



Report No.: File reference No.:	TW2202134E 2022-03-07
Applicant:	SHENZHEN CENTURY XINYANG TECH CO., LTD
Product:	WiFi Repeater
Model No.:	RPT-002
Trademark:	N/A
Test Standards:	FCC Part 15.247

Test result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10, FCC Part 15.247 for the evaluation of electromagnetic compatibility

Approved By Terry long Terry Tang

Manager

Dated:

March 07, 2022

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 TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com



## **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 17025:2005 General Requirements) for the Competence of testing Laboratories.

## FCC-Registration No.: 744189

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.: 744189.

## Industry Canada (IC) — Registration No.: 5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

## A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

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#### **General Details** 1.0

#### Test Lab Details 1.1

Name:	SHENZHEN TIMEWAY TESTING LABORATORIES.
Address:	Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le
	Village, Nanshan District, Shenzhen, China
Telephone:	(755) 83448688
Fax:	(755) 83442996
Site Listed wit	h Federal Communications commission (FCC)
Registration N	umber:744189
For 3m Anecho	pic Chamber
Site Listed wit	h Industry Canada of Ottawa, Canada
Registration N	umber: IC: 5205A
For 3m Anecho	pic Chamber

## 1.2 Applicant Details

Applicant:	SHENZHEN CENTURY XINYANG TECH CO., LTD
Address:	3F, North Building, Bantian High-tech industrial Zone, No. 2 of Bell Road, Longgang,
	Shenzhen, Guangdong
Telephone:	
Fax:	

#### Description of EUT 1.3

1	
Product:	WiFi Repeater
Manufacturer:	SHENZHEN CENTURY XINYANG TECH CO., LTD
Address:	3F, North Building, Bantian High-tech industrial Zone, No. 2 of Bell Road,
	Longgang, Shenzhen, Guangdong
Trademark:	N/A
Model Number:	RPT-002
Additional Model Nu	mber: N/A
Hardware Version:	V1.0.1
Software Version:	V0.0.0.71
Type of Modulation	IEEE 802.11b: DSSS (CCK, QPSK, DBPSK)
	IEEE 802.11g/n (HT20, HT40): OFDM (64QAM, 16QAM, QPSK, BPSK)
	Note: ALL modulation are MIMO mode
Frequency range	IEEE 802.11b/g/n (HT20): 2412-2462MHz;
	IEEE 802.11n HT40: 2422-2452MHz
Channel Spacing	5MHz for IEEE 802.11b/g/n (HT20, HT40)
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/HT40: mcs0-mcs7
Frequency Selection	By software
Channel Number	IEEE 802.11b/g/n (HT20): 11 Channels;
	IEEE 802.11n (HT40): 7 Channels;
Antenna:	Two Integral antennas. The gain of the antennas is 2.0dBi maximum for each one
	(Get from the antenna specification provided the applicant)
Rating:	Input 110~240V~,50/60Hz, 0.5A

#### Submitted Sample: 2 Samples 1.4

- 1.5 Test Duration 2022-02-23 to 2022-03-07
- Test Uncertainty 1.6

Conducted Emissions Uncertainty =3.6dB Radiated Emissions below 1GHz Uncertainty =4.7dB Radiated Emissions above 1GHz Uncertainty =6.0dB Conducted Power Uncertainty =6.0dB Occupied Channel Bandwidth Uncertainty =5% Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

Test Engineer 1.7

Andy -Xing

The sample tested by

Print Name: Terry Tang

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2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2021-06-18	2022-06-17
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2021-06-18	2022-06-17
Loop Antenna	EMCO	6507	00078608	2021-06-18	2024-06-17
Spectrum	R&S	FSIQ26	100292	2021-06-18	2022-06-17
Horn Antenna	A-INFO	LB-180400-KF	CON21060660	2021-07-02	2024-07-02
Horn Antenna	R&S	BBHA 9120D	9120D-631	2021-07-02	2024-07-02
Power meter	Anritsu	ML2487A	6K00003613	2021-06-18	2022-06-17
Power sensor	Anritsu	MA2491A	32263	2021-06-18	2022-06-17
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2021-07-02	2024-07-02
9*6*6 Anechoic			N/A	2021-07-02	2022-07-15
EMI Test Receiver	RS	ESVB	826156/011	2021-06-18	2022-06-17
EMI Test Receiver	RS	ESH3	860904/006	2021-06-18	2022-06-17
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2021-06-18	2022-06-17
Spectrum	HP/Agilent	E4407B	MY50441392	2021-06-18	2022-06-17
Spectrum	RS	FSP	1164.4391.38	2021-07-02	2024-07-02
RF Cable	Zhengdi	ZT26-NJ-NJ-8 M/FA		2021-06-18	2022-06-17
RF Cable	Zhengdi	7m		2021-06-18	2022-06-17
RF Switch	EM	EMSW18	060391	2021-06-18	2022-06-17
Pre-Amplifier	Schwarebeck	BBV9743	#218	2021-06-18	2022-06-17
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2021-06-18	2022-06-17
LISN	SCHAFFNER	NNB42	00012	2021-07-02	2024-07-02

## 2.2 Automation Test Software

#### For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

#### For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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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: 1Mbps 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: mcs0 (worst case) were chosen for full testing

## IEEE 802.11n (HT40) mode

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

Channel	Frequency (MHz)
Low	2422
Middle	2437
High	2452

IEEE 802.11n (HT40) mode: mcs0 data rate (worst case) were chosen for full testing

Note: 1. During the test, the duty cycle was set up to >98%

2. ALL modulation are MIMO mode during Radiated emission

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#### 3.0 **Technical Details**

#### 3.1 Summary of test results

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph15.203	Antenna Requirement	Pass	Complies
FCC Part 15, Paragraph15.207	<b>Conducted Emission Test</b>	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB	Pass	Complies
	bandwidth>500kHz		
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

#### 4.0 **EUT Modification**

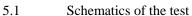
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES.

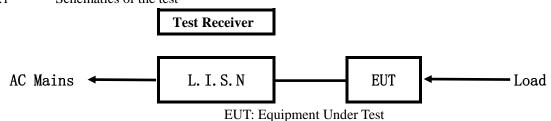
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## 5.0 Power Line Conducted Emission Test



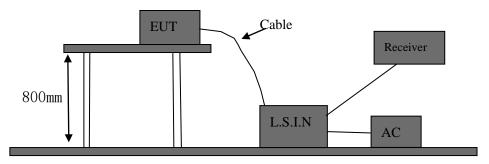


5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 500hm/50uH as specified by section 5.1 of ANSI C63.10-2013.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



## 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID	
WiFi Depeator	SHENZHEN CENTURY XINYANG	RPT-002	ZNPWD-RPT002	
WiFi Repeater	TECH CO., LTD	KP I-002	ZINP W D-KP 1002	

## B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

## C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
PC	DELL	P54G		

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5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013.

- 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

Frequency	Limits (dB µ V)			
(MHz)	Quasi-peak Level	Average Level		
$0.15~\sim~0.50$	66.0~56.0*	56.0~46.0*		
$0.50~\sim~5.00$	56.0	46.0		
$5.00~\sim~30.00$	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

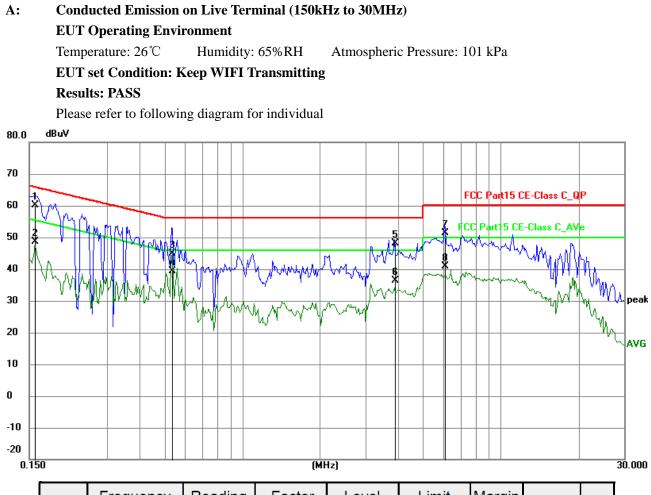
The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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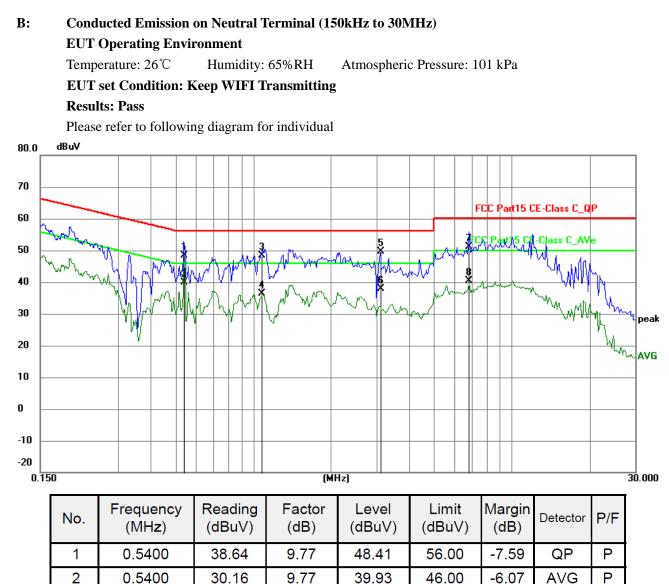
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1578	50.31	9.78	60.09	65.58	-5.49	QP	Ρ
2	0.1578	38.90	9.78	48.68	<mark>55.58</mark>	-6.90	AVG	Ρ
3	0.5322	35.16	9.77	44.93	56.00	-11.07	QP	Р
4	0.5322	29.64	9.77	39.41	46.00	-6.59	AVG	Р
5	3.8853	38.15	9.88	48.03	<mark>56.00</mark>	-7.97	QP	Р
6	3.8853	26.38	9.88	36.26	46.00	-9.74	AVG	Р
7	6.0732	41.36	9.97	51.33	60.00	-8.67	QP	Р
8	6.0732	30.89	9.97	40.86	50.00	-9.14	AVG	Ρ

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3

4

5

6

7

8

1.0821

1.0821

3.1013

3.1013

6.8298

6.8298

38.49

26.59

39.90

27.93

41.09

30.48

9.79

9.79

9.85

9.85

10.00

10.00

48.28

36.38

49.75

37.78

51.09

40.48

56.00

46.00

56.00

46.00

60.00

50.00

-7.72

-9.62

-6.25

-8.22

-8.91

-9.52

QP

AVG

QP

AVG

QP

AVG

Ρ

Ρ

Ρ

Ρ

Ρ

Ρ

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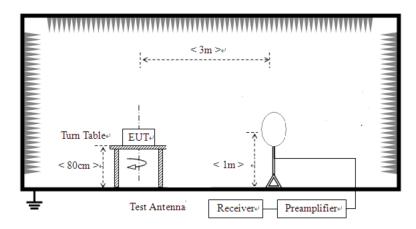


## 6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (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 C63.10-2013.
- (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. F For measurement above 1GHz, peak values with RBW=1MHz VBW=3MHz 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**

For radiated emissions from 9kHz to 30MHz



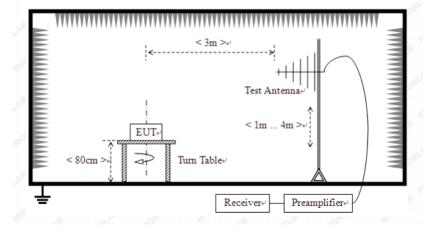
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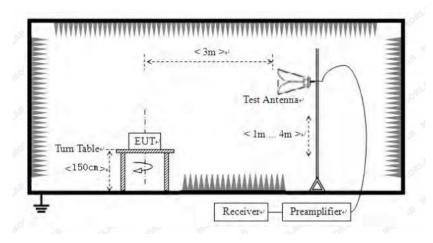
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For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



- 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.
- 6.4 Radiated Emission LimitAll emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

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Frequencies in restricted band are complied to limit on Paragraph 15.209							
Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)					
0.009-0.049	3	20log(2400/F(kHz)) +40log (300/3)					
0.490-1.705	3	20log(24000/F(kHz)) +40log (30/3)					
1.705-30	3	69.5					
30-88	3	40.0					
88-216	3	43.5					
216-960	3	46.0					
Above 960	3	54.0					

## Frequencies in restricted band are complied to limit on Paragraph 15.209

Note: 1. RF Voltage  $(dBuV) = 20 \log RF$  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

4. Worse case were recorded in the test report. 802.11b was the worst case.

Note: Only the worst case recorded in the test report

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## Test result General Radiated Emission Data and Harmonics Radiated Emission Data

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

Pass

EUT set Condition: Keep Transmitting

**Results:** 

FCC\_FCC Part 15C Class B 30MHz-1GHz 60 50 M3 40 level (dBuV/m) М1 30 20 10 0.0-100 50 400 600 800 1000 200 Frequency (MHz)

No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	129.400	26.44	-16.81	43.5	-17.06	Peak	310.00	100	Horizontal	Pass
2	238.983	41.49	-12.41	46.0	-4.51	Peak	304.00	100	Horizontal	Pass
3	259.590	43.41	-11.85	46.0	-2.59	Peak	316.00	100	Horizontal	Pass
4	311.715	41.45	-10.75	46.0	-4.55	Peak	109.00	100	Horizontal	Pass
5	383.234	40.10	-9.12	46.0	-5.90	Peak	2.00	100	Horizontal	Pass

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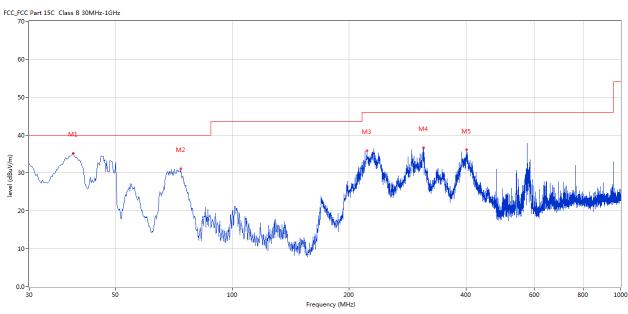
## **Test result** General Radiated Emission Data and Harmonics Radiated Emission Data

## Radiated Emission In Vertical (30MHz----1000MHz)

Pass

EUT set Condition: **Keep Transmitting** 

**Results:** 



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	38.970	35.24	-12.59	40.0	-4.76	Peak	279.00	100	Vertical	Pass
2	73.639	31.14	-17.02	40.0	-8.86	Peak	357.00	100	Vertical	Pass
3	222.012	35.80	-13.22	46.0	-10.20	Peak	315.00	100	Vertical	Pass
4	310.987	36.61	-10.73	46.0	-9.39	Peak	320.00	100	Vertical	Pass
5	400.447	36.06	-8.58	46.0	-9.94	Peak	315.00	100	Vertical	Pass

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#### Operation Mode: Transmitting under CH01 for 802.11b mode

Frequency (MHz)	Level@3m (dB µ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4824.00	56.96 (PK) / 44.53 (AV)	Н	74(Peak)/ 54(AV)
4824.00	62.65 (PK) / 49.76 (AV)	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)

#### Operation Mode: Transmitting under CH06 for 802.11b mode

Frequency (MHz)	Level@3m (dB µ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4874.00	54.38 (PK) / 42.61 (AV)	Н	74(Peak)/ 54(AV)
4874.00	61.87 (PK) / 48.39 (AV)	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)

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Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4924	55.27 (PK) / 43.08 (AV)	Н	74(Peak)/ 54(AV)
4924	62.05 (PK) / 49.18 (AV)	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)

<b>Operation Mode:</b>	Transmitting	under CH11	for 802.11b mode
Operation model	11 ansmitting	unuer errit	101 00 <b>2.</b> 110 mout

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 at 1Mbps
- 4. For radiated Emissions from 18-25GHz and below 30MHz, it is only the floor noise and less than the limit for more than 20dB. No necessary to take down.
- 5. Note: the final peak measurement results less than the AV limit. No necessary to take down the final AV measurement result

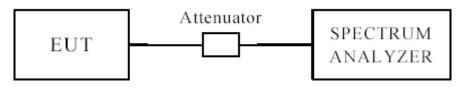
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7.0 6dB Bandwidth Measurement7.1 Test Setup



## 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)  $\ge$  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

Note: Two antennas ANT1 and ANT2 were tested and only the worst cased was recorded in the test report. ANT1was the worst case.

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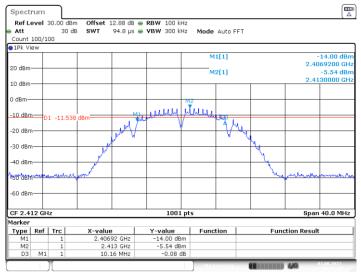
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## 6dB Occupied Bandwidth

EUT		WiF	i Repeater		Model		RP	Г-002
Mode		8	302.11b	02.11b Test Vol		tage 1		0V~
Temperate	ure	24 deg. C,			Humidity 56		56%	6 RH
Channel		el Frequency (MHz)	Data Transfer Rate (Mbps)		ndwidth Hz)		num Limit MHz)	Pass/ Fail
1		2412	1	10	.16		0.5	Pass
6		2437	1	10	.16		0.5	Pass
11		2462	1	10	.16		0.5	Pass

### 1. 802.11b at 1Mbps of CH01



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## 2. 802.11b at 1Mbps of CH06

Ref Le	evel :	30.00 dB	m Offset 1	2.94 dB 😑	<b>RBW</b> 100 k	Hz				
Att		30 0	B SWT	94.8 µs 👄	<b>VBW</b> 300 k	Hz Mode	Auto FFT			
Count	100/1	00								
1Pk Vi	e₩									
-						M	1[1]			12.85 dBn
20 dBm·									2.43	19200 GH
20 UBIII						M	2[1]			-5.04 dBn
LO dBm·									2.43	84800 GH
to apin										
0 dBm—						M2				
					mun	uTo.		1		
-10 dBm	⊣	1 -11.04	0 dBm	M1,	unun	mont	t.r			
		1 11.01		MT	1 \	1	A.M.			
-20 dBm	-+			WV	-		- V 4			
				e				<b>%</b> .		
-30 dBm	-+		- <del>V</del>					<u>N.</u>		
								1 Y.		
-40 dBm			J.							
-Solden	In.	mound	nort					me	Monorigaly	mound
Jo ubii	·		ĭ I							
-60 dBm										
	·									
CF 2.43	37.6H	7			1001	nts			Snar	40.0 MHz
1arker	<i>,,</i> , , , , , , , , , , , , , , , , , ,				1001	pes			opui	10.0 1112
Type	Ref	Tro	X-value	1	Y-value	Func	tion	Eupe	tion Result	
M1	Rei	1	2,4319		-12.85 dB				Alon Result	
M2		1	2.4384	H8 GHz	-5.04 dB	m				
D3	M1	1	10.1	6 MHz	-0.93 0	iB.				

## 3. 802.11b at 1Mbps of CH11

Ref Le	evel 3	30.00 di	m Offset 12.94 dB	RBW 100 ki	Hz				
Att		30	dB <b>SWT</b> 94.8 µs	VBW 300 ki	Hz Mode	Auto FFT			
Count	100/1	00							
1Pk Vi	e₩								
					M	1[1]			-12.47 dBr
20 dBm·								2.4	569200 GH
20 0011					M	2[1]			-4.78 dBr
10 dBm·								2.46	510000 GH
0 dBm—				M2					
				12 LANK	uno.				
-10 dBm		1 -10.73	79 dBm	ATT CARAMENT	1 manual T	Jans .			
			I I M		1	A.M.			
-20 dBm	-+-		- 1 m			1 1 1			
			M				4		
-30 dBm	' <b>-</b>						M.		
-40 dBm							Mar Internet		
10 001	'	- Akulla					- Charle		
-So den	margan	~ WINDOW	"YW					metalan	mangene
-60 dBm				_					
CF 2.40	52 GH	z		1001	pts			Spar	40.0 MHz
1arker									
Туре	Ref	Trc	X-value	Y-value	Func	tion	Fund	tion Resul	t .
M1		1	2.45692 GHz	-12.47 dB					
M2		1	2.461 GHz	-4.78 dB					
D3	M1	1	10.16 MHz	-1.45 c	iB				

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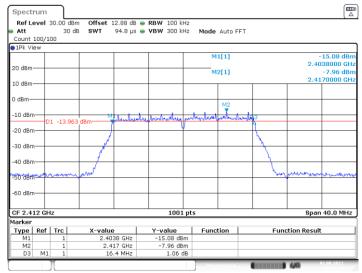


## 6dB Occupied Bandwidth

EUT		WiF	i Repeater		Model		R	PT-002
Mode		8	302.11g		Test Volta	ıge		120V~
Temperat	Femperature24 deg. C,Humidity		56% RH					
Channel	Channel Frequency (MHz)		Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)		Pass/ Fail
1	2412		6	16	.40		0.5	Pass
6	2437		6	16	.40		0.5	Pass
11		2462	6	16	.44		0.5	Pass

## **Test Plots:**

## 1. 802.11g at 6Mbps of CH01



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## 2. 802.11g at 6Mbps of CH06

	evel :	30.00 dB		B 👄 RBW 100 kH			
Att		30 d	iв <b>SWT</b> 94.8µ	s 👄 <b>VBW</b> 300 kH	z Mode Auto F	FT	
Count		00					
∎1Pk Vi	ew						
					M1[1]		-14.20 dBn 2.4288000 GH
20 dBm	$\rightarrow$						
					M2[1]		-7.84 dBn 2.4420000 GH
10 dBm	+						2.4420000 GH
0 dBm–	-				M2		
					M2		
-10 dBn			M laste	when marken by	Investigant works where	Ma B3	
		1 -13.84	0 dBm	W N		4	
-20 dBn	∩+-						
						<b>N</b>	
-30 dBn	+-י		1 1			۹, ۱	
1.1.1	1		10.07			1 1	- 1. f. f
40 dB	וודי		MAL I				
MAN	MUU	manne				arres	montelle
-50 dBn	ד-י						
-60 dBn							
CF 2.4	37 GH	z		1001	pts		Span 40.0 MHz
1arker							
Type	Ref	Trc	X-value	Y-value	Function	Fund	tion Result
M1		1	2.4288 GHz	-14.20 dBm	n		
M2		1	2.442 GHz	-7.84 dBn			
D3	M1	1	16.4 MHz	-0.48 dB	3		

### 3. 802.11g at 6Mbps of CH11

	evel :	30.00 dB							
Att		30 0	dB SWT 94.8 μs (	VBW 300 kHz	Mode	Auto FFT			
Count		00							
∎1Pk Vi	ew								
					M	1[1]			14.60 dBn 37600 GH
20 dBm	$\rightarrow$					2[1]		2.43	-7.80 dBr
					DAT:	2[1]		2.45	70000 GH
10 dBm	-							2.40	70000 GH.
0 dBm—	-		M				1		
-10 dBm			1						
-10 aBn		1 -13.80	4 dBm	methodilation and	logalhand	molocational	dj3		
-20 dBm				¥			ĥ		
-20 000	'						N I		
-30 dBm			- /						
-40 dBm			+ / +	+			+		<u> </u>
		mm	AUNON				1 Jun	menuman	a such a
-50 dBn				+ +					
-60 dBm									
CF 2.4	52 GH	z		1001 pt	s			Spar	40.0 MHz
1arker									
Туре	Ref		X-value	Y-value	Funct	tion	Fund	ction Result	
M1		1	2.45376 GHz	-14.60 dBm					
M2 D3	M1	1	2.457 GHz 16.44 MHz	-7.80 dBm -0.11 dB					
03	IN T	1	10.44 MHZ	-0.11 dB					

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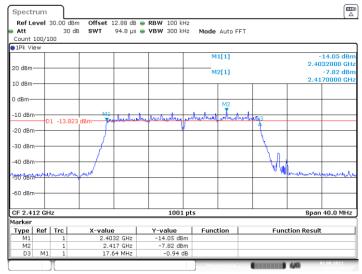


## 6dB Occupied Bandwidth

EUT		WiF	Fi Repeater		Model		RP	Г-002
Mode		802	.11n HT20		Test Voltage		120V~	
Temperature		24 deg. C,			Humidity 569		56%	6 RH
Channel	nnel Channel Frequency (MHz)		Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)		Pass/ Fail
1		2412	mcs0	17	.64		0.5	Pass
6		2437	mcs0	17	.68		0.5	Pass
11		2462	mcs0	17	.64		0.5	Pass

## **Test Plots:**

## 1. 802.11n at HT20 of CH01



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### 2. 802.11n at HT20 of CH06

	evel :	30.00 dB		B 👄 RBW 100 kHz			
Att		30 0	18 <b>SWT</b> 94.8µ	s 👄 <b>VBW</b> 300 kHz	Mode Auto Fl	FT	
Count 1Pk Vi		00					
ртрк у	64				M1[1]		-15.46 dBn
					(inter)		2.4281600 GH
20 dBm	-+				M2[1]		-7.91 dBn
							2.4420000 GH
10 dBm							
0 dBm-							
J UDIII-					M2		
-10 dBn	<u> </u>					-	
	D	1 -13.91	1 dBm	when months all as	worked water and wight	wolwing3	
-20 dBn	<b>-</b> +−			-		1	
-30 dBn	ν <del>+</del> -						
-40 dBn							
SOL AD	mon	hahman Aun	- Mary			Sand	monundulum
-30 ubii	'						
-60 dBn	-						
CF 2.4	37 GH	z		1001 p	ts		Span 40.0 MHz
1arker							
Type	Ref	Trc	X-value	Y-value	Function	Fun	ction Result
M1		1	2.42816 GHz	-15.46 dBm			
M2		1	2.442 GHz				
D3	M1	1	17.68 MHz	0.28 dB			

## 3. 802.11n at HT20 of CH11

Ref L	evel :	30.00 dB	m Offset 12.94 dB	RBW 100 kHz				_
Att		30 c	dB SWT 94.8 μs	VBW 300 kHz	Mode Auto FI	FT		
Count	100/1	00						
∋1Pk Vi	e₩							_
					M1[1]		-14.78 d	lBn
20 dBm							2.4531600	
20 0011					M2[1]		-7.99 c	
10 dBm	$\rightarrow$						2.4570000	GH
0 dBm-	-+							
				42				
-10 dBm			Marsharla	day purtrantage un	hadred when	D3		
		1 -13.98	7 dBm			4		
-20 dBm	ד י							_
-30 dBm	.		<b>/</b>					
-30 abri	'							
-40 dBm								
10 001	·	mhar	www			- L		
-SO dBri	www.	neren neren h	Y			400	mound	mi
-60 dBm	י+−ו							
CF 2.4	62 GH	z		1001 pt:	5		Span 40.0 M	Hz
Marker								
Type	Ref	Trc	X-value	Y-value	Function	Fun	ction Result	
M1		1	2.45316 GHz	-14.78 dBm				
M2		1	2.457 GHz	-7.99 dBm				
D3	M1	1	17.64 MHz	0.59 dB				

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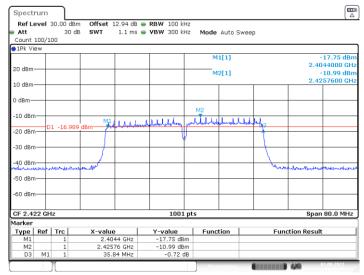


## 6dB Occupied Bandwidth

EUT		WiF	Fi Repeater		Model		RP	Г-002
Mode		802	.11n HT40		Test Voltage		120V~	
Temperature		24	24 deg. C,			Humidity		6 RH
Channel	Channel Frequency (MHz)		Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)		Pass/ Fail
3		2422	mcs0	35	.84		0.5	Pass
6		2437	mcs0	36	.08		0.5	Pass
9		2452	mcs0	36	.00		0.5	Pass

## **Test Plots:**

#### 1. 802.11n at HT40 of CH03



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## 2. 802.11n at HT40 of CH06

	evel :	30.00 dB								
Att		30 d	B SWT 1.1	ms 😑 Vi	3W 300 kHz	Mode	Auto Sw	eep		
Count	<u> </u>	00								
1Pk Vi	ew									
						м	1[1]			17.75 dBn
20 dBm	$\rightarrow$									90000 GH
			1 1			M	2[1]			10.66 dBn
LO dBm	$\rightarrow$								2.43	45200 GH
) dBm—	$\rightarrow$									
					M2					
10 dBrr	<b>`</b> +−					11111	1 1 1 1			
	—h	1 -16.66	3 dBm Maluluk	holoristate	haladada ya	nholushohol	nhouderhe	hele hole 3		
20 dBm	י+-							- 1		
					Y Y					
30 dBr	י+-		+ + + - + - + - + - + - + - + - + - + -							
40 dBm		walnam	and the second s					turn	manuall	k
	·	Sector Sector							1	
50 dBm	<del>ا ا</del> ا									
			1 1							
60 dBm	1									
CF 2.4	37 GH	z			1001 p	ts.			Span	80.0 MHz
larker										
Type	Ref	Trc	X-value	1	'-value	Func	tion	Fun	tion Result	
M1		1	2.419 G	Iz	-17.75 dBm					
M2		1	2.43452 GH	Iz	-10.66 dBm					
D3	M1	1	36.08 MH	2	-0.03 dB					

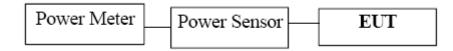
## 3. 802.11n at HT40 of CH09

Ref Le	evel 3	30.00 dB	m Offset 12.94 dB	RBW 100 kHz			
Att		30 d	iB SWT 1.1 ms	VBW 300 kHz	Mode Auto S	weep	
Count		00					
∋1Pk Vi	BM.						
					M1[1]		-16.92 dBn
20 dBm-							2.4340000 GH
					M2[1]		-10.65 dBn
10 dBm-	$\rightarrow$						2.4495200 GH
0 dBm—	-						
				M2			
-10 dBm	-		Martaal	whatshalestander was	habel al and a for the second second	1101	
-20 dBm	D	1 -16.65	4 dBm	adding the second of the	- and the second state of the	And UN3	
-20 UBII				V V			
-30 dBm							
50 001							
-40 dBm			+ $J$ $+$ $-$			$\rightarrow$	
erts-same	de sola	maphente	reputation			man	ومدراله مسالحاتيه فاحر وستبالت التدار
-50 dBm							
-60 dBm	-						
CF 2.48	52 GH	lz		1001 pt	s		Span 80.0 MHz
Marker							
Туре	Ref	Trc	X-value	Y-value	Function	Functi	on Result
M1		1	2.434 GHz	-16.92 dBm			
M2		1	2.44952 GHz 36.0 MHz	-10.65 dBm -0.99 dB			
D3	M1	1					

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8. Maximum Output Power 8.1 Test Setup



## 8.2 Limits of Maximum Output Power

The Maximum 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				WiFi Rep	eater		Mode	Model		RPT-002	
Mode			802.11b					Test Voltage		120V~	
Temperat	ature			24 deg.	C,		Humid	Humidity 56% RH			
Channel	Frequ	ANT1 Powe		Power	ANT2 Power		Total Max. Power			Pass/ Fail	
Chumier	(MH	z)	dBm	mW	dBm	mW	Output (dBm)	± `		1 455/ 1 411	
1	2412		13.12	20.51	13.05	20.18	16.10	3	0	Pass	
6	2437		13.06	20.23	12.96	19.77	16.02	3	0	Pass	
11	2462		12.97	19.82	12.84	19.23	15.92	3	0	Pass	

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

2. The result basic equation calculation as follow:

Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT				WiFi Rep	beater			Model		RPT-002	
Mode			802.11g					Test Voltage		120V~	
Temperat	ure			24 deg. C,				Humidity 56% RH			56% RH
Channel	Channel Frequ (MHz			NT1 Power		ANT2 Power		tal Max. Power Dutput	Power Limit (dBm)		Pass/ Fail
	× ·	dBm	mW	dBm	mW		(dBm)	~			
1	2412		11.26	13.37	11.10	12.88		14.19	30		Pass
6	2437		11.09	12.85	10.97	12.50		14.04 30			Pass
11	2462		10.89	12.27	10.75	11.89		13.83 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:

Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

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EUT		WiFi Repe			eater		Mod	Model		RPT-002	
Mode			802.11n (HT20)			Test Vo	Test Voltage		120V~		
Temperat	ure			24 deg.	C,		Humi	Humidity 56% I			
Channel	Frequ	•	ency ANT1 Power ANT2 Pow		Power	Total Max. Power	Power L		Pass/ Fail		
	(MHz	z)	dBm	mW	dBm	mW	Output (dBm)	(dBm	)		
1	2412		10.19	10.45	10.01	10.02	13.11	30		Pass	
6	2437		10.04	10.09	9.87	9.71	12.97	30		Pass	
11	2462		9.84	9.64	9.74	9.42	12.80	30		Pass	

Note: 1. At finial test to get the worst-case emission at mcs0 of 11n HT20 for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT		WiFi Repeater				Mode	Model		RPT-002	
Mode		802.11n (HT40) Test V			Test Vol	Test Voltage		120V~		
Temperat	ure		24 deg.	C,		Humid	ity	56% RH		
Channel	Frequency	ANT1	Power	ANT2	Power	Total Max. Power	Power Limit		Pass/ Fail	
Channer	(MHz)	dBm mW dBm mW		Output (dBm)	(dB	Bm)	1 455/ 1 411			
3	2422	8.31	6.78	8.12	6.49	11.23	3	0	Pass	
6	2437	8.19	6.59	8.06	6.40	11.14	30		Pass	
9	2452	8.02	6.34	7.84	6.08	10.94	3	0	Pass	

Note: 1. At finial test to get the worst-case emission at msc0 of 11n HT40 for CH03, CH06 and CH09

2. The result basic equation calculation as follow:

Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

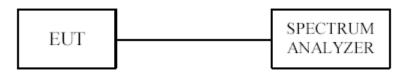
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## 9. Power Spectral Density Measurement

9.1 Test Setup



## 9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm/3kHz.

## 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 = 3 kHz.
- 3. Set the VBW  $\geq$  10 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  $\leq 8 \text{ dBm/3kHz}$ .

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## 9.4Test Result

EUT			WiFi Repea	nter	r Model			RPT-002		
Mode	Mode		802.11b 1M	ops Test Voltage				120V~		
Temperat	ure		24 deg. C	1 ~•		Humidity		56% RH		
Channel	Freq	uency	ANT1 Power	Factor	То	tal Power Spectral	Limit		Pass/ Fail	
	(M	(Hz)	Spectral Density		De	nsity (dBm/3kHz)	(dBm/3k	Hz)		
1	24	412	-19.77	3.01		-16.76	8		Pass	
6	24	437	-18.44	3.01	-15.43		8		Pass	
1	24	462	-19.35	3.01		-16.34	8		Pass	

Note: 1. Total Power Spectral Density = ANT1 Power Spectral Density + Factor

2. Factor=10log2=3.01

3. ANT1 and ANT2 were tested and ANT1 was the worst case

EUT		WiFi Repeater Model			RPT-	002				
Mode			802.11g 6Mbps Test Vol		Test Voltage	120	120V~			
Temperat	ure		24 deg. <b>(</b>	Ξ,		Humidity	56%	56% RH		
Channel	Freq	uency ANT1 Power Factor Total Power		l Power Spectral	Limit	Pass/ Fail				
	(M	(Hz)	Spectral Density		Den	sity (dBm/3kHz)	(dBm/3kHz)			
1	24	412	-20.74	3.01		-17.73	8	Pass		
6	24	437	-21.75	3.01		-18.74	8	Pass		
1	24	462	-20.78	3.01	-17.77		8	Pass		

Note: 1. Total Power Spectral Density = ANT1 Power Spectral Density + Factor

2. Factor=10log2=3.01

3. ANT1 and ANT2 were tested and ANT1 was the worst case

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EUT		WiFi Repeater Model			RPT-	002				
Mode	Mode		802.11n HT2	0 mcs0		Test Voltage	120	120V~		
Temperat	ure		24 deg. (	Ξ,		Humidity	56% RH			
Channel	Freq	uency	ANT1 Power	Factor	Total Power Spectral		Limit	Pass/ Fail		
	(M	(Hz)	Spectral Density		Den	sity (dBm/3kHz)	(dBm/3kHz)			
1	24	412	-22.27 3.0			-19.26	8	Pass		
6	24	437	-22.53	3.01	-19.52		8	Pass		
1	24	462	-21.18	3.01	-18.17		8	Pass		

Note: 1. Total Power Spectral Density = ANT1 Power Spectral Density + Factor

2. Factor=10log2=3.01

3. ANT1 and ANT2 were tested and ANT1 was the worst case

EUT			WiFi Repe	ater		Model	RPT-002					
Mode			Mode		802.11n HT40	mcs0 Test Voltage			120	120V~		
Temperat	ture		24 deg. 0	Ξ,		Humidity	56%	56% RH				
Channel	Freq	uency	uency ANT1 Power Fa		Tota	l Power Spectral	Limit	Pass/ Fail				
	(M	(Hz)	Spectral Density		Den	sity (dBm/3kHz)	(dBm/3kHz)					
3	24	422	-24.50	3.01		-21.49	8	Pass				
6	24	437	-23.85	3.01	-20.84		8	Pass				
9	24	452	-24.46	3.01	21.45		8	Pass				

Note: 1. Total Power Spectral Density = Ant1 Power Spectral Density + Factor

2. Factor=10log2=3.01

3. ANT1 and ANT2 were tested and ANT1 was the worst case

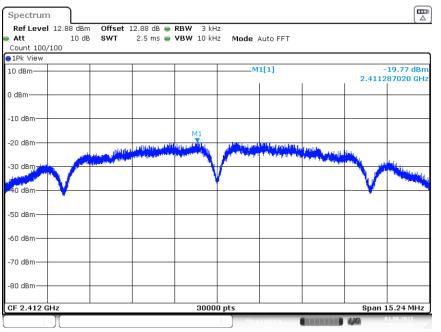
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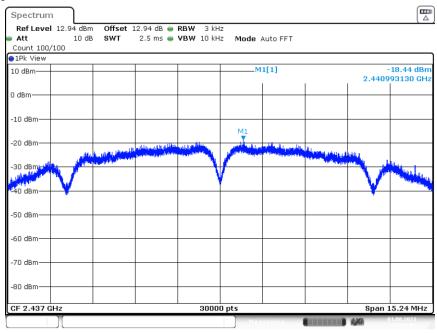


## 9.5 Photo of Power Spectral Density Measurement

### 1. 802.11b at 1Mbps of CH1



## 2. 802.11b at 1Mbps of CH6



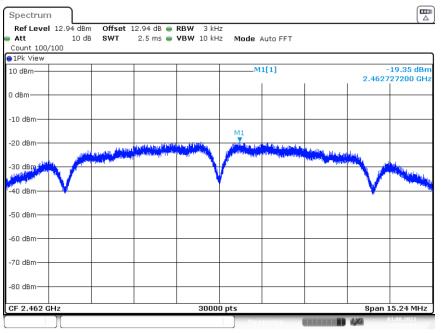
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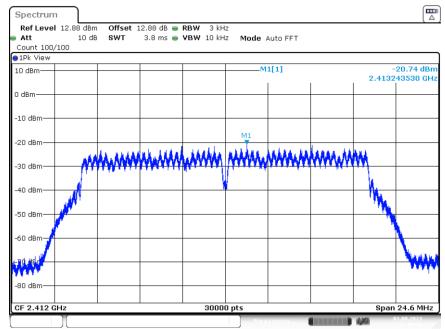
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3. 802.11b at 1Mbps of CH11



### 4. 802.11g at 6Mbps of CH1

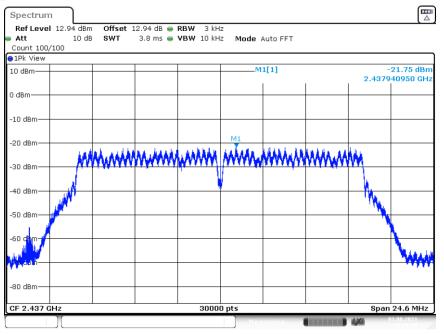


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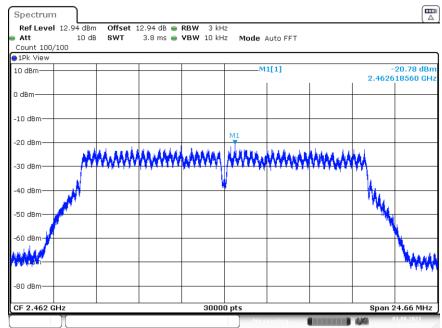
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### 5. 802.11g at 6Mbps of CH6



### 6. 802.11g at 6Mbps of CH11

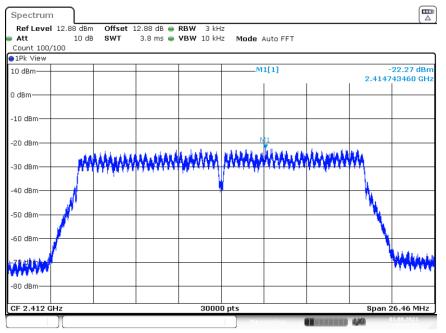


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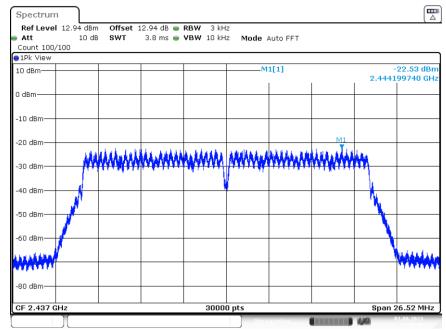
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### 7. 802.11n at HT20 of CH01



### 8. 802.11n at HT20 of CH06

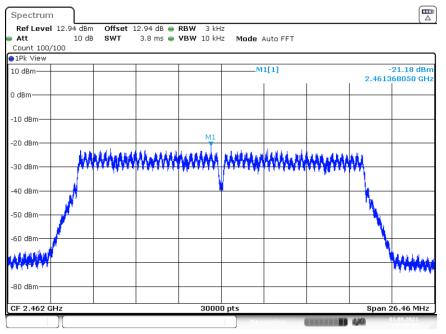


The report refers only to the sample tested and does not apply to the bulk.

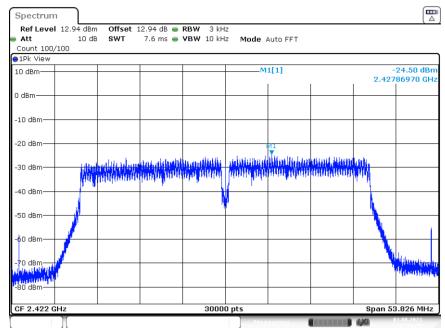
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#### 9. 802.11n at HT20 of CH11



#### 10. 802.11n at HT40 of CH03

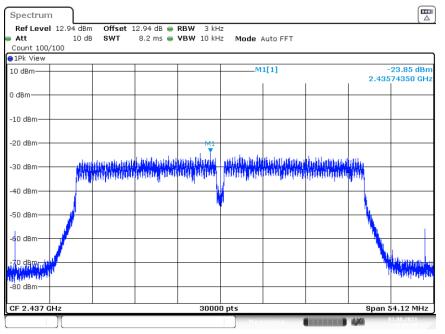


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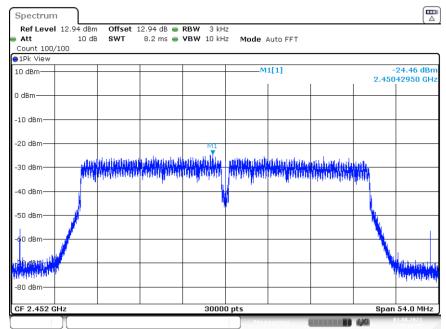
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### 11. 802.11n at HT40 of CH06



#### 12. 802.11n at HT40 of CH09

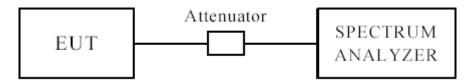


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**10 Out of Band Measurement 10.1 Test Setup for band edge** 



# 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=10Hz and PK detector)

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

## **10.4 Test Result**

Please see next pages

Please see next pages

Note: 1. for band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule. 2. Two antennas (ANT1 and ANT2) were tested and only the worst cased was recorded in the test report. ANT1 was the worst case.

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### For 802.11b mode

CH01 at 1Mbps

#### 10.4 Band-edge Measurement

EUT	WiFi Repeater	Model	RPT-002
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	РК

### **Test Figure:**

Spectrum										
Ref Level	20.00 di	Bm Offset 1	.2.88 dB	🔵 RBW 100 kHz						
📄 Att	30	dB <b>SWT</b> 3	303.4 µs	🔵 <b>VBW</b> 300 kHz	Mode	Auto F	FT			
Count 200/2	200									
⊖1Pk View										
					M	1[1]				-1.09 dBm
10 dBm									2	412970 GHz
10 abiii					M	2[1]				-47.79 dBm
									2	400000 GHz
									white phase	ų,
-10 dBm										
									N	ц.
-20 dBm	01 -21.09	90 dBm							1	
-30 dBm									)	
-30 ubiii										
-40 dBm				M						
							, МЗ	M2		1 3 46
⊴30H\$Bdh+M	فاسله معاصية والمحالية والمحا	h y al a de la	<u>adababa</u>	mound	للترك ألمه المناصية	سيحمص	ulay <u>s</u> y	. And also min		- Lynn
-60 dBm — 🕂										
-70 dBm										
Start 2.3 G	Ηz			691 pi	ts				Sto	p 2.43 GHz
Marker										
Type   Ref	Trc	X-value		Y-value	Func	tion		Fund	tion Resu	lt
M1	1	2.4129	97 GHz	-1.09 dBm						
M2	1		.4 GHz	-47.79 dBm						
M3	1		39 GHz	-49.77 dBm						
M4		2,3670	72 GHz	-46.18 dBm						
					Mea	suring.			120	30.06.2021
				1						

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### CH11 at 1Mbps

#### 10.4 Band-edge Measurement

EUT	WiFi Repeater	Model	RPT-002	
Mode	Keeping Transmitting	Test Voltage	120V~	
Temperature	24 deg. C,	Humidity	56% RH	
Test Result:	Pass	Detector	PK	

# **Test Figure:**

Spectrum									
Ref Level : Att Count 200/2	30 dB			<ul> <li>RBW 100 kHz</li> <li>VBW 300 kHz</li> </ul>	Mode	Auto F	FT		_
●1Pk View									
10 dBm					M	L[1]		-3.90 2.46253	) dBm 0 GHz
0 dBm		11			M:	2[1]		-47.63 2.48350	
-10 dBm	HUUL	Milling							
-20 dBm	1 -23.900	dBm							
-30 dBm	1								
-40 dBm	1			M2	МЗ			M4	
ndgoraelminin	V	ura,	الم الكليل صليه الم	and marked and a second second	uddy <mark>A</mark> berceiddau	he for the second se	IIBUITAN <mark>WARE AND AND AND AND AND AND AND AND AND AND</mark>	140Mar Marin	منهدمهالة
-60 dBm									
-70 dBm									
Start 2.44 G	Hz	1		691 pt	s			Stop 2.55	GHz
Marker									
Type Ref	Trc	X-value		Y-value	Funct	ion	Fun	ction Result	
M1	1	2,46253	3 GHz	-3.90 dBm					
M2	1	2,4835		-47.63 dBm					
M3 M4	1	2.533899	5 GHz 9 GHz	-47.79 dBm -46.55 dBm					
	)[]				Mea	suring.		30.06.20	21 41 /

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### For 802.11g mode

CH01 at 6Mbps

#### 10.4 Band-edge Measurement

EUT	WiFi Repeater	Model	RPT-002
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	РК

### **Test Figure:**

Spect	rum												
Ref Lo	evel	20.00	dBm O	ffset	12.88 dB	● RBW 10	0 kHz						
🗕 Att		3	Odb S	wт 🛛	303.4 µs	🔵 VBW 30	0 kHz	Mode	Auto F	FT			
Count	200/2	200											
😑 1Pk Vi	ew												
								M	1[1]				-1.68 dBm
10 dBm·												2	.414480 GHz
								M)	2[1]				-40.41 dBm
0 dBm—													<sup>1</sup> 400000 GHz
o abiii												wohendy	Lilyahd
-10 dBm	ן—ר											<b></b>	
-20 dBm	יר	01 -21	680 dBm				_						
-30 dBm													
40 - 10											11/12		
-40 dBm	ד_ר					and the parts				M3	L. WWWWW		horner
₩ <u>90</u> 1dBp	مطلقات	Martine	manus	A Annua	the restarture	uningra hours	به اعداد می	dr. same	muchan	www	N <sup>PV</sup>		* 100
50 GDM	"			0	ľ		í ľ i						
-60 dBm	ן—ר												
-70 dBm	ן—ר												
Start 2	.3 GF	Hz				6	91 pts					St	op 2.43 GHz
Marker													-p
Type	Ref	Trc		(-value	. 1	Y-valu		Funct	tion		Euro	ction Res	ult
M1	Kel	1	^		<del>e</del> •48 GHz	-1.68		Func			Full	COULT KEST	unt
M2		1				-40.41							
M3		1			39 GHz	-48.15							
M4		1			78 GHz	-39.83							
<u> </u>		1					_			_		4.344	30.06.2021
								) Mea					

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### CH11 at 6Mbps

#### 10.4 Band-edge Measurement

EUT	WiFi Repeater	Model	RPT-002
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	РК

# **Test Figure:**

Spectrum						
Ref Level Att Count 200/2	30 di		8 <b>e RBW</b> 100 kHz 5 <b>e VBW</b> 300 kHz	Mode Auto	FFT	<b>x</b>
∋1Pk View						
				M1[1]		-5.60 dBr
10 dBm						2.455680 GH
10 0.0				M2[1]		-49.11 dBi
0 dBm — —	M1					2.483500 GH
	Ţ					
-10 dBm——	سىپدىپىلىل	ywww.lectured				
		¶ \				
-20 dBm—						
-30 dBm	1 -25.600	) dBm				
-30 uBiii—						
-40 dBm	<u> </u>					
and a wall	1	WARTER -	M2	MЗ		M4
-50 dBm		00 10000	M2 W1 Zanua Uk Linga	14 L. That lad way - your .	asfalacteres	untry permit have the
-60 dBm —						
-70 dBm-+						
Start 2.44 0	Hz		691 pt	s		Stop 2.55 GHz
Marker						
Type Ref	Trc	X-value	Y-value	Function	Fur	nction Result
M1	1	2.45568 GHz	-5.60 dBm			
M2	1	2.4835 GHz	-49.11 dBm			
MЗ	1	2.5 GHz	-49.36 dBm			
M4	1	2.54442 GHz	-46.27 dBm			
	$\mathbf{n}$			Measuring		30.06.2021

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### For 802.11n (HT20) mode

CH01 at mcs0

#### 10.4 Band-edge Measurement

EUT	WiFi Repeater	Model	RPT-002
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	РК

### **Test Figure:**

Spectrum							
Ref Level			dB 👄 <b>RBW</b> 100 k				
Att	30 di	3 <b>SWT</b> 303.4	µs 👄 <b>VBW</b> 300 k	Hz Mode:	e Auto F	FT	
Count 200/2	200						
●1Pk View		1 1					
				r P	41[1]		-1.90 dBr
10 dBm — 🕂				<u> </u>	40[1]		2.415800 GH
				l l	42[1]		-39.67 dBi 2 <sup>M</sup> 400000 GF
0 dBm — 🕂					1	1 1	
10 10						- I I I I I I I I I I I I I I I I I I I	adama palalifility
-10 dBm							
-20 dBm							
<u>-20 dBm</u>	01 -21.900	l dBm					
-30 dBm——					_		
						Mæ	
-40 dBm——						M2 ANI	
			untyrer marchely draw			and the second second	W.L. MALIN
-5078m	لمهناتك كالرابي	and the second	and have a consult of the second	hteres	and the second	Ap 00	
-60 dBm							
-60 UBIII							
-70 dBm—							
-/ 0 ubiii							
Start 2.3 GI	-IZ		691	pts			Stop 2.43 GHz
1arker			4				
	Trc	X-value	Y-value		ction	Functi	ion Result
M1	1	2.4158 GH					
M2	1	2.4 GH					
M3 M4	1	2.39 GH 2.399855 GH					
1714		2.399035 GH	2   -39.74 ut				
				Me	asuring		30.06.2021

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### CH11 at mcs0

#### 10.4 Band-edge Measurement

EUT	WiFi Repeater	Model	RPT-002
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	РК

# **Test Figure:**

Spectrum								
Ref Level Att Count 200/2	30 d		3 <b>• RBW</b> 100 kHz s <b>• VBW</b> 300 kHz	Mode A	uto FFT			
∋1Pk View								
				M1[	[1]			-5.70 dB
10 dBm —								56980 GH
				M2[	[1]			17.96 dB
0 dBm		MI		ı		1	2.48	33500 GH
-10 dBm——	h,here we	And the second sec					1 1	
-20 dBm	í –	1 1						
	1							
-30 dBm	1 -25.700	J dBm						
-40 dBm	[					4.4		
-50 dBm		Mathin Car	M2	MЗ		/4 ▼		
-50 dBm			Mr. J. March and March	an <mark>an an an an an</mark> an	كالمتصفص	Unine same	and the second	فليصلك معهد يكفي
-60 dBm								
70.10								
-70 dBm-+								
Start 2.44 G	Hz		691 pt	s			Stop	2.55 GHz
larker								
	Trc	X-value	Y-value	Functio	on 📋	Fun	ction Result	
M1	1	2.46698 GHz	-5.70 dBm					
M2	1	2.4835 GHz	-47.96 dBm					
M3	1	2.5 GHz	-49.35 dBm					
M4	1	2.515565 GHz	-46.38 dBm	\				
	T			Measu	uring			0.06.2021

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### For 802.11n (HT40) mode

CH03 at msc0

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

EUT	WiFi Repeater	Model	RPT-002
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	РК

### **Test Figure:**

Spectrum									
Ref Level	20.00 dB	m Offset	12.94 dB	🔵 RBW 100 kHz					
Att	30 d	B SWT	303.4 µs	🔵 <b>VBW</b> 300 kHz	Mode Auto	FFT			
Count 200/2	200								
∋1Pk View									
					M1[1]				-4.80 dBr
10 dBm								2.4	426900 GH
					M2[1]				-43.85 dBr
0 dBm								2.4	400000 <b>G</b> H
o abiii									<b>T</b>
-10 dBm								Jundusday	mary publik
									1 11
-20 dBm — 🕂		-						1	v
-	1 -24.80	) dBm						/	
-30 dBm — 🕂									
							M4		
-40 dBm——						Ma	Abland		
and the state of a sta	a and a start	where the day by	A REALING	und management	Walnut and and the real	hand	na Mbo .		
-30 0000	- <del></del>	1	T						
-60 dBm——									
oo abiii									
-70 dBm——									
Start 2.3 GH	1-1							0+	 p 2.43 GHz
	12			691 pt	2			ຣເບ	p 2.43 GH2
Marker						-			
Type Ref		X-value		Y-value	Function		Fund	ction Resul	t
M1	1		69 GHz	-4.80 dBm					
M2	1		2.4 GHz	-43.85 dBm					
M3	1		39 GHz	-44.93 dBm					
M4	<u> </u>	2.3994	78 GHz	-40.75 dBm					
					Measurin	S		4,44	30.06.2021

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### CH09 at msc0

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

EUT	WiFi Repeater	Model	RPT-002
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	РК

# **Test Figure:**

Spectrum	)					
Ref Level Att Count 200/2	30 c		B 👄 <b>RBW</b> 100 kHz Is 👄 <b>VBW</b> 300 kHz	Mode Auto F	FT	<b>x</b>
1Pk View						
				M1[1]		-7.33 dBr
10 dBm —						2.449470 GH
				M2[1]		-47.94 dBi
D dBm						2.483500 GF
M1						
19. dBm. tut	matherated	where and				
-20 dBm — 🕂						
-30 dBm	01 -27.33	0 dBm				
-30 aBm						
-40 dBm						
		<u>ч</u>	M2 🔻	МЗ		
-50 dBm——		Webrie	marine when	www.abraue	للالكمام الحالية المسكمة المسكمة	- ny sa an
-60 dBm						
-70 dBm—+						
Start 2.44 (	GHz	-	691 pt	s		Stop 2.55 GHz
1arker						
Type   Ref	Trc	X-value	Y-value	Function	l Fun	ction Result
M1	1	2.44947 GHz	-7.33 dBm			
M2	1	2.4835 GHz	-47.94 dBm			
MЗ	1	2.5 GHz	-48.62 dBm			
	1	2.48942 GHz	-45.21 dBm			
M4						

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#### 10.5 Restricted band Measurement

EUT	WiFi Repeater		Model	RPT-002			
Mode		Transmitting	Test Voltage	120V~			
Temperature	24	deg. C,	Humidity	56% RH			
Test Result:		Pass		РК			
		802.11b mode, Low	Channel, Vertical				
2390	PK (dBµV/m)	46.32	- Limit	74(dBµV/m)			
	AV (dBµV/m)			54(dBµV/m)			
	802.11b mode, Low Channel, Horizontal						
2390	PK (dBµV/m)	40.51	– Limit –	74(dBµV/m)			
	AV (dBµV/m)			54(dBµV/m)			

#### 10.5 Restricted band Measurement

EUT	WiFi Repeater		Model	RPT-002			
Mode	Keeping	g Transmitting	Test Voltage	120V~			
Temperature	24	deg. C,	Humidity	56% RH			
Test Result:		Pass	Detector	РК			
	802.11b mode, High Channel, Vertical						
2483.5	PK (dBµV/m)	44.93	<b>T</b> · · ·	74(dBµV/m)			
	AV ( $dB\mu V/m$ )		Limit	54(dBµV/m)			
	802.11b mode, High Channel, Horizontal						
2483.5	PK (dBµV/m)	41.28	<b>T</b> • •/	74(dBµV/m)			
	AV ( $dB\mu V/m$ )		Limit	$54(dB\mu V/m)$			

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#### 10.5 Restricted band Measurement

EUT	WiF	i Repeater	Model	RPT-002			
Mode	Keeping	Transmitting	Test Voltage	120V~			
Temperature	24	deg. C,	Humidity	56% RH			
Test Result:		Pass	Detector	РК			
	802.11g mode, Low Channel, Vertical						
2390	PK (dBµV/m)	45.87	Limit	74(dBµV/m)			
	AV (dBµV/m)			54(dBµV/m)			
	802.11g mode, Horizontal						
2390	PK (dBµV/m)	43.65	Limit	74(dBµV/m)			
	AV ( $dB\mu V/m$ )			54(dBµV/m)			

#### 10.5 Restricted band Measurement

EUT	WiFi Repeater		Model	RPT-002			
Mode	Keeping	g Transmitting	Test Voltage	120V~			
Temperature	24	deg. C,	Humidity	56% RH			
Test Result:		Pass	Detector	РК			
	802.11g mode, High Channel, Vertical						
2483.5	PK (dBµV/m)	50.26	<b>T</b> · · ·	74(dBµV/m)			
	AV ( $dB\mu V/m$ )		Limit	54(dBµV/m)			
	802.11g mode, High Channel, Horizontal						
2483.5	PK (dBµV/m)	16.38	Limit	74(dBµV/m)			
	AV ( $dB\mu V/m$ )		Limit	54(dBµV/m)			

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#### 10.5 Restricted band Measurement

EUT	WiFi Repeater		Model	RPT-002			
Mode	Keeping	Transmitting	Test Voltage	120V~			
Temperature	24	deg. C,	Humidity	56% RH			
Test Result:		Pass	Detector	РК			
	802.11n HT20 mode, Low Channel, Vertical						
2390	PK (dBµV/m)	47.36	Limit	74(dBµV/m)			
	AV (dBµV/m)			54(dBµV/m)			
802.11n HT20 mode, Low Channel, Horizontal							
2390	PK (dBµV/m)	44.95	Limit	74(dBµV/m)			
	AV ( $dB\mu V/m$ )			54(dBµV/m)			

#### 10.5 **Restricted band Measurement**

EUT	WiFi Repeater		Model	RPT-002			
Mode	Keeping	g Transmitting	Test Voltage	120V~			
Temperature	24	deg. C,	Humidity	56% RH			
Test Result:		Pass	Detector	РК			
	802.11n HT20 mode, High Channel, Vertical						
2483.5	PK (dBµV/m)	52.62	Limit	74(dBµV/m)			
	AV ( $dB\mu V/m$ )			54(dBµV/m)			
	802.11n HT20 mode, High Channel, Horizontal						
2483.5	PK (dBµV/m)	47.39	Limit	74(dBµV/m)			
	AV ( $dB\mu V/m$ )			54(dBµV/m)			

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#### 10.5 Restricted band Measurement

EUT	WiFi Repeater		Model	RPT-002		
Mode	Keeping	Transmitting	Test Voltage	120V~		
Temperature	24	deg. C,	Humidity	56% RH		
Test Result:		Pass	Detector	РК		
	802.11n HT40 mode, Low Channel, Vertical					
2390	PK (dBµV/m)	50.22	Limit	74(dBµV/m)		
	AV (dBµV/m)			54(dBµV/m)		
802.11n HT40 mode, Low Channel Horizontal						
2390	PK (dBµV/m)	48.61	Limit	74(dBµV/m)		
	AV $(dB\mu V/m)$			54(dBµV/m)		

#### 10.5 **Restricted band Measurement**

EUT	WiFi Repeater		Model	RPT-002			
Mode	Keeping	g Transmitting	Test Voltage	120V~			
Temperature	24	deg. C,	Humidity	56% RH			
Test Result:		Pass	Detector	РК			
	802.11n HT40 mode, High Channel, Vertical						
2483.5	PK (dBµV/m)	57.62	Limit	74(dBµV/m)			
	AV ( $dB\mu V/m$ )	40.72		54(dBµV/m)			
802.11n HT40 mode, High Channel, Horizontal							
2483.5	PK (dBµV/m)	51.95	Limit	74(dBµV/m)			
	AV ( $dB\mu V/m$ )			54(dBµV/m)			

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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

Two integral antennas used. The gain of the antennas is 2.0dBi maximum for each one. (Get from the antenna specification provided the applicant)

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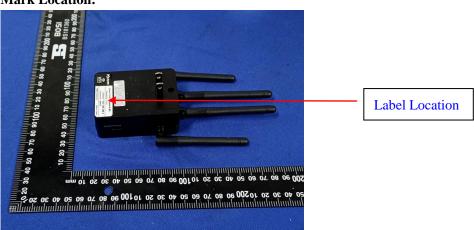
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# 12.0 FCC ID Label

# FCC ID: ZNPRPT-002

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:

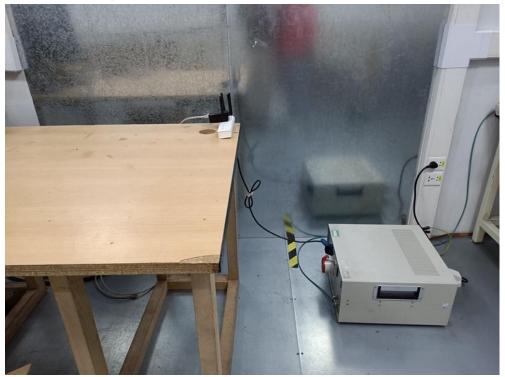
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#### 13.0 Photo of testing

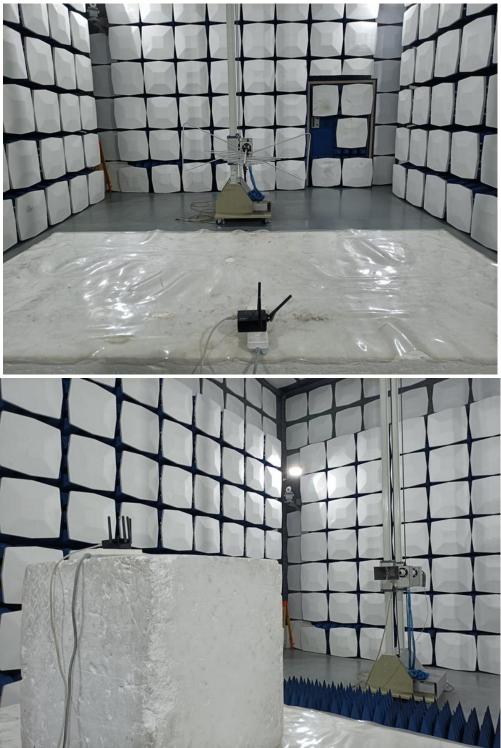
Conducted Emission Test Setup:



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Radiated Emission Test Setup:

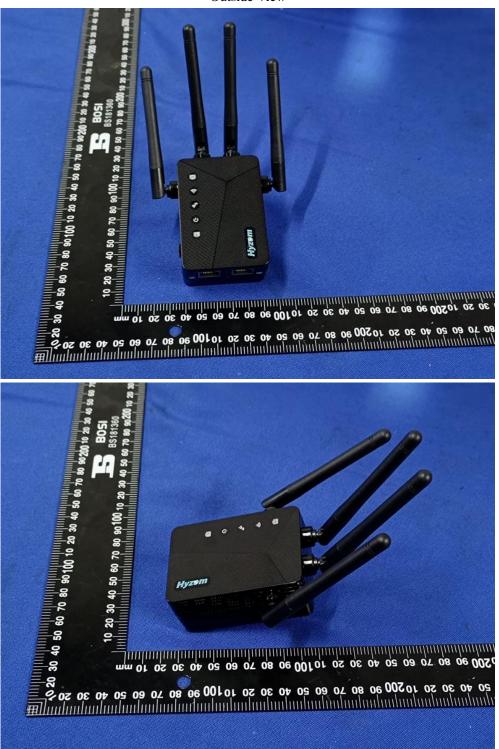


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**Photographs – EUT** 

Outside View

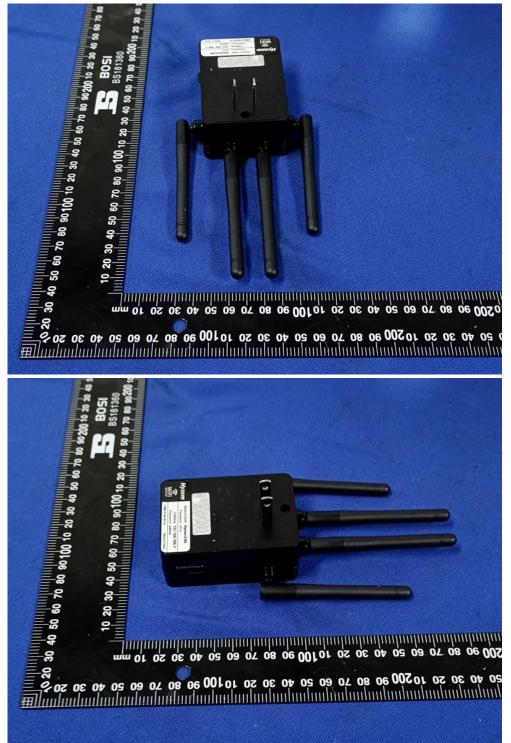


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Outside View



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Outside View

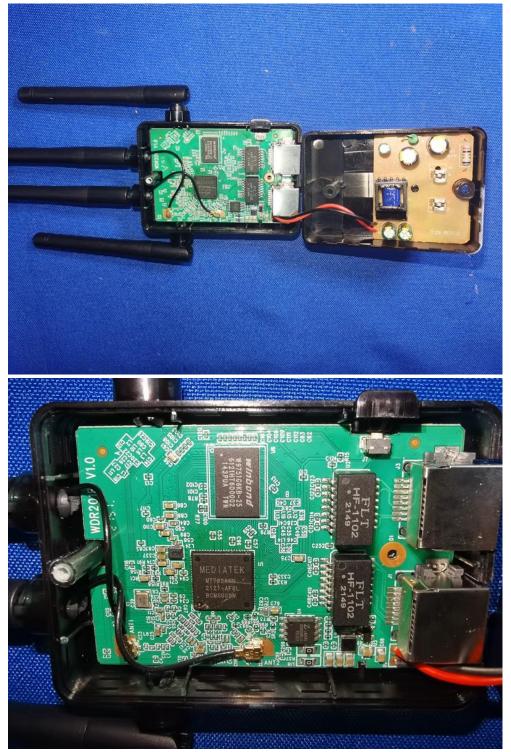


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Inside view



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Inside view



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Inside view



-End of the report-

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