Conducted Band Edge Average Table

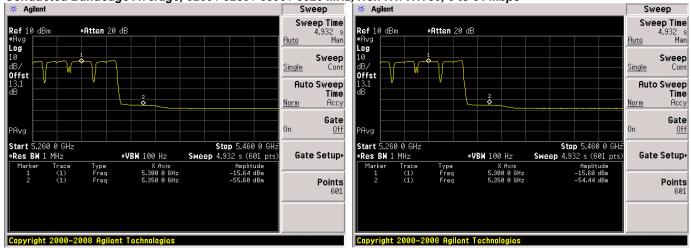
| Frequency (MHz) | Mode | Tx Paths | Target Power Setting (dBm) | Correlated Antenna Gain (dBi) | Tx 1 Bandedge Level (dBm) | Tx 2 Bandedge Level (dBm) | Tx 3 Bandedge Level (dBm) | Tx 4 Bandedge Level (dBm) | Total Tx Bandedge Level (dBm) | Limit (dBm) | Margin (dB) |
|-------------------|--|----------|-------------------------------|----------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|----------------------------------|-------------|-------------|
| | Non HT/VHT80, 6 to 54 Mbps | 4 | 5 | 7 | -55.6 | -54.44 | -53.65 | -53.79 | -41.28 | -41.25 | 0.03 |
| | HT/VHT80, M0 to M7, M0.1 to M9.1 | 4 | 8 | 7 | -54.05 | -54.59 | -54.99 | -55.67 | -41.76 | -41.25 | 0.51 |
| 5290 | HT/VHT80 Beam Forming, M8 to M15, M0.2 to M9.2 | 2 | 12 | 7 | -52.3 | -51.66 | | | -41.96 | -41.25 | 0.71 |
| | HT/VHT80 Beam Forming, M16 to M23, M0.3 to M9.3 | 3 | 10 | 7 | -53.41 | -52.97 | -54.68 | | -41.86 | -41.25 | 0.61 |
| | | | | | | | | | | | |
| | Non HT/VHT40, 6 to 54 Mbps | 3 | 11 | 7 | -52.95 | -55.37 | -54.87 | | -42.50 | -41.25 | 1.25 |
| | HT/VHT40, M8 to M15, M0.2 to M9.2 | 4 | 11 | 7 | -55.28 | -55.63 | -54.58 | -55.65 | -42.24 | -41.25 | 0.99 |
| <mark>5310</mark> | HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1 | 2 | 11 | 10 | -55.1 | -55.23 | | | -42.15 | -41.25 | 0.90 |
| | HT/VHT40 Beam Forming, M16 to M23, M0.3 to M9.3 | 3 | 13 | 7 | -53.5 | -53.58 | -53.7 | | -41.82 | -41.25 | 0.57 |
| | | | | | | | | | | | |
| 5320 | Non HT/VHT20, 6 to 54 Mbps | 1 | 16 | 7 | -51.41 | | | | -44.41 | -41.25 | 3.16 |
| | Non HT/VHT20 Beam Forming, 6 to 54 Mbps | 2 | 16 | 10 | -56.53 | -56.78 | | | -43.64 | -41.25 | 2.39 |
| | HT/VHT20, M8 to M15, M0.2 to M9.2 | 3 | 14 | 7 | -53.5 | -53.69 | -55.19 | | -42.29 | -41.25 | 1.04 |
| | HT/VHT20, M16 to M23, M0.3 to M9.3 | 4 | 13 | 7 | -55.33 | -55.01 | -55.4 | -56.86 | -42.57 | -41.25 | 1.32 |

Page No: 77 of 152

Conducted Band Edge Peak Table

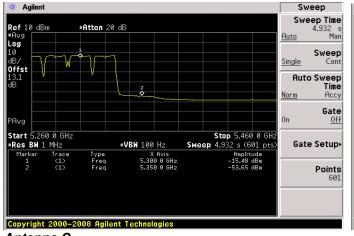
| Frequency (MHz) | Mode | Tx Paths | Target Power Setting (dBm) | Correlated Antenna Gain (dBi) | Tx 1 Bandedge Level (dBm) | Tx 2 Bandedge Level (dBm) | Tx 3 Bandedge Level (dBm) | Tx 4 Bandedge Level (dBm) | Total Tx Bandedge Level (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|--|----------|-------------------------------|----------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|----------------------------------|-------------|-------------|
| | Non HT/VHT80, 6 to 54 Mbps | 4 | 5 | 7 | -38.41 | -39.82 | -39.73 | -36.2 | -25.26 | -21.25 | 4.01 |
| 5290 | HT/VHT80, M0 to M7, M0.1 to M9.1 | 4 | 8 | 7 | -41.55 | -37.04 | -35.11 | -40.04 | -24.71 | -21.25 | 3.46 |
| | HT/VHT80 Beam Forming, M8 to M15, M0.2 to M9.2 | 2 | 12 | 7 | -33.64 | -34.4 | | | -23.99 | -21.25 | 2.74 |
| | HT/VHT80 Beam Forming, M16 to M23, M0.3 to M9.3 | 3 | 10 | 7 | -34.6 | -38.39 | -43.77 | | -25.73 | -21.25 | 4.48 |
| | | | | | | _ | - | | - | | |
| | Non HT/VHT40, 6 to 54 Mbps | 3 | 11 | 7 | -41.38 | -42.02 | -44.24 | | -30.61 | -21.25 | 9.36 |
| | HT/VHT40, M8 to M15, M0.2 to M9.2 | 4 | 11 | 7 | -42.13 | -46.01 | -40.67 | -46.47 | -30.11 | -21.25 | 8.86 |
| 5310 | HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1 | 2 | 11 | 10 | -38.94 | -42.87 | | | -27.46 | -21.25 | 6.21 |
| | HT/VHT40 Beam Forming, M16 to M23, M0.3 to M9.3 | 3 | 13 | 7 | -39.5 | -43.46 | -42.53 | | -29.71 | -21.25 | 8.46 |
| | | | | | | | | | | | |
| 5320 | Non HT/VHT20, 6 to 54 Mbps | 1 | 16 | 7 | -45.05 | | | | -38.05 | -21.25 | 16.80 |
| | Non HT/VHT20 Beam Forming, 6 to 54 Mbps | 2 | 16 | 10 | -52.19 | -51.11 | | | -38.61 | -21.25 | 17.36 |
| | HT/VHT20, M8 to M15, M0.2 to M9.2 | 3 | 14 | 7 | -45.65 | -44.54 | -48.62 | | -34.18 | -21.25 | 12.93 |
| | HT/VHT20, M16 to M23, M0.3 to M9.3 | 4 | 13 | 7 | -41.88 | -47.21 | -47.52 | -49.43 | -32.47 | -21.25 | 11.22 |

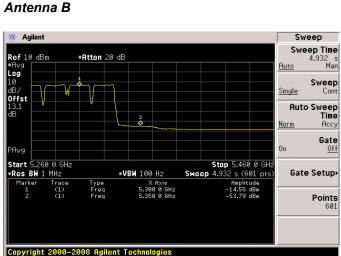
Page No: 78 of 152



Conducted Bandedge Average, 5260 / 5280 / 5300 / 5320 MHz, Non HT/VHT80, 6 to 54 Mbps







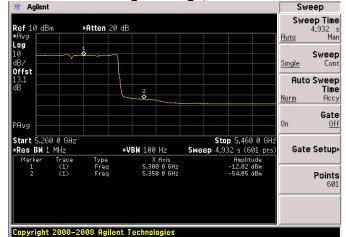
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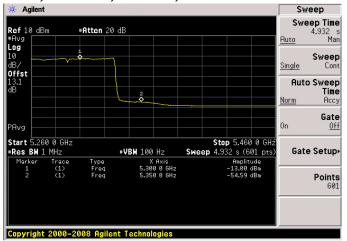
Antenna C

Antenna D

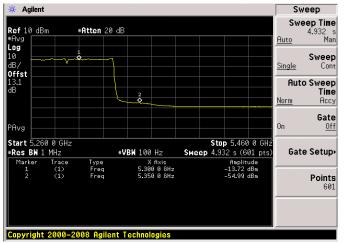
Page No: 79 of 152

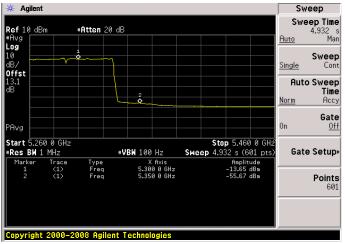
Conducted Bandedge Average, 5260 / 5280 / 5300 / 5320 MHz, HT/VHT80, M0 to M7, M0.1 to M9.1











Antenna C

Antenna A



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Conducted Bandedge Average, 5260 / 5280 / 5300 / 5320 MHz, HT/VHT80 Beam Forming, M8 to M15, M0.2 to M9.2

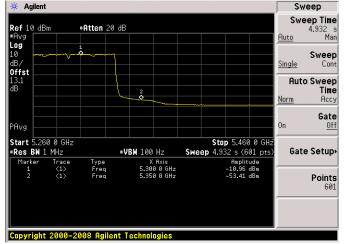


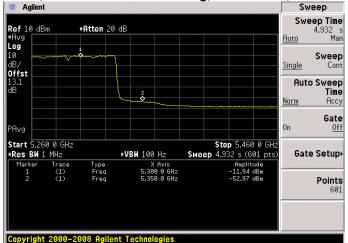
Antenna A



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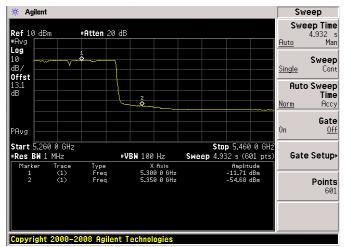
Conducted Bandedge Average, 5260 / 5280 / 5300 / 5320 MHz, HT/VHT80 Beam Forming, M16 to M23, M0.3 to M9.3





Antenna B

Antenna A



Antenna C

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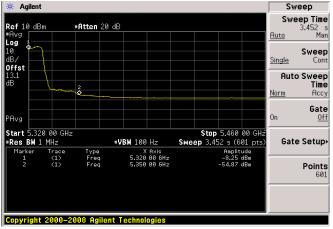
Conducted Bandedge Average, 5300/5320 MHz, Non HT/VHT40, 6 to 54 Mbps





Antenna B

Antenna A



Antenna C

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cisco Sweep Agilent Sweep Time Sweep Time **эр** 3.452 s Man 3.452 Man #Atten 20 dB Ref 10 dBm #Hvs Auto **Log** 10 Sweep Sweep Single Cont Cont **0ffst** 13.1 Auto Sweep Auto Sweep Time ٩R Time Accy Norm Ассу Gate Gate 0n Off Off PAvg Start 5.320 00 GHz Stop 5.460 00 GH: Gate Setup *Res BW 1 MHz #VBW 100 Hz Sweep 3.452 s (601 pts) Gate Setup X Axis 5.320 00 GHz 5.350 00 GHz Amplitude -7.13 dBm -55.63 dBm Trac (1) (1) Type Freq Freq Points Points 601 601

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Type Freq Freq

#Atten 20 dB

#VBW 100 Hz

X Axis 5.320 00 GHz 5.350 00 GHz



Ref 10 dBm

#Avg Log 10

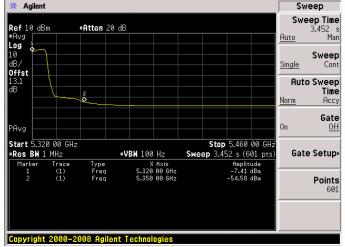
dB/ Offst 13.1 dB

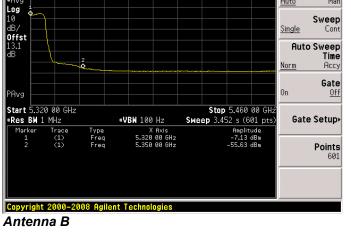
PAvg

Start 5.320 00 GHz

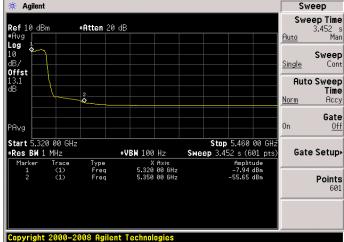
Trac (1) (1)

#Res BW 1 MHz





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Antenna C

Antenna D

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Conducted Bandedge Average, 5300/5320 MHz, HT/VHT40, M8 to M15, M0.2 to M9.2 Sweep 🔆 Agilent

Auto

Single

Norm

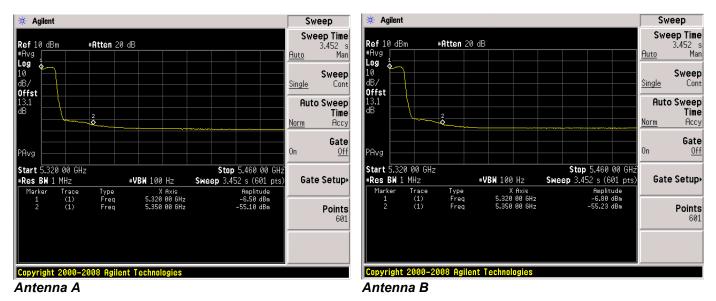
Ûn

Stop 5.460 00 GHz

Amplitude -6.72 dBm -55.28 dBm

Sweep 3.452 s (601 pts)

Conducted Bandedge Average, 5300/5320 MHz, HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1



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Conducted Bandedge Average, 5300/5320 MHz, HT/VHT40 Beam Forming, M16 to M23, M0.3 to M9.3



Antenna B

Antenna A

🔆 Agilent Sweep Sweep Time **ер** 3.452 si Man Ref 10 dBm *Atten 20 dB #Avg Auto Log 10 Sweep Cont dB/ Offst Single Auto Sweep Time 3.1 dB Norm Accy Gate Ûn <u>0ff</u> PAvg Start 5.320 00 GHz Stop 5.460 00 GH; *Res BW 1 MHz **#VBW** 100 Hz **Sweep** 3.452 s (601 pts Gate Setup Marker Trace Type Freq Freq X Axis 5.320 00 GHz 5.350 00 GHz (1) (1) -6.12 dBm -53.70 dBm Points 601 Copyright 2000-2008 Agilent Technologies

Antenna C

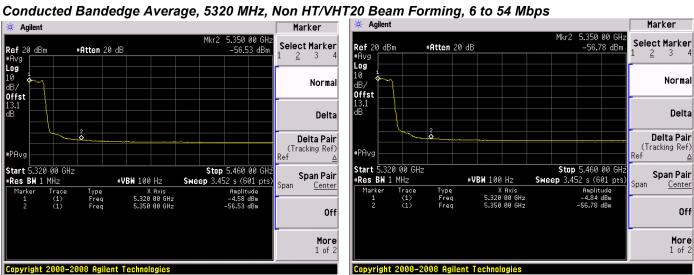
Page No: 86 of 152



Conducted Bandedge Average, 5320 MHz, Non HT/VHT20, 6 to 54 Mbps

Antenna A

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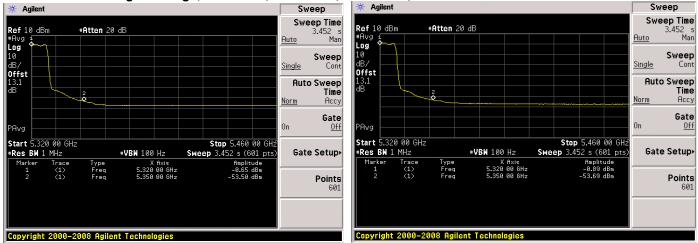
Antenna A



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Conducted Bandedge Average, 5320 MHz, HT/VHT20, M8 to M15, M0.2 to M9.2



Antenna A

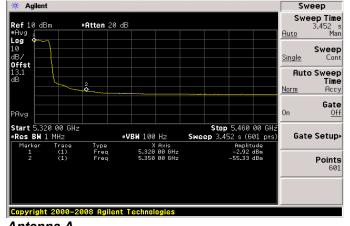
🔆 Agilent Sweep Sweep Time 3.452 s Man #Atten 20 dB Ref 10 dBm #Avg Log <u>Auto</u> Sweep Cont 10 Single Offst Auto Sweep Time Norm Accy Gate Ûn <u>Off</u> Avg Start 5.320 00 GHz #Res BW 1 MHz Stop 5.460 00 GHz Sweep 3.452 s (601 pts) **∗VBW** 100 Hz Gate Setup Type Freq Freq X Axis 5.320 00 GHz 5.350 00 GHz Amplitude -2.17 dBm -55.19 dBm Points 601 Copyright 2000-2008 Agilent Technologies

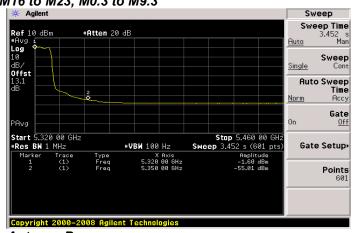
Antenna C

Antenna B

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Conducted Bandedge Average, 5320 MHz, HT/VHT20, M16 to M23, M0.3 to M9.3



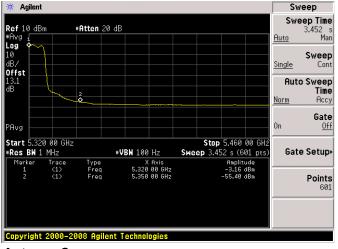


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<u>0ff</u>

601





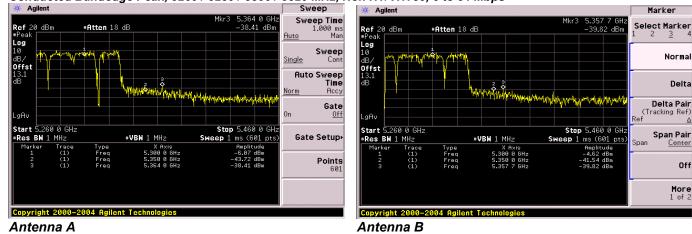




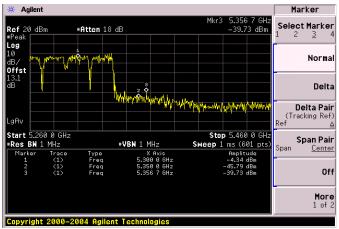
Antenna C

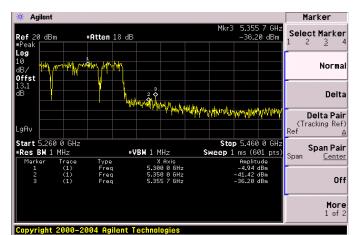
Antenna D

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Conducted Bandedge Peak, 5260 / 5280 / 5300 / 5320 MHz, Non HT/VHT80, 6 to 54 Mbps





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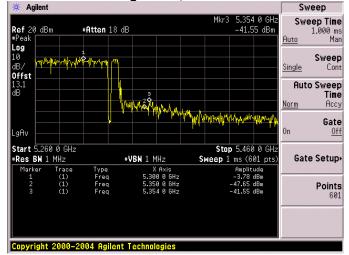
Antenna C

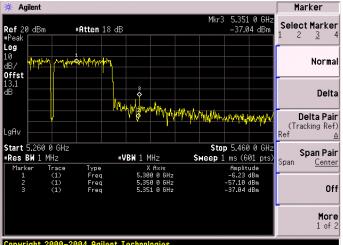


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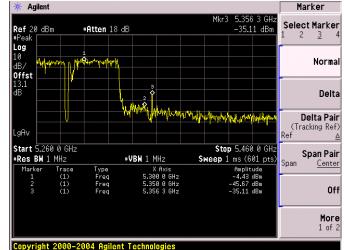
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Conducted Bandedge Peak, 5260 / 5280 / 5300 / 5320 MHz, HT/VHT80, M0 to M7, M0.1 to M9.1





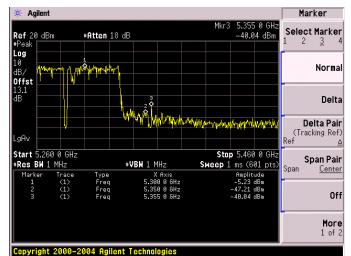










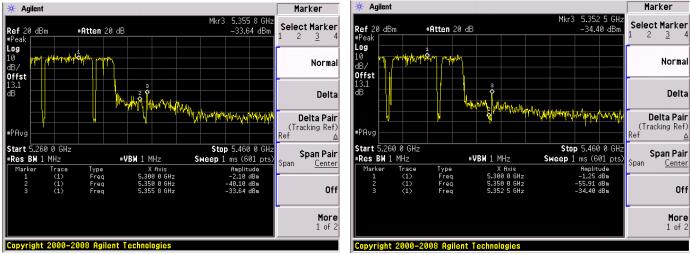




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Conducted Bandedge Peak, 5260 / 5280 / 5300 / 5320 MHz, HT/VHT80 Beam Forming, M8 to M15, M0.2 to M9.2

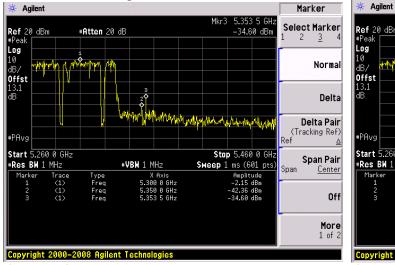


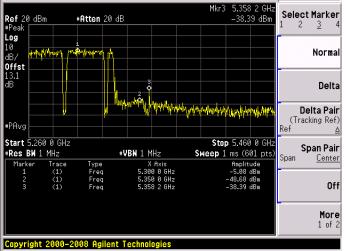
Antenna A



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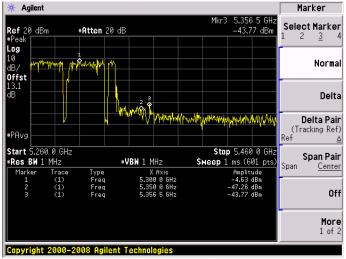
Conducted Bandedge Peak, 5260 / 5280 / 5300 / 5320 MHz, HT/VHT80 Beam Forming, M16 to M23, M0.3 to M9.3







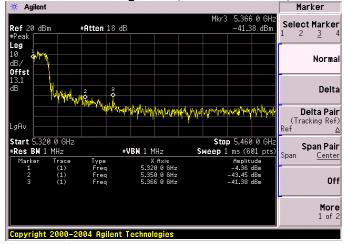
Antenna A

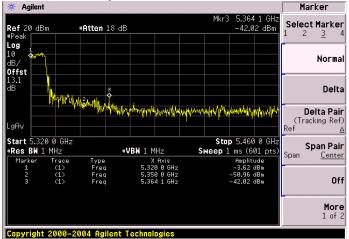


Antenna C

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Conducted Bandedge Peak, 5300 / 5320 MHz, Non HT/VHT40, 6 to 54 Mbps

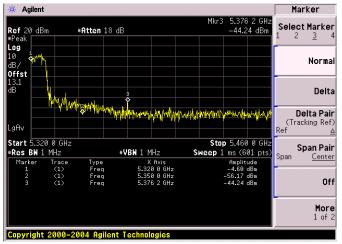




cisco



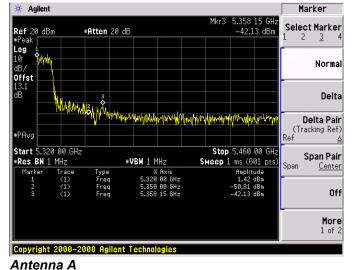
Antenna A

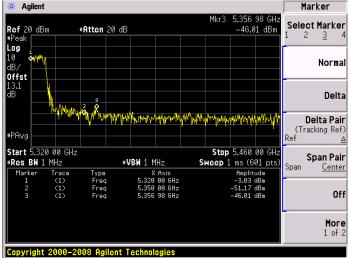


Antenna C

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Conducted Bandedge Peak, 5300 / 5320 MHz, HT/VHT40, M8 to M15, M0.2 to M9.2







Marker

Select Marker

4

Norma

Delta

Delta Pair (Tracking Ref)

Span Pair

Center

Off

More 1 of 2

2

Re

Span

5.354 65 GH

Stop 5.460 00 GH;

olitu

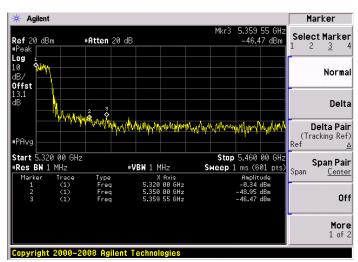
dBm dBm dBm dBm

Sweep 1 ms (601 pts

-40.67 dBm

4kr3

MM WAR WAR WAR



Antenna C

🔆 Agilent

Ref 20 dBm

Pea

Log

10

dB/ Offst

#PAvg

Start 5.320 00 GHz

999a

*Res BW 1 MHz

#Atten 20 dB

3 0

> Type Freq Freq Freq

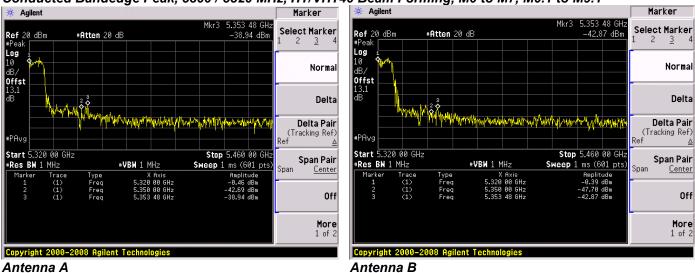
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#VBN 1 MHz

Antenna D

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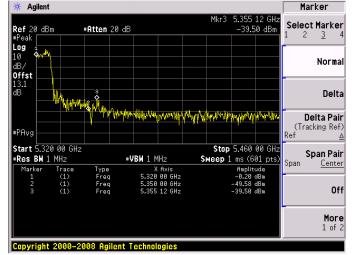


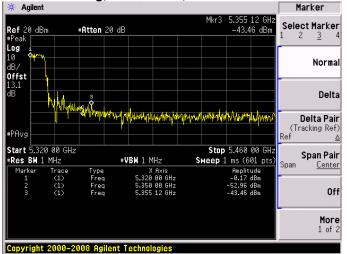
Conducted Bandedge Peak, 5300 / 5320 MHz, HT/VHT40 Beam Forming, M0 to M7, M0.1 to M9.1

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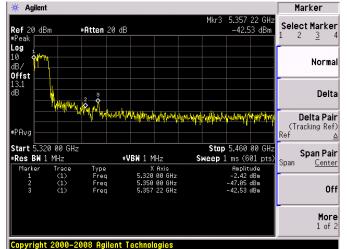
Conducted Bandedge Peak, 5300 / 5320 MHz, HT/VHT40 Beam Forming, M16 to M23, M0.3 to M9.3





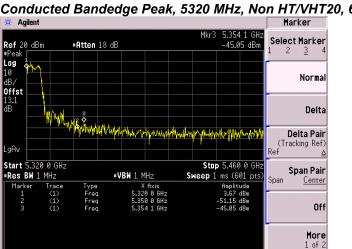
Antenna B

Antenna A



Antenna C

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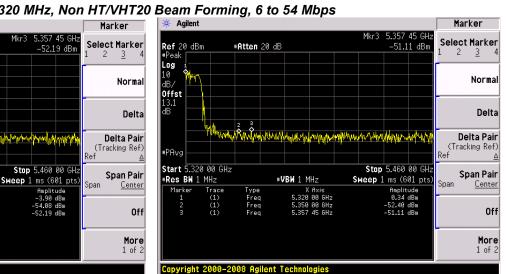
Conducted Bandedge Peak, 5320 MHz, Non HT/VHT20, 6 to 54 Mbps

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Conducted Bandedge Peak, 5320 MHz, Non HT/VHT20 Beam Forming, 6 to 54 Mbps 🔆 Agilent



Start 5.320 00 GHz #Res BW 1 MHz

12 Trac (1) (1) (1)

Ref 20 dBm #Peak Log 10 \$vy/v

dB

dB

Offst

∎PAvg

Marker

#Atten 20 dB

3 0

Type Freq Freq Freq

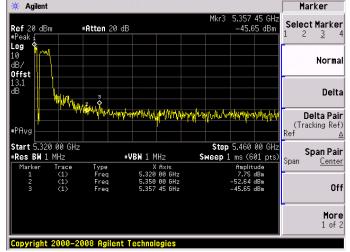
#VBW 1 MHz

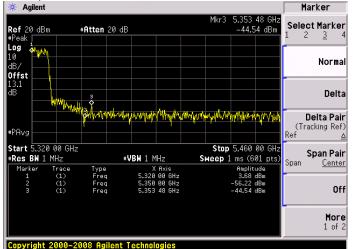


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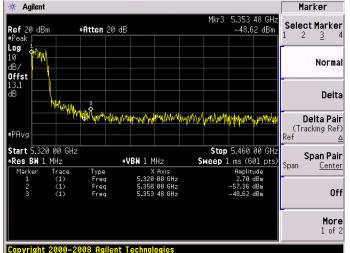
Conducted Bandedge Peak, 5320 MHz, HT/VHT20, M8 to M15, M0.2 to M9.2





Antenna B

Antenna A



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Antenna C

Page No: 101 of 152

Marker

Select Marker

3

Normal

Delta

Delta Pair

Span Pair

Center

Off

More

1 of 2

(Tracking Ref)

-49.43 dBm

WYP

dBm dBm dBm Ref

Span

a highly have a straight of the straight of the

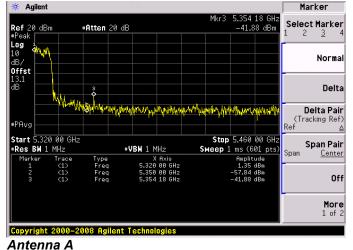
Stop 5.460 00 GH:

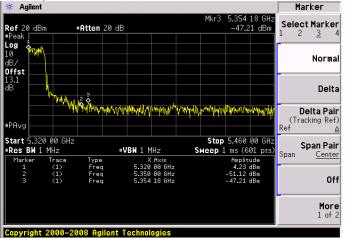
56.97 40 43

Sweep 1 ms (601 pts

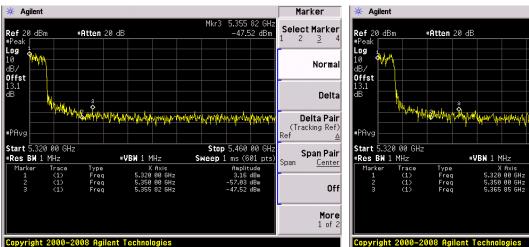
(APAparo)

Conducted Bandedge Peak, 5320 MHz, HT/VHT20, M16 to M23, M0.3 to M9.3









Antenna C

Antenna D

Antenna L

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Peak Excursion

15.407: The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

Set the spectrum analyzer span to view the entire emission bandwidth. The largest difference between the following two traces must be <= 13 dB for all frequencies across the emission bandwidth.

Set the spectrum analyzer span to view the entire emission bandwidth. The largest difference between the following two traces must be <= 13 dB for all frequencies across the emission bandwidth.

```
1st Trace: (Peak)
         Set Span to encompass the entire emission bandwidth of the signal.
         RBW = 1 MHz, VBW = 3 MHz
         Detector = Peak
         Sweep = 10 \text{ s}
         Trace 1 = Max-hold
         Ref Level Offset = correct for attenuator and cable loss
         Ref Level = 20dBm
         Atten = 10dBm
2nd Trace: (Average)
         Trace 2 = clear right
         Detector = Sample
         Avg/VBW type = Pwr(RMS)
         Average = 100
         Sweep = single
Set marker Deltas
         Trace 1 & Peak search
         Marker Delta
         Trace 2 & Peak search
```

Record the difference between the Peak and Average Markers

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| Frequency (MHz) | Mode | Peak Excursion (dB) | Limit (dBm) | Margin (dB) |
|--------------------|----------------------------------|------------------------|-------------|-------------|
| 5260 | Non HT/VHT20, 6 to 54 Mbps | 8.146 | 13 | 4.85 |
| 5260 | HT/VHT20, M0 to M7, M0.1 to M9.1 | 7.627 | 13 | 5.37 |
| 5270 | Non HT/VHT40, 6 to 54 Mbps | 8.093 | 13 | 4.91 |
| 5270 | HT/VHT40, M0 to M7 | 7.519 | 13 | 5.48 |
| 5290 | Non HT/VHT80, 6 to 54 Mbps | 7.593 | 13 | 5.41 |
| 5290 | HT/VHT80, M0 to M7, M0.1 to M9.1 | 8.512 | 13 | 4.49 |
| 5310 | Non HT/VHT40, 6 to 54 Mbps | 8.166 | 13 | 4.83 |
| 5310 | HT/VHT40, M0 to M7, M0.1 to M9.1 | 7.651 | 13 | 5.35 |
| 5320 | Non HT/VHT20, 6 to 54 Mbps | 8.151 | 13 | 4.85 |
| 5320 | HT/VHT20, M0 to M7, M0.1 to M9.1 | 7.958 | 13 | 5.04 |

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Peak Excursion Non HT/VHT20, 6 to 54 Mbps

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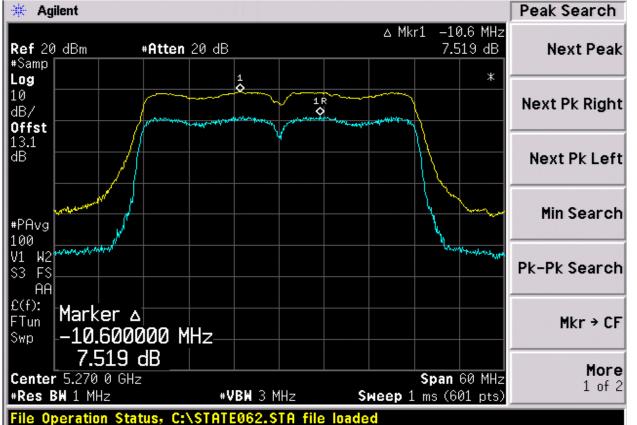
HT/VHT20, M0 to M23, M0.1 to M9.3

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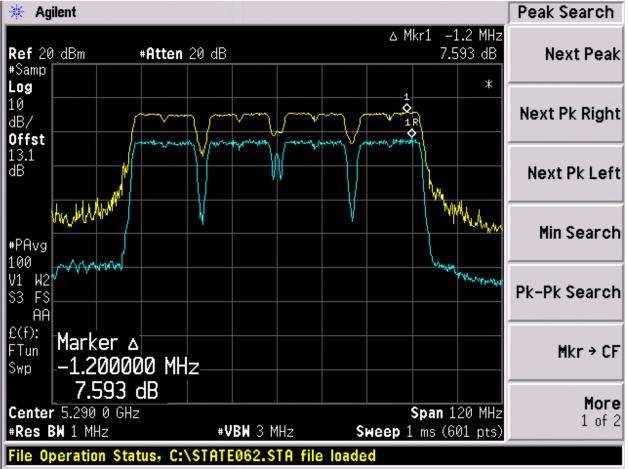
Non HT/VHT40, 6 to 54 Mbps

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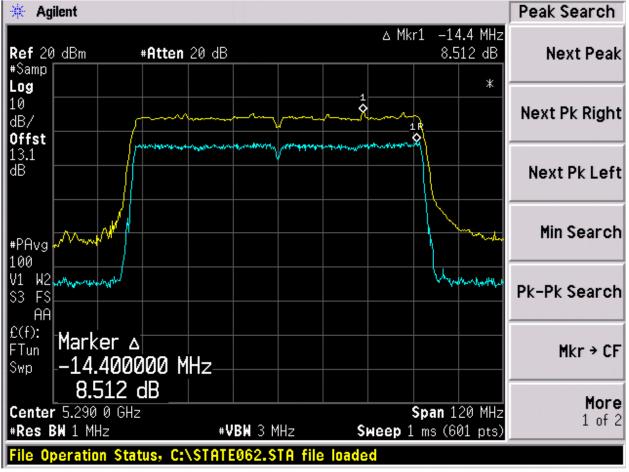
HT/VHT40, M0 to M23, M0.1 to M9.3

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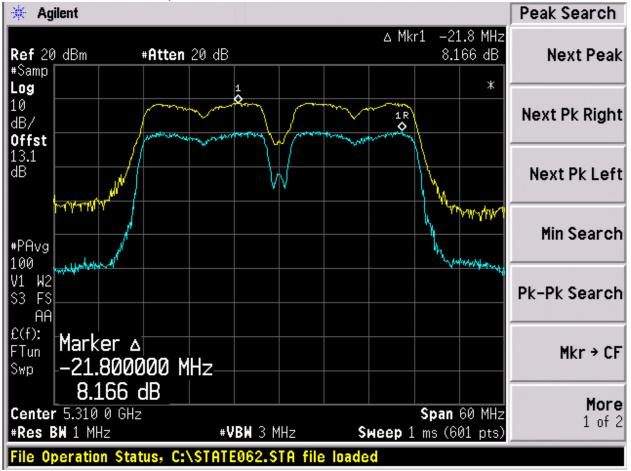
Non HT/VHT80, 6 to 54 Mbps

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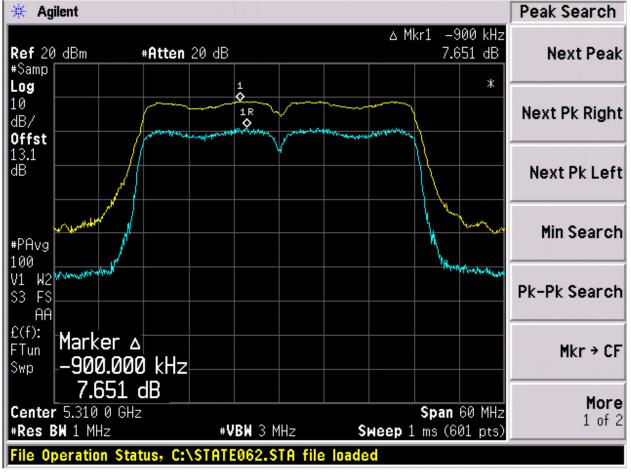
HT/VHT80, M0 to M23, M0.1 to M9.3

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Non HT/VHT40, 6 to 54 Mbps

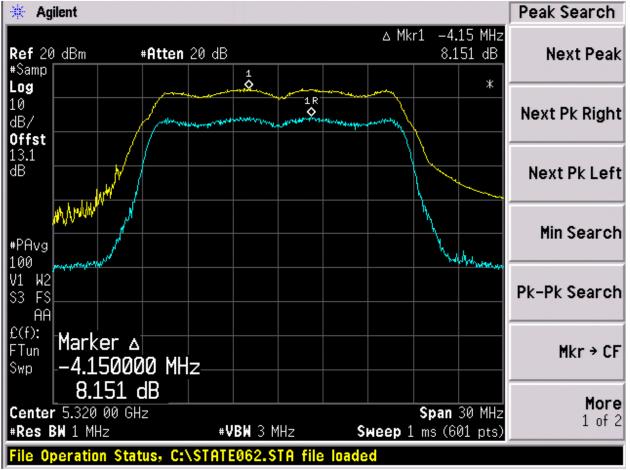
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HT/VHT40, M0 to M23, M0.1 to M9.3

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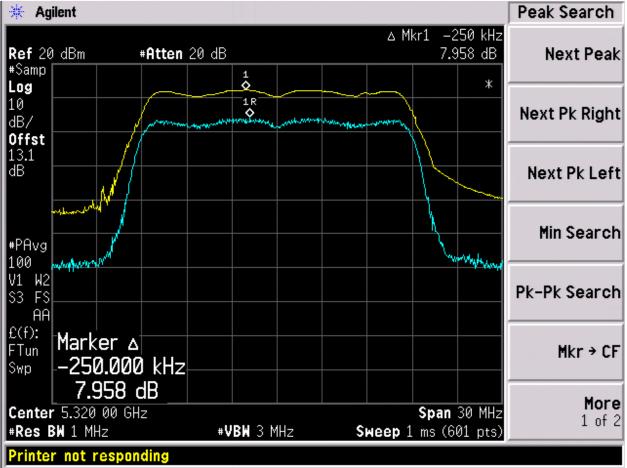
cisco



Non HT/VHT20, 6 to 54 Mbps

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HT/VHT20, M0 to M23, M0.1 to M9.3

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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 – 15 GHz |
|-----------------------|-----------------------------------|
| Reference Level: | 80 dBuV |
| Attenuation: | 10 dB |
| Sweep Time: | Coupled |
| Resolution Bandwidth: | 1MHz |
| Video Bandwidth: | 1 MHz for peak, 10 Hz 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.

Please note that scans were performed to verify that duty cycle did not have a significant impact on the test results. Also, scans with reduced RBW and VBW settings were performed to verify that no significant emissions were present under the noise floor.

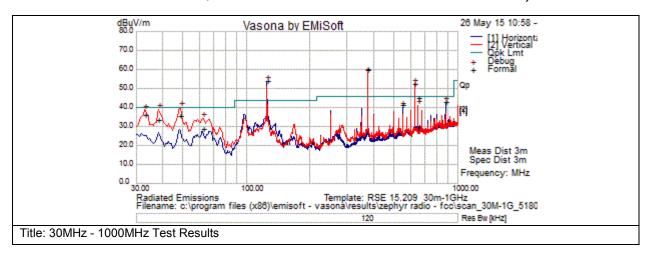
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Graphical Test Results: 30MHz – 1000MHz (Transmitter on)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

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Please note that the high emissions at 375MHz, 125MHz, and 625MHz are digital emissions. These will be covered in the EMC test report. A comparison measurement was made with the radio transmitter turned off. The emissions were still observed when the radio was off, so it can be concluded that the emissions are not caused by the radio.



Test Results Table

| Fo | rmal Data | | | | | | | | | | | | |
|----|------------------|-------------|---------------|----------|-----------------|---------------------|-----|-----------|------------|-----------------|--------------|---------------|-----------|
| No | Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
| 1 | 375.007 | 43.0 | 1.8 | 15.1 | 60.0 | Quasi Max | V | 141 | 195 | 46.0 | 14.0 | Fail | |
| 2 | 125.006 | 39.3 | 1.1 | 14.0 | 54.4 | Quasi Max | Н | 199 | 192 | 43.5 | 10.9 | Fail | |
| 3 | 625.010 | 30.9 | 2.4 | 19.4 | 52.7 | Quasi Max | V | 104 | 294 | 46.0 | 6.7 | Fail | |
| 4 | 48.369 | 26.4 | .6 | 8.6 | 35.6 | Quasi Max | V | 138 | 78 | 40.0 | -4.4 | Pass | wideband |
| 5 | 38.187 | 18.2 | .5 | 15.0 | 33.8 | Quasi Max | V | 114 | 334 | 40.0 | -6.2 | Pass | wideband |
| 6 | 33.179 | 17.1 | .5 | 18.7 | 36.3 | Quasi Max | V | 127 | 86 | 40.0 | -3.7 | Pass | wideband |
| 7 | 875.024 | 18.3 | 2.8 | 22.1 | 43.2 | Quasi Max | Н | 107 | 315 | 46.0 | -2.8 | Pass | |
| 8 | 650.007 | 22.9 | 2.4 | 19.9 | 45.2 | Quasi Max | Н | 140 | 313 | 46.0 | 8 | Pass | |
| 9 | 62.131 | 20.6 | .7 | 7.7 | 29.0 | Quasi Max | V | 120 | 71 | 40.0 | -11.0 | Pass | wide band |
| 10 | 550.006 | 21.2 | 2.2 | 18.3 | 41.7 | Quasi Max | Н | 177 | 125 | 46.0 | -4.3 | Pass | |

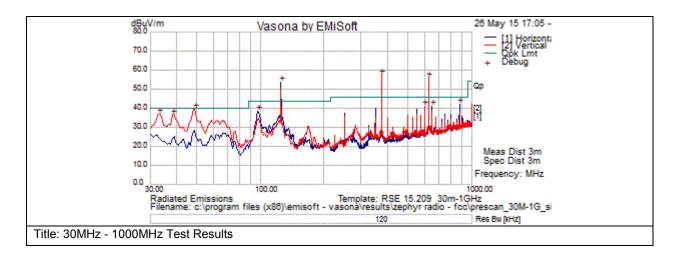
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Graphical Test Results: 30MHz – 1000MHz (Transmitter Off – EMC emission for comparison)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

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Please note that the high emissions at 375MHz, 125MHz, and 625MHz are digital emissions. These will be covered in the EMC test report. A comparison measurement was made with the radio transmitter turned off. The emissions were still observed when the radio was off, so it can be concluded that the emissions are not caused by the radio.



Test Results Table

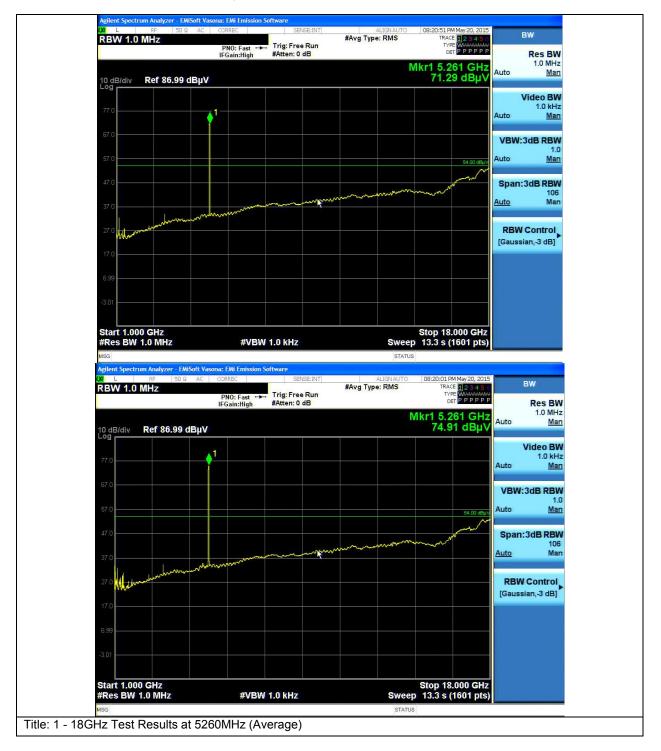
| Fo | rmal Data | | | | | | | | | | | | |
|----|------------------|-------------|---------------|----------|-----------------|---------------------|-----|-----------|------------|-----------------|--------------|---------------|----------|
| No | Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
| 1 | 374.956 | 40.8 | 1.8 | 15.1 | 57.7 | Peak [Scan] | V | 100 | 0 | 46.0 | 11.7 | Fail | |
| 2 | 125.181 | 38.6 | 1.1 | 14.0 | 53.6 | Peak [Scan] | Н | 200 | 0 | 43.5 | 10.1 | Fail | |
| 3 | 624.731 | 34.4 | 2.4 | 19.4 | 56.1 | Peak [Scan] | V | 100 | 0 | 46.0 | 10.1 | Fail | |
| 4 | 48.794 | 30.9 | .6 | 8.4 | 39.8 | Peak [Scan] | V | 100 | 0 | 40.0 | 2 | Pass | |
| 5 | 33.031 | 17.4 | .5 | 18.9 | 36.8 | Peak [Scan] | V | 100 | 0 | 40.0 | -3.2 | Pass | |
| 6 | 38.488 | 21.2 | .5 | 14.8 | 36.5 | Peak [Scan] | V | 100 | 0 | 40.0 | -3.5 | Pass | |
| 7 | 875.113 | 17.1 | 2.8 | 22.1 | 42.0 | Peak [Scan] | Н | 200 | 0 | 46.0 | -4.0 | Pass | |
| 8 | 650.194 | 18.9 | 2.4 | 19.9 | 41.2 | Peak [Scan] | Н | 300 | 0 | 46.0 | -4.8 | Pass | |
| 9 | 599.875 | 20.4 | 2.3 | 18.4 | 41.2 | Peak [Scan] | V | 100 | 0 | 46.0 | -4.8 | Pass | |
| 10 | 97.294 | 28.0 | .9 | 9.6 | 38.5 | Peak [Scan] | Н | 200 | 0 | 43.5 | -5.0 | Pass | |

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Graphical Test Results 802.11a: 1 – 18GHz (5260MHz – Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



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Graphical Test Results 802.11a: 1 – 18GHz (5260MHz – Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



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Graphical Test Results 802.11n 40MHz: 1 – 18GHz (5270MHz – Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



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Graphical Test Results 802.11n 40MHz: 1 – 18GHz (5270MHz – Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

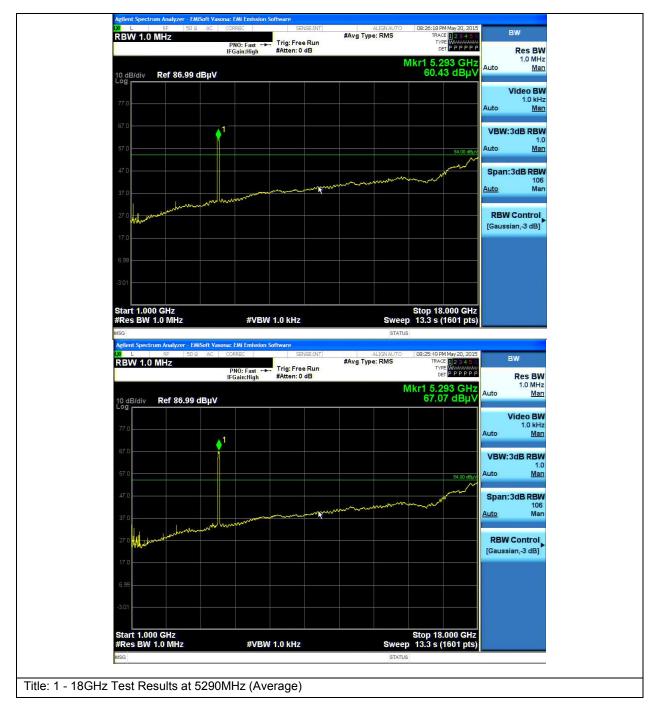


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Graphical Test Results 802.11ac 80MHz: 1 – 18GHz (5290MHz – Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



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Graphical Test Results 802.11ac 80MHz: 1 – 18GHz (5290MHz – Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



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Graphical Test Results 802.11a 20MHz: 1 – 18GHz (5280MHz – Average)

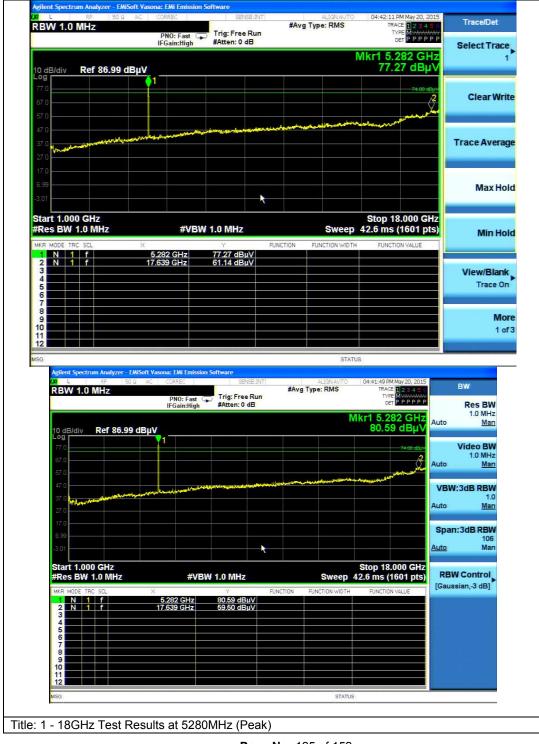
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



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Graphical Test Results 802.11a 20MHz: 1 – 18GHz (5280MHz – Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



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Graphical Test Results 802.11a 20MHz: 1 – 18GHz (5320MHz – Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

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Graphical Test Results 802.11a 20MHz: 1 – 18GHz (5320MHz – Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



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Graphical Test Results 802.11n 40MHz: 1 – 18GHz (5310MHz – Average)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

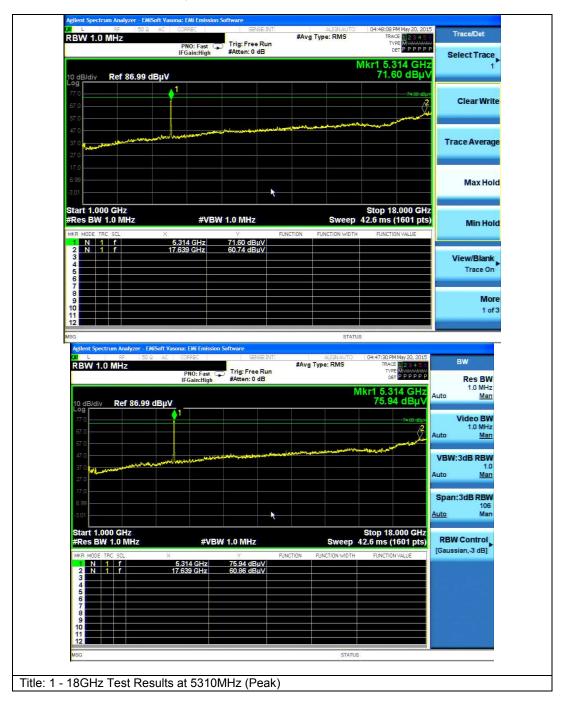


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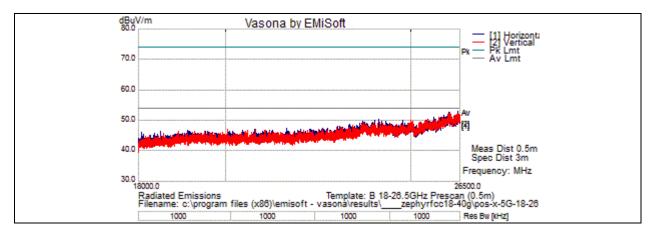
Graphical Test Results 802.11n 40MHz: 1 – 18GHz (5310MHz – Peak)

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



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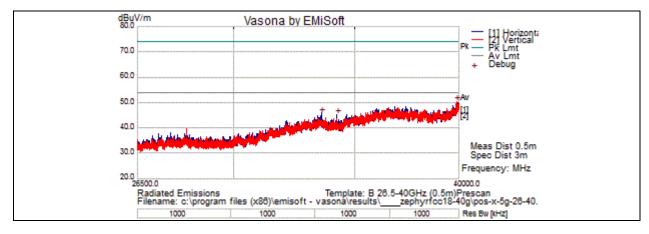
Graphical Test Results: 18 - 26GHz



Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

Graphical Test Results: 26 - 40GHz

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



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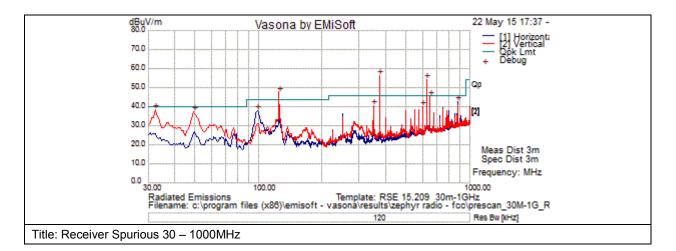
Radiated Receiver Spurious Measurements

Please note that scans were performed to verify that duty cycle did not have a significant impact on the test results. Also, scans with reduced RBW and VBW settings were performed to verify that no significant emissions were present under the noise floor.

Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

Please note that the high emissions at 375MHz, 125MHz, and 625MHz are digital emissions. These will be covered in the EMC test report.



Test Results Table

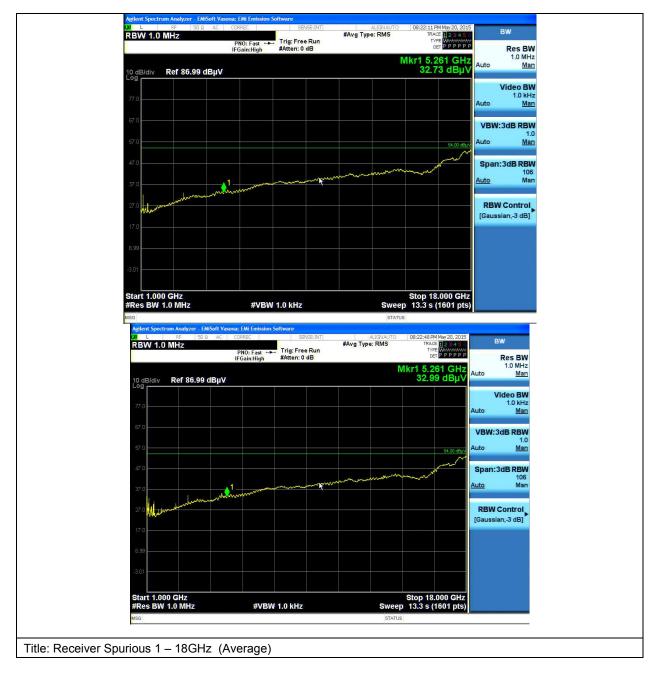
| Pre | escan Dat | a | | | | | | | | | | | |
|-----|------------------|-------------|---------------|----------|-----------------|---------------------|-----|-----------|------------|-----------------|--------------|---------------|----------|
| No | Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail | Comments |
| 1 | 374.956 | 39.6 | 1.8 | 15.1 | 56.5 | Peak [Scan] | V | 100 | 0 | 46.0 | 10.5 | Fail | |
| 2 | 624.731 | 32.4 | 2.4 | 19.4 | 54.2 | Peak [Scan] | Н | 200 | 0 | 46.0 | 8.2 | Fail | |
| 3 | 125.181 | 32.7 | 1.1 | 14.0 | 47.8 | Peak [Scan] | V | 100 | 0 | 43.5 | 4.3 | Fail | |
| 4 | 650.194 | 23.3 | 2.4 | 19.9 | 45.6 | Peak [Scan] | V | 100 | 0 | 46.0 | 4 | Pass | |
| 5 | 32.425 | 18.6 | .5 | 19.3 | 38.4 | Peak [Scan] | V | 100 | 0 | 40.0 | -1.6 | Pass | |
| 6 | 49.400 | 28.7 | .6 | 8.1 | 37.3 | Peak [Scan] | V | 100 | 0 | 40.0 | -2.7 | Pass | |
| 7 | 875.113 | 17.7 | 2.8 | 22.1 | 42.6 | Peak [Scan] | Н | 100 | 0 | 46.0 | -3.4 | Pass | |
| 8 | 350.100 | 24.3 | 1.8 | 14.4 | 40.5 | Peak [Scan] | V | 200 | 0 | 46.0 | -5.5 | Pass | |
| 9 | 99.113 | 27.0 | .9 | 10.1 | 38.0 | Peak [Scan] | Н | 200 | 0 | 43.5 | -5.5 | Pass | |
| 10 | 599.875 | 19.4 | 2.3 | 18.4 | 40.2 | Peak [Scan] | V | 100 | 0 | 46.0 | -5.8 | Pass | |

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Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



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Graphical Test Results

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



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Appendix A: EUT Photos

EUT



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Power Supply



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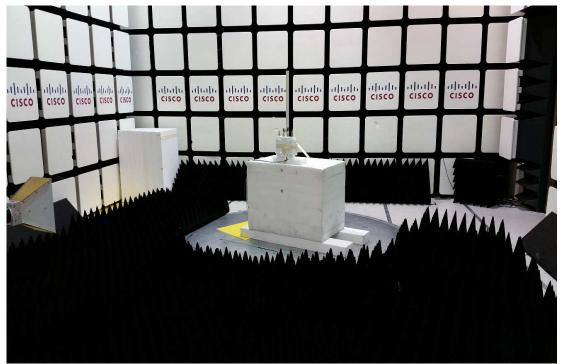
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Appendix B: Physical Test Arrangement Photos:

Title: Radiated Spurious Emissions Test Configuration 30M - 1000MHz



Title: Radiated Spurious Emissions Test Configuration 1G - 18GHz

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Title: Radiated Spurious Emissions Test Configuration 18 – 40GHz



Title: Conducted Test Setup

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| Equip# | Manufacturer/ Model | Description | Last Cal | Next Due |
|--------|------------------------------------|----------------------------------|-------------|-------------|
| 05050 | MICRO-COAX/ | Coaxial Cable, 84.0 in. | | |
| 25658 | UFB311A-1-0840-504504 | to 18GHz | 13-Feb-15 | 13-Feb-16 |
| | MICRO-COAX/ | | | |
| 21117 | UFB311A-0-2484-520520 | Coaxial Cable-18Ghz | 25 Aug 14 | 25 Aug 15 |
| | | | 25-Aug-14 | 25-Aug-15 |
| 49563 | HUBER + SUHNER/ Sucoflex 106A | Coaxial Cable, 8m | 25-Aug-14 | 25-Aug-15 |
| 5004 | | PREAMPLIFIER | | |
| 5691 | MITEQ/ NSP1800-25-S1 | PREAMPLIFIER | 29-Jan-15 | 29-Jan-16 |
| 4882 | EMCO/ 3115 | HORN ANTENNA | 30-Jul-14 | 24-Jul-15 |
| | | 1GHz Cispr Site | | 2100110 |
| 40597 | CISCO/ Above 1GHz Site Cal | Verification | 28-May-14 | 28-May-15 |
| 47300 | Keysight (Agilent/HP) / N9038A | EMI Receiver | 13-Jan-15 | 13-Jan-16 |
| | Reysignt (Agilentini) / Notook | 40GHz Cable K | 10-0411-10 | 10-5411-10 |
| 47285 | HUBER + SUHNER / Sucoflex 102E | Connector | 06 Jun 2014 | 06 Jun 2015 |
| 4000 | | | Cal Not | Cal Not |
| 4883 | EMCO/ 3115 | HORN ANTENNA | Required | Required |
| 24075 | | Reference Spectrum | Cal Not | Cal Not |
| 34075 | SCHAFFNER / RSG 2000 | Generator, 1-18GHz | Required | Required |
| | Keysight (Agilent/HP) / 8491B Opt | | | |
| 8166 | 010 | ATTENUATOR | 02 Feb 2015 | 02 Feb 2016 |
| 47294 | FAIRVIEW MICROWAVE / ST6S-10 | SMA Termination 6GHz | 12-Aug-14 | 12-Aug-15 |
| 47000 | | | 12700911 | 127 (ag 10 |
| 47293 | FAIRVIEW MICROWAVE / ST6S-10 | SMA Termination 6GHz | 12-Aug-14 | 12-Aug-15 |
| 49504 | | SMA Female 50 Ohm | | |
| | JFW / 50T-039 SMA-F | Termination | 27-Mar-15 | 27-Mar-16 |
| 40.500 | | CMA Famala 50 Ohm | | |
| 49503 | JFW / 50T-039 SMA-F | SMA Female 50 Ohm Termination | 27-Mar-15 | 27-Mar-16 |
| | | PRESET TORQUE | 27-10101-13 | 27-10181-10 |
| 20490 | | WRENCH 3.5 mm 12 | | |
| | Keysight (Agilent/HP) / 8710-1765 | in/lbs | 4-Feb-15 | 4-Feb-16 |
| 54000 | | 5 inch Temp/RH/Press | | |
| 54230 | Newport / iBTHP-5-DB9 | Sensor w/20ft cable | 1-Feb-15 | 1-Feb-16 |
| 40503 | Keysight (Agilent/HP) / E4440A | Spectrum Analyzer | 6-Jun-14 | 6-Jun-15 |
| | | 40GHz Cable K | | |
| 54014 | HUBER + SUHNER / Sucoflex 102E | Connector | 27-Mar-15 | 27-Mar-16 |
| 49527 | Keysight (Agilent/HP) / N8990K-A38 | 2x4 Switch Matrix | 27-Mar-15 | 27-Mar-16 |

Appendix C: Test Equipment and Software Used to Perform Testing

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| E 4047 | | RF Cable 2.4mm - N | | |
|--------|--------------------------------|----------------------|-------------|-------------|
| 54017 | HUBER + SUHNER / Sucoflex 102 | Type 18GHz | 27-Mar-15 | 27-Mar-16 |
| E4040 | | RF Cable 2.4mm - N | | |
| 54018 | HUBER + SUHNER / Sucoflex 102 | Type 18GHz | 27-Mar-15 | 27-Mar-16 |
| 54016 | | RF Cable 2.4mm - N | | |
| 54016 | HUBER + SUHNER / Sucoflex 102 | Type 18GHz | 27-Mar-15 | 27-Mar-16 |
| E404E | | RF Cable 2.4mm - N | | |
| 54015 | HUBER + SUHNER / Sucoflex 102 | Type 18GHz | 27-Mar-15 | 27-Mar-16 |
| 00000 | | SPECTRUM | | |
| 33988 | Keysight (Agilent/HP) / E4446A | ANALYZER, 44Ghz | 9-Dec-14 | 9-Dec-15 |
| 30654 | | Combination Antenna, | | |
| 30654 | Sunol Sciences / JB1 | 30MHz-2GHz | 12-Dec-14 | 12-Dec-15 |
| 8448 | | | | |
| 0440 | CISCO/ NSA 5m Chamber | NSA 5m Chamber | 7-Oct-14 | 7-Oct-15 |
| 27233 | | COMPARISON NOISE | Cal Not | Cal Not |
| 27200 | York / CNE V | EMITTER | Required | Required |
| | | 18-40GHz EMI Test | | |
| 41979 | | Head/Verification | | |
| | Cisco / 1840 | Fixture | 9-Jul-14 | 9-Jul-15 |
| 38392 | | PSG ANALOG SIGNAL | | |
| 00002 | Keysight (Agilent/HP) / E8257D | GENERATOR | 19-Aug-14 | 19-Aug-15 |
| 49516 | | | | |
| 10010 | Keysight (Agilent/HP) / N9030A | PXA Signal Analyzer | 12-Nov-14 | 12-Nov-15 |
| 54237 | | PRESET TORQUE | | |
| 0.201 | Pasternack / PE5011-1 | WRENCH, 8 IN/LBS | 04 Feb 2015 | 04 Feb 2016 |
| 37236 | | | Cal Not | Cal Not |
| 07200 | JFW / 50CB-015 | Control Box, GPIB | Required | Required |

Software Used to Perform Testing:

EMIsoft Vasona, version 6.024

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Measurements were made in accordance with

- KDB Publication No. 789033 D01 General UNII Test Procedures Old Rules v01r04
- Measurement method of spurious emission tolerance to the International Telecommunication Union (ITU) Recommendation SM329.
- ANSI C63.4 2009
- ANSI C63.10 2009

Test procedures are summarized below

| FCC Test Procedures 5GHz EDCS # - 1445048 |
|---|
|---|

Appendix E: Test Assessment Plan

Compliance Test Plan (Excel) EDCS# 1237091 Target Power Tables EDCS# 1501962

Appendix F: Worst Case Justification

IW3702 is based upon the AIR-CAP3702P-A-K9. Test results for AIR-CAP3702P-A-K9 were reviewed. Worst case modes were selected by lowest margins. A representative sample of modulation types, bit-rates, and bandwidths were selected. The AIR-CAP3702P-A-K9 report can be found here EDCS# 1278285.

Appendix G: Scope of Accreditation

The scope of accreditation of Cisco Systems, Inc. can be found on the A2LA web page at: http://www.a2la.org/scopepdf/1178-01.pdf

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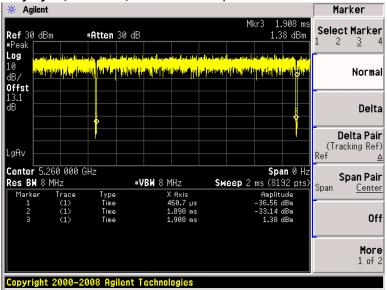
Appendix H: Duty Cycle

Duty Cycle information is shown below:

| | | On-time | Total Time | Duty | Correction Factor |
|-----------------|-----------|---------|------------|-----------|----------------------|
| Mode | Data Rate | (ms) | (ms) | Cycle (%) | (dB) |
| NonHT20 | 6 Mbps | 1.4373 | 1.447 | 99.3 | 0.03 |
| NonHT20 BF | 6Mbps | 1.438 | 1.446 | 99.4 | 0.03 |
| HT20 | M16 | 0.4852 | 0.494 | 98.2 | 0.08 |
| HT20 BF | M0 | 1.346 | 1.355 | 99.3 | 0.03 |
| HT20 BF Quad | M0 | 1.346 | 1.354 | 99.4 | 0.03 |
| NonHT40 Dual | 6Mbps | 1.438 | 1.448 | 99.3 | 0.03 |
| HT40 Triple | M8 | 0.358 | 0.368 | 97.3 | 0.12 |
| HT40 Quad | M8 | 0.358 | 0.367 | 97.5 | 0.11 |
| HT40 BF Triple | M16 | 0.261 | 0.271 | 96.3 | 0.16 |
| HT40 BF Quad | M16 | 0.261 | 0.271 | 96.3 | 0.16 |
| NonHT80 Quad | 6Mbps | 1.438 | 1.448 | 99.3 | 0.03 |
| VHT80 Quad | m0x1 | 0.334 | 0.35 | 95.4 | 0.20 |
| VHT80 Quad | m0x2 | 0.193 | 0.208 | 92.8 | 0.32 |
| VHT80 BF Quad | m0x3 | 0.153 | 0.169 | 90.5 | 0.43 |
| NonHT40 Triple | 6Mbps | 1.438 | 1.447 | 99.4 | 0.03 |
| HT40 Quad | M8 | 0.357 | 0.367 | 97.3 | 0.12 |
| HT40 BF Triple | M16 | 0.261 | 0.272 | 95.9 | 0.18 |
| HT40 BF Quad | M16 | 0.261 | 0.271 | 96.3 | 0.16 |
| NonHT20 Dual | 6Mbps | 1.438 | 1.447 | 99.4 | 0.03 |
| NonHT20 BF Dual | 6Mbps | 1.437 | 1.447 | 99.3 | 0.03 |
| HT20 Quad | M16 | 0.486 | 0.496 | 97.9 | 0.09 |
| HT20 BF | M16 | 0.486 | 0.496 | 97.9 | 0.09 |

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Duty Cycle, 5260 MHz, Non HT20 6Mbps



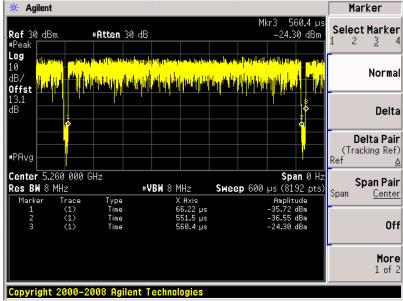
Duty Cycle, 5260 MHz, Non HT20 Beam Forming, 6Mbps

| 🔆 Agilent | Marker |
|---|---|
| Mkr3 1.869 Ref 30 dBm #Atten 30 dB -15.75 dB #Peak | Soloot Morkor |
| Log 10 dB/ Offst | |
| 13.1 dB | Delta |
| #PAvg | Delta Pair (Tracking Ref) Ref <u>∆</u> |
| Center 5.260 000 GHz Span 0 Res BW 8 MHz #VBW 8 MHz Sweep 2 ms (8192 pt | |
| Marker Trace Type X Axis Amplitude 1 (1) Time 423.1 µs -35.84 dBm 2 (1) Time 1.861 ms -23.71 dBm 3 (1) Time 1.869 ms -15.75 dBm | Off |
| Copyright 2000-2008 Agilent Technologies | More 1 of 2 |

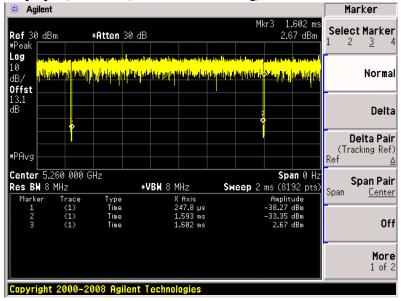
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Duty Cycle, 5260 MHz, HT20, M16



Duty Cycle, 5260 MHz, HT20 Beam Forming, M0

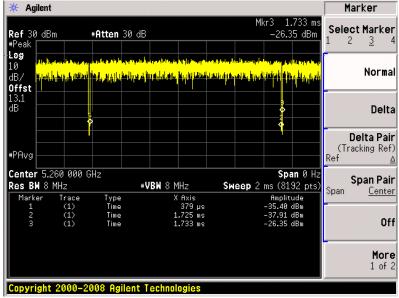


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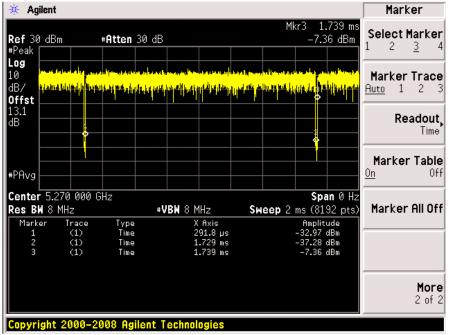
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Duty Cycle, 5260 MHz, HT20 Beam Forming, M0

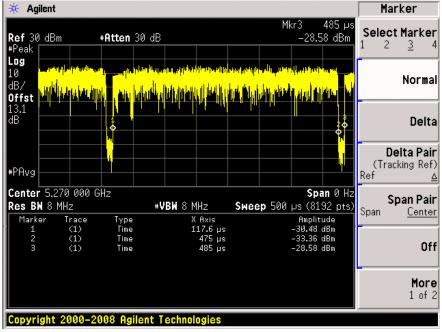


Duty Cycle, 5260/5280 MHz, Non HT40, 6Mbps



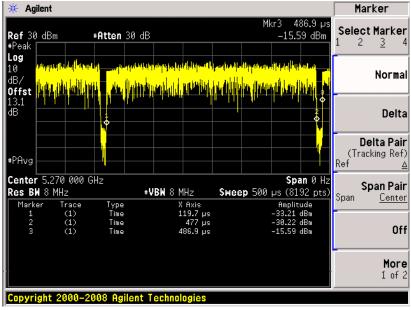
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Duty Cycle, 5260/5280 MHz, HT40, M8

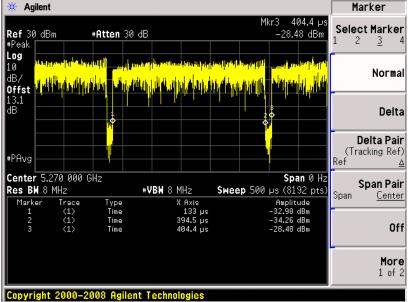


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Duty Cycle, 5260/5280 MHz, HT40, M8

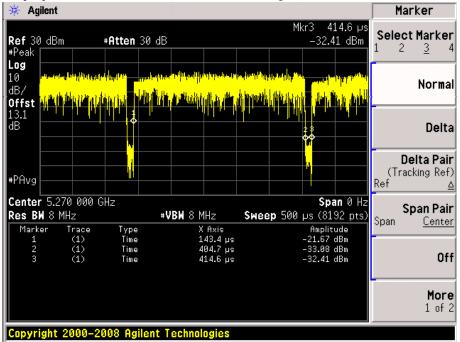


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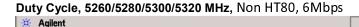
Duty Cycle, 5260/5280 MHz, HT40 Beam Forming, M16

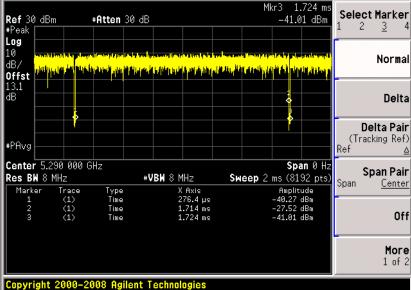
Duty Cycle, 5260/5280 MHz, HT40 Beam Forming, M16



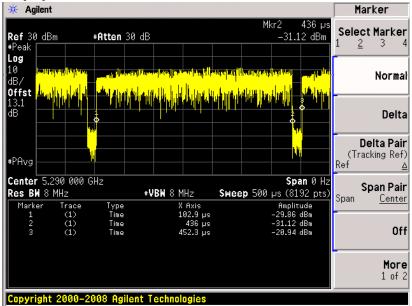
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Marker 2 <u>3</u> 4



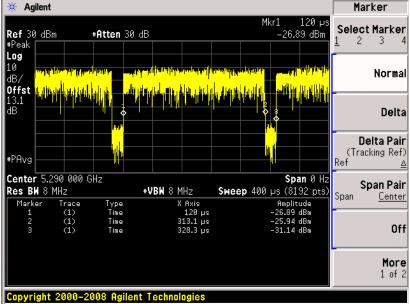


Duty Cycle, 5260/5280/5300/5320 MHz, HT/VHT80, M0.1



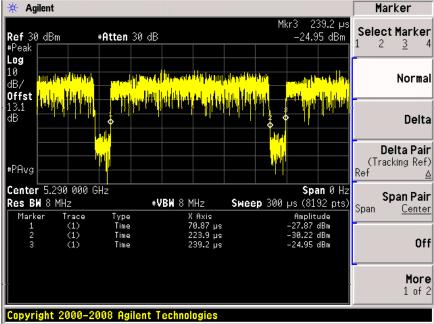
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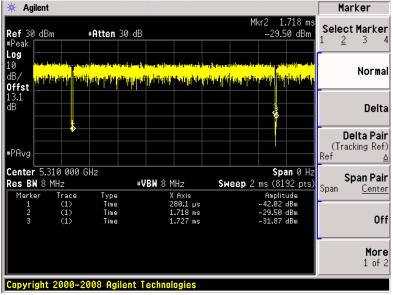
Duty Cycle, 5260/5280/5300/5320 MHz, HT/VHT80, M0.2

Duty Cycle, 5260/5280/5300/5320 MHz, HT/VHT80 Beam Forming, M0.3

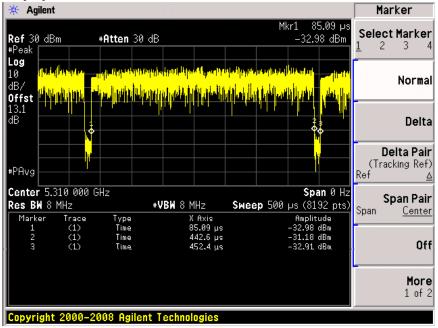


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Duty Cycle, 5300/5320 MHz, Non HT40, 6Mbps



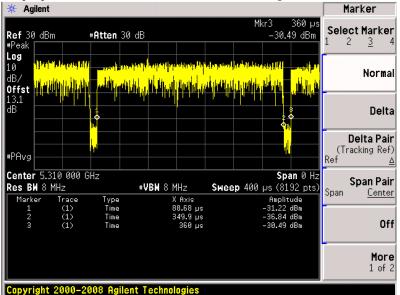
Duty Cycle, 5300/5320 MHz, HT40, M8



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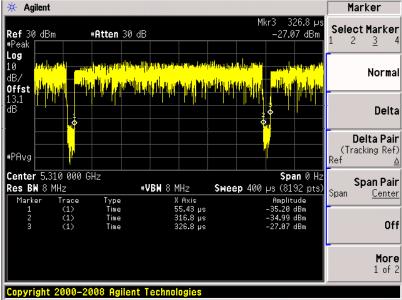
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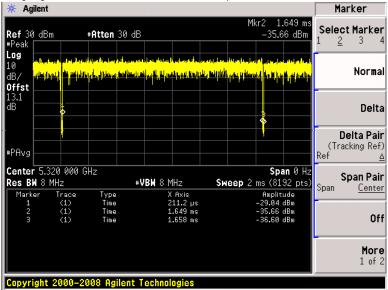
Duty Cycle, 5300/5320 MHz, HT40 Beam Forming, M16

Duty Cycle, 5300/5320 MHz, HT40 Beam Forming, M16



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Duty Cycle, 5320 MHz, Non HT20, 6Mbps

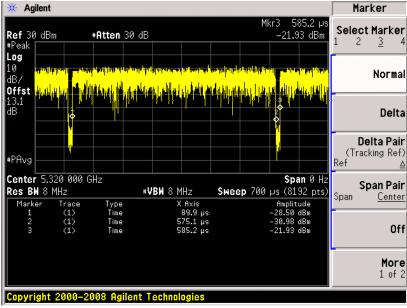


Duty Cycle, 5320 MHz, Non HT20 Beam Forming, 6Mbps

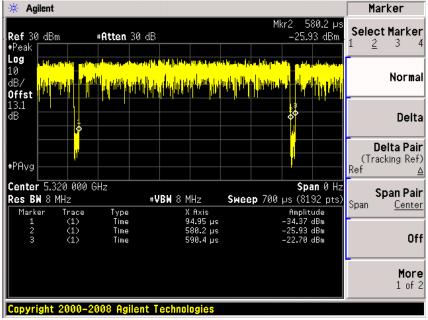
| 🔆 Agilent | | | | Marker |
|--|------------------------------------|--|--|---|
| #Peak | #Atten 30 dB | | Mkr1 176.3 µs −22.25 dBm | Select Marker <u>1</u> 2 3 4 |
| 10 | A contraction of the second second | | al a la basta de la desta de la la basta A porta de la Contra de la contra A contra de la contr | Normal |
| 13.1 dB | | | | Delta |
| #PAvg | | | | Delta Pair (Tracking Ref) Ref <u>△</u> |
| Center 5.320 000 G Res BW 8 MHz Marker Trace | GHz #VBW Type | 3 MHz Sm X Axis | Span 0 Hz Ieep 2 ms (8192 pts) Amplitude | Span Pair Span <u>Center</u> |
| 1 (1) 2 (1) 3 (1) | Time Time Time | л Пать 176.3 µs 1.613 ms 1.623 ms | -22.25 dBm -18.50 dBm 3.61 dBm | Off |
| | | | | More 1 of 2 |
| Copyright 2000-2 | 008 Agilent Tech | nologies | | |

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Duty Cycle, 5320 MHz, HT20, M16



Duty Cycle, 5320 MHz, HT20 Beam Forming, M16



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