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*TEST REPORT*
*DYNAMIC FREQUENCY SELECTION REQUIREMENTS*
*OF*

*FCC Part 15 Subpart E (UNII)*

*Meru Networks Incorporated*
*Model(s): RS4000*

| | |
|---|---|
| MANUFACTURER: | Meru Networks Incorporated<br>1309 South Mary Avenue<br>Sunnyvale, CA. 94087 |
| TEST SITE: | Elliott Laboratories, Inc.<br>684 W. Maude Ave<br>Sunnyvale, CA 94085 |
| REPORT DATE: | October 4, 2007 |
| FINAL TEST DATE: | October 3, 2007 |
| AUTHORIZED SIGNATORY: | Mark Hill<br>Staff Engineer |

2016-01

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## *SCOPE*

The Federal Communications Commission and the European Telecommunications Standards Institute (ETSI) publish standards regarding ElectroMagnetic Compatibility and Radio spectrum Matters for radio-communications devices. Tests have been performed on the Meru Networks Incorporated model RS4000 in accordance with these standards.

Test data has been taken pursuant to the relevant requirements of the following standard.

- FCC Part 15 Subpart E Unlicensed National Information Infrastructure (U-NII) Devices

Tests were performed in accordance with these standards together with the current published versions of the basic standards referenced therein as outlined in Elliott Laboratories test procedures.

The test results recorded herein are based on a single type test of the Meru Networks Incorporated model RS4000 and therefore apply only to the tested sample. The sample was selected and prepared by Chippy Nasim of Meru Networks Incorporated.

## *OBJECTIVE*

The objective of the manufacturer is to comply with the standards identified in the previous section. In order to demonstrate compliance, the manufacturer or a contracted laboratory makes measurements and takes the necessary steps to ensure that the equipment complies with the appropriate technical standards. Compliance with some DFS features is covered through a manufacturer statement or through observation of the device.

## *STATEMENT OF COMPLIANCE*

The tested sample of Meru Networks Incorporated model RS4000 complied with the DFS requirements of:

FCC Part 15.407(h)

Maintenance of compliance is the responsibility of the manufacturer. Any modifications to the product should be assessed to determine their potential impact on the compliance status of the device with respect to the standards detailed in this test report.

## *DEVIATIONS FROM THE STANDARD*

No deviations were made from the test methods and requirements covered by the scope of this report.

## *EQUIPMENT UNDER TEST (EUT) DETAILS*

### *GENERAL*

The Meru Networks Incorporated model RS4000 is a Dual Radio WLAN Access Point.

The sample was received on October 2, 2007 and tested on October 3, 2007. The EUT consisted of the following component(s):

| Manufacturer | Model | Description | Serial Number |
|---|---|---|---|
| Meru Networks | RS4000 | Access Point | 1506RS4000000CE 600A085 |

The manufacturer declared values for the EUT operational characteristics that affect DFS are as follows:

**Operating Modes**

☒ Master Device

**Antenna Gains / EIRP**

| | 5250 – 5350 MHz | 5470 – 5725 MHz |
|---|---|---|
| Lowest Antenna Gain (dBi) | 4.5 | 4.5 |
| Highest Antenna Gain (dBi) | 5.5 | 5.5 |
| Output Power (dBm) | 17 | 17 |

**Channel Protocol**

☒ IP Based

### *ENCLOSURE*

The EUT enclosure measures approximately 17.6 by 22.0 by 9.6 centimeters. It is primarily constructed of steel.

### *MODIFICATIONS*

The EUT did not require modifications during testing in order to comply with the requirements of the standard(s) referenced in this test report.

*SUPPORT EQUIPMENT*

The following equipment was used as local support equipment for testing:

| Manufacturer | Model | Description | Serial Number | FCC ID |
|---|---|---|---|---|
| IBM | 2388 | Laptop Computer | KM-6666D 0410 | DoC |
| IBM | 2628 | Laptop Computer | 78-AP198 00/11 | DoC |
| Netgear | FS116 | Network Switch | FS13144DB0935 | DoC |
| 3Com | PW130 | Power Over Ethernet Supply | 0514 | N/A |
| Meru Networks | MC3000 | Controller | 1107MC30001027 | Class A |
| *Acer* | *Travelmate 2420* | *Laptop Computer* | *LXTB2060506070C9FSKS00* | *DoC PPD-AR5BMB5* |

The italicized device was the client device.

*EUT INTERFACE PORTS*

The I/O cabling configuration during testing was as follows:

| Port | Connected To | Cable(s) | | |
|---|---|---|---|---|
| | | Description | Shielded or Unshielded | Length(m) |
| RJ45 on EUT | 3Com POE | UTP-CAT5 | Unshielded | 3 |
| RJ45 on Switch | 3Com POE | UTP-CAT5 | Unshielded | 1 |
| RJ45 on Switch | MC3000 | UTP-CAT5 | Unshielded | 1 |
| RJ45 on MC3000 | IBM Laptop | UTP-CAT5 | Unshielded | 1 |

*EUT OPERATION*

The EUT was operating with the following software version 3.5. The software is secured by to prevent the user from disabling the DFS function.

Master Device:

The manufacturer provided special software that over-rode the non-occupancy mechanism (allowing return to the same channel) for the purposes of determining the probability of detection. This test feature was disabled and the normal operating software enabled for verifying the 30 minute non-occupancy period and channel move time.

The start of the Channel Availability Check was eight seconds after the command to change channel was sent.

During the in-service monitoring detection probability and channel moving tests the system was configured with a streaming video file from the master device (sourced by the PC connected to the master device via an Ethernet interface) to the client device.

The streamed file was the “FCC” test file and the client device was using Windows Media Player Classic as required by FCC Part 15 Subpart E.

## *TEST RESULTS*

### *TEST RESULTS SUMMARY – FCC Part 15, MASTER DEVICE*

| Description | Radar Type | Radar Frequency | Measured Value | Requirement | Test Data | Status |
|---|---|---|---|---|---|---|
| Channel Availability Check (CAC) Time | Type 1 | 5260MHz | 60.16s | ≥ 60s | Appendix D | complies |
| CAC Detection Threshold | Type 1 | 5620MHz<br>5280MHz | -62 | -62dBm | Appendix D | complies |
| In-Service Monitoring Detection Threshold | Type 1<br>Type 2<br>Type 3<br>Type 4<br>Type 5<br>Type 6 | Appendix B | 100%<br>100%<br>100%<br>100%<br>100%<br>100% | -62dBm | Appendix B | complies |
| Bandwidth Detection | Type 1 | Varies | 14 MHz | 80% of the 99% BW | - | Pass |
| Channel closing transmission time | Type 1<br>Type 5 | 5680<br>5620 | 0ms<br>0ms | ≤ 260ms | Appendix C | complies |
| Channel move time | Type 1<br>Type 5 | 5680<br>5620 | 172ms<br>0ms | ≤ 10s | Appendix C | complies |
| Non-occupancy period | N/A | 5500 | >30m | > 30 minutes | Appendix C | complies |
| Uniform Loading | | - | - | Uniform Loading | Refer to operational description | complies |
| Transmit Power Control | | Evaluation of TPC is outside the scope of this test report. | | | | N/A |

**Table 1 FCC Part 15 Subpart E Client Device Test Result Summary**

*MEASUREMENT UNCERTAINTIES*

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level, with a coverage factor (k=2) and were calculated in accordance with UKAS document LAB 34.

| Measurement | Measurement Unit | Expanded Uncertainty |
|---|---|---|
| Timing<br>(Channel move time,<br>aggregate transmission time) | ms | Timing resolution<br>+/- 0.24% |
| Timing<br>(non occupancy period) | seconds | 5 seconds |
| DFS Threshold (radiated) | dBm | 1.6 |
| DFS Threshold (conducted) | dBm | 1.2 |

## *DFS TEST METHODS*

### *RADIATED TEST METHOD*

The combination of master and slave devices is located in an anechoic chamber. The simulated radar waveform is transmitted from a directional horn antenna (typically an EMCO 3115) toward the unit performing the radar detection (radar detection device, RDD). Every effort is made to ensure that the main beam of the EUT's antenna is aligned with the radar generating antenna.

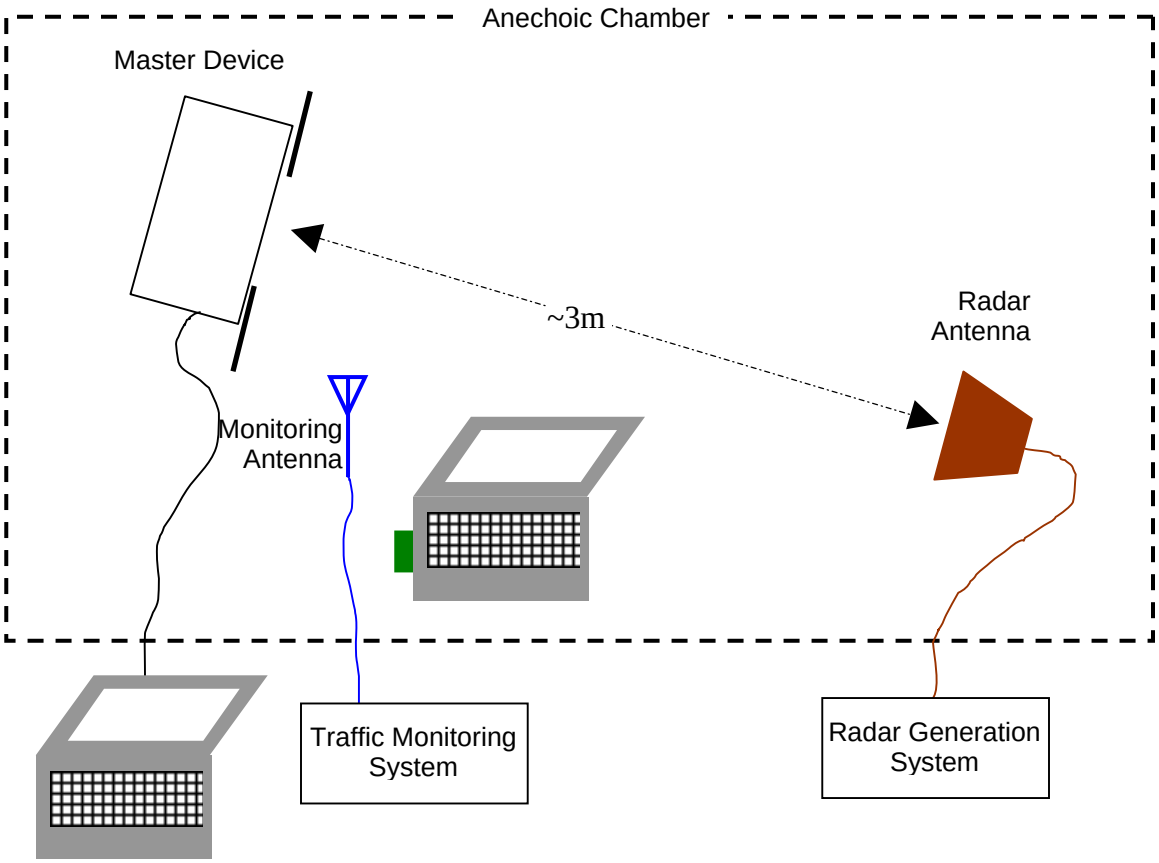


**Figure 1 Test Configuration for radiated Measurement Method**

The signal level of the simulated waveform is set to a reference level equal to the threshold level (plus 1dB if testing against FCC requirements). Lower levels may also be applied on request of the manufacturer. The level reported is the level at the RDD antenna and so it is not corrected for the RDD's antenna gain. The RDD is configured with the lowest gain antenna assembly intended for use with the device.

The signal level is verified by measuring the CW signal level from the radar generation system using a reference antenna of gain G (dBi). The radar signal level is calculated from the measured level, R (dBm), and any cable loss, L (dB), between the reference antenna and the measuring instrument:

Applied level (dBm) = R – GREF + L

If both master and client devices have radar detection capability then the device not under test is positioned with absorbing material between its antenna and the radar generating antenna, and the radar level at the non RDD is verified to be at least 20dB below the threshold level to ensure that any responses are due to the RDD detecting radar.

The antenna connected to the channel monitoring subsystem is positioned to allow both master and client transmissions to be observed, with the level of the EUT's transmissions between 6 and 10dB higher than those from the other device.

*CONDUCTED TEST METHOD*

The combination of master and slave devices is located in an anechoic chamber. The simulated radar waveform is coupled into the unit performing the radar detection (radar detection device, RDD) via couplers and attenuators.

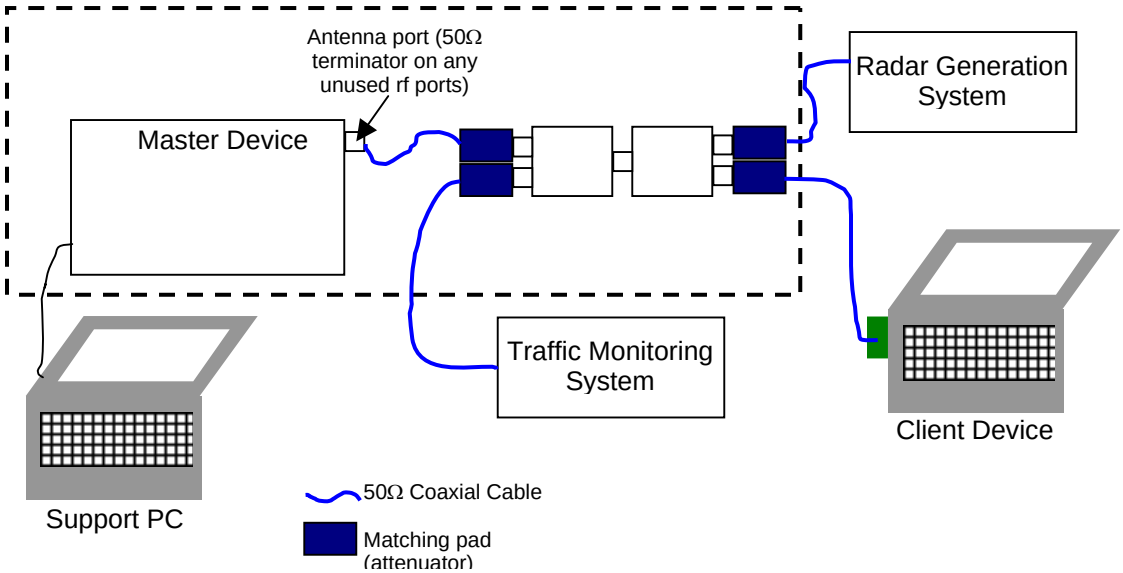


**Figure 2 Test Configuration for Conducted Measurement Method**

The signal level of the simulated waveform is set to a reference level equal to the threshold level (plus 1dB if testing against FCC requirements). Lower levels may also be applied on request of the manufacturer.

The signal level is verified by measuring the CW signal level at the coupling point to the RDD antenna port. The radar signal level is calculated from the measured level, R (dBm) and the lowest gain antenna assembly intended for use with the RDD, GRDD (dBi):

Applied level (dBm) = R - GRDD

If both master and client devices have radar detection capability then the radar level at the non RDD is verified to be at least 20dB below the threshold level to ensure that any responses are due to the RDD detecting radar.

The antenna connected to the channel monitoring subsystem is positioned to allow both master and client transmissions to be observed, with the level of the EUT's transmissions between 6 and 10dB higher than those from the other device.

## *DFS MEASUREMENT INSTRUMENTATION*

### *RADAR GENERATION SYSTEM*

An Agilent PSG is used as the radar generating source. The integral arbitrary waveform generators are programmed using Agilent's "Pulse Building" software and Elliott custom software to produce the required waveforms, with the capability to produce noth un-modulated and modulated (FM Chirp) pulses. Where there are multiple values for a specific radar parameter then the software selects a value at random and, for FCC tests, the software verifies that the resulting waveform is truly unique.

With the exception of the hopping waveforms required by the FCC's rules (see below), the radar generator is set to a single frequency within the radar detection bandwidth of the EUT.

Frequency hopping radar waveforms are simulated using a time domain model. A randomly hopping sequence algorithm (which uses each channel in the hopping radar's range once in a hopping sequence) generates a hop sequence. A segment of the first 100 elements of the hop sequence are then examined to determine if it contains one or more frequencies within the radar detection bandwidth of the EUT. If it does not then the first element of the segment is discarded and the next frequency in the sequence is added. The process repeats until a valid segment is produced. The radar system is then programmed to produce bursts at time slots coincident with the frequencies within the segment that fall in the detection bandwidth. The frequency of the generator is stepped in 1 MHz increments across the EUT's detection range.

The radar signal level is verified during testing using a CW signal with the AGC function switched on. Correction factors to account for the fact that pulses are generated with the AGC functions switched off are measured annually and an offset is used to account for this in the software.

The generator output is connected to the coupling port of the conducted set-up or to the radar generating antenna.

*CHANNEL MONITORING SYSTEM*

Channel monitoring is achieved using a spectrum analyzer and digital storage oscilloscope. The analyzer is configured in a zero-span mode, center frequency set to the radar waveform's frequency or the center frequency of the EUT's operating channel. The IF output of the analyzer is connected to one input of the oscilloscope.

A signal generator output is set to send either the modulating signal directly or a pulse gate with an output pulse co-incident with each radar pulse. This output is connected to a second input on the oscilloscope and the oscilloscope displays both the channel traffic (via the if input) and the radar pulses on its display.

For in service monitoring tests the analyzer sweep time is set to > 20 seconds and the oscilloscope is configured with a data record length of 10 seconds for the short duration and frequency hopping waveforms, 20 seconds for the long duration waveforms. Both instruments are set for a single acquisition sequence. The analyzer is triggered 500ms before the start of the waveform and the oscilloscope is triggered directly by the modulating pulse train. Timing measurements for aggregate channel transmission time and channel move time are made from the oscilloscope data, with the end of the waveform clearly identified by the pulse train on one trace. The analyzer trace data is used to confirm that the last transmission occurred within the 10 second record of the oscilloscope. If necessary the record length of the oscilloscope is expanded to capture the last transmission on the channel prior to the channel move.

Channel availability check time timing plots are made using the analyzer. The analyzer is triggered at start of the EUT's channel availability check and used to verify that the EUT does not transmit when radar is applied during the check time.

The analyzer detector and oscilloscope sampling mode is set to peak detect for all plots.

## *DFS MEASUREMENT METHODS*

### *DFS RADAR DETECTION BANDWIDTH*

The radar detection bandwidth is determined by using on of the radar waveforms (in the FCC case, the selection is limited to the short duration burst waveforms) and applying radar pulses at offset from the center channel frequency by multiples of 1MHz. These bursts are applied with no traffic on the channel. The first frequencies above and below the center channel frequency that have a detection rate below 90% define the radar bandwidth, the actual range being 1MHz below the upper frequency and 1MHz above the lower frequency.

### *DFS – CHANNEL CLOSING TRANSMISSION TIME AND CHANNEL MOVE TIME*

Channel clearing and closing times are measured by applying a radar burst with the device configured to change channel and by observing the channel for transmissions. The time between the end of the applied radar waveform and the final transmission on the channel is the channel move time.

The aggregate transmission closing time is measured in two ways:

FCC – the total time of all individual transmissions from the EUT that are observed starting 200ms at the end of the last radar pulse in the waveform. This value is required to be less than 60ms.

*DFS CHANNEL AVAILABILITY CHECK TIME*

It is preferred that the EUT report when it starts the radar channel availability check. In this case a single burst of one radar type is applied within 6 seconds of observing the start of the channel availability check and it is verified that the device does not use the channel. The test is repeated by applying a radar burst no sooner than 54 seconds and no later than 60 seconds after the start of the check.

If the EUT does not report the start of the check time, then the time to start transmitting on a channel after switching the device on is measured to approximate the time from power-on to the end of the channel availability check. The start of the channel availability check is assumed to be 60 seconds prior to the first transmission on the channel.

*UNIFORM LOADING*

Compliance with the channel loading requirement, where appropriate (i.e. when channel selection is not determined under control of the network), is demonstrated through the manufacturer's statement(s).

*TRANSMIT POWER CONTROL (TPC)*

Compliance with the transmit power control requirements for devices is demonstrated through measurements showing multiple power levels and manufacturer statements explaining how the power control is implemented.

## *SAMPLE CALCULATIONS*

### *DETECTION PROBABILITY / SUCCESS RATE*

The detection probability, or success rate, for any one radar waveform equals the number of successful trials divided by the total number of trials for that waveform.

In the case of the FCC requirements, for radar waveform types 1 through 4 an additional calculation is made to determine the average detection probability over all four radar waveform types. This calculation is the arithmetic mean of the four individual probabilities.

### *THRESHOLD LEVEL*

The threshold level is the level of the simulated radar waveform at the EUT's antenna. If the test is performed in a conducted fashion then the level at the rf input equals the level at the antenna plus the gain of the antenna assembly, in dBi. The gain of the antenna assembly equals the gain of the antenna minus the loss of the cabling between the rf input and the antenna. The lowest gain value for all antenna assemblies intended for use with the device is used when making this calculation.

If the test is performed using the radiated method then the threshold level is the level at the antenna.

## *Appendix A Test Equipment Calibration Data*

| Manufacturer | Description | Model # | Asset # | Cal Due |
|---|---|---|---|---|
| Hewlett Packard | EMC Analyzer | 8595EM | 787 | 21-Dec-07 |
| Tektronix | Oscilloscope | TDS 5104 | 1435 | 26-Apr-07 |
| Agilent | PSG Vector Signal Generator | E8267C | 1877 | 23-Nov-07 |

## *Appendix B Test Data Tables for Radar Detection Probability*

**Table 2 - Summary of All Results**

| Waveform Name | Success Rate | Number of Trials |
|---|---|---|
| FCC Short Pulse Radar (Type 1) | 100.0 % | 30 |
| FCC Short Pulse Radar (Type 2) | 100.0 % | 33 |
| FCC Short Pulse Radar (Type 3) | 100.0 % | 30 |
| FCC Short Pulse Radar (Type 4) | 100.0 % | 30 |
| FCC frequency hopping radar (Type 6) | 100.0 % | 32 |
| Long Sequence | 100.0 % | 30 |

**Table 3 - FCC Short Pulse Radar (Type 1) Test Results**

| Trial # | Pulses/ Burst | Pulse Width (us) | PRI (us) | Detected? | Fr (MHz) and level (dBm) | Hop seq. |
|---|---|---|---|---|---|---|
| 0 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 1 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 2 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 3 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 4 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 5 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 6 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 7 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 8 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 9 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 10 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 11 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 12 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 13 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 14 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 15 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 16 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 17 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 18 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, | N/A |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | -57.5dBm | |
| 19 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 20 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 21 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 22 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 23 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 24 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 25 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 26 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 27 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 28 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |
| 29 | 18 | 1.0 | 1428.0 | Yes | 5260.0MHz, -57.5dBm | N/A |

**Table 4 - FCC Short Pulse Radar (Type 2) Test Results**

| Trial # | Pulses/ Burst | Pulse Width (us) | PRI (us) | Detected? | Fr (MHz) and level (dBm) | Hop seq. |
|---|---|---|---|---|---|---|
| 0 | 25 | 3.5 | 182.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 1 | 28 | 1.6 | 162.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 2 | 24 | 2.3 | 166.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 3 | 25 | 4.1 | 166.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 4 | 29 | 1.5 | 228.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 5 | 26 | 4.3 | 222.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 6 | 27 | 2.6 | 214.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 7 | 28 | 1.5 | 167.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 8 | 24 | 4.7 | 212.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 9 | 25 | 1.9 | 159.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 10 | 29 | 1.1 | 222.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 11 | 24 | 4.1 | 171.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 12 | 27 | 4.8 | 208.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 13 | 25 | 4.1 | 162.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 14 | 26 | 1.4 | 197.0 | Yes | 5500.0MHz, | N/A |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | -57.5dBm | |
| 15 | 26 | 3.4 | 218.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 16 | 26 | 3.5 | 167.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 17 | 25 | 1.6 | 158.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 18 | 27 | 3.1 | 155.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 19 | 26 | 3.7 | 163.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 20 | 26 | 1.3 | 188.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 21 | 25 | 3.2 | 171.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 22 | 23 | 3.0 | 186.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 23 | 24 | 4.8 | 160.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 24 | 27 | 4.6 | 227.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 25 | 25 | 4.9 | 206.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 26 | 26 | 3.3 | 205.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 27 | 27 | 4.0 | 153.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 28 | 28 | 3.3 | 199.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 29 | 28 | 3.6 | 220.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 30 | 24 | 4.9 | 226.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 31 | 26 | 4.3 | 165.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 32 | 26 | 1.6 | 175.0 | Yes | 5500.0MHz, -57.5dBm | N/A |

**Table 5 - FCC Short Pulse Radar (Type 3) Test Results**

| Trial # | Pulses/ Burst | Pulse Width (us) | PRI (us) | Detected? | Fr (MHz) and level (dBm) | Hop seq. |
|---|---|---|---|---|---|---|
| 0 | 16 | 6.2 | 466.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 1 | 18 | 9.0 | 240.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 2 | 17 | 8.4 | 474.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 3 | 17 | 9.0 | 354.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 4 | 18 | 10.0 | 285.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 5 | 17 | 8.5 | 375.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 6 | 18 | 6.6 | 242.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 7 | 17 | 9.3 | 331.0 | Yes | 5500.0MHz, | N/A |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | -57.5dBm | |
| 8 | 16 | 6.9 | 237.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 9 | 17 | 8.0 | 216.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 10 | 17 | 9.0 | 293.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 11 | 17 | 7.9 | 228.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 12 | 18 | 7.1 | 450.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 13 | 18 | 9.2 | 462.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 14 | 17 | 9.1 | 413.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 15 | 18 | 7.3 | 275.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 16 | 16 | 8.6 | 299.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 17 | 16 | 8.4 | 375.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 18 | 17 | 9.6 | 222.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 19 | 18 | 6.6 | 269.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 20 | 18 | 9.1 | 486.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 21 | 18 | 6.6 | 313.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 22 | 17 | 8.3 | 216.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 23 | 17 | 7.0 | 437.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 24 | 17 | 9.5 | 369.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 25 | 16 | 6.3 | 214.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 26 | 17 | 6.5 | 209.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 27 | 16 | 6.3 | 357.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 28 | 17 | 7.1 | 204.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 29 | 16 | 6.5 | 389.0 | Yes | 5500.0MHz, -57.5dBm | N/A |

**Table 6 - FCC Short Pulse Radar (Type 4) Test Results**

| Trial # | Pulses/ Burst | Pulse Width (us) | PRI (us) | Detected? | Fr (MHz) and level (dBm) | Hop seq. |
|---|---|---|---|---|---|---|
| 0 | 15 | 11.8 | 323.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 1 | 15 | 18.8 | 472.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 2 | 13 | 19.9 | 475.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 3 | 13 | 18.5 | 207.0 | Yes | 5500.0MHz, | N/A |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | -57.5dBm | |
| 4 | 13 | 18.5 | 320.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 5 | 14 | 14.1 | 452.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 6 | 12 | 15.1 | 375.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 7 | 16 | 16.9 | 245.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 8 | 13 | 15.1 | 242.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 9 | 14 | 13.3 | 346.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 10 | 14 | 13.9 | 414.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 11 | 12 | 12.6 | 383.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 12 | 12 | 17.1 | 293.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 13 | 15 | 11.5 | 498.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 14 | 14 | 19.4 | 237.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 15 | 14 | 14.0 | 342.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 16 | 16 | 14.1 | 412.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 17 | 13 | 14.2 | 425.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 18 | 13 | 17.3 | 300.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 19 | 13 | 15.6 | 220.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 20 | 15 | 13.0 | 410.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 21 | 15 | 19.3 | 213.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 22 | 15 | 17.1 | 221.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 23 | 14 | 17.7 | 420.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 24 | 16 | 14.3 | 419.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 25 | 14 | 15.0 | 301.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 26 | 13 | 17.8 | 304.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 27 | 13 | 18.3 | 448.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 28 | 15 | 11.7 | 354.0 | Yes | 5500.0MHz, -57.5dBm | N/A |
| 29 | 13 | 14.7 | 404.0 | Yes | 5500.0MHz, -57.5dBm | N/A |

**Table 7 - FCC frequency hopping radar (Type 6) Test Results**

| Trial # | Pulses/ Burst | Pulse Width | PRI (us) | Detected? | Fr (MHz) and level (dBm) | Hop seq. |
|---|---|---|---|---|---|---|

| | | (us) | | | | |
|---|---|---|---|---|---|---|
| 0 | 9 | 1.0 | 333.0 | Yes | 5491.0MHz, -57.5dBm | 5584, 5591, 5402, 5671, 5668, 5697, 5453, 5681, 5462, 5425, 5437, 5341, 5372, 5714, 5625, 5254, 5344, 5450, 5522, 5641, 5676, 5690, 5446, 5429, 5305, 5298, 5643, 5255, 5327, 5319, 5550, 5340, 5533, 5594, 5552, 5367, 5383, 5574, 5431, 5682, 5485, 5363, 5505, 5265, 5324, 5689, 5478, 5518, 5685, 5623, 5642, 5556, 5351, 5679, 5434, 5558, 5687, 5654, 5476, 5501, 5686, 5293, 5311, 5487, 5442, 5433, 5414, 5347, 5489, 5525, 5510, 5407, 5278, 5473, 5500, 5427, 5545, 5380, 5336, 5635, 5409, 5492, 5333, 5491, 5286, 5629, 5662, 5541, 5301, 5484, 5616, 5335, 5309, 5334, 5486, 5496, 5582, 5721, 5506, 5393 (6 hits) |
| 1 | 9 | 1.0 | 333.0 | Yes | 5492.0MHz, -57.5dBm | 5398, 5348, 5672, 5701, 5414, 5421, 5250, 5547, 5523, 5706, 5415, 5597, 5618, 5630, 5527, 5667, 5257, 5515, 5418, 5256, 5489, 5301, 5561, 5304, 5352, 5536, 5385, 5437, 5251, 5445, 5298, 5356, 5642, 5585, 5310, 5374, 5406, 5283, 5267, 5458, 5666, 5473, 5389, 5590, 5548, 5617, 5636, 5631, 5331, 5464, 5265, 5549, 5339, 5435, 5358, 5684, 5526, 5599, 5699, 5470, 5404, 5674, 5394, 5432, 5423, 5327, 5341, 5366, 5278, 5546, 5615, 5460, 5589, 5525, 5403, 5383, 5297, 5386, 5336, 5581, 5455, 5544, 5704, 5687, 5654, 5388, 5608, 5419, 5405, 5446, 5693, 5492, 5495, 5395, 5514, 5326, 5635, 5294, 5552, 5287 (2 hits) |
| 2 | 9 | 1.0 | 333.0 | Yes | 5493.0MHz, -57.5dBm | 5646, 5537, 5420, 5628, 5464, 5573, 5571, 5504, 5536, 5686, 5399, 5588, 5572, 5322, 5498, 5252, 5688, 5286, 5262, 5382, 5546, 5278, 5614, 5656, 5304, 5535, 5482, 5302, 5398, 5580, 5349, 5407, 5275, 5553, 5508, 5711, 5526, 5544, 5690, 5514, 5708, 5370, 5476, 5310, 5367, 5657, 5556, 5400, 5348, 5273, 5555, 5294, 5610, 5589, 5527, 5533, 5465, 5300, 5366, 5585, 5663, 5274, 5289, 5684, 5409, 5271, 5389, 5520, 5650, 5412, 5316, 5297, 5458, 5578, 5364, 5463, 5564, 5446, 5649, 5328, |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | 5591, 5497, 5709, 5611, 5254, 5440, 5510, 5703, 5682, 5429, 5379, 5470, 5427, 5675, 5253, 5496, 5270, 5586, 5627, 5491 (5 hits) |
| 3 | 9 | 1.0 | 333.0 | Yes | 5494.0MHz, -57.5dBm | 5521, 5282, 5407, 5511, 5432, 5716, 5650, 5652, 5568, 5467, 5606, 5439, 5691, 5358, 5689, 5613, 5317, 5573, 5392, 5599, 5293, 5253, 5574, 5250, 5287, 5515, 5302, 5598, 5270, 5254, 5420, 5306, 5708, 5449, 5690, 5635, 5292, 5549, 5419, 5313, 5478, 5404, 5491, 5536, 5723, 5406, 5398, 5376, 5461, 5446, 5324, 5546, 5642, 5659, 5597, 5393, 5618, 5361, 5383, 5472, 5675, 5319, 5538, 5602, 5350, 5304, 5475, 5698, 5648, 5665, 5625, 5512, 5592, 5375, 5623, 5539, 5534, 5388, 5484, 5692, 5609, 5724, 5411, 5720, 5663, 5274, 5584, 5343, 5490, 5437, 5305, 5710, 5296, 5637, 5364, 5335, 5422, 5425, 5332, 5529 (1 hits) |
| 4 | 9 | 1.0 | 333.0 | Yes | 5495.0MHz, -57.5dBm | 5528, 5500, 5626, 5443, 5291, 5627, 5521, 5394, 5561, 5305, 5345, 5425, 5523, 5488, 5387, 5455, 5366, 5578, 5349, 5510, 5390, 5383, 5589, 5594, 5436, 5423, 5608, 5453, 5352, 5400, 5724, 5546, 5659, 5401, 5651, 5334, 5258, 5533, 5566, 5615, 5616, 5555, 5613, 5299, 5687, 5353, 5697, 5362, 5403, 5583, 5465, 5358, 5551, 5667, 5360, 5404, 5422, 5694, 5491, 5604, 5712, 5493, 5411, 5547, 5327, 5624, 5285, 5365, 5268, 5328, 5388, 5483, 5418, 5636, 5261, 5342, 5602, 5678, 5703, 5652, 5254, 5476, 5392, 5373, 5600, 5410, 5614, 5658, 5469, 5705, 5275, 5460, 5524, 5512, 5386, 5333, 5612, 5290, 5607, 5695 (3 hits) |
| 5 | 9 | 1.0 | 333.0 | Yes | 5496.0MHz, -57.5dBm | 5266, 5657, 5294, 5389, 5443, 5277, 5451, 5551, 5336, 5367, 5513, 5713, 5362, 5291, 5647, 5577, 5345, 5375, 5621, 5671, 5446, 5574, 5580, 5326, 5633, 5303, 5536, 5460, 5408, 5519, 5648, 5624, 5402, 5579, 5573, 5641, 5280, 5518, 5478, 5359, 5652, 5675, 5424, 5455, 5521, 5571, 5297, 5534, 5500, 5415, 5656, 5315, 5328, 5548, 5456, 5683, 5411, 5598, 5507, 5696, |

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|---|---|---|---|---|---|---|
| | | | | | | 5505, 5582, 5425, 5436, 5320, 5286, 5586, 5724, 5309, 5701, 5659, 5595, 5458, 5553, 5305, 5374, 5604, 5590, 5698, 5589, 5697, 5403, 5333, 5255, 5298, 5476, 5252, 5307, 5386, 5357, 5312, 5279, 5502, 5304, 5423, 5558, 5332, 5377, 5705, 5538 (3 hits) |
| 6 | 9 | 1.0 | 333.0 | Yes | 5497.0MHz, -57.5dBm | 5535, 5432, 5675, 5611, 5538, 5559, 5569, 5499, 5503, 5380, 5515, 5307, 5490, 5549, 5694, 5455, 5685, 5511, 5406, 5408, 5424, 5441, 5477, 5415, 5337, 5669, 5666, 5412, 5607, 5445, 5257, 5501, 5665, 5683, 5711, 5335, 5643, 5271, 5570, 5695, 5638, 5449, 5687, 5575, 5376, 5344, 5558, 5294, 5264, 5712, 5345, 5355, 5478, 5426, 5625, 5624, 5463, 5374, 5474, 5713, 5391, 5651, 5388, 5423, 5279, 5327, 5381, 5598, 5678, 5706, 5270, 5524, 5276, 5467, 5465, 5561, 5416, 5710, 5461, 5291, 5351, 5315, 5645, 5493, 5363, 5306, 5676, 5456, 5369, 5256, 5674, 5604, 5302, 5481, 5554, 5692, 5591, 5267, 5657, 5396 (4 hits) |
| 7 | 9 | 1.0 | 333.0 | Yes | 5498.0MHz, -57.5dBm | 5259, 5521, 5462, 5318, 5655, 5615, 5534, 5419, 5369, 5469, 5691, 5664, 5297, 5699, 5574, 5305, 5333, 5585, 5634, 5417, 5404, 5588, 5482, 5390, 5513, 5468, 5252, 5652, 5284, 5630, 5679, 5260, 5291, 5358, 5685, 5586, 5302, 5371, 5389, 5551, 5306, 5700, 5663, 5665, 5264, 5543, 5299, 5444, 5489, 5352, 5602, 5397, 5706, 5349, 5353, 5607, 5323, 5690, 5696, 5717, 5477, 5460, 5271, 5495, 5261, 5554, 5653, 5368, 5626, 5435, 5708, 5678, 5649, 5657, 5564, 5604, 5703, 5504, 5523, 5537, 5689, 5656, 5350, 5581, 5559, 5449, 5300, 5393, 5650, 5338, 5512, 5486, 5365, 5424, 5720, 5331, 5575, 5485, 5387, 5658 (2 hits) |
| 8 | 9 | 1.0 | 333.0 | Yes | 5499.0MHz, -57.5dBm | 5334, 5627, 5356, 5509, 5316, 5558, 5541, 5445, 5555, 5628, 5591, 5664, 5512, 5619, 5271, 5414, 5481, 5285, 5398, 5290, 5436, 5380, 5657, 5564, 5431, 5651, 5684, 5698, 5284, 5252, 5429, 5582, 5298, 5314, 5538, 5256, 5349, 5699, 5576, 5523, |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | 5584, 5494, 5665, 5640, 5411, 5686, 5717, 5571, 5337, 5471, 5723, 5597, 5372, 5456, 5301, 5251, 5448, 5449, 5716, 5331, 5279, 5402, 5359, 5434, 5381, 5418, 5374, 5679, 5255, 5443, 5704, 5253, 5683, 5575, 5499, 5264, 5632, 5444, 5477, 5421, 5404, 5347, 5483, 5501, 5455, 5453, 5642, 5373, 5605, 5515, 5635, 5563, 5478, 5391, 5468, 5348, 5433, 5447, 5603, 5705 (3 hits) |
| 9 | 9 | 1.0 | 333.0 | Yes | 5500.0MHz, -57.5dBm | 5509, 5663, 5684, 5445, 5447, 5333, 5263, 5461, 5335, 5431, 5580, 5564, 5525, 5450, 5281, 5575, 5366, 5605, 5506, 5394, 5517, 5421, 5497, 5486, 5359, 5502, 5413, 5576, 5301, 5465, 5637, 5520, 5466, 5499, 5682, 5552, 5563, 5590, 5574, 5678, 5389, 5604, 5452, 5583, 5331, 5688, 5369, 5415, 5309, 5692, 5388, 5558, 5685, 5606, 5529, 5398, 5676, 5513, 5549, 5673, 5255, 5613, 5440, 5459, 5380, 5328, 5487, 5370, 5672, 5624, 5442, 5512, 5706, 5514, 5546, 5504, 5593, 5550, 5607, 5341, 5494, 5687, 5266, 5573, 5256, 5551, 5267, 5691, 5485, 5272, 5623, 5409, 5496, 5250, 5567, 5526, 5719, 5399, 5657, 5426 (6 hits) |
| 10 | 9 | 1.0 | 333.0 | Yes | 5501.0MHz, -57.5dBm | 5288, 5533, 5421, 5601, 5523, 5722, 5439, 5700, 5315, 5300, 5678, 5333, 5258, 5326, 5658, 5292, 5307, 5649, 5565, 5387, 5354, 5724, 5467, 5464, 5715, 5642, 5652, 5405, 5530, 5593, 5484, 5506, 5503, 5630, 5376, 5708, 5403, 5360, 5306, 5569, 5631, 5557, 5331, 5586, 5291, 5410, 5352, 5395, 5480, 5318, 5437, 5422, 5412, 5279, 5493, 5260, 5343, 5265, 5675, 5297, 5676, 5266, 5502, 5677, 5688, 5269, 5357, 5334, 5327, 5573, 5524, 5384, 5481, 5507, 5301, 5611, 5619, 5346, 5669, 5413, 5580, 5681, 5482, 5367, 5673, 5313, 5655, 5555, 5513, 5613, 5364, 5386, 5311, 5725, 5282, 5570, 5610, 5697, 5373, 5385 (3 hits) |
| 11 | 9 | 1.0 | 333.0 | Yes | 5502.0MHz, -57.5dBm | 5437, 5681, 5428, 5547, 5660, 5431, 5423, 5671, 5676, 5445, 5371, 5658, 5692, 5573, 5559, 5292, 5449, 5533, 5363, 5294, |

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|---|---|---|---|---|---|---|
| | | | | | | 5478, 5323, 5569, 5460, 5485, 5659, 5537, 5416, 5272, 5340, 5398, 5395, 5575, 5397, 5316, 5509, 5307, 5608, 5267, 5680, 5510, 5724, 5289, 5385, 5456, 5383, 5605, 5550, 5260, 5581, 5556, 5419, 5554, 5393, 5313, 5417, 5472, 5621, 5607, 5685, 5522, 5508, 5430, 5261, 5464, 5318, 5588, 5278, 5284, 5611, 5696, 5252, 5378, 5557, 5256, 5303, 5269, 5441, 5412, 5614, 5264, 5640, 5384, 5593, 5295, 5301, 5521, 5652, 5619, 5700, 5330, 5535, 5661, 5288, 5302, 5420, 5345, 5570, 5273, 5495 (1 hits) |
| 12 | 9 | 1.0 | 333.0 | Yes | 5503.0MHz, -57.5dBm | 5332, 5681, 5310, 5295, 5450, 5466, 5376, 5262, 5459, 5428, 5513, 5354, 5481, 5494, 5438, 5339, 5715, 5523, 5549, 5534, 5577, 5636, 5570, 5445, 5582, 5275, 5544, 5351, 5477, 5434, 5309, 5430, 5372, 5489, 5307, 5437, 5355, 5420, 5298, 5701, 5660, 5503, 5400, 5292, 5684, 5374, 5506, 5465, 5584, 5614, 5403, 5286, 5381, 5628, 5597, 5312, 5305, 5323, 5448, 5405, 5331, 5321, 5626, 5569, 5690, 5458, 5384, 5655, 5261, 5270, 5559, 5651, 5635, 5670, 5716, 5514, 5711, 5643, 5511, 5347, 5563, 5284, 5404, 5297, 5357, 5515, 5255, 5498, 5694, 5431, 5338, 5551, 5333, 5285, 5695, 5667, 5526, 5350, 5265, 5426 (3 hits) |
| 13 | 9 | 1.0 | 333.0 | Yes | 5504.0MHz, -57.5dBm | 5588, 5573, 5282, 5513, 5471, 5318, 5711, 5455, 5676, 5597, 5520, 5524, 5544, 5501, 5445, 5518, 5503, 5565, 5553, 5672, 5412, 5252, 5313, 5495, 5540, 5467, 5393, 5468, 5529, 5283, 5385, 5721, 5290, 5633, 5596, 5303, 5629, 5399, 5473, 5268, 5432, 5372, 5447, 5583, 5635, 5300, 5602, 5536, 5531, 5436, 5704, 5652, 5557, 5535, 5378, 5647, 5284, 5686, 5370, 5251, 5369, 5552, 5394, 5567, 5401, 5558, 5262, 5614, 5681, 5604, 5301, 5395, 5593, 5418, 5407, 5335, 5595, 5384, 5621, 5484, 5408, 5480, 5258, 5624, 5433, 5336, 5487, 5650, 5488, 5563, 5718, 5424, 5294, 5609, 5698, 5397, 5270, 5618, 5373, 5427 (3 hits) |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14 | 9 | 1.0 | 333.0 | Yes | 5505.0MHz, -57.5dBm | 5695, 5586, 5256, 5513, 5393, 5389, 5654, 5519, 5530, 5718, 5710, 5681, 5333, 5521, 5512, 5332, 5531, 5720, 5522, 5328, 5430, 5260, 5588, 5381, 5548, 5669, 5601, 5707, 5670, 5615, 5443, 5715, 5614, 5637, 5697, 5661, 5461, 5647, 5546, 5274, 5627, 5527, 5263, 5338, 5557, 5426, 5313, 5319, 5373, 5423, 5271, 5621, 5717, 5403, 5638, 5446, 5275, 5280, 5311, 5668, 5635, 5365, 5409, 5528, 5370, 5477, 5574, 5520, 5711, 5589, 5582, 5610, 5264, 5536, 5317, 5417, 5399, 5395, 5363, 5504, 5299, 5301, 5405, 5495, 5524, 5603, 5583, 5488, 5469, 5258, 5544, 5689, 5253, 5309, 5666, 5543, 5285, 5344, 5436, 5499 (3 hits) |
| 15 | 9 | 1.0 | 333.0 | Yes | 5491.0MHz, -57.5dBm | 5544, 5460, 5393, 5343, 5391, 5290, 5707, 5580, 5631, 5709, 5654, 5417, 5386, 5626, 5280, 5340, 5601, 5265, 5331, 5467, 5703, 5560, 5357, 5299, 5452, 5480, 5496, 5497, 5260, 5288, 5369, 5332, 5448, 5527, 5581, 5718, 5469, 5624, 5682, 5716, 5429, 5609, 5389, 5603, 5258, 5719, 5468, 5600, 5453, 5676, 5387, 5647, 5604, 5618, 5541, 5431, 5323, 5472, 5396, 5706, 5376, 5446, 5649, 5508, 5252, 5411, 5398, 5443, 5344, 5486, 5371, 5495, 5341, 5712, 5403, 5684, 5494, 5407, 5263, 5537, 5449, 5445, 5539, 5620, 5284, 5570, 5454, 5303, 5504, 5352, 5296, 5435, 5693, 5658, 5571, 5381, 5307, 5415, 5507, 5483 (5 hits) |
| 16 | 9 | 1.0 | 333.0 | Yes | 5492.0MHz, -57.5dBm | 5300, 5350, 5724, 5379, 5418, 5677, 5555, 5671, 5474, 5544, 5279, 5363, 5314, 5336, 5289, 5407, 5415, 5438, 5409, 5533, 5557, 5303, 5261, 5470, 5308, 5349, 5532, 5527, 5620, 5556, 5504, 5718, 5292, 5466, 5679, 5613, 5299, 5625, 5367, 5376, 5388, 5609, 5506, 5260, 5501, 5478, 5508, 5713, 5682, 5519, 5429, 5327, 5465, 5657, 5459, 5435, 5433, 5651, 5653, 5380, 5291, 5457, 5315, 5607, 5499, 5573, 5387, 5426, 5257, 5617, 5655, 5601, 5250, 5391, 5716, 5485, 5322, 5311, 5440, 5575, 5697, 5511, 5516, 5357, 5566, |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | 5642, 5541, 5416, 5484, 5384, 5498, 5436, 5265, 5717, 5332, 5503, 5464, 5355, 5592, 5270 (5 hits) |
| 17 | 9 | 1.0 | 333.0 | Yes | 5493.0MHz, -57.5dBm | 5460, 5271, 5724, 5603, 5678, 5339, 5550, 5360, 5512, 5555, 5703, 5361, 5319, 5374, 5288, 5520, 5630, 5624, 5639, 5594, 5605, 5534, 5412, 5467, 5427, 5625, 5381, 5608, 5571, 5560, 5355, 5290, 5586, 5459, 5631, 5404, 5408, 5269, 5708, 5606, 5299, 5380, 5525, 5405, 5711, 5626, 5314, 5354, 5307, 5409, 5261, 5519, 5358, 5542, 5366, 5457, 5252, 5292, 5482, 5426, 5398, 5351, 5670, 5503, 5340, 5515, 5533, 5551, 5463, 5654, 5680, 5419, 5325, 5392, 5556, 5569, 5394, 5704, 5643, 5375, 5627, 5461, 5518, 5696, 5371, 5389, 5444, 5274, 5592, 5422, 5328, 5256, 5450, 5471, 5653, 5259, 5284, 5664, 5294, 5549 (1 hits) |
| 18 | 9 | 1.0 | 333.0 | Yes | 5494.0MHz, -57.5dBm | 5482, 5362, 5403, 5363, 5630, 5477, 5589, 5506, 5355, 5544, 5358, 5448, 5493, 5388, 5491, 5606, 5658, 5328, 5301, 5693, 5368, 5706, 5652, 5550, 5492, 5260, 5278, 5532, 5317, 5597, 5546, 5718, 5620, 5324, 5618, 5479, 5587, 5712, 5267, 5359, 5408, 5637, 5423, 5306, 5420, 5573, 5316, 5533, 5406, 5279, 5530, 5695, 5273, 5519, 5450, 5568, 5560, 5454, 5683, 5711, 5254, 5624, 5468, 5352, 5608, 5296, 5623, 5549, 5310, 5419, 5609, 5708, 5371, 5577, 5709, 5453, 5494, 5631, 5344, 5289, 5595, 5629, 5455, 5651, 5391, 5431, 5644, 5270, 5370, 5555, 5427, 5657, 5714, 5607, 5262, 5412, 5365, 5384, 5389, 5304 (4 hits) |
| 19 | 9 | 1.0 | 333.0 | Yes | 5495.0MHz, -57.5dBm | 5256, 5527, 5284, 5580, 5497, 5462, 5274, 5401, 5597, 5421, 5477, 5682, 5454, 5632, 5373, 5263, 5331, 5650, 5416, 5362, 5451, 5323, 5617, 5586, 5469, 5392, 5267, 5669, 5595, 5548, 5702, 5658, 5592, 5423, 5519, 5448, 5593, 5276, 5444, 5608, 5688, 5637, 5625, 5278, 5633, 5557, 5296, 5541, 5344, 5340, 5562, 5395, 5616, 5291, 5355, 5604, 5456, 5292, 5571, 5552, 5408, 5714, 5479, 5441, 5544, |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | 5324, 5319, 5384, 5346, 5390, 5422, 5313, 5253, 5436, 5260, 5407, 5687, 5486, 5715, 5268, 5659, 5536, 5660, 5584, 5442, 5476, 5438, 5701, 5475, 5622, 5403, 5466, 5638, 5474, 5410, 5540, 5703, 5400, 5699, 5722 (1 hits) |
| 20 | 9 | 1.0 | 333.0 | Yes | 5496.0MHz, -57.5dBm | 5425, 5577, 5310, 5486, 5668, 5367, 5679, 5468, 5515, 5576, 5388, 5566, 5587, 5460, 5448, 5313, 5637, 5650, 5628, 5419, 5667, 5415, 5522, 5408, 5693, 5321, 5536, 5441, 5465, 5690, 5274, 5352, 5660, 5560, 5294, 5712, 5620, 5718, 5582, 5675, 5603, 5626, 5361, 5298, 5721, 5334, 5655, 5605, 5368, 5513, 5689, 5400, 5506, 5412, 5397, 5432, 5673, 5463, 5642, 5305, 5341, 5625, 5333, 5271, 5674, 5259, 5377, 5314, 5284, 5355, 5279, 5291, 5598, 5417, 5646, 5381, 5354, 5684, 5378, 5724, 5551, 5649, 5303, 5253, 5586, 5356, 5500, 5533, 5585, 5484, 5683, 5589, 5407, 5281, 5580, 5325, 5280, 5469, 5362, 5478 (1 hits) |
| 21 | 9 | 1.0 | 333.0 | Yes | 5497.0MHz, -57.5dBm | 5667, 5548, 5514, 5634, 5611, 5594, 5335, 5330, 5452, 5288, 5394, 5328, 5362, 5589, 5604, 5647, 5532, 5715, 5554, 5575, 5276, 5485, 5473, 5279, 5486, 5490, 5331, 5318, 5463, 5602, 5623, 5427, 5551, 5302, 5289, 5350, 5533, 5648, 5608, 5539, 5349, 5483, 5688, 5546, 5400, 5660, 5252, 5530, 5549, 5309, 5267, 5388, 5496, 5678, 5607, 5692, 5259, 5534, 5323, 5474, 5461, 5347, 5547, 5343, 5513, 5313, 5450, 5550, 5422, 5521, 5529, 5615, 5596, 5429, 5676, 5454, 5480, 5291, 5251, 5294, 5301, 5711, 5488, 5491, 5333, 5466, 5701, 5616, 5614, 5405, 5434, 5397, 5290, 5416, 5282, 5424, 5312, 5582, 5531, 5686 (2 hits) |
| 22 | 9 | 1.0 | 333.0 | Yes | 5498.0MHz, -57.5dBm | 5302, 5658, 5478, 5307, 5475, 5431, 5424, 5660, 5490, 5708, 5407, 5609, 5413, 5662, 5723, 5371, 5456, 5274, 5577, 5445, 5526, 5643, 5692, 5722, 5558, 5605, 5525, 5664, 5266, 5393, 5272, 5641, 5497, 5597, 5547, 5437, 5540, 5376, 5499, 5543, 5619, 5623, 5289, 5570, 5347, |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | 5254, 5479, 5317, 5414, 5502, 5415, 5257, 5284, 5309, 5312, 5670, 5552, 5640, 5485, 5267, 5595, 5270, 5337, 5330, 5699, 5386, 5579, 5253, 5665, 5343, 5359, 5618, 5669, 5483, 5493, 5329, 5636, 5557, 5421, 5422, 5513, 5268, 5410, 5703, 5276, 5554, 5435, 5593, 5601, 5514, 5562, 5381, 5537, 5518, 5639, 5686, 5705, 5446, 5370, 5653 (4 hits) |
| 23 | 9 | 1.0 | 333.0 | Yes | 5499.0MHz, -57.5dBm | 5451, 5414, 5703, 5307, 5323, 5300, 5558, 5617, 5401, 5507, 5436, 5415, 5597, 5424, 5700, 5639, 5342, 5676, 5449, 5433, 5439, 5379, 5508, 5583, 5625, 5687, 5438, 5477, 5371, 5586, 5256, 5278, 5429, 5654, 5607, 5706, 5327, 5657, 5679, 5718, 5435, 5553, 5485, 5268, 5410, 5308, 5333, 5512, 5551, 5393, 5259, 5442, 5299, 5559, 5591, 5377, 5445, 5640, 5585, 5516, 5375, 5674, 5448, 5467, 5539, 5312, 5491, 5329, 5722, 5484, 5660, 5362, 5459, 5620, 5472, 5366, 5638, 5696, 5526, 5388, 5574, 5269, 5353, 5721, 5460, 5587, 5309, 5334, 5310, 5427, 5260, 5382, 5605, 5411, 5251, 5719, 5399, 5409, 5367, 5693 (1 hits) |
| 24 | 9 | 1.0 | 333.0 | Yes | 5500.0MHz, -57.5dBm | 5452, 5654, 5527, 5537, 5466, 5619, 5424, 5319, 5572, 5590, 5380, 5305, 5721, 5621, 5274, 5428, 5382, 5709, 5673, 5313, 5504, 5606, 5449, 5257, 5522, 5580, 5293, 5290, 5707, 5679, 5362, 5697, 5678, 5589, 5575, 5344, 5461, 5642, 5256, 5365, 5594, 5381, 5591, 5321, 5332, 5300, 5320, 5301, 5559, 5311, 5268, 5289, 5549, 5525, 5497, 5692, 5260, 5307, 5265, 5406, 5287, 5439, 5465, 5614, 5267, 5588, 5444, 5517, 5418, 5442, 5347, 5431, 5557, 5416, 5328, 5312, 5434, 5665, 5440, 5633, 5433, 5346, 5375, 5323, 5563, 5541, 5547, 5410, 5338, 5598, 5620, 5258, 5720, 5623, 5531, 5430, 5314, 5251, 5704, 5674 (2 hits) |
| 25 | 9 | 1.0 | 333.0 | Yes | 5501.0MHz, -57.5dBm | 5500, 5664, 5413, 5345, 5711, 5580, 5546, 5420, 5663, 5312, 5288, 5347, 5638, 5685, 5364, 5419, 5370, 5694, 5409, 5682, 5357, 5378, 5402, 5459, 5343, |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | 5656, 5466, 5639, 5521, 5406, 5700, 5362, 5276, 5592, 5491, 5630, 5262, 5390, 5559, 5274, 5703, 5257, 5286, 5301, 5351, 5497, 5287, 5269, 5446, 5593, 5645, 5442, 5391, 5626, 5273, 5587, 5332, 5660, 5374, 5702, 5337, 5368, 5298, 5379, 5471, 5584, 5263, 5421, 5603, 5327, 5558, 5267, 5517, 5594, 5538, 5449, 5714, 5528, 5640, 5373, 5355, 5261, 5289, 5607, 5482, 5423, 5445, 5438, 5581, 5529, 5520, 5360, 5428, 5602, 5665, 5432, 5549, 5654, 5672, 5483 (3 hits) |
| 26 | 9 | 1.0 | 333.0 | Yes | 5502.0MHz, -57.5dBm | 5297, 5314, 5351, 5499, 5640, 5605, 5455, 5474, 5508, 5318, 5581, 5253, 5353, 5320, 5608, 5612, 5681, 5649, 5690, 5259, 5558, 5377, 5467, 5551, 5527, 5566, 5629, 5281, 5572, 5431, 5686, 5516, 5717, 5708, 5711, 5365, 5411, 5439, 5513, 5360, 5376, 5564, 5543, 5461, 5689, 5332, 5625, 5553, 5700, 5724, 5349, 5289, 5258, 5515, 5457, 5573, 5290, 5434, 5675, 5336, 5463, 5483, 5288, 5366, 5371, 5275, 5368, 5582, 5337, 5541, 5580, 5650, 5335, 5433, 5667, 5560, 5668, 5358, 5545, 5414, 5607, 5466, 5429, 5390, 5251, 5587, 5504, 5329, 5342, 5615, 5693, 5631, 5548, 5546, 5357, 5563, 5622, 5362, 5638, 5539 (2 hits) |
| 27 | 9 | 1.0 | 333.0 | Yes | 5503.0MHz, -57.5dBm | 5528, 5298, 5303, 5622, 5306, 5447, 5683, 5413, 5402, 5365, 5282, 5355, 5534, 5702, 5610, 5458, 5311, 5581, 5506, 5674, 5259, 5545, 5621, 5273, 5460, 5522, 5468, 5407, 5624, 5521, 5431, 5718, 5347, 5558, 5449, 5326, 5642, 5457, 5334, 5451, 5515, 5611, 5328, 5370, 5588, 5613, 5699, 5497, 5394, 5617, 5362, 5652, 5337, 5475, 5681, 5379, 5689, 5471, 5377, 5317, 5594, 5424, 5568, 5550, 5653, 5258, 5430, 5330, 5533, 5313, 5639, 5619, 5340, 5354, 5520, 5314, 5647, 5502, 5440, 5664, 5367, 5676, 5580, 5586, 5701, 5292, 5555, 5418, 5666, 5256, 5382, 5593, 5638, 5433, 5351, 5444, 5592, 5251, 5349, 5708 (2 hits) |
| 28 | 9 | 1.0 | 333.0 | Yes | 5504.0MHz, | 5467, 5646, 5257, 5708, 5294, |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | -57.5dBm | 5366, 5385, 5701, 5406, 5588, 5560, 5409, 5370, 5359, 5276, 5561, 5546, 5360, 5388, 5674, 5699, 5579, 5559, 5259, 5662, 5702, 5533, 5552, 5442, 5279, 5310, 5286, 5721, 5371, 5415, 5265, 5530, 5719, 5456, 5675, 5666, 5381, 5497, 5616, 5376, 5531, 5455, 5621, 5374, 5452, 5435, 5420, 5387, 5486, 5389, 5283, 5653, 5570, 5596, 5466, 5465, 5627, 5328, 5526, 5713, 5407, 5494, 5691, 5337, 5571, 5696, 5634, 5583, 5704, 5523, 5275, 5251, 5665, 5314, 5441, 5391, 5623, 5514, 5418, 5284, 5461, 5346, 5644, 5620, 5352, 5329, 5655, 5303, 5340, 5445, 5565, 5566, 5687, 5495, 5630 (3 hits) |
| 29 | 9 | 1.0 | 333.0 | Yes | 5505.0MHz, -57.5dBm | 5668, 5722, 5607, 5372, 5298, 5545, 5509, 5723, 5279, 5430, 5496, 5574, 5513, 5643, 5407, 5378, 5373, 5335, 5724, 5413, 5393, 5499, 5360, 5486, 5719, 5721, 5709, 5280, 5506, 5554, 5349, 5326, 5680, 5424, 5692, 5593, 5656, 5622, 5376, 5270, 5404, 5291, 5623, 5377, 5305, 5526, 5442, 5586, 5251, 5505, 5368, 5296, 5582, 5677, 5549, 5497, 5350, 5636, 5621, 5415, 5363, 5475, 5685, 5354, 5637, 5401, 5534, 5654, 5449, 5328, 5369, 5648, 5392, 5535, 5344, 5411, 5573, 5625, 5252, 5695, 5589, 5630, 5264, 5617, 5515, 5691, 5390, 5532, 5412, 5567, 5396, 5386, 5301, 5312, 5556, 5583, 5610, 5333, 5255, 5346 (4 hits) |
| 30 | 9 | 1.0 | 333.0 | Yes | 5491.0MHz, -57.5dBm | 5309, 5664, 5507, 5493, 5660, 5566, 5490, 5336, 5330, 5656, 5637, 5722, 5445, 5340, 5620, 5529, 5402, 5297, 5454, 5677, 5477, 5379, 5547, 5289, 5253, 5338, 5382, 5436, 5431, 5265, 5572, 5407, 5387, 5542, 5612, 5652, 5266, 5290, 5707, 5586, 5703, 5638, 5606, 5410, 5471, 5337, 5327, 5295, 5460, 5709, 5269, 5412, 5695, 5450, 5518, 5254, 5350, 5627, 5277, 5463, 5508, 5411, 5264, 5334, 5287, 5661, 5308, 5421, 5284, 5646, 5593, 5326, 5251, 5267, 5509, 5710, 5475, 5537, 5511, 5598, 5262, 5268, 5712, 5473, 5557, 5549, 5371, 5420, 5400, 5514, |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | 5294, 5474, 5584, 5317, 5276, 5718, 5385, 5680, 5552, 5685 (1 hits) |
| 31 | 9 | 1.0 | 333.0 | Yes | 5492.0MHz, -57.5dBm | 5574, 5522, 5325, 5333, 5685, 5544, 5456, 5538, 5505, 5663, 5549, 5351, 5382, 5608, 5576, 5703, 5311, 5322, 5257, 5493, 5358, 5348, 5593, 5575, 5251, 5653, 5487, 5423, 5428, 5709, 5562, 5567, 5661, 5407, 5337, 5388, 5338, 5317, 5724, 5554, 5611, 5389, 5499, 5442, 5690, 5530, 5371, 5491, 5309, 5253, 5326, 5526, 5443, 5277, 5595, 5603, 5495, 5250, 5569, 5486, 5433, 5646, 5314, 5310, 5374, 5524, 5706, 5484, 5561, 5507, 5713, 5541, 5616, 5508, 5390, 5503, 5645, 5519, 5577, 5676, 5570, 5634, 5573, 5364, 5590, 5618, 5466, 5619, 5438, 5609, 5527, 5440, 5701, 5384, 5482, 5716, 5425, 5637, 5681, 5587 (6 hits) |

**Table 8 - Long Sequence Waveform Summary**

| Long Sequence Trial | Result | Radar Frequency / Amplitude |
|---|---|---|
| Trial #1 | Detected | 5500.0MHz, -57.5dBm |
| Trial #2 | Detected | 5500.0MHz, -57.5dBm |
| Trial #3 | Detected | 5500.0MHz, -57.5dBm |
| Trial #4 | Detected | 5500.0MHz, -57.5dBm |
| Trial #5 | Detected | 5500.0MHz, -57.5dBm |
| Trial #6 | Detected | 5500.0MHz, -57.5dBm |
| Trial #7 | Detected | 5500.0MHz, -57.5dBm |
| Trial #8 | Detected | 5500.0MHz, -57.5dBm |
| Trial #9 | Detected | 5500.0MHz, -57.5dBm |
| Trial #10 | Detected | 5500.0MHz, -57.5dBm |
| Trial #11 | Detected | 5500.0MHz, -57.5dBm |
| Trial #12 | Detected | 5500.0MHz, -57.5dBm |
| Trial #13 | Detected | 5500.0MHz, -57.5dBm |
| Trial #14 | Detected | 5500.0MHz, -57.5dBm |
| Trial #15 | Detected | 5500.0MHz, -57.5dBm |

| | | |
|---|---|---|
| Trial #16 | Detected | 5500.0MHz, -57.5dBm |
| Trial #17 | Detected | 5500.0MHz, -57.5dBm |
| Trial #18 | Detected | 5500.0MHz, -57.5dBm |
| Trial #19 | Detected | 5500.0MHz, -57.5dBm |
| Trial #20 | Detected | 5500.0MHz, -57.5dBm |
| Trial #21 | Detected | 5500.0MHz, -57.5dBm |
| Trial #22 | Detected | 5500.0MHz, -57.5dBm |
| Trial #23 | Detected | 5500.0MHz, -57.5dBm |
| Trial #24 | Detected | 5500.0MHz, -57.5dBm |
| Trial #25 | Detected | 5500.0MHz, -57.5dBm |
| Trial #26 | Detected | 5500.0MHz, -57.5dBm |
| Trial #27 | Detected | 5500.0MHz, -57.5dBm |
| Trial #28 | Detected | 5500.0MHz, -57.5dBm |
| Trial #29 | Detected | 5500.0MHz, -57.5dBm |
| Trial #30 | Detected | 5500.0MHz, -57.5dBm |

**Table 9 - Long Sequence Waveform Trial#1 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 3 | 52.5 | 11 | 1291.0 | 1204.0 | 0.108128 |
| 1 | 1 | 86.9 | 7 | - | - | 1.858396 |
| 2 | 3 | 72.1 | 7 | 1644.0 | 1623.0 | 2.934752 |
| 3 | 2 | 86.5 | 16 | 1699.0 | - | 3.570886 |
| 4 | 2 | 63.6 | 12 | 1754.0 | - | 4.157593 |
| 5 | 2 | 81.5 | 10 | 1525.0 | - | 5.126798 |
| 6 | 3 | 50.3 | 17 | 1930.0 | 1423.0 | 6.620808 |
| 7 | 3 | 55.4 | 9 | 1654.0 | 1939.0 | 7.787720 |
| 8 | 1 | 90.6 | 12 | - | - | 8.982637 |
| 9 | 2 | 98.0 | 7 | 1712.0 | - | 9.029943 |
| 10 | 2 | 66.9 | 16 | 1718.0 | - | 10.673371 |
| 11 | 2 | 71.3 | 8 | 1157.0 | - | 11.003863 |

**Table 10 - Long Sequence Waveform Trial#2 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 73.9 | 8 | 1507.0 | - | 0.000947 |
| 1 | 2 | 57.0 | 17 | 1382.0 | - | 0.928465 |
| 2 | 1 | 63.2 | 6 | - | - | 1.565879 |
| 3 | 1 | 84.2 | 9 | - | - | 2.604197 |
| 4 | 3 | 68.2 | 8 | 1855.0 | 1003.0 | 2.866111 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5 | 2 | 89.9 | 14 | 1299.0 | - | 3.620837 |
| 6 | 2 | 73.3 | 12 | 1470.0 | - | 4.389914 |
| 7 | 2 | 92.0 | 14 | 1823.0 | - | 4.932457 |
| 8 | 2 | 60.9 | 11 | 1234.0 | - | 5.467323 |
| 9 | 3 | 74.7 | 11 | 1295.0 | 1108.0 | 6.177745 |
| 10 | 2 | 81.2 | 17 | 1391.0 | - | 6.831344 |
| 11 | 2 | 91.0 | 17 | 1341.0 | - | 7.996927 |
| 12 | 2 | 72.8 | 5 | 1712.0 | - | 8.369890 |
| 13 | 1 | 70.0 | 16 | - | - | 9.282439 |
| 14 | 2 | 98.4 | 19 | 1045.0 | - | 9.543584 |
| 15 | 1 | 91.5 | 15 | - | - | 10.348283 |
| 16 | 2 | 64.9 | 13 | 1706.0 | - | 10.830222 |
| 17 | 2 | 56.0 | 8 | 1254.0 | - | 11.955652 |

**Table 11 - Long Sequence Waveform Trial#3 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 1 | 69.6 | 9 | - | - | 0.192195 |
| 1 | 2 | 53.4 | 13 | 1529.0 | - | 1.115137 |
| 2 | 3 | 89.2 | 20 | 1834.0 | 1699.0 | 1.468477 |
| 3 | 2 | 87.3 | 13 | 1018.0 | - | 2.778057 |
| 4 | 2 | 96.4 | 15 | 1441.0 | - | 3.198324 |
| 5 | 2 | 86.0 | 10 | 1625.0 | - | 3.622121 |
| 6 | 2 | 80.9 | 18 | 1448.0 | - | 4.318149 |
| 7 | 2 | 69.4 | 7 | 1441.0 | - | 5.220084 |
| 8 | 2 | 56.7 | 9 | 1227.0 | - | 5.691116 |
| 9 | 1 | 53.6 | 16 | - | - | 6.629831 |
| 10 | 2 | 67.3 | 18 | 1630.0 | - | 7.453961 |
| 11 | 2 | 79.7 | 17 | 1924.0 | - | 8.467023 |
| 12 | 1 | 52.1 | 9 | - | - | 8.991455 |
| 13 | 2 | 54.9 | 19 | 1589.0 | - | 9.701421 |
| 14 | 1 | 89.2 | 6 | - | - | 9.995972 |
| 15 | 3 | 83.5 | 7 | 1022.0 | 1790.0 | 10.649167 |
| 16 | 2 | 88.1 | 13 | 1821.0 | - | 11.795361 |

**Table 12 - Long Sequence Waveform Trial#4 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 65.7 | 8 | 1396.0 | - | 0.551893 |
| 1 | 2 | 64.5 | 14 | 1685.0 | - | 1.370433 |
| 2 | 2 | 72.9 | 15 | 1593.0 | - | 1.966186 |
| 3 | 1 | 67.9 | 11 | - | - | 2.316198 |
| 4 | 3 | 82.0 | 9 | 1035.0 | 1664.0 | 3.528781 |
| 5 | 2 | 87.9 | 7 | 1864.0 | - | 4.294954 |
| 6 | 2 | 68.9 | 18 | 1103.0 | - | 5.207208 |
| 7 | 2 | 70.1 | 8 | 1679.0 | - | 5.457049 |
| 8 | 3 | 77.4 | 9 | 1744.0 | 1843.0 | 6.564822 |
| 9 | 2 | 99.1 | 17 | 1765.0 | - | 7.439370 |
| 10 | 2 | 99.6 | 11 | 1814.0 | - | 7.753848 |
| 11 | 3 | 62.7 | 7 | 1059.0 | 1968.0 | 8.918077 |
| 12 | 3 | 61.3 | 18 | 1863.0 | 1509.0 | 9.694624 |
| 13 | 1 | 55.2 | 8 | - | - | 10.484513 |
| 14 | 2 | 66.0 | 11 | 1554.0 | - | 11.090636 |
| 15 | 2 | 79.8 | 15 | 1274.0 | - | 11.305935 |

**Table 13 - Long Sequence Waveform Trial#5 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 62.2 | 16 | 1550.0 | - | 0.154031 |
| 1 | 2 | 55.1 | 9 | 1590.0 | - | 1.052808 |
| 2 | 2 | 58.6 | 17 | 1078.0 | - | 1.865320 |
| 3 | 3 | 64.7 | 11 | 1525.0 | 1717.0 | 2.431449 |
| 4 | 2 | 52.2 | 5 | 1396.0 | - | 2.672504 |
| 5 | 3 | 61.9 | 16 | 1465.0 | 1683.0 | 3.664525 |
| 6 | 1 | 75.7 | 8 | - | - | 4.259696 |
| 7 | 3 | 83.0 | 19 | 1436.0 | 1256.0 | 5.021941 |
| 8 | 3 | 99.6 | 12 | 1836.0 | 1550.0 | 5.497925 |
| 9 | 1 | 56.1 | 12 | - | - | 5.819253 |
| 10 | 1 | 62.7 | 10 | - | - | 6.667449 |
| 11 | 1 | 75.6 | 17 | - | - | 7.504692 |
| 12 | 2 | 51.8 | 11 | 1465.0 | - | 7.974734 |
| 13 | 1 | 50.9 | 15 | - | - | 8.817301 |
| 14 | 1 | 87.6 | 7 | - | - | 9.206727 |
| 15 | 3 | 65.8 | 8 | 1752.0 | 1066.0 | 9.552112 |
| 16 | 3 | 87.4 | 6 | 1017.0 | 1819.0 | 10.382548 |
| 17 | 2 | 68.3 | 9 | 1067.0 | - | 10.922362 |
| 18 | 1 | 51.3 | 19 | - | - | 11.458694 |

**Table 14 - Long Sequence Waveform Trial#6 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 88.1 | 9 | 1683.0 | - | 0.454119 |
| 1 | 2 | 85.4 | 19 | 1989.0 | - | 1.414596 |
| 2 | 3 | 71.8 | 15 | 1653.0 | 1502.0 | 2.697308 |
| 3 | 1 | 76.3 | 15 | - | - | 2.849572 |
| 4 | 3 | 74.9 | 9 | 1806.0 | 1786.0 | 4.112486 |
| 5 | 2 | 95.7 | 17 | 1187.0 | - | 4.676603 |
| 6 | 2 | 65.3 | 19 | 1005.0 | - | 6.380614 |
| 7 | 3 | 53.4 | 10 | 1259.0 | 1519.0 | 7.089240 |
| 8 | 2 | 78.8 | 19 | 1876.0 | - | 7.620782 |
| 9 | 3 | 60.6 | 18 | 1594.0 | 1812.0 | 8.677756 |
| 10 | 3 | 59.6 | 8 | 1582.0 | 1578.0 | 9.602947 |
| 11 | 1 | 68.3 | 10 | - | - | 10.304823 |
| 12 | 1 | 59.0 | 10 | - | - | 11.460720 |

**Table 15 - Long Sequence Waveform Trial#7 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 84.0 | 19 | 1627.0 | - | 0.030044 |
| 1 | 3 | 73.2 | 15 | 1423.0 | 1995.0 | 1.053895 |
| 2 | 2 | 69.6 | 7 | 1211.0 | - | 2.463205 |
| 3 | 2 | 90.0 | 16 | 1433.0 | - | 2.599475 |
| 4 | 2 | 63.6 | 7 | 1377.0 | - | 4.240561 |
| 5 | 2 | 50.1 | 5 | 1847.0 | - | 4.832883 |
| 6 | 1 | 55.5 | 11 | - | - | 5.199020 |
| 7 | 1 | 88.5 | 15 | - | - | 6.127615 |
| 8 | 2 | 50.3 | 8 | 1517.0 | - | 7.247544 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | 1 | 77.0 | 20 | - | - | 8.089162 |
| 10 | 2 | 67.9 | 10 | 1325.0 | - | 8.791601 |
| 11 | 2 | 66.6 | 12 | 1537.0 | - | 9.676837 |
| 12 | 1 | 90.5 | 13 | - | - | 10.818133 |
| 13 | 2 | 73.0 | 18 | 1064.0 | - | 11.405032 |

**Table 16 - Long Sequence Waveform Trial#8 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 3 | 62.1 | 19 | 1829.0 | 1382.0 | 0.426190 |
| 1 | 2 | 70.0 | 15 | 1051.0 | - | 0.939670 |
| 2 | 2 | 60.4 | 11 | 1633.0 | - | 1.573482 |
| 3 | 1 | 81.3 | 11 | - | - | 2.475035 |
| 4 | 2 | 63.0 | 11 | 1460.0 | - | 3.248723 |
| 5 | 3 | 99.1 | 14 | 1031.0 | 1374.0 | 3.907186 |
| 6 | 2 | 69.9 | 8 | 1895.0 | - | 4.925388 |
| 7 | 2 | 50.1 | 18 | 1112.0 | - | 5.102042 |
| 8 | 3 | 56.8 | 10 | 1711.0 | 1687.0 | 5.717352 |
| 9 | 3 | 79.9 | 17 | 1850.0 | 1843.0 | 6.843370 |
| 10 | 1 | 94.8 | 16 | - | - | 7.118894 |
| 11 | 2 | 53.5 | 9 | 1663.0 | - | 8.353223 |
| 12 | 2 | 74.7 | 14 | 1548.0 | - | 8.635613 |
| 13 | 2 | 89.9 | 7 | 1932.0 | - | 9.606583 |
| 14 | 2 | 55.6 | 5 | 1650.0 | - | 10.114368 |
| 15 | 2 | 89.6 | 8 | 1062.0 | - | 11.034326 |
| 16 | 2 | 55.3 | 10 | 1022.0 | - | 11.391026 |

**Table 17 - Long Sequence Waveform Trial#9 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 99.5 | 10 | 1740.0 | - | 0.428763 |
| 1 | 2 | 96.6 | 9 | 1831.0 | - | 1.355281 |
| 2 | 2 | 90.8 | 10 | 1676.0 | - | 2.105199 |
| 3 | 2 | 75.5 | 7 | 1653.0 | - | 3.424357 |
| 4 | 3 | 86.6 | 9 | 1733.0 | 1093.0 | 4.221368 |
| 5 | 1 | 66.8 | 6 | - | - | 4.972721 |
| 6 | 1 | 66.0 | 19 | - | - | 6.085955 |
| 7 | 2 | 84.0 | 5 | 1952.0 | - | 7.293276 |
| 8 | 2 | 65.5 | 5 | 1268.0 | - | 7.844416 |
| 9 | 2 | 78.9 | 20 | 1289.0 | - | 9.012835 |
| 10 | 2 | 69.0 | 20 | 1639.0 | - | 9.289214 |
| 11 | 1 | 71.8 | 15 | - | - | 10.928159 |
| 12 | 2 | 67.1 | 13 | 1654.0 | - | 11.827221 |

**Table 18 - Long Sequence Waveform Trial#10 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 62.2 | 19 | 1229.0 | - | 0.455776 |
| 1 | 1 | 51.9 | 10 | - | - | 0.942230 |
| 2 | 2 | 56.3 | 15 | 1579.0 | - | 1.355049 |
| 3 | 2 | 82.4 | 16 | 1712.0 | - | 2.097446 |
| 4 | 2 | 63.2 | 17 | 1794.0 | - | 2.697889 |
| 5 | 3 | 52.7 | 7 | 1124.0 | 1172.0 | 3.623583 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 6 | 3 | 93.0 | 11 | 1589.0 | 1670.0 | 4.206177 |
| 7 | 2 | 69.0 | 10 | 1566.0 | - | 4.883672 |
| 8 | 3 | 50.6 | 14 | 1690.0 | 1804.0 | 5.115517 |
| 9 | 1 | 97.8 | 16 | - | - | 6.201016 |
| 10 | 2 | 84.2 | 16 | 1662.0 | - | 6.721656 |
| 11 | 1 | 92.2 | 12 | - | - | 7.300591 |
| 12 | 2 | 67.7 | 20 | 1818.0 | - | 7.833716 |
| 13 | 3 | 53.7 | 11 | 1252.0 | 1770.0 | 8.399341 |
| 14 | 2 | 99.7 | 5 | 1545.0 | - | 9.109531 |
| 15 | 2 | 76.6 | 11 | 1502.0 | - | 10.080404 |
| 16 | 2 | 91.9 | 6 | 1998.0 | - | 10.568828 |
| 17 | 3 | 57.4 | 9 | 1339.0 | 1480.0 | 10.962643 |
| 18 | 2 | 68.3 | 7 | 1001.0 | - | 11.801785 |

**Table 19 - Long Sequence Waveform Trial#11 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 65.4 | 18 | 1706.0 | - | 0.250805 |
| 1 | 2 | 98.0 | 15 | 1536.0 | - | 1.101822 |
| 2 | 2 | 86.6 | 7 | 1752.0 | - | 1.853436 |
| 3 | 2 | 51.7 | 13 | 1219.0 | - | 2.667989 |
| 4 | 2 | 80.2 | 6 | 1589.0 | - | 3.182106 |
| 5 | 2 | 53.5 | 5 | 1462.0 | - | 3.933833 |
| 6 | 2 | 90.8 | 19 | 1243.0 | - | 4.987240 |
| 7 | 1 | 84.9 | 7 | - | - | 5.373386 |
| 8 | 2 | 55.4 | 17 | 1951.0 | - | 6.280605 |
| 9 | 2 | 95.5 | 20 | 1746.0 | - | 6.937535 |
| 10 | 1 | 72.5 | 9 | - | - | 8.107532 |
| 11 | 3 | 98.1 | 14 | 1075.0 | 1104.0 | 8.400374 |
| 12 | 1 | 95.0 | 15 | - | - | 9.646729 |
| 13 | 2 | 63.4 | 10 | 1501.0 | - | 10.456228 |
| 14 | 3 | 96.8 | 8 | 1462.0 | 1674.0 | 10.622777 |
| 15 | 3 | 59.6 | 15 | 1208.0 | 1639.0 | 11.585193 |

**Table 20 - Long Sequence Waveform Trial#12 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 79.3 | 16 | 1610.0 | - | 0.384697 |
| 1 | 1 | 95.8 | 13 | - | - | 0.901463 |
| 2 | 2 | 95.9 | 6 | 1141.0 | - | 1.998186 |
| 3 | 1 | 99.0 | 15 | - | - | 2.513773 |
| 4 | 2 | 52.0 | 7 | 1266.0 | - | 2.744864 |
| 5 | 3 | 74.3 | 19 | 1824.0 | 1347.0 | 3.710950 |
| 6 | 1 | 73.1 | 15 | - | - | 4.403727 |
| 7 | 2 | 74.8 | 14 | 1816.0 | - | 5.053115 |
| 8 | 2 | 56.1 | 6 | 1556.0 | - | 5.925417 |
| 9 | 3 | 53.1 | 11 | 1901.0 | 1610.0 | 6.023506 |
| 10 | 3 | 90.7 | 11 | 1862.0 | 1260.0 | 7.212489 |
| 11 | 1 | 74.8 | 18 | - | - | 7.860318 |
| 12 | 2 | 80.5 | 7 | 1282.0 | - | 8.437460 |
| 13 | 3 | 75.2 | 8 | 1740.0 | 1308.0 | 9.328593 |
| 14 | 2 | 74.3 | 10 | 1710.0 | - | 9.390918 |
| 15 | 3 | 76.9 | 14 | 1030.0 | 1539.0 | 10.003481 |
| 16 | 1 | 70.3 | 13 | - | - | 11.281375 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 17 | 2 | 64.0 | 19 | 1798.0 | - | 11.575796 |

**Table 21 - Long Sequence Waveform Trial#13 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 1 | 64.9 | 12 | - | - | 0.830111 |
| 1 | 2 | 54.8 | 6 | 1314.0 | - | 1.697066 |
| 2 | 3 | 52.5 | 8 | 1984.0 | 1594.0 | 1.917564 |
| 3 | 2 | 87.7 | 14 | 1977.0 | - | 2.783437 |
| 4 | 2 | 51.6 | 12 | 1569.0 | - | 3.603385 |
| 5 | 3 | 62.9 | 12 | 1197.0 | 1807.0 | 4.706762 |
| 6 | 2 | 58.8 | 13 | 1160.0 | - | 5.167898 |
| 7 | 2 | 73.8 | 19 | 1820.0 | - | 6.374154 |
| 8 | 1 | 55.0 | 20 | - | - | 7.070079 |
| 9 | 2 | 73.5 | 12 | 1995.0 | - | 8.144687 |
| 10 | 2 | 80.2 | 17 | 1335.0 | - | 9.268715 |
| 11 | 2 | 90.1 | 20 | 1985.0 | - | 9.474032 |
| 12 | 1 | 73.5 | 7 | - | - | 11.076087 |
| 13 | 2 | 65.1 | 16 | 1842.0 | - | 11.570152 |

**Table 22 - Long Sequence Waveform Trial#14 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 60.0 | 17 | 1825.0 | - | 0.043484 |
| 1 | 1 | 63.8 | 13 | - | - | 0.816164 |
| 2 | 2 | 69.6 | 10 | 1747.0 | - | 1.668012 |
| 3 | 2 | 71.7 | 15 | 1072.0 | - | 2.459144 |
| 4 | 3 | 70.5 | 17 | 1288.0 | 1406.0 | 3.391245 |
| 5 | 2 | 90.5 | 17 | 1358.0 | - | 4.606705 |
| 6 | 1 | 93.9 | 13 | - | - | 5.599680 |
| 7 | 2 | 73.6 | 10 | 1981.0 | - | 6.291619 |
| 8 | 3 | 75.6 | 8 | 1670.0 | 1860.0 | 6.529664 |
| 9 | 3 | 92.0 | 6 | 1348.0 | 1317.0 | 7.555509 |
| 10 | 2 | 94.8 | 16 | 1591.0 | - | 8.008238 |
| 11 | 1 | 63.5 | 19 | - | - | 9.363944 |
| 12 | 3 | 72.1 | 11 | 1437.0 | 1975.0 | 10.089770 |
| 13 | 2 | 67.1 | 10 | 1164.0 | - | 10.969866 |
| 14 | 1 | 81.1 | 10 | - | - | 11.903753 |

**Table 23 - Long Sequence Waveform Trial#15 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 1 | 73.1 | 12 | - | - | 0.264322 |
| 1 | 3 | 78.0 | 15 | 1339.0 | 1549.0 | 1.302942 |
| 2 | 1 | 92.7 | 7 | - | - | 1.843245 |
| 3 | 3 | 69.0 | 18 | 1309.0 | 1368.0 | 2.614311 |
| 4 | 2 | 89.3 | 12 | 1116.0 | - | 2.937568 |
| 5 | 2 | 80.3 | 8 | 1042.0 | - | 3.341810 |
| 6 | 2 | 86.1 | 14 | 1139.0 | - | 4.406580 |
| 7 | 3 | 50.9 | 13 | 1925.0 | 1014.0 | 4.911009 |
| 8 | 2 | 90.6 | 7 | 1028.0 | - | 5.868393 |
| 9 | 1 | 67.7 | 17 | - | - | 6.168391 |
| 10 | 2 | 61.1 | 17 | 1332.0 | - | 6.786924 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 11 | 3 | 53.1 | 6 | 1247.0 | 1434.0 | 7.374110 |
| 12 | 1 | 80.9 | 19 | - | - | 8.188928 |
| 13 | 2 | 80.9 | 7 | 1118.0 | - | 9.127465 |
| 14 | 2 | 74.3 | 16 | 1671.0 | - | 9.745282 |
| 15 | 2 | 84.2 | 10 | 1513.0 | - | 10.663112 |
| 16 | 2 | 84.0 | 12 | 1197.0 | - | 10.707268 |
| 17 | 3 | 90.3 | 20 | 1500.0 | 1065.0 | 11.959045 |

**Table 24 - Long Sequence Waveform Trial#16 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 70.3 | 10 | 1385.0 | - | 0.367794 |
| 1 | 2 | 92.0 | 7 | 1114.0 | - | 1.484649 |
| 2 | 2 | 76.3 | 9 | 1918.0 | - | 2.030423 |
| 3 | 2 | 90.0 | 10 | 1379.0 | - | 2.898158 |
| 4 | 2 | 53.7 | 13 | 1859.0 | - | 4.194983 |
| 5 | 2 | 91.6 | 8 | 1297.0 | - | 4.990280 |
| 6 | 2 | 99.3 | 5 | 1575.0 | - | 5.823000 |
| 7 | 1 | 85.8 | 11 | - | - | 6.139275 |
| 8 | 2 | 81.1 | 19 | 1904.0 | - | 7.154598 |
| 9 | 2 | 73.2 | 9 | 1908.0 | - | 7.729303 |
| 10 | 2 | 73.3 | 16 | 1333.0 | - | 8.955320 |
| 11 | 1 | 96.6 | 19 | - | - | 9.645264 |
| 12 | 3 | 65.5 | 12 | 1306.0 | 1795.0 | 11.127654 |
| 13 | 2 | 75.0 | 14 | 1120.0 | - | 11.916901 |

**Table 25 - Long Sequence Waveform Trial#17 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 3 | 66.9 | 16 | 1500.0 | 1067.0 | 0.629371 |
| 1 | 2 | 89.6 | 11 | 1637.0 | - | 1.728297 |
| 2 | 1 | 87.4 | 10 | - | - | 2.454282 |
| 3 | 1 | 82.0 | 6 | - | - | 3.951888 |
| 4 | 2 | 95.8 | 12 | 1091.0 | - | 5.085412 |
| 5 | 3 | 72.1 | 19 | 1807.0 | 1301.0 | 6.146878 |
| 6 | 2 | 84.8 | 5 | 1928.0 | - | 7.213703 |
| 7 | 1 | 87.7 | 10 | - | - | 8.997623 |
| 8 | 3 | 61.1 | 19 | 1934.0 | 1809.0 | 10.071826 |
| 9 | 1 | 50.5 | 19 | - | - | 11.355051 |

**Table 26 - Long Sequence Waveform Trial#18 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 90.5 | 19 | 1417.0 | - | 0.509987 |
| 1 | 2 | 52.0 | 14 | 1527.0 | - | 1.330380 |
| 2 | 2 | 88.5 | 14 | 1440.0 | - | 1.554111 |
| 3 | 2 | 91.3 | 12 | 1153.0 | - | 2.352747 |
| 4 | 1 | 88.0 | 12 | - | - | 3.358985 |
| 5 | 2 | 94.4 | 12 | 1784.0 | - | 3.591225 |
| 6 | 2 | 92.5 | 14 | 1471.0 | - | 4.290224 |
| 7 | 1 | 62.3 | 12 | - | - | 5.241661 |
| 8 | 1 | 82.5 | 8 | - | - | 5.823684 |
| 9 | 2 | 74.6 | 8 | 1897.0 | - | 6.486784 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | 1 | 74.6 | 19 | - | - | 7.715051 |
| 11 | 2 | 73.9 | 16 | 1944.0 | - | 8.307832 |
| 12 | 1 | 95.6 | 17 | - | - | 8.473872 |
| 13 | 2 | 55.2 | 12 | 1996.0 | - | 9.302034 |
| 14 | 1 | 54.8 | 12 | - | - | 10.237531 |
| 15 | 1 | 68.4 | 13 | - | - | 10.769350 |
| 16 | 1 | 64.1 | 6 | - | - | 11.908261 |

**Table 27 - Long Sequence Waveform Trial#19 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 89.6 | 8 | 1401.0 | - | 0.463628 |
| 1 | 3 | 71.9 | 20 | 1027.0 | 1696.0 | 1.719093 |
| 2 | 3 | 58.6 | 11 | 1005.0 | 1241.0 | 2.598428 |
| 3 | 1 | 78.5 | 18 | - | - | 4.053683 |
| 4 | 2 | 63.4 | 16 | 1796.0 | - | 5.344095 |
| 5 | 1 | 98.3 | 18 | - | - | 6.032719 |
| 6 | 2 | 86.7 | 5 | 1130.0 | - | 7.621117 |
| 7 | 1 | 55.8 | 16 | - | - | 7.955548 |
| 8 | 2 | 71.0 | 17 | 1724.0 | - | 9.331886 |
| 9 | 1 | 79.0 | 8 | - | - | 10.733136 |
| 10 | 3 | 99.0 | 16 | 1864.0 | 1835.0 | 10.977690 |

**Table 28 - Long Sequence Waveform Trial#20 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 3 | 62.9 | 16 | 1718.0 | 1394.0 | 0.959936 |
| 1 | 1 | 51.4 | 6 | - | - | 1.801091 |
| 2 | 2 | 50.6 | 18 | 1156.0 | - | 2.297406 |
| 3 | 2 | 92.4 | 8 | 1144.0 | - | 3.459935 |
| 4 | 3 | 67.9 | 8 | 1601.0 | 1332.0 | 4.090142 |
| 5 | 3 | 72.7 | 12 | 1776.0 | 1971.0 | 5.309326 |
| 6 | 2 | 67.1 | 7 | 1199.0 | - | 6.618788 |
| 7 | 3 | 85.1 | 7 | 1457.0 | 1584.0 | 7.132334 |
| 8 | 1 | 76.3 | 15 | - | - | 8.402741 |
| 9 | 2 | 72.0 | 5 | 1631.0 | - | 9.724471 |
| 10 | 1 | 91.1 | 12 | - | - | 10.676324 |
| 11 | 2 | 72.7 | 17 | 1858.0 | - | 11.028457 |

**Table 29 - Long Sequence Waveform Trial#21 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 96.9 | 18 | 1641.0 | - | 0.536708 |
| 1 | 1 | 86.3 | 5 | - | - | 1.723836 |
| 2 | 3 | 52.7 | 9 | 1059.0 | 1973.0 | 2.091279 |
| 3 | 2 | 62.0 | 17 | 1750.0 | - | 3.408424 |
| 4 | 3 | 79.9 | 5 | 1509.0 | 1665.0 | 4.077750 |
| 5 | 2 | 76.9 | 10 | 1265.0 | - | 5.249533 |
| 6 | 2 | 88.0 | 9 | 1254.0 | - | 6.575496 |
| 7 | 2 | 83.8 | 11 | 1134.0 | - | 7.188283 |
| 8 | 2 | 78.3 | 19 | 1436.0 | - | 8.245616 |
| 9 | 3 | 93.3 | 8 | 1037.0 | 1680.0 | 9.758419 |
| 10 | 3 | 51.9 | 17 | 1370.0 | 1305.0 | 10.287534 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 11 | 2 | 72.1 | 15 | 1361.0 | - | 11.527879 |

**Table 30 - Long Sequence Waveform Trial#22 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 91.4 | 18 | 1964.0 | - | 1.054406 |
| 1 | 2 | 77.5 | 7 | 1768.0 | - | 1.619038 |
| 2 | 3 | 80.1 | 7 | 1462.0 | 1306.0 | 2.319118 |
| 3 | 2 | 79.1 | 8 | 1101.0 | - | 3.868797 |
| 4 | 3 | 70.3 | 12 | 1918.0 | 1592.0 | 4.421614 |
| 5 | 2 | 58.3 | 9 | 1604.0 | - | 5.871003 |
| 6 | 2 | 82.3 | 17 | 1002.0 | - | 6.848026 |
| 7 | 2 | 64.3 | 20 | 1362.0 | - | 7.670655 |
| 8 | 2 | 86.1 | 6 | 1483.0 | - | 9.515468 |
| 9 | 2 | 87.2 | 11 | 1480.0 | - | 10.665363 |
| 10 | 2 | 50.2 | 6 | 1765.0 | - | 11.778912 |

**Table 31 - Long Sequence Waveform Trial#23 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 86.0 | 19 | 1584.0 | - | 0.529691 |
| 1 | 1 | 87.0 | 11 | - | - | 2.098272 |
| 2 | 2 | 84.5 | 20 | 1495.0 | - | 2.229581 |
| 3 | 3 | 68.1 | 17 | 1434.0 | 1669.0 | 4.323369 |
| 4 | 2 | 63.6 | 8 | 1984.0 | - | 4.436183 |
| 5 | 2 | 90.8 | 18 | 1850.0 | - | 6.318772 |
| 6 | 2 | 87.2 | 6 | 1861.0 | - | 6.596525 |
| 7 | 2 | 65.8 | 6 | 1435.0 | - | 8.713327 |
| 8 | 3 | 55.7 | 12 | 1558.0 | 1753.0 | 9.389646 |
| 9 | 2 | 67.2 | 17 | 1089.0 | - | 10.516070 |
| 10 | 2 | 57.4 | 6 | 1703.0 | - | 11.721066 |

**Table 32 - Long Sequence Waveform Trial#24 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 3 | 51.9 | 13 | 1924.0 | 1055.0 | 0.652683 |
| 1 | 2 | 77.1 | 6 | 1949.0 | - | 1.631145 |
| 2 | 3 | 93.1 | 16 | 1312.0 | 1628.0 | 2.900318 |
| 3 | 2 | 63.2 | 17 | 1967.0 | - | 3.978800 |
| 4 | 2 | 58.8 | 13 | 1433.0 | - | 4.044055 |
| 5 | 2 | 53.1 | 18 | 1645.0 | - | 5.271595 |
| 6 | 2 | 70.4 | 8 | 1264.0 | - | 6.076480 |
| 7 | 1 | 52.1 | 19 | - | - | 7.749220 |
| 8 | 2 | 64.0 | 15 | 1420.0 | - | 8.247750 |
| 9 | 3 | 55.2 | 16 | 1374.0 | 1787.0 | 9.446877 |
| 10 | 3 | 71.1 | 13 | 1214.0 | 1898.0 | 10.564473 |
| 11 | 2 | 75.5 | 9 | 1324.0 | - | 11.911990 |

**Table 33 - Long Sequence Waveform Trial#25 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 93.6 | 17 | 1888.0 | - | 0.581476 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 1 | 97.0 | 6 | - | - | 0.789085 |
| 2 | 2 | 93.7 | 14 | 1182.0 | - | 1.802932 |
| 3 | 2 | 91.4 | 8 | 1731.0 | - | 2.341592 |
| 4 | 2 | 88.7 | 14 | 1209.0 | - | 3.468047 |
| 5 | 1 | 50.1 | 8 | - | - | 3.839984 |
| 6 | 2 | 90.9 | 9 | 1471.0 | - | 4.788048 |
| 7 | 2 | 98.5 | 19 | 1294.0 | - | 5.599246 |
| 8 | 3 | 87.5 | 10 | 1609.0 | 1736.0 | 6.536725 |
| 9 | 3 | 74.4 | 9 | 1699.0 | 1451.0 | 6.751454 |
| 10 | 2 | 52.0 | 10 | 1250.0 | - | 8.020004 |
| 11 | 2 | 77.7 | 6 | 1057.0 | - | 8.391873 |
| 12 | 3 | 53.3 | 19 | 1189.0 | 1244.0 | 9.130284 |
| 13 | 3 | 94.4 | 10 | 1295.0 | 1318.0 | 9.991079 |
| 14 | 2 | 78.1 | 11 | 1949.0 | - | 11.005388 |
| 15 | 1 | 89.3 | 9 | - | - | 11.537330 |

**Table 34 - Long Sequence Waveform Trial#26 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 65.2 | 17 | 1909.0 | - | 0.415628 |
| 1 | 3 | 64.2 | 9 | 1260.0 | 1718.0 | 1.678789 |
| 2 | 1 | 61.5 | 14 | - | - | 2.676409 |
| 3 | 2 | 80.2 | 14 | 1875.0 | - | 4.539675 |
| 4 | 2 | 95.9 | 6 | 1993.0 | - | 5.427981 |
| 5 | 3 | 67.3 | 12 | 1647.0 | 1436.0 | 7.739000 |
| 6 | 2 | 65.9 | 19 | 1580.0 | - | 9.193093 |
| 7 | 2 | 58.9 | 16 | 1690.0 | - | 10.225147 |
| 8 | 2 | 91.9 | 12 | 1820.0 | - | 11.738687 |

**Table 35 - Long Sequence Waveform Trial#27 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 3 | 93.4 | 10 | 1176.0 | 1821.0 | 0.031972 |
| 1 | 3 | 51.0 | 8 | 1642.0 | 1780.0 | 1.564149 |
| 2 | 2 | 99.5 | 7 | 1399.0 | - | 2.098854 |
| 3 | 2 | 71.9 | 16 | 1656.0 | - | 3.228667 |
| 4 | 3 | 78.8 | 17 | 1948.0 | 1650.0 | 4.512667 |
| 5 | 2 | 89.3 | 9 | 1328.0 | - | 5.869288 |
| 6 | 1 | 85.1 | 18 | - | - | 6.530172 |
| 7 | 2 | 89.2 | 11 | 1792.0 | - | 7.934933 |
| 8 | 2 | 67.0 | 9 | 1969.0 | - | 8.281679 |
| 9 | 1 | 99.2 | 7 | - | - | 9.203965 |
| 10 | 3 | 54.6 | 6 | 1719.0 | 1930.0 | 10.244445 |
| 11 | 3 | 52.2 | 9 | 1830.0 | 1531.0 | 11.605753 |

**Table 36 - Long Sequence Waveform Trial#28 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 3 | 95.6 | 13 | 1954.0 | 1563.0 | 0.672070 |
| 1 | 1 | 65.3 | 11 | - | - | 1.000384 |
| 2 | 2 | 98.3 | 18 | 1632.0 | - | 2.562799 |
| 3 | 3 | 96.9 | 16 | 1381.0 | 1130.0 | 3.110196 |
| 4 | 2 | 90.4 | 15 | 1207.0 | - | 4.742811 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5 | 2 | 73.0 | 12 | 1738.0 | - | 5.325671 |
| 6 | 2 | 76.0 | 18 | 1835.0 | - | 6.725026 |
| 7 | 3 | 58.2 | 16 | 1054.0 | 1432.0 | 7.373325 |
| 8 | 3 | 98.1 | 6 | 1447.0 | 1339.0 | 8.425011 |
| 9 | 2 | 66.4 | 10 | 1078.0 | - | 9.104265 |
| 10 | 2 | 58.3 | 9 | 1697.0 | - | 10.519685 |
| 11 | 1 | 57.6 | 17 | - | - | 11.413350 |

**Table 37 - Long Sequence Waveform Trial#29 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 68.2 | 9 | 1129.0 | - | 1.036142 |
| 1 | 1 | 59.9 | 20 | - | - | 2.012582 |
| 2 | 2 | 86.6 | 17 | 1001.0 | - | 3.256988 |
| 3 | 3 | 90.1 | 18 | 1605.0 | 1473.0 | 3.384116 |
| 4 | 3 | 93.9 | 15 | 1356.0 | 1703.0 | 4.815283 |
| 5 | 3 | 56.4 | 10 | 1605.0 | 1956.0 | 6.170200 |
| 6 | 1 | 58.2 | 17 | - | - | 7.607816 |
| 7 | 3 | 73.4 | 10 | 1291.0 | 1983.0 | 7.648299 |
| 8 | 1 | 81.1 | 17 | - | - | 9.365567 |
| 9 | 1 | 66.8 | 16 | - | - | 10.203781 |
| 10 | 2 | 77.0 | 12 | 1848.0 | - | 11.628381 |

**Table 38 - Long Sequence Waveform Trial#30 (Detected)**

| Burst # | # Pulses | Pulse Width (us) | Chirp (MHz) | Interval 1 to 2 (us) | Interval 2 to 3 (us) | Start time (us) |
|---|---|---|---|---|---|---|
| 0 | 2 | 81.0 | 6 | 1372.0 | - | 0.216173 |
| 1 | 2 | 54.2 | 19 | 1041.0 | - | 0.779588 |
| 2 | 3 | 54.5 | 7 | 1247.0 | 1055.0 | 1.779976 |
| 3 | 1 | 87.9 | 13 | - | - | 2.293152 |
| 4 | 2 | 82.4 | 8 | 1790.0 | - | 2.702371 |
| 5 | 3 | 61.8 | 14 | 1843.0 | 1261.0 | 3.171840 |
| 6 | 3 | 88.8 | 12 | 1895.0 | 1635.0 | 4.253456 |
| 7 | 3 | 82.6 | 9 | 1629.0 | 1519.0 | 5.005112 |
| 8 | 2 | 96.5 | 6 | 1126.0 | - | 5.055268 |
| 9 | 3 | 76.1 | 19 | 1060.0 | 1279.0 | 6.104962 |
| 10 | 2 | 55.2 | 9 | 1458.0 | - | 6.834482 |
| 11 | 2 | 64.8 | 5 | 1343.0 | - | 7.470984 |
| 12 | 3 | 68.2 | 16 | 1507.0 | 1778.0 | 7.686137 |
| 13 | 2 | 60.8 | 15 | 1136.0 | - | 8.569350 |
| 14 | 2 | 64.8 | 9 | 1558.0 | - | 9.172351 |
| 15 | 2 | 93.4 | 12 | 1374.0 | - | 10.095601 |
| 16 | 3 | 64.9 | 11 | 1133.0 | 1178.0 | 10.709140 |
| 17 | 3 | 70.1 | 13 | 1607.0 | 1235.0 | 11.324381 |
| 18 | 2 | 55.6 | 18 | 1563.0 | - | 11.823178 |

## *Appendix C Test Data Tables and Plots for Channel Closing*

*FCC PART 15 SUBPART E DATA*

| Waveform Type | Channel Closing Transmission Time [1] | | Channel Move Time | | Result |
|---|---|---|---|---|---|
| | Measured | Limit | Measured | Limit | |
| Radar Type 1 | 0 | 60 ms | 172ms | 10 s | complies |
| Radar Type 5 | 0 | 60 ms | 0ms | 10 s | complies |

**Table 39 FCC Part 15 Subpart E Channel Closing Test Results**

After the final channel closing test the channel was monitored for a further 30 minutes. No transmissions occurred on the channel.

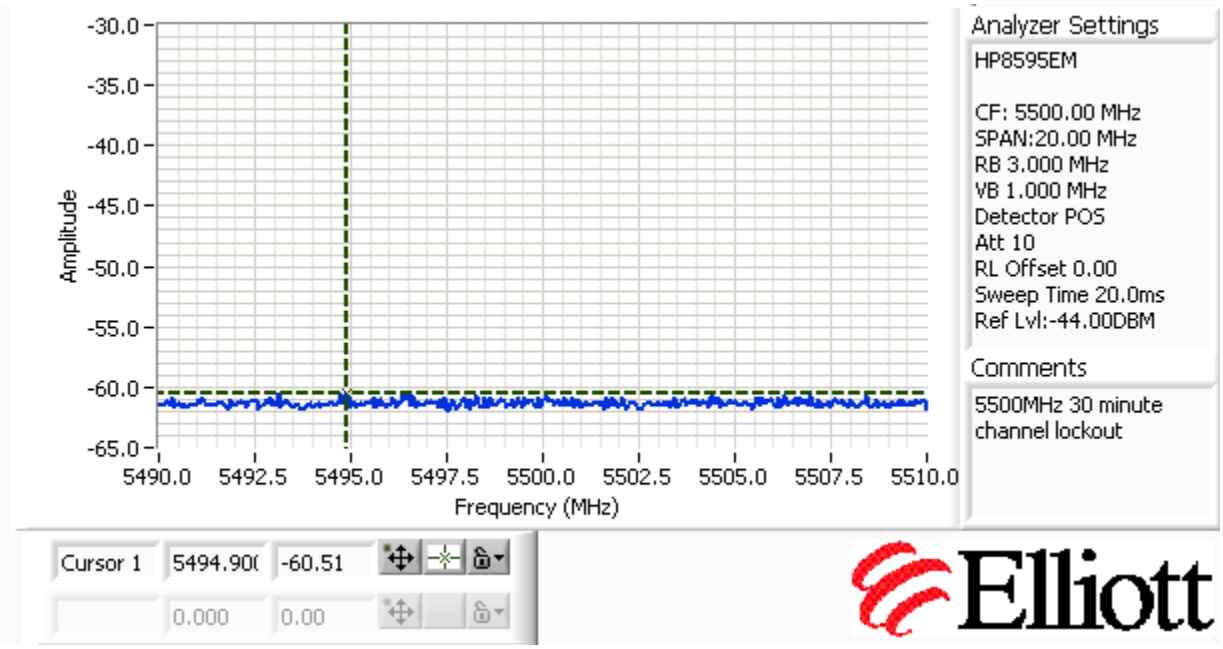


**Figure 3 Thirty-minute non-occupancy observations**

[1] Channel closing time for FCC measurements is the aggregate transmission time starting from 200ms after the end of the radar signal to the completion of the channel move.

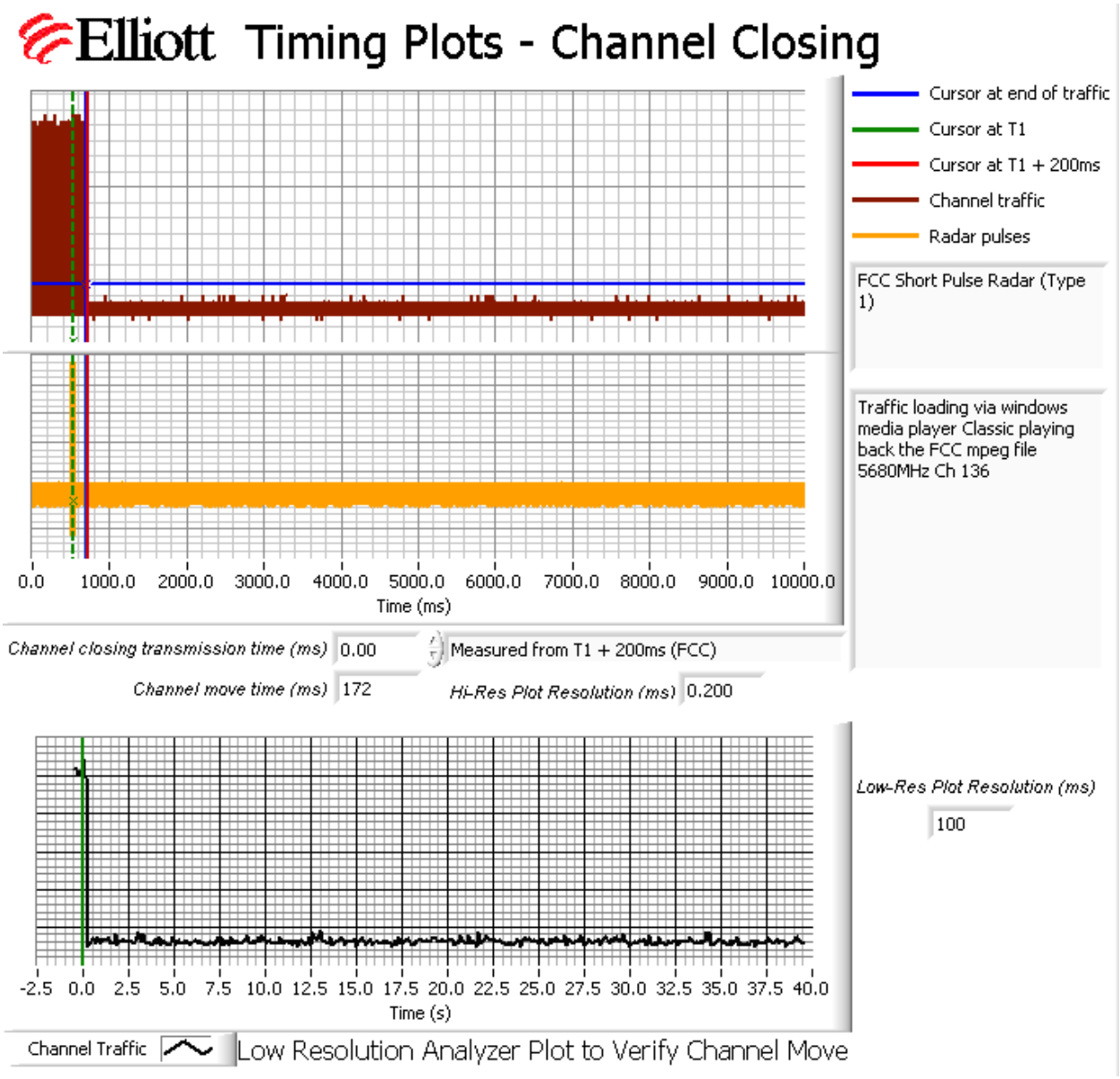


**Figure 4 Short Pulse channel close and move**

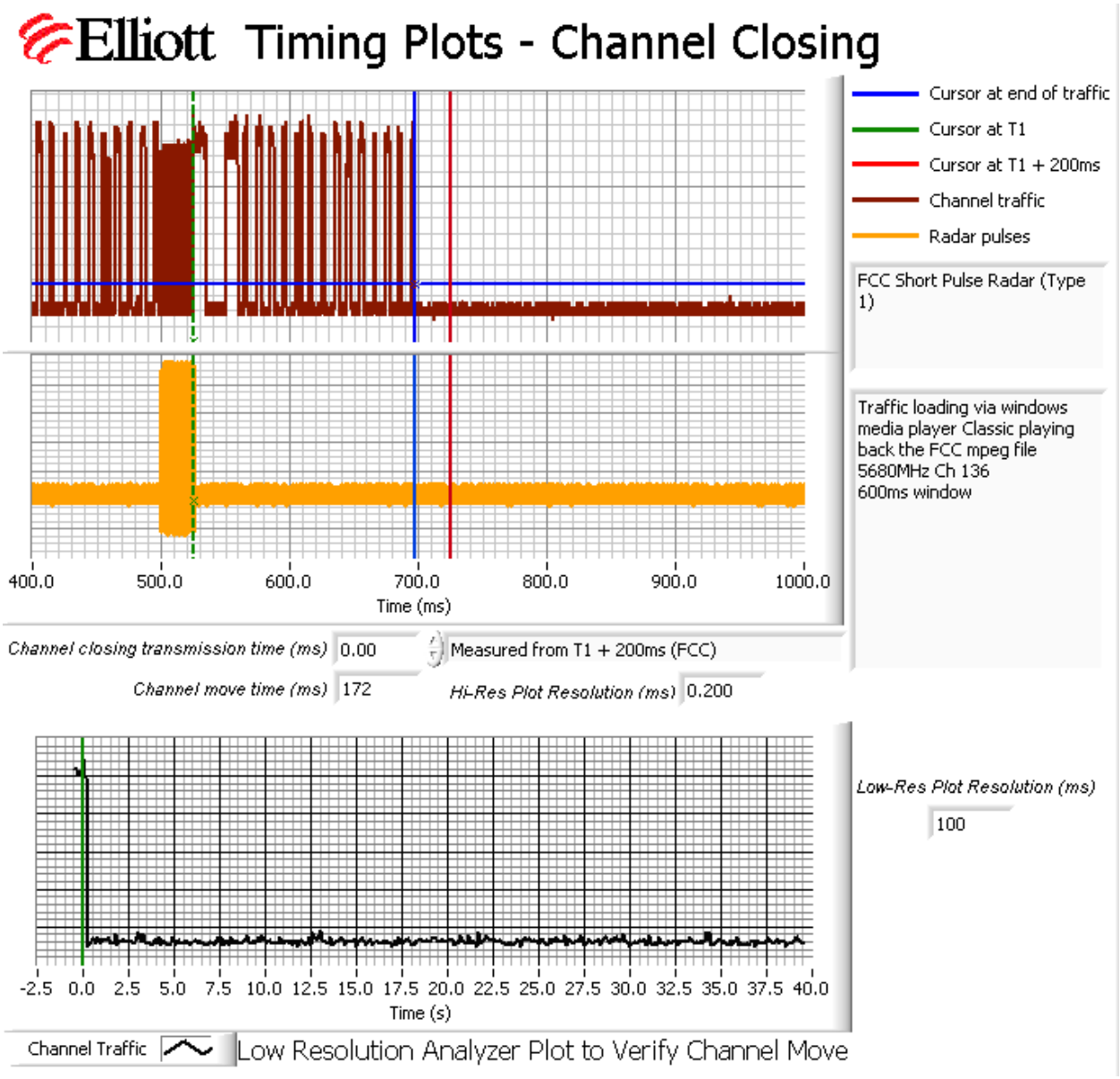


**Figure 5 Short Pulse channel close and move (600ms window)**

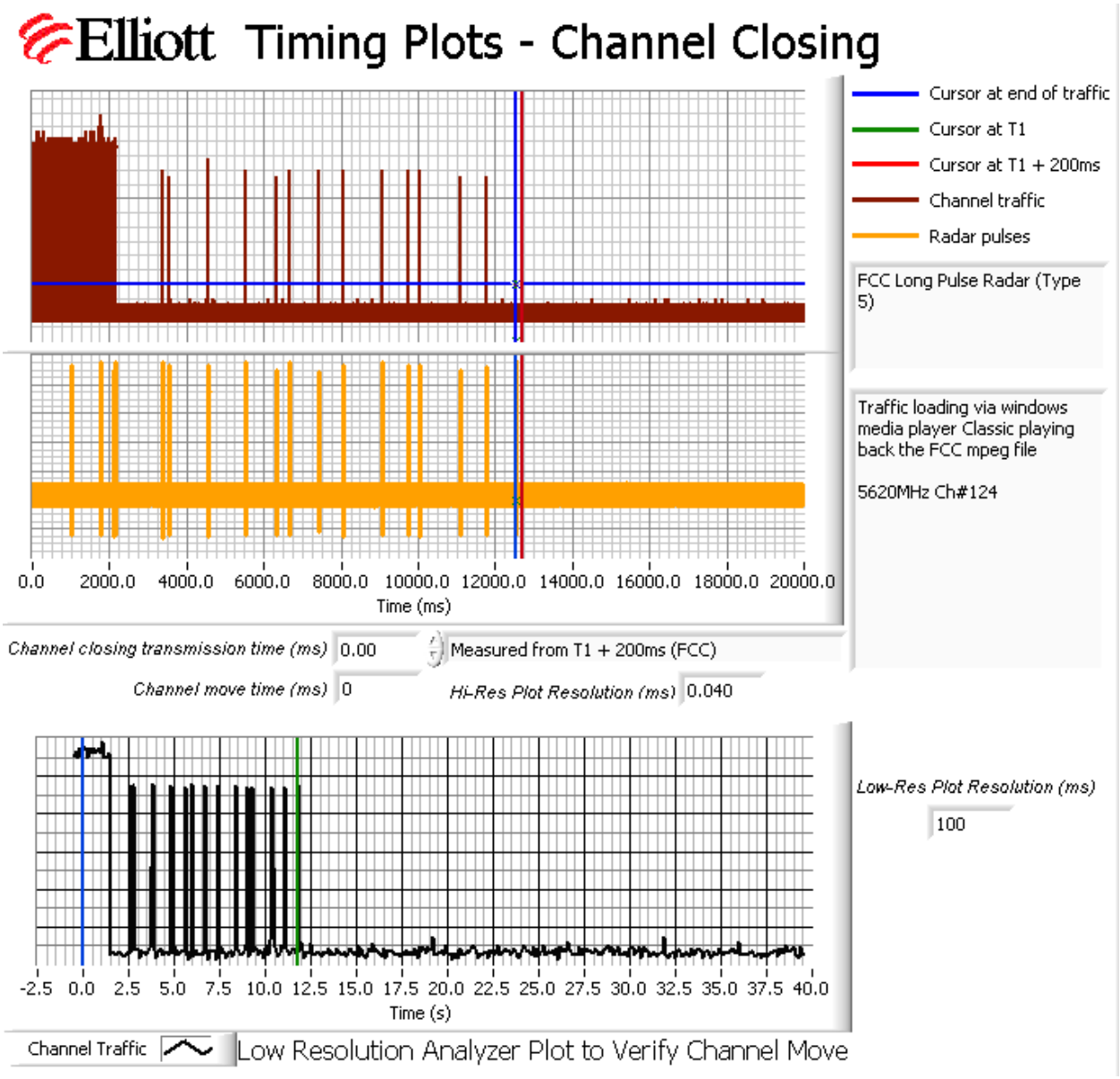


**Figure 6 Long Pulse channel close and move**

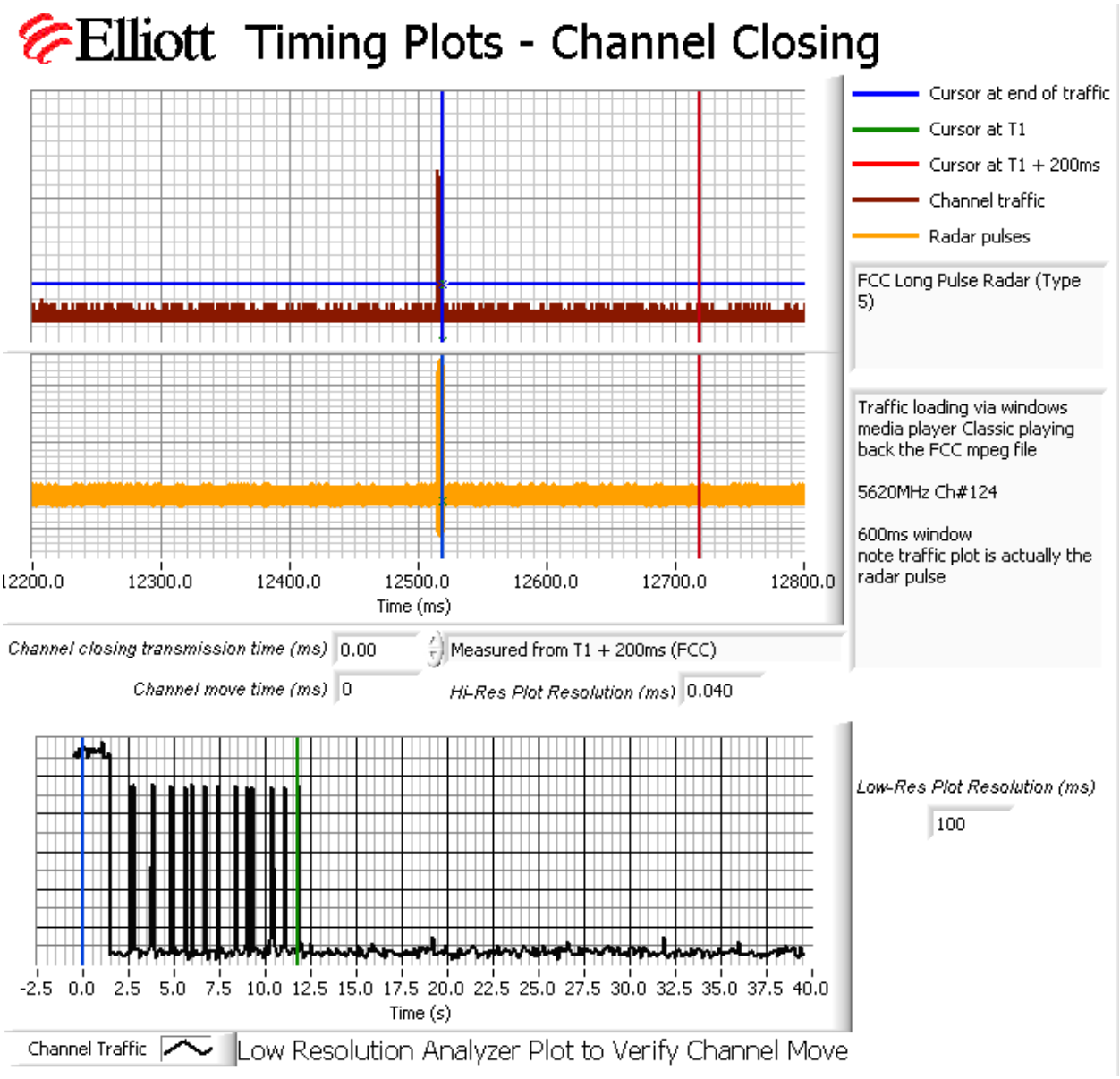


**Figure 7 Long Pulse channel close and move (600ms window)**

## *Appendix D Test Data – Channel Availability Check*

The first plot shows the start of transmissions approximately 62s after the start of the CAC (no radar applied during the CAC).

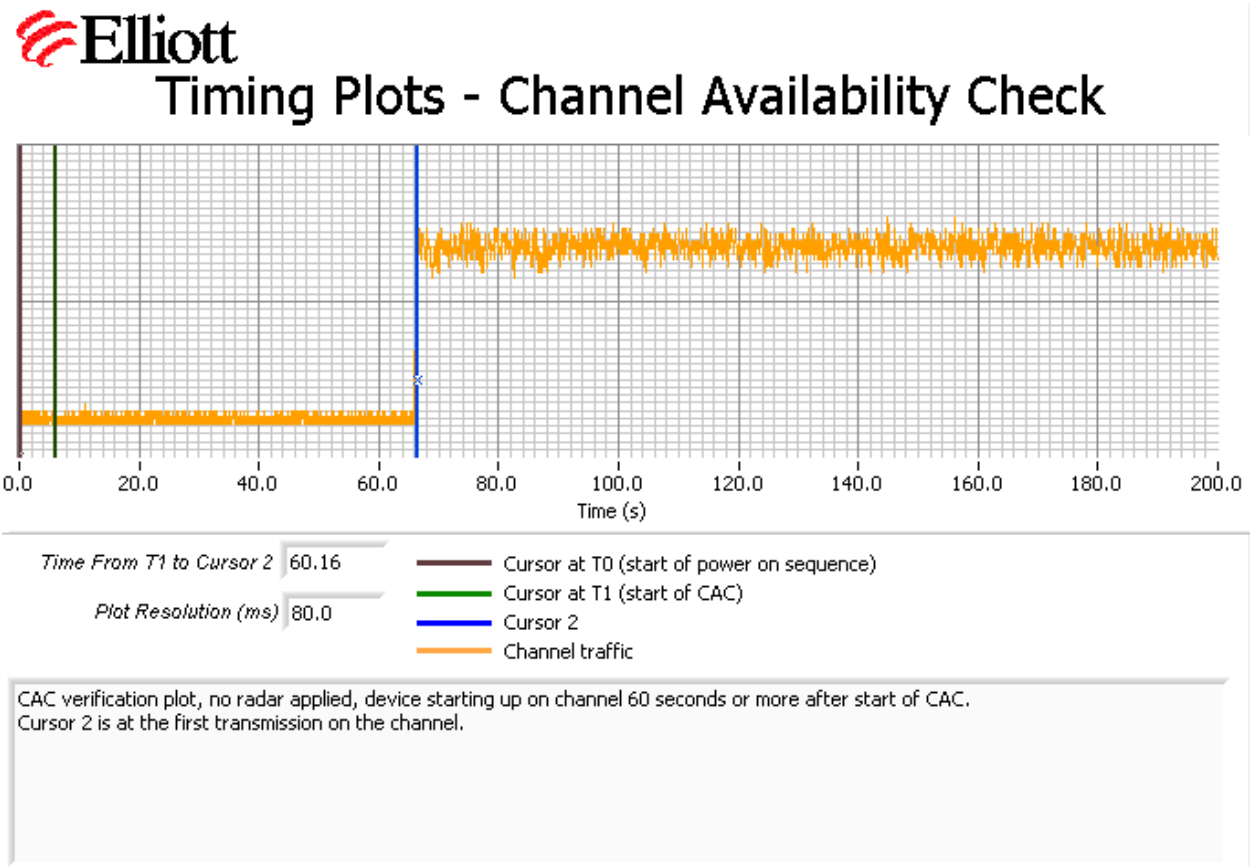


**Figure 8 Plot of EUT Start-Up After CAC**

The channel availability check (CAC) was made by applying type 1 radar during either the first 6 seconds or last 6 seconds of the CAC period.

The level of the radar signal applied was -62dBm. Measurements were made on channel 56 (5280 MHz) and also on channel 124 (5620 MHz).

The start of each plot is the same for each of the plots and is set to coincide with the start of the Channel Availability Check period.

The plots show that there were no transmissions on the channel after the radar burst was applied during the CAC, and confirm that the CAC is at least 60 seconds. The description of "Channel Traffic" in the plot legend indicates the transmissions from both the radar system and the EUT on the start-up channel. In all cases only the radar burst is observed. The resolution of the plot is not fine enough to resolve the individual pulses within the burst.

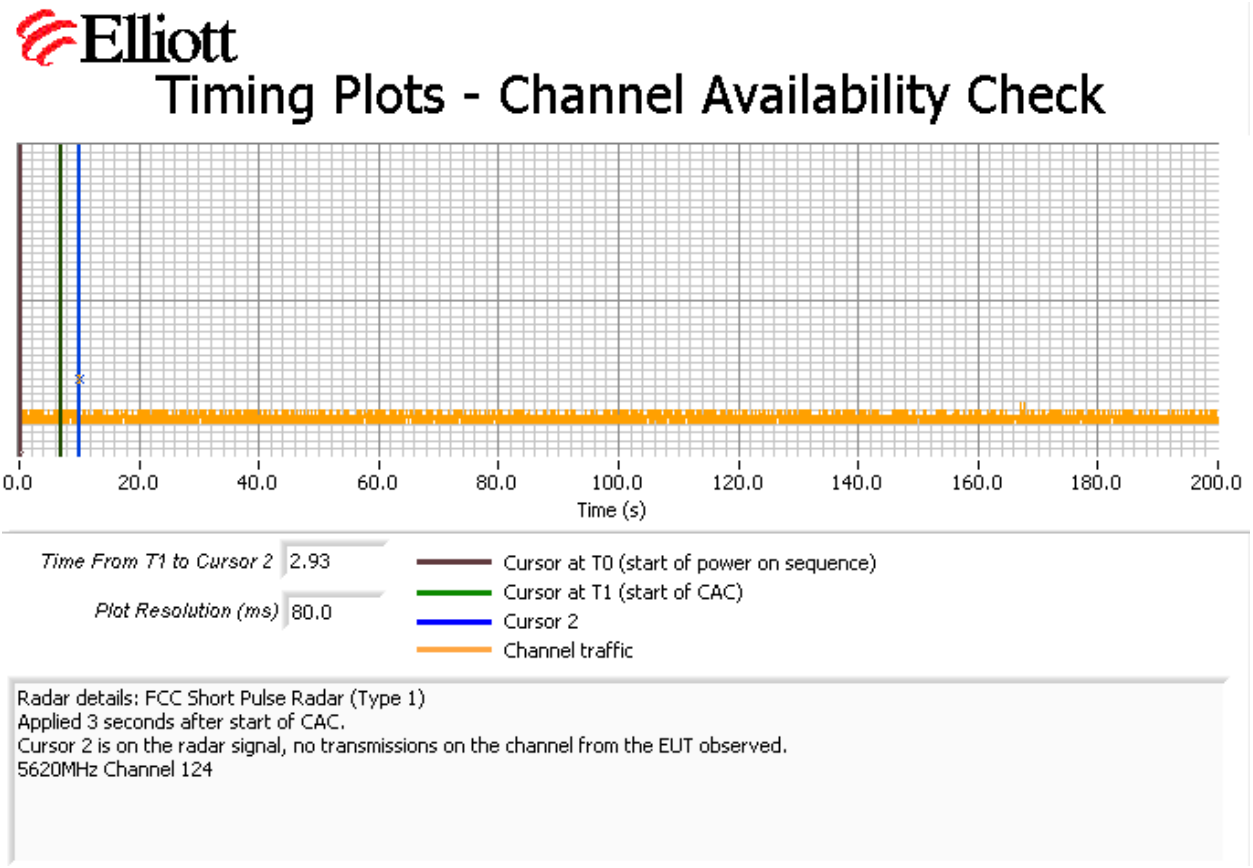


**Figure 9, type 1 radar during the first 6 seconds of the CAC period**

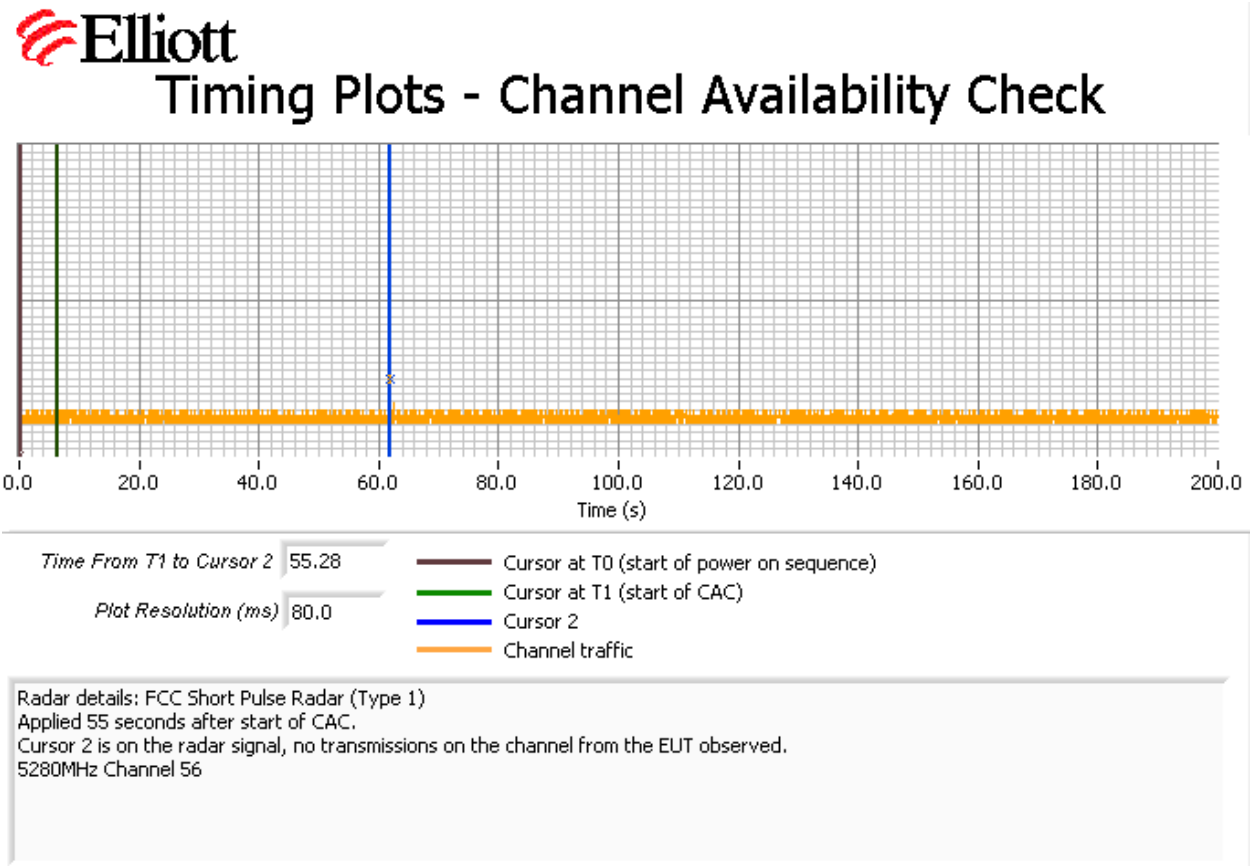


**Figure 10, type 1 radar during the last 6 seconds of the CAC period**

## *Appendix E Test Data – Uniform Loading*

The master device was rebooted 50 times and the start-up channel recorded. The results are shown in the table below.

Number of Channels Available: 15
Theoretical Loading (1/n): 6.67%

| Channel (MHz) | Channel # | Times Selected | Loading |
|---|---|---|---|
| 5260 | 52 | 6 | 12.0% |
| 5280 | 56 | 3 | 6.0% |
| 5300 | 60 | 4 | 8.0% |
| 5320 | 64 | 4 | 8.0% |
| 5500 | 100 | 3 | 6.0% |
| 5520 | 104 | 2 | 4.0% |
| 5540 | 108 | 5 | 10.0% |
| 5560 | 112 | 3 | 6.0% |
| 5580 | 116 | 2 | 4.0% |
| 5600 | 120 | 4 | 8.0% |
| 5620 | 124 | 4 | 8.0% |
| 5640 | 128 | 3 | 6.0% |
| 5660 | 132 | 1 | 2.0% |
| 5680 | 136 | 3 | 6.0% |
| 5700 | 140 | 3 | 6.0% |

Number of Trials: 50

The graph on the next page shows an expected distribution of random channel selection for a number of trials. It was obtained using an Excel algorithm to determine the maximum and minimum number of times any channel was randomly selected. The algorithm determines this based on 100,000 trails for each set of multiple selections.

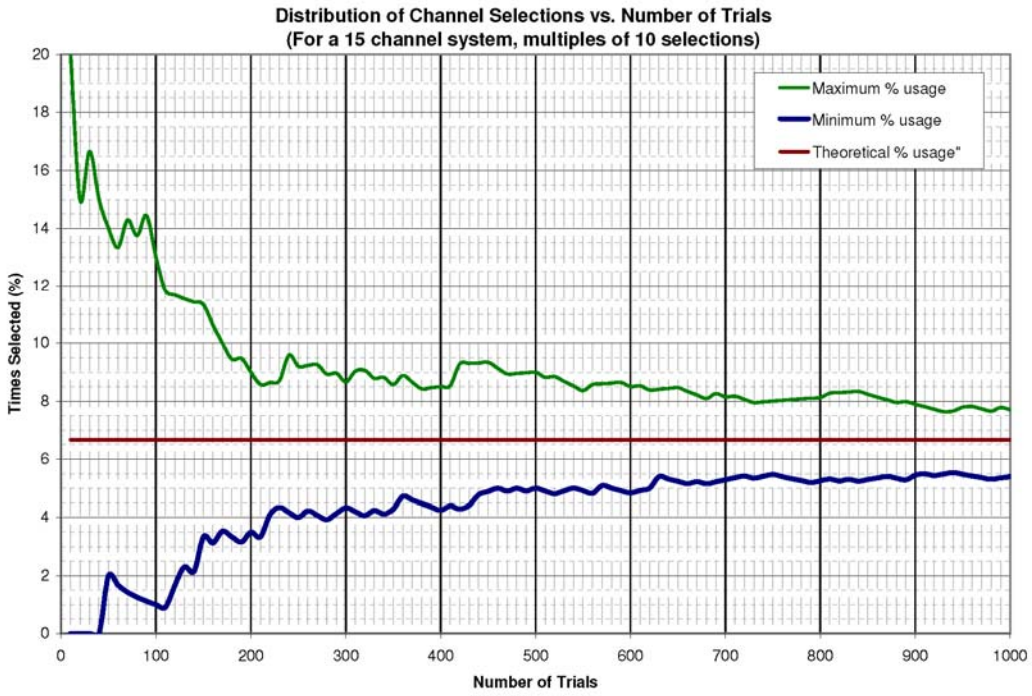


**Figure 11 Expected Loading For a 15 Channel System (1,000 Trials)**

For a trial size of 50, the expected distribution would be that each channel would be selected between 2% and 14% of the total number of trials. As the actual data of each channel being selected (between 2% and 12% of the time), falls within these bounds it is considered that the device is using a random channel selection algorithm that would produce loading within 10% of the theoretical loading (6.67%).

To obtain a reading within 10% of the theoretical loading on all channels could require somewhere in excess of 6000 trials. Refer to the graph below.

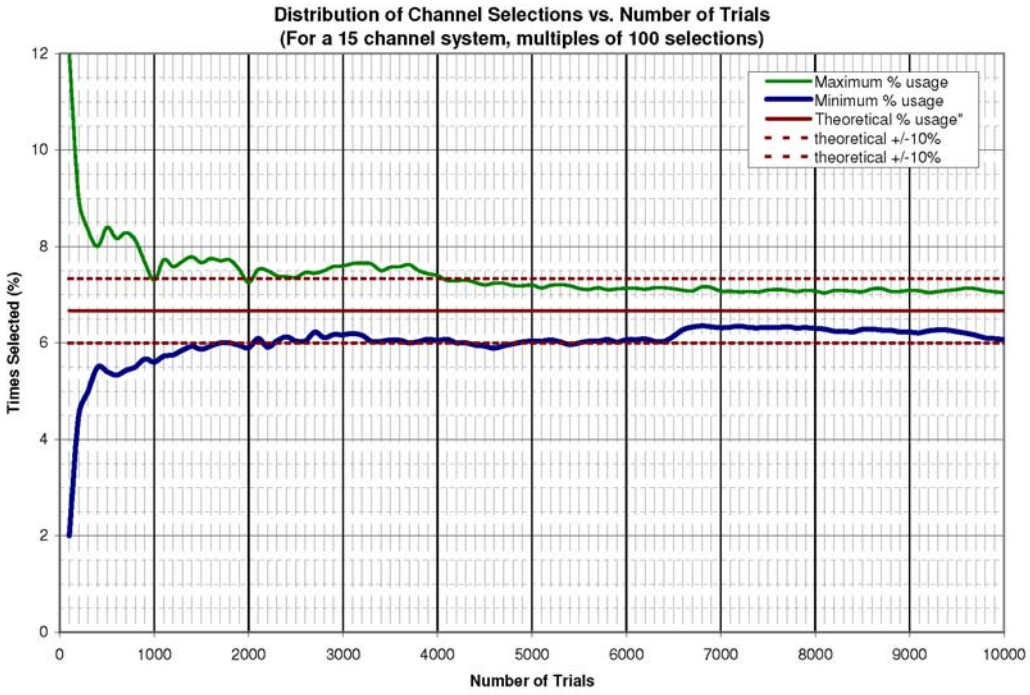


**Figure 12 Expected Loading For a 15 Channel System (10,000 Trials)**

*Appendix F Antenna Specification Sheets*

## MN-ACC-ANTRSOH Dual-band Multi-channel 180o Sector Antenna

### Electrical Specifications

| | | |
|---|---|---|
| Frequency Range | 2.4 – 2.5 GHz | 4.9 – 5.825 GHz |
| Gain | 5.0 dBi | 5.5 dBi |
| Polarization | Linear Polarization | Linear Polarization |
| VSWR | 1.5:1 | 1.5:1 |
| Ant 1 to Ant 2 Isolation | 35 dB | 40 dB |
| Beam Width / Vertical | 60 Degrees | 50 Degrees |
| Impedance | 50 Ohms | 50 Ohms |
| Power Handling | 2 watts | 2 watts |

### Environmental & Mechanical Characteristics

| | |
|---|---|
| Temperature | -10° to +65°C |
| Humidity | 95% @ 40°C |
| Housing Color | Grey |
| Housing Material | ABS |
| Weight | 0.6 lbs |
| Dimensions | 8.2" X 4.1" X 2" |

**Figure 13, 180 degree sector antenna**

## MN-ACC-ANTRSO Dual-band Multi-channel Omni-Directional Antenna

### Electrical Specifications

| | | |
|---|---|---|
| Frequency Range | 2.4 – 2.5 GHz | 4.9 – 5.825 GHz |
| Gain | 4.0 dBi | 4.5 dBi |
| Polarization | Linear Polarization | Linear Polarization |
| VSWR | 1.5:1 | 1.5:1 |
| Ant 1 to Ant 2 Isolation | 35 dB | 40 dB |
| Beam Width / Vertical | 50 Degrees | 60 Degrees |
| Impedance | 50 Ohms | 50 Ohms |
| Power Handling | 2 watts | 2 watts |

### Environmental & Mechanical Characteristics

| | |
|---|---|
| Temperature | -10° to +65°C |
| Humidity | 95% @ 40°C |
| Housing Color | Grey |
| Housing Material | ABS |
| Weight | 0.6 lbs |
| Dimensions | 8.2" X 4.1" X 2" |

**Figure 14, Omni-Directional Antenna**

## *Appendix G Test Configuration Photographs*

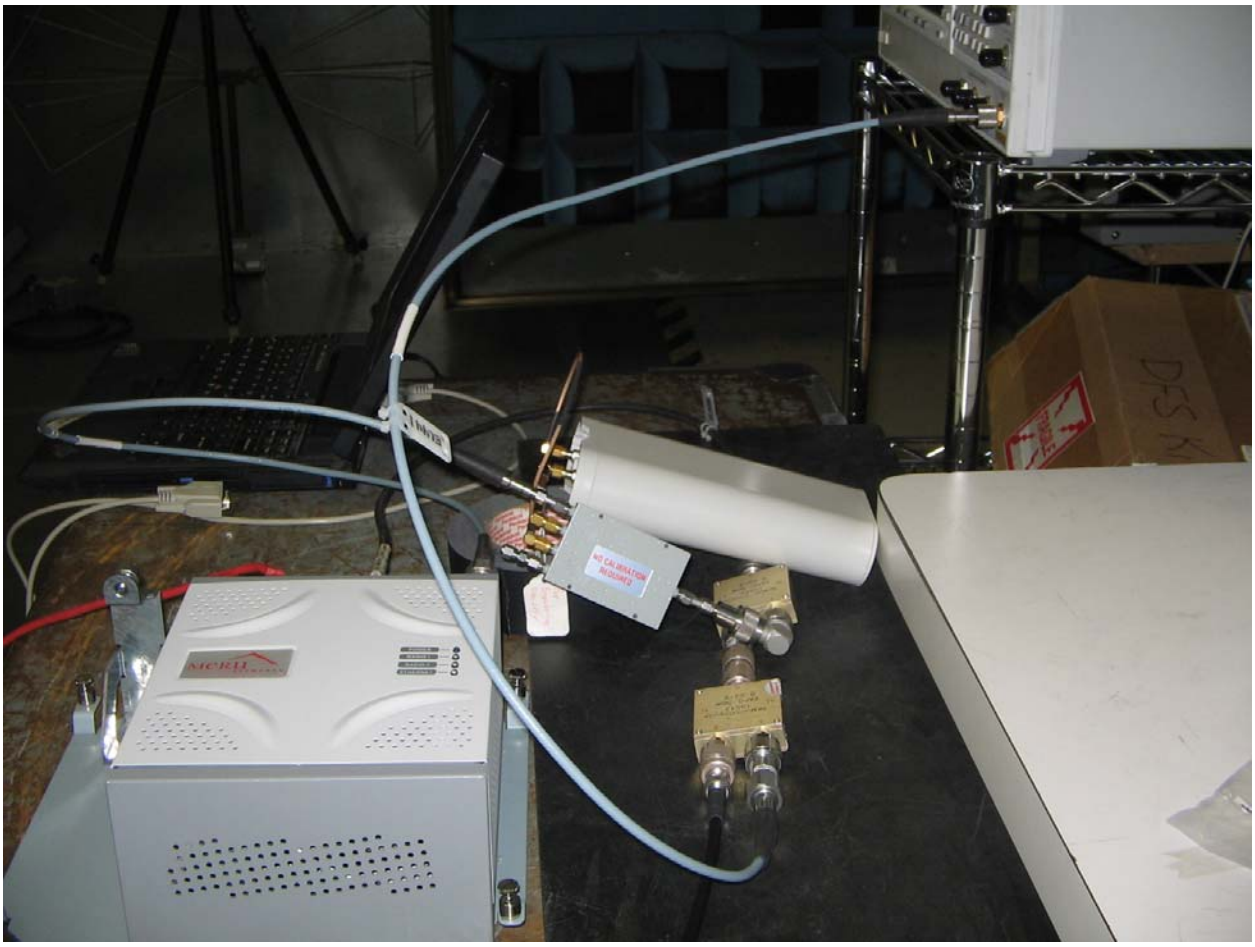

**Figure 15, DFS Master test setup**