

# Frequency Mixer

AMCY-ED12002

## Typical Performance Data

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>IF FIXED<br>@IF(OUT)=138MHz<br>(dB) |       |       |
|---------------------|-------------|--------------------------------------------------------|-------|-------|
|                     |             | @LO (dBm)                                              |       |       |
|                     |             | 0                                                      | +2    | +4    |
| 1670.0              | 1808.0      | 11.63                                                  | 11.05 | 10.80 |
| 1695.0              | 1833.0      | 11.38                                                  | 10.79 | 10.54 |
| 1720.0              | 1858.0      | 11.13                                                  | 10.53 | 10.27 |
| 1745.0              | 1883.0      | 10.68                                                  | 10.12 | 9.89  |
| 1770.0              | 1908.0      | 10.14                                                  | 9.66  | 9.45  |
| 1795.0              | 1933.0      | 9.80                                                   | 9.33  | 9.13  |
| 1820.0              | 1958.0      | 9.61                                                   | 9.15  | 8.95  |
| 1845.0              | 1983.0      | 9.35                                                   | 8.94  | 8.75  |
| 1870.0              | 2008.0      | 9.10                                                   | 8.71  | 8.54  |
| 1895.0              | 2033.0      | 9.00                                                   | 8.60  | 8.42  |
| 1920.0              | 2058.0      | 8.88                                                   | 8.49  | 8.31  |
| 1945.0              | 2083.0      | 8.70                                                   | 8.36  | 8.19  |
| 1970.0              | 2108.0      | 8.66                                                   | 8.34  | 8.18  |
| 1995.0              | 2133.0      | 8.76                                                   | 8.42  | 8.27  |
| 2020.0              | 2158.0      | 8.79                                                   | 8.47  | 8.32  |
| 2045.0              | 2183.0      | 8.76                                                   | 8.47  | 8.33  |
| 2070.0              | 2208.0      | 8.83                                                   | 8.56  | 8.42  |
| 2095.0              | 2233.0      | 8.95                                                   | 8.67  | 8.54  |
| 2120.0              | 2258.0      | 8.93                                                   | 8.68  | 8.56  |
| 2145.0              | 2283.0      | 8.90                                                   | 8.67  | 8.57  |
| 2170.0              | 2308.0      | 8.99                                                   | 8.77  | 8.66  |
| 2195.0              | 2333.0      | 8.99                                                   | 8.76  | 8.67  |
| 2220.0              | 2358.0      | 8.90                                                   | 8.70  | 8.62  |
| 2245.0              | 2383.0      | 8.90                                                   | 8.68  | 8.59  |
| 2270.0              | 2408.0      | 8.91                                                   | 8.65  | 8.54  |
| 2295.0              | 2433.0      | 8.85                                                   | 8.57  | 8.44  |
| 2315.0              | 2453.0      | 8.83                                                   | 8.53  | 8.39  |
| 2340.0              | 2478.0      | 8.95                                                   | 8.62  | 8.46  |
| 2360.0              | 2498.0      | 9.05                                                   | 8.72  | 8.53  |
| 2385.0              | 2523.0      | 9.09                                                   | 8.73  | 8.52  |
| 2405.0              | 2543.0      | 9.12                                                   | 8.75  | 8.53  |
| 2430.0              | 2568.0      | 9.32                                                   | 8.95  | 8.70  |
| 2450.0              | 2588.0      | 9.50                                                   | 9.12  | 8.86  |
| 2475.0              | 2613.0      | 9.65                                                   | 9.25  | 8.99  |
| 2495.0              | 2633.0      | 9.80                                                   | 9.40  | 9.13  |
| 2520.0              | 2658.0      | 10.12                                                  | 9.73  | 9.43  |
| 2540.0              | 2678.0      | 10.37                                                  | 9.96  | 9.66  |
| 2565.0              | 2703.0      | 10.54                                                  | 10.09 | 9.79  |
| 2585.0              | 2723.0      | 10.65                                                  | 10.18 | 9.88  |
| 2610.0              | 2748.0      | 10.96                                                  | 10.45 | 10.11 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | IP3 INPUT<br>(dBm) |       |       |
|---------------------|-------------|--------------------|-------|-------|
|                     |             | @LO (dBm)          |       |       |
|                     |             | 0                  | +2    | +4    |
| 1670.0              | 1808.0      | 21.37              | 22.93 | 24.86 |
| 1695.0              | 1833.0      | 21.14              | 22.34 | 23.17 |
| 1720.0              | 1858.0      | 22.29              | 23.71 | 24.19 |
| 1745.0              | 1883.0      | 24.02              | 25.84 | 26.18 |
| 1770.0              | 1908.0      | 25.82              | 28.36 | 29.01 |
| 1795.0              | 1933.0      | 27.08              | 31.09 | 32.85 |
| 1820.0              | 1958.0      | 27.64              | 32.07 | 34.30 |
| 1845.0              | 1983.0      | 28.17              | 32.98 | 35.46 |
| 1870.0              | 2008.0      | 28.90              | 33.24 | 34.39 |
| 1895.0              | 2033.0      | 29.74              | 36.08 | 40.79 |
| 1920.0              | 2058.0      | 30.47              | 35.24 | 37.12 |
| 1945.0              | 2083.0      | 31.29              | 35.81 | 36.23 |
| 1970.0              | 2108.0      | 33.07              | 34.78 | 33.08 |
| 1995.0              | 2133.0      | 33.92              | 35.41 | 33.77 |
| 2020.0              | 2158.0      | 31.89              | 39.56 | 38.09 |
| 2045.0              | 2183.0      | 28.79              | 31.60 | 33.97 |
| 2070.0              | 2208.0      | 26.50              | 27.80 | 29.27 |
| 2095.0              | 2233.0      | 25.46              | 26.31 | 27.71 |
| 2120.0              | 2258.0      | 24.84              | 25.27 | 26.05 |
| 2145.0              | 2283.0      | 24.64              | 24.88 | 25.34 |
| 2170.0              | 2308.0      | 25.26              | 25.40 | 25.62 |
| 2195.0              | 2333.0      | 26.94              | 27.54 | 28.57 |
| 2220.0              | 2358.0      | 28.42              | 29.32 | 30.53 |
| 2245.0              | 2383.0      | 28.66              | 29.05 | 29.67 |
| 2270.0              | 2408.0      | 29.03              | 29.07 | 29.40 |
| 2295.0              | 2433.0      | 30.89              | 30.39 | 30.55 |
| 2315.0              | 2453.0      | 32.63              | 33.08 | 33.83 |
| 2340.0              | 2478.0      | 33.38              | 38.10 | 40.77 |
| 2360.0              | 2498.0      | 30.40              | 33.24 | 33.27 |
| 2385.0              | 2523.0      | 28.13              | 29.65 | 30.11 |
| 2405.0              | 2543.0      | 27.33              | 28.59 | 28.84 |
| 2430.0              | 2568.0      | 27.29              | 28.29 | 28.32 |
| 2450.0              | 2588.0      | 27.97              | 29.11 | 28.86 |
| 2475.0              | 2613.0      | 28.93              | 30.78 | 30.44 |
| 2495.0              | 2633.0      | 29.70              | 31.71 | 32.34 |
| 2520.0              | 2658.0      | 31.07              | 32.61 | 33.41 |
| 2540.0              | 2678.0      | 31.62              | 33.24 | 32.76 |
| 2565.0              | 2703.0      | 30.87              | 34.55 | 32.74 |
| 2585.0              | 2723.0      | 28.58              | 32.06 | 34.63 |
| 2610.0              | 2748.0      | 26.58              | 28.40 | 30.25 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | COMPRESSION<br>@RF IN=+20dBm<br>(dB) |       |       |
|---------------------|-------------|--------------------------------------|-------|-------|
|                     |             | @LO (dBm)                            |       |       |
|                     |             | 0                                    | +2    | +4    |
| 1670.0              | 1808.0      | -0.22                                | 0.07  | 0.32  |
| 1695.0              | 1833.0      | -0.41                                | -0.16 | 0.06  |
| 1720.0              | 1858.0      | -0.49                                | -0.24 | -0.06 |
| 1745.0              | 1883.0      | -0.40                                | -0.19 | -0.06 |
| 1770.0              | 1908.0      | -0.20                                | -0.05 | 0.03  |
| 1795.0              | 1933.0      | -0.05                                | 0.07  | 0.12  |
| 1820.0              | 1958.0      | 0.03                                 | 0.12  | 0.18  |
| 1845.0              | 1983.0      | 0.12                                 | 0.21  | 0.25  |
| 1870.0              | 2008.0      | 0.23                                 | 0.28  | 0.31  |
| 1895.0              | 2033.0      | 0.25                                 | 0.29  | 0.32  |
| 1920.0              | 2058.0      | 0.27                                 | 0.30  | 0.32  |
| 1945.0              | 2083.0      | 0.39                                 | 0.38  | 0.37  |
| 1970.0              | 2108.0      | 0.41                                 | 0.38  | 0.37  |
| 1995.0              | 2133.0      | 0.36                                 | 0.34  | 0.32  |
| 2020.0              | 2158.0      | 0.38                                 | 0.36  | 0.34  |
| 2045.0              | 2183.0      | 0.34                                 | 0.33  | 0.32  |
| 2070.0              | 2208.0      | 0.32                                 | 0.32  | 0.33  |
| 2095.0              | 2233.0      | 0.31                                 | 0.33  | 0.36  |
| 2120.0              | 2258.0      | 0.33                                 | 0.38  | 0.43  |
| 2145.0              | 2283.0      | 0.38                                 | 0.45  | 0.53  |
| 2170.0              | 2308.0      | 0.31                                 | 0.38  | 0.46  |
| 2195.0              | 2333.0      | 0.30                                 | 0.36  | 0.43  |
| 2220.0              | 2358.0      | 0.39                                 | 0.39  | 0.41  |
| 2245.0              | 2383.0      | 0.38                                 | 0.35  | 0.34  |
| 2270.0              | 2408.0      | 0.38                                 | 0.36  | 0.34  |
| 2295.0              | 2433.0      | 0.40                                 | 0.37  | 0.35  |
| 2315.0              | 2453.0      | 0.37                                 | 0.34  | 0.33  |
| 2340.0              | 2478.0      | 0.36                                 | 0.32  | 0.31  |
| 2360.0              | 2498.0      | 0.29                                 | 0.26  | 0.25  |
| 2385.0              | 2523.0      | 0.24                                 | 0.21  | 0.20  |
| 2405.0              | 2543.0      | 0.27                                 | 0.23  | 0.21  |
| 2430.0              | 2568.0      | 0.37                                 | 0.31  | 0.27  |
| 2450.0              | 2588.0      | 0.35                                 | 0.29  | 0.24  |
| 2475.0              | 2613.0      | 0.33                                 | 0.27  | 0.22  |
| 2495.0              | 2633.0      | 0.45                                 | 0.36  | 0.29  |
| 2520.0              | 2658.0      | 0.44                                 | 0.37  | 0.28  |
| 2540.0              | 2678.0      | 0.39                                 | 0.33  | 0.25  |
| 2565.0              | 2703.0      | 0.33                                 | 0.28  | 0.23  |
| 2585.0              | 2723.0      | 0.46                                 | 0.38  | 0.32  |
| 2610.0              | 2748.0      | 0.43                                 | 0.37  | 0.32  |

REV. X2

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# Frequency Mixer

AMCY-ED12002

## Typical Performance Data

| IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=2140MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=2059.8999MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=2220.1001MHz<br>(dB) |
|----------------------|-------------|----------------------------------------------------------------|----------------------|-------------|---------------------------------------------------------------------|----------------------|-------------|---------------------------------------------------------------------|
|                      |             | @LO (dBm)                                                      |                      |             | @LO (dBm)                                                           |                      |             | @LO (dBm)                                                           |
|                      |             | +2                                                             |                      |             | +2                                                                  |                      |             | +2                                                                  |
| 250.0                | 1890.0      | 10.29                                                          | 10.1                 | 2070.0      | 8.76                                                                | 310.1                | 1910.0      | 10.32                                                               |
| 238.0                | 1902.0      | 10.06                                                          | 30.1                 | 2090.0      | 8.39                                                                | 300.1                | 1920.0      | 10.17                                                               |
| 226.0                | 1914.0      | 9.87                                                           | 50.1                 | 2110.0      | 8.37                                                                | 290.1                | 1930.0      | 10.02                                                               |
| 214.0                | 1926.0      | 9.69                                                           | 70.1                 | 2130.0      | 8.36                                                                | 280.1                | 1940.0      | 9.90                                                                |
| 202.0                | 1938.0      | 9.55                                                           | 90.1                 | 2150.0      | 8.39                                                                | 270.1                | 1950.0      | 9.81                                                                |
| 190.0                | 1950.0      | 9.42                                                           | 110.1                | 2170.0      | 8.44                                                                | 265.1                | 1955.0      | 9.74                                                                |
| 178.0                | 1962.0      | 9.29                                                           | 130.1                | 2190.0      | 8.54                                                                | 255.1                | 1965.0      | 9.65                                                                |
| 166.0                | 1974.0      | 9.15                                                           | 150.1                | 2210.0      | 8.60                                                                | 250.1                | 1970.0      | 9.60                                                                |
| 154.0                | 1986.0      | 9.04                                                           | 170.1                | 2230.0      | 8.69                                                                | 240.1                | 1980.0      | 9.51                                                                |
| 142.0                | 1998.0      | 8.95                                                           | 190.1                | 2250.0      | 8.81                                                                | 235.1                | 1985.0      | 9.46                                                                |
| 130.0                | 2010.0      | 8.87                                                           | 210.1                | 2270.0      | 8.88                                                                | 225.1                | 1995.0      | 9.39                                                                |
| 118.0                | 2022.0      | 8.75                                                           | 230.1                | 2290.0      | 8.94                                                                | 220.1                | 2000.0      | 9.36                                                                |
| 106.0                | 2034.0      | 8.66                                                           | 250.1                | 2310.0      | 9.02                                                                | 210.1                | 2010.0      | 9.24                                                                |
| 94.0                 | 2046.0      | 8.59                                                           | 270.1                | 2330.0      | 9.01                                                                | 205.1                | 2015.0      | 9.20                                                                |
| 82.0                 | 2058.0      | 8.54                                                           | 290.1                | 2350.0      | 9.02                                                                | 195.1                | 2025.0      | 9.12                                                                |
| 70.0                 | 2070.0      | 8.46                                                           | 310.1                | 2370.0      | 8.99                                                                | 190.1                | 2030.0      | 9.08                                                                |
| 58.0                 | 2082.0      | 8.49                                                           | 330.1                | 2390.0      | 8.95                                                                | 180.1                | 2040.0      | 8.98                                                                |
| 46.0                 | 2094.0      | 8.45                                                           | 340.1                | 2400.0      | 8.93                                                                | 175.1                | 2045.0      | 8.94                                                                |
| 34.0                 | 2106.0      | 8.40                                                           | 360.1                | 2420.0      | 8.88                                                                | 165.1                | 2055.0      | 8.86                                                                |
| 22.0                 | 2118.0      | 8.41                                                           | 370.1                | 2430.0      | 8.88                                                                | 160.1                | 2060.0      | 8.84                                                                |
| 10.0                 | 2130.0      | 8.78                                                           | 390.1                | 2450.0      | 8.92                                                                | 150.1                | 2070.0      | 8.77                                                                |
| 23.7                 | 2163.7      | 8.43                                                           | 400.1                | 2460.0      | 8.92                                                                | 145.1                | 2075.0      | 8.77                                                                |
| 51.0                 | 2191.0      | 8.44                                                           | 420.1                | 2480.0      | 8.92                                                                | 135.1                | 2085.0      | 8.71                                                                |
| 78.3                 | 2218.3      | 8.57                                                           | 430.1                | 2490.0      | 8.96                                                                | 130.1                | 2090.0      | 8.69                                                                |
| 105.6                | 2245.6      | 8.60                                                           | 450.1                | 2510.0      | 9.06                                                                | 120.1                | 2100.0      | 8.61                                                                |
| 132.9                | 2272.9      | 8.70                                                           | 460.1                | 2520.0      | 9.10                                                                | 115.1                | 2105.0      | 8.60                                                                |
| 160.2                | 2300.2      | 8.76                                                           | 480.1                | 2540.0      | 9.18                                                                | 105.1                | 2115.0      | 8.57                                                                |
| 187.6                | 2327.6      | 8.82                                                           | 490.1                | 2550.0      | 9.22                                                                | 100.1                | 2120.0      | 8.55                                                                |
| 214.9                | 2354.9      | 8.84                                                           | 510.1                | 2570.0      | 9.34                                                                | 90.1                 | 2130.0      | 8.55                                                                |
| 242.2                | 2382.2      | 8.82                                                           | 520.1                | 2580.0      | 9.37                                                                | 85.1                 | 2135.0      | 8.55                                                                |
| 269.5                | 2409.5      | 8.75                                                           | 540.1                | 2600.0      | 9.44                                                                | 75.1                 | 2145.0      | 8.57                                                                |
| 296.8                | 2436.8      | 8.74                                                           | 550.1                | 2610.0      | 9.55                                                                | 70.1                 | 2150.0      | 8.51                                                                |
| 324.1                | 2464.1      | 8.78                                                           | 570.1                | 2630.0      | 9.72                                                                | 60.1                 | 2160.0      | 8.54                                                                |
| 365.1                | 2505.1      | 8.87                                                           | 580.1                | 2640.0      | 9.80                                                                | 55.1                 | 2165.0      | 8.56                                                                |
| 392.4                | 2532.4      | 8.97                                                           | 600.1                | 2660.0      | 9.95                                                                | 45.1                 | 2175.0      | 8.57                                                                |
| 433.4                | 2573.4      | 9.10                                                           | 610.1                | 2670.0      | 10.03                                                               | 40.1                 | 2180.0      | 8.54                                                                |
| 460.7                | 2600.7      | 9.26                                                           | 630.1                | 2690.0      | 10.09                                                               | 30.1                 | 2190.0      | 8.56                                                                |
| 501.7                | 2641.7      | 9.65                                                           | 640.1                | 2700.0      | 10.16                                                               | 25.1                 | 2195.0      | 8.57                                                                |
| 529.0                | 2669.0      | 9.90                                                           | 660.1                | 2720.0      | 10.30                                                               | 15.1                 | 2205.0      | 8.62                                                                |
| 570.0                | 2710.0      | 10.18                                                          | 670.1                | 2730.0      | 10.37                                                               | 10.1                 | 2210.0      | 8.94                                                                |

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## Typical Performance Data

| LO<br>(MHz) | LO-RF ISOLATION<br>(dB) |       |       | LO-IF ISOLATION<br>(dB) |       |       |
|-------------|-------------------------|-------|-------|-------------------------|-------|-------|
|             | @LO (dBm)               |       |       | @LO (dBm)               |       |       |
|             | 0                       | +2    | +4    | 0                       | +2    | +4    |
| 1808.0      | 17.67                   | 18.75 | 20.08 | 9.68                    | 11.98 | 14.82 |
| 1833.0      | 16.79                   | 18.15 | 19.63 | 10.09                   | 12.41 | 15.08 |
| 1858.0      | 16.54                   | 18.00 | 19.61 | 10.99                   | 13.44 | 15.96 |
| 1883.0      | 16.13                   | 17.37 | 18.80 | 13.25                   | 16.23 | 18.94 |
| 1908.0      | 15.34                   | 16.34 | 17.46 | 17.37                   | 21.37 | 24.18 |
| 1933.0      | 14.82                   | 15.51 | 16.35 | 23.04                   | 25.87 | 25.37 |
| 1958.0      | 14.56                   | 15.13 | 15.84 | 25.16                   | 22.75 | 21.76 |
| 1983.0      | 14.56                   | 15.23 | 16.04 | 23.05                   | 21.05 | 20.78 |
| 2008.0      | 14.49                   | 15.33 | 16.39 | 22.51                   | 21.38 | 21.96 |
| 2033.0      | 15.00                   | 15.99 | 17.23 | 19.60                   | 19.46 | 20.60 |
| 2058.0      | 14.65                   | 15.49 | 16.55 | 17.26                   | 17.63 | 18.92 |
| 2083.0      | 14.02                   | 14.78 | 15.70 | 15.62                   | 16.34 | 17.75 |
| 2108.0      | 13.55                   | 14.20 | 15.07 | 14.57                   | 15.44 | 16.89 |
| 2133.0      | 13.24                   | 13.72 | 14.57 | 13.65                   | 14.54 | 16.02 |
| 2158.0      | 12.85                   | 13.35 | 14.22 | 12.86                   | 13.85 | 15.41 |
| 2183.0      | 12.52                   | 13.15 | 14.07 | 12.38                   | 13.57 | 15.24 |
| 2208.0      | 12.60                   | 13.35 | 14.38 | 12.15                   | 13.49 | 15.30 |
| 2233.0      | 12.77                   | 13.56 | 14.66 | 11.89                   | 13.34 | 15.27 |
| 2258.0      | 12.81                   | 13.69 | 14.82 | 11.45                   | 12.98 | 14.97 |
| 2283.0      | 12.78                   | 13.85 | 15.06 | 10.93                   | 12.48 | 14.49 |
| 2308.0      | 12.78                   | 14.05 | 15.31 | 10.26                   | 11.71 | 13.66 |
| 2333.0      | 13.22                   | 14.86 | 16.41 | 9.51                    | 10.82 | 12.61 |
| 2358.0      | 13.53                   | 15.64 | 17.83 | 8.90                    | 10.06 | 11.63 |
| 2383.0      | 13.62                   | 16.07 | 18.73 | 8.56                    | 9.66  | 11.12 |
| 2408.0      | 13.87                   | 16.43 | 19.28 | 8.35                    | 9.41  | 10.82 |
| 2433.0      | 14.20                   | 16.76 | 19.63 | 8.15                    | 9.25  | 10.58 |
| 2453.0      | 14.09                   | 16.61 | 19.41 | 8.13                    | 9.14  | 10.45 |
| 2478.0      | 14.25                   | 16.75 | 19.46 | 8.26                    | 9.34  | 10.62 |
| 2498.0      | 14.74                   | 17.23 | 19.85 | 8.43                    | 9.53  | 10.80 |
| 2523.0      | 15.32                   | 17.85 | 20.44 | 8.51                    | 9.58  | 10.79 |
| 2543.0      | 15.55                   | 18.12 | 20.74 | 8.56                    | 9.59  | 10.74 |
| 2568.0      | 16.20                   | 18.87 | 21.53 | 8.58                    | 9.56  | 10.63 |
| 2588.0      | 17.32                   | 20.02 | 22.56 | 8.61                    | 9.51  | 10.56 |
| 2613.0      | 18.85                   | 21.41 | 23.56 | 8.64                    | 9.49  | 10.47 |
| 2633.0      | 19.53                   | 21.74 | 23.39 | 8.73                    | 9.52  | 10.43 |
| 2658.0      | 20.21                   | 21.82 | 22.84 | 8.87                    | 9.64  | 10.48 |
| 2678.0      | 20.45                   | 21.56 | 22.35 | 9.20                    | 9.85  | 10.68 |
| 2703.0      | 20.66                   | 21.43 | 22.00 | 9.66                    | 10.22 | 10.99 |
| 2723.0      | 20.54                   | 21.16 | 21.58 | 10.01                   | 10.46 | 11.09 |
| 2748.0      | 20.13                   | 20.64 | 20.98 | 10.45                   | 10.86 | 11.38 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | RF-IF ISOLATION<br>(dB) |       |       |
|---------------------|-------------|-------------------------|-------|-------|
|                     |             | @LO (dBm)               |       |       |
|                     |             | 0                       | +2    | +4    |
| 1670.0              | 1808.0      | 31.95                   | 31.42 | 30.46 |
| 1695.0              | 1833.0      | 30.58                   | 29.86 | 29.29 |
| 1720.0              | 1858.0      | 29.75                   | 28.97 | 28.45 |
| 1745.0              | 1883.0      | 29.04                   | 28.37 | 27.91 |
| 1770.0              | 1908.0      | 28.25                   | 27.61 | 27.20 |
| 1795.0              | 1933.0      | 27.57                   | 27.00 | 26.78 |
| 1820.0              | 1958.0      | 27.86                   | 27.41 | 27.39 |
| 1845.0              | 1983.0      | 28.97                   | 28.64 | 28.78 |
| 1870.0              | 2008.0      | 30.52                   | 30.24 | 30.51 |
| 1895.0              | 2033.0      | 31.88                   | 31.47 | 31.56 |
| 1920.0              | 2058.0      | 34.12                   | 33.47 | 33.29 |
| 1945.0              | 2083.0      | 37.17                   | 36.13 | 35.49 |
| 1970.0              | 2108.0      | 41.12                   | 39.46 | 37.92 |
| 1995.0              | 2133.0      | 45.76                   | 44.51 | 40.85 |
| 2020.0              | 2158.0      | 47.76                   | 54.65 | 42.19 |
| 2045.0              | 2183.0      | 43.29                   | 47.06 | 40.83 |
| 2070.0              | 2208.0      | 39.30                   | 42.60 | 40.21 |
| 2095.0              | 2233.0      | 36.15                   | 39.12 | 38.82 |
| 2120.0              | 2258.0      | 33.57                   | 35.89 | 36.13 |
| 2145.0              | 2283.0      | 31.77                   | 33.70 | 34.21 |
| 2170.0              | 2308.0      | 30.36                   | 32.16 | 32.81 |
| 2195.0              | 2333.0      | 29.33                   | 31.34 | 32.32 |
| 2220.0              | 2358.0      | 28.67                   | 31.05 | 32.94 |
| 2245.0              | 2383.0      | 27.89                   | 30.25 | 32.28 |
| 2270.0              | 2408.0      | 27.09                   | 29.21 | 31.07 |
| 2295.0              | 2433.0      | 26.25                   | 27.97 | 29.60 |
| 2315.0              | 2453.0      | 25.64                   | 27.25 | 28.63 |
| 2340.0              | 2478.0      | 25.08                   | 26.46 | 27.69 |
| 2360.0              | 2498.0      | 24.82                   | 26.02 | 27.19 |
| 2385.0              | 2523.0      | 24.24                   | 25.34 | 26.37 |
| 2405.0              | 2543.0      | 24.00                   | 25.05 | 26.04 |
| 2430.0              | 2568.0      | 23.76                   | 24.67 | 25.59 |
| 2450.0              | 2588.0      | 23.76                   | 24.60 | 25.46 |
| 2475.0              | 2613.0      | 23.55                   | 24.31 | 25.12 |
| 2495.0              | 2633.0      | 23.51                   | 24.23 | 24.94 |
| 2520.0              | 2658.0      | 23.59                   | 24.20 | 24.88 |
| 2540.0              | 2678.0      | 23.59                   | 24.15 | 24.79 |
| 2565.0              | 2703.0      | 23.74                   | 24.23 | 24.77 |
| 2585.0              | 2723.0      | 23.71                   | 24.19 | 24.74 |
| 2610.0              | 2748.0      | 23.94                   | 24.38 | 24.86 |

## Typical Performance Data

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | RF VSWR<br>(:1) |      |      | LO<br>(MHz) | LO VSWR<br>(:1) |      |      | IF<br>(OUT)<br>(MHz) | IF VSWR<br>@LO=2308MHz<br>(:1) |      |      |
|---------------------|-------------|-----------------|------|------|-------------|-----------------|------|------|----------------------|--------------------------------|------|------|
|                     |             | @LO (dBm)       |      |      |             | @LO (dBm)       |      |      |                      | @LO (dBm)                      |      |      |
|                     |             | 0               | +2   | +4   |             | 0               | +2   | +4   |                      | 0                              | +2   | +4   |
| 1670.0              | 1808.0      | 2.13            | 1.95 | 1.83 | 1808.0      | 1.54            | 1.57 | 1.58 | 10.0                 | 1.04                           | 1.03 | 1.04 |
| 1695.0              | 1833.0      | 2.04            | 1.87 | 1.78 | 1833.0      | 1.54            | 1.58 | 1.60 | 70.5                 | 1.22                           | 1.21 | 1.21 |
| 1720.0              | 1858.0      | 1.93            | 1.79 | 1.72 | 1858.0      | 1.56            | 1.60 | 1.63 | 131.1                | 1.41                           | 1.40 | 1.39 |
| 1745.0              | 1883.0      | 1.83            | 1.70 | 1.64 | 1883.0      | 1.57            | 1.61 | 1.65 | 191.6                | 1.62                           | 1.60 | 1.59 |
| 1770.0              | 1908.0      | 1.74            | 1.62 | 1.57 | 1908.0      | 1.57            | 1.61 | 1.65 | 252.1                | 1.84                           | 1.82 | 1.80 |
| 1795.0              | 1933.0      | 1.67            | 1.56 | 1.50 | 1933.0      | 1.57            | 1.60 | 1.64 | 312.7                | 2.03                           | 1.99 | 1.97 |
| 1820.0              | 1958.0      | 1.62            | 1.51 | 1.46 | 1958.0      | 1.56            | 1.59 | 1.62 | 373.2                | 2.20                           | 2.16 | 2.13 |
| 1845.0              | 1983.0      | 1.57            | 1.48 | 1.43 | 1983.0      | 1.54            | 1.56 | 1.60 | 433.7                | 2.34                           | 2.28 | 2.26 |
| 1870.0              | 2008.0      | 1.52            | 1.44 | 1.39 | 2008.0      | 1.52            | 1.53 | 1.56 | 494.2                | 2.42                           | 2.35 | 2.32 |
| 1895.0              | 2033.0      | 1.47            | 1.38 | 1.34 | 2033.0      | 1.49            | 1.49 | 1.52 | 554.8                | 2.44                           | 2.36 | 2.33 |
| 1920.0              | 2058.0      | 1.41            | 1.33 | 1.28 | 2058.0      | 1.46            | 1.45 | 1.47 | 615.3                | 2.45                           | 2.37 | 2.33 |
| 1945.0              | 2083.0      | 1.37            | 1.30 | 1.25 | 2083.0      | 1.42            | 1.41 | 1.41 | 675.8                | 2.41                           | 2.33 | 2.28 |
| 1970.0              | 2108.0      | 1.34            | 1.26 | 1.21 | 2108.0      | 1.38            | 1.36 | 1.35 | 736.4                | 2.33                           | 2.24 | 2.20 |
| 1995.0              | 2133.0      | 1.31            | 1.23 | 1.18 | 2133.0      | 1.34            | 1.32 | 1.30 | 796.9                | 2.21                           | 2.13 | 2.08 |
| 2020.0              | 2158.0      | 1.29            | 1.22 | 1.17 | 2158.0      | 1.31            | 1.28 | 1.27 | 857.4                | 2.02                           | 1.96 | 1.92 |
| 2045.0              | 2183.0      | 1.28            | 1.21 | 1.16 | 2183.0      | 1.28            | 1.25 | 1.24 | 918.0                | 1.74                           | 1.68 | 1.64 |
| 2070.0              | 2208.0      | 1.27            | 1.20 | 1.16 | 2208.0      | 1.25            | 1.23 | 1.22 | 978.5                | 1.53                           | 1.46 | 1.42 |
| 2095.0              | 2233.0      | 1.27            | 1.20 | 1.17 | 2233.0      | 1.21            | 1.20 | 1.20 | 1039.0               | 1.52                           | 1.45 | 1.41 |
| 2120.0              | 2258.0      | 1.28            | 1.23 | 1.19 | 2258.0      | 1.18            | 1.18 | 1.19 | 1099.6               | 1.48                           | 1.42 | 1.39 |
| 2145.0              | 2283.0      | 1.29            | 1.24 | 1.21 | 2283.0      | 1.14            | 1.15 | 1.17 | 1160.1               | 1.41                           | 1.36 | 1.33 |
| 2170.0              | 2308.0      | 1.29            | 1.24 | 1.22 | 2308.0      | 1.10            | 1.12 | 1.15 | 1220.6               | 1.40                           | 1.36 | 1.33 |
| 2195.0              | 2333.0      | 1.29            | 1.25 | 1.23 | 2333.0      | 1.05            | 1.10 | 1.12 | 1281.2               | 1.43                           | 1.39 | 1.38 |
| 2220.0              | 2358.0      | 1.32            | 1.27 | 1.24 | 2358.0      | 1.06            | 1.10 | 1.12 | 1341.7               | 1.48                           | 1.46 | 1.44 |
| 2245.0              | 2383.0      | 1.34            | 1.29 | 1.25 | 2383.0      | 1.11            | 1.15 | 1.16 | 1402.2               | 1.62                           | 1.60 | 1.59 |
| 2270.0              | 2408.0      | 1.37            | 1.32 | 1.29 | 2408.0      | 1.18            | 1.22 | 1.22 | 1462.7               | 1.73                           | 1.71 | 1.70 |
| 2295.0              | 2433.0      | 1.42            | 1.38 | 1.35 | 2433.0      | 1.26            | 1.30 | 1.31 | 1523.3               | 1.84                           | 1.83 | 1.82 |
| 2315.0              | 2453.0      | 1.48            | 1.43 | 1.40 | 2453.0      | 1.32            | 1.37 | 1.38 | 1583.8               | 1.96                           | 1.95 | 1.94 |
| 2340.0              | 2478.0      | 1.55            | 1.50 | 1.47 | 2478.0      | 1.40            | 1.45 | 1.46 | 1644.3               | 2.07                           | 2.05 | 2.04 |
| 2360.0              | 2498.0      | 1.61            | 1.57 | 1.54 | 2498.0      | 1.47            | 1.51 | 1.52 | 1704.9               | 2.14                           | 2.13 | 2.12 |
| 2385.0              | 2523.0      | 1.71            | 1.66 | 1.63 | 2523.0      | 1.55            | 1.59 | 1.60 | 1765.4               | 2.15                           | 2.13 | 2.11 |
| 2405.0              | 2543.0      | 1.78            | 1.73 | 1.69 | 2543.0      | 1.61            | 1.65 | 1.66 | 1825.9               | 2.07                           | 2.04 | 2.03 |
| 2430.0              | 2568.0      | 1.86            | 1.81 | 1.77 | 2568.0      | 1.69            | 1.72 | 1.72 | 1886.5               | 2.03                           | 2.01 | 2.01 |
| 2450.0              | 2588.0      | 1.92            | 1.87 | 1.83 | 2588.0      | 1.75            | 1.77 | 1.77 | 1926.8               | 2.08                           | 2.07 | 2.07 |
| 2475.0              | 2613.0      | 2.01            | 1.96 | 1.92 | 2613.0      | 1.82            | 1.85 | 1.83 | 1987.3               | 2.06                           | 2.05 | 2.05 |
| 2495.0              | 2633.0      | 2.09            | 2.04 | 1.99 | 2633.0      | 1.88            | 1.90 | 1.88 | 2027.7               | 2.02                           | 2.02 | 2.02 |
| 2520.0              | 2658.0      | 2.17            | 2.12 | 2.07 | 2658.0      | 1.96            | 1.97 | 1.95 | 2088.2               | 1.93                           | 1.93 | 1.94 |
| 2540.0              | 2678.0      | 2.24            | 2.19 | 2.15 | 2678.0      | 2.02            | 2.03 | 1.99 | 2128.6               | 1.86                           | 1.87 | 1.88 |
| 2565.0              | 2703.0      | 2.36            | 2.31 | 2.26 | 2703.0      | 2.09            | 2.08 | 2.04 | 2189.1               | 1.81                           | 1.83 | 1.84 |
| 2585.0              | 2723.0      | 2.46            | 2.40 | 2.35 | 2723.0      | 2.15            | 2.14 | 2.09 | 2229.5               | 1.81                           | 1.82 | 1.83 |
| 2610.0              | 2748.0      | 2.56            | 2.50 | 2.45 | 2748.0      | 2.23            | 2.20 | 2.14 | 2290.0               | 1.87                           | 1.89 | 1.90 |

## Harmonics Tables

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0  | -      | -      | 2   | 8   | 23  | 36  | 27  | 38  | 37  | 44  | 54  | 55  |
| 1  | -      | 22     | +0  | 18  | 28  | 40  | 45  | 53  | 46  | 56  | 56  | 69  |
| 2  | 58     | 48     | 60  | 42  | 53  | 64  | 63  | 61  | 64  | 71  | 75  | 70  |
| 3  | >90    | >82    | 68  | 63  | 59  | 74  | 75  | >82 | >82 | >82 | >82 | >82 |
| 4  | >90    | >82    | >82 | >82 | >82 | 73  | >82 | >82 | >82 | >82 | >82 | >82 |
| 5  | >90    | >82    | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 |
| 6  | >90    | >82    | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 |
| 7  | >90    | >82    | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 |
| 8  | >90    | >82    | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 |
| 9  | >90    | >82    | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 |
| 10 | >90    | >82    | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 | >82 |
|    | RF CAL | 0      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |

### LO HARMONICS ORDER

Test conditions:

RF IN: 2140 MHz; 0.00 dBm.  
LO IN: 2278 MHz; +2.00 dBm  
IF OUT: 138 MHz; -8.37 dBm

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0  | -      | -      | 12  | 18  | 34  | 50  | 40  | 49  | 46  | 60  | 67  | 67  |
| 1  | -      | 21     | +0  | 18  | 28  | 40  | 46  | 47  | 48  | 61  | 64  | 75  |
| 2  | 37     | 38     | 47  | 31  | 43  | 53  | 53  | 53  | 54  | 62  | 65  | 71  |
| 3  | 67     | 68     | 49  | 46  | 38  | 58  | 55  | 63  | 79  | 68  | 62  | 76  |
| 4  | >90    | 78     | 81  | 70  | 66  | 54  | 73  | 69  | 84  | 73  | 71  | 72  |
| 5  | >90    | 91     | 79  | >92 | 73  | 75  | 70  | 81  | >92 | 79  | 81  | 87  |
| 6  | >90    | >92    | >92 | 83  | 89  | 78  | 74  | 65  | 83  | 84  | 91  | 89  |
| 7  | >90    | >92    | >92 | 85  | 91  | >92 | 89  | 75  | 74  | >92 | >92 | >92 |
| 8  | >90    | >92    | >92 | >92 | >92 | >92 | >92 | 89  | 83  | 74  | >92 | >92 |
| 9  | >90    | >92    | >92 | >92 | >92 | >92 | >92 | >92 | >92 | 82  | 85  | >92 |
| 10 | >90    | >92    | >92 | >92 | >92 | >92 | >92 | >92 | >92 | >92 | 90  | 88  |
|    | RF CAL | 0      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |

### LO HARMONICS ORDER

Test conditions:

RF IN: 2140 MHz; 10.00 dBm.  
LO IN: 2278 MHz; +2.00 dBm  
IF OUT: 138 MHz; 1.54 dBm

- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.  
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.  
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.