

TECHNICAL REPORT



Report No.: FCC 1902047-04
File reference No.: 2019-03-05

Applicant: Shenzhen Geniatech Inc., Ltd.

Product: Enjoy TV

Model No.: APC390R, ATV390R

Trademark: N/A

Test Standards: FCC Part 15 Subpart E, Paragraph 15.407 and RSS-247 Issue 2

Test result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10, FCC Part 15 Subpart C, Paragraph 15.247 and RSS-247 regulations for the evaluation of electromagnetic compatibility

Approved By

Jack Chung

Jack Chung

Manager

Dated: March 05, 2018

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

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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.

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Test Report Conclusion

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1.0 General Details

1.1 Test Lab Details

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 with Federal Communications commission (FCC)
Registration Number:744189
For 3m Anechoic Chamber
Site Listed with Industry Canada of Ottawa, Canada
Registration Number: IC: 5205A-02
For 3m Anechoic Chamber

1.2 Applicant Details

Applicant: Shenzhen Geniatech Inc., Ltd.
Address: 18F, GDC Building, No 9th, Gaoxin Middle 3rd Road, Nanshan, Shenzhen, China
Telephone: --
Fax: --

1.3 Description of EUT

Product: Enjoy TV
Manufacturer: Shenzhen Geniatech Inc., Ltd.
Address: 18F, GDC Building, No 9th, Gaoxin Middle 3rd Road, Nanshan, Shenzhen, China
Brand Name: N/A
Additional Brand Name: N/A
Model Number: APC390R
Additional Model Number: ATV390R
Type of Modulation IEEE 802.11a/n (HT20/HT40) : OFDM(64QAM, 16QAM, QPSK, BPSK)
Frequency Band 1: 5180MHz-5240MHz;
Channel Separation 802.11a/802.11n20:20MHz, 802.11n40:40MHz
Air Data Rate IEEE 802.11a : 54, 48,36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11n/HT20: mcs0: 6.5Mbps,mcs1:13Mbps,mcs2:19.5Mbps,mcs3:26Mbps,
mcs4:39Mbps,mcs5:52Mbps,mcs6:58.5Mbps,mcs7:65Mbps
IEEE 802.11n/HT40: mcs0:15Mbps,mcs1:30Mbps,mcs2:45Mbps,mcs3:60Mbps,
mcs4:90Mbps,mcs5:120Mbps,mcs6:135Mbps,mcs7:150Mbps
Antenna: Two Integral antennas used.
Antenna Gain: Maximum 3.2dBi for each antenna , Directional gain 6.21dBi
Test Mode: During testing, EUT was set to 100% duty cycle. 6Mbps air data rate was the worst case

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for 802.11a mode; mcs0 air data rate was the worst case for 802.11n mode;
 All modes are MIMO modes.

Input Voltage: DC5V
 Power Adapter Model: TEKA012-0502000UK;
 Input: 100-240V~50/60Hz 0.35A Max; Output: DC5V,2A

Each Channel Operation Frequency

Band 1					
802.11a / 11n HT20		802.11n HT40			
Channel	Frequency	Channel	Frequency		
36	5180MHz	38	5190 MHz		
40	5200 MHz	46	5230 MHz		
44	5220 MHz				
48	5240 MHz				

The selected test channels as follows:

Band 1					
802.11a / 11n HT20		802.11n HT40			
Channel	Frequency	Channel	Frequency		
36	5180MHz	38	5190 MHz		
40	5200 MHz	46	5230 MHz		
48	5240 MHz				

- 1.4 Submitted Sample: 2 Samples
- 1.5 Test Duration: 2019-02-18 to 2019-03-01
- 1.6 Test Uncertainty
 - 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%

1.7 Test Engineer Terry Tang
 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	2018-06-22	2019-06-21
TWO Line-V-NETW	R&S	EZH3-Z5	100294	2018-06-22	2019-06-21
TWO Line-V-NETW	R&S	EZH3-Z5	100253	2018-06-22	2019-06-21
Ultra Broadband ANT	R&S	HL562	100157	2018-06-18	2019-06-17
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2018-06-22	2019-06-21
Loop Antenna	EMCO	6507	00078608	2018-06-25	2019-06-24
Spectrum	R&S	FSIQ26	100292	2018-06-22	2019-06-21
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2018-06-25	2019-06-24
Horn Antenna	R&S	BBHA 9120D	9120D-631	2018-08-24	2019-08-23
Power meter	Anritsu	ML2487A	6K00003613	2018-08-22	2019-08-21
Power sensor	Anritsu	MA2491A	32263	2018-08-22	2019-08-21
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2018-07-04	2019-07-03
9*6*6 Anechoic	--	--	N/A	2018-02-07	2021-02-06
EMI Test Receiver	RS	ESVB	826156/011	2018-06-22	2019-06-21
EMI Test Receiver	RS	ESH3	860904/006	2018-06-22	2019-06-21
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2018-06-22	2019-06-21
Spectrum	HP/Agilent	E4407B	MY50441392	2018-03-27	2019-03-26
Spectrum	RS	FSP	1164.4391.38	2019-01-20	2020-01-19
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA	--	2018-05-24	2019-05-23
RF Cable	Zhengdi	7m	--	2018-03-17	2019-03-16
RF Switch	EM	EMSW18	060391	2018-06-22	2019-06-21
Pre-Amplifier	Schwarebeck	BBV9743	#218	2018-06-22	2019-06-21
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2018-08-05	2019-08-04
LISN	SCHAFFNER	NNB42	00012	2019-01-08	2020-01-07

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3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:			
Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart E Paragraph 15.407 (b)(1), Part 15.205 and Part 15.209	Undesirable Emission and Restrict band	PASS	Complies
FCC Part 15, Paragraph 15.407 (a)(1)(iv)	maximum conducted output power	PASS	Complies
FCC Part 15, Paragraph 15.407 (5)	26 dB emission bandwidth 99% BW	PASS	Complies
FCC Part 15, Paragraph 15.407 (a)(1)(iv)	maximum power spectral density	PASS	Complies
FCC Part 15, Paragraph 15.407(g)	Frequency Stability	PASS	Complies

3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.407, ANSI C63.10 :2013, ANSI C63.4 :2014 789033 D02 General UNII Test Procedures New Rules v02r01

4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES.

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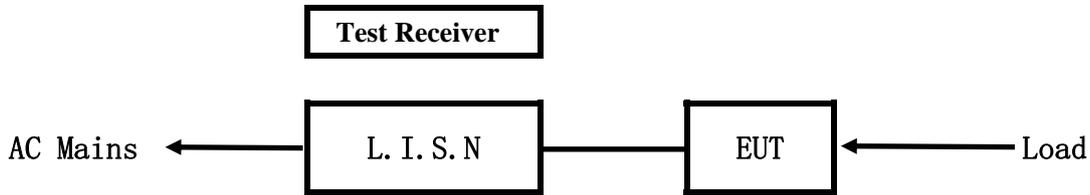
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5. Power Line Conducted Emission Test

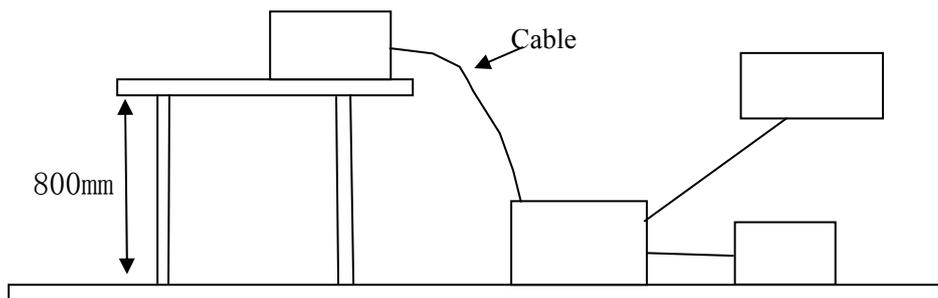
5.1 Schematics of the test



EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10-2013.
 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
		Enjoy TV	Shenzhen Geniatech Inc., Ltd.	APC390R, ATV390R	ZJU-F19AF3

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B. Internal Device

Device	Manufacturer	Model	Rating

C. Peripherals

Device	Manufacturer	Model	Rating

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10 -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 and 15.107

Frequency (MHz)	Class A Limits (dB μ V)		Class B Limits (dB μ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ~ 0.50	79.0	66.0	66.0~56.0	56.0~46.0*
0.50 ~ 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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A: Conducted Emission on Live Terminal (150kHz to 30MHz)

EUT Operating Environment

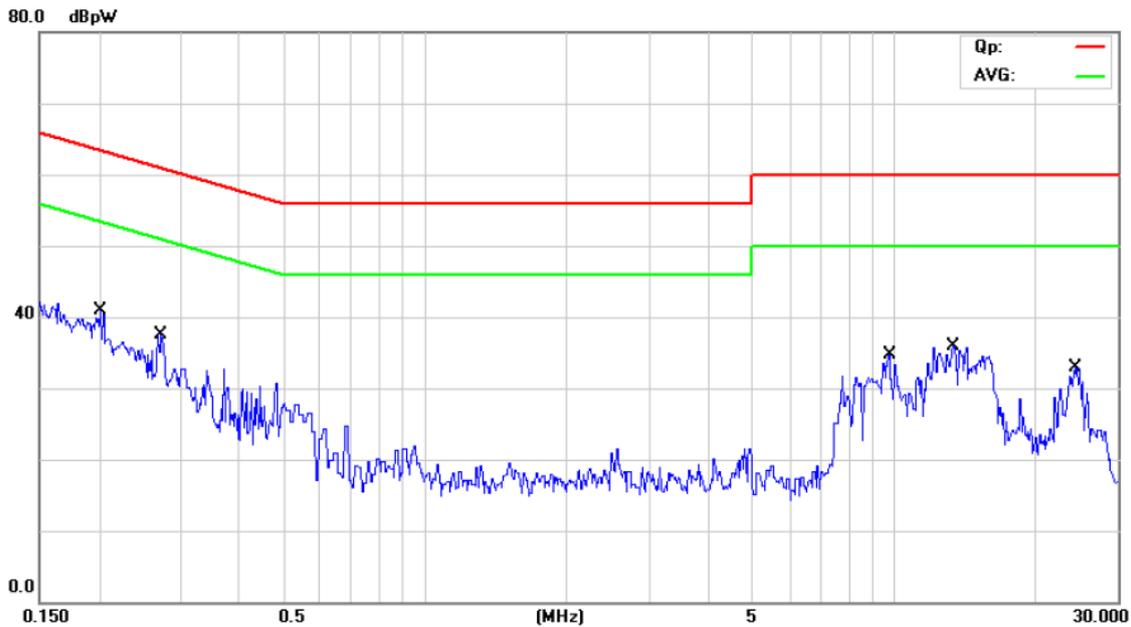
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Keeping MIMO Transmitting

Equipment Level: Class B

Results: PASS

Please refer to following diagram for individual



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBpW	dB	dBpW	dBpW	dB		
1	*	0.2031	34.90	0.00	34.90	63.48	-28.58	QP	
2		0.2031	6.60	0.00	6.60	53.48	-46.88	AVG	
3		0.2737	30.80	0.00	30.80	61.00	-30.20	QP	
4		0.2737	1.30	0.00	1.30	51.00	-49.70	AVG	
5		9.7642	29.20	0.00	29.20	60.00	-30.80	QP	
6		9.7642	-1.80	0.00	-1.80	50.00	-51.80	AVG	
7		13.4422	30.00	0.00	30.00	60.00	-30.00	QP	
8		13.4422	3.20	0.00	3.20	50.00	-46.80	AVG	
9		24.4190	23.60	0.00	23.60	60.00	-36.40	QP	
10		24.4190	-1.80	0.00	-1.80	50.00	-51.80	AVG	

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

EUT Operating Environment

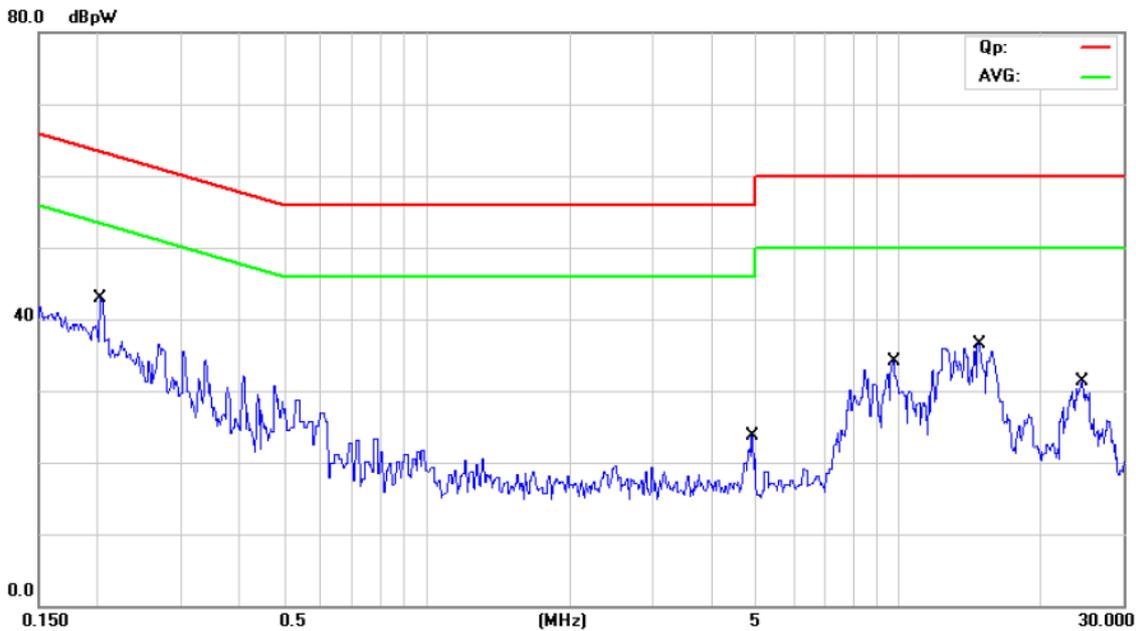
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Keeping MIMO Transmitting

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBpW	dB	dBpW	dBpW	dB		
1	*	0.2031	37.80	0.00	37.80	63.48	-25.68	QP	
2		0.2031	7.70	0.00	7.70	53.48	-45.78	AVG	
3		4.9054	12.90	0.00	12.90	56.00	-43.10	QP	
4		4.9054	-13.80	0.00	-13.80	46.00	-59.80	AVG	
5		9.7537	26.60	0.00	26.60	60.00	-33.40	QP	
6		9.7537	-2.70	0.00	-2.70	50.00	-52.70	AVG	
7		14.7760	30.40	0.00	30.40	60.00	-29.60	QP	
8		14.7760	2.20	0.00	2.20	50.00	-47.80	AVG	
9		24.5630	25.30	0.00	25.30	60.00	-34.70	QP	
10		24.5630	-0.80	0.00	-0.80	50.00	-50.80	AVG	

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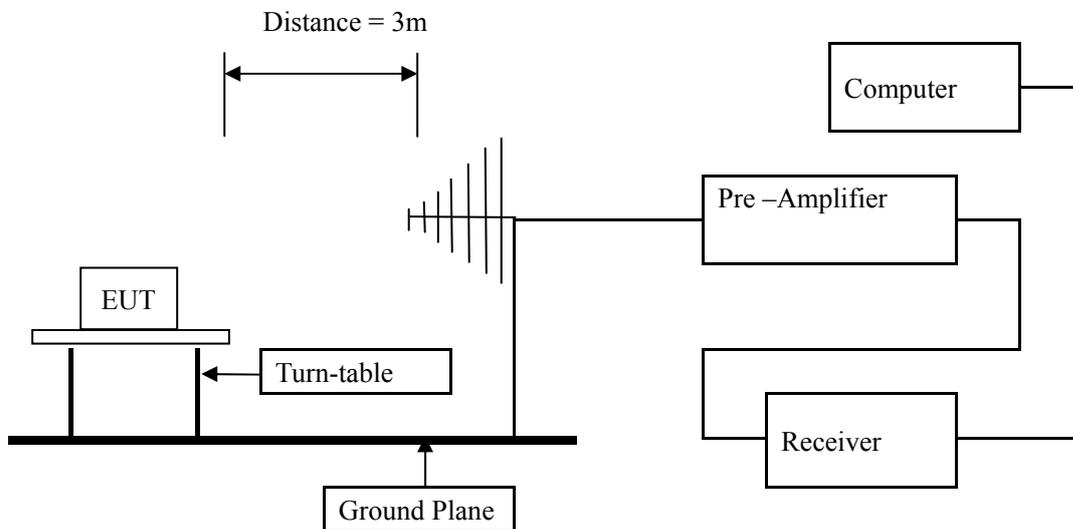


6 Undesirable Emission and Restrict band

6.1 Test Method and test Procedure:

- (1) 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 40 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=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



- 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

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

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

- (1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz
- (2) For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27dBm/MHz.

- 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. 802.11a/802.11n20 and 802.11n40 MIMO mode all have been tested ,only worse case is reported

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Test result

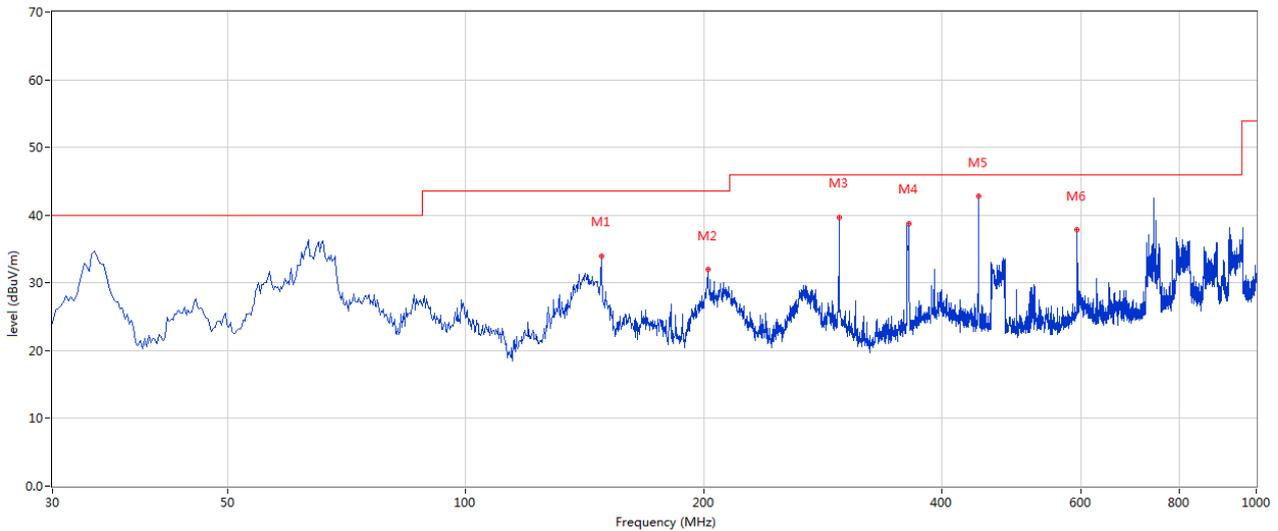
General Radiated Emission Data and Harmonics Radiated Emission Data

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

EUT set Condition: Keeping MIMO Transmitting

Results: Pass

FCC_FCC Part 15B Class B 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	148.310	34.01	-17.16	43.5	-9.49	Peak	329.00	100	V	Pass
2	202.374	31.93	-13.39	43.5	-11.57	Peak	336.00	200	V	Pass
3	296.683	39.69	-11.04	46.0	-6.31	Peak	296.00	100	V	Pass
4	363.597	38.79	-9.56	46.0	-7.21	Peak	65.00	100	V	Pass
5	445.299	42.82	-8.00	46.0	-3.18	Peak	360.00	200	V	Pass
6	593.914	37.80	-5.25	46.0	-8.20	Peak	183.00	100	V	Pass

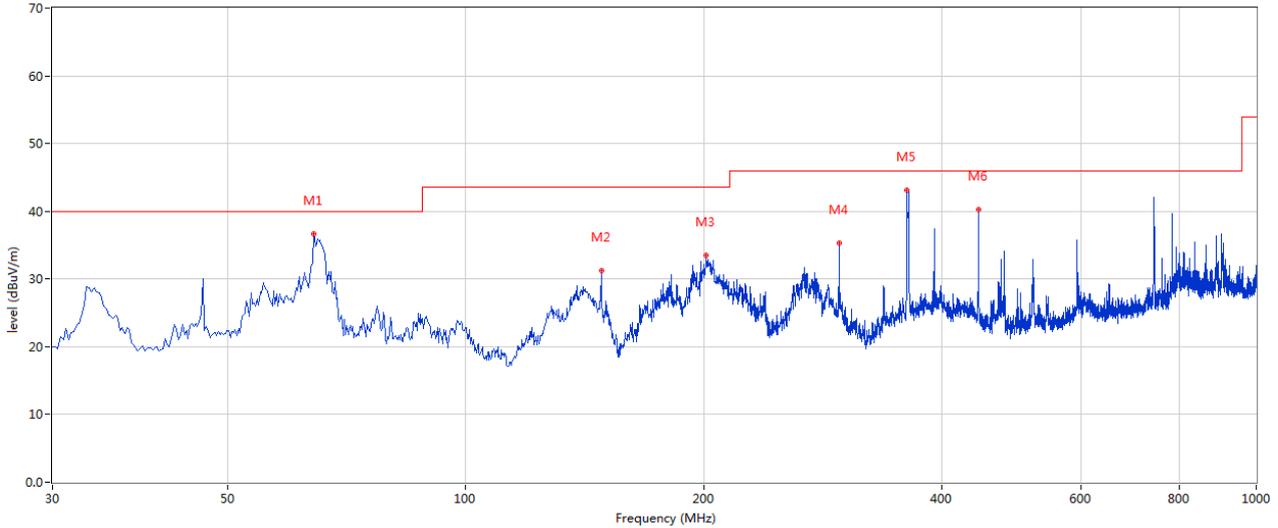
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FCC_FCC Part 15B Class B 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	64.184	36.66	-13.37	40.0	-3.34	Peak	140.00	200	H	Pass
2	148.310	31.20	-17.16	43.5	-12.30	Peak	14.00	200	H	Pass
3	201.647	33.51	-13.41	43.5	-9.99	Peak	360.00	200	H	Pass
4	296.683	35.25	-11.04	46.0	-10.75	Peak	178.00	100	H	Pass
5	361.415	43.08	-9.51	46.0	-2.92	Peak	132.00	100	H	Pass
6	445.299	40.26	-8.00	46.0	-5.74	Peak	146.00	100	H	Pass

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Operation Mode: Keeping Transmitting under CH36 for 11a at 6Mbps

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
5180.00	--	H	Fundamental Frequency
5180.00	--	V	
10360	--	H	74(Peak)/ 54(AV)
15540	--	V	74(Peak)/ 54(AV)
20720	--	H/V	74(Peak)/ 54(AV)
25900	--	H/V	74(Peak)/ 54(AV)
31080	--	H/V	74(Peak)/ 54(AV)
36260	--	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 802.11a mode 6Mbps

Operation Mode: Keeping Transmitting under CH40 for 11a at 6Mbps

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
5200.00	-	H	Fundamental Frequency
5200.00	--	V	
10400	--	H	74(Peak)/ 54(AV)
15600	--	V	74(Peak)/ 54(AV)
20800	--	H/V	74(Peak)/ 54(AV)
26000	--	H/V	74(Peak)/ 54(AV)
31200	--	H/V	74(Peak)/ 54(AV)
36400	--	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 802.11a mode 6Mbps

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Operation Mode: Keeping Transmitting under CH48 for 11a at 6Mbps

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
5240.00	--	H	Fundamental Frequency
5240.00	--	V	
10480	--	H	74(Peak)/ 54(AV)
15720	--	V	74(Peak)/ 54(AV)
20960	--	H/V	74(Peak)/ 54(AV)
26200	--	H/V	74(Peak)/ 54(AV)
31440	--	H/V	74(Peak)/ 54(AV)
36680	--	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 802.11a mode 6Mbps

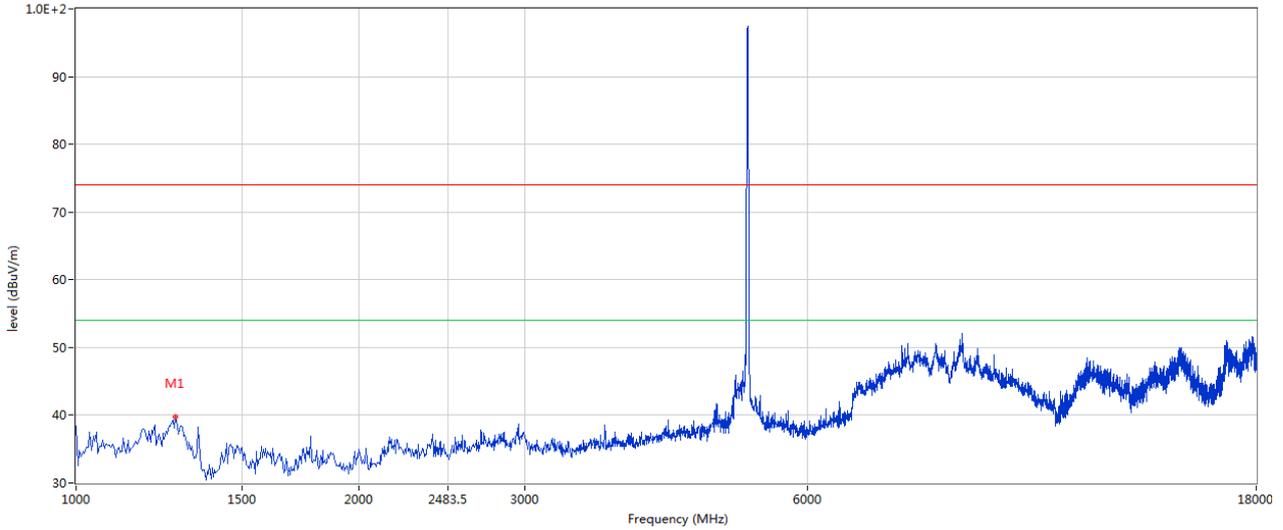
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Please refer to the following test plots for details:

CH36 for 11a MIMO at 6Mbps: Horizontal

FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1276.181	39.74	-8.40	74.0	-34.26	Peak	277.00	100	H	Pass

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

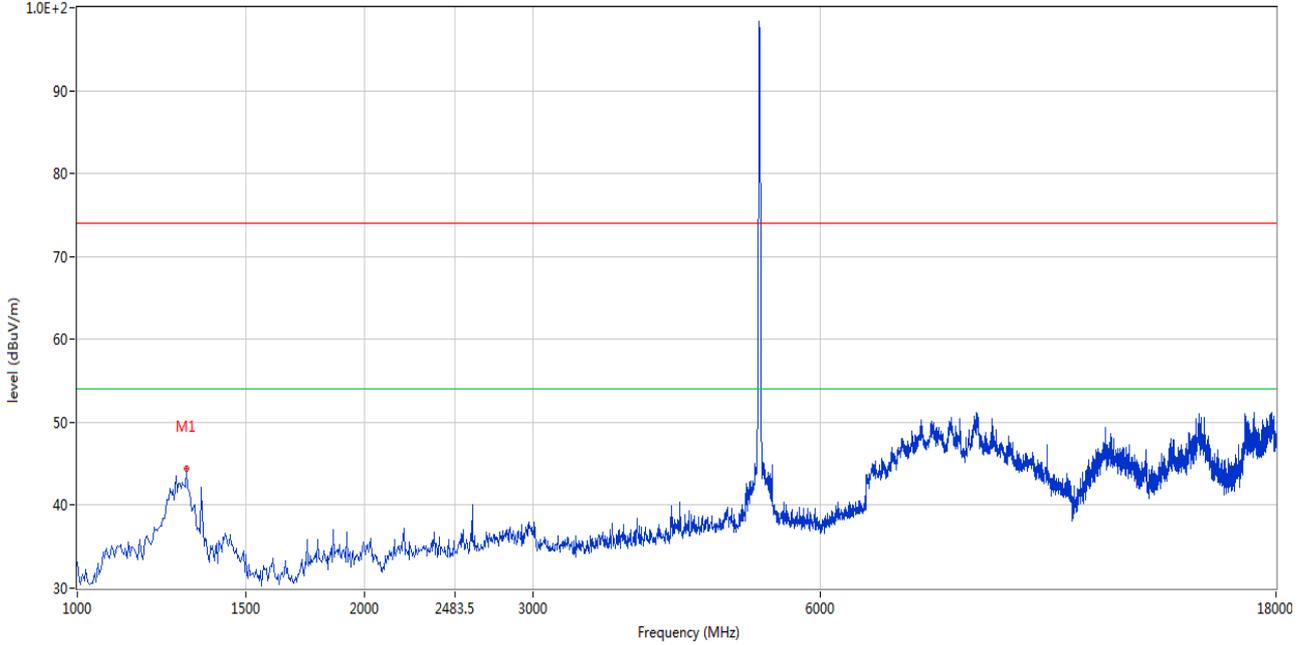
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CH36 for 11a MIMO at 6Mbps: Vertical

FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1301.675	44.48	-8.24	74.0	-29.52	Peak	3.00	100	V	Pass

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

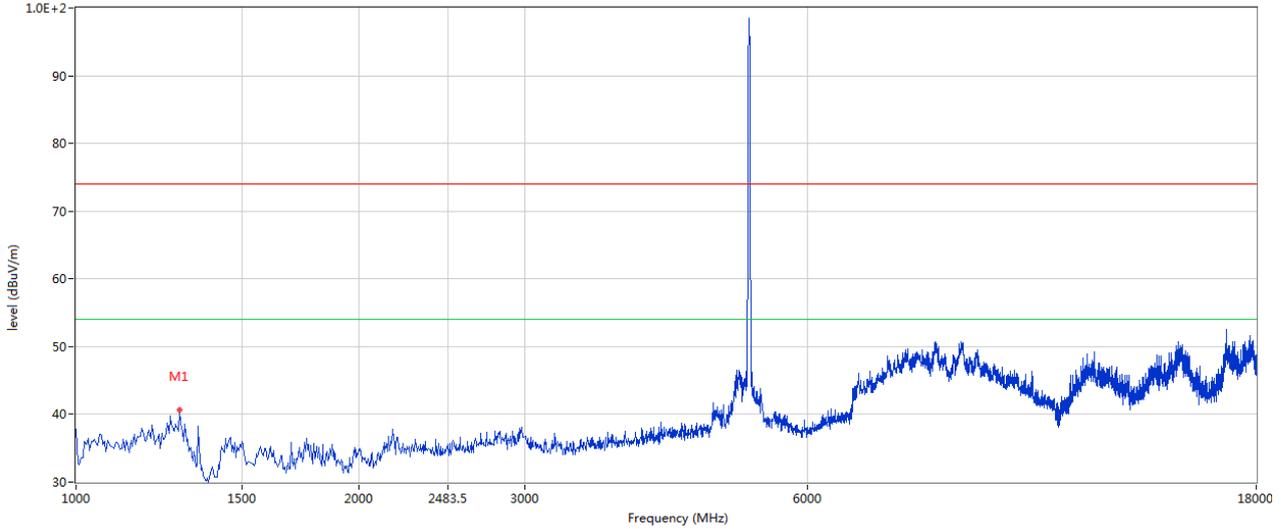
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CH40 for 11a MIMO at 6Mbps: Horizontal

FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1288.928	40.64	-8.31	74.0	-33.36	Peak	272.00	100	H	Pass

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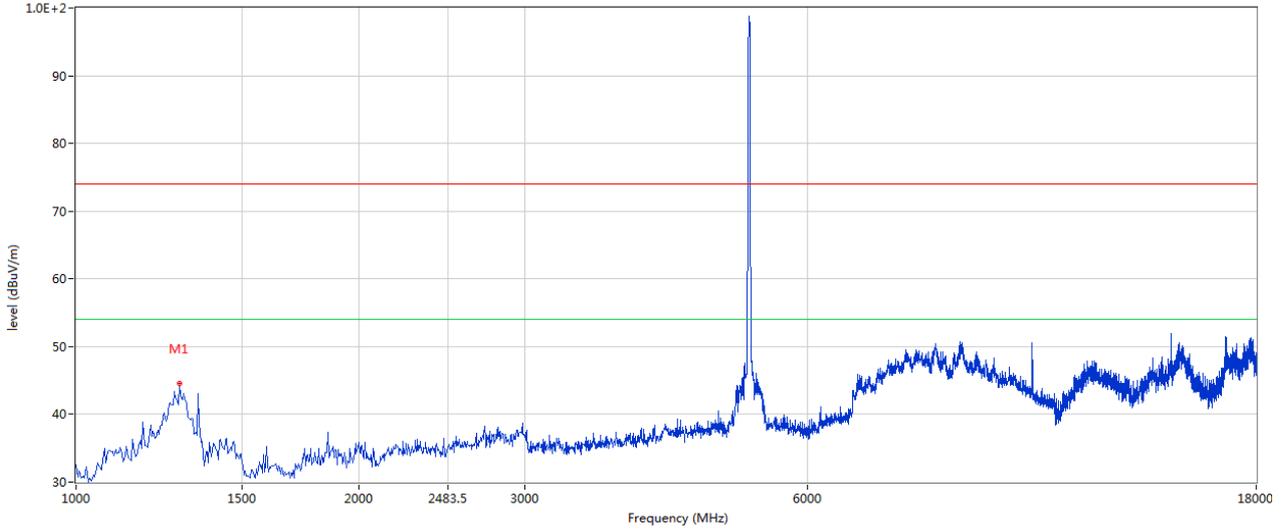
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CH40 for 11a MIMO at 6Mbps: Vertical

FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1288.928	44.62	-8.31	74.0	-29.38	Peak	5.00	100	V	Pass

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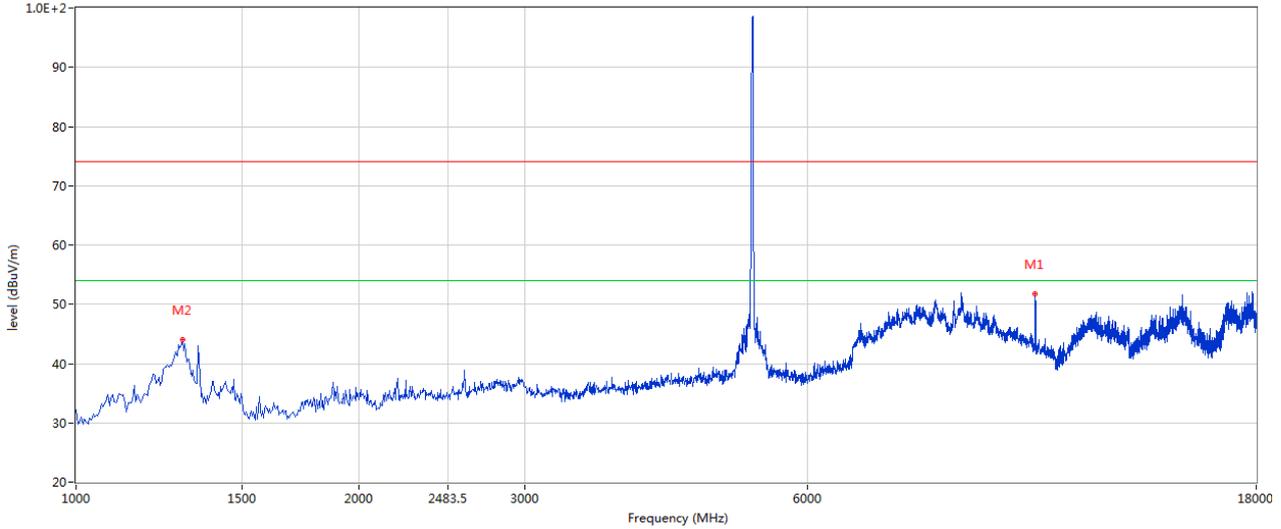
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CH48 for 11a MIMO at 6Mbps: Vertical

FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	10475.131	51.76	6.01	74.0	-22.24	Peak	231.00	100	V	Pass
2	1297.426	44.09	-8.25	74.0	-29.91	Peak	337.00	100	V	Pass

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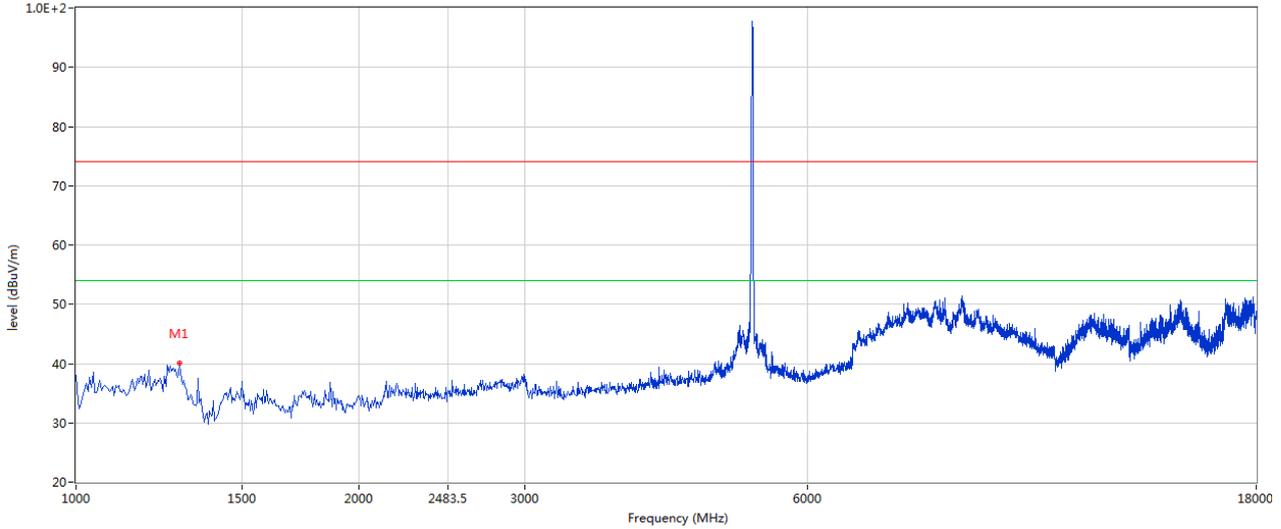
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CH48 for 11a MIMO at 6Mbps: Horizontal

FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1288.928	40.07	-8.31	74.0	-33.93	Peak	270.00	100	H	Pass

Note: 1.For radiated Emissions from 18-40GHz, it is only the floor noise.

2. 802.11a MIMO mode is the worst case.

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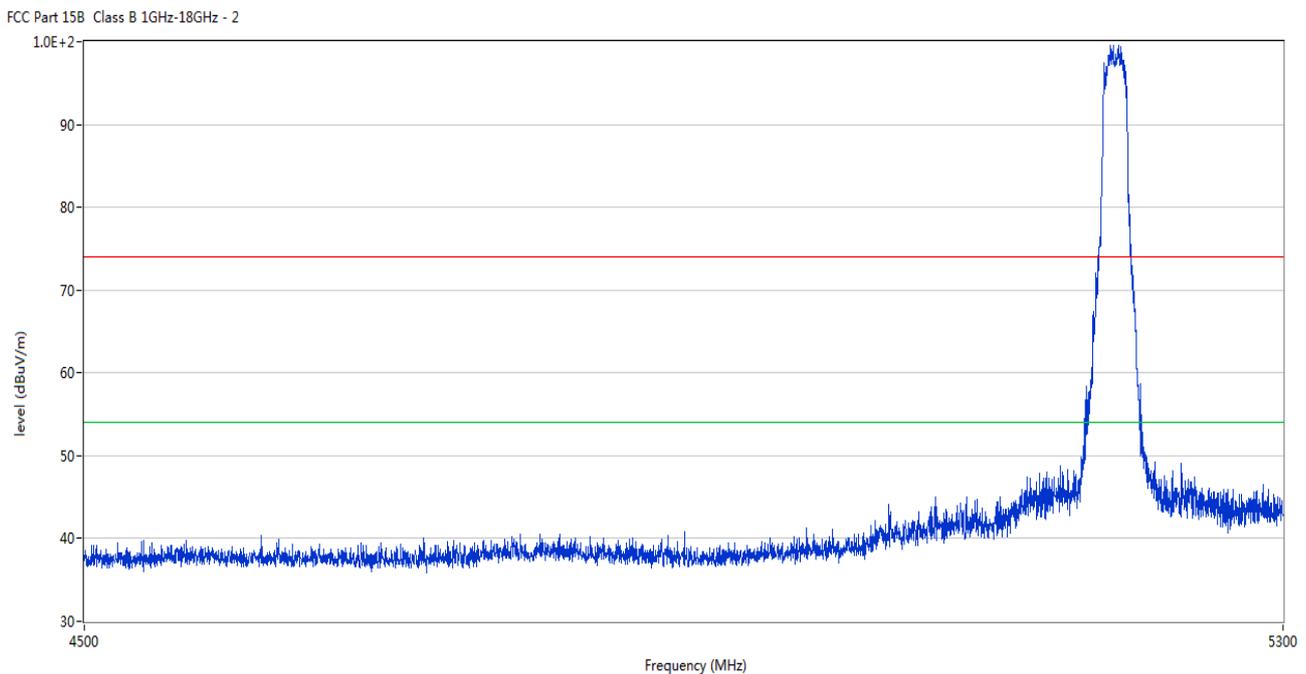
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Restricted band Measurement			
EUT	Enjoy TV		Test Mode: Channel 36 (5180MHz)-11a MIMO
Mode	Keeping Transmitting		Input Voltage 120V~
Temperature	24 deg. C,		Humidity 56% RH
Test Result:	Pass		Detector PK
5150	PK (dBμV/m)	48.15 (PK)	Limit -27dBm/MHz
	EIRP (dBm)	-47.05	
Polarity	Vertical		--

Test Figure



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	5150.000	48.15	3.73	74.0	-25.85	Peak	234.00	100	V	Pass

Remark: 1. According to KDB 789033 v01r03 section H) d) (iii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

For Example, if $E[dB\mu V/m]=48.15 dB\mu V/m$,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2=48.15-95.2=-47.05dBm$$

2. RBW=1MHz, VBW=3MHz

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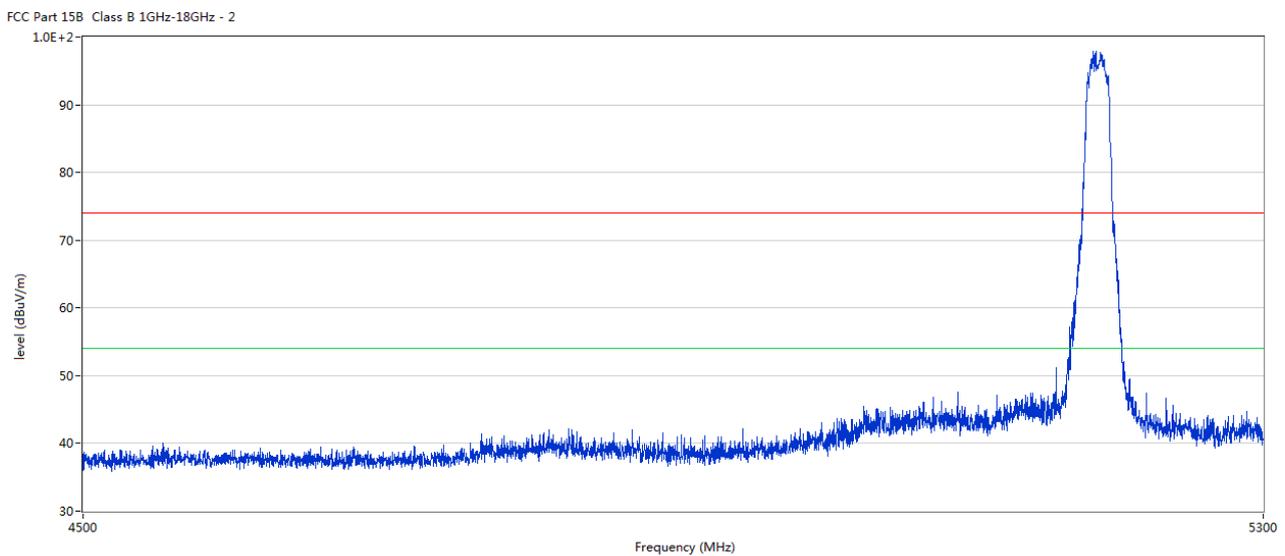
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Restricted band Measurement			
EUT	Enjoy TV		Test Mode: Channel 36 (5180MHz)-11a MIMO
Mode	Keeping Transmitting		Input Voltage 120V~
Temperature	24 deg. C,		Humidity 56% RH
Test Result:	Pass		Detector PK
5150	PK (dBμV/m)	47.53 (PK)	Limit -27dBm/MHz
	EIRP (dBm)	-47.67	
Polarity	Horizontal		--

Test Figure



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	5150.000	47.53	3.73	74.0	-26.47	Peak	96.00	100	H	Pass

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

For Example, if $E[dB\mu V/m]=47.53 dB\mu V/m$,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2=47.53-95.2= -47.67dBm$$

2. RBW=1MHz, VBW=3MHz

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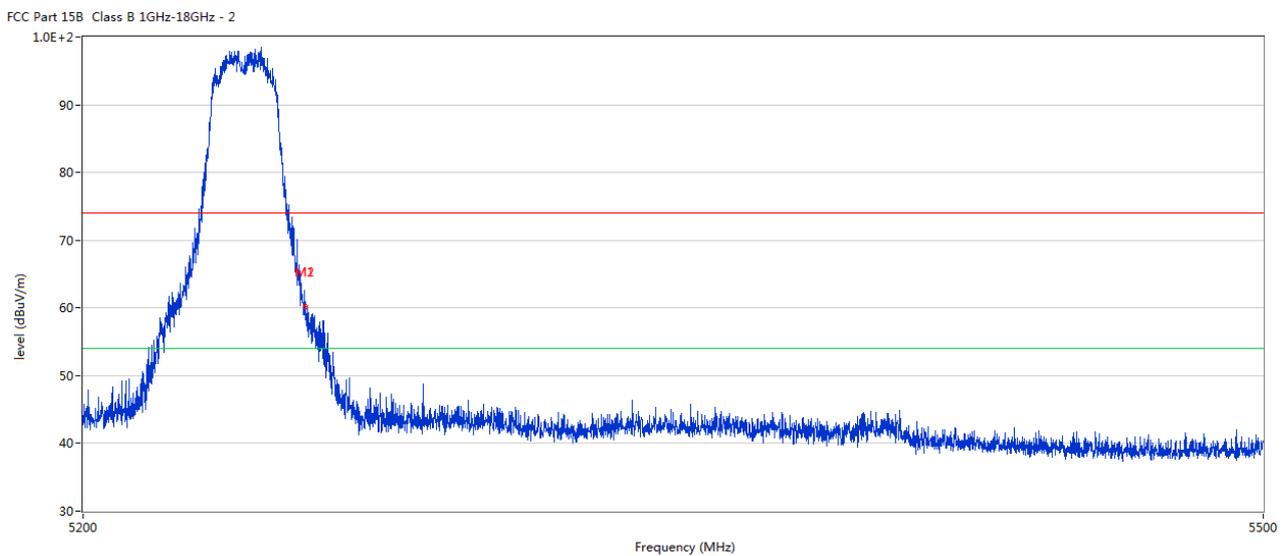
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Restricted band Measurement			
EUT	Enjoy TV		Test Mode: Channel 48 (5240MHz)-11a MIMO
Mode	Keeping Transmitting		Input Voltage 120V~
Temperature	24 deg. C,		Humidity 56% RH
Test Result:	Pass		Detector PK
5250	PK (dBμV/m)	60.18 (PK)	Limit -27dBm/MHz
	EIRP (dBm)	-35.02	
Polarity	Horizontal		

Test Figure



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	5250.000	60.18	3.55	74.0	-13.82	Peak	108.00	100	H	Pass
1	5250.000	46.52	3.55	54.0	-7.48	AV	108.00	100	H	Pass

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

For Example, if $E[dB\mu V/m]=60.18 dB\mu V/m$,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2=60.18-95.2= -35.02dBm$$

2. RBW=1MHz, VBW=3MHz

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

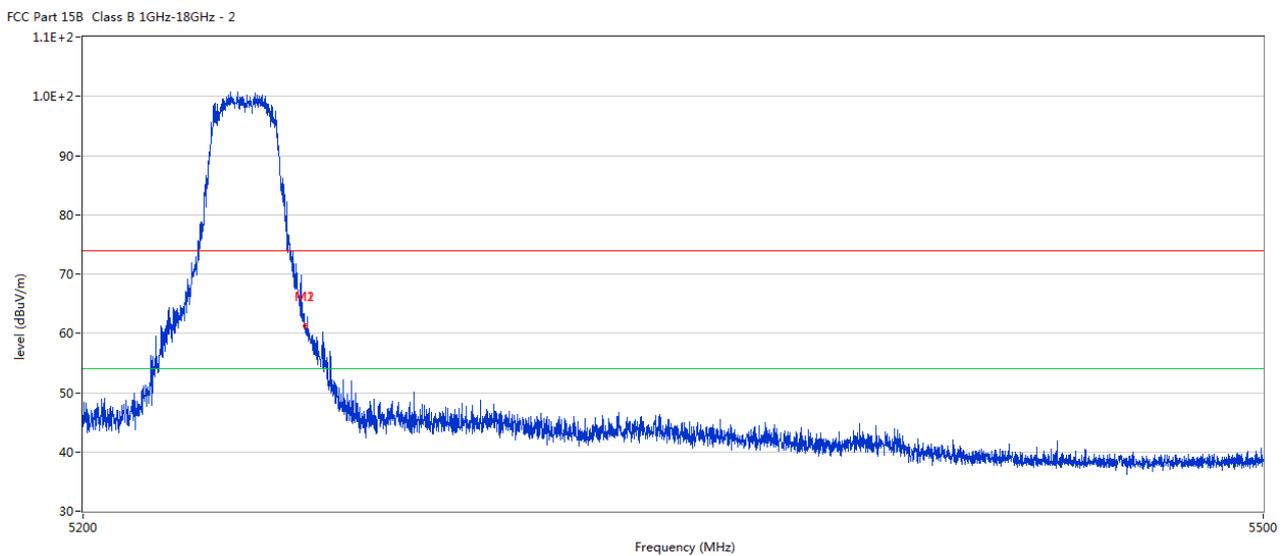
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Restricted band Measurement			
EUT	Enjoy TV		Test Mode: Channel 48 (5240MHz)-11a MIMO
Mode	Keeping Transmitting		Input Voltage 120V~
Temperature	24 deg. C,		Humidity 56% RH
Test Result:	Pass		Detector PK
5250	PK (dBμV/m)	61.20 (PK)	Limit -27dBm/MHz
	EIRP (dBm)	-34.00	
Polarity	Vertical		--

Test Figure



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	5250.000	61.20	3.55	74.0	-12.80	Peak	232.00	100	V	Pass
1	5250.000	47.33	3.55	54.0	-6.67	AV	232.00	100	V	Pass

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

For Example, if $E[dB\mu V/m]=61.20$ dBμV/m,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2=61.20-95.2=-34.00dBm$$

2. RBW=1MHz, VBW=3MHz

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Restricted band Measurement			
EUT	Enjoy TV		Test Mode: Channel 36 (5180MHz)-11n/HT20 MIMO
Mode	Keeping Transmitting		Input Voltage 120V~
Temperature	24 deg. C,		Humidity 56% RH
Test Result:	Pass		Detector PK
5150	PK (dBμV/m)	47.23 (PK)	Limit -27dBm/MHz
	EIRP (dBm)	-47.97	
Polarity	Horizontal		--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

For Example, if $E[dB\mu V/m] = 47.23 \text{ dB}\mu V/m$,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2 = 47.23 - 95.2 = -47.97 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz

Restricted band Measurement			
EUT	Enjoy TV		Test Mode: Channel 36 (5180MHz)-11n/HT20 MIMO
Mode	Keeping Transmitting		Input Voltage 120V~
Temperature	24 deg. C,		Humidity 56% RH
Test Result:	Pass		Detector PK
5150	PK (dBμV/m)	47.68 (PK)	Limit -27dBm/MHz
	EIRP (dBm)	-47.52	
Polarity	Vertical		--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

For Example, if $E[dB\mu V/m] = 47.68 \text{ dB}\mu V/m$,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2 = 47.68 - 95.2 = -47.52 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz

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Restricted band Measurement			
EUT	Enjoy TV		Test Mode: Channel 48 (5240MHz)-11n/HT20 MIMO
Mode	Keeping Transmitting		Input Voltage 120V~
Temperature	24 deg. C,		Humidity 56% RH
Test Result:	Pass		Detector PK
5250	PK (dBμV/m)	58.72 (PK)	Limit -27dBm/MHz
	AV (dBμV/m)	43.38 (AV)	
	EIRP (dBm)	-36.48	
Polarity	Horizontal		

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

For Example, if $E[dB\mu V/m] = 58.72 \text{ dB}\mu V/m$,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2 = 58.72 - 95.2 = -36.48 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz

Restricted band Measurement			
EUT	Enjoy TV		Test Mode: Channel 48 (5240MHz)-11n/HT20 MIMO
Mode	Keeping Transmitting		Input Voltage 120V~
Temperature	24 deg. C,		Humidity 56% RH
Test Result:	Pass		Detector PK
5250	PK (dBμV/m)	59.65 (PK)	Limit -27dBm/MHz
	AV (dBμV/m)	44.69 (AV)	
	EIRP (dBm)	-35.55	
Polarity	Vertical		--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

For Example, if $E[dB\mu V/m] = 59.65 \text{ dB}\mu V/m$,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2 = 59.65 - 95.2 = -35.55 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz

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Restricted band Measurement			
EUT	Enjoy TV		Test Mode: Channel 38 (5190MHz)-11n/HT40 MIMO
Mode	Keeping Transmitting		Input Voltage 120V~
Temperature	24 deg. C,		Humidity 56% RH
Test Result:	Pass		Detector PK
5150	PK (dBμV/m)	45.28 (PK)	Limit -27dBm/MHz
	EIRP (dBm)	-49.92	
Polarity	Horizontal		--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

For Example, if $E[dB\mu V/m]=45.28 dB\mu V/m$,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2=45.28-95.2= -49.92 dBm$$

2. RBW=1MHz, VBW=3MHz

Restricted band Measurement			
EUT	Enjoy TV		Test Mode: Channel 38 (5190MHz)-11n/HT40 MIMO
Mode	Keeping Transmitting		Input Voltage 120V~
Temperature	24 deg. C,		Humidity 56% RH
Test Result:	Pass		Detector PK
5150	PK (dBμV/m)	47.33 (PK)	Limit -27dBm/MHz
	EIRP (dBm)	-47.87	
Polarity	Vertical		--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

For Example, if $E[dB\mu V/m]=47.33 dB\mu V/m$,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2=47.33-95.2= -47.87dBm$$

2. RBW=1MHz, VBW=3MHz

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Restricted band Measurement			
EUT	Enjoy TV		Test Mode: Channel 46 (5230MHz)- 11n/ HT40 MIMO
Mode	Keeping Transmitting		Input Voltage 120V~
Temperature	24 deg. C,		Humidity 56% RH
Test Result:	Pass		Detector PK
5250	PK (dBμV/m)	56.92(PK)	Limit -27dBm/MHz
	AV (dBμV/m)	41.78(AV)	
	EIRP (dBm)	-38.28	
Polarity	Horizontal		

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

For Example, if $E[dB\mu V/m] = 56.92 \text{ dB}\mu V/m$,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2 = 56.92 - 95.2 = -38.28 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz

Restricted band Measurement			
EUT	Enjoy TV		Test Mode: Channel 46 (5230MHz)- 11n/ HT40 MIMO
Mode	Keeping Transmitting		Input Voltage 120V~
Temperature	24 deg. C,		Humidity 56% RH
Test Result:	Pass		Detector PK
5250	PK (dBμV/m)	57.66 (PK)	Limit -27dBm/MHz
	AV (dBμV/m)	43.28 (AV)	
	EIRP (dBm)	-37.54	
Polarity	Vertical		--

Remark: 1. According to KDB 789033 D02 General UNII Test Procedures New Rules v01 section G) d) (ii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

For Example, if $E[dB\mu V/m] = 57.66 \text{ dB}\mu V/m$,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2 = 57.66 - 95.2 = -37.54 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz

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

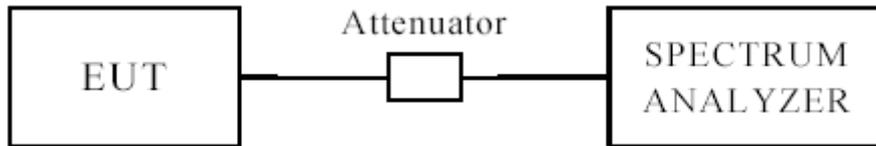
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7.0 Emission Bandwidth

7.1 Test Setup



7.3 Test Procedure for Emission Bandwidth

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set VBW > 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 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

7.4 Test Procedure for Minimum Bandwidth for the Band 5725-5850MHz

1. Set RBW = 100 kHz.
2. Set $VBW \geq 3 \times RBW$.
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 frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.5 Test Procedure for 99% Bandwidth

1. Set center frequency to the nominal EUT channel center frequency
2. Set span = 1.5 times to 5.0 times OBW
3. Set RBW = 1% TO 5% of the OBW
4. Set $VBW \geq 3 \times RBW$
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Other, peak detection and max mode (until trace stabilizes) shall be used.
6. Use the 99% power bandwidth function of the instrument

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7.6 Test Result

EUT		Enjoy TV		Model		APC390R	
Mode		802.11a		Input Voltage		120V~	
Temperature		24 deg. C,		Humidity		56% RH	
Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail		
26dB Bandwidth							
36	5180	6	24.61	--	Pass		
40	5200	6	23.97	--	Pass		
48	5240	6	24.21	--	Pass		
99% Bandwidth							
36	5180	6	16.83	--	Pass		
40	5200	6	16.83	--	Pass		
48	5240	6	16.91	--	Pass		

Note: Ant1 and Ant 2 were tested and only the worst cased was recorded in the test report. Ant 1 was the worst case.

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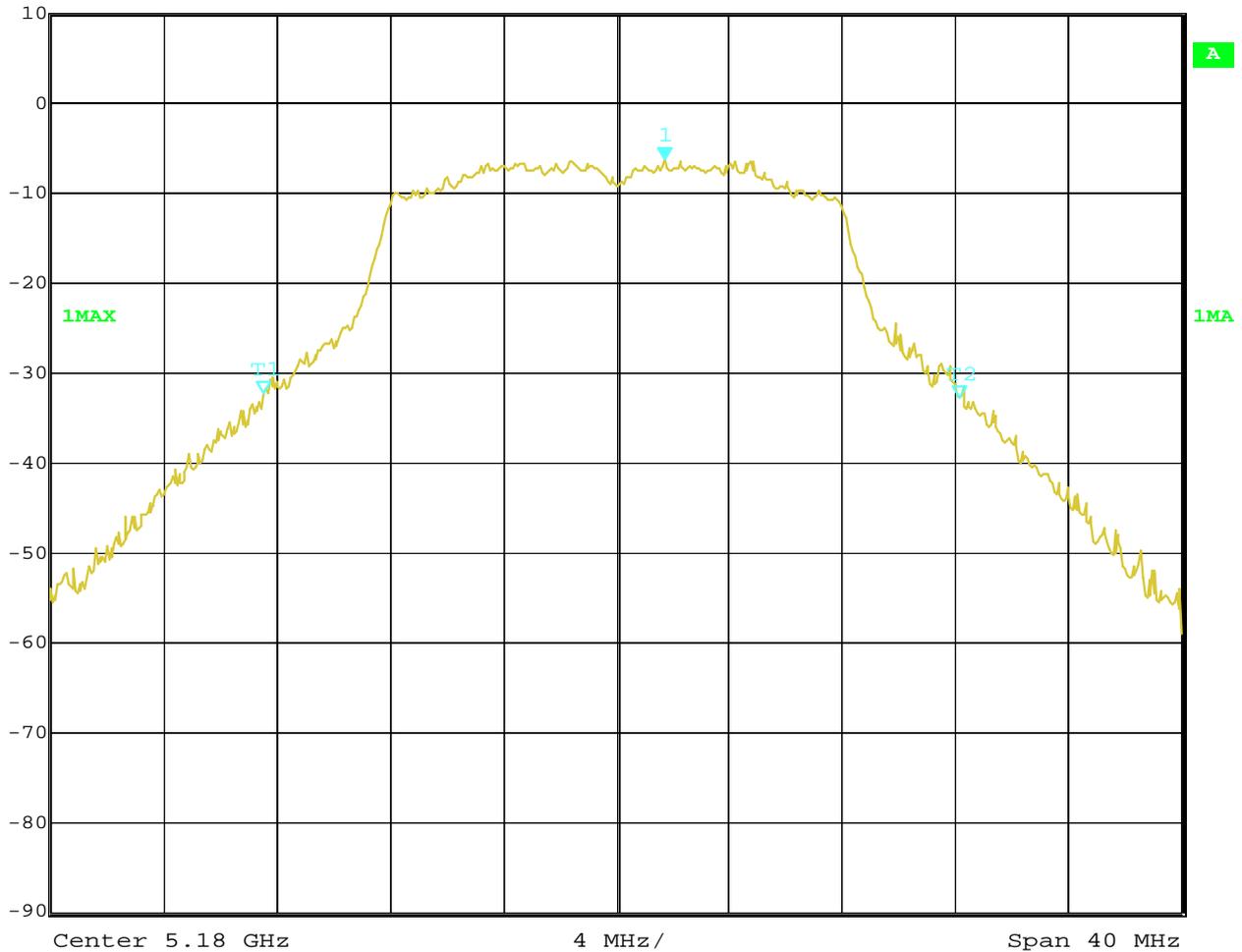


Test Figure:

26dB Bandwidth

Channel 36

	Ref Lvl	Marker 1 [T1 ndB]	RBW	300 kHz	RF Att	20 dB
	10 dBm	ndB 26.00 dB	VBW	1 MHz		
		BW 24.60921844 MHz	SWT	5 ms	Unit	dBm



Date: 19.FEB.2019 09:09:58

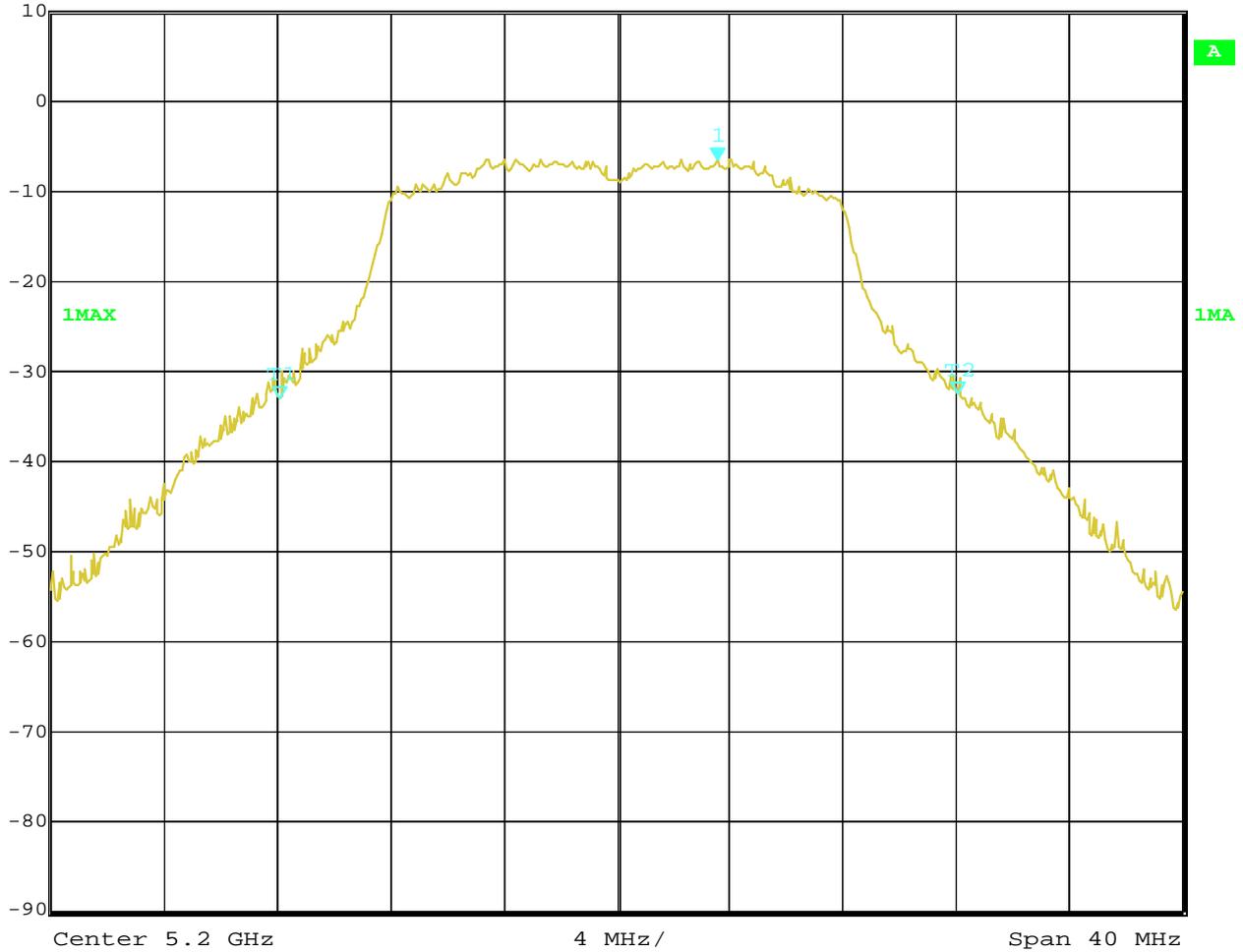
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Channel 40



Ref Lvl	Marker 1 [T1 ndB]	RBW	300 kHz	RF Att	20 dB
10 dBm	ndB 26.00 dB	VBW	1 MHz	Unit	dBm
	BW 23.96793587 MHz	SWT	5 ms		



Date: 19.FEB.2019 09:12:09

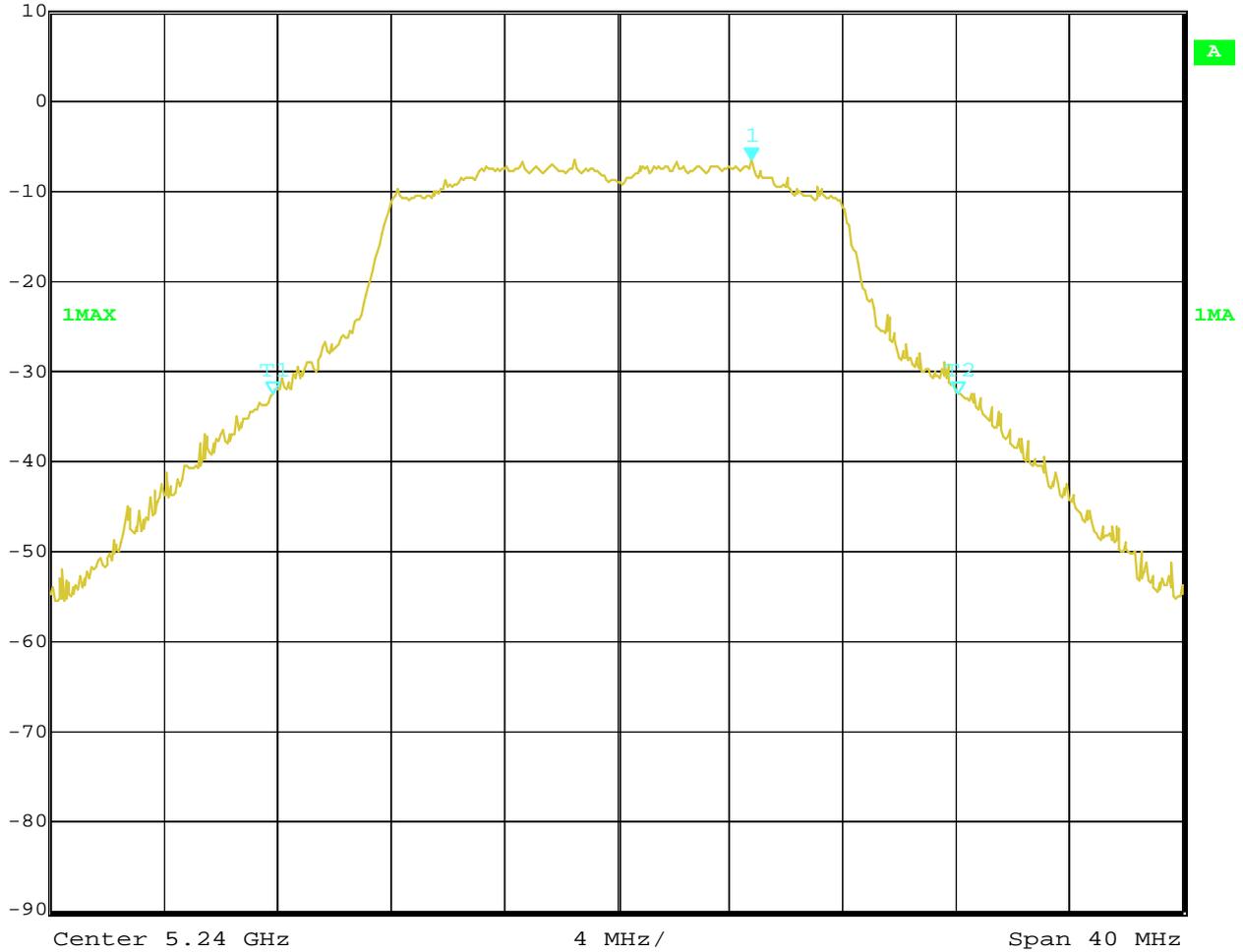
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Channel 48



Ref Lvl	Marker 1 [T1 ndB]	RBW	300 kHz	RF Att	20 dB
10 dBm	ndB 26.00 dB	VBW	1 MHz	Unit	dBm
	BW 24.20841683 MHz	SWT	5 ms		



Date: 19.FEB.2019 09:13:28

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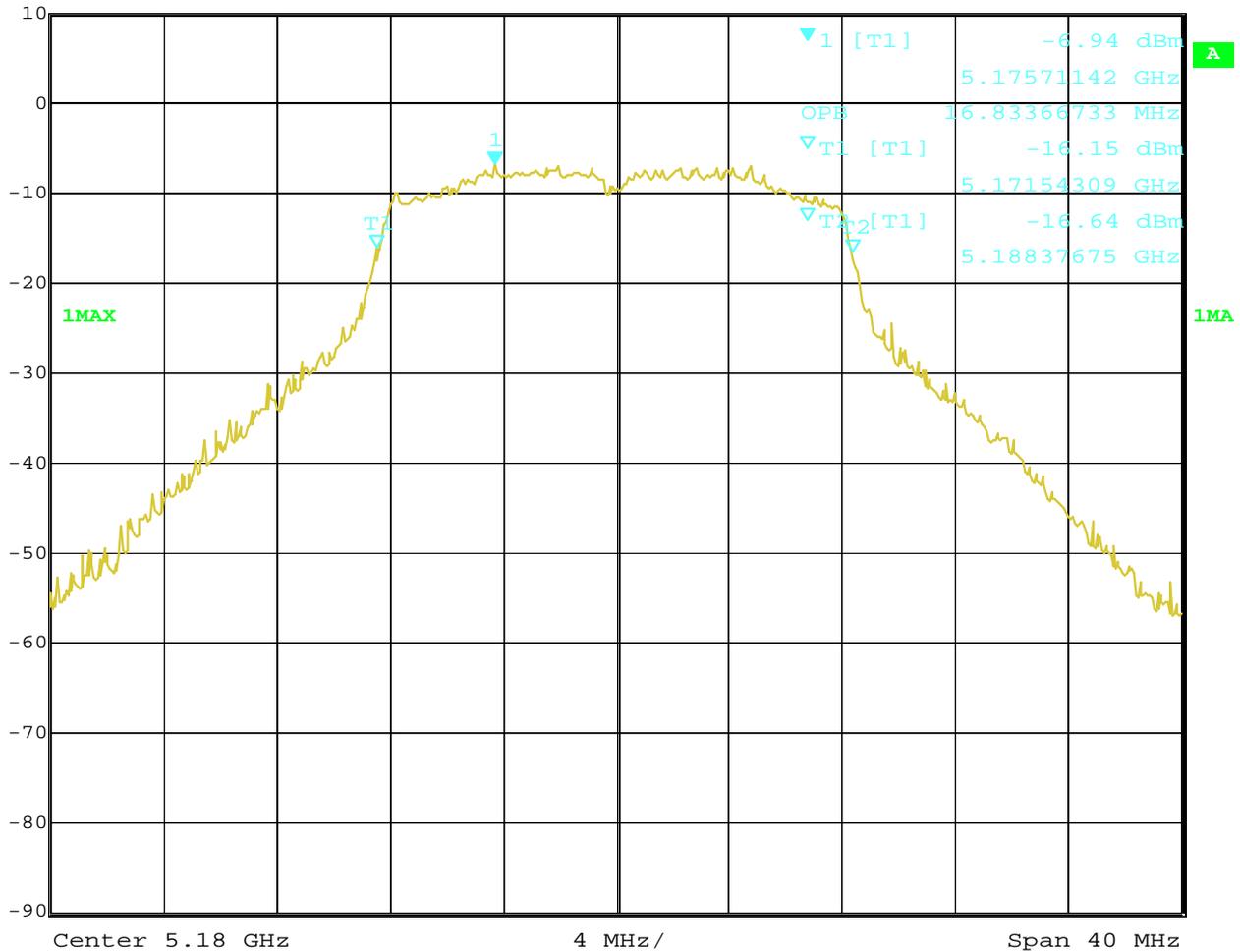


Test Figure:

99% Bandwidth

Channel 36

	Ref Lvl	Marker 1 [T1]	RBW	300 kHz	RF Att	20 dB
	10 dBm	-6.94 dBm	VBW	1 MHz		
		5.17571142 GHz	SWT	5 ms	Unit	dBm



Date: 19.FEB.2019 16:52:54

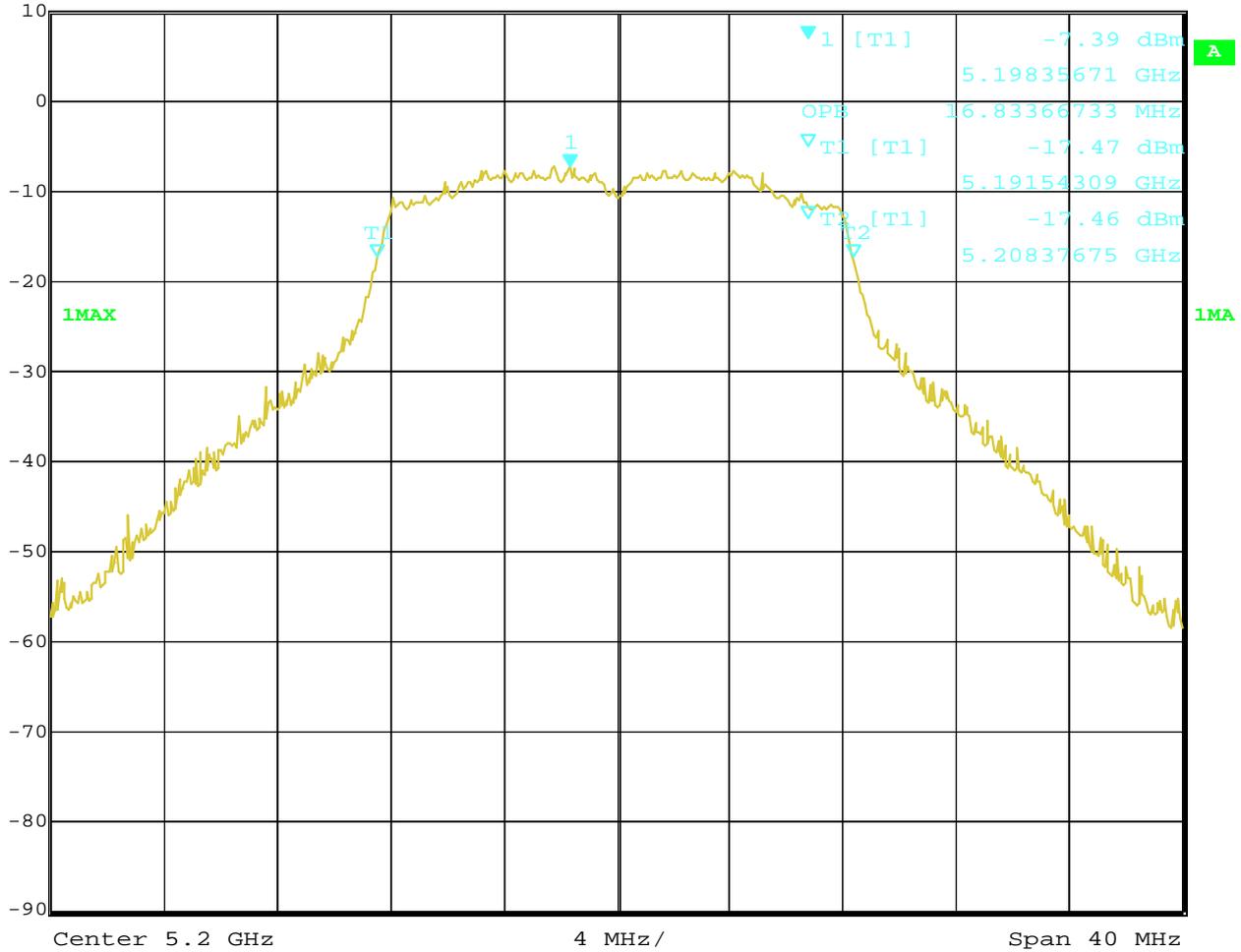
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Channel 40



Ref Lvl	Marker 1 [T1]	RBW	300 kHz	RF Att	20 dB
10 dBm	-7.39 dBm	VBW	1 MHz		
	5.19835671 GHz	SWT	5 ms	Unit	dBm



Date: 19.FEB.2019 16:53:55

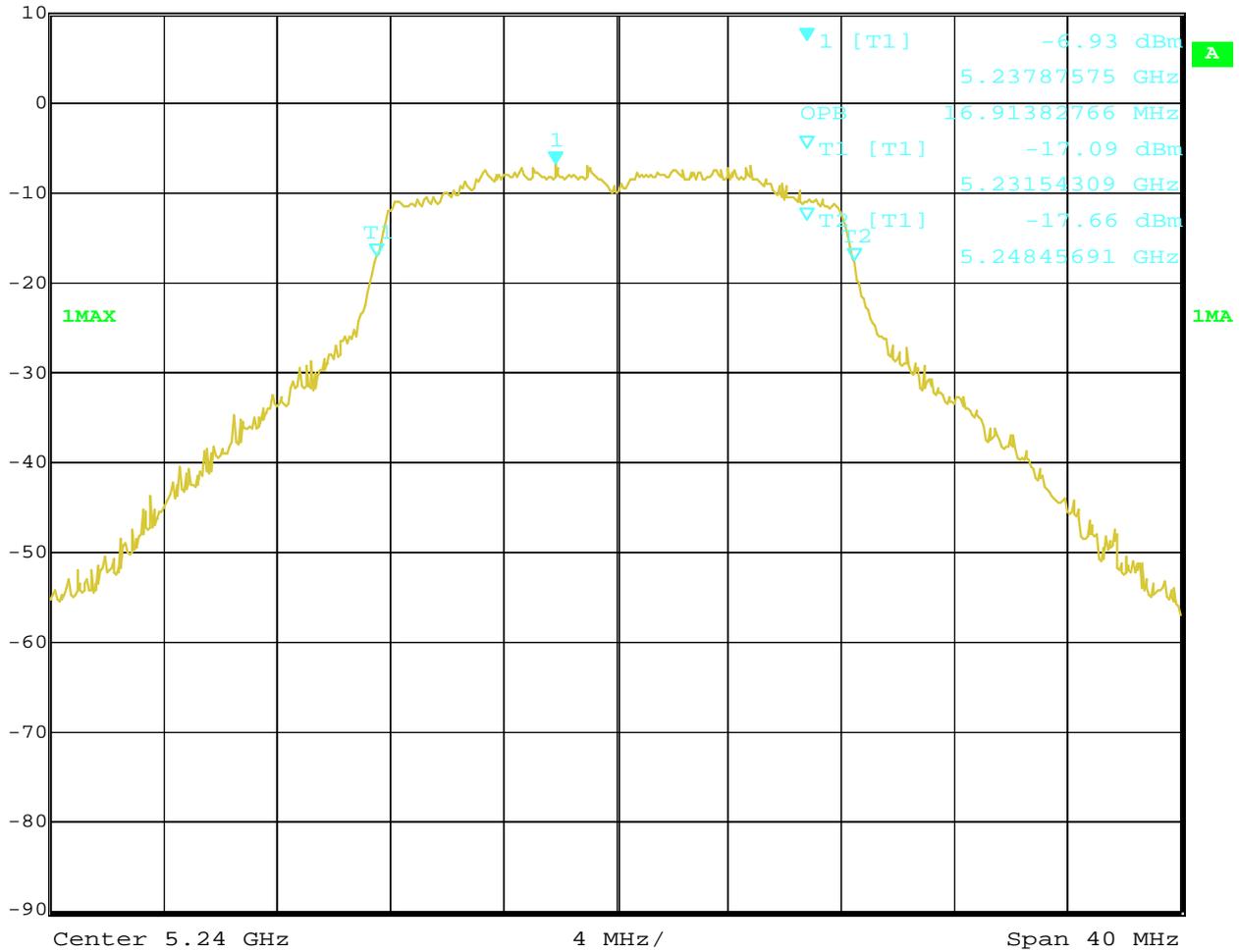
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Channel 48



Ref Lvl	Marker 1 [T1]	RBW	300 kHz	RF Att	20 dB
10 dBm	-6.93 dBm	VBW	1 MHz		
	5.23787575 GHz	SWT	5 ms	Unit	dBm



Date: 19.FEB.2019 16:55:14

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EUT		Enjoy TV		Model	APC390R
Mode		802.11n HT20		Input Voltage	120V~
Temperature		24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
36	5180	mcs0	23.53	--	Pass
40	5200	mcs0	24.53	--	Pass
48	5240	mcs0	24.36	--	Pass
99% Bandwidth					
36	5180	mcs0	17.96	--	Pass
40	5200	mcs0	17.96	--	Pass
48	5240	mcs0	17.96	--	Pass

Note: Ant1 and Ant 2 were tested and only the worst case was recorded in the test report. Ant 1 was the worst case.

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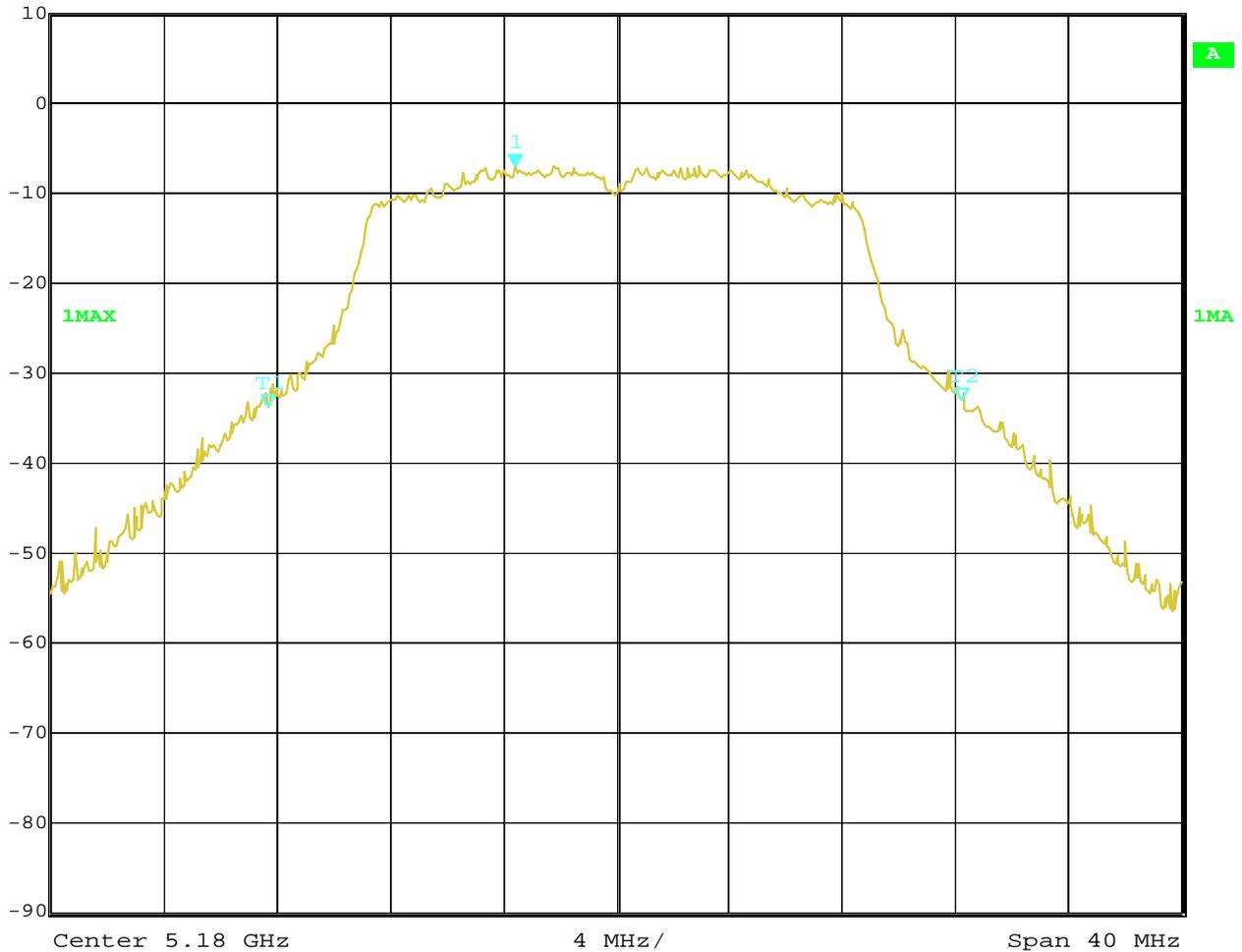


Test Configure

26dB Bandwidth

Channel 36

	Ref Lvl	Marker 1 [T1 ndB]	RBW	300 kHz	RF Att	20 dB
	10 dBm	ndB 26.00 dB	VBW	1 MHz		
		BW 24.52905812 MHz	SWT	5 ms	Unit	dBm



Date: 19.FEB.2019 09:14:37

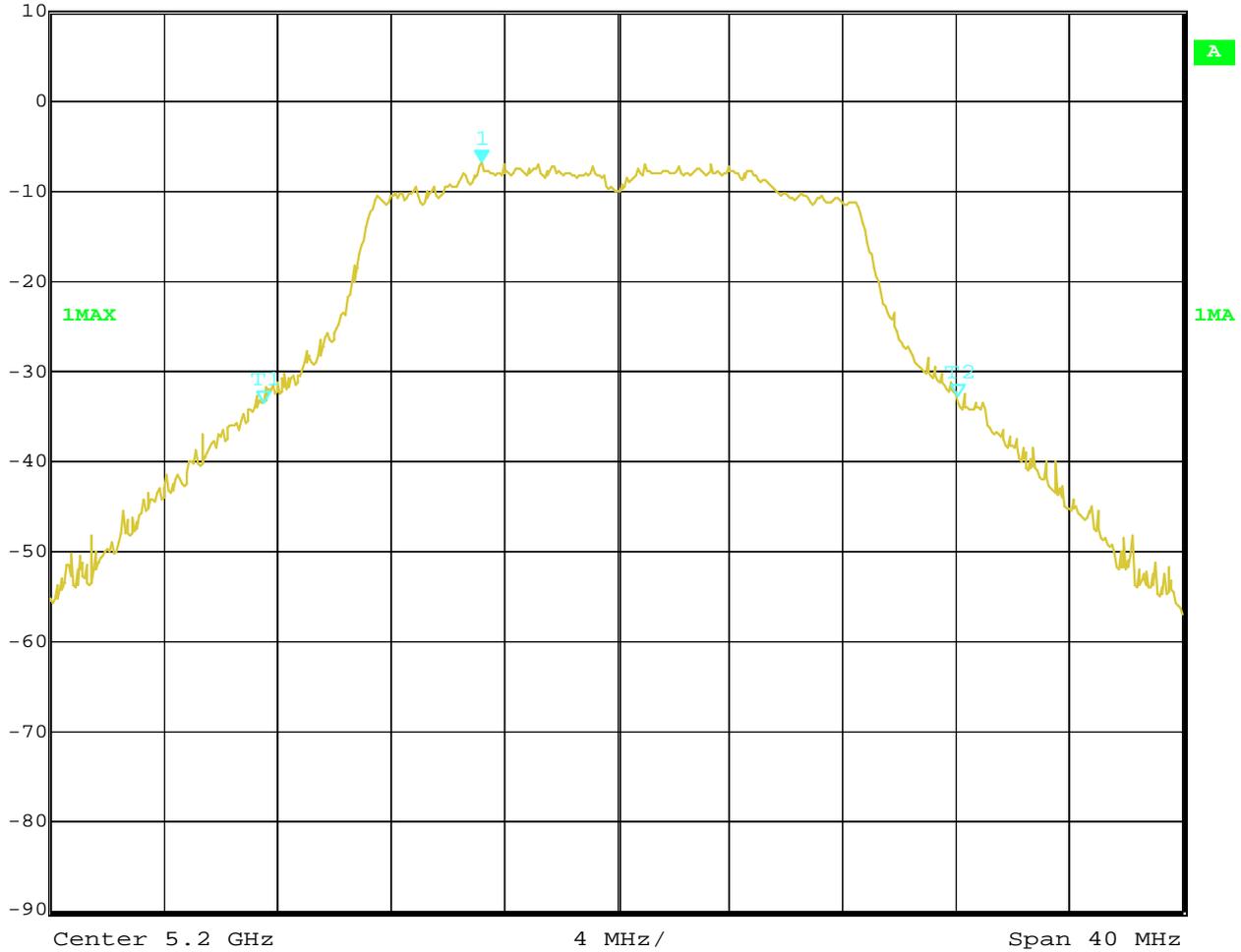
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Channel 40



Ref Lvl	Marker 1 [T1 ndB]	RBW	300 kHz	RF Att	20 dB
10 dBm	ndB 26.00 dB	VBW	1 MHz	Unit	dBm
	BW 24.52905812 MHz	SWT	5 ms		



Date: 19.FEB.2019 09:15:47

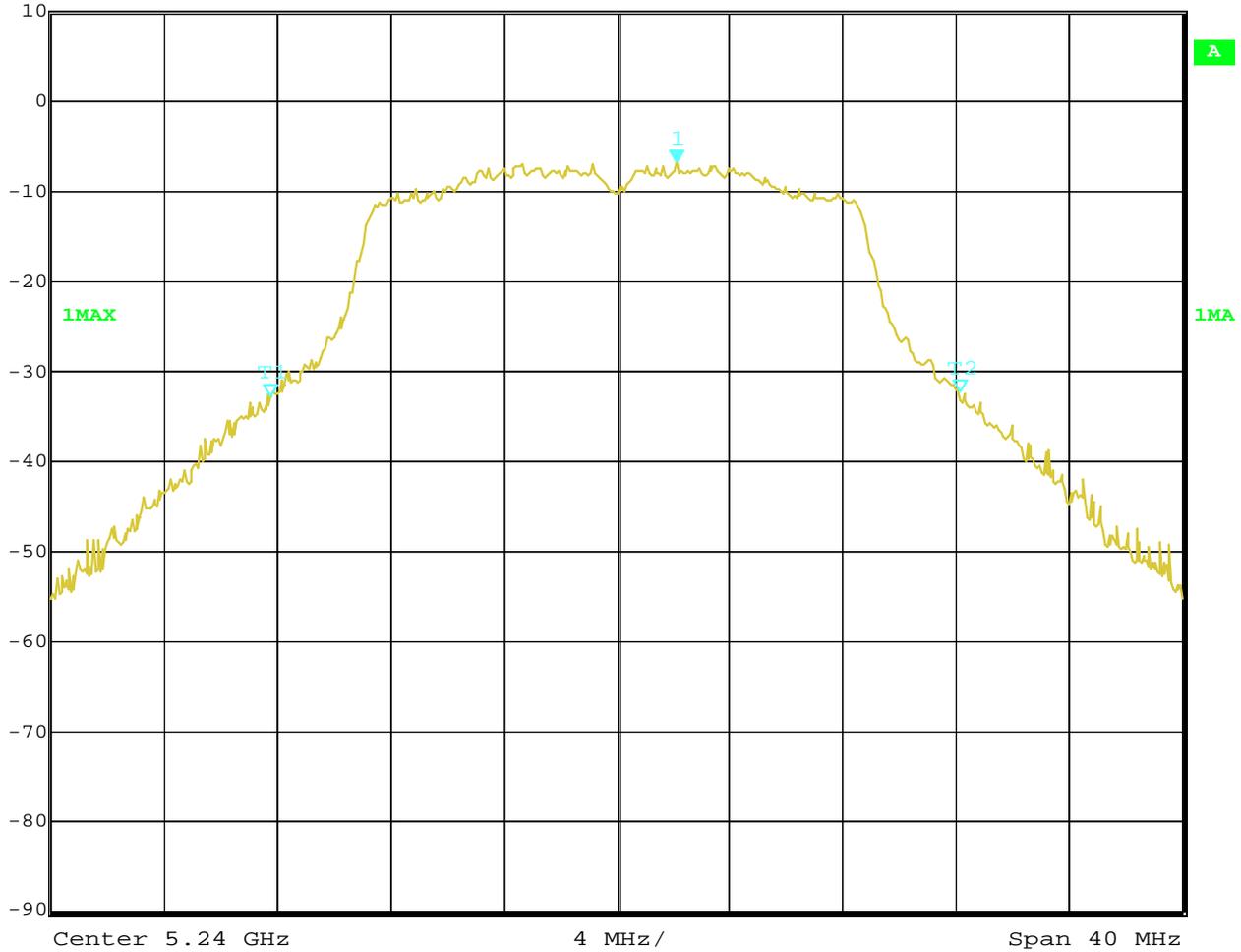
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Channel 48



Ref Lvl	Marker 1 [T1 ndB]	RBW	300 kHz	RF Att	20 dB
10 dBm	ndB 26.00 dB	VBW	1 MHz		
	BW 24.36873747 MHz	SWT	5 ms	Unit	dBm



Date: 19.FEB.2019 09:17:07

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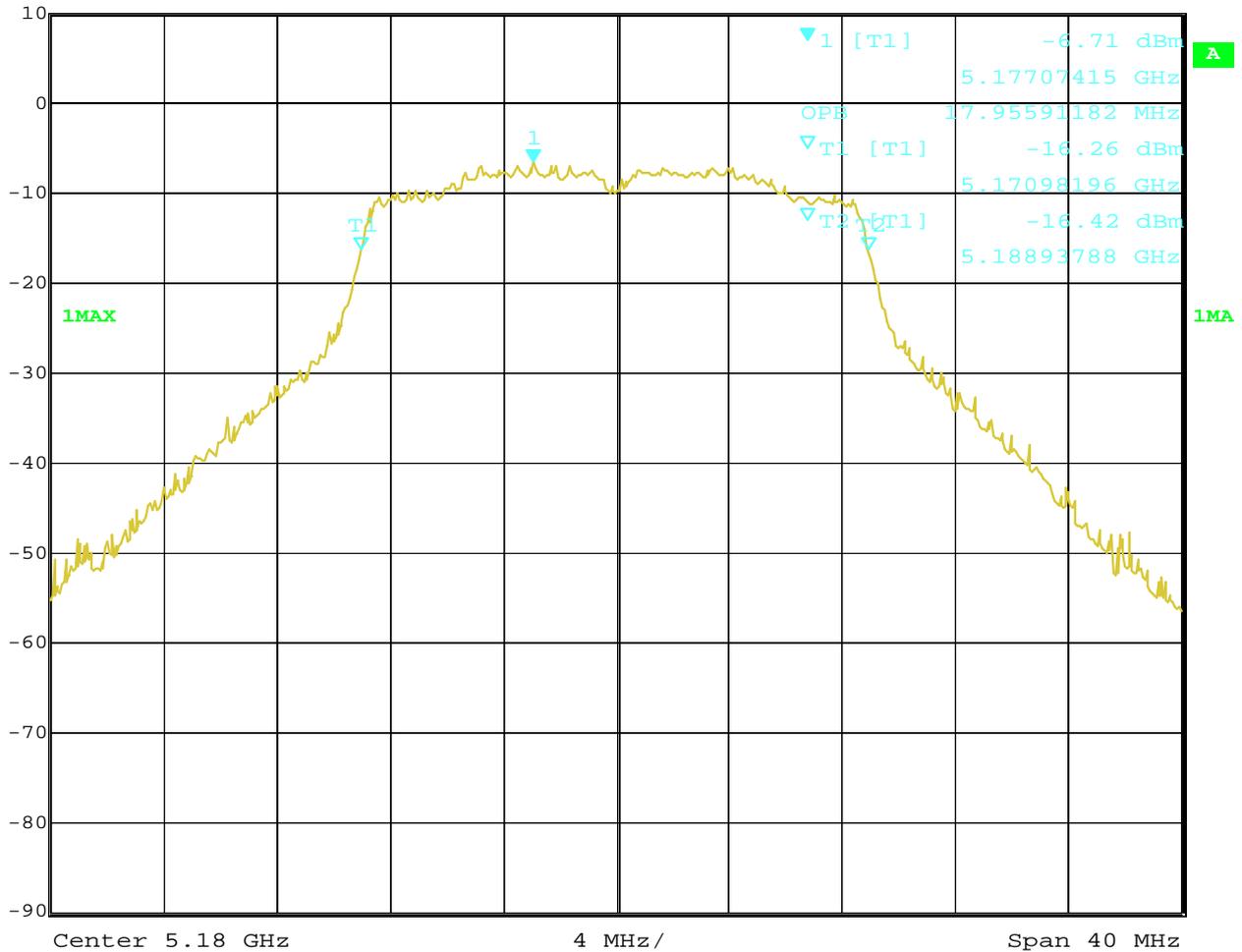


Test Configure

99% Bandwidth

Channel 36

	Ref Lvl	Marker 1 [T1]	RBW	300 kHz	RF Att	20 dB
	10 dBm	-6.71 dBm	VBW	1 MHz		
		5.17707415 GHz	SWT	5 ms	Unit	dBm



Date: 19.FEB.2019 16:58:21

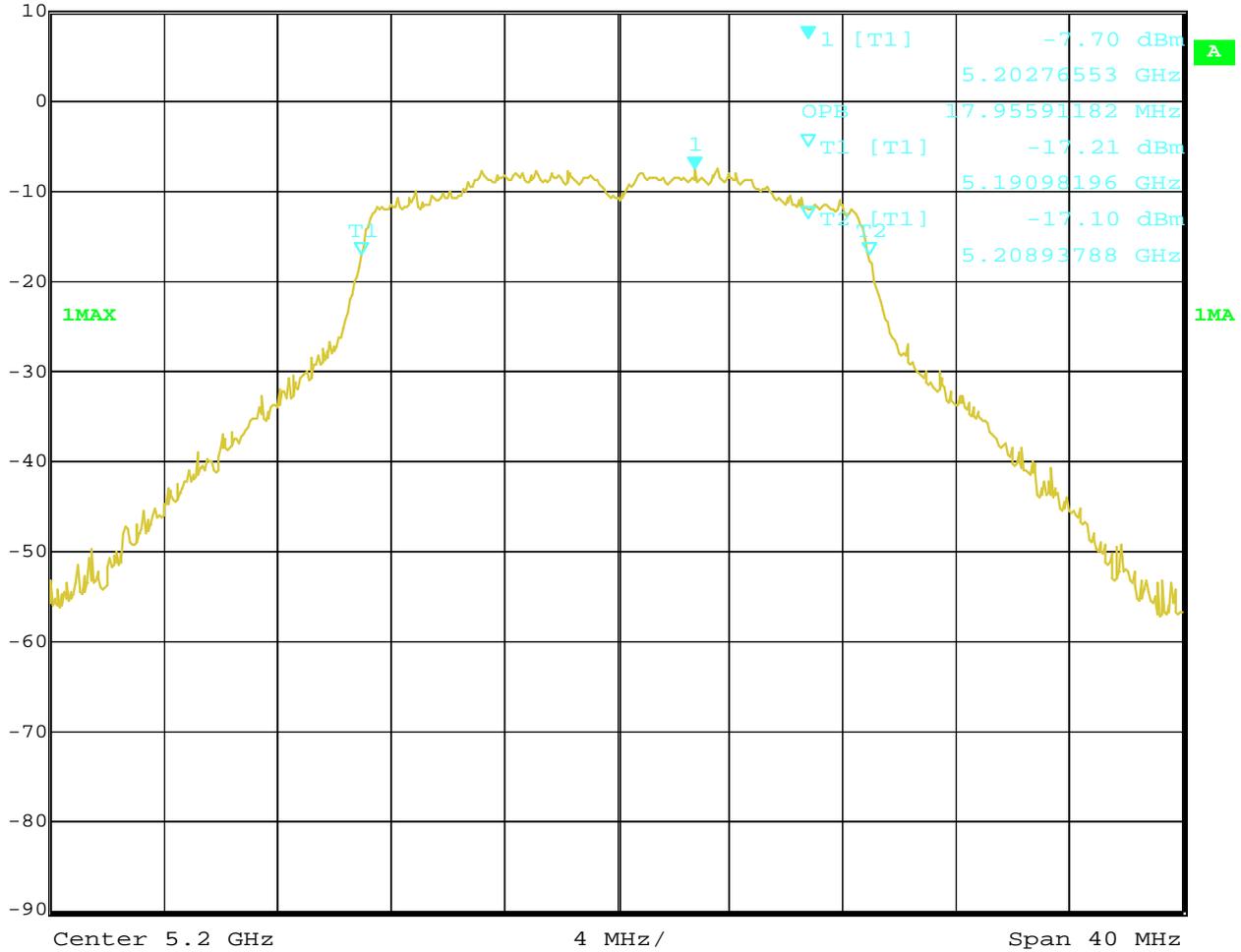
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Channel 40



Ref Lvl	Marker 1 [T1]	RBW	300 kHz	RF Att	20 dB
10 dBm	-7.70 dBm	VBW	1 MHz		
	5.20276553 GHz	SWT	5 ms	Unit	dBm



Date: 19.FEB.2019 16:57:07

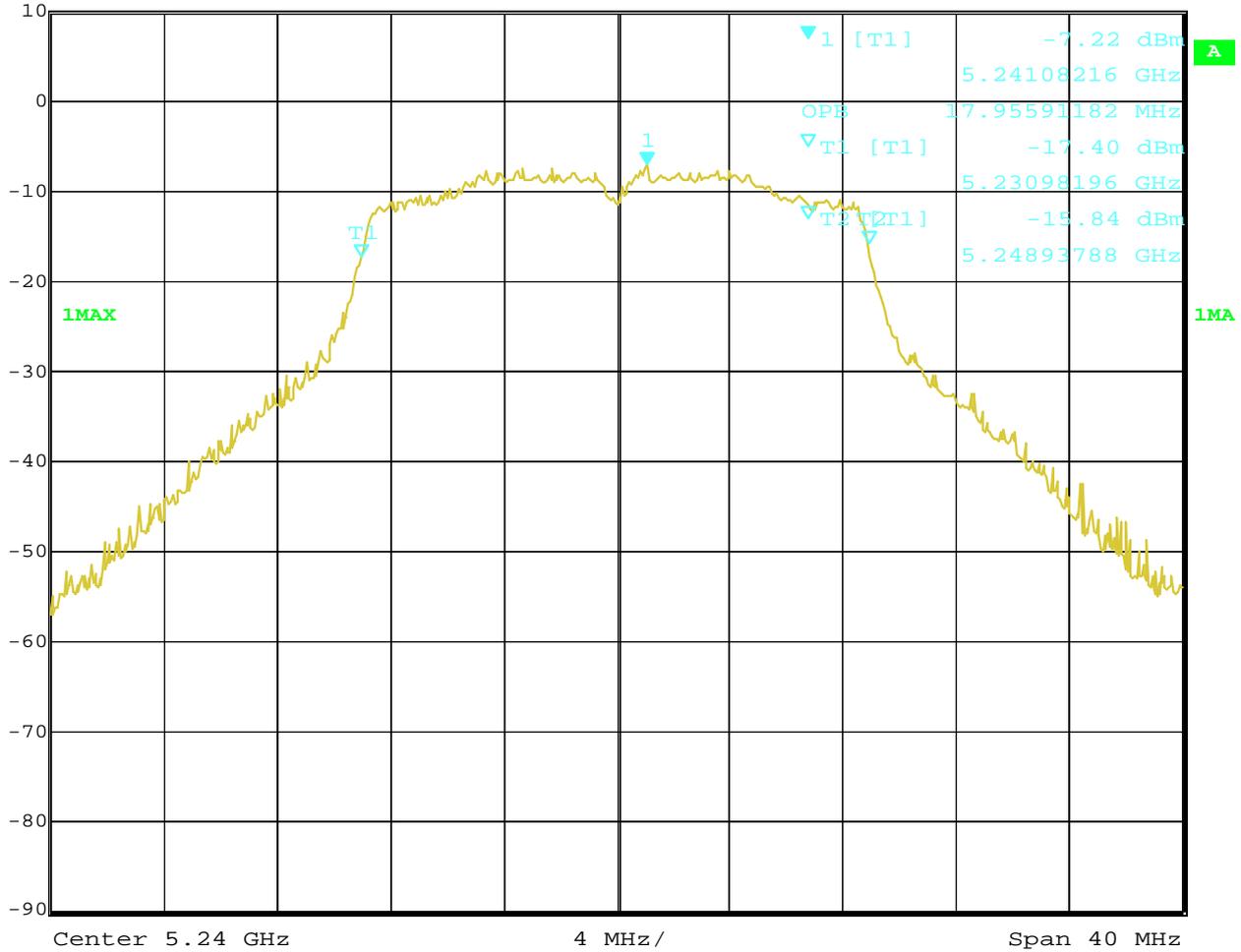
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Channel 48



Ref Lvl	Marker 1 [T1]	RBW	300 kHz	RF Att	20 dB
10 dBm	-7.22 dBm	VBW	1 MHz		
	5.24108216 GHz	SWT	5 ms	Unit	dBm



Date: 19.FEB.2019 16:56:04

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EUT	Enjoy TV		Model	APC390R	
Mode	802.11n HT40		Input Voltage	120V~	
Temperature	24 deg. C,		Humidity	56% RH	
Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
26dB Bandwidth					
38	5190	mcs0	42.65	--	Pass
46	5230	mcs0	42.48	--	Pass
99% Bandwidth					
38	5190	mcs0	36.07	--	Pass
46	5230	mcs0	36.23	--	Pass

Note: Ant1 and Ant 2 were tested and only the worst case was recorded in the test report. Ant 1 was the worst case.

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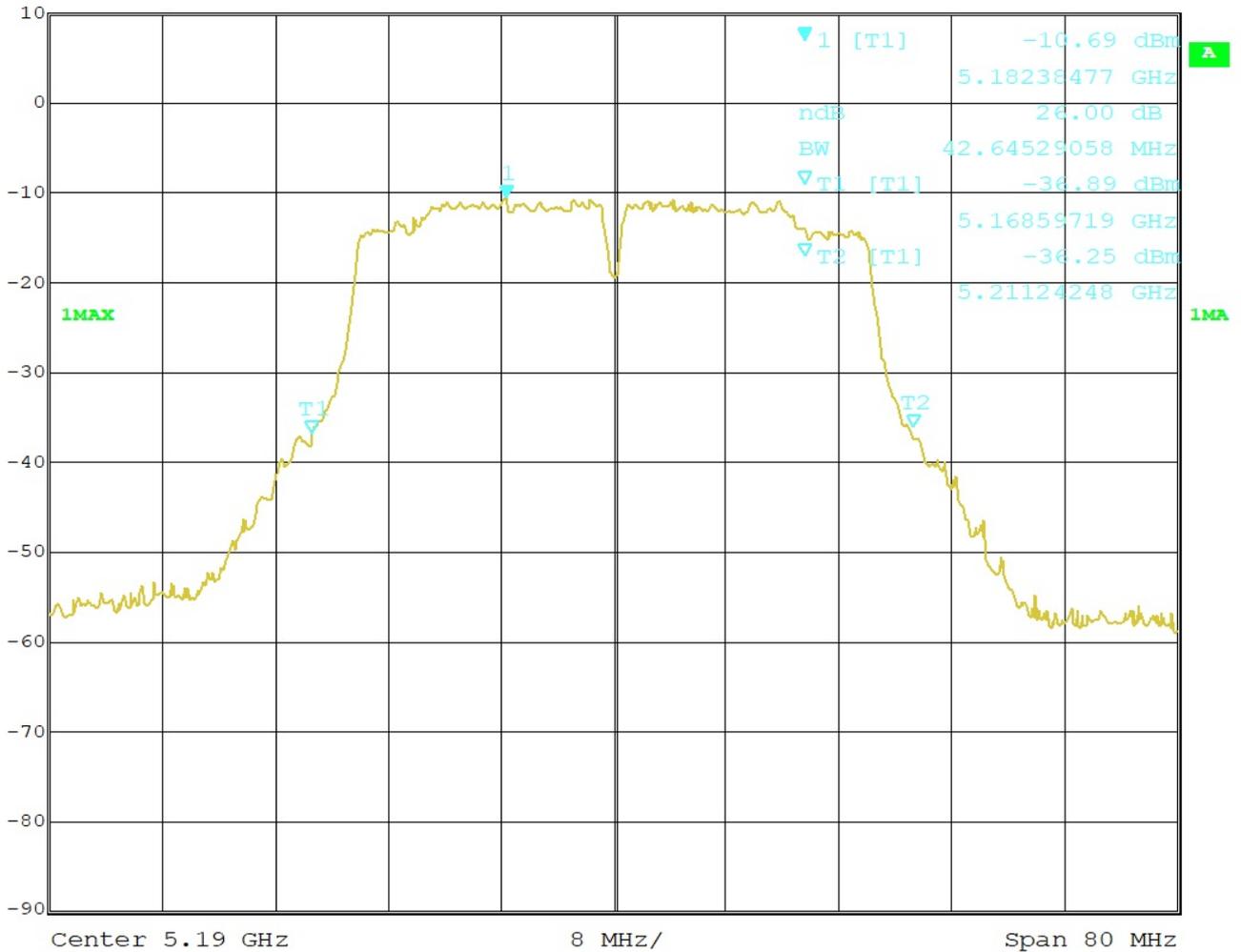
Test Configure

26dB Bandwidth

Channel 38



Ref Lvl	10 dBm	Marker 1 [T1 ndB]	ndB	26.00 dB	RBW	300 kHz	RF Att	20 dB
		BW	42.64529058 MHz		VBW	1 MHz	Unit	dBm
		SWT				5 ms		



Date: 19.FEB.2019 09:18:23

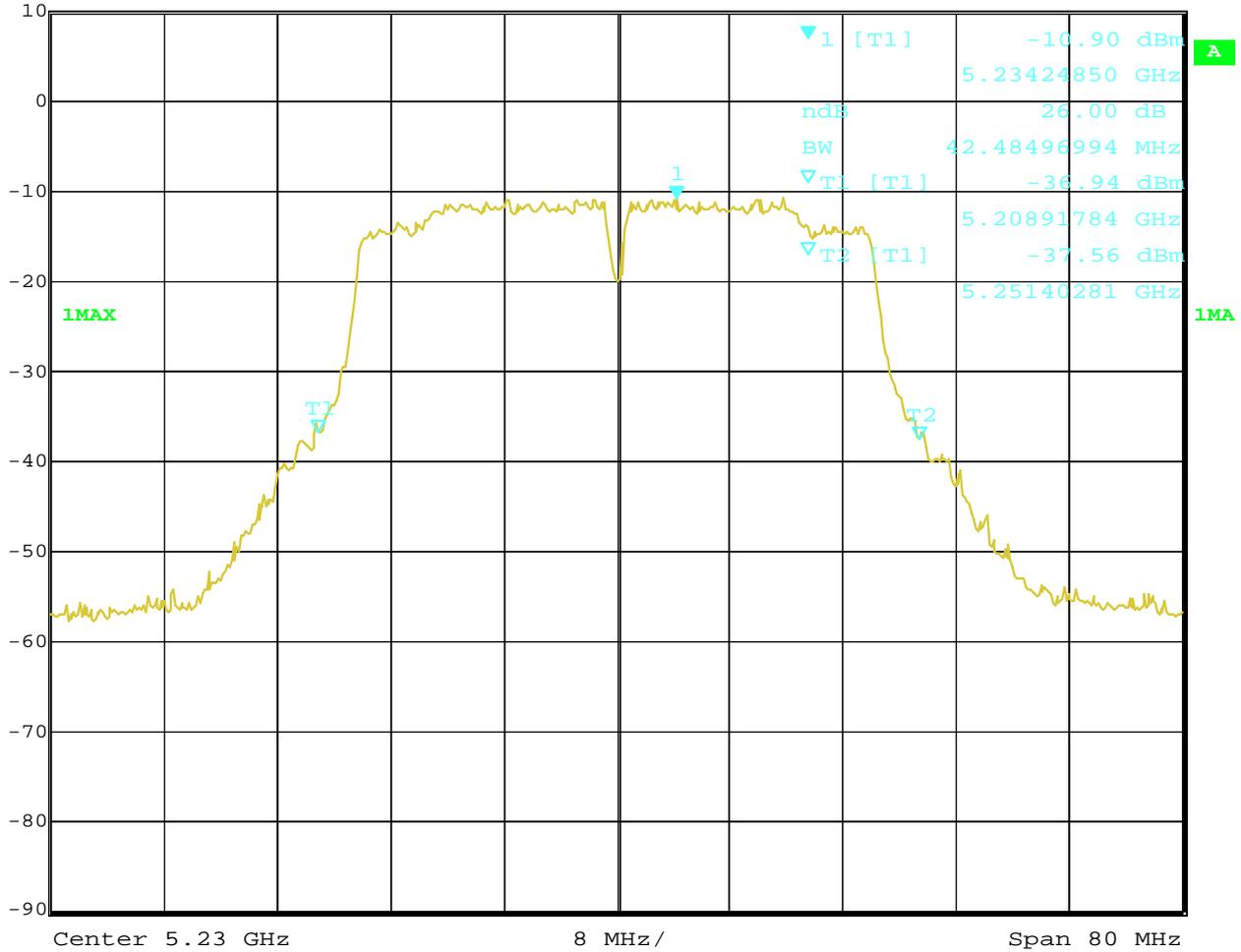
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Channel 46



Ref Lvl	10 dBm	Marker 1 [T1 ndB]	ndB	26.00 dB	RBW	300 kHz	RF Att	20 dB
		BW	42.48496994 MHz		VBW	1 MHz	Unit	dBm
					SWT	5 ms		



Date: 19.FEB.2019 09:20:02

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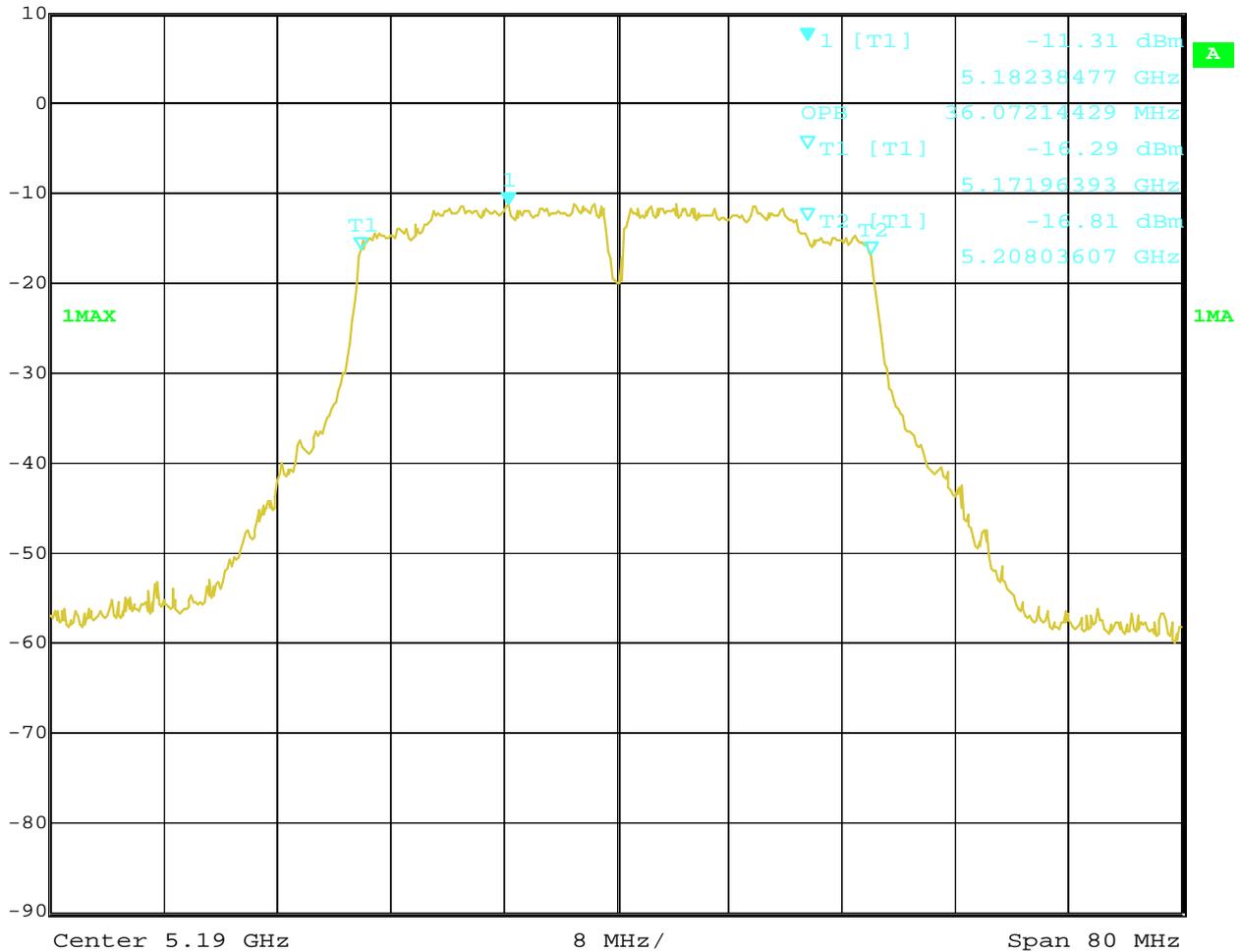


Test Configure

99% Bandwidth

Channel 38

	Ref Lvl	10 dBm	Marker 1 [T1]	5.18238477 GHz	RBW	300 kHz	RF Att	20 dB
				-11.31 dBm	VBW	1 MHz		
					SWT	5 ms	Unit	dBm



Date: 19.FEB.2019 16:59:22

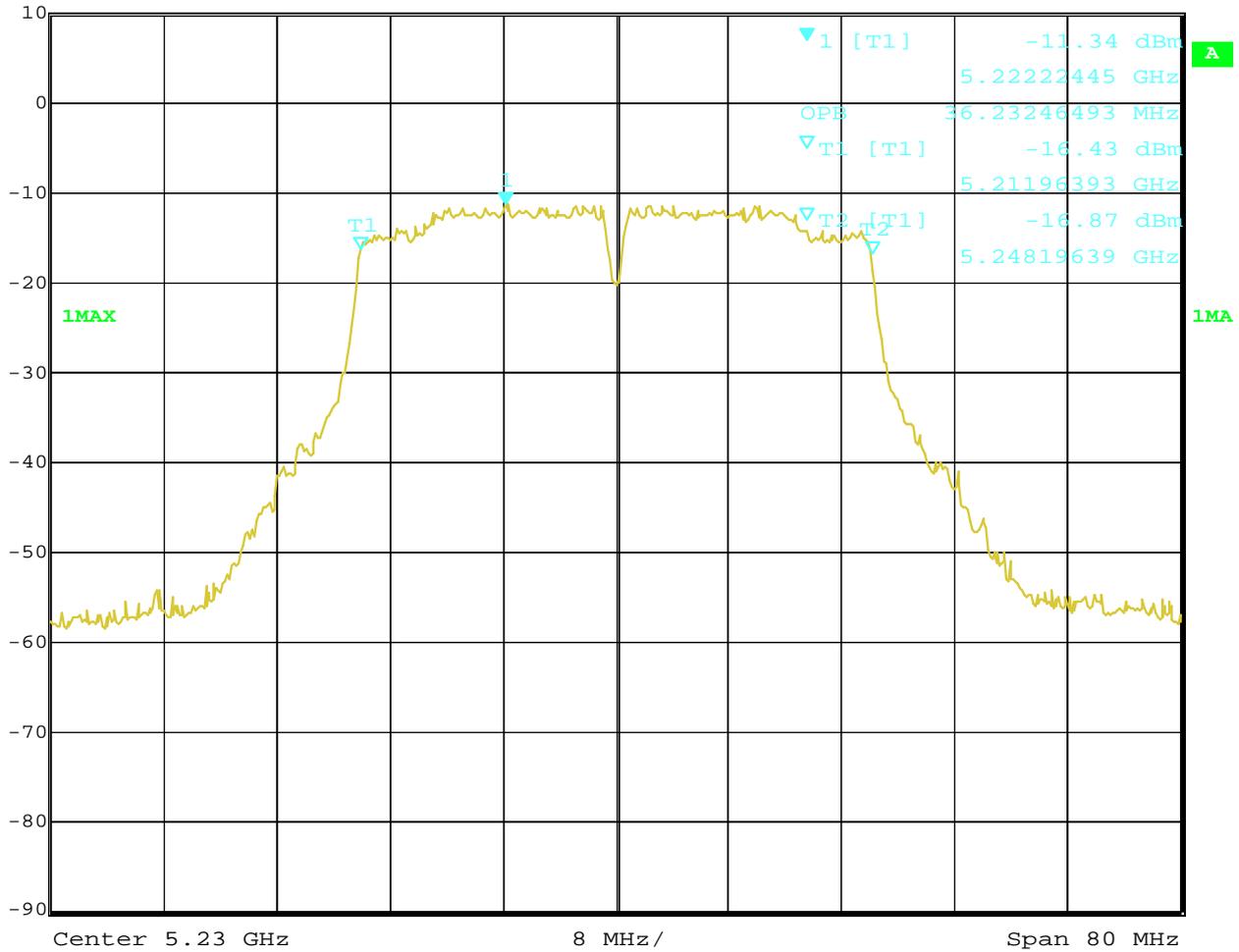
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Channel 46



Ref Lvl	Marker 1 [T1]	RBW	300 kHz	RF Att	20 dB
10 dBm	-11.34 dBm	VBW	1 MHz		
	5.22222445 GHz	SWT	5 ms	Unit	dBm



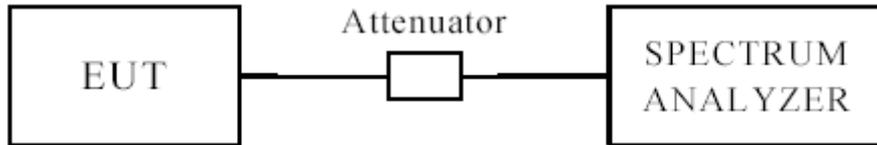
Date: 19.FEB.2019 17:00:27

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8.0 MAX Conducted Transmit Power Measurement

8.1 Test Setup



8.2 Limits of Peak Transmit Power Measurement

Operation Band	EUT Category	Limit
U-NII-2A		For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or $1.76 + 10 \log_{10} B^*$, dBm, whichever is less
	√	For other devices, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B^*$, dBm, whichever power is less

Note: 1. Where B is the 99% emission bandwidth in MHz.
 2. EIRP was measured, $EIRP = AV \text{ Power} + \text{Antenna Gain}$

U-NII-2A	--	250mW (24 dBm) or $11 \text{ dBm} + 10 \log B^*$
U-NII-2C	--	250mW (24 dBm) or $11 \text{ dBm} + 10 \log B^*$
U-NII-3	--	1 Watt (30 dBm)

Note: 1. Where B is the 26dB emission bandwidth in MHz.
 2. The average power was measured

8.3 Test Procedure

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

Note: the average power was measured

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8.4 Test Results

EUT		Enjoy TV		Model		APC390R		
Mode		802.11a		Input Voltage		120V~		
Temperature		24 deg. C,		Humidity		56% RH		
Channel	Frequency (MHz)	Ant 1 Power		Ant 2 Power		Total Power (dBm)	Limit (dBm)	Pass/ Fail
		dBm	mW	dBm	mW			
36	5180	2.26	1.68	2.07	1.61	5.17	22.38	Pass
40	5200	2.02	1.59	1.95	1.57	5.00	22.38	Pass
48	5240	2.31	1.70	2.15	1.64	5.24	22.38	Pass

Note: 1. At final test to get the worst-case emission at 6Mbps for CH36, CH40

2. The result basic equation calculation as follow:

$$\text{Average Power Output} = \text{AV Power Reading} + \text{Cable loss} + \text{Attenuator}$$

3. The worse case was recorded

4. Total power = Ant 1 + Ant 2

EUT		Enjoy TV		Model		APC390R		
Mode		802.11n HT20		Input Voltage		120V~		
Temperature		24 deg. C,		Humidity		56% RH		
Channel	Frequency (MHz)	Ant 1 Power		Ant 2 Power		Total Power (dBm)	Limit (dBm)	Pass/ Fail
		dBm	mW	dBm	mW			
36	5180	1.98	1.58	1.82	1.52	4.91	22.38	Pass
40	5200	1.68	1.47	1.59	1.44	4.64	22.38	Pass
48	5240	1.89	1.55	1.70	1.48	4.81	22.38	Pass

Note: 1. At final test to get the worst-case emission at 6Mbps for CH36, CH40

2. The result basic equation calculation as follow:

$$\text{Average Power Output} = \text{AV Power Reading} + \text{Cable loss} + \text{Attenuator}$$

3. The worse case was recorded

4. Total power = Ant 1 + Ant 2

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EUT		Enjoy TV		Model		APC390R		
Mode		802.11n HT40		Input Voltage		120V~		
Temperature		24 deg. C,		Humidity		56% RH		
Channel	Frequency (MHz)	Ant 1 Power		Ant 2 Power		Total Power (dBm)	Limit (dBm)	Pass/ Fail
		dBm	mW	dBm	mW			
38	5190	0.67	1.17	0.56	1.14	3.64	23.02	Pass
46	5230	0.61	1.15	0.53	1.13	3.58	23.01	Pass

Note: 1. At final test to get the worst-case emission at 6Mbps for CH36, CH40

2. The result basic equation calculation as follow:

$$\text{Average Power Output} = \text{AV Power Reading} + \text{Cable loss} + \text{Attenuator}$$

3. The worse case was recorded

4. Total power = Ant 1 + Ant 2

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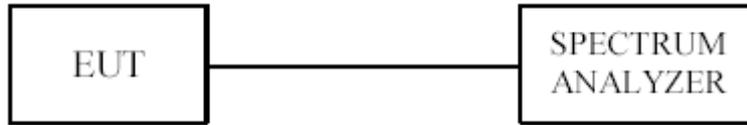
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9. Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

Operation Band	Limit
U-NII-1	10dBm/MHz
U-NII-2A	11dBm/MHz
U-NII-2C	11dBm/MHz
U-NII-3	30dBm/500kHz

9.3 Test Procedure

1. The EUT was directly connected to the spectrum analyzer
2. Set the RBW = 1MHz.
3. Set the VBW = 3MHz.
4. Set the span to encompass the entire emissions bandwidth (EBW) of the signal
5. Detector = RMS
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.

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9.4 Test Result

EUT		Enjoy TV		Model		APC390R	
Mode		802.11a 6Mbps		Input Voltage		120V~	
Temperature		24 deg. C,		Humidity		56% RH	
Channel	Frequency (MHz)	Ant1 Spectral Density	Factor	Total Spectral Density (dBm)	Limit (dBm)	Pass/ Fail	
36	5180	-8.13	3.01	-5.12	10	Pass	
40	5200	-8.51	3.01	-5.50	10	Pass	
48	5240	-8.56	3.01	-5.55	10	Pass	

- Note: 1. Total Spectral Density = Ant1 Spectral Density + Factor
 2. Factor=10log2=3.01
 3. Ant1 and Ant 2 were tested and Ant 1 was the worst case

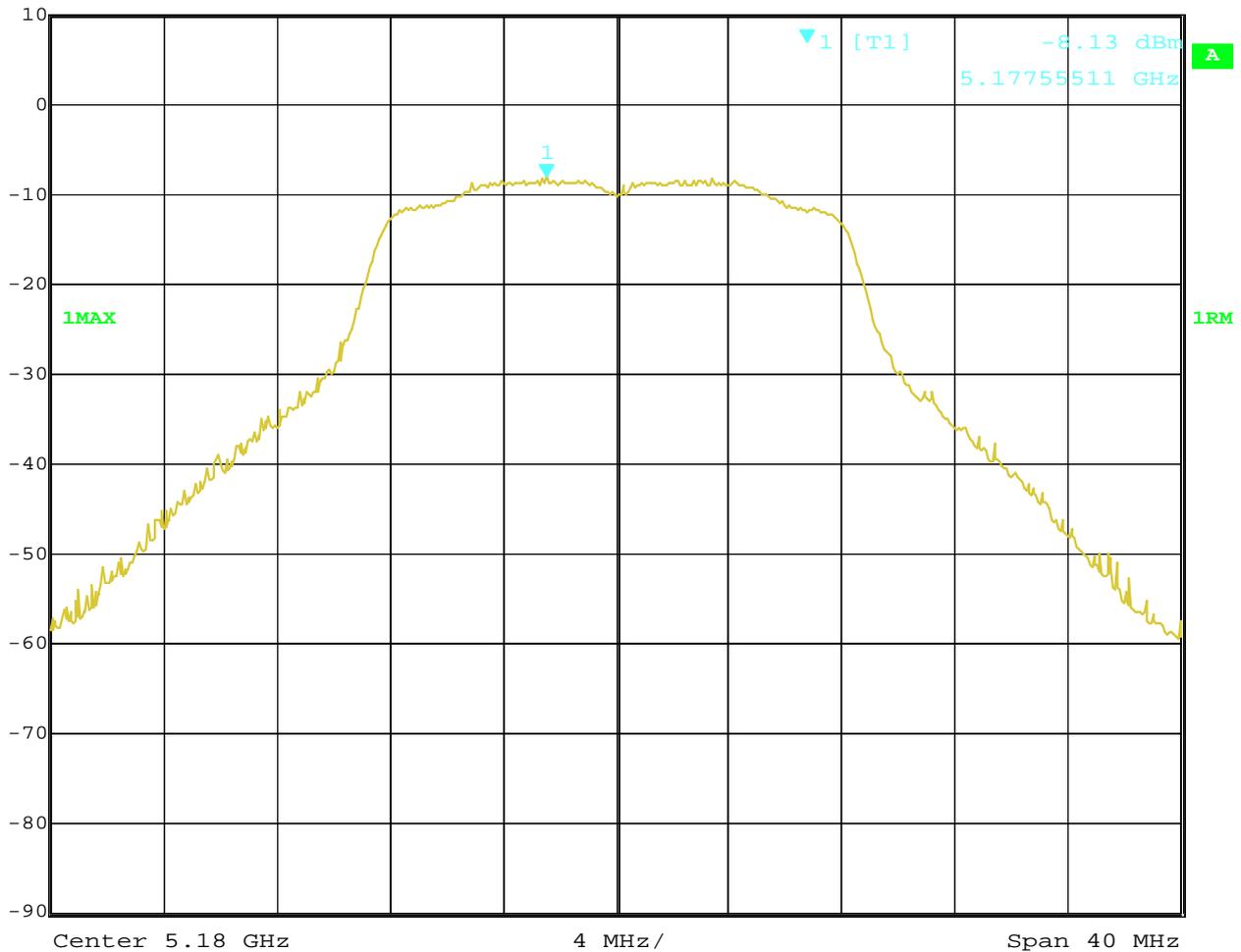
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9.5 Plots of Power Spectral Density Measurement

1.802.11a at 6Mbps of CH36

	Ref Lvl	10 dBm	Marker 1 [T1]	-8.13 dBm	RBW	1 MHz	RF Att	20 dB
				5.17755511 GHz	VBW	3 MHz		
					SWT	5 ms	Unit	dBm



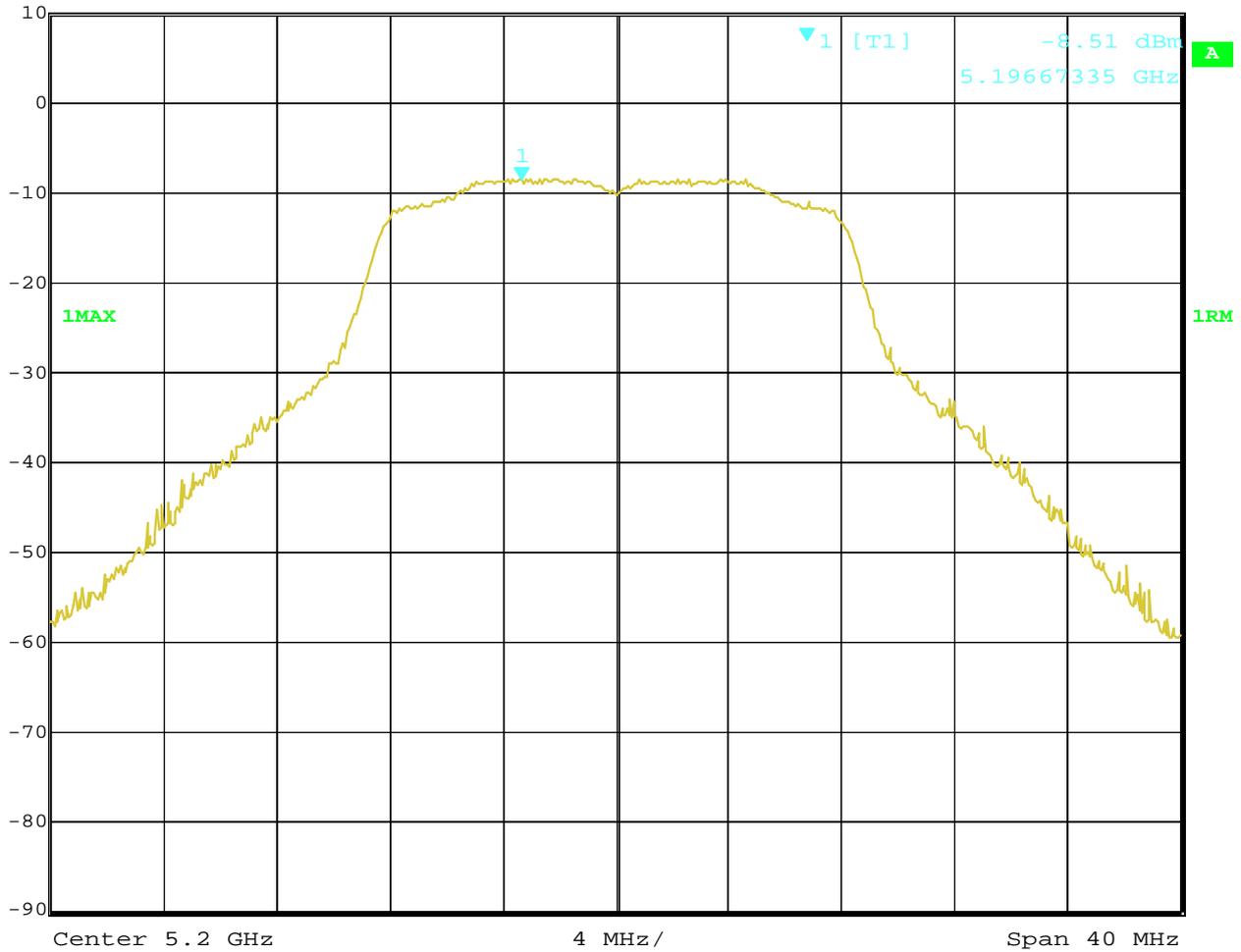
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2.802.11a at 6Mbps of CH40

	Marker 1 [T1]	RBW	1 MHz	RF Att	20 dB
	Ref Lvl	-8.51 dBm	VBW	3 MHz	
	10 dBm	5.19667335 GHz	SWT	5 ms	Unit dBm



Date: 19.FEB.2019 16:45:55

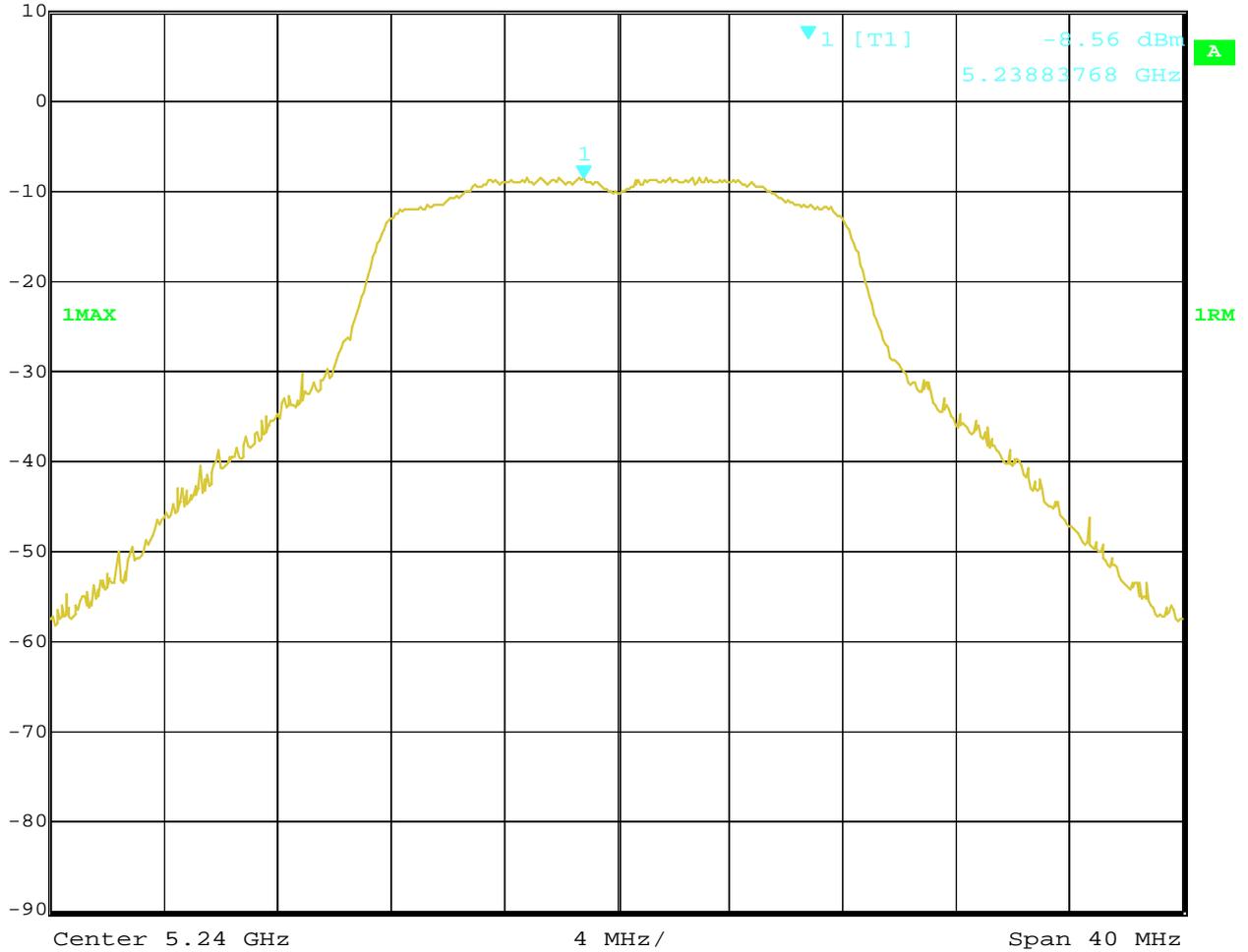
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3.802.11a at 6Mbps of CH48



Ref Lvl	10 dBm	Marker 1 [T1]	-8.56 dBm	RBW	1 MHz	RF Att	20 dB
			5.23883768 GHz	VBW	3 MHz	Unit	dBm
				SWT	5 ms		



Date: 19.FEB.2019 16:46:50

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EUT		Enjoy TV		Model		APC390R	
Mode		802.11n HT20 mcs0		Input Voltage		120V~	
Temperature		24 deg. C,		Humidity		56% RH	
Channel	Frequency (MHz)	Ant1 Spectral Density	Factor	Total Spectral Density (dBm)	Limit (dBm)	Pass/ Fail	
36	5180	-8.21	3.01	-5.20	10	Pass	
40	5200	-8.62	3.01	-5.61	10	Pass	
48	5240	-8.78	3.01	-5.77	10	Pass	

- Note: 1. Total Spectral Density = Ant1 Spectral Density + Factor
 2. Factor=10log2=3.01
 3. Ant1 and Ant 2 were tested and Ant 1 was the worst case

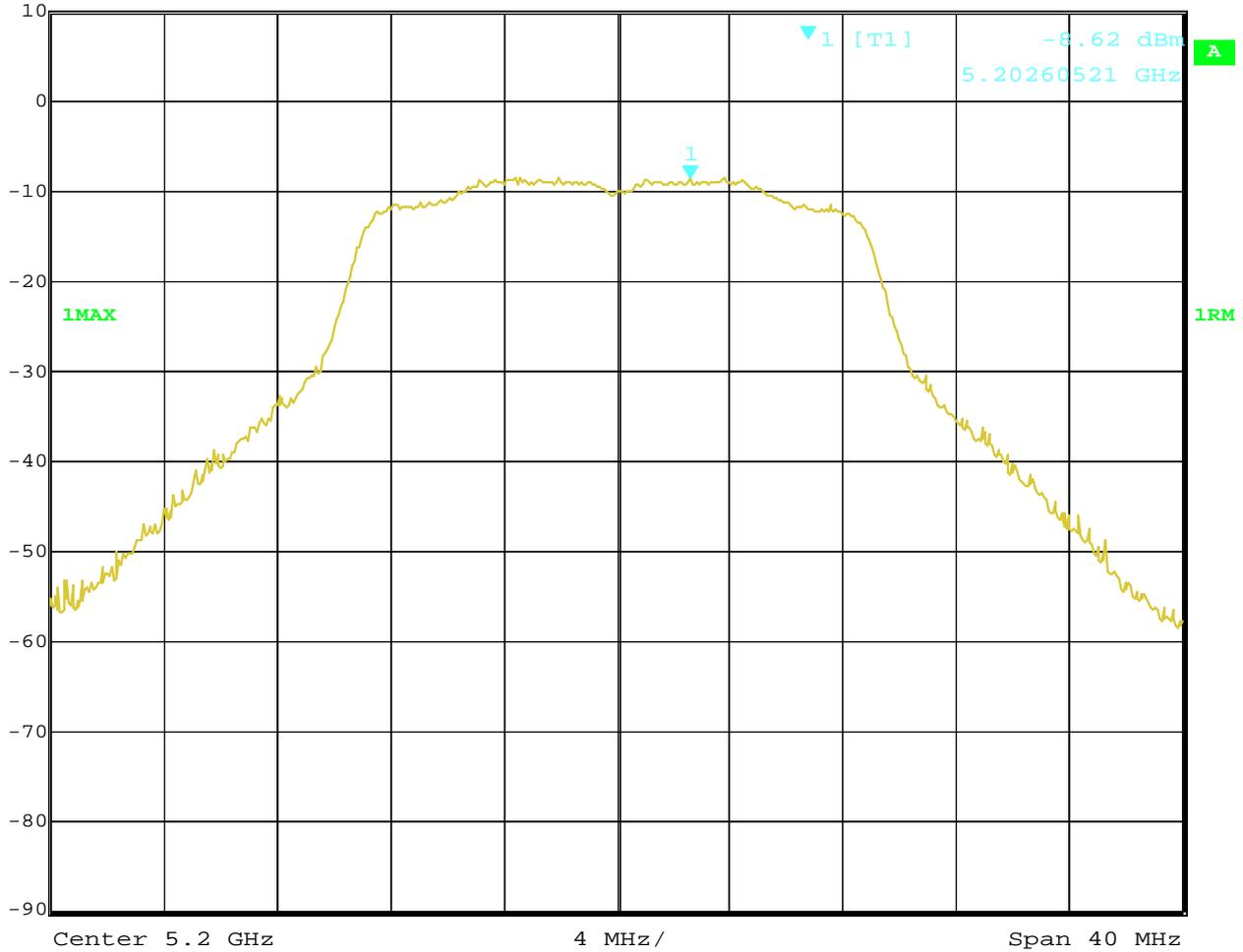
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2.802.11n at mcs0 of CH40



Ref Lvl	10 dBm	Marker 1 [T1]	-8.62 dBm	5.20260521 GHz	RBW	1 MHz	RF Att	20 dB	VBW	3 MHz	SWT	5 ms	Unit	dBm
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Date: 19.FEB.2019 16:48:41

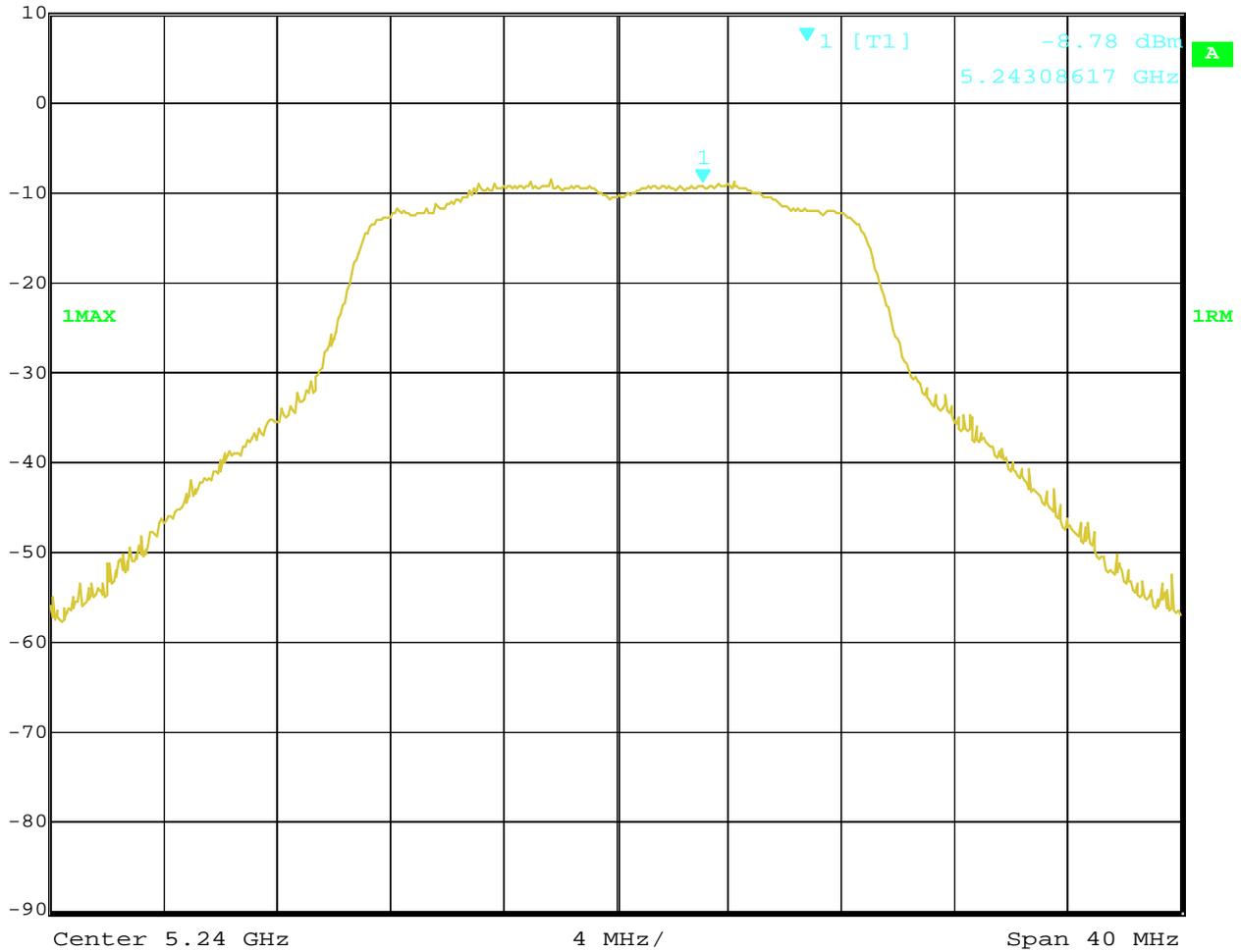
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3.802.11n at mcs0 of CH48



Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	20 dB
10 dBm	-8.78 dBm	VBW	3 MHz		
	5.24308617 GHz	SWT	5 ms	Unit	dBm



Date: 19.FEB.2019 16:47:40

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EUT		Enjoy TV		Model		APC390R	
Mode		802.11n HT40 mcs0		Input Voltage		120V~	
Temperature		24 deg. C,		Humidity		56% RH	
Channel	Frequency (MHz)	Ant1 Spectral Density	Factor	Total Spectral Density (dBm)	Limit (dBm)	Pass/ Fail	
38	5190	-11.66	3.01	-8.65	10	Pass	
46	5230	-12.15	3.01	-9.14	10	Pass	

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

2. Factor=10log2=3.01

3. Ant1 and Ant 2 were tested and Ant 1 was the worst case

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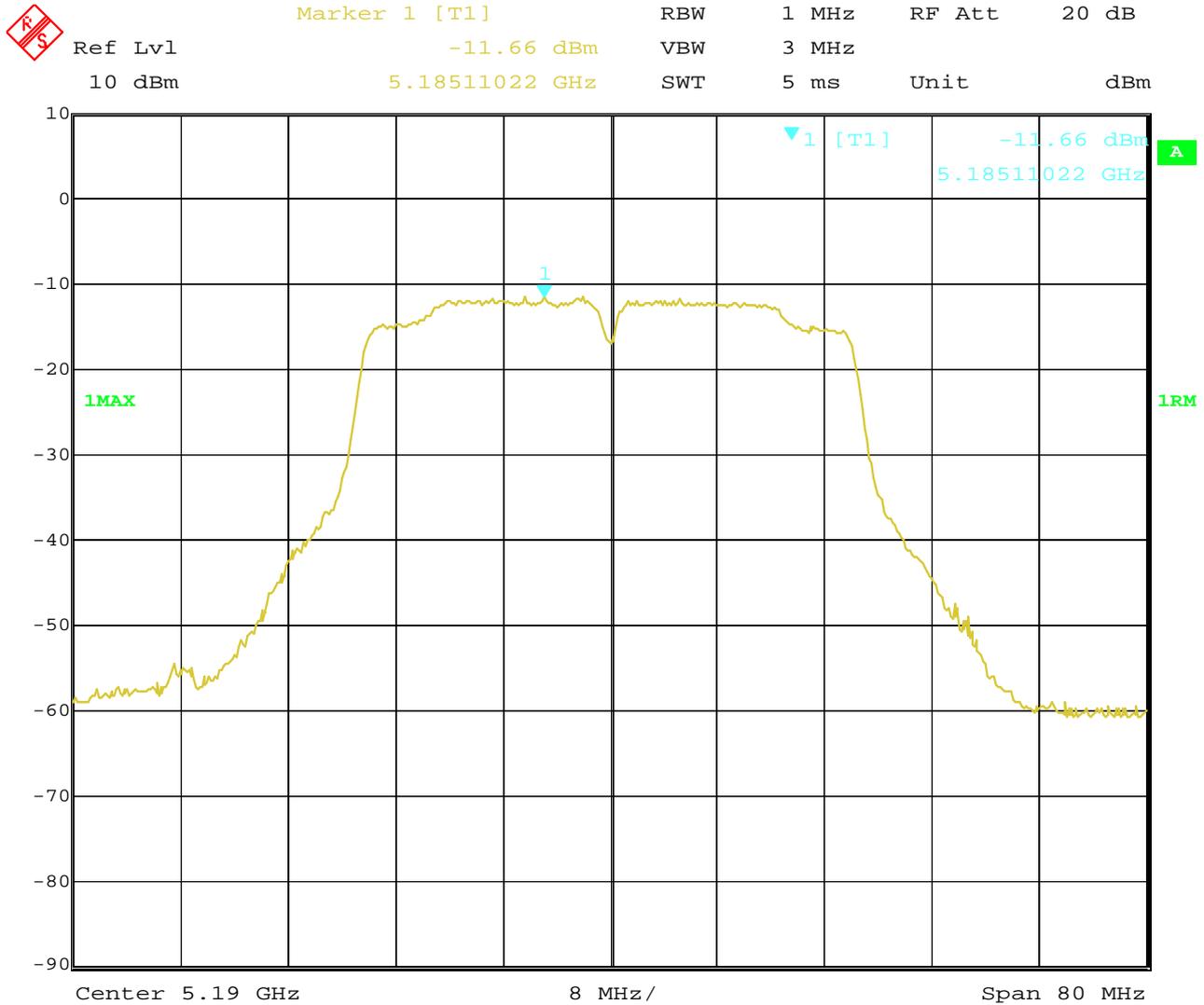
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Test Plots

1.802.11n HT40 at mcs0 of CH38



Date: 19.FEB.2019 16:50:18

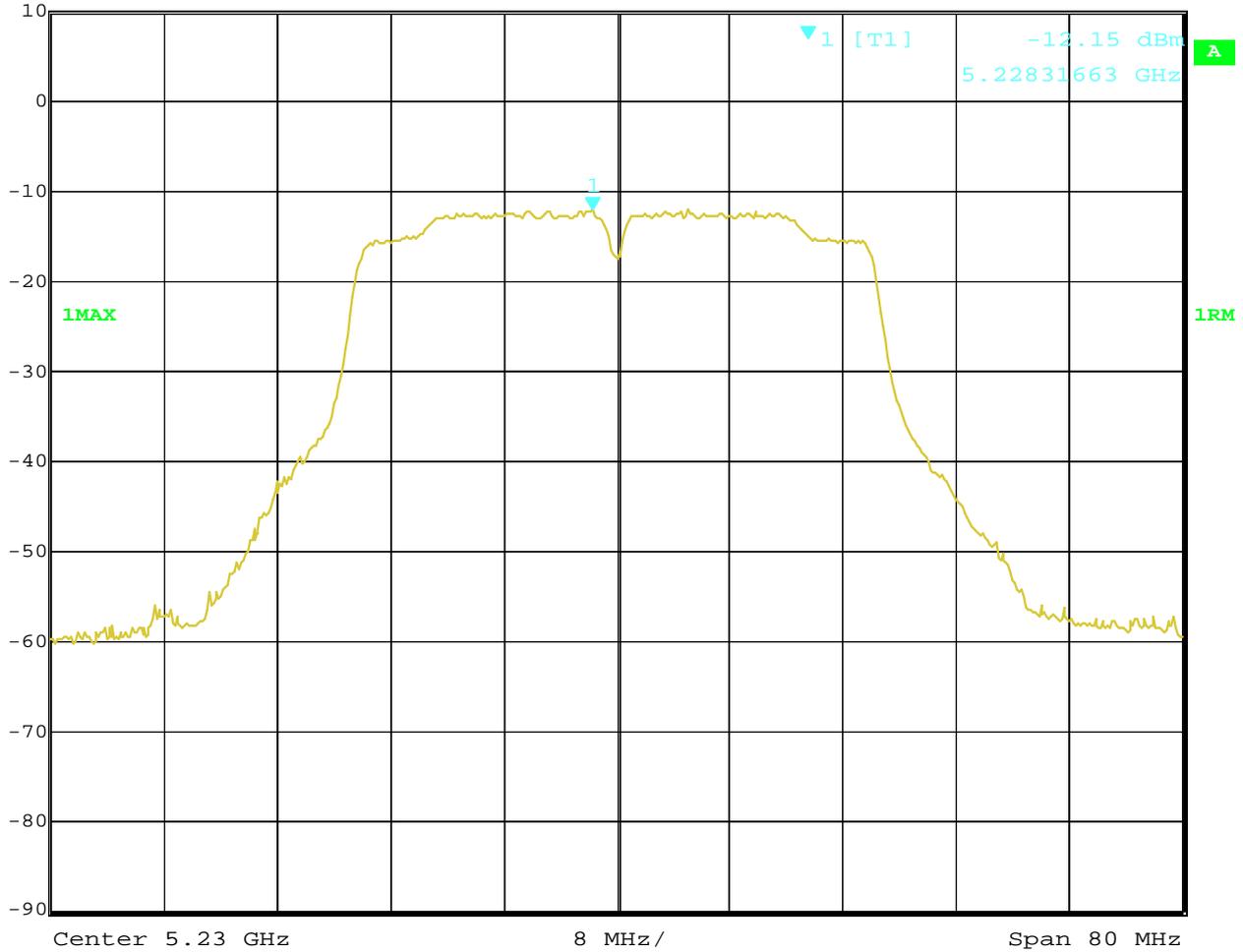
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2.802.11n HT40 at mcs0 of CH46



Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	20 dB
10 dBm	-12.15 dBm	VBW	3 MHz		
	5.22831663 GHz	SWT	5 ms	Unit	dBm



Date: 19.FEB.2019 16:51:00

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10.0 Frequency Stability

10.1 Limits of Frequency Stability Measurement

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% of the operating frequency over a temperature variation of -30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees

10.2 Test Procedure

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

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11.3 Test Result

Channel 36 (5180MHz)

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
138V	5179.9856
120V	5179.9823
102V	5179.9836
Max. Deviation (MHz)	0.0177
Max. Deviation (ppm)	3.4

Rated working voltage: 120V~

Temperature vs. Frequency Stability

Temperature (°C)	Measurement Frequency (MHz)
-30	5179.9830
-20	5179.9816
-10	5179.9823
0	5179.9809
10	5179.9839
20	5179.9813
30	5179.9816
40	5179.9827
50	5179.9802
Max. Deviation (MHz)	0.0198
Max. Deviation (ppm)	3.8

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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 amount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2 Antenna Connected construction

Two Integral antenna used. The maximum Gain of each antenna is 3.2 dBi for 5G band.

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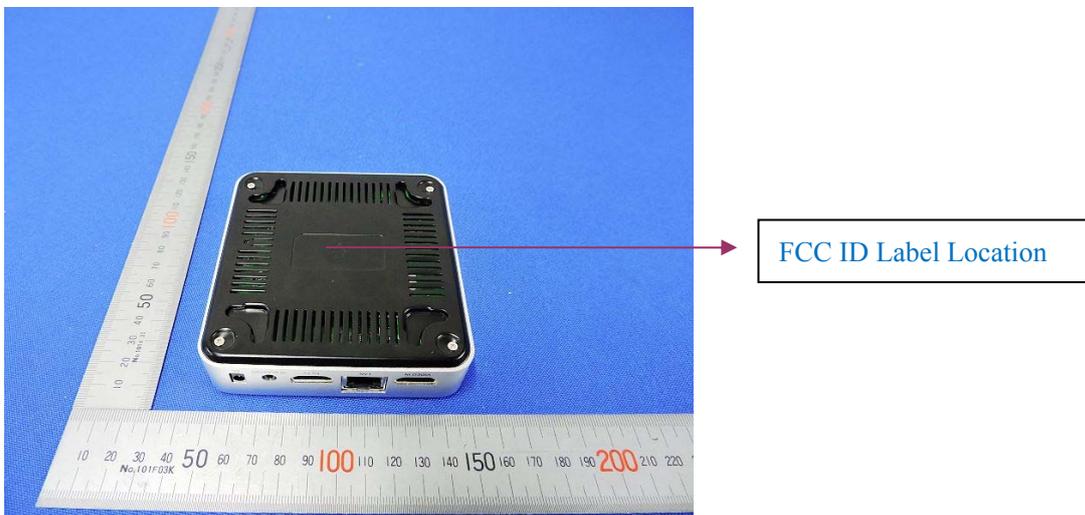


12.0 FCC ID Label

FCC ID: ZJU-F19AF3

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:



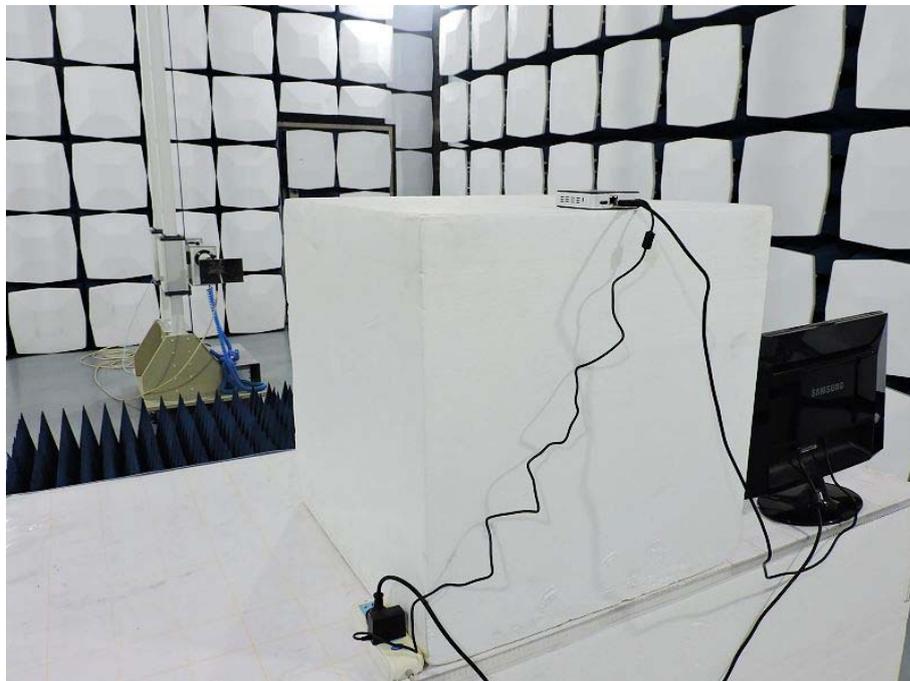
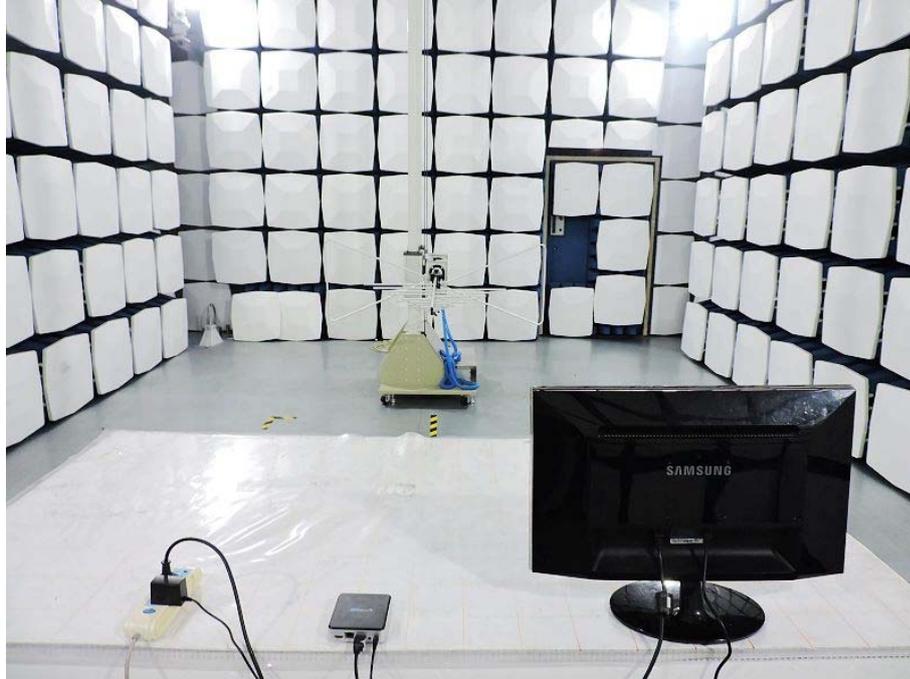
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Radiated Emission Test Setup:



Photos of EUT

Please see test report FCC1902047-01

End of the report

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