







ISO/IEC17025Accredited Lab.

Report No: FCC TW1207115
File reference No: 2012-07-26

Applicant: Shenzhen Geniatech INC., LTD

Product: ANDROID TV BOX

Trademark: N/A

Model No: ATV310B, ATV100, ATV200, ATV1200, ATV510B, ATV3000B,

ATV4000B, ATV1100B, ATV330, ATV500B

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 C63.4FCC Part 15 Subpart C, Paragraph 15.247 regulations for the evaluation of

electromagnetic compatibility

Approved By

Jack Chung

Jack Chung Manager

Dated: July 26, 2012

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

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

Tel (755) 83448688 Fax (755) 83442996

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Date: 2012-07-26



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-01

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-01.

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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-01

For 3m & 10 m OATS

1.2 Applicant Details

Applicant: Shenzhen Geniatech INC., LTD

Address: 18th F, GDC Building, No. 9 Gaoxin Middle 3rd Rd. Nanshan District, Shenzhen, China

Telephone: 0755-26723951 Fax: 0755-26710210

1.3 Description of EUT

Product: ANDROID TV BOX

Manufacturer: Shenzhen Geniatech INC., LTD

Address: 18th F, GDC Building, No. 9 Gaoxin Middle 3rd Rd. Nanshan District, Shenzhen, China

Brand Name: N/A

Model Number: ATV310B,

Additional Model Number: ATV100, ATV200, ATV1200, ATV510B, ATV3000B, ATV4000B, ATV1100B,

ATV330, ATV500B

Power Adapter Model: FJ-SW0502000U, Input: 100-240V, 50/60Hz, 0.35A;

Output: 5.0V, 2000mA

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

IEEE 802.11g: OFDM (64QAM, 16AQM, QPSK, BPSK)

IEEE 802.11n HT20/40: OFDM (64QAM, 16QAM, QPSK, BPSK)

Frequency range EEE 802.11b/g, 802.11n HT20: 2412-2462MHz

IEEE 802.11n HT40: 2422MHz-2452MHz

Channel Spacing IEEE 802.11b/g/n: 5MHz

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

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

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

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

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Frequency Selection By software

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

IEEE 802.11n HT40: 7 Channels

Antenna: PCB Antenna with maximum gain 2.5dBi

1.4 Submitted Sample: 2 Samples

1.5 Test Duration

2012-07-23 to 2012-07-26

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	2012-04-21	2013-04-20		
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2012-04-21	2013-04-20		
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2012-04-21	2013-04-20		
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2012-04-21	2013-04-20		
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2012-04-21	2013-04-20		
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2012-04-21	2013-04-20		
System Controller	CT	SC100	-				
Printer	EPSON	РНОТО ЕХЗ	CFNH234850				
Computer	IBM	8434	1S8434KCE99BLXL O*				
Loop Antenna	EMCO	6502	00042960	2012-04-21	2013-04-20		
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2012-04-21	2013-04-20		
3m OATS			N/A	2012-04-21	2013-04-20		
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2012-04-21	2013-04-20		
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2012-04-21	2013-04-20		
Power meter	Anritsu	ML2487A	6K00003613	2012-04-21	2013-04-20		
Power sensor	Anritsu	MA2491A	32263	2012-04-21	2013-04-20		
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2012-04-21	2013-04-20		
LISN	AFJ	LS16C	10010947251	2012-04-21	2013-04-20		
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2012-04-21	2013-04-20		
9*6*6 Anechoic			N/A	2012-04-21	2013-04-20		
EMI Test Receiver	RS	ESCS30	100139	2012-04-21	2013-04-20		
LISN	AFJ	LS16C	10010947251	2012-04-21	2013-04-20		
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2012-04-21	2013-04-20		

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Auxiliary Equipment 2.1

Name	Model No.	Serial No.	Manufacturer	Cable	FCC ID/DOC
USB			Kingston		FCC DOC
SD Card			Kingston		
				Data cable	
				of 1.5m	
LED Monitor	P2450		SAMSUNG	length	FCC DOC

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3. DESCRIPTION OF TEST MODES

IEEE 802.11b, 802.11g mode and 802.11n HT20

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

Channel	Frequency (MHz)
Low	2412
Mid	2437
High	2462

IEEE 802.11b mode: 11Mbps data rate (worst case) was chosen for full testing. IEEE 802.11g mode: 54Mbps data rate (worst case) was chosen for full testing. IEEE 802.11n HT20 mode: 65Mbps data rate (worst case) was 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.



3.0 **Technical Details**

3.1 **Summary of test results**

The EUT has been tested ac	ecording to the following speci	fications:	
Standard	Test Type	Result	Notes
FCC 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

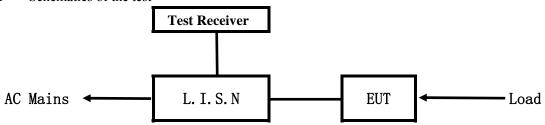
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5. Power Line Conducted Emission Test

5.1 Schematics of the test

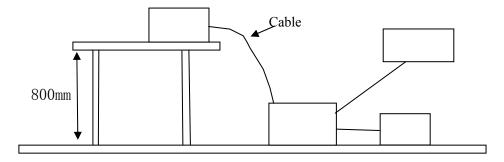


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. 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 –2003.

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



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Device Manufacturer		FCC ID
ANDROID TV BOX	Shenzhen Geniatech INC., LTD	ATV310B	ZJU-000120010

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

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

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C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
N/A				

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

- 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

<u> </u>							
Frequency	Class A Lim	its (dB µ V)	Class B Lim	nits (dB µ V)			
(MHz)	Quasi-peak Level Average Level		Quasi-peak Level	Average Level			
$0.15 \sim 0.50$	79.0	66.0	66.0~56.0*	56.0~46.0*			
$0.50 \sim 5.00$	73.0	60.0	56.0	46.0			
5.00 ~ 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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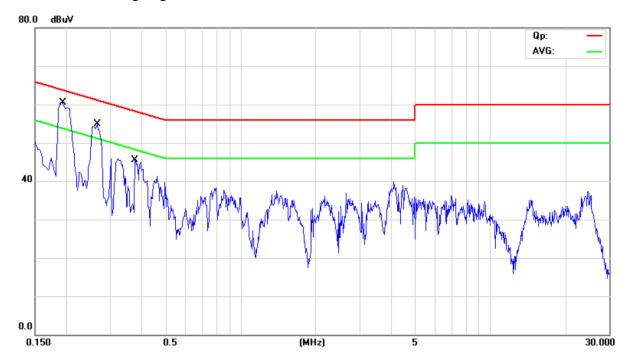


Conducted Emission on Line Terminal of the power line (150kHz to 30MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



Eraguanay	Reading(dB µ V)			Limit		
Frequency (MHz)	Line	2	Neutr	al	(dB µ)	V)
(WIT1Z)	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.193	44.25	14.35			63.89	53.89
0.265	44.92	10.32			61.26	51.26
0.377	40.64	21.94			58.33	48.33

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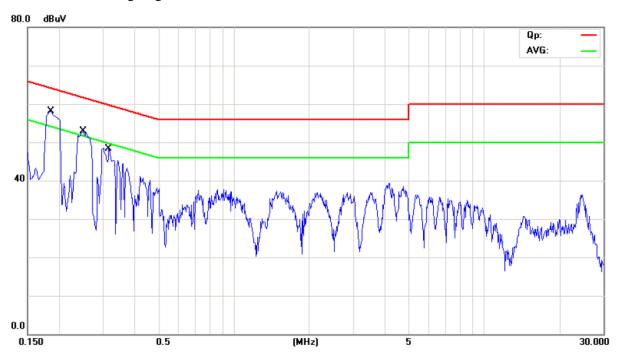


Conducted Emission on Neutral Terminal of the power line (150kHz to 30MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



Eraguanas		Reading(dB μ V)				t
Frequency (MHz)	Liv	e	Neutral		(dB µ V)	
(MITZ)	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.185			37.34	5.54	64.23	54.23
0.249			24.81	1.91	61.77	51.77
0.316			30.58	5.48	59.80	49.80

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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 –2003. 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 C63.4-2003.
- (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=10Hz and PK 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.

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6.4 Radiated Emission Limit

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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

	-	E 1
Frequency Range (MHz)	Distance (m)	Field strength (dB µ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
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

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General Radiated Emission Data and Harmonics Radiated Emission Data

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

EUT set Condition: Keep Transmitting

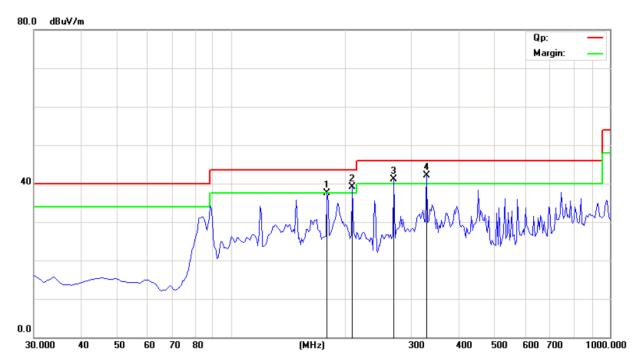
Results: Pass

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
179.679	37.56	Н	43.50
208.837	39.16	Н	43.50
269.098	41.15	Н	46.00
329.358	42.16	Н	46.00
119.418	34.61	V	43.50
148.577	39.98	V	43.50
179.679	35.72	V	43.50
208.837	37.25	V	43.50
329.358	41.52	V	46.00



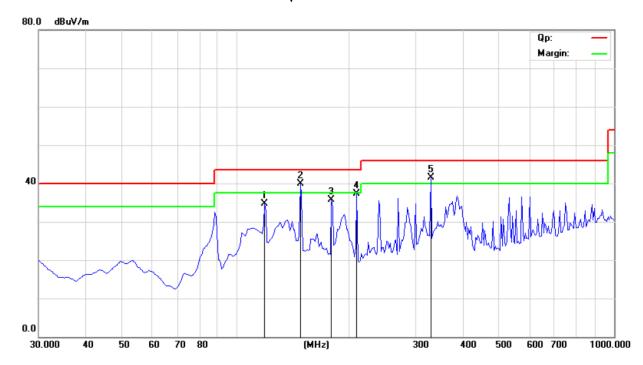
Test Figure:

H



Test Figure:

V



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

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Operation Mode: Transmitting & Receiving under CH01 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
2412.00	93.89 (PK)	Н	Fundamental Frequency
2412.00	95.47 (PK)	V	rundamental Frequency
4824.00	46.04 (PK)	Н	
4824.00	47.39 (PK)	V	
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)

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 11Mbps



Operation Mode: Transmitting & Receiving under CH06 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
2437.00	93.05 (PK)	Н	Fundamental Frequency
2437.00	94.66 (PK)	V	Fundamental Frequency
4874.00	46.65 (PK)	Н	
4874.00	45.94 (PK)	V	
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)

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 11Mbps

Operation Mode: Transmitting & Receiving under CH11 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \(\mu \)V/m)
2462.00	92.38 (PK)	Н	Fundamental Frequency
2462.00	93.95 (PK)	V	Fundamental Frequency
4924	45.12 (PK)	Н	
4924	48.59 (PK)	V	
7386		H/V	74(Peak)/ 54(AV)
9848	1	H/V	74(Peak)/ 54(AV)
12310	1	H/V	74(Peak)/ 54(AV)
14772	-	H/V	74(Peak)/ 54(AV)
17234	1	H/V	74(Peak)/ 54(AV)
19696	1	H/V	74(Peak)/ 54(AV)
22158		H/V	74(Peak)/ 54(AV)
24650	-	H/V	74(Peak)/ 54(AV)

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

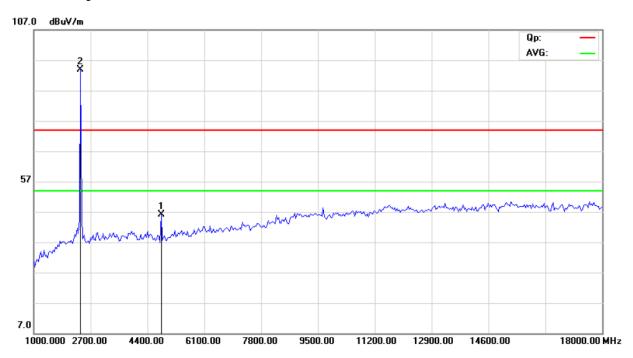
- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode at 11Mbps

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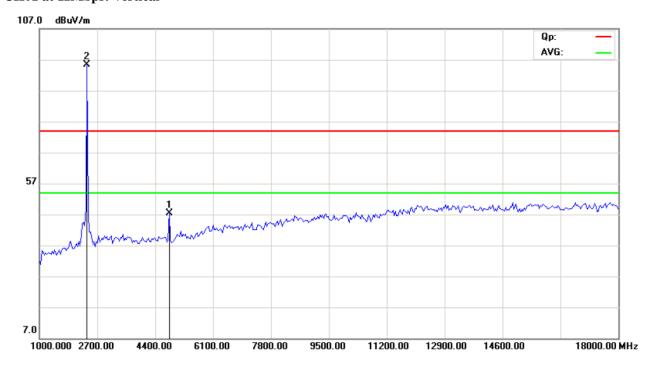


Please refer to the following test plots for details:

CH01 at 11Mbps: Horizontal



CH01 at 11Mbps: Vertical



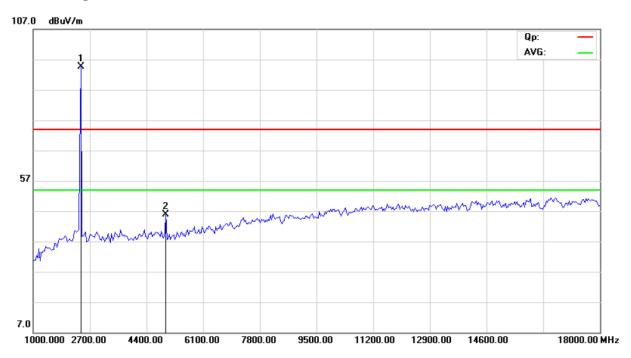
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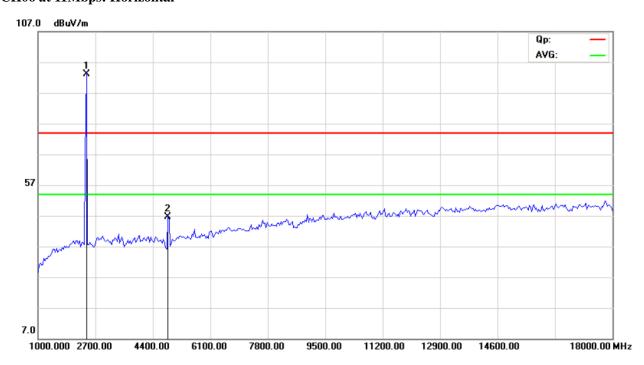
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CH06 at 11Mbps: Vertical



CH06 at 11Mbps: Horizontal



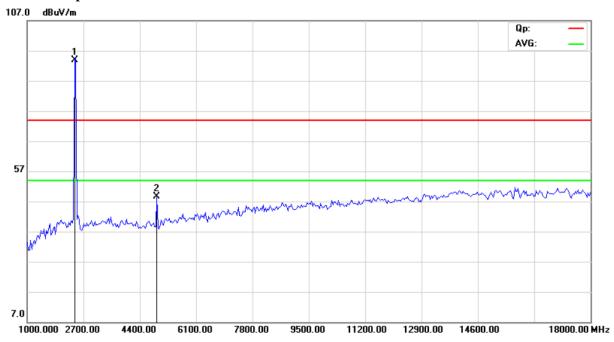
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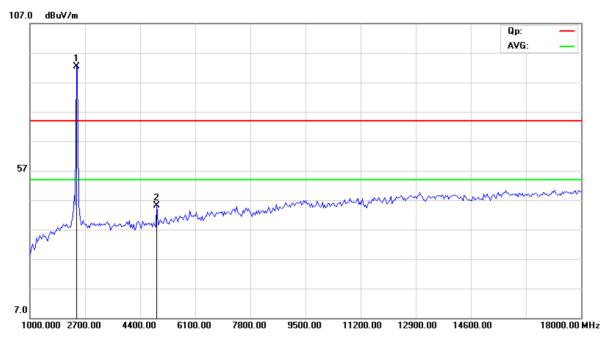
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CH11 at 11Mbps: Vertical



CH11at 11Mbps: Horizontal



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

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Operation Mode: Transmitting & Receiving under CH01 for 11g at 54 Mbps

	8 8	Ü	<u> </u>
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
2412.00	92.03 (PK)	Н	Even domental Engavenery
2412.00	94.48 (PK)	V	Fundamental Frequency
4824.00	47.26 (PK)	Н	
4824.00	47.20 (PK)	V	
7236.00	-	H/V	74(Peak)/ 54(AV)
9648.00	1	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)
19296 21708	 	H/V H/V	74(Peak)/ 54(AV) 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 54Mbps

Operation Mode: Transmitting & Receiving under CH06 for 11g at 54 Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \(\mu \)V/m)
2437.00	91.47 (PK)	Н	Eundamental Fraguency
2437.00	93.77 (PK)	V	Fundamental Frequency
4874.00	44.59 (PK)	Н	
4874.00	47.20 (PK)	V	
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)

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 54Mbps

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

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Operation Mode: Transmitting & Receiving under CH11 for 11g at 54 Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
2462.00	91.84(PK)	Н	Fundamental Frequency
2462.00	93.17(PK)	V	Fundamental Frequency
4924	47.58(PK)	Н	
4924	47.19(PK)	V	
7386		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)

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

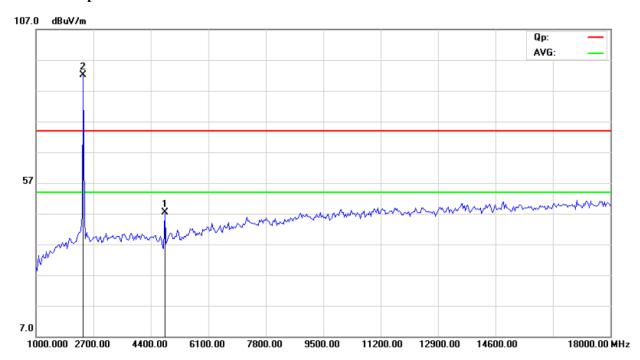
^{2.} Remark "---" means that the emissions level is too low to be measured

^{3.} For 802.11g mode 54Mbps

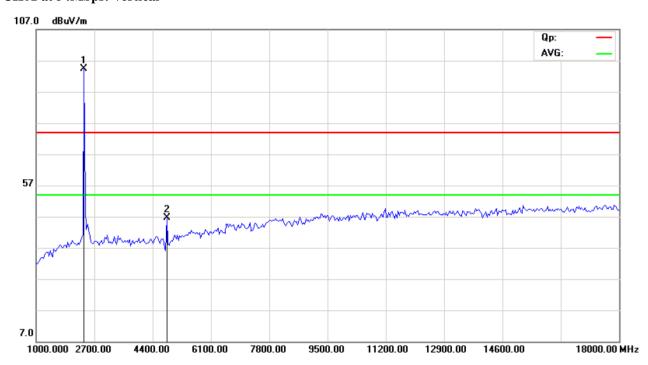


Please refer to the following test plots for details:

CH01 at 54Mbps: Horizontal



CH01 at 54Mbps: Vertical



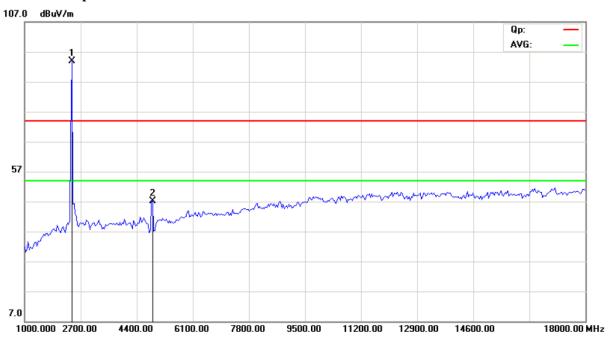
The report refers only to the sample tested and does not apply to the bulk.

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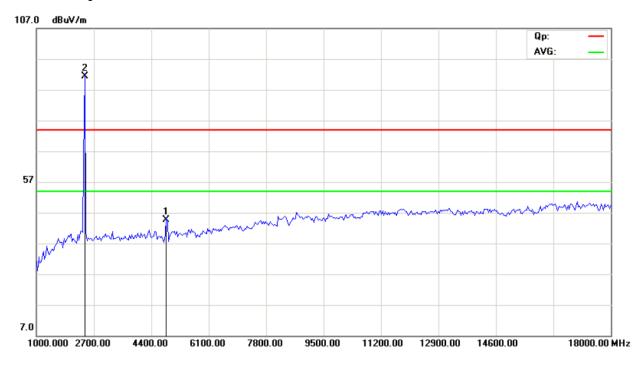
Report No: 1207115 Date: 2012-07-26



CH06 at 54Mbps: Vertical



CH06 at 54Mbps: Horizontal

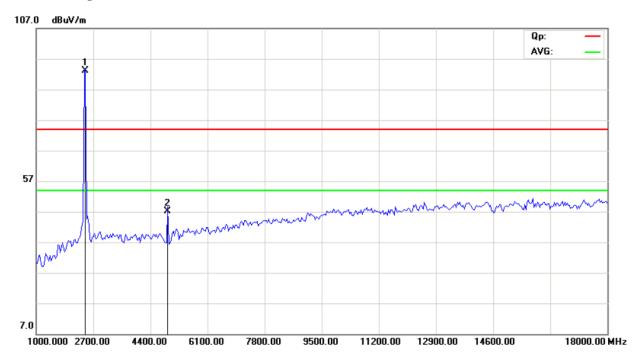


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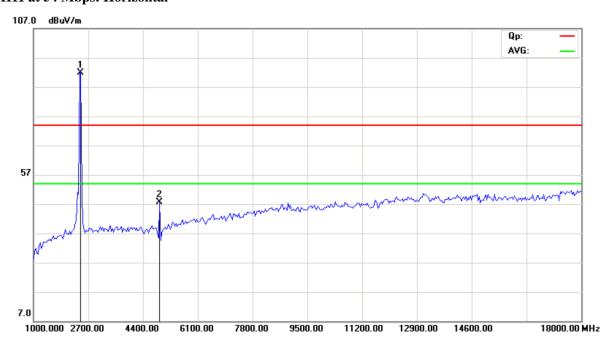
Report No: 1207115 Date: 2012-07-26



CH11 at 54Mbps: Vertical



CH11 at 54 Mbps: Horizontal



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



Operation Mode: Transmitting & Receiving under CH01 for 11n HT20 at 65Mbps

	8 8		
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \(\mu \)V/m)
2412.00	94.70(PK)	Н	Fundamental Frequency
2412.00	95.56(PK)	V	Fundamental Frequency
4824.00	48.05(PK)	Н	74(Peak)/ 54(AV)
4824.00	49.04(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 at 65Mbps

Operation Mode: Transmitting & Receiving under CH06 for 11n HT20 at 65Mbps

Frequency (MHz)	Level@3m (dB \u03bc V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
2437.00	93.77(PK)	Н	Fundamental Frequency
2437.00	94.66(PK)	V	Fundamental Frequency
4874.00	45.61(PK)	Н	74(Peak)/ 54(AV)
4874.00	48.92(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	1	H/V	74(Peak)/ 54(AV)
17059	1	H/V	74(Peak)/ 54(AV)
19496	1	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. 11n HT20 at 65bps

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

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Operation Mode: Transmitting & Receiving under CH11 for 11n HT20 at 65Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
2462.00	92.07 (PK)	Н	E 1
2462.00	92.95(PK)	V	Fundamental Frequency
4924	46.60(PK)	Н	74(Peak)/ 54(AV)
4924	47.44(PK)	V	74(Peak)/ 54(AV)
7386		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)

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

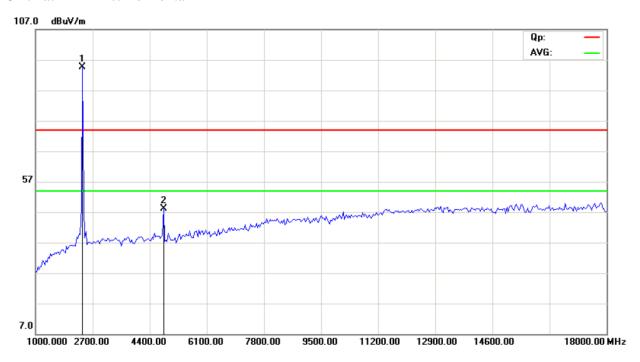
^{2.} Remark "---" means that the emissions level is too low to be measured

^{3.} For 802. 11n HT20 at 65bps

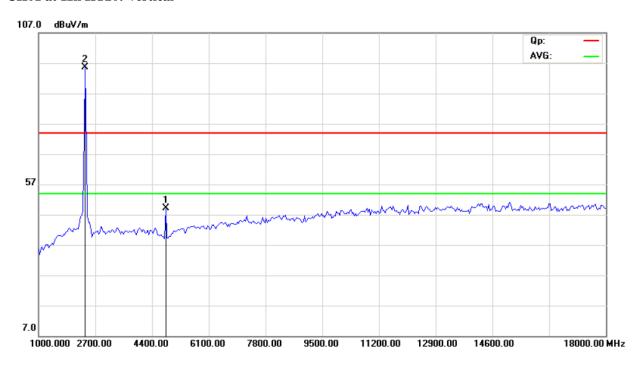


Please refer to the following test plots for details:

CH01 at 11n HT20: Horizontal



CH01 at 11n HT20: Vertical



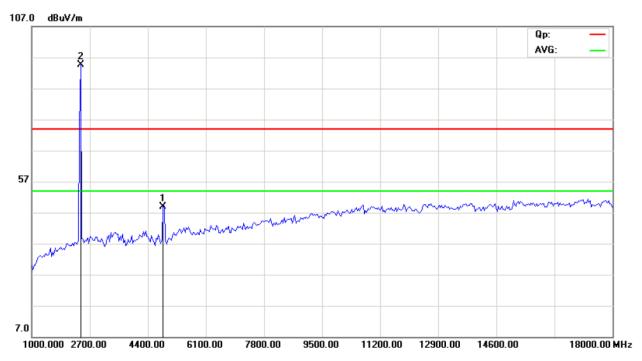
The report refers only to the sample tested and does not apply to the bulk.

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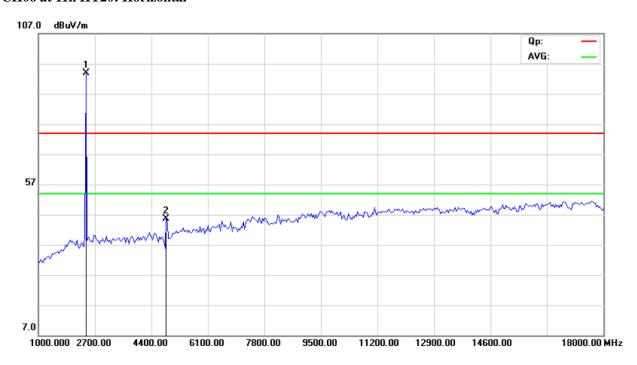
Report No: 1207115 Date: 2012-07-26



CH06 at 11n HT20: Vertical



CH06 at 11n HT20: Horizontal

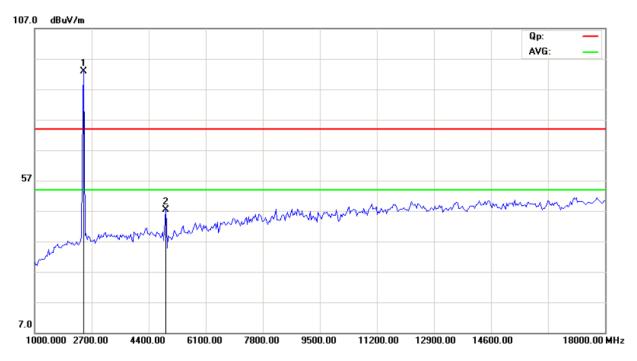


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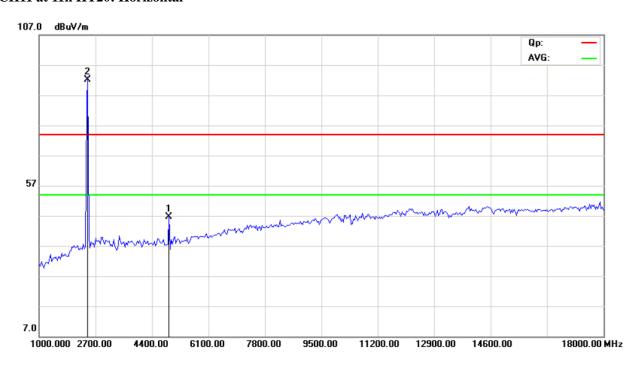
Report No: 1207115 Date: 2012-07-26



CH11 at 11n HT20: Vertical



CH11 at 11n HT20: Horizontal



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

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

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \(\mu \)V/m)
2422.00	93.00(PK)	Н	Fundamental Frequency
2422.00	93.67(PK)	V	Fundamental Frequency
4844.00	46.26 (PK)	Н	
4844.00	47.64(PK)	V	
7266.00		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 at 65bps

Operation Mode: Transmitting & Receiving under CH06 for 11n HT40 at 65Mbps

Frequency (MHz)	Level@3m (dB \u03bc V/m)	Antenna Polarity	Limit@3m (dB \(\mu \) V/m)
2437.00	92.18(PK)	Н	Eundamental Eraguenay
2437.00	94.99(PK)	V	Fundamental Frequency
4874.00	47.87(PK)	Н	
4874.00	48.31(PK)	V	
7311.00		H/V	74(Peak)/ 54(AV)
9748.00	1	H/V	74(Peak)/ 54(AV)
12185	1	H/V	74(Peak)/ 54(AV)
14622	1	H/V	74(Peak)/ 54(AV)
17059	1	H/V	74(Peak)/ 54(AV)
19496	1	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. 11n HT40 at 65bps

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

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Operation Mode: Transmitting & Receiving under CH11 for 11n HT40 at 65Mbps

	0 0		
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \mu V/m)
2452	92.31 (PK)	Н	Fundamental Frequency
2452	94.68(PK)	V	rundamental Frequency
4904	47.04(PK)	Н	
4904		V	
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)

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

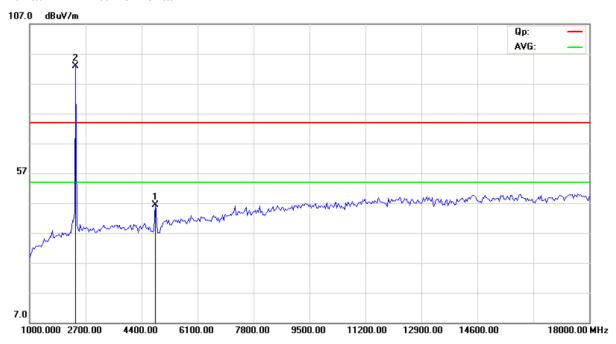
^{2.} Remark "---" means that the emissions level is too low to be measured

^{3.} For 802. 11n HT40 at 65bps

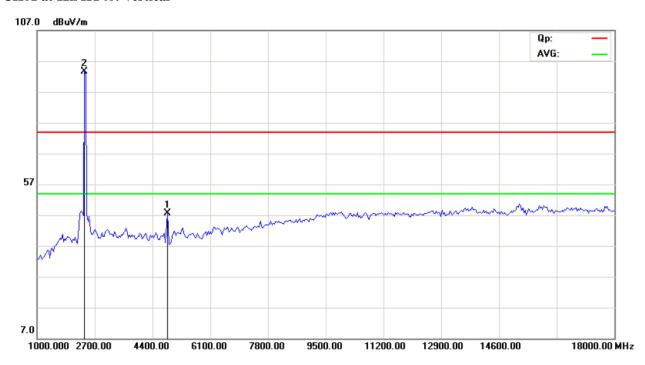


Please refer to the following test plots for details:

CH01 at 11n HT40: Horizontal



CH01 at 11n HT40: Vertical



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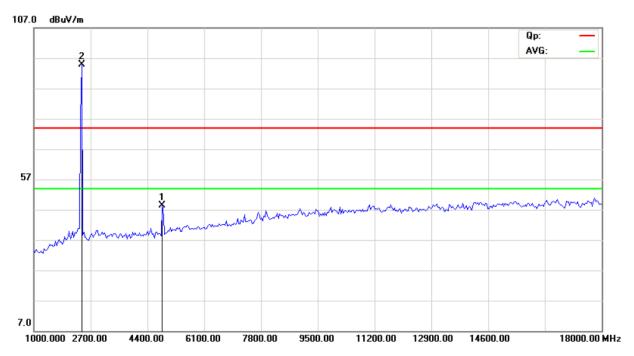
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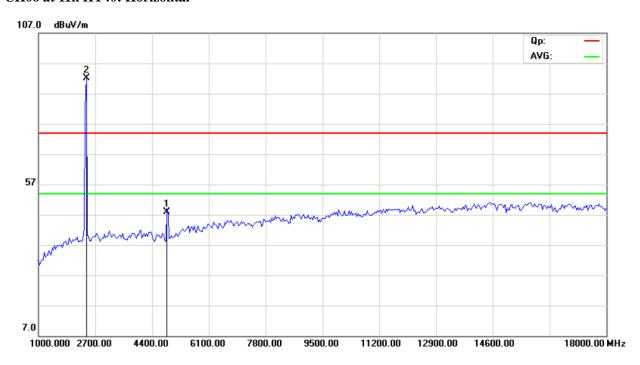
Report No: 1207115 Date: 2012-07-26



CH06 at 11n HT40: Vertical



CH06 at 11n HT40: Horizontal

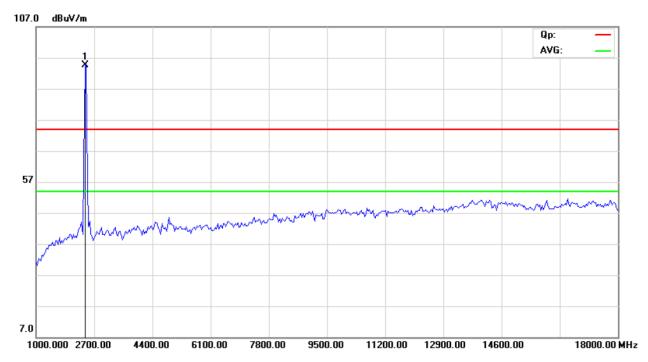


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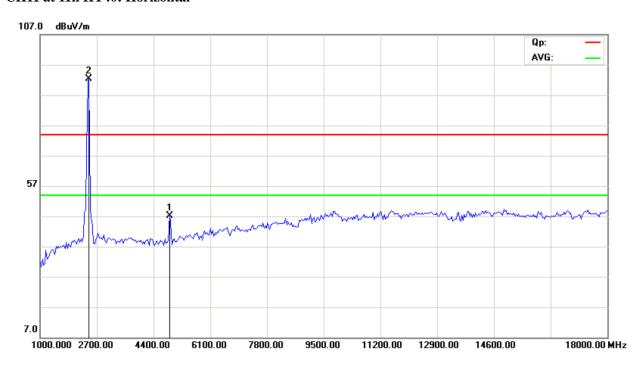
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CH7 at 11n HT40: Vertical



CH11 at 11n HT40: 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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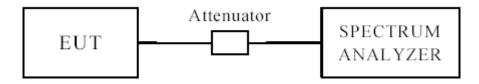
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7.0 6dB Bandwidth Measurement

7.1 Test Setup



7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500kHz

7.3 Test Procedure

- 1. Set resolution bandwidth (RBW) = 1-5 % of the emission bandwidth (EBW).
- 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. Compare the resultant bandwidth with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is 1-5 %.

7.4 Test Result

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EUT		ANDR	OID TV BO	ΟX	Model			ATV310B
Mode		80	02.11b/g		Input Voltage			AC 120V
Temperat	Temperature		24 deg. C,			ty		56% RH
Channel		el Frequency (MHz)	Data Transfer Rate (Mbps)		ndwidth Hz)	Minimum Limit (MHz)		Pass/ Fail
1		2412	1	10	.26		0.5	Pass
6	2437		1	10.26		0.5		Pass
11		2462	1	10	.26		0.5	Pass
1		2412	11	10	.26		0.5	Pass
6		2437	11	10	.26		0.5	Pass
11		2462	11	10	.20		0.5	Pass
1		2412	54	16	.56		0.5	Pass
6		2437	54	16	.56	0.5		Pass
11		2462	54	16	.56	0.5		Pass

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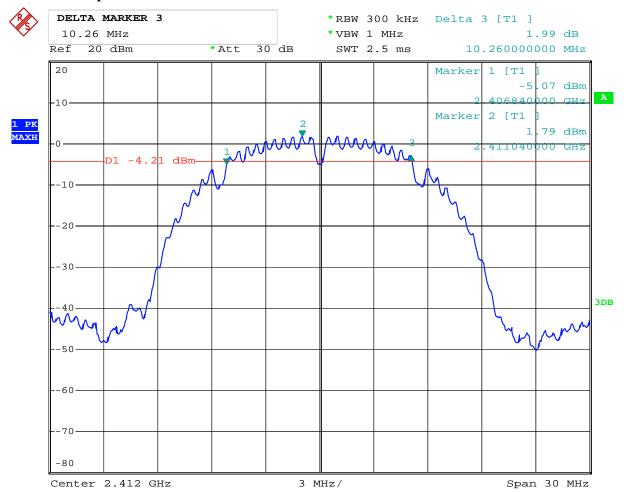
EUT		ANDR	OID TV BOX		Model			ATV310B	
Mode		8	302.11n		Input Vol	tage		AC 120V	
Temperature		24	4 deg. C,		Humid Pi	ty		56% RH	
Channel		Channel Frequency (MHz) Channel Frequency (MHz) Rate (MHz) (Mbps) Minimum Limit (MHz)			Pass/ Fail				
1	2412		HT20	18.00		0.5		Pass	
6		2437	HT20	17.88			0.5	Pass	
11		2462	HT20	17.88		0.5		Pass	
1	2422		HT40	36	.90		0.5	Pass	
4	2437		HT40	36.80		0.5		Pass	
7	2452		HT40	37.00		0.5		Pass	

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1. 802.11b at 1Mbps of CH01



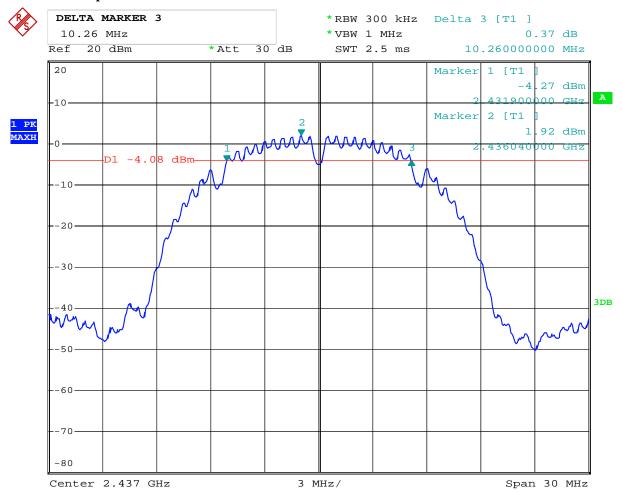
Date: 26.JUL.2012 09:17:58

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2. 802.11b at 1Mbps of CH06



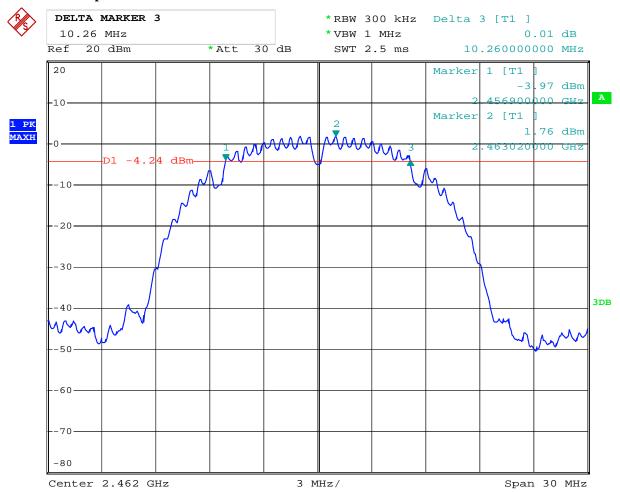
Date: 26.JUL.2012 09:19:13

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3. 802.11b at 1Mbps of CH11



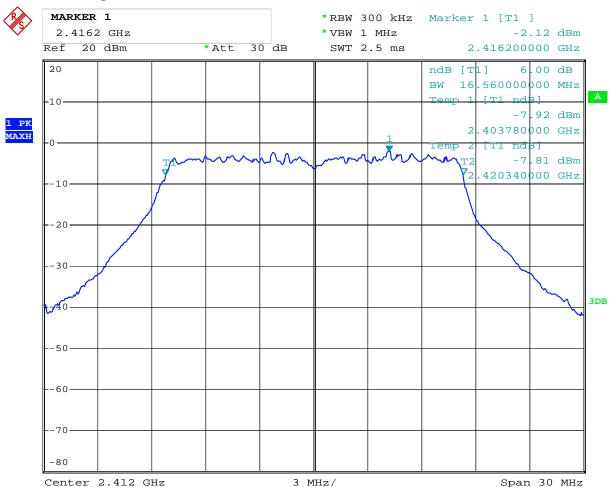
Date: 26.JUL.2012 09:20:05

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4. 802.11b at 54 Mbps of CH01



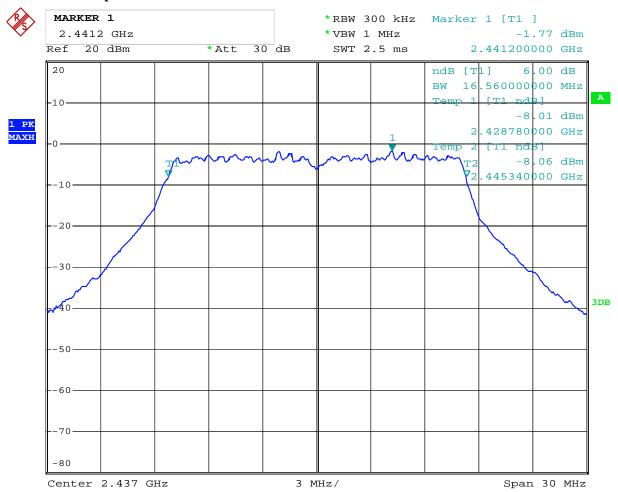
Date: 26.JUL.2012 09:28:06

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5. 802.11b at 54 Mbps of CH06



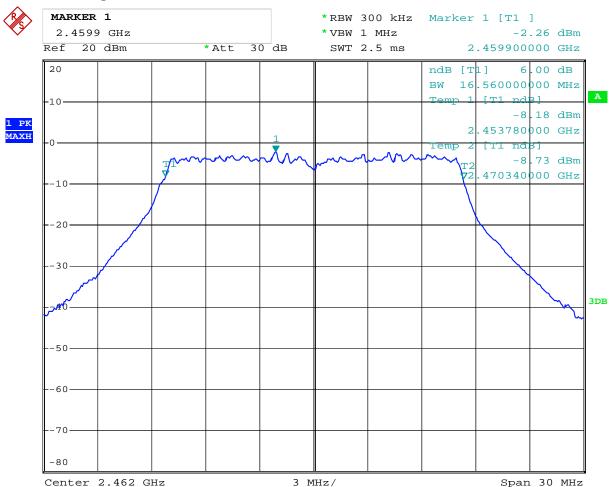
Date: 26.JUL.2012 09:27:27

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6. 802.11b at 54 Mbps of CH11



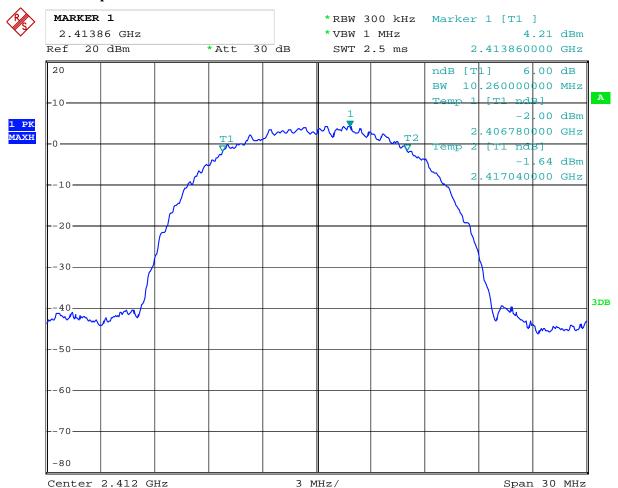
Date: 26.JUL.2012 09:25:59

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7. 802.11b at 11Mbps of CH01



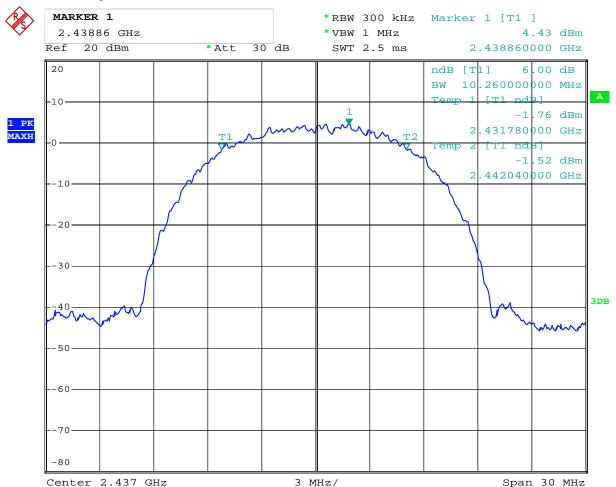
Date: 26.JUL.2012 09:23:39

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8. 802.11b at 11Mbps of CH06



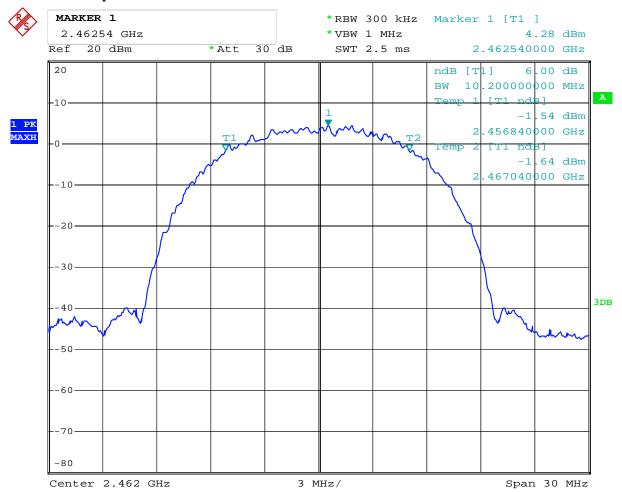
Date: 26.JUL.2012 09:22:35

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9. 802.11b at 11Mbps of CH11



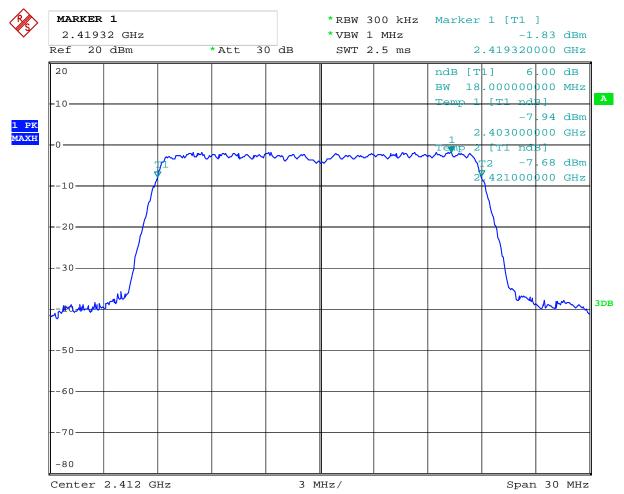
Date: 26.JUL.2012 09:24:59

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10. 802.11n at HT20 of CH01



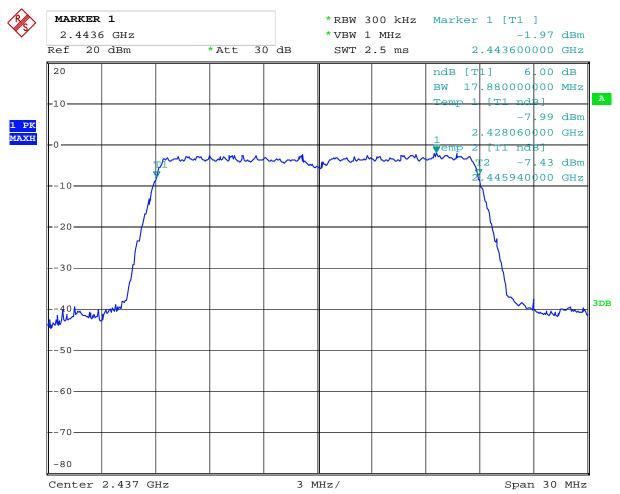
Date: 25.JUL.2012 09:07:06

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TIMEWAY TYSTANAS ARIS

11. 802.11n at HT20 of CH06

Date: 2012-07-26



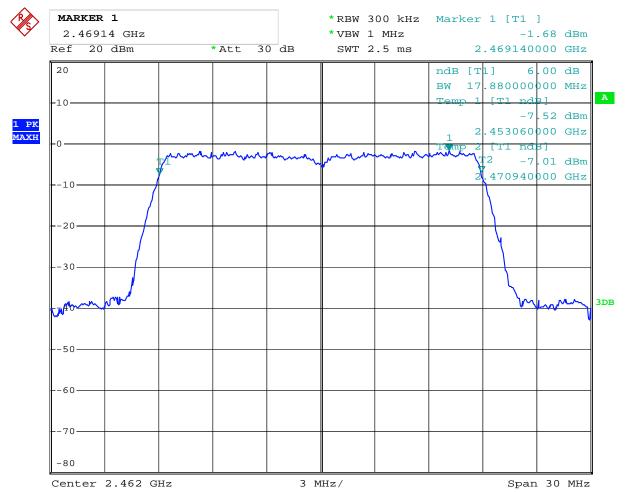
Date: 25.JUL.2012 09:08:48

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12. 802.11n at HT20 of CH11



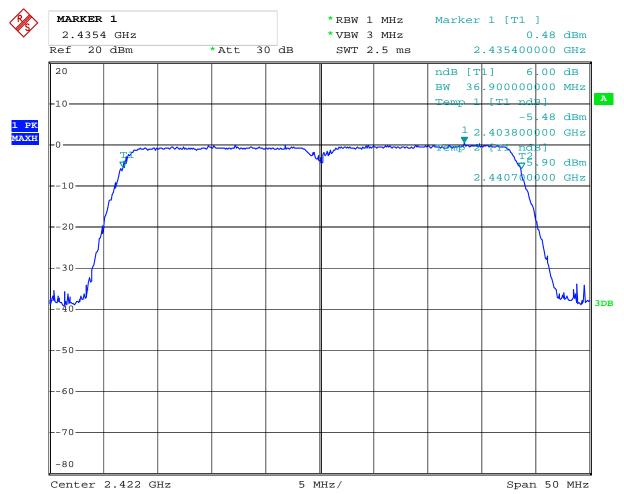
Date: 25.JUL.2012 09:09:41

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13. 802.11n at HT40 of CH01



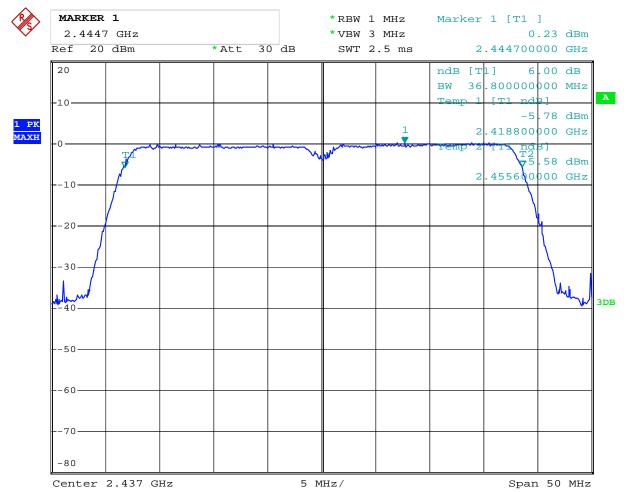
Date: 25.JUL.2012 09:13:18

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14. 802.11n at HT40 of CH04



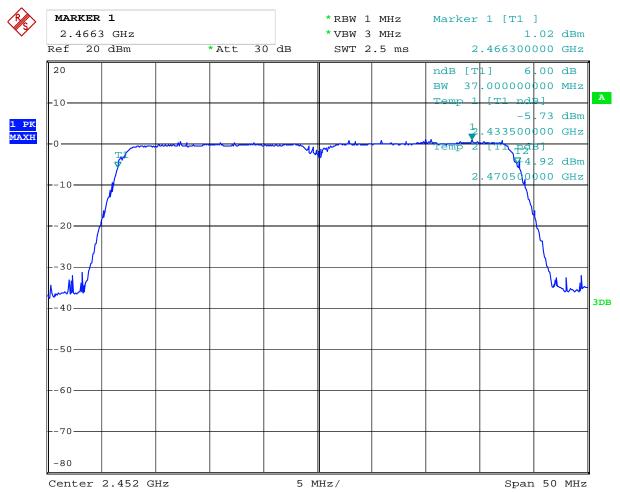
Date: 25.JUL.2012 09:12:19

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15. 802.11n at HT40 of CH7



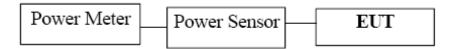
Date: 25.JUL.2012 09:11:27

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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		ANDROID	TV BOX	M	Todel ATV310		ATV310B		
Mode		802.11b	1Mbps	Input	Voltage See Below		See Below		
Temperat	ure	24 deg	g. C,	Hum	id Pity		56% RH		
Channel	Cha	annel Frequency (MHz)	Peak Power Output (dBm)		Peak Power Limit (dBm)		Pass/ Fail		
	Test Voltage:120V∼								
1		2412	16.02		30		Pass		
6		2437 16.18			30		Pass		
11		2462	16.27	16.27)	Pass		
			Test '	Voltage: 1	38V~				
1		2412	16.00		30		Pass		
6		2437	16.18		30)	Pass		
11		2462	16.23		30		Pass		
			Test V	Voltage: 1	.02V~				
1		2412	16.05		30)	Pass		
6		2437	16.19		30		Pass		
11		2462	16.28		30)	Pass		

Note:. The result basic equation calculation as follow:

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EUT	EUT ANI		ANDROID TV BOX		Model		ATV310B		
Mode		802.11b 1	1Mbps	Input	Voltage		See Below		
Temperat	ure	24 deg	g. C,	Hum	id Pity		56% RH		
Channel	Cha	annel Frequency (MHz)	Peak Power Output (dBm)		Peak Power Limit (dBm)		Pass/ Fail		
Test Voltage:120V∼									
1		2412	17.84		30		Pass		
6		2437	17.99		30		Pass		
11		2462	18.81		30		Pass		
			Test '	Voltage: 1	38V~				
1		2412	17.85	30)	Pass		
6		2437	17.95		30)	Pass		
11		2462	18.82		30		Pass		
			Test V	Voltage: 1	02V~				
1		2412 17.83			30		Pass		
6		2437	18.02		30		Pass		
11		2462	18.85		30)	Pass		

Note: The result basic equation calculation as follow:

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EUT		ANDROID	TV BOX	M	odel		ATV310B			
Mode		802.11g		Input Voltage		See Below				
Temperat	ure	24 deg	g. C,	Hum	id Pity		56% RH			
Channel	Channel Frequency (MHz)		Peak Power Output (dBm)		Peak Power Limit (dBm)		Pass/ Fail			
	Test Voltage:120V~									
1	2412		17.53		30		Pass			
6		2437	18.16		30)	Pass			
11		2462	18.31		30		Pass			
			Test Voltag	e:138V~	,					
1		2412	17.52		30		Pass			
6		2437	18.15		30		Pass			
11		2462	18.36		30)	Pass			
			Test Voltag	e:102V~	,					
1		2412	17.55		30		Pass			
6		2437	18.18		30		Pass			
11		2462	18.26		30		Pass			

Note: 1. At finial test to get the worst-case emission at 54Mbps for CH01, CH06 and CH11

^{2.} The result basic equation calculation as follow:

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EUT		ANDROID	TV BOX	Model			ATV310B			
Mode		802.11n	HT20	Input	Voltage		See Below			
Temperat	ure	24 deg	g. C,	Hum	id Pity		56% RH			
Channel	Channel Frequency (MHz)		Peak Power Output (dBm)		Peak Power Limit (dBm)		Pass/ Fail			
	Test Voltage:120V~									
1	2412		13.86		30		Pass			
6		2437	14.07		30		Pass			
11		2462	14.51		30		Pass			
			Test Voltag	e:138V~						
1		2412	13.88		30		Pass			
6		2437	14.07		30		Pass			
11		2462	14.52		30		Pass			
			Test Voltag	e:102V~						
1		2412	13.83		30		Pass			
6		2437	14.05		30		Pass			
11		2462	14.55		30		Pass			

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

^{2.} The result basic equation calculation as follow:

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EUT		ANDROID	TV BOX	Model			ATV310B			
Mode		802.11n	HT40	Input	Voltage		See Below			
Temperat	ure	24 deg	g. C,	Hum	id Pity		56% RH			
Channel	Channel Frequency (MHz)		Peak Power Output (dBm)		Peak Power Limit (dBm)		Pass/ Fail			
	Test Voltage:120V~									
1	2422		13.95		30		Pass			
5		2437	14.06		30		Pass			
7		2452	14.74		30		Pass			
			Test Voltag	e:138V~	,					
1		2422	13.98		30		Pass			
5		2437	14.05		30		Pass			
7		2452	14.77		30		Pass			
			Test Voltag	e:102V~	,					
1	2422		13.92		30		Pass			
5		2437	14.06		30		Pass			
7		2452	14.75		30)	Pass			

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

^{2.} The result basic equation calculation as follow:

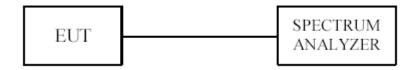
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9. Power Spectral Density Measurement

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 = 100 kHz.
- 3. Set the VBW \geq 300 kHz.
- 4. Set the span to 5-30 % greater than the EBW.
- 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 power level in any 100 kHz band segment within the fundamental EBW.
- 10. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = $10\log (3 \text{ kHz}/100\text{kHz} = -15.2 \text{ dB})$.
- 11. The resulting peak PSD level must be ≤ 8 dBm.

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9.4Test Result

EUT		ANDROID	TV BOX Mo		odel		ATV310B
Mode		802.111	b 1M Input		Voltage		AC 120V
Temperati	ure	24 deg	g. C,	Hum	mid Pity 56% RH		56% RH
Channel	Cha	annel Frequency (MHz)	Final RF Po Level in 3kH: (dBm)		Maximum (dB		Pass/ Fail
				1Mbps			
1		2412	-13.34		8		Pass
6		2437	37 -12.73 8			Pass	
11		2462	-13.54		8		Pass

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

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EUT		ANDROID	TV BOX Mo		odel		ATV310B
Mode	Mode 802.11b		11M	Input Voltage			AC 120V
Temperature 24		24 deg	g. C,	HuWIFI			56% RH
				Route	er/APity		
Channel	Cha	annel Frequency (MHz)	Final RF Power Level in 3kHz BW (dBm)		Maximum Limit (dBm)		Pass/ Fail
			11Mbp	S			
1		2412 -14.36		•	8		Pass
6		2437	-13.63		8		Pass
11		2462	-13.79		8		Pass

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

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EUT		ANDROID	TV BOX	M	odel		ATV310B
Mode	Mode 802.11n		HT20 Inpu		Voltage		AC 120V
Temperat	Temperature 24 deg		•		WIFI		56% RH
			Route	er/APity			
Channel	Cha	annel Frequency (MHz)	Final RF Po Level in 3kH: (dBm)	Maximu		-	Pass/ Fail
			11n HT2	20			
1		2412	-21.15		8		Pass
6		2437	-21.04		8		Pass
11		2462	-20.52		8		Pass

Note: At finial test to get the worst-case emission at 65M for CH01, CH06 and CH11

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EUT	EUT ANDROID		TV BOX Mo		odel		ATV310B	
Mode	Mode 802.11n		HT40 Input		Voltage		AC 120V	
Temperati	mperature 24 deg. C, HuWIFI Router/APity		56% RH					
Channel	Cha	annel Frequency (MHz)	Final RF Power Level in 3kHz BW (dBm)		Maximum Limit (dBm)		Pass/ Fail	
			11n HT4	40				
1		2422 -24.34			8		Pass	
5		2437 -24.21			8		Pass	
7		2452	-23.62		8		Pass	

Note: At finial test to get the worst-case emission at 65Mfor CH01, CH06 and CH11

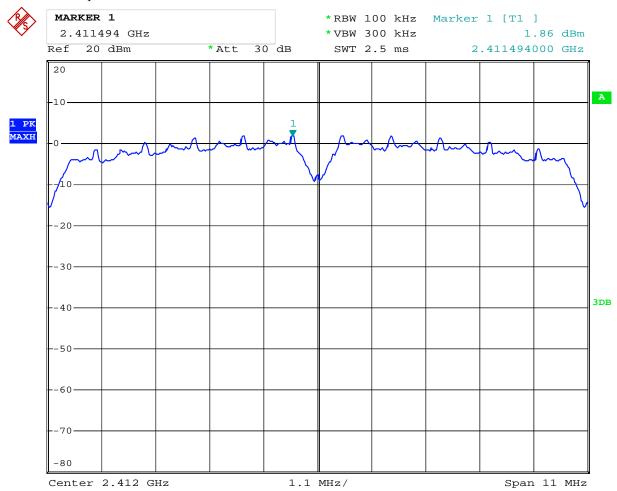
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9.5 Photo of Power Spectral Density Measurement

1. 802.11b at1Mbps of CH01



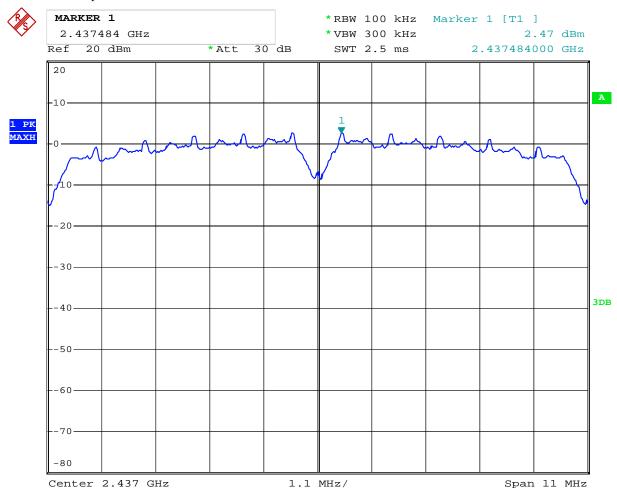
Date: 24.JUL.2012 10:50:07

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2. 802.11b at 1Mbps of CH06



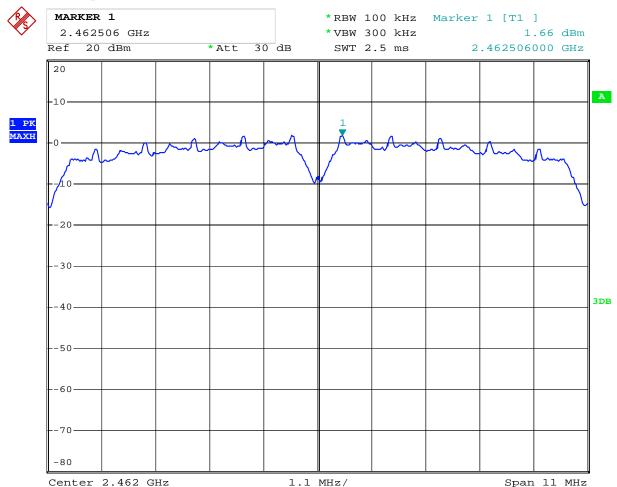
Date: 24.JUL.2012 10:50:51

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3. 802.11b at 1Mbps of CH11



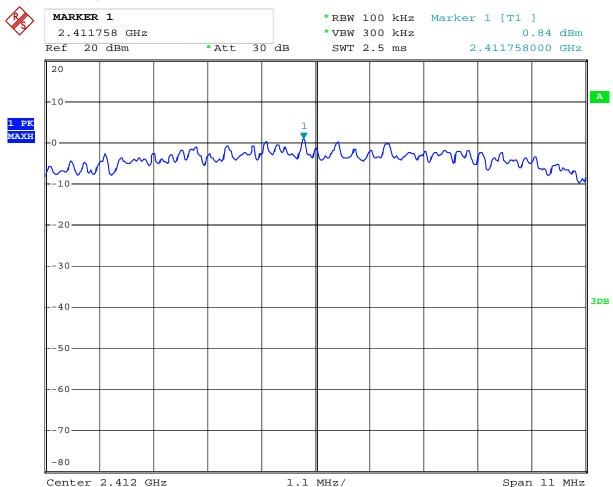
Date: 24.JUL.2012 10:51:14

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4. 802.11b at 11Mbps of CH1



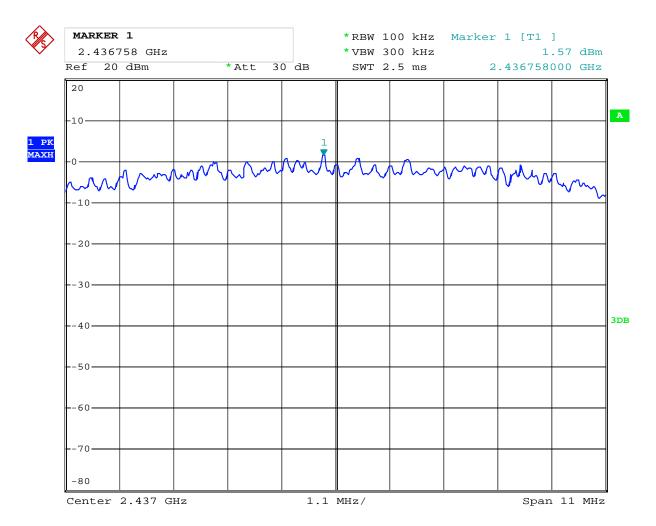
Date: 26.JUL.2012 09:29:54

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5. 802.11b at 11Mbps of CH6



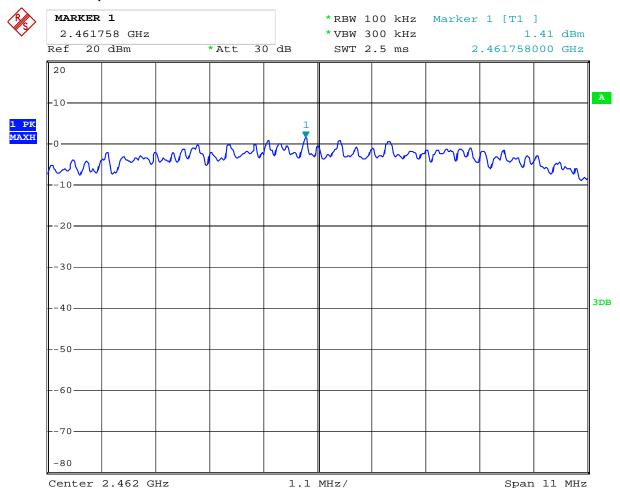
Date: 26.JUL.2012 09:30:40

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6. 802.11b at 11Mbps of CH11



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7. 802.11n at HT20 of CH01 65Mbps



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8. 802.11n at HT20 of CH06 65Mbps



Date: 25.JUL.2012 09:25:44

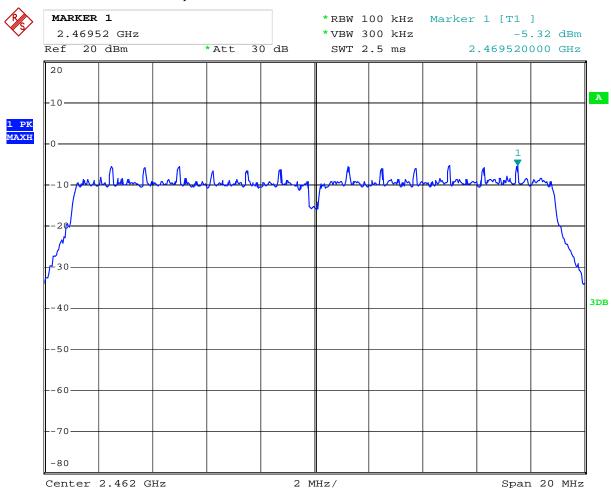
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9. 802.11n at HT20 of CH11 65Mbps



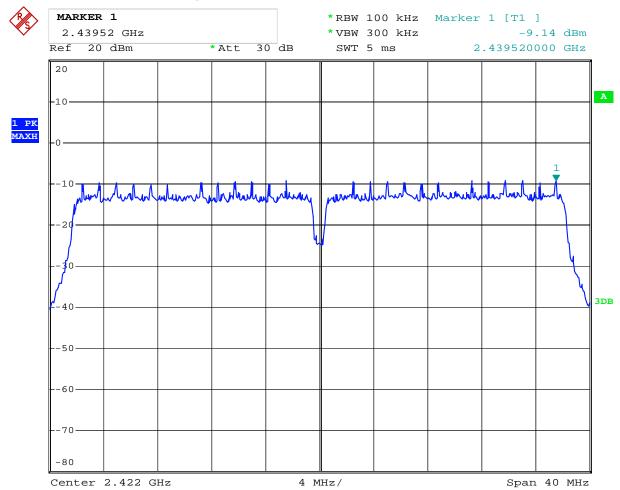
Date: 25.JUL.2012 09:26:41

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10. 802.11n at HT40 of CH01 65Mbps



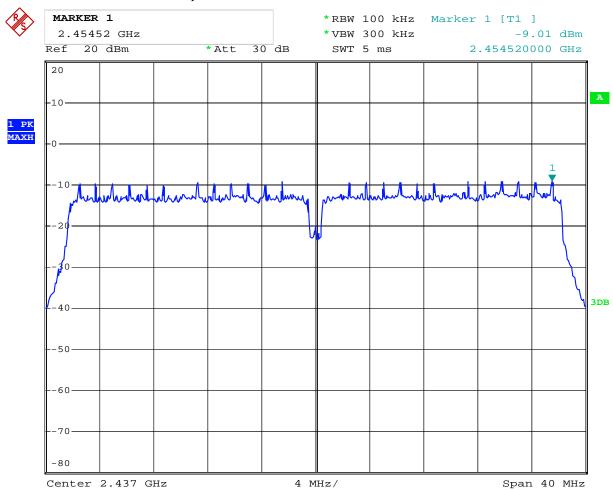
Date: 25.JUL.2012 09:27:49

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11. 802.11n at HT40 of CH06 65Mbps



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12. 802.11n at HT40 of CH11 65Mbps



Date: 25.JUL.2012 09:31:11

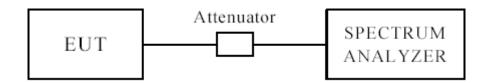
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10 Out of Band Measurement

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=VBW=100 kHz. A conducted measurement used

10.4 Test Result

Please see next pages

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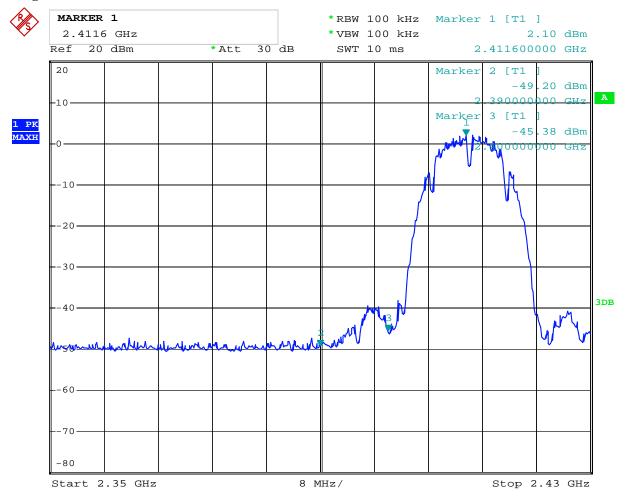
For 802.11b mode

CH01 at 1Mbps

10.4 Band-edge Measurement

Product:	ANDROID TV BOX	Model:	ATV310B
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humid Pity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 24.JUL.2012 11:07:47

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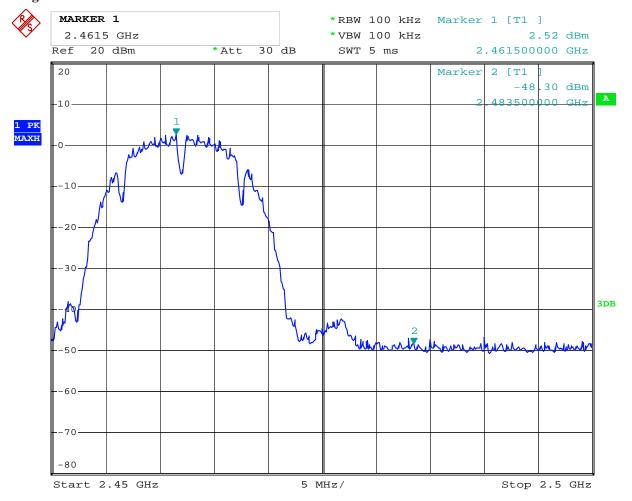


CH11 at 1Mbps

10.4 Band-edge Measurement

Product:	ANDROID TV BOX	Model:	ATV310B
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humid Pity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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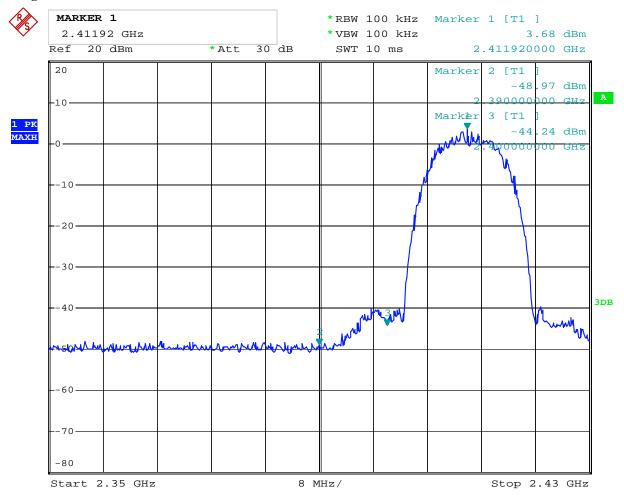
For 802.11b mode

CH01 at 11Mbps

10.4 Band-edge Measurement

Product:	ANDROID TV BOX	Model:	ATV310B
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humid Pity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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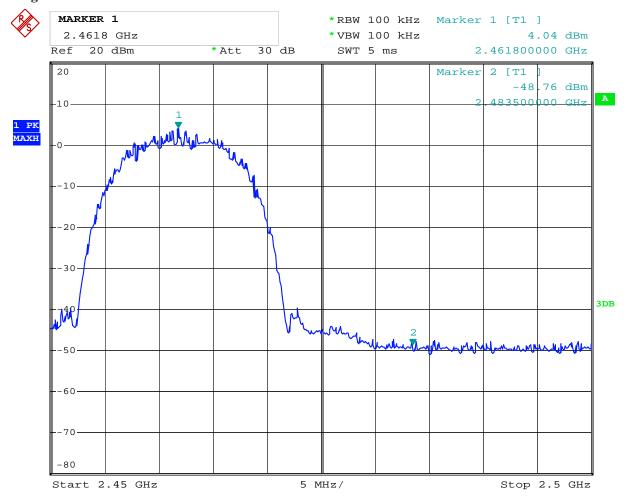


CH11 at 11Mbps

10.4 Band-edge Measurement

Product:	ANDROID TV BOX	Model:	ATV310B
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humid Pity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 24.JUL.2012 11:05:16

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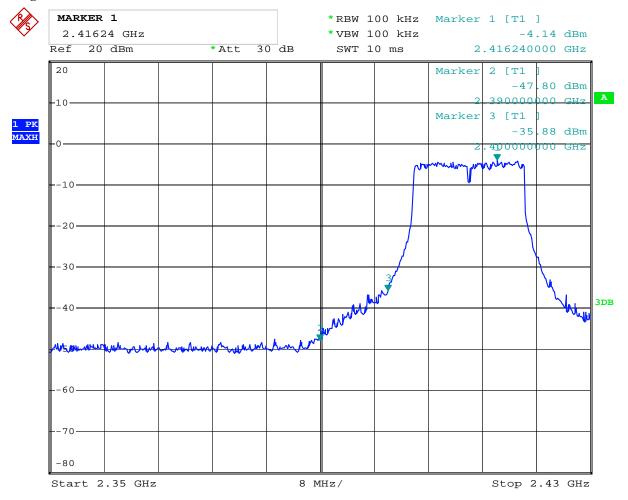
For 802.11g mode

CH01 at 54Mbps

10.4 Band-edge Measurement

Product:	ANDROID TV BOX	Model:	ATV310B
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humid Pity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 24.JUL.2012 11:09:15

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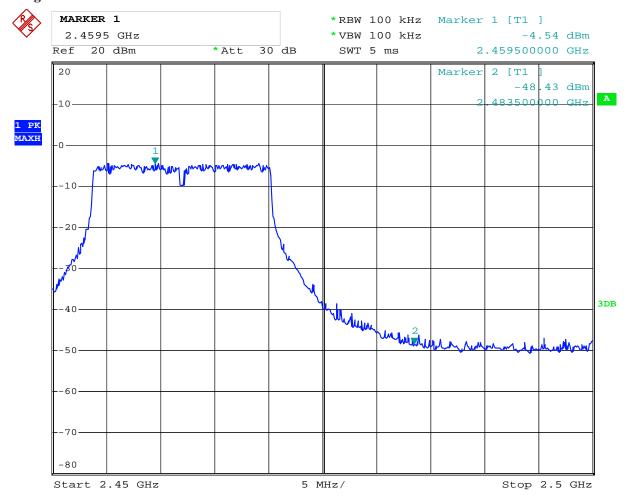


CH11 at 54Mbps

10.4 Band-edge Measurement

Product:	ANDROID TV BOX	Model:	ATV310B
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Hmid Pity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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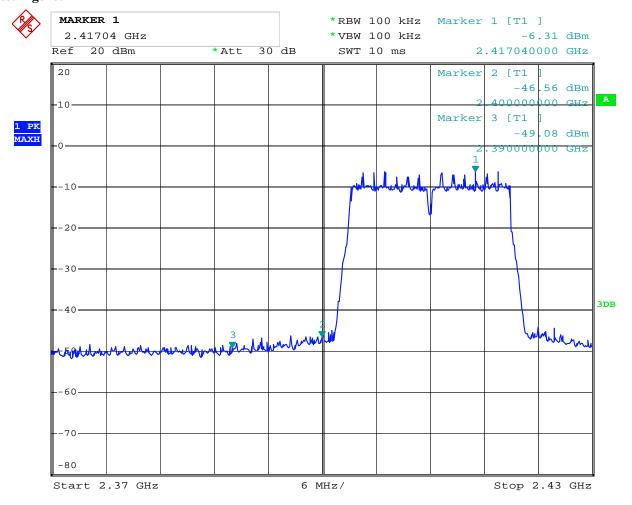
For 802.11n mode

CH01 at HT20 65Mbps

10.4 Band-edge Measurement

Product:	ANDROID TV BOX	Model:	ATV310B
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humid Pity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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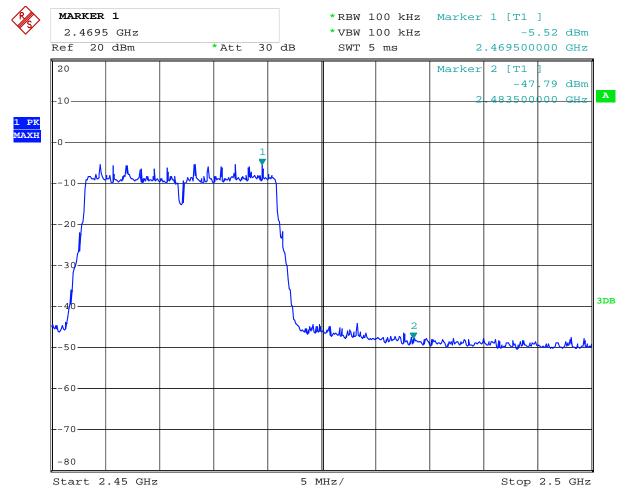


CH11 at HT20 65Mbps

10.4 Band-edge Measurement

Product:	ANDROID TV BOX	Model:	ATV310B
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Hmid Pity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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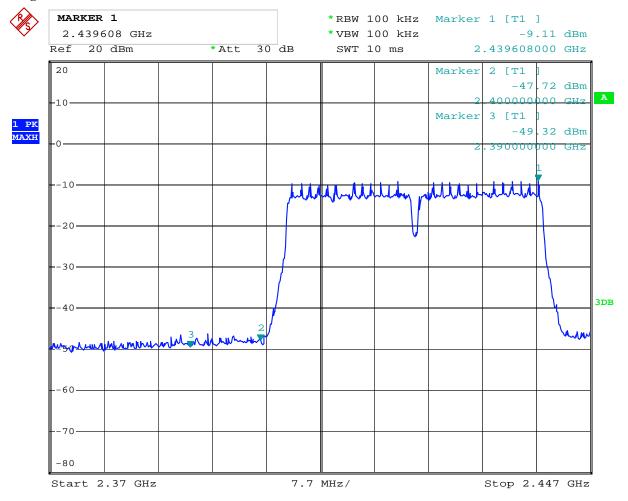
For 802.11n mode

CH01 at HT40 65Mbps

10.4 Band-edge Measurement

Product:	ANDROID TV BOX	Model:	ATV310B
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humid Pity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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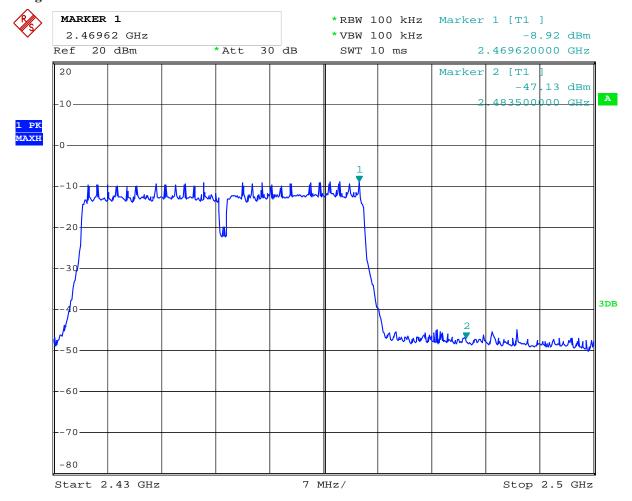


CH11 at HT40 65Mbps

10.4 Band-edge Measurement

Product:	ANDROID TV BOX	Model:	ATV310B
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Hmid Pity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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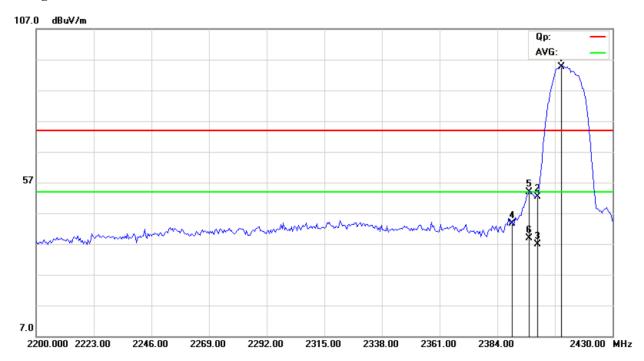
For 802.11b mode

CH01 at 11Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping	g Transmitting	Input Voltage	AC 120V
Temperature	24	l deg. C,	Humid Pity	56% RH
Test Result:		Pass Detector		PK
2400	PK (dBμV/m)	52.50	Limit	$74(dB\mu V/m)$
	AV (dBμV/m)	36.89		$54(dB\mu V/m)$
2397	PK (dBμV/m)	54.00	Limit	$74(dB\mu V/m)$
	AV (dBμV/m)	38.91		$54(dB\mu V/m)$
2390	PK (dBμV/m)	43.54	Limit -	$74(dB\mu V/m)$
	AV (dBμV/m)			54(dBµV/m)

Test Figure: Horizontal



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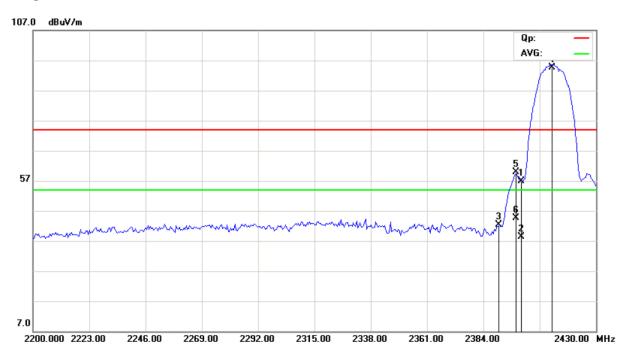
For 802.11b mode

CH01 at 11Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping	g Transmitting	Input Voltage	AC 120V
Temperature	24	deg. C,	Humid Pity	56% RH
Test Result:		Pass		PK
2400	PK (dBµV/m)	56.89	Limit	74(dBμV/m)
	AV (dBμV/m)	38.41		$54(dB\mu V/m)$
2397	PK (dBμV/m)	59.89	Limit	$74(dB\mu V/m)$
	AV (dBμV/m)	44.51	Limit	54(dBµV/m)
2390	PK (dBμV/m)	42.31	Limit	74(dBμV/m)
	AV (dBμV/m)			54(dBμV/m)

Test Figure: Vertical



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For 802.11b mode

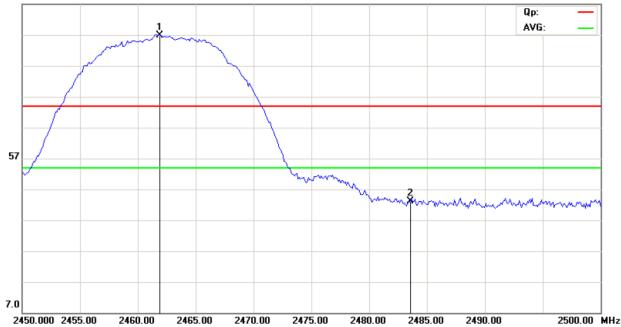
CH11 at 11Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping	g Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,		Humid Pity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBµV/m)	43.00	T ::4	$74(dB\mu V/m)$
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$

Test Figure: Vertical





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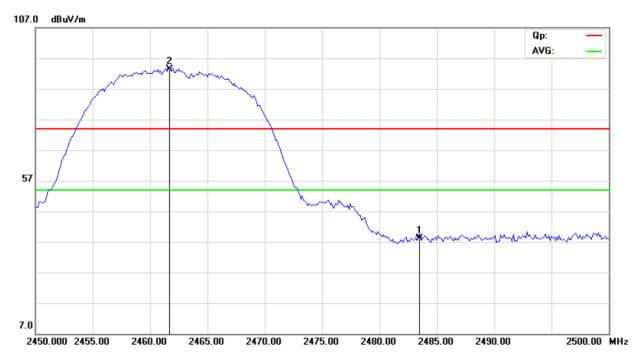
For 802.11b mode

CH11 at 11Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humid Pity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m) 38.01	Limit	$74(dB\mu V/m)$	
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$

Test Figure: Horizontal



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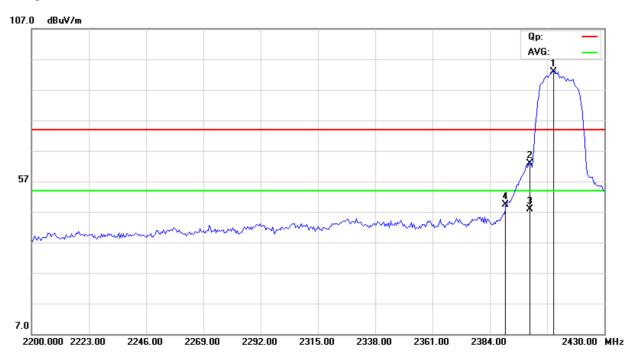
For 802.11g mode

CH01 at 54Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping	g Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,		Humid Pity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBµV/m)	49.34	T ::4	$74(dB\mu V/m)$
	AV (dBμV/m)		Limit	54(dBμV/m)
2400.000	PK (dBµV/m)	63.00	Limit	$74(dB\mu V/m)$
	AV (dBμV/m)	47.92		$54(dB\mu V/m)$

Test Figure: Horizontal



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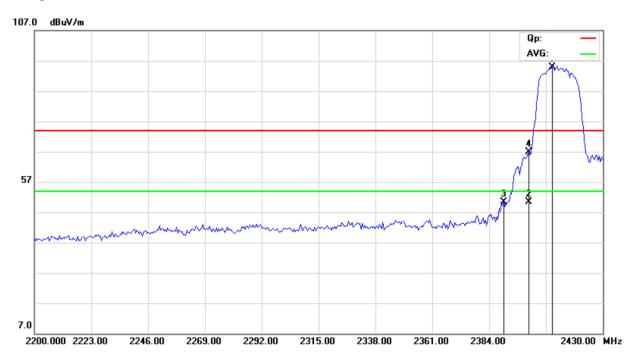
For 802.11g mode

CH01 at 54Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humid Pity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	50.44	T in it	74(dBμV/m)
	AV (dBμV/m)		Limit	54(dBμV/m)
2400.000	PK (dBμV/m)	67.00	Limit	$74(dB\mu V/m)$
	AV (dBμV/m)	50.45		$54(dB\mu V/m)$

Test Figure: Vertical



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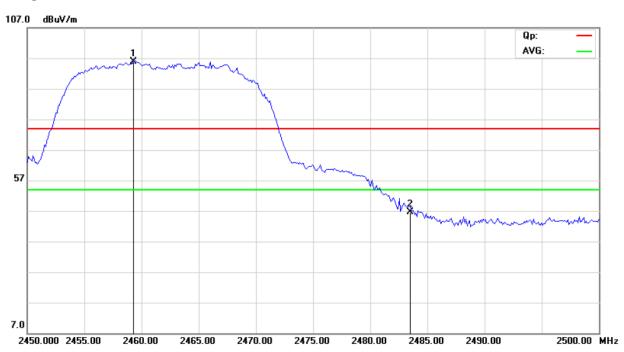
For 802.11g mode

CH11 at 54Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping	g Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,		Humid Pity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBµV/m)	46.71	Limit	$74(dB\mu V/m)$
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$

Test Figure: Vertical



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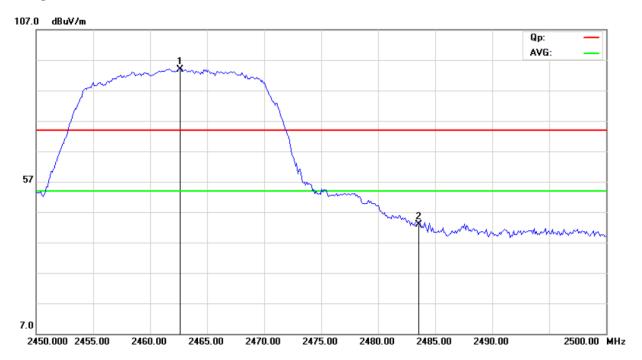
For 802.11g mode

CH11 at 54Mbps

10.4 Restricted band Measurement

Product:	ANDR	OID TV BOX	Model:	ATV310B
Mode	Keeping	g Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,		Humid Pity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	42.92	T ::4	$74(dB\mu V/m)$
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$

Test Figure: Horizontal



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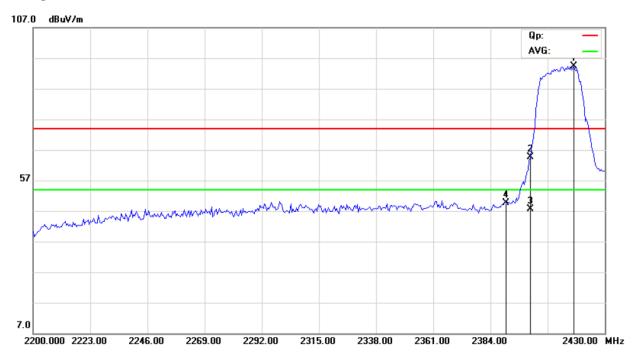
For 802.11n mode

CH01 at 11n HT20 65Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping	Keeping Transmitting		AC 120V
Temperature	24 deg. C,		Humid Pity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	49.57	T ::4	$74(dB\mu V/m)$
	AV (dBμV/m)		- Limit	54(dBμV/m)
2400.000	PK (dBμV/m)	64.56	Limit	$74(dB\mu V/m)$
	AV (dBμV/m)	47.67		54(dBμV/m)

Test Figure: Horizontal



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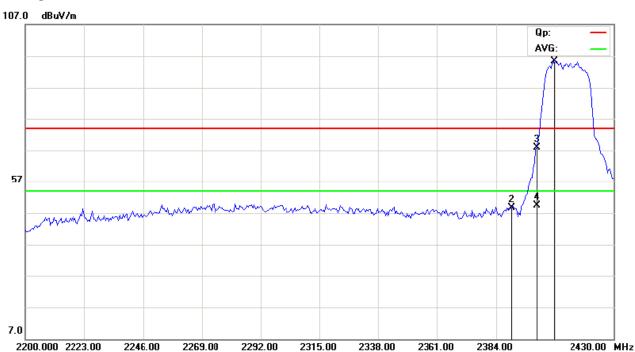
For 802.11n mode

CH01 at 11n HT20 65Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping	g Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,		Humid Pity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBµV/m)	48.54	T in it	$74(dB\mu V/m)$
	AV (dBμV/m)		Limit	54(dBμV/m)
2400.000	PK (dBμV/m)	67.85	Limit	74(dBμV/m)
	AV (dBμV/m)	49.46		$54(dB\mu V/m)$

Test Figure: Vertical



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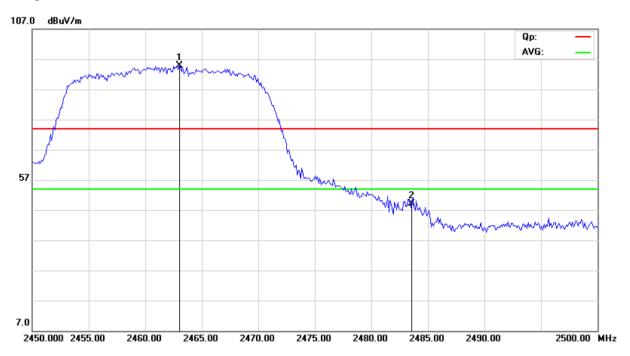
For 802.11n mode

CH11 at 11n HT20 65Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping	g Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,		Humid Pity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBµV/m)	49.23	T ::4	$74(dB\mu V/m)$
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$

Test Figure: Vertical



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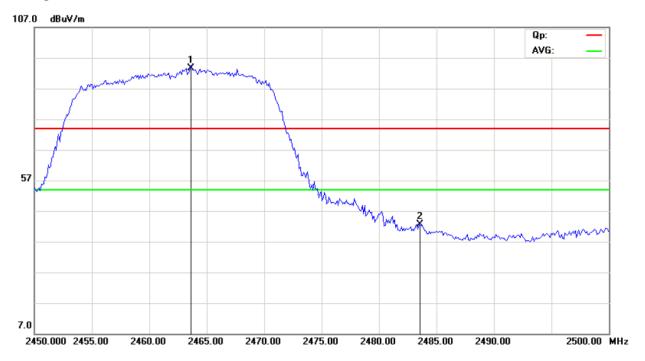
For 802.11n mode

CH11 at 11n HT20 65Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping	g Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,		Humid Pity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBµV/m)	42.71	T ::4	$74(dB\mu V/m)$
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$

Test Figure: Horizontal



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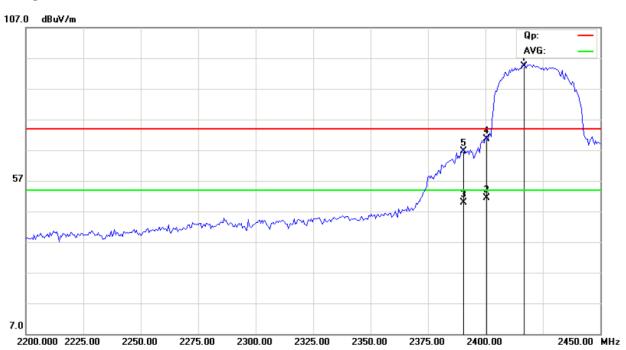
For 802.11n mode

CH01 at 11n HT40 65Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B	
Mode	Keeping	g Transmitting	Input Voltage	AC 120V	
Temperature	24 deg. C,		Humid Pity	56% RH	
Test Result:	Pass		Detector	PK	
2390.000	PK (dBμV/m)	66.73	T in it	$74(dB\mu V/m)$	
	AV (dBμV/m)	49.89	Limit	54(dBμV/m)	
2400.000	PK (dBμV/m)	70.56	Timi	74(dBμV/m)	
	AV (dBμV/m)	51.45	Limit	54(dBμV/m)	

Test Figure: Horizontal



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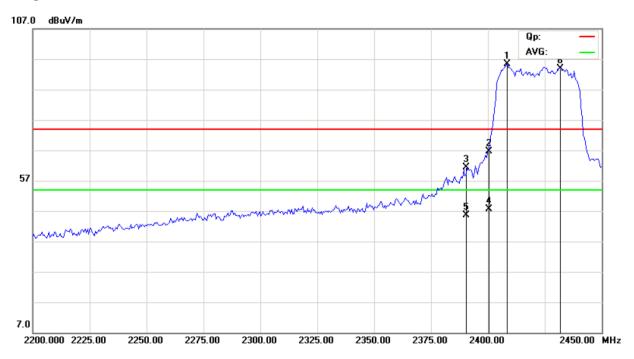
For 802.11n mode

CH01 at 11n HT40 65Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping	g Transmitting	Input Voltage	AC 120V
Temperature	24	24 deg. C,		56% RH
Test Result:		Pass		PK
2390.000	PK (dBμV/m)	61.33	T ::4	$74(dB\mu V/m)$
	AV (dBμV/m)	45.54	Limit	54(dBμV/m)
2400.000	PK (dBμV/m)	66.75	Limit	74(dBμV/m)
	AV (dBμV/m)	47.57		54(dBµV/m)

Test Figure: Vertical



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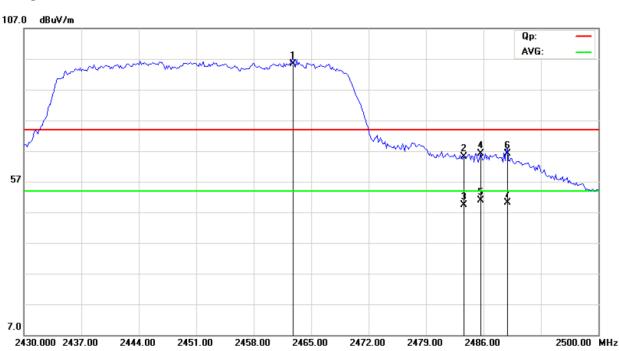
For 802.11n mode

CH11 at 11n HT40 65Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humid Pity	56% RH
Test Result:		Pass		PK
2483.500	PK (dBµV/m)	65.23	Limit	74(dBµV/m)
	AV ($dB\mu V/m$)	49.40	Limit	54(dBµV/m)
2485.691	PK (dBμV/m)	66.31	Limit	74(dBμV/m)
	AV ($dB\mu V/m$)	50.84	Limit	54(dBµV/m)
2488.918	PK (dBμV/m)	66.14	T ::4	74(dBµV/m)
	AV ($dB\mu V/m$)	50.21	Limit	54(dBµV/m)

Test Figure: Vertical



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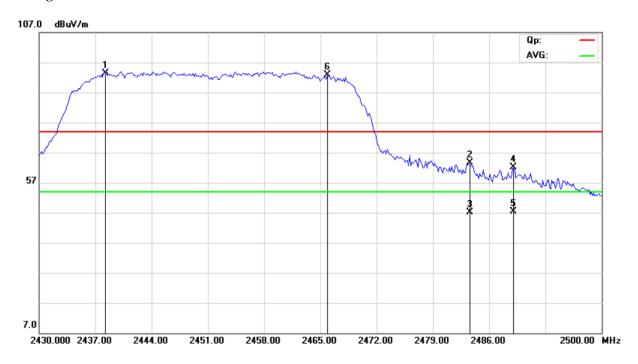
For 802.11n mode

CH11 at 11n HT40 65Mbps

10.4 Restricted band Measurement

Product:	ANDROID TV BOX		Model:	ATV310B
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humid Pity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBµV/m)	63.59	Limit	$74(dB\mu V/m)$
	AV (dBμV/m)	47.13	Limit	$54(dB\mu V/m)$
2489.058	PK (dBµV/m)	62.14	Limit	74(dBμV/m)
	AV (dBμV/m)	47.41	Limit	$54(dB\mu V/m)$

Test Figure: Horizontal



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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 antenna used. The maximum Gain of the antennas is 2.5dBi.

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12.0 Maximum Permissible Exposure

Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

(a) Limits for Occupational / Controlled Exposure

(w) Zimilo for Strupulonur, Controlled Exposure					
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times $ E ^{2}, H ^{2}$ or S (minutes)	
0.3-3.0	614	1.63	(100)*	6	
3.0-30	1842/f	4.89/f	(900/f)*	6	
30-300	61.4	0.163	1.0	6	
300-1500			F/300	6	
1500-100000			5	6	

(b) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E 2 , H 2 or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100000			1.0	30

Note: f=frequency in MHz; *Plane-wave equivalent power density

MPE Calculation Method

 $E(V/m) = (30*P*G)^{0.5}/d$ Power Density: Pd $(W/m^2) = E^2/377$

 $\mathbf{E} = \text{Electric Field (V/m)}$

 $\mathbf{P} = \text{Peak RF output Power (W)}$

G = EUT Antenna numeric gain (numeric)

 \mathbf{d} = Separation distance between radiator and human body (m)

The formula can be changed to

 $Pd = (30*P*G) / (377*d^2)$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

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

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Calculated Result and Limit

Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
1.778	18.85	76.736	0.02714	1	Compiles

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13.0 FCC ID Label

FCC ID: ZJU-000120010

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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14.0 Photo of testing

Conducted Emissions



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Radiated Emissions





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Photo for the EUT

Outside view





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Outside view





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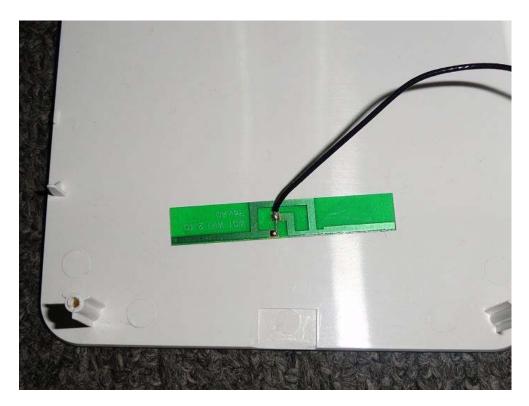
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Inside view





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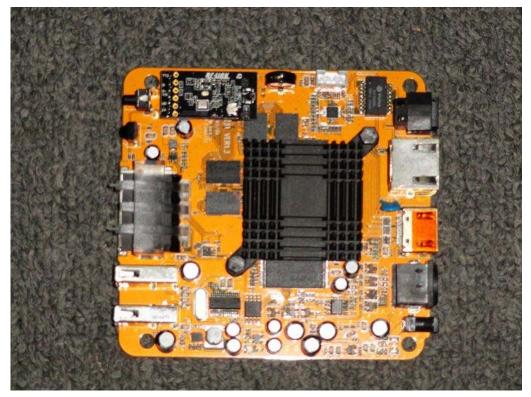
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Inside view





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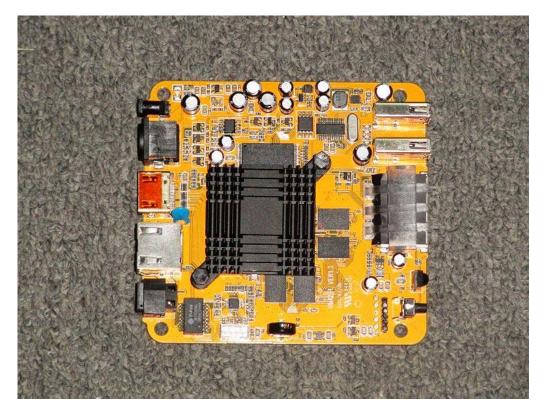
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Inside view





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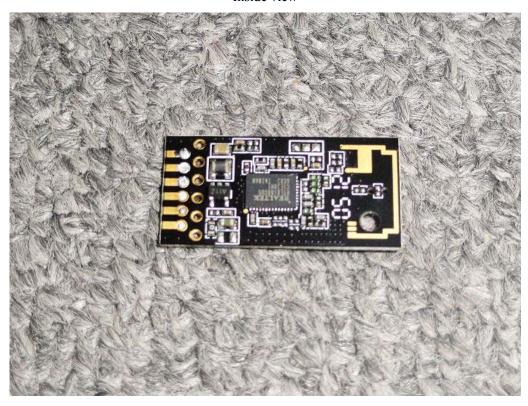
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Inside view





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ADAPTER





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End of the report