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Test Report

Spurious Emissions

AIR-AP1572xxx-x-K9

FCC ID: LDK102093P IC: 2461B-102093P

5.150 - 5.850 MHz

Against the following Specifications: CFR47 Part 15

Cisco Systems 170 West Tasman Drive San Jose, CA 95134

Engineer: Bud dille

Date: 11-3-2014

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cisco

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Section 1: Overview

1.1 Test Summary

The samples were assessed against the tests detailed in section 3 under the requirements of the following specifications:

| Emission | Immunity |
|---------------|----------|
| CFR47 Part 15 | N/A |
| | |
| | |

The specifications listed above represent actual tests performed to demonstrate compliance against the

specifications and basic standards listed on the front cover of this report. This list is not a one to one match to the

front cover for one or more of the following reasons.

- 1. Basic standards call up many different test phenomena specifications such as the 61000-4-X series. The basic standards define which elements and levels shall be applied from these specifications and as such it is not appropriate to list the individual specifications on the front cover.
- 2. A Standard listed on the front cover may be required in a particular country but is not appropriate for the particular technologies included in the equipment under test. E.g. You cannot test a DC product to the mains Harmonics requirements in EN61000-3-2. See section 3.2.
- 3. Test results against a particular standard or specification may be included in a different test report. See section 3.2 for an EDCS reference of this data.
- 4. Where appropriate, Cisco may have substituted a later revision of a basic standard to those referenced in the specification on the front sheet of this test report. This decision was based upon improved test methodology and repeatability and/or where the newer revision represented a more stringent test.
- 5. Where relevant, testing has been carried out to the requirements of both EN and IEC Specifications. This was possible because of the similarities of the test methods involved and the Cisco EMC test procedures.
- 6. Testing may have been performed to an equivalent test that satisfies the requirements of the standards and specifications listed on the front cover of the report. See section 3.2.
- Where radiated emissions testing has been performed to EN55022/CISPR22 the additional requirements of VCCI: V- 3/2006.04, EN55022: 1994 +A1/2 and CAN/CSA- CISPR 22-02 have also been evaluated unless otherwise stated.
- Testing to the requirements of CFR47 Part 15 was performed against the CISPR22 limits. The results are therefore deemed satisfactory evidence of compliance with Industry Canada Interference Causing Equipment Standard ICES-003.
- 9. Where assessment has been performed to CISPR24, all the applicable test requirements may have not been covered. Refer to the results section for the tests performed.

Notes:

- 1) Where a specification listed on the front cover of this report has deviations from the basic standards listed above, the additional technical requirements of the specification were also assessed.
- 2) Where appropriate, Cisco may have substituted a later revision of a basic standard to those referenced in the specification on the front sheet of this test report. This decision was based upon improved test methodology and repeatability and/or where the newer revision represented a more stringent test.
- 3) Where relevant, testing has been carried out to the requirements of both EN and IEC Specifications. This was possible because of the similarities of the test methods involved and the Cisco EMC test procedures.

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Section 2: Assessment Information

2.1 General

This report contains an assessment of an apparatus against Electromagnetic Compatibility Standards based upon tests carried out on the samples submitted. The testing was performed by and for the use of Cisco systems Inc.

With regard to this assessment, the following points should be noted:

- a) The results contained in this report relate only to the items tested and were obtained in the period between the date of the initial assessment and the date of issue of the report. Manufactured products will not necessarily give identical results due to production and measurement tolerances.
- b) The apparatus was set up and exercised using the configuration and modes of operation defined in the operations manual.
- c) Where relevant, the apparatus was only assessed using the susceptibility criteria defined in this report and the Test Assessment Plan (TAP).
- d) All testing was performed under the following environmental conditions:

Temperature15°C to 35°C (54°F to 95°F)

 Atmospheric Pressure
 860mbar to 1060mbar (25.4" to 31.3")

 Humidity
 10% to 75*%

*[Where applicable] For ESD testing the humidity limits used were 30% to 60% and for EFT/B tests the humidity limits used were 25% to 75%.

- e) All AC testing was performed at one or more of the following supply voltages:
 - 110V 60 Hz (+/-20%) 220V 50 Hz (+/-20%)

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2.2 Date of testing

February 2014

2.3 Report Issue Date

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2.4 Testing facilities

This assessment was performed by:

Testing Laboratory

Cisco Systems, Inc., 4125 Highlander Parkway Richfield, OH 44286 USA Cisco Systems, Inc. 170 West Tasman Drive San Jose, CA 95134 USA

Test Engineers

Bud Chiller

2.5 Equipment Assessed (EUT) AIR-AP1572EAC-B-K9

This report provides data supporting compliance with undesired emissions regulations stated in CFR47 Part 15 of the FCC Rules and Regulations.

2.6 EUT Description

The AIR-AP1572 Series AP is an 802.11n dual band mesh access point employing externally mounted antennas either directly on the RF port connectors or mounted separately to provide desired coverage.

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Radiated Spurious Emissions

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

Using Vasona, configure the spectrum analyzer as shown below (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode.

| Span: | 1GHz – 18 GHz |
|-----------------------|----------------------------------|
| Reference Level: | 80 dBuV |
| Attenuation: | 10 dB |
| Sweep Time: | Coupled |
| Resolution Bandwidth: | 1MHz |
| Video Bandwidth: | 1 MHz for peak, 1KHz for average |
| Detector: | Peak |

Maximize Turntable (find worst case table angle), Maximize Antenna (find worst case height)

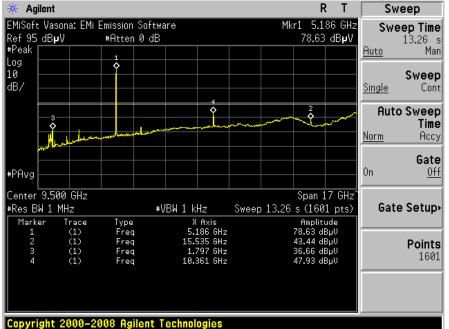
Save 2 plots:1) Average Plot (Vertical and Horizontal), Limit= 54dBuV @3m2) Peak plot (Vertical and Horizontal), Limit = 74dBuV @3m

Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands.

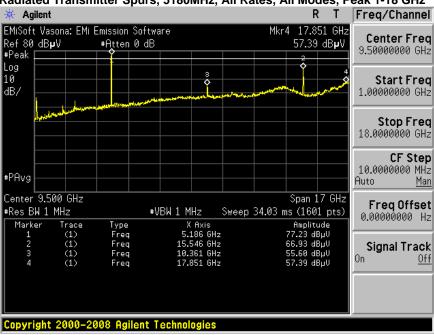
This report represents the worst case data for all supported operating modes and antennas. There are no measurable emissions above 18 GHz.

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Transmitter Radiated Spurious Emissions



Radiated Transmitter Spurs, 5180MHz, All Rates, All Modes, Average 1-18 GHz



Radiated Transmitter Spurs, 5180MHz, All Rates, All Modes, Peak 1-18 GHz

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| 🔆 Agilent | | | | | | | R | Т | Freq/Channel |
|------------------------------------|---------------------------------|------------------------------|--|--|-------|----------------|--|-------------------------|---|
| EMiSoft Vas Ref 95 dB∎ #Peak | | Emission Sof #Atten 0 | | | | Mkr4 | | 92 GHz dB µ V | Center Freq 9.50000000 GHz |
| Log 10 | | 1 \$ | | | | | | | Start Freq 1.00000000 GHz |
| 3 | L. Janom | | and the second s | 4 • | | and the second | 2 • | مہر | Stop Freq 18.0000000 GHz |
| #PAvg | | | | | | | | | CF Step 10.0000000 MHz Auto <u>Man</u> |
| Center 9.5 #Res BW 1 Marker | | Туре | #VBW 1 k | Hz Axis | Sweep | 13.26 | Span 1 s (160) Amplitu | 1 pts) | FreqOffset 0.00000000 Hz |
| 1 2 3 4 | (1) (1) (1) (1) (1) | Freq Freq Freq Freq | 5.1 15.9 1.7 | L97 GHz 599 GHz 797 GHz 392 GHz | | | 58.38 dE 41.92 dE 33.22 dE 48.14 dE | 3µV 3µV 3µV | Signal Track On <u>Off</u> |
| | |)08 Agilen | | | | | | | |

Radiated Transmitter Spurs, 5200MHz, All Rates, All Modes, Average 1-18 GHz

Radiated Transmitter Spurs, 5200MHz, All Rates, All Modes, Peak 1-18 GHz

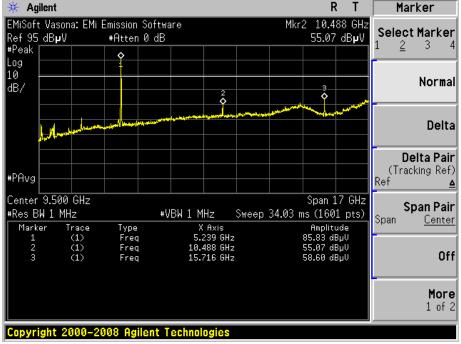
| 🚓 Agilent | | | КІ | Marker |
|--|--|--|---|---|
| EMiSoft Vasona: EMi Ref 95 dBµV #Peak | Emission Soft #Atten 0 dl | | Mkr3 15.599 GHz 62.80 dBµV | Select Marker |
| Log 10 dB/ | | 2 | ♪ | Normal |
| A singly weakly and your same | And the second sec | and a second | | Delta |
| #PAvg | | | | Delta Pair (Tracking Ref) Ref <u>▲</u> |
| Center 9.500 GHz #Res BW 1 MHz Marker Trace 1 (1) 2 (1) 3 (1) | Type Freq Freq | X Axis 5.197 GHz 10.392 GHz | Span 17 GHz 34.03 ms (1601 pts) Amplitude 75.87 dBµU 59.58 dBµU | Span Pair Span <u>Center</u> |
| 3 (1) | Freq | 15.599 GHz | 62.80 dBµV | Off More 1 of 2 |
| Copyright 2000-20 | 008 Agilent | Technologies | | |

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| 🔆 Agilent | | | | | | R | Т | Sw | eep |
|---------------------------|--------------------------|------------------------------|--------------|--------------------------------------|-----------|--|----------|-------------------|---------------------------|
| EMiSoft Vas Ref 95 dBµ | | mission S #Atten 0 | | | Mkra | 2 15.71 43.04 | | Swe | ep Time 13.26 s |
| #Peak | | 1 | | | | | | <u>Auto</u> | Man |
| 10 dB/ | | ◆ | | | | | | <u>Single</u> | Sweep Cont |
| | 3 | | | ÷ | | 2 | مىر | | o Sweep Time |
| #PAvg | | | | | | | | <u>Norm</u> On | Accy Gate Off |
| Center 9.50 #Res BW 1 | | | #VBW 1 kł | lz Sw | eep 13.26 | Span 1 s (1601 | | | e Setup: |
| Marker | Trace | Type | X | Axis | | Amplitu | de | | |
| 1 2 3 4 | (1) (1) (1) (1) | Freq Freq Freq Freq | 15.7 3.1 | 50 GHz 16 GHz 99 GHz 78 GHz | | 79.07 dB 43.04 dB 31.59 dB 46.46 dB | μŲ μV | | Points 1601 |
| | | | | | | | | | |
| Copyright | 2000-20 | 108 Agile | ent Technolo | ogies | | | | | |

Radiated Transmitter Spurs, 5240MHz, All Rates, All Modes, Average 1-18 GHz

Radiated Transmitter Spurs, 5240MHz, All Rates, All Modes, Peak 1-18 GHz



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Radiated Transmitter Spurs, 5280MHz, All Rates, All Modes, Average 1-18 GHz

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Radiated Transmitter Spurs, 5280MHz, All Rates, All Modes, Peak 1-18 GHz



Radiated Transmitter Spurs, 5300MHz, All Rates, All Modes, Average 1-18 GHz

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| gilent Spectrum Analyzer - Sw | ept SA | SENSE:INT | ALIGNAUTO | 12:22:00 AM Feb 21, 2014 | | |
|--|---|---|----------------------|-------------------------------------|------------------------|--|
| enter Freq 9.50000 | | | #Avg Type: Log-Pwr | TRACE 1 2 3 4 5 6 TYPE mW444444 | Trace/Det | |
| | IFGain:Low | #Atten: 10 dB | | DETPPPP | Select Trace | |
| 0 dB/div Ref 80.00 (| dBµV | | Ν | /kr4 4.868 GHz 33.43 dBµV | 1 | |
| | ^1 | | | 54.00 dBµV | Clear Writ | |
| 40.0 30.0 20.0 | | | | | Trace Averag | |
| 10.0 0.00 10.0 | | | | | Max Hol | |
| enter 9.500 GHz Res BW 1.0 MHz | | 1.0 kHz | - | Span 17.00 GHz 13.3 s (1601 pts) | Min Hol | |
| IKR MODE TRC SCL 1 N 1 f 2 N 1 f 3 N 1 f 4 N 1 f 5 5 5 | × 5.303 GHz 2.434 GHz 3.199 GHz 4.868 GHz | Υ FUN 63.67 dBμV 62.34 dBμV 36.84 dBμV 33.43 dBμV | CTION FUNCTION WIDTH | FUNCTION VALUE | View/Blank Trace On | |
| 5 6 7 8 9 0 1 | | | | | Moi 1 of | |
| SG | | | STATUS | | | |

Radiated Transmitter Spurs, 5300MHz, All Rates, All Modes, Peak 1-18 GHz



Radiated Transmitter Spurs, 5320MHz, All Rates, All Modes, Average 1-18 GHz

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| | | | | | | | Analyzer - Sv | ent Spectrun |
|-------------------------------|---|----------------------------|----------|--|-------------------------|---------|-----------------------|----------------------|
| Trace/Det | 12:27:09 AM Feb 21, 2014 TRACE 1 2 3 4 5 6 | ALIGNAUTO Type: Log-Pwr | #Av | SENSE:I | RREC Z | | RF 501 q 9.5000 | nter Fre |
| Select Trace | TYPE MWWWWWW DET PPPPP | | 1 | Trig: Free Ru #Atten: 10 dB | NO: Fast G Gain:Low | P IF | | |
| Clear Writ | 54.00 dBµY | | | | | dBµV | Ref 80.00 | dB/div |
| Trace Averaç | | | | | | | ∂ ³ | 0 0 0 mmbh~ |
| Max Ho | | | | | | | | |
| Min Ho | Span 17.00 GHz 13.3 s (1601 pts) FUNCTION VALUE | Sweep | FUNCTION | 1.0 kHz Y | | × | O MHZ | nter 9.50 es BW 1 |
| View/Blank Trace Or | | | | 63.69 dBµV 62.34 dBµV 36.73 dBµV | 4 GHz 4 GHz 9 GHz | 2.43 | f f f | N 1 N 1 N 1 |
| Mo 1 of | | | | | | | | |
| | | STATUS | | | | | | |

Radiated Transmitter Spurs, 5320MHz, All Rates, All Modes, Peak 1-18 GHz

| Agilent Spectr | um Analyzer - S | Swept SA | | | | | | |
|----------------------|-----------------|-------------------------------|--|-------------------------------|-----------|-------------------------------|---|-----------------------------|
| LXI L | RF 50 | | RREC | SENSE | | ALIGNAUTO | 12:28:05 AM Feb 21, 2014 | Frequency |
| Center F | req 9.5000 | | | Trig: Free R | | g Type: Log-Pwr | TRACE 123456 | riequency |
| | | F | PNO: Fast 🔾 Gain:Low | #Atten: 10 d | | | | |
| | | | | | | N | /kr4 4.878 GHz | Auto Tune |
| 10 dB/div Log | Ref 100.0 | 00 dBµV | | | | | 44.73 dBµV | |
| 90.0 | | | | | | | | Center Freq |
| 80.0 | 2 | 1 | | | | | 74.00 dBuV | 9.500000000 GHz |
| 70.0 | -Y | | | | | | 1400 0004 | |
| 60.0 | | | | | | | | Start Freq |
| 50.0 | | ─ ┼ ∳ [₽] ┟── | | المروالية والمصرولين والمارين | unan many | Anton with a line of the line | and a support of the superior | 1.000000000 GHz |
| 40.0 | walnus and war | the pristant way | and the second s | | | | | |
| 20.0 | | | | | | | | Stop Freq |
| 10.0 | | | | | | | | 18.00000000 GHz |
| | | | | | | | | |
| Center 9. #Res BW | | | #\/B)/ | V 1.0 MHz | | Swoon | Span 17.00 GHz 42.6 ms (1601 pts) | CF Step |
| | | | #050 | | TUNOTION | | | 1.700000000 GHz Auto Man |
| MKR MODE TF | | × 5.31 | 24 GHz | ⊻ 71.95 dBuV | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | <u>riato</u> mari |
| 2 N 1 | f | 2.43 | 34 GHz | 70.84 dBµV | | | | |
| 3 N 1 | f | | 99 GHz 78 GHz | 41.55 dBµV 44.73 dBµV | | | | Freq Offset |
| 5 | | 4.01 | | 44.75 UBUV | | | | 0 Hz |
| 6 | | | | | | | | |
| 7 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |
| 12 | | | | | | | | |
| MSG | | | | | | STATUS | | |
| | | | | | | | | |

Radiated Transmitter Spurs, 5500MHz, All Rates, All Modes, Average 1-18 GHz

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| Agilent Spectrum Analyzer - S | | | | | |
|--|--|--|---------------------------------|---|------------------------|
| Center Freq 9.500 | Ω AC CORREC | SENSE:INT | ALIGNAUTO #Avg Type: Log-Pwr | 12:34:18 AM Feb 21, 2014 TRACE 1 2 3 4 5 6 | Trace/Det |
| | PNO: Fast ⊂ IFGain:Low _ | Trig: Free Run #Atten: 10 dB | | TYPE MWWWWWW DET PPPPP | Select Trace |
| 10 dB/div Ref 80.00 | dBµV | | N | 1kr4 4.878 GHz 34.18 dBµV | 1 |
| 20.0 2 60.0 50.0 | ↓ ↓ ¹ | | | 54.00 dBµ∖v | Clear Write |
| 40.0 30.0 20.0 | | | | | Trace Average |
| 10.0 0.00 -10.0 | | | | | Max Hold |
| Center 9.500 GHz #Res BW 1.0 MHz | #VB\ × | N 1.0 kHz | Sweep | Span 17.00 GHz 13.3 s (1601 pts) | Min Hold |
| M M MUDE THE SEL 1 N 1 f 2 N 1 f 3 N 1 f 4 N 1 f 5 6 7 7 | 5.505 GHz 2.434 GHz 3.199 GHz 4.878 GHz | 67.49 dBµV 62.46 dBµV 37.07 dBµV 34.18 dBµV | | FUNCTION VALUE | View/Blank Trace On |
| 8 9 10 11 12 | | | | | More 1 of 3 |
| MSG | | | STATUS | | |

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Radiated Transmitter Spurs, 5500MHz, All Rates, All Modes, Peak 1-18 GHz

| Agilent Spectrum Analyzer - Swept SA | | | | |
|---|---|--|---|------------------------|
| X/L RF 50Ω AC | CORREC SENSE:INT | ALIGNAUTO | 12:33:20 AM Feb 21, 2014 | Trace/Det |
| Center Freq 9.500000000 | | #Avg Type: Log-Pwr | TRACE 123456 TYPE M WWWWW | Trace/Det |
| 10 dB/div Ref 100.00 dBµV | PN0: Fast 🖵 Trig: Free Run IFGain:Low #Atten: 10 dB | I | _{рет} реререререререререререререререререре | Select Trace |
| | | | 74.00 dBy/v | Clear Write |
| | al and a second s | haganataga ta Janti ng maya ng majang ta gan kataga ta | | Trace Average |
| 20.0 | | | | Max Hold |
| Center 9.500 GHz #Res BW 1.0 MHz MKR MODE TRC SCL × | | Sweep 2 | Span 17.00 GHz 2.6 ms (1601 pts) FUNCTION VALUE | Min Hold |
| 2 N 1 f 3 N 1 f 4 N 1 f 5 6 | 5.505 GHz 76.04 dBµV 2.434 GHz 71.18 dBµV 3.199 GHz 41.49 dBµV 4.878 GHz 44.72 dBµV | | | View/Blank Trace On |
| 7 | | | | More 1 of 3 |
| MSG | | STATUS | | |

Radiated Transmitter Spurs, 5580MHz, All Rates, All Modes, Average 1-18 GHz

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| Trace/Det | 0:16 AM Feb 21, 2014 TRACE 2 3 4 5 6 TYPE MWWWWW DET P P P P P P | TR | align auto e: Log-Pwr | #Avg | | Trig: Free | NO: Fast 🔾 | AC CO 0000 GI | F 50 Q | enter Fre |
|------------------------|---|----------|--------------------------|-------|----------|----------------------------------|-------------------------|--------------------|-----------------------|------------------------------------|
| Select Trace 1 | 5.579 GHz 8.04 dBµ∨ | | N | | dB | #Atten: 10 | Gain:Low _ | | ef 80.00 d | 0 dB/div |
| Clear Write | 54.00 dBµV | | | | | | | | 2 | ° g 70.0 60.0 50.0 |
| Trace Average | | | | | | | | Å | ∂ ³ | 40.0 30.0 20.0 |
| Max Hold | | | | | | | | | | 10.0 0.00 10.0 |
| Min Hold | an 17.00 GHz 3 s (1601 pts) JNCTION VALUE | 5 13.3 s | Sweep ICTION WIDTH | CTION | | V 1.0 kHz Y 68.04 dB | #VB\ 9 GHz | × | MHz | Center 9.50 Res BW 1 |
| View/Blank Trace On | | | | | ۷L VL | 61.93 dB 36.40 dB 34.38 dB | 4 GHz 9 GHz 8 GHz | 2.43 3.19 | | 2 N 1 3 N 1 4 N 1 6 |
| Mor 1 of: | | | | | | | | | | 7 8 9 0 1 |
| | | ž | STATUS | | | | | atistics | lardware Si | G 🕹 Storing |

Radiated Transmitter Spurs, 5580MHz, All Rates, All Modes, Peak 1-18 GHz

| OP L RF SO OP CORREC SERVERIT ALIGNATIO 12:41:16 AM Hd:21;2014 Center Freq 9:500000000 FRO: Fait (Fain: taw) Trig: Free Run (Fain: taw) Alignation Trig: Free Run (Fain: taw) Alignation Trig: Free Run (Fain: taw) Alignation Frequency Auto Tune 10 dEI/div Ref 100.00 dBµV 54:47 dBµV 54:47 dBµV 54:47 dBµV 9:50000000 GHz 700 700 44 9:50000000 GHz 74:0 epv 10:0000000 GHz 9:50000000 GHz 700 700 74 9:50000000 GHz 76:0 epv 10:00000000 GHz 10:00000000 GHz 701 701 76:42 dBvV Span 17:00 GHz 10:0000000 GHz 10:00000000 GHz 10:0000000 GHz 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 10:0000000 GHz 100 100 100 100 10:0000000 GHz 10:0000000 GHz 10:00000000 GHz 10:00000000 GHz 10:00000000 G | Agilent Spectrum Analyzer - Sw | ept SA | | | | | | | |
|--|--|--|-----------------------|--|--|--|-------------------|--|--|
| Center Pred 9.500000000 GHz PNC: Fast IFGaint.ow Trig: Free Run atter: 10 dB Mikr5 17.044 GHz 54.47 dBJV Auto Tune 10 dB/dlv Ref 100.00 dBµV S4.47 dBµV S4.47 dBµV S4.47 dBµV S4.47 dBµV S4.47 dBµV S4.50000000 GHz 9.50000000 GHz 9.50000000 GHz S4.47 dBµV S4.50000000 GHz 9.50000000 GHz 9.50000000 GHz S4.47 dBµV | | | SENSE:INT | | | | | | |
| Image: Property of the second seco | Center Freq 9.50000 | 00000 GHz | | #Avg Typ | e: Log-Pwr | TRACE 12 | | | |
| IPGainet av Sktern: 10 dB Mkr5 17.044 GHz 54.47 dBµV Auto Tune 10 dB/dlv Ref 100.00 dBµV 54.47 dBµV 9.50000000 GHz 900 1 2.400 mV 9.50000000 GHz 900 1 2.400 mV 9.50000000 GHz 900 1 1 1 1 10 dB/dV 1 1 1 1 1 10 dB/dV 1 1 1 1 1 1 10 dB/dV 1 1 1 1 1 1 10 dB/dV 1 1 1 | | | | | | TYPE MWW | PPP | | |
| Wirk's 17,044 GH2 Log St.47 dBµV St.47 dBµV < | | IFGain:Low | #Atten: 10 dB | | | Der ja der | | | |
| 10 dEl/div Ref 100.00 dBµV 54.47 dBµV 000 1 | | | | | M | kr5 17 044 (| Auto Tune | | |
| Control Control Control Center Freq 900 0 0 0 0 900 0 0 0 0 900 0 0 0 0 0 900 0 0 0 0 0 0 900 0 0 0 0 0 0 0 900 0 0 0 0 0 0 0 0 900 0 <td></td> <td colspan="8"></td> | | | | | | | | | |
| 900 | 10 dB/div Ref 100.00 | αθμν | | | | 04.47 GL | sh v | | |
| Center 9.500 GHz Y Function | | | | | | | | | |
| 800 | ann | .1 | | | | | Center Freq | | |
| Top Top <td>80.0</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td>9.50000000 GHz</td> | 80.0 | 0 | | | | | 9.50000000 GHz | | |
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| 600 00 <t< td=""><td>70.0</td><td></td><td></td><td></td><td></td><td></td><td>-</td></t<> | 70.0 | | | | | | - | | |
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| MIR MODE TRC STP GHz Y FUNCTION FUNCTION WIDTH FUNCTION WIDTH <td></td> <td>A4</td> <td></td> <td></td> <td></td> <td></td> <td>Start Freq</td> | | A4 | | | | | Start Freq | | |
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| No 1 f 5.579 GHz Y Function Function value Auto | 40.0 | and the second s | | | | | | | |
| No 1 f 5.579 GHz Y Function Function value Auto | and a state of the | | | | | | | | |
| No Span 17.00 GHz Span 17.00 GHz Center 9.500 GHz #VEW 1.0 MHz Sweep 42.6 ms (1601 pts) MRM MODEL TRCI SCL X Y Function Function width Function width 2 N 1 f 2.433 GHz 70.21 GBy/ Auto Man 3 N 1 f 2.434 GHz 70.21 GBy/ Auto Man 4 N 1 f 2.434 GHz 70.21 GBy/ Auto Man 5 N 1 f 2.434 GHz 70.21 GBy/ Auto Man 6 N 1 f 4.173 GBy/ Auto Freq Offset 0 Hz 6 1 f 17.044 GHz 54.47 GBy/ Auto 0 Hz 0 Hz 9 9 10 1 | 30.0 | | | | | | | | |
| Image: Non-Strain of the strain of | 20.0 | | | | | | Stop Freq | | |
| Mich Span T7.00 GHz Span T7.00 GHz CF Step #Res BW 1.0 MHz #VBW 1.0 MHz Sweep 42.6 ms (1601 pts) 1.70000000 GHz Auto Man MCR MODE IRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION WIDTH Auto Man 1 N 1 f 2.434 GHz 70.21 GBuV Function Function width Function width Function width Function width Fireq Offset 0 Hz 6 N 1 f 4.878 GHz 45.50 GBuV 6 0 Hz 0 Hz <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>18 00000000 GHz</td> | | | | | | | 18 00000000 GHz | | |
| #Res BW 1.0 MHz #VBW 1.0 MHz Sweep 42.6 ms (1601 pts) 1.7000000 GHz MKR MODEL TRC SCL X Y FUNCTION WIDTH FUN | 10.0 | | | | | | | | |
| #Res BW 1.0 MHz #VBW 1.0 MHz Sweep 42.6 ms (1601 pts) 1.7000000 GHz MKR MODEL TRC SCL X Y FUNCTION WIDTH FUN | | | | | | | | | |
| #Res Buvil: String GHz #VEW 1.0 MHz #VEW 1.0 MHz Sweep 42.6 ms (1601 pts) 1.70000000 GHz MKR MODEL TRC: SCL X Y Function Function whole the punction whole the punctis the punction whole the punctis the punction whole th | Center 9.500 GHz | | | | | Span 17.00 | GHZ CE Stop | | |
| MKR MODE Inc. X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE 1 N 1 f 5.579 GHz 76.42 dBW Auto Man 1 1 f 2.434 GHz 76.42 dBW Function Function value Auto Man 3 N 1 f 3.199 GHz 40.21 dBW Freq Offset 0 Hz 6 N 1 f 4.878 GHz 45.50 dBW Freq Offset 0 Hz 6 N 1 f 17.044 GHz | #Res BW 1.0 MHz | #VBW | (1.0 MHz | | Sweep | 42.6 ms (1601 | | | |
| International control Contro Control Control <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1.700000000000112</td> | | | | | | | 1.700000000000112 | | |
| 2 N 1 f 2.434 GHz 70.21 dBw/ Freq Offset 3 N 1 f 3.199 GHz 41.13 dBw/ Freq Offset 0Hz 5 N 1 f 3.45.50 dBw/ 0Hz 0Hz 6 7 | | | | NCTION FUI | NCTION WIDTH | FUNCTION VALUE | Auto Man | | |
| 3 N 1 f 3.199 GHz 41.13 dBw/ Freq Offset Freq Offset 5 N 1 f 4.878 GHz 4550 dBw/ 0 Hz 0 Hz 0 Hz 0 Hz 0 Hz 1 0 Hz 1 0 Hz < | 1 N 1 F | | | | | | | | |
| 4 N 1 f 4.878 GHz 45.50 dBuV 0 Hz 5 N 1 f 17.044 GHz 54.47 dBuV 0 Hz 6 | 2 N 1 f | | | | | | | | |
| 6 N 1 f 17.044 GHz 54.47 dBµV 0 Hz 7 8 9 | 3 N 1 F | | 41.13 dBuV | | | | Freq Offset | | |
| 0 17 17 17 044 | | | | | | | 0 Hz | | |
| 7 8 9 | | 17.044 GHZ | 54.47 dBµV | | | | | | |
| | 7 | | | | | | | | |
| | | | | | | | | | |
| | 9 | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| MSG STATUS | 12 | | | | | | | | |
| MSG STATUS | 100 | | | | | | | | |
| | MSG | | | | STATUS | 2 | | | |

Radiated Transmitter Spurs, 5700MHz, All Rates, All Modes, Average 1-18 GHz

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| 0.00 dBµV | | | | N | Akr1 5.69 59.08 | 96 GHz 3 dBµV | Select Trace |
|----------------------|-----------------------------------|---|---|---|---|---|--|
| 3 4 | | | | | | 54.00 aBµV | |
| 3 | | | | | | | Trace Avera |
| | | | | | | I | |
| | | | | | | | Max Ho |
| z z | #VBW | / 1.0 kHz | | Sweep | o 13.3 s (1 | | Min Ho |
| 5.69 2.43 3.19 | 4 GHz 9 GHz | У 59.08 dBµV 64.34 dBµV 36.42 dBµV 27.87 dBµV | FUNCTION | FUNCTION WIDTH | FUNCTION | IVALUE | View/Blani Trace Or |
| | | | | | | | М а 1 о |
| | × 5.69 2.43 3.19 4.88 | × 5.696 GHz 2.434 GHz 3.199 GHz 4.889 GHz | × Y 5.696 GHz 59.08 dBµV 2.434 GHz 64.34 dBµV 3.199 GHz 36.42 dBµV | X 5.596 GHz 2.434 GHz 3.199 GHz 4.889 GHz 4.889 GHz 27.87 dBµV 5.596 GHz 27.87 dBµV 5.596 GHz 4.889 GHz 5.596 | X Y FUNCTION FUNCTION WIDTH 5.696 GHz 59.08 dBtV 2.434 GHz 64.33 dBtV 3.199 GHz 36.42 dBtV 4.889 GHz 27.87 dBtV 4.889 GHz 4.840 dBtV | X Y FUNCTION FUNCTION WIDTH FUNCTION 2.434 GHz 64.34 GHz GHz 64.34 GHz 64.34 GHz 64.34 GHz GHz 64.34 GHz GHz 64.34 GHz 64.34 GHz GHZ <td>X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE 2.434 GHz 59.08 dBuV 2.434 GHz 64.34 dBuV 3.199 GHz 36.42 dBuV 4.889 GHz 27.87 dBuV 4.899 GHz 27.87 dBuV</td> | X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE 2.434 GHz 59.08 dBuV 2.434 GHz 64.34 dBuV 3.199 GHz 36.42 dBuV 4.889 GHz 27.87 dBuV 4.899 GHz 27.87 dBuV |

Radiated Transmitter Spurs, 5700MHz, All Rates, All Modes, Peak 1-18 GHz



Radiated Transmitter Spurs, 5745MHz, All Rates, All Modes, Average 1-18 GHz

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| L | um Analyzer - Sw RF 50 ຊ reg 9.50001 | AC COR | | | E:INT | #Avg | ALIGN AU Type: Log-P | | :54 AM Feb 21, 2014 TRACE 1 2 3 4 5 6 | Frequency |
|--|--|-----------|-------------------------|--|--------|-------|-------------------------|-----------------|---|------------------------------------|
| 0 dB/div | Ref 80.00 | PN IFG | IO: Fast 🕞 ain:Low | Trig: Free #Atten: 10 | | | | | туре Det P P P P P P 5.749 GHz 1.12 dBµV | Auto Tun |
| .og 70.0 60.0 50.0 | ¢ ² | 1 | | | | | | | 54.00 dBµY | Center Fre 9.500000000 G⊦ |
| 40.0 30.0 20.0 | → ³ | | | | | | | | | Start Fre 1.000000000 G⊦ |
| 10.0 | | | | | | | | | | Stop Fre 18.000000000 G⊦ |
| enter 9.5 Res BW | | | #VBW | 1.0 kHz | | | Sw | Spa eep 13.3 | n 17.00 GHz s (1601 pts) | CF Ste 1.70000000 GF |
| KR MODE TR 1 N 1 2 N 1 3 N 1 4 - - 5 - - | f f | 2.434 | 9 GHz 1 GHz 9 GHz | Y 61.12 dBµ 63.86 dBµ 36.54 dBµ | V V | CTION | FUNCTION WI | DTH FUN | NCTION VALUE | Auto Ma Freq Offse 0 H |
| 6 7 8 9 0 | | | | | | | | | | |
| G | | | | | | | ST | ATUS | | |

Center Freq 9.500000000 GHz PN0: Fast IFGain:Low Trig: Free Run #Atten: 10 dB 5:01 AM Feb 21, 2014 TRACE 1 2 3 4 5 6 TYPE M WWWWW DET P P P P P Feb 21, 2014 12:5 Frequency #Avg Type: Log-Pwr Auto Tune Mkr1 5.749 GHz 69.01 dBµ∨ Ref 100.00 dBµV 0 dBidi **Center Freq** 9.50000000 GHz Start Freq \Diamond^3 1.00000000 GHz **Stop Freq** 18.00000000 GHz Center 9.500 GHz #Res BW 1.0 MHz Span 17.00 GHz Sweep 42.6 ms (1601 pts) CF Step 1.700000000 GHz <u>Auto</u>Man #VBW 1.0 MHz FUNCTION FUNCTIO 69.01 dBµ∖ 72.44 dBµ∖ 40.45 dBµ∖ 5.749 GH: 2.434 GH: 3.199 GH: Freq Offset 0 Hz STATUS

Radiated Transmitter Spurs, 5745MHz, All Rates, All Modes, Peak 1-18 GHz

Radiated Transmitter Spurs, 5785MHz, All Rates, All Modes, Average 1-18 GHz

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| XIL | um Analyzer - Sw RF 50 ຊ reg 9.50001 | AC COF | REC | SENSE:I | | ALIGNAUTO g Type: Log-Pwr | 01:01:17 AM Feb 21, 2014 | Frequency |
|---|--|--------------|----------------------------------|--|----------|------------------------------|---|--|
| | | PI IF(| NO: Fast 🕞 Gain:Low | Trig: Free Ru #Atten: 10 dE | n | | TYPE MUMUU DET P P P P P P | Auto Tune |
| 10 dB/div 70.0 60.0 | Ref 80.00 | dBµV | | | | | 66.05 dBµV | Center Fred 9.500000000 GHz |
| 40.0 30.0 20.0 mmbd | <i>√</i> ³ | 4 | | | | | | Start Fred 1.000000000 GHz |
| 10.0 0.00 -10.0 | | | | | | | | Stop Fred 18.000000000 GH; |
| Center 9.4 #Res BW | 1.0 MHz | × | | 7 1.0 kHz | FUNCTION | Sweep FUNCTION WIDTH | Span 17.00 GHz 13.3 s (1601 pts) FUNCTION VALUE | CF Step 1.700000000 GH: <u>Auto</u> Mar |
| 1 N 1 2 N 1 3 N 1 4 N 1 5 6 | f f f f | 2.43 3.19 | 1 GHz 4 GHz 9 GHz 8 GHz | 66.05 dBμV 62.72 dBμV 37.17 dBμV 34.41 dBμV | | | | Freq Offse 0 H: |
| 7 8 9 10 11 | | | | | | | | |
| ISG | | | | | | STATUS | | |

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Radiated Transmitter Spurs, 5785MHz, All Rates, All Modes, Peak 1-18 GHz



Radiated Transmitter Spurs, 5825MHz, All Rates, All Modes, Average 1-18 GHz

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| UXI L | um Analyzer - Sv RF 50 s req 9.5000 | 2 AC CO | DRREC Hz PNO: Fast Gain:Low | SENSE: Trig: Free Ru #Atten: 10 dE | #Av; in | ALIGN AUTO 3 Type: Log-Pwr | 01:06:30 AM Feb 21, 2 TRACE 1 2 3 4 TYPE WAAAAA DET P P P | 5.6 Frequency |
|--|---|-----------------------|--------------------------------------|---|------------|-------------------------------|--|---------------------------------|
| 10 dB/div | Ref 80.00 | | | | | ٨ | 1kr1 5.824 GI 63.65 dBj | |
| 70.0 60.0 50.0 | ¢² | | | | | | 54.00 6 | Center Freq 9.500000000 GHz |
| 40.0 30.0 20.0 مليلسو | , 3 | ♦ ⁴ | | | | | | Start Freq 1.000000000 GHz |
| 10.0 0.00 -10.0 | | | | | | | | Stop Freq 18.000000000 GHz |
| Center 9.5 #Res BW | 1.0 MHz | | #VB\ | V 1.0 kHz | ^ | Sweep | Span 17.00 G 13.3 s (1601 p | ts) 1.700000000 GHz |
| MKR MODE TR 1 N 1 2 N 1 3 N 1 4 N 1 5 | | 2.4 3.1 | 24 GHz 34 GHz 99 GHz 78 GHz | Υ 63.65 dBμV 62.58 dBμV 36.89 dBμV 34.45 dBμV | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | Auto Man Freq Offset 0 Hz |
| 6 7 8 9 10 11 | | | | | | | | |
| MSG | | | | | | STATUS | | |

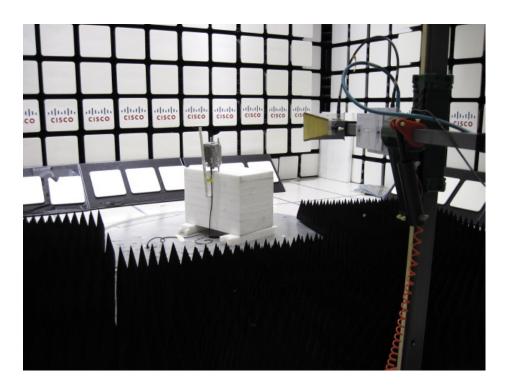
cisco

Radiated Transmitter Spurs, 5825MHz, All Rates, All Modes, Peak 1-18 GHz

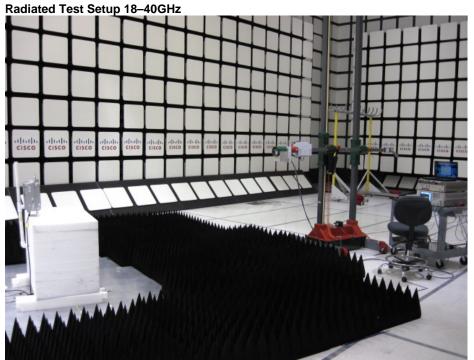
| Agilent Spectrum Analyzer - Swept SA | | | | | | |
|--|--|--|--|--------------------|---|------------------------|
| Center Freq 9.500000000 | | SENSE:IN | | ype: Log-Pwr | 01:07:22 AM Feb 21, 2014 TRACE 1 2 3 4 5 6 | Trace/Det |
| | PNO: Fast 🕞 IFGain:Low | Trig: Free Run #Atten: 10 dB | | | TYPE MWWWWWW DET PPPPPP | Select Trace |
| 10 dB/div Ref 100.00 dBµV | , | | | N | lkr1 5.824 GHz 71.87 dBμV | 1 |
| 90.0 80.0 70.0 | •1 | | | | 74.00 dBuV | Clear Write |
| 60.0 50.0 40.0 | and an and the second s | pinterlan som to strand | erner flywerne ar an | 1.00 TO 100 TO 100 | lerfestere attende of a light and by | Trace Average |
| 30.0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | | | | | | Max Hold |
| Center 9.500 GHz #Res BW 1.0 MHz | #VBW | / 1.0 MHz | | | Span 17.00 GHz 42.6 ms (1601 pts) | Min Hol |
| | 5.824 GHz | Υ 71.87 dBµV | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | |
| 3 N 1 f | 2.434 GHz 3.199 GHz 4.878 GHz | 71.16 dBμV 41.18 dBμV 45.80 dBμV | | | | View/Blank Trace On |
| 7 8 9 10 | | | | | | Mon 1 of: |
| 12 12 | | | | STATUS | | |

Radiated Test Setup 1–18GHz

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Test Equipment used:

| Equipment No | Manufacturer | Model | Description | Last Cal | Next Cal Due Date |
|--------------|----------------------------------|-----------------------------|---|-----------|----------------------|
| CIS008469 | Bird | 5-T-MN | 50 Ohm, 5W Terminator,Type N | 03-JUL-13 | 03-JUL-14 |
| CIS008496 | Fischer Custom Communications | FCC-450B-2.4- N | Instrumentation Limiter | 20-MAY-13 | 20-MAY-14 |
| CIS019206 | TTE | H785-150K-50- 21378 | High Pas Filter,Fo=150kHz | 12-SEP-13 | 12-SEP-14 |
| CIS029960 | Fischer Custom Communications | FCC-LISN- 50/250-50-2-01 | LISN | 05-MAR-13 | 05-MAR-14 |
| CIS029962 | Fischer Custom Communications | FCC-LISN-PA- NEMA-5-15 | Power Adaptor, Polarized 120VAC | 05-MAR-13 | 05-MAR-14 |
| CIS033456 | Suhner | RG-223/U | 10ft RG223 cable | 22-JAN-14 | 22-JAN-15 |
| CIS045050 | Rohde & Schwarz | ESCI | EMI Test Receiver | 28-OCT-13 | 28-OCT-14 |
| CIS041933 | Newport | iBTHP-5-DB9 | 5 inch Temp/RH/Press Sensor w/20ft cable | 16-DEC-13 | 16-DEC-14 |
| CIS-50378 | Agilent | N9030A | PXA Spectrum Analyzer | 27-FEB-14 | 17-JAN15 |

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