

Report on the Radio Testing

For

Pace plc

on

Xi5

Report no. TRA-029286-02-45-02A

20th May 2016

Report Number: TRA-029286-02-45-02A
Issue: A

REPORT ON THE RADIO TESTING OF A
Pace plc
Xi5
WITH RESPECT TO SPECIFICATION
FCC 47CFR Subpart E

TEST DATE: 01st March - 13th May 2016

Written by: A Tosif

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Radio Test Engineer

Approved by:

J Charters
Department Manager- Radio

Date: 20th May 2016

Disclaimers:

- [1] THIS DOCUMENT MAY BE REPRODUCED ONLY IN ITS ENTIRETY AND WITHOUT CHANGE
[2] THE RESULTS CONTAINED IN THIS DOCUMENT RELATE ONLY TO THE ITEM(S) TESTED

1 Revision Record

| <i>Issue Number</i> | <i>Issue Date</i> | <i>Revision History</i> |
|---------------------|-------------------|-------------------------|
| A | 20th May 2016 | Original |
| | | |

2 Summary

TEST REPORT NUMBER: TRA-029286-02-45-02A

WORKS ORDER NUMBER: TRA-029286-02

PURPOSE OF TEST: Certification

TEST SPECIFICATION: 47CFR15 Subpart E

EQUIPMENT UNDER TEST (EUT): Xi5

FCC IDENTIFIER: NQ8PX051AEI

EUT SERIAL NUMBER: PAW400000759 & PAW400000782

MANUFACTURER/AGENT: Pace plc

ADDRESS: Victoria Road
Saltaire
Shipley
West Yorkshire
BD18 3LF
United Kingdom

CLIENT CONTACT: James Humphrey
☎ 01274 537259
✉ James.Humphrey1@pace.com

ORDER NUMBER: 5185322

TEST DATE: 01st March - 13th May 2016

TESTED BY: A Tosif
Element

2.1 Test Summary

| <i>Test Method and Description</i> | <i>Requirement Clause 47CFR15</i> | <i>Applicable to this equipment</i> | <i>Result / Note</i> |
|---|---------------------------------------|---|----------------------|
| Radiated spurious emissions Bandedge Emissions | 15.407(b) | <input checked="" type="checkbox"/> | Pass |
| AC power line conducted emissions | 15.207 | <input type="checkbox"/> | Note 1 |
| Emission / Occupied bandwidth | 15.407(e) | <input checked="" type="checkbox"/> | Pass |
| Transmit carrier power | 15.407(a) | <input checked="" type="checkbox"/> | Pass |
| Power spectral density, conducted | 15.407(a) | <input checked="" type="checkbox"/> | Pass |
| TPC and DFS | 15.407(h) | <input type="checkbox"/> | Note 2 |

Notes:

1. See Test report TRA-029286-02-45-03A. AC Power line Conducted emissions were recorded with all radio devices active simultaneously
2. See Test report See Test report TRA-029286-02-45-04A

The results contained in this report relate only to the items tested, in the condition at time of test, and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

The apparatus was set-up and exercised using the configurations, modes of operation and arrangements defined in this report only. Any modifications made are identified in Section 8 of this report.

Particular operating modes, apparatus monitoring methods and performance criteria required by the standards tested to have been performed except where identified in Section 5.2 of this test report (Deviations from Test Standards).

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4 Introduction

This report TRA-029286-02-45-02A presents the results of the Radio testing on a Pace plc, Xi5 to specification 47CFR15 Radio Frequency Devices.

The testing was carried out for Pace plc by Element, at the address(es) detailed below.

- | | | | |
|-------------------------------------|---|--------------------------|---|
| <input checked="" type="checkbox"/> | Element Hull Unit E South Orbital Trading Park Hedon Road Hull HU9 1NJ UK | <input type="checkbox"/> | Element Skelmersdale Unit 1 Pendle Place Skemersdale West Lancashire WN8 9PN UK |
|-------------------------------------|---|--------------------------|---|

This report details the configuration of the equipment, the test methods used and any relevant modifications where appropriate.

FCC Site Listing:

The test laboratory is accredited for the above sites under the US-EU MRA, Designation number UK0009.

IC Registration Number(s):

| | |
|----------------------|-------|
| Element Skelmersdale | 3930B |
| Element Hull | 3483A |

The test site requirements of ANSI C63.4-2014 are met up to 1GHz.

The test site SVSWR requirements of CISPR 16-1-4:2010 are met over the frequency range 1 GHz to 18 GHz.

5 Test Specifications

5.1 Normative References

- FCC 47 CFR Ch. I – Part 15 – Radio Frequency Devices.
- FCC KDB Publication 905462 D02 v01r02 – Compliance measurement procedures for unlicensed-national information infrastructure devices operating in the 5250-5350 MHz and 5470-5725 MHz bands incorporating dynamic frequency selection.
- ANSI C63.10-2013 – American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
- ANSI C63.4-2014 – American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

5.2 Deviations from Test Standards

There were no deviations from the test standard.

6 Glossary of Terms

| | |
|---------------|--|
| § | denotes a section reference from the standard, not this document |
| AC | Alternating Current |
| ANSI | American National Standards Institute |
| BW | bandwidth |
| C | Celsius |
| CAC | Channel Availability Check |
| CFR | Code of Federal Regulations |
| CW | Continuous Wave |
| dB | decibel |
| dBm | dB relative to 1 milliwatt |
| DC | Direct Current |
| DFS | Dynamic Frequency Selection |
| DSSS | Direct Sequence Spread Spectrum |
| EIRP | Equivalent Isotropically Radiated Power |
| ERP | Effective Radiated Power |
| EUT | Equipment Under Test |
| FCC | Federal Communications Commission |
| FHSS | Frequency Hopping Spread Spectrum |
| Hz | hertz |
| IC | Industry Canada |
| ITU | International Telecommunication Union |
| LBT | Listen Before Talk |
| LE-LAN | Licence-Exempt Local Area Network |
| m | metre |
| max | maximum |
| MIMO | Multiple Input and Multiple Output |
| min | minimum |
| MRA | Mutual Recognition Agreement |
| N/A | Not Applicable |
| PCB | Printed Circuit Board |
| PDF | Portable Document Format |
| Pt-mpt | Point-to-multipoint |
| Pt-pt | Point-to-point |
| PSD | Power Spectral Density |
| RF | Radio Frequency |
| RH | Relative Humidity |
| RMS | Root Mean Square |
| Rx | receiver |
| s | second |
| SVSWR | Site Voltage Standing Wave Ratio |
| TPC | Transmitter Power Control |
| Tx | transmitter |
| UKAS | United Kingdom Accreditation Service |
| U-NII | Unlicensed-National Information Infrastructure |
| V | volt |
| W | watt |
| Ω | ohm |

7 Equipment under Test

7.1 EUT Identification

- Name: Xi5
- Serial Number: PAW400000759 & PAW400000782
- Model Number: PX051AEI
- Software Revision: Not Applicable
- Build Level / Revision Number: DV

Incorporating the following external interconnecting cables, ports or terminals:

| | <i>Description</i> | <i>Cable Type</i> | <i>Test Length</i> | <i>Max. Length</i> |
|---|--------------------|-------------------|--------------------|--------------------|
| 1 | DC input | 2 core unshielded | 1.5m | 1.5m |
| 2 | Ethernet | CAT5e UTP | 10m | >3m |
| 3 | HDMI in | HDMI unshielded | 1m | 1m |
| 4 | HDMI out | HDMI unshielded | 1m | 1m |
| 5 | Micro USB* | None | N/A | N/A |

*The micro USB port is not used in normal operation, so it wasn't terminated during the testing.

7.2 System Equipment

Equipment listed below forms part of the overall test setup and is required for equipment functionality and/or monitoring during testing. The compliance levels achieved in this report relate only to the EUT and not items given in the following list.

EPS-2 (AC Adapter)
 Pace HDMI Input Load
 Sharp Television
 Dell Latitude Laptop
 Dell AC/DC Adapter

7.3 EUT Mode of Operation

7.3.1 Transmission

Wi-Fi transmitter control was via commands sent through Tera Term. The commands provided by the manufacturer setup the device into a permanent transmit mode. The commands allowed adjustment of the following parameters of significant interest.

| Modulation Scheme | Channel | Power setting | Worst Case Data Rate |
|-------------------|---------|---------------|----------------------|
| 802.11a | 5180 | 12 | 54 |
| | 5260 | 12 | 54 |
| | 5320 | 12 | 54 |
| | 5500 | 12 | 54 |
| | 5620 | 12 | 54 |
| | 5720 | 12 | 54 |
| | 5745 | 73 | 54 |
| | 5785 | 73 | 54 |
| | 5825 | 69 | 54 |
| 802.11n HT20 | 5180 | 13 | MCS31 |
| | 5260 | 13 | MCS31 |
| | 5320 | 13 | MCS31 |
| | 5500 | 13 | MCS31 |
| | 5620 | 13 | MCS31 |
| | 5720 | 13 | MCS31 |
| | 5745 | 71 | MCS31 |
| | 5785 | 73 | MCS31 |
| | 5825 | 69 | MCS31 |
| 802.11n HT40 | 5190 | 14 | MCS31 |
| | 5270 | 14 | MCS31 |
| | 5310 | 14 | MCS31 |
| | 5510 | 14 | MCS31 |
| | 5630 | 14 | MCS31 |
| | 5710 | 14 | MCS31 |
| | 5755 | 65 | MCS31 |
| | 5795 | 74 | MCS31 |
| 802.11ac VHT20 | 5180 | 13 | MCS8 |
| | 5260 | 13 | MCS8 |
| | 5320 | 13 | MCS8 |
| | 5500 | 12 | MCS8 |
| | 5620 | 12 | MCS8 |
| | 5720 | 12 | MCS8 |
| | 5745 | 74 | MCS8 |
| | 5785 | 73 | MCS8 |
| | 5825 | 69 | MCS8 |
| 802.11ac VHT40 | 5190 | 14 | MCS9 |
| | 5270 | 14 | MCS9 |
| | 5310 | 14 | MCS9 |
| | 5510 | 13 | MCS9 |
| | 5630 | 13 | MCS9 |
| | 5710 | 13 | MCS9 |
| | 5755 | 65 | MCS9 |
| | 5795 | 74 | MCS9 |
| 802.11ac VHT80 | 5210 | 14 | MCS9 |
| | 5290 | 14 | MCS9 |
| | 5530 | 14 | MCS9 |
| | 5610 | 14 | MCS9 |
| | 5690 | 14 | MCS9 |
| | 5775 | 61 | MCS9 |

7.3.2 Reception

This report covers transmitter operation only, results for unintentional emissions can be found in test report TRA-029286-44-00A.

7.4 EUT Radio Frequency Parameters

7.4.1 General

| | |
|---|---|
| Frequency of operation: | 5.15 GHz – 5.35 GHz; 5.47 GHz – 5.725 GHz; 5.725GHz – 5.85 GHz |
| Modulation type(s): | OFDM |
| Occupied channel bandwidth(s): | 20 MHz / 40 MHz / 80 MHz |
| Declared output power(s): | +25dBm |
| Warning against use of alternative antennas in user manual (yes/no): | Not Applicable |
| Nominal Supply Voltage: | 110 Vac |
| Location of notice for license exempt use: | Label / user manual / both. |

7.4.2 Antennas

| | |
|-------------------------|---|
| Type: | Omni directional/polarity Antennas |
| Frequency range: | 5.15 GHz – 5.35 GHz; 5.47 GHz – 5.725 GHz; 5.725GHz – 5.85 GHz |
| Impedance: | 50 Ohms |
| Gain: | See charts on page 29 |
| Polarisation: | Omni |
| Connector type: | U-FL |
| Mounting: | Case Mounted |

7.4.3 Product specific declarations

| | |
|---|----------------|
| Multiple antenna configuration(s), e.g. MIMO: | MIMO |
| Fixed pt-pt operations (yes/no): | No |
| Installation manual advice on pt-pt operational restrictions (yes/no): | Not Applicable |
| Fixed pt-mpt operations (yes/no): | Not Applicable |
| Simultaneous tx (yes/no): | Yes |

7.5 EUT Description

The EUT is a set top box with one HDMI output for connection to a television. The EUT can accept inputs from Wi-Fi, HDMI and Ethernet. The EUT is controlled by remote control over RF4CE and/or Bluetooth.

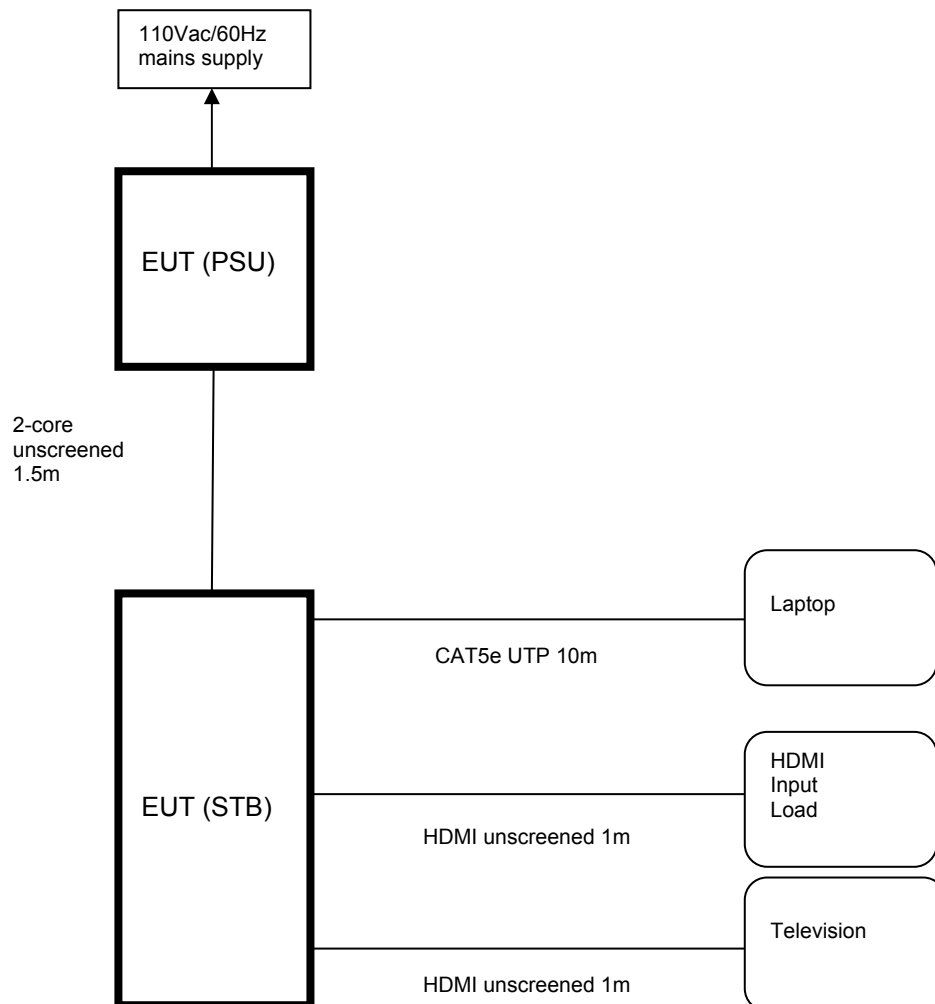
8 Modifications

No modifications were performed during this assessment.

9 EUT Test Setup

9.1 Block Diagram

The following diagram shows basic EUT interconnections with cable type and cable lengths identified:



10 General Technical Parameters

10.1 Normal Conditions

The EUT was tested under the normal environmental conditions of the test laboratory, except where otherwise stated. The normal power source applied was approx. 110 Vac from the mains.

11 Occupied Bandwidth

11.1 Definition

The emission bandwidth (x dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated x dB below the maximum in-band spectral density of the modulated signal.

11.2 Test Parameters

| | |
|--------------------------------------|--|
| Test Location: | Element Hull |
| Test Chamber: | Wireless Lab 1 |
| Test Standard and Clause: | ANSI C63.10-2013, Clause 6.9, KDB 789033 D02 |
| EUT Channels / Frequencies Measured: | 36, 38, 42, 52, 54, 58, 100, 102, 106, 122, 124, 126, 138, 142, 144, 149, 151, 155, 159, 165 |
| EUT Channel Bandwidths: | 20 MHz / 40 MHz / 80 MHz |
| EUT Test Modulations: | 802.11a, 802.11n HT20/40, 802.11ac VHT20/40/80 |
| Deviations From Standard: | None |
| Measurement BW: | 1% of the emission bandwidth for 26 dB BW, 100 kHz for 6 dB BW |
| Spectrum Analyzer Video BW: | > RBW for 26 dB BW, $\geq 3 \times$ RBW for 6 dB BW |
| Measurement Detector: | Peak |

Environmental Conditions (Normal Environment)

| | |
|--------------------|--------------------------------|
| Temperature: 20 °C | +15 °C to +35 °C (as declared) |
| Humidity: 36 %RH | 20%RH to 75%RH (as declared) |
| Supply: 110 Vac | 110Vac +/-10% (as declared) |

Test Limits

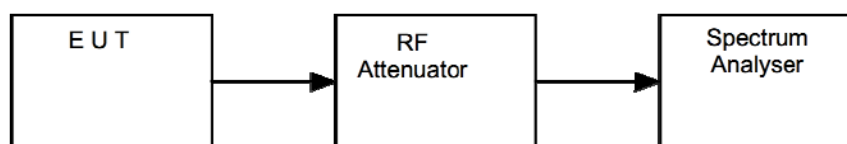
Within the 5.725–5.85 GHz band, the minimum 6 dB bandwidth of U–NII devices shall be at least 500 kHz.

11.3 Test Method

With the EUT setup as per section 9 of this report and connected as per Figure iii, the bandwidth of the EUT was measured on a spectrum analyser.

The measurements were performed with EUT set at its maximum duty. All modulation schemes, data rates and power settings were used to observe the worst-case configuration in each bandwidth.

Figure iii Test Setup



11.4 Test Equipment

| Equipment Description | Manufacturer | Equipment Type | Element No | Last Cal Calibration | Calibration Period | Due For Calibration |
|-----------------------|--------------|----------------|------------|----------------------|--------------------|---------------------|
| Spectrum Analyser | R&S | FSU26 | U405 | 11/05/2015 | 12 | 11/05/2016 |

11.5 Test Results

| Modulation: 802.11a; | | | | | |
|--------------------------------|----------------------|----------------------------|----------------------------|-----------------------------|---------------|
| Channel Frequency (MHz) | Power setting | F_L (MHz) | F_H (MHz) | 26dB Bandwidth (MHz) | Result |
| 5180 | 12 | 5169.615385 | 5190.576923 | 20.962 | PASS |
| 5260 | 12 | 5249.567308 | 5270.528846 | 20.962 | PASS |
| 5320 | 12 | 5309.567308 | 5330.528846 | 20.962 | PASS |
| 5500 | 12 | 5489.663462 | 5510.528846 | 20.865 | PASS |
| 5620 | 12 | 5609.615385 | 5630.576923 | 20.962 | PASS |
| 5720 | 12 | 5709.615385 | 5730.576923 | 20.962 | PASS |
| 5745 | 73 | 5734.615385 | 5755.625000 | 21.010 | PASS |
| 5785 | 73 | 5774.663462 | 5795.737179 | 21.074 | PASS |
| 5825 | 69 | 5814.663462 | 5835.657051 | 20.994 | PASS |

| Modulation: 802.11n-HT20 | | | | | |
|---------------------------------|----------------------|----------------------------|----------------------------|-----------------------------|---------------|
| Channel Frequency (MHz) | Power setting | F_L (MHz) | F_H (MHz) | 26dB Bandwidth (MHz) | Result |
| 5180 | 13 | 5169.262821 | 5190.897436 | 21.635 | PASS |
| 5260 | 13 | 5249.182692 | 5270.897436 | 21.715 | PASS |
| 5320 | 13 | 5309.182692 | 5330.897436 | 21.715 | PASS |
| 5500 | 13 | 5489.262821 | 5510.977564 | 21.715 | PASS |
| 5620 | 13 | 5609.262821 | 5630.977564 | 21.715 | PASS |
| 5720 | 13 | 5709.262821 | 5730.977564 | 21.715 | PASS |
| 5745 | 71 | 5734.342949 | 5755.977564 | 21.635 | PASS |
| 5785 | 73 | 5774.262821 | 5795.977564 | 21.715 | PASS |
| 5825 | 69 | 5814.262821 | 5835.977564 | 21.715 | PASS |

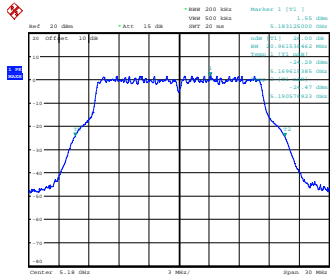
| Modulation: 802.11n-HT40 | | | | | |
|---------------------------------|----------------------|----------------------------|----------------------------|-----------------------------|---------------|
| Channel Frequency (MHz) | Power setting | F_L (MHz) | F_H (MHz) | 26dB Bandwidth (MHz) | Result |
| 5190 | 14 | 5169.967949 | 5210.352564 | 40.385 | PASS |
| 5270 | 14 | 5249.967949 | 5290.352564 | 40.385 | PASS |
| 5310 | 14 | 5289.967949 | 5330.192308 | 40.224 | PASS |
| 5510 | 14 | 5489.967949 | 5530.352564 | 40.385 | PASS |
| 5630 | 14 | 5609.967949 | 5650.352564 | 40.385 | PASS |
| 5710 | 14 | 5689.967949 | 5730.192308 | 40.224 | PASS |
| 5755 | 65 | 5734.967949 | 5775.352564 | 40.385 | PASS |
| 5795 | 74 | 5774.967949 | 5815.352564 | 40.385 | PASS |

| Modulation: 802.11ac-VHT20 | | | | | |
|-----------------------------------|----------------------|----------------------------|----------------------------|-----------------------------|---------------|
| Channel Frequency (MHz) | Power setting | F_L (MHz) | F_H (MHz) | 26dB Bandwidth (MHz) | Result |
| 5180 | 13 | 5168.301282 | 5191.858974 | 23.558 | PASS |
| 5260 | 13 | 5248.301282 | 5271.858974 | 23.558 | PASS |
| 5320 | 13 | 5308.381410 | 5331.858974 | 23.478 | PASS |
| 5500 | 12 | 5488.381410 | 5511.858974 | 23.478 | PASS |
| 5620 | 12 | 5608.301282 | 5631.858974 | 23.558 | PASS |
| 5720 | 12 | 5708.301282 | 5731.858974 | 23.558 | PASS |
| 5745 | 74 | 5733.221154 | 5756.858974 | 23.638 | PASS |
| 5785 | 73 | 5773.301282 | 5796.858974 | 23.558 | PASS |
| 5825 | 69 | 5813.301282 | 5836.858974 | 23.558 | PASS |

| Modulation: 802.11ac-VHT40 | | | | | |
|-----------------------------------|----------------------|----------------------------|----------------------------|-----------------------------|---------------|
| Channel Frequency (MHz) | Power setting | F_L (MHz) | F_H (MHz) | 26dB Bandwidth (MHz) | Result |
| 5190 | 14 | 5169.967949 | 5210.192308 | 40.224 | PASS |
| 5270 | 14 | 5249.967949 | 5290.192308 | 40.224 | PASS |
| 5310 | 14 | 5289.967949 | 5330.192308 | 40.224 | PASS |
| 5510 | 13 | 5489.967949 | 5530.192308 | 40.224 | PASS |
| 5630 | 13 | 5609.967949 | 5650.192308 | 40.224 | PASS |
| 5710 | 13 | 5689.967949 | 5730.192308 | 40.224 | PASS |
| 5755 | 65 | 5734.967949 | 5775.192308 | 40.224 | PASS |
| 5795 | 74 | 5774.871795 | 5815.128205 | 40.256 | PASS |

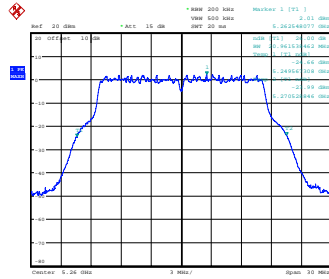
| Modulation: 802.11ac-VHT80 | | | | | |
|-----------------------------------|----------------------|----------------------------|----------------------------|-----------------------------|---------------|
| Channel Frequency (MHz) | Power setting | F_L (MHz) | F_H (MHz) | 26dB Bandwidth (MHz) | Result |
| 5210 | 14 | 5489.375000 | 5571.346154 | 81.971 | PASS |
| 5290 | 14 | 5569.375000 | 5651.346154 | 81.971 | PASS |
| 5530 | 14 | 5649.134615 | 5731.346154 | 82.212 | PASS |
| 5610 | 14 | 5734.134615 | 5816.346154 | 82.212 | PASS |
| 5690 | 14 | 5169.375000 | 5251.105769 | 81.731 | PASS |
| 5775 | 61 | 5249.134615 | 5331.346154 | 82.212 | PASS |

802.11a



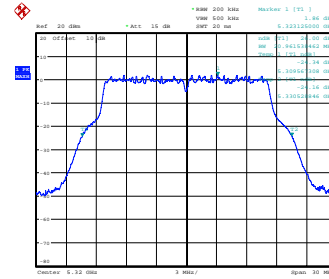
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5180 MHz



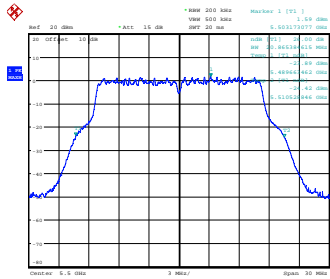
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5260 MHz



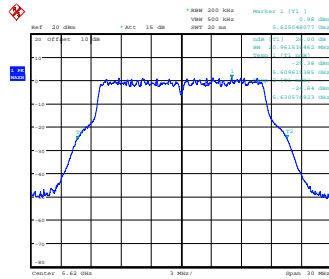
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5320 MHz



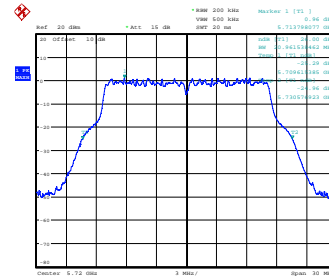
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5500 MHz



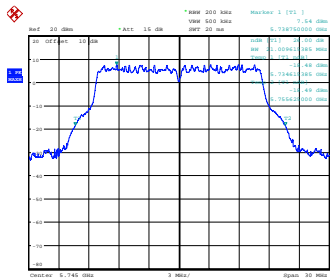
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5620 MHz



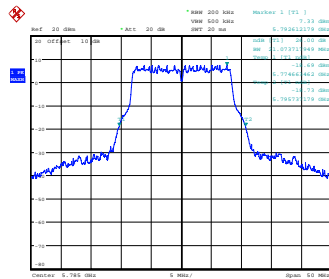
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5720 MHz



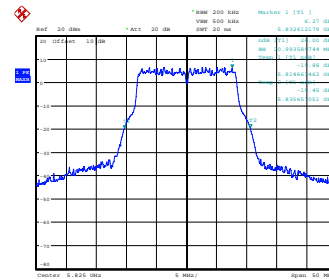
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5745 MHz



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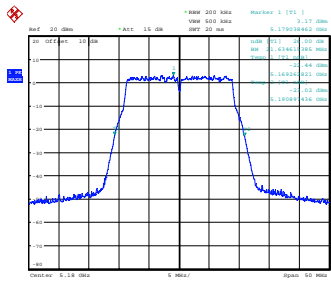
5785 MHz



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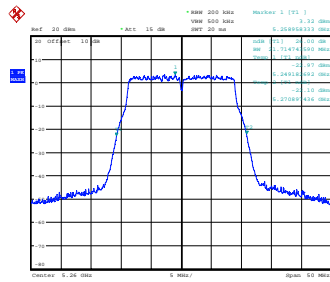
5825 MHz

802.11n HT20



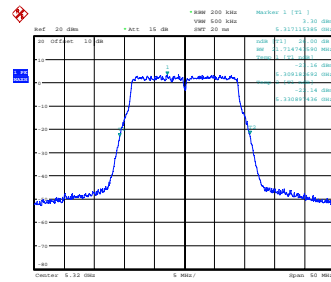
Date: 28.APR.2016 12:12:01

5180 MHz



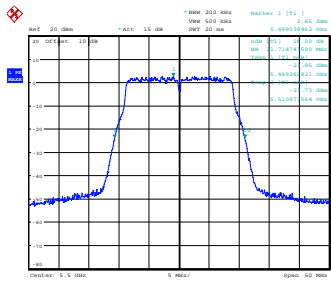
Date: 28.APR.2016 12:12:09

5260 MHz



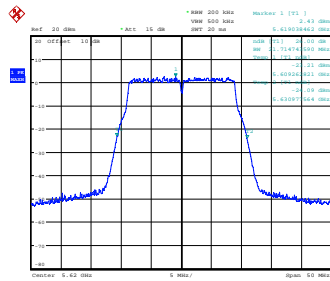
Date: 28.APR.2016 12:12:17

5320 MHz



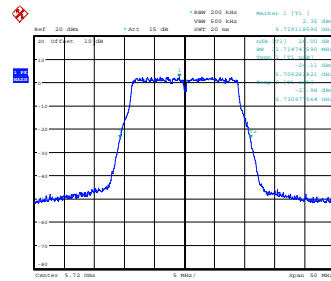
Date: 28.APR.2016 12:13:42

5500 MHz



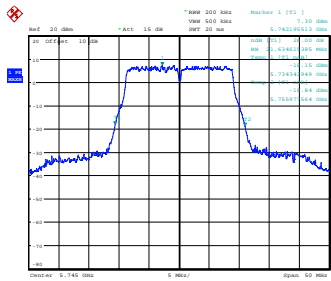
Date: 28.APR.2016 12:14:47

5620 MHz



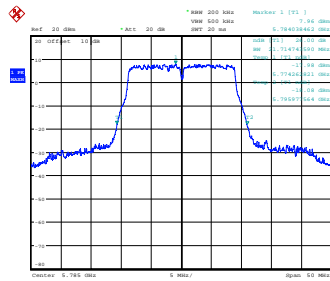
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5720 MHz



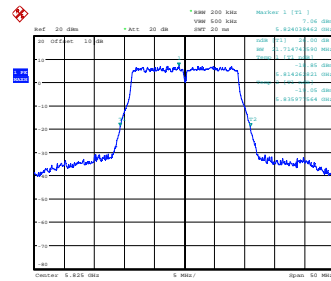
Date: 28.APR.2016 12:24:33

5745 MHz



Date: 10.MAY.2016 12:10:09

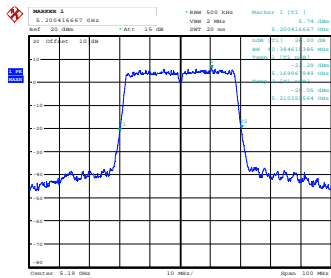
5785 MHz



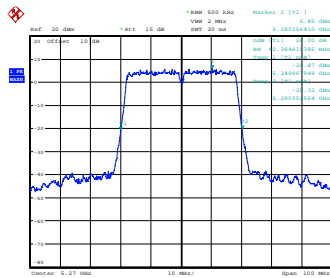
Date: 10.MAY.2016 12:15:13

5825 MHz

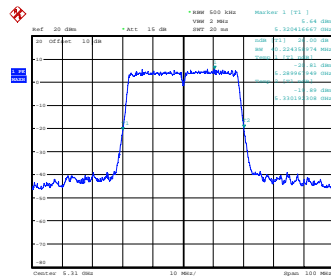
802.11n HT40



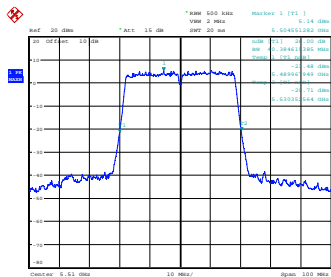
5190 MHz



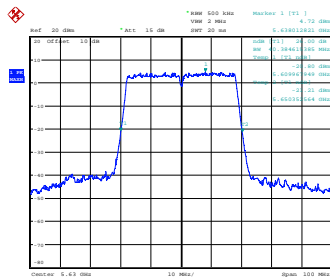
5270 MHz



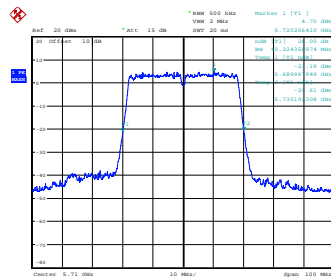
5310 MHz



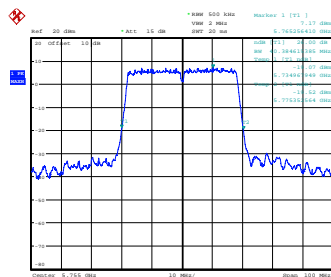
5510 MHz



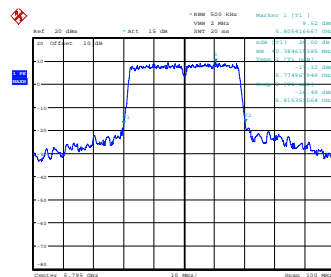
5630 MHz



5710 MHz

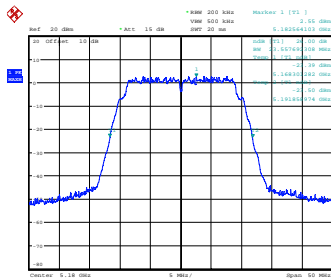


5755 MHz



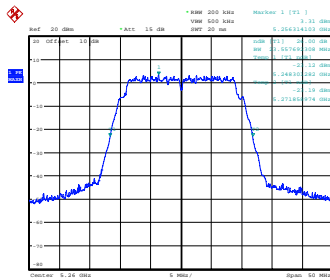
5795 MHz

802.11ac VHT20



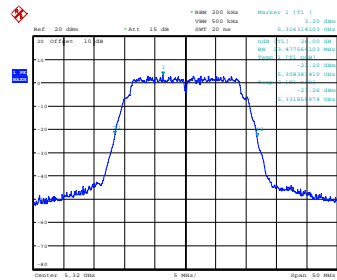
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5180 MHz



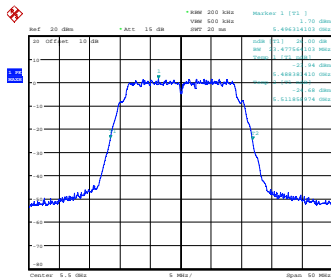
Date: 28.APR.2016 12:55:13

5260 MHz



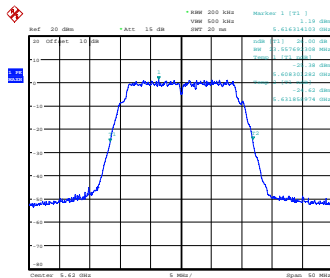
Date: 28.APR.2016 12:54:59

5320 MHz



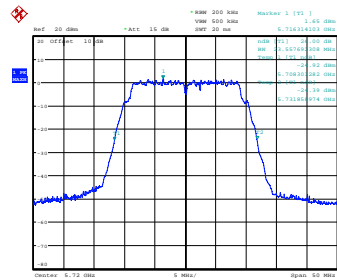
Date: 28.APR.2016 12:21:05

5500 MHz



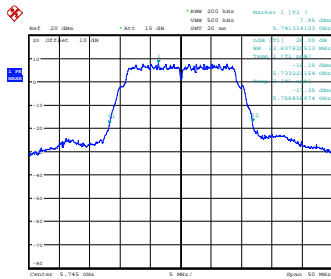
Date: 28.APR.2016 12:20:13

5620 MHz



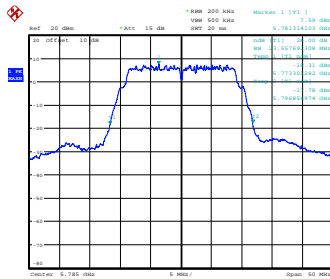
Date: 28.APR.2016 12:18:57

5720 MHz



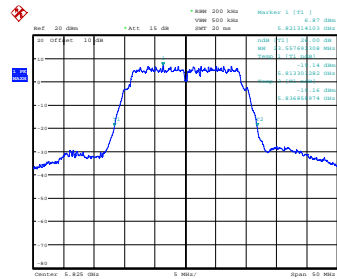
Date: 28.APR.2016 12:57:57

5745 MHz



Date: 10.MAY.2016 13:04:53

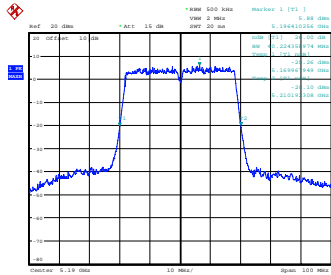
5785 MHz



Date: 10.MAY.2016 13:06:45

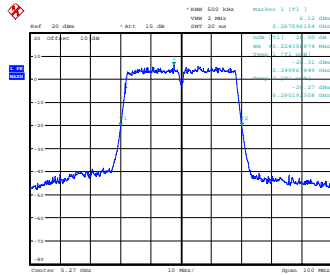
5825 MHz

802.1ac VHT40



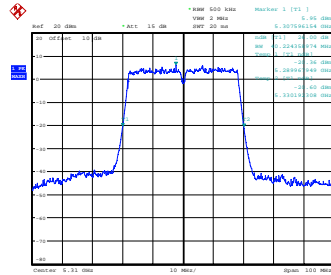
Date: 28_APR_2016 13:57:05

5190 MHz



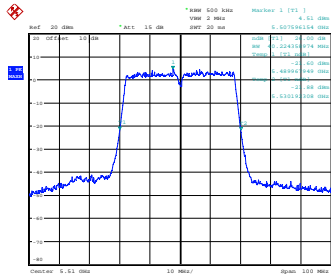
Date: 28_APR_2016 13:58:33

5270 MHz



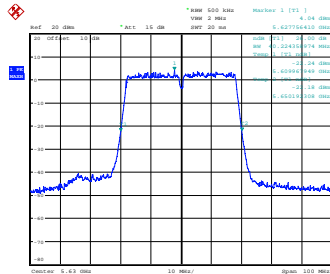
Date: 28_APR_2016 14:00:14

5310 MHz



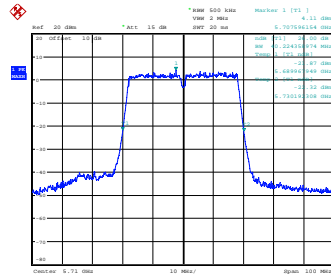
Date: 28_APR_2016 14:10:36

5510 MHz



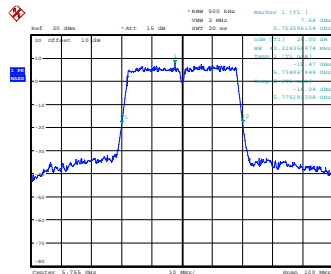
Date: 28_APR_2016 14:11:21

5630 MHz



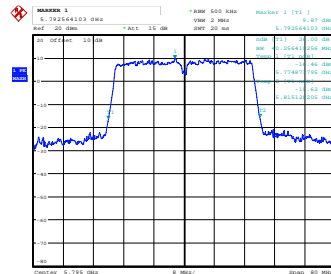
Date: 28_APR_2016 14:13:38

5710 MHz



Date: 28_APR_2016 14:15:42

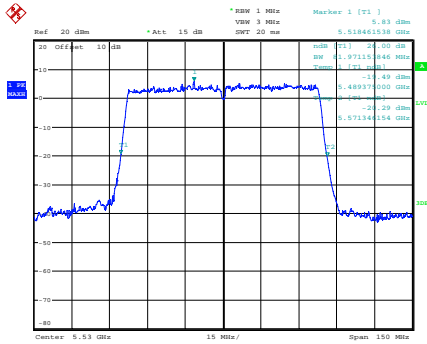
5755 MHz



Date: 10_MAY_2016 13:09:53

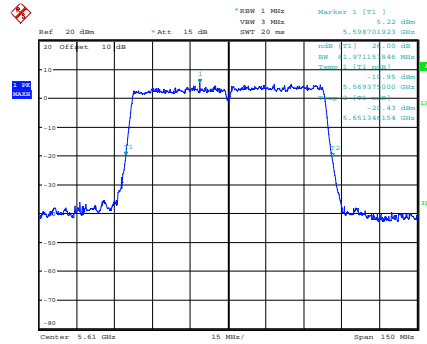
5795 MHz

802.1ac VHT80



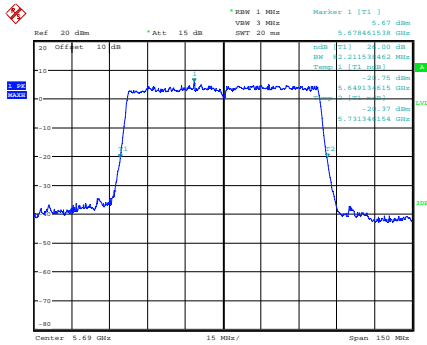
Date: 28.APR.2016 14:30:42

5210 MHz



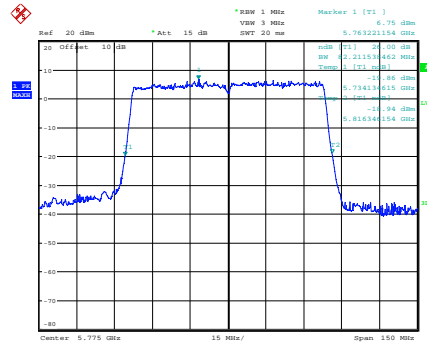
Date: 28.APR.2016 14:29:53

5290 MHz



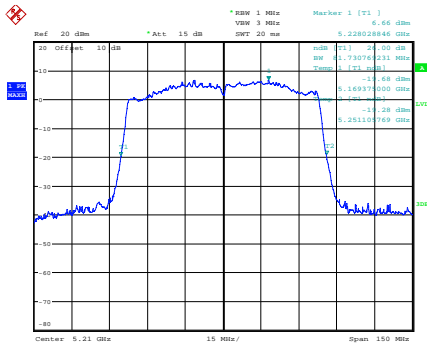
Date: 28.APR.2016 14:29:01

5530 MHz



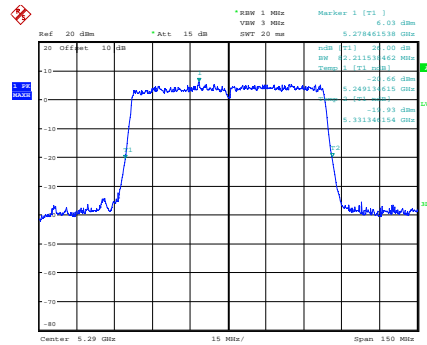
Date: 28.APR.2016 14:27:25

5610 MHz



Date: 28.APR.2016 14:35:45

5690 MHz



Date: 28.APR.2016 14:32:43

5775 MHz

| Modulation: 802.11a | | | | | |
|----------------------------|----------------------|-----------------------------------|-----------------------------------|--------------------------------|---------------|
| Channel Frequency | Power setting | F_L (MHz) | F_H (MHz) | 6dB Bandwidth (kHz) | Result |
| 5745 | 73 | 5736.746795 | 5753.269231 | 16522.4 | PASS |
| 5785 | 73 | 5776.746795 | 5793.333333 | 16586.5 | PASS |
| 5825 | 69 | 5816.842948 | 5833.333333 | 16490.4 | PASS |

| Modulation: 802.11nHT20 | | | | | |
|--------------------------------|----------------------|-----------------------------------|-----------------------------------|--------------------------------|---------------|
| Channel Frequency | Power setting | F_L (MHz) | F_H (MHz) | 6dB Bandwidth (kHz) | Result |
| 5745 | 71 | 5736.025641 | 5753.990385 | 17964.7 | PASS |
| 5785 | 73 | 5776.121794 | 5793.974358 | 17852.6 | PASS |
| 5825 | 69 | 5816.105769 | 5833.974358 | 17868.6 | PASS |

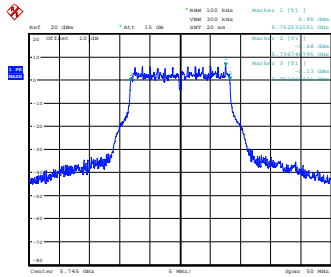
| Modulation: 802.11nHT40 | | | | | |
|--------------------------------|----------------------|-----------------------------------|-----------------------------------|--------------------------------|---------------|
| Channel Frequency | Power setting | F_L (MHz) | F_H (MHz) | 6dB Bandwidth (kHz) | Result |
| 5755 | 65 | 5736.878205 | 5773.419872 | 36541.7 | PASS |
| 5795 | 74 | 5776.798077 | 5813.381410 | 36583.3 | PASS |

| Modulation: 802.11acVHT20 | | | | | |
|----------------------------------|----------------------|-----------------------------------|-----------------------------------|--------------------------------|---------------|
| Channel Frequency | Power setting | F_L (MHz) | F_H (MHz) | 6dB Bandwidth (kHz) | Result |
| 5745 | 74 | 5736.025641 | 5753.990385 | 17964.7 | PASS |
| 5785 | 73 | 5776.105769 | 5793.974359 | 17868.6 | PASS |
| 5825 | 69 | 5816.121794 | 5834.054487 | 17932.7 | PASS |

| Modulation: 802.11acVHT40 | | | | | |
|----------------------------------|----------------------|-----------------------------------|-----------------------------------|--------------------------------|---------------|
| Channel Frequency | Power setting | F_L (MHz) | F_H (MHz) | 6dB Bandwidth (kHz) | Result |
| 5755 | 65 | 5736.878205 | 5773.307692 | 36429.5 | PASS |
| 5795 | 74 | 5776.798077 | 5813.269230 | 36471.2 | PASS |

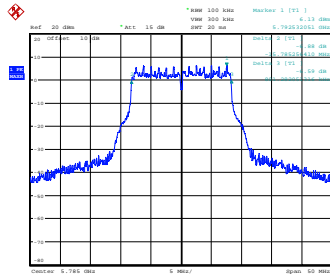
| Modulation: 802.11acVHT80 | | | | | |
|----------------------------------|----------------------|-----------------------------------|-----------------------------------|--------------------------|---------------|
| Channel Frequency | Power setting | F_L (MHz) | F_H (MHz) | 6dB Bandwidth | Result |
| 5775 | 61 | 5737.333334 | 5813.173077 | 75839.7 | PASS |

802.11a



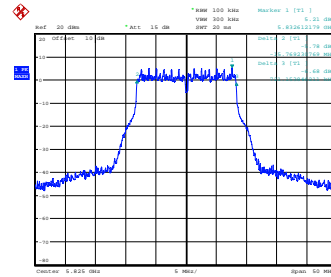
Date: 29.APR.2016 07:48:10

5745 MHz



Date: 10.MAY.2016 13:59:10

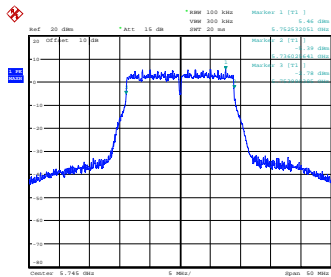
5785 MHz



Date: 10.MAY.2016 13:43:36

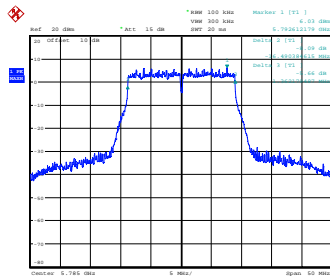
5825 MHz

802.11n HT20



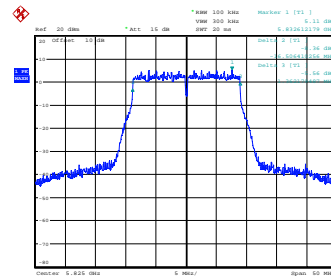
Date: 29.APR.2016 07:50:14

5745 MHz



Date: 10.MAY.2016 13:45:32

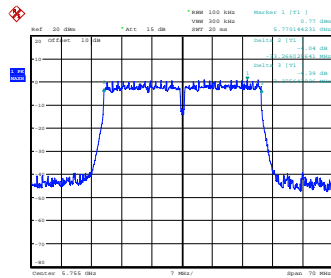
5785 MHz



Date: 10.MAY.2016 13:47:31

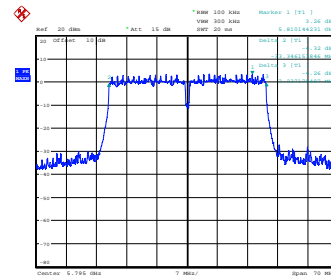
5825 MHz

802.11n HT40



Date: 29.APR.2016 08:29:54

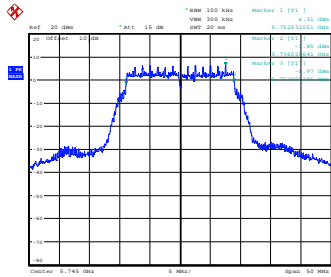
5755 MHz



Date: 10.MAY.2016 14:05:06

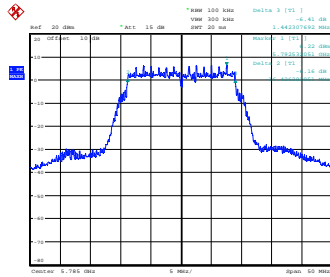
5795 MHz

802.11ac VHT20



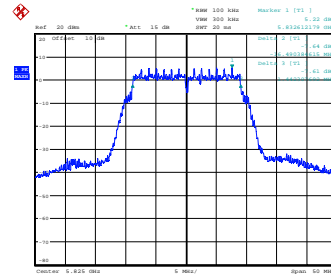
Date: 29.APR.2016 07:54:45

5745 MHz



Date: 10.MAY.2016 14:20:57

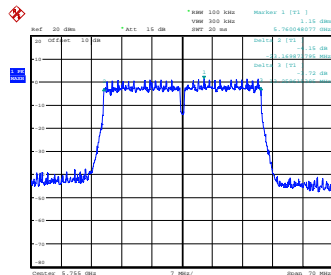
5785 MHz



Date: 10.MAY.2016 14:31:40

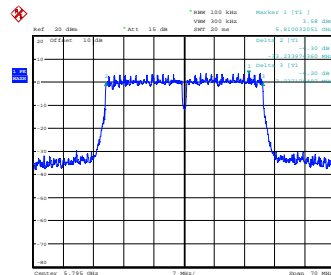
5825 MHz

802.11ac VHT40



Date: 29.APR.2016 08:31:33

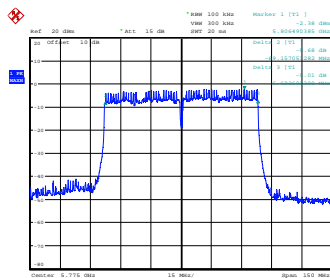
5755 MHz



Date: 10.MAY.2016 14:11:26

5795 MHz

802.11ac VHT80



Date: 29.APR.2016 08:43:15

5775 MHz

12 Maximum conducted output power

12.1 Definition

The maximum conducted output power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level.

12.2 Test Parameters

| | |
|---|--|
| Test Location: | Element Hull |
| Test Chamber: | Wireless Lab 1 |
| Test Standard and Clause: | ANSI C63.10-2013, Clause 12.3, KDB 789033 D02, KDB 662911 D01 |
| EUT Channels / Frequencies Measured: | 36, 38, 42, 52, 54, 58, 100, 102, 106, 122, 124, 126, 138, 142, 144, 149, 151, 155, 159, 165 |
| EUT Channel Bandwidths: | 20 MHz / 40 MHz / 80 MHz |
| Deviations From Standard: | None |
| Measurement Detector: | RMS |
| Voltage Extreme Environment Test Range: | Mains Power = 85% and 115% of Nominal (FCC only requirement); |

Environmental Conditions (Normal Environment)

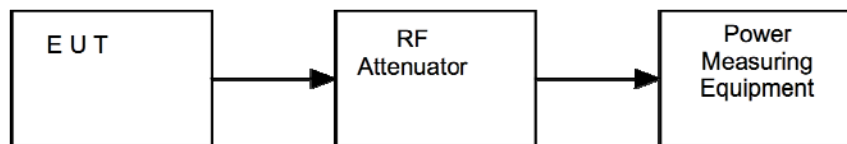
| | |
|--------------------|--------------------------------|
| Temperature: 22 °C | +15 °C to +35 °C (as declared) |
| Humidity: 38%RH | 20%RH to 75%RH (as declared) |

12.3 Test Method

The EUT was setup as per section 9 of this report and, as per Figure iv, the power meter was used to measure each antenna output in turn, having taken account of all path losses. The results were summed as in the tables below.

The measurements were performed with EUT set at its maximum duty. All modulation schemes, data rates and power settings were used to observe the worst case configuration in each bandwidth.

Figure iv Test Setup



12.4 Test Equipment

| <i>Equipment Description</i> | <i>Manufacturer</i> | <i>Equipment Type</i> | <i>Element No</i> | <i>Last Cal Calibration</i> | <i>Calibration Period</i> | <i>Due For Calibration</i> |
|------------------------------|---------------------|-----------------------|-------------------|-----------------------------|---------------------------|----------------------------|
| Power Meter | Dare | RPR3006W | REF2111 | 09/03/2016 | 12 | 09/03/2017 |

Test Limits

For client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW.

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

| 802.11a/n/ac 20 MHz | | | | | | | | | |
|----------------------------|------|------|------|------|------|------|------|------|------|
| Frequency (MHz) | 5180 | 5260 | 5320 | 5500 | 5620 | 5720 | 5745 | 5785 | 5825 |
| Direction Gain of Antenna* | 9.4 | 9.5 | 9.8 | 9.9 | 10.2 | 10.0 | 10.0 | 9.8 | 9.8 |
| Exceeds 6 dBi ? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Exceeds 6 dBi by | 3.4 | 3.5 | 3.8 | 3.9 | 4.2 | 4.0 | 4.0 | 3.8 | 3.8 |
| Spec limit (dBm/MHz) | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 30.0 | 30.0 | 30.0 |
| Number Of Antennas | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Correlated Signals | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Limit (dBm) | 20.6 | 20.5 | 20.2 | 20.1 | 19.8 | 20.0 | 26.0 | 26.2 | 26.2 |

| 802.11n/ac 40 MHz | | | | | | | | | |
|----------------------------|------|------|------|------|------|------|------|------|--|
| Frequency (MHz) | 5190 | 5270 | 5310 | 5510 | 5630 | 5710 | 5755 | 5795 | |
| Direction Gain of Antenna* | 9.6 | 9.5 | 9.8 | 10.2 | 10.2 | 10.2 | 10.0 | 9.8 | |
| Exceeds 6 dBi? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Exceeds 6 dBi by | 3.6 | 3.5 | 3.8 | 4.2 | 4.2 | 4.2 | 4.0 | 3.8 | |
| Spec limit (dBm/MHz) | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 30.0 | 30.0 | |
| Number Of Antennas | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Correlated Signals | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Limit (dBm) | 20.4 | 20.5 | 20.2 | 19.8 | 19.8 | 19.8 | 26.0 | 26.2 | |

| 802.11ac 80 MHz | | | | | | | |
|----------------------------|------|------|------|------|------|------|--|
| Frequency (MHz) | 5210 | 5290 | 5530 | 5610 | 5690 | 5775 | |
| Direction Gain of Antenna* | 9.6 | 9.8 | 10.3 | 10.2 | 10.3 | 10.0 | |
| Exceeds 6 dBi? | Yes | Yes | Yes | Yes | Yes | Yes | |
| Exceeds 6 dBi by | 3.6 | 3.8 | 4.3 | 4.2 | 4.3 | 4.0 | |
| Spec limit (dBm/MHz) | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 30.0 | |
| Number Of Antennas | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Correlated Signals | Yes | Yes | Yes | Yes | Yes | Yes | |
| Limit (dBm) | 20.4 | 20.2 | 19.7 | 19.8 | 19.7 | 26.0 | |

* Directional Gain of antenna Calculated as per KDB 662911 D01 Multiple Transmitter Output v02r01
 Directional gain = $10 \log [(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}]$ dBi

12.5 Test Results

| Modulation: 802.11a | | | | | | | |
|----------------------------|----------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------|-------------------------|
| Channel (MHz) | Power setting | Power Chain 0 (dBm) | Power Chain 1 (dBm) | Power Chain 2 (dBm) | Power Chain 3 (dBm) | Total Power (dBm) | Total Power (mW) |
| 5180 | 12 | 11.7 | 11.9 | 11.8 | 11.4 | 17.7 | 59.2 |
| 5260 | 12 | 11.2 | 11.1 | 11.5 | 11.2 | 17.3 | 53.4 |
| 5320 | 12 | 11.2 | 11.5 | 11.2 | 10.8 | 17.2 | 52.5 |
| 5500 | 12 | 11.2 | 11.1 | 11.5 | 11.2 | 17.3 | 53.4 |
| 5620 | 12 | 11.2 | 11.1 | 11.2 | 11.2 | 17.2 | 52.4 |
| 5720 | 12 | 11.2 | 11.5 | 11.2 | 10.8 | 17.2 | 52.5 |
| 5745 | 73 | 17.8 | 17.7 | 17.7 | 17.1 | 23.6 | 229.3 |
| 5785 | 73 | 18.3 | 18 | 17.8 | 17.2 | 23.9 | 243.4 |
| 5825 | 69 | 16.8 | 16.9 | 16.6 | 15.8 | 22.6 | 180.6 |

| Modulation: 802.11n HT20 | | | | | | | |
|---------------------------------|----------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------|-------------------------|
| Channel (MHz) | Power setting | Power Chain 0 (dBm) | Power Chain 1 (dBm) | Power Chain 2 (dBm) | Power Chain 3 (dBm) | Total Power (dBm) | Total Power (mW) |
| 5180 | 13 | 13.2 | 13.3 | 12.9 | 12.6 | 19.0 | 80.0 |
| 5260 | 13 | 12.5 | 12.8 | 13 | 13 | 18.9 | 76.7 |
| 5320 | 13 | 12.5 | 12.7 | 12.9 | 13 | 18.8 | 75.9 |
| 5500 | 13 | 12.2 | 12.3 | 12.3 | 12.3 | 18.3 | 67.5 |
| 5620 | 13 | 12 | 12 | 12.3 | 12.3 | 18.2 | 65.7 |
| 5720 | 13 | 12.2 | 12.2 | 12.4 | 12.3 | 18.3 | 67.6 |
| 5745 | 71 | 17.5 | 17.3 | 17.1 | 16.6 | 23.2 | 206.9 |
| 5785 | 73 | 18.3 | 18.1 | 17.9 | 17.4 | 24.0 | 248.8 |
| 5825 | 69 | 17.2 | 17 | 16.8 | 16 | 22.8 | 190.3 |

| Modulation: 802.11n HT40 | | | | | | | |
|---------------------------------|----------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------|-------------------------|
| Channel (MHz) | Power setting | Power Chain 0 (dBm) | Power Chain 1 (dBm) | Power Chain 2 (dBm) | Power Chain 3 (dBm) | Total Power (dBm) | Total Power (mW) |
| 5190 | 14 | 14.2 | 14.2 | 14.1 | 13.7 | 20.1 | 101.8 |
| 5270 | 14 | 14.2 | 14 | 13.8 | 13.8 | 20.0 | 99.4 |
| 5310 | 14 | 14.3 | 14.2 | 13.7 | 13.6 | 20.0 | 99.6 |
| 5510 | 14 | 13.7 | 13.9 | 13.5 | 13.3 | 19.6 | 91.8 |
| 5630 | 14 | 13.5 | 13.9 | 13.5 | 13.2 | 19.6 | 90.2 |
| 5710 | 14 | 13.5 | 13.8 | 13.5 | 13.1 | 19.5 | 89.2 |
| 5755 | 65 | 15.8 | 15.6 | 15.5 | 15.3 | 21.6 | 143.7 |
| 5795 | 74 | 18.1 | 17.9 | 17.9 | 17.5 | 23.9 | 244.1 |

| Modulation: 802.11ac VHT20 | | | | | | | |
|-----------------------------------|----------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------|-------------------------|
| Channel (MHz) | Power setting | Power Chain 0 (dBm) | Power Chain 1 (dBm) | Power Chain 2 (dBm) | Power Chain 3 (dBm) | Total Power (dBm) | Total Power (mW) |
| 5180 | 13 | 12.8 | 13.1 | 12.9 | 12.5 | 18.9 | 76.8 |
| 5260 | 13 | 13.1 | 13.2 | 13.2 | 12.7 | 19.1 | 80.8 |
| 5320 | 13 | 13.1 | 13.2 | 13.1 | 12.8 | 19.1 | 80.8 |
| 5500 | 12 | 11.3 | 11.3 | 11.6 | 11.2 | 17.4 | 54.6 |
| 5620 | 12 | 11.5 | 11.5 | 11.6 | 11.4 | 17.5 | 56.5 |
| 5720 | 12 | 11.5 | 11.7 | 11.8 | 11.3 | 17.6 | 57.5 |
| 5745 | 74 | 17.8 | 17.9 | 17.7 | 17.4 | 23.7 | 235.8 |
| 5785 | 73 | 17.8 | 17.9 | 17.6 | 17.1 | 23.6 | 230.7 |
| 5825 | 69 | 16.7 | 16.9 | 16.8 | 16.1 | 22.7 | 184.4 |

| Modulation: 802.11ac VHT40 | | | | | | | |
|-----------------------------------|----------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------|-------------------------|
| Channel (MHz) | Power setting | Power Chain 0 (dBm) | Power Chain 1 (dBm) | Power Chain 2 (dBm) | Power Chain 3 (dBm) | Total Power (dBm) | Total Power (mW) |
| 5190 | 14 | 14.3 | 14.4 | 14.3 | 13.9 | 20.2 | 105.9 |
| 5270 | 14 | 14.3 | 14.2 | 13.8 | 13.7 | 20.0 | 100.6 |
| 5310 | 14 | 14.2 | 14.2 | 13.8 | 13.7 | 20.0 | 100.0 |
| 5510 | 13 | 13 | 13.3 | 12.8 | 12.5 | 18.9 | 78.2 |
| 5630 | 13 | 12.9 | 13.1 | 12.8 | 12.5 | 18.9 | 76.8 |
| 5710 | 13 | 12.9 | 13.2 | 12.8 | 12.4 | 18.9 | 76.8 |
| 5755 | 65 | 16 | 15.9 | 15.7 | 15.6 | 21.8 | 152.2 |
| 5795 | 74 | 18.3 | 18.4 | 18.3 | 17.9 | 24.2 | 266.1 |

| Modulation: 802.11ac VHT80 | | | | | | | |
|-----------------------------------|----------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------|-------------------------|
| Channel (MHz) | Power setting | Power Chain 0 (dBm) | Power Chain 1 (dBm) | Power Chain 2 (dBm) | Power Chain 3 (dBm) | Total Power (dBm) | Total Power (mW) |
| 5210 | 14 | 14 | 13.9 | 13.7 | 13.7 | 19.8 | 96.6 |
| 5290 | 14 | 13.9 | 13.8 | 13.9 | 13.5 | 19.8 | 95.5 |
| 5530 | 14 | 13.7 | 13.8 | 13.6 | 13.3 | 19.6 | 91.7 |
| 5610 | 14 | 13.6 | 13.7 | 13.6 | 13.3 | 19.6 | 90.6 |
| 5690 | 14 | 13.6 | 13.9 | 13.6 | 13.3 | 19.6 | 91.7 |
| 5775 | 61 | 14.8 | 14.4 | 14.2 | 14.6 | 20.5 | 112.9 |

13 Power spectral density

13.1 Definition

The power spectral density is the total energy output per unit bandwidth from a pulse or sequence of pulses for which the transmit power is at its maximum level, divided by the total duration of the pulses.

13.2 Test Parameters

| | |
|--|--|
| Test Location: | Element Hull |
| Test Chamber: | Wireless Lab 1 |
| Test Standard and Clause: | ANSI C63.10-2013, Clause 12.5, KDB 789033 D02, KDB 662911 D01 |
| EUT Channels / Frequencies Measured: | 36, 38, 42, 52, 54, 58, 100, 102, 106, 122, 124, 126, 138, 142, 144, 149, 151, 155, 159, 165 |
| EUT Channel Bandwidths: | 20 MHz / 40 MHz / 80 MHz |
| Deviations From Standard: | None |
| Measurement BW: | 1 MHz, 500 kHz |
| Spectrum Analyzer Video BW: (requirement at least 3x RBW) | 10 MHz, 5 MHz |
| Measurement Detector: | RMS |

Environmental Conditions (Normal Environment)

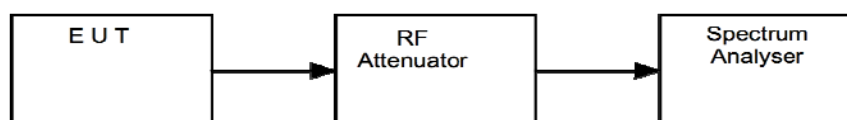
| | |
|--------------------|--------------------------------|
| Temperature: 21 °C | +15 °C to +35 °C (as declared) |
| Humidity: 41%RH | 20%RH to 75%RH (as declared) |
| Supply: 110 Vac | 110 Vac +/-10% (as declared) |

13.3 Test Method

With the EUT setup as per section 9 of this report and connected as per Figure v, the peak emission of the EUT was measured on a spectrum analyser, with path losses taken into account. The measurements were performed with EUT set at its maximum duty. All modulation schemes, data rates and power settings were used to observe the worst case configuration in each bandwidth.

Measurements were performed as per KDB KDB 662911 D01 Multiple Transmitter Output v02r012) In-Band Power Spectral Density (PSD) Measurements b) Measure and sum spectral maxima across the outputs.

Figure v Test Setup



13.4 Test Equipment

| <i>Equipment Description</i> | <i>Manufacturer</i> | <i>Equipment Type</i> | <i>Element No</i> | <i>Last Cal Calibration</i> | <i>Calibration Period</i> | <i>Due For Calibration</i> |
|------------------------------|---------------------|-----------------------|-------------------|-----------------------------|---------------------------|----------------------------|
| Spectrum Analyser | R&S | FSU26 | U405 | 11/05/2015 | 12 | 11/05/2016 |

Test Limits

For client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

| 802.11a/n/ac 20 MHz | | | | | | | | | |
|----------------------------|------|------|------|------|------|------|------|------|------|
| Frequency (MHz) | 5180 | 5260 | 5320 | 5500 | 5620 | 5720 | 5745 | 5785 | 5825 |
| Direction Gain of Antenna* | 9.4 | 9.5 | 9.8 | 9.9 | 10.2 | 10.0 | 10.0 | 9.8 | 9.8 |
| Exceeds 6 dBi ? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Exceeds 6 dBi by | 3.4 | 3.5 | 3.8 | 3.9 | 4.2 | 4.0 | 4.0 | 3.8 | 3.8 |
| Spec limit (dBm/MHz) | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 30.0 | 30.0 | 30.0 |
| Number Of Antennas | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Correlated Signals | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Limit (dBm) | 7.6 | 7.5 | 7.2 | 7.1 | 6.8 | 7.0 | 26.0 | 26.2 | 26.2 |

| 802.11n/ac 40 MHz | | | | | | | | | |
|----------------------------|------|------|------|------|------|------|------|------|--|
| Frequency (MHz) | 5190 | 5270 | 5310 | 5510 | 5630 | 5710 | 5755 | 5795 | |
| Direction Gain of Antenna* | 9.6 | 9.5 | 9.8 | 10.2 | 10.2 | 10.2 | 10.0 | 9.8 | |
| Exceeds 6 dBi ? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Exceeds 6 dBi by | 3.6 | 3.5 | 3.8 | 4.2 | 4.2 | 4.2 | 4.0 | 3.8 | |
| Spec limit (dBm/MHz) | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 30.0 | 30.0 | |
| Number Of Antennas | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Correlated Signals | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Limit (dBm) | 7.4 | 7.5 | 7.2 | 6.8 | 6.8 | 6.8 | 26.0 | 26.2 | |

| 802.11ac 80 MHz | | | | | | | |
|----------------------------|------|------|------|------|------|------|--|
| Frequency (MHz) | 5210 | 5290 | 5530 | 5610 | 5690 | 5775 | |
| Direction Gain of Antenna* | 9.6 | 9.8 | 10.3 | 10.2 | 10.3 | 10.0 | |
| Exceeds 6 dBi ? | Yes | Yes | Yes | Yes | Yes | Yes | |
| Exceeds 6 dBi by | 3.6 | 3.8 | 4.3 | 4.2 | 4.3 | 4.0 | |
| Spec limit (dBm/MHz) | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 30.0 | |
| Number Of Antennas | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Correlated Signals | Yes | Yes | Yes | Yes | Yes | Yes | |
| Limit (dBm) | 7.4 | 7.2 | 6.7 | 6.8 | 6.7 | 26.0 | |

* Directional Gain of antenna Calculated as per KDB 662911 D01 Multiple Transmitter Output v02r01
 Directional gain = $10 \log [(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}]$ dBi

13.5 Test Results

| Modulation: 802.11a | | | | | | |
|----------------------------|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------|
| Channel (MHz) | Power setting | PSD Chain 0 (dBm) | PSD Chain 1 (dBm) | PSD Chain 2 (dBm) | PSD Chain 3 (dBm) | Total PSD (dBm) |
| 5180 | 12 | 0.70 | 0.77 | 0.62 | 0.41 | 6.65 |
| 5260 | 12 | 1.09 | 0.53 | 1.07 | 0.93 | 6.93 |
| 5320 | 12 | 0.62 | 0.13 | 0.69 | 0.49 | 6.51 |
| 5500 | 12 | 0.41 | 0.19 | 0.52 | 0.37 | 6.39 |
| 5620 | 12 | 0.13 | -0.03 | 0.51 | 0.29 | 6.25 |
| 5720 | 12 | 0.23 | 0.12 | 0.70 | 0.41 | 6.39 |
| 5745 | 73 | 3.86 | 4.08 | 3.64 | 3.06 | 9.70 |
| 5785 | 73 | 3.63 | 3.73 | 3.55 | 3.10 | 9.53 |
| 5825 | 69 | 2.93 | 2.83 | 2.95 | 2.59 | 8.85 |

| Modulation: 802.11n HT20 | | | | | | |
|---------------------------------|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------|
| Channel (MHz) | Power setting | PSD Chain 0 (dBm) | PSD Chain 1 (dBm) | PSD Chain 2 (dBm) | PSD Chain 3 (dBm) | Total PSD (dBm) |
| 5180 | 13 | 1.23 | 1.32 | 1.11 | 0.85 | 7.15 |
| 5260 | 13 | 1.42 | 0.91 | 1.39 | 1.33 | 7.29 |
| 5320 | 13 | 1.31 | 0.76 | 1.4 | 1.16 | 7.18 |
| 5500 | 13 | 0.92 | 0.75 | 0.94 | 0.83 | 6.88 |
| 5620 | 13 | 0.23 | 0.33 | 0.8 | 0.84 | 6.58 |
| 5720 | 13 | 0.51 | 0.5 | 1.13 | 0.84 | 6.77 |
| 5745 | 71 | 3.58 | 3.79 | 3.33 | 2.79 | 9.41 |
| 5785 | 73 | 3.94 | 3.58 | 3.89 | 3.5 | 9.75 |
| 5825 | 69 | 3.01 | 2.85 | 2.81 | 2.48 | 8.81 |

| Modulation: 802.11n HT40 | | | | | | |
|---------------------------------|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------|
| Channel (MHz) | Power setting | PSD Chain 0 (dBm) | PSD Chain 1 (dBm) | PSD Chain 2 (dBm) | PSD Chain 3 (dBm) | Total PSD (dBm) |
| 5190 | 14 | 0.19 | 0.26 | 0.00 | -0.44 | 6.03 |
| 5270 | 14 | 0.13 | 0.04 | -0.25 | -0.37 | 5.91 |
| 5310 | 14 | -0.15 | -0.15 | -0.22 | -0.69 | 5.72 |
| 5510 | 14 | -0.37 | -0.46 | -0.58 | -0.83 | 5.46 |
| 5630 | 14 | -0.75 | -0.46 | -0.91 | -1.37 | 5.16 |
| 5710 | 14 | -0.66 | -0.31 | -0.92 | -1.50 | 5.19 |
| 5755 | 65 | -0.71 | -1.03 | -0.96 | -1.19 | 5.05 |
| 5795 | 74 | 2.00 | 1.92 | 1.61 | 1.76 | 7.85 |

| Modulation: 802.11ac VHT20 | | | | | | |
|-----------------------------------|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------|
| Channel (MHz) | Power setting | PSD Chain 0 (dBm) | PSD Chain 1 (dBm) | PSD Chain 2 (dBm) | PSD Chain 3 (dBm) | Total PSD (dBm) |
| 5180 | 13 | 0.67 | 1.33 | 0.94 | 0.63 | 6.92 |
| 5260 | 13 | 1.12 | 0.62 | 1.12 | 0.87 | 6.96 |
| 5320 | 13 | 0.94 | 0.70 | 1.64 | 1.15 | 7.14 |
| 5500 | 12 | 0.48 | 0.15 | 0.25 | 0.31 | 6.32 |
| 5620 | 12 | -0.08 | -0.15 | 0.36 | -0.16 | 6.02 |
| 5720 | 12 | 0.27 | -0.24 | 0.41 | -0.45 | 6.03 |
| 5745 | 74 | 3.75 | 3.43 | 3.34 | 3.21 | 9.46 |
| 5785 | 73 | 3.65 | 3.96 | 3.61 | 3.78 | 9.77 |
| 5825 | 69 | 2.96 | 2.90 | 2.49 | 2.85 | 8.82 |

| Modulation: 802.11ac VHT40 | | | | | | |
|-----------------------------------|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------|
| Channel (MHz) | Power setting | PSD Chain 0 (dBm) | PSD Chain 1 (dBm) | PSD Chain 2 (dBm) | PSD Chain 3 (dBm) | Total PSD (dBm) |
| 5190 | 14 | 0.45 | 0.45 | 0.26 | -0.24 | 6.26 |
| 5270 | 14 | 0.44 | 0.18 | -0.07 | -0.45 | 6.06 |
| 5310 | 14 | 0.07 | 0.21 | -0.26 | -0.69 | 5.87 |
| 5510 | 13 | -1.36 | -1.12 | -1.54 | -1.71 | 4.59 |
| 5630 | 13 | -1.39 | -1.35 | -1.97 | -2.13 | 4.32 |
| 5710 | 13 | -1.69 | -1.46 | -2.03 | -2.24 | 4.18 |
| 5755 | 65 | -0.24 | -1.03 | -1.17 | -1.32 | 5.10 |
| 5795 | 74 | 1.83 | 1.76 | 1.81 | 1.98 | 7.87 |

| Modulation: 802.11ac VHT80 | | | | | | |
|-----------------------------------|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------|
| Channel (MHz) | Power setting | PSD Chain 0 (dBm) | PSD Chain 1 (dBm) | PSD Chain 2 (dBm) | PSD Chain 3 (dBm) | Total PSD (dBm) |
| 5210 | 14 | -1.52 | -1.40 | -1.69 | -1.83 | 4.41 |
| 5290 | 14 | -2.58 | -2.99 | -3.02 | -3.00 | 3.13 |
| 5530 | 14 | -2.70 | -3.04 | -3.49 | -3.28 | 2.90 |
| 5610 | 14 | -3.21 | -3.09 | -3.52 | -3.65 | 2.66 |
| 5690 | 14 | -3.29 | -3.12 | -3.34 | -3.96 | 2.60 |
| 5775 | 61 | -4.10 | 3.97 | -4.39 | -4.77 | 5.54 |

14 Radiated emissions

14.1 Definitions

Spurious emissions

Emissions on a frequency or frequencies, which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

Restricted bands

A frequency band in which intentional radiators are permitted to radiate only spurious emissions but not fundamental signals.

14.2 Test Parameters

| | |
|--------------------------------------|--|
| Test Location: | Element Hull |
| Test Chamber: | REF886 |
| Test Standard and Clause: | ANSI C63.10-2013, Clause 6.5 and 6.6, Clause 12.7.3 |
| EUT Channels / Frequencies Measured: | 36, 38, 42, 52, 54, 58, 100, 102, 106, 122, 124, 126, 138, 142, 144, 149, 151, 155, 159, 165 |
| EUT Channel Bandwidths: | 20 MHz / 40 MHz / 80 MHz |
| Deviations From Standard: | None |
| Measurement BW: | 30 MHz to 1 GHz: 120 kHz Above 1 GHz: 1 MHz |
| Measurement Detector: | Up to 1 GHz: quasi-peak Above 1 GHz: RMS average and Peak |

Environmental Conditions (Normal Environment)

| | |
|--------------------|--------------------------------|
| Temperature: 23 °C | +15 °C to +35 °C (as declared) |
| Humidity: 42 %RH | 20%RH to 75%RH (as declared) |
| Supply: 110 Vac | 110Vac +/-10% (as declared) |

Test Limits

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 e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.25–5.35 GHz band: All emissions outside of the 5.15–5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.47–5.725 GHz band: All emissions outside of the 5.47–5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.725–5.85 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 e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

Where regulatory limits are defined as EIRP in dBm/MHz limits are converted to field strength values as per ANSI C63.10

| Operating Band (GHz) | EIRP Limit (dBm / MHz) | Field Strength Limit (dB μ V/m@ 3m) |
|----------------------|------------------------|---|
| 5.15–5.35 GHz | -27 dBm/MHz | 68.2 dB μ V/m |
| 5.47–5.725 GHz | -27 dBm/MHz | 68.2 dB μ V/m |
| 5.725–5.825 GHz | -17 dBm/MHz | 78.2 dB μ V/m |
| | -27 dBm/MHz | 68.2 dB μ V/m |

Unwanted emissions that fall within the restricted frequency bands shall comply with the limits specified below:

General Field Strength Limits for License-Exempt Transmitters at Frequencies Above 30 MHz

| Frequency (MHz) | Field Strength (μ V/m at 3m) |
|-----------------|-----------------------------------|
| 30-88 | 100 |
| 88-216 | 150 |
| 216-960 | 200 |
| Above 960 | 500 |

14.3 Test Method

With the EUT setup as per section 9 of this report and connected as per Figure i, the emissions from the EUT were measured on a spectrum analyzer / EMI receiver.

Radiated electromagnetic emissions from the EUT are checked first by preview scans. Preview scans for all spectrum and modulation characteristics are checked, using a peak detector and where applicable worst-case determined for function, operation, orientation, etc. for both vertical and horizontal polarisations. Pre-scan plots are shown with a peak detector and 100kHz RBW.

If the EUT connects to auxiliary equipment and is table or floor standing, the configurations prescribed in ANSI C63.10 are followed. Alternatively, a layout closest to normal use (as declared by the provider) is employed, (see EUT setup photographs for more detail).

Emissions between 30 MHz and 1 GHz are measured using calibrated broadband antennas. Emissions above 1 GHz are characterized using standard gain horn antennas. Pre-amplifiers and filters are used where required. Care is taken to ensure that test receiver resolution bandwidth, video bandwidth and detector type(s) meet the regulatory requirements.

For both horizontal and vertical polarizations, the EUT is then rotated through 360 degrees in azimuth until the highest emission is detected. At the previously determined azimuth the test antenna is raised and lowered from 1 to 4 m in height until a maximum emission level is detected, this maximum value is recorded.

Power values measured on the test receiver / analyzer are converted to field strength, FS, in dB μ V/m at the regulatory distance, using:

$$FS = PR + CL + AF - PA + DC - CF$$

Where,

PR is the power recorded on the receiver / spectrum analyzer in dB μ V;

CL is the cable loss in dB;

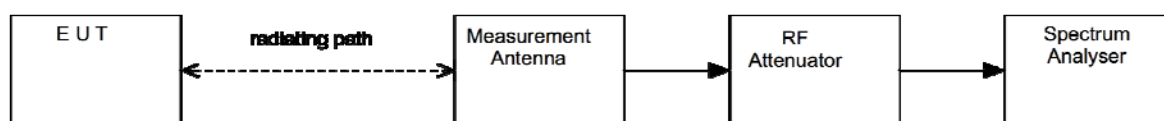
AF is the test antenna factor in dB/m;

PA is the pre-amplifier gain in dB (where used);

DC is the duty correction factor in dB (where used, e.g. where average detector on pulsed harmonic understates the power);

CF is the distance factor in dB (where measurement distances different to limit distance);

This field strength value is then compared with the regulatory limit.

Figure i Test Setup**Beam forming**

For 802.11ac mode, the beamforming procedure of C63.10 Section 13 was performed to establish the worst case beam orientation. The combination $(\theta, \Phi) = (0^\circ, 30^\circ)$ was determined as the worst case, and all bandedge and spurious emission testing was performed using this combination.

14.4 Test Equipment

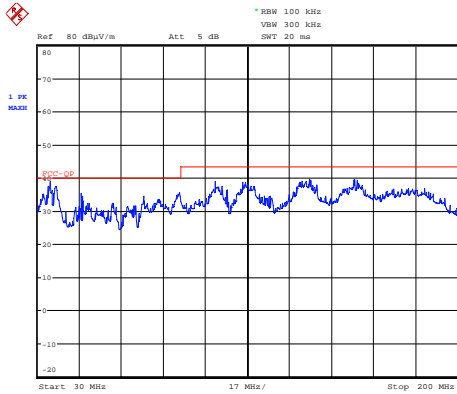
| <i>Equipment Description</i> | <i>Manufacturer</i> | <i>Equipment Type</i> | <i>Element No</i> | <i>Last Cal Calibration</i> | <i>Calibration Period</i> | <i>Due For Calibration</i> |
|-------------------------------------|---------------------|-----------------------|-------------------|-----------------------------|---------------------------|----------------------------|
| Ferrite Lined Chamber | Rainford | ATS | REF886 | 21/07/2014 | 24 | 21/07/2016 |
| Biconical Antenna | EMCO | 3109 | RFG095 | 09/05/2013 | 36 | 09/05/2016 |
| Log Periodic Antenna | EMCO | 3146 | RFG191 | 09/05/2013 | 36 | 09/05/2016 |
| Horn Antenna | EMCO | 3115 | RFG129 | 09/02/2016 | 24 | 09/02/2018 |
| Horn Antenna | Q-Par | 0 | RFG629 | 30/09/2015 | 24 | 30/09/2017 |
| Horn Antenna | Flan | 0 | REF821 | Note1 | | |
| Pre-Amp (9kHz – 1GHz) | Sonoma | 310 | REF927 | 01/07/2014 | 24 | 01/07/2016 |
| Pre-Amp (1 – 26.5GHz) | Agilent | 8449B | REF913 | 02/02/2016 | 24 | 02/02/2018 |
| EMI Test Receiver | R&S | ESVS20 | RFG126 | 17/04/2015 | 12 | 17/04/2016 |
| Spectrum Analyser | R&S | FSU46 | REF910 | 28/05/2015 | 12 | 28/05/2016 |
| Band Stop Filter (5.15 - 5.35 GHz) | BSC | SN4832 | REF841 | Cal before use | | |
| Band Stop Filter (5.47 - 5.725 GHz) | BSC | SN 4833 | REF842 | Cal before use | | |
| Band Stop Filter (5.725 - 5.85 GHz) | BSC | SN 4834 | REF843 | Cal before use | | |

Note1: ANSI C63.10 - 4.4.3 a) Antenna calibration

Standard gain horns need not be periodically recalibrated, unless damage or deterioration is suspected or known to have occurred. If a standard gain horn is not periodically recalibrated, then its critical dimensions (see IEEE Std 1309-2005) shall be verified and documented on an annual basis.

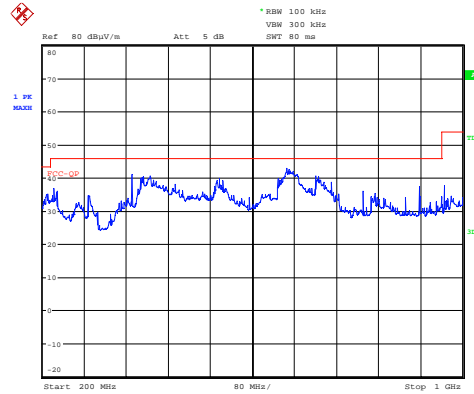
14.5 Test Results

| Modulation: 802.11a – 5180 MHz | | | | | | | | | |
|--------------------------------|-------------|------------------------|-----------------|-----------------------|-------------------|-------------------------------|-------------------------|-----------------------|--------------|
| Detector | Freq. (MHz) | Meas'd Emission (dBμV) | Cable Loss (dB) | Antenna Factor (dB/m) | Pre-amp Gain (dB) | Distance Extrap'n Factor (dB) | Field Strength (dBμV/m) | Field Strength (μV/m) | Limit (μV/m) |
| PK | 5755.6 | 53.7 | 9.7 | 34.1 | 34.5 | -9.5 | 53.5 | 473.2 | 2582.3 |
| PK | 6906.7 | 52.6 | 10.9 | 35.8 | 34.7 | -9.5 | 55.1 | 568.9 | 2582.3 |



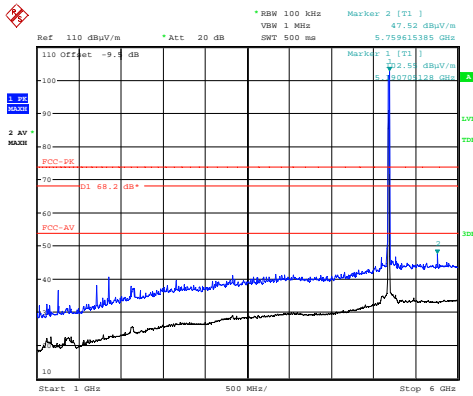
Date: 11.MAY.2016 08:42:32

30 MHz – 200 MHz



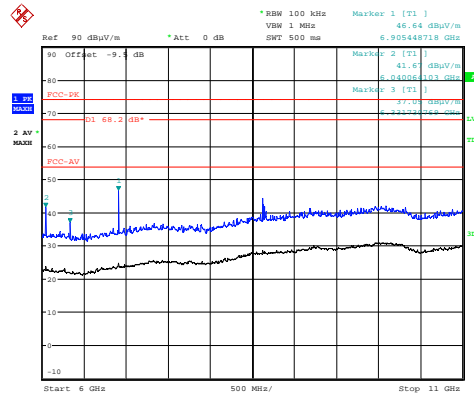
Date: 10.MAY.2016 13:56:17

200 MHz – 1 GHz



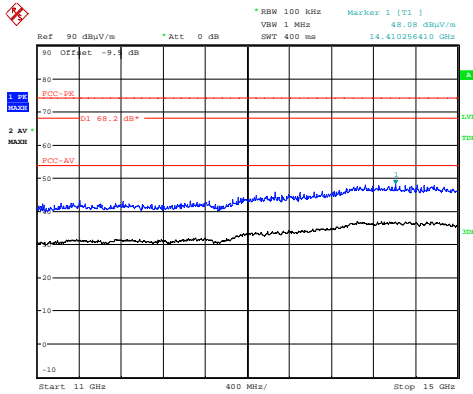
Date: 1.MAY.2016 13:55:57

1 GHz – 6 GHz



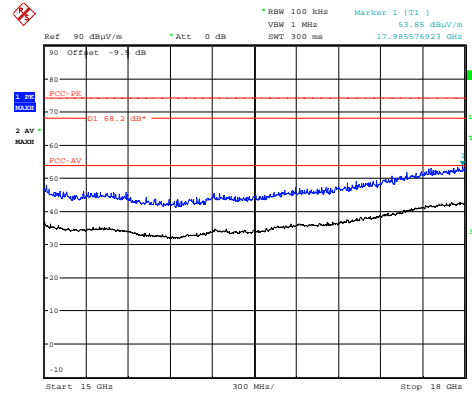
Date: 1.MAY.2016 17:18:33

6 GHz – 11 GHz



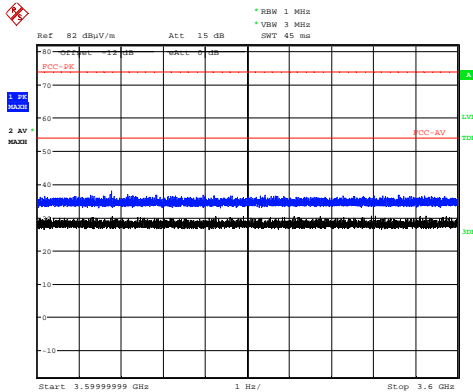
Date: 1.MAY.2016 17:13:31

11 GHz – 15 GHz



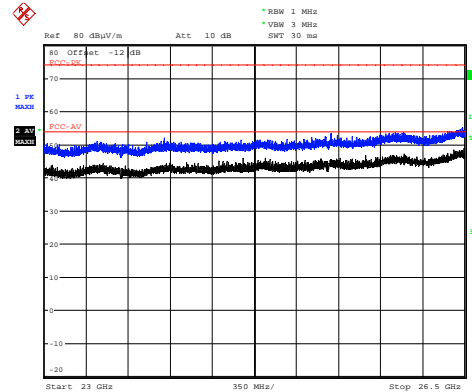
Date: 1.MAY.2016 16:30:12

15 GHz – 18 GHz



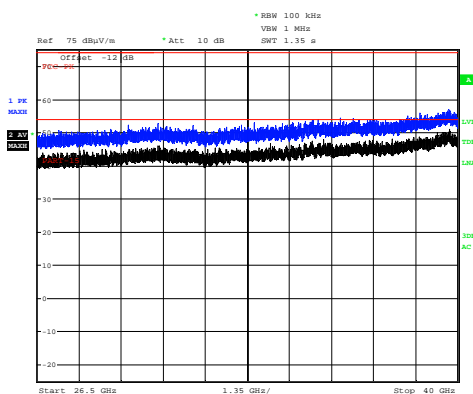
Date: 9.MAY.2016 11:52:51

18 GHz – 23 GHz



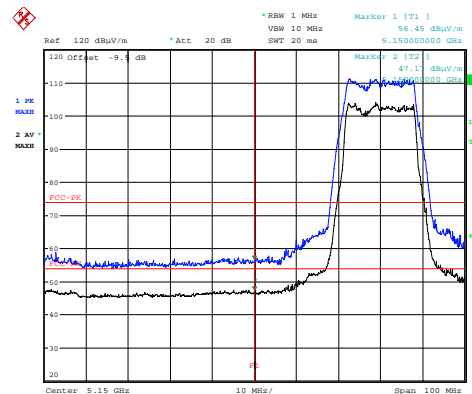
Date: 9.MAY.2016 12:37:51

23 GHz – 26.5 GHz



Date: 26.MAY.2003 09:47:14

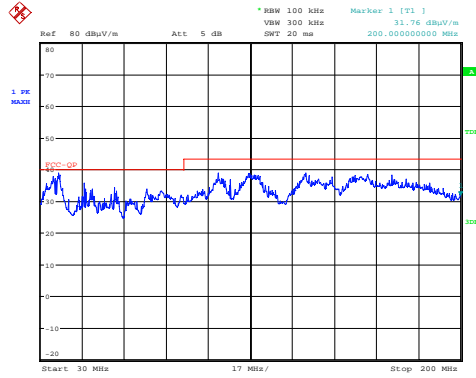
26.5 GHz – 40 GHz



Date: 29.APR.2016 11:10:19

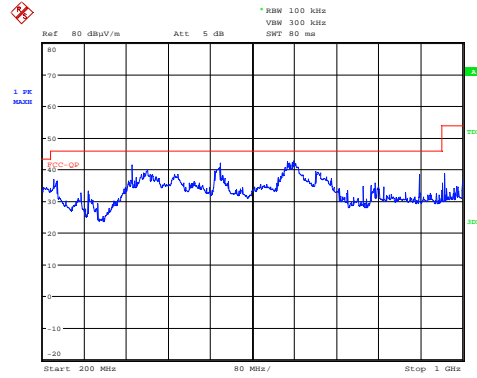
Bandedge

| Modulation: 802.11a – 5260 MHz | | | | | | | | | |
|--------------------------------|-------------|------------------------|-----------------|-----------------------|-------------------|-------------------------------|-------------------------|-----------------------|--------------|
| Detector | Freq. (MHz) | Meas'd Emission (dBμV) | Cable Loss (dB) | Antenna Factor (dB/m) | Pre-amp Gain (dB) | Distance Extrap'n Factor (dB) | Field Strength (dBμV/m) | Field Strength (μV/m) | Limit (μV/m) |
| PK | 5844.4 | 52.3 | 9.8 | 34.1 | 34.5 | -9.5 | 52.2 | 407.4 | 2582.3 |
| PK | 7013.4 | 52.9 | 11.1 | 36.0 | 34.7 | -9.5 | 55.7 | 609.5 | 2582.3 |



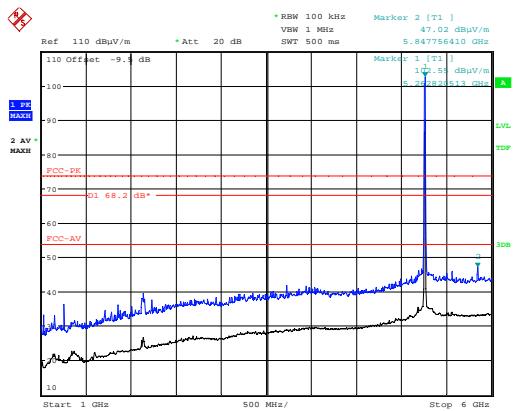
Date: 11.MAY.2016 08:47:31

30 MHz – 200 MHz



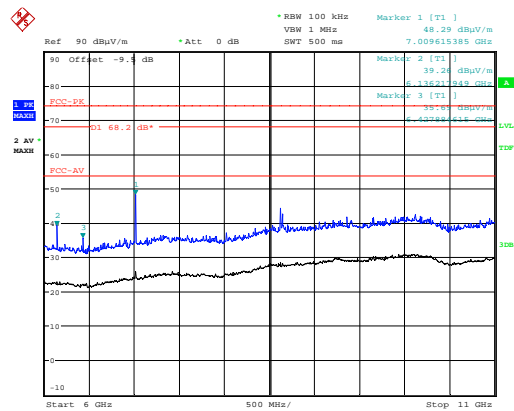
Date: 10.MAY.2016 14:00:03

200 MHz – 1 GHz



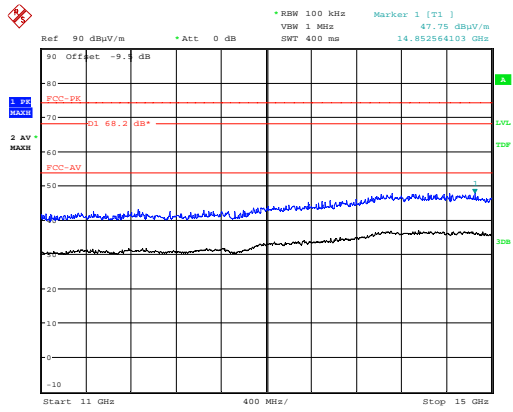
Date: 1.MAY.2016 13:58:17

1 GHz – 6 GHz



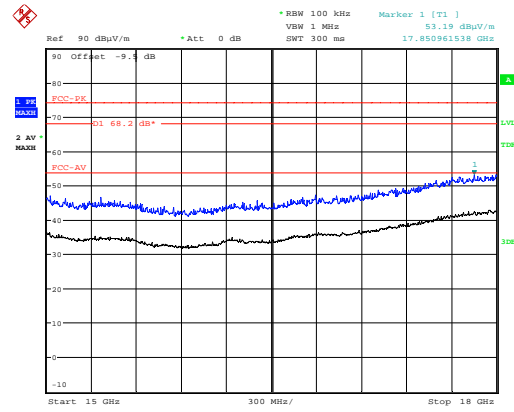
Date: 1.MAY.2016 17:22:31

6 GHz – 11 GHz



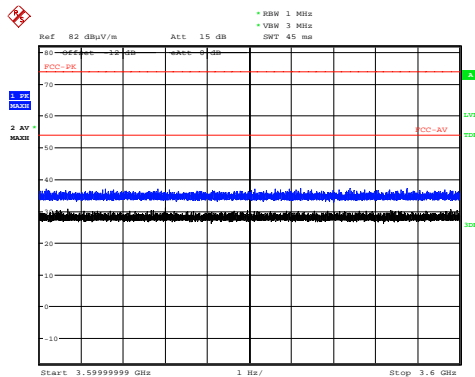
Date: 1.MAY.2016 17:10:49

11 GHz – 15 GHz



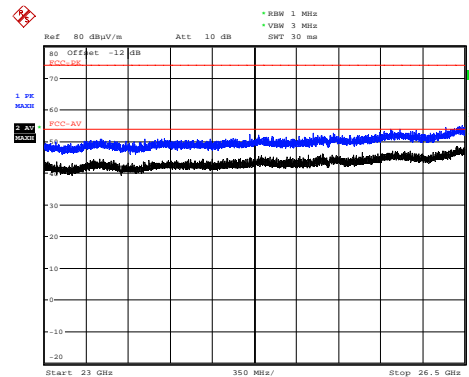
Date: 1.MAY.2016 16:32:22

15 GHz – 18 GHz



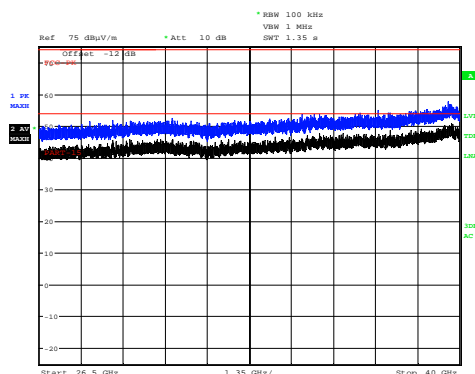
Date: 9.MAY.2016 11:55:40

18 GHz – 23 GHz



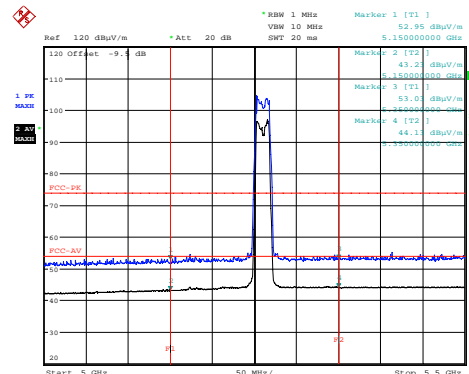
Date: 9.MAY.2016 12:35:20

23 GHz – 26.5 GHz



Date: 26.MAY.2003 09:51:01

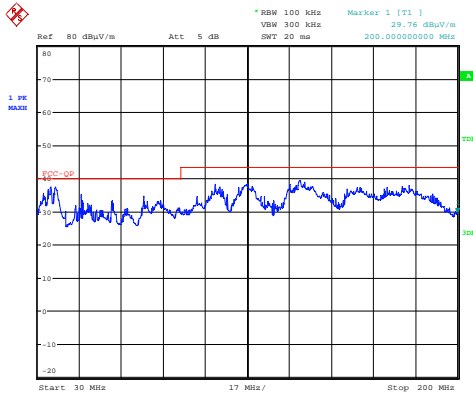
26.5 GHz – 40 GHz



Date: 16.APR.2016 17:10:38

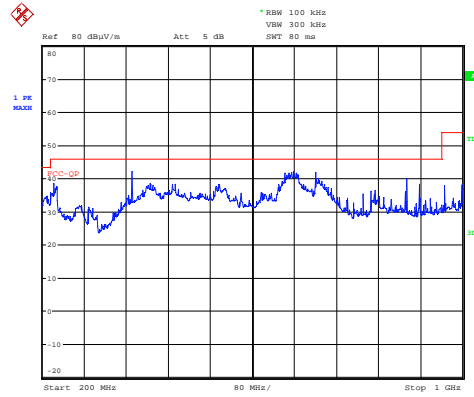
Bandedge

| Modulation: 802.11a – 5320 MHz | | | | | | | | | |
|--------------------------------|-------------|------------------------|-----------------|-----------------------|-------------------|-------------------------------|-------------------------|-----------------------|--------------|
| Detector | Freq. (MHz) | Meas'd Emission (dBμV) | Cable Loss (dB) | Antenna Factor (dB/m) | Pre-amp Gain (dB) | Distance Extrap'n Factor (dB) | Field Strength (dBμV/m) | Field Strength (μV/m) | Limit (μV/m) |
| PK | 5911.2 | 53.2 | 9.8 | 34.2 | 34.5 | -9.5 | 53.1 | 451.9 | 2582.3 |
| PK | 7093.3 | 52.5 | 11.0 | 36.1 | 34.8 | -9.5 | 55.3 | 582.1 | 2582.3 |



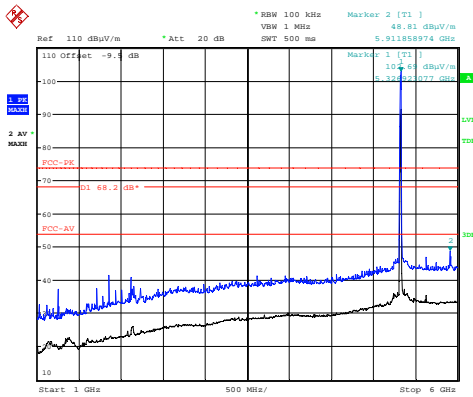
Date: 11.MAY.2016 08:50:13

30 MHz – 200 MHz



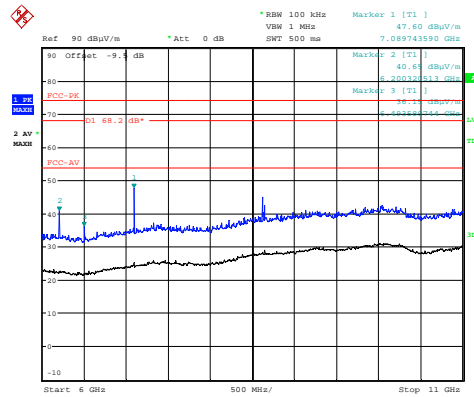
Date: 10.MAY.2016 14:02:31

200 MHz – 1 GHz



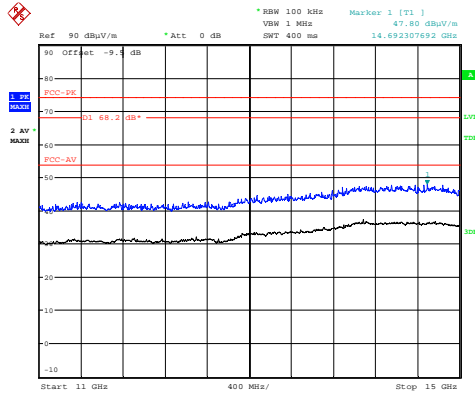
Date: 1.MAY.2016 14:00:02

1 GHz – 6 GHz



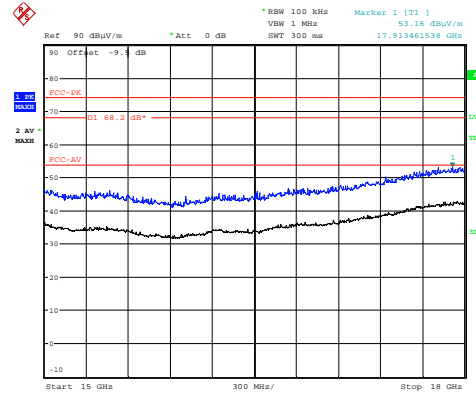
Date: 1.MAY.2016 17:25:02

6 GHz – 11 GHz



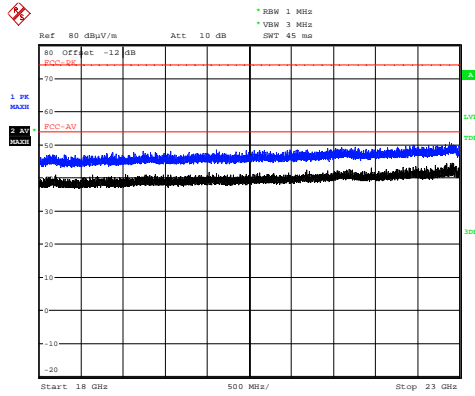
Date: 1.MAY.2016 17:09:11

11 GHz – 15 GHz



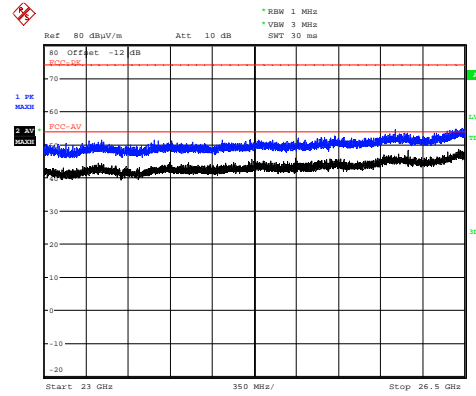
Date: 1.MAY.2016 16:33:51

15 GHz – 18 GHz



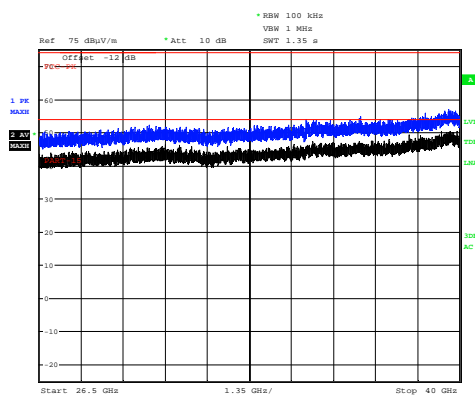
Date: 9.MAY.2016 12:01:28

18 GHz – 23 GHz



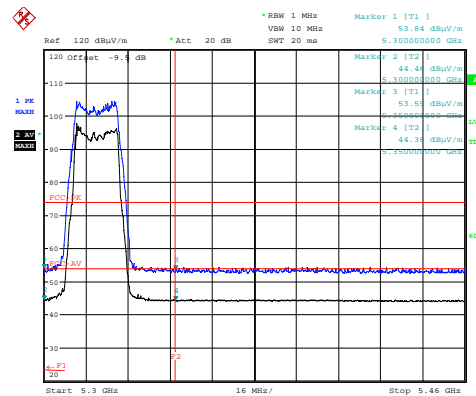
Date: 9.MAY.2016 12:33:28

23 GHz – 26.5 GHz



Date: 26.MAY.2003 09:54:36

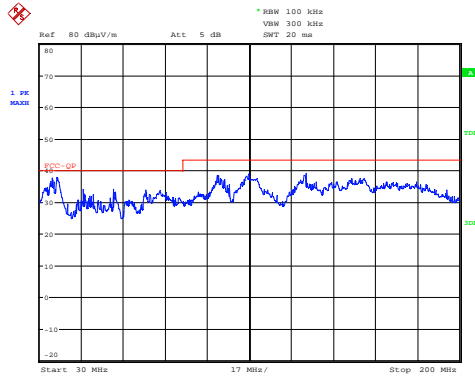
26.5 GHz – 40 GHz



Date: 16.APR.2016 17:21:44

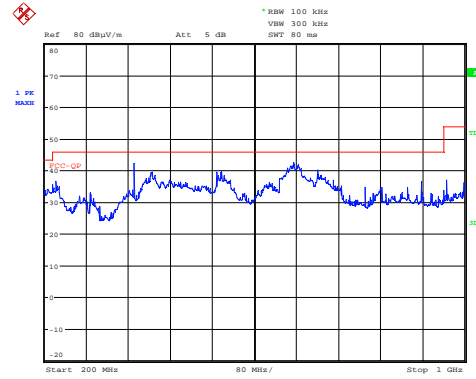
Bandedge

| Modulation: 802.11a – 5500 MHz | | | | | | | | | |
|--------------------------------|-------------|------------------------|-----------------|-----------------------|-------------------|-------------------------------|-------------------------|-----------------------|--------------|
| Detector | Freq. (MHz) | Meas'd Emission (dBμV) | Cable Loss (dB) | Antenna Factor (dB/m) | Pre-amp Gain (dB) | Distance Extrap'n Factor (dB) | Field Strength (dBμV/m) | Field Strength (μV/m) | Limit (μV/m) |
| PK | 6187.5 | 50.1 | 10.2 | 34.8 | 34.5 | -9.5 | 51.1 | 358.9 | 2582.3 |
| PK | 7333.5 | 50.5 | 11.3 | 37.0 | 34.8 | -9.5 | 54.5 | 530.9 | 5000.0 |
| AV | 7333.5 | 46.6 | 11.3 | 37.0 | 34.8 | -9.5 | 50.6 | 338.8 | 500.0 |



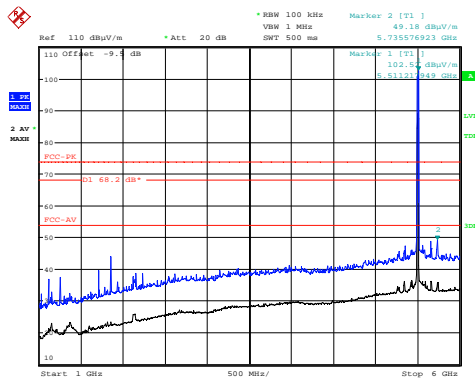
Date: 11.MAY.2016 08:52:20

30 MHz – 200 MHz



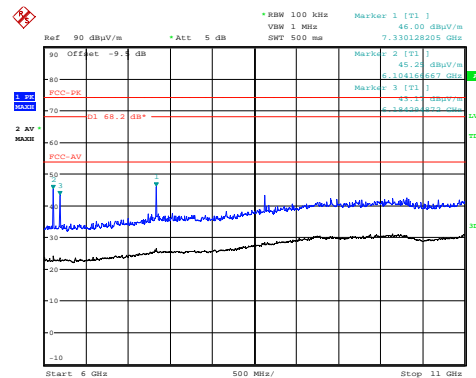
Date: 10.MAY.2016 14:14:33

200 MHz – 1 GHz



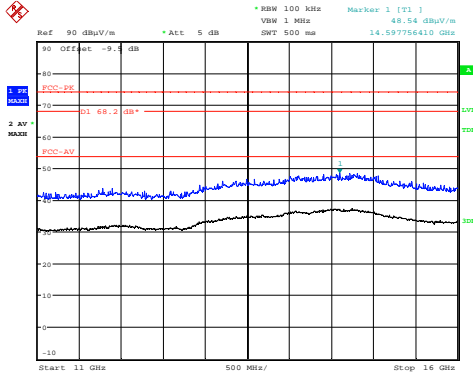
Date: 1.MAY.2016 14:02:05

1 GHz – 6 GHz



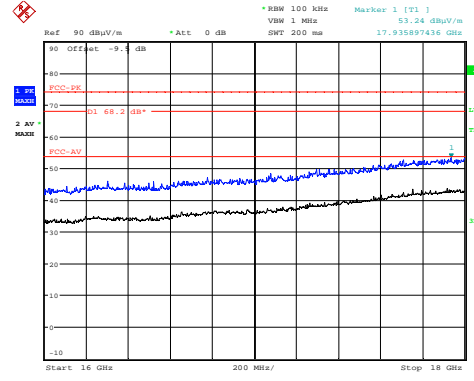
Date: 1.MAY.2016 15:04:09

6 GHz – 11 GHz



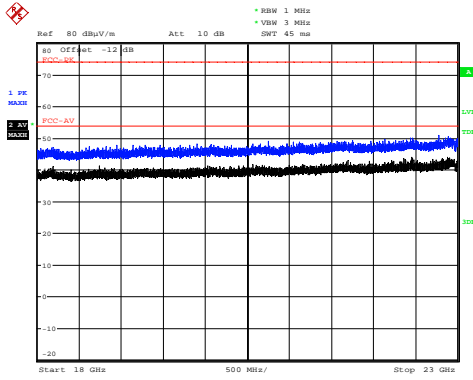
Date: 1.MAY.2016 15:21:20

11 GHz – 16 GHz



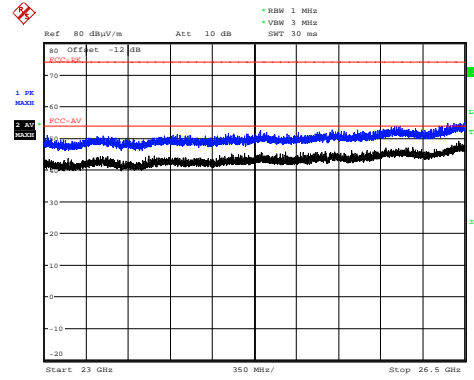
Date: 1.MAY.2016 16:20:57

16 GHz – 18 GHz



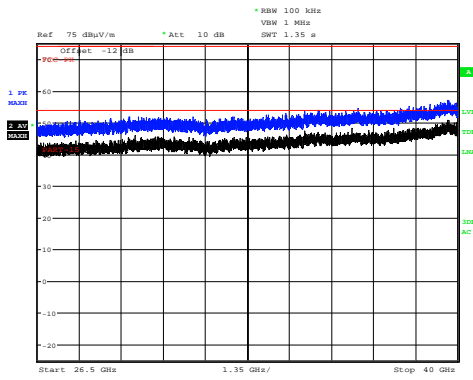
Date: 9.MAY.2016 12:06:53

18 GHz – 23 GHz



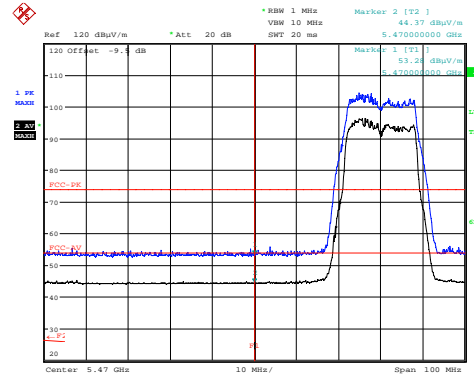
Date: 9.MAY.2016 12:31:39

23 GHz – 26.5 GHz



Date: 26.MAY.2003 09:58:43

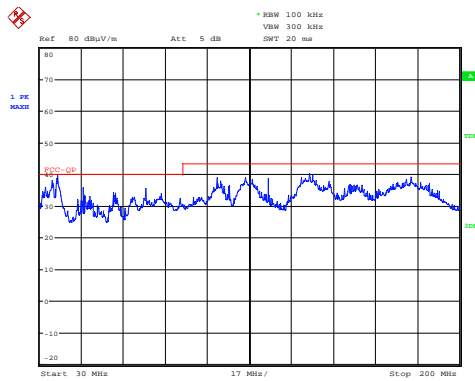
26.5 GHz – 40 GHz



Date: 16.APR.2016 17:31:36

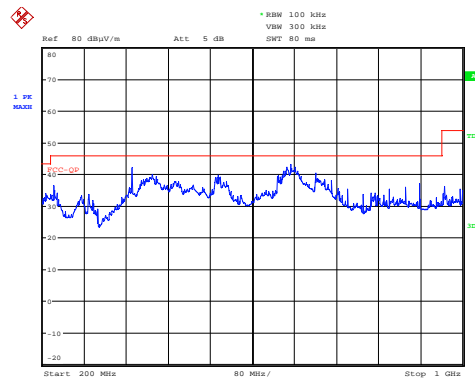
Bandedge

| Modulation: 802.11a – 5620 MHz | | | | | | | | | |
|--------------------------------|-------------|------------------------|-----------------|-----------------------|-------------------|-------------------------------|-------------------------|-----------------------|--------------|
| Detector | Freq. (MHz) | Meas'd Emission (dBμV) | Cable Loss (dB) | Antenna Factor (dB/m) | Pre-amp Gain (dB) | Distance Extrap'n Factor (dB) | Field Strength (dBμV/m) | Field Strength (μV/m) | Limit (μV/m) |
| PK | 5856.3 | 53.2 | 9.6 | 34.1 | 34.5 | -9.5 | 52.9 | 441.6 | 2582.3 |
| PK | 6085.9 | 49.0 | 10.2 | 34.7 | 34.5 | -9.5 | 49.8 | 309.0 | 2582.3 |
| PK | 7493.4 | 51.3 | 11.5 | 37.0 | 34.9 | -9.5 | 55.4 | 588.8 | 5000.0 |
| AV | 7493.4 | 47.7 | 11.5 | 37.0 | 34.9 | -9.5 | 51.9 | 393.6 | 500.0 |



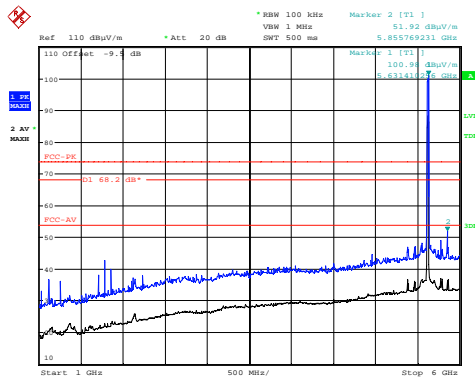
Date: 11.MAY.2016 08:54:19

30 MHz – 200 MHz



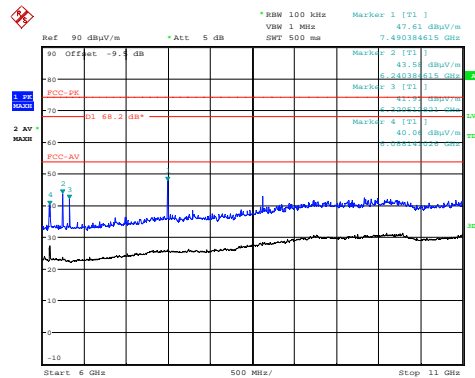
Date: 10.MAY.2016 14:17:09

200 MHz – 1 GHz



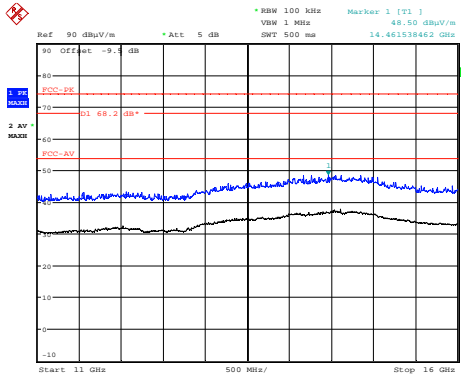
Date: 1.MAY.2016 14:03:43

1 GHz – 6 GHz



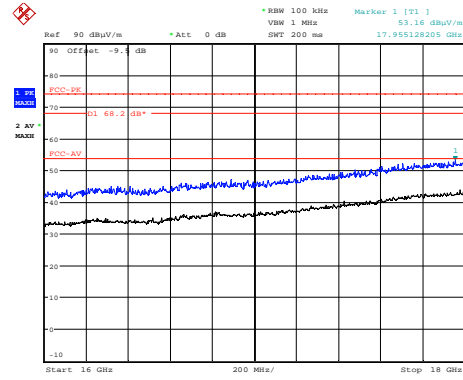
Date: 1.MAY.2016 14:59:52

6 GHz – 11 GHz



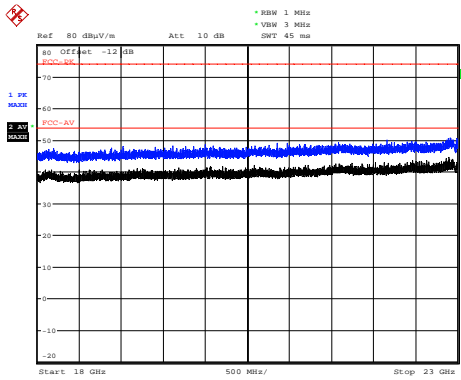
Date: 1.MAY.2016 15:23:00

11 GHz – 16 GHz



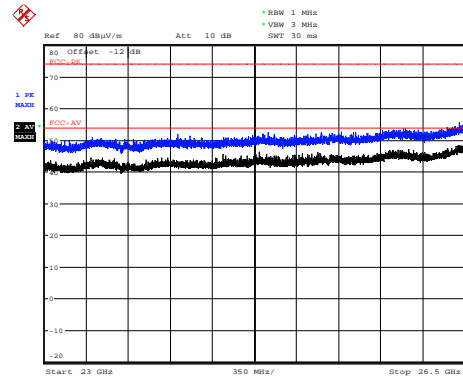
Date: 1.MAY.2016 16:18:17

16 GHz – 18 GHz



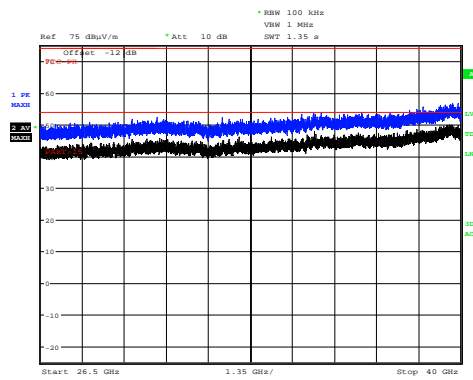
Date: 9.MAY.2016 12:09:04

18 GHz – 23 GHz



Date: 9.MAY.2016 12:29:38

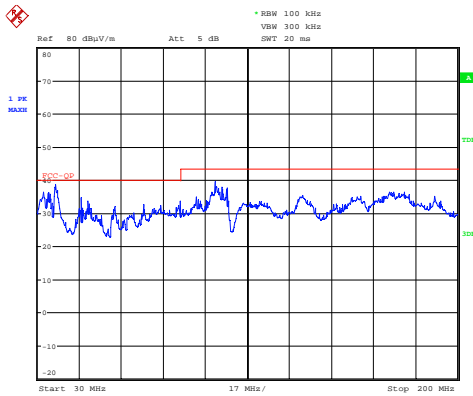
23 GHz – 26.5 GHz



Date: 26.MAY.2003 10:01:31

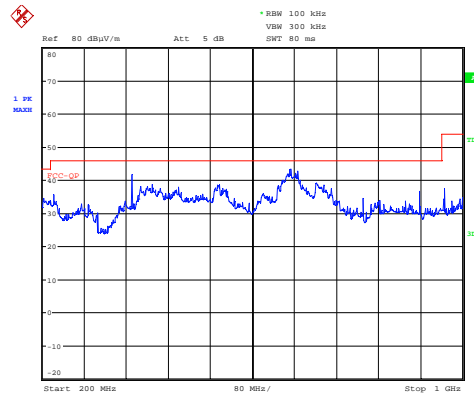
26.5 GHz – 40 GHz

| Modulation: 802.11a – 5720 MHz | | | | | | | | | |
|--------------------------------|-------------|------------------------|-----------------|-----------------------|-------------------|-------------------------------|-------------------------|-----------------------|--------------|
| Detector | Freq. (MHz) | Meas'd Emission (dBμV) | Cable Loss (dB) | Antenna Factor (dB/m) | Pre-amp Gain (dB) | Distance Extrap'n Factor (dB) | Field Strength (dBμV/m) | Field Strength (μV/m) | Limit (μV/m) |
| PK | 5875.4 | 54.6 | 9.6 | 34.1 | 34.5 | -9.5 | 54.3 | 518.8 | 2582.3 |
| PK | 5964.6 | 54.3 | 9.9 | 34.4 | 34.5 | -9.5 | 54.6 | 537.0 | 2582.3 |
| PK | 7626.8 | 50.8 | 11.7 | 36.9 | 34.9 | -9.5 | 55.0 | 562.3 | 5000.0 |
| AV | 7626.8 | 47.3 | 11.7 | 36.9 | 34.9 | -9.5 | 51.5 | 375.8 | 500.0 |



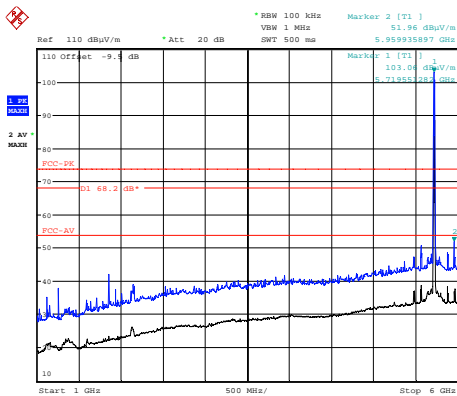
Date: 11.MAY.2016 09:10:49

30 MHz – 200 MHz



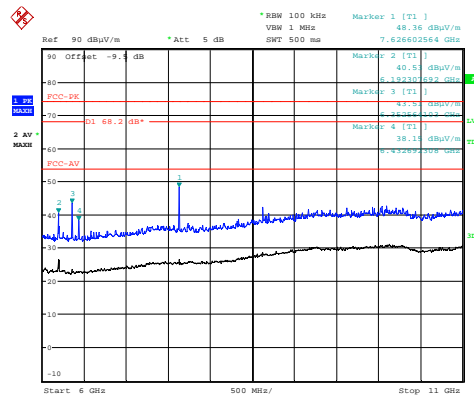
Date: 10.MAY.2016 14:19:32

200 MHz – 1 GHz



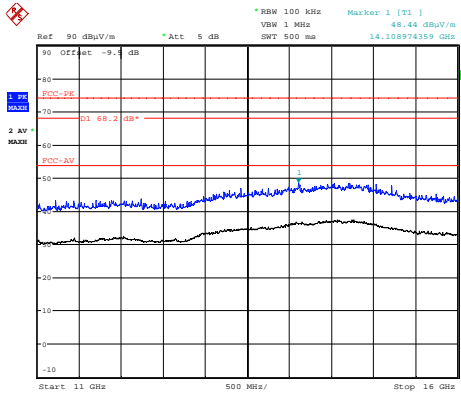
Date: 1.MAY.2016 14:05:31

1 GHz – 6 GHz



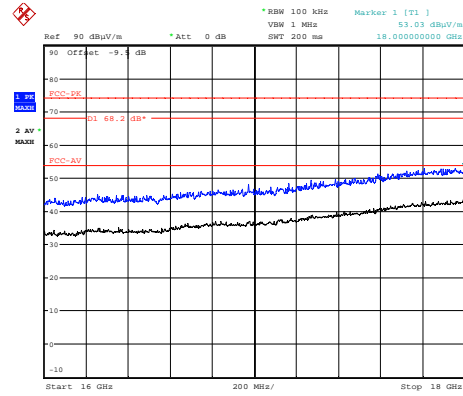
Date: 1.MAY.2016 14:57:42

6 GHz – 11 GHz



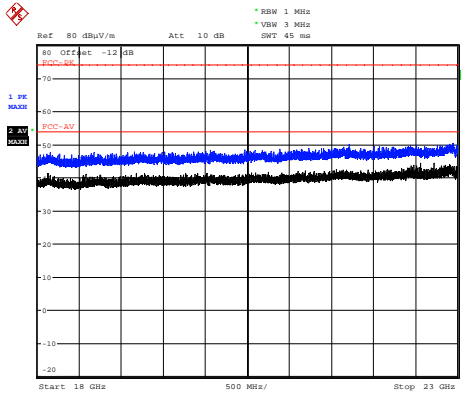
Date: 1.MAY.2016 15:24:38

11 GHz – 15 GHz



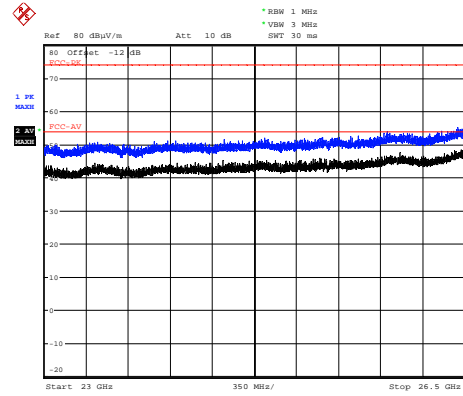
Date: 1.MAY.2016 16:16:56

15 GHz – 18 GHz



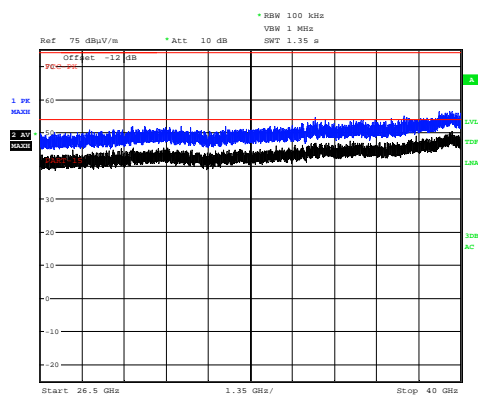
Date: 9.MAY.2016 12:11:19

18 GHz – 23 GHz



Date: 9.MAY.2016 12:27:41

23 GHz – 26.5 GHz



Date: 26.MAY.2003 10:03:36

26.5 GHz – 40 GHz