

## Appendix D: Dynamic Frequency Selection Radar Test waveform

### Short Pulse Radar Type 1 - 4

Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

#### Short Pulse Radar Test Waveforms

| Radar Type  | Pulse Width (µsec) | PRI (µsec)  | Number of Pulses   | Minimum Percentage of Successful Detection | Minimum Number of Trials |
|---|--------------------|---|--|--|--------------------------|
| 0   | 1                  | 1428  | 18   | See Note 1                                 | See Note 1               |
| 1   | 1                  | Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a   | $\text{Roundup} \left\{ \begin{array}{l} \left( \frac{1}{360} \right) \cdot \\ \left( \frac{19 \cdot 10^6}{\text{PRI}_{\mu\text{sec}}} \right) \end{array} \right\}$ | 60%  | 30                       |
|   |                    | Test B: 15 unique PRI values randomly selected within the range of 518-3066 µsec, with a minimum increment of 1 µsec, excluding PRI values selected in Test A |  |  |                          |
| 2   | 1-5                | 150-230   | 23-29  | 60%  | 30                       |
| 3   | 6-10               | 200-500   | 16-18  | 60%  | 30                       |
| 4   | 11-20              | 200-500   | 12-16  | 60%  | 30                       |
| Aggregate (Radar Types 1-4)   |                    |   |  | 80%  | 120                      |
| <b>Note 1:</b> Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests. |                    |   |  |  |                          |

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms.

**Pulse Repetition Intervals Values for Test A**

| Pulse Repetition Frequency Number | Pulse Repetition Frequency (Pulses Per Second) | Pulse Repetition Interval (Microseconds) |
|-----------------------------------|--|--|
| 1                                 | 1930.5   | 518                                      |
| 2                                 | 1858.7   | 538                                      |
| 3                                 | 1792.1   | 558                                      |
| 4                                 | 1730.1   | 578                                      |
| 5                                 | 1672.2   | 598                                      |
| 6                                 | 1618.1   | 618                                      |
| 7                                 | 1567.4   | 638                                      |
| 8                                 | 1519.8   | 658                                      |
| 9                                 | 1474.9   | 678                                      |
| 10                                | 1432.7   | 698                                      |
| 11                                | 1392.8   | 718                                      |
| 12                                | 1355   | 738                                      |
| 13                                | 1319.3   | 758                                      |
| 14                                | 1285.3   | 778                                      |
| 15                                | 1253.1   | 798                                      |
| 16                                | 1222.5   | 818                                      |
| 17                                | 1193.3   | 838                                      |
| 18                                | 1165.6   | 858                                      |
| 19                                | 1139   | 878                                      |
| 20                                | 1113.6   | 898                                      |
| 21                                | 1089.3   | 918                                      |
| 22                                | 1066.1   | 938                                      |
| 23                                | 326.2  | 3066                                     |

## Long Pulse Radar - Type5

### Long Pulse Radar Test Waveform

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

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the Long Pulse Radar Type waveforms. If more than 30 waveforms are used for the Long Pulse Radar Type waveforms, then each additional waveform must also be unique and not repeated from the previous waveforms.

Each waveform is defined as follows:

- 1) The transmission period for the Long Pulse Radar test signal is 12 seconds.
- 2) There are a total of 8 to 20 Bursts in the 12 second period, with the number of Bursts being randomly chosen. This number is Burst Count.
- 3) Each Burst consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each Burst within the 12 second sequence may have a different number of pulses.
- 4) The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a Burst will have the same pulse width. Pulses in different Bursts may have different pulse widths.
- 5) Each pulse has a linear frequency modulated chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a transmission period will have the same chirp width. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.
- 6) If more than one pulse is present in a Burst, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a Burst, the random time interval between the first and second pulses is chosen independently of the random time interval between the second and third pulses.
- 7) The 12 second transmission period is divided into even intervals. The number of intervals is equal to Burst Count. Each interval is of length  $(12,000,000 / \text{Burst Count})$  microseconds. Each interval contains one Burst. The start time for the Burst, relative to the beginning of the interval, is between 1 and  $[(12,000,000 / \text{Burst Count}) - (\text{Total Burst Length}) + (\text{One Random PRI Interval})]$  microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The start time for each Burst is chosen randomly.

**LPluse\_Radar\_No.01**

| Trial Number:              |                  |                    | 1                 |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 15                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 2                | 77.8               | 13.0              | 1665.0                      | 1477.0                      | 636185                                   |
| 2                          | 1                | 51.9               | 13.0              | 1074.0                      | -                           | 32674                                    |
| 3                          | 1                | 63.8               | 13.0              | 1584.0                      | -                           | 226294                                   |
| 4                          | 3                | 96.6               | 13.0              | 1682.0                      | 1786.0                      | 417976                                   |
| 5                          | 3                | 85.9               | 13.0              | 1795.0                      | 1215.0                      | 611152                                   |
| 6                          | 2                | 73.7               | 13.0              | 1198.0                      | 1549.0                      | 8789                                     |
| 7                          | 2                | 77.2               | 13.0              | 1837.0                      | 1819.0                      | 201917                                   |
| 8                          | 2                | 68.4               | 13.0              | 1587.0                      | 1114.0                      | 395530                                   |
| 9                          | 2                | 76.7               | 13.0              | 2000.0                      | 1155.0                      | 588564                                   |
| 10                         | 1                | 53.2               | 13.0              | 1147.0                      | -                           | 783794                                   |
| 11                         | 3                | 85.7               | 13.0              | 1433.0                      | 1695.0                      | 177933                                   |
| 12                         | 3                | 94.3               | 13.0              | 1670.0                      | 1426.0                      | 370624                                   |
| 13                         | 2                | 77.6               | 13.0              | 1294.0                      | 1671.0                      | 564893                                   |
| 14                         | 1                | 65.7               | 13.0              | 1512.0                      | -                           | 759583                                   |
| 15                         | 3                | 93.5               | 13.0              | 1444.0                      | 1130.0                      | 154262                                   |

**LPluse\_Radar\_No.02**

| Trial Number:              |                  |                    | 2                 |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 8                 |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 2                | 75.0               | 5.0               | 1880.0                      | 1527.0                      | 653020                                   |
| 2                          | 3                | 99.4               | 5.0               | 1401.0                      | 1262.0                      | 1015643                                  |
| 3                          | 2                | 67.4               | 5.0               | 1531.0                      | 1403.0                      | 1379398                                  |
| 4                          | 2                | 73.6               | 5.0               | 1449.0                      | 1041.0                      | 245489                                   |
| 5                          | 1                | 65.9               | 5.0               | 1432.0                      | -                           | 609113                                   |
| 6                          | 3                | 83.8               | 5.0               | 1356.0                      | 1292.0                      | 970852                                   |
| 7                          | 1                | 65.5               | 5.0               | 1543.0                      | -                           | 1335913                                  |
| 8                          | 3                | 98.6               | 5.0               | 1548.0                      | 1796.0                      | 200406                                   |

**LPluse\_Radar\_No.03**

| Trial Number:              |                  |                    | 3                 |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 11                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 2                | 73.8               | 9.0               | 1806.0                      | 1538.0                      | 409565                                   |
| 2                          | 2                | 69.5               | 9.0               | 1117.0                      | 1649.0                      | 673692                                   |
| 3                          | 1                | 51.9               | 9.0               | 1651.0                      | -                           | 938562                                   |
| 4                          | 3                | 84.6               | 9.0               | 1976.0                      | 1032.0                      | 113209                                   |
| 5                          | 3                | 95.4               | 9.0               | 1060.0                      | 1903.0                      | 376726                                   |
| 6                          | 2                | 68.0               | 9.0               | 1368.0                      | 1351.0                      | 641212                                   |
| 7                          | 3                | 89.6               | 9.0               | 1338.0                      | 1514.0                      | 903714                                   |
| 8                          | 2                | 81.9               | 9.0               | 1022.0                      | 1689.0                      | 80863                                    |
| 9                          | 3                | 88.3               | 9.0               | 1810.0                      | 1330.0                      | 344067                                   |
| 10                         | 1                | 53.7               | 9.0               | 1597.0                      | -                           | 609331                                   |
| 11                         | 3                | 91.3               | 9.0               | 1961.0                      | 1106.0                      | 871542                                   |

**LPluse\_Radar\_No.04**

| Trial Number:              |                  |                    | 4                 |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 20                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 2                | 68.1               | 19.0              | 1339.0                      | 1355.0                      | 26541                                    |
| 2                          | 1                | 58.7               | 19.0              | 1251.0                      | -                           | 171821                                   |
| 3                          | 2                | 75.3               | 19.0              | 1136.0                      | 1640.0                      | 316229                                   |
| 4                          | 1                | 56.4               | 19.0              | 1753.0                      | -                           | 461864                                   |
| 5                          | 3                | 99.7               | 19.0              | 1196.0                      | 1708.0                      | 8677                                     |
| 6                          | 1                | 57.7               | 19.0              | 1013.0                      | -                           | 153995                                   |
| 7                          | 1                | 59.5               | 19.0              | 1072.0                      | -                           | 299238                                   |
| 8                          | 2                | 80.0               | 19.0              | 1482.0                      | 1369.0                      | 443177                                   |
| 9                          | 2                | 82.0               | 19.0              | 1993.0                      | 1197.0                      | 587671                                   |
| 10                         | 2                | 82.8               | 19.0              | 1883.0                      | 1005.0                      | 135674                                   |
| 11                         | 3                | 88.0               | 19.0              | 1061.0                      | 1928.0                      | 279928                                   |
| 12                         | 3                | 93.2               | 19.0              | 1207.0                      | 1907.0                      | 424279                                   |
| 13                         | 2                | 70.4               | 19.0              | 1526.0                      | 1360.0                      | 570132                                   |
| 14                         | 3                | 95.3               | 19.0              | 1171.0                      | 1955.0                      | 117439                                   |
| 15                         | 2                | 81.9               | 19.0              | 1690.0                      | 1545.0                      | 262502                                   |
| 16                         | 3                | 98.5               | 19.0              | 1975.0                      | 1169.0                      | 406573                                   |
| 17                         | 1                | 65.0               | 19.0              | 1767.0                      | -                           | 553328                                   |
| 18                         | 3                | 85.4               | 19.0              | 1011.0                      | 1637.0                      | 99799                                    |
| 19                         | 3                | 91.6               | 19.0              | 1878.0                      | 1445.0                      | 244095                                   |
| 20                         | 2                | 67.3               | 19.0              | 1091.0                      | 1218.0                      | 390012                                   |

**LPluse\_Radar\_No.05**

| Trial Number:              |                  |                    | 5                 |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 17                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 2                | 67.9               | 16.0              | 1320.0                      | 1133.0                      | 629614                                   |
| 2                          | 1                | 62.3               | 16.0              | 1957.0                      | -                           | 96856                                    |
| 3                          | 1                | 53.3               | 16.0              | 1592.0                      | -                           | 267719                                   |
| 4                          | 3                | 90.0               | 16.0              | 1900.0                      | 1153.0                      | 436784                                   |
| 5                          | 2                | 77.1               | 16.0              | 1166.0                      | 1646.0                      | 608289                                   |
| 6                          | 3                | 83.9               | 16.0              | 1278.0                      | 1232.0                      | 75610                                    |
| 7                          | 3                | 89.1               | 16.0              | 1240.0                      | 1384.0                      | 245638                                   |
| 8                          | 2                | 81.8               | 16.0              | 1833.0                      | 1676.0                      | 416355                                   |
| 9                          | 1                | 50.3               | 16.0              | 1075.0                      | -                           | 588736                                   |
| 10                         | 3                | 87.1               | 16.0              | 1116.0                      | 1996.0                      | 54571                                    |
| 11                         | 2                | 71.3               | 16.0              | 1225.0                      | 1815.0                      | 225175                                   |
| 12                         | 3                | 97.5               | 16.0              | 1884.0                      | 1465.0                      | 394825                                   |
| 13                         | 3                | 90.6               | 16.0              | 1561.0                      | 1040.0                      | 565361                                   |
| 14                         | 3                | 86.3               | 16.0              | 1596.0                      | 1183.0                      | 33643                                    |
| 15                         | 3                | 97.6               | 16.0              | 1365.0                      | 1073.0                      | 203957                                   |
| 16                         | 3                | 84.7               | 16.0              | 1021.0                      | 1718.0                      | 373812                                   |
| 17                         | 3                | 99.7               | 16.0              | 1150.0                      | 1244.0                      | 544060                                   |

**LPluse\_Radar\_No.06**

| Trial Number:              |                  |                    | 6                 |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 14                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 3                | 92.9               | 12.0              | 1085.0                      | 1564.0                      | 15438                                    |
| 2                          | 2                | 67.7               | 12.0              | 1744.0                      | 1747.0                      | 222486                                   |
| 3                          | 1                | 65.8               | 12.0              | 1092.0                      | -                           | 430731                                   |
| 4                          | 1                | 56.3               | 12.0              | 1851.0                      | -                           | 637784                                   |
| 5                          | 1                | 53.7               | 12.0              | 1727.0                      | -                           | 845342                                   |
| 6                          | 3                | 83.5               | 12.0              | 1679.0                      | 1930.0                      | 196720                                   |
| 7                          | 1                | 65.8               | 12.0              | 1519.0                      | -                           | 404955                                   |
| 8                          | 3                | 85.9               | 12.0              | 1134.0                      | 1034.0                      | 610711                                   |
| 9                          | 2                | 76.3               | 12.0              | 1606.0                      | 1926.0                      | 818057                                   |
| 10                         | 2                | 81.5               | 12.0              | 1891.0                      | 1714.0                      | 171459                                   |
| 11                         | 3                | 89.4               | 12.0              | 1310.0                      | 1594.0                      | 377969                                   |
| 12                         | 1                | 63.4               | 12.0              | 1568.0                      | -                           | 586875                                   |
| 13                         | 2                | 69.6               | 12.0              | 1307.0                      | 1925.0                      | 792834                                   |
| 14                         | 2                | 74.5               | 12.0              | 1264.0                      | 1846.0                      | 146044                                   |



**LPluse\_Radar\_No.07**

| Trial Number:              |                  |                    | 7                 |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 15                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 3                | 96.6               | 13.0              | 1182.0                      | 1609.0                      | 329022                                   |
| 2                          | 3                | 96.7               | 13.0              | 1829.0                      | 1799.0                      | 521718                                   |
| 3                          | 3                | 86.5               | 13.0              | 1923.0                      | 1396.0                      | 714222                                   |
| 4                          | 2                | 73.3               | 13.0              | 1908.0                      | 1318.0                      | 112450                                   |
| 5                          | 1                | 55.8               | 13.0              | 1688.0                      | -                           | 306283                                   |
| 6                          | 1                | 55.4               | 13.0              | 1145.0                      | -                           | 500239                                   |
| 7                          | 3                | 85.3               | 13.0              | 1336.0                      | 1504.0                      | 690932                                   |
| 8                          | 2                | 79.4               | 13.0              | 1344.0                      | 1893.0                      | 88645                                    |
| 9                          | 1                | 65.7               | 13.0              | 1476.0                      | -                           | 282508                                   |
| 10                         | 2                | 68.6               | 13.0              | 1008.0                      | 1028.0                      | 475842                                   |
| 11                         | 2                | 77.7               | 13.0              | 1972.0                      | 1835.0                      | 667887                                   |
| 12                         | 2                | 79.6               | 13.0              | 1882.0                      | 1331.0                      | 64845                                    |
| 13                         | 3                | 94.9               | 13.0              | 1830.0                      | 1070.0                      | 257755                                   |
| 14                         | 1                | 61.4               | 13.0              | 1451.0                      | -                           | 452335                                   |
| 15                         | 3                | 90.6               | 13.0              | 1233.0                      | 1562.0                      | 643395                                   |

**LPluse\_Radar\_No.08**

| Trial Number:              |                  |                    | 8                 |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 12                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 1                | 52.6               | 10.0              | 1210.0                      | -                           | 51446                                    |
| 2                          | 3                | 84.1               | 10.0              | 1314.0                      | 1725.0                      | 292696                                   |
| 3                          | 3                | 97.7               | 10.0              | 1139.0                      | 1868.0                      | 533989                                   |
| 4                          | 3                | 97.3               | 10.0              | 1341.0                      | 1446.0                      | 775564                                   |
| 5                          | 3                | 98.8               | 10.0              | 1544.0                      | 1386.0                      | 21542                                    |
| 6                          | 2                | 72.2               | 10.0              | 1771.0                      | 1184.0                      | 263385                                   |
| 7                          | 2                | 67.6               | 10.0              | 1175.0                      | 1027.0                      | 505581                                   |
| 8                          | 2                | 75.7               | 10.0              | 1026.0                      | 1871.0                      | 747058                                   |
| 9                          | 1                | 60.9               | 10.0              | 1798.0                      | -                           | 989976                                   |
| 10                         | 1                | 64.2               | 10.0              | 1138.0                      | -                           | 234024                                   |
| 11                         | 2                | 78.8               | 10.0              | 1784.0                      | 1604.0                      | 475207                                   |
| 12                         | 3                | 87.5               | 10.0              | 1511.0                      | 1712.0                      | 715825                                   |

**LPluse\_Radar\_No.09**

| Trial Number:              |                  |                    | 9                 |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 14                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 1                | 54.1               | 13.0              | 1415.0                      | -                           | 823112                                   |
| 2                          | 1                | 50.7               | 13.0              | 1221.0                      | -                           | 174965                                   |
| 3                          | 1                | 52.3               | 13.0              | 1974.0                      | -                           | 382216                                   |
| 4                          | 3                | 99.8               | 13.0              | 1558.0                      | 1696.0                      | 587395                                   |
| 5                          | 2                | 68.4               | 13.0              | 1014.0                      | 1099.0                      | 796897                                   |
| 6                          | 2                | 80.8               | 13.0              | 1736.0                      | 1505.0                      | 149042                                   |
| 7                          | 1                | 62.5               | 13.0              | 1778.0                      | -                           | 356750                                   |
| 8                          | 2                | 74.8               | 13.0              | 1149.0                      | 1204.0                      | 563824                                   |
| 9                          | 1                | 50.8               | 13.0              | 1049.0                      | -                           | 772314                                   |
| 10                         | 1                | 54.0               | 13.0              | 1417.0                      | -                           | 123796                                   |
| 11                         | 1                | 63.0               | 13.0              | 1730.0                      | -                           | 331215                                   |
| 12                         | 3                | 91.8               | 13.0              | 1143.0                      | 1270.0                      | 537402                                   |
| 13                         | 2                | 79.3               | 13.0              | 1274.0                      | 1992.0                      | 744805                                   |
| 14                         | 1                | 64.3               | 13.0              | 1937.0                      | -                           | 98172                                    |

**LPluse\_Radar\_No.10**

| Trial Number:              |                  |                    | 10                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 8                 |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 1                | 63.4               | 6.0               | 1415.0                      | 1043.0                      | -  |
| 2                          | 1                | 52.0               | 6.0               | 1221.0                      | 1863.0                      | -  |
| 3                          | 3                | 97.2               | 6.0               | 1974.0                      | 1973.0                      | 1605                                     |
| 4                          | 2                | 78.7               | 6.0               | 1558.0                      | 1466.0                      | 1743                                     |
| 5                          | 2                | 74.2               | 6.0               | 1014.0                      | 1280.0                      | 1219                                     |
| 6                          | 3                | 88.7               | 6.0               | 1736.0                      | 1293.0                      | 1934                                     |
| 7                          | 1                | 54.3               | 6.0               | 1778.0                      | 1991.0                      | -  |
| 8                          | 3                | 95.4               | 6.0               | 1937.0                      | 1580.0                      | 1555                                     |

**LPluse\_Radar\_No.11**

| Trial Number:              |                  |                    | 11                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 17                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 2                | 73.7               | 16.0              | 1208.0                      | 1497.0                      | 209249                                   |
| 2                          | 3                | 97.4               | 16.0              | 1942.0                      | 1754.0                      | 378386                                   |
| 3                          | 3                | 91.7               | 16.0              | 1999.0                      | 1702.0                      | 548411                                   |
| 4                          | 1                | 66.2               | 16.0              | 1393.0                      | -                           | 17733                                    |
| 5                          | 2                | 70.8               | 16.0              | 1968.0                      | 1821.0                      | 187952                                   |
| 6                          | 1                | 52.3               | 16.0              | 1740.0                      | -                           | 359277                                   |
| 7                          | 2                | 78.9               | 16.0              | 1308.0                      | 1984.0                      | 528886                                   |
| 8                          | 2                | 70.9               | 16.0              | 1050.0                      | 1358.0                      | 700166                                   |
| 9                          | 2                | 75.6               | 16.0              | 1437.0                      | 1430.0                      | 167197                                   |
| 10                         | 1                | 59.1               | 16.0              | 1697.0                      | -                           | 338262                                   |
| 11                         | 2                | 77.0               | 16.0              | 1397.0                      | 1304.0                      | 508324                                   |
| 12                         | 2                | 67.9               | 16.0              | 1803.0                      | 1083.0                      | 678689                                   |
| 13                         | 2                | 81.2               | 16.0              | 1720.0                      | 1932.0                      | 146031                                   |
| 14                         | 2                | 78.7               | 16.0              | 1247.0                      | 1121.0                      | 316923                                   |
| 15                         | 1                | 63.3               | 16.0              | 1634.0                      | -                           | 488056                                   |
| 16                         | 2                | 68.9               | 16.0              | 1849.0                      | 1423.0                      | 657326                                   |
| 17                         | 1                | 59.3               | 16.0              | 1093.0                      | -                           | 125509                                   |

**LPluse\_Radar\_No.12**

| Trial Number:              |                  | 12                 |                   |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  | 19                 |                   |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 3                | 98.9               | 19.0              | 1381.0                      | 1680.0                      | 263736                                   |
| 2                          | 2                | 82.3               | 19.0              | 1716.0                      | 1855.0                      | 416459                                   |
| 3                          | 3                | 86.7               | 19.0              | 1211.0                      | 1400.0                      | 567902                                   |
| 4                          | 3                | 89.7               | 19.0              | 1861.0                      | 1068.0                      | 92979                                    |
| 5                          | 3                | 98.6               | 19.0              | 1507.0                      | 1194.0                      | 245155                                   |
| 6                          | 2                | 71.1               | 19.0              | 1921.0                      | 1789.0                      | 397609                                   |
| 7                          | 1                | 55.9               | 19.0              | 1947.0                      | -                           | 551431                                   |
| 8                          | 2                | 67.9               | 19.0              | 1350.0                      | 1372.0                      | 74413                                    |
| 9                          | 3                | 84.4               | 19.0              | 1203.0                      | 1107.0                      | 226559                                   |
| 10                         | 1                | 58.8               | 19.0              | 1715.0                      | -                           | 380056                                   |
| 11                         | 1                | 65.6               | 19.0              | 1017.0                      | -                           | 533408                                   |
| 12                         | 2                | 78.5               | 19.0              | 1911.0                      | 1704.0                      | 55547                                    |
| 13                         | 2                | 82.3               | 19.0              | 1845.0                      | 1686.0                      | 207876                                   |
| 14                         | 3                | 90.1               | 19.0              | 1938.0                      | 1071.0                      | 359771                                   |
| 15                         | 3                | 90.2               | 19.0              | 1989.0                      | 1089.0                      | 511297                                   |
| 16                         | 2                | 83.1               | 19.0              | 1943.0                      | 1406.0                      | 36803                                    |
| 17                         | 1                | 58.8               | 19.0              | 1742.0                      | -                           | 189652                                   |
| 18                         | 2                | 77.0               | 19.0              | 1187.0                      | 1657.0                      | 341809                                   |
| 19                         | 1                | 55.0               | 19.0              | 1012.0                      | -                           | 495737                                   |

**LPluse\_Radar\_No.13**

| Trial Number:              |                  |                    | 13                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 15                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 1                | 58.1               | 13.0              | 1929.0                      | -                           | 22911                                    |
| 2                          | 1                | 52.1               | 13.0              | 1910.0                      | -                           | 216473                                   |
| 3                          | 1                | 59.9               | 13.0              | 1971.0                      | -                           | 410004                                   |
| 4                          | 1                | 60.2               | 13.0              | 1812.0                      | -                           | 603671                                   |
| 5                          | 3                | 95.9               | 13.0              | 1399.0                      | 1906.0                      | 794160                                   |
| 6                          | 2                | 79.9               | 13.0              | 1626.0                      | 1859.0                      | 192251                                   |
| 7                          | 2                | 78.5               | 13.0              | 1238.0                      | 1917.0                      | 385590                                   |
| 8                          | 1                | 53.8               | 13.0              | 1763.0                      | -                           | 579862                                   |
| 9                          | 1                | 64.7               | 13.0              | 1800.0                      | -                           | 773423                                   |
| 10                         | 1                | 61.4               | 13.0              | 1390.0                      | -                           | 168898                                   |
| 11                         | 2                | 83.2               | 13.0              | 1692.0                      | 1858.0                      | 361606                                   |
| 12                         | 3                | 84.7               | 13.0              | 1533.0                      | 1677.0                      | 553866                                   |
| 13                         | 3                | 88.7               | 13.0              | 1703.0                      | 1528.0                      | 747241                                   |

**LPluse\_Radar\_No.14**

| Trial Number:              |                  |                    | 14                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 12                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 2                | 75.3               | 10.0              | 1994.0                      | 1612.0                      | 664275                                   |
| 2                          | 1                | 56.3               | 10.0              | 1456.0                      | -                           | 907886                                   |
| 3                          | 2                | 67.7               | 10.0              | 1617.0                      | 1185.0                      | 151316                                   |
| 4                          | 1                | 55.6               | 10.0              | 1337.0                      | -                           | 393746                                   |
| 5                          | 2                | 75.2               | 10.0              | 1421.0                      | 1267.0                      | 635093                                   |
| 6                          | 2                | 76.3               | 10.0              | 1359.0                      | 1305.0                      | 876993                                   |
| 7                          | 3                | 85.7               | 10.0              | 1547.0                      | 1362.0                      | 121278                                   |
| 8                          | 3                | 98.4               | 10.0              | 1873.0                      | 1550.0                      | 362696                                   |
| 9                          | 3                | 86.4               | 10.0              | 1779.0                      | 1439.0                      | 604342                                   |
| 10                         | 3                | 93.6               | 10.0              | 1059.0                      | 1031.0                      | 846453                                   |
| 11                         | 1                | 63.3               | 10.0              | 1328.0                      | -                           | 91871                                    |
| 12                         | 3                | 92.4               | 10.0              | 1412.0                      | 1673.0                      | 333050                                   |

**LPluse\_Radar\_No.15**

| Trial Number:              |                  | 15                 |                   |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  | 19                 |                   |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 3                | 93.3               | 18.0              | 1983.0                      | 1912.0                      | 361323                                   |
| 2                          | 2                | 69.1               | 18.0              | 1102.0                      | 1794.0                      | 515261                                   |
| 3                          | 3                | 86.9               | 18.0              | 1044.0                      | 1152.0                      | 39025                                    |
| 4                          | 3                | 84.9               | 18.0              | 1894.0                      | 1948.0                      | 190900                                   |
| 5                          | 2                | 72.3               | 18.0              | 1094.0                      | 1916.0                      | 343941                                   |
| 6                          | 1                | 51.7               | 18.0              | 1447.0                      | -                           | 497624                                   |
| 7                          | 1                | 58.3               | 18.0              | 1429.0                      | -                           | 20319                                    |
| 8                          | 1                | 60.8               | 18.0              | 1979.0                      | -                           | 172999                                   |
| 9                          | 1                | 57.1               | 18.0              | 1641.0                      | -                           | 325872                                   |
| 10                         | 3                | 88.9               | 18.0              | 1886.0                      | 1964.0                      | 475841                                   |
| 11                         | 2                | 72.0               | 18.0              | 1909.0                      | 1297.0                      | 1489                                     |
| 12                         | 3                | 90.9               | 18.0              | 1261.0                      | 1566.0                      | 153647                                   |
| 13                         | 1                | 59.8               | 18.0              | 1552.0                      | -                           | 307096                                   |
| 14                         | 2                | 70.0               | 18.0              | 1759.0                      | 1291.0                      | 458804                                   |
| 15                         | 2                | 67.2               | 18.0              | 1625.0                      | 1881.0                      | 610798                                   |
| 16                         | 3                | 91.2               | 18.0              | 1382.0                      | 1832.0                      | 134759                                   |
| 17                         | 1                | 56.5               | 18.0              | 1483.0                      | -                           | 288306                                   |
| 18                         | 1                | 51.2               | 18.0              | 1237.0                      | -                           | 441296                                   |
| 19                         | 2                | 74.1               | 18.0              | 1471.0                      | 1245.0                      | 592780                                   |

**LPluse\_Radar\_No.16**

| Trial Number:              |                  |                    | 16                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 14                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 2                | 76.9               | 12.0              | 1110.0                      | 1140.0                      | 158286                                   |
| 2                          | 1                | 50.2               | 12.0              | 1316.0                      | -                           | 366024                                   |
| 3                          | 1                | 62.9               | 12.0              | 1520.0                      | -                           | 573452                                   |
| 4                          | 1                | 64.7               | 12.0              | 1902.0                      | -                           | 780619                                   |
| 5                          | 3                | 83.8               | 12.0              | 1410.0                      | 1097.0                      | 132455                                   |
| 6                          | 1                | 65.4               | 12.0              | 1944.0                      | -                           | 340207                                   |
| 7                          | 1                | 53.2               | 12.0              | 1024.0                      | -                           | 548208                                   |
| 8                          | 1                | 51.7               | 12.0              | 1603.0                      | -                           | 755333                                   |
| 9                          | 2                | 78.7               | 12.0              | 1804.0                      | 1168.0                      | 107117                                   |
| 10                         | 2                | 72.4               | 12.0              | 1030.0                      | 1343.0                      | 314500                                   |
| 11                         | 1                | 53.8               | 12.0              | 1327.0                      | -                           | 522447                                   |
| 12                         | 2                | 73.6               | 12.0              | 1524.0                      | 1553.0                      | 728517                                   |
| 13                         | 2                | 66.7               | 12.0              | 1722.0                      | 1122.0                      | 81611                                    |
| 14                         | 2                | 82.5               | 12.0              | 1404.0                      | 1019.0                      | 288948                                   |



**LPluse\_Radar\_No.17**

| Trial Number:              |                  | 17                 |                   |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  | 20                 |                   |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 3                | 87.6               | 20.0              | 1565.0                      | 1055.0                      | 345766                                   |
| 2                          | 3                | 85.2               | 20.0              | 1735.0                      | 1541.0                      | 490019                                   |
| 3                          | 3                | 84.8               | 20.0              | 1534.0                      | 1889.0                      | 39073                                    |
| 4                          | 2                | 77.9               | 20.0              | 1749.0                      | 1460.0                      | 183923                                   |
| 5                          | 2                | 76.5               | 20.0              | 1518.0                      | 1485.0                      | 328777                                   |
| 6                          | 1                | 60.9               | 20.0              | 1540.0                      | -                           | 474728                                   |
| 7                          | 2                | 83.0               | 20.0              | 1080.0                      | 1010.0                      | 21394                                    |
| 8                          | 2                | 80.4               | 20.0              | 1824.0                      | 1752.0                      | 165992                                   |
| 9                          | 2                | 67.5               | 20.0              | 1764.0                      | 1181.0                      | 310973                                   |
| 10                         | 1                | 62.1               | 20.0              | 1495.0                      | -                           | 456884                                   |
| 11                         | 3                | 86.4               | 20.0              | 1773.0                      | 1966.0                      | 3515                                     |
| 12                         | 3                | 84.3               | 20.0              | 1593.0                      | 1188.0                      | 147928                                   |
| 13                         | 2                | 76.9               | 20.0              | 1226.0                      | 1537.0                      | 293225                                   |
| 14                         | 3                | 95.8               | 20.0              | 1192.0                      | 1298.0                      | 436922                                   |
| 15                         | 1                | 55.2               | 20.0              | 1644.0                      | -                           | 584015                                   |
| 16                         | 1                | 59.0               | 20.0              | 1402.0                      | -                           | 130832                                   |
| 17                         | 3                | 94.5               | 20.0              | 1296.0                      | 1700.0                      | 274684                                   |
| 18                         | 3                | 91.9               | 20.0              | 1970.0                      | 1978.0                      | 418579                                   |
| 19                         | 3                | 85.2               | 20.0              | 1732.0                      | 1551.0                      | 563464                                   |
| 20                         | 2                | 69.5               | 20.0              | 1038.0                      | 1224.0                      | 112787                                   |

**LPluse\_Radar\_No.18**

| Trial Number:              |                  |                    | 18                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 12                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 3                | 86.4               | 10.0              | 1259.0                      | 1918.0                      | 429224                                   |
| 2                          | 3                | 92.2               | 10.0              | 1598.0                      | 1719.0                      | 670241                                   |
| 3                          | 2                | 80.4               | 10.0              | 1816.0                      | 1899.0                      | 912880                                   |
| 4                          | 1                | 54.3               | 10.0              | 1335.0                      | -                           | 158603                                   |
| 5                          | 1                | 53.1               | 10.0              | 1303.0                      | -                           | 400824                                   |
| 6                          | 2                | 69.4               | 10.0              | 1503.0                      | 1546.0                      | 641915                                   |
| 7                          | 2                | 69.1               | 10.0              | 1279.0                      | 1639.0                      | 883823                                   |
| 8                          | 3                | 100.0              | 10.0              | 1375.0                      | 1438.0                      | 128373                                   |
| 9                          | 2                | 79.6               | 10.0              | 1239.0                      | 1705.0                      | 370379                                   |
| 10                         | 3                | 88.4               | 10.0              | 1374.0                      | 1579.0                      | 611194                                   |
| 11                         | 1                | 53.3               | 10.0              | 1016.0                      | -                           | 855665                                   |
| 12                         | 1                | 65.3               | 10.0              | 1709.0                      | -                           | 98897                                    |

**LPluse\_Radar\_No.19**

| Trial Number:              |                  |                    | 19                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 14                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 1                | 55.3               | 12.0              | 1920.0                      | -                           | 292143                                   |
| 2                          | 1                | 58.3               | 12.0              | 1797.0                      | -                           | 499633                                   |
| 3                          | 2                | 72.3               | 12.0              | 1610.0                      | 1039.0                      | 706377                                   |
| 4                          | 3                | 84.8               | 12.0              | 1131.0                      | 1761.0                      | 58989                                    |
| 5                          | 2                | 82.5               | 12.0              | 1875.0                      | 1431.0                      | 266161                                   |
| 6                          | 1                | 63.3               | 12.0              | 1095.0                      | -                           | 474469                                   |
| 7                          | 2                | 80.0               | 12.0              | 1119.0                      | 1913.0                      | 680544                                   |
| 8                          | 3                | 90.3               | 12.0              | 1660.0                      | 1853.0                      | 33519                                    |
| 9                          | 3                | 91.1               | 12.0              | 1539.0                      | 1783.0                      | 240319                                   |
| 10                         | 3                | 96.6               | 12.0              | 1525.0                      | 1036.0                      | 447400                                   |
| 11                         | 2                | 82.7               | 12.0              | 1710.0                      | 1990.0                      | 654516                                   |
| 12                         | 1                | 50.7               | 12.0              | 1234.0                      | -                           | 8083                                     |
| 13                         | 2                | 78.4               | 12.0              | 1047.0                      | 1109.0                      | 215435                                   |
| 14                         | 3                | 99.5               | 12.0              | 1299.0                      | 1965.0                      | 421325                                   |

**LPluse\_Radar\_No.20**

| Trial Number:              |                  |                    | 20                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 12                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 3                | 88.6               | 10.0              | 1501.0                      | 1067.0                      | 733725                                   |
| 2                          | 1                | 57.4               | 10.0              | 1723.0                      | -                           | 977882                                   |
| 3                          | 3                | 96.6               | 10.0              | 1086.0                      | 1658.0                      | 221197                                   |
| 4                          | 2                | 69.7               | 10.0              | 1751.0                      | 1945.0                      | 462915                                   |
| 5                          | 2                | 77.9               | 10.0              | 1642.0                      | 1317.0                      | 705071                                   |
| 6                          | 1                | 62.0               | 10.0              | 1866.0                      | -                           | 947923                                   |
| 7                          | 3                | 88.4               | 10.0              | 1997.0                      | 1077.0                      | 191373                                   |
| 8                          | 3                | 97.3               | 10.0              | 1790.0                      | 1896.0                      | 432561                                   |
| 9                          | 3                | 96.2               | 10.0              | 1391.0                      | 1787.0                      | 674004                                   |
| 10                         | 3                | 95.4               | 10.0              | 1020.0                      | 1892.0                      | 915842                                   |
| 11                         | 1                | 54.8               | 10.0              | 1084.0                      | -                           | 162176                                   |
| 12                         | 2                | 80.4               | 10.0              | 1850.0                      | 1436.0                      | 403553                                   |

**LPluse\_Radar\_No.21**

| Trial Number:              |                  |                    | 21                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 16                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 2                | 74.7               | 15.0              | 1619.0                      | 1611.0                      | 483470                                   |
| 2                          | 1                | 57.1               | 15.0              | 1560.0                      | -                           | 666072                                   |
| 3                          | 3                | 91.9               | 15.0              | 1392.0                      | 1475.0                      | 98810                                    |
| 4                          | 2                | 83.1               | 15.0              | 1809.0                      | 1772.0                      | 279914                                   |
| 5                          | 1                | 50.7               | 15.0              | 1003.0                      | -                           | 462536                                   |
| 6                          | 2                | 79.2               | 15.0              | 1574.0                      | 1600.0                      | 642324                                   |
| 7                          | 1                | 58.7               | 15.0              | 1186.0                      | -                           | 76831                                    |
| 8                          | 2                | 71.0               | 15.0              | 1521.0                      | 1567.0                      | 257785                                   |
| 9                          | 2                | 79.0               | 15.0              | 1777.0                      | 1960.0                      | 438554                                   |
| 10                         | 2                | 68.5               | 15.0              | 1284.0                      | 1428.0                      | 620397                                   |
| 11                         | 2                | 73.5               | 15.0              | 1904.0                      | 1352.0                      | 54310                                    |
| 12                         | 2                | 70.5               | 15.0              | 1864.0                      | 1115.0                      | 235506                                   |
| 13                         | 2                | 76.6               | 15.0              | 1045.0                      | 1300.0                      | 417036                                   |
| 14                         | 2                | 81.2               | 15.0              | 1160.0                      | 1675.0                      | 597974                                   |
| 15                         | 1                | 61.8               | 15.0              | 1277.0                      | -                           | 32086                                    |
| 16                         | 3                | 94.9               | 15.0              | 1450.0                      | 1206.0                      | 212751                                   |

**LPluse\_Radar\_No.22**

| Trial Number:              |                  |                    | 22                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 12                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 2                | 78.5               | 9.0               | 1653.0                      | 1698.0                      | 526149                                   |
| 2                          | 3                | 89.8               | 9.0               | 1174.0                      | 1962.0                      | 767135                                   |
| 3                          | 1                | 59.4               | 9.0               | 1982.0                      | -                           | 12955                                    |
| 4                          | 2                | 79.6               | 9.0               | 1633.0                      | 1890.0                      | 254612                                   |
| 5                          | 2                | 76.0               | 9.0               | 1112.0                      | 1811.0                      | 496588                                   |
| 6                          | 1                | 53.6               | 9.0               | 1144.0                      | -                           | 739728                                   |
| 7                          | 2                | 80.9               | 9.0               | 1220.0                      | 1053.0                      | 980872                                   |
| 8                          | 1                | 61.6               | 9.0               | 1724.0                      | -                           | 225249                                   |
| 9                          | 1                | 53.4               | 9.0               | 1901.0                      | -                           | 467279                                   |
| 10                         | 1                | 59.9               | 9.0               | 1379.0                      | -                           | 709720                                   |
| 11                         | 1                | 60.4               | 9.0               | 1453.0                      | -                           | 951847                                   |
| 12                         | 3                | 91.4               | 9.0               | 1768.0                      | 1726.0                      | 194839                                   |

**LPluse\_Radar\_No.23**

| Trial Number:              |                  |                    | 23                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 20                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 2                | 77.0               | 20.0              | 1191.0                      | 1363.0                      | 261858                                   |
| 2                          | 1                | 58.1               | 20.0              | 1248.0                      | -                           | 407646                                   |
| 3                          | 1                | 62.1               | 20.0              | 1836.0                      | -                           | 552319                                   |
| 4                          | 2                | 76.9               | 20.0              | 1334.0                      | 1236.0                      | 99107                                    |
| 5                          | 2                | 80.0               | 20.0              | 1914.0                      | 1852.0                      | 243514                                   |
| 6                          | 1                | 52.0               | 20.0              | 1701.0                      | -                           | 389464                                   |
| 7                          | 3                | 88.6               | 20.0              | 1693.0                      | 1995.0                      | 531093                                   |
| 8                          | 2                | 72.9               | 20.0              | 1922.0                      | 1387.0                      | 81159                                    |
| 9                          | 3                | 98.5               | 20.0              | 1839.0                      | 1746.0                      | 225245                                   |
| 10                         | 1                | 57.9               | 20.0              | 1193.0                      | -                           | 371906                                   |
| 11                         | 3                | 95.9               | 20.0              | 1659.0                      | 1870.0                      | 514197                                   |
| 12                         | 1                | 53.5               | 20.0              | 1162.0                      | -                           | 63561                                    |
| 13                         | 3                | 92.0               | 20.0              | 1745.0                      | 1654.0                      | 207510                                   |
| 14                         | 1                | 57.3               | 20.0              | 1834.0                      | -                           | 353638                                   |
| 15                         | 2                | 70.5               | 20.0              | 1684.0                      | 1586.0                      | 497515                                   |
| 16                         | 2                | 70.0               | 20.0              | 1042.0                      | 1664.0                      | 45553                                    |
| 17                         | 3                | 84.0               | 20.0              | 1765.0                      | 1630.0                      | 189821                                   |
| 18                         | 2                | 76.1               | 20.0              | 1557.0                      | 1057.0                      | 335330                                   |
| 19                         | 3                | 93.2               | 20.0              | 1985.0                      | 1018.0                      | 478825                                   |
| 20                         | 3                | 96.8               | 20.0              | 1760.0                      | 1614.0                      | 27594                                    |

**LPluse\_Radar\_No.24**

| Trial Number:              |                  |                    | 24                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 14                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 1                | 50.1               | 12.0              | 1841.0                      | -                           | 247117                                   |
| 2                          | 3                | 93.5               | 12.0              | 1590.0                      | 1081.0                      | 453362                                   |
| 3                          | 2                | 68.8               | 12.0              | 1707.0                      | 1577.0                      | 660875                                   |
| 4                          | 1                | 56.3               | 12.0              | 1056.0                      | -                           | 14140                                    |
| 5                          | 3                | 86.0               | 12.0              | 1953.0                      | 1108.0                      | 220734                                   |
| 6                          | 2                | 75.2               | 12.0              | 1572.0                      | 1536.0                      | 428367                                   |
| 7                          | 1                | 54.4               | 12.0              | 1517.0                      | -                           | 636681                                   |
| 8                          | 2                | 71.1               | 12.0              | 1329.0                      | 1243.0                      | 843157                                   |
| 9                          | 2                | 76.2               | 12.0              | 1940.0                      | 1770.0                      | 195585                                   |
| 10                         | 2                | 80.2               | 12.0              | 1098.0                      | 1209.0                      | 403231                                   |
| 11                         | 2                | 79.7               | 12.0              | 1588.0                      | 1214.0                      | 610202                                   |
| 12                         | 3                | 90.9               | 12.0              | 1615.0                      | 1862.0                      | 815229                                   |
| 13                         | 2                | 68.7               | 12.0              | 1377.0                      | 1441.0                      | 170267                                   |
| 14                         | 2                | 67.4               | 12.0              | 1872.0                      | 1313.0                      | 377306                                   |

**LPluse\_Radar\_No.25**

| Trial Number:              |                  |                    | 25                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 13                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 3                | 94.0               | 11.0              | 1643.0                      | 1748.0                      | 628071                                   |
| 2                          | 2                | 70.8               | 11.0              | 1177.0                      | 1201.0                      | 853391                                   |
| 3                          | 1                | 56.3               | 11.0              | 1006.0                      | -                           | 156223                                   |
| 4                          | 3                | 96.7               | 11.0              | 1230.0                      | 1163.0                      | 378734                                   |
| 5                          | 3                | 90.6               | 11.0              | 1217.0                      | 1582.0                      | 601331                                   |
| 6                          | 2                | 74.5               | 11.0              | 1569.0                      | 1281.0                      | 825462                                   |
| 7                          | 3                | 92.6               | 11.0              | 1065.0                      | 1669.0                      | 128265                                   |
| 8                          | 3                | 89.0               | 11.0              | 1493.0                      | 1135.0                      | 351161                                   |
| 9                          | 3                | 96.5               | 11.0              | 1607.0                      | 1822.0                      | 573425                                   |
| 10                         | 2                | 70.5               | 11.0              | 1141.0                      | 1178.0                      | 798431                                   |
| 11                         | 3                | 94.0               | 11.0              | 1009.0                      | 1629.0                      | 100737                                   |
| 12                         | 1                | 55.8               | 11.0              | 1290.0                      | -                           | 324661                                   |
| 13                         | 3                | 87.7               | 11.0              | 1435.0                      | 1963.0                      | 546278                                   |

**LPluse\_Radar\_No.26**

| Trial Number:              |                  |                    | 26                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 8                 |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 2                | 68.6               | 5.0               | 1306.0                      | 1161.0                      | 1253842                                  |
| 2                          | 2                | 83.1               | 5.0               | 1420.0                      | 1315.0                      | 119486                                   |
| 3                          | 1                | 60.9               | 5.0               | 1687.0                      | -                           | 482958                                   |
| 4                          | 2                | 77.7               | 5.0               | 1776.0                      | 1158.0                      | 845641                                   |
| 5                          | 2                | 77.4               | 5.0               | 1793.0                      | 1510.0                      | 1208428                                  |
| 6                          | 2                | 66.8               | 5.0               | 1576.0                      | 1323.0                      | 74748                                    |
| 7                          | 1                | 63.7               | 5.0               | 1333.0                      | -                           | 438300                                   |
| 8                          | 3                | 91.2               | 5.0               | 1409.0                      | 1681.0                      | 800152                                   |



**LPluse\_Radar\_No.27**

| Trial Number:              |                  |                    | 27                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 17                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 3                | 83.6               | 16.0              | 1632.0                      | 1195.0                      | 545865                                   |
| 2                          | 3                | 89.4               | 16.0              | 1173.0                      | 1627.0                      | 14067                                    |
| 3                          | 1                | 55.8               | 16.0              | 1532.0                      | -                           | 184953                                   |
| 4                          | 3                | 90.9               | 16.0              | 1981.0                      | 1554.0                      | 353759                                   |
| 5                          | 1                | 54.7               | 16.0              | 1825.0                      | -                           | 526388                                   |
| 6                          | 3                | 97.7               | 16.0              | 1734.0                      | 1202.0                      | 694806                                   |
| 7                          | 2                | 67.5               | 16.0              | 1571.0                      | 1434.0                      | 163568                                   |
| 8                          | 3                | 96.7               | 16.0              | 1589.0                      | 1469.0                      | 333410                                   |
| 9                          | 2                | 68.3               | 16.0              | 1750.0                      | 1954.0                      | 504006                                   |
| 10                         | 2                | 78.3               | 16.0              | 1591.0                      | 1082.0                      | 675297                                   |
| 11                         | 1                | 55.0               | 16.0              | 1427.0                      | -                           | 142890                                   |
| 12                         | 3                | 84.9               | 16.0              | 1129.0                      | 1936.0                      | 312479                                   |
| 13                         | 2                | 74.6               | 16.0              | 1959.0                      | 1856.0                      | 482953                                   |
| 14                         | 1                | 63.3               | 16.0              | 1885.0                      | -                           | 655022                                   |
| 15                         | 3                | 99.8               | 16.0              | 1035.0                      | 1515.0                      | 121457                                   |
| 16                         | 1                | 63.6               | 16.0              | 1647.0                      | -                           | 292606                                   |
| 17                         | 3                | 87.3               | 16.0              | 1931.0                      | 1051.0                      | 461322                                   |

**LPluse\_Radar\_No.28**

| Trial Number:              |                  |                    | 28                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 19                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 3                | 85.6               | 19.0              | 1946.0                      | 1078.0                      | 565136                                   |
| 2                          | 2                | 68.6               | 19.0              | 1029.0                      | 1780.0                      | 89970                                    |
| 3                          | 1                | 54.2               | 19.0              | 1111.0                      | -                           | 243121                                   |
| 4                          | 1                | 61.2               | 19.0              | 1104.0                      | -                           | 396034                                   |
| 5                          | 3                | 97.1               | 19.0              | 1157.0                      | 1969.0                      | 546225                                   |
| 6                          | 3                | 98.3               | 19.0              | 1142.0                      | 1699.0                      | 70998                                    |
| 7                          | 1                | 62.4               | 19.0              | 1655.0                      | -                           | 224093                                   |
| 8                          | 2                | 80.2               | 19.0              | 1126.0                      | 1769.0                      | 376127                                   |
| 9                          | 3                | 87.5               | 19.0              | 1216.0                      | 1448.0                      | 527806                                   |
| 10                         | 3                | 85.8               | 19.0              | 1847.0                      | 1348.0                      | 52247                                    |
| 11                         | 3                | 88.1               | 19.0              | 1023.0                      | 1124.0                      | 204582                                   |
| 12                         | 1                | 65.3               | 19.0              | 1848.0                      | -                           | 357941                                   |
| 13                         | 1                | 52.5               | 19.0              | 1470.0                      | -                           | 510977                                   |
| 14                         | 1                | 52.3               | 19.0              | 1312.0                      | -                           | 33698                                    |
| 15                         | 2                | 74.1               | 19.0              | 1915.0                      | 1200.0                      | 186023                                   |
| 16                         | 1                | 54.9               | 19.0              | 1479.0                      | -                           | 339327                                   |
| 17                         | 2                | 76.2               | 19.0              | 1376.0                      | 1502.0                      | 491053                                   |
| 18                         | 1                | 60.4               | 19.0              | 1758.0                      | -                           | 14858                                    |
| 19                         | 2                | 81.5               | 19.0              | 1491.0                      | 1103.0                      | 167387                                   |

**LPluse\_Radar\_No.29**

| Trial Number:              |                  |                    | 29                |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  |                    | 12                |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 1                | 50.5               | 10.0              | 1857.0                      | -                           | 507709                                   |
| 2                          | 1                | 55.7               | 10.0              | 1246.0                      | -                           | 750249                                   |
| 3                          | 3                | 85.8               | 10.0              | 1774.0                      | 1002.0                      | 989003                                   |
| 4                          | 2                | 76.9               | 10.0              | 1125.0                      | 1474.0                      | 235634                                   |
| 5                          | 2                | 75.1               | 10.0              | 1254.0                      | 1052.0                      | 477675                                   |
| 6                          | 3                | 92.3               | 10.0              | 1180.0                      | 1486.0                      | 718312                                   |
| 7                          | 2                | 78.1               | 10.0              | 1301.0                      | 1757.0                      | 960895                                   |
| 8                          | 3                | 92.2               | 10.0              | 1898.0                      | 1252.0                      | 205370                                   |
| 9                          | 3                | 89.0               | 10.0              | 1260.0                      | 1706.0                      | 446940                                   |
| 10                         | 2                | 70.9               | 10.0              | 1578.0                      | 1620.0                      | 689225                                   |
| 11                         | 1                | 63.1               | 10.0              | 1782.0                      | -                           | 932305                                   |
| 12                         | 1                | 55.3               | 10.0              | 1522.0                      | -                           | 176231                                   |

**LPluse\_Radar\_No.30**

| Trial Number:              |                  | 30                 |                   |                             |                             |  |
|----------------------------|------------------|--------------------|-------------------|-----------------------------|-----------------------------|--|
| Number of Bursts in Trial: |                  | 18                 |                   |                             |                             |  |
| Burst                      | Number of Pulses | Pulse Width (µsec) | Chirp Width (MHz) | Pulse 1-to-2 Spacing (µsec) | Pulse 2-to-3 Spacing (µsec) | Starting Location Within Interval (µsec) |
| 1                          | 3                | 83.4               | 17.0              | 1454.0                      | 1205.0                      | 277485                                   |
| 2                          | 3                | 97.3               | 17.0              | 1319.0                      | 1826.0                      | 437880                                   |
| 3                          | 3                | 90.4               | 17.0              | 1079.0                      | 1986.0                      | 598445                                   |
| 4                          | 3                | 91.8               | 17.0              | 1563.0                      | 1151.0                      | 97088                                    |
| 5                          | 3                | 98.2               | 17.0              | 1876.0                      | 1977.0                      | 257251                                   |
| 6                          | 1                | 59.5               | 17.0              | 1952.0                      | -                           | 419893                                   |
| 7                          | 2                | 80.0               | 17.0              | 1253.0                      | 1137.0                      | 580724                                   |
| 8                          | 3                | 86.5               | 17.0              | 1054.0                      | 1128.0                      | 77366                                    |
| 9                          | 3                | 91.1               | 17.0              | 1105.0                      | 1599.0                      | 238032                                   |
| 10                         | 3                | 93.5               | 17.0              | 1867.0                      | 1373.0                      | 398605                                   |
| 11                         | 1                | 60.7               | 17.0              | 1033.0                      | -                           | 562025                                   |
| 12                         | 2                | 67.2               | 17.0              | 1288.0                      | 1405.0                      | 57684                                    |
| 13                         | 1                | 61.8               | 17.0              | 1585.0                      | -                           | 219083                                   |
| 14                         | 2                | 79.4               | 17.0              | 1933.0                      | 1667.0                      | 379234                                   |
| 15                         | 2                | 81.4               | 17.0              | 1096.0                      | 1464.0                      | 540896                                   |
| 16                         | 1                | 65.7               | 17.0              | 1496.0                      | -                           | 37916                                    |
| 17                         | 2                | 76.0               | 17.0              | 1733.0                      | 1255.0                      | 198794                                   |
| 18                         | 2                | 81.0               | 17.0              | 1326.0                      | 1668.0                      | 359754                                   |

## Frequency Hopping Radar - Type6

### Long Pulse Radar Test Waveform

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

For the Frequency Hopping Radar Type, the same Burst parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:

The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724 MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues until all 475 frequencies are chosen for the set. For selection of a random frequency, the frequencies remaining within the group are always treated as equally likely.