Graphical Test Results 802.11n 40MHz: 1 – 18GHz (5510MHz – 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

Title: 1 - 18GHz Test Results at 5510MHz (Average)

Graphical Test Results 802.11n 40MHz: 1 – 18GHz (5510MHz – 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

Title: 1 - 18GHz Test Results at 5510MHz (Peak)

Graphical Test Results 802.11n 40MHz: 1 – 18GHz (5550MHz – 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

Title: 1 - 18GHz Test Results at 5550MHz (Average)

Graphical Test Results 802.11n 40MHz: 1 – 18GHz (5550MHz – 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

Title: 1 - 18GHz Test Results at 5550MHz (Peak)

Graphical Test Results 802.11ac 80MHz: 1 – 18GHz (5530MHz – 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

Title: 1 - 18GHz Test Results at 5530MHz (Average)

Graphical Test Results 802.11ac 80MHz: 1 – 18GHz (5530MHz – 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

Title: 1 - 18GHz Test Results at 5530MHz (Peak)

Graphical Test Results 802.11ac 80MHz: 1 – 18GHz (5560MHz – 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

Title: 1 - 18GHz Test Results at 5560MHz (Average)

Graphical Test Results 802.11ac 80MHz: 1 – 18GHz (5560MHz – 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

Title: 1 - 18GHz Test Results at 5560MHz (Peak)

Graphical Test Results 802.11a 20MHz: 1 – 18GHz (5700MHz – 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

Title: 1 - 18GHz Test Results at 5700MHz (Average)

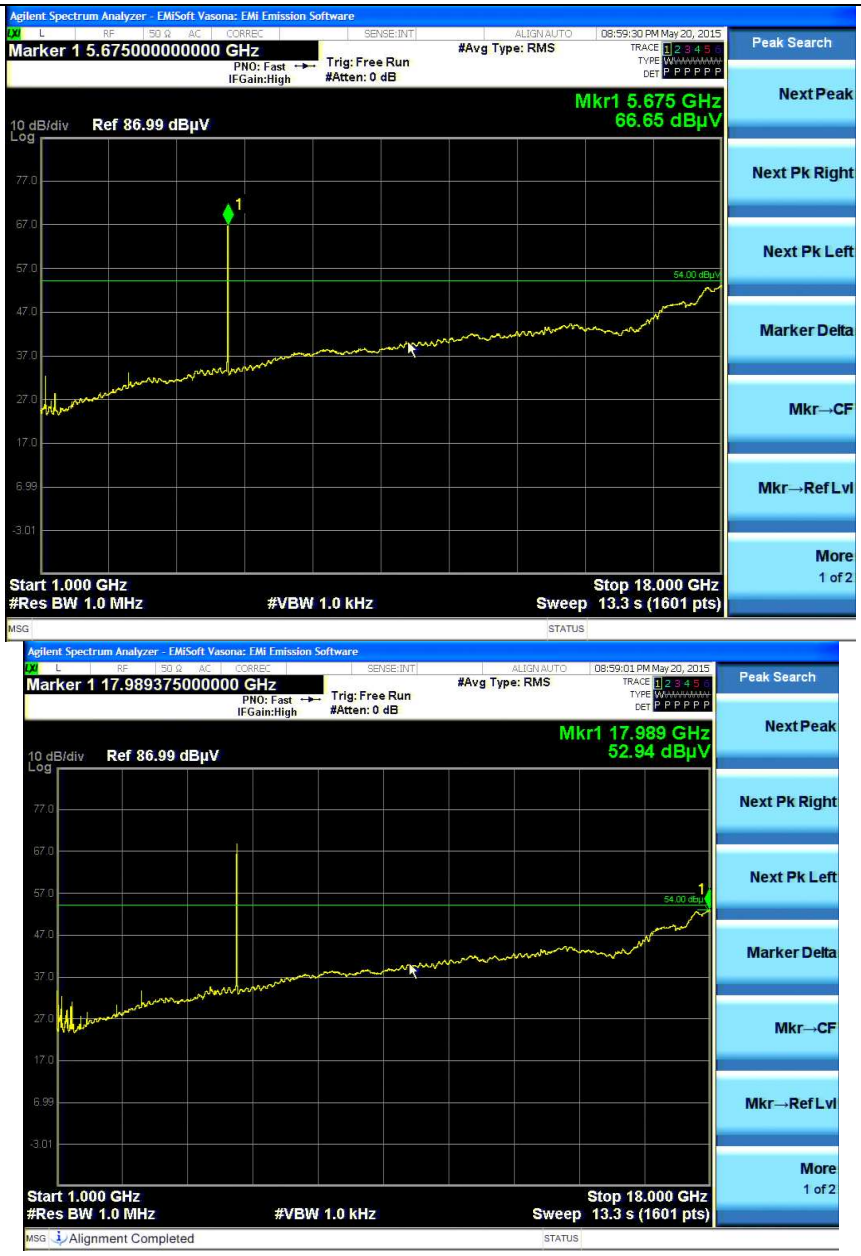
Graphical Test Results 802.11a 20MHz: 1 – 18GHz (5700MHz – Peak)

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

Title: 1 - 18GHz Test Results at 5700MHz (Peak)

Graphical Test Results 802.11a 20MHz: 1 – 18GHz (5680MHz – 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



Title: 1 - 18GHz Test Results at 5680MHz (Average)

Graphical Test Results 802.11a 20MHz: 1 – 18GHz (5680MHz – 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

Title: 1 - 18GHz Test Results at 5680MHz (Peak)

Graphical Test Results 802.11n 40MHz: 1 – 18GHz (5670MHz – 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

Title: 1 - 18GHz Test Results at 5670MHz (Average)

Graphical Test Results 802.11n 40MHz: 1 – 18GHz (5670MHz – 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

Title: 1 - 18GHz Test Results at 5670MHz (Peak)

Graphical Test Results 802.11n 40MHz: 1 – 18GHz (5710MHz – 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

Title: 1 - 18GHz Test Results at 5710MHz (Average)

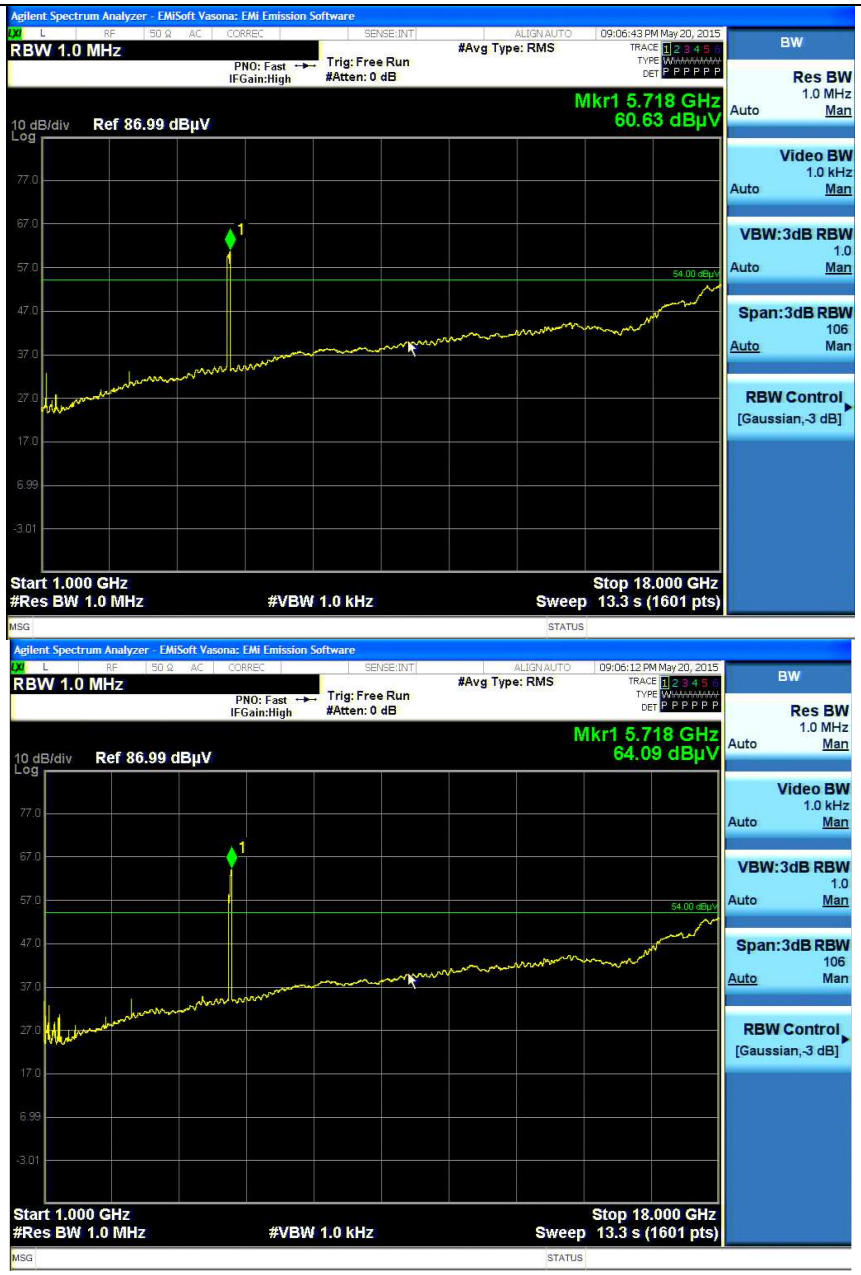
Graphical Test Results 802.11n 40MHz: 1 – 18GHz (5710MHz – Peak)

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

Title: 1 - 18GHz Test Results at 5710MHz (Peak)

Graphical Test Results 802.11ac 80MHz: 1 – 18GHz (5720MHz – Average)

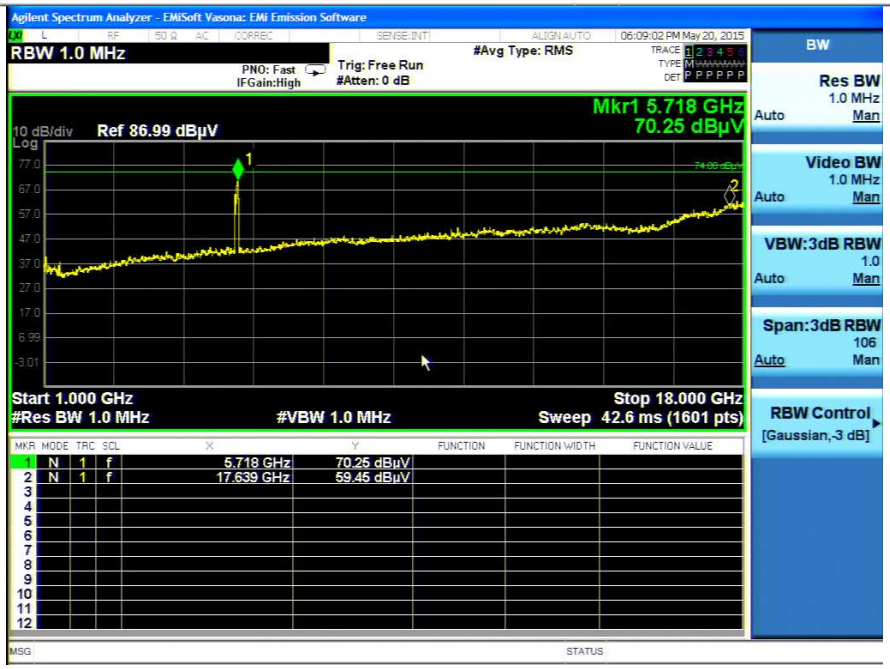
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: 1 - 18GHz Test Results at 5720MHz (Average)

Graphical Test Results 802.11ac 80MHz: 1 – 18GHz (5720MHz – Peak)

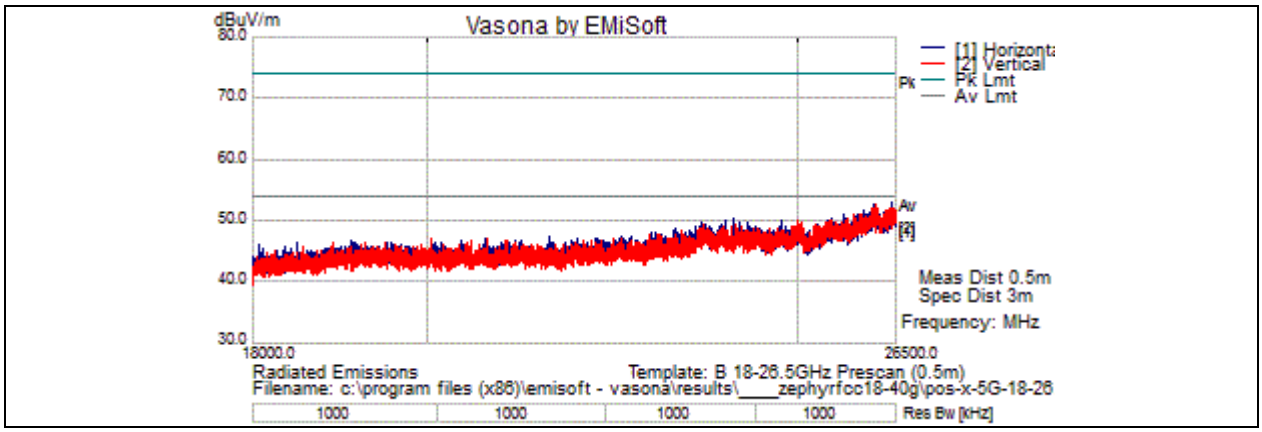
Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: 1 - 18GHz Test Results at 5720MHz (Peak)

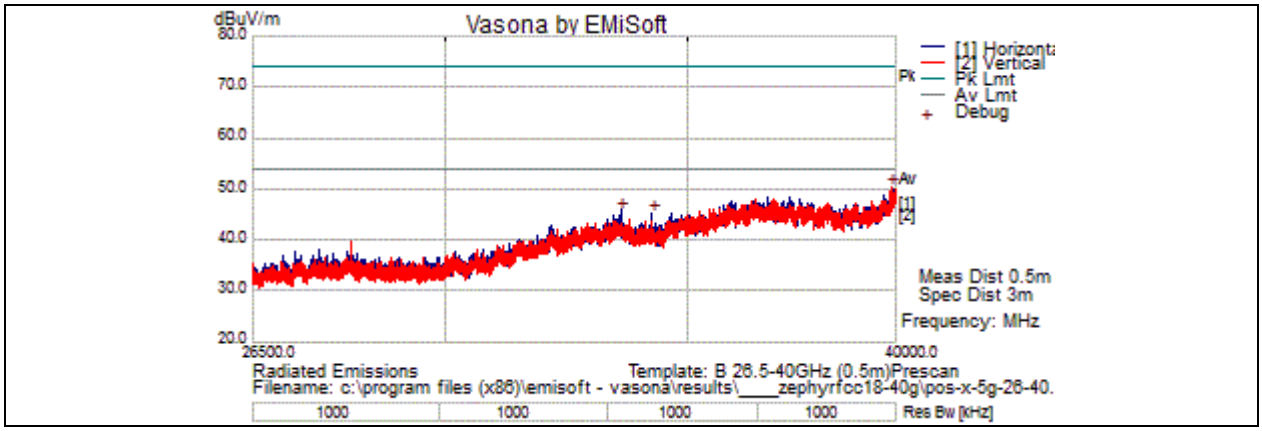
Graphical Test Results: 18 – 26GHz

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



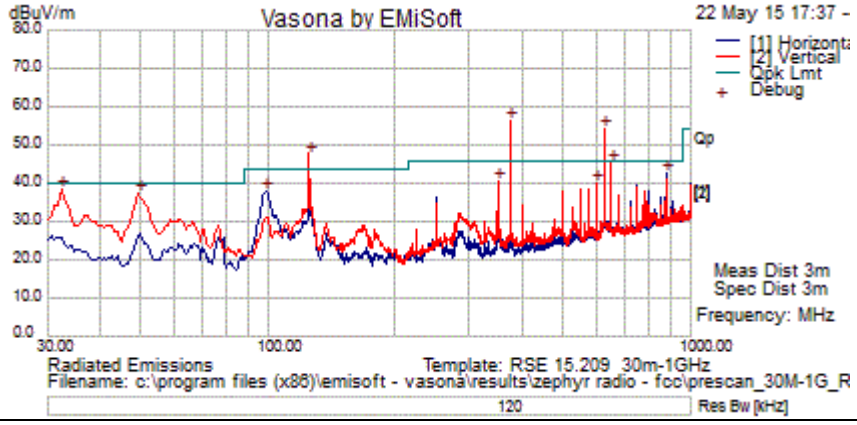
Radiated Receiver Spurious Measurements

Please note that for the 1-18GHz test results, the noise floor is close to the limit for the Average plots. Scans were performed with reduced RBW and VBW in order to verify that no significant emissions were hidden by 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.



Title: Receiver Spurious 30 – 1000MHz

Test Results Table

Prescan 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	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]	H	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]	H	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]	H	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	

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

Title: Receiver Spurious 1 – 18GHz (Average)

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

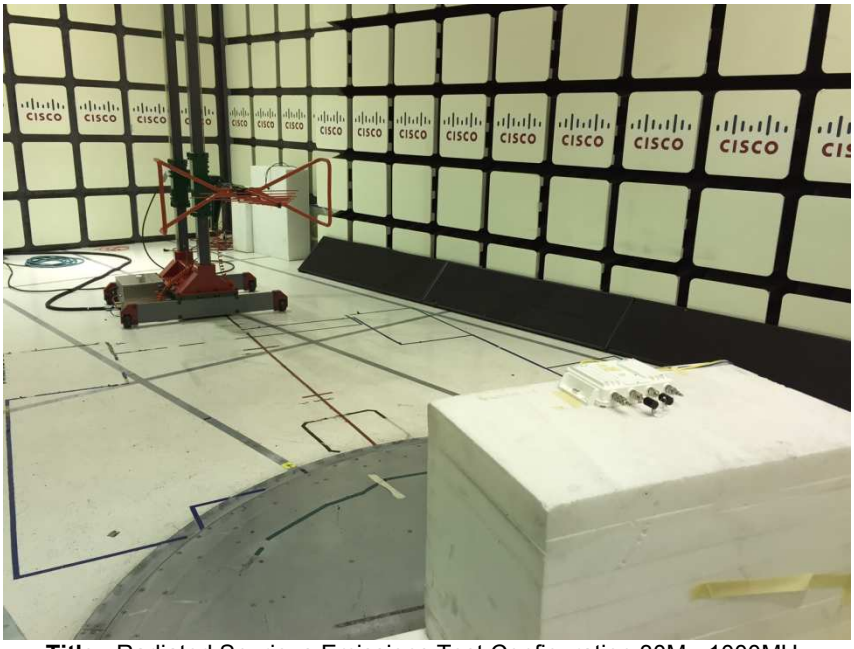
Title: Receiver Spurious 1 – 18GHz (Peak)

Appendix A: EUT Photos

EUT

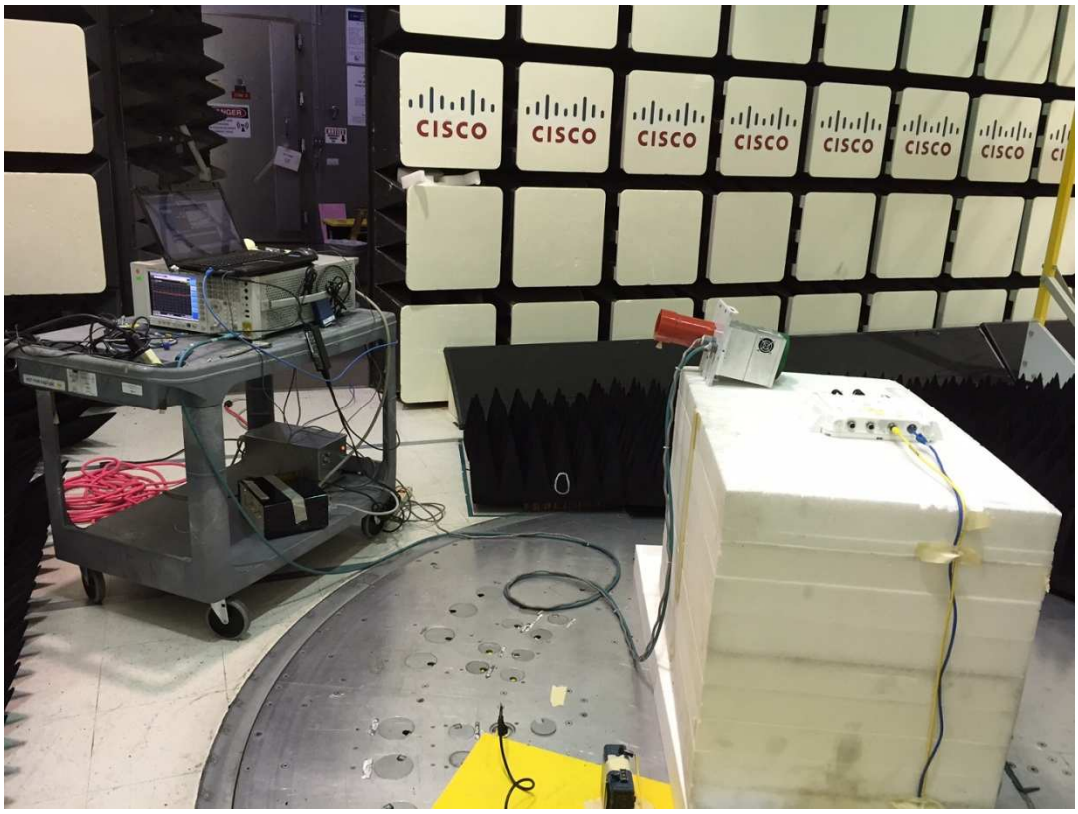
Power Supply

Appendix B: Physical Test Arrangement Photos:

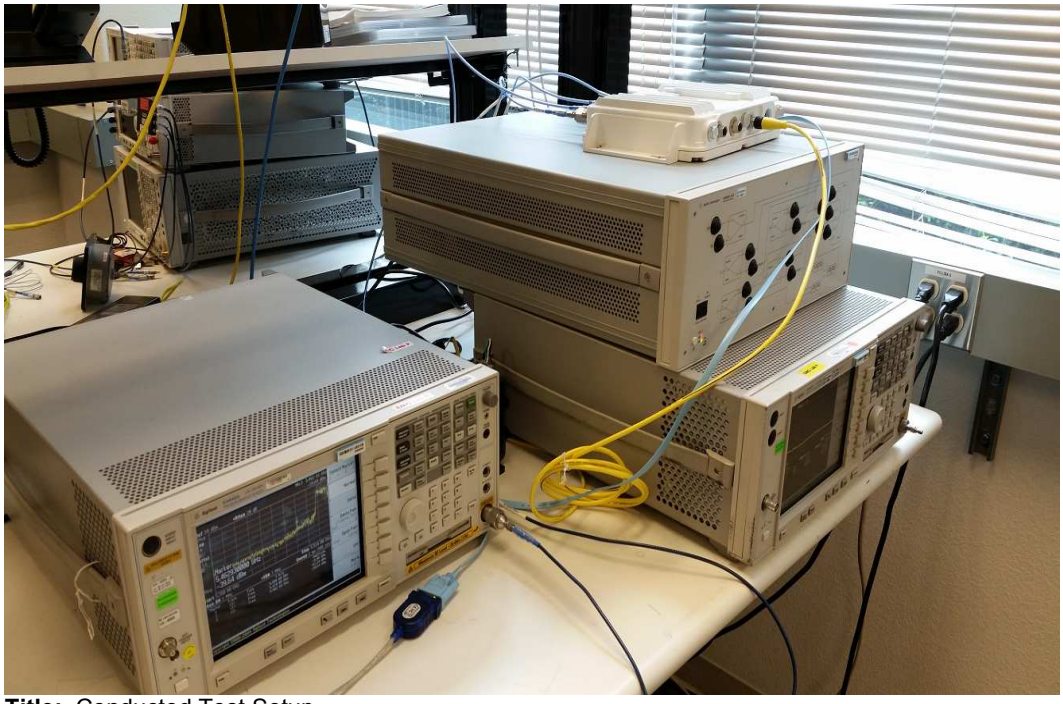


Title: Radiated Spurious Emissions Test Configuration 30M - 1000MHz

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



Title: Radiated Spurious Emissions Test Configuration 18 – 40GHz



Title: Conducted Test Setup

Appendix C: Test Equipment and Software Used to Perform Testing

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

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

Software Used to Perform Testing:

EMIsoft Vasona, version 6.024

Appendix D: Test Procedures

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# 1278295.

Appendix G: Scope of Accreditation

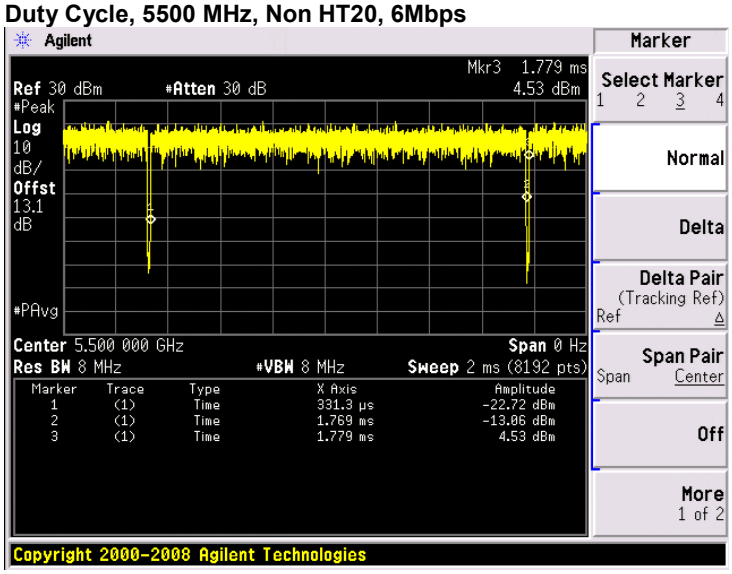
The scope of accreditation of Cisco Systems, Inc. can be found on the A2LA web page at:
http://www.a2la.org/scopepdf/1178-01.pdf

Appendix H: Duty Cycle

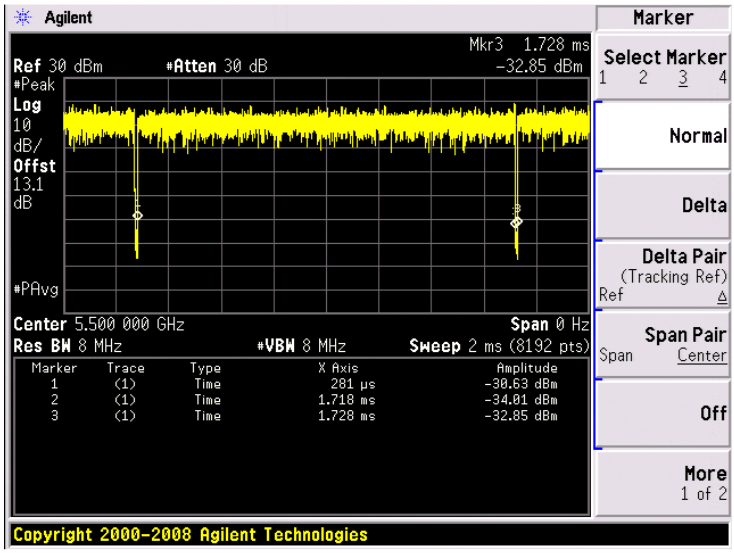
Duty Cycle table and screen captures are shown below for power/psd modes.

Mode	Data Rate	On-time (ms)	Total Time (ms)	Duty Cycle (%)	Correction Factor (dB)
NonHT20 Dual	6Mbps	1.438	1.448	99.3	0.03
NonHT20 BF Dual	6Mbps	1.437	1.447	99.3	0.03
VHT20 Quad	M0x3	0.494	0.505	97.8	0.10
VHT20 BF Quad	M0x3	0.493	0.505	97.6	0.11
NonHT40 Triple	6Mbps	1.438	1.447	99.4	0.03
HT40 Quad	M0x2	0.366	0.376	97.3	0.12
NonHT80 Quad	6Mbps	1.438	1.448	99.3	0.03
VHT80 Quad	M0x1	0.334	0.349	95.7	0.19
NonHT40 Triple	6Mbps	1.438	1.448	99.3	0.03
HT40 Triple	M0	0.669	0.679	98.5	0.07
HT40 BF Quad	M0x3	0.265	0.281	94.3	0.25
HT40 BF Quad	M0	0.669	0.679	98.5	0.07
NonHT20 Dual	6Mbps	1.438	1.447	99.4	0.03
NonHT20 BF Quad	6Mbps	1.438	1.447	99.4	0.03
VHT20 Triple	M0x2	0.705	0.717	98.3	0.07
VHT20 BF Triple	M0x3	0.494	0.506	97.6	0.11
NonHT20 BF Dual	6Mbps	1.437	1.447	99.3	0.03
VHT20 Triple	M0x2	0.706	0.719	98.2	0.08
VHT20 Quad	M0x3	0.493	0.505	97.6	0.11
VHT20 BF Triple	M0x3	0.493	0.506	97.4	0.11
VHT20 BF Quad	M0x3	0.494	0.507	97.4	0.11

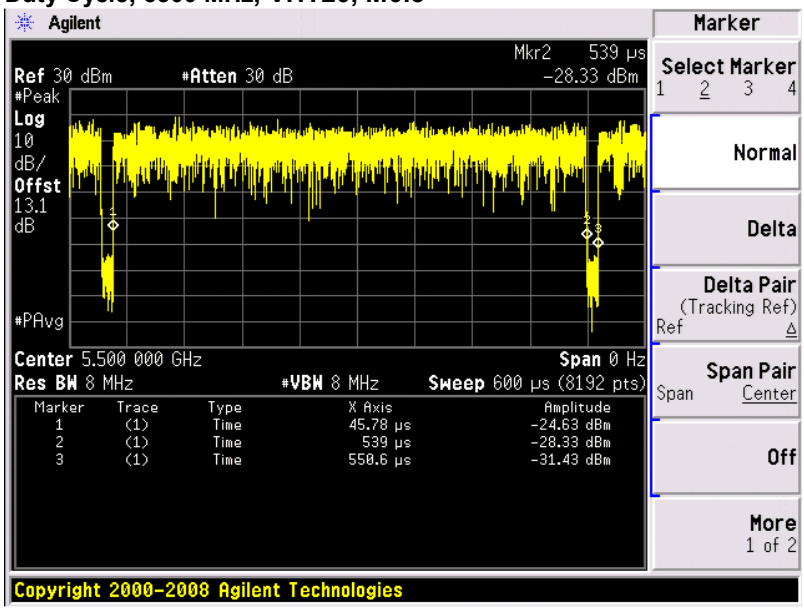
Duty Cycle, 5500 MHz, Non HT20, 6Mbps



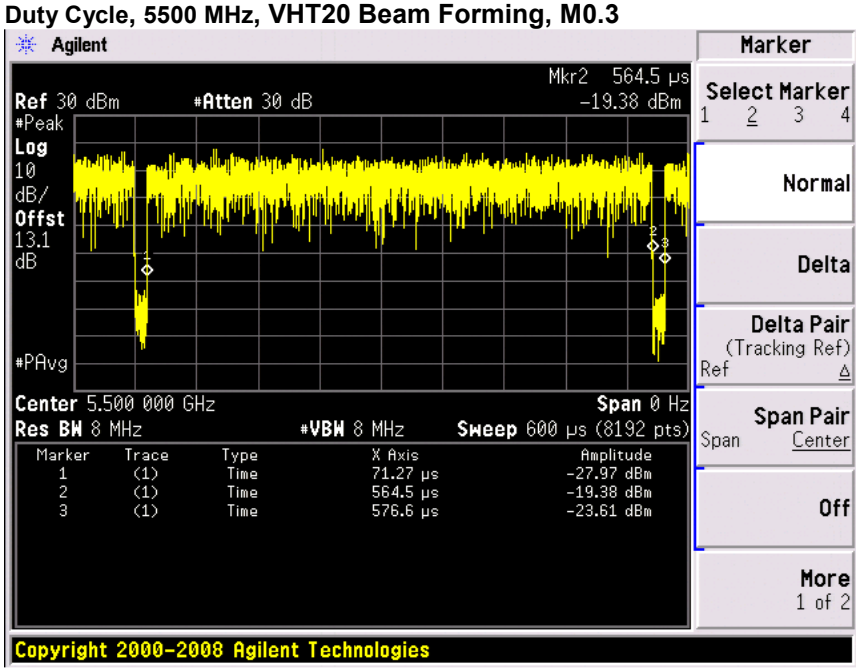
Duty Cycle, 5500 MHz, Non HT20 Beam Forming, 6Mbps



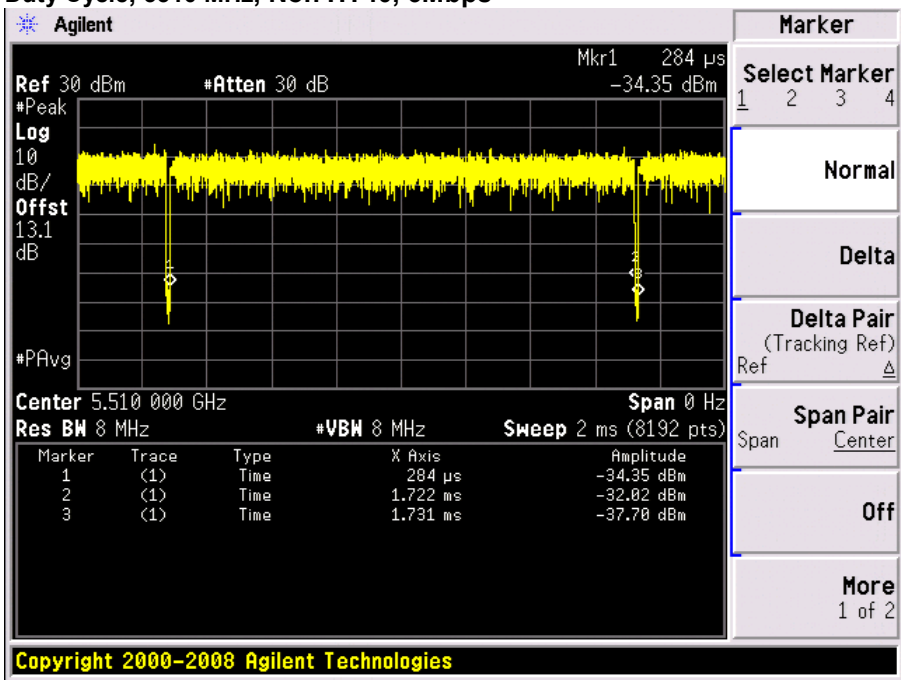
Duty Cycle, 5500 MHz, VHT20, M0.3



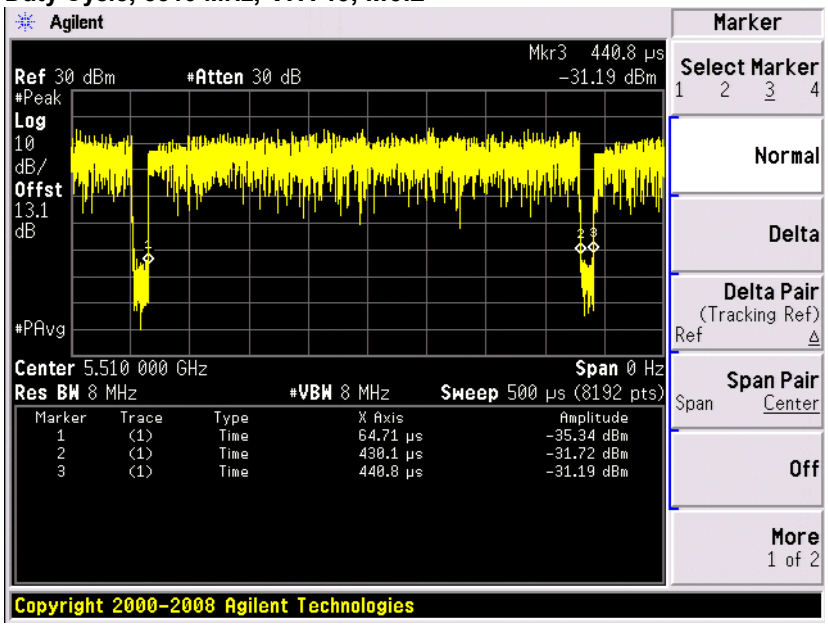
Duty Cycle, 5500 MHz, VHT20 Beam Forming, M0.3



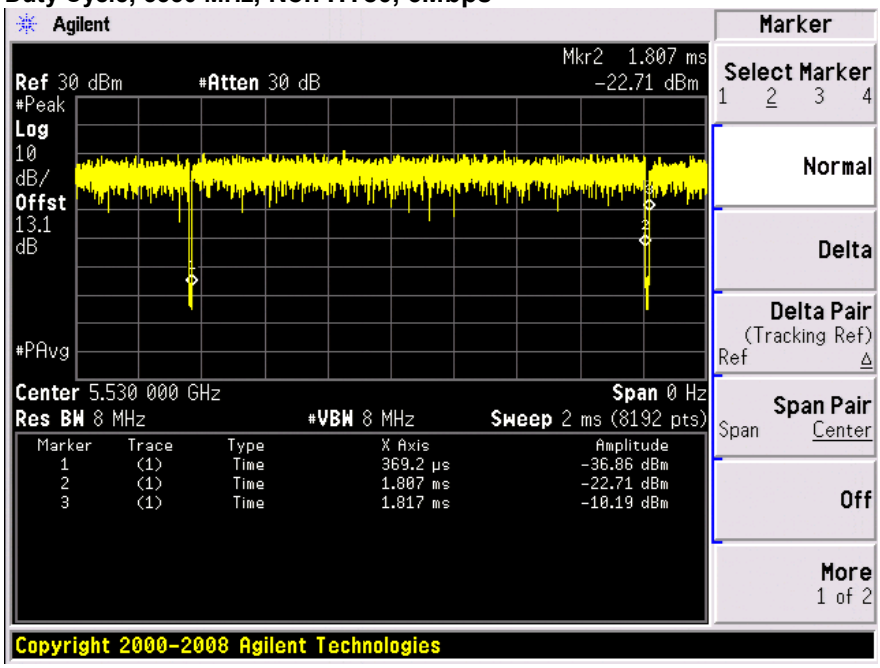
Duty Cycle, 5510 MHz, Non HT40, 6Mbps



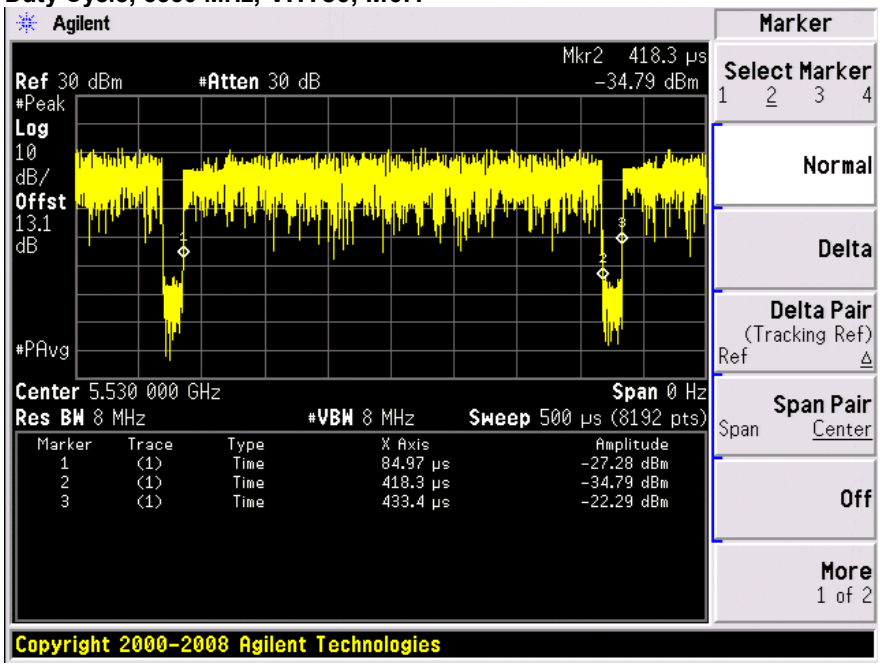
Duty Cycle, 5510 MHz, VHT40, M0.2



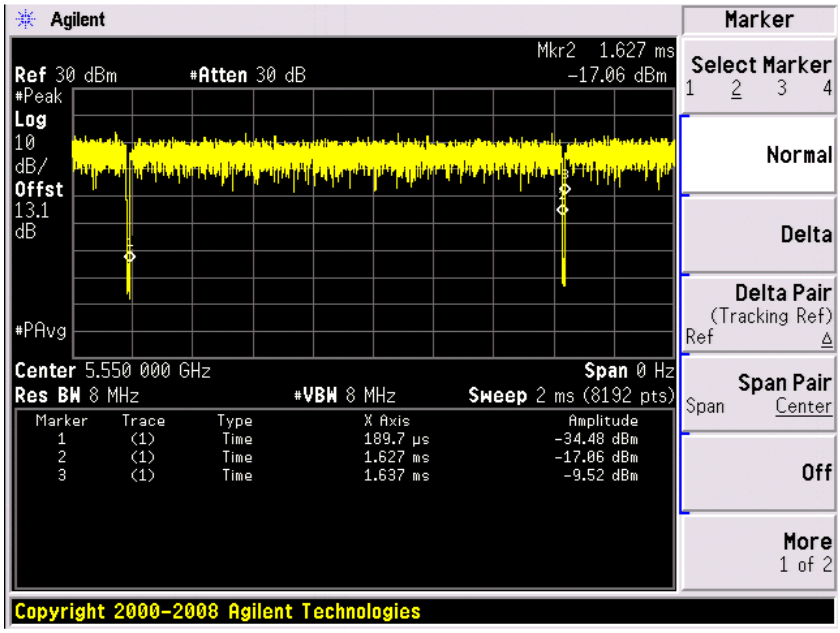
Duty Cycle, 5530 MHz, Non HT80, 6Mbps



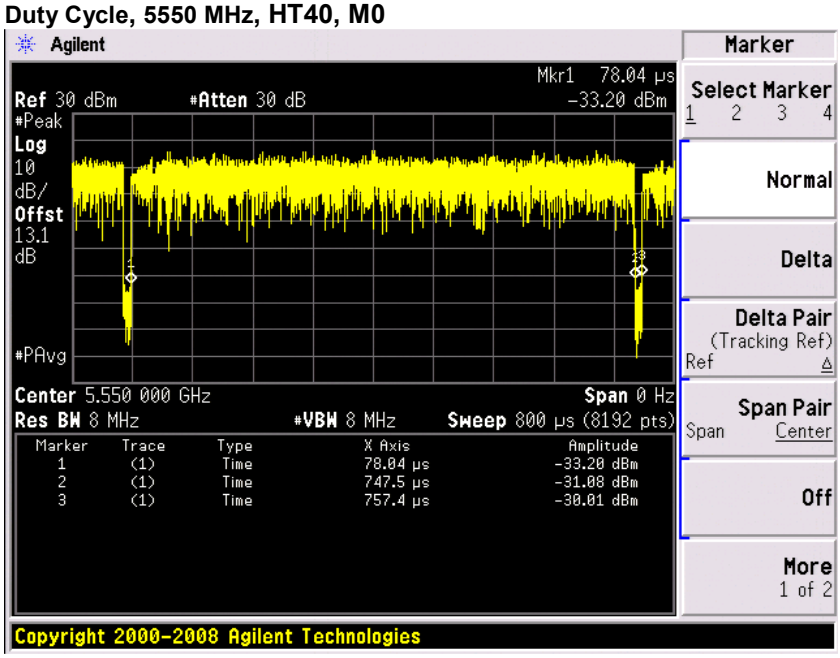
Duty Cycle, 5530 MHz, VHT80, M0.1



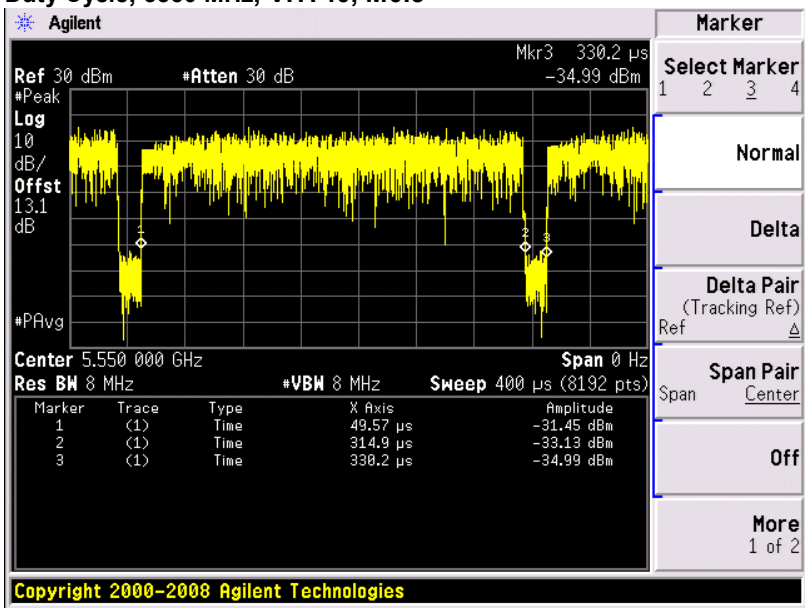
Duty Cycle, 5550 MHz, Non HT40, 6Mbps



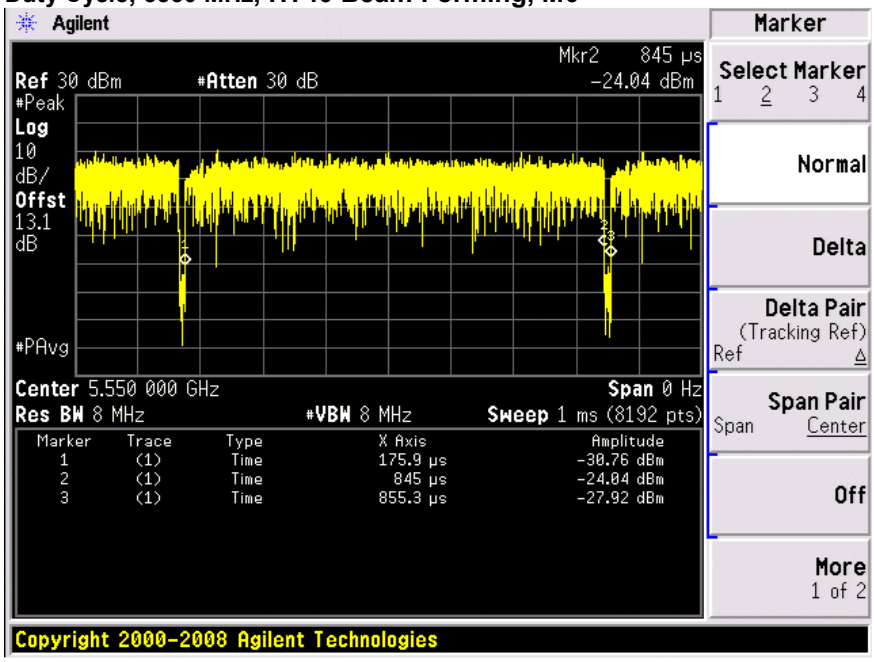
Duty Cycle, 5550 MHz, HT40, M0



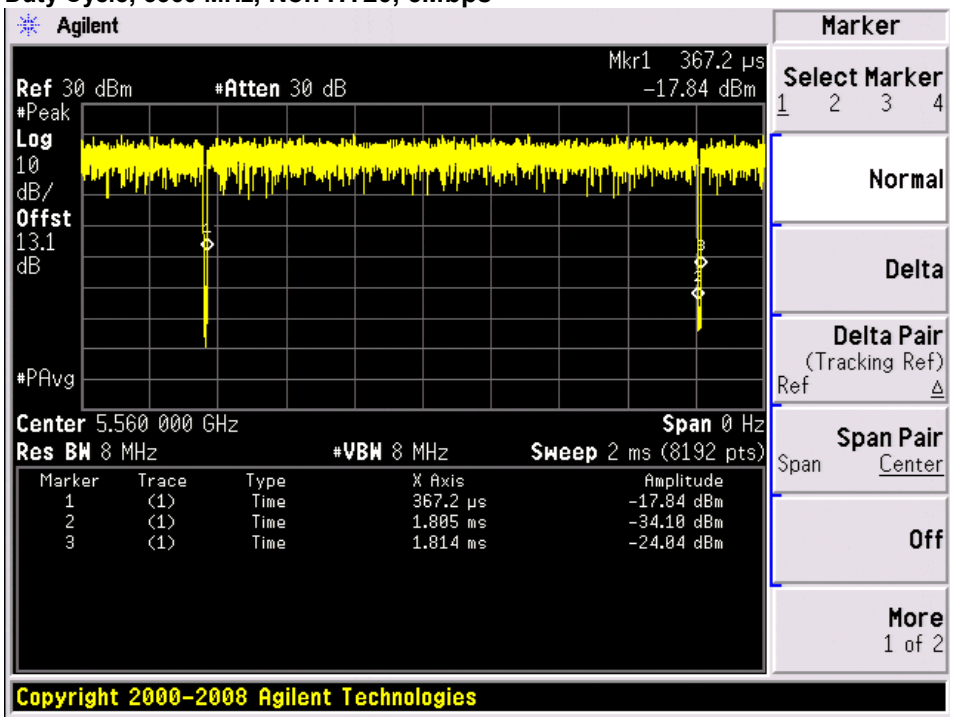
Duty Cycle, 5550 MHz, VHT40, M0.3



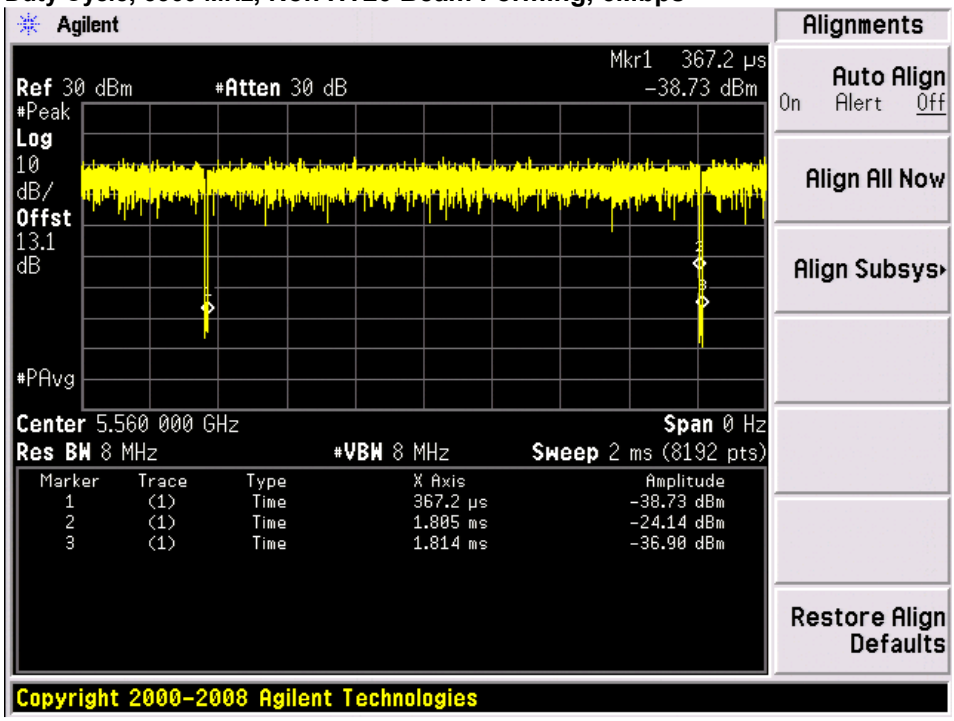
Duty Cycle, 5550 MHz, HT40 Beam Forming, M0



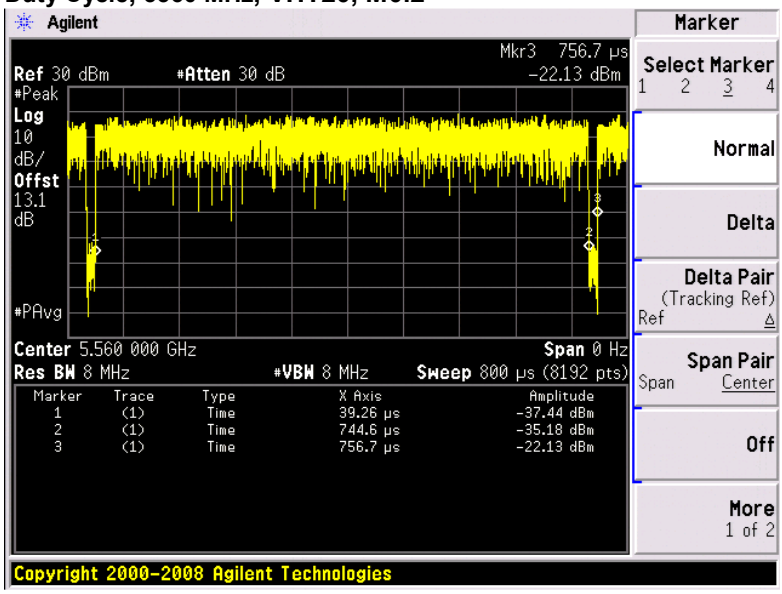
Duty Cycle, 5560 MHz, Non HT20, 6Mbps



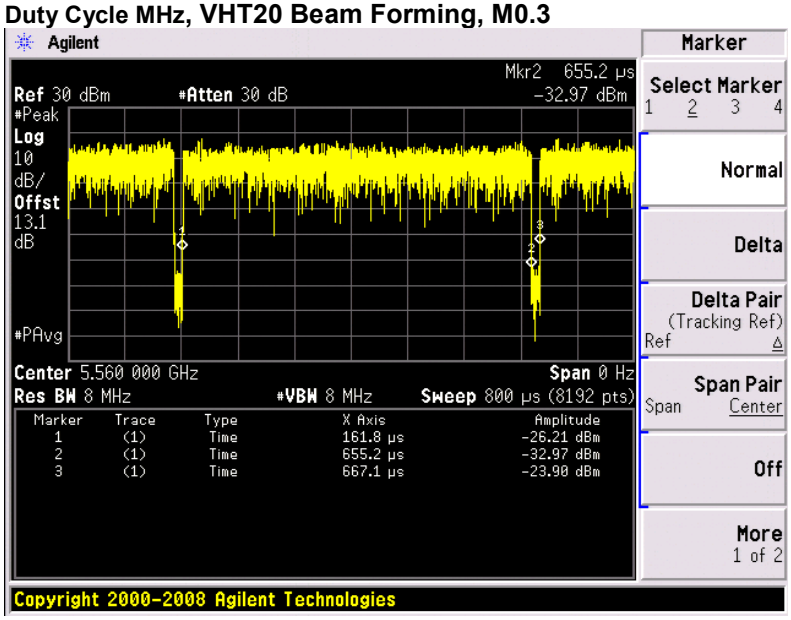
Duty Cycle, 5560 MHz, Non HT20 Beam Forming, 6Mbps



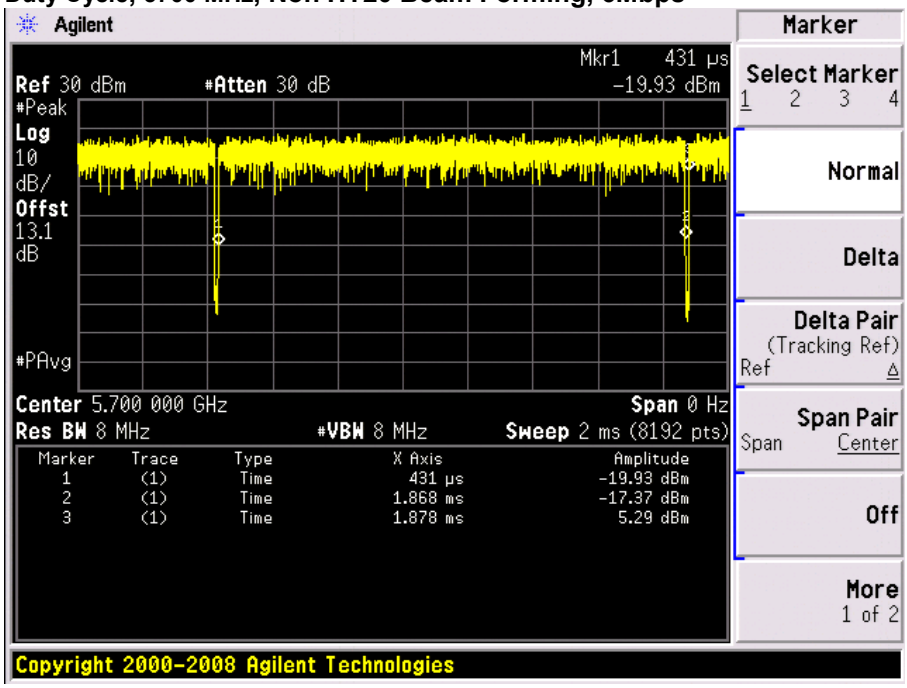
Duty Cycle, 5560 MHz, VHT20, M0.2



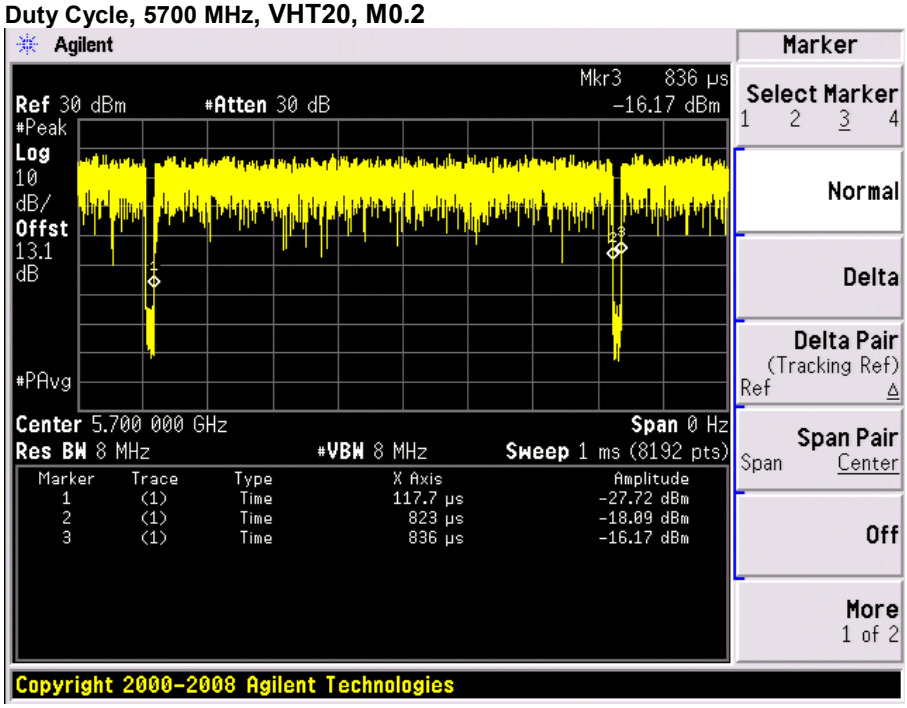
Duty Cycle MHz, VHT20 Beam Forming, M0.3



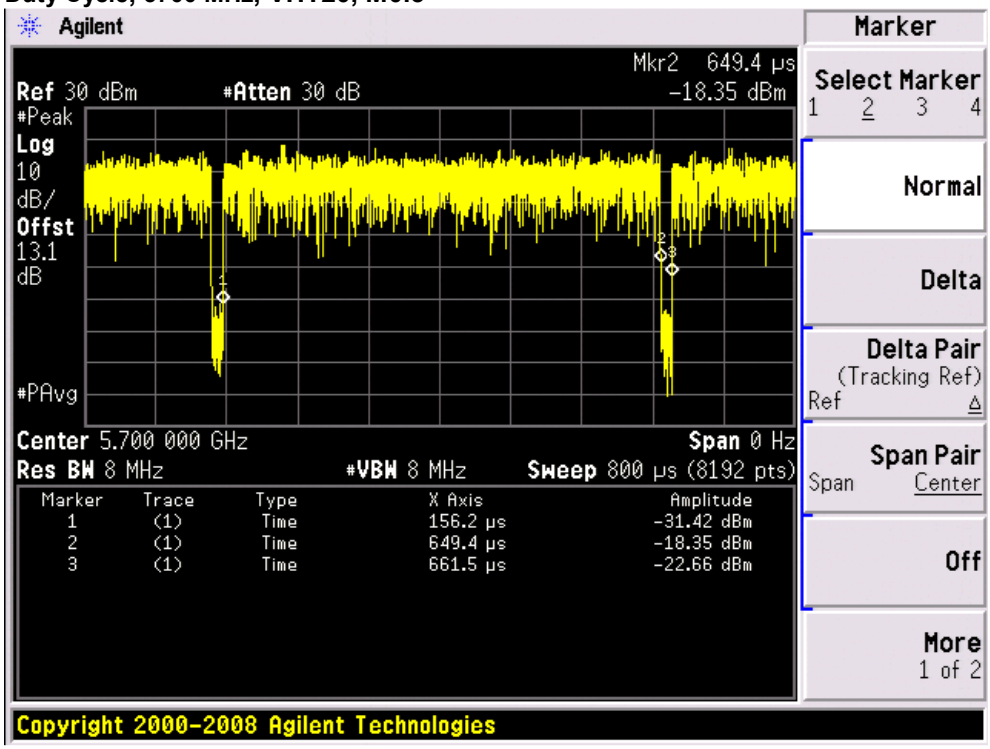
Duty Cycle, 5700 MHz, Non HT20 Beam Forming, 6Mbps



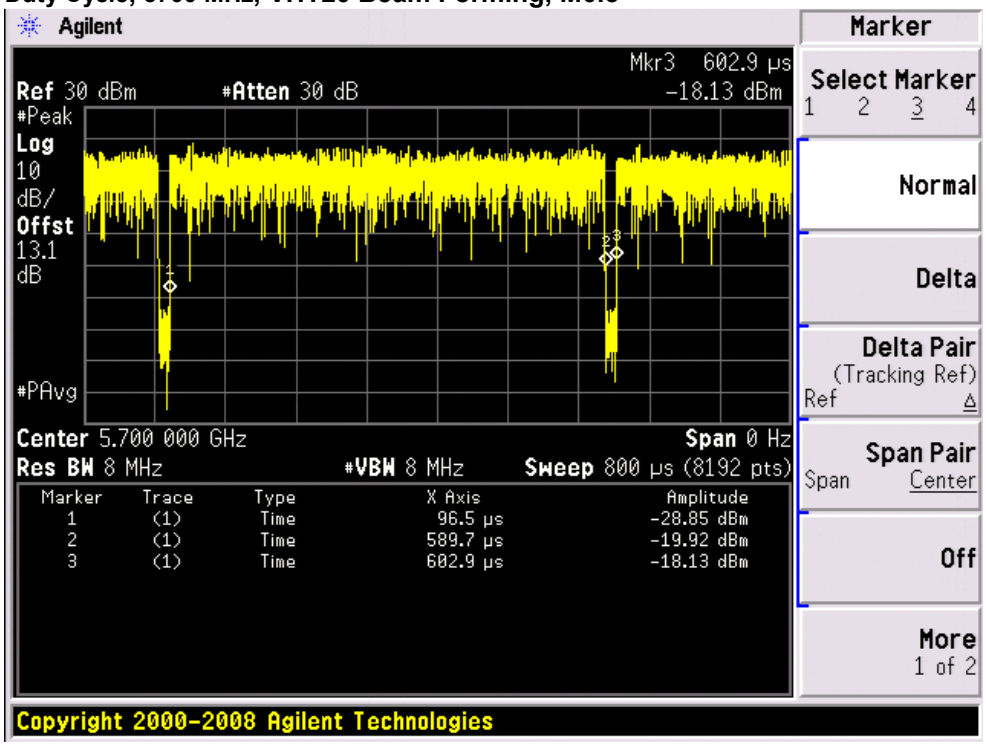
Duty Cycle, 5700 MHz, VHT20, M0.2



Duty Cycle, 5700 MHz, VHT20, M0.3



Duty Cycle, 5700 MHz, VHT20 Beam Forming, M0.3



Duty Cycle, 5700 MHz, VHT20 Beam Forming, M0.3