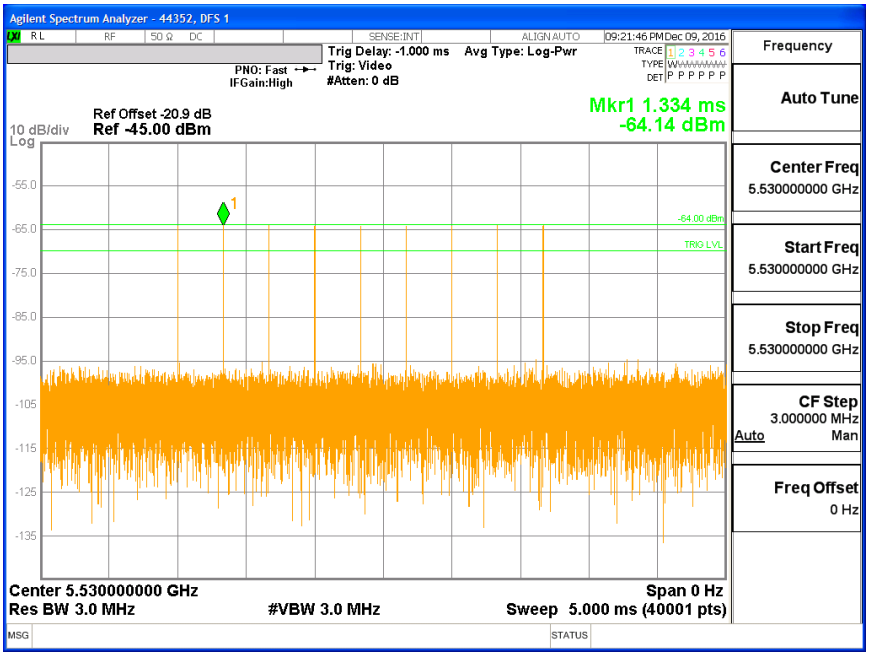
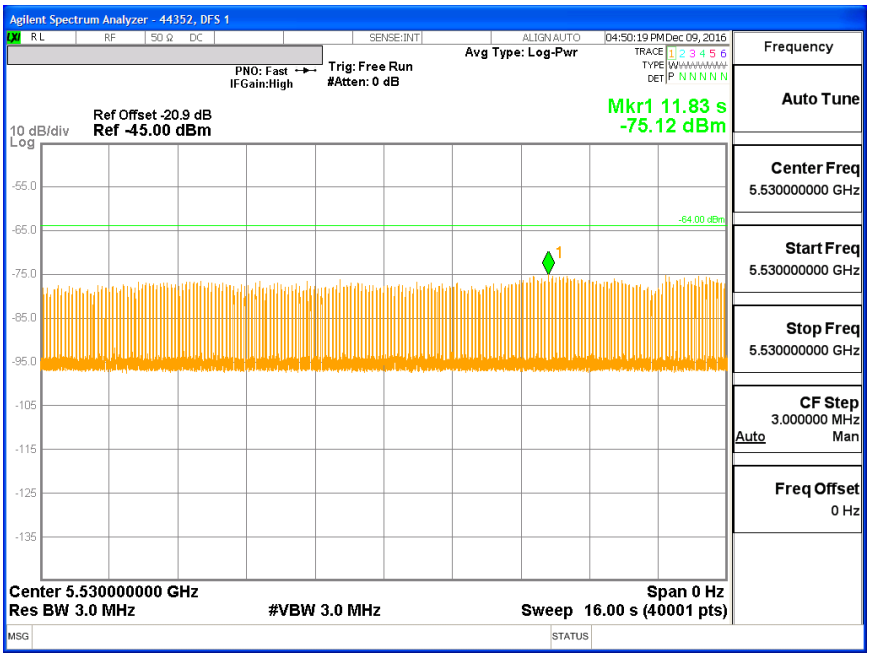
SINGLE BURST OF RADAR TYPE 6

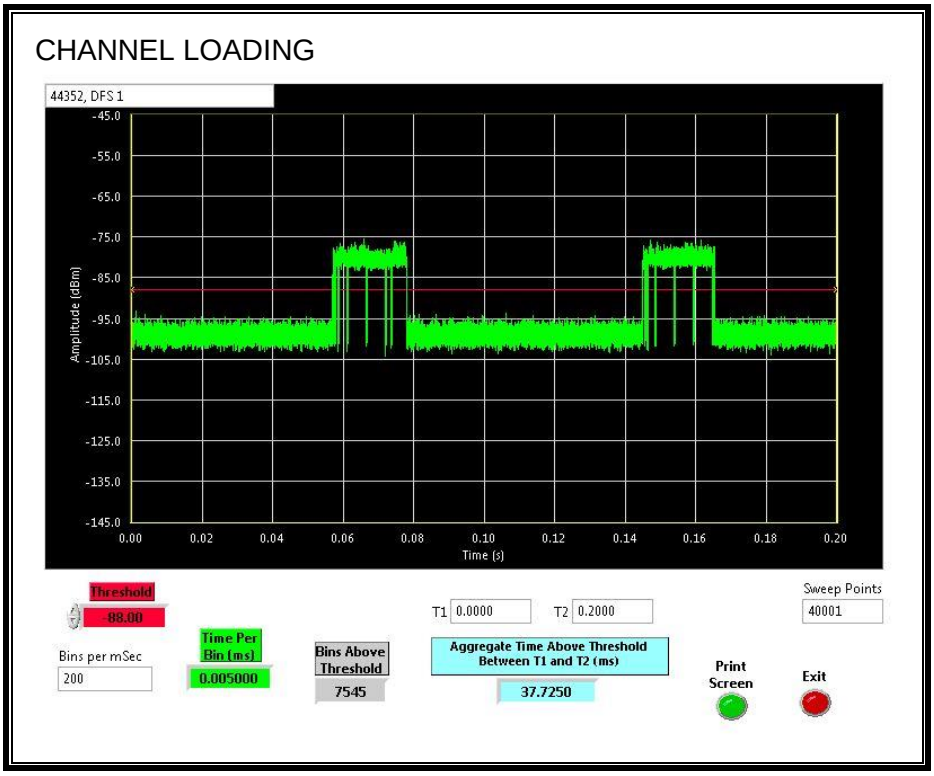


TRAFFIC

TRAFFIC



CHANNEL LOADING



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

5.8.3. OVERLAPPING CHANNEL TESTS

RESULTS

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

5.8.4. CHANNEL AVAILABILITY CHECK TIME

PROCEDURE TO DETERMINE CAC CYCLE TIME

A sweep was started on the spectrum analyzer set to the DFS test channel when a software command was issued by the operator to the EUT to change to the DFS test channel. After the command to change channels was issued a CAC period commenced on the DFS test channel for at least 60 seconds. The time from the beginning of the sweep to the re-initialization of traffic was measured as the time required for the EUT to complete the CAC period.

PROCEDURE FOR TIMING OF RADAR BURST

A sweep was started on the spectrum analyzer when a software command was issued by the operator to the EUT to change to the DFS test channel. A radar signal was triggered on the DFS test channel within 0 to 6 seconds after the beginning of the CAC period and transmissions on the DFS test channel were monitored on the spectrum analyzer.

A sweep was started on the spectrum analyzer when a software command was issued by the operator to the EUT to change to the DFS test channel. A radar signal was triggered on the DFS test channel within 54 to 60 seconds after the beginning of the CAC period and transmissions on the DFS test channel were monitored on the spectrum analyzer.

QUANTITATIVE RESULTS

No Radar Triggered

Beginning of CAC (sec)	Timing of Start of Traffic (sec)	CAC Period Time (sec)
0	60.8	60.77

Radar Near Beginning of CAC

Beginning of CAC (sec)	Timing of Radar Burst (sec)	Radar Relative to Start of CAC (sec)
0	2.880	2.88

Radar Near End of CAC

Beginning of CAC (sec)	Timing of Radar Burst (sec)	Radar Relative to Start of CAC (sec)
0	56.86	56.86

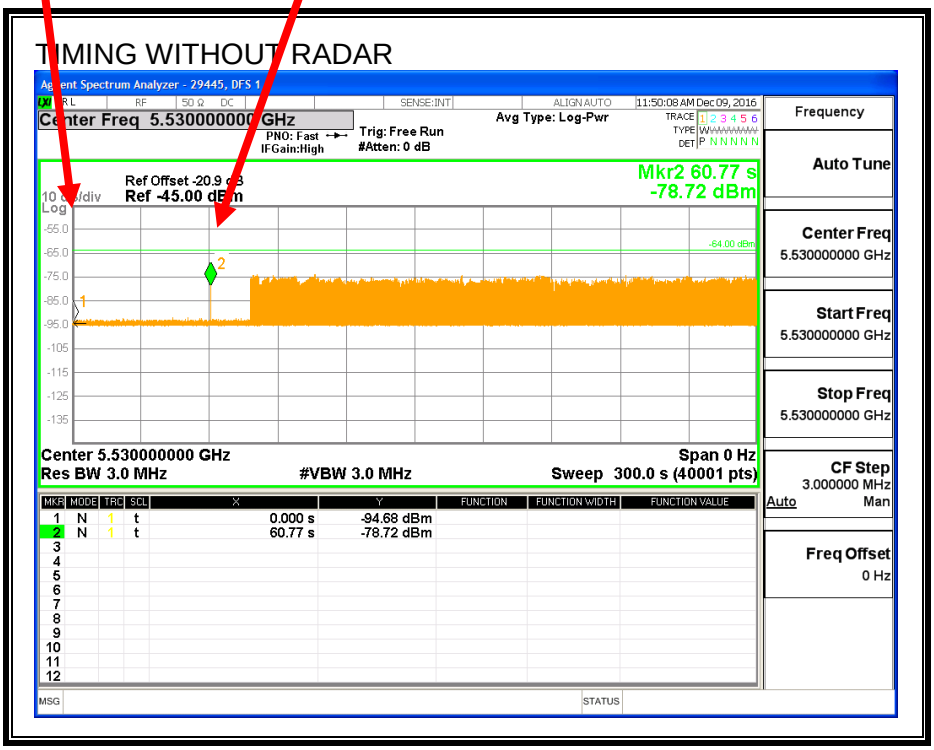
QUALITATIVE RESULTS

Timing of Radar Burst	Display on Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT marks Channel as active	Transmissions begin on channel after completion of the CAC
Within 0 to 6 second window	EUT indicates radar detected	No transmissions on channel
Within 54 to 60 second window	EUT indicates radar detected	No transmissions on channel

TIMING WITHOUT RADAR DURING CAC

Command to
Switch Channels
Start of CAC

End of CAC
Begin Transmissions

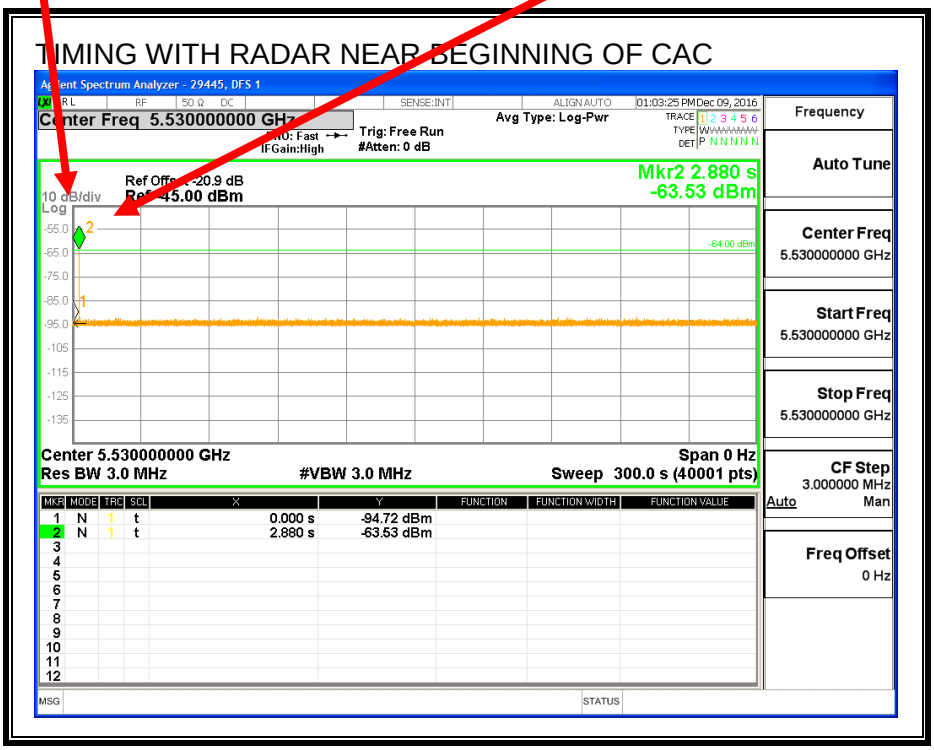


Transmissions begin on channel after completion of the CAC period.

TIMING WITH RADAR NEAR BEGINNING OF CAC

Command to
Switch Channels
Start of CAC

Radar Signal Applied

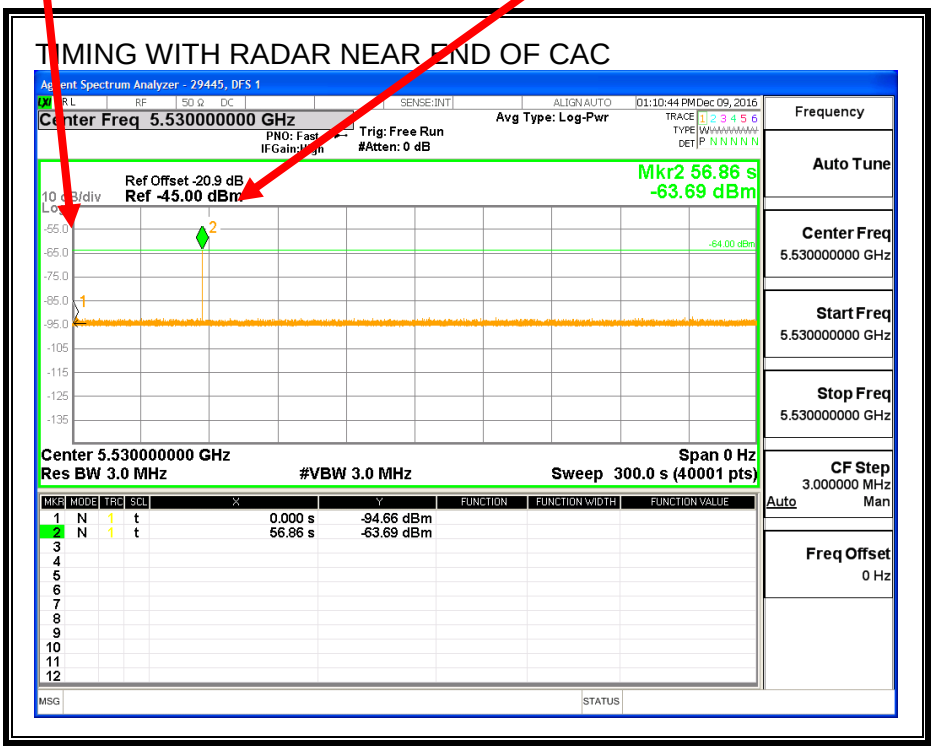


No EUT transmissions were observed after the radar signal.

TIMING WITH RADAR NEAR END OF CAC

Command to
Switch Channels
Start of CAC

Radar Signal Applied



No EUT transmissions were observed after the radar signal.

5.8.5. ZERO WAIT CHANNEL AVAILABILITY CHECK TIME (NON-DFS CHANNEL TO DFS CHANNEL)

PROCEDURE TO DETERMINE CAC CYCLE TIME

A link was established and traffic with a channel loading of less than 16% was started on a Non-DFS channel. When the traffic loading is greater than 16% the Zero-Wait CAC function will be abandoned per manufacturer design and declaration.

A sweep was started on the spectrum analyzer set to the DFS test channel when a software command was issued by the operator to the EUT to change from the Non-DFS channel to the DFS test channel. After the command to change channels was issued a CAC period commenced on the test channel for at least 60 seconds. The time from the beginning of the sweep to the re-initialization of traffic was measured as the time required for the EUT to complete the CAC period.

PROCEDURE FOR TIMING OF RADAR BURST

A sweep was started on the spectrum analyzer when a software command was issued by the operator to the EUT to change to the DFS test channel and commence a CAC period. A radar signal was triggered on the DFS test channel within 0 to 6 seconds after the beginning of the CAC period and transmissions on the DFS test channel were monitored on the spectrum analyzer. A log file indicating that the radar was detected on the DFS test channel and that the DFS test channel was temporarily removed from service for a period of 31-minutes.

After the EUT was reset a sweep was started on the spectrum analyzer when a software command was issued by the operator to the EUT to change to the DFS test channel and commence a CAC period. A radar signal was triggered on the DFS test channel within 54 to 60 seconds after the beginning of the CAC period and transmissions on the DFS test channel were monitored on the spectrum analyzer. A log file was created indicating that the radar was detected on the DFS test channel and that the DFS test channel was temporarily removed from service for a period of 31-minutes.

QUANTITATIVE RESULTS BASED UPON SPECTRUM ANALYZER PLOTS

No Radar Triggered

Beginning of CAC (sec)	Timing of Start of Traffic (sec)	CAC Period Time (sec)
0	61.3	61.3

Radar Near Beginning of CAC

Beginning of CAC (sec)	Timing of Radar Burst (sec)	Radar Relative to Start of CAC (sec)
0	4.118	4.118

Radar Near End of CAC

Beginning of CAC (sec)	Timing of Radar Burst (sec)	Radar Relative to Start of CAC (sec)
0	57.88	57.88

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

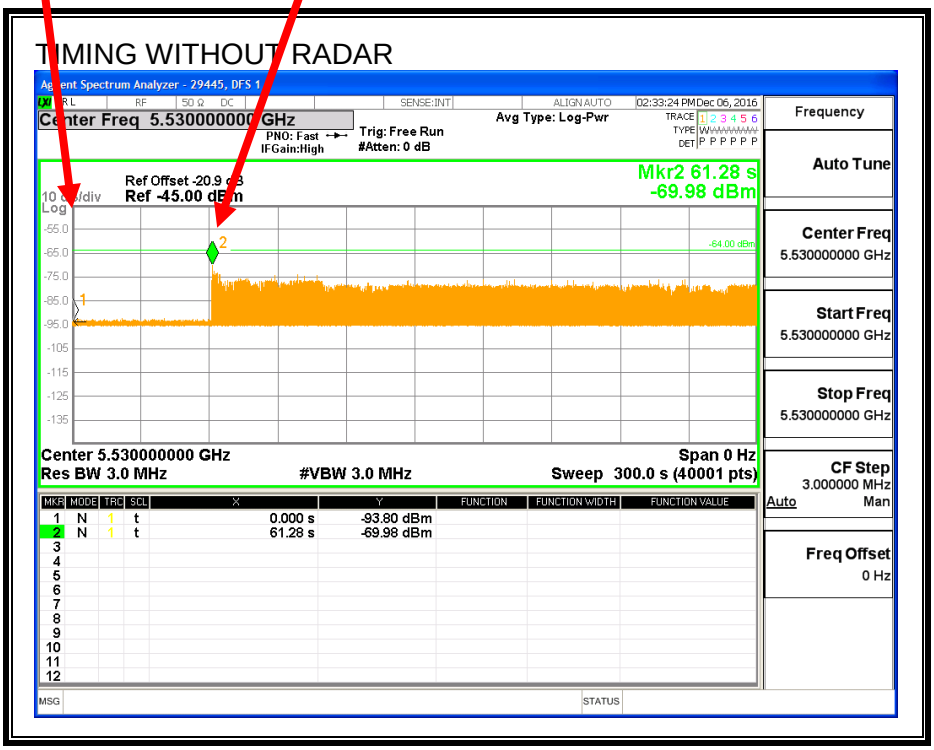
QUALITATIVE RESULTS

Timing of Radar Burst	Display on Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT marks Channel as active	Transmissions begin on channel after completion of the initial power-up cycle and the CAC
Within 0 to 6 second window	EUT indicates radar detected	No transmissions on channel
Within 54 to 60 second window	EUT indicates radar detected	No transmissions on channel

TIMING WITHOUT RADAR DURING CAC

Command to
Switch Channels
Start of CAC

End of CAC
Begin Transmissions



Transmissions begin on channel after completion of the CAC period.

Log File of CAC Timing Without Radar

wl chanspec
36/80 (0xe02a)

wl dfs_ap_move 100/80

CONSOLE: 028688.579 wlc_dfs_doiovar scan channel: e06a, current channel e02a

CONSOLE: 028688.723 wl0: downgraded phy to 3+1

CONSOLE: 028688.723 wl0 wlc_dfs_handle_modeswitch: downgrade completed 1390

CONSOLE: 028688.723 wl0: since phymode is 3x1 using scan core with chanspec e06a

CONSOLE: 028688.724 wl0: chanspec e06a, 60 second CAC time
CONSOLE: 028688.724 DFS State IDLE -> PRE-ISM Channel Availability Check

CONSOLE: 028688.724 wl0.. wlc_dfs_scan_start txdur_start 6069608us

CONSOLE: 028749.171 wl0: wlc_dfs_get_radar DFS radar=1

CONSOLE: 028749.171 wl0: chanspec e06a, 60 second CAC time
CONSOLE: 028749.171 DFS State PRE-ISM Channel Availability Check -> In-Service Monitoring(ISM)

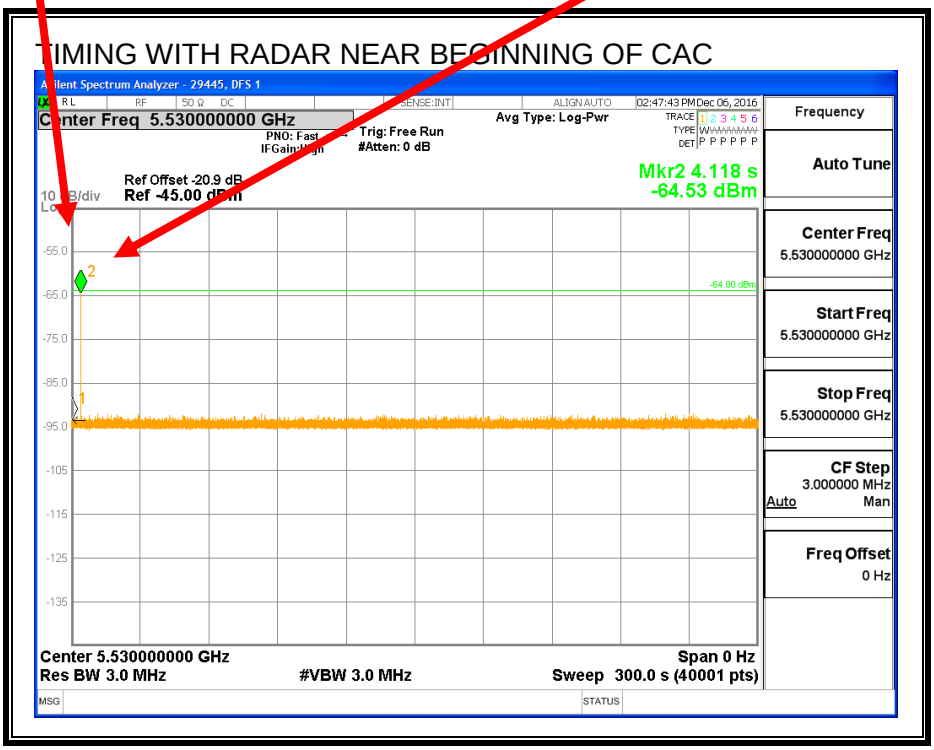
CONSOLE: 028749.547 wl0: dfs : state to In-Service Monitoring(ISM) chanspec 100/80 at 60300ms

CONSOLE: 028749.700 wl0: upgraded phy to 4x4

TIMING WITH RADAR NEAR BEGINNING OF CAC

Command to
Switch Channels
Start of CAC

Radar Signal Applied



No EUT transmissions were observed after the radar signal.

Log File of Radar at the Beginning of CAC

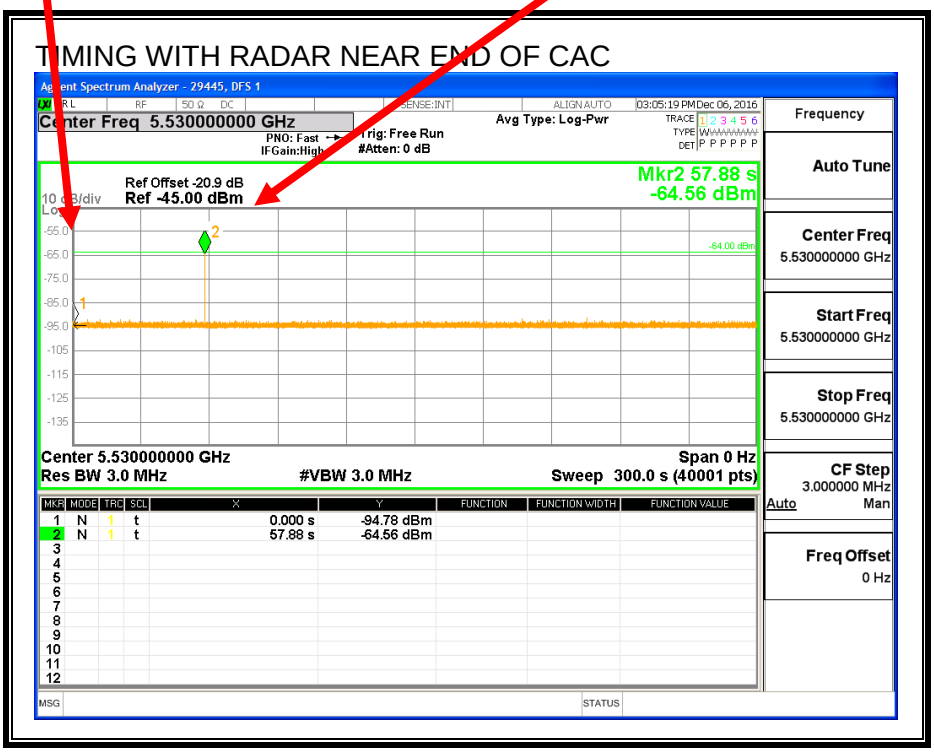
```
# wl chanspec
36/80 (0xe02a)
#
# wl dfs_ap_move 100/80

# CONSOLE: 026805.892 wlc_dfs_doiovar scan channel: e06a, current
channel e02a
CONSOLE: 026805.893 wl0 wlc_dfs_scan 1355 chspec=e06a

CONSOLE: 026806.156 wl0: downgraded phy to 3+1

CONSOLE: 026806.156 wl0 wlc_dfs_handle_modeswitch: downgrade completed
1390

CONSOLE: 026806.157 wl0: chanspec e06a, 60 second CAC time
CONSOLE: 026806.157 DFS State IDLE -> PRE-ISM Channel Availability
Check

CONSOLE: 026809.006 WL0: DFS: UNCLASSIFIED ########## RADAR_SC
DETECTED ON CHANNEL 100/80 ########## min_pw=23, subband_result=6, AT
2700MS

CONSOLE: 026809.006 wl0: dfs : state to IDLE chanspec 36/80 at 2700ms

CONSOLE: 026809.007 wl0: upgraded phy to 4x4

CONSOLE: 026809.007 wl0 wlc_dfs_handle_modeswitch: upgrade completed
1402

CONSOLE: 026809.007 wl0: channel 104 put out of service chspecd068

CONSOLE: 026809.007 wl0: channel 108 put out of service chspecd06c
```

```
AP Target Chanspec 100/80 (0xe06a)
Radar Found On Channel

# wl chan_info
Channel 36      A Band, Passive
Channel 40      A Band, Passive
Channel 44      A Band, Passive
Channel 48      A Band, Passive
Channel 52      A Band, RADAR Sensitive, Passive
Channel 56      A Band, RADAR Sensitive, Passive
Channel 60      A Band, RADAR Sensitive, Passive
Channel 64      A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 108     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

TIMING WITH RADAR NEAR END OF CAC

Command to
Switch Channels
Start of CAC

Radar Signal Applied



No EUT transmissions were observed after the radar signal.

Log File of Radar at the End of CAC

```
# wl chanspec
36/80 (0xe02a)

# wl dfs_ap_move 100/80
# CONSOLE: 027673.777 wlc_dfs_doiovar scan channel: e06a, current
channel e02a

CONSOLE: 027673.845 wl0: downgraded phy to 3+1

CONSOLE: 027673.845 wl0 wlc_dfs_handle_modeswitch: downgrade completed
1390

CONSOLE: 027673.845 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 027673.846 wl0: chanspec e06a, 60 second CAC time
CONSOLE: 027673.846 DFS State IDLE -> PRE-ISM Channel Availability
Check

CONSOLE: 027673.846 wl0.. wlc_dfs_scan_start txdur_start 9641283us

CONSOLE: 027730.845 WL0: DFS: UNCLASSIFIED ########## RADAR_SC
DETECTED ON CHANNEL 100/80 ########## min_pw=23, subband_result=6, AT
56850MS

CONSOLE: 027730.845 wl0: dfs : state to IDLE chanspec 36/80 at 56850ms

CONSOLE: 027730.845 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 027730.846 wl0: upgraded phy to 4x4

CONSOLE: 027730.846 wl0 wlc_dfs_handle_modeswitch: upgrade completed
1402

CONSOLE: 027730.846 wl0: channel 104 put out of service chspecd068

CONSOLE: 027730.846 wl0: channel 108 put out of service chspecd06c

# wl chanspec
36/80 (0xe02a)
```

```
# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 108     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

5.8.6. ZERO WAIT CHANNEL AVAILABILITY CHECK TIME (DFS CHANNEL TO DFS CHANNEL / RADAR APPLIED TO THE CHANNEL PERFORMING CAC)

PROCEDURE TO DETERMINE CAC CYCLE TIME

A link was established and traffic with a channel loading of less than 16% was started on an operating DFS channel. When the traffic loading is greater than 16% the Zero-Wait CAC function will be abandoned per manufacturer design and declaration.

A sweep was started on the spectrum analyzer set to the DFS test channel when a software command was issued by the operator to the EUT to change from the operating DFS channel to the DFS test channel. After the command to change channels was issued a CAC period commenced on the DFS test channel for at least 60 seconds. The time from the beginning of the sweep to the re-initialization of traffic was measured as the time required for the EUT to complete the CAC period.

PROCEDURE FOR TIMING OF RADAR BURST

A sweep was started on the spectrum analyzer set to the DFS test channel and a CAC period was commenced when a software command was issued by the operator to the EUT to change from the operating DFS channel to the DFS test channel. A radar signal was triggered on the DFS test channel within 0 to 6 seconds after the beginning of the CAC period and transmissions on the DFS test channel were monitored on the spectrum analyzer. A log file was generated indicating that the radar was detected on the DFS test channel and that the DFS test channel was temporarily removed from service for a period of 31-minutes.

After the EUT was reset a sweep was started on the spectrum analyzer set to the DFS test channel and a CAC period was commenced when a software command was issued by the operator to the EUT to change from the operating DFS channel to the DFS test channel. A radar signal was triggered on the DFS test channel within 54 to 60 seconds after the beginning of the CAC period and transmissions on the DFS test channel were monitored on the spectrum analyzer. A log file was generated indicating that the radar was detected on the DFS test channel and that the DFS test channel was temporarily removed from service for a period of 31-minutes.

QUANTITATIVE RESULTS BASED UPON SPECTRUM ANALYZER PLOTS

No Radar Triggered

Beginning of CAC (sec)	Timing of Start of Traffic (sec)	CAC Period Time (sec)
0	61.41	61.4

Radar Near Beginning of CAC

Beginning of CAC (sec)	Timing of Radar Burst (sec)	Radar Relative to Start of CAC (sec)
0	4.418	4.418

Radar Near End of CAC

Beginning of CAC (sec)	Timing of Radar Burst (sec)	Radar Relative to Start of CAC (sec)
0	57.81	57.81

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

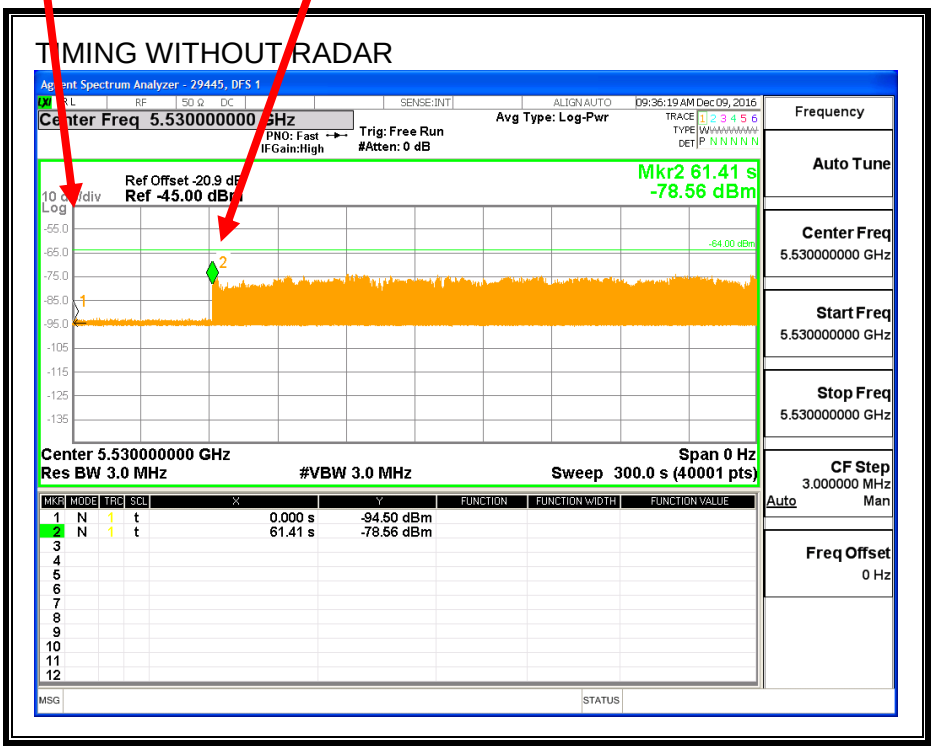
QUALITATIVE RESULTS

Timing of Radar Burst	Display on Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT marks Channel as active	Transmissions begin on channel after completion of the CAC
Within 0 to 6 second window	EUT indicates radar detected	No transmissions on channel
Within 54 to 60 second window	EUT indicates radar detected	No transmissions on channel

TIMING WITHOUT RADAR DURING CAC

Command to
Switch Channels
Start of CAC

End of CAC
Begin Transmissions



Transmissions begin on channel after completion of the CAC period.

Log File of CAC Timing Without Radar

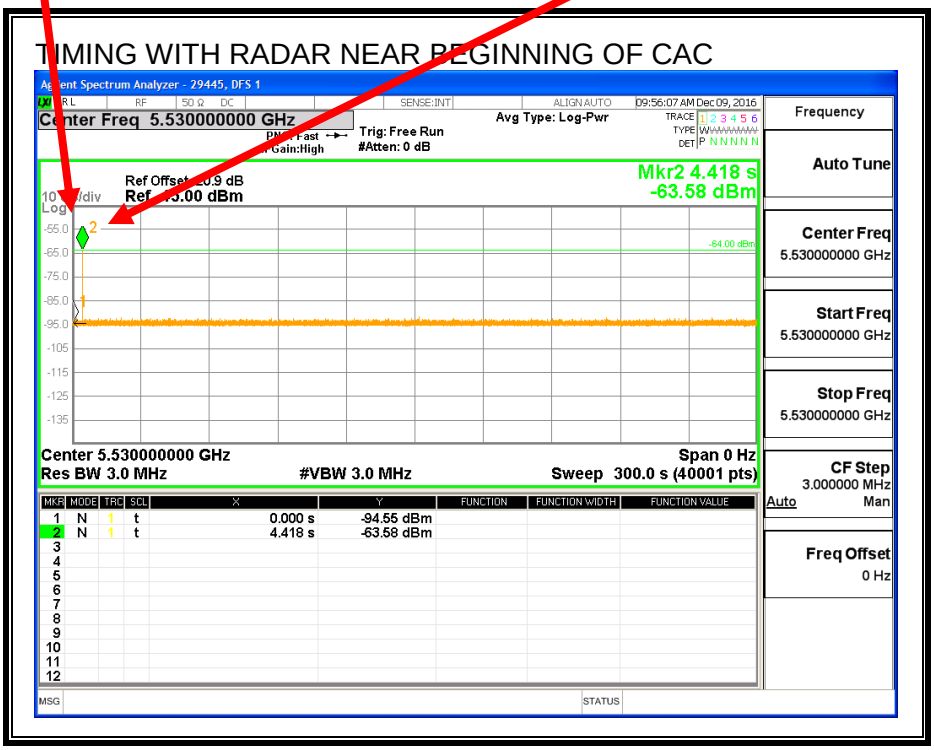
```
wl chanspec
52/80 (0xe03a)

# CONSOLE: 030403.354 wlc_dfs_doiovar scan channel: e06a, current
channel e03a

CONSOLE: 030403.355 wl0 wlc_dfs_scan 1355 chspec=e06a

CONSOLE: 030403.705 wl0: downgraded phy to 3+1

CONSOLE: 030403.705 wl0 wlc_dfs_handle_modeswitch: downgrade completed
1390

CONSOLE: 030403.706 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 030403.706 wl0: chanspec e06a, 60 second CAC time

CONSOLE: 030403.706 DFS State In-Service Monitoring(ISM) -> PRE-ISM
Channel Availability Check

CONSOLE: 030463.749 wl0.. wlc_dfs_scan_complete_sc chan=e06a (106)
reason 0

CONSOLE: 030463.749 DFS State PRE-ISM Channel Availability Check ->
In-Service Monitoring(ISM)

CONSOLE: 030463.750 wl0: dfs : state to In-Service Monitoring(ISM)
chanspec 52/80 at 60000ms

CONSOLE: 030463.750 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 030463.899 wl0: upgraded phy to 4x4

CONSOLE: 030463.899 wl0 wlc_dfs_handle_modeswitch: upgrade completed
1402

CONSOLE: 030463.899 wl0 wlc_dfs_handle_modeswitch: new state 4 in idle
state

CONSOLE: 030464.002 DFS State In-Service Monitoring(ISM) -> In-Service
Monitoring(ISM)

# wl chanspec
100/80 (0xe06a)
```

```
# wl chan_info
Channel 36 A Band, Passive
Channel 40 A Band, Passive
Channel 44 A Band, Passive
Channel 48 A Band, Passive
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive
Channel 104     A Band, RADAR Sensitive
Channel 108     A Band, RADAR Sensitive
Channel 112     A Band, RADAR Sensitive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

TIMING WITH RADAR NEAR BEGINNING OF CAC

Command to
Switch Channels
Start of CAC

Radar Signal Applied



No EUT transmissions were observed after the radar signal.

Log File of Radar at the Beginning of CAC

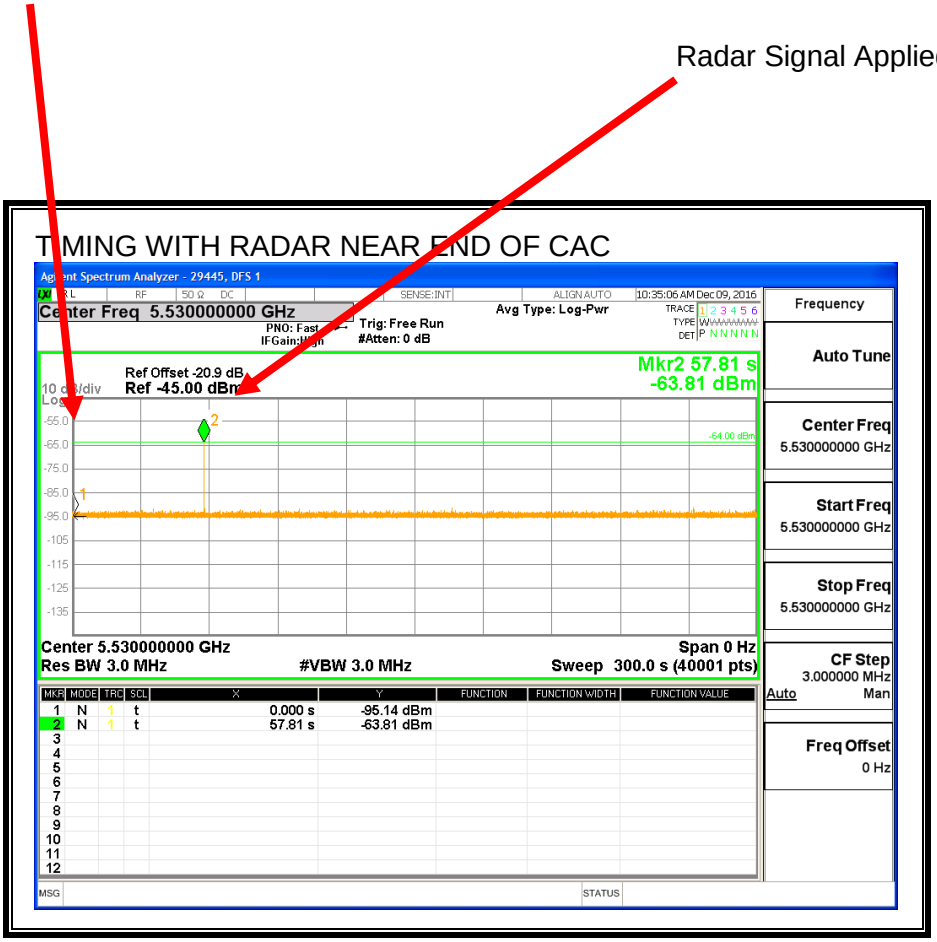
```
# wl chanspec
60/80 (0xe23a)

# wl dfs_ap_move 100/80

# CONSOLE: 031748.826 wlc_dfs_doiovar scan channel: e06a, current
channel e23a

CONSOLE: 031748.827 wl0 wlc_dfs_scan 1355 chspec=e06a

CONSOLE: 031748.827 wl0: mode switch down scheduled = 1 opmode: 0x22,
bw: 0x02

CONSOLE: 031749.478 wl0: downgraded phy to 3+1

CONSOLE: 031749.478 wl0 wlc_dfs_handle_modeswitch: downgrade completed
1390

CONSOLE: 031749.479 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 031749.479 wl0: chanspec e06a, 60 second CAC time

CONSOLE: 031749.479 DFS State In-Service Monitoring(ISM) -> PRE-ISM
Channel Availability Check

CONSOLE: 031752.727 wl0: DFS: radar_info=0x18167, radar_info_2=0x00000

CONSOLE: 031752.727 WL0: DFS: UNCLASSIFIED ########## RADAR_SC
DETECTED ON CHANNEL 100/80 ########## min_pw=22, subband_result=6, AT
3150MS

CONSOLE: 031752.727 wl0.. wlc_dfs_scan_complete_sc chan=e06a (106)
reason 1
CONSOLE: 031752.727 DFS State PRE-ISM Channel Availability Check ->
In-Service Monitoring(ISM)

CONSOLE: 031752.728 wl0: dfs : state to In-Service Monitoring(ISM)
chanspec 60/80 at 3150ms

CONSOLE: 031752.728 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 031752.728 wl0: channel 104 put out of service chspecd068

CONSOLE: 031752.728 wl0: channel 108 put out of service chspecd06c
CONSOLE: 031752.877 wl0: upgraded phy to 4x4

CONSOLE: 031752.877 wl0 wlc_dfs_handle_modeswitch: upgrade completed
1402
```

```
CONSOLE: 031752.877 wl0 wlc_dfs_handle_modeswitch: new state 4 in idle
state

wl chanspec

60/80 (0xe23a)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive
Channel 56 A Band, RADAR Sensitive
Channel 60 A Band, RADAR Sensitive
Channel 64 A Band, RADAR Sensitive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 30 minutes
Channel 108     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 30 minutes
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

TIMING WITH RADAR NEAR END OF CAC

Command to
Switch Channels
Start of CAC

Radar Signal Applied



No EUT transmissions were observed after the radar signal.

Log File of Radar at the End of CAC

```
# wl chanspec
60/80 (0xe23a)

# wl dfs_ap_move 100/80

# CONSOLE: 033991.207 wlc_dfs_doiovar scan channel: e06a, current
channel e23a

CONSOLE: 033991.207 wl0 wlc_dfs_scan 1355 chspec=e06a

CONSOLE: 033991.207 wl0: mode switch down scheduled = 1 opmode: 0x22,
bw: 0x0
2
CONSOLE: 033991.294 wl0: downgraded phy to 3+1

CONSOLE: 033991.294 wl0 wlc_dfs_handle_modeswitch: downgrade completed
1390

CONSOLE: 033991.295 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 033991.295 wl0: chanspec e06a, 60 second CAC time

CONSOLE: 033991.295 DFS State In-Service Monitoring(ISM) -> PRE-ISM
Channel Availability Check

CONSOLE: 033991.295 wl0.. wlc_dfs_scan_start txdur_start 5582902us

ÔÊjõ1_é 034048.318 wl0: DFS: radar_info=0x18187, radar_info_2=0x00000

CONSOLE: 034048.318 WL0: DFS: UNCLASSIFIED ########## RADAR_SC
DETECTED ON CHANNEL 100/80 ########## min_pw=24, subband_result=6, AT
57000MS

CONSOLE: 034048.318 wl0.. wlc_dfs_scan_complete_sc chan=e06a (106)
reason 1

CONSOLE: 034048.318 DFS State PRE-ISM Channel Availability Check ->
In-Service Monitoring(ISM)

CONSOLE: 034048.318 wl0: dfs : state to In-Service Monitoring(ISM)
chanspec 60/80 at 57000ms

CONSOLE: 034048.319 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 034048.319 wl0: channel 104 put out of service chspecd068

CONSOLE: 034048.319 wl0: channel 108 put out of service chspecd06c
```

```
CONSOLE: 034048.468 wl0: upgraded phy to 4x4

CONSOLE: 034048.468 wl0 wlc_dfs_handle_modeswitch: upgrade completed
1402

CONSOLE: 034048.468 wl0 wlc_dfs_handle_modeswitch: new state 4 in idle
state


# wl chanspec
60/80 (0xe23a)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive
Channel 56 A Band, RADAR Sensitive
Channel 60 A Band, RADAR Sensitive
Channel 64 A Band, RADAR Sensitive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 30 minutes
Channel 108     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 30 minutes
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

5.8.7. ZERO WAIT CHANNEL AVAILABILITY CHECK TIME (DFS CHANNEL TO DFS CHANNEL / RADAR APPLIED TO THE OPERATING DFS CHANNEL)

PROCEDURE TO DETERMINE CAC CYCLE TIME

A link was established and traffic with a channel loading of less than 16% was started on an operating DFS channel. When the traffic loading is greater than 16% the Zero-Wait CAC function will be abandoned per manufacturer design and declaration.

A sweep was started on the spectrum analyzer set to the DFS test channel when a software command was issued by the operator to the EUT to change from the operating DFS channel to the DFS test channel. After the command to change channels was issued a CAC period commenced on the DFS test channel for at least 60 seconds. The time from the beginning of the sweep to the re-initialization of traffic was measured as the time required for the EUT to complete the CAC period.

PROCEDURE FOR TIMING OF RADAR BURST

A sweep was started on the spectrum analyzer set to the DFS test channel and a CAC period was commenced when a software command was issued by the operator to the EUT to change from the operating DFS channel to the DFS test channel. A radar signal was triggered on the operating DFS channel within 0 to 6 seconds after the beginning of the CAC period and transmissions on the DFS test channel were monitored on the spectrum analyzer. A log file was generated indicating that the radar was detected on the operating DFS channel and that the operating DFS channel was temporarily removed from service for a period of 31-minutes. In addition the CAC being performed on the DFS test channel was abandoned and the EUT moved service to a Non-DFS channel.

After the EUT was reset a sweep was started on the spectrum analyzer set to the DFS test channel and a CAC period was commenced when a software command was issued by the operator to the EUT to change from the operating DFS channel to the DFS test channel. A radar signal was triggered on the operating DFS channel within 54 to 60 seconds after the beginning of the CAC period and transmissions on the DFS test channel were monitored on the spectrum analyzer. A log file was generated indicating that the radar was detected on the operating DFS channel and that the operating DFS channel was temporarily removed from service for a period of 31-minutes. In addition the CAC being performed on the DFS test channel was abandoned and the EUT moved service to a Non-DFS channel.

QUANTITATIVE RESULTS BASED UPON SPECTRUM ANALYZER PLOTS

No Radar Triggered

Beginning of CAC (sec)	Timing of Start of Traffic (sec)	CAC Period Time (sec)
0	62.0	62.0

Radar Near Beginning of CAC

Beginning of CAC (sec)	Timing of Radar Burst (sec)	Radar Relative to Start of CAC (sec)
0	3.000	3.000

Radar Near End of CAC

Beginning of CAC (sec)	Timing of Radar Burst (sec)	Radar Relative to Start of CAC (sec)
0	57.00	57.00

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

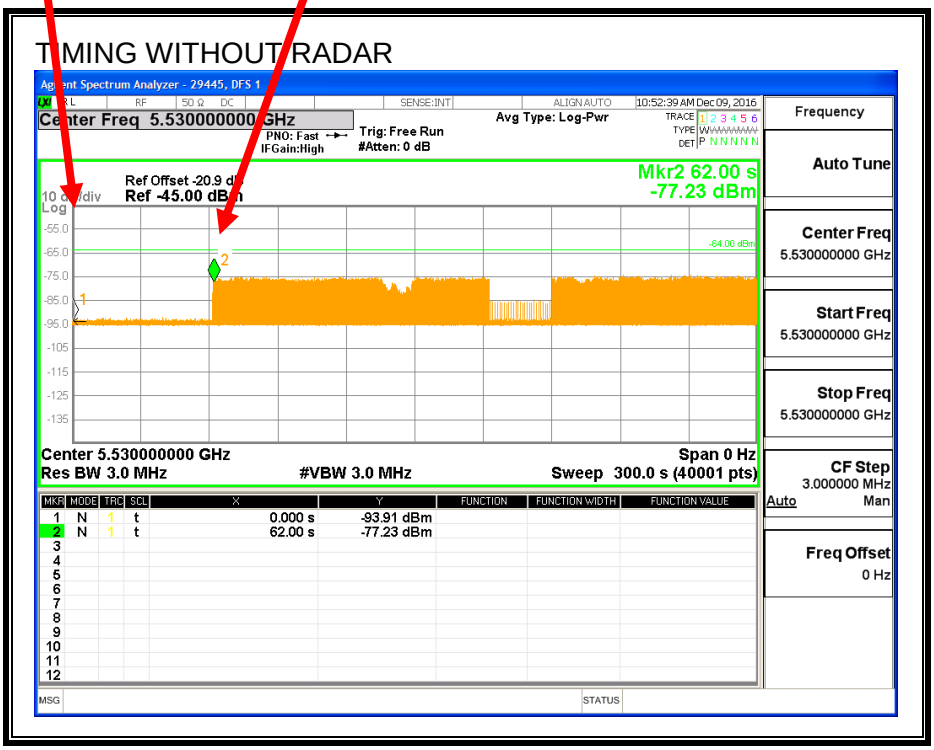
QUALITATIVE RESULTS

Timing of Radar Burst	Display on Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT marks Channel as active	Transmissions begin on channel after completion of the CAC
Within 0 to 6 second window	EUT indicates radar detected	No transmissions on channel
Within 54 to 60 second window	EUT indicates radar detected	No transmissions on channel

TIMING WITHOUT RADAR DURING CAC

Command to
Switch Channels
Start of CAC

End of CAC
Begin Transmissions



Transmissions begin on channel after completion of the CAC period.

Log File of CAC Timing Without Radar

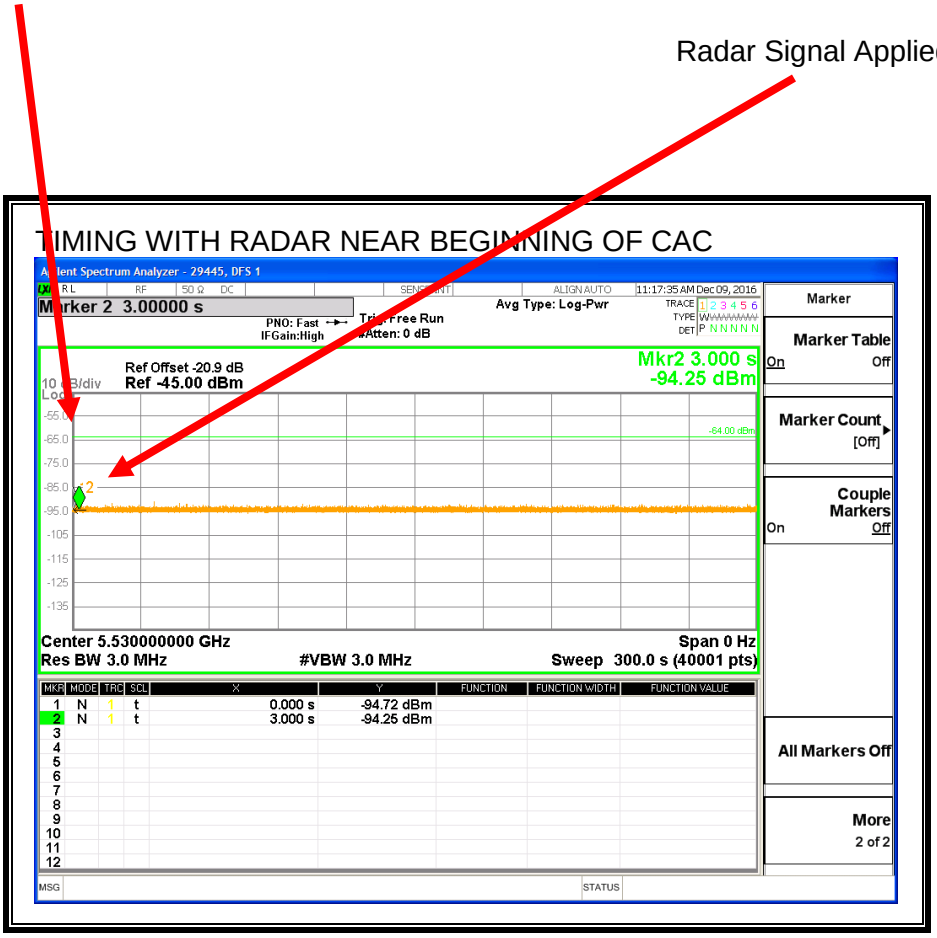
```
# wl chanspec
52/80 (0xe03a)

# wl dfs_ap_move 100/80

# CONSOLE: 027633.154 wlc_dfs_doiovar scan channel: e06a, current
channel e03a

CONSOLE: 027633.155 wl0 wlc_dfs_scan 1355 chspec=e06a

CONSOLE: 027633.155 wl0: mode switch down scheduled = 1 opmode: 0x22,
bw: 0x02

CONSOLE: 027633.468 wl0: downgraded phy to 3+1

CONSOLE: 027633.468 wl0 wlc_dfs_handle_modeswitch: downgrade completed
1390

CONSOLE: 027633.469 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 027633.469 wl0: chanspec e06a, 60 second CAC time

CONSOLE: 027633.469 DFS State In-Service Monitoring(ISM) -> PRE-ISM
Channel Availability Check

CONSOLE: 027693.584 wl0.. wlc_dfs_scan_complete_sc chan=e06a (106)
reason 0

CONSOLE: 027693.584 DFS State PRE-ISM Channel Availability Check ->
In-Service Monitoring(ISM)

CONSOLE: 027693.585 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 027693.734 wl0: upgraded phy to 4x4

CONSOLE: 027693.734 wl0 wlc_dfs_handle_modeswitch: upgrade completed
1402

CONSOLE: 027693.734 wl0 wlc_dfs_handle_modeswitch: new state 4 in idle
state

CONSOLE: 027694.257 wl0: dfs : state to In-Service Monitoring(ISM)
chanspec 100/80 at 300ms

wl chanspec
100/80 (0xe06a)

# wl chan_info
```

```
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive
Channel 104     A Band, RADAR Sensitive
Channel 108     A Band, RADAR Sensitive
Channel 112     A Band, RADAR Sensitive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

Log File of CAC Timing Without Radar

Command to
Switch Channels
Start of CAC

Radar Signal Applied



No EUT transmissions were observed after the radar signal.

Log File of Radar at the Beginning of CAC

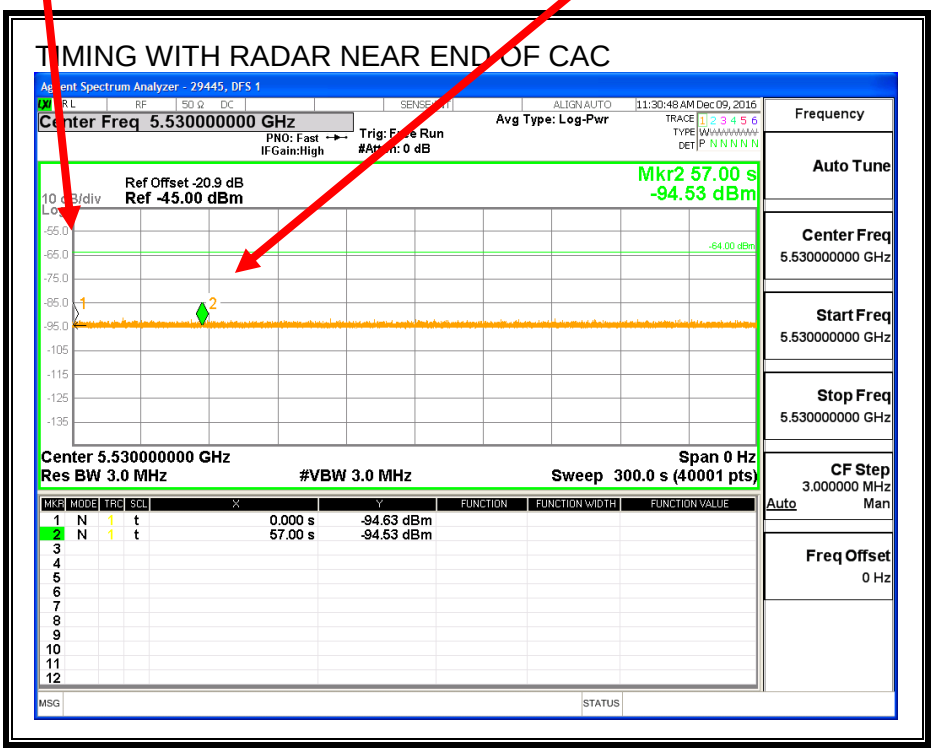
```
# wl chanspec
52/80 (0xe03a)

# wl dfs_ap_move 100/80

# CONSOLE: 028818.213 wlc_dfs_doiovar scan channel: e06a, current
channel e03

CONSOLE: 028818.213 wl0 wlc_dfs_scan 1355 chspec=e06a

CONSOLE: 028818.543 wl0: downgraded phy to 3+1

CONSOLE: 028818.543 wl0 wlc_dfs_handle_modeswitch: downgrade completed
1390

CONSOLE: 028818.544 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 028818.544 wl0: chanspec e06a, 60 second CAC time

CONSOLE: 028821.199 wl0: DFS: radar_info=0x181c7, radar_info_2=0x00000

CONSOLE: 028821.199 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON CHANNEL 52/80 ########## min_pw=28, subband_result=6, AT 2550MS

CONSOLE: 028821.199 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 028821.199 wl0: chanspec e06a, 60 second CAC time

CONSOLE: 028821.200 wl0: upgraded phy to 4x4

CONSOLE: 028821.200 wl0 wlc_dfs_handle_modeswitch: upgrade completed
1402

CONSOLE: 028821.200 wl0: channel 56 put out of service chspecd038

CONSOLE: 028821.200 wl0: channel 60 put out of service chspecd03c

CONSOLE: 028821.200 no usable channels found in dfs_channel_forced
list; going random now

CONSOLE: 028821.200 wl0: DFS WLC_E_RADAR_DETECTED 181c7/0000 on ch
0xe03a going to ch 0xe09b

CONSOLE: 028821.206 DFS State IDLE -> IDLE

CONSOLE: 028821.206 wl0: dfs : state to IDLE chanspec 149/80 at 0ms
```

```
CONSOLE: 028821.206 wl0: Skip CAC - channel 0xe09b is already
available. Zero duration.

# wl chanspec
149/80 (0xe09b)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 60 A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

TIMING WITH RADAR NEAR END OF CAC

Command to
Switch Channels
Start of CAC

Radar Signal Applied



No EUT transmissions were observed after the radar signal.

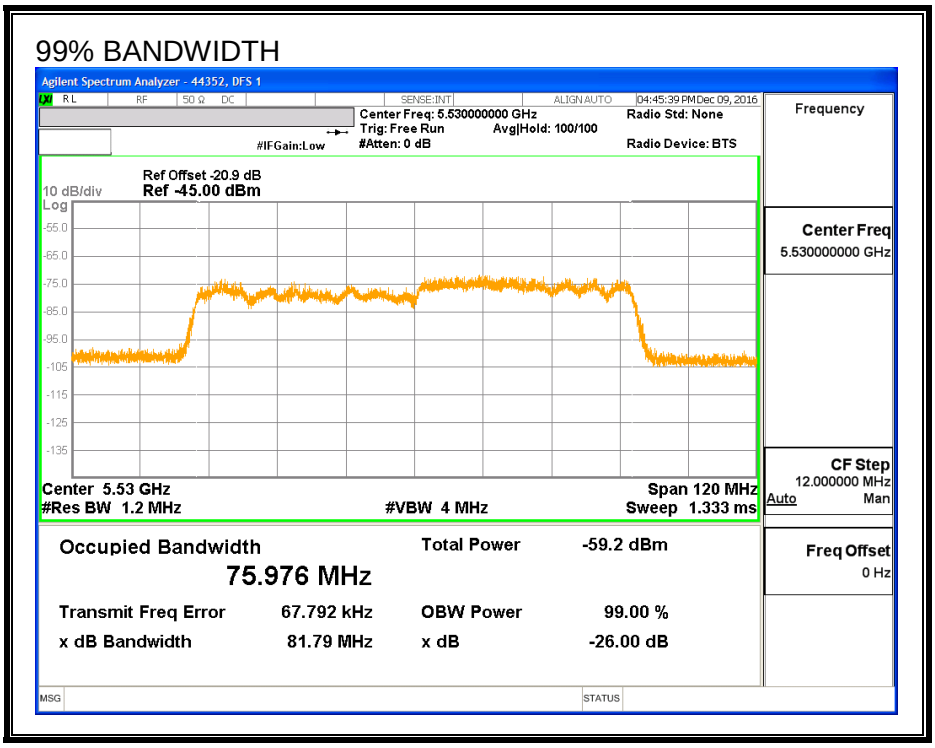
Log File of Radar at the End of CAC

```
# wl chanspec
52/80 (0xe03a)

# wl dfs_ap_move 100/80

# CONSOLE: 029707.647 wlc_dfs_doiovar scan channel: e06a, current
channel e03a

CONSOLE: 029707.647 wl0 wlc_dfs_scan 1355 chspec=e06a

CONSOLE: 029707.647 wl0: mode switch down scheduled = 1 opmode: 0x22,
bw: 0x02

CONSOLE: 029707.902 wl0: downgraded phy to 3+1

CONSOLE: 029707.902 wl0 wlc_dfs_handle_modeswitch: downgrade completed
1390

CONSOLE: 029707.903 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 029707.903 wl0: chanspec e06a, 60 second CAC time

CONSOLE: 029707.903 DFS State In-Service Monitoring(ISM) -> PRE-ISM
Channel Availability Check

ÔÊjõ1_é 029764.936 wl0: DFS: radar_info=0x181b7, radar_info_2=0x00000

CONSOLE: 029764.936 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON CHANNEL 52/80 ########## min_pw=27, subband_result=6, AT 57000MS

CONSOLE: 029764.936 wl0.. wlc_dfs_scan_complete chan=e03a (58) reason
1

CONSOLE: 029764.936 DFS State PRE-ISM Channel Availability Check ->
IDLE

CONSOLE: 029764.936 wl0: dfs : state to IDLE chanspec 52/80 at 57000ms

CONSOLE: 029764.936 wl0: since phymode is 3x1 using scan core with
chanspec e06a

CONSOLE: 029764.936 wl0: chanspec e06a, 60 second CAC time
CONSOLE: 029764.937 wl0: upgraded phy to 4x4

CONSOLE: 029764.937 wl0 wlc_dfs_handle_modeswitch: upgrade completed
1402

CONSOLE: 029764.937 wl0 wlc_dfs_handle_modeswitch: new state 4 in idle
state
```

```
CONSOLE: 029764.937 wl0: channel 56 put out of service chspecd038

CONSOLE: 029764.937 wl0: channel 60 put out of service chspecd03c

CONSOLE: 029764.937 wl0: DFS WLC_E_RADAR_DETECTED 181b7/0000 on ch
0xe03a going to ch 0xe09b

CONSOLE: 029764.943 wl0: dfs : state to IDLE chanspec 149/80 at 0ms
CONSOLE: 029764.943 wl0: Skip CAC - channel 0xe09b is already
available. Zero duration.

# wl chanspec
149/80 (0xe09b)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 60 A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

5.8.8. DETECTION BANDWIDTH

REFERENCE PLOT OF 99% POWER BANDWIDTH



RESULTS

FL (MHz)	FH (MHz)	Detection Bandwidth (MHz)	99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (%)	Minimum Limit (%)
5490	5569	79	75.976	104.0	100

DETECTION BANDWIDTH PROBABILITY

DETECTION BANDWIDTH PROBABILITY RESULTS

Detection Bandwidth Test Results		44352	DFS 1	
FCC Type 0 Waveform: 1 us Pulse Width, 1428 us PRI, 18 Pulses per Burst				
Frequency (MHz)	Number of Trials	Number Detected	Detection (%)	Mark
5489	10	0	0	
5490	10	10	100	FL
5495	10	10	100	
5500	10	10	100	
5505	10	10	100	
5510	10	10	100	
5515	10	10	100	
5520	10	10	100	
5525	10	10	100	
5530	10	10	100	
5535	10	10	100	
5540	10	10	100	
5545	10	10	100	
5550	10	10	100	
5555	10	10	100	
5560	10	10	100	
5565	10	9	90	
5566	10	10	100	
5567	10	10	100	
5568	10	10	100	
5569	10	10	100	FH
5570	1	0	0	

5.8.9. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary

Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth FL	Detection Bandwidth FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	96.67	60	Pass	5490	5569	75.98	DFS 1	29445	Version 3.0
FCC Short Pulse Type 2	30	80.00	60	Pass	5490	5569	75.98	DFS 1	29445	Version 3.0
FCC Short Pulse Type 3	30	76.67	60	Pass	5490	5569	75.98	DFS 1	29445	Version 3.0
FCC Short Pulse Type 4	30	76.67	60	Pass	5490	5569	75.98	DFS 1	29445	Version 3.0
Aggregate		82.50	80	Pass						
FCC Long Pulse Type 5	30	83.33	80	Pass	5490	5569	75.98	DFS 1	29445	Version 3.0
FCC Hopping Type 6	80	97.50	70	Pass	5490	5569	75.98	DFS 1	44352	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	No
1002	1	938	57	A	5530	Yes
1003	1	638	83	A	5530	Yes
1004	1	758	70	A	5530	Yes
1005	1	738	72	A	5530	Yes
1006	1	878	61	A	5530	Yes
1007	1	818	65	A	5530	Yes
1008	1	618	86	A	5530	Yes
1009	1	658	81	A	5530	Yes
1010	1	898	59	A	5530	Yes
1011	1	518	102	A	5530	Yes
1012	1	778	68	A	5530	Yes
1013	1	718	74	A	5530	Yes
1014	1	858	62	A	5530	Yes
1015	1	838	63	A	5530	Yes
1016	1	1493	36	B	5530	Yes
1017	1	1514	35	B	5530	Yes
1018	1	2017	27	B	5530	Yes
1019	1	2167	25	B	5530	Yes
1020	1	2800	19	B	5530	Yes
1021	1	1885	28	B	5530	Yes
1022	1	2647	20	B	5530	Yes
1023	1	667	80	B	5530	Yes
1024	1	1558	34	B	5530	Yes
1025	1	2255	24	B	5530	Yes
1026	1	2082	26	B	5530	Yes
1027	1	2909	19	B	5530	Yes
1028	1	2864	19	B	5530	Yes
1029	1	2626	21	B	5530	Yes
1030	1	2712	20	B	5530	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	5530	Yes
2002	2.2	223	27	5530	Yes
2003	2	195	28	5530	Yes
2004	1.5	183	25	5530	Yes
2005	3.7	164	26	5530	Yes
2006	1.4	156	27	5530	Yes
2007	3.8	179	29	5530	Yes
2008	1.8	218	24	5530	No
2009	4.4	208	29	5530	Yes
2010	2.6	170	24	5530	Yes
2011	1.5	163	23	5530	Yes
2012	4	210	29	5530	Yes
2013	1	170	29	5530	No
2014	1.8	183	28	5530	No
2015	1.1	228	25	5530	Yes
2016	2.1	203	27	5530	No
2017	3.6	171	28	5530	No
2018	2.9	154	28	5530	No
2019	4.8	170	29	5530	Yes
2020	4.3	195	26	5530	Yes
2021	4.3	176	27	5530	Yes
2022	2.1	168	28	5530	Yes
2023	4.4	192	23	5530	Yes
2024	2.4	230	25	5530	Yes
2025	5	220	24	5530	Yes
2026	1.3	182	25	5530	Yes
2027	2.1	176	24	5530	Yes
2028	4.6	223	23	5530	Yes
2029	3.8	183	23	5530	Yes
2030	2.4	196	29	5530	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	5530	Yes
3002	7.7	335	18	5530	Yes
3003	9.5	487	17	5530	Yes
3004	6.6	436	18	5530	Yes
3005	8.5	483	17	5530	Yes
3006	8	445	16	5530	Yes
3007	6.1	254	17	5530	Yes
3008	9.9	479	17	5530	Yes
3009	8.2	434	18	5530	Yes
3010	6.1	421	18	5530	Yes
3011	6.8	389	18	5530	Yes
3012	9.1	271	16	5530	Yes
3013	9.9	251	18	5530	No
3014	8.3	279	18	5530	Yes
3015	7.5	273	18	5530	No
3016	6.1	314	17	5530	Yes
3017	9.6	453	16	5530	Yes
3018	8.6	256	17	5530	No
3019	8.2	290	16	5530	Yes
3020	9.4	357	18	5530	Yes
3021	7.2	404	16	5530	No
3022	6.7	365	18	5530	Yes
3023	8.9	425	17	5530	Yes
3024	8.6	399	16	5530	No
3025	6.9	354	17	5530	Yes
3026	8.9	341	17	5530	No
3027	9.6	309	17	5530	Yes
3028	7.8	442	18	5530	Yes
3029	8.6	423	17	5530	No
3030	7	451	17	5530	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	5530	Yes
4002	13.2	485	16	5530	Yes
4003	16.1	374	16	5530	No
4004	14	427	13	5530	Yes
4005	13	462	16	5530	Yes
4006	15.7	277	13	5530	Yes
4007	20	324	16	5530	Yes
4008	18.9	286	12	5530	Yes
4009	14.6	346	13	5530	Yes
4010	13.9	320	16	5530	Yes
4011	19.2	275	15	5530	No
4012	14.7	262	13	5530	No
4013	16.2	481	12	5530	Yes
4014	12.1	363	14	5530	Yes
4015	14.1	477	16	5530	No
4016	19.6	372	12	5530	No
4017	17.7	498	15	5530	Yes
4018	19.4	406	14	5530	Yes
4019	18	294	12	5530	Yes
4020	11.1	348	16	5530	Yes
4021	19.3	382	12	5530	No
4022	13.9	347	15	5530	Yes
4023	13.5	394	15	5530	No
4024	12.3	355	13	5530	Yes
4025	17.1	415	14	5530	Yes
4026	16.4	390	12	5530	Yes
4027	17.4	345	16	5530	Yes
4028	17.2	332	15	5530	Yes
4029	18.7	299	14	5530	Yes
4030	14.6	432	13	5530	Yes

TYPE 5 DETECTION PROBABILITY

Data Sheet for FCC Long Pulse Radar Type 5		
Trial	Frequency (MHz)	Successful Detection (Yes/No)
1	5530	Yes
2	5530	Yes
3	5530	Yes
4	5530	Yes
5	5530	Yes
6	5530	No
7	5530	Yes
8	5530	Yes
9	5530	Yes
10	5530	Yes
11	5499	No
12	5498	Yes
13	5497	No
14	5499	Yes
15	5495	Yes
16	5499	No
17	5499	No
18	5496	Yes
19	5498	Yes
20	5500	Yes
21	5565	Yes
22	5565	Yes
23	5562	Yes
24	5560	Yes
25	5563	Yes
26	5562	Yes
27	5563	Yes
28	5564	Yes
29	5562	Yes
30	5564	Yes

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

TYPE 6 DETECTION PROBABILITY

Data Sheet for FCC Hopping Radar Type 6
1 us Pulse Width, 333 us PRI, 9 Pulses per Burst, 1 Burst per Hop
NTIA August 2005 Hopping Sequence

Trial	Starting Index Within Sequence	Signal Generator Frequency (MHz)	Hops within Detection BW	Successful Detection (Yes/No)
1	180	5490	20	Yes
2	655	5491	15	Yes
3	1130	5492	15	Yes
4	1605	5493	12	Yes
5	2080	5494	18	No
6	2555	5495	17	Yes
7	3030	5496	20	Yes
8	3505	5497	16	Yes
9	3980	5498	14	Yes
10	4455	5499	20	Yes
11	4930	5500	13	Yes
12	5405	5501	16	Yes
13	5880	5502	17	Yes
14	6355	5503	15	Yes
15	6830	5504	19	Yes
16	7305	5505	18	Yes
17	7780	5506	23	Yes
18	8255	5507	14	Yes
19	8730	5508	16	Yes
20	9205	5509	25	Yes
21	9680	5510	18	Yes
22	10155	5511	11	Yes
23	10630	5512	15	Yes
24	11105	5513	20	Yes
25	11580	5514	17	Yes
26	12055	5515	15	Yes
27	12530	5516	18	Yes
28	13005	5517	21	Yes
29	13480	5518	16	Yes
30	13955	5519	11	Yes
31	14430	5520	21	Yes
32	14905	5521	18	Yes
33	15380	5522	16	Yes
34	15855	5523	15	Yes
35	16330	5524	21	Yes
36	16805	5525	15	Yes
37	17280	5526	15	Yes
38	17755	5527	20	Yes
39	18230	5528	15	Yes

TYPE 6 DETECTION PROBABILITY (CONTINUED)

40	18705	5529	15	Yes
41	19180	5530	23	Yes
42	19655	5531	18	Yes
43	20130	5532	24	Yes
44	20605	5533	15	Yes
45	21080	5534	7	No
46	21555	5535	15	Yes
47	22030	5536	14	Yes
48	22505	5537	17	Yes
49	22980	5538	18	Yes
50	23455	5539	20	Yes
51	23930	5540	16	Yes
52	24405	5541	13	Yes
53	24880	5542	15	Yes
54	25355	5543	13	Yes
55	25830	5544	17	Yes
56	26305	5545	17	Yes
57	26780	5546	18	Yes
58	27255	5547	13	Yes
59	27730	5548	10	Yes
60	28205	5549	16	Yes
61	28680	5550	17	Yes
62	29155	5551	19	Yes
63	29630	5552	16	Yes
64	30105	5553	18	Yes
65	30580	5554	19	Yes
66	31055	5555	19	Yes
67	31530	5556	16	Yes
68	32005	5557	11	Yes
69	32480	5558	15	Yes
70	32955	5559	14	Yes
71	33430	5560	7	Yes
72	33905	5561	20	Yes
73	34380	5562	15	Yes
74	34855	5563	13	Yes
75	35330	5564	17	Yes
76	35805	5565	11	Yes
77	36280	5566	19	Yes
78	36755	5567	19	Yes
79	37230	5568	12	Yes
80	37705	5569	12	Yes

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

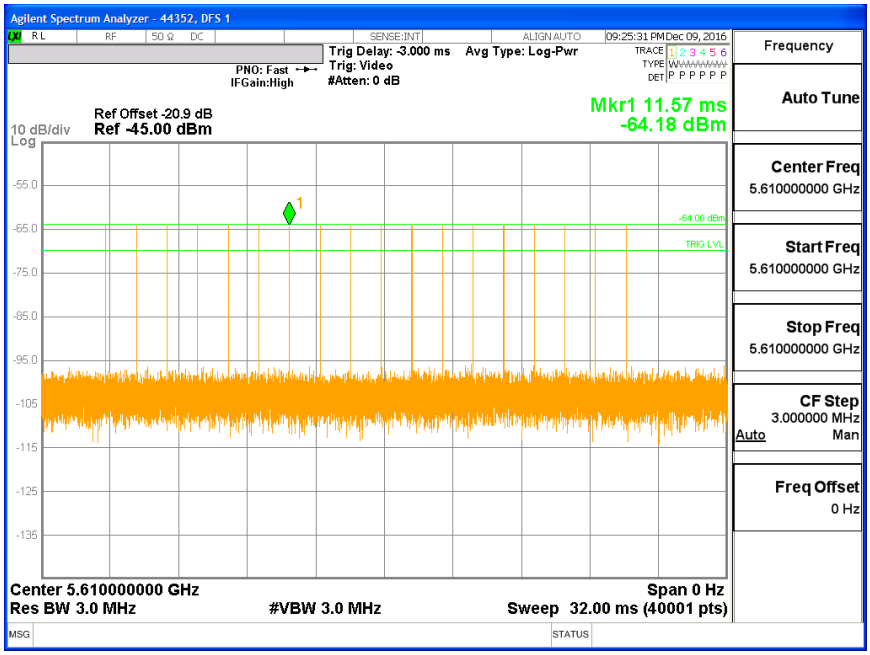
5.9.1. TEST CHANNEL

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

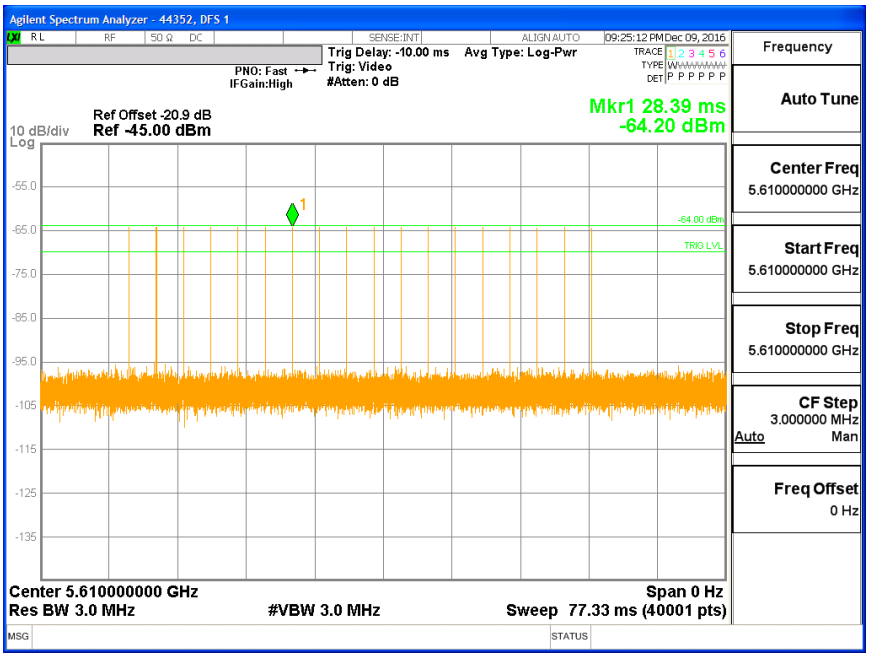
5.9.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

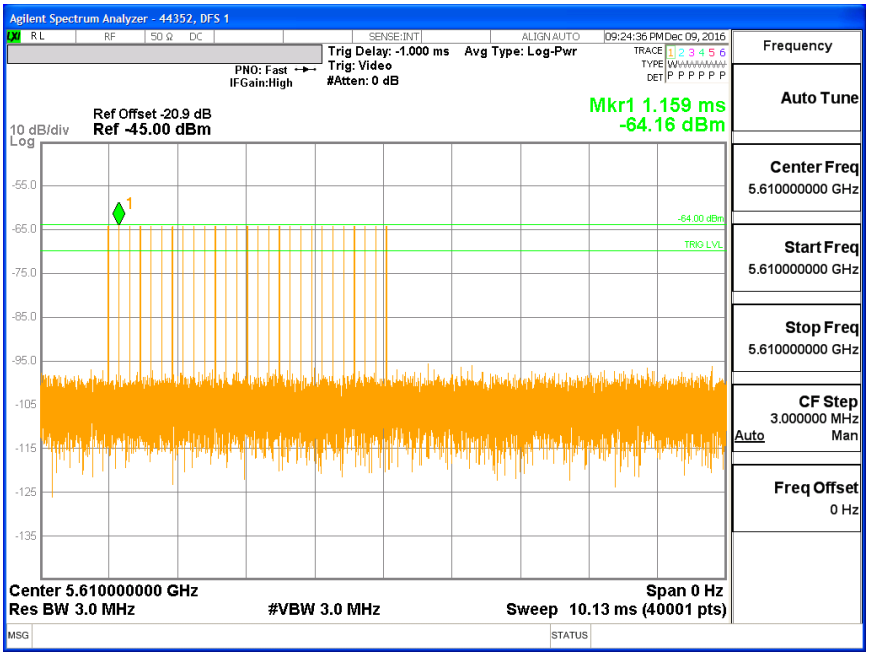
SHORT PULSE RADAR TYPE 0



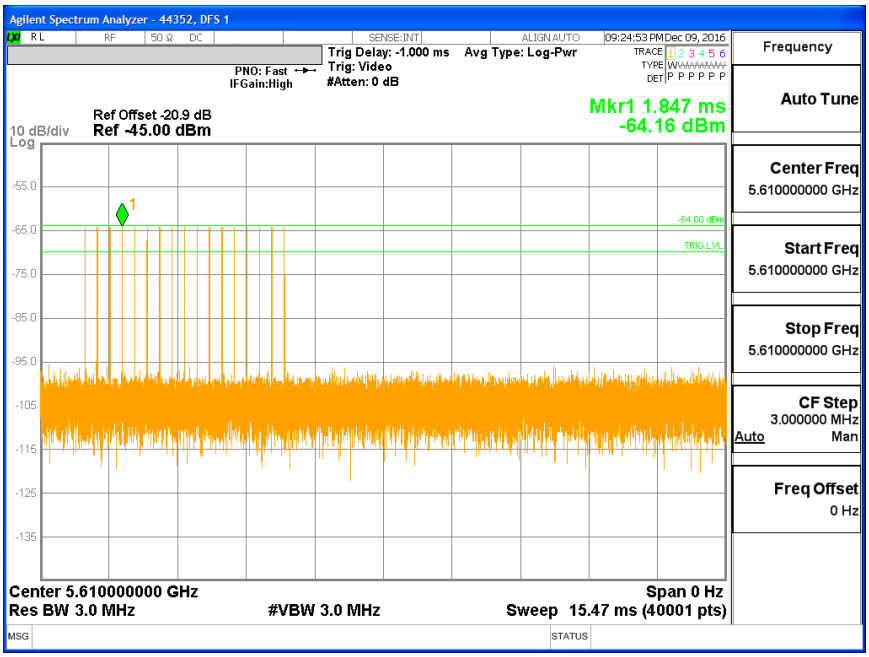
SAMPLE OF RADAR TYPE 1



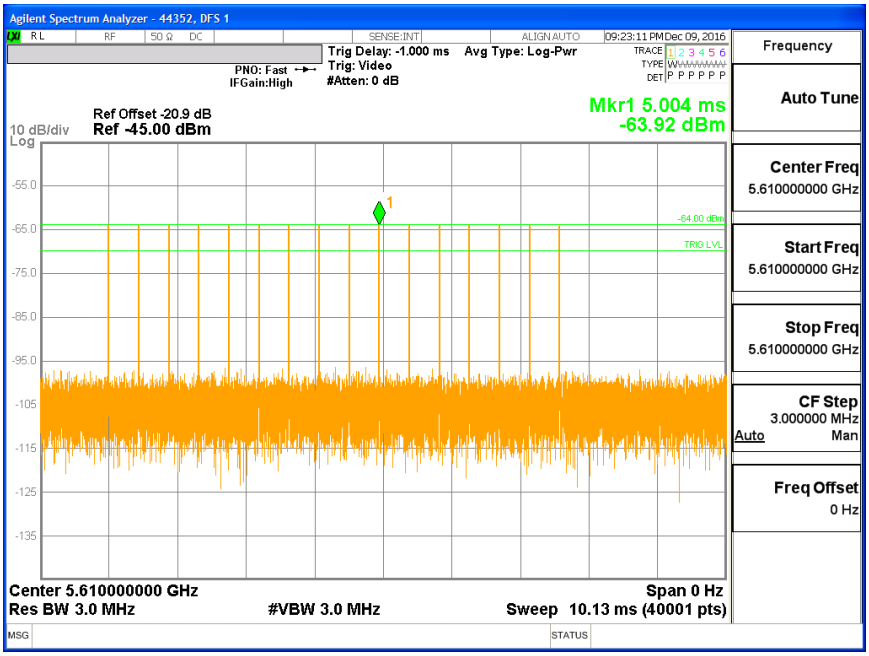
SAMPLE OF RADAR TYPE 2



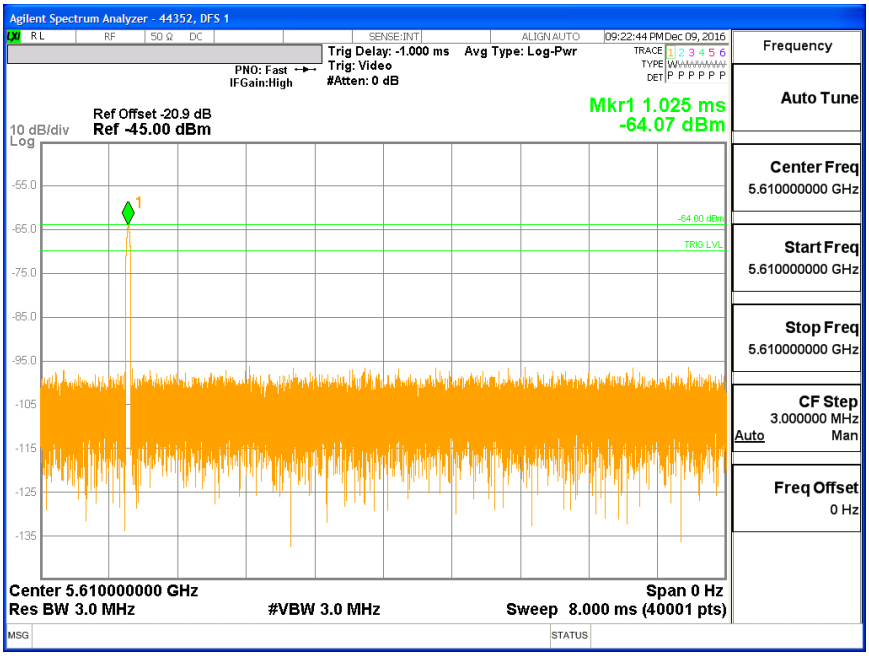
SAMPLE OF RADAR TYPE 3



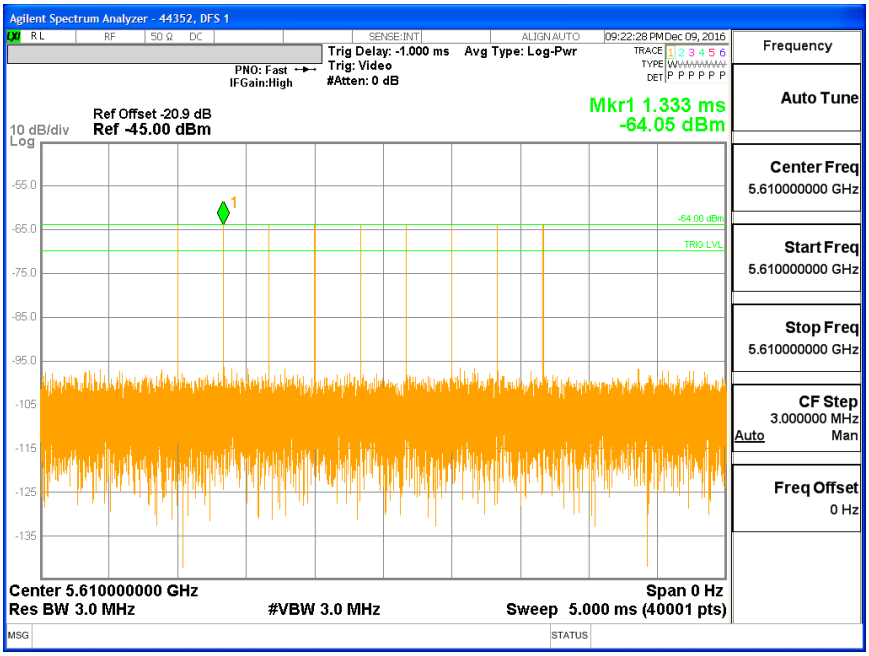
SAMPLE OF RADAR TYPE 4



SAMPLE OF SINGLE BURST OF RADAR TYPE 5

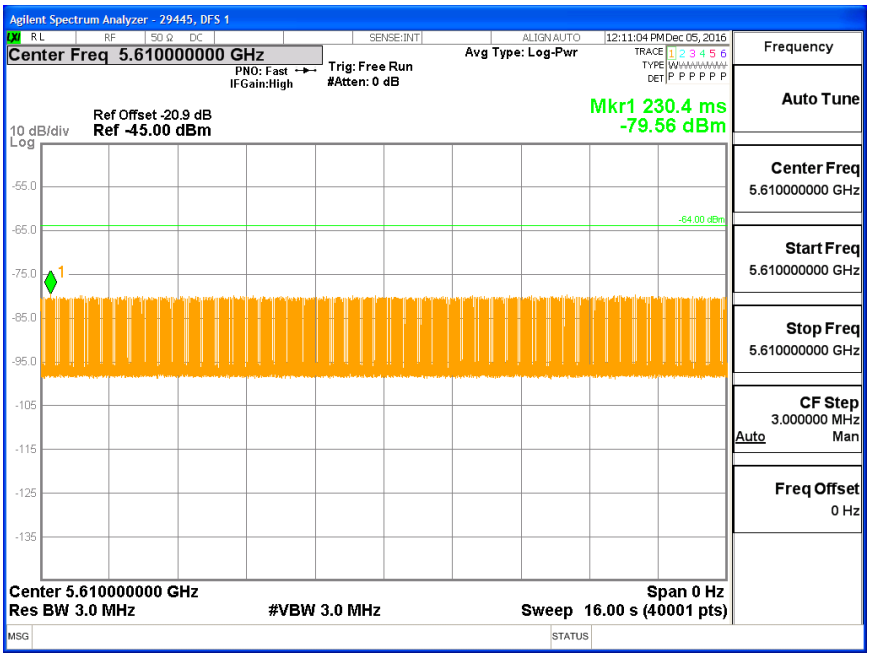


SINGLE BURST OF RADAR TYPE 6

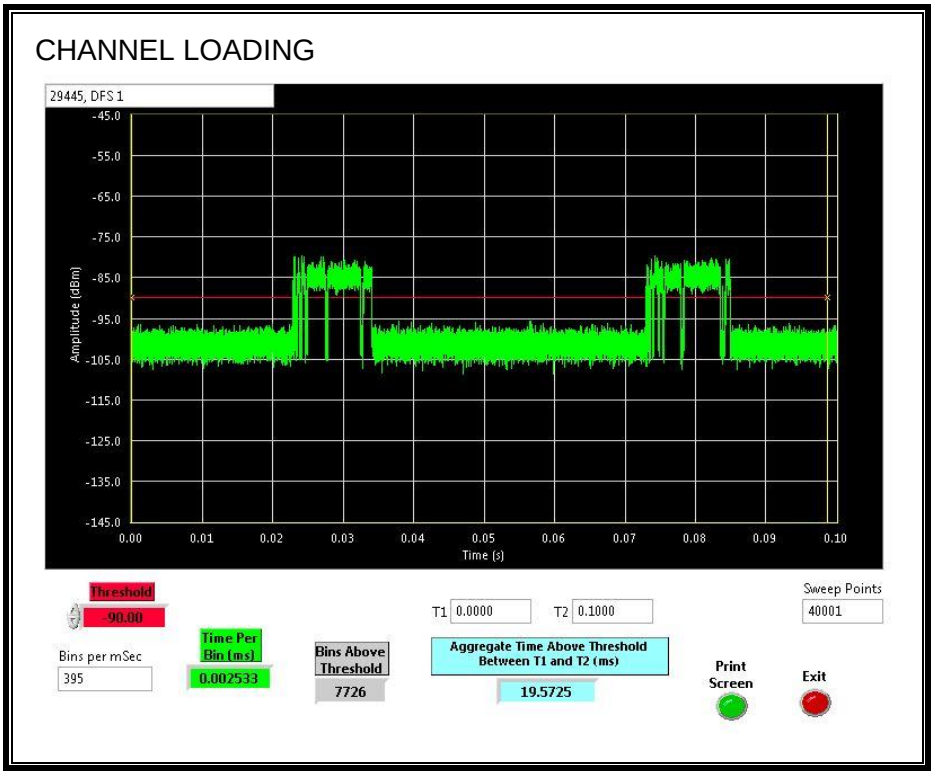


TRAFFIC

TRAFFIC



CHANNEL LOADING



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

5.9.3. OVERLAPPING CHANNEL TESTS

RESULTS

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

5.9.1. CHANNEL AVAILABILITY CHECK TIME

PROCEDURE TO DETERMINE CAC CYCLE TIME

A sweep was started on the spectrum analyzer set to the DFS test channel when a software command was issued by the operator to the EUT to change to the DFS test channel. After the command to change channels was issued a CAC period commenced on the DFS test channel for at least 60 seconds. The time from the beginning of the sweep to the re-initialization of traffic was measured as the time required for the EUT to complete the CAC period.

PROCEDURE FOR TIMING OF RADAR BURST

A sweep was started on the spectrum analyzer when a software command was issued by the operator to the EUT to change to the DFS test channel. A radar signal was triggered on the DFS test channel within 0 to 6 seconds after the beginning of the CAC period and transmissions on the DFS test channel were monitored on the spectrum analyzer.

A sweep was started on the spectrum analyzer when a software command was issued by the operator to the EUT to change to the DFS test channel. A radar signal was triggered on the DFS test channel within 54 to 60 seconds after the beginning of the CAC period and transmissions on the DFS test channel were monitored on the spectrum analyzer.

QUANTITATIVE RESULTS

No Radar Triggered

Beginning of CAC (sec)	Timing of Start of Traffic (sec)	CAC Period Time (sec)
0	60.9	60.86

Radar Near Beginning of CAC

Beginning of CAC (sec)	Timing of Radar Burst (sec)	Radar Relative to Start of CAC (sec)
0	3.263	3.263

Radar Near End of CAC

Beginning of CAC (sec)	Timing of Radar Burst (sec)	Radar Relative to Start of CAC (sec)
0	57.05	57.05

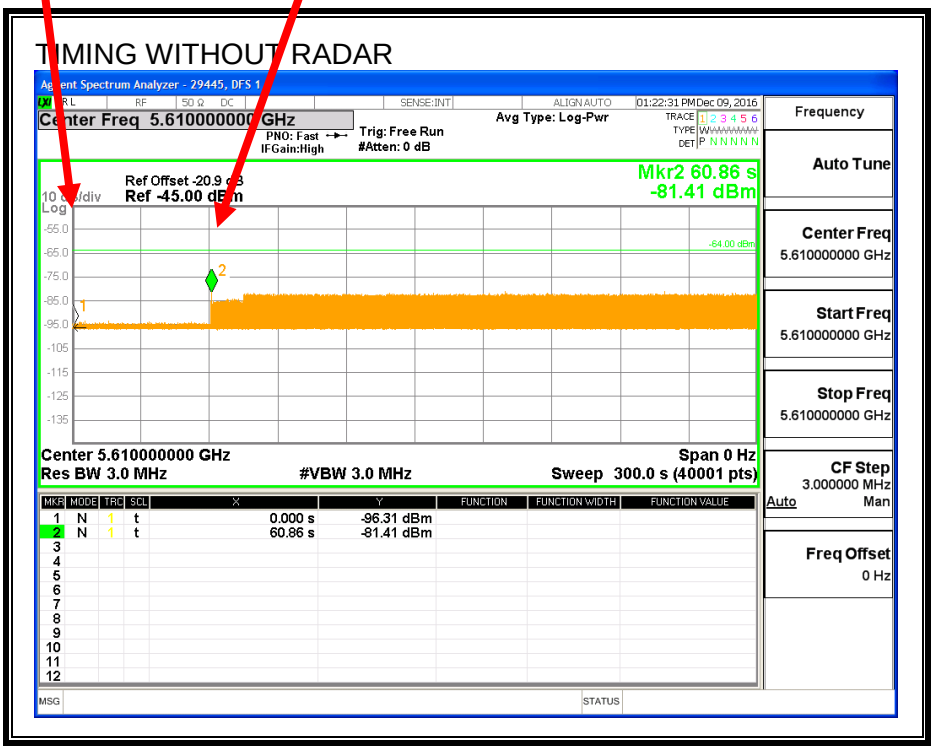
QUALITATIVE RESULTS

Timing of Radar Burst	Display on Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT marks Channel as active	Transmissions begin on channel after completion of the CAC
Within 0 to 6 second window	EUT indicates radar detected	No transmissions on channel
Within 54 to 60 second window	EUT indicates radar detected	No transmissions on channel

TIMING WITHOUT RADAR DURING CAC

Command to
Switch Channels
Start of CAC

End of CAC
Begin Transmissions



Transmissions begin on channel after completion of the CAC period.

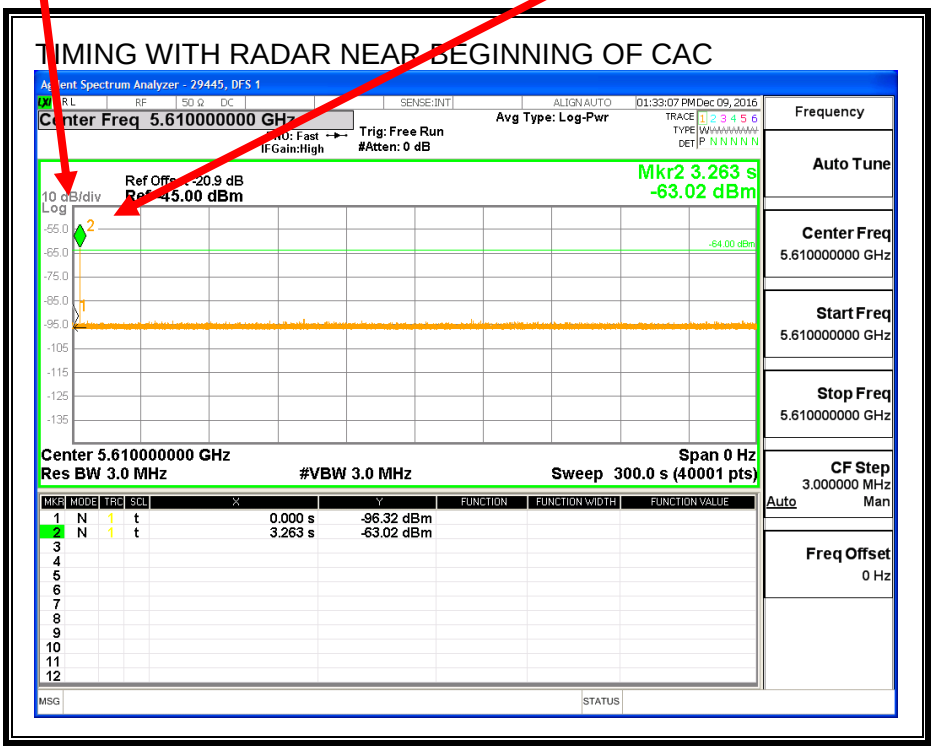
Log File of CAC Timing Without Radar

```
# wl chanspec
120/160 (0xed72)

# wl up

# CONSOLE: 036777.517 wl0: wl_open

CONSOLE: 036777.548 wl0: chanspec ed72, 60 second CAC time

CONSOLE: 036777.548 DFS State In-Service Monitoring(ISM) -> PRE-ISM
Channel Availability Check

CONSOLE: 036837.698  CAC duration 0

CONSOLE: 036837.698 DFS State PRE-ISM Channel Availability Check ->
In-Service Monitoring(ISM)

CONSOLE: 036837.799 wl0: dfs : state to In-Service Monitoring(ISM)
chanspec 120/160 at 60000ms

Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive
Channel 104     A Band, RADAR Sensitive
Channel 108     A Band, RADAR Sensitive
Channel 112     A Band, RADAR Sensitive
Channel 116     A Band, RADAR Sensitive
Channel 120     A Band, RADAR Sensitive
Channel 124     A Band, RADAR Sensitive
Channel 128     A Band, RADAR Sensitive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

TIMING WITH RADAR NEAR BEGINNING OF CAC

Command to
Switch Channels
Start of CAC

Radar Signal Applied



No EUT transmissions were observed after the radar signal.

TIMING WITH RADAR NEAR BEGINNING OF CAC

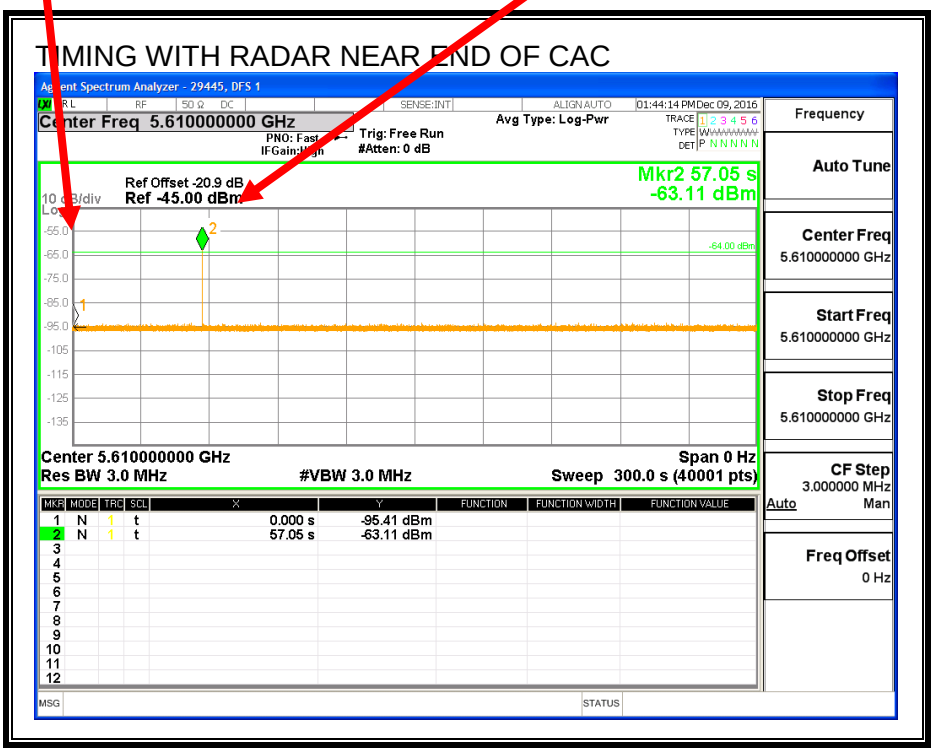
```
# wl chanspec
120/160 (0xed72)

# wl up

CONSOLE: 037441.428 wl0: chanspec ed72, 60 second CAC time

CONSOLE: 037441.428 DFS State PRE-ISM Channel Availability Check ->
PRE-ISM Channel Availability Check

CONSOLE: 037444.128 wl0: DFS: radar_info=0x00000, radar_info_2=0x181f7

CONSOLE: 037444.128 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON U80 CHANNEL 120/160 ########## min_pw=31, subband_result=6, AT
2550MS

CONSOLE: 037444.128 wl0: channel 120 put out of service chspecd078

CONSOLE: 037444.128 wl0: channel 124 put out of service chspecd07c

CONSOLE: 037444.128 wl0: DFS WLC_E_RADAR_DETECTED 0000/181f7 on ch
0xed72 going to ch 0xe09b

CONSOLE: 037444.134 DFS State PRE-ISM Channel Availability Check ->
IDLE

CONSOLE: 037444.134 wl0: dfs : state to IDLE chanspec 149/80 at 2550ms

CONSOLE: 037444.134 wl0: Skip CAC - channel 0xe09b is already
available. Zero duration.

# wl chanspec
149/80 (0xe09b)
```

```
# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 120     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 124     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 128     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

TIMING WITH RADAR NEAR END OF CAC

Command to
Switch Channels
Start of CAC

Radar Signal Applied



No EUT transmissions were observed after the radar signal.

TIMING WITH RADAR NEAR END OF CAC

```
# wl chanspec
120/160 (0xed72)

# wl up

# CONSOLE: 038099.671 wl0: wl_open

CONSOLE: 038099.703 wl0: chanspec ed72, 60 second CAC time

CONSOLE: 038099.703 DFS State In-Service Monitoring(ISM) -> PRE-ISM
Channel Availability Check

CONSOLE: 038156.402 wl0: DFS: radar_info=0x00000, radar_info_2=0x181e7

CONSOLE: 038156.402 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON U80 CHANNEL 120/160 ########## min_pw=30, subband_result=6, AT
56550MS

CONSOLE: 038156.402 wl0: channel 120 put out of service chspecd078

CONSOLE: 038156.402 wl0: channel 124 put out of service chspecd07c

CONSOLE: 038156.402 wl0: DFS WLC_E_RADAR_DETECTED 0000/181e7 on ch
0xed72 going to ch 0xe02a

CONSOLE: 038156.408 wl0: dfs : state to IDLE chanspec 36/80 at 56550ms

# wl chanspec
36/80 (0xe02a)
```

```
# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 120     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 124     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 128     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

5.9.2. MOVE AND CLOSING TIME

REPORTING NOTES

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

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

The aggregate channel closing transmission time is calculated as follows:

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

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

RESULTS

Channel Move Time (sec)	Limit (sec)
0.3172	10

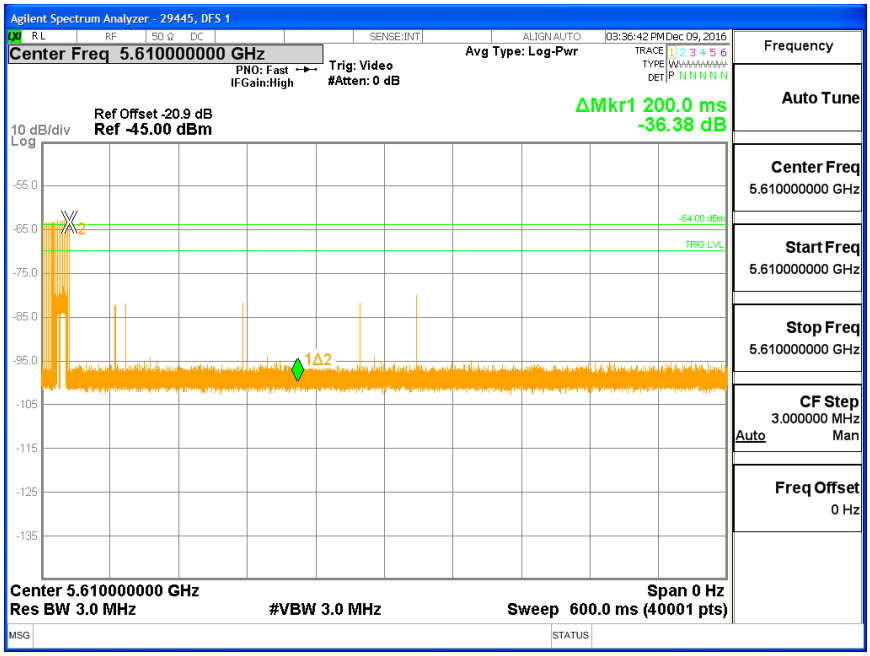
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
1.2	60

MOVE TIME

MOVE TIME

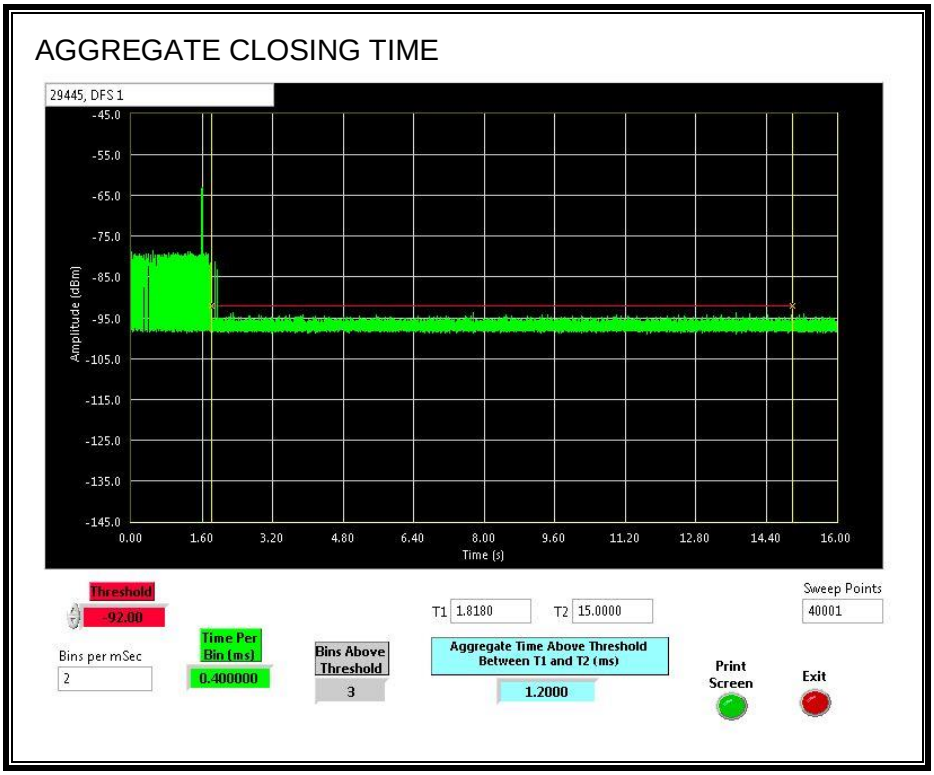
CHANNEL CLOSING TIME

CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

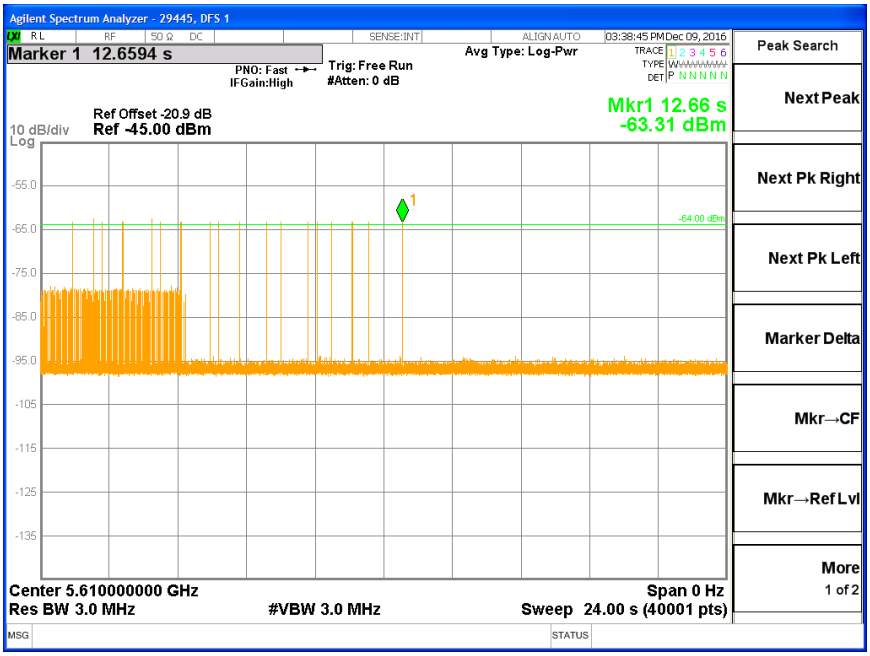
Only intermittent transmissions are observed during the aggregate monitoring period.



LONG PULSE CHANNEL MOVE TIME

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

MOVE TIME FOR LONG PULSE RADAR

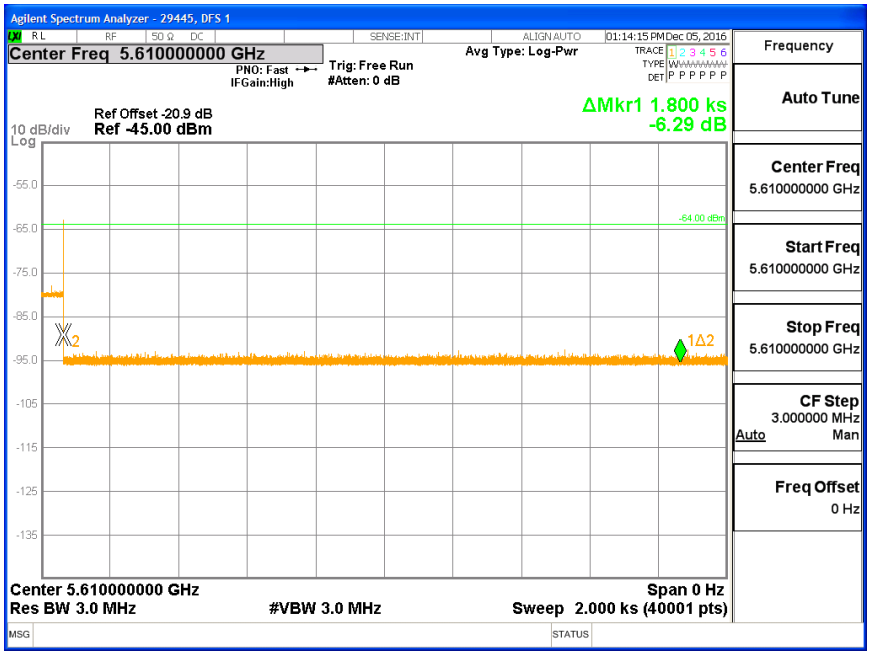


5.9.3. NON-OCCUPANCY PERIOD

RESULTS

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

NON-OCCUPANCY PERIOD



5.9.4. 20 MHZ SUB-BAND CHANNEL RADAR DETECTION

THEORY OF OPERATION

The EUT radio is capable of distinguishing radar within any 20 MHz sub-band of a channel. When radar is detected at least one 20 MHz channel is removed from service. The quantity of 20 MHz channels removed from service is determined by the radar frequency within the DFS test channel.

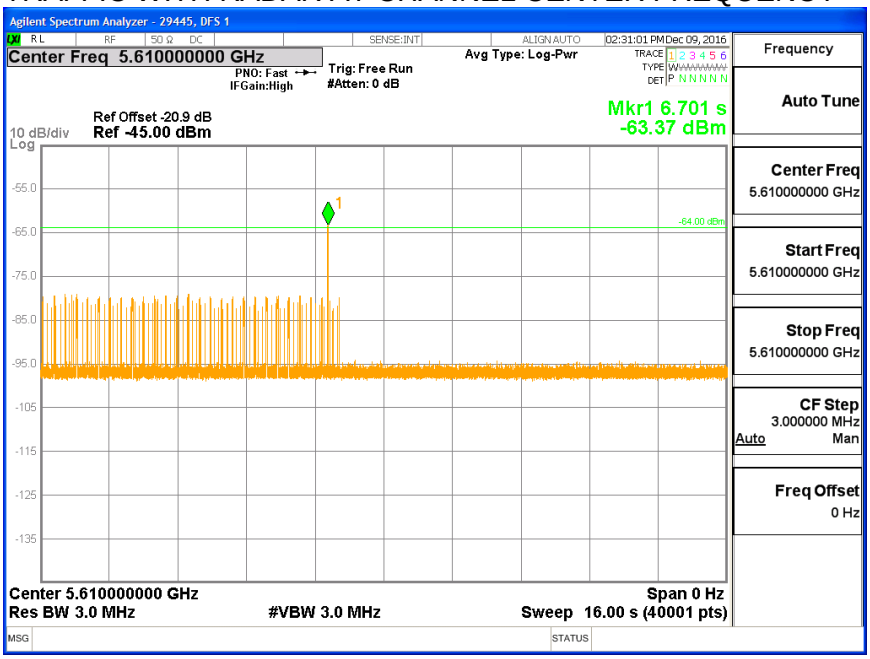
TEST PROCEDURE

A link was established on the DFS test channel then traffic was initiated. Radar was then triggered on the center frequency of the DFS test channel, a sample plot was captured and a log file was generated. Subsequent trials were conducted and radar was triggered upon various center frequencies within the DFS test channel.

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

SAMPLE PLOT WITH RADAR BURST ON THE DFS TEST CHANNEL CENTER FREQUENCY

TRAFFIC WITH RADAR AT CHANNEL CENTER FREQUENCY



Log File of Channel Status After Radar Burst Triggered at 5610 MHz

```
CONSOLE: 041226.241 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON U80 CHANNEL 120/160 ########## min_pw=31, subband_result=6, AT
344550MS

CONSOLE: 041226.241 wl0: channel 120 put out of service chspecd078

CONSOLE: 041226.241 wl0: channel 124 put out of service chspecd07c

CONSOLE: 041226.241 wl0: DFS WLC_E_RADAR_DETECTED 0000/181f7 on ch
0xed72 going to ch 0xe09b

CONSOLE: 041226.241 Selected new channel 0xe09b

Announcement(CSA) chanspec current 120/160 next 149/80 at 344550ms,
starting CSA process

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 120     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 124     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 128     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

Log File of Channel Status After Radar Burst Triggered at 5530 MHz

```
CONSOLE: 041375.960 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON CHANNEL 120/160 ########## min_pw=30, subband_result=6, AT 122400MS

CONSOLE: 041375.960 wl0: channel 104 put out of service chspecd068

CONSOLE: 041375.960 wl0: channel 108 put out of service chspecd06c

CONSOLE: 041375.960 wl0: DFS WLC_E_RADAR_DETECTED 181e7/0000 on ch
0xed72 going to ch 0xe09b

CONSOLE: 041375.961 wl0: dfs : state to Channel Switching
Announcement(CSA) chanspec current 120/160 next 149/80 at 122400ms,
starting CSA process

#wl chanspec
149/80 (0xe09b)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 108     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

Log File of Channel Status After Radar Burst Triggered at 5510 MHz

```
CONSOLE: 041431.525 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON CHANNEL 120/160 ########## min_pw=25, subband_result=12, AT 27600MS

CONSOLE: 041431.525 wl0: channel 100 put out of service chspecd064

CONSOLE: 041431.525 wl0: channel 104 put out of service chspecd068

CONSOLE: 041431.525 wl0: DFS WLC_E_RADAR_DETECTED 30197/0000 on ch
0xed72 going to ch 0xe02a

CONSOLE: 041431.526 wl0: dfs : state to Channel Switching
Announcement(CSA) chanspec current 120/160 next 36/80 at 27600ms,
starting CSA process

wl chanspec
36/80 (0xe02a)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 104     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

Log File of Channel Status After Radar Burst Triggered at 5500 MHz

```
CONSOLE: 041479.289 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON CHANNEL 120/160 ########## min_pw=25, subband_result=8, AT 25950MS

CONSOLE: 041479.289 wl0: channel 100 put out of service chspecd064

CONSOLE: 041479.290 wl0: DFS WLC_E_RADAR_DETECTED 20197/0000 on ch
0xed72 going to ch 0xe02a

CONSOLE: 041479.290 wl0: dfs : state to Channel Switching
Announcement(CSA) chanspec current 120/160 next 36/80 at 25950ms,
starting CSA process

# wl chanspec
36/80 (0xe02a)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 104     A Band, RADAR Sensitive, Passive
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

Log File of Channel Status After Radar Burst Triggered at 5520 MHz

```
CONSOLE: 041504.641 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON CHANNEL 120/160 ########## min_pw=25, subband_result=4, AT 10500MS

CONSOLE: 041504.641 wl0: channel 104 put out of service chspecd068

CONSOLE: 041504.641 no usable channels found in dfs_channel_forced
list; going random now

CONSOLE: 041504.642 wl0: dfs : state to Channel Switching
Announcement(CSA) chanspec current 120/160 next 36/80 at 10500ms,
starting CSA process

# wl chanspec
36/80 (0xe02a)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

Log File of Channel Status After Radar Burst Triggered at 5540 MHz

```
CONSOLE: 041551.352 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON CHANNEL 120/160 ########## min_pw=25, subband_result=2, AT 29400MS

CONSOLE: 041551.352 wl0: channel 108 put out of service chspecd06c

CONSOLE: 041551.353 wl0: dfs : state to Channel Switching
Announcement(CSA) chanspec current 120/160 next 149/80 at 29400ms,
starting CSA process

#wl chanspec
149/80 (0xe09b)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive
Channel 108     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

Log File of Channel Status After Radar Burst Triggered at 5560 MHz

```
CONSOLE: 041590.221 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON CHANNEL 120/160 ########## min_pw=24, subband_result=1, AT 23100MS

CONSOLE: 041590.221 wl0: channel 112 put out of service chspecd070

CONSOLE: 041590.221 no usable channels found in dfs_channel_forced
list; going random now

Announcement(CSA) chanspec current 120/160 next 149/80 at 23100ms,
starting CSA process

# wl chanspec
149/80 (0xe09b)

wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

Log File of Channel Status After Radar Burst Triggered at 5580 MHz

```
CONSOLE: 041641.304 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON U80 CHANNEL 120/160 ########## min_pw=26, subband_result=8, AT
29100MS

CONSOLE: 041641.304 wl0: channel 116 put out of service chspecd074

CONSOLE: 041641.304 no usable channels found in dfs_channel_forced
list; going random now

CONSOLE: 041641.304 wl0: DFS WLC_E_RADAR_DETECTED 0000/201a7 on ch
0xed72 going to ch 0xe09b

CONSOLE: 041641.305 wl0: dfs : state to Channel Switching
Announcement(CSA) chanspec current 120/160 next 149/80 at 29100ms,
starting CSA process

# wl chanspec
149/80 (0xe09b)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 120     A Band, RADAR Sensitive, Passive
Channel 124     A Band, RADAR Sensitive, Passive
Channel 128     A Band, RADAR Sensitive, Passive
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

Log File of Channel Status After Radar Burst Triggered at 5600 MHz

```
CONSOLE: 041693.654 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON U80 CHANNEL 120/160 ########## min_pw=26, subband_result=4, AT
33600MS

CONSOLE: 041693.654 wl0: channel 120 put out of service chspecd078

CONSOLE: 041693.654 no usable channels found in dfs_channel_forced
list; going random now

Announcement(CSA) chanspec current 120/160 next 149/80 at 33600ms,
starting CSA process

# wl chanspec
149/80 (0xe09b)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 120     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 124     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 128     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

Log File of Channel Status After Radar Burst Triggered at 5620 MHz

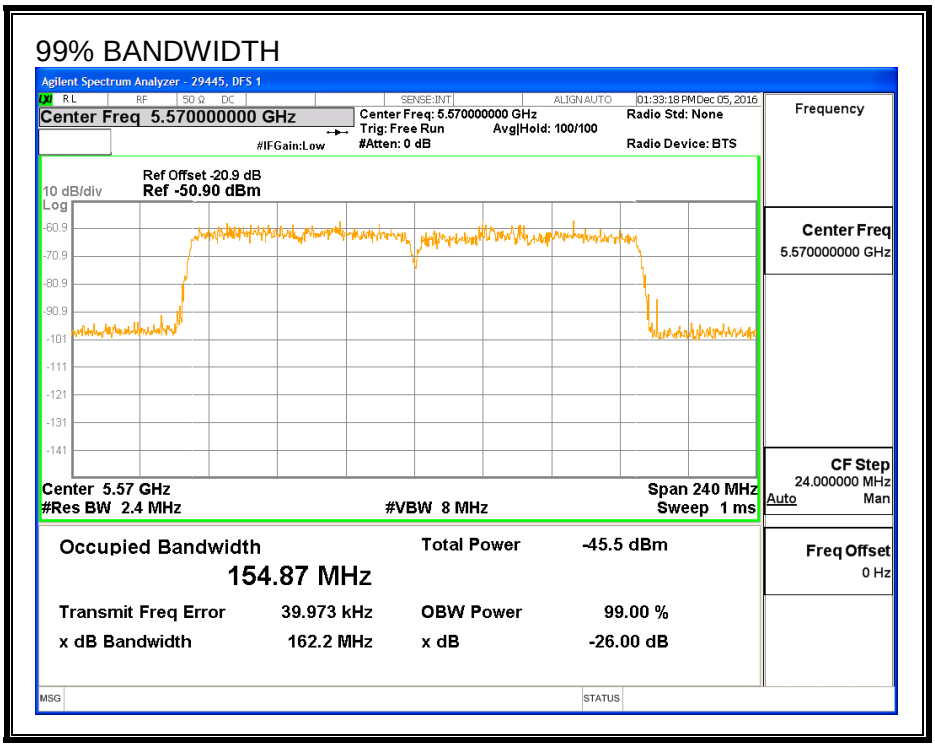
```
CONSOLE: 041741.588 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON U80 CHANNEL 120/160 ########## min_pw=25, subband_result=2, AT
22800MS

CONSOLE: 041741.588 wl0: channel 124 put out of service chspecd07c

Announcement(CSA) chanspec current 120/160 next 36/80 at 22800ms,
starting CSA process

# wl chanspec
36/80 (0xe02a)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 124     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 128     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 132     A Band, RADAR Sensitive, Passive
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

Log File of Channel Status After Radar Burst Triggered at 5640 MHz

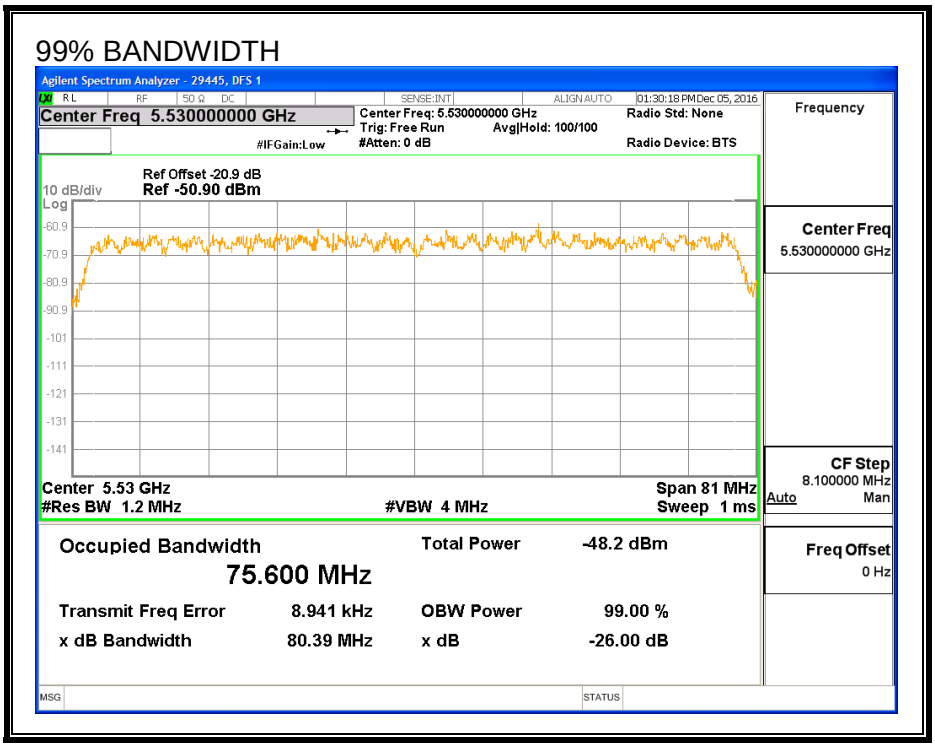
```
CONSOLE: 041782.017 WL0: DFS: UNCLASSIFIED ########## RADAR DETECTED
ON U80 CHANNEL 120/160 ########## min_pw=23, subband_result=1, AT
17400MS

CONSOLE: 041782.017 wl0: channel 128 put out of service chspecd080

CONSOLE: 041782.018 wl0: dfs : state to Channel Switching
Announcement(CSA) chanspec current 120/160 next 36/80 at 17400ms,
starting CSA process

# wl chanspec
36/80 (0xe02a)

# wl chan_info
Channel 36 A Band
Channel 40 A Band
Channel 44 A Band
Channel 48 A Band
Channel 52 A Band, RADAR Sensitive, Passive
Channel 56 A Band, RADAR Sensitive, Passive
Channel 60 A Band, RADAR Sensitive, Passive
Channel 64 A Band, RADAR Sensitive, Passive
Channel 100     A Band, RADAR Sensitive, Passive
Channel 104     A Band, RADAR Sensitive, Passive
Channel 108     A Band, RADAR Sensitive, Passive
Channel 112     A Band, RADAR Sensitive, Passive
Channel 116     A Band, RADAR Sensitive, Passive
Channel 120     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 124     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 128     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 132     A Band, RADAR Sensitive, Passive, Temporarily Out of
Service for 31 minutes
Channel 136     A Band, RADAR Sensitive, Passive
Channel 140     A Band, RADAR Sensitive, Passive
Channel 144     A Band, RADAR Sensitive, Passive
Channel 149     A Band
Channel 153     A Band
Channel 157     A Band
Channel 161     A Band
Channel 165     A Band
```

5.9.5. DETECTION BANDWIDTH

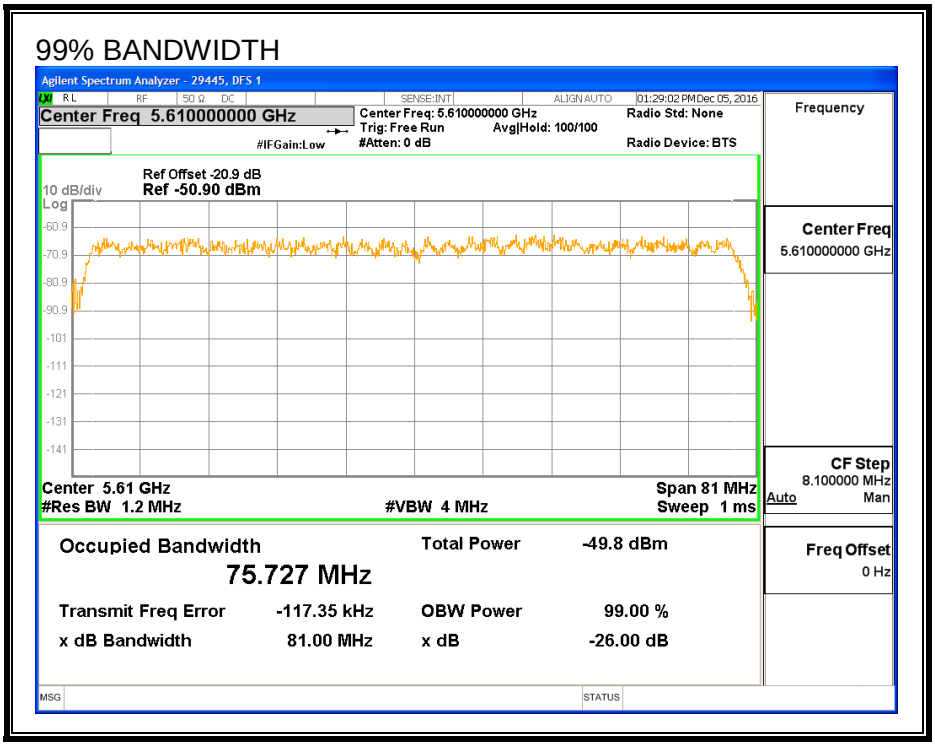
REFERENCE PLOT OF 99% POWER BANDWIDTH (80 PLUS 80 MODE)



REFERENCE PLOT OF 99% POWER BANDWIDTH (80 MHz LOW COMPONENT)



REFERENCE PLOT OF 99% POWER BANDWIDTH (80 MHz HIGH COMPONENT)



RESULTS (80 MHz HIGH COMPONENT)

FL (MHz)	FH (MHz)	Detection Bandwidth (MHz)	99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (%)	Minimum Limit (%)
5572	5648	76	75.727	100.4	100

DETECTION BANDWIDTH PROBABILITY

DETECTION BANDWIDTH PROBABILITY RESULTS

Detection Bandwidth Test Results		29445	DFS 1	
FCC Type 0 Waveform: 1 us Pulse Width, 1428 us PRI, 18 Pulses per Burst				
Frequency (MHz)	Number of Trials	Number Detected	Detection (%)	Mark
5572	10	10	100	FL
5573	10	10	100	
5574	10	10	100	
5575	10	10	100	
5580	10	10	100	
5585	10	10	100	
5590	10	10	100	
5595	10	10	100	
5600	10	10	100	
5605	10	10	100	
5610	10	9	90	
5615	10	10	100	
5620	10	10	100	
5625	10	10	100	
5630	10	10	100	
5635	10	10	100	
5640	10	10	100	
5646	10	10	100	
5647	10	10	100	
5648	10	10	100	FH

5.9.6. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary

Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth FL	Detection Bandwidth FH	80% of Det BW FL5	80% of Det BW FH5	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	100.00	60	Pass	5572	5648			75.73	DFS 1	44352	Version 3.0
FCC Short Pulse Type 2	30	86.67	60	Pass	5572	5648			75.73	DFS 1	44352	Version 3.0
FCC Short Pulse Type 3	30	70.00	60	Pass	5572	5648			75.73	DFS 1	44352	Version 3.0
FCC Short Pulse Type 4	30	83.33	60	Pass	5572	5648			75.73	DFS 1	44352	Version 3.0
Aggregate		85.00	80	Pass								
FCC Long Pulse Type 5	30	83.33	80	Pass	5572	5648	5580	5640	75.73	DFS 1	44352	Version 3.0
FCC Hopping Type 6	77	100.00	70	Pass	5572	5648				DFS 1	44352	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	5610	Yes
1002	1	938	57	A	5610	Yes
1003	1	638	83	A	5610	Yes
1004	1	758	70	A	5610	Yes
1005	1	738	72	A	5610	Yes
1006	1	878	61	A	5610	Yes
1007	1	818	65	A	5610	Yes
1008	1	618	86	A	5610	Yes
1009	1	658	81	A	5610	Yes
1010	1	898	59	A	5610	Yes
1011	1	518	102	A	5610	Yes
1012	1	778	68	A	5610	Yes
1013	1	718	74	A	5610	Yes
1014	1	858	62	A	5610	Yes
1015	1	838	63	A	5610	Yes
1016	1	1493	36	B	5610	Yes
1017	1	1514	35	B	5610	Yes
1018	1	2017	27	B	5610	Yes
1019	1	2167	25	B	5610	Yes
1020	1	2800	19	B	5610	Yes
1021	1	1885	28	B	5610	Yes
1022	1	2647	20	B	5610	Yes
1023	1	667	80	B	5610	Yes
1024	1	1558	34	B	5610	Yes
1025	1	2255	24	B	5610	Yes
1026	1	2082	26	B	5610	Yes
1027	1	2909	19	B	5610	Yes
1028	1	2864	19	B	5610	Yes
1029	1	2626	21	B	5610	Yes
1030	1	2712	20	B	5610	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	5610	Yes
2002	2.2	223	27	5610	Yes
2003	2	195	28	5610	Yes
2004	1.5	183	25	5610	Yes
2005	3.7	164	26	5610	Yes
2006	1.4	156	27	5610	No
2007	3.8	179	29	5610	Yes
2008	1.8	218	24	5610	No
2009	4.4	208	29	5610	Yes
2010	2.6	170	24	5610	Yes
2011	1.5	163	23	5610	Yes
2012	4	210	29	5610	Yes
2013	1	170	29	5610	Yes
2014	1.8	183	28	5610	Yes
2015	1.1	228	25	5610	Yes
2016	2.1	203	27	5610	Yes
2017	3.6	171	28	5610	No
2018	2.9	154	28	5610	Yes
2019	4.8	170	29	5610	Yes
2020	4.3	195	26	5610	Yes
2021	4.3	176	27	5610	No
2022	2.1	168	28	5610	Yes
2023	4.4	192	23	5610	Yes
2024	2.4	230	25	5610	Yes
2025	5	220	24	5610	Yes
2026	1.3	182	25	5610	Yes
2027	2.1	176	24	5610	Yes
2028	4.6	223	23	5610	Yes
2029	3.8	183	23	5610	Yes
2030	2.4	196	29	5610	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	5610	Yes
3002	7.7	335	18	5610	No
3003	9.5	487	17	5610	No
3004	6.6	436	18	5610	Yes
3005	8.5	483	17	5610	Yes
3006	8	445	16	5610	Yes
3007	6.1	254	17	5610	Yes
3008	9.9	479	17	5610	Yes
3009	8.2	434	18	5610	Yes
3010	6.1	421	18	5610	Yes
3011	6.8	389	18	5610	Yes
3012	9.1	271	16	5610	Yes
3013	9.9	251	18	5610	No
3014	8.3	279	18	5610	No
3015	7.5	273	18	5610	Yes
3016	6.1	314	17	5610	Yes
3017	9.6	453	16	5610	No
3018	8.6	256	17	5610	Yes
3019	8.2	290	16	5610	Yes
3020	9.4	357	18	5610	Yes
3021	7.2	404	16	5610	Yes
3022	6.7	365	18	5610	Yes
3023	8.9	425	17	5610	No
3024	8.6	399	16	5610	No
3025	6.9	354	17	5610	No
3026	8.9	341	17	5610	No
3027	9.6	309	17	5610	Yes
3028	7.8	442	18	5610	Yes
3029	8.6	423	17	5610	Yes
3030	7	451	17	5610	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	5610	Yes
4002	13.2	485	16	5610	Yes
4003	16.1	374	16	5610	Yes
4004	14	427	13	5610	Yes
4005	13	462	16	5610	Yes
4006	15.7	277	13	5610	Yes
4007	20	324	16	5610	Yes
4008	18.9	286	12	5610	Yes
4009	14.6	346	13	5610	Yes
4010	13.9	320	16	5610	No
4011	19.2	275	15	5610	Yes
4012	14.7	262	13	5610	Yes
4013	16.2	481	12	5610	Yes
4014	12.1	363	14	5610	Yes
4015	14.1	477	16	5610	Yes
4016	19.6	372	12	5610	Yes
4017	17.7	498	15	5610	Yes
4018	19.4	406	14	5610	No
4019	18	294	12	5610	Yes
4020	11.1	348	16	5610	Yes
4021	19.3	382	12	5610	No
4022	13.9	347	15	5610	No
4023	13.5	394	15	5610	Yes
4024	12.3	355	13	5610	Yes
4025	17.1	415	14	5610	Yes
4026	16.4	390	12	5610	No
4027	17.4	345	16	5610	Yes
4028	17.2	332	15	5610	Yes
4029	18.7	299	14	5610	Yes
4030	14.6	432	13	5610	Yes

TYPE 5 DETECTION PROBABILITY

Data Sheet for FCC Long Pulse Radar Type 5		
Trial	Frequency (MHz)	Successful Detection (Yes/No)
1	5610	Yes
2	5610	Yes
3	5610	Yes
4	5610	Yes
5	5610	Yes
6	5610	Yes
7	5610	Yes
8	5610	Yes
9	5610	No
10	5610	Yes
11	5579	No
12	5578	Yes
13	5578	Yes
14	5579	Yes
15	5575	Yes
16	5579	Yes
17	5580	Yes
18	5576	Yes
19	5578	Yes
20	5580	Yes
21	5645	No
22	5645	Yes
23	5642	Yes
24	5640	No
25	5643	Yes
26	5642	Yes
27	5643	Yes
28	5644	Yes
29	5642	No
30	5643	Yes

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

TYPE 6 DETECTION PROBABILITY

Data Sheet for FCC Hopping Radar Type 6
1 us Pulse Width, 333 us PRI, 9 Pulses per Burst, 1 Burst per Hop
NTIA August 2005 Hopping Sequence

Trial	Starting Index Within Sequence	Signal Generator Frequency (MHz)	Hops within Detection BW	Successful Detection (Yes/No)
1	158	5572	18	Yes
2	633	5573	15	Yes
3	1108	5574	20	Yes
4	1583	5575	15	Yes
5	2058	5576	15	Yes
6	2533	5577	16	Yes
7	3008	5578	15	Yes
8	3483	5579	10	Yes
9	3958	5580	14	Yes
10	4433	5581	12	Yes
11	4908	5582	17	Yes
12	5383	5583	26	Yes
13	5858	5584	14	Yes
14	6333	5585	18	Yes
15	6808	5586	11	Yes
16	7283	5587	20	Yes
17	7758	5588	17	Yes
18	8233	5589	19	Yes
19	8708	5590	16	Yes
20	9183	5591	12	Yes
21	9658	5592	20	Yes
22	10133	5593	23	Yes
23	10608	5594	17	Yes
24	11083	5595	16	Yes
25	11558	5596	16	Yes
26	12033	5597	15	Yes
27	12508	5598	14	Yes
28	12983	5599	16	Yes
29	13458	5600	11	Yes
30	13933	5601	13	Yes
31	14408	5602	11	Yes
32	14883	5603	13	Yes
33	15358	5604	19	Yes
34	15833	5605	15	Yes
35	16308	5606	19	Yes
36	16783	5607	13	Yes

TYPE 6 DETECTION PROBABILITY (CONTINUED)

37	17258	5608	18	Yes
38	17733	5609	14	Yes
39	18208	5610	16	Yes
40	18683	5611	17	Yes
41	19158	5612	20	Yes
42	19633	5613	19	Yes
43	20108	5614	11	Yes
44	20583	5615	15	Yes
45	21058	5616	18	Yes
46	21533	5617	16	Yes
47	22008	5618	17	Yes
48	22483	5619	11	Yes
49	22958	5620	17	Yes
50	23433	5621	22	Yes
51	23908	5622	21	Yes
52	24383	5623	12	Yes
53	24858	5624	15	Yes
54	25333	5625	14	Yes
55	25808	5626	18	Yes
56	26283	5627	16	Yes
57	26758	5628	18	Yes
58	27233	5629	19	Yes
59	27708	5630	18	Yes
60	28183	5631	11	Yes
61	28658	5632	19	Yes
62	29133	5633	17	Yes
63	29608	5634	13	Yes
64	30083	5635	10	Yes
65	30558	5636	17	Yes
66	31033	5637	14	Yes
67	31508	5638	19	Yes
68	31983	5639	14	Yes
69	32458	5640	20	Yes
70	32933	5641	17	Yes
71	33408	5642	16	Yes
72	33883	5643	17	Yes
73	34358	5644	20	Yes
74	34833	5645	19	Yes
75	35308	5646	12	Yes
76	35783	5647	15	Yes
77	36258	5648	14	Yes

5.10. 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.

5.10.1. 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 FL	Detection Bandwidth FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	76.67	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	5300	No
1002	1	938	57	A	5300	No
1003	1	638	83	A	5300	Yes
1004	1	758	70	A	5300	Yes
1005	1	738	72	A	5300	Yes
1006	1	878	61	A	5300	Yes
1007	1	818	65	A	5300	Yes
1008	1	618	86	A	5300	Yes
1009	1	658	81	A	5300	Yes
1010	1	898	59	A	5300	Yes
1011	1	518	102	A	5300	Yes
1012	1	778	68	A	5300	Yes
1013	1	718	74	A	5300	Yes
1014	1	858	62	A	5300	Yes
1015	1	838	63	A	5300	Yes
1016	1	1493	36	B	5300	Yes
1017	1	1514	35	B	5300	Yes
1018	1	2017	27	B	5300	No
1019	1	2167	25	B	5300	Yes
1020	1	2800	19	B	5300	Yes
1021	1	1885	28	B	5300	Yes
1022	1	2647	20	B	5300	No
1023	1	667	80	B	5300	Yes
1024	1	1558	34	B	5300	No
1025	1	2255	24	B	5300	Yes
1026	1	2082	26	B	5300	Yes
1027	1	2909	19	B	5300	Yes
1028	1	2864	19	B	5300	Yes
1029	1	2626	21	B	5300	No
1030	1	2712	20	B	5300	No

5.10.1. 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 FL	Detection Bandwidth FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	86.67	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	5300	Yes
1002	1	938	57	A	5300	Yes
1003	1	638	83	A	5300	Yes
1004	1	758	70	A	5300	Yes
1005	1	738	72	A	5300	Yes
1006	1	878	61	A	5300	Yes
1007	1	818	65	A	5300	Yes
1008	1	618	86	A	5300	Yes
1009	1	658	81	A	5300	Yes
1010	1	898	59	A	5300	Yes
1011	1	518	102	A	5300	Yes
1012	1	778	68	A	5300	Yes
1013	1	718	74	A	5300	Yes
1014	1	858	62	A	5300	Yes
1015	1	838	63	A	5300	Yes
1016	1	1493	36	B	5300	Yes
1017	1	1514	35	B	5300	Yes
1018	1	2017	27	B	5300	Yes
1019	1	2167	25	B	5300	No
1020	1	2800	19	B	5300	Yes
1021	1	1885	28	B	5300	Yes
1022	1	2647	20	B	5300	No
1023	1	667	80	B	5300	Yes
1024	1	1558	34	B	5300	Yes
1025	1	2255	24	B	5300	Yes
1026	1	2082	26	B	5300	Yes
1027	1	2909	19	B	5300	No
1028	1	2864	19	B	5300	Yes
1029	1	2626	21	B	5300	Yes
1030	1	2712	20	B	5300	No

5.10.2. 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 FL	Detection Bandwidth FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	96.67	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	5290	No
1002	1	938	57	A	5290	Yes
1003	1	638	83	A	5290	Yes
1004	1	758	70	A	5290	Yes
1005	1	738	72	A	5290	Yes
1006	1	878	61	A	5290	Yes
1007	1	818	65	A	5290	Yes
1008	1	618	86	A	5290	Yes
1009	1	658	81	A	5290	Yes
1010	1	898	59	A	5290	Yes
1011	1	518	102	A	5290	Yes
1012	1	778	68	A	5290	Yes
1013	1	718	74	A	5290	Yes
1014	1	858	62	A	5290	Yes
1015	1	838	63	A	5290	Yes
1016	1	1493	36	B	5290	Yes
1017	1	1514	35	B	5290	Yes
1018	1	2017	27	B	5290	Yes
1019	1	2167	25	B	5290	Yes
1020	1	2800	19	B	5290	Yes
1021	1	1885	28	B	5290	Yes
1022	1	2647	20	B	5290	Yes
1023	1	667	80	B	5290	Yes
1024	1	1558	34	B	5290	Yes
1025	1	2255	24	B	5290	Yes
1026	1	2082	26	B	5290	Yes
1027	1	2909	19	B	5290	Yes
1028	1	2864	19	B	5290	Yes
1029	1	2626	21	B	5290	Yes
1030	1	2712	20	B	5290	Yes

5.10.3. 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 FL	Detection Bandwidth FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	100.00	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	5290	Yes
1002	1	938	57	A	5290	Yes
1003	1	638	83	A	5290	Yes
1004	1	758	70	A	5290	Yes
1005	1	738	72	A	5290	Yes
1006	1	878	61	A	5290	Yes
1007	1	818	65	A	5290	Yes
1008	1	618	86	A	5290	Yes
1009	1	658	81	A	5290	Yes
1010	1	898	59	A	5290	Yes
1011	1	518	102	A	5290	Yes
1012	1	778	68	A	5290	Yes
1013	1	718	74	A	5290	Yes
1014	1	858	62	A	5290	Yes
1015	1	838	63	A	5290	Yes
1016	1	1493	36	B	5290	Yes
1017	1	1514	35	B	5290	Yes
1018	1	2017	27	B	5290	Yes
1019	1	2167	25	B	5290	Yes
1020	1	2800	19	B	5290	Yes
1021	1	1885	28	B	5290	Yes
1022	1	2647	20	B	5290	Yes
1023	1	667	80	B	5290	Yes
1024	1	1558	34	B	5290	Yes
1025	1	2255	24	B	5290	Yes
1026	1	2082	26	B	5290	Yes
1027	1	2909	19	B	5290	Yes
1028	1	2864	19	B	5290	Yes
1029	1	2626	21	B	5290	Yes
1030	1	2712	20	B	5290	Yes

5.10.4. 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 FL	Detection Bandwidth FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	90.00	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	5500	Yes
1002	1	938	57	A	5500	Yes
1003	1	638	83	A	5500	Yes
1004	1	758	70	A	5500	Yes
1005	1	738	72	A	5500	Yes
1006	1	878	61	A	5500	Yes
1007	1	818	65	A	5500	Yes
1008	1	618	86	A	5500	Yes
1009	1	658	81	A	5500	Yes
1010	1	898	59	A	5500	Yes
1011	1	518	102	A	5500	Yes
1012	1	778	68	A	5500	Yes
1013	1	718	74	A	5500	Yes
1014	1	858	62	A	5500	No
1015	1	838	63	A	5500	Yes
1016	1	1493	36	B	5500	No
1017	1	1514	35	B	5500	Yes
1018	1	2017	27	B	5500	Yes
1019	1	2167	25	B	5500	Yes
1020	1	2800	19	B	5500	No
1021	1	1885	28	B	5500	Yes
1022	1	2647	20	B	5500	Yes
1023	1	667	80	B	5500	Yes
1024	1	1558	34	B	5500	Yes
1025	1	2255	24	B	5500	Yes
1026	1	2082	26	B	5500	Yes
1027	1	2909	19	B	5500	Yes
1028	1	2864	19	B	5500	Yes
1029	1	2626	21	B	5500	Yes
1030	1	2712	20	B	5500	Yes

5.10.5. 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 FL	Detection FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	90.00	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	5510	No
1002	1	938	57	A	5510	Yes
1003	1	638	83	A	5510	Yes
1004	1	758	70	A	5510	Yes
1005	1	738	72	A	5510	No
1006	1	878	61	A	5510	Yes
1007	1	818	65	A	5510	Yes
1008	1	618	86	A	5510	Yes
1009	1	658	81	A	5510	Yes
1010	1	898	59	A	5510	Yes
1011	1	518	102	A	5510	Yes
1012	1	778	68	A	5510	Yes
1013	1	718	74	A	5510	Yes
1014	1	858	62	A	5510	Yes
1015	1	838	63	A	5510	Yes
1016	1	1493	36	B	5510	Yes
1017	1	1514	35	B	5510	Yes
1018	1	2017	27	B	5510	Yes
1019	1	2167	25	B	5510	Yes
1020	1	2800	19	B	5510	Yes
1021	1	1885	28	B	5510	Yes
1022	1	2647	20	B	5510	Yes
1023	1	667	80	B	5510	Yes
1024	1	1558	34	B	5510	Yes
1025	1	2255	24	B	5510	Yes
1026	1	2082	26	B	5510	No
1027	1	2909	19	B	5510	Yes
1028	1	2864	19	B	5510	Yes
1029	1	2626	21	B	5510	Yes
1030	1	2712	20	B	5510	Yes

5.10.6. 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 FL	Detection Bandwidth FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	93.33	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	5530	Yes
1002	1	938	57	A	5530	Yes
1003	1	638	83	A	5530	Yes
1004	1	758	70	A	5530	Yes
1005	1	738	72	A	5530	Yes
1006	1	878	61	A	5530	Yes
1007	1	818	65	A	5530	Yes
1008	1	618	86	A	5530	Yes
1009	1	658	81	A	5530	Yes
1010	1	898	59	A	5530	Yes
1011	1	518	102	A	5530	Yes
1012	1	778	68	A	5530	Yes
1013	1	718	74	A	5530	Yes
1014	1	858	62	A	5530	Yes
1015	1	838	63	A	5530	Yes
1016	1	1493	36	B	5530	Yes
1017	1	1514	35	B	5530	No
1018	1	2017	27	B	5530	Yes
1019	1	2167	25	B	5530	Yes
1020	1	2800	19	B	5530	Yes
1021	1	1885	28	B	5530	Yes
1022	1	2647	20	B	5530	Yes
1023	1	667	80	B	5530	Yes
1024	1	1558	34	B	5530	Yes
1025	1	2255	24	B	5530	Yes
1026	1	2082	26	B	5530	Yes
1027	1	2909	19	B	5530	Yes
1028	1	2864	19	B	5530	No
1029	1	2626	21	B	5530	Yes
1030	1	2712	20	B	5530	Yes

5.10.7. 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 FL	Detection Bandwidth FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	83.33	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	5610	Yes
1002	1	938	57	A	5610	Yes
1003	1	638	83	A	5610	Yes
1004	1	758	70	A	5610	Yes
1005	1	738	72	A	5610	Yes
1006	1	878	61	A	5610	Yes
1007	1	818	65	A	5610	Yes
1008	1	618	86	A	5610	Yes
1009	1	658	81	A	5610	Yes
1010	1	898	59	A	5610	Yes
1011	1	518	102	A	5610	Yes
1012	1	778	68	A	5610	Yes
1013	1	718	74	A	5610	Yes
1014	1	858	62	A	5610	Yes
1015	1	838	63	A	5610	Yes
1016	1	1493	36	B	5610	Yes
1017	1	1514	35	B	5610	Yes
1018	1	2017	27	B	5610	Yes
1019	1	2167	25	B	5610	Yes
1020	1	2800	19	B	5610	Yes
1021	1	1885	28	B	5610	Yes
1022	1	2647	20	B	5610	No
1023	1	667	80	B	5610	Yes
1024	1	1558	34	B	5610	Yes
1025	1	2255	24	B	5610	Yes
1026	1	2082	26	B	5610	Yes
1027	1	2909	19	B	5610	No
1028	1	2864	19	B	5610	No
1029	1	2626	21	B	5610	No
1030	1	2712	20	B	5610	No