



DFS PORTION of FCC 47 CFR PART 15 SUBPART E

ADDENDUM TO TEST REPORT 11533147-E2V1

FOR

BCM94709R-H 802.11a/n/ac ACCESS POINT

MODEL NUMBER: BCM94709R-H

FCC ID: QDS-BRCM1092

REPORT NUMBER: 11533147-E4V1

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NVLAP LAB CODE 200065-0

Revision History

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TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	5
2. TEST METHODOLOGY	6
3. FACILITIES AND ACCREDITATION	6
4. CALIBRATION AND UNCERTAINTY	6
4.1. MEASURING INSTRUMENT CALIBRATION	6
4.2. SAMPLE CALCULATION	6
4.3. MEASUREMENT UNCERTAINTY	6
5. INTRODUCTON	7
6. DYNAMIC FREQUENCY SELECTION	8
6.1. OVERVIEW	8
6.1.1. LIMITS	8
6.1.2. TEST AND MEASUREMENT SYSTEM	12
6.1.3. TEST AND MEASUREMENT SOFTWARE	14
6.1.4. SETUP OF EUT	15
6.1.5. DESCRIPTION OF EUT	19
6.2. LOW BAND RESULTS FOR 20 MHz BANDWIDTH	21
6.2.1. TEST CHANNEL	21
6.2.2. RADAR WAVEFORMS AND TRAFFIC	21
6.2.3. OVERLAPPING CHANNEL TESTS	26
6.2.4. IN-SERVICE MONITORING	27
6.3. LOW BAND RESULTS FOR 40 MHz BANDWIDTH	32
6.3.1. TEST CHANNEL	32
6.3.2. RADAR WAVEFORMS AND TRAFFIC	32
6.3.3. OVERLAPPING CHANNEL TESTS	37
6.3.4. IN-SERVICE MONITORING	38
6.4. LOW BAND RESULTS FOR 80 MHz BANDWIDTH	43
6.4.1. TEST CHANNEL	43
6.4.2. RADAR WAVEFORMS AND TRAFFIC	43
6.4.3. OVERLAPPING CHANNEL TESTS	48
6.4.4. IN-SERVICE MONITORING	49
6.5. LOW BAND RESULTS FOR 160 MHz BANDWIDTH (80H COMPONENT)	54
6.5.1. TEST CHANNEL	54
6.5.2. RADAR WAVEFORMS AND TRAFFIC	54
6.5.3. OVERLAPPING CHANNEL TESTS	59
6.5.4. IN-SERVICE MONITORING	60
6.6. HIGH BAND RESULTS FOR 20 MHz BANDWIDTH	65
6.6.1. TEST CHANNEL	65
6.6.2. RADAR WAVEFORMS AND TRAFFIC	65
6.6.3. OVERLAPPING CHANNEL TESTS	70
6.6.4. IN-SERVICE MONITORING	71

6.7.	HIGH BAND RESULTS FOR 40 MHz BANDWIDTH	76
6.7.1.	TEST CHANNEL	76
6.7.2.	RADAR WAVEFORMS AND TRAFFIC.....	76
6.7.3.	OVERLAPPING CHANNEL TESTS	81
6.7.4.	IN-SERVICE MONITORING	82
6.8.	HIGH BAND RESULTS FOR 80 MHz BANDWIDTH	87
6.8.1.	TEST CHANNEL	87
6.8.2.	RADAR WAVEFORMS AND TRAFFIC.....	87
6.8.3.	OVERLAPPING CHANNEL TESTS	92
6.8.4.	IN-SERVICE MONITORING	93
6.9.	HIGH BAND RESULTS FOR 160 MHz BANDWIDTH (80 MHz HIGH COMPONENT).....	98
6.9.1.	TEST CHANNEL	98
6.9.2.	RADAR WAVEFORMS AND TRAFFIC.....	98
6.9.3.	OVERLAPPING CHANNEL TESTS	103
6.9.1.	IN-SERVICE MONITORING	104
6.10.	BRIDGE MODE RESULTS.....	109
6.10.1.	LOW BAND 20 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING	110
6.10.1.	LOW BAND 40 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING	112
6.10.2.	LOW BAND 80 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING	114
6.10.3.	LOW BAND 160 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING (80 MHz HIGH COMPONENT)	116
6.10.4.	HIGH BAND 20 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING	118
6.10.5.	HIGH BAND 40 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING	120
6.10.6.	HIGH BAND 80 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING	122
6.10.7.	HIGH BAND 160 MHz BANDWIDTH BRIDGE MODE IN-SERVICE MONITORING (80 MHz HIGH COMPONENT)	124
6.11.	SETUP PHOTOS.....	126
6.12.	STANDARD CONFIGURATION	126
6.13.	BRIDGE MODE CONFIGURATION	128

1. ATTESTATION OF TEST RESULTS

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

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

MODEL: BCM94709R-H

SERIAL NUMBER: 1923036

DATE TESTED: MARCH 09 and 13, 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.

Approved & Released For
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CONAN CHEUNG
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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:

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

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. INTRODUCTION

This document is an addendum to the full DFS test report 11533147-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

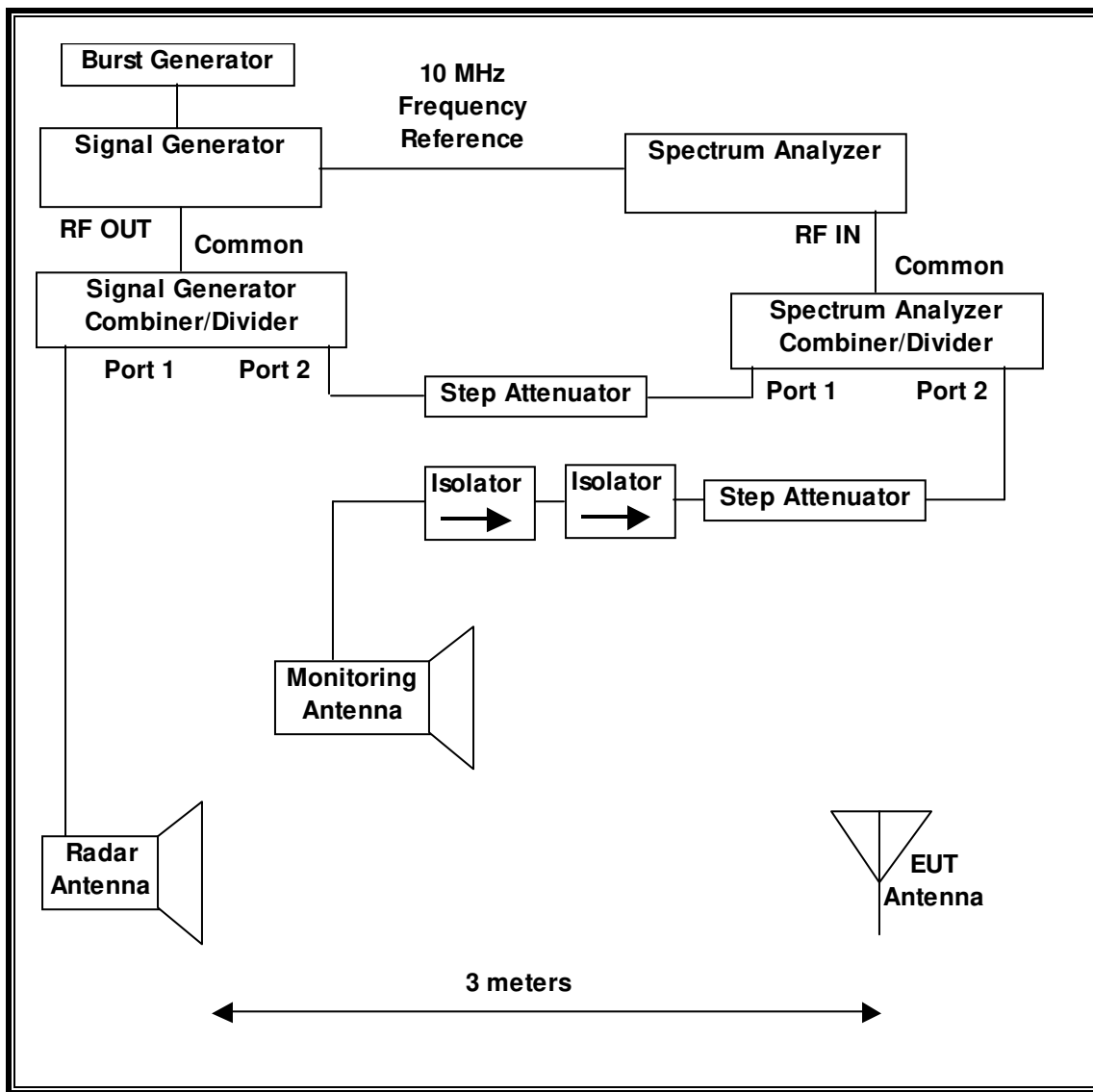
Radar Waveform Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

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 1, MXG X-Series RF Vector	Agilent	N5182B	MY51350337	03/11/17
Signal Generator 2, RF Vector, 20GHz	Agilent / HP	E8267C	US43320336	08/19/17

Note:

Signal Generator 1 was used for testing performed on 03/09/17.

Signal Generator 2 was used for testing performed on 03/13/17.

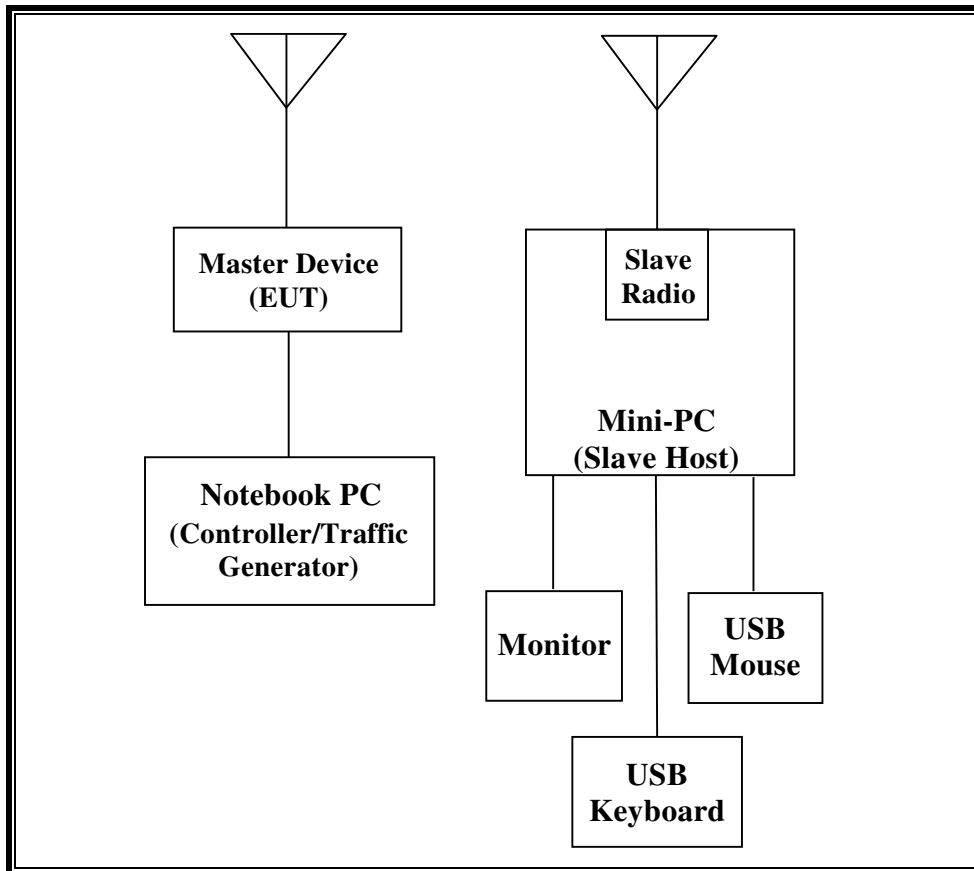
6.1.3. TEST AND MEASUREMENT SOFTWARE

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)

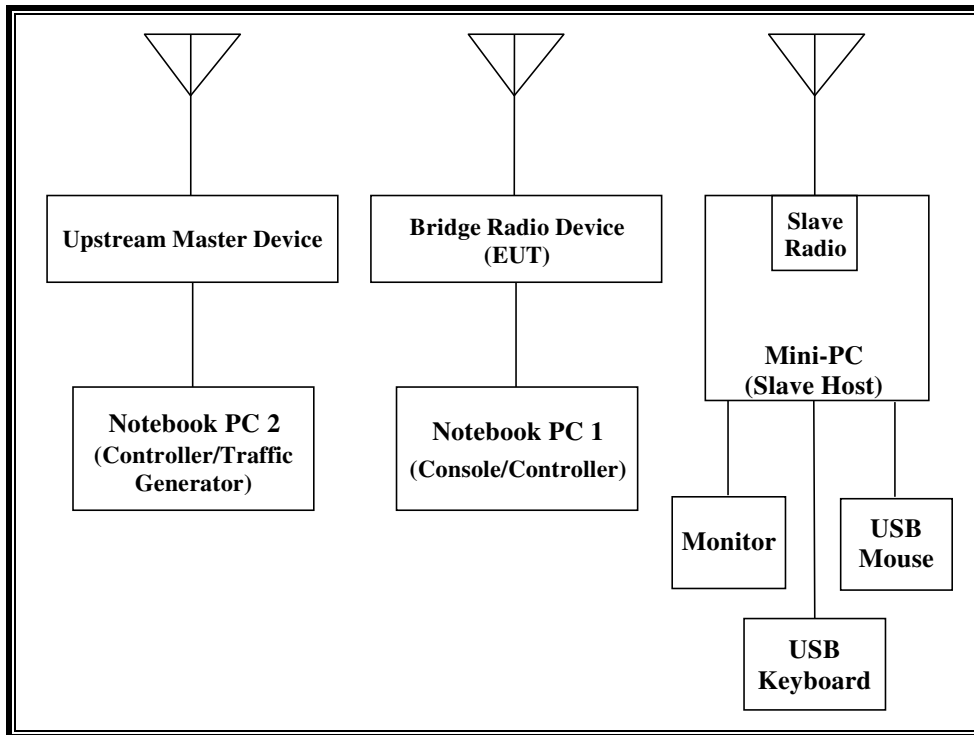


SUPPORT EQUIPMENT (STANDARD MODE CONFIGURATION)

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 Mid-Power 5GHz AP (Upstream Master Device)	Broadcom	BCM94709R-M	1/22/6935	QDS-BRCM1091
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 22.82 dBm EIRP in the 5250-5350 MHz band and 23.55 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.

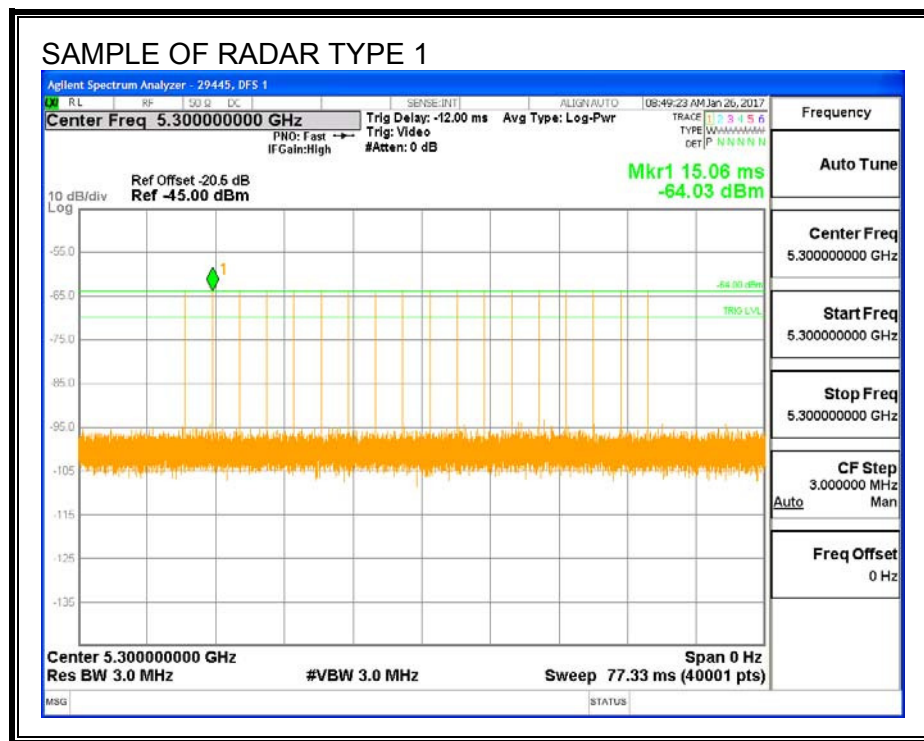
6.2. LOW BAND RESULTS FOR 20 MHz BANDWIDTH

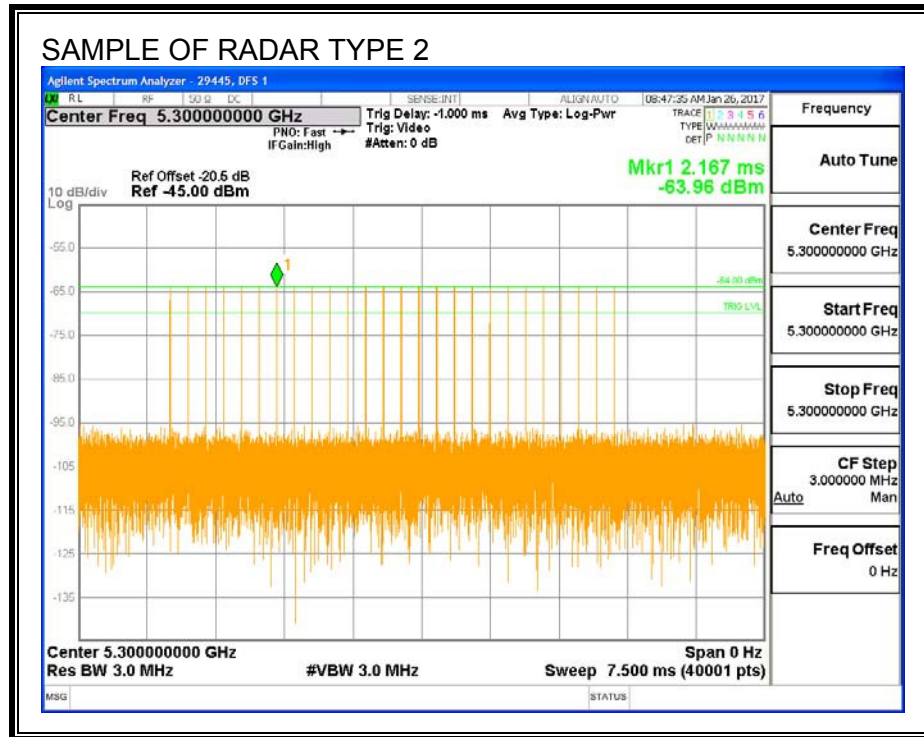
6.2.1. TEST CHANNEL

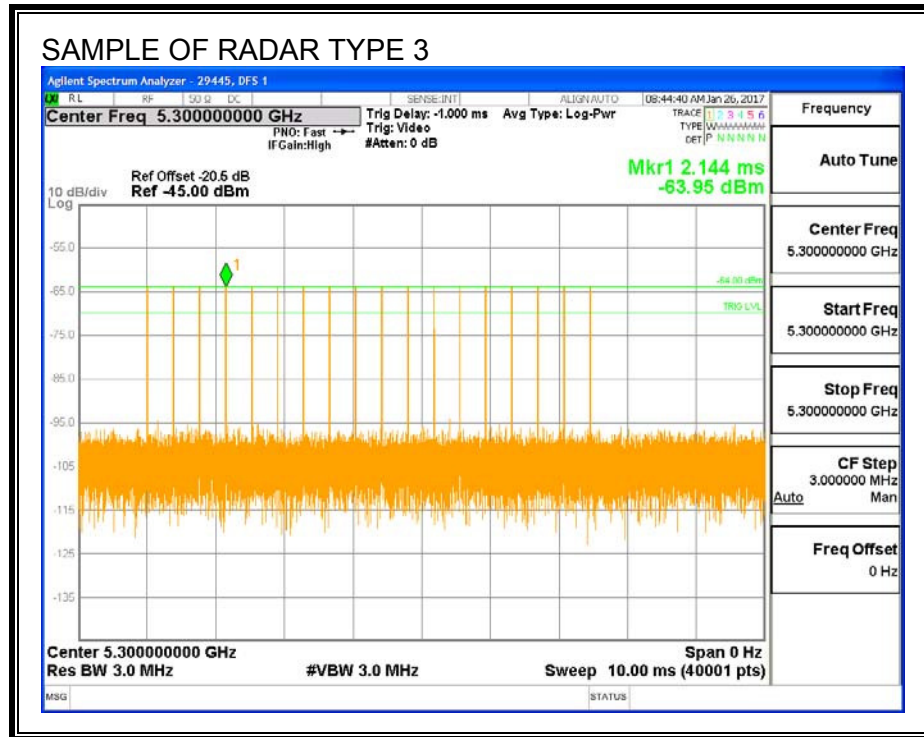
All tests were performed at a channel center frequency of 5300 MHz.

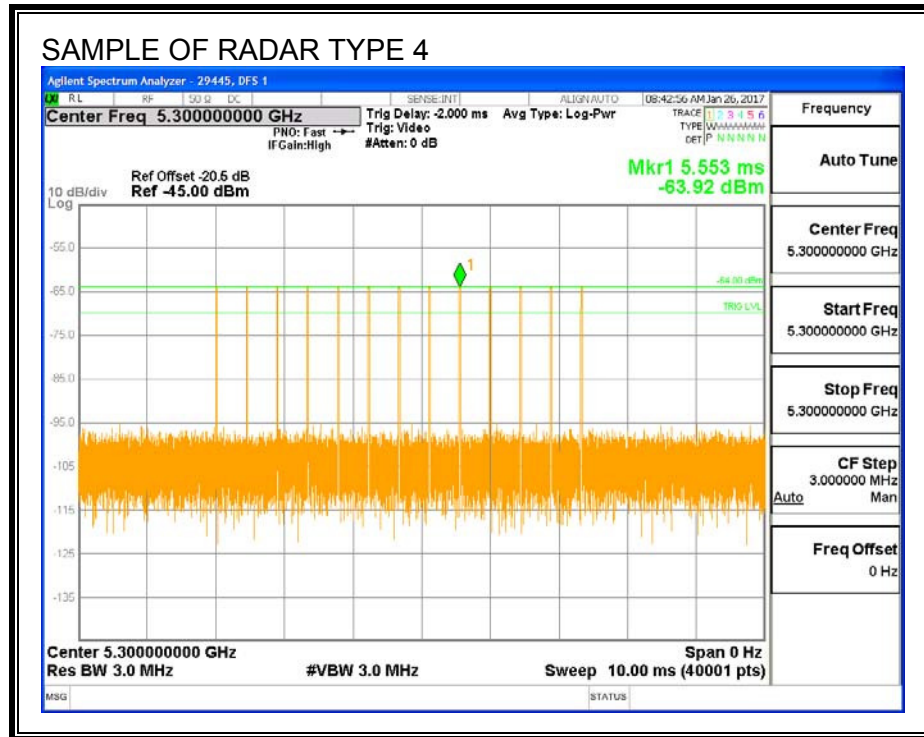
6.2.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

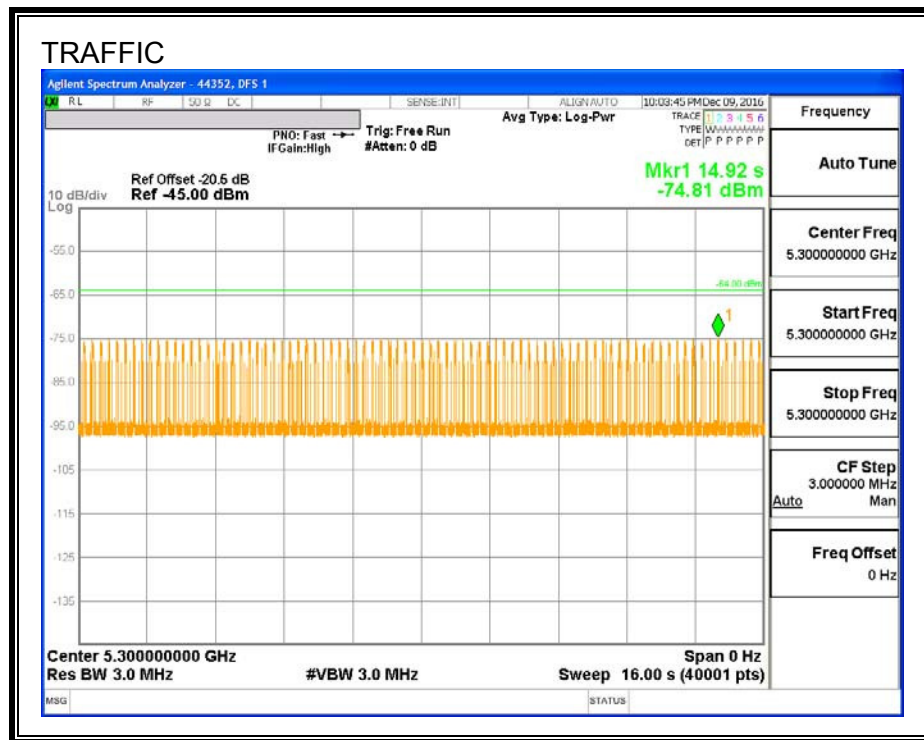




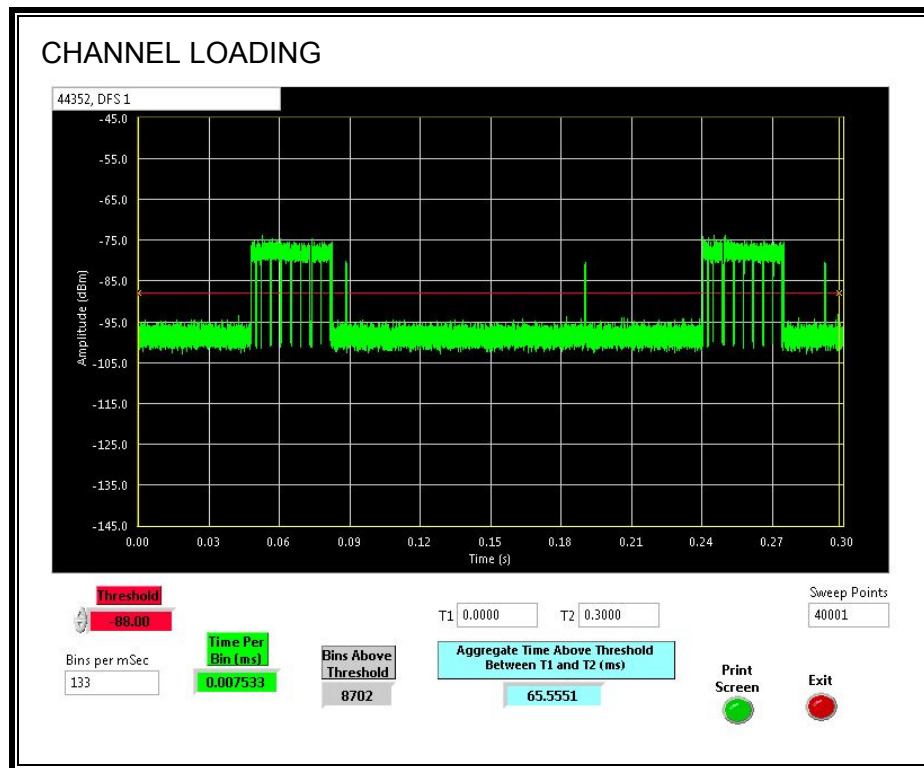




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 21.85%

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	17.87	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	90.00	60	Pass	5290	5310	17.87	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	86.67	60	Pass	5290	5310	17.87	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	73.33	60	Pass	5290	5310	17.87	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	5291	Yes
1002	1	578	92	A	5291	Yes
1003	1	598	89	A	5296	Yes
1004	1	718	74	A	5291	Yes
1005	1	678	78	A	5295	Yes
1006	1	818	65	A	5309	Yes
1007	1	778	68	A	5296	Yes
1008	1	838	63	A	5307	Yes
1009	1	698	76	A	5294	Yes
1010	1	518	102	A	5296	Yes
1011	1	658	81	A	5295	Yes
1012	1	798	67	A	5301	Yes
1013	1	898	59	A	5301	Yes
1014	1	618	86	A	5304	Yes
1015	1	738	72	A	5294	Yes
1016	1	1638	33	B	5305	Yes
1017	1	2465	22	B	5302	Yes
1018	1	1226	44	B	5295	Yes
1019	1	2182	25	B	5298	Yes
1020	1	1073	50	B	5301	Yes
1021	1	964	55	B	5305	Yes
1022	1	2532	21	B	5299	Yes
1023	1	2553	21	B	5305	Yes
1024	1	1703	31	B	5299	Yes
1025	1	1291	41	B	5295	Yes
1026	1	2924	19	B	5308	Yes
1027	1	1138	47	B	5296	Yes
1028	1	2900	19	B	5306	Yes
1029	1	2597	21	B	5304	Yes
1030	1	747	71	B	5304	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	3.8	194	26	5303	Yes
2002	2.8	188	26	5308	Yes
2003	1.1	154	24	5291	Yes
2004	2.2	195	24	5296	Yes
2005	3	208	23	5297	Yes
2006	2.4	172	27	5296	Yes
2007	3.3	189	26	5302	Yes
2008	2.9	157	27	5291	Yes
2009	2.2	222	27	5309	No
2010	4.2	156	28	5295	Yes
2011	3.6	182	25	5302	Yes
2012	3.6	163	26	5309	Yes
2013	1.4	155	27	5308	Yes
2014	3.8	178	29	5305	No
2015	1.7	217	23	5306	Yes
2016	4.3	206	29	5290	Yes
2017	4.7	168	24	5304	Yes
2018	1.5	162	23	5301	Yes
2019	3.9	209	29	5297	Yes
2020	3.1	169	29	5299	Yes
2021	1.7	182	28	5306	Yes
2022	1.1	227	24	5310	Yes
2023	2	164	28	5302	No
2024	3.8	213	25	5292	Yes
2025	5	196	28	5305	Yes
2026	2.9	211	26	5307	Yes
2027	2.3	199	23	5296	Yes
2028	4.5	218	24	5293	Yes
2029	4.2	210	25	5300	Yes
2030	2.5	195	27	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	9.5	379	18	5306	Yes
3002	6.1	347	17	5296	No
3003	8.4	480	18	5309	Yes
3004	9.3	460	18	5292	Yes
3005	7.6	488	17	5298	Yes
3006	6.8	395	16	5308	Yes
3007	8.1	436	16	5293	Yes
3008	7.5	325	17	5305	Yes
3009	6.5	378	16	5308	Yes
3010	6.1	413	17	5291	Yes
3011	7.3	479	16	5294	No
3012	9.2	275	18	5291	No
3013	8.7	488	17	5300	Yes
3014	6.8	297	16	5298	Yes
3015	6.5	271	18	5308	Yes
3016	8.9	477	18	5306	Yes
3017	6.8	464	16	5296	Yes
3018	7.5	432	16	5306	Yes
3019	9.8	314	16	5294	Yes
3020	6.5	294	16	5302	Yes
3021	9	323	18	5309	Yes
3022	8.2	316	17	5308	Yes
3023	9	357	16	5299	Yes
3024	6.2	496	16	5304	Yes
3025	9.3	299	18	5293	Yes
3026	8.9	333	17	5309	Yes
3027	6	400	18	5295	No
3028	7.9	447	17	5291	Yes
3029	7.4	408	17	5305	Yes
3030	9.6	468	18	5291	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	18.3	443	13	5303	Yes
4002	14.5	398	12	5306	No
4003	19.1	385	16	5296	Yes
4004	11.5	352	15	5299	Yes
4005	16.6	485	16	5296	Yes
4006	18.5	348	13	5299	Yes
4007	14.9	494	15	5306	Yes
4008	13.1	370	12	5310	No
4009	14.8	277	16	5294	Yes
4010	13.4	417	14	5294	No
4011	15.5	470	14	5302	Yes
4012	14.6	254	12	5295	Yes
4013	13	320	14	5305	Yes
4014	12.5	368	15	5301	Yes
4015	11.3	329	13	5301	Yes
4016	16.2	389	14	5310	No
4017	15.5	363	12	5297	Yes
4018	16.5	318	16	5306	Yes
4019	16.2	305	14	5306	Yes
4020	17.7	273	13	5297	No
4021	13.7	406	12	5308	Yes
4022	15.6	269	12	5303	No
4023	16.9	415	13	5291	Yes
4024	19.3	290	16	5308	No
4025	11.9	449	15	5309	Yes
4026	19.6	337	13	5293	Yes
4027	12.7	273	12	5294	Yes
4028	11.7	425	13	5309	Yes
4029	14.9	374	15	5298	No
4030	14.5	421	16	5303	Yes

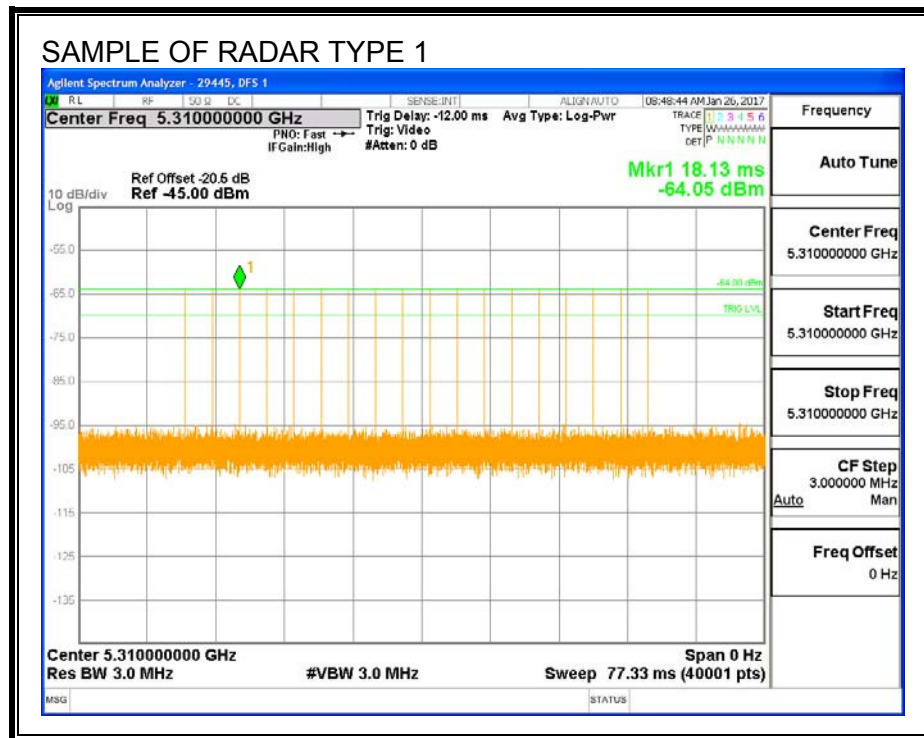
6.3. LOW BAND RESULTS FOR 40 MHz BANDWIDTH

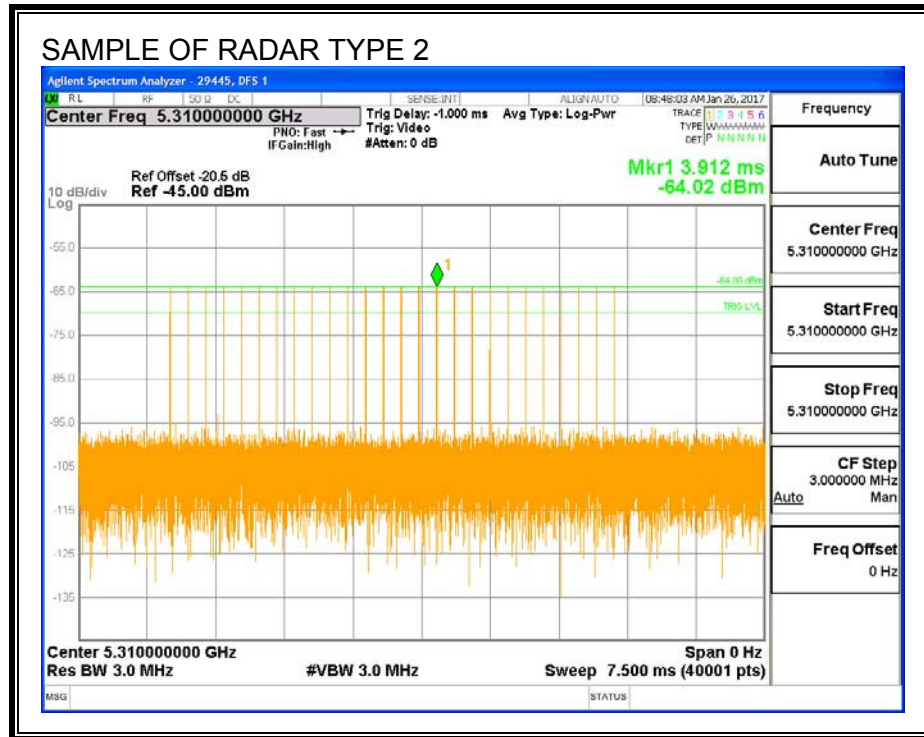
6.3.1. TEST CHANNEL

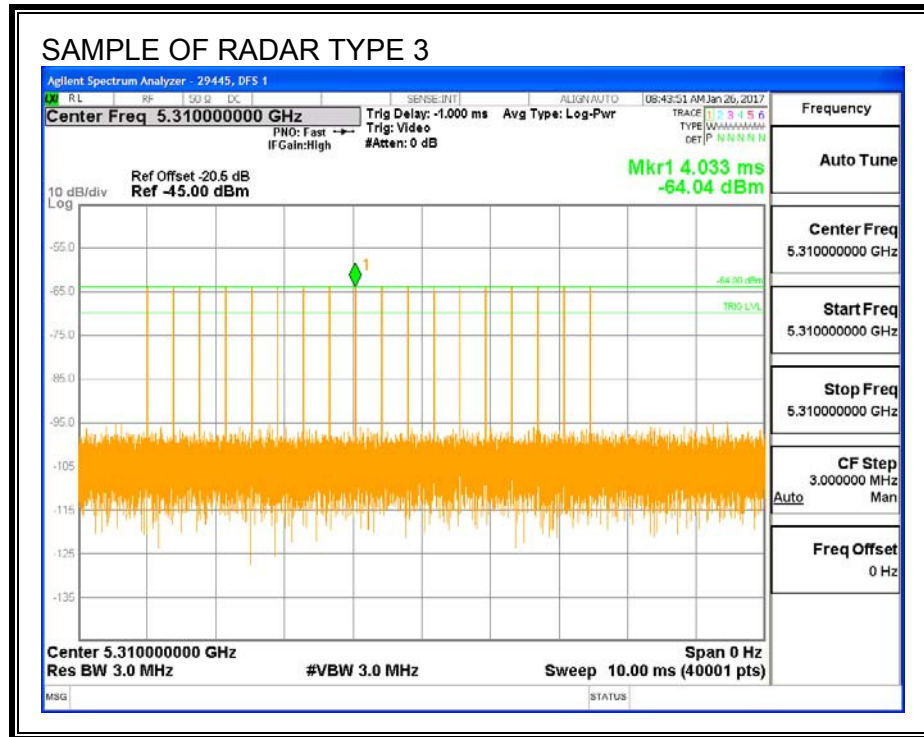
All tests were performed at a channel center frequency of 5310 MHz.

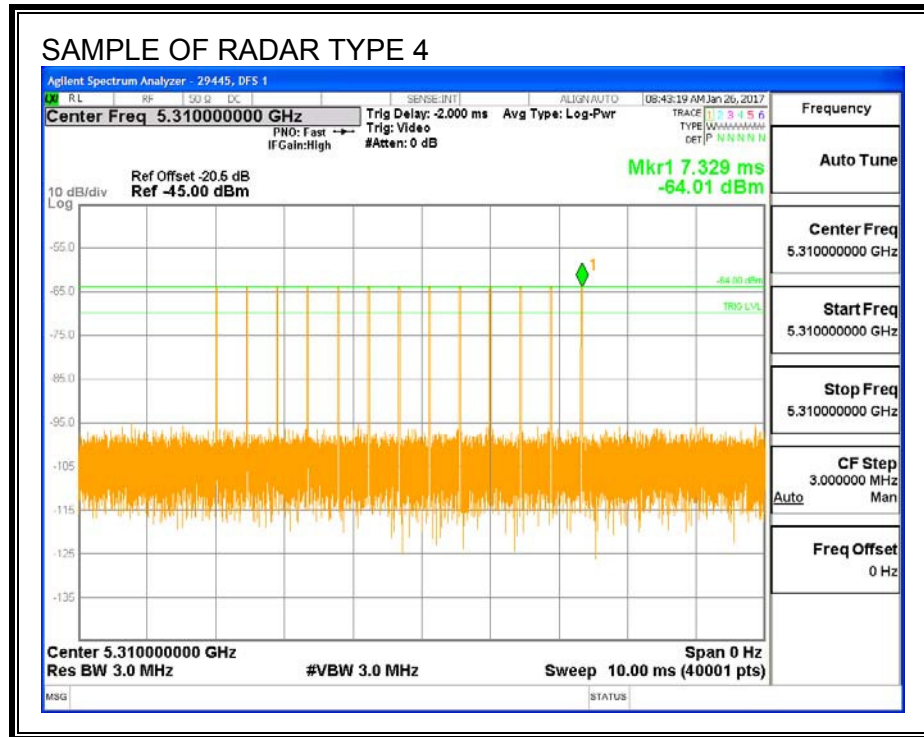
6.3.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

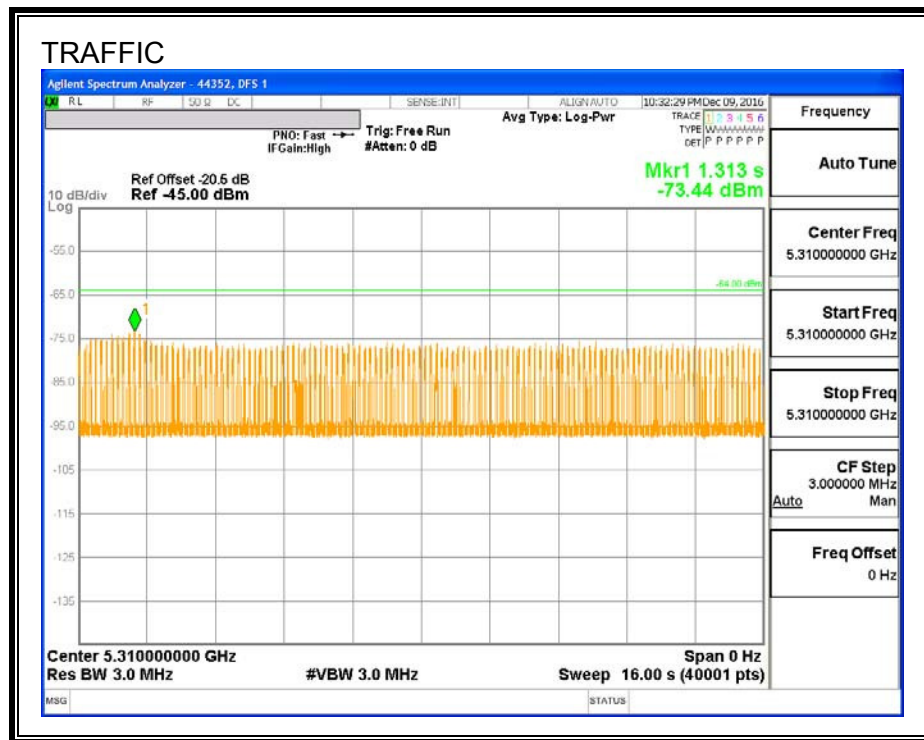




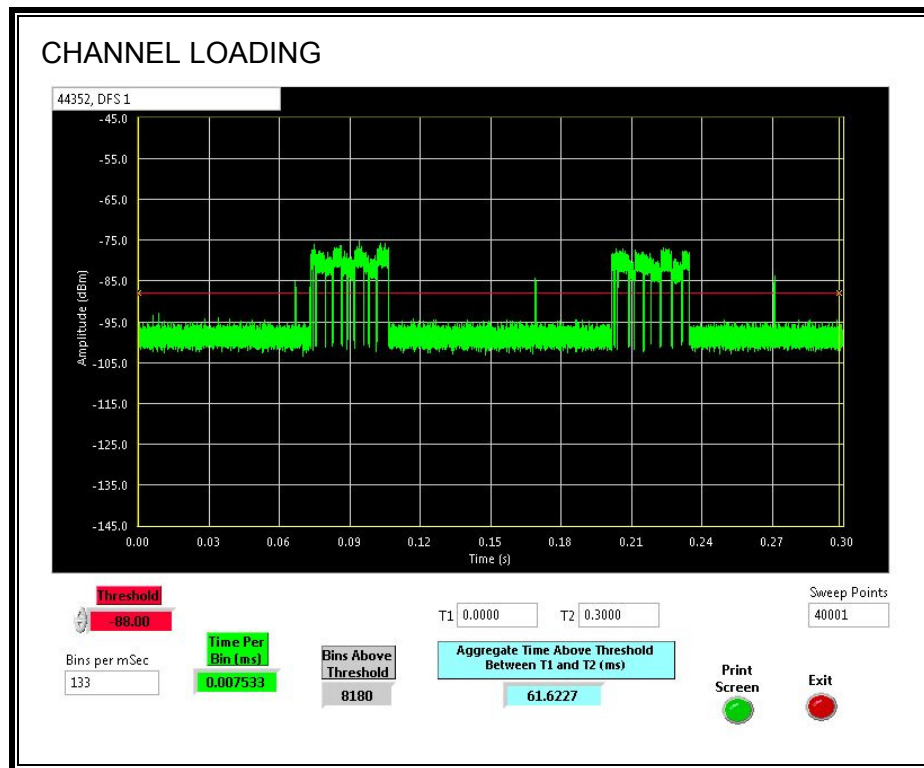




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 20.54%

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		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	100.00	60	Pass	5290	5330	36.39	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	80.00	60	Pass	5290	5330	36.39	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	93.33	60	Pass	5290	5330	36.39	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	73.33	60	Pass	5290	5330	36.39	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	5308	Yes
1002	1	578	92	A	5324	Yes
1003	1	598	89	A	5324	Yes
1004	1	718	74	A	5324	Yes
1005	1	678	78	A	5320	Yes
1006	1	818	65	A	5319	Yes
1007	1	778	68	A	5293	Yes
1008	1	838	63	A	5315	Yes
1009	1	698	76	A	5317	Yes
1010	1	518	102	A	5313	Yes
1011	1	658	81	A	5306	Yes
1012	1	798	67	A	5304	Yes
1013	1	898	59	A	5315	Yes
1014	1	618	86	A	5324	Yes
1015	1	738	72	A	5321	Yes
1016	1	1638	33	B	5300	Yes
1017	1	2465	22	B	5315	Yes
1018	1	1226	44	B	5327	Yes
1019	1	2182	25	B	5317	Yes
1020	1	1073	50	B	5303	Yes
1021	1	964	55	B	5319	Yes
1022	1	2532	21	B	5307	Yes
1023	1	2553	21	B	5298	Yes
1024	1	1703	31	B	5299	Yes
1025	1	1291	41	B	5327	Yes
1026	1	2924	19	B	5313	Yes
1027	1	1138	47	B	5305	Yes
1028	1	2900	19	B	5319	Yes
1029	1	2597	21	B	5326	Yes
1030	1	747	71	B	5294	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	3.8	194	26	5312	Yes
2002	2.8	188	26	5320	Yes
2003	1.1	154	24	5298	Yes
2004	2.2	195	24	5323	No
2005	3	208	23	5321	Yes
2006	2.4	172	27	5313	Yes
2007	3.3	189	26	5314	Yes
2008	2.9	157	27	5318	Yes
2009	2.2	222	27	5321	No
2010	4.2	156	28	5300	No
2011	3.6	182	25	5326	Yes
2012	3.6	163	26	5304	Yes
2013	1.4	155	27	5321	Yes
2014	3.8	178	29	5306	Yes
2015	1.7	217	23	5297	Yes
2016	4.3	206	29	5314	Yes
2017	4.7	168	24	5306	Yes
2018	1.5	162	23	5303	No
2019	3.9	209	29	5327	Yes
2020	3.1	169	29	5291	Yes
2021	1.7	182	28	5293	Yes
2022	1.1	227	24	5325	Yes
2023	2	164	28	5309	Yes
2024	3.8	213	25	5305	Yes
2025	5	196	28	5301	No
2026	2.9	211	26	5312	Yes
2027	2.3	199	23	5302	Yes
2028	4.5	218	24	5321	Yes
2029	4.2	210	25	5329	Yes
2030	2.5	195	27	5317	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	9.5	379	18	5325	Yes
3002	6.1	347	17	5328	Yes
3003	8.4	480	18	5293	No
3004	9.3	460	18	5302	Yes
3005	7.6	488	17	5295	Yes
3006	6.8	395	16	5329	Yes
3007	8.1	436	16	5294	Yes
3008	7.5	325	17	5315	Yes
3009	6.5	378	16	5309	Yes
3010	6.1	413	17	5320	Yes
3011	7.3	479	16	5313	Yes
3012	9.2	275	18	5306	Yes
3013	8.7	488	17	5297	Yes
3014	6.8	297	16	5293	Yes
3015	6.5	271	18	5296	Yes
3016	8.9	477	18	5324	Yes
3017	6.8	464	16	5317	Yes
3018	7.5	432	16	5319	Yes
3019	9.8	314	16	5310	Yes
3020	6.5	294	16	5308	Yes
3021	9	323	18	5299	Yes
3022	8.2	316	17	5311	Yes
3023	9	357	16	5291	Yes
3024	6.2	496	16	5310	No
3025	9.3	299	18	5318	Yes
3026	8.9	333	17	5299	Yes
3027	6	400	18	5305	Yes
3028	7.9	447	17	5297	Yes
3029	7.4	408	17	5327	Yes
3030	9.6	468	18	5303	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	18.3	443	13	5317	Yes
4002	14.5	398	12	5321	Yes
4003	19.1	385	16	5292	No
4004	11.5	352	15	5305	Yes
4005	16.6	485	16	5291	No
4006	18.5	348	13	5319	Yes
4007	14.9	494	15	5313	No
4008	13.1	370	12	5328	Yes
4009	14.8	277	16	5325	No
4010	13.4	417	14	5293	Yes
4011	15.5	470	14	5290	No
4012	14.6	254	12	5315	Yes
4013	13	320	14	5313	Yes
4014	12.5	368	15	5322	Yes
4015	11.3	329	13	5294	Yes
4016	16.2	389	14	5299	Yes
4017	15.5	363	12	5317	Yes
4018	16.5	318	16	5313	Yes
4019	16.2	305	14	5301	Yes
4020	17.7	273	13	5314	Yes
4021	13.7	406	12	5292	Yes
4022	15.6	269	12	5302	Yes
4023	16.9	415	13	5310	No
4024	19.3	290	16	5320	No
4025	11.9	449	15	5302	Yes
4026	19.6	337	13	5304	Yes
4027	12.7	273	12	5323	Yes
4028	11.7	425	13	5330	No
4029	14.9	374	15	5319	Yes
4030	14.5	421	16	5324	Yes

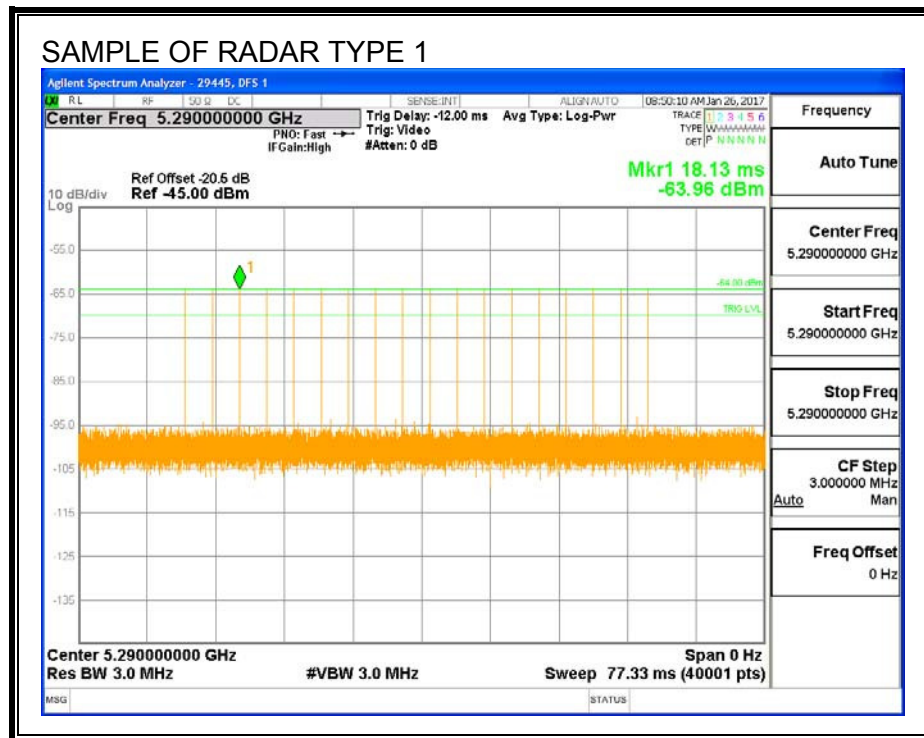
6.4. LOW BAND RESULTS FOR 80 MHz BANDWIDTH

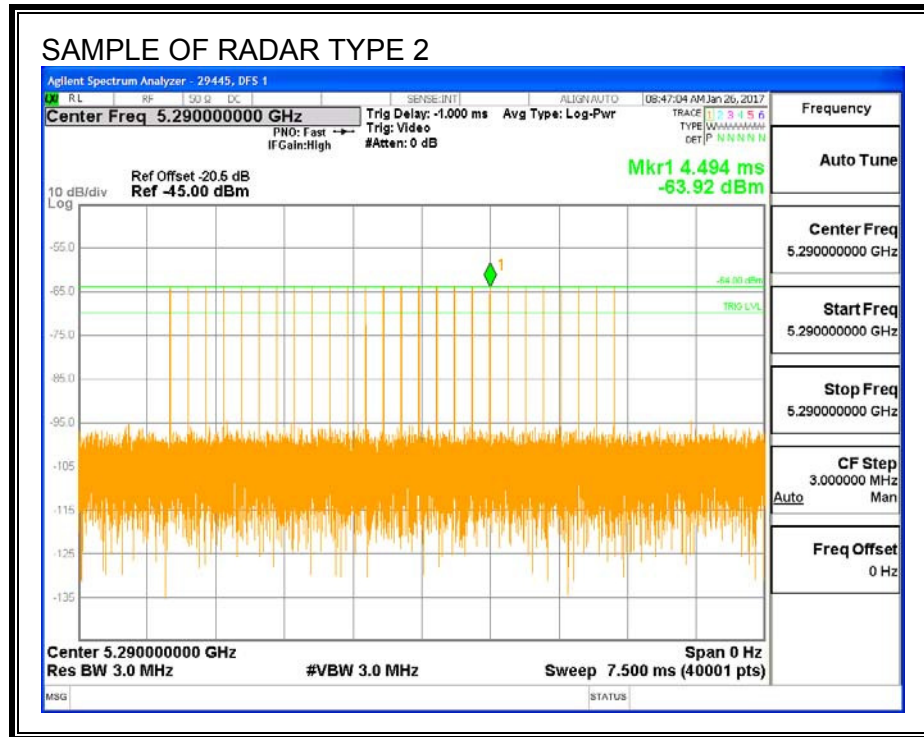
6.4.1. TEST CHANNEL

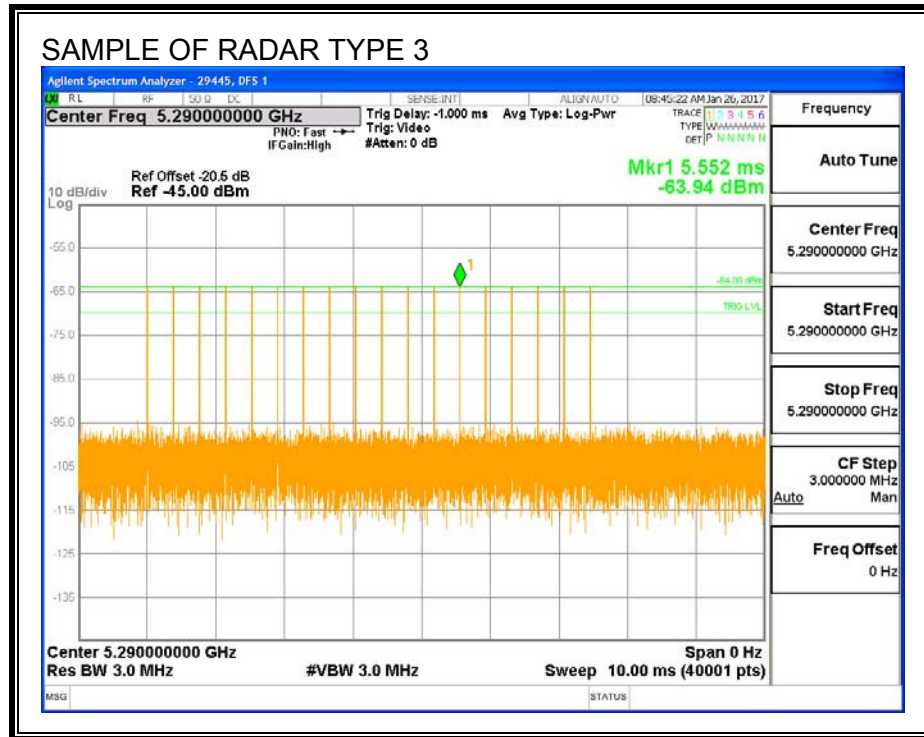
All tests were performed at a channel center frequency of 5290 MHz.

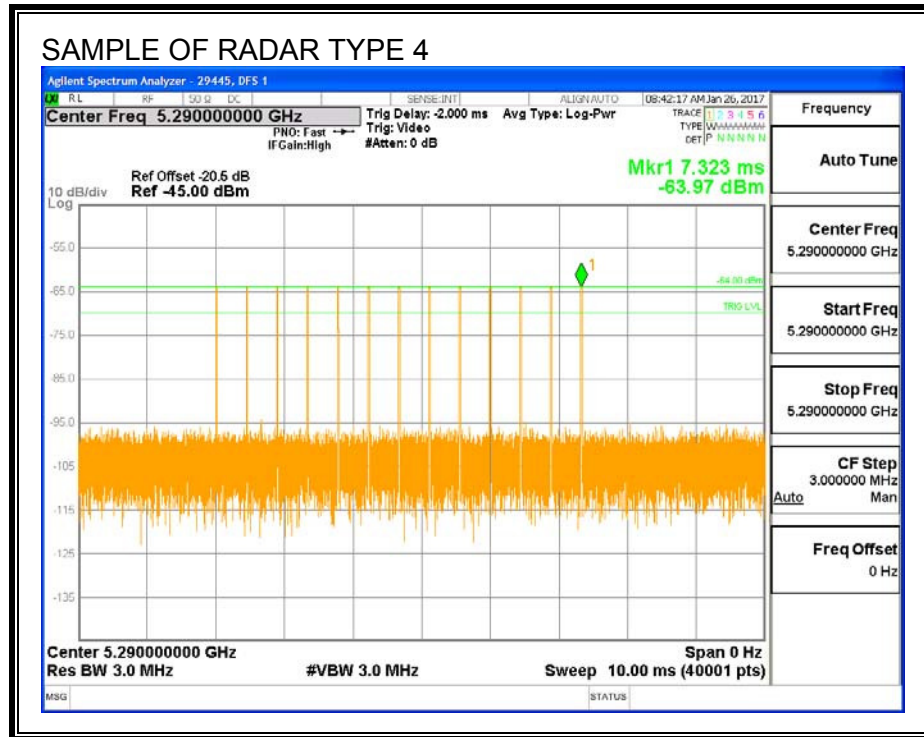
6.4.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

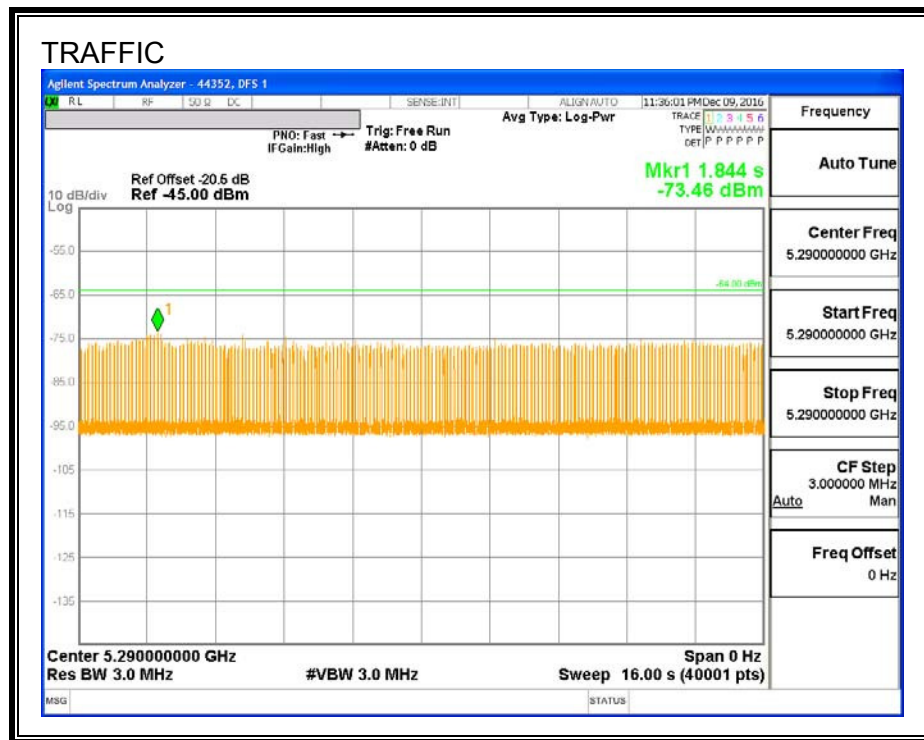




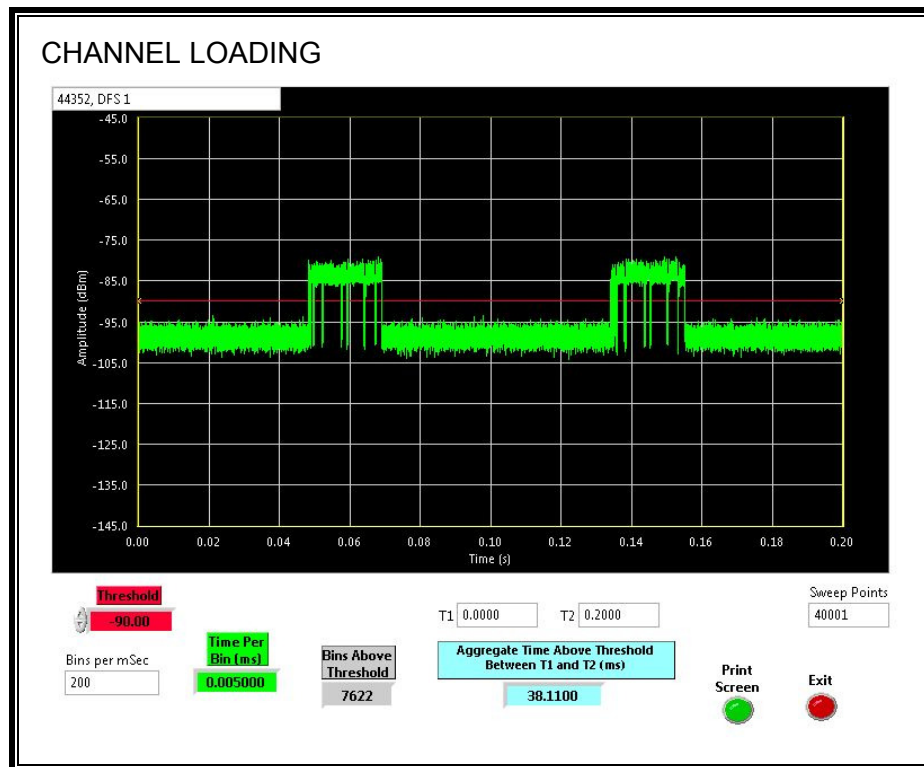




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 19.055%

6.4.3. OVERLAPPING CHANNEL TESTS

RESULTS

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

6.4.4. 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	5251	5329	76.41	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	73.33	60	Pass	5251	5329	76.41	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	76.67	60	Pass	5251	5329	76.41	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	86.67	60	Pass	5251	5329	76.41	DFS 1	29445	Version 3.0
Aggregate		84.17	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	5275	Yes
1002	1	578	92	A	5316	Yes
1003	1	598	89	A	5304	Yes
1004	1	718	74	A	5297	Yes
1005	1	678	78	A	5286	Yes
1006	1	818	65	A	5257	Yes
1007	1	778	68	A	5289	Yes
1008	1	838	63	A	5316	Yes
1009	1	698	76	A	5316	Yes
1010	1	518	102	A	5294	Yes
1011	1	658	81	A	5257	Yes
1012	1	798	67	A	5293	Yes
1013	1	898	59	A	5258	Yes
1014	1	618	86	A	5257	Yes
1015	1	738	72	A	5258	Yes
1016	1	1638	33	B	5256	Yes
1017	1	2465	22	B	5308	Yes
1018	1	1226	44	B	5318	Yes
1019	1	2182	25	B	5308	Yes
1020	1	1073	50	B	5305	Yes
1021	1	964	55	B	5312	Yes
1022	1	2532	21	B	5293	Yes
1023	1	2553	21	B	5301	Yes
1024	1	1703	31	B	5257	Yes
1025	1	1291	41	B	5307	Yes
1026	1	2924	19	B	5279	Yes
1027	1	1138	47	B	5312	Yes
1028	1	2900	19	B	5281	Yes
1029	1	2597	21	B	5263	Yes
1030	1	747	71	B	5300	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	3.8	194	26	5327	Yes
2002	2.8	188	26	5302	Yes
2003	1.1	154	24	5280	Yes
2004	2.2	195	24	5273	Yes
2005	3	208	23	5320	Yes
2006	2.4	172	27	5294	Yes
2007	3.3	189	26	5268	No
2008	2.9	157	27	5321	Yes
2009	2.2	222	27	5322	Yes
2010	4.2	156	28	5316	Yes
2011	3.6	182	25	5263	No
2012	3.6	163	26	5254	No
2013	1.4	155	27	5325	Yes
2014	3.8	178	29	5274	Yes
2015	1.7	217	23	5309	Yes
2016	4.3	206	29	5311	Yes
2017	4.7	168	24	5293	No
2018	1.5	162	23	5279	Yes
2019	3.9	209	29	5260	Yes
2020	3.1	169	29	5253	Yes
2021	1.7	182	28	5258	Yes
2022	1.1	227	24	5290	Yes
2023	2	164	28	5255	No
2024	3.8	213	25	5262	Yes
2025	5	196	28	5285	No
2026	2.9	211	26	5326	Yes
2027	2.3	199	23	5280	No
2028	4.5	218	24	5320	Yes
2029	4.2	210	25	5268	No
2030	2.5	195	27	5266	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	9.5	379	18	5316	Yes
3002	6.1	347	17	5304	Yes
3003	8.4	480	18	5311	No
3004	9.3	460	18	5298	Yes
3005	7.6	488	17	5289	Yes
3006	6.8	395	16	5328	Yes
3007	8.1	436	16	5301	Yes
3008	7.5	325	17	5291	Yes
3009	6.5	378	16	5310	Yes
3010	6.1	413	17	5313	Yes
3011	7.3	479	16	5256	Yes
3012	9.2	275	18	5252	Yes
3013	8.7	488	17	5258	No
3014	6.8	297	16	5282	Yes
3015	6.5	271	18	5312	No
3016	8.9	477	18	5317	Yes
3017	6.8	464	16	5302	Yes
3018	7.5	432	16	5278	Yes
3019	9.8	314	16	5326	Yes
3020	6.5	294	16	5276	No
3021	9	323	18	5297	Yes
3022	8.2	316	17	5319	No
3023	9	357	16	5279	No
3024	6.2	496	16	5284	Yes
3025	9.3	299	18	5299	Yes
3026	8.9	333	17	5270	Yes
3027	6	400	18	5297	Yes
3028	7.9	447	17	5303	No
3029	7.4	408	17	5296	Yes
3030	9.6	468	18	5319	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	18.3	443	13	5318	Yes
4002	14.5	398	12	5258	No
4003	19.1	385	16	5306	Yes
4004	11.5	352	15	5321	Yes
4005	16.6	485	16	5310	Yes
4006	18.5	348	13	5269	No
4007	14.9	494	15	5258	Yes
4008	13.1	370	12	5288	Yes
4009	14.8	277	16	5319	No
4010	13.4	417	14	5317	Yes
4011	15.5	470	14	5252	Yes
4012	14.6	254	12	5321	Yes
4013	13	320	14	5288	Yes
4014	12.5	368	15	5298	Yes
4015	11.3	329	13	5310	Yes
4016	16.2	389	14	5260	Yes
4017	15.5	363	12	5325	Yes
4018	16.5	318	16	5253	Yes
4019	16.2	305	14	5297	Yes
4020	17.7	273	13	5297	Yes
4021	13.7	406	12	5310	Yes
4022	15.6	269	12	5269	Yes
4023	16.9	415	13	5260	Yes
4024	19.3	290	16	5296	No
4025	11.9	449	15	5302	Yes
4026	19.6	337	13	5268	Yes
4027	12.7	273	12	5278	Yes
4028	11.7	425	13	5256	Yes
4029	14.9	374	15	5313	Yes
4030	14.5	421	16	5258	Yes

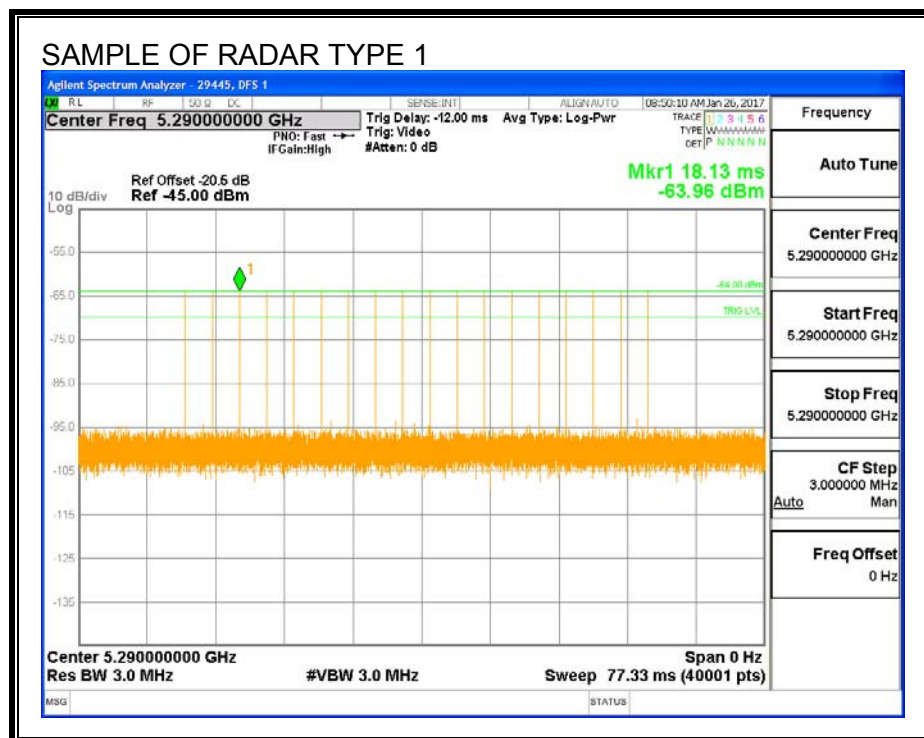
6.5. LOW BAND RESULTS FOR 160 MHz BANDWIDTH (80H COMPONENT)

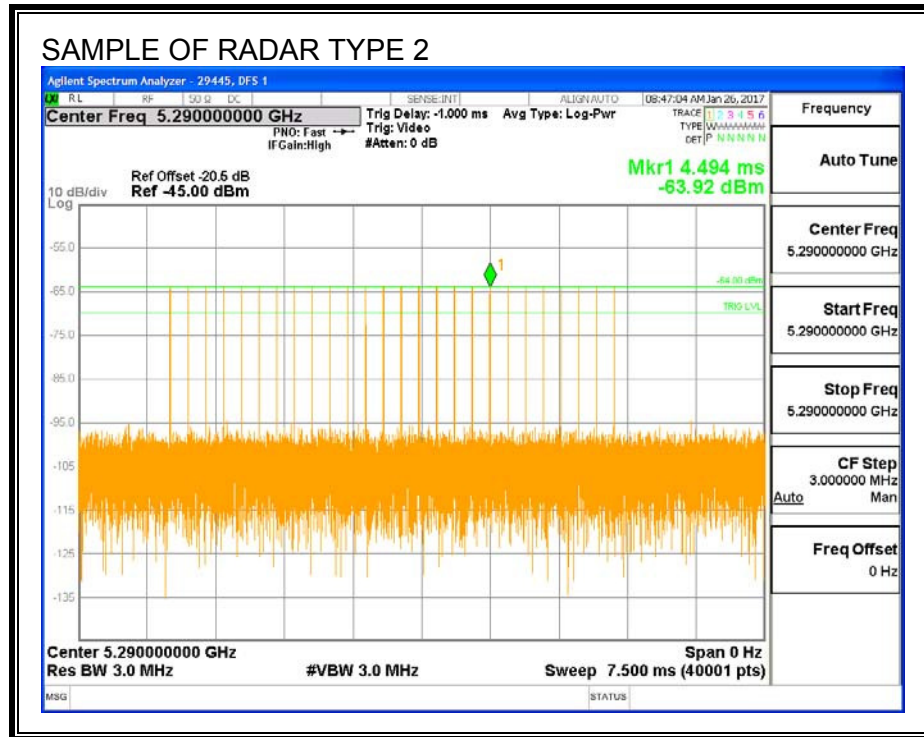
6.5.1. TEST CHANNEL

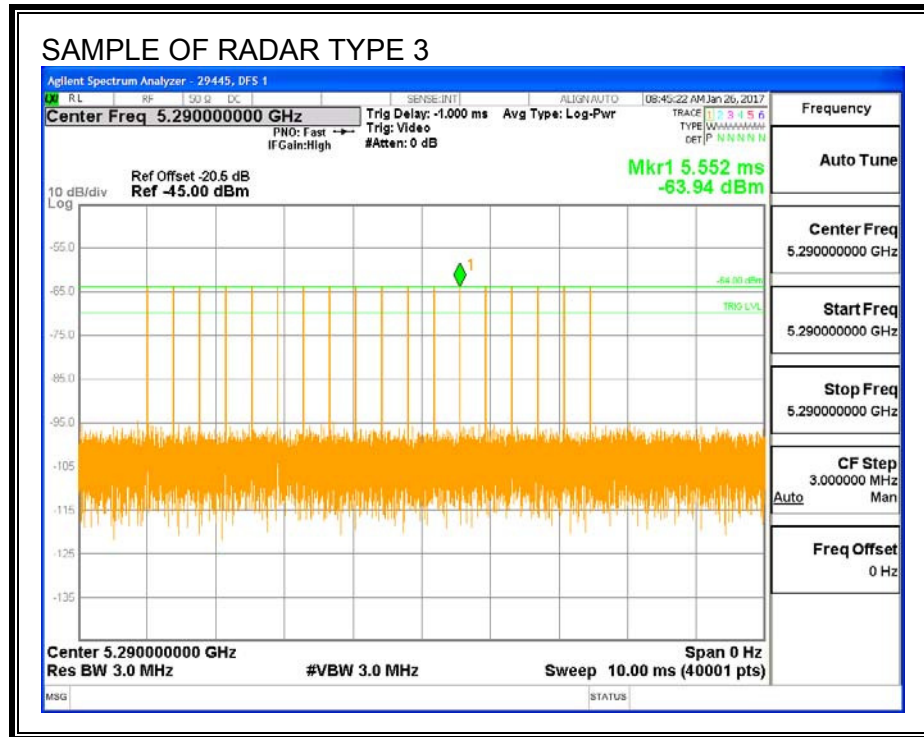
All tests were performed at a channel center frequency of 5290 MHz.

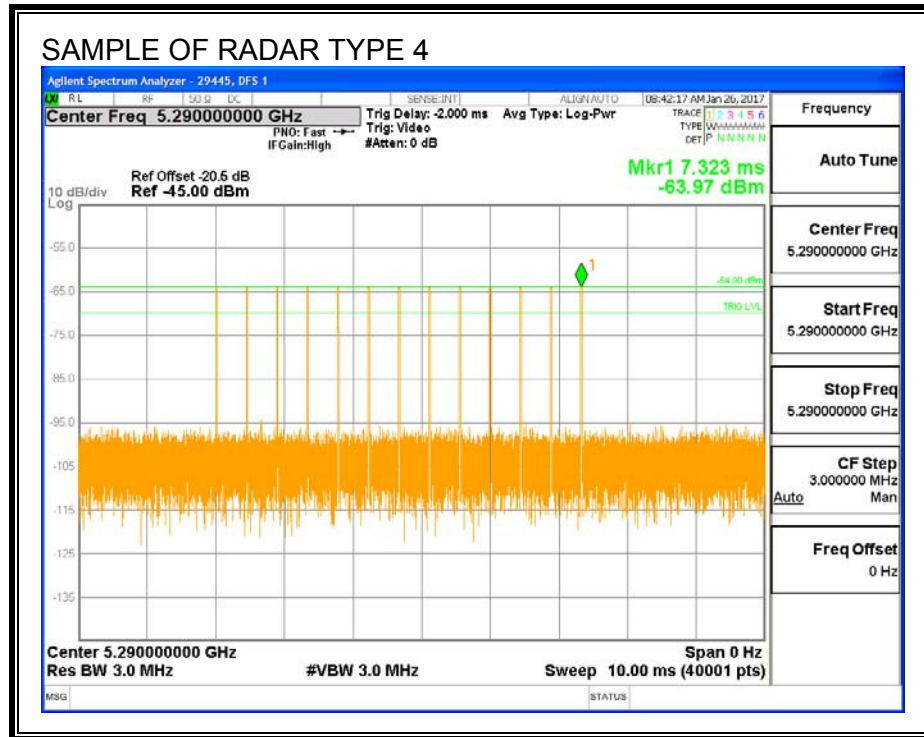
6.5.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

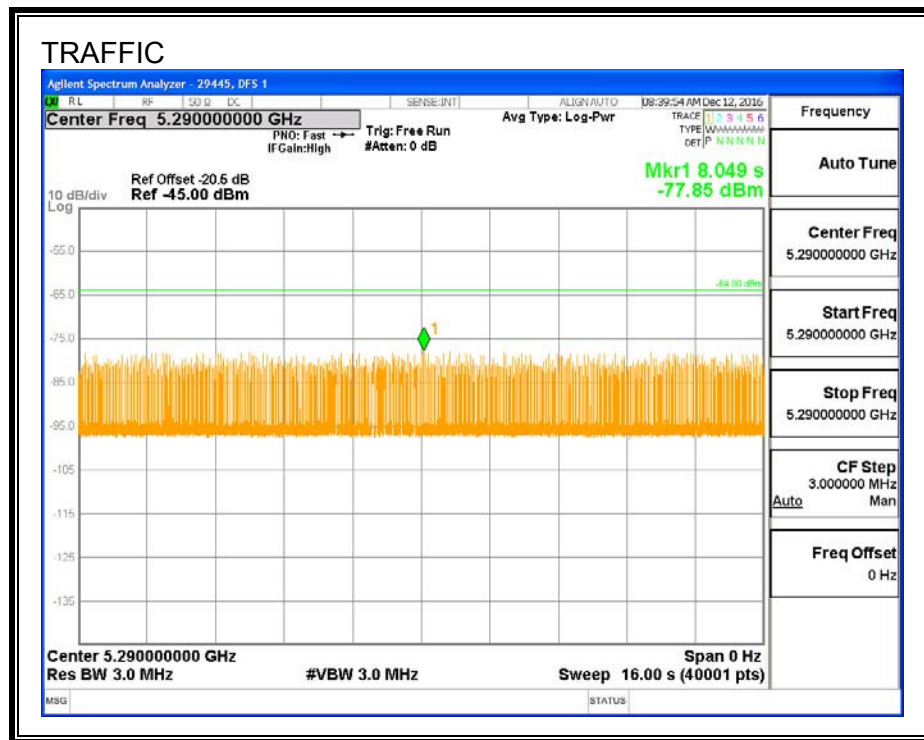




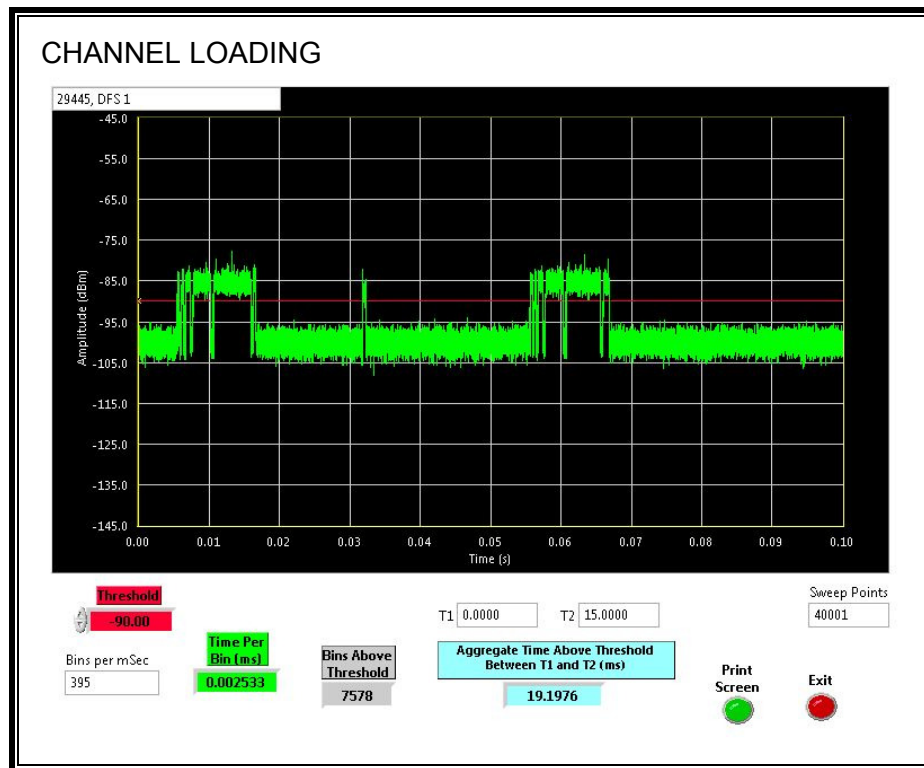




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 19.19%

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	96.67	60	Pass	5251	5328	76.16	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	70.00	60	Pass	5251	5328	76.16	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	76.67	60	Pass	5251	5328	76.16	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	76.67	60	Pass	5251	5328	76.16	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	5303	Yes
1002	1	578	92	A	5308	Yes
1003	1	598	89	A	5279	Yes
1004	1	718	74	A	5307	Yes
1005	1	678	78	A	5274	Yes
1006	1	818	65	A	5306	Yes
1007	1	778	68	A	5280	Yes
1008	1	838	63	A	5303	Yes
1009	1	698	76	A	5303	Yes
1010	1	518	102	A	5274	Yes
1011	1	658	81	A	5259	Yes
1012	1	798	67	A	5281	Yes
1013	1	898	59	A	5279	Yes
1014	1	618	86	A	5256	Yes
1015	1	738	72	A	5322	Yes
1016	1	1638	33	B	5306	Yes
1017	1	2465	22	B	5265	Yes
1018	1	1226	44	B	5276	Yes
1019	1	2182	25	B	5318	Yes
1020	1	1073	50	B	5309	Yes
1021	1	964	55	B	5314	Yes
1022	1	2532	21	B	5263	No
1023	1	2553	21	B	5280	Yes
1024	1	1703	31	B	5319	Yes
1025	1	1291	41	B	5266	Yes
1026	1	2924	19	B	5291	Yes
1027	1	1138	47	B	5287	Yes
1028	1	2900	19	B	5268	Yes
1029	1	2597	21	B	5279	Yes
1030	1	747	71	B	5300	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	3.8	194	26	5321	No
2002	2.8	188	26	5264	No
2003	1.1	154	24	5304	Yes
2004	2.2	195	24	5265	Yes
2005	3	208	23	5291	Yes
2006	2.4	172	27	5318	Yes
2007	3.3	189	26	5308	Yes
2008	2.9	157	27	5299	Yes
2009	2.2	222	27	5323	Yes
2010	4.2	156	28	5287	Yes
2011	3.6	182	25	5278	Yes
2012	3.6	163	26	5310	Yes
2013	1.4	155	27	5280	No
2014	3.8	178	29	5302	Yes
2015	1.7	217	23	5303	Yes
2016	4.3	206	29	5268	Yes
2017	4.7	168	24	5271	No
2018	1.5	162	23	5275	No
2019	3.9	209	29	5287	Yes
2020	3.1	169	29	5321	Yes
2021	1.7	182	28	5318	Yes
2022	1.1	227	24	5253	No
2023	2	164	28	5267	No
2024	3.8	213	25	5304	No
2025	5	196	28	5272	Yes
2026	2.9	211	26	5269	No
2027	2.3	199	23	5322	Yes
2028	4.5	218	24	5295	Yes
2029	4.2	210	25	5305	Yes
2030	2.5	195	27	5294	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	9.5	379	18	5313	Yes
3002	6.1	347	17	5322	Yes
3003	8.4	480	18	5324	Yes
3004	9.3	460	18	5274	Yes
3005	7.6	488	17	5256	Yes
3006	6.8	395	16	5292	Yes
3007	8.1	436	16	5308	Yes
3008	7.5	325	17	5269	Yes
3009	6.5	378	16	5327	Yes
3010	6.1	413	17	5302	Yes
3011	7.3	479	16	5311	Yes
3012	9.2	275	18	5312	Yes
3013	8.7	488	17	5273	Yes
3014	6.8	297	16	5309	Yes
3015	6.5	271	18	5314	No
3016	8.9	477	18	5311	Yes
3017	6.8	464	16	5307	Yes
3018	7.5	432	16	5266	No
3019	9.8	314	16	5310	Yes
3020	6.5	294	16	5254	No
3021	9	323	18	5256	Yes
3022	8.2	316	17	5269	Yes
3023	9	357	16	5260	No
3024	6.2	496	16	5261	Yes
3025	9.3	299	18	5314	No
3026	8.9	333	17	5304	No
3027	6	400	18	5313	Yes
3028	7.9	447	17	5295	Yes
3029	7.4	408	17	5259	No
3030	9.6	468	18	5303	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	18.3	443	13	5295	Yes
4002	14.5	398	12	5308	No
4003	19.1	385	16	5321	Yes
4004	11.5	352	15	5318	No
4005	16.6	485	16	5269	Yes
4006	18.5	348	13	5303	No
4007	14.9	494	15	5306	Yes
4008	13.1	370	12	5327	Yes
4009	14.8	277	16	5304	Yes
4010	13.4	417	14	5258	Yes
4011	15.5	470	14	5253	No
4012	14.6	254	12	5267	Yes
4013	13	320	14	5300	Yes
4014	12.5	368	15	5286	Yes
4015	11.3	329	13	5308	No
4016	16.2	389	14	5312	Yes
4017	15.5	363	12	5311	Yes
4018	16.5	318	16	5314	Yes
4019	16.2	305	14	5317	Yes
4020	17.7	273	13	5268	Yes
4021	13.7	406	12	5324	Yes
4022	15.6	269	12	5303	Yes
4023	16.9	415	13	5299	Yes
4024	19.3	290	16	5327	Yes
4025	11.9	449	15	5252	No
4026	19.6	337	13	5273	Yes
4027	12.7	273	12	5262	No
4028	11.7	425	13	5284	Yes
4029	14.9	374	15	5311	Yes
4030	14.5	421	16	5305	Yes

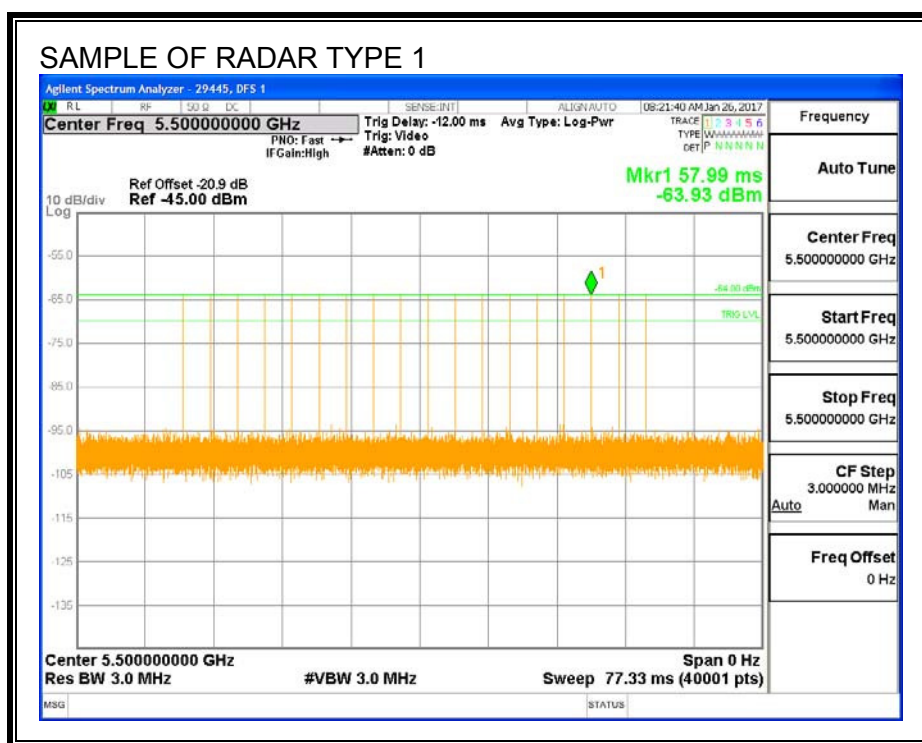
6.6. HIGH BAND RESULTS FOR 20 MHz BANDWIDTH

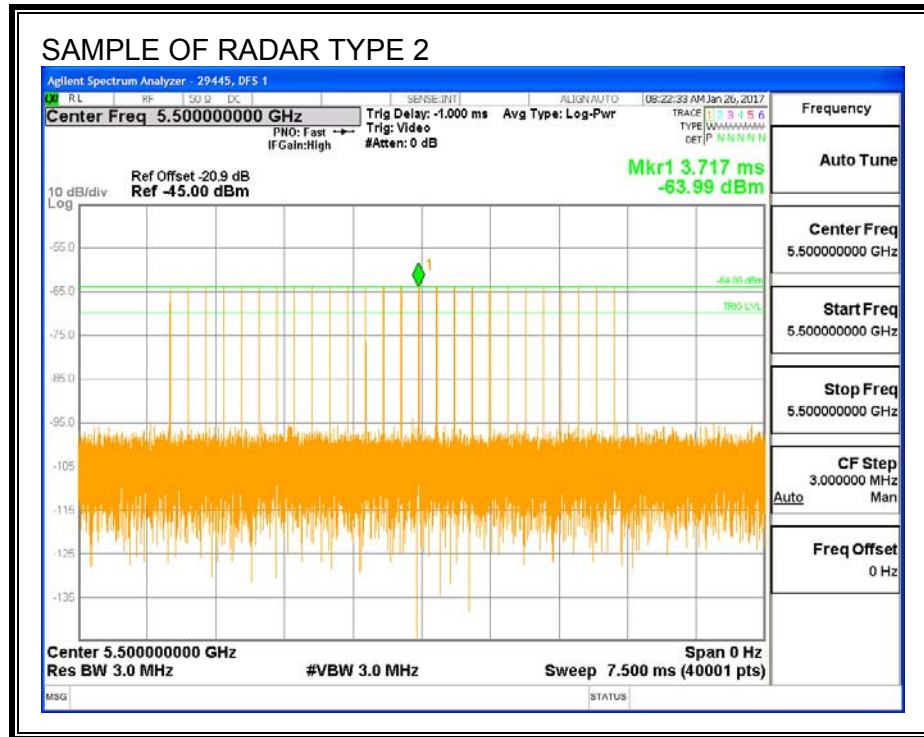
6.6.1. TEST CHANNEL

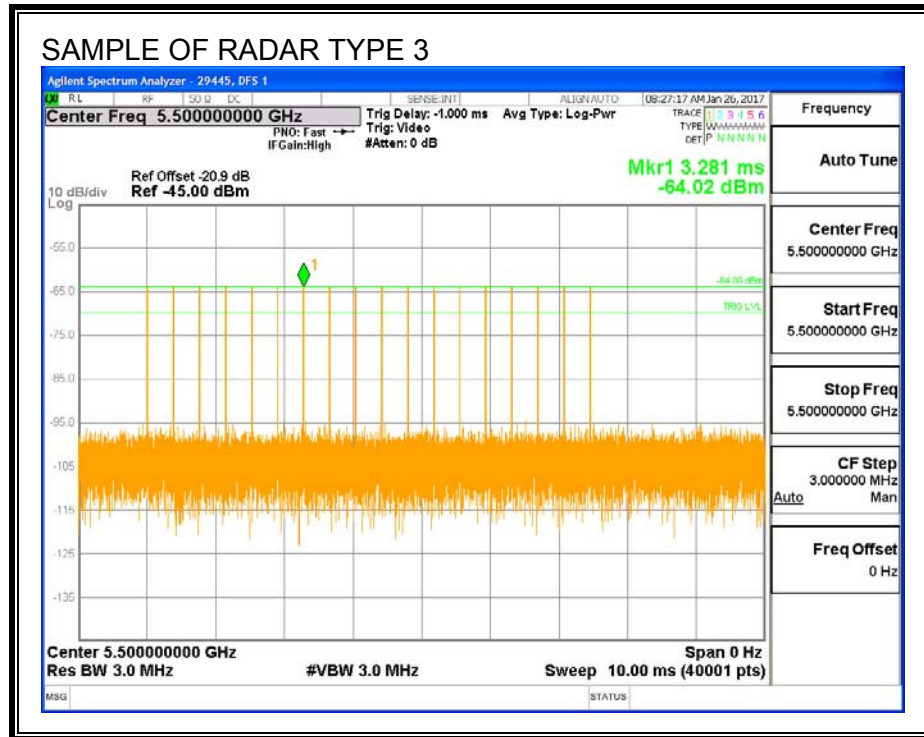
All tests were performed at a channel center frequency of 5500 MHz.

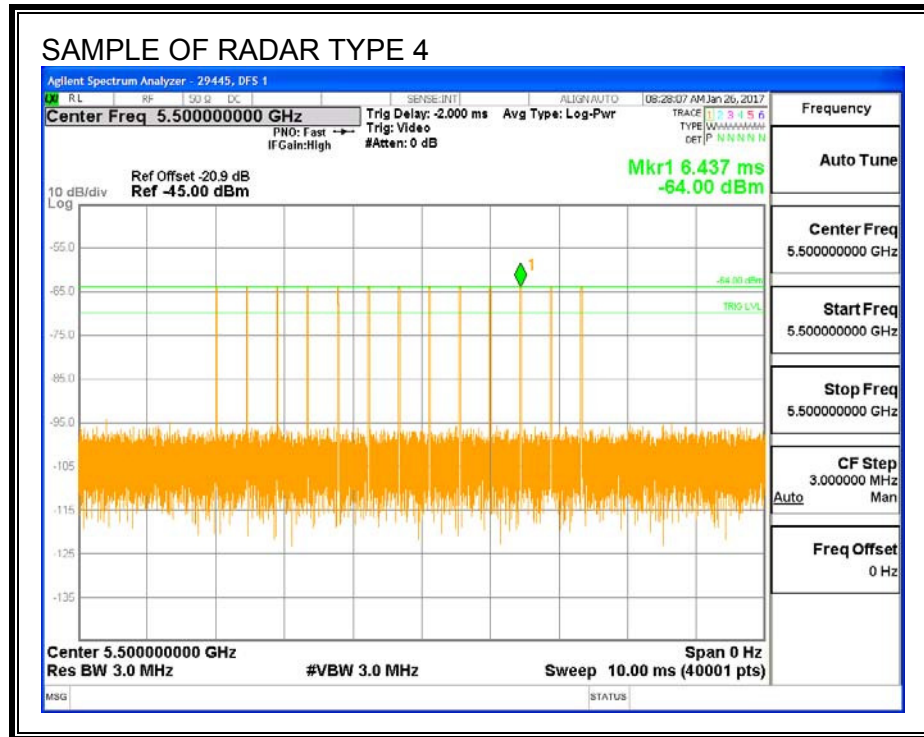
6.6.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

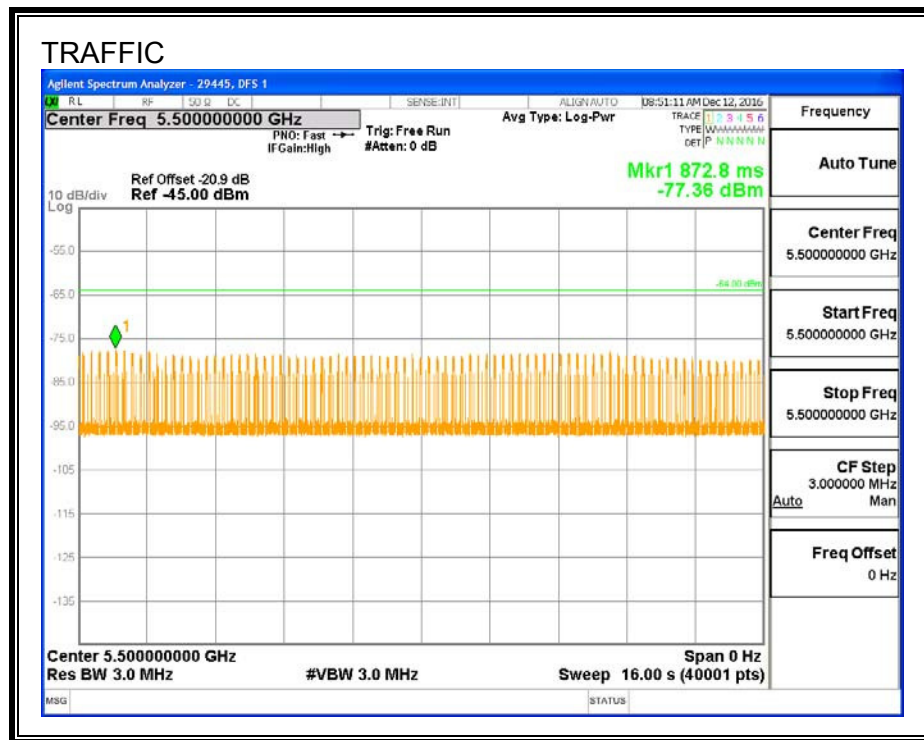




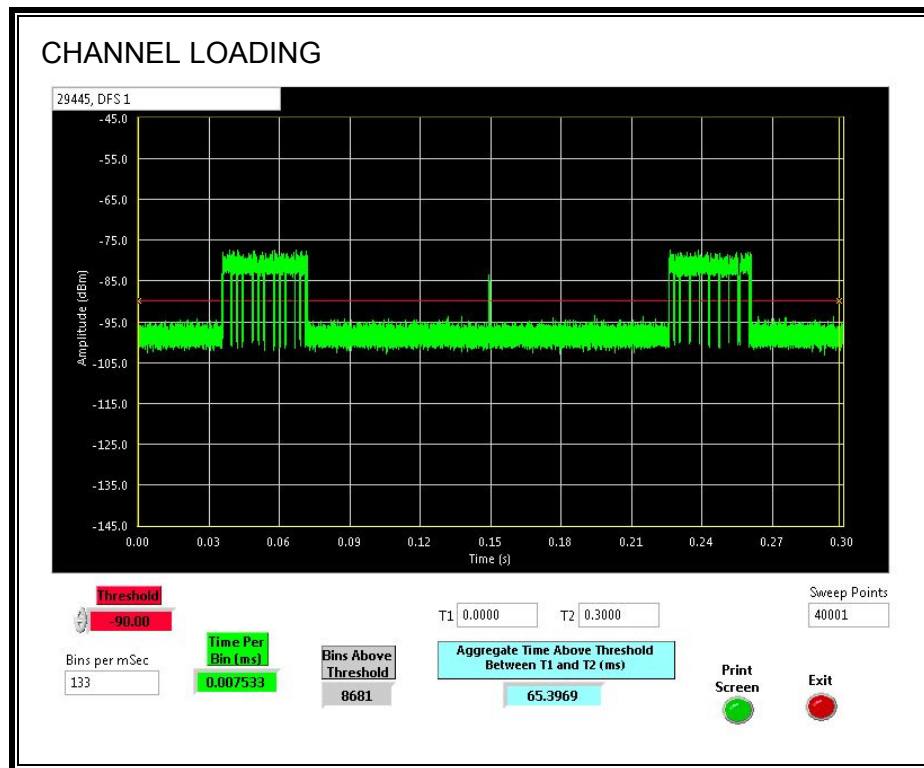




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 21.78%

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	93.33	60	Pass	5490	5509	17.94	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	76.67	60	Pass	5490	5509	17.94	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	83.33	60	Pass	5490	5509	17.94	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	76.67	60	Pass	5490	5509	17.94	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	5498	Yes
1002	1	578	92	A	5496	Yes
1003	1	598	89	A	5499	Yes
1004	1	718	74	A	5499	Yes
1005	1	678	78	A	5496	Yes
1006	1	818	65	A	5498	Yes
1007	1	778	68	A	5506	Yes
1008	1	838	63	A	5495	Yes
1009	1	698	76	A	5490	Yes
1010	1	518	102	A	5497	Yes
1011	1	658	81	A	5500	No
1012	1	798	67	A	5493	Yes
1013	1	898	59	A	5498	Yes
1014	1	618	86	A	5497	Yes
1015	1	738	72	A	5504	Yes
1016	1	1638	33	B	5494	Yes
1017	1	2465	22	B	5504	Yes
1018	1	1226	44	B	5499	Yes
1019	1	2182	25	B	5490	Yes
1020	1	1073	50	B	5497	Yes
1021	1	964	55	B	5492	Yes
1022	1	2532	21	B	5491	Yes
1023	1	2553	21	B	5494	Yes
1024	1	1703	31	B	5503	Yes
1025	1	1291	41	B	5501	Yes
1026	1	2924	19	B	5503	Yes
1027	1	1138	47	B	5506	Yes
1028	1	2900	19	B	5505	Yes
1029	1	2597	21	B	5492	Yes
1030	1	747	71	B	5494	No

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	3.8	194	26	5508	Yes
2002	2.8	188	26	5508	Yes
2003	1.1	154	24	5506	Yes
2004	2.2	195	24	5493	Yes
2005	3	208	23	5495	No
2006	2.4	172	27	5504	Yes
2007	3.3	189	26	5490	No
2008	2.9	157	27	5497	Yes
2009	2.2	222	27	5497	Yes
2010	4.2	156	28	5494	Yes
2011	3.6	182	25	5508	Yes
2012	3.6	163	26	5498	No
2013	1.4	155	27	5494	Yes
2014	3.8	178	29	5492	Yes
2015	1.7	217	23	5508	Yes
2016	4.3	206	29	5503	Yes
2017	4.7	168	24	5493	Yes
2018	1.5	162	23	5508	No
2019	3.9	209	29	5501	No
2020	3.1	169	29	5496	Yes
2021	1.7	182	28	5505	Yes
2022	1.1	227	24	5495	Yes
2023	2	164	28	5501	Yes
2024	3.8	213	25	5504	Yes
2025	5	196	28	5499	Yes
2026	2.9	211	26	5494	Yes
2027	2.3	199	23	5492	Yes
2028	4.5	218	24	5495	No
2029	4.2	210	25	5496	No
2030	2.5	195	27	5508	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	9.5	379	18	5504	Yes
3002	6.1	347	17	5502	Yes
3003	8.4	480	18	5494	Yes
3004	9.3	460	18	5493	Yes
3005	7.6	488	17	5493	Yes
3006	6.8	395	16	5493	Yes
3007	8.1	436	16	5507	Yes
3008	7.5	325	17	5497	Yes
3009	6.5	378	16	5494	Yes
3010	6.1	413	17	5508	Yes
3011	7.3	479	16	5498	Yes
3012	9.2	275	18	5508	No
3013	8.7	488	17	5509	Yes
3014	6.8	297	16	5503	Yes
3015	6.5	271	18	5491	Yes
3016	8.9	477	18	5501	Yes
3017	6.8	464	16	5504	Yes
3018	7.5	432	16	5506	Yes
3019	9.8	314	16	5500	No
3020	6.5	294	16	5495	Yes
3021	9	323	18	5505	Yes
3022	8.2	316	17	5503	Yes
3023	9	357	16	5490	Yes
3024	6.2	496	16	5491	Yes
3025	9.3	299	18	5491	Yes
3026	8.9	333	17	5491	No
3027	6	400	18	5499	Yes
3028	7.9	447	17	5501	No
3029	7.4	408	17	5491	No
3030	9.6	468	18	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	18.3	443	13	5496	Yes
4002	14.5	398	12	5501	Yes
4003	19.1	385	16	5508	Yes
4004	11.5	352	15	5500	No
4005	16.6	485	16	5507	Yes
4006	18.5	348	13	5503	No
4007	14.9	494	15	5498	Yes
4008	13.1	370	12	5508	Yes
4009	14.8	277	16	5494	Yes
4010	13.4	417	14	5507	Yes
4011	15.5	470	14	5493	Yes
4012	14.6	254	12	5493	Yes
4013	13	320	14	5495	Yes
4014	12.5	368	15	5502	Yes
4015	11.3	329	13	5500	No
4016	16.2	389	14	5498	Yes
4017	15.5	363	12	5506	Yes
4018	16.5	318	16	5493	Yes
4019	16.2	305	14	5493	Yes
4020	17.7	273	13	5500	No
4021	13.7	406	12	5496	Yes
4022	15.6	269	12	5499	Yes
4023	16.9	415	13	5495	No
4024	19.3	290	16	5492	Yes
4025	11.9	449	15	5503	Yes
4026	19.6	337	13	5494	Yes
4027	12.7	273	12	5497	No
4028	11.7	425	13	5496	Yes
4029	14.9	374	15	5504	Yes
4030	14.5	421	16	5503	No

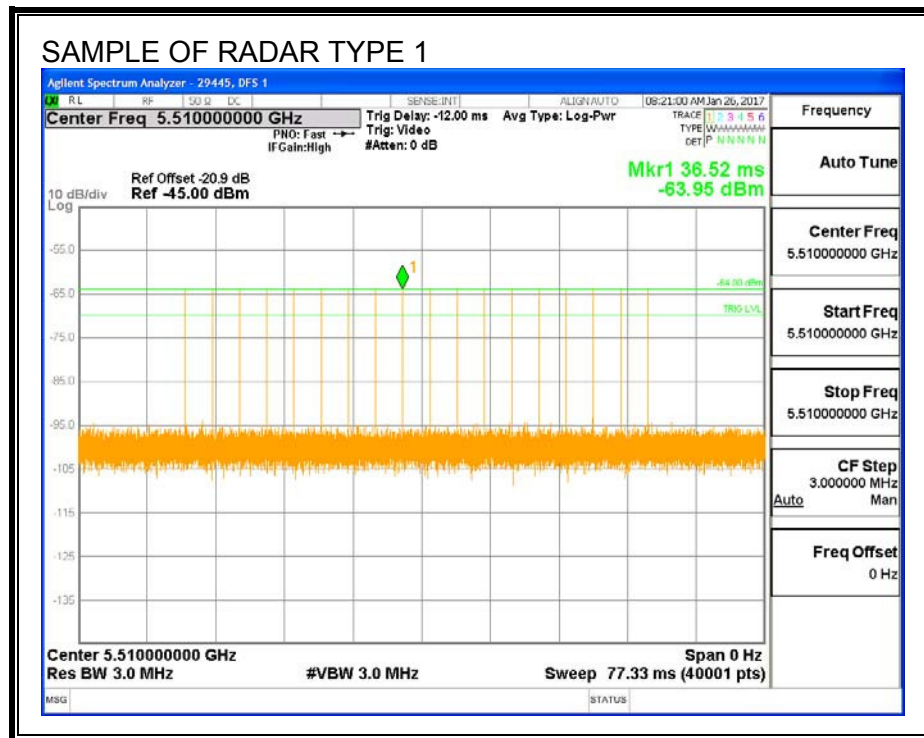
6.7. HIGH BAND RESULTS FOR 40 MHz BANDWIDTH

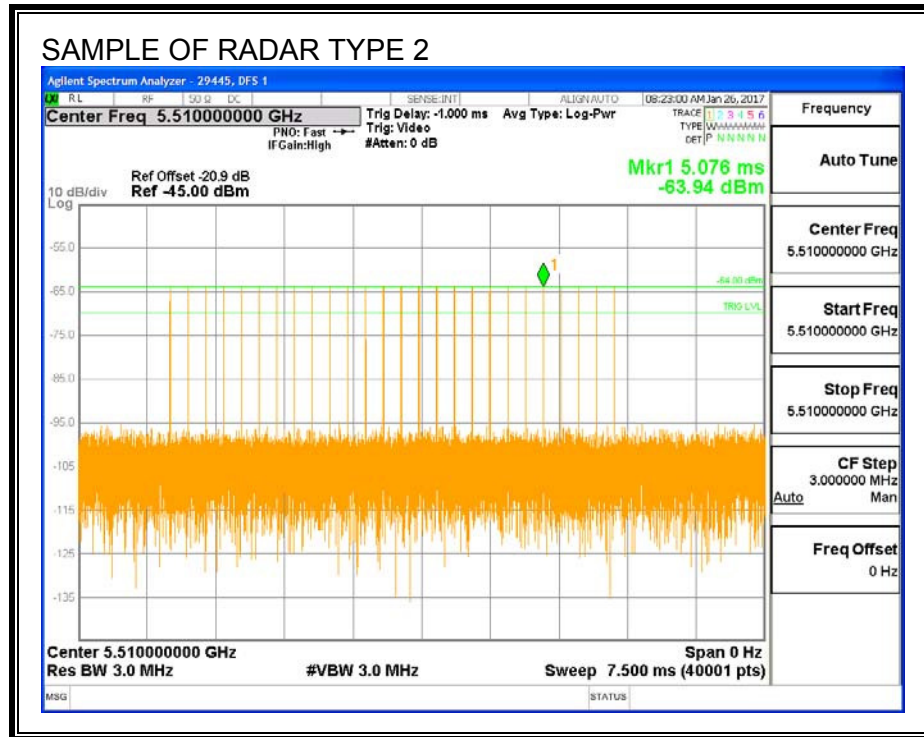
6.7.1. TEST CHANNEL

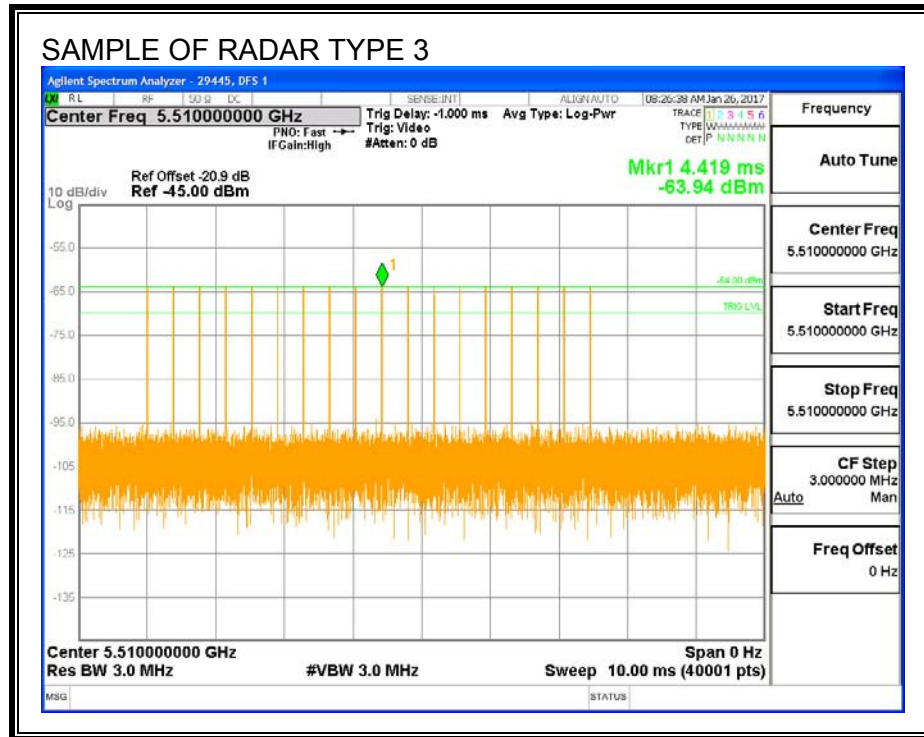
All tests were performed at a channel center frequency of 5510 MHz.

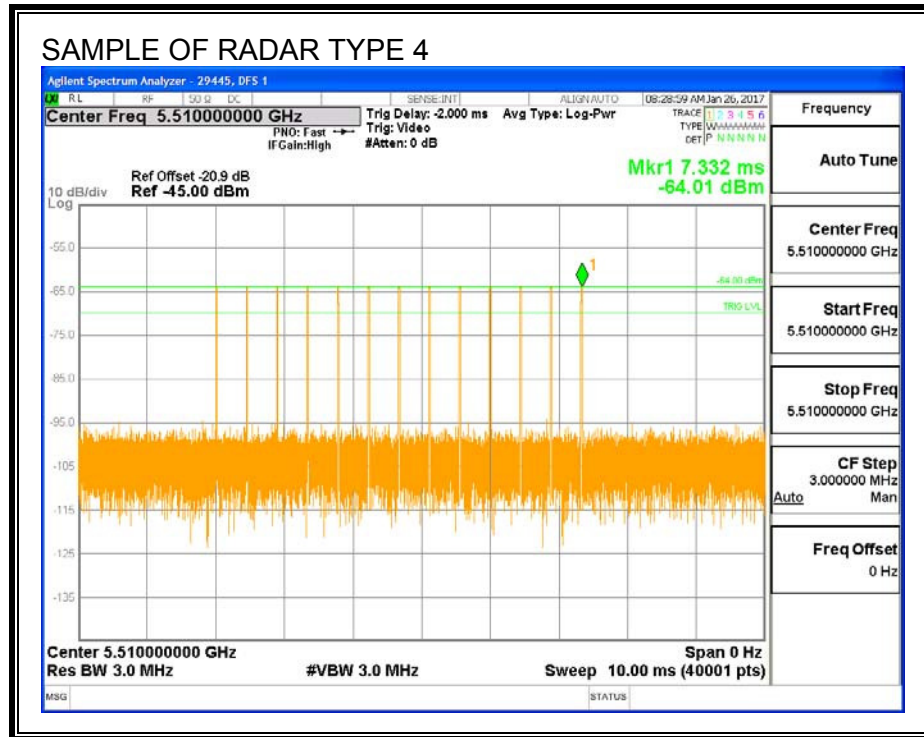
6.7.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

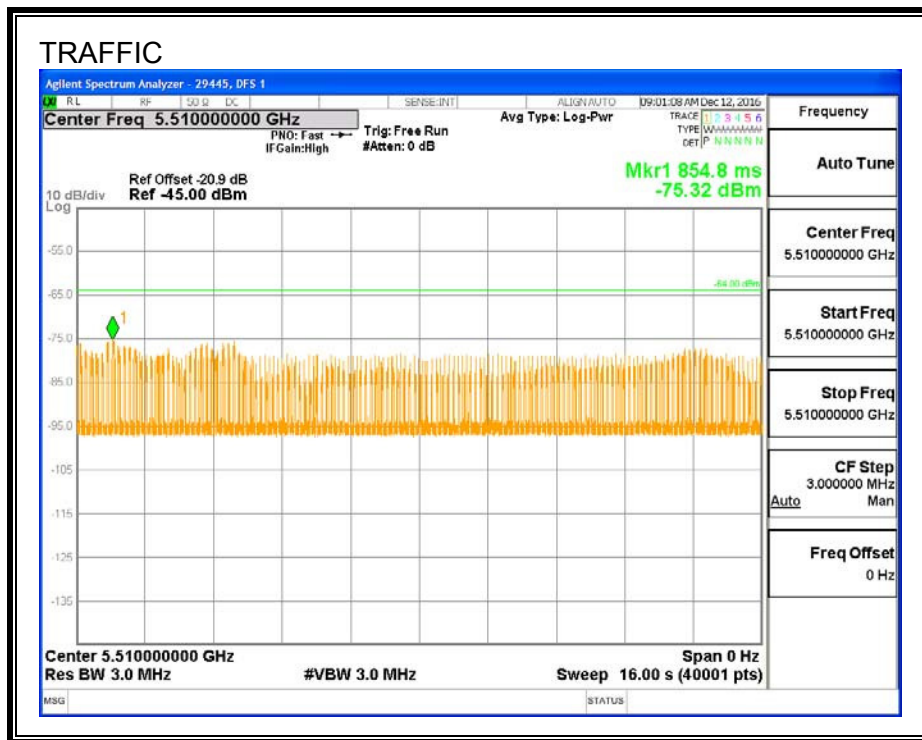




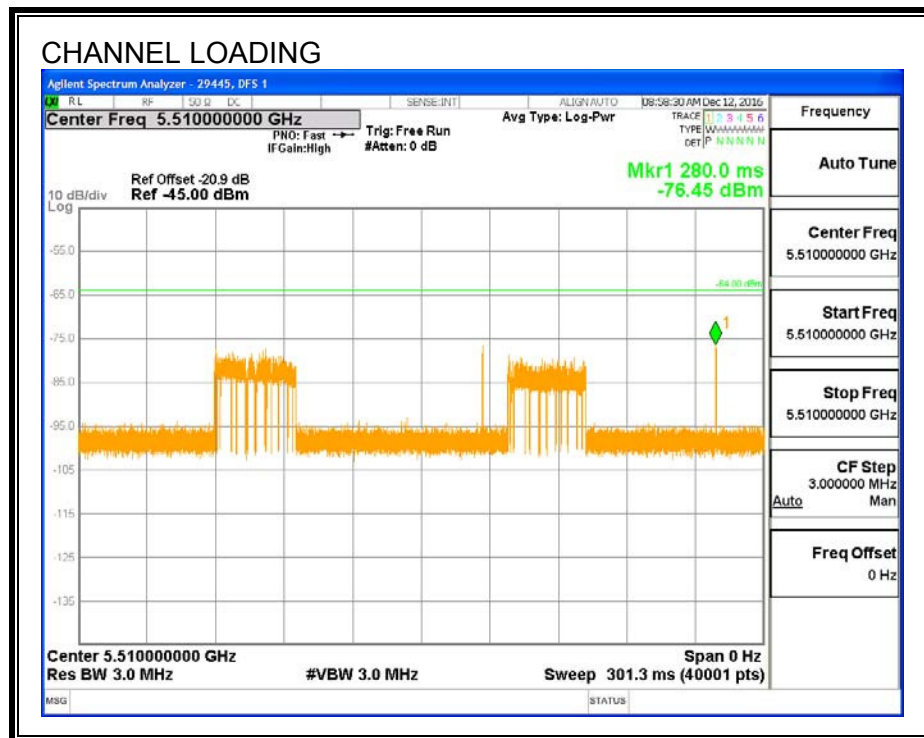




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 20.92%

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	5529	36.41	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	76.67	60	Pass	5490	5529	36.41	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	80.00	60	Pass	5490	5529	36.41	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	66.67	60	Pass	5490	5529	36.41	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	5513	Yes
1002	1	578	92	A	5498	Yes
1003	1	598	89	A	5519	Yes
1004	1	718	74	A	5515	Yes
1005	1	678	78	A	5512	Yes
1006	1	818	65	A	5502	Yes
1007	1	778	68	A	5524	Yes
1008	1	838	63	A	5523	Yes
1009	1	698	76	A	5510	No
1010	1	518	102	A	5514	Yes
1011	1	658	81	A	5512	Yes
1012	1	798	67	A	5509	Yes
1013	1	898	59	A	5502	Yes
1014	1	618	86	A	5512	Yes
1015	1	738	72	A	5509	Yes
1016	1	1638	33	B	5518	Yes
1017	1	2465	22	B	5528	Yes
1018	1	1226	44	B	5494	Yes
1019	1	2182	25	B	5492	Yes
1020	1	1073	50	B	5516	Yes
1021	1	964	55	B	5502	Yes
1022	1	2532	21	B	5521	Yes
1023	1	2553	21	B	5497	Yes
1024	1	1703	31	B	5499	Yes
1025	1	1291	41	B	5524	Yes
1026	1	2924	19	B	5516	Yes
1027	1	1138	47	B	5499	Yes
1028	1	2900	19	B	5504	Yes
1029	1	2597	21	B	5527	Yes
1030	1	747	71	B	5492	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	3.8	194	26	5508	Yes
2002	2.8	188	26	5514	Yes
2003	1.1	154	24	5499	No
2004	2.2	195	24	5519	Yes
2005	3	208	23	5522	Yes
2006	2.4	172	27	5493	No
2007	3.3	189	26	5525	Yes
2008	2.9	157	27	5500	Yes
2009	2.2	222	27	5507	Yes
2010	4.2	156	28	5515	Yes
2011	3.6	182	25	5501	Yes
2012	3.6	163	26	5525	Yes
2013	1.4	155	27	5509	Yes
2014	3.8	178	29	5497	No
2015	1.7	217	23	5495	Yes
2016	4.3	206	29	5516	Yes
2017	4.7	168	24	5521	Yes
2018	1.5	162	23	5514	Yes
2019	3.9	209	29	5523	Yes
2020	3.1	169	29	5507	No
2021	1.7	182	28	5529	Yes
2022	1.1	227	24	5515	Yes
2023	2	164	28	5509	Yes
2024	3.8	213	25	5528	Yes
2025	5	196	28	5511	Yes
2026	2.9	211	26	5502	No
2027	2.3	199	23	5512	No
2028	4.5	218	24	5491	Yes
2029	4.2	210	25	5523	No
2030	2.5	195	27	5509	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	9.5	379	18	5501	Yes
3002	6.1	347	17	5495	Yes
3003	8.4	480	18	5497	Yes
3004	9.3	460	18	5515	Yes
3005	7.6	488	17	5518	Yes
3006	6.8	395	16	5509	Yes
3007	8.1	436	16	5493	Yes
3008	7.5	325	17	5521	No
3009	6.5	378	16	5507	Yes
3010	6.1	413	17	5521	Yes
3011	7.3	479	16	5506	Yes
3012	9.2	275	18	5514	No
3013	8.7	488	17	5526	Yes
3014	6.8	297	16	5498	Yes
3015	6.5	271	18	5522	No
3016	8.9	477	18	5526	Yes
3017	6.8	464	16	5526	Yes
3018	7.5	432	16	5511	Yes
3019	9.8	314	16	5508	Yes
3020	6.5	294	16	5492	Yes
3021	9	323	18	5520	Yes
3022	8.2	316	17	5506	No
3023	9	357	16	5519	Yes
3024	6.2	496	16	5521	No
3025	9.3	299	18	5526	Yes
3026	8.9	333	17	5491	Yes
3027	6	400	18	5513	No
3028	7.9	447	17	5516	Yes
3029	7.4	408	17	5523	Yes
3030	9.6	468	18	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	18.3	443	13	5505	Yes
4002	14.5	398	12	5501	Yes
4003	19.1	385	16	5507	Yes
4004	11.5	352	15	5529	Yes
4005	16.6	485	16	5520	Yes
4006	18.5	348	13	5521	No
4007	14.9	494	15	5508	Yes
4008	13.1	370	12	5509	Yes
4009	14.8	277	16	5514	Yes
4010	13.4	417	14	5507	Yes
4011	15.5	470	14	5525	No
4012	14.6	254	12	5502	No
4013	13	320	14	5494	No
4014	12.5	368	15	5514	Yes
4015	11.3	329	13	5521	Yes
4016	16.2	389	14	5518	Yes
4017	15.5	363	12	5492	No
4018	16.5	318	16	5518	Yes
4019	16.2	305	14	5523	No
4020	17.7	273	13	5502	No
4021	13.7	406	12	5518	Yes
4022	15.6	269	12	5509	Yes
4023	16.9	415	13	5524	Yes
4024	19.3	290	16	5512	Yes
4025	11.9	449	15	5491	No
4026	19.6	337	13	5497	No
4027	12.7	273	12	5492	Yes
4028	11.7	425	13	5506	No
4029	14.9	374	15	5513	Yes
4030	14.5	421	16	5526	Yes

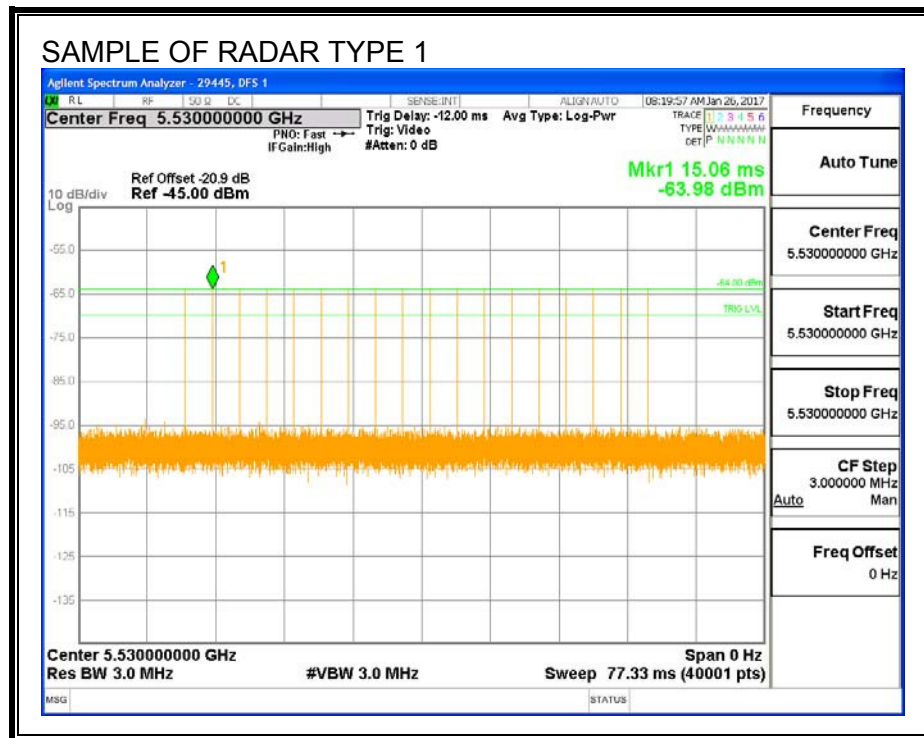
6.8. HIGH BAND RESULTS FOR 80 MHz BANDWIDTH

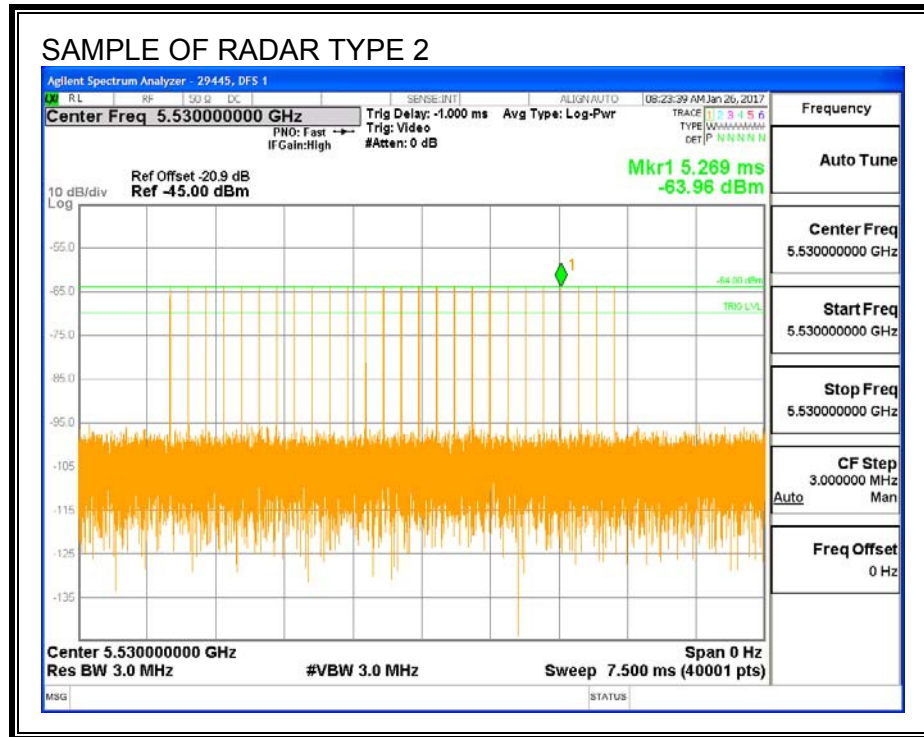
6.8.1. TEST CHANNEL

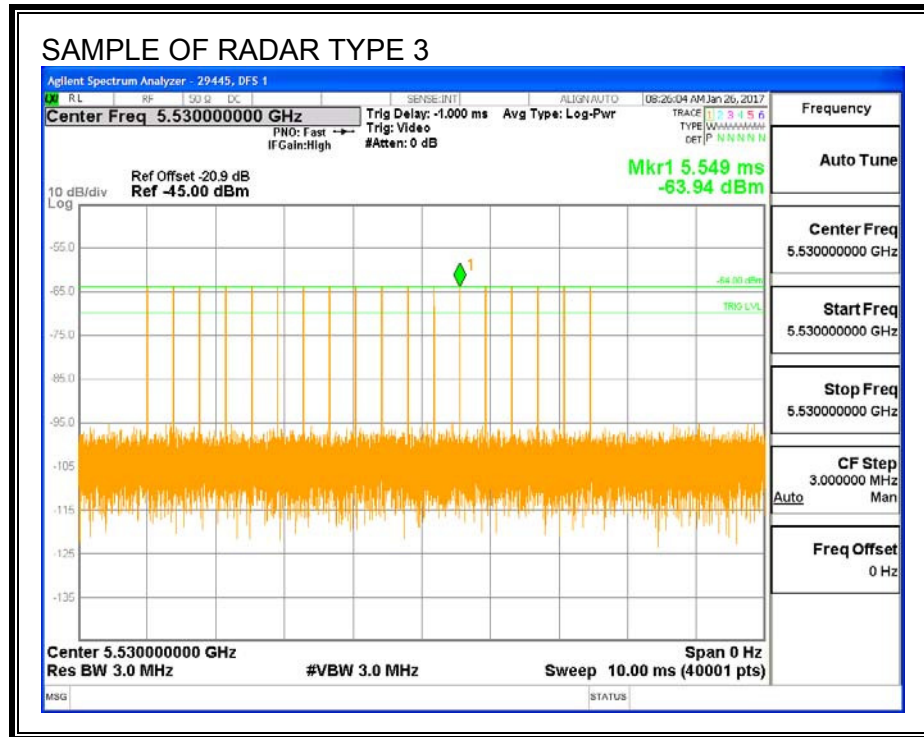
All tests were performed at a channel center frequency of 5530 MHz.

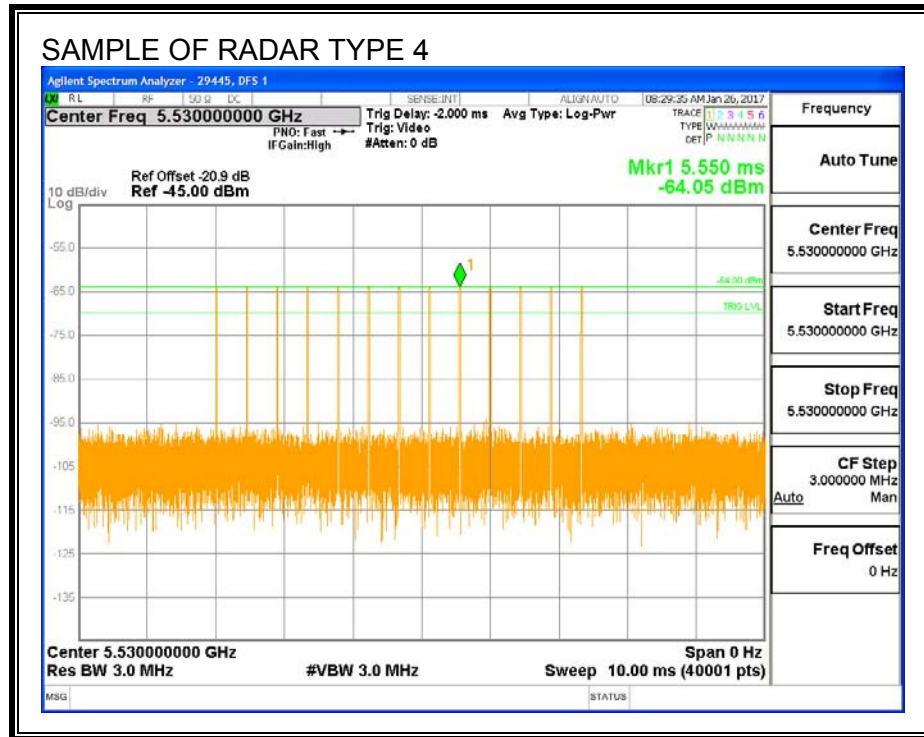
6.8.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

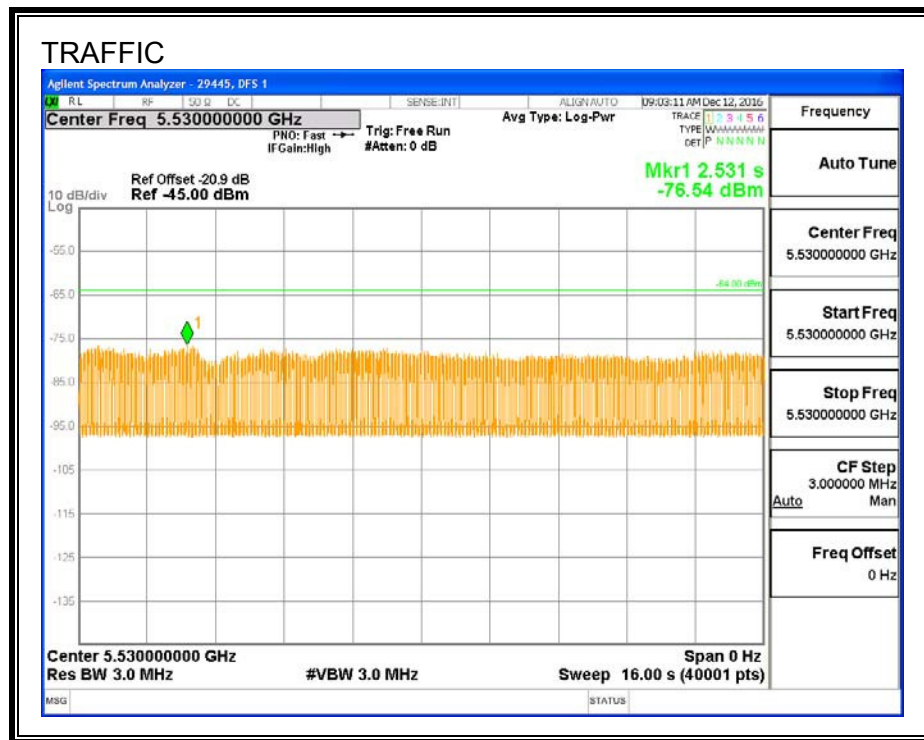




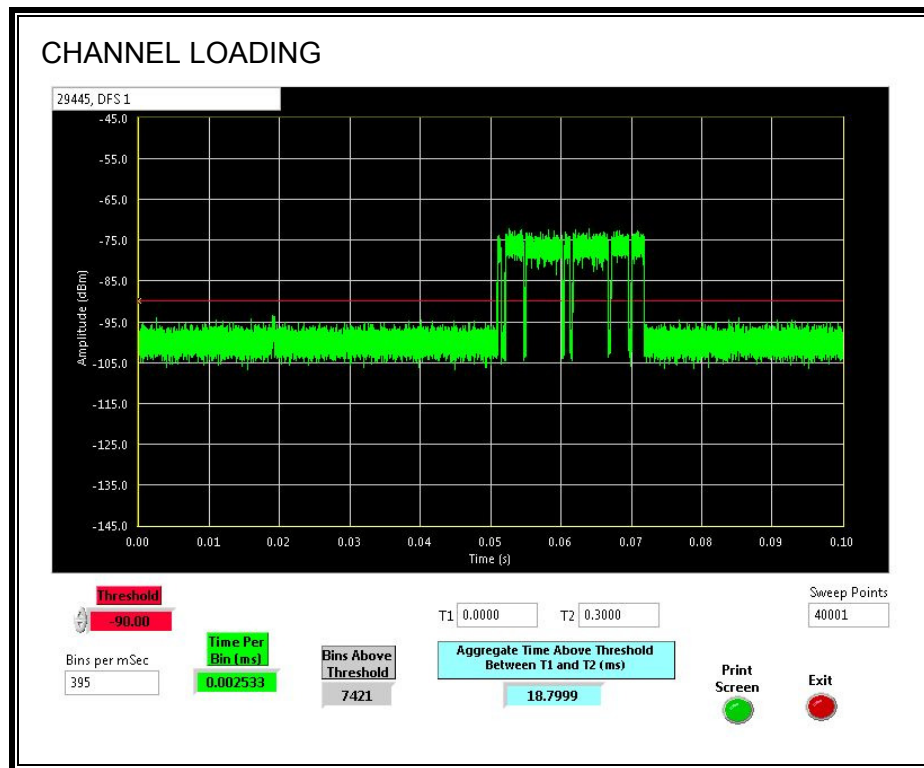




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 18.8%

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	93.33	60	Pass	5490	5569	76.58	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	76.67	60	Pass	5490	5569	76.58	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	73.33	60	Pass	5490	5569	76.58	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	90.00	60	Pass	5490	5569	76.58	DFS 1	29445	Version 3.0
Aggregate		83.33	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	5535	Yes
1002	1	578	92	A	5510	Yes
1003	1	598	89	A	5534	Yes
1004	1	718	74	A	5550	Yes
1005	1	678	78	A	5530	Yes
1006	1	818	65	A	5538	Yes
1007	1	778	68	A	5558	Yes
1008	1	838	63	A	5522	Yes
1009	1	698	76	A	5506	Yes
1010	1	518	102	A	5532	Yes
1011	1	658	81	A	5514	Yes
1012	1	798	67	A	5495	No
1013	1	898	59	A	5545	Yes
1014	1	618	86	A	5522	Yes
1015	1	738	72	A	5554	Yes
1016	1	1638	33	B	5536	Yes
1017	1	2465	22	B	5508	Yes
1018	1	1226	44	B	5523	Yes
1019	1	2182	25	B	5530	Yes
1020	1	1073	50	B	5500	Yes
1021	1	964	55	B	5504	Yes
1022	1	2532	21	B	5536	Yes
1023	1	2553	21	B	5556	Yes
1024	1	1703	31	B	5513	Yes
1025	1	1291	41	B	5554	Yes
1026	1	2924	19	B	5541	Yes
1027	1	1138	47	B	5500	Yes
1028	1	2900	19	B	5564	Yes
1029	1	2597	21	B	5515	Yes
1030	1	747	71	B	5493	No

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	3.8	194	26	5544	Yes
2002	2.8	188	26	5524	Yes
2003	1.1	154	24	5495	No
2004	2.2	195	24	5522	Yes
2005	3	208	23	5504	No
2006	2.4	172	27	5511	Yes
2007	3.3	189	26	5561	Yes
2008	2.9	157	27	5526	Yes
2009	2.2	222	27	5562	Yes
2010	4.2	156	28	5507	Yes
2011	3.6	182	25	5503	No
2012	3.6	163	26	5527	Yes
2013	1.4	155	27	5555	Yes
2014	3.8	178	29	5509	Yes
2015	1.7	217	23	5516	Yes
2016	4.3	206	29	5544	No
2017	4.7	168	24	5500	Yes
2018	1.5	162	23	5514	Yes
2019	3.9	209	29	5543	Yes
2020	3.1	169	29	5526	Yes
2021	1.7	182	28	5548	No
2022	1.1	227	24	5513	Yes
2023	2	164	28	5545	No
2024	3.8	213	25	5542	Yes
2025	5	196	28	5508	Yes
2026	2.9	211	26	5494	No
2027	2.3	199	23	5552	Yes
2028	4.5	218	24	5498	Yes
2029	4.2	210	25	5540	Yes
2030	2.5	195	27	5544	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	9.5	379	18	5560	Yes
3002	6.1	347	17	5505	Yes
3003	8.4	480	18	5565	Yes
3004	9.3	460	18	5532	Yes
3005	7.6	488	17	5494	No
3006	6.8	395	16	5496	Yes
3007	8.1	436	16	5514	Yes
3008	7.5	325	17	5531	Yes
3009	6.5	378	16	5523	Yes
3010	6.1	413	17	5504	No
3011	7.3	479	16	5557	No
3012	9.2	275	18	5543	Yes
3013	8.7	488	17	5549	No
3014	6.8	297	16	5520	Yes
3015	6.5	271	18	5508	No
3016	8.9	477	18	5501	Yes
3017	6.8	464	16	5510	Yes
3018	7.5	432	16	5529	Yes
3019	9.8	314	16	5533	Yes
3020	6.5	294	16	5512	Yes
3021	9	323	18	5491	No
3022	8.2	316	17	5501	Yes
3023	9	357	16	5525	Yes
3024	6.2	496	16	5541	Yes
3025	9.3	299	18	5546	Yes
3026	8.9	333	17	5493	No
3027	6	400	18	5495	No
3028	7.9	447	17	5560	Yes
3029	7.4	408	17	5554	Yes
3030	9.6	468	18	5541	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	18.3	443	13	5524	Yes
4002	14.5	398	12	5512	Yes
4003	19.1	385	16	5513	Yes
4004	11.5	352	15	5490	No
4005	16.6	485	16	5558	Yes
4006	18.5	348	13	5505	Yes
4007	14.9	494	15	5503	Yes
4008	13.1	370	12	5557	Yes
4009	14.8	277	16	5553	Yes
4010	13.4	417	14	5498	Yes
4011	15.5	470	14	5507	Yes
4012	14.6	254	12	5507	Yes
4013	13	320	14	5496	Yes
4014	12.5	368	15	5558	Yes
4015	11.3	329	13	5569	Yes
4016	16.2	389	14	5523	No
4017	15.5	363	12	5519	Yes
4018	16.5	318	16	5556	Yes
4019	16.2	305	14	5547	Yes
4020	17.7	273	13	5561	Yes
4021	13.7	406	12	5564	Yes
4022	15.6	269	12	5563	Yes
4023	16.9	415	13	5520	Yes
4024	19.3	290	16	5510	Yes
4025	11.9	449	15	5506	Yes
4026	19.6	337	13	5499	Yes
4027	12.7	273	12	5549	Yes
4028	11.7	425	13	5506	Yes
4029	14.9	374	15	5533	Yes
4030	14.5	421	16	5493	No

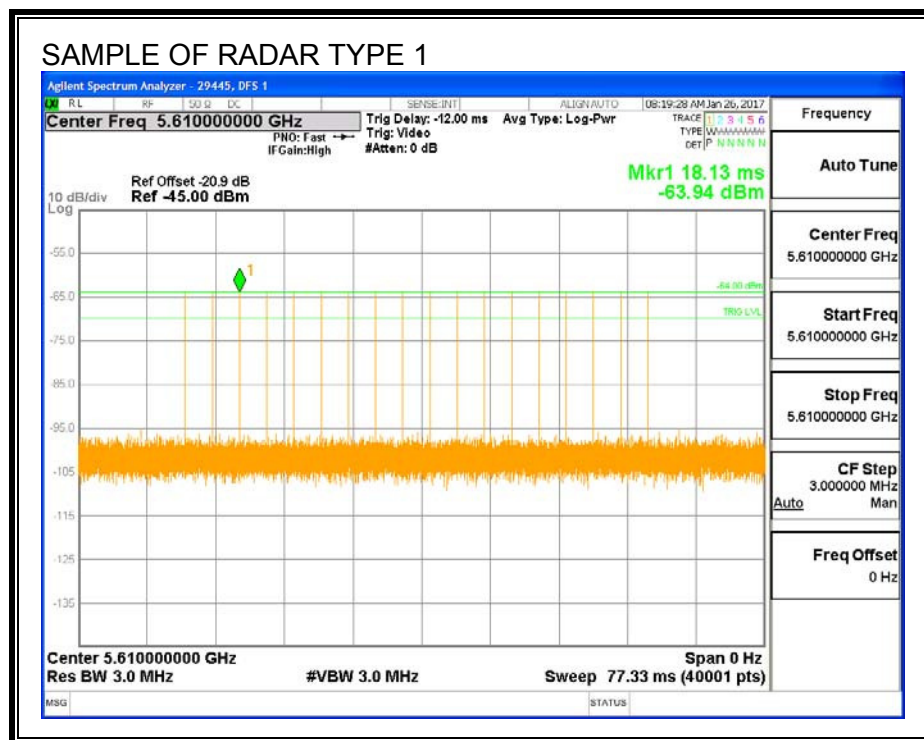
6.9. HIGH BAND RESULTS FOR 160 MHz BANDWIDTH (80 MHz HIGH COMPONENT)

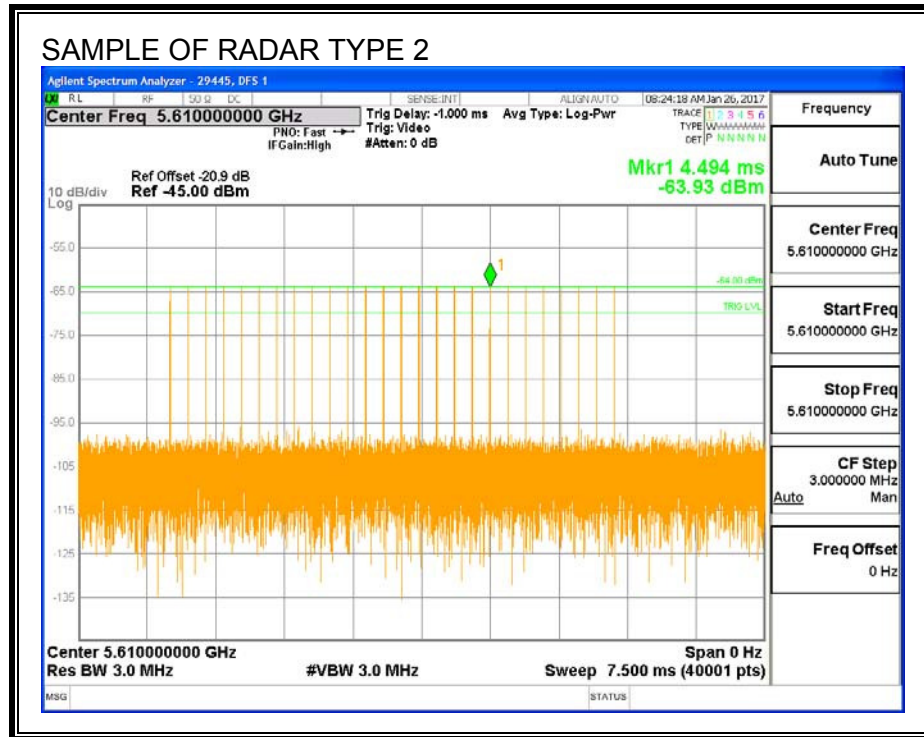
6.9.1. TEST CHANNEL

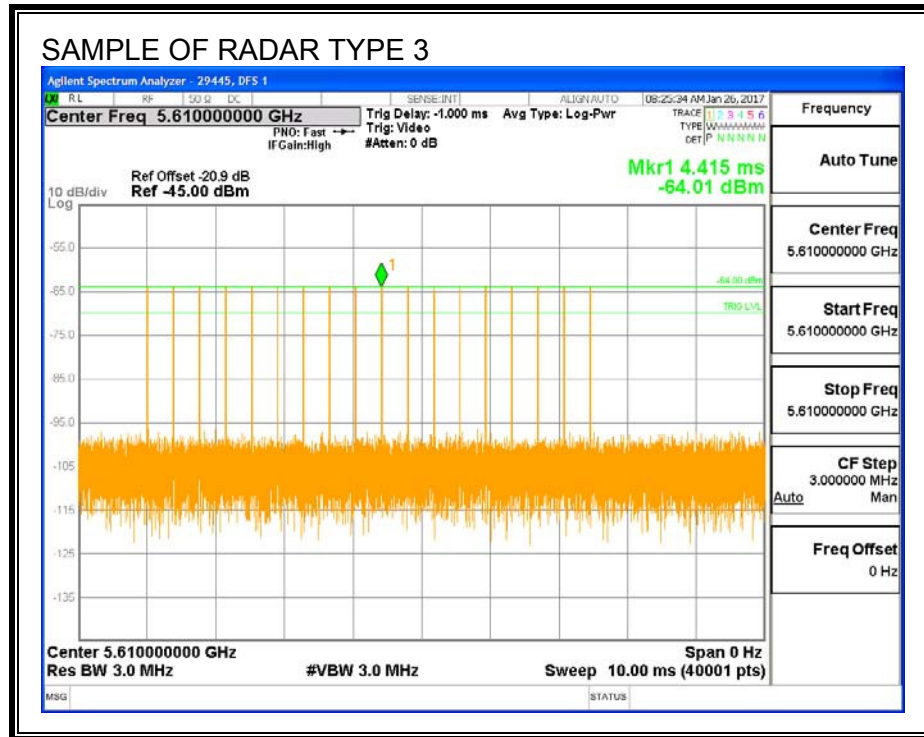
All tests were performed at a channel center frequency of 5610 MHz.

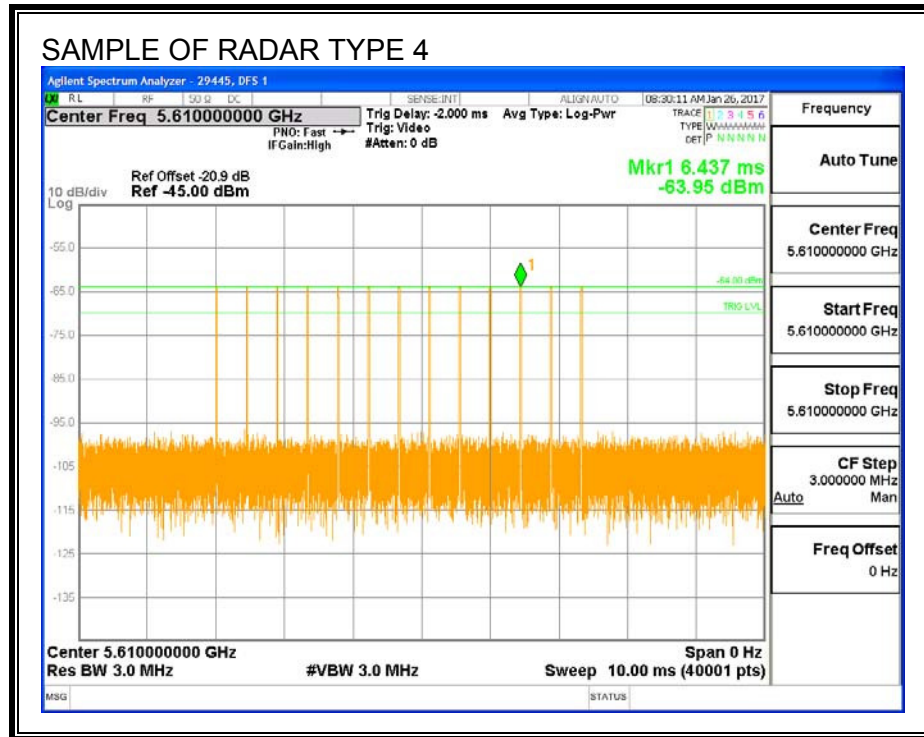
6.9.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

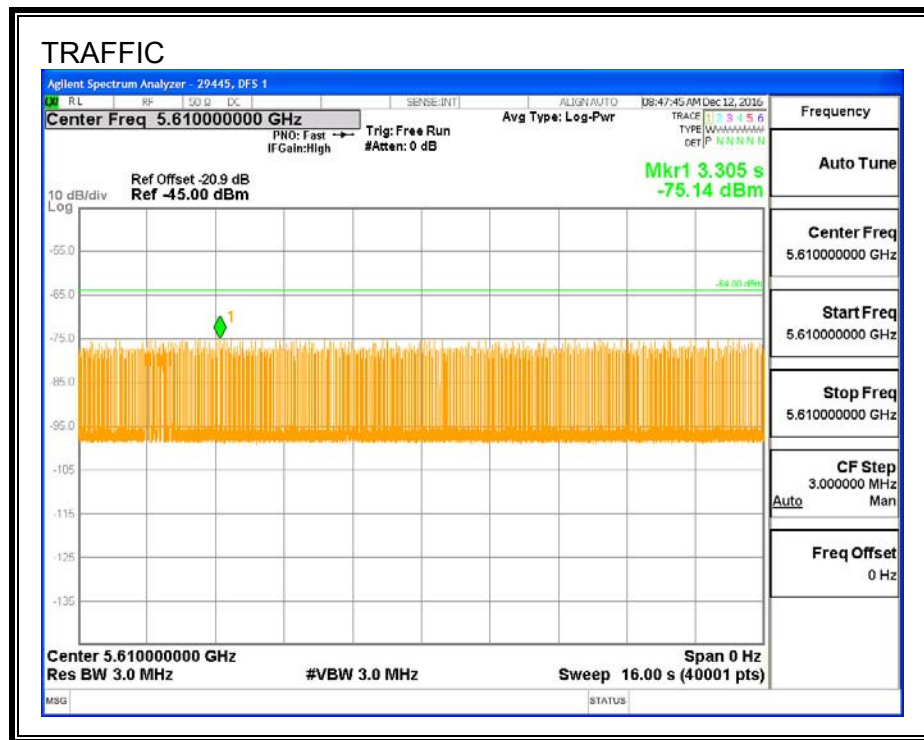




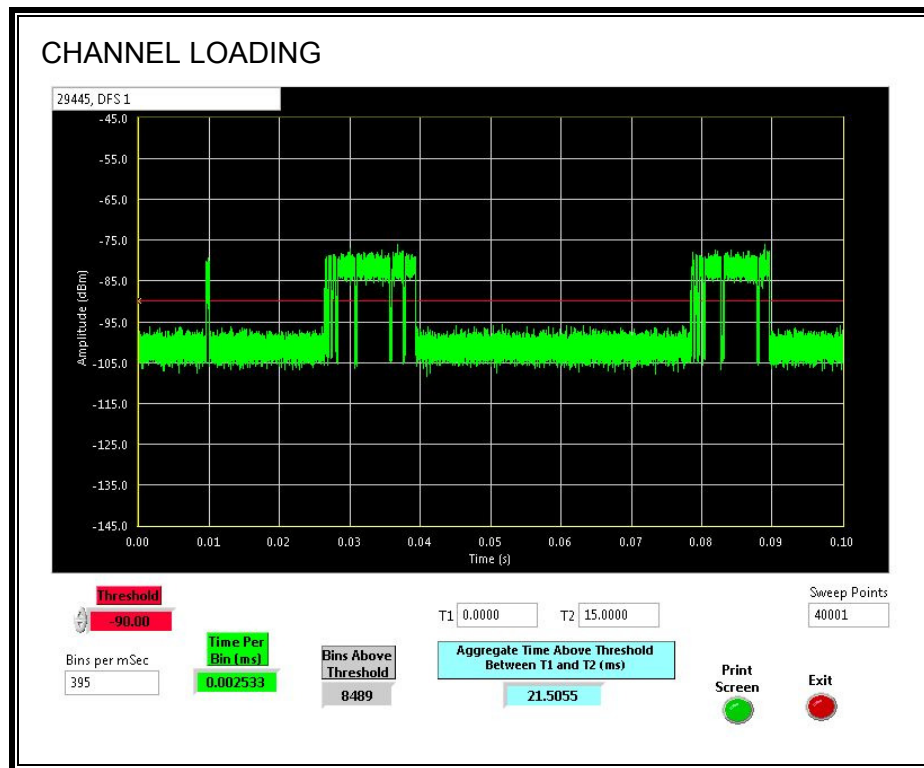




TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 21.5%

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	5649	76.14	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	76.67	60	Pass	5572	5649	76.14	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	70.00	60	Pass	5572	5649	76.14	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	76.67	60	Pass	5572	5649	76.14	DFS 1	29445	Version 3.0
Aggregate		80.83	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	5585	Yes
1002	1	578	92	A	5620	Yes
1003	1	598	89	A	5633	Yes
1004	1	718	74	A	5616	Yes
1005	1	678	78	A	5604	Yes
1006	1	818	65	A	5584	Yes
1007	1	778	68	A	5575	Yes
1008	1	838	63	A	5638	Yes
1009	1	698	76	A	5613	Yes
1010	1	518	102	A	5598	Yes
1011	1	658	81	A	5585	Yes
1012	1	798	67	A	5609	Yes
1013	1	898	59	A	5607	Yes
1014	1	618	86	A	5635	Yes
1015	1	738	72	A	5615	Yes
1016	1	1638	33	B	5596	Yes
1017	1	2465	22	B	5591	Yes
1018	1	1226	44	B	5584	Yes
1019	1	2182	25	B	5648	Yes
1020	1	1073	50	B	5582	Yes
1021	1	964	55	B	5635	Yes
1022	1	2532	21	B	5648	Yes
1023	1	2553	21	B	5590	Yes
1024	1	1703	31	B	5605	Yes
1025	1	1291	41	B	5642	Yes
1026	1	2924	19	B	5628	Yes
1027	1	1138	47	B	5634	Yes
1028	1	2900	19	B	5585	Yes
1029	1	2597	21	B	5590	Yes
1030	1	747	71	B	5573	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	3.8	194	26	5625	No
2002	2.8	188	26	5643	No
2003	1.1	154	24	5583	Yes
2004	2.2	195	24	5576	Yes
2005	3	208	23	5581	Yes
2006	2.4	172	27	5594	Yes
2007	3.3	189	26	5642	No
2008	2.9	157	27	5586	Yes
2009	2.2	222	27	5648	Yes
2010	4.2	156	28	5575	Yes
2011	3.6	182	25	5644	No
2012	3.6	163	26	5629	No
2013	1.4	155	27	5595	Yes
2014	3.8	178	29	5604	Yes
2015	1.7	217	23	5600	Yes
2016	4.3	206	29	5623	Yes
2017	4.7	168	24	5607	No
2018	1.5	162	23	5587	Yes
2019	3.9	209	29	5600	Yes
2020	3.1	169	29	5644	Yes
2021	1.7	182	28	5579	Yes
2022	1.1	227	24	5647	No
2023	2	164	28	5601	Yes
2024	3.8	213	25	5626	Yes
2025	5	196	28	5630	Yes
2026	2.9	211	26	5578	Yes
2027	2.3	199	23	5592	Yes
2028	4.5	218	24	5587	Yes
2029	4.2	210	25	5640	Yes
2030	2.5	195	27	5599	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	9.5	379	18	5593	Yes
3002	6.1	347	17	5639	No
3003	8.4	480	18	5635	Yes
3004	9.3	460	18	5630	No
3005	7.6	488	17	5584	Yes
3006	6.8	395	16	5613	No
3007	8.1	436	16	5573	Yes
3008	7.5	325	17	5622	Yes
3009	6.5	378	16	5635	No
3010	6.1	413	17	5573	Yes
3011	7.3	479	16	5637	No
3012	9.2	275	18	5601	No
3013	8.7	488	17	5584	No
3014	6.8	297	16	5599	Yes
3015	6.5	271	18	5645	Yes
3016	8.9	477	18	5631	Yes
3017	6.8	464	16	5635	Yes
3018	7.5	432	16	5630	Yes
3019	9.8	314	16	5642	Yes
3020	6.5	294	16	5587	Yes
3021	9	323	18	5617	Yes
3022	8.2	316	17	5605	Yes
3023	9	357	16	5632	Yes
3024	6.2	496	16	5645	Yes
3025	9.3	299	18	5621	Yes
3026	8.9	333	17	5634	No
3027	6	400	18	5582	Yes
3028	7.9	447	17	5572	No
3029	7.4	408	17	5589	Yes
3030	9.6	468	18	5580	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	18.3	443	13	5581	Yes
4002	14.5	398	12	5621	No
4003	19.1	385	16	5630	Yes
4004	11.5	352	15	5574	Yes
4005	16.6	485	16	5607	Yes
4006	18.5	348	13	5643	Yes
4007	14.9	494	15	5636	Yes
4008	13.1	370	12	5599	No
4009	14.8	277	16	5617	Yes
4010	13.4	417	14	5605	No
4011	15.5	470	14	5608	Yes
4012	14.6	254	12	5644	No
4013	13	320	14	5585	Yes
4014	12.5	368	15	5610	No
4015	11.3	329	13	5590	Yes
4016	16.2	389	14	5604	Yes
4017	15.5	363	12	5622	Yes
4018	16.5	318	16	5597	No
4019	16.2	305	14	5625	Yes
4020	17.7	273	13	5622	Yes
4021	13.7	406	12	5644	Yes
4022	15.6	269	12	5619	Yes
4023	16.9	415	13	5623	Yes
4024	19.3	290	16	5632	Yes
4025	11.9	449	15	5626	Yes
4026	19.6	337	13	5616	Yes
4027	12.7	273	12	5582	Yes
4028	11.7	425	13	5583	Yes
4029	14.9	374	15	5577	Yes
4030	14.5	421	16	5642	No

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	5299	5310	17.87	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	5304	No
1002	1	578	92	A	5304	Yes
1003	1	598	89	A	5304	Yes
1004	1	718	74	A	5308	Yes
1005	1	678	78	A	5309	Yes
1006	1	818	65	A	5305	Yes
1007	1	778	68	A	5303	Yes
1008	1	838	63	A	5300	Yes
1009	1	698	76	A	5310	No
1010	1	518	102	A	5308	Yes
1011	1	658	81	A	5305	Yes
1012	1	798	67	A	5304	Yes
1013	1	898	59	A	5305	Yes
1014	1	618	86	A	5302	Yes
1015	1	738	72	A	5307	Yes
1016	1	1638	33	B	5300	No
1017	1	2465	22	B	5308	Yes
1018	1	1226	44	B	5305	Yes
1019	1	2182	25	B	5303	No
1020	1	1073	50	B	5302	Yes
1021	1	964	55	B	5307	Yes
1022	1	2532	21	B	5309	Yes
1023	1	2553	21	B	5307	Yes
1024	1	1703	31	B	5306	Yes
1025	1	1291	41	B	5307	Yes
1026	1	2924	19	B	5309	Yes
1027	1	1138	47	B	5306	Yes
1028	1	2900	19	B	5306	Yes
1029	1	2597	21	B	5304	Yes
1030	1	747	71	B	5306	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	90.00	60	Pass	5290	5330	36.39	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	5329	Yes
1002	1	578	92	A	5299	Yes
1003	1	598	89	A	5294	Yes
1004	1	718	74	A	5298	Yes
1005	1	678	78	A	5326	Yes
1006	1	818	65	A	5307	Yes
1007	1	778	68	A	5320	Yes
1008	1	838	63	A	5325	Yes
1009	1	698	76	A	5317	Yes
1010	1	518	102	A	5290	No
1011	1	658	81	A	5293	Yes
1012	1	798	67	A	5300	Yes
1013	1	898	59	A	5305	Yes
1014	1	618	86	A	5312	Yes
1015	1	738	72	A	5328	Yes
1016	1	1638	33	B	5327	Yes
1017	1	2465	22	B	5302	Yes
1018	1	1226	44	B	5320	Yes
1019	1	2182	25	B	5299	Yes
1020	1	1073	50	B	5317	Yes
1021	1	964	55	B	5310	Yes
1022	1	2532	21	B	5316	Yes
1023	1	2553	21	B	5292	Yes
1024	1	1703	31	B	5297	Yes
1025	1	1291	41	B	5308	Yes
1026	1	2924	19	B	5325	No
1027	1	1138	47	B	5326	Yes
1028	1	2900	19	B	5316	Yes
1029	1	2597	21	B	5315	Yes
1030	1	747	71	B	5328	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	90.00	60	Pass	5251	5329	76.41	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	5275	No
1002	1	578	92	A	5282	Yes
1003	1	598	89	A	5310	Yes
1004	1	718	74	A	5284	Yes
1005	1	678	78	A	5279	Yes
1006	1	818	65	A	5300	Yes
1007	1	778	68	A	5283	Yes
1008	1	838	63	A	5271	Yes
1009	1	698	76	A	5287	Yes
1010	1	518	102	A	5297	Yes
1011	1	658	81	A	5301	Yes
1012	1	798	67	A	5291	No
1013	1	898	59	A	5254	Yes
1014	1	618	86	A	5293	Yes
1015	1	738	72	A	5303	Yes
1016	1	1638	33	B	5287	Yes
1017	1	2465	22	B	5263	Yes
1018	1	1226	44	B	5320	Yes
1019	1	2182	25	B	5296	Yes
1020	1	1073	50	B	5268	Yes
1021	1	964	55	B	5290	Yes
1022	1	2532	21	B	5255	Yes
1023	1	2553	21	B	5268	Yes
1024	1	1703	31	B	5301	Yes
1025	1	1291	41	B	5312	Yes
1026	1	2924	19	B	5319	Yes
1027	1	1138	47	B	5291	Yes
1028	1	2900	19	B	5305	No
1029	1	2597	21	B	5260	Yes
1030	1	747	71	B	5311	Yes

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	100.00	60	Pass	5251	5328	76.16	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	5285	Yes
1002	1	578	92	A	5314	Yes
1003	1	598	89	A	5277	Yes
1004	1	718	74	A	5254	Yes
1005	1	678	78	A	5287	Yes
1006	1	818	65	A	5271	Yes
1007	1	778	68	A	5283	Yes
1008	1	838	63	A	5292	Yes
1009	1	698	76	A	5294	Yes
1010	1	518	102	A	5260	Yes
1011	1	658	81	A	5265	Yes
1012	1	798	67	A	5263	Yes
1013	1	898	59	A	5311	Yes
1014	1	618	86	A	5269	Yes
1015	1	738	72	A	5271	Yes
1016	1	1638	33	B	5325	Yes
1017	1	2465	22	B	5328	Yes
1018	1	1226	44	B	5284	Yes
1019	1	2182	25	B	5259	Yes
1020	1	1073	50	B	5325	Yes
1021	1	964	55	B	5255	Yes
1022	1	2532	21	B	5313	Yes
1023	1	2553	21	B	5257	Yes
1024	1	1703	31	B	5289	Yes
1025	1	1291	41	B	5284	Yes
1026	1	2924	19	B	5307	Yes
1027	1	1138	47	B	5324	Yes
1028	1	2900	19	B	5260	Yes
1029	1	2597	21	B	5309	Yes
1030	1	747	71	B	5263	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	83.33	60	Pass	5490	5509	17.94	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	5499	Yes
1002	1	578	92	A	5501	Yes
1003	1	598	89	A	5499	Yes
1004	1	718	74	A	5496	Yes
1005	1	678	78	A	5507	Yes
1006	1	818	65	A	5499	Yes
1007	1	778	68	A	5506	Yes
1008	1	838	63	A	5497	Yes
1009	1	698	76	A	5501	No
1010	1	518	102	A	5499	Yes
1011	1	658	81	A	5495	Yes
1012	1	798	67	A	5502	Yes
1013	1	898	59	A	5492	Yes
1014	1	618	86	A	5507	No
1015	1	738	72	A	5490	Yes
1016	1	1638	33	B	5505	Yes
1017	1	2465	22	B	5504	Yes
1018	1	1226	44	B	5494	Yes
1019	1	2182	25	B	5500	Yes
1020	1	1073	50	B	5503	Yes
1021	1	964	55	B	5503	No
1022	1	2532	21	B	5498	Yes
1023	1	2553	21	B	5507	No
1024	1	1703	31	B	5499	Yes
1025	1	1291	41	B	5491	Yes
1026	1	2924	19	B	5509	No
1027	1	1138	47	B	5506	Yes
1028	1	2900	19	B	5507	Yes
1029	1	2597	21	B	5508	Yes
1030	1	747	71	B	5499	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	100.00	60	Pass	5490	5529	36.41	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	5493	Yes
1002	1	578	92	A	5496	Yes
1003	1	598	89	A	5517	Yes
1004	1	718	74	A	5527	Yes
1005	1	678	78	A	5514	Yes
1006	1	818	65	A	5493	Yes
1007	1	778	68	A	5525	Yes
1008	1	838	63	A	5521	Yes
1009	1	698	76	A	5519	Yes
1010	1	518	102	A	5507	Yes
1011	1	658	81	A	5512	Yes
1012	1	798	67	A	5518	Yes
1013	1	898	59	A	5511	Yes
1014	1	618	86	A	5524	Yes
1015	1	738	72	A	5498	Yes
1016	1	1638	33	B	5517	Yes
1017	1	2465	22	B	5524	Yes
1018	1	1226	44	B	5526	Yes
1019	1	2182	25	B	5504	Yes
1020	1	1073	50	B	5494	Yes
1021	1	964	55	B	5515	Yes
1022	1	2532	21	B	5496	Yes
1023	1	2553	21	B	5514	Yes
1024	1	1703	31	B	5517	Yes
1025	1	1291	41	B	5526	Yes
1026	1	2924	19	B	5495	Yes
1027	1	1138	47	B	5499	Yes
1028	1	2900	19	B	5514	Yes
1029	1	2597	21	B	5501	Yes
1030	1	747	71	B	5504	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	76.58	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	5506	Yes
1002	1	578	92	A	5566	Yes
1003	1	598	89	A	5547	Yes
1004	1	718	74	A	5567	Yes
1005	1	678	78	A	5557	Yes
1006	1	818	65	A	5547	Yes
1007	1	778	68	A	5500	Yes
1008	1	838	63	A	5524	Yes
1009	1	698	76	A	5541	Yes
1010	1	518	102	A	5550	Yes
1011	1	658	81	A	5504	Yes
1012	1	798	67	A	5558	Yes
1013	1	898	59	A	5557	Yes
1014	1	618	86	A	5534	Yes
1015	1	738	72	A	5547	Yes
1016	1	1638	33	B	5503	Yes
1017	1	2465	22	B	5496	Yes
1018	1	1226	44	B	5512	Yes
1019	1	2182	25	B	5553	Yes
1020	1	1073	50	B	5561	Yes
1021	1	964	55	B	5562	Yes
1022	1	2532	21	B	5522	Yes
1023	1	2553	21	B	5561	Yes
1024	1	1703	31	B	5549	Yes
1025	1	1291	41	B	5504	Yes
1026	1	2924	19	B	5546	Yes
1027	1	1138	47	B	5499	Yes
1028	1	2900	19	B	5548	Yes
1029	1	2597	21	B	5563	Yes
1030	1	747	71	B	5539	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	100.00	60	Pass	5572	5649	76.14	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	5587	Yes
1002	1	578	92	A	5621	Yes
1003	1	598	89	A	5595	Yes
1004	1	718	74	A	5574	Yes
1005	1	678	78	A	5605	Yes
1006	1	818	65	A	5648	Yes
1007	1	778	68	A	5604	Yes
1008	1	838	63	A	5629	Yes
1009	1	698	76	A	5578	Yes
1010	1	518	102	A	5590	Yes
1011	1	658	81	A	5630	Yes
1012	1	798	67	A	5621	Yes
1013	1	898	59	A	5639	Yes
1014	1	618	86	A	5600	Yes
1015	1	738	72	A	5601	Yes
1016	1	1638	33	B	5601	Yes
1017	1	2465	22	B	5611	Yes
1018	1	1226	44	B	5599	Yes
1019	1	2182	25	B	5648	Yes
1020	1	1073	50	B	5609	Yes
1021	1	964	55	B	5573	Yes
1022	1	2532	21	B	5629	Yes
1023	1	2553	21	B	5629	Yes
1024	1	1703	31	B	5612	Yes
1025	1	1291	41	B	5607	Yes
1026	1	2924	19	B	5641	Yes
1027	1	1138	47	B	5645	Yes
1028	1	2900	19	B	5630	Yes
1029	1	2597	21	B	5629	Yes
1030	1	747	71	B	5608	Yes