DFS PORTION OF
FCC CFR47 PART 15 SUBPART E

CERTIFICATION TEST REPORT
FOR

ACCESS POINT

MODEL NUMBER: TR-Multi

FCC ID: QRF-QSFNYON3

REPORT NUMBER: 07U11088-1

ISSUE DATE: JUNE 27,2007

Prepared for
TRANZEO
19473 FRASER WAY
PITT MEADOWS, BC, V3Y 2V4, CANADA

Prepared by
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Revision History

Rev.	Issue Date	Revisions	Revised By
--	06/27/07	Initial Issue	M. Heckrotte

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: TRANZEO
19473 FRASER WAY
PITT MEADOWS, BC, V3Y 2V4, CANADA

EUT DESCRIPTION: ACCESS POINT

MODEL: TR-Multi

SERIAL NUMBER: 0060B30B8BA2 (Device configured as Master)
0060B30B8B98 (Device configured as Slave)

DATE TESTED: JUNE 13-14, 2007

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART E (DFS REQUIREMENTS)	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

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EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 15 and FCC 06-96 APPENDIX "COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVCIES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION".

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. DYNAMIC FREQUENCY SELECTION

5.1. LIMITS

§15.407 (h) and FCC 06-96 APPENDIX "COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVCIES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION".

Table 1: Applicability of DFS requirements prior to use of a channel

Requirement	**Operational Mode**		
	Master	**Client (without radar detection)**	**Client (with radar detection)**
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
Uniform Spreading	Yes	Not required	Not required

Table 2: Applicability of DFS requirements during normal operation

Requirement	**Operational Mode**		
	Master	**Client** (without DFS)	**Client** (with DFS)
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes

Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	**Value (see note)**
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.	

Table 4: DFS Response requirement values

Parameter	**Value**
Non-occupancy period	30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds
Channel Closing Transmission Time	200 milliseconds + approx. 60 milliseconds over remaining 10 second period
The instant that the *Channel Move Time* and the *Channel Closing Transmission Time* begins is as follows: • For the Short pulse radar Test Signals this instant is the end of the *Burst*. • For the Frequency Hopping radar Test Signal, this instant is the end of the last radar burst generated. • For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission. The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate channel changes (an aggregate of approximately 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.	

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (Microseconds)	PRI (Microseconds)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
1	1	1428	18	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Table 6 – Long Pulse Radar Test Signal

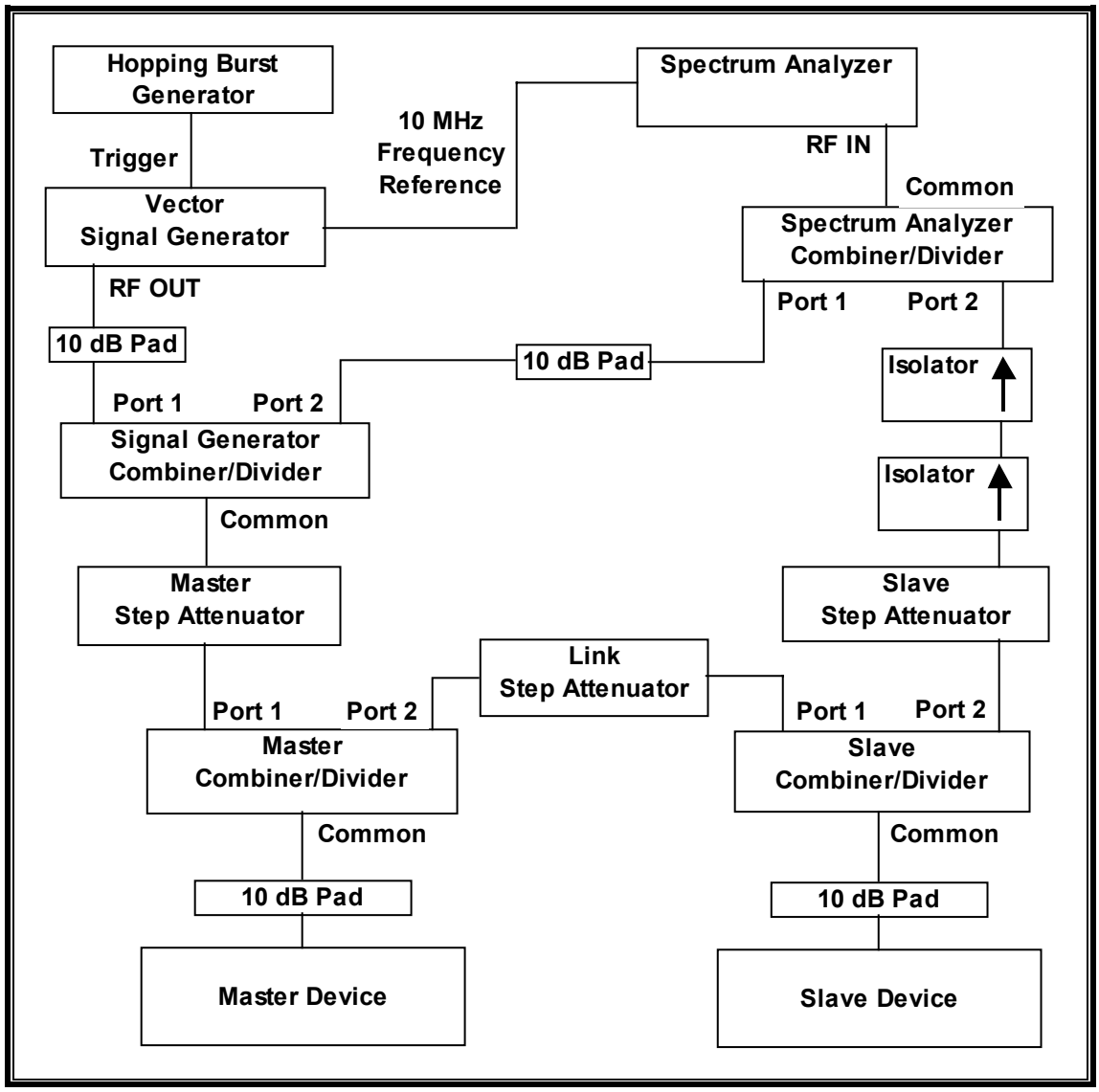
Radar Waveform	Bursts	Pulses per Burst	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Minimum Percentage of Successful Detection	Minimum Trials
5	8-20	1-3	50-100	5-20	1000-2000	80%	30

Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform	Pulse Width (µsec)	PRI (µsec)	Burst Length (ms)	Pulses per Hop	Hopping Rate (kHz)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	300	9	.333	70%	30

5.2. TEST AND MEASUREMENT SYSTEM

CONDUCTED METHOD SYSTEM BLOCK DIAGRAM



SYSTEM OVERVIEW

The short pulse and long pulse signal generating system utilizes the NTIA software. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

The short pulse types 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Freqeuncy Hopping Radar Waveform Generating Subsystem of FCC 06-96 APPENDIX. The frequency of the signal generator is incremented in 1 MHz steps from F_L to F_H for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer set to display 8001 bins on the horizontal axis. The time-domain resolution is 2 msec / bin with a 16 second sweep time, meeting the 10 second short pulse reporting criteria. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold.

Should multiple RF ports be utilized for the Master and/or Slave devices (for example, for diversity or MIMO implementations), additional combiner/dividers are inserted between the Master Combiner/Divider and the pad connected to the Master Device (and/or between the Slave Combiner/Divider and the pad connected to the Slave Device). Additional pads are utilized such that there is one pad at each RF port on each EUT.

SYSTEM CALIBRATION

A 50 ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected in place of the master device and the signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of –64 dBm as measured on the spectrum analyzer.

Without changing any of the instrument settings, the spectrum analyer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. Measure the amplitude and calculate the difference from –64 dBm. Adjust the Reference Level Offset of the spectrum analyzer to this difference.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of –64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

Set the signal generator to produce a radar waveform, trigger a burst manually and measure the level on the spectrum analyzer. Readjust the amplitude of the signal generator as required so that the peak level of the waveform is at a displayed level equal to the required or desired interference detection threshold. Separate signal generator amplitude settings are determined as required for each radar type.

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

Establish a link between the Master and Slave, adjusting the Link Step Attenuator as needed to provide a suitable received level at the Master and Slave devices. Stream the video test file to generate WLAN traffic. Confirm that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold. For Master Device testing confirm that the displayed traffic does not include Slave Device traffic. For Slave Device testing confirm that the displayed traffic does not include Master Device traffic.

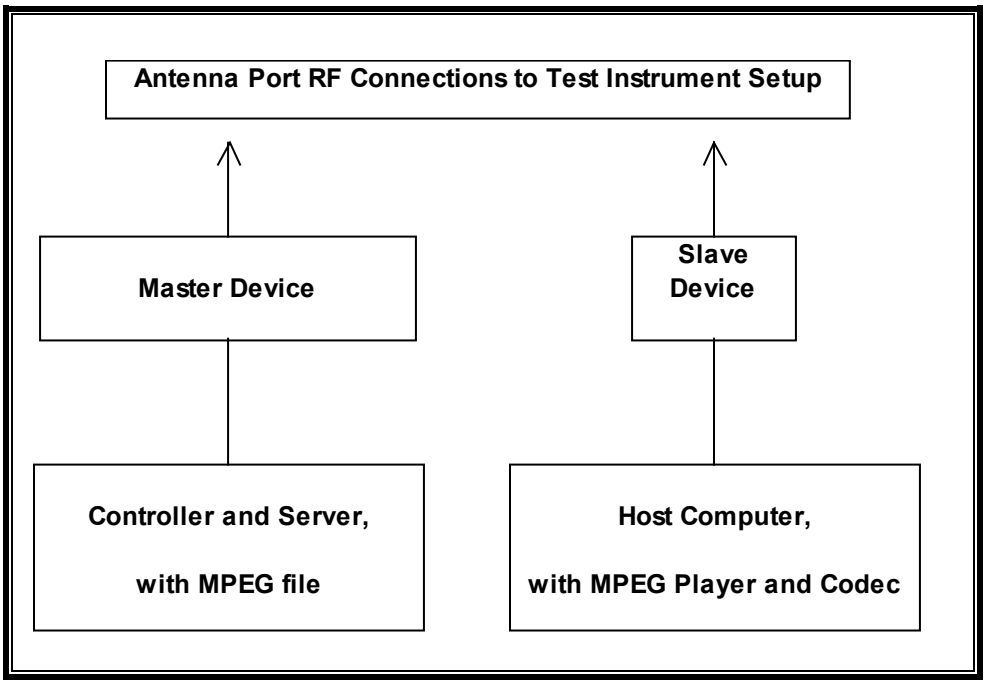
If a different setting of the Master Step Attenuator is required to meet the above conditions, perform a new System Calibration for the new Master Step Attenuator setting.

TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the DFS tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**Cal Due**
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	US42070220	7/29/2007
Vector Signal Generator 250kHz-20GHz	Agilent / HP	E8267C	US43320336	11/2/2007
High Speed Digital I/O Card	National Instruments	PCI-6534	HA1612845	1/16/2008

CONDUCTED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

The following test and measurement equipment was utilized for the DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	HP	PPP009L	557C40DLLS09GL	DoC
Laptop	Compaq	Presario V2000	CNF54214JJ	DoC
AC Adapter	HP	PPP009H	592C60AM5S7D35	DoC
Laptop	Compaq	Presario V2000	CNF5302FKH	DoC

5.3. DESCRIPTION OF EUT

DESCRIPTION OF EUT WITH RESPECT TO §15.407 (h) REQUIREMENTS

The EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges. The EUT can be configured as a Master or a Slave Device. In the Slave configuration, it does not have radar detection.

The highest power level within these bands is 30 dBm EIRP in any 5GHz band. The highest gain antenna assembly utilized with the EUT has a gain of 20 dBi. The lowest gain antenna assembly utilized with the EUT has a gain of 10 dBi.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is –64 dBm. After correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is –64 + 10+ 1 = –53dBm. The calibrated conducted DFS Detection Threshold level is set to –54 dBm. The tested level is lower than the required level hence it provides margin to the limit.

The EUT incorporates a 50-ohm coaxial antenna port that is connected to the test system to perform conducted tests.

The Slave device associated with the EUT during these tests does not have radar detection capability.

WLAN traffic is generated by streaming the video file TestFile.mp2 "6 ½ Magic Hours" from the Master to the Slave in full motion video mode using the media player with the V2.61 Codec package.

TPC is required since the maximum EIRP is greater than 500 mW (27 dBm).

The EUT utilizes the 802.11a architecture with a 20 MHz nominal channel bandwidth.

The software installed in the access point is TR6-3.5.2Rt (Standard Build) and TR6-3.5.6Rt_F336DFS01(Test build).

Test results show that the EUT requires 2.04 seconds to complete its initial power-up cycle.

MANUFACTURER'S STATEMENT REGARDING UNIFORM CHANNEL SPREADING

This statement is in a separate document.

MANUFACTURER'S STATEMENT REGARDING TPC

This statement is in a separate document.

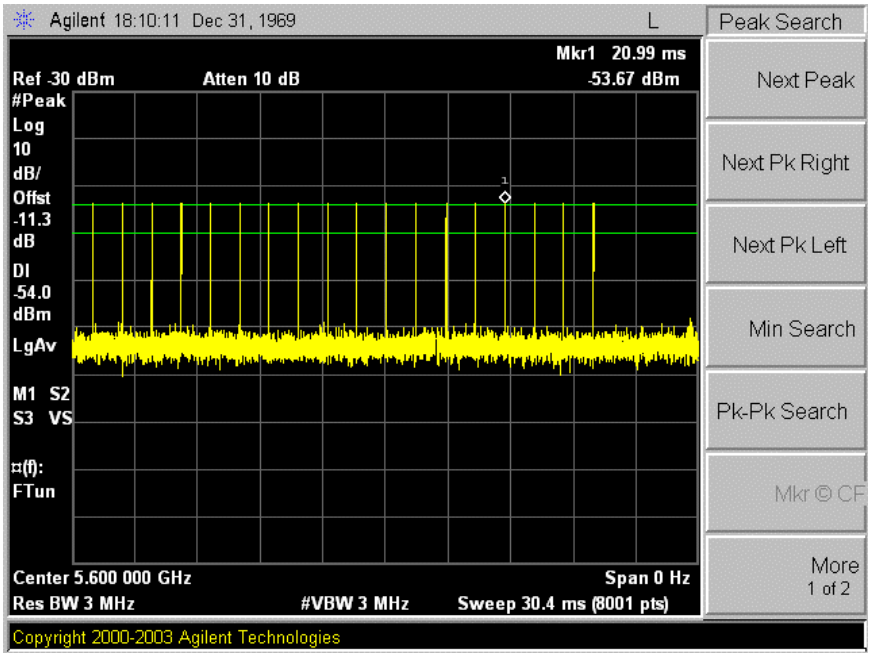
5.4. TEST CHANNEL AND METHOD

All tests were performed at a channel center frequency of 5600 MHz. Measurements were performed using conducted test methods.

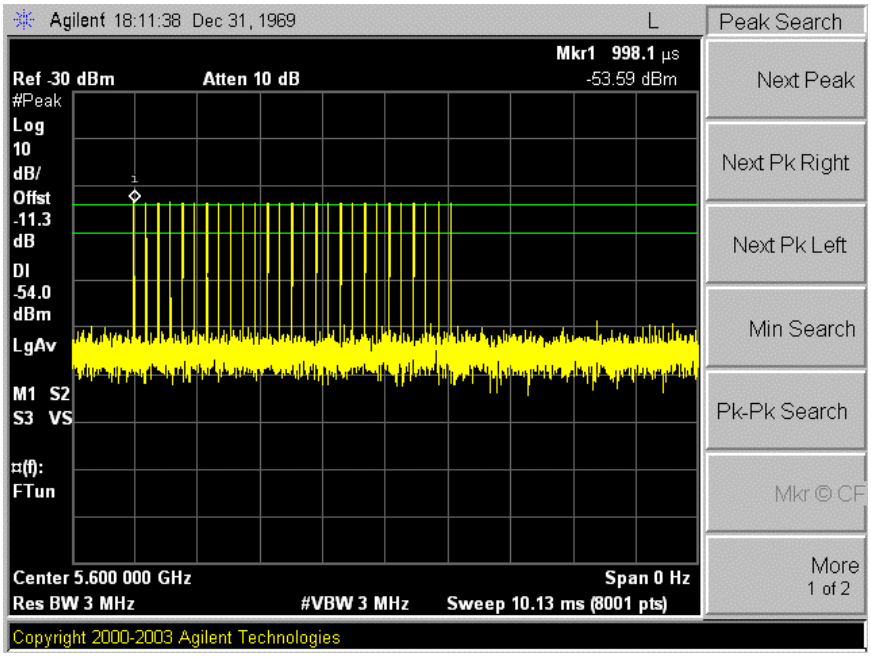
5.5. PLOTS OF RADAR WAVEFORM, AND WLAN TRAFFIC

PLOTS OF RADAR WAVEFORMS

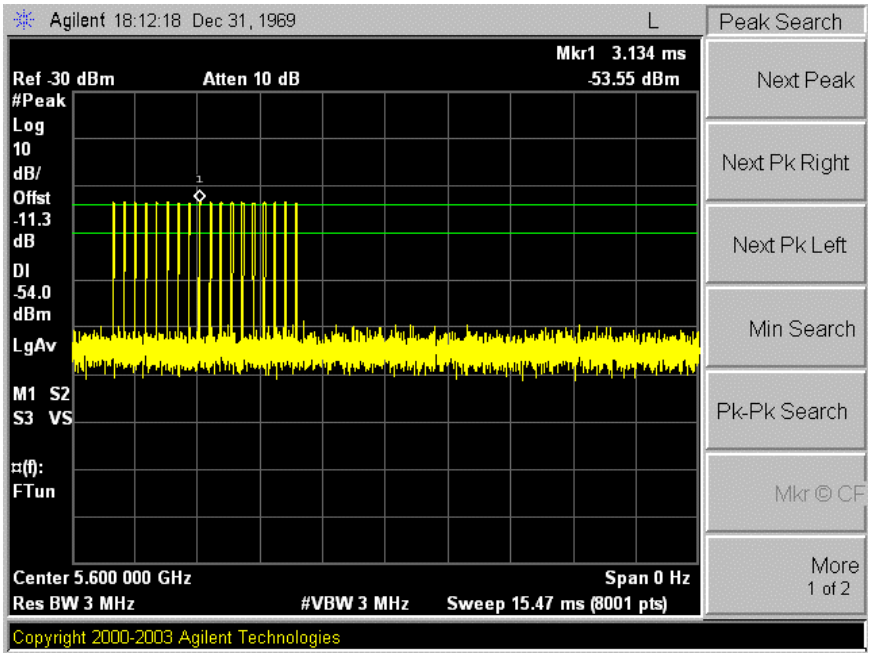
SHORT PULSE RADAR TYPE 1



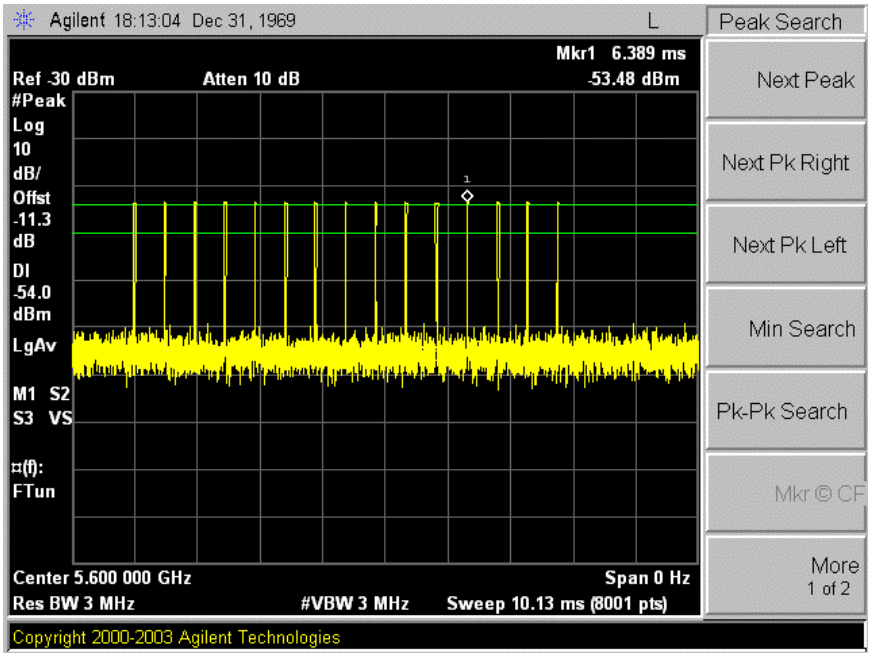
SAMPLE OF RADAR TYPE 2



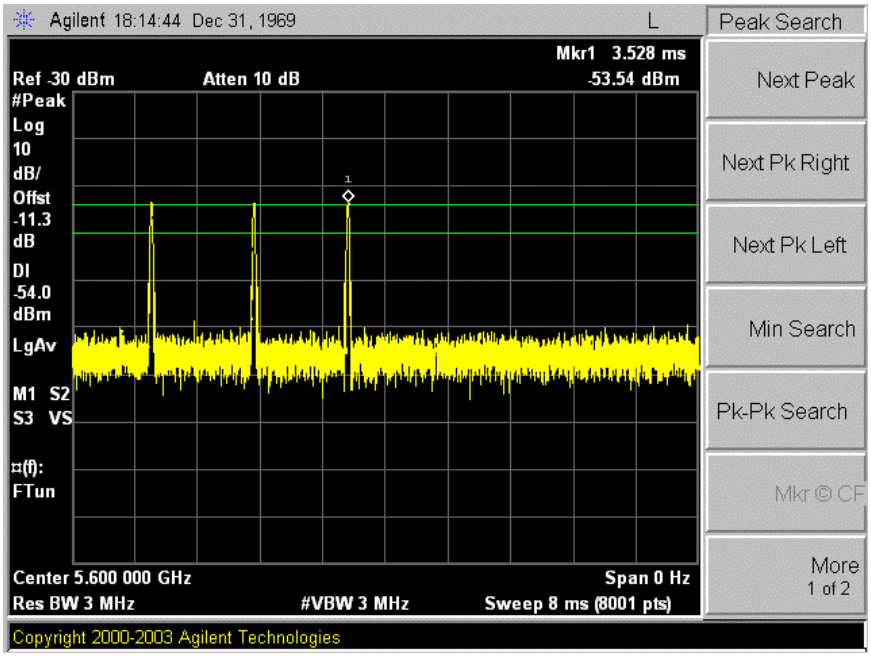
SAMPLE OF RADAR TYPE 3



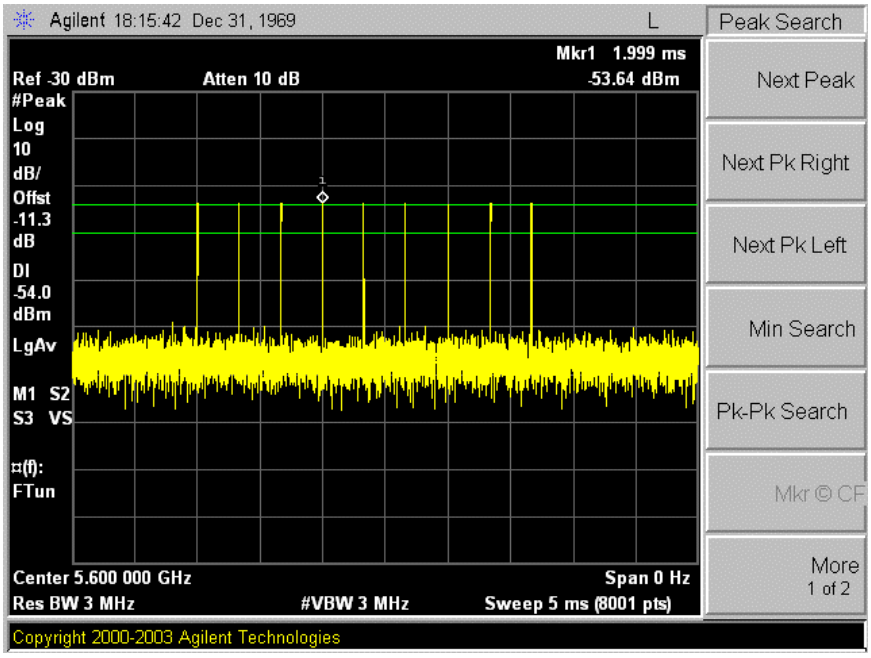
SAMPLE OF RADAR TYPE 4



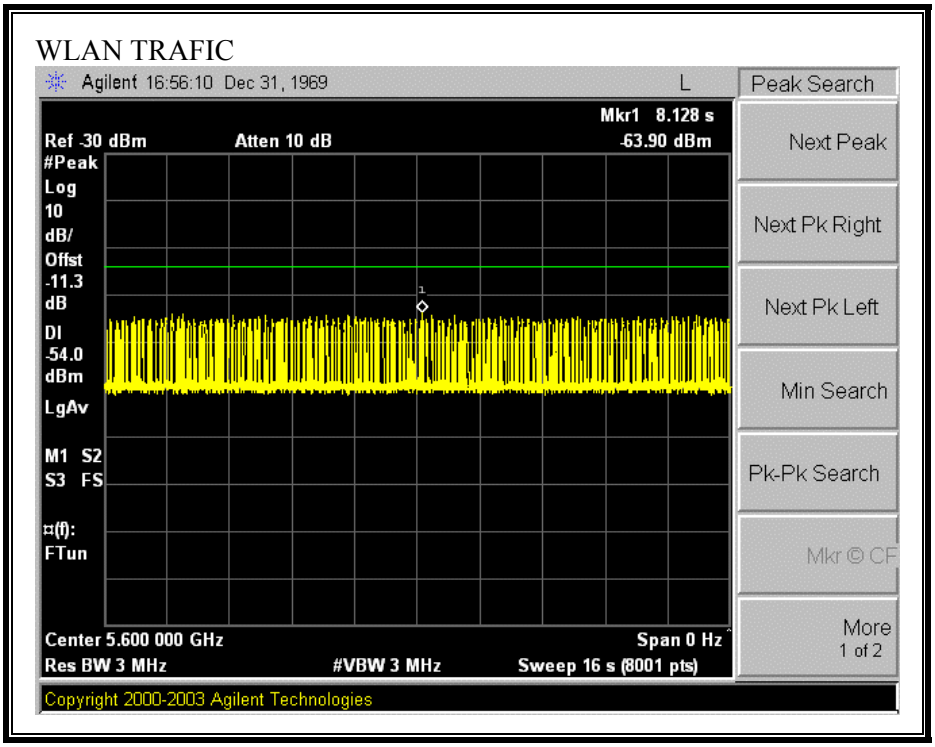
SAMPLE OF SINGLE BURST OF RADAR TYPE 5



SINGLE BURST OF RADAR TYPE 6



PLOT OF WLAN TRAFFIC FROM MASTER



5.6. CHANNEL AVAILABILITY CHECK TIME

TEST PROCEDURE TO DETERMINE INITIAL POWER-UP CYCLE TIME

A link was established on channel, then the EUT was rebooted. The time from the cessation of traffic to the re-initialization of traffic was measured as the time required for the EUT to complete the total power-up cycle. The time to complete the initial power-up period is 60 seconds less than this total power-up time.

TEST PROCEDURE FOR TIMING OF RADAR BURST

With a link established on channel, the EUT was rebooted. A radar signal was triggered within 0 to 6 seconds after the initial power-up period, and transmissions on the channel were monitored on the spectrum analyzer.

The Non-Occupancy list was cleared. With a link established on channel, the EUT was rebooted. A radar signal was triggered within 54 to 60 seconds after the initial power-up period, and transmissions on the channel were monitored on the spectrum analyzer.

CHANNEL AVAILABILITY CHECK TIME RESULTS

No non-compliance noted:

Time required for EUT to complete the initial power-up cycle (sec)
2.04

If a radar signal is detected during the channel availability check then the PC controlling the EUT displays a message stating that radar was detected.

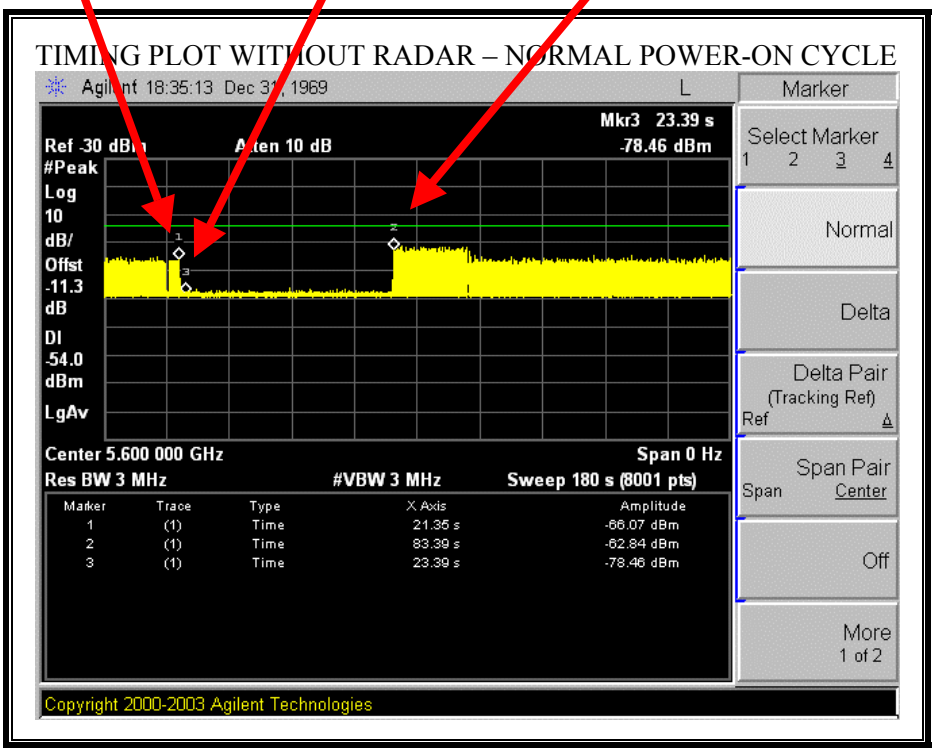
Timing of Radar Burst	Display on Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT marks Channel as active	Transmissions begin on channel after completion of the initial power-up cycle and the 60 second CAC
Within 0 to 6 second window	EUT indicates radar detected EUT does not display any radar parameter values	No transmissions on channel
Within 54 to 60 second window	EUT indicates radar detected EUT does not display any radar parameter values	No transmissions on channel

TIMING PLOT WITHOUT RADAR DURING CAC

AP is rebooted
Traffic ceases
Start of Initial Power-up cycle

End of Initial Power-up cycle
Start of CAC

End of CAC
Traffic is Initiated



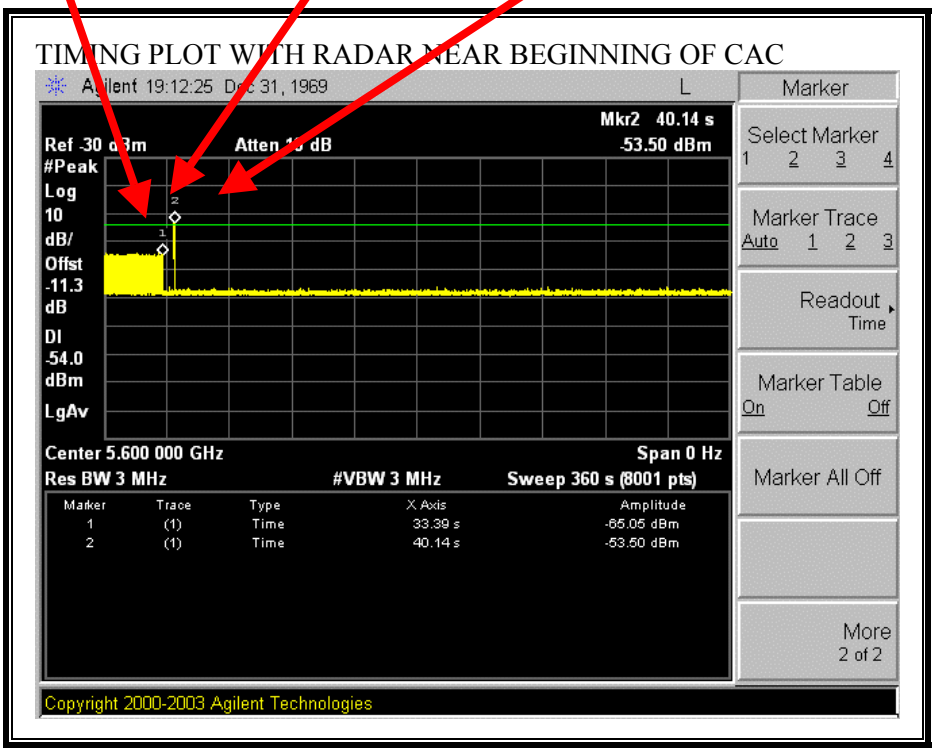
The initial power-up cycle requires (83.39 – 21.35 – 60) = 2.04 seconds.

TIMING PLOT WITH RADAR NEAR BEGINNING OF CAC

AP is rebooted
Traffic ceases
Start of Initial Power-up cycle

End of Initial Power-up cycle
Start of CAC

Radar Signal Applied



The radar signal is applied (40.14 – 33.39) = 6.75 seconds after reboot, which is (6.75 – 2.04) = 4.71 seconds after the start of the CAC period.

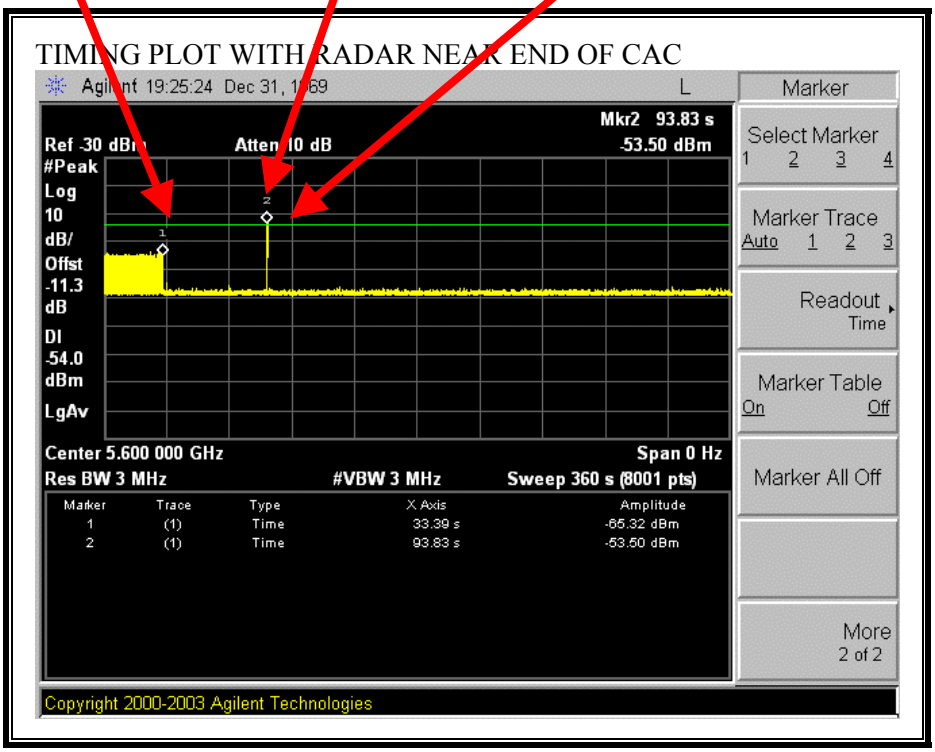
No EUT transmissions were observed after the radar signal.

TIMING PLOT WITH RADAR NEAR END OF CAC

AP is rebooted
Traffic ceases
Start of Initial Power-up cycle

End of Initial Power-up cycle
Start of CAC

Radar Signal Applied



The radar signal is applied (93.83 – 33.39) = 60.44 seconds after reboot, which is (60.44 – 2.04) = 58.4 seconds after the start of the CAC period.

No EUT transmissions were observed after the radar signal.

5.7. CHANNEL MOVE TIME AND CHANNEL CLOSING TRANSMISSION TIME

GENERAL REPORTING NOTES

The reference marker is set at the end of last radar pulse.

SHORT PULSE RADAR REPORTING NOTES

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated
Begins at (Reference Marker + 200 msec)
and
Ends no earlier than (Reference Marker + 10 sec).

LONG PULSE RADAR REPORTING NOTES

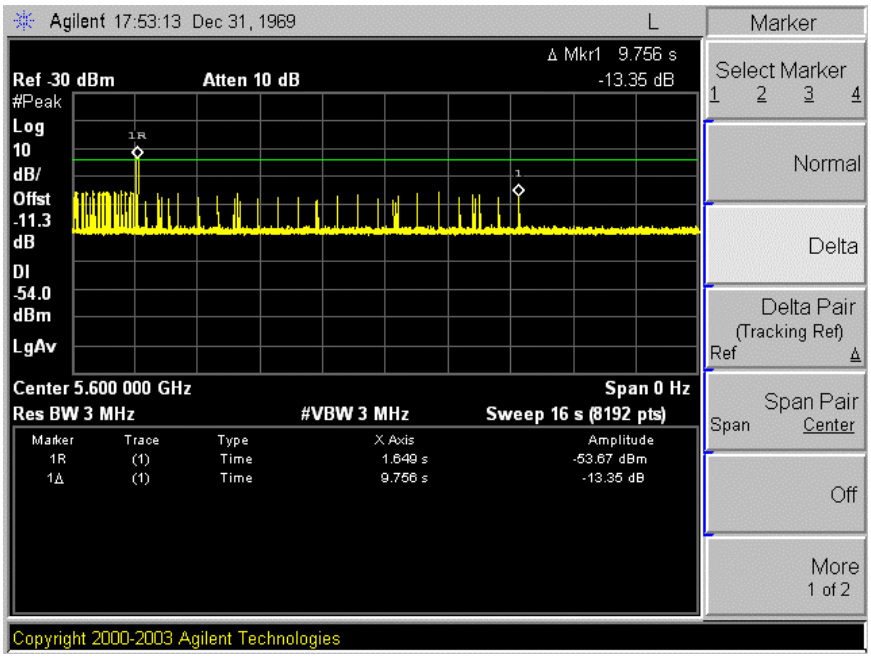
The delta marker is set to 10 seconds after the end of the radar pulse.

CHANNEL MOVE TIME RESULTS

No non-compliance noted:

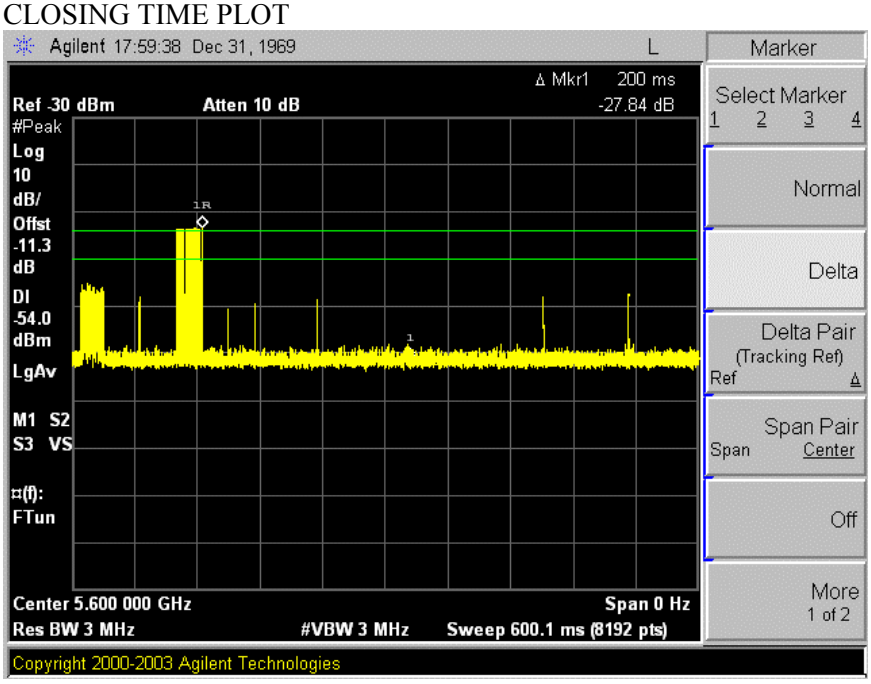
Channel Move Time (s)	Limit (s)
9.756	10

MOVE TIME PLOT



CHANNEL CLOSING TIME RESULTS

CLOSING TIME PLOT



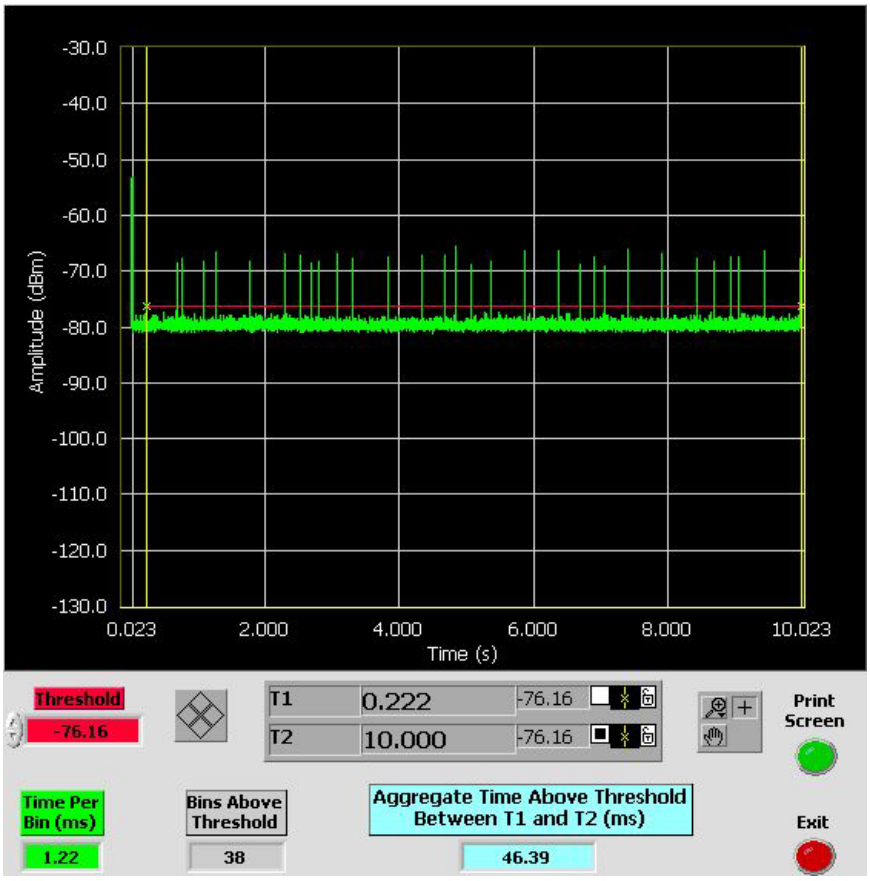
FCC AGGREGATE CHANNEL CLOSING TRANSMISSION TIME RESULTS

No non-compliance noted:

Aggregate Transmission Time (ms)	Limit (ms)	Margin (ms)
46.39	60	13.61

Only intermittent transmissions are observed during the aggregate monitoring period.

FCC AGGREGATE CLOSING TIME PLOT

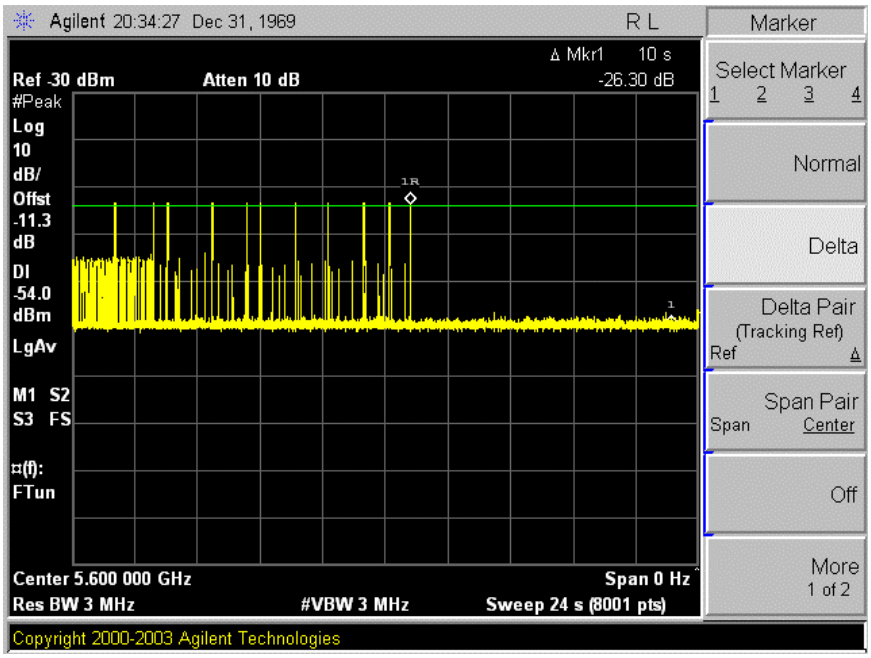


LONG PULSE CHANNEL MOVE TIME RESULTS

No non-compliance noted:

The traffic ceases prior to 10 seconds after the end of the radar waveform.

MOVE TIME PLOT FOR LONG PULSE RADAR

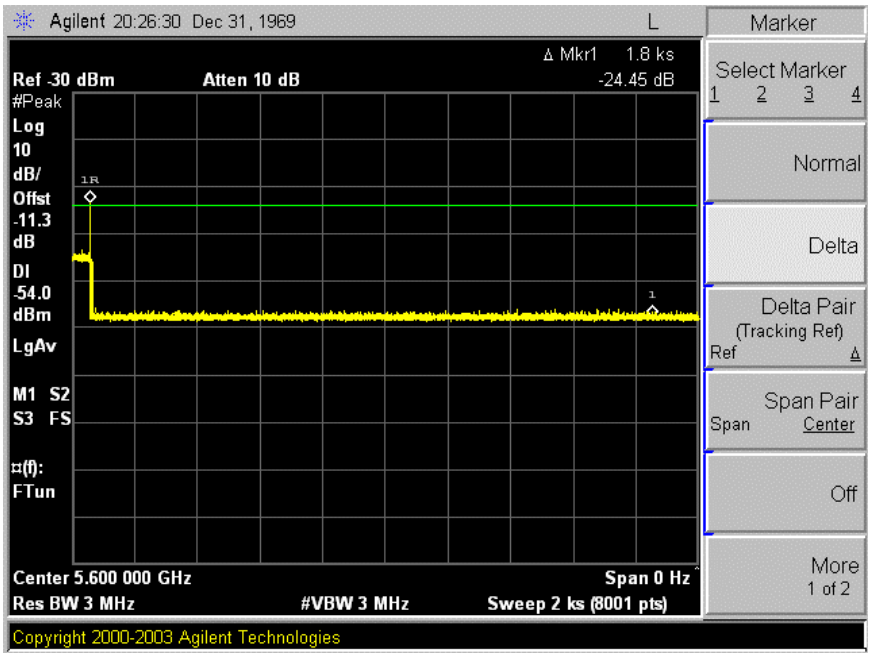


5.8. NON-OCCUPANCY PERIOD

RESULTS

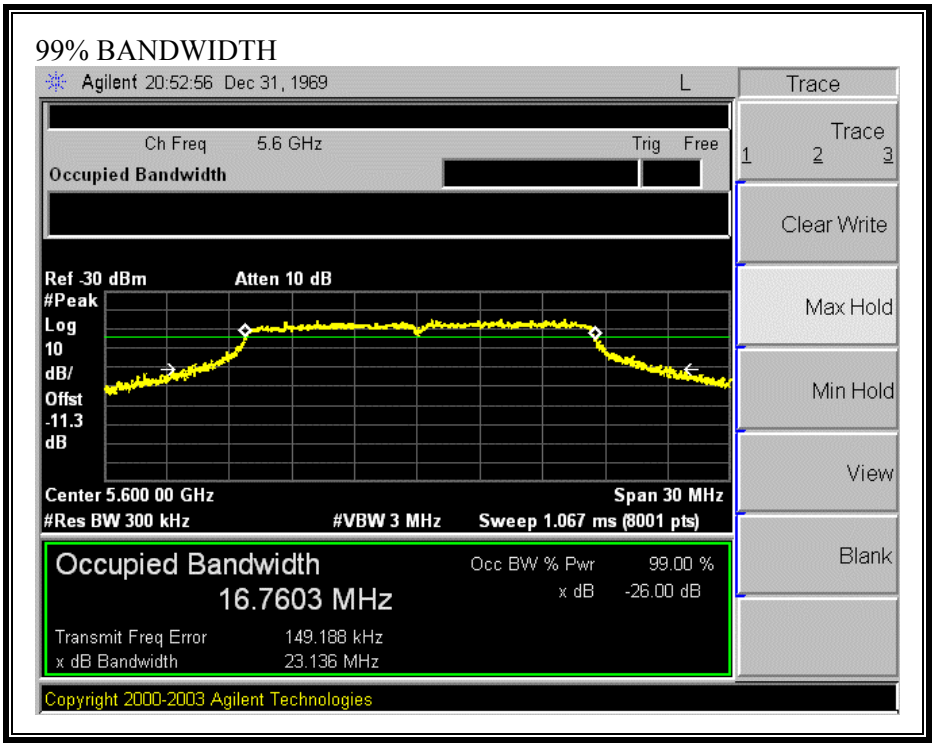
No non-compliance noted: No EUT transmissions were observed on the test channel during the 30 minute observation time.

NON-OCCUPANCY PERIOD PLOT



5.9. DETECTION BANDWIDTH

REFERENCE PLOT OF 99% POWER BANDWIDTH



RESULTS

No non-compliance noted:

FL (MHz)	FH (MHz)	Detection Bandwidth (MHz)	99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (%)	Minimum Limit (%)
5592	5608	16	16.760	95.5	80

DETECTION BANDWIDTH PROBABILITY

DETECTION BANDWIDTH PROBABILITY RESULTS

FCC Type 1 Waveform: 1 us Pulse Width, 1428 us PRI, 18 Pulses per Burst

Frequency (MHz)	Number of Trials	Number Detected	Detection (%)	Mark
5591	10	0	0	
5592	10	10	100	FL
5593	10	10	100	
5594	10	10	100	
5595	10	10	100	
5596	10	10	100	
5597	10	10	100	
5598	10	10	100	
5599	10	10	100	
5600	10	10	100	
5601	10	10	100	
5602	10	10	100	
5603	10	10	100	
5604	10	10	100	
5605	10	10	100	
5606	10	10	100	
5607	10	10	100	
5608	10	10	100	FH
5609	10	0	0	

5.10. IN-SERVICE MONITORING

RESULTS

No non-compliance noted:

FCC Radar Test Summary				
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail
FCC TYPE 1	30	100.00	60	Pass
FCC TYPE 2	30	86.67	60	Pass
FCC TYPE 3	30	76.67	60	Pass
FCC TYPE 4	30	86.67	60	Pass
Aggregate		87.50	80	Pass
FCC TYPE 5	30	100.00	80	Pass
FCC TYPE 6	34	94.12	70	Pass

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Fixed Radar Type 1 1 us Pulse Width, 1428 us PRI, 18 Pulses per Burst	
Trial	**Successful Detection (Yes/No)**
1	Yes
2	Yes
3	Yes
4	Yes
5	Yes
6	Yes
7	Yes
8	Yes
9	Yes
10	Yes
11	Yes
12	Yes
13	Yes
14	Yes
15	Yes
16	Yes
17	Yes
18	Yes
19	Yes
20	Yes
21	Yes
22	Yes
23	Yes
24	Yes
25	Yes
26	Yes
27	Yes
28	Yes
29	Yes
30	Yes

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2				
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Successful Detection (Yes/No)
2001	1	197.00	27	Yes
2002	3.1	166.00	25	Yes
2003	4.3	211.00	23	Yes
2004	4.9	227.00	25	Yes
2005	3.6	155.00	29	Yes
2006	1.2	223.00	23	Yes
2007	2.4	161.00	26	Yes
2008	4.2	179.00	27	Yes
2009	4.1	227.00	29	No
2010	1.2	211.00	29	Yes
2011	2.4	195.00	26	No
2012	2.4	217.00	26	Yes
2013	4.4	168.00	28	Yes
2014	2.3	212.00	27	No
2015	2.9	151.00	27	Yes
2016	1.2	176.00	25	Yes
2017	5	220.00	28	Yes
2018	4.8	158.00	28	Yes
2019	2.5	152.00	24	Yes
2020	4.3	181.00	25	Yes
2021	2.6	168.00	26	Yes
2022	4.3	201.00	23	Yes
2023	1.7	169.00	29	Yes
2024	1.4	173.00	27	Yes
2025	1.9	210.00	26	Yes
2026	1.9	187.00	23	Yes
2027	2.5	155.00	28	Yes
2028	4	186.00	27	Yes
2029	4.7	177.00	29	Yes
2030	3.7	166.00	28	No

TYPE 3 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 3				
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Successful Detection (Yes/No)
3001	9	267.00	18	Yes
3002	9.3	302.00	16	Yes
3003	8.1	456.00	18	Yes
3004	9.2	351.00	18	Yes
3005	6.8	457.00	17	Yes
3006	5.5	287.00	16	Yes
3007	9.6	362.00	17	Yes
3008	8.3	311.00	16	No
3009	6.3	397.00	18	Yes
3010	7.7	273.00	16	Yes
3011	6.3	267.00	17	Yes
3012	6.6	351.00	17	No
3013	9.1	339.00	16	Yes
3014	7.4	352.00	18	No
3015	5.8	437.00	16	Yes
3016	8.5	436.00	16	Yes
3017	9.7	296.00	17	Yes
3018	8.8	468.00	18	No
3019	7.6	417.00	18	Yes
3020	7	434.00	17	No
3021	7.4	434.00	16	Yes
3022	5.4	356.00	18	Yes
3023	6.4	433.00	17	Yes
3024	5.2	408.00	16	Yes
3025	8.4	432.00	16	Yes
3026	7.5	280.00	17	Yes
3027	7.4	260.00	18	No
3028	6.9	258.00	18	Yes
3029	9.7	399	18	No
3030	8.4	361	18	Yes

TYPE 4 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 4				
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Successful Detection (Yes/No)
4001	14.8	489.00	15	Yes
4002	12.4	339.00	13	Yes
4003	13.6	268.00	12	Yes
4004	12.2	322.00	12	Yes
4005	10.1	388.00	12	Yes
4006	16	372.00	16	No
4007	16.3	255.00	16	Yes
4008	18.6	467.00	14	Yes
4009	10	357.00	13	Yes
4010	13.5	462.00	16	Yes
4011	16.5	446.00	13	Yes
4012	11.6	369.00	14	Yes
4013	17	454.00	12	Yes
4014	13.2	472.00	14	Yes
4015	12.1	288.00	15	Yes
4016	11.6	340.00	16	No
4017	11.2	366.00	15	No
4018	14.2	406.00	12	Yes
4019	18.5	437.00	15	Yes
4020	14.8	447.00	16	Yes
4021	20	462.00	13	Yes
4022	16.2	500.00	15	Yes
4023	14.8	392.00	12	Yes
4024	13.1	434.00	12	Yes
4025	18.3	331.00	13	Yes
4026	14	348.00	13	No
4027	10.6	258.00	15	Yes
4028	14.2	262.00	12	Yes
4029	12.9	495.00	15	Yes
4030	17.4	457.00	12	Yes

TYPE 5 DETECTION PROBABILITY

Data Sheet for FCC Long Pulse Radar Type 5	
Trial	Successful Detection (Yes/No)
1	Yes
2	Yes
3	Yes
4	Yes
5	Yes
6	Yes
7	Yes
8	Yes
9	Yes
10	Yes
11	Yes
12	Yes
13	Yes
14	Yes
15	Yes
16	Yes
17	Yes
18	Yes
19	Yes
20	Yes
21	Yes
22	Yes
23	Yes
24	Yes
25	Yes
26	Yes
27	Yes
28	Yes
29	Yes
30	Yes

Note: The Type 5 randomized parameters are shown in a separate document.

TYPE 6 DETECTION PROBABILITY

Data Sheet for FCC Hopping Radar Type 6				
1 us Pulse Width, 333 us PRI, 9 Pulses per Burst, 1 Burst per Hop				
NTIA August 2005 Hopping Sequence				
Trial	Starting Index Within Sequence (Base 1)	Signal Generator Frequency (MHz)	Hops within Detection BW	Successful Detection (Yes/No)
1	188	5592	2	Yes
2	663	5593	4	Yes
3	1138	5594	5	Yes
4	1613	5595	1	No
5	2088	5596	3	Yes
6	2563	5597	5	Yes
7	3038	5598	1	Yes
8	3513	5599	4	Yes
9	3988	5600	3	Yes
10	4463	5601	4	Yes
11	4938	5602	1	Yes
12	5413	5603	4	Yes
13	5888	5604	4	Yes
14	6363	5605	5	Yes
15	6838	5606	4	Yes
16	7313	5607	5	Yes
17	7788	5608	3	Yes
18	8263	5592	2	No
19	8738	5593	2	Yes
20	9213	5594	2	Yes
21	9688	5595	2	Yes
22	10163	5596	2	Yes
23	10638	5597	4	Yes
24	11113	5598	4	Yes
25	11588	5599	4	Yes
26	12063	5600	3	Yes
27	12538	5601	3	Yes
28	13013	5602	2	Yes
29	13488	5603	2	Yes
30	13963	5604	3	Yes
31	14438	5605	1	Yes
32	14913	5606	5	Yes
33	15388	5607	2	Yes
34	15863	5608	4	Yes

5.11. SLAVE DEVICE CONFIGURATION - CHANNEL MOVE TIME AND CHANNEL CLOSING TRANSMISSION TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

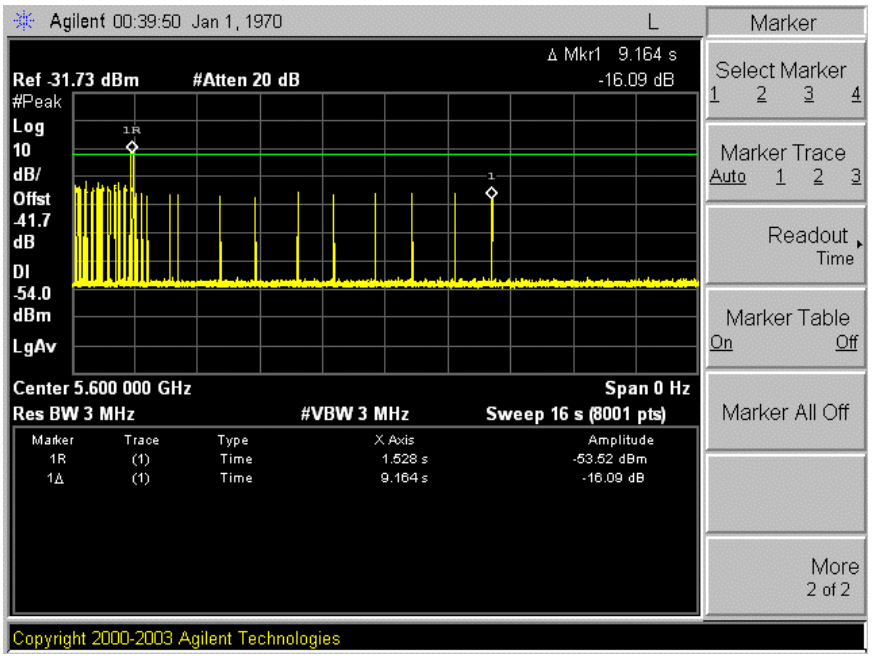
The observation period over which the aggregate time is calculated
Begins at (Reference Marker + 200 msec)
and
Ends no earlier than (Reference Marker + 10 sec).

CHANNEL MOVE TIME RESULTS

No non-compliance noted:

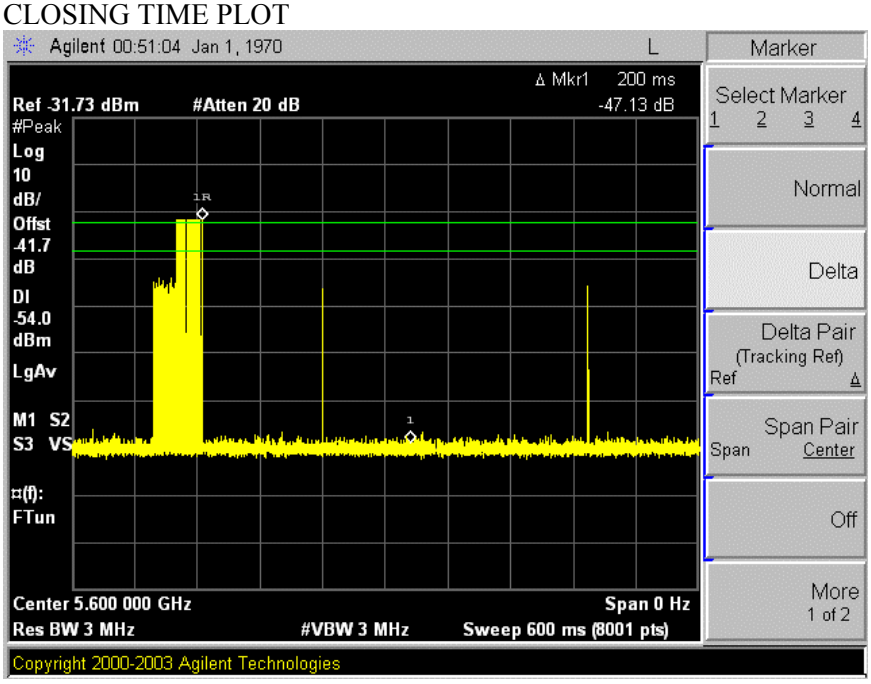
Channel Move Time (s)	Limit (s)
9.164	10

MOVE TIME PLOT



CHANNEL CLOSING TIME RESULTS

CLOSING TIME PLOT



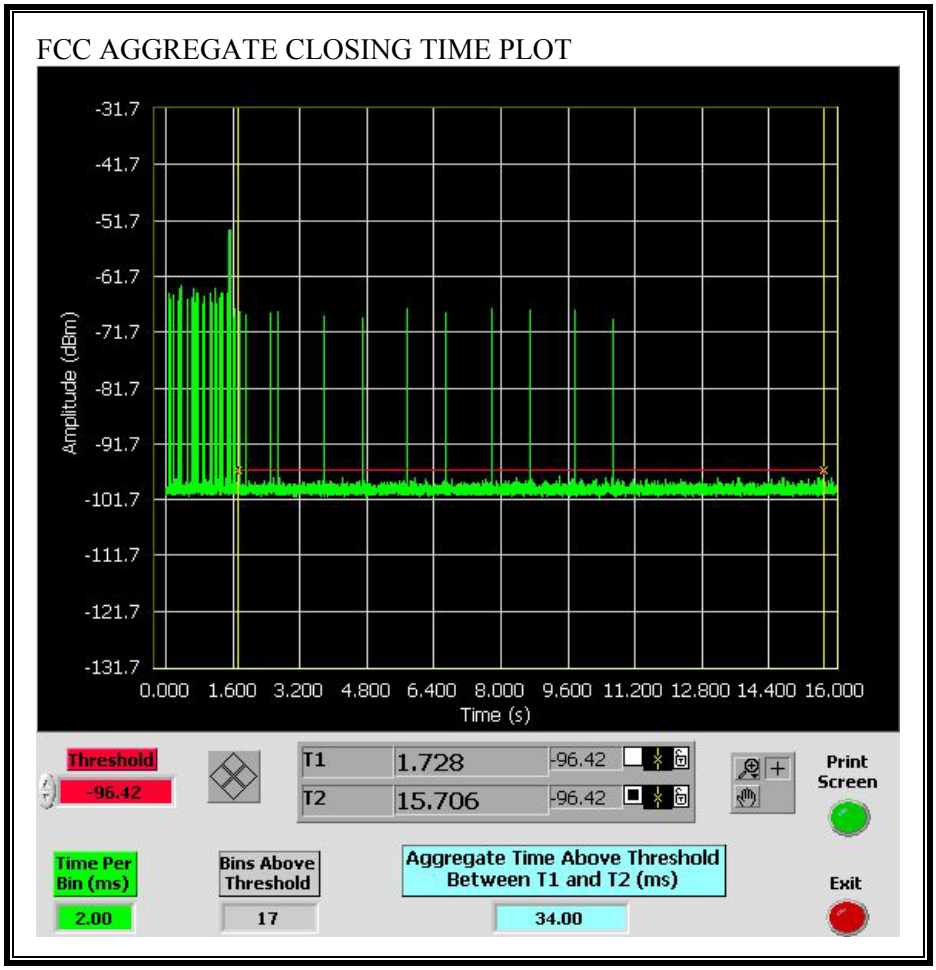
FCC AGGREGATE CHANNEL CLOSING TRANSMISSION TIME RESULTS

No non-compliance noted:

Aggregate Transmission Time (ms)	Limit (ms)	Margin (ms)
34.00	60	26.00

Only intermittent transmissions are observed during the aggregate monitoring period.

FCC AGGREGATE CLOSING TIME PLOT

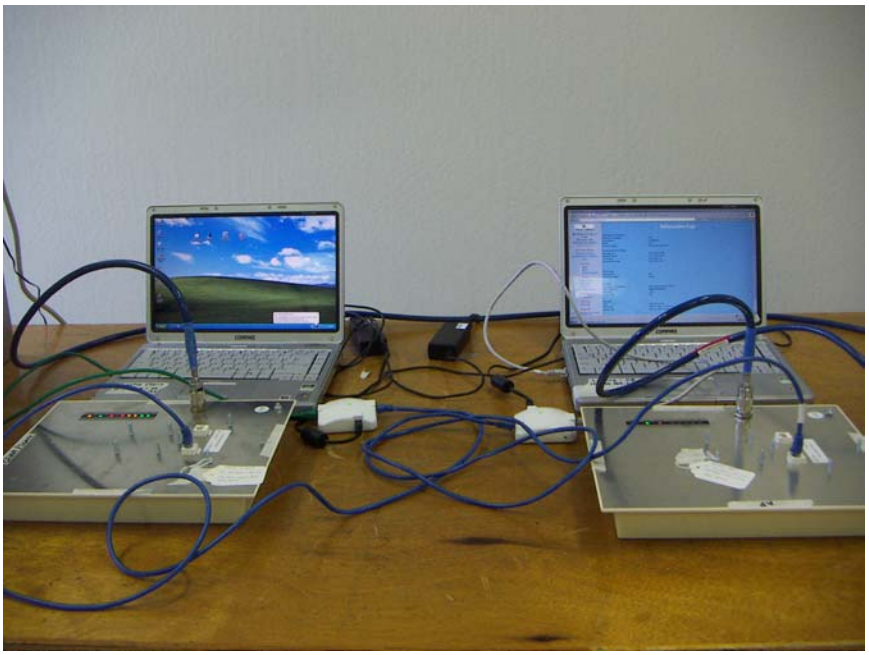


6. SETUP PHOTOS

DFS MEASUREMENT SETUP

DFS PHOTO

DFS FRONT PHOTO



END OF REPORT