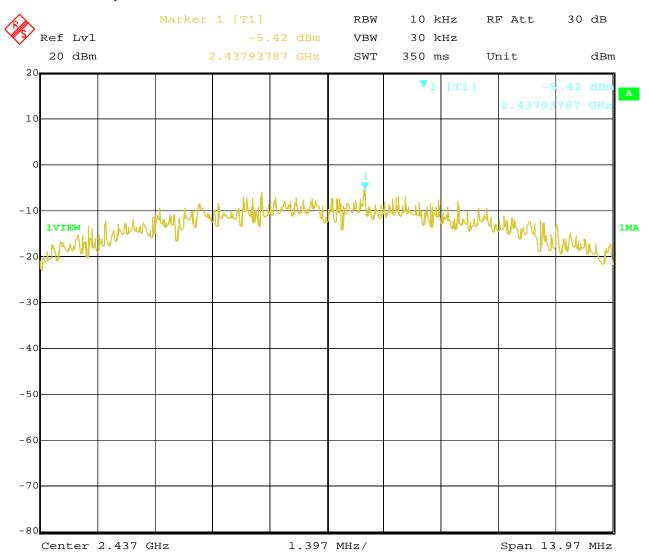
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### 2. 802.11b at 11Mbps at CH06



Date: 26.JAN.2015 15:05:22

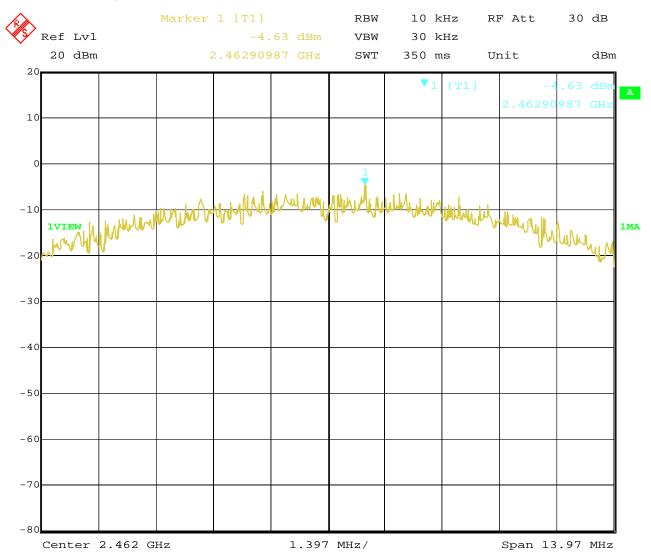
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### 3. 802.11b at 11Mbps of CH11



Date: 26.JAN.2015 15:06:02

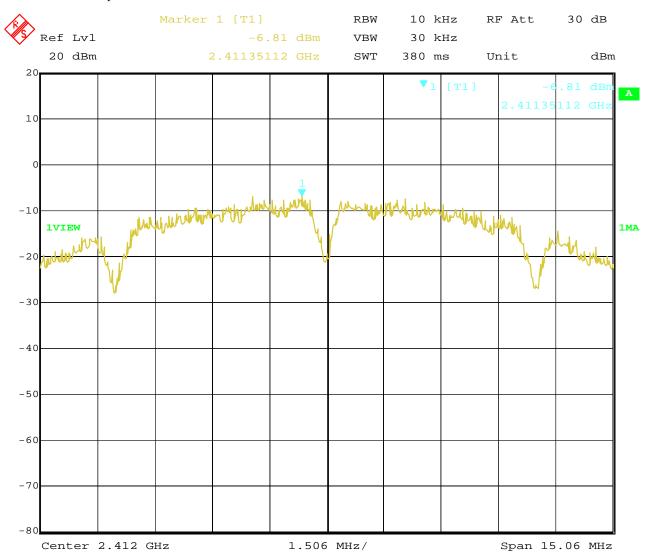
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## 4. 802.11b at 1Mbps of CH1



Date: 26.JAN.2015 14:59:00

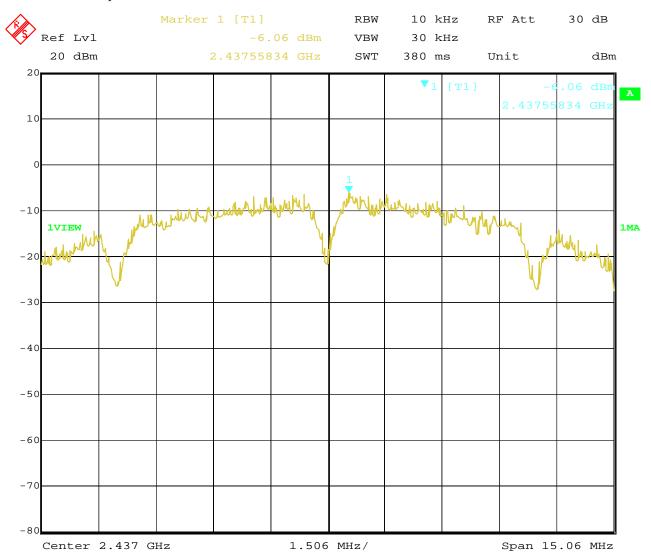
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## 5. 802.11b at 1Mbps of CH6



Date: 26.JAN.2015 14:59:36

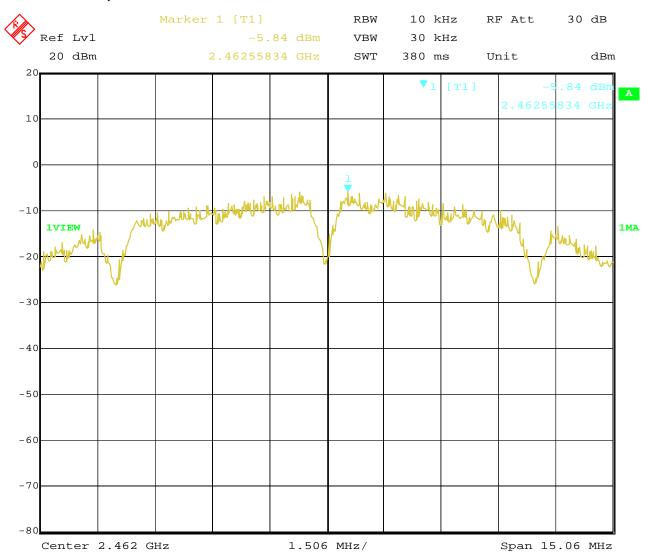
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## 6. 802.11b at 1Mbps of CH11



Date: 26.JAN.2015 15:00:05

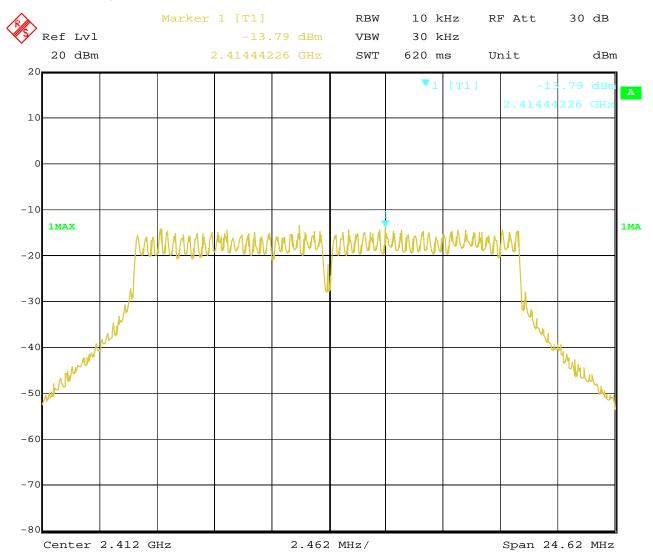
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# 7. 802.11g at 6Mbps of CH1



Date: 26.JAN.2015 15:03:48

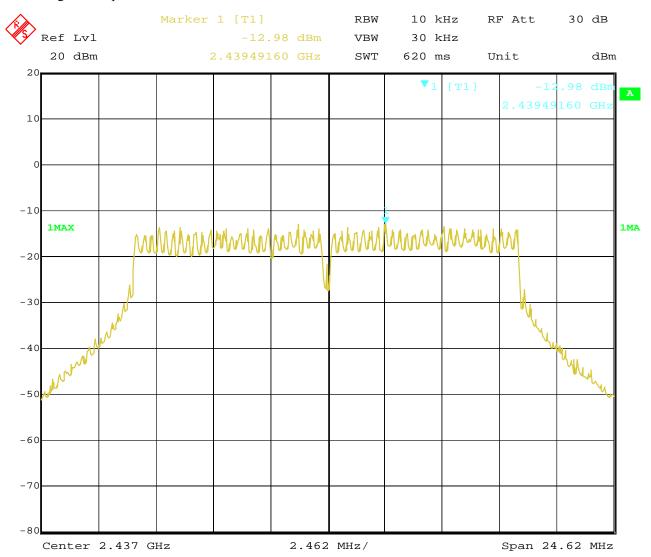
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# 8. 802.11g at 6 Mbps of CH6



Date: 26.JAN.2015 15:03:04

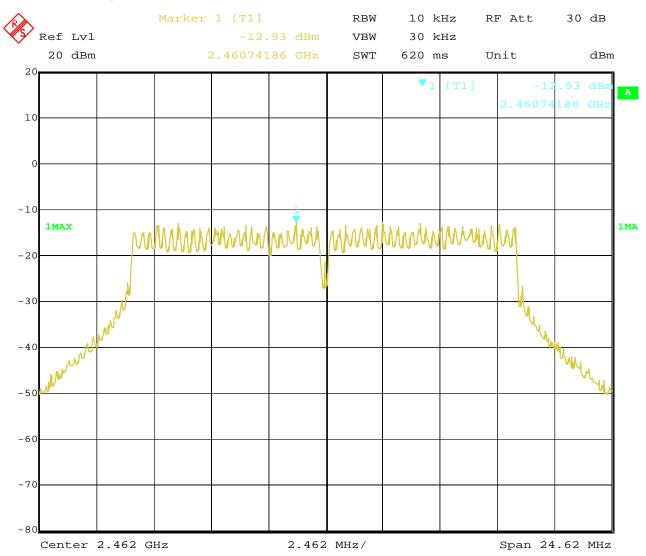
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## 9. 802.11g at 6 Mbps of CH11



Date: 26.JAN.2015 15:01:51

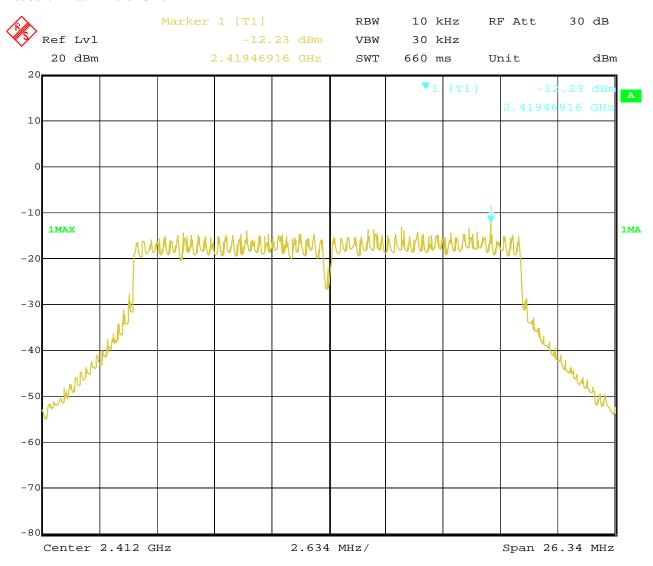
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## 10. 802.11n at HT20 of CH01



Date: 26.JAN.2015 15:10:53

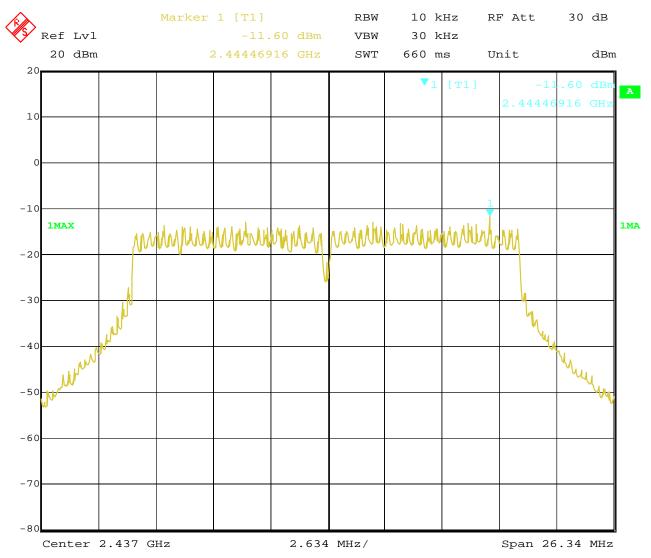
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#### 11. 802.11n at HT20 of CH06



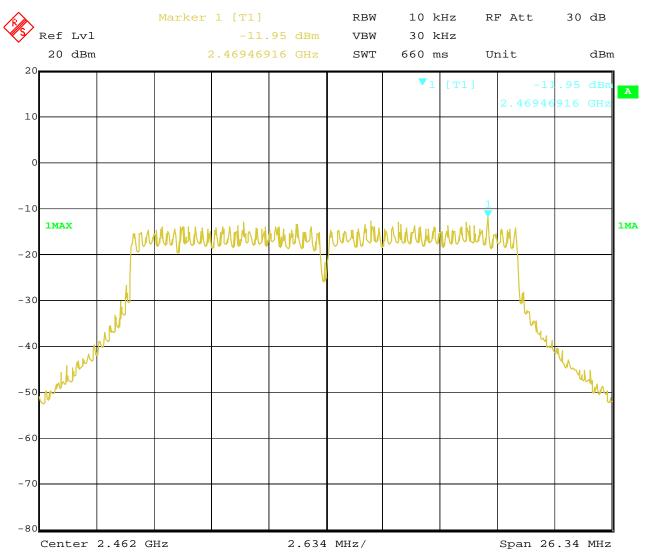
Date: 26.JAN.2015 15:09:56

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#### 12. 802.11n at HT20 of CH11



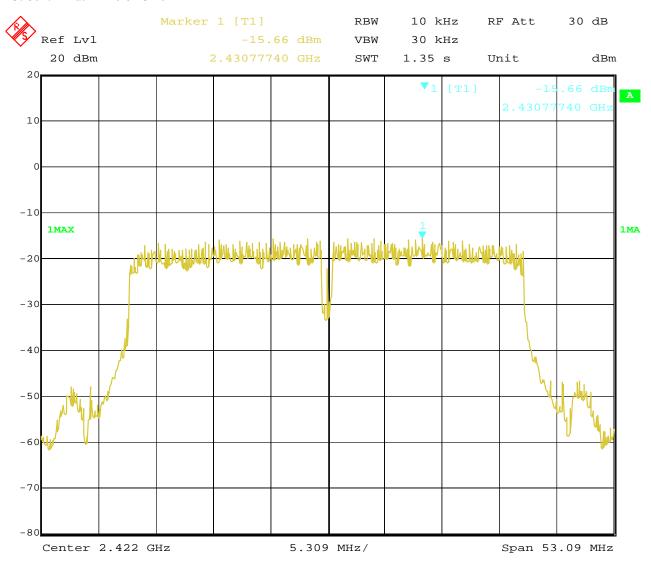
Date: 26.JAN.2015 15:07:35

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## 13. 802.11n at HT40 of CH01



Date: 26.JAN.2015 14:57:21

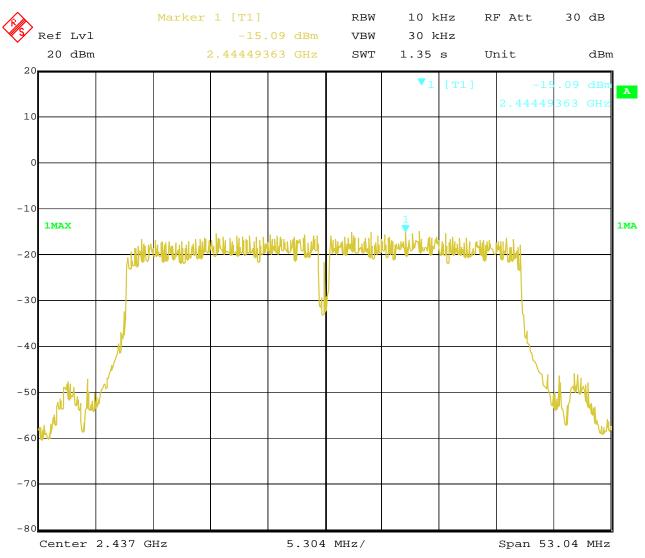
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## 14. 802.11n at HT40 of CH04



Date: 26.JAN.2015 14:55:34

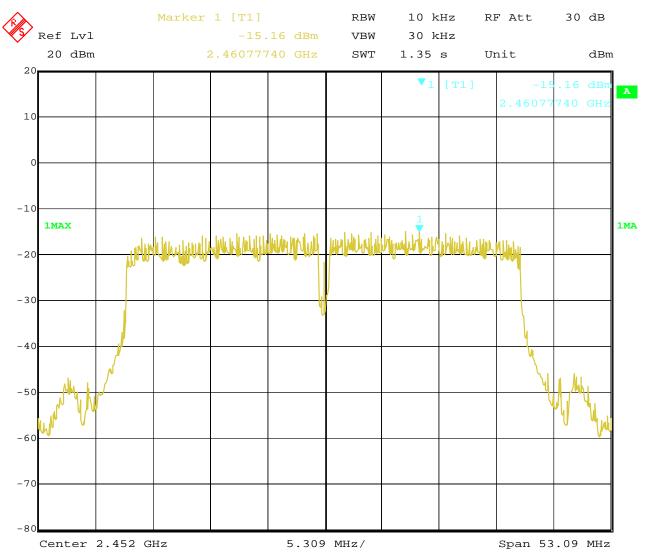
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## 15. 802.11n at HT40 of CH07



Date: 26.JAN.2015 14:53:04

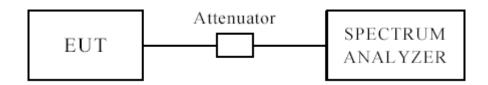
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## **10 Out of Band Measurement**

## 10.1 Test Setup for band edge



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

## 10.2 Limits of Out of Band Emissions Measurement

- 1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
- 2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

#### **10.3 Test Procedure**

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of Radiated emission test. (Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector)

For bandage test, the spectrum set as follows: RBW=100 kHz, VBW=300 kHz. A conducted measurement used

## 10.4 Test Result

Please see next pages

Note: For band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule.

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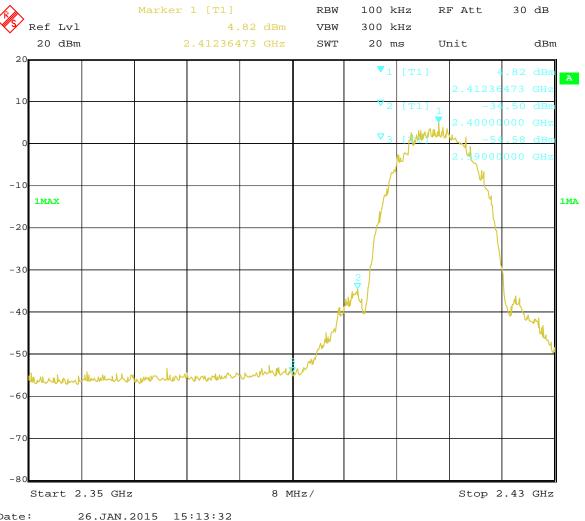
## For 802.11b mode

CH01 at 11Mbps

**10.4** Band-edge and Restricted band Measurement

EUT	NVR	Model	Model $ZX$ -NXYY-X (note: The first X=H,P,X; the second X=A			
			The first Y=0-9; the second Y=4,8,6;the third X=W			
Mode	Keeping Transmittin	g Input Voltage		DC3.7V		
Temperature	24 deg. C,	Humidity	56% RH			
Test Result:	Pass	Detector	PK			
2400	PK (dBμV/m)	58.76	T ::4	$74(dB\mu V/m)$		
	AV (dBμV/m)	40.16	Limit	54(dBμV/m)		
2390	PK (dBµV/m)	42.98	Limit	74(dBμV/m)		
	AV (dBμV/m)		LIIIII	54(dBμV/m)		

## **Test Figure:**



Note: The Max. FS in Restrict Band are measured in conventional method.

The report refers only to the sample tested and does not apply to the bulk.

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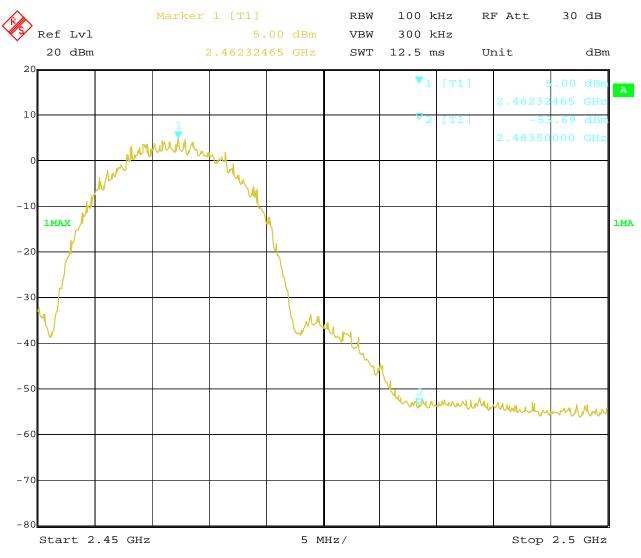


## CH11 at 11Mbps

**10.4** Band-edge and Restricted band Measurement

EUT	NVR	Model	ZX-NXYY-X (note: The first X=H,P,X; the second X=A	
			The first Y=0-9; the second Y=4,8,6; the third X=W	
Mode	Keeping Transmittir	g Input Voltage	DC3.7V	
Temperature	24 deg. C,	Humidity	56% RH	
Test Result:	Pass	Detector	PK	
2483.5	PK (dBμV/m)	43.16	T ::4	74(dBμV/m)
	AV ( $dB\mu V/m$ )		Limit	54(dBμV/m)

## **Test Figure:**



Date: 26.JAN.2015 15:20:31

Note: The Max. FS in Restrict Band are measured in conventional method.

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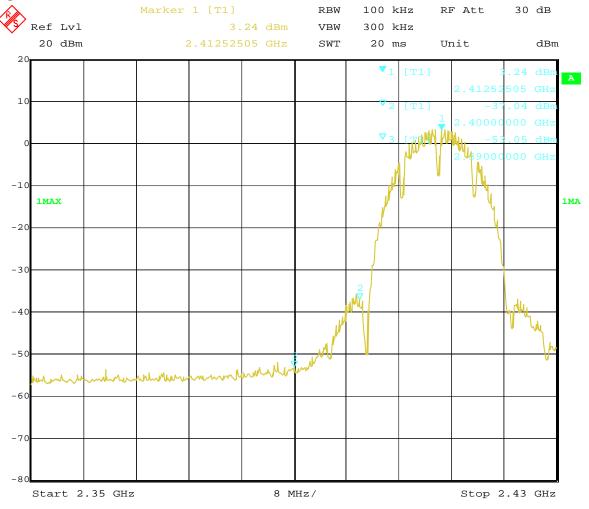
## For 802.11b mode

CH01 at 1Mbps

**10.4** Band-edge and Restricted band Measurement

	8				
EUT	NVR	Model	ZX- $NXYY$ - $X$ (note: The first $X$ = $H$ , $P$ , $X$ ; the second $X$ = $A$ - $Z$ ;		
			The first Y=0-9; the second Y=4,8,6; the third X=W		
Mode	Keeping Transmitting	Input Voltage	DC3.7V		
Temperature	24 deg. C,	Humidity	56% RH		
Test Result:	Pass	Detector	PK		
2400	PK (dBμV/m)	55.57	T :	74(dBμV/m)	
	AV (dBμV/m)	37.62	Limit	54(dBμV/m)	
2390	PK (dBμV/m)	42.79	Limit	74(dBμV/m)	
	AV (dBμV/m)		Lillit	54(dBμV/m)	

## **Test Figure:**



Date: 26.JAN.2015 15:11:59

Note: The Max. FS in Restrict Band are measured in conventional method.

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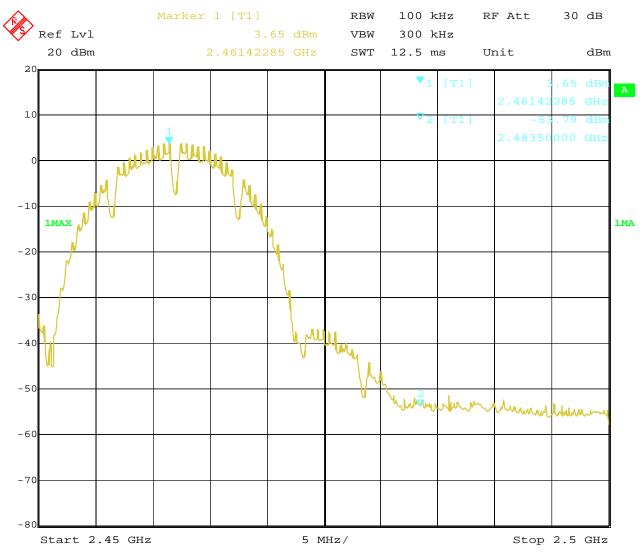


## CH11 at 1Mbps

**10.4** Band-edge and Restricted band Measurement

EUT	NVR	Model	ZX-NXYY-X (note: The first X=H,P,X; the second X=A-	
			The first Y=0-9; the second Y=4,8,6;the third X=W	
Mode	Keeping Transmittin	ng Input Voltage	DC3.7V	
Temperature	24 deg. C,	Humidity	56% RH	
Test Result:	Pass	Detector	PK	
2483.5	PK (dBμV/m)	42.46	T ::4	74(dBμV/m)
	AV ( $dB\mu V/m$ )		Limit	54(dBμV/m)

## **Test Figure:**



Date: 26.JAN.2015 15:18:31

Note: The Max. FS in Restrict Band are measured in conventional method.

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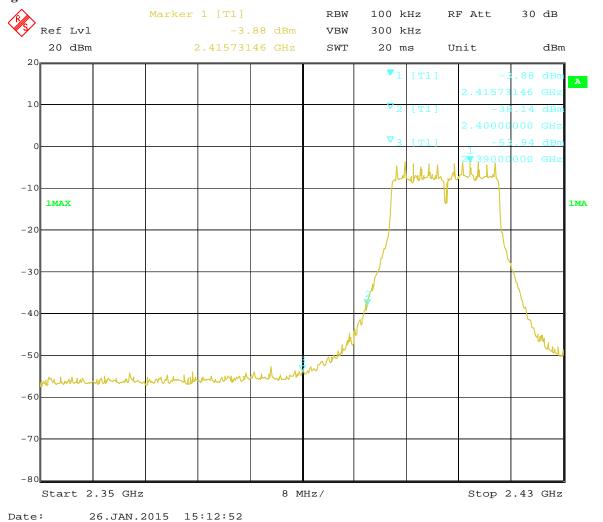
## For 802.11g mode

CH01 at 54Mbps

## **10.4** Band-edge and Restricted band Measurement

EUT	NVR	Model	ZX-NXYY-X (note: The first X=H,P,X; the second X=A-Z	
			The first Y=0-9; the second Y=4,8,6; the third $X=W$	
Mode	Keeping Transmittin	g Input Voltage	DC3.7V	
Temperature	24 deg. C,	Humidity	56% RH	
Test Result:	Pass	Detector	PK	
2400	PK (dBμV/m)	62.25	T ''/	$74(dB\mu V/m)$
	AV (dBμV/m)	43.64	Limit	54(dBμV/m)
2390	PK (dBµV/m)	43.92	Limit	74(dBμV/m)
	AV (dBμV/m)		Lillit	54(dBμV/m)

## **Test Figure:**



Note: The Max. FS in Restrict Band are measured in conventional method.

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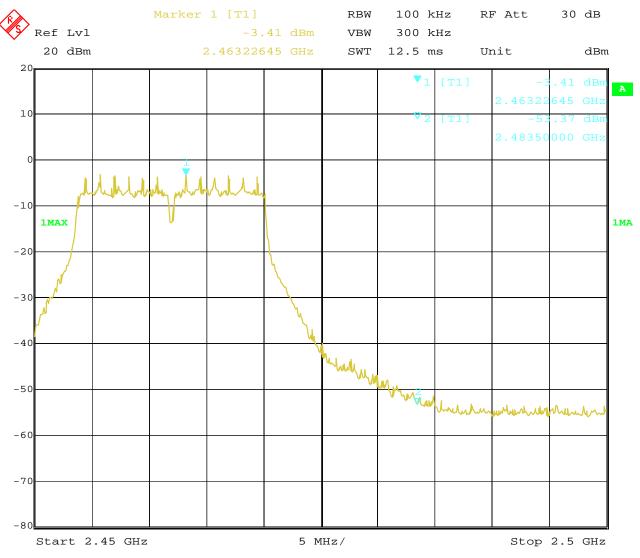


## CH11 at 54Mbps

**10.4** Band-edge and Restricted band Measurement

EUT	NVR	Model	ZX-NXYY-X (note: The first X=H,P,X; the second X=A-	
			The first Y=0-9; the second Y=4,8,6; the third X=W	
Mode	Keeping Transmittin	g Input Voltage	DC3.7V	
Temperature	24 deg. C,	Humidity	56% RH	
Test Result:	Pass	Detector	PK	
2483.5	PK (dBμV/m)	46.72	T ::4	74(dBμV/m)
	AV (dBμV/m)		Limit	54(dBμV/m)

## **Test Figure:**



Date: 26.JAN.2015 15:19:24

Note: The Max. FS in Restrict Band are measured in conventional method.

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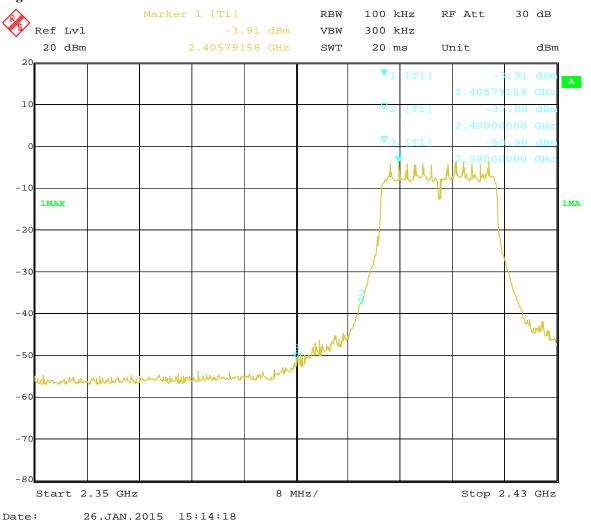
## For 802.11n (HT20) mode

CH01 at 65Mbps

## **10.4** Band-edge and Restricted band Measurement

EUT	NVR	Model	Model $ZX$ -NXYY-X (note: The first X=H,P,X; the second X=A	
			The first Y=0-9; the second Y=4,8,6; the third X=W	
Mode	Keeping Transmittin	g Input Voltage	e DC3.7V	
Temperature	24 deg. C,	Humidity	56% RH	
Test Result:	Pass	Detector	PK	
2400	PK (dBμV/m)	64.49	T ''4	$74(dB\mu V/m)$
	AV (dBμV/m)	46.09	Limit	54(dBμV/m)
2390	PK (dBµV/m)	45.12	Limit	74(dBμV/m)
	AV (dBμV/m)		Lillit	54(dBμV/m)

## **Test Figure:**



Note: The Max. FS in Restrict Band are measured in conventional method.

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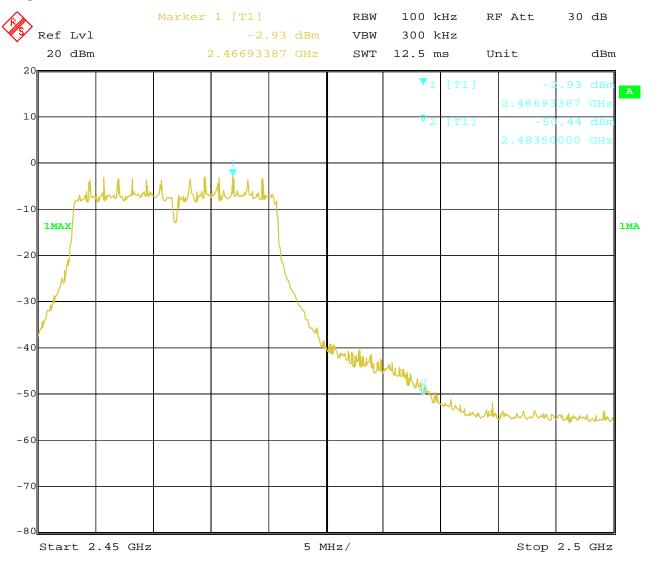


## CH11 at 65Mbps

**10.4** Band-edge and Restricted band Measurement

	2012 2000 1100 1100 1100 1100 1100 1100					
EUT	NVR	Model	ZX-NXYY-X (note: The first X=H,P,X; the second X=A-Z			
			The first Y=0-9; the second Y=4,8,6;the third X=W			
Mode	Keeping Transmittin	ng Input Voltage	DC3.7V			
Temperature	24 deg. C,	Humidity	56% RH			
Test Result:	Pass	Detector	PK			
2483.5	PK (dBμV/m)	47.67	Limit	74(dBμV/m)		
	AV ( $dB\mu V/m$ )		Limit	54(dBμV/m)		

## **Test Figure:**



Date: 26.JAN.2015 15:17:50

Note: The Max. FS in Restrict Band are measured in conventional method.

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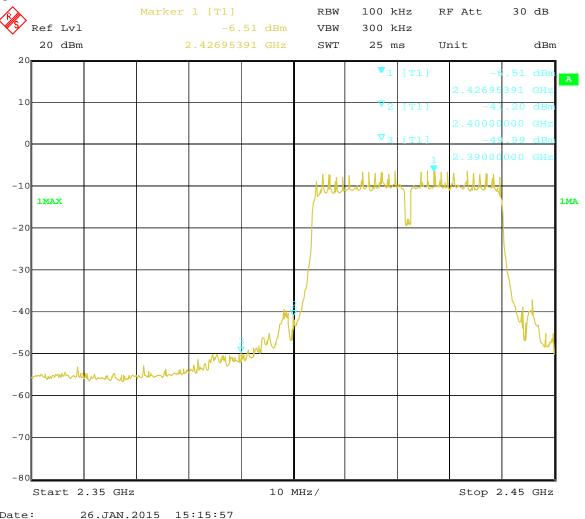
## For 802.11n (HT40) mode

CH01 at 65Mbps

## **10.4** Band-edge and Restricted band Measurement

EUT	NVR	Model	Model ZX-NXYY-X (note: The first X=H,P,X; the second X=	
			The first Y=0-9	9; the second Y=4,8,6;the third X=W
Mode	Keeping Transmittin	g Input Voltage	Input Voltage DC3.7V	
Temperature	24 deg. C,	Humidity	56% RH	
Test Result:	Pass	Detector	PK	
2400	PK (dBμV/m)	67.08	T ''4	$74(dB\mu V/m)$
	AV (dBμV/m)	48.39	Limit	54(dBμV/m)
2390	PK (dBµV/m)	47.82	Limit	74(dBμV/m)
	AV (dBμV/m)		Lillit	54(dBμV/m)

## **Test Figure:**



Note: The Max. FS in Restrict Band are measured in conventional method.

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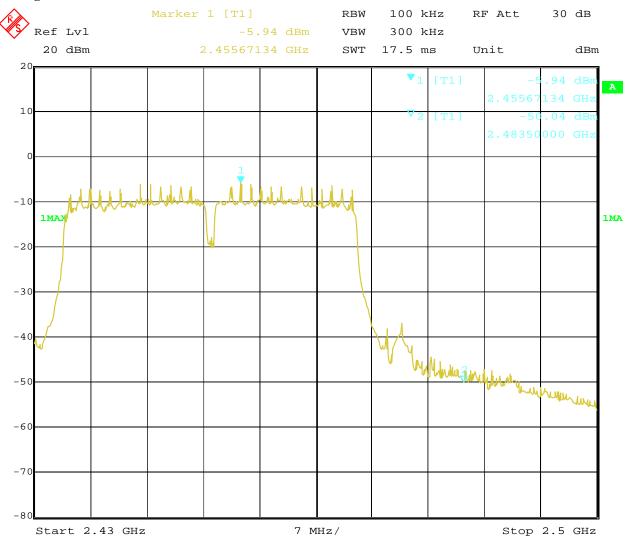


## CH7 at 65Mbps

**10.4** Band-edge and Restricted band Measurement

EUT	NVR	Model	ZX-NXYY-X (note: The first $X=H,P,X$ ; the second $X=A-$		
			The first Y=0-9; the second Y=4,8,6; the third X=W		
Mode	Keeping Transmittin	g Input Voltage	DC3.7V		
Temperature	24 deg. C,	Humidity	56% RH		
Test Result:	Pass	Detector	PK		
2483.5	PK ( $dB\mu V/m$ )	52.13	I imit	$74(dB\mu V/m)$	
	AV ( $dB\mu V/m$ )		Limit	54(dBμV/m)	

## **Test Figure:**



Date: 26.JAN.2015 15:16:58

Note: The Max. FS in Restrict Band are measured in conventional method.

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## 11.0 Antenna Requirement

## 11.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

#### 11.2 Antenna Connected construction

PCB antennas used. The maximum Gain of each antenna is 2.0 dBi.

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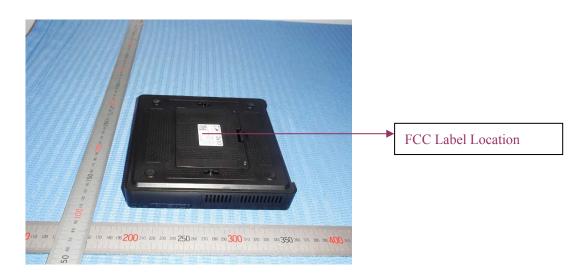
## 12.0 FCC Label

## FCC ID: ZK8-NI14-W

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

#### Mark Location:



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#### 13.0 Photo of testing

Conducted Emission Test Setup:



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## Radiated Emission Test Setup:





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Photo for the EUT





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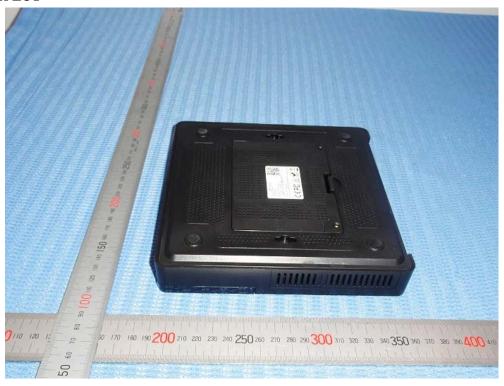
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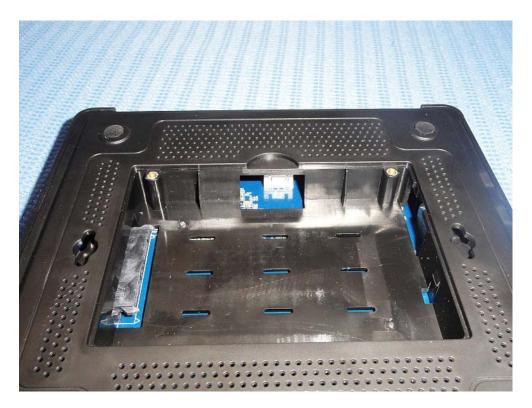
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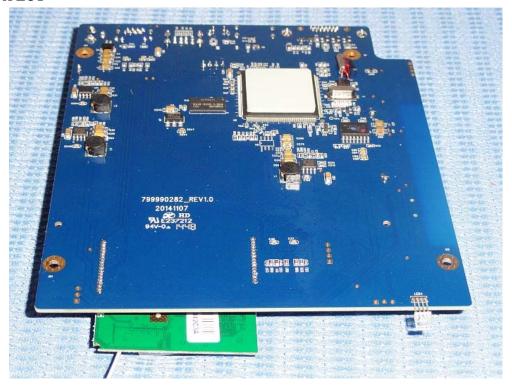
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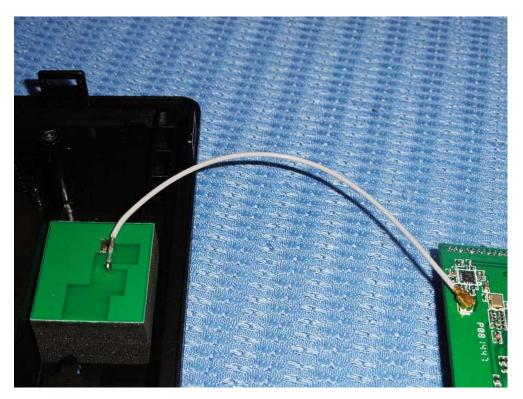
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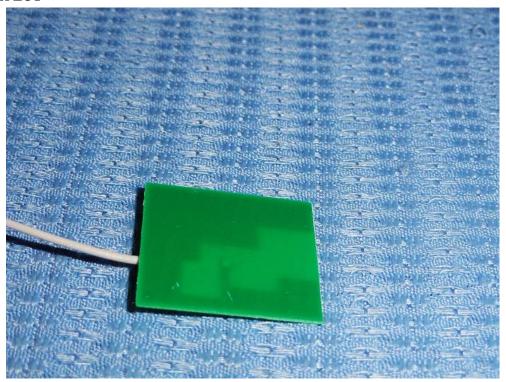
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End of the report