



Report No: FCC 1706166-03 File reference No: 2017-07-10

Applicant: GLORY STAR TECHNICS (SHENZHEN) CO., LTD.

Product: Advertising Displayer

Model No: JAR215-01

Trademark: N/A

Test Standards: FCC Part 15 Subpart E, Paragraph 15.407

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 regulations for the evaluation o

electromagnetic compatibility

Approved By

Jack Chung

Jack Chung

Manager

Dated: July 10, 2017

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

Room 512-519, 5/F., East Tower, Building 4, Anhua Industrial Zone, Futian District, Shenzhen, Guangdong, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com

Date: 2017-07-10



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Special Statement:

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

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

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

CNAL-LAB Code: L2292

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

FCC-Registration No.: 899988

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

IC-Registration No.: IC5205A-02

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

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Test Report Conclusion

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1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Room 512-519,5/F., East Tower, Building 4, Anhua Industrial Zone, Futian District, Shenzhen,

Guangdong China

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

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-02

For 3m & 10 m OATS

1.2 Applicant Details

Applicant: GLORY STAR TECHNICS (SHENZHEN) CO., LTD.

Address: 4/Floor, west block, Longzhu Road, Xin WuCun Industry Building, NanShan District, ShenZhen

Telephone: (755)-26001808-305

Fax: (755)-26002933

1.3 Description of EUT

Product: Advertising Displayer

Manufacturer: GLORY STAR TECHNICS (SHENZHEN) CO., LTD.

Address: 4/Floor, west block, Longzhu Road, Xin WuCun Industry Building, NanShan

District.ShenZhen

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

Model Number: JAR215-01

Additional Model Number: N/A

Type of Modulation IEEE 802.11a/n (HT20/HT40): OFDM(64QAM, 16QAM, QPSK, BPSK);

IEEE 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM

Frequency Band 1: 5180MHz-5240MHz;

Band 4: 5745MHz-5805MHz

Channel Separation 802.11a/802.11n20:20MHz, 802.11n40:40MHz, 802.11ac: 80MHz

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

IEEE 802.11ac: Up to 433.3Mbps

Antenna: Integral antennas used.

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

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Antenna Gain: Maximum 3.0dBi

Test Mode: During testing, EUT was set to 100% duty cycle. 6Mbps air data rate was the worst case

for 802.11a mode; mcs0 air data rate was the worst case for 802.11n mode; 23.9Mbps air

data rate was the worst case for 802.11ac mode.

Frequency Selection By software Input Voltage: DC12V

Power Adapter Model: LYD1205000UA;

Input: 100-240V, 50/60Hz, 1.6A; Output: 12V, 5A

Each Channel Operation Frequency

| Lacii Chamici Ope | Each Chainlei Operation Frequency | | | | | |
|-------------------|-----------------------------------|-------------|-------------------|----------------|-----------|--|
| | Band 1 | | | | | |
| 802.11a / 11n HT2 | 20 / 802.11ac VHT20 | 802.11n HT4 | 0 / 802.11acVHT40 | 802.11 | ac VHT80 | |
| Channel | Frequency | Channel | Frequency | Channel | Frequency | |
| 36 | 5180MHz | 38 | 5190 MHz | 42 | 5210 MHz | |
| 40 | 5200 MHz | 46 | 5230 MHz | | | |
| 44 | 5220 MHz | | | | | |
| 48 | 5240 MHz | | | | | |
| | | В | and 4 | | | |
| 802.11a / 11n HT2 | 20 / 802.11ac VHT20 | 802.11n HT4 | 0 / 802.11acVHT40 | 802.11ac VHT80 | | |
| Channel | Frequency | Channel | Frequency | Channel | Frequency | |
| 149 | 5745 MHz | 151 | 5755 MHz | 155 | 5775 MHz | |
| 153 | 5765 MHz | 159 | 5795 MHz | | | |
| 157 | 5785 MHz | | | | | |
| 161 | 5805 MHz | | | | | |

The selected test channels as follows:

| The selected test (| The selected test chamies as follows. | | | | | | | |
|---------------------|---------------------------------------|--------------|-----------|----------------|-----------|--|--|--|
| | Band 1 | | | | | | | |
| 802.11a / | 11n HT20 | 802.11 | n HT40 | 802.11 | ac VHT80 | | | |
| Channel | Frequency | Channel | Frequency | Channel | Frequency | | | |
| 36 | 5180MHz | 38 | 5190 MHz | 42 | 5210 MHz | | | |
| 40 | 5200 MHz | 46 | 5230 MHz | | | | | |
| 48 | 5240 MHz | | | | | | | |
| | | В | and 4 | | | | | |
| 802.11a / | 11n HT20 | 802.11n HT40 | | 802.11ac VHT80 | | | | |
| Channel | Frequency | Channel | Frequency | Channel | Frequency | | | |
| 149 | 5745 MHz | 151 | 5755 MHz | 155 | 5775 MHz | | | |
| 153 | 5765 MHz | 159 | 5795 MHz | | | | | |
| 161 | 5805 MHz | | | | | | | |

Note: 802.11ac VHT20/VHT40 is similar with 802.11n HT20/HT40.

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Submitted Sample: 2 Samples

Test Duration 1.5 2017-04-20 to 2017-07-09

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

1.7 Test Engineer

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 | 2016-08-22 | 2017-08-21 |
| TWO | R&S | EZH3-Z5 | 100294 | 2016-08-22 | 2017-08-21 |
| Line-V-NETW | | EZN3-Z3 | 100294 | 2010-08-22 | 2017-08-21 |
| TWO | R&S | EZH3-Z5 | 100253 | 2016-08-22 | 2017-08-21 |
| Line-V-NETW | | EZII3-Z3 | 100233 | 2010-06-22 | 2017-08-21 |
| | R&S | | | | |
| Ultra Broadband | | HL562 | 100157 | 2016-08-23 | 2017-08-22 |
| ANT | | | | | |
| | R&S | ESDV | 100008 | 2016-08-22 | 2017-08-21 |
| ESDV Test Receiver | D 0 0 | | 100001 | 2016.00.22 | |
| Impuls-Begrenzer | R&S | ESH3-Z2 | 100281 | 2016-08-22 | 2017-08-21 |
| System Controller | СТ | SC100 | - | | |
| Printer | EPSON | РНОТО ЕХЗ | CFNH234850 | | |
| Computer | IBM | 8434 | 1S8434KCE99BLXLO* | - | - |
| Loop Antenna | EMCO | 6502 | 00042960 | 2016-08-23 | 2017-08-22 |
| ESPI Test Receiver | R&S | ESI26 | 838786/013 | 2016-08-22 | 2017-08-21 |
| 3m OATS | | - | N/A | 2016-08-24 | 2017-08-23 |
| Horn Antenna | R&S | BBHA 9170 | BBHA9170265 | 2016-08-24 | 2017-08-23 |
| Horn Antenna | R&S | BBHA 9120D | 9120D-631 | 2016-08-24 | 2017-08-23 |
| Power meter | Anritsu | ML2487A | 6K00003613 | 2016-08-22 | 2017-08-21 |
| Power sensor | Anritsu | MA2491A | 32263 | 2016-08-22 | 2017-08-21 |
| Bilog Antenna | Schwarebeck | VULB9163 | 9163/340 | 2016-08-23 | 2017-08-21 |
| LISN | AFJ | LS16C | 10010947251 | 2016-08-22 | 2017-08-21 |
| LISN (Three Phase) | Schwarebeck | NSLK 8126 | 8126453 | 2016-08-23 | 2017-08-22 |
| 9*6*6 Anechoic | | | N/A | 2016-08-24 | 2017-08-23 |
| EMI Test Receiver | RS | ESCS30 | 100139 | 2016-08-22 | 2017-08-21 |
| DE C-1-1- | SCHWARZBEC | | | 2016 00 22 | 2017 00 22 |
| RF Cable | K | | | 2016-08-23 | 2017-08-22 |
| Pre-Amplifier | НР | 8447D | 2727A05017 | 2016-08-05 | 2017-08-04 |
| Pre-Amplifier | EM | EM30265 | | 2016-08-05 | 2017-08-04 |

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3.0 **Technical Details**

3.1 **Summary of test results**

| The EUT has been tested ac | ccording to the following spec | ifications: | |
|--|---|-------------|----------|
| Standard | Test Type | Result | Notes |
| FCC Part 15, Paragraph 15.107 & 15.407 | Conducted Emission Test | PASS | Complies |
| FCC Part 15 Subpart E Paragraph 15.407 (b1/4/5/6/7), Part 15.205 and Part 15.209 | Undesirable Emission and Restrict band | PASS | Complies |
| FCC Part 15, Paragraph 15.407 (a1/2/3) | Peak Transmit Power | PASS | Complies |
| FCC Part 15, Paragraph 15.407 (a)(6) | Peak Power Excursion | PASS | Complies |
| FCC Part 15, Paragraph 15.407 (a/1/2/3) | Peak 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 15.247, ANSI C63.10:2013 and ANSI C63.4:2014 789033 D02 General UNII Test Procedures New Rules v01r04

4.0 **EUT Modification**

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES.

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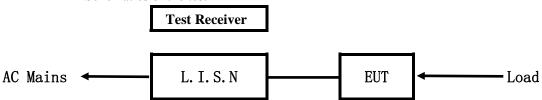
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5. Power Line Conducted Emission Test

5.1 Schematics of the test

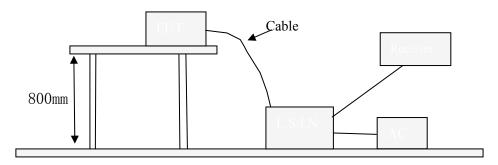


EUT: Equipment Under Test

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 |
|-------------|----------------------|-----------|-----------------|
| Advertising | GLORY STAR TECHNICS | JAR215-01 | 2AACS-JAR215-01 |
| Displayer | (SHENZHEN) CO., LTD. | JAR213-01 | ZAACS-JARZ13-01 |

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B. Internal Device

| Device | Manufacturer | Model | Rating |
|--------|--------------|-------|--------|
| | | | |

C. Peripherals

| Device | Manufacturer | Model | Rating |
|--------|--------------|--------------|--|
| Power | LIANYUNDA | | 100-240V, 50/60Hz, 1.6A; Output: 12V, 5A |
| Supply | | LYD1205000UA | |

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 | Class A Lim | its (dB µ V) | Class B Limits (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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A: Conducted Emission on Live Terminal (150kHz to 30MHz)

EUT Operating Environment

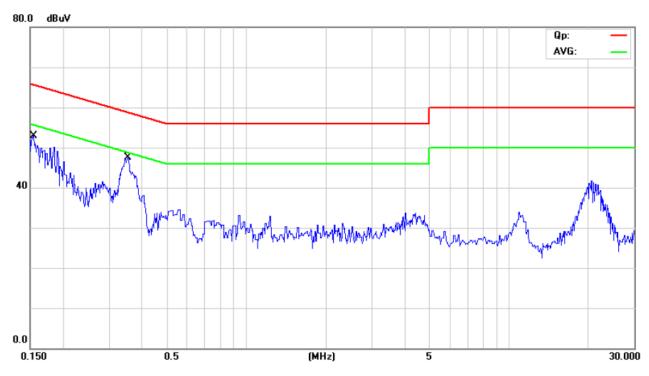
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Keeping WIFI Transmitting

Equipment Level: Class B

Results: PASS

Please refer to following diagram for individual



| No. Mk. | Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | | |
|---------|--------|------------------|-------------------|------------------|-------|--------|----------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | 0.1541 | 38.50 | 9.85 | 48.35 | 65.78 | -17.43 | QP | |
| 2 | 0.1541 | 17.50 | 9.85 | 27.35 | 55.78 | -28.43 | AVG | |
| 3 * | 0.3493 | 34.30 | 10.09 | 44.39 | 58.98 | -14.59 | QP | |
| 4 | 0.3493 | 21.00 | 10.09 | 31.09 | 48.98 | -17.89 | AVG | |

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

EUT Operating Environment

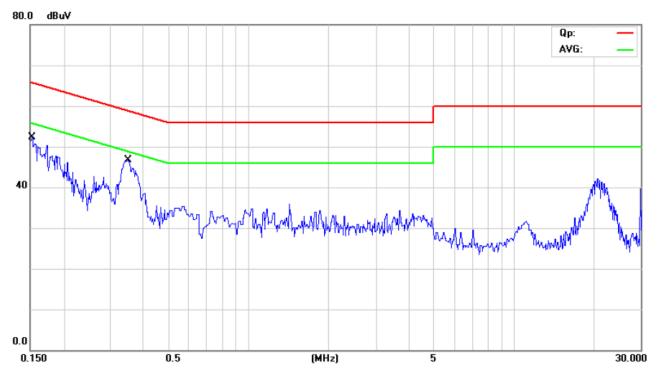
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Keeping WIFI Transmitting

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



| No. Mk. | Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | | |
|---------|--------|------------------|-------------------|------------------|-------|--------|----------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | 0.1524 | 38.50 | 9.84 | 48.34 | 65.87 | -17.53 | QP | |
| 2 | 0.1524 | 16.70 | 9.84 | 26.54 | 55.87 | -29.33 | AVG | |
| 3 | 0.3492 | 31.40 | 10.09 | 41.49 | 58.98 | -17.49 | QP | |
| 4 * | 0.3492 | 21.80 | 10.09 | 31.89 | 48.98 | -17.09 | AVG | |

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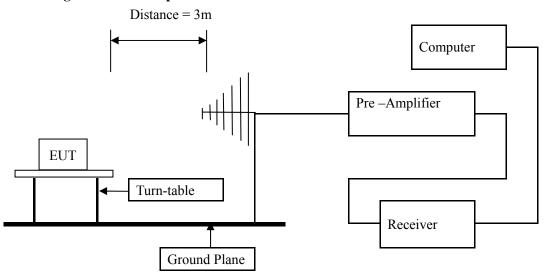


6 Undesirable Emission and Restrict band

- 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 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 C63.10-2013.
- (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.

 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.

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

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6.4 Radiated Emission Limit

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

Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109

| 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

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Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

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

EUT set Condition: Keeping WIFI Transmitting

Results: Pass

| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \u03b4 V/m) |
|-----------------|--------------------------|------------------|--------------------------|
| 482.16 | 41.18 | Н | 46.00 |
| 625.04 | 43.96 | Н | 46.00 |
| 770.96 | 41.42 | Н | 46.00 |
| 648.08 | 41.34 | Н | 46.00 |
| | | | |
| 648.08 | 40.46 | V | 46.00 |
| 432.16 | 43.62 | V | 46.00 |
| 720.08 | 42.84 | V | 46.00 |
| 864.08 | 42.32 | V | 46.00 |

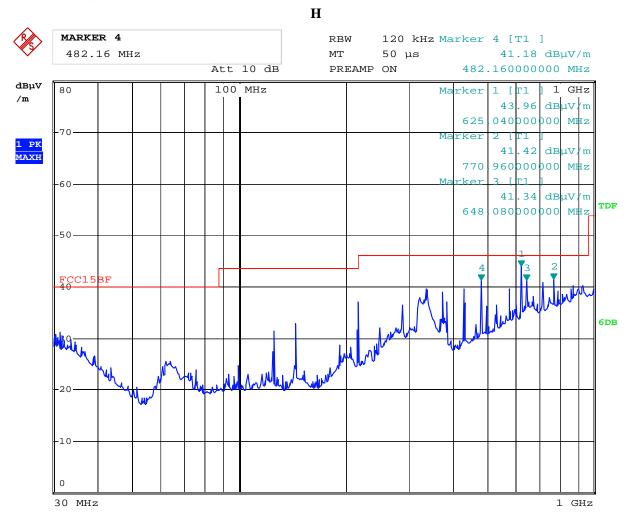
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Test Figure:



Date: 20.APR.2017 10:01:04

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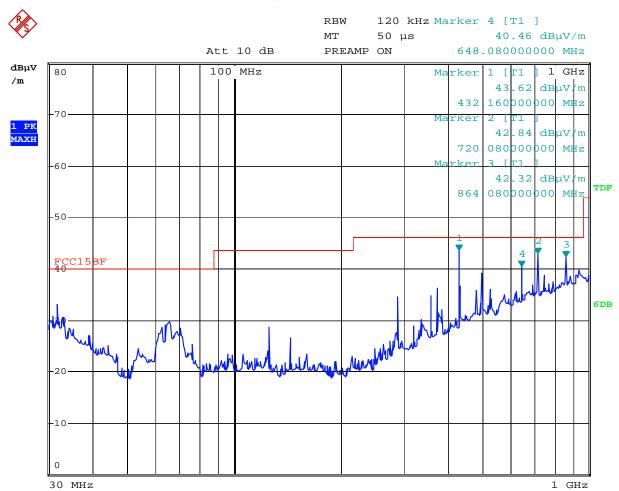
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Test Figure:

V



Date: 20.APR.2017 09:58:34

Date: 2017-07-10



Operation Mode: Keeping Transmitting under CH36 for 802.11a at 6Mbps

| | 1 0 | | |
|-----------------|-----------------------------|------------------|-----------------------|
| Frequency (MHz) | PK Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \mu V/m) |
| 5180.00 | 95.52 (PK) | Н | Fundamental Frequency |
| 5180.00 | 95.01 (PK) | V | Fundamental Frequency |
| 10360 | 51.50 | Н | 74(Peak)/ 54(AV) |
| 15540 | 51.00 | 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 802.11a at 6Mbps

| | 1 0 | | - |
|-----------------|----------------------|------------------|--------------------------|
| Frequency (MHz) | PK Level@3m (dBμV/m) | Antenna Polarity | Limit@3m (dB \u03b4 V/m) |
| 5200.00 | 96.02 (PK) | Н | Fundamental Frequency |
| 5200.00 | 96.51 (PK) | V | Fundamental Frequency |
| 10400 | 51.58 | Н | 74(Peak)/ 54(AV) |
| 15600 | 51.63 | 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 802.11a at 6Mbps

| Frequency (MHz) | PK Level@3m (dBμV/m) | Antenna Polarity | Limit@3m (dB \mu V/m) |
|-----------------|----------------------|------------------|-----------------------|
| 5240.00 | 94.27 (PK) | Н | Fundamental Frequency |
| 5240.00 | 94.22 (PK) | V | Fundamental Frequency |
| 10480 | 49.36 | Н | 74(Peak)/ 54(AV) |
| 15720 | 49.48 | 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

Operation Mode: Keeping Transmitting under CH149 for 802.11a at 6Mbps

| | 1 0 | | |
|-----------------|----------------------|------------------|--------------------------|
| Frequency (MHz) | PK Level@3m (dBμV/m) | Antenna Polarity | Limit@3m (dB \u03b4 V/m) |
| 5745.00 | 95.39 (PK) | Н | Fundamental Frequency |
| 5745.00 | 95.89 (PK) | V | Fundamental Frequency |
| 11490 | 51.16 | Н | 74(Peak)/ 54(AV) |
| 17235 | 51.29 | V | 74(Peak)/ 54(AV) |
| 22980 | | H/V | 74(Peak)/ 54(AV) |
| 28725 | | H/V | 74(Peak)/ 54(AV) |
| 34470 | | 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 CH153 for 802.11a at 6Mbps

| | 1 0 | | <u> </u> |
|-----------------|----------------------|------------------|----------------------------|
| Frequency (MHz) | PK Level@3m (dBμV/m) | Antenna Polarity | Limit@3m (dB \(\mu \)V/m) |
| 5765.00 | 94.40 (PK) | Н | Fundamental Frequency |
| 5765.00 | 94.19 (PK) | V | rundamental Frequency |
| 11530 | 50.20 | Н | 74(Peak)/ 54(AV) |
| 17295 | 50.11 | V | 74(Peak)/ 54(AV) |
| 23060 | | H/V | 74(Peak)/ 54(AV) |
| 28825 | | H/V | 74(Peak)/ 54(AV) |
| 34590 | | 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 CH161 for 802.11a at 6Mbps

| Frequency (MHz) | PK Level@3m (dBμV/m) | Antenna Polarity | Limit@3m (dB \(\mu \)V/m) |
|-----------------|----------------------|------------------------|----------------------------|
| 5805.00 | 96.31 (PK) | Н | Fundamental Fraguency |
| 5805.00 | 96.23 (PK) | V Fundamental Frequenc | |
| 11610 | 52.41 | Н | 74(Peak)/ 54(AV) |
| 17415 | 52.33 | V | 74(Peak)/ 54(AV) |
| 23220 | | H/V | 74(Peak)/ 54(AV) |
| 29025 | | H/V | 74(Peak)/ 54(AV) |
| 34830 | | 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

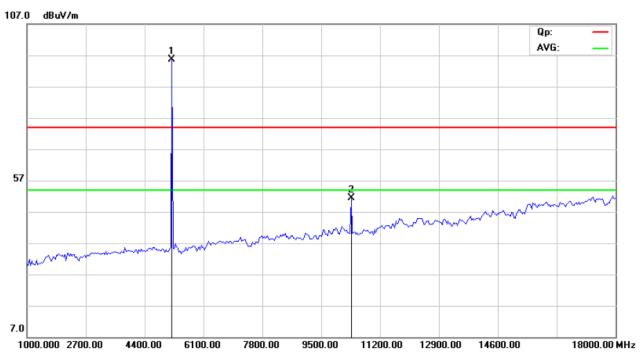
Remark. 802.11a/11nH20/11nH40/11ac VHT80 all have been tested, only 802.11a is the worst case

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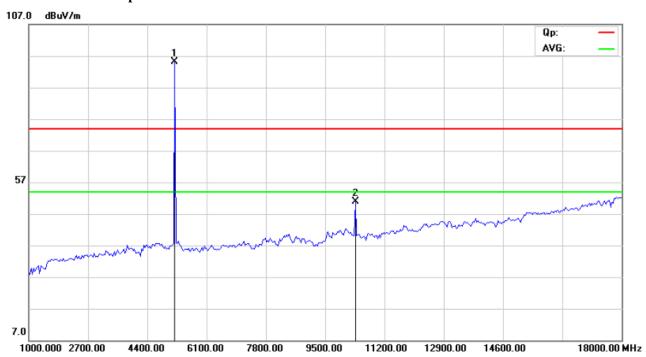


Please refer to the following test plots for details:

CH36 for 11a at 6Mbps: Horizontal



CH36 for 11a at 6Mbps: Vertical



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

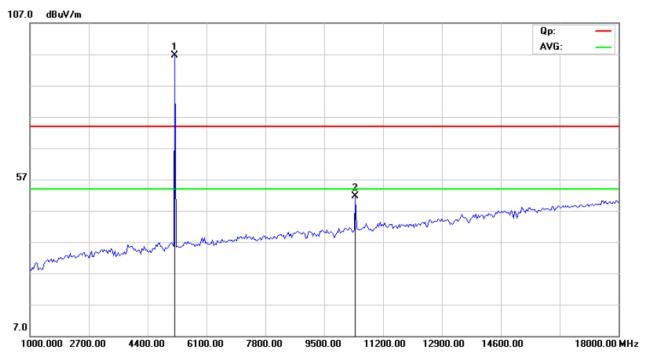
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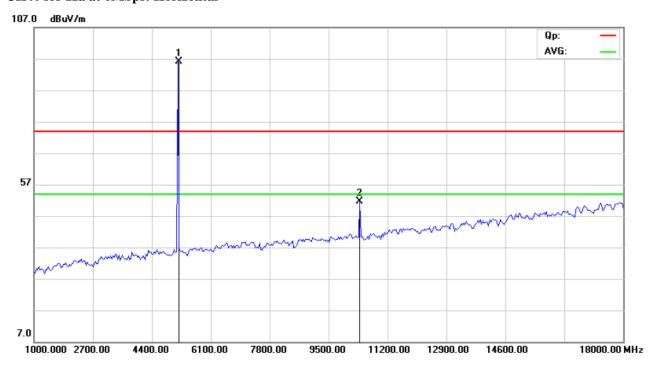
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CH40 for 11a at 6Mbps: Vertical



CH40 for 11a at 6Mbps: Horizontal



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

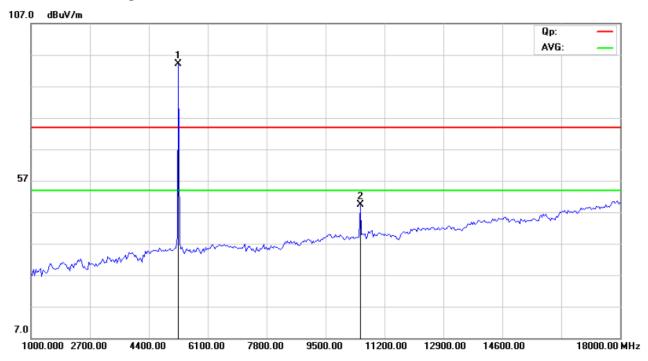
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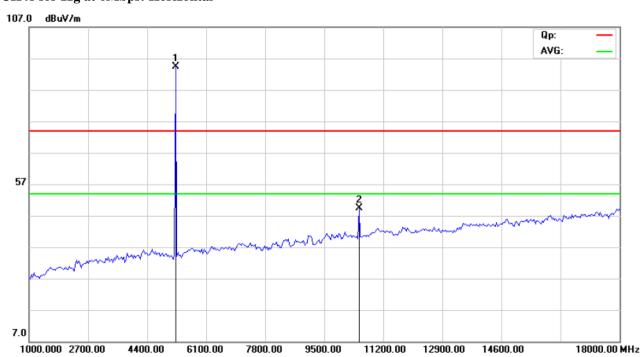
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CH48 for 11a at 6Mbps: Vertical



CH48 for 11g at 6Mbps: Horizontal

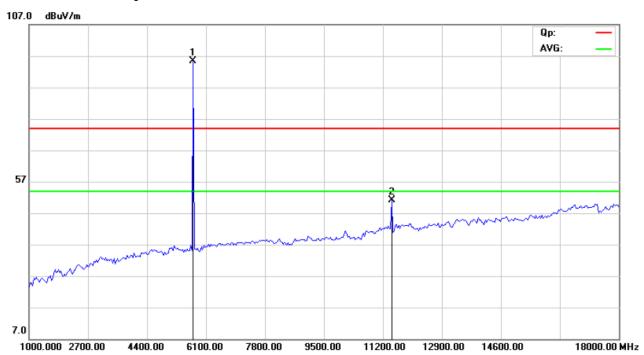


Date: 2017-07-10

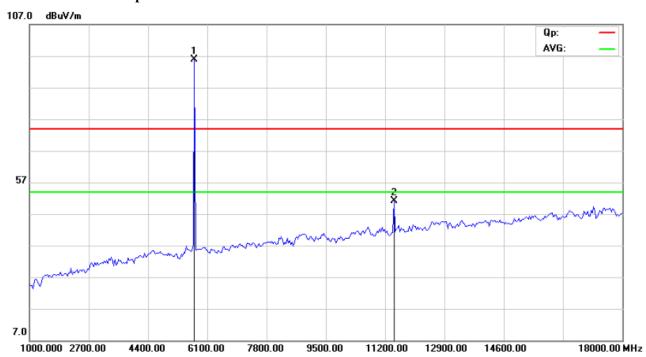


Please refer to the following test plots for details:

CH149 for 11a at 6Mbps: Horizontal



CH149 for 11a at 6Mbps: Vertical



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

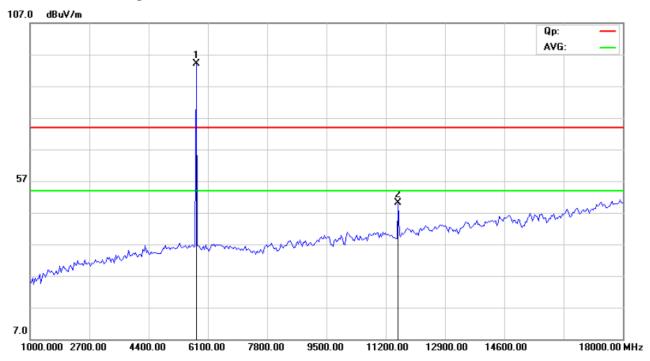
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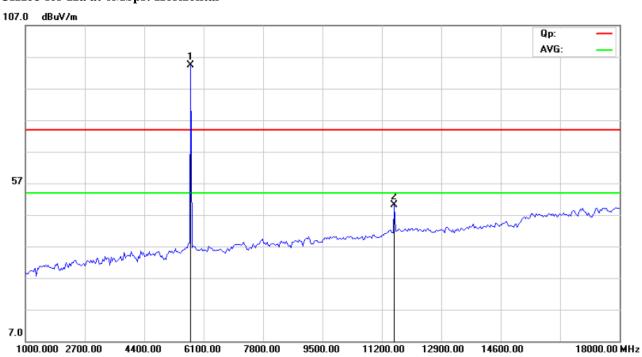
Date: 2017-07-10



CH153 for 11a at 6Mbps: Vertical



CH153 for 11a at 6Mbps: Horizontal



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

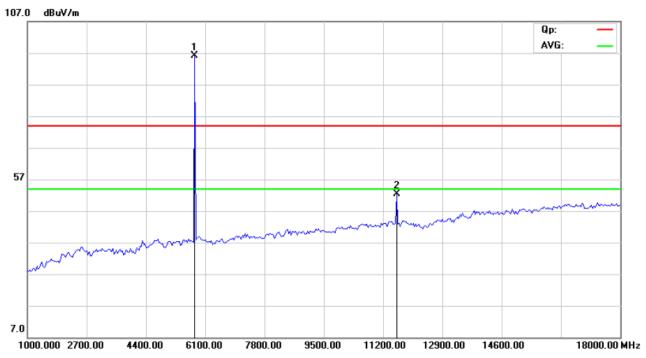
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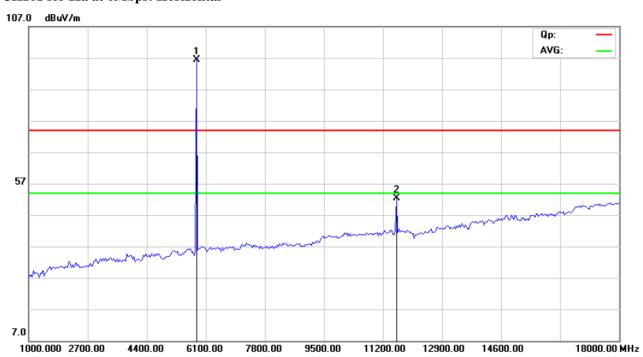
Date: 2017-07-10



CH161 for 11a at 6Mbps: Vertical



CH161 for 11a at 6Mbps: Horizontal



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

2. 802.11a/11nH20/11nH40/11ac VHT80 all have been tested, only 802.11a is the worst case.

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

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In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES, reserves the rights to withdraw it and to

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| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|--------------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 36 (5180MHz)-11a | |
| Mode | Keeping Transmitting | | Input Voltage | 120V∼ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | Pass | | Detector | PK | |
| 5150 | PK (dBµV/m) | 50.5 (PK) | T ::4 | 27.10/МП_ | |
| | EIRP (dBm) | -44.7 | Limit | -27dBm/MHz | |
| 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 $E[dB\mu V/m]=50.5 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=50.5-95.2=-44.7dBm$

2. RBW=1MHz, VBW=3MHz

| Restricted band Measurement | | | | | |
|-----------------------------|-------------|----------------------|------------|--------------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 36 (5180MHz)-11a | |
| Mode | Keeping | Keeping Transmitting | | 120V∼ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | Pass | | Detector | PK | |
| 5150 | PK (dBµV/m) | 49.1 (PK) | T ::4 | 27 10/MII | |
| | EIRP (dBm) | -46.1 | Limit | -27dBm/MHz | |
| Polarity | 1 | Vertical | | -1 | |

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 $E[dB\mu V/m]=49.1 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2 = 49.1 - 95.2 = -46.1 dBm$

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| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|--------------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 48 (5240MHz)-11a | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | Pass | | Detector | PK | |
| 5350 | PK (dBµV/m) | 49.7 (PK) | T ::4 | 2740/\di_ | |
| | EIRP (dBm) | -45.5 | Limit | -27dBm/MHz | |
| Polarity | Но | 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 $E[dB\mu V/m]=49.7 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=49.7-95.2=-45.5dBm$

2. RBW=1MHz, VBW=3MHz

| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|--------------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 48 (5240MHz)-11a | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | Pass | | Detector | PK | |
| 5350 | PK (dBµV/m) | 47.6 (PK) | T ::4 | 27.10/МП- | |
| | EIRP (dBm) | -47.6 | Limit | -27dBm/MHz | |
| 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 $E[dB\mu V/m]=47.6dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2 = 47.6 - 95.2 = -47.6 dBm$

Date: 2017-07-10



| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|---------------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 149 (5745MHz)-11a | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | Pass | | Detector | PK | |
| 5725 | PK (dBµV/m) | 45.1 (PK) | T ::4 | -27dBm/MHz | |
| | EIRP (dBm) | -50.1 | Limit | -2/QBM/MHZ | |
| Polarity | Но | 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 $E[dB\mu V/m]=45.1 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=45.1-95.2=-50.1dBm$

2. RBW=1MHz, VBW=3MHz

| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|---------------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 149 (5745MHz)-11a | |
| Mode | Keeping Transmitting | | Input Voltage | 120V∼ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | | Pass | Detector | PK | |
| 5725 | PK (dBµV/m) | 43.9 (PK) | T ::4 | 27.10/МП- | |
| | EIRP (dBm) -51.3 | | Limit | -27dBm/MHz | |
| Polarity | V | 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 $E[dB\mu V/m]=43.9 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2 = 43.9 - 95.2 = -51.3 dBm$

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| Restricted band Measurement | | | | |
|-----------------------------|----------------------|----------------|---------------|---------------------------|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 161 (5805MHz)-11a |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ |
| Temperature | 24 deg. C, | | Humidity | 56% RH |
| Test Result: | | Pass | Detector | PK |
| 5850 | PK (dBµV/m) | 46.2 (PK) | Limit | 27.10 /4.41.1 |
| | EIRP (dBm) | -49.0 | Limit | -27dBm/MHz |
| Polarity | Но | orizontal | | |

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 $E[dB\mu V/m]=46.2 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=46.2-95.2=-49.0dBm$

2. RBW=1MHz, VBW=3MHz

| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|---------------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 161 (5805MHz)-11a | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | | Pass | Detector | PK | |
| 5850 | PK (dBµV/m) | 43.9 (PK) | T 114 | 27.10/\(\text{A11}\) | |
| | EIRP (dBm) -51.3 | | Limit | -27dBm/MHz | |
| Polarity | V | /ertical | | | |

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 $E[dB\mu V/m]=43.9 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2 = 43.9 - 95.2 = -51.3 dBm$

Date: 2017-07-10



| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|--------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 36 | |
| | | | | (5180MHz)-11n/HT20 | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | | Pass | Detector | PK | |
| 5150 | PK (dBµV/m) | 50.1 (PK) | T ::4 | 27 JD /MII_ | |
| | EIRP (dBm) -45.1 | | Limit | -27dBm/MHz | |
| Polarity | Но | 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 $E[dB\mu V/m]=50.1 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=50.1-95.2=-45.1dBm$

2. RBW=1MHz, VBW=3MHz

| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|--------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 36 | |
| | | | | (5180MHz)-11n/HT20 | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | | Pass | Detector | PK | |
| 5150 | PK (dBµV/m) | 48.5 (PK) | T ::4 | 27.10/МП- | |
| | EIRP (dBm) -46.7 | | Limit | -27dBm/MHz | |
| Polarity | 1 | /ertical | | | |

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 $E[dB\mu V/m]=48.5 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2 = 48.5 - 95.2 = -46.7 dBm$

Date: 2017-07-10



| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|-----------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 48 (5240MHz)- | |
| | | | | 11n/HT20 | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | | Pass | Detector | PK | |
| 5250 | PK (dBµV/m) | 49.0 (PK) | T ::4 | -27dBm/MHz | |
| | EIRP (dBm) -46.2 | | Limit | -2/dBm/MHZ | |
| Polarity | Но | 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 $E[dB\mu V/m]=49.0 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=49.0-95.2=-46.2dBm$

2. RBW=1MHz, VBW=3MHz

| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|-----------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 48 (5240MHz)- | |
| | | | | 11n/HT20 | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | | Pass | Detector | PK | |
| 5250 | PK (dBµV/m) | 46.1 (PK) | T ::4 | 27 JD /MII_ | |
| | EIRP (dBm) -49.1 | | Limit | -27dBm/MHz | |
| Polarity | 7 | Vertical | | 1 | |

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 $E[dB\mu V/m]=46.1dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2 = 46.1 - 95.2 = -49.1 dBm$

Date: 2017-07-10



| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|------------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 149 (5745MHz)- | |
| | | | | 11n/HT20 | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | | Pass | Detector | PK | |
| 5725 | PK (dBµV/m) | 45.3 (PK) | T ::4 | 27.10/МП- | |
| | EIRP (dBm) -49.9 | | Limit | -27dBm/MHz | |
| Polarity | Но | orizontal | | | |

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 $E[dB\mu V/m]=45.3 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=45.3-95.2=-49.9dBm$

2. RBW=1MHz, VBW=3MHz

| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|------------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 149 (5745MHz)- | |
| | | | | 11n/HT20 | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | | Pass | Detector | PK | |
| 5725 | PK (dBµV/m) | 43.2 (PK) | T ::4 | 27.10/МП- | |
| | EIRP (dBm) -52.0 | | Limit | -27dBm/MHz | |
| Polarity | 7 | 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 $E[dB\mu V/m]=43.2 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2 = 43.2 - 95.2 = -52.0 dBm$

Date: 2017-07-10



| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|------------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 161 (5805MHz)- | |
| | | | | 11n/HT20 | |
| Mode | Keeping Transmitting | | Input Voltage | 120V∼ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | | Pass | Detector | PK | |
| 5850 | PK (dBµV/m) | 44.7 (PK) | T ::4 | 27.10/МП- | |
| | EIRP (dBm) -50.5 | | Limit | -27dBm/MHz | |
| Polarity | Но | 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 $E[dB\mu V/m]=44.7 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=44.7-95.2=-50.5dBm$

2. RBW=1MHz, VBW=3MHz

| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|------------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 161 (5805MHz)- | |
| | | | | 11n/HT20 | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | | Pass | Detector | PK | |
| 5850 | PK (dBµV/m) | 43.9 (PK) | T ::4 | 27.10/МП- | |
| | EIRP (dBm) -51.3 | | Limit | -27dBm/MHz | |
| Polarity | 7 | 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 $E[dB\mu V/m]=43.9 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=43.9-95.2=-51.3dBm$

Date: 2017-07-10



| Restricted band Measurement | | | | | |
|-----------------------------|----------------------|----------------|---------------|--------------------|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 38 | |
| | | | | (5190MHz)-11n/HT40 | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | |
| Test Result: | | Pass | Detector | PK | |
| 5150 | PK (dBµV/m) | 46.8 (PK) | T ::4 | 27 JD /MII_ | |
| | EIRP (dBm) -45.1 | | Limit | -27dBm/MHz | |
| Polarity | Но | 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 $E[dB\mu V/m]=46.8 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=46.8-95.2=-48.4dBm$

2. RBW=1MHz, VBW=3MHz

| Restricted band Measurement | | | | | | | | |
|-----------------------------|-----------------------|-----------|---------------|--------------------|--|--|--|--|
| EUT | Advertising Displayer | | Test Mode: | Channel 38 | | | | |
| | | | | (5190MHz)-11n/HT40 | | | | |
| Mode | Keeping Transmitting | | Input Voltage | 120V∼ | | | | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | | | | |
| Test Result: | Pass | | Detector | PK | | | | |
| 5150 | PK (dBµV/m) | 44.9 (PK) | Limit | -27dBm/MHz | | | | |
| | EIRP (dBm) | -50.3 | | | | | | |
| 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 $E[dB\mu V/m]=44.9 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=44.9-95.2=-50.3dBm$

Date: 2017-07-10



| Restricted band Measurement | | | | | | | |
|-----------------------------|-----------------------|----------|---------------|-----------------------|--|--|--|
| EUT | Advertising Displayer | | Test Mode: | Channel 46 (5230MHz)- | | | |
| | | | | 11n/HT40 | | | |
| Mode | Keeping Transmitting | | Input Voltage | 120V∼ | | | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | | | |
| Test Result: | Pass | | Detector | PK | | | |
| 5250 | PK (dBµV/m) | 45.5(PK) | T ::4 | -27dBm/MHz | | | |
| | EIRP (dBm) | -49.7 | Limit | | | | |
| 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 $E[dB\mu V/m]=45.5 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=45.5-95.2=-49.7dBm$

2. RBW=1MHz, VBW=3MHz

| Restricted band Measurement | | | | | | | |
|-----------------------------|-----------------------|-----------|---------------|-----------------------|--|--|--|
| EUT | Advertising Displayer | | Test Mode: | Channel 46 (5230MHz)- | | | |
| | | | | 11n/HT40 | | | |
| Mode | Keeping Transmitting | | Input Voltage | 120V~ | | | |
| Temperature | 24 deg. C, | | Humidity | 56% RH | | | |
| Test Result: | Pass | | Detector | PK | | | |
| 5250 | PK (dBµV/m) | 43.8 (PK) | Limit | -27dBm/MHz | | | |
| | EIRP (dBm) | -51.4 | | | | | |
| 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 $E[dB\mu V/m]=43.8dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2 = 43.8 - 95.2 = -51.4 dBm$

Date: 2017-07-10



| Restricted band Me | Restricted band Measurement | | | | | | | | | |
|--------------------|-----------------------------|----------------|---------------|------------------------|--|--|--|--|--|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 151 (5755MHz)- | | | | | | |
| | | | | 11n/HT40 | | | | | | |
| Mode | Keeping | g Transmitting | Input Voltage | 120V~ | | | | | | |
| Temperature | 24 | deg. C, | Humidity | 56% RH | | | | | | |
| Test Result: | | Pass | Detector | PK | | | | | | |
| 5725 | PK (dBµV/m) | 43.5 (PK) | T ::4 | 27.10/МП- | | | | | | |
| | EIRP (dBm) -51.7 | | Limit | -27dBm/MHz | | | | | | |
| Polarity | Но | orizontal | | - | | | | | | |

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 $E[dB\mu V/m]=43.5 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=43.5-95.2=-51.7dBm$

2. RBW=1MHz, VBW=3MHz

| Restricted band Me | Restricted band Measurement | | | | | | | | | |
|--------------------|-----------------------------|----------------|---------------|------------------------|--|--|--|--|--|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 151 (5755MHz)- | | | | | | |
| | | | | 11n/HT40 | | | | | | |
| Mode | Keeping | g Transmitting | Input Voltage | 120V∼ | | | | | | |
| Temperature | 24 | deg. C, | Humidity | 56% RH | | | | | | |
| Test Result: | | Pass | Detector | PK | | | | | | |
| 5725 | PK (dBµV/m) | 42.1 (PK) | T ::4 | 27 10 / 444 | | | | | | |
| | EIRP (dBm) -53.1 | | Limit | -27dBm/MHz | | | | | | |
| Polarity | 7 | 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 $E[dB\mu V/m]=42.1 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2 = 42.1 - 95.2 = -53.1dBm$

2. RBW=1MHz, VBW=3MHz

Date: 2017-07-10



| Restricted band Me | Restricted band Measurement | | | | | | | | | |
|--------------------|-----------------------------|----------------|---------------|------------------------|--|--|--|--|--|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 159 (5795MHz)- | | | | | | |
| | | | | 11n/HT40 | | | | | | |
| Mode | Keeping | g Transmitting | Input Voltage | 120V~ | | | | | | |
| Temperature | 24 | deg. C, | Humidity | 56% RH | | | | | | |
| Test Result: | | Pass | Detector | PK | | | | | | |
| 5850 | PK (dBµV/m) | 43.3 (PK) | T ::4 | 27.10/МП- | | | | | | |
| | EIRP (dBm) -51.9 | | - Limit | -27dBm/MHz | | | | | | |
| Polarity | Но | orizontal | | | | | | | | |

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 $E[dB\mu V/m]=43.3 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=43.3-95.2=-51.9dBm$

2. RBW=1MHz, VBW=3MHz

| Restricted band Me | Restricted band Measurement | | | | | | | | | |
|--------------------|-----------------------------|----------------|---------------|------------------------|--|--|--|--|--|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 159 (5795MHz)- | | | | | | |
| | | | | 11n/HT40 | | | | | | |
| Mode | Keeping | g Transmitting | Input Voltage | 120V~ | | | | | | |
| Temperature | 24 | deg. C, | Humidity | 56% RH | | | | | | |
| Test Result: | | Pass | Detector | PK | | | | | | |
| 5850 | PK (dBµV/m) | 41.7 (PK) | T ::4 | 27.10 / 444 | | | | | | |
| | EIRP (dBm) -53.5 | | Limit | -27dBm/MHz | | | | | | |
| Polarity | 7 | 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 $E[dB\mu V/m]=41.7 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2 = 41.7 - 95.2 = -53.5 dBm$

2. RBW=1MHz, VBW=3MHz

Date: 2017-07-10



| Restricted band Me | Restricted band Measurement | | | | | | | | | | |
|--------------------|-----------------------------|----------------|---------------|----------------------|--|--|--|--|--|--|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 42 | | | | | | | |
| | | | | (5210MHz)-11ac/VHT80 | | | | | | | |
| Mode | Keeping | Transmitting | Input Voltage | 120V~ | | | | | | | |
| Temperature | 24 | deg. C, | Humidity | 56% RH | | | | | | | |
| Test Result: | | Pass | Detector | PK | | | | | | | |
| 5150 | PK (dBµV/m) | 42.9 (PK) | T ::4 | 27.lD/MII_ | | | | | | | |
| | EIRP (dBm) -52.3 | | Limit | -27dBm/MHz | | | | | | | |
| Polarity | Но | orizontal | | | | | | | | | |

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 $E[dB\mu V/m]=42.9 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=42.9-95.2=-52.3dBm$

2. RBW=1MHz, VBW=3MHz

3.5150 MHz and 5350MHz all have been tested, only worse case 5150MHz is reported

| Restricted band Me | Restricted band Measurement | | | | | | | | | |
|--------------------|-----------------------------|----------------|---------------|-----------------------|--|--|--|--|--|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 42 (5210MHz)- | | | | | | |
| | | | | 11ac/VHT80 | | | | | | |
| Mode | Keeping | g Transmitting | Input Voltage | 120V~ | | | | | | |
| Temperature | 24 | deg. C, | Humidity | 56% RH | | | | | | |
| Test Result: | | Pass | Detector | PK | | | | | | |
| 5150 | PK (dBµV/m) | 40.7 (PK) | T ::4 | 27.10/МП- | | | | | | |
| | EIRP (dBm) -54.5 | | Limit | -27dBm/MHz | | | | | | |
| Polarity | 7 | Vertical | | 1 | | | | | | |

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 $E[dB\mu V/m]=40.7 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2 = 40.7 - 95.2 = -54.5 dBm$

2. RBW=1MHz, VBW=3MHz

 $3.5150\,\mathrm{MHz}$ and $5350\mathrm{MHz}$ all have been tested , only worse case $5150\mathrm{MHz}$ is reported

Date: 2017-07-10



| Restricted band Me | Restricted band Measurement | | | | | | | | | |
|--------------------|-----------------------------|----------------|---------------|------------------------|--|--|--|--|--|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 155 (5775MHz)- | | | | | | |
| | | | | 11ac/VHT80 | | | | | | |
| Mode | Keeping | g Transmitting | Input Voltage | 120V~ | | | | | | |
| Temperature | 24 | deg. C, | Humidity | 56% RH | | | | | | |
| Test Result: | | Pass | Detector | PK | | | | | | |
| 5850 | PK (dBµV/m) | 42.1 (PK) | T ::4 | 27 10 / 444 | | | | | | |
| | EIRP (dBm) -51.9 | | Limit | -27dBm/MHz | | | | | | |
| Polarity | Но | orizontal | | 1 | | | | | | |

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 $E[dB\mu V/m]=42.1 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2=42.1-95.2=-53.1dBm$

2. RBW=1MHz, VBW=3MHz

3.5725 MHz and 5850MHz all have been tested, only worse case 5850MHz is reported

| Restricted band Me | Restricted band Measurement | | | | | | | | | |
|--------------------|-----------------------------|----------------|---------------|------------------------|--|--|--|--|--|--|
| EUT | Advertis | sing Displayer | Test Mode: | Channel 157 (5775MHz)- | | | | | | |
| | | | | 11ac/VHT80 | | | | | | |
| Mode | Keeping | g Transmitting | Input Voltage | 120V∼ | | | | | | |
| Temperature | 24 | deg. C, | Humidity | 56% RH | | | | | | |
| Test Result: | | Pass | Detector | PK | | | | | | |
| 5850 | PK (dBµV/m) | 40.3 (PK) | T ::4 | 27 10 / 444 | | | | | | |
| | EIRP (dBm) -54.9 | | Limit | -27dBm/MHz | | | | | | |
| Polarity | 7 | 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 $E[dB\mu V/m]=40.3 dB\mu V/m$,

 $EIRP[dBm] = E[dB\mu V/m] - 95.2 = 40.3 - 95.2 = -54.9 dBm$

2. RBW=1MHz, VBW=3MHz

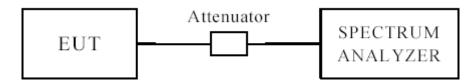
3.5725 MHz and 5850MHz all have been tested, only worse case 5850MHz is reported

Date: 2017-07-10



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 $VBW \ge 3 \times RBW$.
- 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 $VBW \ge 3 \times RBW$
- 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

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

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7.6 Test Result

| EUT | | Advertising Displayer | | Model | | JAR215-01 | | |
|-----------|---------|-----------------------|---------------------------|-------|---------------|-----------|-------------------|------------|
| Mode | | 8 | 302.11a | | Input Voltage | | 120V~ | |
| Temperati | ure | 24 | 4 deg. C, | | Humidity | r | | 56% RH |
| Channel | | el Frequency (MHz) | Data Transfer Rate (Mbps) | | | | num Limit MHz) | Pass/ Fail |
| 26dB Bar | ndwidth | | | | | | | |
| 36 | | 5180 | 6 | 22 | 22.24 | | | Pass |
| 40 | | 5200 | 6 | 22 | 22.04 | | | Pass |
| 48 | | 5240 | 6 | 22 | .44 | | | Pass |
| | | | | | | | | |
| 99% Ban | dwidth | | | | | | | |
| 36 | | 5180 | 6 | 17 | .23 | | | Pass |
| 40 | | 5200 | 6 | 17.23 | | | | Pass |
| 48 | | 5240 | 6 | 17.15 | | .15 | | Pass |

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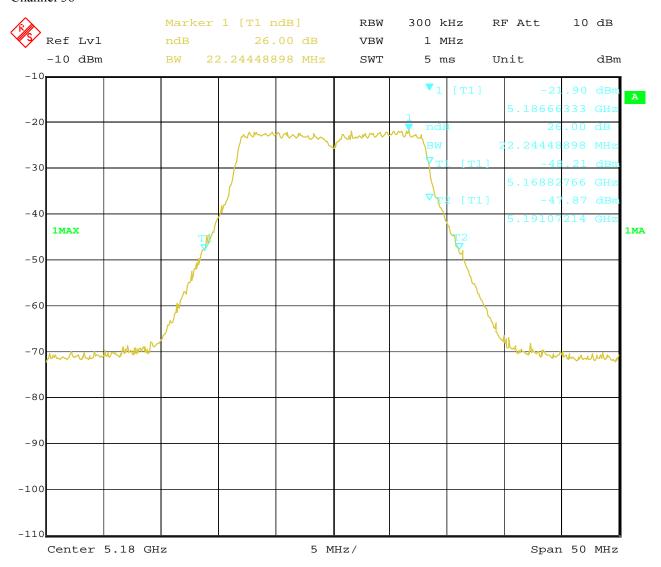
Date: 2017-07-10



Test Figure:

26dB Bandwidth

Channel 36



22.MAY.2017 12:04:55 Date:

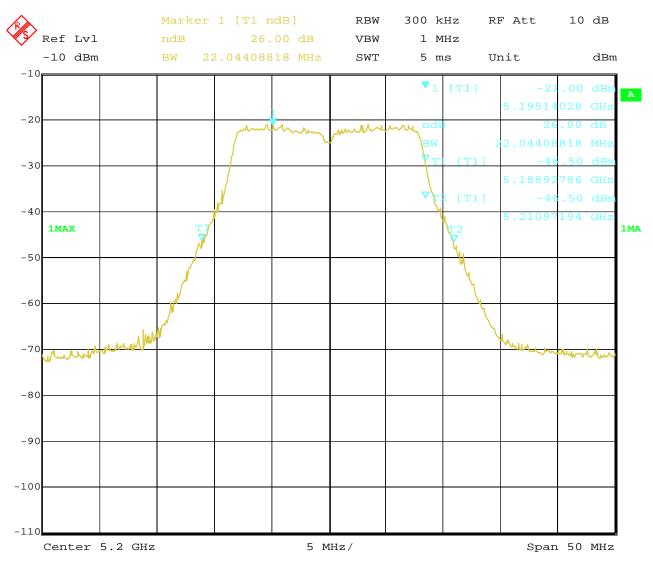
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Channel 40



22.MAY.2017 12:07:48 Date:

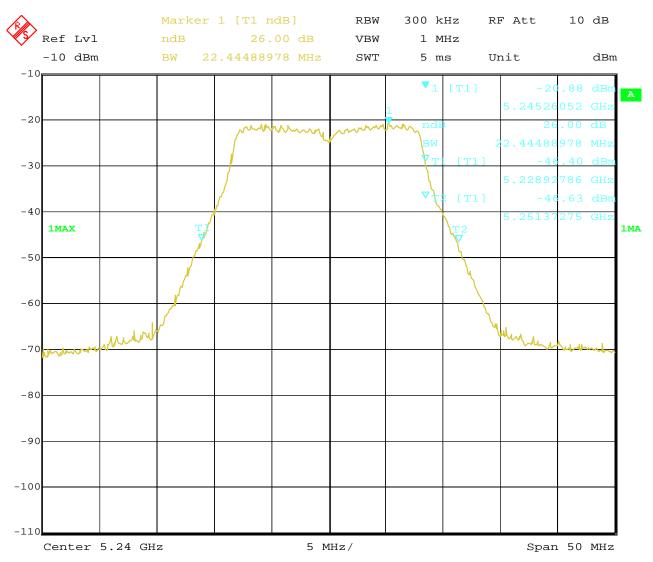
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Channel 48



22.MAY.2017 12:12:23 Date:

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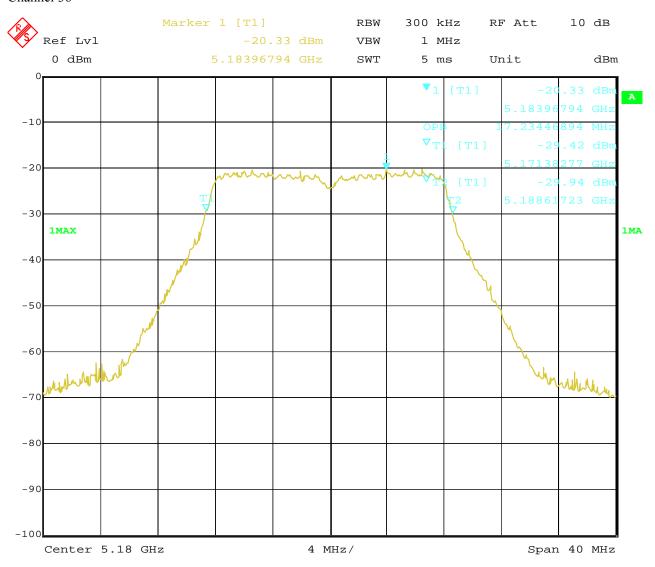
Date: 2017-07-10



Test Figure:

99% Bandwidth

Channel 36



Date: 8.JUL.2017 18:15:53

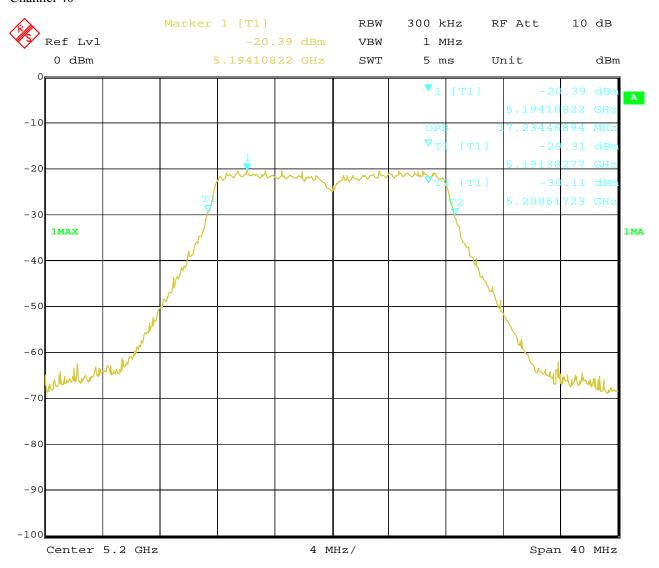
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Date: 2017-07-10



Channel 40



8.JUL.2017 Date: 18:21:32

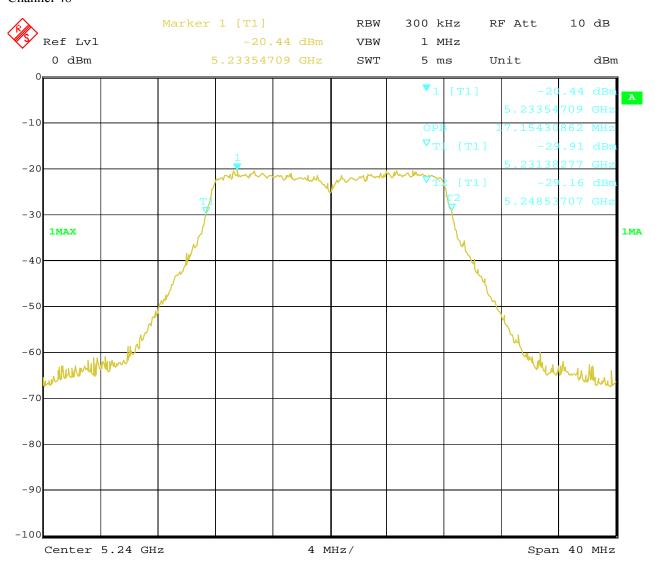
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Date: 2017-07-10



Channel 48



8.JUL.2017 Date: 18:23:41

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Date: 2017-07-10



| EUT | | Adverti | sing Displa | yer | Model | | | JAR215-01 |
|----------|---------|------------------------|---------------------------|-----|----------------|-------|--------|------------|
| Mode | | 8 | 302.11a | | Input Vo | ltage | | 120V~ |
| Temperat | ure | 24 | 4 deg. C, | | Humidity | ý | 56% RH | |
| Channel | | nel Frequency (MHz) | Data Transfer Rate (Mbps) | | lwidth [Hz) | | | Pass/ Fail |
| 26dB Baı | ndwidth | | | | | | | |
| 149 | | 5745 | 6 | 23 | .41 | | | Pass |
| 153 | | 5765 | 6 | 26 | 5.53 | | | Pass |
| 161 | | 5805 | 6 | 25 | 5.41 | | | Pass |
| | | | | | | | | |
| 6dB Ban | dwidth | | | | | | | |
| 149 | | 5745 | 6 | 16 | 5.31 | | 0.5 | Pass |
| 153 | | 5765 | 6 | 16 | 5.35 | | 0.5 | Pass |
| 161 | | 5805 | 6 | 16 | 5.35 | | 0.5 | Pass |
| | | | | | | | | |
| 99% Ban | dwidth | | | | | | | |
| 149 | | 5745 | 6 | 17 | 7.39 | | | Pass |
| 153 | | 5765 | 6 | 17 | 7.39 | | | Pass |
| 161 | | 5805 | 6 | 17 | '.39 | | | Pass |

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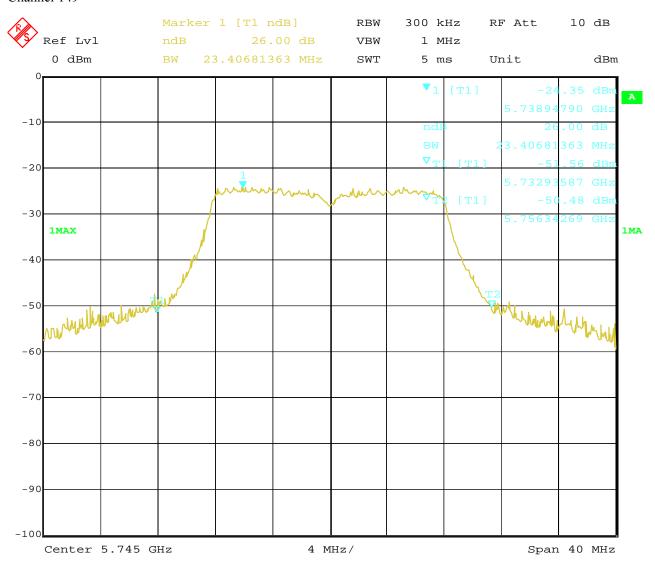
Date: 2017-07-10



Test Figure:

26dB Bandwidth

Channel 149



8.JUL.2017 18:27:30 Date:

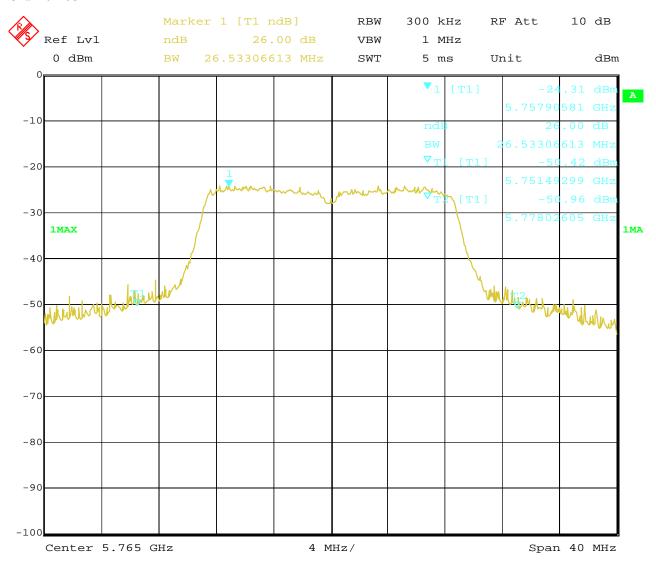
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Channel 153



8.JUL.2017 Date: 18:36:01

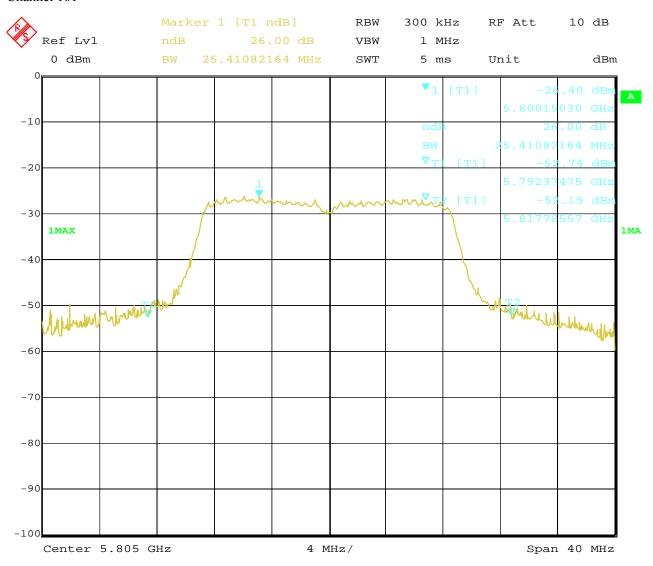
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Channel 161



8.JUL.2017 Date: 18:38:32

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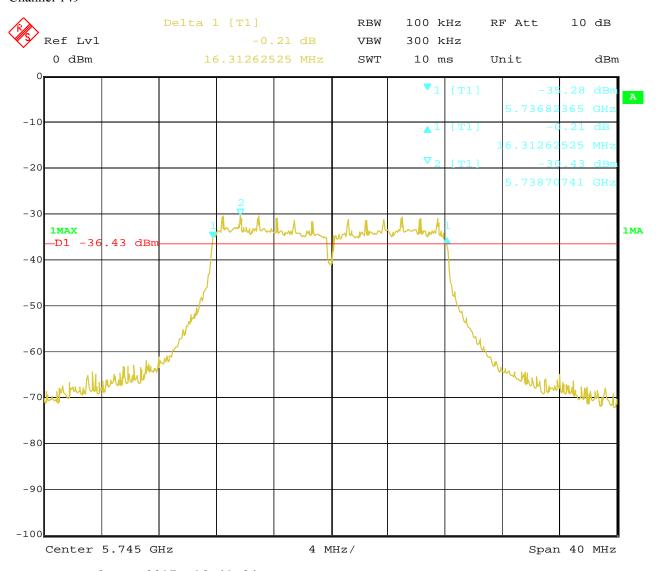
Date: 2017-07-10



Test Figure:

6dB Bandwidth

Channel 149



Date: 8.JUL.2017 12:41:24

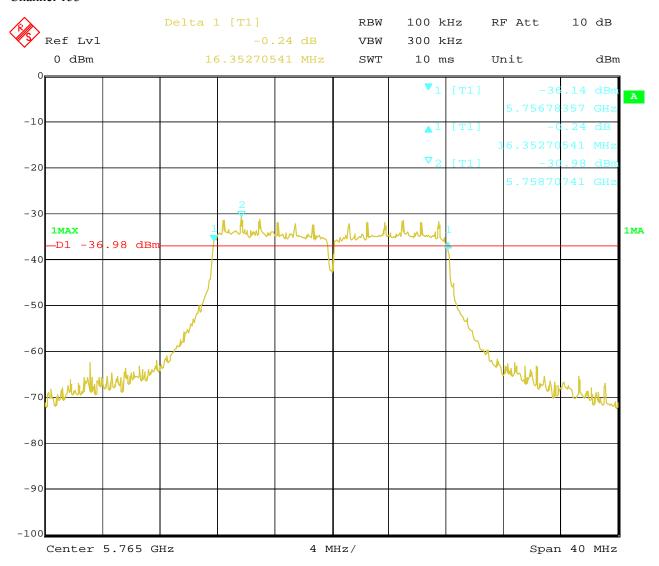
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Report No.: FCC1706166-04

Date: 2017-07-10



Channel 153



8.JUL.2017 Date: 12:38:31

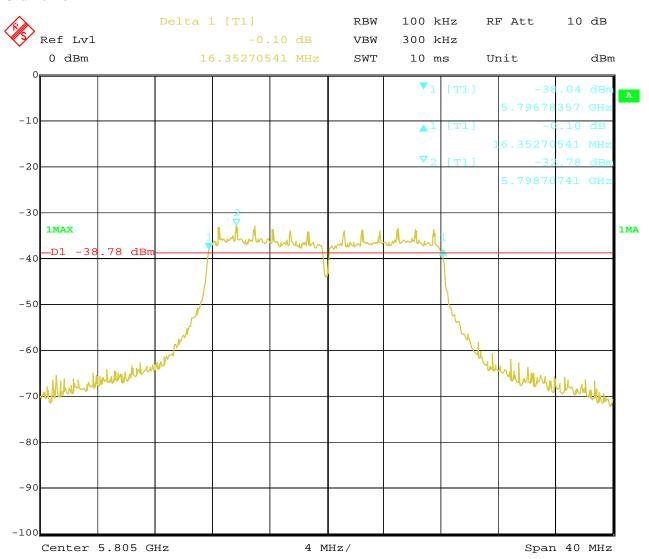
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Date: 2017-07-10



Channel 161



8.JUL.2017 Date: 12:35:36

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Report No.: FCC1706166-04

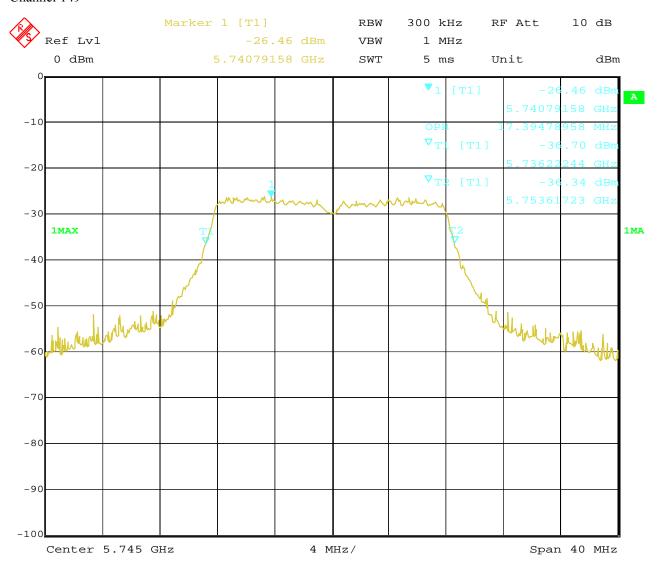
Date: 2017-07-10



Test Figure:

99% Bandwidth

Channel 149



Date: 8.JUL.2017 12:13:19

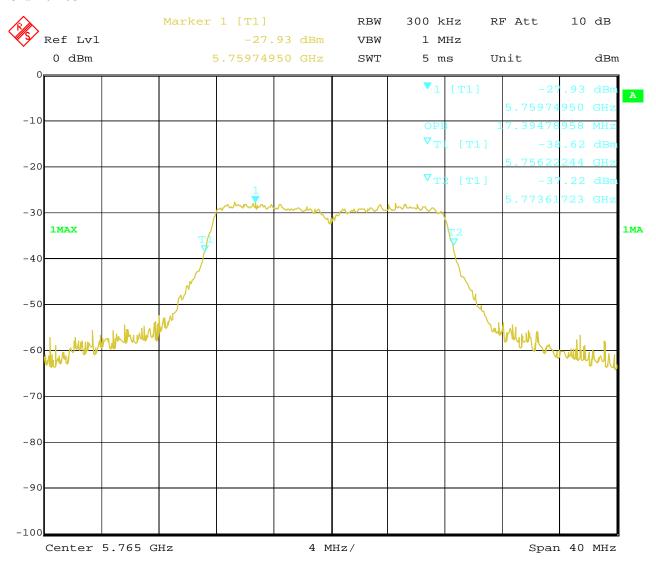
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Date: 2017-07-10



Channel 153



8.JUL.2017 Date: 12:17:53

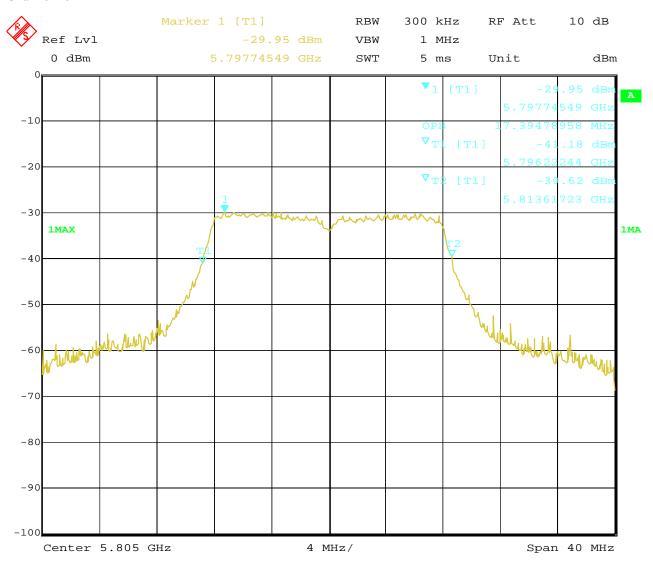
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Date: 2017-07-10



Channel 161



8.JUL.2017 Date: 12:20:41

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Date: 2017-07-10



| EUT | | Adverti | sing Displa | yer | Model | | | JAR215-01 | | |
|----------|---------|-----------------------|---------------------------|-----|----------------------------------|--|---------------|-----------|--|-------|
| Mode | 802 | | .11n HT20 | | Input Voltage | | Input Voltage | | | 120V~ |
| Temperat | ure | 24 | 4 deg. C, | | Humidity | | | 56% RH | | |
| Channel | | el Frequency (MHz) | Data Transfer Rate (Mbps) | | ndwidth Minimum Limit MHz) (MHz) | | Pass/ Fail | | | |
| 26dB Baı | ndwidth | | | | | | | | | |
| 36 | | 5180 | mcs0 | 22 | .65 | | | Pass | | |
| 40 | | 5200 | mcs0 | 22 | .75 | | | Pass | | |
| 48 | | 5240 | mcs0 | 22 | .85 | | | Pass | | |
| | | | | | | | | | | |
| 99% Ban | dwidth | | | | | | | | | |
| 36 | | 5180 | mcs0 | 18 | .11 | | | Pass | | |
| 40 | | 5200 | mcs0 | 18 | 20 | | | Pass | | |
| 48 | | 5240 | mcs0 | 18 | 3.20 | | | Pass | | |

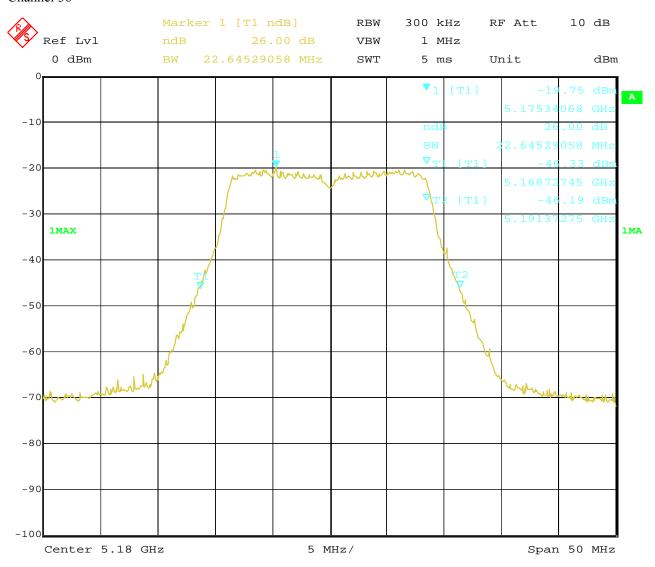
Date: 2017-07-10



Test Configure

26dB Bandwidth

Channel 36



22.MAY.2017 Date: 10:44:27

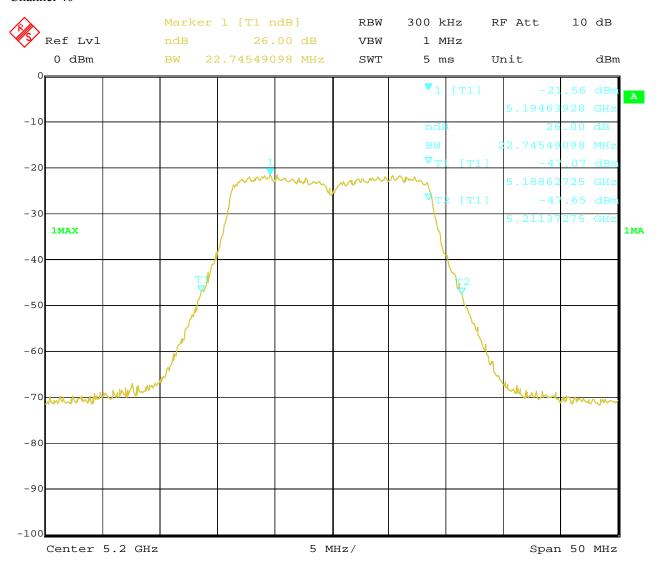
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Report No.: FCC1706166-04

Date: 2017-07-10



Channel 40



22.MAY.2017 10:50:02 Date:

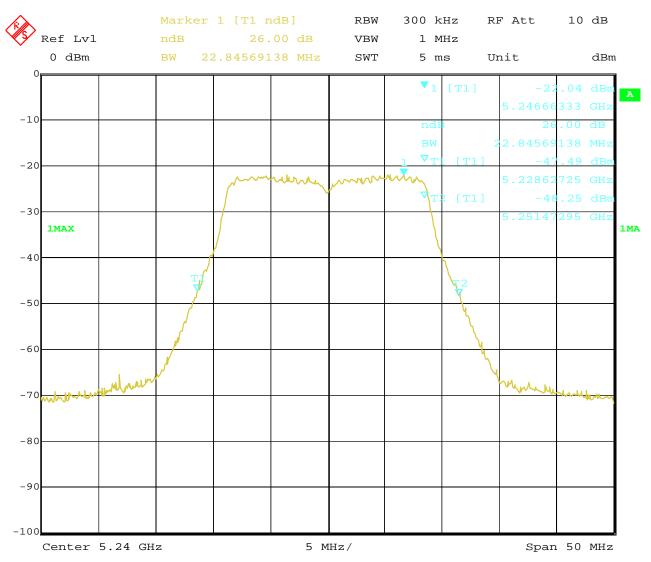
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Date: 2017-07-10



Channel 48



22.MAY.2017 10:54:04 Date:

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Report No.: FCC1706166-04

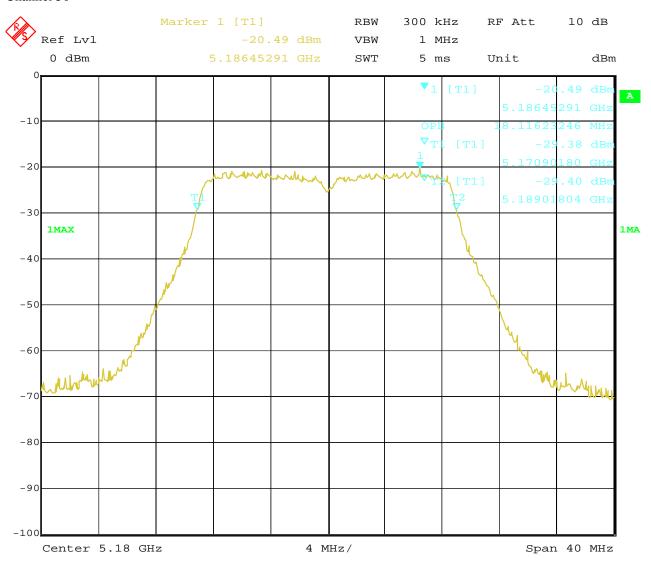
Date: 2017-07-10



Test Configure

99% Bandwidth

Channel 36



Date: 8.JUL.2017 18:41:31

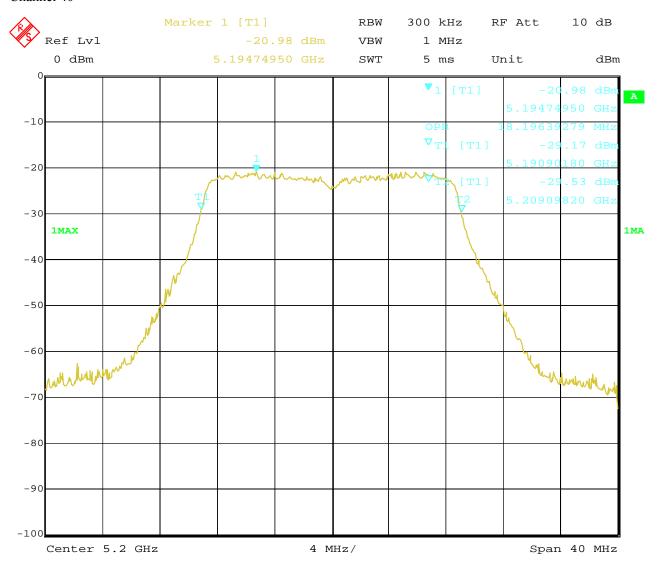
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Report No.: FCC1706166-04

Date: 2017-07-10



Channel 40



8.JUL.2017 18:39:47 Date:

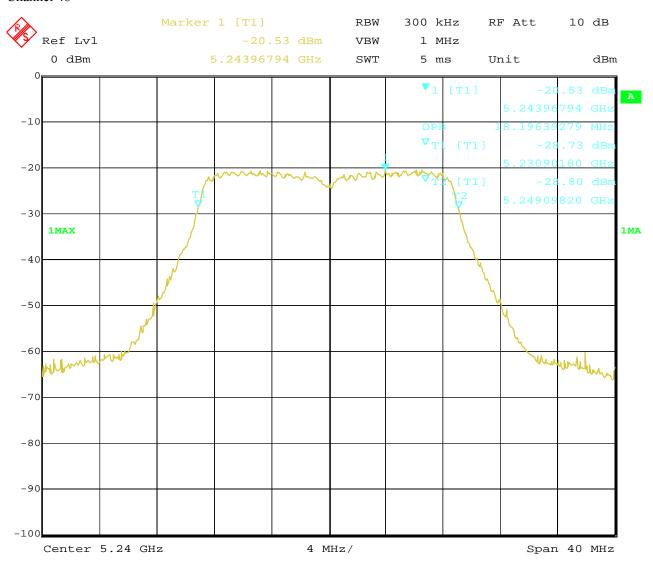
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Report No.: FCC1706166-04

Date: 2017-07-10



Channel 48



8.JUL.2017 18:37:27 Date:

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Report No.: FCC1706166-04

Date: 2017-07-10



| EUT | | Adverti | sing Displa | yer | Model | | | JAR215-01 |
|-----------|---------|-----------------------|----------------------------|-----|----------------------------------|---|--------|------------|
| Mode | de 802 | | 802.11n HT20 Input Voltage | | tage | | 120V~ | |
| Temperati | ure | 24 | 4 deg. C, | | Humidity | I | 56% RH | |
| Channel | | el Frequency (MHz) | Data Transfer Rate (Mbps) | | dwidth Minimum Limit (MHz) (MHz) | | | Pass/ Fail |
| 26dB Bar | ndwidth | | | | | | | |
| 149 | | 5745 | 6 | 22 | 69 | | | Pass |
| 153 | | 5765 | 6 | 23 | .00 | | | Pass |
| 161 | | 5805 | 6 | 23 | .00 | | | Pass |
| | | | | | | | | |
| 6dB Band | dwidth | | | | | | | |
| 149 | | 5745 | 6 | 17 | .27 | | 0.5 | Pass |
| 153 | | 5765 | 6 | 17 | 7.60 | | 0.5 | Pass |
| 161 | | 5805 | 6 | 17 | .31 | | 0.5 | Pass |
| | | | | | | | | |
| 99% Ban | dwidth | | | | | | | |
| 149 | | 5745 | 6 | 18 | .20 | | | Pass |
| 153 | | 5765 | 6 | 18 | .20 | | | Pass |
| 161 | | 5805 | 6 | 18 | .20 | | | Pass |

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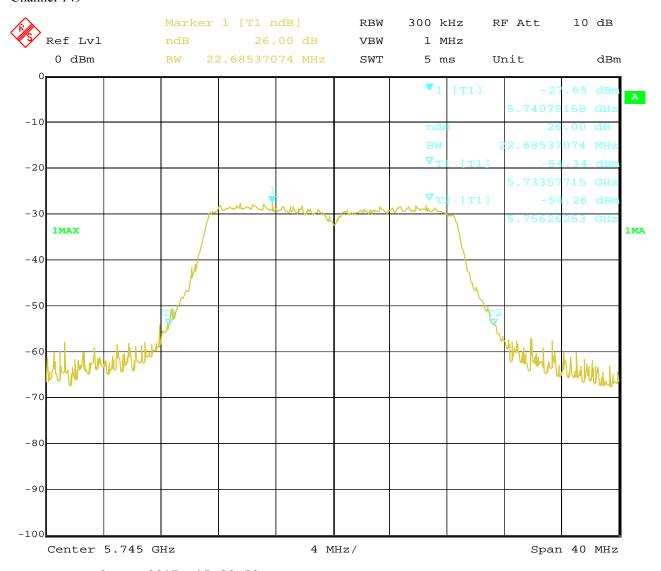
Date: 2017-07-10



Test Configure

26dB Bandwidth

Channel 149



Date: 8.JUL.2017 15:28:50

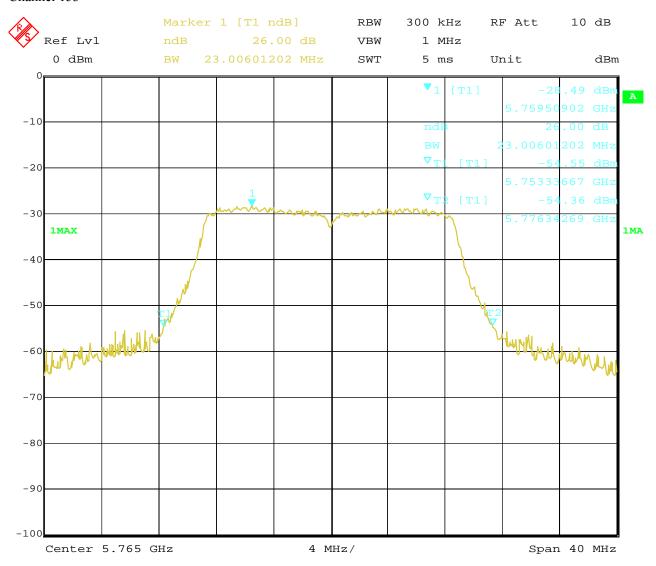
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Report No.: FCC1706166-04

Date: 2017-07-10



Channel 153



8.JUL.2017 Date: 15:32:49

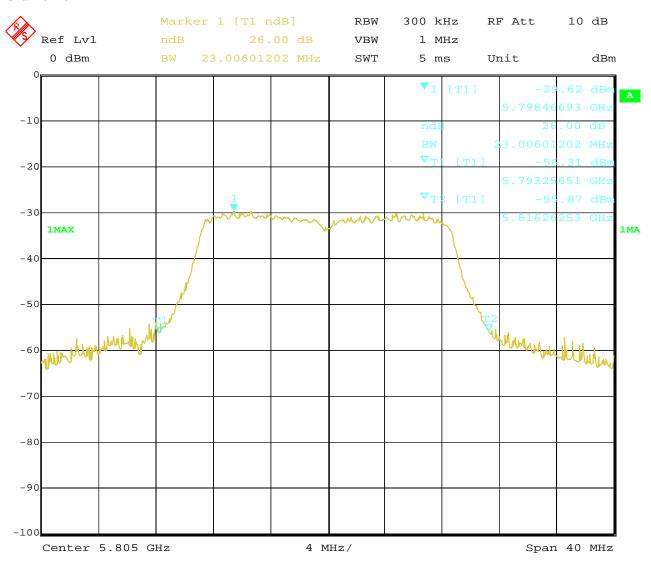
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Report No.: FCC1706166-04

Date: 2017-07-10



Channel 161



8.JUL.2017 Date: 15:40:04

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Report No.: FCC1706166-04

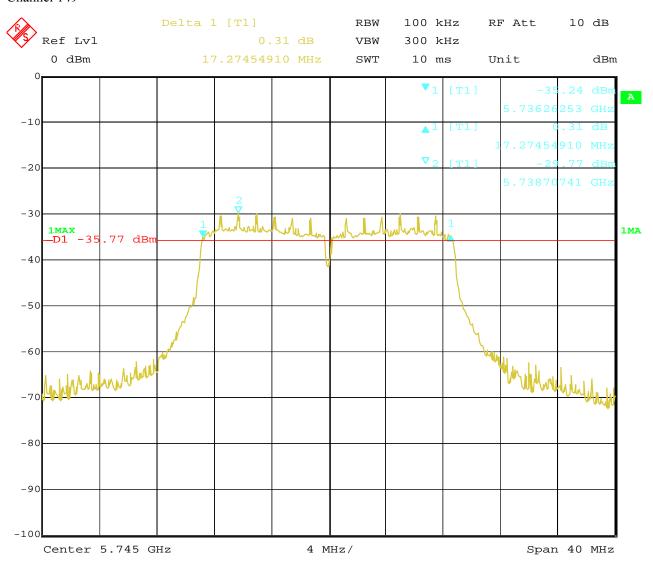
Date: 2017-07-10



Test Configure

6dB Bandwidth

Channel 149



Date: 8.JUL.2017 15:03:17

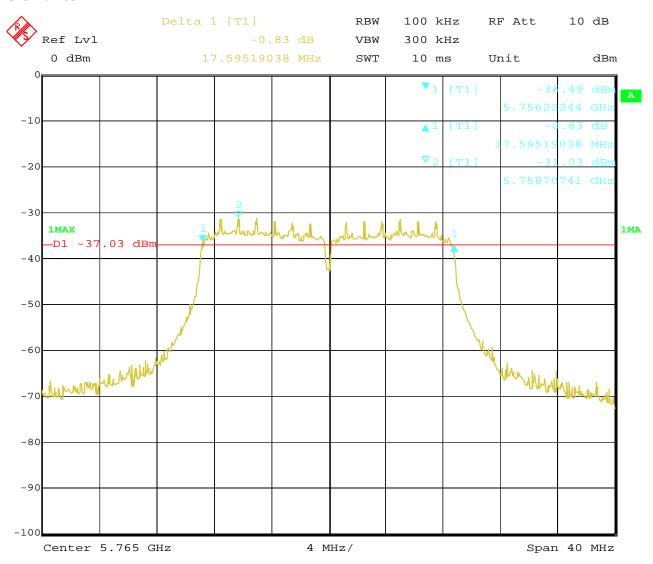
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Report No.: FCC1706166-04

Date: 2017-07-10



Channel 153



8.JUL.2017 Date: 15:09:11

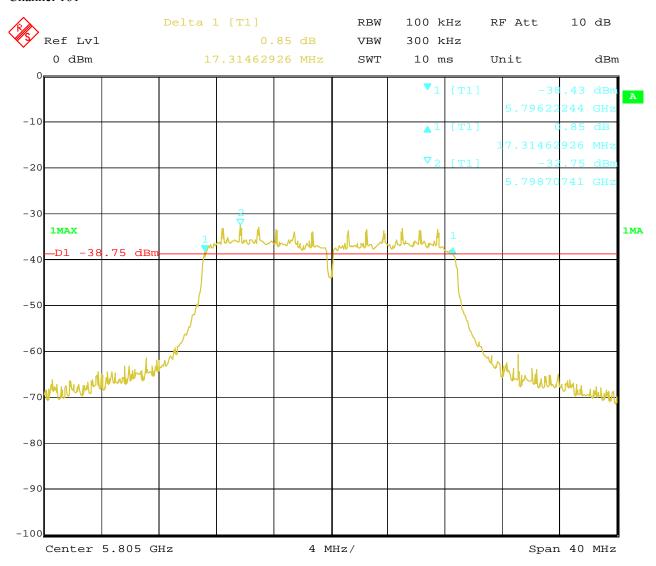
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Report No.: FCC1706166-04

Date: 2017-07-10



Channel 161



8.JUL.2017 Date: 15:14:10

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Report No.: FCC1706166-04

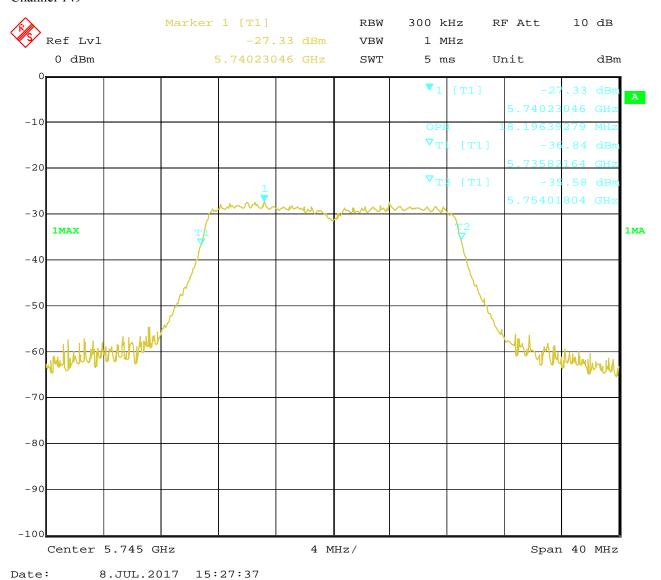
Date: 2017-07-10



Test Configure

99% Bandwidth

Channel 149



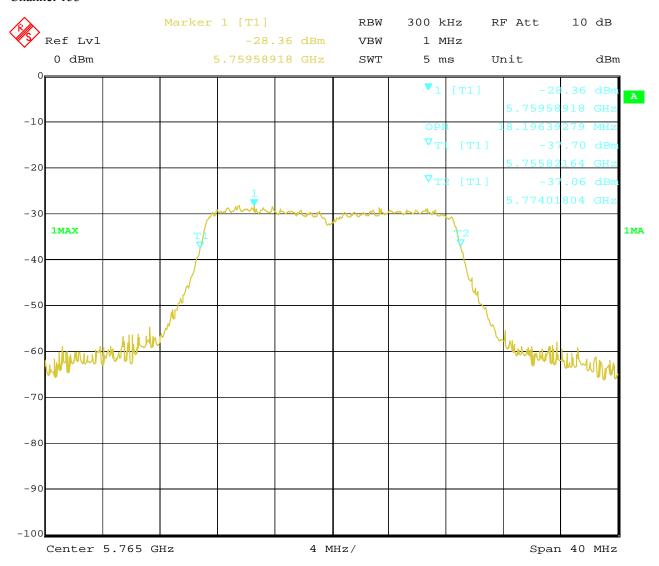
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Date: 2017-07-10



Channel 153



8.JUL.2017 Date: 15:20:13

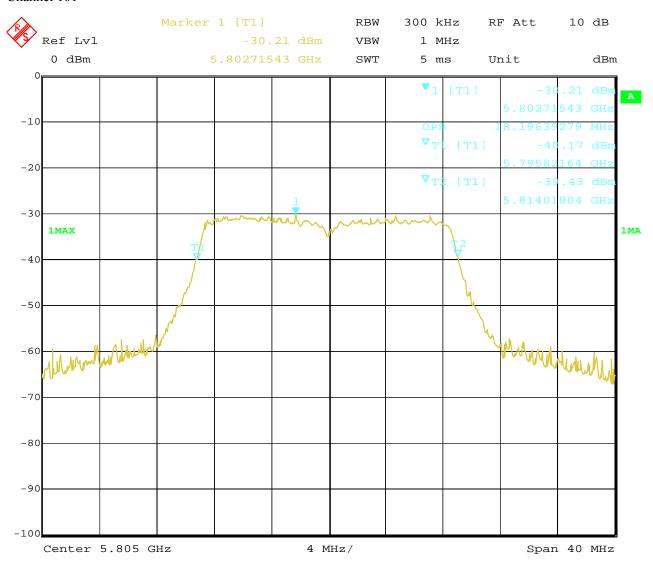
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Date: 2017-07-10



Channel 161



8.JUL.2017 Date: 15:16:15

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Date: 2017-07-10



| EUT | | Adverti | sing Displa | yer | Model | | • | JAR215-01 |
|-----------|-------------------------|------------|---------------------------|--------------------|---------------|------------------------|---|------------|
| Mode | | 802 | .11n HT40 | | Input Voltage | | | 120V~ |
| Temperati | ure | 24 deg. C, | | | Humidity | | | 56% RH |
| Channel | Channel Frequency (MHz) | | Data Transfer Rate (Mbps) | Bandwidth (MHz) | | Minimum Limit (MHz) | | Pass/ Fail |
| 26dB Baı | ndwidth | | | | | | | |
| 38 | | 5190 | mcs0 | 43 | .13 | | | Pass |
| 46 | | 5230 | mcs0 | 43 | .61 | | | Pass |
| | | | | | | | | |
| 99% Ban | dwidth | | | | | | | |
| 38 | | 5190 | mcs0 | 36 | .39 | | | Pass |
| 46 | | 5230 | mcs0 | 36 | .55 | | | Pass |

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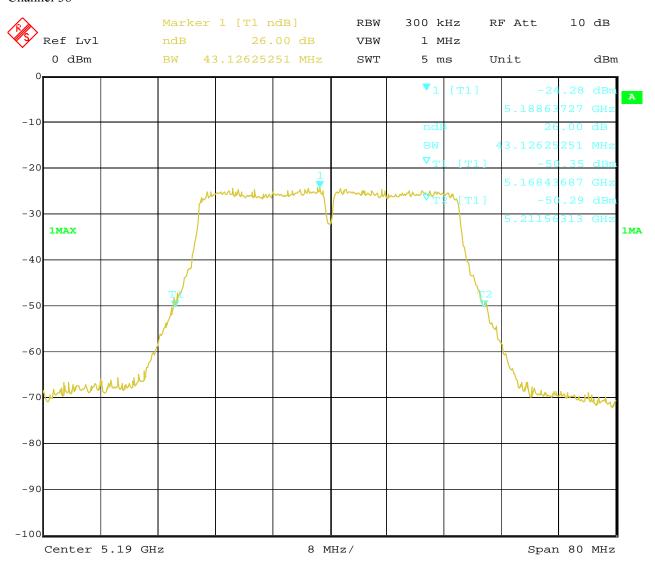
Date: 2017-07-10



Test Configure

26dB Bandwidth

Channel 38



Date: 8.JUL.2017 11:47:55

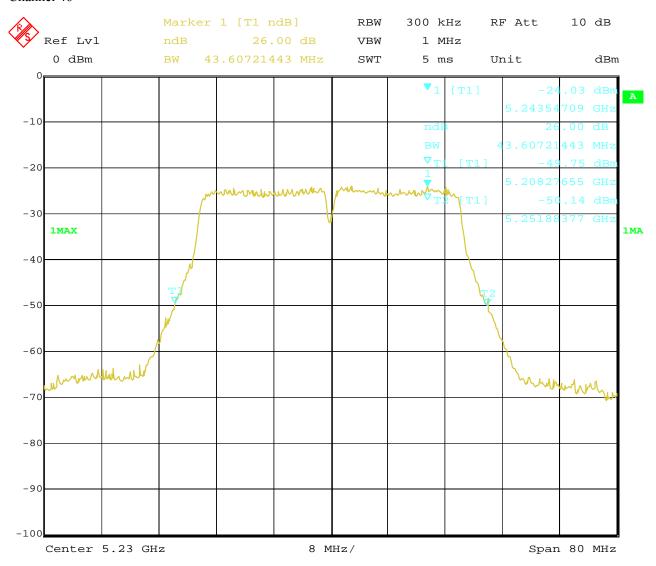
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Report No.: FCC1706166-04

Date: 2017-07-10



Channel 46



8.JUL.2017 11:51:16 Date:

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Report No.: FCC1706166-04

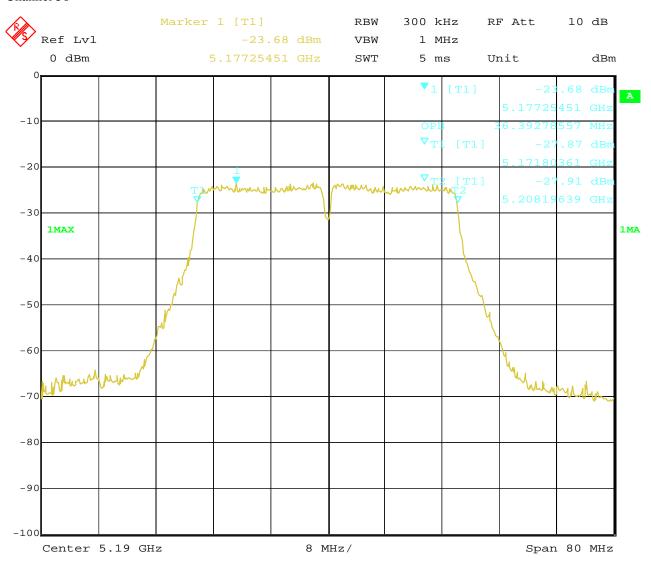
Date: 2017-07-10



Test Configure

99% Bandwidth

Channel 38



Date: 8.JUL.2017 11:46:21

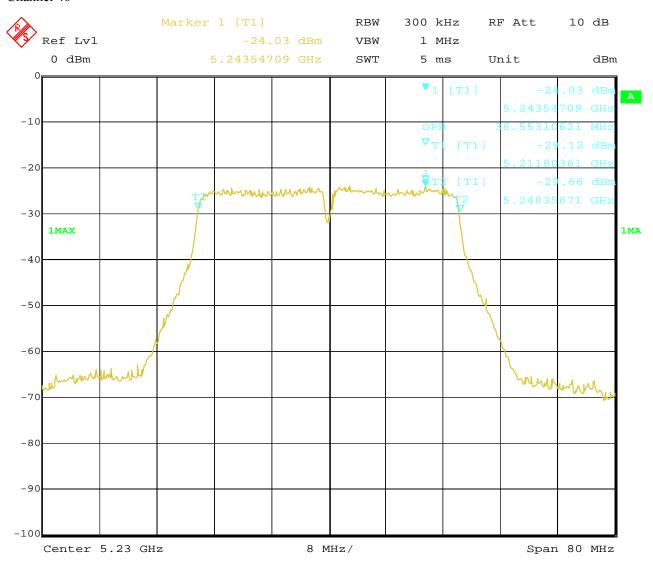
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Date: 2017-07-10



Channel 46



8.JUL.2017 11:51:30 Date:

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Report No.: FCC1706166-04

Date: 2017-07-10



| EUT | | Adverti | sing Displa | yer | Model | | | JAR215-01 | |
|----------------|-------------------------|---------|---------------------------|--------------------|------------|------------------------|-----|------------|--|
| Mode | | 802 | .11n HT40 | | Input Volt | tage | | 120V~ | |
| Temperati | ure | 24 | 4 deg. C, | | Humidity | | | 56% RH | |
| Channel | Channel Frequency (MHz) | | Data Transfer Rate (Mbps) | Bandwidth (MHz) | | Minimum Limit (MHz) | | Pass/ Fail | |
| 26dB Bandwidth | | | | | | | | | |
| 151 | | 5755 | mcs0 | 43 | .29 | | | Pass | |
| 159 | | 5795 mc | | 44.09 | | | | Pass | |
| | | | | | | | | | |
| 6dB Band | dwidth | | | | | | | | |
| 151 | | 5755 | mcs0 | 36.07 | | 0.5 | | Pass | |
| 159 | | 5795 | mcs0 | 35 | .91 | | 0.5 | Pass | |
| | | | | | | | | | |
| 99% Ban | dwidth | | | | | | | | |
| 151 | | 5755 | mcs0 | 36 | .55 | _ | | Pass | |
| 159 | | 5795 | mcs0 | 36 | .55 | | | Pass | |

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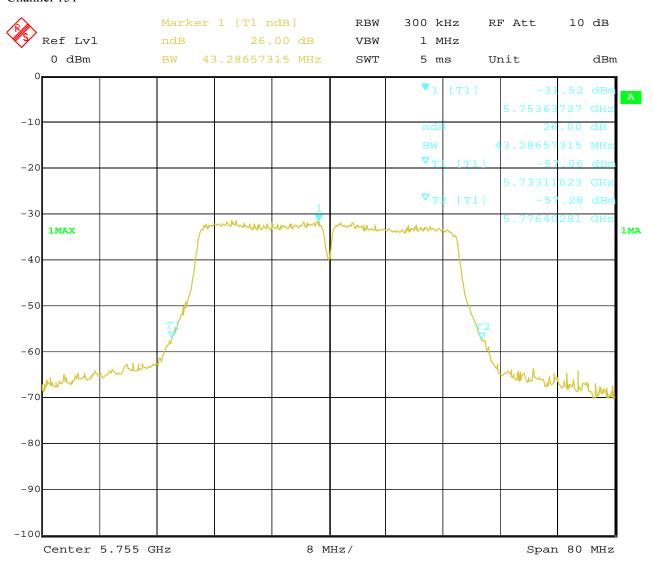
Date: 2017-07-10



Test Configure

26dB Bandwidth

Channel 151



Date: 8.JUL.2017 15:45:41

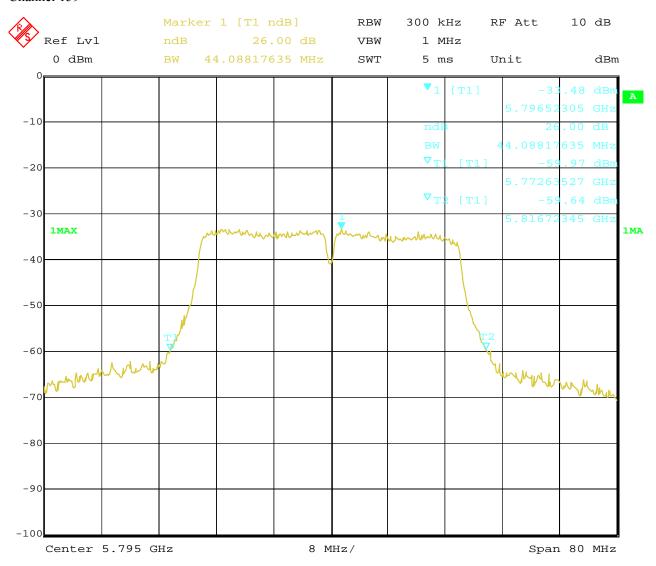
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Date: 2017-07-10



Channel 159



8.JUL.2017 Date: 15:51:01

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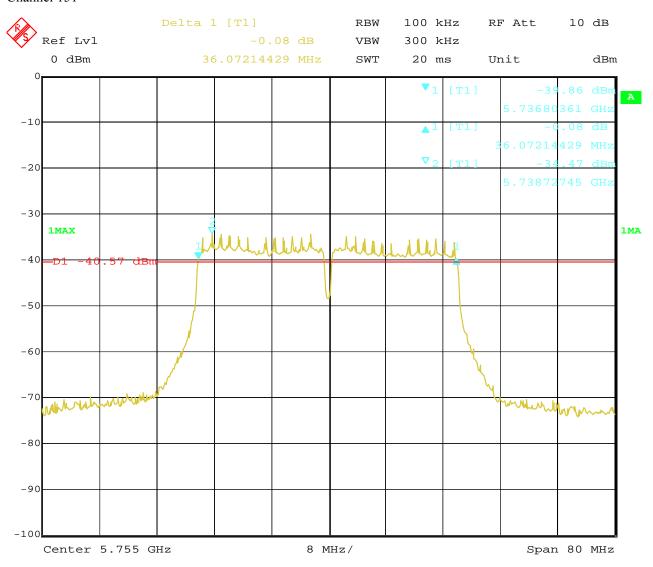
Date: 2017-07-10



Test Configure

6dB Bandwidth

Channel 151



8.JUL.2017 Date: 16:02:42

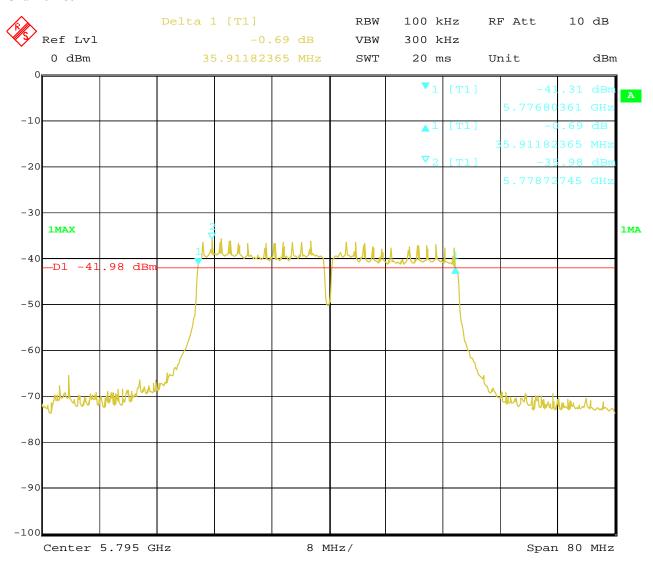
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Report No.: FCC1706166-04

Date: 2017-07-10



Channel 159



8.JUL.2017 Date: 16:07:34

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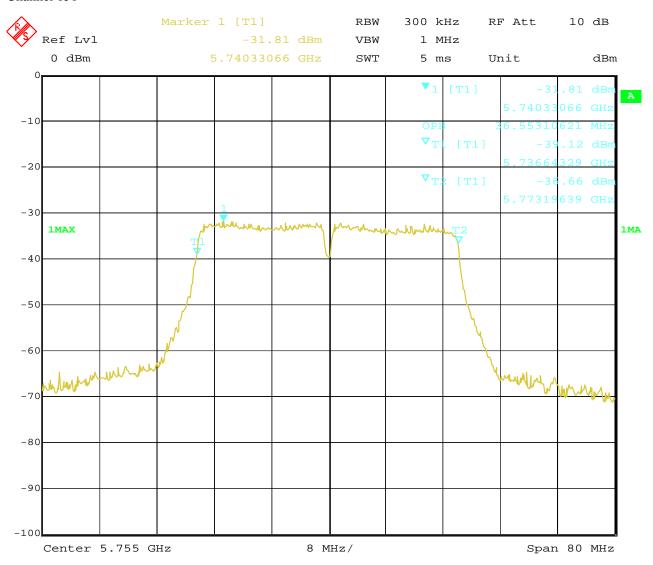
Date: 2017-07-10



Test Configure

99% Bandwidth

Channel 151



Date: 8.JUL.2017 15:57:41

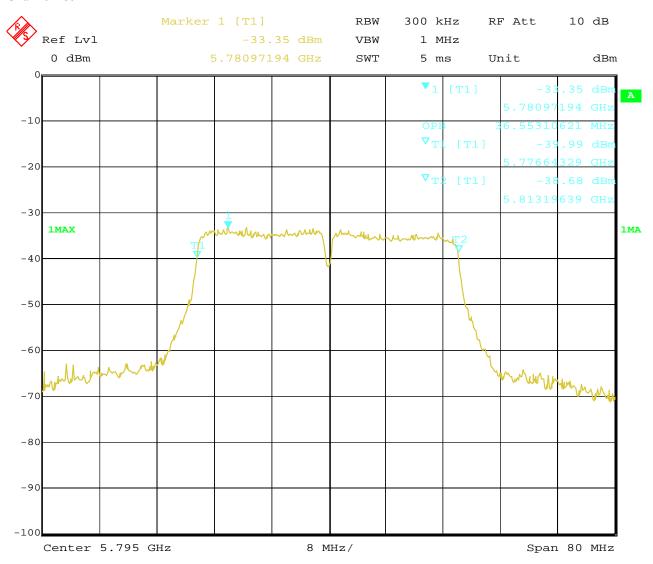
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Date: 2017-07-10



Channel 159



8.JUL.2017 Date: 15:55:35

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Date: 2017-07-10



| EUT | | Adverti | Advertising Displayer | | | Model | | JAR215-01 | |
|-----------|----------------|-----------------------|---------------------------|----|---------------|-----------------------|--|------------|--|
| Mode | | 802.11ac VHT80 | | | Input Voltage | | | 120V~ | |
| Temperati | ure | 24 deg. C, | | | Humidity | | | 56% RH | |
| Channel | | el Frequency (MHz) | Data Transfer Rate (Mbps) | | width Hz) | n Minimum Limit (MHz) | | Pass/ Fail | |
| 26dB Bar | 26dB Bandwidth | | | | | | | | |
| 42 | | 5210 | 23.9 | 83 | .44 | | | Pass | |
| | | | | | | | | | |
| 99% Ban | 99% Bandwidth | | | | | | | | |
| 42 | | 5210 | 23.9 | 75 | .75 | | | Pass | |

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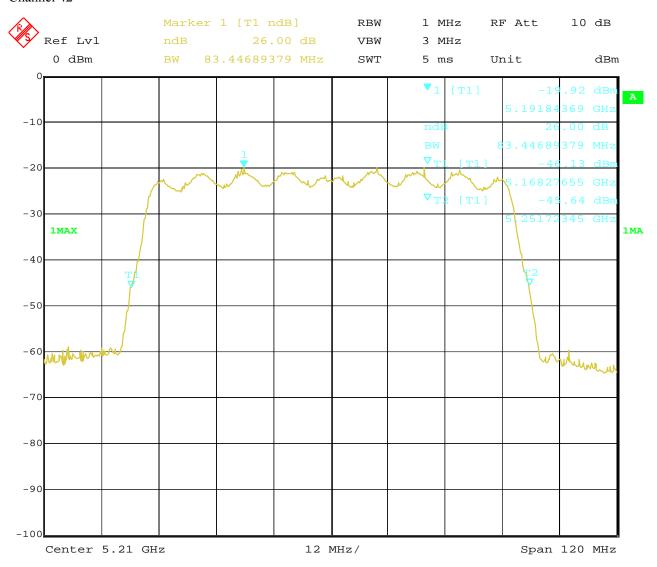
Date: 2017-07-10



Test Configure

26dB Bandwidth

Channel 42



Date: 8.JUL.2017 12:12:08

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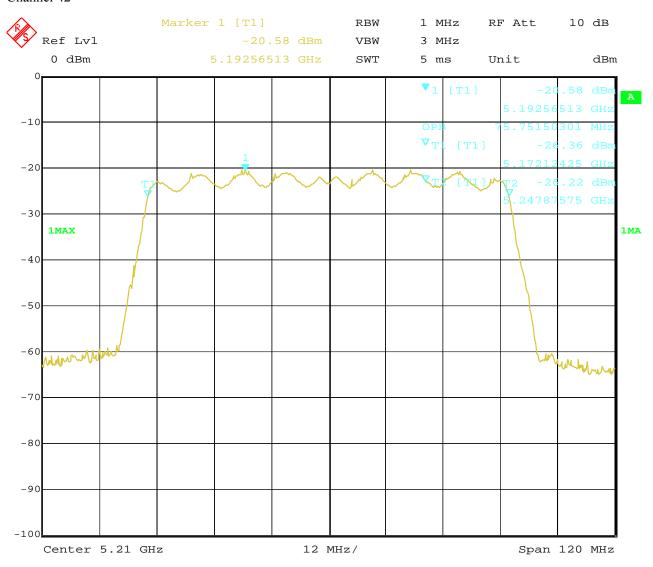
Date: 2017-07-10



Test Configure

99% Bandwidth

Channel 42



8.JUL.2017 12:08:47 Date:

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Report No.: FCC1706166-04

Date: 2017-07-10



| EUT | | Adverti | sing Displa | yer | Model | | J | AR215-01 | |
|----------------|---------------|-----------------------|---------------------------|-------|--------------|------|-------------------|------------|--|
| Mode | | 802.1 | 1ac VHT80 |) | Input Volt | tage | | 120V~ | |
| Temperati | ure | 24 | 4 deg. C, | | Humidity | | | 56% RH | |
| Channel | | el Frequency (MHz) | Data Transfer Rate (Mbps) | | width Hz) | | num Limit MHz) | Pass/ Fail | |
| 26dB Bandwidth | | | | | | | | | |
| 155 | 5775 | | 23.9 | 82.73 | | | | Pass | |
| | | | | | | | | | |
| 6dB Band | dwidth | | | | | | | | |
| 155 | | 5775 | 23.9 | 75 | .27 | 0.5 | | Pass | |
| | | | | | | | | | |
| 99% Ban | 99% Bandwidth | | | | | | | | |
| 155 | | 5775 | 23.9 | 75 | .75 | | | Pass | |

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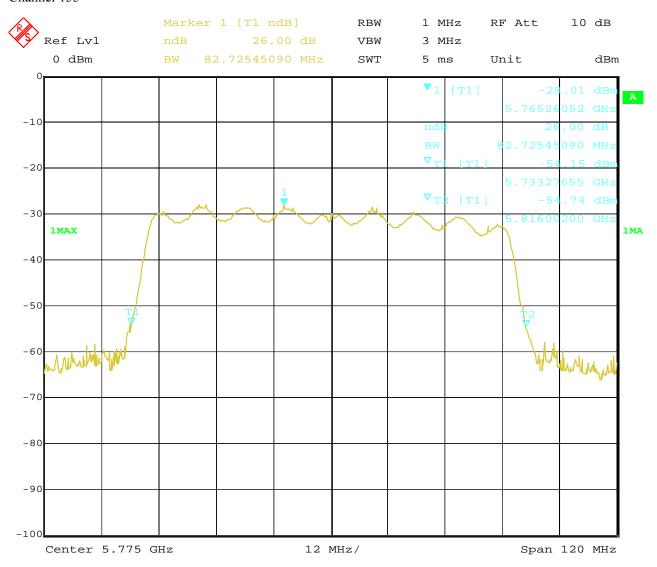
Date: 2017-07-10



Test Configure

26dB Bandwidth

Channel 155



8.JUL.2017 15:34:09 Date:

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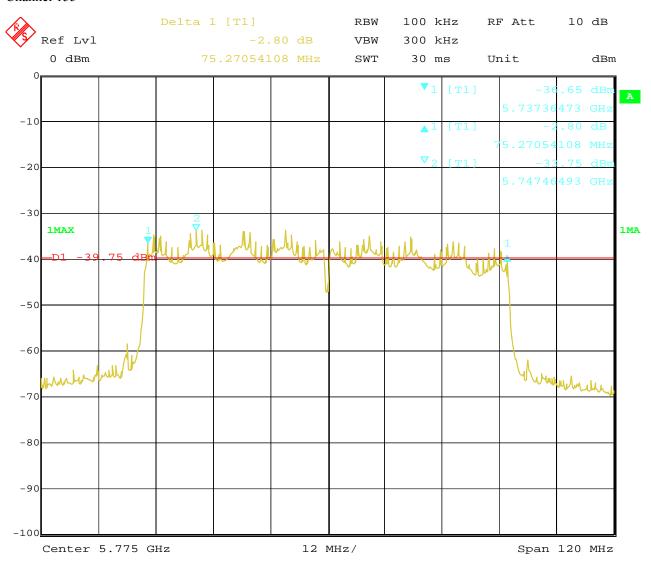
Report No.: FCC1706166-04

Date: 2017-07-10



6dB Bandwidth

Channel 155



8.JUL.2017 15:25:23 Date:

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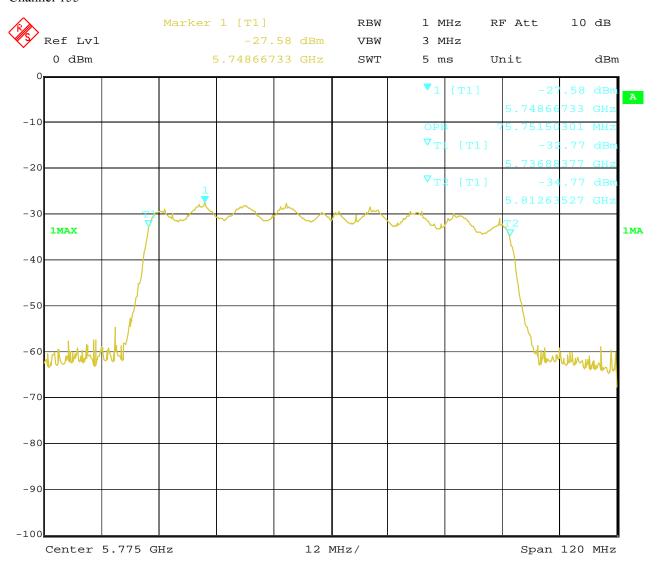
Date: 2017-07-10



Test Configure

99% Bandwidth

Channel 155



8.JUL.2017 12:18:52 Date:

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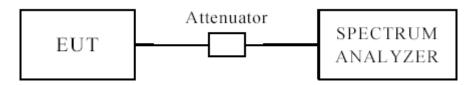
Report No.: FCC1706166-04

Date: 2017-07-10



8.0 Peak Transmit Power Measurement

8.1 Test Setup



8.2 Limits of Peak Transmit Power Measurement

| Operation Band | | EUT Category | Limit | | |
|----------------|-------------------------------------|-----------------------------------|--|--|--|
| | | Outdoor Access Point | 1 Watt (30 dBm) ≤ (Max. e.i.r.p 125mW | | |
| | | | (21 dBm) at any elevation angle above 30 | | |
| | | | degrees as measured from the horizon) | | |
| U-NII-1 | | Fixed point-to-point Access Point | 1 Watt (30 dBm) | | |
| | Indoor Access Point 1 Watt (30 dBm) | | 1 Watt (30 dBm) | | |
| | √ | Mobile and Portable client device | 250mW (24 dBm) | | |
| U-NII-2A | | | 250mW (24 dBm) or 11 dBm+10 log B* | | |
| U-NII-2C | | | 250mW (24 dBm) or 11 dBm+10 log B* | | |
| U-NII-3 | | | 1 Watt (30 dBm) | | |

Note: Where B is the 26dB emission bandwidth in MHz.

8.3 Test Procedure

The RF 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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Date: 2017-07-10



8.4Test Results

| EU' | T | Advertising Displayer | Model | | JAR215-01 | |
|-------------|--------------------|-----------------------|----------------------------|-------|-------------|------------|
| Mod | de | 802.11a | Input Voltage | 120V~ | | |
| Temperature | | 24 deg. C, | Humidity | | 56% RH | |
| Channel | Frequency (MHz) | | Average Power Output (dBm) | | Limit (dBm) | Pass/ Fail |
| 36 | | 5180 | 5.87 | | 24 | Pass |
| 40 | | 5200 | 5.31 | | 24 | Pass |
| 48 | | 5240 | 4.18 | | 24 | Pass |
| 149 | | 5745 | -3.04 | | 30 | Pass |
| 153 | | 5765 | -2.67 | | 30 | Pass |
| 161 | | 5805 | -1.44 | | 30 | Pass |

Note: 1. At finial test to get the worst-case emission at 6Mbps for CH36, CH40, CH48, CH149, CH153 and CH161

- 2. The result basic equation calculation as follow: Average Power Output = AV Power Reading + Cable loss + Attenuator
- 3. The worse case was recorded

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Date: 2017-07-10



| EU' | T | Advertising Displayer | Model | | JAR215-01 | | |
|-------------|-----------------|-----------------------|----------------------------|--|-------------|------------|--|
| Mod | de | 802.11n HT20 | Input Voltage | | 120V~ | | |
| Temperature | | 24 deg. C, | Humidity | | 56% RH | | |
| Channel | Frequency (MHz) | | Average Power Output (dBm) | | Limit (dBm) | Pass/ Fail | |
| 36 | | 5180 | 5.40 | | 24 | Pass | |
| 40 | | 5200 | 4.89 | | 24 | Pass | |
| 48 | | 5240 | 3.72 | | 24 | Pass | |
| 149 | | 5745 | -3.02 | | 30 | Pass | |
| 153 | | 5765 | -2.97 | | 30 | Pass | |
| 161 | 5805 | | -1.20 | | 30 | Pass | |

Note: 1. At finial test to get the worst-case emission at mcs0 (6.5Mbps) for CH36, CH40, CH48, CH149, CH153 and CH161

- 2. The result basic equation calculation as follow: Average Power Output = AV Power Reading + Cable loss + Attenuator
- 3. The worse case was recorded

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| EU | T | Advertising Displayer | Model | | JAR215-01 | |
|---------|-----------|-----------------------|---------------|--------|-----------|------------|
| Mod | de | 802.11n HT40 | Input Voltage | 120V~ | | |
| Temper | rature | 24 deg. C, | Humidity | 56% RH | | |
| Channel | Frequency | | Average | Power | Limit | Pass/ Fail |
| | (MHz) | | Output (dBm) | | (dBm) | |
| 38 | | 5190 | 4.87 | | 24 | Pass |
| 46 | 5230 | | 3.53 | | 24 | Pass |
| 151 | 5755 | | -3.16 | | 30 | Pass |
| 159 | 5795 | | -2.05 | | 30 | Pass |

Note: 1. At finial test to get the worst-case emission at mcs0 (13.5Mbps) for CH38, CH46, CH151, CH159 and CH161

2. The result basic equation calculation as follow:

Average Power Output = AV Power Reading + Cable loss + Attenuator

3. The worse case was recorded

| EU | EUT Advertising Displayer | | Model | JAR215-01 | | |
|---------|---------------------------|------------|---------------|-----------|-------|------------|
| Mod | Mode 802.11ac V | | Input Voltage | 120V~ | | |
| Temper | rature | 24 deg. C, | Humidity | 56% RH | | |
| Channel | Frequency | | Average Power | | Limit | Pass/ Fail |
| | | (MHz) | Output (dBm) | | (dBm) | |
| 42 | | 5210 | 4.90 | | 24 | Pass |
| 155 | | 5775 | -1.75 | | 30 | Pass |

Note: 1. At finial test to get the worst-case emission at 23.9Mbps for CH42 and CH155

- 2. The result basic equation calculation as follow:

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

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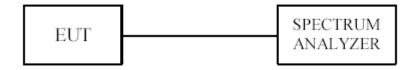
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9. Power Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

| Operation Band | | EUT Category | Limit | |
|----------------|-----------------------------------|-----------------------------------|--------------|--|
| | | Outdoor Access Point | | |
| | Fixed point-to-point Access Point | | 17dBm/MHz | |
| U-NII-1 | Indoor Access Point | | | |
| | √ | Mobile and Portable client device | 11dBm/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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9.4Test Result

| EUT | Advertising Displayer | | Model | JAR215-01 | | |
|-----------|-----------------------|---------------|----------------|----------------|-------|------------|
| Mode | | 802.11a 6Mbps | Input Voltage | | 120V~ | |
| Temperati | ure | 24 deg. C, | Humidity | 56% RH | | |
| Channel | Frequency | | Final Power Sp | ectral Density | Limit | Pass/ Fail |
| | (MHz) | | (dB | (dBm) | | |
| 36 | 5180 | | -6. | -6.61 | | Pass |
| 40 | | 5200 | -6. | -6.61 | | Pass |
| 48 | | 5240 | -7.· | -7.42 | | Pass |
| 149 | 5745 | | -16 | -16.05 | | Pass |
| 153 | 5765 | | -16 | -16.44 | | Pass |
| 161 | • | 5805 | -15 | -15.70 | | Pass |

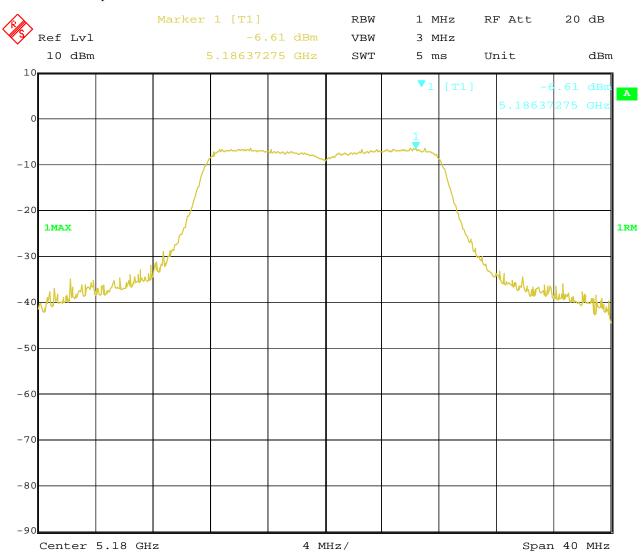
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9.5 Plots of Power Spectral Density Measurement

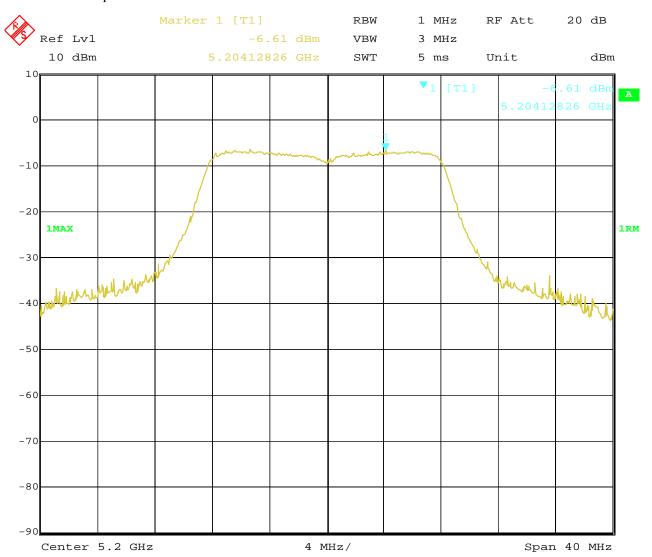


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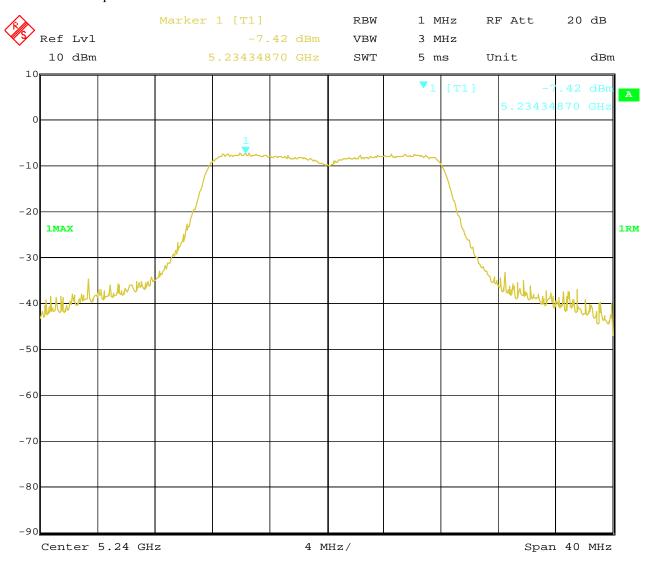


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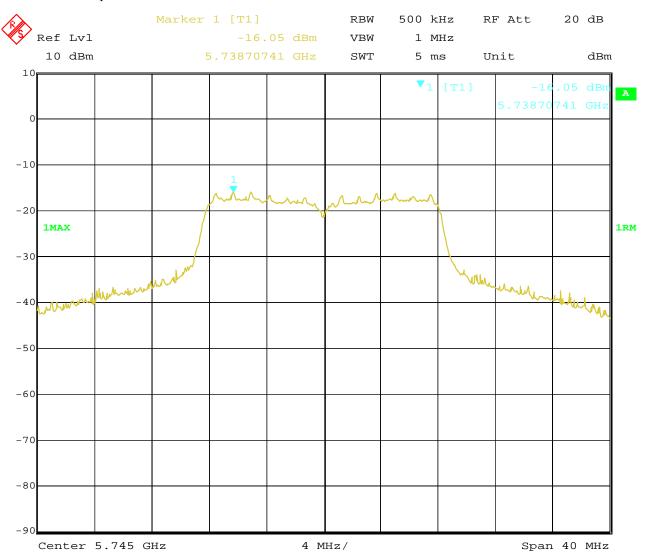


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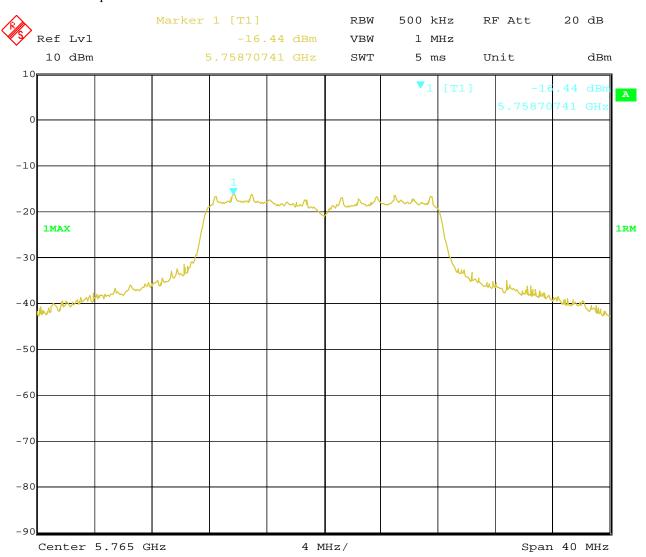


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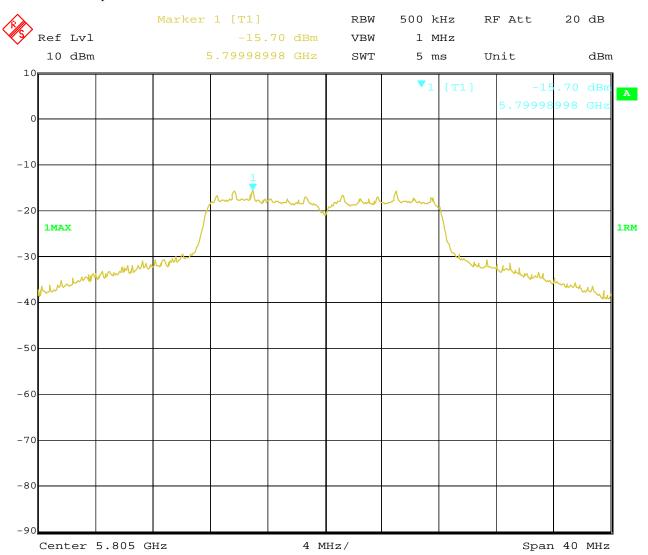


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| EUT | Advertising Displayer | | Model | | JAR215-01 | |
|----------|-----------------------|-------------------|----------------|----------------|-----------|------------|
| Mode | 1 | 802.11n HT20 mcs0 | Input Voltage | | 120V~ | |
| Temperat | ture | 24 deg. C, | Humidity | 56% RH | | |
| Channel | Frequency | | Final Power Sp | ectral Density | Limit | Pass/ Fail |
| | (MHz) | | (dB | (dBm) | | |
| 36 | 5180 | | -6. | -6.83 | | Pass |
| 40 | | 5200 | -7.: | -7.28 | | Pass |
| 48 | | 5240 | -7. | -7.78 | | Pass |
| 149 | 5745 | | -15 | -15.71 | | Pass |
| 153 | 5765 | | -15 | -15.96 | | Pass |
| 161 | | 5805 | -16 | -16.13 | | Pass |

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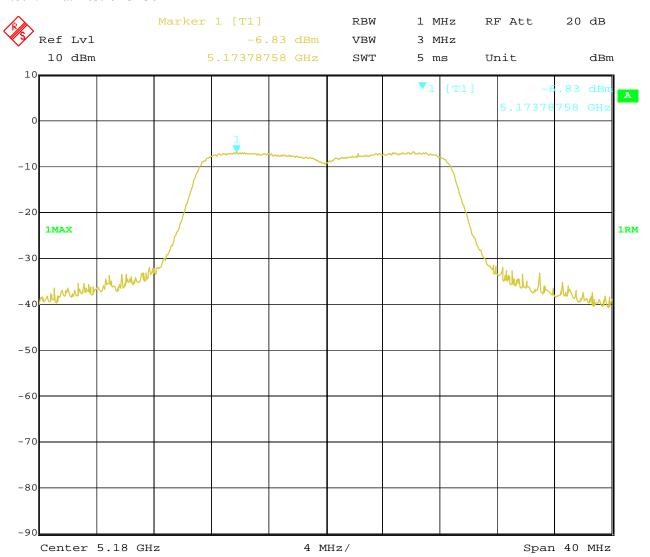
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Test Plots

1.802.11n at mcs0 of CH36

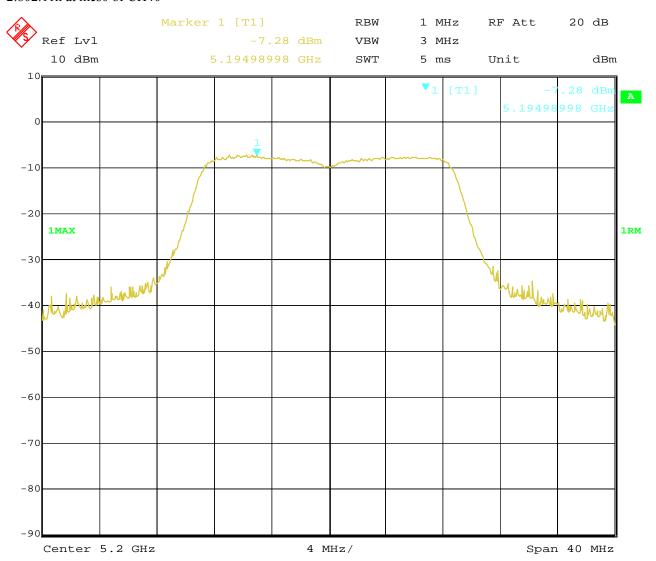


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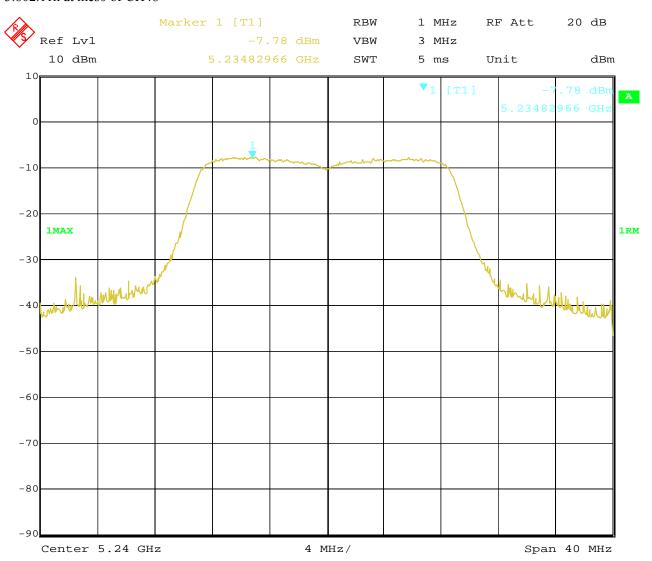


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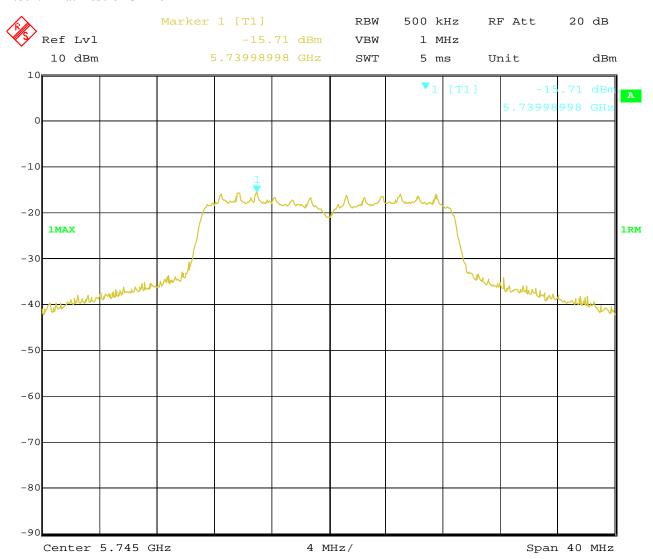


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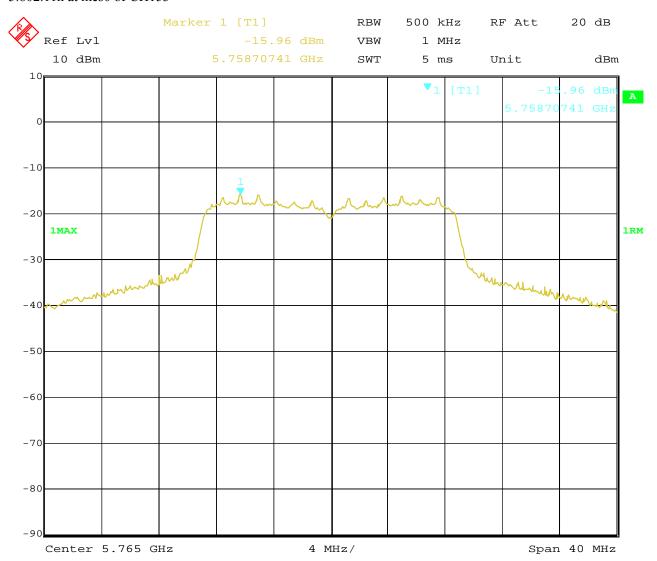


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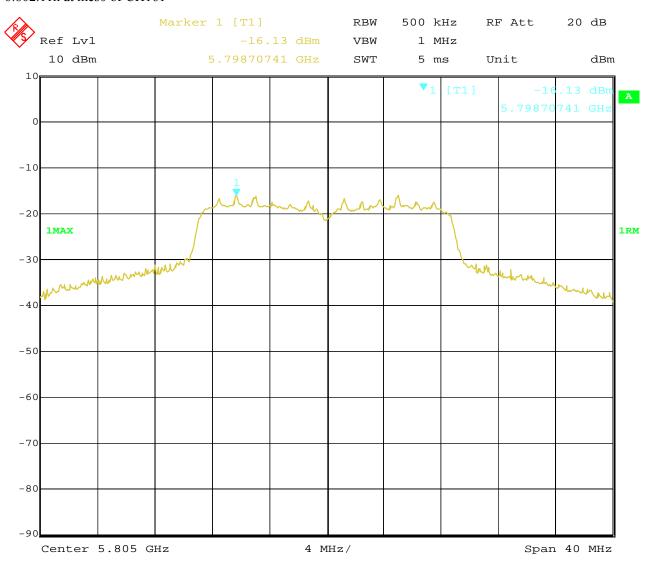


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| EUT | | Advertising Displayer | Model | JAR215-01 | | |
|-------------|-----------|-----------------------|----------------|----------------|-------|------------|
| Mode | | 802.11n HT40 mcs0 | Input Voltage | 120V~ | | |
| Temperature | | 24 deg. C, | Humidity | 56% RH | | |
| Channel | Frequency | | Final Power Sp | ectral Density | Limit | Pass/ Fail |
| | (MHz) | | (dB | m) | (dBm) | |
| 38 | 5190 | | -10 | .99 | 11 | Pass |
| 46 | 5230 | | -11. | .28 | 11 | Pass |
| 151 | 5755 | | -19 | .41 | 30 | Pass |
| 159 | 5795 | | -19 | .61 | 30 | Pass |

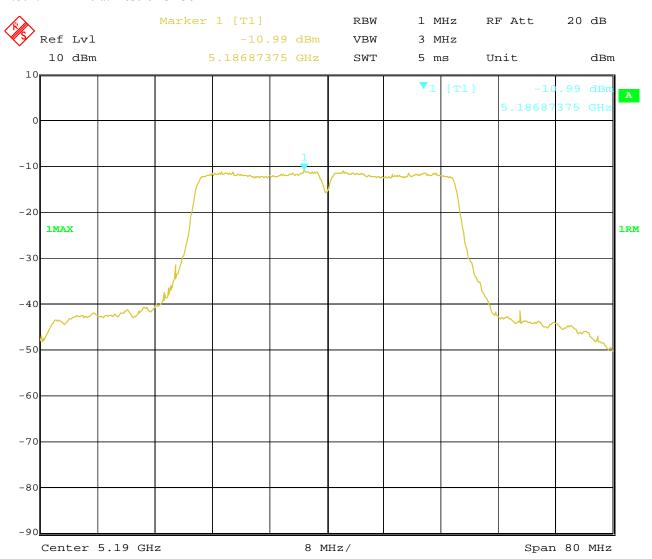
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Test Plots

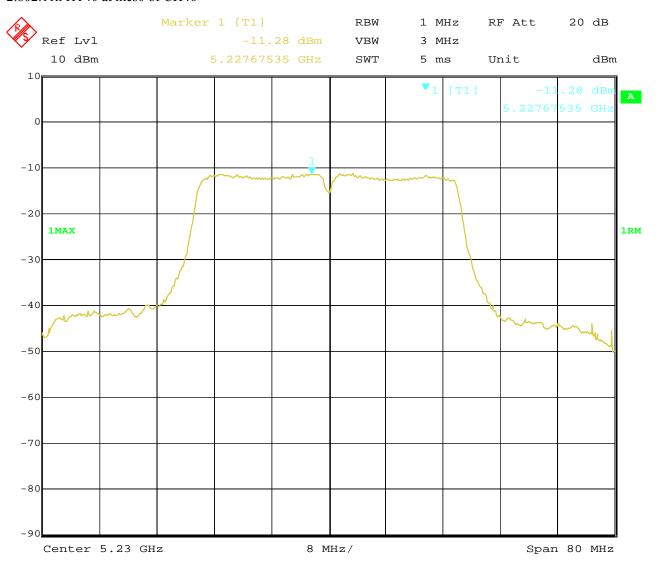


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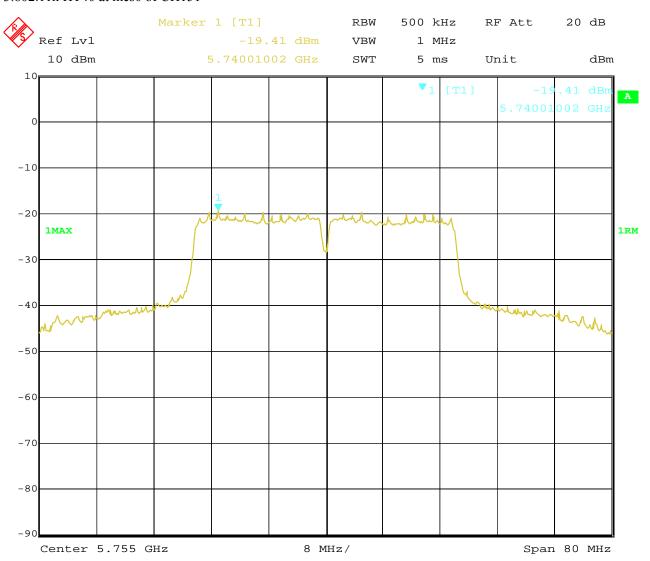


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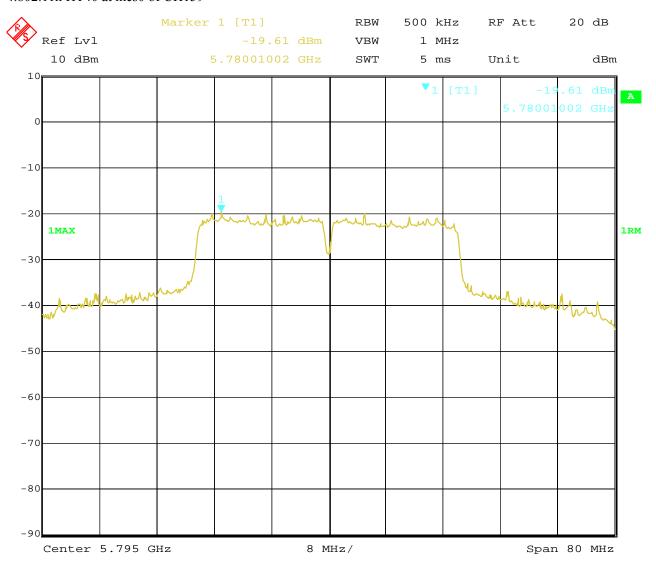


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| EUT | | Advertising Displayer | Model | JAR215-01 | | |
|-------------|---------|-----------------------|----------------|----------------|-------|------------|
| Mode | | 802.11ac VHT80 | Input Voltage | 120V~ | | |
| | | 23.9Mbps | | | | |
| Temperature | | 24 deg. C, | Humidity | 56% RH | | |
| Channel | | Frequency | Final Power Sp | ectral Density | Limit | Pass/ Fail |
| | (MHz) | | (dB | m) | (dBm) | |
| 42 | 42 5210 | | -12. | .56 | 11 | Pass |
| 155 5775 | | -19. | .86 | 30 | Pass | |

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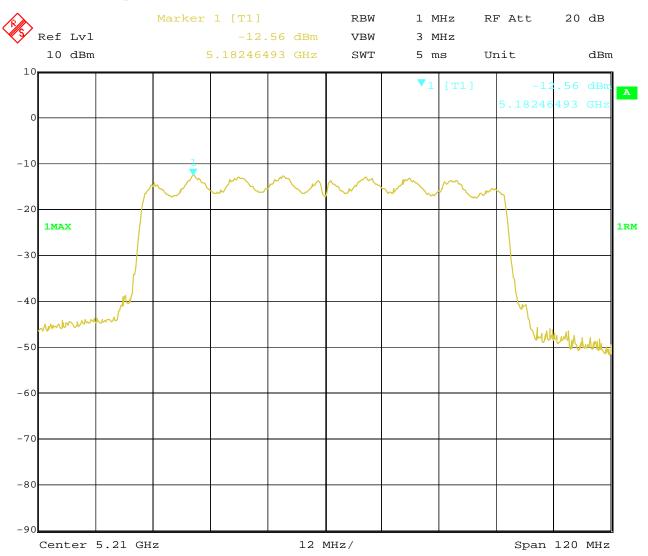
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Test Plots

1.802.11ac at 23.9Mbps of CH42



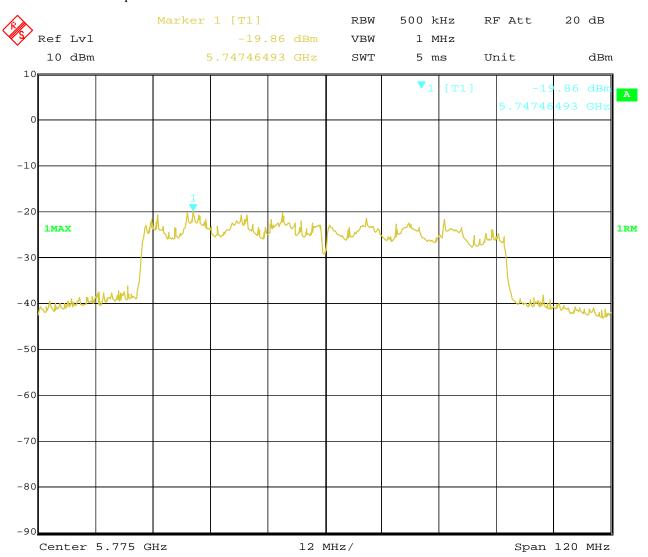
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2.802.11ac at 23.9Mbps of CH155



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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 \pm 0.02% of the operating frequency over a temperature variation of \pm 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 | 5179.9867 |
| 120V | 5179.9821 |
| 102V | 5179.9809 |
| Max. Deviation (MHz) | 0.0191 |
| Max. Deviation (ppm) | 3.7 |

Rated working voltage: 120V~

Temperature vs. Frequency Stability

| Temperature (°C) | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| -30 | 5179.9811 |
| -20 | 5179.9783 |
| -10 | 5179.9820 |
| 0 | 5179.9818 |
| 10 | 5179.9832 |
| 20 | 5179.9792 |
| 30 | 5179.9808 |
| 40 | 5179.9796 |
| 50 | 5179.9786 |
| Max. Deviation (MHz) | 0.0217 |
| Max. Deviation (ppm) | 4.2 |

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Channel 149 (5745MHz)

Voltage vs. Frequency Stability

| Voltage | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| 138V | 5744.9767 |
| 120V | 5744.9789 |
| 102V | 5744.9803 |
| Max. Deviation (MHz) | 0.0233 |
| Max. Deviation (ppm) | 4.1 |

Rated working voltage: 120V~

Temperature vs. Frequency Stability

| Temperature (°C) | Measurement Frequency (MHz) |
|----------------------|-----------------------------|
| -30 | 5744.9758 |
| -20 | 5744.9779 |
| -10 | 5744.9782 |
| 0 | 5744.9753 |
| 10 | 5744.9765 |
| 20 | 5744.9756 |
| 30 | 5744.9772 |
| 40 | 5744.9780 |
| 50 | 5744.9813 |
| Max. Deviation (MHz) | 0.0247 |
| Max. Deviation (ppm) | 4.3 |

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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

Integral antenna used. The maximum Gain of each antenna is 3.0 dBi for 5G band.

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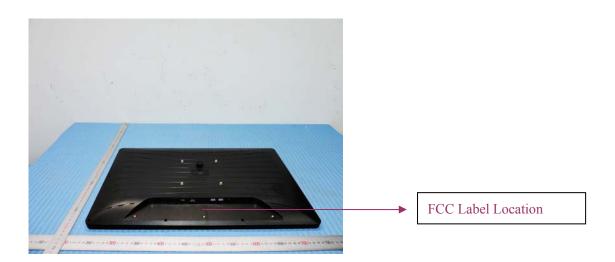
12.0 FCC Label

FCC ID: 2AACS-JAR215-01

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

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

Mark Location:



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13.0 Photo of testing

Conducted Emission Test Setup:



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Radiated Emission Test Setup:





Photos of EUT

Please see test report FCC1706166-01

End of the report

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

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