



DFS PORTION of FCC 47 CFR PART 15 SUBPART E

ADDENDUM TO TEST REPORT 11533080-E2V1

FOR

BCM94709R-M 802.11a/n/ac ACCESS POINT

MODEL NUMBER: BCM94709R-M

FCC ID: QDS-BRCM1091

REPORT NUMBER: 11533080-E4V1

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NVLAP LAB CODE 200065-0

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: BROADCOM CORPORATION
190 MATHILDA PLACE
SUNNYVALE, CA 94086, U.S.A

EUT DESCRIPTION: BCM94709R-M 802.11a/n/ac ACCESS POINT

MODEL: BCM94709R-M

SERIAL NUMBER: 1839019

DATE TESTED: MARCH 09, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
DFS Portion of CFR 47 Part 15 Subpart E	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. 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 UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

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PROJECT LEAD
UL Verification Services Inc.

Tested By:



DOUG ANDERSON
EMC ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the DFS portion of FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, FCC KDB 789033, KDB 905462 D02 and D03.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL Verification Services, Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

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. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	± 3.52 dB
Radiated Disturbance, 30 to 1000 MHz	± 4.94 dB
Radiated Disturbance, 1 to 6 GHz	± 3.86 dB
Radiated Disturbance, 6 to 18 GHz	± 4.23 dB
Radiated Disturbance, 18 to 26 GHz	± 5.30 dB
Radiated Disturbance, 26 to 40 GHz	± 5.23 dB

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

5. INTRODUCTON

This document is an addendum to the full DFS test report 11533080-E2V1 that was submitted for TCB and FCC review. During the reviewing process a request for additional Probability of Detection (In-Service Monitoring) testing was issued. The scope of this additional testing encompasses the reliability of detection of FCC radar types at random frequencies within the Detection Bandwidth corresponding to the channel and channel bandwidth under test. These tests were to be performed for both the Standard configuration and Bridge Mode configuration. This document contains only the test results for the information requested. Please refer to the aforementioned full report for any information not contained within this document.

6. DYNAMIC FREQUENCY SELECTION

6.1. OVERVIEW

6.1.1. LIMITS

FCC

§15.407 (h), FCC KDB 905462 D02 “COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION” and KDB 905462 D03 “U-NII CLIENT DEVICES WITHOUT RADAR DETECTION CAPABILITY”.

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
U-NII Detection Bandwidth	Yes	Not required	Yes

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
U-NII Detection Bandwidth	Yes	Not required	Yes

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar DFS	Client (without DFS)
<i>U-NII Detection Bandwidth and Statistical Performance Check</i>	All BW modes must be tested	Not required
<i>Channel Move Time and Channel Closing Transmission Time</i>	Test using widest BW mode available	Test using the widest BW mode available for the link
<i>All other tests</i>	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in all 20 MHz channel blocks and a null frequency between the bonded 20 MHz channel blocks.		

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

Maximum Transmit Power	Value (see notes)
E.I.R.P. \geq 200 mill watt	-64 dBm
E.I.R.P. < 200 mill watt and power spectral density < 10 dBm/MHz	-62 dBm
E.I.R.P. < 200 mill watt that do not meet power spectral density requirement	-64 dBm
<p>Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna</p> <p>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.</p> <p>Note 3: E.I.R.P. is based on the highest antenna gain. For MIMO devices refer to KDB publication 662911 D01.</p>	

Table 4: DFS Response requirement values

Parameter	Value
<i>Non-occupancy period</i>	30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds (See Note 1)
<i>Channel Closing Transmission Time</i>	200 milliseconds + approx. 60 milliseconds over remaining 10 second period. (See Notes 1 and 2)
<i>U-NII Detection Bandwidth</i>	Minimum 100% of the U-NII 99% transmission power bandwidth. (See Note 3)
<p>Note 1: <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.</p> <p>Note 2: The <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel</i> move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.</p> <p>Note 3: During the <i>U-NII Detection Bandwidth</i> detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.</p>	

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (usec)	PRI (usec)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in table 5a	Roundup: $\{(1/360) \times (19 \times 10^6 \text{ PRI}_{\text{usec}})\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 usec. With a minimum increment of 1 usec, excluding PRI values selected in Test A			
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
Note 1: Short Pulse Radar Type 0 should be used for the <i>Detection Bandwidth</i> test, <i>Channel Move Time</i> , and <i>Channel Closing Time</i> tests.					

Table 6 – Long Pulse Radar Test Signal

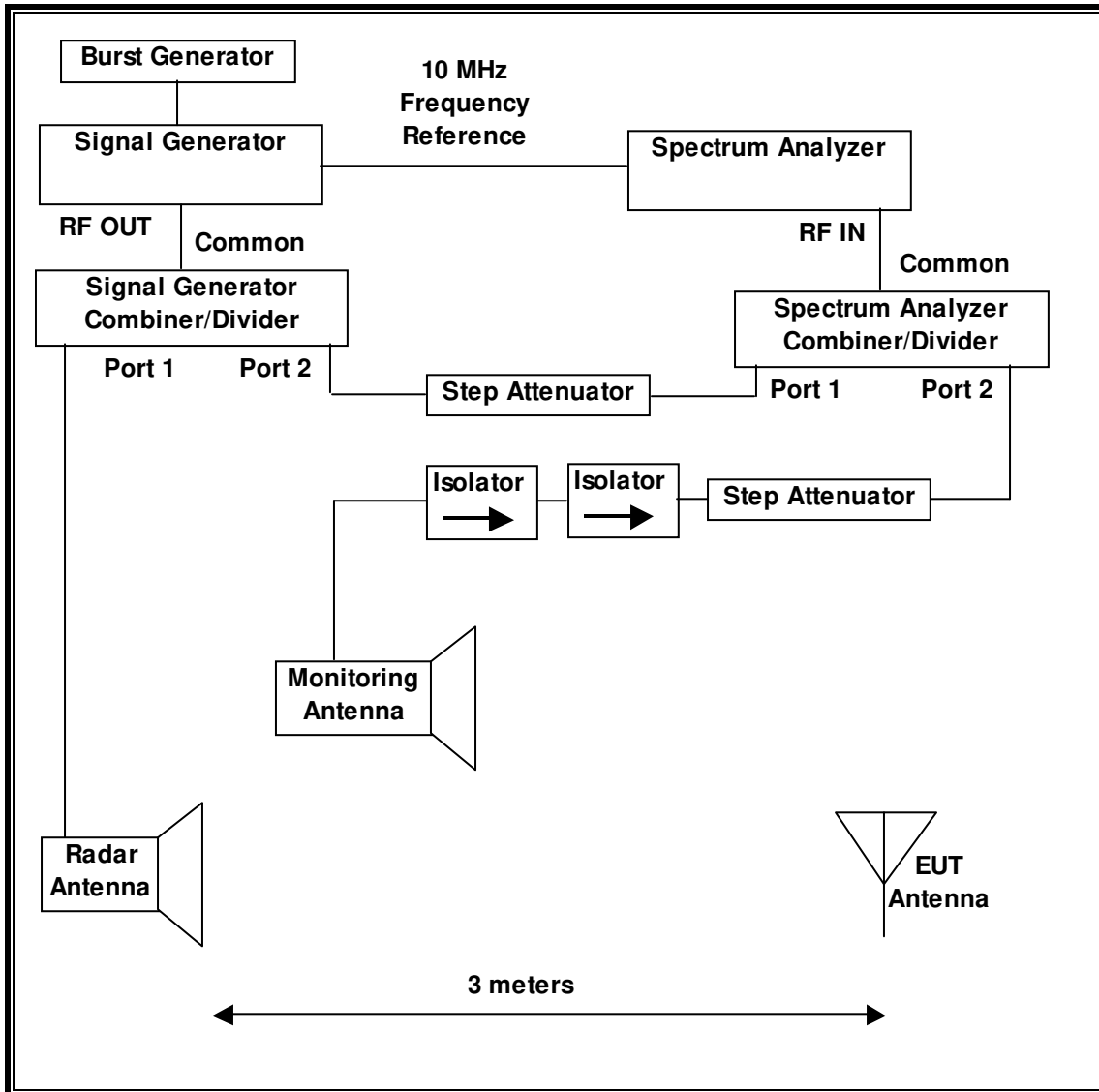
Radar Waveform Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	0.333	300	70%	30

6.1.2. TEST AND MEASUREMENT SYSTEM

RADIATED 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 1, 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 Frequency Hopping Radar Waveform Generating Subsystem of KDB 905462 D02. 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. 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.

SYSTEM CALIBRATION

A 50-ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to a horn antenna via a coaxial cable, with the reference level offset set to (horn antenna gain – coaxial cable loss). 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 analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. The Reference Level Offset of the spectrum analyzer is adjusted so that the displayed amplitude of the signal is –64 dBm.

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.

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

A link is established between the Master and Slave and the distance between the units is adjusted as needed to provide a suitable received level at the Master and Slave devices. The video test file is streamed to generate WLAN traffic. The monitoring antenna is adjusted so that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold.

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, PXA, 3Hz to 44GHz	Keysight	N9030A	US51350187	06/13/17
Signal Generator, MXG X-Series RF Vector	Agilent	N5182B	MY51350337	03/11/17
Arbitrary Waveform Generator	Agilent / HP	33220A	MY44037572	04/11/17

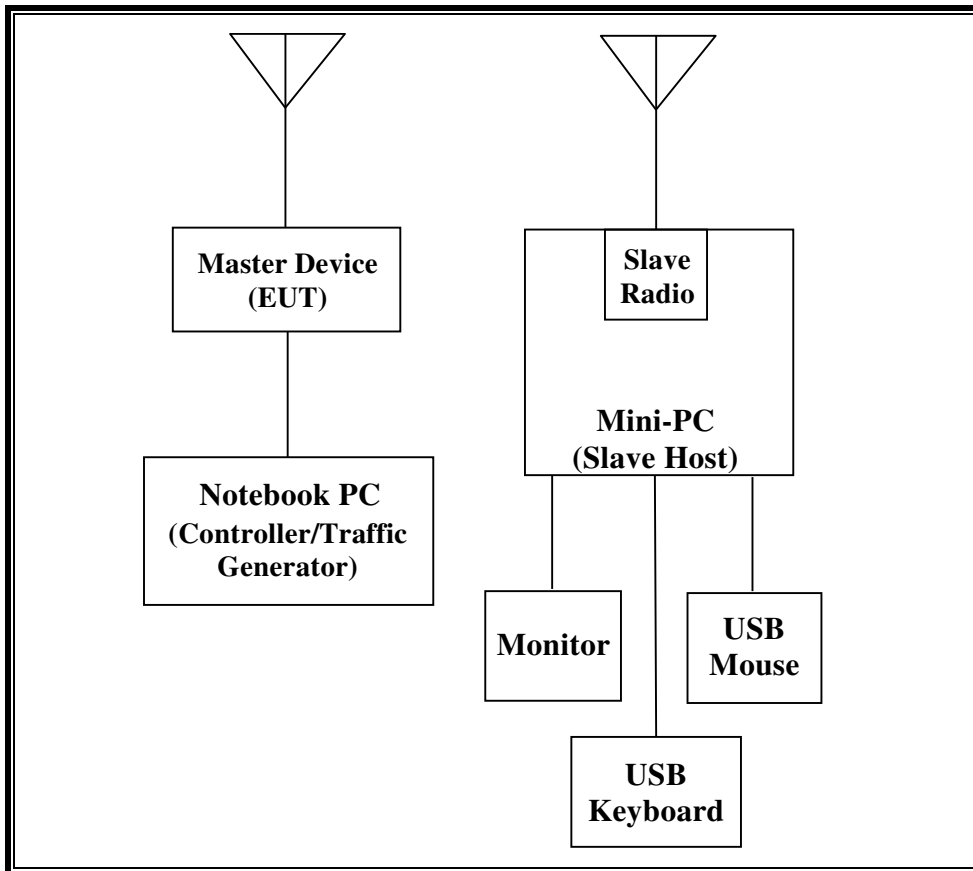
6.1.3. TEST AND MEASUREMENT SOFTWARE

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

TEST SOFTWARE LIST		
Name	Version	Test / Function
Aggregate Time-PXA	3.0	Channel Loading and Aggregate Closing Time
FCC 2014 Detection Bandwidth-PXA	3.0	Detection Bandwidth in 5 MHz Steps
In Service Monitoring-PXA	3.0	In-Service Monitoring (Probability of Detection)
PXA Read	3.0.0.9	Signal Generator Screen Capture
SGXProject.exe	1.7	Radar Waveform Generation and Download

6.1.4. SETUP OF EUT

RADIATED METHOD EUT TEST SETUP (STANDARD MODE CONFIGURATION)

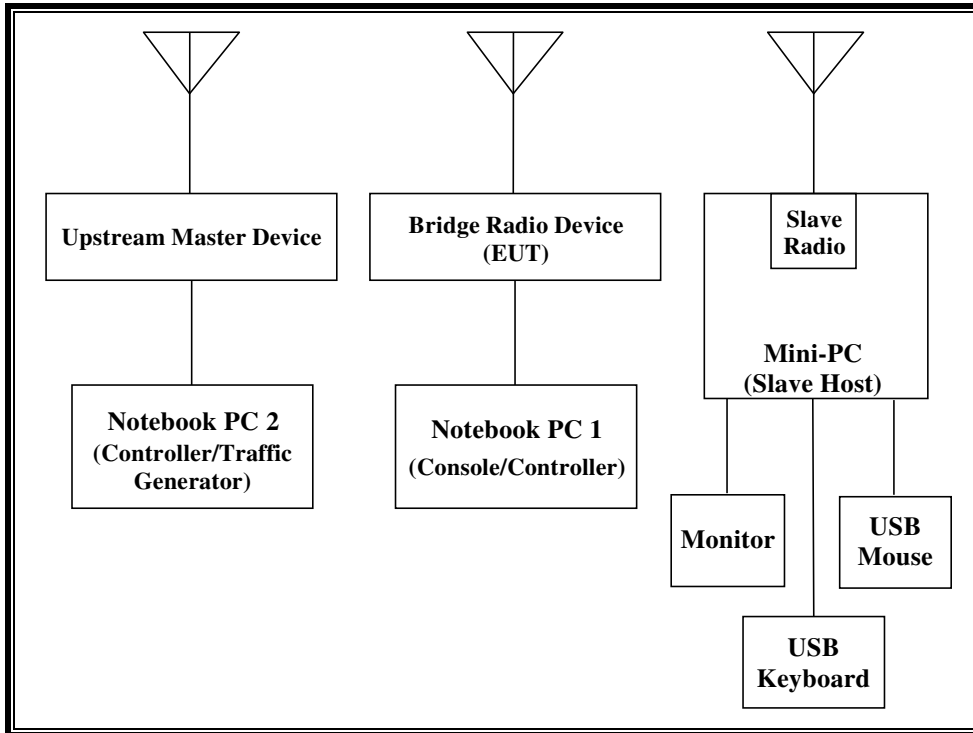


SUPPORT EQUIPMENT (STANDARD MODE CONFIGURATION)

The following support equipment was utilized for the DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter (EUT)	Condor	HK-H1-A12	None	DoC
Notebook PC (EUT Controller/Traffic Generator)	Lenovo	0679	CBU4495737	DoC
AC Asdapter (EUT PC)	Delta Electronics	ADP-65HK B	11S36001646ZZ1000A D9WJ	DoC
802.11a/n/ac Radio Module (Slave Radio Device)	Broadcom	BCM94366MC	001018FBD897	N/A
Mini-PC (Slave Host)	Gigabyte	P105	1517631219	DoC
AC Adapter (Host PC)	Asian Power Devices, Ltd.	NB-65B19	YE45315128015560400	DoC
Monitor	ASUS	VS197	E2LMTF118423	DoC
USB Keyboard	HP	KU-0316	BAUHPOILUZJ124	DoC
USB Mouse	HP	MOFYUO	FCMHH0AKZ8R3Z9	DoC

RADIATED METHOD EUT TEST SETUP (BRIDGE MODE CONFIGURATION)



SUPPORT EQUIPMENT(BRIDGE MODE CONFIGURATION)

The following support equipment was utilized for the DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter (EUT)	Condor	HK-H1-A12	None	DoC
Notebook PC 1 (EUT Console/Controller)	Lenovo	0679	CB06427441	DoC
AC Asdapter (EUT Console PC)	Lenovo	ADP-65KH B	11S36001646ZZ100 0AD9WJ	DoC
802.11a/n/ac High-Power 5GHz AP (Upstream Master Device)	Broadcom	BCM94709R-H	2/2/7165	QDS-BRCM1092
AC Adapter (Upstream Master)	Condor	HK-H1-A12	None	DoC
Notebook PC 2 (Upstream Master Controller/Traffic Generator)	Lenovo	0679	CBU4495737	DoC
AC Asdapter (Upstream Master PC)	Delta Electronics	ADP-65YB B	11S42T4458Z1ZF4 K96B09D	DoC
802.11a/n/ac Radio Module (Slave Radio Device)	Broadcom	BCM94366MC	001018FBD897	N/A
Mini-PC (Slave Host)	Gigabyte	P105	1517631219	DoC
AC Adapter (Host PC)	Asian Power Devices, Ltd.	NB-65B19	YE45315128015560 400	DoC
Monitor	ASUS	VS197	E2LMTF118423	DoC
USB Keyboard	Dell	SK-8135	CN-0N6250-71616- 646-1AUD	DoC
USB Mouse	Logitech	MU0026	None	DoC

6.1.5. DESCRIPTION OF EUT

For FCC the EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

The EUT is a Master Device which can also be configured as a Bridge Device.

The highest power level within these bands is 21.63 dBm EIRP in the 5250-5350 MHz band and 23.88 dBm EIRP in the 5470-5725 MHz band.

Each of the four individual antenna assemblies utilized with the EUT has a gain of 0.3 dBi.

Four identical antennas are utilized to meet the diversity and MIMO operational requirements.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is $-64 + 1 = -63$ dBm.

The calibrated radiated DFS Detection Threshold level is set to -64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

The EUT utilizes the 802.11ac Phase II architecture. Four nominal channel bandwidths are implemented: 20 MHz, 40 MHz, 80 MHz and 160 MHz.

The EUT is a Master Device which can also be configured as a Bridge Device. The EUT supports standard 20/40/80 MHz DFS as well as Zero-Wait CAC and 20 MHz sub-band radar detection on standard 40/80 MHz and 80-Plus-80 contiguous 160 MHz channel bandwidths.

160 MHz contiguous channel bandwidth is composed of two adjacent 80 MHz channel components on separate transmit and receive radio chains with a guard band separation of approximately 4 MHz at the 160 MHz center. Each component is treated as a separate 80 MHz channel during testing. While functioning in 80-Plus-80 mode each of the two components shall be designated as "80L" (80-Low) and "80H" (80-High), respectively.

The EUT does not support Zero-Wait CAC while in 80-Plus-80 mode.

While functioning in 20 MHz, 40 MHz or standard 80 MHz 11 ac modes the EUT uses four transmitter/receiver chains, each connected to an antenna to perform radiated tests.

While functioning in 160 MHz 11 ac Phase II mode the EUT uses two transmitter/receiver chains for each of the 80-Plus-80 MHz components, each connected to an antenna to perform radiated tests.

The EUT was tested while configured in a manner that exercised combinations of channel frequencies, channel bandwidths and transmit chains to demonstrate compliance.

The EUT was tested at the center frequency of the test channel while configured in standard 80 MHz 11 ac mode. This frequency not only demonstrates compliance for standard 11ac mode but also demonstrates compliance for the lower 80 MHz component of the EUT while configured in 160 MHz 80-Plus-80 MHz mode.

The EUT was tested at the center frequency of the upper 80 MHz component while configured in 160 MHz 80-Plus-80 MHz mode to demonstrate compliance for 160 MHz 80-Plus-80 MHz mode.

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

WLAN traffic that meets or exceeds the minimum required loading was generated by transferring a data stream from the Master Device to the Slave Device using iPerf version 2.0.5 software package.

TPC is implemented in all operating modes.

The software installed in the EUT is Rel 7.14.164.301.

UNIFORM CHANNEL SPREADING

This function is not required per KDB 905462.

OVERVIEW OF MASTER DEVICE WITH RESPECT TO §15.407 (h) REQUIREMENTS

The Master Device is a Broadcom Corporation Access Point, FCC ID: QDS-BRCM1091. Each of the four individual antenna assemblies used by the Master Device has a minimum gain of 0.3 dBi.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is $-64 + 1 = -63$ dBm.

The calibrated radiated DFS Detection Threshold level is set to -64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

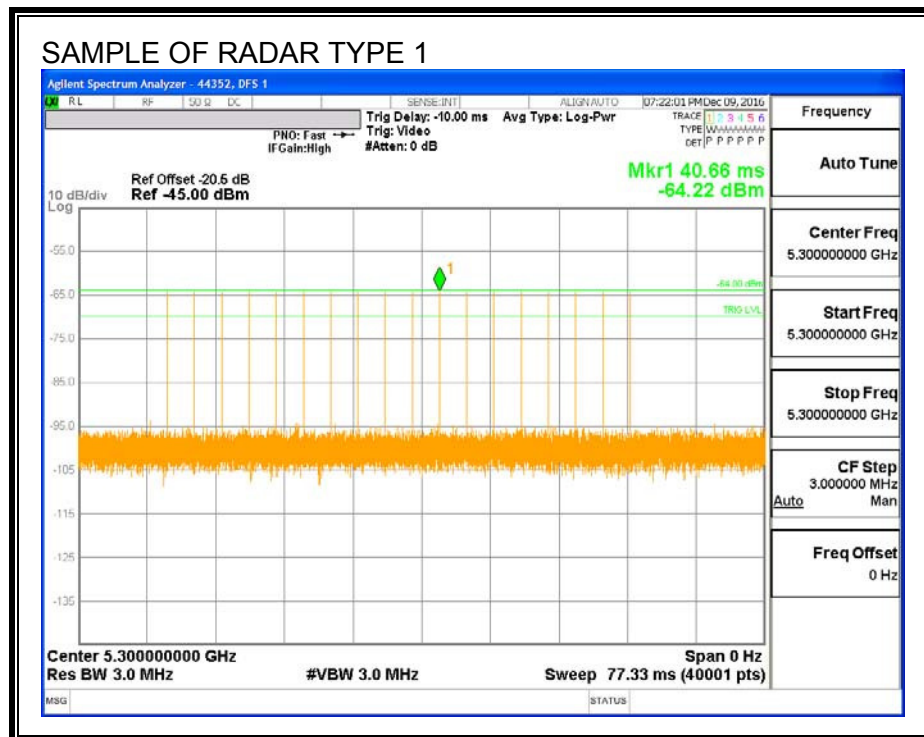
6.2. LOW BAND RESULTS FOR 20 MHz BANDWIDTH

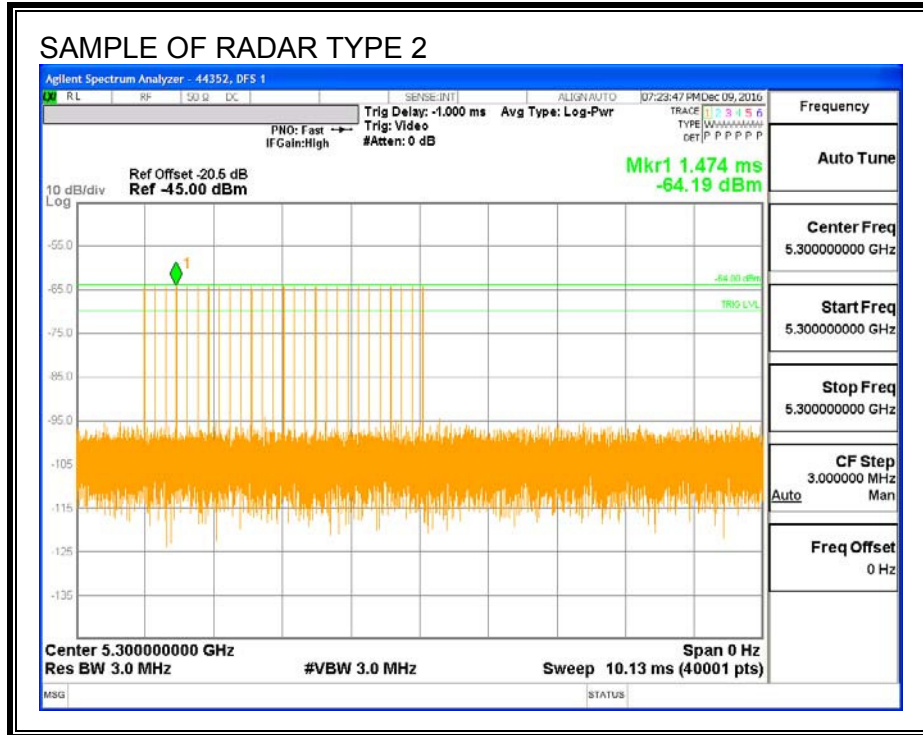
6.2.1. TEST CHANNEL

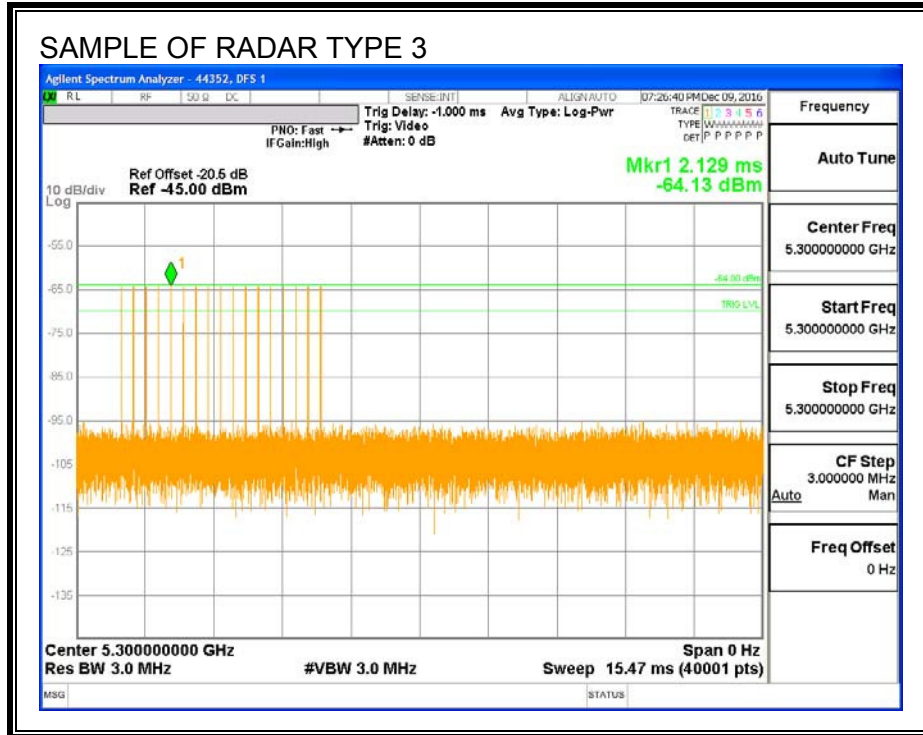
All tests were performed at a channel center frequency of 5300 MHz.

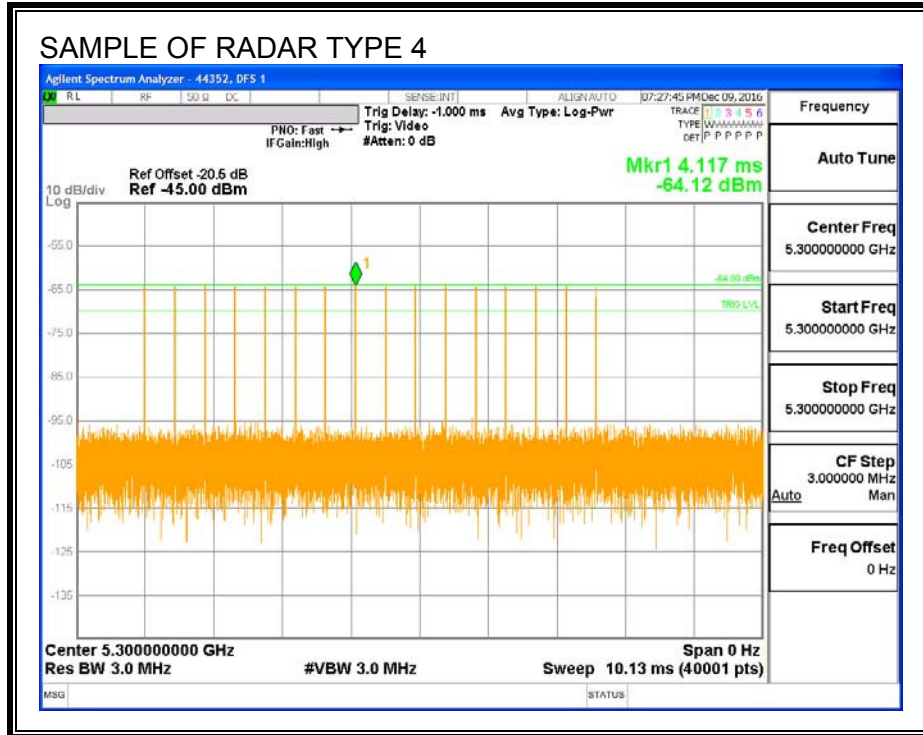
6.2.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

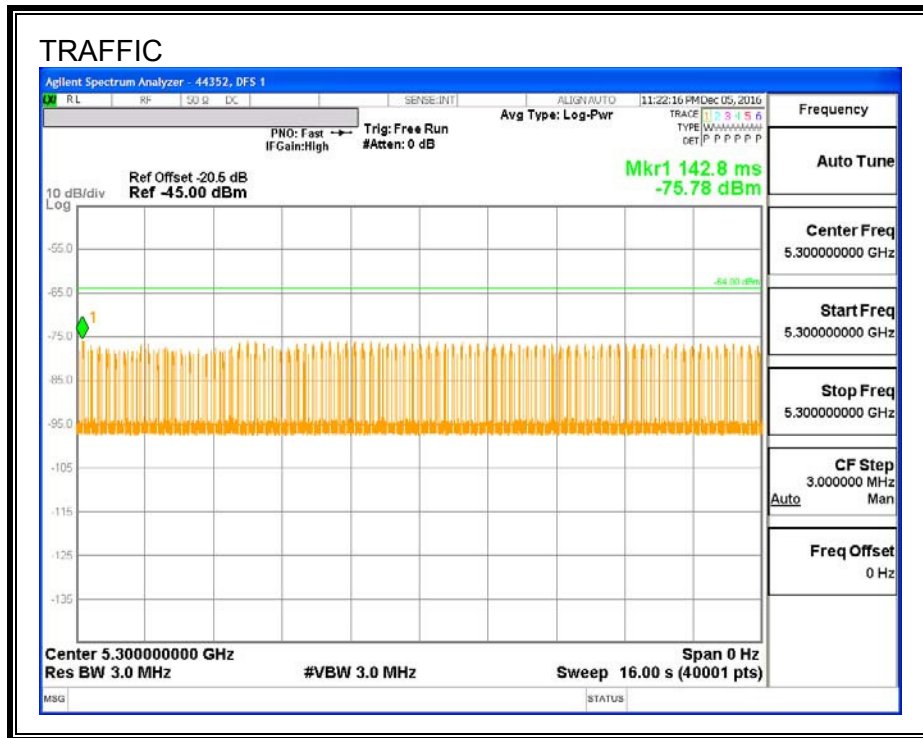




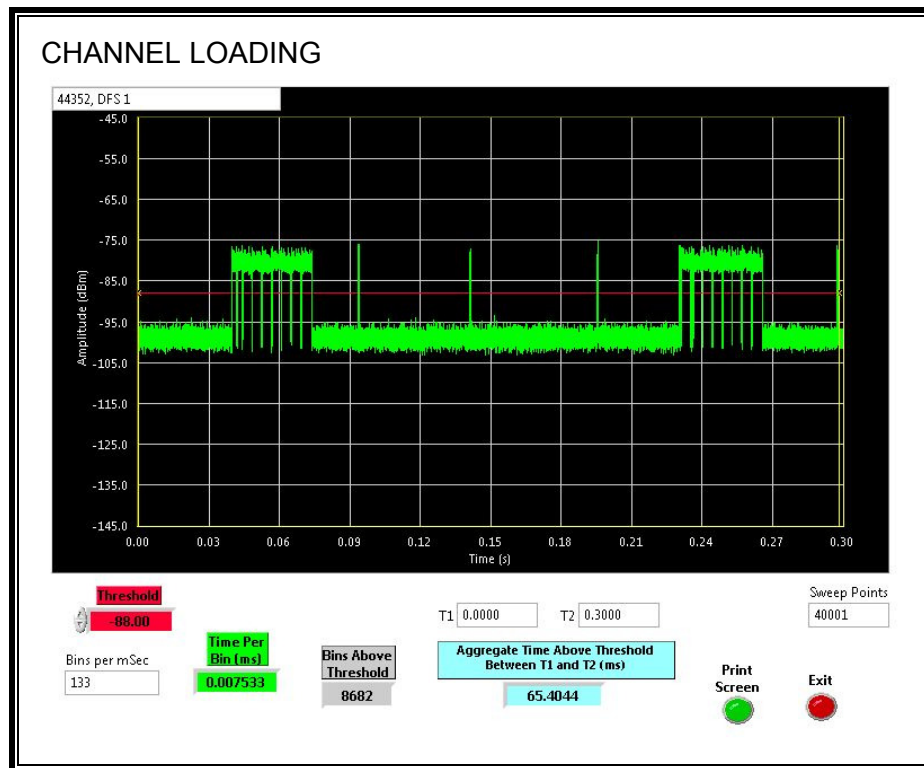




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 21.8%

6.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

6.2.4. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	100.00	60	Pass	5290	5310	17.96	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	93.33	60	Pass	5290	5310	17.96	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	80.00	60	Pass	5290	5310	17.96	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	83.33	60	Pass	5290	5310	17.96	DFS 1	29445	Version 3.0
Aggregate		89.17	80	Pass						

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5306	Yes
1002	1	938	57	A	5305	Yes
1003	1	638	83	A	5307	Yes
1004	1	758	70	A	5300	Yes
1005	1	738	72	A	5291	Yes
1006	1	878	61	A	5307	Yes
1007	1	818	65	A	5297	Yes
1008	1	618	86	A	5297	Yes
1009	1	658	81	A	5307	Yes
1010	1	898	59	A	5300	Yes
1011	1	518	102	A	5301	Yes
1012	1	778	68	A	5301	Yes
1013	1	718	74	A	5299	Yes
1014	1	858	62	A	5299	Yes
1015	1	838	63	A	5294	Yes
1016	1	1493	36	B	5310	Yes
1017	1	1514	35	B	5296	Yes
1018	1	2017	27	B	5308	Yes
1019	1	2167	25	B	5298	Yes
1020	1	2800	19	B	5299	Yes
1021	1	1885	28	B	5309	Yes
1022	1	2647	20	B	5303	Yes
1023	1	667	80	B	5297	Yes
1024	1	1558	34	B	5302	Yes
1025	1	2255	24	B	5306	Yes
1026	1	2082	26	B	5301	Yes
1027	1	2909	19	B	5304	Yes
1028	1	2864	19	B	5308	Yes
1029	1	2626	21	B	5290	Yes
1030	1	2712	20	B	5295	Yes

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
2001	3	158	27	5307	Yes
2002	2.2	223	27	5300	Yes
2003	2	195	28	5306	Yes
2004	1.5	183	25	5306	Yes
2005	3.7	164	26	5301	Yes
2006	1.4	156	27	5310	Yes
2007	3.8	179	29	5293	No
2008	1.8	218	24	5304	Yes
2009	4.4	208	29	5297	Yes
2010	2.6	170	24	5297	Yes
2011	1.5	163	23	5293	Yes
2012	4	210	29	5293	Yes
2013	1	170	29	5303	Yes
2014	1.8	183	28	5309	Yes
2015	1.1	228	25	5306	Yes
2016	2.1	203	27	5297	Yes
2017	3.6	171	28	5306	Yes
2018	2.9	154	28	5308	No
2019	4.8	170	29	5307	Yes
2020	4.3	195	26	5301	Yes
2021	4.3	176	27	5309	Yes
2022	2.1	168	28	5295	Yes
2023	4.4	192	23	5306	Yes
2024	2.4	230	25	5302	Yes
2025	5	220	24	5309	Yes
2026	1.3	182	25	5291	Yes
2027	2.1	176	24	5305	Yes
2028	4.6	223	23	5292	Yes
2029	3.8	183	23	5297	Yes
2030	2.4	196	29	5306	Yes

TYPE 3 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 3					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
3001	6.8	281	17	5297	Yes
3002	7.7	335	18	5300	Yes
3003	9.5	487	17	5296	No
3004	6.6	436	18	5295	Yes
3005	8.5	483	17	5290	Yes
3006	8	445	16	5302	No
3007	6.1	254	17	5297	Yes
3008	9.9	479	17	5307	No
3009	8.2	434	18	5297	Yes
3010	6.1	421	18	5293	Yes
3011	6.8	389	18	5296	No
3012	9.1	271	16	5305	Yes
3013	9.9	251	18	5293	Yes
3014	8.3	279	18	5299	Yes
3015	7.5	273	18	5300	Yes
3016	6.1	314	17	5303	Yes
3017	9.6	453	16	5297	Yes
3018	8.6	256	17	5296	No
3019	8.2	290	16	5290	Yes
3020	9.4	357	18	5304	Yes
3021	7.2	404	16	5307	Yes
3022	6.7	365	18	5309	No
3023	8.9	425	17	5298	Yes
3024	8.6	399	16	5307	Yes
3025	6.9	354	17	5293	Yes
3026	8.9	341	17	5297	Yes
3027	9.6	309	17	5300	Yes
3028	7.8	442	18	5295	Yes
3029	8.6	423	17	5290	Yes
3030	7	451	17	5296	Yes

TYPE 4 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 4					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
4001	11.5	444	16	5300	Yes
4002	13.2	485	16	5309	Yes
4003	16.1	374	16	5306	Yes
4004	14	427	13	5297	Yes
4005	13	462	16	5308	No
4006	15.7	277	13	5305	Yes
4007	20	324	16	5302	Yes
4008	18.9	286	12	5300	Yes
4009	14.6	346	13	5304	Yes
4010	13.9	320	16	5293	No
4011	19.2	275	15	5307	Yes
4012	14.7	262	13	5304	No
4013	16.2	481	12	5293	Yes
4014	12.1	363	14	5302	Yes
4015	14.1	477	16	5308	Yes
4016	19.6	372	12	5296	Yes
4017	17.7	498	15	5297	No
4018	19.4	406	14	5293	Yes
4019	18	294	12	5305	Yes
4020	11.1	348	16	5309	Yes
4021	19.3	382	12	5298	Yes
4022	13.9	347	15	5297	Yes
4023	13.5	394	15	5294	Yes
4024	12.3	355	13	5297	Yes
4025	17.1	415	14	5296	No
4026	16.4	390	12	5291	Yes
4027	17.4	345	16	5306	Yes
4028	17.2	332	15	5307	Yes
4029	18.7	299	14	5308	Yes
4030	14.6	432	13	5299	Yes

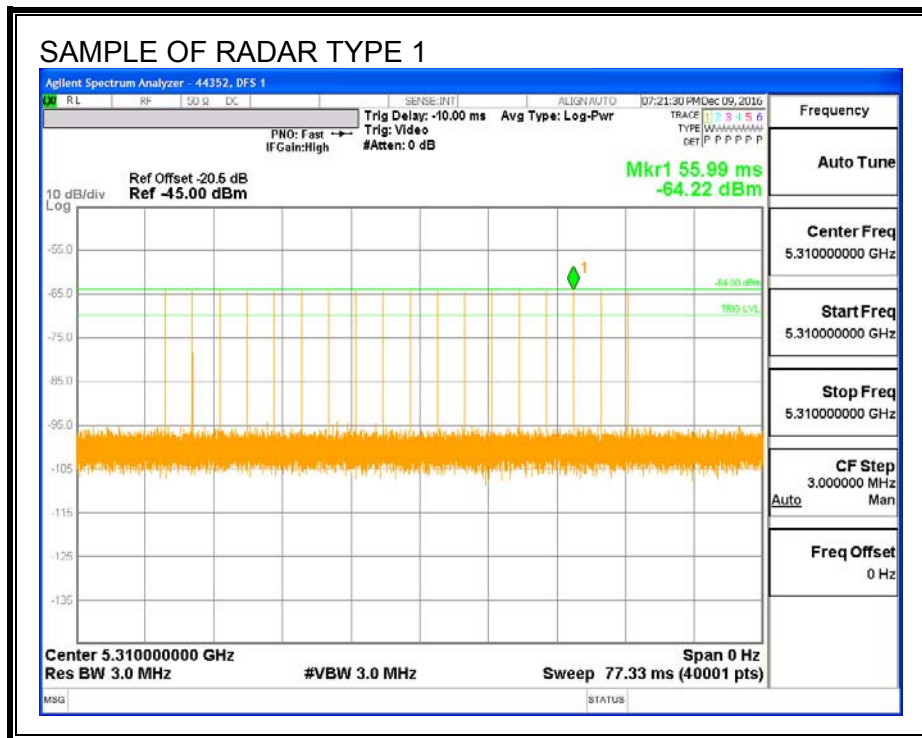
6.3. LOW BAND RESULTS FOR 40 MHz BANDWIDTH

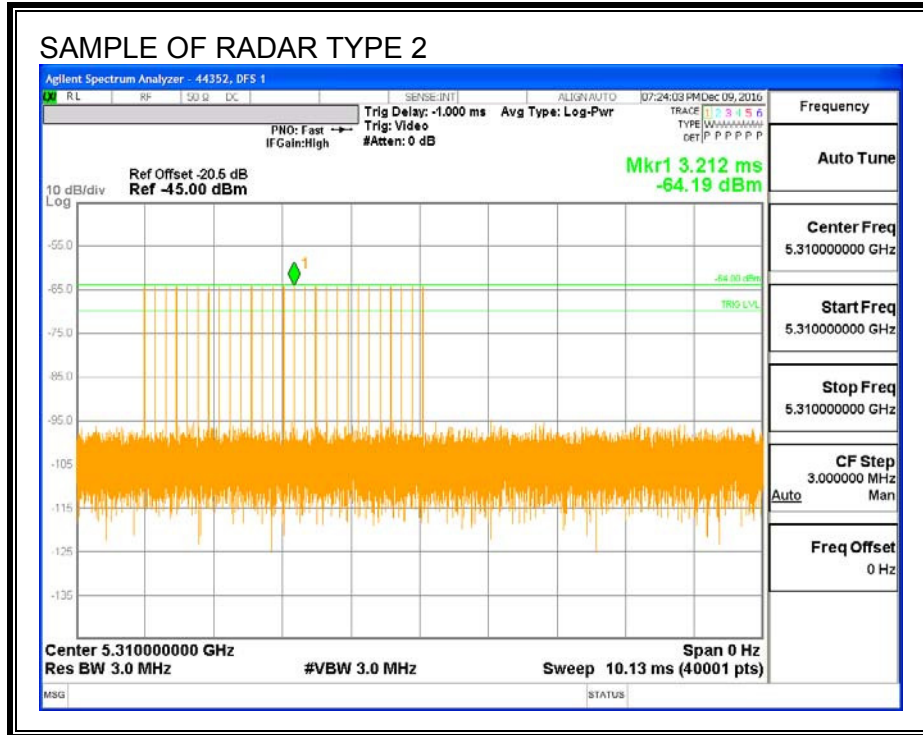
6.3.1. TEST CHANNEL

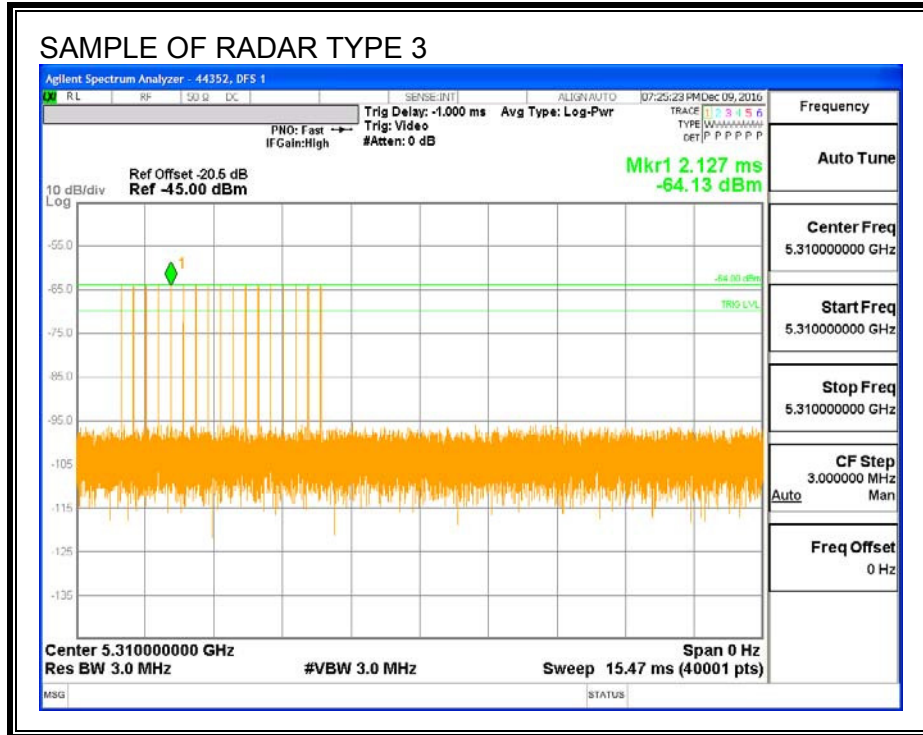
All tests were performed at a channel center frequency of 5310 MHz.

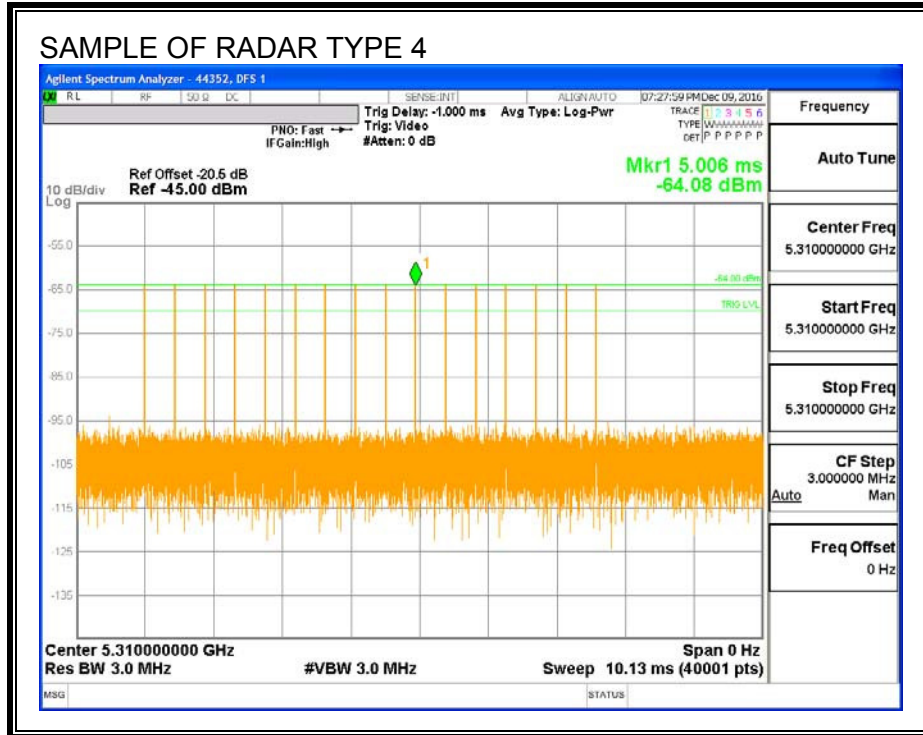
6.3.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

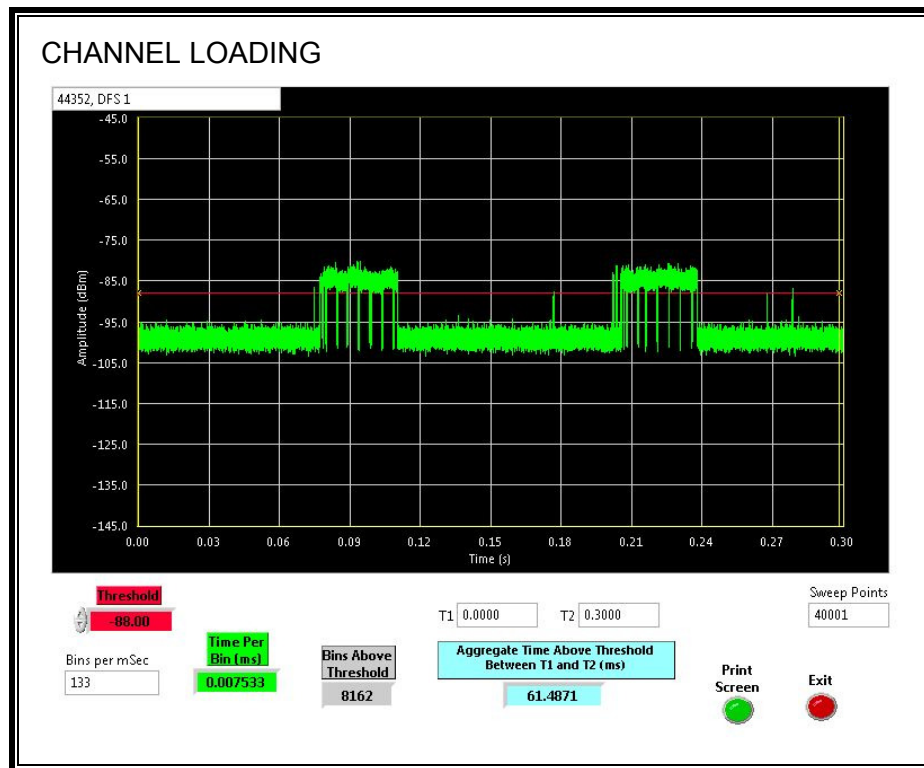








CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 20.495%

6.3.3. OVERLAPPING CHANNEL TESTS

RESULTS

The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

6.3.4. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth			Test Location	Employee Number	In-Service Monitoring Version
					FL	FH	OBW			
FCC Short Pulse Type 1	30	100.00	60	Pass	5290	5330	36.35	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	90.00	60	Pass	5290	5330	36.35	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	80.00	60	Pass	5290	5330	36.35	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	76.67	60	Pass	5290	5330	36.35	DFS 1	29445	Version 3.0
Aggregate		86.67	80	Pass						

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5329	Yes
1002	1	938	57	A	5292	Yes
1003	1	638	83	A	5324	Yes
1004	1	758	70	A	5299	Yes
1005	1	738	72	A	5315	Yes
1006	1	878	61	A	5307	Yes
1007	1	818	65	A	5303	Yes
1008	1	618	86	A	5328	Yes
1009	1	658	81	A	5301	Yes
1010	1	898	59	A	5327	Yes
1011	1	518	102	A	5322	Yes
1012	1	778	68	A	5329	Yes
1013	1	718	74	A	5298	Yes
1014	1	858	62	A	5299	Yes
1015	1	838	63	A	5320	Yes
1016	1	1493	36	B	5296	Yes
1017	1	1514	35	B	5329	Yes
1018	1	2017	27	B	5295	Yes
1019	1	2167	25	B	5319	Yes
1020	1	2800	19	B	5321	Yes
1021	1	1885	28	B	5322	Yes
1022	1	2647	20	B	5311	Yes
1023	1	667	80	B	5294	Yes
1024	1	1558	34	B	5322	Yes
1025	1	2255	24	B	5294	Yes
1026	1	2082	26	B	5317	Yes
1027	1	2909	19	B	5314	Yes
1028	1	2864	19	B	5300	Yes
1029	1	2626	21	B	5326	Yes
1030	1	2712	20	B	5292	Yes

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
2001	3	158	27	5319	No
2002	2.2	223	27	5329	Yes
2003	2	195	28	5304	Yes
2004	1.5	183	25	5316	Yes
2005	3.7	164	26	5316	Yes
2006	1.4	156	27	5317	Yes
2007	3.8	179	29	5311	Yes
2008	1.8	218	24	5298	Yes
2009	4.4	208	29	5317	Yes
2010	2.6	170	24	5306	Yes
2011	1.5	163	23	5297	Yes
2012	4	210	29	5299	Yes
2013	1	170	29	5325	Yes
2014	1.8	183	28	5326	Yes
2015	1.1	228	25	5301	Yes
2016	2.1	203	27	5314	Yes
2017	3.6	171	28	5317	No
2018	2.9	154	28	5303	Yes
2019	4.8	170	29	5295	Yes
2020	4.3	195	26	5293	Yes
2021	4.3	176	27	5299	Yes
2022	2.1	168	28	5309	No
2023	4.4	192	23	5330	Yes
2024	2.4	230	25	5298	Yes
2025	5	220	24	5302	Yes
2026	1.3	182	25	5294	Yes
2027	2.1	176	24	5305	Yes
2028	4.6	223	23	5294	Yes
2029	3.8	183	23	5304	Yes
2030	2.4	196	29	5313	Yes

TYPE 3 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 3					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
3001	6.8	281	17	5296	Yes
3002	7.7	335	18	5312	Yes
3003	9.5	487	17	5309	Yes
3004	6.6	436	18	5310	Yes
3005	8.5	483	17	5304	Yes
3006	8	445	16	5299	Yes
3007	6.1	254	17	5330	No
3008	9.9	479	17	5321	Yes
3009	8.2	434	18	5328	No
3010	6.1	421	18	5308	Yes
3011	6.8	389	18	5308	Yes
3012	9.1	271	16	5326	No
3013	9.9	251	18	5303	Yes
3014	8.3	279	18	5318	Yes
3015	7.5	273	18	5328	Yes
3016	6.1	314	17	5326	Yes
3017	9.6	453	16	5310	Yes
3018	8.6	256	17	5324	Yes
3019	8.2	290	16	5297	Yes
3020	9.4	357	18	5321	No
3021	7.2	404	16	5292	Yes
3022	6.7	365	18	5296	Yes
3023	8.9	425	17	5324	Yes
3024	8.6	399	16	5305	Yes
3025	6.9	354	17	5330	Yes
3026	8.9	341	17	5302	Yes
3027	9.6	309	17	5307	No
3028	7.8	442	18	5328	Yes
3029	8.6	423	17	5300	Yes
3030	7	451	17	5300	No

TYPE 4 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 4					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
4001	11.5	444	16	5316	Yes
4002	13.2	485	16	5304	Yes
4003	16.1	374	16	5293	Yes
4004	14	427	13	5329	Yes
4005	13	462	16	5320	Yes
4006	15.7	277	13	5330	No
4007	20	324	16	5315	No
4008	18.9	286	12	5291	Yes
4009	14.6	346	13	5305	Yes
4010	13.9	320	16	5303	Yes
4011	19.2	275	15	5305	No
4012	14.7	262	13	5297	Yes
4013	16.2	481	12	5318	Yes
4014	12.1	363	14	5309	Yes
4015	14.1	477	16	5307	No
4016	19.6	372	12	5293	Yes
4017	17.7	498	15	5313	Yes
4018	19.4	406	14	5320	Yes
4019	18	294	12	5321	No
4020	11.1	348	16	5323	Yes
4021	19.3	382	12	5293	Yes
4022	13.9	347	15	5326	Yes
4023	13.5	394	15	5315	No
4024	12.3	355	13	5318	Yes
4025	17.1	415	14	5311	No
4026	16.4	390	12	5328	Yes
4027	17.4	345	16	5313	Yes
4028	17.2	332	15	5315	Yes
4029	18.7	299	14	5311	Yes
4030	14.6	432	13	5306	Yes

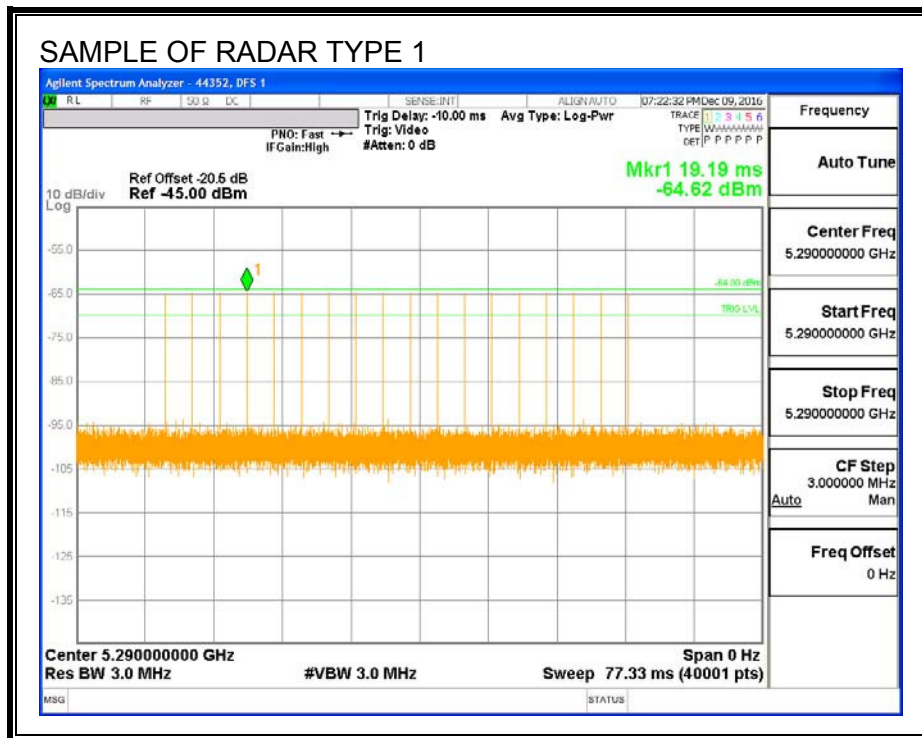
6.4. LOW BAND RESULTS FOR 80 MHz BANDWIDTH

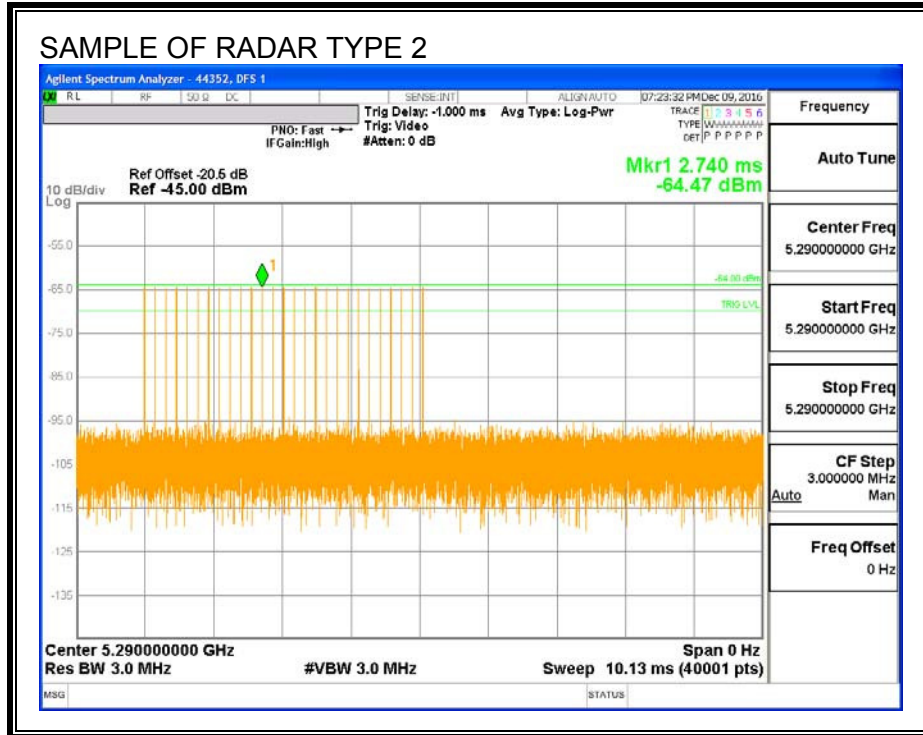
6.4.1. TEST CHANNEL

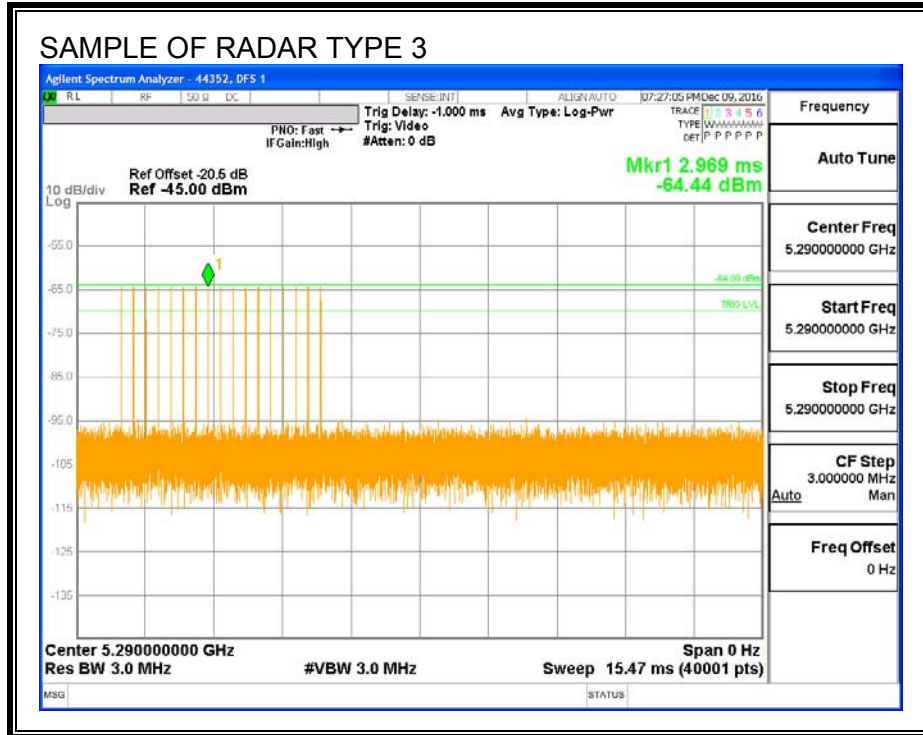
All tests were performed at a channel center frequency of 5290 MHz.

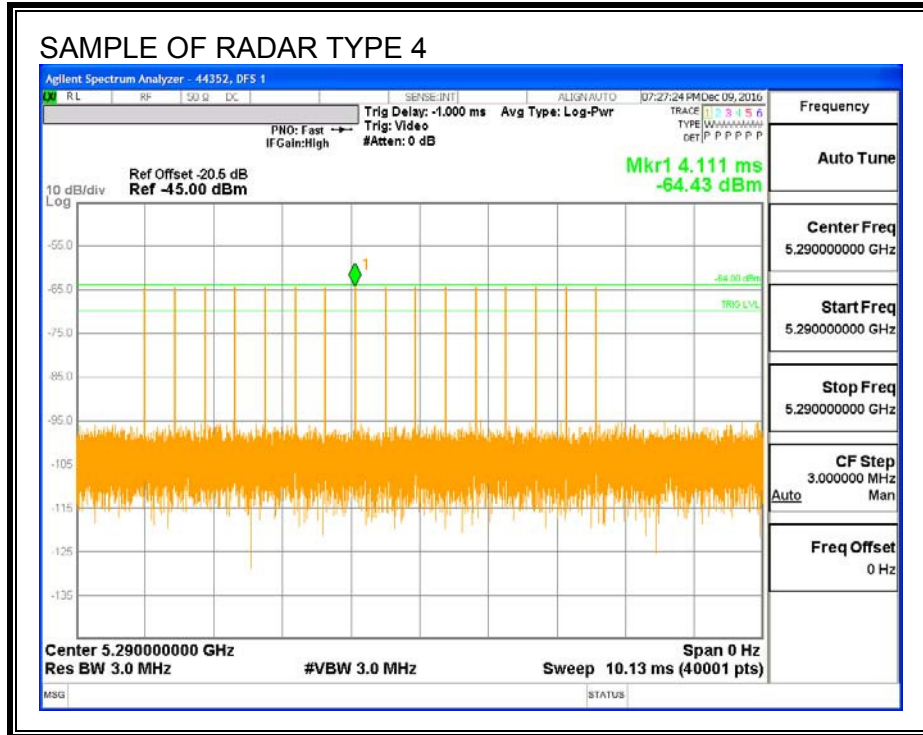
6.4.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

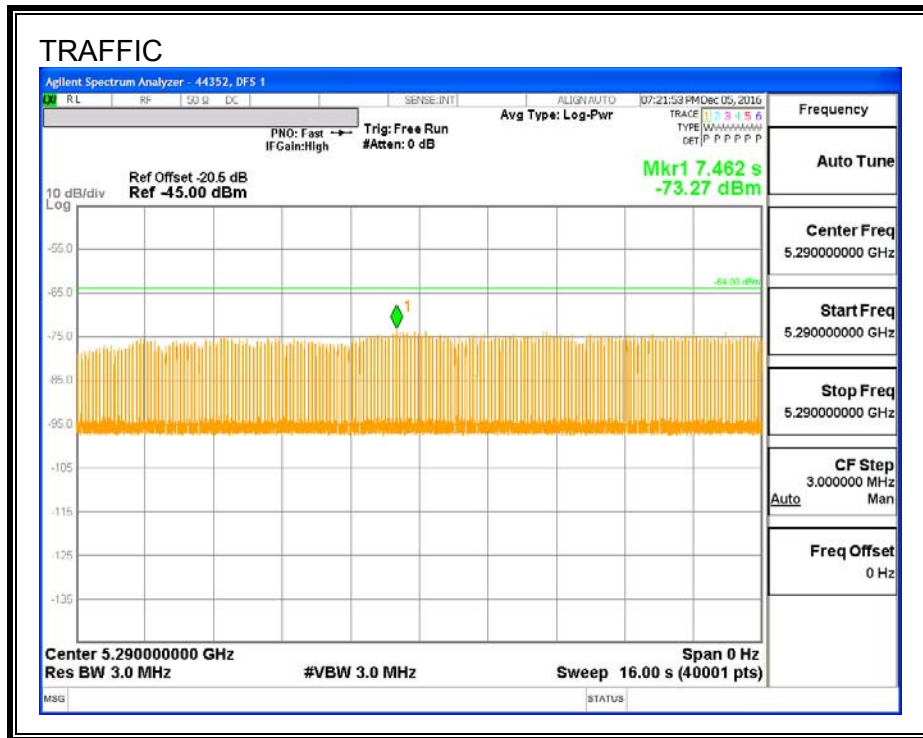




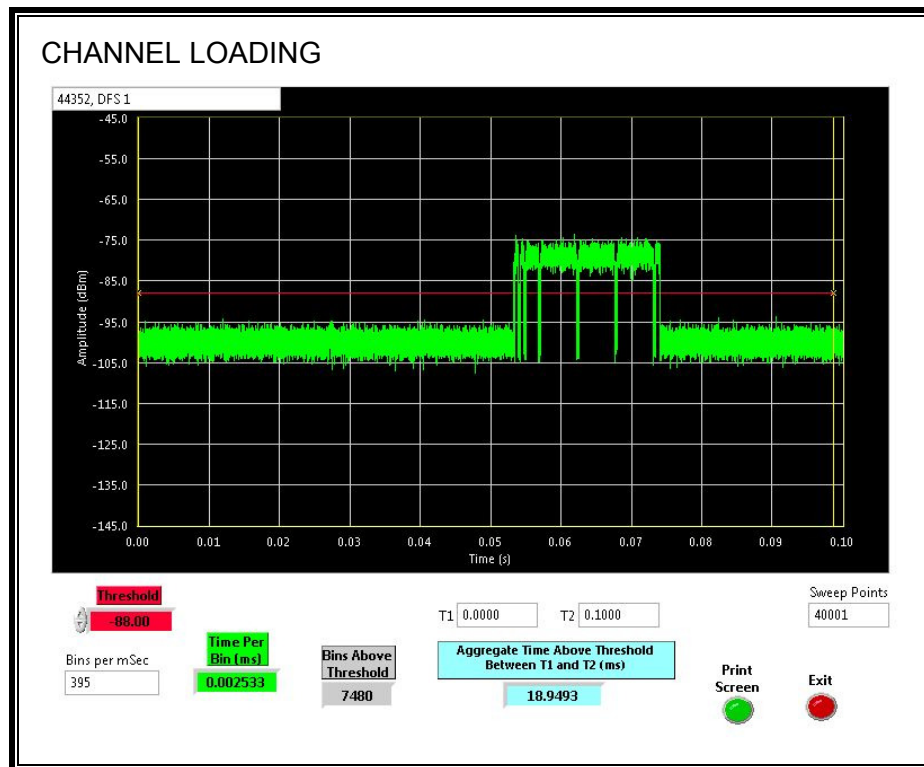




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 18.9493%

6.4.1. OVERLAPPING CHANNEL TESTS

RESULTS

The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

6.4.2. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	100.00	60	Pass	5250	5330	75.15	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	90.00	60	Pass	5250	5330	75.15	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	83.33	60	Pass	5250	5330	75.15	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	76.67	60	Pass	5250	5330	75.15	DFS 1	29445	Version 3.0
Aggregate		87.50	80	Pass						

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5280	Yes
1002	1	938	57	A	5287	Yes
1003	1	638	83	A	5275	Yes
1004	1	758	70	A	5275	Yes
1005	1	738	72	A	5281	Yes
1006	1	878	61	A	5301	Yes
1007	1	818	65	A	5286	Yes
1008	1	618	86	A	5329	Yes
1009	1	658	81	A	5301	Yes
1010	1	898	59	A	5315	Yes
1011	1	518	102	A	5322	Yes
1012	1	778	68	A	5323	Yes
1013	1	718	74	A	5276	Yes
1014	1	858	62	A	5263	Yes
1015	1	838	63	A	5257	Yes
1016	1	1493	36	B	5268	Yes
1017	1	1514	35	B	5296	Yes
1018	1	2017	27	B	5250	Yes
1019	1	2167	25	B	5287	Yes
1020	1	2800	19	B	5320	Yes
1021	1	1885	28	B	5306	Yes
1022	1	2647	20	B	5287	Yes
1023	1	667	80	B	5310	Yes
1024	1	1558	34	B	5329	Yes
1025	1	2255	24	B	5306	Yes
1026	1	2082	26	B	5267	Yes
1027	1	2909	19	B	5326	Yes
1028	1	2864	19	B	5286	Yes
1029	1	2626	21	B	5282	Yes
1030	1	2712	20	B	5312	Yes

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
2001	3	158	27	5255	Yes
2002	2.2	223	27	5282	Yes
2003	2	195	28	5308	Yes
2004	1.5	183	25	5279	Yes
2005	3.7	164	26	5283	Yes
2006	1.4	156	27	5271	Yes
2007	3.8	179	29	5253	Yes
2008	1.8	218	24	5314	Yes
2009	4.4	208	29	5287	Yes
2010	2.6	170	24	5289	No
2011	1.5	163	23	5260	No
2012	4	210	29	5304	Yes
2013	1	170	29	5250	Yes
2014	1.8	183	28	5321	Yes
2015	1.1	228	25	5302	Yes
2016	2.1	203	27	5295	Yes
2017	3.6	171	28	5257	Yes
2018	2.9	154	28	5319	No
2019	4.8	170	29	5255	Yes
2020	4.3	195	26	5316	Yes
2021	4.3	176	27	5317	Yes
2022	2.1	168	28	5282	Yes
2023	4.4	192	23	5291	Yes
2024	2.4	230	25	5265	Yes
2025	5	220	24	5287	Yes
2026	1.3	182	25	5320	Yes
2027	2.1	176	24	5286	Yes
2028	4.6	223	23	5322	Yes
2029	3.8	183	23	5254	Yes
2030	2.4	196	29	5275	Yes

TYPE 3 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 3					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
3001	6.8	281	17	5328	Yes
3002	7.7	335	18	5272	Yes
3003	9.5	487	17	5302	Yes
3004	6.6	436	18	5323	Yes
3005	8.5	483	17	5328	No
3006	8	445	16	5296	Yes
3007	6.1	254	17	5261	Yes
3008	9.9	479	17	5313	No
3009	8.2	434	18	5261	Yes
3010	6.1	421	18	5261	No
3011	6.8	389	18	5271	Yes
3012	9.1	271	16	5286	Yes
3013	9.9	251	18	5305	Yes
3014	8.3	279	18	5298	No
3015	7.5	273	18	5302	No
3016	6.1	314	17	5252	Yes
3017	9.6	453	16	5278	Yes
3018	8.6	256	17	5254	Yes
3019	8.2	290	16	5269	Yes
3020	9.4	357	18	5269	Yes
3021	7.2	404	16	5304	Yes
3022	6.7	365	18	5288	Yes
3023	8.9	425	17	5270	Yes
3024	8.6	399	16	5298	Yes
3025	6.9	354	17	5329	Yes
3026	8.9	341	17	5291	Yes
3027	9.6	309	17	5287	Yes
3028	7.8	442	18	5303	Yes
3029	8.6	423	17	5303	Yes
3030	7	451	17	5294	Yes

TYPE 4 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 4					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
4001	11.5	444	16	5322	Yes
4002	13.2	485	16	5313	Yes
4003	16.1	374	16	5319	Yes
4004	14	427	13	5253	Yes
4005	13	462	16	5315	Yes
4006	15.7	277	13	5257	Yes
4007	20	324	16	5293	Yes
4008	18.9	286	12	5261	No
4009	14.6	346	13	5323	No
4010	13.9	320	16	5307	Yes
4011	19.2	275	15	5275	Yes
4012	14.7	262	13	5271	Yes
4013	16.2	481	12	5327	Yes
4014	12.1	363	14	5256	Yes
4015	14.1	477	16	5285	Yes
4016	19.6	372	12	5315	Yes
4017	17.7	498	15	5259	Yes
4018	19.4	406	14	5297	Yes
4019	18	294	12	5284	No
4020	11.1	348	16	5283	Yes
4021	19.3	382	12	5295	Yes
4022	13.9	347	15	5282	No
4023	13.5	394	15	5328	Yes
4024	12.3	355	13	5273	Yes
4025	17.1	415	14	5303	Yes
4026	16.4	390	12	5315	Yes
4027	17.4	345	16	5321	Yes
4028	17.2	332	15	5325	No
4029	18.7	299	14	5299	No
4030	14.6	432	13	5322	No

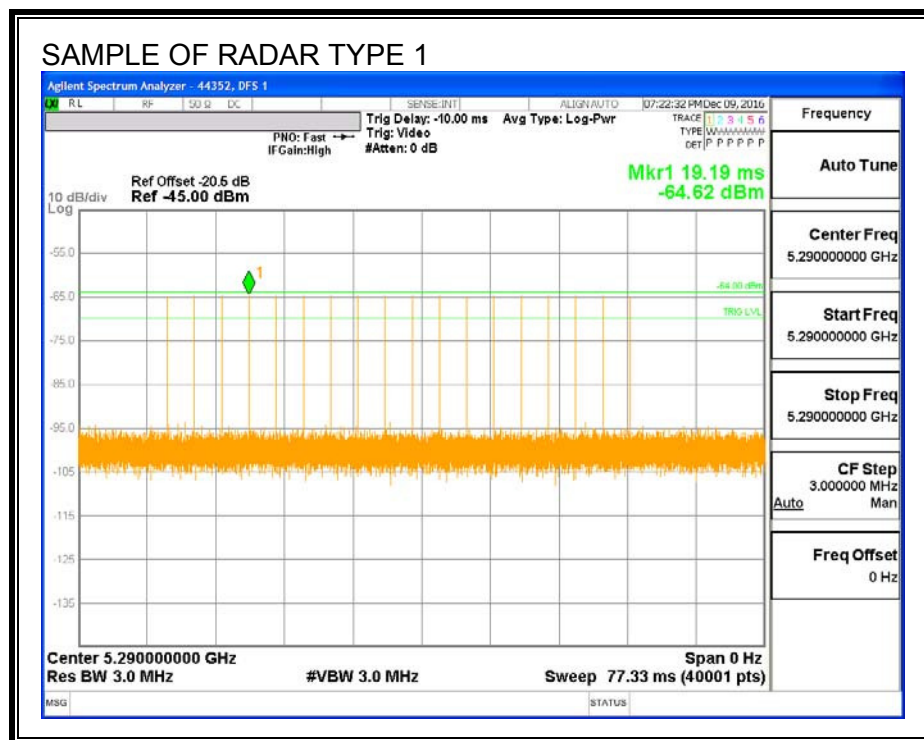
6.5. LOW BAND RESULTS FOR 160 MHz BANDWIDTH (80 MHz HIGH COMPONENT)

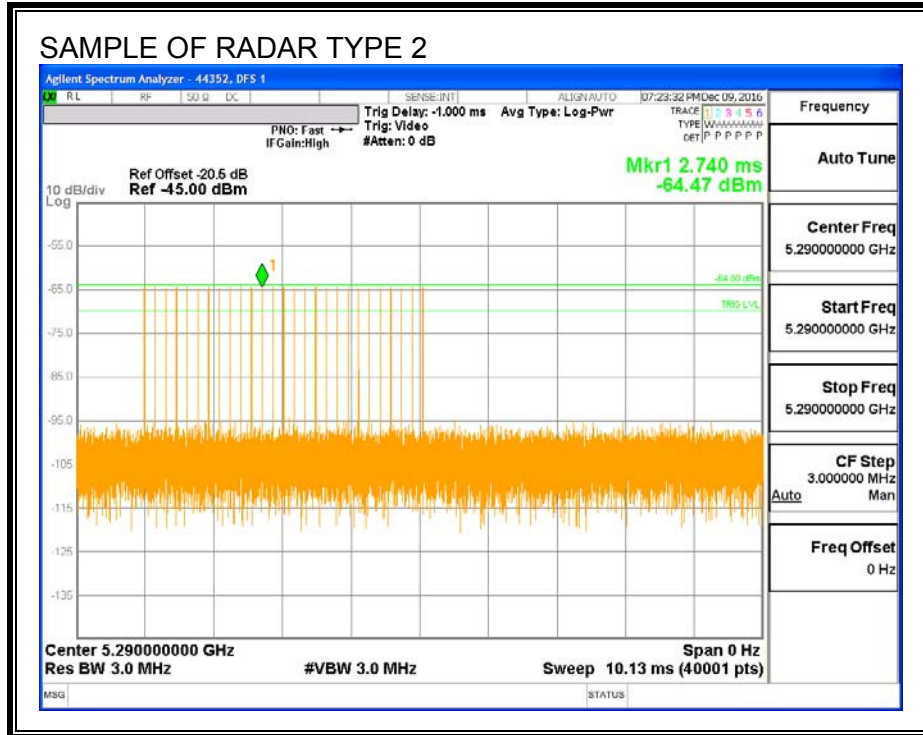
6.5.1. TEST CHANNEL

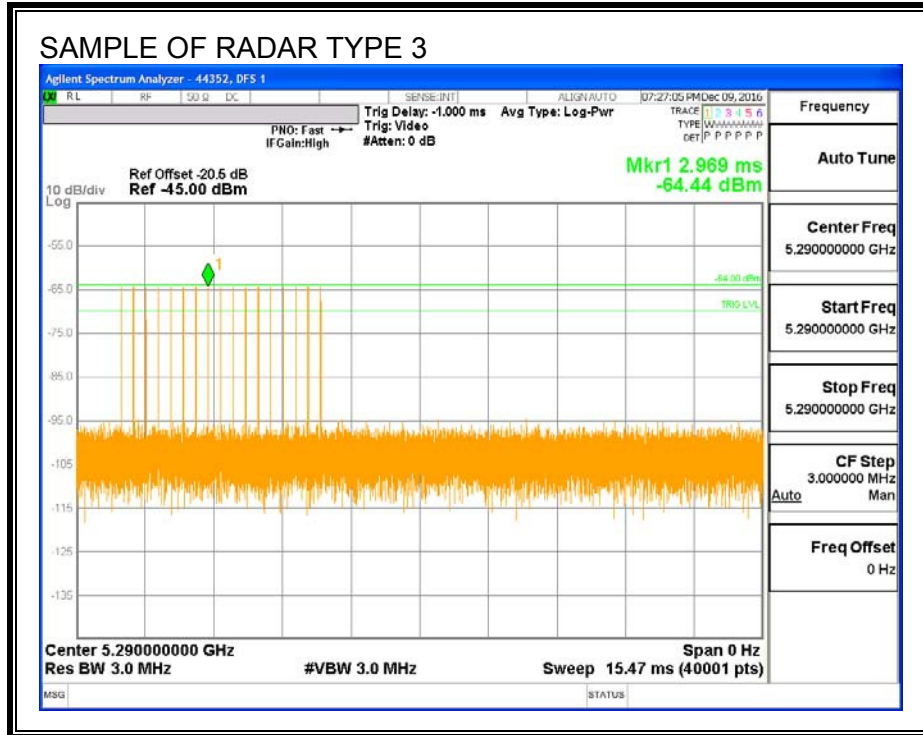
All tests were performed at a channel center frequency of 5290 MHz.

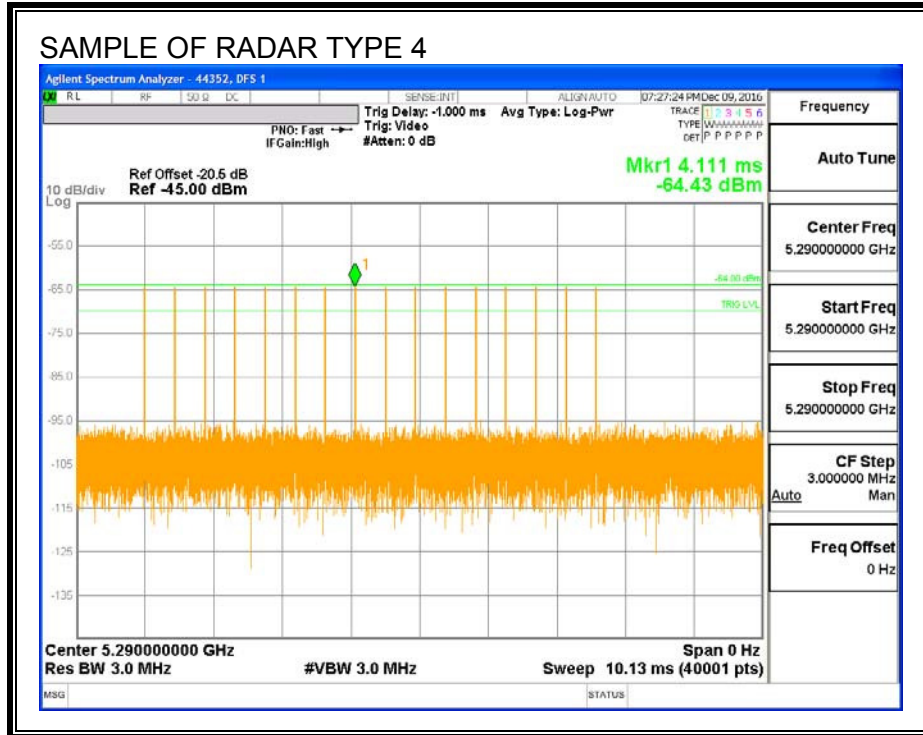
6.5.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

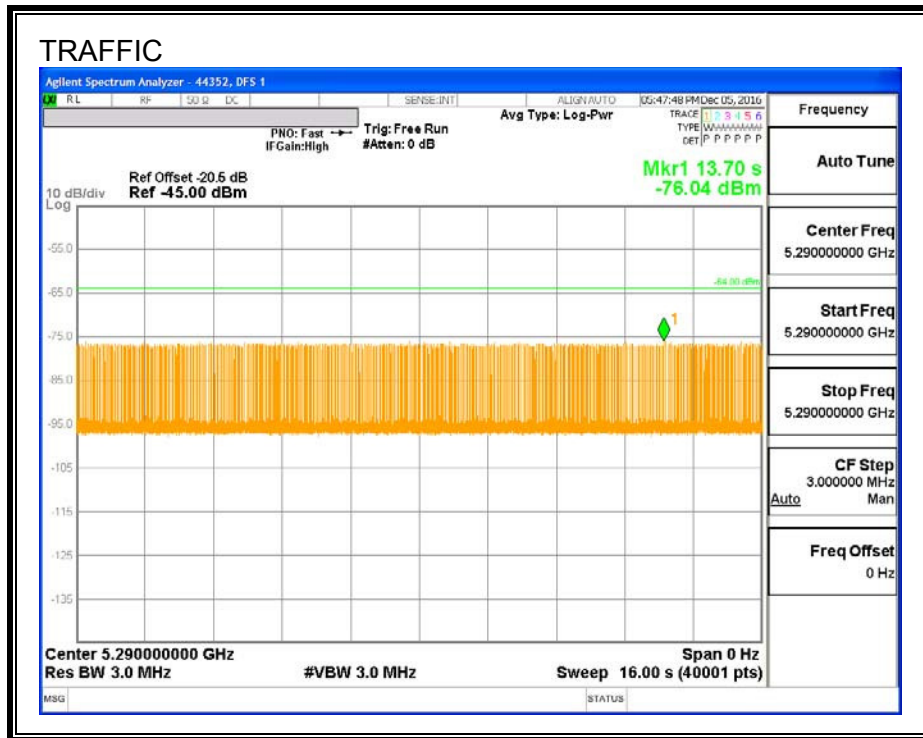




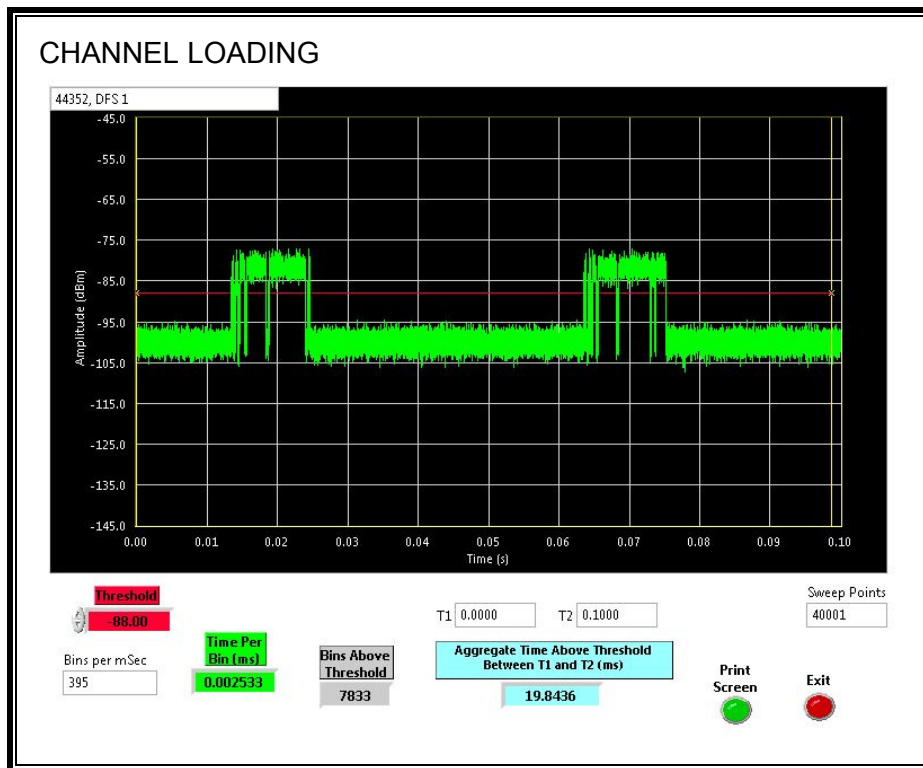




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 19.8436%

6.5.3. OVERLAPPING CHANNEL TESTS

RESULTS

The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

6.5.4. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	100.00	60	Pass	5252	5328	75.65	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	86.67	60	Pass	5252	5328	75.65	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	83.33	60	Pass	5252	5328	75.65	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	86.67	60	Pass	5252	5328	75.65	DFS 1	29445	Version 3.0
Aggregate		89.17	80	Pass						

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5284	Yes
1002	1	938	57	A	5324	Yes
1003	1	638	83	A	5260	Yes
1004	1	758	70	A	5295	Yes
1005	1	738	72	A	5281	Yes
1006	1	878	61	A	5285	Yes
1007	1	818	65	A	5261	Yes
1008	1	618	86	A	5313	Yes
1009	1	658	81	A	5256	Yes
1010	1	898	59	A	5290	Yes
1011	1	518	102	A	5296	Yes
1012	1	778	68	A	5309	Yes
1013	1	718	74	A	5253	Yes
1014	1	858	62	A	5302	Yes
1015	1	838	63	A	5310	Yes
1016	1	1493	36	B	5281	Yes
1017	1	1514	35	B	5279	Yes
1018	1	2017	27	B	5323	Yes
1019	1	2167	25	B	5295	Yes
1020	1	2800	19	B	5269	Yes
1021	1	1885	28	B	5324	Yes
1022	1	2647	20	B	5287	Yes
1023	1	667	80	B	5255	Yes
1024	1	1558	34	B	5295	Yes
1025	1	2255	24	B	5297	Yes
1026	1	2082	26	B	5256	Yes
1027	1	2909	19	B	5314	Yes
1028	1	2864	19	B	5315	Yes
1029	1	2626	21	B	5308	Yes
1030	1	2712	20	B	5318	Yes

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
2001	3	158	27	5321	Yes
2002	2.2	223	27	5312	Yes
2003	2	195	28	5300	Yes
2004	1.5	183	25	5296	Yes
2005	3.7	164	26	5265	Yes
2006	1.4	156	27	5326	Yes
2007	3.8	179	29	5324	No
2008	1.8	218	24	5257	Yes
2009	4.4	208	29	5318	Yes
2010	2.6	170	24	5314	Yes
2011	1.5	163	23	5320	Yes
2012	4	210	29	5255	Yes
2013	1	170	29	5277	Yes
2014	1.8	183	28	5274	Yes
2015	1.1	228	25	5307	Yes
2016	2.1	203	27	5290	Yes
2017	3.6	171	28	5314	Yes
2018	2.9	154	28	5324	Yes
2019	4.8	170	29	5314	Yes
2020	4.3	195	26	5268	No
2021	4.3	176	27	5303	No
2022	2.1	168	28	5328	No
2023	4.4	192	23	5304	Yes
2024	2.4	230	25	5268	Yes
2025	5	220	24	5275	Yes
2026	1.3	182	25	5259	Yes
2027	2.1	176	24	5319	Yes
2028	4.6	223	23	5258	Yes
2029	3.8	183	23	5309	Yes
2030	2.4	196	29	5324	Yes

TYPE 3 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 3					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
3001	6.8	281	17	5262	Yes
3002	7.7	335	18	5290	Yes
3003	9.5	487	17	5257	Yes
3004	6.6	436	18	5316	Yes
3005	8.5	483	17	5317	Yes
3006	8	445	16	5286	Yes
3007	6.1	254	17	5278	Yes
3008	9.9	479	17	5296	Yes
3009	8.2	434	18	5279	Yes
3010	6.1	421	18	5259	No
3011	6.8	389	18	5310	Yes
3012	9.1	271	16	5304	No
3013	9.9	251	18	5323	Yes
3014	8.3	279	18	5266	Yes
3015	7.5	273	18	5256	Yes
3016	6.1	314	17	5274	Yes
3017	9.6	453	16	5257	Yes
3018	8.6	256	17	5300	Yes
3019	8.2	290	16	5275	Yes
3020	9.4	357	18	5262	Yes
3021	7.2	404	16	5261	Yes
3022	6.7	365	18	5269	Yes
3023	8.9	425	17	5261	No
3024	8.6	399	16	5279	Yes
3025	6.9	354	17	5273	Yes
3026	8.9	341	17	5282	No
3027	9.6	309	17	5273	Yes
3028	7.8	442	18	5266	No
3029	8.6	423	17	5283	Yes
3030	7	451	17	5299	Yes

TYPE 4 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 4					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
4001	11.5	444	16	5327	Yes
4002	13.2	485	16	5261	Yes
4003	16.1	374	16	5322	Yes
4004	14	427	13	5279	Yes
4005	13	462	16	5265	Yes
4006	15.7	277	13	5290	Yes
4007	20	324	16	5316	Yes
4008	18.9	286	12	5305	Yes
4009	14.6	346	13	5321	Yes
4010	13.9	320	16	5325	Yes
4011	19.2	275	15	5288	Yes
4012	14.7	262	13	5254	No
4013	16.2	481	12	5294	Yes
4014	12.1	363	14	5275	Yes
4015	14.1	477	16	5252	No
4016	19.6	372	12	5260	Yes
4017	17.7	498	15	5300	Yes
4018	19.4	406	14	5253	Yes
4019	18	294	12	5259	No
4020	11.1	348	16	5319	No
4021	19.3	382	12	5279	Yes
4022	13.9	347	15	5300	Yes
4023	13.5	394	15	5276	Yes
4024	12.3	355	13	5308	Yes
4025	17.1	415	14	5263	Yes
4026	16.4	390	12	5285	Yes
4027	17.4	345	16	5307	Yes
4028	17.2	332	15	5303	Yes
4029	18.7	299	14	5313	Yes
4030	14.6	432	13	5322	Yes

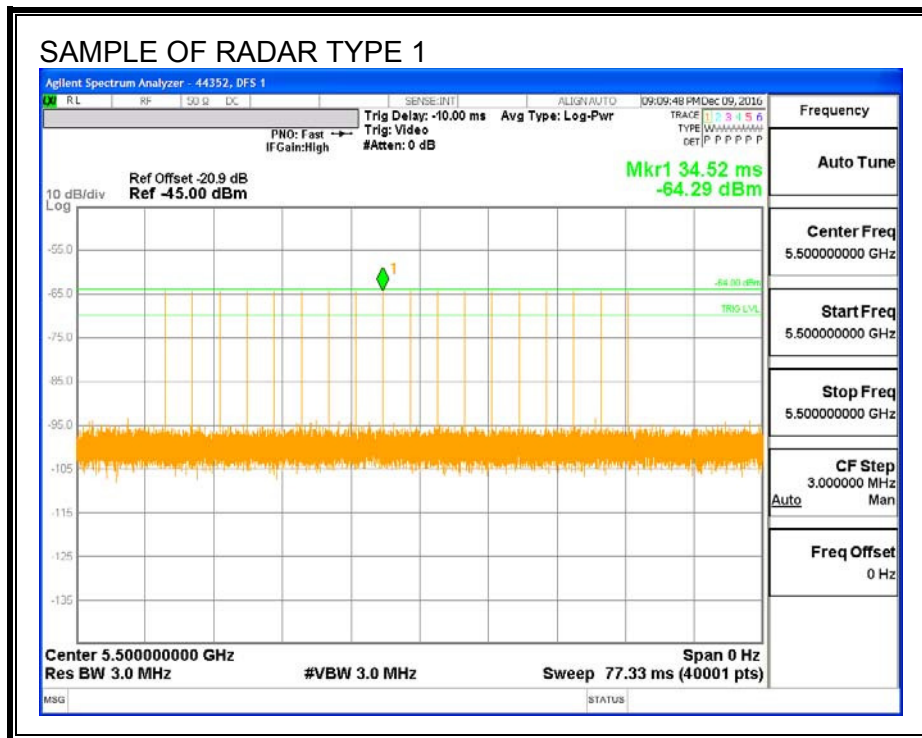
6.6. HIGH BAND RESULTS FOR 20 MHz BANDWIDTH

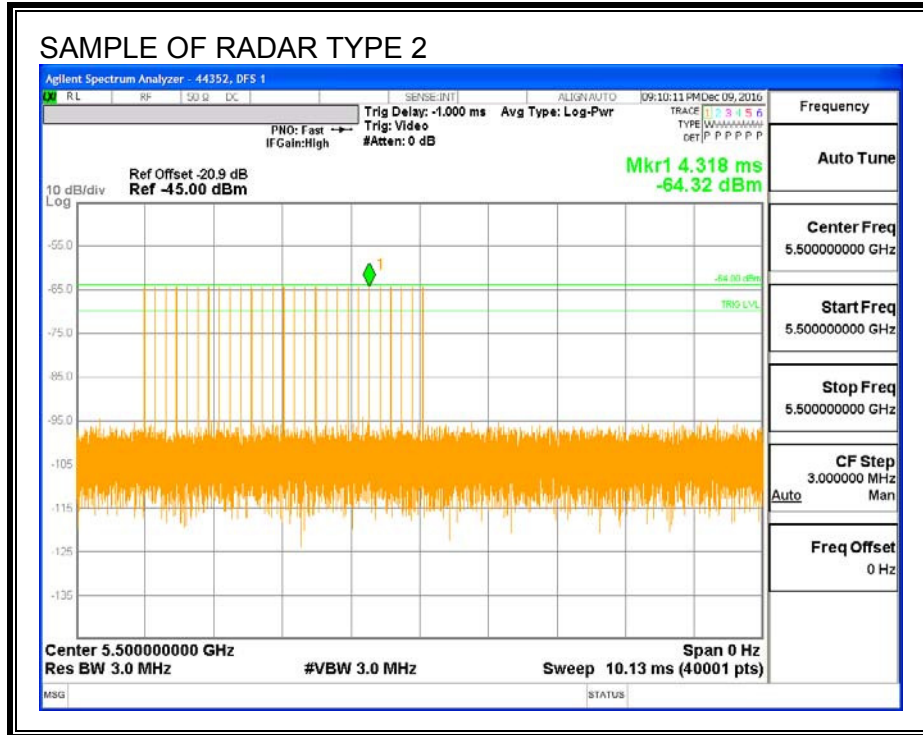
6.6.1. TEST CHANNEL

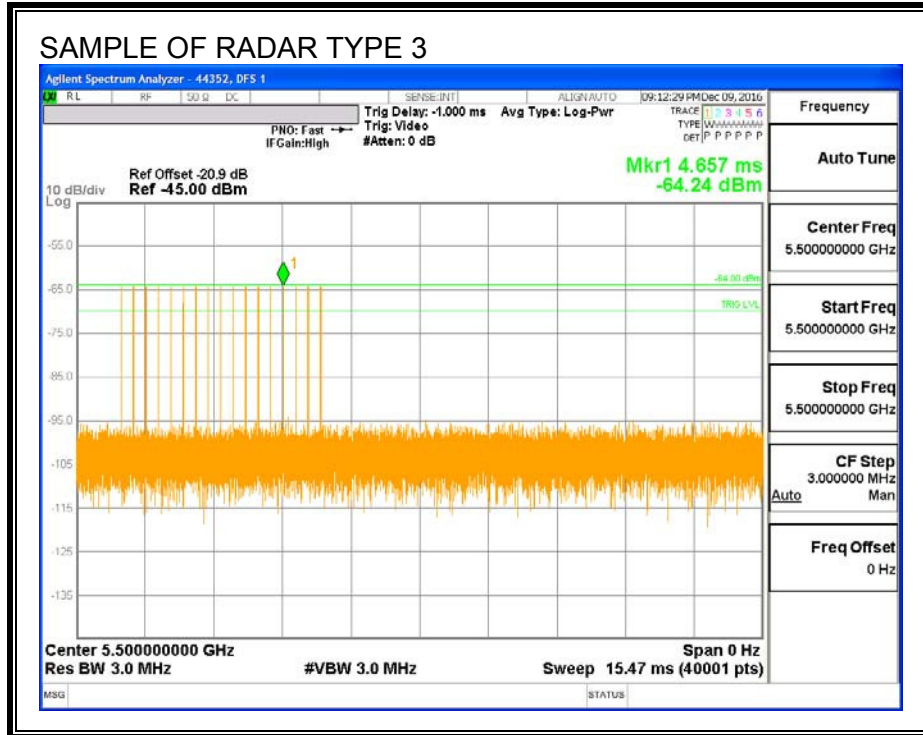
All tests were performed at a channel center frequency of 5500 MHz.

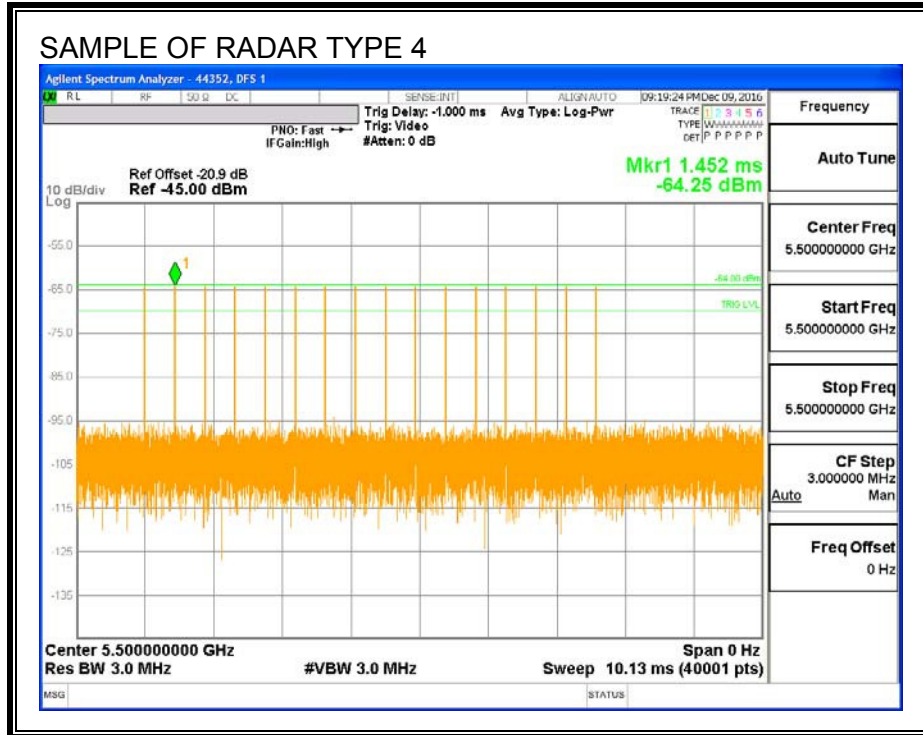
6.6.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

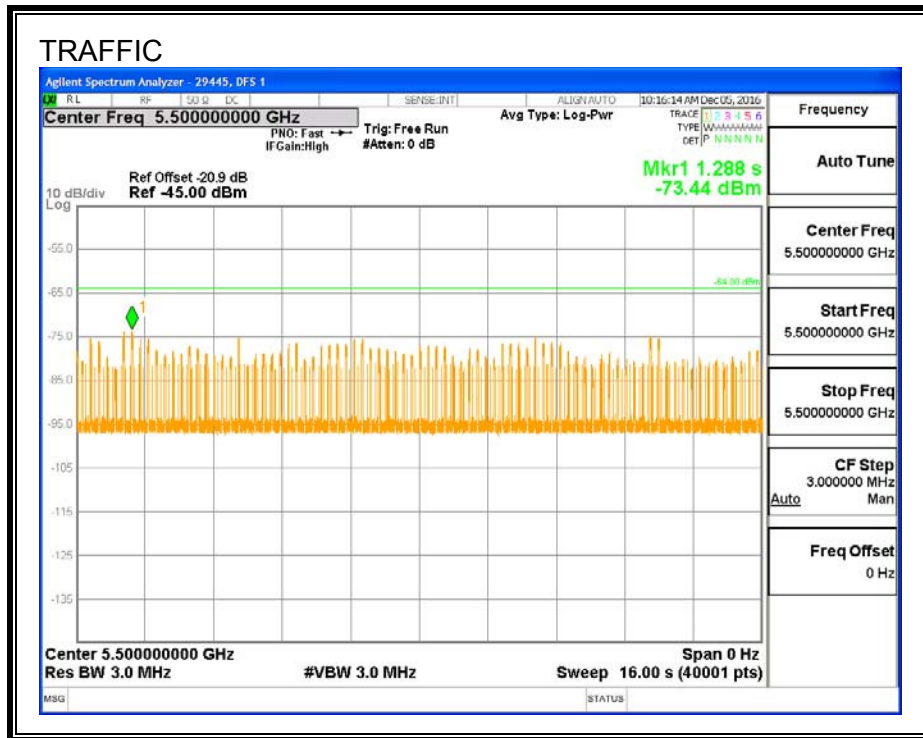




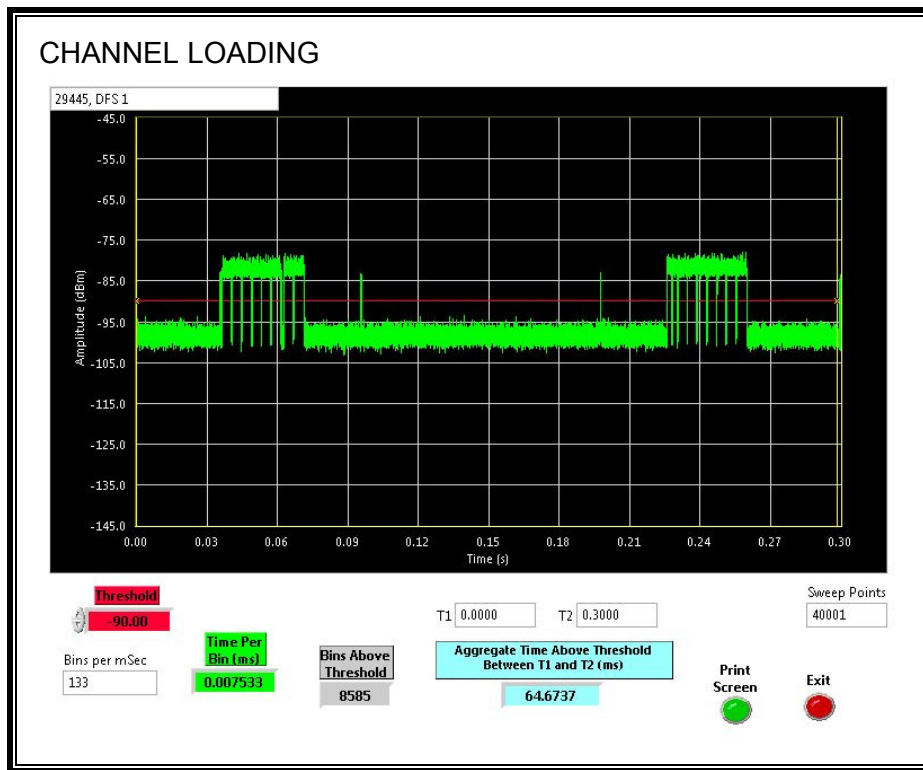




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 21.55%

6.6.3. OVERLAPPING CHANNEL TESTS

RESULTS

The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

6.6.4. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	96.67	60	Pass	5490	5510	17.95	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	80.00	60	Pass	5490	5510	17.95	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	80.00	60	Pass	5490	5510	17.95	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	83.33	60	Pass	5490	5510	17.95	DFS 1	29445	Version 3.0
Aggregate		85.00	80	Pass						

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5498	Yes
1002	1	938	57	A	5495	Yes
1003	1	638	83	A	5499	Yes
1004	1	758	70	A	5500	Yes
1005	1	738	72	A	5491	Yes
1006	1	878	61	A	5502	Yes
1007	1	818	65	A	5509	Yes
1008	1	618	86	A	5500	Yes
1009	1	658	81	A	5508	Yes
1010	1	898	59	A	5508	Yes
1011	1	518	102	A	5508	Yes
1012	1	778	68	A	5501	Yes
1013	1	718	74	A	5497	Yes
1014	1	858	62	A	5491	Yes
1015	1	838	63	A	5500	Yes
1016	1	1493	36	B	5497	Yes
1017	1	1514	35	B	5495	Yes
1018	1	2017	27	B	5501	Yes
1019	1	2167	25	B	5492	Yes
1020	1	2800	19	B	5503	Yes
1021	1	1885	28	B	5508	Yes
1022	1	2647	20	B	5490	No
1023	1	667	80	B	5508	Yes
1024	1	1558	34	B	5493	Yes
1025	1	2255	24	B	5510	Yes
1026	1	2082	26	B	5498	Yes
1027	1	2909	19	B	5505	Yes
1028	1	2864	19	B	5505	Yes
1029	1	2626	21	B	5493	Yes
1030	1	2712	20	B	5496	Yes

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
2001	3	158	27	5499	Yes
2002	2.2	223	27	5508	Yes
2003	2	195	28	5500	Yes
2004	1.5	183	25	5506	No
2005	3.7	164	26	5498	Yes
2006	1.4	156	27	5495	Yes
2007	3.8	179	29	5503	Yes
2008	1.8	218	24	5502	No
2009	4.4	208	29	5501	Yes
2010	2.6	170	24	5503	Yes
2011	1.5	163	23	5509	Yes
2012	4	210	29	5503	Yes
2013	1	170	29	5503	Yes
2014	1.8	183	28	5490	Yes
2015	1.1	228	25	5508	Yes
2016	2.1	203	27	5497	Yes
2017	3.6	171	28	5503	Yes
2018	2.9	154	28	5508	Yes
2019	4.8	170	29	5504	No
2020	4.3	195	26	5506	No
2021	4.3	176	27	5503	Yes
2022	2.1	168	28	5505	Yes
2023	4.4	192	23	5496	Yes
2024	2.4	230	25	5495	Yes
2025	5	220	24	5494	No
2026	1.3	182	25	5500	Yes
2027	2.1	176	24	5497	Yes
2028	4.6	223	23	5505	Yes
2029	3.8	183	23	5494	Yes
2030	2.4	196	29	5502	No

TYPE 3 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 3					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
3001	6.8	281	17	5507	Yes
3002	7.7	335	18	5508	Yes
3003	9.5	487	17	5490	No
3004	6.6	436	18	5507	Yes
3005	8.5	483	17	5508	Yes
3006	8	445	16	5492	Yes
3007	6.1	254	17	5501	No
3008	9.9	479	17	5501	Yes
3009	8.2	434	18	5504	Yes
3010	6.1	421	18	5502	Yes
3011	6.8	389	18	5501	No
3012	9.1	271	16	5501	Yes
3013	9.9	251	18	5508	Yes
3014	8.3	279	18	5491	Yes
3015	7.5	273	18	5510	No
3016	6.1	314	17	5504	Yes
3017	9.6	453	16	5508	Yes
3018	8.6	256	17	5509	Yes
3019	8.2	290	16	5510	Yes
3020	9.4	357	18	5491	Yes
3021	7.2	404	16	5496	Yes
3022	6.7	365	18	5492	Yes
3023	8.9	425	17	5501	No
3024	8.6	399	16	5494	Yes
3025	6.9	354	17	5509	Yes
3026	8.9	341	17	5506	Yes
3027	9.6	309	17	5491	No
3028	7.8	442	18	5503	Yes
3029	8.6	423	17	5510	Yes
3030	7	451	17	5497	Yes

TYPE 4 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 4					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
4001	11.5	444	16	5497	Yes
4002	13.2	485	16	5507	No
4003	16.1	374	16	5495	Yes
4004	14	427	13	5501	Yes
4005	13	462	16	5502	Yes
4006	15.7	277	13	5504	No
4007	20	324	16	5508	Yes
4008	18.9	286	12	5494	Yes
4009	14.6	346	13	5494	Yes
4010	13.9	320	16	5502	Yes
4011	19.2	275	15	5502	Yes
4012	14.7	262	13	5497	Yes
4013	16.2	481	12	5502	Yes
4014	12.1	363	14	5510	No
4015	14.1	477	16	5509	Yes
4016	19.6	372	12	5507	Yes
4017	17.7	498	15	5507	Yes
4018	19.4	406	14	5509	Yes
4019	18	294	12	5495	No
4020	11.1	348	16	5497	Yes
4021	19.3	382	12	5508	Yes
4022	13.9	347	15	5495	Yes
4023	13.5	394	15	5501	Yes
4024	12.3	355	13	5492	Yes
4025	17.1	415	14	5491	Yes
4026	16.4	390	12	5503	Yes
4027	17.4	345	16	5499	No
4028	17.2	332	15	5509	Yes
4029	18.7	299	14	5494	Yes
4030	14.6	432	13	5492	Yes

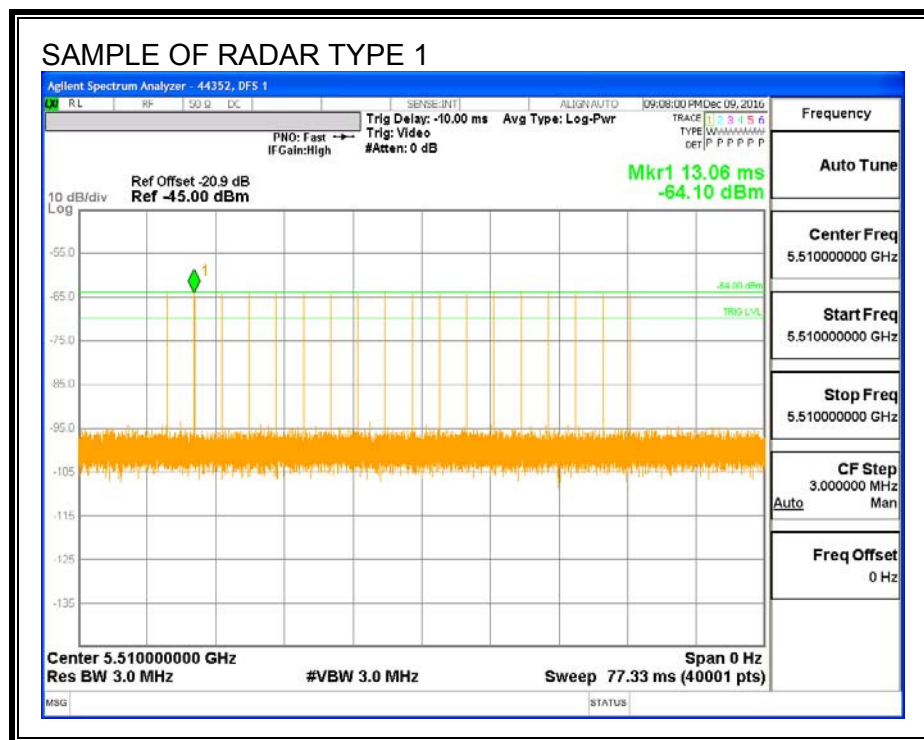
6.7. HIGH BAND RESULTS FOR 40 MHz BANDWIDTH

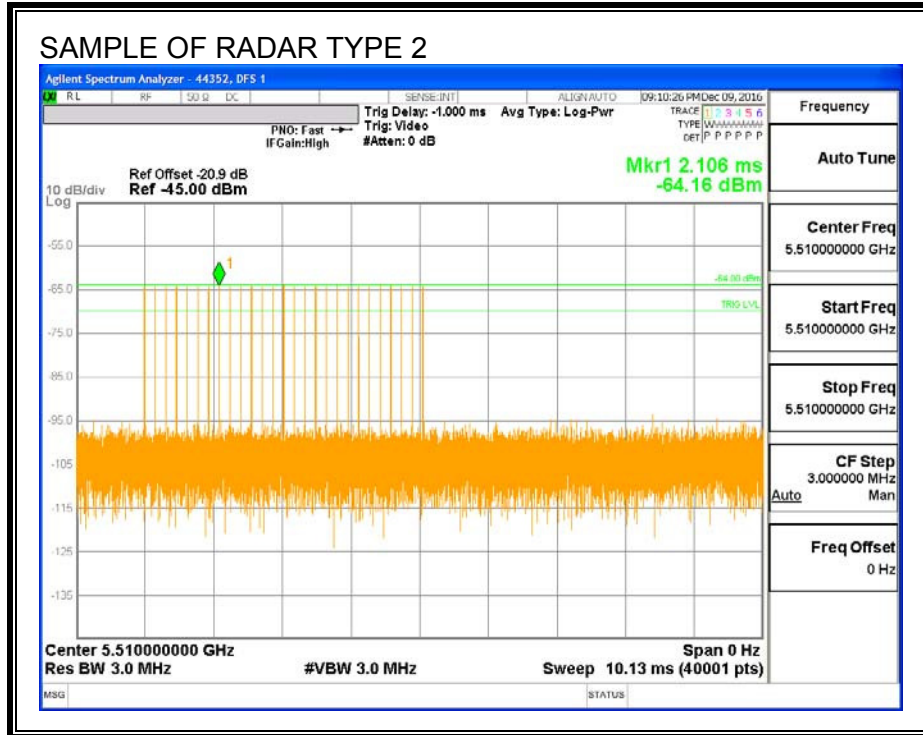
6.7.1. TEST CHANNEL

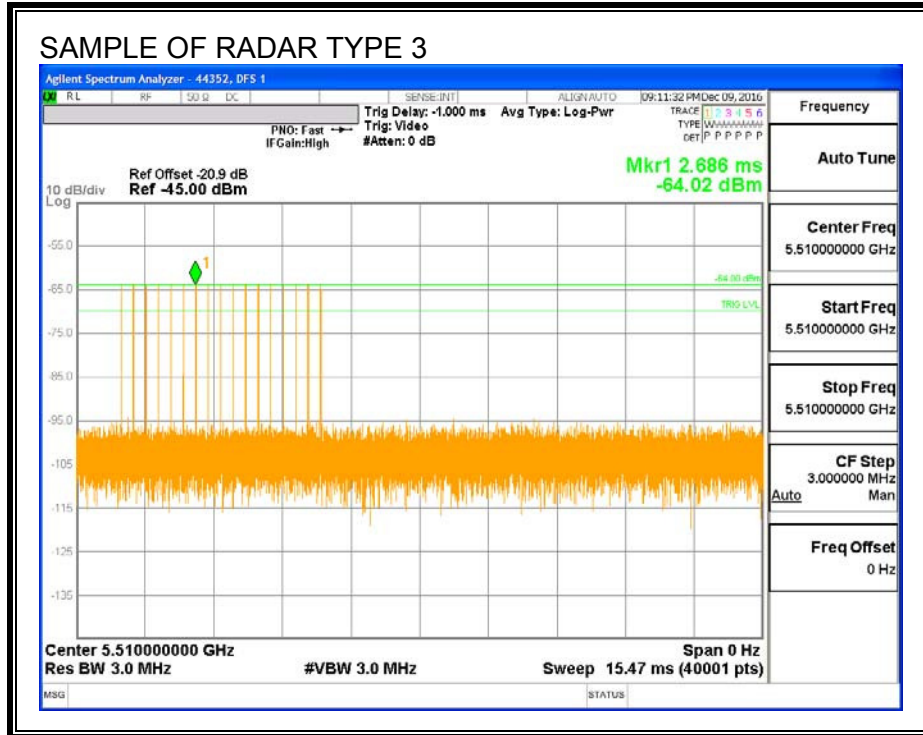
All tests were performed at a channel center frequency of 5510 MHz.

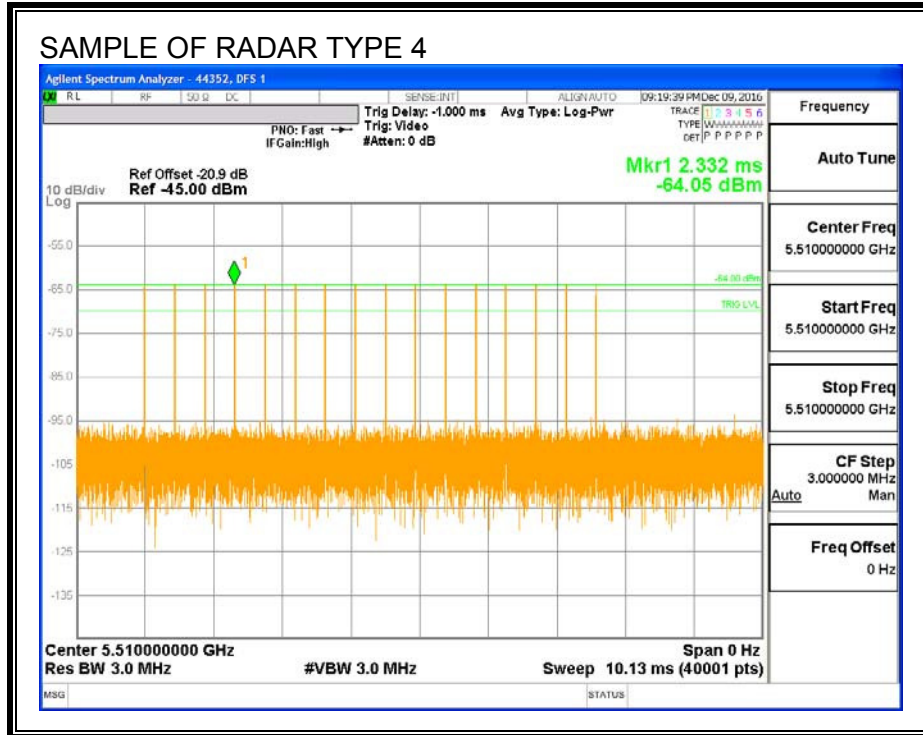
6.7.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

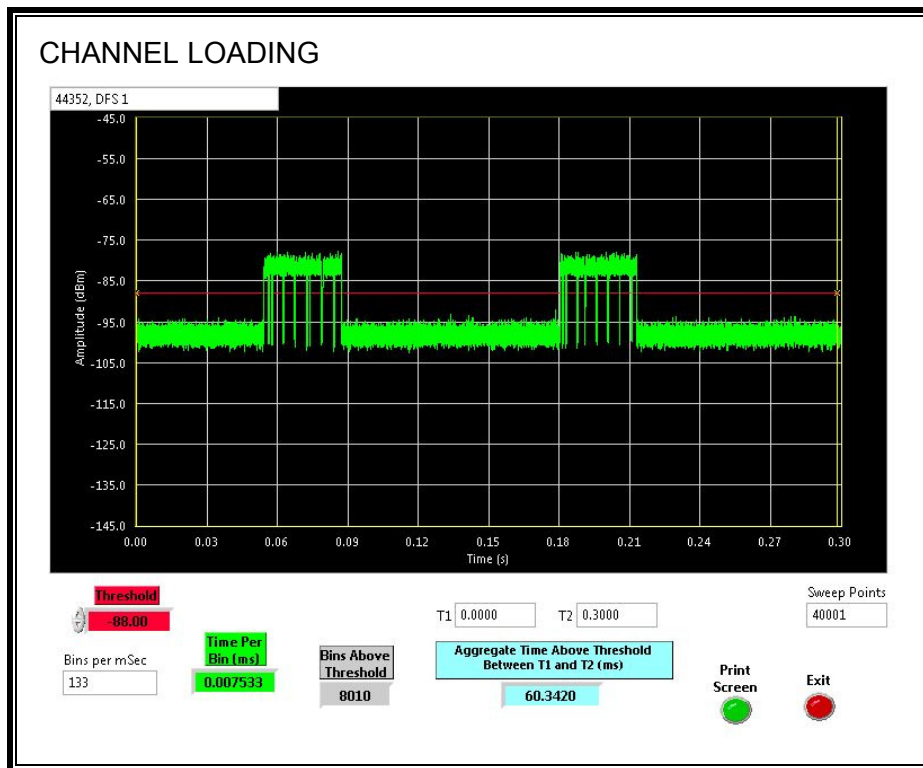








CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 20.114%

6.7.3. OVERLAPPING CHANNEL TESTS

RESULTS

The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

6.7.4. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	96.67	60	Pass	5490	5530	36.17	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	73.33	60	Pass	5490	5530	36.17	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	83.33	60	Pass	5490	5530	36.17	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	66.67	60	Pass	5490	5530	36.17	DFS 1	29445	Version 3.0
Aggregate		80.00	80	Pass						

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5528	Yes
1002	1	938	57	A	5498	Yes
1003	1	638	83	A	5505	Yes
1004	1	758	70	A	5505	Yes
1005	1	738	72	A	5520	Yes
1006	1	878	61	A	5523	Yes
1007	1	818	65	A	5516	Yes
1008	1	618	86	A	5498	Yes
1009	1	658	81	A	5499	Yes
1010	1	898	59	A	5497	Yes
1011	1	518	102	A	5503	Yes
1012	1	778	68	A	5509	Yes
1013	1	718	74	A	5522	Yes
1014	1	858	62	A	5511	Yes
1015	1	838	63	A	5492	Yes
1016	1	1493	36	B	5507	Yes
1017	1	1514	35	B	5509	Yes
1018	1	2017	27	B	5491	Yes
1019	1	2167	25	B	5530	Yes
1020	1	2800	19	B	5517	Yes
1021	1	1885	28	B	5519	Yes
1022	1	2647	20	B	5496	Yes
1023	1	667	80	B	5492	Yes
1024	1	1558	34	B	5525	Yes
1025	1	2255	24	B	5517	Yes
1026	1	2082	26	B	5513	Yes
1027	1	2909	19	B	5506	Yes
1028	1	2864	19	B	5490	Yes
1029	1	2626	21	B	5517	No
1030	1	2712	20	B	5494	Yes

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
2001	3	158	27	5512	No
2002	2.2	223	27	5511	Yes
2003	2	195	28	5493	Yes
2004	1.5	183	25	5510	No
2005	3.7	164	26	5519	Yes
2006	1.4	156	27	5514	Yes
2007	3.8	179	29	5502	Yes
2008	1.8	218	24	5517	No
2009	4.4	208	29	5527	Yes
2010	2.6	170	24	5521	Yes
2011	1.5	163	23	5496	Yes
2012	4	210	29	5491	Yes
2013	1	170	29	5517	Yes
2014	1.8	183	28	5500	Yes
2015	1.1	228	25	5513	No
2016	2.1	203	27	5504	Yes
2017	3.6	171	28	5499	No
2018	2.9	154	28	5496	Yes
2019	4.8	170	29	5503	Yes
2020	4.3	195	26	5523	Yes
2021	4.3	176	27	5498	Yes
2022	2.1	168	28	5501	No
2023	4.4	192	23	5497	Yes
2024	2.4	230	25	5511	Yes
2025	5	220	24	5518	No
2026	1.3	182	25	5504	Yes
2027	2.1	176	24	5522	Yes
2028	4.6	223	23	5507	Yes
2029	3.8	183	23	5504	Yes
2030	2.4	196	29	5492	No

TYPE 3 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 3					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
3001	6.8	281	17	5492	Yes
3002	7.7	335	18	5524	No
3003	9.5	487	17	5516	Yes
3004	6.6	436	18	5529	Yes
3005	8.5	483	17	5525	Yes
3006	8	445	16	5491	Yes
3007	6.1	254	17	5506	Yes
3008	9.9	479	17	5522	No
3009	8.2	434	18	5492	Yes
3010	6.1	421	18	5515	Yes
3011	6.8	389	18	5502	Yes
3012	9.1	271	16	5510	Yes
3013	9.9	251	18	5521	No
3014	8.3	279	18	5501	Yes
3015	7.5	273	18	5504	Yes
3016	6.1	314	17	5517	Yes
3017	9.6	453	16	5499	Yes
3018	8.6	256	17	5494	Yes
3019	8.2	290	16	5506	No
3020	9.4	357	18	5516	No
3021	7.2	404	16	5525	Yes
3022	6.7	365	18	5522	Yes
3023	8.9	425	17	5526	Yes
3024	8.6	399	16	5496	Yes
3025	6.9	354	17	5522	Yes
3026	8.9	341	17	5519	Yes
3027	9.6	309	17	5523	Yes
3028	7.8	442	18	5517	Yes
3029	8.6	423	17	5504	Yes
3030	7	451	17	5507	Yes

TYPE 4 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 4					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
4001	11.5	444	16	5512	Yes
4002	13.2	485	16	5515	Yes
4003	16.1	374	16	5527	No
4004	14	427	13	5508	Yes
4005	13	462	16	5500	Yes
4006	15.7	277	13	5500	No
4007	20	324	16	5525	Yes
4008	18.9	286	12	5511	Yes
4009	14.6	346	13	5493	Yes
4010	13.9	320	16	5510	No
4011	19.2	275	15	5495	Yes
4012	14.7	262	13	5507	Yes
4013	16.2	481	12	5530	No
4014	12.1	363	14	5510	No
4015	14.1	477	16	5504	No
4016	19.6	372	12	5494	Yes
4017	17.7	498	15	5507	Yes
4018	19.4	406	14	5506	Yes
4019	18	294	12	5498	Yes
4020	11.1	348	16	5512	Yes
4021	19.3	382	12	5514	No
4022	13.9	347	15	5526	Yes
4023	13.5	394	15	5502	Yes
4024	12.3	355	13	5514	Yes
4025	17.1	415	14	5510	No
4026	16.4	390	12	5509	Yes
4027	17.4	345	16	5513	No
4028	17.2	332	15	5502	Yes
4029	18.7	299	14	5527	No
4030	14.6	432	13	5508	Yes

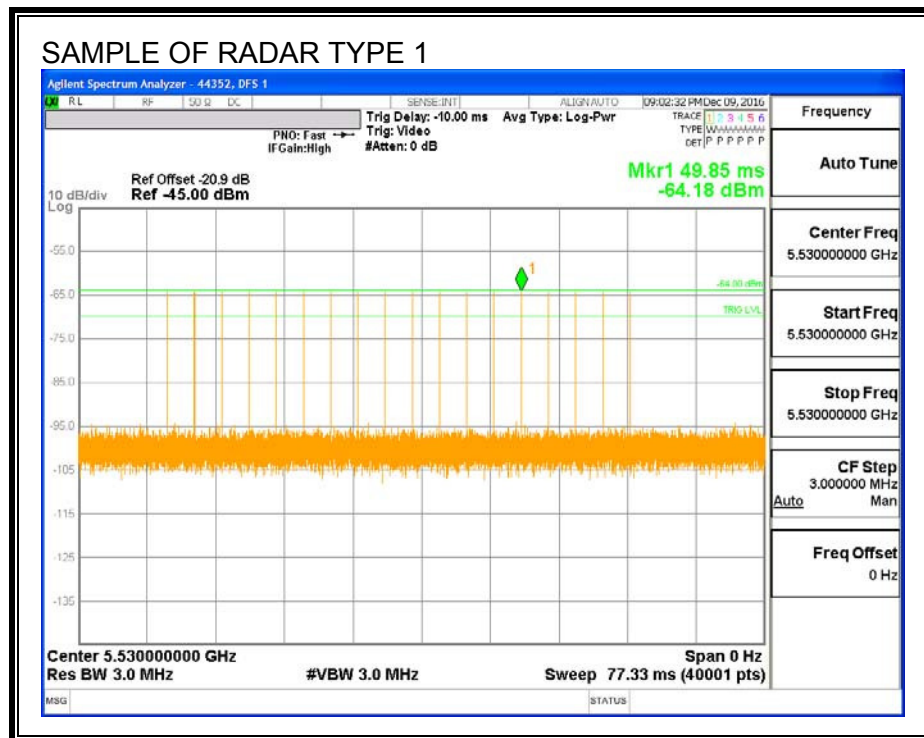
6.8. HIGH BAND RESULTS FOR 80 MHz BANDWIDTH

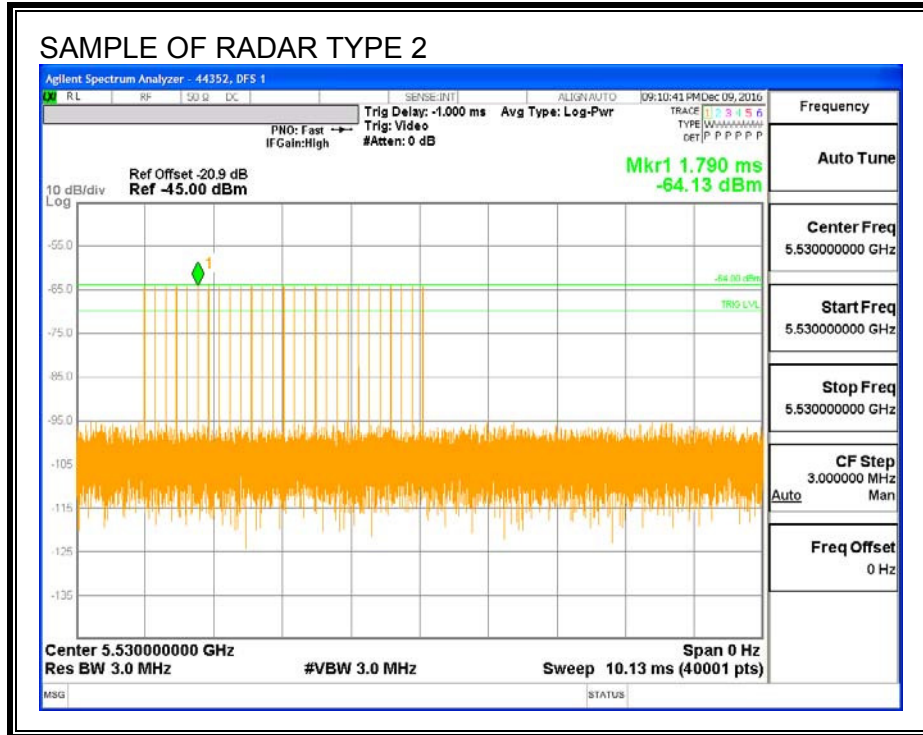
6.8.1. TEST CHANNEL

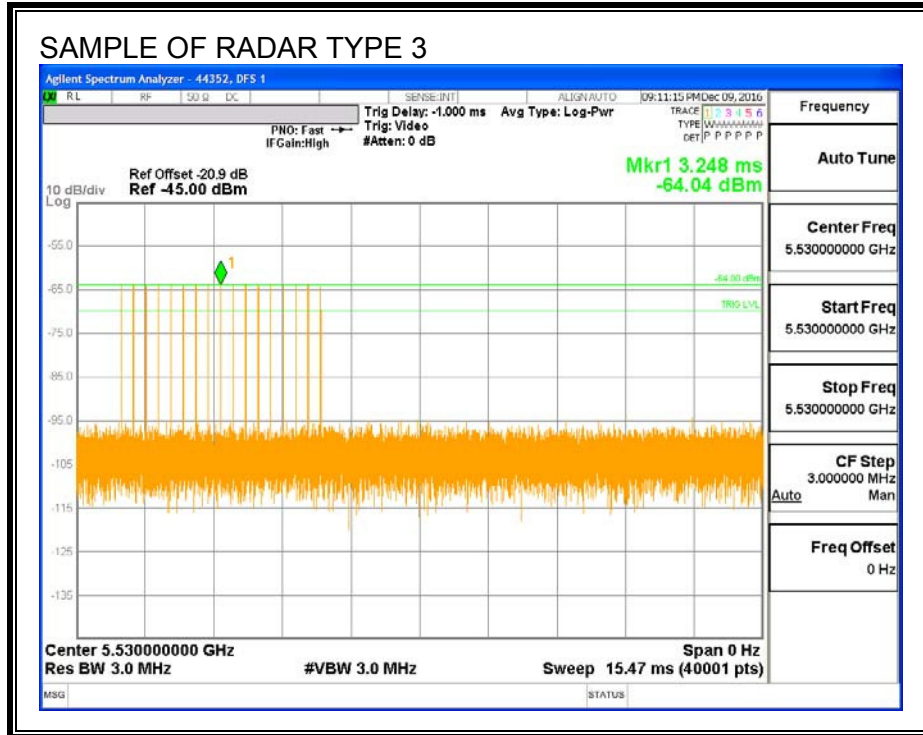
All tests were performed at a channel center frequency of 5530 MHz.

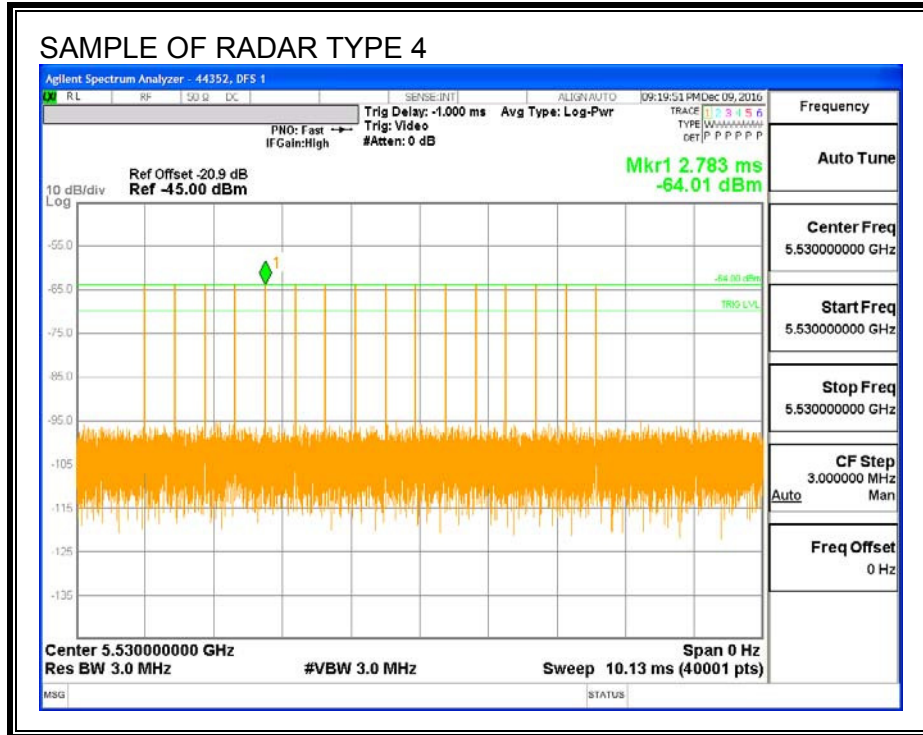
6.8.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

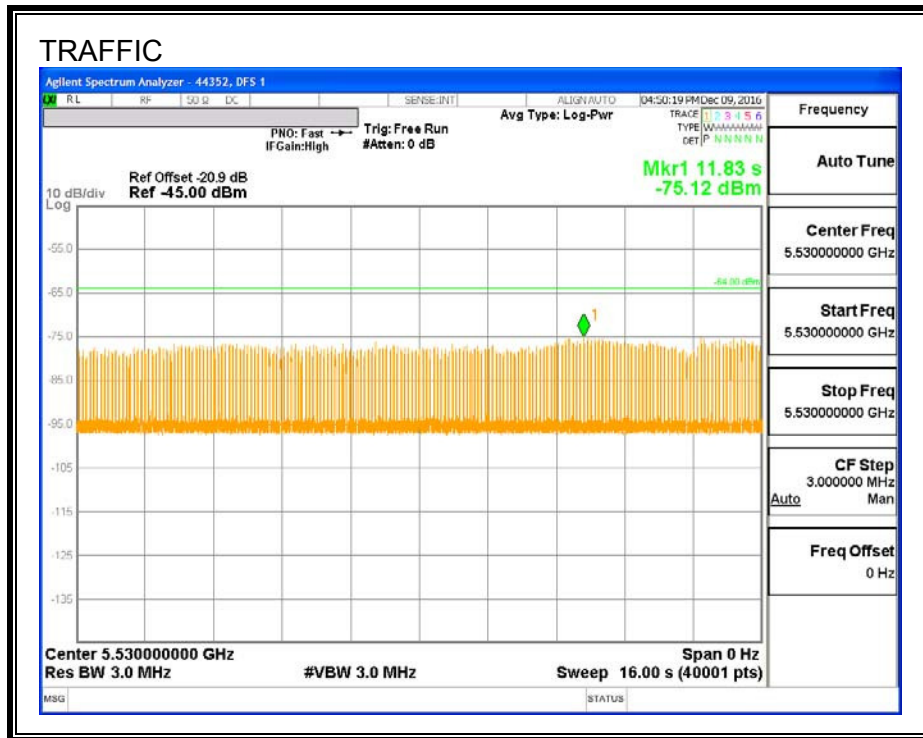




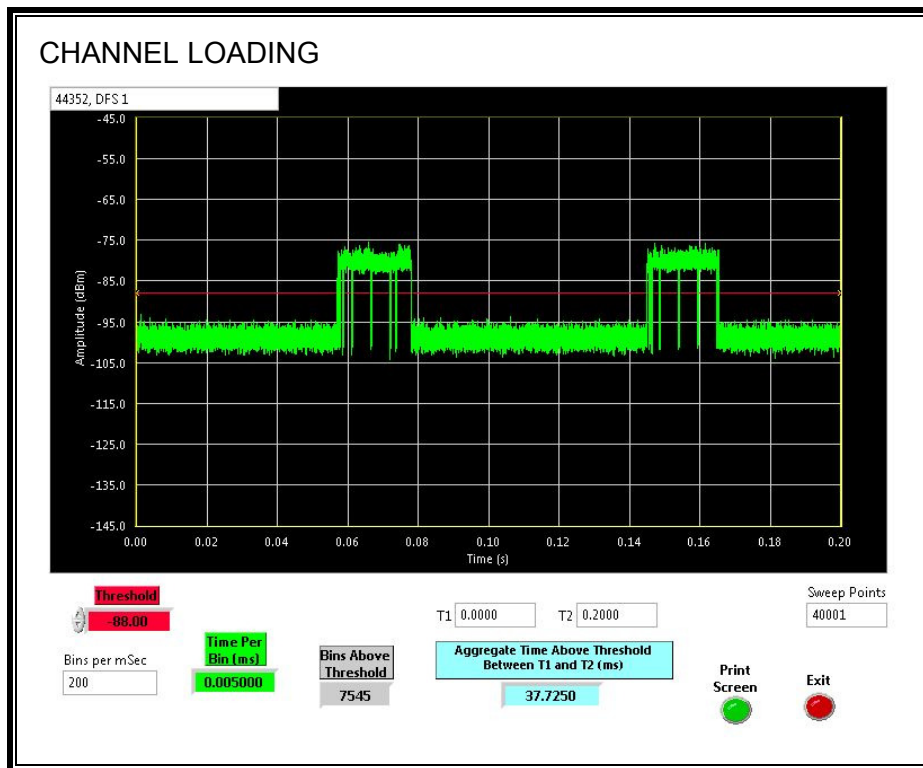




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 18.86%

6.8.3. OVERLAPPING CHANNEL TESTS

RESULTS

The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

6.8.4. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	100.00	60	Pass	5490	5569	75.98	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	70.00	60	Pass	5490	5569	75.98	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	86.67	60	Pass	5490	5569	75.98	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	73.33	60	Pass	5490	5569	75.98	DFS 1	29445	Version 3.0
Aggregate		82.50	80	Pass						

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5495	Yes
1002	1	938	57	A	5495	Yes
1003	1	638	83	A	5534	Yes
1004	1	758	70	A	5496	Yes
1005	1	738	72	A	5523	Yes
1006	1	878	61	A	5527	Yes
1007	1	818	65	A	5559	Yes
1008	1	618	86	A	5560	Yes
1009	1	658	81	A	5564	Yes
1010	1	898	59	A	5515	Yes
1011	1	518	102	A	5545	Yes
1012	1	778	68	A	5517	Yes
1013	1	718	74	A	5564	Yes
1014	1	858	62	A	5501	Yes
1015	1	838	63	A	5568	Yes
1016	1	1493	36	B	5530	Yes
1017	1	1514	35	B	5549	Yes
1018	1	2017	27	B	5532	Yes
1019	1	2167	25	B	5562	Yes
1020	1	2800	19	B	5527	Yes
1021	1	1885	28	B	5556	Yes
1022	1	2647	20	B	5497	Yes
1023	1	667	80	B	5553	Yes
1024	1	1558	34	B	5567	Yes
1025	1	2255	24	B	5536	Yes
1026	1	2082	26	B	5551	Yes
1027	1	2909	19	B	5522	Yes
1028	1	2864	19	B	5520	Yes
1029	1	2626	21	B	5513	Yes
1030	1	2712	20	B	5545	Yes

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
2001	3	158	27	5508	No
2002	2.2	223	27	5539	Yes
2003	2	195	28	5493	Yes
2004	1.5	183	25	5523	Yes
2005	3.7	164	26	5539	Yes
2006	1.4	156	27	5538	No
2007	3.8	179	29	5503	No
2008	1.8	218	24	5516	No
2009	4.4	208	29	5516	Yes
2010	2.6	170	24	5508	No
2011	1.5	163	23	5554	Yes
2012	4	210	29	5536	No
2013	1	170	29	5563	Yes
2014	1.8	183	28	5540	No
2015	1.1	228	25	5563	Yes
2016	2.1	203	27	5496	Yes
2017	3.6	171	28	5504	Yes
2018	2.9	154	28	5564	Yes
2019	4.8	170	29	5533	No
2020	4.3	195	26	5523	Yes
2021	4.3	176	27	5513	Yes
2022	2.1	168	28	5561	Yes
2023	4.4	192	23	5565	No
2024	2.4	230	25	5534	Yes
2025	5	220	24	5567	Yes
2026	1.3	182	25	5526	Yes
2027	2.1	176	24	5519	Yes
2028	4.6	223	23	5524	Yes
2029	3.8	183	23	5492	Yes
2030	2.4	196	29	5492	Yes

TYPE 3 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 3					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
3001	6.8	281	17	5567	Yes
3002	7.7	335	18	5531	Yes
3003	9.5	487	17	5492	Yes
3004	6.6	436	18	5514	Yes
3005	8.5	483	17	5521	Yes
3006	8	445	16	5536	Yes
3007	6.1	254	17	5520	Yes
3008	9.9	479	17	5561	Yes
3009	8.2	434	18	5518	Yes
3010	6.1	421	18	5553	Yes
3011	6.8	389	18	5515	Yes
3012	9.1	271	16	5500	Yes
3013	9.9	251	18	5515	Yes
3014	8.3	279	18	5530	Yes
3015	7.5	273	18	5523	No
3016	6.1	314	17	5565	No
3017	9.6	453	16	5532	Yes
3018	8.6	256	17	5560	No
3019	8.2	290	16	5491	No
3020	9.4	357	18	5559	Yes
3021	7.2	404	16	5531	Yes
3022	6.7	365	18	5529	Yes
3023	8.9	425	17	5546	Yes
3024	8.6	399	16	5531	Yes
3025	6.9	354	17	5548	Yes
3026	8.9	341	17	5537	Yes
3027	9.6	309	17	5534	Yes
3028	7.8	442	18	5557	Yes
3029	8.6	423	17	5553	Yes
3030	7	451	17	5569	Yes

TYPE 4 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 4					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
4001	11.5	444	16	5505	No
4002	13.2	485	16	5538	No
4003	16.1	374	16	5537	Yes
4004	14	427	13	5561	Yes
4005	13	462	16	5556	Yes
4006	15.7	277	13	5512	Yes
4007	20	324	16	5554	No
4008	18.9	286	12	5500	Yes
4009	14.6	346	13	5509	Yes
4010	13.9	320	16	5509	No
4011	19.2	275	15	5519	Yes
4012	14.7	262	13	5551	Yes
4013	16.2	481	12	5521	Yes
4014	12.1	363	14	5498	No
4015	14.1	477	16	5510	No
4016	19.6	372	12	5507	Yes
4017	17.7	498	15	5540	Yes
4018	19.4	406	14	5555	No
4019	18	294	12	5527	Yes
4020	11.1	348	16	5513	Yes
4021	19.3	382	12	5507	Yes
4022	13.9	347	15	5502	Yes
4023	13.5	394	15	5499	Yes
4024	12.3	355	13	5512	Yes
4025	17.1	415	14	5563	Yes
4026	16.4	390	12	5566	No
4027	17.4	345	16	5563	Yes
4028	17.2	332	15	5555	Yes
4029	18.7	299	14	5559	Yes
4030	14.6	432	13	5491	Yes

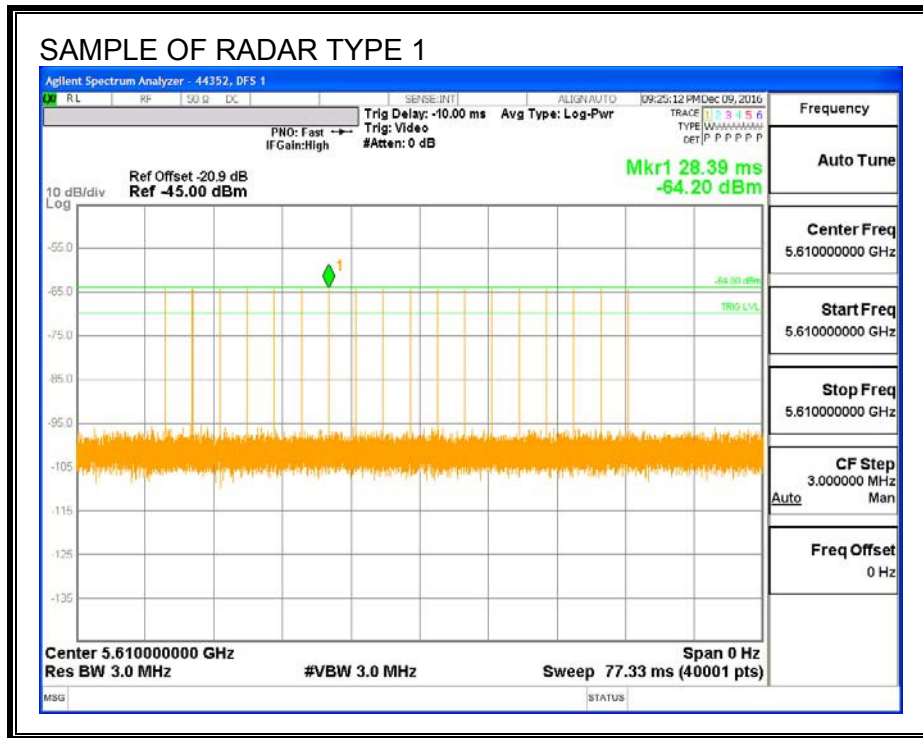
6.9. HIGH BAND RESULTS FOR 160 MHz BANDWIDTH (80 MHz HIGH COMPONENT)

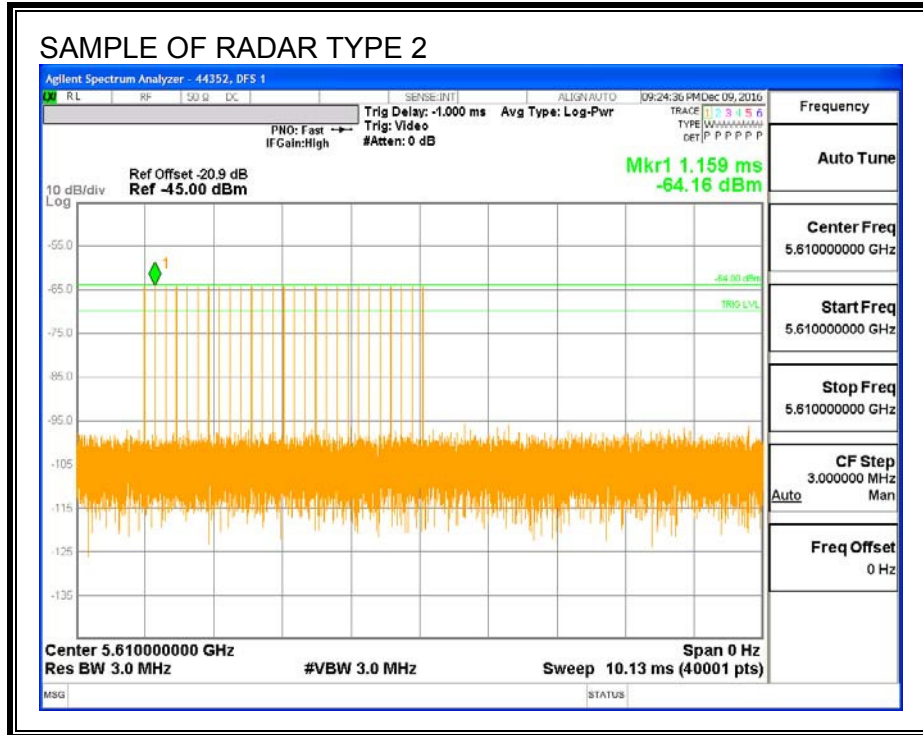
6.9.1. TEST CHANNEL

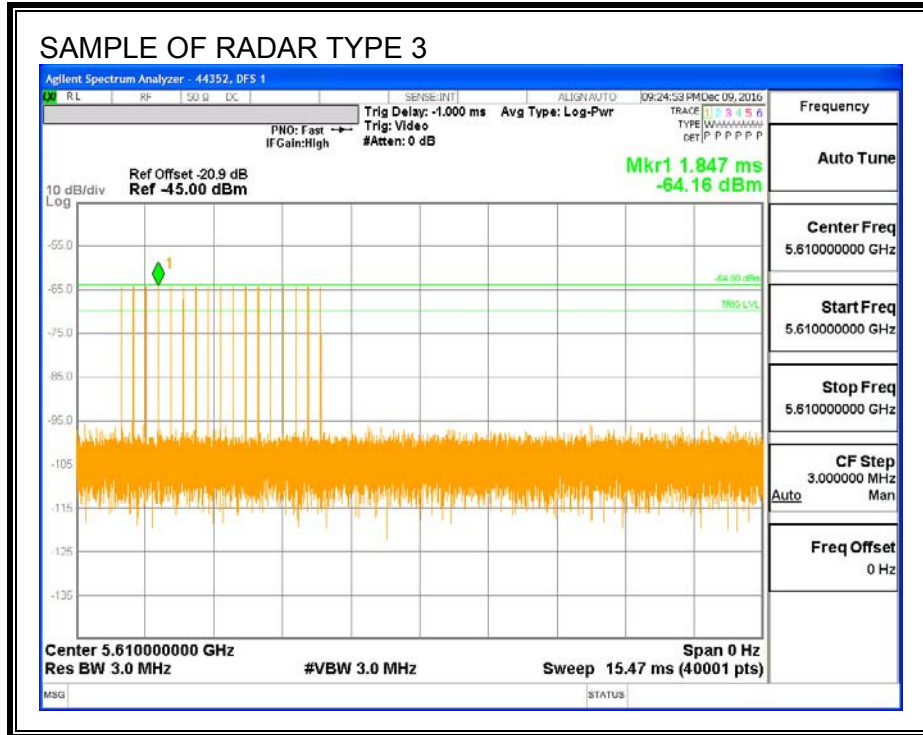
All tests were performed at a channel center frequency of 5610 MHz.

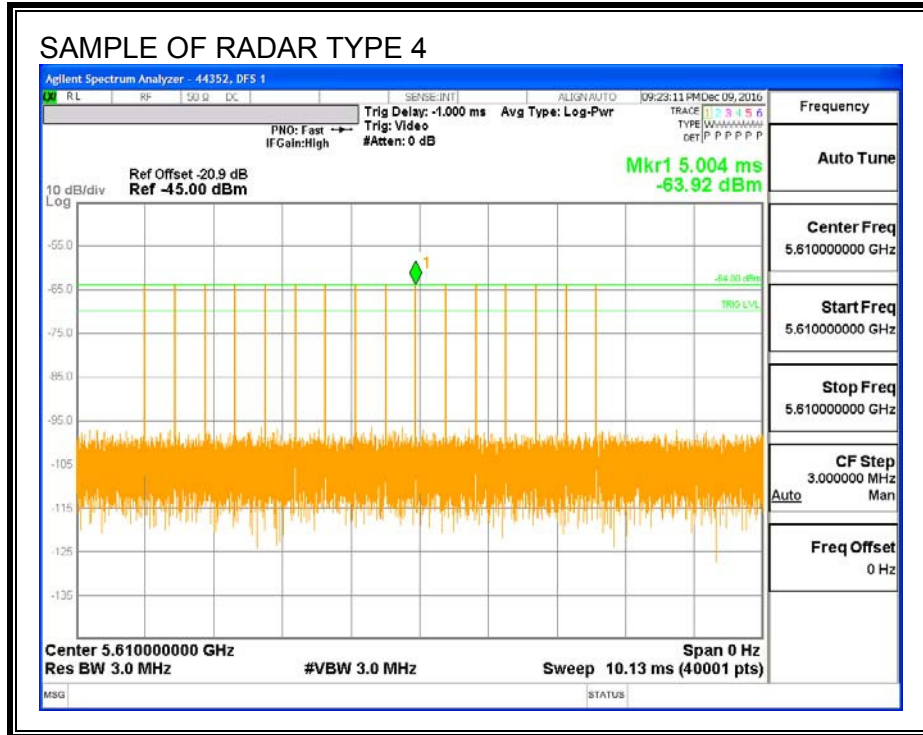
6.9.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

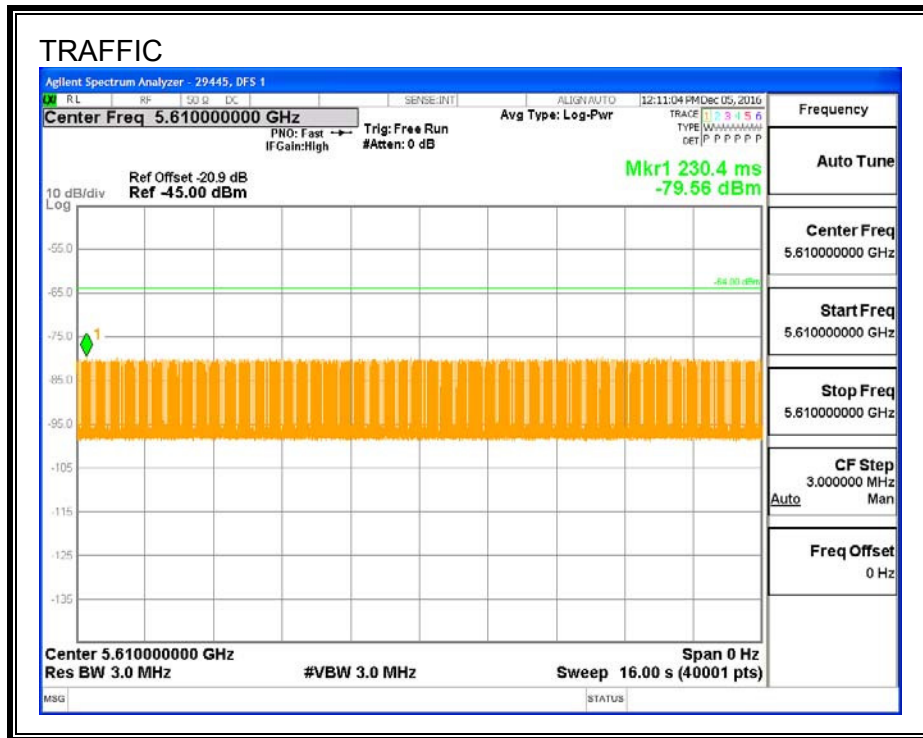




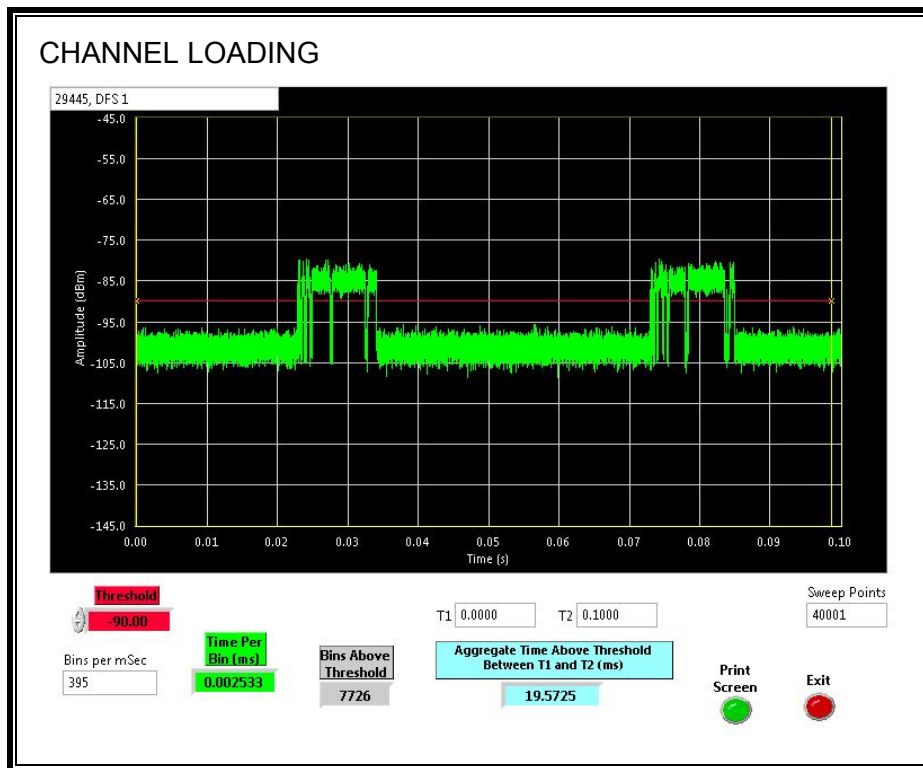




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 19.57%

6.9.3. OVERLAPPING CHANNEL TESTS

RESULTS

The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

6.9.1. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	100.00	60	Pass	5572	5648	75.73	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	76.67	60	Pass	5572	5648	75.73	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	70.00	60	Pass	5572	5648	75.73	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	83.33	60	Pass	5572	5648	75.73	DFS 1	29445	Version 3.0
Aggregate		82.50	80	Pass						

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5646	Yes
1002	1	938	57	A	5645	Yes
1003	1	638	83	A	5575	Yes
1004	1	758	70	A	5631	Yes
1005	1	738	72	A	5604	Yes
1006	1	878	61	A	5599	Yes
1007	1	818	65	A	5616	Yes
1008	1	618	86	A	5615	Yes
1009	1	658	81	A	5638	Yes
1010	1	898	59	A	5592	Yes
1011	1	518	102	A	5579	Yes
1012	1	778	68	A	5604	Yes
1013	1	718	74	A	5638	Yes
1014	1	858	62	A	5589	Yes
1015	1	838	63	A	5621	Yes
1016	1	1493	36	B	5584	Yes
1017	1	1514	35	B	5587	Yes
1018	1	2017	27	B	5573	Yes
1019	1	2167	25	B	5585	Yes
1020	1	2800	19	B	5619	Yes
1021	1	1885	28	B	5598	Yes
1022	1	2647	20	B	5600	Yes
1023	1	667	80	B	5611	Yes
1024	1	1558	34	B	5584	Yes
1025	1	2255	24	B	5594	Yes
1026	1	2082	26	B	5642	Yes
1027	1	2909	19	B	5577	Yes
1028	1	2864	19	B	5619	Yes
1029	1	2626	21	B	5578	Yes
1030	1	2712	20	B	5646	Yes

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
2001	3	158	27	5595	Yes
2002	2.2	223	27	5611	Yes
2003	2	195	28	5579	Yes
2004	1.5	183	25	5610	No
2005	3.7	164	26	5578	Yes
2006	1.4	156	27	5642	Yes
2007	3.8	179	29	5606	No
2008	1.8	218	24	5641	Yes
2009	4.4	208	29	5616	Yes
2010	2.6	170	24	5639	Yes
2011	1.5	163	23	5621	Yes
2012	4	210	29	5624	No
2013	1	170	29	5639	Yes
2014	1.8	183	28	5609	Yes
2015	1.1	228	25	5607	Yes
2016	2.1	203	27	5646	Yes
2017	3.6	171	28	5596	No
2018	2.9	154	28	5628	Yes
2019	4.8	170	29	5642	Yes
2020	4.3	195	26	5591	Yes
2021	4.3	176	27	5641	Yes
2022	2.1	168	28	5622	Yes
2023	4.4	192	23	5581	No
2024	2.4	230	25	5572	No
2025	5	220	24	5642	Yes
2026	1.3	182	25	5579	Yes
2027	2.1	176	24	5583	Yes
2028	4.6	223	23	5600	Yes
2029	3.8	183	23	5642	No
2030	2.4	196	29	5616	Yes

TYPE 3 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 3					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
3001	6.8	281	17	5606	Yes
3002	7.7	335	18	5605	Yes
3003	9.5	487	17	5594	Yes
3004	6.6	436	18	5575	Yes
3005	8.5	483	17	5600	No
3006	8	445	16	5589	No
3007	6.1	254	17	5574	Yes
3008	9.9	479	17	5599	No
3009	8.2	434	18	5617	No
3010	6.1	421	18	5643	Yes
3011	6.8	389	18	5598	Yes
3012	9.1	271	16	5589	Yes
3013	9.9	251	18	5577	No
3014	8.3	279	18	5581	Yes
3015	7.5	273	18	5604	Yes
3016	6.1	314	17	5628	No
3017	9.6	453	16	5613	Yes
3018	8.6	256	17	5591	No
3019	8.2	290	16	5598	No
3020	9.4	357	18	5605	Yes
3021	7.2	404	16	5599	Yes
3022	6.7	365	18	5640	Yes
3023	8.9	425	17	5592	Yes
3024	8.6	399	16	5633	Yes
3025	6.9	354	17	5634	Yes
3026	8.9	341	17	5607	Yes
3027	9.6	309	17	5580	No
3028	7.8	442	18	5602	Yes
3029	8.6	423	17	5638	Yes
3030	7	451	17	5588	Yes

TYPE 4 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 4					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
4001	11.5	444	16	5632	No
4002	13.2	485	16	5600	Yes
4003	16.1	374	16	5586	Yes
4004	14	427	13	5606	Yes
4005	13	462	16	5619	Yes
4006	15.7	277	13	5578	Yes
4007	20	324	16	5601	Yes
4008	18.9	286	12	5581	Yes
4009	14.6	346	13	5621	Yes
4010	13.9	320	16	5585	Yes
4011	19.2	275	15	5615	Yes
4012	14.7	262	13	5580	Yes
4013	16.2	481	12	5581	Yes
4014	12.1	363	14	5610	No
4015	14.1	477	16	5621	Yes
4016	19.6	372	12	5605	Yes
4017	17.7	498	15	5597	No
4018	19.4	406	14	5588	Yes
4019	18	294	12	5594	Yes
4020	11.1	348	16	5602	No
4021	19.3	382	12	5604	Yes
4022	13.9	347	15	5627	No
4023	13.5	394	15	5579	Yes
4024	12.3	355	13	5637	Yes
4025	17.1	415	14	5611	Yes
4026	16.4	390	12	5631	Yes
4027	17.4	345	16	5582	Yes
4028	17.2	332	15	5582	Yes
4029	18.7	299	14	5645	Yes
4030	14.6	432	13	5578	Yes

6.10. BRIDGE MODE RESULTS

Per KDB 905462, Section 5.1 (footnote 1):

Networks Access Points with Bridge and/or MESH modes of operation are permitted to operate in the DFS bands but must employ a DFS function. The functionality of the Bridge mode as specified in §15.403(a) must be validated in the DFS test report. Devices operating as relays must also employ DFS function. The method used to validate the functionality must be documented and validation data must be documented. Bridge mode can be validated by performing a test statistical performance check (Section 7.8.4) on any one of the radar types. This is an abbreviated test to verify DFS functionality. MESH mode operational methodology must be submitted in the application for certification for evaluation by the FCC.

6.10.1. LOW BAND 20 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	86.67	60	Pass	5290	5310	17.96	DFS 1	29445	Version 3.0

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5307	Yes
1002	1	938	57	A	5303	Yes
1003	1	638	83	A	5309	Yes
1004	1	758	70	A	5304	No
1005	1	738	72	A	5310	Yes
1006	1	878	61	A	5293	No
1007	1	818	65	A	5302	Yes
1008	1	618	86	A	5294	Yes
1009	1	658	81	A	5308	Yes
1010	1	898	59	A	5298	Yes
1011	1	518	102	A	5302	Yes
1012	1	778	68	A	5304	Yes
1013	1	718	74	A	5307	Yes
1014	1	858	62	A	5299	Yes
1015	1	838	63	A	5303	Yes
1016	1	1493	36	B	5300	No
1017	1	1514	35	B	5305	Yes
1018	1	2017	27	B	5299	Yes
1019	1	2167	25	B	5298	Yes
1020	1	2800	19	B	5300	Yes
1021	1	1885	28	B	5294	Yes
1022	1	2647	20	B	5302	Yes
1023	1	667	80	B	5298	Yes
1024	1	1558	34	B	5291	Yes
1025	1	2255	24	B	5295	Yes
1026	1	2082	26	B	5309	Yes
1027	1	2909	19	B	5293	Yes
1028	1	2864	19	B	5304	No
1029	1	2626	21	B	5303	Yes
1030	1	2712	20	B	5294	Yes

6.10.1. LOW BAND 40 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	83.33	60	Pass	5290	5330	36.35	DFS 1	29445	Version 3.0

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5327	No
1002	1	938	57	A	5320	Yes
1003	1	638	83	A	5326	Yes
1004	1	758	70	A	5321	No
1005	1	738	72	A	5304	Yes
1006	1	878	61	A	5319	Yes
1007	1	818	65	A	5296	No
1008	1	618	86	A	5314	Yes
1009	1	658	81	A	5325	Yes
1010	1	898	59	A	5299	Yes
1011	1	518	102	A	5326	Yes
1012	1	778	68	A	5292	Yes
1013	1	718	74	A	5298	Yes
1014	1	858	62	A	5301	Yes
1015	1	838	63	A	5309	Yes
1016	1	1493	36	B	5327	Yes
1017	1	1514	35	B	5292	Yes
1018	1	2017	27	B	5329	Yes
1019	1	2167	25	B	5315	Yes
1020	1	2800	19	B	5310	Yes
1021	1	1885	28	B	5318	Yes
1022	1	2647	20	B	5323	Yes
1023	1	667	80	B	5309	Yes
1024	1	1558	34	B	5324	Yes
1025	1	2255	24	B	5322	No
1026	1	2082	26	B	5318	Yes
1027	1	2909	19	B	5329	Yes
1028	1	2864	19	B	5302	Yes
1029	1	2626	21	B	5300	Yes
1030	1	2712	20	B	5299	No

6.10.2. LOW BAND 80 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	86.67	60	Pass	5250	5330	76.15	DFS 1	29445	Version 3.0

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5288	Yes
1002	1	938	57	A	5254	Yes
1003	1	638	83	A	5278	Yes
1004	1	758	70	A	5278	Yes
1005	1	738	72	A	5282	Yes
1006	1	878	61	A	5317	Yes
1007	1	818	65	A	5284	Yes
1008	1	618	86	A	5291	Yes
1009	1	658	81	A	5322	Yes
1010	1	898	59	A	5282	Yes
1011	1	518	102	A	5290	Yes
1012	1	778	68	A	5251	Yes
1013	1	718	74	A	5317	Yes
1014	1	858	62	A	5283	Yes
1015	1	838	63	A	5272	Yes
1016	1	1493	36	B	5327	No
1017	1	1514	35	B	5306	Yes
1018	1	2017	27	B	5290	Yes
1019	1	2167	25	B	5277	Yes
1020	1	2800	19	B	5318	Yes
1021	1	1885	28	B	5264	Yes
1022	1	2647	20	B	5257	Yes
1023	1	667	80	B	5267	Yes
1024	1	1558	34	B	5259	Yes
1025	1	2255	24	B	5274	No
1026	1	2082	26	B	5302	Yes
1027	1	2909	19	B	5330	Yes
1028	1	2864	19	B	5287	No
1029	1	2626	21	B	5287	Yes
1030	1	2712	20	B	5297	No

6.10.3. LOW BAND 160 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING (80 MHz HIGH COMPONENT)

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	83.33	60	Pass	5252	5328	75.65	DFS 1	29445	Version 3.0

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5253	No
1002	1	938	57	A	5279	Yes
1003	1	638	83	A	5282	Yes
1004	1	758	70	A	5263	Yes
1005	1	738	72	A	5260	Yes
1006	1	878	61	A	5307	Yes
1007	1	818	65	A	5271	Yes
1008	1	618	86	A	5269	Yes
1009	1	658	81	A	5257	Yes
1010	1	898	59	A	5295	Yes
1011	1	518	102	A	5313	Yes
1012	1	778	68	A	5293	Yes
1013	1	718	74	A	5263	Yes
1014	1	858	62	A	5277	Yes
1015	1	838	63	A	5290	No
1016	1	1493	36	B	5304	Yes
1017	1	1514	35	B	5264	Yes
1018	1	2017	27	B	5296	Yes
1019	1	2167	25	B	5323	Yes
1020	1	2800	19	B	5258	No
1021	1	1885	28	B	5281	Yes
1022	1	2647	20	B	5279	No
1023	1	667	80	B	5256	Yes
1024	1	1558	34	B	5254	Yes
1025	1	2255	24	B	5263	Yes
1026	1	2082	26	B	5257	Yes
1027	1	2909	19	B	5308	No
1028	1	2864	19	B	5284	Yes
1029	1	2626	21	B	5285	Yes
1030	1	2712	20	B	5253	Yes

6.10.4. HIGH BAND 20 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	86.67	60	Pass	5490	5510	17.95	DFS 1	29445	Version 3.0

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5494	No
1002	1	938	57	A	5498	Yes
1003	1	638	83	A	5497	Yes
1004	1	758	70	A	5506	Yes
1005	1	738	72	A	5507	Yes
1006	1	878	61	A	5505	Yes
1007	1	818	65	A	5504	Yes
1008	1	618	86	A	5505	Yes
1009	1	658	81	A	5493	Yes
1010	1	898	59	A	5496	Yes
1011	1	518	102	A	5496	Yes
1012	1	778	68	A	5506	Yes
1013	1	718	74	A	5496	Yes
1014	1	858	62	A	5497	Yes
1015	1	838	63	A	5508	Yes
1016	1	1493	36	B	5501	Yes
1017	1	1514	35	B	5502	Yes
1018	1	2017	27	B	5503	Yes
1019	1	2167	25	B	5495	Yes
1020	1	2800	19	B	5491	Yes
1021	1	1885	28	B	5497	Yes
1022	1	2647	20	B	5505	No
1023	1	667	80	B	5498	Yes
1024	1	1558	34	B	5495	Yes
1025	1	2255	24	B	5495	No
1026	1	2082	26	B	5503	Yes
1027	1	2909	19	B	5498	Yes
1028	1	2864	19	B	5493	Yes
1029	1	2626	21	B	5507	No
1030	1	2712	20	B	5492	Yes

6.10.5. HIGH BAND 40 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary											
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth			OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH					
FCC Short Pulse Type 1	30	80.00	60	Pass	5490	5530	36.17	DFS 1	29445	Version 3.0	

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5530	Yes
1002	1	938	57	A	5513	Yes
1003	1	638	83	A	5505	Yes
1004	1	758	70	A	5509	Yes
1005	1	738	72	A	5510	Yes
1006	1	878	61	A	5523	No
1007	1	818	65	A	5523	No
1008	1	618	86	A	5498	Yes
1009	1	658	81	A	5499	No
1010	1	898	59	A	5524	Yes
1011	1	518	102	A	5491	Yes
1012	1	778	68	A	5513	Yes
1013	1	718	74	A	5505	Yes
1014	1	858	62	A	5502	No
1015	1	838	63	A	5509	Yes
1016	1	1493	36	B	5512	No
1017	1	1514	35	B	5491	Yes
1018	1	2017	27	B	5509	No
1019	1	2167	25	B	5511	Yes
1020	1	2800	19	B	5526	Yes
1021	1	1885	28	B	5529	Yes
1022	1	2647	20	B	5490	Yes
1023	1	667	80	B	5522	Yes
1024	1	1558	34	B	5497	Yes
1025	1	2255	24	B	5510	Yes
1026	1	2082	26	B	5498	Yes
1027	1	2909	19	B	5491	Yes
1028	1	2864	19	B	5498	Yes
1029	1	2626	21	B	5510	Yes
1030	1	2712	20	B	5502	Yes

6.10.6. HIGH BAND 80 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	100.00	60	Pass	5490	5569	75.98	DFS 1	29445	Version 3.0

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5498	Yes
1002	1	938	57	A	5528	Yes
1003	1	638	83	A	5527	Yes
1004	1	758	70	A	5532	Yes
1005	1	738	72	A	5515	Yes
1006	1	878	61	A	5541	Yes
1007	1	818	65	A	5516	Yes
1008	1	618	86	A	5538	Yes
1009	1	658	81	A	5533	Yes
1010	1	898	59	A	5517	Yes
1011	1	518	102	A	5519	Yes
1012	1	778	68	A	5560	Yes
1013	1	718	74	A	5553	Yes
1014	1	858	62	A	5500	Yes
1015	1	838	63	A	5540	Yes
1016	1	1493	36	B	5537	Yes
1017	1	1514	35	B	5506	Yes
1018	1	2017	27	B	5513	Yes
1019	1	2167	25	B	5569	Yes
1020	1	2800	19	B	5498	Yes
1021	1	1885	28	B	5534	Yes
1022	1	2647	20	B	5542	Yes
1023	1	667	80	B	5510	Yes
1024	1	1558	34	B	5524	Yes
1025	1	2255	24	B	5508	Yes
1026	1	2082	26	B	5555	Yes
1027	1	2909	19	B	5552	Yes
1028	1	2864	19	B	5516	Yes
1029	1	2626	21	B	5564	Yes
1030	1	2712	20	B	5562	Yes

6.10.7. HIGH BAND 160 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING (80 MHz HIGH COMPONENT)

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	93.33	60	Pass	5572	5648	75.73	DFS 1	29445	Version 3.0

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5594	No
1002	1	938	57	A	5600	Yes
1003	1	638	83	A	5576	Yes
1004	1	758	70	A	5630	Yes
1005	1	738	72	A	5583	Yes
1006	1	878	61	A	5598	Yes
1007	1	818	65	A	5578	Yes
1008	1	618	86	A	5596	Yes
1009	1	658	81	A	5579	Yes
1010	1	898	59	A	5593	Yes
1011	1	518	102	A	5591	Yes
1012	1	778	68	A	5611	Yes
1013	1	718	74	A	5605	Yes
1014	1	858	62	A	5622	Yes
1015	1	838	63	A	5612	Yes
1016	1	1493	36	B	5616	Yes
1017	1	1514	35	B	5591	Yes
1018	1	2017	27	B	5615	Yes
1019	1	2167	25	B	5608	No
1020	1	2800	19	B	5611	Yes
1021	1	1885	28	B	5579	Yes
1022	1	2647	20	B	5581	Yes
1023	1	667	80	B	5599	Yes
1024	1	1558	34	B	5613	Yes
1025	1	2255	24	B	5619	Yes
1026	1	2082	26	B	5601	Yes
1027	1	2909	19	B	5575	Yes
1028	1	2864	19	B	5600	Yes
1029	1	2626	21	B	5603	Yes
1030	1	2712	20	B	5615	Yes